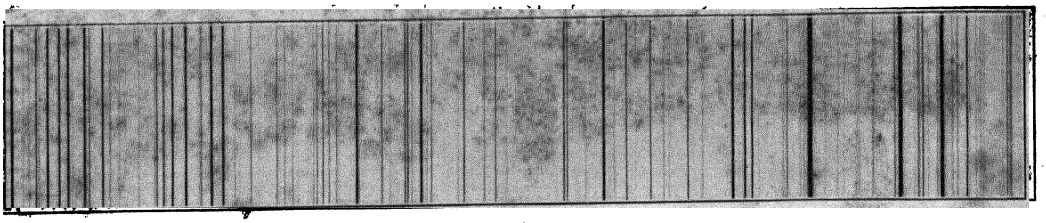
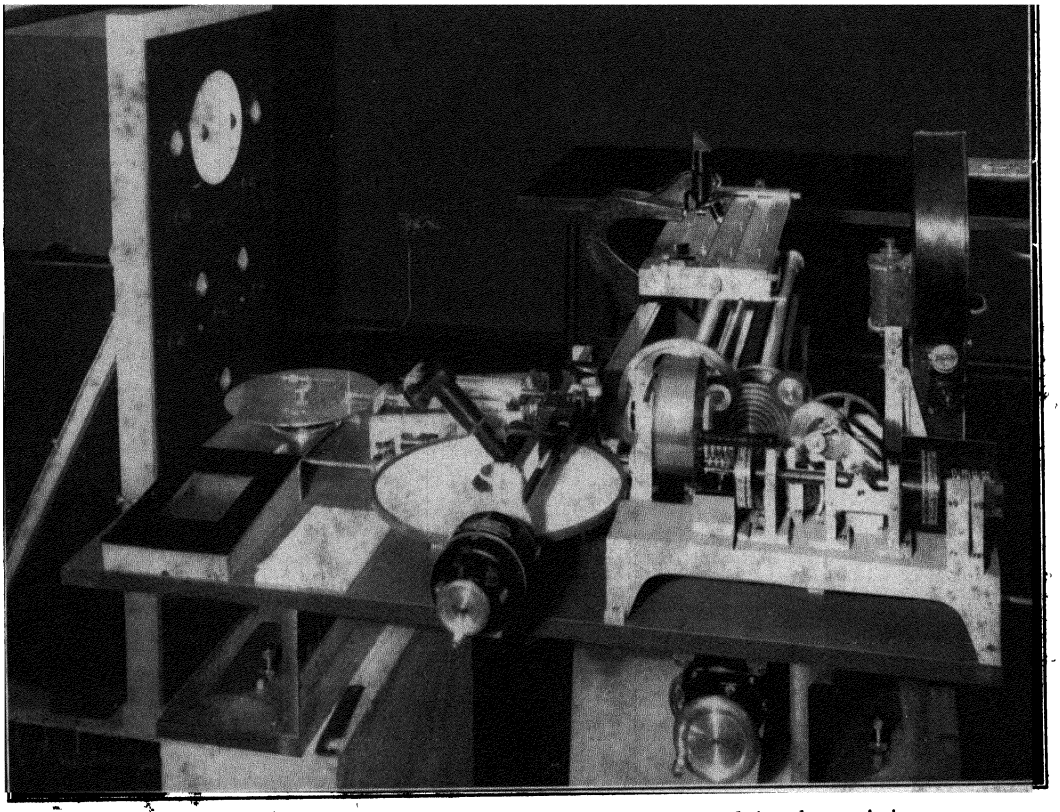
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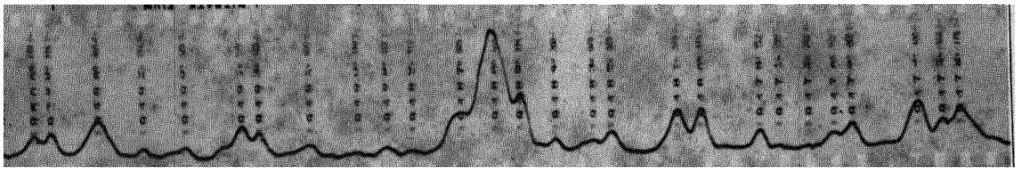
TABLES OF WAVELENGTHS



Section of a typical complex spectrum at high dispersion.



Automatic computing and recording comparator, used for determining wavelengths of spectrum lines.



Section of a typical record from the automatic comparator.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

WAVELENGTH TABLES

with

INTENSITIES IN ARC, SPARK, OR DISCHARGE TUBE

of more than

100,000 SPECTRUM LINES

Most Strongly Emitted by the Atomic Elements under
Normal Conditions of Excitation

BETWEEN 10,000 A. AND 2000 A.

arranged in order of decreasing wavelengths

MEASURED AND COMPILED UNDER THE DIRECTION OF

GEORGE R. HARRISON

Professor of Physics

BY STAFF MEMBERS OF THE SPECTROSCOPY LABORATORY
OF THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

assisted by the

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TABLES OF WAVELENGTHS

AND INTENSITIES OF THE PRINCIPAL ATOMIC SPECTRUM LINES IN THE RANGE 10,000—2000 A.

INTRODUCTION

THE main tables in this volume contain 109,275 entries, giving the wavelength, the intensity in arc, spark, or discharge tube, the stage of ionization of the parent atom when the line has been classified in a term array, and the wavelength authority, for each of the most important known spectrum lines emitted between 10,000 and 2000 angstroms by atoms in the first two stages of ionization.

Though the tables include only half of the known spectrum lines in the region covered, the lines listed account for 99% of the radiation emitted by atoms in this range of wavelengths. Except as noted below, all known atomic lines which have intensity 2 or more on a scale of 1 to 9000 have been included. In addition, 1381 band heads which frequently appear on spectrograms have been included for convenience in identifying impurities.

Lines not found in the tables have been omitted for one or more of the following reasons:

(1) Because, under ordinary conditions of excitation in arc, spark, or discharge tube they are not sufficiently intense to warrant inclusion.

(2) Because they are known (from actual term classification) to originate from atoms with two or more electrons removed, i.e., from the III, IV, or higher spectra.

(3) Because they would not, with ordinary equipment, be resolved from some line of the same element which has been included.

(4) Because, although we have observed them and measured their wavelengths, they have not been listed by previous investigators. We have, however, included a number of lines of short wavelengths not previously given in the literature, with element assignments which are purely tentative. Such lines are designated with an a in the remarks column (R).

All wavelengths are given in terms of the International Angstrom unit (A), as adopted by the International Astronomical Union. The element symbols used are listed in Table I, which gives also the number of lines included for each element. Responsibility for assignment of a line to a particular element rests entirely with previous investigators, except in cases designated a. The numerals I or II in the element column indicate that the line has been classified in a term array and definitely assigned to the normal atom (I) or to the singly ionized atom (II). In many cases, of course, a line can be assigned to a definite stage of ionization merely on the basis of excitation in various sources; but such indications have not been considered here, so that the presence of a Roman numeral after an element designation may be taken as an indication that the line has been classified.

All wavelengths marked with a dash in the R column are from our own determinations, and such values have been included for more than 75,000 lines. In cases where we have not used our own values we have usually chosen from the literature that value which we consider most trustworthy. Each two-letter symbol in the R column refers to the authority or authorities responsible for the wavelength value of the entry; authors and publications can be determined by means of Table V. In a few cases

Intensity estimates in the spark column are for a standard-type 20,000-volt condensed spark between electrodes separated by about 5 mm. Intensities in brackets are for lines emitted in discharge tubes of various kinds, such as Geissler tubes and hollow cathode discharge tubes.

All intensities have been estimated on an expanded scale, based somewhat on those used in recent years by such investigators as A. S. King and W. F. Meggers. Lines taken from the literature have been brought to our intensity scale by suitable approximate conversion factors determined by interpolation from known lines.

The symbols used in the intensity column are in most cases identical with those adopted by the Wavelength Commission of the International Astronomical Union, and are explained in Table II, which, for convenience, is repeated at the end of the book.

It was our original intention to include wavenumbers for all lines, but we have been dissuaded from this by the following considerations:

(1) The tables are designed principally for use in spectroscopic analysis of materials and for identifying impurities, and wavenumbers are seldom needed for this purpose.

(2) It was found that the bulkiness of the volume could be decreased considerably by omitting wavenumbers.

(3) The resulting decrease in production costs made possible inclusion of nearly 10,000 additional entries beyond the 100,000 originally projected, with only slight increase in bulk.

(4) When the dispersion of air has been determined more precisely (especially at short wavelengths) the factors used in converting wavelengths in air to wavenumbers in vacuum can be expected to change. Therefore the wavenumbers of most lines, whether their wavelength values are further improved or not, can be expected to change within the next few years, so that the wavenumber values given would soon be out of date.

TABLE II

Symbols Used in Wavelength Tables

(For author symbols in remarks column, see page xxiv)

a	new lines (not in literature), element assignments tentative
bh	band head
d	double line
h	hazy, diffuse, nebulous
I	interferometer measurement, mean value, unless with author symbol
IS	international primary standard
l	shaded or displaced to longer wavelengths (asymmetrical)
L	literature value, for band heads
m	mean value
r	narrow self-reversal
R	wide self-reversal
s	shaded or displaced to shorter wavelengths (asymmetrical)
S	international secondary standard
w	wide or complex
W	very wide or complex
—	(in R column) M.I.T. measurement
[]	discharge-tube intensity
I	line classified as emitted by normal atom
II	line classified as emitted by singly ionized atom

(5) We hope to include wavenumbers in such future improved wavelength tables as we may publish in which individual spectrum lines are listed together under the elements.

PREPARATION OF THE TABLES

THESE tables were originally compiled for our own use in a more extensive project of spectrum-line measurements. When the spectrum of an element is being studied exhaustively for classification purposes, one of the most tedious processes is the elimination of chance lines which do not arise from the element in question. Routine methods can be used for the elimination of possible Rowland and Lyman ghosts and for sorting

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out lines from different orders; but for weeding out lines from impurity elements much more extensive tables than have been available previously are desirable, with all lines arranged together in order of wavelength. It soon became evident that before much progress could be made in improving the descriptions of the spectra of individual elements a set of such tables was needed.

Accordingly, we combed the literature for all previous wavelength measurements on atomic lines, and copied on each of 250,000 white cards data for one line. When a line had been studied by several authors the measurements were all listed together on one card. Then, to check this first catalog, a second similar catalog was prepared on 250,000 buff cards, and the two catalogs were intercompared and finally corrected from the literature.

All measurements which we made on lines were entered on work sheets; and when from 7 to 50 measurements had been recorded for a given line these were averaged, and the average value was put at the tops of the two proper cards as our value for that line. Whenever our values agreed acceptably with the values given in the literature the cards were placed in the final catalogs; when the values did not agree, new spectrograms were made and from 7 to 20 new measurements were made on the uncertain lines. Usually the disagreement was then resolved; but in cases where it was not, a third set of measurements was made from new plates, when possible. In some cases we found that three independent sets of our measurements on a line would agree to within 0.003A while departing by as much as 0.04A from a value given to seven figures in the literature. In such cases we have inserted our own value when we felt sure that we were measuring the proper line; when we could not be sure we have used the literature value and held our own for further study.

To prepare the present catalog, data for the 110,000 strongest lines were copied on green cards from the main catalogs, and these green cards were then arranged in order of diminishing wavelengths. The white cards were left in order of wavelengths under each element, while the buff cards were arranged in order of wavelengths for all elements together. These two larger catalogs are now available in the form of cards filed in index boxes; the publication of either is not contemplated until considerable spectroscopic work can be done to add to their completeness and accuracy.

Since we have included here no lines not listed in the literature (except a few at short wavelengths, marked a), the present tables must be considered as incomplete, for the number of lines listed for each element is still largely determined by the amount of time that has been devoted to study of its spectra. This is shown by comparing indium, for example (which has been studied very exhaustively in the hollow cathode discharge by Paschen and his co-workers), with such similar elements as gallium and thallium.

Examination of the tables shows many cases where two or more lines from different elements have wavelengths which differ by less than the expected experimental error. In most cases the various lines involved are real; in a few, however, it seems probable that only one line is involved, this having been assigned incorrectly to one or more atoms. For example, the three lines 2639.24 Sc – [5] Bl; 2639.17 Te – [5] Bl; 2639.14 S – [8] Bl may well all be the same sulphur line, though this cannot be proved without further experimentation. Since the arrangement of the tables makes such cases obvious, it has seemed desirable to avoid the responsibility of attempting to resolve them until further work has been done.

In almost every element having a complex spectrum we have found thousands of unlisted lines, most of them, to be sure, having intensities which would make their inclusion in these tables questionable. Even moderately strong lines of this sort have not been included, however, because of the

necessity of taking further spectrograms of arcs in various atmospheres, to avoid the danger of mistaking band lines for atomic lines. The lines marked a have been selected from spectrograms on which no band structures could be observed; we decided to include such lines in the range 2400 to 2000 A even when element assignments could be only tentative, because the recent great increases in the sensitivity of emulsions and the reflecting power of gratings in this region make visible thousands of strong lines not previously studied.

PRECISION OF WAVELENGTHS

WHERE an intensity entry is given in the arc column with a dash in the R column, the wavelength recorded, if less than 4500 A, is that observed in the standard Pfund arc sufficiently far from each electrode (7 mm) to avoid pole effect. For wavelengths greater than 4500 A it is necessary to use a short arc to bring out a majority of the lines, and pole-effect shifts are less likely to occur. Since the wavelength of a line observed in a spark is much more variable than its wavelength observed in an arc, spark wavelengths have been listed only in cases where no intensity is entered either in the arc column or in brackets. Where the only intensity entry is in brackets in the spark column, the wavelength is that observed in a discharge tube. Discharge-tube wavelengths can be expected to be most consistent, arc wavelengths somewhat less so, and spark wavelengths least consistent.

Wavelengths which should be viewed with most suspicion are those (1) given to three figures after the decimal, if longer than 4500 A or shorter than 2500 A; (2) arising from elements with simple spectra; (3) belonging to rare earths of especial rarity; (4) belonging to elements having wide fine-structure patterns.

In cases where two widely differing values were given to three figures in the literature, and our value agreed with neither, the last digit has been dropped in the value given. Our value was then retained if it lay between the other two, while a mean was used, marked m, if it did not.

Wavelengths given to three figures after the decimal are supposedly correct to within ± 0.005 A, those given to two figures to within ± 0.05 A, and those given to one figure to within ± 0.5 A. Actually these tolerances are only approximate, for the precision obtainable varies greatly with the natural breadth of the line, its simple or complex structure, its variability under different conditions of excitation, the region of the spectrum in which it lies, and numerous other factors which are difficult to evaluate. In certain elements, such as cerium, we have had no difficulty in obtaining measurements the majority of which seldom deviated more than ± 0.003 A from the mean, while the final average values were consistent with each other to within 0.0016 A, as shown by application of the combination principle. Some other elements, whose lines in the same region were measured and tested by the same methods, showed far less self-consistency and reproducibility. For this reason the tables probably contain many wavelengths which are exact to the last figure, and others given to seven figures in which variation in different sources may be as great as 0.01 A or more.

Where only two figures are given after the decimal, however, in only a few cases outside of the infrared and far ultraviolet should our measurements be found in error as much as the allowed .05 A. Where only one figure is given after the decimal the wavelengths have been rounded off (1) because of low precision of measurements in the infrared; (2) because the line is extremely broad or extremely variable, so that more precise values have little meaning; or (3) because, in the case of band heads, interference from these can be expected at some distance to each side of the wavelength given.

For many spectroscopic purposes, the shorter the wavelength the more important is wavelength precision. If one desires to

know the wavenumber of a line to within 0.02 cm^{-1} for line-classification purposes, the wavelength must be known with the following approximate precisions:

At 10,000 A,	to within 0.02 A
6,000 A	0.007 A
3,000 A	0.002 A
2,000 A	0.0008 A

With large spectrographs, and for wavelengths greater than 2500 A, this variation in required precision is fairly well matched experimentally; for lines of similar shape are often narrower at shorter wavelengths, the linear resolution of optical equipment usually increases as the wavelength decreases, and lines of short wavelength can be measured in higher orders of diffraction-grating spectrographs than can those of long wavelength. At wavelengths shorter than 2500 A a reverse trend begins with large gratings, because of overlapping of orders, decline in reflecting power, and the lower sensitivity of photographic emulsions; the latter effect has, however, recently been partially offset by improved types of emulsions.

THE INTENSITY SCALE

It was our original purpose to base all intensity values on microdensitometer curves obtained when the plates were run through an automatic comparator. While this method can be used to obtain an excellent measure of the relative intensities of two lines photographed close together on the same plate, it gives results of little meaning when extended to cover the entire spectrum range. This is because of the wide variation in the sensitivities of the photographic emulsions available, in their development, and in the excitation conditions of sources. It would, of course, be possible to make exact measurements by means of photographic photometry, calibrating and standardizing all plates and determining true atomic-transition probabilities for the lines. While such results have great value for many purposes (and we are engaged in a systematic program of such determinations), we have become convinced that such data would be of much less value in the present tables than are approximate intensity estimates made on a fairly consistent scale.

Spectroscopists have shown increasing inclination in recent years to expand the scale of their intensity estimates from the familiar 10 to 1 scale (which often trailed off through a series of " afterthought estimates," such as 0, 00, etc.) to a wider scale, with intense lines being rated as 5000 or more. Such a scale lies much closer to the true intensities of the lines; for example, the sodium D lines near 5893 A, marked 10 in many old tables, are actually at least 10,000 times as intense as many lines judged as of intensity 1. Both absolute and relative intensities of the lines can be expected to vary with the source and equipment used, and any intensity determinations are of use in such tables merely as approximate indications of the relative intensities of the lines.

While we have had density traces of spectrograms available, we have preferred to base the intensities given in these tables on eye estimates of the lines made by observing them on a screen. Then, after lines of all elements in a given region of the spectrum had been estimated on a fairly uniform scale, all intensity values were multiplied by a factor designed to bring the various spectrum regions into a smooth relationship. This was, of course, very difficult, and many incongruities will doubtless be noted. There seems to be no exact solution to the problem, for the densities obtained depend greatly on the emulsions used in reproducing the lines, while the true intensities will depend on the excitation conditions in the source used. Therefore all intensities should be taken merely as rough approximations.

In the case of lines taken from the literature, we have adjusted the intensity values to fit our scale as best we could. Therefore responsibility of an author for a particular entry should be taken as extending to the

wavelength value and to the element assignment, but not to the intensity values.

Again, intensities in the arc and spark columns sometimes show incongruities because of variations in exposure conditions and the vagaries of intensity estimation. In many cases, for example, lines known to arise from the ionized atom will be listed as having higher intensities in the arc than in the spark. This often occurs because the spark plates were for some reason weaker than the arc plates.

We have given the most intense lines the rating 9000 (to avoid use of more than four digits) and have used the value 1 for the weakest lines which have been observed. (These weak lines have been omitted from the tables in all cases except for a few lines of iron.) Lines of intermediate intensity have been given 25 different values. The advantage of such a scale is not that the values are given to any greater precision than would be possible on a uniform scale of, say, 1 to 25, but that they are closer approximations to the true intensities.

Increase in the sensitivity of the emulsions used in photographing wavelengths longer than 5000 A has resulted in the use of much higher intensity ratings in this region than were common a few years ago. Though we have tried to keep all intensities on as uniform a scale as possible, it appears that the expansion of the scale in the infrared may have been overdone.

A few important lines of the rare earths will be found listed as weak in the tables because they do not appear with great intensity in the arc, spark, or discharge tube, but only in the electric furnace.

APPARATUS AND METHODS

More than ten thousand 2 x 20 inch and 4 x 16 inch spectrograms have thus far been taken in the course of our main wavelength project, using five large diffraction-grating spectrographs. These spectrographs involve (1) a six-inch aluminum-on-glass grating of 165,000 lines in a 35-foot modified Paschen mounting; (2) a six-inch aluminum-on-glass grating of 170,000 lines in a 34-foot modified Rowland mounting; (3) a six-inch aluminum-on-glass grating of 120,000 lines and 35-foot radius in a stigmatic Wadsworth mounting, used mostly in the range 2500–1960 A; (4) a seven-inch aluminum-on-glass 35-foot grating of 90,000 lines in a stigmatic Wadsworth mounting, used mostly for the infrared; (5) a six-inch speculum metal grating of 180,000 lines and 21-foot radius, mounted in vacuum for the range 2000–500 A. All gratings had either 30,000 or 15,000 lines per inch and were ruled by Professor R. W. Wood at Johns Hopkins University. The dispersions used varied between 0.33 A/mm and 3.3 A/mm, the latter value being used only in the infrared.

Most of the plates obtained have been measured at least twice on one or both of two automatic computing and recording comparators. During the first year of the project all measurements were made on a 16-inch comparator obtained from the Société Genevoise, which we fitted with an attachment for computing wavelengths by automatic interpolation between iron standard lines, and for recording them directly on motion-picture film.[1] When this device had been put into satisfactory operation a new comparator was built in the laboratory shops. This has a carriage which will give 25 inches of uninterrupted travel, controlled by a screw which is corrected to 1 micron, and is fitted also with an improved computing and recording mechanism.[2] When this second comparator had been put into routine operation the original comparator was rebuilt, a 27-inch screw being substituted for the 16-inch screw, and a new type of maximum-picker being installed for automatic setting on the spectrum lines at high speed. This is the instrument which, in a state of undress preliminary to its final testing, is shown in the frontispiece. With it

[1] G.R. Harrison, Jour. Opt. Soc. Am., 25: 169 (1935)
[2] G.R. Harrison, Rev Sci. Inst , 9: 15 (1938)

are sections of a spectrogram and of a record of intensities and wavelengths as obtained from the machine.

Though wavelengths are recorded to eight figures by the machines, only seven are kept, and there is, of course, some uncertainty in the seventh digit. Exhaustive tests have shown, however, that errors from other sources greatly outweigh errors introduced by the limitations of the machines.

The operation of the automatic maximum-picker has been improved to the point where the wavelengths of more than a thousand lines can be recorded in one minute without difficulty. The standard time in which a 20-inch plate is traversed is 120 seconds. To save time in loading the machine, a carriage has been provided on which three plates can be mounted together, with the proper starting line of each at a common fiducial mark. The density trace is recorded by photographing, on the same motion-picture film that records the wavelengths, the motion of the spot of a cathode-ray oscillograph which is controlled by the output of an electron-multiplier tube in accordance with the intensity of the light passing through the plate.

In the original maximum-picker [1] the peak of a spectrum line was determined in 0.006 second by measuring the voltage difference between two photoelectric cells which determined the densities of the plate at two positions separated by a distance equivalent to the linear resolution of the spectrograph. This method required that the two cells be balanced to within 0.1% at all light intensities, a condition somewhat difficult to achieve and maintain. To eliminate need for this, a delay network which gives the equivalent result with a single photocell was designed.[3] The output of the electron multiplier which measures the light passing through the plate is divided by this network into two parts, one of which is in phase with the original current and the other delayed by 0.014 second. The plate is then moved across the scanning light beam at a speed such that 0.014 second is required to traverse a distance along the plate equal to the linear resolution of the spectrograph. The difference between the two currents is then applied, after amplification, to a circuit which flashes a recording lamp whenever this current falls to zero while the density has a value slightly greater than that of the background of the spectrogram. Thus the reading of the rapidly rotating wavelength dial is photographed at the proper instant. To compensate for the electrical delay of 0.007 second, an equivalent mechanical delay is introduced by the machine.

To eliminate small residual wavelength displacements which may result because currents from spectrum lines of different intensities have different wave forms which pass through the network differently, automatic measurements from two runs made in opposite directions are always averaged. The problem of designing a network which will attenuate and delay equally all frequencies contained in the electrical record of a spectrogram is a difficult one to solve cheaply, and small residual errors have been found to arise from such distortion; but the averaging process apparently eliminates them.

Since it is rather difficult to set a plate on the machine exactly to within 0.001 A of any standard line, we have found it convenient to make this setting only approximate (to within ± 0.01 A) and then to correct the last digit of the recorded wavelength values by the same amount that the standard lines are found to be incorrect. This correction could be made automatically, but thus far we have found it most convenient to make this correction when the wavelengths and intensities are being transcribed from the films to the record books or cards.

All plates have been measured by hand setting as well as by automatic setting. When setting by hand the operator observes the spectrum projected on a screen before

[4] To be described in papers expected to be published late in 1939.

him, and when he has set the desired line on a fiducial mark, presses a key to record the wavelength. This process, though considerably slower than automatic recording, is still twenty times as rapid as that commonly used.

We have found that measurements made with the automatic maximum-picker are more self-consistent than are hand settings, but we have used both methods to obtain additional checks on the precision of each. A few lines are missed by the automatic picker, especially when they lie on the wings of broad lines of great intensity. These lines the hand-set records supply, though good wavelength values can be obtained for missing lines directly from the automatic intensity trace.

Lines for which our values have been used in the tables have been measured at least twice on each of three plates, and the average number of measurements for each line is greater than ten. When average values for the lines were tabulated, the number of values included in the average, and the average deviation from the mean, were also tabulated. The letter A was used to indicate an average deviation of ± 0.001 A, B for ± 0.002 A, etc. Weightings of 24 C were not uncommon for narrow lines — 24 determinations with an average deviation of ± 0.003 A.

SOURCES OF ERROR

The wavelength precision of our measurements has been limited by the following factors, arranged in the order of probable decreasing importance:

(1) The insufficiency of adequate wavelength standards in some spectral regions, particularly of standard lines of suitable intensities.

(2) The displacement on spectrograms of lines to be measured relative to standard lines.

(3) Displacements caused by strong neighboring lines or by blends with impurity lines or bands.

(4) The natural breadth of some lines, and the complex structure of others. We have listed all complex lines as single unless their components were at least 0.1 A apart.

(5) Errors of coincidence, inadequately corrected for, where lines to be measured in one order were compared with standards in another order.

(6) Actual variations of wavelength with excitation conditions.

(7) Limited amounts of certain materials available for excitation to produce the lines.

(8) Incorrect identification of lines with lines given in the literature.

(9) Uncertainties of setting on line maxima.

(10) Comparator errors.

The largest errors undoubtedly come from inadequacy of the wavelength standards, with which we have found considerable difficulty in obtaining smooth correction curves at the high dispersions used in this work. Most of the International Secondary Standards of iron are lines of great intensity, separated in the spectrum more widely than is desirable, and entirely absent in certain regions of the spectrum. At wavelengths shorter than 2500 A and at those longer than 7000 A we have used as standards the interferometer measurements on iron lines made by Meggers and Humphreys, and at short wavelengths, the copper standards of Shenstone.

Large systematic errors can be introduced by incorrect registration of standard lines on the spectrograms. Strictly speaking, standards of wavelength should be photographed at the same time and from the same source as the lines to be measured, if displacement between standards and other lines is to be avoided. This very desirable practice is sometimes not possible, however, either because the standards must be emitted by a special source which is not suitable for producing the desired lines to be measured, or because the lines to be measured would be obscured by lines of the standard, which must be present in profu-

sion if they are to be useful with spectrographs of high dispersion.

When successive exposures to a spectrum to be measured and to a standard spectrum are made, though the plate remain undisturbed between the two exposures and the two sources are apparently similarly imaged on the grating, displacements as great as 0.02 A are sometimes found between the two spectra. The reasons for these shifts are not entirely understood, but they possibly arise from dissimilar illumination of the grating face, causing differences in line shape (especially in gratings with extreme target pattern) — or from temperature changes of the grating.

During the present work we have tried to eliminate such shifts by the following means: using measurements from at least three plates taken independently; taking standard exposures both before and after the exposure to be measured, half before and half after, so that any large intermediate shift would produce a noticeable broadening of the standard lines; using, when possible, a small amount of iron in the electrodes producing the lines to be measured, to give a few standard lines which could be used to determine any displacement between the actual standard lines and the spectrum under study.

Tests of our methods and equipment indicate that, where other conditions permit, measurements consistent to within 0.002 A are not difficult to make with large 10-meter gratings and automatic comparators. There are certain lines, however, which one is hardly justified in measuring with equipment which is designed primarily for making measurements on a " wholesale " basis; such lines are those whose wavelengths shift markedly with conditions, those of comparatively great breadth or dissymmetry, and those contained in spectra covering an extremely wide range in intensity. Elements in the first three columns and the first two rows of the Periodic Table are likely to emit lines of the last category. Fortunately these are just the elements whose spectra have had most attention in the past; and while we have gone through a routine examination of their lines, we have been content, in most cases, to record the wavelength values obtained from the literature instead of our own. This is not to say that such spectra do not still merit careful study, but it is of the sort which is best given by an experienced spectroscopist to one element at a time. Our attention has been concentrated more on the complex atoms which are responsible for three-fourths of the lines given in the tables.

It would have been desirable if, before the present catalog was published, all wavelengths in it could have been tested by means of the combination principle; but this would have delayed publication of the volume and necessitated much further work in classification of spectra. Though the catalog has been checked many times for mistakes of various sorts, many errors of omission and commission doubtless remain. To any authors whose measurements have been misquoted or incorrectly assigned we offer sincere apologies, and doubly so to any whose values may have been omitted unknowingly in favor of less correct values of our own. We have tried to follow the guiding principle that a much-needed set of tables could be compiled from measurements already available in the literature, and that while we were justified in trying to improve this by making measurements with improved apparatus, we should at all costs avoid any procedure which might make it worse. We present the catalog, not as a finished product, but as a preliminary compilation designed to improve the status of wavelength measurements and line assignments.

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Professor Walter E. Albertson has kindly furnished unpublished data on the spectrum of iridium, and Professor Dorothy W. Weeks has given us invaluable help with the iron spectrum.

We have been encouraged to complete the tables by several conversations regarding them with Geheimrat H. Kayser, whose encyclopedic works on spectroscopy are standard, and with Präsident F. Paschen, whose spectroscopic measurements and tables are world-renowned. It is a pleasure to acknowledge the benefit we have obtained from the kindly counsel of men of such vast experience.

The excellent appearance of the tables originates in large measure from the zealous co-operation of J. R. Killian, Jr., of the Technology Press.

The wavelength project, from the results of which the measurements included herein have been selected, has been under way for about three years, and several successive groups of graduate students, whose names are included in the lists given below, have been connected with it. The following persons have been responsible for the measurements and for the present compilation:

For the staff organization of the project and supervision of its detailed operation, Colonel Robert C. Eddy of the Massachusetts Institute of Technology.

For assisting the undersigned in the final checking and editing of the material included in the tables: Dr. Nathan Rosen and Dr. George O. Langstroth.

As supervisors of laboratory assistants for periods of three months or longer: Dr. Peter A. Cole, Dr. Richard E. Evans, Dwight P. Merrill, Julius P. Molnar, Norman J. Oliver, Dr. Fred W. Paul, Henry Rich.

As supervisors of clerical assistants for periods of three months or longer: John B. D'Albora, Dr. Harriet W. Allen, William W. Bartlett, Mildred H. Brode, Harold E. Clearman, Jr., Leonard J. Julian, Dr. Joseph Morgan, Simeon I. Rosenthal, Helen Wigglesworth.

In charge of the checking of galley and page proofs: Clinton H. Collester.

The great burden of numerical tabulation and checking has rested on a very faithful group of selected W.P.A. workers. Though they cannot be mentioned individually because of their numbers, the project would have been impossible of completion without their conscientious work.

Pure chemicals for the production of spectra were purchased with several grants from the Rumford Fund of the American Academy of Arts and Sciences, which aid is hereby gratefully acknowledged.

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GEORGE R. HARRISON

Cambridge, Massachusetts
June 10, 1939

TABLE III

SENSITIVE LINES OF THE ELEMENTS*

Wavelength	Excitation Potential†	Intensities Arc	Intensities Spk, [Dis]	Sensitivity‡
A 18 Argon				
8115.311	13.0	–	[5000]	U2
7503.867	13.4	–	[700]	U4
7067.217	13.2	–	[400]	U3
6965.430	13.3	–	[400]	U3
Ag 47 Silver				
5465.487	6.0	1000 R	500 R	U4
5209.067	6.0	1500 R	1000 R	U3
3382.891	3.6	1000 R	700 R	U2
3280.683	3.8	2000 R	1000 R	U1
2437.791	17.4	60	500 wh	V2
2246.412	17.8	25	300 hs	V3
Al 13 Aluminum				
6243.36	21.0	–	100	V3
6231.76	21.0	–	30	–
3961.527	3.1	3000	2000	U1
3944.032	3.1	2000	1000	U2
3092.713	4.0	1000	1000	U3
3082.155	4.0	800	800	U4
2816.179	17.7	10	100	V2
2669.166	10.6	3	100	V1
2631.553	21.2	–	40	–
As 33 Arsenic				
2898.71	6.7	25 r	40	–
2860.452	6.6	50 r	50	–
2780.197	6.7	75 R	75	U5
2456.53	6.5	100 r	8	U4
2370.77	6.7	50 r	3	–
2369.67	6.7	40 r	–	–
2349.84	6.6	250 R	18	U3
2288.12	6.7	250 R	5	U3
Au 79 Gold				
2802.19	>13.6	–	200	–
2675.95	4.6	250 R	100	U2
2427.95	5.1	400 R	100	U1
B 5 Boron				
3451.41	20.9	5	30	V2
2497.733	4.9	500	400	U1
2496.778	4.9	300	300	U2
Ba 56 Barium				
5777.665	3.8	500 R	100 R	U2
5535.551	2.2	1000 R	200 R	U1
5519.115	3.8	200 R	60 R	U3
5424.616	3.8	100 R	30 R	U4
4934.086	7.7	400 h	400 h	V2
4554.042	7.9	1000 R	200	V1
4130.664	10.9	50 r	60 wh	V3
3891.785	10.9	18	25	V4
3071.591	4.0	100 R	50 R	U5
2335.269	11.2	60 R	100 R	–
2304.235	11.2	60 R	80 R	–
Be 4 Beryllium				
3321.343	6.4	1000 r	30	U2
3321.086	6.4	100	–	U3
3321.013	6.4	50	–	U4
3131.072	13.2	200	150	V2
3130.416	13.2	200	200	V1
2650.781	7.4	25	–	U5
2348.610	5.4	2000 R	50	U1
Bi 83 Bismuth				
4722.552	4.0	1000	100	–
3067.716	4.0	3000 hR	2000 wh	U1
2989.029	5.5	250 wh	100 wh	–
2938.298	6.1	300 w	300 w	–
2897.975	5.6	500 WR	500 WR	U2
2809.625	6.3	200 w	100	–
2780.521	5.8	200 w	100	–
2276.578	5.4	100 R	40	–
2061.70	6.0	300 R	100	–
Br 35 Bromine				
4816.71	14.4	–	[300]	V3
4785.50	14.4	–	[400]	V2
4704.86	14.4	–	[250]	V1
C 6 Carbon				
4267.27	32.1	–	500	V2
4267.02	32.1	–	350	V3
2837.602	27.5	–	40	V5
2836.710	27.5	–	200	V4
2478.573	7.7	400	[400]	U2
2296.89	53.5	–	200	–
Ca 20 Calcium				
4454.781	4.7	200	–	U2
4434.960	4.7	150	–	U3
4425.441	4.7	100	–	U4
4226.728	2.9	500 R	50 W	U1
3968.468	9.2	500 R	500 R	V2
3933.666	9.2	600 R	600 R	V1
3179.332	13.1	100	400 w	V3
3158.869	13.1	100	300 w	V4
Cb 41 Columbium				
4137.095	3.0	100	60	U5
4123.810	3.0	200	125	U4
4100.923	3.1	300 w	200 w	U3
4079.729	3.1	500 w	200 w	U2
4058.938	3.2	1000 w	400 w	U1
3225.479	>7.6	150 w	800 wr	–
3194.977	>7.7	30	300	–
3163.402	>7.8	15	8	–
3130.786	>7.9	100	100	–
3094.183	>8.0	100	1000	V1
Cd 48 Cadmium				
6438.4696	7.3	2000	1000	–
3610.510	7.3	1000	500	–
3466.201	7.3	1000	500	–
3403.653	7.3	800	500 h	–
3261.057	3.8	300	300	–
2748.58	19.2	5	200	–
2573.09	19.2	3	150	–
2312.84	20.1	1	200	–
2288.018	5.4	1500 R	300 R	U1
2265.017	14.4	25 d	300	V2
2144.382	14.7	50	200 R	V1
Ce 58 Cerium				
4186.599	>8.6	80	25	–
4165.606	>8.6	40	6	–
4040.762	>8.7	70	5	–
4012.388	>8.7	60	20	–
Cl 17 Chlorine				
4819.46	28.3	–	[200]	V4
4810.06	28.3	–	[200]	V3
4794.54	28.3	–	[250]	V2
Co 27 Cobalt				
3529.813	4.0	1000 R	30	U3
3465.800	3.6	2000 R	25	U2
3453.505	4.0	3000 R	200	U1
3405.120	4.0	2000 R	150	–
2519.822	14.7	40	200	–
2388.918	14.1	10	35	–
2378.622	14.1	25	50 w	–
2363.787	14.2	25	50	–
2307.857	14.3	25	50 w	
2286.156	14.3	40	300 l	V1
Cr 24 Chromium				
5208.436	3.3	500 R	100	U4
5206.039	3.3	500 R	200	U5
5204.518	3.3	400 R	100	U6
4289.721	2.9	3000 R	800 r	U3
4274.803	2.9	4000 R	800 r	U2
4254.346	2.9	5000 R	1000	U1
2860.934	12.5	60	100	V5
2855.676	12.5	60	200 wh	V4
2849.838	12.6	80	150 r	V3
2843.252	12.6	125	400 r	V2
2835.633	12.6	100	400 r	V1
Cs 55 Caesium				
8943.50	1.4	2000 R	–	U2
8521.10	1.4	5000 R	–	U1
4593.177	2.7	1000 R	50	U4
4555.355	2.7	2000 R	100	U3
Cu 29 Copper				
5218.202	6.2	700	–	U3
5153.235	6.2	600	–	U4
5105.541	3.8	500	–	U5
3273.962	3.8	3000 R	1500 R	U2
3247.540	3.8	5000 R	2000 R	U1
2246.995	15.9	30	500	V3
2192.260	16.2	25	500 h	V2
2135.976	16.2	25	500 w	V1
Dy 66 Dysprosium				
4211.719	>2.9	200	15	–
4167.966	>3.0	50	12	–
4077.974	>3.0	150 r	100	–
4045.983	>3.0	150	12	–
4000.454	>3.1	400	300	–
Er 68 Erbium				
3906.316	>3.2	25	12	–
3692.652	>3.4	20	12	–
3499.104	>3.5	18	15	–
Eu 63 Europium				
4205.046	8.6	200 R	50	–
4129.737	8.6	150 R	50 R	–
F 9 Fluorine				
6902.46	14.5	–	[500]	U3
6856.02	14.4	–	[1000]	U2
5291.0	bh Ca F	200	–	–
Fe 26 Iron				
3748.264	3.4	500	200	U4
3745.903	3.4	150	100	U5
3745.564	3.4	500	500	U3
3737.133	3.4	1000 r	600	U2
3719.935	3.3	1000 R	700	U1
2413.309	13.1	60	100 h	V5
2410.517	13.1	50	70 h	V4
2404.882	13.0	50	100 wh	V3
2395.625	13.0	50	100 wh	V2
2382.039	13.0	40 r	100 R	V1
Ga 31 Gallium				
4172.056	3.1	2000 R	1000 R	U1
4032.982	3.1	1000 R	500 R	U2
2943.637	4.3	10	20 r	U3
2874.244	4.3	10	15 r	U4
Gd 64 Gadolinium				
3768.405	>3.3	20	20	–
3646.196	>3.4	200 w	150	–
Ge 32 Germanium				
4226.570	4.9	200	50	–
3269.494	4.7	300	300	U3
3039.064	4.9	1000	1000	U2
2709.626	4.6	30	20	–
2651.575	4.7	30	20	–
2651.178	4.8	40	20	–

* Compiled from a combination of empirical and theoretical data selected from the literature.

† For an ion, the ionization potential of the neutral atom has been included in the excitation potential to give an approximate idea of the excitation required to produce the line.

‡ For the neutral atom, the most sensitive line (raie ultime) is indicated by U1, and other lines by U2, U3, etc., in order of decreasing sensitivity. For the singly ionized atom, the corresponding designations are V1, V2, etc. In cases where U1 is not given, the most sensitive lines lie outside the spectral range 10,000–2000 A.

Wavelength	Excitation Potential†	Intensities Arc	Spk , [Dis]	Sensitivity‡
H 1 Hydrogen				
6562.79	12 0	–	[3000]	U2
4861.327	12.7	–	[500]	U3
He 2 Helium				
5875.618	23.0	–	[1000]	U3
4685.75	75.3	–	[300]	–
3888.646	22.9	–	[1000]	U2
Hf 72 Hafnium				
4093.161	>7.8	25	20	–
3134.718	>8.7	80	125	–
3072.877	4.0	80	18	–
2940.772	4.2	60	12	–
2916.481	4.2	50	15	–
2904.408	4.8	30	6	–
2898 259	4.6	50	12	–
2820.224	>9.2	40	100	–
2773.357	>9.3	25	60	–
2641.406	>9 5	40	125	–
2516.881	>9.7	35	100	–
2513.028	>9 7	25	70	–
Hg 80 Mercury				
5460.740	7.7	–	[2000]	–
4358.35	7.7	3000 w	500	–
4046.561	7.7	200	300	–
3663.276	8.8	500	400	U5
3654.833	8 8	–	[200]	U4
3650.146	8.8	200	500	U3
2536.519	4.9	2000 R	1000 R	U2
Ho 67 Holmium				
3891.02	>3 2	200	40	–
3748 17	>3 3	60	40	–
2936.77	>7.4	–	1000 R	–
I 53 Iodine				
5464.61	22.7	–	[900]	–
5161.188	22 8	–	[300]	–
2062.38	>16 4	–	[900]	–
In 49 Indium				
4511.323	3 0	5000 R	4000 R	U1
4101 773	3.0	2000 R	1000 R	U2
3258.564	4 1	500 R	300 R	U5
3256 090	4 1	1500 R	600 R	U3
3039 356	4 1	1000 R	500 R	U4
Ir 77 Iridium				
3513 645	3 5	100 h	100	U2
3437.015	4 4	20	15	–
3220.780	4.2	100	30	U1
2924 792	4 2	25 wh	15	–
2849 725	4 3	40 h	20 h	–
K 19 Potassium				
7698.979	1.6	5000 R	–	U2
7664.907	1 6	9000 R	–	U1
4047 201	3 0	400	200	U4
4044 140	3 1	800	400	U3
Kr 36 Krypton				
5870.9158	12 1	–	[3000]	U2
5570 2895	12 1	–	[2000]	U3
La 57 Lanthanum				
6249 929	2 5	300	–	U1
5930 648	2 2	250	–	U2
5455 146	2 4	200	1	U3
4123.228	8 9	500	500	V4
4077.340	8.9	600	400	V3
3949.106	9.1	1000	800	V2
Li 3 Lithium				
6707.844	1 8	3000 R	200	U1
6103.642	3.9	2000 R	300	U3
4603.00	4 5	800	–	U4
3232.61	3 8	1000 R	500	U2

Wavelength	Excitation Potential†	Intensities Arc	Spk , [Dis]	Sensitivity‡
Lu 71 Lutecium				
4518.57	>2 7	300	40	–
3554.43	>6 2	50	150	–
3472.48	>6 3	50	150	–
3397 07	>6 3	50	20 r	–
2911.39	>6 9	100	300	–
2894.84	>7 0	60	200	–
Mg 12 Magnesium				
5183 618	5.1	500 wh	300	–
5172 699	5 1	200 wh	100 wh	–
5167 343	5 1	100 wh	50	–
3838.258	5.9	300	200	U2
3832.306	5.9	250	200	U3
3829.350	5 9	100 w	150	U4
2852 129	4.3	300 R	100 R	U1
2802 695	12 0	150	300	V2
2795 53	12 0	150	300	V1
Mn 25 Manganese				
4034.490	3.1	250 r	20	U3
4033 073	3.1	400 r	20	U2
4030.755	3.1	500 r	20	U1
2605 688	12 2	100 R	500 R	V3
2593 729	12.2	200 R	1000 R	V2
2576.104	12.2	300 R	2000 R	V1
Mo 42 Molybdenum				
3902.963	3 2	1000 R	500 R	U3
3864 110	3.2	1000 R	500 R	U2
3798.252	3.3	1000 R	1000 R	U1
2909.116	11.6	25	40 h	V5
2890 994	11 7	30	50 h	V4
2871.508	11.7	100	100 h	V3
2848.232	11.8	125	200 h	V2
2816.154	11 9	200	300 h	V1
N 7 Nitrogen				
5679.56	35 1	–	[500]	V2
5676.02	35.0	–	[100]	V4
5666 64	35 0	–	[300]	V3
4109 98	13 7	–	[1000]	U2
4103.37	74 3	–	[80]	–
4099.94	13 7	–	[150]	U3
4097.31	74 3	–	[100]	–
Na 11 Sodium				
5895 923	2.1	5000 R	500 R	U2
5889.953	2.1	9000 R	1000 R	U1
5688 224	4 3	300	–	–
5682 657	4.3	80	–	–
3302 988	3 7	300 R	150 R	U4
3302 323	3 7	600 R	300 R	U3
Nd 60 Neodymium				
4303 573	>2.9	100	40	–
4177.321	>3 0	15	25	–
3951.154	>3 1	40	30	–
Ne 10 Neon				
6402 246	18 5	–	[2000]	–
5852 488	18.9	–	[2000]	–
5400 562	18.9	–	[2000]	–
Ni 28 Nickel				
3524 541	3 5	1000 R	100 wh	–
3515 054	3.6	1000 R	50 h	–
3492 956	3 6	1000 R	100 h	U2
3414 765	3 6	1000 R	50 wh	U1
2287.084	14 8	100	500	V1
2270 213	14 2	100	400	V2
2264.457	14 3	150	400	V3
2253.86	14 4	100	300	V4
O 8 Oxygen				
7775.433	10.7	–	[100]	U4
7774 138	10 7	–	[300]	U3
7771 928	10.7	–	[1000]	U2

Wavelength	Excitation Potential†	Intensities Arc	Spk , [Dis.]	Sensitivity‡
Os 76 Osmium				
4420 468	2.8	400 R	100	–
3267 945	3 8	400 R	30	–
3262.290	4.3	500 R	50	–
3058 66	4.0	500 R	500	–
2909 061	4.2	500 R	400	U1
P 15 Phosphorus				
2554 93	7 1	60	[20]	–
2553 28	7 1	80	[20]	U3
2535 65	7 2	100	[30]	U2
2534.01	7 2	50	[20]	–
Pb 82 Lead				
5608 8	16.9	–	[40]	V2
4057.820	4.4	2000 R	300 R	U1
3683 471	4.3	300	50	U2
3639 580	4.4	300	50 h	–
2833 069	4.4	500 R	80 R	–
2614 178	>4.7	200 r	80	–
2203 505	14.7	50 W	5000 R	V1
2169.994	5.7	1000 R	1000 R	–
Pd 46 Palladium				
3634 695	4 2	2000 R	1000 R	U3
3609 548	4.4	1000 R	700 R	–
3516.943	4 5	1000 R	500 R	–
3421 24	4 6	2000 R	1000 R	U2
3404 580	4 4	2000 R	1000 R	U1
2854 581	16 6	4	500 h	–
2658 722	16 9	20	300	–
2505 739	17 5	3	30	–
2498 784	17 2	4	150 h	–
2488 921	16 3	10	30	–
Pr 59 Praseodymium				
4225 327	>2 9	50	40	–
4189 518	>2 9	100	50	–
4179 422	>3 0	200	40	–
4062 817	>3 0	150	50	–
Pt 78 Platinum				
3064 712	4 0	2000 R	300 R	U1
2997 967	4 2	1000 R	200 r	–
2929 794	4 2	800 R	200 w	–
2830 295	4 4	1000 R	600 r	–
2659.454	4 6	2000 R	500 R	U2
Ra 88 Radium				
4825 91	2 6	–	[800]	U1
4682 28	7 8	–	[800]	V2
3814.42	8 4	–	[2000]	V1
Rb 37 Rubidium				
7947 60	1 6	5000 R	–	U2
7800 227	1 6	9000 R	–	U1
4215 556	2 9	1000 R	300	U4
4201 851	2 9	2000 R	500	U3
Re 75 Rhenium				
4889.17	2.5	2000 w	–	U2
3460.47	3 6	1000 W	–	U1
Rh 45 Rhodium				
3692.357	3 3	500 hd	150 wd	–
3657.987	3.6	500 W	200 W	–
3434.893	3 6	1000 r	200 r	U1
3396 85	3 6	1000 w	500	–
3323 092	3.9	1000	200	–
Rn 86 Radon				
7450 00	8 5	–	[600]	U2
7055.42	8 4	–	[400]	U3

† For an ion, the ionization potential of the neutral atom has been included in the excitation potential to give an approximate idea of the excitation required to produce the line

‡ For the neutral atom, the most sensitive line (raie ultime) is indicated by U1, and other lines by U2, U3, etc , in order of decreasing sensitivity For the singly ionized atom, the corresponding designations are V1, V2, etc , In cases where U1 is not given the most sensitive lines lie outside the spectral range 10,000-2000 A.

WAVELENGTH TABLES

Wavelength	Excitation Potential†	Intensities Arc	Intensities Spk.,[Dis.]	Sensitivity‡
Ru 44 Ruthenium				
3596.179	3.7	30	100	U3
3498.942	3.5	500 R	200	U1
3436.737	3.7	300 R	150	U2
2976.586	>10.5	60	200	–
2965.546	>10.6	60	200	–
2945.668	>10.6	60	300	–
2712.410	>11 0	80	300	–
2692.065	>11.0	8	200	–
2678.758	>11.0	100	300	–
S 16 Sulphur				
9237.49	7.8	–	[200]	U6
9228.11	7.8	–	[200]	U5
9212.91	7.8	–	[200]	U4
4696.25	9.1	–	[15]	U9
4695.45	9.1	–	[30]	U8
4694.13	9.1	–	[500]	U7
Sb 51 Antimony				
3267.502	5.8	150	150 Wh	–
3232.499	6.1	150	250 wh	–
2877.915	5 3	250 W	150	–
2598.062	5.8	200	100	–
2528.535	6.1	300 R	200	–
2311.469	5 3	150 R	50	–
2175.890	5.7	300	40	U2
2068.38	6.0	300 R	3	U1
Sc 21 Scandium				
4023.688	3.1	100	25	U3
4020.399	3.1	50	20	U4
3911.810	3.2	150	30	U1
3907.476	3.2	125	25	U2
3642.785	10.0	60	50	V3
3630.740	10.1	50	70	V2
3613.836	10.1	40	70	V1
Se 34 Selenium				
4742.25	>2.6	–	[500]	U6
4739.03	>2.6	–	[800]	U5
4730.78	>2.6	–	[1000]	U4
2062.788	6 3	–	[800]	U3
2039.851	6.3	–	[1000]	U2
Si 14 Silicon				
3905.528	5.1	20	15 W	–
2881.578	5.1	500	400	U1
2528.516	4.9	400	500	U2
2516.123	4.9	500	500	U3
2506.899	4.9	300	200	U4
Sm 62 Samarium				
4434.321	8.8	200	200	V2
4424.342	8.9	300	300	V1
4390.865	8.6	150	150	–
Sn 50 Tin				
4524.741	4.8	500 wh	50	–
3262.328	4.8	400 h	300 h	U3
3175.019	4.3	500 h	400 hr	–
3034.121	4.3	200 wh	150 wh	–
3009.147	4.3	300 h	200 h	–
2863.327	4.3	300 R	300 R	U2
2839.989	4 8	300 R	300 R	U1

Wavelength	Excitation Potential†	Intensities Arc	Intensities Spk.,[Dis.]	Sensitivity‡
Sr 38 Strontium				
4962 263	4.3	40	–	U4
4872.493	4.3	25	–	U3
4832.075	4.3	200	8	U2
4607.331	2.7	1000 R	50 R	U1
4305.447	11.6	40	–	–
4215.524	8.6	300 r	400 W	V2
4077.714	8.7	400 r	500 W	V1
3474.887	12.2	80	50	–
3464.57	12.2	200	200	–
3380.711	12.2	150	200	–
Ta 73 Tantalum				
3406.664	>3.6	70 w	18 s	–
3318 840	>3.7	125	35	–
3311.162	>3.7	300 w	70 w	U1
Tb 65 Terbium				
3874.18	>3.2	200	200	–
3848.75	>3.2	100	200	–
3561.74	>3.5	200	200	–
3509.17	>3.5	200	200	–
Te 52 Tellurium				
2769.67	5.8	–	[30]	–
2530.70	5.5	–	[30]	–
2385.76	5.8	600	[300]	U2
2383.25	5.8	500	[300]	U3
2142.75	5.8	60 R	–	–
Th 90 Thorium				
4019.137	>3.1	8	8	–
3601.040	>3.4	8	10	–
3538 75	>3.5	–	50	–
3290.59	>7.3	–	40 h	–
Ti 22 Titanium				
5007.213	3.3	200	40	–
4999.510	3.3	200	80	–
4991.066	3.3	200	100	–
4981.733	3.3	300	125	U1
3653.496	3.4	500	200	U2
3642.675	3.4	300	125	–
3635.463	3.4	200	100	–
3383.761	10.4	70	300 R	–
3372.800	10.5	80	400 R	V3
3361.213	10.5	100	600 R	V2
3349.035	11.1	125	800 R	V1
Tl 81 Thallium				
5350.46	3.3	5000 R	2000 R	U1
3775.72	3.3	3000 R	1000 R	U2
3519.24	4.5	2000 R	1000 R	U3
3229.75	4.8	2000	800	–
2918.32	5.2	400 R	200 R	–
2767.87	4.5	400 R	300 R	–
Tm 69 Thulium				
3761.917	>3.3	200	120	–
3761.333	>3.3	250	150	–
3462.21	>3.6	200	100	–
U 92 Uranium				
4241.669	>2.9	40	50	–
3672.579	>3.4	8	15	–
3552.172	>3.5	8	12	–

Wavelength	Excitation Potential†	Intensities Arc	Intensities Spk.,[Dis.]	Sensitivity‡
V 23 Vanadium				
4389.974	3.1	80 R	60 R	–
4384.722	3.1	125 R	125 R	–
4379.238	3.1	200 R	200 R	U1
3185.396	3.9	500 R	400 R	U2
3183.982	3.9	500 R	400 R	–
3183.406	3.9	200 R	100 R	–
3125 284	11.0	80	200 R	–
3118 383	11.1	70	200 R	V4
3110.706	11.1	70	300 R	V3
3102.299	11.1	70	300 R	V2
3093.108	11.2	100 R	400 R	V1
W 74 Tungsten				
4302.108	3.2	60	60	U1
4294.614	3.2	50	50	U2
4008.753	3.4	45	45	U3
3613.790	>9.2	10	30	–
3215.560	5 3	10	9	–
2589.167	>10 6	15 d	25	–
2397.091	>10.9	18	30	–
Xe 54 Xenon				
4671 226	10.9	–	[2000]	U2
4624.276	10.9	–	[1000]	U3
4500.977	11.0	–	[500]	U4
Yb 70 Ytterbium				
3987.994	>3 1	1000 R	500 R	–
3694 203	>3 3	500 R	1000 R	–
3289.37	>3.8	500 R	1000 R	–
Yt 39 Yttrium				
4674 848	2.7	80	100	U1
4643 695	2.7	50	100	U2
3788.697	9.9	30	30	–
3774.332	9.9	12	100	–
3710.290	10 0	80	150	V1
3633.123	9 9	50	100	–
3600 734	10 1	100	300	–
3242 280	10.5	60	100	–
Zn 30 Zinc				
6362 347	7 7	1000 Wh	500	–
4810.534	6 6	400 w	300 h	–
4722.159	6 6	400 w	300 h	–
4680.138	6 6	300 w	200 h	–
3345 020	7.8	800	300	U2
3302.588	7.8	800	300	U3
3282 333	7 8	500 R	300	U4
2557.958	15.3	10	300	V3
2502.001	15 3	20	400 w	V4
2138.56	5 8	800 R	500	U1
2061.91	15.4	100	100	V2
2025.51	15.5	200	200	V1
Zr 40 Zirconium				
4772 312	3 2	100	–	–
4739.478	3.2	100	–	–
4710.075	3 3	60	–	–
4687.803	3.4	125	–	U4
3601.193	3.6	400	15	U1
3572.473	10.4	60	80	V4
3547.682	3 5	200	12	U2
3519.605	3.5	100	10	U3
3496 210	10 5	100	100	V3
3438.230	10.6	250	200	V2
3391.975	10.7	300	400	V1

† For an ion, the ionization potential of the neutral atom has been included in the excitation potential to give an approximate idea of the excitation required to produce the line.

‡ For the neutral atom, the most sensitive line (raie ultime) is indicated by U1, and other lines by U2, U3, etc., in order of decreasing sensitivity. For the singly ionized atom, the corresponding designations are V1, V2, etc. In cases where U1 is not given, the most sensitive lines lie outside the spectral range 10,000–2000 A.

TABLE IV

SENSITIVE LINES OF THE ELEMENTS *

[arranged in order of wavelength]

Wavelength	Element	Intensities Arc	Intensities Spk., [Dis.]	Sensitivity‡
9237.49	S I	–	[200]	U6
9228.11	S I	–	[200]	U5
9212.91	S I	–	[200]	U4
8943.50	Cs I	2000 R	–	U2
8521.10	Cs I	5000 R	–	U1
8115.311	A I	–	[5000]	U2
7947 60	Rb I	5000 R	–	U2
7800 227	Rb I	9000 R	–	U1
7775.433	O I	–	[100]	U4
7774.138	O I	–	[300]	U3
7771 928	O I	–	[1000]	U2
7698.979	K I	5000 R	–	U2
7664.907	K I	9000 R	–	U1
7503.867	A I	–	[700]	U4
7450.00	Rn I	–	[600]	U2
7067.217	A I	–	[400]	U3
7055.42	Rn I	–	[400]	U3
6965.430	A I	–	[400]	U3
6902 46	F I	–	[500]	U3
6856.02	F I	–	[1000]	U2
6707.844	Li I	3000 R	200	U1
6562.79	H I	–	[3000]	U2
6438.4696	Cd I	2000	1000	–
6402.246	Ne I	–	[2000]	–
6362.347	Zn I	1000 Wh	500	–
6249.929	La I	300	–	U1
6243.36	Al II	–	100	V3
6231.76	Al II	–	30	–
6103.642	Li I	2000 R	300	U3
5930.648	La I	250	–	U2
5895.923	Na I	5000 R	500 R	U2
5889 953	Na I	9000 R	1000 R	U1
5875.618	He I	–	[1000]	U3
5870.9158	Kr I	–	[3000]	U2
5852.488	Ne I	–	[2000]	–
5777 665	Ba I	500 R	100 R	U2
5688 224	Na I	300	–	–
5682 657	Na I	80	–	–
5679.56	N II	–	[500]	V2
5676.02	N II	–	[100]	V4
5666 64	N II	–	[300]	V3
5608 8	Pb II	–	[40]	V2
5570 2895	Kr I	–	[2000]	U3
5535 551	Ba I	1000 R	200 R	U1
5519.115	Ba I	200 R	60 R	U3
5465 487	Ag I	1000 R	500 R	U4
5464 61	I II	–	[900]	–
5460.740	Hg I	–	[2000]	–
5455.146	La I	200	1	U3
5424.616	Ba I	100 R	30 R	U4
5400 562	Ne I	–	[2000]	–
5350.46	Tl I	5000 R	2000 R	U1
5291.0	bh CaF	200	–	–
5218.202	Cu I	700	–	U3
5209.067	Ag I	1500 R	1000 R	U3
5208.436	Cr I	500 R	100	U4
5206 039	Cr I	500 R	200	U5
5204 518	Cr I	400 R	100	U6
5183.618	Mg I	500 wh	300	–
5172.699	Mg I	200 wh	100 wh	–
5167.343	Mg I	100 wh	50	–
5161.188	I II	–	[300]	–
5153.235	Cu I	600	–	U4
5105.541	Cu I	500	–	U5
5007.213	Ti I	200	40	–
4999.510	Ti I	200	80	–
4991.066	Ti I	200	100	–
4981.733	Ti I	300	125	U1
4962.263	Sr I	40	–	U4
4934.086	Ba II	400 h	400 h	V2
4889.17	Re I	2000 w	–	U2
4872.493	Sr I	25	–	U3
4861 327	H I	–	[500]	U3
4832.075	Sr I	200	8	U2
4825.91	Ra I	–	[800]	U1
4819 46	Cl II	–	[200]	V4
4816 71	Br II	–	[300]	V3
4810.534	Zn I	400 w	300 h	–
4810 06	Cl II	–	[200]	V3
4794.54	Cl II	–	[250]	V2
4785 50	Br II	–	[400]	V2
4772 312	Zr I	100	–	–
4742 25	Se I	–	[500]	U6
4739.478	Zr I	100	–	–
4739 03	Se I	–	[800]	U5
4730.78	Se I	–	[1000]	U4
4722 552	Bi I	1000	100	–
4722 159	Zn I	400 w	300 h	–
4710.075	Zr I	60	–	–
4704 86	Br II	–	[250]	V1
4696 25	S I	–	[15]	U9
4695 45	S I	–	[30]	U8
4694.13	S I	–	[500]	U7
4687 803	Zr I	125	–	U4
4685.75	He II	–	[300]	–
4682.28	Ra II	–	[800]	V2
4680.138	Zn I	300 w	200 h	–
4674.848	Yt I	80	100	U1
4671 226	Xe I	–	[2000]	U2
4643 695	Yt I	50	100	U2
4624 276	Xe I	–	[1000]	U3
4607 331	Sr I	1000 R	50 R	U1
4603 00	Li I	800	–	U4
4593.177	Cs I	1000 R	50	U4
4555 355	Cs I	2000 R	100	U3
4554 042	Ba II	1000 R	200	V1
4524 741	Sn	500 wh	50	–
4518 57	Lu	300	40	–
4511.323	In I	5000 R	4000 R	U1
4500 977	Xe I	–	[500]	U4
4454.781	Ca I	200	–	U2
4434 960	Ca I	150	–	U3
4434.321	Sm II	200	200	V2
4425 441	Ca I	100	–	U4
4424 342	Sm II	300	300	V1
4420 468	Os I	400 R	100	–
4390 865	Sm II	150	150	–
4389 974	V I	80 R	60 R	–
4384.722	V I	125 R	125 R	–
4379 238	V I	200 R	200 R	U1
4358.35	Hg I	3000 w	500	–
4305 447	Sr II	40	–	–
4303.573	Nd	100	40	–
4302 108	W I	60	60	U1
4294.614	W I	50	50	U2
4289.721	Cr I	3000 R	800 r	U3
4274.803	Cr I	4000 R	800 r	U2
4267 27	C II	–	500	V2
4267 02	C II	–	350	V3
4254.346	Cr I	5000 R	1000	U1
4241 669	U	40	50	–
4226 728	Ca I	500 R	50 W	U1
4226 570	Ge I	200	50	–
4225 327	Pr	50	40	–
4215 556	Rb I	1000 R	300	U4
4215 524	Sr II	300 r	400 W	V2
4211.719	Dy	200	15	–
4205 046	Eu II	200 R	50	–
4201 851	Rb I	2000 R	500	U3
4189 518	Pr	100	50	–
4186 599	Ce II	80	25	–
4179 422	Pr	200	40	–
4177.321	Nd	15	25	–
4172 056	Ga I	2000 R	1000 R	U1
4167.966	Dy	50	12	–
4165 606	Ce II	40	6	
4137 095	Cb I	100	60	U5
4130.664	Ba II	50 r	60 Wh	V3
4129 737	Eu II	150 R	50 R	–
4123 810	Cb I	200	125	U4
4123 228	La II	500	500	V4
4109 98	N I	–	[1000]	U2
4103 37	N III	–	[80]	–
4101 773	In I	2000 R	1000 R	U2
4100 923	Cb I	300 w	200 w	U3
4099.94	N I	–	[150]	U3
4097.31	N III	–	[100]	–
4093 161	Hf II	25	20	–
4079.729	Cb I	500 w	200 w	U2
4077 974	Dy	150 r	100	–
4077 714	Sr II	400 r	500 W	V1
4077 340	La II	600	400	V3
4062 817	Pr	150	50	–
4058.938	Cb I	1000 w	400 w	U1
4057.820	Pb I	2000 R	300 R	U1
4047.201	K I	400	200	U4
4046 561	Hg I	200	300	–
4045 983	Dy	150	12	–
4044 140	K I	800	400	U3
4040.762	Ce II	70	5	–
4034 490	Mn I	250 r	20	U3
4033 073	Mn I	400 r	20	U2
4032 982	Ga I	1000 R	500 R	U2
4030 755	Mn I	500 r	20	U1
4023 688	Sc I	100	25	U3
4020 399	Sc I	50	20	U4
4019 137	Th	8	8	–
4012 388	Ce I, II	60	20	–
4008.753	W I	45	45	U3
4000.454	Dy	400	300	–
3987 994	Yb	1000 R	500 R	–
3968.468	Ca II	500 R	500 R	V2
3961.527	Al I	3000	2000	U1
3951.154	Nd	40	30	–
3949.106	La II	1000	800	V2
3944.032	Al I	2000	1000	U2
3933 666	Ca II	600 R	600 R	V1
3911 810	Sc I	150	30	U1
3907 476	Sc I	125	25	U2
3906 316	Er	25	12	–
3905 528	Si I	20	15 W	–
3902 963	Mo I	1000 R	500 R	U3
3891.785	Ba II	18	25	V4
3891 02	Ho	200	40	–
3888 646	He I	–	[1000]	U2
3874 18	Tb	200	200	–
3864 110	Mo I	1000 R	500 R	U2
3848 75	Tb	100	200	–
3838 258	Mg I	300	200	U2
3832 306	Mg I	250	200	U3
3829.350	Mg I	100 w	150	U4
3814 42	Ra II	–	[2000]	V1
3798 252	Mo I	1000 R	1000 R	U1
3788 697	Yt II	30	30	–
3775 72	Tl I	3000 R	1000 R	U2
3774 332	Yt II	12	100	–
3768 405	Gd	20	20	–
3761 917	Tm	200	120	–
3761 333	Tm	250	150	–
3748.264	Fe I	500	200	U4
3748 17	Ho	60	40	–
3745 903	Fe I	150	100	U5
3745 564	Fe I	500	500	U3
3737 133	Fe I	1000 r	600	U2
3719.935	Fe I	1000 R	700	U1
3710.290	Yt II	80	150	V1
3694 203	Yb	500 R	1000 R	–
3692 652	Er	20	12	–
3692 357	Rh I	500 hd	150 wd	–
3683 471	Pb I	300	50	U2
3672 579	U	8	15	–
3663 276	Hg I	500	400	U5
3657 987	Rh I	500 W	200 W	–
3654 833	Hg I	–	[200]	U4
3653.496	Ti I	500	200	U2

* Compiled from a combination of empirical and theoretical data selected from the literature.

‡ For the neutral atom, the most sensitive line (raie ultime) is indicated by U1, and other lines by U2, U3, etc , in order of decreasing sensitivity. For the singly ionized atom, the corresponding designations are V1, V2, etc. In cases where U1 is not given, the most sensitive lines lie outside the spectral range 10,000–2000 A.

WAVELENGTH TABLES

Wavelength	Element	Intensities Arc	Spk, [Dis]	Sensitivity‡
3650.146	Hg I	200	500	U3
3646.196	Gd	200 w	150	–
3642.785	Sc II	60	50	V3
3642 675	Ti I	300	125	–
3639.580	Pb I	300	50 h	–
3635.463	Ti I	200	100	–
3634.695	Pd	2000 R	1000 R	U3
3633.123	Yt II	50	100	–
3630.740	Sc II	50	70	V2
3613 836	Sc II	40	70	V1
3613.790	W II	10	30	–
3610 510	Cd I	1000	500	–
3609.548	Pd I	1000 R	700 R	–
3601 193	Zr I	400	15	U1
3601 040	Th	8	10	–
3600 734	Yt II	100	300	–
3596 179	Ru I	30	100	U3
3572 473	Zr II	60	80	V4
3561.74	Tb	200	200	–
3554.43	Lu	50	150	–
3552 172	U	8	12	–
3547.682	Zr I	200	12	U2
3538 75	Th	–	50	–
3529 813	Co I	1000 R	30	U3
3524 541	Ni I	1000 R	100 wh	–
3519 605	Zr I	100	10	U3
3519 24	Tl I	2000 R	1000 R	U3
3516 943	Pd I	1000 R	500 R	–
3515 054	Ni I	1000 R	50 h	–
3513.645	Ir I	100 h	100	U2
3509 17	Tb	200	200	–
3499 104	Er	18	15	–
3498 942	Ru I	500 R	200	U1
3496 210	Zr II	100	100	V3
3492.956	Ni I	1000 R	100 h	U2
3474 887	Sr II	80	50	–
3472 48	Lu	50	150	–
3466 201	Cd I	1000	500	–
3465 800	Co I	2000 R	25	U2
3464 57	Sr II	200	200	–
3462.21	Tm	200	100	–
3460.47	Re I	1000 W	–	U1
3453 505	Co I	3000 R	200	U1
3451.41	B II	5	30	V2
3438 230	Zr II	250	200	V2
3437.015	Ir I	20	15	–
3436.737	Ru I	300 R	150	U2
3434 893	Rh	1000 R	200 r	U1
3421.24	Pd I	2000 R	1000 R	U2
3414.765	Ni I	1000 R	50 wh	U1
3406.664	Ta	70 w	18 s	–
3405.120	Co I	2000 R	150	–
3404 580	Pd I	2000 R	1000 R	U1
3403 653	Cd I	800	500 h	–
3397.07	Lu	50	20 r	–
3396.85	Rh I	1000 w	500	–
3391.975	Zr II	300	400	V1
3383 761	Ti II	70	300 R	–
3382 891	Ag I	1000 R	700 R	U2
3380.711	Sr II	150	200	–
3372.800	Ti II	80	400 R	V3
3361.213	Ti II	100	600 R	V2
3349 035	Ti II	125	800 R	V1
3345.020	Zn I	800	300	U2
3323.092	Rh I	1000	200	–
3321.343	Be I	1000 r	30	U2
3321 086	Be I	100	–	U3
3321.013	Be I	50	–	U4
3318.840	Ta	125	35	–
3311.162	Ta	300 w	70 w	U1
3302 988	Na I	300 R	150 R	U4
3302.588	Zn I	800	300	U3
3302 323	Na I	600 R	300 R	U3
3290 59	Th	–	40 h	–
3289.37	Yb	500 R	1000 R	–
3282 333	Zn I	500 R	300	U4
3280 683	Ag I	2000 R	1000 R	U1
3273.962	Cu I	3000 R	1500 R	U2
3269.494	Ge I	300	300	U3
3267.945	Os I	400 R	30	–
3267.502	Sb I	150	150 Wh	–
3262 328	Sn I	300 h	300 h	U3
3262 290	Os I	500 R	50	–
3261 057	Cd I	300	300	–
3258.564	In I	500 R	300 R	U5
3256 090	In I	1500 R	600 R	U3
3247 540	Cu I	5000 R	2000 R	U1
3242 280	Yt II	60	100	–
3232 61	Li I	1000 R	500	U2
3232.499	Sb I	150	250 wh	–
3229.75	Tl I	2000	800	–
3225 479	Cb II	150 w	800 wr	–
3220 780	Ir I	100	30	U1
3215 560	W I	10	9	–
3194.977	Cb II	30	300	–
3185 396	V I	500 R	400 R	U2
3183 982	V I	500 R	400 R	–
3183.406	V I	200 R	100 R	–
3179 332	Ca II	100	400 w	V3
3175 019	Sn I	500 h	400 hr	–
3163.402	Cb II	15	8	–
3158.869	Ca II	100	300 w	V4
3134.718	Hf II	80	125	–
3131.072	Be II	200	150	V2
3130.786	Cb II	100	100	–
3130.416	Be II	200	200	V1
3125.284	V II	80	200 R	–
3118.383	V II	70	200 R	V4
3110.706	V II	70	300 R	V3
3102.299	V II	70	300 R	V2
3094.183	Cb II	100	1000	V1
3093 108	V II	100 R	400 R	V1
3092 713	Al I	1000	1000	U3
3082 155	Al I	800	800	U4
3072 877	Hf I	80	18	–
3071.591	Ba I	100 R	50 R	U5
3067 716	Bi I	3000 hR	2000 wh	U1
3064.712	Pt I	2000 R	300 R	U1
3058 66	Os I	500 R	500	–
3039 356	In I	1000 R	500 R	U4
3039 064	Ge I	1000	1000	U2
3034.121	Sn I	200 wh	150 wh	–
3009 147	Sn I	300 h	200 h	–
2997 967	Pt I	1000 R	200 r	–
2989 029	Bi I	250 wh	100 wh	–
2976 586	Ru	60	200	–
2965.546	Ru	60	200	–
2945.668	Ru	60	300	–
2943 637	Ga I	10	20 r	U3
2940.772	Hf I	60	12	–
2938 298	Bi I	300 w	300 w	–
2936 77	Ho	–	1000 R	–
2929.794	Pt I	800 R	200 w	–
2924 792	Ir I	25 wh	15	–
2918.32	Tl I	400 R	200 R	–
2916.481	Hf I	50	15	–
2911 39	Lu	100	300	–
2909.116	Mo II	25	40 h	V5
2909.061	Os I	500 R	400	U1
2904 408	Hf I	30	6	–
2898.71	As I	25 r	40	–
2898 259	Hf I	50	12	–
2897.975	Bi I	500 WR	500 WR	U2
2894.84	Lu	60	200	–
2890.994	Mo II	30	50 h	V4
2881 578	Si I	500	400	U1
2877.915	Sb I	250 W	150	–
2874 244	Ga I	10	15 r	U4
2871.508	Mo II	100	100 h	V3
2863.327	Sn I	300 R	300 R	U2
2860.934	Cr II	60	100	V5
2860.452	As I	50 r	50	–
2855.676	Cr II	60	200 Wh	V4
2854 581	Pd II	4	500 h	–
2852 129	Mg I	300 R	100 R	U1
2849.838	Cr II	80	150 r	V3
2849.725	Ir I	40 h	20 h	–
2848 232	Mo II	125	200 h	V2
2843 252	Cr II	125	400 r	V2
2839.989	Sn I	300 R	300 R	U1
2837 602	C II	–	40	V5
2836 710	C II	–	200	V4
2835 633	Cr II	100	400 r	V1
2833.069	Pb I	500 R	80 R	–
2830.295	Pt I	1000 R	600 r	–
2820 224	Hf II	40	100	–
2816 179	Al II	10	100	V2
2816 154	Mo II	200	300 h	V1
2809.625	Bi I	200 w	100	–
2802.695	Mg II	150	300	V2
2802.19	Au	–	200	–
2795.53	Mg II	150	300	V1
2780.521	Bi I	200 w	100	–
2780 197	As I	75 R	75	U5
2773.357	Hf II	25	60	–
2769.67	Te I	–	[30]	–
2767.87	Tl I	400 R	300 R	–
2748.58	Cd II	5	200	–
2712 410	Ru	80	300	–
2709.626	Ge I	30	20	–
2692 065	Ru	8	200	–
2678 758	Ru	100	300	–
2675 95	Au I	250 R	100	U2
2669 166	Al II	3	100	V1
2659.454	Pt I	2000 R	500 R	U2
2658.722	Pd II	20	300	–
2651 575	Ge I	30	20	–
2651.178	Ge I	40	20	–
2650 781	Be I	25	–	U5
2641 406	Hf II	40	125	–
2631 553	Al II	–	40	–
2614 178	Pb	200 r	80	–
2605 688	Mn II	100 R	500 R	V3
2598 062	Sb I	200	100	–
2593 729	Mn II	200 R	1000 R	V2
2589.167	W II	15 d	25	–
2576 104	Mn II	300 R	2000 R	V1
2573 09	Cd II	3	150	–
2557.958	Zn II	10	300	V3
2554 93	P I	60	[20]	–
2553 28	P I	80	[20]	U3
2536 519	Hg I	2000 R	1000 R	U2
2535 65	P I	100	[30]	U2
2534.01	P I	50	[20]	–
2530 70	Te I	–	[30]	–
2528 535	Sb I	300 R	200	–
2528 516	Si I	400	500	U2
2519 822	Co II	40	200	–
2516 881	Hf II	35	100	–
2516 123	Si I	500	500	U3
2513 028	Hf II	25	70	–
2506 899	Si I	300	200	U4
2505 739	Pd II	3	30	–
2502 001	Zn II	20	400 w	V4
2498 784	Pd II	4	150 h	–
2497.733	B I	500	400	U1
2496 778	B I	300	300	U2
2488 921	Pd II	10	30	–
2478 573	C I	400	[400]	U2
2456 53	As I	100 r	8	U4
2437 791	Ag II	60	500 wh	V2
2427 95	Au I	400 R	100	U1
2413 309	Fe II	60	100 h	V5
2410.517	Fe II	50	70 h	V4
2404 882	Fe II	50	100 wh	V3
2397.091	W II	18	30	–
2395 625	Fe II	50	100 wh	V2
2388 918	Co II	10	35	–
2385 76	Te I	600	[300]	U2
2383 25	Te I	500	[300]	U3
2382.039	Fe II	40 r	100 R	V1
2378 622	Co II	25	50 w	–
2370 77	As I	50 r	3	–
2369 67	As I	40 r	–	–
2363.787	Co II	25	50	–
2349 84	As I	250 R	18	U3
2348 610	Be I	2000 R	50	U1
2335 269	Ba II	60 R	100 R	–
2312.84	Cd II	1	200	–
2311.469	Sb I	150 R	50	–

‡ For the neutral atom, the most sensitive line (raie ultime) is indicated by U1, and other lines by U2, U3, etc., in order of decreasing sensitivity. For the singly ionized atom, the corresponding designations are V1, V2, etc. In cases where U1 is not given, the most sensitive lines lie outside the spectral range 10,000–2000 A.

Wavelength	Element	Intensities Arc	Intensities Spk, [Dis]	Sensitivity‡
2307.857	Co II	25	50 w	–
2304.235	Ba II	60 R	80 R	–
2296.89	C III	–	200	–
2288.12	As I	250 R	5	U3
2288.018	Cd I	1500 R	300 R	U1
2287.084	Ni II	100	500	V1
2286.156	Co II	40	300 l	V1
2276.578	Bi I	100 R	40	–
2270.213	Ni II	100	400	V2
2265.017	Cd II	25 d	300	V2
2264.457	Ni II	150	400	V3
2253.86	Ni II	100	300	V4
2246.995	Cu II	30	500	V3
2246.412	Ag II	25	300 hs	V3
2203.505	Pb II	50 W	5000 R	V1
2192.260	Cu II	25	500 h	V2
2175.890	Sb I	300	40	U2
2169.994	Pb I	1000 R	1000 R	–
2144.382	Cd II	50	200 R	V1
2142.75	Te I	60 R	–	–
2138.56	Zn I	800 R	500	U1
2135.976	Cu II	25	500 w	V1
2068.38	Sb I	300 R	3	U1
2062.788	Se I	–	[800]	U3
2062.38	I	–	[900]	–
2061.91	Zn II	100	100	V2
2061.70	Bi I	300 R	100	–
2039.851	Se I	–	[1000]	U2
2025.51	Zn II	200	200	V1

‡ For the neutral atom, the most sensitive line (raie ultime) is indicated by U1, and other lines by U2, U3, etc., in order of decreasing sensitivity. For the singly ionized atom, the corresponding designations are V1, V2, etc. In cases where U1 is not given, the most sensitive lines lie outside the spectral range 10,000–2000 A.

TABLE V

KEY TO SYMBOLS FOR AUTHORS AND REFERENCES

Ab Albertson, W. E.
- Gd Phys. Rev. **47**: 370 (1935)
- Ir Unpublished material
- Os Phys. Rev. **45**: 304 (1934)
- Sm Unpublished material

Ad Anderson, J. A.
- Ca Astrophys. Journ. **59**: 76 (1924)

An Angerer, E. von
- Cl Zeits. f. wiss. Phot. **22**: 200 (1923)
- Li Zeits. f. Physik **18**: 113 (1923)

Ar Arnolds, R.
- Sn Zeits. f. wiss. Phot. **13**: 313 (1914)

Az Aretz, M.
- Cu Zeits. f. wiss. Phot. **9**: 256 (1911)

Bb Babcock, H. D.
- Fe Astrophys. Journ. **66**: 256 (1927)

Bh Behner, K.
- Ti Zeits. f. wiss. Phot. **23**: 325 (1925)

Bk Belke, M.
- W Zeits. f. wiss. Phot. **17**: 132 (1917)

Bl Bloch, L. and E.
- Br Annales de Physique **7**: 206 (1927)
- Cd, Zn Annales de Physique **5**: 325 (1936)
- Cl Annales de Physique **8**: 403 (1927)
- I Annales de Physique **11**: 141 (1929)
- S Annales de Physique **12**: 5 (1929)
- Se, Te Annales de Physique **13**: 233 (1930)

Bloch and Déjardin, G.
- Ne Journ. de Phys. et le Rad. **7**: 129; 203 (1926)

Bn de Bruin, T. L.
- A K. Akad. van Wetens. Amsterdam. Proc. **40**: 342 (1938)
- K Zeits. f. Physik **38**: 96 (1926)
- Ne Zeits. f. Physik **69**: 22 (1931)

Bs Balasse, G.
- Cs Journ. de Phys. et le Rad. **8**: 318 (1927)

Bt Bartelt, O.
- Se Zeits. f. Physik **91**: 444 (1934)

Bartelt and Eckstein, L.
- S Zeits. f. Physik **86**: 77 (1933)

Bu Burns, K.
- Ba Comptes Rendus **156**: 1976 (1913)
- Cu Phys. Rev. **48**: 656 (1935)

Burns and Walters, F. M., Jr.
- Cu Allegheny Obs. (U. of Pittsburgh) Pub. **8**: 27 (1930); 37 (1931)
- Fe Allegheny Obs. (U. of Pittsburgh) Pub. **8**: 39 (1931)

Bv Bevan, P. V.
- Cs Royal Soc. London. Proc. **A83**: 421 (1910); **A85**: 54 (1911); **A86**: 320 (1912)
- Rb Royal Soc. London. Proc. **A83**: 421 (1910)

Bx Blair, H. A.
- Ag Phys. Rev. **36**: 173; 1532 (1930)
- Pd Phys. Rev. **36**: 173 (1930)

Bz Bungartz, E.
- S Annalen der Physik **76**: 709 (1925)

Cf Crawford, M. F., and McLay, A. B.
- Bi Royal Soc. London. Proc. **A143**: 540 (1934)

Cn Cardaun, L.
- Hg Zeits. f. wiss. Phot. **14**: 56, 89 (1914)

Ct Catalán, M. A.
- Ag An. Soc. Españ Fís Quím **15**: 222; 483 (1917)

Catalán and Sancho, P. M.
- Cr An. Soc. Españ. Fís. Quím. **29**: 327 (1931)

Cw Crew, H., and McCauley, G. V.
- Ca Astrophys. Journ. **39**: 29 (1914)

Cx Carroll, J. A.
- In, Tl Royal Soc. London. Phil. Trans. **A225**: 357 (1926)

Cz Curtis, C. W.
- Mn Phys. Rev **53**: 478 (1938)

Da Datta, S.
- K, Na Royal Soc London. Proc. **A99**: 69 (1921)

Datta and Bose, P. C.
- Li Zeits. f. Physik **97**: 321 (1935)

Db Deb, S. C.
- I Royal Soc. London. Proc. **A139**: 380 (1933)

Di Dingle, H.
- F Royal Soc. London. Proc. **A128**: 603 (1930)
- Fe Royal Astron. Soc. London. Monthly Notices **94**: 287 (1934)
- Hg Royal Soc London. Proc. **A100**: 167 (1921)

Dj Déjardin, G
- Hg Annales de Physique **10**: 424 (1927)
- Xe Comptes Rendus **190**: 581 (1930)

Dm Dahmen, W.
- K Zeits. f. Physik **35**: 528 (1925)

Dn Dhein, F.
- Co Zeits f. wiss. Phot. **19**: 289 (1920)
- Pd Zeits. f. wiss. Phot. **11**: 317 (1912)

Do Dobbie, J. K.
- Fe Solar Phys. Obs., Cambridge, England. Annals **5**: 1 (1938)

Dr Dunoyer, M. L.
- Cs, Rb Journ. de Phys. et le Rad. **3**: 261 (1922)

Ds (Piña) de Rubies, S.
- Gd Comptes Rendus **184**: 594 (1927)
- Nd Comptes Rendus **197**: 33 (1933)
- Sc An. Soc. Españ. Fís. Quím. **22**: 49 (1924)

Du Duffendack, O. S., and Wolfe, R. A.
- N Phys. Rev. **34**: 409 (1929)

Dv Dhavale, D. G.
- Sb Royal Soc London. Proc. **A131**: 109 (1931)

Ea Earls, L. T., and Sawyer, R. A.
- Pb Phys. Rev. **47**: 115 (1935)

Ed Eder, J. M.
- Au, Gd, Nd, Pr Akad. Wiss. Wien. Ber. **124**: 101 (1915)
- Dy Akad. Wiss. Wien. Ber. **127**: 1099 (1918)
- Er, Yt Akad. Wiss Wien. Ber. **125**: 383 (1916)
- Eu Akad. Wiss. Wien. Ber. **126**: 473 (1917)
- Gd Akad. Wiss. Wien. Ber. **125**: 1467 (1916)
- Tb Akad. Wiss. Wien. Ber. **131**: 199 (1922)
- Tl Akad. Wiss. Wien. Ber. **122**: 607 (1913)

Eder and Valenta, E.
- Bi Akad. Wiss. Wien. Ber. **119**: 519 (1910)
- Ho Akad. Wiss. Wien. Ber. **119**: 9 (1910)

El Ellis, J. W., and Sawyer, R. A.
Tl Phys. Rev. **49**: 147 (1936)

En Edlén, B
B Zeits. f. Physik **73**: 477 (1932)
C Upsala Regia Soc Scient. **9**: 77; 108 (1933)
F, K Zeits. f. Physik **98**: 445 (1936)

Es Esclanglon, F.
Cd Journ de Phys. et le Rad **7**: 52 (1926)

Ev Evans, S F.
I Royal Soc. London Proc **A133**: 417 (1931)

Ex Exner, F, and Haschek, E
Ag, Au, Ba, Cr, Co, Cu, Er, Eu, Gd, Ho, Mg, Mo, Nd, Pd, Pt, Rh, Ru, Sc, Sr, Ta, Tb, Th, Tl, W
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Fa Fabry, C.
Rb Comptes Rendus **195**: 1012 (1932)

Fd Fred, M
Th Astrophys. Journ. **87**: 179 (1938)

Fh Frerichs, R.
O Phys. Rev. **34**: 1239 (1929)
S Zeits. f. Physik **80**: 152 (1933)

Fi Findley, J. H.
Co Phys. Rev. **36**: 9 (1930)

Fl Fowler, A.
Ba, Ca, Cd, Cs, In, K, Li, Mg, Na, O, Rb, Sr, Tl, Zn
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O Royal Soc. London. Proc. **A110**: 480 (1926)
Si Royal Soc. London. Proc. **A123**: 425 (1929)
Fowler and Selwyn, E. W. H.
C Royal Soc. London Proc **A118**: 34 (1928)

Fm Freeman, L. J.
N Royal Soc. London Proc. **A114**: 662 (1927); **A124**: 654 (1929)

Fn Frings, J.
Ag Zeits. f. wiss. Phot. **15**: 165 (1915)

Fo Foote, P. D.
Na Astrophys. Journ. **55**: 145 (1922)

Fr Frisch, S.
Na Zeits. f. Physik **70**: 498 (1931)

Fu Fuchs, H.
Mn Zeits. f. wiss. Phot. **14**: 239 (1914)

Gn Grünter, R.
Al Zeits. f. wiss Phot. **13**: 1 (1913)

Gr Gremmer, W.
Kr Zeits. f. Physik **73**: 620 (1932)
Ne Zeits f. Physik **50**: 705 (1928)

Gs Gieseler, H.
Pb Zeits. f. Physik **42**: 265 (1927)

Gt Gartlein, C. W.
Ge Phys. Rev. **31**: 782 (1928)

Gu Geuter, P.
P Zeits. f. wiss. Phot. **5**: 14 (1907)

Ha Hamm, S.
Ni Zeits. f. wiss. Phot. **13**: 105 (1913)

Hb Hasselberg, B.
U Klg Sv. Vet. Akad. Handl. **45**: 5 (1910)

Hl Hall, J
Cr Kayser and Konen, Handbuch der Spectroscopie **7 (1)**. Hirzel, Leipzig (1923)

Hn Hunter, A. A.
S Royal Soc. London. Phil. Trans **A233**: 303 (1934)

Hp Hampe, H.
Sr Zeits f. wiss. Phot. **13**: 348 (1914)

Hs Hasbach, K.
Cu Zeits. f. wiss. Phot. **13**: 399 (1914)

Ht Holtz, O.
Ca Zeits. f. wiss. Phot. **12**: 112 (1913)

Hu Humphreys, C. J.
A, Kr, Ne Bur of Stand. Journ. of Res **20**: 17 (1938)
Kr Phys. Rev. **47**: 714 (1935)
Kr, Xe Bur. of Stand. Journ. of Res **5**: 1041 (1930)
Xe Bur. of Stand. Journ. of Res **22**: 19 (1939)

Hx Haussmann, A. C.
Pt Astrophys. Journ. **66**: 333 (1927)

Hz Hetzler, C. W, Boreman, R. W, and Burns, K.
Ag, Be, Cd, Cu, K, Li, Na, Pb, Rb, Sn, Sr, Zn Phys. Rev. **48**: 656 (1935)

Ig Ingram, S. B.
C, N Phys. Rev. **34**: 421 (1929)
S Phys. Rev. **33**: 907 (1929)

It Ireton, H J. C., and Keast, A. M.
Ir, Pd, Pr, Pt, Yb Royal Soc. Canada. Trans. **23**: 13 (1929)

Ja Jackson, C V.
Kr Royal Soc. London. Phil. Trans. **A236**: 1 (1936)

Jn Johnson, R. C.
C Royal Soc. London. Proc. **A108**: 343 (1923)

Jv Jevons, W.
Cl Royal Soc. London. Proc. **A103**: 198 (1923)

Ka Karlik, B, and Pettersson, H.
Po Akad Wiss. Wien. Ber. **143**: 379 (1934)

Kb Krebs, A.
Co Zeits f wiss Phot. **19**: 307 (1919)

Ke Kerris, W.
I Zeits. f. Physik. **60**: 20 (1930)

Kh Krishnamurty, S. G, and Rao, K. R.
So Royal Soc. London. Proc. **A149**: 56 (1935)

Kl Klein, E.
Ga Astrophys. Journ. **56**: 373 (1922)
Klein, F.
Pb Zeits. f wiss. Phot. **12**: 16 (1913)

Kn King, A. S.
Ba Astrophys. Journ **48**: 13 (1918)
Ce, Pr Astrophys. Journ **68**: 194 (1928)
Dy, Gd, Ho, Tb Astrophys. Journ. **72**: 221 (1930)
Eu Astrophys. Journ. **89**: 377 (1939)
Fe Astrophys. Journ. **87**: 109 (1938)
Nd Astrophys. Journ. **78**: 9 (1933)
Sm Astrophys. Journ. **82**: 140 (1935)
V Astrophys. Journ. **60**: 284 (1924)
Yb Astrophys. Journ **73**: 328 (1931)
King and Carter, E.
La Astrophys. Journ. **65**: 86 (1927)

Kp Kasper, F. J.
Ag Zeits. f. wiss. Phot. **10**: 1 (1911)

Ks Kiess, C. C.
Al, Ba, Ca, Cr, Cu, Fe, Mn, Na, Ni, V Bur. of Stand. Journ of Res. **1**: 75 (1928)
C, Ti Bur. of Stand. Journ. of Res. **20**: 33 (1938)
Ce, La, Yt Bur. of Stand. Sci. Papers **17**: 318 (1922)
Cl Unpublished material
Cl Bur of Stand. Journ. of Res. **10**: 827 (1933)
Cr Bur. of Stand. Journ. of Res **15**: 79 (1935)
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Dy, Gd Bur of Stand. Sci. Papers **18**: 695 (1922)
N Amer. Astron Soc. Pub **4**: 363 (1922)
N Science **60**: 249 (1924)
Nd, Sm Bur. of Stand. Sci. Papers **18**: 201 (1922)
P Bur of Stand. Journ. of Res **8**: 393 (1932)
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Kiess and de Bruin, T. L.
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Cl Bur of Stand. Journ. of Res. **2**: 1117 (1929)
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Zr Bur. of Stand. Journ. of Res **6**: 621 (1931); **5**: 1205 (1930)
Kiess and Stowell, E Z.
Ta Bur. of Stand. Journ. of Res **12**: 459 (1934)

Kz Kretzer, A
Sb Zeits. f. wiss Phot **8**: 45 (1910)

Lc Lacroute, M. P.
Br, I Annales de Physique **3**: 5 (1935)
S, Se, Te Journ. de Phys. et le Rad. **9**: 180 (1928)

Lf Laffay, J.
Hg Comptes Rendus **180**: 823 (1925)

Lg Lang, R. J.
As, Pb, Sn Royal Soc. London. Phil. Trans **A224**: 371 (1924)
Ge Nat Acad. Sci. Proc **14**: 34 (1928)
Ge Phys. Rev. **34**: 708 (1929)
Sb, Sn Phys. Rev. **35**: 445 (1930)
Lang and Sawyer, R. A
In Zeits. f Physik **71**: 453 (1931)
Lang and Vestine, E H
Sb Phys Rev. **42**: 233 (1932)

Ln Laun, D. D.
W Bur of Stand. Journ of Res **21**: 207 (1938)

Lp Laporte, O, Miller, G. R, and Sawyer, R. A.
Cs Phys. Rev. **39**: 461 (1932)
Rb Phys. Rev. **38**: 843 (1931)

Lr Lorenser, E.
Ba Kayser and Konen, Handbuch der Spectroscopie, **7** (1). Hirzel, Leipzig (1923)
Mo Kayser and Konen, Handbuch der Spectroscopie, **7** (3). Hirzel, Leipzig (1934)

Lx Lub, W. A.
Ac K. Akad. van Wetens. Amsterdam. Proc. **40**: 584 (1937)

Mc McCormick, W W, and Sawyer, R. A.
Sn Phys. Rev **54**: 71 (1938)

Md McDonald, M. C.
Hf Royal Soc. Canada. Trans. **21**: 223 (1927)
McDonald, Sutton, E. E., and McLay, A B.
Be Royal Soc. Canada Trans. **20**: 313 (1926)

Me Meggers, W. F.
Ba, Ca, Cs, K, Rb, Sr Bur. of Stand Journ. of Res. **10**: 669 (1933)
bhLa Bur. of Stand. Journ of Res. **9**: 268 (1932)
Bi Unpublished material
Cd Optical Soc. Amer. Journ **6**: 135 (1922)
Cu Phys. Rev. **28**: 449 (1926)
Ir, Os, Pd, Pt, Rh, Ru Bur. of Stand. Sci Papers **20**: 19 (1924)
Li Bur. of Stand Bull **14**: 371 (1918)
Mn, Re Bur. of Stand. Journ. of Res. **10**: 757 (1933)
Pb Unpublished material
Re Bur. of Stand. Journ. of Res **6**: 1027 (1931)
Sb Unpublished material
Sc Bur. of Stand. Sci. Papers **22**: 61 (1927)
Sn Unpublished material
Tm Unpublished material
V Unpublished material
Yt Bur. of Stand Journ of Res **1**: 325 (1928)
Meggers and de Bruin, T L
As Bur of Stand. Journ. of Res. **3**: 765 (1929)
Meggers, de Bruin, and Humphreys, C. J.
Kr Bur. of Stand. Journ. of Res. **11**: 422 (1933)
Xe Bur of Stand. Journ. of Res. **3**: 731 (1929)
Meggers and Dieke, G. H
He Bur. of Stand. Journ of Res **9**: 121 (1932)
Meggers, Foote, P. D., and Mohler, F L.
Na Astrophys Journ. **55**: 145 (1922)
Meggers and Humphreys, C. J
A, Kr, Ne Bur. of Stand. Journ. of Res. **10**: 427 (1933)
A, Kr, Xe Bur of Stand. Journ. of Res. **13**: 293 (1934)
Fe Bur of Stand. Journ. of Res. **18**: 543 (1937)
Meggers and Kiess, C. C
Co, Fe, Ni Bur of Stand. Bull. **14**: 637 (1919)
Cr, Mn, Mo, Ti, U, W Bur. of Stand Sci. Papers **16**: 51 (1920)
Ni, Ti, Zr Bur. of Stand. Journ of Res. **9**: 309 (1932)
Meggers and King, A. S.
Cb Bur of Stand. Journ. of Res **16**: 385 (1936)
Meggers and Russell, H N
La Bur of Stand. Journ. of Res. **9**: 625 (1932)
Sc Bur. of Stand. Sci. Papers **22**: 338 (1927)
V Bur. of Stand. Journ of Res **17**: 125 (1936)

Yt Bur of Stand Journ of Res. **2**: 733 (1929)
Meggers and Scribner, B. F.
Hf Bur. of Stand. Journ. of Res. **13**: 625 (1934)
Lu Bur. of Stand. Journ. of Res **19**: 31 (1937)
Yb Bur. of Stand. Journ. of Res **19**: 651 (1937)
Mh Mihul, C.
O Annales de Physique **9**: 294 (1928)
Mj Majumdar, K.
Cl Royal Soc. London Proc **A125**: 66 (1929)
Ml McLennan, J. C.
K Royal Soc. London. Proc **A100**: 182 (1921)
Mg Royal Soc. London Proc. **A98**: 95 (1920)
McLennan, Ainslie, D S, and Fuller, D. S.
Sn Royal Soc. London Proc. **A95**: 316 (1919)
Te Royal Soc. Canada. Trans **19**: 56 (1925)
McLennan and Allin, E. J
Tl Royal Soc. London. Proc. **A129**: 43 (1930)
McLennan and McLay, A. B.
Au Royal Soc. London. Proc. **A134**: 35 (1931)
Pt Royal Soc. Canada. Trans. **20**: 201 (1926)
McLennan, McLay, and Crawford, M. F.
Bi Royal Soc. London. Proc **A129**: 579 (1930)
Hg Royal Soc. London. Proc **A134**: 41 (1931)
Tl Royal Soc. London. Proc. **A125**: 50; 570 (1929)
McLennan and Smith, H. G.
Pd Royal Soc. London. Proc. **A112**: 123 (1926)
Crawford and McLay
Bi Royal Soc London Proc. **A143**: 540 (1934)
Mr Merrill, P. W.
He Astrophys. Journ **46**: 357 (1917)
Ms Meissner, K. W.
A Zeits. f. Physik. **39**: 179 (1926); **40**: 844 (1927)
Al Annalen der Physik **50**: 713 (1916)
Cs Annalen der Physik **65**: 380 (1921)
H Annalen der Physik **50**: 901 (1916)
Meissner, Bartelt, O., and Eckstein, L
S Zeits. f. Physik **86**: 56 (1933)
Se Zeits. f. Physik **91**: 427 (1934)
Mt Merton, T. R., and Johnson, R. C
C Royal Soc. London. Proc **A103**: 383 (1923)
Merton and Pilley, J. G.
N Royal Soc. London. Proc. **A107**: 411 (1925)
Mu Murakawa, K.
Cl Zeits. f. Physik **69**: 510 (1931); **96**: 117 (1935); **109**: 162 (1938)
Hg Inst. Phys. and Chem. Res. Tokyo Sci. Papers **34**: 32 (1937)
I Zeits. f. Physik **109**: 162 (1938)
Mx Menzies, A. C.
Cu Royal Soc. London. Proc **A119**: 249 (1928)

Mz Martin, D. C
Se Phys. Rev. **48**: 938 (1935)
Nm Newman, F. H.
Na Phil. Mag. **5**: 150 (1928)
Nu Naudé, S. M.
Hg Annalen der Physik **3**: 1 (1929)
Ny Nyswander, R. E., Lind, S. C, and Moore, R B.
Rn Astrophys. Journ. **54**: 285 (1921)
Of Offerhaus, H. C
He Physica **3**: 309 (1923)
Ok Otsuka, O.
Rb Zeits. f Physik **36**: 789 (1926)
Om Offermann, J.
Bi Kayser and Konen, Handbuch der Spectroscopie **7** (1). Hirzel, Leipzig (1923)
Ot Olthoff, J., and Sawyer, R. A.
Cs Phys. Rev. **42**: 766 (1932)
Pe Pettersson, H.
Rn Akad. Wiss. Wien. Ber. **143**: 303 (1934)
Pk Poetker, A. H.
H Nature **119**: 123 (1927)
O Phys. Rev. **30**: 812 (1927)
Ps Paschen, F.
Cd Annalen der Physik **30**: 746 (1909); **35**: 860 (1911)
Hg Preuss Akad Wiss. Ber. p. 538 (1928)
In Annalen der Physik **32**: 148 (1938)
Mg Preuss. Akad Wiss. Ber. p. 709 (1931)
Ne Annalen der Physik **60**: 405 (1919)
Paschen and Campbell, J. S.
In Annalen der Physik **31**: 29 (1938)
Paschen and Kruger, P. G.
Be Annalen der Physik **8**: 1005 (1931)
C Annalen der Physik **7**: 1 (1930)
Paschen and Meissner, K.
In Annalen der Physik **43**: 1223 (1914)
Paschen and Ritschl, R.
Al, He, Zn Annalen der Physik **18**: 867 (1933)
Pu Puhlmann, M
Mo Zeits f. wiss Phot **17**: 97 (1917)
Py Percy, M.
Ba Comptes Rendus **204**: 244 (1927)
Qu Quincke, M
Au Bur. of Stand Sci. Papers **17**: 167 (1922)
Rc Royds, T.
Rn Phil. Mag. **17**: 202 (1909)
Rutherford, E, and Royds
Phil Mag **16**: 313 (1908)
Rd Ruedy, R
Te Phys. Rev **41**: 588 (1932)
Ruedy and Gibbs, R. C.
Se Phys Rev. **46**: 880 (1934)
Rf Ricard, R.
Cs Comptes Rendus **206**: 905 (1938)
Ricard, Givord, M., and George, F.
Cs Comptes Rendus **205**: 1229 (1937)
Ri Robinson, H. A
P Phys. Rev. **49**: 297 (1936)
Rk Ruark, A E.
H Astrophys. Journ. **58**: 46 (1923)
Ruark, Mohler, F. L., Foote, P. D., and Chenault, R. L.
Bi, Sb Bur. of Stand Sci. Papers **19**: 471 (1924)
Rl Russell, H N.
Fe Astrophys. Journ. **64**: 198 (1926)
Ti Astrophys. Journ. **66**: 295 (1927)
Russell and Lang, R. J.
Ti Astrophys Journ **66**: 13 (1927)

Ro Rao, A S
As Phys Soc London Proc **44**: 343 (1932)
Rao and Narayan, A. L.
Pb Zeits. f Physik **59**: 687 (1930)
Rao, K. R.
As Phys. Soc London Proc. **43**: 68 (1931)
Rao and Badami, J. S.
Se Royal Soc. London. Proc. **A140**: 387 (1933)
Rao and Narayan, A. L.
Sn Zeits. f. Physik **45**: 350 (1927)
Rr Reinheimer, O.
Rb Annalen der Physik **71**: 168 (1923)
Rs Rasmussen, E.
A Zeits f Physik **75**: 696 (1932)
Ba Zeits f. Physik **83**: 404 (1933)
Hg Naturwiss. **17**: 389 (1929)
Kr Aedle Luftart. Spektre. Copenhagen **1**: 31 (1932)
Ra Zeits f. Physik **86**: 26 (1933); **87**: 609 (1934)
Rn Zeits. f. Physik **80**: 726 (1933)
Rt Rosenthal, A. H.
A Annalen der Physik **4**: 49 (1930)
Rx Randall, H. M., and Wright, N.
Sn Phys. Rev. **38**: 457 (1931)
Ry Ryde, J. W.
N Royal Soc. London. Proc. **A117**: 164 (1927)
Rz Ramb, R.
Rb Annalen der Physik **5**: 311 (1931)
Sa Saltmarsh, M O.
P Royal Soc. London. Proc. **A108**: 332 (1925)
Sd Saunders, F. A.
Ca Astrophys. Journ **52**: 265 (1920)
Cd Fowler. Line Spectra. Fleetway Press, London, 1922.
In, Tl Astrophys. Journ. **43**: 234 (1916)
Saunders, Schneider, E. G., and Buckingham, E.
Ba, Sr Nat. Acad. Sci. Proc. **20**: 291 (1934)
Sf Symons, E.
Pt Zeits. f. wiss. Phot. **12**: 277 (1913)
Sg Schillinger, K.
K Akad. Wiss. Wien. Ber. **118**: 605 (1909)
Sh Shenstone, A. G.
Cu Royal Soc. London. Phil. Trans. **A235**: 195 (1936)
Pd Phys. Rev. **32**: 30 (1928) **36**: 669 (1930)
Pt Royal Soc. London. Phil Trans. **A237**: 453 (1938)
Sj Schober, H.
Re Akad. Wiss. Wien Ber. **140**: 629 (1931); **141**: 601 (1932)
Ritschl, R, and Schober
Physikalische Zeits. **38**: 6 (1937)
Sl Slevogt, H.
Co, Cr, Mn, Ni
Zeits. f. Physik **82**: 92 (1933)
Sn Sullivan, F. J.
Sr U. of Pittsburgh Bull. **35**: 284 (1938)
So Soderquist, J.
Na Upsala Regia Soc. Scient. **9**: 102 (1934)
Sp Schippers, H.
Sb Zeits. f. wiss. Phot. **11**: 241 (1912)
Sq Schulemann, O
In Zeits. f. wiss. Phot. **10**: 270 (1911)
Ss Stüting, H.
Cr Zeits. f. wiss. Phot. **7**: 73 (1909)
St Stiles, H.
Hg Astrophys. Journ. **30**: 48 (1909)
Su Suga, T, Kamiyama, M., and Sugiura, T.
Hg Inst. of Phys. and Chem. Res. Tokyo, Sci Papers **34**: 32 (1937)
Sv Sommer, L. A.
Cs Annalen der Physik **75**: 165 (1924)
Ru Zeits. f. Physik **37**: 1 (1926)
Sx Smith, H G, and Westman, M. E.
Be Royal Soc. Canada. Trans. **20**: 323 (1926)
Smith, S.
Pb Royal Soc. Canada. Trans **22**: 333 (1928)
Tl Phys. Rev. **34**: 393 (1929)
Sy Sawyer, R. A.
B Naturwiss. **15**: 765 (1927)
Sawyer and Lang, R J.
Ga, In Phys. Rev. **34**: 712 (1929)
Sawyer and Paschen, F.
Al Annalen der Physik **84**: 9 (1927)
Sawyer and Paton, R F.
Si Astrophys. Journ. **57**: 279 (1923)
Sawyer and Smith, F. R
B Optical Soc. Amer. Journ. **14**: 287 (1927)
Sz Schmitz, K.
Ba Zeits. f. wiss. Phot **11**: 209 (1912)
Tk Takahashi, Y.
Cd Annalen der Physik **3**: 42 (1929)
To Toshnival, G. R.
Bi Phil. Mag **4**: 776 (1927)
Uh Uhler, H S, and Tanch, J. W.
Ga, In Astrophys. Journ. **55**: 291 (1922)
Vs von Salis, G
Cd, Zn Annalen der Physik **76**: 145 (1925)
Wa Watson, H. E
Ne Royal Soc. London. Proc. **A81**: 195 (1908)
Rn Royal Soc London. Proc. **A83**: 50 (1910)
Wb Weinberg, M
Ga, In Royal Soc. London. Proc. **A107**: 138 (1925)
Wd Wiedmann, G.
Cd Kayser and Konen. Handbuch der Spectroscopie. 7 (1). Hirzel, Leipzig (1923)
Hg Annalen der Physik **38**: 1041 (1912)
Zn Annalen der Physik **35**: 860 (1911)
Wiedmann and Schmidt, W.
Hg Zeits. f. Physik **106**: 273 (1937)
Wg Wagman, N E.
Ca U. of Pittsburgh Bull. **34**: 327 (1937)
Wn Weigand, C
Mo Zeits f wiss. Phot. **11**: 261 (1912)
Wo Wolf, S
Rn Zeits. f. Physik **48**: 790 (1928)
Wr Werner, S
Li Nature **115**: 191 (1925)
Wt Walters, F. M, Jr.
Ag, Al, Au, Bi, Hg, Pb, Sb, Sn
Bur. of Stand. Sci. Papers **17**: 161 (1922)
Wx Wagner, F. L.
Ag Zeits f. wiss. Phot. **10**: 53 (1911)

TABLES OF WAVELENGTHS

AND INTENSITIES OF THE PRINCIPAL ATOMIC SPECTRUM LINES IN THE RANGE 10,000—2000 Å.

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
9999.7	Co I	2 h	-	Me
9999.00	Hg I	-	[9]	Su
9997.94	Ti I	15	-	Me
9988.65	Eu	15	-	Kn
9988.47	La	10	-	Me
9981.24	La I	6	-	Me
9981.16	Ti	5	-	Me
9980.90	Hg I	-	[10]	Su
9980.55	Fe I	2 h	-	Me
9980.38	La	10	-	Me
9977.6	Te I	-	[15]	Rd
9976.65	P I	10	-	Ks
9976.45	Re	4	-	Me
9976.40	Yb	4	-	Me
9974.2	Ne I	-	[2]	Me
9969.73	Se I	-	[4]	Rd
9969.34	Hg I	-	[10]	Su
9966 58	Xe I	-	[10]	Me
9966 19	Ni	3	-	Me
9965.70	La	3	-	Me
9965.44	Cb	4	-	Me
9964.90	Re	2	-	Me
9963.55	Ne I	-	[6]	Me
9963.02	S	-	[20]	Fh
9962.15	Hg	-	[2]	Su
9960.46	Cu II	-	15	Sh
9960.07	Cu II	-	10	Sh
9958.90	S	-	[150]	Fh
9957.29	Cb	15	-	Me
9955.5	Te I	-	[14]	Rd
9955.45	Re I	60 W	-	Me
9955.2	K I	10 h	-	Me
9954.75	Kr II	-	[5 h]	Me
9953.02	Re	3 w	-	Me
9952.2	Co I	3 h	-	Me
9951.88	A I	-	[20]	Me
9950 64	Zn II	-	[2]	Ps
9950.5	K I	20 h	-	Me
9950 11	Zn II	-	[3]	Ps
9949.90	Re I	200 W	-	Me
9949 84	S	-	[150]	Fh
9949.14	Sb	400 h	-	Me
9949 06	Cr I	5	-	Ks
9948 98	Ti I	8	-	Me
9948.57	Rn I	-	[6]	Rs
9947.94	Ne I	-	[15]	Me
9946 30	Cr I	2	-	Ks
9946 0	Hg II	-	[4]	Rs
9945 01	Hg I	-	[2]	Su
9944 9	Ne I	-	[2]	Me
9944.13	Fe	3 h	-	Me
9944 1	Ne I	-	[7 h]	Me
9943.70	Re	20	-	Me
9941 50	Ta	5	-	Ks
9941 33	Ti I	8	-	Me
9940 69	Co I	2	-	Me
9939 05	Cu II	-	20 d	Sh
9938 35	Ne I	-	[15]	Me
9936.83	Ne I	-	[10]	Me
9932.72	La I	2	-	Me
9932 26	S	-	[150]	Fh
9932 21	Ba I	-	[7]	Rs
9927 34	Ti I	20	-	
9926 10	Cu II	-	10	Sh
9925.67	Cu II	-	20	Sh
9923.25	Ti I	2	-	Me
9923 198	Xe I	-	[2000]	IMe
9923 03	As I	5	-	Me
9920 82	La I	150	-	Me
9918.52	Ne I	-	[4]	Me
9918 05	Cu II	-	15	Sh
9917.60	Kr I	-	[3]	Me
9916.52	Cu II	-	30	Sh
9916.37	Kr I	-	[4]	Me
9915 13	Ne I	-	[20]	Me
9914.92	Lu	100	-	Me
9914.12	Co	3	-	Me
9912.73	Co I	10	-	Me
9912 26	Cb	25	-	Me
9911 85	S	-	[5]	Fh
9911 08	La	3	-	Me
9910 35	Cb	20	-	Me
9909 76	Zr	2	-	Me
9908 97	Re	5	-	Me
9908.80	S	-	[5]	Fh

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
9906.12	A II	-	[100 h]	Bn
9905.44	Cu II	-	2	Sh
9904.47	Cr I	2	-	Ks
9903.74	P I	18	-	Ks
9903.30	Re	6	-	Me
9902 31	Ne I	-	[30]	Me
9900 9	Te I	-	[7]	Rd
9900.87	Cr I	5	-	-
9900 58	Ne I	-	[40]	Me
9899 06	Ne I	-	[2]	Me
9898 90	Ni I	20	-	Me
9898 30	Eu	40	-	Kn
9897 30	Ne I	-	[3]	Me
9897 08	Kr I	-	[2]	Me
9896 6	Cb	5	-	Me
9894 44	Cu II	-	5	Sh
9893 82	La II	4	-	Me
9893 04	Cu II	-	5 h	Sh
9892 97	Kr II	-	[2 h]	Me
9892 00	Lu	5	-	Me
9891 90	Si I	5 w	-	Ks
9890 92	Co I	30	-	Me
9890 09	Cb	4	-	Me
9889 082	Fe I	40	-	Me
9886.92	Si I	2 w	-	Ks
9884 10	Re	2 w	-	Me
9884 09	Cu II	-	10 h	Sh
9883 16	Eu	10	-	Kn
9882 18	A I	-	[6]	Me
9881 57	Cu II	-	15	Sh
9881 24	La I	100	-	Me
9879.41	Ti I	3	-	Me
9876.08	Cl I	-	[2]	Ks
9875 95	Cl I	-	[50]	Ks
9875.90	Ne I	-	[2]	Me
9872.38	Re	15 sd	-	Me
9870 07	Yb	6	-	Me
9869 23	Co	2	-	Me
9868 20	Cu II	-	15	Sh
9868.09	Fe I	3	-	Me
9867 0	Te I	-	[10]	Rd
9866 78	Sb	30	-	Me
9865 56	Xe	-	[6 wh]	Hu
9865 44	V I	10	-	Me
9864 26	Cu II	-	40	Sh
9862 95	Kr I	-	[4]	Me
9862 60	La I	3	-	Me
9862 5	N I	-	[20]	Ig
9861 793	Fe I	30	-	Me
9861 41	Cu II	-	50	Sh
9858 87	Cu II	-	3 h	Sh
9856 26	Sn	10	-	Me
9856 24	Kr I	-	[500]	Me
9855 31	Rn I	-	[4]	Rs
9852 58	La I	6	-	Me
9850 58	Cu II	-	3	Sh
9850 52	Sn	500 l	-	Me
9848 70	La	4	-	Me
9847 7	Co I	2	-	Me
9842 63	Re	20 W	-	Me
9842 04	Ni	2	-	Me
9842 0	La	2	-	Me
9841 32	Lu	2	-	Me
9840 5	Te I	-	[7 wl]	Rd
9839 58	Si I	2 w	-	Ks
9838 33	Kr I	-	[5]	Me
9838 08	Hg I	-	[10]	Su
9837 94	Cu II	-	25	Sh
9837 47	Ne I	-	[20]	Me
9834 7	bh Ca	30	-	L
9834 61	P	2	-	Ks
9834 04	Fe I	3 h	-	Me
9833 76	As I	5	-	Me
9833 30	La	3 h	-	Me
9832 15	Ti I	25	-	-
9831 35	Re	9	-	Me
9830 90	Cu II	-	5	Sh
9830 37	Ba I	300 hl	-	Me
9829 86	A II	-	[4]	Bn
9829 06	Cu II	-	3	Sh
9828 06	Cu II	-	5	Sh
9828 02	Bi	300	-	Me
9826 69	As I	8	-	Me
9826.58	Kr	-	[25]	Me
9825 51	Se I	-	[6]	Rd

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
9823.52	Co I	4 h	-	Me
9823.42	Ne I	-	[5]	Me
9823 39	Kr	-	[25 W]	Me
9822.30	Zr I	15	-	Me
9821 8	N I	-	[3]	Ig
9821 75	Hg I	-	[3]	Su
9821 60	Ba I	2 h	-	Me
9820 42	Zr I	2	-	Me
9818 67	Ta	2	-	Ks
9818.39	Co	2	-	Me
9816 63	Se II	-	[2]	Mz
9813.75	Re	2	-	Me
9813.45	Ti I	5	-	Me
9813 35	Cu II	-	20	Sh
9812.85	Zr I	8	-	Me
9811 36	Fe	2	-	Me
9810.27	Kr I	-	[2 h]	Me
9809.67	Rn I	-	[3]	Rs
9808.46	Cl I	-	[5]	Ks
9807 3	Pb	5 Wh	-	Me
9807.3	bh Ca	20	-	L
9805.38	Sn	300 Wl	-	Me
9804.20	La	2	-	Me
9803 14	Kr	-	[125]	Me
9800.92	A I	-	[4]	Me
9800 335	Fe I	20	-	Me
9799.88	Yb	10	-	Me
9799 697	Xe I	-	[2000]	IMe
9798 37	Co I	2 h	-	Me
9796 79	P I	100	-	Ks
9794.89	Kr I	-	[3]	Me
9792 91	Ba I	4 h	-	Me
9792 90	Hg I	-	[2]	Su
9792.74	Zr I	4	-	Me
9790.08	P I	5	-	Ks
9789 24	Si I	2 h	-	Ks
9788 1	Ne I	-	[2]	Me
9787.65	Ti I	50	-	-
9786 62	Fe I	2	-	Me
9785 39	Co	40	-	Me
9784 501	A I	-	[1000]	IMe
9783.96	Fe I	3	-	Me
9783 6	Te I	-	[8]	Rd
9783 59	Ti I	20	-	Me
9783 38	Ti I	40	-	-
9780.93	Ta	2	-	Ks
9780 40	Zr I	15	-	Me
9776 26	bh Sr	20 l	-	L
9775 30	Hg I	-	[3]	Su
9775 13	Sb	20	-	Me
9775 09	La	8	-	Me
9775 0	bh Ca	15	-	L
9773 27	Cr I	6	-	-
9772 98	V	3	-	Me
9772 62	Ba I	4 h	-	Me
9772 24	La I	20	-	Me
9770 26	Ti I	40	-	-
9770 10	Si I	4 w	-	Ks
9768 82	La	3 h	-	Me
9768 69	Kr I	-	[2]	Me
9768 27	Si I	5 w	-	Ks
9768 18	Ti I	5	-	-
9764 53	Co I	25	-	Me
9763 913	Fe I	15	-	Me
9763 450	Fe I	15	-	Me
9762 65	Re I	20	-	Me
9760 57	Ne		[2]	Me
9760 37	Yb	100	-	Me
9758 08	Si I	2 w	-	Ks
9756 72	Sb	25	-	Me
9753 129	Fe I	10	-	Me
9752 84	Cr I	2	-	Ks
9752 07	Re	4	-	Me
9751 759	Kr I	-	[2000]	Me
9750.73	P I	70	-	Ks
9749.67	Re I	6	-	Me
9748 60	Re	3	-	Me
9747 89	Rn I	-	[5]	Rs
9747.24	Fe	2	-	Me
9746 86	Ti I	15	-	-
9746 05	Co I	50	-	-
9744 33	Cl I	-	[30]	Ks
9743 55	Ti I	50	-	-
9743.11	Kr I	-	[50]	Me
9742 28	Hf II	10	-	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
9741.93	S	–	[70]	Fh
9741.4	Sn	100 hd	–	Me
9741.0	bh Ca	5	–	L
9739.74	S	–	[150]	Fh
9739.6	Cu I	2 Wh	–	Ks
9738.624	Fe I	200	–	Me
9738.60	Si	6 w	–	Ks
9738.50	V I	15	–	Me
9737.75	Ti I	5	–	–
9737.09	La I	100	–	Me
9736.95	S	–	[20]	Fh
9735.94	Cu II	–	15	Sh
9734.74	P I	50	–	Ks
9734.51	Cr I	50	–	–
9734 0	Xe	–	[3 wh]	Hu
9733 72	Se II	–	[3]	Bt
9732.28	Cu II	–	3	Sh
9731.57	I	–	[2]	Ev
9730 27	Cr I	25	–	–
9728.34	Ti I	60	–	–
9727.51	Kr I	–	[2 Wh]	Me
9722.76	Re	4	–	Me
9721.2	Te I	–	[50]	Rd
9718.92	Ti I	20	–	–
9718.16	Xe I	–	[100]	Me
9717.16	Kr	–	[2 Wh]	Me
9717.00	Ti I	15	–	Me
9715.45	Ti I	3	–	–
9714 85	Kr I	–	[15]	Me
9713.77	Ba I	25 h	–	–
9713.52	La	3	–	Me
9711.60	Kr	–	[50 Wh]	Me
9710.52	Re	50	–	Me
9710.03	Xe I	–	[2]	Me
9709.45	La I	10	–	Me
9708.36	V I	10	–	Me
9706.80	P I	2	–	Ks
9706.48	La I	20	–	Me
9705.59	Ti I	100	–	–
9704.94	Re	3	–	Me
9704.45	Ba I	10 h	–	–
9704.22	Kr I	–	[50]	Me
9702.86	Ti I	3	–	Me
9702.66	He I	–	[10]	Me
9702.40	Ne I	–	[3]	Me
9702 30	Cl I	–	[2]	Ks
9701.7	Ca I	20	–	Me
9700 99	Xe I	–	[20]	Me
9700.0	bh Ca	10	–	L
9699.70	Fe I	6 h	–	Me
9699.64	La I	20	–	Me
9698.68	Xe II	–	[30 hl]	Hu
9697 33	S	–	[150]	Fh
9696 60	Co I	2	–	Me
9696 03	Lu	30	–	Me
9693 68	S	–	[200]	Fh
9692 6	La	2	–	Me
9691.58	V I	40	–	Me
9690.54	Ti I	2	–	–
9689 41	Si I	8 w	–	Ks
9689 35	Ni I	3	–	Me
9688.81	Ti I	30	–	–
9688 71	Cu II	–	10	Sh
9688.6	Ca I	15	–	Me
9687 83	Kr I	–	[10]	Me
9686 3	Mn	15	–	Me
9686 11	S	–	[5]	Fh
9685.32	Xe I	–	[150]	Me
9684.9	Mn I	15	–	Me
9684.19	V	7	–	Me
9682.26	Kr I	–	[2]	Me
9680.80	S	–	[200]	Fh
9678.98	Ti I	3	–	Me
9678.21	Co I	3 h	–	Me
9677.80	A I	–	[8]	Me
9677.5	Cb	4	–	Me
9676.75	Cb	50	–	Me
9676.50	Mn I	40	–	Me
9676 27	P	3	–	Ks
9676.0	Ca I	5	–	Me
9675.55	Ti I	200	–	Me
9674.56	Pb	100 Wl	–	Me
9673.39	A I	–	[6]	Me
9672.94	La II	3	–	Me
9672.34	S	–	[200]	Fh

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
9672 04	La I	8	–	Me
9670 9	V I	3	–	Me
9670.49	Cr I	50	–	–
9669.8	Cb	2	–	Me
9668 9	V I	2	–	Me
9667.22	Cr I	25	–	–
9666.86	A I	–	[50]	Me
9666.59	Fe	2	–	Me
9665.424	Ne I	–	[1000]	IMe
9664.0	Ca I	5	–	Me
9663 34	Kr II	–	[50]	Me
9663.13	Ti I	3	–	–
9662.2	Sb	30 d	–	Me
9661.69	Lu	10	–	Me
9661.36	Ti I	10	–	–
9658.94	Fe I	2	–	Me
9658.49	C I	250	[15]	Ks
9657.784	A I	–	[1500]	IMe
9657 30	Fe I	3	–	Me
9657.2	Bi	2000 d	–	Me
9657.00	La II	20	–	Me
9653.143	Fe I	20	–	Me
9650 97	Cb	12	–	Me
9650 1	Bi	50 h	–	Me
9649 94	S	–	[250]	Fh
9647.40	Ti I	80	–	Me
9646 47	La I	3	–	Me
9645 76	Ba I	25 h	–	–
9645 53	Ta	2 h	–	Ks
9644.2	Sr II	–	–	Sd
9641 6	Xe	–	[4 wh]	Hu
9640 81	La	30	–	Me
9639.06	P	2	–	Ks
9639 0	Hg II	–	[6]	Rs
9638 24	Ti I	200	–	–
9637.55	Fe	2	–	Me
9635.30	Re	5	–	Me
9634.22	Fe I	5	–	Me
9633.78	S	–	[70]	Fh
9633 72	La I	40	–	Me
9633 02	Mn I	4	–	Me
9631.84	La	2	–	Me
9631.11	Cb	50	–	Me
9630.95	Xe	–	[3 wh]	Hu
9626 88	Cb	100	–	Me
9626 562	Fe I	30 h	–	Me
9626 30	Cr I	4	–	Ks
9625 80	He I	–	[3]	Me
9620 96	Cb	10	–	Me
9620 86	C I	125	[5]	Ks
9619 61	Kr	–	[100 Wh]	Me
9616 40	Sn	150 h	–	Me
9615 71	Xe	–	[4 h]	Hu
9615 63	Kr I	–	[3]	Me
9614 68	V I	50	–	Me
9613 80	Kr II	–	[25 Wh]	Me
9613 46	Co	3 h	–	Me
9611 60	V I	80	–	Me
9608 97	P I	5	–	Ks
9608 90	Ba I	150	–	–
9608 56	Mn I	100	–	Me
9606 77	Ti I	3	–	Me
9606 71	Mn I	5	–	Me
9606 52	Co I	2	–	Me
9605 80	Kr	–	[125 Wh]	Me
9605 80	Xe I	–	[3]	Me
9604.50	Xe II	–	[7 h]	Hu
9604 06	Pb	50 Wl	–	Me
9603 50	He I	–	[6]	Me
9602 94	Sb	20	–	Me
9602 8	C I	60	–	Ig
9602 07	Fe	2	–	Me
9599 51	Ti I	50	–	–
9598 72	Cb	6	–	Me
9598 7	Mn I	3	–	Me
9597 94	As I	10	–	Me
9597 89	Co I	300	–	–
9597 76	K I	2	–	En
9595 60	K I	3	–	En
9595 09	A I	–	[4]	Me
9595 06	Cb	60	–	Me
9594 24	Kr II	–	[25]	Me
9593 54	P I	70	–	Ks
9593.04	V I	2	–	Me
9592 25	Cl I	–	[4]	Ks

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
9592.19	Ne	–	[5]	Me
9591.8	K I	50 Wl	–	Me
9591.35	Xe II	–	[30 h]	Hu
9591 32	Re	3 w	–	Me
9590.15	Ti I	3	–	Me
9589 37	Ba I	50	–	–
9588.77	Ti I	4	–	Me
9585 72	Si I	4	–	Ks
9585.14	Xe I	–	[20]	Me
9584.79	Ne	–	[3]	Me
9584.0	Mn	10 h	–	Me
9582.28	V I	6	–	Me
9581.12	Re I	8	–	Me
9578.68	Sb	400	–	Me
9577.52	Kr II	–	[125]	Me
9574 26	Hg I	–	[3]	Su
9574.24	Cr I	50	–	–
9573 99	Ne I	–	[2]	Me
9571.75	Re	6 w	–	Me
9571.74	Cr I	25	–	–
9570.38	La I	5	–	Me
9570.08	Ti I	4	–	Me
9570.08	Si I	4	–	Ks
9569 960	Fe I	40 h	–	Me
9569.57	Ta	2 h	–	Ks
9569 00	Co I	2 h	–	Me
9568 58	Cr I	3	–	Ks
9563 60	La II	4	–	Me
9563.45	P I	25	–	Ks
9561 60	A I	–	[5]	Me
9560 72	La I	8	–	–
9555.2	A I	–	[4]	Me
9554.1	Hg I	–	[2]	Su
9552.85	Kr	–	[2 Wh]	Me
9550.90	Fe I	2	–	Me
9550 80	Mn I	20 h	–	Me
9550.11	Ti I	2	–	Me
9549.40	Se I	–	[7]	Rd
9549.13	Cb	8	–	Me
9548.66	Co	2	–	Me
9547.73	A I	–	[2]	Me
9547.40	Ne I	–	[300]	Me
9547.26	Zr I	15	–	Me
9546.2	H	–	[5]	Pk
9546 12	Sb	10 h	–	Me
9546 03	Ti I	50	–	–
9545 27	P I	20	–	Ks
9544 96	Se I	–	[3]	Rd
9544 53	Co I	300	–	–
9543.64	Kr II	–	[2 Wh]	Me
9542 14	Mn	10 h	–	Me
9542.09	La I	40	–	–
9541 64	Se I	–	[5]	Rd
9541 23	La I	20	–	Me
9540.89	Kr I	–	[30]	Me
9540 8	Rb I	5 Wl	–	Me
9540.31	V I	5	–	Me
9536 53	V I	2	–	Me
9535 72	Mn I	5 h	–	Me
9534 167	Ne I	–	[500]	IMe
9530 38	U	2 h	–	Me
9530.30	Ba I	3 h	–	Me
9530.3	Cu I	3 Wh	–	Ks
9529 31	Fe I	4 h	–	Me
9529 27	He I	–	[4]	Me
9527 17	Co	3	–	Me
9526.21	Hg I	–	[7]	Su
9526 17	He I	–	[10]	Me
9525 78	P I	100	–	Ks
9524 76	Ba I	40 h	–	–
9524 43	Yb	4	–	Me
9523.40	Re	6 w	–	Me
9523.4	Rb I	10 Wl	–	Me
9520.13	Cr	2	–	Ks
9520.06	Ni I	50	–	Me
9518.68	Sb	400	–	Me
9516.70	He I	–	[30]	Me
9515.70	Hg	–	[2]	Su
9513 377	Xe I	–	[200]	IMe
9513.24	Fe I	10 h	–	–
9512.43	Cu II	–	2	Sh
9512.4	Tl I	30	–	Ps
9511.55	Ti I	10	–	Me
9511.37	V	5 h	–	Me
9510.75	Ti I	15	–	–

Wavelength	Element	Intensities Arc	Spk,[Dis]	R
9509.11	V I	5 h	–	Me
9508.45	Tl I	20	–	–
9508.42	Hg	–	[2]	Su
9508.4	Ne I	–	[5]	Me
9506.59	Ne	–	[3]	Me
9506.03	Ti I	30	–	–
9505.78	Xe I	–	[10]	Me
9505 28	Si	5	–	Ks
9504.70	Kr II	–	[25]	Me
9504.50	Lu	2	–	Me
9504.34	Re	3	–	Me
9502.12	Mn I	8 h	–	Me
9500.60	Kr	–	[25 Wh]	Me
9500.49	Re	8	–	Me
9499.16	S	–	[5]	Fh
9497.9	Ne	–	[2]	Me
9497.07	Xe I	–	[40]	Me
9495.82	Hg I	–	[10]	Su
9494 81	Yt I	60	–	Me
9493.48	P I	7	–	Ks
9493.47	Zr I	2	–	Me
9487.76	Xe I	–	[4]	Me
9486.680	Ne I	–	[500]	IMe
9486.02	A I	–	[3]	Me
9485.14	La I	12	–	–
9483.35	Zr	3	–	Me
9482.64	V	4	–	Me
9480.25	V I	5 h	–	Me
9478.39	A I	–	[50]	Me
9477.86	S	–	[20]	Fh
9476.98	La I	3	–	Me
9476.57	Mn I	4 h	–	Me
9476.14	V I	10	–	Me
9475.23	Xe II	–	[3 h]	Hu
9475 20	A II	–	[30]	Bn
9475.06	Kr II	–	[25 Wh]	Me
9474.57	Cb	5	–	Me
9474.45	La I	5	–	Me
9473.51	Ti I	2	–	Me
9472.02	Cb	4	–	Me
9470.93	Kr II	–	[50 Wh]	Me
9470.93	Cb	6	–	Me
9470.32	Pb	10 Wl	–	Me
9470.14	Re I	30	–	Me
9467.92	V	3 h	–	Me
9467.8	Ne I	–	[2 h]	Me
9467 25	La	2	–	Me
9466 32	V I	8 h	–	Me
9464.3	Xe	–	[10 wh]	Hu
9463.71	Cu II	–	3	Sh
9463.66	He I	–	[60]	Me
9462.98	Fe I	2	–	Me
9461.92	Se I	–	[2]	Ms
9461.79	La I	50	–	–
9460.60	Mo	10	–	–
9460.0	N I	–	[8]	Ig
9459.21	Ne I	–	[300]	Me
9459.09	A I	–	[100]	Me
9457.62	La	2	–	Me
9455.98	Ba I	100	–	–
9455.43	S	–	[40]	Fh
9454.44	V I	10	–	Me
9454.24	Fe I	4 h	–	Me
9453.55	Hf II	2	–	Me
9453.20	Ti I	3	–	–
9452.87	P	2	–	Ks
9452.45	Fe I	2	–	Me
9452.08	Ne	–	[10]	Me
9452.06	Cl I	–	[6]	Ks
9451.78	Sn	10 h	–	Me
9451.59	Cu II	–	2	Sh
9450.88	Kr I	–	[20]	Me
9450.08	Ba I	10 h	–	–
9447.29	Ni I	5	–	Me
9446.95	Cr I	75	–	–
9446.57	A I	–	[2]	Me
9445.74	V I	10	–	Me
9445.34	Xe I	–	[80]	Me
9445.26	Ne I	–	[3]	Me
9445.03	S	–	[5]	Fh
9444.90	Mn I	40	–	Me
9444.36	Cr I	4	–	Ks
9443.98	Fe I	10 h	–	Me
9443.8	Ne I	–	[2]	Me
9442.75	Hg I	–	[9]	Su
9442 68	Xe I	–	[20]	Me
9442.34	Co I	2 h	–	Me
9441.76	P	5	–	Ks
9441 46	Xe I	–	[20]	Me
9441 26	Zr	2	–	Me
9440.1	Pb II	–	[2]	Ea
9440.02	Kr II	–	[20 Wh]	Me
9439 80	V	8 h	–	Me
9438.7	Cb	8 h	–	Me
9438.55	Ta	2	–	Ks
9438.38	Pb	20 Wl	–	Me
9438.29	La I	100	–	–
9438.26	Hg I	–	[9]	Su
9437.91	Fe I	2	–	Me
9437.60	S	–	[5]	Fh
9437.21	Kr II	–	[5 wh]	Me
9437.11	S	–	[150]	Fh
9435 58	V I	80	–	–
9435.48	Cb	8	–	Me
9435.07	P I	3	–	Ks
9433.63	F I	–	[3]	En
9432.94	Ne I	–	[40]	Me
9432.43	Se I	–	[10]	Rd
9432.06	Hg I	–	[9]	Su
9431.77	Ti I	3	–	Me
9430.08	Fe	4	–	Me
9429.58	Mn I	30 h	–	Me
9427.53	Re	3	–	Me
9425.64	Hg I	–	[10]	Su
9425.38	Ne I	–	[500]	Me
9424.71	Mo	8	–	–
9423 80	Ta	2	–	Ks
9423.44	Re	15	–	Me
9421.93	S	–	[150]	Fh
9421.82	Si I	4	–	Ks
9419.38	Hg I	–	[3]	Su
9419.36	Zr I	2 h	–	Me
9418 57	A II	–	[2]	Bn
9417.0	Bi	100 h	–	Me
9415.64	La	3	–	Me
9415.37	Sn I	80 hl	–	Me
9414 94	Kr II	–	[25]	Me
9414.6	Ba I	4 h	–	Me
9414.14	Fe I	20 h	–	Me
9413 59	Si I	100	–	Ks
9413.46	S	–	[150]	Fh
9412 78	Mn	10 h	–	Me
9412 64	La I	80	–	–
9412.39	Cb	4	–	Me
9412.32	Ne I	–	[4]	Me
9412 01	Xe I	–	[60]	Me
9411.32	V I	30	–	–
9410.86	Sn	50 Wl	–	Me
9410.75	Ne I	–	[6]	Me
9409.69	Ti I	2	–	Me
9408.66	A I	–	[3]	Me
9408.60	Cb	20	–	Me
9408 38	Mn	4 h	–	Me
9406.02	V I	4 h	–	Me
9405.77	C I	300	[200]	Ks
9405.75	Ne I	–	[8]	Me
9403.58	Ba I	10	–	–
9402 82	Kr II	–	[50 Ws]	Me
9402.69	A I	–	[20]	Me
9401.14	Fe I	10 h	–	–
9400.59	Xe II	–	[15 h]	Hu
9398 92	V I	10	–	Me
9398 8	Ba I	5 h	–	Me
9396.57	Ni I	2 h	–	Me
9395.73	Se I	–	[2]	Ms
9394 71	Fe I	3 h	–	Me
9393 85	Cl I	–	[2]	Ks
9393.8	Ne	–	[2]	Me
9393.56	Cb	4	–	Me
9393.40	Si I	2 h	–	Ks
9392.8	Yb	5	–	Me
9392.5	N I	–	[120]	Ig
9391.12	Re I	2	–	Me
9390.50	La	4	–	–
9388.28	Fe I	3 h	–	Me
9388.08	Kr	–	[12 Wl]	Me
9386.5	N I	–	[70]	Ig
9385.62	Ni I	2 h	–	Me
9384 86	V I	30	–	–
9384.	bh C	–	–	L
9383 82	Se I	–	[3]	Ms
9383 74	Re	40	–	Me
9382 94	S	–	[20]	Fh
9382 81	Fe	3 h	–	–
9380.50	V	4	–	Me
9380 24	Re	10	–	Me
9377.71	La I	3	–	Me
9377.63	A I	–	[5]	Me
9377 2	Ne I	–	[5]	Me
9376 10	La	3	–	Me
9374 76	Xe I	–	[100]	Me
9374 15	A II	–	[10]	Bn
9374 02	Xe I	–	[10]	Me
9373 74	Se	–	[2]	Ms
9373 28	Ne I	–	[200]	Me
9372 900	Fe I	6	–	Me
9372.58	La I	20	–	–
9370 87	Re	2	–	Me
9370 09	Ba I	300	–	–
9369 80	V	5	–	Me
9367 49	Ba I	40 h	–	–
9366 92	V I	50	–	–
9363 13	Re	20	–	Me
9362.76	V I	2	–	Me
9362 50	A I	–	[4]	Me
9362.370	Fe I	4	–	Me
9362 21	Sn	20 h	–	Me
9362 06	Cr I	12	–	Ks
9362.03	Kr I	–	[100]	Me
9361 95	Kr II	–	[80]	Me
9361.58	V I	6	–	Me
9359.420	Fe I	3	–	Me
9358 32	Zr I	3 h	–	Me
9356 98	Co I	200	–	Me
9354.218	A I	–	[200]	IMe
9353 3	Ne I	–	[3]	Me
9353.17	Cb	10	–	Me
9352.43	Zr	2	–	Me
9352.23	Kr I	–	[100]	Me
9350.44	Fe I	10	–	–
9349 27	Yb	20	–	Me
9349.08	Kr II	–	[30 Wh]	Me
9347 96	Mo	20	–	–
9346 69	La II	15	–	Me
9345 11	Kr II	–	[30 Wh]	Me
9344 92	Co I	30 h	–	–
9344.4	Cb	4	–	Me
9343.44	Fe I	3	–	–
9342 55	Bi	500 h	–	Me
9342.46	Hg I	–	[2]	Su
9341.20	V I	100	–	–
9340.8	Re	2 Wh	–	Me
9340.59	A I	–	[3]	Me
9340.5	Ne I	–	[2]	Me
9338.38	Hg I	–	[8]	Su
9337.73	Re	2 W	–	Me
9336.47	Mn I	40 h	–	Me
9335 99	I I	–	[2]	Ev
9334.91	V I	5 h	–	Me
9334.80	A I	–	[8]	Me
9334 08	Xe I	–	[3]	Me
9333.94	Fe I	2	–	Me
9332.47	Re	2 w	–	Me
9332.04	Cu II	–	5	Sh
9331 979	Al II	–	[5]	Ps
9331.90	Mn I	20h	–	Me
9331 67	Xe II	–	[4 h]	Hu
9331 546	Al II	–	[10]	Ps
9330 66	Kr II	–	[2 h]	Me
9328 87	La	2	–	Me
9328.19	V I	40	–	–
9328 08	A I	–	[2]	Me
9327.24	Hg I	–	[2]	Su
9327 02	Rn I	–	[50]	Rs
9326.52	Ne I	–	[600]	Me
9326 03	Kr I	–	[10]	Me
9325.90	Re	3	–	Me
9325.16	Mn I	5	–	Me
9324.58	Ba I	50 h	–	–
9324.50	V I	6	–	–
9323 76	Mn	4 h	–	Me
9323.55	P I	3	–	Ks
9323 54	Cb	40	–	Me
9322.84	A	–	[2]	Me
9320 99	Kr II	–	[70 h]	Me

Wave-length	Element	Intensities Arc	Spk ,[Dis]	R
9320 83	Br I	–	[4]	Ks
9318 24	Si I	4	–	Ks
9318 19	Zr	2 h	–	Me
9318.15	Fe I	3	–	–
9317.84	Kr II	–	[8 h]	Me
9316.53	V I	4	–	–
9313.98	Ne I	–	[300]	Me
9313 54	Cr I	8	–	–
9313.54	V I	4	–	Me
9312.48	Ti I	4	–	Me
9311.59	Re	5	–	Me
9310 58	Ne I	–	[150]	Me
9308 68	V I	20	–	–
9308 16	Ba I	50 h	–	–
9307 94	Fe I	2	–	Me
9306.64	Xe I	–	[40]	Me
9306 50	Ba I	4 h	–	–
9304 88	P I	5	–	Ks
9304.44	Yb	15	–	Me
9303 15	Se I	–	[2]	Rd
9301.95	Xe I	–	[30]	Me
9300.85	Ne I	–	[600]	Me
9300.72	Rn I	–	[3]	Rs
9300 62	As I	50	–	Me
9299.2	Cb	8	–	Me
9298 62	Hg I	–	[2]	Su
9297.11	Se I	–	[5]	Ms
9296 1	Kr	–	[15 Wh]	Me
9295 90	Rn I	–	[3]	Rs
9294 66	Fe I	2	–	Me
9294 14	Cr I	20	–	–
9293 98	Pb	5 Wh	–	Me
9293 82	Kr II	–	[100 Wl]	Me
9293 3	La	2 h	–	Me
9291.58	A I	–	[100]	Me
9290 747	Al II	–	[18]	Ps
9290 649	Al II	–	[20]	Ps
9290 43	V I	10	–	–
9290.38	Cr I	75	–	–
9289 95	Kr	–	[5 Wl]	Me
9288 84	Cl I	–	[8]	Ks
9288 550	Al II	–	[5]	Ps
9288.4	Xe II	–	[5 wh]	Hu
9288 145	Al II	–	[10]	Ps
9286 794	Al II	–	[5]	Ps
9286 578	Al II	–	[2]	Ps
9285 04	Ti I	5	–	Me
9280.42	Co I	3	–	Me
9279 9	Kr I	–	[2]	Me
9279 72	A II	–	[20]	Bn
9279 12	Hg I	–	[2]	Su
9278 82	P	2	–	Ks
9276 89	Zr I	25	–	Me
9276 24	U	2	–	Me
9275 53	Ne I	–	[100]	Me
9273 79	Lu	2	–	Me
9273 40	V I	15	–	–
9273 15	Ru	4	–	–
9273 02	Kr I	–	[8]	Me
9272.63	Ta	3 h	–	Ks
9272.5	Sn	10 h	–	Me
9271 99	Kr II	–	[10]	Me
9271.02	Se I	–	[6]	Rd
9270 96	Kr	–	[10]	Me
9268.46	Re	15 w	–	Me
9267.29	As I	25	–	Me
9265 88	Se I	–	[4]	Ms
9265 70	V I	20	–	–
9265 67	O I	–	[30]	Pk
9265.67	Xe II	–	[10 h]	Hu
9265.39	Br I	–	[8]	Ks
9263.96	Cr I	25	–	–
9263.69	Hg I	–	[2]	Su
9262 72	Se I	–	[2]	Ms
9262.61	O I	–	[15]	Pk
9262.28	Re	4	–	Me
9260.42	La II	3	–	Me
9260.31	O I	–	[10]	Pk
9259 06	Fe I	15	–	–
9258.49	Fe	3	–	Me
9258.47	Ni I	5	–	Me
9258.31	Fe I	20	–	–
9258 18	Co I	2	–	Me
9257.9	Mg I	2	–	Ps
9257.58	Ti I	8	–	–
9255 89	V I	10	–	–
9255 71	Re	2 w	–	Me
9254 95	Ta	10	–	Ks
9254.72	La I	8	–	–
9254 59	Si I	4 h	–	Ks
9254.	Ti II	–	[6]	El
9253 90	Hg I	–	[8]	Su
9253 09	Ba I	25	–	–
9252 88	Mo	4	–	–
9252 40	Se I	–	[2]	Rd
9251.17	Zr I	6	–	Me
9250.27	Hf	3	–	Me
9250.06	La	10	–	–
9250.02	Re	10	–	Me
9249 41	Al II	–	[2]	Ps
9249 06	Se I	–	[2]	Ms
9246.54	Fe I	3	–	Me
9246.16	Ta	3	–	Ks
9246 05	Ti I	10	–	–
9245.45	Kr	–	[5 Wl]	Me
9245.380	In II	–	[2]	Ps
9245 18	Xe I	–	[3]	Me
9243 54	Kr	–	[30]	Me
9243 29	Mn I	150	–	Me
9243 10	Hg I	–	[10]	Su
9242 91	V I	30	–	–
9242 65	Zr I	5	–	Me
9242 30	Fe I	2	–	–
9242 245	In II	–	[10]	Ps
9241 985	In II	–	[6]	Ps
9240 9	Cb	10	–	Me
9240 81	Mn	4	–	Me
9238 60	Si I	2 w	–	Ks
9238 48	Kr II	–	[125]	Me
9237.49	S I	–	[200]	Fh
9236.50	Re	4	–	Me
9234.40	Mn I	10	–	Me
9233.4	Ca	20	–	Me
9233 18	Kr II	–	[12]	Me
9231.58	Yt I	80	–	Me
9231 15	Ta	2 h	–	–
9229.7	H	–	[4]	Pk
9229 33	Zr	4	–	Me
9228 9	bh Ca	20	–	L
9228.11	S I	–	[200]	Fh
9226.67	Ne I	–	[200]	Me
9226.60	La I	10 w	–	–
9226 39	Xe II	–	[7 h]	Hu
9226 09	V I	20	–	–
9225.	Ti II	–	[8]	El
9224.498	A I	–	[1000]	IMe
9222 39	Xe I	–	[5]	Me
9221.88	Ne I	–	[15]	Ms
9221.59	Ne I	–	[200]	Me
9221.08	A I	–	[5 h]	Me
9220 05	Ne I	–	[400]	Me
9219 72	Ba I	125	–	–
9219 63	La I	6	–	–
9218 30	Se I	–	[2]	Rd
9217.54	Fe I	5 h	–	Me
9217.22	V I	4 h	–	Me
9216.	Ti II	–	[4]	El
9215 36	Ba I	25 h	–	–
9215 1	bh Ca	5	–	L
9214.41	Fe I	6	–	–
9214.30	Se I	–	[2]	Ms
9213 658	In II	–	[8]	Ps
9213.58	Re	2	–	Me
9213 278	In II	–	[6]	Ps
9212 950	In II	–	[4]	Ps
9212 91	S I	–	[200]	Fh
9212.9	Ne I	–	[2]	Me
9212.688	In II	–	[3]	Ps
9212.468	In II	–	[2]	Ps
9211.38	Xe I	–	[25]	Me
9211.03	Se I	–	[2h]	Ms
9210.37	A II	–	[2]	Bn
9210 28	He I	–	[6]	Me
9210.10	Se I	–	[2 h]	Ms
9210.030	Fe I	6	–	Me
9209.66	Re	2 w	–	Me
9208.55	Si I	5 w	–	Ks
9208.46	Cs I	200	–	Me
9208.27	Cr I	25	–	–
9207 27	Kr	–	[2 Wh]	Me
9206 66	Rn I	–	[2]	Rs
9206 3	Te I	–	[5 Wl]	Rd
9206 19	Se I	–	[2]	Ms
9205.40	Cu II	–	20	Sh
9205.12	Re	2 w	–	Me
9204.11	Co I	3	–	Me
9203.92	Lu	8	–	Me
9203.58	Se I	–	[3]	Rd
9203.20	Xe I	–	[30]	Me
9202.88	V I	4	–	Me
9202.140	In II	–	[6]	Ps
9201.938	In II	–	[6]	Ps
9201.76	Ne I	–	[600]	Me
9200 72	Hg I	–	[3]	Su
9199 81	Se I	–	[2]	Ms
9199.52	Fe	2 h	–	Me
9198.61	A	–	[50]	Me
9198.016	In II	–	[3]	Ps
9197.707	In II	–	[4]	Ps
9197 60	Cb	15	–	Me
9197 47	Cl I	–	[2]	Ks
9197 40	Ta	5 Wh	–	Ks
9197 332	In II	–	[5]	Ps
9197 18	Xe I	–	[2]	Me
9196 18	Ni I	2	–	Me
9196 1	bh Sr	10 l	–	L
9196 05	Ta	2 Wh	–	Ks
9194 68	A I	–	[150]	Me
9193 86	P I	2	–	Ks
9193 4	bh Ca	2	–	L
9191 8	Ne	–	[3]	Me
9191 71	Cl I		[10]	Ks
9189 58	Ba I	70	–	–
9188 69	Kr I	–	[2]	Me
9186 96	Cb	20	–	Me
9185 09	Se I	–	[2]	Ms
9182 07	Hf	2	–	Me
9181 80	Se I	–	[6]	Rd
9181 75	Co I	15	–	Me
9181 23	Kr	–	[3 Wl]	Me
9180 17	A I	–	[6]	Me
9178 68	F I	–	[3]	En
9178 16	Br I	–	[1]	Ks
9177 94	Co I	10	–	–
9175 42	Kr	–	[10 Wl]	Me
9173 59	Br I	–	[4]	Ks
9173 46	Fe I	4 d	–	Me
9172 88	La	3	–	Me
9172 39	La I	6	–	Me
9172 24	Cs I	1000	–	Me
9172 09	Mn I	100	–	Me
9171 50	Zr I	4	–	Me
9170 7	Ti I	20	–	Ps
9170 38	Ti I	2	–	Me
9168.72	V I	20	–	–
9167.53	Ti I	10	–	–
9167.52	Xe I	–	[100]	Me
9166.44	Fe I	3 h	–	Me
9166 07	Br I	–	[7]	Ks
9165 80	V I	4	–	Me
9165 52	Co I	5 h	–	Me
9165 38	Re	2	–	Me
9164 81	V I	40	–	–
9162 652	Xe I	–	[500]	IMe
9159 66	Ba I	10 h	–	Me
9158 95	W	2	–	–
9158 38	Xe	–	[2]	Me
9157 85	Hg I	–	[2]	Su
9157.11	La	7	–	–
9156 55	V I	20	–	–
9155 85	Mn I	5	–	Me
9152 12	Xe I	–	[20]	Me
9151 63	La I	4	–	–
9150 77	A II	–	[2]	Bn
9149.75	Bi	6 d	–	Me
9148.68	Ne I	–	[600]	Me
9148.45	Cr I	5	–	Ks
9148.08	Fe	3	–	Di
9147.800	Fe I	5 h	–	Me
9146 75	La II	2	–	Me
9146.11	Fe I	3	–	–
9145.1	Sn	20 Wh	–	Me
9144 86	Re I	6 w	–	Me
9143 77	La I	5	–	–
9143 20	U	2	–	Me

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
9142 60	Cr I	8	–	Ks
9142.18	La I	4 h	–	–
9141.8	Xe I	–	[2]	Me
9141.31	Cb	50	–	Me
9141.12	Cr I	2	–	Ks
9141.	bh C	–	–	L
9140.97	U	2	–	Me
9140.79	Se I	–	[8]	Rd
9140 51	Cr I	2	–	Ks
9139.54	U	2	–	·
9139.36	Zr I	8	–	Me
9138.8	Eu I	2	–	Kn
9138 45	A II	–	[2]	Bn
9136.65	Pb	8 Wh	–	Me
9136.6	Xe	–	[5 wh]	Hu
9136 1	Tl I	20	–	Ps
9135.89	Ti I	2	–	–
9134.81	As I	15	–	Me
9134 23	Zr	2	–	Me
9133.4	Kr	–	[2 Wl]	Me
9133.29	Ba I	15 h	–	Me
9133.24	Co I	3 h	–	Me
9132.21	Sb	30	–	Me
9132.08	Re	2 w	–	Me
9131.59	Xe I	–	[3]	Me
9130.71	Se	–	[2]	Bt
9130.	Tl II	–	[60]	El
9129.44	Cb	10	–	Me
9125.25	Cb	10	–	Me
9125 0	Mn	2	–	Me
9123.60	Cb	2	–	Me
9123.21	Ti I	5	–	–
9123.17	Se	–	[2]	Ms
9122.966	A I	–	[500]	IMe
9122.49	Kr I	–	[20]	Me
9121.14	Ne I	–	[20]	Me
9121.12	Cl I	–	[15]	Ks
9119 17	La I	8 W	–	–
9118 888	Fe I	20	–	Me
9117.68	Cb	7	–	Me
9116 26	Lu	20	–	Me
9116.14	Fe	2	–	Me
9115 00	Kr	–	[5 Wl]	Me
9114.02	MnI	40	–	Me
9113 88	I I	–	[6]	Ev
9113 78	V I	6	–	–
9112 24	Xe I	–	[4]	Me
9112 0	Eu	2	–	Kn
9111.85	C I	150	[100]	Ks
9111.69	Kr I	–	[20]	Me
9106 40	Ni I	5 h	–	Me
9105 87	V I	10	–	–
9105.70	Ta	3	–	Ks
9104.06	Yb	3	–	Me
9103.53	Ne I	–	[3]	Me
9103.37	Si I	3 w	–	Ks
9103.33	Cu II	–	10	Sh
9101 10	La II	2	–	Me
9100.78	V I	8	–	Me
9100.47	Fe I	5 h	–	–
9099.90	Zr I	3	–	Me
9099.72	Kr	–	[4 h]	Me
9097.8	Ba	2 h	–	Me
9096.71	La II	3	3	Me
9096.13	Xe I	–	[50]	Me
9095.37	Co I	50	–	Me
9095.15	Se I	–	[2]	Ms
9094.89	C I	500	[300]	Ks
9094.8	Eu	3	–	Kn
9094.44	Yb	3	–	Me
9094.33	Kr I	–	[4 h]	Me
9090.69	Ti I	25	–	–
9089.413	Fe I	30	–	Me
9088.70	Se I	–	[12]	Rd
9088.57	C I	200	[100]	Ks
9088.326	Fe I	40	–	Me
9088.14	Se I	–	[6]	Rd
9087.64	Ti I	2	–	–
9086.94	Ti I	3	–	–
9085.3	Eu	50	–	Kn
9085.25	Ni I	3	–	Me
9085.22	V I	40	–	–
9084.91	Cb	7	–	Me
9084.29	MnI	30	–	Me
9083 2	Eu	30	–	Kn
9083.05	Se I	–	[8]	Rd
9083 03	Re	2	–	Me
9081 45	Re	4	–	Me
9080 48	Fe I	3 h	–	Me
9079 599	Fe I	8	–	Me
9079.08	La I	50	–	–
9078.67	Ni I	2	–	Me
9078.32	C I	150	[70]	Ks
9075 42	A I	–	[60]	Me
9074 6	He I	–	[2]	Me
9073 34	V I	4	–	Me
9073 34	A I	–	[50]	Me
9073 17	Cl I	–	[12]	Ks
9073 04	Ne I	–	[8]	Me
9071 3	Te I	–	[6]	Rd
9070.74	Re	5	–	Me
9070 40	Fe I	2	–	–
9069 7	Ne	–	[2]	Me
9069.68	Cl	–	[8]	Ks
9069 40	Zr I	10	–	Ks
9067 46	Mo	2	–	Ks
9066.77	A I	–	[40]	Me
9066.6	Re	2 W	–	Me
9066 54	Cb	4	–	Me
9066.50	Mn	2	–	Me
9063 7	Pb II	–	[100]	Ea
9063 40	He I	–	[6]	Me
9063 31	Re	2	–	Me
9062 53	C I	–	[150]	Ks
9062.24	Fe I	2	–	Me
9061.48	C I	350	[200]	Ks
9061 43	Cb	20	–	Me
9060 6	N I	–	[125]	Ig
9059 85	Re	4	–	Me
9059 74	Cr I	5	–	Ks
9058 63	La I	2	–	Me
9058 6	Bi	50 Wl	–	Me
9058 55	Ni I	2	–	Me
9058.53	Re	3	–	Me
9058 38	I I	–	[7]	Ev
9058 0	Eu	80	–	Kn
9057 51	A I	–	[2]	Me
9057 23	A I	–	[4 h]	Me
9056 48	La I	4	–	–
9052 54	Ne I	–	[6]	Me
9050 7	Pb II	–	[100]	Ea
9049 06	Ne I	–	[3]	Me
9046 97	La	2	–	Me
9046 71	V I	50	–	–
9045.446	Xe I	–	[400]	IMe
9045 43	Cl I	–	[15]	Ks
9045 1	C, N	150	–	Ig
9045 0	Eu	3	–	Kn
9044 55	Kr II	–	[2 h]	Me
9044.47	Kr I	–	[3]	Me
9044.38	Re	6	–	Me
9042 2	Te I	–	[8]	Rd
9042.11	F I	–	[10]	En
9039.95	Kr	–	[4 hl]	Me
9039 27	S I	–	[20]	Fh
9039 20	Hg I	–	[4]	Su
9039.18	Cb	8	–	Me
9039.0	Ne I	–	[3]	Me
9038.98	Cl I	–	[10]	Ks
9038.72	S I	–	[20]	Fh
9038.56	Se I	–	[20]	Rd
9037.91	Co I	60	–	–
9037.60	V I	30	–	–
9036 98	Ne I	–	[6]	Me
9036.73	S I	–	[5]	Fh
9036 32	S I	–	[40]	Fh
9035 92	S I	–	[100]	Fh
9035.85	Cr I	50	–	–
9032.46	Re	3	–	Me
9032 18	Xe I	–	[50]	Me
9028 9	N I	–	[15]	Ig
9027 35	Ti I	20	–	–
9025 98	Xe I	–	[30]	Me
9025 67	Kr II	–	[3 hl]	Me
9025.49	F I	–	[5]	En
9025 05	La I	2	–	Me
9024 5	Eu	60	1	Kn
9024 47	Fe I	15	–	Me
9023 65	Ti I	3	–	–
9023 53	U	2 h	–	–
9023.1	Sn	20 Wh	–	Me
9022.73	V I	20	–	–
9022.43	I I	–	[4]	Ev
9022.40	Si	2 h	–	Ks
9021.80	Mn	4 h	–	Me
9021.65	Cr I	100	–	–
9021 11	V I	20	–	–
9020.89	U	2 h	–	Me
9019 84	Fe I	2	–	Me
9019 24	Sb	10	–	Me
9018 9	Sn I	30 Wh	–	Me
9018.63	Ba I	3 h	–	Me
9018 0	Eu	50	–	Kn
9017 59	A II	–	[50]	Bn
9017.03	Cr I	100	–	–
9016.80	La II	2	–	Me
9015.3	H	–	[3]	Pk
9015.13	Zr I	15	–	Ks
9012.098	Fe I	30	–	Me
9011.74	Cb	7	–	Me
9011.34	Zr I	4	–	Me
9010.55	Fe I	2	–	Me
9009.91	Cr I	100	–	–
9009.15	Re	2 w	–	Me
9009.04	Si I	5 hl	–	Ks
9008 37	Fe	2	–	Me
9008.26	La	6	–	–
9006.15	Kr II	–	[3]	Me
9005.99	Se I	–	[3]	Rd
9005.58	Se I	–	[7]	Rd
9005.14	Ni I	5	–	Me
9004 73	Hf	3	–	Me
9003.7	Te I	·	[30]	Rd
9003.44	Se I	–	[8]	Rd
9003 08	V I	5	–	Me
9001.93	Se I	·	[20]	Rd
8999 561	Fe I	100	·	Me
8999 56	Rn I		[2]	Rs
8999.19	Kr I	–	[30]	Me
8999 11	Kr II	–	[2]	Me
8999 10	V I	4	–	Me
8996 7	He I		[2]	Me
8996 2	Cu I	3 h	·	Ks
8994 09	A I	·	[10]	Me
8993 08	As I	20	–	Me
8991 36	Hg I	–	[7]	Su
8989 45	Ti I	12	–	–
8988 86	Hg I	·	[8]	Su
8988 58	Ne I	·	[200]	Me
8988.40	Re	2	–	Me
8988 20	A I	–	[3]	Me
8987.57	Xe I	–	[200]	Me
8985 82	Ti I	2	–	–
8984.87	Fe I	3	–	Me
8983.15	Cb	4	–	Me
8982 57	Eu	15	–	Kn
8982 35	Ni I	2	–	Me
8982.1	Bi	15 hl	–	Me
8981 05	Xe I	–	[100]	Me
8978 70	Kr II	–	[4 hl]	Me
8977.99	Kr I	–	[50]	Me
8977.39	La I	2	–	Me
8976 83	Cr I	30	–	–
8975 6	Ba	2 h	–	Me
8975.408	Fe I	15	–	Me
8973.65	Hg I	–	[8]	Su
8972 89	Co	2	–	Me
8971 66	V I	40	–	–
8971 14	Re I	2	–	Me
8970.98	A I	–	[2]	Me
8970 07	La I	3	–	Me
8969 63	Se I	–	[10]	Rd
8969 54	I II	–	[10]	Mu
8969 23	Se I	–	[8]	Rd
8969 21	Re	4	–	Me
8968 6	Ne I	–	[2]	Me
8968 20	Ni I	8	–	Me
8967.76	Cb	20	–	Me
8967.53	Kr	–	[10]	Me
8967 39	A I	–	[2]	Me
8966 63	Re I	7 w	–	Me
8965.99	Ni I	8	–	–
8965 5	Eu	4	–	Kn
8965.41	La	2	–	Me
8964 48	A I	–	[10]	Me

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
8963.99	Br I	–	[5]	Ks
8963.65	La I	6	–	–
8963.60	V I	5	–	–
8962.34	Ne I	–	[3]	Me
8962.19	A I	–	[40]	Me
8962.07	Re	2	–	Me
8961.9	Eu	2	–	Kn
8959.75	Cb	20	–	Me
8958.37	Co I	4	–	Me
8957.73	La I	25	–	–
8955.77	Cr I	3	–	–
8954.65	Ni I	2	–	Me
8952.78	Xe I	–	[50]	Me
8952.251	Xe I	–	[1000]	IMe
8951.97	U	2	–	–
8950.18	Lu	10	–	Me
8949.63	Lu	15	–	Me
8949.33	Si	15 w	–	Ks
8949.31	Br I	–	[2]	Ks
8949.17	V I	4	–	–
8948.93	Lu	20	–	Me
8948.89	La	2	–	Me
8948.12	Ne I	–	[7]	Me
8948.01	Cl I	–	[20]	Ks
8947.15	Cr I	50	–	–
8945.204	Fe I	20	–	Me
8944.56	Re	2	–	Me
8943.50	Cs I	2000 R	–	Me
8943.00	Fe I	3	–	Me
8941.74	Zr I	3	–	Ks
8941.47	Ne I	–	[6]	Me
8939.20	Cr I	8	–	Ks
8939.13	Co	2	–	–
8938.14	Se I	–	[9]	Rd
8937.93	Ba I	10 h	–	Me
8936.51	Ta	2 h	–	Ks
8935.7	Eu	4	–	Kn
8935.58	As I	50	–	Me
8934.41	Eu	50	–	Kn
8933.43	Cb	6	–	Me
8932.96	Mn	2	–	Me
8932.93	V I	50 w	–	–
8932.64	Ta	6 h	–	–
8932.39	Br I	–	[3]	Ks
8931.62	V I	7 h	–	Me
8930.83	Xe I	–	[200]	Me
8930.70	Cb	2	–	Me
8930.10	Zr I	2	–	Ks
8929.72	Mn I	50 h	–	Me
8929.24	Ne I	–	[10]	Me
8929.04	Fe I	5	–	Me
8928 97	Mg I	2	–	Ps
8928.692	Kr I	–	[2000]	IMe
8927.41	Ba I	7 hl	–	Me
8927.4	Ne I	–	[2]	Me
8927.28	Re	5	–	Me
8926.28	Co I	20	–	–
8926.07	A II	–	[3]	Bn
8926.06	Mn I	15 h	–	Me
8926.78	Cr I	15	–	–
8925.55	Si	8 w	–	Ks
8925.3	Kr	–	[2]	Me
8925.04	Zr I	4	–	Ks
8924.19	Se I	–	[3]	Rd
8923.56	Al I	–	[5]	Ps
8922.61	Yb	20	–	Me
8919.95	Fe I	10	–	Me
8919.80	V I	100 w	–	–
8919.50	Ne I	–	[300]	Me
8918.80	Se I	–	[30]	Rd
8917.65	Eu	60	–	Kn
8917.10	Cr I	10	–	–
8916.35	V I	2	–	Me
8916.24	Cr I	12	–	–
8915.88	Se I	–	[4]	Rd
8915.78	W	8	–	–
8915.76	Cb	4	–	Me
8915.44	Ne I	–	[3]	Me
8914.96	Ba I	100	–	–
8914.7	He I	–	[2]	Me
8914.58	Se I	–	[4]	Rd
8913.66	Sm II	7	–	Ks
8913.0	Ne	–	[3]	Me
8912.90	Cl I	–	[15]	Ks
8912 88	Al I	–	[2]	Ps
8912 78	F I	–	[25]	En
8910.24	F I	–	[15]	En
8910.05	Zr I	3	–	Ks
8909.83	Ba I	3 h	–	Me
8908.73	Xe I	–	[200]	Me
8907.9	Bi I	200 wh	–	Me
8907 6	Sn	20 wn	–	Me
8906.33	Zr I	3	–	Ks
8905 78	Cb	30	–	Me
8904.73	Co I	5 Wh	–	–
8904 53	A II	–	[2]	Bn
8904 04	K I	3	–	En
8903.1	Sb	5 Wh	–	Wt
8902 66	Xe	–	[5 wh]	Hu
8902 20	K I	5	–	En
8901.36	Re	3 W	–	Me
8900.92	F I	–	[30]	En
8899.8	Eu	8	–	Kn
8899.52	Zr I	15	–	–
8899.50	Si	3 w	–	Ks
8899.2	Re	2	–	Me
8898.97	Si	3 w	–	Ks
8898.44	I I	–	[5]	Ev
8897.64	Br I	–	[15]	Ks
8897.5	Cb	6	–	Me
8896.4	Cb	5	–	Me
8895 6	Ne I	–	[2]	Me
8895.36	Mn	4	–	Me
8893.73	Hg I	–	[7]	Su
8892.97	Si	25 w	–	Ks
8892.22	Ne I	–	[10]	Me
8888.83	Br I	–	[2]	Ks
8888.70	Co I	3 h	–	Me
8887.50	Hg I	–	[4]	Su
8886.8	Eu	2	–	Kn
8886.61	Sn	5	–	Wa
8886 58	Re I	15	–	Me
8885 71	Xe I	–	[10]	Me
8884.24	La I	2	–	Me
8884.23	S I	–	[150]	Fh
8884.2	Eu	2	–	Kn
8883.84	Si	4 w	–	Ks
8883 62	W	5	–	–
8882.95	Re	15 ws	–	Me
8882.47	S I	–	[70]	Fh
8880.70	S I	–	[20]	Fh
8879.56	La	3	–	Me
8877.07	Ni I	2	–	Me
8876.13	Fe I	2	–	Me
8875.05	La	2	–	Me
8874.84	A I	–	[4]	Me
8874.53	S I	–	[150]	Fh
8872.26	Se I	–	[3]	Rd
8871.61	W	8	–	–
8871 02	La	2 h	–	–
8870.70	Co I	3	–	Me
8870.34	Eu	100	–	Kn
8870.32	Kr	–	[4]	Me
8869.69	As I	100	–	Me
8868.846	Rb I	30	–	IRz
8868.508	Rb I	70	–	IRz
8868.40	Fe I	3	–	–
8867 35	La	2 h	–	Me
8866.961	Fe I	150	–	Me
8865 759	Ne I	–	[500]	IMe
8865.50	W	15	–	–
8865.33	Ne I	–	[100]	Me
8863 4	H	–	[2]	Pk
8863 09	Ti I	3	–	Me
8863.	Bi II	–	[60]	Cf
8862.58	Ni I	10	–	–
8862 32	Xe I	–	[300]	Me
8861 5	Rb I	20 Wl	–	Me
8860 99	Ba I	80	–	–
8860 58	U	2	–	–
8860.3	Sb	5 Wh	–	Wt
8859 76	Sm	2	–	Ks
8859 08	Mn	2 h	–	Me
8858 62	I I	–	[4]	Db
8858 4	Pb	5 Wh	–	Me
8858 39	Al II	–	[2]	Ps
8857.46	I I	–	[4]	Ev
8855.74	Xe	–	[5 wh]	Hu
8853.866	Ne I	–	[700]	IMe
8853 39	I	–	[4]	Ev
8851 32	Re I	3 Wl	–	Me
8850.70	Co I	10 h	–	Me
8850 3	Te I	–	[15]	Rd
8849 97	A I	–	[150]	Me
8849 07	F I	–	[3]	En
8847 28	S I	–	[15]	Fh
8846 82	Fe I	5	–	Me
8845 23	Re	3 W	–	Me
8844 57	Re	2 s	–	Me
8844 50	F I	–	[5]	En
8844.50	Zr I	2	–	Ks
8842.48	Mn I	3 h	–	Me
8842 46	Kr I	–	[3]	Me
8842 1	Ne	–	[2]	Me
8841 26	Al I	–	[10]	Ps
8840.82	A I	–	[20]	Me
8840.39	A I	–	[3]	Me
8839.9	Xe	–	[3 wh]	Hu
8839.63	La I	10	–	–
8838.96	Nd	5	–	Ks
8838.433	Fe I	30	–	Me
8836.09	Zr I	15	–	Ks
8835.85	Yt II	2	–	Me
8835.65	Cr I	10	–	–
8835 21	Co I	10	–	Me
8834 82	Ta	2	–	–
8832.565	In II	–	[4]	Ps
8832.376	In II	–	[3]	Ps
8831.22	F I	–	[10]	En
8830.92	Ne I	–	[50]	Me
8830.4	Te I	–	[15]	Rd
8828.91	Al I	–	[2]	Ps
8827.83	Mn	3	–	Me
8825 82	La I	25 w	–	–
8825 26	Br I	–	[15]	Ks
8824 227	Fe I	200	–	Me
8823 39	W	5	–	–
8821.76	As I	150	–	Me
8821 31	W	3	–	–
8821.18	Ti I	12	–	–
8820 36	Ne	–	[6]	Me
8820.26	Mn I	4 h	–	Me
8819.95	Br I	–	[10]	Ks
8819 60	O	–	[70]	Fh
8819 411	Xe I	–	[5000]	IMe
8819 38	Ti I	8	–	–
8819.15	Co I	20	–	–
8818 93	La	10	–	–
8817.0	Eu	2	–	Kn
8815 56	Cb	100	–	Me
8814.333	In II	–	[4]	Ps
8813 925	In II	–	[3]	Ps
8813.543	In II	–	[2]	Ps
8812 6	Sn	10 Wh	–	Me
8810 57	La	3	–	Me
8809.47	Ni I	8	–	Me
8809.1	Fe	2	–	Me
8808.3	Fe I	4 h	–	Me
8807.75	Rn I	–	[10]	Rs
8807.59	F	–	[25]	En
8807.52	Br I	–	[2]	Ks
8806.79	Mg I	100	–	Qb
8805 78	Kr I	–	[20]	Me
8805.16	A	–	[3]	Me
8804.98	Zr I	5	–	Ks
8804.624	Fe I	10	–	Me
8804.61	Xe	–	[25]	Hu
8803.988	In II	–	[2]	Ps
8803 764	In II	–	[3]	Ps
8800.62	Yt I	8	–	Me
8799.79	Se I	–	[3]	Rd
8799 76	Ba I	100 h	–	Me
8799.76	Cb	7	–	Me
8799.13	A I	–	[100]	Me
8798.66	Mn I	3 h	–	Me
8798 22	Cb	2	–	Me
8797.70	Re	30 Wl	–	Me
8797.6	La	2 h	–	Me
8796.83	Mn I	6 h	–	Me
8796.42	Fe I	2	–	Me
8795.6	Lu	2	–	Me
8794.40	Ti I	8	–	Me
8793 46	Br I	–	[6]	Ks
8793 376	Fe I	125	–	Me
8793 36	Ba I	2 h	–	Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
8792 51	Ne I	–	[30]	Me
8792.0	Re	2 h	–	Me
8792.	Yb	–	10	It
8791.28	Si	5 w	–	Ks
8790.89	Eu	40	–	Kn
8790.88	Si	4 w	–	Ks
8790.62	Fe I	10 h	–	Me
8789.2	Sb	5 Wh	–	Wt
8789.1	Te I	–	[6]	Rd
8788.83	Sm II	2	–	Ks
8788.83	Lu	4	–	Me
8786.77	Re	40 Wl	–	Me
8786.23	Zr I	2	–	Ks
8785.88	Xe	–	[4 wh]	Hu
8785.06	Eu	5	–	Kn
8784.59	A I	–	[30]	Me
8784.44	Fe I	5	–	Me
8783.755	Ne I	–	[1000]	IMe
8783.71	Hg I	–	[10]	Su
8782.46	Eu	15	–	Kn
8782 01	Ne I	–	[50]	Me
8781.98	La II	2	–	Me
8780.622	Ne I	–	[1000]	IMe
8780.25	Kr I	–	[30]	Me
8778.75	Ne I	–	[150]	Me
8778.71	Ti I	30	–	–
8778.45	Hg I	–	[7]	Su
8777.75	F I	–	[10]	En
8777.42	W	5	–	–
8776.749	Kr I	–	[5000]	IMe
8776.41	W	3	–	–
8774.56	Al I	100	–	Ms
8774.05	Kr I	–	[50]	Me
8773 91	Al I	–	[150]	Ps
8773.54	Cr I	3 h	–	–
8773.11	Hg I	–	[10]	Su
8773.00	Kr I	–	[4]	Me
8772.88	Al I	–	[80]	Ps
8772.49	Re	2	–	Me
8772.08	Ce I	9	–	Ks
8771.88	A II	–	[100]	Bn
8771.70	Ne I	–	[400]	Me
8771.2	Te I	–	[8]	Rd
8770.68	Ni I	2	–	Me
8769.57	Cb	7	–	Me
8767.97	Cb	12	–	Me
8767.96	Mn I	5 h	–	Me
8767 92	La	4	–	Me
8767.55	Ne I	–	[15]	Me
8767.12	Cr I	2	–	Ks
8766.68	Si I	3 w	–	Ks
8766.64	Ti I	70	–	Me
8766.55	Co I	2 h	–	Me
8764.112	Kr I	–	[150]	IMe
8764 000	Fe I	100	–	Me
8763.02	Hg I	–	[10]	Su
8761.72	A I	–	[200]	Me
8761.53	Bi	100 wh	–	Me
8761.50	Ti I	15	–	–
8761.38	Cs I	500	–	Me
8761.35	Pd I	2	–	–
8760.14	Xe	–	[6 wh]	Hu
8758.28	Sm II	2	–	Ks
8758.20	Xe I	–	[100]	Me
8758.06	Hg I	–	[10]	Su
8757.8	Te I	–	[50]	Rd
8757.75	U	4	–	–
8757.192	Fe I	50	–	Me
8755.20	Kr I	–	[30]	Me
8754.92	Bi I	40	–	Me
8754.75	W	3 h	–	–
8753.69	U	2	–	–
8753.45	Cr I	2	–	–
8752.17	Si I	200	–	Ks
8752.14	Xe	–	[7 wh]	Hu
8751.91	Hg I	–	[7]	Su
8751 6	Eu	4	–	Kn
8750.45	Re	3	–	Me
8750.113	Co I	15 h	–	Me
8749.5	Eu	2	–	Kn
8749.48	Zr I	5	–	Ks
8748.38	La I	25	–	–
8747.32	Fe I	2	–	Me
8747.29	Kr I	–	[2]	Me
8746.60	W	10	–	–
8746 43	Kr I	–	[3]	Me
8746 09	Hg I	–	[3]	Su
8746 08	Rn I	–	[3]	Rs
8745 574	Co I	4 h	–	Me
8744.58	W	8	–	–
8744 37	Co I	30	–	Me
8744.03	Lu	3	–	Me
8743 9	Eu	6	–	Kn
8742 60	Si I	100	–	Ks
8742 29	Se I	–	[15]	Rd
8740 96	Cb	20	–	Me
8740.93	Mn I	500 W	–	Me
8740.44	W	10	–	–
8739.51	A I	–	[3]	Me
8739 372	Xe I	–	[300]	IMe
8737.74	Ba II	2 h	–	Me
8737 32	Mn I	150 w	–	Me
8737 31	Ti I	7	–	Me
8737 28	F I	–	[5]	En
8736 63	A I	–	[20]	Me
8736.19	A I	–	[2]	Me
8735 7	Sb	40 Wh	–	Me
8734 86	Zr I	4	–	Ks
8734.69	Ti I	70	–	–
8734 60	Mn I	30	–	Me
8733.27	Co I	10 h	–	Me
8732.15	Cr I	2	–	–
8729 80	Mn I	2 h	–	Me
8729 1	Fe I	2	–	Me
8729.07	N I	–	[2]	Ks
8729.02	Si I	5 w	–	Ks
8728.73	U	2	–	–
8728 38	Si	10 w	–	Ks
8727.78	Eu	40	–	Kn
8726.54	Kr I	–	[8]	Me
8725 76	Ti I	6	–	Me
8724 98	Ru	3	–	Me
8723 1	Pb II	–	8	Ea
8721 64	Re	6 W	–	Me
8720.41	La I	12 w	–	–
8719 85	Sb	10	–	Me
8719 7	Pb II	–	[15]	Ea
8719 56	Ti I	30	–	–
8719 20	Rn I	–	[4]	Rs
8718 99	N I	–	[3]	Ks
8718 66	Cr I	8 h	–	–
8717.89	Sm II	50 d	–	Kn
8717 29	Mn I	2 h	–	Me
8717 09	Cb	4	–	Me
8716 58	Ni I	3	–	Me
8716 43	Hg	–	[5]	Su
8716 19	Xe II	–	[30 h]	Hu
8715 7	Re	2 W	–	Me
8715 62	Hf	2	–	Me
8714 52	Ne I	–	[5]	Gr
8713 79	A I	–	[5]	Me
8713 62	Kr I	–	[2]	Me
8713.19	Fe I	10	–	Me
8712 78	Lu	3	–	Me
8711 78	N I	–	[3]	Ks
8711 54	Xe I	–	[2]	Me
8711 24	Hf	7	–	Me
8710.82	Ba I	2 h	–	Me
8710.77	U	4 h	–	–
8710 75	W	5	–	–
8710 29	Fe I	20 h	–	Me
8710 21	Mn	10	–	Me
8710.1	Pb II	–	[30]	Ea
8709.64	Xe I	–	[40]	Me
8709 24	Zr I	2	–	Ks
8708.43	Sm II	60 d	–	Kn
8708.3	Sn	20 Wh	–	Me
8708	bh C	–	–	L
8707 97	Cr I	9	–	–
8707 61	Kr II	–	[2 h]	Me
8707 37	Cr I	5	–	–
8706.41	Hg I	–	[5]	Su
8706 32	Sm II	30	–	Kn
8704.51	Hg I	–	[7]	Su
8704.47	Eu	10	–	Kn
8704 15	Ne I	–	[200]	Me
8704 12	I II	–	[8]	Mu
8703.76	Mn I	200 w	–	Me
8703.42	N I	–	[3]	Ks
8703 11	La I	5	–	–
8702 49	Ni I	4	–	Me
8701.6	bh V	1	–	L
8701.05	Mn I	150 w	–	Me
8700 95	A I	–	[3]	Me
8700 80	I I	–	[2]	Ev
8700 6	Te I	–	[20]	Rd
8700 1	Sb	50 Wh	–	Me
8700.05	bh Sr	10 l	–	L
8699.13	Mn I	100 w	–	Me
8698 51	Br I	–	[10]	Ks
8697.55	Cb	40	–	Me
8697.50	Kr I	–	[40]	Me
8697.26	Re	20 w	–	Me
8696.86	Xe I	–	[200]	Me
8694.71	S I	–	[200]	Fh
8694.01	S I	–	[20]	Fh
8693.94	Ra I	–	[5]	Rs
8692.33	Ti I	100	–	–
8692 20	Xe I	–	[100]	Me
8691.28	U	4	–	–
8690.23	Lu	3 h	–	Me
8690 19	Kr II	–	[20 hs]	Me
8690.12	A I	–	[2]	Me
8688.633	Fe I	150	–	Me
8687.46	Cr I	8	–	–
8686 67	Hg I	–	[6]	Su
8686 38	N I	–	[5]	Ks
8686 30	Cl I	–	[15]	Ks
8685.910	In II	–	[2]	Ps
8683.75	Re	8	–	Me
8683 61	N I	–	[8]	Ks
8682.99	Ti I	125	–	–
8682.7	Sb	100 h	–	Me
8682.	Bi II	–	[18]	Cf
8681.920	Ne I	–	[500]	IMe
8681.7	Sn	50 Wh	–	Me
8680.45	S I	–	[200]	Fh
8680 36	Al II	–	[8]	Ps
8680.35	N I	–	[12]	Ks
8680.33	Re	3	–	Me
8680 27	Al II	–	[10]	Ps
8680.24	Mn I	2 h	–	Me
8680 2	Ni	2	–	Me
8679.61	S I	–	[5]	Fh
8679 491	Ne I	–	[500]	IMe
8679 13	Se II	–	[2]	Mz
8678 43	A I	–	[60]	Me
8677 93	Sm	30 d	–	Kn
8676.7	Cl I	–	[5]	Mj
8675.83	Rn I	–	[15]	Rs
8675.65	Re I	50 Wl	–	Me
8675.39	Ti I	150	–	–
8675 28	Al II	–	[2]	Ps
8675 12	Co I	10 h	–	–
8674 92	Al II	–	[5]	Ps
8674 751	Fe I	50	–	Me
8674 43	La I	50 w	–	–
8673 97	Mn I	100 w	–	Me
8673 8	Ti II	–	[2]	El
8673 48	Kr I	–	[2]	Me
8672.11	La I	25 w	–	–
8672 06	Mn I	80 w	–	Me
8671 35	S I	–	[2]	Fh
8671 28	Al II	–	[2]	Ps
8670.92	Mn I	60 wl	–	Me
8670.65	S I	–	[5]	Fh
8668 61	Gd	4	–	Ks
8668 42	S I	–	[5]	Fh
8667 943	A I	–	[400]	IMe
8667.1	Sb	20 h	–	Me
8666.31	Mn I	2 h	–	Me
8665.20	Eu	8	–	Kn
8664.93	I I	–	[6]	Ev
8664 66	Mn I	2 h	–	Me
8664.1	Tl II	–	[30]	El
8662 140	Ca II	1000	–	IWg
8661 908	Fe I	100	–	Me
8661 09	Co I	60	–	–
8659 52	U	2	–	–
8659.38	Mn I	10 h	–	Me
8657 85	V	5	–	–
8656 32	N I	–	[3]	Ks
8655.72	Xe	–	[3 wh]	Hu
8655.17	S I	–	[2]	Fh
8654 63	Mn I	40 h	–	Me

Wavelength	Element	Intensities Arc	Spk ,[Dis.]	R
8654 51	Ne I	–	[400]	Me
8654 383	Ne I	–	[2000]	IMe
8654 16	As I	100	–	Me
8654.07	Ba I	40	–	
8653.	Bi II	–	[60]	Cf
8652 79	U	2	–	–
8652 74	Hg I	–	[10]	Su
8652,2	bh Ca	20	–	L
8651 49	Kr I	–	[8]	Me
8650 82	La II	1 h	2	Me
8649.3	Sn	20 hl	–	Me
8648.97	Re I	30 Wl	–	Me
8648.89	Si	100 hl	–	Ks
8648.54	Xe I	–	[200]	Me
8647.59	Ce	5		Ks
8647.05	Ne I	–	[300]	Me
8643.61	Re I	15	–	Me
8643.48	Nd	2	–	–
8643.07	Cr I	15	–	–
8642.76	Zr I	2	–	Ks
8642.7	bh Ca	2	–	L
8642.69	Eu	300	–	Kn
8642.61	V	4		Me
9641.69	Eu	10	–	Kn
8641.54	W	8	–	–
8641.47	Ti	40	–	Me
8641 12	U	2	–	–
8641.01	Zr	4		Ks
8640 70	Al II		[30]	Ps
8640.06	Hf	15		Me
8639 9	bh V	–	–	L
8639.76	Rn I	–	[10]	Rs
8638 66	Br I	–	[25]	Ks
8638.47	La I	10	–	–
8637.62	U	2	–	–
8637.04	Ni I	5	–	Me
8636 38	Ti	18	–	Me
8636 28	Cr I	10	–	–
8635.31	Ne I	–	[50]	Me
8634 65	Se	–	[2]	Bt
8634 648	Ne I	–	[600]	IMe
8633 18	S I	–	[30]	Fh
8633.10	Re	3 Wl	–	Me
8632,9	Ti II	–	[15]	El
8632 83	Sm II	40 d	–	Ks
8632 1	Te I	–	[7 wl]	Rd
8631 7	Eu	2	–	Kn
8630 66	Re	8	–	Me
8629 61	N I	–	[10]	Ks
8629 33	Ti	18	–	Me
8628 94	Xe II	–	[20 h]	Hu
8628 44	Re	5	–	Me
8628 0	Bi	100 Wh	–	Me
8627 96	Rn I	–	[5]	Rs
8626 60	S I	–	[2]	Fh
8625 40	Br I	–	[6]	Ks
8624 86	V	2 l	–	–
8624 82	Kr I	–	[4 h]	Me
8624 24	Xe I	–	[80]	Me
8624 22	La I	5	–	Me
8623 40	I II	–	[6]	Mu
8622 27	Sm II	15 d	–	Kn
8621.612	Fe I	5	–	Me
8621.55	La	2	–	Me
8620 47	A I	–	[100]	Me
8619.52	Sb	150 h	–	Me
8618 96	U	2	–	–
8618.42	Ti I	20	–	–
8618.14	Ti	15	–	Me
8617.7	Sb	40 h	–	Me
8617.15	S I	–	[5]	Fh
8617.03	Sm II	50 d	–	Kn
8615.66	Zr I	4	–	Ks
8614.48	W	8	–	–
8614.45	Cb	20	–	Me
8613 58	Hg I	–	[6]	Su
8613 26	W	15	–	–
8612 91	Ti I	7	–	Me
8612 73	U	2	–	–
8612.62	Ce	5	–	Ks
8611.807	Fe I	10	–	Me
8610.98	Lu	125	–	Me
8610.24	Zr I	4	–	Ks
8609.26	Cu II	–	3	Sh
8607.94	U	8	–	–
8607.51	Yb	8	–	Me
8606.45	Ni I	2	–	Me
8605.85	Kr I	–	[40]	Me
8605.78	A I	–	[150]	Me
8604.98	V	5 h	–	Me
8604.23	Xe	–	[30 hw]	Hu
8604.04	A II	–	[8]	Bn
8603.88	Re	6	–	Me
8603.24	Hf	2	–	Me
8603.03	Mn	3	–	Me
8600.98	Ti I	25	–	Me
8600 34	Mn I	5 Wh	–	Me
8600 07	Rn I	–	[100]	Rs
8599.5	Te I	–	[5]	Rd
8599.10	Pd I	2	–	–
8598 94	V I	4	–	–
8598.84	Ni I	2	–	Me
8598 21	Fe	3	–	Bu
8598.18	Ti I	60	–	Me
8597.19	Eu	10	–	Kn
8597.00	Si I	2 hl	–	Ks
8596 09	Co I	3 h	–	Me
8595 91	Kr	–	[2 wh]	Me
8595 84	Ta	4 h	–	–
8594 85	Nd	2	–	–
8594 37	W	20	–	–
8594.34	N I	–	[3]	Ks
8593.62	Re	3	–	Me
8593.47	Ba I	2	–	Me
8593.1	Kr I	–	[10]	Me
8591.258	Ne I	–	[400]	IMe
8591.06	V	5 w	–	–
8590.94	La I	5	–	–
8590.07	Hg I	–	[2]	Su
8589.73	Co I	50	–	–
8588.52	Re	3	–	Me
8587.84	Zr I	4	–	Ks
8586 74	Co I	30	–	–
8586 00	O	–	[15]	Fh
8585 99	Cl I	–	[30]	Ks
8585 60	S	–	[200]	Ms
8585.06	W	50	–	–
8584.21	Zr I	10	–	Ks
8584 12	Hf	5 h	–	Me
8584.0	Cu I	2 w	–	Ks
8583 01	Cr I	10	–	Ks
8582 91	Ne I	–	[60]	Me
8582.50	Hg I	–	[6]	Su
8582 267	Fe I	8	–	Me
8582.08	Pd I	2	–	–
8581.98	Ba I	50 hl	–	Me
8581 88	Hf II	1	5	Me
8580.48	V I	8 h	–	–
8580 04	Ni I	2	–	Me
8579 81	Bi I	20		Me
8579 49	A I	–	[4]	Me
8579.15	Si	2 w	–	Ks
8578.42	Ti I	15	–	Me
8578 06	A I	–	[5]	Me
8577.95	Cl I	–	[2]	Ks
8577.85	W	2	–	–
8576 01	Xe I	–	[200]	Me
8575.87	Cb	30	–	Me
8575.77	Yt I	2	–	Me
8575 35	Co I	50	–	–
8575 27	Cl I	–	[25]	Ks
8574.61	U	2	–	–
8574.57	Co I	50	–	–
8572.61	Sb	200	–	Me
8571.36	Ne I	–	[100]	Me
8571.05	Zr I	4	–	Ks
8570.71	Re	15	–	Me
8570.51	U	4	–	–
8569 77	Ti I	50	–	–
8569 72	Co I	18	–	Me
8569 02	Kr I	–	[20]	Me
8569.0	Hf	3 d	–	Me
8568.94	Sm	8 d	–	Kn
8568.54	Zr I	4	–	Ks
8568 39	Se II	–	[2]	Rd
8568.04	N I	–	[3]	Ks
8567.73	U	2	–	–
8567 58	Ba I	5 h	–	Me
8566 94	U	2	–	–
8566.28	Br	–	[6]	Ks
8566.21	Fe	2	–	Bu
8565.53	Ti I	25	–	–
8564.71	As I	100	–	Me
8562.56	Cr I	8	–	Ks
8561.70	Gd	4	–	Ks
8561 38	A I	–	[3]	Me
8560.89	Kr I	–	[50]	Me
8560 54	Cb	30	–	Me
8559 95	Ba I	400	–	–
8559.07	Co I	10	–	–
8558.64	Zr I	2	–	Ks
8558 63	Mn I	8 h	–	Me
8557.73	Br I	–	[5]	Ks
8557.50	Re	2	–	Me
8557.34	U	2	–	–
8557.04	Hg I	–	[6]	Su
8556.64	Si I	100 h	–	Ks
8555 50	Cr I	8	–	–
8554.61	Re	4	–	Me
8554.42	Zr	2	–	Ks
8553 97	Xe I	–	[2]	Me
8552 60	Sn I	500	–	Me
8551.48	V I	3	–	Me
8550 6	Pb II	–	[5]	Ea
8550.54	Ti I	25	–	Me
8550 50	Cl I	–	[8]	Ks
8550 49	Ta	3	–	–
8548 86	Cr I	15	–	–
8548 2	Hg II	–	[10]	Rs
8548.12	Ti I	100	–	–
8547 25	Cb	20	–	Me
8546 48	Hf	20	–	Me
8545 44	La I	35	–	–
8545 0	Pb II	–	[30]	Ea
8544.70	Ne I	–	[60]	Me
8544.52	Bi I	40	–	Me
8543 9	Pr	3	–	It
8543 72	Cr I	2	–	Ks
8543.46	La I	20	–	Me
8543.22	Sm II	150 d	–	Kn
8542 12	Eu	100	–	Kn
8542.089	Ca II	1000	–	IWg
8541.97	V I	20	–	–
8541 65	As I	50	–	Me
8540.20	U	4	–	–
8539.38	Ti I	60	–	–
8539 22	Sm II	10 d	–	Kn
8538.87	Hg I	–	[3]	Su
8538 16	V	5 r	–	–
8537 93	Kr I	–	[40]	Me
8537.80	Cr I	6 h	–	Ks
8537.38	Re	2	–	Me
8536 80	Si	3 w	–	Ks
8534 99	Re	3 W	–	Me
8534.49	V I	30	–	–
8532.74	Pd I	2	–	–
8532.	Bi II	–	[80]	Cf
8531 36	Ti I	15	–	Me
8530 99	W	2	–	–
8530 10	Xe I	–	[30]	Me
8529 67	La	3	–	–
8528 94	Yt I	4	–	Me
8527.79	Gd	4	–	Ks
8527 73	Re I	300 Wl	–	Me
8526 99	Cb	50	–	Me
8526 685	Fe I	3	–	Me
8526 36	Ti	8	–	Me
8525 99	Ti	8	–	Me
8524 99	Zr I	4	–	Ks
8522 55	Xe I	–	[30]	Me
8521 96	Ba I	2	–	Me
8521 57	Mn I	10 h	–	Me
8521.441	A I	–	[2000]	IMe
8521.4	Te I	–	[12]	Rd
8521.10	Cs I	5000 R	–	Me
8520 95	Rn I	–	[20]	Rs
8518 32	Ti I	100	–	–
8518 05	Ti I	60	–	Me
8516 37	W	5	–	–
8515 39	W	5	–	–
8515 19	Xe	–	[30 hw]	Hu
8515.11	Fe I	2	–	–
8515 06	Zr I	4	–	Ks
8514 65	La II	3	3	Me
8514 63	Eu	8	–	Kn

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
8514.28	Ba I	40 h	–	–
8514.075	Fe I	10	–	Me
8513.78	Zr I	6	–	Ks
8513.57	La I	8	–	–
8513.52	Co I	5 h	–	–
8513.38	Br I	–	[5]	Ks
8511.85	Hg	–	[4]	Su
8511.04	Cu II	–	40	Sh
8510.97	Cr I	8	–	–
8510.90	Sm II	200 d	–	Kn
8510.6	Pr	3	–	It
8510 38	Zr I	2	–	Ks
8508.870	Kr I	–	[3000]	IMe
8508.08	Lu	100	–	Me
8507.72	Re	6 s	–	Me
8507.37	La I	7	–	–
8506.92	W	6	–	–
8506 77	Sm	10 d	–	Kn
8505.65	V I	10	–	–
8505 51	Hg I	–	[10]	Su
8505 19	K I	2	–	En
8505 06	V I	4	–	Me
8504.70	U	4	–	Me
8503 51	K I	3	–	En
8503.46	Cu II	–	15	Sh
8503.35	Re	3	–	Me
8503.17	Si	5	–	Ks
8502.98	V I	5 d	–	–
8502 38	Si I	30 w	–	Ks
8501.81	Ni I	2	–	Me
8501.8	Bi	2 Wh	–	Wt
8501.50	Si I	20 w	–	Ks
8501.02	Xe	–	[2]	Me
8500 8	Te I	–	[8]	Rd
8499.54	W	2 h	–	–
8499 52	V I	40	–	–
8498.44	Zr I	20	–	Ks
8498 21	Kr I	–	[30]	Me
8498.018	Ca II	300	–	IWg
8497.00	Fe I	2	–	Me
8496 64	A I	–	[2]	Me
8496.04	Ti I	60	–	–
8495 98	Zr I	4	–	Ks
8495.64	Ce	3	–	Ks
8495 51	Ti	15	–	Me
8495 360	Ne I	–	[500]	IMe
8495.12	W	8	–	–
8494 89	Rn I	–	[10]	Rs
8494.42	Ti I	10	–	Me
8493 61	V I	6	–	Me
8492.47	Hg I	–	[5]	Su
8492 2	Te I	–	[8]	Rd
8490 30	A I	–	[40]	Me
8489.50	Co I	30	–	–
8487.48	Rn I	–	[10]	Rs
8486.77	W	3	–	–
8486 16	I I	–	[4]	Ev
8485 99	Sm II	400 d	–	Kn
8485.	bh C	–	–	L
8484.45	Ne I	–	[80]	Me
8484 01	La II	2	–	Me
8483 39	Mo	2	–	–
8483 36	Cr I	3 h	–	Ks
8483 16	Ti I	20	–	Me
8482.64	Xe II	–	[8 h]	Hu
8481.70	Mn	3	–	Me
8478.88	Pb	10 Whl	–	Me
8478.50	Lu	50	–	Me
8478.45	Co I	8	–	Me
8477.47	Br I	–	[20]	Ks
8477.26	Cu II	–	10	Sh
8477.20	Kr I	–	[2]	Me
8476.48	La I	25	–	–
8475.98	Cb	150	–	Me
8475.64	Yt I	3	–	Me
8475.16	W	10	–	–
8473 64	Ru I	2	–	Me
8473 54	Sm II	100 d	–	Kn
8473.31	Kr II	–	[20 hl]	Me
8472.9	Sm	4	–	Kn
8472.01	Tm	30	–	Me
8471.58	Br	–	[3]	Ks
8470.95	W	5	–	–
8470.72	Ne I	–	[5]	Gr
8469.96	Kr I	–	[2 h]	Me
8469.8	Te I	–	[7]	Rd
8468.50	Ti I	300	–	–
8468.413	Fe I	20	–	Me
8467.62	La I	5	–	Me
8467.38	Ce	2 w	–	Ks
8467.32	Cl I	–	[8]	Ks
8467.15	Ti I	300		Me
8465 08	Sm	8		Kn
8464 92	Kr II	–	[4 hlw]	Me
8464.75	Eu	50	–	Kn
8464.65	Zr I	4	–	Ks
8464.07	Hg	–	[4]	Su
8463 37	Ne I	–	[150]	Me
8461.894	In II	–	[2]	Ps
8460.96	Ti	10	–	Me
8460 01	Hf	10	–	Me
8459.19	Lu	150	–	Me
8457 77	Sm II	30 d	–	Kn
8457.6	Sn	10 wh	–	Wa
8457.48	Zr I	2	–	Ks
8457.10	Ti I	25	–	Me
8456 80	Nd	2	–	Ks
8455 24	Cr I	2	–	Ks
8454.76	Sm	20	–	Kn
8453 17	Zr I	2	–	Ks
8452 18	S I	–	[70]	Fh
8451 55	S I	–	[3]	Ms
8450 89	Ti I	70	–	Me
8450.60	Rn I	–	[5]	Rs
8450 47	Se I	–	[15]	Rd
8450 36	Yt I	8	–	Ma
8450 26	Cr I	3	–	Ks
8450 1	Eu	2	–	Kn
8450 03	U	4	–	Me
8449.8	Sm	10 d	–	Kn
8449.57	S I	–	[30]	Fh
8447.62	Ta	70	–	Ks
8447.	Sb II	–	10	Dv
8446.55	Br I	–	[50]	Ks
8446 38	O I	–	[2000]	Ps
8445.8	Tl II	–	[15]	El
8445.45	Gd	4	–	Ks
8445 35	U	4	–	Me
8444 48	Si I	3 w	–	Ks
8444.00	Si I	15 w	–	Ks
8443 58	Hg I	–	[4]	Su
8443 44	A I	–	[70]	Me
8442.98	Ti I	12	–	Me
8442.58	Gd	4	–	Ks
8441 25	U	2	–	Me
8440.55	Se I		[15]	Rd
8440.06	La	3	–	Me
8439.77	Cb	25	–	Me
8439.603	Fe I	5	–	Me
8438 93	Ti I	100	–	Me
8438.57	Dy	2	–	Ks
8437 71	A I	–	[6]	Me
8437 65	Sm II	15 d	–	Kn
8437 55	Xe I	–	[10]	Me
8436 9	Tl II	–	[4]	El
8435 70	Ti I	150	–	–
8434 94	Ti I	200	–	–
8434 776	In II	–	[2]	Ps
8434 324	In II	–	[3]	Ps
8434 31	Cb	2 h	–	Me
8433 90	Re I	4 W	–	Me
8433 90	Cb	4 h	–	Me
8432.64	Sm II	200 d	–	Kn
8431 91	W	5	–	Me
8431 63	V I	12 h	–	Me
8431 20	Mn I	15 h	–	Me
8430.87	Re	2 d	–	Me
8428 94	As I	100		Me
8428.342	O I	–	[15]	Fh
8428.27	Cl I	–	[30]	Ks
8427.1	Sm	8 d	–	Kn
8426 70	U	2	–	Me
8426 52	Ti I	200	–	–
8426.326	O I	–	[50]	Fh
8425.56	Sm II	8 d		Kn
8425.51	Rh I	3	–	Me
8424.647	A I	–	[2000]	I
8424.41	Ti I	35	–	Me
8423.10	Ti I	15	–	Me
8423 05	Hg I	–	[5]	Su
8422.72	Sn	300 hl	–	Me
8421.39	V I	8	–	Me
8418.70	Ti	8	–	Me
8418 427	Ne I	–	[400]	IMe
8418 16	Hg I	–	[5]	Su
8417 54	Ti I	15	–	Me
8417.24	Ni I	8	–	–
8417.18	Ne I	–	[100]	Me
8417 14	Re I	300	–	Me
8417.08	W	8	–	–
8417 08	Cb	4	–	Me
8416.98	Ti I	35	–	–
8416 61	Dy	2	–	Ks
8416.49	V I	8	–	–
8415.73	Ta	10	–	Ks
8414.74	Cb	2	–	Me
8414.58	Ba I	4 hl	–	Me
8414.38	V I	8	–	–
8414 130	In II	–	[2]	Ps
8414 00	Zr I	4 h	–	Ks
8413 623	In II	–	[2]	Ps
8413 083	In II	–	[5]	Ps
8412 428	Kr I	–	[100]	IMe
8412 36	Ti I	300	–	–
8412.319	In II	–	[3]	Ps
8411 70	Sb	60	–	Me
8409 88	Mn I	10 h	–	Me
8409 30	Pb	5 Wh	–	Me
8409 24	Kr	–	[3]	Gr
8409 189	Xe I	–	[2000]	IMe
8409 03	Co I	10 Wh	–	Me
8408 50	Zr I	2 h	–	Ks
8408 23	V I	5 h	–	Me
8408 21	Lu	8	–	Me
8408 208	A I	–	[2000]	IMe
8408 15	Cu I	3 w	–	Ks
8408 01	Sc	2 h	–	Me
8407 87	Ti	4	–	Me
8406 23	Cb	15	–	Me
8406 2	Hg II	–	[5]	Rs
8406.14	Cl I	–	[2]	Ks
8403.58	Re	3	–	Me
8402 81	V	20	–	–
8402 55	W	2	–	–
8402 54	Ti I	12	–	Me
8402 03	Xe I	–	[5]	Me
8401 56	Hg I	–	[7]	Su
8400 82	Nd	2	–	
8399 79	Re	8 w	–	Me
8399 35	A I	–	[20]	Me
8399 18	U	2	–	
8398 24	Gd	4	–	Ks
8397 04	Cr I	6	–	Ks
8396 87	Ti I	200	–	
8396 66	U	2	–	
8395 87	Mn I	10 h	–	Me
8395 6	Pb II	–	[100]	Ea
8394 74	Nd	2	–	–
8393.86	Sm	15 d	–	Kn
8393.42	I I	–	[7]	Ev
8392 37	Xe I	–	[20]	Me
8392 28	A I	–	[80]	Me
8391 96	Cl II	–	[3]	Ks
8391 96	Dy	5	–	Ks
8391 6	Eu	2	–	Kn
8391 31	Sn I	20 hl	–	Me
8390 89	U	2	–	–
8390 30	Sm II	15 d	–	Kn
8390 18	Zr I	2	–	Ks
8389 9	Tl II	–	[8]	El
8389 46	Ti I	25	–	–
8389 41	Zr I	6	–	
8389 32	Mo	150	–	
8389 17	U	4	–	–
8389 06	Ta	10	–	–
8388.	Bi II	–	[40]	Cf
8387.88	Cb	4 h	–	Me
8387 781	Fe I	35	1	Me
8387 77	Sm II	100 d	–	Kn
8387.16	U	4	–	–
8386 70	Zr I	2	–	Ks
8386.68	Nd	2	–	Ks
8384 90	Kr I	–	[15]	Me
8384.73	A I	–	[60]	Me
8384 02	Br I	–	[5]	Ks

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
8383 71	Sm	150 d	–	Kn
8382 98	Hf	2	–	Me
8382 87	W	2	–	–
8382 82	Ti I	200	–	Me
8382 76	Cl II	–	[5]	Ks
8382 54	Ti I	300	–	Me
8382.08	Lu	30	–	Me
8381.86	U	4	–	–
8381 05	Rn I	–	[10]	Rs
8380 77	Mn	25	–	Me
8379 80	La I	7	–	Me
8379.47	Co I	35	–	–
8378.54	Cr I	8	–	–
8378.39	Co I	50	–	–
8378.3	Xe II	–	[5 h]	Hu
8377.85	Ti	200	–	–
8377.607	Ne I	–	[800]	IMe
8376 41	Ne I	–	[200]	Me
8376 3	Cl I	–	[9]	Mj
8376 1	Tl I	2	–	Ps
8375 97	Cl I	–	[40]	Ks
8375.93	Kr	–	[5]	Me
8375.31	Se I	–	[8]	Rd
8375.21	Nd	2	–	–
8373 93	Mn	4 h	–	Me
8373 21	Hg I	–	[5]	Su
8372 84	Co I	80 h	–	–
8372 79	Xe I	–	[5]	Me
8372.26	Sm II	25 d	–	Kn
8371.90	Ce	8 s	–	Ks
8371.39	Cb	4 h	–	Me
8371.38	Xe I	–	[3]	Me
8370 23	Zr I	4	–	–
8369.08	Sm	5 d	–	Kn
8369.07	W	3	–	–
8367.03	A I	–	[3]	Me
8366 4	Xe	–	[25 h]	Hu
8365.98	Zr I	2	–	Ks
8365.75	Ne I	–	[150]	Me
8365.642	Fe I	15	–	Me
8365 64	Yt I	2	–	Me
8364.24	Ti I	150	–	–
8363 82	Ce	2 h	–	Ks
8363.52	Al II	–	[30]	Ps
8363 30	Al II	–	[2]	Ps
8362.39	Nd	2	–	–
8361.99	Se II	–	[2 h]	Bt
8361.81	Cl II	–	[8]	Ks
8361.78	Hf	4	–	Me
8361 7	He I	–	[3]	Me
8361.17	Zr I	2	–	Ks
8360.822	Fe I	8	–	Me
8360 63	Cl II	–	[15]	Ks
8360 3	bh Cr	–	–	L
8360.17	Zr I	2 h	–	Ks
8359.87	W	4	–	–
8359 57	Al II	–	[40]	Ps
8359 23	Al II	–	[2]	Ps
8358 67	W	15	–	–
8357.59	Re	25	–	Me
8357 07	U	2	–	–
8357.04	Sn I	80	–	Me
8355 8	Te I	–	[15]	Rd
8355 23	Sm	10 d	–	Kn
8355.00	As I	10	–	Me
8354 35	Al II	–	[50]	Ps
8354.00	Re	2	–	Me
8353 97	Hg I	–	[2]	Su
8353.79	Mn I	2 Wh	–	Me
8353.58	Pd I	2	–	–
8353.50	A I	–	[4]	Me
8353 15	Ti I	50	–	–
8353 00	Cl II	–	[2]	Ks
8352.94	Ru I	12	–	–
8352.39	Ce	2	–	Ks
8351.3	Xe II	–	[3]	Hu
8351.15	Mo	5	–	Ks
8350.76	Ba I	2 h	–	Me
8350.60	Se	–	[2]	Rd
8350 45	Zr I	4 h	–	Ks
8350.25	W	3 h	–	–
8350.04	Cb	10 h	–	Me
8349.77	Gd	4	–	Ks
8349.74	Rn I	–	[6]	Rs
8349 35	Sn	30 h	–	Me
8349 14	Se	–	[2]	Bt
8349 05	Xe I	–	[40]	Me
8348 98	Ru I	15	–	–
8348 76	W	10	–	–
8348 68	Sm II	150 d	–	Kn
8348 28	Cr I	20	–	–
8347 45	Xe I	–	[60]	Me
8347 24	Xe II	–	[50]	Hu
8346 822	Xe I	–	[2000]	IMe
8346 74	U	2	–	–
8346 53	La I	70	–	–
8346 36	Nd	8	–	–
8346 3	Pd	–	2	It
8346 08	Cb	60	–	Me
8345 57	F I	–	[5]	En
8345 55	Co I	20 h	–	–
8345 23	Sn	10 h	–	Me
8344 80	Mn	2	–	Me
8344 63	Sm	5	–	Kn
8344.43	Yt I	7	–	Me
8344 25	Hf	8	–	Me
8343 70	Br I	–	[20]	Ks
8342 95	Fe I	2	–	Kn
8342 63	Co I	50 Wh	–	–
8342 03	V I	50	–	–
8340.03	Se I	–	[4]	Rd
8339 431	Fe I	18	–	Me
8338 83	Cr I	5	–	Ks
8338.6	Sn	10 Wl	–	Me
8338.43	Si I	5 w	–	Ks
8338.12	Hf	2	–	Me
8338 01	W	15	–	–
8337.46	U	2	–	–
8336 81	Cr I	10	–	Ks
8336 63	Nd	2	–	Ks
8335 7	Eu	4	–	Kn
8335 19	C I	–	[150]	Ks
8335.07	Ra	–	[7]	Rs
8335.0	Pb II	–	[25]	La
8334 69	Br I	–	[20]	Ks
8334.41	La	5	–	–
8334 37	Ti I	70	–	–
8333 31	Cl I	–	[30]	Ks
8332 44	Zr I	2	–	–
8332 21	A I	–	[20]	Me
8332 00	Nd	3	–	–
8331 941	Fe I	20	–	Me
8331 69	Co I	20	–	–
8331 6	Eu	2	–	Kn
8331 23	V I	40	–	–
8330 48	Th	6	–	Fd
8329 73	U	2	–	–
8329 61	Yt I	5	–	Me
8329.45	Lu	5	–	Me
8329.44	Xe	–	[25 hw]	Hu
8328.44	Mo	100	–	–
8328.	Br II	–	[40]	Cf
8327 79	U	2	–	Me
8327.063	Fe I	40	2	Me
8326 04	Dy	5	–	–
8325.39	Ba I	25	–	–
8325 38	Sm	10	–	Kn
8324 69	La I	80	–	–
8324 58	Xe I	–	[20]	Me
8324 49	Nd	5	–	–
8324 42	V I	30	–	–
8323 90	Xe I	–	[2]	Me
8323 44	Cr I	5	–	Ks
8322 99	Cr I	3	–	Ks
8322 06	Cr I	20 wh	–	–
8322 00	W	10	–	–
8321 09	Kr	–	[2]	Me
8320 93	Cb	500	–	Me
8320.86	Th	2	–	Fd
8320.16	Zr I	2	–	–
8320 09	Sm II	6	–	Kn
8318 55	Co I	5 Wh	–	Me
8318 34	U	2	–	–
8318 27	Cr I	5 Wh	–	–
8317.45	Si I	2 w	–	Ks
8317.12	W	3	–	–
8317.10	Xe	–	[25 hw]	Hu
8316 97	Zr I	2	–	Ks
8316 38	Gd	4	–	Ks
8316 2	Xe	–	[10 hw]	Hu
8316 04	La I	15	–	–
8315 45	Sm	150	–	Kn
8315 35	Co I	20	–	–
8315 04	Gd	4 w	–	Ks
8315 01	Hg I	–	[2]	Su
8314 73	S	–	[200]	Ms
8314 51	Rn I	–	[8]	Rs
8314.25	Sb	15 h	–	Me
8313 02	Re	5 W	–	Me
8312 85	Ti I	40	–	–
8312 71	Sm II	15 d	–	Kn
8311 76	Ti I	35	–	–
8311 57	W	5	–	–
8310 26	Ce	4	–	–
8309 52	Se II	–	[3]	Mz
8309 50	Zr I	2	–	–
8307 75	Nd	5	–	–
8307 41	Ti I	60	–	–
8306 80	Si I	4 w	–	Ks
8306 31	Ti I	50	–	–
8305 91	Hf II	2	4	Me
8305 90	Zr I	14	–	–
8305 79	Sm II	500 d	–	Kn
8305 62	As I	50	–	Me
8304 42	Mn	5 h	–	Me
8303 20	Kr I	–	[10]	Me
8303 17	Cr I	5	–	–
8302 88	La I	7	–	–
8302 73	Nd	3	–	–
8302.40	F I	–	[10]	En
8301 87	Pt I	2	–	Me
8301 54	Ne I	–	[150]	Me
8301 45	Co I	5 h	–	–
8301 39	Kr I	–	[20]	Me
8301 34	Sm	100	–	Kn
8301 01	Re	20 w	–	Me
8300 88	Sm II	80 d	–	Kn
8300 83	Pd I	6	–	–
8300.70	Ce	4	–	–
8300 326	Ne I	–	[600]	IMe
8299 95	Co I	60 h	–	–
8299 81	Zr I	4 h	–	–
8298 6	Eu	2	–	Kn
8298 59	F I	–	[18]	En
8298 46	Sm	8	–	Kn
8298 108	Kr I	–	[5000]	IMe
8297 71	Xe I	–	[15]	Me
8297 58	Cr	3	–	Ks
8297 55	Xe	–	[50 h]	Hu
8297 07	Yt	2	–	Me
8296 90	Cr I	4	–	Ks
8296 85	Co I	50 h	–	–
8296 54	Zr I	2	–	Ks
8295 5	Pd	–	3	It
8293 73	Re	20	–	Me
8293 527	Fe I	8	–	Me
8291 88	A I	–	[8]	Me
8291 1	Te I	–	[10]	Rd
8290.62	Cr I	10	–	Ks
8289 26	Sm II	125 d	–	Kn
8289 0	Sb	30 h	–	Me
8287 56	Kr I	–	[4 h]	Me
8287 46	Hg I	–	[2]	Su
8287.38	Cr I	25	–	Ks
8286.33	Cr	2 h	–	Ks
8285 72	Cr	2	–	Ks
8285 70	Xe II	–	[20 h]	Hu
8285 13	Re	3 Ws	–	Me
8285 00	Ba I	5 h	–	Me
8284.48	Mn I	4 h	–	Me
8283 81	Zr I	12	–	–
8283.52	Nd	2	–	Ks
8283.48	Co I	50 h	–	–
8283.21	Cu II	–	60	Sh
8283.09	Ru	6	–	–
8282 85	Xe	–	[15 h]	Hu
8282.37	V I	80	–	–
8281 62	Ta	50	–	–
8281.049	Kr	–	[1000]	IMe
8280.39	V I	15	–	–
8280.116	Xe I	–	[5000]	I
8277.60	Cu II	–	50	Sh
8276 95	Hf	20	–	Me
8276 6	Te I	–	[10]	Rd
8275 90	Fe I	6	–	–

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
8275.63	Th	5	–	Fd
8275.55	Co I	8 h	–	–
8275.42	Gd	4	–	Ks
8274.62	F I	–	[15]	En
8274.6	Eu	6	–	Kn
8274.31	Fe	6	–	–
8273.80	Cr I	3	–	Ks
8273.519	Ag I	5	–	IHz
8273.20	Cr	3	–	Ks
8272.84	Pb	200 wl	–	Me
8272.77	Nd	2	–	–
8272.46	Br I	–	[70 l]	Ks
8272.45	Se	–	[2]	Rd
8272.38	Co I	5 h	–	–
8272.355	Kr I	–	[100]	IMe
8272.	bh C	–	–	L
8271.76	Hg I	–	[2]	Su
8271.707	Rb I	100	–	IRz
8271.410	Rb I	200	–	IRz
8270.96	Rn I	–	[100]	Rs
8270.12	Sb	10 h	–	Me
8269.38	Co I	80 h	–	–
8269.03	Ra	–	[6]	Rs
8267.65	V I	2	–	–
8267.45	Sm	40 d	–	Kn
8267.11	Ne I	–	[80]	Me
8266.71	Nd	3	–	–
8266.520	Xe I	–	[500]	IMe
8266.076	Ne I	–	[200]	IMe
8265.50	Dy	5	–	–
8264.96	Ru	25	–	–
8264.95	Br I	–	[10]	Ks
8264.85	Ta	40	–	–
8264.521	A I	–	[1000]	IMe
8264.27	Fe	20	–	Kn
8264.27	Cr I	2	–	Ks
8264.01	Ba I	3 h	–	Me
8263.240	Kr I	–	[2000]	IMe
8262.87	Re	6 w	–	Me
8262.79	Nd	2	–	–
8262.73	Xe	–	[25 h]	Hu
8262.41	Cb	2 h	–	Me
8262.05	U	4	–	–
8262.01	Cr I	10	–	–
8261.11	Ce	8	–	–
8260.81	Xe	–	[5]	Hu
8259 380	Ne I	–	[150]	IMe
8259.00	Pt I	2	–	–
8258.53	Yt	2	–	–
8258.27	S II	–	[4]	Bt
8257.85	Sb	20 h	–	Me
8257.78	bh Sr	5 l	–	L
8256.90	Cu II	–	5	Sh
8256.74	Se I	–	[2]	Rd
8256.5	Sm	4	–	Kn
8256.40	Xe	–	[20]	Hu
8256 25	Re	3 w	–	Me
8255.88	V I	70	–	–
8255 07	A I	–	[50]	Me
8254.10	Be I	100	–	Ps
8254.0	Re I	4 Wl	–	Me
8253 8	Eu	6	–	Kn
8253.51	V I	80	–	–
8252.63	Hg I	–	[2]	Su
8251 90	I II	–	[4]	Mu
8251.64	Mn	2	–	Me
8251.5	Te I	–	[10]	Rd
8250 22	K I	2	–	En
8250.03	Sn	8 hl	–	Me
8249.66	Nd	2	–	–
8249.58	A I	–	[4]	Me
8248.95	Ta	50	–	–
8248.81	Hf	3	–	Me
8248.74	Nd	2	–	–
8248.70	Ne I	–	[30]	Me
8248.70	Ra	–	[6]	Rs
8248.68	Lu	2	–	Me
8248.2	Sm	5	–	Kn
8248 151	Fe I	10	–	Me
8247.45	Fe	2	–	Bu
8247.44	La I	40	–	–
8247.2	Eu	2	–	Kn
8246.93	Re	2	–	Me
8246.87	Br I	–	[5]	Ks
8246.51	Sm II	10 d	–	Kn
8245 37	Xe	–	[4]	Hu
8245 21	Ce	4	–	–
8245.06	Mo	30	–	–
8243 95	Dy	2	–	Ks
8243 7	Eu	3	–	Kn
8242.47	N I	–	[15]	Ks
8241 70	Sb	7	–	Me
8241 61	V I	60	–	–
8241 13	Sc I	5	–	Me
8240 98	Sm II	150	–	Kn
8240 67	Cr I	2	–	Ks
8240 37	Zr I	8	–	–
8240 13	I I	–	[7]	Ev
8240 00	Cb	50	–	Me
8239 130	Fe I	5	–	Me
8238.34	Cr I	8	–	–
8237.90	La I	3 wl	–	Me
8237.5	Eu	4	–	Kn
8236 13	Hf II	5	10	Me
8235 89	Cr I	30	–	–
8235 408	O I	–	[50]	Fh
8235 30	Cu II	–	[10]	Sh
8234 640	In II	–	[4]	Ps
8234 21	Ce	4 wh	–	–
8233 55	Dy	2	–	Ks
8233 291	In II	–	[2]	Ps
8233 085	O I	–	[1000]	Fh
8232 94	Fe	3	–	Bu
8232 600	In II	–	[2]	Ps
8232 347	Fe I	10	–	Me
8232 18	F I	–	[10]	En
8231 634	Xe I	–	[5000]	I
8231 51	Nd	6	–	–
8231 23	Yt I	2 h	–	Me
8230 77	F I	–	[30]	En
8230 67	Si I	15	–	Ks
8230 33	Sm	100	–	Kn
8230 016	O I	–	[1000]	Fh
8229 99	Mn	2	–	Me
8228 98	Cb	2 h	–	Me
8228 89	Kr I	–	[10 h]	Me
8227 680	O I	–	[1000]	Fh
8227 55	Pt I	3	–	–
8227 354	In II	–	[6]	Ps
8227 274	In II	–	[2]	Ps
8227 26	Nd	2	–	–
8226 977	In II	–	[3]	Ps
8226 918	In II	–	[4]	Ps
8226 871	In II	–	[2]	Ps
8226 82	Eu	100	–	Kn
8226 640	In II	–	[3]	Ps
8226 581	In II	–	[4]	Ps
8226 08	Cb	2 h	–	Me
8225 67	Cr I	3	–	Ks
8225 15	S II	–	[4]	Bt
8224 74	Pt I	10	–	–
8224 72	A I	–	[6]	Me
8224 41	Ba	6 h	–	Me
8224 30	Re	2	–	Me
8224 07	Cr I	8	–	–
8223 61	Ce	4	–	–
8223 28	N I	–	[15]	Ks
8222 69	Kr I	–	[6]	Me
8222 65	I I	–	[5]	Ev
8221 829	O I	–	[2000]	Fh
8221 76	Cl I	–	[25]	Ks
8220 47	Ru	7	–	–
8220 45	Cl I	–	[15]	Ks
8220 406	Fe I	5	3	Me
8218 76	Sm II	300	–	Kn
8218 58	Dy	2	–	Ks
8218 40	Kr I	–	[80]	Me
8218 08	Gd	4	–	Ks
8218 07	Cr	3	–	Ks
8217 85	A II	–	[3]	Bn
8216 98	Dy	2 W	–	Ks
8216 97	Nd	2	–	–
8216 46	N I	–	[35]	Ks
8216 36	Ru	7	–	–
8216 32	Hf	3	–	Me
8216 32	Cr I	5	–	–
8216 05	Be I	5	–	Ps
8214 85	Xe II	–	[20]	Hu
8214.74	Sm	5	–	Kn
8214 72	F I	–	[20]	En
8214 30	Ni	2 h	–	Sl
8214 12	Hg I	–	[12]	Su
8213 14	Nd	2	–	–
8212 53	Zr I	25	–	–
8212 43	Mn	50 h	–	Me
8212 03	Cl I	–	[20]	Ks
8211 71	Yt I	2 h	–	Me
8211 60	La	4 w	–	–
8211 48	Si I	2	–	Ks
8211 3	Cl I	–	[12]	Mj
8211 23	Cb	2 h	–	Me
8211 0	Eu	2	–	Kn
8210.94	N I	–	[10]	Ks
8210 81	Bi I	5	–	Me
8210 24	Ba I	200	–	–
8210 16	Mn I	2	–	Me
8209 84	Eu	200	–	Kn
8208 66	Co I	80	–	–
8208 63	F I	–	[5]	En
8208.25	Sm	60	–	Kn
8207.767	Fe I	100	–	Me
8207 30	Ti I	20 h	–	–
8206 62	Kr I	–	[40]	Me
8206 336	Xe I	–	[700]	IMe
8206.30	Sm	80 d	–	Kn
8206 14	Hg I	–	[3]	Su
8205 38	Nd	2	–	–
8205 22	Kr I	–	[20]	Me
8204 58	Hf	20	–	Me
8204 50	Mn	2	–	Me
8204 45	Pt I	4	–	–
8203 98	Sm	80	–	Kn
8203 32	La I	3	–	–
8203 07	V I	100	–	–
8202 72	Kr II	–	[40 h]	Me
8201 73	Zr I	8	–	Ks
8201 56	Dy	15	–	–
8200 84	Hg I	–	[7]	Su
8200 59	N I	–	[2]	Ks
8200 23	Cl I	–	[10]	Ks
8200 2	Cd I	5	–	Ps
8199 06	Cl I	–	[10]	Ks
8198 951	Fe I	20	–	Me
8198 87	V I	60	–	–
8198 75	Dy	5	–	Ks
8197 74	F I	–	[3]	En
8197 4	Hg II	–	[2]	Wd
8196 98	Sc I	3	–	Me
8196 73	Xe I	–	[2]	Me
8195 61	Hg I	–	[8]	Su
8195 50	Sm II	200 d	–	Kn
8195 070	Kr I	–	[50]	IMe
8194 87	Cr I	4	–	Ks
8194 83	V I	6	–	–
8194 811	Na I	1000 R	–	IHz
8194.78	Hf	8	–	Me
8194 73	Zr I	20	–	–
8194 61	Se I	–	[12]	Rd
8194 6	F I	–	[12]	Di
8194 39	Cl I	–	[15]	Ks
8194 20	Tm	20	–	Me
8194 0	Ti II	–	[2]	El
8193.63	Rh I	10	–	Me
8193 03	Co I	125	–	–
8192 60	Mo	2	–	–
8192 4	Kr I	–	[2]	Me
8192 28	Cu II	–	30	Sh
8191 43	Se I	–	[8]	Rd
8191 24	F I	–	[5]	En
8190 75	Re	2 h	–	Me
8190 66	Cb	2	–	Me
8190 13	Se I	–	[4]	Rd
8190 054	Kr I	–	[3000]	IMe
8189.40	Cb	2 h	–	Me
8189 32	Co I	10 h	–	–
8188.77	Cr	3 h	–	Ks
8188 77	Zr I	2	–	–
8188 20	U	2	–	–
8188 16	N I	–	[15]	Ks
8188 1	Eu	3	–	Kn
8187 38	V I	50	–	–
8186.92	Th	6	–	Fd
8186 9	Xe	–	[10 h]	Hu
8186.81	Fe I	4	–	–
8186.71	V I	80	–	–

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
8186 31	Sm	40 d	–	Kn
8185.67	Cr I	5	–	–
8185 65	Nd	2 h	–	–
8185 05	N I	–	[15]	Ks
8185 00	Se I	–	[10]	Rd
8184.7	Eu	2	–	Kn
8184 43	Sm	50 d	–	Kn
8183 5	F	–	[5]	Di
8183 270	Na I	500 R	–	IHz
8183	Bi II	–	[18]	Cf
8182 93	Se I	–	[15]	Rd
8182 39	Nd	8	–	–
8181 97	Ru	2	–	Me
8180 38	Ti I	25 wh	–	–
8180.34	Sm	6 d	–	Kn
8180 21	V I	20	–	–
8179 78	Nd	6	–	–
8179 58	Rn I	–	[5]	Rs
8179 34	F I	–	[10]	En
8179 31	S II	–	[5]	Bt
8178 96	A I	–	[20]	Me
8178 84	A	–	[40]	Me
8178 16	Lu	40	–	Me
8177 6	Hg II	–	[6]	Rs
8177 31	Ra I	–	[10]	Rs
8176 23	Cb	2	–	Me
8175 85	U	2	–	–
8174 30	U	4	–	–
8173.89	Hf	5	–	Me
8173 84	Rn I	–	[6]	Rs
8173 03	Cb	6	–	Me
8172 96	Sm	6 d	–	Kn
8172 90	Hg I	–	[5]	Su
8172 54	Nd	4	–	–
8171 95	A I	–	[10]	Me
8171 35	V I	50	–	–
8171 02	Xe I	–	[100]	Me
8169 81	Nd	2	–	–
8169 8	Ca I	5	–	Me
8169.75	Cr I	5	–	–
8169 72	Zr I	2	–	Ks
8169.51	I I	–	[7]	Ev
8168 89	V I	15	–	–
8168.78	Ru	3	–	Me
8168 13	Eu	10	–	Kn
8167 97	Cr	3	–	–
8167 88	Co I	20 Wh	–	–
8167.55	Xe	–	[10 h]	Hu
8167.22	Hg I	–	[5]	Mu
8167.2	bh Ca	5	–	L
8166 72	Cr I	5	–	–
8166 63	Re	8 w	–	Me
8166 21	A	–	[2]	Me
8165 70	W	8	–	–
8165 5	Yt	2	–	Me
8165 38	Sm	25 d	–	Kn
8165 37	Xe		[2]	Me
8164 92	Nd	3	–	–
8164 52	Hg I		[10]	Su
8163 18	Cr I	35	–	–
8163 08	Se I	–	[18]	Rd
8161 90	Sm II	200 d	–	Kn
8161 64	Ba	15 w	–	–
8161.07	V I	150 w	–	–
8160 65	Co I	40	–	Me
8160 15	Al II	–	[10]	Ps
8159 75	Th	4		Fd
8159 52	F I	–	[15]	En
8159 05	La II	5 w	8	Me
8158 976	In II	–	[2]	Ps
8158 54	Ta	10	–	–
8158 12	Ba I	3 h	–	Me
8157 73	Se I	–	[20]	Rd
8157.69	Ru	3	–	–
8157.25	Kr II	–	[3 hs]	Me
8155.69	Se	–	[3]	Rd
8155.5	Eu	4	–	Kn
8155.03	Cr I	6	–	–
8154.59	V I	20	–	–
8154.31	Co I	10 h	–	Me
8153.94	Br I	–	[12]	Ks
8153.85	Sm	6	–	Kn
8153.55	Hg I	–	[4]	Su
8153.45	Mo	3	–	Ks
8153.0	bh Ca	40	–	L
8152 71	Br	–	[2]	Ks
8152.58	Zr I	4	–	–
8152 11	Co I	60	–	–
8152 02	Se I	–	[15]	Rd
8151 86	A I	–	[3]	Me
8151 80	Xe	–	[60]	Hu
8150 76	S I	–	[2]	Ms
8150.2	Eu	3	–	Kn
8150.19	Co	50	–	–
8149 58	Fe	4	–	–
8149 28	Se I	–	[18]	Rd
8148 78	Mn	2	–	Me
8148 40	S I	–	[2]	Ms
8147 82	S I	–	[30]	Ms
8147.75	Ba I	20 h	–	–
8147 25	Dy	2	–	Ks
8146 60	Sm	40	–	Kn
8146 10	Gd	8		Ks
8145 40	Hg I	–	[2]	Su
8145 15	Kr II	–	[20 Wh]	Me
8144 96	Kr I	–	[15]	Me
8144 8	Xe II	–	[5 wh]	Hu
8144 59	V I	30	–	–
8143 50	A I	–	[10]	Me
8143 29	Nd	7	–	Ks
8143 15	Th	4	–	Fd
8143 12	W	8	–	–
8142 13	Xe	–	[5 wh]	Hu
8141.74	Nd	7	–	–
8140.43	Co I	40	–	–
8139 57	W	5 h	–	–
8137 08	Co I	80	–	–
8136 83	Xe II	–	[25 h]	Hu
8136 79	V I	20	–	–
8136 406	Ne I	–	[300]	IMe
8136 26	S I	–	[30]	Ms
8136 20	Rh I	50	–	Me
8135 78	Ru	4	–	–
8135.27	Sm	5	–	Kn
8135 20	Cb	80	–	Me
8134 9	Yt I	2 h	–	Me
8133 7	Eu	5	–	Kn
8133 67	Sm	10 d	–	Kn
8133 02	S II	–	[4]	Ms
8132 99	Zr I	80	–	–
8132 98	Kr I	–	[60]	Me
8132 82	Pd I	8	–	–
8132 33	W	5	–	–
8132 01	Sm	10	–	Kn
8131 51	Br I	–	[12]	Ks
8131.41	Ti I	20	–	–
8131.40	Xe	–	[20]	Hu
8131 29	S I	–	[50]	Ms
8130 03	Kr II	–	[3 h]	Me
8129 27	F I	–	[10]	En
8129 11	Sm	15	–	Kn
8128 93	Ne I	–	[60]	Me
8128 76	Ta	20	–	–
8128 29	Cr I	5 h	–	–
8127.30	A	–	[2]	Me
8126 56	F I	–	[6]	En
8126 52	Li I	1000	–	Me
8125 44	S I	–	[20]	Fh
8125 12	Sm II	125 d	–	Kn
8123 98	I II	–	[6]	Mu
8123 79	W	20	–	–
8123 29	Xe I	–	[2]	Me
8123 01	S I	–	[30]	Fh
8122 29	Sm	6	–	Kn
8122 05	Nd	6	–	–
8121 35	Sm	15	–	Kn
8121.0	Sn	30 hl	–	Me
8120 89	Nd	3	–	–
8120 49	Ba I	20 h	–	–
8120 37	Ce	5	–	–
8120 17	Zr I	2	–	–
8120 16	Xe	–	[25]	Hu
8119 72	Al II	–	[3]	Ps
8119 36	Mn	2	–	Me
8119 18	A II	–	[50]	Me
8119 13	Cr I	4 h	–	Ks
8118.70	Nd	2	–	–
8118 67	Cb	5 h	–	Me
8118.56	Se II	–	[2]	Bt
8118.549	Ne I		[100]	IMe
8118 17	Cb	7	–	Me
8117.5	Ir	2 Wh	–	It
8117.16	Sm II	150 d	–	Kn
8116 80	V I	150	–	–
8116.41	Co I	80	–	–
8116.20	Sm	12	–	Kn
8115 94	Xe	–	[30 h]	Hu
8115 311	A I	–	[5000]	IMe
8114 28	Zr I	2	–	–
8114.10	Sn I	200	–	Me
8114 04	Co I	10 h	–	–
8112 902	Kr I	–	[5000]	IHu
8112 47	Ru I	20	–	–
8112 31	Sm	4	–	Kn
8112 13	Co I	5 Wh	–	Me
8110 51	Mn	3	–	Me
8109.88	V I	10	–	Me
8109.22	Zr I	2	–	–
8109.10	V I	15	–	–
8108 70	Nd	2	–	–
8108.59	V I	20	–	–
8108.40	Dy	2	–	Ks
8107.91	Xe I	–	[6]	Me
8104 67	Mo	3	–	–
8104 364	Kr I	–	[5000]	I
8104 02	Kr I	–	[500]	Me
8103 692	A I	–	[2000]	IMe
8102 9	F	–	[4]	Di
8102 44	V I	20	–	–
8102 38	Sm	20	–	Kn
8101 98	Xe I	–	[100]	Me
8100.3	Sn I	40 hl	–	Me
8100 11	Ta	15	–	–
8099 51	Rn I	–	[100]	Rs
8099 11	Nd	4	–	–
8098.55	Xe	–	[12 h]	Hu
8098.51	Se	–	[2]	Rd
8098 23	Cr I	3 h	–	–
8097.62	U	2	–	–
8097.24	Xe I	–	[3]	Me
8096 875	Fe	4	–	Me
8095.55	Cu II	–	40	Sh
8095 13	Xe	–	10 h	Hu
8094 69	Se I	–	[15]	Rd
8094.27	Hg	–	[3]	Su
8094.06	A I	–	[20]	Me
8093 96	Co I	80 h	–	–
8093 45	V I	80	–	–
8093 32	Si	25 h	–	Ks
8093.19	Se I	–	[15]	Rd
8093 08	Ne I	–	[2]	Me
8092 634	Cu I	400 W	–	IBu
8091 15	Sm	80	–	Kn
8091 10	W	3	–	–
8090 80	Sm	60	–	Kn
8090 48	Hg I	–	[2]	Su
8089 76	Ti I	6	–	–
8088 85	Ta	2	–	–
8088 58	Cu II		20	Sh
8088 25	Re	15	–	Me
8087 81	Zr I	2	–	
8087 77	Se	–	[2]	Rd
8087 66	Cl I	–	[4]	Ks
8087 08	Sm II	15 d	–	Kn
8086 71	Cl	–	[15]	Ks
8086 14	A II	–	[2]	Bn
8086 05	La I	6 ws	–	–
8085 57	Cl I	–	[12]	Ks
8085 54	Co I	5 h	–	–
8085.25	Ti I	18	–	–
8085.200	Fe I	20	1 h	Me
8085 00	Cr I	12 h	–	–
8084.52	Sm	15 d	–	Kn
8084 51	Cl I	–	[8]	Ks
8084.50	La I	2	–	–
8084.50	Ti I	6	–	–
8082 93	A I	–	[5]	Me
8082 5	Te I	–	[10 ws]	Rd
8082.458	Ne I	–	[200]	IMe
8082 36	Lu	2	–	Me
8081.14	Se I	–	[12]	Rd
8080 668	Fe I	4	–	Me
8080.5	Eu	3	–	Kn
8080.32	Hf	4	–	Me
8080 31	Xe	–	[30 hs]	Hu

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
8080.23	Co I	60	–	–
8079.68	A I	–	[20]	Me
8079.021	Cs I	1000	–	IMs
8078.923	Cs I	100	–	IMs
8077.58	Gd	4	–	Ks
8077.53	F	–	[10]	En
8076.26	Sm	15	–	Kn
8075.52	F I	–	[15]	En
8075.46	Cu II	–	2	Sh
8075.37	Al I	–	[12]	Ps
8075 13	Fe I	5	–	Me
8074.03	U	2	–	–
8071.74	Sm II	40 d	–	Kn
8071.50	Nd	3	–	–
8070.97	Xe	–	[30]	Hu
8070.59	Hg I	–	[4]	Su
8070.37	Sm II	50 d	–	Kn
8070.08	Zr I	100	–	–
8068.98	Ta	25	–	–
8068.46	Sm II	800	–	Kn
8068.24	Ti I	50	–	–
8067.93	U	2	–	Me
8067.	bh C	–	–	L
8066.99	Cd II	–	15	Vs
8066.60	A I	–	[20]	Me
8066.49	Co I	60	–	–
8066.20	Yt II	3	–	Me
8065.99	Al I	–	[10]	Ps
8065.47	U	2 wh	–	–
8065.31	Se I	–	[12]	Rd
8065.16	Sm	150	–	Kn
8064.94	Xe I	–	[2]	Me
8064.18	Re	2	–	Me
8064.09	Ti	12	–	Me
8063.94	Nd	3	–	–
8063.50	Rh I	10	–	Me
8063 09	Zr I	20	–	–
8062.98	Co I	5 Wh	–	Me
8062.1	Sb	10 Wh	–	Wt
8061.4	Te I	–	[30 ws]	Rd
8061.37	Cr I	12 h	–	–
8061.339	Xe I	–	[150]	IMe
8060.91	Se I	–	[12]	Rd
8060 36	W	8	–	–
8060.34	U	2	–	–
8060 03	Re	30	–	Me
8059.504	Kr I	–	[1000]	IMe
8059 5	La II	3 h	3 h	Me
8059.10	Hf	3	–	Me
8058 37	Se I	–	[4]	Rd
8058 22	Mo	2	–	–
8058 08	Zr I	8	–	–
8057 258	Xe I	–	[200]	IMe
8056 52	Hf	4	–	Me
8056 06	Co I	80 h	–	–
8055 98	Re	4	–	Me
8055 76	Zr I	4 h	–	–
8055 72	As I	5	–	Me
8055 60	W	20	–	–
8055.60	U	2	–	–
8055 50	Sm	8 d	–	Kn
8055 29	Zr I	4	–	–
8054 86	W	8	–	–
8053 93	Ta	5	–	–
8053 50	Co I	2 h	–	Me
8053.41	Yb	10	–	Me
8053.35	Cs	100 s	–	Ms
8053 307	A I	–	[100]	Me
8053 06	Zr I	2	–	–
8052.11	Re	10 ws	–	Me
8051.81	Se I	–	[10]	Rd
8051 39	La I	4	1	–
8051.29	Nd	3	–	–
8051 03	Cl	–	[4]	Ks
8050.76	Co I	5 Wh	–	–
8050 3	Eu	6	–	Kn
8050.	Bi II	–	[30]	Cf
8049.48	Ru	4	–	–
8049.00	Rn I	–	[20]	Rs
8048.70	Sm II	400	–	Kn
8048.56	Gd	4	–	Ks
8047.28	Xe	–	[15 h]	Hu
8046.13	A I	–	[50]	Me
8046.073	Fe I	25	1	Me
8046.05	Zr I	6	–	–
8045.40	Rh I	125	–	Me
8045.38	Cr	3	–	–
8043.92	Rh I	8	–	Me
8043 74	I I	–	[10]	Ev
8043.37	Mn I	4	–	Me
8043.33	Co I	80 h	–	–
8043 22	Nd	7	–	–
8042.95	As I	10	–	Me
8042.18	Xe I	–	[15]	Me
8041 79	Ne I	–	[2]	Me
8041.37	Co I	20	–	–
8041 29	Os	2	–	–
8040 94	F I	–	[30]	En
8040.56	Xe I	–	[10]	Me
8040 50	Kr I	–	[8 h]	Me
8040 27	Sm	12 d	–	Kn
8040 10	Zr I	2	–	–
8040 01	Dy	2	–	Ks
8039 3	Sn	40 hl	–	Me
8039 08	Ta	25	–	–
8038 38	Sm	4	–	Kn
8038.26	Xe	–	[50 h]	Hu
8037 64	Co I	10 h	–	–
8037 23	A I	–	[20]	Me
8036 65	Ru	7	–	–
8036 35	Se I	–	[20]	Rd
8036 11	Rh I	100	–	Me
8035.99	U	2	–	Me
8035 40	Xe	–	[20 h]	Hu
8035 39	Si	7 w	–	Ks
8034.98	Cr	5 h	–	Si
8034 69	U	2	–	Me
8034.56	Ni I	2 h	–	–
8033 69	Sm	5	–	Kn
8033 52	Kr I	–	[2 h]	Me
8032 54	Mn	2	–	Me
8032 48	Th	2	–	Fd
8032 41	Co I	5 h	–	Me
8032.03	Sm II	200 d	–	Kn
8031.64	Xe	–	[50 h]	Hu
8030 5	Sn	100 hl	–	Me
8029 91	Rh I	150	–	Me
8029 67	Xe I	–	[100]	Me
8029 56	Sm II	6 d	–	Kn
8029 26	Co I	80	–	–
8029 04	Ta	8	–	Ks
8028 341	Fe I	100	–	Me
8028 24	V I	20	–	–
8027 53	Re	3	–	Me
8027 39	V I	80 w	–	–
8027 32	Mo	6	–	–
8027 21	Dy	2		Ks
8026 50	Ta	50	–	
8026 45	Cu II	–	10	Sh
8026 35	Br I	–	[6]	Ks
8026 32	Sm II	500 d	–	Kn
8025 60	Yt I	3	–	Me
8025 59	Ce	7	–	–
8025 33	Dy	2	–	Ks
8025 12	Sm II	400	–	Kn
8024 84	Ti I	50		–
8024 73	Co I	40		–
8024 2	Pr	3		It
8024 11	Ne I	–	[2]	Me
8023 93	Br	–	[2]	Ks
8023 85	Xe	–	[30 h]	Hu
8023 31	Cl	–	[4]	Ks
8022 28	Hg I	–	[7]	Su
8022.131	Co I	40	–	–
8022.09	Ta	5	–	–
8021 9	A I	–	[2]	Me
8021 54	Sm	40	–	Kn
8020 07	Xe II	–	[5]	Hu
8020 06	Nd	2	–	–
8019 76	Gd	4	–	Ks
8019 70	Ra II	–	[200]	Rs
8019 56	Sm II	30	–	Kn
8019 27	U	2	–	Me
8019 25	Ra	–	[3]	Rs
8018.25	Ba I	10 h	–	–
8018.03	Cr I	2 h	–	–
8017.90	Tm	200	–	Me
8017 86	Co I	15 h	–	–
8017.83	Sc	3	–	Me
8017 63	Ru	5	–	–
8017 55	A II	–	[60]	Bn
8017.54	Cl I	–	[2]	Ks
8017 23	Cb	5 h	–	Me
8017 18	W	25	–	–
8016.6	F	–	[10 h]	Di
8016 59	Rh I	6	–	Me
8016.56	Co I	15 h	–	–
8016.17	Sm	80	–	Kn
8015 710	Cs I	200	–	IMs
8015 58	Cl I	–	[8]	Ks
8015.47	Eu	20	–	Kn
8015 30	Rn I	–	[5]	Rs
8015 26	Zr I	2	–	–
8014 92	Sm II	200 d	–	Kn
8014 90	Cr I	2 h	–	–
8014 786	A I	–	[800]	IMe
8014 78	Tm	40	–	Me
8014 72	Br I	–	[2]	Ks
8014 26	Xe	–	[30 hs]	Hu
8013 31	Hg I	–	[2]	Su
8012 99	Co I	20 Wh	–	–
8012 96	Ni I	2	–	–
8012 8	Pt	–	5	It
8010 58	Hf	2	–	Me
8010.40	Gd	4	–	Ks
8009 98	Br I	–	[4]	Ks
8008.68	Dy	2	–	Ks
8008.45	Xe	–	[150 h]	Hu
8007.77	F I	–	[3]	En
8007 68	Nd	7	–	–
8007 27	Co I	80 h	–	–
8006 40	Sc	2	–	Me
8006 21	Cu I	2	–	Ks
8006 156	A I	–	[600]	IMe
8005 41	Nd	10	–	
8005 27	Zr I	4		–
8005 26	Ca	3	–	Me
8005 13	Ra	–	[6]	Rs
8005 00	Sm II	15 d		Kn
8004 63	Re	3	–	Me
8003 97	Pd	–	2	–
8003 70	I I	–	[5]	Ev
8003 27	Sc I	2	–	Me
8003 26	Xe I		[10]	Me
8003 18	Al I	–	[5]	Ps
8002 64	Co	3	–	–
8001 95	Xe		[10 hs]	Hu
8001 89	La I	4	1	–
8001 61	Sm II	200 d		Kn
8001 0	Pd	–	2	It
8000 96	Se I	–	[30]	Rd
8000 74	Nd	6	–	–
7999 72	Ru	3	–	–
7999 33	Yt I	2 h	–	Me
7998 972	Fe I	35	1	Me
7998 75	Ta	5	–	–
7998 56	U	2	–	–
7998 5	Eu	2	–	Kn
7998 09	Co	12 h	–	–
7997 84	Cl I		[12]	Ks
7996 80	Co I	10 h	–	–
7996 72	Cu II	–	10	Sh
7996 53	Ti I	40	–	–
7996 5	Xe II	–	[3 hw]	Hu
7996 0	bh Ti	2	–	L
7995 53	U	2	–	–
7995 086	O I	–	[50]	Fh
7994 73	Hf	20	–	Me
7994 473	Fe	6	–	Me
7993 75	Gd	4	–	Ks
7993 22	Kr II	–	[50 h]	Me
7993 12	Kr I	–	[5]	Me
7992 55	Mo	2	–	–
7992 34	Xe	–	[50 wh]	Hu
7991 5	Xe II	–	[5 wh]	Hu
7991 30	U	2	–	–
7990.78	Kr	–	[2]	Me
7990 68	Cs	100 s	–	Ms
7990 53	Cr	15	–	–
7989 94	Br I	–	[12]	Ks
7989 38	Cr I	15	–	–
7989 18	U	2	–	–
7988.2	Pr	3	–	It
7988 17	Cu II	–	60	Sh
7988 1	bh Ti	4	–	L

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
7988.	Sb II	–	12	Dv
7987.99	Xe II	–	[40]	Hu
7987.38	Co I	80	–	–
7987.036	O I	–	[15]	Fh
7986 60	Mo	15	–	–
7985 28	Re	4	–	Me
7984.07	Sm	6	–	Kn
7983 66	Hf II	3	5	Me
7982 80	Dy	5	–	Ks
7982.406	Kr I	–	[100]	IMe
7982.40	Ba I	20 h	–	Me
7982.090	Nd	4	–	–
7981 99	Rh I	4	–	Me
7981 82	Kr I	–	[30]	Me
7981.20	Os	2	–	–
7981 19	Kr I	–	[20]	Me
7981.1	Xe	–	[50 hw]	Hu
7980.75	Re I	300 wl	–	Me
7980.61	Cl I	–	[2]	Ks
7980.57	Co I	3 h	–	–
7979 18	Sm	3	–	Kn
7979.04	Re I	20	–	Me
7978.97	Th	4	–	Fd
7978.88	Ti I	100	–	–
7978.70	Hg I	–	[70]	Su
7978.57	U	2	–	–
7978.50	Br I	–	[10]	Ks
7978.15	Gd	4	–	Ks
7977.32	Pt	3	–	Me
7976.97	Cl I	–	[6]	Ks
7976.88	U	2	–	–
7976.4	Xe II	–	[3 hw]	Hu
7976 03	Xe I	–	[8]	Me
7975.9	Bi	30 Wh	–	Me
7975.44	Ce	10	–	–
7975 09	U	4 Wh	–	–
7974.76	Xe	–	[20 h]	Hu
7974.74	Cl	–	[4]	Ks
7974.72	Os	2	–	–
7973 62	Kr II	–	[30 hs]	Me
7973.14	Dy	2	–	Ks
7972 9	Te I	–	[20]	Rd
7972 76	Hg	–	[3]	Su
7972 34	Ce	4	–	Ks
7972.26	Rn I	–	[2]	Rs
7972 01	Cu II	–	8	Sh
7971 29	Cr I	3	–	–
7971 26	Re	20	–	Me
7971.02	Sn	9 h	–	Me
7970.91	Si	3 w	–	Ks
7970 87	Re	15	–	Me
7970 64	Nd	2	–	Ks
7970.46	U	8	–	–
7970.26	Si	10 h	–	Ks
7969.6	Sb	50 h	–	Me
7969 53	I I	–	[8]	Mu
7968.85	Mo	8	–	–
7968.63	Dy	2	–	Ks
7968.32	Sm	50	–	Kn
7967.84	Ru I	15	–	–
7967.43	S	–	[200]	Ms
7967.342	Xe I	–	[500]	IMe
7967.09	U	2	–	–
7966.95	Br I	–	[2]	Ks
7966.08	Co I	40	–	–
7965.70	Nd	6	–	–
7965.31	Lu	10	–	Me
7965.08	A I	–	[3]	Me
7965.	Bi II	–	[50]	Cf
7964.83	La I	3	1	–
7963.97	U	2	–	–
7963.89	Se I	–	[3]	Rd
7963.63	Zr I	2	–	–
7963 22	Gd	4	–	Ks
7962.40	Co I	3 Wh	–	Me
7961.58	Ti I	40	–	–
7961.26	Ba I	15 h	–	–
7961.08	Pd I	5	–	–
7960.84	A I	–	[2]	Me
7960.72	Ni	2 h	–	–
7960 55	Co I	25 h	–	–
7960.26	As I	25	–	Me
7959 98	Zr I	8	–	–
7959 96	U	2	–	–
7959.23	Fe I	2	–	–
7958.92	Nd	7	–	–
7957.76	Co I	40 h	–	–
7957.67	Kr I	–	[2]	Me
7957.45	Nd	2	–	–
7957.33	Ba I	2 h	–	Me
7957.31	Os	2	–	–
7957.06	W	5	–	–
7956.99	A I	–	[10]	Me
7956 66	Zr I	8	–	–
7956 31	F I	–	[10]	En
7955 81	Fe	2	–	Me
7955 54	Ta	4 w	–	Ks
7955 52	Sm	6	–	Kn
7955.38	Nd	2	–	Ks
7954.76	Cb	10	–	Me
7954 31	S	–	[4]	Ms
7954.22	Xe I	–	[4]	Me
7954 08	F I	–	[3]	En
7953.11	Ni I	2 h	–	–
7952.22	Sm	12	–	Kn
7952.182	O I	–	[50]	Fh
7952 07	Ta	3	–	–
7950.824	O I	–	[100]	Fh
7950.19	Ta	50	–	–
7950 19	Br I	–	[5]	Ks
7949 66	Nd	3	–	–
7949.17	Ti I	50	–	–
7949.03	Mo	2	–	–
7948.6	bh Ti	8	–	L
7948 52	F I	–	[10]	En
7948.30	La I	5	–	Rl
7948.175	A I	–	[400]	IMe
7948 15	Ru I	15	–	–
7948 12	Sm II	100 d	–	Kn
7948.10	Mn	2	–	Me
7947.95	Br I	–	[4]	Ks
7947.92	La I	–	[10]	Ks
7947.60	Rb I	5000 R	–	IHz
7947.566	O I	–	[1000]	Fh
7947.38	V I	8	–	–
7947.204	O I	–	[30]	Fh
7947 00	Sm II	15 d	–	Kn
7946 99	Kr I	–	[20]	Me
7946.15	Sm	10	–	Kn
7945 878	Fe I	30	2	Me
7944.66	Hg II	–	[8]	Ps
7944.61	Zr I	20	–	–
7944 42	Cu II	1	25	Sh
7944.16	Ne I	–	[20]	Me
7944.11	Cs	800	–	Me
7943 94	Si	500 w	–	Ks
7943 93	Ti I	15	–	–
7943 180	Ne I	–	[200]	IMe
7943 178	O I	–	[30]	Fh
7942 93	Mn	15	–	–
7942 54	Xe	–	[50]	Hu
7942 04	Cr I	20	–	–
7941 09	Fe I	5	–	Me
7940.93	W	10	–	–
7940 47	Zr I	4 h	–	–
7940.31	Sm	150	–	Kn
7939 63	Lu	2	–	Me
7939.42	Ba I	3 h	–	Me
7938 89	Cb	30	–	Me
7938 64	Br I	–	[12 l]	Ks
7938 57	Re	8	–	Me
7938.5	bh Ti	5	–	L
7938 34	Kr I	–	[2]	Me
7938 06	Hf	2	–	Me
7937.92	V I	15	–	–
7937 73	Er	3	–	Ed
7937.41	Xe I	–	40	Me
7937 166	Fe I	40	1	Me
7937.09	Sm II	100 d	–	Kn
7937.010	Ne I	–	[70]	IMs
7936 32	F I	–	[12]	En
7935 01	Cl I	–	[4]	Ks
7934 01	Sm	10 d	–	Kn
7933 88	Cl I	–	[8]	Ks
7933 38	Sb	5	–	Wt
7933 130	Cu I	150	–	IBu
7933 04	V I	6	–	–
7932 20	Si I	300 w	–	Ks
7931 92	Sm I	200	–	Kn
7931 76	Zr I	2	–	Ks
7931 63	S I	–	[200]	Fh
7931.41	Kr II	–	[10]	Me
7931.15	Sm	50	–	Kn
7930 94	F I	–	[5]	En
7930 85	Tm	100	–	Me
7930.23	Gd	6	–	Ks
7930 23	Si	–	[150]	Fh
7929 64	Hg I	–	[4]	Su
7929.48	Se	–	[3]	Rd
7928 84	S I	–	[50]	Ms
7928.600	Kr I	–	[150]	IMe
7928.45	Mn I	2	–	Me
7928 14	Sm II	800	–	Kn
7927.83	La II	1	2	Me
7927.58	Lu	2	–	Me
7927.53	Ce	5	–	Ks
7927 53	Tm	50	–	Me
7927 41	Nd	3	–	–
7927 13	Ne I	–	[40]	Me
7926.94	Sm II	20 d	–	Kn
7926.55	Co I	80 h	–	–
7926.37	Ti I	20	–	–
7926 27	Sm	30	–	Kn
7925.88	Br I	–	[4]	Ks
7925 537	Rb I	70	–	IRz
7925 260	Rb I	100	–	IRz
7925 01	Nd	3	–	–
7924 67	Cl I	–	[15]	Ks
7924 65	Sb	300	–	Me
7924 43	Ru I	25	–	–
7924.20	Zr I	2	–	–
7924 09	Cr I	2	–	–
7923 95	S I	–	[300]	Ms
7923 15	Mo	15	–	–
7923.05	Nd	2	–	–
7922.95	Ru	4	–	–
7922.40	Yb	7	–	Me
7922 10	U	2	–	–
7921.78	Er	5	–	Ed
7921 34	Sm	15	–	Kn
7920 71	Hf	8	–	Me
7920 48	Xe	–	[10 hw]	Hu
7920.47	Kr I	–	[40]	Me
7919 48	Co	15 h	–	–
7919.44	Sm I	80	–	Kn
7918.80	U	2	–	–
7918.38	Si	200	–	Ks
7917.84	Cr I	15	–	–
7917 62	Mo	4	–	–
7917 52	Lu	15	–	Me
7917.48	Ni I	30	–	–
7916 98	Nd	4	–	–
7916.45	A I	–	[20]	Me
7915 80	Pd I	10	–	–
7915 25	Zr I	4 h	–	–
7915.10	Cl I	–	[6]	Ks
7914 96	Sm II	200 d	–	Kn
7913.49	Sm	60	–	Kn
7913 47	Si	10 h	–	Ks
7913 424	Kr I	–	[200]	IMe
7912 94	Re I	400 wl	–	Me
7912.866	Fe I	5	–	Me
7912 55	Si	3 w	–	Ks
7911 62	Lu	30	–	Me
7911 30	Ba I	200	–	–
7911 26	Pt	2	–	Me
7910.53	Cr II	12	–	–
7910.46	Sn	10 h	–	Me
7910 23	A I	–	[4]	Me
7910 08	Gd	6	–	Ks
7909.36	Dy	5	–	Ks
7909.19	W	3	–	–
7908.71	Co I	80 h	–	–
7908 69	Eu	3	–	Kn
7908.46	Zr I	2	–	Ks
7908 27	Cr I	15	–	–
7908.11	Gd	6	–	Ks
7908.	Bi II	–	[10]	Cf
7908 0	bh Cr	–	–	L
7908 00	U	2	–	–
7907 48	Sm I	5	–	Kn
7907 3	bh Ti	6	–	L
7906.67	Sb	10	–	Me
7906 55	Zr I	2	–	Ks
7906.37	Sm II	30 d	–	Kn

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
7906.14	Ru I	3	–	–
7906.03	Nd	2	–	Ks
7905 72	Ba I	300	–	–
7905.25	W	3	–	–
7904.62	Kr I	–	[30]	Me
7904.4	Pd	–	2	It
7904.29	U	2	–	–
7904.05	Ti I	8	–	–
7904.00	Sn II	–	[8]	Mc
7902.57	Cu II	–	25	Sh
7902.33	Gd	6	–	Ks
7902.09	S I	–	[4]	Ms
7901.86	Eu	5	–	Kn
7901.57	Os	2	–	–
7900.9	bh Ti	4	–	L
7900.43	U	2	–	–
7900.39	Nd	2	–	–
7900.17	Ru	3	–	Me
7899.36	Cl I	–	[10]	Ks
7898.59	F I	–	[15]	En
7898.47	Re I	40	–	Me
7897.98	Zr I	4	–	Ks
7897.7	Xe II	–	[5 hs]	Hu
7896.51	Nd	2	–	–
7896.43	Ra	–	[6]	Rs
7896.04	U	2	–	–
7895.96	Sm I	200	–	Kn
7895.83	Cu II	–	20	Sh
7895.12	Yb	20	–	Me
7891.69	La II	3	2	Me
7891.075	A I	–	[100]	IMe
7890.56	Cu II	2	3	Sh
7890.56	Eu	5	–	Kn
7890 37	Ru I	20	–	–
7890 22	Ni I	10	–	–
7889.4	Xe	–	[30 h]	Hu
7889.34	Sm	15	–	Kn
7888.93	Re	7	–	Me
7888.52	Zr I	4 h	–	Ks
7887.98	Eu	300	–	Kn
7887.74	Mo	8	–	–
7887.51	Yt I	2	–	Me
7887.390	Xe I	–	[300]	IHu
7886 59	Nd	2	–	–
7886.47	W	8	–	–
7886 0	Pr	5	–	It
7885.31	Cb	60	–	Me
7885.25	Co I	10 Wh	–	–
7884.95	Cr I	4	–	–
7884.38	Gd	4	–	Ks
7883.2	Yb	25	–	It
7882 71	Xe II	–	[20]	Hu
7882.37	Ta	150	–	–
7882 36	Kr I	–	[10]	Me
7882.36	bh Sr	3 l	–	L
7882.35	Eu	10	–	Kn
7882 18	Zr I	4 h	–	–
7882.09	Re	25 wl	–	Me
7881.94	U	15	–	–
7881.90	Yt II	25	10	Me
7881.76	Kr I	–	[30]	Me
7881.58	Br I	–	[2]	Ks
7881.49	Ru	100	–	–
7881.320	Xe I	–	[100]	IMe
7880.72	Re	8	–	Me
7880.34	W	5	–	–
7880.07	Sm II	100 d	–	Kn
7879.93	La II	2	4	Me
7879.60	Ce	3 hwl	–	–
7879.19	F I	–	[10]	En
7878.24	Cl I	–	[15]	Ks
7877.98	Ba I	20 l	–	–
7877.49	Co	20	–	–
7877.30	Yb	15	–	Me
7877.08	Ra	–	[3]	Rs
7876.25	Zr I	3	–	–
7875.55	I I	–	[2]	Mu
7875.38	U	4	–	–
7875.10	Sm II	20 d	–	Kn
7874.8	Eu	3	–	Kn
7874.	bh C	–	–	L
7873.72	Sm	25 d	–	Kn
7873.41	Cb	25	–	Me
7873.32	Co I	10 h	–	–
7872.09	Re	2	–	Me
7872.01	Nd	2	–	–
7871 94	Ru	3	–	Me
7871.93	Kr I	–	[2]	Me
7871 65	Pr	5	–	–
7871 39	Co I	80	–	–
7871.3	Rn I	–	[5]	Rs
7870.04	Yt I	2	–	Me
7869.99	Zr I	8	–	–
7869 90	Co I	80	–	–
7869 73	Gd	6	–	Ks
7869.65	Fe I	3	–	–
7869 60	Re I	100 wl	–	Me
7869 40	Mo	2	–	–
7868.75	U	4	–	–
7868.58	Cb	4 h	–	Me
7868 37	Zr I	4 h	–	–
7868.28	Sm II	20 d	–	Kn
7868 20	A I	–	[40]	Me
7867.72	Gd	4	–	Ks
7867.15	Sb	20	–	Me
7867.03	W	3	–	–
7865.00	Dy	2	–	Ks
7864.37	Zr I	2	–	Ks
7864.32	Dy	2	–	Ks
7863.91	Kr I	–	[20]	Me
7863.79	Ni I	20	–	–
7863.74	Sn	8 h	–	Me
7863.65	Sm II	100 d	–	Kn
7863.46	W	8	–	–
7863.45	As I	4	–	Me
7862.84	Nd	4	–	Ks
7862.7	Xe II	–	[3]	Hu
7862.68	Cb	2 h	–	Me
7861 91	A I	–	[15]	Me
7861.85	Re	5	–	Me
7861.22	Hf II	3	8	Me
7861.10	Ni I	10	–	–
7861.0	bh Ti	6	–	L
7860.58	Cu II	–	5	Sh
7860.54	Ce	3	–	Ks
7860.44	A I	–	[2]	Me
7859.53	Sm I	100	–	Kn
7859 39	Co I	10 Wh	–	–
7859.05	Ce	10	–	–
7856.94	Gd	10	–	Ks
7856.8	Yb	3	–	It
7856 80	Sm	8 d	–	Kn
7856 52	Kr II	–	30 Wh	Me
7856 10	Sm	8	–	Kn
7856 10	Tm	60	–	Me
7855.85	Co I	40 h	–	–
7855.73	A I	–	[8]	Me
7855.52	Yt I	7	1	Me
7855.44	Fe I	3	–	–
7855.12	Ni I	8 h	–	–
7854.94	Sm	12 d	–	Kn
7854.821	Kr I	–	[800]	I
7854.45	Mo	15	–	–
7854.26	Mn	2	–	–
7853 81	Ru	3	–	–
7853.18	Nd	2	–	–
7852.17	Os	3	–	–
7851 20	Ce	2	–	–
7851.18	V	3	–	–
7850.5	Si I	2 Wh	–	Ks
7850.2	Eu	2	–	Kn
7849.42	A II	–	[15]	Bn
7849.35	Zr I	8	–	–
7848.77	Sm	10 d	–	Kn
7848.72	Eu	5	–	Kn
7848.55	Sc	2	–	Me
7847.80	Ru I	100	–	–
7847.53	Th	3	–	Fd
7846.50	Rh I	50	–	Me
7846.35	Gd	12	–	Ks
7846.10	Sm	4 d	–	Kn
7845.51	Nd	2	–	Ks
7845.35	Hf	20	–	Me
7845.03	Cu II	–	25	Sh
7844 97	Ce	2	–	–
7844 84	Gd	6	–	Ks
7844 82	Sm II	60 d	–	Kn
7844.71	U	2	–	–
7844 63	Fe I	2	–	–
7844 41	Sb	100	–	Me
7844 25	Nd	2	–	–
7844 14	Re I	10	–	Me
7843.64	Co I	12	–	–
7843 60	Br I	–	[2]	Ks
7842.97	Zr I	2	–	–
7842 8	bh Cr	–	–	L
7842.76	Ta	50	–	–
7842 61	Ce	3	–	–
7841 90	Ru	10	–	–
7841.80	La	10	2	–
7841 23	Xe I	–	[15]	Me
7841.180	In II	–	[4]	Ps
7840.913	In II	–	[3]	Ps
7840 695	In II	–	[2]	Ps
7840.61	Bi I	8 h	–	Me
7840.40	Kr I	–	[4]	Me
7840.05	Bi	7 h	–	Me
7840.05	Co I	40	–	–
7840 01	Kr I	–	[8 h]	Me
7839.51	Ba I	15	–	–
7839 08	Ne I	–	[30]	Me
7838.82	Gd	4	–	Ks
7838.81	Se II	–	[10]	Mz
7838.70	Bi	400 hl	–	Me
7838.17	Co I	80	–	–
7838 12	Ra I	–	[100]	Rs
7837.71	U	2	–	–
7837.30	Sb	10 h	–	Me
7837.27	Sm II	400	–	Kn
7837.22	Nd	3	–	–
7836.85	Al	15 l	–	Ms
7836 15	Al I	–	[50]	Ps
7835.99	Sm	3	–	Kn
7835.85	Ce	2	–	–
7835.71	U	2	–	–
7835 55	Dy	2	–	Ks
7835.51	Sm	8	–	Kn
7835 33	Al I	–	[40]	Ps
7835.08	Sm II	400 d	–	Kn
7834.81	Ru	6	–	–
7834.6	Sb	2 Wh	–	Wt
7834.50	Gd	4 l	–	Ks
7834 34	Mn I	6 h	–	Me
7834 32	Ir I	5	–	Me
7833 39	Ru I	10	–	–
7833 36	Zr I	2	–	Ks
7833 06	Ne I	–	[7]	Me
7832 98	Xe I	–	[10]	Me
7832 79	Dy	2	–	Ks
7832 224	Fe I	30	1	Me
7832.05	U	2	–	–
7831.40	Sm	60 d	–	Kn
7830.79	Cl I	–	[8]	Ks
7830.52	Ru	2	–	Me
7830.21	Kr I	–	[2 h]	Me
7830.05	Rh I	80	–	Me
7829.81	Ru I	7	–	–
7829 65	Mo	20	–	–
7829 396	In II	–	[3]	Ps
7828.28	Xe	–	[20 h]	Hu
7828.13	Re	8	–	Me
7828.0	bh Ti	10	–	L
7826.88	V I	4	–	–
7826 81	Ni I	10	–	–
7826 72	Zr I	8	–	–
7825.85	Re	10	–	Me
7825 66	Cu II	–	50	Sh
7825 20	Nd	2	–	–
7825	Bi II	–	[10]	Cf
7824 91	Rh	200	–	Me
7823 85	U	2	–	–
7823 78	W	3	–	–
7823 72	Al II	–	[5]	Ps
7823 34	Sm	8	–	Kn
7822 94	Zr I	4	–	–
7822 61	F I	–	[5]	En
7822 12	Co	2 Wh	–	Me
7821 85	U	2	–	–
7821 64	Sc I	8	–	Me
7821 39	Cl I	–	[15]	Ks
7821 25	Mn I	12 h	–	Me
7821 15	Hg I	–	[8]	Su
7820 73	Hg I	–	[2]	Mu
7820 57	Cu II	–	5	Sh
7820 15	Sm II	150 d	–	Kn

Wavelength	Element	Intensities Arc	Spk, [Dis]	R
7820 1	bh Ti	8	–	L
7819 57	Ta	2	–	–
7819 5	Te	–	[5]	Rd
7819 35	Zr I	10		–
7818 82	Nd	2	–	–
7818 73	Ta	3 h	–	–
7818 31	Xe	–	[15 wh]	Hu
7818 25	Co	5 h	–	Me
7818 22	Eu	20	–	Kn
7818 21	Pb	5 hl	–	Me
7817 78	Th	3	–	Fd
7816 9	Sb	10 Wh	–	Wt
7816 61	Mn I	15 h	–	Me
7816 32	Zr I	2	–	–
7816 32	U	2	–	–
7816 16	He I	–	[12]	Ps
7816 14	Lu	6	–	Me
7815 91	Lu	25	–	Me
7815 84	Lu	15	–	Me
7815 83	Al II		[2]	Ps
7815.48	Ta	25	–	–
7815 190	In II	–	[4]	Ps
7815 00	Sm	6 d	–	Kn
7814 850	In II	–	[2]	Ps
7814 69	Dy	2	–	Ks
7814 55	Hf	3	–	Me
7814 35	Nd	2 h	–	–
7814 33	A I		[10]	Me
7814 03	Ta	50	–	–
7813.61	Sm II	20 d	–	Kn
7813 55	U	2	–	–
7812 75	Sm	60 d	–	Kn
7812 33	Cu II	–	10	Sh
7812 16	Yt I	4	1	Me
7812.08	Dy	15	–	Ks
7811 31	Mo	3	–	–
7810 30	Co I	10 h	–	–
7809 82	Rn I	–	[100]	Rs
7809 45	Pb	10 hl	–	Me
7809 24	Co I	20	–	–
7808.96	Sm II	20 d	–	Kn
7808 94	W	5	–	–
7808 48	U	2	–	–
7808 45	Nd	3	–	–
7808.22	Sn I	10 h		Me
7808 21	Sm	5	–	Kn
7808.03	Fe	4	–	–
7807.66	Cu II	–	70	Sh
7806 990	In II	–	[3]	Ps
7806 82	Ru	7		–
7806 819	In II	–	[3]	Ps
7806 52	Kr I	–	[50]	Me
7806 11	Sm	30 d	–	Kn
7806 00	Mn I	4 l	–	Me
7805 56	Sm	8 d	–	Kn
7805 19	Cu II	–	25	Sh
7803 96	Tm	15		Me
7803 32	Eu	30	–	Kn
7803 03	Br I	–	[15 l]	Ks
7802 651	Xe I	–	[100]	IMe
7802.52	Yt I	2	–	Me
7802 40	U	2	–	–
7801 54	Sm I	150	–	Kn
7801 53	Hf II	2	6	Me
7801 30	Si	3 h	–	Ks
7801 05	Re	4	–	Me
7800 74	Zr I	2	–	–
7800 44	Sc I	40	–	Me
7800 227	Rb I	9000 R	–	IHz
7800 22	F I	–	[50]	En
7800 0	Si	4 Wh	–	Ks
7799 58	Re	3	–	Me
7799.51	Zr I	2	–	Ks
7799 51	Ta	3	–	Ks
7799 365	Zn I	10		IHz
7798 55	A I	–	[30]	Me
7798 47	Sm	10	–	Kn
7798.26	Ba I	4 h	–	Me
7797.89	Ru	5	–	–
7797.75	Ce	3	–	–
7797.62	Ni I	80	–	–
7797.42	Er	3	–	Ed
7797.30	Nd	2	–	–
7796.42	Nd	2	–	–
7796.32	Yt I	4	–	Me
7795.76	Mo	3	–	–
7794 68	Sc I	6	–	Me
7794.67	Re	4	–	Me
7794.50	Sm I	100	–	Kn
7794 13	Co I	5 h	–	–
7793.0	Ga II	–	[10]	Sy
7792 76	Sm	3	–	Kn
7792 33	Sm	10	–	Kn
7792 24	Nd	2	–	–
7791 90	Kr II	–	[6 hl]	Me
7791.86	Ru I	100	–	–
7791 61	Rh I	100	–	Me
7791 24	U	2	–	Me
7790 90	Hf	5	–	Me
7790 82	Mn I	10 h	–	Me
7790 61	V	3 h	–	–
7790.22	Pt	2	–	Me
7790 05	Dy	10	–	–
7789.96	Os	3	–	–
7789 88	Re	8	–	Me
7789.76	Sm	15 d	–	Kn
7789 42	Xe I	–	[15]	Me
7789 318	In II	–	[5]	Ps
7789.045	In II	–	[6]	Ps
7788.95	Ni I	60	–	–
7788 95	Th	2	–	Fd
7788 95	Ta	3	–	Ks
7788.721	In II	–	[7]	Ps
7788 64	Ta	3	–	Ks
7788 42	Yt I	2	–	Me
7787.516	In II		[4]	Ps
7787 31	Nd	2	–	–
7787.22	Gd	4	–	Ks
7787 179	In II	–	[2]	Ps
7787 11	Cb	2	–	Me
7787 04	Xe II	–	[50]	Hu
7787 02	Sm I	8	–	Kn
7786 834	In II	–	[2]	Ps
7786 78	Pt I	4	–	Me
7786 67	Pd I	10	–	–
7786 66	Kr I	–	[2]	Me
7786 439	In II	–	[2]	Ps
7786 157	In II	–	[3]	Ps
7786 11	Pr	4	–	–
7785 995	In II	–	[2]	Ps
7785 17	Sc I	8	–	Me
7784 13	U	20	–	–
7784 12	W	10	–	–
7783 77	Sm	5	–	Kn
7783 66	Xe I	–	[50]	Me
7783 4	bh Ti	2	–	L
7782.51	Sm	4	–	Kn
7782 43	U	2	–	–
7781 97	Kr	–	[100 h]	Me
7781.868	Yt	5	–	Ks
7780 92	Dy	5	–	Ks
7780 586	Fe I	25	–	Me
7780 51	Pt	2	–	–
7780.49	U	2	–	Me
7780 43	Ba I	300	–	–
7779 9	Mg	5	–	Ps
7779 72	Ta	30 w	–	–
7778 74	Cu II	–	30	Sh
7778 15	Sm	4	–	Kn
7778.1	bh Cr	–	–	L
7777 8	Pb II	–	[5]	Ea
7777 1	Xe	–	[10]	Hu
7777.01	Sm	30	–	Kn
7776 958	In II	–	[10]	Ps
7776 94	U	2 h	–	Me
7776 751	In II	–	[5]	Ps
7776 71	W	3	–	–
7776.571	In II	–	[2]	Ps
7776 28	Kr I	–	[40]	Me
7775.433	O I	–	[100]	Me
7775.41	Ru	60	–	–
7775.32	Ba I	25	–	–
7774.18	Xe	–	[4]	Hu
7774.14	Ru	100	–	–
7774.138	O I	–	[300]	Me
7773 53	Ta	3	–	–
7773 03	Nd	3	–	–
7772.90	Rh I	100	–	Me
7772.83	Sm II	30 d	–	Kn
7772 40	Kr I	–	[5 h]	Me
7772.4	Sm	2	–	Kn
7772 12	Xe	–	[20 hl]	Hu
7772 11	Cb	5 h	–	Me
7772	Sb II	–	15	Dv
7771 93	Fe	3	–	–
7771.928	O I	–	[1000]	Me
7771 88	Ru	100	–	–
7771.65	Cr	12	–	–
7771 6	Sm	2	–	Kn
7771.13	Cl I	–	[2]	Ks
7771 06	Sc I	5	–	Me
7769.26	Gd	4	–	Ks
7769.18	Cl I	–	[8]	Ks
7768 93	U	2	–	Me
7768 43	Kr I	–	[5]	Me
7768 04	Sm	20 d	–	Kn
7767.91	Nd	2	–	–
7767.87	Se I	–	[2]	Rd
7766 99	Sm	4	–	Kn
7766.86	Ba I	15	–	–
7766 57	U	2	–	Me
7766 55	Zr I	2	–	–
7766.50	Gd	4	–	Ks
7765.70	Zr I	2	–	–
7764 9	Sb	10 Wh	–	Wt
7764 72	Mn I	200 h	–	Me
7764.03	Pd I	25	–	–
7764 02	Co I	12	–	–
7763 89	U	2	–	–
7763 11	Ta	25	–	–
7763 00	Cr	2 h	–	–
7761 86	U	4	–	–
7761 14	W	3	–	–
7760 98	Gd	4	–	Ks
7760 07	Dy	2	–	Ks
7759 87	U	2	–	–
7759.67	Ru	2	–	Me
7759 434	Rb I	400	–	IRz
7759 41	Eu	4	–	Kn
7759 1	Te I	–	[15]	Rd
7758.30	Lu	20	–	Me
7758.23	Ta	2	–	Ks
7758 20	Sm	5	–	Kn
7758.03	Yb	10	–	Me
7757.89	Hf II	5	15	Me
7757.86	Zn II	–	[30]	Ps
7757.74	Sm II	20 d	–	Kn
7757.651	Rb I	1000	–	IRz
7757.34	Dy	2	–	Ks
7757.31	Cb	20	–	Me
7757 23	Sm	5	–	Kn
7756 52	Kr II		[30 Wh]	Me
7755 97	Gd	8	–	Ks
7755 8	bh Ti	4	–	L
7755 80	Sb	10	–	Me
7755 39	Zr I	2	–	Ks
7755 32	Sm I	80	–	Kn
7755 20	Sm II	125 d	–	Kn
7755 15	Mn I	5 h	–	Me
7754 96	Sn I	100	–	Me
7754 70	F I	–	[60]	En
7754 4	Te I	–	[6]	Rd
7754 37	Cu II	–	10	Sh
7754 19	U	2	–	–
7752 72	Sc I	3	–	Me
7752 67	Mn I	5 hl	–	Me
7752 34	Mo	3	–	–
7751 73	Ba I	40	–	–
7751 61	Dy	5	–	Ks
7751.13	Fe I	5	–	–
7750 95	Nd	3	–	–
7750.41	Se I	–	[5]	Rd
7750 37	Sc I	5	–	Me
7750 14	Dy	2	–	Ks
7750	Bi II	–	[20]	Cf
7749 8	bh Ti	4	–	L
7749.74	Pt I	2	–	Me
7749.30	Sm II	200	–	Kn
7749 26	Gd	12	–	Ks
7749.16	Kr I, II	–	[3]	Me
7749.10	Nd	3	–	–
7748 93	Ni I	8	–	–
7748.281	Fe I	25	–	Me
7748 19	U	2	–	–
7747 10	U	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
7746 94	Sm	5	–	Kn
7746 828	Kr I	–	[150]	IMe
7746 64	Rn I	–	[20]	Rs
7746 20	Eu	600	–	Kn
7746 20	Gd	4	–	Ks
7745.43	Zr I	2	–	Ks
7744 98	Cl I	–	[20]	Ks
7744 26	U	2	–	–
7744 09	Cu II	–	5	Sh
7744 05	Zr	2	–	Ks
7743.88	Nd	2	–	–
7743 67	Sm	5	–	Kn
7743 27	Co I	4	–	–
7743 2	bh Ti	4	–	L
7743 2	Si	4 h	–	Ks
7743 12	Re	15 w	–	–
7742 7	Si	5 h	–	Ks
7742 68	Fe I	3	–	–
7742 58	Eu	400	–	Kn
7741 80	Sn II	–	[30]	Mc
7741 39	Kr I	–	[40]	Me
7741 17	Sc I	50	–	–
7740.940	In II	–	[3]	Ps
7740 84	Nd	2	–	–
7740 733	In II	–	[4]	Ps
7740 54	La II	–	2 h	Me
7740 481	In II	–	[5]	Ps
7740 31	Xe I	–	[40]	Me
7740 194	In II	–	[6]	Ps
7740 17	Hf	10	–	Me
7739 8	Pb II	–	[5]	Ea
7739.38	Dy	2	–	Ks
7738 68	Cu II		30	Sh
7738 43	Rn I	–	[10]	Rs
7738 18	Sc I	2	–	Me
7738.09	Gd	4		Ks
7737 20	Mn	2		–
7736 68	V I	5	–	–
7736 26	Sm	150 d	–	Kn
7735 69	Kr II	–	[200 h]	Me
7735 5	Sm	2	–	Kn
7735 45	Co I	10 h	–	–
7734 43	Mn I	20 h	–	Me
7734 23	Co I	40	–	–
7733 99	Cr I	5	–	–
7733 77	Ta	2	–	–
7733 64	Br I	–	[2]	Ks
7733 59	Re	25	–	–
7733 50	Gd	12	–	Ks
7733 24	Mn I	60 hl	–	Me
7732.55	Dy	2	–	Ks
7732 54	Sm	4 d	–	Kn
7732 50	Zn II	–	[50]	Ps
7732 49	Mo	10	–	–
7732.36	Ce	3	–	–
7732.3	Pb II	–	[12]	Ea
7731.57	Tm	150	–	Me
7730 61	Mo	3	–	–
7729.91	Ru	3	–	–
7729.78	Dy	15	–	Ks
7729.72	Sc I	10	–	–
7728 56	Sm II	200 d	–	Kn
7728.49	Hg I	–	[10]	Su
7727.66	Ni I	80	–	–
7727.09	Sc I	2	–	Me
7726.68	Cb	60	–	Me
7726 64	Cu II	–	5	Sh
7726.02	Pr	2	–	–
7725 99	Cr I	4	–	–
7725.95	Co I	12	–	–
7725.66	Sm	3	–	Kn
7725.04	Ta	4	–	–
7724.91	Nd	2	–	–
7724.63	Ne I	–	[10]	Me
7724.206	A I	–	[200]	IMe
7724.08	Yt I	5	1	Me
7723.760	A I	–	[200]	IMe
7723.70	Zr I	2	–	Ks
7723.63	Mo	15	–	–
7723.4	Pt	–	4	It
7723.20	Fe I	4	–	Me
7722.89	Cr I	5	–	Ks
7722.87	Ru	25	–	–
7722.58	Yb	2	–	Me
7722.48	Zr I	2	–	Ks
7722 02	Ta	25	–	–
7721 87	Ba I	10 h	–	–
7721 81	Pr	4	–	–
7721 38	Sm	5	–	Kn
7721 1	bh Ca	4	–	L
7721 08	Dy	2	–	Ks
7720.77	Mo	50	–	–
7720.72	Hf II	1	2	Me
7720 44	Ru	3	–	–
7719 89	Yt I	6	1	Me
7719 16	Ta	3 h	–	–
7718 76	U	2	–	–
7718.48	Hg	–	[2]	Su
7718 15	Nd	2	–	–
7717 70	Gd	4	–	Ks
7717 60	Cl I	–	[18]	Ks
7715.71	Sm	5	–	Kn
7715 63	Ni I	40	–	–
7715 6	bh Ca	5	–	L
7715 38	Br I	–	[4]	Ks
7715 35	Dy	15	–	–
7715 03	Ta	2	–	Ks
7714 99	Sm	6	–	Kn
7714 72	Pr	3	–	–
7714 32	Ni I	60	–	–
7713 4	bh Ti	4	–	L
7712 68	Co I	80	–	–
7712.58	Re	2	–	–
7712 42	Xe II	–	[30]	Hu
7712 42	Mn I	100 h	–	Me
7712 04	Sm II	60 d	–	Kn
7711 93	Dy	2	–	Ks
7711 73	Fe II	25	15	–
7710 72	Sm	10	–	Kn
7710 390	Fe I	10	–	Me
7709.98	Mn I	15 Wh	–	Me
7709 54	Mo	15	–	–
7709 14	Sm	8	–	Kn
7708 42	Zr I	4 h	–	–
7707.93	Rh	2	–	Me
7707 78	Mo	3	–	–
7707 59	U	2	–	Me
7706 52	Mn I	5 hl	–	Me
7706 50	Ba I	25	–	–
7706 0	Pr	3	–	It
7705 92	Re I	25	–	Me
7705 70	Nd	2	–	Ks
7705 37	Sm	6	–	Kn
7705 2	bh Ti	8	–	L
7704 96	Pr	3	–	–
7704 92	Co I	12	–	–
7704 81	A I	–	[20]	Me
7704 81	V I	20	–	–
7704 27	Zr I	2 h	–	–
7703 41	Kr I	–	[2 h]	Me
7703.33	Cb	6	–	Me
7702 87	Cl I	–	[2]	Ks
7701.90	Co I	12	–	–
7701.46	Os	2	–	Me
7701 37	V I	3	–	–
7701 00	W	3 h	–	–
7700 20	I I	–	[8]	Ev
7699 49	Yb	2000		Me
7699 14	Ta	5	–	Ks
7698 979	K I	5000 R	200	IHz
7698 94	Nd	2 h	–	–
7698 00	Yt	4	–	Me
7697.73	Sc I	20	–	–
7696 99	U	2	–	–
7696 73	S I	–	[200]	Ms
7696 53	Nd	3	–	–
7696 50	Dy	2	–	Ks
7695 94	Co	10 h	–	–
7695 78	Sm	100	–	Kn
7694 539	Kr I	–	[1000]	IMe
7694 50	Gd	8	–	Ks
7693 85	Dy	2	–	Ks
7693 63	Re	20	–	Me
7693 59	U	2	–	Me
7693.45	Zr I	10 h	–	Ks
7692.24	Sm	20 d	–	Kn
7691.89	U	2	–	Me
7691 34	Sm	15	–	Kn
7690.83	Zr I	4 h	–	–
7690.75	Sm II	20 d	–	Kn
7690 37	Ta	3	–	–
7690 10	A I	–	[2]	Me
7690 05	Rh I	20	–	Me
7689 88	U	2	–	–
7689 49	Yt I	2	–	Me
7689.36	A	–	[10]	Rt
7689.18	Ce	3	–	–
7688 94	W	10	–	–
7687.779	Ag I	20	–	IHz
7687.21	Hg I	–	[2]	Su
7686 81	Lu	2 h		Me
7686 70	Sm I	8	–	Kn
7686 13	S I	–	[150]	Ms
7686 07	Sm	4		Kn
7685 30	Sn I	20	–	Me
7685.246	Kr I	–	[1000]	IMe
7684 86	Nd	2 h	–	
7684 83	Re	3	–	Me
7683.865	In II	–	[3]	Ps
7683 6	Tl II	–	[2]	El
7683 49	A II	–	[2]	Bn
7683.455	In II	–	[6]	Ps
7683 45	Re	2	–	Me
7683 401	In II	–	[5]	Ps
7683 36	Gd	6	–	Ks
7683 027	In II	–	[6]	Ps
7682 925	In II	–	[10]	Ps
7682 876	In II	–	[8]	Ps
7682 46	Ce	2		–
7682 262	In II	–	[3]	Ps
7681 678	In II	–	[2]	Ps
7680 61	Se I	–	[6]	Rd
7680 51	Sm	5 d	–	Kn
7680 35	Si I	100 w	–	Ks
7680 20	Mn I	200	–	–
7680 00	Er	2	–	Ed
7679 60	S I		[70]	Ms
7679 49	Mo	15	–	–
7679 4	Pb II	–	[2]	Ea
7679 3	bh Ti	4	–	L
7678 79	Sm II	60 d	–	Kn
7677 83	Se I	–	[3]	Rd
7677 16	Gd	6	–	Ks
7676 74	Dy	5	–	Ks
7676 20	Ta	3	–	–
7676 19	Sm	6 d	–	Kn
7676 14	V I	2	–	–
7676 06	Gd	6	–	Ks
7675 35	Sm II	6 d	–	Kn
7674 37	Hg I	–	[7]	Su
7673 06	Sr I	200 hs	–	Me
7672 60	Gd	10	–	Ks
7672.49	Sm	50	–	Kn
7672 46	Cl I		[10]	Ks
7672 17	Se I	–	[4]	Rd
7672.1	bh Ti	10	–	L
7672 02	Ba I	400	–	
7670 93	Ce	7 Wl	–	–
7670 85	Ne I	–	[5]	Gr
7670.81	Xe I	–	[2]	Me
7670 66	Xe II	–	[100]	Hu
7670 42	Mn	5 h		Me
7670 40	Sm	20 d	–	Kn
7670 33	Se I	–	[8]	Rd
7670 28	Ta	15 W	–	Ks
7670 04	A I	–	[50]	Me
7669 69	U	4		–
7668 73	U	4 h	–	–
7668 21	Sm	20	–	Kn
7667 89	Mn	20 h	–	Me
7667 20	Sm II	50 d	–	Kn
7667.03	A I	–	[4]	Me
7666.95	Gd	4	–	Ks
7666 92	Hg I	–	[4]	Su
7666.78	Dy	2	–	Ks
7666.61	Xe I	–	[10]	Me
7666.4	bh Ti	6	–	L
7665.72	Sc I	5	–	Me
7664.907	K I	9000 R	400	IHz
7664.74	Cd	–	3	Vs
7664.70	Cu II	5	70	Sh
7664 56	Xe I	–	[30]	Me
7664.34	La I	8	3	–
7664.302	Fe I	15	–	Me
7664 02	Xe I	–	[10]	Me

Wavelength	Element	Intensities Arc	Spk ,[Dis.]	R
7663 75	Kr	–	[2]	Me
7663 52	Nd	2	–	–
7663 47	Ti I	12	–	–
7663 09	Hf II	2	30	Me
7662.98	V I	2 h	–	–
7662 94	Sm	20	–	Kn
7662 35	Dy	25	–	–
7662.3	A I	–	[2]	Me
7661.30	Sm	15	–	Kn
7661.223	Fe I	10	–	Me
7661.04	V I	2 h	–	–
7659 01	Lu	4	–	Me
7658 97	Fe	2	–	Me
7658 70	U	2	–	–
7658 60	Zr I	6	–	–
7657.99	I II	–	[25]	Mu
7657 60	Mg I	2	–	Ps
7657 48	Rn I	–	[10]	Rs
7657 30	Ni I	2 h	–	–
7656 81	Re	5	–	Me
7656 76	Mo	25 h	–	–
7655 99	Mn I	3 hl	–	Me
7655 78	Sm II	50 d	–	Kn
7654.44	Ti I	6	–	–
7654.43	Er	4	–	Ed
7654 28	Ni	10 h	–	Sl
7654.06	A II	–	[7]	Bn
7653 76	Fe I	80	–	–
7653 61	U	2	–	–
7653 59	Se I	–	[8]	Rd
7653 26	Mo	3	–	Ks
7652 89	Yt I	3	–	Me
7652.49	Re	2	–	Me
7652.36	Cu II	–	30	Sh
7652.16	Kr I	–	[4]	Me
7651 62	Mn I	4 hl	–	Me
7650.42	Ta	2	–	Ks
7650 32	Gd	10	–	Ks
7649 79	Lu	3	–	Me
7649.62	Ta	5	–	Ks
7649.54	Lu	8	–	Me
7649 52	Mo	2	–	Ks
7649 28	Lu	3	–	Me
7648 66	U	2	–	Me
7648.28	Sb	10 h	–	Me
7648 12	Dy	2	–	Ks
7648 08	Co I	12 h	–	–
7648.02	Sm II	100 d	–	Kn
7647 64	Cb	4	–	Me
7646 71	Zr	10	–	–
7646 66	Dy	10	–	Ks
7646 15	Hg I	–	[3]	Su
7646 02	Mn I	5 hl	–	Me
7645 92	Nd	2	–	–
7645 87	Dy	10	–	Ks
7645 82	Sm	80	–	Kn
7645 67	Pr	2	–	–
7645 64	Hf	2	–	Me
7645.09	Sm II	200 d	–	Kn
7644 88	Gd	4	–	Ks
7644.80	Cl II	–	[4]	Ks
7643 91	Sm	40	–	Kn
7643 91	Xe I	–	[100]	Me
7643 61	U	2	–	–
7643 01	Sm II	30 d	–	Kn
7642.88	Ba I	100	–	–
7642 025	Xe I	–	[500]	I
7641.62	Br I	–	[2]	Ks
7641 24	U	2	–	Me
7641.16	Kr II	–	[150]	Me
7641.15	Dy	15	–	Ks
7640 93	Re I	400 wl	–	Me
7640 84	Ta	4	–	Ks
7640.08	Lu	9	–	Me
7639.76	Nd	3	–	–
7639.64	Sm	8	–	Kn
7639.54	U	4	–	–
7639 25	Dy	2	–	Ks
7638 60	Gd	4 s	–	Ks
7638.03	V I	2 h	–	Me
7637.94	Sm II	60 d	–	Kn
7637.63	Co I	4	–	Me
7637.	Bi II	–	[20]	Cf
7636.85	Ba I	40	–	–
7635.33	Al II	–	[5]	Ps
7635 29	Dy	2	–	Ks
7635 13	Kr II	–	[5]	Me
7635 105	A I	–	[500]	IMe
7634 73	U	4	–	–
7634 50	Co I	3	–	–
7634.1	bh Ti	4	–	L
7632 82	Nd	2	–	Ks
7632 77	U	2	–	–
7632 2	Pb II	–	[100]	Ea
7631.77	Sm II	20 d	–	Kn
7631 71	U	8	–	–
7631.46	Mo	2	–	Ks
7631.32	Dy	2	–	Ks
7630 44	U	2	–	Me
7629.82	S	–	[200]	Ms
7629.46	Kr II	–	[5 h]	Me
7629 31	U	2	–	–
7629 24	Sm	3	–	Kn
7628 86	A I	–	[50]	Me
7628.1	bh Ti	8	–	L
7628 02	U	2	–	–
7627 85	Al II	–	[2]	Ps
7627 67	Eu	8	–	Kn
7626 38	U	2	–	–
7625 97	Ta	2	–	Ks
7624.81	V I	15	–	–
7624 40	Hf	30	–	Me
7623 16	Sm	15 d	–	Kn
7622 94	Yt I	5	1	Me
7622.64	Ta	2 h	–	Ks
7621.96	Gd	10	–	Ks
7621.95	U	2	–	–
7621 86	V I	4 d	–	–
7621.72	Mo	2	–	Ks
7621.61	Zr I	2	–	–
7621.50	Ru I	10	–	–
7621.50	Sr I	100	–	Me
7621 33	Ne I	–	[5]	Gr
7621.2	Hg II	–	[2]	Su
7621.17	Zr I	2	–	–
7620.84	Ta	2	–	Ks
7620 538	Fe I	5	–	Me
7620 51	Cl II	–	[4]	Ks
7620 25	Re I	200 wl	–	Me
7619 35	U	8	–	–
7619 33	Sm	5	–	Kn
7619 21	Ni I	20	–	–
7618 97	Os	2	–	–
7618 933	Rb I	1000	–	IRz
7618 8	Yb	–	5	It
7618 64	Co	2	–	–
7618 57	Xe II	–	[50]	Hu
7618 56	I II	–	[10]	Mu
7618 33	A I	–	[30]	Me
7618 33	Ti I	4	–	–
7618 32	Re	3	–	Me
7618 20	Pt	2	–	Me
7618 03	A II	–	[80]	Bn
7617.73	Dy	5	–	Ks
7617.72	Yt	4	–	Me
7617.45	Sc I	6	–	Me
7617 39	Mo	2	–	Ks
7617 00	Ni I	60	–	–
7616 46	Br I	–	[6]	Ks
7616 21	Dy	2	–	Ks
7615 74	Zr I	2 h	–	Ks
7615 72	U	2	–	Me
7615.69	Kr	–	[3 h]	Me
7614.70	Nd	2	–	–
7614 50	Ti I	8	–	–
7614.48	Zr I	2 w	–	Ks
7614 11	W	3	–	–
7613 94	Sm II	30 d	–	Kn
7613 54	V I	2 h	–	–
7612 94	Ru I	3	–	–
7612.94	La II	3	3	Me
7612 90	Zn II	–	[20]	Ps
7612 08	Zr I	4	–	–
7611.90	Re I	100	–	Me
7611.78	Gd	6	–	Ks
7611.54	Dy	5	–	Ks
7610 83	Zr I	2	–	Ks
7610.78	Sm	8 d	–	Kn
7610.77	U	2	–	Me
7610 46	Ba I	60	–	–
7610 24	Co I	35	–	–
7609 97	Ni	2 h	–	–
7609.82	Xe I	–	[3]	Me
7609.60	Zr I	2	–	–
7609 25	Dy	5	–	Ks
7609 16	U	4	–	–
7609 01	Cs	500 l	–	–
7608.59	Hf	2	–	Me
7608.46	Xe I	–	[5]	Me
7607.74	Sm I	80	–	Kn
7607.48	Sm	40 d	–	Kn
7607.40	Br I	–	[4]	Ks
7607 17	F I	–	[45]	En
7607 15	Zr I	10	–	–
7606 81	Se I	–	[12]	Rd
7605 91	Nd	2	–	–
7605 88	U	2	–	–
7604 97	Xe I	–	[2 h]	Me
7604 81	Ta	2 h	–	Ks
7603 88	Eu	4	–	Kn
7603 75	Nd	2	–	Ks
7603 43	Mn	2	–	Me
7603 40	Cb	5	–	Me
7603 312	In II	–	[3]	Ps
7602 95	Os	20	–	–
7602 775	In II	–	[3]	Ps
7602 282	In II	–	[2]	Ps
7602.18	Hg I	–	[5]	Su
7601 84	Mo	8	–	–
7601 544	Kr I	–	[5000]	IMe
7601 28	Rn I	–	[8]	Rs
7600 77	Xe I	–	[10]	Me
7600.27	U	2	–	Me
7598 28	V I	2 h	–	Me
7598 01	Sm	40	–	Kn
7597.55	Rn I	–	[6]	Rs
7597.5	bh Zr	4	–	L
7597.46	U	2 w	–	Me
7596 92	V I	3	–	Me
7596 30	Re	2	–	Me
7596 0	bh Ti	3	–	L
7595 93	Nd	2	–	Ks
7595 40	I II	–	[25]	Mu
7595 16	Mo	15	–	Ks
7595 13	Br	–	[3]	Ks
7595.07	U	2	–	–
7594.95	Dy	2	–	Ks
7594.56	Gd	4	–	Ks
7593 58	Ta	2	–	–
7592 96	Hf	2	–	Me
7592 82	Sb	5 h	–	Wt
7592 55	Sm	4	–	Kn
7592 19	Se I	–	[15]	Rd
7591 66	Mo	4	–	–
7591 59	Br I	–	[2]	Ks
7591.36	Dy	10	–	Ks
7591 20	V I	2 h	–	–
7590 57	Co I	35	–	–
7590 54	U	2 W	–	–
7590 49	Nd	2	–	Ks
7590.43	Sm	25	–	Kn
7590 22	Ta	8	–	Ks
7590 04	Sm	20	–	Kn
7589 61	Xe I	–	[6]	Me
7589 33	A II	–	[250]	Bn
7589 6	bh Ti	8	–	L
7588 70	I I	–	[3]	Ev
7588 48	Zn II	–	[50]	Ps
7588 31	Sm	40 d	–	Kn
7588 22	Gd	6	–	–
7587.76	Dy	2	–	Ks
7587 66	Re	2	–	Me
7587.66	Nd	2	–	–
7587.55	U	2	–	–
7587 413	Kr I	–	[1000]	IMe
7586 72	Co I	20	–	–
7586 044	Fe I	10	–	Me
7585.77	Sm II	60 d	–	Kn
7585.28	Cb	5 h	1 h	Me
7584.680	Xe I	–	[200]	IMe
7584.48	Sc	3	–	Me
7584.29	Xe I	–	[10]	Me
7584 18	Rn I	–	[2]	Rs
7583 94	Gd	6	–	–
7583 91	Eu	400	–	Kn

Wave-length	Ele-ment	Intensities Arc	Spk.,[Dis.]	R
7583.806	Ba	10	–	Bu
7583.796	Fe I	5	–	Me
7583.37	Se I	–	[25]	Rd
7583.26	Re	6 w	–	Me
7583.21	Cb	6	1	Me
7582 86	Sm	6	–	Kn
7582.09	U	2	–	–
7580.91	Sm II	6	–	Kn
7580.91	U	2	–	–
7580.82	Sm I	5	–	–
7580.19	Sm	8 d	–	Kn
7579.87	Cu II	–	10	Sh
7579.58	Mo	3	–	Ks
7579.54	Rh	3	–	Me
7579.18	Nd	2	–	Ks
7579.02	Cu II	–	30	Sh
7578.96	S	–	[200]	Ms
7578.75	V I	5 h	–	Me
7578.72	Re I	200 w	–	Me
7578.09	Sm II	60 d	–	Kn
7578.07	Cl II	–	[10]	Ks
7577.49	Nd	2	–	–
7577.47	Dy	5	–	Ks
7577 22	Rh I	10	–	Me
7576.95	Hf	2	–	Me
7575.81	U	2	–	–
7575.7	Te I	–	[6]	Rd
7575.22	Ba I	2 h	–	Me
7575.08	Se I	–	[20]	Rd
7574.58	Cb	100	20	Me
7574.44	Sc I	7	–	–
7574 08	Ni I	30	–	–
7573.92	V I	2	–	–
7573.8	Sm	3	–	Kn
7573.47	Re	2	–	Me
7573.41	F I	–	[40]	En
7573.14	U	2	–	Me
7572.64	Mo	8	–	–
7572.42	U	2 W	–	–
7572.29	Sm	80 d	–	Kn
7572 06	Ne I	–	[5]	Gr
7571.53	Mo	3	–	–
7570.95	Sm II	150 d	–	Kn
7570 93	Xe I	–	[6]	Me
7570.87	Br I	–	[2]	Ks
7570.75	U	2	–	–
7570.30	V I	2	–	–
7570.09	Cu I	50	–	Me
7570 02	Ru	10	–	–
7569 91	W	6 w	–	–
7569 23	Ta	3	–	–
7569.16	Br	–	[2]	Ks
7568.925	Fe I	2	–	Me
7567.82	Re	6	–	Me
7566.08	Gd	6	–	–
7566 06	U	4	–	–
7566.00	Nd	2	–	Ks
7565 53	Cl II	–	[18]	Ks
7565 49	Ra	–	[3]	Rs
7565 35	Hf II	–	2	Me
7564 96	Co I	20	–	–
7564 22	Hf	2	–	Me
7563 83	Sm	15	–	–
7563 21	Nd	2	–	Ks
7563 13	Yt I	10	4	–
7563.03	Gd	12	–	–
7562 96	Dy	10	–	Ks
7562 94	Sm	50 d	–	Kn
7562 93	Hf	8	–	Me
7562.44	U	2	–	Me
7562 12	Zr I	4 Wh	–	–
7562.01	Cu II	–	25	Sh
7561 08	Hf II	1	10	Me
7561.06	Co I	15	–	–
7560 58	U	2	–	–
7560.31	Zr I	2	–	Ks
7560.15	Sm II	20 d	–	Kn
7560.09	Zr I	2	–	–
7559.81	Dy	10	–	–
7559.79	Xe I	–	[40]	Me
7559.65	Co I	15	–	–
7559 62	Ni I	2	–	–
7559 61	Ru I	100	–	–
7558.7	Pb II	–	[100]	Ea
7558 45	Zr I	2 h	–	
7558 36	Tm	200	–	Me
7558.36	U	2	–	
7557.81	Dy	2	–	Ks
7557 67	Rh I	10	–	Me
7556.8	Te I	–	[10]	Rd
7556.69	I I	–	[5]	Ev
7556 37	Hf	2	–	Me
7556.21	Mo	2	–	Ks
7555 60	Ni I	40	–	–
7554.70	Zr I	4	–	–
7554 63	V I	2	–	Me
7554.25	I I	–	[6]	Ev
7554.08	Sm I	8	–	Kn
7553.99	Co I	200	–	–
7553.96	Sc I	6	–	Me
7553 94	Ta	2	–	–
7553.7	Pb II	–	[2]	Ea
7553.03	Dy	10	–	Ks
7553 00	Zr I	2	–	–
7552 8	Te I	–	[6 w]	Rd
7552 24	F I	–	[40]	En
7552 13	U	2	–	Me
7552 01	Eu	4	–	Kn
7551.79	Hg I	–	[6]	Su
7551.59	Br I	–	[3]	Ks
7551 46	Zr I	4 h	–	–
7550 63	Kr	–	[3]	Me
7550.46	W	3	–	–
7550 23	U	4	–	–
7549 97	Se I	–	[10]	Rd
7548.71	Re	30	–	Me
7548.45	Xe II	–	[150]	Hu
7547.71	Cb	2	1	Me
7547 28	Eu	15	–	Kn
7547 09	Cl I	–	[25]	Ks
7546 97	Nd	3	–	–
7546.57	Sm	20	–	Kn
7545 37	Re	5 wl	–	Me
7544 74	Sm	50	–	Kn
7544 59	Zr I	4 h	–	–
7544 046	Ne I	–	[100]	IMe
7543.77	Dy	15	–	–
7543 62	Sm	15	–	Kn
7543 5	Pr	5	–	It
7543.41	Ba I	15 h	–	–
7543 10	Kr	–	[3]	Me
7543 06	Lu	2	–	Me
7542 81	Hg I	–	[3]	Su
7542 02	Rh I	5	–	Me
7541 5	bh Zr	4	–	L
7541 42	Sm II	100 d	–	Kn
7541 02	Pr	2	–	–
7540 98	Nd	2	–	–
7540 62	Zr I	2	–	–
7540 04	Sm II	20 d	–	Kn
7539 23	La I	10	3	–
7538 26	Nd	4	–	–
7537 43	W	3	–	–
7536 71	Yt	3	1	–
7536 42	Re	2	–	Me
7535 81	Br I	–	[3]	Ks
7535 775	Ne I	–	[300]	IMe
7535 74	Nd	2	–	–
7534 2	Sm	6 d	–	Kn
7533 91	U	20	–	–
7533.7	bh V	2	–	L
7533 59	La I	2	–	–
7533 48	Co I	40	–	–
7533.42	Fe II	–	2	Kn
7533 3	Sm	6 d	–	Kn
7533.14	Dy	5	–	Ks
7533 00	Eu	15	–	Kn
7532 20	Eu	3	–	Kn
7532 11	Cb	2	1	Me
7532 07	Ru	6	–	–
7531 68	U	2	–	Me
7531 5	Te I	–	[5]	Rd
7531 35	Sm	10	–	Kn
7531 171	Fe I	80	–	Me
7530.70	Xe II	–	[30]	Hu
7530 22	Sm	8 d	–	Kn
7529.58	Ru	4	–	–
7528.98	Nd	4	–	–
7528 72	Gd	4	–	Ks
7528 70	Eu	200	–	Kn
7528.70	U	4	–	–
7528.20	Ba I	15 h	–	Me
7527.56	Yb	80	–	Me
7526 57	Gd	4	–	Ks
7526 50	Re	3	–	Me
7526 46	Nd	3	–	–
7526 29	Co I	2	–	–
7525 52	Th	5	–	Fd
7525 48	Kr	–	[20 h]	Me
7525 14	Ni I	30	–	–
7524 48	Re	20 w	–	Me
7524.46	Kr II	–	[300 h]	Me
7524 29	Rh I	2	–	Me
7524 13	Sc I	7	–	–
7523 93	Rn I	–	[6]	Rs
7523 60	Ba I	15 h	–	Me
7522 78	Ni I	40	–	–
7521 73	Sc	4 h	–	–
7521 52	Dy	2	–	Ks
7521 24	Eu	4	–	Kn
7521 03	Zr I	2	–	–
7520 90	Sm	20	–	Kn
7520 56	Ta	25	–	–
7519 96	Hg I	–	[3]	Su
7519 91	Sm	15	–	Kn
7519 77	Cb	20	4	Me
7519 33	Zr	2 h	–	–
7518 32	Sm II	15 d	–	Kn
7517 95	Zr I	2	–	–
7517 52	Kr	–	[2 h]	Me
7517.41	U	2	–	–
7517 00	Sm	30 d	–	Kn
7516 92	Rn I	–	[8]	Rs
7516 59	Dy	10	–	Ks
7516 03	Nd	2	–	–
7515 93	Cb	40	10	Me
7515 88	Fe II	–	8	Kn
7515 74	Mn	2	–	Me
7515 70	Zr I	2 h	–	–
7515 5	Pt	–	2	It
7515 17	Ta	5 w	–	–
7514 96	Xe I	–	[3]	Me
7514 93	F I	–	[30]	En
7514 88	Hf II	–	2	Me
7514 651	A I	–	[200]	IMe
7514.54	Xe I	–	[8]	Me
7514 40	U	2	–	–
7514 13	Rn I	–	[8]	Rs
7513 98	Rh	5	–	–
7513 77	Nd	5	–	–
7513 40	Ba I	2 h	–	Me
7513 33	Sm I	2	–	Kn
7513 13	Cr	5	–	–
7513 01	Br I	–	[50 l]	Ks
7512 60	U	2	–	–
7511.11	Nd	4	–	–
7511 045	Fe I	20	1	Me
7510.75	Au I	20	–	–
7510 42	A I	–	[10]	Ms
7510 08	U	2	–	–
7508 99	W	4	–	–
7508 97	Se I	–	[10]	Rd
7508 47	Eu	12	–	Kn
7507 85	Sm	12	–	Kn
7507 28	Fe I	40	–	–
7507.05	Eu	3	–	Kn
7506 94	U	2 W	–	Me
7506 51	Zr	2	–	–
7506 44	Se I	–	[5]	Rd
7505 80	Sm	10 d	–	Kn
7505 34	Gd	6	–	–
7505 13	A II	–	[100]	Bn
7505 10	U	2	–	–
7504 47	Mo	15	–	–
7504.16	W	2	–	–
7503 9	Pr	3	–	It
7503 90	Dy	2	–	–
7503 867	A I	–	[700]	IMe
7503 38	Sm	6 d	–	Kn
7503 00	Xe II	–	[3 h]	Hu
7502 92	Zr I	2 h	–	–
7502 72	Co I	3 h	–	–
7502 39	Sm II	50 d	–	Kn
7502 34	U	2	–	–
7502 33	Bi	6	–	m

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
7501 62	Mo	3	–	–
7501 13	Xe I	–	[20]	Me
7499 87	Ra	–	[15]	Rs
7499 75	Ru	200	–	–
7499 50	Sm	3	–	Kn
7499.45	Pr	3	–	–
7498 84	La I	5	–	–
7498 71	Sm I	4	–	Kn
7497 43	U	2	–	–
7497 26	Sm I	3	–	Kn
7496 94	Rh	2	–	–
7496 12	Ti I	35	–	–
7495 62	Pr	4	–	–
7495 36	Xe II	–	[40]	Hu
7495 35	Ta	4	–	–
7495 24	Rh I	100	–	–
7495 088	Fe I	200		Me
7494 88	Yt I	3	2	–
7494 15	Kr I	–	[30]	Me
7494 07	Sm II	8	–	Kn
7494 04	Re	4	–	Me
7493.58	Kr I	–	[20]	Me
7493 47	Se I	–	[30]	Rd
7492 64	Rh I	3		Me
7492.23	Xe I	–	[20]	Me
7492 10	Cl I	–	[10]	Ks
7491 88	A I	–	[2]	Rs
7491 84	Sm	2		Kn
7491 678	Fe I	20	–	Bu
7491 00	Eu	15 W	–	Kn
7490 70	Dy	2	–	Ks
7490.58	I I	–	[70]	Ev
7490 22	Tm	100		Me
7490 18	Er	8	–	Ed
7489 61	Ti I	150	–	–
7489 47	Gd	40	–	–
7489 46	Cl I	–	[5]	Ks
7489 37	Co I	10	–	–
7489.14	F I	–	[50]	En
7489.13	Re	4	–	Me
7488 872	Ne I	–	[500]	IMe
7488 73	Ni I	2 h	–	–
7488 15	V I	2	–	–
7488 12	Re	10	–	Me
7488 06	Ba I	200	–	–
7486 90	Pd I	8	–	–
7486 862	Kr I	–	[100]	Me
7486 05	Pt	5	–	–
7485 90	Ta	300	–	–
7485 90	V I	2	–	–
7485 79	Ru	150	–	–
7485 74	Mo	100	–	–
7485 33	Rn I	–	[6]	Rs
7484 56	Hf	3	–	Me
7484 4	bh Zr	3	–	L
7484 24	A I	–	[15]	Ms
7483 52	La II	20	15	–
7483 35	W	4	–	–
7483 13	Rn I	–	[15]	Rs
7483 01	Dy	3	–	Ks
7482 72	F I	–	[80]	En
7481 99	Sm II	25	–	Kn
7481 6	Eu	2 W	–	Kn
7481 36	Th	2	–	Fd
7481 15	Re	12	–	Me
7481 09	Tm	100		Me
7480 652	O I	–	[30]	Fh
7479 96	Sm II	4	–	Kn
7479.58	Zr I	3	–	–
7479 40	Sm	15	–	Kn
7479 148	O I	–	[30]	Fh
7478.8	Yt I	3	–	Me
7478 79	Zn II	–	[50]	Ps
7478.77	Co I	3	–	–
7478 63	Re	8	–	Me
7478 20	Cb	15	2	Me
7477.47	Gd	20	–	Ks
7477.264	O I	–	[15]	Fh
7476 54	F I	–	[15]	En
7476.473	O I	–	[70]	Fh
7476.30	Fe I	12 h	–	Me
7476.2	S	–	[50]	Bz
7476.18	Ba I	30 h	–	–
7476.08	U	2	–	Me
7475.74	Rh I	100	–	Me
7475 43	Mo	5	–	–
7475.40	Ru	50	–	–
7474.94	Ti I	25	–	–
7474 35	Co I	4	–	Me
7474 01	Xe I	–	[25]	Me
7474 0	bh V	3	–	L
7473.226	O I	–	[15]	Fh
7472.425	Ne I	–	[50]	Ps
7472.18	Yt I	3	–	–
7472 04	Ta	30 h	–	–
7472 01	Xe I	–	[40]	Me
7471.54	W	2	–	–
7471.374	O I	–	[15]	Fh
7471.37	Al II	–	[5]	Sy
7471.18	A I	–	[4]	Ms
7470 89	Rn I	–	[15]	Rs
7470.76	Sm	100	–	Kn
7470 53	Eu	30 W	–	Kn
7470.45	Gd	20	–	Ks
7469 46	Er	10	–	Ed
7469 08	Ta	5	–	–
7469 04	I I	–	[500]	Ev
7468 92	Rn I	–	[10]	Rs
7468.91	Ru	150	–	–
7468.79	N I	–	[200]	Ks
7468.25	S	–	[10]	Ms
7468 2	bh Zr	3		L
7468 18	W	2	–	–
7467 99	Kr	–	[6 wh]	Me
7467 75	Ta	40	–	–
7467.57	Zr I	3	–	Ks
7466 2	Eu	2	–	Kn
7465 01	Kr I	–	[3 h]	Me
7464 38	Gd	200	–	–
7463 86	Hf	10	–	Me
7463.70	Ru	4	–	–
7463 04	La I	10	–	–
7462 40	Cl I	–	[5]	Ks
7462 38	Fe II	3	20	Kn
7462.31	Cr I	80	–	–
7461 434	Fe I	3	–	Bu
7460 82	Ta	5	–	–
7460 52	Sm	10	–	Kn
7459 97	Dy	2	–	Ks
7459.75	Ba I	300 hl	–	–
7459 53	Er	4	–	Ed
7459 46	Cl I	–	[2]	Ks
7459 27	W	2	–	–
7457 89	U	2	–	–
7457 36	Co I	200 W	–	–
7457 05	Dy	3	–	–
7456 96	Lu	5	–	Me
7456 67	Mo	5 h	–	–
7456 34	W	2	–	–
7456 32	Cb	6	1	Me
7455 20	Yt I	3	–	Me
7455 16	In	–	20	Sq
7454 70	Sm	3	–	Kn
7454 38	Sm	3	–	Kn
7454 35	Ta	5 h	–	–
7454 33	Hg I	–	[50]	Su
7454 03	U	5	–	–
7453 845	In II	–	[20]	Ps
7453 59	Ru	5	–	–
7453.03	Sm II	30	–	Kn
7452 899	In II	–	[12]	Ps
7452 88	Cb	6	1	Me
7452 85	Mo	15 h	–	–
7452 80	Sm II	15	–	Kn
7452 62	U	2	–	–
7452 48	Cr	3	–	–
7452 082	In II	–	[5]	Ps
7451 96	Sm	4	–	Kn
7451 71	Pr	5	–	–
7451 40	W	3	–	–
7451 11	Nd	5	–	Ks
7451 08	Dy	2	–	Ks
7451 00	Xe I	–	[25]	Me
7450 65	Ru	4	–	–
7450.4	Yb	2	–	It
7450 36	Eu	6	–	Kn
7450.33	S I	–	[15]	Ms
7450.30	Yt II	15	10	–
7450.00	Rn I	–	[600]	Rs
7449.42	Al II	–	[18]	Ps
7449 34	Fe II	–	6	Kn
7449.28	Sm I	8	–	Kn
7449 09	S I	–	[5]	Ms
7448.76	Nd	3	–	Ks
7448 33	Yb	30	–	Me
7447 88	U	3	–	–
7447.58	Re	8	–	Me
7447.39	Fe I	3 h	–	–
7447 34	Mo	10 h	–	–
7446 77	Rh I	5	–	–
7445 776	Fe I	150	–	Me
7445 45	Ru	4	–	–
7445 41	Sm I	100	–	Kn
7444.64	Kr	–	[2 h]	Me
7444 59	Eu	10	–	Kn
7444 56	Sm	150	–	Kn
7444 35	Cl I	–	[2]	Ks
7443 81	U	3	–	–
7443 50	Mn	2	–	Me
7443 43	Co I	10 h	–	–
7443 40	S I	–	[25]	Ms
7443 07	U	2	–	Me
7443 022	Fe I	8	–	Bu
7442 75	Re	2	–	Me
7442 56	N I	–	[100]	Ks
7442 39	Rh I	100	–	–
7442 33	Hf	1	3	Me
7442 17	Gd	5	–	Ed
7442 00	Sm	3	–	Kn
7441 94	Xe I	–	[20]	Me
7441 89	Gd	200	–	–
7441 52	Lu	20	–	Me
7440 98	Fe I	18 h	–	Bu
7440 80	Sm	4	–	Kn
7440 71	Re	6	–	Me
7440 60	Ti I	100	–	–
7440 46	A II	–	[90]	Bn
7440 44	Sm	3	–	Kn
7440 17	Ta	40	–	–
7439 86	Zr I	15	–	–
7438 899	Ne I	–	[300]	IMe
7438 42	Sr I	2	–	Me
7438 33	Ru	4	–	–
7438 22	U	3	–	–
7438 15	Cu II	–	15	Sh
7437 78	Re	4	–	Me
7437 56	Nd	5	–	Ks
7437 56	Hf	3	20	Me
7437 16	Co I	30	–	–
7436 59	Eu	100 W	–	Kn
7436 25	A I	–	[10]	Ms
7436 02	Cb	6	1	Me
7435 78	Kr II	–	[200 h]	Me
7435 73	V	2	–	–
7435 68	Cl I	–	[5]	Ks
7435 33	A I	–	[30]	Ms
7435 19	Ta	5 h	–	–
7435	bh C	–	–	L
7434 74	Kr II	–	[15 h]	Me
7434 50	Gd	20	–	–
7434 14	Sm	8	–	Kn
7434 10	Mo	10	–	–
7433 92	V	2	–	–
7433 85	Cu II	–	5	Sh
7433 48	Ni I	2	–	–
7433 10	Zr I	3	–	–
7432 59	Gd	20	–	–
7432 22	U	2	–	–
7431 93	Re	4	–	Me
7431 55	V	2	–	–
7431 18	Sm	6	–	Kn
7430 87	Fe I	5 wh	–	–
7430.80	Rh	10	–	–
7430 78	Ru	9	–	–
7430 58	Fe I	4	–	Kn
7430 27	Th	2	–	Fd
7430 20	Gd	40	–	–
7429 27	Se I	–	[200]	Rd
7429 00	Co I	10	–	–
7428 96	Th	3	–	Fd
7428 50	Cb	6	1	Me
7428.	Sb II	–	35	Dv
7427 55	Mo	3	–	–
7427 43	Nd	2	–	–
7427 26	Cu	3	–	Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
7426.97	Dy	6	–	–
7426.81	Se I, II	–	[100]	Rd
7426.57	Eu	500	–	Kn
7426 56	Gd	80	–	–
7426.3	bh Zr	2	–	L
7425.89	Br I	–	[100]	Ks
7425.82	In	–	12	Sq
7425.64	F I	–	[150]	En
7425.54	Kr I	–	[60]	Me
7425 50	U	18	–	–
7425 24	A I	–	[12]	Ms
7424 63	Si I	20	–	Ks
7424 43	Sm II	3	–	Kn
7424 11	S I	–	[5]	Ms
7424 05	Xe I	–	[20]	Me
7423.88	N I	–	[50]	Ks
7423.83	Zr I	3 h	–	Ks
7423.81	Sm	3	–	Kn
7423.69	Hf	5	15	Me
7423.68	Rh	2 h	–	Me
7423.54	Si I	500	–	Ks
7423 17	Ti I	35	–	–
7422 75	Zr I	3 h	–	–
7422 30	Ni I	600	–	–
7422 26	A I	–	[6]	Ms
7420.70	Cu II	–	8	Sh
7419 83	Cb	6	1	Me
7419.59	Cr	3	–	–
7419 35	Ni I	2	–	–
7419.04	Rn I	–	[20]	Rs
7418.92	Ta	2	–	–
7418 674	Fe	10	–	Me
7418 16	Nd	2	–	–
7418 1	Hg II	–	[40]	Ps
7417 99	Gd	50	–	–
7417 89	Zr I	6	–	–
7417 52	Ba I	100	–	–
7417 38	Co I	300 W	–	–
7417 02	Sm	10	–	Kn
7416 57	U	3	–	–
7416.55	I	–	[50]	Ev
7416.44	Re	6	–	Me
7416.00	Si I	200	–	Ks
7415 81	Mn	2	–	Me
7415 37	Si I	15	–	Ks
7414 61	I I	–	[5]	Ev
7414 54	Co I	5	–	–
7414.51	Ni I	200	–	–
7414 26	Ba I	4 hl	–	Me
7414 24	Zr	3	–	Ks
7414 12	Cl I	–	[150]	Ks
7414 02	Se I	–	15]	Rd
7413 64	I	–	[30]	Ev
7413 41	Re	4	–	Me
7413 36	Cr	2	–	–
7413 32	Mo	4	–	–
7412 84	Rn I	–	[6]	Rs
7412.44	Dy	5	–	–
7412 31	A I	–	[15]	Ms
7412 24	Sm	15	–	Kn
7411 39	Zr I	3 h	–	–
7411 25	I I	–	[50]	Ev
7411.178	Fe I	100	–	Me
7410 73	Sm	15	–	Kn
7410 46	Hg I	–	[10]	Su
7410 25	Ru	5	–	–
7410 14	Xe II	–	[6 wh]	Hu
7410 07	As I	8	–	Me
7409 96	Ba I	30 hl	–	–
7409 73	Nd	5	–	Ks
7409.70	Lu	7	–	Me
7409.51	Eu	3	–	Kn
7409.47	Re I	30	–	Me
7409.43	Co	10	–	Sl
7409 39	Ni I	400	–	–
7409.11	Si I	100	–	Ks
7408 2	Pd	–	2	It
7408.170	Rb I	500	–	IRz
7408.12	Sr I	3	–	Me
7407.95	Os	10	–	–
7407.89	Ta	150	–	–
7407.62	Dy	2	–	Ks
7407.49	Ru I	4	4	–
7407.02	Kr II	–	[400 h]	Me
7406 63	Nd	2	–	–
7406 21	Yt II	3	4	–
7405.92	Yb	3	–	Me
7405 85	Si I	300	–	Ks
7405.79	Sr	2	–	Lr
7405.77	Xe I	–	[3]	Me
7405.76	Gd	40	–	Ks
7405.50	Sb	5 h	–	Wt
7405.00	Sm	50	–	Kn
7404 93	Ta	3	–	Ks
7404 68	Eu	10 W	–	Kn
7404.51	Xe I	–	[12]	Me
7404 50	Mo	5	–	–
7404.41	Eu	30 W	–	Kn
7404 34	Cu II	–	100	Sh
7404 27	Re	6	–	Me
7403 30	Sm I	5	–	Kn
7403 17	Dy	2	–	Ks
7402 38	Sm II	4	–	Kn
7402 10	I I	–	[300]	Ev
7402 04	Eu	4 W	–	Kn
7401.689	Fe	10	–	Me
7401 29	Nd	5	–	–
7401 23	Sm	4	–	Kn
7401 13	Ni I	15	–	–
7400 90	Zr I	3	–	–
7400 5	Xe II	–	[5 h]	Hu
7400 41	Xe I	–	[30]	Me
7400 210	Cr I	80	–	–
7400 0	Eu	4 W	–	Kn
7399 89	Cu II	–	20	Sh
7399 6	Yb	2	–	It
7399 30	Zr	5	–	–
7399 2	Cd I	70	–	Ps
7398 96	Hf II	–	10	Me
7398 94	Sm	5	–	Kn
7398 77	Yt I	12	3	–
7398 68	F I	–	[400]	En
7397 96	Gd	5	–	Ks
7397 92	Sm	2	–	Kn
7397.76	Ce	8	–	–
7396 99	U	6	–	–
7396 04	Re	4	–	Me
7395 8	Hg	–	[10]	Lf
7394 91	Gd	40	–	–
7394 86	Eu	12 W	–	Kn
7393 98	Sm	20	–	Kn
7393 93	Ru	150	–	–
7393 792	Xe I	–	[150]	I
7393 63	Ni I	600	–	–
7393 49	V I	3	–	–
7393 433	Th	5	–	Fd
7393 37	Sm II	8	–	Kn
7393 0	Cd	70	–	Ps
7392 97	A I	–	[15]	Ms
7392 71	Eu	5 W	–	Kn
7392 42	Ba I	400	–	–
7392 11	U	3	–	–
7391 99	Se II	–	[125]	Mz
7391 92	Pd I	10	–	–
7391 36	Mo	50	–	–
7390 99	U	3	–	–
7390 71	Re	8	–	Me
7390 70	Hf	3	10	Me
7389 425	Fe I	100	80 h	Me
7389 28	Cl II	–	[7]	Ks
7389 15	Eu	40 W	–	Kn
7389 03	Sm I	5	–	Kn
7388 70	Co I	200	–	–
7388 3	Pd	–	3	It
7388.	Br II	–	5 w	Cf
7387 79	Sn II	–	15 W	Mc
7387 34	Eu	15 W	–	Kn
7387 12	Sm II	2	–	Kn
7386 64	Rh I	4	–	–
7386 402	Fe	40	25 h	Bu
7386 35	Re	30	–	Me
7386 21	Ni I	100	–	–
7386 04	V I	3	–	–
7386 003	Xe I	–	[100]	IMe
7385 91	Gd	40	–	Ks
7385.485	Th	8	–	Fd
7385 42	Sm	4	–	Kn
7385 3	Cd I	800	–	Ps
7385 24	Ni I	150	–	–
7385 08	W	7	–	Me
7384 6	Pt	–	2	It
7384 52	Gd	5	–	Ks
7384.07	Re I	2	–	Me
7383.980	A I	–	[400]	IMe
7383.9	Cd	1000	–	Ps
7383 88	Se I	–	[100]	Rd
7383 74	Th	2	–	Fd
7383.63	Zr	3	–	–
7383.55	Sm	15	–	Kn
7383.14	Mo	6	–	–
7382.92	Fe I	6 h	–	–
7382.72	La I	5	–	–
7382 68	Re	4	–	Me
7382 50	Cb	150	30	Me
7382.18	Cu II	–	10	Sh
7381 94	Ni I	40	–	–
7381 82	Nd	2	–	–
7381 60	Dy	2	–	Ks
7381 08	Ru	9	–	–
7381.	Br II	–	20 w	Cf
7380 45	A II	–	[8]	Bn
7380 34	Se I	–	[60]	Rd
7380 30	Gd	40	–	–
7379 71	La I	10	–	Ks
7379 70	U	15	–	–
7379 19	Zr	3	–	Ks
7378 69	Sm	6	–	Kn
7378 38	Xe II	–	[25]	Hu
7378 04	Sm I	4	–	Kn
7377 85	Zr I	3 h	–	Ks
7377 77	Se I		[20]	Rd
7377 77	Ru	20	–	–
7377.59	Gd	40	–	Ks
7377 55	Yb	4	–	Me
7377 27	Gd	8	–	–
7376 95	Th	2	–	Fd
7376 85	Mn	2	–	Me
7376 69	Sm II	60	–	Kn
7376 46	Fe		10 wh	Kn
7376 434	Fe	8 h	–	Kn
7376 42	Gd	40	–	–
7376 06	Dy	2	–	Ks
7375 57	Rh	15	–	–
7375 53	Ba I	50 hl	–	–
7375 40	U	2	–	Me
7375 14	Sm	4	–	Kn
7374 80	Zr I	3	–	Ks
7374.1	Eu	2 W	–	Kn
7373 83	Gd	40	–	–
7373 80	Sm II	3	–	Kn
7373 5	Hg	–	[10]	Wd
7373 50	Zr I	3	–	–
7373 02	Si I	10 w	–	Ks
7372 58	U	2 h	–	–
7372 54	Se I	–	[40]	Rd
7372 118	A I	–	[100]	I
7371 95	U	3	–	–
7371 71	Hg I	–	[80]	Su
7371 51	Sm I	50	–	Kn
7371 12	Sm	2	–	Kn
7370 82	Se I	–	[80]	Rd
7370 28	Gd	80	–	–
7370 27	Eu I	700	–	–
7370 21	U	2	–	Me
7369 69	Eu	200 W	–	Kn
7369 09	Ta	100	–	–
7368 65	U	2	–	Me
7368.12	Pd I	20	–	–
7367 9	Sm I	2	–	Kn
7367 70	Eu	10 W	–	Kn
7367 3	Hg I	–	[8]	Su
7367 24	In	–	12	Sq
7367 20	Zr I	3	–	–
7367 02	Kr I	–	[2 h]	Me
7366 80	Kr I	–	[2 h]	Me
7366 60	Ti	18	–	–
7366 06	Sm	3	–	Kn
7365 73	Eu	4	–	Kn
7365 28	Hf	10	–	Me
7365 25	Mo	7	–	–
7364 41	Mo	5	–	–
7364 11	Ti	150	–	–
7364 10	Sm	50	–	Kn
7364 05	Os	10	–	–
7363 95	Fe I	8 h	–	–

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
7363 28	Nd	5	–	Ks
7363.20	V I	25	–	–
7363 01	Sm II	3	–	Kn
7362.83	Kr	–	[4]	Me
7362.70	Sm	3	–	Kn
7362 62	Gd	5	–	Ks
7362.59	Er	4	–	Ed
7362 55	V I	2	–	–
7362 31	Al I	5 hl	[50]	Ps
7362 25	Eu	50 W	–	Kn
7362.12	Re	4	–	Me
7361 65	Mo	10	–	–
7361.59	Al I	–	[20]	Ps
7361 56	Zr	3	–	Ks
7361.44	V I	10	–	–
7361.34	Kr I	–	[2]	Rs
7360 95	Re	4	–	Me
7360 66	Zr I	5	–	–
7360 38	Mo	8	–	–
7359 96	Kr I	–	[5]	Me
7359 29	Ba I	20	–	Me
7358 66	V I	2	–	–
7358 60	Zr	3	–	Ks
7358 37	Sm	3	–	Kn
7357 74	Ti	200	–	–
7356 96	Ta	100	–	–
7356 65	Eu	30 W	–	Kn
7356 54	V I	20	–	–
7356 10	Hf	10	–	Me
7355.99	Sm	3	–	Kn
7355.90	Cr I	80	–	–
7355.58	Xe I	–	[40]	Me
7355.48	Kr	–	[4]	Me
7355 44	Ta	10	–	–
7355 34	Er	4	–	Ed
7355.124	In II	–	[5]	Ps
7354 931	In II	–	[12]	Ps
7354.699	In II	–	[20]	Ps
7354.59	Co I	150	–	–
7354.09	Sm II	3	–	Kn
7353.47	Co I	25	–	–
7353.34	Zr	3	–	Ks
7353 316	A I	–	[100]	IMe
7353.16	Cb	60	10	Me
7352.86	Ta	150	–	
7352.16	Ti I	12	–	–
7352 03	Re	50	–	Me
7351 90	Ru	4	–	–
7351.585	In II	–	[50]	Ps
7351.56	Fe I	18	7 h	–
7351.487	In II	–	[50]	Ps
7351.40	Ni I	3 h	–	–
7351 36	I II	–	[60]	Ke
7351.160	Fe I	8 h	7 h	Bu
7350 906	In II	–	[12]	Ps
7350 78	A I	–	[6]	Ms
7350.371	In II	–	[50]	Ps
7350 09	Yb	40	–	Me
7350.004	In II	–	[30]	Ps
7349 567	In II	–	[30]	Ps
7348.71	Ru	6	–	–
7348.56	Br I	–	[500 l]	Ks
7348.49	Mo	15	–	–
7348 11	A II	–	[4]	Rt
7347.7	Yb	3	–	It
7347.30	Sm I	100	–	Kn
7346 88	Re	2	–	Me
7346 46	Yt I	40	4	–
7346.41	Ta	100	–	–
7346.37	Hg II	–	[1000]	Ps
7346.24	Eu	20 W	–	–
7346.2	Cd I	1000	–	Ps
7345.31	La I	125	–	–
7345.18	Dy	3	–	Ks
7345.15	V	2	–	–
7344.76	Sm II	5	–	Kn
7344.72	Ti I	200	–	–
7344.55	Br I	–	[20]	Ks
7344.42	La I	2	–	Rl
7344.16	Hg II	–	[3]	Ps
7343.96	Zr I	5	–	–
7343.4	Sb II	1	3	Lg
7343.37	Xe II	–	[25 wh]	Hu
7343.33	Ta	2	–	–
7342.83	Cl I	–	[2]	Ks
7342 80	Mn	2	–	Me
7341 79	Mo	3	–	–
7341.66	U	2 h	–	–
7341 20	Th	2	–	Fd
7341.16	Kr	–	[2]	Me
7340.19	Ta	10 h	–	–
7340 11	Eu	5	–	Kn
7340 03	Zr I	3	–	Ks
7339.57	Ba I	4 h	–	Me
7339 30	Xe II	–	[150]	Hu
7338 96	Se I	–	[50]	Rd
7338 92	V I	50	–	–
7338 80	Sm	2	–	Kn
7338 04	Sm	50	–	Kn
7336 480	Xe I	–	[50]	IMe
7336 28	Eu	300 W	–	Kn
7335 97	Zr I	8	–	–
7335 92	Sm II	3	–	Kn
7335 72	Al I	–	[2]	Ps
7335 6	bh Zr	2	–	L
7335 10	Sm	10	–	Kn
7334 66	Fe	–	8	Kn
7334 33	Kr	–	[4]	Me
7334 17	La I	100	–	–
7333 71	Mo	8	–	–
7333.70	Br	–	[5]	Ks
7333 62	Fe I	8 h	–	Bu
7333.49	Ni I	2	–	–
7332.96	Yt II	2	3	–
7332.73	Zr	3 h	–	Ks
7332.65	Sm I	100	–	Kn
7332 43	Rn I	–	[10]	Rs
7332.4	Hg	–	[5]	Wd
7332 30	Cb	6	1	Me
7332.26	Ti I	8	–	Me
7331 95	F I	–	[200]	En
7331.86	U	3	–	–
7331 74	Cu II	–	15	Sh
7331 53	Mo	12 h	–	–
7331.33	Sm	2	–	Kn
7331.0	Eu	3	–	Kn
7330 97	Ti I	40	–	Me
7330 62	Yt	8	–	Me
7330 23	Gd	5	–	Ks
7330.12	Pb	10	–	Wt
7329 90	Ce	5	–	–
7329 72	V I	2	–	–
7329 37	Re	10	–	Me
7329 02	Mo	15 h	–	–
7328.97	Se I	–	[300]	Rd
7328 64	Hf II	3	30	Me
7328 38	Cb	20	3	Me
7328 34	Th	3	–	Fd
7327 82	Zr	3	–	–
7327 67	Ni I	25	–	–
7327 6	bh Ca	2	–	L
7327.47	Hg I	–	[10]	Su
7327 09	Gd	40	–	–
7327.08	Sm	30	–	Kn
7327 00	Kr	–	[5]	Me
7326 51	Mn I	500	–	Me
7326 50	Ba I	10 h	–	Me
7326 146	Ca I	400	–	IWg
7326 1	Eu	3	–	Kn
7326 02	Cu II	–	15	Sh
7325 95	Ta	10	–	–
7325 57	Ne I	–	[15]	Gr
7325 44	Sm II	10	–	Kn
7325 34	Mo	5 h	–	–
7324.89	Gd	80	–	–
7324 86	Th	3	–	Fd
7324.20	Re	12	–	Me
7323 92	Cb	20	2	Me
7323.88	Sm	3	–	Kn
7323 78	Sc I	2	–	Me
7323.71	Zr	3	–	–
7323 56	Ru	25	–	–
7323 35	Gd	5	–	Ks
7323 12	Nd	2	–	–
7323 05	Xe I	–	[2]	Me
7322.72	Ta	30	–	–
7322.53	Mo	7	–	Ks
7321.76	Hf	3	10	Me
7321 50	V I	2	–	–
7321.452	Xe I	–	[80]	IMe
7321 38	Nd	5	–	–
7320 98	Rn I	–	[12]	Rs
7320 91	La I	2	–	–
7320 70	Fe II	25	18 h	Kn
7320 05	Hf	15	25	Me
7319 94	Xe I	–	[15]	Me
7319 84	Ta	30	–	–
7319 19	Br	–	[10]	Ks
7318 90	Gd	20	–	Ks
7318 70	Sm	3	–	Kn
7318 4	bh Ca	3	–	L
7318 39	Ti I	80	–	–
7318 12	I I	–	[15]	Db
7318 08	Zr I	8	–	–
7318 02	Re	4	–	Me
7317 77	Sm II	4	–	Kn
7317 30	Zr	3	–	–
7317 03	Cb	15	2	Me
7316 9	Hg I	–	[3]	Su
7316 87	Xe I	–	[20]	Me
7316 85	Nd	2	–	–
7316 505	Rb II	–	[50]	Rr
7316 31	Sm	10	–	Kn
7316 29	Er	6	–	Ed
7316 272	Xe I	–	[70]	IMe
7316.1	Re	8	–	Me
7316 00	A I	–	[30]	Ms
7315 73	Co I	25	–	–
7315 67	Ru	4	–	–
7315 56	Ti I	20	–	–
7315 33	Mo	4 w	–	–
7314 54	U	2	–	–
7314 31	F I	–	[40]	En
7314 00	Sm I	8	–	Kn
7313.74	F I	–	[10]	En
7313 72	Zr I	5	–	Ks
7313 64	Eu	60 W	–	–
7313 28	Gd	150	–	–
7313 18	Ta	3	–	–
7313 10	Yb	20	–	Me
7313	Hg I	–	[5]	Su
7312 66	Gd	8	–	Ed
7312 63	Ru	5	–	–
7312 60	Sm	5	–	Kn
7311 93	Cb	6	1	Me
7311 71	A I	–	[100]	Ms
7311 62	Zr I	5	–	–
7311 59	Br	–	[5]	Ks
7311 101	Fe I	60	25 h	Bb
7311 02	F I	–	[125]	En
7310 87	Hg	–	[15]	Su
7310 33	Eu	30 W	–	Kn
7310.27	Ra I	–	[500]	Rs
7310 24	Fe II	–	6	Kn
7310 10	Sm	4	–	Kn
7310 06	Pd I	5	–	Me
7309 64	Ni I	3	–	–
7309 41	Sr I	200	–	–
7309 35	Sm	3	–	Kn
7309 03	F	–	[50]	En
7309 02	Sm	40	–	Kn
7308 46	La	2 h	–	Me
7308 3	bh Ca	2	–	L
7307 97	Fe II	–	25 h	Kn
7307 957	Fe	30	–	Bu
7307 93	Ne	–	[15]	Gr
7307.55	Re I	8	–	Me
7307 37	Xe I	–	[5 h]	Me
7307.36	Zr	3	–	–
7307.23	Ba I	10 h	–	Me
7307 13	Ti	30	–	–
7306 78	V I	2	2	–
7306 61	Fe I	25	12 h	Bu
7306 60	Cu II	–	12	Sh
7306 58	Sm	3	–	Kn
7306.21	Zr I	5	–	–
7305.87	Ti I	6	–	Rl
7305 25	Yb	15	–	Me
7304.82	Ne I	–	[30]	Ms
7304.74	Sm	10	–	Kn
7304 46	Ba	5 h	–	Me
7304.16	Sm	2	–	Kn
7303.754	In II	–	[50]	Ps
7303.348	In II	–	[40]	Ps
7303 012	In II	–	[30]	Ps

Wave-length	Ele-ment	Intensities Arc	Spk ,[Dis]	R
7303.0	bh Ti	5	–	L
7302 89	Mn	300 h	–	Me
7301.80	Xe II	–	[100]	Hu
7301.74	Ta	200	–	–
7301.68	Hg	–	[25]	Su
7301.38	Mn	2	–	Me
7301.25	Kr I	–	[5]	Me
7301.23	Gd	150	–	–
7301.16	Eu II	700	–	Kn
7300.72	Sm	40	–	Kn
7300 62	Sc I	3	–	–
7300.47	Fe	8 h	–	Me
7300.30	I I	–	[50]	Db
7300.19	Mo	20	–	–
7299.82	Rh I	2	–	Me
7299.708	Ti I	50	–	Bh
7299.51	Se I	–	[200]	Rd
7299 00	F I	–	[25]	En
7298.64	Gd	8	–	Ed
7298.4	Sm	3	–	Kn
7298.04	Sm	6	–	Kn
7297.91	In II	–	[12]	Ps
7297.75	Ni I	4	–	–
7297.57	Eu	30 W	–	–
7297.07	Ru	4	–	–
7297.0	bh Ti	3	–	L
7296.58	W	12	–	–
7296 32	Ta	40	–	–
7296 12	Sm	2	–	Kn
7295 48	Sm	3	–	Kn
7295 01	Mo	4	–	–
7294 98	Fe	5 h	–	–
7294 76	Hg I	–	[20]	Su
7294.51	Rn I	–	[4]	Rs
7294.06	Gd	8	–	Ed
7293 4	bh Sc	2	–	Me
7293 20	Rh I	2	–	Me
7293.08	Yt I	7	–	–
7293.068	Fe I	100	50 h	Bb
7293.00	In II	–	[12 h]	Ps
7292.67	Re	300	–	Me
7292 33	Hf II	3	3	Me
7292 23	Gd	5	–	Ks
7291.52	Sm	3	–	Kn
7291.48	Ni I	100	–	–
7291.35	Gd	60	–	–
7291.00	Rn I	–	[40]	Rs
7290 87	Ni I	20	–	–
7290.8	bh Ti	5	–	L
7290.53	Rh I	2 h	–	Me
7290.23	Sm	80	–	Kn
7290 21	Si I	10	–	Ks
7289 78	Kr II	–	[400 h]	Me
7289.25	Si I	200	–	Ks
7289 14	Pr	2	–	–
7288 98	Th	5 h	–	Fd
7288 92	Sm II	30	–	Kn
7288.760	Fe I	30	20 h	Bb
7288.49	Br I	–	[10]	Ks
7288 26	Dy	2	–	Ks
7287.9	bh Sc	2	–	Me
7287 71	Pr	2	–	–
7287.41	Sr I	10 h	–	Me
7287.36	Fe	–	6	Kn
7287.262	Kr I	–	[80]	Me
7287.05	Th	4	–	Fd
7286.56	Ni I	10	–	–
7286.36	Ta	5	–	–
7286.30	Sm	2	–	Kn
7285 80	W	10	–	–
7285.71	Pr	2 h	–	–
7285.44	A I	–	[6]	Ms
7285.40	Sm	2	–	Kn
7285.301	Xe I	–	[60]	IMe
7285.286	Fe I	2 h	–	Bu
7285.28	Co I	200	–	–
7284.95	Th	2	–	Fd
7284.853	Fe	15	15 h	Bu
7284.69	Zr I	3	–	–
7284.61	Sm II	5	–	Kn
7284.38	Cd II	–	25	Vs
7284.34	Xe II	–	[50]	Hu
7283.98	Zr	3 h	–	–
7283.961	Xe I	–	[40]	IMe
7283.815	Mn	400 h	–	–
7283 33	Sm	30	–	Kn
7282 94	Sm	2	–	Kn
7282 82	Rh I	2	–	–
7282 54	Gd	5	–	Ks
7282.47	U	2	–	–
7282 39	Fe	5 h	–	Bu
7282 34	La II	70	125	–
7282 21	Sm I	20	–	Kn
7281 8	Au I	2	–	Ml
7281 74	Ti I	10 h	–	–
7281 57	Eu	50 W	–	–
7281.53	Mo	5	–	–
7281.47	Sm II	25	–	Kn
7281 349	He I	–	[30]	IMr
7281 29	Ti	8	–	–
7281 15	Sm	2	–	Kn
7281 04	S	–	[70]	Ms
7280 9	Te I	–	[18]	Rd
7280 27	Ba I	1000	–	–
7279 997	Rb I	400	50	IRz
7279.949	Cs I	35 l	–	Ms
7279 76	In	–	5	Sq
7279 75	Xe II	–	[4 whs]	Hu
7279 40	Gd	6	–	Ks
7279 25	Sm I	100	–	Kn
7278 72	Hf II	–	6	Me
7278 43	Pd I	2	–	–
7278 23	W	8	–	–
7277 67	Hf II	5	50	Me
7277.586	In II	–	[60]	Ps
7277 54	Ta	3	–	–
7277.15	I	–	[15 h]	Bl
7277 10	Sm	10	–	Kn
7276 96	Ta	30	–	–
7276 76	Cb	6	1	Me
7276 47	Xe	–	[4 whs]	Hu
7276 413	In II	–	[50]	Ps
7275 6	bh Sc	10	–	Me
7275 57	Sc I	4 h	–	–
7275 455	In II	–	[40]	Ps
7275 28	Si I	50	–	Ks
7275.	Sb II	–	35	Dv
7274 81	Cb	8	2	Me
7274.49	W	3	–	–
7274 08	Gd	6	–	Ks
7273 9	bh Ti	5	–	L
7273 88	Sm	30	–	Kn
7273 84	Re I	150	–	Me
7273.77	Ti I	15	–	–
7273 73	U	2	–	–
7273 61	Rh I	2	–	Me
7273 54	Dy	2	–	–
7273.33	Sm II	3	–	Kn
7273 03	Rh I	6	–	–
7272 97	Kr II	–	[4]	Me
7272 96	Gd	5	–	Ed
7272 936	A I	–	[100]	IMe
7272 61	Tm	10	–	Me
7272 33	Ba I	2 h	–	Me
7272.29	Ta	5	–	–
7272 26	Nd	5	–	Ks
7272 04	In II	–	[2 h]	Ps
7271 94	Rh I	80	–	–
7271 41	Ti I	7	–	–
7271 32	Sm	8	–	Kn
7270 97	Gd	5	–	Ed
7270 82	Rh I	200	–	–
7270 70	Cs	15 s	–	Ms
7270.66	A I	–	[10]	Ms
7270 54	Sm II	5	–	Kn
7270.42	Gd	5	–	Ed
7270 30	La I	5	–	Rl
7270 11	La I	15	–	–
7269 24	Ti	5	–	–
7269 2	Hg I	–	[15]	Su
7269 1	bh Ti	6	–	L
7268 90	Cb	6	1	Me
7268 65	Cr	5	–	–
7268 45	Sm II	3	–	Kn
7268 28	Kr I	–	[5]	Rs
7268 18	Rh I	125	–	–
7268 11	Rn I	–	[200]	Rs
7267.62	Mo	40	–	–
7267.20	A I	–	[2]	Ms
7266.96	Ru	15	–	–
7266 49	Xe I	–	[25]	Me
7266 29	Ti I	25	–	–
7266 22	Ni I	15	–	–
7265 45	Re	6	–	Me
7265 33	Ti I	8	–	–
7265 31	Se I	–	[30]	Rd
7265 23	A I	–	[3]	Ms
7264 99	Fe	–	10	Kn
7264 82	Ta	10	–	–
7264 76	Zr I	5	–	–
7264 70	Gd	5	–	Ed
7264 29	V I	8	–	–
7264.18	Yt II	15	20	–
7264.17	Sm	8	–	–
7263 87	Re	8	–	Me
7263 68	La	3	–	Me
7263 65	Gd	6	–	Ks
7263 59	Sm	2	–	Kn
7263 58	Co I	6	–	–
7263 5	Te I	–	[50 l]	Rd
7263.43	Nd	2	–	Ed
7263 40	Ti	15	–	–
7262 83	La	3	–	Me
7262 80	Eu	200 W	–	–
7262 69	Sm I	5	–	Kn
7262.67	Gd	80	–	Ks
7262 62	Hf	3	–	Me
7262.62	Rh I	2	–	Me
7262 54	Xe I	–	[20]	Me
7262.	Bi II	–	2	Cf
7261 93	Ni I	300	–	–
7261 86	Ti I	10	–	Rl
7261 54	Fe I	18 h	10 h	Bu
7261 45	Sm II	10	–	Kn
7260.49	Br	–	[50]	Ks
7259 3	N II	–	[15]	Fm
7259.22	Pr	2	–	–
7259.	bh C	–	–	L
7258 99	U	2	–	Me
7258.90	Cb	10	2	Me
7258.74	Eu	100 W	–	–
7258.17	Zr I	3 h	–	–
7257 94	Xe I	–	[60]	Me
7257 57	Sc I	6	–	–
7257.11	Sm II	20	–	Kn
7256.65	Cl I	–	[200]	Ks
7256 18	Cb	6	1	Me
7256 18	Sm	3	–	Kn
7256 069	In II	–	[30]	Ps
7255 83	Cu II	–	20	Sh
7255.66	V I	2	–	–
7255 182	In II	–	[40]	Ps
7254.95	Sm II	15	–	Kn
7254.75	Gd	5	–	–
7254.649	Fe	10 h	8 wh	Bu
7254.47	U	8	–	–
7254.17	Sm	4	–	Kn
7254 104	In II	–	[50]	Ps
7254 05	O I	–	[15]	Ps
7253.777	Ti I	7	–	Bh
7253.49	Os	15	–	–
7252.74	Ce	8	–	–
7252.72	Gd	80	–	–
7252.35	Cb	40	6	Me
7251.93	U	2	–	–
7251.723	Ti I	125	–	Bh
7251.16	Os	10	–	–
7250.87	Xe I	–	[5 h]	Me
7250.69	Si I	40	–	Ks
7250.27	Ta	80	–	–
7250.12	Co I	80	–	–
7250 04	Dy	3	–	Ks
7249 92	Xe I	–	[2]	Me
7249 33	Ti	30	–	–
7249.1	bh Cr	2	–	L
7249.06	S I	–	[25]	Ms
7249.02	Sm II	5 d	–	Kn
7248 99	Cs	–	2	–
7248.48	Zr I	3	–	–
7248.15	Eu	20 W	–	–
7247.82	Mn	40	–	Me
7247.23	Rn I	–	[10]	Rs
7246 67	Re I	300	–	Me
7246.49	Gd	5	–	Ks
7245.85	Mo	60	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
7245.7	Hg	–	[5]	Wd
7245.60	Sm	5	–	Kn
7245.38	Xe II	–	[3]	Hu
7245.23	W	2	–	–
7245.167	Ne I	–	[1000]	IMe
7244.94	Xe I	–	[20]	Me
7244.86	Ti I	150	–	–
7244.86	Fe I	18	–	Bu
7244.77	S I	–	[80]	Ms
7244 73	Th	2	–	–
7244.58	Mo	4	–	–
7244.47	Yb	20	–	Me
7243.66	I I	–	[2]	Mu
7243.06	S I	–	[25]	Ms
7242.90	Pd I	2	–	Me
7242.50	Mo	80	–	–
7242.27	Gd	20	–	Ks
7242.09	Th	2	–	Fd
7241.80	Cb	6	1	Me
7241.70	Ce	5	–	–
7241.56	Kr II	–	[2 hl]	Me
7241.459	In II	–	[5]	Ps
7240.90	Sm II	200	–	Kn
7240.87	Hf	70	150	Me
7240.46	Mo	8	–	–
7240.35	Rh I	3	–	–
7240.3	bh Sc	3	–	Me
7239.885	Fe I	25	20 h	Bb
7239.62	Mn	3	–	–
7238.92	Ru	200	–	–
7238.37	Ce	3	–	–
7238.20	Xe I	–	[3]	Me
7238.17	Sm	3	–	Kn
7237.98	Lu	40	–	Me
7237.88	I I	–	[30]	Bl
7237.28	Re	6	–	Me
7237.10	Hf	100	200	Me
7237.08	W	5	–	–
7237.02	Sm II	15	–	Kn
7237.01	Cd	–	15	Vs
7236.80	I I	–	[150]	Ev
7236.56	Nd	2	–	–
7236.20	Cr	3	–	–
7236.19	C II	–	150 h	Fl
7235.86	Si I	10	–	Ks
7235.73	Sm II	8	–	Kn
7235.32	Si I	10	–	Ks
7234.72	Sm	5	–	Kn
7234.58	Kr	–	[2]	Me
7234.40	Sm	15 d	–	Kn
7233.58	A II	–	[8]	Bn
7233.45	Ta	10	–	–
7233.44	Ti I	10 h	–	Rl
7233.44	Gd	80	–	–
7233.31	Ti I	10 h	–	Rl
7233.2	bh Sc	3	–	Me
7232.47	Br I	–	[5]	Ks
7232.27	Sr I	50 hl	–	–
7231.86	I	–	[20]	Ev
7231.49	Pr	4	–	–
7231.46	Rn I	–	[4]	Rs
7231.12	C II	–	100	Fl
7230.88	Th	3	–	Fd
7230.4	bh Ti	4	–	L
7230.3	Te I	–	[7]	Rd
7230.11	Dy	3	–	Ks
7229.93	A I	–	[4]	Ms
7229.216	In II	–	[30]	Ps
7229 18	Gd	5	–	Ks
7229.11	Pb	50	–	Wt
7229.01	Cs I	35 l	–	–
7228.91	Sm	15	–	Kn
7228 81	Ba I	200 hl	–	–
7228.69	Fe I	8 h	–	Me
7228.526	Cs	500	[2]	Ms
7228.28	Mo	3	–	–
7228.05	Gd	40	–	–
7228.03	Re I	40	–	Me
7227.89	U	2	–	–
7227.72	Rh	2	–	Me
7227.71	Pr	4	–	–
7227.34	I	–	[10]	Ev
7227.34	Kr	–	[2]	Me
7227.15	Sm II	8	–	Kn
7226.20	Si I	10	–	Ks
7226.08	In	–	5	Sq
7226.05	W	2	–	–
7225.85	I	–	[10]	Ke
7225.62	Sm	25	–	Kn
7225.16	Ra I	–	[1000]	Rs
7225.13	Ni I	2	–	–
7224.72	Eu	150 W	–	–
7224.56	Sm	5	–	Kn
7224.51	Fe II	–	12	Kn
7224.43	Os	3	–	–
7224.103	Kr I	–	[100]	Me
7223.87	Zr I	3	–	Ks
7223.668	Fe I	20	–	Bb
7222.72	Yb	3	–	Me
7222.56	Gd	5	–	Ed
7222.50	Sb	5 h	–	Wt
7222 39	Fe II	–	15 h	Kn
7222.048	In II	–	[20 h]	Ps
7221.6	bh Sc	3	–	Me
7221.32	In	–	30	Sq
7221.23	Fe I	10	8 h	–
7221.14	Sm I	4	–	Kn
7220.79	Ni I	3 h	–	–
7220.07	Sm I	25	–	Kn
7219.90	La I	20	–	–
7219.70	Cs	15 s	–	Ms
7219.686	Fe	12	18 h	Bb
7219.4	bh Ti	6	–	L
7219.34	Sm	3	–	Kn
7219.18	Th	2	–	Fd
7219.06	Rh I	20	–	Me
7218.62	Cr	4	–	–
7218.28	Sm	2	–	Kn
7218.11	Th	4	–	Fd
7218.09	Sm II	50	–	Kn
7218.04	U	4	–	–
7217.79	Th	3	–	Fd
7217.60	Eu I	700	–	–
7217.58	Pt	6	–	Me
7217.36	Ce	5	–	–
7217.34	Co I	8	–	–
7217.16	La	2	–	Me
7217.0	N II	–	[15]	Fm
7216.94	Mo	8	–	–
7216.31	W	6	–	–
7216.3	Ir	4	–	It
7216.20	Ti I	50	–	–
7216 00	Sm	6	–	Kn
7215.97	Xe II	–	[20]	Hu
7215.08	Sm II	3	–	Kn
7214.97	Ti I	10 h	–	Rl
7213.82	Sm I	60	–	Kn
7213.56	Ba I	10	–	Me
7213.35	Ti I	7	–	–
7213 32	Dy	2	–	Ks
7213 13	Kr II	–	[250]	Me
7213.11	I I	–	[5]	Db
7212.75	Th	4	–	Fd
7212.48	Fe I	8 h	–	–
7212.02	U	2	–	–
7210.95	Sm	40	–	Kn
7210.29	U	4	–	–
7210.04	Se I	–	[30]	Rd
7209.96	Os	8	–	–
7209.52	Be I	10	–	–
7209.44	Ti I	150	–	–
7209.30	U	3	–	–
7209.14	Xe I	–	[5]	Me
7208.94	Cb	20	3	Me
7208.81	Pr	2	–	–
7208.75	Gd	5	–	Ed
7208.12	Ba I	20 h	–	–
7208.005	Th	12	–	Fd
7207.87	Cr	15	–	–
7207.82	Ta	2 h	–	–
7207.71	Gd	5	–	Ks
7207.406	Fe I	300	300	Me
7206.986	A I	–	[100]	Me
7206.33	Os	15	–	–
7205.99	Cs	–	[2]	Sv
7205.45	U	2	–	–
7205.12	Gd	8	–	Ed
7204.48	Eu	10	–	Kn
7204.28	Tb	4	–	Ed
7204.09	Sm	20	–	Kn
7203.6	bh Ti	4	–	L
7203.17	Ca I	200	–	Me
7202.55	A I	–	[2]	Ms
7202 37	F I	–	[125]	En
7202.194	Ca I	30	–	IWg
7202.17	Co	4	–	–
7201.87	Ce	4	–	–
7201.62	Zr I	10	–	–
7201.42	Gd	40	–	–
7200.79	Xe I	–	[15]	Me
7200.59	Kr I	–	[2 h]	Me
7200.18	W	8	–	–
7200.08	Th	3	–	Fd
7199.00	Ir	5	–	Ed
7198.7	Ga II	–	[60]	Sy
7198.62	W	4	–	–
7198.41	Re	6	–	Me
7197.7	bh Ti	8	–	L
7197.09	Gd	15	–	–
7197.03	Ni I	200	–	–
7196.99	Er	4	–	–
7196.66	U	2	–	–
7196.40	Lu	5	–	Me
7196.24	Ta	3	–	–
7195.93	Yt I	9	3	–
7195.23	Ba I	200	–	–
7194.92	Fe	8 h	–	Me
7194.92	Cu II	–	15	Sh
7194.87	Gd	50	–	–
7194.85	Eu I	700	–	–
7194.7	Sb II	–	30	Dv
7194.63	U	5	–	–
7194.48	Ru	4	–	–
7193.9	Sm	2	–	Kn
7193 89	Si I	5	–	Ks
7193.60	Co I	200 w	–	–
7193.6	Pb II	–	[100]	Ea
7193.56	Cu	10	–	Me
7193.56	Si I	8	–	Ks
7193.37	Zr I	3	–	Ks
7193.23	Fe	–	8	Kn
7192.01	Nd	2	–	Ks
7191 93	Gd	5	–	Ks
7191.73	I I	–	[5]	Ev
7191.65	Yt I	20	5	–
7191.63	Sm	3	–	Kn
7191.40	Sn II	–	[40]	Mc
7191.37	Cb	15	2	Me
7191.37	W	2	–	–
7191.35	Ta	15	–	–
7191.08	Te I	–	[35]	Bl
7189.89	Ti I	30	–	–
7189.7	bh Sc	3	–	Me
7189.59	Gd	80	–	–
7189.57	Sm	3	–	Kn
7189.45	U	2	–	–
7189.45	Nd	3	–	–
7189.30	Hf II	1	3	Me
7189.17	Fe I	7	8 h	Bu
7188.55	Ti I	12	–	–
7188.32	Cs	–	[2]	Sv
7188.31	Se I	–	[15]	Rd
7188.06	Cr	3	–	–
7188.0	Eu	2 W	–	Kn
7187.86	Se I	–	[15]	Rd
7187.62	U	2	–	–
7187.341	Fe I	500	300	Me
7187.12	Gd	5	–	Ks
7187.1	bh Cr	2	–	L
7187.1	Pb II	–	[10]	Ea
7187.06	Yb	5	–	Me
7187.04	Rh	5	–	Me
7187.0	Eu	2 W	–	Kn
7186.35	Sm	4	–	Kn
7185.52	Cr	5	–	–
7184.89	Si I	10	–	Ks
7184.34	Br I	–	[30]	Ks
7184.25	Mn	40	–	Sl
7184.10	Os	10	–	–
7183.958	In II	–	[50]	Ps
7183.71	Ir I	40	–	–
7183.47	U	8	–	–
7183.450	In II	–	[40]	Ps
7183.190	In II	–	[80]	Ps
7183.02	Ru	6	–	–

Wave-length	Ele-ment	Intensities Arc	Spk.,[Dis.]	R
7183.0	bh Ti	10	–	L
7182.78	Mo	5	–	–
7182.523	In II	–	[20]	Ps
7182.22	Ru	5	–	–
7182.08	V I	2	–	–
7182.048	In II	–	[40]	Ps
7182.00	Ni I	200	–	–
7181.93	Fe I	8 h	–	Bu
7181.878	In II	–	[40]	Ps
7181.7	Eu	4 W	–	Kn
7181.60	Sm	2	–	Kn
7181.10	In	–	5	Sq
7180.88	Gd	8	–	Ed
7180.85	Sm	2	–	Kn
7180.7	bh Sc	4	–	Me
7180.47	Kr	–	[3]	Me
7180.35	Gd	8	–	Ed
7180.01	Cb	8	1	Me
7180.0	Eu	2	–	Kn
7179.72	Sm	10	–	–
7179.56	U	2	–	–
7179.53	Zr	3	–	–
7178.84	Se I	–	[30]	Rd
7178.80	Gd	6	–	Ks
7178.27	Cb	12	2	Me
7177.9	Hg I	–	[3]	Su
7177.26	Zr	3	–	Ks
7176.886	Fe I	10 h	–	Bu
7176.34	A I	–	[4]	Ms
7176.03	Gd	8	–	Ed
7175.96	Hg I	–	[15]	Su
7175.937	Fe I	8 h	–	Bu
7175.77	Ta	2	–	–
7175.50	Eu	200 W	–	Kn
7175.16	Dy	3	–	Ks
7175.14	Yb	10	–	Me
7174.91	Ta	10	–	–
7174.9	Eu	10 W	–	Kn
7174.46	Mn	3	–	Sl
7174.0	Sm	2	–	Kn
7173.939	Ne I	–	[1000]	IMe
7173.73	Ni I	2	–	–
7173.45	Gd	5	–	–
7173.42	Th	3	–	Fd
7172.90	Ta	150	–	–
7172.70	Xe I	–	[10]	Me
7172.67	Sm I	20	–	Kn
7172.29	Gd	50	–	–
7172.24	Sm	2	–	Kn
7172.21	Re	10	–	Me
7172.10	U	2	–	–
7171.92	In	–	12	Sq
7171.78	Mo	2	–	–
7171.531	Ti	10	–	Bh
7171.2	bh Ti	5	–	L
7170.63	Cr	5	–	Me
7170.58	Sm	3	–	Kn
7170.14	Ni I	5	–	–
7169.13	Sc I	8	–	Me
7169.09	Zr I	150	–	–
7168.888	Th	15	–	Fd
7168.87	I I	–	[15]	Bl
7168.41	Gd	500	–	–
7167.86	In	–	5	Sq
7167.77	Ru	4	–	–
7167.76	S I	–	[15]	Fh
7167.47	Si I	3 h	–	Ks
7167.24	Sr I	100 hl	–	–
7167.133	Ti	15	–	Bh
7167.01	Ni I	35	–	–
7166.74	S I	–	[3]	Ms
7166.61	Gd	5	–	Ks
7166.47	I I	–	[30]	Db
7166.15	Rh I	2 h	–	–
7165.94	Lu	9	–	Me
7165.82	Cb	6	1	Me
7165.62	Si I	100 h	–	Ks
7165.12	S I	–	[15]	Fh
7165.1	Pb II	–	[10]	Ea
7164.88	Th	8	–	Fd
7164.83	Xe II	–	[300]	Hu
7164.82	I	–	[30]	Ev
7164.75	Si I	2 h	–	Ks
7164.67	Eu	50 W	–	Kn
7164.56	S I	–	[10]	Ms
7164.52	Hf II	1	5	Me
7164.469	Fe I	200	100 h	–
7164.33	Gd	6	–	Ks
7164.3	bh Ti	4	–	L
7163.52	Gd	8	–	Ed
7163.50	Sb II	–	[4]	Lg
7162.66	W	5	–	–
7162.57	A I	–	[8]	Ms
7162.14	Br	–	[45]	Ks
7162.09	Zr I	3	–	–
7161.43	S I	–	[10]	Fh
7161.25	La I	100	–	–
7161.05	Zr I	5	–	–
7160.88	Cs	–	[2]	Sv
7160.33	Ti I	10	–	Ks
7160.25	Gd	5	–	Ks
7159.98	Th	2	–	Fd
7159.87	Pr	4	–	–
7159.75	Mo	3	–	–
7159.43	Cb	100	15	Me
7159.18	Co I	250	–	–
7159.10	Th	10	–	Fd
7159.0	bh Ti	6	–	L
7158.83	A I	–	[30]	Ms
7158.7	Pb II	–	[10]	Ea
7158.56	Th	5	–	Fd
7158 28	Gd	20	–	–
7158.07	Mn	6 h	–	Sl
7158.05	La I	125	–	–
7157.86	Os	3 h	–	–
7157.83	Zr I	8 h	–	–
7157.39	Ni	2 h	–	Sl
7157.360	O I	–	[70]	Fh
7157.33	Sm	3	–	Kn
7156.99	Ce	5	–	–
7156.98	Th	2	–	Fd
7156.82	Au	2	–	Wt
7156.51	Dy	2	–	Ks
7156.19	Sm	4	–	Kn
7155 86	U	2	–	–
7155.64	Fe I	10 h	–	Bu
7155.55	Th	10	–	Fd
7155.31	Eu	2	–	–
7155.05	Th	6 h	–	Fd
7154.83	Sm I	25	–	Kn
7154.71	Co I	200	–	–
7154.29	Cu I	3 h	–	Me
7154.19	Ru	15	–	–
7154.10	Mo	3	–	–
7153.58	Ba I	80 hl	–	–
7153 16	Gd	20	–	Ks
7153.09	Sr I	15	–	–
7152.80	Sm	3	–	Kn
7152.21	Kr I	–	[5]	Me
7151.82	Rn I	–	[6]	Rs
7151.69	Ce	3	–	–
7151.495	Fe I	8 h	–	Bu
7151.36	V I	2	–	Me
7151.28	Mn	30 h	–	Sl
7151.03	Sm I	2	–	Kn
7151.03	Nd	2	–	–
7150.93	Ni	5 h	–	–
7150.84	Gd	5	–	–
7150.34	Th	2	–	Fd
7150.21	Ce	3	–	–
7149.84	Gd	8	–	Ed
7149.78	La I	5	–	–
7149.60	Sm II	150	–	Kn
7149.554	Cs	–	[10]	Sv
7149.42	Mo	3	–	–
7149.11	Pd I	6	–	Me
7149.03	Xe II	–	[150]	Hu
7148.93	W	6	–	–
7148.91	Os	15	–	–
7148.8	Sm I	2	–	Kn
7148.76	Eu	3	–	Kn
7148.63	L I	–	[30]	Ev
7148.63	Ta	150	–	–
7148.59	Th	4	–	Fd
7148.20	Gd	8	–	–
7148.147	Ca I	500	–	IWg
7148.139	Co	2	–	–
7148.12	Ba	2	–	–
7147.89	U	5	–	–
7147 70	Sm	3	–	Kn
7147.50	Xe	–	[50 W	
7147.36	Gd	50	–	
7147.041	A I	–	[30]	
7147.0	Ge II	–	2	
7146.74	Ni	2	–	
7146 57	I	–	[15]	
7146.25	Mo	4	–	
7146.16	Gd	6	–	
7146.13	Zr I	3	–	
7145.54	Os	30	–	
7145.48	Sb	–	[2]	
7145.317	Fe I	15 h	10 h	
7145.18	Er	4	–	
7144.9	Tl II	–	[10]	
7144.61	Te	–	[5]	
7144.47	Zr I	3 h	–	
7144.08	U	2	–	
7143.98	Sm II	30	–	
7143.87	Zr	3	–	
7143.81	Xe	–	[8 W	
7143.45	Kr I	–	[8]	
7143.39	Zr I	3	–	
7143.10	Lu	5	–	
7142.79	Lu	7	–	
7142.55	Rh I	5	–	
7142.522	Fe I	12 h	8 h	
7142.28	Br I	–	[40]	
7142.25	U	2	–	
7142 09	I I	–	[100]	
7142.09	Sm I	10	–	
7141.72	Ru	9	–	
7141 62	Ni I	2	–	
7141 47	Ce	3	–	
7141.25	U	2	–	
7141.21	Ra I	–	[2000]	
7141 2	bh Sc	5	–	
7141.17	Gd	6	–	
7141.13	Sm I	25	–	
7140.74	Zr I	3	–	
7140.54	W	8	–	
7139.99	Kr II	–	[60]	
7139 8	N II	–	[30]	
7139.79	S II	–	[10]	
7139.76	Gd	5	–	
7139 64	Re	2	–	
7139 6	Eu	5	–	
7139.39	Sm	10	–	
7138.99	I II	–	[70 h]	
7138 91	Tl I	15	–	
7138.91	Se II	–	[20]	
7138.81	Al II	–	[2]	
7138.77	Ir I	6	–	
7138.70	Ne	–	[30]	
7138.28	Zr I	3	–	
7138 14	Sc I	6	–	
7137.99	Sm	10	–	
7137.58	Sm	15	–	
7136 57	Xe I	–	[15]	
7136.42	Sm	30	–	
7136 01	Sm	50	–	
7135.72	Gd	15	–	
7135.69	Er	6	–	
7135.34	Te	–	[30]	
7135.22	Ta	2	–	
7135.19	Ru I	6	–	
7134.99	Fe	–	5	
7134.66	Al II	–	[2]	
7134.32	Co I	200	–	
7134.08	Mo	40	–	
7133.27	Xe II	–	[10]	
7133.24	Ba	4 h	–	
7133.16	Gd	6	–	
7132.989	Fe	15	10 h	
7132.95	Zr I	3	–	
7132.27	Cd I	30	–	
7131.81	Hf	150	250	
7131.80	Sm I	80	–	
7131.68	Pt I	5	–	
7131.3	bh Ti	5	–	
7130.942	Fe I	100	80 h	
7130.61	Sc	3 h	–	
7130.6	bh Sc	4	–	
7130.532	Cs	–	[5]	
7130.09	U	6	–	
7130.06	Cb	15	2	

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
7129.80	Gd	6	–	Ks
7129.79	Sm	4	–	Kn
7129.40	Eu	4	–	Kn
7129.38	Nd	2	–	–
7129.25	Re	10	–	–
7128.91	U	20	–	–
7128.8	Yb	2	–	It
7128.74	Sm	3	–	Kn
7128.34	Ir I	4	–	–
7128.14	Kr	–	[2 hl]	Me
7128.13	Gd	8	–	Ed
7127.989	F I	–	[150]	Di
7127.92	Yt I	12	3	Me
7127.444	Ba	2	–	Bu
7127.37	Sm	4	–	Kn
7127.2	bh Zr	2	–	L
7126.83	Ru	15	–	–
7126.80	Gd	8	–	Ed
7126.71	Ni I	3	–	–
7126.60	Ba	10 h	–	Me
7126.29	Hg I	–	[10]	Su
7126.19	U	2	–	–
7126.17	Cb	35	8	Me
7125.84	Lu	125	–	Me
7125.80	A I	–	[30]	Ms
7125.72	Ta	80	–	–
7125.6	bh Ti	15	–	L
7125.30	Re	8	–	Me
7125.11	Sm II	30	–	Kn
7124.9	bh Ti	4	–	L
7124.66	Cu I	3 h	–	Me
7124.61	Th	6	–	Fd
7124.47	Co I	50	–	–
7124.32	Mo	5	–	Ks
7123.29	Sm II	5	–	Kn
7123.19	Sm	4	–	Kn
7122.95	Cb	8	2	Me
7122.65	Mo	8	–	Ks
7122.59	Gd	50	–	–
7122.40	Sm II	15	–	Kn
7122.25	Co	50	–	–
7122.24	Ni I	1000 W	–	–
7122.09	I	–	[60]	Ev
7121.27	Ta	30	–	–
7121.18	Cs	–	[2]	Sv
7120.93	Dy	3	–	Ks
7120.5	bh Sc	4	–	Me
7120.43	Sc	2 h	–	Me
7120.31	Ba I	800 hl	–	–
7120 2	bh Sc	3	–	Me
7120.11	I	–	[20]	Ev
7120.0	Eu	3	–	Kn
7119.92	Hg	–	[5]	Su
7119.81	Sm	60	–	Kn
7119.598	Xe I	–	[500]	IMe
7119.52	Hf	15	50	Me
7119.45	C II	–	15	Fl
7119.31	Cb	15	3	Me
7118.91	Gd	40	–	–
7118.50	Ra I	–	[1000]	Rs
7118.5	C I	20 h	–	En
7118.25	Sm I	25	–	Kn
7118.09	Ta	2	–	–
7117.91	Co I	2	–	Me
7117.52	Ta	6	–	–
7117.51	Sm	25	–	Kn
7116.8	La II	–	2	Me
7116.76	Gd	8	–	–
7116.45	Te	–	[15]	Bl
7116.30	Te	–	[15]	Bl
7116.07	Ta	4	–	–
7116.07	U	2	–	–
7115.96	Sm	50	–	Kn
7115.84	Pd I	3	–	Me
7115.65	Hf	–	3	Me
7115.49	Gd	8	–	Ed
7115.30	Sm	3	–	Kn
7115.13	C II	–	15	Fl
7115.01	Gd	8	–	Ed
7114.9	Eu	4	–	Kn
7114.7	Pb II	–	[2]	Ea
7114.55	Pr	5	–	–
7114.50	Sm I	5	–	Kn
7114.47	Eu	4	–	Kn
7113.73	Pt I	80	–	–
7113.56	Co I	150 l	–	–
7113.53	Br I	–	[10]	Ks
7113.52	Zr I	5	–	–
7113.15	Gd	15	–	Ed
7112.82	Zr I	8	–	–
7112.72	Sm II	3	–	Kn
7112.72	Ni	2	–	Sl
7112.36	C II	–	5	Fl
7112.34	Sm	5 h	–	Kn
7112.2	Ne I	–	[10]	Ps
7112.02	Gd	8	–	Ed
7111.68	Zr I	40	–	–
7111.63	Br I	–	[30]	Ks
7111.44	Sm	5	–	Kn
7110.91	Ni I	100	–	–
7110.9	Hg	–	[10]	Lf
7110.59	Ru	5	–	–
7110.56	Sm I	5	–	Kn
7109 87	Mo	80	–	–
7109.8	bh Zr	2	–	L
7109.24	Dy	5	–	–
7109.15	U	3	–	–
7109.06	Sm I	3	–	Kn
7109.01	Eu	3	–	Kn
7108.8	Re	2	–	Me
7108.36	Sm	5	–	Kn
7108.05	Ta	3	–	–
7107.66	I	–	[15]	Bl
7107.496	A I	–	[200]	Ms
7107.461	Fe I	5	8 wh	Bb
7106.72	Sm	15	–	Kn
7106.48	Eu	600 W	–	–
7106.24	Sm I	80	–	–
7105.66	Gd	15	–	Ed
7105.59	Mo	4	–	Ks
7104.86	Os	3	–	–
7104.7	La II	50	2	Me
7104.57	Sm I	150	–	–
7104.45	Rh I	80	–	–
7103.72	Zr I	50	–	–
7103.61	Sm	5	–	Kn
7103.43	Te	–	[15]	Bl
7103.43	Eu	8 W	–	Kn
7103.01	Mn	5 h	–	Sl
7102.91	Zr I	80	–	–
7102.65	I I	–	[50]	Db
7102.65	Mo	8	–	Ks
7102.58	V I	2	–	–
7102.55	Co	25	–	–
7102.01	Cb	30	8	Me
7102.00	Sm II	10	–	Kn
7101.95	Ni	3	–	–
7101.70	Dy	2	–	Ks
7101.69	I	–	[30]	Bl
7101.64	Rh I	60	–	–
7101.63	U	12	–	–
7101.46	Sm I	10	–	Kn
7101.23	Er	4	–	Ed
7101.09	Ir	6	–	–
7100.8	Xe II	–	[5 h]	Hu
7100.77	Sm	3	–	Kn
7100.71	Gd	5	–	–
7100.54	Hf	3	15	Me
7100 16	I I	–	[15]	Db
7099.78	Pb	10	–	Wt
7099.54	Pr	2	–	–
7098.94	Cb	60	10	Me
7098.75	Gd	5	–	–
7098.22	W	2	–	–
7098.18	Mo	5	–	Ks
7098.17	La	3	–	–
7098.10	Gd	8	–	–
7097.70	Zr I	100	–	–
7097.57	Te	–	[5]	Bl
7096.37	Sm I	60	–	–
7096.34	Lu	30	–	Me
7095.68	U	2	–	–
7095.59	Zr I	12	–	–
7095.51	Sm I	100	–	–
7095.425	Fe I	8 h	–	Bb
7095.40	Ni I	15	–	–
7094.78	Pt I	10	–	–
7094.56	Zr I	10	–	–
7094.53	Co I	40	–	–
7094.4	bh Sc	5	–	Me
7094 40	Hf	3	15	Me
7093 2	bh Ti	4	–	L
7093.02	Ta	20	–	–
7092.98	Sm	5	–	Kn
7092.80	Zr I	3	–	–
7092.40	La I	2	–	Rl
7092.16	Ta	2	–	–
7092.14	V I	2	–	–
7091.99	Hg I	–	[100]	Su
7091.90	Sm II	3	–	Kn
7091.36	Ta	2	–	–
7091.32	U	2	–	–
7091.31	Zr	5 h	–	–
7091.27	Cb	6	1	Me
7091.22	Sm I	60	–	–
7091.	bh C	–	–	L
7090.404	Fe I	50	25 h	Bb
7090.00	Ba I	100 hl	–	–
7089.94	Sm	2	–	Kn
7089.48	Kr I	–	[2]	Rs
7089.43	Zr I	5	–	–
7088.78	Mo	5 h	–	Ks
7088.30	Sm I	60	–	–
7088.00	I I	–	[100]	Db
7087.9	bh Ti	12	–	L
7087.69	I	–	[15]	Bl
7087.35	Ru	40	–	–
7087.30	Zr I	25	–	–
7086.83	Cl I	–	[10]	Ks
7086.76	Fe I	7 h	–	Bu
7086.70	A I	–	[15]	Ms
7086.38	Ce	5	–	–
7086.06	Ru	40	–	–
7085.72	Cs	–	[2]	Sv
7085.54	Sm II	30	–	–
7085.52	Gd	20	–	Ks
7085.40	Ta	30	–	–
7085.22	I	–	[150]	Bl
7084.99	Co I	500 W	–	–
7084.53	Tb	4	–	Ed
7084.33	Si I	2 h	–	Ks
7084.03	Se	–	[15]	Ms
7083.396	Fe I	5 h	–	Bu
7082.98	Sm	2	–	Kn
7082.51	Sm	10	–	Kn
7082.4	bh Sc	5	–	Me
7082.37	Sm II	400 h	–	–
7082.22	Ni I	2	–	Me
7082.15	Xe II	–	[100]	Hu
7082.11	U	10	–	–
7081.88	Hg I	–	[125]	Su
7081.30	Ta	50	–	–
7081.22	Mo	12	–	Ks
7080.34	I I	–	[30]	Bl
7080.02	Pr	3	–	–
7079.81	Se II	–	[15 h]	Bt
7079.76	Sm	4	–	Kn
7079.74	La II	–	2	Me
7079.6	bh Zr	3	–	L
7079.48	Sm I	25	–	Kn
7079.20	Co I	10	–	–
7078.77	Gd	8	–	Ed
7078.44	Kr II	–	[3]	Me
7078.08	Pt	3	–	–
7078.02	Ra II	–	[70]	Rs
7077.09	Eu	800	–	–
7077.03	A II	–	[2]	Rt
7076.39	La	3	–	–
7076.33	U	2	–	–
7075.94	Gd	6	–	Ks
7075.23	Cb	10	2	Me
7075.15	Dy	5	–	Ks
7075.13	Yt I	3	2	–
7075.11	Sb	–	[4]	Lg
7074.81	U	25	–	–
7074.68	Ta	3	–	–
7074.67	Sm	50	–	Kn
7074.63	Se II	–	[15 h]	Bt
7074.60	Gd	5	–	Ks
7074.56	Eu	60	–	–
7074.41	Sm	15	–	Kn
7073.97	Kr II	–	[60]	Me
7073.9	Tl II	–	[20]	El
7073.63	Gd	20	–	–
7073.61	U	6	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
7072.43	Xe	–	[4 wh]	Hu
7072.4	bh Sc	5	–	Me
7072.053	Ti	25	–	Bh
7071.88	Fe I	4	–	Bu
7071.3	bh Zr	4	–	L
7071.10	Sm I	10	–	Kn
7071.00	Gd	20	–	–
7070.8	Ti II	–	[10]	El
7070.41	Co I	20	–	–
7070.10	Sr I	1000	–	–
7069.93	Gd	10	–	–
7069.84	Mn	60	–	Sl
7069.43	Ba I	3	–	Me
7069.32	Sm	2	–	Kn
7069.11	Ti I	15	–	Me
7068.73	A I	–	[30]	Ms
7068.415	Fe I	40	30	Bb
7068.36	La I	100	–	–
7068.33	Ni I	2	–	–
7068.08	Gd	25	–	–
7067.50	Ni I	2	–	–
7067.44	Fe	–	10 h	Kn
7067.38	Sm	15	–	Kn
7067.24	I	–	[15]	Bl
7067.217	A I	–	[400]	IMe
7066.89	Nd	2	–	Ks
7066.46	Re I	10	–	Me
7066.41	Cb	8	2	Me
7066.21	La II	400	150	–
7065.86	Gd	5	–	Ks
7065.84	Sm II	6 d	–	Kn
7065.705	He I	–	[10]	–
7065.60	Pt	10	–	–
7065.188	He I	–	[70]	IMr
7065.02	Sm	10	–	Kn
7064.79	Sm II	4	–	Kn
7064.48	Th	3	–	Fd
7063.83	Hf	40	100	Me
7063.79	Se I	–	[70]	Ms
7063.62	Al II	–	[15]	Sy
7063.60	I I	–	[50]	Ev
7063.57	Ni I	10	–	–
7063.4	C II	–	5 h	Fl
7063.34	Mo	12	–	Ks
7062.97	Ni I	35	–	–
7062.87	Hf	3	15	Me
7062.33	Dy	2	–	Ks
7062.25	Sm	2	–	Kn
7062.06	Se I	–	[1000]	Rd
7061.90	Hf	10	30	Me
7061.74	Ce	8	–	–
7061.20	Ru I	25	–	–
7060.75	Zr I	5 h	–	–
7060.71	Th	3	–	Fd
7060.67	Os	15	–	–
7060.37	Ru	20	–	–
7060.29	Pd I	5	–	Me
7060.21	Mo	25	–	–
7060.02	Sm II	3	–	Kn
7060.0	bh Ti	3	–	L
7059.98	Re	4	–	Me
7059.96	Ba I	2000	–	–
7059.37	Sm	2	–	Kn
7059.109	Ne I	–	[200]	IMe
7058.6	Te I	–	[7]	Rd
7058.40	Br I	–	[20]	Ks
7058.4	Eu	3 W	–	Kn
7058.23	Re	8	–	Me
7058.00	Gd	15	–	–
7057.96	Zr	5	–	–
7057.36	Zr I	8	–	–
7057.28	Sm	2	–	Kn
7057.27	I I	–	[5]	Bl
7057.27	Kr I	–	[10]	Me
7057.0	Sm	2	–	Kn
7056.56	Al II	–	[20]	Sy
7056.55	Sm	25	–	Kn
7056.30	Pt	2	–	–
7055.95	Dy	5	–	Ks
7055.88	Co I	25	–	–
7055.67	Gd	8	–	Ed
7055.65	Mn	5	–	Sl
7055.42	Rn I	–	[400]	Rs
7055.01	A II	–	[4]	Rt
7054.97	Sm II	15	–	Kn
7054.86	Os	8	–	–
7054.61	Gd	25	–	–
7054.5	bh Ti	8	–	L
7054.28	Yt I	6	3	Me
7054.04	Co I	200 W	–	–
7053.92	Sm	2	–	Kn
7053.54	Sm I	5	–	Kn
7053.069	Ti	15	–	Bh
7052.94	Yt I	4	6	–
7052.9	C II	–	5 h	Fl
7052.89	Co I	300 W	–	–
7052.62	Hf	–	3	Me
7052.57	Xe	–	[3 wh]	Hu
7052.5	Eu	2	–	Kn
7052.04	Pd I	2	–	Me
7051.52	Sm II	400 hd	–	–
7051.292	Ne I	–	[70]	IMe
7051.26	Sb	–	[8]	Lg
7051.20	Cb	15	2	Me
7051.06	Pr	3	–	–
7051.06	Xe I	–	[3]	Me
7050.95	Gd	25	–	–
7050.7	Pb II	–	[40]	Ea
7050.65	Ti I	40	–	–
7050.1	Ge II	–	2	Lg
7049.86	Ta	3	–	–
7049.70	Ce	3	–	–
7049.68	Te	–	[5]	Bl
7049.68	Ni I	2	–	–
7049.4	bh Sc	5	–	Me
7049.38	Sc	2 h	–	Me
7049.15	Sm	10	–	Kn
7047.82	Sm	2	–	Kn
7047.37	Xe I	–	[30]	Me
7047.04	U	2	–	–
7046.98	Sm	2	–	Kn
7046.81	Cb	200	40	Me
7046.44	Sm	3	–	Kn
7045.96	La I	125	–	–
7045.29	Mo	6	–	Ks
7045.12	U	2	–	–
7045.02	Gd	8	–	Ks
7044.54	Hg I	–	[10]	Su
7043.79	Yb	8	–	Me
7043.75	Gd	8	–	Ed
7043.27	Gd	5	–	Ks
7043.1	bh Zr	4	–	L
7042.58	Co I	5 h	–	–
7042.54	Pr	3	–	–
7042.450	Rb II	–	150	Rr
7042.24	I	–	[70 h]	Bl
7042.23	Sm II	400 h	–	–
7042.06	Al II	–	[25]	Sy
7041.77	Sm	2	–	Kn
7040.92	S	–	[70]	Ms
7040.18	Eu	800	–	–
7039.37	Cu I	15	–	–
7039.36	Ti I	15	–	–
7039.22	Sm II	500 h	–	–
7039.07	Ta	40	–	–
7038.95	Te	–	[70]	Bl
7038.80	Ti I	100	–	–
7038.76	Rh I	5	–	–
7038.73	Gd	5	–	Ks
7038.251	Fe I	7	20 h	Bb
7038.04	Cb	15	2	Me
7037.98	Mo	25	–	–
7037.9	Sm	2	–	Kn
7037.87	Ir	15	–	–
7037.86	Gd	6	–	Ks
7037.58	Pd I	3	–	Me
7037.45	F I	–	[200]	En
7037.37	Nd	3	–	–
7037.37	Ni I	4	–	–
7037.25	Gd	50	–	–
7036.73	Sm	25	–	Kn
7036.60	Ta	2	–	–
7036.30	Th	4	–	Fd
7036.15	Bi I	5	–	–
7036.0	Yb	2	–	It
7036.0	Eu	3 W	–	Kn
7035.86	Ti I	20 W	–	–
7035.8	bh Sc	6	–	Me
7035.53	Xe I	–	[20]	Me
7035.19	Yt I	12	6	–
7035.13	Hf	3	10	Me
7034.96	Si I	50 h	–	Ks
7034.80	Xe	–	[3]	Me
7034.67	Sm II	3	–	Kn
7034.42	Ni I	30	–	–
7034.4	bh V	3	–	L
7034.31	Os	4	–	–
7033.84	U	5	–	–
7033.7	Pd	–	2	It
7033.47	Sm	4	–	Kn
7033.39	Gd	8	–	Ed
7033.2	bh Zr	5	–	L
7033.	Bi II	–	25	Cf
7032.99	I II	–	[70]	Ke
7032.91	Yb	2	–	Me
7032.52	Co I	25	–	–
7032.4127	Ne I	–	[1000]	S
7032.31	Sm	2	–	Kn
7032.28	Mo	3 h	–	–
7032.04	Yb	3	–	Me
7032.03	La I	40	–	–
7031.51	Ta	8	–	–
7031.24	Lu	50	–	Me
7031.04	Ce	5	–	–
7030.69	U	3	–	–
7030.33	Hf II	30	150	Me
7030.262	A I	–	[100]	IMe
7030.09	Pt	3	–	–
7030.06	Ni I	100	–	–
7029.20	Os	3	–	–
7028.79	Ni I	5	–	Me
7028.68	W	2	–	–
7028.50	Re	8	–	Me
7027.98	Ru I	250	–	–
7027.81	Co I	200 W	–	–
7027.70	I	–	[15]	Bl
7027.40	Zr I	30	–	Ks
7027.14	Re	2	–	Me
7026.64	Sm I	100	–	–
7026.61	Si	2 h	–	Ks
7026.31	U	2	–	–
7026.15	Cb	15	8	Me
7026.07	V I	3	–	–
7025.81	Mn	2	–	Sl
7025.7	bh Sc	5	–	Me
7025.32	Mo	12	–	Ks
7025.03	Ta	80	–	–
7024.86	Ni I	50	–	–
7024.649	Fe I	15	8 wh	Bu
7024.59	Pr	2	–	–
7024.59	Nd	2	–	–
7024.48	Gd	8	–	Ed
7024.44	Sm	2	–	Kn
7024.13	Re I	125	–	–
7024.084	Fe	5	–	Bu
7024.051	Ne I	–	[500]	IMe
7023.76	Ni	10	–	–
7023.75	Sm	5	–	Kn
7023.67	La I	100 h	–	–
7023.48	Cb	30	8	Me
7023.28	Au	2 h	–	Wt
7023.003	Fe I	40	30 h	Bu
7022.99	Nd	2	–	Ed
7022.75	Cu II	–	2	Sh
7022.68	Sm	5	–	Kn
7022.56	Kr II	–	[2 h]	Me
7022.37	Ni	4	–	–
7022.02	Gd	8	–	Ed
7021.64	I II	–	[10]	Ke
7021.54	Pr	6	–	–
7021.23	Hf II	3	30	Me
7020.92	Nd	4	–	Ks
7020.71	U	6	–	–
7020.41	Sm II	500	–	–
7020.16	Yb	5	–	Me
7019.61	Mo	3 h	–	Ks
7019.25	Hf	–	10	Me
7019.22	Gd	8	–	Ed
7019.02	Xe I	–	[30]	Me
7018.94	I II	–	[50]	Ke
7018.93	Sm	2	–	Kn
7018.88	Ce	6 d	–	–
7018.574	Th	3	–	Fd
7018.43	Mo	8	–	–
7018.32	I	–	[50]	Ev

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
7018.04	Sm	2	–	Kn
7017.98	Si I	4 h	–	Ks
7017.91	W	3	–	–
7017.68	Si I	10 h	–	Ks
7017.68	Gd	6	–	Ks
7017.43	Dy	5	–	Ks
7017.27	Ce	4	–	–
7017.06	Xe II	–	[40]	Hu
7016.99	Hf II	–	6	Me
7016.72	Sm	4	–	Kn
7016.61	Co I	300 W	–	–
7016.44	Mo	10	–	–
7016.44	Pd I	10	–	Me
7016.436	Fe I	100	25 h	Bu
7015.89	Te	–	[50]	Bl
7015.72	U	5	–	–
7015.36	Sm	3	–	Kn
7015.3	N II	–	[5]	Fm
7015.18	Co I	5	–	–
7015.07	Eu	4	–	Kn
7014.90	Cb	6	1	Me
7014.13	U	2	–	–
7013.97	Mo	5	–	–
7013.94	Ta	2	–	–
7013.85	Se I	–	[400]	Rd
7013.3	Pd	–	2	It
7013.2	Pb II	–	[50]	Ea
7013.20	La I	4	–	–
7012.99	Sm II	2	–	Kn
7012.75	Se I	–	[200]	Rd
7012 52	Re	4	–	Me
7012.25	Mn	10 h	–	Sl
7011.86	Sm	4	–	Kn
7011.80	Mo	3	–	–
7011.364	Fe	5 h	–	Bu
7011.05	Ti	12	–	–
7010.94	Ti I	15 w	–	Me
7010.82	Se I	–	[500]	Rd
7010.68	Hf II	5	10	Me
7010.362	Fe I	3 h	–	Bu
7010.	Bi II	–	3	Cf
7009.92	Yt I	9	6	–
7009.91	Sm	3	–	–
7009.67	Sm	5 d	–	Kn
7009.4	Yb	2	–	It
7009.31	Hg I	–	[5]	Su
7009.15	Sm	2	–	Kn
7008.95	Yt I	10	6	–
7008.62	Kr	–	[2]	Me
7008.41	Sm	8	–	Kn
7008.35	Ti I	20	–	–
7008.014	Fe I	9	–	Bu
7007.46	Gd	5	–	Ks
7007.39	Sm	5	–	Kn
7007.04	Os	3	–	–
7006.96	Ta	100	–	–
7006.66	Ti I	15 W	–	–
7006.65	Re I	100	–	–
7006.16	Gd	80	–	–
7006.04	Sm I	4	–	Kn
7005.99	Tb	4	–	Ed
7005.90	Ta	2	–	–
7005.84	Si I	50 h	–	Ks
7005.6	bh Zr	3	–	L
7005.5	bh Sc	5	–	Me
7005.46	Zr I	5	–	Ks
7005.21	Br I	–	[200 l]	Ks
7005.07	Ta	50	–	–
7004.81	Co I	150	–	–
7004.656	Ti I	15	–	Bh
7004.46	Ni I	15	–	–
7003.98	Sm	2	–	Kn
7003.96	Xe II	–	[30]	Hu
7003.58	Si I	50 h	–	Ks
7003.10	Xe I	–	[4]	Me
7003.10	Ta	2	–	–
7002.84	Se I	–	[15]	Rd
7002.52	Mn	2	–	Sl
7002.222	S	–	[50]	Bz
7002.22	O I	–	[50]	Ps
7002.03	Sm I	2	–	Kn
7001.914	S	–	[15]	Bz
7001.68	Ru	15	–	–
7001.62	Kr	–	[2]	Me
7001.60	Mo	20	–	–
7001.58	Rh I	20	–	–
7001.57	Ni I	30	–	–
7001.55	Sm	2	–	Kn
7001.44	Er	6	–	Ed
7000.795	Th	8	–	Fd
7000.79	Kr I	–	[7]	Me
7000.76	Sm	2	–	Kn
7000.74	Gd	20	–	–
7000.633	Fe	3 h	–	Bu
7000.21	Ta	10 s	–	–
7000.05	Cu I	3 h	–	–
7000.0	Ga II	–	[2]	Sy
6999.96	Ce	10	–	–
6999.902	Fe I	25	–	Bb
6999.88	Mo	5	–	–
6999 87	Yb	15	3	Me
6999.13	Mo	8	–	–
6998 90	Rn I	–	[20]	Rs
6998.84	Ir I	15	–	–
6998.10	Dy	3	–	Ks
6997.83	Hf II	2	20	Me
6997.22	Co I	200 w	–	–
6996.95	Sm	3	–	Kn
6996.78	Gd	200	–	–
6996.63	Ti I	15	–	–
6996.4	Sb II	–	25	Dv
6996.3	bh Zr	6	–	L
6996.11	Cb	15	4	Me
6995.91	Sb	5 h	–	Wt
6995.39	Ta	200	–	–
6995.27	Nd	2	–	Kn
6994.64	Rh	2 h	–	Me
6994.57	S I	–	[30]	Fh
6994.39	Er	6	–	–
6994.32	Zr I	15	–	–
6993.45	I I	–	[10]	Ev
6993.42	Sm II	15	–	–
6993.26	W	3	–	–
6993.14	Gd	20	–	Ks
6993.05	Kr I	–	[2]	Me
6992.84	Sm	2	–	Kn
6992.80	S I	–	[15]	Ms
6992.17	A I	–	[4]	Ms
6991.93	Gd	150	–	–
6991.77	Se I	–	[200]	Rd
6991.69	Mo	12	–	–
6991.31	Dy	2	–	Ks
6991.12	Bi	10 h	–	Wt
6990.88	Xe II	–	[700]	Hu
6990.84	Zr I	50	–	–
6990.7	bh Sc	7	–	Me
6990.65	Se I	–	[300]	Rd
6990.32	Cb	100	15	Me
6990.31	Ti I	8	–	Rl
6990.16	A II	–	[4]	Rt
6990.07	Sm	15	–	–
6989.99	U	2	–	–
6989.84	I	–	[20]	Ev
6989.83	Pt	3	–	–
6989 812	Mn	80	–	Sl
6989.657	Th	20	–	Fd
6989.38	Cb	6	1	Me
6988.94	Mo	30	–	–
6988.70	Gd	10	–	Ks
6988.530	Fe I	8	–	Bb
6988.40	Sm	40	–	–
6987.72	U	4	–	–
6987.36	Sm	10	–	Kn
6986.79	Ba I	5	–	Me
6986 35	I	–	[15]	Ev
6986.09	Cb	20	3	Me
6986.07	Ce	15	–	–
6985.88	Gd	200	–	–
6985.67	Sm	5	–	Kn
6985.6	Eu	2 W	–	Kn
6985.5	bh Sc	6	–	Me
6985.25	Nd	4	–	–
6985.25	Sm	2	–	Kn
6985.19	Re	20	–	–
6984.95	Os	10	–	–
6984.67	Mo	5	–	–
6984.33	U	3	–	–
6984.30	W	4	–	–
6984.16	Sm	10	–	Kn
6983.52	Ta	20	–	–
6983.51	Gd	5	–	–
6983.488	Cs I	25	–	Ms
6983.3	Eu	2	–	Kn
6983.23	Ti I	12	–	Rl
6982.9	bh Ca	3	–	L
6982.47	Dy	2	–	Ks
6982.4	Eu	2	–	Kn
6982.05	Xe I	–	[30]	Me
6982.01	Ru	200	–	–
6982.00	Yb	3	2	Me
6981.90	Cl I	–	[5]	Ks
6981.60	Hf	5	10	Me
6981.40	S	–	[50]	Bl
6981.2	Pd	–	2	It
6981.1	Yb	4	–	It
6981.04	Cr	8	–	Me
6981.0	Be I	15	–	Ps
6980.91	Hf II	100	200	Me
6980.85	Gd	25	–	Ks
6980.81	Cr I	5	–	Me
6980 6	bh Sc	5	–	Me
6980.39	Ti I	12	–	Rl
6980.37	Mo	10	–	–
6980.22	Ra I	–	[1000]	Rs
6980.18	Pr	2	–	–
6979.85	Yt I	15	6	–
6979.82	Cr I	20 h	–	–
6979 681	Cs	–	[15]	Sv
6979.59	Hf	3	20	Me
6979 15	Rh I	25	–	–
6979 10	N I	–	[5]	Du
6978.855	Fe I	60	12 h	Bb
6978.71	Mo	25	–	–
6978.50	Co I	2	–	Me
6978.48	Cr I	125 wh	–	–
6978.46	Sm	2	–	Kn
6978 39	Cb	8	2	Me
6978 26	Gd	18	–	Ks
6978 22	Sm	2	–	Kn
6978.19	Eu	10	–	Kn
6978.06	La I	5	–	–
6977.95	Kr II	–	[3 h]	Me
6977.68	Yb	2	–	Me
6977.67	Ta	2	–	–
6977.55	Sm I	10	–	Kn
6977.445	Fe	4	–	Bu
6976.934	Fe	3	–	Bb
6976 85	La	8	–	–
6976.8	N II	–	[15]	Fm
6976.53	Si	25 h	–	Ks
6976.42	Sm II	2	–	Kn
6976 35	Gd	20	–	Ks
6976.182	Xe I	–	[100]	IMe
6976.18	Hf	–	2	Me
6975.99	Sm	10	–	Kn
6975.91	Zr I	8	–	–
6975.70	Pt	5	–	–
6975.62	Sm	6	–	Kn
6975.05	Cb	12	2	Me
6974.58	V I	2	–	–
6974.5	bh V	3	–	L
6973.57	Ni I	2	–	–
6973 54	Ce	3	–	–
6973.35	Eu	8 W	–	Kn
6973.29	Cs	500	–	–
6973.03	Er	4	–	–
6972 91	Rh I	6	–	Me
6972.49	Cb	20	4	Me
6972.16	Sm	2	–	Kn
6971.97	Br I	–	[40]	Ks
6971.64	Gd	20	–	Ks
6971.61	Cb	15	3	Me
6971.53	Re I	150	–	–
6971.53	Ta I	10 W	–	–
6970.44	Hf	5	10	Me
6969.69	Sm II	15 d	–	–
6969 49	Ta	3	–	–
6969.09	Gd	8	–	Ed
6969.	Hg	–	[10]	Su
6968.99	Sm	2	–	Kn
6968.9	bh Zr	2	–	L
6968.73	La II	3	12	–
6968.65	Sm II	25	–	Kn
6968.52	Ti II	–	5	Ml
6968.4	bh Ca	2	–	L

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6968.34	Cu I	3	–	Ks
6968.00	Mn	5 h	–	Sl
6967.68	Re	6	–	–
6967.6	N II	–	[5]	Fm
6967.5	Ge II	–	2	Lg
6966.95	Cl I	–	[2]	Ks
6966.89	Cb	15	3	Me
6966.49	Sm	8	–	Kn
6966.46	Ir I	5	–	–
6966.44	Zr I	40	–	–
6966.43	Tl II	–	40	Ml
6966.35	F I	–	[70]	En
6966.13	Ta	150	–	–
6965.95	Sm	8	–	Kn
6965.9	Eu	4 W	–	Kn
6965.83	U	2	–	–
6965.80	Hf	1	3	Me
6965.67	Rh	2s0	–	–
6965.430	A I	–	[400]	IMe
6965.4	Eu	2	–	Kn
6964.84	Sm	2	–	Kn
6964.69	K I	–	[5]	En
6964.67	Nd	5	–	–
6964.32	Gd	5	–	–
6964.18	K I	–	[3]	En
6964.16	W	2	–	–
6964.10	Tl II	–	5	Ml
6963.93	Ti I	5	–	Rl
6963.61	Sm	2	–	Kn
6963.11	Yb	2	5	Me
6963.1	bh Sc	4	–	Me
6961.63	Ba I	2 h	–	Me
6961.6	bh Sc	4	–	Me
6961.48	Mo	10	–	–
6960.98	Sm	2	–	Kn
6960.77	Ce	10	–	–
6960.64	Mo	12	–	–
6960.23	A I	–	[20]	Ms
6959.9	bh Zr	6	–	L
6959.44	Mo	3	–	–
6959.24	Gd	20	–	Ks
6959.10	Ir I	10	–	–
6959.08	Te	–	[15]	Bl
6958.97	Sm	10 d	–	Kn
6958.781	I II	–	[1000]	Ke
6958.49	Ti	10	–	–
6958.08	La II	25	50	–
6958.03	Yt I	3	2	–
6957.84	U	3	–	–
6957.73	Sm	2	–	Kn
6957.72	Gd	20	–	Ks
6957.51	Pt	3	–	–
6957.03	Mo	5	–	–
6956.2	bh Ca	20	–	L
6956.02	Os	3	–	–
6955.63	Sm II	15 d	–	Kn
6955.519	Cs II	–	[20]	Sv
6955.27	Sm II	400 d	–	–
6955 20	Gd	15	–	Ed
6955.06	Ni I	80	–	–
6954.50	La II	15	10	–
6954.43	Gd	3	–	Ed
6954.32	Sm	3	–	Kn
6953.88	Ta	50	–	–
6953.84	Zr I	80	–	–
6953.78	Mo	12	–	–
6953.61	Sm	3	–	Kn
6952.49	La II	6	5	–
6952.39	Sm	3	–	Kn
6952.13	Cl II	–	[25]	Ks
6951.87	Er	6	–	–
6951.77	Gd	8	–	Ed
6951.67	Yt II	5	8	–
6951.51	Yb	2	–	Me
6951.50	N I	–	[5]	Du
6951.46	A I	–	[20]	Ms
6951.29	I	–	[15]	Bl
6951.261	Fe I	10 h	–	Bb
6951.26	Ta	100	–	–
6950.69	Eu	2	–	Kn
6950.51	Sm II	100	–	Kn
6950.5	Tl II	–	30	El
6950.29	Dy	3	–	Ks
6950.27	Yt I	20	10	–
6950.08	Ta	2	–	–
6949.23	Sm	15 d	–	Kn
6948.720	Cb	3	3 h	–
6948.58	U	6	–	–
6948.46	Zr I	15	–	–
6948.3	bh Sc	2	–	Me
6948.18	Sm	20 d	–	Kn
6947.49	Eu	4	–	Kn
6947.43	Pd	–	2	–
6947.39	Mo	15	–	–
6947.3	Sb II	–	20	Dv
6947.24	Gd	6	–	Ks
6946.87	Ta	20	–	–
6946.75	Mo	7	–	–
6946.60	Sm	2	–	Kn
6946.31	Co I	10	–	–
6946.10	Ti I	10 h	–	Rl
6946.07	Cb	15	3	Me
6945.96	Gd	20	–	Ks
6945 22	N I	–	[40]	Du
6945.208	Fe I	60	20 h	Bb
6944.99	Gd	5	–	Ks
6944.95	Er	6	–	–
6944.07	Rn I	–	[10]	Rs
6944.06	Kr II	–	[10 hl]	Me
6943.96	Lu	5	–	Me
6943 70	Ti I	15	–	–
6943.69	Hg	–	[10]	Su
6943.610	Th	10	–	Fd
6943.202	Zn I	3	–	IHz
6943.07	Gd	5	–	Ks
6942.9	N II	–	[30]	Fm
6942 518	Mn	100 h	–	Sl
6942.47	U	2	–	–
6942.11	Xe	–	[400 wh]	Hu
6941.56	Sm II	50	–	Kn
6941.39	Nd	2	–	Ks
6941.03	I I	–	[2]	Mu
6940.90	Cb	10	15	Me
6940.20	Nd	2	–	–
6939.54	Ce	8	–	–
6939.51	Sm	3	–	Kn
6939.38	Ta	4	–	–
6939.36	U	2 h	–	–
6938 98	K I	500	–	Me
6938.74	Sm	10 d	–	Kn
6938.472	Zn I	8	–	IHz
6938.36	Er	6	–	–
6938.1	Hg II	–	[25]	Rs
6937.81	Co I	150	–	–
6937.666	A I	–	[100]	IMe
6937.53	Sm	3	–	Kn
6937.49	Gd	8	–	Ed
6936.7	bh Sc	4	–	Me
6936.69	Xe I	–	[8]	Me
6936.05	Ta	2	–	Ks
6935.88	Ti I	8	–	–
6935.82	Cu I	8	–	–
6935.62	Xe I	–	[50]	Me
6935.51	Gd	5	–	Ks
6935.38	Sm	3	–	Kn
6935.16	Hf II	5	50	Me
6934.99	La I	50	–	–
6934.86	Ru	4	–	–
6934.27	W	2	–	–
6934.13	Ce	2	–	–
6934.10	Mo	15	–	–
6934.04	Yb	15	10	Me
6933.632	Fe I	5 h	–	Bu
6933.52	Yt I	7	5	–
6933.15	Ti I	12	–	–
6932.94	Cl I	–	[10]	Ks
6932.92	Ba I	2 h	–	Me
6932.70	In	–	5	Sq
6932.62	Dy	2	–	Ks
6932.38	Zr I	12	–	–
6932.36	Gd	5	–	Ks
6932.12	Ce	4	–	Ks
6931.8	bh Zr	5	–	L
6931.40	Mo	15	–	–
6931.32	Se I	–	[15]	Rd
6931.13	Mn	20 h	–	Sl
6930.51	Te	–	[70]	Bl
6930.45	Cl II	–	[4]	Ks
6930.41	Sm II	50 d	–	Kn
6929.88	Ir I	50	–	–
6929.79	Br I	–	[10]	Ks
6929 60	Sm	40 d	–	Kn
6929.54	Dy	2	–	Ks
6929.468	Ne I	–	[1000]	IMe
6929.13	Gd	5	–	Ks
6929 07	Zr I	8	–	–
6929.05	Cb	–	3	Me
6928 86	I	–	[10]	Ev
6928.84	Sm	2	–	Kn
6928.54	Ta	150	–	–
6928.319	Zn I	15	–	IHz
6928.25	Ni I	2	–	–
6928 18	Sm	3	–	Kn
6928.	bh C	–	–	L
6927.70	Sm II	5	–	Kn
6927.38	Ta	150	–	–
6927.07	Sm II	40 d	–	–
6926.90	N I	–	[5]	Du
6926.48	Gd	10	–	–
6926.19	Hf	5	15	Me
6926.16	Ti I	35 w	–	Rl
6926 14	Sm	3	–	Kn
6926.08	Er	6	–	–
6925.94	U	2	–	–
6925.85	Mo	5	–	–
6925 8	bh Ti	2	–	L
6925 71	Zr I	8	–	Ks
6925.70	Sm	4	–	Kn
6925 53	Xe I	–	[100]	Me
6925 49	Rh	2	–	Me
6925 21	La I	100	–	–
6925 20	Cr I	50 h	–	Me
6925 20	Sm	3	–	Kn
6925.00	A I	–	[2]	Ms
6924 95	Gd	15	–	Ks
6924 83	Ce	20	–	–
6924 67	Xe I	–	[15]	Me
6924.66	Te	–	[5]	Bl
6924 13	Cr I	60 h	–	–
6924.	Hg I	–	[5]	Su
6923 86	Nd	4	–	Ks
6923 7	bh Zr	5	–	L
6923 23	Ru	300	–	–
6923.20	Gd	3	–	Ed
6923.09	Tb	4	–	Ed
6922 23	Zr I	8	–	Ks
6922 22	Xe I	–	[8]	Me
6922.21	Co I	5	–	–
6920 60	Gd	30	–	Ks
6920.06	Cu I	100	–	–
6919 96	Al II	–	[25]	Sy
6919 61	Gd	5	–	Ks
6919.6	bh Ti	4	–	L
6919.03	Sm I	30 d	–	Kn
6919.02	Rh	4	–	Me
6918.78	Sm	20	–	Kn
6918.51	Ru	4	–	–
6918 32	Cb	80	10	Me
6918.26	La I	20	–	–
6917.84	Al II	–	[25]	Sy
6917.54	Pd I	2	–	–
6917.31	Lu	50	–	Me
6917.22	La I	25	–	–
6917.11	U	4	–	–
6916.87	Zr I	12	–	–
6916.86	Se II	–	[15]	Bt
6916.702	Fe I	35	5 wh	Bb
6916.69	Tb	4	–	Ed
6916 6	bh V	3	–	L
6916.57	Gd	200	–	–
6916.55	Pd I	10	–	–
6915.58	Sb II	–	[8]	Lg
6915.31	U	3	–	–
6914.98	Pd I	2 h	–	Me
6914.82	Eu	40 W	–	–
6914.57	Ni I	300	–	–
6914 5	bh Sc	4	–	Me
6914.01	Mo	40	–	–
6913.86	U	2 h	–	–
6913.54	Sm II	3	–	Kn
6913.19	Ti I	7	–	–
6913.18	Te	–	[30]	Bl
6912.78	Sm I	3 h	–	Kn
6912.27	Dy	2	–	Ks
6911.85	Rh I	2 h	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6911.48	Ru	100	–	–
6911.44	Sm	3	–	Kn
6911.40	Hf	15	50	Me
6911.30	K	300	–	Me
6911.29	Kr I	–	[2]	Rs
6911.238	Th	10	–	Fd
6910.84	Co I	15	–	–
6910.82	Xe I	–	[30]	Me
6910.75	O II	–	[30]	Mh
6910 22	Xe II	–	[50]	Hu
6910.20	Eu	10 W	–	–
6910.19	Xe I	–	[10]	Me
6910.13	I II	–	[2]	Mu
6909.82	F I	–	[150]	En
6909.81	Sm II	50 d	–	Kn
6908 80	Pt	3	–	Me
6908 74	Eu	4	–	Kn
6908.26	Yt I	10	–	–
6908 26	Er	4	–	–
6908.20	Mo	20	–	–
6908.11	O II	–	[15]	Mh
6908.08	Co	30	–	–
6908.07	Cb	40	8	Me
6907.5	S	–	[30]	Bz
6907.37	Zr I	12	–	–
6907.21	Sm	2	–	Kn
6907.16	Hg I	–	[125]	Su
6906.90	Gd	3	–	Ks
6906.59	Cb	8	2	Me
6906.57	Dy	3	–	Ks
6906.54	O II	–	[50]	Mh
6906.34	Gd	2	–	Ks
6906.22	Sm	20	–	Kn
6906 07	Nd	10	–	–
6905.94	Cu I	40	–	–
6905.92	Ru	25	–	–
6905.50	Gd	3	–	Ks
6904.95	Br I	–	[10]	Ks
6904.82	I II	–	[30]	Bl
6904.70	Mo	8	–	–
6904.68	Kr I	–	[100]	Me
6904.51	Sm	40	–	Kn
6904.36	Zr I	10 h	–	–
6904 22	Kr I	–	[15]	Me
6903.79	U	2	–	–
6903.71	Eu	200 W	–	Kn
6903.1	Ra I	–	[30]	Rs
6902.98	In	–	5	Sq
6902.89	Cb	60	10	Me
6902.84	Ni I	2	–	–
6902.80	Fe	–	5 h	Bu
6902.55	U	3	–	–
6902.46	F I	–	[500]	En
6902.127	I II	–	[150]	Ke
6902.10	Ta	150	–	–
6901.88	Ni I	2	–	–
6901.58	Os	3	–	–
6901.52	Co	5	–	–
6901.40	U	2 h	–	–
6900.68	Gd	60	–	Ks
6900.59	Zr I	12 h	–	–
6900.55	Mo	4 h	–	Ks
6900.55	Ta	80	–	–
6900.43	Nd	10	–	–
6900.37	In I	50	–	Ps
6900.28	Sm II	25 d	–	Kn
6900.18	U	2	–	–
6899.95	Tb	6	–	Ed
6899.34	Dy	5	–	Ks
6899.10	Ce	4	–	–
6899.097	Mo	12	–	–
6898.74	U	3	–	–
6898.48	Ce	3	–	Ks
6898.27	Eu	30 W	–	Kn
6898.01	Mo	15	–	–
6897.98	Dy	2	–	Ks
6897.53	Er	6	–	–
6897.	Hg	–	[5]	Su
6896.77	Ta	30	–	–
6896.74	Pt	3	–	Me
6896.68	Nd	2	–	–
6896.37	Tb	10	–	Ed
6896.01	Yt II	5	15	–
6895.70	Er	6	–	–
6895.40	Se	–	[30]	Ms
6895.29	O II	–	[70]	Mh
6894.78	U	2	–	–
6894.55	Ce	6	–	Ks
6894.00	V I	2	–	–
6893.69	Ce	5	–	–
6893.34	Ir	30	–	Me
6892.76	Pr	3	–	Ed
6892 59	Sr I	100	–	–
6892.42	Cs	–	[2]	Sv
6892.41	Tb	4	–	Ed
6892.40	Ta	30	–	–
6892.36	Mo	12	–	–
6892 207	In II	–	[20]	Ps
6892.02	Sm	25	–	Kn
6891.994	In II	–	[5]	Ps
6891.664	In II	–	[60]	Ps
6891.626	In II	–	[40]	Ps
6891 48	Sm	40 d	–	Kn
6891.434	In II	–	[20]	Ps
6891.16	Rn I	–	[20]	Rs
6891.155	In II	–	[30]	Ps
6890.93	Sc	3 h	–	Me
6890.90	Cu I	8	–	Me
6890.767	In II	–	[5]	Ps
6890.76	Eu	3	–	Kn
6890.41	Xe	–	[3 Wh]	Hu
6889.92	Cu I	8	–	Me
6889.82	Sc	7 h	–	Me
6889.10	Mo	5	–	–
6888.90	Dy	3	–	Ks
6888.81	Sm I	10	–	Kn
6888.8	Tl II	–	10	El
6888.74	Hg I	–	[25]	Su
6888.72	Ir I	25	–	Me
6888.7	N II	–	[15]	Fm
6888.66	I	–	[15]	Bl
6888.61	Se	–	[30]	Ms
6888.48	Cb	15	2	Me
6888.29	Zr I	25	–	–
6888.17	A I	–	[100]	Ms
6887.9	Pr	2	–	It
6887.8	bh Zr	4	–	L
6887.755	Mn	30	–	–
6887.62	Gd	35	–	Ks
6887.62	U	3	–	Me
6887.42	Sm	20	–	Kn
6887.20	Yt I	8	12	–
6887.10	A I	–	[20]	Ms
6886.57	A II	–	[15]	Rt
6886.33	Cb	30	8	Me
6886.28	Mo	25	–	–
6886.23	Ir I	10	–	Me
6885.77	Fe I	10 h	8 h	Bu
6885.57	U	2	–	–
6885.4	Eu	2 W	–	Kn
6885.3	bh Sc	8	–	Me
6885.20	Zr	8	–	Ks
6885.16	Sm II	30	–	Kn
6885.04	Te	–	[30]	Bl
6884.92	Sm II	6	–	Kn
6884.8	bh Zr	2	–	L
6884.72	Pr	2	–	Ed
6884.13	Er	4	–	–
6883.8	bh Ti	3	–	L
6883.46	Sm	2	–	Kn
6883.25	Zr I	8	–	–
6883 11	Sm	2 h	–	Kn
6883 03	Cr I	70 h	–	Me
6882.79	Sm	2	–	Kn
6882.38	Cr I	20 h	–	Me
6882.154	Xe I	–	[300]	IHu
6881.94	Cu I	8	–	Me
6881.62	Cr I	15 wh	–	Me
6881.61	Se	–	[30]	Bt
6881.23	Pr	4	–	Ed
6881.1	bh Sc	5	–	Me
6880.86	Sm I	2	–	Kn
6880.07	Tb	4	–	Ed
6880 01	Er	6	–	Ed
6879.94	Rh I	30	–	Me
6879.90	Cb	15	2	Me
6879.59	A I	–	[40]	Ms
6879.52	Se I	–	[15]	Rd
6879.50	Sm I	10	–	Kn
6879.22	I	–	[15]	Bl
6878.74	Os	3	–	–
6878.53	Gd	6	–	Ks
6878.50	Co	2 h	–	Me
6878.38	Sr I	500	–	–
6878.35	Pd I	2	–	Me
6877.94	Te	–	[50]	Bl
6877.49	Ta	30	–	–
6877.4	bh Sc	4	–	Me
6877.34	Tb	4	–	Ed
6877.27	Sm	10	–	Kn
6877.10	Sm	25 d	–	Kn
6876 75	U	8	–	–
6876.71	Ni I	25	–	–
6876.69	Xe	–	[3 Wh]	Hu
6876 36	Cb	80	12	Me
6875 27	Sm II	20 d	–	Kn
6875.27	Ta	200	–	–
6875.02	In	–	30	Sq
6874.95	Hf	5	10 d	Me
6874.77	Th	2	–	Fd
6874.62	Nd	2	–	–
6874.38	Re	2 w	–	Me
6874.30	N	–	[5]	Du
6874.3	Sb II	–	25	Dv
6874.3	bh Sc	4	–	Me
6874.18	Tb	6	–	Ed
6874.09	Ba II	–	[10]	Rs
6873.916	Ti I	10	–	Bh
6873.69	Sm	2	–	Kn
6873.61	U	5	–	–
6873.5	Au I	5	–	Ml
6873 26	Sm II	20	–	Kn
6873.2	Xe	–	[10 Wh]	Hu
6872.95	Ru	5	–	–
6872.43	Cu II	–	3	Sh
6872.42	Sm II	100 d	–	–
6872.40	Co I	200 w	–	–
6872.107	Xe I	–	[700]	IMe
6872.0	Pb II	–	[2]	Ea
6871.56	V I	2	–	–
6871.54	Yb	10	–	Me
6871.290	A I	–	[150]	IMe
6870.92	Cb	20	5	Me
6870.88	V I	3	–	–
6870.85	Kr II	–	[40]	Me
6870.80	Hg	–	[15]	Su
6870.8	N II	–	[5]	Fm
6870.56	Te I	–	[5 w]	Bl
6870.55	Pr	2	–	Ed
6870.450	Cs I	200	[5]	Ms
6870.26	Sm	6	–	Kn
6870.22	F I	–	[150]	En
6870.13	Ni I	3	–	–
6870 1	Ir	2 h	–	It
6869.88	I	–	[15]	Bl
6869.63	Kr I	–	[20]	Me
6868.55	Th	2	–	Fd
6868.13	Sm	2	–	Kn
6867.87	Ba I	100 h	–	–
6867.713	In II	–	[5]	Ps
6867.53	Te	–	[5]	Bl
6867.11	Sm	15	–	Kn
6866.838	Xe I	–	[50]	IMe
6866.53	Sm II	8 d	–	Kn
6866 23	Ta	200	–	–
6865.76	Tb	4	–	Ed
6865 71	Ba I	200	–	–
6865.58	Xe I	–	[5]	Me
6865.44	Mo	3	–	–
6865.20	Er	4	–	Ed
6865.13	Ta	5	–	–
6865.09	Se I	–	[15]	Rd
6864.91	Co	10	–	–
6864 6	bh Sc	6	–	Me
6864.59	U	2 h	–	–
6864.55	Eu	1000 W	–	–
6864.26	Yb	–	5	Me
6863.66	Mo	3	–	–
6863.52	A II	–	[15]	Rt
6863 20	Xe I	–	[20]	Me
6863.08	Mn	2 h	–	Me
6862 82	Sm II	100 d	–	Kn
6862.82	Kr	–	[3]	Me
6862.481	Fe I	7	–	Bu
6861.89	Gd	2	–	Ks

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
6861.47	Tl I	50	–	–
6861.30	A II	–	[8]	Rt
6861.24	Ni I	5	–	–
6861.21	Br I	–	[30]	Ks
6861.06	Sm II	500 d	–	–
6860.93	Sm I	800 d	–	Kn
6860.403	In II	–	[2]	Ps
6860.392	Ti	20	–	Bh
6860.19	Xe I	–	[40]	Me
6859.85	U	2	–	–
6859.02	La II	4	3	–
6858.70	Hf	15	50	Me
6858.50	Gd	4	–	Ks
6858.38	Co	25	–	–
6858.23	Yt II	3	8	–
6858.164	Fe I	15	15 h	Bu
6858.12	Sm	6	–	Kn
6858.1	bh Ti	4	–	L
6857.90	Zr I	8 h	–	–
6857.72	Sm	6	–	Kn
6857.68	Rh I	8	–	Me
6857.6	N II	–	[5]	Fm
6857.25	Fe	5 wh	5 wh	Bu
6857.12	Gd	200	–	–
6857.03	Hf II	5	10	Me
6857.00	Nd	8	–	–
6856.82	I	–	[15]	Ev
6856.53	Ce	4	–	Ks
6856.50	Dy	3	–	Ks
6856.03	Sm II	300 d	–	Kn
6856.02	F I	–	[1000]	En
6855.728	Tl	20	–	Bh
6855.29	Hf II	7	50	Me
6855.179	Fe I	60	80 h	Bu
6854.7	Te I	–	[50 l]	Rd
6854.63	Zr I	6	–	Ks
6854.50	Sm II	60 d	–	Kn
6854.17	U	3	–	Me
6854.13	Tm	20	–	Me
6853.92	Sm I	5	–	Kn
6853.84	Zr I	6	–	–
6853.72	Nd	5	–	Ks
6853.57	Ce	4	–	–
6853.54	Sm	10 d	–	Kn
6853.32	Kr	–	[2]	Me
6853.00	Dy	6	–	Ks
6852.94	Sm	2	–	Kn
6852.90	Pr	3	–	Ed
6852.79	Gd	5	–	Ed
6852.56	Zr I	6	–	–
6852.3	bh Tl	6	–	L
6851.86	A I	–	[4]	Ms
6850.83	Ta	5	–	–
6850.55	Pr	4	–	Ed
6850.5	bh Sc	4	–	Me
6850.48	Ni I	2	–	–
6850.21	Cl II	–	[40]	Ks
6850.2	bh Tl	5	–	L
6850.13	Xe I	–	[30]	Me
6850.07	Hf	20	60	Me
6849.89	Gd	5	–	Ks
6849.523	In II	–	[5]	Ps
6849.35	Cb	12	6	–
6849 30	Nd	3	–	Ks
6849.26	Zr I	6	–	–
6849.15	Ti I	5	–	Rl
6848.92	Mo	15	–	–
6848.9	bh Zr	3	–	L
6848.88	Sm II	40	–	Kn
6848.82	Xe I	–	[50]	Me
6848.31	Sm	10 d	–	Kn
6848.16	Sm II	15 d	–	Kn
6848.08	S	–	[2]	Ms
6847.77	In I	60	–	Ps
6847.6	bh F	2	–	L
6847.34	Zr I	2	–	Ks
6847.3	bh Zr	3	–	L
6847.25	Ce	5	–	–
6847.21	Eu	10 W	–	Kn
6846.97	Co I	25	–	–
6846.97	Zr	12	–	–
6846.78	Ce	3	–	Ks
6846.715	Nd	10	–	–
6846.613	Xe I	–	[60]	IMe
6846.60	Gd	500	–	–
6846.54	Sm II	100 d	–	Kn
6846.40	Kr I	–	[20]	Me
6846.34	Zr I	4	–	–
6846.25	U	3	–	–
6845.76	Tm	200	20	Me
6845.74	Sm	4 d	–	Kn
6845.66	Co I	10	–	Me
6845.54	Pr	2	–	Ed
6845.33	Zr I	10	–	–
6845.24	Yt I	15	5	–
6844 98	Eu	40 W	–	–
6844.84	Xe I	–	[2 h]	Me
6844.71	Sm II	150 d	–	Kn
6844.64	Ti	10	–	Bh
6844.44	Re	6	–	Me
6844.43	Ce	2	–	Ks
6844.27	Tm	250	30	Me
6844.20	Sn II	–	[50 hl]	Wt
6844.06	Re	6	–	Me
6843.94	Te I	–	[70]	Bl
6843.75	Zr I	4	–	–
6843.671	Fe I	30	35 h	Bb
6843.51	Rh I	5	–	Me
6842.98	Sb	–	[8]	Lg
6842.668	Fe I	8	5 h	Bu
6842.66	Nd	10	–	–
6842.60	Pt	10	–	Me
6842 2	bh F	5	–	L
6842.07	Ni I	60	–	–
6841.90	V I	4	–	–
6841.86	Cl II	–	[10]	Ks
6841.78	Sm I	25	–	–
6841.50	Xe I	–	[20]	Me
6841.349	Fe I	50	50 h	Bb
6841.05	Eu	50 W	–	Kn
6840.99	Cu I	3	–	Me
6840.96	Xe I	–	[8]	Me
6840.26	Cl I	–	[2]	Ks
6839.96	U	3	–	–
6839.828	Fe I	3 h	–	Bu
6839.64	Sm	40 d	–	Kn
6839.62	V I	2	–	–
6839.23	Sm I	2	–	Kn
6839.08	Sm	15 d	–	Kn
6838.9	Hg	–	[5]	Lf
6838 88	Mo	30	2	–
6838.86	Fe	5 h	5 wh	Bu
6838.33	Sm	10	–	Kn
6838.11	Co	15	–	–
6838.08	Pt	4	–	Me
6837.88	La II	15	8	–
6837.80	Rh	2	–	Me
6837.8	Ir	4	–	It
6837.65	Te	–	[50 w]	Bl
6837.6	bh Sc	4	–	Me
6837.57	Rn I	–	[15]	Rs
6837.20	Sm	20 d	–	Kn
6837.09	Al II	–	[15]	Sy
6837.04	Fe	5 h	5 h	–
6836.95	Rn I	–	[15]	Rs
6836 8	bh F	5	–	L
6836.60	Gd	3	–	Ks
6836.6	Hg	–	[5]	Lf
6836.2	N II	–	[5]	Fl
6836.06	U	2	–	–
6835 97	Sm	2	–	Kn
6835.70	I I	–	[15]	Db
6835.46	Cu I	3	–	Me
6835.44	Dy	8	–	Ks
6835.03	Sc	25	–	Me
6834.921	Th	5	–	Fd
6834.82	Gd	10	–	Ks
6834.41	Eu	30 W	–	Kn
6834.40	Sm	2	–	Kn
6834.26	F I	–	[300]	En
6834.23	Mo	5	–	–
6834.02	La II	25	10	–
6833.92	Mn	40	–	Sl
6833.77	Hf	5	10	Me
6833.67	Zr I	4	–	–
6833.42	Pd I	10	–	Me
6833.26	Ta	2	–	–
6832.89	Zr I	10	–	–
6832.83	U	2	–	–
6832.49	V I	5	[10]	–
6832.47	Yt II	5	8	–
6832.46	Te	–	[30]	Bl
6832.13	Sm	2	–	Kn
6832.00	Ta	4	–	–
6831.62	Cl II	–	[30]	Ks
6831 52	Ru	6	–	–
6831.5	bh F	5	–	L
6831 37	Sm	2	–	Kn
6831 27	Se I	–	[400]	Rd
6831.21	Zn II	–	[8]	Vs
6831.10	Tm	20	–	Me
6830.89	Se I	–	[100]	Rd
6830.83	La II	–	3	Me
6830.71	Tb	4	–	Ed
6830.57	Pr	2	–	Ed
6830.56	Se I	–	[15]	Rd
6830.54	Sm I	15	–	Kn
6830 01	Ir I	50	–	–
6829 96	Re I	200 w	–	Me
6829 96	V I	4	–	–
6829.81	Sm II	100	–	Kn
6829.54	Sc I	15	–	–
6829.33	Rh I	3	–	Me
6829.20	Sm	4	–	Kn
6829.2	bh Cr	3	–	L
6829.09	Kr I	–	[8]	Me
6829.05	Th	3	–	Fd
6828.98	Mo	50	–	–
6828.90	Yb	1	6	Me
6828.78	Zr I	10	–	–
6828 610	Fe I	18	25 h	Bb
6828.50	Sm	30 d	–	Kn
6828.25	Gd	150	–	–
6828.11	Cb	150	30	Me
6828 02	I I	–	[15]	Db
6827.81	Sm I	15	–	Kn
6827.70	Pr	5	–	Ed
6827.33	Rh I	15	–	Me
6827.315	Xe I	–	[200]	IMe
6827.24	A I	–	[30]	Ms
6827.16	Dy	2	–	Ks
6827.12	Mn	2 h	–	–
6827.03	Sm	4	–	Kn
6826.96	Co I	3	–	–
6826.93	U	25	–	–
6826 65	Sm	3	–	Kn
6826.59	Lu	4	–	Me
6826.56	Hf	10	25	Me
6826 43	Ce	3	–	Ks
6826.09	Br	–	[5]	Ks
6825.99	Er	4	–	Ed
6825.87	Zn II	–	[9]	Vs
6825.46	Er	6	–	Ed
6825.34	Nd	2	–	–
6825.22	Cs I	15 h	–	–
6825.17	I	–	[5]	Bl
6824.96	Ta	5	–	–
6824.73	Th	2	–	Fd
6824.56	U	3	–	–
6824.09	Ru	200	–	–
6823.75	La I	50	–	–
6823.62	Sm II	15 d	–	Kn
6823.40	Cu II	–	3	Sh
6823.38	Al II	–	[10]	Sy
6822.73	Gd	15	–	Ed
6822.65	Eu	15 W	–	Kn
6821.90	Sm	10	–	Kn
6821.86	Cu I	3 h	–	Me
6821.51	La I	5 h	–	–
6821.2	Eu	2 W	–	Kn
6821.2	bh F	2	–	L
6821.04	I	–	[30]	Bl
6820.91	Sm I	15	–	Kn
6820.91	Gd	50	–	–
6820.84	U	6	–	–
6820.39	Br I	–	[5]	Ks
6820.38	Fe	10	7 h	–
6820.28	W	2	–	–
6820.23	Pt	3	–	Me
6820.2	bh Ti	3	–	L
6820.04	Yb	3 h	–	Me
6819.72	Sm	3	–	Kn
6819.53	Co	20	–	–
6819.52	Sc I	20	–	–
6819.36	Ta	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6818.94	Hf	100	200	Me
6818.39	A II	–	[8]	Rt
6818.38	Xe I	–	[15]	Me
6818.35	U	4	–	–
6818.26	A I	–	[4]	Ms
6818.25	Ce	5	–	–
6818.24	Dy	2	–	Ks
6817.08	Sc	10	–	–
6816.83	Al II	–	[5]	Sy
6816.47	Gd	40	–	–
6816.4	bh F	2	–	L
6816.16	Sm	4	–	–
6816.11	Eu	150 W	–	–
6816.02	Nd	10	–	–
6815.64	Xe I	–	[12]	Me
6815.54	Sm	10 d	–	Kn
6815.3	bh Ti	5	–	L
6815.28	Se I	–	[70]	Rd
6815.16	Yt I	3	–	Me
6814.94	Co I	150 R	–	–
6814.86	Sm	20	–	Kn
6814.55	Gd	30	–	Ks
6813.75	U	2	–	–
6813.64	La II	5	25	–
6813.598	Ni I	30	–	–
6813.54	Sm	15	–	Kn
6813.51	Ru	9	–	Me
6813.42	Re	200 w	–	Me
6813.4	Sm	15	–	Kn
6813.25	Ta	200	–	–
6813.2	Ir	4	–	It
6813.19	I	–	[15]	Bl
6813.10	Kr I	–	[50]	Me
6812.93	U	2	–	Me
6812.64	Zr	6	–	–
6812.562	I II	–	[100]	Ke
6812.5	bh Zr	3	–	L
6812.43	V I	8	[20]	–
6812.30	Nd	3	–	Ks
6812.26	N II	–	[15]	Fl
6812.19	I I	–	[50]	Ev
6811.37	Re	3	–	Me
6811.32	Zr I	4	–	Ks
6810.46	Ta	40	–	–
6810.25	Fe I	15	18 h	–
6809.90	Cu II	–	4	Sh
6809.23	Sm	2	–	Kn
6808.94	Co I	25 h	–	–
6808.89	Ce	3	–	Ks
6808.84	La II	12	15	–
6808.6	Bi II	–	70	Cf
6808.55	A II	–	[6]	Rt
6808.38	Rn I	–	[10]	Rs
6808.31	Sm I	20	–	Kn
6807.83	Ce	10	–	–
6807.50	Sm	5	–	Kn
6806.859	Fe I	8 h	7 wh	Bu
6806.79	Rn I	–	[12]	Rs
6806.67	Sb II	–	[12]	Lg
6806.61	Os	8	–	Me
6806.60	Cu II	–	4	Sh
6806.35	Sb	5 wh	–	Wt
6806.16	Sb II	–	30	–
6805.74	Xe II	–	[400]	Hu
6805.646	Rb II	–	50	Rr
6805.58	Sm	2	–	Kn
6805.54	Ru I	5	–	–
6805.36	Re	3 h	–	Me
6805.24	Se I	–	[200]	Rd
6804.89	Sm	10 d	–	Kn
6804.020	Fe I	7 h	–	Bb
6804.00	Nd	15	–	–
6803.20	Dy	2	–	Ks
6803.20	Ce	2	–	Ks
6803.16	Yt I	4	–	Me
6803.1	Sm	30 h	–	Kn
6803.06	Nd	4	–	Ks
6802.96	Sm I	25	–	Kn
6802.79	Eu	500	–	Kn
6802.47	Yb	2	20	Me
6801.72	Sm	15 d	–	Kn
6801.65	Re	5	–	Me
6801.38	La II	–	3	Me
6801.34	Sm	2	–	Kn
6801.34	Nd	4	–	Ks
6801.00	I I	–	[50]	Db
6800.70	Gd	3	–	Ks
6800.5	bh Sc	3	–	Me
6800.50	C II	–	30	Fl
6800.5	Yb	3	–	It
6799.61	Yb	1000	50	Me
6799.57	Re	3 w	–	Me
6799.40	Co I	6 h	–	–
6799.32	A II	–	[4]	Rt
6799.27	Ta	5	–	Ks
6798.68	Pr	20 w	–	–
6798.51	Ca I	6 h	–	Me
6798.2	bh Sc	2	–	Me
6798.04	C II	–	5	Fl
6796.93	Er	6	–	Ed
6796.82	Sm I	10	–	Kn
6796.73	La I	5	–	–
6796.68	Zr I	4	–	–
6796.66	Te	–	[5]	Bl
6796.65	Rh I	6	–	Me
6796.46	U	2	–	–
6796.13	Sm	4	–	Kn
6795.52	F I	–	[60]	En
6795.40	Yt II	12	20	–
6795.40	Kr I	–	[4]	Me
6795.31	Cb	10	6	–
6795.08	Sm	2	–	Kn
6794.66	Zr	4	–	Ks
6794.58	Tb	10	–	Ed
6794.5	Yb	5	–	It
6794.20	Sm II	200	–	Kn
6793.77	Lu	40	2	Me
6793.70	Yt I	70	15	–
6792.90	Sm	2	–	Kn
6792.55	Sm II	30 d	–	Kn
6792.48	Tb	4	–	Ed
6792.45	I II	–	[15]	Bl
6792.28	Nd	2	–	Ks
6791.90	Rn I	–	[6]	Rs
6791.9	bh C	–	–	L
6791.7	Pb II	–	[10]	Ea
6791.60	Os	10	–	–
6791.6	Eu	2 W	–	Kn
6791.50	Br I	–	[5]	Ks
6791.30	C II	–	30	Fl
6791.27	Th	2	–	Fd
6791.19	Ni I	2	–	Me
6791.05	Sr I	200	–	–
6790.88	Sm I	4	–	Kn
6790.85	Zr I	10	–	–
6790.8	Pb II	–	[50]	Ea
6790.41	Nd	10 d	–	–
6790.37	Xe II	–	[50]	Hu
6790.35	U	10	–	–
6790.06	Ta	5	–	–
6790.05	Br I	–	[70]	Ks
6790.03	Sm II	300 d	–	–
6790.0	Te I	–	[20 w]	Rd
6789.84	Ir I	4	–	Me
6789.32	I I	–	[50]	Ev
6789.27	Hf	50	100	Me
6789.26	Co I	15	–	–
6789.17	Cr	40	–	–
6788.99	Ta	50	–	–
6788.93	I I	–	[100]	Db
6788.71	Xe II		[80]	Hu
6788.53	Tm	20	–	Me
6788.27	Pr	2 h	–	Ed
6787.52	Eu	30 W	–	Kn
6787.23	Ru	20	–	–
6787.15	Zr II	4	2	Ks
6787.14	Gd	20	–	Ks
6787.09	C II	–	15	Fl
6786.88	Fe I	7 h	–	Bu
6786.77	Br I	–	[30]	Ks
6786.37	V	3	–	–
6786.36	Rn I	–	[4]	Rs
6786.32	Gd	125	–	Ks
6785.9	Pb II	–	[15]	Ea
6785.8	bh Ti	4	–	L
6785.16	Yb	1	5	Me
6785.12	Tb	8	–	Ed
6785.03	V I	15	–	–
6784.9	Eu	4 W	–	Kn
6784.85	Co I	25	–	–
6784.52	Pd I	12	2	Me
6784.35	Sm	5 d		Ks
6784.0	bh Sc	3	–	Me
6784.01	Ca	5 h	–	Me
6783.75	C II	–	100	Fl
6783.718	In II	–	[100]	Ps
6783.35	Gd	40	–	–
6782.95	Sm	30 d	–	Kn
6782.77	U	5 h	–	–
6782.7	Eu	20	–	Kn
6782.59	Eu	100	–	Kn
6782.54	Te	–	[5]	Bl
6782.46	Ni I	5 w	–	–
6782.3	Pd	–	5	It
6782.17	Yb	4 h	–	Me
6782.02	Tm	15	–	Me
6781.97	Au	3 h	–	Wt
6781.9	bh Ti	5	–	L
6781.22	Se I, II	–	[20]	Rd
6781.17	Sm II	50 d	–	Kn
6780.74	Ce	5	–	–
6780.62	U	3	–	–
6780.40	Cu II	–	3	Sh
6780.27	C II	–	15	Fl
6780.268	Th	4 wh	–	Fd
6780.03	Sm	40	–	Kn
6779.86	Er	4	–	Ed
6779.85	A I	–	[4]	Ms
6779.77	Tm	300	50	Me
6779.74	C II	–	50	Fl
6779.58	Sm	2	–	Kn
6779.48	Br I	–	[10]	Ks
6779.16	Sm I	15	–	Kn
6778.75	Sb II	–	[4]	Lg
6778.61	Sm II	200 d	–	Kn
6778.60	Xe I, II	–	[40]	Me
6778.38	Sb	5	40	Wt
6778.28	Ce	10	–	–
6778.19	Sm II	30	–	Kn
6778.10	Cd I	30	–	Ps
6777.77	Gd	3 h	–	Ed
6777.57	Xe I	–	[50]	Me
6777.56	Se	–	[15]	Bt
6777.22	Yb	2	–	Me
6777.2	bh Zr	4	–	L
6776.89	U	5	–	–
6776.75	S	–	[30]	Bl
6776.65	Ta	2	–	–
6776.15	Kr I	–	[3]	Me
6776.14	Er	4	–	Ed
6775.97	Al II	–	[2]	Sy
6775.64	Cu I	8	–	Me
6775.59	Ce	10	–	–
6775.30	Sm I	15	–	Kn
6775.062	Rb II	–	200	Lp
6775.02	Ru	40	–	–
6774.54	Pd I	15	–	Me
6774.29	Ce	3	–	–
6774.25	Ta	100 w	–	–
6774.23	La II	100	120	–
6774.08	Er	6	–	–
6773.97	F	–	[100]	En
6773.56	I I	–	[50]	Db
6773.40	Er	4	–	Ed
6773.07	Hf	5	15	Me
6772.89	Zr I	8	–	–
6772.42	Eu	4 W	–	Kn
6772.36	Ni I	200	–	–
6772.283	Th	2	–	Fd
6772.03	Gd	20	–	Ks
6772.02	Sm	5	–	Kn
6771.85	Ba I	60 h	–	Me
6771.8	bh Cr	4	–	L
6771.74	Ta	100	–	–
6771.36	Sm	8	–	Kn
6771.22	Kr II	–	[50]	Me
6771.06	Co	200 h	–	–
6771.03	U	3	–	–
6770.70	Cu II	–	8	Sh
6770.37	Sm	10	–	Ks
6770.37	Ta	3	–	–
6769.95	Hf II	10	20	Me
6769.81	Tb	4	–	Ed
6769.62	Ba II	–	[10]	Rs
6769.44	Sm	2	–	Kn

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
6769.40	U	2	–	–
6769.159	Zr I	50	–	–
6768.94	Er	4	–	Ed
6768.70	Yb	80	2	Me
6768.64	U	2	–	–
6768.50	Se I	–	[80]	Rd
6767.91	Hf II	2	2	Me
6767.778	Ni I	300	–	IKs
6767.65	Ce	3	–	Ks
6767.60	Co	35 h	–	Me
6767.405	In II	–	[5]	Ps
6767.394	Co I	15	–	–
6767.12	Xe I	–	[10]	Me
6766.97	F	–	[5]	En
6766.95	Ru	30	–	–
6766.91	Gd	15	–	Ks
6766.6	Eu	2 W	–	Kn
6766.56	A I	–	[100]	Ms
6766.56	V I	30	–	–
6766.52	Sm II	50 d	–	Kn
6766.334	In II	–	[50]	Ps
6765.964	In II	–	[50]	Ps
6765.96	Dy	6	–	Ks
6765.378	In II	–	[30]	Ps
6764.51	Kr I	–	[5]	Rs
6764.45	Ce	2	–	–
6764.43	Kr II	–	[80]	Me
6764.14	I	–	[30]	Bl
6763.78	Nd	3	–	Ks
6763.61	Kr II	–	[100]	Me
6763.50	Mo	8	–	–
6763.01	Nd	3	–	Ks
6762.96	Er	4	–	Ed
6762.89	F	–	[10]	En
6762.71	Rn I	–	[8]	Rs
6762.58	Sm	10	–	Ks
6762.41	Cr	50	–	–
6762.38	Zr I	50	–	Ks
6762.13	F	–	[5]	Gl
6762.06	Sm	25	–	Ks
6761.86	Ba I	2 h	–	Me
6761.70	Sm	2	–	Kn
6761.69	Er	4	–	Ed
6761.54	Gd	5 h	–	Ks
6761.45	Sn II	–	[15]	Mc
6761.34	Te	–	[30]	Bl
6761.19	Re	10 w	–	Me
6760.71	S	–	[30]	Bl
6760.20	V	2	–	–
6760.11	Br I	–	[10]	–
6760.020	Pt	100	–	–
6759.87	Er	8	–	Ed
6759.586	Ne I	–	[15]	Ps
6759.42	Cl II	–	[35]	Ks
6759.41	Ni I	2	–	Me
6759.26	Cd II	–	30	Vs
6759.25	Sm I	15	–	Kn
6758.73	Ni	2	–	Sl
6758.60	N I	–	[50]	Du
6758.55	Cu II	–	8	Sh
6758.53	Eu	4 W	–	Kn
6758.34	Sm	2	–	Kn
6758 2	Ra I	–	[50]	Rs
6758 10	Co I	25	–	–
6757.77	Cr	8	–	–
6757 10	S I	–	[150]	Ms
6756 94	Sm II	50	–	Kn
6756.61	A II	–	[10]	Rt
6756.57	Co I	25	–	–
6756.54	Ru I	9	–	–
6756.3	bh Ti	6	–	L
6756 10	A I	–	[100]	Ms
6755.85	Ta	10	–	–
6755.72	I	–	[15 h]	Bl
6755.01	Tb	4	–	Ed
6754 97	U	3	–	–
6754.91	Ta	20	–	–
6754.85	Sm	30	–	Kn
6754.77	Gd	5	–	Ed
6754.68	Sm II	50	–	Kn
6754 61	Hf II	60	100	Me
6754.30	A I	–	[8]	Ms
6753.97	Mo	25	2	–
6753.90	Gd	100	–	Ks
6753.03	V I	40	–	–
6753.02	La I	100	–	–
6752.832	A I	–	[200]	IMe
6752.734	Fe I	9	12 wh	Bb
6752.73	Zr I	15	–	Ks
6752.68	Gd	300	–	–
6752.6	bh Sc	4	–	Me
6752.58	Cr	2	–	Sl
6752.40	N I	–	[50]	Du
6752.35	Rh I	150	–	–
6752 1	P	15	–	Sa
6752.07	Se	–	[30]	Ms
6752.042	In II	–	[40]	Ps
6752.03	Re	50	–	Sl
6751 880	In II	–	[60]	Ps
6751 81	Rn I	–	[40]	Rs
6751.8	bh Ti	4	–	L
6751.615	In II	–	[30]	Ps
6751.40	Te	–	[50]	Bl
6751.27	Cr	2	–	–
6751.22	Re	50	–	Me
6751.10	Sm	2	–	Kn
6750 86	Sm	2	–	Kn
6750.520	In II	–	[20]	Ps
6750.30	Eu	10	–	Kn
6750 22	C II	–	15	Fl
6750.157	Fe I	50	18 h	–
6749.97	Cu II	–	3	Sh
6749.60	Nd	10	–	Kn
6749.51	Ce	2	–	–
6749.40	Yb	7	–	Me
6749 29	Cu I	8	–	Me
6749 28	Pr	6	–	Ed
6748.79	S I	–	[80]	Ms
6748.62	Ir	4	–	Me
6748.39	Sm	4	–	Kn
6748.3	bh Sc	3	–	Me
6748.125	La I	25	–	–
6747.98	Dy	4	–	Ks
6747.8	bh Ti	5	–	L
6747.2	Pr	20 W	–	Kn
6746 66	Sm	2	–	Kn
6746 61	Cr	6	–	–
6746.433	Ti I	4	–	–
6746.43	Se I	–	[200]	Rd
6746.41	Sm II	20	–	Kn
6746.268	Mo	50	3	–
6746 075	Mo	20	–	–
6745 22	Yb	2	7	Me
6745.18	Nd	5	–	Ks
6744 96	Eu	100	–	Kn
6744 64	Cr	6	–	–
6743.64	Sm	2	–	Kn
6743.58	S I	–	[50]	Ms
6743.124	Ti	100	–	IKs
6742 537	Nd	10	–	–
6742 5	bh Zr	4	–	L
6742.17	Co I	5	–	–
6741 9	Eu	2	–	Kn
6741.56	I I	–	[50]	Ev
6741.47	Sm II	40	–	Kn
6741 42	Cu I	50	–	Me
6741 40	Ru	15	–	–
6741 29	N I	–	[30]	Du
6741.20	La	2	–	Me
6741.2	Sm	25	–	Kn
6740.73	Ta	80	–	–
6740 107	Nd	10	–	–
6740.10	Kr I	–	[20]	Me
6739 88	Cb	80	15	Me
6739.50	I I	–	[50]	Ev
6739 40	Sc	3	–	–
6738 99	Sb	2	–	Wt
6738.36	C II	–	5	Fl
6738.12	I	–	[70]	Ev
6738.058	Ne I	–	[70]	Ps
6737.87	Sc	5	–	–
6737.787	Nd	10	–	–
6737.697	Cr	5	–	–
6737.64	Cu II	–	5	Sh
6737.16	Cb	3 wl	1 wl	Me
6736.89	Pr	5	–	Ed
6736 804	U	4	–	–
6736 60	I	–	[50]	Ev
6736.32	Te	–	[30]	Bl
6736.00	Yt I	12	4	–
6735.82	Sm	4 h	–	Kn
6735.76	Lu	5	–	Me
6735.4	bh F	2	–	L
6735.4	bh Sc	2	–	Me
6735.34	Sm	100 d	–	Kn
6735.04	Nd	5	–	Ks
6735.0	Eu	3 W	–	Kn
6734.81	Sm II	400 d	–	Kn
6734.61	S	–	[15]	Bl
6734.188	Cr I	12	–	–
6734 06	Sm II	400 d	–	Kn
6733.978	Mo	100	4	–
6733 8	Eu	2 W	–	Kn
6733.48	N I	–	[100]	Du
6733 171	Fe I	5	–	Bu
6733.12	Ir I	3	–	Me
6732 78	La II	1	20	–
6732 3	Eu	4 W	–	Kn
6732.10	I	–	[150]	Ev
6732.06	Nd	10	–	Kn
6731.84	Sm II	500 d	–	Kn
6731 80	Ru	4	–	–
6730.76	Gd	100	–	–
6730 45	Ru	25	–	–
6730 16	Rn I	–	[10]	Rs
6729 732	Cr	10	–	–
6729.556	Os	30	–	–
6729.54	Ce	10	–	–
6729 47	S	–	[30]	Bl
6729 4	bh F	20	–	L
6728 93	Nd	8	–	Ks
6728.710	Ce	8	–	–
6728 29	Br I	–	[40]	Ks
6728 24	Sm	8	–	Kn
6728 09	U	2	–	–
6728 04	Mo	7	–	–
6728 008	Xe I	–	[200]	IMe
6727.866	O I	–	[70]	Fh
6727 84	Gd	50	–	Ks
6727.740	Nd	2	–	–
6727.62	Yb	30	60	Me
6727 27	Sm	2	–	Kn
6727.00	I	–	[70]	Ev
6726 89	U	3	–	–
6726 81	Sm	15	–	Ks
6726 78	Fe	15	–	–
6726 668	Fe I	–	8 h	Bu
6725.90	Sm I	30	–	Kn
6725 83	Cd II	–	100	Vs
6724.73	Sm I	30	–	Kn
6724.646	Cs	–	10	Ms
6724.0	bh F	5	–	L
6724.0	bh Ti	5	–	L
6723 62	Cb	100	30	Me
6723.52	I	–	[15]	Bl
6723.36	Kr I	–	[4]	Me
6723.279	Cs	500	6	Ms
6723.26	Sm	30	–	Kn
6723.12	N I	–	[500]	Du
6723.07	Sm	30	–	Kn
6722.90	A I	–	[4]	Ms
6722.76	Er	6	–	Ed
6722.71	Co I	4	–	–
6722 5	Ir	5	–	It
6721.93	Er	8	–	Ed
6721.92	Cb	2	–	–
6721.62	Sm	10	–	Kn
6721.54	Ir	4	–	Me
6721.37	Se I, II	–	[60]	Rd
6721 37	Tm	60	20	Me
6721 35	O II	–	[70]	Fl
6721.33	Rh I	2	–	Me
6721 21	O II	–	[300]	Mh
6720 95	Co I	4	–	–
6720.95	Sm	5 w	–	Kn
6720.84	U	3	–	–
6720.67	I	–	[15]	Bl
6720.32	Ce	2	–	Ks
6719.59	Sm	5	–	Kn
6719.40	Hf II	2	50	Me
6719.32	Ra II	–	[500]	Rs
6719.3	bh Ti	6	–	L
6719.20	A I	–	[100]	Me
6719.1	bh F	5	–	L
6718.803	I I, II	–	[50]	Ke

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6718.67	La II	3	30	–
6718.6	bh F	10	–	L
6718.30	Ru I	15	–	–
6718.22	Sm	4	–	Ks
6718.14	Gd	40	–	Ks
6718.0	bh Zr	2	–	L
6717.911	Ti II	10	–	–
6717.9	Eu	3 W	–	Kn
6717.879	Zr I	12	–	–
6717.74	S	–	[50]	Bl
6717.685	Ca	–	–	IWg
6717.64	Sc	3	–	Me
6717.64	Co I	5 h	–	–
6717.556	Fe I	5 h	–	Bu
6717.51	U	5	–	–
6717.15	Sm	2	–	Kn
6717.0428	Ne I	–	[70]	S
6716.679	Ti	15	–	–
6716.17	Hg I	–	[80]	Su
6716.00	Hf	1	5	Me
6715.83	S	–	[30]	Bl
6715.79	Yb	5	–	Me
6715.410	Fe I	5 h	–	Bu
6715.36	Cr I	8	–	Me
6715.2	Hg II	–	[25]	Rs
6714.98	Tb	4	–	Ed
6714.60	Sc I	5	–	Me
6714.44	Ta	4	–	–
6714.4	bh Ti	6	–	L
6714.09	La II	4	40	–
6714.03	Ba I	2 h	–	Me
6713.86	Sm	2	–	Kn
6713.69	Tl I	100	40	Ps
6713.60	Sb II	–	[6]	Lg
6713.5	Hf	10	20	Me
6713.48	Ce	4	–	–
6713.43	Cl II	–	[40]	Ks
6713.19	Yt I	15	4	–
6713.18	Dy	2	–	Ks
6713.13	I I	–	[5]	Db
6713.12	N	–	[5]	Du
6713.00	Te	–	[5]	Bl
6712.8	Sm	8	–	Kn
6712.75	S	–	[30]	Bl
6712.71	Co I	8 h	–	–
6712.62	Sm II	50	–	Kn
6712.13	Sm	25 d	–	Ks
6711.51	Sm	5	–	Kn
6711.29	Re I	10	–	Me
6710.9	bh Zr	2	–	L
6710.70	Sm	20 d	–	Ks
6710.57	U	2	–	Me
6710.50	Eu	25 W	–	–
6710.416	Pt	50	–	–
6710.16	Ce	2	–	Ks
6709.88	Cb	15	2	Me
6709.609	Zr I	8	–	–
6709.5	Hg	–	[5]	Lf
6709.496	La I	150	–	Ks
6709.41	Hf	1	6	Me
6709.39	Ta	10	–	–
6709.33	Sm	2	–	Kn
6708.81	N	–	[50]	Du
6708.34	Te	–	[30]	Bl
6708.33	Hf	–	3	Me
6708.284	F I	–	[40]	Di
6708.18	W	20	–	–
6708.17	V I	2	–	–
6707.857	Co	200 Wh	–	Sl
6707.85	Mo	300 W	–	–
6707.844	Li I	3000 R	200	Hz
6707.524	Ru	5	–	–
6707.45	Sm II	50 d	–	Kn
6707.1	Sm	2	–	Kn
6706.85	Sm	5	–	Kn
6706.79	Tb	4	–	Ed
6706.46	Ta	5	–	–
6706.20	N I	–	[50]	Du
6705.96	Ta	3	–	–
6705.92	Ce	2	–	Kn
6705.9	bh Sc	6	–	Me
6705.50	Sm	2	–	Kn
6705.117	Fe I	12 h	12 wh	Bb
6704.32	Ce	25	–	–
6704.28	Rn I	–	[15]	Rs
6704 25	Sm	10	–	Kn
6704.17	Gd	25	–	Ks
6703.92	Co I	15	–	–
6703.61	Sm I	30	–	Kn
6703.575	Fe I	7	5 wh	–
6703.18	Cb	6	1	Me
6703.06	U	2	–	–
6702.99	Ta	2	–	–
6702.61	Tb	6	–	Ed
6702.25	Xe II	–	[50]	Hu
6702.19	Sm	5	–	Ks
6702.125	Zr I	6	–	–
6702.09	Gd	25	–	Ks
6701.68	U	2	–	–
6701.633	Cr	3	–	Ss
6701.57	Te	–	[5]	Bl
6701.205	Cb	100	15	–
6701.11	Eu	10 W	–	Kn
6701.04	Se I	–	[30]	Rd
6700.72	Yt I	12	8	–
6700.70	Ce	20	–	–
6700.66	Dy	3	–	Ks
6700.60	Te	–	[15]	Bl
6700.6	Yb	3	–	It
6700.5	bh Sc	5	–	Me
6699.84	La	8	–	–
6699.70	Rn I	–	[8]	Rs
6699.56	Se I	–	[125]	Rd
6699.38	Yb	10	8	Me
6699.26	Yt	18	4	Me
6699 25	Sm	8	–	Kn
6699.23	La	8	–	–
6699.228	Kr I	–	[60]	Me
6698.92	Sm	2	–	Ks
6698 85	A I	–	[100]	Ms
6698.78	Al	10	–	Wt
6698 53	I	–	[50]	Ev
6698.45	A I	–	[6]	Ms
6698.11	Sm	4	–	Kn
6697.94	Zr I	4	–	Ks
6697 33	I I	–	[90]	Ev
6697.28	Sm	6	–	Kn
6696.86	Sm	3	–	Kn
6696.44	Cb	6	3	Me
6696.39	Al II	10	[2]	Sy
6695 97	Al I	–	[50]	Ps
6695.86	Eu	4 W	–	–
6695.31	Sm	3	–	Kn
6694.91	Gd	20	–	Ks
6694.75	Yt I	4	–	–
6694.69	Sm II	30 d	–	Kn
6694.32	Xe II	–	[200]	Hu
6694.32	Ho	7	–	Ed
6693.97	Eu	500	–	–
6693.88	Ba I	600	100	–
6693 61	Ta	10	–	–
6693.55	Sm II	100 d	–	Kn
6693 38	Tb	6	–	Ed
6693 118	W	3	–	–
6692.98	Eu	40	–	Kn
6692 93	Tm	15	–	Me
6692.87	La I	50	–	–
6692.87	Co I	4	–	–
6692 85	Gd	25	–	Ks
6692.811	Au	2	–	Qi
6692.57	Sm	3	–	Kn
6692 16	Br I	–	[70]	Ks
6691.85	Yt I	3	2	–
6691.67	Hf	2	3	Me
6691.581	Mn	25	–	Fu
6691.33	Pr	2 W	–	Ed
6691.21	U	2	–	–
6691 2	bh Sc	4	–	Me
6691.2	bh Ti	4	–	L
6691.08	Mo	5	–	–
6690.88	Gd	5 h	–	Ks
6690.80	Ni I	2	–	–
6690.47	F I	–	[60]	En
6690.47	Mo	20	2	–
6690.14	Te I	–	[18 w]	Bl
6690.001	Ru	300	–	–
6689.91	A I	–	[2]	Ms
6689.85	Hg	–	[5]	Lf
6689.70	Ce	3	–	–
6689.51	Tb	4	–	Ed
6689.29	Sm	3	–	Kn
6688.81	Sm	4	–	Kn
6688.49	Te	–	[5]	Bl
6688.175	Zr I	10	–	–
6688.01	Sb	–	[30]	Lg
6687.866	Mo	7	–	–
6687.82	Gd	5	–	Ks
6687.79	Sm II	80 d	–	Kn
6687.74	I	–	[15]	Bl
6687.60	Yt I	50	10	–
6687.36	Te	–	[5]	Bl
6687.12	Er	4	–	Ed
6686.79	Pd I	3	–	Me
6686.7	Te I	–	[7 w]	Rd
6686.65	Rh I	2 h	–	Me
6686.6	bh Zr	2	–	L
6686.59	Ce	8	–	–
6686.36	Sm	2	–	Kn
6686.08	Ir	20	–	Me
6686.04	Cl II	–	[45]	Ks
6686 03	Te	–	[30]	Bl
6685.71	Pd I	2	–	Me
6685.32	I II	–	[5]	Mu
6685.27	Eu	80	–	Kn
6685.02	Sm	2	–	Kn
6684 87	Co I	30	–	–
6684.73	A I	–	[6]	Ms
6684 44	Sm II	25 d	–	Kn
6684 36	A II	–	[30]	Rt
6684.08	Co	30	–	–
6684.00	Ta	40	–	–
6683.45	U	6	–	–
6683.30	Re	15 W	–	Me
6682.92	S	–	[15]	Ms
6682 57	Sm	5 d	–	Kn
6682 36	Se I	–	[20]	Rd
6682 29	Br I	–	[90]	Ks
6682.04	Eu	8 W	–	Kn
6681 92	S	–	[30]	Bl
6681.56	Pd I	3	–	Me
6681.53	Sm II	60 d	–	Kn
6681.24	S	–	[30]	Bl
6681.22	Gd	100	–	Ks
6681 15	U	2	–	Me
6681.1	bh Ti	6	–	L
6681.036	Xe I	–	[20]	IMe
6681.03	Cl II	–	[15]	Ks
6680.26	Ti II	–	5	Rl
6680.143	Nd	2	–	–
6679.809	Ce	5	–	–
6679.771	Nd	2	–	–
6679.66	Mo	3	–	–
6679.54	Gd	25	–	Ks
6679 43	Se I	–	[70]	Rd
6679.24	Sm II	80	–	–
6679.1	Sm	80	–	Kn
6678.972	Xe I	–	[25]	IMe
6678 892	Mo	5 h	–	–
6678.81	Co I	125	–	–
6678.81	Zr I	2	–	Ks
6678.711	Th	2	–	Fd
6678.523	Nd	2	–	–
6678.45	Cl I	–	[2]	Ks
6678.414	W	3	–	–
6678 2764	Ne I	–	[500]	S
6678.17	Yb	20	–	Me
6678.149	He I	–	[100]	IMr
6678.01	Zr II	–	3	–
6678.0	bh Zr	5	–	L
6678.00	Sm	3	–	Kn
6677.993	Fe I	250	150	S
6677.94	Tb	12	–	Ed
6677.46	Sm	3	–	Kn
6677 33	Cb	200	50	Me
6677.3	bh C	–	–	L
6677.282	A I	–	[30]	IMe
6677.20	Cr	2	–	Me
6677 175	Ti I	18	–	–
6677.14	Lu	40	1	Me
6677.06	Sm	10	–	Kn
6676.925	U	8	–	–
6676.14	La II	–	2	Me
6676.01	Te	–	[70]	Bl
6675.60	Sm	3	–	Kn
6675.544	Ce	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6675.53	Ta	400	–	–
6675.5	Hg II	–	[5]	Rs
6675.268	Ba I	500	100	–
6674.68	Sm	2 h	–	Ks
6673.778	Pr	40	–	–
6673.73	Ta	200	–	–
6673.410	Pr	30	–	–
6672.850	V	–	2	Me
6672.70	Te	–	[5]	Bl
6672.52	Sm	2	–	Kn
6672.33	I	–	[30]	Bl
6672.23	Ru	5	–	–
6672.23	Cu I	15	–	Me
6672.20	Sm	3	–	Kn
6672.10	A I	–	[2]	Ms
6671.90	Eu	4 W	–	Kn
6671.48	Sm I	50	–	–
6671.382	La II	10	25	–
6671.29	Hf	1	3	Me
6671.29	U	3	–	–
6670.73	Sm	3	–	Kn
6670.6	Te	–	[50]	Rd
6670.391	Nd	2	–	–
6669.60	Rn I	–	[12]	Rs
6669.31	Sm	10 d	–	Kn
6669.31	Hf	1	3	Me
6669.257	Cr I	80	–	–
6669.11	Ta	3	–	–
6668.920	Xe I	–	[150]	IMe
6668.91	Sm	3 wh	–	Kn
6668.74	Lu	4	–	Me
6668.60	Sm	2	–	Kn
6668.317	Ir I	4	–	–
6668.27	A I	–	[8]	Rs
6667.93	Ho	2	–	Ed
6667.90	Dy	8	–	Ks
6667.85	Yb	1000	20	Me
6667.83	Sm	2	–	Kn
6667.694	Ir I	5	–	–
6667.60	Co	5 r	–	Me
6667.22	Sm II	50 d	–	Kn
6667.13	Se	–	[15]	Bl
6666.965	Xe I	–	[60]	IMe
6666.893	Ne I	–	[100]	Ps
6666.548	Ti I	30	–	–
6666.36	A II	–	[10]	Rt
6666.24	Cr	8	–	–
6666.00	In II	–	[5]	Ps
6665.970	I II	–	[70]	Ke
6665.68	Ce	10	–	–
6665.29	Re	25 w	–	Me
6665.29	Co I	4	–	–
6664.85	Xe	–	[4]	Me
6664.61	Nd	8	–	Ks
6664.42	Yt I	6	3	–
6664.14	Ru	5	–	–
6664.02	A I	–	[100]	Ms
6663.72	Co I	3 h	–	–
6663.446	Fe I	70	25 h	S
6663.139	Ru	100	–	–
6662 86	Pd I	4	–	Me
6662.55	Ce	4	–	–
6662.30	Ta	10 w	–	–
6662.274	Th	10	–	Fd
6662.14	I	–	[100]	Ev
6661.81	Os	2	–	–
6661.69	Dy	5	–	Ks
6661.68	Cl II	–	[75]	Ks
6661.63	Sm	5	–	Kn
6661.41	Ce	8	–	–
6661.399	La I	70	–	–
6661.39	Ni I	2 h	–	–
6661.37	Sm	5	–	Kn
6661.16	I	–	[100]	Ev
6661.076	Cr I	100	–	–
6661.06	Te	–	[30]	Bl
6661.0	bh Sc	7	–	Me
6660.99	Cu II	–	8	Sh
6660.84	Cb	300	80	Me
6660.75	Se	–	[50]	Bl
6660.64	A I	–	[100]	Ms
6660.0	Pb II	–	[500]	Ea
6659.80	Te	–	[15]	Bl
6659.680	Mo	20	2	–
6659.40	Hf	1	5	Me
6659.189	Ir I	5	–	–
6658.681	Th	4 h	–	Fd
6658.62	Tm	30	40	Me
6658.40	Dy	4	–	Ks
6658.07	Te	–	[5]	Bl
6657.92	Xe I	–	[20]	Me
6657.83	Se I, II	–	[10]	Rd
6657.73	Tm	70	10	Me
6657.7	bh Ti	2	–	L
6656.88	A I	–	[6]	Ms
6656.829	Pr	30	–	–
6656.813	U	4	–	–
6656.61	N I	–	[5]	Du
6656.56	Gd	15	–	Ks
6656.19	Sm II	100	–	Kn
6655.672	Nd	10	–	–
6655.6	bh F	100	–	L
6655.47	Ce	3	–	Kn
6654.809	Ce	2	–	–
6654.77	O	–	[10]	Fl
6654.4	bh Sc	7	–	Me
6654.30	Ce	3	–	–
6654.30	Sm	4	–	Kn
6654.27	Dy	3	–	Ks
6654.121	O I	–	[50]	Fh
6654.05	Ba I	50	–	Me
6653.75	Cl II	–	[25]	Ks
6653.41	N I	–	[70]	Du
6653.33	Ra	–	[15]	Rs
6652.77	Ce	5	–	–
6652.6	Au I	15	–	Ml
6652.399	Re	80 W	–	–
6652.29	Co I	3 h	–	–
6652.239	Kr I	–	[40]	Me
6652.1	bh F	100	–	L
6652.093	Ne I	–	[150]	Ps
6651.886	Cr	8	–	Ss
6651.61	Sm II	80 d	–	Kn
6651.5	bh Ti	5	–	L
6651.423	Ce	10	–	–
6651.08	Gd	15	–	Ks
6650.888	Ce	8	–	–
6650.81	I I	–	[30]	Ev
6650.801	La I	100	–	–
6650.62	Yt I	15	4	–
6650.57	Nd	10	–	Ks
6650.39	F I	–	[40]	En
6650.375	Mo	80	6	–
6649.97	Co I	5	–	Me
6649.72	Te	–	[30]	Bl
6649.703	Mo	7	–	–
6649.5	bh Zr	2	–	L
6649.35	Mo	5	–	–
6649.22	Cu II	–	2	Sh
6649.02	Sm II	50	–	Kn
6648.75	Xe I	–	[3]	Me
6648.7	bh F	100	–	L
6648.52	Te	–	[100]	Bl
6648.312	Pt	10	–	–
6648.3	Eu	2	–	Kn
6648.134	Sb	3	–	Wt
6648.12	Sm I	3	–	Kn
6647.94	Kr I	–	[3]	Rs
6647.80	Ni	5 l	–	Me
6647.44	Sb	–	[60]	Lg
6647.43	Se	–	[15]	Bt
6647.38	Ce	2	–	Ks
6647.119	Pr	5	–	–
6647.06	Hf II	30	100	Me
6646.84	Gd	10	–	Ks
6646.7	Hg II	–	[10]	Nu
6646.564	Cs	–	[15]	Sv
6646.52	N I	–	[15]	Mt
6646.22	Sm	10 d	–	Kn
6645.95	Ra	–	[15]	Rs
6645.41	Tb	4	–	Ed
6645.4	bh F	80	–	L
6645.33	Co I	4 h	–	–
6645.3	bh Zr	2	–	L
6645.18	Gd	150	–	Ed
6645.160	La I	8	–	–
6645.15	Eu	1000	–	–
6645.1	bh Sc	6	–	Me
6645.02	Re	25	–	Sj
6645 01	Rh I	2	–	Me
6644.96	N I	–	[500]	Du
6644.66	Th	3	–	–
6644.60	Hf II	100	200	Me
6644.407	La I	40	–	–
6644.07	Yb	2	5 h	Me
6644.04	Gd	8	–	–
6643.88	Sm	4	–	Kn
6643.79	A II	–	[100]	Rt
6643.77	Ba	4 h	–	Lr
6643.67	Ir	3	–	–
6643.65	Co	2 h	–	–
6643.641	Ni I	300 w	–	IKs
6643.540	Sr I	100	–	–
6643.54	Yb	50	–	Me
6643.41	Dy	4	–	Ks
6643.023	Cr	5	–	–
6642.787	La II	10	25	–
6642.75	Gd	5	–	Ks
6642.27	Tb	4	–	Ed
6642.0	bh F	50	–	L
6641.74	U	2	–	Me
6641.57	Sm	3	–	Kn
6641.50	S	–	[15]	Bl
6641.41	Cu II	–	10	Sh
6641.15	Ce	3	–	–
6640.90	O II	–	[70]	Fl
6640.80	Ne I	–	[5]	Gr
6640.8	Eu	2	–	Kn
6640.74	Sm	4 w	–	Kn
6640.59	Te	–	[15]	Bl
6640.49	Sm	3	–	Kn
6640.09	Gd	40	–	–
6640.012	Ne I	–	[10]	Ps
6639.81	Sm	4	–	Kn
6639.72	A II	–	[20]	Rt
6639.5	Hg	–	[10]	Lf
6639.41	Ta	2	–	Ks
6638.8	bh F	30	–	L
6638.49	Sm	15 d	–	Kn
6638.24	A II	–	[30]	Rt
6637.962	Nd	25	–	–
6637.62	Er	4	–	Ed
6637.31	Tm	15	–	Me
6637.23	Re	20 w	–	Me
6637.191	Nd	15	–	–
6637.17	Sm II	60 d	–	Kn
6637.165	Mo	8	–	–
6637.01	N I	–	[50]	Du
6637.00	Te	–	[50]	Bl
6636.531	La	1	3	–
6636.51	Yt I	8	–	–
6635.6	bh F	30	–	L
6635.38	Hf	2	4	Me
6635.36	Sm	2	–	Kn
6635.22	Sm	10	–	Kn
6635.15	Ni I	5 h	–	–
6635.12	Co I	25 h	–	–
6634.7	Cu I	3 h	–	Ks
6634.63	Sb	2 wh	–	Wt
6634.36	Kr II	–	[15 h]	Me
6634.35	Gd	150	–	Ks
6634.3	bh Ti	2	–	L
6634.22	Au	2	–	Ql
6634.13	Xe II	–	[10 whl]	Hu
6633.94	I	–	[30]	Bl
6633.772	Fe I	60 h	25 Wh	–
6633.1	Sm	10 d	–	Kn
6632.7	bh F	300	–	L
6632.464	Xe I	–	[50]	IMe
6632.445	Co I	150	–	–
6632.44	Xe	–	[3]	Hu
6632.28	Sm II	100	–	Kn
6632.13	Rh I	3	–	Me
6632.04	A I	–	[8]	Ms
6632.04	Pr	2	–	Ed
6631.85	Cu II	–	2	Sh
6631.64	Br I	–	[200 l]	Ks
6631.3	bh C	–	–	L
6631.3	bh Yt	2	–	Me
6631.206	La I	3	–	–
6630.61	Sm II	50 d	–	Kn
6630.5	N II	–	[15]	Fl
6630.44	Xe I	–	[2]	Me
6630.160	U	2	–	–
6630.16	Rh I	40	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
6630.138	Nd	30	–	–
6630.015	Cr I	50	–	–
6629.71	Sm	2	–	Kn
6629.67	Cu I	3	–	Me
6629.52	Ni	2	–	–
6629.48	Sb II	–	[2]	Lg
6629.4	bh F	200	–	L
6629.11	Cb	2	10 h	Me
6628.99	Ho	10	–	Ed
6628.932	Ce	10	–	–
6628.88	Sm II	50 d	–	Kn
6628.7	Te I	–	[5 w]	Rd
6628.654	Cs I	35	12	Ms
6628.42	Gd	10 h	–	Ks
6628.413	La I	5	–	–
6628.17	Re	25	–	Sj
6627.96	Kr II	–	[2 hl]	Me
6627.83	Sm	4	–	Kn
6627.80	Rh I	30	–	Me
6627.62	O II	–	[30]	Mh
6627.566	Fe I	4 h	8 wh	–
6627.41	Sm	5	–	Kn
6627.29	Tm	10	–	Me
6627 23	Rn I	–	[30]	Rs
6627.12	In II	–	[20 h]	Ps
6626.976	Cb	6	2	–
6626.96	Sm	2	–	Kn
6626.18	Ta	3 h	–	–
6626.1	Eu	2	–	Kn
6626.1	bh F	200	–	L
6626.1	bh Ti	2	–	L
6625.284	U	2	–	–
6625.28	Sm	30 d	–	Kn
6625.28	Pd I	4	–	Me
6624.849	V I	12	[7]	–
6624.731	Ir	15	–	–
6624.573	Mo	15	2	–
6624 29	Cu II	–	8	Sh
6624.26	Nd	4	–	Ks
6624.22	Kr II	–	[2 hl]	Me
6623.981	Re I	30 w	–	–
6623 791	Co	70 W	–	–
6623.78	A I	–	[4]	Rs
6623.7	Eu	2	–	Kn
6623.541	V I	2	–	–
6623.26	Pd I	4	–	Me
6623.004	Ce	5	–	–
6622.9	bh F	200	–	L
6622.815	U	3	–	–
6622.67	Sm	4	–	Kn
6622.53	N I	–	[30]	Du
6622.49	I II	–	[30]	Bl
6622.47	Yt I	3	–	–
6622.27	Gd	15	–	Ks
6621.771	U	6	–	–
6621.680	W	5	–	–
6621.62	Ru	4	–	–
6621.61	Cu I	20	–	Me
6621.30	Ta	200	–	–
6621.3	Eu	2	–	Kn
6621.28	Sb II	–	[4]	Lg
6621.24	Ni I	2 h	–	Me
6621.01	A	–	[4]	Rt
6620.558	Zr I	6	–	–
6620.524	U	15	–	–
6620.50	Br I	–	[10]	Ks
6620.02	Xe II	–	[100]	Hu
6619.903	Ir	4	–	–
6619.877	Th	3	–	Fd
6619.8	bh F	150	–	L
6619.69	I I	–	[200]	Ev
6619.354	Nd	10	–	–
6619.28	Eu	5 W	–	Kn
6619.130	Mo	300	15	–
6619.01	Sm II	5 Wh	–	Kn
6618.529	Nd	8	–	–
6618.41	I II	–	[2]	Mu
6618.40	Xe II	–	[30]	Hu
6618.195	Ru	20	–	–
6617.9	bh Sc	8	–	Me
6617.61	Sm II	50 d	–	Kn
6617.526	Co I	30	–	Sl
6617.259	Sr I	150	–	–
6617.118	Co I	30	–	Sl
6617.06	Yb	10	6	Me
6616.80	Sm	6	–	Kn
6616.75	Er	8	–	Ed
6616.698	Cb	6	2	–
6616.650	Pr	35	–	–
6616.6	bh F	100	–	L
6616.577	La I	125	–	–
6616.14	Hf	2	4	Me
6616.09	Re	25	–	Sj
6615.88	Nd	5	–	Ks
6614.96	Xe II	–	[10 wh]	Hu
6614.91	Dy	2	–	Ks
6614.82	Sm II	50 d	–	Kn
6614.56	Os	3	–	–
6614.5	Cl	–	[10]	Mj
6614.153	Cb	25	8	–
6613.74	Yt II	15	12	–
6613.6	bh F	80	–	L
6613.4	Te I	–	[18 l]	Rd
6613.31	Xe	–	[4 h]	Hu
6613.124	Ru	4	–	–
6613.1	bh Zr	3	–	L
6613.03	Rn I	–	[6]	Rs
6612.60	Sm	4	–	Kn
6612.548	Re	2	–	–
6612.44	La	6	–	–
6612.180	Cr I	12 l	–	–
6612.17	Er	4	–	–
6612.06	Ce	8	–	–
6612.04	Lu	10	–	Me
6611.988	Nd	8	–	–
6611 95	Lu	15	–	Me
6611.95	Ta	300	–	–
6611 80	Lu	20	–	Me
6611.71	Lu	100	150	Me
6611.585	Re	3	–	–
6611.58	Lu	25	–	Me
6611.48	Sb	6	–	Wt
6611.28	Lu	30	–	Me
6611.203	Mo	20	–	–
6610.58	N II	–	[100]	Fl
6610.5	bh F	50	–	L
6610.5	bh Yt	4	–	Me
6610.36	Sb	4	–	–
6610.05	Gd	15	–	Ks
6610.03	Mn	2	–	Sl
6610 0	bh Sc	8	–	Me
6609.850	Pr	4	–	–
6609.8	Hg II	–	[5]	Ps
6609.685	Nd	5	–	–
6609.305	Nd	4	–	–
6609.30	Cl	–	[5]	Ks
6609.20	Hf II	1	8	Me
6609.116	Fe I	25	12 h	–
6608.894	Cr	25	–	–
6608.87	Xe I	–	[10]	Me
6608.86	Sm	3	–	Kn
6608.52	Re	25	–	Sj
6608.4	Sm	3	–	Kn
6608.257	La I	50	–	–
6607.831	V I	3	–	–
6607.749	La I	3	–	–
6607.6	bh F	30	–	L
6607.47	Ho	4	–	Ed
6607.41	Xe I	–	[30 h]	Me
6607.276	Cb	15	4	–
6607.17	Tb	6	–	Ed
6607.17	Sm	15	–	Kn
6607.07	Yb	20	–	Me
6606.856	Ce	4	–	–
6606.43	Rn I	–	[20]	Rs
6606.33	Ce	10	–	Kn
6606.3	Te I	–	[7]	Rd
6606.158	Cb	15	4	–
6605.970	V I	3	–	–
6605.93	Yb	–	4 h	Me
6605.85	Ta	3	–	–
6605.53	Mn	30 h	–	Sl
6605.432	Th	5 h	–	Fd
6605.386	Ce	3	–	–
6605.19	Re I	100 W	–	Me
6605.12	Kr I	–	[2]	Me
6605.00	Kr II	–	[15]	Me
6604.97	Er	4	–	Ed
6604.97	Tm	300	60	Me
6604.94	Ho	20	–	Ed
6604.853	A I	–	[30]	Ms
6604.61	Cl I	–	[5]	Ks
6604.6	bh F	30	–	L
6604.60	Sc II	12	–	Me
6604.56	Sm II	200 d	–	Kn
6604.44	Nd	8 d	–	Ks
6604.05	U	6	–	–
6604.02	A I	–	[2]	Ms
6603.7	Eu	5 W	–	Kn
6603.694	Nd	3	–	–
6603.60	Eu	80	–	Kn
6603.53	Sm	4	–	Kn
6603.336	U	3	–	–
6603.27	Zr I	20	–	Ks
6603.04	Te	–	[5]	Bl
6602.907	Ne I	–	[100]	Ps
6602.90	Kr II	–	[10 h]	Me
6602.87	Xe I	–	[4 h]	Me
6602.684	U	2	–	–
6602.4	Hg	–	[10]	Lf
6601.83	Sm II	150 d	–	Kn
6601.8	bh F	20	–	L
6601.756	Nd	10	–	–
6601.458	U	2	–	–
6601.2	Eu	2 W	–	Kn
6601.10	Er	12	–	Ed
6600.8	bh Sc	10	–	Me
6600.60	Gd	8	–	Ks
6600.39	Sm	3	–	Kn
6600.2	Bi II	–	70	Cf
6600.168	La I	40	–	–
6599.90	Zr I	4	–	–
6599.76	Hf II	1	4	Me
6599.68	Cu I	25	–	Az
6599.61	Ce	6	–	Kn
6599.47	Ra I	–	[30]	Rs
6599.41	Br	–	[15]	Bl
6599.3	bh C	–	–	L
6599.112	Ti I	100	–	–
6598.9529	Ne I	–	[1000]	S
6598.95	Sm	2	–	Kn
6598.842	Zr I	6	–	–
6598.84	Xe II	–	[50]	Hu
6598 66	A I	–	[6]	Ms
6598.594	Ni I	5 h	–	–
6598.24	Mn	2 h	–	–
6597 93	Pt	4	–	Me
6597.607	Fe I	10	–	Bu
6597 556	Cr	40	–	–
6597 25	Xe II	–	[200]	Hu
6597.03	Sm	40	–	Kn
6596 712	Zr I	4	–	–
6596 584	Ru	4	–	–
6596.32	Te	–	[30]	Bl
6596.10	A I	–	[8]	Ms
6596.00	Sm	10	–	Kn
6595 93	Rn I	–	[10]	Rs
6595.905	Co I	150	–	–
6595.561	Xe I	–	[100]	IMe
6595.470	Pr	3	–	–
6595.4	Eu	2	–	Kn
6595 38	Co	4	–	Sl
6595.32	Ba I	1000	300	–
6595.013	Nd	5	–	–
6595.01	Xe	–	[400]	Hu
6595.00	K II	–	[5]	Bn
6594.675	Cr	60 wh	–	–
6594.66	A I	–	[2]	Ms
6594.56	Rn I	–	[10]	Rs
6594.3	Hg	–	[10]	Lf
6594.16	Dy	3	–	Ks
6593.96	Th	5	–	Fd
6593.878	Fe I	30	18	–
6593.82	Eu	400	–	–
6593.745	Ru	15	–	–
6593.52	Er	4	–	Ed
6593.467	La I	25	–	–
6593.40	Gd	8	–	–
6593.34	Ra II	–	[500]	Rs
6593.03	Sm	4	–	Kn
6592.919	Fe I	150	80	S
6592.66	Nd	2	–	Kn
6592.65	Pt	4	–	Me
6592.54	Re I	60 w	–	–
6592.517	Ni I	5 h	–	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
6591.988	Zr I	30	–	–
6591.808	Co I	15	–	Sl
6591.60	Gd	40	–	–
6591.50	Sm	40	–	Kn
6591.480	Th	8	–	Fd
6591.44	Pd I	3	–	Me
6591.429	Nd	5	–	–
6591 4	bh Yt	2	–	Me
6591.00	Cb	20	10	Me
6590.945	Nd	3	–	–
6590.897	Mo	12	–	–
6590.88	Se	–	[8]	Bl
6590.86	Xe I	–	[8]	Me
6590.395	Mo	3	–	–
6590.20	Sm	3	–	Kn
6590.052	U	5	–	–
6589.73	Sm II	400 d	–	–
6589.639	Nd	10	–	–
6589.067	Nd	5	–	–
6588.92	Sm	100	–	–
6588.540	Th	10	–	Fd
6588.41	Sm	8	–	Kn
6588.204	Ir	5	–	–
6588.033	Nd	6	–	–
6587.834	U	2	–	–
6587.75	C I	–	[50]	En
6587.54	Sm	30 d	–	Kn
6587.23	Hf	5	10	Me
6587.16	Ta	5 h	–	–
6587.0	Eu	2 W	–	Kn
6586 506	Cs I	500	[5]	Ms
6586.42	Sm	2	–	Kn
6586.343	Mn	20 h	–	Sl
6586 328	Ni I	40	–	–
6586.019	Cs	35	–	Ms
6585.706	Nd	8	–	–
6585.42	Yb	7	20	Me
6585.41	Ra	–	[50]	Rs
6585 21	Sm II	150 d	–	Ks
6585.200	U	2	–	–
6585.190	I II	–	[70]	Ke
6585.13	Ta	5	–	–
6584.93	Te	–	[30]	Bl
6584.9	bh Zr	2		L
6584.84	Yt I	3	–	–
6584.6	Hg	–	[10]	Lf
6584 59	Nd	5	–	Ks
6584.53	Hf II	4	40	Me
6584.14	Sm	15	–	Kn
6583.907	Th	10	–	Fd
6583.81	I	–	[70]	Ke
6583 54	Cu I	8	–	Az
6583 46	Er	10	–	Ed
6583.27	Xe I	–	[20]	Me
6582.87	I I	–	[20]	Ke
6582.85	C II	–	200	Fl
6582 82	In	–	5	Sq
6582.782	U	4	–	–
6582.617	Nd	3	–	–
6582.191	La I	8	–	–
6582.19	Br I	–	[100]	Ks
6581.82	Tb	6	–	Ed
6581.68	I	–	[15]	Bl
6581.60	A I	–	[2]	Ms
6581.25	Sm	4	–	Kn
6581.15	Hf	2	2	Me
6581.1	bh Mg	3	–	L
6580.943	Nd	10	–	–
6580.913	Cr I	30	–	–
6580.73	Ba	20 h	–	Me
6580.58	I	–	[15]	Ev
6580.53	Sm	15	–	Kn
6580.38	F I	–	[30]	En
6580.22	Ni	2 h	–	–
6579.640	Nd	3	–	–
6579.38	Dy	8	–	Ks
6579.37	Co I	15	–	–
6579.26	Sn	–	15 wh	Ar
6579 249	Sm	4	–	–
6579.20	Br I	–	[20]	Ks
6579.110	Ce	8	–	–
6578.94	Ta	2	–	–
6578.63	Te	–	[15]	Bl
6578.513	La I	100	–	–
6578.2	bh Zr	4	–	L
6578.16	In	–	12	Sq
6578 03	C II	–	500	Fl
6578.001	Pr	3	–	–
6577.732	Nd	4	–	–
6577.552	Ta	4	–	–
6577.470	Ce	3	–	–
6577 36	Sm	25	–	Kn
6577.203	Th	4	–	Fd
6577.2	Bi II	2 h	20	Cf
6577.151	Re I	50 W	–	–
6577.144	Ta	5	–	–
6576.885	Yt I	10	6	–
6576 828	Os	3	–	–
6576 558	Zr I	6	–	–
6576 42	Kr I	–	[20]	Me
6576 38	Ni	2	–	–
6575 95	Sm	25	–	Kn
6575 935	Nd	4	–	–
6575 9	bh Sc	10	–	Me
6575.56	Tm	20	–	Me
6575.180	Ti I	20	–	–
6575.022	Fe I	12 h	15 h	–
6574.84	Ta	200	–	–
6574.73	Cb	12	2	Me
6574.50	Te	–	[30]	Bl
6574.38	Sm II	100	–	Kn
6573.948	W	2	1	–
6573 80	Gd	10	–	Ks
6573.68	Xe II	–	[30]	Hu
6573 03	Sm	10	–	Kn
6572 900	Cr I	25	–	–
6572 9	Eu	3	–	Kn
6572 781	Ca I	50	–	IWg
6572 651	Nd	8	–	–
6572.58	Yt	3	6	–
6572.5	bh Yt	6	–	Me
6572.35	Sm	2	–	Kn
6571.864	Nd	5	–	–
6571 37	A I	–	[2]	Ms
6571.35	Br I	–	[5]	Ks
6571.088	Mo	5	2	–
6571.044	Pr	2 h	–	–
6570.960	La II	5	–	–
6570.834	Mn	2	–	–
6570 81	I I	–	[30]	Bl
6570.760	Eu	15	–	Kn
6570.67	Sm II	200 d	–	Kn
6570 07	Kr II	–	[150]	Me
6569.776	Mo	10	2	–
6569.69	F I	–	[50]	En
6569.56	Nd	5	–	Ks
6569 427	Zr I	8	–	–
6569.4	Pb II	–	[25]	Ea
6569 31	Sm II	500 d	–	Kn
6569.27	I I	–	[5]	Db
6569.23	Mn	2	–	Sl
6569.224	Fe I	50	25 h	–
6569.13	Xe II	–	[8]	Hu
6568.469	Nd	5	–	–
6567.98	Gd	25	–	Ks
6567.87	Eu	600	–	–
6567.73	Cd II	7	3	Vs
6567.53	Br	–	[25]	Bl
6567.50	Sm	3	–	Kn
6567.39	Hf II	6	60	Me
6567.079	Co	2 h	–	–
6566.9	bh Sc	10	–	Me
6566.747	Pr	20 W	–	–
6566.48	I I	–	[400]	Ke
6566.26	Tm	10	–	Me
6565.91	Ba	3	–	Lr
6565.88	V I	3	–	Me
6565.76	Hf II	–	3	Me
6565.62	Ti I	50	–	–
6565.54	Cu I	15	–	Me
6565.434	La I	15	–	–
6565.32	Kr II	–	[6 h]	Me
6565.17	Dy	3	–	Ks
6565.04	S	–	[15]	Bl
6564 80	I	–	[30]	Bl
6564.78	Gd	25	–	Ks
6564.69	Sm	2 d	–	–
6564.632	Pr	10	1	–
6564.60	Cu II	–	10	Sh
6564.33	Ba I	3	–	Me
6564.26	Ta	20 h	–	–
6564.052	Sb	6	–	Wt
6563.95	Te	–	[50 h]	Bl
6563.927	Nd	4 h	–	–
6563.701	Ta	2	–	–
6563.66	Gd	6	–	Ks
6563.52	Sm	20	–	Kn
6563.421	Co I	200 w	5	–
6563.24	Sn	–	50 Wh	Ar
6563.224	W	2	1	–
6563.19	Xe II	–	[15]	Hu
6562.94	Sm	50 d	–	Kn
6562.86	Hf II	2	10	Me
6562.849	H	–	[2000]	Ms
6562.725	H	–	[1000]	Ms
6562.64	Sm	2	–	Kn
6561.60	Ta	40	–	–
6561.18	Eu	6 W	–	Kn
6560.87	I I	–	[30]	Ev
6560.837	Rb	–	150	Rr
6560.747	Pr	4	–	–
6560.68	Si I	2 h	–	Ks
6560.65	Xe I	–	[4 h]	Me
6560.450	Ru	9	–	–
6560 292	Nd	5	–	–
6560.13	He II	–	[100]	Ps
6559 97	Xe I	–	[25]	Me
6559.81	Br I	–	[150]	Ks
6559.580	Ti II	8	–	–
6559 336	Ce	3	–	–
6559 271	Ta	3 l	–	–
6558 966	Nd	5	–	–
6558.7	Pb II	–	[15]	Ea
6558.39	Sm	3	–	Kn
6558 17	Sm	10	–	Kn
6558 150	Sb	12	–	Wt
6558 05	Sc I	5	–	Me
6558 020	V I	3	–	–
6558.02	Dy	3	–	Ks
6557.91	Hf II	10	100	Me
6557.8	bh Sc	10	–	Me
6557 78	Er	6	–	Ed
6557.65	Re	4 h	–	Me
6557.581	U	5	–	–
6557.49	Rn I	–	[20]	Rs
6557.39	Yt I	2	6	–
6557.151	Ro I	10 w	–	–
6557.00	Hf	2	2	Me
6556 92	Cb	6	2	Me
6556 902	Ta	2 h	–	–
6556.70	Xe II	–	[5]	Hu
6556 50	Hf	5	10	Me
6556.46	Sm	3	–	Kn
6556 31	Er	6	–	Ed
6556 066	Ti I	150	–	IKs
6555 98	Hf	1	3	Me
6555.95	La I	5	–	Ks
6555.70	Tl II	–	[5]	El
6555 69	Kr I	–	[6]	Me
6555.670	Ce	15	–	–
6555 625	Rb II	–	100	Lp
6555.56	Kr I	–	[2]	Me
6555.24	Sm	3 d	–	Kn
6555.118	La I	4	–	–
6555.05	Cu II	–	5	Sh
6555.014	U	15	–	–
6554 678	Re	3	–	–
6554.226	Ti I	125	150	IKs
6554 196	Xe I	–	[50 hl]	IMe
6554.148	Th	5	–	Fd
6553.8	bh Yt	8	–	Me
6553.66	Xe I	–	[4]	Me
6553.6	Hg	–	[10]	Lf
6553.5	Te I	–	[12 l]	Rd
6553.301	Pr	4 w	–	–
6553.070	Nd	8	–	–
6552.92	Hf	1	3	Me
6552.84	U	3	–	Me
6552.63	Tl II	200	[10]	El
6552.596	Mo	5	2	–
6552.27	Rn I	–	[6]	Rs
6552.263	Ir I	3	–	–
6552.010	Mn	3	–	Sl
6551.80	Sm II	25	–	Kn
6551.722	Ce	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6551.61	Cb	6 p	1	Me
6551.58	Cu II	–	2	Sh
6551.44	Co I	80 w	–	–
6551.19	Tm	10	–	Me
6551.04	Sm	5	–	Kn
6550.98	Cu I	3	–	Me
6550.97	Ho	20	–	Ed
6550.58	I I	–	[5]	Db
6550.540	Zr I	18	–	–
6550.255	Sr I	100	10	–
6550.191	Nd	8 wh	–	–
6550.19	Yb	10	–	Me
6550.01	Hf II	1	10	Me
6549.880	U	4	–	–
6549.77	Sm II	100 d	–	Kn
6549.77	Tl I	300	50 hl	Ps
6549.7	bh Zr	2	–	L
6549.542	Nd	10	–	–
6549.35	I	–	[30]	Bl
6549.24	Gd	25	–	–
6549.185	La I	3	–	–
6549.14	Eu	20 W	–	Kn
6548.72	Hf	1	10	Me
6548.28	Dy	3	–	Ks
6548.24	Hf II	2	3	Me
6548.14	Br I	–	[20]	Ks
6547.28	Gd	6	–	Ks
6547.24	Ta	5	–	Ks
6546.94	I II	–	[5]	Mu
6546.86	Sb II	4	[2]	Lg
6546.791	Sr I	25	5	–
6546.59	Te	–	[5]	Bl
6546.276	Ti I	80	–	IKs
6546.245	Fe I	150	50	S
6546.12	Xe I	–	[20]	Me
6546.02	Hf	2	5	Me
6545.93	Ra	–	[30]	Rs
6545.740	Re	6 h	–	–
6545.725	U	2	–	–
6545.44	Mg II	10	2	Lr
6545.11	A	–	[2]	Ms
6545.04	Se	–	[4]	Bl
6544.95	Sm	10	–	Kn
6544.933	Re	15	–	–
6544.89	Ba	5	–	Lr
6544.66	Sm	40	–	Kn
6544.61	Cb	80	10	Me
6544.61	Br I	–	[100]	Ks
6544.57	Sm II	40	–	Kn
6544.51	Cu I	3	–	Me
6544.25	Ru	5	–	–
6543.8	Eu	3 W	–	Kn
6543.609	Ce	3	–	–
6543.511	V I	8	[5]	–
6543.360	Xe I	–	[40]	IMe
6543.29	Sm	40	–	Kn
6543.151	La I	125	–	–
6543.143	Tl	8	–	Bh
6543.0	bh Zr	10	–	L
6542.969	U	8	–	–
6542.80	Hf II	3	50	Me
6542.76	Sm II	200	–	Kn
6542.42	Cl	–	[5]	Ks
6542.04	Gd	5	–	Ed
6541.99	Br	–	[15]	Bl
6541.93	Cu II	–	2	Sh
6541.89	Te	–	[30]	Bl
6541.53	Er	6	–	Ed
6541.455	In II	–	[40]	Ps
6541.23	Se II	–	[15]	Bt
6541.224	In II	–	[50]	Ps
6541.2	Hg	3	[5]	Lf
6541.13	Sm	2	–	Kn
6541.073	Nd	3	–	–
6541.01	Hf	2	5	Me
6540.959	In II	–	[60]	Ps
6540.483	Pr	15 w	–	–
6540.29	Ir	4	–	Me
6540.236	Ru	15	–	–
6539.937	Nd	10 W	–	–
6538.601	Yt I	50	10	–
6538.57	S	–	[60]	Fh
6538.40	Co	2 h	–	Me
6538.34	I	–	[70]	Bl
6538.295	Os	10	–	–
6538.14	Gd	50	–	–
6538.136	W	2	1	–
6538.115	A I	–	[30]	Ms
6537.97	S I	–	[3]	Fh
6537.95	Cr I	35	–	Me
6537.621	Mo	6	2	–
6537 61	Sm	3	–	Kn
6537.515	Sm	5 w	–	–
6537.476	Ce	2	–	–
6537.06	Hf	2	5	Me
6537.01	Te	–	[100]	Bl
6536.83	Sm	10 h	–	Kn
6536.67	S I	–	[15]	Fh
6536.58	U	2	–	–
6536.56	Hf	2	5	Me
6536.55	Kr I	–	[8]	Me
6536.440	Cs II	–	[15]	Lp
6536.41	S I	–	[45]	Fh
6536.307	Mo	7	–	–
6535.8	bh Yt	10	–	Me
6535.63	S I	–	[8]	Fh
6535.457	U	4	–	–
6535.35	Sm	5	–	Kn
6535.3	bh Sc	10	–	Me
6535.13	Co I	2 h	–	–
6535.029	Yt	4	6	Ks
6534.95	Se II	–	[300]	Mz
6534.64	Pr	3 w	–	Ed
6534.598	U	3	–	–
6534.501	Ce	5	–	–
6534.44	Se	–	[125]	Ms
6534.08	Mn	10 h	–	Sl
6533.97	Fe	–	3 h	Bu
6533.96	Sm	15	–	Kn
6533.7	bh C	–	–	L
6533.494	Mn	20	–	–
6533.159	Xe I	–	[100]	IMe
6533.139	Os	3 h	–	–
6533 1	Pb II	–	[20]	Ea
6533.0	N II	–	[5]	Fl
6532.96	Eu	4 W	–	Kn
6532 891	Ni I	3	–	–
6532.8824	Ne I	–	[100]	S
6532.417	W	2	–	–
6532.25	Sm	15	–	Kn
6532 08	Ra I	–	[30]	Rs
6531.66	Hf II	2	30	Me
6531.43	Cl I	–	[15]	Ks
6531.428	V I	25	–	–
6531.348	Th	15	–	Fd
6530.98	Gd	10	–	–
6530.74	Sm	10	–	Kn
6530.677	Ce	6	–	–
6530.606	Eu	6	–	Kn
6530.30	Cu II	–	8	Sh
6530.2	Au I	5	–	Ml
6530.01	Gd	10	–	Ks
6529.88	Sb II	4	[4]	Lg
6529.731	La II	4	2 h	–
6529.70	Sm	50	–	Kn
6529.225	Re	4	–	–
6529.197	Cr	40 h	–	Hl
6528.98	Sm	5	–	Kn
6528.92	Ra I	–	[15]	Rs
6528.871	Os	2	–	–
6528.744	Ru	25	–	–
6528.65	Xe II	–	[100]	Hu
6528.35	Te	–	[5]	Bl
6528.06	As	–	5	Ro
6528.02	Sm	3	–	Kn
6527.8	Pb II	–	[25]	Ea
6527.634	Mo	4	–	–
6527.63	Tb	4	–	Ed
6527.6	bh F	200	–	L
6527.49	Si I	3 h	–	Ks
6527.314	Ba	200	20	IKs
6527.038	U	6	–	–
6527.038	Ta	3	–	–
6527.025	Ce	3 w	–	–
6526.986	La II	125	100	–
6526.64	Sm	50	–	Kn
6526.54	Mn	10	–	–
6526.21	Gd	10	–	Ks
6526.20	Hf II	–	5	Me
6526 078	U	6	–	–
6525.6	bh Sc	15	–	Me
6525.52	Sm	4	–	Kn
6525.326	Ce	5	–	–
6524.80	I II	–	[2]	Mu
6524.2	bh F	150	–	L
6524.12	Cu II	–	2	Sh
6523.94	Hf	1	3	Me
6523.86	La I	3	–	Me
6523.85	Se II	–	[10]	Bt
6523.453	Pt	80	–	–
6523.18	Lu	80	5	Me
6523.151	Nd	10	–	–
6522.90	Er	4	–	Ed
6522.76	Eu	25	–	–
6522.67	F	–	[2]	Gl
6522.55	Ce	3	–	Kn
6522.38	Cl II	–	[10]	Ks
6521.508	Xe I	–	[40]	IMe
6521.45	I	–	[15]	Bl
6521.13	Hg II	–	[12]	Ps
6520.982	U	4	–	–
6520.855	Os	2	–	–
6520.8	bh F	100	–	L
6520.770	La I	15	–	–
6520.51	Er	6	–	Ed
6520.40	Sm	3	–	Kn
6520.279	Nd	5	–	–
6520.02	Br	–	[15]	Bl
6519.858	Nd	10	–	–
6519.836	Mo	25	6	–
6519.71	Er	4	–	Ed
6519.703	Rh I	40	–	–
6519.60	Eu	500	–	–
6519.371	Mn	20	–	–
6519.343	La I	6	–	–
6519.18	Dy	3	–	Ks
6518.945	U	15	–	–
6518.92	Er	4	–	Ed
6518.86	I I, II	–	[5]	Bl
6518.807	Pr	4	–	–
6518.753	Mn	20	–	–
6518.68	Tb	6	–	Ed
6518.374	Fe I	10 h	7 h	–
6518.3	bh Yt	15	–	Me
6518.2	Pb II	–	[35]	Ea
6517.88	I I	–	[30]	Bl
6517.72	Gd	12	–	Ks
6517.713	Ti	2	–	Bh
6517.7	bh Sc	6	–	Me
6517.562	Rh I	8	–	–
6517.5	bh F	100	–	L
6517.295	Ce	10	–	–
6517.280	V II	–	10	Me
6517.23	Gd	15	–	–
6517.22	In	–	5	Sq
6517.145	Pr	3	–	–
6517.10	Sb	4	–	Wt
6517.00	Co I	3 h	–	–
6516.88	Se	–	[3]	Bl
6516.82	Sm	4 h	–	Kn
6516.19	I II	–	[10]	Ke
6516.17	Sm	10	–	Kn
6516.099	Ta	200	–	–
6516.053	Fe II	–	20	Kn
6516.026	Cr	5 h	–	Hl
6515.256	Re	20	–	–
6515.2	bh Zr	4	–	L
6514.961	Nd	15	–	–
6514 65	Sm	5	–	Kn
6514.39	Ta	200	–	–
6514.219	Gd	15	–	–
6514 2	bh F	80	–	L
6513.84	A I	–	[8]	Ms
6513.60	Ce	8 w	–	–
6512.95	Hg	–	[10]	Lf
6512.83	Xe II	–	[150]	Hu
6512.69	Sm II	15 d	–	Kn
6512.680	Mo	3	2	–
6512.61	Hf II	1	10	Me
6512.42	As II	–	8	Ro
6512.365	Th	3	–	Fd
6512.30	Sm	5	–	Kn
6512.19	Tb	4	–	Ed
6512.18	In	–	30	Sq
6512.0	bh F	300	–	L

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6511.62	Hf II	–	6	Me
6511.478	Re I	60	–	–
6511.13	Sb	–	[10]	Lg
6511.1	bh F	20	–	L
6511.00	Th	4	–	–
6510.95	Kr II	–	[100]	Me
6510.782	U	2	–	–
6510.74	Re	2	–	Me
6510.409	Rh I	25	–	–
6510.14	Kr II	–	[8 hl]	Me
6510.03	Sm	5	–	Kn
6509.44	Sm	10	–	Kn
6509.20	Sr II	2 h	–	Sd
6509.011	Ce	8	–	–
6508.742	Ca	2	–	Cw
6508.735	Co I	5 h	–	–
6508.709	Ir	4	–	–
6508.7	bh F	200	–	L
6508.70	Gd	2	–	Ed
6508.415	Pd I	6	–	–
6508.37	Kr I	–	[3]	Me
6508.2	bh Zr	18	–	L
6508.135	Ti I	30	–	–
6507.9	bh F	20	–	L
6507.72	Tm	15	–	Me
6507.700	Sm	15	–	Ks
6507.50	Xe	–	[3]	Me
6507.16	Ce	3	–	–
6507.13	Sm	40	–	Kn
6506.5279	Ne I	–	[1000]	S
6506 360	Zr I	25	–	–
6506.32	U	2	–	Me
6506.211	La I	15	–	–
6506.14	Cu I	8	–	Az
6505.56	Sm	8 d	–	Kn
6505.516	Ta	100	–	–
6505.5	bh F	100	–	L
6505.41	Gd	15	–	Ks
6505.404	Sb	6	–	Wt
6504.9	N II	–	[15]	Fl
6504.89	Kr I	–	[10]	Me
6504.463	Nd	10	–	–
6504.242	Co I	15	–	–
6504.18	Xe I	–	[200 h]	Me
6504.166	V I	25	[9]	–
6504.13	Ce	5	–	–
6504.095	Pr	4	–	–
6503.995	Sr	35	20	–
6503.63	Er	4	–	Ed
6503.59	U	15	–	Me
6503.433	Ba	2	2	–
6503.266	Ce	3	–	–
6503.262	Zr I	20	–	–
6503.26	Sb II	–	[12]	Lg
6503.1	bh Sc	4	–	Me
6503.02	Yb	2	4	Me
6502.88	Sb II	–	20	Kz
6502.53	Rn I	–	[10]	Rs
6502.43	Ta	40	–	Ks
6502.28	Cl I	–	[2]	Ks
6502.237	Re	6	–	–
6502.2	bh F	80	–	L
6502.04	F I	–	[2]	Gl
6502.00	Sm II	40	–	Kn
6501.991	Th	2	–	Fd
6501.864	Nd	5	–	–
6501.681	Fe	2 h	–	Bu
6501.535	Eu	300	–	–
6501.47	Hg	–	[5]	Ps
6501.25	Hg	–	[5]	Lf
6501.212	Cr	35	–	Hl
6501.2	bh Yt	15	–	Me
6501.188	Re	5	–	–
6501.072	Nd	3	–	–
6501.03	Hg	–	[5]	Lf
6501.00	Sm	4	–	Kn
6500.730	Pr	10	–	–
6500.40	Ta	2	–	Ks
6500.37	Xe I	–	[15]	Me
6500.25	A II	–	[6]	Rt
6500.159	Nd	8	–	–
6500.15	Rn I	–	[4]	Rs
6499.650	Ca I	30	15	I
6499.628	Co	2 h	–	Sl
6499.52	N I	–	[25]	Du
6499.10	A I	–	[6]	Ms
6499 01	Hg	–	[5]	Lf
6499.0	bh F	80	–	L
6498.951	Fe I	3 h	–	–
6498.939	Pr	3	–	–
6498.762	Ba	60	20	IKs
6498.717	Xe I	–	[100]	IMe
6498.67	Sm II	100 d	–	Kn
6498.53	Dy	2	–	Ed
6498.314	Rb	–	50	Rr
6498.188	La II	25	125	–
6497.91	Sm	15 d	–	Ab
6497.85	Se II	–	[2]	Bt
6497.84	Cb	12	2	Me
6497.65	Bi II	2 h	12	Om
6497.689	Ti I	40	–	–
6497.43	Xe I	–	[30 hl]	Me
6497.18	Pr	4 w	–	–
6496.94	Th	2	–	–
6496.901	Ba	800 r	300 Wh	IKs
6496.893	Co	3 h	–	Dn
6496.456	Fe	10	–	Bu
6496.439	Ru	25	–	–
6496.16	Sm	2	–	–
6496.05	Sm II	10	–	Kn
6496.01	I I, II	–	[15]	Bl
6495.9	bh F	30	–	L
6495.9	bh Sc	15	–	Me
6495.591	Nd	8	–	–
6495.528	Cs II	–	[15]	Lp
6495.45	Al II	–	[2]	Sy
6495.35	U	2	–	Me
6494.985	Fe I	400	150	S
6494.96	Sb	4	–	Kz
6494.899	Pr	4	–	–
6494.58	Hf	1	5	Me
6494.13	Gd	20	–	Ks
6494.04	Cu II	–	30	Sh
6493.97	A I	–	[15]	Ms
6493.92	Sm	3	–	Kn
6493.90	Eu	40	–	Kn
6493.780	Ca I	80	30	I
6493.776	Yt I	6	–	–
6493.738	Co	25	–	–
6493.7	Kr II	–	[2 h]	Me
6493.494	Pr	5	–	–
6493.198	Th	2	–	Fd
6493.129	Mo	15	4	–
6493.10	Sm	3	–	Kn
6493.098	Zr I	10	–	–
6493.05	Fe	–	8	Kn
6492.9	bh F	30	–	L
6492 848	La I	10	–	–
6492.74	Yb	3	50	Me
6492.490	Mo	10	2	–
6492.352	Er	12	–	–
6492.348	Nd	12	–	–
6492.05	Sm I	4	–	Kn
6491.81	Te	–	[15]	Bl
6491.759	Pr	20	–	–
6491.712	Mn	100	–	–
6491.28	N I	–	[25]	Du
6491.28	Sm I	3	–	Kn
6490.994	Ce	8	–	–
6490.945	Nd	5	–	–
6490.748	Sm II	60 d	–	–
6490.624	Mn	3	–	Sl
6490.48	Se II	–	[500]	Bl
6490.45	Pt	6	–	–
6490.44	Ba	2	–	Bu
6490.336	Co I	70	–	–
6490.25	Sb	6	–	Wt
6490.21	Sm	6 d	–	Kn
6489.9	bh F	20	–	L
6489.645	Zr I	50	–	–
6489.44	Sm	2	–	–
6489.35	As II	–	3	Ro
6489.27	Yb	5	30	Me
6489.199	Nd	5	–	–
6489.15	Er	8	–	Ed
6489.10	Yb	800	40	Me
6488.60	Sm	4	–	–
6488.34	Se II	–	[100]	Bl
6488.18	I I	–	[150]	Ev
6488.07	Kr I	–	[15]	Me
6488.050	V I	2	[4]	–
6487.765	Xe I	–	[125]	IMe
6487.62	Sm II	60	–	Kn
6487.531	Nd	5	–	–
6487.32	Ra I	–	[1000]	Rs
6487.1	Cl	–	[10]	Mj
6487.09	Te	–	[70]	Bl
6487.028	U	2	–	–
6486.98	Ir	8	–	Me
6486.9	bh F	20	–	L
6486.64	Dy	6	–	Ks
6486.557	Pr	30	–	–
6486.5	Hf	2	–	Me
6486.35	Sc	2	–	Me
6486.060	Ta	3	–	–
6485.97	Ce	5	–	Kn
6485.87	Er	4	–	Ed
6485 832	Mo	10 h	5 w	–
6485.687	Nd	20	–	–
6485.660	Rh I	6	–	–
6485.549	La I	50	–	–
6485.4	bh Sc	20	–	Me
6485.38	Ca	2 h	1	Ad
6485.38	U	2	–	–
6485.37	Ta	500	–	–
6485.18	Cu I	8	–	Me
6484.88	N I	–	[500]	Du
6484.6	bh Yt	10	–	Me
6484.52	Sm II	100	–	–
6484.46	Cu II	–	20	Sh
6484.365	Nd	3	–	–
6484.35	Zr I	6	–	Ks
6484.32	Ge II	–	15	Lg
6484.0	bh F	10	–	L
6483.99	Gd	10	–	Ks
6483.96	Sm	2	–	–
6483.86	As II	–	3	Ro
6483.75	N I	–	[30]	Du
6483.62	Dy	5	–	Ks
6483.60	Br I	–	[5]	Ks
6483.6	bh Ti	2	–	L
6483.445	Nd	5 h	–	–
6483.37	Sm	4	–	–
6483 27	Zn II	–	[30]	Ps
6483.10	A II	–	[15]	Rt
6483.07	Eu	30	–	Kn
6483.06	Se II	–	[200]	Bl
6482.98	Zn II	4	[15]	Vs
6482.95	Gd	5 h	–	Ks
6482.912	Ba	100 Wh	50	IKs
6482.811	Ni I	35	–	–
6482.800	Co I	2 h	–	Sl
6482.74	N I	–	[500]	Mt
6482.70	Se II	–	[4]	Kh
6482.57	Hf	1	2	Me
6482.522	Ce	2	–	–
6482.282	Nd	10	–	–
6482.07	N II	–	[300]	Fl
6481.977	Ce	6	–	–
6481.874	Fe I	12 h	80 wh	–
6481.77	Er	4	–	Ed
6481.73	N I	–	[15]	Mt
6481.718	U	3	–	–
6481.46	Cu II	–	15	Sh
6481.237	U	2	–	–
6481.2	bh F	5	–	L
6481.15	A I	–	[8]	Ms
6481.03	Dy	2	–	Ks
6480.7	bh Zr	4	–	L
6480.214	Nd	10	–	–
6480.107	Gd	40	–	–
6479.950	U	2	–	–
6479.849	Nd	6	–	–
6479.69	Xe II	–	[3 wh]	Hu
6479.64	Cu	–	2	Sh
6479.249	Sm	4	–	–
6479.201	Mo	3	2	–
6479.155	Zn I	10	–	IHz
6478.94	I I	–	[5]	Db
6478.78	Nd	4	–	Ks
6478.7	Hf	2	–	Me
6478.5	bh F	2	–	L
6478.4	bh C	–	–	L
6478.36	Sm	6	–	Kn
6478.026	Pr	15 w	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6477.878	Co I	80	–	–
6477.8	bh V	2	–	L
6477.67	Lu	30	2	Me
6477 48	I I	–	[25]	Ev
6477.02	Sm II	10 d	–	Kn
6476.74	Ca	2 h	–	Ad
6476.54	Eu	6 W	–	–
6476.5	bh Sc	10	–	Me
6476.43	Sm	5	–	–
6476.24	Bi I	8	–	Wt
6476.201	Nd	3	–	–
6475.91	I	–	[70]	Bl
6475.9	bh F	2	–	L
6475.73	Bi I	8	–	Wt
6475.625	Fe I	8 h	8 h	–
6475.32	Mn	4 h	–	Sl
6475 287	Pr	3	–	–
6474.94	Dy	2	–	Ks
6474.74	Yb	5	50	Me
6474.566	Co	25 w	–	–
6474.47	Se II	–	[15]	Bt
6474.47	Ra	–	[15]	Rs
6474.43	Sb II	4 h	[10]	Lg
6474.28	Te	–	[30]	Bl
6474.25	Sm II	25	–	Kn
6474.231	Nd	3	–	–
6474.20	Cu I	15	–	Me
6473.991	Mo	20	4	–
6473.89	Hf II	3	20	Me
6473.707	Ce	6	1	–
6473.7	bh Zr	20	–	L
6473.34	Sm	8	–	–
6473.26	Eu	3	–	Kn
6472.855	Ta	2	–	–
6472.841	Xe I	–	[150]	IMe
6472.72	Gd	8	–	Ks
6472.617	Cs I	15	–	Ms
6472.47	A	–	[4]	Rt
6472.34	Sm II	150 d	–	Kn
6472.15	Rn I	–	[10]	Rs
6472.04	Dy	2	–	Ks
6471.77	Ho	5	–	Ed
6471.71	Nd	2	–	Ks
6471.66	Co	3	–	–
6471.660	Ca	40	15	I
6471.66	Br	–	[8]	Bl
6471.580	Sm	15	–	–
6471.39	Tb	6	–	Ed
6471.210	Th	5	–	–
6471.201	Mo	50	4	–
6471.03	N I	–	[3]	Du
6470.98	Zn	4	–	Ps
6470.89	Kr II	–	[50]	Me
6470.86	Tb	4	–	Ed
6470.75	Eu	30 W	–	Kn
6470.550	U	5	–	–
6470.46	Sm II	60 d	–	Kn
6470.270	Gd	10	–	–
6470.256	Pr	3	–	–
6470.210	Zr I	40	–	–
6470.16	Co I	3	–	–
6470.152	Cu II	–	50	Sh
6470 15	Se I, II	–	[10]	Rd
6469.764	Sm	4	–	–
6469.705	Xe I	–	[300]	IMe
6469.42	Sm	3	–	Kn
6469.326	In II	–	[12]	Ps
6469.248	In II	–	[20]	Ps
6469.214	Fe I	8 h	5 h	Bb
6469.13	Te I	–	[3 h]	Bl
6469 00	Sm	3	–	Kn
6468.994	In II	–	[80]	Ps
6468 971	Ce	3	–	–
6468 889	In II	–	[50]	Ps
6468.60	Dy	3	–	Ks
6468.557	In II	–	[12]	Ps
6468.477	In II	–	[12]	Ps
6468.434	La I	25	–	–
6468.325	Sm	4	–	–
6468.32	N I	–	[30]	Du
6468.2	bh Yt	8	–	Me
6468.08	A	–	[4]	Rt
6467.90	Hf II	2	2	Me
6467.757	Pr	6	–	–
6467.47	Eu	2	–	Kn
6467.465	Ti	5	–	Bh
6467.418	Ce	20	–	–
6466.970	Mo	4	2	–
6466.898	Ce	5	1	–
6466.60	Cu II	–	3	Sh
6466.565	Gd	25	–	–
6466.56	A I	–	[20]	Ms
6466.30	Sm	5	–	Kn
6465.793	Sr	5	3	–
6465.39	Sb II	–	15	Kz
6465.3	Eu	2 W	–	Kn
6465.236	Nd	8	–	–
6465.005	U	25	–	–
6464.98	Cd II	5	50	Vs
6464.40	Sm	2	–	–
6464.32	Cb	4	2 d	Me
6464 26	Br	–	[3]	Bl
6464.020	Ti I	2	–	–
6463.582	Nd	15	–	–
6463.52	F I	–	[15]	En
6463.516	Mo	8	2	–
6463.15	Yb	10	100	Me
6463.12	Lu	400	800	Me
6463.010	Co I	25 h	–	–
6462.9	Te I	–	[7]	Rd
6462.8	bh Sc	3	–	Me
6462.729	Fe I	20	7 h	–
6462 682	Pr	5	–	–
6462.646	Th	30 s	–	–
6462.584	Co	60	–	–
6462.581	Gd	50	–	–
6462 566	Ca I	125	50	I
6462.559	Yt	4	5	–
6462.36	Sn	4	300 wh	Wt
6462.30	Hf II	1	4	Me
6461.890	Ce	5	–	–
6461.50	Xe I	–	[3]	Me
6461.48	Xe	–	[10 wh]	Hu
6461.467	Pr	2	–	–
6461.39	Se I	–	[15]	Ms
6461.170	Nd	3	–	–
6461.15	Sm	5	–	Kn
6461.1	bh Sc	3	–	Me
6460.86	Dy	2	–	Ks
6460.30	Pr	3 w	–	Ed
6460.28	Tm	400	80	Me
6460.27	Er	6	–	Ed
6460.1	P II	–	[30]	Dj
6459.921	Ta	15	–	–
6459.78	Sm	3 d	–	Kn
6459.36	Sm	15	–	–
6459.065	Ta	2	–	–
6458.8	Co	2 h	–	Sl
6458.44	Sm	2	–	–
6458.41	I II	–	[15]	Bl
6458.347	Rb II	–	400	Lp
6458.052	Ce	25	–	–
6457.995	Eu	500	–	–
6457.953	Nd	4	–	–
6457.93	N I	–	[25]	Du
6457.8	bh Sc	15	–	Me
6457.80	Te	–	[5]	Bl
6457.627	Zr I	6	–	–
6457.546	Sm	15	–	–
6457.54	Cu II	–	3	Sh
6457.285	Th	15	–	–
6457.126	Nd	5	–	–
6456.97	Hf	4	8	Me
6456.92	Yb	–	4	Me
6456.73	Gd	15	–	Ks
6456 7	Te I	–	[15 w]	Rd
6456 52	Au II	10	5	Ed
6456.48	Sm	2	–	–
6456.376	Fe II	–	8 h	Do
6456.3	Ga II	–	[15]	Sy
6456.291	Kr I	–	[200]	S
6456.24	Sm	30 d	–	–
6456 200	Pr	5 W	–	–
6456.07	O I	–	[500]	Ps
6455.988	La I	100	–	–
6455.85	Hf II	2	20	Me
6455.828	Ta	40	–	–
6455.600	Ca	10	7	IWg
6455.59	Sm II	40	–	–
6455.36	S	–	[70]	Bl
6455.07	Ni	10	–	–
6455.06	Ir	5	–	Me
6455.058	Nd	3	–	–
6454.996	Co I	200 w	–	–
6454.95	Sb	6 h	–	Wt
6454.865	Pr	3	–	–
6454.795	Nd	8	–	–
6454.55	O I	–	[150]	Ps
6454.531	La I	125	–	–
6454.02	Er	4	–	Ed
6453.69	O I	–	[100]	Ps
6453.58	Sn II	6	300 wh	Wt
6453.441	Pr	10	–	–
6453.37	Sm	2	–	–
6453.293	Mo	9	2	–
6453.113	Ta	3	–	–
6453.11	Cb	–	3 h	Me
6452.75	N I	–	[5]	Du
6452.730	Rh	2	–	–
6452.5	bh Zr	2	–	L
6452.344	V I	25	[10]	–
6452 050	Sm	25	–	–
6451.79	Xe I	–	[10 hl]	Me
6451 62	Zr I	10	–	–
6451.580	Ni I	2 h	–	–
6451.5	bh Cr	2	–	L
6451.234	Nd	5 d	–	–
6451.14	Co I	70 w	–	–
6450.854	Ba	100	20	IKs
6450.54	Dy	2	–	Ks
6450.48	Xe I	–	[7]	Me
6450.442	Sm	5	–	–
6450.365	Ta	200	–	–
6450.36	Cl I	–	[15]	Ks
6450.331	La I	20	–	–
6450.239	Co I	1000	–	–
6449.94	La	2	–	Me
6449.9	Hf	2	–	Me
6449.83	Cb	6	2	Me
6449.810	Ca I	60	12	I
6449.8	Eu	2	–	Kn
6449.769	Co	3	–	–
6449.28	Re	4 h	–	Me
6449.167	U	100	–	–
6448.78	Kr I	–	[10]	Me
6448.70	Xe I	–	[2 h]	Me
6448.69	Ir	3	–	Me
6448 49	Cu II	–	10	Sh
6448.43	Hf	1	2	Me
6448.42	Se	–	[15]	Bt
6448.41	I	–	[15 h]	Bl
6448 331	Sm	6	–	–
6448.32	Rn I	–	[10]	Rs
6448.25	La I	5	–	Me
6448.126	Os	3	–	–
6448.109	La I	10	–	–
6448.10	Sc I	4 h	3	Me
6448 051	Sm	8	–	–
6448 042	U	3	–	–
6447.532	Sm	30	–	–
6447.055	Co	2 h	–	–
6446.902	Ba	20 R	15	Sz
6446 859	Tb	6	–	–
6446.7	Te I	–	[5]	Rd
6446.676	Sr	8	4	–
6446.604	La II	15	100	–
6446 5	bh Zr	3	–	L
6446.432	Fe II	–	20	Do
6446 342	Mo	20	4	–
6446 2	bh Sc	30	–	Me
6446.20	Ra I	–	[1000]	Rs
6446.154	Ce	6	–	–
6446.15	Br	–	[15]	Bl
6445 866	Ta	20	–	–
6445.786	Nd	8	–	–
6445.745	Zr I	30	–	–
6445 15	Rh	2	–	Me
6445.132	W	5	2	–
6444.98	Hf	1	2	Me
6444.89	Pd I	2	–	Me
6444.89	Lu	5	15	Me
6444.860	Gd	2	–	–
6444.84	Ru	25	–	–
6444.83	Sn	5	–	Wt
6444.721	Ne I	–	[150]	Ps

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6444 697	Co I	25	–	–
6444.610	Ta	40	–	–
6444.51	I I	–	[100]	Db
6444.25	Se I	–	[100]	Bl
6444.17	Dy	2	–	Ed
6443 96	As	–	3	Ro
6443.937	Pr	2	–	–
6443.89	A	–	[4]	Rt
6443.887	Ta	10 h	–	–
6443.71	Dy	3	–	Ks
6443.492	Mn	10	–	–
6443.47	Cu II	–	5	Sh
6443.26	I	–	30 h	Bl
6443 24	Rn I	–	[4]	Rs
6443.05	La II	8	25 h	Me
6442.55	U	2	–	–
6441.95	A	–	[6]	Rt
6441.91	Rn I	–	[6]	Rs
6441.85	Dy	2	–	Ks
6441.70	N I	–	[70]	Mt
6441.698	Cu II	–	40	Sh
6441.43	Se I	–	[20]	Rd
6441 31	Er	10	–	Ed
6441.14	Lu	40	–	Me
6441.045	Ce	3	–	–
6441.03	Tb	4	–	Ed
6440.974	Mn	60	–	–
6440.95	N	–	[25]	Du
6440.81	Yb	–	5	Me
6440.74	Kr II	–	[5 hl]	Me
6440 54	Sm	8	–	Ab
6440 22	I	–	[100]	Bl
6439 970	Ce	6	–	–
6439.97	Eu	40	–	Kn
6439.86	Nd	3	–	Kn
6439 83	Rn I	–	[2]	Rs
6439.83	Co	2 h	–	Me
6439.720	W	6	1	–
6439.72	Sm II	10 d	–	Ks
6439.318	Sm	3	–	–
6439.171	Nd	20	–	–
6439.171	Co	80	–	–
6439 073	Ca I	150	50	I
6439.03	Zr I	8	–	–
6438.96	In	–	5	Sq
6438.9	Ra I	–	[30]	Rs
6438.4696	Cd I	2000	1000	IS
6438 08	Br	–	[2]	Ks
6438.03	W	3	1	Me
6437.69	Eu I	700	–	–
6437.63	A II	–	[4]	Rt
6437.630	Sm	10	–	–
6437.540	In II	–	[12]	Ps
6437.365	Ta	2	–	–
6437.158	Yt I	4	5	–
6437.06	Te	–	[1000]	Bl
6437.01	N I	–	[30]	Du
6436.914	In II	–	[5]	Ps
6436.57	Dy	2	–	Ks
6436.412	In II	–	[5]	Ps
6436.405	Ce	12	–	–
6436 2	Au I	5	–	Ml
6435.94	Pt	3	–	–
6435 66	Dy	2	–	Ks
6435.5	P II	–	[5]	Dj
6435 318	Sm	25	–	–
6435.156	V I	2	–	–
6435.000	Yt I	150	50	–
6434.96	Dy	2	–	Ed
6434.80	Cl	–	[25]	Ks
6434.550	Ta	5	–	–
6434.396	Ce	12	–	–
6434.329	Zr I	6	–	–
6433.953	Sm	15	–	–
6433.6	bh Pb	3	–	L
6433.309	Sm	3	–	–
6433.236	Nd	12	–	–
6433.22	Cb	30	4	Me
6433.175	V I	2	[3]	–
6432.96	Dy	2	–	Ks
6432.78	Cu II	–	3	Sh
6432.732	Yb	30	40	–
6432.654	Fe II	–	2	Kn
6432.653	Nd	12	–	–
6432 50	Er	4	–	Ed
6432.07	Ca	–	6	Ad
6431.966	Cs I	–	15	Ms
6431.96	Sm II	50	–	Kn
6431.92	Kr	–	[2 h]	Me
6431.863	Pr	8	–	–
6431.8	Hf	2	–	Me
6431.711	Nd	2	–	–
6431.634	V I	4	–	–
6431.57	A I	–	[15]	Ms
6431.258	Rh	2	–	–
6431.177	Nd	2	–	–
6431 09	Co I	5 h	–	–
6431.03	Sm II	50 d	–	–
6430 97	I	–	15 h	Bl
6430.95	Tm	15	60	Me
6430.93	U	4	–	–
6430.851	Fe I	100	80	S
6430.79	Ta	150	–	–
6430.471	V I	8	–	Me
6430.46	Cb	80	10	Me
6430.45	Tl II	–	5	El
6430.337	Co I	30 h	–	Sl
6430.155	Xe I	–	[20]	IMe
6430.068	Ce	10	–	–
6429.907	Co I	50	–	–
6429 840	Nd	2	–	–
6429.645	Pr	8	1	–
6429.49	Hf	1	2	Me
6429.04	Mo	4	2	–
6428.956	Sm	15	–	–
6428.68	U	3	–	–
6428.67	Se	–	[15]	Bl
6428.645	Nd	25	–	–
6428.596	Ta	40	–	–
6428.54	I	–	[30]	Bl
6428.315	Sm	50 d	–	–
6428.28	Eu	200	–	Kn
6428.125	Cr	12	–	–
6427.79	Dy	2	–	Ks
6427.7	bh Pb	3	–	L
6427.690	K II	–	[20]	Dm
6427.57	Cu I	3	–	Me
6427.51	U	2	–	–
6427.40	Dy	2	–	Ks
6426.731	Ta	5	–	–
6426.73	Rn I	–	[8]	Rs
6426.62	Sm II	100 d	–	–
6426.614	La I	4	–	–
6426.170	Zr I	4	–	–
6425.909	Sm	10	–	–
6425.790	Nd	15	–	–
6425.64	S	–	[15 h]	Bl
6425.64	Cl	–	[5]	Ks
6425.574	Er	4	–	–
6425 442	Ta	3 h	–	–
6425.36	W	5	1	Me
6425 296	Ce	3	1	–
6425.115	Co I	5	–	m
6424.905	Ni I	2 h	–	–
6424.888	U	6	–	–
6424.841	Nd	4	–	–
6424.817	Th	4	2	–
6424.52	Ca	2 h	–	Ad
6424.51	Gd	10	–	–
6424.502	Ce	4 d	–	–
6424.43	Tb	6	–	Ed
6424.368	Mo	100	20	–
6424 256	Sm	3	–	–
6424.1	bh Yt	2	–	Me
6424.0	bh Sc	2	–	Me
6423.90	Cu II	–	30	Sh
6423.10	Er	6	–	Ed
6422.96	Te	–	[70]	Bl
6422 94	A	–	[5]	Rt
6422.93	N	–	[10]	Du
6422.90	Se II	–	[125]	Bt
6422.9	Pb II	–	[2]	Ea
6422.415	Gd	50	–	–
6422 06	Cb	6	–	Me
6421 93	Dy	5	–	Ks
6421.88	Gd	2	–	Ks
6421.743	Co I	20	–	m
6421.708	Ne I	–	[100]	Ps
6421.54	Yb	3	–	Me
6421.52	Pr	2 h	–	Kn
6421.507	Ni I	3 h	–	–
6421 48	Rn I	–	[10]	Rs
6421.368	Cr	35	–	–
6421 355	Fe I	60	40 h	S
6421 029	Kr I	–	[100]	S
6420.47	N I	–	[30]	Du
6420.3	bh Sc	2	–	Me
6420.18	Kr II	–	[300]	Me
6419 977	Fe I	18 h	15 h	–
6419.763	Mo	7	2	–
6419.633	Pr	2	–	–
6419.541	Cs II	–	[10]	Lp
6419.4	Ga II	–	[25]	Sy
6419 3	bh Zr	2	–	L
6419 27	Se	–	[15]	Bt
6419 25	Cl II	–	[8]	Ks
6419.096	Tl I	15	–	–
6419.0	bh F	50	–	L
6418.992	Mo	5	2	–
6418 98	Xe I	–	[30 h]	Me
6418.95	Hg	–	[25]	Lf
6418 928	Sm	5	–	–
6418 90	S	–	[7]	Bl
6418 88	Er	4	–	Ed
6418.58	Xe II	–	[30]	Hu
6418 60	Rh	2	–	Me
6418 477	Ta	2	–	–
6418.43	A	–	[4]	Rt
6418 41	Xe I	–	[30]	Me
6418.41	Dy	2	–	Ks
6418.340	Ir	5	–	–
6417.99	Ta	2	–	Ks
6417 97	Yb	125	3	Me
6417.824	Co I	200 r	–	–
6417 7	bh F	100	–	L
6417.69	Se II	–	[10]	Bt
6417 66	I	–	[15]	Bl
6417.568	Ru	15	–	–
6417.513	Sm II	100 d	–	–
6417.220	La I	6	–	–
6417.17	Sm	8	–	Kn
6417.05	N	–	[10]	Du
6416.95	Se	–	[6]	Bl
6416 942	Fe II	–	2	Kn
6416.61	Kr II	–	[60 hs]	Me
6416 5	bh F	100	–	L
6416 33	Tm	20	–	Me
6416 315	A I	–	[100]	IMe
6416.30	F	–	[4]	Gl
6416.101	Th	3	2	–
6416.004	W	5	1	–
6415.93	Sb	6 hl	–	Wt
6415.79	I	–	[20]	Ev
6415 65	Kr I	–	[20]	Me
6415 531	Pr	3 W	–	–
6415.51	Er	4	–	Ed
6415.50	S I	–	[10]	Ms
6415 3	bh F	100	–	L
6415.24	Si I	4 h	–	Ks
6415.18	Cu I	3	–	Az
6414.724	Rh I	50	–	–
6414.62	Cu II	–	20	Sh
6414 603	Ni I	5	–	–
6414.1	bh F	100	–	L
6414.029	Nd	3	–	–
6414.01	Ga	–	15	Kl
6413.950	Mn	25	–	Sl
6413 71	S	–	[500]	Bl
6413 699	Pr	10	1	–
6413.66	F I	–	[150]	En
6413.612	Th	5	–	–
6413.59	Er	6	–	Ed
6413 353	Sc I	10	25	–
6412.995	Rh I	8	–	–
6412.9	bh F	80	–	L
6412.53	Kr II	–	[4 h]	Me
6412.389	Mo	15	4	–
6412 38	Xe I	–	[10]	Me
6412.3	bh Zr	12	–	L
6412.15	Te	–	[70]	Bl
6411.893	Th	10	–	–
6411.8	bh F	50	–	L
6411.664	Fe I	100	80 h	–
6411.593	U	6	–	–
6411.467	Re	20	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
6411.403	Sm	10	–	–
6411.344	Eu	500	–	–
6411.34	Ba	9	3	Lr
6411.29	I	–	[30]	Ev
6411.18	Cu II	–	10	Sh
6410.995	La I	100	–	–
6410.99	Se I	–	[15]	Rd
6410.7	bh F	30	–	L
6410.660	Pr	6 w	–	–
6410.598	Nd	2	–	–
6410.344	Sm II	4	–	–
6410.327	Er	4	–	–
6410.32	Br I	–	[30]	Ks
6410.216	Rh I	4	–	–
6410.17	Kr I	–	[5]	Me
6410.103	Eu	500 W	–	–
6409.84	Kr II	–	[10 hs]	Me
6409.753	Ne I	–	[150]	Ps
6409.7	bh F	20	–	L
6409.54	I	–	[15]	Bl
6409.52	Hf	3	5	Me
6409.4	Te I	–	[5]	Rd
6409.109	Mo	25	4	–
6408.598	Th	4	–	–
6408.555	Gd	2	–	–
6408.473	Sr	50	20	–
6408.458	Co I	3 h	–	–
6408.423	Er	4	–	–
6408.4	bh Sc	2	–	Me
6408.13	S I	–	[5]	Ms
6408.042	Sm II	10 d	–	–
6408.029	Fe I	50	30 h	–
6407.7	bh F	10	–	L
6407.606	Nd	5	–	–
6406.997	Zr I	18	–	–
6406.966	Mo	3	2	–
6406.7	bh F	20	–	L
6406.462	Mo	8	2	–
6406.24	Sm II	30 d	–	Kn
6406.16	Re	20 W	–	Me
6406.110	Eu	100	–	–
6406.08	Sb	–	[6]	Lg
6405.97	Tb	6	–	Ed
6405.95	As II	–	10	Ro
6405.9	Te I	–	[18]	Rd
6405.87	I I	–	[5]	Bl
6405.8	bh F	10	–	L
6405.6	bh Yt	5	–	Me
6405.54	Er	4	–	Ed
6405.406	Sb	4	–	Wt
6405.15	F	–	[4]	Gl
6404.9	bh F	5	–	L
6404.69	Kr	–	[3 wh]	Me
6404.62	Yb	2 h	–	Me
6404.618	Sm II	2 h	–	–
6404.53	Se I	–	[15]	Ms
6404.485	U	3	–	–
6404.395	Pr	4 w	–	–
6404.30	Zr I	4	–	–
6404.204	W	25	2	–
6404.117	Sm	5	–	–
6404.0	bh F	5	–	L
6403.98	Sm	2	–	Kn
6403.885	Ir	3	–	–
6403.70	Cu II	–	5	Sh
6403.58	S I	–	[2]	Ms
6403.2	bh F	5	–	L
6403.196	Nd	3	–	–
6403.151	Sc	2 h	2	–
6403.150	Os	15	–	–
6403.15	Tb	4	–	Ed
6403.10	A	–	[2]	Rt
6403.01	Eu	3	–	Kn
6402.758	Nd	3	–	–
6402.4	bh F	5	–	L
6402.33	Rh I	3	–	–
6402.31	Dy	3	–	Ks
6402.31	Gd	3	–	Ks
6402.246	Ne I	–	[2000]	I
6402.23	Sm	2	–	Kn
6402.07	W	5	1	Me
6402.005	Yt I	12	7	–
6401.7	bh F	2	–	L
6401.45	Sm	10 d	–	Kn
6401.45	Tm	40	5	Me
6401.295	Mo	3	–	–
6401.17	Se I	–	[15]	Ms
6401 076	Ne I	–	[100]	Ps
6401.070	Mo	20	6	–
6400.932	Eu	700 W	–	–
6400.9	bh F	2	–	L
6400.590	V	–	2	Me
6400.59	Cu	3	–	Az
6400.40	Yb	200 h	4 h	Me
6400.355	U	3	–	–
6400.318	Fe I	2	–	–
6400.018	Fe I	200	150 h	–
6399.99	Se I	–	[15]	Ms
6399.907	Ce	4	–	–
6399.86	Sm	2	–	Kn
6399.79	Er	4	–	Ed
6399.736	W	5	1	–
6399.6	bh F	2	–	L
6399.415	Sm	3	–	–
6399.41	Cl II	–	[10]	Ks
6399.23	A II	–	[8]	Rt
6399.053	La II	15	200	–
6399.0	bh F	2	–	L
6398 858	Pt	6	–	–
6398.857	Os	3	–	–
6398.752	V	–	2	Me
6398.64	Cl	–	[40]	Ks
6398.295	Sm	12	–	–
6398.259	Ir	4	–	–
6398.13	Er	6	–	Ed
6398.05	S	–	[300]	Bl
6397.996	Pr	12	–	–
6397.99	Xe II	–	[50]	Hu
6397.69	Se I	–	[15]	Rd
6397.346	V	–	2	Me
6397.30	S	–	[300]	Bl
6397.185	U	12	–	–
6396 876	Nd	3	–	–
6396.63	A	–	[2]	Rt
6396.61	Ga	–	20	Kl
6396.61	Dy	4	–	Ks
6396.54	S I	–	[15]	Fh
6396.524	Co I	10 h	–	–
6396.46	Te	–	[50]	Bl
6396.373	Sc	2 h	–	–
6396.244	Ce	6	–	–
6396.21	Sb	4 h	[2 h]	Lg
6396.0	bh Zr	4	–	L
6395.446	U	100	–	–
6395.427	Sm	2	–	–
6395.26	I	–	[30]	Bl
6395.195	Co I	125	–	–
6395.07	S I	–	[15]	Fh
6395.0	bh Cr	3	–	L
6394.967	Sm	2	–	–
6394 94	Hg II	–	[25]	Ps
6394.80	Nd	4	–	–
6394.7	bh F	10	–	L
6394.28	Kr II	–	[4 hs]	Me
6394.234	La I	150	–	–
6394.1	bh Zr	5	–	L
6393.605	Fe I	100	80 h	S
6393.275	V I	4	2	–
6393.191	Pr	25	–	–
6393.023	Ce	5	–	–
6392.781	U	20	–	–
6392.445	Sm	2	–	–
6392.209	Ta	15	–	–
6392.175	Sb	8	2 h	Wt
6392.103	Pr	10 W	–	–
6391.96	Se	–	[15]	Bt
6391.323	U	2	–	–
6391 215	Mn	3	–	Sl
6391.14	Kr II	–	[30]	Me
6391.118	Mo	12	4	–
6390.99	Hf	1	2	Me
6390.838	Sm II	100	–	–
6390.661	Dy	2	–	–
6390.484	La II	70	100	–
6390 321	Ce	8	–	–
6390.30	Hf	1	2	Me
6390.228	Ru	9	–	–
6390.19	Te	–	[15]	Bl
6389 997	Nd	15	–	–
6389 870	Sm II	100	–	–
6389.804	U	18	–	–
6389.589	Pr	8 W	–	–
6389.595	Eu	9	–	–
6389.447	Ta	100	–	–
6389.111	Mo	15	4	–
6388.973	Mn	2	–	–
6388.94	I I	–	[30]	Bl
6388.91	Hf	1	2	Me
6388.38	Dy	2	–	Ks
6388.324	Sb	2 h	–	Wt
6388.239	Sr I	35	10	–
6388.20	Hf	1	2	Me
6388.194	Er	12	–	–
6388.068	Sm	3	–	–
6387.991	Ta	3	–	–
6387.972	V	–	2	Me
6387.8	bh Zr	4	–	L
6387.72	Yb	3	–	Me
6387.59	Ca	2 h	–	Ad
6387.56	Dy	2	–	Ks
6387.1	bh Yt	10	–	Me
6387.07	Yt	8	5	–
6386.94	Cs	25 l	–	Me
6386.864	Ce	12 w	–	–
6386.81	Dy	4	–	Ks
6386.768	Sm	10	–	–
6386 69	Co I	5 h	–	–
6386.56	Rh I	4 h	–	Me
6386.501	Sr I	35	10	–
6386.48	S	–	[5]	Bt
6386.23	Hf	15	20	Me
6386.102	Ce	5	–	–
6385.196	Nd	100	–	–
6384.915	U	2	–	–
6384.89	S	–	[300]	Bl
6384.825	Sm	2	–	–
6384.739	W	3	1	–
6384.719	A I	–	[100]	Ms
6384.697	Ni I	5 h	–	–
6384.669	Mn	25	–	–
6384 633	Nd	6	–	–
6384.6	bh Zr	4	–	L
6384.487	Co	2 h	–	–
6384.303	Sm	2	–	–
6384.13	Cl II	–	[5]	Ks
6384.04	Er	4	–	Ed
6383.861	Eu	350	–	–
6383.731	Mo	3	2	–
6383 591	U	8	–	–
6383.34	Hg	–	[15]	Lf
6382.9914	Ne I	–	[1000]	S
6382.944	Re	15 W	–	–
6382 93	Yb	1	2	Me
6382 741	Eu	200	–	–
6382.487	W	3	1	–
6382.188	Gd	60	–	–
6382.169	Mn	20	–	–
6382.069	Nd	20	–	–
6381 416	Ti I	10	–	–
6381.262	V I	2	–	–
6380.974	Gd	100	–	–
6380.747	Fe	25 h	8 h	–
6380.746	Sr I	30	8	–
6380.709	Sm	3	–	–
6380.45	Rn I	–	[12]	Rs
6380.19	Hf	3	6	Me
6380 115	V	–	20	Me
6380.045	Sm	3	–	–
6379.75	Ce	2	–	Ks
6379.636	U	15	–	–
6379.63	N II	–	[70]	Fl
6379.364	V I	8	2	–
6379.069	Ta	8	–	–
6378 956	Mn	20	–	–
6378 91	Ba II	3	[5]	Rs
6378.824	Sc I	8	15	–
6378.80	I	–	[30]	Ev
6378.623	Pr	8 W	–	–
6378.32	Tl II	–	[10]	El
6378.3	bh Zr	15	–	L
6378 263	Ni I	20 h	–	–
6378 075	Sm	2	–	–
6377.84	Cu II	–	20	Sh
6377.72	Dy	3	–	Ks
6377.617	Pr	5	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6377.41	Au	5	–	Wt
6377.256	Nd	4	–	–
6377.04	Yb	–	6 h	Me
6377.00	Rh	2	–	Me
6376.944	Th	12	–	–
6376.74	Se	–	[15]	Bt
6376.450	Ru I	9	–	–
6376.20	Hf	1	3	Me
6376.11	Sb II	4	[6]	Lg
6375.984	U	5	–	–
6375.970	Nd	5	–	–
6375.57	Er	4	–	Ed
6375.56	La I	3	–	–
6375.391	W	5	–	–
6375.28	Xe II	–	[80]	Hu
6375.056	La	4	–	–
6375.04	Dy	2	–	Ks
6374.88	Br	–	[8]	Bl
6374.812	Re	2 w	–	–
6274.623	Sm	2 h	–	–
6374.60	Hf	1	2	Me
6374.497	V I	2	1	–
6374.493	U	2	–	–
6374.49	Er	4	–	Ed
6374.292	O	–	[70]	Fh
6374.107	La II	6	15	–
6373.86	Ho	2	–	Ed
6373.58	Kr I	–	[30]	Me
6373.474	Sm	2	–	–
6373.424	Re	2 h	–	–
6373.276	Eu	5 W	–	–
6373.27	Cu II	–	5	Sh
6373.055	Ta	50	–	–
6373.008	U	4	–	–
6372.987	Ce	6	–	–
6372.776	Nd	3	–	–
6372.71	Yb	6	–	Me
6372.69	Er	4	–	Ed
6372.688	Sm	2	–	–
6372.59	Ho	10	–	Ed
6372.486	Ce	5	–	–
6372.469	U	50	–	–
6372.357	Mo	5	2	–
6371.936	Th	4	–	–
6371.90	Sm II	15	–	–
6371.76	I I	–	[100]	Ev
6371.75	Ti I	2	–	Rl
6371.632	Er	4	–	–
6371.472	W	6 s	–	–
6371.105	Ce	10	–	–
6371.09	Si	2	30	Ks
6371.029	Sm	5	–	–
6370.814	Mn	4 h	–	Sl
6370.62	Se II	–	[30]	Bl
6370.383	Ni I	3	–	–
6370.337	W	3	1	–
6370.15	Ca	4	–	Ad
6369.962	Sr	25	5	–
6369.9	bh Yt	10	–	Me
6369.873	U	5	–	–
6369.63	Dy	2	–	Ks
6369.577	A I	–	[30]	Ms
6369.34	S	–	[50]	Bl
6369.243	Eu	300	–	–
6369.144	Th	2	–	–
6368.78	Gd	10 r	–	Ks
6368.41	Sm	4	–	Kn
6368.279	Sm II	50 d	–	–
6368.26	Kr I	–	[4]	Me
6368.13	Se II	–	[30]	Bt
6367.668	U	2	–	–
6367.431	Sm	10	–	–
6367.34	I I	–	[70]	Ev
6367.10	Te	–	[70]	Bl
6366.753	Nd	4	–	–
6366.74	Eu	5 W	–	Kn
6366.572	Er	4	–	–
6366.483	Ni I	15	–	–
6366.354	Ti I	80	–	IKs
6366.282	O	–	[50]	Fh
6366.267	Sm	2	–	–
6366.00	Lu	15	–	Me
6365.79	Lu	10	–	Me
6365.554	Nd	15	–	–
6365.518	Cs I	2	–	Ms
6365.013	Ne I	–	[100]	Ps
6364.92	Ti I	8	–	–
6364.909	Ta	3	–	–
6364.89	A I	–	[20]	Ms
6364.75	B	2	–	Wt
6364.726	W	4	1	–
6363.939	Sr I	25	4	–
6363.935	Nd	2	–	–
6363.93	Te	–	[5]	Bl
6363.77	Rh I	2	–	Me
6363.407	Ru I	4	–	–
6363 26	I	–	[15]	Bl
6363.22	Gd	3	–	Ks
6363.158	Sm	3	–	–
6363.10	Si	3	1	Sy
6362.958	In II	–	[40]	Ps
6362.942	Re	2	–	–
6362.896	In II	–	[40]	Ps
6362.874	Cr I	150	8	–
6362.8	Xe	–	[3 wh]	Hu
6362.693	Re	2	–	–
6362.5	bh Zr	5	–	L
6362.373	In II	–	[12]	Ps
6362.347	Zn I	1000 Wh	500	IHz
6362.286	Sc I	2	5	–
6362.133	In II	–	[40]	Ps
6362.10	Hg	–	[15]	Lf
6362.093	Nd	10	–	–
6361.801	Sc	10 R	8	–
6361.80	Er	4	–	Ed
6361.740	In II	–	[20]	Ps
6361.7	bh Sc	2	–	Me
6361.492	In II	–	[20]	Ps
6361.430	Nd	10	–	–
6361.269	V I	5	2	–
6361.076	W	3	1	–
6360.869	Nd	5	–	–
6360.839	Ta	100	–	–
6360.798	Ni I	5 h	–	–
6360.466	Eu	4	–	–
6360.238	La I	15	–	–
6360 216	Ce	4	–	–
6359 93	Cd II	10	50	Vs
6359.896	Ti I	5	–	–
6359.83	Hf	1	2	Me
6359.78	Dy	2	–	Ks
6359.5	bh Yt	8	–	Me
6359 5	Sb	–	10	Dv
6359 305	U	30	–	–
6359 211	Ti I	2	–	–
6359.19	Se	–	[5]	Bl
6359.19	I I	–	[60]	Ev
6359.129	W	2	–	–
6359.043	Pr	40 w	–	–
6358 818	V I	5	3	–
6358.690	Fe I	8 h	6 h	–
6358.37	Se I	–	[15]	Rd
6358 26	Gd	4 h	–	Ks
6358.137	La II	10	15	–
6358 09	Cu I	8	–	Az
6357.90	Ru	4	–	Me
6357.45	Cu II	–	15	Sh
6357.36	Hf	1	2	Me
6357 298	V I	10	3	–
6357 269	Sm	2	2	–
6357 237	Pr	10 w	–	–
6357.215	Mo	40	10	–
6357.190	Sm	50	1	–
6357 0	N II	–	[30]	Fl
6356.87	F I	–	[2]	Gl
6356.545	Nd	2	–	–
6356.434	La I	5	–	–
6356.35	Xe II	–	[300]	Hu
6356 3	bh Zr	6	–	L
6356.139	Ta	100	–	–
6356 082	Mn	8	–	Sl
6355 947	Nd	3	–	–
6355 904	W	3	–	–
6355 885	Eu	200	–	–
6355.77	Xe I	–	[20]	Me
6355.66	I I	–	[15]	Ev
6355.40	Yb	2	50 h	Me
6355 357	Sm	8	–	–
6355 105	Dy	2	–	–
6355.039	Fe I	15 h	8 h	–
6354.98	Cs I	15 h	–	Me
6354.85	Lu	20	1	Me
6354 754	Nd	4	–	–
6354.738	In II	–	[5]	Ps
6354.72	Cd II	5	40	Vs
6354 35	Ho	8	–	Ed
6354.318	In II	–	[20]	Ps
6353 66	Dy	2	–	Ks
6353.494	Sm	50	5	–
6353.438	U	3	–	–
6353.437	Sm	2	30	–
6353.29	Xe II	–	[30 hl]	Hu
6353.12	Dy	2	–	Ks
6353.013	Sm II	20	20	–
6352.94	Br	–	[25]	Bl
6352.750	Co I	2 h	–	m
6352.64	Tm	40	4	Me
6352 3	bh Yt	5	–	Me
6351 958	Nd	4	–	–
6351.90	Kr I	–	[8]	Me
6351.891	Ru I	2	–	–
6351.873	Ne I	–	[100]	Ps
6351.70	Gd	5	–	Ks
6351.57	Er	6	–	Ed
6351.425	Co I	25	–	–
6351.238	Ta	5	–	–
6351.2	bh Zr	6	–	L
6350 984	Pr	20 w	–	–
6350.75	Re I	100 R	–	Me
6350.74	Br I	–	[200 l]	Ks
6350.44	Gd	10	–	Ks
6350.044	Eu	600 W	–	–
6349.766	Mn	15	–	Sl
6349.7	Te I	–	[18 w]	Rd
6349.478	V I	15	8	–
6349.240	Sm	4	–	–
6349 20	A I	–	[2]	Ms
6348.98	Cb	8	2	Me
6348 95	Hg	–	[5]	Lf
6348.949	Sm	4	–	–
6348.86	Se	–	[30]	Bt
6348.743	Nd	2	–	–
6348.559	Th	3	3	–
6348 50	F I	–	[200]	En
6348 358	Dy	2	–	–
6348 34	I	–	[50]	Bl
6348.27	A	–	[2]	Rt
6347.827	Co	125	–	–
6347.824	Nd	2	–	–
6347.721	Pr	3	–	–
6347.62	Hf	1	2	Me
6347.31	Ho	2	–	Ed
6347.17	Er	8	–	Ed
6347.127	Pr	5	–	–
6347.1	N II	–	[5]	Fl
6347.06	Mg II	10	2	Lr
6347 01	Si	2	50	Sy
6346.748	Pr	3 w	–	–
6346 66	Kr I	–	[20]	Me
6346 64	Gd	30	–	Ks
6346 539	Nd	5	–	–
6346.52	Zr II	10	2	–
6346.505	Sm	3	–	–
6346.320	Nd	3	–	–
6346.272	U	2	–	–
6346.24	Cb	6	2	Me
6346 02	Ta	40	–	–
6346.0	Eu	10	–	Kn
6345 989	Th	3 wh	–	–
6345 955	Sb	4	–	Wt
6345.749	Sr I	25	4	–
6345.74	Yb	2	7	Me
6345 51	Te	–	[30]	Bl
6345 35	Lu	60	4	Me
6345 221	Zr I	15	–	–
6345 02	Yb	15 h	–	Me
6345.0	Pb II	–	[25]	Ea
6344.98	Xe I	–	[2 h]	Me
6344 938	Zr	4 hl	–	–
6344 9	bh Zr	18	–	L
6344.831	Sc I	5	6	–
6344.61	Kr II	–	[4 h]	Me
6344.153	Fe I	5 h	2 h	–
6344 110	Mn	20	–	Sl
6343.963	Ce	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6343.96	Xe II	–	[200]	Hu
6343.938	Pr	10 w	–	–
6343.80	Hg	–	[15]	Lf
6343.77	Hf II	1	4	Me
6343.358	Sm	2	–	–
6343.34	Dy	4	–	Ks
6343 057	Nd	2	–	–
6342.861	Th	15	–	–
6342.55	Dy	2	–	Ks
6342.388	W	2	–	–
6342.082	Sc II	2	5	–
6342.0	bh Pb	3	–	L
6341.70	Cl	–	[10]	Ks
6341.683	Ba	90	50	IKs
6341.572	Sm	2	–	–
6341.507	Nd	15	–	–
6341.38	Dy	2	–	Ks
6341.173	Ta	50	–	–
6341.09	I	–	[30]	Bl
6340.803	Co	10	–	–
6340.71	Hf	1	2	Me
6340.686	Ce	4	–	–
6340.67	N II	–	[50]	Fl
6340.66	Er	4	–	Ed
6340.361	Zr I	8	–	–
6340.055	Sm II	25	–	–
6340.001	Nd	5	–	–
6339.981	Ta	5	–	–
6339.97	I II	–	[100 h]	Bl
6339.904	Mo	15	2	–
6339.8	Pb II	–	[15]	Ea
6339.743	Sm	3	–	–
6339.57	Ba	5	–	Bu
6339.52	I	–	[300]	Ev
6339.458	Th	3	–	–
6339.39	Si	2	2	Sy
6339.26	La I	3	–	–
6339.148	Ni I	50	–	–
6339.088	V I	25	8	–
6338 97	I I	–	[100]	Db
6338.898	Sm	5 h	–	–
6338.838	Nd	3	–	–
6338 750	U	4	–	–
6338.14	Se II	–	[15]	Bl
6338 13	Yt	5	5	–
6338.12	Dy	2	–	Ks
6338 1	bh Yt	10	–	Me
6338.10	Hf	4	7	Me
6338.02	I	–	[100]	Ev
6338.001	In II	–	[5]	Ps
6337.969	Sm	2	–	–
6337 952	Co I	5	–	–
6337.88	La II	3	2	–
6337 85	Tb	4	–	Ed
6337.628	Th	2	–	–
6337.58	Xe I	–	[8 hl]	Me
6337.4	Au I	2	–	Ml
6337.364	In II	–	[12]	Ps
6337 212	Ce	8	–	–
6336 90	Ra I	–	[500]	Rs
6336.839	Fe I	60	35 h	–
6336.566	In II	–	[20]	Ps
6336.552	U	2	–	–
6336.31	Gd	10	–	Ks
6336 31	Ge II	–	10	Lg
6336.121	Ru	5	–	–
6336.104	Ti I	80	–	IKs
6335 783	Eu	200	–	–
6335.72	Yb	8	–	Me
6335.70	Al II	–	[25]	Sy
6335.5	bh Yt	4	–	Me
6335.50	Br I	–	[5]	Ks
6335.39	Sm	3	–	Kn
6335.369	Ce	15	–	–
6335.335	Fe I	50	20 h	S
6335 107	Mo	4	2	–
6334.91	Tb	6	–	Ed
6334.55	Hf	1	2	Me
6334.438	Ir	20	–	–
6334.4279	Ne I	–	[1000]	S
6334.2	Ga II	–	[100]	Sy
6333.97	Xe I	–	[40 hl]	Me
6333 896	Nd	2	–	–
6333.820	La I	3	–	–
6333.58	I	–	[30]	Ev
6333 211	La I	2	–	–
6333.21	A	–	[4]	Rt
6332 977	Rh I	8	–	–
6332.907	Ta	50	–	–
6332.51	A	–	[4]	Rt
6332 3	bh F	2	–	L
6332 24	Er	4	–	Ed
6332 227	Sc	20 r	3	–
6332.220	Sb	6	–	Wt
6332 21	Mg	2 h	6	–
6332.2	bh C	–	–	L
6332.05	Se	–	[15]	Bl
6331.979	Ce	5 h	–	–
6331 92	Si	2 h	–	Ks
6331.889	Nd	3	–	–
6331.77	Tb	4	–	Ed
6331.731	Sm	3	–	–
6331.68	Tb	8	–	Ed
6331.50	Xe I	–	[20]	Me
6331.449	W	2	–	–
6331.412	Th	3	–	–
6331.36	Gd	15	–	Ks
6331 339	Sm	4	–	–
6331.17	Sm	4	–	Ks
6331.10	Dy	2	–	Ks
6330.901	Ne I	–	[150]	Ps
6330.9	bh F	2	–	L
6330.766	U	6	–	–
6330.619	Ru	20	–	–
6330.45	I	–	[50]	Ev
6330.448	La I	3	–	–
6330.167	Nd	15	–	–
6330.157	Sm	10 d	–	–
6330.101	Cr I	200	8	–
6330.04	Te	–	[5]	Bl
6329.97	Cd I	30	–	Ps
6329.71	Si	2	1	Sy
6329.6	bh F	5	–	L
6329.428	Ce	3	–	–
6329 376	Sm II	8	–	–
6329.23	Dy	2	–	Ks
6329.222	Sm	8	–	–
6328.86	Hf	1	2	Me
6328 845	Sm II	10	–	–
6328.6	N II	–	[5]	Fl
6328 465	Nd	3	–	–
6328 3	bh F	5	–	L
6328.173	Ne I	–	[300]	Ps
6327.991	Sm	8	–	–
6327 603	Ni I	25	–	–
6327.49	Ir	3	–	–
6327.47	Sm II	100	–	Kn
6327.434	Cr	8 s	–	–
6327 268	Th	10	–	–
6327.0	bh F	10	–	L
6326.952	Nd	3	–	–
6326 87	Se I, II	–	[10]	Bl
6326 87	Br	–	[8]	Bl
6326 839	V I	15	3	–
6326.588	Ta	5	–	–
6326.577	Pt	50	–	–
6326.358	Th	4	–	–
6326 284	Sm	3	–	–
6326.204	Cs I	–	5	Ms
6326.11	Er	10	–	Ed
6326 10	Cu	–	3	Sh
6326 08	Sm	2	–	Kn
6325.923	La I	30	–	–
6325.9	bh F	10	–	L
6325 81	Xe I	–	[2]	Me
6325.78	Cb	6	2	Me
6325.582	Sm	50 d	–	–
6325.57	Se I	–	[500]	Rd
6325.45	Cu I	20	–	Az
6325 22	Ti I	40 w	–	Rl
6325.19	Cd I	100	–	Wd
6325.11	Se I	–	[30]	Rd
6325 083	Ta	100	–	–
6324.781	Nd	2	–	–
6324.78	Yb	3	2	Me
6324.7	bh F	10	–	L
6324.682	O I	–	[30]	Fh
6324 665	V I	8	4	–
6324.463	U	2	–	–
6324.45	A	–	[6]	Rt
6324.436	Eu	10	–	–
6324.38	Te	–	[5]	Bl
6324.3	bh Zr	6	–	L
6323.6	bh F	5	–	L
6323.542	Mo	12	2	–
6323.23	Dy	2	–	Ks
6322.94	Co I	2 h	–	Me
6322.867	Nd	3	–	–
6322.737	Sc I	2	4	–
6322.691	Fe I	8 h	8 h	–
6322.519	Sm	4	–	–
6322.42	Kr II	–	[4]	Me
6322.38	I I	–	[30]	Bl
6322.368	U	6	–	–
6322.367	Pr	30 w	–	–
6322.165	Ni I	3	–	–
6321.89	Re I	100 w	–	Me
6321.79	Sr I	4	–	–
6321.74	Sm	60	–	–
6321.59	Tb	4	–	Ed
6321.43	Sm	3	–	Kn
6321.348	Zr I	12	–	–
6321.247	Ce	2	–	–
6321.229	V I	5	5 h	Me
6321.218	Nd	2	–	–
6320.854	Sc II	3	15	–
6320.82	I	–	[50]	Bl
6320.63	Er	4	–	Ed
6320.60	I I	–	[100]	Db
6320.411	Co I	80	–	–
6320.41	I I	–	[50]	Db
6320.392	La II	70	100	–
6319.76	Sb II	–	[10]	Lg
6319.686	Nd	5	–	–
6319 530	Rh I	50	–	–
6319.49	Sm I	2	–	Kn
6319.240	W	5	–	–
6319.19	Sb II	4	12	Kz
6319 17	Er	4	–	Ed
6319.08	Mg	2 h	–	Lr
6318.567	Ce	2	–	–
6318 561	Eu	12	–	–
6318 55	Mg I	2 h	–	Lr
6318.4	bh Yt	3	–	Me
6318.369	Pt	30	–	
6318 33	Hf	3	5	Me
6318 260	La I	10	–	–
6318.062	Xe I	–	[500]	IMe
6318 027	Ti I	50	–	–
6318.022	Fe I	40	25 h	S
6318 00	Cu II	–	3	Sh
6317.819	Sm I	2	–	–
6317.703	Nd	3	–	–
6317 6	bh Zr	2	–	L
6317 5	bh Sc	3	–	Me
6317.40	Sm	2	–	Kn
6317.3	Sr	4 wh	4	Hp
6317.24	Dy	2	–	Ks
6317.18	Gd	10	–	Ks
6316 94	Sm	3	–	Kn
6316 857	Mo	4	2	–
6316.730	Ru	4	–	–
6316.47	Hg	–	[15]	Lf
6316 2	bh Yt	8	–	Me
6316 1	bh Sc	2	–	Me
6315.94	Hf II	1	5	Me
6315 817	La II	4	25	–
6315 779	Sm	15	–	–
6315 779	Co I	2 h	–	–
6315 310	Fe I	5 h	–	–
6315 063	Mn	5	–	–
6314 98	Co	2 h	–	Dn
6314.97	Xe I	–	[15]	Me
6314.710	Zr I	6	–	–
6314.675	Ni I	300	–	–
6314 61	Hg	–	[10]	Lf
6314.582	Sm	3	–	–
6314.529	Co I	50	–	–
6313.789	Eu	25 W	–	–
6313.692	Ne I	–	[150]	Ps
6313.554	Zr II	6	1	–
6313 46	Hf	2	3	Me
6313 235	Nd	4	–	–
6313 218	Cr	3	–	–
6313 20	Sm	2	–	Kn

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6313.12	I I	–	[30]	Db
6313.047	Co I	50	–	–
6313.024	Zr I	200	–	–
6312.83	Cu II	–	20	Sh
6312 8	Au I	8	–	Ml
6312 718	Nd	2	–	–
6312.68	S	–	[1000]	Bl
6312.55	I I	–	[5]	Ev
6312.240	Ti I	80	–	IKs
6312.237	Ta	5	–	–
6312.122	Cb	6	1	–
6312.11	Rn I	–	[2]	Rs
6311.85	Hf	3	6	Me
6311.8	bh Mg	4	–	L
6311.56	Sm	2	–	Kn
6311.500	V I	10	–	–
6311.5	Pb II	–	[40]	Ea
6311.46	Xe II	–	[30 hl]	Hu
6311 292	Cu II	–	30	Sh
6311.289	Ti I	5 h	–	–
6311.28	Co	30 h	–	Sl
6310.926	La II	10	100	–
6310.83	Sn	10	8	Wt
6310.75	Hf	1	2	Me
6310.487	Nd	50	–	–
6310.297	Sm	3	–	–
6310.145	La	7	–	–
6310 043	Rb	–	50	Rr
6310.017	Ce	20	–	–
6309.902	Sc II	5	25	–
6309.89	Sm II	3	–	Kn
6309.702	V I	5	2	–
6309 579	Ta	100	–	–
6309.24	Cb	6	2	Me
6309 14	A I	–	[8]	Ms
6309.10	Gd	10	–	Ks
6309 065	Ta	15	–	–
6309.	Rn	–	[10]	Wa
6308 87	La	3	–	Me
6308.79	Er	15	–	Ed
6308.7	bh Zr	2	–	L
6308.67	Hf	1	2	Me
6308.488	W	5	1	–
6308.28	Sm II	10	–	Kn
6308.257	Nd	10	–	–
6308.243	La	3	–	–
6308.16	Yb	20	30	Me
6308.026	Ce	5	–	–
6307.720	Re I	100 w	–	–
6307.662	A I	–	[30]	Ms
6307.266	La II	3	10 h	–
6307.240	K II	–	[40]	Dm
6307.18	Rh I	3	–	Me
6307 06	Sm II	60	–	Kn
6307.043	Nd	10	–	–
6306.980	U	4	–	–
6306.68	Ho	3	–	Ed
6306.628	Ce	10	–	–
6306 399	Mo	4	–	–
6306.318	Sm	3	–	–
6306.17	Hf II	1	5	Me
6306.1	bh F	100	–	L
6306.047	Sc I	7	–	–
6305.956	Cu II	–	15	Sh
6305.784	Nd	3	–	–
6305.737	In II	–	[40]	Ps
6305.671	Sc I	80	60	–
6305.555	In II	–	[30]	Ps
6305.51	S	–	[1000]	Bl
6305.45	La II	12	5	–
6305.36	Ho	20	–	Ed
6305.262	Pr	9	–	–
6305.231	Nd	3	–	–
6305.19	Sm	40 d	–	Kn
6305.14	Gd	100	–	Ks
6304.846	In II	–	[30]	Ps
6304.8	bh F	150	–	L
6304.7892	Ne I	–	[100]	S
6304.74	Sm	2	–	Kn
6304.559	U	4	–	–
6304.540	In II	–	[20]	Ps
6304.344	Zr I	6	–	–
6304.313	V I	5	–	–
6304.240	Th	6	–	–
6304.026	Pr	8	–	–
6303 965	In II	–	[20]	Ps
6303.90	Sm	2	–	Kn
6303.830	In II	–	[12]	Ps
6303.754	Ti I	200	–	IKs
6303.743	Ir	5	–	–
6303.66	Kr II	–	[100]	Me
6303.5	bh F	150	–	L
6303.454	Re	10	–	–
6303.42	Se I	–	[1000]	Ms
6303.395	Eu II	700	–	–
6303.28	Yb	3	4	Me
6303.260	Th	3	2	–
6303.240	W	10	2	–
6303.173	In II	–	[5]	Ps
6303.15	Sm	40	–	Kn
6302.764	Sb II	–	[20]	Lg
6302.7	bh Yt	2	–	Me
6302.526	In II	–	[5]	Ps
6302.511	Fe I	15 h	15 h	–
6302.394	Sm II	25	–	–
6302.362	Pr	10	–	–
6302.35	Sb	4 h	–	Kz
6302.2	Au I	4	–	Ml
6302.2	bh F	150	–	L
6301.972	Nd	4	–	–
6301.873	Sm	5	–	–
6301.753	Mo	15	–	–
6301.517	Fe I	50	50 h	–
6301.290	U	2	–	–
6301.12	Sm II	50	–	Kn
6300.99	Se I	–	[40]	Rd
6300.988	Cu II	–	40	Sh
6300.970	Nd	5	–	–
6300.9	bh F	150	–	L
6300.86	Xe II	–	[125]	Hu
6300.697	Sc II	2	10	–
6300.50	I	–	[30]	Bl
6300.50	Eu	4 W	–	Kn
6300.39	Dy	2	–	Ks
6300.30	Ba	2 h	–	Lr
6300.210	Ce	20	–	–
6300.19	Sm II	50	–	Kn
6300.09	Hg	–	[5]	Lf
6299 8	bh F	100	–	L
6299.764	Eu	500 W	–	–
6299.657	Zr I	50	–	–
6299.62	Sm	2 h	–	Kn
6299.54	Hf	2	5	Me
6299 514	Ce	4	–	–
6299.45	Tm	20	20	Me
6299.41	Er	10	–	Ed
6299.225	Rb I	300	50	IRz
6299.05	Gd	15	–	Ks
6299.0	bh Zr	4	–	L
6298.7	bh F	100	–	L
6298.64	Te	–	[30]	Bl
6298.596	W	3	1	–
6298.551	U	12	–	–
6298.418	Nd	20	–	–
6298.327	Rb I	1000	150	IRz
6298.31	Xe II	–	[30]	Hu
6298.075	Ti I	2	–	–
6297.797	Fe I	10 h	15 h	–
6297 767	Sc I	2	3	–
6297.642	Sm	4	–	–
6297.5	bh F	100	–	L
6297.38	Yb	–	15	Me
6297.08	I	–	[30]	Ev
6297.072	Nd	15	–	–
6296.98	Eu	3	–	Kn
6296.967	Co I	2 h	–	Sl
6296 876	A I	–	[20]	Ms
6296.85	Se	–	[3]	Bl
6296.70	Br	–	[20]	Ks
6296.646	Ti I	30	–	–
6296.5	bh F	100	–	L
6296.493	V I	35	30	–
6296.39	Xe II	–	[10 wh]	Hu
6296.33	Rn I	–	[6]	Rs
6296.216	Ru	15	–	–
6296.14	Tb	4	–	Ed
6296.096	La II	50	150	–
6295.975	Sm	10	–	–
6295.949	Ti I	3	–	–
6295.65	Sr	8	1	Hp
6295.557	Ce	20	–	–
6295 5	bh Yt	10	–	Me
6295.4	bh F	80	–	L
6295.268	V	2	–	–
6295 251	Ti I	10	–	–
6295.217	Ru	5	–	–
6294.45	Xe I	–	[15]	Me
6294.425	Nd	2	–	–
6294.17	Rh I	3	–	Me
6294.08	I I	–	[300]	Ev
6293.908	Sm	8 d	–	–
6293.766	Ne I	–	[100]	Ps
6293.61	Te	–	[100]	Bl
6293.565	La I	30	–	–
6293.4	bh F	80	–	L
6293.383	Rh I	10	–	–
6293.347	U	15	–	–
6293.045	Sc I	2 h	10	–
6292 960	Sm	9	–	–
6292 86	Gd	10	–	Ks
6292.86	Cu I	8	–	Az
6292.843	Nd	20	–	–
6292 827	V I	50	10	–
6292.8	bh Zr	15	–	L
6292 649	Xe I	–	[50]	IMe
6292 5	bh F	50	–	L
6292 43	Tb	6	–	Ed
6292.032	W	30	2	–
6292 032	U	10	–	–
6292.004	Nd	4	–	–
6291.859	Co I	5	–	–
6291 85	Pt	5	–	Me
6291.82	Sm II	100 d	–	Kn
6291.66	Dy	3	–	Ks
6291.6	bh F	50	–	L
6291.484	U	3	–	–
6291.48	Hf	2	4	Me
6291.402	I II	–	[30]	Ke
6291 341	Eu	250	–	–
6291.26	Hg II	–	[50]	Ps
6291.029	W	4	1	–
6290.977	Fe I	5 h	–	–
6290.96	Kr II	–	[3 hl]	Me
6290 743	Mo	15	4	–
6290.7	bh F	50	–	L
6290 68	I I	–	[5]	Ev
6290.39	Rh I	3	–	Me
6290.13	Br I	–	[5]	Ks
6290.105	Re I	2 h	–	–
6289.928	Sm II	60	–	–
6289.9	bh F	30	–	L
6289.74	Tl II	–	[10]	El
6289.74	Gd	15	–	Ks
6289.490	Th	3	–	–
6289.336	Ta	20	–	–
6289 2	bh F	30	–	L
6289.026	Pr	15 w	–	–
6288.90	W	2	–	Me
6288.72	Cu II	–	5	Sh
6288.61	Er	4	–	Ed
6288.56	La I	4	–	Me
6288.4	bh F	20	–	L
6288.34	Eu	300	–	Kn
6288.277	Ir	20	–	–
6288.1	bh F	2	–	L
6288.024	Nd	3	–	–
6287.91	Ta	10	–	Ks
6287.8	bh F	10	–	L
6287.773	Sm	2	–	–
6287.750	La I	5	–	–
6287.574	Nd	3	–	–
6287.55	Tl II	–	[5]	El
6287.55	Sb	–	10 h	Kz
6287.397	Rh	4	–	–
6287.361	Ta	5	–	–
6287.207	Nd	5	–	–
6287.1	bh F	5	–	L
6287.06	S	–	[1000]	Bl
6287.026	Pr	3	–	–
6286.99	Se I	–	[30]	Ms
6286.96	Sm	2	–	Kn
6286.924	V I	2	–	–
6286.86	Er	8	–	Ed
6286.831	Os	5	–	–
6286.609	Mo	7	2	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
6286.5	bh F	5	–	L
6286.417	Re	20 w	–	–
6286.404	Ce	3	–	–
6286.38	Cb	10	1	Me
6286.35	S	–	[300]	Bl
6286.26	Yb	8	–	Me
6286.011	Xe I	–	[100]	IMe
6285.941	Eu	20 W	–	–
6285.9	bh F	2	–	L
6285.897	W	30	2	–
6285.794	Nd	15	–	–
6285.78	N	–	[3]	Du
6285.5	bh F	2	–	L
6285.4	bh F	10	–	L
6285.281	Th	12	1	–
6285.165	V I	50	10	–
6285.149	Sm	10	–	–
6285.04	Br	–	[25]	Bl
6284.757	Sc I	4	6	–
6284.726	Nd	3	–	–
6284.47	Se I	–	[300]	Rd
6284.44	Sb	–	[4]	Lg
6284.41	Xe II	–	[50]	Hu
6284.30	N II	–	[30]	Fl
6284.178	Sc I	2 h	5	–
6284.12	Sm	10 d	–	Ks
6283.96	Se I	–	[200]	Rd
6283.478	Pt	10	–	–
6283.428	In II	–	[5]	Ps
6283.216	In II	–	[12]	Ps
6283.16	Se I	–	[200]	Rd
6283.1	bh F	20	–	L
6283.09	Ta	4	–	–
6282.78	Ho	3	–	Ed
6282.634	Co I	300 W	–	–
6282.624	Zr I	4	–	–
6282.515	Nd	3	–	–
6282.50	Br	–	[5]	Ks
6282.331	V	15	2	–
6282.29	Sm	2	–	Kn
6282.278	Pt	5	–	–
6281.997	Nd	10	–	–
6281.94	Sm	8 d	–	Ab
6281.935	Mo	8	2	–
6281.81	Xe I	–	[5 h]	Me
6281.72	Se	–	[30]	Bt
6281.40	Er	4	–	Ed
6281.334	Ta	50	–	–
6281.306	Pr	25	1	–
6280.91	V I	2	–	–
6280.9	bh F	20	–	L
6280.67	Rh I	3	–	Me
6280.626	Fe I	–	2	–
6280.32	I	–	[50]	Bl
6280.195	U	10	–	–
6280.169	Sc I	5 h	3	–
6279.84	Hf II	15	20	Me
6279.767	Zr I	6	–	–
6279.757	Sc II	10	25	–
6279.635	U	4	–	–
6279.493	Sm	10	–	–
6279.42	N	–	[2]	Mt
6279.170	Th	20	2	–
6279.06	Sm	2	–	Kn
6278.9	bh C	–	–	L
6278.761	Re I	20	–	–
6278.675	Pr	9	–	–
6278.64	A I	–	[6]	Ms
6278.43	Mo	2	–	–
6278.336	Ta	15	–	–
6278.253	Nd	2	–	–
6278.23	Sm	9 d	–	Ks
6278.179	Au I	700	20	Qi
6278.08	Rh	3	–	Me
6277.7	Te I	–	[3]	Rd
6277.565	Ta	2	–	–
6277.54	Xe II	–	[200]	Hu
6277.525	Ti I	2	–	–
6277.52	Kr	–	[2 h]	Me
6277.464	Rh I	15	–	–
6277.286	Nd	5	–	–
6277.249	Th	10	–	–
6277.13	Yb	–	5	Me
6277.109	Ce	3	–	–
6277.02	I	–	[15]	Bl
6276.99	Xe I	–	[4]	Me
6276.77	Sm	10 d	–	Kn
6276.708	Cu II	–	10	Sh
6276.665	Rh I	8	–	–
6276.66	I	–	[15]	Bl
6276.627	Co I	40	–	–
6276.624	Cu II	–	10	Sh
6276.5	bh F	20	–	L
6276.48	Sm	2	–	Kn
6276.456	Ce	10	–	–
6276.310	Sc I	10	8	–
6276.039	Ne I	–	[50]	Ps
6275.78	Sn	2	–	Wt
6275.43	N	–	[3]	Mt
6275.424	Cb	6	2 h	–
6275.133	Co I	25	–	–
6275.076	Sm	4	–	–
6275.0	bh Yt	15	–	Me
6274.96	Er	8	–	Ed
6274.937	Os	3	–	–
6274.90	Ho	2	–	Ed
6274.79	Yb	100	150	Me
6274.654	V I	50	8	–
6274.6	bh Sc	4	–	Me
6274.34	S	–	[30]	Bl
6274.297	Ta	3	–	–
6274.109	Th	25	3	–
6273.86	Dy	2 h	–	Ks
6273.763	La II	5	50	–
6273.743	Ce	5	–	–
6273.707	Sm	5	–	–
6273.41	Te I	–	[18 s]	Bl
6273.392	Sm	15	–	–
6273.389	Ti I	2	–	–
6273.330	Cu II	–	60	Sh
6273.23	Xe I	–	[10]	Me
6273.147	Sc I	3	–	–
6273.026	Co I	70 w	–	–
6273.018	Ne I	–	[70]	Ps
6273.00	Dy	2 h	–	Ks
6273.0	bh Zr	4	–	L
6272.83	N I	–	[8]	Du
6272.771	Nd	2	–	–
6272.406	Sm	2	–	–
6272.4	bh F	30	–	L
6272.36	Tb	4	–	Ed
6272.052	Sr	15	–	Hp
6272.051	Ce	20	–	–
6271.8	bh Sc	2	–	Me
6271.737	Nd	4	–	–
6271.63	Er	6	–	Ed
6271.476	Co I	5	–	–
6271.409	Re I	15	–	–
6271.374	Sm	4	–	–
6271.16	Yb	–	3	Me
6271.09	Dy	2	–	Ks
6271.05	Hf II	1	3	Me
6271.046	Sm	8	–	–
6270.82	Xe II	–	[250]	Hu
6270.76	Dy	2	–	Ks
6270.578	U	4	–	–
6270.287	Ce	8	–	–
6270.273	Nd	5	–	–
6269 817	Ce	4 W	–	–
6269.80	Dy	2	–	Ks
6269.417	Nd	4	–	–
6269.414	Os	8	–	–
6269.19	W	2	–	Me
6269.15	Se I	–	[80]	Rd
6268.817	V I	30	5	–
6268.700	Ta	200	–	–
6268.688	U	6	–	–
6268.55	I	–	[30]	Ke
6268.530	Ti	20	–	–
6268.4	bh F	30	–	L
6268 30	Cu I	40	–	Az
6268.3	bh Ti	3	–	L
6267.94	Er	6	–	Ed
6267.67	I	–	[15]	Bl
6267 33	Kr I	–	[2]	Me
6267.28	Sm II	150	–	Kn
6267.062	Zr I	10	–	–
6266 948	Eu	120	–	–
6266.5	bh Zr	6	–	L
6266.4950	Ne I	–	[1000]	S
6266.371	Ta	50 W	–	–
6266.34	Sm	2 h	–	Kn
6266.320	V I	25	3	–
6266.23	Se I	–	[200]	Rd
6266.21	Te	–	[70]	Bl
6266.169	Th	8	–	–
6266.030	La I	80	–	–
6266.021	Ti I	12	–	–
6265.878	Mo	25	2	–
6265.655	Sm	2	–	–
6265.627	Mn	4	–	Sl
6265.54	Dy	2 h	–	Ed
6265.32	Gd	4	–	Ks
6265.302	Xe I	–	[40]	IMe
6265.140	Fe I	12 h	5 h	S
6265.07	Re	2 h	–	Me
6264.91	Kr	–	[2 wh]	Me
6264.825	Ti I	2	–	–
6264.594	Eu	9	–	–
6264.5	bh F	20	–	L
6264.346	O	–	[15]	Fh
6264.269	Mo	15	2	–
6264.256	Ce	6	–	–
6263.670	Pt	4	–	–
6263.437	Eu	10	–	–
6263.227	Nd	2	–	–
6262.825	Co I	5 h	–	–
6262.56	Er	8	–	Ed
6262.539	Pr	9	–	–
6262.519	Sm	3	–	–
6262.338	Pr	2	–	–
6262.311	Ta	5 h	–	–
6262.3	bh Sc	6	–	Me
6262.296	La II	125	150	–
6262.285	Eu	600	–	–
6262.245	Sc I	5	8	–
6261.826	Cu II	–	40	Sh
6261.46	Rn I	–	[12]	Rs
6261.420	Th	5	–	–
6261.314	O	–	[70]	Fh
6261.285	Cr	3	–	–
6261.225	V I	20	3	–
6261.212	Xe I	–	[50]	IMe
6261.099	Ti I	300	100	I
6261.09	Se II	–	[5 h]	Bt
6261.088	Co	2 h	–	m
6261.063	Th	15	2	–
6260.9	bh F	10	–	L
6260.9	bh Zr	15	–	L
6260.80	Yb	4	50	Me
6260.768	Cb	20	3 h	–
6260.51	Te	–	[30]	Bl
6260.38	Dy	3	–	Ks
6260.27	Gd	6	–	Ks
6260.24	Re	20	–	Me
6260.12	Sm	3	–	Kn
6260.017	Re	10	–	–
6259.83	Se I, II	–	[40]	Bt
6259.76	Gd	5	–	Ks
6259.682	Sm	8	–	–
6259.615	Ni I	2	–	–
6259.44	Te	–	[30]	Bl
6259.23	Br	–	[8]	Bl
6259.095	Dy	15	–	–
6258.964	Rh	4	–	–
6258.962	Sc I	20	20	–
6258.893	W	3	–	–
6258.81	Hf	10	20	Me
6258.796	Ne I	–	[100]	Ps
6258.734	Ta	8	–	–
6258.733	Nd	8	–	–
6258.703	Ti I	300	250	I
6258.591	Ni I	6	–	–
6258.572	V I	35	3	–
6258 103	Ti I	200	100	IKs
6257.990	Ce	8	–	–
6257.93	Sm	2	–	Kn
6257.86	Cu II	–	5	Sh
6257.84	Kr II	–	[4 ws]	Me
6257.577	Co I	70	–	–
6257.517	Nd	15	–	–
6257.489	I	–	[40]	Ke
6257.4	bh F	20	–	L
6257 308	Nd	4	–	–
6257 255	Zr I	30	–	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
6257.053	Co I	3	–	–
6257.00	Hf	10	30	Me
6256.899	V I	30	3	–
6256.715	Nd	5	–	–
6256.682	Ta	300	–	–
6256.66	Sm II	80	–	Kn
6256.616	O	–	[30]	Fh
6256.6	bh F	20	–	L
6256.536	Sm	25	–	–
6256.42	I II	–	[2]	Mu
6256.369	Fe I	8 h	–	–
6256.365	Ni I	600 w	10	IKs
6256.349	Ce	5	–	–
6256.108	Sm	8	–	–
6255.9	Te I	–	[12]	Rd
6255.9	bh Yt	4	–	Me
6255.85	Sm	10	–	Kn
6255.75	Ho	10	–	Ed
6255.60	Si I	3 h	–	Ks
6255.54	I II	–	[30]	Ke
6255.46	Dy	2	–	Ks
6254.96	Si I	2 h	–	Ks
6254.77	As II	–	10	Ro
6254.71	V	2 h	–	Me
6254.686	Ta	5 w	–	–
6254.68	F I	–	[3]	Gl
6254.55	Si I	15 hl	–	Ks
6254.36	Sn	2 h	–	Wt
6254.29	W	12	–	–
6254.261	Fe I	10	–	Bu
6254.25	Si I	25 h	–	Ks
6254.216	U	3	–	–
6254.194	Ta	2	–	–
6254.1	bh F	10	–	L
6253.940	Co I	2 h	–	m
6253.718	Rh I	35	–	–
6253.636	W	3	1	–
6253.622	Ce	8	–	–
6253.37	Cu I	3	–	Az
6253.043	Re	2	–	–
6252.561	Fe I	60	25 h	S
6252 34	Cl I	–	[5]	Ks
6252.24	Sm	2	–	Ab
6252.2	bh F	10	–	L
6252.06	Re I	2	–	Me
6251.823	V I	70	8	–
6251.819	U	8	–	–
6251.76	Cb	30	10	Me
6251.73	Sm	5	–	Kn
6251.499	W	2	–	–
6251.05	Yt	3	2	–
6251.022	Pr	3 w	–	–
6251.0	bh Yt	5	–	Me
6250.8	bh Pb	5	–	L
6250.65	Dy	2	–	Ks
6250.59	I II	–	[10]	Ke
6250.457	Eu	70	–	–
6250.431	Nd	10	–	–
6250.3	bh F	10	–	L
6249 961	Sc I	10	10	–
6249.929	La I	300	–	–
6249.791	Ta	100	–	–
6249.593	Ne I	–	[5]	Ps
6249.506	Co I	125	–	–
6248.95	Hf II	80	100	Me
6248.80	Lu	10	–	Me
6248.67	S	–	[15 h]	Bl
6248.52	Sr	4 h	2	Hp
6248.40	A I	–	[15]	Ms
6248.276	Nd	15	–	–
6248.107	Sm	10	–	–
6247.990	Th	2	–	–
6247.99	Yb	3	–	Me
6247.8	bh F	10	–	L
6247.56	Fe II	1	8	Kn
6247.546	V I	2	1	–
6247.322	Ta	2	–	–
6247.285	Co I	8	–	–
6247.16	Ra II	–	[50]	Rs
6246.97	Yb	40	60	Me
6246.86	Dy	2	–	Ks
6246.828	Nd	5	–	–
6246.76	Sm II	80	–	Kn
6246.734	Ne I	–	[100]	Ps
6246.550	U	6	–	–
6246.465	K II	–	[30]	Dm
6246.412	Co I	5 h	–	m
6246.4	bh Mg	3	–	L
6246.335	Fe I	20	20 h	–
6246.26	I	–	[15]	Ev
6245.924	Eu	5	–	–
6245 83	Ba	2 h	2	Bu
6245.792	W	2	–	–
6245.71	Sm	2	–	Kn
6245.629	Sc II	6	30	–
6245 61	Te	–	[150]	Bl
6245.41	I I	–	[5]	Ev
6245.30	Sm	2	–	Kn
6245.217	V I	5	1	–
6245.11	Si I	2 h	–	Ks
6245.05	Al	–	5 wh	Gn
6244.74	Si I	12 h	–	Ks
6244.61	Se	–	[30]	Bt
6244.56	Si I	10 h	–	Ks
6244.555	Sc I	2	–	–
6244.55	I	–	[30]	Ev
6244.47	Ta	10 w	–	Ks
6244.344	Pr	10	1	–
6244.21	Sm II	40 d	–	Kn
6244.11	I	–	[15]	Ev
6244.084	Nd	35	–	–
6243 97	Pd I	2	–	Me
6243.86	Si I	10 h	–	Ks
6243 85	Ba	6	2	Bu
6243.7	bh F	5	–	L
6243.555	V I	10	2	–
6243 53	Kr	–	[2 wl]	Me
6243.39	A I	–	[6]	Ms
6243.36	Al II	–	[80]	Ps
6243.28	I	–	[15]	Ev
6243.24	Te	–	[15]	Bl
6243.220	Re I	50 w	–	–
6243.145	Mn	3 h	–	Sl
6243.13	A II	–	[15]	Rt
6243.105	V I	35	4	–
6242.914	Ce	8	–	–
6242 811	V I	20	10	–
6242 81	I	–	[30]	Ev
6242.730	Ir	4	–	–
6242.66	Cl I	–	[2]	Ks
6242 52	N II	–	[70]	Fl
6242 48	Co	2	–	Me
6242.406	Sm	5	–	–
6242.34	Lu	40	200	Me
6242 24	Hg	–	[10]	Lf
6242 21	Se I	–	[80]	Rd
6242.09	Xe I	–	[8]	Me
6242.01	Sm	3	–	Kn
6241.907	Ce	6	–	–
6241.704	Os	4	–	–
6241.567	Sm	2	–	–
6241.39	Kr I	–	[10]	Me
6241.110	Pr	8 w	–	–
6240.93	I	–	[15]	Ev
6240.486	Sm	4	–	–
6240.37	Se II	–	[10]	Bt
6240.363	Ti	2	–	Bh
6240.131	V I	20	2	–
6240.1	Li I	300	–	Sd
6239.8	bh F	10	–	L
6239.778	Sc I	3 h	30	–
6239.73	A II	–	[4]	Rt
6239.70	Se II	–	[2]	Kh
6239.64	F I	–	[300]	En
6239.46	Tl II	–	15	Ml
6239.410	Sc I	8	5	–
6239.28	Dy	2	–	Ks
6239.189	Ta	5	–	–
6239.182	Zn I	8	–	IHz
6238 90	Sm	15	–	Ks
6238.9	bh Zr	6	–	L
6238.74	I I	–	[15]	Db
6238.702	Ce	10	–	–
6238.612	Fe	2	–	–
6238.587	La I	25	–	–
6238.58	Hf	6	8	Me
6238.499	Nd	20	–	–
6238.49	Tl II	–	10	Ml
6238.44	Gd	2	–	Ks
6238.42	Si I	4 h	–	Ks
6238.411	Fe II	–	2	Kn
6238.299	Sm	10	–	–
6237.891	Zn I	8	–	IHz
6237.740	W	2	–	–
6237.661	Sm II	50	–	–
6237.655	Pt	5	–	–
6237.62	Si I	5 h	–	Ks
6237.458	Ce	10	–	–
6237.42	Mn	2	–	Sl
6237.34	Si I	5 h	–	Ks
6237.338	Nd	5	–	–
6237.122	Co	2 h	–	–
6236 828	Pr	5	–	–
6236.713	La I	15	–	–
6236.7	bh Yt	30	–	Me
6236.56	Yb	2	–	Me
6236.40	I	–	[50]	Bl
6236.354	Kr I	–	[30]	Ja
6236.276	V I	5	–	–
6236.24	Sm	2 d	–	–
6236.11	Sm	15	–	Kn
6235.9	bh F	10	–	L
6235.67	Ru	4	–	–
6235.44	Pb	20	–	Wt
6235 40	Xe II	–	[10 h]	Hu
6235 36	Lu	25	100	Me
6235.36	Sm	15	–	Kn
6235 335	Tl	5	–	–
6235 27	Yb	2	–	Me
6235 1	bh Zr	6	–	L
6234.95	Sm	2	–	Kn
6234 860	Th	3	–	–
6234 86	Yb	–	5	Me
6234.855	La I	25	–	–
6234.37	Hg I	–	[15]	Lf
6234.320	U	10	–	–
6234 20	Sm II	10	–	Ks
6234.17	Ho	10	–	Ed
6234.04	Xe II	–	[10 hw]	Hu
6233 79	Cu I	3	–	Az
6233.743	Eu	100	–	–
6233.73	Se II	–	[30]	Bl
6233.59	I	–	[15]	Ev
6233 586	Ba	18 w	3	Sz
6233.501	La I	15	–	–
6233.38	Yb	–	5	Me
6233.197	V I	30	4	–
6233.1	bh Sc	6	–	Me
6232.970	Th	10	3	–
6232 85	I	–	[50]	Bl
6232.68	Sm	2	–	Kn
6232.657	Fe I	5 h	5 Wh	–
6232.552	U	2	–	–
6232.452	Ce	8	–	–
6232.437	Co I	25	–	–
6232.3	bh F	5	–	L
6232.17	Sm	2 h	–	Kn
6231.905	In II	–	[5]	Ps
6231.76	Al II	–	[35]	Sy
6231.70	Sm II	4	–	Kn
6231.57	Cl I	–	[5]	Ks
6231.480	In II	–	[20]	Ps
6231.15	Rn I	–	[4]	Rs
6230.968	Co I	200 w	–	–
6230.91	A I	–	[4]	Ms
6230.84	Hf II	10	20	Me
6230.8	bh Yt	5	–	Me
6230.80	Te	–	[300]	Bl
6230.74	Kr II	–	[10 hl]	Me
6230.736	V I	70	10	Me
6230.728	Fe I	60	50	S
6230.62	Dy	2	–	Ks
6230.511	Eu	6	–	–
6230.425	In II	–	[12]	Ps
6230.322	Nd	2	–	–
6230.115	Ni I	5	–	–
6230.022	Nd	3	–	–
6229.854	In II	–	[12]	Ps
6229.82	Sm	2	–	Kn
6229.77	Dy	3	–	Ks
6229.7	Pb II	–	[50]	Ea
6229.662	U	2 h	–	–
6229.66	Hf II	2	3	Me
6229.44	Re I	40 w	–	Me
6229.4	bh Sc	5	–	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6229.4	bh Zr	18	–	L
6229 39	I	–	[50]	Bl
6229.236	Fe I	2	–	–
6229.07	Sm	2	–	Kn
6228.945	Ce	10	–	–
6228.852	In II	–	[12]	Ps
6228.762	In II	–	[40]	Ps
6228.69	Se II	–	[15]	Bl
6228.533	In II	–	[5]	Ps
6228.430	Mo	5 wh	–	–
6228.315	In II	–	[30]	Ps
6228.31	Sm	2	–	Kn
6228.234	Ce	8	–	–
6228.14	Lu	10	40	Me
6228.038	In II	–	[20]	Ps
6227.984	U	2 h	–	–
6227.955	Nd	2	–	–
6227.919	In II	–	[20]	Ps
6227.815	In II	–	[20]	Ps
6227.701	Os	30	–	–
6227.661	Ti	4	–	Bh
6227.241	Fe	5	–	–
6227.206	Nd	2	–	–
6227.18	Cl II	–	[6]	Ks
6226.713	Sm	5	–	–
6226.502	Nd	20	–	–
6226.3	bh Ti	3	–	L
6226.295	V	–	8	Me
6226.19	Al II	–	[25]	Sy
6225.95	Tb	4	–	Ed
6225.747	W	4	1	–
6225.742	Ne I	–	[50]	Ps
6225.7	bh F	5	–	L
6225.556	Sm	15	20	–
6225.48	Sm	3	–	Kn
6225.279	La I	3	–	–
6225.250	Nd	2	–	–
6225 236	Sm	4	–	–
6225.203	Ru	20	–	–
6224.70	Sm	4	–	Ks
6224.518	Th	5	–	–
6224 505	V I	50	5	–
6224 275	In II	–	[60]	Ps
6224 189	Zr I	6	–	–
6224 187	W	3	1	–
6224.168	Xe I	–	[40]	IMe
6224.	Rn	–	[4]	Wa
6223.994	Ni I	30	–	–
6223 681	Ce	3	–	–
6223 66	Cu I	15	–	Az
6223.65	Yb	–	15	Me
6223.641	Sm	4	–	–
6223.612	Ta	2	–	–
6223 394	Nd	25	–	–
6223 372	Co I	10	–	–
6223.249	Ce	6	–	–
6222.81	Hf II	6	10	Me
6222 8	bh Zr	2	–	L
6222.74	Sm	2	–	Kn
6222 71	Kr I	–	[20]	Me
6222 694	Ta	2	–	–
6222.61	A I	–	[4]	Rs
6222.595	Yt I	5	5	–
6222.568	Sm	3	–	–
6222.4	bh Ti	4	–	L
6222.329	Co I	3	–	–
6222 3	bh F	10	–	L
6222.25	Tb	4	–	Ed
6222.173	U	8	–	–
6222.148	Nd	8	–	–
6221.958	Cb	20	5	–
6221.87	Lu	500	1000	Me
6221.8	bh Yt	6	–	Me
6221.578	Ti	3 h	–	–
6221.48	Te	–	[50]	Bl
6221.45	Sb	8	2 h	Wt
6221.41	Ti I	80	–	–
6221.36	Fe I	3 h	–	–
6221.337	Ta	3	–	–
6221.32	Sm	3	–	Kn
6221.219	V I	3	1	–
6221.150	Nd	2	–	–
6221.01	Er	12	–	Ed
6220.94	Cu I	8	–	Az
6220.94	Gd	5	–	Ks
6220.89	Sm	10 d	–	Kn
6220.86	Se I, II	–	[5]	Rd
6220.84	Xe I	–	[2]	Me
6220.806	Zr I	4	–	–
6220.488	Ti I	100	30	–
6220.30	Hg	–	[15]	Lf
6220.2	bh Sc	6	–	Me
6219.979	Ti	5	–	–
6219.818	Cu II	–	30	Sh
6219.794	Nd	2	–	–
6219.703	U	2	–	–
6219 636	Cb	6 Wh	2 h	–
6219.587	Rh	4	–	–
6219 472	La	4	–	–
6219.289	Fe I	40	5	–
6219.17	Sm	4	–	Kn
6218.99	Ta	5 w	–	–
6218.76	Re	2 h	–	Me
6218.314	V I	15	10 h	–
6218.236	Sm	4	–	–
6218.211	La I	8	–	–
6218.185	Nd	2	–	–
6218.082	Pr	5 w	–	–
6218.0	bh Yt	40	–	Me
6217.987	Re I	40 w	–	–
6217.894	Mo	20	2	–
6217.887	Yt	10	2	–
6217.374	Ir	4	–	–
6217.289	Fe	2	–	–
6217.2813	Ne I	–	[1000]	S
6217.27	Cs I	15 w	–	Me
6217.147	Sm	12	–	–
6217.083	Ta	8	–	–
6216 910	Cu II	–	60	Sh
6216 909	Sm	10 d	20	–
6216.881	U	2	–	–
6216 836	Ce	10	–	–
6216 82	Hf	2	6	Me
6216.688	Nd	8	–	–
6216.64	Te	–	[50]	Bl
6216 59	Dy	2	–	Ks
6216 44	Sm	5	–	Ks
6216 38	Cu I	8	–	Az
6216 370	V I	60	10	–
6216 078	Ce	2	–	–
6215 999	Pt	20	–	–
6215 945	A I	–	[60]	Ms
6215.57	Yb	–	6	Me
6215.397	U	12	–	–
6215.284	Ti I	100	50	–
6215.2	bh Ti	6	–	L
6215.153	Fe	3	–	–
6214.689	Zr I	18	–	–
6214 678	Mo	7	2	–
6214.590	Zn II	3	[12]	–
6214.35	La I	3	–	Me
6214.10	Ca	–	2	Ad
6214 00	Sb	6	–	Wt
6213 91	I I	–	[70]	Db
6213 878	Ne I	–	[150]	Ps
6213 869	V I	50	3	–
6213 85	Sm	4	–	Kn
6213 67	Er	4	–	Ed
6213 443	Fe I	20	–	–
6213.432	Dy	2	–	–
6213.248	Mo	12	–	–
6213.17	I I	–	[70]	Ev
6213 062	Cb	10	10 h	–
6213.052	Zr I	20	–	–
6212.87	Cs I	100	[10]	Me
6212.794	Nd	2	–	–
6212 727	Pr	10 w	–	–
6212.67	Dy	2	–	Ks
6212 65	Sm	2	–	Kn
6212 507	A I	–	[100]	Ms
6212 500	Ce	5	–	–
6212.229	Ti	18	–	–
6212.055	Fe I	2	–	–
6211.94	Hf	2	–	Me
6211.61	Cl I	–	[5]	Ks
6211.49	Te	–	[30]	Bl
6211.43	Tm	8	8	Me
6211.314	Ir	15	–	–
6211.189	Co I	25	–	–
6211.059	Ce	8	–	–
6210.83	F I	–	[5]	En
6210.811	Fe	2	–	–
6210.75	Sm	3	–	Kn
6210.70	Hf	6	8	Me
6210.681	Nd	10	–	–
6210.676	Sc I	20	25	–
6210.587	Pr	3	–	–
6210.454	Sm	3	–	–
6210.2	bh Zr	4	–	L
6209.9	bh Yt	5	–	Me
6209.592	Fe	2	–	–
6209.563	Ce	5	–	–
6209.478	Mo	8	2	–
6209.42	Hf	2	–	Me
6209.352	Eu	5	–	–
6209.29	Er	4	–	Ed
6209.11	Xe I	–	[3]	Me
6208.989	Sm	4	–	–
6208.989	Ce	12	–	–
6208.65	Ho	5	–	Ed
6208.46	Cu II	–	15	Sh
6208.428	Fe	2	–	–
6208.39	Sb II	–	8 wh	Kz
6208.372	Ta	10	–	–
6208.273	Mo	12	2	–
6208 239	Nd	10	–	–
6208.11	Yb	2	20 h	Me
6208.009	Nd	5	–	–
6207.978	Dy	2	–	–
6207.737	Th	3	–	–
6207.603	Eu	6	–	–
6207.259	Fe	2	–	–
6207.251	V I	20	5	Me
6207.218	Th	10	–	–
6207.20	Se I	–	[30]	Rd
6207.116	Sm II	8	–	–
6206.95	Hf II	1	3	Me
6206.830	Sm	25	–	–
6206 76	La	3	–	Me
6206.309	Rb I	800	100	IRz
6206 297	Xe I	–	[20]	IMe
6206 29	Se II	–	[10]	Bl
6206.239	Sm	2	–	–
6206.16	Xe	–	[100]	Hu
6206.110	Nd	5	–	–
6205.837	Sm	5	–	–
6205 787	Ne I	–	[100]	Ps
6205 75	Xe I	–	[4]	Me
6205.503	Co I	3 h	–	–
6205.35	Xe I	–	[6 h]	Me
6204 869	I II	–	[70]	Ke
6204 640	Ni I	10	–	–
6204.63	Er	4	–	Ed
6204.51	Sb	6	–	Wt
6204.27	Cu II	–	15	Sh
6204.143	Zr I	4	–	–
6203.9	bh Zr	4	–	L
6203.878	Sm	20	–	–
6203.701	Co	2 h	–	–
6203.7	Pb II	–	[5 d]	Ea
6203.62	Sn	4	8	Wt
6203 60	Gd	4	–	Ks
6203.514	W	15	1	–
6203.510	La II	8	25	–
6203.50	Co	2 h	–	Me
6203.491	Th	8	1	–
6203.389	U	3	–	–
6203.301	Co	2 h	–	Me
6203.29	Te	–	[15]	Bl
6203 246	Re I	25	–	–
6203.20	Sb II	2 h	[25]	Lg
6203.08	Br I	–	[10]	Ks
6202.981	Ne I	–	[15]	Ps
6202.85	Hf II	2	2	Me
6202.29	Te	–	[70]	Bl
6202.090	Ce	2	–	–
6201.994	U	3	–	–
6201.744	Nd	15	–	–
6201.49	Al II	–	[15]	Sy
6201.49	Xe I	–	[3 h]	Me
6201.138	Sm	5	–	–
6200.892	Xe I	–	[60]	IMe
6200.75	Rn I	–	[12]	Rs
6200.743	Re	3	–	–
6200.52	I I	–	[50]	Db

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6200.424	Th	5	–	–
6200.327	Fe I	15	–	–
6200.30	Ra I	–	[1000]	Rs
6200.298	Ta	4 hl	–	–
6200.075	Sm II	2	–	–
6199.992	Rh I	25	–	–
6199.8	bh Yt	50	–	Me
6199.66	Lu	40	125	Me
6199.25	Dy	2	–	Ks
6199.193	V I	100	8	–
6199.093	Rb II	–	100	Lp
6198.8	Pb II	–	[5 d]	Ea
6198.610	Nd	4	–	–
6198.438	Sc I	9	6	–
6198.417	U	2	–	–
6198.385	Sm	20	–	–
6198.260	Xe I	–	[100]	IMe
6198.22	Cd I	15	–	Ps
6198.215	Th	6	–	–
6198.14	Sm	4	–	Kn
6198.11	Cu II	–	5	Sh
6198.06	In	–	20	Sq
6198.047	Ce	8	–	–
6197.854	Sm	2	–	–
6197.837	Co I	5 h	–	–
6197.75	Fe	2	–	–
6197.706	Nd	2	–	–
6197.662	Mo	15	2	–
6197.395	Sm	2	–	–
6196.63	Xe II	–	[4 h]	Hu
6196.583	Sm	3	–	–
6196.544	U	2	–	–
6196.43	Hg II	–	[12]	Lf
6196 350	W	5	1	Bk
6196 33	Sb	6 h	–	Kz
6196.280	Ce	4	–	–
6196 23	Dy	3	–	Ks
6196.204	Nd	4	–	–
6196.14	Kr	–	[3 wl]	Me
6196 11	Sm	3	–	Kn
6195.957	W	5	1	–
6195.61	Pd I	2	–	Me
6195.546	Ce	10	–	–
6195.51	I	–	[100]	Bl
6195.435	Re	15 w	–	–
6195.4	bh C	–	–	L
6195.246	Ce	8	–	–
6195.21	Sm	2 h	–	Kn
6195 12	Lu	15	–	Me
6195 063	Eu	300	–	–
6195 05	Te	–	[5]	Bl
6194 91	Rn I	–	[4]	Rs
6194.85	Yb	3	–	Me
6194.75	Cl I	–	[15]	Ks
6194.52	Tb	4	–	Ed
6194.407	Sm	10	–	–
6194 265	U	2 h	–	–
6194 07	Xe II	–	[250]	Hu
6193.89	Xe I	–	[2 h]	Me
6193.851	Th	12	1	–
6193.672	Sc I	7	5	–
6193.64	Tb	4	–	Ed
6193.553	Co I	15	–	–
6193.233	W	5	1	–
6193.201	Mo	3	2	–
6193.14	Sm	10	–	Kn
6193.108	Ta	30	–	–
6193.078	Ne I	–	[50]	Ps
6192.960	Zr I	20	–	–
6192.9	bh Sc	10	–	Me
6192.64	Sm	50	–	Kn
6192.561	Ru I	9	–	–
6192.50	Hf	2	4	Me
6192.349	U	2	–	–
6192.282	Ce	4	–	–
6191.97	I I	–	[150]	Ev
6191.895	Th	5	–	–
6191.722	Yt I	8	5	–
6191.684	Nd	3	–	–
6191.68	Ho	8	–	Ed
6191.564	Eu	5	–	–
6191.562	Fe I	100	20 h	S
6191.553	Pr	5 w	–	–
6191.40	Xe I	–	[4 h]	Me
6191 23	Sm	15 w	–	Kn
6191.2	bh C	–	–	L
6191.186	Ni I	500	1	–
6190.81	Yb	3	15	Me
6190.7	bh Yt	5	–	Me
6190.657	Cr	5	–	–
6190.62	Sm	2	–	Kn
6190.25	Br	–	[8]	Bl
6190.1	bh Tı	3	–	L
6189.70	Sm	5	–	Kn
6189.67	Dy	2	–	Ks
6189.663	Ta	50	–	–
6189.460	Nd	3	–	–
6189.399	Zr I	8	–	–
6189.349	V I	10	2	–
6189.269	Tı	2	–	–
6189.10	Xe I	–	[20]	Me
6189.076	Ne I	–	[70]	Ps
6189.07	Yb	2	1	Me
6188.995	Co I	200 w	–	–
6188.987	Mo	12	2	–
6188.748	Fe	3	–	–
6188.702	W	2	–	–
6188.69	Cu II	–	20	Sh
6188.112	Th	3	1	–
6188.1	bh Sc	10	–	Me
6188.098	Eu	500 W	–	–
6188.091	La II	8	50	–
6188.024	Pd I	6	–	–
6188.023	Fe I	2 h	–	–
6188.00	Sm II	1 h	10	Kn
6188.0	bh Zr	4	–	L
6187 977	Pr	4 w	–	–
6187.94	Sm	30 d	–	Kn
6187.914	Re	2 h	–	–
6187.578	W	5	1	–
6187 56	Te	–	[5]	Bl
6187.498	Pr	3	–	–
6187.417	Sm	3	–	–
6186 979	Nd	2	–	–
6186 92	I	–	[15]	Bl
6186 917	Ce	9	–	–
6186.892	Rh I	30	–	–
6186 860	Cu II	–	20	Sh
6186.740	Ni I	30	–	–
6186 60	Se I	–	[15]	Rd
6186 6	bh Tı	5	–	L
6186.48	Hg	–	[10]	Lf
6186.236	W	7	1	–
6186.157	Ce	12	–	–
6186.15	Ti I	35	–	Me
6186 00	Sb II	–	[6]	Lg
6185.79	Xe II	–	[3 wh]	Hu
6185 578	Fe	2 h	–	–
6185 35	Kr II	–	[7 hl]	Me
6185.13	Hf	10	12	Me
6185 03	Xe II	–	[25]	Hu
6184.99	Bı	3 wh	–	Wt
6184.73	Dy	2	–	Ks
6184.727	Th	4	–	–
6184.57	Xe II	–	[30]	Hu
6184 536	Fe	3	–	–
6184.16	Xe I	–	[3]	Me
6184 125	Fe	3	–	–
6183.907	Nd	20	–	–
6183.75	Se I, II	–	[15]	Bl
6183.727	Fe	2	–	–
6183 5	bh Tı	2	–	L
6183 39	Te	–	[50]	Bl
6183.39	Al II	–	[20]	Sy
6183.32	Ho	3	–	Ed
6183.24	Cb	–	2 h	Me
6183.20	Er	6	–	Ed
6183.169	Ne I	–	[5]	Ps
6182 975	Nd	6	–	–
6182 89	Sm II	60 d	–	Kn
6182.623	Th	12	–	–
6182.420	Xe I	–	[300]	IMe
6182.343	Pr	12	1	–
6182.28	Al II	–	[15]	Sy
6182.2	bh Yt	60	–	Me
6182.146	Ne I	–	[150]	IMe
6181.94	Te	–	[15]	Bl
6181.9	Pb II	–	[30]	Ea
6181 88	Sm	15 d	–	Kn
6181.626	Nd	3	–	–
6181.57	Al II	–	[10]	Sy
6181.44	Tl II	–	10	M
6181.41	Tm	40	50	Me
6181.369	U	2 h	–	–
6181.05	Sm II	50 d	–	Kn
6181.030	Co I	10 h	–	–
6180.764	Nd	3	–	–
6180.6	bh Sc	4	–	Me
6180.58	Te	–	[30]	Bl
6180.455	Gd	30	–	–
6180.365	Rh I	2	–	–
6180.216	Fe I	6	–	–
6180.093	Ni I	2	–	–
6179.98	Tl II	–	[100]	El
6179.852	Th	6	–	–
6179.84	Sm II	30 d	–	Kn
6179.665	Xe I	–	[125]	IMe
6179.650	W	2	–	–
6179.419	Sm	10	–	–
6179.41	A I	–	[4]	Ms
6179.071	Ta	30	–	–
6178 89	Sr	6	–	Ex
6178.746	Eu	120	–	–
6178 67	Sm	2	–	Kn
6178.64	Sb	4 h	–	Wt
6178.591	Nd	15	–	–
6178 386	Ce	4	–	–
6178 303	Xe I	–	[150]	IMe
6178.231	Zr I	8	–	–
6178.198	Nd	3	–	–
6177.958	Ce	3	–	–
6177.71	Se I	–	[80]	Rd
6177 455	Sm	5	–	–
6177.40	Br I	–	[40]	Ks
6177.258	Ni I	5	–	–
6176 814	Ni I	400 w	–	–
6176.784	Ru	9	–	–
6176 585	Mn	2	–	Sl
6176.40	Sm	8 d	–	Kn
6176 36	Al	5 h	–	Wt
6176 168	Pd I	5	–	–
6176.085	Nd	4	–	–
6175 85	S I	–	[40]	Fh
6175 530	Mo	3	2	–
6175 424	Ni I	300	–	–
6175 291	Ne I	–	[50]	Ps
6175.285	Ce	8	–	–
6175 2	bh Zr	2	–	L
6175.029	Co I	2	–	–
6174 97	S	–	[30]	Fh
6174 96	Sm II	30 d	–	Kn
6174 888	Ne I	–	[70]	Ps
6174.6	bh Tı	3	–	L
6174.54	Ba	7	12	Lr
6174 47	Ti I	2	–	Me
6174.458	Sm	10	–	–
6174.392	U	5	–	–
6174 332	Pr	4 w	–	–
6174.301	Nd	2	–	–
6174.194	La II	5	3	–
6173 947	Sm	12	–	–
6173.930	Rh	10	–	–
6173.64	S I	–	[40]	Fh
6173.40	N II	–	[30]	Fl
6173.38	Dy	2	–	Ks
6173.339	Fe I	18	–	–
6173.13	Sm	3	–	Kn
6173.106	A I	–	[100]	IMe
6173.1	bh Sc	2	–	Me
6173.046	Eu I	600	–	–
6172.914	U	4	–	–
6172.866	Ce	2	–	–
6172.821	Ne I	–	[15]	Ps
6172.81	S I	–	[5]	Fh
6172.730	La II	15	5	–
6172.563	Sm	15	–	–
6172.531	Pt	15	–	–
6172.28	A	–	[20]	Rt
6172.23	Rn I	–	[4]	Rs
6172.08	Kr I	–	[2]	Me
6172.020	Cu II	–	20	Sh
6171.88	Tb	4	–	Ed
6171.872	U	30	–	–
6171.83	Te	–	[5]	Bl
6171.77	Kr II	–	[6 hs]	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
6171.65	Yb	5	2	Me
6171.49	Sn	10	10	Wt
6170.98	Hg	–	[15]	Lf
6170.955	Pd I	5	–	–
6170.858	Ta	8	–	–
6170.8	bh Yt	4	–	Me
6170.751	Mo	8	2	–
6170.609	Ru	15	–	–
6170.568	Ni I	5	–	–
6170.538	Ta	5	–	–
6170.516	Dy	2	–	–
6170.502	Fe I	15	–	–
6170.486	Nd	30	–	–
6170.47	As II	–	150	Ro
6170.359	V I	30	3	–
6170.26	N I	–	[5]	Fl
6170.2	bh Zr	4	–	L
6170.183	A I	–	[100]	IMe
6170.05	Er	8	–	Ed
6170.03	Tl II	–	[5]	El
6169.947	Sm	3	–	–
6169.818	Th	10	–	–
6169.58	Re	2	–	Me
6169.556	Co	2h	–	–
6169.556	Ca I	40	20	I
6169.40	Pb	10h	–	Wt
6169 168	Nd	2	–	–
6169.147	Sm	5	–	–
6169.106	W	6	1	–
6169.052	Ca I	25	15	I
6168.85	Co I	2h	–	Sl
6168.80	Kr II	–	[50]	Me
6168.73	Br	–	[3]	Bl
6168.433	Dy	6	–	–
6168.335	Sm I	30	–	Kn
6168.1	bh Cr	2	–	L
6168.096	Nd	5	–	–
6167.82	N II	–	[50]	Fl
6167.649	La I	3	–	–
6167.38	Tl II	–	[20]	El
6167.349	Ta	8	–	–
6167.24	Te	–	[15]	Bl
6167.03	Ra I	–	[70]	Rs
6166.84	Te	–	[100]	Bl
6166.76	Sm	8d	–	Ks
6166.673	Nd	20	–	–
6166.50	Hg	–	[5]	Lf
6166.443	Ca I	15	5	IWg
6165.945	Pr	50	2	–
6165.857	Sm	6	–	–
6165.7	Cu I	3h	–	Ks
6165.699	La I	100	–	–
6165.657	U	2	–	–
6165 656	Nd	8	–	–
6165.61	Sm	2h	–	Kn
6165.549	Dy	4	–	–
6165.469	Ce	4	–	–
6165.342	Fe	4	–	–
6165.332	Nd	2	–	–
6165.256	Pr	2	–	–
6165.2	P II	–	[15]	Dj
6165.132	Nd	2	–	–
6165.11	A I	–	[8]	Ms
6165.1	bh Yt	80	–	Me
6165 006	La	5	–	–
6164.95	Sm	3	–	Kn
6164.772	U	5	–	–
6164.697	Ce	3	–	–
6164.54	Se II	–	[30]	Bt
6164.528	U	8	–	–
6164.51	Sm	20d	–	Kn
6164.51	Gd	10	–	–
6164.475	Th	3	2h	–
6164.44	Eu	8	–	Kn
6164.422	Nd	4	–	–
6164.316	Cb	10	5	–
6163.944	Sm	15	–	–
6163.935	Xe I	–	[80]	IMe
6163.758	Ca I	10	7	IWg
6163.661	Xe I	–	[90]	IMe
6163.65	Kr I	–	[7]	Me
6163.5939	Ne I	–	[1000]	S
6163.553	Fe I	2	–	–
6163.42	Ni I	100	–	–
6163.188	Ce	2	–	–
6163.16	Sm	2	–	Kn
6163.008	In II	–	[20]	Ps
6162.754	In II	–	[20]	Ps
6162.54	Ho	3	–	Ed
6162.533	In II	–	[20]	Ps
6162.4	Te I	–	[3 w]	Rd
6162 377	Nd	8	–	–
6162.340	In II	–	[12]	Ps
6162.25	Sm	2	–	Kn
6162 228	Au	10	5	Qi
6162.204	U	3h	–	–
6162 20	Ho	2	–	Ed
6162 2	bh Ti	2	–	L
6162.188	Pr	5	–	–
6162.172	Ca I	40	45	I
6162.170	Co	60	–	Sl
6162.168	Ce	8 wl	–	–
6162.16	Xe I	–	[3]	Me
6162.14	Cl I	–	[10]	Ks
6161.90	I II	–	[2]	Mu
6161.862	In II	–	[20]	Ps
6161.74	Br	–	[8]	Bl
6161.508	Nd	10	–	–
6161.434	W	5	1	–
6161.289	Ca I	10	6	IWg
6161.194	Pr	50	2	–
6161.149	In II	–	[60]	Ps
6160.760	Na I	500	100	Hz
6160.70	Hf	–	4	Me
6160.5	bh Pb	4	–	L
6160.42	Sm II	40 d	–	Kn
6160.2	Te I	–	[12 w]	Rd
6160.196	Zr I	8	–	–
6160.1	Au I	20	–	Ml
6160.0	Pb II	–	[50]	Ea
6159.94	Lu	50	200	Me
6159.817	Ce	8	–	–
6159.622	Rb I	400	–	IRz
6159 56	Sm	40 l	30	Kn
6159.3	bh Ti	2	–	L
6159.281	Nd	3	–	–
6159.093	Pr	3	–	–
6158.967	Sr	6	–	Hp
6158.940	Ce	3	–	–
6158.87	Rh I	2	–	Me
6158.841	Ta	80 w	–	–
6158 72	Hf II	1	2	Me
6158.708	Eu	3 W	–	–
6158.47	Co I	2h	–	m
6158.442	Mo	10	3	–
6158.44	Ho	3	–	Ed
6158 32	Dy	3	–	Ks
6158.20	O I	–	[1000]	Ps
6158 20	Br I	–	[10]	Ks
6158.03	Os	4 h	–	Me
6158.00	Cu II	–	5	Sh
6157.834	Nd	25	–	–
6157.804	Pr	3	–	–
6157.734	Fe	15	–	–
6157.714	Zr I	20	–	–
6157.55	Sm II	30	–	Kn
6156.912	Nd	2	–	–
6156.90	Sm	30	–	Kn
6156.83	Sb	–	15	Kz
6156.78	O I	–	[300]	Ps
6156.741	Ce	6	–	–
6156.58	Ho	3	–	Ed
6156.578	Nd	8	–	–
6156 38	Ho	3	–	Ed
6156.29	Tb	4	–	Ed
6156.25	Hf II	3	3 d	Me
6156.17	Tl II	–	[5]	El
6156.163	Nd	3	–	–
6156.145	Ne I	–	[50]	Ps
6156 00	Si I	10 h	–	Ks
6155.99	O I	–	[150]	Ps
6155.73	Si I	2h	–	Ks
6155.614	Zr I	6	–	–
6155.503	Ce	3	–	–
6155.37	Eu	10 W	–	Kn
6155 32	Si I	50 h	–	Ks
6155.28	Xe II	–	[3 wh]	Hu
6155.23	A I	–	[60]	Ms
6155.22	Si I	20 h	–	Ks
6155 16	Te	–	[15]	Bl
6155.062	Nd	15	–	–
6154.945	Sb	8h	[40]	Lg
6154.91	Cb	10 wh	10 h	Me
6154.864	W	15	1	–
6154.81	Sm	2	–	Kn
6154.60	Sn	12	25	Wt
6154.504	Ta	200	–	–
6154.24	Cu II	–	30	Sh
6154.229	Na I	500	100	Hz
6154.09	Ne	–	[70 w]	Wa
6154.03	Tl II	–	[20]	El
6154.019	Os	2h	–	–
6153.9	bh Sc	20	–	Me
6153.9	bh Zr	8	–	L
6153.89	Te	–	[70]	Bl
6153.728	W	15	1	–
6153.687	U	4	–	–
6153.225	Eu	8 W	–	–
6152.788	Nd	2	–	–
6152.571	Yb	60	80	–
6152.544	Ta	60	–	–
6152.273	U	4	–	–
6152.070	Xe I	–	[20]	IMe
6152.06	Ru I	4	–	Me
6151.984	Th	10	–	–
6151.85	W	5	–	–
6151.730	Ce	10	–	–
6151.72	Yt	3	–	Me
6151.7	bh Yt	5	–	Me
6151.69	Al	5h	–	Wt
6151.632	Fe I	8	–	–
6151.48	Dy	2	–	Ks
6151.38	Kr I	–	[20]	Me
6151.19	Ra I	–	[30]	Rs
6151.14	Te	–	[50]	Bl
6151.13	Gd	15	–	Ks
6151.02	Tl II	–	[10]	El
6150.94	Sm	3	–	Kn
6150.67	Dy	2	–	Ks
6150.64	Yb	30 h	–	Me
6150.42	Cu II	–	20	Sh
6150.303	Ne I	–	[100]	Ps
6150.281	Nd	3	–	–
6150 154	V I	40	5	–
6150.11	Eu	5 W	–	Kn
6149.988	In II	–	[5]	Ps
6149.94	Sm	3	–	Kn
6149.743	Ti I	30	–	–
6149.73	F I	–	[10]	En
6149.675	In II	–	[12]	Ps
6149.67	Sn	15	50	Wt
6149.585	Ce	5	–	–
6149.50	Hg II	–	[200]	Ps
6149.375	In II	–	[20]	Ps
6149 277	Nd	20	–	–
6149 27	Eu	5	–	Kn
6149 265	Fe II	–	4	Kn
6149 10	Sm II	60	–	Kn
6149.096	In II	–	[30]	Ps
6149.01	Tl II	–	[5]	El
6148 991	Mo	3h	–	–
6148 84	Se	–	[30 h]	Bl
6148.834	In II	–	[30]	Ps
6148.8	bh Ti	2	–	L
6148.7	bh La	20	–	Me
6148.693	Sc	2h	20	–
6148 62	Br I	–	[200]	Ks
6148 574	Nd	3	–	–
6148 416	In II	–	[40]	Ps
6148.4	bh Yt	100	–	Me
6148.39	I II	–	[10]	Mu
6148.27	Sm	4	–	Kn
6148.255	In II	–	[20]	Ps
6148.250	Pr	10	–	–
6148.22	W	2	–	Me
6148.134	Cb	20	5	–
6148.108	In II	–	[5]	Ps
6148.1	Te I	–	[2]	Rd
6147.852	Ce	10	–	–
6147.849	Fe II	5	6	–
6147.70	Rh I	2	–	Me
6147.31	Cu I	20	–	Az
6147.225	W	4	–	–
6147.087	Ta	15 W	–	–
6146.94	Yb	2	15 h	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
6146.93	Hg	–	[15]	Ps
6146.817	Re I	50	–	–
6146.531	La I	20	8	–
6146.520	Sm	10	–	–
6146.47	Te	–	[5]	Bl
6146.45	Xe II	–	[50]	Hu
6146.421	Ce	12	–	–
6146.38	Co I	3 h	–	m
6146.25	Sc I	6	3	Me
6146.225	Ti I	400	–	–
6145.88	Sm	2	–	Kn
6145.80	Re	50 w	–	Me
6145.43	A I	–	[100]	Ms
6145.309	La I	10	–	–
6145.271	Th	5	–	–
6145.22	Si I	15 h	–	Ks
6145.2	Sm	2	–	Kn
6145.08	Si I	10 h	–	Ks
6144.97	Xe I	–	[20 wh]	Me
6144.93	Dy	2	–	Ks
6144.74	Sm	3	–	Kn
6144.65	Re	25	–	Sj
6144.561	Ta	50	–	–
6144.526	Os	8	–	–
6144.512	Nd	2	–	–
6144.40	Fe	2	–	Bu
6144.340	Rh	3	–	–
6144.32	Te	–	[30]	Bl
6144.28	Se	–	[15 h]	Bl
6143.99	La	3	–	Ks
6143.961	Sm	6	–	–
6143.938	W	10	1	–
6143.743	Co I	5 h	–	Sl
6143.70	Xe I	–	[4]	Me
6143.578	Sm	6	–	–
6143.40	Xe II	–	[10 h]	Hu
6143 362	Ce	3	–	–
6143.229	In II	–	[80]	Ps
6143.200	Zr I	300	–	–
6143.09	Sm	30	–	Kn
6143.0623	Ne I	–	[1000]	S
6142.981	La I	50	–	–
6142.914	Ce	6	–	–
6142.70	Si I	6 h	–	Ks
6142.53	Si I	5 h	–	Ks
6142.508	Ne I	–	[100]	Ps
6142.506	Cb	10	5 h	–
6142.439	Nd	2	–	–
6142.385	Pr	2	–	–
6142 24	Te	–	[30]	Bl
6142.13	Xe I	–	[2 h]	Me
6141.891	Nd	2	–	–
6141.80	U	2	–	Me
6141.759	Fe I	10	–	–
6141.722	Co	2	–	m
6141.716	Ba	2000 wh	2000 wh	IKs
6141.66	Pt	3	–	Me
6141.508	Pr	6	–	–
6141.248	In II	–	[5]	Ps
6141.199	Ta	3	–	–
6141.084	In II	–	[20]	Ps
6140.97	W	2	–	Me
6140.71	Lu	10	–	Me
6140.66	Br	–	[15]	Bl
6140.659	In II	–	[30]	Ps
6140.581	Sm	10	–	–
6140 457	Zr I	40	–	–
6140.39	Ba	10	–	Lr
6140.368	U	2	–	–
6140.357	In II	–	[20]	Ps
6140.33	Er	4	–	Ed
6140.3	bh Sc	10	–	Me
6140.28	Te	–	[15]	Bl
6140.25	Cl I	–	[30]	Ks
6140.11	Eu	3 W	–	Kn
6140.071	Ta	40 l	–	–
6140.026	In II	–	[12]	Ps
6139.682	In II	–	[5]	Ps
6139.351	Mo	3	–	–
6139.33	Sm	6 h	–	Kn
6139.15	Eu	6 W	–	Kn
6139.031	Ce	3	–	–
6138.98	S	–	[50]	Bl
6138.67	A II	–	[6]	Rt
6138.630	Th	6	–	–
6138.608	Mo	10	2	–
6138.545	U	8	–	–
6138.46	Se I	–	[60]	Rd
6138.451	Sm	4	–	–
6138.411	Yt I	7	4	–
6138.38	Ti I	15	–	Me
6138.353	Gd	10	–	–
6138.30	Dy	2	–	Ks
6138.05	Sm	4	–	Kn
6137.696	Fe I	100	–	S
6137.383	Nd	3	–	–
6137.30	Sb II	4 h	[2]	Lg
6137.234	Ce	4	–	–
6137.2	bh Zr	4	–	L
6137.188	In II	–	[50]	Ps
6137.001	Fe I	10	–	–
6136.81	Te	–	[70]	Bl
6136.620	Fe I	100	–	S
6136.531	La I	2	–	–
6136.434	Gd	5	–	–
6136.01	As	–	15	Ro
6135.85	Sm	20	–	–
6135.835	Cr	10	–	Ss
6135.83	Ba II	–	[4]	Rs
6135.759	Cr	5	–	–
6135.522	Ce	3	–	–
6135.377	V I	30	5	–
6135.37	Mn	5	–	Me
6135.10	Hf II	10	20	Me
6135.07	V I	2	2	Me
6135.04	Yt I	3	2	Me
6135.04	Se II	–	[70]	Bl
6134.82	Bi I	50	30	Wt
6134.69	Sm	2	–	Kn
6134.589	Mo	4	2	–
6134.550	Zr I	300	–	–
6134.39	La I	70 R	–	Me
6134.31	Yb	2	5	Me
6134.06	Fe	2	–	Bu
6133.964	Nd	5	–	–
6133.635	Dy	3	–	–
6133.610	Ce	4	–	–
6133.60	Ho	10	–	Ed
6133.468	Nd	5	–	–
6133.3	Te I	–	[2]	Rd
6133.225	Sm	4	–	–
6133.17	W	4	–	Me
6133.07	Sm	2	–	Kn
6132.97	Re	2 h	–	Me
6132.94	I	–	[50]	Bl
6132.742	In II	–	[50]	Ps
6132.70	Br	–	[5]	Ks
6132.613	U	10	–	–
6132 419	In II	–	[20]	Ps
6132.410	Co I	10 h	–	–
6132.4	bh C	–	–	L
6132.23	Er	4	–	Ed
6132.14	Si I	4 h	–	Ks
6132.133	In II	–	[40]	Ps
6132.113	Sm	3	–	–
6132 1	bh Yt	200	–	Me
6132.063	Yt	12 l	8 w	–
6132.004	Ce	4	–	–
6132 0	bh Sc	3	–	Me
6131.917	Mn II	–	[10]	Cz
6131.86	Si I	5 h	–	Ks
6131.790	Nd	5	–	–
6131.54	Si I	4 h	–	Ks
6131.508	In II	–	[20]	Ps
6131.275	In II	–	[40]	Ps
6131.229	Ta	5	–	–
6131.142	Sm	10	–	–
6131.005	Mn II	–	[10]	Cz
6130.948	In II	–	[30]	Ps
6130.864	Mo	4	–	–
6130.794	Mn II	–	[30]	Cz
6130.628	Mo	12	2	–
6130.608	Sm	10	–	–
6130.604	Nd	4	–	–
6130.557	Pd I	10	–	–
6130.43	Sm	2	–	Kn
6130.174	Ni I	15	–	–
6130.133	Ce	5	–	–
6129.98	Sb II	10 h	150 h	Wt
6129.87	Sm	15	–	Ab
6129.754	In II	–	[20]	Ps
6129.720	U	10	–	–
6129.696	In II	–	[60]	Ps
6129.684	Ta	2 h	–	–
6129.554	La II	40	25	–
6129.474	In II	–	[5]	Ps
6129.335	Ba	6	–	Sz
6129.203	Nd	3	–	–
6129.106	Co I	20 w	–	–
6129.096	In II	–	[40]	Ps
6129.022	Mn II	–	[20]	Cz
6128.992	In II	–	[12]	Ps
6128.990	Ni I	10	–	–
6128.725	Mn II	–	[40]	Cz
6128.721	In II	–	[40]	Ps
6128.71	Sm II	20 d	–	Ab
6128.71	A I	–	[8]	Ms
6128.66	Cd I	15	–	Ps
6128.623	Cb	10	4	–
6128.619	Cs II	–	[20]	Sv
6128.451	Ne I	–	[100]	IMe
6128.360	In II	–	[30]	Ps
6128.336	V I	2	2	–
6128.274	W	15	2	–
6128.256	Co I	5	–	m
6128.21	Yb	–	6	Me
6128.168	Mo	12	2	–
6128.115	Bi II	–	30	Om
6128.062	Rh I	15	–	–
6128.053	In II	–	[20]	Ps
6127.915	Fe I	8	–	–
6127.776	U	2	–	–
6127.760	In II	–	[5]	Ps
6127.73	Cu I	80	–	Az
6127.73	Sm	2	–	Kn
6127.513	In II	–	[40]	Ps
6127.464	I II	–	[125]	Ke
6127.44	Xe II	–	[15]	Hu
6127.440	Zr I	500	–	–
6127.4	bh Yt	8	–	Me
6127.38	A I	–	[15]	Ms
6127.225	Fe	2	–	–
6127.146	Dy	3	–	–
6127.08	Pt	2	–	Me
6127.057	La I	25	–	–
6126.989	Sm	6	–	–
6126.90	Er	4	–	Ed
6126.79	Ta	2	–	Ks
6126.475	Dy	3	–	–
6126 36	Xe I	–	[15]	Me
6126.305	Sm	10	–	–
6126.215	Ti I	150	60	I
6126.210	Mn II	–	[20]	Cz
6126.088	Ce	2	–	–
6126.086	La II	20	25	–
6125.855	Mn II	–	[50]	Cz
6125.84	Sm	15	–	Ab
6125 79	Ir	3	–	Me
6125.730	Th	5	–	–
6125.53	I I	–	[100]	Db
6125.51	Se	–	[4]	Bl
6125.455	Re	10	–	–
6125.44	Si I	2 h	–	Ks
6125.32	Er	6	–	Ed
6125.23	Ru I	5	–	Me
6125.03	Si I	4 h	–	Ks
6124.95	Sm	2	–	Kn
6124.88	Sm II	40	–	Kn
6124.85	Si I	2 h	–	Ks
6124.84	Zr I	40	–	–
6124.679	Eu	150	–	–
6123.91	Xe I	–	[5]	Me
6123.758	La	5	–	–
6123.69	Mo	12 s	–	Ks
6123.673	Ce	15	–	–
6123.60	Sm II	50 d	–	Kn
6123.528	Mo	12 l	–	–
6123.49	Se II	–	[60]	Bl
6123.38	A II	–	[6]	Rt
6123.27	Hg	–	[15]	Ps
6123.03	Yb	–	4	Me
6123.01	Ir	3	–	Me
6122.99	Yb	4	–	Me
6122.964	Nd	3	–	–
6122.799	Mn II	–	[15]	Cz

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
6122.744	Sm	10	–	–
6122.653	Co I	125	–	–
6122.438	Mn II	–	[80]	Cz
6122.3	Hg	–	[5]	Lf
6122.28	Au	2	–	Qi
6122.244	Pr	5	–	–
6122.224	Nd	20	–	–
6122.218	Co	40	–	–
6122.218	Ca I	100	100	I
6122.12	Br I	–	[50 l]	Ks
6122.1	bh C	–	–	L
6121.91	Zr I	60	–	–
6121.81	Sm II	30 d	–	Kn
6121.64	Dy	2	–	Ks
6121.54	Se I, II	–	[40]	Rd
6121.442	Th	6 h	–	–
6121.008	Ti I	35	–	–
6120.83	Zr I	12	–	–
6120.547	Th	15	3	–
6120.38	Yb	–	20 h	Me
6120.34	La I, II	2	1	Me
6120.26	Sm II	10 d	–	Ks
6120.219	K	–	[60]	Dm
6120.1	bh Zr	3	–	L
6119.98	Tb	4	–	Ed
6119.95	K	–	[10]	Sg
6119.794	Ce	4	–	–
6119.780	Ni I	2	–	–
6119.67	A I	–	[2]	Ms
6119.629	Dy	2	–	–
6119.56	Kr	–	[10 wl]	Me
6119.55	Cu	25	–	Az
6119.522	V I	30	20	–
6119.35	W	3	–	Me
6119.027	Mo	8	2	–
6118.892	Ce	6	–	–
6118.874	Rh I	3	–	–
6118.779	Eu	400 W	–	–
6118.548	Ce	3	–	–
6118.16	Hf	2	1	Me
6118.10	Cb	6	2 h	Me
6118.10	Eu	4	–	Kn
6118.027	Ne I	–	[15]	Ps
6118.022	Pr	6 W	–	–
6117.79	Sm	8	–	Kn
6117.708	Ce	2	–	–
6117.65	Tb	4	–	Ed
6117.62	Br II	–	[15]	Bl
6117.6	Sm	3	–	Kn
6117.07	Tb	4	–	Ed
6116.984	Co I	80	–	–
6116.772	Ru I	25	–	–
6116.267	In II	–	[40]	Ps
6116.19	Cd I	50	–	Ps
6116.181	Ni I	150	–	–
6116.146	Rh I	10	–	–
6116.06	Se	–	[4]	Bl
6116.004	Er	6	–	–
6116.0	bh Sc	40	–	Me
6115.863	In II	–	[20]	Ps
6115.743	Sm	2	–	–
6115.668	Dy	2	–	–
6115.630	In II	–	[20]	Ps
6115.547	W	12	1	–
6115.437	Ce	4	–	–
6115.427	In II	–	[20]	Ps
6115.38	Er	4	–	Ed
6115.312	In II	–	[2]	Ps
6115.284	Dy	2	–	–
6115.23	Kr I	–	[3]	Me
6115.08	Xe II	–	[50]	Hu
6115.04	I	–	[15]	Ev
6114.92	Ho	3	–	Ed
6114.92	A II	–	[100]	Rt
6114.86	Xe I	–	[10]	Me
6114.78	Zr II	10	2	Ks
6114.73	Sm	10	–	–
6114.7	bh Yt	20	–	Me
6114.68	Ce	3	–	–
6114.58	Sm II	25 h	–	Kn
6114.53	Ir	3	–	Me
6114.468	Cu II	–	20	Sh
6114.454	Nd	5	–	–
6114.41	Cl I	–	[15]	Ks
6114.396	Pr	10	1	–
6114.198	Re I	30	–	–
6114.077	Gd	25	–	–
6113.97	Dy	2	–	Ks
6113.87	Ti II	–	[10]	El
6113 47	A I	–	[8]	Ms
6113.468	Nd	8	–	–
6113.345	Pt	5	–	–
6112.938	Sm	10	–	–
6112.822	Th	15	3	–
6112.80	Tb	4	–	Ed
6112.70	Sb	4 h	–	Wt
6112.61	Kr II	–	[4 h]	Me
6112.103	U	2	–	–
6111.99	Nd	2	–	–
6111.951	Xe I	–	[40]	IMe
6111.948	Ce	5	–	–
6111.882	Eu	4 w	–	–
6111.828	Sm	4	–	–
6111.761	Xe I	–	[30]	IMe
6111.723	La I	50	–	–
6111.680	W	12	1	–
6111.661	Pt	8	–	–
6111.66	Sm	3	–	Kn
6111.646	V I	20	15	–
6111.56	Zn II	8	[10]	Vs
6111.52	Cd I	100	–	Ps
6111.50	Tl II	–	[20]	El
6111.28	Yb	7	–	Me
6111.06	Ni I	25	–	–
6111.019	Eu	5	–	–
6110.947	Cb	6	3	–
6110.91	Tb	4	–	Ed
6110.907	U	2	–	–
6110.90	Cu II	–	5	Sh
6110.787	Pb	15 hl	–	–
6110.785	Ba I	200 Wh	60	IKs
6110.676	Mo	4 h	–	–
6110.672	Ir	35	–	–
6110.66	Sm II	40 d	–	Kn
6110.66	As II	–	150	Ro
6110.30	As II	–	150	Ro
6110.241	Mo	10	2	–
6110.214	V I	2 h	3	Me
6110.19	Sm II	12	–	Kn
6110.19	Yb	–	4	Me
6109 9	bh Sc	40	–	Me
6109.688	Nd	8	–	–
6109.318	Fe	4	–	Bu
6109.26	Sm	4	–	Kn
6109.078	Gd	10	–	–
6109.058	Nd	3	–	–
6109.057	Pr	4	–	–
6109.00	Sm	2	–	Kn
6108.995	In II	–	[60]	Ps
6108.738	Ce	4	–	–
6108.655	In II	–	[50]	Ps
6108.546	Pr	2	–	–
6108.492	La I	70	–	–
6108.410	Nd	20	–	–
6108.37	Xe I	–	[8]	Me
6108.34	Kr I	–	[3]	Me
6108.334	In II	–	[40]	Ps
6108.134	Eu	150	–	–
6108.123	Ni I	200	–	–
6107.927	Co I	25	–	–
6107.8	bh Yt	15	–	Me
6107.709	Cb	20	3 h	–
6107.61	Kr	–	[5 wl]	Me
6107.605	Dy	2	–	–
6107.477	Eu	30	–	–
6107.45	Cu II	–	10	Sh
6107.411	W	4	1	–
6107.280	La I	25	–	–
6107.26	Tb	4	–	Ed
6107.13	Sm	2	–	Kn
6106.975	V I	15	2	–
6106.759	Pr	4	–	–
6106.70	Si	1 h	3	Ks
6106.55	Te	–	[15]	Bl
6106.51	Ta	3	–	Ks
6106.47	Zr II	8	2	Ks
6106.398	O	–	[30]	Fh
6106.23	Dy	2	–	Ks
6106.22	Yb	–	4	Me
6106.183	Gd	15	–	–
6106.135	Nd	2	–	–
6106.044	Tb	6	–	–
6105.97	Cu II	–	5	Sh
6105.645	A I	–	[60]	IMe
6105.548	Pr	6 w	–	–
6105.519	Co	4	–	Sl
6105.518	Nd	5	–	–
6105.470	Co I	10 h	–	–
6105.360	Sm	3	–	–
6105.296	Cb	10	1 h	–
6105.20	Er	6	–	Ed
6104.82	Sm II	30 d	–	Kn
6104.60	A I	–	[6]	Ms
6104.569	Th	12	2	–
6104.392	Sm	6	–	–
6104.27	Tb	6	–	–
6104.2	Sm	3	–	Kn
6104.106	Nd	3	–	–
6103.95	Sm	2	–	Kn
6103.88	Xe I	–	[3]	Me
6103.723	Sm	4	–	–
6103.67	Dy	2	–	Ks
6103.642	Li I	2000 R	300	Hz
6103.56	A II	–	[8]	Rt
6103.49	Cb	6	1 h	Me
6103.374	Sm	30	–	–
6103.370	Dy	2	–	–
6103.333	Fe	–	40	–
6103.185	Fe I	8 h	–	–
6102.751	Ce	3	–	–
6102.739	Co	10	–	m
6102.721	Ca I	80	50	I
6102.721	Rh	100	–	–
6102.709	Cr	10	–	Hl
6102.589	Th	4	–	–
6102.54	Zn II	6	[20]	Vs
6102.26	S	–	[50]	Bl
6102.182	Fe I	15	20 h	–
6101.96	Sm	30	–	Kn
6101.96	Se II	–	[200]	Bl
6101.9	bh Sc	30	–	Me
6101.868	Mo	40	4	–
6101.787	U	6	–	–
6101.747	Nd	10	–	–
6101.72	Rn I	–	[4]	Rs
6101 654	Au	5	–	Qi
6101.576	Ta	150	–	–
6101.43	Xe II	–	[200]	Hu
6101.422	Sm	4	–	–
6101.16	A I	–	[6]	Ms
6100.81	Se	–	[50]	Bl
6100.779	Co I	4 h	–	–
6100.379	La II	30	15	–
6100.36	Hg	–	[25]	Lf
6100.04	Zr II	8	2	Ks
6100.033	Eu	12	–	–
6100.01	Cu II	–	5	Sh
6099.918	Sm I	15	–	–
6099.910	U	3	–	–
6099.9	bh Zr	3	–	L
6099 83	Rn I	–	[4]	Rs
6099 792	Ce	10	–	–
6099 62	Dy	2	–	Ks
6099 385	Eu	600	–	–
6099 18	Cd I	300	–	Ps
6099 12	Sm	4	–	Kn
6099.076	Th	12	2	–
6099 014	Nd	10	–	–
6098 807	A I	–	[60]	Ms
6098.67	Hf	5	2	Me
6098.668	Ti I	60	–	–
6098.62	C II	–	30	Fl
6098.501	Fe	2	–	–
6098 336	Ce	10	–	–
6098.30	Sm	5	–	Kn
6098.203	Nd	5	–	–
6097.929	Er	4	–	–
6097.787	Nd	3	–	–
6097.601	Ce	3	–	–
6097.60	Sb	15	–	Wt
6097.59	Xe II	–	[600]	Hu
6097.47	Hf II	–	2	Me
6097.33	Cu II	–	10	Sh
6097.02	In	–	5	Sq
6096 8	bh Yt	30	–	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6096.790	Sm	15	–	–
6096.683	Fe I	2	–	–
6096.55	Sm	2	–	Kn
6096.346	Pr	3	–	–
6096.24	Sm	3	–	Kn
6096.194	Mo	4	3	–
6096.1630	Ne I	–	[300]	S
6096.12	Se II	–	[50]	Bl
6096.117	In II	–	[20]	Ps
6095.960	In II	–	[80]	Ps
6095.846	In II	–	[50]	Ps
6095.782	In II	–	[5]	Ps
6095.74	Br	–	[5]	Ks
6095.725	In II	–	[5]	Ps
6095.53	Fe	3 h	–	Bu
6095.37	C II	–	15	Fl
6095.24	Sm	4	–	Kn
6094.76	W	3	–	Me
6094.65	Cl II	–	[100]	Ks
6094.64	Tb	4	–	Ed
6094.50	Kr II	–	[30 hl]	Me
6094.31	Kr I	–	[2]	Me
6094.082	Sm	5 l	–	–
6094.0	Pb II	–	[2 d]	Ea
6093.99	Tb	4	–	Ed
6093.866	V I	3 h	3	Me
6093.699	Sm	4	–	–
6093.637	Fe I	3	–	–
6093.56	Xe II	–	[150]	Hu
6093.38	Xe I	–	[3]	Me
6093.198	Ce	10	–	–
6093.15	Hf II	–	2	Me
6093.127	Co I	200	–	–
6093.037	Pr	3	–	–
6092.952	Ta	2	–	–
6092.909	Sm	4	–	–
6092.85	Sr	4	–	Ex
6092.814	Ti I	35	–	–
6092.5	bh Sc	5	–	Me
6092.29	W	2	–	Me
6092.278	La I	4	–	–
6092.12	S	–	[15]	Bl
6092.065	Ta	30	–	–
6092.058	Nd	4	–	–
6091.950	Sm	4	–	–
6091.81	Kr I	–	[6]	Me
6091.602	Nd	3	–	–
6091.5	bh Zr	3	–	L
6091.454	Ta	3	–	–
6091.393	Sm	20	–	–
6091.174	Ti I	125	25	I
6091.11	Tb	4	–	Ed
6090.881	Dy	2	–	–
6090.823	Ta	50 w	–	–
6090.76	A I	–	[10]	Ms
6090.58	Ru I	5	–	Me
6090.372	Pr	4	–	–
6090.216	V I	60	15	–
6090.149	Pr	3 d	2	–
6089.79	Hg II	–	[25]	Lf
6089.659	Sm	5	–	–
6089.657	Ce	3	–	–
6089.564	Fe	4	–	–
6089.4	bh Yt	30	–	Me
6089.4	Pb II	–	[5]	Ea
6089.295	Sm	3	–	–
6089.292	Dy	2	–	–
6089.195	U	2	–	–
6088.919	Ce	8 w	–	–
6088.72	Yb	–	3	Me
6088.619	Sm	10	–	–
6088.26	Tb	6	–	–
6088.265	Dy	8	–	–
6088.22	Ho	3	–	Ed
6088.076	Sm	5	–	–
6088.037	Th	5	2	Fd
6088.01	Nd	2	–	–
6088.00	Kr I	–	[2]	Me
6087.99	Yt I	3	2	Me
6087.961	La	3	–	–
6087.919	Nd	2	–	–
6087.704	Sm	3	–	–
6087.509	Nd	3	–	–
6087.505	Pr	15	–	–
6087.490	V I	8	1	–
6087.4	P II	–	[15]	Dj
6087 338	U	10	–	–
6087.337	Rh I	3	–	–
6087.3	bh V	4	–	L
6087.259	Th	12	2	–
6086.964	Nd	4	–	–
6086.9	bh F	30	–	L
6086.9	bh Zr	5	–	L
6086.77	I	–	[150]	Bl
6086.648	Co I	80	–	–
6086.627	Mo	5	3	–
6086.617	Ce	6	–	–
6086 55	V I	4 h	–	Me
6086.290	Ni I	100	–	–
6086.148	Pr	5	–	–
6085.86	A I	–	[2]	Ms
6085.853	Pr	8	–	–
6085.485	La II	3	5	–
6085.248	Th	6	–	–
6085 226	Ti I	100	60	I
6085.053	Dy	4	–	–
6085 03	Se	–	[15]	Bl
6084.9	bh F	30	–	L
6084.888	La I	15	–	–
6084.80	I	–	[40]	Ke
6084.739	Ta	15 W	–	–
6084.622	Nd	8	–	–
6084.604	Sm	2	–	–
6084.14	Lu	8 w	–	Me
6084.128	Sm	50	–	–
6083.873	Eu	500	–	–
6083 82	W	2	–	Me
6083.558	Cb	10	2	–
6083.551	Ru	4	–	–
6083.441	Ba	10	3	Sz
6083.283	Co I	2 h	–	–
6083 280	Yb	–	2	–
6083.21	Xe II	–	[5 h]	Hu
6083.2	bh F	20	–	L
6083.12	Ir	3	–	Me
6082.896	Nd	2	–	–
6082.85	Kr I	–	[40]	Me
6082.714	Fe I	2	–	–
6082.664	Sm	15	–	–
6082.46	I I	–	[1000]	Ev
6082.45	Te	–	[30]	Bl
6082.435	Co I	300 W	–	–
6082.40	Yb	–	10 h	Me
6082.383	Gd	5	–	–
6082.032	Nd	2	–	–
6081.99	Sm	8	–	Ks
6081.79	Ho	8	–	Ed
6081 6	bh F	20	–	L
6081.569	Nd	4	–	–
6081.5	Pb II	–	[200]	Ea
6081.481	W	25	1	–
6081.455	Mn	2	–	Sl
6081.442	V I	100	10	–
6081.276	Ce	6	–	–
6081 275	Mo	8	2	–
6081.25	Tb	4	–	Ed
6081.23	A I	–	[4]	Ms
6081.14	Sb	4	6	Wt
6081.06	As	–	3	Ro
6081.0	B II	–	5	En
6080.657	Gd	25	–	–
6080.607	Nd	3	–	–
6080.487	Sm	3	–	–
6080.387	U	5	–	–
6080.367	Ce	6 w	–	–
6080.320	Cu II	–	30	Sh
6080.2	bh F	5	–	L
6080.15	Ru I	4	–	Me
6080.13	F I	–	[2]	Gl
6080.112	V	–	5	Me
6080.07	Sm	3	–	Kn
6079.997	Eu	20 W	–	–
6079.797	Sb II	–	[60]	Lg
6079.71	Kr II	–	[20 hs]	Me
6079.70	Sn II	2 h	[10]	Mc
6079.64	Er	4	–	Ed
6079.579	Mo	25	4	–
6079.55	Sb	20	100 h	Wt
6079 3	bh Sc	100	–	Me
6079.022	Fe I	2	–	–
6078.8	bh F	5	–	L
6078.481	Fe I	8	6 h	–
6077.91	I II	–	[2]	Mu
6077.856	Sm	4	–	–
6077 806	Tb	6	–	–
6077.551	Ce	2	–	–
6077.48	Sn II	–	[12]	Mc
6077.366	Eu	100 W	–	–
6077.358	V I	300 h	2	–
6077.297	U	40	–	–
6077.222	Nd	10	–	–
6077.144	Ce	8	–	–
6077.02	Dy	2 h	–	Ks
6076.866	Pt I	10	–	–
6076.82	As	–	15	Ro
6076.82	Tb	4	–	Ed
6076.738	Cs II	–	[2]	Sv
6076.598	Ce	5 d	–	–
6076.44	Er	10	–	Ed
6076.03	Tb	4	–	Ed
6075.917	Ce	4	–	–
6075.83	N	–	[30]	Du
6075.8	Pb II	–	[200]	Ea
6075.721	Sm	8	–	–
6075.590	Eu	300	–	–
6075.568	Mo	3	2	–
6075.566	Ce	4 l	–	–
6075.25	Yb	–	3	Me
6075.24	Kr I	–	[20]	Me
6075.192	Pr	5 w	–	–
6074.99	I II	–	[80]	Ke
6074.963	Sm	5	–	–
6074.817	U	2	–	–
6074.61	Dy	2	–	Ks
6074.46	Sm	3	–	Ab
6074.432	Nd	3	–	–
6074 3377	Ne I	–	[1000]	S
6074.268	Eu	10	–	–
6074.045	La I, II	3	–	–
6073.967	Nd	20	–	–
6073.932	Sb II	20 w	[8]	Lg
6073.774	Dy	2	–	–
6073.52	Sn	8	8	Wt
6073.35	Te	–	[5]	Bl
6073.17	Al II	–	[15]	Sy
6073.137	Sc	5	10	–
6073.114	Nd	2	–	–
6073.104	Th	12	1	–
6072.96	Rh I	2	–	Me
6072.8	bh Yt	15	–	Me
6072.738	Eu	2 W	–	–
6072.7	bh Sc	100	–	Me
6072.64	Hg	–	[10]	Wt
6072.25	Cu II	1 h	5	Sh
6072.061	La I	2	–	–
6072.995	Ce	15	–	–
6071.701	Nd	20	–	–
6071.64	Sm	2	–	Kn
6070.751	Rb I	600	50	IRz
6070.656	Co I	20	–	–
6070.536	Ta	2	–	–
6070.074	Sm	40	–	–
6070.0	bh Yt	5	–	Me
6070.0	bh Zr	6	–	L
6069.98	Ca	–	2	Ad
6069.698	Nd	4	–	–
6069.465	Ce	20	–	–
6068.948	I II	–	[50]	Ke
6068.94	Sn	12	25	Wt
6068.663	La I	10	–	–
6068.629	Ce	5	–	–
6068.53	Al II	–	[30]	Ps
6068.43	Al II	–	[60]	Ps
6068 274	Sm	5	–	–
6067.97	Ho	2	–	Ed
6067.896	Dy	2	–	–
6067.830	Ir	25	–	–
6067.782	Sm	40	–	–
6067.65	W	4	1	–
6067.52	Xe I	–	[2 h]	Me
6067.50	Er	4	–	Ed
6067.401	Sm	5	–	–
6067.258	V I	15	2	–
6067.236	Pr	3	–	–
6067.229	U	10	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
6067.140	La II	1	3	–
6066.893	W	3	–	–
6066.712	Ce	8 w	–	–
6066.651	Sm	2	–	–
6066.58	Rn I	–	[2]	Rs
6066.40	Al II	–	[2]	Sy
6066.031	Nd	20	–	–
6065.83	Se II	–	[80]	Bl
6065.743	Nd	2	–	–
6065.487	Fe I	50	30	S
6065.142	Nd	2	–	–
6065.09	W	7	1	–
6064.75	Rn I	–	[2]	Rs
6064.75	A I	–	[6]	Ms
6064.7	bh Ti	2	–	L
6064.69	Cu I	3	–	Az
6064.631	Ti I	80	20	IKs
6064.552	Ne I	–	[50]	Ps
6064.4	bh F	200	–	L
6064.3	bh Sc	80	–	Me
6064.249	Gd	6	–	–
6064.24	Te	–	[5]	Bl
6064.13	Sb II	15	[2]	Lg
6063.827	Mo	6	10	–
6063.656	Sm	3	–	–
6063.561	Dy	2	–	–
6063.477	In II	–	[30]	Ps
6063.382	V I	10	1	–
6063.29	Xe	–	[3]	Hu
6063.118	Ba I	200 wh	60	IKs
6062.94	Ho	5	–	Ed
6062.89	Fe I	2 h	–	Bu
6062.856	In II	–	[20]	Ps
6062.846	Zr I	30	–	–
6062.73	Cu	3	–	Az
6062.314	U	10	–	–
6062.311	In II	–	[20]	Ps
6062.3	bh F	150	–	L
6061.92	Rn I	–	[20]	Rs
6061.83	Tb	6	–	Ed
6061.819	Sm	5	–	–
6061.642	Eu	15 W	–	–
6061.459	La	7	1	–
6061.26	Er	6	–	Ed
6061.20	Sm	10 d	–	Kn
6061.06	Al II	–	[2]	Sy
6061.051	Nd	4	–	–
6060.75	Sn	2	–	–
6060.73	Sm II	20 d	–	Kn
6060.65	Se	–	[3]	Bl
6060.646	Ce	3	–	–
6060.60	Sm	6	–	Kn
6060.544	Ir	15	–	–
6060.4	bh F	100	–	L
6060.31	Ho	4	–	Ed
6060.3	bh Mg	6	–	L
6059.871	Sm	5	–	–
6059.76	Tb	2	–	Ed
6059.731	U	3	–	–
6059.71	Pb	20 hl	–	Wt
6059.7	bh C	–	–	L
6059.373	A I	–	[100]	IMe
6059.317	Ce	3	–	–
6059.333	Ta	2	–	–
6059.3	bh Zr	2	–	L
6059.25	Yb	10	–	Me
6058.963	Bi II	–	[40]	Om
6058.85	I	–	[15]	Bl
6058.6	bh F	80	–	L
6058.50	Rn I	–	[4]	Rs
6058.45	Sm	2	–	Kn
6058.307	Nd	2	–	–
6058.23	Ho	2	–	Ed
6058.225	Co I	3	–	–
6058.183	Dy	3	–	–
6058.136	V I	60	–	–
6058.014	Mo	12	2	–
6057.987	Ce	15	–	–
6057.680	Sm	8	–	–
6057.642	Nd	3	–	–
6057.6	bh Ti	2	–	L
6057.493	Ce	6	–	–
6057.356	Eu	600	–	–
6057.251	Sm	5	–	–
6057.110	Mn	5	–	Sl
6056.993	Nd	2	–	–
6056.9	bh F	50	–	L
6056.89	Tb	4	–	Ed
6056.818	U	8	–	–
6056 650	Cb	10	5	–
6056.59	Sm	5	–	Kn
6056.48	Yb	1	20 h	Me
6056.128	Kr I	–	[60]	Me
6056.10	I	–	[30]	Ev
6056.001	Fe I	10	10 h	–
6055.96	Se II	–	[1000]	Bl
6055.90	W	2	–	Me
6055.82	Te	–	[5 h]	Bl
6055 5	bh F	30	–	L
6055.2	P II	–	[5]	Dj
6055.2	bh Sc	10	–	Me
6055.133	Pr	100 w	–	–
6055.13	I	–	[15]	Ev
6055.03	Lu	150 d	10	Me
6054.90	Sn	12	30	Wt
6054.84	Er	6	–	Ed
6054.806	Mo	20	2	–
6054.56	Yb	10	–	Me
6054.482	Nd	2	–	–
6054.475	V I	6	1	–
6054.248	Tb	4	–	–
6054.20	Te	–	[5]	Bl
6054.17	Hf	5	–	Me
6054.16	I	–	[15]	Ev
6054 0	bh F	30	–	L
6053.879	Sm	5	–	–
6053.8	bh Yt	50	–	Me
6053.8	bh Zr	5	–	L
6053 680	Ni I	5	–	–
6053.642	Ta	150 l	–	–
6053.56	I	–	[30]	Ev
6053.411	Sb	–	[15]	Lg
6053 379	Th	5	–	–
6053 11	Sm	3	–	Kn
6052.933	Eu	8 W	–	–
6052.901	Yb	8	30	Me
6052.84	Zr I	6	–	Ks
6052 8	bh F	20	–	L
6052.79	Er	4	–	Ed
6052.721	A I	–	[30]	IMe
6052.63	S I	–	[125]	Ms
6052.3	Bi II	3	[10]	Cf
6052.3	bh Cr	6	–	L
6052.183	Eu	5	–	–
6052.07	Sm	2 h	–	Kn
6051.99	Sb	–	6	Kz
6051.875	Nd	4	–	–
6051.804	Ce	5	–	–
6051.745	U	8	–	–
6051.6	bh F	20	–	L
6051.280	Eu	6	–	–
6051.15	Xe II	–	[700]	Hu
6051.176	Re	5	–	–
6051.0	bh Ti	3	–	L
6050.895	Mo	10	2	–
6050.878	Pr	3	–	–
6050.8	bh F	50	–	L
6050.71	Ho	3	–	Ed
6050.492	U	8	–	–
6050.473	Nd	2	–	–
6050.30	Sm	2 h	–	Kn
6050.03	Dy	2	–	Ks
6050.029	Pr	4	–	–
6050.	K	–	[12]	Ml
6049.861	Nd	4	–	–
6049.81	Sm	10 wh	–	Kn
6049.507	Gd	6	–	–
6049.503	Eu II	1000	–	–
6049.35	Kr I	–	[3]	Rs
6049.257	Pr	5	–	–
6049.24	Zr I	18	–	–
6049 2	bh Yt	3	–	Me
6049.095	Co I	50 h	–	–
6049.055	Th	6	–	–
6048.8	bh F	30	–	L
6048.720	Cb	6	3 h	–
6048.72	I I	–	[70]	Ev
6048.53	Xe II	–	[5 h]	Hu
6048.43	Yb	15	–	Me
6048.13	Er	6	–	Ed
6048.00	Hf II	3	5	Me
6048.00	Xe I	–	[6 h]	Me
6047.829	Mo	15	2	Wn
6047.665	Cr	6	–	Hl
6047.53	F I	–	[15]	En
6047.461	Sm	4	–	–
6047.44	Te	–	[100]	Bl
6047.387	Ce	15	–	–
6047.247	Ta	150 l	–	–
6046.9	bh F	20	–	L
6046.684	Pr	12	–	–
6046.66	W	3	–	Me
6046.59	I	–	[15]	Bl
6046.377	Ru	4	–	–
6046.34	O I	–	[150]	Ps
6046.158	Ne I	–	[50]	Ps
6046.079	La	3	1	–
6046.06	Kr	–	[10 wh]	Me
6046.04	S I	–	[40]	Ms
6046.01	Hg	–	[5]	Lf
6045.882	Ce	2	–	–
6045.852	Zr I	15	–	–
6045.65	Er	6	–	Ed
6045.499	Cb	20	10	–
6045.430	Ce	6	–	–
6045.403	Cr	5	–	Hl
6045.390	Ta	200 l	–	–
6045.372	Sm	40	20	–
6045.3	bh F	20	–	L
6044.992	Sm	60	–	–
6044.85	Kr	–	[2 h]	Me
6044.819	La I	3	–	–
6044.676	Sm	2	–	–
6044.668	Eu	200	–	–
6044.491	Dy	2	–	–
6044.425	Th	12	2	–
6044.09	I	–	[30]	Bl
6043.783	Nd	3	–	–
6043.6	bh F	10	–	L
6043.386	Ce	30	–	–
6043.38	Xe I	–	[10]	Me
6043.331	W	10	1	–
6043.329	Sm	3	–	–
6043.230	A I	–	[100]	IMe
6043.19	Hf	5	1	Me
6043.109	Eu	2 W	–	–
6043.05	P II	–	[150]	Sa
6042.874	Pr	5	–	–
6042.86	Dy	2	–	Ed
6042.814	Sm	15 d	–	–
6042.78	I	–	[30]	Ev
6042.545	Sm	10 d	–	–
6042.2	bh F	10	–	L
6042.089	Fe I	3	4	–
6042.013	Ne I	–	[15]	Ps
6041.96	Cb	12 h	2	Me
6041.93	S I	–	[15]	Ms
6041.90	Rn I	–	[10]	Rs
6041.732	Ru	4	–	–
6041.715	Mn	3	–	Sl
6041.66	Lu	20	1	Me
6041.656	W	7	1	–
6041.57	I	–	[30]	Bl
6041.551	La	7	–	–
6041.44	Hf II	2	6	Me
6041.4	Pb II	–	[35 d]	Ea
6041.378	Sm	40	–	–
6040.958	Nd	3	–	–
6040.9	bh F	10	–	L
6040.815	Eu	6	–	–
6040.80	Yb	3	10	Me
6040.7	Kr	–	[10 wh]	Me
6040.629	Ce	4	–	–
6040.283	Yt I	2	–	Ed
6040.12	Hg II	–	[5]	Ps
6039.771	Mo	12	–	–
6039.726	V I	100	10	–
6039.638	Re	3 w	–	–
6039.624	U	10	–	–
6039.44	I	–	[15 h]	Bl
6039.38	Tb	6	–	Ed
6039.1	bh Zr	4	–	L
6038.97	Tb	8	–	Ed
6038.682	Dy	2	–	–
6038.606	La I	50	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
6038.04	F I	–	[2]	Gl
6037.70	Sn	12	50	Wt
6037.692	Th	8	–	–
6037.33	W	2	–	Me
6036 9	bh F	50	–	L
6036.645	Ir	10	–	–
6036.52	I	–	[15]	Bl
6036.45	Sm	2	–	Kn
6036.325	Re	3 h	–	–
6036.2	bh Sc	200	–	Me
6036.20	Xe II	–	[500]	Hu
6035.82	Kr I	–	[15]	Me
6035.72	Yb	2	–	Me
6035.608	Nd	3	–	–
6035.52	Ba	3	–	Lr
6035.6	Bi II	–	10 h	Cf
6035.544	Sm	4	–	–
6035.487	Ce	4	–	–
6034.937	Ta	2	–	–
6034 92	Xe I	–	[2]	Me
6034.9	Te I	–	[5]	Rd
6034.8	bh F	50	–	L
6034.546	La I	2	–	–
6034.434	Ru	5	–	–
6034.239	Nd	20	–	–
6034.204	Ce	4	–	–
6034 089	Cs I	35	[2]	Ms
6033 9	P II	–	[30]	Dj
6033.834	Sm	20	–	–
6033.674	Pt	2	–	–
6033.576	Ce	3	–	–
6033 292	Nd	10	–	–
6033.23	Sm II	25	–	Kn
6032.9	bh F	30	–	L
6032.607	Zr I	25	–	–
6032.443	Sm	3	–	–
6032.383	Eu	8	–	–
6032.33	Cu I	8	–	Az
6032.14	Er	6	–	Ed
6032.124	A I	–	[60]	IMe
6031.96	Hf II	1	3	Me
6031.840	Cb	10	5	–
6031.80	Yb	10	–	Me
6031.68	Ti I	8	–	–
6031.540	La	3	–	–
6031.38	Cd I	30	–	Ps
6031 266	Nd	25	–	–
6031.247	Ce	5	–	–
6031.1	bh F	30	–	L
6031.071	V	1	25	Me
6030.979	Dy	3	–	–
6030.662	Mo	300	125	–
6030.6	bh Yt	100	–	Me
6030.5	bh Yt	6	–	Me
6030.338	Sm	3	–	–
6030.12	Se II	–	[30]	Bl
6029.9971	Ne I	–	[1000]	S
6029.89	Co	2 h	–	Me
6029.885	W	3	1	–
6029.828	Sm	4	–	–
6029 746	Cb	10	3	–
6029.45	Se	–	[15]	Bl
6029.39	I I	–	[5]	Bl
6029.3	bh F	20	–	L
6029.10	Se I	–	[15]	Ms
6029.009	Eu	500	–	–
6028.982	V	1	8	Me
6028.695	Cb	4	10 h	–
6028.635	Zr II	6	2	–
6028.635	Sm	4	–	–
6028.346	W	7	1	–
6028.257	V	2	20	Me
6028.131	U	6	–	–
6027.91	Rh	2	–	Me
6027.8	bh F	20	–	L
6027.57	Hf II	10	20	Me
6027.524	Sm	5	–	–
6027.268	Mo	20	2	–
6027.235	V	–	7	Me
6027.159	Sm	15	–	–
6027.057	Fe	6	12	S
6026.83	Sm	2	–	Kn
6026.805	V	–	5	Me
6026.76	Xe I	–	[4]	Me
6026.50	Br	–	[15]	Bl
6026.260	Sm	2	–	–
6026.18	Sc I	3	10	Me
6026.097	Ir	20	–	–
6026.035	Pt	20	–	–
6026.0	bh F	20	–	L
6026.0	bh Zr	2	–	L
6025.73	Ni I	2 h	–	Me
6025.723	Pr	25	2	–
6025.536	Nd	8	–	–
6025.486	Mo	25	2	–
6025.410	V	10	2	–
6025.361	Zr I	6	–	–
6025.18	Sm	4 d	–	Kn
6025.14	A I	–	[10]	Ms
6025.093	La	3	–	–
6025.059	Eu	2	–	–
6024.99	Dy	2	–	Ks
6024.894	Tm	2	–	–
6024.77	Xe II	–	[3 wh]	Hu
6024.45	Sm	3 d	–	Kn
6024 3	bh F	20	–	L
6024.30	Ho	2	–	Ed
6024.261	Yt I	2	–	–
6024 248	Pt	10	–	–
6024.189	Ce	50	–	–
6024.187	V	3	8	–
6024.14	P II	–	[50]	Sa
6024.13	I I	–	[300]	Ev
6024.07	Sm	10	–	Kn
6024.063	Fe I	20	20 h	–
6023.83	Ir	5	–	Me
6023.68	Sm II	15	–	Kn
6023 62	Hg	–	[5]	Lf
6023 59	Dy	2	–	Ks
6023.47	Ho	3	–	Ed
6023 392	Yt I	3	3	–
6023.25	Cu II	–	10	Sh
6023 21	Sm	2	–	Kn
6023.157	Eu	200	–	–
6022 81	As II	–	150	Ro
6022 74	Au II	15	5	Ed
6022 551	Er	8	–	–
6022.39	Kr II	–	[40]	Me
6022 06	Te	–	[30]	Bl
6021.97	Yb	2	15 h	Me
6021.85	I	–	[15]	Bl
6021.829	Fe I	300	–	–
6021.798	Mn	80 h	5	IKs
6021 794	Co	50	–	–
6021.761	Mg	5	–	–
6021.75	Sm II	15	–	Kn
6021 747	V I	8	1	–
6021.702	Sc I	2	3	–
6021.683	Ce	2	–	–
6021.577	Dy	2	–	–
6021.541	W	25	–	–
6021.43	Ho	5	–	Ed
6021.373	Cb	4 h	10 h	–
6021.3	bh Zr	6	–	L
6021.267	Sm II	15	–	–
6021.26	Zn II	3	[15]	Vs
6021.14	Ge II	–	25	Lg
6021.131	Gd	10	–	–
6021.035	Th	6	–	–
6020.8	Te I	–	[7 w]	Rd
6020.720	Ta	300 r	–	–
6020.596	Ce	6	–	–
6020.56	Yb	2	5	Me
6020.29	Se	–	[30]	Bl
6020.236	Nd	2	–	–
6020.179	Fe I	8	10 h	–
6020.047	Fe	2	–	–
6019.903	Pr	8 w	–	–
6019.9	bh Yt	150	–	Me
6019.51	Te	–	[30]	Bl
6019.474	Ba I	150 Wh	50	IKs
6019.24	Tb	4	–	Ed
6019.153	U	3	–	–
6018.977	Th	8	–	–
6018.970	Ta	15	–	–
6018.933	Nd	2	–	–
6018.794	Ce	5	–	–
6018.62	Ti I	8	–	–
6018.50	Dy	2	–	Ks
6018.423	Ti	15	–	Bh
6018.195	Eu	1000	–	–
6018 040	Fe	2	–	–
6017.924	V I	4	1	–
6017 90	F I	–	[3]	Gl
6017.803	Pr	40	2	–
6017.708	Nd	2	–	–
6017.70	N	–	[10]	Du
6017.578	U	3	–	–
6017.39	Sm II	50 d	–	Kn
6017.387	U	4	–	–
6017.27	Dy	3	–	Ks
6017.162	La I	8	–	–
6017.15	Hg	–	[10]	Lf
6017.1	bh Sc	40	–	Me
6016.795	Sm	4	–	–
6016.79	Hf	4	1	Me
6016.755	U	2	–	–
6016.655	Fe I	100	–	–
6016 642	Co	40	–	–
6016.639	Mn	80 h	5	IKs
6016.571	Ce	10	–	–
6016.492	Pr	12	–	–
6016 358	Eu	3 W	–	–
6016 295	Nd	2	–	–
6016.122	V I	8	2	–
6016.027	Eu	8	–	–
6015.90	F	–	[2]	Gl
6015.895	Ta	40	–	–
6015.87	I	–	[50]	Bl
6015.793	Os	8	–	–
6015 76	Er	4	–	Ed
6015.580	Eu	150	–	–
6015.418	Th	10	2	–
6015.40	N	–	[5]	Du
6015 380	Co I	2	–	–
6015.329	Nd	2	–	–
6014.95	Yb	3	–	Me
6014.837	Er	8	–	–
6014 601	Sm	4	–	–
6014 5	bh Zr	2	–	L
6014.49	Te	–	[100]	Bl
6014 356	Mn	8	–	Fu
6014.17	Se	–	[15]	Bt
6014 068	U	3	–	–
6014.061	Ce	3	–	–
6013.863	Sm	2	–	–
6013.68	A I	–	[6]	Ms
6013 66	Dy	2 h	–	Ks
6013.582	Co I	30	–	–
6013 505	Fe	100	–	–
6013.498	Mn	100 h	5	–
6013.49	Te	–	[5 h]	Bl
6013.446	Sm II	20	–	–
6013.418	Ce	25	–	–
6013.40	Cu II	–	8	Sh
6013.158	Ru	5	–	–
6013 034	Mo	8	2	–
6012.842	Sm	3	–	–
6012.814	W	30	3	–
6012.732	Ti	10	–	–
6012.560	Ta	4 h	–	–
6012.558	Eu	400	–	–
6012.41	K II	–	[2]	Bn
6012.251	Ni	3	–	–
6012.210	Eu	300 W	–	–
6012.157	Kr I	–	[50]	Ja
6011.98	Pb	25 hl	–	Wt
6011.551	Ce	4	–	–
6011.533	Nd	2	–	–
6011.419	Co I	2 h	–	–
6011.343	Mo	12	2	–
6011.242	Sm II	60	20	–
6011.1	bh Yt	2	–	Me
6011.08	Sn	3	–	Wt
6010 93	Gd	10	–	Ks
6010.884	Nd	4	–	–
6010.875	U	4	–	–
6010.814	Dy	5	–	–
6010.794	Sm	3	–	–
6010.65	Tb	6	–	Ed
6010.449	Ce	5	–	–
6010.33	Cs I	50	[10]	Me
6010.259	Sm	3	–	–
6010.158	Th	3	–	–
6009.99	Kr II	–	[10 h]	Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
6009.895	Sm	5	–	–
6009.893	Ta	40	–	–
6009.78	Xe I	–	[8]	Me
6009.701	W	4	1	–
6009.7	Pb II	–	[40]	Ea
6009.304	Nd	5	–	–
6009.30	Dy	2	–	Ks
6009 2	bh Yt	8	–	Me
6009.041	W	6	1	–
6008.940	Dy	3	–	–
6008.92	Xe II	–	[100]	Hu
6008.915	Sm	2	–	–
6008.871	U	2	–	–
6008.755	Er	4	–	–
6008.715	Gd	15	–	–
6008.62	Te	–	[30]	Bl
6008 576	Fe I	18	10	–
6008.5	bh Zr	4	–	L
6008.48	N I	–	[800]	Du
6008.10	Kr II	–	[3 hs]	Me
6007.97	Te	–	[15]	Bl
6007.966	Fe I	10 h	10 h	–
6007.954	Er	4	–	–
6007.94	Sm	10 d	–	Kn
6007.909	Xe I	–	[15]	IMe
6007.69	Yt I	3	3	Me
6007.671	Co I	50 h	–	–
6007.669	Nd	25	–	–
6007.51	I	–	[50]	Bl
6007.5	Pb II	–	[10]	Ea
6007.42	Yb	4	80 h	Me
6007.381	La I	70	–	–
6007.358	Ce	5	–	–
6007.258	Ni I	20	–	–
6007.095	Sm	2	–	–
6007.068	Th	10	–	–
6006.81	Er	10	–	m
6006.808	Ce	15	–	–
6006.638	Fe	2	–	–
6006.5	bh Ti	3	–	L
6006.42	Al II	–	[30]	Ps
6006.399	Nd	2	–	–
6006.39	Hf II	2	2	Me
6006.355	Co I	50 h	–	–
6006.347	Pr	12	1	–
6006.211	Ce	6	–	–
6006.15	Ca	8	–	–
6006.105	Sb	4 h	[20]	Lg
6005.855	Ce	20	–	–
6005.74	A I	–	[4]	Ms
6005.68	Eu	60	–	Kn
6005.45	Pt	2	–	Me
6005 33	Ho	3	–	Ed
6005.21	Sb II	–	[200]	Lg
6005.156	Sm	3	–	–
6005.146	Fe	2 h	–	–
6005.09	I	–	[15]	Ev
6005.017	Co I	8	–	–
6005.00	Sb	8 h	12 h	Wt
6005.0	Te I	–	[5 w]	Rd
6004.9	bh C	–	–	L
6004.828	U	2	–	–
6004.65	Yt	7	–	Me
6004.6	Sb II	–	200 h	Dv
6004.571	Gd	35	8	–
6004.52	Lu	400	40	Me
6004.41	Eu	300	–	Kn
6004.40	Te	–	[50]	Bl
6004.332	Nd	2	–	–
6004.197	Sm	2	–	–
6003.978	Nd	2	–	–
6003.664	Ce	3	–	–
6003.65	Yb	5	–	Me
6003.6	bh Yt	200	–	Me
6003.567	Sm	8 d	–	–
6003.244	Dy	2	–	–
6003.08	Eu	20 w	–	Kn
6003.034	Fe I	30	15	–
6002.853	Sm	3	–	–
6002.640	Ti I	4	–	–
6002.627	V I	20	2	–
6002.528	Nd	2	–	–
6002.457	Co I	2	–	–
6002.450	Pr	6	–	–
6002.342	Sc	3	5	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
6002.316	Nd	2	–	–
6002.306	V I	10	2	–
6002.3	bh Sc	3	–	Me
6002.19	Kr I	–	[3]	Me
6002.04	Ho	8	–	Ed
6001.947	Sm	8	–	–
6001.892	Ce	10	–	–
6001.884	Pb	40 hl	3 h	Hz
6001.88	Al II	–	[50]	Ps
6001.76	Al II	–	[60]	Ps
6001.678	Sm	50	–	–
6001.448	Nd	2	–	–
6001.34	Te	–	[15]	Bl
6001.198	Fe	3 h	–	–
6001.18	Al II	–	[5]	Sy
6001.111	Sm	3	–	–
6001.051	Zr I	8	–	–
6001.05	Yb	2	1	Me
6000.951	Ne I	–	[100]	Ps
6000.86	Dy	2	–	Ks
6000.769	Th	2	–	Fd
6000.668	Co I	80	–	–
6000.31	Se II	–	[15]	Bt
6000.25	Cb	–	2 h	Me
6000.196	U	5	–	–
6000.184	Ce	6	–	–
6000.104	Cu II	–	40	Sh
6000.043	Nd	2	–	–
5999.950	Fe	10 h	–	Bu
5999.85	Ba II	–	[15]	Rs
5999.83	Al II	–	[10]	Ps
5999.714	Ir	5	–	–
5999.70	Al II	–	[10]	Ps
5999.680	Ti I	70	–	–
5999.47	N I	–	[90]	Du
5999.427	U	8	–	–
5999.4	bh Zr	5	–	L
5999.069	Gd	8	–	–
5999.040	Ti I	15	10	–
5999.00	A I	–	[20]	Ms
5998 967	Ti	8	–	Bh
5998.844	Sm	2	–	–
5998.493	Sm	3	1	–
5998.270	W	2	–	–
5998.115	Xe I	–	[30]	IMe
5998.085	Sm	2	–	–
5998.035	Th I	1	5	–
5997.978	U	8	–	–
5997.926	Cb	50	5	–
5997.805	Fe I	4	–	–
5997.610	Ni I	5	–	–
5997.329	U	25	–	–
5997.319	Sm II	50	–	–
5997.234	Ta	200 W	–	–
5997.13	Lu	50	5	Me
5997.091	Ba I	150 wh	50	IKs
5997.048	Ce	2	–	–
5996.944	Sm	3	–	–
5996 902	Co I	2	–	–
5996.76	F	–	[2]	Gl
5996.74	Ni I	10	–	–
5996.465	Nd	15	–	–
5996 20	Tb	10	–	Ed
5996.16	S	–	[25]	Bl
5996.054	Pr	8 w	–	–
5996.042	Sm	4	–	–
5996.007	Ti I	20	–	–
5995.998	Os	50	–	–
5995.756	Re	20 w	–	–
5995.685	Ti I	10	–	–
5995.59	Cu II	–	10	Sh
5995.367	Zr I	3	–	–
5995.308	Sm	2	–	–
5995.260	Ce	3	–	–
5995.198	O	–	[40]	Fh
5995.099	Sm	8	–	–
5994.756	Nd	15 h	–	–
5994.66	A I	–	[2]	Ms
5994.651	Sm II	60	–	–
5994.129	Th	10	–	–
5994.035	Nd	3	–	–
5993.94	Te	–	[75]	Bl
5993.852	Sm	20	–	–
5993.8503	Kr I	–	[60]	S
5993.653	Ru I	15	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5993.27	Cu II	–	8	Sh
5993.12	Te	–	[75]	Bl
5993.04	Ho	8	–	Ed
5992.96	Hf	2	1	Me
5992.860	Eu	1000	–	–
5992.657	Ce	10	–	–
5992.6	bh C	100	–	L
5992.475	W	5	–	–
5992.45	O	–	[30]	Ps
5992.360	La I	3	–	–
5992.34	Ga	–	10	Kl
5992.22	Kr II	–	[200]	Me
5992.17	Tb	10	–	Ed
5992 1	bh Yt	10	–	Me
5991.98	La II	–	4 h	Me
5991.878	Co I	900 R	–	–
5991.86	Xe II	–	[10 h]	Hu
5991.852	O	–	[15]	Fh
5991.849	Gd	3	–	–
5991.741	Sm II	10 w	–	–
5991.675	Ne I	–	[75]	Ps
5991.624	Ce	2	–	–
5991.503	Yb	50	150	–
5991.383	Fe II	2 h	2 h	–
5991.348	Mo	10	–	–
5991.186	Rh I	10	–	–
5991.005	Th	8	–	–
5990.92	Se II	–	[35]	Bl
5990 86	I	–	[8]	Ev
5990 851	Ce	3	–	–
5990.689	Nd	3	–	–
5990.244	Nd	5	–	–
5990.119	W	4	–	–
5990.006	Mo	10	–	–
5990.00	Re	3 h	–	–
5989.88	Er	8	–	Ed
5989.692	Sm	8	–	–
5989.600	W	7	–	–
5989.474	Mo	12	–	–
5989.380	Ce	10	–	–
5989 374	Sm	10 d	–	–
5989.341	Nd	15	–	–
5989.332	Yb	15	–	–
5989.18	Xe I	–	[20 h]	Me
5989.035	Th	20	5	–
5988.792	Ce	5	–	–
5988.672	Ru I	12	–	–
5988.575	Dy	8	–	–
5988 560	Ti I	18	–	–
5988.44	Xe	–	[2]	Hu
5988.42	Sc I	10	–	Me
5988.30	Cu II	–	25	Sh
5988.239	Fe	3	–	–
5988 173	Mo	30	–	–
5988.142	Nd	2	–	–
5988.11	A I	–	[2]	Ms
5988.094	Pt	2	–	–
5988.008	Gd	4	–	–
5987.91	Yb	2	20 h	Me
5987.907	Ne I	–	[150]	IMe
5987.61	Se	–	[8]	Bt
5987.6	bh Yt	300	–	Me
5987.440	W	4	–	–
5987.39	Sm II	3	–	Kn
5987 385	Ce	4	–	–
5987.289	A I	–	[40]	Ms
5987.148	Pr	4	–	–
5987 097	Gd	8	–	–
5987.055	Fe I	25 h	12 h	–
5986.934	W	3	–	–
5986 814	Eu	2 h	–	–
5986.442	U	2	–	–
5986 27	Tb	10	–	Ed
5986 246	Ce	3	–	–
5986.23	Xe I	–	[4]	Me
5986.140	Pr	25 w	–	–
5986.122	U	25	–	–
5986.081	Cb	5	5	–
5985.64	Te	–	[75]	Bl
5985.54	Ba	3	–	Lr
5985.488	Sm	2	–	–
5985.03	I	–	[15]	Ev
5984.863	Dy	3	–	–
5984.86	Se	–	[8]	Bl
5984.825	Zr I	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5984.804	Fe I	50	20 h	–
5984.642	V	–	18	–
5984.586	Ti I	15	–	–
5984.393	Cs	–	[15]	Sv
5984.36	I	–	[15]	Ev
5984.298	Sm	12	–	–
5984.265	Co I	2	–	–
5984.231	Zr I	15	–	–
5984.15	Lu	20	40	Kn
5984.085	Co	10	–	–
5984.00	Lu	20	–	Me
5983.874	Sm	4	–	–
5983.855	Eu	20	–	–
5983.836	W	7	–	–
5983.80	Lu	20	40	Kn
5983.705	Fe I	35	12 h	–
5983.641	Sm	4 d	–	–
5983.599	Rh I	200	2	–
5983.59	Lu	30	60	Kn
5983.3	bh Zr	8	–	L
5983.267	Co I	2	–	–
5983.26	Eu	20	–	Kn
5983.216	Cb	20	20	–
5983.15	Re	3 h	–	–
5982.927	Mo	20	–	–
5982.90	Ho	200	–	Ed
5982.717	U	2	–	–
5982.662	Re	3 h	–	–
5982.52	Ti I	10	–	Rl
5982.428	Gd	8	–	–
5982 401	Ne I	–	[8]	Ps
5982.357	La I	10	–	–
5982.345	Sm	6	–	–
5982.014	Sm	5	–	–
5981.994	Co I	3 h	–	–
5981.90	A I	–	[5]	Ms
5981.86	Yt I	3	–	Me
5981.838	Ce	4	–	–
5981.683	Re	2 h	–	–
5981.43	Ho	8	–	Ed
5981.42	Sb II	–	[2]	Lg
5981.42	Hg	–	[4]	Lf
5981.42	I I	–	[15]	Ev
5981.25	Ba II	–	[40]	Rs
5981.209	Pr	12	1	–
5981.195	Ce	3	–	–
5980.98	Sb II	–	15	Kz
5980.96	I	–	[15]	Ev
5980.779	V I	50	–	–
5980.549	Sm	3	–	–
5980.481	Eu	10	–	–
5980.369	Sm	2	–	–
5979 975	Eu	4	–	–
5979 951	Nd	3	–	–
5979.758	Sm	2 h	–	–
5979 63	Br	–	[5]	Bl
5979.397	Ce	5 w	–	–
5979.391	Sm	15	–	–
5979.20	Cu II	–	3	Sh
5979.20	Si	–	5	Sy
5979.106	Pt I	3	–	–
5979.04	Br	–	[5]	Bl
5978.906	V I	100	–	–
5978.886	W	7	–	–
5978.882	Pr	4	–	–
5978.66	Hf	6	1	Me
5978.557	Ti I	125	150	–
5978.496	Ba	6	3	Sz
5978.29	Xe I	–	[2]	Me
5978.043	Sm	5	–	–
5977.7	bh Zr	20	–	L
5977.65	Kr I	–	[4]	Me
5977.415	Nd	3	–	–
5977.403	Eu	2 h	–	–
5977.4	Rn	–	[20]	Wa
5977.249	Gd	8	–	–
5976.957	Pr	3	–	–
5976.799	Ti	2	–	–
5976.682	W	5	–	–
5976.481	Sm	3	–	–
5976.46	Xe II	–	[800]	Hu
5976.354	Nd	3	–	–
5976.344	U	50	–	–
5976.22	Se II	–	[8]	Bt
5975 985	Ce	15	–	–
5975.830	Ce	15	–	–
5975.754	La I	8	–	–
5975 5340	Ne I	–	[600]	S
5975.503	Nd	2	–	–
5975.50	Er	8	–	Ed
5975.358	Fe	10	10	–
5975.340	V I	18	3	–
5975.233	Ce	3	–	–
5975 065	Th	10	–	–
5974.82	Kr II	–	[2]	Me
5974.788	U	2	–	–
5974 72	Hf	2	–	Me
5974.70	Te	–	[250]	Bl
5974.628	Ne I	–	[500]	IMe
5974.563	Nd	4	–	–
5874.503	Dy	8	–	–
5974.28	Hf	10	2	Me
5974.257	Mo	20	–	–
5974.248	Nd	5	–	–
5974.167	Ru	6	–	–
5974.152	Xe I	–	[40]	IMe
5973.679	Ru	4	–	–
5973 672	Eu	2	–	–
5973.669	Th	10	1	–
5973.527	La II	15	120	–
5973.52	Ho	125	–	Ed
5973.379	Ru I	12	–	–
5973.01	Bi II	–	40	Om
5973 0	bh Yt	600	–	Me
5972 78	Ba	100	–	Ex
5972.776	Eu	300	–	–
5972.64	Te	–	[50]	Bl
5972.566	Sm	9	–	–
5972 519	W	25	–	–
5972 499	Nd	2	–	–
5972.34	As	–	6	Ro
5972 103	Sm	2 d	–	–
5972.096	Ce	6	–	–
5971.94	Al II	–	[35]	Ps
5971.85	I I	–	[30]	Db
5971.701	Ba I	150	50	IKs
5971.687	Eu	40	–	–
5971 66	Tb	10	–	Ed
5971.59	A I	–	[5]	Ms
5971 525	U	50	–	–
5971 268	Tm	10	5	–
5971.13	Xe II	–	[150]	Hu
5971.09	La II	1	8	Me
5970 93	Eu	5	–	Kn
5970.903	Er	8	–	–
5970 803	Sm	15	–	–
5970.69	Rh I	2	–	Me
5970.5	bh Sc	5	–	Me
5970.309	Gd	8	–	–
5970.30	Sn	10	30	Wt
5970.10	Sr I	10	–	Fl
5969.80	Rn I	–	[20]	Rs
5969.796	Re	20 w	–	–
5969 64	K II	–	[5]	Bn
5969.6	bh Yt	4	–	Me
5969 57	Kr	–	[2 whl]	Me
5969.554	Fe I	5	–	–
5969.485	Sm	5	–	–
5969.38	Hf II	4	5	Me
5969.19	Sc I	4	–	Me
5968.96	Au	8	–	Wt
5968.818	Sm II	40	–	–
5968.789	Nd	2	–	–
5968.70	Er	12	–	Ed
5968.5	bh Sc	10	–	Me
5968.481	Mo	4	–	–
5968.439	Eu	10	–	–
5968.41	I	–	[15]	Ev
5968 31	A I	–	[2]	Ms
5968.301	Pr	4	–	–
5968.282	Nd	3	–	–
5968.25	Sc	7	–	Me
5967.837	Pr	15	1	–
5967.791	V	–	5	Me
5967.640	Re	5	–	–
5967.54	Kr II	–	[15 whs]	Me
5967.323	Tb	40	–	–
5967.159	Eu	2000 s	–	–
5967.132	Sm	5	–	–
5966.79	As	–	4	Ro
5966.76	Er	8	–	Ed
5966.710	Nd	2	–	–
5966.483	Dy	3	–	–
5966.379	Nd	2	–	–
5966.344	Ce	8	–	–
5966.171	Ne I	–	[35]	Ps
5966.066	Eu	1000	–	–
5965 859	W	25	–	–
5965.840	Ti I	150	200	–
5965 708	Sm II	125	–	–
5965.661	Co I	2 h	–	–
5965.574	Mo	15	–	–
5965.474	Ne I	–	[500]	IMe
5965 02	Co I	2 h	–	Me
5964.787	Ba	7	–	Sz
5964 645	Ce	5	–	–
5964.478	Dy	4	–	–
5964.46	A	–	[2]	Ms
5964 457	W	2	1	–
5964.058	U	2	–	–
5963.926	Sm	3	–	–
5963.765	Eu	60	–	–
5963.359	Ce	3	–	–
5963 258	Nd	3	–	–
5963.211	Sm II	40	–	–
5963 05	Sm	3	–	Kn
5963.022	Pr	9	–	–
5962.72	Au	35	3	Wt
5962.67	Se II	–	[5]	Bl
5962 67	Ho	12	–	Ed
5962.604	La I	5	–	–
5962.445	Ba	5	–	Sz
5962.39	Nd	2	–	Ks
5962.208	Pr	6	–	–
5962 01	Se I	–	[100]	Rd
5961.973	Th	8	–	–
5961.626	Ne I	–	[70]	Ps
5961.49	Hg	–	[12]	Lf
5961 49	Sc I	6	–	Me
5961.43	La II	–	3	Me
5961 39	Lu	3	–	Me
5961 32	Se I	–	[30]	Rd
5961.156	Nd	4	–	–
5961.132	Ti	2	–	Bh
5961.00	Tb	25	–	Ed
5960.883	Ce	2	–	–
5960 823	W	8	–	–
5960 690	Ir I	3	–	–
5960 586	La I	10	–	–
5960.376	Th	3	–	–
5960.185	Ce	4	–	–
5960.129	Ta	7	–	–
5960.103	Sm	20	–	–
5959 698	Ce	6	–	–
5959 63	Se	–	[5]	Bl
5959.49	Sm	3	–	Kn
5959 31	Yb	3	–	Me
5959 308	Pr	3 w	–	–
5959.0	bh Sc	6	–	Me
5958 942	Er	20	–	–
5958.7	bh C	–	–	L
5958 70	Yb	10	–	Me
5958.53	O I	–	[100 h]	Ps
5958.223	Sm	2	–	–
5958.03	Xe II	–	[50]	Hu
5957.90	La II	–	4	Me
5957.80	Si	–	5	Sy
5957.704	Cb	8 h	3 h	–
5957.67	Ra	–	[35]	Rs
5957.589	Nd	3	–	–
5957.521	Sm II	40	–	–
5957.17	Ra	–	[8]	Rs
5956 984	Au I	35	8	Qi
5956 98	I	–	[15]	Ev
5956.882	U	5	–	–
5956 835	Ce	3	–	–
5956.786	Sm	4	–	–
5956.708	Fe I	12	–	–
5956 617	Pr	12	1	–
5956.457	Gd	8	–	–
5956 4	bh Yt	80	–	Me
5956 30	Hg	–	[4]	Lf
5956.184	W	7	–	–
5956.07	Er	8	–	Ed
5955.98	Ho	100	–	Ed

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5955.869	Nd	15	–	–
5955.832	Sm	25	–	–
5955.687	Sm	3	–	–
5955.49	Er	8	–	Ed
5955.354	Zr I	20	–	–
5955.14	Kr I	–	[2]	Me
5954.96	Te	–	[25]	Bl
5954.6	bh Ti	2	–	L
5954.49	I	–	[8]	Ev
5954.319	Re	3	–	–
5954.269	Eu	30	–	–
5954.00	Br I	–	[20]	Ks
5953.971	W	5	–	–
5953 836	Ru	4	–	–
5953.828	Eu	40	–	–
5953.740	Tb	10	–	–
5953.496	Eu	30	–	–
5953.171	Ti I	150	250	–
5953 080	Nd	2	–	–
5952 872	Ce	3	–	–
5952.740	Fe I	8 h	–	–
5952.43	Rh I	3	–	–
5952.39	N II	–	[30]	Fl
5952 37	Sm II	5	–	Ks
5952.362	Fe	3	–	–
5952.20	Sc	5	–	Me
5952.053	U	3	–	–
5951.9	bh Zr	5	–	L
5951.784	Tb	10	–	–
5951.783	Pr	4	–	–
5951.779	Ta	15 w	–	–
5951.580	Gd	3 h	–	–
5951.57	Rn I	–	[25]	Rs
5951.50	S	–	[15]	Bl
5951.454	V	–	4	Me
5951.282	Pr	10	1	–
5951.165	Tb	15	–	–
5951.146	Ru I	5	–	–
5950.98	Yb	–	8	Me
5950.77	Tl II	–	6	Ml
5950.65	Yb	3	–	Me
5950.607	Ce	8	–	–
5950.60	O	–	[70]	Ps
5950.470	Nd	8	–	–
5950.30	Br I	–	[20]	Ks
5950.26	I II	–	[50]	Ke
5950 229	Re	5 w	–	–
5950.171	Sm	3	–	–
5950.0	bh Yt	4	–	Me
5949.983	Ti	2	–	–
5949.93	Kr II	–	[3 h]	Me
5949.92	I II	–	[2]	Mu
5949.9	bh Ti	5	–	L
5949.79	Pr	10 w	–	–
5949.636	Nd	10	–	–
5949.57	Tl II	–	35	Ml
5949.357	Fe I	4 h	–	–
5949.26	A I	–	[10]	Ms
5949.20	I I	–	[2]	Mu
5949.175	Mo	4	–	–
5949.138	Sm	5	–	–
5949.04	Tl II	20	15 wh	Ml
5948.70	Er	12	–	Ed
5948.67	Hg	–	[4]	Lf
5948.590	U	5	–	–
5948.584	Si I	50	5	Ks
5948.48	Ho	12	–	Ed
5948.37	Sb	3	–	Wt
5948.236	La II	2	20	Ks
5948.195	W	2	–	–
5948.03	Ho	200	–	Ed
5947.8	Hg II	–	[4]	Ps
5947.638	Ce	6	–	–
5947.583	W	15	–	–
5947.455	Sm	3	–	–
5947.406	Nd	8	–	–
5947.28	Yb	1	5	Me
5947.20	Pr	5	–	–
5947.068	W	4	–	–
5947.0	bh Zr	20	–	L
5946.67	Tb	10	–	Ed
5946.491	Co I	70	–	–
5946.369	Sm	15	–	–
5946.36	Er	8	–	Ed
5946.02	Yb	4	100	Me
5945.811	Dy	5	–	–
5945.717	Yt I	4	–	–
5945.53	Xe II	–	[200]	Hu
5945.50	Br	–	[10]	Ks
5945.44	Kr I	–	[5]	Me
5944.884	Ce	8	–	–
5944.8342	Ne I	–	[500]	S
5944.735	Sm	4 d	–	–
5944.7	Rn	–	[10]	Wa
5944.65	Ti I	10	–	Rl
5944.024	Ta	80	–	–
5943.98	Hg	–	[4]	Lf
5943.89	A I	–	[2]	Ms
5943.519	Ce	3	–	–
5943.242	Re	100	–	–
5943.216	Nd	15	1	–
5942.999	Sm	5	–	–
5942.798	Th	8	–	–
5942.729	Eu	30	–	–
5942.668	A I	–	[40]	Ms
5942.660	Ce	10	–	–
5942.292	Sm	10	–	–
5942.13	Kr I	–	[2]	Me
5942.119	Fe	2	–	–
5941.895	Ce	3	–	–
5941.82	Kr	–	[4 whs]	Me
5941.758	Ti I	100	–	–
5941.67	N II	–	[200]	Fl
5941.648	Pr	5	–	–
5941.537	Ce	3	–	–
5941.46	Rh I	4	–	–
5941.45	Sm	5 d	–	m
5941.168	Cu II	–	50	Sh
5940.97	Tb	10	–	Ed
5940.968	Fe I	6	–	–
5940.883	W	5	–	–
5940.88	Gd	3 h	–	Ks
5940.86	A I	–	[2]	Ms
5940.849	Ce	40	–	–
5940.838	La I	4	–	Ks
5940.733	Pr	10	1	–
5940.69	S	–	[8]	Bl
5940.68	Ti I	10	–	–
5940 638	Sm	2	–	–
5940.58	Sc	2	–	Me
5940.53	Br I	–	[60 l]	Ks
5940.25	N II	–	[15]	Fl
5940.17	Tb	15	–	Ed
5939.913	Pr	20	2	–
5939.765	Ta	80 l	–	–
5939.744	Nd	3	–	–
5939 38	Tb	15	–	Ed
5939.319	Ne I	–	[50]	Ps
5939.218	Fe	4 h	–	–
5939.1	bh Zr	8	–	L
5939.1	bh Yt	100	–	Me
5938.845	Sm II	50 d	–	–
5938.834	Th	8	–	–
5938.735	Fe	4	–	–
5938.582	Th	6	–	–
5938.435	Ce	4	–	–
5937.911	Mo	20	–	–
5937.821	Ti I	60	–	–
5937.779	Eu	10	–	–
5937.715	Ce	20	–	–
5937.71	Zn I	5	–	Wd
5937.706	Gd	8	–	–
5937.59	Cu II	–	5	Sh
5937.20	Er	12	–	Ed
5937.115	Fe	3	–	–
5937.09	Tb	10	–	Ed
5936.818	Gd	8	–	–
5936.653	Ru I	4	–	–
5936.32	Se I	–	[8]	Rd
5936.218	La II	15	20	–
5936.21	Te	–	[75]	Bl
5936.116	Sm II	35 d	–	–
5935.897	Tm	5	–	–
5935.55	Hg	–	[4]	Lf
5935.543	Ta	15 h	–	–
5935.528	Sm	4	–	–
5935.475	Nd	3	–	–
5935.436	Pr	3	–	–
5935.421	Ba	4	–	–
5935.386	Co I	150	–	–
5935 288	La I	20	–	–
5935.202	Zr I	20	–	–
5935.109	Sm	2	–	–
5935.06	Yb	3	40	Me
5935.03	Kr II	–	[8 h]	Me
5934.747	Nd	10	–	–
5934.72	Sn	3 h	–	Wt
5934.680	Fe I	15	12 h	–
5934.55	Xe	–	[2 wh]	Hu
5934.486	W	5	–	–
5934.463	U	2	–	–
5934.458	Ne I	–	[75]	Ps
5934.443	Ce	5	–	–
5934.320	Er	8	–	–
5934.32	Tb	10	–	Ed
5934.172	Xe I	–	[100]	IMe
5934.163	Cb	5	2	–
5933.958	Ne	–	[8]	Ps
5933.852	U	6	–	–
5933.71	Ho	200	–	Ed
5933.7	Au I	5	–	Ml
5933.69	Hf	6	1	Me
5933.581	Ce	3	–	–
5933.495	Er	8	–	–
5933.22	Te	–	[15]	Bl
5933.2	bh Yt	2	–	Me
5933.085	Fe	4	–	–
5932.95	Tb	10	–	Ed
5932.887	Sm II	50	–	–
5932.60	Rn I	–	[25]	Rs
5932.444	U	4	–	–
5932.419	Sm II	35 d	–	–
5932.379	Ru I	15	–	–
5932.163	Ce	6	–	–
5932.142	Sm	10	–	–
5932.140	Nd	3	–	–
5932.134	Ti	80	–	–
5931.88	Dy	2	–	Ed
5931.79	N II	–	[150]	Fl
5931.717	Ce	4	–	–
5931.715	Fe	3	–	–
5931.679	Ta	40	–	–
5931.534	Sm	3	–	–
5931.421	Nd	3	–	–
5931.241	Xe I	–	[80]	IMe
5931.23	Sc	4 h	–	Me
5931.1	bh Yt	6	–	Me
5931.051	Ta	40 s	–	–
5930.886	Sm	2	–	–
5930.667	La I	100	–	–
5930.628	La I	150	–	–
5930.625	Ta	15 s	–	–
5930.42	Cl I	–	[2]	Ks
5930.311	Ru	4	–	–
5930.276	Gd	6	–	–
5930.186	Fe I	30	10 h	–
5929.835	Ce	8	–	–
5929.498	Ce	5	–	–
5929.487	Th	5	–	–
5929.35	Hf II	3	5	Me
5929.332	U	5	–	–
5929.199	Sm	3 l	–	–
5928.919	Nd	4	–	–
5928.882	Mo	100 h	–	–
5928.852	V	–	60 h	Me
5928.805	A I	–	[200]	IMe
5928.728	Ce	2	–	–
5928.61	I	–	[8 l]	Bl
5928.582	W	6	–	–
5928.503	La I	10	–	–
5928.361	Sm	2	–	–
5928.339	Ce	25	–	–
5928.205	Cb	5	2	–
5928.1	bh Sc	15	–	Me
5927.958	Nd	2	–	–
5927.873	Sm	4	–	–
5927.86	Ba	4	–	Lr
5927.82	N II	–	[50]	Fl
5927.806	Fe	10	–	–
5927.71	La II	–	30	Me
5927.6	Sb II	–	15	Dv
5927.406	Cb	5	5	–
5927.38	Re	2	–	Me
5927.13	A I	–	[10]	Ms
5927.045	W	2	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5926.90	Cu II	–	3	Sh
5926.868	Ru	10	–	–
5926.527	Eu	80	–	–
5926.48	Br	–	[5]	Bl
5926.47	Hf	2	–	Me
5926.450	Sm II	20	–	–
5926.359	Mo	70 h	20	–
5926.303	Ce	25	–	–
5926.189	Fe	4	–	–
5926.1	bh Ti	5	–	L
5925.937	Sm	4	–	–
5925.897	Ta	20	–	–
5925.894	Th	10	2	–
5925.651	Cs	–	[60]	Sv
5925.58	Tb	10	–	Ed
5925.56	Xe I	–	[6]	Me
5925.48	Sn	8	25	Wt
5925.466	U	3	–	–
5925.414	Th	3	–	–
5925.307	Eu	20	–	–
5925.25	Te	–	[8 h]	Bl
5925.15	Se I	–	[30]	Rd
5925.131	Zr I	20	–	–
5924.98	Se I	–	[3]	Rd
5924.920	Eu	10	–	–
5924.76	Se I	–	[40]	Rd
5924.73	Fe	2	–	–
5924.641	Sm	10	–	–
5924.574	V I	250 W	–	–
5924.184	Sm	4	–	–
5924.172	Pr	3	–	–
5924.051	Ce	8	–	–
5923.930	Ni I	2	–	–
5923.792	Mo	8 h	–	–
5923.74	Rh I	3	–	–
5923.45	Fe	4 h	–	–
5923.4	bh C	–	–	L
5923.307	Sm	15	–	–
5923.3	bh Zr	8	–	L
5923.058	Fe	4	–	–
5922.952	Ce	3	–	–
5922.790	Nd	5	–	–
5922.709	Ne I	–	[25]	Ps
5922.550	Xe I	–	[20]	IMe
5922.394	Sm	4	–	–
5922.365	Co I	3	–	–
5922.364	Nd	2	–	–
5922.16	Tb	10	–	Ed
5922.125	Ce	3	–	–
5922.123	Ti I	100	100	–
5922.027	Gd	4	–	–
5922.0	bh Ti	12	–	L
5921.85	Xe I	–	[10]	Me
5921.820	Nd	2	–	–
5921.76	Ho	200	–	Ed
5921.50	Xe II	–	[3 whl]	Hu
5921.446	Ru	25	–	–
5921.357	W	3	–	–
5921.343	Gd	6	–	–
5921.248	Sm	3	–	–
5921.217	Nd	10	–	–
5921.028	W	2	–	–
5920 992	Sm	15	–	–
5920.90	I II	–	[15]	Bl
5920.8	bh La	50	–	Me
5920.762	Pr	10	–	–
5920.587	W	3	–	–
5920.61	I II	–	[15]	Mu
5920.438	Ce	15	–	–
5920.39	Yb	1	10	Me
5920.35	Tb	10	–	Ed
5919.997	Fe	4	4	–
5919.855	Re	6 h	–	–
5919.84	Rn I	–	[15]	Rs
5919.811	Nd	3	–	–
5919.4	Kr	–	[2 wh]	Me
5919.342	Ru I	20	–	–
5919.327	Sm	60	–	–
5919.310	Nd	5	–	–
5919.11	Sc I	6 h	–	Me
5919.037	Ne I	–	[8]	Ps
5918.949	Ta	80 s	–	–
5918.914	Ne I	–	[250]	Ps
5918.899	In II	–	[30]	Ps
5918.81	Kr II	–	[2 Wh]	Me
5918.784	In II	–	[50]	Ps
5918.650	In II	–	[70]	Ps
5918.552	Ti I	80	–	–
5918.544	Rh I	20	–	–
5918.26	La II	–	4	Me
5918.05	Fe	5	–	–
5918.0	bh Sc	10	–	Me
5917 951	Sm	3	–	–
5917.77	Sb II	–	[7]	Lg
5917.7	bh Zr	8	–	L
5917.629	La I	25	–	–
5917.465	Nd	2	–	–
5917.44	Xe II	–	[50]	Hu
5916.88	Co I	2 h	–	Me
5916.754	Gd	8	–	–
5916.65	Xe I	–	[4]	Me
5916.58	A I	–	[5]	Ms
5916.511	Ta	30	–	–
5916.458	Er	8	–	–
5916.4	bh Zr	8	–	L
5916 368	Sm	15	–	–
5916 365	V	–	12	Me
5916 258	Fe I	25	4	–
5916.030	Sm	2	–	–
5915.984	Pr	4	–	–
5915.966	In II	–	[100]	Ps
5915.764	Eu	200 l	–	–
5915.634	In II	–	[50]	Ps
5915.559	Sm	5	–	–
5915.539	Co I	200 w	–	–
5915.449	In II	–	[50]	Ps
5915.398	U	125	–	–
5915.306	Pr	5	–	–
5915.168	Dy	5	–	–
5914.919	Sm	3	–	–
5914.835	Ce	8	–	–
5914.832	In II	–	[50]	Ps
5914.7	Si	–	2	Sy
5914.68	Eu	5 h	–	Kn
5914.679	In II	–	[70]	Ps
5914.5	bh Cr	2	–	L
5914.401	Nd	5	–	–
5914.397	In II	–	[30]	Ps
5914.395	Th	12	3	–
5914.293	Mo	4	–	–
5914.162	Fe I	50	25 h	–
5914.12	Er	8	–	Ed
5913.885	Sm	20	–	–
5913.730	Ti I	3	–	–
5913.633	Ne I	–	[250]	IMe
5913.567	Sm	10	–	–
5913.543	Gd	10	–	–
5913.398	W	3	–	–
5913.062	Fe	3	–	–
5912.912	Ce	20	–	–
5912.844	Ta	2	–	–
5912.834	Fe	10	–	–
5912.80	Xe II	–	[5]	Hu
5912.7	bh Yt	3	–	Me
5912.621	Sm	15	–	–
5912.33	Sb	5	–	Wt
5912.2	bh Yt	10	–	Me
5912.122	Mo	6	–	–
5912.084	A I	–	[500]	IMe
5911.90	Xe I	–	[5]	Me
5911.72	Kr	–	[10 whl]	Me
5911.5	bh Zr	8	–	L
5911.417	Gd	3	–	–
5911.131	Re	2 h	–	–
5910.757	Sm	10 d	–	–
5910.7	bh Pb	8	–	L
5910.64	Sb	–	2 h	–
5910.597	Fe	5	–	–
5910.289	W	2	–	–
5910.268	Nd	2 l	–	–
5910.134	Ce	15	–	–
5910.100	Tb	10	–	–
5909.992	Re	3 h	–	–
5909.986	Fe I	2	–	–
5909.955	Eu	30	–	–
5909.875	Ce	15	–	–
5909.874	Nd	10	1	–
5909.67	Xe II	–	[25]	Hu
5909.38	Se I	–	[25]	Rd
5909.375	Eu	2 h	–	–
5909.25	Er	20	–	Ed
5909.20	Se I	–	[30]	Rd
5909.155	Dy	3	–	–
5909.039	Sm	10	–	–
5908.755	Eu	6	–	–
5908.67	Pr	8	–	–
5908.60	I	–	[8]	Bl
5908.5	bh Zr	60	–	L
5908.409	Fe	5	–	–
5908.355	Yb	20	30	–
5908.252	Fe	8	–	–
5908.25	S	–	[8]	Bl
5908.18	Rh	2	–	–
5907.650	Ba	20	–	–
5907.50	Rn I	–	[15]	Rs
5907.486	Ce	3	–	–
5907.36	C II	–	5	Fl
5907.313	Rh I	5	–	–
5907.2	Ra I	–	[8]	Rs
5907.08	Se	–	[15]	Rd
5906.84	Os	3	–	–
5906.76	Xe I	–	[3]	Me
5906.646	Nd	6	–	–
5906.608	Sm	3	–	–
5906.486	Ni I	2 h	–	–
5906.429	Ne I	–	[50]	IMe
5906.276	Nd	3	–	–
5906.26	Eu	4	–	Kn
5906.07	Er	20	–	Ed
5906.069	Sm	10	–	–
5906 015	Fe	6	–	–
5906 009	Ce	10	–	–
5905 808	Nd	5	–	–
5905 683	Fe	12	8 h	–
5905.587	Co I	2 h	–	–
5905.45	Br I	–	[20]	Ks
5905.13	Xe II	–	[100]	Hu
5905 04	In	–	15	Sq
5905 031	W	4	–	–
5904.9	bh Tl	12	–	L
5904.71	Tb	15	–	Ed
5904.54	Gd	8	–	Ks
5904.480	Cb	3 h	2 h	–
5904.462	Xe I	–	[20]	IMe
5904.448	Pr	9	–	–
5904.425	Ru	4	–	–
5904 333	Ta	2 w	–	–
5904.308	La I	6	–	–
5904.29	Ho	12	–	Ed
5904.178	Th	8	1	–
5904 04	Gd	8	–	Ks
5904.007	Re	2 h	–	–
5903 982	Os	3	–	–
5903.872	In II	–	[15]	Ps
5903.80	Cb	5	2	Me
5903 755	In II	–	[150]	Ps
5903.626	In II	–	[500]	Ps
5903.565	Sm	20 d	–	–
5903.472	In II	–	[70]	Ps
5903.367	In II	–	[100]	Ps
5903.332	Ti I	40	–	–
5903.243	In II	–	[100]	Ps
5903.137	In II	–	[100]	Ps
5903.127	Pr	8	–	–
5903.094	Sm	4 d	–	–
5903.045	In II	–	[70]	Ps
5902.972	In II	–	[30]	Ps
5902.94	Hf	15	3	Me
5902.93	Yt I	5	–	Me
5902.792	Ne I	–	[5]	Ps
5902.758	Eu	30	–	–
5902.665	W	20	–	–
5902.660	Ce	2	–	–
5902.605	Sm	15	–	–
5902.527	Fe	6	–	–
5902.497	U	8	–	–
5902.463	Ne I	–	[50]	IMe
5902.421	Sm	25 d	8	–
5902.40	Tb	15	–	Ed
5902.182	Cr	4	–	–
5902.119	Nd	3	–	–
5902.097	Ne I	–	[3]	Ps
5902.09	Er	30	–	Ed
5901.990	W	3	–	–
5901.953	La II	2	40	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5901.911	Ta	80	–	–
5901.68	Fe	3	–	–
5901.577	Tm	5	–	–
5901.472	Mo	30	–	–
5901.421	Sm	12	–	–
5901.321	Ce	5 d	–	–
5901.227	W	8	–	–
5901.21	Cu II	–	5	Sh
5901.20	Sb II	–	[5]	Lg
5901.086	Zr I	4	–	–
5900.93	Rn I	–	[20]	Rs
5900.89	Kr II	–	[8 whl]	Me
5900.75	La I	3	–	Me
5900.674	Ce	3 w	–	–
5900.616	Cb	200	200	–
5900.430	Nd	5	–	–
5900.00	Ho	8	–	Ed
5899.757	Sm	2	–	–
5899.74	Te	–	[25]	Bl
5899.678	Mo	12	–	–
5899.576	Ir I	2	–	–
5899.491	Nd	3	–	–
5899 465	Tm	10	–	–
5899.414	Th	6	–	–
5899.40	Tb	15	–	Ed
5899.322	Ti I	150	150	–
5899.171	Nd	2	–	–
5899.02	I I	–	[25]	Db
5898.971	Ru	6	–	–
5898.962	Sm	25	–	–
5898.94	Rh	3	–	Me
5898.867	Nd	3	–	–
5898.84	Tb	25	–	Ed
5898 825	Mo	8	–	–
5898.80	Yb	3	50 h	Me
5898.785	U	8	–	–
5898.785	Mo	8	–	–
5898.56	Xe I	–	[8]	Me
5898.406	Ne I	–	[20]	Ps
5897.986	Cu II	–	25	Sh
5897.929	Ta	2 l	–	–
5897.865	Mo	5	–	–
5897.59	Gd	7	–	Ks
5897.544	V	–	30	–
5897.47	Kr	–	[2 whl]	Me
5897.379	Sm	100	–	–
5897.22	Yb	7	100 h	Me
5896.872	Sm	3	–	–
5896.7	bh La	80	–	Me
5896.65	Te	–	[25]	Bl
5896.61	Hf	2	–	Me
5896.61	Yb	5	–	Me
5896.278	Sm	5	–	–
5896.02	In	–	5	Sq
5895.923	Na I	5000 R	500 R	Hz
5895.70	Pb	20 hl	2	Wt
5895.626	Tm	80	20	–
5895.62	Xe I	–	[2 h]	Me
5895.578	Nd	2	–	–
5895.497	Fe	4	–	–
5895.288	Eu	25	–	–
5895.196	Ta	2 h	–	–
5895.154	Sm	6	–	–
5895.09	Sb II	–	[150 wh]	Lg
5894.988	Xe I	–	[100]	IMe
5894.847	La I	25	–	–
5894.718	Sm	15 d	–	–
5894.63	Sc I	5	–	Me
5894.6	Bi II	–	6	Ml
5894.56	Kr II	–	[8 whl]	Me
5894.47	Dy	2	–	–
5894.4	Rn	–	[30]	Ny
5894.351	Zn II	3	[30]	IHz
5894.291	Pr	15 w	–	–
5894.065	Ir I	20	–	–
5894.05	I I	–	[60]	Mu
5893.9	bh Yt	10	–	Me
5893.738	Mo	5	–	–
5893.6	bh La	60	–	Me
5893.498	Th	8	–	–
5893.46	Ge II	–	100	Lg
5893.442	Cb	15	3	–
5893.43	I II	–	[8]	Bl
5893.376	Mo	70 h	15	–
5893.29	Xe II	–	[150]	Hu
5893 190	Ce	2	–	–
5892 878	Ni I	6	–	IKs
5892.670	Nd	2	–	–
5892.66	La II	1	4	Me
5892.633	U	4	–	–
5892.56	Ho	50	–	Ed
5892.448	Ta	2 l	–	–
5892.401	Sm	5 d	–	–
5892.294	Mo	20	–	–
5892.231	Pr	10	1	–
5891.906	Sm	2	–	–
5891.65	C II	–	30	Fl
5891.614	W	12	–	–
5891.562	Mo	25 h	–	–
5891.528	Nd	20	–	–
5891.43	Te	–	[15]	Bl
5891.416	Sm	15	–	–
5891.303	Ru	4	–	–
5891.29	Se	–	[8]	Bt
5891.269	Eu	200	–	–
5891.12	Tb	10	–	Ed
5890.98	S	–	[8]	Bl
5890.626	Sm	4	–	–
5890.503	Nd	5	–	–
5890.484	Co I	7	–	–
5890.45	Hf	8	–	Me
5890.333	W	7	–	–
5890.26	In	–	10	Sq
5890.16	Hg	–	[40]	Wd
5889.989	Cr	12	–	–
5889.978	Mo	50 h	–	–
5889.97	C II	–	60	Fl
5889.953	Na I	9000 R	1000 R	Hz
5889.75	S I	–	[5]	Ms
5889.74	Se II	–	[15]	Bt
5889.695	Sm	20	–	–
5889.12	Xe I	–	[20]	Me
5889.06	Tb	10	–	Ed
5888.94	Hg II	–	[20]	Ps
5888.89	Te	–	[8]	Bl
5888.78	Cr	3 l	–	–
5888.675	Ti	15	–	–
5888.6	Rn	–	[80]	Ny
5888.592	A I	–	[300]	IMe
5888.493	Ta	5	–	–
5888.326	Mo	150	100	–
5888.283	Th	8	–	–
5888.248	Sm	2	–	–
5888.15	Tb	10	–	Ed
5888.008	Cr	20	–	–
5887.907	Nd	25	–	–
5887.758	Sc	4 wh	–	–
5887.68	Kr I	–	[3]	Me
5887.58	Ho	12	–	Ed
5887.4	bh Sc	20	–	Me
5887.364	Ir	10	–	–
5887.268	Sm	3	–	–
5887.23	Lu	1	6 h	Me
5886.952	U	3	–	–
5886.471	Sm	5	–	–
5886.458	Er	30	–	–
5886.44	Gd	6	–	Ks
5886.34	Se II	–	[20]	Bl
5886.30	Er	12	–	Ed
5886.235	Nd	3	–	–
5886.068	Sm	3	–	–
5885.714	Th	10	5	–
5885.619	Zr I	25	–	–
5885.58	Hf II	–	2	Me
5885.164	Eu	6	–	–
5884.815	Eu	6	–	–
5884.701	Pr	4	–	–
5884.625	W	2 h	–	–
5884.452	Cr I	18	–	–
5884.332	Mo	12	–	–
5883.848	Fe I	15	10	–
5883.663	Sm	3	–	–
5883.66	Hf	3	1	Me
5883.410	Co I	3	–	–
5883.292	Nd	15	–	–
5882.99	Ho	200	–	Ed
5882.916	Os	7	–	–
5882.81	Yb	2	10	Me
5882.784	Nd	10	–	–
5882.724	Mo	15	–	–
5882.67	Kr	–	[2 whl]	Me
5882.625	A I	–	[100]	Ms
5882.493	Sm	5	–	–
5882.33	I	–	[8]	Ev
5882.30	Ir I	10	–	–
5882.295	Ta	80	–	–
5882.16	Gd	10	–	Ks
5881.8950	Ne I	–	[1000]	S
5881.526	Mo	20	–	–
5881.33	Nd	3	–	Ks
5881.18	Kr I	–	[2]	Me
5881.14	Er	30	–	Ed
5881.077	Co I	4	–	–
5880.784	Eu	3	–	–
5880.647	La II	30	50	–
5880.54	Tb	15	–	Ed
5880.306	Ti I	60	125	–
5880.25	Nd	3	–	Ks
5880.223	W	15	–	–
5880.19	Cd II	4	3	Vs
5879.994	Fe I	6	–	–
5879.94	Yt I	3	–	Me
5879.900	Kr I	–	[50]	IJa
5879.85	Tb	10	–	Ed
5879.797	Zr I	60	–	–
5879.782	Fe	8	–	–
5879.585	Sm I	2	–	–
5879.264	Sm	2	–	–
5879.253	Pr	10	1	–
5878.92	Xe I	–	[6]	Me
5878.896	Ce	3	–	–
5878.70	Se I	–	[15]	Rd
5878.378	Sm	15	–	–
5878.265	Th	8	–	–
5878.111	Pr	10 w	–	–
5878.078	Ce	2	–	–
5878.070	Sm II	20	–	–
5878.008	La I	6	–	–
5878.002	Fe	5 h	–	–
5877.827	Nd	3	–	–
5877.8	bh Sc	10	–	Me
5877.786	Cb	5	5	–
5877.77	Ti I	15	–	Rl
5877.634	La I	8	–	–
5877.56	Rn I	–	[10]	Rs
5877.425	Co I	4 h	–	–
5877.355	Ta	100	–	–
5877.24	Gd	7	–	Ks
5876.9	bh Sc	3	–	Me
5876.894	Sm II	10	–	–
5876.72	Gd	3 h	–	Ks
5876 7	Pb II	–	[40]	Ea
5876.587	Mo	25	–	–
5876.564	Cr	3	–	–
5876.344	Nd	2	–	–
5876.315	Cb	10	1	–
5876 103	Co I	4 h	–	–
5876.1	bh Yt	10	–	Me
5875.930	Sm	8	–	–
5875.867	He I	–	[10]	Ps
5875.813	Nd	2	–	–
5875.663	W	8	–	–
5875.618	He I	–	[1000]	IMr
5875.372	Fe	15 h	–	–
5875.258	Cb	5	3 wh	–
5875.13	I	–	[15]	Bl
5875.090	Sm	5	–	–
5875.018	Xe I	–	[100]	IMe
5874.736	La I	20	–	–
5874.732	Pr	4	–	–
5874.700	Cb	30	5	–
5874.70	Yb	1	30 h	Me
5874.6	Te I	–	[3 s]	Rd
5874.392	Nd	2	–	–
5874.229	W	8	–	–
5874.225	Mo	5	–	–
5874.194	Sm	40	–	–
5874.003	La II	2	6	–
5874.0	bh Yt	5	–	Me
5873.882	Ce	3	–	–
5873.52	Er	8	–	Ed
5873.500	Ir I	8	–	–
5873.342	Nd	2	–	–
5873.219	Fe I	8	2	–
5873.15	Tb	10	–	Ed

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5872.975	Eu II	300	–	–
5872 912	Fe	8	–	–
5872 828	Ne	–	[35]	IMe
5872.7	bh Ti	2	–	L
5872.487	Ir I	4	–	–
5872.338	Er	20	–	Ed
5872.149	Ne I	–	[75]	Ps
5872.030	Ta	7	–	–
5872.03	Hg I	–	[10]	Wt
5871.80	Yt I	2	–	Me
5871.80	Te	–	[15]	Bl
5871.77	Rh I	3	–	–
5871.73	Hg II	–	[40]	Ps
5871.649	W	7	–	–
5871.61	Br	–	[15]	Bl
5871.605	Ce	20	–	–
5871.52	Tb	5	–	Ed
5871.286	Fe	3	–	–
5871.058	Sm	25	–	–
5871.042	Nd	5	–	–
5871.039	Fe	4	–	–
5870.971	Ne I	–	[3]	Ps
5870.947	U	15	–	–
5870.9158	Kr I	–	[3000]	S
5870.85	Ho	20	–	Ed
5870.734	Re	4	–	–
5870.62	Tb	25	–	Ed
5870.60	Gd	4 h	–	Ks
5870.6	bh Ti	2	–	L
5870.572	Th	10	–	–
5870 315	Sm	3	–	–
5870 26	A I	–	[2]	Ms
5870.014	W	7	–	–
5869 971	La I	3	–	–
5869 780	Mo	5	–	–
5869.756	Fe	10	–	–
5869.606	Nd	2 h	–	–
5869.5	bh La	50	–	Me
5869.497	Zr I	8	–	–
5869.329	Mo	50	–	–
5869.08	S	–	[6]	Bl
5868.898	Cb	3	1	–
5868 895	Nd	10	–	–
5868.832	Pr	10	1	–
5868.763	Mo	20	–	–
5868.617	Sm	40	–	–
5868.417	Ne I	–	[75]	Ps
5868.40	Yb	–	6	Me
5868.265	Zr I	4	–	–
5868.14	Pd I	2	–	Me
5868.091	Dy	3	–	–
5868.06	Hg	–	[4]	Wd
5868.043	Re	10	–	–
5868 0	bh Zr	30	–	L
5867.81	Al II	–	[15]	Sy
5867.787	Sm	50	–	–
5867.783	Eu	3	–	–
5867.611	Nd	3	–	–
5867.572	Ca I	8	–	–
5867.459	Mo	4	–	–
5867.389	Sm	3	–	–
5867.33	Si	–	5	Sy
5867.083	Nd	8	–	–
5866.93	Cr	4	–	–
5866.752	Kr I	–	[50]	Me
5866.638	Eu	10 l	–	–
5866.610	Ta	60	–	–
5866.590	Re	4	–	–
5866.474	Cb	50	15	–
5866.462	Ti I	300	400	–
5866.4	bh La	40	–	Me
5866.30	Lu	3	–	Me
5866.27	Se II	–	[75]	Bl
5866.11	Te	–	[15]	Bl
5865.870	Ta	40 w	–	–
5865.057	Nd	15	–	–
5864.967	Cb	3 h	1 h	–
5864.765	Eu	20	–	–
5864.629	W	20	–	–
5864.491	Sm	4 h	–	–
5864.42	Tb	10	–	Ed
5863.709	La II	40	80	–
5863.491	Sm II	12	–	–
5863.426	U	4	–	–
5863.0	bh Ti	8	–	L
5862.943	Au I	30	5	Qt
5862.511	Ce	25	–	–
5862.369	Eu	2	–	–
5862 363	Fe I	35	35	–
5861.53	Al II	–	[25]	Sy
5861.379	Mo	20	–	–
5861.22	Tb	25	–	Ed
5861.155	Bi	–	6	Om
5861.146	Nd	2	–	–
5860.960	Eu	30	–	–
5860.818	Pt	30	–	–
5860.791	Sm	5	–	–
5860.79	Lu	20	2	Me
5860.75	Kr	–	[10 whl]	Me
5860.71	Gd	10	–	Ks
5860.641	Os	8	–	–
5860.417	Sm II	40 d	–	–
5860.315	A I	–	[60]	IMe
5860.28	Ho	200	–	Ed
5860.250	Nd	3	–	–
5860.231	Sm	2	–	–
5860.2	Bi II	–	15 wh	Ml
5860.10	Hg	–	[5]	Wd
5860.1	bh Zr	80	–	L
5859.70	Te	–	[8]	Bl
5859.691	Pr	15	1	–
5859.688	Th	12	1	–
5859.676	Nd	2	–	–
5859.608	Fe I	15	12	–
5859.522	Th	2	1	–
5859.51	Tb	15	–	Ed
5859.47	Xe II	–	[25 wh]	Hu
5859.386	Ce	8	–	–
5859.38	Hg I	–	[30]	Wt
5859.258	Sm	10 d	1	–
5859.197	Fe	6	2	–
5859.189	U	2	–	–
5858.907	Nd	15	–	–
5858 8	bh Yt	10	–	Me
5858.63	Cu II	–	5	Sh
5858.55	Te	–	[50]	Bl
5858.35	Hf	2	–	Me
5858 269	Mo	200	200	–
5858 232	W	6	–	–
5858.2	bh C	400	–	L
5858.151	Sm	2	–	–
5858.150	Ce	4	–	–
5857.760	Os	80	–	–
5857.755	Ni I	50	–	–
5857.67	Pb I	–	20	Ro
5857.522	Nd	10	–	–
5857.464	Co	20	–	–
5857.456	Ca I	40	30	–
5857.34	Tb	15	–	Ed
5857.133	Ce	5	–	–
5857.127	Fe	2	3	–
5857.089	Sm	4	–	–
5857.06	Gd	6	–	Ks
5857.020	Ta	4	–	–
5856.949	Er	8	–	–
5856.928	Eu	10	–	–
5856.92	Pr	8	–	–
5856.74	Cl I	–	[4]	Ks
5856.687	Nd	2	–	–
5856.616	W	15	–	–
5856.509	Xe I	–	[15]	IMe
5856.471	U	2	–	Me
5856.23	N I	–	[5]	Du
5856.216	Gd	10	–	–
5856.09	C II	–	15	Fl
5856.081	Fe	8 h	3	–
5856 08	Pr	10	–	–
5856.040	Dy	3 h	–	–
5855.591	La I	30	–	–
5855.47	Xe II	–	[3 wh]	Hu
5855.43	Tb	10	–	Ed
5855.3	bh Yt	5	–	Me
5855.294	Er	30	–	Ed
5855.220	Gd	8	–	–
5855.130	Fe	5	–	–
5854 94	Tb	10	–	Ed
5854.58	In	–	5	Sq
5854.517	Yb	30	1	–
5854.462	Fe	3	–	–
5854.412	W	6	–	–
5854.16	N I	–	[15]	Du
5854.04	Kr	–	[4 whl]	Me
5853.930	U	10	–	–
5853.915	Ta	2	–	–
5853.9	Bi II	3	10	Ml
5853.679	Ba	300	100 h	IKs
5853.668	Ce	5	–	–
5853.62	Al II	–	[35]	Sy
5853.434	In II	–	[300]	Ps
5853.357	Ce	4	–	–
5853.187	Fe I	3 h	–	–
5853.107	In II	–	[150]	Ps
5853.071	Ce	4	–	–
5853 068	Sm	4	–	–
5852.9	bh F	2	–	L
5852.86	Kr I	–	[5]	Me
5852.829	In II	–	[100]	Ps
5852.751	Re	2	–	–
5852 63	Pr	8	–	–
5852.54	Tb	15	–	Ed
5852.4878	Ne I	–	[2000]	S
5852.43	Eu	4	–	Kn
5852 344	Ti	12	–	–
5852 283	La I	10	–	–
5852.10	Br I	–	[150]	Ks
5852.026	U	4	–	–
5852.024	Re	40 w	–	–
5851.93	Cu II	–	2	Sh
5851.89	Hg II	–	[8]	Ps
5851.631	Gd	20	–	–
5851.565	W	25	–	–
5851.516	Mo	40 h	20 h	–
5851.09	Te	–	[75]	Bl
5851 07	Tb	40	–	Ed
5851.061	Ce	5 d	–	–
5850.648	Pr	15 h	–	–
5850.316	V I	40	20	–
5850.064	Er	20	–	–
5849.953	Ta	60 w	–	–
5849 85	Xe I	–	[3h]	Me
5849.728	Mo	70 h	10 h	–
5849.710	Sm	2	–	–
5849 678	Ta	80 w	–	–
5849.66	Kr I	–	[2]	Me
5849.630	V	–	20	Me
5849.46	Tb	10	–	Ed
5849 4	bh F	5	–	L
5849.1	bh Sc	20	–	Me
5849.10	I II	–	[2]	Mu
5848.955	Mn	8	–	–
5848.949	La II	2	3	Ks
5848 865	Ta	15 W	–	–
5848.860	Mo	50 h	–	–
5848.67	Sm II	30	–	Kn
5848.467	Gd	6	–	–
5848.385	La I	20	–	–
5848.374	Nd	2	–	–
5848.340	Ce	10	–	–
5848.089	Dy	5 h	–	–
5847.9	bh F	10	–	L
5847.77	Hf	3	–	Me
5847 74	Cl I	–	[4]	Ks
5847.7	bh Sc	20	–	Me
5847.604	Nd	2	–	–
5847.318	Zr I	4	–	–
5847.125	Pr	10 wh	–	–
5847.010	Ni I	5	–	–
5846.71	Cl	–	[4]	Ks
5846.69	Xe	–	[3]	Hu
5846.586	Co I	5	–	–
5846.575	Sm	3	–	–
5846.38	Tb	10	–	Ed
5846.360	Nd	2	–	–
5846.296	V I	100	100 h	–
5846.21	Xe I	–	[2]	Me
5846.092	Cb	5	1	–
5846.035	Ir I	2 h	–	–
5846.0	bh F	5	–	L
5845.945	Nd	2	–	–
5845.87	Hf	4	–	Me
5845.868	Fe	8	–	–
5845.8	bh F	30	–	L
5845.762	Eu	30	–	–
5845.69	Gd	7	–	Ks
5845 65	Sb II	–	[15]	Lg

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5845.272	U	20	–	–
5845.261	W	18	–	–
5845.06	Si	–	2	Sy
5845.040	La I	15	–	–
5845.02	Te	–	[8]	Bl
5845.003	Pr	5	–	–
5844.837	Pt	40	2	–
5844.7	Cs I	30 w	–	Fl
5844.66	Sb	2 h	–	Wt
5844.656	Nd	4	–	–
5844.64	Pr	4 d	1	–
5844 606	Cr I	18	–	–
5844.27	Cl	–	[2]	Ks
5844.22	Ga	–	12	Kl
5844 145	Fe	4	–	–
5843.939	Ta	15	–	–
5843.8	bh F	30	–	L
5843.760	Sm	8	–	–
5843.746	Ce	6	–	–
5843.74	A I	–	[2]	Ms
5843.528	Eu	4	–	–
5843.43	Xe I	–	[5]	Me
5843.31	Te	–	[25]	Bl
5843.294	U	3	–	–
5843.235	Cr I	2	–	–
5843.232	Nd	2	–	–
5843.175	Cd II	3	[40]	–
5843.14	Se I	–	[8]	Rd
5843.110	Ce	3	–	–
5842.97	Tb	25	–	Ed
5842.828	Ta	5	–	–
5842.68	Se II	–	[60]	Bl
5842.67	Er	8	–	Ed
5842 67	Cu II	–	4	Sh
5842.6	bh F	5	–	L
5842.569	Sm II	40	–	–
5842.49	Os	5	–	–
5842.484	Fe	6	–	–
5842.467	Cb	15	5	–
5842.391	Nd	25	–	–
5842.23	Hf II	50	80	Me
5842.0	bh F	30	.	L
5841.987	Sm	10	–	–
5841.9	bh Yt	8	–	Me
5841.837	U	2	–	–
5841.44	Kr I	–	[4]	Rs
5841.44	Au	5	–	Wt
5841.105	Er	8	–	–
5841.01	N I	–	[15]	Du
5840.83	Xe I	–	[4 h]	Me
5840.471	Gd	10	–	–
5840.4	bh F	30	–	L
5840.124	Pt	80	–	–
5839.988	Mo	15	–	–
5839.885	Sm	5 d	–	–
5839.8	bh Zr	2	–	L
5839.791	La I	3	–	–
5839.6	bh Sc	10	–	Me
5839.544	Sm	3	–	–
5839.47	Ho	30	–	Ed
5839.379	Ce	10	–	–
5839.3	bh F	10	–	L
5839.14	Ho	12	–	Ed
5839.127	Nd	2	–	–
5839.051	U	2	–	–
5838.988	W	25	–	–
5838.951	Th	12	1	–
5838.9	bh F	30	–	L
5838.87	Hf	2	–	Me
5838.77	Hg	–	[5]	Wd
5838.767	Tm	20	40	–
5838.68	Cr I	4	–	–
5838.637	Cb	200	100	–
5838.427	Sm II	5	–	–
5838.19	As	–	125	Ro
5838.156	Ce	15	–	–
5838.148	Cb	15	2	–
5838.1	bh Yt	10	–	Me
5838.05	Tb	15	–	Ed
5838.031	Eu	10	–	–
5837.8	bh V	7	–	L
5837.707	U	30	1	–
5837.703	Fe	3	–	–
5837.5	bh F	30	–	L
5837.396	Au I	400 h	10	Qi
5837.275	Ta	4	–	–
5837 2	bh Yt	6	–	Me
5837.158	Yb	50	150	–
5837.139	Nd	2	–	–
5836.722	Tm	5	–	–
5836.623	Ta	2 h	–	–
5836.595	Sm	2	–	–
5836.558	Fe	2	–	–
5836.5	bh Sc	6	–	Me
5836.365	Sm II	100 d	–	–
5836.31	C II	–	5	Fl
5836.3	bh F	30	–	L
5836.047	U	30	–	–
5835.9	bh F	20	–	L
5835.839	Ce	25	–	–
5835.826	Er	8	–	–
5835.588	Mo	20	–	–
5835.5	Xe II	–	[50 Wh]	Hu
5835.48	Re	2	–	Me
5835.281	Fe	3	–	–
5835 28	Nd	2	–	–
5835.2	bh F	30	–	L
5835.16	Te	–	[15]	Bl
5835.134	Pr	15	–	–
5834.897	Cb	15	10	–
5834.779	Fe	6	–	–
5834 71	N I	–	[5]	Du
5834.59	Tb	10	–	Ed
5834.549	Nd	2	–	–
5834 33	Re	200	–	–
5834.263	A I	–	[60]	IMe
5834.244	Ce	5	–	–
5834.2	bh F	30	–	L
5834 008	Yb	60 h	1	–
5834.0	bh F	5	–	L
5833.945	Er	12	–	–
5833 858	Dy	3 h	–	–
5833.68	Cu II	–	5	Sh
5833.64	Fe	2	10	–
5833 589	W	12	–	–
5833.43	Br I	–	[80]	Ks
5833.4	bh F	30	–	L
5833.393	Sm	3	–	–
5833.214	Ru I	4	–	–
5832.94	Tb	10	–	Ed
5832.859	Kr I	–	[100]	Ja
5832.848	Fe	3	–	–
5832.7	bh F	20	–	L
5832.66	I	–	[8]	Bl
5832.6	Cs	–	[25]	Dr
5832 6	bh F	50	–	L
5832.492	Ir I	2 h	–	–
5832.476	Ru	4	–	–
5832 389	U	2 h	–	–
5832 365	Sm	5 d	1	–
5832.281	W	6	–	–
5832 26	Yt I	2	–	Me
5832.09	K I	50	–	Me
5832.073	Fe	4	–	–
5832.027	Dy	10 h	–	–
5832 0	bh F	50	–	L
5831.925	Ce	25	–	–
5831.769	Sm II	40 r	–	–
5831.693	Fe	3	–	–
5831.624	Ni I	8	–	–
5831.582	Rh I	80	1	–
5831.5	bh F	50	–	L
5831.47	Se II	–	[3]	Bl
5831 387	Ce	3	–	–
5831.159	Cs II	–	[60]	Sv
5831.1	bh F	50	–	L
5831.047	Eu	2000 W	–	–
5831.013	Sm II	80	–	–
5830.986	Os	3	–	–
5830.899	U	2	–	–
5830.8	bh F	30	–	L
5830.799	Fe	3 h	–	–
5830.74	Br	–	[100]	Bl
5830.727	Nd	2 h	–	–
5830.717	V I	100	80	–
5830.63	Xe I	–	[20 h]	Me
5830.6	bh F	2	–	L
5830.587	Fe	5 h	–	–
5830.501	Sm	20	–	–
5830.16	I	–	[15]	Ke
5830.130	Ce	6	–	–
5830.078	Co I	15	–	–
5829.726	La I	25	–	–
5829 718	Sm	35	–	–
5829.65	Tb	10	–	Ed
5829.598	Nd	2	–	–
5829.53	N I	–	[60]	Du
5829.46	Eu	4 w	–	–
5829.4	bh F	20	–	L
5828.910	Ne I	–	[75]	Ps
5828.63	Te	–	[25]	Bl
5828.59	Tl II	–	[5]	El
5828.548	Ir I	2	–	–
5828.494	La II	3	4	Ks
5828.487	Fe	4	–	–
5828.065	Ru I	6	–	–
5828.021	U	2	–	–
5827.80	Se I	–	[8]	Rd
5827.80	C II	–	5	Fl
5827.72	Xe I	–	[2]	Me
5827.590	Sm	3	–	–
5827.556	La I	15	–	–
5827 55	Tb	15	–	Ed
5827.3	bh F	2	–	L
5827.255	Ce	3	–	–
5827.07	Kr I	–	[20]	Me
5826 894	Mo	3	–	–
5826.788	Er	50	–	–
5826.743	Nd	15	–	–
5826.69	Tb	10	–	Ed
5826.585	Fe	2	–	–
5826.58	Tl II	–	[5]	El
5826.45	Te	–	[50]	Bl
5826 304	Co I	3	–	–
5826 297	Sm	4 d	–	–
5926 295	Ba I	150 wh	–	–
5826 187	U	2	–	–
5826 15	As II	–	6	Ro
5826.1	bh F	20	–	L
5826.02	Cu II	–	10	Sh
5825.872	Nd	25	–	–
5825 691	Fe	6	–	–
5825.651	Sm	9	–	–
5825.50	Sb II	–	[12]	Lg
5825.478	Sm	2	–	–
5825.205	Mo	20	–	–
5825.022	Mo	15	–	–
5824.851	Fe	3	–	–
5824.800	Xe I	–	[150]	IMe
5824.75	Se	–	[15]	Bl
5824.50	Kr I	–	[40]	Me
5824.20	Rn I	–	[10]	Rs
5824.19	Te	–	[50]	Bl
5824.0	bh F	2	–	L
5824.00	Nd	5	–	Kn
5823 977	Sm	3	–	–
5823.959	Gd	6	–	–
5823.890	Xe I	–	[300]	IMe
5823.827	La I	15	–	–
5823.75	Nd	4 h	–	–
5823.723	Pr	60 w	1	–
5823.708	Ti I	35	50	–
5823.51	Kr I	–	[3]	Me
5823.49	Ra I	–	[15]	Rs
5823.458	Ce	2	–	–
5823.371	Nd	10	–	–
5823.197	Sm	3 h	–	–
5823.0	bh F	30	–	L
5822.993	Ce	12	–	–
5822.63	Pr	8	–	–
5822.614	Sm	2	–	–
5822.601	W	7	–	–
5821.998	La I	40	–	–
5821.90	Ho	12	–	Ed
5821.853	Yt I	4	–	–
5821.839	Rh I	4	–	–
5821.79	Tb	10	–	Ed
5821.46	Hg	–	[15]	Wd
5821.351	Pr	6 w	–	–
5821 31	Tb	10	–	Ed
5821.017	W	5	–	–
5820.986	Gd	10	–	–
5820.955	Nd	2	–	–
5820.907	Eu	30	–	–
5820.8	bh F	2	–	L

Wave-length	Ele-ment	Intensities Arc	Spk.,[Dis.]	R
5820.795	Ce	3	–	–
5820.692	Mo	8	–	–
5820.673	Sm	40	–	–
5820.620	Cb	10	5	–
5820.615	Pr	5	–	–
5820.52	Xe I	–	[25]	Me
5820.397	Ce	8	–	–
5820.365	Nd	2	–	–
5820.155	Ne I	–	[500]	IMe
5820.10	Kr I	–	[15]	Me
5820.08	In	–	15	Sq
5820.002	Eu	30	–	–
5819.920	V	–	35	Me
5819.9	bh F	30	–	L
5819.721	I II	–	[15]	Mu
5819.513	Gd	2	–	–
5819.430	Cb	20	20	–
5819.430	Yb	7	100	–
5819.355	Sm	3	–	–
5819.3	bh Yt	5	–	Me
5819.22	S II	–	[10]	Ig
5819.11	Bi	–	2	Om
5818.890	Ba I	6	3	–
5818.738	Eu II	1000	–	–
5818.6	bh Yt	15	–	Me
5818.572	Pr	10	1	–
5818.302	Sm	10	–	–
5818.3	Bi II	2	7	MI
5818.26	Re	2	–	–
5818.075	Re	2	–	–
5817.777	Ce	3	–	–
5817.756	Ru	4	–	–
5817.528	V I	100 h	–	–
5817.47	Hf	3	1	Me
5817.4	bh F	5	–	L
5817.21	Tb	5	–	Ed
5817.064	V I	50	–	–
5816.844	Mn	10	–	–
5816.790	U	2	–	–
5816.78	Sr	5	–	–
5816.7	bh F	50	–	L
5816.645	Ne I	–	[50]	Ps
5816.510	Ta	40 w	–	–
5816.51	Tm	15	–	Me
5816.48	N I	–	[15]	Du
5816.376	Fe	15 d	10 h	–
5816.371	Ir I	2	–	–
5816.337	Sm	6	–	–
5815.96	Xe II	–	[50]	Hu
5815.866	Re	50 w	–	–
5815.851	Gd	10	–	–
5815.735	Mo	12	–	–
5815.71	Te	–	[15]	Bl
5815.518	Mo	20	–	–
5815.442	Nd	2 h	–	–
5815.432	Th	18 d	2	–
5815.367	Pr	10	–	–
5815.36	Tb	10	–	Ed
5815.327	Cb	5	3	–
5815.176	Pr	15	1	–
5815.158	Fe	3 h	–	–
5815.0	bh Ti	20	–	L
5814.980	Ru I	25	–	–
5814.872	Sm	60	–	–
5814.505	Xe I	–	[60]	IMe
5814.5	bh Zr	8	–	L
5814.438	U	5	–	–
5814.28	Er	8	–	Ed
5814.2	bh F	5	–	L
5814.181	Cs II	–	[25]	Sv
5814.153	W	3	–	–
5813.98	Ti I	8	–	–
5813.97	Sb	2 h	–	Wt
5813.889	Nd	30	–	–
5813.861	Mo	6	–	–
5813.843	U	5	–	–
5813.7	bh F	50	–	L
5813.63	Ra II	–	[500]	Rs
5813.593	Pr	3	–	–
5813.13	Ho	8	–	Ed
5813.065	Sm	8 d	–	–
5812.932	Ce	40	–	–
5812.84	Ti I	10	–	–
5812.672	Sm II	25	–	–
5812.64	Yt I	2	–	Me
5812.52	K I	30	–	Me
5812.509	Mo	4	–	–
5812.400	Ne	–	[15]	Ps
5812.3	Bi II	–	8	MI
5812.25	I	–	[8]	Bl
5812.07	Er	8	–	Ed
5811.936	Fe	3	–	–
5811.6	bh Sc	15	–	Me
5811.58	Ra I	–	[35]	Rs
5811.572	Nd	15	1	–
5811.417	Ne I	–	[300]	Ps
5811.299	Ru	4	–	–
5811.291	U	4	–	–
5811.2	bh Ti	12	–	L
5811.174	Tm	10	10	–
5811.104	Ta	100	–	–
5810.80	Kr I	–	[8]	Me
5810.720	Ce	15	–	–
5810.622	Pr	10	–	–
5810.6	bh F	50	–	L
5810.325	Sm	10 w	–	–
5810.109	Tb	10	–	–
5809.8	bh Sc	20	–	Me
5809.50	Hf II	20	30	Me
5809.49	Tb	15	–	Ed
5809.247	Nd	8	–	–
5809.245	Fe I	3	5 h	–
5809.229	Gd	8	–	–
5809.2	bh Zr	30	–	L
5809.030	Mo	3	–	–
5808.884	Re	6	–	–
5808.63	La II	–	10	Me
5808.42	Hf	2	–	Me
5808.332	La II	25	60	–
5807.724	Gd	4	–	–
5807.7	bh F	80	–	L
5807.35	I	–	[8]	Bl
5807.311	Xe I	–	[15]	IMe
5807.143	V I	75	40	–
5807.051	Gd	6	–	–
5806.985	Re	20	–	–
5806.955	Ir I	2	–	–
5806.909	Rh I	100	1	–
5806.74	Sm	12	–	–
5806.730	Fe I	10	5 h	–
5806.689	Mo	20	–	–
5806 56	La II	–	8	Me
5806.44	Tb	10	–	Ed
5806.433	Nd	2	–	–
5806.30	Si	–	2	Sy
5806.30	Sb	2 h	–	Wt
5806.267	W	8	–	–
5806.188	Mo	15	–	–
5806.13	Er	8	–	Ed
5806.070	W	7	–	–
5806.00	Cu II	–	25	Sh
5805.783	La II	60	120	–
5805.76	C I	5	–	Ry
5805.690	Ba	70	–	–
5805.678	Eu	20	–	–
5805.57	I II	–	[5]	Mu
5805.53	Kr I	–	[20]	Me
5805.233	Ni I	50	–	–
5804.869	W	25 w	12	–
5804.7	bh F	80	–	L
5804.700	Sm	3	–	–
5804.449	Ne I	–	[500]	IMe
5804.415	Ce	25	–	–
5804.388	Ru	10	–	–
5804.265	Ti I	100 h	50	–
5804.141	Th	12	–	–
5804.098	Ne I	–	[75]	Ps
5804.028	Cb	15	5	–
5804.020	Nd	100	–	–
5803.980	Mo	10	–	–
5803.853	Ru	4	–	–
5803.65	Hg I	–	[70]	Wt
5803.58	I I	–	[25]	Db
5803.442	Yb	15	–	–
5803 339	Rh	8	–	–
5803.149	Tb	40	–	–
5803.114	Sm	5	–	–
5803.07	Te	–	[50]	Bl
5803.068	W	7	–	–
5802.932	Gd	7	–	–
5802.91	Cl I	–	[2]	Ks
5802.82	Sm	80	–	–
5802.668	Mo	30	–	–
5802.132	U	20	–	–
5802.082	A I	–	[40]	Ms
5801.96	K I	50 h	20	Me
5801.8	bh F	80	–	L
5801.79	Sn I	2	–	Wt
5801.71	Hf II	7	15	Me
5801.67	Sm	25 d	–	–
5801.6	bh F	2	–	L
5801.351	Zr I	2	–	–
5801.3	bh Sc	10	–	Me
5801.230	Sm	12	–	–
5801.193	Cr	3	–	–
5801.17	Kr I	–	[2]	Me
5801.17	C I	15	–	Ry
5800.918	Pr	4 d	–	–
5800.828	Th	10	–	–
5800.799	U	2	–	–
5800.770	Er	12	–	–
5800.603	Os	50	–	–
5800.59	Lu	30	2	Me
5800.501	Sm	80	–	–
5800.459	Mo	25	–	–
5800.283	Ba I	100	20	–
5800.275	Eu	200	–	–
5800.25	Si	–	2	Sy
5800.16	Kr II	–	[6 whs]	Me
5800.087	Nd	3	–	–
5800.0	bh Yt	15	–	Me
5799.94	Cl	–	[6]	Ks
5799.899	V	40	2	–
5799.798	Ce	3	–	–
5799.78	Hf	2	–	Me
5799.72	Se II	–	[8]	Bl
5799.528	W	12	–	–
5799.35	Sn I	–	8	Ro
5799.18	Sn II	2 h	[30]	Mc
5798.905	V I	2	–	Me
5798.9	bh F	80	–	L
5798.84	Se	–	[8]	Bl
5798.72	Ho	12	–	Ed
5798.552	U	35	1	–
5798.5	bh F	10	–	L
5798.473	Cr I	2 w	–	–
5797.992	V	–	4	Me
5797.912	Si I	25	–	Ks
5797.898	Cr I	4	–	–
5797.873	Sm	4 d	–	–
5797.740	Zr I	50	–	–
5797.6	bh Sc	4	–	Me
5797.587	La II	80	150	–
5797.52	Rh	3	–	–
5797.448	Ti I	10	–	–
5797.43	S	–	[8 h]	Bl
5797.20	Sn II	2 h	[2]	Mc
5796.805	Gd	8	–	–
5796.757	Cr	6	–	–
5796.542	U	3	–	–
5796.508	W	20	–	–
5796.439	Th	10	1	–
5796.34	Cl	–	[6]	Ks
5796.078	Ni I	3	–	–
5796.063	Ce	6	–	–
5795.9	bh F	100	–	L
5795.789	Rh	8	–	–
5795.78	Ra I	–	[35]	Rs
5795.773	Mo	20	–	–
5795 638	Tb	25	–	–
5795 5	bh Cr	10	–	L
5795.4	bh F	10	–	L
5795.294	Sm	3	–	–
5795.172	Nd	10	–	–
5794.780	Ce	4	–	–
5794.578	Eu	4 wh	–	–
5794.244	Cb	15	10	–
5793.976	Nd	2 h	–	–
5793.51	N	–	[5]	Du
5793.51	C I	30	–	Ry
5793.281	Sm	15	2	–
5793.128	Si I	18	–	Ks
5793.1	bh F	100	–	L
5793.069	W	20	–	–
5792.955	Pr	3	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5792.767	Rh I	40	–	–
5792.719	Eu	30	–	–
5792.533	Sm	3	–	–
5792.427	Th	5	–	–
5792.411	Nd	2	–	–
5792.4	bh F	20	–	L
5791.88	Xe II	–	[3 hl]	Hu
5791.847	Mo	100	60	–
5791.781	Cr	5	–	–
5791.776	Sm	3	–	–
5791.773	U	4	–	–
5791 677	Ce	6	–	–
5791 644	Tb	10	–	–
5791.605	Re	25	–	–
5791.386	Gd	10	–	–
5791.382	Pr	8	–	–
5791.361	W	6	–	–
5791.345	La I	200	–	–
5791.338	Zr I	2	–	–
5791.323	Ce	5	–	–
5791.117	Er	20	–	–
5791.041	Fe I	6 h	2 h	–
5791.005	Cr I	40 wh	–	–
5790.916	Sm	3	–	–
5790.80	Cb	–	5 h	–
5790.654	Hg I	–	[1000]	Wt
5790.50	Cl II	–	[25]	Ks
5790.39	A I	–	[5]	Ms
5790.3	bh F	100	–	L
5790.078	Co I	2	–	–
5790.03	Se II	–	[15]	Bl
5789.94	Yb	5	–	Me
5789.842	W	7	–	–
5789.833	Ce	2	–	–
5789.792	Cb	3	5 h	–
5789.66	Hg I	–	[500]	Wd
5789 649	Fe	8	–	–
5789.52	Sb II	–	[2]	Lg
5789.48	A I	–	[20]	Ms
5789.3	bh F	30	–	L
5789.248	La I	125	–	–
5789.22	Te I	–	[9]	Bl
5788.91	Er	8	–	Ed
5788.87	Tb	10	–	Ed
5788.63	Er	8	–	Ed
5788.594	U	5	–	–
5788.592	Ce	3	–	–
5788.556	V I	25 W	–	–
5788.390	Sm	30	–	–
5788.389	Cr I	8	–	–
5788.24	Kr I	–	[7]	Me
5788.222	Nd	30	–	–
5788.133	Ce	25	–	–
5788.08	Hf	2	–	Me
5787.99	Cr	50 wh	–	–
5787.6	bh F	100	–	L
5787.542	Cb	80	15	–
5787.539	Sm	8	–	–
5787.29	Kr I	–	[6]	Me
5787.217	Ce	4	–	–
5787.151	Sm	15	–	–
5787.067	I II	–	[30]	Ke
5787.05	Te	–	[8]	Bl
5787.036	Cr I	15	–	–
5786.986	Sm II	200	–	–
5786.858	Ce	3	–	–
5786.60	Yb	–	6	Me
5786 4	bh F	30	–	L
5786.23	Re	5	–	–
5786.183	Pr	8	–	–
5786.160	V I	75	–	–
5786.07	Ho	8	–	Ed
5785.979	Ti I	100 W	60	–
5785.820	Cr I	15	–	–
5785.75	I	–	[8 h]	Bl
5785.692	Mo	10	–	–
5785.67	Ti I	3	–	–
5785.303	Pr	4	–	–
5785.23	Te	–	[8]	Bl
5785.18	Tb	40	–	Ed
5785.002	Cr	20	–	–
5784.958	Nd	20	–	–
5784.893	Th	8	–	–
5784.848	Ce	12	–	–
5784 8	bh F	100	–	L
5784.76	Se II	–	[15]	Bl
5784.748	W	3	–	–
5784.716	Sm	3	–	–
5784.64	Ho	8	–	Ed
5784.631	Er	12	–	–
5784.46	I	–	[8 h]	Bl
5784.378	V I	50	30	–
5784.18	Ba II	–	[40]	Rs
5784.065	Ba	6	2	–
5784.005	Mo	5	–	–
5783.988	Ce	3	–	–
5783.934	Cr	30 h	–	–
5783.93	Cd	5	–	Ps
5783.89	Kr I	–	[10]	Me
5783.8	bh Zr	5	–	L
5783.711	Eu	150 s	–	–
5783.685	Nd	3 h	–	–
5783.527	Sm	8	–	–
5783.52	A I	–	[40]	Ms
5783.51	As II	–	20	Ro
5783.503	V I	30	–	–
5783.4	bh F	30	–	L
5783.33	Mo	20 h	–	Ks
5783.31	Br	–	[40]	Ks
5783.236	Ta	2	–	–
5783.173	U	2	–	–
5783.112	Cr	30 h	–	–
5783.03	Re	3	–	–
5782.824	Er	12	–	–
5782.823	U	2	–	–
5782.806	Ce	5	–	–
5782.7	bh Yt	10	–	Me
5782.610	V I	30	–	–
5782.60	K I	60	–	Me
5782.436	Ce	8	–	–
5782.359	Tm	10	5	–
5782.150	Sb	6	–	Sp
5782.137	Mg I	2	–	–
5782.132	Cu I	1000	–	IBu
5782.131	Cr	2	–	Hl
5782.1	bh F	150	–	L
5781.964	U	3	–	–
5781.893	Sm	100	–	–
5781.806	Cr	20	–	–
5781.687	Yt II	5	5	–
5781.55	A I	–	[2]	Rs
5781.363	Eu	4	–	–
5781.23	I I	–	[15]	Db
5781.195	Cr I	18	–	–
5781.02	La II	–	3	Me
5780.815	Os	50	–	–
5780.777	Ti I	20	20	–
5780.74	I	–	[8]	Ev
5780.706	Ta	80	–	–
5780.638	Mo	10 h	–	–
5780.610	U	40	–	–
5780.5	bh F	50	–	L
5780.452	Si I	15	–	Ks
5780.335	Cb	3	3	–
5780.207	Ce	2	–	–
5780.189	Mn	10	–	–
5780.111	Mo	12	–	–
5780.017	Ta	60	–	–
5780.01	Ho	12	–	Ed
5779.91	Tb	15	–	Ed
5779.91	La II	–	4	Me
5779.4	bh F	200	–	L
5779.362	Mo	20	–	–
5779.293	Pr	50	–	–
5779.248	Sm	50	–	–
5778.94	Tb	10	–	Ed
5778.5	bh Zr	60	–	L
5778.412	Ce	4	–	–
5778.331	Sm	50	–	–
5778.33	Re	2	–	–
5778.28	Ir	2	–	–
5778.28	Ra I	–	[35]	Rs
5778.190	Mo	12	–	–
5777.810	U	2 h	1	–
5777.72	Kr II	–	[2 wh]	Me
5777.665	Ba I	500 R	100 R	–
5777.6	bh F	100	–	L
5777.285	Pr	4	–	–
5777.25	Te	–	[15]	Bl
5777.112	Zn I	10	15	Hz
5776.897	U	2	–	–
5776.84	Re	300 w	–	–
5776.768	Ta	80	–	–
5776.684	V I	50	25	–
5776.39	Xe II	–	[150]	Hu
5776.118	Nd	15	–	–
5776.069	Cb	30	3	–
5776.029	Gd	10	–	–
5775.920	Pr	4 h	–	–
5775.803	Ce	3	–	–
5775.56	Kr	–	[2]	Me
5775.501	Zn I	4	–	1Hz
5775.5	bh Mg	5	–	L
5775.40	Lu	50	5	Me
5775.3	bh Sc	10	–	Me
5775.110	I	–	[30]	Ke
5775.091	Fe I	12	2	–
5774.995	Ce	4 d	–	–
5774.861	I II	–	[8]	Ke
5774.8	bh F	100	–	L
5774.774	Cr	2	–	–
5774.557	Sb	7	–	Wt
5774.546	Mo	20	–	–
5774.50	I	–	[25]	Ke
5774.364	Co I	2	–	–
5774.25	Pd I	3	–	Me
5774.053	Ti I	70 W	50	–
5774.00	A I	–	[40]	Ms
5774.00	Tl II	–	[5]	El
5773.89	Nd	4	–	Ks
5773.860	Yt I	3	–	–
5773.772	Sm	100	–	–
5773.585	Ce	5	–	–
5773.518	W	7	–	–
5773.118	Ce	30	–	–
5773.057	Ru	6	–	–
5772.885	Ce	15	–	–
5772.72	Tb	10	–	Ed
5772.71	Tl II	–	[3]	El
5772.7	bh Sc	15	–	Me
5772.676	Cr	6	–	–
5772.419	V I	50	25	–
5772.32	K II	–	[15]	Bn
5772.258	Si I	30	–	Ks
5772.220	Ce	10	–	–
5772.160	Nd	5	–	–
5772.116	A II	–	[100]	Ms
5772.102	Zn I	4	–	1Hz
5772.005	W	5	–	–
5771.988	W	12	–	–
5771.931	Ta	7 l	–	–
5771.9	bh F	100	–	L
5771.740	Sm	3	–	–
5771.668	Yb	30	50	–
5771.480	Nd	2	–	–
5771.41	Kr II	–	[100]	Me
5771.08	Cb	10	2	–
5771.078	U	4	–	–
5771.053	Mo	15	–	–
5770.94	Tb	10	–	Ed
5770.92	Te	–	[35]	Bl
5770.55	V I	18	2	Me
5770.500	Nd	20	–	–
5770.436	Co I	3	–	–
5770.435	Ce	8	–	–
5770.307	Ne I	–	[50]	Ps
5770.006	La I	25	–	–
5769.949	Ce	6	–	–
5769.930	Er	20	–	–
5769.866	Nd	10	–	–
5769.778	Pr	3	–	–
5769.754	Gd	8	–	–
5769.748	Mo	12	–	–
5769.59	Hg I	600	200	Wd
5769.557	Eu	2 h	–	–
5769.349	La I	70	–	–
5769.148	Pr	3	–	–
5769.1	Te I	–	[6]	Rd
5769.07	La II	30	60	–
5769.06	Se II	–	[15]	Bl
5768.909	Ir	3	–	–
5768.895	Ce	15	–	–
5768.784	Sm	2	–	–
5768.41	Ho	8	–	Ed
5768.181	Th	6	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5768.100	Sm	3	–	–
5767.920	Ru I	7	–	–
5767.913	Ta	100 w	–	–
5767.9	Pb II	–	[40]	Ea
5767.788	Th	4	–	–
5767.717	U	2	–	–
5767.63	Sm	2	–	Kn
5767.620	Eu	10	–	–
5767.461	U	3	–	–
5767.43	N II	–	[30]	Fl
5767.330	Nd	5	–	–
5767.23	Yb	2	10 h	Me
5767.22	Tb	10	–	Ed
5767.18	Hf II	15	30	Me
5767.163	Ru	5	–	–
5767.105	Sm	2	–	–
5767.05	Sr	4	–	Fl
5766.99	Dy	3	–	Ks
5766.774	Eu	3	–	–
5766.64	Ho	8	–	Ed
5766.597	Ru	7	–	–
5766.59	Mo	5	–	Ks
5766.561	Ta	80 w	–	–
5766.434	Ce	3	–	–
5766.351	Ti I	70 W	50	–
5765.99	Hf	2	–	Me
5765.894	Sm	3	–	–
5765.652	Yt I	5	–	–
5765.564	Sm	2	–	–
5765.412	U	2	–	–
5765.38	Hf	2	2	Me
5765.340	Ce	10	–	–
5765.29	Gd	8	–	Ks
5765.283	Mo	8	–	–
5765.25	Te	–	[70]	Bl
5765.200	Eu	2000	–	–
5765.047	Os	15	–	–
5764.995	Sm	5	–	–
5764.987	Cb	10	15	–
5764.774	Ce	5	–	–
5764.5	bh Sc	8	–	Me
5764.418	Ne I	–	[700]	IMe
5764.33	I I	–	[100]	Mu
5764.292	Tm	50	–	–
5764.225	Nd	3	–	–
5764.2	bh Yt	20	–	Me
5764.063	Ne I	–	[3]	Ps
5763.92	Te	–	[25]	Bl
5763.881	Sm	20	–	–
5763.683	U	2	–	–
5763 572	Pt	30	–	–
5763.445	Sm	4	–	–
5763.265	Sm	3	–	–
5763.011	Fe I	80	35	–
5762.90	Kr I	–	[4]	Me
5762.790	Er	30	–	–
5762.706	Pt	6	–	–
5762.648	Tb	15	–	–
5762.60	Te	–	[15]	Bl
5762.388	Nd	2	–	–
5762.341	Ru I	2	–	–
5762.270	Ti I	70 h	50	–
5762.077	Nd	10	–	–
5762 01	Rn I	–	[10]	Rs
5762 0	bh Ti	20	–	L
5761.876	U	2	–	–
5761.845	La I	60	–	–
5761.77	Sn	4	10	Wt
5761.719	Sm	4	–	–
5761.695	Nd	10	–	–
5761.62	Tb	10	–	Ed
5761.614	Ta	15	–	–
5761.412	V I	25	–	–
5761.37	Cu II	–	2 h	Sh
5760.978	Ce	2	–	–
5760.847	Ni I	50	–	–
5760.757	Sm	8 d	–	–
5760.726	I II	–	[40]	Ke
5760.585	Ce	5	–	–
5760.585	Ne I	–	[70]	Ps
5760.564	Th	12	–	–
5760.343	Cb	30	30	–
5760.211	Tm	20	5	–
5760.005	Pr	5	–	–
5759.999	Nd	5	–	–
5759.912	Pd I	4	–	–
5759.652	W	12	–	–
5759.6	bh Ti	8	–	L
5759.503	Sm II	60	–	–
5759.491	Ru	4	–	–
5759.43	Cu II	–	5 h	Sh
5759.0	bh Sc	2	–	Me
5758.881	Sm	2	–	–
5758.84	A I	–	[5]	Ms
5758.82	Dy	3	–	Ks
5758.65	Xe II	–	[150]	Hu
5758.527	Sm	3	–	–
5758.382	U	8	–	–
5758.301	Ce	8	–	–
5758.167	U	10	–	–
5758.01	Tm	15	5	Me
5757.965	Sm	20	–	–
5757.70	Ho	8	–	Ed
5757 617	Er	30	–	–
5757.57	Tb	15	–	Ed
5757.486	Mo	10	–	–
5757.361	Sm	3	–	–
5757.339	U	2	1	–
5756.858	Ti	10	12	–
5756.831	Ru I	7	–	–
5756.765	Sm	3	–	–
5756.400	Sm II	15	–	–
5756.173	Pr	25	1	–
5756.09	W	12	–	–
5755.930	Sm	4	–	–
5755.90	Yb	15	–	Me
5755 87	Te	–	[250]	Bl
5755 811	Ta	40	–	–
5755.695	Rh I	2	–	–
5755.60	Kr II	–	[2 wh]	Me
5755.45	Ra	–	[25]	Rs
5755.202	Nd	2	–	–
5755.085	V	2 h	2	Me
5755.04	Kr I	–	[2]	Me
5754.675	Ni I	150 w	–	–
5754 60	Xe I	–	[2 h]	Me
5754.57	W	8	–	–
5754.44	Cb	3	1	Me
5754.40	Sm	7 w	–	–
5754.258	Si I	40	–	Ks
5754.18	Xe	–	[3]	Hu
5754.154	Gd	25 r	–	–
5753.8	bh Zr	20	–	L
5753.692	Cr	15	–	–
5753.61	Sn	4	15	Wt
5753.530	Nd	15	–	–
5753 381	W	7	–	–
5753.32	Se I	–	[25]	Rd
5753.136	Fe I	40	20	–
5753.115	Sm	2	–	–
5753.06	Cb	–	30 h	Me
5753.022	Pr	5	–	–
5753.021	Th	8	–	–
5752 98	Kr II	–	[60]	Me
5752.951	Re	200 w	–	–
5752.883	Co I	2 h	–	–
5752.838	Ti I	5	–	Bh
5752.740	V I	10	10	–
5752.64	N I	–	[30]	Du
5752.64	Ca	–	2	Ad
5752.594	Sm	3	–	–
5752 56	Xe II	–	[15]	Hu
5752 548	Er	12	–	–
5752.53	Hf	3	5	Me
5752.524	Ce	8	–	–
5752.056	Fe I	8 h	2 h	–
5752.03	Se I	–	[8]	Rd
5752.023	Er	4	–	–
5752 023	Ru I	10	–	–
5751 89	Tb	10	–	Ed
5751.878	Gd	8	–	–
5751 762	U	3	–	–
5751.492	Os	5	–	–
5751.440	Cb	15	10	–
5751.402	Mo	125	100	–
5751.365	Sm	4 l	–	–
5751.12	Ho	30	–	Ed
5751.03	Xe II	–	[200]	Hu
5750.952	Co I	2	–	–
5750.730	Sm	3	–	–
5750.647	V I	50 W	–	–
5750.57	Kr I	–	[10]	Me
5750.537	U	3 h	–	–
5750.424	O	–	[70]	Fh
5750.36	I	–	[8]	Bl
5750.263	W	7	–	–
5750.195	Pt	3 h	–	–
5749.92	Yb	8	10	Me
5749.656	Nd	10	–	–
5749.604	Th	2	–	–
5749.58	Ho	12	–	Ed
5749.406	Gd	10	–	–
5749.379	Th	12 d	1	–
5749.27	Kr II	–	[5 whl]	Me
5749.216	W	15	–	–
5749.186	Nd	20	–	–
5749.056	Nd	10	–	–
5749.02	Kr I	–	[5]	Me
5748.947	Ce	8	–	–
5748.87	V I	18	10	–
5748.811	U	2	–	–
5748.72	Hf	4	1	Me
5748.650	Ne I	–	[70]	Ps
5748.645	Er	12	–	–
5748.47	U	2	–	–
5748.432	Sm	4	–	–
5748.343	Ni I	40	–	–
5748.299	Ne I	–	[500]	IMe
5748.20	Xe I	–	[8 h]	Me
5748.154	Nd	4	–	–
5748.127	U	3	–	–
5748.1	bh Zr	100	–	–
5748 072	Sm	20	–	–
5747.88	Pr	10 Wh	–	–
5747.701	V I	8	–	–
5747.670	Mo	15	–	–
5747.62	Se II	–	[50]	Bl
5747.578	Tb	60	–	–
5747.562	Th	2	–	–
5747.525	Ir	2	–	–
5747 51	Sm	3	–	–
5747.473	Ru	12	–	–
5747.36	N I	–	[15]	Du
5747.29	N II	–	[50]	Fl
5747.264	W	12	–	–
5747.18	A I	–	[2]	Ms
5747.142	Pr	4	–	–
5746 9	bh Yt	20	–	Me
5746.90	Cb	–	20 h	Me
5746.88	Xe II	–	[10 wh]	Hu
5746.88	Nd	2	–	–
5746.707	Ta	60 l	–	–
5746 617	Zr I	2	–	–
5746.487	Ce	3	–	–
5746.487	Sm	4	–	–
5746.432	Cr	12 s	–	–
5746.351	Gd	8	–	–
5746.31	Te	–	[8]	Bl
5745.990	Ru I	10	–	–
5745.80	Yb	6	–	Me
5745.75	Te	–	[8]	Bl
5745 665	Th	6	–	–
5745.560	Dy	3	–	–
5745.482	Sm	10	–	–
5745.403	Ir	2	–	–
5745.031	Sm	5	–	–
5744.928	Pr	5 h	–	–
5744.92	Tb	10	–	Ed
5744.766	Nd	25	1	–
5744.693	Ce	4	–	–
5744.664	Gd	7	–	–
5744.629	Tb	10	–	–
5744.412	La I	80	–	–
5744.364	Eu	4	–	–
5744.226	Sm	4	–	–
5744.138	Nd	8	–	–
5743.854	Yt I	6	1	–
5743.83	Ho	12	–	Ed
5743.533	Ce	25	–	–
5743.453	V I	60	20	–
5743 335	Sm II	20	–	–
5743.263	Ru	4	–	–
5743,196	Nd	20 wh	1	–
5743.102	Tb	15	–	–
5743.043	Sm	3	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5742.94	La I	5	–	–
5742.092	Nd	40	–	–
5742.787	U	2	–	–
5742.763	Nd	5	–	–
5742.55	Bi	30	10	Wt
5742.52	Hf	2	2	Me
5742.079	Th	12	1	–
5741.708	Mo	10	–	–
5741.66	Te	–	[70]	Bl
5741.42	Tb	10	–	Ed
5741.349	U	3	–	–
5741.276	Nd	10	–	–
5741.216	Ti I	6	–	Bh
5741.186	Sm	60	–	–
5741.170	W	7	–	–
5741.162	Th	10	–	–
5740.986	Co I	2 h	–	–
5740.878	Sm	80	–	–
5740.862	Nd	35	–	–
5740.662	La I	100	1	–
5740.65	N	–	[15]	Du
5740.625	Er	8	–	–
5740.30	Re	50 w	–	–
5740.199	Dy	3	–	–
5740.17	Xe I	–	[6]	Me
5740.02	Ti I	25	–	–
5739.981	Sm	3	–	–
5739.955	Nd	15	1	–
5739.86	I	–	[10]	Ke
5739.74	Tb	10	–	Ed
5739.717	Os	3	–	–
5739.676	Pd I	8	–	–
5739.656	Mo	10	–	–
5739.628	Ce	3	–	–
5739.596	W	12	–	–
5739.517	A I	–	[500]	IMe
5739.506	Ti I	70	80	–
5739.434	Re	10	–	–
5739.434	I I	–	[25]	Ke
5739.24	Ho	12	–	Ed
5739.208	I II	–	[20]	Mu
5739.20	Si	–	7	Sy
5739.188	Er	30	–	–
5739.02	I II	–	[10]	Ke
5738.998	Eu	300	–	–
5738.93	Tm	10	30	Me
5738.917	I II	–	[5]	Mu
5738.912	Nd	3	–	–
5738.846	I II	–	[2]	Mu
5738.554	Cr	4	–	–
5738.40	A I	–	[20]	Ms
5738.29	Se	–	[15]	Rd
5738.289	I II	–	[50]	Ke
5738.286	Mn	10	–	–
5738.196	Cb	3	1	–
5738.002	Sm II	15 d	–	–
5737.981	Co	2 h	–	–
5737.96	A I	–	[5]	Ms
5737.888	Os	3	–	–
5737.636	Pd I	4	–	–
5737.623	Gd	4	–	–
5737.355	Cb	5	2	–
5737.302	U	3	–	–
5737.3	bh V	10	–	L
5737.13	Br	–	[30]	Bl
5737.056	V I	100	100	–
5736.9	bh Sc	10	–	Me
5736.851	Sm	40	–	–
5736.68	Tb	10	–	Ed
5736.632	Cr	3	–	–
5736.615	Eu	12	–	–
5736.609	Pd I	12	–	–
5736.55	Lu	150	15	Me
5736.419	U	6	–	–
5736.226	Ir	3	–	–
5735.972	Gd	8	–	–
5735.80	Yb	2	15	Me
5735.701	Zr I	25	–	–
5735.686	Ce	6	–	–
5735.63	N	–	[5]	Du
5735.20	Sc	3	–	Me
5735.13	Ho	8	–	Ed
5735.087	W	50 W	25	–
5735.004	Sm	10	–	–
5734.959	La I	15	–	–
5734.54	Hf	3	1	Me
5734.057	Mo	20	–	–
5734.014	V I	35	–	–
5733.938	Ce	6	–	–
5733.863	Gd	20	–	–
5733.79	Tm	10	–	–
5733.578	Sm	5	–	–
5733.5	Te I	–	[8]	Rd
5733.490	Ta	2 h	–	–
5733.48	Xe I	–	[4 h]	Me
5733.47	Tb	10	–	Ed
5733.42	Er	12	–	Ed
5733.4	bh Ti	2	–	L
5733.269	Ru	6	–	–
5733.262	U	2	1	–
5733.091	V I	12	–	–
5733.058	Re	2 h	–	–
5733.05	Se II	–	[20]	Bl
5732.965	Th	10	1	–
5732.947	Sm	100	–	–
5732.145	Gd	6	–	–
5732.090	Yt I	2	–	–
5731.96	As II	–	15	Ro
5731.897	U	2	–	–
5731.87	Pr	10	–	–
5731.810	Nd	2	–	–
5731.770	Fe I	10	3	–
5731.77	Ir	2	–	Me
5731.249	V I	250	100	–
5731.103	O	–	[30]	Fh
5731.076	Os	2	–	–
5731.050	Nd	2	–	–
5730.888	Eu	300	–	–
5730.86	Kr I	–	[4]	Me
5730 84	Se II	–	[15]	Bl
5730 67	N II	–	[15]	Fl
5730.60	Sm	3	1	–
5730.510	Ta	2 w	–	–
5730.51	Pr	15 w	–	–
5730.46	Sb	12	–	Wt
5730.44	S	–	[15]	Bl
5730.431	Rh	3	–	–
5730.14	Tb	10	–	Ed
5730.125	Sm	8	–	–
5730.1	bh Yt	15	–	Me
5730.02	Yb	4	60	Me
5730.0	bh C	150	–	L
5729.965	Ru	3	–	–
5729.919	Sm II	40	–	–
5729.589	Mo	10	–	–
5729.450	Mo	10	–	–
5729.379	Ce	2	–	–
5729.298	Sm	10	–	–
5729.294	Nd	30	–	–
5729.203	Cr	8 l	–	–
5729.193	Cb	20	10	–
5728.95	Ho	8	–	Ed
5728.887	Yb	5	–	–
5728.881	Yt II	3	25	–
5728.83	Ra II	–	[25]	Rs
5728.769	Mo	15	–	–
5728.600	W	7	–	–
5728.515	Sm	3	–	–
5728.36	Pr	5	–	–
5728.312	Gd	6	–	–
5728.27	In I	50	–	Ps
5728.23	Tb	10	–	Ed
5728.224	Eu	3	–	–
5728.143	Pt	3 h	–	–
5727.907	Re	3	–	–
5727.872	Nd	4	–	–
5727.68	P II	–	[15 l]	Gu
5727.664	V I	75	–	–
5727.55	Tb	15	–	Ed
5727.4	bh Ti	5	–	L
5727.295	Rh I	6	–	–
5727.293	La II	12	–	–
5727.052	Mo	3 h	–	–
5727.029	V I	150	150	–
5727.020	Er	8	–	–
5726.91	Xe II	–	[200]	Hu
5726.825	Nd	25	–	–
5726.82	Au I	35	10	Ml
5726.73	Se II	–	[25]	Bt
5726.72	Tb	10	–	Ed
5726.72	Ho	8	–	Ed
5726.676	Rh I	3	–	–
5726.59	Kr I	–	[20]	Me
5726.3	bh Mg	2	–	L
5726.135	Ce	5	–	–
5726.10	Xe I	–	[4]	Me
5725.854	Ce	20	–	–
5725.84	Dy	3 h	–	Ks
5725.732	Ru I	15	–	–
5725.70	Se II	–	[10]	Bt
5725.661	Cb	5	2 h	–
5725.638	V I	40	30	–
5725.633	Re	15	–	–
5725.624	Tb	10	–	–
5725.601	Th	5	–	–
5725.59	Sm	40 d	–	–
5725.406	Th	10	–	–
5725.294	Ir	3	–	–
5725 031	Th	6	–	–
5724.947	Rb I	50	–	IRz
5724.815	Ru I	12	–	–
5724.736	Gd	8	–	–
5724.573	Tb	10	–	–
5724.488	Sm	5	–	–
5724.453	Rb I	600	–	IRz
5724.406	Ta	2	–	–
5724.1	bh Zr	70	–	L
5724 073	Sc I	15	–	–
5723.860	Nd	2	–	–
5723.66	In	–	5	Sq
5723.632	U	15	1	–
5723.56	Kr I	–	[15]	Me
5723.46	Yt I	2	–	Me
5723.44	Se	–	[8 h]	Bt
5723.112	Mo	10	–	–
5723.064	W	15	–	–
5722.793	Ru	6	–	–
5722.735	Mo	80	60	–
5722.707	Cb	3 h	1	–
5722.65	Al	–	10 h	Gn
5722.63	Ho	8	–	Ed
5722.61	Pr	3 h	–	–
5722.58	Rn I	–	[30]	Rs
5722.46	Tb	10	–	Ed
5722 231	Pr	3 h	–	–
5722.227	U	3	–	–
5722.14	Xe I	–	[15 h]	Me
5722.041	In II	–	[70]	Ps
5721.974	Gd	10	–	–
5721.957	Ce	12	–	–
5721.931	Os	80	–	–
5721.88	Kr I	–	[10]	Me
5721.80	Tb	10	–	Ed
5721.78	Cu II	–	20	Sh
5721.747	In II	–	[30]	Ps
5721.522	In II	–	[15]	Ps
5721.375	Sm	20	–	–
5721.26	Au I	15	–	Ml
5721.18	Sm	25	2	–
5720.823	Sm	4	–	–
5720.712	Ba	8	–	Sz
5720.609	Yt I	3	–	–
5720.478	Ti I	25	–	–
5720.188	Sm	30	–	–
5720.176	Th	18 d	–	–
5720.029	Ru	6	–	–
5720.019	La I	25	–	–
5720.011	Yb	300	8	–
5719.821	Cr I	10	–	–
5719.81	Pr	6	–	–
5719.8	Bi II	–	15	Ml
5719.63	Pr	5	1	–
5719.622	Th	8	–	–
5719.61	Xe II	–	[100]	Hu
5719.560	Ce	3	–	–
5719.532	Ne I	–	[75]	Ps
5719.531	Er	12	–	–
5719.53	Ho	8	–	Ed
5719.225	Ne I	–	[500]	IMe
5719.21	Bi II	–	18	Om
5719.18	Hf	40	10	Me
5719.123	Sm	60	20	–
5719.090	Pr	10	1	–
5719.086	Nd	15	–	–
5719.035	Ce	40	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5718.91	Br	–	[30]	Bl
5718.899	Ne I	–	[150]	Ps
5718.81	Bi II	–	20	Wt
5718.79	Eu	4 wh	–	Kn
5718.458	Dy	4	–	–
5718.43	Se I	–	[8]	Rd
5718.365	Ce	4	–	–
5718.364	Ba	6	–	Sz
5718.120	Nd	35	1	–
5718.12	Se	–	[8]	Bt
5718.1	bh Zr	150	–	L
5717.99	Se I	–	[15]	Rd
5717.916	Sm	30	–	–
5717.840	Fe I	10	2	–
5717.82	Er	8	–	Ed
5717.61	Kr I	–	[3]	Me
5717.494	Er	12	–	–
5717.30	Yb	–	15 h	Me
5717.246	Sc I	20	–	–
5716.965	Re	20	–	–
5716.873	U	4	–	–
5716.533	Ta	15 s	–	–
5716.495	Ce	6	–	–
5716.480	Ti I	40	–	–
5716.347	Cb	10	10	–
5716.252	Xe I	–	[80]	IMe
5716.209	V I	60	30	–
5716.19	Xe II	–	[50 wh]	Hu
5716.08	Pr	4	–	–
5716.08	Si	–	2	Sy
5715.953	Ba	4	–	Sz
5715.9	Rn	–	[80]	Wa
5715.716	Xe I	–	[70]	IMe
5715.694	U	3	–	–
5715.587	Cb	3	1	–
5715.396	W	5	–	–
5715.37	Pr	4	–	–
5715.339	Ne I	–	[35]	Ps
5715.286	Ce	3	–	–
5715.241	Ta	30	–	–
5715.223	U	2	–	–
5715.133	Ti I	70	60	–
5715.107	Fe I	4 h	–	–
5715.086	Ni I	50	–	–
5714.91	Yt I	2	–	Me
5714.23	Sm	6	–	–
5714.11	Kr I	–	[2]	Me
5714.037	Re	6	–	–
5714.02	La I	15	–	–
5713.919	Ti I	25	–	–
5713.855	Cb	2	–	–
5713.830	Pr	6	1	–
5713.8	Pb II	–	[10]	Ea
5713.8	bh Yt	10	–	Me
5713.75	Yb	1	10	Me
5713.632	Rh	2	–	–
5713 554	Ba	10	–	Sz
5713 49	Lu	3	15	Me
5713.28	Hf	4	1	Me
5712.778	Cr I	15	–	–
5712.635	Cr	3	–	–
5712.430	Tb	15	–	–
5712.402	La II	20	40	–
5712.291	Ce	8	–	–
5712.21	Xe I	–	[2]	Me
5712.145	Fe I	4	2	–
5711.905	Ni I	50	–	–
5711.88	Rn I	–	[20]	Rs
5711.878	Ti I	50	40	–
5711.798	Mo	20	–	–
5711.754	Sc I	100	–	–
5711.65	Pr	8	1	–
5711.459	Sm	10	–	–
5711.447	Ce	8	–	–
5711.429	Re	25	–	–
5711.353	Gd	8	–	–
5711.115	Mg I	4	1	–
5710.97	Br	–	[15]	Bl
5710.928	Sm	10	–	–
5710.879	Er	20	–	–
5710.76	N II	–	[100]	Fl
5710.531	I II	–	[150]	Ke
5710.329	Gd	8	–	–
5709.97	Tm	20	30	Me
5709.80	Xe I	–	[10 h]	Me
5709.75	In I	50 wh	–	Ps
5709.737	Sm	8	–	–
5709.559	Ni I	100 w	[1]	–
5709.546	Ba	5 w	–	Sz
5709.488	U	3	–	–
5709.407	Gd	10	–	–
5709.379	Fe I	100 h	–	–
5709.370	Os	4	–	–
5709.339	Ir	5	–	–
5709.330	Cb	10 h	3 h	–
5709.14	Ho	8	–	Ed
5709.08	Te	–	[50]	Bl
5709.060	W	6	–	–
5708.949	V I	35	–	–
5708.887	Zr I	4	–	–
5708.687	In II	–	[70]	Ps
5708.600	Sc I	15	–	–
5708.522	In II	–	[100]	Ps
5708.467	Cb	1	3 h	–
5708.437	Si I	40	2 h	Ks
5708.379	Tb	15	–	–
5708.312	In II	–	[100]	Ps
5708.280	Nd	60	–	–
5708.227	Ti I	30	–	–
5708.128	Ru	7	–	–
5708.07	Te	–	[250]	Bl
5708.036	W	4	–	–
5707.992	Mo	8	–	–
5707.92	Eu	4	–	Kn
5707.9	bh La	10	–	Me
5707.84	Dy	3	–	Ks
5707.614	Pr	100 w	–	–
5707.512	Kr I	–	[40]	IJa
5707.480	Sb	6	–	Kz
5707.430	Ce	3	–	–
5707.372	Nd	4	–	–
5707.23	F I	–	[4]	Gl
5707.094	Th	20	5	–
5706.989	U	3	1	–
5706.980	V I	200	–	–
5706.88	Ho	50	–	Ed
5706.87	Xe I	–	[3]	Me
5706.79	Yb	5	1	Me
5706.758	Sm	4	–	–
5706.724	Yt I	15	1	–
5706.485	Cb	20	10	–
5706.280	Ta	50	–	–
5706.23	Si	–	2	Sy
5706.206	Nd	40	–	–
5706.203	Sm	25	–	–
5706.157	Cb	8	3	–
5706.142	V	18	–	–
5706.11	S I	–	[50]	Ms
5706.042	Ba	3	–	Sz
5705.987	Gd	3 h	–	–
5705.978	Fe I	15	10	–
5705.720	Mo	40	40	–
5705.719	W	6	–	–
5705.7	bh F	2	–	L
5705.50	Sb II	–	[20]	Lg
5705.41	Sm	3 d	–	–
5705 3	bh La	8	–	Me
5704.98	Se I	–	[8]	Rd
5704.820	Ba	5	–	Sz
5704.386	Pr	8	–	–
5704.376	W	6	–	–
5704.367	V	10	–	–
5704.306	Ta	40	–	–
5704 12	Sm	3	–	–
5703.79	Ir	2	–	Me
5703.73	Se I	–	[15]	Rd
5703.562	V I	200	60	Me
5703.455	Sm II	10	–	–
5703.327	La I, II	20	20	–
5703.226	Ce	3	–	–
5703.031	Co I	2 h	–	–
5702.92	Dy	3	–	Ks
5702.867	U	2	–	–
5702.675	Ti I	60	40	–
5702.545	Tb	15	–	–
5702.53	La I	5	–	–
5702.470	Rh I	8	–	–
5702.44	Se	–	[8]	Rd
5702 390	Ce	3	–	–
5702 361	Ru I	15	–	–
5702.307	Cr	20	–	–
5702.250	Sm	2	–	–
5702.244	Nd	25	–	–
5702.22	Pr	3	–	–
5702.19	Kr I	–	[10]	Me
5702.106	Mo	15	–	–
5702.075	I II	–	[20]	Ke
5701.566	Nd	5	–	–
5701.556	Fe I	50	25	–
5701.37	Se I	–	[8]	Rd
5701.351	Gd	20	–	–
5701.138	Si I	15	–	Ks
5701.117	Sm	3	–	–
5700.909	Th	12	3	–
5700.86	A I	–	[60]	Ms
5700.72	F I	–	[3]	Gl
5700.696	Th	8	1	–
5700.6	bh Ti	2	–	L
5700.583	Mn	3	–	–
5700.514	Cr	8	–	–
5700.471	Pt	2 h	–	–
5700.451	Th	8	1	–
5700.262	Sm	2	–	–
5700.240	Cu I	350	–	IBu
5700.24	Se I	–	[8]	Rd
5700.24	S I	–	[25]	Ms
5700.219	Sb	7	–	Kz
5700.230	Sc I	400 R	–	–
5699.951	Yb	2	–	–
5699.872	U	3	–	–
5699.84	Kr II	–	[10]	Me
5699.615	Sm	5	–	–
5699.61	Xe II	–	[100]	Hu
5699.577	Ru I	10	–	–
5699.48	Sm	2	–	–
5699.386	La I	5	–	–
5699.285	Mo	20	–	–
5699.242	Ta	80 w	–	–
5699.228	Ce	40	–	–
5699.159	Rb II	–	100	Rr
5699.047	Ru I	125	–	–
5698 974	Pt	7	–	–
5698.95	Er	8	–	Ed
5698.927	Nd	10	1	–
5698.919	Sm	3	–	–
5698.721	Dy	3	–	–
5698.69	Hg II	–	[12]	Ps
5698.54	Xe I	–	[8]	Me
5698.518	V I	300	300	–
5698.4	bh F	2	–	L
5698.330	Cr I	30	2	–
5698.327	U	2	1	–
5698.274	Mo	10	–	–
5698.03	Cb	4	3	–
5697.994	Gd	6	–	–
5697.98	Pr	5	–	–
5697.897	Cb	5	3	–
5697.88	Se II	–	[45]	Bl
5697.819	W	35	–	–
5697.8	bh Yt	5	–	Me
5697 2	bh F	2	–	L
5696.995	Ce	40	–	–
5696.733	Sm	40	–	–
5696.63	S I	–	[8]	Ms
5696.57	Ho	8	–	Ed
5696.54	Kr I	–	[3]	Me
5696.477	Xe I	–	[80]	IMe
5696.47	Al	–	15 h	Gn
5696.43	Tm	6	15	Me
5696 237	Sm	40	3	–
5696.215	Gd	20	–	–
5696.193	La I	50	–	–
5696 027	Mo	12	–	–
5695 93	Pr	8	–	–
5695.840	Ce	10	–	–
5695.750	Xe I	–	[100]	IMe
5695 651	Rh I	2	–	–
5695 55	Er	8	–	Ed
5695.480	Pr	8	–	–
5695.228	Nd	5	–	–
5695.183	U	2	–	–
5695.090	Pd I	50	–	–
5694.998	Ni I	40	–	–
5694.87	Er	8	–	Ed
5694.730	Cr I	35	–	–

Wave-length	Ele-ment	Intensities Arc	Spk.,[Dis.]	R
5694.523	Dy	8 wh	–	–
5694.497	Sm	25	2	–
5694.458	Ru	4	–	–
5694.4	bh Ti	8	–	L
5694.390	Mo	10	–	–
5693.752	W	7	–	–
5693.71	Yb	1	10	Me
5693.664	Sm	4	–	–
5693.650	Yt I	2	–	–
5693.64	Ho	12	–	Ed
5693.634	Fe	3	3	–
5693 620	Dy	3 h	–	–
5693 13	Sr	4	–	Sd
5693 090	Cb	5	2	–
5693.028	Ru	7	–	–
5692.96	Te	–	[8]	Bl
5692.940	Ce	25	–	–
5692.86	Pr	5	–	–
5692.610	Sm II	15 d	–	–
5692.522	Sm	15 d	2 d	–
5692.52	Dy	5 h	–	Ks
5692.41	Cu II	–	2	Sh
5692.3	bh Zr	8	–	L
5692.26	Pb	20	–	Wt
5692.128	Ce	6	–	–
5692.122	Gd	8	–	–
5692.11	Kr	–	[5 whl]	Me
5692.038	Sm	5	–	–
5691.71	A II	–	[2]	Rt
5691.623	Sm	5	–	–
5691.47	Ho	200	–	Ed
5691.43	Br	–	[30]	Bl
5691.388	U	4	1	–
5691.26	Sb	4	–	Wt
5691.04	Pr	20	1	–
5690.95	Pr	10	1	–
5690 915	I II	–	[30]	Ke
5690.470	Si I	25	–	Ks
5690.356	Sm	2	–	–
5690.35	Kr II	–	[200 whs]	Me
5690.251	Nd	8	–	–
5690.16	Ra I	–	[15]	Rs
5690 139	Pd I	10	–	–
5689.92	Yb	10	–	Me
5689 91	A I	–	[200]	Ms
5689.86	Cu II	–	5	Sh
5689.817	Ne I	–	[150]	IMe
5689.739	Re	2 h	–	–
5689.64	A I	–	[200]	Ms
5689.519	Mo	12	–	–
5689.506	Nd	10	–	–
5689.474	Ti I	80	80	Bh
5689.257	Sm	12	–	–
5689.136	Mo	80 l	40	–
5688.83	Si	–	2	Sy
5688.764	Tb	10	–	–
5688.61	Na	10	–	Me
5688.593	Co I	10	–	–
5688.525	Nd	150	–	–
5688.485	Ce	3	–	–
5688.47	Yb	15	–	Kn
5688.460	Pr	8	1	–
5688.373	Xe I	–	[40]	IMe
5688 345	Eu	2 h	–	–
5688.247	Ta	100 w	–	–
5688.224	Na I	300	–	Hz
5688.205	Sm	2	–	–
5687.758	V I	15	30	–
5687.659	Sm	2	–	–
5687.635	Mo	5	–	–
5687.478	Pd I	3	–	–
5687.40	A I	–	[20]	Ms
5687.4	bh Zr	20	–	L
5687.36	Ir	3	–	Me
5687.35	Er	8	–	Ed
5687.19	Pr	4 h	–	–
5687.12	Tb	15	–	Ed
5686.982	Sm	5	–	–
5686.826	Sc I	200	–	–
5686.791	Sm	5	–	–
5686.726	Sm	50	20	–
5686.671	Gd	4	–	–
5686.639	Nd	10	–	–
5686.554	Yb	5	10 h	–
5686.522	Fe	10	8	–
5686.50	Pr	5 h	–	–
5686.49	Xe II	–	[2 h]	Hu
5686.48	Tb	15	–	Ed
5686.377	Rh I	100	1	–
5686.21	N II	–	[100]	Fl
5685.859	Ce	5	–	–
5685 76	Ho	8	–	Ed
5685.759	Tb	40	–	–
5685.74	As	–	60	Ro
5685.61	Pr	3	–	–
5685.585	Dy	3	–	–
5685.456	Ta	7 W	–	–
5685.419	Zr I	2	–	–
5685.204	U	6	1	–
5684.756	Er	8	–	–
5684.75	Tm	40	80	Me
5684.716	Pt	6	–	–
5684.647	Ne I	–	[25]	Ps
5684.523	Si I	30	–	Ks
5684.323	Re	2	–	–
5684.27	Eu	125	–	Kn
5684.190	Sc II	10	–	–
5684.108	Gd	2	–	–
5683.773	Ce	2	–	–
5683.73	A I	–	[40]	Ms
5683.60	Yb	2	6	Me
5683.514	Cr	3	–	–
5683.339	Gd	3 h	–	–
5683.334	U	2	–	–
5683.216	V	50	2	–
5682 894	Mo	20	–	–
5682.783	Ce	3	–	–
5682.657	Na I	80	–	Hz
5682 53	Er	8	–	Ed
5682.483	Cr I	6 wh	–	–
5682.422	Sm	3	–	–
5682.42	Cu II	–	20	Sh
5682.204	Ni I	50	–	–
5682.12	Ho	30	–	Ed
5681.900	A I	–	[500]	Ms
5681.896	Pr	7	1	–
5681.89	Kr II	–	[400]	Me
5681.41	Ho	20	–	Ed
5681.198	Cr	3 wh	–	–
5681.1	bh Zr	8	–	L
5681.1	bh La	20 wh	–	Me
5681.086	Ru	4	–	–
5681.053	Eu	40	–	–
5680 950	Re	2 h	–	–
5680.898	Zr I	50	–	–
5680 884	Os	20	–	–
5680.857	Gd	6	–	–
5680.854	Sm	4	–	–
5680.80	Pd I	2	–	Me
5680.4	bh F	2	–	
5680.376	U	2	–	–
5680.270	Ce	2	–	–
5680.199	Ba	60	–	–
5679 97	I II	–	[2]	Ke
5679.942	Ti I	50	–	Bh
5679 71	Te	–	[25]	Bl
5679.700	Sm	15	–	–
5679.64	Nd	2	–	–
5679.627	Ru	10	–	–
5679.56	N II	–	[500]	Fl
5679.2	bh La	10 wh	–	Me
5679.128	Sm	4	–	–
5679.022	Fe I	5	4	–
5678.79	Ir	2	–	Me
5678.6	bh La	20 wh	–	Me
5678.403	Tb	10	–	–
5678.339	Dy	3	–	–
5678 056	I II	–	[80]	Ke
5677.893	Mo	25	–	–
5677.805	Nd	8	–	–
5677.8	bh Pb	8	–	L
5677.756	Ce	25	–	–
5677.686	Dy	3	–	–
5677.470	Cb	5	3	–
5677.442	Gd	8	–	–
5677.248	Ce	2	–	–
5677.17	Hg II	–	[300]	Ps
5677.1	bh F	5	–	L
5677.067	Th	4	–	–
5677.04	Pr	3	–	–
5676.932	W	10	–	–
5676.89	P	–	[20]	Gu
5676.880	Ce	10	–	–
5676.77	Ho	12	–	Ed
5676.609	W	10	–	–
5676 334	Nd	10	–	–
5676.2	bh F	5	–	L
5676 061	Sm	5	–	–
5676.039	Tb	15	–	–
5676.02	N II	–	[100]	Fl
5675.971	Nd	30	–	–
5675 86	Hg I	–	[80]	Wd
5675.845	Yb	20	–	–
5675.827	Tm	100	100	–
5675.821	Er	12	–	–
5675.70	Na I	150 wh	–	Fl
5675.491	Er	8	–	–
5675.439	Ti I	90	125	–
5675.421	Co I	3 h	–	–
5675.380	W	15	–	–
5675.263	Yt I	5	1	–
5675.15	Xe II	–	[5]	Hu
5675.103	Ce	8	–	–
5675 013	Th	8	–	–
5674.964	Eu	8	–	–
5674.76	Zr I	3	–	Ks
5674.70	Ho	200	–	Ed
5674.52	Kr II	–	[30 hs]	Me
5674.466	Mo	30	–	–
5674.416	W	30	–	–
5674.261	U	2	–	–
5674.243	Pd I	3	–	–
5674.180	Cr	4	–	–
5674.13	Pr	5 w	1	–
5674.099	Sm	3	–	–
5674.03	Sr	3	–	Sd
5673.840	Eu	200	–	–
5673.66	I	–	[15]	Ke
5673.633	Mo	20	–	–
5673.58	Hf II	4	10	Me
5673.562	W	10	–	–
5673.01	A	–	[2]	Rt
5672 9	bh F	5	–	L
5672.881	Sm	5	–	–
5672.78	Kr II	–	[40 hs]	Me
5672.452	Kr I	–	[50]	IJa
5672.371	Sm	3	–	–
5672.24	Te	–	[15]	Bl
5672.1	bh F	5	–	L
5672 069	Mo	10	–	–
5671.907	Cb	15	10	–
5671.870	Ce	10	–	–
5671.844	Tb	10	–	–
5671.805	Sc I	300 W	–	–
5671 62	F I	–	[2]	Gl
5671.550	La II	10	100	–
5671.412	Ce	3	–	–
5671.248	Dy	3	–	–
5671.046	Re	2	–	–
5671.021	Cb	200	10	–
5670.96	Xe II	–	[25]	Hu
5670.850	V I	150	70	–
5670.748	Sm	4	–	–
5670.7	bh Zr	2	–	L
5670.18	Na I	100 Wh	–	Fl
5670.068	Pd I	100	–	–
5670.017	Pr	4	1	–
5669.968	Ce	50	–	–
5669.945	Ni I	10	–	–
5669.770	Nd	40	–	–
5669 63	Si	–	5	Sy
5669.59	Tb	10	–	Ed
5669.553	Pr	5	1	–
5669.447	U	18	–	–
5669.320	Nd	3	–	–
5669.030	Sc II	12	15	–
5668.911	Sm	8 h	–	–
5668.901	Ce	20	–	–
5668.868	Nd	15	–	–
5668.8	bh F	5	–	L
5668.74	Sc I	2	–	Me
5668.449	Pr	25 w	–	–
5668 399	Pd I	3	–	–
5668.362	V I	75	50	–
5668 29	Eu	6 h	–	Kn

Wave length	Element	Intensities Arc	Spk.,[Dis.]	R
5668.001	Ru	4	–	–
5668 0	bh F	5	–	L
5667.902	Re	100	–	–
5667.86	Te	–	[15]	Bl
5667.66	Er	8	–	Ed
5667.6	bh Tl	2	–	L
5667.562	Tb	25	–	–
5667.56	Xe II	–	[300]	Hu
5667.525	Fe I	5 h	3 h	–
5667.519	Sm	15 w	–	–
5667.296	Mo	15 W	–	–
5667.164	Sc II	7	–	–
5667.04	N	–	[5]	Du
5666.864	Cb	3	2	–
5666 8	bh Zr	8	–	L
5666.64	N II	–	[300]	Fl
5666.64	Er	8	–	Ed
5666.34	Ag	5	2	Wt
5666.277	Zr I	4	–	–
5666.26	Te	–	[50]	Bl
5666.038	Sm	9 d	–	–
5665.82	A I	–	[5]	Ms
5665.747	Nd	5	–	–
5665.631	Cb	100	30	–
5665.625	Th	10	2	–
5665.601	Si I	20	–	Ks
5665.5	bh Zr	5	–	L
5665.427	Er	20	–	–
5665.368	Eu	4 h	–	–
5665.261	Nd	3	–	–
5665.201	Ru	10	–	–
5665.182	Th	5	–	–
5664.946	Er	12	–	–
5664.901	Ta	60	–	–
5664.89	Lu	2	20	Me
5664.73	S II	–	[15]	Ig
5664.724	Re	2 h	–	–
5664.71	Cb	100 r	30 r	–
5664.7	bh F	10	–	L
5664.683	Ce	8	–	–
5664.665	Sm	3	–	–
5664.66	Tb	15	–	Ed
5664.511	Zr I	50	–	–
5664.47	Cu II	–	3	Sh
5664.382	Mo	6	–	–
5664.337	W	2	–	–
5664.337	Mo	6	–	–
5664 239	U	2	–	–
5664.2	bh Zr	5	–	L
5664.040	Cr	18	–	–
5664.02	Xe	–	[2 whl]	Hu
5664.0	bh F	10	–	L
5664.017	Ni I	15	–	–
5663.986	Ce	12	–	–
5663.881	Sm	8	–	–
5663.872	Dy	3 h	–	–
5663.8	Cs I	15 w	–	Fl
5663.484	Ce	5	–	–
5663.183	Ce	4	–	–
5663.1	bh Zr	8	–	L
5662.945	Sm	15 l	–	–
5662.924	Yt II	20	400	–
5662.908	Ti I	40	–	–
5662.878	Re	4 w	–	–
5662.67	Kr I	–	[3]	Me
5662.547	Ne I	–	[75]	IMe
5662.525	Fe I	50	50	S
5662.51	C II	–	50	Fl
5662.455	Nd	4	–	–
5662.164	Ti I	100	100	–
5662.00	A I	–	[5]	Ms
5661.73	Ra II	–	[50]	Rs
5661.6	bh Ti	30	–	L
5661.564	Pr	10 w	–	–
5661.488	Sm	25	–	–
5661.170	Sm	4	–	–
5660.9	bh F	10	–	L
5660.81	Ra I	–	[1000]	Rs
5660.78	Sb II	3	7	Wt
5660.761	Rh	4	–	–
5660.749	W	2	–	–
5660.7	bh F	10	–	L
5660.52	Er	8	–	Ed
5660.282	Dy	3	–	–
5660.1	Pb II	–	[4]	Ea
5659 93	S	–	[600]	Bl
5659 873	Zr I	3	–	–
5659.863	Sm	60	–	–
5659.86	Tb	10	–	Ed
5659.844	Pr	5	1	–
5659.781	Nd	15	1	–
5659.779	Ce	6	–	–
5659.621	Rh I	10	–	–
5659.58	Ho	20	–	Ed
5659.38	Xe II	–	[150]	Hu
5659.130	A I	–	[500]	Ms
5659.109	Co I	25	–	–
5659.104	Ti I	5	–	–
5658.83	Hf II	1	3	Me
5658.826	Fe I	100	80	S
5658.633	Cr	5 s	–	–
5658.537	Fe I	30	2	–
5658.48	Er	12	–	Ed
5658 334	Sc II	7	–	–
5658.305	Ru	5	–	–
5658.29	Tm	20	2	–
5658.278	U	4	–	–
5658.15	Sm	15	2	–
5658.1	bh Zr	50	–	L
5657.926	Th	6	–	–
5657 881	Sm	2	–	–
5657.870	Sc II	30	–	–
5657.731	La I	50	–	–
5657.61	Br	–	[5]	Bl
5657.439	V I	150	60	–
5657.209	Sm	5	–	–
5657.20	As II	–	60	Ro
5657 18	Er	8	–	Ed
5657.038	W	4	–	–
5656.659	Ne I	–	[500]	IMe
5656.6	bh F	10	–	L
5656.56	Tb	10	–	Ed
5656 54	La I	3	–	Me
5656.361	Sm	15	–	–
5656.29	V I	13	2	Me
5656.213	Ce	3	–	–
5656 030	Ne I	–	[75]	Ps
5656.0	bh F	10	–	L
5655.766	Au I	35	5	–
5655.727	Ru	6	–	–
5655.503	Sm	2	–	–
5655.498	Fe I	10	5	–
5655.49	Se II	–	[8]	Bl
5655.425	Pd I	12	–	–
5655.42	Bi II	–	12	Om
5655.419	Mo	5	20 h	–
5655.179	Fe	4	2	Bu
5655.15	Te	–	[25]	Bl
5655 128	Ce	40	–	–
5654.87	La I	5	–	–
5654.818	U	3	–	–
5654.8	bh La	50	–	Me
5654.645	Eu	8 h	–	–
5654.64	Hf	4	1	Me
5654 48	A	–	[5]	Rt
5654.414	U	3	1	–
5654.247	Pr	4	1	–
5654.138	Cb	3	1	–
5654.098	W	4	–	–
5654.014	Th	8	–	–
5653.786	U	4	1	–
5653.744	Rb I	200	–	IRz
5653 566	Nd	10	–	–
5653.315	Gd	8	–	–
5653.302	Ru	4	–	–
5653.29	Yb	–	5	Me
5653.035	Re	10	–	–
5652.958	Ce	3	–	–
5652.902	Th	8	1	–
5652 843	Sm	10	–	–
5652.84	Xe I	–	[2 h]	Me
5652.793	Gd	7	–	–
5652.6	bh F	20	–	L
5652 570	Ne I	–	[75]	Ps
5652.36	Se I, II	–	[8]	Rd
5652.3	bh La	50	–	Me
5652.166	Mo	10	3	–
5652.1	bh F	20	–	L
5652 07	Tb	15	–	Ed
5652 06	Te	–	[25]	Bl
5652.014	Dy	10	–	–
5651 993	Yb	50	80	–
5651.945	Sm	3	–	–
5651.866	Mo	10	6	–
5651.734	Co I	3 h	–	–
5651 69	Al	10 h	–	Wt
5651.677	Sm	2	–	–
5651.53	As II	–	200	Ro
5651.514	Nd	2	–	–
5651.51	Te	–	[25]	Bl
5651 49	Er	8	–	Ed
5651 308	Rh I	2	–	–
5651.281	Mo	10	5	–
5651.269	Nd	5	–	–
5651.251	W	2	–	–
5651.114	Eu	4	–	–
5651.07	Au	2	–	Wt
5650.83	Hf	3	1	Me
5650.782	Sm	3	–	–
5650.703	A I	–	[1500]	IMe
5650.602	Ce	15	–	–
5650.396	Sm	5	–	–
5650 37	Kr II	–	[10 wh]	Me
5650.284	Eu	4	–	–
5650 130	Mo	90	50	–
5649.867	Eu	6	–	–
5649 697	Ni I	15	–	–
5649 5628	Kr I	–	[100]	S
5649.56	Sc I	4 h	–	–
5649.555	Ru I	7	–	–
5649.519	Ir I	2	–	–
5649 371	Cr I	9 h	–	–
5649.30	Te	–	[250]	Bl
5649 015	W	4	–	–
5649.008	Sm	5	–	–
5648.705	Ru	5	–	–
5648.701	W	6	–	–
5648.66	A I	–	[200]	Ms
5648.6	bh F	20	–	L
5648.577	Tl I	80	60	–
5648.48	Yt I	12	2	Me
5648.378	W	50 w	50 w	–
5648.29	S	–	[25]	Bl
5648.254	La I	150	–	–
5648.2	bh F	20	–	L
5648.10	Ho	8	–	Ed
5648.097	Rb I	400	–	IRz
5648.08	C II	–	30	Fl
5647.98	Nd	4	–	Ks
5647.60	Sc I	3	–	Me
5647.467	Sm	2	–	–
5647.297	Sm	10 d	–	–
5647.224	Co I	600 w	–	–
5647.098	Ce	3	–	–
5647.013	W	3	–	–
5646.98	S II	–	[30]	Ig
5646.97	Tb	10	–	Ed
5646.575	Ce	10	–	–
5646.462	Yt I	10	10	–
5646.344	Sc I	3	–	–
5646.19	Xe I	–	[5]	Me
5646.106	V I	150	150	–
5645.990	Dy	5	–	–
5645.97	Ho	12	–	Ed
5645.911	Ta	80	–	–
5645.888	Th	12	2	–
5645.801	Eu	1000	–	–
5645.755	Tb	15	–	–
5645.70	S II	–	[10]	Ig
5645.665	Si I	20	–	Ks
5645.305	Cb	5 h	2 h	–
5645.253	Os	7	–	–
5644.86	In	–	70	Sq
5644.833	Gd	12	–	–
5644.7	bh F	20	–	L
5644.680	Yt I	15	2	–
5644.55	Hg II	–	[2]	Ps
5644 484	W	8	–	–
5644.472	Re	5	–	–
5644.3	bh F	20	–	L
5644.246	U	2	1	–
5644.140	Tl I	150	200	–
5644.127	Nd	10	–	–
5644.125	Sm	40	–	–
5643.677	Gd	6	–	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
5643.38	I	–	[15]	Ke
5643.372	Sm II	20	–	–
5643.270	Nd	4	–	–
5643.245	Gd	20	–	–
5643.195	Pr	3 h	–	–
5643.099	Ni I	5	–	–
5643.087	Co	5 h	–	–
5643.05	Rh I	–	[10]	Rs
5643.00	Tl II	–	[6 d]	El
5642.916	Sm	5	–	–
5642.91	Ho	8	–	Ed
5642.690	Pd I	10	2 h	–
5642.678	Sm	2	–	–
5642.674	K II	–	[25]	Dm
5642.660	Ni I	2	–	–
5642.62	Er	8	–	Ed
5642.558	Os	4	–	–
5642.542	Co I	2 h	–	–
5642.362	Cr I	4	–	–
5642.248	Sm	3	1	–
5642.108	Cb	80	20	–
5642.041	W	15	–	–
5642.011	V	–	12 h	–
5642.008	Sm	4	–	–
5641.880	Ni I	25	–	–
5641.655	Ru I	7	–	–
5641.620	Sm	3	–	–
5641.524	Dy	4	–	–
5641.464	Fe I	15	8	Bu
5641.394	W	6	–	–
5641.34	A I	–	[60]	Ms
5641.30	Cu II	–	20	Sh
5641.07	Kr II	–	[3 hl]	Me
5640.971	Sc	15	–	–
5640.8	bh F	20	–	L
5640.787	Ce	6	–	–
5640.768	Sm	2	–	–
5640.62	Ho	100	–	Ed
5640.5	bh F	20	–	L
5640.50	C II	–	15	Fl
5640.37	S	–	[500]	Bl
5640.344	Er	8	–	–
5640.342	Pr	3	–	–
5640.327	U	3	–	–
5640.272	Sm	7	–	–
5640.21	Eu	4 h	–	Kn
5640.197	Tb	15	–	–
5640.179	Ta	25	–	–
5640.113	Ce	4	–	–
5640.06	Tl II	–	[6 d]	El
5639.991	Co I	5 h	–	–
5639.98	S	–	[500]	Bl
5639.80	Er	12	–	Ed
5639.74	Sb II	–	100 wh	Wt
5639.733	Th	12	4	–
5639.636	W	6	–	–
5639.544	Nd	25	–	–
5639.499	Dy	12	–	–
5639.301	La I	15	–	–
5639.13	Si	–	2	Sy
5639.11	A I	–	[100]	Ms
5639.046	Nd	5	–	–
5638.794	Pr	30 W	1	
5638.670	Sm	3	–	–
5638.628	Ce	3	–	–
5638.272	Fe I	40	20	–
5638.194	Ce	10	–	–
5638.182	Cr	6	–	–
5638.005	U	2	–	–
5637.827	Nd	2 h	–	–
5637.818	Yb	2	5	–
5637.720	Co I	20	–	–
5637.62	Tb	15	–	Ed
5637.386	Ce	8	–	–
5637.29	A I	–	[20]	Ms
5637.273	Sm	80	–	–
5637.26	Cd	10	–	Ps
5637.125	W	7	–	–
5637.121	Ni I	15	–	–
5637.0	bh Zr	12	–	L
5636.963	In II	–	[30]	Ps
5636.9	bh F	20	–	L
5636.801	U	3	–	–
5636.747	In II	–	[300]	Ps
5636.713	Sm	8	–	–
5636.709	Ru	6	–	–
5636.7	bh F	20	–	L
5636.698	Fe	2	1	–
5636.663	In II	–	[150]	Ps
5636.573	Tb	15	–	–
5636.455	Pr	3	1	–
5636.379	In II	–	[15]	Ps
5636.235	Ru I	100	–	–
5636.119	Co I	20	–	–
5636.045	In II	–	[2]	Ps
5635.994	Rb II	–	100	Rr
5635.91	A	–	[2]	Rt
5635.83	Fe I	4 h	2 h	–
5635.761	Nd	25	–	–
5635.710	Ta	25	–	–
5635.57	Cu II	–	2	Sh
5635.54	A I	–	[60]	Ms
5635.514	V I	35	–	–
5635.505	W	8	–	–
5635.5	bh C	–	–	L
5635.443	Re	2	–	–
5635.422	Cb	10	–	–
5635.3	bh Ti	2	–	L
5635.22	Cs I	10 w	–	Fl
5635.18	Sb II	–	[40]	Lg
5635.15	Al	10	–	Wt
5634.9	bh Zr	12	–	L
5634.858	Mo	30	20	–
5634.84	Cl II	–	[18]	Ks
5634.652	Rh	3	–	–
5634.486	Ce	6 d	–	–
5634.408	U	10	–	–
5634.244	Sm	3	–	–
5633.962	Fe	20	10	–
5633.9	bh Zr	20	–	L
5633.896	V I	8	–	–
5633.538	Sm	5	–	–
5633.483	Gd	12	–	–
5633.24	Xe	–	[5 Whl]	Hu
5633.14	Cu II	–	3	Sh
5633.092	Ce	15 w	–	–
5633.024	Pr	4	–	–
5633.02	Kr II	–	[100 h]	Me
5632.9	bh F	10	–	L
5632.769	Rh I	4	–	–
5632.57	Er	12	–	Ed
5632.561	Eu	200 s	–	–
5632.484	Ce	12	–	–
5632.474	U	8	–	–
5632.471	Mo	100	50	–
5632.464	V I	18	–	–
5632.352	Sm	3	–	–
5632.268	Yt I	2	–	–
5632.245	Gd	10	–	–
5632.062	Sm	3	–	–
5632.025	La I	20	–	–
5631.97	Sb II	15	[40]	Wt
5631.969	W	15	–	–
5631.965	Gd	6	–	–
5631.826	W	10	–	–
5631.780	Sm	3	–	–
5631.685	Sn	50	200	–
5631.64	Nd	2	–	–
5631.413	Er	12	–	–
5631.409	Tm	80	10	–
5631.36	Hf II	1	4	Me
5631.263	W	15	–	–
5631.214	La I	50	–	–
5630.841	Sm	3	–	–
5630.66	Te	–	[25]	Bl
5630.44	A I	–	[10]	Ms
5630.42	As II	–	6	Ro
5630.35	Fe	5	2	–
5630.309	Gd	6	–	–
5630.123	Yt I	80	–	–
5629.933	W	5	–	–
5629.84	Tb	10	–	Ed
5629.830	Cb	3	1	–
5629.787	Ru	4	–	–
5629.765	W	5	–	–
5629.647	W	12	–	–
5629.546	Gd	20	–	–
5629.5	bh Zr	100	–	L
5629.458	U	3	–	–
5629.3	bh Ti	30	–	L
5629.30	Tb	10	–	Ed
5629.27	Au	3	–	Wt
5629.2	bh F	5	–	L
5629.168	Cb	20	10	–
5629.120	Sm	5 d	1	–
5629.0	bh Zr	80	–	L
5628.990	Zr I	2	–	–
5628.938	Ba	4	–	Sz
5628.645	Cr I	25	2	–
5628.6	bh La	100	–	Me
5628.347	Ni I	5	–	–
5628.27	Hf	2	–	Me
5628.257	Cb	5	1	–
5628.24	Ho	12	–	Ed
5628.208	Ce	8	–	–
5628.164	U	3	1	–
5628.162	Sm	3	–	–
5628.021	U	2	–	–
5627.89	Yb	–	5	Me
5627.726	Co I	2	–	–
5627.725	Sm	4	–	–
5627.644	Ir I	2	–	–
5627.641	V I	200	80	–
5627.485	Dy	3	–	–
5627.38	Tb	15	–	Ed
5627.246	Nd	5	–	–
5627.224	Mo	4	2	–
5627.068	Eu	6	–	–
5626.661	Nd	2	–	–
5626.522	Er	20	–	–
5626.239	Mn	3	–	–
5626.071	Rh I	3	–	–
5626.011	V I	150	–	–
5626.009	Sm	60	–	–
5626.0	bh La	100	–	Me
5625.722	Nd	10	1	–
5625.704	I II	–	[150]	Ke
5625.701	Ba	7	–	Sz
5625.553	Ir	15	–	–
5625.5	bh F	2	–	L
5625.446	Re	15 w	–	–
5625.43	N I	–	[10]	Du
5625.37	Tb	10	–	Ed
5625.368	Nd	3	–	–
5625.326	Ni I	30	–	–
5625.229	Ce	5 w	–	–
5624.966	Sm	15	–	–
5624.888	V I	40	–	–
5624.78	Xe II	–	[5 whl]	Hu
5624.688	Sm	2	–	–
5624.598	V I	100	–	–
5624.549	Fe I	150	125	S
5624.434	Pr	12	2	–
5624.332	Nd	3	–	–
5624.204	V I	30	30	–
5624.127	U	2	–	–
5624.069	Fe I	4 h	2 h	–
5624.0	bh Zr	2	–	L
5623.967	W	5	–	–
5623.946	Yt I	2	–	–
5623.76	A I	–	[60]	Ms
5623.754	Ce	5	–	–
5623.552	Sm	3	–	–
5623.526	Zr I	6	–	–
5623.43	Ra II	–	[15]	Rs
5623.20	N I	–	[40]	Du
5623.13	Se II	–	[300]	Bl
5623.1	bh Cr	2	–	L
5623.046	Pr	15	2	–
5623.000	Ce	8	–	–
5622.960	Sm II	5	–	–
5622.912	Gd	8	–	–
5622.715	Sm	2	–	–
5622.674	Ce	4	–	–
5622.558	U	2	–	–
5622.448	Eu	200 s	–	–
5622.303	Nd	2	–	–
5622.22	Si I	3	1	Ks
5622.068	V I	10	–	–
5622.02	Er	3	–	Ed
5622.012	Sm	4	–	–
5621.854	Pr	15 W	1	–
5621.798	Sm	60	–	–
5621.524	U	12	1	–
5621.422	Gd	10	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5621.322	Pd I	2	–	–
5621.28	Fe	4	2	–
5621.219	Re	2	–	–
5621.109	Ru	4	–	–
5620.89	A I	–	[60]	Ms
5620.885	Sm	3	–	–
5620.82	As II	–	12	Ro
5620.792	U	30	1	–
5620.74	Er	8	–	Ed
5620.684	Ta	80 w	–	–
5620.66	Cr	3	–	–
5620.66	A I	–	[2]	Ms
5620.538	Nd	200	5	–
5620.527	Fe I	3 h	2 h	Bu
5620.494	U	3	–	–
5620.47	Ra I	–	[15]	Rs
5620.390	Ce	8	–	–
5620.265	Ti	4	–	–
5620.251	Pr	5	1	–
5620.24	Yb	1	10	Me
5620.136	Zr I	10	–	–
5620.085	Os	30	–	–
5620.055	Ru	7	–	–
5620.042	Ir	7	–	–
5620.040	Fe	2	2	–
5619.760	Re	3	–	–
5619.494	Gd	6	–	–
5619.442	Pd I	50	2	–
5619.381	Mo	15	12	–
5619.099	Ba	10	3	Sz
5619.000	Nd	10	–	–
5619.00	A	–	[5]	Ms
5618.878	Xe I	–	[80]	IMe
5618.811	Eu	125	–	–
5618.771	Mo	10	5	–
5618.742	W	3	–	–
5618.7	Ba	10	–	Ex
5618.640	Fe I	10	8	–
5618.47	Te	–	[25]	Bl
5618.447	Mo	20	10	–
5618.18	N I	–	[3]	Mt
5617.97	A I	–	[60]	Ms
5617.915	Gd	20	–	–
5617.87	Se I	–	[15]	Rd
5617.747	Sm	8 d	1	–
5617.711	Ta	15	–	–
5617.705	Nd	15	1	–
5617.7	bh Pb	3	–	L
5617.63	Kr II	–	[2]	Me
5617.62	Er	8	–	Ed
5617.604	Ti	5	–	–
5617.478	Pr	3	–	–
5617 295	W	8	–	–
5617.082	W	10	–	–
5617.047	Eu	4	–	–
5616.67	Xe II	–	[150]	Hu
5616.66	Ra I	–	[250]	Rs
5616 63	S II	–	[5]	Ig
5616.593	U	4	–	–
5616.54	N I	–	[60]	Du
5616 196	Gd	10	–	–
5616 189	W	10	–	–
5616.077	Co I	5	–	–
5615.977	Ce	6	–	–
5615.749	Sm	4	–	–
5615.652	Fe I	400	300	S
5615 648	Eu	2	–	–
5615.353	Nd	5	–	–
5615 321	Th	10	–	–
5615.301	Fe I	4	12	–
5615.20	Cu II	–	5	Sh
5615.164	W	4	–	–
5615.041	Sm	4	–	–
5614.790	Ni I	50	–	–
5614.755	U	2	–	–
5614.717	Ce	20	–	–
5614.433	Gd	10	–	–
5614 410	Sm	4	–	–
5614.39	S I	–	[3]	Ms
5614.303	Nd	10	–	–
5614.01	Hf	3	–	Me
5613.698	Ce	5	–	–
5613.683	U	2	–	–
5613 64	Ho	12	–	Ed
5613.273	U	3	–	–
5613.27	Hf	10	3	Me
5613.230	Dy	4	–	–
5613.19	Al II	–	[15]	Sy
5613.070	Mo	20	12	–
5612.990	Sm	3	–	–
5612.890	I	–	[25]	Ke
5612.89	Xe II	–	[2 h]	Hu
5612.683	Ti	3	–	–
5612.65	Xe I	–	[15]	Me
5612.6	bh Zr	5	–	L
5612.318	U	2	–	–
5612.304	W	5	–	–
5612.30	Cb	–	4 wh	Me
5612.264	Re	20 w	–	–
5611.857	Sm	3	–	–
5611.82	Kr I	–	[4]	Me
5611.807	Er	12	–	–
5611.598	U	2	1	–
5611.59	Se	–	[15]	Bt
5611.36	N I	–	[5]	Mt
5611.35	A I	–	[20]	Ms
5611.289	Sm	2	–	–
5611.185	Nd	5	–	–
5610.933	Mo	30	20	–
5610.926	Gd	6	–	–
5610.920	Ce	15	–	–
5610.905	U	30	1	–
5610.53	La II	2	40	Me
5610.519	Re	6	–	–
5610.257	Ce	15	–	–
5610.219	Pr	6	1	–
5610.1	bh Zr	60	–	L
5610.032	Sm	30	20	–
5609.724	Eu	4	–	–
5609.698	Sm	5	–	–
5609.541	Mo	5	2	–
5609.449	Ce	6	–	–
5609.233	Mo	12	8	–
5609.15	In	–	30	Sq
5608.95	Ag I	5 h	–	Bx
5608.90	A I	–	[20]	Ms
5608.9	bh Zr	2	–	L
5608.863	U	4	–	–
5608 812	Re	2	–	–
5608.8	Pb II	–	[40]	Ea
5608 624	Mo	20	12	–
5608.37	Kr	–	[3]	Me
5608.346	Rh I	10	1	–
5608.139	Sm	4	1	–
5608.139	W	6	–	–
5608.022	Pd I	10	–	–
5607 99	Xe I	–	[3]	Me
5607.712	Rh I	8	–	–
5607.6	bh C	15	–	L
5607.368	Eu	4	–	–
5607 217	Re	10	–	–
5607.03	Tb	10	–	Ed
5606.91	Rn I	–	[15]	Rs
5606.85	Cd I	5	–	Ps
5606.795	Co	2	–	–
5606.732	A I	–	[500]	IMe
5606.732	Ru	6	–	–
5606 555	Sm	2	–	–
5606 464	Ce	5	–	–
5606 328	Yt I	12	3	–
5606.10	S	–	[700]	Bl
5605 89	Gd	10	–	Ks
5605.853	Eu	40	–	–
5605.646	Nd	3 h	–	–
5605.639	Pr	10	2	–
5605.629	Dy	3	–	–
5605.608	Ru	4	–	–
5605 505	Ta	5	–	–
5605.462	Sm	3	–	–
5605.28	Tb	10	–	Ed
5605.25	A I	–	[5]	Ms
5605 205	W	5	–	–
5604.945	V I	60	20	–
5604.888	Gd	10	–	–
5604.861	Sm	30	2	–
5604.683	Cd I	10	–	Ps
5604.59	Er	8	–	Ed
5604.508	Th	12 d	2	–
5604 425	Ce	4	–	–
5604 36	A I	–	[20]	Ms
5604.334	W	10	–	–
5604.195	V I	15	–	–
5603.988	U	4	1	–
5603.930	Cb	5 h	1	–
5603.8	bh Ti	5	–	L
5603.651	Nd	5	–	–
5603.645	Sm	4	–	–
5603.550	Ru I	5	–	–
5603.518	Cb	15	5	–
5603.198	Nd	3	–	–
5603.188	Sm II	100 d	–	–
5603.142	Ru I	12	–	–
5603.14	I II	–	[2]	Ke
5602.996	Pd I	4	–	–
5602.971	V	3	2	–
5602.956	Fe I	45	35	–
5602.913	U	5	–	–
5602.836	Ca I	15	10	–
5602.779	Fe I	8	8	–
5602.756	Mo	20	5	–
5602.678	Nd	5	–	–
5602.56	Lu	1	5	Me
5602.5	bh La	200	–	Me
5602.4	bh La	100	–	Me
5602.310	Pd I	2	–	–
5602.30	Sb	10	–	Wt
5602.046	Mn	5	–	Fu
5601.936	Re	4	–	–
5601.918	Nd	20	–	–
5601.85	A I	–	[2]	Ms
5601.623	Pd I	8 h	–	–
5601.620	Th	6	–	–
5601.5	Ra I	–	[35]	Rs
5601.433	Nd	15	–	–
5601.380	V I	25	–	–
5601.303	Ce	50	–	–
5601.264	Ca I	15	10	–
5601.19	Er	20	–	Ed
5601.08	A I	–	[60]	Ms
5601.046	Mo	10	10	–
5600.854	Sm II	200	–	–
5600.83	Br	–	[30]	Bl
5600.793	Ti	2	10	–
5600.77	Hf	2	–	Me
5600.43	A I	–	[40]	Ms
5600.310	I	–	[50]	Ke
5600.234	Fe I	2	–	–
5600.038	Ni I	10	–	–
5600.0	bh La	100	–	Me
5599.93	Sb II	4	[7]	Wt
5599.9	bh La	50	–	Me
5599.811	Eu	40	–	–
5599.787	Th	6 l	–	–
5599.665	Th	2	–	–
5599.591	Cb	5	1 h	–
5599.563	Sm	2	–	–
5599.421	Rh I	300 w	3	–
5599.41	Bi I	10	–	Wt
5599.101	Eu	10	–	–
5598.955	Ce	10	–	–
5598.769	Cd I	15	–	Ps
5598 752	Ta	60	–	–
5598.677	Sm	3	–	–
5598 597	I	–	[25]	Ke
5598.50	A I	–	[20]	Ms
5598.489	Nd	4	–	–
5598.486	Eu	2	–	–
5598.486	Yb	3	–	–
5598.478	Co	50	–	–
5598.474	Ca I	35	20	–
5598.362	I	–	[35]	Ke
5598.289	Fe I	20	–	–
5598.145	Sm	2	–	–
5597.947	Ce	12	–	–
5597.9	bh C	50	–	L
5597.9	bh Ti	40	–	L
5597.852	Nd	3	–	–
5597.69	Ti	10	–	–
5597.556	Sm	3	–	–
5597.46	A I	–	[500]	Ms
5597.379	U	6	1	–
5597.346	Dy	3	–	–
5597.292	Pr	3	1	–
5597.207	Gd	12	–	–
5597.17	Tb	10	–	Ed

Wavelength	Element	Intensities Arc	Spk., [Dis]	R
5596.5	bh Zr	2	–	L
5596 322	Mo	10	2	–
5596 20	Sn II	5	[4]	Mc
5595.866	Ce	25	–	–
5595 811	Nd	8	–	–
5595.72	Cb	–	4 wh	Me
5595.45	Rn I	–	[20]	Rs
5595.40	Hg II	–	[20]	Ps
5595.068	Th	8	–	–
5594.944	Ce	15	–	–
5594.918	Pr	6	–	–
5594.89	Cb	3	1	–
5594.879	Rh I	5	–	–
5594 87	Xe	–	[8 whl]	Hu
5594.857	Re	2 h	–	–
5594.79	Er	8	–	Ed
5594.768	Co I	2	–	–
5594.659	Fe	10	–	–
5594.652	Eu	4	–	–
5594.482	Ti	10	–	–
5594.458	Co	40	–	–
5594.454	Ca I	35	20	–
5594.425	Nd	150	5	–
5594.37	Xe I	–	[6]	Me
5594.122	Yt I	2	–	–
5594.120	Gd	8	–	–
5593.735	Ni I	40	2 h	–
5593.73	Cu II	–	5	Sh
5593.721	Ce	4 w	–	–
5593.70	Ho	2	–	Ed
5593.615	Th	10	1	–
5593.572	W	6	–	–
5593.474	Gd	6	–	–
5593.450	Er	20	–	–
5593.372	Sc I	5	–	–
5593.294	Ba	12	–	–
5593.23	Al II	–	[200]	Sy
5593.133	I	–	[25]	Ke
5593.093	Eu	6	–	–
5592.90	Te	–	[15]	Bl
5592.671	Nd	3	–	–
5592.5	bh Zr	2	–	L
5592.415	V I	50	50	–
5592.380	Sm	15	–	–
5592.306	Dy	3	–	–
5592.283	Ni I	150 R	1	–
5592.258	Eu	25	–	–
5592.185	Co I	2	–	–
5591.919	Sm	3	–	–
5591.883	Gd	20 r	–	–
5591.75	A	–	[5]	Ms
5591.670	Sm	8	–	–
5591.61	Xe II	–	[50 wh]	Hu
5591.598	Eu	4	–	–
5591.577	Mo	20	12	–
5591.41	Kr I	–	[2]	Me
5591.322	Sc I	15	–	–
5591.166	Sm	6	–	–
5591.16	Se II	–	[500]	Bl
5591.15	Ra I	–	[8]	Rs
5591.15	Ne I	–	[8]	Gr
5591.035	W	5	–	–
5590.96	Yt I	4	2	Me
5590.946	Cb	8	2 h	–
5590.84	Er	8	–	Ed
5590.732	Co I	500	–	–
5590.73	Hf II	3	5	Me
5590.525	Ce	6	–	–
5590.27	I	–	[5]	Ke
5590.110	Ca I	15	10	–
5589.94	Tm	5	20	Me
5589.93	Br	–	[250]	Bl
5589.919	Nd	2	–	–
5589.919	Sm	4	–	–
5589.718	Ti	10	–	–
5589.43	Sn II	7	8	Ar
5589.384	Ni I	20	–	–
5589.378	Ne I	–	[50]	Ps
5588.935	Gd	8	–	–
5588.92	Sn II	2 h	[50]	Mc
5588.8	bh La	2	–	Me
5588.754	Th	10	–	–
5588.748	Ca I	35	25	–
5588.69	A I	–	[500]	Ms
5588.473	Yb	30	100	–
5588 441	Nd	2	–	–
5588.342	La I	40	–	–
5588.330	Ce	10	–	–
5588.25	P II	–	[70 l]	Gu
5588.191	Sm	25	–	–
5588.18	Br	–	[15]	Bl
5588.150	W	6	–	–
5588.123	U	3	1	–
5587.962	Nd	10	–	–
5587.865	Ni I	50	–	–
5587.741	Th	10	1	–
5587.612	Nd	5	–	–
5587.576	Fe	6	–	–
5587.461	Sm	3	–	–
5587.186	U	2	–	–
5587.026	Th	10 d	–	–
5586.97	Cb	15	5	–
5586.963	Tb	10	–	–
5586.9	bh La	6	–	Me
5586.770	Eu	200	–	–
5586.763	Fe I	400	50	S
5586.43	Se I	–	[8]	Rd
5586.41	I I	–	[20]	Mu
5586.367	Yb	20	–	–
5586 34	Se I, II	–	[15]	Rd
5586.249	Eu	300	–	–
5586.22	Zn II	–	[4]	Vs
5586.149	Gd	8	–	–
5585 996	V I	8	8	–
5585.905	Ne I	–	[5]	Ps
5585.676	Ti	25	–	Bh
5585.5	bh C	–	–	L
5585.21	Zn II	12	[1]	Vs
5585.16	Er	8	–	Ed
5584.817	Ce	10	–	–
5584.764	Fe	25	2	–
5584.755	Re	40 w	–	–
5584.747	V I	5	5	–
5584.636	U	6	–	–
5584.6	bh Zr	2	–	L
5584.501	V I	18	18	–
5584.444	Os	50	–	–
5584.128	Ti	10 h	–	Bh
5584.107	Sm	5	–	–
5584.062	W	7 d	–	–
5584.016	Ta	60	–	–
5583.98	Tl I	15	–	Fl
5583.831	Tb	10	–	–
5583.759	Th	10	1	–
5583.699	Sm	3	–	–
5583.681	Gd	25	–	–
5583.621	Er	8	–	–
5583.5	Xe	–	[10 wh]	Hu
5583 33	P II	–	[70 l]	Gu
5583.298	Sm	10	–	–
5583.19	Dy	3 h	–	Ks
5583.093	Tl	12	–	Bh
5582.912	Re	2	–	–
5582.77	Te	–	[15]	Bl
5582.737	Ce	20	–	–
5582.573	Ce	3	–	–
5582.4	Rn	–	[200]	Wa
5581.969	Ca I	20	12	–
5581.93	Xe	–	[5 wh]	Hu
5581.878	Sm	3	–	–
5581.868	Yt I	100	10	–
5581.858	Er	8	–	–
5581.83	A I	–	[60]	Ms
5581.784	Xe I	–	[50]	IMe
5581.76	Tl	–	[3]	El
5581.7	bh Zr	20	–	L
5581.610	U	12	5	–
5581.601	Nd	3	–	–
5581.599	Gd	7	–	–
5581.401	Ti	25 h	–	Bh
5581.375	Ta	12	–	–
5581.36	Tm	5	–	Me
5581.230	U	10	4	–
5581.097	Yt I	2	–	–
5580.95	A	–	[2]	Ms
5580.819	U	8	3	–
5580.810	Yb	3	30	–
5580.794	Re	2	–	–
5580.659	Os	8	–	–
5580.46	Te	–	[8]	Bl
5580.436	Sm	8 h	1	–
5580 388	Kr I	–	[80]	IJa
5580.262	Ti	7	–	–
5580 1	bh Zr	12	–	L
5580.039	Eu	300	–	–
5579.941	W	8	–	–
5579.761	Sc I	3	–	–
5579.658	Gd	8	–	–
5579.647	Eu	200 s	–	–
5579.627	Sm	10	1	–
5579.371	Th	10	–	–
5579.28	Xe I	–	[40]	Me
5579 13	Ca	–	2	Ad
5579.07	Ho	8	–	Ed
5578.935	Sm	10	–	–
5578.888	Ce	10	–	–
5578.86	S	–	[70]	Bl
5578.84	Ho	8	–	Ed
5578.813	Pr	3	–	–
5578 783	Rb I	150	–	IRz
5578 734	Ni I	50	–	–
5578 657	Nd	10	–	–
5578.56	A	–	[5]	Rt
5578.398	Ru	25	–	–
5578.29	Cb	15	5 h	–
5578.282	W	4	–	–
5578.270	Ce	12	–	–
5578.23	Yb	5	–	Me
5578.22	Cl I	–	[2]	Ks
5578.06	Cb	3	1	–
5577.745	Zn II	6	[2]	–
5577.715	Re	5 W	–	–
5577.703	Nd	10	–	–
5577.70	A II	–	[5]	Rt
5577.64	Kr I	–	[3 h]	Me
5577.416	Yt I	15	2	–
5577.283	Ce	5	–	–
5577.28	Rn I	–	[20]	Rs
5577.126	Eu	1000	–	–
5577.038	In II	–	[100]	Ps
5576.910	In II	–	[150]	Ps
5576.750	In II	–	[300]	Ps
5576.700	Nd	5	–	–
5576.504	V I	6	4	–
5576.40	Te	–	[100]	Bl
5576.341	W	10	–	–
5576 33	Er	8	–	Ed
5576.155	Cb	80	5	–
5576.129	Gd	12	–	–
5576.106	Fe I	150	–	–
5576.049	Ne I	–	[35]	Ps
5575.86	Hf	6	5	Me
5575.814	W	7	–	–
5575.7	bh Zr	12	–	L
5575.615	Ru	5	–	–
5575.589	Sm	5	–	–
5575.56	Kr I	–	[10]	Me
5575.53	Tb	10	–	Ed
5575.503	Nd	5	–	–
5575.27	Xe I	–	[2 h]	Me
5575.186	Mo	20	15	–
5574.908	Sm	50	–	–
5574.678	U	3	–	–
5574.665	Nd	3	–	–
5574.664	Sm	15	2	–
5574.426	Cr	8	–	–
5574.347	Sm	5	1	–
5574.20	A I	–	[5]	Ms
5573 96	Ho	12	–	Ed
5573.939	Sm	4	–	–
5573.680	Mn	10	–	–
5573.612	U	4	–	–
5573.485	Re	30 w	–	–
5573.430	Sm	80	–	–
5573.355	Th	10	1	–
5573.13	Kr I	–	[2]	Me
5573.117	Ti	7	–	Bh
5573.105	Fe I	8	–	–
5573.013	Mn	10	–	–
5572.849	Fe I	300	25	S
5572.649	Eu	4	–	–
5572.55	Yb	1	6	Me
5572.548	A I	–	[500]	IMe
5572.526	Gd	10	–	–
5572.48	Tb	10	–	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
5572.477	Th	6	1	-
5572.46	Er	8	-	Ed
5572.19	Xe	-	[50]	Hu
5572.189	Ce	8	-	-
5572.007	W	5	-	-
5572.00	Cb	-	2 wh	Me
5571.96	Tb	10	-	Ed
5571.841	Pr	10	-	-
5571.436	Cb	5	3 h	-
5571.238	Sc I	3	-	-
5571.200	Th	8	1	-
5571.0	Hg II	-	[4]	Ps
5570.922	Ce	4	-	-
5570.72	Tb	15	-	Ed
5570.683	U	15	15	-
5570.603	Sm	5	-	-
5570.509	Tl	8	-	Bh
5570.49	Ca	-	2	Ad
5570.450	Mo	200	100	-
5570.386	La I	5	-	-
5570.359	Eu	1000	-	-
5570.2895	Kr I	-	[2000]	S
5570.247	Pr	2 w	-	-
5569.956	Nd	4	2	-
5569.625	Fe I	300	15	S
5569.476	Mo	15	10	-
5569.38	Te	-	[15]	Bl
5569.294	Ce	3	-	-
5569.278	Sm	4	-	-
5569.179	Tb	10	-	-
5569.17	Cl	-	[4]	Ks
5569 033	Ru I	12	-	-
5568.81	Cl II	-	[15]	Ks
5568 65	Kr II	-	[100]	Me
5568 620	Mo	30	15	-
5568.507	U	3	-	-
5568.474	La I	40	-	-
5568.31	Rh I	2	-	Me
5568.290	Cr	3	-	-
5568.121	Yb	20	1	-
5568.10	I II	-	[2]	Mu
5568.09	Sb II	6	200 wh	Wt
5568.066	W	15	-	-
5567.959	U	1	2	-
5567.812	Ce	12	-	-
5567.77	Xe I	-	[2 h]	Me
5567.762	Mn	12	-	-
5567.752	Yt I	5	2	-
5567.63	N	-	[5]	Mt
5567.399	Fe I	30	-	-
5567.343	U	2	1	-
5567.0	Sb II	-	40	Dv
5566.943	La II	8	20	-
5566.93	Se II	-	[500]	Bl
5566.915	Pr	3	1	-
5566.9	bh Zr	5	-	L
5566.894	Eu	4	-	-
5566.7	Cs	-	[40]	Dr
5566 663	Mo	3	3	-
5566.615	Xe I	-	[100]	IMe
5566.52	Ho	100	-	Ed
5566.499	Ce	4	-	-
5566.410	Eu	4	-	-
5566.22	Xe	-	[5 h]	Me
5565.999	Tm	8	-	-
5565 970	Ce	35	-	-
5565 96	A I	-	[5]	Ms
5565.934	Tb	25	-	-
5565.727	La I	10	-	-
5565.708	Nd	3	-	-
5565.702	Fe I	70	-	-
5565.618	Sm	2	-	-
5565.57	Te	-	[8]	Bl
5565.56	Hf II	2	5	Me
5565.535	Pr	9 w	-	-
5565.488	Tl I	80	2	-
5565.452	La I	20	-	-
5564.999	Th	4	-	-
5564.960	Ce	40	-	-
5564.93	S	-	[150]	Bl
5564.861	Sc I	5	-	-
5564.628	Tl	8	-	Bh
5564.37	N I	-	[200]	Du
5564.236	Ce	10	-	-
5564.204	Th	12 d	3	-
5564.2	bh Cr	7	-	L
5564.187	U	40	3	-
5564.143	Re	15	-	-
5564 046	Mo	20	10	-
5563.983	W	8	-	-
5563.84	N	-	[30 h]	Mt
5563.681	U	2	-	-
5563.604	Fe I	100	5	Bb
5563.50	Xe I	-	[2]	Me
5563.367	Mo	10	2	-
5563.212	Re	150 w	-	-
5563 11	Er	8	-	Ed
5563.047	Ne I	-	[75]	Ps
5563 028	Ce	10	-	-
5563.019	Cs II	-	[125]	Sv
5563.000	Cb	10	3	-
5562 91	Tb	10	-	Ed
5562.90	Sn II	-	5	Ar
5562.845	Sm	3	-	-
5562.769	Ne I	-	[500]	IMe
5562.709	Fe I	15 h	-	-
5562.7	bh Zr	2	-	L
5562 694	Pd I	2	-	-
5562.6	bh La	5	-	Me
5562.49	Mo	3	3	-
5562.462	Dy	3	-	-
5562.441	Ne I	-	[150]	Ps
5562 2257	Kr I	-	[500]	S
5562.119	W	8	-	-
5562 09	Yb	6	2	-
5562.055	Pr	15 w	-	-
5562.022	U	2 h	1	-
5561.95	Sn II	-	[40]	Mc
5561 657	V I	15	15	-
5561.459	Pr	3	1	-
5561.378	Sm	20	-	-
5561.168	Nd	10	-	-
5561.161	Sm	2	-	-
5561.10	Sc I	3	-	Me
5560 94	Ho	20	-	Ed
5560 690	Gd	20	-	-
5560.622	Os	7	-	-
5560.548	V I	3	1	-
5560 54	Se II	-	[8]	Bl
5560.4	bh La	8	-	Me
5560.37	N I	-	[200]	Du
5560.223	Fe I	5 h	-	-
5560.22	A I	-	[10]	Ms
5560.179	Pt	2	-	-
5560.015	Pt	6	-	-
5559 899	Th	6	-	-
5559 767	W	8	-	-
5559.749	Ru I	60	-	-
5559 726	Gd	8	-	-
5559 62	A I	-	[200]	Ms
5559 26	Kr I	-	[2]	Rs
5559 223	Ce	15	-	-
5559 087	Ne I	-	[35]	Ps
5559.006	Nd	5	-	-
5558.965	W	2	-	-
5558 91	S II	-	[5]	Ig
5558 825	Co	5	-	-
5558.755	W	2	-	-
5558 749	V I	18	18	-
5558.702	A I	-	[500]	IMe
5558 658	Ce	6	-	-
5558 630	Sm	2	-	-
5558.341	Th	10	-	-
5558.31	As II	-	200	Ro
5557.920	Zr I	3 h	-	-
5557.904	Al I	15	-	-
5557.895	U	10	1	-
5557 62	Nd	4	-	Kn
5557.44	N	-	[10]	Du
5557.313	Th	8	-	-
5557.28	Xe I	-	[2]	Me
5557 214	Re	15	-	-
5557.18	Rh I	2	-	-
5557.134	Os	5	-	-
5557.02	Al I	15	-	Wt
5556 945	Ce	8	-	-
5556.802	Rh	3	-	-
5556.769	Ru	6	-	-
5556.723	Mo	20	12	-
5556.59	Er	8	-	Ed
5556.520	Ru I	10	-	-
5556.476	Yb	1500	50	-
5556.450	Sr	4	-	-
5556.44	Yt I	5	-	Me
5556.382	Sm	5	-	-
5556 30	Tb	25	-	Ed
5556.282	Mo	30	15	-
5556.254	Ce	35	-	-
5556.21	Sb	6	-	Wt
5556.1	bh Zr	5	-	L
5556.045	In II	-	[100]	Ps
5556 01	S II	-	[5]	Ig
5555.993	Sb II	-	[2]	Lg
5555.981	Zr	2	-	-
5555 85	Ra I	-	[500]	Rs
5555.85	Er	8	-	Ed
5555.769	U	1	2 h	-
5555.765	Nd	5	-	-
5555 607	In II	-	[15]	Ps
5555 432	In II	-	[70]	Ps
5555 389	Zr I	3	-	-
5555 315	W	6	-	-
5555 140	In II	-	[30]	Ps
5555 08	Rh I	2	-	-
5554.99	Xe	-	[2 h]	Hu
5554.95	Tb	25	-	Ed
5554.946	In II	-	[30]	Ps
5554.94	Cu I	5	-	Sh
5554 94	O I	-	[100 h]	Ps
5554 887	Fe I	100	-	-
5554.737	Sm	5	-	-
5554.42	Tb	25	-	Ed
5554.281	Cr	3 s	-	-
5554.115	W	6	-	-
5554.07	A	-	[5]	Rt
5553.693	Ni I	8	-	-
5553.595	Sc I	5	-	-
5553.585	Fe I	6	-	-
5553.57	Ra I	-	[250]	Rs
5553.40	Tb	10	-	Ed
5553.40	A I	-	[2]	Ms
5553.399	Pr	5 d	-	-
5553.33	Nd	2	-	-
5553.328	Tl	15	-	Bh
5553.16	Er	12	-	Ed
5553.14	Ho	30	-	Ed
5553.122	Cb	3	1	-
5553.10	Xe I	-	[3 h]	Me
5553.1	bh Zr	60	-	L
5553 015	Sm	3	-	-
5552.99	Kr II	-	[100 whs]	Me
5552 883	Os	12	-	-
5552.863	Nd	8	-	-
5552 76	A I	-	[10]	Ms
5552.63	P	-	[15]	Gu
5552.619	U	4	3	-
5552.45	Mn	4	-	-
5552 385	Xe I	-	[80]	IMe
5552.35	Bi	500 whl	100 l	Wt
5552.296	Ce	6	-	-
5552.25	Sc II	-	4	Me
5552.207	Gd	2	-	-
5552.188	Mo	12	3	-
5552 12	Hf	40	5	Me
5551.985	Mn	10	-	-
5551.95	N II	-	[30]	Fl
5551.7	bh Zr	60	-	L
5551.651	I II	-	[15]	Ke
5551.50	Er	8	-	Ed
5551.50	Xe	-	[2 whs]	Hu
5551.5	bh B	8	-	L
5551.454	Sm	3	-	-
5551.441	U	8	5	-
5551.409	Ce	8	-	-
5551 368	Th	10	-	-
5551.347	Cb	30	10	-
5551.258	U	2	1	-
5551 020	W	5	-	-
5550.965	Ti	10	-	-
5550.60	Hf	30	5	Me
5550 40	Sc I	2 h	-	Me
5550.399	Sm	125	-	-
5550 368	Zr I	3 h	-	-
5550.331	W	8	-	-
5550 216	Gd	8	-	-

Wave-length	Element	Intensities Arc	Spk., [Dis.]	R
5550.092	Nd	10	1	–
5550.038	Ce	6 w	–	–
5549.95	Fe	8 h	–	–
5549.79	Hg I	–	[15]	Wd
5549.68	Sc I	3	–	Me
5549.607	Cb	5	–	–
5549.311	Ta	4	–	–
5548.971	Tb	10	–	–
5548.966	W	2	1	–
5548.954	Sm	80	–	–
5548.817	Ce	25	–	–
5548.76	Os	3	–	–
5548.75	U	2	1	–
5548.706	Nd	5	–	–
5548.474	Nd	10	1	
5548.325	Ta	60	–	–
5548 312	Pr	3	1	–
5548.201	Gd	8	–	–
5548.165	Th	15 s	–	–
5548.158	V	8 W	10 h	–
5548.081	W	6	2	–
5548.063	U	6	4	–
5547.69	Tb	10	–	Ed
5547.678	Nd	2	–	–
5547.56	La	2 h	4 h	Me
5547 446	Eu	1000	–	–
5547.4	bh Zr	2	–	L
5547.29	Ho	8	–	Ed
5547.275	Dy	8	–	–
5547.188	Yb	2	15	–
5547.120	Ne I	–	[8]	Ps
5547.067	V I	40	40	–
5547.04	Tb	10	–	Ed
5547.020	Pd I	50	2	–
5546.979	Nd	2	–	–
5546.968	Co I	4	–	–
5546.819	Os	8	–	–
5546.521	W	3 l	–	–
5546.490	Fe I	40	–	–
5546.419	Cb	1	10	–
5546.36	I I	–	[2]	Mu
5546.148	Ba	3 wh	–	–
5546.117	Th	8	–	–
5546.111	U	3	1	–
5546.11	Kr II	–	[5 wh]	Me
5546.10	Tb	15	–	Ed
5546.007	Yt II	6	10	–
5545.94	Ag I	30 l	–	Bx
5545.931	V I	12	12	–
5545.930	Co I	25 h	–	–
5545.910	Nd	4	–	–
5545.623	Cb	2 h	10 h	–
5545.320	Zr I	5	–	–
5545.2	bh Zr	20	–	L
5545.140	Ta	4 l	–	–
5545.11	N I	–	[20]	Mt
5545.1	Pb	–	8	Kl
5545.08	A	–	[2]	Rt
5545.008	Pr	5	1	–
5544.999	Gd	12	–	–
5544.907	La I	5	–	–
5544.865	V I	5	3	–
5544.848	Nd	2	–	–
5544.822	U	8	3 h	–
5544.653	Ce	10	–	–
5544.615	Yt II	10	80	–
5544.6	Pb II	–	[40]	Ea
5544.585	Rh I	50	1	–
5544.49	P	–	[50]	Gu
5544.489	Mo	20	12	–
5544.25	Ra	–	[15]	Rs
5544.140	Ti	10	–	Bh
5543.980	Ti	7	–	Bh
5543.928	Fe I	10	–	–
5543 603	Sm	2	–	–
5543.49	N II	–	[30]	Fl
5543.48	Cu II	–	2	Sh
5543.357	Sr I	30	5	–
5543.241	Nd	20	–	–
5543.183	Fe	25	–	–
5543.121	Mo	20	15	–
5542.960	W	4	–	–
5542.897	Th	5	–	–
5542.799	Pd I	100	2	–
5542.733	Sm	2	–	–
5542.73	A I	–	[2]	Ms
5542.713	Ce	5	–	–
5542.650	Sm	10	–	–
5542.541	Eu	80	–	–
5542.404	W	4	–	–
5542.187	Dy	3	–	–
5542.064	Hn I	2	–	–
5541.874	Ti	15	–	Bh
5541.791	Nd	5	–	–
5541.65	Kr II	–	[4 whs]	Me
5541.647	Mo	12	5	–
5541.632	Yt I	2	–	–
5541.596	Eu	6	–	–
5541.468	Cb	5	2	–
5541.46	A I	–	[2]	Ms
5541.346	Sm II	10	–	–
5541.258	La I	50 W	–	–
5541.18	P II	–	[50]	Gu
5541.030	Sc I	3	–	–
5540.90	A I	–	[40]	Ms
5540.73	Er	8	–	Ed
5540.723	Pr	3 w	–	–
5540.7	bh C		–	L
5540.662	Ru	12	–	–
5540.612	Ir	2	–	–
5540 578	Ce	8	–	–
5540.44	In	–	5	Sq
5540.38	Xe I	–	[3 h]	Me
5540.36	N	–	[5]	Du
5540.2	Bi II	–	20	Ml
5540.187	U	2	1	–
5540.16	N II	–	[5]	Fl
5540.052	Sr	20	30	–
5539.901	Th	18 d	4	–
5539.817	Gd	12	–	–
5539.489	W	10	–	–
5539.410	Mo	25	12	–
5539.4	bh Zr	20	–	L
5539.28	Fe	30	–	–
5539.26	Nd	10	–	–
5539.259	Th	12	–	–
5539.064	Yb	200	5	–
5538.96	Tb	10	–	Ed
5538.806	Nd	5	–	–
5538.8	bh Zr	12	–	L
5538.767	Pr	3	1	–
5538.738	Ti	10	–	–
5538.690	W	4	–	–
5538.641	Ne I	–	[50]	Ps
5538.57	Fe	50	–	–
5538.530	U	6	5	–
5538.395	Sm	2	–	–
5538.373	Pr	10	–	–
5538.333	Gd	20	–	–
5538.26	Hf	3	–	Me
5538.02	Hf	4	1	Me
5537.821	Ru	5	–	–
5537.768	Nd	2	–	–
5537.756	Mn	40	–	–
5537.742	W	12	–	–
5537.535	Ce	10	–	–
5537.518	Ti	15	–	–
5537.417	Zr I	5	–	–
5537.39	A	–	[2]	Rt
5537.324	Ti	10	–	–
5537.299	W	8	–	–
5537.279	Nd	3	–	–
5537.274	Tm	3	–	–
5537.127	Th	10	1	–
5537.071	Sm II	50	–	–
5537.032	In II	–	[50]	Ps
5536.83	Eu	3	–	Kn
5536.736	Ta	2 h	–	–
5536.73	Te	–	[25]	Bl
5536.683	Zr	2	–	–
5536.553	In II	–	[70]	Ps
5536.444	Nd	2	–	–
5536.40	Br I	–	[20]	Ks
5536.4	bh La	10	–	Me
5536.30	Br	–	[50]	Bl
5536.273	Tb	25	–	–
5536.26	Er	8	–	Ed
5536.198	Sm	2	–	–
5536.13	Eu	30	–	Kn
5536.01	K II	–	[10]	Bn
5536 0	C II	–	5 h	En
5535.940	In II	–	[70]	Ps
5535.796	U	6	2	–
5535.671	La II	50	100	–
5535.551	Ba I	1000 R	200 R	–
5535.504	Sm	3	–	–
5535.476	Nd	3	–	–
5535.411	Fe	50	–	–
5535.39	N II	–	[70]	Fl
5535.382	V I	2	2	Me
5535.38	Tb	15	–	Ed
5535.271	Nd	2	–	–
5535.240	Ce	15	–	–
5535.176	Pr	10	2	–
5535.16	Gd	8	–	Ks
5535.04	Rh	80	1	–
5534.98	Cu II	–	3	Sh
5534.860	Fe II	–	10	Do
5534.807	Sr	20	15	–
5534.66	Fe I	20	–	–
5534.58	Tb	10	–	Ed
5534.548	Gd	8	–	–
5534.542	Mo	5	4	–
5534.45	A I	–	[60]	Ms
5534.291	Gd	8	–	–
5534.2	bh La	8	–	Me
5533.84	Rh I	3	–	–
5533.840	Nd	10	–	–
5533.838	V I	18	18	–
5533.678	Ne I	–	[75]	Ps
5533.64	Er	8	–	Ed
5533.396	Nd	15	–	–
5533.33	Gd	8	–	Ks
5533 284	Ti	6	–	–
5533 26	W	25	–	Me
5533.244	Eu	30	–	–
5533.20	P	–	[15]	Gu
5533.129	Th	5	–	–
5533.046	Mo	200	100	–
5532.981	Ti	10	–	–
5532.971	Nd	10 h	–	–
5532.813	Sm	2	–	–
5532.78	Xe I	–	[2 h]	Me
5532.749	Fe I	4	–	–
5532.663	Re	100	–	–
5532.605	Sm	3	–	–
5532.597	Cb	3	1	–
5532 35	Er	8	–	Ed
5532.300	Zr I	3	–	–
5532.29	Kr II	–	[5]	Me
5532.17	La I	2	10	Me
5532.16	Cl I	–	[6]	Ks
5532 11	Tb	15	–	Ed
5532 087	Nd	15	–	–
5532.059	La	3	–	–
5532.037	Ce	3	–	–
5532.0	Na I	15	–	Fl
5531.89	Sb II	4	[5]	Wt
5531.735	Mo	5 h	2 h	–
5531.523	W	18	–	–
5531 282	U	5	–	–
5531.153	Pr	20 W	–	–
5531.07	Xe II	–	[300]	Hu
5530.993	Ru	5	–	–
5530.769	Co I	500	–	–
5530.713	U	3	1	–
5530.689	Th	8	–	–
5530.57	Ho	8	–	Ed
5530.556	Dy	3	–	–
5530.494	Ti	30	–	Bh
5530.485	Nd	3	–	–
5530.42	Ho	8	–	Ed
5530 30	Tb	10	–	Ed
5530.29	Hf	2	–	Me
5530.27	N II	–	[50]	Fl
5530.193	Pr	4	1	–
5530.16	In II	–	[12]	Ps
5530.12	Se I	–	[8]	Rd
5529.954	Sm	5	–	–
5529.95	Yb	–	8 h	Me
5529.882	La I	5	–	–
5529.80	Er	8	–	Ed
5529.455	Pd I	10	–	–
5529.286	Mo	3 h	2 h	–
5529.09	Yb	1	9	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5529.069	Nd	10	–	–
5528.97	Br	–	[15]	Bl
5528.93	A I	–	[40]	Ms
5528.743	In II	–	[15]	Ps
5528.63	Kr I	–	[2]	Me
5528.495	W	7	–	–
5528.461	Mg I	60	30	–
5528.412	Zr I	7	–	–
5528.359	Ta	15	–	–
5528.342	Tm	3	2	–
5528.333	Nd	20	–	–
5528.218	Th	2	–	–
5528.111	W	3	–	–
5528.03	Dy	3	–	Ks
5528.003	Th	4	–	–
5527.90	Tl I	30	–	Fl
5527.895	Ce	5	–	–
5527.876	Pr	5 w	–	–
5527.848	U	25	40	–
5527.769	Yt I	10	–	–
5527.606	Tl I	8	–	–
5527.540	Yt I	100	15	–
5527.176	Ce	10	–	–
5526.98	Rn I	–	[15]	Rs
5526.968	Mo	25	15	–
5526.94	Tb	10	–	Ed
5526.850	Ce	5	–	–
5526.809	Sc II	100	300 wh	–
5526.803	Yt I	2	–	–
5526.661	W	3	–	–
5526.620	Eu	60	–	–
5526.569	Pr	5 w	–	–
5526.525	Mo	25	20	–
5526.354	U	2	–	–
5526.26	N II	–	[15]	Fl
5526.20	S	–	[15]	Bl
5526.143	Nd	5	–	–
5526.135	Sm	2	–	–
5525.97	In II	–	[15]	Ps
5525.900	Pr	4 d	1	–
5525.846	Pt	18	–	–
5525.833	I	–	[25]	Ke
5525.721	Nd	20	–	–
5525.71	I	–	[15]	Bl
5525.62	Tb	25	–	Ed
5525.59	Xe II	–	[25]	Hu
5525.572	Sm	5	–	–
5525.553	Fe I	40	2	–
5525.5	Bi II	2	4	Ml
5524.979	Co I	25 w	–	–
5524.93	A I	–	[300]	Ms
5524.615	Th	8 w	–	–
5524.57	Gd	10	–	Ks
5524.554	Yb	10	–	–
5524.35	Hf II	40	50	Me
5524.212	Th	8	–	–
5524.141	Pr	10 W	–	–
5524.12	Tb	40	–	Ed
5523.982	Ta	2 s	–	–
5523.938	Nd	5	–	–
5523.915	In II	–	[100]	Ps
5523 869	Zr	2	–	–
5523.861	In II	–	[70]	Ps
5523.70	A I	–	[5]	Ms
5523.613	In II	–	[50]	Ps
5523.569	Cb	30	10	–
5523.531	Os	100	–	–
5523.5	Pb I	–	25	Ro
5523.47	Kr II	–	[30]	Me
5523.44	Tb	10	–	Ed
5523.395	Re	10 w	–	–
5523.310	Sm	2	–	–
5523.292	Co I	300 w	–	–
5523.287	In II	–	[50]	Ps
5523.16	Er	8	–	Ed
5523 001	In II	–	[50]	Ps
5522.994	Ce	100	–	–
5522.94	Kr II	–	[60]	Me
5522.804	Pr	15 w	1	–
5522.789	Rb II	–	100	Rr
5522.579	In II	–	[15]	Ps
5522.461	Fe I	8	–	–
5522.459	Ce	15	–	–
5522.42	Se II	–	[750]	Bl
5522.30	Tb	15	–	Ed
5522 165	Nd	10	–	–
5522.047	I	–	[35]	Ke
5521.884	Cb	5 h	1	–
5521.83	Sr	50	10	Fl
5521.77	Th	4	–	–
5521.71	Gd	8	–	Ks
5521.70	Yt II	4	40	Me
5521.68	Pt	4	–	–
5521.637	Sm	3	–	–
5521.628	Yt I	5	–	–
5521.170	Mo	3	2	–
5521.17	Kr I	–	[3]	Me
5521.154	Ta	4	–	–
5521.104	Re	20	–	–
5521.043	U	6	–	–
5521.008	W	10	–	–
5520.645	Mo	20	12	–
5520 63	Ne I	–	[3]	Gr
5520.602	Nd	15	–	–
5520.53	Rn I	–	[5]	Rs
5520.52	Kr I	–	[40]	Me
5520.496	Sc I	80	–	–
5520.42	S	–	[15]	Bl
5520.300	Pr	4 w	–	–
5520.24	Yb	–	4 h	Me
5520.06	Re	15 h	–	–
5520.038	Mo	20	12	–
5520.034	Nd	2	–	–
5519.90	Tb	10	–	Ed
5519.636	Eu	3	–	Kn
5519.622	Sm	7	–	–
5519.6	bh Zr	5	–	L
5519.520	Re	3 h	–	–
5519.359	In II	–	[500]	Ps
5519.354	Nd	5	–	–
5519.253	In II	–	[15]	Ps
5519.164	W	7	–	–
5519.115	Ba I	200 wh	60	Sz
5518.988	Th	4	–	–
5518.91	Ta	100 W	–	Ks
5518.868	Sm	4	–	–
5518.8	bh Mg	3	–	L
5518.790	W	4	–	–
5518.77	Tb	10	–	Ed
5518.75	Er	12	–	Ed
5518.74	S	–	[15]	Bl
5518.685	Nd	10	–	–
5518 56	Xe II	–	[3]	Hu
5518.491	Ce	12	–	–
5518.392	Nd	5	–	–
5518.207	Ti	6	–	–
5518.20	A I	–	[5]	Ms
5518 161	U	2	–	–
5518.12	Er	12	–	Ed
5518.048	Zr I	2	–	–
5517.727	Ta	2 s	–	–
5517.429	Mo	8	1	–
5517.395	Ce	10	–	–
5517 388	Cb	3	1	–
5517.342	La I	30	–	–
5517.107	Zr I	4	–	–
5517.08	P	–	[30]	Gu
5516 82	Er	8	–	Ed
5516 771	Mn	50	–	–
5516.66	Kr I	–	[20]	Me
5516.45	Ho	12	–	Ed
5516.3	bh V	2	–	L
5516.291	Nd	10	–	–
5516 275	Ta	2	–	–
5516 24	Tb	50	–	Ed
5516.21	Gd	10	–	Ed
5516.145	Sm	200	–	–
5516.081	Ce	6	–	–
5516.011	Os	7	–	–
5516.008	Nd	10	–	–
5516.005	Er	8	–	–
5515 982	Co I	3 h	–	–
5515 674	Nd	2	–	–
5515.63	Gd	6	–	Ks
5515.402	Dy	3	–	–
5515.3	bh Zr	20	–	L
5515.280	La I	15	–	–
5515.110	Pr	5	1	–
5514.96	Hf II	1	3	Me
5514.862	Th	5	–	–
5514.842	W	2 h	–	–
5514 77	P	–	[30]	Gu
5514.752	Nd	2	–	–
5514.73	Er	12	–	Ed
5514.71	Cl	–	[4]	Ks
5514.698	W	50 w	8	–
5514.631	Fe	50	10	–
5514.56	Gd	8	–	Ks
5514.542	Ti I	80	15	–
5514.54	Tb	50	–	Ed
5514.45	In	–	5	Sq
5514.45	A	–	[2]	Rt
5514.346	Ti I	70	10	–
5514.215	Sc I	60	–	–
5514.096	Pt	15	–	–
5513.929	Sm	2	–	–
5513.808	Mo	3	1	–
5513.76	Gd	4	–	Ks
5513.607	Yt I	6	–	–
5513.583	Pr	10	2	–
5513.507	Ta	2	–	–
5513.40	Er	8	–	Ed
5513.386	U	5 h	1	–
5513.209	Sm	2	–	–
5513.208	In II	–	[15]	Ps
5513.156	In II	–	[30]	Ps
5513.113	Ce	4	–	–
5513.098	In II	–	[50]	Ps
5513.060	In II	–	[70]	Ps
5513.00	Cl I	–	[4]	Ks
5512.998	In II	–	[70]	Ps
5512.963	Sm	2	–	–
5512.955	Ca I	4	5 d	–
5512.916	In II	–	[100]	Ps
5512.824	In II	–	[150]	Ps
5512.816	Cb	20	3	–
5512.70	O I	–	[70 h]	Ps
5512.69	K II	–	[5]	Bn
5512.566	Rb	–	30	Rr
5512.527	Ti I	125	12	–
5512.50	Tb	15	–	Ed
5512.371	Ru	6	–	–
5512.101	Sm	80	–	–
5512.085	Ce	50 s	–	–
5511.947	Nd	5	–	–
5511.787	Eu	4	–	–
5511.784	Ti I	18	–	–
5511.689	Ce	4	–	–
5511.656	Pr	8 w	–	–
5511.501	U	30	2	–
5511.490	Mo	15	4	–
5511.485	Ne I	–	[15]	Ps
5511.46	Sn	–	5	Ar
5511.375	Sm	3	–	–
5511.21	Cb	3	1	–
5511.181	V I	25	25	–
5511.176	Ne I	–	[3]	Ps
5511.098	U	3	1	–
5511.096	Sm	8	–	–
5511.091	Eu	6	–	–
5510.974	In II	–	[15]	Ps
5510.90	Br	–	[5]	Bl
5510.881	In II	–	[70]	Ps
5510.800	In II	–	[30]	Ps
5510.789	Sm	3	–	–
5510.772	In II	–	[15]	Ps
5510 714	Ru	100	–	–
5510.682	Ce	10	–	–
5510 68	Cb	3 h	1	–
5510.678	Th	5	–	–
5510.547	Eu	300 s	–	–
5510.435	U	10	–	–
5510.34	La I	200	–	Me
5510 2	bh La	8	–	Me
5510.12	Hf	3	–	Me
5510.114	Sm	2	–	–
5510 001	Ni I	20	–	–
5509.989	Th	10	–	–
5509.927	Cr	6	–	–
5509.896	Yt II	30	40	–
5509.67	S II	–	[25]	Ig
5509.662	Sm II	40	–	–
5509.61	Tb	25	–	Ed
5509.330	Os	15	–	–
5509.20	Xe	–	[10 Whl]	Hu

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5509.146	Pr	50	2	–
5509.132	Nd	10	–	–
5509.122	Cb	5	2 h	–
5508.9	Bi	2	–	Ed
5508.781	Pr	7	2	–
5508.632	W	8	–	–
5508.620	V I	5	5	–
5508.493	W	4	–	–
5508.4	bh La	10	–	Me
5508.398	Nd	15	–	–
5508.38	Br	–	[5]	Bl
5508.243	Mo	20	–	–
5508.212	Cr	6	–	–
5507.874	Zr	2	–	–
5507.749	V I	60	60	–
5507.660	Nd	8	–	–
5507.63	A I	–	[10]	Ms
5507.46	Xe	–	[10]	Hu
5507.339	Ne I	–	[25]	Ps
5507.335	In II	–	[70]	Ps
5507.33	La I	5	–	Kn
5507.194	Nd	2	–	–
5507.174	Cs	–	[15]	Sv
5507.13	P II	–	[70 l]	Gu
5507.107	In II	–	[30]	Ps
5507.01	S I	–	[25]	Ms
5506.822	In II	–	[15]	Ps
5506.782	Fe I	150	10	S
5506.78	Br	–	[300]	Bl
5506.713	In II	–	[30]	Ps
5506.504	Dy	3	–	–
5506.491	Mo	200 r	100	–
5506.447	Ce	6	–	–
5506.112	A I	–	[500]	IMe
5506.090	Ce	6	–	–
5506.001	La I	50	–	–
5505.885	Fe I	9 h	–	–
5505.869	Mn	40	–	–
5505.865	V I	10	10	–
5505.67	Er	12	–	Ed
5505.655	Ta	25	–	–
5505.61	Re	2 h	–	–
5505.501	Yb	40	2	–
5505.50	Ra I	–	[25]	Rs
5505.184	Sm	4	–	–
5505.18	A I	–	[10]	Ms
5505.08	Gd	8	–	Ks
5504.978	Nd	10	–	–
5504.914	Eu	2 h	–	–
5504.873	V I	15	15	–
5504.721	I II	–	[60]	Ke
5504.652	Rh I	10	–	–
5504.585	Cb	30 w	3 h	–
5504.51	Ho	12	–	Ed
5504.34	Kr I	–	[20]	Me
5504.305	Th	6	–	–
5504.21	Mn	7	–	–
5504.17	Sr	60	25	Fl
5504.146	U	12	10	–
5504.120	Ni I	2	–	–
5504.051	Sm	3	–	–
5504.02	Kr I	–	[15]	Me
5503.901	Ti I	60	3	–
5503.809	La I	100	–	–
5503.78	Er	8	–	Ed
5503.704	Nd	3	–	–
5503.675	U	2	1	–
5503.593	Rh I	5	–	–
5503.537	Mo	5 h	5 h	–
5503.47	Yt I	10	2	Me
5503.453	W	45	1	–
5503.295	In II	–	[15]	Ps
5503.200	U	2 h	–	–
5503.152	In II	–	[30]	Ps
5502.88	Al II	–	[15]	Sy
5502.83	P	–	[30 h]	Gu
5502.802	Er	8	–	Ed
5502.8	bh Zr	5	–	L
5502.787	Dy	3	–	–
5502.669	La I	10	–	–
5502.628	Sm	4	–	–
5502.299	Eu	2	–	–
5502.245	La I	10	–	–
5502.123	Zr I	7	–	–
5501.98	Ra I	–	[250]	Rs
5501.938	Th	10	–	–
5501.919	Re	10	–	–
5501.9	bh C	–	–	L
5501.874	Mo	20	10	–
5501.747	Cb	3	2	–
5501.743	Sm	2	–	–
5501.61	Er	8	–	Ed
5501.544	Mo	20	15	–
5501.54	S I	–	[15]	Ms
5501.486	U	4 h	2	–
5501.470	Nd	20	–	–
5501.469	Fe I	150	–	S
5501.340	La	200	50	–
5501.017	W	5	–	–
5501.017	Ru I	6	–	–
5500.892	Sm	3	–	–
5500 824	Eu	20	–	–
5500.71	Kr I	–	[50]	Me
5500.702	U	10	–	–
5500.684	Ta	20	–	–
5500.60	I I	–	[5]	Mu
5500.514	W	15	15	–
5500.469	Eu	6	–	–
5500.41	Gd	10	–	Ks
5500.38	A	–	[2]	Rt
5500.10	Tb	15	–	Ed
5499.92	Gd	10	–	Ks
5499.8	Hg II	–	[5]	Ml
5499.71	P II	–	[150]	Gu
5499.63	Rn I	–	[5]	Rs
5499.54	Kr II	–	[50]	Me
5499.533	Cb	5	1	–
5499.491	Mo	5 h	3 h	–
5499.442	Ta	60 s	–	–
5499.251	Th	12	–	–
5499.00	A I	–	[10]	Ms
5498.86	Yb	–	20 hl	Me
5498.859	Nd	5	–	–
5498.78	Se I	–	[8]	Rd
5498.68	Gd	8	–	Ks
5498.64	Sn	2 h	2	Ar
5498.639	W	10	–	–
5498.57	Ho	20	–	Ed
5498.494	Mo	20	10	–
5498.24	A	–	[5]	Rt
5498.213	Sm	80	–	–
5498.194	Ce	15	–	–
5498.185	U	3	–	–
5498.18	S I	–	[8]	Ms
5498.048	In II	–	[30]	Ps
5497.98	As II	–	200	Ro
5497.909	Eu	4	–	–
5497.83	Ra	–	[8]	Rs
5497.661	I II	–	[15]	Ke
5497.645	In II	–	[50]	Ps
5497.553	In II	–	[70]	Ps
5497.519	Fe I	150	5	S
5497.407	Er	8	–	–
5497.40	Yt II	20	40	–
5497.38	Mn	4	–	–
5497 377	In II	–	[30]	Ps
5497.30	Hf	3	1	Me
5497.238	Pr	10 W	–	–
5497 09	As	–	12	Ro
5496.97	Rh I	3	–	Me
5496.942	Mo	5 h	5 h	–
5496.92	I II	–	[900]	Ke
5496.900	In II	–	[30 h]	Ps
5496.851	Pd I	7	–	–
5496.837	Dy	3	–	–
5496.691	In II	–	[30 h]	Ps
5496.687	Ru I	15	–	–
5496.60	I	–	[30]	Bl
5496.444	U	12	1	–
5496.418	Nd	10	–	–
5496.244	W	10	–	–
5496.21	Kr I	–	[3]	Me
5496.009	V I	3 h	1 h	–
5495 95	Ca	2 h	1	Ad
5495 872	A I	–	[1000]	IMe
5195 805	Eu	4	–	–
5495.805	Th	6	–	–
5495.70	N II	–	[70]	Fl
5495 668	Co I	15	–	–
5495 65	Tb	10	–	Ed
5495.61	Yt I	2	–	Me
5495.591	Sm	2	–	–
5495.57	Re	2 h	–	Me
5495.410	Ti	8	–	–
5495.282	W	4	–	–
5495.173	Ir I	5	–	–
5495.170	Eu	125	–	–
5495.07	Xe	–	[10 Whl]	Hu
5495.06	Br	–	[150]	Bl
5494.890	Ni I	5	–	–
5494.776	Ta	50	–	–
5494.668	U	8 h	1	–
5494.462	Fe	2	–	–
5494.407	Ne I	–	[50]	Ps
5494.309	Sm	3	–	–
5494 07	I	–	[15]	Ke
5494.01	Nd	15	1	Ks
5493.804	Mo	20 h	12 h	–
5493.719	Sm	80	–	–
5493.511	Fe I	4	–	–
5493.50	I	–	[20]	Ke
5493.49	A I	–	[20]	Ms
5493.452	La II	15	20	–
5493.38	Gd	8	–	Ks
5493.339	Nd	4	–	–
5493.22	Hf	1	6	Me
5493.18	Yt I	3	–	Me
5492.970	U	60	50	–
5492.640	Th	8	–	–
5492.593	W	4 h	–	–
5492.498	Sm	6	2	–
5492 368	Pr	4	1	–
5492.321	W	50	50	–
5492.301	Nd	8	–	–
5492.166	Mo	15	8	–
5492.06	A I	–	[40]	Ms
5491.867	Rh I	5	–	–
5491.81	As	–	12	Ro
5491.72	Er	12	–	Ed
5491.7	bh Zr	20	–	L
5491.671	Pr	3 h	–	–
5491.67	Ti	3	–	–
5491.65	Gd	6	–	Ks
5491.567	I	–	[100]	Ke
5491.539	Yt I	2 h	–	–
5491.43	Kr II	–	[4 h]	Me
5491.37	Gd	6	–	Ks
5491.33	Kr I	–	[2 h]	Me
5491.313	Sm	2	–	–
5491.28	Os	8	–	–
5491.236	U	8	6	–
5491.154	Ce	10	–	–
5491.067	La I	10	–	–
5491.063	Cb	3	1	–
5490.94	Kr I	–	[50]	Me
5490.845	Ti I	3	–	–
5490.643	Sm	15	–	–
5490.58	Gd	4 h	–	Ks
5490.563	Pr	4	–	–
5490.47	Tl II	–	5	El
5490.33	Sb	2	–	Wt
5490.3	bh Zr	5	–	L
5490.279	Mo	20	10	–
5490.153	Ti	70	2	–
5490.13	A I	–	[60]	Ms
5490.114	Ta	60	–	–
5490.101	Sm	3	–	–
5490.03	Eu	3	–	Kn
5489 969	W	10	–	–
5489.945	V I	18	18	–
5489.649	Co I	150 w	–	–
5489 398	Mo	3	1	–
5489 397	Sm	3	–	–
5489.134	W	5	–	–
5488.939	Sm	15	–	–
5488.934	Pr	3	–	–
5488.921	Th	6	–	–
5488.906	U	8	–	–
5488.86	Kr I	–	[5]	Me
5488 79	Br	–	[70]	Bl
5188.79	Tl I	15	–	Fl
5188 671	Mo	3	1	–
5188 648	Eu	500	–	–
5188 622	Th	10	–	–
5488.555	Xe I	–	[20 h]	IMe

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5488.473	W	5	–	–
5488.46	A I	–	[2]	Ms
5488.328	Zr	2	–	–
5488.32	Ra I	–	[25]	Rs
5488.26	Tb	15	–	Ed
5488.249	Sm	3	–	–
5488.204	Ti I	30	30	–
5488.18	Gd	3 h	–	Ks
5488.07	Te	–	[50]	Bl
5488.06	K II	–	[5]	Bn
5488.038	Sm	3	–	–
5487.919	V I	20	20	–
5487.785	W	15	–	–
5487.775	Fe I	10 h	–	–
5487.598	Cb	1	10	–
5487.577	Pr	8	–	–
5487.521	Zr I	2	–	–
5487.413	Pr	8	–	–
5487.218	V I	15	15	–
5487.138	Fe I	50	5	–
5487.03	Xe I	–	[6 h]	Me
5487.026	Nd	2	1	–
5487.021	U	12	8	–
5486.988	V	–	2 h	–
5486.837	La II	2	4	–
5486.6	Bi	4	–	Ed
5486.59	Yb	–	4	Me
5486.57	Gd	6	–	Ks
5486.47	A I	–	[20]	Ms
5486.12	Sr	40	8	Fl
5486.089	Zr I	4	–	–
5486.009	W	20	–	–
5485.93	Er	30	–	Ed
5485.7	bh Zr	20	–	L
5485.699	Nd	20	3	–
5485.528	Pr	4	–	–
5485.478	Eu	6	–	–
5485.448	Ti	10	–	–
5485.416	Sm	40	–	–
5485.28	Ho	8	–	Ed
5485.101	Nd	8	–	–
5484.7	Li II	–	[8]	Wr
5484.643	Ru I	10	–	–
5484.618	Sc I	60	–	–
5484.61	Ho	8	–	Ed
5484.569	Sm	4	–	–
5484.518	U	4	–	–
5484.46	Xe I	–	[4 h]	Me
5484.40	Eu	–	–	Kn
5484.323	Ru I	60	–	–
5484.3	bh La	10	–	Me
5484.287	Sm	2	–	–
5484.229	Rh I	15	1	–
5484.138	Th	12	–	–
5484.108	Ti	12	–	–
5484.08	Se II	–	[20]	Bl
5484.001	Nd	3	–	–
5483.962	Co I	150 w	–	–
5483.55	P II	–	[70 l]	Gu
5483.487	Cb	5	2	–
5483.343	Co I	500 w	–	–
5483.32	A I	–	[10]	Ms
5483.116	Fe I	15	–	–
5483.098	Sm	15 d	3	–
5483.088	Cb	5	1 h	–
5482.89	Br II	–	[15]	Bl
5482.65	Cu II	–	3	Sh
5482.548	U	12	18	–
5482.270	La II	25	50	–
5482.180	Sm	3	–	–
5482.13	Ra I	–	[100]	Rs
5481.989	Sc I	60	–	–
5481.97	Gd	7	–	Ks
5481.940	Yb	50	2	–
5481.869	Ti I	20	20	–
5481.852	Os	15	–	–
5481.843	Eu	2 h	–	–
5481.759	Pr	3	–	–
5481.459	Fe I	5	–	–
5481.45	Tb	10	–	Ed
5481.431	Ti I	35	1	–
5481.419	Rh I	10	1	–
5481.396	Mn	50	–	–
5481.252	Fe I	5	–	–
5481.223	U	30	25	–
5481.20	Br	–	[15]	Bl
5481.162	Ta	7 r	–	–
5481.157	Zr	2	–	–
5481.13	Xe	–	[2 h]	Hu
5481.002	Cb	8	5	–
5481.001	Re	3	–	–
5480.893	Ni I	2	–	–
5480.888	Th	6	–	–
5480.873	Fe I	10	–	–
5480.84	Sr	100 h	30	Fl
5480.83	Te	–	[8]	Bl
5480.827	Zr I	4	–	–
5480.75	Yt II	10	15	Me
5480.739	La II	5	40	–
5480.661	Sm	4	–	–
5480.637	W	9	–	–
5480.502	Cr	20	–	–
5480.30	Ba II	–	[15]	Rs
5480.295	Ru	25	–	–
5480.275	U	15	25	–
5480.18	Gd	7	–	Ks
5480.10	N II	–	[30]	Fl
5479.99	Br	–	[30]	Bl
5479.99	Ho	12	–	Ed
5479.730	Pr	10	–	–
5479.653	U	3	1	–
5479.60	I II	–	[15]	Ke
5479.404	Ru	40	–	–
5479.261	W	6	1 h	–
5479.14	Sn	–	2	Ar
5479.13	Te	–	[50]	Bl
5478.677	W	5	–	–
5478.61	Nd	15	–	Kn
5478.598	Ce	12	–	–
5478.596	Sm	2	–	–
5478.522	Yb	10	50	–
5478.495	Pt	50	2	–
5478.473	Fe I	2	–	–
5478.326	Zr I	4	–	–
5478.29	Sm II	2	–	Kn
5478.28	S	–	[8]	Bl
5478.13	N II	–	[15]	Fl
5477.866	U	6	–	–
5477.799	W	25	20	–
5477.778	Zr II	2 h	–	–
5477.74	P	–	[30]	Gu
5477.709	Ti I	70	2	–
5477.45	Er	20	–	Ed
5477.395	Zr I	2 h	–	–
5477.268	Os	30	–	–
5477.24	Dy	3	–	Ed
5477.077	Co I	40	–	–
5476.906	Ni I	400 w	8	–
5476.69	Lu	500	1000	Me
5476.58	Kr I	–	[2]	Me
5476.578	Fe I	80	–	–
5476.46	Kr II	–	[4 whl]	Me
5476.295	Fe	12	–	–
5476.29	Gd	4	–	Ks
5476.123	Rh I	10	–	–
5476.069	Cb	3	1	–
5476.038	W	8	–	–
5475.9	bh Mg	2	–	L
5475.897	Mo	20	12	–
5475.77	Sb II	–	[5]	Lg
5475.766	Pt	60	2	–
5475.725	U	20	18	–
5475.669	Pr	20 w	1	–
5475.66	Gd	8	–	Ks
5475.544	Ta	40	–	–
5475.183	Sm	10 d	2	–
5475.164	Ru	5	–	–
5475.161	La	8	–	–
5475.15	Er	8	–	Ed
5475.13	Os	15	–	–
5475.114	W	15	–	–
5475.06	S	–	[15]	Bl
5474.923	Zr I	2	–	–
5474.917	Fe	100	–	Rl
5474.862	Th	10	3	–
5474.734	Nd	3	2	–
5474.65	Tb	10	–	Ed
5474.62	U	2	2 h	–
5474.58	Os	8	–	–
5474.465	Ti I	12	–	–
5474.38	Zr	2	–	–
5474.227	Ti I	30	50	–
5474.041	Yb	10	–	–
5473.99	Se	–	[10]	Bt
5473.927	Sm	4	–	–
5473.920	Fe I	100	–	–
5473.689	Ba	10	–	–
5473.688	Sm	3	–	–
5473 63	S	–	[750]	Bl
5473.551	Ti I	8	–	–
5473.534	Ce	12	–	–
5473.44	A I	–	[500]	Ms
5473.436	Ti	6	–	–
5473.40	Yt II	10	20	Me
5473.370	Mo	50	25	–
5473.3	bh C	70	–	L
5473.292	Sm II	8	–	–
5473.083	Nd	6	–	–
5472.90	Si	–	2	Sy
5472 841	Ru I	4	–	–
5472.729	Fe I	7	–	–
5472.699	Ti I	12	–	–
5472 686	Sm	4	–	–
5472.66	Tb	10	–	Ed
5472.61	Xe II	–	[500]	Hu
5472 4	Pb II	–	[25]	Ea
5472 361	Ti	8	–	–
5472.340	W	7	–	–
5472.328	Eu	1000 s	–	–
5472.297	Ce	25	–	–
5472 215	Ta	2 h	–	–
5472.19	Sc I	10	–	–
5471.951	Pr	3	–	–
5471 95	Ho	8	–	Ed
5471.95	Sb II	–	[15]	Lg
5471.92	As II	–	15	Ro
5471.750	Pr	3 w	–	–
5471.565	Ta	2	–	–
5471.551	Ag I	500 h	100	–
5471.506	W	6	–	–
5471.327	V	12 W	12 W	–
5471.208	Ti I	25	25	–
5470.852	Rh I	25	1	–
5470.638	Mn	50	–	–
5470.53	I I	–	[25]	Db
5470.47	Gd	8	–	Ed
5470.457	Co I	50	–	–
5470.410	Nd	8	–	–
5470.34	Tb	40	–	Ed
5470.3	bh C	–	–	L
5470.29	Gd	2	–	Ks
5470.24	I	–	[2]	Bl
5470.065	K II	–	[40]	Dm
5469.998	Os	30	–	–
5469.920	Pr	8	–	–
5469.729	Gd	12	–	–
5469.708	Pr	3	–	–
5469.65	A	–	[20]	Ms
5469.63	Er	12	–	Ed
5469.63	Cu II	–	3	Sh
5469.58	Xe II	–	[10 h]	Hu
5469.490	Pt I	7	–	–
5469.404	Ir I	3	–	–
5469.399	Nd	2	–	–
5469.305	Co I	125	–	–
5469.2	bh V	15	–	L
5469.20	A	–	[2]	Rt
5469.18	Si	–	2	Sy
5469.110	W	10	–	–
5469.096	Dy	3	–	–
5469.041	Gd	8	–	–
5468.735	Rh I	6	–	–
5468.47	Yt I	12	–	Me
5468.46	Ho	20	–	Ed
5468.40	Sc I	2	–	–
5468.371	Ce	15	–	–
5468.320	Er	8	–	–
5468.28	Tb	10	–	Ed
5468.17	Kr II	–	[200 hs]	Me
5468.16	I	–	[2]	Ke
5468.110	Rh I	15	1	–
5468.101	Ni I	2	–	–
5468.021	Nd	2	–	–
5467.798	V I	10	10	–
5467.551	W	8	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5467.497	Nd	2	–	–
5467.208	Sm II	8	–	–
5467.13	A I	–	[6]	Ms
5467.05	Eu	10 W	–	Kn
5466.947	Fe	–	5	Do
5466.927	La I	3	–	–
5466.728	Sm	80	–	–
5466.472	Yt I	150	20	–
5466.459	Er	12	–	–
5466.407	Fe I	25	–	–
5466.23	Br I	–	[150 l]	Ks
5466.0	bh Zr	8	–	L
5465.9	Cs I	5 wh	–	Fl
5465.690	U	12	8	–
5465.570	Mo	20	5	–
5465.533	Tm	10	–	–
5465.50	Lu	3	–	Me
5465.487	Ag I	1000 R	500 R	–
5465.4	bh Zr	20	–	L
5465.344	Ce	20	–	–
5465.17	Te II	–	[15]	Bl
5464.61	I	–	[900]	Ke
5464.462	W	4	–	–
5464.39	Tb	10	–	Ed
5464.381	La II	25	30	–
5464.279	Fe	6	–	–
5464.236	U	5	–	–
5464.20	Ce	5	–	–
5464.08	Sb II	–	[100]	Lg
5464.064	Zr I	2	–	–
5463.974	Cr	15 s	–	–
5463.795	Sm	2	–	–
5463.6	Sn	2 h	2	Ar
5463.38	Hf II	10	10	Me
5463.283	Fe I	100	–	–
5463.277	Gd	8	–	–
5463.167	Sm	2	–	–
5462.969	Fe I	50	–	–
5462.65	Kr I	–	[2]	Me
5462.62	N II	–	[30]	Fl
5462.615	Th	12	2	–
5462.487	Ni I	20	–	–
5462.451	Er	20	–	–
5462.329	Sm	3	–	–
5462.2	bh Zr	12	–	L
5461.96	Tm	5	25	Me
5461.738	Th	12	1	–
5461.6	bh Zr	12	–	L
5461.537	Sm	8	–	–
5461.290	Ta	80	–	–
5460.928	Cb	3	1	–
5460.85	P	–	[100]	Gu
5460.740	Hg I	–	[2000]	Cn
5460.73	Zr I	2 h	–	–
5460.70	Br	–	[10 l]	Ks
5460.63	Re	30 W	–	–
5460.529	Mo	20	15 h	–
5460.507	Ti I	30	–	–
5460.39	Xe II	–	[200]	Hu
5460.250	Pr	5	–	–
5460.086	Ce	12	–	–
5460.037	Xe I	–	[15]	IMe
5459.81	Tb	25	–	Ed
5459.625	Ir I	3	–	–
5459.61	A I	–	[20]	Ms
5459.588	Sm	2	–	–
5459.47	Kr I	–	[4]	Me
5459.4	bh Pb	8	–	L
5459.284	U	8	2	–
5459.21	Ce	4	–	–
5459.164	Pd I	2	–	–
5458.972	Pr	3 w	–	–
5458.808	Ce	8	–	–
5458.80	Kr I	–	[7]	Me
5458.7	bh La	20	–	Me
5458.687	La II	5	50	–
5458.562	U	2	2	–
5458.52	Se	–	[35]	Bt
5458.412	Ta	12	–	–
5458.406	Er	8	–	–
5458.34	P	–	[30]	Gu
5458.15	Tb	10	–	Ed
5458.122	V I	15	15	–
5458.060	Nd	4	–	–
5458.043	Cb	5	3	–
5457.938	W	10	–	–
5457.83	Tb	10	–	Ed
5457.8	Hg II	–	[8]	Ps
5457.75	A I	–	[10]	Ms
5457.651	Fe	18	2	–
5457.60	Cb	–	5 wh	Me
5457.617	Eu	20	–	–
5457.595	Zr I	2	–	–
5457.47	Cl II	–	[30]	Ks
5457.471	Mn	25	–	–
5457.37	A I	–	[200]	Ms
5457.298	Os	25	–	–
5457.211	Ce	12	–	–
5457.02	Cl II	–	[75]	Ks
5457.102	V	–	2	Me
5457.07	Cl II	–	[12]	Mu
5457.064	Pr	3	–	–
5457.06	I	–	[15]	Ke
5456.978	Tb	15	–	–
5456.618	Er	30	–	–
5456.61	Si	–	2	Sy
5456.6	bh La	10	–	Me
5456.593	Ta	5 h	–	–
5456.591	W	18	–	–
5456.53	Tb	10	–	Ed
5456.5	bh Zr	40	–	L
5456 459	Mo	20	12	–
5456.45	Xe I	–	[2]	Me
5456.408	Ce	15	–	–
5456.394	Sm	5	1	–
5456.39	Kr I	–	[2 h]	Me
5456.31	Re	2 h	–	–
5456.27	Cl II	–	[50]	Ks
5456.187	Cb	3 h	1	–
5456.177	Cl II	–	[6]	Mu
5456.134	Ru I	40	–	–
5456.01	A I	–	[5]	Ms
5455.815	Nd	30	–	–
5455 619	Er	8	–	–
5455.613	Fe I	300	30	S
5455 58	Se II	–	[15]	Mz
5455.448	Dy	4	–	–
5455 433	Fe I	50	–	Bu
5455.28	Gd	10	–	Ed
5455.273	Sm	5 d	–	–
5455.146	La I	200	1	–
5455 084	Cb	–	4 h	–
5455.08	Yb	25	6	Me
5454 816	Ru	100	–	–
5454.814	V	6	4	–
5454.555	Co I	300 w	–	–
5454.499	Ir I	20	–	–
5454 49	I II	–	[2]	Mu
5454 41	A	–	[10]	Rt
5454.268	Er	30	–	–
5454.26	N II	–	[15]	Fl
5454 016	Yb	5	–	–
5453 950	Ce	12	–	–
5453.88	S	–	[750]	Bl
5453.876	Nd	3	–	–
5453.68	Tb	10	–	Ed
5453.648	Ti I	12	25	–
5453 57	Lu	8	1	Me
5453.464	Gd	8	–	–
5453.439	U	5	1	–
5453.395	Os	18	–	–
5453.263	Pr	4	–	–
5453.255	Ni I	3	–	–
5453.026	Mo	15	6	–
5453.018	Sm	100	–	–
5452 965	Eu	1000 s	–	–
5452.92	Hf	8	2	Me
5452.712	Ru	7	–	–
5452.66	Gd	4	–	Ed
5452.406	U	3	–	–
5452.305	Co I	25	–	–
5452.259	Sm	2	–	–
5452.225	Th	8	–	–
5451.996	Ti I	12	–	–
5451.91	Si	–	2	Sy
5451.801	W	6	–	–
5451.723	Ce	10	–	–
5451.650	A I	–	[500]	IMe
5451.530	Eu	1000 s	–	–
5451.40	As	–	4	Ro
5451.343	Sc I	5	–	–
5451.30	Er	8	–	Ed
5451.211	Zr	2 h	–	–
5451.115	Nd	25	–	–
5451.02	Tb	10	–	Ed
5450.90	Xe II	–	[25]	Hu
5450.842	Sr	30	–	–
5450.8	Bi	–	7	Om
5450.65	P II	–	[100 l]	Gu
5450.513	Mo	30	20	–
5450.45	Xe II	–	[100]	Hu
5450.42	Tb	10	–	Ed
5450.16	Tb	10	–	Ed
5450.06	Br I	–	[30]	Ks
5450.052	Sm	2	–	–
5450.038	Ce	10	–	–
5449.82	Te	–	[75]	Bl
5449.779	Fe	10	–	–
5449.61	Kr II	–	[2 wh]	Me
5449.587	Sm	5	–	–
5449.500	Ir I	35	2	–
5449.478	Th	12	2	–
5449.37	Os	20	–	–
5449.31	A I	–	[5]	Rs
5449.286	Yb	20	100	–
5449.236	Nd	10	–	–
5449.224	Ce	25	–	–
5449.164	Ti I	15	–	–
5448.939	W	5	–	–
5448.903	Ti I	12	–	–
5448.818	Mo	1	12	–
5448.78	I	–	[2]	Bl
5448.77	Tl II	–	[6]	El
5448.61	A I	–	[10]	Ms
5448.606	Nd	2	–	–
5448.551	Zr I	4	–	–
5448.548	Mo	3	1	–
5448 508	Ne I	–	[150]	IMe
5448.374	Fe	2 h	–	–
5448.310	Cb	5	2 h	–
5448.283	Sm	2	–	–
5448.23	Er	12	–	Ed
5447.958	Zr	2	2	–
5447.915	Re	20	–	–
5447.86	Kr I	–	[3 h]	Me
5447.76	Os	3	–	–
5447.735	Gd	12	–	–
5447.648	Sm	2	–	–
5447.59	La II	2	10	Me
5447.556	Nd	8	–	–
5447.38	Sc I	3	–	–
5447.283	Nd	12	–	–
5447.157	Eu	5	–	–
5447 09	P	–	[15]	Gu
5446.920	Fe I	300	35	S
5446.85	Tl II	–	[3]	El
5446.753	Ir I	4	–	–
5446.637	Ti I	15	30	–
5446.547	Eu	2	–	–
5446.34	Kr II	–	[80]	Me
5446.244	Ta	5 s	–	–
5446.206	Sc I	15	–	–
5446.196	Ce	10	–	–
5446.145	W	5	–	–
5445 660	Er	12	–	–
5445.52	Xe II	–	[80]	Hu
5445 428	Pr	6 w	–	–
5445.425	Ce	10	–	–
5445.228	Rh	25	1	–
5445.175	Nd	2	–	–
5445.037	Fe I	150	–	–
5444.99	Cl II	–	[10]	Ks
5444.95	Se II	–	[50]	Bl
5444.923	Nd	4	–	–
5444.62	Er	8	–	Ed
5444.572	Co I	400 w	–	–
5444.476	U	10	6	–
5444.320	Rh	15	–	–
5444.25	Cl II	–	[60]	Ks
5444.07	Hf II	20	30	Me
5443.88	A I	–	[20]	Ms
5443.651	Sm	10 d	1	–
5443.556	Eu	125	–	–
5443.540	U	2	–	–
5443.42	Cl II	–	[100]	Ks

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5443.361	W	8	–	–
5443.339	Dy	4	–	–
5443.310	Os	50	–	–
5443.227	V I	12	4	–
5443.21	A I	–	[100]	Ms
5443.16	Zr I	2	–	–
5443.118	Th	10	1	–
5442.948	Sm	3	–	–
5442.74	Er	8	–	Ed
5442.60	Sc I	4	–	–
5442.413	Cr	18	–	–
5442.274	Nd	25	–	–
5442.22	A I	–	[500]	Ms
5441.98	Tb	15	–	Ed
5441.920	Sm	3	–	–
5441.821	Os	12	–	–
5441.56	Gd	8	–	Ed
5441.490	Nd	2	–	–
5441.45	Tb	10	–	Ed
5441.378	Sm	3	1	–
5441.365	Rh	15	–	–
5441.260	Nd	2	1	–
5441.143	W	3 wh	–	–
5441.13	Gd	8	–	Ed
5440.884	Sm	2	–	–
5440.653	Sm	3	–	–
5440.58	Yb	–	5	Me
5440.467	Ti	12 d	–	Bh
5440.406	Zr I	3	–	–
5440.39	Xe I	–	[15]	Me
5440.33	Tb	10	–	Ed
5440.078	W	10	–	–
5440.069	U	3	–	–
5439.97	A I	–	[500]	Ms
5439.923	Xe I	–	[30]	IMe
5439.856	Sm	2	–	–
5439.83	Er	8	–	Ed
5439.78	Cb	–	10 wh	Me
5439.711	Mo	12	6	–
5439.523	Rh I	20	1	–
5439.45	Gd	3	–	Ed
5439.408	Ru	5	–	–
5439.4	bh Zr	30	–	L
5439.312	V	–	8	–
5439.214	Ru	10	–	–
5439.042	Ti	4 h	–	–
5438.977	Sm	2	–	–
5438.96	Xe II	–	[400]	Hu
5438.872	W	8	–	–
5438.74	Er	12	–	Ed
5438.74	Hf	5	2	Me
5438.66	Tb	10	–	Ed
5438.63	Kr II	–	[40]	Me
5438.59	Hf	2	–	Me
5438.58	Si	–	3	Sy
5438.426	Ce	10	–	–
5438.316	Ti I	4	8	–
5438.23	Yt I	20	2	–
5438.22	Sc I	4	–	Me
5438.12	Tb	15	–	Ed
5438.005	I II	–	[35]	Ke
5437.88	Lu	30	3	Me
5437.800	W	3	2	–
5437.757	Zr I	5	–	–
5437.750	Mo	30	15	–
5437.659	V I	10	10	–
5437.576	Nd	2	–	–
5437.523	La I	4 h	–	–
5437.414	Re	2	–	–
5437.402	In II	–	[50]	Ps
5437.393	Ba	5	–	Sz
5437.392	Th	10	–	–
5437.365	Pr	8 W	–	–
5437.36	Cu II	–	2 h	Sh
5437.28	P	–	[70]	Gu
5437.274	Cb	30	10	–
5437.256	Zr I	3	–	–
5437.10	Tb	10	–	Ed
5437.062	Re	20	–	–
5437.0	bh Zr	40	–	L
5436.986	Co I	25	–	–
5436.929	In II	–	[150]	Ps
5436.91	Zr I	2	–	–
5436.882	Er	8	–	–
5436.881	Nd	2	–	–
5436.83	O I	–	[200]	Ps
5436.727	Ti I	10	–	–
5436.666	Sm	2	–	–
5436.595	Fe I	5	–	–
5436.435	U	2	–	–
5436.322	Sm	9	–	–
5436.305	Gd	10	–	–
5436.279	In II	–	[100]	Ps
5436.007	In II	–	[50]	Ps
5435.898	Th	15	2	–
5435.871	Ni I	50	–	–
5435.843	I II	–	[125]	Ke
5435.78	Hf	3	–	Me
5435.76	O I	–	[100]	Ps
5435.684	Mo	30	12	–
5435.635	In II	–	[30]	Ps
5435.609	W	10	–	–
5435.60	Xe I	–	[5 h]	Me
5435.48	I I	–	[35]	Db
5435.41	Er	8	–	Ed
5435.267	Ta	80	–	–
5435.161	Pd I	7	–	–
5435.16	O I	–	[70]	Ps
5435.128	Th	8	–	–
5435.11	Br	–	[15]	Bl
5435.062	W	20	–	–
5434.529	Co I	10	–	–
5434.527	Fe I	300	35	S
5434.483	Nd	4	–	–
5434.2	Ag	2	10 h	Kp
5434.175	V I	50	50	–
5434.156	Er	12	–	–
5433.823	Sm	8	–	–
5433.81	Er	12	–	Ed
5433.703	Th	6	–	–
5433.649	Ne I	–	[250]	IMe
5433.548	Sm	4	–	–
5433.54	Cb	–	10 wh	Me
5433.418	Mn	7	–	–
5433.36	Er	8	–	Ed
5433.340	Ce	8	–	–
5433.292	Th	4	–	–
5433.283	Sc I	6	–	–
5433 266	W	4	–	–
5433.24	Kr II	–	[2 hs]	Me
5433 2	bh Zr	5	–	L
5433 18	P	–	[15]	Gu
5433 060	Ta	2 h	–	–
5433 0	bh La	30	–	Me
5432.950	Fe I	3	–	–
5432.913	Pr	8	–	–
5432.83	S	–	[600]	Bl
5432.729	Yb	5	100	–
5432.548	Mn	40	–	–
5432.47	Er	12	–	Ed
5432.45	Tb	10	–	Ed
5432.360	Nd	3	1	–
5432.347	Cr	10	–	–
5432.337	Ti I	4	–	–
5432.068	Pr	3	1	–
5432.048	Rh I	5	–	–
5431.885	Re	30	–	–
5431.828	Rb I	15	–	IRz
5431.796	Sm	3	–	–
5431.661	Ta	60 w	–	–
5431.529	Rb I	100	–	IRz
5431.526	Nd	25	2	–
5431.261	Cb	10 h	3	–
5431.162	Ir	2	–	–
5431.135	Pr	3	–	–
5431.123	Th	10	–	–
5431.1	bh La	20	–	Me
5431.018	Mo	15	5	–
5430.792	Nd	3	–	–
5430 633	Sm	4	–	–
5430.27	A I	–	[10]	Ms
5430 243	Ce	10	–	–
5430.06	Xe	–	[2]	Hu
5430.06	Hf	1	4	Me
5429.864	La I	10	–	–
5429.699	Fe I	500	40	S
5429.69	A I	–	[20]	Ms
5429.54	Er	12	–	Ed
5429.485	V I	4	2	–
5429.407	Sc I	3	–	–
5429.298	Nd	5	–	–
5429.149	Ti I	25	1	–
5429.003	Ir	2	–	–
5428.79	Ba II	–	[5]	Rs
5428.69	S	–	[250]	Bl
5428.552	U	2	1	–
5428.423	Zr I	4	–	–
5428.25	Tb	10	–	Ed
5428.019	W	4	–	–
5427.832	Fe	–	8	Kn
5427.692	Pd I	3	–	–
5427.593	I	–	[8]	Ke
5427.590	Ru	25	–	–
5427.587	Sm	3	1	–
5427.547	Mo	8	3	–
5427.50	Er	12	–	Ed
5427.464	Tb	10	–	–
5427.266	Pr	6	–	–
5427.250	Ce	8	–	–
5427.225	W	6	1 h	–
5427.10	I I	–	[50]	Mu
5426.932	Eu	200	–	–
5426.91	Yb	2	60	Me
5426.887	Mo	20	5	–
5426.752	I II	–	[2]	Mu
5426.736	Eu	2 h	–	–
5426.706	Dy	5	–	–
5426.43	Tb	15	–	Ed
5426.388	Sm	3	–	–
5426.366	Ce	6	–	–
5426.361	Zr I	3	–	–
5426 256	Ti I	15	30	–
5426.05	Te	–	[8]	Bl
5425.996	Mo	3	2	–
5425.92	P II	–	[150 w]	Gu
5425.679	Th	15 d	3	–
5425 638	Sm	9	–	–
5425.619	Co I	4	–	–
5425.57	Sc I	3	–	Me
5425.55	Ba I	10	–	Fl
5425.446	Rh	25	1	–
5425.262	Fe II	–	2	Kn
5425.25	Hg II	–	[200]	Ps
5425.00	Tb	15	–	Ed
5425.00	Br	–	[15]	Bl
5424.927	W	2	–	–
5424.719	Rh I	25	1	–
5424.68	Yb	–	10 h	Me
5424.654	Ni I	30	–	–
5424 65	Gd	7	–	Ed
5424.637	W	3	–	–
5424.616	Ba I	100 R	30 R	Sz
5424.36	Yt I	5	–	Me
5424.36	Cl II	–	[25]	Ks
5424.250	Dy	3	–	–
5424.15	Th	3	–	–
5424.082	V I	25	25	–
5424.076	Fe	400	20	–
5424.068	Nd	3	–	–
5424.068	Rh	100	2	–
5423.961	Sm	2	1	–
5423.934	W	10	–	–
5423.82	La II	3 h	4	Me
5423.805	Re	6	–	–
5423.61	Gd	8	–	Ed
5423.603	Re	5	–	–
5423.549	Nd	3	–	–
5423.52	Cl II	–	[100]	Ks
5423.513	Zr	2	–	–
5423.446	W	5	–	–
5423.420	Ce	12	–	–
5423.316	Dy	5	–	–
5423.29	Rh I	15	–	–
5423.274	Re	2	–	–
5423.25	Cl II	–	[150]	Ks
5423.24	Tb	15	–	Ed
5422.971	Sm II	4 wh	–	–
5422.887	W	9	–	–
5422.80	Er	30	–	Ed
5422.799	I	–	[10]	Ke
5422.78	Br	–	[30]	Bl
5422.55	A I	–	[2]	Ms
5422.489	Nd	2	–	–
5422.438	Cb	15	5	–
5422.423	Pr	3	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5422.198	Sm	5 wh	2	–
5422.132	La I	3	–	–
5422.11	I	–	[10]	Ke
5421.918	U	2	1	–
5421.9	bh F	5	–	L
5421.90	Lu	50	5	Me
5421.862	W	7	–	–
5421.858	Zr I	3	–	–
5421 837	Th	8	–	–
5421.76	Xe I	–	[2 h]	Me
5421.75	Tb	10	–	Ed
5421.6	Ga II	–	[2]	Sy
5421.569	Sm	25	–	–
5421.559	Nd	15	1	–
5421.346	A I	–	[500]	IMe
5421.195	Gd	12	–	–
5421.1	bh F	5	–	L
5421.080	Eu	125	–	–
5421.05	Ba II	–	[5]	Rs
5420.754	Dy	3	–	–
5420.711	Sm	25	3	–
5420.657	Nd	6	–	–
5420.53	Tb	10	–	Ed
5420.44	Hf II	2	3	Me
5420.385	Ce	20	–	–
5420.362	Mn	60	–	–
5420.155	Ne I	–	[50]	Ps
5420.15	Hg	–	[8]	Wd
5419.887	Er	20	–	–
5419 870	Gd	3 d	–	–
5419.73	Os	8	–	–
5419.687	Cs II	–	[60]	Sv
5419.421	Sm	3	–	–
5419.399	W	10	–	–
5419 204	Ti I	4	–	–
5419.15	Xe II	–	[1000]	Hu
5419.135	Dy	5	–	–
5419.130	Ta	80 R	–	–
5419.10	Tb	10	–	Ed
5419.069	Sm	4	–	–
5419.042	Pr	3 W	–	–
5418.855	Ru I	20	–	–
5418.781	Pr	3	–	–
5418.781	Ti II	8	4	–
5418.74	Zr I	2	–	–
5418.734	In II	–	[150 h]	Ps
5418.701	Ce	12	–	–
5418.555	Ne I	–	[150]	Ps
5418.480	In II	–	[50]	Ps
5418.43	Kr II	–	[30 whs]	Me
5418.216	In II	–	[30]	Ps
5418.087	V I	15	15	–
5418.02	Xe	–	[5]	Me
5418.017	Ta	2	–	–
5417.507	Os	40	–	–
5417.487	Th	10	–	–
5417.383	Mo	20	10	–
5417.36	Si	–	2	Sy
5417.22	A I	–	[10]	Ms
5417.168	Ir	3	–	–
5417.12	Se	–	[15]	Bt
5417.08	Gd	10	–	Ed
5417.02	Yt I	2	–	Me
5416.906	Tm	2	–	–
5416.879	Nd	2	–	–
5416.8	Ga II	–	[10]	Sy
5416.693	Os	50	–	–
5416.381	Nd	15	–	–
5416.353	Sm	4	–	–
5416.345	Os	80	–	–
5416.344	Ba	8	–	Sz
5416.303	Cb	5	1 h	–
5416.20	Tb	15	–	Ed
5416.12	Sc I	3	–	Me
5416.052	Sm	100	–	–
5415.976	W	3	–	–
5415.694	La I	4	–	–
5415.693	Gd	12	–	–
5415.690	Er	8	–	–
5415.525	W	6	–	–
5415.434	Th	20 d	3	–
5415.36	Xe II	–	[25 wh]	Hu
5415.307	Nd	5	–	–
5415.263	V I	75	75	–
5415.207	Fe I	500	20	–
5414.87	I	–	[15]	Bl
5414.739	Nd	3	–	–
5414 672	Mo	6	2	–
5414.636	Er	50	–	–
5414.416	Sm	6 d	1	–
5414.29	Yb	1	20	Me
5414.18	Er	12	–	Ed
5414.092	Ce	12	–	–
5413.947	U	2	1	–
5413.93	Zr I	3	–	–
5413.9	bh F	2	–	L
5413.834	W	6	–	–
5413.760	Eu	4 wh	–	–
5413.687	Mn	30	–	–
5413 398	Pr	8	–	–
5413 387	Ta	15	–	–
5413 32	A I	–	[10]	Ms
5413.21	Gd	10	–	Ed
5413.188	Pr	15 w	–	–
5412.965	W	6	–	–
5412 940	Nd	2	–	–
5412.801	Sm	3	–	–
5412.655	Ne I	–	[250]	Ps
5412.629	Gd	8	–	–
5412.14	Os	15	–	–
5411.929	Nd	5	–	–
5411.842	Eu	80	–	–
5411.752	Ce	8	–	–
5411.72	I	–	[8]	Ke
5411.555	Pr	25	1	–
5411.55	He II	–	[50]	Ps
5411 408	Sm	40	–	–
5411.406	In II	–	[300]	Ps
5411.245	Cb	5	3	–
5411.227	Ni I	40	2	–
5411.190	Gd	8	–	–
5411.155	Sm	4	–	–
5410.97	Tl II	–	5	El
5410.909	Fe I	200	10	–
5410.764	Th	8	–	–
5410.76	O	–	[30]	Ps
5410 63	Tb	10	–	Ed
5410.549	Ta	15	–	–
5410.54	Er	8	–	Ed
5410.470	A I	–	[500]	Ms
5410.41	Te	–	[25]	Bl
5410.12	Ne I	–	[5]	Ps
5410.106	Sm	5 w	1	–
5409.92	Tl II	–	[12]	El
5409.791	Cr I	300 R	30	–
5409.65	P II	–	[150 w]	Gu
5409 611	Ti I	50	1	–
5409.512	Re	2	–	–
5409.224	Ce	50	–	–
5409.132	Fe I	10 h	–	–
5409.1	bh Zr	5	–	L
5409.096	U	5	6	–
5408.940	Ti I	6	–	–
5408.916	Cb	–	4 wh	–
5408.780	Rh I	3	–	–
5408.779	Ta	20	–	–
5408.59	O	–	[50]	Ps
5408.578	W	7	–	–
5408.34	Xe	–	[2]	Hu
5408.2	bh Zr	2	–	L
5408.119	Co I	30	–	–
5407.855	Sm	12	–	–
5407.7	bh La	30	–	Me
5407.655	Th	8	–	–
5407.617	Zr I	7	–	–
5407.6	bh F	5	–	L
5407.511	Co I	100	–	–
5407.44	A	–	[20]	Rt
5407.424	Mn	60	–	–
5407.362	I II	–	[60]	Ke
5407.33	Eu	4 h	–	Kn
5407.288	U	3	1	–
5407.1	bh Zr	5	–	L
5407.09	Er	8	–	Ed
5406.888	U	5	–	–
5406.811	Sm	3	–	–
5406.81	Ra I	–	[500]	Rs
5406.611	Pd I	4	–	–
5406.6	bh F	2	–	L
5406.386	Mo	15	8	–
5406.309	W	8	–	–
5406.174	Nd	2	–	–
5406.018	Mn	5	–	–
5405.996	U	5	6	–
5405 99	Tm	2	10	–
5405.79	Mo	5	3	–
5405.79	Hg	–	[7 wh]	Wd
5405.778	Fe I	400	70	S
5405.7	bh La	20	–	Me
5405.65	I	–	[40]	Ke
5405.445	I	–	[8]	Ke
5405 311	Eu	40	–	–
5405 28	I II	–	[8]	Ke
5405 239	Sm	80	–	–
5405.14	I	–	[40]	Ke
5405.126	Zr I	4	–	–
5405.004	Cr	18	–	–
5404.970	Sm	4	–	–
5404.955	Ta	80	–	–
5404.920	Ba	15	–	Sz
5404 87	O	–	[30]	Ps
5404.808	Pr	3	–	–
5404.726	Rh	50	1	–
5404.47	Hf	4	1	Me
5404.4	bh Zr	8	–	L
5404.319	W	7	1 h	–
5404.148	Fe I	300	35	–
5404.023	Ti I	8	–	–
5403.82	Tb	10	–	Ed
5403 819	Fe	30	–	–
5403.690	Sm	8	–	–
5403.542	Ta	12	–	–
5403.432	Os	8	–	–
5403.204	U	8	6	–
5403.14	Yb	20	1	Me
5403.03	Kr I	–	[2 h]	Me
5402.944	In II	–	[50]	Ps
5402.92	Rn I	–	[10]	Rs
5402.896	Nd	5	–	–
5402.793	Cs	–	[40]	Sv
5402.791	Eu	1000	–	–
5402.78	Yt II	30	50	Me
5402.69	A	–	[10]	Rt
5402.585	Pr	15 w	–	–
5402.57	Lu	150	10	Me
5402.550	Fe	4	–	–
5402.507	Ta	80	30	–
5402.443	In II	–	[30]	Ps
5402.315	Sm	3	–	–
5402.233	Tm	3	–	–
5402.06	Tb	25	–	Ed
5402.011	Sm	2	–	–
5401.983	Co I	100 w	–	–
5401.933	V I	100	100	–
5401.55	Tb	10	–	Ed
5401.428	Sm	2	–	–
5401.394	Ru I	20	–	–
5401.208	Ce	6	–	–
5401.05	Mg II	2	5	Fl
5401.038	Ru	125	–	–
5401.01	Se II	–	[75]	Mz
5400.951	U	10	6	–
5400.946	Pr	4	–	–
5400.937	W	7	–	–
5400.858	Sm	3	–	–
5400.77	Er	8	–	Ed
5400.608	Cr	30	1	–
5400.562	Ne I	–	[2000]	I
5400.503	Fe I	125	–	–
5400.5	bh F	10	–	L
5400.486	Tm	8	–	–
5400.471	Mo	20	15	–
5400.45	Xe I	–	[4 h]	Me
5400.302	W	6	–	–
5400.23	Ra I	–	[500]	Rs
5400.195	Nd	5	–	–
5399.928	Dy	3	–	–
5399.88	Se	–	[8]	Bl
5399.80	Ra I	–	[250]	Rs
5399.758	Co I	10	–	–
5399.742	Yb	1	15	–
5399.69	Eu	4 h	–	Kn
5399.677	Sm	2	–	–
5399.585	W	5	–	–
5399.574	Ce	12	–	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
5399.53	Gd	8	–	Ed
5399.5	bh F	5	–	L
5399.489	Mn	40	–	–
5399.035	Ce	2	–	–
5399.01	A I	–	[20]	Ms
5398.959	Sm	2	–	–
5398.923	Th	8	–	–
5398.731	Mo	5	1	–
5398.285	Fe I	70	–	Bu
5398.222	W	5	–	–
5398.140	Sm II	15 d	–	–
5398.114	Nd	2	1	–
5397.969	W	10	–	–
5397.914	Sm	3	–	–
5397.90	Tb	10	–	Ed
5397.8	Bi II	5	8	Ml
5397.644	Ce	25	–	–
5397.616	Fe	3	–	–
5397.60	A	–	[10]	Rt
5397.557	Ta	30	–	–
5397.383	Eu	10	–	–
5397.378	Mo	20	10	–
5397.186	Sm	3 w	1	–
5397.131	Fe I	400	50	S
5397.094	Ti I	60	–	–
5396.600	Ti I	12	–	–
5396.515	W	6	–	–
5396.490	Re	15	–	–
5396.4	bh Sc	2	–	Me
5396.33	Cb	10	1	–
5395.986	Ta	80 w	–	–
5395.885	Pr	15	–	–
5395.879	Zr I	3	–	–
5395.87	Er	50	–	Ed
5395.859	Cb	2 h	3	–
5395.78	Yb	–	7	Me
5395.696	Ce	10	–	–
5395.576	Dy	5	–	–
5395.52	Br I	–	[150 l]	Ks
5395.422	Ir	2	–	–
5395.244	Pd I	50	2	–
5395.242	Ce	10	–	–
5394.89	Hf	2	–	Me
5394.842	Pd	5 h	–	–
5394.755	W	7	–	–
5394.750	Th	8	–	–
5394.738	Xe I	–	[20]	IMe
5394.674	Mn	50	–	–
5394.517	Mo	20	15	–
5394.483	Sm	8	–	–
5394.374	Cb	3	1	–
5394.347	Gd	10	–	–
5394.2	Rn	–	[20]	Wa
5394.102	U	3 h	–	–
5393.98	Cb	–	2 wh	Me
5393.971	A I	–	[200]	Ms
5393.96	Cu II	–	3	Sh
5393.85	Yb	6 hl	–	Me
5393.845	W	3	1	–
5393.729	Co I	3 h	–	–
5393.70	Tb	10	–	Ed
5393.665	Gd	10	–	–
5393.553	Sm	2	–	–
5393.50	Hg I	–	[5]	Wd
5393.454	Eu	2	–	–
5393.4	bh F	10	–	L
5393.40	Yb	–	6	Me
5393.391	Ce	30	–	–
5393.182	Fe I	150	10	–
5393.177	V I	100	–	–
5393.0	bh Zr	3	–	L
5392.912	Eu	150	–	–
5392.842	U	5	–	–
5392.797	W	5	–	–
5392.795	Xe I	–	[100]	IMe
5392.666	Sm	5	–	–
5392.573	Th	10	1	–
5392.371	Ni I	5	–	–
5392.3	bh F	5	–	L
5392.21	Cl	–	[10]	Bl
5392.075	Sc I	20	–	–
5392.04	Dy	3	–	–
5391.974	Tm	5	–	–
5391.882	Ce	10 w	–	–
5391.842	U	3	1	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
5391.607	Sm	3	–	–
5391.60	Ba II	–	[50]	Rs
5391.48	Os	3	–	–
5391.475	Fe I	25	–	–
5391.36	Hf II	6	10	Me
5391.350	Cr	15	–	–
5391.248	Pr	3 h	–	–
5391.24	Dy	2	–	Ed
5391.180	Zr I	3	–	–
5391.082	W	10	–	–
5391.00	Eu	4	–	Kn
5390.982	Ir	4	–	–
5390.845	Yb	30	–	–
5390.82	Yt I	2	–	Me
5390.787	Pt	50	2	–
5390.72	A I	–	[40]	Ms
5390.655	Yb	30	–	–
5390.562	Rb I	25 h	–	IRz
5390.462	Co I	25	–	–
5390.461	Th	18	5	–
5390.45	Cu II	–	5	Sh
5390.440	Rh I	125	3	–
5390.40	Rn I	–	[5]	Rs
5390.4	bh Zr	3	–	L
5390.394	Cr	18	–	–
5390 080	Pr	3	–	–
5389 992	Ti I	30	–	–
5389.856	Yb	8	30	–
5389.823	Sm	5	–	–
5389.688	W	5	–	–
5389.574	Dy	8	–	–
5389.513	Gd	20	–	–
5389.461	Fe I	60	–	Bu
5389 301	Ta	100 W	–	–
5389 3	bh Zr	3	–	L
5389.177	Ti I	15	–	–
5389 10	A I	–	[40]	Ms
5389.01	Hg I	–	[8]	Wd
5388.802	Pr	4 h	–	–
5388.72	Er	12	–	Ed
5388 688	Mo	12 h	5 h	–
5388.609	Ru I	5	–	–
5388.593	W	10	–	–
5388 521	Mn	10	–	–
5388.508	Ta	40 W	–	–
5388.48	Al II	–	[5]	Sy
5388 350	Ni I	3	–	–
5388 302	Cb	5	3	–
5388 06	Th	3	–	–
5388.041	Pr	4 h	–	–
5388.024	W	15	–	–
5388 01	Yb	5	–	Me
5387.982	Sm	50	3	–
5387.88	Pt	15	–	–
5387.573	Cr	18	–	–
5387.50	Fe	2	–	–
5387.37	A I	–	[40]	Ms
5386.978	Cr	20	–	–
5386 926	Os	4	–	–
5386.87	P	–	[150 w]	Gu
5386.786	Th	2	–	–
5386 763	Ce	8 w	–	–
5386.685	Sm	2	–	–
5386.653	Zr I	4	–	–
5386.606	Th	6	–	–
5386.6	bh F	10	–	L
5386.354	Ce	15	–	–
5386 342	Fe	3	–	–
5386.209	U	8	12	–
5386.18	Er	12	–	Ed
5386.1	Rn	–	[10]	Wa
5385 964	Sm	2	–	–
5385.896	Nd	15	1	–
5385.879	Ru I	25	–	–
5385.831	Ta	2	–	–
5385.80	Tb	10	–	Ed
5385.79	Hg	–	[4]	Wd
5385.72	Os	8 h	–	–
5385.628	Dy	3	–	–
5385.623	Er	12	–	–
5385.600	Ir	4	–	–
5385.569	U	4	–	–
5385.52	As II	–	15	Ro
5385.5	bh F	10	–	L
5385.45	Sr II	2 h	–	Sd

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
5385.38	Gd	10	–	Ed
5385.137	V I	45	45	–
5385.136	Zr I	15	–	–
5384.96	Tl II	–	6	Ml
5384.93	Er	8	–	Ed
5384.895	V	–	3	Me
5384.883	Sm	3	–	–
5384.70	Hg I	–	[15]	Wd
5384.634	Ti I	5	–	–
5384.242	U	4	–	–
5384.20	Tl II	–	4	Ml
5384.174	Gd	10	–	–
5384.13	Er	8	–	Ed
5384.037	Th	8	–	–
5383.883	Sm	3	–	–
5383.848	Nd	2	–	–
5383.426	V I	40	40	–
5383 41	Er	8	–	Ed
5383.371	Fe	400 h	40	–
5383.257	Ne I	–	[25]	Ps
5383 04	Hf	3	–	Me
5382.927	Th	12	1	–
5382.849	Cb	3	1	–
5382.789	W	5	–	–
5382.74	Se	–	[35]	Bt
5382.613	Ce	10	–	–
5382.608	Sm	2	–	–
5382.482	Ir	2	–	–
5382.4	bh La	20	–	Me
5382.371	Zr I	3 h	–	–
5382.13	Er	12	–	Ed
5382.037	Sm	3	–	–
5381.997	W	9	–	–
5381.925	La II	15	100	–
5381.82	Cd II	2	20	Vs
5381.77	La II	5	20	Me
5381.748	Co I	150	–	–
5381.741	Nd	2	–	–
5381.71	Se	–	[15]	Bl
5381.703	Pr	3	–	–
5381.48	Rh I	100	–	Me
5381 336	Cb	8	3	–
5381.262	Pr	60	2	–
5381.229	Zr	2 h	–	–
5381.20	Sb II	–	[30]	Lg
5381.105	Co I	150	–	–
5381.043	Sm	3	–	–
5381.02	Ti II	5	10 h	–
5381.02	S I	–	[8]	Ms
5380.997	La II	50	100	–
5380.709	Cb	5	1	–
5380.611	Nd	3	–	–
5380.605	Yt I	5	–	–
5380.5	bh La	10	–	Me
5380.403	Sm	10	3	–
5380.35	Er	8	–	Ed
5380.26	Gd	8	–	Ed
5380.242	C I	–	[300]	Jn
5380.21	Se II	–	[20]	Mz
5380.043	I II	–	[15]	Ke
5380.022	La I	3	–	–
5379.890	Ce	10	–	–
5379.8	bh F	10	–	L
5379.712	Re	5	–	–
5379.665	Ta	4	–	–
5379.64	Kr I	–	[15]	Me
5379.577	Fe	35	–	–
5379.548	Zr I	2	–	–
5379.5	bh Zr	5	–	L
5379.436	W	8	–	–
5379.406	Sm	5 w	1	–
5379.308	Os	7	–	–
5379.111	Th	4	–	–
5379.095	Rh I	100	3	–
5378.858	Fe	5	–	–
5378.833	Th	5	–	–
5378.71	Tb	10	–	Ed
5378.7	bh F	10	–	L
5378.45	N I	–	[30]	Mt
5378.227	Nd	2	–	–
5378.14	Re	3	–	–
5378.11	P II	–	[30 l]	Gu
5378.073	Sm	5	–	–
5378.037	Cd II	5	50	–
5377.88	Tb	25	–	Ed

Wave-length	Element	Intensities Arc	Spk., [Dis.]	R
5377.839	Ru I	25	–	–
5377.79	Er	8	–	Ed
5377.785	Nd	8	–	–
5377.645	Pd I	2	–	–
5377.628	Mn	40	–	–
5377.441	Pr	3	–	–
5377.303	U	5	3	–
5377.3	bh Zr	2	–	L
5377.209	Mn	8	–	–
5377.095	La II	30	200	–
5377.045	Re	300 W	–	–
5376.99	Yb	–	10	Me
5376.911	Eu	200	–	–
5376.85	Cu II	–	3	Sh
5376.849	Fe I	5 h	–	–
5376.792	Os	50	–	–
5376.754	Th	6	–	–
5376.69	Er	12	–	Ed
5376.55	Tb	10	–	Ed
5376.103	Dy	4	–	–
5375.97	Tb	40	–	–
5375.918	Cb	5	1	–
5375.770	Th	10	1	–
5375.764	U	4 h	–	–
5375.7	bh Zr	2	–	L
5375.405	Gd	10	–	–
5375.351	Th	10	–	–
5375.346	Sc I	12	–	–
5375.30	Mn	2	–	–
5375.266	Cb	15	3	–
5375.15	P	–	[15]	Gu
5375.047	Eu	4 h	–	–
5374.975	Ne I	–	[50]	IMe
5374.709	Re	5	–	–
5374.49	I	–	[15 h]	Bl
5374.442	W	10	–	–
5374.307	Sm	4	–	–
5374.242	Pr	4	–	–
5374.19	Kr II	–	[3 h]	Me
5374.160	W	12	1 h	–
5374.14	Se I	–	[150]	Rd
5374.026	Sm	4	–	–
5373.996	U	4	1	–
5373.86	Hf	15	3	Me
5373.715	Cr	8	–	–
5373.712	Fe I	15	–	–
5373.693	Sm	10 d	2	–
5373 675	Nd	2	–	–
5373 493	A I	–	[500]	Ms
5373.454	U	3	2	–
5373.1	bh F	10	–	L
5373.013	Ta	12 h	–	–
5373.01	Tb	10	–	Ed
5373.003	Tm	8	5	–
5372.853	W	10	–	–
5372.66	N I	–	[20 h]	Mt
5372.500	I II	–	[10]	Ke
5372.5	Pb	–	10 h	Kl
5372.451	Zr	2 h	–	–
5372.404	Mo	20	10	–
5372.39	Xe II	–	[200]	Hu
5372.371	Pr	3	–	–
5372.314	Ne I	–	[75]	Ps
5372 224	Gd	20	–	–
5372.1	Pb II	–	[40]	Ea
5371.935	Nd	20	1	–
5371.9	bh F	10	–	L
5371.84	Al II	–	[50]	Sy
5371.80	Hf II	2	4	Me
5371.74	Kr I	–	[2]	Me
5371.600	Ce	6	–	–
5371.493	Fe I	700	–	S
5371.42	Hg II	–	[10]	Nu
5371.4	P	–	[30 l]	Gu
5371.388	Nd	2	–	–
5371.35	Ni I	30	–	–
5371.3	Rn	–	[10]	Wa
5371.12	Hf	2	–	Me
5371.117	Cb	3	1	–
5371.10	N I	–	[5]	Du
5370.979	Cs II	–	[80]	Sv
5370.69	Gd	25 r	–	Ed
5370.43	I I	–	[2]	Db
5370.356	Cr	10	–	–
5370.27	Br I	–	[20]	Ks
5370 269	Sm	8 d	2	–
5370.048	Sm	2	–	–
5369.97	A I	–	[5]	Ms
5369.957	Fe	150 h	20 h	–
5369.911	Gd	12	–	–
5369.91	Se I	–	[175]	Rd
5369.87	I II	–	[40]	Ke
5369.81	Re	40	–	–
5369.72	Tb	40	–	Ed
5369.645	Ti	20	1	–
5369.628	Gd	8	–	–
5369.576	Co I	500 w	–	–
5369.458	Re	30	–	–
5369 387	Zr I	3	–	–
5369.298	Rh I	5	–	–
5369.240	Dy	3	–	–
5369.163	Sm	40	–	–
5369.119	Ce	8	–	–
5368.987	Pt	50	1	–
5368.888	Co	30	–	–
5368.85	Er	20	–	Ed
5368.830	Pr	5 d	–	–
5368.77	Gd	10	–	Ed
5368.71	P	–	[30]	Gu
5368.700	W	15	–	–
5368.546	Cr	18	–	–
5368.432	U	8	6	–
5368.42	Cu II	–	10	Sh
5368.399	Cb	3 h	1	–
5368.360	Sm	80	–	–
5368.29	Yb	2	20	Me
5368.199	Dy	3	–	–
5368 148	Eu	2	–	–
5368.07	Xe II	–	[100]	Hu
5367.762	Er	12	–	–
5367.68	Gd	8	–	Ed
5367.60	I II	–	[5]	Ke
5367.460	Fe	200 h	15 h	–
5367.3	Pb II	–	[40]	Ea
5367.27	N I	–	[3]	Du
5367.111	Mo	10 h	–	–
5367.03	Xe	–	[6]	Me
5367.008	Mo	12	5	–
5366.91	Te	–	[25]	Bl
5366.771	Sm	10 d	2	–
5366.726	Co I	5	–	–
5366.659	Re	2	–	–
5366.649	Ti	8	–	–
5366.547	Sm	2	–	–
5366.4	bh F	10	–	L
5366.35	Gd	7	–	Ed
5366.28	Te	–	[15]	Bl
5366.222	Ne I	–	[25]	Ps
5365.947	Ta	12	–	–
5365.897	La I	5	–	–
5365.878	Cb	1	5	–
5365.62	Cu II	–	5	Sh
5365.47	Se I	–	[125]	Rd
5365.405	Fe	40	–	–
5365.404	Gd	10	–	–
5365.2	bh F	10	–	L
5365.121	Nd	2	–	–
5365.06	Hg	–	[20 wh]	Wd
5364.940	Ir	4	–	–
5364.883	Fe	200 h	10 h	–
5364.824	Co I	4	–	–
5364.626	Xe I	–	[30]	IMe
5364.588	Eu	4	–	–
5364.484	Mn	4	–	–
5364.47	P	–	[15]	Gu
5364.359	Sm	50	–	–
5364.323	Ir	15	–	–
5364.3	bh Zr	2	–	L
5364.284	Mo	70 h	25 h	–
5364.20	Br I	–	[20]	Ks
5364.073	Rh I	4	–	–
5363.820	U	6	4	–
5363.670	Yb	25	2	–
5363.659	Nd	2	–	–
5363.611	Th	5	–	–
5363.354	Zr I	3	–	–
5363.343	W	5	–	–
5363 325	Ce	15	–	–
5363 283	Pd I	2	–	–
5363.27	Xe II	–	[80]	Hu
5363.084	Cb	2	2	–
5362.893	Os	8	–	–
5362.864	Fe II	–	15	Do
5362.857	Nd	2	–	–
5362.842	W	7	2	–
5362.8	Rn	–	[10]	Wa
5362.766	Co I	500 w	–	–
5362 751	Fe	6	–	–
5362.659	Pd I	15	–	–
5362.598	Rb I	50	–	IRz
5362.57	Gd	6	–	Ed
5362.556	Zr I	8	–	–
5362.397	U	3	8 h	–
5362.249	Th	4	–	–
5362.248	Ne I	–	[25]	Ps
5362.244	Xe I	–	[15]	IMe
5362.087	Ru	4	–	–
5362.009	Cb	3 h	2 h	–
5361.891	Nd	2	–	–
5361.774	Ru	100	–	–
5361.724	Ti I	3	–	–
5361.641	Gd	10	–	–
5361.592	Eu	300	–	–
5361.474	Nd	25	1	–
5361.421	W	9	–	–
5361.411	Th	6	–	–
5361.38	Hf II	1	2	Me
5361.35	Ba II	–	[40]	Rs
5361.174	Nd	3	–	–
5360.917	Er	8	–	–
5360.898	Mo	10	6	–
5360.809	Eu	150	–	–
5360.80	Br	–	[15]	Bl
5360.755	Sm	2	–	–
5360.75	Hf	2 h	–	Me
5360.7	bh Zr	5	–	L
5360.6	Ga II	–	[5]	Sy
5360.557	Mo	100 h	70 h	–
5360.442	Ne I	–	[35]	Ps
5360.09	Ga	2	12	Kl
5360.012	Ne I	–	[150]	IMe
5359.98	Yb	–	10	Me
5359.954	Ce	10	–	–
5359.8	bh F	10	–	L
5359.521	K I	40 l	–	Da
5359.298	Ce	8	–	–
5359.194	Cb	3	3	–
5359.188	Gd	8	–	–
5359.184	Co I	300 w	–	–
5358.989	Pr	4	–	–
5358 923	Co I	40 w	–	–
5358.645	Yb	15	100	–
5358 6	bh F	10	–	L
5358.53	Cs II	–	[500]	Sv
5358.335	U	3	–	–
5358.330	W	9	–	–
5358 33	Hf	2	–	Me
5358.020	Ne I	–	[10]	Ps
5357.873	La I	40	–	–
5357.757	Gd	8	–	–
5357.608	Eu	1000	–	–
5357.458	Zn II	6	[3]	–
5357.203	Ce	10	–	–
5357.195	Sc II	–	5	–
5357.16	Tb	10	–	Ed
5357.116	W	9	–	–
5356.976	Nd	15	–	–
5356.859	Ir	2	–	–
5356.84	Cb	–	3 h	–
5356.77	N I	–	[50]	Du
5356.721	Eu	40	–	–
5356.606	W	8	–	–
5356.49	A	–	[10]	Ms
5356.477	Mo	25	12	–
5356.467	Rh I	30	1	–
5356.176	I	–	[8]	Ke
5356.100	Sc I	40	–	–
5355.958	Gd	4	–	–
5355.883	Sm	9	–	–
5355.752	Sc I	7	–	–
5355.707	Eu	4 h	–	–
5355.702	Cb	8	3	–
5355.617	Ce	10	–	–
5355.513	Mo	12 h	3 h	–
5355.45	Kr II	–	[10 h]	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5355.422	Ne I	–	[150]	IMe
5355.310	Cb	3	2 h	–
5355.260	W	10	1	–
5355.181	Ce	10	–	–
5355.176	Ne I	–	[150]	Ps
5355.081	Eu	200	–	–
5354.88	Tb	40	–	Ed
5354.879	Mo	25	15	–
5354.73	Hf	12	2	Me
5354.679	Ta	80 r	–	–
5354.465	W	10	–	–
5354.423	Gd	10	–	–
5354.399	Rh I	300	5	–
5354.307	Pr	3	–	–
5354.24	Sb II	–	[200]	Lg
5354.1	bh C	100	–	L
5354.05	Hg I	–	[30 wh]	Wd
5353.81	Ga	2	–	Fl
5353.8	bh Pb	3	–	L
5353.682	W	5	–	–
5353.534	Ce	50	30	–
5353.513	Ne I	–	[5]	Ps
5353.485	Co I	500 w	–	–
5353.46	A	–	[20]	Ms
5353.415	Ni I	40	–	–
5353.412	V I	50	50	–
5353.4	bh F	10	–	L
5353.389	Fe I	60	2	–
5353.375	Zr	2	–	–
5353.31	Re	2 h	–	–
5353.296	Cb	5	4	–
5353.283	Gd	25	–	–
5352.958	Yb	100	250	–
5352.824	Eu	80	–	–
5352.68	Cu I	6	–	Sh
5352.403	Pr	80	2	–
5352.35	Tb	10	–	Ed
5352.347	Mo	10	4	–
5352.320	U	3 h	3 h	–
5352.283	Sm	2	–	–
5352 25	Os	20	–	–
5352.21	Er	8	–	Ed
5352.123	Dy	4	–	–
5352.1	bh F	10	–	L
5352 049	Co I	500 w	–	–
5351.95	I II	–	[2]	Mu
5351.915	Zr	3	–	–
5351.902	W	20	–	–
5351.671	Eu	150	–	–
5351.558	Sm	15 d	3	–
5351 32	Yb	50	3	–
5351.21	N II	–	[30]	–
5351.13	Th	8	–	Fl
5351.084	Ti I	50	60	–
5351.045	Cb	3	2	–
5350.899	Zr I	2	–	–
5350.742	Cb	150	50	–
5350.618	Sm	15	–	–
5350.58	A I	–	[20]	Ms
5350.46	Tl I	5000 R	2000 R	Fl
5350.445	W	18	–	–
5350 44	Er	12	–	Ed
5350.41	Te	–	[8]	Bl
5350.406	Gd	25	–	–
5350.399	Eu	60 h	–	–
5350.392	Re	2 w	–	–
5350.380	V	–	3 h	Me
5350.353	Zr II	4	5	–
5350.296	Sc I	3	–	–
5350.093	Zr II	4	5	–
5350.03	Xe	–	[2]	Hu
5349.917	U	5	3	–
5349.881	Mn	20	–	–
5349.862	W	6	–	–
5349.786	Mo	6	4	–
5349.736	Fe I	4 h	–	–
5349.702	Sc I	6	–	–
5349.65	I	–	[15]	Bl
5349.621	Ba	7	–	Sz
5349.62	Gd	8	–	Ed
5349.577	Nd	4	–	–
5349.575	Ta	30	–	–
5349.474	Eu	2	–	–
5349.474	Ca I	12	12	–
5349.31	Cs	–	[15]	Sv
5349.308	Rh	20	–	–
5349.294	Sc I	30	–	–
5349.261	Nd	2	–	–
5349.247	Re	3	–	–
5349.210	Ne I	–	[150]	Ps
5349.16	Cs II	–	[25]	Sv
5349.137	Sm	25	–	–
5349.12	Lu	25	2	Me
5349.093	Ta	80	–	–
5349.087	Co I	80	–	–
5348.95	Cs	–	[25]	Sv
5348.949	W	30	–	–
5348.811	Mo	4 h	1 h	–
5348 752	Sm	20	–	–
5348.689	Gd	20	–	–
5348.40	Hf II	10	15	Me
5348.319	Cr I	150 R	15	–
5348.087	Sm	20	–	–
5348.080	Ta	7	–	–
5348.069	Mn	10	–	–
5348.047	Er	20	–	–
5347.93	Tb	15	–	Ed
5347.83	Gd	20	–	Ed
5347.806	Ce	8	–	–
5347.490	Co I	80	–	–
5347.412	A I	–	[200]	Ms
5347.37	Kr I	–	[2]	Me
5347.205	Yb	40	200	–
5347.043	Th	10	1 w	–
5347.0	bh F	20	–	L
5346.93	Er	8	–	Ed
5346.785	Pd I	2 h	–	–
5346.76	Kr II	–	[60 hl]	Me
5346.698	W	4	–	–
5346 529	Ce	2	–	–
5346.481	Er	8	–	–
5346.477	Tm	40	25	–
5346.394	Th	6	–	–
5346 30	Hf II	10	40	Me
5346.14	Tb	10	–	Ed
5346.03	Os	8	–	–
5346.02	Er	8	–	Ed
5345.83	Yb	10	50	–
5345.81	A I	–	[20]	Ms
5345.81	P II	–	[50]	Gu
5345.807	Cr I	300 R	25	–
5345.709	Nd	6	–	–
5345.692	Gd	10	–	–
5345.67	Yb	20	100	–
5345.66	S	–	[25]	Bl
5345.6	bh F	20	–	L
5345.43	Br I	–	[80 l]	Ks
5345.315	Th	8	1	–
5345 22	Re	2	–	–
5345.146	I	–	[300]	Ke
5345.14	Gd	10	–	–
5345.105	Pd I	10	–	–
5345.102	Os	5	–	–
5345.097	Ce	5	–	–
5344 935	Er	8	–	–
5344.761	Cr I	15	–	–
5344.72	P	–	[150 w]	Gu
5344.566	Co I	10	–	–
5344.507	Er	30	–	–
5344.470	Mn	12	–	–
5344.28	A I	–	[5]	Ms
5344.170	Cb	400	200	–
5343.933	Er	30	–	–
5343.862	Pr	8	–	–
5343.76	Eu	2	–	–
5343.646	Nd	3	–	–
5343.596	Zr I	2 h	–	–
5343.585	Th	12	–	–
5343.580	Cb	5 h	1 h	–
5343.470	Fe I	12 h	–	–
5343.388	Co I	600 w	–	–
5343.284	Ne I	–	[600]	IMe
5343.022	Gd	10	–	–
5342.974	K I	30 l	–	Da
5342.961	Sc I	5	–	–
5342.766	Sm	3	–	–
5342.708	Co I	800 w	–	–
5342.545	Pr	3	–	–
5342.4	Hg II	–	[12]	Ps
5342.383	Tm	3	–	–
5342.250	Ta	80	–	–
5341.920	Pr	5	–	–
5341.877	Eu	20	–	–
5341.823	Gd	8	–	–
5341.78	A I	–	[10]	Ms
5341 58	I II	–	[2]	Bl
5341.500	Ti I	8	–	–
5341 333	Co I	300 w	–	–
5341.289	Sm	80	–	–
5341.093	Ne I	–	[1000]	I
5341.065	Mn	200	100	–
5341.049	Ta	150 w	80	–
5341.040	Sc I	5	–	–
5341.04	Cl	–	[2]	Ks
5341.026	Fe I	200	15	S
5340.804	Cb	8	5	–
5340.742	Ir I	5	–	–
5340.7	bh F	20	–	L
5340.67	La II	80	100	–
5340.437	Cr I	50	–	–
5340.314	Dy	6	–	–
5340.312	Sm	3	–	–
5340.15	N II	–	[5]	Fl
5339.938	Fe I	200	30	–
5339.670	K I	40 l	–	Da
5339.65	Rh I	2	–	Me
5339.528	Co I	100 w	–	–
5339.413	Re	10	–	–
5339.408	Sc I	4	–	–
5339 38	Xe II	–	[500]	Hu
5339.3	bh F	20	–	L
5339 278	W	5	–	–
5339.13	Kr I	–	[20]	Me
5339.083	Mo	4	1	–
5338.88	Ga	–	5	Kl
5338.77	N II	–	[15]	Fl
5338.77	Yb	–	3	Me
5338.629	Re	10	–	–
5338.614	V I	4	6	–
5338.429	Zr I	2	–	–
5338 326	Ti I	8	–	–
5338.3	Ga II	–	[2]	Sy
5338.267	Eu	4 h	–	–
5338.192	I II	–	[300]	Ke
5338.008	Nd	2	–	–
5337.90	Tb	10	–	Ed
5337.89	Xe I	–	[2 h]	Me
5337.548	Gd	20	–	–
5337.492	Cd II	5	25	–
5337.432	Dy	3	–	–
5337.369	W	15	–	–
5337 201	Mo	10	3	–
5337.133	Er	8	–	–
5336.851	Nd	2	–	–
5336.812	Cb	5	3	–
5336.809	Ti II	18	30 h	–
5336.640	Rh I	5	–	–
5336 552	Nd	8	–	–
5336.512	U	6	–	–
5336.490	Pr	5 r	–	–
5336.36	Er	8	–	Ed
5336.23	Os	20	–	–
5336.177	Ce	15	–	–
5336.168	Co I	50	–	–
5336.127	Ta	40	–	–
5335.930	Ru	100	–	–
5335.710	Ne I	–	[10]	Ps
5335.708	Ce	15	–	–
5335.588	V	12 h	5 h	Me
5335.228	Er	8	–	–
5335.161	Yb	150	400	–
5335.11	Br	–	[70]	Bl
5334.870	Cb	50	10	–
5334.838	Co I	70	–	–
5334.787	Mo	4	1	–
5334.78	Kr I	–	[10]	Me
5334.704	Ru	60	–	–
5334.674	Ce	5	–	–
5334.5	bh F	30	–	L
5334.42	N I	–	[5]	Du
5334.326	Nd	2	–	–
5334.228	Sc II	–	4	–
5334.20	Er	20	–	Ed
5333.854	Re	30	–	–
5333.825	Ce	6	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5333.78	Ca	–	2	Ad
5333.73	Ag I	8	–	Bx
5333 70	Cl II	–	[15]	Ks
5333.654	Co I	100	–	–
5333.42	La II	3	5	Me
5333.41	Kr II	–	[500 h]	Me
5333.36	Er	8	–	Ed
5333.338	Sm	4	–	–
5333.323	Ne I	–	[50]	Ps
5333.30	Fe	3	–	Rl
5333 25	Gd	20	–	Ed
5333.21	Sn II	2 h	1	Ar
5333.1	bh F	30	–	L
5333.017	Er	12	–	–
5332.931	Ru I	40	–	–
5332.761	Re	10	–	–
5332.674	Co I	200 w	–	–
5332.656	V	–	5	Me
5332.5	bh Zr	2	–	L
5332.482	Re	2	–	–
5332.45	Zr	2 h	–	–
5332.428	Nd	2	–	–
5332.36	Sn II	–	[20]	Mc
5332.093	Sm II	12	–	–
5332.04	Br	–	[100]	Bl
5331.941	Gd	8	–	–
5331.896	Re	80	–	–
5331.853	U	2	2	–
5331.761	Sc I	4	–	–
5331.746	Zr I	2	–	–
5331.54	As II	–	200	Ro
5331.483	Pr	6	1	–
5331.466	Co I	500 w	80	–
5331.19	Cb	–	2 h	Me
5331.1	bh Pb	3	–	L
5331.08	Kr I	–	[2]	Me
5331.08	Rh	15	–	–
5331.02	Gd	8	–	Ed
5330.837	Zr I	3	–	–
5330.777	Ne I	–	[600]	IMe
5330.69	Er	12	–	Ed
5330.66	O I	–	[500]	Ps
5330.582	Ce	25	–	–
5330.57	Br	–	[15]	Bl
5330.16	I I	–	[2]	Db
5329.999	Fe	15	–	–
5329.887	W	4	–	–
5329.833	Zr I	2	–	–
5329.823	Sr I	40	2	–
5329.74	Rh I	30	2	Me
5329.73	Ag I	2 h	–	Kp
5329.719	Cr I	5	2	–
5329.59	O I	–	[150]	Ps
5329.495	Ce	10	–	–
5329.43	Rh I	3	–	Me
5329.371	Th	8	–	–
5329.279	Eu	2	–	–
5329.223	U	10	1	–
5329.214	Ir	3	–	–
5329.15	Kr II	–	[4 h]	Me
5328.98	O I	–	[100]	Ps
5328.823	V I	18 W	12	Me
5328.81	Cu	–	3	Sh
5328.70	N I	–	[70]	Du
5328.69	Xe	–	[2]	Hu
5328.60	Pt	2	–	Me
5328.534	Fe I	150	35	S
5328.379	Ta	40	–	–
5328.339	Cr	5 h	8	–
5328.3	bh F	30	–	L
5328.27	Gd	12	–	Ed
5328.18	Tb	10	–	Ed
5328.050	Fe I	400	100	–
5328.02	A I	–	[20]	Ms
5327.90	Xe	–	[2]	Hu
5327.87	Kr I	–	[2]	Me
5327.710	U	8	6	–
5327.459	Re	100	–	–
5327.330	Gd	20	–	–
5327.109	W	5	–	–
5327.063	Mo	20	12	–
5326.976	Th	10	–	–
5326.9	bh F	30	–	L
5326.883	Sm	2	–	–
5326.474	Sm	3	1	–
5326.44	I	–	[2]	Ke
5326 396	Ne I	–	[75]	IMe
5326.351	Cb	3	1	–
5326.247	Co I	10	–	–
5326.157	Fe	6	–	–
5325 954	Co I	25	–	–
5325 90	Pt	3	–	Me
5325.863	Mo	10	2	–
5325.563	Fe II	–	4	Kn
5325.278	Co I	300 w	–	–
5325.145	Th	15 d	3	–
5324.893	Sm	25 d	3	–
5324.80	A I	–	[5]	Ms
5324.697	Dy	5	–	–
5324.61	Al II	–	[25]	Sy
5324.592	Nd	2	–	–
5324.583	Pt	4	–	–
5324.467	Mo	15	10	–
5324.26	Hf II	20	30	Me
5324.182	Fe I	400	70	–
5323.958	Ti I	3	–	–
5323.6	bh V	2	–	L
5323.573	La I	3	–	–
5323.534	Sm	10 d	–	–
5323.360	Cb	4	1	–
5323 228	K I	40 l	–	Da
5323.017	Eu	2 h	–	–
5322.819	I II	–	[20]	Ke
5322.818	V	–	4 h	Me
5322.778	Pr	30	3	–
5322.77	Kr II	–	[60 hl]	Me
5322.710	Gd	8	–	–
5322.374	Rb I	10 h	–	IRz
5322.2	bh F	30	–	L
5322.054	Fe I	30	–	–
5322.02	Kr I	–	[2]	Me
5322.0	bh Zr	2	–	L
5321.871	Sm	50 d	4	–
5321.791	Gd	10	–	–
5321.605	U	6	3	–
5321.52	Re	2	–	–
5321.508	Gd	8	–	–
5321.330	Cb	5	2	–
5321.30	Ca	–	3	Ad
5321.265	Gd	8	–	–
5321.264	Zr I	4	–	–
5321.263	Re	40	–	–
5321.250	Sm	3	–	–
5321.14	Yb	–	6	Me
5321.113	Fe	8 h	–	–
5321.086	Pr	8	1	–
5321.02	Te	–	[8]	Bl
5320.790	Nd	2	–	–
5320.78	Yt II	2	4	Me
5320.774	Th	8	–	–
5320.75	N II	–	[50]	Fl
5320.7	bh F	30	–	L
5320.70	S II	–	[35]	Ig
5320.597	Sm	100	–	–
5320 29	Ra I	–	[250]	Rs
5320.165	La I	3	–	–
5320.1	Sb II	–	10	Dv
5320.048	Fe	6	–	Bu
5319.984	Zr I	2	–	–
5319.886	Mo	12	8	–
5319.83	Xe	–	[2]	Hu
5319.818	Nd	60	2	–
5319.492	Cb	15	5	–
5319.377	U	6	8	–
5319.337	Pt	9	–	–
5319.23	Tb	40	–	Ed
5319.110	Nd	2	–	–
5319.087	V I	5	5	Me
5318.967	Sm	3	–	–
5318.92	Er	12	–	Ed
5318.873	W	20	–	–
5318.775	Cr I	30	–	–
5318.602	Cb	100	12	–
5318.423	Th	8	–	–
5318.337	Sc II	2	12	–
5318.045	Sm	5	–	–
5317.948	Mo	12	3	–
5317.82	Tb	10	–	Ed
5317.814	W	5	–	–
5317.806	Cb	5	2	–
5317.726	A I	–	[60]	Ms
5317 687	Sm	8 d	2	–
5317.61	Er	12	–	Ed
5317.41	Kr II	–	[30 hl]	Me
5317.32	Ta	2 s	–	Ks
5317.278	Re	40 w	–	–
5317 130	Mo	5	1	–
5317.095	Mn	7	–	–
5317.013	Cb	3	1 h	–
5316.942	Eu	15	–	–
5316 885	V I	5	5	Me
5316 809	Gd	8	–	–
5316.806	Ne I	–	[25]	Ps
5316.780	Co I	300 w	–	–
5316 69	Hg I	–	[15 wh]	Wd
5316.609	Fe II	–	150	Do
5316.604	Nd	5	–	–
5316.45	Er	8	–	Ed
5316.2	bh F	80	–	L
5316.07	P II	–	[150 w]	Gu
5316.07	Al II	–	[70]	Sy
5315 820	Mo	10	3	–
5315 806	Gd	7	–	–
5315 76	Tb	15	–	Ed
5315 552	Cb	10	5	–
5315 50	Se II	–	[15]	Bt
5315 326	Ru	10	–	–
5315.279	U	8	1	–
5315.27	Er	8	–	Ed
5315.219	V I	3	–	Me
5315.072	Ce	6	–	–
5315.07	Fe I	5 h	–	Rl
5315.044	Mo	20	12	–
5314.895	Ce	6	–	–
5314.786	Rh I	40	1	–
5314 781	Ne I	–	[30]	Ps
5314 71	Pr	4 w	–	–
5314 7	bh F	50	–	L
5314 594	I	–	[8]	Ke
5314.47	N II	–	[5]	Fl
5314.468	V I	10	4	–
5314.405	Ce	8	–	–
5313.932	Ce	8	–	–
5313.92	Er	8	–	Ed
5313.893	Mo	25	15	–
5313.87	Xe II	–	[500]	Hu
5313.751	Sm	6	–	–
5313.722	U	4	3	–
5313 39	Pr	3	–	–
5313.268	U	3	4	–
5313.261	Ti I	7	–	–
5313.080	W	4	1	–
5313 01	Ir	2	–	Me
5312.883	Th	6	–	–
5312.878	Cr I	40	–	–
5312.756	Mo	10	2	–
5312.732	U	5	5	–
5312 658	Co I	400 w	–	–
5312.624	Dy	3	–	–
5312 573	Pd I	15	–	–
5312 515	Th	6	–	–
5312 327	Pr	5	1	–
5312.32	Al II	–	[35]	Sy
5312 210	Sm II	100	–	–
5312.172	Eu	4 h	–	–
5311.98	Th	8	–	–
5311.922	V	–	5	Me
5311.89	Er	8	–	Ed
5311 881	U	18	18	–
5311 88	Dy	3 h	–	Ed
5311.856	Gd	10	–	–
5311.767	Zr II	2	2	–
5311.60	Hf II	100	150	Me
5311.55	Re	4 h	–	–
5311.461	Nd	15	1	–
5311.402	Zr I	10	–	–
5311.375	W	7	–	–
5311.119	Pr	10	1	–
5311.07	Te	–	[35]	Bl
5311.02	Zn I	7	–	Hz
5310.992	Zr I	2	–	–
5310.965	Ta	2	–	–
5310.76	Al II	–	[10]	Sy
5310.52	N I	–	[3]	Du
5310.484	U	4	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5310.3	bh F	80	–	L
5310.260	Th	12 d	1	–
5310.26	Kr II	–	[4 h]	Me
5310.241	Zn I	7	–	Hz
5310.208	K II	–	[25]	Dm
5310.205	Co I	20	–	–
5310.191	Sm	2	–	–
5310.038	U	10	8	–
5310.03	Er	12	–	Ed
5310.023	Eu	4 h	–	–
5309.828	In II	–	[100]	Ps
5309.68	Hf	6	1	Me
5309.517	A I	–	[200]	Ms
5309.493	Sm	8	–	–
5309.48	N I	–	[3]	Mt
5309.46	Tb	10	–	Ed
5309.398	In II	–	[70]	Ps
5309.33	Yb	2	5	Me
5309.27	Xe II	–	[150]	Hu
5309.267	Ru I	125	–	–
5309.146	I	–	[15]	Ke
5309.035	In II	–	[70]	Ps
5309.010	Dy	6	–	–
5308.96	Pr	3	–	–
5308.952	Ba	10	–	Sz
5308.924	Mn	5 h	–	–
5308.810	Sm	3	–	–
5308.7	bh F	80	–	L
5308.66	Kr II	–	[200]	Me
5308.648	Zn I	8	–	Hz
5308.554	Ce	8	–	–
5308.544	U	25	3	–
5308.4	bh Zr	2	–	L
5308.384	Zr I	2	–	–
5308.315	Ce	5	–	–
5308.276	Nd	2	–	–
5308.2	Pb II	–	[6]	Ea
5308.19	Tb	10	–	Ed
5307.82	Hf	4	–	Me
5307.62	Tb	10	–	Ed
5307.603	Zr I	2	–	–
5307.54	La	3	–	–
5307.463	Th	10	2	–
5307.365	Fe I	125	–	S
5307.322	Gd	25	–	–
5307.281	Cr I	12	–	–
5307.280	Ru	5	–	–
5307.121	Yb	40	–	–
5307.115	Er	12	–	–
5307.11	Tm	100	20	Me
5306.959	Cb	4 h	1	–
5306.8	Pb II	–	[20]	Ea
5306.78	Tb	10	–	Ed
5306.73	Re	2	–	–
5306.717	Gd	10	–	–
5306.609	Cs II	–	[25]	Sv
5306.472	Nd	5	–	–
5306.452	Ru	7	–	–
5306.37	Xe I	–	[3]	Me
5306.351	Cb	3	1	–
5306.260	Mo	15	8	–
5306.0	bh Zr	2	–	L
5305.88	Er	8	–	–
5305.87	Tm	20	20	Me
5305.854	Ru	7	–	–
5305.77	A II	–	[10]	Rt
5305.758	Ba	8	–	Sz
5305.580	Th	10	–	–
5305.562	Re	25	–	–
5305.51	Zr I	2 h	–	–
5305.501	Eu	4	–	–
5305.35	Se II	–	[500]	Bl
5304.99	Te	–	[25]	Bl
5304.860	Ru	60	–	–
5304.756	Ne I	–	[70]	IMe
5304.72	Tb	15	–	Ed
5304.625	Th	5	–	–
5304.51	Er	12	–	Ed
5304.502	Sm	3	–	–
5304.4	bh F	100	–	L
5304.40	Lu	20	2	Me
5304.211	Cr I	20	–	–
5304.19	Hf	2	–	Me
5304.10	Br	–	[30]	Bl
5304.03	La I	25	–	–
5303.873	Eu	300	–	–
5303.79	Zr I	2	–	–
5303.72	Te	–	[15]	Bl
5303.556	La II	100	125	–
5303.44	Tb	10	–	Ed
5303.419	Fe II	25	25	Do
5303.349	Ce	8	–	–
5303.272	V	1	20 h	Me
5303.232	Sm	2	–	–
5303.21	P	–	[50]	Gu
5303.205	Nd	5	–	–
5303.15	Er	12	–	Ed
5302.910	Sm	50	–	–
5302.83	Xe	–	[2]	Hu
5302.808	Ba	20	5	Sz
5302.768	Gd	25	–	–
5302.724	Eu	30	–	–
5302.7	bh F	100	–	L
5302 658	Sm	3	–	–
5302.62	La II	50	150	Me
5302.607	Nd	2 h	–	–
5302.58	Os	15	–	–
5302.320	Mn II	–	[60]	Cz
5302.314	Fe I	300	–	–
5302.30	Er	30	–	Ed
5302.279	Nd	12	1	–
5302.167	V I	8	5	–
5301.984	La II	300 r	200	–
5301.969	Zr I	6	–	–
5301.936	Sc I	2	2	–
5301.684	Gd	25	–	–
5301.585	Dy	10	–	–
5301.406	Th	12	2	–
5301.34	Ca	–	2	Ad
5301.26	Er	12	–	Ed
5301.057	Co I	700 w	–	–
5301.03	Se II	–	[18]	Bl
5301.02	Pt	150	10	Me
5300 936	Yb	6	60	–
5300.77	Re	3 h	–	–
5300.749	Cr I	25	4	–
5300.74	Kr I	–	[3]	Me
5300.67	Te	–	[25]	Bl
5300.59	Er	8	–	Ed
5300.587	U	8	1	–
5300 577	Nd	2	–	–
5300.18	Tb	10	–	Ed
5300.125	Zr I	2	–	–
5300.024	Ti I	8	–	Bh
5299.85	Yb	3	–	–
5299.85	Hf II	8	10	Me
5299.79	Kr I	–	[2 h]	Me
5299.79	I	–	[10]	Ke
5299.53	Hg II	–	[10]	Nu
5299.515	Zr	2	–	–
5299.470	U	6	3	–
5299.278	Mn II	–	[50]	Cz
5299.201	Zr I	2	–	–
5299.192	Sm	2	–	–
5299.00	O I	–	[70]	Ps
5298.981	Cb	3	2 h	–
5298.876	Nd	3	–	–
5298.854	Mn	4	–	–
5298.81	U	2	–	–
5298.781	Os	20	–	–
5298.780	Fe	12	–	–
5298.64	Er	12	–	Ed
5298.6	bh F	100	–	L
5298 592	Gd	15	–	–
5298.44	Ti I	40	1	–
5298.36	Bi	20 l	8	Om
5298.350	Sm	10	2	–
5298.3	bh Zr	2	–	L
5298.29	Ce	10	–	–
5298.269	Cr I	15 R	25	–
5298.190	Ne I	–	[150]	IMe
5298.156	Eu	20	–	–
5298.122	Cb	3	2	–
5298.106	Pr	25	–	–
5298.060	Mo	15	3	–
5298.06	Hf II	80	100	Me
5297.976	Cr I	5 h	1 h	–
5297.827	Dy	3	–	–
5297.742	Th	8	–	–
5297.64	Cd I	3	–	Ps
5297.60	Tb	10	–	Ed
5297.450	U	8	–	–
5297.360	Cr I	5 h	2 h	–
5297.257	Ti I	70	2	–
5296.968	Mn II	–	[40]	Cz
5296.940	Sm	6	2	–
5296.8	bh F	100	–	L
5296.788	Zr I	9	–	–
5296.686	Cr I	15 rh	15	–
5296.598	Ce	15	–	–
5296.55	Tb	10	–	Ed
5296.52	I I	–	[150]	Bl
5296.338	Cb	5	2	–
5296.32	A I	–	[5]	Ms
5296.09	P II	–	[300 w]	Gu
5295.91	Pr	3	–	–
5295.788	Ti I	50	1	–
5295.73	Tb	10	–	Ed
5295.65	Os	20	–	–
5295.629	Pd I	200	10	–
5295.56	Eu	2	–	Kn
5295.466	Mo	20	12	–
5295.292	Mn II	–	[30]	Cz
5295.009	Ta	40	–	–
5294 87	Hf	12	2	Me
5294.823	Zr I	8	–	–
5294.654	Sm	5	–	–
5294.627	Ru	4	–	–
5294.596	Eu	300	–	–
5294.48	Ca	2 h	1	Ad
5294 216	Mn II	–	[20]	Cz
5294.143	Pd I	6	–	–
5294.130	Ba	10	–	Sz
5294.068	Ce	12	–	–
5294.04	V I	18 wh	18 wh	Me
5293.973	Fe	8	–	Bu
5293.95	Hg II	–	[12]	Ps
5293.68	Eu	50 w	–	Kn
5293.63	P II	–	[30]	Gu
5293.458	Mo	20	10	–
5293.396	Ta	30	–	–
5293.383	Cr	5	–	–
5293.289	Cb	4	1	–
5293.168	Nd	60	4	–
5293.085	W	3	–	–
5292.9	bh F	150	–	L
5292.865	Cr	3	–	–
5292.79	Tb	15	–	Ed
5292.78	Hf	2	–	Me
5292.733	U	2	2	–
5292.630	Pr	50	2	–
5292.531	Zr	2	–	–
5292.517	Cu I	50	–	IBu
5292.37	Er	8	–	Ed
5292.283	Re	10	–	–
5292.22	Xe II	–	[800]	Hu
5292.144	Rh I	80	1	–
5292.10	Pr	60 w	–	–
5292.084	Mo	20	15	–
5291.94	Pr	3	–	–
5291.665	Nd	10	–	–
5291.36	U	3	1	–
5291.251	Eu	200	–	–
5291.171	Sm	3	–	–
5291.165	Ru I	25	–	–
5291.0	bh F	200	–	L
5290.945	Ba	10	–	Sz
5290.941	Ce	12	–	–
5290.850	Fe I	15	–	–
5290.836	La II	60	100	–
5290.716	V	10	10	–
5290.505	U	3	2	–
5290.289	V I	3	3	Me
5290.1	Hg I	–	[10]	Wd
5290.00	A I	–	[20]	Ms
5289.98	Hf II	3	10	Me
5289.942	Sm	15	–	–
5289.937	Pr	6 w	–	–
5289.895	Th	6	–	–
5289.82	Yt II	3	5	Me
5289.71	Tb	15	–	Ed
5289.51	Mn	2 h	–	–
5289.346	Pr	9	–	–
5289.329	Ir	2	–	–
5289.28	Ti I	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5289.247	Eu	125	–	–
5288.813	Ti	15	–	–
5288.65	I I	–	[15]	Bl
5288.60	Er	12	–	Ed
5288.530	Fe	30	–	–
5288.397	U	6	6	–
5288.161	Nd	2	–	–
5288.114	Sm	3	–	–
5288.06	Pr	3 w	–	–
5287.97	P	–	[15]	Gu
5287.922	Fe	100	20	Bu
5287.806	Co I	15	–	–
5287.70	Os	10	–	–
5287.637	V	8	8	–
5287.574	Co I	10	–	–
5287.439	Sm	10 d	2	–
5287.30	Tb	10	–	Ed
5287.30	Yb	–	5	Me
5287.231	Eu	125	–	–
5287.188	Cr I	40	–	–
5286.964	U	5	2	–
5286.93	Ti	8	–	–
5286.92	A	–	[20]	Rt
5286.86	Kr	–	[2 h]	Me
5286.837	Ce	12	–	–
5286.683	Nd	3	–	–
5286.67	Pr	10 w	–	–
5286.38	Xe I	–	[3 h]	Me
5286.14	Yb	–	4	Me
5286.12	Pt	10	–	–
5286.11	Hg II	–	[2]	Ps
5286.11	Xe I	–	[4 h]	Me
5286.09	Hf	4	–	Me
5286.08	A I	–	[60]	Ms
5286.04	Er	12	–	Ed
5285.892	Ru	7	–	–
5285.85	Al II	–	[50]	Sy
5285.82	Tb	10	–	Ed
5285.752	Sc I	10	15	–
5285.727	Eu	40	–	–
5285.7	bh Mg	2	–	L
5285.629	Pr	40	1	–
5285.61	Er	8	–	Ed
5285.459	Eu	40	–	–
5285.45	Cl	–	[2]	Bl
5285.44	Cb	3 h	–	–
5285.258	Cb	20	10	–
5285.188	Sm	4	–	–
5284.987	Dy	3	–	–
5284.971	Sc I	2	2	–
5284.583	Re	2	–	–
5284.549	Th	5	–	–
5284.416	Fe	2	–	Rl
5284.390	Ti I	18	35	–
5284.350	Nd	2	–	–
5284.347	Sm	2	–	–
5284.103	Mo	12	4	–
5284.092	Fe II	–	70 h	Do
5284.080	Ru I	100	–	–
5284.02	Er	8	–	Ed
5283.889	Os	8	–	–
5283.865	Gd	10	–	–
5283.843	Mo	12	6	–
5283.77	Al II	–	[100]	Sy
5283.69	Yt I	2 h	–	Me
5283.67	Ir	4	–	–
5283.626	Fe I	400	40	–
5283.492	Co I	125 w	–	–
5283.451	Ti I	50	2	–
5283.43	A I	–	[20]	Ms
5283.30	Xe I	–	[2 h]	Me
5283.28	Ra I	–	[250]	Rs
5283.089	Gd	10	–	–
5282.914	Sm	100	–	–
5282.823	Eu	1000	–	–
5282.65	Er	12	–	Ed
5282.535	V I	3	12 h	Me
5282.493	Gd	10	–	–
5282.46	Xe II	–	[10]	Hu
5282.386	Ti I	15	45	–
5282.282	Os	5	–	–
5281.931	Ti I	4	8	–
5281.910	V I	10	8	Me
5281.799	Fe I	300	20	–
5281.692	Ni I	3	–	–
5281.66	A	–	[2]	Rt
5281.66	Xe	–	[2]	Hu
5281.541	Sm	10 d	2	–
5281.375	Ce	10	–	–
5281.18	N I	–	[20]	Du
5281.05	Tb	25	–	Ed
5281.04	Sm II	6	–	–
5281.017	Ta	2	–	–
5280.864	Mo	50	25	–
5280.822	Ru I	12	–	–
5280.65	Eu	20 h	–	Kn
5280.649	Co I	500 w	–	–
5280.502	Sm	3	–	–
5280.435	V I	12	12	Me
5280.40	A	–	[60]	Ms
5280.389	U	30	4	–
5280.360	Fe	15	–	–
5280 289	Cr	15	20	–
5280.21	Al II	–	[50]	Sy
5280.124	Rh I	10	–	–
5280.090	Th	6	–	–
5280.070	Ne I	–	[50]	Ps
5280.050	Zr I	6	–	–
5279.91	Tb	15	–	Ed
5279.841	Mo	12	2	–
5279.84	Kr I	–	[9]	Me
5279.824	Ta	60 w	–	–
5279.708	Dy	3	–	–
5279.650	Mo	20	12	–
5279.619	Ba	5	–	Sz
5279.55	Yb	15	100	–
5279.433	Cb	10	1	–
5279.4	Eu	2	–	Kn
5279.358	Mo	10	1	–
5279.33	Er	30	–	Ed
5279.15	La II	5	15	–
5279.05	A I	–	[20]	Ms
5278.91	S I	–	[15]	Fh
5278.91	Er	8	–	Ed
5278.62	Al II	–	[15]	Sy
5278.61	S I	–	[5]	Fh
5278.602	W	9	–	–
5278.48	Lu	–	2 h	Me
5278.414	W	2	–	–
5278.262	Cr	6	–	–
5278.242	Re	100	–	–
5278 24	Tb	10	–	Ed
5278.180	U	12	15	–
5278.16	Eu	15	–	Kn
5277.91	Ra I	–	[8]	Rs
5277.70	Er	12	–	Ed
5277.68	Al II	–	[10]	Sy
5277.625	Ba	10	–	Sz
5277.543	Ce	8	–	–
5277.502	Th	15 d	3	–
5277.409	Zr I	10	–	–
5277.397	Dy	3	–	–
5277.358	Mo	10	2	–
5277.32	Pr	5 W	1	–
5277.3	Hg	–	[6]	Ps
5277.10	Eu	2	–	Kn
5277.070	Yb	200	6	–
5276.968	Ce	5	–	–
5276.90	Er	8	–	Ed
5276 879	Nd	10	1	–
5276.81	Al II	–	[10]	Sy
5276.701	U	2	2	–
5276.537	Gd	20	–	–
5276.522	Cu II	–	15	Sh
5276.50	Kr II	–	[100 h]	Me
5276.47	Ag I	6	–	Bx
5276.43	La I	20	–	–
5276.42	Al II	–	[10]	Sy
5276.407	Th	4	–	–
5276.39	Hf II	1	3	Me
5276.275	Mo	20	10	–
5276.195	Cb	200	50	–
5276.192	Co I	400 w	–	–
5276.03	Cr I	5 h	3 h	Hl
5276.03	Er	20	–	Ed
5275.994	Fe II	2	15	Do
5275.925	U	12	–	–
5275.689	Cr I	4 h	1 wh	–
5275.680	V I	8 h	8 h	–
5275.66	Eu	30	–	Kn
5275.554	W	20	–	–
5275.53	Re	500 w	–	–
5275 314	Dy	5	–	–
5275.3	bh V	10	–	L
5275.220	Mo	4	1	–
5275.171	Cr I	3	3	–
5275.08	O I	–	[50]	Ps
5275.05	Eu	10	–	Kn
5275.04	Hf	7	1	Me
5275.03	Tb	10	–	Ed
5275.025	Ta	7	–	–
5274.813	W	8	–	–
5274.61	Kr I	–	[4]	Me
5274.42	Eu	4 h	–	Kn
5274.244	Ce	50	3	–
5274.126	Sm II	10	–	–
5274.077	Dy	3	–	–
5274.044	Cs II	–	[40]	Sv
5274.043	Ne I	–	[40]	Ps
5273.86	Er	12	–	Ed
5273.777	Ir	5	–	–
5273.739	U	3	4	–
5273.492	Ir	2	–	–
5273.439	Cr I	15	–	–
5273.431	Nd	25	2	–
5273.378	Fe I	50	4	–
5273.337	Ru	4	–	–
5273.271	Ta	3	–	–
5273.170	Fe I	80	4	–
5272.930	Gd	10	–	–
5272.90	Er	20	–	–
5272.815	Sm II	50 d	–	–
5272.72	Pr	3	–	–
5272.7	Be	–	20	Sx
5272.646	Th	6	–	–
5272.56	C II	–	5	Fl
5272.483	Cb	5	2	–
5272.48	Eu	400	–	Kn
5272.374	Gd	6	–	–
5272.33	Ti	15	–	–
5272.261	Dy	4	–	–
5272.07	Tb	15	–	Ed
5272.018	U	8	2	–
5272.010	Cr I	25	1	–
5271.97	Ca	10	–	Ad
5271.95	Eu	2000	–	Kn
5271.880	Ce	15 w	–	–
5271 84	Os	8 w	–	Me
5271.797	Mo	20	10	–
5271.75	Gd	4	–	Ed
5271.726	Ru	5	–	–
5271.7	Eu	5	–	Kn
5271.57	Cd II	2 h	12	Vs
5271.532	Cb	200	50	–
5271.400	Sm	150	–	–
5271.33	Hg II	–	[4]	Ps
5271.22	Se II	–	[150]	Bl
5271.199	La I	100	20	–
5271.07	Bi II	2	15	Ml
5271.063	Ce	10	–	–
5271.06	Tb	10	–	Ed
5270.984	Re	200 W	–	–
5270.843	Be II	–	[12]	Ps
5270.694	Nd	5	–	–
5270.54	Er	8	–	Ed
5270.508	Rb II	–	15	Rr
5270.360	V I	2 h	–	–
5270.360	Fe I	400	80	S
5270.34	Bi II	7	20	Ml
5270.322	Be II	–	[10]	Ps
5270.276	Ca I	20	10	–
5269.988	Cu II	–	30	Sh
5269.971	Ti I	4	–	–
5269.948	Sm	2	–	–
5269.920	Cb	5	3	–
5269.778	Nd	6	1	–
5269.71	Bi II	8	30	Ml
5269.541	Fe I	800	200	–
5269.35	I	–	[30]	Bl
5269.292	W	12	–	–
5269.266	Rh I	50	1	–
5269.23	Tb	10	–	Ed
5268.946	Mo	12	5	–
5268.794	Gd	20	–	–
5268.77	Eu	2	–	Kn

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5268.62	Ti II	5	1	–
5268.515	Co I	500 w	–	–
5268.348	Ni I	10	–	–
5268.31	Xe II	–	[50]	Hu
5268.24	Pt	2 h	–	Me
5267.96	Cd II	2 h	10	Vs
5267 93	Rh I	5	–	Me
5267.908	U	3	3	–
5267.66	Pr	3	–	–
5267.48	A I	–	[2]	Ms
5267.422	U	6 h	–	–
5267.34	Tm	10	10	Me
5267.122	Dy	3	–	–
5267.033	Ba I	25	12	Sz
5266.94	I	–	[8 h]	Bl
5266.833	Ru	15	–	–
5266.579	Fe I	500	40	–
5266.487	Co I	500 w	–	–
5266.472	Ru	12	–	–
5266.40	Eu	1000	–	Kn
5266.301	Co I	100	–	–
5266.295	Ti I	5	–	–
5266.222	Ru	4	–	–
5266.127	V I	20 h	20 h	–
5266.03	Fe I	6 h	–	Bb
5266.00	Tb	10	–	Ed
5265.979	Ti I	70	3	–
5265.825	Co I	25	–	–
5265.748	Ni I	5	–	–
5265.722	Cr I	30	10	–
5265.710	Ce	15	–	–
5265.656	Sm	10	–	–
5265.562	Ca I	20	10	–
5265.17	I	–	[20]	Ke
5265.160	Cr I	15	–	–
5265.150	Os	30	–	–
5265.140	Re	3 h	–	–
5265 01	Er	12	–	Ed
5264 95	Hf II	50	80	Me
5264.92	Tb	15	–	Ed
5264.796	Fe II	–	4	Kn
5264.713	I	–	[8]	Ke
5264.47	Er	12	–	Ed
5264 415	Re	8	–	–
5264 399	Sm	5	–	–
5264.33	Te	–	[8]	Bl
5264 328	V I	6	1	–
5264.246	Co I	15	–	–
5264.240	Ca I	15	8	–
5264.224	Nd	2	–	–
5264.213	Ce	10	–	–
5264.152	Cr I	100 r	20	–
5264.14	Mg II	2	5	Fl
5264.04	Zr I	2	–	Ks
5263.995	V	–	5 h	Me
5263.96	Ra	–	[25]	Rs
5263.954	Ru	5	–	–
5263.878	Pr	25	2	–
5263.874	Fe	7	–	–
5263.809	Gd	10	–	–
5263.750	Cr	4	–	Hl
5263.73	Sr II	2	–	Sd
5263.61	Yb	–	10	Me
5263.502	Ti I	30	–	–
5263.330	Fe I	300	–	–
5263.316	Ti I	2	–	–
5263.264	Sm	4	–	–
5263.209	W	15	–	–
5263.04	Eu	30	–	Kn
5263.02	A	–	[2]	Ms
5262.587	Ru	5	–	–
5262.38	In I	12	–	Ps
5262.248	Ca I	20	8	–
5262.11	Tb	40	–	Ed
5262.104	Ti II	–	3 h	–
5261.95	Xe II	–	[200]	Hu
5261.95	Rh	3	–	Me
5261.82	Au I	40	3	Ml
5261.754	Cr I	25	–	–
5261.711	Ce	12	–	–
5261.704	Ca I	20	6	–
5261.569	Mo	3 h	2 h	–
5261.558	Ta	2 h	–	–
5261.40	Er	8	–	Ed
5261.140	Mo	20	15	–
5261.02	Tb	10	–	Ed
5260.978	V I	30	30	–
5260.90	Eu	2	–	Kn
5260.850	Cb	3	1	–
5260.84	Pt	18	–	–
5260.8	Bi II	–	25	Ml
5260.771	Mn	10	–	–
5260.61	Re	2	–	–
5260.555	Dy	6	–	–
5260.528	Sm	3	–	–
5260.44	Hf II	30	40	Me
5260.44	Xe II	–	[300]	Hu
5260.429	Ta	8	–	–
5260.391	Ca I	4	4	–
5260.352	V	20	20	–
5260.26	Er	8	–	Ed
5260.224	Rb I	5	–	IRz
5260 168	Mo	10 h	3 h	–
5260.131	Cb	5	2	–
5260.031	Rb I	20	–	IRz
5259.990	Ti I	15	30	–
5259.933	Ce	8	–	–
5259 89	Xe II	–	[25]	Hu
5259.86	Eu	2	–	Kn
5259.797	Os	15	–	–
5259.743	Pr	125	3	–
5259.63	Tb	10	–	Ed
5259.62	C II	–	30	Fl
5259.60	Ti	10	–	–
5259.389	La II	40	50	–
5259.355	W	20	–	–
5259 27	Rh	8	1	–
5259.099	Sm	4	–	–
5259.040	Mo	60	20	–
5258.75	Hf	2	–	Me
5258 392	Dy	3	–	–
5258.358	Th	6	–	–
5258.333	Sc I	12	15	–
5258.19	Yb	5	–	Me
5257.916	Sm II	3	–	–
5257.857	La I	5	–	–
5257.624	Co I	400 w	–	–
5257.604	Ti I	8	–	–
5257.492	Yb	15	100	–
5257.480	Er	12	–	–
5257.479	Pt	10	–	–
5257.36	C II	–	15	Fl
5257.102	Sm	3	–	–
5257.075	Ru I	25	–	–
5257.044	U	15	18	–
5257.02	Er	20	–	–
5256.903	Sr	90	25	–
5256.75	Tb	10	–	Ed
5256.75	Kr II	–	[30]	Me
5256.36	Te	–	[25]	Bl
5256.175	Pd I	12	–	–
5256.075	Eu	20	–	–
5255.955	Er	50	–	–
5255.826	Ti I	40	80	–
5255.823	Os	20	–	–
5255.821	Gd	12	–	–
5255.68	Yb	–	8	Me
5255.510	Nd	50	3	–
5255.417	W	20	–	–
5255.325	Mn	50	–	–
5255.132	Cr I	20	3	–
5254.961	Fe I	50	–	–
5254.93	P	–	[15]	Gu
5254.918	Cr I	18	–	–
5254.90	Tm	3	10	Me
5254.84	Ce	12	–	–
5254.759	Gd	15	–	–
5254.650	Co I	200 w	–	–
5254.542	W	18	–	–
5254.49	Hf	2	–	Me
5254.476	A I	–	[60]	Ms
5254.28	Tb	10	–	Ed
5253.97	In I	30	–	Ps
5253.928	Cb	20	8	–
5253.807	Ba	9	–	Sz
5253.796	Sm	4	–	–
5253.63	Se II	–	[100]	Bl
5253.55	C II	–	5	Fl
5253.480	Fe I	70	–	–
5253.48	P II	–	[300 w]	Gu
5253.458	La I	100	5	–
5253.455	Th	6	–	–
5253.449	Sm	3	–	–
5253.38	Eu	2	–	Kn
5253.38	Er	8	–	Ed
5253.375	In II	–	[15]	Ps
5253.07	Se II	–	[50]	Bl
5253.031	Cb	10	5	–
5252.96	Tb	10	–	Ed
5252.86	Eu	2	–	Kn
5252.786	A I	–	[300]	IMe
5252.766	Sm II	40 d	–	–
5252.443	U	2	1	–
5252.351	Re	3	–	–
5252.32	As II	–	8	Ro
5252.164	Gd	15	–	–
5252 108	Ti I	35	1	–
5251.971	Fe	12	–	–
5251.89	Xe	–	[2 h]	Me
5251.886	Sm	150	–	–
5251.847	Cb	5	5	–
5251.743	Cb	5 h	5	–
5251.738	Pr	10 w	1	–
5251.667	Ru I	25	–	–
5251.664	Cb	10	20	–
5251.49	Ti I	6	–	–
5251.41	Rh I	25	–	Me
5251.175	Gd	30	–	–
5251.142	Mo	5	1	–
5250.95	Ti I	12	–	–
5250.816	Nd	10	1	–
5250.650	Fe I	150	–	S
5250.487	Ce	6	–	–
5250 465	Os	8	–	–
5250.38	Eu	2	–	Kn
5250.38	Er	8	–	Ed
5250.34	Zr I	2	–	–
5250.339	Mo	10	2	–
5250.211	Fe I	30	–	–
5250.140	Ce	6	–	–
5249.998	Co I	200 w	–	–
5249.84	Yb	–	8	Me
5249.835	Pr	6	–	–
5249.63	Dy	3 h	–	Ed
5249.618	Ce	12	–	–
5249.585	Nd	60	2	–
5249.373	Cs II	–	[80]	Sv
5249.294	Nd	2	–	–
5249.20	A I	–	[40]	Ms
5249.183	Ce	10	–	–
5249.112	Eu	60	–	–
5249.09	Fe I	4 h	–	Rl
5249.06	Kr II	–	[4 hl]	Me
5249.05	Br	–	[30]	Bl
5248.98	Xe I	–	[4 h]	Me
5248.855	Re	25	–	–
5248.74	Rh I	3	–	Me
5248.71	Tb	25	–	Ed
5248.677	Er	12	–	–
5248.615	Eu	80	–	–
5248.52	In	–	5	Sq
5248.50	Zr I	2	–	–
5248.402	Ti I	4	–	–
5248.011	Zr I	2	–	–
5247.932	Co I	500 w	–	–
5247.75	Xe	–	[50]	Hu
5247.749	U	12	10	–
5247.71	Er	8	–	Ed
5247.653	Ta	20	–	–
5247.652	Th	20 d	3	–
5247.564	Cr I	60	15	–
5247.424	Ce	5	–	–
5247.42	Ca	4	3	Ad
5247.385	Cb	30	2	–
5247.379	W	7	–	–
5247.352	U	6	6	–
5247.310	Ti I	25	1	–
5247.10	Hf II	40	60	Me
5247.063	Fe I	50	10	–
5246.87	Gd	20	–	Ed
5246.76	A I	–	[5]	Ms
5246.574	Ti I	10	–	–
5246.24	A I	–	[40]	Ms
5246.148	Ti I	15	–	–
5246.12	Er	20	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5245.920	Ce	30	–	–
5245.696	I II	–	[80]	Ke
5245.595	Sm	4	–	–
5245.55	Eu	8 h	–	Kn
5245.510	Mo	25	2 d	–
5245.36	Cu II	–	10	Sh
5245.277	Ce	10	–	–
5245.27	Xe I	–	[4 h]	Me
5245.25	Kr	–	[4 whs]	Me
5245.17	Se II	–	[35]	Bl
5245.13	Br I	–	[20]	Ks
5244.777	Ta	40 w	–	–
5244.68	Hf	2	–	Me
5244.65	Yb	–	10	Me
5244.506	Ce	20	–	–
5244.342	Re	20	–	–
5244.21	Te	–	[8]	Bl
5244.107	Yb	50	5	–
5243.99	Hf	15	2	Me
5243.789	Fe I	20	–	–
5243.75	Se II	–	[8]	Mz
5243.692	Ir	2	–	–
5243.685	Pr	3	–	–
5243.57	Tb	15	–	Ed
5243.52	Er	12	–	Ed
5243.469	Zr I	4	–	–
5243.395	Cr I	50	–	–
5243.079	Ce	8	–	–
5242.987	W	25	1 h	–
5242.952	Ru	6	–	–
5242.812	Mo	50 h	20 h	–
5242.682	Eu	30	–	–
5242.63	P	–	[30]	Gu
5242.495	Fe	125	5	S
5242.381	Ru I	10	–	–
5242.355	Cr	2	–	–
5242.197	Zr I	2	–	–
5242.13	A I	–	[2]	Ms
5242.088	Th	3	–	–
5241.940	Zr I	2	–	–
5241.779	U	6	–	–
5241.59	Ce	5	–	–
5241.507	Cb	5	2 h	–
5241.458	Cr	12	–	–
5241.412	U	3	2	–
5241.29	Kr II	–	[2 hl]	Me
5241.203	V	–	3 h	Me
5241.20	Os	5	–	–
5241.096	A I	–	[60 h]	Ms
5240.880	Mo	80 h	40 h	–
5240.872	V I	50	50	–
5240.84	La	5	–	–
5240.815	Yt I	20	–	–
5240.744	W	6	–	–
5240.502	Yb	10	40	–
5240.468	Cr I	20 h	–	–
5240.41	Eu	2 h	–	Kn
5240.391	Cb	5	2	–
5240.310	Mo	6	1	–
5240.198	V I	8	8	Me
5240.194	Th	10	1	–
5239.942	Ti I	3	–	–
5239.823	Sc II	30	125	–
5239.792	Nd	15	–	–
5239.78	Eu	2 h	–	Kn
5239.774	W	9	–	–
5239.71	A I	–	[2]	Ms
5239.68	Er	8	–	Ed
5239.56	La I	5	–	–
5239.360	U	3	–	–
5239.3	bh C	70	–	L
5239.218	Eu	80	–	–
5239.20	Er	8	–	Ed
5238 971	Cr I	60	–	–
5238.94	Sb II	–	[50 wh]	Lg
5238.815	Th	3	–	–
5238.7	Hg II	–	[4]	Ps
5238.69	As II	–	12	Ro
5238.613	U	6	6	–
5238.580	Ti I	50	100	–
5238.551	Sr	90	15	–
5238.487	Ce	12	–	–
5238.47	Pt	2 h	–	Me
5238.416	Pd I	2 h	–	–
5238.23	Br II	–	[100]	Bl
5238.197	Mo	80 h	30 h	–
5238.11	Tb	15	–	Ed
5238.108	Sm	5	–	–
5238.09	Fe	4 h	–	–
5238.07	Te	–	[15]	Bl
5237.967	Mo	15	10	–
5237.91	Th	10	–	–
5237.805	Rh	8	–	–
5237.75	Er	8	–	Ed
5237.62	Se II	–	[5]	Bl
5237.598	Sm	10	3	–
5237.48	Cb	8	5	–
5237.370	Cb	5	5	–
5237.34	Cr II	2	8	–
5237.156	Rh I	100	2	–
5237.091	Co	5	–	–
5237.050	Ce	6	–	Ab
5236.836	Cb	3	4	–
5236 68	Yb	–	7 h	Me
5236.668	Re	20 w	–	–
5236.246	Dy	3	–	–
5236.21	A I	–	[20]	Ms
5236.197	Fe	6	–	–
5236.119	Eu	25	–	–
5235.52	P	–	[70]	Gu
5235.393	Ta	20 w	–	–
5235.390	Fe I	35	–	–
5235.35	Ni I	30	2	–
5235.206	Co	100 w	–	–
5235.19	Se	–	[5]	Bt
5235.12	Hf	2	–	Me
5235.11	Tb	15	–	Ed
5235 101	Cb	3	1	–
5235.057	Zr I	2 h	–	–
5234.860	Pd I	50	2	–
5234.80	Ir	2 h	–	–
5234.75	Sm II	2	–	Kn
5234.74	A I	–	[5]	Ms
5234.63	I I	–	[80]	Ke
5234.627	Fe II	–	5	–
5234.328	Re	25 W	–	–
5234.274	La I	200 r	8 W	–
5234.265	Mo	25	15	–
5234.195	Nd	50	–	–
5234.175	Sm	50 d	–	Kn
5234.164	U	8	–	–
5234.070	V I	40	40	–
5234.028	Ne I	–	[50]	IMe
5234 014	Ce	8	–	Ab
5233.962	Gd	20	–	–
5233.961	Rb I	15	–	IRz
5233.888	Eu	30	–	–
5233 817	Ti I	35	–	–
5233.752	V I	12	12	Me
5233.539	W	12	–	–
5233.440	Ta	2 wh	–	–
5233.42	Er	8	–	Ed
5233.296	Sm	4	2	–
5233.23	Os	5	–	–
5233.226	Th	12	3	–
5232.940	Fe I	800	150	–
5232.89	Os	5	–	–
5232.864	Ce	15	–	–
5232.809	Cb	50	10	–
5232.362	Mo	20	10	–
5232.163	U	2	–	–
5232.06	Kr	–	[2]	Me
5232.016	Th	5	–	–
5231.83	Ca	–	4	Ad
5231.74	Se	–	[8]	Bt
5231.50	As II	–	60	Ro
5231.159	Th	12	–	–
5231.065	Mo	20	15	–
5230.802	Ta	60 w	–	–
5230.625	Rh I	25	1	–
5230.372	Ir	2	–	–
5230.272	Pr	10 w	–	–
5230.264	Au I	40	15	–
5230.228	Cr I	18	–	–
5230.217	Co I	300 R	–	–
5230.177	Ru	4	–	–
5230.170	Mo	6	2	–
5230.15	Kr II	–	[3 h]	Me
5230.142	Ce	8	–	Ab
5229.867	Fe I	200	15 h	–
5229.863	Sm	4	–	–
5229.86	A I	–	[40]	Ms
5229.749	Ce	18	–	–
5229.58	Cu II	–	3	Sh
5229.572	Sm	3	–	–
5229.52	Kr II	–	[60]	Me
5229.374	Cb	3	1	–
5229.320	Er	30	–	–
5229.270	Sr	70	8	–
5229.118	W	7	1 h	–
5229.01	I	–	[20]	Ke
5228.781	Sm	60	–	–
5228.56	Yt I	4	–	Me
5228.427	Nd	6	–	–
5228.413	Fe	15 h	6 h	–
5228.4	bh V	10	–	L
5228.213	Tm	8	15	–
5228.205	Yb	5	–	–
5228.18	Kr I	–	[20]	Me
5228.12	Tb	40	–	Ed
5228.082	Cr	18	–	–
5228.005	Pr	15	–	–
5227.695	V	–	10	Me
5227.66	Pt	80	2	Me
5227.51	Se II	–	[600]	Bl
5227.295	Yb	10	–	–
5227.192	Fe I	400	60	S
5227.187	Ti I	10	–	–
5227.002	Cs II	–	[200]	Sv
5226.90	Xe II	–	[5 hl]	Hu
5226.891	Cr I	15	–	–
5226.875	Fe I	200	15	–
5226 62	Xe II	–	[10 hl]	Hu
5226.57	Os	3	–	–
5226.555	Ti II	30	50 h	–
5226.216	La II	6	20 l	–
5226.19	Yb	–	4	Me
5226.06	Er	12	–	Ed
5225.821	Cr	15	–	–
5225.767	V I	40	40	Me
5225 61	Th	3	–	–
5225.58	Rh I	10	–	Me
5225.531	Fe I	60	–	–
5225.155	Cb	15	5	–
5225.113	Sr	70	8	–
5225.05	Kr II	–	[3]	Me
5225.045	Nd	5	–	–
5225.032	Cr I	6	1	–
5225.000	U	6	6	–
5224 954	Ti I	90	6	–
5224.941	Cr I	18	4	–
5224 926	Zr I	10	–	–
5224.72	Eu	4 h	–	Kn
5224.697	Re	25 w	–	–
5224.667	W	50	8	–
5224.665	Sm	5	–	–
5224.564	Ti I	30	2	–
5224.56	Kr II	–	[7]	Me
5224 541	Cr I	12	–	–
5224.318	Ti I	70	8	–
5224.284	U	4	3	–
5224.137	Ru I	15	–	–
5224.082	Cr I	12	–	–
5223 87	Se II	–	[8]	Bt
5223.82	Sn	–	2	Ar
5223.641	Ti I	50	1	–
5223.630	Zr I	8	–	–
5223.57	Kr I	–	[5]	Me
5223.553	Ru	20	–	–
5223.478	Eu	700	–	–
5223.472	Ce	20	–	–
5223.342	Ti	3	–	–
5223.279	Pr	3	–	–
5223.27	As II	–	15	Ro
5223.193	Fe	6	–	–
5223.053	Eu	8	–	–
5222.948	Ce	2	–	–
5222.90	A I	–	[20]	Ms
5222.81	Hg II	–	[80]	Ps
5222.693	Ti I	35	2	–
5222.676	Cr I	18	–	–
5222.663	Rh I	30	1	–
5222.6	bh F	2	–	L
5222.483	Co I	50	–	–
5222.38	Kr I	–	[3]	Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
5222.351	Ne I	–	[50]	IMe
5222.28	Eu	2 h	–	Kn
5222.199	Sr	70	8	–
5222.13	Re	6	–	–
5221.99	Tb	15	–	Ed
5221.920	Ce	2	–	–
5221.890	U	8	–	–
5221.8	bh F	2	–	L
5221.753	Cr	25	–	–
5221.574	Nd	4	–	–
5221.340	Cl II	–	[70]	Mu
5221.319	Sm	8	–	–
5221.270	A I	–	[500]	IMe
5221.132	Re	3 h	–	–
5221.107	Sm	8	–	–
5220.912	Cr	10	–	–
5220.307	Ni I	15	–	–
5220.27	Gd	20	–	Ed
5220.113	Pr	80	3	–
5220.070	Cu I	100	–	IBu
5219.706	Ti I	60	2	–
5219.67	Sc I	10	12	Me
5219.46	Te	–	[8]	Bl
5219.421	Eu	4	–	–
5219.405	Mo	25	20	–
5219.40	Gd	25	–	Ed
5219.30	A I	–	[40]	Ms
5219.209	Eu	12	–	–
5219.112	Th	8	–	–
5219.095	Cb	100	10	–
5219.053	Pr	50	2	–
5219.05	Si	–	2	Sy
5219.027	Co I	10	–	–
5218.9	Hg I	–	[10]	Wd
5218.660	Ta	40	–	–
5218.528	Th	10	2	–
5218.465	Cb	3	1	–
5218.452	Ta	40 l	–	–
5218 428	W	7	3	–
5218.398	Sm	25	–	–
5218.25	Er	30	–	–
5218.23	Re	2 h	–	–
5218.21	Ga II	–	[10]	Sy
5218.202	Cu I	700	–	IBu
5218.178	W	6	–	–
5218.16	Cl II	–	[4]	Mu
5218.114	Ru	10	–	–
5218.084	Sm	8 d	2	–
5217.98	Yb	–	7 h	Me
5217.93	Kr II	–	[12]	Me
5217.924	Fe	6	–	–
5217.92	Cl II	–	[100]	Mu
5217.83	La	2 h	10 h	Me
5217.49	Gd	25	–	Ed
5217.45	Re	2	–	–
5217.45	Kr II	–	[30]	Me
5217.398	Fe I	150	3	–
5217.35	Cl II	–	[4]	Mu
5217.021	Eu	125	–	–
5216.948	U	8	–	–
5216.84	A II	–	[10]	Rt
5216.761	Pr	8	–	–
5216.590	Th	12	2	–
5216.588	V I	40	40	–
5216.494	Ni I	10	–	–
5216.428	Sm	5	–	–
5216.39	Hg	–	[20]	Ps
5216.384	Ce	8	–	–
5216.28	A I	–	[60]	Ms
5216.278	Fe I	300	10	S
5216.26	I II	–	[5]	Ke
5215.926	V	–	8	Me
5215.81	Kr I	–	[8]	Me
5215.788	Ir	2 h	–	–
5215.654	Nd	5	–	–
5215.609	Sm	15	–	–
5215.58	Er	8	–	Ed
5215.56	As	–	6	Ro
5215 45	Yb	–	5 h	Me
5215.185	Fe I	200	5	–
5215.13	Er	20	–	–
5215.088	Eu	1000	–	–
5214.787	Rh I	10	–	–
5214.768	A I	–	[200]	Ms
5214.727	Re	10	–	–
5214.368	Pr	3	–	–
5214.36	Er	8	–	Ed
5214 337	Ne I	–	[35]	Ps
5214.304	Dy	6	–	–
5214 3	bh F	2	–	L
5214 28	Tb	15	–	Ed
5214.187	W	12	2	–
5214 15	Th	4	–	–
5214.127	Cr	18	–	–
5214.08	I I	–	[20]	Ke
5214.077	Ru I	4	–	–
5213.655	V I	35	35	–
5213.428	Ru	10	–	–
5213.39	Tm	10	1	Me
5213.368	Eu	150	–	–
5213.36	Rh I	5	–	Me
5213.358	Th	4	–	–
5213.232	Nd	5	–	–
5213.17	Xe	–	[2 h]	Hu
5213.023	Ti	10	–	–
5212.980	Sr	10	–	–
5212.922	Er	20	–	–
5212.794	W	20	5	–
5212.780	Cu I	4	–	Hz
5212.741	Ta	60	–	–
5212.729	Rh I	15	1	–
5212.711	Co I	300 w	–	–
5212.61	S II	–	[20]	Ig
5212.495	Pr	3	–	–
5212.365	Nd	30	–	–
5212.345	W	9	–	–
5212.287	Ti	15	–	–
5212.257	Zr	3	–	–
5212.240	V	8 h	8 h	–
5212.239	Cr I	4 h	–	–
5212.2	bh Zr	8	–	L
5212.189	Sm	6	–	–
5211.99	Tb	10	–	Ed
5211.921	Ce	50 s	–	–
5211.917	Pr	3 d	–	–
5211.870	La I	300 r	5	–
5211.864	Mo	20	12	–
5211.821	Co I	100	–	–
5211.726	Sm	5	–	–
5211.63	Er	4	–	–
5211.60	Yb	40	2	–
5211.544	Ti II	10	15 h	–
5211.516	Rh I	8	1	–
5211.5	Cs	–	[15]	Dr
5211.235	Th	6	–	–
5211.234	Cb	3	1	–
5211.21	Tb	10	–	Ed
5211.16	Er	12	–	Ed
5211.043	Ce	8	–	–
5210.99	Gd	12	–	Ed
5210.842	Co I	50	–	–
5210.79	Hg	–	[60]	Ps
5210.754	Sm	8	–	–
5210.69	Sb	–	4 h	Sp
5210.573	Ne I	–	[50]	IMe
5210.522	Sc I	20	–	–
5210.488	A I	–	[200]	Ms
5210.439	Mo	15	4	–
5210.389	Ti I	200	35	–
5210.28	Er	12	–	Ed
5210.057	Co	100	–	–
5209.928	Sm	20	–	–
5209.904	Nd	2	–	–
5209.62	Cs	–	[15]	Sv
5209.501	Ru	7	–	–
5209.44	Cs	–	[15]	Sv
5209.34	Tb	15	–	Ed
5209.299	Zr I	5	–	–
5209.29	Bi II	–	600 h	Om
5209.105	W	10	–	–
5209.067	Ag I	1500 R	1000 R	–
5208 914	Pd I	10	–	–
5208.901	Ce	2	–	–
5208.863	Ne I	–	[70]	IMe
5208.80	Sb	–	[8]	Lg
5208.8	Bi II	5 wh	70	Ml
5208.601	Fe I	200	8	–
5208.59	Pt	2	–	Me
5208.436	Cr I	500 R	100	–
5208 32	Kr II	–	[500]	Me
5208.04	A I	–	[10]	Ms
5207.974	W	5	–	–
5207 97	Tb	15	–	Ed
5207.905	Pr	15	1	–
5207.893	Eu	20 h	–	–
5207.869	Ti I	25	–	–
5207.8	bh F	2	–	L
5207.786	U	4	–	–
5207.677	V I	8	8	–
5207.638	Sm	3	–	–
5207.344	Ce	8	–	–
5207.17	A I	–	[10]	Ms
5207.151	Sm II	25 d	–	–
5207.128	Cu II	–	20	Sh
5206.951	Rh I	6	1	–
5206 9	bh F	2	–	L
5206 659	Th	4	1	–
5206 61	O II	–	[60]	Mh
5206.608	V I	25	25	–
5206 565	Ne I	–	[3]	Ps
5206 562	Pr	30	2	–
5206 55	Ta	2	–	Ks
5206.519	Er	20	–	–
5206.490	Th	6	–	–
5206.47	Lu	10	–	Me
5206 430	Eu	40	–	–
5206 29	Tl II	–	[2]	El
5206.273	Ta	5 w	–	–
5206 186	W	30	–	–
5206.083	Ti I	40	1	–
5206 039	Cr I	500 R	200	–
5206.0	bh Mg	3	–	L
5205 93	Ra I	–	[250]	Rs
5205.79	A I	–	[10]	Ms
5205.779	Th	8	1	–
5205 719	Yt II	50	80	–
5205 54	I II	–	[8]	Bl
5205.521	Ce	8	–	–
5205.40	As	–	12	Ro
5205.395	Sm	15	2	–
5205 179	U	10	6 h	–
5205.154	W	–	6	–
5205.142	Ce	10	–	–
5205 130	Cb	8	5	–
5204 78	Hg	–	[40]	Ps
5204.726	Ce	8 w	–	–
5204.583	Fe I	125	–	–
5204 518	Cr I	400 R	100	–
5204 514	W	40	–	–
5204.51	Tm	6	10	Me
5204.381	Nd	2	–	–
5204.316	U	10	10	–
5204.274	Ce	10	–	–
5204.20	I I	–	[50]	Ev
5204.155	La II	50	300	–
5204.033	Cb	3	1	–
5203.943	Mo	12	5	–
5203.895	Ne I	–	[150]	IMe
5203.865	Th	5	–	–
5203.668	Sm	3	–	–
5203.329	Rh I	8	–	–
5203.279	Ce	8	–	–
5203.259	W	30	–	–
5203.232	Os	12	–	–
5203.224	Cb	15	8	–
5202.85	Si	–	2	Sy
5202.77	Tb	15	–	Ed
5202.733	Sm II	50	–	–
5202.634	Os	30 h	–	–
5202.594	Ce	5	–	–
5202.464	Ce	6	–	–
5202.356	Sm	3	–	–
5202.339	Fe I	300	10	S
5202.122	Ru	12	–	–
5201.88	Xe II	–	[5 wh]	Hu
5201.71	N I	–	[10]	Du
5201.56	Kr II	–	[2 h]	Me
5201.452	Sm	10	–	–
5201.444	Pb	10	2 h	Hz
5201.436	W	10	–	–
5201.42	Xe II	–	[15]	Hu
5201.389	Ce	15	–	–
5201.35	S II	–	[10]	Ig
5201.146	Zr I	7	–	–
5201 096	Ti I	30	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5201.01	Bi II	–	30	Om
5201.00	S II	–	[10]	Ig
5200.925	Eu	300	–	–
5200.87	Cu I	5 wh	–	Sh
5200.807	Re	2 h	–	–
5200.744	Mo	20	10	–
5200.591	Sm	200	1	–
5200.55	Yb	2	10	–
5200.5	bh F	2	–	L
5200.418	Ce	12 w	–	–
5200.408	Yt II	60	150	–
5200.337	V	8	8	–
5200 22	Kr II	–	[60 whs]	Me
5200.188	Cr I	30	–	–
5200.168	Mo	40	20	–
5200.122	Ce	6	–	–
5200.119	Nd	10	–	–
5199 942	W	7	–	–
5199.893	Re	15 w	–	–
5199 867	Ru	20	–	–
5199.846	Eu	500	–	–
5199.727	Nd	4	–	–
5199.7	bh F	2	–	L
5199.33	Br	–	[30]	Bl
5199.28	Eu	4	–	Kn
5199.113	Th	4	–	Fd
5198.96	A I	–	[2]	Ms
5198.88	I	–	[25]	Bl
5198.86	Tb	15	–	Ed
5198.837	Fe	10	–	–
5198 832	Th	15	–	–
5198.784	Sn	–	5	Ar
5198.714	Fe I	80	–	S
5198.563	Mo	5	3	–
5198.067	Nd	2	–	–
5197.874	W	3	–	–
5197.77	Gd	25	–	Ed
5197.663	Dy	10	–	–
5197.590	Fe II	–	10	Kn
5197.55	Rh I	3	–	Me
5197.216	Mn	10	–	–
5197.165	Ni I	10	–	–
5196.872	Mo	5	2	–
5196.76	Tb	10	–	Ed
5196.62	Si	–	2	Sy
5196 61	Lu	10	–	Me
5196 591	Mn	30	–	–
5196.496	W	5	–	–
5196.443	Cr I	50	3	–
5196.43	Yt II	5	10	Me
5196.412	Sm	3	–	–
5196.31	Tb	10	–	Ed
5196.15	Hg II	–	[20]	Ps
5196.098	Fe	25 h	–	–
5196.091	Yb	20	3	–
5195.837	Cb	30	10	–
5195.814	Th	5	–	–
5195.601	Nd	2	–	–
5195.481	Pr	20	–	–
5195.478	Fe I	100 h	–	–
5195.363	V I	40	25	–
5195.307	Pr	20	1	–
5195.273	Rb I	20 h	–	IRz
5195.110	Pr	10	1	–
5195.019	Ru I	100	–	–
5194.980	Ce	5	–	–
5194.948	Fe I	200	15	–
5194.92	Xe II	–	[10 wh]	Hu
5194.832	V I	30	30	–
5194.77	A I	–	[20]	Ms
5194.750	Ce	8	–	–
5194.723	Sm	10	–	–
5194.57	Hf II	3	6	Me
5194.413	Pr	20	–	–
5194.043	Ti I	10	–	–
5194.02	A I	–	[5]	Ms
5193.90	Pt	3	–	–
5193.89	Br	–	[10]	Bl
5193.87	Yb	4 h	–	Me
5193.820	Th	8	1	–
5193.731	Eu	20	–	–
5193.617	V I	30	12	–
5193.525	Os	30	–	–
5193.518	Sm	3	2	–
5193.488	Cr	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5193.448	Cb	3	2	–
5193.4	bh F	2	–	L
5193.224	Ne I	–	[150]	IMe
5193.21	Si	–	2	Sy
5193.137	Rh	200	3	–
5193.130	Ne	–	[150]	IMe
5193.075	Cb	100	20	–
5193.054	Sm	5	1	–
5192.993	V I	100	75 h	–
5192.975	Ti I	150	25	–
5192.88	Dy	15	–	–
5192.723	W	30	–	–
5192.72	A I	–	[60]	Ms
5192.621	Nd	40	–	–
5192 6	bh F	2	–	L
5192.524	Ni I	10	–	–
5192.357	Fe I	400	50	–
5192 351	Co I	100 w	–	–
5192 10	Xe II	–	[50]	Hu
5192.008	V I	18	15	–
5192.000	Cr I	50	–	–
5192.0	bh Mg	3	–	L
5191.675	Ce	30 wh	–	–
5191.657	Er	8	–	–
5191 600	Zr II	5	10	–
5191 524	U	6	–	–
5191.50	La	4	3 h	Me
5191.467	Fe I	400	35	–
5191.448	Nd	40	–	–
5191.40	P II	–	[100]	Gu
5191.4	Pb II	–	[2]	Ea
5191 37	Xe II	–	[200]	Hu
5191 335	Pr	20	1	–
5191.327	Ne I	–	[35]	Ps
5191.07	Gd	30	–	Ed
5190.870	Th	10	1	–
5190.76	Tb	10	–	Ed
5190.519	U	2	1	–
5190.45	O II	–	[30]	Mh
5190.445	Sm II	5	–	–
5190.42	N II	–	[15]	Fl
5190.34	La	4 h	–	Me
5189.885	U	3	4	–
5189.839	Eu	10	–	–
5189.70	Cl II	–	[25]	Ks
5189.681	Th	6	1	–
5189.51	N	–	[5]	Du
5189 38	I	–	[2]	Bl
5189.217	U	2	–	–
5189.2	Pb	–	20	Ro
5189.197	Cb	80	12	–
5188.934	Ta	12	–	–
5188 888	Er	30	–	–
5188 861	W	10	–	–
5188.850	Ca I	50	6 w	–
5188.700	Ti II	80	100	–
5188.652	Ce	10	–	–
5188.612	Ne I	–	[150]	IMe
5188.59	Te	–	[8]	Bl
5188.580	U	2	–	–
5188.576	Eu	4	–	–
5188.477	Dy	3	–	–
5188 371	Th	6	–	–
5188.239	Pr	3	–	–
5188.229	La II	50	500	–
5188 11	Xe II	–	[100]	Hu
5187.864	Sm II	3	–	–
5187.85	Gd	15	–	Ed
5187.75	Hf II	20	30	Me
5187.746	A I	–	[800]	IMe
5187.68	Se II	–	[18]	Bl
5187.536	W	4	–	–
5187.452	Ce	50	–	–
5187.445	Th	4	–	–
5187.24	Gd	15	–	Ed
5187.210	Sm	2	–	–
5187.079	Sm	3	–	–
5187.053	Nd	2	–	–
5187.032	Zr I	3	–	–
5186.99	Kr II	–	[60 whs]	Me
5186.984	Cb	50	10	–
5186.91	Gd	20	–	Ed
5186.84	Hf	4	–	Me
5186.592	Ni I	6	–	–
5186.442	Re	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5186.4	bh F	5	–	L
5186.336	Ti I	20	–	–
5186.16	Tb	15	–	Ed
5186.147	Re	2	–	–
5185.90	Ti II	8	35 h	Rl
5185.89	Re	2	–	–
5185.85	Xe I	–	[2 h]	Me
5185.688	Tm	5	10	–
5185.64	Si	–	2	Sy
5185.6	bh F	5	–	L
5185.237	Tm	5	–	–
5185.213	I II	–	[30]	Ke
5185.154	Dy	3	–	–
5185.023	Rh I	8	–	–
5185.0	bh Zr	30	–	L
5184.97	N II	–	[15]	Fl
5184.726	Th	3	–	–
5184.660	In II	–	[70]	Ps
5184.590	Cr I	60	1	–
5184.587	U	12	15	–
5184 585	Ni I	50	–	–
5184.48	Xe II	–	[40]	Hu
5184.438	In II	–	[300]	Ps
5184.292	Fe I	20	–	–
5184.274	Eu	2	–	–
5184.194	Rh I	100	1	–
5184.181	Yb	8	30	–
5184.034	Ru	4	–	–
5183 986	Th	6	1	–
5183.972	W	20	–	–
5183.923	La I	25	–	–
5183 88	Br	–	[10]	Bl
5183.848	Pr	5	–	–
5183 82	Cb	5 h	1	–
5183.72	Ti I	8	–	–
5183.705	Zr I	6	–	–
5183 618	Mg I	500 wh	300	–
5183 610	Co	35	–	–
5183 606	Eu	4	–	–
5183.422	La II	300	400	–
5183.364	Cu II	–	20	Sh
5183.33	Cb	5 h	1	–
5183.21	N II	–	[15]	Fl
5183.197	Ce	10	–	–
5183.10	Tl II	–	[10]	El
5183.01	Se II	–	[15]	Bl
5182.603	Nd	8	–	–
5182.524	Th	5	2	–
5182.36	Br II	–	[100]	Bl
5182.32	As II	–	30	Ro
5182.282	Os	5	–	–
5182 225	Ru	5	–	–
5182.13	Si	–	3 wh	Sy
5181.995	Zn I	200	2	IHz
5181.95	Tl II	–	[10]	El
5181.935	Ce	10	–	–
5181.86	Hf	25	10	Me
5181.80	N I	–	[15]	Ry
5181.761	Re	25	–	–
5181.750	Ce	5	–	–
5181.591	Mo	–	20	Wn
5181.165	Nd	5	–	–
5181.08	Tb	10	–	Ed
5181.014	Eu	4	–	–
5181.0	N I	–	[5]	Ry
5180.985	Ta	2	–	–
5180.961	Er	8	–	–
5180.894	U	8	–	–
5180.890	Ce	15	–	–
5180.760	V I	8	8	–
5180.680	U	4	–	–
5180.584	Ir	2 h	–	–
5180 36	Yb	2	10	Me
5180.34	N II	–	[5]	Fm
5180.306	Cb	150	15	–
5180.216	Mo	12	4	–
5180.058	Fe	10	–	–
5179.975	Mo	10	3	–
5179.91	Gd	20	–	Ed
5179.781	Nd	25	–	–
5179.5	bh F	5	–	L
5179.50	N II	–	[70]	Fl
5179.490	W	8	1 h	–
5179.48	Er	8	–	Ed
5179.458	Ce	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5179.405	Mo	5	1	–
5179.36	Sb	–	2 h	Sp
5179.208	Sm	3	–	–
5179.136	Ni I	4	–	–
5179.133	La I	5	–	–
5178.987	Zr I	2	–	–
5178.910	Re	100 W	–	–
5178.9	Te I	–	[4]	Rd
5178.84	Gd	20	–	Ed
5178.82	Xe II	–	[50]	Hu
5178.78	Fe	2	–	–
5178.750	Nd	10	–	–
5178.701	Eu	8	–	–
5178.688	Ce	10	–	–
5178.625	Ti I	8	–	–
5178.6	bh F	5	–	L
5178.58	Ge II	–	100	Lg
5178.49	Th	3	–	–
5178.40	Tb	10	–	Ed
5178.216	Cb	3	1	–
5178.178	Rh I	5	–	–
5178.131	I	–	[25]	Ke
5178.058	Sm	100 d	–	–
5177.977	Eu	6	–	–
5177.947	Ir	8	2	–
5177.730	Ce	8	–	–
5177.725	W	6	–	–
5177.71	Kr II	–	[6 whs]	Me
5177.63	Th	2	–	–
5177.535	A I	–	[40]	Ms
5177.448	Ba	4	2	Sz
5177.430	Cr I	50 l	–	–
5177.4	bh Mg	2	–	L
5177.369	Pr	5	–	–
5177.311	La I	150	30	–
5177.267	Rh I	25	–	–
5177.239	Fe	4	–	–
5177.09	Mo	5	1	–
5176.965	Th	10	–	–
5176.791	Nd	4	–	–
5176.766	V	60	50	–
5176.565	Ni I	70	2	–
5176.55	Sb II	–	[50]	Lg
5176.51	Tb	10	–	Ed
5176.483	V I	8	8	–
5176.411	Eu	6	–	–
5176.38	P	–	[70]	Gu
5176.28	Gd	30	–	Ed
5176.28	A II	–	[10]	Rt
5176.078	Co I	500 r	–	–
5175 98	Se II	–	[600]	Bl
5175.969	Rh	200	1	–
5175.89	N II	–	[30]	Fl
5175.89	Cu II	–	2	Sh
5175.86	O II	–	[15]	Mh
5175.85	Cl II	–	[20]	Ks
5175.833	Pr	10 w	1	–
5175.698	W	6	–	–
5175.619	Ba	10	7	Sz
5175.558	In II	–	[150]	Ps
5175.422	In II	–	[300]	Ps
5175.418	Sm	60	1	–
5175.40	I I	–	[8]	Db
5175.292	In II	–	[400]	Ps
5175.186	Pr	30 w	1	–
5175.137	W	6	–	–
5174.889	Eu	8	–	–
5174.74	I	–	[2]	Bl
5174.71	Rh	3	–	Me
5174.622	U	2 h	2	–
5174.540	Ce	25	–	–
5174.529	V I	10 h	10 h	–
5174.46	N II	–	[5]	Fl
5174.337	U	8	–	–
5174.205	Cb	3	2	–
5174.198	Th	5	–	–
5174.178	Mo	70 h	25 h	–
5173.991	Eu	4	–	–
5173.898	Pr	100	4	–
5173.854	La II	20	25 h	–
5173.748	Ti I	125	20	–
5173.701	Ce	3	–	–
5173.635	Sm	3	–	–
5173.37	N II	–	[15]	Fl
5173.16	F II	–	[15]	Di
5173.15	Cl II	–	[25]	Ks
5173.13	Yb	1	15 h	Me
5172.99	Te	–	[15]	Bl
5172.941	Mo	70 h	25 h	–
5172 924	La II	5	20 l	–
5172.761	Er	12	–	–
5172.742	Sm	80	1	–
5172.72	Re	2	–	Me
5172.699	Mg I	200 wh	100 wh	–
5172.688	Co	10	–	–
5172.46	Sb II	–	[15]	Lg
5172 377	Re	2	–	–
5172.36	Kr I	–	[2]	Me
5172 32	N II	–	[5]	Fl
5172.093	V I	18 h	18 h	–
5171.8	bh F	2	–	L
5171.72	Os	8	–	Me
5171.632	Ta	20	–	–
5171.599	Fe I	300	60 h	S
5171.54	Se II	–	[18]	Bl
5171 46	N II	–	[5]	Fl
5171.246	Mo	12	4	–
5171 1	bh Sc	4	–	Me
5171.076	Mo	30 h	6 h	–
5171.028	Ru I	150	–	–
5170.75	Fe	4 h	–	–
5170 736	Sm	5	2	–
5170.694	Mo	5	1	–
5170 61	Tb	10	–	Ed
5170.492	Eu	4	–	–
5170.23	Th	6	–	–
5170.18	Hf	10	5	Me
5170 13	Tb	10	–	Ed
5170 08	N II	–	[5]	Fl
5169 939	V I	18	18	–
5169 9	Bi II	2	12	Ml
5169 756	Eu	4	–	–
5169.718	Ce	15	–	–
5169 699	Dy	8	–	–
5169 651	Rb I	5	–	IRz
5169 602	Sm	50 d	–	–
5169.45	N II	–	[5]	Du
5169.320	Eu	6	–	–
5169.12	Tb	10	–	Ed
5169 027	Fe II	2	200 h	–
5168 975	Os	8	–	–
5168 971	La I	3	–	–
5168 901	Fe I	80	–	S
5168 660	Ni I	70	–	–
5168.345	Sm	6	–	–
5168.314	Pr	3	–	–
5168 24	N II	–	[5]	Fl
5168 226	Eu	4	–	–
5168 06	Kr I	–	[4]	Me
5167 923	Nd	5	–	–
5167.791	La I	20	–	–
5167.757	Mo	25	20	–
5167 491	Fe I	700	150	S
5167 42	Hf	3	–	Me
5167.343	Mg I	100 wh	50	–
5167.28	La II	3	10	Me
5167.271	Sm	3	–	–
5167.187	Eu	4	–	–
5166.902	Th	3 W	2 h	–
5166.844	Dy	4	–	–
5166.80	Kr II	–	[80]	Me
5166.788	Ta	30	–	–
5166.716	Eu	125	–	–
5166.38	Hf	2	–	Me
5166.32	Sb II	–	[30 wh]	Lg
5166.296	Fe I	125	–	–
5166.227	Cr	80	2	–
5166.087	Nd	4	–	–
5166.065	Co I	10	–	–
5166.046	Sm II	125 d	–	–
5165.961	Zr I	7	–	–
5165.9	bh F	5	–	L
5165.82	A II	–	[20]	Rt
5165.8	Hg I	–	[5]	Wd
5165.46	Sr I	15	–	Fl
5165.424	Fe I	50	–	–
5165.41	Rh I	15	–	Me
5165.373	Dy	3	–	–
5165.2	bh C	–	–	L
5165.171	Re	3	–	–
5165.159	Co I	30	–	–
5165.140	Nd	10	–	–
5165.0	bh F	5	–	L
5164.970	Pt	2	–	–
5164 885	V I	15 h	15 h	–
5164.78	Ir	2 h	–	–
5164.761	Er	30	–	–
5164.72	Sb II	–	[15]	Lg
5164.703	Zr	2	–	–
5164.614	Fe	70 h	–	–
5164.612	Sm	3	–	–
5164.604	U	2	1 h	–
5164.592	Rb II	–	5	Rr
5164.56	Hf II	3	8	Me
5164.43	Hf	4	–	Me
5164.40	Br II	–	[20]	Bl
5164.386	Ce	12	–	–
5164 377	Cb	150	20	–
5164.27	Tb	10	–	Ed
5164.157	U	15	1	–
5164.10	Rh I	3	–	Me
5164.00	Te	–	[8]	Bl
5163.845	Er	12	–	–
5163.842	Pd I	300	8	–
5163.8	Pb II	–	[25]	Ea
5163.779	Eu	3	–	–
5163.68	Gd	15	–	Ed
5163.649	Ta	40	–	–
5163.615	La II	25	40	–
5163.474	Ne I	–	[10]	Ps
5163.446	Th	12	–	–
5163.192	Mo	25	20	–
5162.860	Sm	15	3	–
5162.840	W	3	–	–
5162 80	A II	–	[2]	Rt
5162 78	N	–	[5]	Du
5162.711	Xe I	–	[10]	IMe
5162.68	La II	2	3	Me
5162.5	bh Mg	2	–	L
5162 39	Eu	3	–	Kn
5162 34	Cl II	–	[10]	Ks
5162.3	bh Pb	8	–	L
5162.288	Fe I	300 h	–	–
5162 284	A I	–	[500]	IMe
5162.27	P	–	[30]	Gu
5162.15	Hg II	–	[5]	Nu
5162.073	W	9	–	–
5162.060	Sm II	4	–	–
5161.97	P	–	[30]	Gu
5161.814	Ta	80 w	–	–
5161.765	Cr	18	–	–
5161.743	Pr	40	1	–
5161.706	Nd	3	–	–
5161.655	Re	25	–	–
5161.566	La	3 hl	–	–
5161.545	Th	2	–	–
5161.484	Ce	30	–	–
5161.358	Pd I	4	–	–
5161.25	As	–	30	Ro
5161.188	I II	–	[300]	Ke
5161.161	Sm	3	–	–
5160.998	Dy	3	–	–
5160.988	Zr I	6	–	–
5160.88	Gd	15	–	Ed
5160.695	Th	12	2	–
5160.572	Sm	10 d	–	–
5160.409	Eu	6	–	–
5160.40	Tb	10	–	Ed
5160.35	Rh I	4	–	Me
5160.333	Cb	200	15	–
5160.326	U	18	20	–
5160.322	Er	12	–	–
5160.070	Eu	200	–	–
5159.998	Ru I	12	–	–
5159.919	Ba	50 h	10	Sz
5159.88	O II	–	[40]	Mh
5159.77	Tb	10	–	Ed
5159.69	A I	–	[10]	Ms
5159.689	Ce	30	–	–
5159.516	Sm II	15	–	–
5159.347	V I	40	40	–
5159.31	Tb	10	–	Ed
5159.3	bh F	5	–	L
5159.210	Pr	3	–	–
5159.053	Fe	35 h	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5158.894	Ne I	–	[50]	Ps
5158.842	Co I	40	–	–
5158.79	Cl II	–	[8]	Ks
5158.693	La I	50	–	–
5158.69	Rh	80	1	Me
5158.666	Zr I	3	–	–
5158.607	Th	12	–	–
5158.6	Sb II	–	12	Dv
5158.431	Co I	40	–	–
5158.4	bh F	5	–	L
5158.187	Al II	–	[5]	Sy
5158.178	W	8	–	–
5158.090	Cu II	–	10	Sh
5158.037	Cb	3	1	–
5158.001	Zr I	10	1	–
5157.993	Ni I	8	–	–
5157.96	Hf	12	10	Me
5157.884	Sm	3	–	–
5157.57	Tb	15	–	Ed
5157.557	Sm	3	–	–
5157.508	Os	7	–	–
5157.487	Cb	4	8	–
5157.431	La II	40	100	–
5157.223	Sm	10	–	–
5157.09	Rh	25	–	Me
5157.043	Sm II	10	–	–
5157.031	V I	15	15	–
5156.741	La II	40	40	–
5156.74	Gd	20	–	Ed
5156.72	P	–	[50]	Gu
5156.664	Ne I	–	[50]	IMe
5156.562	Ta	80 W	–	–
5156.488	Pr	20 w	1	–
5156.45	I II	–	[25]	Bl
5156.410	Eu	8	–	–
5156.344	Co I	300 w	–	–
5156.311	Ta	12	–	–
5156.3	bh Zr	2	–	L
5156.257	Re	25 w	–	–
5156.205	Mo	10	1	–
5156.066	Sr I	80	18	–
5156.06	Hf II	1	5	Me
5155.95	Tb	10	–	Ed
5155.853	Sm	10	–	–
5155.84	Gd	25	–	Ed
5155.8	Pb II	–	[25]	Ea
5155.764	Ni I	80	1	–
5155.54	Rh I	150	1	Me
5155.47	Tb	15	–	Ed
5155.449	Zr I	15	–	–
5155.407	Eu	16	–	–
5155.38	Pt	15	–	Me
5155.312	Dy	5	–	–
5155 263	Mo	10	1	–
5155.140	Ni I	50	–	–
5155.136	Ru I	125	–	–
5155.06	I	–	[15]	Bl
5155.016	Sm II	125	1	–
5154.889	W	6	–	–
5154.84	P	–	[10]	Gu
5154.68	Cd I	6 r	–	Ps
5154.64	Hf	2 d	–	Me
5154.447	W	8	–	–
5154.422	Ne I	–	[50]	IMe
5154.388	Ce	10	–	Ab
5154.271	Sm	125 d	1	–
5154.247	Th	8	–	–
5154.076	Ti II	10	15 h	–
5154.053	Co I	200 W	–	–
5153.874	W	7	1 h	–
5153.645	Na I	600	–	Me
5153.533	W	9	3	–
5153.449	Nd	4	–	–
5153.417	Ta	15	–	–
5153.34	Rh I	2	–	Me
5153.235	Cu I	600	–	IBu
5153.205	Ru I	7	–	–
5153.12	Hf	3	1	Me
5153.11	A I	–	[20]	Ms
5153.031	Cb	8	2	–
5152.8	bh F	2	–	L
5152.629	Cb	100	10	–
5152.578	Sm	3	–	–
5152.378	U	2	–	–
5152.34	Yb	–	5 h	Me
5152.30	Sb II	–	[12]	Lg
5152.21	Pr	15 w	–	–
5152.200	Ti I	90	2	–
5152.20	P II	–	[50]	Gu
5152.14	Tl II	–	50 w	El
5152.094	Rb II	–	100	Rr
5152.013	Os	7	–	–
5152.01	Kr	–	[3 hl]	Me
5151.963	Ne I	–	[75]	IMe
5151.950	Sm	4	–	–
5151.914	Fe I	70	–	–
5151.9	bh F	2	–	L
5151.862	Th	2	–	–
5151.783	Nd	5	–	–
5151.620	Th	4	–	–
5151.395	A I	–	[200]	Ms
5151.361	Pr	3	–	–
5151.08	C II	–	30	Fl
5151.067	Ru I	40	–	–
5150.890	Mn	40	–	–
5150.852	Ta	15 l	–	–
5150.843	Fe I	150	–	S
5150.821	Eu	14	–	–
5150.635	Cb	10	3	–
5150.526	U	2	1	–
5150.439	Sm	3	–	–
5150.405	Ce	10	–	–
5150.12	Tb	15	–	Ed
5150.077	Ne I	–	[35]	Ps
5150.033	Ir	2 h	–	–
5149.990	Ce	12	–	–
5149.90	Te	–	[8]	Bl
5149.872	Pr	5	–	–
5149 789	Co I	100	–	–
5149.736	Os	80	–	–
5149.732	I	–	[8]	Bl
5149.652	Mo	4	1	–
5149.645	Ce	10	–	–
5149.61	Kr II	–	[3 hl]	Me
5149.563	Nd	10	–	–
5149.41	P	–	[15]	Gu
5149.383	Tm	10	15	–
5149.37	Er	12	–	Ed
5149.30	Eu	10	–	Kn
5149.261	U	2	–	–
5149.13	Mn	8	–	–
5149.090	Na I	400	–	Me
5148.779	Ta	7 l	–	–
5148.721	V I	60	60	–
5148.7	Te I	–	[8]	Rd
5148.438	Mo	8	4	–
5148.411	V I	8 h	3 h	–
5148.41	Eu	8	–	Kn
5148.258	Fe I	35	–	–
5148.215	Th	12	3	–
5148.052	Fe I	20	–	–
5147.974	Cb	3 h	1	–
5147.782	Eu	6	–	–
5147.58	Tb	15	–	Ed
5147.549	Ce	15	–	–
5147.538	Cb	30	5	–
5147.52	I	–	[2 h]	Ke
5147.482	Ti I	90	3	–
5147.455	Pr	4	–	–
5147.39	Au I	40	5	Ml
5147 388	Mo	25	20	–
5147.237	Ru I	60	–	–
5147.026	Yb	3	50	–
5146.997	U	5	–	–
5146.9	bh Mg	2	–	L
5146.880	Re	25 w	–	–
5146.86	Os	5	–	Me
5146.744	Co I	400 w	–	–
5146.72	Eu	3	–	Kn
5146.703	Mo	5	2	–
5146.478	Ni I	150	1	–
5146.408	Eu	8	–	–
5146.26	Hg	–	[30]	Ps
5146.06	O I	–	[70]	Ps
5146.024	Eu	4	–	–
5145.90	Tb	10	–	Ed
5145.797	Sm	9	–	–
5145.772	W	18	–	–
5145.70	Eu	2	–	Kn
5145.654	Al II	–	[8 d]	Sy
5145.604	Re	15	–	–
5145.543	Os	15	–	–
5145.512	Co I	80 w	–	–
5145.468	Ti I	100	4	–
5145.464	Zr I	10	–	–
5145.422	La I	100	10	–
5145.385	Mo	25	20	–
5145.36	A	–	[200]	Rt
5145.28	Kr II	–	[4]	Me
5145.203	Dy	3	–	–
5145.16	C II	–	70	Fl
5145.138	Ce	4	–	–
5145.122	Ne I	–	[35]	Ps
5145.098	Fe I	10	–	–
5145.097	U	4	4	–
5145.04	Kr I	–	[2 h]	Me
5145.028	Th	5	–	–
5145.011	Ne I	–	[500]	Ps
5144.998	Al II	–	[5]	Sy
5144.97	Rh I	3	–	Me
5144.947	Sm	4	–	–
5144.938	Ne I	–	[500]	IMe
5144.900	Er	8	–	–
5144.875	Al II	–	[2]	Sy
5144.672	Cr I	30	–	–
5144.528	U	6	–	–
5144.484	Bi II	2	300 h	Qm
5144.413	Al II	–	[2]	Sy
5144.395	W	–	6	–
5144.132	Er	12	–	–
5144.12	Cu I	5 wh	–	Sh
5143 922	Th	3	–	–
5143.687	Ta	30	–	–
5143.58	Ti II	–	5	Ml
5143.576	Er	12	–	–
5143.49	C II	–	15	Fl
5143.46	Br	–	[15]	Bl
5143.403	Ir	3	–	–
5143.332	Nd	8	1	–
5143.285	Sm	12	–	–
5143 285	Os	7	–	–
5143.265	Ne I	–	[5]	Ps
5143.264	Th	10	–	–
5143.14	Pb	–	4 h	Ed
5143.05	Kr II	–	[600 hl]	Me
5142.940	Fe I	125	–	–
5142.83	Tb	10	–	Ed
5142.771	Ni I	100	–	–
5142.763	Ru I	25	–	–
5142.7	Kr I	–	[4]	Me
5142.65	Gd	15	–	Ed
5142.540	Fe I	100 h	–	–
5142.406	U	8	–	–
5142.31	Yb	–	5 h	Me
5142.263	Cr I	12	–	–
5142.247	Mo	10	2	–
5142.14	Se II	–	[500]	Bl
5141.89	S	–	[8]	Ms
5141.83	Ta	7	–	Ks
5141.81	A I, II	–	[20]	Ms
5141.747	Fe I	100	100 h	–
5141.620	Ta	40	–	–
5141.49	P	–	[50]	Gu
5141.49	Gd	20	–	Ed
5141.285	Re	8	–	–
5141.262	Mo	12	5	–
5141.248	W	8	–	–
5141.2	Sb	–	40	Sp
5141.08	Tb	15	–	Ed
5141.059	Eu	6	–	–
5140.84	Gd	25	–	Ed
5140.719	Th	6	–	–
5140.689	Cb	3	2	–
5140.575	Cb	10	5	–
5140.503	Ce	10	–	–
5140.416	U	3	1	–
5140.38	Cl I	–	[2]	Ks
5140.259	Tm	5	5	–
5140.10	Hg I	–	[5]	Wd
5140.04	Re	10	–	–
5139.987	U	4	–	–
5139.799	Pr	15	1	–
5139.760	Ce	10	–	–
5139.654	Cr	50	1	–
5139.594	Dy	10	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5139.526	V I	50	50	–
5139.480	Fe I	200	40	–
5139.35	Tb	10	–	Ed
5139.35	U	2	–	–
5139.260	Fe I	125	–	–
5139.255	Ni I	50	–	–
5139.21	C II	–	5	Fl
5139.146	La	4	–	–
5138.5	Eu	3	–	Kn
5138.421	V I	50	50 h	–
5138.397	W	20	–	–
5138.2	bh Pb	3	–	L
5138.09	Hg I	–	[10]	Wd
5138.018	Ce	12	–	–
5137.762	Ce	10	–	–
5137.76	Ca	2 h	2	–
5137.528	Ru	4	–	–
5137.52	Eu	4	–	Kn
5137.396	Cb	5	1	–
5137.388	Fe I	200 h	–	–
5137.385	Sm	4	–	–
5137.117	Ce	12	–	–
5137.075	Ni I	150	1	–
5136.9	bh F	2	–	L
5136.795	Fe II	3	100	–
5136.777	Zr I	2	–	–
5136.676	W	7	–	–
5136.550	Ru I	125	–	–
5136.467	Ta	60	40	–
5136.144	Zr	2	–	–
5136.02	Gd	20	–	Ed
5135.980	Yb	6	50	–
5135 898	Os	5	–	–
5135 835	Sm	4	–	–
5135.58	Gd	15	–	Ed
5135.5	bh F	5	–	L
5135.475	Cb	3	1	–
5135.445	La	3 h	–	–
5135.433	Eu	8	–	–
5135.318	Ce	8 w	–	–
5135.20	Yt I	7	2	Me
5135.125	Pr	50	2	–
5135.09	Lu	200	20	Me
5135.016	Dy	3	–	–
5134.967	Mo	10	2	–
5134.898	Os	7	–	–
5134 750	Cb	200	15	–
5134.465	Ce	12	–	–
5134.428	Zr	2	–	–
5134.31	Se II	–	[35]	Bl
5134.17	A I	–	[2]	Ms
5134.05	Lu	20	2	Me
5134.013	Ru I	6	–	–
5133.9	bh F	5	–	L
5133.886	Ru	15	–	–
5133.827	Er	40	–	–
5133.7	bh Sc	5	–	Me
5133.680	Fe I	200 h	1 h	–
5133.485	Eu	150	–	–
5133.449	Co I	50 w	–	–
5133.423	Pr	60	1	–
5133.401	Zr I	8	–	–
5133.336	Cb	10	3	–
5133.3	bh Sc	3	–	Me
5133.29	C II	–	15	Fl
5133.23	Te	–	[8]	Bl
5133.114	W	8 s	–	–
5133.02	Er	8	–	–
5132.960	Ti I	12	–	–
5132.96	C II	–	30	Fl
5132.869	Zr I	3	–	–
5132.41	Yb	2	5 h	Me
5132.4	bh F	5	–	L
5132.365	Eu	10	–	–
5132.330	Nd	10	1	–
5132.32	Ta	2 h	–	Ks
5132.262	Th	5	–	–
5132.21	Gd	20	–	Ed
5132.199	U	4	–	–
5132.193	Sm	10	–	–
5132.116	Ta	15	–	–
5131.7	Ge II	–	100	Lg
5131.69	Tb	15	–	Ed
5131.529	Ir	3	–	–
5131.524	Er	8	–	–
5131 474	Fe I	125	–	–
5131.397	Eu	2	–	–
5131.078	Th	10	1	–
5130.99	Te	–	[15]	Bl
5130.915	Pt	3	–	–
5130.847	U	3	3	–
5130.820	Eu	3	–	–
5130.8	bh F	2	–	L
5130.76	Rh I	20	–	Me
5130.596	Nd	40	2	–
5130.53	O I	–	[30]	Ps
5130.53	Tb	10	–	Ed
5130.522	V	–	2	–
5130.451	Eu	3	–	–
5130.363	In II	–	[15]	Ps
5130.26	Gd	20	–	Ed
5130.112	W	15	–	–
5130.088	Eu	20	–	–
5129.939	In II	–	[70]	Ps
5129.894	Ir	2 h	–	–
5129.830	Dy	3	–	–
5129.806	W	7	–	–
5129.763	In II	–	[30]	Ps
5129.743	Cb	3 h	1	–
5129.658	Fe I	4	–	–
5129.578	Ce	30	–	–
5129.535	U	2	2	–
5129.520	Pr	100	–	–
5129.383	Ni I	80	–	–
5129.3	bh C	–	–	L
5129.149	Ti II	30	30 h	–
5129.082	Eu	200	–	–
5129.0	bh F	2	–	L
5128.966	Ir	2 h	–	–
5128.830	W	6	–	–
5128.739	Sm	8	2	–
5128.54	Yb	–	5 h	Me
5128.530	V I	75	75 h	Me
5128.53	Hf II	10	20	Me
5128.486	W	8	–	–
5128.45	Hg II	–	[150]	Ps
5128.067	Tm	2	3	–
5127.895	Eu	4	–	–
5127.78	A I	–	[60]	Ms
5127.760	U	2	–	–
5127.711	Pd I	8	–	–
5127.660	Cb	10	3	–
5127.397	Er	25	–	–
5127.367	Ti I	12	–	–
5127.363	Fe I	100	–	S
5127.257	Ru I	20	–	–
5127.2	bh F	5	–	L
5127.113	Sm II	5	–	–
5127.111	Mo	4	2	–
5126.80	Yb	4	–	Me
5126.725	Mo	10	5	–
5126.69	Re	50 w	–	–
5126.213	Fe I	5 h	–	–
5126.195	Co I	200	–	–
5126.13	S II	–	[8]	Bt
5126.05	Zr	2	–	–
5126.00	Tb	10	–	Ed
5125.73	Kr II	–	[400 whl]	Me
5125.70	Xe II	–	[50]	Hu
5125.692	Co I	100 w	–	–
5125.558	Sm II	3	–	–
5125.54	Gd	50	–	Ed
5125.493	U	5	–	–
5125.211	Ni I	50	–	–
5125.18	As II	–	6	Ro
5125.130	Fe I	100 h	–	–
5125.1	bh F	2	–	L
5125.009	Ce	10	–	–
5124.953	Zr II	–	2	–
5124.830	Sm	50	–	–
5124.772	Eu	60	–	–
5124.767	Co I	25 h	–	–
5124.695	Cb	5	1	–
5124.600	Re	20	–	–
5124.568	Er	8	–	–
5124.56	I II	–	[5]	Mu
5124.461	Cu II	–	20	Sh
5124.349	Os	12	–	–
5124.3	Bi II	–	100 wh	Ml
5124.235	W	12	–	–
5124.09	Ti I	10	–	–
5124 087	U	3	–	–
5123.828	Mo	12	5	–
5123 785	Nd	30	1	–
5123.728	Ru I	7	–	–
5123.723	Fe I	200	–	S
5123.68	Ag	4	30	Kp
5123.68	Gd	20	–	Ed
5123.661	Ir	10	–	–
5123.465	Cr I	8	–	–
5123.381	Os	8	–	–
5123.325	U	2	–	–
5123.3	bh F	2	–	L
5123.21	Yt II	10	30	Me
5123.16	Kr II	–	[15 whl]	Me
5122.990	La II	150	200	–
5122.768	Co I	150	–	–
5122 674	Ce	12	–	Ab
5122.552	U	5	4	–
5122.42	Xe II	–	[150]	Hu
5122 393	Ce	12 w	–	–
5122.337	Ne I	–	[150]	Ps
5122.257	Ne I	–	[150]	IMe
5122 229	Os	25	–	–
5122.136	Sm	80	–	–
5122.121	Cr I	20	–	–
5122.09	Ti I	6	–	–
5121.88	A I	–	[5]	Ms
5121.800	Cb	15	5	–
5121.774	Mo	12	4	–
5121.69	C II	–	3	Fl
5121.629	In II	–	[30]	Ps
5121.61	Tb	15	–	Ed
5121.61	Yb	1	15	Me
5121.570	Ni I	20	–	–
5121.498	In II	–	[30]	Ps
5121.339	In II	–	[50]	Ps
5121.154	In II	–	[15]	Ps
5121.120	Sm	15	3	–
5121.098	In II	–	[400]	Ps
5120 963	In II	–	[150]	Ps
5120.950	Sn	–	2	Ar
5120.875	La I	6	–	–
5120 855	In II	–	[100]	Ps
5120.770	Ce	15	–	–
5120.745	Cu II	–	20	Sh
5120 69	Rh I	20	–	Me
5120.55	Hg I	–	[20]	Wd
5120.534	In II	–	[30]	Ps
5120 524	W	9 l	–	–
5120.512	Ru	4	–	–
5120.506	Ne I	–	[25]	Ps
5120.425	Ti I	100	4	–
5120.422	Zr I	10	–	–
5120.324	Re	40	–	–
5120.298	Cb	50	10	–
5120 18	Tb	10	–	Ed
5120.12	P II	–	[5]	Gu
5120.01	Dy	8	–	Ed
5119.638	Er	8	–	–
5119.55	C II	–	15	Fl
5119.512	U	2	–	–
5119.453	Eu	6	–	–
5119.3	Rn	–	[20]	Wa
5119.285	I I	–	[500]	Ke
5119.243	U	2	–	–
5119.12	Yt II	7	20	Me
5118.46	Hf	2	–	Me
5118.431	Pt	4	–	–
5118.408	W	7	–	–
5118.39	Tb	15	–	Ed
5118.200	A I	–	[60]	Ms
5118.2	Bi II	–	25	Ml
5118.064	Cb	3	1	–
5118.021	Pr	4 w	–	–
5118.01	I I	–	[8]	Db
5117.937	Mn	30	–	–
5117.77	Se	–	[25]	Bt
5117.76	Xe	–	[3 h]	Hu
5117.75	Yb	–	3 h	Me
5117.604	W	10	–	–
5117.461	In II	–	[15]	Ps
5117.412	In II	–	[300]	Ps
5117.367	In II	–	[50]	Ps
5117.272	Pr	4	–	–

Wave-length	Element	Intensities Arc	Spk., [Dis.]	R
5117.252	Ta	30 W	–	–
5117.249	U	12	10	–
5117.175	Ce	20	–	–
5117.156	Sm	80	1	–
5117.015	Pd I	50	4	–
5117.011	Ne I	–	[35]	Ps
5116.967	Mo	12	5	–
5116.755	In II	–	[70]	Ps
5116.740	Cb	8	1	–
5116.677	Sm II	100	1	–
5116 503	Ne I	–	[150]	IMe
5116.25	Tb	10	–	Ed
5115 911	In II	–	[100]	Ps
5115.843	Ta	80	–	–
5115.750	Sm	10	1	–
5115.740	Eu	4		–
5115 644	Mo	8	2	–
5115.634	Ce	10	–	–
5115.628	In II	–	[30]	Ps
5115.619	U	2 h	–	–
5115.47	Er	8	–	Ed
5115 454	In II	–	[30]	Ps
5115.397	Ni I	80	5 wh	–
5115.357	Sm	5	–	–
5115.250	In II	–	[15]	Ps
5115.245	Zr I	10	–	–
5115.224	Ce	12	–	–
5115.047	Th	10	–	–
5115.028	Ce	4	–	–
5115.023	In II	–	[15]	Ps
5114 974	Mo	20	12	–
5114.858	U	2	–	–
5114.573	La II	150	200	–
5114 571	W	3	–	–
5114.531	Tm	10	15	–
5114.400	I	–	[25]	Ke
5114.38	Pd I	6	–	–
5114.363	Eu	150	–	–
5114.07	C II	–	15	Fl
5114.037	Er	2 w	–	–
5113.959	Tm	5	3	–
5113.888	Sm	15 d	4	–
5113.86	Sb	–	70	Sp
5113.725	Zr	2	–	–
5113.70	Si	–	2	Sy
5113.675	Ne I	–	[75]	IMe
5113.57	Hf	4	–	Me
5113.441	Ti I	80	2	–
5113.39	Th	6	–	–
5113.36	Cl II	–	[40]	Ks
5113.34	Yb	3	–	Me
5113.232	Co I	100	–	–
5113.130	Cr I	25	–	–
5113.12	Cl II	–	[8]	Mu
5112.852	Sc	4	10	–
5112.824	Eu	4	–	–
5112.688	Ce	20	–	–
5112.67	Se	–	[8]	Bl
5112.490	Cr I	15	–	–
5112.295	Sm II	125	1	–
5112.272	Re	25	–	–
5112.270	Zr II	–	5	–
5112.204	K I	30 l	–	Da
5112.13	Hf	6	1	Me
5112.12	Te	–	[8]	Bl
5111.95	P	–	[30]	Gu
5111.931	Sm	4 d	–	–
5111.913	Cu I	15	–	IBu
5111.9	Pb II	–	[40]	Ea
5111.770	W	7	–	–
5111.601	Ce	10	–	–
5111.51	Yb	–	6 h	Me
5111.148	Sm II	12	–	–
5111.0	Bi II	–	15	Ml
5110.966	Eu	6	–	–
5110.912	Cb	30	2	–
5110.868	Th	10	2	–
5110.85	F	–	[5]	Di
5110.813	Pd I	100	2	–
5110.768	Pr	80	3	–
5110.751	Cr I	40	–	–
5110.703	U	4	–	–
5110.61	Hf II	–	7	Me
5110.527	Sm	4	3	–
5110.414	Fe I	300	–	S
5110.382	Pr	80	2	–
5110 357	W	20	–	–
5110.318	Dy	3	–	–
5110.16	Zr I	2 h	–	–
5109.97	Rh I	10	–	Me
5109.81	Kr	–	[2]	Me
5109.79	Tb	10	–	Ed
5109.774	Ta	30 w	–	–
5109.714	Mo	25	20	–
5109 71	Sb II	–	[4]	Lg
5109.6	Pb II	–	[6]	Ea
5109 59	Se II	–	[15]	Bl
5109.509	W	3	–	–
5109.5	P	–	[15]	Gu
5109.47	Tl I	15	–	Fl
5109.440	Ti I	20	–	–
5109 403	U	3	1	–
5109.37	Ta	7 W	–	Ks
5109.360	In II	–	[300 w]	Ps
5109.258	Mo	10	1	–
5109.149	Ir	2	–	–
5109 133	La I	4	–	–
5109.11	Se II	–	[15]	Bl
5109.064	Sc	4	10	–
5108.91	Gd	30	–	Ed
5108.888	Co I	200 w	–	–
5108.780	Re	20	–	–
5108 6	P	–	[15]	Gu
5108.58	Xe II	–	[3 h]	Hu
5108.56	Tb	15	–	Ed
5108.426	Pt	2	–	–
5108.331	Cu II	–	3	Sh
5108.279	Sm	8	2	–
5108 264	Os	3	–	–
5108.25	Th	4 w	1	–
5107.979	Dy	3	–	–
5107.80	As II	–	150	Ro
5107.786	W	7	–	–
5107.645	Fe I	2	–	–
5107 585	Nd	20	1	–
5107.545	Tm	30 R	–	–
5107.54	La II	2 h	6 h	Me
5107.470	Ce	10	–	–
5107.452	Fe I	100	–	–
5107.43	Ir	3	–	–
5107.342	U	6	6	–
5107.203	Ce	10	–	–
5107.067	Ru I	40	–	–
5106.988	Sm	3	–	–
5106.749	U	4	–	–
5106 637	Nd	8	–	–
5106.625	Sm	10 d	3	–
5106.553	Ru	10	–	–
5106.441	Fe	25	–	Bu
5106 235	V	–	2 h	Me
5106.233	La I	100	10	–
5105.80	As II	–	150	Ro
5105.541	Cu I	500	–	IBu
5105.529	Zr I	5	–	–
5105.476	W	15	–	–
5105.354	Nd	10	–	–
5105.211	Nd	5	1	–
5105.208	Ce	2	–	–
5105.157	Re	20	–	–
5105.144	V	40	40	–
5105 06	Yb	–	5	Me
5104.740	Os	8	–	–
5104.74	A I	–	[20]	Ms
5104.705	Ne I	–	[35]	IMe
5104.701	Mo	3	1	–
5104.626	Re	50 w	–	–
5104.475	Sm II	125	1	–
5104.45	N II	–	[15]	Fl
5104.43	Yb	1	50	Me
5104.425	W	5	1	–
5104.3	bh V	7	–	L
5104.13	P	–	[30]	Gu
5104.08	Cl II	–	[25]	Ks
5104.060	Sm II	15 d	–	–
5104.02	Tb	10	–	Ed
5103.85	Cl II	–	[6]	Mu
5103.768	Th	6	–	–
5103.718	U	2	2	–
5103.495	Os	30	–	–
5103.46	Gd	25	–	Ed
5103.135	La	3	–	–
5103.111	Nd	15	–	–
5103.04	Cl II	–	[125]	Ks
5103.082	Sm II	150	–	–
5102.971	Ni I	40	–	–
5102 86	Cl II	–	[30]	Mu
5102.79	Gd	8	–	Ed
5102.42	Hg I	–	[10]	Wd
5102.417	Eu	4	–	–
5102.393	Nd	15	1	–
5102.38	Cb	20	2	–
5102.371	Sm	8	40	–
5102.200	Fe I	80	–	–
5101.97	Tb	10	–	Ed
5101.717	Ru I	7	–	–
5101.68	Hf	2	–	Me
5101.60	Yb	–	4 h	Me
5101 387	Ru I	20	–	–
5101.381	W	5	–	–
5101 252	Eu	6	–	–
5101.133	Er	8	–	–
5101.121	Sc I	12	12	–
5101.024	U	5	–	–
5100.96	Gd	20	–	Ed
5100.91	P	–	[10]	Gu
5100.700	Re	2	–	–
5100.67	Hf	3	–	Me
5100.625	Th	6	–	–
5100.35	Sn	–	5	Ar
5100 34	Al II	–	[5]	Sy
5100.335	Mo	6	2	–
5100.305	Sm	60	–	–
5100.198	Sm II	50	–	–
5100.162	Cb	100	15	–
5100 08	Cu II	–	10	Sh
5099.946	Ni I	150 w	–	–
5099 84	Tb	10	–	Ed
5099.64	A I	–	[5]	Ms
5099.59	Xe	–	[5 wh]	Hu
5099 395	Ce	12	–	–
5099.322	Ni I	80	–	–
5099.30	Cl II	–	[100]	Ks
5099 27	Gd	10	–	Ed
5099 228	Sc I	100 r	80	–
5099.181	Ir	3	–	–
5099 180	K I	25 l	–	Da
5099.143	Ru	5	–	–
5099 103	Cl II	–	[12]	Mu
5099.042	Ne I	–	[25]	Ps
5098 97	A	–	[20]	Ms
5098.947	Ru	5	–	–
5098 712	Eu	15	–	–
5098.710	Fe I	200	–	–
5098.56	Zr	2	–	–
5098.536	Eu	4	–	–
5098.40	Gd	20	–	Ed
5098.34	Cl II	–	[20]	Ks
5098.20	Tb	10	–	Ed
5098.046	Th	10	1	–
5098.034	Mo	20	10	–
5097.763	Cb	5	1	–
5097.7	bh C	–	–	L
5097.56	Ra	–	[250]	Rs
5097.522	Mo	40	20	–
5097.242	Ce	8	–	–
5097.144	K I	25 h	–	Da
5096 995	Fe I	35 h	–	–
5096.874	Ni I	50	–	–
5096.716	Sc I	12	15	–
5096.7	bh Sc	20	–	Me
5096 647	Mo	30	20	–
5096.614	La	3 h	–	–
5096.604	Cs II	–	[40]	Sv
5096.57	Se II	–	[350]	Bt
5096.524	Nd	8	–	–
5096.504	Re	100	–	–
5096.484	Th	5	–	–
5096.415	Eu	30	–	–
5096.06	Gd	15	–	Ed
5095.888	Mo	20	10	–
5095.794	Pt	10	–	–
5095.77	Re	15 w	–	–
5095.598	Cb	10	1	–
5095.299	Cb	50	30	–
5095.124	Cb	3 h	3 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5095.064	Th	10	–	–
5094.945	Co I	100	–	–
5094.490	Cb	5	1	–
5094.44	Eu	3	–	Kn
5094.416	Ni I	25	–	–
5094.408	Cb	5	1	–
5094.339	Cb	5	1	–
5094.183	W	6	–	–
5094.030	Re	2 h	–	–
5093.88	Hf	5	2	Me
5093.826	Ru	60	–	–
5093.792	Cu II	–	20	Sh
5093.755	Er	8	–	–
5093.65	Al II	–	[10]	Sy
5093.334	Ru	4	–	–
5093.32	A I	–	[10]	Ms
5093.26	Se II	–	[50]	Bl
5093.185	Re	2 h	–	–
5093.112	U	3	–	–
5093.092	Os	5	–	–
5093.091	Th	3	–	–
5092.797	Nd	20	–	–
5092.749	Mo	12 w	3	–
5092.664	Eu	20 w	–	–
5092.38	Tb	10	–	Ed
5092.27	Eu	3	–	Kn
5092.26	Mo	2	–	–
5092.25	Gd	30	–	Ed
5092.224	Er	2	–	–
5092.206	Dy	3 h	–	–
5092.164	Mo	6	6	–
5092.02	Xe II	–	[30 whl]	Hu
5092.00	Si	–	2	Sy
5091.890	Cr I	25	–	–
5091.812	Sm	3	–	–
5091.751	Ce	15	–	–
5091.40	Eu	3	–	Kn
5091 342	Mo	12	3	–
5091.305	U	2	1	–
5091.293	Bi II	2 h	30 wh	Om
5090.966	Mo	20	6	–
5090 864	Ce	3	–	–
5090 83	Dy	5	–	Ed
5090 789	Fe I	40 h	–	–
5090.772	I I	–	[8]	Ke
5090.759	Th	8	1	–
5090.710	Ta	60	–	–
5090.63	Rh I	150	1	Me
5090 615	Mo	10	3	–
5090.58	La II	3	2 h	–
5090 569	Re	10	–	–
5090.55	A II	–	[5]	Rt
5090.378	Dy	5	–	–
5090.321	Ne I	–	[8]	Ps
5090.272	Er	8	–	–
5090 168	U	3	3	–
5090.017	Sm	15 d	–	–
5089 973	W	7	–	–
5089.888	Sc I	12	15	–
5089.837	Nd	10	–	–
5089.827	W	4	–	–
5089 705	Sm II	15 d	–	–
5089.66	Tb	10	–	Ed
5089.616	Zr	2	–	–
5089.221	Th	4	–	–
5089.12	Tb	40	–	Ed
5089.12	Kr I	–	[2 h]	Me
5089.079	Eu	20	–	–
5088.968	Sm II	30	–	–
5088.956	Ni I	20	–	–
5088.932	Cu II	–	10	Sh
5088.822	Cb	15	2	–
5088.78	Rh I	2	–	Me
5088.534	Ni I	20	–	–
5088.487	Cu II	–	10	Sh
5088.420	Ru	7	–	–
5088.315	Sm	25	–	–
5088.301	U	10	–	–
5088.260	Cu II	–	30	Sh
5088.18	Yt I	2	–	Me
5087.87	Tb	10	–	Ed
5087.855	Co I	15	–	–
5087.645	Sm	40	–	–
5087.64	Yb	1	10	Me
5087.48	Tb	15	–	Ed
5087.425	Yt II	50	100	–
5087.366	Ta	60	–	–
5087.18	Eu	4	–	Kn
5087.148	Sc I	40	20	–
5087.111	Pr	25	–	–
5087 087	A I	–	[60]	Ms
5087.073	Sm II	30	–	–
5087.068	Ti I	70	1	–
5086 99	Tl II	–	4	Ml
5086.951	Sc I	60	25	–
5086 918	W	3	–	–
5086.851	Ir	2 h	–	–
5086.832	Cb	5 h	1 h	–
5086.765	Fe	2	100	–
5086.71	La II	4	2	Me
5086.567	Ce	6	–	–
5086.52	Kr II	–	[250 hl]	Me
5086.24	La I	3	–	–
5085 98	In	–	5	Sq
5085 900	W	6 d	–	–
5085 863	U	10	6	–
5085 824	Cd I	1000 wh	500	Hz
5085.74	Yb	–	4 h	Me
5085.603	Eu	8	–	–
5085.547	Sc I	80	70	–
5085.52	Rh	10	–	Me
5085.479	Ni I	10	–	–
5085.341	Ti I	20	–	–
5085 260	Zr I	10	–	–
5085.12	Th	2	1	–
5085.02	Al II	–	[25]	Sy
5084 842	Cb	5	1	–
5084 790	Ce	5	–	–
5084.788	Sm	2	1	–
5084.667	W	3 h	–	–
5084.48	Rn	–	[300]	Wa
5084.23	Mo	10	3	–
5084 212	K I	20 l	–	Da
5084.168	Ce	12	–	–
5084.081	Ni I	300 w	2	–
5083.991	Cu II	–	15	Sh
5083.968	Ne I	–	[25]	Ps
5083 713	Sc I	100	80	–
5083 538	Ce	12	–	–
5083.342	Fe I	200	–	S
5083 341	Sm	9	30	–
5083.0	Te I	–	[10]	Rd
5082.74	A I	–	[20]	Ms
5082 738	W	6	–	–
5082.60	Yb	4	–	Me
5082.413	Ir	2 h	–	–
5082 354	Ni I	100 w	–	–
5082.35	Pt	5	–	–
5082.253	Ta	30 W	–	–
5081.80	Tb	10	–	Ed
5081.773	Cs	–	[15]	Sv
5081 554	Sc I	100	100	–
5081.44	A I	–	[10]	Ms
5081.427	U	4	1	–
5081.360	Ne I	–	[15]	Ps
5081 260	Mo	20	5	–
5081 2	Pb II	–	[6]	Ea
5081.111	Ni I	150 w	2	–
5081.07	Xe II	–	[25]	Hu
5081.03	Ra I	–	[50]	Rs
5081.00	Yb	3	–	Me
5080.846	Sm	8 w	2	–
5080.719	W	10	–	–
5080.62	Xe II	–	[500]	Hu
5080.523	Ni I	200 w	3	–
5080.51	Er	8	–	Ed
5080.495	U	3	–	–
5080.478	Ce	15	–	–
5080.44	Hf II	2	10	Me
5080.383	Ne I	–	[150]	IMe
5080.21	La II	8 W	10 h	Me
5080.05	Tb	10	–	Ed
5080.018	Mo	20	12	–
5079.982	Zr	2	–	–
5079.961	Ni I	30	–	–
5079.955	Eu	5	–	–
5079.867	Mo	10	3	–
5079.856	Sm	10	–	–
5079.753	Fe I	100	–	–
5079.681	Ce	30	–	–
5079.65	Hf II	40	60	Me
5079.503	Bi	–	4	Om
5079.445	Ru I	4	–	–
5079.393	La	6	–	–
5079.27	P	–	[15]	Gu
5079 236	Fe I	100	–	–
5079.141	Th	5	–	–
5079.088	Os	15	–	–
5079 085	Nd	5	–	–
5079.016	Sm	4	2	–
5078 993	Fe I	20 h	–	–
5078.964	Cb	300	50	–
5078.923	La	5	–	–
5078.762	Ne I	–	[15]	Ps
5078 711	Cr	18	–	–
5078.7	bh Yt	6	–	Me
5078 54	Tl II	10	30 w	El
5078.420	Re	15	–	–
5078 338	Ce	5	–	–
5078 254	Zr I	15	–	–
5078.25	Cl II	–	[150]	Ks
5078 25	Tb	25	–	Ed
5078.19	Kr II	–	[2 whl]	Me
5078.065	Sm II	25 d	–	–
5078 03	A I	–	[40]	Ms
5078.005	Eu	15	–	–
5077.9	bh Yt	4	–	Me
5077 823	U	5	4	–
5077.81	Pt	5	–	–
5077.805	Cu II	–	5	Sh
5077.66	Dy	5	–	–
5077.657	Er	12	–	–
5077.608	Sm	3	–	–
5077.59	Os	3	–	Me
5077.396	Eu	6	–	–
5077.395	Cb	8	3	–
5077.23	Kr II	–	[40]	Me
5077.182	Tm	2	–	–
5077.162	Nd	3	–	–
5077.042	Mo	4	1	–
5077.015	W	6	–	–
5076 906	Os	5	–	–
5076.767	U	5	–	–
5076.760	Yb	50	1	–
5076.75	Tb	15	–	Ed
5076.701	Pr	3	–	–
5076.682	Sm	10	–	–
5076.599	Th	2	–	–
5076.586	Nd	25	–	–
5076.581	Ne I	–	[35]	Ps
5076 474	Ce	10	1	–
5076.371	Ta	50	–	–
5076.321	Ni I	10	–	–
5076.318	Ru I	40	–	–
5076.280	Fe	3 h	–	–
5076 223	Os	8	–	–
5076.173	Cu I	2 h	–	IBu
5076.072	Ru I	15	–	–
5075 974	Cb	5	2	–
5075.92	Hf II	10	20	Me
5075.92	Kr II	–	[4 whl]	Me
5075.814	Sc I	12	12	–
5075.681	Pr	12 w	–	–
5075.663	V I	5	5	–
5075.471	Th	6	–	–
5075 304	Ce	10	1	–
5075.226	Ce	6	–	–
5075 21	Zr	2	–	–
5074.935	Sm II	3	–	–
5074 794	Mn	15	–	–
5074.769	Os	12	–	–
5074.760	Fe I	80	–	–
5074.751	Eu	2	–	–
5074.710	Ce	10	–	–
5074.6	Pb II	–	[40]	Ea
5074.340	Yb	200	5	–
5074.200	Ne I	–	[35]	IMe
5074.062	Ne I	–	[3]	Ps
5073.981	Zr I	6	–	–
5073.73	Tb	15	–	Ed
5073 60	N II	–	[30]	Fl
5073.560	Fe	–	20 h	–
5073.08	A I	–	[200]	Ms
5072.971	Ru I	25	–	–
5072 920	Cr I	35	–	–

Wave-length	Ele-ment	Intensities Arc	Spk.,[Dis.]	R
5072 912	Ce	2	–	–
5072.884	Os	12	–	–
5072.84	Er	8	–	–
5072.773	U	4	2	–
5072.67	Sn II	2	[4]	Mo
5072.633	Th	5	–	–
5072 560	Cb	10	1	–
5072.55	Kr II	–	[40]	Me
5072.457	Ta	4	–	–
5072.456	Sm	4	–	–
5072.43	Tm	5	–	Me
5072.30	Ti II	3	20 h	Rl
5072 293	Cu II	–	20	Sh
5072.19	Yt I	4	–	Me
5072.14	La I	3	–	–
5072.07	As II	–	4	Ro
5071 89	Ca	6	2	Ad
5071.866	Nd	5	–	–
5071.773	Ce	18	–	–
5071.733	W	40	3	–
5071 668	Cb	10	–	–
5071.518	W	5	–	–
5071.477	Ti I	40	1	–
5071.30	A I	–	[5]	Ms
5071 23	Hf	6	8	Me
5071.187	Sm	100	–	–
5071.14	Sn II	2	[4]	Mc
5071.02	Gd	15	–	Ed
5070.99	A I	–	[40]	Ms
5070.957	Fe	1	70	–
5070.881	U	2	2	–
5070.7	Pb II	–	[40]	Ea
5070.65	Dy	5	–	Ed
5070.50	Tb	10	–	Ed
5070.33	Er	12	–	–
5070.272	Eu	8	–	–
5070.262	Zr I	8	–	–
5070.249	Sc I	20	15	–
5070.246	Yt I	4	–	–
5070.17	Tb	10	–	Ed
5070.009	Pr	3	–	–
5069.882	Ta	5	–	–
5069.82	Xe	–	[10 wh]	Hu
5069 80	Hf	2	–	Me
5069.66	A I	–	[5]	Ms
5069.577	Zn I	15	–	Hz
5069.445	Sm II	150	1	–
5069.353	Ti I	40	–	–
5069.26	Eu	2	–	Kn
5069.148	Yb	30	2	–
5069.146	W	50	3	–
5068.859	Sc I	2	4	–
5068.786	Fe I	400	200	–
5068.655	Zn I	7	–	Hz
5068.65	Se II	–	[250]	Bl
5068 39	A I	–	[5]	Ms
5068.332	Ti I	8	–	–
5068.290	Cr	20	–	–
5068.185	Sm	5	2	–
5068.10	Cl II	–	[4]	Ks
5067.973	Th	10	–	–
5067.948	Eu	35	–	–
5067.898	La I	30	–	–
5067 870	Ta	60	–	–
5067.812	Yb	10	–	–
5067.714	Cr I	50	–	–
5067.52	P	–	[15]	Gu
5067.41	Kr	–	[3 h]	Me
5067.32	Yb	5	5	–
5067.243	U	4	2	–
5067.157	Sm	8	2	–
5067.148	Ce	10	1	–
5067.082	Cu II	–	30	Sh
5066.99	Sb II	–	[4]	Lg
5066.99	La II	2	20 h	Me
5066.854	Sm II	10	–	–
5066.779	Th	4	–	–
5066.701	Er	4	–	–
5066.671	Tm	3	–	–
5066.57	Ra II	–	[15]	Rs
5066.384	Sm II	15	–	–
5066.33	Xe	–	[2 wh]	Hu
5065 992	Ti I	50	2	–
5065.926	Sm	3	3	–
5065 910	Cr I	30	–	–
5065.79	Tb	40	–	Ed
5065.74	Te	–	[8]	Bl
5065.734	Ce	8	–	–
5065.685	Eu	3	–	–
5065.677	W	7	–	–
5065.587	I	–	[8]	Ke
5065.58	Kr II	–	[20 whl]	Me
5065 48	A I	–	[5]	Ms
5065.448	Cu II	–	40	Sh
5065.39	I II	–	[10]	Ke
5065.312	Re	3	–	–
5065 254	Cb	80	10	–
5065.216	Zr I	10	–	–
5065.201	Fe	15	–	–
5065 016	Fe I	25 h	–	–
5064 944	Th	4	–	–
5064.910	Zr I	10	–	–
5064.655	Ti I	150	35	–
5064.637	Mo	20	5	–
5064.612	Ta	7 h	–	–
5064.61	Au I	40	10	Ex
5064.455	Cb	3	1	–
5064.37	Tb	10	–	Ed
5064 335	Th	8	–	–
5064.321	Sc I	12	15	–
5064 32	Rh	8	–	Me
5064.239	Sm II	30	–	–
5064.117	V	50	50	–
5064.068	Ti I	10	10	–
5063.99	A I	–	[5]	Ms
5063.919	Ce	20	–	–
5063.773	U	12	–	–
5063.76	La II	2	3	Me
5063.76	Re	5	–	–
5063.733	Eu	20	–	–
5063.726	Nd	12	–	–
5063.620	W	8	–	–
5063.408	Pd I	15	–	–
5063.396	Er	8	–	–
5063.389	Pr	5	–	–
5063 25	Tb	10	–	Ed
5063.158	Th	2	–	–
5063.1	Pb I	–	10	Ro
5062.95	Yb	2	15	Me
5062.925	La II	15	20	–
5062.642	Ru I	10	–	–
5062.521	Mo	20	6	–
5062.107	Ti I	40	1	–
5062 07	A	–	[200]	Rt
5061.884	I	–	[5]	Ke
5061.657	Th	4	–	–
5061.515	U	2	–	–
5061.42	I I	–	[25]	Db
5061 397	Sm	3	–	–
5061 221	Th	12	1	–
5060 972	U	4	–	–
5060.922	Sm	30	–	–
5060.894	Tm	30	5	–
5060.884	Er	6	–	–
5060.85	La II	2	3	Me
5060 677	V	1	15	Me
5060.635	Cu II	–	30	Sh
5060.44	Te	–	[8]	Bl
5060.430	Re	5	–	–
5060.423	Er	4	–	–
5060.413	Tm	8	10	–
5060 393	Zr I	10	–	–
5060.349	Mo	10	3	–
5060.08	A I	–	[500]	Ms
5060.079	Fe I	2	–	–
5059.965	Eu	5	–	–
5059.877	Mo	40	20	–
5059.866	Cs II	–	[25]	Sv
5059 854	Sm	15	–	–
5059.852	Th	4	5 wh	–
5059.55	U	2	–	–
5059.481	Pt	60	3	–
5059.352	Cb	15	5	–
5058.948	Ir	5	2	–
5058.897	Cu II	–	30	Sh
5058.855	Sm II	10	–	–
5058.696	Ta	5	–	–
5058.623	Er	8	–	–
5058.567	Th	12	2	–
5058.556	Re	40	–	–
5058.18	Hf II	8	10	Me
5058.08	Kr I	–	[4]	Me
5058.073	Mo	12	6	–
5058.03	Ni I	20	–	–
5058.013	W	9	–	–
5058.007	Cb	50	10	–
5057.98	Th	2	–	–
5057.747	Sm II	100	1	–
5057.684	Ru	4	–	–
5057.60	Lu	15	1	Me
5057.490	Ru	4	–	–
5057.482	Eu	4	–	–
5057.42	Rh I	2	–	Me
5057.374	I	–	[8]	Ke
5057.331	Ru I	100	–	–
5057.3	bh V	10	–	L
5057.291	Ru	60	–	–
5057.289	Mo	12	2	–
5057.196	U	6	–	–
5057.03	Hf II	20	30	Me
5056.890	Nd	15	–	–
5056 53	A I	–	200	Ms
5056.461	La I	80	–	–
5056.430	Ir	2 h	–	–
5056.29	Tb	10	–	Ed
5056.182	K II	–	[60]	Dm
5056.103	W	3	–	–
5056.10	Si	–	8	Sy
5056 079	Re	5 h	–	–
5056 019	Eu	4	–	–
5056.01	Os	3 h	–	–
5056.005	Ce	8	–	–
5055.782	Ce	12	–	–
5055.69	P	–	[15]	Gu
5055.626	Cb	3	1	–
5055 528	W	20	–	–
5055 423	U	2	–	–
5055 42	Dy	3	–	Ed
5055.37	Pt	4	–	–
5055.342	Th	2	1	–
5055.005	Mo	20	10	–
5054.975	Ba	12	2	Sz
5054.667	Cb	5	3	–
5054.65	Br	–	[200]	Bl
5054.647	Fe	3	–	–
5054.606	W	25	3	–
5054.53	Kr II	–	[30 whl]	Me
5054.29	Tb	25	–	–
5054.18	A I	–	[300]	Ms
5054.174	Ce	10	–	–
5054.085	Ti I	8	–	–
5054.072	Sm	3	–	–
5054.045	Mo	8	2	–
5053.864	Pt	4	–	–
5053.59	Mo	6	2	–
5053.529	Ce	10	–	–
5053.400	Pr	30	1	–
5053.362	U	6	–	–
5053.296	W	60	10	–
5053.268	Ce	10	–	–
5053.14	Tl II	–	4	El
5052.949	Ru I	5	–	–
5052 930	Ne I	–	[25]	Ps
5052.874	Ti I	50	3	–
5052.755	Sm II	150	2	–
5052.696	Cs II	–	[25]	Sv
5052.592	Eu	4	–	–
5052.54	Xe II	–	[25]	Hu
5052.35	Tl II	–	[3]	El
5052 233	W	10	–	–
5052.204	Re	2	–	–
5052.170	Ti	6	–	–
5052.122	C I	–	[100]	Jn
5051.900	Cr I	50	–	–
5051.778	Cu II	–	60	Sh
5051.636	Fe I	200	–	S
5051.629	V I	20	20	–
5051.59	P	–	[30]	Gu
5051.527	Ni I	50	–	–
5051.342	Th	3	–	–
5051.32	Hf	3	1	Me
5051.064	Nd	8	–	–
5050.986	Ce	18	–	–
5050.87	Gd	50	–	Ed
5050.780	Th	5	–	–

Wavelength	Element	Intensities Arc	Spk, [Dis]	R
5050.6	bh Yt	10	–	Me
5050 569	La I	80	4	–
5050 417	Os	5	–	–
5050.075	Sm	8	2	–
5050.048	Ca	–	4	–
5049.87	Yb	2	30 h	Me
5049 825	Fe I	400	1	S
5049.810	Th	30 w	5	–
5049.7	bh Yt	8	–	Me
5049 58	Tb	15	–	Ed
5049 504	Sm	8	–	–
5049 3	Pb II	–	[35]	Ea
5049.062	U	3	–	–
5048 96	V	–	10	Me
5048.851	Ni I	80	2 h	–
5048 818	Ce	30	–	–
5048.813	A I	–	[500]	Ms
5948.752	Cr I	30	–	–
5048.541	Ce	5	–	–
5048.454	Fe I	50	–	–
5048.208	Ti I	15	–	–
5048.082	Ni I	20	–	–
5048.040	La II	6	20	–
5047.957	Cb	10	5	–
5047.74	S	–	[15]	Ms
5047.736	He I	–	[15]	IMr
5047.735	Ti	8	–	–
5047.706	Mo	25	20	–
5047.70	O I	–	[15 h]	Ps
5047.52	Kr II	–	[4 hl]	Me
5047.45	Hf	15	5	Me
5047.43	Th	8	1	–
5047.416	U	6	3	–
5047.343	Cu II	–	10	Sh
5047.34	Tb	10	–	Ed
5047.312	Ru I	10	–	–
5047.30	A I	–	[2]	Ms
5047 154	Os	3	–	–
5047.043	Th	5	–	–
5046 95	Ca	7	2	Ad
5046 884	La I	80	–	–
5046.755	Cb	3 h	1	–
5046 608	Ne I	–	[3]	Ps
5046.585	Zr I	25	–	–
5046.525	Mo	20	6	–
5046.457	Ti	12	–	–
5046.43	Rh I	3	–	Me
5046.421	Sm	6	–	–
5046.416	I II	–	[10]	Ke
5046 31	Kr II	–	[80 whl]	Me
5046.276	U	2	1	–
5046.270	Ir	2	2	–
5046.060	Ir	5	2	–
5045.99	Er	12	–	Ed
5045 82	Hg	–	[15 wh]	Wd
5045.816	Ne I	–	[15]	Ps
5045.526	Pr	40	1	–
5045.421	Ru	4	–	–
5045.409	Ti I	25	–	–
5045.335	Eu	16 w	–	–
5045 247	Th	4	–	–
5045.23	Sb	–	15 whs	Sp
5045 098	N II	–	[200]	Fl
5044 92	Xe II	–	[100]	Hu
5044.882	Er	8	–	–
5044.8	C II	–	5	En
5044.8	Rn	–	[35]	Wa
5044.721	Th	8	–	–
5044.56	Sb	–	[100]	Lg
5044.418	Ta	8	–	–
5044.382	Mo	3 h	1 h	–
5044.328	W	9	–	–
5044.279	Sm	150	–	–
5044.274	Ti I	20	–	–
5044.221	Fe I	25	–	–
5044.15	A I	–	[2]	Ms
5044.141	In II	–	[50]	Ps
5044.044	Pt	60	1	–
5044.008	Ce	25	1	–
5043.984	Cb	3	3	–
5043.844	Er	12	–	–
5043.829	Pr	15	1	–
5043.800	Cs II	–	[80]	Sv
5043.772	In II	–	[30]	Ps
5043.586	Ti I	30	–	–
5043 546	In II	–	[50]	Ps
5043.321	Ta	60	–	–
5043 029	Cb	4	2	–
5042 853	Ne I	–	[15]	Ps
5042 806	U	2	2	–
5042 62	Dy	10	–	Ed
5042 620	Re	10	–	–
5042 589	Mn	5	–	–
5042.5	Pb II	–	[200]	Ea
5042.195	Ni I	80	–	–
5042.086	Ce	10	–	–
5042.043	Tb	25	–	–
5042 038	Er	60	–	–
5041.932	Sm	5	–	–
5041.869	Ta	4	–	–
5041.762	W	7	–	–
5041 759	Fe I	300	–	S
5041.66	C I	–	[30]	Jn
5041.625	Ca I	30	–	–
5041.56	Ra I	–	[35]	Rs
5041 322	Cu II	–	10	Sh
5041.23	A I	–	[10]	Ms
5041 081	Fe I	125	–	–
5041.077	Ni I	30	–	–
5041 035	Si	–	4 wh	IJa
5040 855	Ce	30	–	–
5040.82	Hf II	100	150	Me
5040 744	Ru I	10	–	–
5040 74	P	–	[70 l]	Gu
5040.619	Ti I	40	40	–
5040.56	Tb	10	–	Ed
5040 55	Ti II	–	[3]	El
5040 51	A I	–	[10]	Ms
5040.364	W	35	1 h	–
5040 353	Ru	7	–	–
5040.34	Kr I	–	[7]	Me
5040.195	Nd	10	–	–
5040.1	bh B	12	–	L
5039.953	Ti I	125	25	–
5039 948	Sm	25	–	–
5039.933	Ce	8	–	–
5039.749	Ce	8	–	–
5039 629	Ru	6	–	–
5039 455	Sm	2	–	–
5039.261	Fe I	100	2 h	–
5039 259	Ni I	20	–	–
5039.231	Th	8	–	–
5039.122	Os	50	–	–
5039.115	Sm	2	–	–
5039.08	C 1	–	[30]	Jn
5039.038	Cb	200	30	–
5039.028	W	15	1 h	–
5039.002	Cu II	–	10	Sh
5038.907	Mo	10	4	–
5038.77	Br	–	[60]	Bl
5038.599	Ni I	50	–	–
5038.54	Pt	5	–	Me
5038 402	Ti I	100	20	–
5037.982	Ce	6	–	–
5037 97	Te	–	[15]	Bl
5037.766	Ce	20	–	–
5037.751	Ne I	–	[500]	IMe
5037.665	Ta	20	–	–
5037.577	Ne I	–	[3]	Ps
5037.458	Pr	10 w	–	–
5037.368	Ta	60	–	–
5037.178	Mo	5	2	–
5037.16	O I	–	[15 h]	Ps
5036.623	Ce	10	–	–
5036.539	U	2	–	–
5036.468	Ti I	125	25	–
5036 4	bh F	2	–	L
5036 213	Sm	50	–	–
5036.185	I	–	[25]	Ke
5036.15	Xe II	–	[3 h]	Hu
5035.993	Cb	10	5	–
5035.989	Ne I	–	[35]	Ps
5035.961	Ni I	70 w	–	–
5035.934	Er	12	–	–
5035.907	Ti I	125	30	–
5035.88	A I	–	[5]	Ms
5035.743	W	6	–	–
5035.528	U	2	2	–
5035.426	Eu	20 w	–	–
5035 374	Ni I	300 w	5	–
5035.068	Ir	2 h	–	–
5035.03	Tb	15	–	Ed
5034.90	Hf	3	–	Me
5034.758	Sm	4	–	–
5034.638	Ru	6	–	–
5034.436	Zr I	3	–	–
5034.415	Pr	30	–	–
5034.33	Hf II	4	8	Me
5034.3	bh F	2	–	L
5034 25	A I	–	[10]	Ms
5034 246	Er	6	–	–
5034 212	Tm	100	100	–
5034.175	Mo	4	1	–
5034.172	Os	12	–	–
5034 07	Tb	10	–	Ed
5033.85	Kr II	–	[100 whl]	Me
5033 813	Ce	20	–	–
5033.541	Eu	60	2	–
5033.522	Pt	30	1	–
5033.517	Nd	6	–	–
5033.380	Pr	10	–	–
5033 2	C II	–	5 h	En
5033.12	Tb	15	–	Ed
5033 03	Sb II	–	[15]	Lg
5032 748	Ni I	6	–	–
5032.42	Eu	6	–	Kn
5032.408	Zr I	2	–	–
5032 39	S	–	[8]	Bl
5032.380	Mo	3	1	–
5032 2	Pb II	–	[20]	Ea
5032 1	bh F	2	–	L
5032.025	A I	–	[60]	Ms
5031.881	Cb	5	1	–
5031.831	Os	20	–	–
5031 742	Ce	12	–	–
5031.348	Ne I	–	[250]	IMe
5031.287	Gd	30	–	–
5031 26	Se II	–	[40]	Mz
5031.181	Sm II	30	–	–
5031 10	Tb	10	–	Ed
5031.019	Sc II	50	200 h	–
5030 96	Kr	–	[3 whs]	Me
5030.958	Sm	8	–	–
5030 90	I	–	[8]	Db
5030.784	Fe II	1	125	–
5030.778	Cu II	–	2	Sh
5030.775	Mo	20	10	–
5030.738	U	2	2	–
5030.639	Mn	8	–	–
5030.129	Cb	5	2	–
5029.9	bh F	5	–	L
5029 898	Th	3	–	–
5029.812	Mn	12	–	–
5029.668	Cb	3	–	–
5029.64	A	–	[5]	Ms
5029 631	Th	10	–	–
5029 605	Sm	4	–	–
5029.549	Eu	30	1	–
5029.5	Bi II	–	15	Mll
5029.48	Eu	500 w	–	Kn
5029.450	Nd	15	–	–
5029 35	Br I	–	[10]	Ks
5029.247	Os	8	–	–
5029 15	Kr I	–	[5]	Me
5029.106	W	5	1 h	–
5029.002	Mo	20	12	–
5029.000	Pr	3	–	–
5028.927	W	10	–	–
5028.903	Er	20	–	–
5028.88	I	–	[2]	Ke
5028.609	Th	40 W	10 wh	–
5028 500	Nd	3 d	–	–
5028.443	Sm II	200	–	–
5028.36	Kr II	–	[30 hl]	Me
5028.358	Rh I	5	–	–
5028.309	Er	12	–	–
5028.304	Ce	18	–	–
5028.279	Xe I	–	[200]	I
5028.16	Ru I	12	–	–
5028 137	Fe	100	–	–
5027.947	Re	25	–	–
5027.852	Nd	4	–	–
5027.675	Yb	10	–	–
5027.5	bh F	5	–	L
5027.435	W	9	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5027.398	U	40	4	–
5027.212	Fe	60	–	–
5027.150	Nd	4	–	–
5027.136	Fe I	60	–	–
5026.968	Pr	80	1	–
5026.907	Zr I	2	–	–
5026.645	Ru	5	–	–
5026.453	Re	25	–	–
5026.413	Mo	5	1	–
5026.361	Cb	50	8	–
5026.30	Rh	2	–	Me
5026.197	Sm	40	–	–
5026 175	Ru I	15	–	–
5025.95	Cd II	3	2 h	Tk
5025.91	Hf	2	2	Me
5025.852	Th	2	–	–
5025.787	Er	4	–	–
5025.665	N II	–	[100]	Fl
5025.665	W	8	1 h	–
5025.64	Hg I	–	[20]	Wd
5025 605	Ru	4	–	–
5025.583	Ti I	100	8	–
5025.58	Rh I	4	–	Me
5025.459	Ir	2	–	–
5025.432	U	2 h	–	–
5025.408	Ce	3	–	–
5025.403	Tb	15	–	–
5025.397	Mo	5	1	–
5025.3	Sb II	–	18	Dv
5025.3	bh Yt	20	–	Me
5025.1	bh F	5	–	L
5024.844	Ti I	100	15	–
5024.65	Tb	15	–	Ed
5024.563	U	2	2	–
5024.3	bh Yt	10	–	Me
5024.266	Er	12	–	–
5024.24	Tb	25	–	Ed
5024.027	Cu II	–	5	Sh
5024.022	Re	2	–	–
5023 88	Xe I	–	[3 h]	Me
5023.85	Ti	3	2	–
5023.79	C	–	[5]	Jn
5023.601	Mo	5	1	–
5023.525	U	2 h	–	–
5023.506	Sm II	60	–	–
5023.476	Fe	10	300	Rl
5023.131	Gd	20	–	–
5023.11	N II	–	[15]	Fl
5023.076	Hf	4	–	–
5023.052	Th	6	–	–
5022.905	Eu	125	–	–
5022.871	Ce	20	1	–
5022.870	Ne I	–	[25]	IMe
5022.866	Ti I	100	18	–
5022.7	bh F	5	–	L
5022 645	U	2 h	1	–
5022.484	W	8	–	–
5022 461	Sm	2	–	–
5022.40	Kr II	–	[200]	Me
5022.250	Fe I	150	–	–
5022.141	Co I	2	–	–
5022.133	Tb	25	–	–
5022.12	Dy	3	–	Ed
5022.038	Mn	4	–	–
5021.903	Cr I	20	–	–
5021.88	Kr II	–	[100]	Me
5021.75	Hf	4	–	Me
5021.728	U	3	1	–
5021 68	Sb II	–	[8]	Lg
5021.64	Tb	10	–	Ed
5021.510	Sc I	2	9	–
5021.444	Ce	20	–	–
5021.285	Cu II	–	20	Sh
5021.258	W	8	–	–
5021.229	Mo	4	1	–
5021.152	Ca	10	–	–
5021.136	Yb	2	10	–
5021.11	Hf	4	2	Me
5020.892	Os	7	–	–
5020.58	Br	–	[30]	Bl
5020.541	Th	10	–	–
5020.44	Te	–	[8]	Bl
5020.43	Kr II	–	[4 whs]	Me
5020.376	Gd	20	–	–
5020.305	Ru I	6	–	–
5020 2	bh F	5	–	L
5020.142	Sc	2	3	–
5020.139	Cu II	5	–	Sh
5020.13	O I	–	[70]	Ps
5020.027	Ti I	100	80	–
5019.985	Ca	4	–	–
5019.86	V	–	35	Me
5019 850	Mo	12	10	–
5019 755	Pr	50	1	–
5019.66	Yb	4	–	Me
5019.641	Os	8	–	–
5019.516	La	15	–	–
5019.512	Cb	10	3	–
5019 511	W	6	–	–
5019.34	O I	–	[50]	Ps
5019.326	Th	3	–	–
5019.32	Se II	–	[25]	Mz
5019 32	Cr	18	–	Gs
5019.158	Sm	2	–	–
5018.984	Ru	5	–	–
5018.78	O I	–	[30]	Ps
5018.599	Eu	4 w	–	–
5018.583	Pr	50	1	–
5018.504	W	7	–	–
5018.440	Fe II	80	50	–
5018.379	Sc I	2	5	–
5018.294	Ni I	70 w	–	–
5018.20	Hf	20	2	Me
5018.128	Ru	4	–	–
5017.864	Tm	2	10	–
5017.747	Cb	80	10	–
5017.65	Er	8	–	Ed
5017.63	A II	–	[5]	Rt
5017.615	Mn	10	–	–
5017.6	bh F	10	–	L
5017.591	Ni I	100 w	1	–
5017.539	Sm	3	–	–
5017.524	Mo	4 h	1 h	–
5017.355	Cb	5	–	–
5017 25	A I	–	[5]	Ms
5017 247	Th	50	10	–
5017.200	W	9	–	–
5017.16	A II	–	[60]	Rt
5017.068	Ta	2	–	–
5016.779	Mo	20	8	–
5016 611	Cu I	15	–	IBu
5016 609	Sm II	80	–	–
5016.507	Ce	10	–	–
5016 387	N II		[70]	Fl
5016 166	Ti I	100	15	–
5015.89	Th	10	–	–
5015 675	He I	–	[100]	IMr
5015 64	Eu	10 w	–	Kn
5015 543	Pr	4	–	–
5015 321	W	40	5	–
5015 207	Cu II	–	10	Sh
5015 187	Ne I	–	[5]	Ps
5015 057	Gd	100 W	–	–
5014.981	Ir	10	–	–
5014 959	Fe I	500	–	–
5014 954	Ru I	20	–	–
5014 9	bh F	20	–	L
5014 757	Th	4	–	–
5014 625	V I	125	125	–
5014 595	Mo	30	20	–
5014.595	W	7	–	–
5014 545	Nd	5	–	–
5014.50	Yb	–	10	Me
5014.45	La II	2	30 hl	Me
5014 241	Ti I	100	30	–
5014 236	Ni I	25	–	–
5014.23	Ca	5	2	Ad
5014 22	Ir	3	–	Me
5014 189	Ti I	40	15	–
5014 107	Sc	1	2	–
5014.017	Ru	7	–	–
5014 01	S	–	[3]	Bl
5014.004	W	7	–	–
5013.80	Tb	10	–	Ed
5013 76	Er	8	–	–
5013.759	Ce	20	–	–
5013.712	Ti II	5	5	–
5013.680	Sm	10	–	–
5013.456	W	15	–	–
5013.412	U	2	2	–
5013.316	Cr I	60	2	–
5013.301	Ti I	80	7	Bh
5013.29	Kr II	–	[100]	Me
5013.275	Cb	10	4	–
5013.136	Eu	125	1	–
5013.082	Ba II	–	50	–
5012.933	U	2	–	–
5012.83	Xe II	–	[50 h]	Hu
5012.611	Cu II	–	20	Sh
5012.525	Os	12	–	–
5012.524	Ta	60	–	–
5012.510	Ce	12 w	–	–
5012.464	Ni I	70	2 h	–
5012.39	Rh I	3	–	Me
5012.331	Mo	10	3	–
5012.2	bh F	20	–	L
5012.071	Fe I	300	–	S
5012.026	N II	–	[15]	Fl
5012 01	In	–	5	Sq
5011.765	Ce	12	1	–
5011.755	Gd	10	–	–
5011.749	Cb	3	2	–
5011.666	Nd	4	–	–
5011.464	Zr I	2	–	–
5011.423	U	8	–	–
5011.31	Fe	5	–	–
5011.24	N II	–	[5]	Fm
5011.227	Ru	25	–	–
5011.1	bh V	7	–	L
5011.003	Ne I	–	[25]	IMe
5010 961	Ni I	50	–	–
5010.892	U	2	2	–
5010.875	Sm	2	–	–
5010.852	Fe	50	–	–
5010.833	Gd	50	–	–
5010.814	Mo	12	4	–
5010.62	Re	2	–	–
5010.620	N II	–	[100]	Fl
5010.595	Ru	10	–	–
5010.54	Tb	10	–	Ed
5010.42	Sb II	–	[40]	Lg
5010.383	W	7 d	–	–
5010.364	Mn	10	–	–
5010.362	Sm	8	–	–
5010.202	Ti II	3	10 h	–
5010.162	Sm	8	–	–
5010.08	Tb	10	–	Ed
5010.045	Ni I	25	–	–
5010.029	Fe	7	–	–
5009.977	Th	6	–	–
5009.888	W	7	2	–
5009.833	Cu II	–	20	Sh
5009.761	Er	6	–	–
5009 758	Tm	50	50	–
5009 649	Ti I	50	2	–
5009.54	S	–	[3]	Bl
5009.519	Yb	20	50	–
5009.446	Th	2	–	–
5009.444	Ce	6	–	–
5009.406	Pr	3 h	–	–
5009.4	bh F	30	–	L
5009.35	A	–	[200]	Rt
5009.167	Ir	5	2 h	–
5009 094	Ce	30	–	–
5009.032	Mo	4	1	–
5009.02	Ca	–	4	Ad
5008.969	Er	12	–	–
5008.687	U	4	–	–
5008.63	Tb	10	–	Ed
5008.363	I I	–	[5]	Ke
5008.222	U	30	25	–
5008.194	Th	8	1	–
5008.1	bh F	2	–	L
5008 039	Cb	5	1	–
5007.630	Pr	4	–	–
5007 616	Mo	10	2	–
5007.37	Dy	5	–	Ed
5007.316	N II	–	[150]	Fl
5007.301	Co I	5	–	–
5007.3	bh Mg	12	–	L
5007.288	Fe I	25 h	–	–
5007.238	Er	15	–	–
5007.230	W	15	2	–
5007.213	Ti I	200	40	–
5007.09	A I	–	[2]	Ms

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
5006.975	Yt I	8	2	–
5006.84	A	–	[2]	Ms
5006.787	Cu II	–	30	Sh
5006.6	bh F	30	–	L
5006.157	W	40	7	–
5006.133	Fe I	300	5	–
5005.78	Ir	2	–	–
5005.725	Fe	200	–	–
5005.702	Ce	10	–	–
5005.69	Se	–	[8]	Bl
5005.599	V I	12	12	–
5005.433	Pb	20	4	–
5005.34	K II	–	[15]	Sg
5005.333	Ne I	–	[50]	Ps
5005.246	Ru	7	–	–
5005.24	Cr	1	3 Wh	Gs
5005.160	Ne I	–	[500]	IMe
5005.140	N II	–	[500]	Fl
5005.075	Sc	–	15 wh	–
5004.99	Fe	7	–	–
5004.907	Mn	20	–	–
5004.824	Tb	15	–	–
5004.794	Fe	3	100	–
5004.584	Pr	5	1	–
5004.390	Ir	3	–	–
5004.38	Cr	6 h	–	–
5004.318	A	–	[20]	Ms
5004.133	Th	3	–	–
5003.86	Dy	3 h	–	Ed
5003.751	Ni I	20	–	–
5003.618	Re	2	–	–
5003.6	bh F	50	–	L
5003.525	Ru	5	–	–
5003.382	Sm	3	–	–
5003.271	Ce	8	–	–
5003.22	Tb	10	–	Ed
5003.1	bh F	2	–	L
5002.958	Ru	4	–	–
5002.88	Tb	10	–	Ed
5002.809	Fe I	20	–	–
5002.795	W	15	10	–
5002.743	Ir	8	–	–
5002.70	Br I	–	[40]	Ks
5002.692	N II	–	[15]	Fl
5002.630	Pt	15	1	–
5002.454	Pr	8	1	–
5002.334	V I	90	90	–
5002.248	Cb	10	5	–
5002.14	Kr I	–	[2]	Me
5002.133	La II	10	15	–
5002.097	Th	10	–	–
5001.98	F II	–	[30]	Di
5001.871	Fe I	300	40	S
5001.790	La I	10	–	–
5001.641	Cs	–	[2]	Sv
5001.495	Ce	6	–	–
5001.489	Ca	2	–	Cw
5001.469	N II	–	[200]	Fl
5001.231	Sm II	40	–	–
5001.14	Lu	100	–	Me
5001.128	N II	–	[150]	Fl
5001.094	W	12	–	–
5001.010	Ti I	80	2	–
5001.01	Xe	–	[15]	Hu
5000.97	Al II	–	[15]	Sy
5000.954	Cb	30	5	–
5000.87	Te	–	[25]	Bl
5000.704	Cb	3	1	–
5000.6	bh F	80	–	L
5000.6	Sb II	–	20	Dv
5000.593	Pr	3	–	–
5000.54	Hf	2	2	Me
5000.504	W	7	–	–
5000.5	bh F	10	–	L
5000.436	Nd	10	–	–
5000.395	Ne I	–	[3]	Pa
5000.379	Er	15	–	–
5000.335	Ni I	150 w	–	–
5000.050	Sm II	25	–	–
4999.938	Th	8	1	–
4999.912	Mo	50	25	–
4999.743	Ir	6	2	–
4999.68	Hf II	30	40	m
4999.552	Ru	6	–	–
4999.510	Ti I	200	80	–
4999.468	La II	400	300	–
4999.117	Fe	4	–	–
4999.085	Gd	10 h	–	–
4999.00	Dy	2 h	–	Ed
4998.547	Nd	10	–	–
4998.54	Kr II	–	[5 whl]	Me
4998.502	Ne I	–	[10]	Ps
4998.47	Dy	2 h	–	Ed
4998.389	Gd	25	2	–
4998.233	Ni I	150	–	–
4998.181	Ta	15 W	–	–
4998.131	Ce	18	–	–
4997.972	Pt	6	–	–
4997.933	Tb	5	–	–
4997.877	Cb	15	5	–
4997.81	Ba II	–	[10]	Rs
4997.801	Fe	20	300	–
4997.793	Rh	4	–	–
4997.787	Th	6	2	–
4997.7	bh F	20	–	L
4997.482	Ne I	–	[15]	Ps
4997.327	Th	3	–	–
4997.29	I	–	[8]	Ke
4997.26	Ra II	–	[6]	Rs
4997.103	Ti I	50	4	–
4996.850	Ni I	80	–	–
4996.823	La II	25	30	–
4996.7	bh Mg	9	–	L
4996.331	Zr I	4	–	–
4996.147	Nd	2	–	–
4996 090	U	2 h	3 h	–
4995.875	Rh I	2	–	–
4995.814	Tb	5	–	–
4995.730	Ba	2	–	–
4995.66	Pr	2 wd	–	–
4995.627	Fe	3	60	–
4995.61	Ga	–	3	Kl
4995 554	Eu	3	1	–
4995.52	Cl II	–	[60]	Ks
4995 35	Dy	2 h	–	Ed
4995 320	W	10	–	–
4995.318	Mo	20	5	–
4995.15	I I	–	[25]	Db
4995 084	Ti I	12	–	–
4995.006	Sc I	2	1	–
4994.99	Sm	2	–	–
4994.930	Ne I	–	[150 l]	IMe
4994.9	bh F	30	–	L
4994.83	Dy	2 h	–	Ed
4994.761	Zr I	8	–	–
4994.706	Tm	2	–	–
4994.64	La I	2	–	m
4994.613	Ce	10	–	–
4994 37	W	2	2 h	Ex
4994.358	N II	–	[30]	Fl
4994.305	Cb	5	3	–
4994.133	Fe I	200	–	S
4994.13	Lu	250	400	Me
4994.096	W	30	–	–
4993.93	Xe II	–	[10 whl]	Hu
4993.92	Bi II	–	[20]	Om
4993.876	La I	80	–	–
4993.838	Tb	6	–	–
4993.81	Gd	10 h	–	Ed
4993.768	Tm	3	1	–
4993.53	Dy	2 h	–	Ed
4993.51	S	–	[150]	Ms
4993.253	Ta	5 h	1	–
4993.049	Co I	5	–	–
4993.03	Xe II	–	[10]	Hu
4992.940	U	4	4	–
4992.75	Se II	–	[300]	Bl
4992.736	Ru I	25	–	–
4992.468	Cb	10	2	–
4992.402	Ce	12	–	–
4992.36	Hf	3 h	2	Me
4992.346	Er	2	–	–
4992.323	Tb	2	–	–
4992.311	Pr	2	–	–
4992.236	Mo	8	3	–
4992.117	U	2	–	–
4992.1	bh F	50	–	L
4992.031	Sm II	80	–	–
4992.03	Se II	–	[12]	Bl
4991.922	Sc I	8	8	–
4991.774	Pr	3	–	–
4991.66	Sb II	–	[10]	Lg
4991.538	U	2	–	–
4991.5	Hg I	15	–	Wd
4991.40	Tb	3	–	Ed
4991.284	La II	100	80	–
4991.277	Fe I	80	–	–
4991.22	N II	–	[5]	Fl
4991.17	Xe II	–	[50 whl]	Hu
4991.066	Ti I	200	100	I
4990.667	Ce	10	–	–
4990.462	Fe	5	–	–
4990.116	U	3	–	–
4990.103	Os	6	–	–
4990.031	Th	5	–	–
4989.945	A I	–	[80]	Ms
4989.937	Nd	35	–	–
4989.92	U	–	3 h	–
4989.866	W	5	–	–
4989.440	Sm II	60	–	–
4989.311	Tm	3	–	–
4989.309	Th	6	2	–
4989.268	Pr	50	–	–
4989.148	Ti I	100	4	–
4989.091	W	15	–	–
4988.973	Cb	150	10	–
4988.963	Fe I	100 h	–	–
4988.77	Xe II	–	[150 h]	Hu
4988.688	Ce	12	–	–
4988.649	Nd	2	–	–
4988.30	Yb	4	1	Me
4988.040	Co I	500 R	–	–
4987.989	Mo	15	2	–
4987.819	Zr I	3	–	–
4987.706	Pr	2	–	–
4987.59	Dx	2	–	m
4987.541	Ce	8	–	–
4987.377	N II	–	[15]	Fl
4987.262	Ru I	15	–	–
4987.166	Nd	10	–	–
4987.136	Th	15	4	–
4986.98	Br	–	[10]	Bl
4986.941	W	40	1 h	–
4986.94	Tb	4	–	Ed
4986.934	I II	–	[35]	Ke
4986.903	U	8	6	–
4986.834	Pt	4	–	–
4986.834	La II	150	100	–
4986.820	Sm	3	–	–
4986.754	Eu	5	–	–
4986.67	Tb	3	–	Ed
4986.449	Co I	10	–	–
4986.423	Ce	20 W	–	–
4986.208	Gd	25	–	–
4985.992	Re I	40 W	–	–
4985.959	Cr	25	–	–
4985.9	bh Mg	8	–	L
4985.886	Sm II	20 d	–	–
4985.769	Mn	12	–	–
4985.60	As II	–	50	Ro
4985.562	Mo	20	6	–
4985.559	Fe I	100	–	–
4985.531	Dy	2	–	–
4985.503	Cu II	–	10	Sh
4985.376	Th	10	–	–
4985.352	Rh	2 h	–	–
4985.260	Fe I	100	–	–
4985.09	A I	–	[10]	Ms
4984.985	Rh I	5	–	–
4984.919	La I	4 W	–	–
4984.769	Hf II	2	4	–
4984.722	W	15	–	–
4984.166	W	15	–	–
4984.126	Ni I	500 W	1	–
4983.984	Eu	2	–	–
4983.90	Tb	2	–	Ed
4983.855	Fe I	200 h	–	–
4983.8	bh Pb	6	–	L
4983.571	La I	4	–	–
4983.542	W	20	–	–
4983.526	Th	2 W	–	–
4983.461	Mo	8	2	–
4983.451	Sc I	6	4	–
4983.449	Ru I	7	–	–
4983.373	Sm	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4983 258	Fe I	100 h	–	–
4982.899	Nd	2	–	–
4982.895	Os	6	–	–
4982.845	Na I	200 wh	100	Hz
4982.83	Kr II	–	[50 hl]	Me
4982.78	Tb	2	–	Ed
4982.603	W	40	5	–
4982.507	Fe	200	–	–
4982 142	Yt II	8	50	–
4982.132	Ce	8	–	–
4982.03	Ra	–	[10]	Rs
4981.996	Pr	2	–	–
4981.96	Dy	2 h	–	Ed
4981.879	Ir	3	–	–
4981.827	Mo	10	3	–
4981.733	Ti I	300	125	I
4981.714	Sm II	50	–	–
4981.541	Re I	15	–	–
4981.35	Tl II	–	[15]	El
4981.283	Nd	10	–	–
4980.953	Th	8	–	–
4980.893	Nd	2 h	–	–
4980.82	Hg I	–	[6]	Wd
4980.71	Er	2	–	–
4980.686	Re I	4	–	–
4980.668	Tm	5	3	–
4980.57	Hg	–	[70]	Ps
4980 538	Tb	4	–	–
4980.522	Pr	3 r	–	–
4980.380	Pt	4	–	–
4980.369	Sc I	6	8	–
4980.354	Ru I	60	–	–
4980.259	Sm	4	–	–
4980.187	Th	4	–	–
4980.17	Dy	2 h	–	Ed
4980.161	Ni I	500 W	1	–
4980 16	Tb	5	–	Ed
4980.006	Cu II	–	4	Sh
4980.000	Mo	3	2	–
4979.97	Ho	2	–	Ex
4979.932	Co I	60	–	–
4979.847	W	25	–	–
4979.76	Br I	–	[125 l]	Ks
4979.625	Ne I	–	[5]	Ps
4979.477	Ir	3	–	–
4979.318	Os	18	–	–
4979.175	Rh I	20	–	–
4979.125	Pr	3	–	–
4979 115	Mo	100	30	–
4978.897	Tm	2	1	–
4978.89	Kr II	–	[100 hl]	Me
4978.84	Rn	–	[300]	Rc
4978.606	Fe I	80	–	–
4978 585	Na I	15	10	Hz
4978.404	Mo	8	1	–
4978.361	Pr	3	–	–
4978.204	Ti I	70	3	–
4977.953	La I	10	–	–
4977.828	Ta	10 W	1	–
4977.748	Rh I	25	–	–
4977.744	Ti I	20	25	–
4977.694	Mo	50	3	–
4977 692	W	8	–	–
4977 578	Pr	2 h	–	–
4977.244	W	15	–	–
4976 822	Ti I	15	–	–
4976.768	Cb	5 wh	–	–
4976.65	Cl I	–	[8]	Ks
4976 597	Th	8	–	–
4976.423	Eu	3	–	–
4976.398	Pr	20	–	–
4976 385	Er	2	–	–
4976 345	Ni I	40	–	–
4976.197	Ru I	40	–	–
4976.196	Ta	40	1	–
4976.155	Ni I	10	–	–
4975 986	Sm	80	–	–
4975.983	Mo	20	3	–
4975 961	Ne I	–	[10]	Ps
4975.940	Th	10	–	–
4975.9	Na I	3	–	Fl
4975.757	Eu	10	–	–
4975.752	Pr	25	–	–
4975.71	Sb II	–	[3]	Lg
4975.66	A I	–	[2]	Ms
4975 66	Se II	–	[300]	Bl
4975.585	Ir	2 wh	–	–
4975 494	Nd	6	–	–
4975.372	Ru	5	–	–
4975.354	Ti I	80	4	–
4975 25	Hf	25	4	Me
4975.21	Tb	2	–	Ed
4975.137	Cb	30	3	–
4975.113	Tm	8	5	–
4974.998	Dy	3	–	–
4974.920	Pr	15	–	–
4974.87	Xe II	–	[2 h]	Hu
4974.760	Ne I	–	[50]	Ps
4974.733	Sm	2	–	–
4974.52	Er	3	–	–
4974.51	I I	–	[3]	Db
4974.5	bh Mg	7	–	L
4974.311	Yt I	8	2	–
4974.20	La II	–	4 h	Me
4974.18	A I	–	[10]	Ms
4974.16	Yb	10	–	Me
4974.151	Cu II	–	4	Sh
4974.123	Ru	20	–	–
4974.104	Ce	10	–	–
4973.851	In II	–	[10]	Ps
4973.85	Gd	25	–	Ed
4973.774	In II	–	[10]	Ps
4973.734	Sm II	40	–	–
4973.691	In II	–	[15]	Ps
4973.689	Cu II	–	4	Sh
4973.667	Sc I	6	5	–
4973.605	In II	–	[15]	Ps
4973.575	Dy	2	–	–
4973.538	Ne I	–	[100]	Ps
4973.53	A	–	[2]	Ms
4973.394	Th	10	–	–
4973.360	Mo	25	5	–
4973.17	V	–	2	Me
4973.144	Cb	20	5	–
4973.108	Fe I	100	–	–
4973.048	Ti I	35	2	–
4973.019	Tb	4	–	–
4972.854	Re	3	–	–
4972.8	Na I	3	–	Fl
4972.71	Xe II	–	[200 h]	Hu
4972.622	Gd	25	–	–
4972.609	Th	3	–	–
4972.593	Cs II	–	[25]	Sv
4972.568	W	15	–	–
4972.478	Pr	2	–	–
4972.239	Ce	8	–	–
4972.179	Th	8	1	–
4972.166	Sm II	80	–	–
4972.16	A	–	[20]	Rt
4972.100	U	8	6	–
4971.990	Li I	500	–	–
4971.959	Co I	150	–	–
4971.958	Pd	10	–	–
4971.936	Ce	8	–	–
4971.926	Cb	20	5	–
4971.786	Dy	2 h	–	–
4971.77	Ra	–	[15]	Rs
4971.71	Xe	–	[100 whl]	Hu
4971 668	Sr I	2	–	ISn
4971.660	Ce	2	–	–
4971.616	In II	–	[5]	Ps
4971 544	Pr	2	–	–
4971.475	Ce	12	–	–
4971.410	Tb	4	–	–
4971.354	Ni I	100	–	–
4971.048	Co I	6	–	–
4970.99	Tb	5	–	Ed
4970.922	Nd	5	–	–
4970 918	Pr	5	–	–
4970.856	Tm	5	3	–
4970 768	Mo	4	1	–
4970.667	Ce	12	–	–
4970 653	W	8	–	–
4970.496	Fe	20	–	–
4970.476	Ir	6	2	–
4970.392	La II	125	100	–
4970.367	Mo	3	2	–
4970.13	Hg I	5	–	Wd
4970.122	Ce	6	–	–
4970.12	Cl II	–	[50]	Ks
4970.09	Sm	7	–	–
4970.032	Th	10	–	–
4969.927	Fe	50	–	–
4969.87	Dy	2 h	–	Ed
4969.833	Mo	3	1	–
4969.749	Nd	5	–	–
4969.7	Bi II	2 h	8	Ml
4969.693	Ta	40 l	1	–
4969.64	P II	–	[150 l]	Gu
4969.639	Mo	10	4	–
4969.450	Re	4	–	–
4969.36	Kr I	–	[15]	Me
4969.164	Gd	100	–	–
4969.131	Th	3	–	–
4969.09	Ir	2	–	Me
4969.08	Kr I	–	[20]	Me
4968.993	U	2	2	–
4968.904	Ru I	40	–	–
4968.76	O I	–	[100]	Ps
4968.755	Th	10	–	–
4968.709	Fe	3	–	–
4968.708	Eu	5	–	–
4968.59	La I	4 d	–	Me
4968.587	Gd	20	10	–
4968.583	Ti I	40	1	–
4968.527	Ta	60 W	1	–
4968.447	I II	–	[10]	Ke
4968.424	W	6	–	–
4968.170	Zr I	2	–	–
4967.944	Sr I	20	–	ISn
4967.9	bh F	2	–	L
4967.897	Co I	10 w	–	–
4967.886	Pr	10	–	–
4967.86	O I	–	[80]	Ps
4967.826	Re	4	–	–
4967.782	Cb	150	50	–
4967.739	Sm	3	–	–
4967.670	W	6	–	–
4967.528	Co I	3	–	–
4967.40	O I	–	[50]	Ps
4967.33	Cl	–	[6]	Bl
4967.326	U	5	–	–
4967.21	Ho	5	2	Ex
4967.1	bh F	2	–	L
4967.019	Sm	2	–	–
4966.904	Yb	30	4	–
4966 903	Er	15	–	–
4966.635	Er	2	–	–
4966 589	Co I	100	–	–
4966.387	Ce	10	–	–
4966.386	Rh	8	–	–
4966 116	V I	6	5	–
4966 096	Fe I	300	1	S
4965.881	Mn	50	2	–
4965.787	Sm	15	–	–
4965.731	Th	4	–	–
4965 441	Pr	2	–	–
4965.40	V	–	40	Me
4965 375	U	6	–	–
4965.373	Cb	100	15	–
4965.312	Hf	2 h	2	–
4965.232	Ce	3	–	–
4965.177	Ce	8 w	–	–
4965.12	A	–	[40]	Rt
4965.1	bh F	5	–	L
4965.064	Gd	100	10 h	–
4965.038	K I	15	–	Da
4965.00	Xe II	–	[4 whl]	Hu
4964.928	Cr I	8	3	–
4964.90	C II	–	10	Fl
4964.838	La I	5	–	–
4964.751	Ti I	25	–	–
4964 624	U	2	1	–
4964 567	Pr	2	–	–
4964.565	Sm II	80	–	–
4964.49	Tb	4	–	Ed
4964.414	Mo	25	8	–
4964.224	Sm	2	–	–
4964.192	Mo	15	6	–
4964.185	Pr	2	–	–
4964.123	Th	12	1	–
4964.1	bh F	5	–	L
4964.10	Tb	3	–	Ed
4963.74	V	–	2	Me
4963.716	Zr I	3	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4963.707	Rh I	100	–	–
4963.334	Nd	15	–	–
4963.195	Cb	8	2	–
4963.192	Th	10	–	–
4963.104	Dy	2 h	–	–
4963.080	Re	2	–	–
4962.963	Th	5	–	–
4962.946	Cb	10 hs	1 h	–
4962.910	Mo	5 h	2 h	–
4962.9	bh F	10	–	L
4962.564	Fe	10 h	–	–
4962.525	Eu	20	–	–
4962.37	Hf	6	2	Me
4962.296	Zr I	3	–	–
4962.294	W	12	–	–
4962.28	Tb	4	–	Ed
4962.263	Sr I	40	–	ISn
4962.2	bh Mg	6	–	L
4962.10	Al II	15	3	Sy
4961.939	Sm II	100	–	–
4961.91	Fe	2	–	–
4961.89	Hg II	–	10	Nu
4961.80	Dy	5	–	Ed
4961.729	Th	5	–	–
4961.7	bh F	10	–	L
4961.544	U	2	–	–
4961.530	W	10	–	–
4961.497	Gd	100	–	–
4961.396	Nd	15	–	–
4961.389	Re	2	–	–
4961.388	Eu	2	–	–
4961.260	Sm	2	–	–
4961.137	Rh	2	–	–
4961 040	Pr	2	–	–
4960.494	Th	5	–	–
4960.32	Hg	–	[5 h]	Wd
4960.3	bh F	20	–	L
4960.260	Pr	10	–	–
4960.25	Kr II	–	[100 hl]	Me
4960.183	Eu	20	–	–
4960.173	Rh	2	–	–
4960.059	Sm II	10	–	–
4959 863	Ru	15	–	–
4959.688	Co I	5	–	–
4959.619	Mo	4	1	–
4959.595	Dy	3	–	–
4959.455	Ir	3	–	–
4959.37	Br	–	[12]	Bl
4959.341	W	3	–	–
4959.130	Nd	35	–	–
4959.034	Os	2	–	–
4958.93	Tb	4	–	Ed
4958.9	bh F	20	–	L
4958.793	Gd	125	4	–
4958.725	Th	4	–	–
4958.62	Tb	2	–	Ed
4958.436	Sm	2	–	–
4958.225	Ce	3	–	–
4958.19	Si	6	–	Sy
4958.139	Nd	5	–	–
4958.114	Ta	8	–	–
4957.86	I	–	[8]	Ke
4957.842	Ru	10	–	–
4957.8	Rn	–	[10]	Wa
4957.791	La	3	–	–
4957.69	Sm II	8	–	–
4957.641	V I	3	2	–
4957.609	Fe I	300	150	–
4957.539	Mo	60	25	–
4957.393	Cb	8	3	–
4957.357	Dy	20	3	–
4957.307	Fe I	100	20	–
4957 188	Tm	50	5	–
4957.162	Ba II	–	[50]	–
4957.122	Ne I	–	[150]	IMe
4957.033	Ne I	–	[1000]	IMe
4956.974	Ce	5	–	–
4956.911	Zr I	3 h	–	–
4956.790	U	–	2	–
4956.769	Re	30	–	–
4956.753	A I	–	[100]	Ms
4956.731	Sm	2	–	–
4956.645	Pr	40 w	–	–
4956.588	Cb	3	2	–
4956.578	Mo	15	5	–
4956.123	Sm II	25	–	–
4956.060	La	4	–	–
4956.060	Pr	10	–	–
4956 043	K I	10	–	Da
4955.965	Ce	6	–	–
4955.964	Cu II	–	2	Sh
4955 961	Sm	5	–	–
4955 9	bh F	30	–	L
4955.78	O II	–	[30]	Fl
4955.775	U	8	–	–
4955.388	Ce	6	–	–
4955.382	Ne I	–	[150]	Ps
4955.27	Kr I	–	[15]	Me
4955.255	Ru	25	–	–
4955.21	A I	–	[2]	Ms
4954.882	Tm	3	–	–
4954.811	Cr	100	8	–
4954.783	Nd	50	–	–
4954.73	Br I	–	[10]	Ks
4954.67	Yb	–	4 h	Me
4954.665	Th	10	2	–
4954.52	Tb	2	–	Ed
4954 364	Dy	3	–	–
4954 32	P II	–	[70 l]	Gu
4954.3	bh F	50	–	L
4954 16	C II	–	5	En
4954 052	Sc I	10	8	–
4954 039	Ce	6	–	–
4953 91	Tb	3	–	Ed
4953.790	Mo	6	2	–
4953.738	Ru	6	–	–
4953 729	Cu II	–	15	–
4953.716	Ce	8	–	–
4953.578	Er	3	–	–
4953.495	Eu	12	–	–
4953 38	Dy	3	–	Ed
4953 29	Tb	3	–	Ed
4953 204	Ni I	150	–	–
4953.190	Co I	50	–	–
4953.166	Gd	10	–	–
4953.129	Cb	5	2	–
4953.092	W	25	–	–
4953.048	Sm II	50	–	–
4952 835	Cs II	–	[30]	Sv
4952 646	Fe I	5 h	–	–
4952 6	bh F	80	–	L
4952 509	Nd	8	–	–
4952.493	Gd	20	–	–
4952 415	Mn	3	–	–
4952 373	Sm II	125	–	–
4952 26	Dy	2 h	–	Ed
4952 248	U	3	1	–
4952 069	La II	50	40	–
4952.02	Mn	5	–	–
4951 959	Mo	12	4	–
4951.9	Hg II	–	[2]	Ps
4951.852	U	2	–	–
4951 828	Co I	2	–	–
4951.75	A I	–	[10]	Ms
4951.739	Er	15	–	–
4951.708	Zr I	3	–	–
4951.696	Sc I	2 h	2	–
4951.627	Cu II	–	5	Sh
4951.450	Dy	3	–	–
4951.357	Pr	150	–	–
4951 3	bh V	2	–	L
4951.298	Sm	2	–	–
4951.00	Dy	2 h	–	Ed
4950.816	K I	10	–	Da
4950 804	Ru	7	–	–
4950.8	bh F	100	–	L
4950.72	Br	–	[4]	Bl
4950.719	Nd	5	–	–
4950.658	Yt	3	15	–
4950.657	Er	5	–	–
4950.645	Pr	2	–	–
4950.620	Th	10	5 h	–
4950.618	Mo	80	30	–
4950.590	Os	3	–	–
4950.285	Nd	3	–	–
4950.171	U	8	8	–
4950.108	Eu	2	–	–
4950.105	Fe I	–	10	–
4950.0	Rn	–	[35]	Wa
4949.836	Re	15	–	–
4949.769	La I	200	–	–
4949.72	Si	2	–	Sy
4949.617	Cr	8	–	–
4949.45	A II	–	[2]	Rt
4949.40	Dy	2	–	Ed
4949.4	bh Mg	5	–	L
4949.019	Mo	15	3	–
4948.94	Hf	10	2	Me
4948.756	Zr I	5	–	–
4948 674	Ce	18 wh	–	–
4948.630	Sm II	125	–	–
4948.588	W	15	–	–
4948.587	Co I	4	–	–
4948.52	Sb II	–	[50]	Lg
4948 50	Kr II	–	[50 hl]	Me
4948.216	Dy	2	–	–
4948 202	Pr	2	–	–
4948.193	Ti I	12	–	–
4948.067	Sm	5	–	–
4947.994	Ti I	7	–	–
4947.97	Tb	5	–	Ed
4947 582	V	1	15	–
4947.577	Th	10	2	–
4947 45	Sm	2	–	–
4947.40	Sb II	–	[30]	Lg
4947.356	Eu	5	–	–
4947.333	Ba	3	2	–
4947.20	Tb	2	–	Ed
4947.197	Pr	4	–	–
4947.023	Nd	2 h	–	–
4946 736	Re	100	–	–
4946 661	Th	6	–	–
4946 639	Fe	1	50	–
4946.63	Tl II	–	[5]	El
4946.466	La II	100	50	–
4946 400	Fe I	5	40	–
4946 306	Sm	60	–	–
4946.284	Dy	2	–	–
4946 037	Ni I	5	–	–
4945.848	La I	6	–	–
4945 784	Co	4	–	–
4945.61	Br	–	[15]	Bl
4945.59	Kr II	–	[300]	Me
4945.53	Tl II	–	[2]	El
4945.510	Dy	2	–	–
4945.458	Ni I	90	–	–
4945.458	Th	6	–	–
4945.442	Cb	15	1	–
4945 37	Hf II	10	12	m
4945.275	Mo	6	1	–
4945.20	Sm	10	–	–
4944 987	Ne I	–	[100]	IMe
4944 96	Yb	–	7 h	Me
4944.88	Re	4	–	Me
4944.858	Rh	5	–	–
4944.835	Nd	50	–	–
4944 80	A I	–	[5]	Ms
4944.617	Ce	18	–	–
4944.576	Cr	35	–	–
4944.55	Se	–	[20]	Bl
4944.499	U	6	–	–
4944.388	Ti I	5	–	–
4944.358	Er	3	–	–
4944.31	Sn II	6	[10]	Mc
4944.081	Yb	4	20	–
4943.901	Nd	10	–	–
4943.874	Mo	6	3	–
4943.742	Re	2 w	–	–
4943.735	Pr	3	–	–
4943.451	Ce	4	–	–
4943.44	Sm	2	–	–
4943.41	P II	–	[150 l]	Gu
4943.282	Co I	2	–	–
4943 24	Cl II	–	[15]	Ks
4943.24	K II	–	[30]	Bn
4943.20	I II	–	[10]	Mu
4943.16	Si	5	2	Sy
4943.074	Ti I	2	–	–
4943.06	I	–	[8]	Ke
4943.020	Cu II	–	6	Sh
4942.97	O II	–	[100]	Mh
4942.965	Mo	4	1	–
4942.961	Nd	5	–	–
4942.96	A II	–	[5]	Rt
4942.940	Os	18	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4942.854	Dy	2	–	–
4942.807	V I	4	3	–
4942.640	U	6	6	–
4942.569	Gd	100	–	–
4942.495	Cr I	125	3	–
4942.418	Mn	3	–	–
4942.367	Mo	5	3	–
4942.350	Co I	2	–	–
4942.34	Lu	40	3	Me
4942.310	Pr	4 W	–	–
4942.01	Br	–	[5]	Bl
4941.964	W	8	–	–
4941.964	K I	5	–	Da
4941.921	Cb	3 h	1 h	–
4941.920	Ni I	2	–	–
4941.846	Er	2	–	–
4941.83	Tb	2	–	Ed
4941.656	Mo	40	25	–
4941.578	Ti I	30	–	–
4941.516	Cb	5	3	–
4941.390	Sm II	8 d	–	–
4941.350	Co I	3	–	–
4941.338	Sc I	3	5	–
4941.322	Ti I	4	–	–
4941.156	Dy	2	–	–
4941.02	O II	–	[50]	Mh
4941.015	Ti I	4	–	–
4940.714	Tb	4	–	–
4940.64	B II	–	2	En
4940.617	Sm II	30	–	–
4940.320	Nd	2 h	–	–
4940.296	Pr	50	–	–
4940.208	Os	5	–	–
4940.138	Pt	3	–	–
4940.060	Cu II	–	2 h	Sh
4939.941	Ir	2	–	–
4939.905	Zr	3	–	–
4939.735	Pr	100	–	–
4939.70	Tb	3	–	Ed
4939.690	Fe I	150	2	S
4939.665	Mo	15	5	–
4939.550	Gd	30	–	–
4939.244	Fe I	10 h	–	–
4939.173	Ir	4	–	–
4939.125	Ce	20	–	–
4939.041	Ne I	–	[100]	IMe
4939.01	Ho	3	–	Ex
4938.897	Pr	8	–	–
4938.820	Ce	2	–	–
4938.817	Fe I	300	1	–
4938.76	Ir	2	–	Me
4938.75	K II	–	[10]	Bn
4938 618	Gd	150	2	–
4938.434	Ru I	60	–	–
4938.427	Pr	5	–	–
4938.38	Kr I	–	[2 h]	Me
4938.31	Eu	250 W	–	Kn
4938.293	Ti I	70	2	–
4938.183	Fe I	100	–	–
4938.104	Sm II	125	–	–
4938.088	Ir	10	3	–
4937.967	Cu II	–	5	Sh
4937.743	Ti I	30	–	–
4937.718	A I	–	[30]	Ms
4937.70	B	–	2	Sy
4937.67	Tb	2	–	Ed
4937.626	Ta	40	2	–
4937.433	Mo	3	2	–
4937.337	Ni I	400 w	–	–
4937.229	Yb	6	80	–
4937.196	Cu II	–	6	Sh
4936.99	Cl II	–	[25]	Ks
4936.96	Yb	3 h	–	Me
4936.943	U	2 h	–	–
4936.835	Dy	3	–	–
4936.768	Th	10	–	–
4936.706	Cb	3 h	–	–
4936.590	Sm	4	–	–
4936.421	Ta	100 s	–	–
4936.411	Co I	6	–	–
4936.345	Gd	30	2	–
4936.334	Cr	200	5	–
4936.231	Ru	6	–	–
4936.112	Dy	2	–	–
4936.021	Sm II	80	–	–
4936.004	Pr	50	–	–
4935.85	Re	15	–	m
4935.830	Ni I	150	1	–
4935 813	Os	12	–	–
4935.729	Sc I	5	1	–
4935.7	bh C	–	–	L
4935.632	Ru	10	–	–
4935.618	La II	8	–	–
4935.55	P	–	15	Gu
4935.502	Yb	200	10	–
4935.498	Er	35	–	–
4935.458	Sm	20	–	–
4935 380	Pr	2	–	–
4935.3	bh Mg	4	–	L
4935.222	Co I	2	–	–
4935.136	Pr	2	–	–
4935.03	N I	–	[250]	Mt
4934.825	La II	150	100	–
4934.607	Ru	4	–	–
4934.48	Kr I	–	[4 h]	Me
4934.45	Hf II	40	50	m
4934.242	Sc I	–	8	–
4934.15	Mn	25	5	–
4934.088	Th	4	2	–
4934.086	Ba II	400 h	400 h	–
4934.074	Er	18	–	–
4934.071	Pr	3	–	–
4934.065	Co	25	–	–
4934.023	Fe I	40	–	–
4934.000	Ni I	3	–	–
4933.852	Th	8	1	–
4933.845	Dy	2	–	–
4933.822	W	12	–	–
4933.740	Re	15 w	–	–
4933.732	Mo	12	4	–
4933.657	U	8	8	–
4933.643	Zr I	4	–	–
4933.627	Fe	2	70	–
4933.527	Ta	5 s	1	–
4933.497	Ir	2	–	–
4933.461	Mo	4	2	–
4933.38	Tb	2	–	Ed
4933 348	Fe	50	30	–
4933.333	Mo	15	3	–
4933 303	Sm II	25	–	–
4933.25	F II	–	[30]	Di
4933.24	A	–	[30]	Rt
4933.220	Cb	5 h	6 w	–
4933.102	Mo	30	15	–
4933.063	U	6	–	–
4932.879	Co I	5	–	–
4932.818	Eu	8	–	–
4932.809	Pr	2	–	–
4932.792	W	12	1 h	–
4932.24	As II	–	5	Ro
4932.168	Pr	4	–	–
4932 030	V I	15	12	–
4932.00	C I	–	40	Jn
4931.945	Yb	4	–	–
4931.808	Er	3	–	–
4931.79	Tb	8	–	Ed
4931.653	Cu II	–	25	Sh
4931.594	Ta	3 wh	1	–
4931.556	W	30	–	–
4931.483	Cu II	–	6	Sh
4931.149	Mo	20	4	–
4931.109	Cr	15	–	–
4931.00	Dy	2 h	–	Ed
4930.944	Ne I	–	[50]	Ps
4930.928	Sm	10	–	–
4930.924	Yt I	4	–	–
4930.866	Zr I	3	–	–
4930.729	Nd	5	–	–
4930 721	Ce	10	–	–
4930.708	Gd	80	–	–
4930.66	Br	–	[50]	Bl
4930.539	Ce	10	–	–
4930.38	Kr I	–	[4 h]	Me
4930.331	Fe I	25	–	–
4930.183	Cr	35	–	–
4930.002	Pd	3	–	–
4929.988	Th	10	–	–
4929.561	Sm II	40	–	–
4929.371	Pr	3	–	–
4929.35	Dy	3	–	Ed
4929 25	Ca I	2	–	Sd
4929.16	A I	–	[2]	Ms
4928 975	Cb	5	5	–
4928.919	Tb	3 h	–	–
4928.895	Ti I	2	–	–
4928.849	Er	2	–	–
4928.79	Br	–	[150]	Bl
4928.69	Tb	3	–	Ed
4928.447	U	20	1	–
4928.398	Pr	4	–	–
4928.38	Hf	2	5	–
4928.341	Ti I	100	4	–
4928.30	In II	–	[5]	Ps
4928.283	Co I	200 W	–	–
4928.235	Ne I	–	[70]	IMe
4928.226	Yt I	2	12	–
4928.005	Eu	5	–	–
4927.936	Ir	2	2	–
4927.875	Fe	20	–	–
4927.777	Th	5	–	–
4927.695	U	2	–	–
4927.53	Ra II	–	[100]	Rs
4927.447	Fe	50	6	–
4927.359	Er	2	–	–
4927.330	Dy	2	–	–
4927.16	P II	–	[50 l]	Gu
4927.055	Pr	3	–	–
4927.047	Mo	3	1	–
4926 97	Hf II	8	10	m
4926.966	Er	2	–	–
4926 907	Re	2	–	–
4926.821	Tb	3	–	–
4926.705	W	7	–	–
4926 56	Br	–	[10]	Bl
4926.442	U	3	1	–
4926 430	Mo	25	12	–
4926.390	Cu II	–	6	Sh
4926 385	Os	3	–	–
4926 193	Mo	25	12	–
4926.158	Ti I	20	–	–
4926.14	Hf	2 h	–	Me
4926.005	Ta	60	2	–
4925.789	Th	3	–	–
4925 652	V I	25	20	–
4925 630	Pr	10 w	–	–
4925.578	Ni I	100	–	–
4925.435	Er	2	–	–
4925 425	Th	4	–	–
4925 410	Ti I	25	–	–
4925.405	La	6	–	–
4925.321	Pr	5	–	–
4925 32	S II	–	[100]	Ig
4925.293	Fe I	1000 R	50 r	–
4925 25	Te	–	[15]	Bl
4925.17	Cl II	–	[15]	Ks
4925.018	Th	4	2	–
4924.980	Co I	4	–	–
4924.957	Ta	30	1	–
4924.934	In II	–	[80 h]	Ps
4924.867	Cb	3	2	–
4924 83	Cl II	–	[10]	Ks
4924.815	Pr	5	–	–
4924.783	Mo	20	8	–
4924.776	Fe I	100	–	S
4924.734	Eu	10	–	–
4924.644	U	6	8	–
4924.588	Pr	80	–	–
4924.565	W	12	–	–
4924.531	Nd	80	–	–
4924.50	O II	–	[60]	Mh
4924.431	Th	8	2	–
4924.418	Ir	2	–	–
4924.28	Cl II	–	[18]	Ks
4924.258	Ce	20	–	–
4924.255	Nd	2	–	–
4924.162	Pd	2	–	–
4924.094	Tb	4	–	–
4924.08	S II	–	[60]	Ig
4924.056	Sm	30	–	–
4924.043	Zn II	15	[30]	IHz
4924.04	Ce	2	–	Kn
4923.929	Re	150	–	–
4923.916	Fe II	30	50	–
4923.9	bh Mg	3	–	L
4923.83	Tm	30	–	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4923.813	Sm II	30	–	–
4923.720	Fe	5	100	–
4923.51	Gd	10	2	Ed
4923.471	Ta	60 W	1	–
4923.284	Cr	10	–	–
4923.161	Dy	6	2	–
4923.152	Xe I	–	[500]	IHu
4922.946	Th	10	–	–
4922.838	Sc I	4	5	–
4922.73	Ca	–	2	Ad
4922.64	Tb	2	–	Ed
4922.513	Rh I	10	–	–
4922.472	Sm II	30	–	–
4922.468	Nd	4	–	–
4922.455	Pr	2 w	–	–
4922.366	Re	2	–	–
4922.361	V I	5	4	–
4922.267	Cr	200	40	–
4922.235	Eu	2	–	–
4922.227	Dy	4	2	–
4922.14	Cl II	–	[20]	Ks
4921.929	He I	–	[50]	I
4921.918	Ce	8	–	–
4921.887	Yt I	10	30	–
4921.86	Si	8	2	Sy
4921.804	Os	6	–	–
4921.783	La II	500	400	–
4921.769	Ti I	100	5	–
4921.765	Pr	4	–	–
4921.70	Lu	3	8	Me
4921.610	Th	20	–	–
4921.514	Dy	4	–	–
4921.48	Xe II	–	[500]	Hu
4921.271	Ta	50	2	–
4921.27	Br I	–	[20]	Bl
4921.157	Nd	3	–	–
4921.074	Ru I	40	–	–
4921.042	A I	–	[80]	Ms
4921.00	Br I	–	[2]	Ks
4920.98	Se	–	[15]	Bt
4920.975	Hf	2	5	–
4920.971	La II	500	400	–
4920.945	Cr	50	–	–
4920.882	Ta	5	1	–
4920.783	Ce	15	–	–
4920 692	Nd	60	–	–
4920.505	Fe I	500	125	–
4920.48	S	–	[15]	Ms
4920.37	Sm II	125	–	–
4920 261	Co I	10	–	–
4920.108	Ta	150 W	3	–
4920.031	Cu II	–	3	Sh
4919.888	Ce	12 s	–	–
4919.882	Sm	2	–	–
4919.866	Ti I	80	3	–
4919.859	Pd I	12	–	–
4919.814	Th	50	20	–
4919 693	Rh I	10	–	–
4919.66	Xe II	–	[125]	Hu
4919.590	Pr	4	–	–
4919.460	Cr	6	–	–
4919.409	Ca	3	2 l	–
4919.21	Tb	2	–	Ed
4919.12	Te	–	[30]	Bl
4918 999	Fe I	300	50	S
4918.998	Ru	7	–	–
4918.985	V I	3	2	–
4918.984	Sm	125	–	–
4918.98	Al II	–	[20]	Sy
4918 876	Ta	4	–	–
4918.835	Rh I	5	–	–
4918.712	Ni I	40	–	–
4918.66	Gd	10	–	Ed
4918.373	Cu II	–	10	Sh
4918.363	Ni I	200 W	1	–
4918.220	Dy	4	–	–
4918.155	Mo	4	–	–
4918.10	Tb	2	–	Ed
4917.85	A I	–	[5]	Ms
4917.84	Re	4	–	Me
4917.72	Cl II	–	[125]	Ks
4917.495	Mn	12	–	–
4917.491	Eu	3	–	–
4917.410	Sm II	15 d	–	–
4917 385	Nd	4	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4917.354	Ru I	4	–	–
4917.29	Se II	–	[8]	Bt
4917.250	Fe	3 h	–	–
4917.230	Ta	10 s	1	–
4917.180	Dy	3	–	–
4917.15	S II	–	[30]	Ig
4917.053	Er	3	–	–
4917.04	Yb	–	4 h	Me
4917 03	I I	–	[100]	Mu
4917.001	Pr	2	–	–
4916.869	U	2	–	–
4916 85	Tb	3	–	Ed
4916.645	U	2	–	–
4916.618	La	3	–	–
4916.602	Gd	30	–	–
4916.6	Bi II	–	[10]	Ml
4916.507	Xe I	–	[500]	IMe
4916.420	Dy	2	–	–
4916.390	Cb	10	2	–
4916.258	V I	5	4	–
4916.190	Mo	4	2	–
4916.184	W	20	–	–
4916.036	Hg I	–	[50]	Cn
4915.94	Kr II	–	[100 hl]	Me
4915.90	Tb	6	–	Ed
4915.836	Gd	40	–	–
4915.821	Cu II	–	5	Sh
4915.668	Ce	15	–	–
4915 605	Fe	2 h	–	–
4915.5	Rn	–	[35]	Wa
4915.490	U	4	4	–
4915.418	Pr	4	–	–
4915.321	Ce	18	–	–
4915.26	Hf	5	3	m
4915.236	Ti I	30	10	–
4915.085	In II	–	[30]	Ps
4915.025	Re	30	–	–
4914.955	Ta	50	1	–
4914.940	Ce	8	–	–
4914.90	N I	–	[20]	Du
4914.735	Dy	3	–	–
4914.709	Pr	4	–	–
4914.62	Kr II	–	[2 h]	Me
4914 418	Pr	3	–	–
4914.385	Nd	15	–	–
4914.337	W	12	1	–
4914 32	Cl II	–	[12]	Ks
4914.32	A II	–	[2]	Rt
4914.309	Sm II	25	–	–
4914.200	Ru	5	–	–
4914.2	Sb II	–	4	Dv
4914 122	Th	5	–	–
4914 086	Ce	5	–	–
4914.029	Pr	60	–	–
4913.970	Ni I	200	–	–
4913.825	Ir	2	–	–
4913.622	Ti I	125	15	–
4913.520	Rh I	6	–	–
4913.423	Ce	4	–	–
4913.422	Nd	60	–	–
4913 36	Ir	2	–	Me
4913.265	Ru I	5	–	–
4913.259	Sm II	150	–	–
4913 165	U	8	5	–
4913.127	Pr	3	–	–
4913.087	V	2	1	–
4912.909	Cu II	–	6	Sh
4912.7	Pb II	–	[3]	Ea
4912 629	Pr	10	–	–
4912.605	Os	80	–	–
4912.529	Th	12	2	–
4912.52	Dy	4	–	Ed
4912.391	Co I	5	–	–
4912.369	Cu II	–	5	–
4912 367	Yb	5	–	–
4912.191	W	5	–	–
4912.157	U	1	2	–
4912.05	Te	–	[15]	Bl
4912.034	Er	2	–	–
4912.030	Ni I	100	–	–
4912.014	Yt	2 h	–	–
4911.96	Tb	2	–	Ed
4911 800	Fe I	10	–	–
4911.668	U	6	5	–
4911 664	Zn II	15	[25]	IHz

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4911.593	Ru I	10	–	–
4911.468	Pr	2	–	–
4911.441	Th	4	–	–
4911.406	Eu	30	6	–
4911.379	Ta	30	1	–
4911.337	La II	4	20	–
4911.185	Ti II	12	100	–
4911.127	Th	8	–	–
4910.948	Cb	15	10	–
4910.93	Hf	3	–	Me
4910.778	Zr I	3	–	–
4910 741	W	30	–	–
4910.570	Fe I	15	–	–
4910.55	Te	–	[50]	Bl
4910.463	Os	8	–	–
4810.406	Sm	150	–	–
4910.39	Kr I	–	[2]	Me
4910.339	U	15	1	–
4910.328	Fe I	15	–	–
4910.28	Br	–	[2]	Bl
4910.236	Ru	6	–	–
4910.124	Gd	25	–	–
4910 08	Tb	3	–	Ed
4910.060	Nd	8	–	–
4910.046	Hf	3	2	–
4910.026	Fe I	100	–	–
4909.80	Dy	2	–	Ed
4909.770	Sc I	4	10	–
4909.726	Cu II	–	25	Sh
4909.390	Fe I	50	–	–
4909.380	U	2	–	–
4909.186	Mo	30	15	–
4909.107	Ti I	12	–	–
4909.032	Cu II	–	2	Sh
4908.998	Yt I	4	15	–
4908.99	Dy	2	–	Ed
4908.890	W	6	–	–
4908.722	Cb	3	2	–
4908.620	Rh	5	–	–
4908.572	Re	20	–	–
4908.52	A I	–	[10]	Ms
4908.484	Co	3	–	–
4908.423	In II	–	[5]	Ps
4908.34	Kr II	–	[2 hl]	Me
4908.316	In II	–	[10]	Ps
4908.224	Mo	5 h	–	–
4908.121	Ce	6	–	–
4908.04	Tb	4	–	Ed
4907.98	Bi II	–	12 wh	Om
4907.888	Ru I	20	–	–
4907.793	Nd	3	–	–
4907.789	Sm	2	–	–
4907.745	Fe I	25	–	–
4907.730	Ta	50	1	–
4907.50	Si	3	2	Sy
4907.433	Dy	2	–	–
4907.426	Mo	30	20	–
4907.34	Hf II	2	4	Me
4907.276	Nd	3	–	–
4907.173	Eu	20	6	–
4907.17	Cl II	–	[15]	Ks
4907.149	In II	–	[50]	Ps
4907.125	Co I	2	–	–
4906.99	Ho	2	2	Ex
4906.983	Pr	50	–	–
4906.973	In II	–	[10]	Ps
4906.911	Mo	4	–	–
4906.80	O II	–	[50]	Mh
4906.683	Sc I	3	4	–
4906.548	Cu II	–	6	Sh
4906.33	Hf	2 h	2 h	Me
4906.3	Tl I	5	–	Fl
4906.233	Dy	5	–	–
4906.205	Re	15	–	–
4906.108	Yt I	6	20	–
4906.023	Er	18	–	–
4905.790	Sm	2	–	–
4905.69	Tb	3	–	Ed
4905.638	Ir	3	2	–
4905.487	W	12	–	–
4905.215	Er	2	–	–
4905.20	Xe	–	[2 h]	Hu
4905.182	Fe I	10	–	–
4905 126	La I	8	2	–
4905 083	Zr I	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4905.050	Cr	30	–	–
4905.022	Ru I	12	–	–
4904.978	Sm	60	–	–
4904.880	Ce	12	–	–
4904.88	Lu	60	5	Me
4904.869	V	4	3	–
4904.76	Cl II	–	[125]	Ks
4904.75	A II	–	[30]	Rt
4904.7	bh V	2	–	L
4904.661	Cl II	–	[18]	Mu
4904.591	Ta	80 W	2	–
4904.530	Cb	10	8	–
4904.52	Hf II	12	25	–
4904.444	Ir	2	–	–
4904.442	V I	8	7	–
4904.432	Er	2	–	–
4904.43	Te	–	[100]	Bl
4904.43	La II	–	2 h	Me
4904.413	Ni I	400 W	1	–
4904.412	Pr	3	–	–
4904.387	Mo	10	4	–
4904.339	V I	3	10	–
4904.289	V I	8	7	–
4904.173	Co I	80	–	–
4903.84	Tb	2	–	Ed
4903 811	Mo	80	30	–
4903.744	Re	10 w	–	–
4903.72	Yb	–	8 h	Me
4903.65	Dy	2	–	Ed
4903.619	Er	5	–	–
4903.367	Pr	5	–	–
4903.323	Ir	3	–	–
4903.317	Fe I	500	2	S
4903.24	Ra I	–	[10]	Rs
4903.239	Cr I	125	–	–
4903.053	Ru I	60	–	–
4903.04	Hf	2	3	Me
4902.968	W	12	3	–
4902.898	Ba I	15	3	Sz
4902.776	Th	4	–	–
4902.77	Al II	–	[30]	Sy
4902.5	bh Zr	8	–	L
4902.450	In II	–	[5]	Ps
4902.44	S	–	[15]	Bl
4902.324	W	15	–	–
4902.27	Au	8	5	–
4902.180	Os	2	–	–
4902.041	Nd	15	–	–
4901.906	Dy	2	–	–
4901.903	Sm II	40 d	–	–
4901.862	La I	50	–	–
4901.862	Ru I	5	–	–
4901 850	Nd	35	–	–
4901.85	B	–	2	Sv
4901.676	Ce	12	–	–
4901.620	Er	2	–	–
4901.545	Nd	30	–	–
4901.483	Pr	5	–	–
4901.412	Cu II	–	7	Sh
4901.26	A	–	[2]	Ms
4901.14	Te	–	[30]	Bl
4901 066	Ru I	7	–	–
4901.01	Sm II	10 d	–	–
4900.962	Ti	4	–	–
4900.88	Mn	10 d	5 h	–
4900.838	Eu	25	2	–
4900.792	Cb	5	5	–
4900.737	Sm II	100	–	–
4900.718	Mn	8	–	–
4900.625	Ti I	7	–	–
4900.624	V I	20	15	–
4900.610	Tb	2	–	–
4900.48	Si	2	–	Sy
4900.456	Mo	–	5	–
4900.436	U	5	4	–
4900.121	Yt II	20	300	–
4900.108	Er	30	20	–
4900.10	Dy	3	–	Ed
4899.971	Ba II	30 h	200 l	Sz
4899.924	La II	400	200	–
4899.921	Pr	4	–	–
4899.912	Ti I	150	20	–
4899 901	Ce	30	–	–
4899.8	bh Zr	8	–	L
4899 64	Al II	–	[15]	Sy
4899.580	Mo	25	25	–
4899.522	Co I	400 W	–	–
4899.462	Pr	2	–	–
4899.294	U	25	25	–
4899.252	Ru I	12	–	–
4899.248	Dy	4	–	–
4899.215	Os	60	–	–
4899.151	Th	3	2	–
4899.013	Ne I	–	[50]	Ps
4898.812	Th	10	–	–
4898.76	Al II	–	[30]	Sy
4898.616	U	4	3	–
4898.52	Al II	–	[8]	Sy
4898.499	Cb	3	1	–
4898.461	Th	12	–	–
4898.207	Ce	4	–	–
4898.161	Er	3 s	–	–
4897.961	Tb	2	–	–
4897 924	Ne I	–	[70]	Ps
4897.886	Pr	3	–	–
4897.88	Rh I	5	–	Me
4897.827	Sm	3	–	–
4897.56	Se II	–	[8]	Bl
4897.35	Tb	4	–	Ed
4897.285	Pr	3	–	–
4897.2	Kr	–	[3]	Me
4897.186	Co	15	–	–
4897.109	Dy	3	–	–
4897.078	Ce	10	–	–
4896 958	Er	2	–	–
4896.934	Nd	60	–	–
4896 9	Hg I	–	[5]	Wd
4896.845	Tb	2	–	–
4896.784	W	3	–	–
4896.78	I I	–	[35]	Mu
4896.77	Cl II	–	[200]	Ks
4896.32	Hf	4	4	Me
4896.188	Tb	2	–	–
4896.173	Re	2	–	–
4896.135	Pr	25	–	–
4895.858	Dy	5	–	–
4895.663	Th	3	–	–
4895.6	Pb II	–	[2]	Ea
4895.597	Ru I	12	–	–
4895.585	Cb	5	1	–
4895.320	Ru I	10	–	–
4895.268	Os	8	–	–
4895.0	Sb II	–	6	Dv
4894.985	Yb	2	10	–
4894.954	Th	10	–	–
4894.94	Te	–	[150]	Bl
4894.93	Tb	2	–	Ed
4894 913	Pr	3	–	–
4894 774	Ce	5	–	–
4894.692	A I	–	[150]	Ms
4894.68	Eu	10 W	2	Kn
4894.61	Yb	20	–	–
4894.359	Cr	30	–	–
4894.352	Tb	3	–	–
4894 320	Gd	200	4	–
4894.300	Sm II	60	–	–
4894 232	La	4	–	–
4894.210	V I	9	8	–
4894.172	Zr I	3	–	–
4893.97	I	–	[8]	Bl
4893.968	Ce	10	–	–
4893.765	Sm	3	–	–
4893.684	Dy	4	–	–
4893 58	Te	–	[70]	Bl
4893.48	Yb	6	–	Me
4893.451	Yt I	8	2	–
4893.433	Ti	7	–	–
4893.337	Sm II	150	–	–
4893 3	bh Sc	4	–	Me
4893 225	Ce	2	–	–
4893.221	Nd	10 d	–	–
4893.121	Zr I	5	–	–
4893 061	Ti I	10	–	–
4893.0	bh Sc	3	–	Me
4892.941	Pr	2 h	–	–
4892.858	Ce	8	–	–
4892.841	Ru I	5	–	–
4892.663	Sr I	15	–	–
4892.615	U	3	3	–
4892 60	Dy	3	–	Ed
4892 585	Pr	3	–	–
4892.503	Cb	5	2	–
4892.438	W	25	–	–
4892.228	Ne I	–	[10]	Ps
4892.090	Ne I	–	[500]	IMe
4892 053	Pr	10 w	–	–
4892.01	Tb	3	–	Ed
4891.980	Sr I	40	–	ISn
4891.940	Sm	40	–	–
4891.828	Ti I	12	–	–
4891.67	Er	3	–	–
4891.600	V	12	10	–
4891.54	I	–	[15]	Bl
4891.498	Fe I	70	15	–
4891.466	Sm	2	–	–
4891.43	La II	–	10	Me
4891.11	Tl I	5	–	Fl
4891.1	Rn	–	[35]	Wa
4891.063	Nd	40	–	–
4891.02	Eu	2	–	Kn
4890.893	W	12	–	–
4890 85	O II	–	[30]	Mh
4890.769	Fe I	100	15	–
4890 761	Sm	2	–	–
4890.753	Cb	15	8	–
4890.701	Nd	30	–	–
4890.440	Th	3	–	–
4890.335	Sc	3	1 h	–
4890.329	Sm	3	–	–
4890.288	W	15	–	–
4890 27	Hg I	–	[15 l]	Wd
4890.264	Pr	15	–	–
4890.102	Dy	8	2	–
4890.09	Xe II	–	[150 h]	Hu
4889.96	Ca	–	2 l	Ad
4889 89	Hf	2 h	1 h	Me
4889.831	Ru	4	–	–
4889 690	Cu II	–	10	Sh
4889.663	Pr	5	–	–
4889.587	Ce	20	–	–
4889.557	Cb	3	2	–
4889.325	Dy	5	3	–
4889 216	Mo	25	5	–
4889.203	Gd	60	–	–
4889.17	Re I	2000 w	–	–
4889.106	Nd	8	–	–
4889.06	A	–	[3]	Rt
4889.04	Nd	–	3	Kn
4889 009	Fe I	2 wh	150 h	–
4888.874	Er	3	–	–
4888.74	As II	–	50	Ro
4888 651	Fe I	2	1	–
4888 607	Ru	6	–	–
4888.530	Cr I	100	–	–
4888.52	P	–	[30 d]	Gu
4888 509	Ir	2 wh	–	–
4888.389	W	20	–	–
4888.365	Ne I	–	[5]	Ps
4888.28	Ag	9	20	Kp
4888.14	Lu	2 h	–	Me
4888.087	Dy	5	2	–
4887.947	A I	–	[200]	IMe
4887.92	Rh	2	–	Me
4887.715	Cr	15	–	–
4887.617	La I	2	–	–
4887.45	Tb	2	–	Ed
4887.333	Nd	2	–	–
4887.30	Xe II	–	[150 h]	Hu
4887.158	Mo	20	10	–
4887.013	Cr	125	30	–
4886.992	Ni I	30	–	–
4886.990	Co I	5	–	–
4886.99	Se I	–	[70]	Rd
4886.976	Pr	3	–	–
4886.970	Sm	3	–	–
4886.912	W	50	10	–
4886.822	La	2	–	–
4886.804	V I	9	8	–
4886.725	Ni I	2	–	–
4886.656	Yt I	4	2 h	–
4886.613	Sm	2	–	–
4886.473	Mo	25	15	–
4886.43	Tb	2	–	Ed
4886 346	Fe I	5	–	–
4886 332	U	5	6	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4886.30	N	–	[5]	Du
4886.299	Er	15	–	–
4886.291	Yt I	4	8	–
4886 29	A I	–	[30]	Ms
4886.170	Dy	2	–	–
4886.050	Sm	2	–	–
4886.045	Pr	20	1	–
4885.957	Cr	15	–	–
4885.776	Cr I	60	–	–
4885.775	Cb	3	1	–
4885.74	Hf II	2	4	m
4885.647	V I	7	6	–
4885.640	Mo	5	3	–
4885.63	S II	–	[30]	Hn
4885.627	Rb II	–	10	Rr
4885.443	Tb	2	–	–
4885.436	Fe I	2	–	–
4885.324	Mo	5	4	–
4885.22	Te	–	[100]	Bl
4885.19	Xe	–	[2 h]	Hu
4885.126	U	18	–	–
4885.085	Ti I	150	25	–
4885.084	Ne I	–	[100]	Ps
4885.008	Nd	8	–	–
4885 006	Ru	7	–	–
4884.949	Mo	5	5	–
4884.949	Cr I	25	–	–
4884.915	Ne I	–	[1000]	IMe
4884.82	I I, II	–	[25]	Db
4884.75	Tb	2	–	Ed
4884.546	Dy	3	–	–
4884.455	Pr	12	–	–
4884.332	Mo	10	4	–
4884.315	Pr	6	–	–
4884.15	Xe II	–	[50 wh]	Hu
4884.143	Dy	2	–	–
4884.13	I II	–	[15]	Mu
4884.102	Zr I	3	–	–
4884.060	V	–	6 h	–
4884.055	Eu	15	3	–
4883.983	Sm	80	–	–
4883.950	Ta	150	3	–
4883.86	A I	–	[5]	Ms
4883.815	Nd	60	–	–
4883.779	Sm	60	–	–
4883.778	U	10	8	–
4883.693	Yt II	20	300	–
4883.673	Er	30 h	–	–
4883.65	P	–	[30]	Gu
4883.598	Zr I	6	–	–
4883.53	Xe II	–	[300 h]	Hu
4883.51	Si	4	2	Sy
4883.420	V	1	20 h	–
4883.403	Ne I	–	[15]	Ps
4883.27	A I	–	[30]	Ms
4883.265	Hf II	–	4	–
4883.205	Gd	100	–	–
4883.2	Be	–	2	Sx
4883 1	Hg I	–	[8]	Wd
4882.885	Nd	6	–	–
4882.75	Tb	2	–	Ed
4882.718	Co I	10	–	–
4882.462	Ce	30	–	–
4882.456	Th	5	20 wh	–
4882.40	Lu	3 h	–	Me
4882.346	Ti I	25	1	–
4882.285	Os	12	–	–
4882.28	Ra I	–	[6]	Rs
4882.28	Tb	2	–	Ed
4882.25	A	–	[10]	Rt
4882.245	Pr	20	–	–
4882.18	I	–	[15]	Bl
4882.165	V I	3	2	–
4882.04	Cd II	–	10	Tk
4881.979	Dy	2	–	–
4881.940	Gd	100	20	–
4881.937	Ta	30	1	–
4881.867	Mo	5	3	–
4881.79	N	–	[4]	Du
4881.724	Fe I	3	–	–
4881.709	Nd	5	–	–
4881.697	Cb	2	1	–
4881.572	Mn	10	–	–
4881.557	V I	40 h	30 h	–
4881.540	Ce	6	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4881.530	Ta	2	–	–
4881.449	Yt II	2	2	–
4881.376	Gd	50	–	–
4881 3	Li II	–	[3]	Wr
4881.241	Zr II	4	–	–
4881.160	Tb	15	2	–
4881.08	Gd	60	–	Ed
4881.054	Er	2 w	–	–
4880.957	Pr	4	–	–
4880.912	Ti I	12	–	–
4880.791	Mo	10	10	–
4880.718	Cb	5	1	–
4880.703	W	10	–	–
4880.565	V I	20	15	–
4880.452	Nd	2	–	–
4880 20	La II	–	10 h	Me
4880.167	Dy	5	–	–
4880 036	Cr	25	–	–
4880.01	Sb II	–	[2]	Lg
4879.902	Tb	3	–	–
4879.90	A	–	[300]	Rt
4879.896	Er	4	1	–
4879.792	Nd	8	–	–
4879.75	Sm	3	–	–
4879.695	W	10	–	–
4879.645	Yt I	3	2 h	–
4879.533	Pt	20	–	–
4879.522	Pr	5	–	–
4879.484	Eu	3 W	–	–
4879.35	Sm II	5	–	–
4879.347	Th	5	–	–
4879.25	Ir I	2	–	Me
4879.21	Tm	10	–	Me
4879.167	Eu	3	3	–
4879.158	Th	3	–	–
4879.144	Ta	25	1	–
4879.121	Pr	30 w	–	–
4879.0	Al	–	5 W	Gn
4878.99	Sm	2	–	–
4878.848	La I	20	30	–
4878.8	In I	3	2	Ps
4878.731	Th	8	–	–
4878.518	Os	18	–	–
4878 510	U	8	–	–
4878 37	A	–	[2]	Ms
4878.367	Mo	25	10	–
4878 33	Er	4	1	–
4878 283	W	30	–	–
4878.218	Fe I	80	4	S
4878.154	Sc I	3	1	–
4878.15	Hf	3	3	Me
4878.132	Ca I	100	10	IWg
4878 04	Tb	2	–	Ed
4878 012	Th	3	–	–
4878 002	U	5	5	–
4877 882	Ru	7	–	–
4877.823	Pr	50 w	5 w	–
4877.817	Th	6	–	–
4877.650	Ba I	30 wh	8	Sz
4877.58	Hf	20	2	Me
4877.578	Sm II	10	–	–
4877.408	Ru	7	–	–
4877 34	Os	3	–	Me
4877.24	Sb II	–	[60]	Lg
4877 22	Sn II	–	[7]	Mc
4877.19	Tb	2	–	Ed
4877 010	Th	12	–	–
4876.98	P	–	[50 l]	Gu
4876.938	Re	2	–	–
4876.772	Tb	2	–	–
4876 709	W	7	–	–
4876.50	Xe II	–	[200 hl]	Hu
4876.492	Th	3	–	–
4876.366	Cr II	2	15	–
4876.325	Sr	200	60	–
4876.260	A I	–	[200]	IMe
4876.257	Pr	20	–	–
4876.124	Tb	3	–	–
4876.112	Nd	3	–	–
4876.1	bh Zr	8	–	L
4876.06	Sr I	6	2	Fl
4875.973	Gd	100	10	–
4875.924	Dy	3	–	–
4875.837	Nd	6	–	–
4875.718	Nd	6	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4875.616	Sm	10 d	–	–
4875.576	Tb	20	2	–
4875.53	Te	–	[15]	Bl
4875 525	Cr	12	–	–
4875.478	V I	40 h	20 h	–
4875.459	Dy	3	–	–
4875.454	W	7	–	–
4875.430	Pd	25	2	–
4875 380	W	5	–	–
4875.114	Mo	4	4	–
4875.025	Ru	12	–	–
4875.016	Pr	9	–	–
4974 920	U	2 h	1 h	–
4874.844	Re	5	–	–
4874.812	Pr	4	–	–
4874 809	Ni I	25	–	–
4874.651	Cr	20	–	–
4874 60	Tb	2	–	Ed
4874 378	Sm	4	–	–
4874 367	Th	6	–	–
4874.362	Nd	2	–	–
4874.350	Ce	8	–	–
4874.348	U	6	–	–
4874.326	Ru I	10	–	–
4874.18	Ag	30	–	Kp
4874.111	Tb	4 w	–	–
4873.854	Sm	8	–	–
4873.779	U	–	2 h	–
4873.688	Pr	15 r	–	–
4873.437	Ni I	200	2 h	–
4873.350	Gd	200	2	–
4873 291	Cu II	–	5	Sh
4873.199	Sm	30	–	–
4873.166	Dy	3	–	–
4872.958	Pr	10 w	–	–
4872.94	Hf	6	2	Me
4872.926	Th	20	–	–
4872.858	Ce	4	–	–
4872.73	A I	–	[10]	Ms
4872.493	Sr I	25	–	ISn
4872.479	Er	6	1	–
4872.33	P	–	[50]	Gu
4872 146	Fe I	100	30	–
4872.099	Er	25	3	–
4872.00	Tb	3	–	Ed
4871.961	Ce	4	–	–
4871.703	Ta	50 w	1	–
4871.524	Gd	100	–	–
4871.48	O II	–	[40]	Mh
4871.42	Tb	2	–	Ed
4871.325	Fe I	200	100	–
4871.325	Sm	2	–	–
4871.257	V I	20	15	–
4871.16	Yb	–	8 h	Me
4870.845	Ni I	100	–	–
4870.832	Pr	6	–	–
4870.796	Cr	150	25	–
4870.557	La I	8	–	–
4870.44	Er	2	–	Ed
4870.395	Pr	5	–	–
4870.19	Rh	2	–	Me
4870.158	Ce	2	–	–
4870.14	Kr II	–	[20 whs]	Me
4870.137	Ti I	100	18	–
4870 108	Pr	5	–	–
4870.049	Gd	200	10	–
4870.024	Cs II	–	[30]	Sv
4869 982	Sm II	125	–	–
4869.785	Ru	7	–	–
4869.703	Re	5 Wl	–	–
4869.70	K I	10	–	Fl
4869.62	Dy	3	–	Ed
4869.518	Tb	5	–	–
4869.385	Co I	10	–	–
4869.333	Pr	10	–	–
4869.279	Nd	4	–	–
4869.198	Mo	25	20	–
4869.19	Sr I	3 h	–	–
4869.153	Ru I	125	–	–
4868.987	Cb	10	10	–
4868.93	Tb	2	–	Ed
4868.907	La	4	–	–
4868.892	Mo	3	2	–
4868.880	Th	5	–	–
4868 856	U	8	2 h	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4868.729	Ru	7	–	–
4868.713	Mo	3	2	–
4868.700	Sr I	20	–	ISn
4868.635	Ce	8	–	–
4868.329	U	–	5 h	–
4868.274	Th	5	1	–
4868.268	Ne I	–	[70]	Ps
4868.263	Ti I	100	8	I
4868.234	Pr	4	–	–
4868.22	Ho	2	–	Ex
4868 058	Dy	5	2	–
4868.004	Mo	50	40	–
4867.986	V	3	2	–
4867.878	Co I	800 W	100	–
4867.84	Tb	3	–	Ed
4867 84	A I	–	[10]	Ms
4867.839	Nd	6	–	–
4867.75	Br	–	[10]	Bl
4867.602	Eu	30	3	–
4867 59	A II	–	[5]	Rt
4867 391	Pr	15	–	–
4867.375	La I	2 h	–	–
4867.177	Os	8	–	–
4867.08	I I	–	[3]	Db
4867.010	Ne I	–	[70]	Ps
4866.853	Cb	15	1	–
4866.75	Rh	2	–	Me
4866.735	Nd	35	–	–
4866.70	Br	–	[20]	Bl
4866.581	Sm	2	–	–
4866.52	Br	–	[4]	Bl
4866.476	Ne I	–	[80]	IMe
4866.42	Tb	3	–	Ed
4866.408	Gd	100	–	–
4866.398	Eu	2	–	–
4866.267	Ni I	300 w	1	–
4866.22	Te	–	[800]	Bl
4866.119	Pr	3	–	–
4866.060	Zr I	10	–	–
4865.91	A I	–	[10]	Ms
4865.823	Mo	8	8	–
4865.783	Rh I	10	–	–
4865.68	Dy	2 h	–	Ed
4865.620	Ti II	–	3	–
4865.598	Os	80	1	–
4865.505	Ne I	–	[100]	IMe
4865.43	Hf II	5	10	m
4865.397	Sm II	9	–	–
4865.36	Lu	4	20	Me
4865.237	Pr	40	2	–
4865.13	Te	–	[50]	Bl
4865.088	Ru	12	–	–
4865.042	Gd	400	10	–
4864.95	O II	–	[30]	Fl
4864.92	Ga	–	4	Kl
4864 91	Kr I	–	[2 h]	Me
4864 743	Mo	3	3	–
4864.737	V I	30 wh	25 wh	–
4864.664	Ta	20 h	2	–
4864 534	Er	3	1 h	–
4864.51	I II	–	[25]	Mu
4864.38	P II	–	[50 l]	Gu
4864.37	Tb	2	–	Ed
4864.352	Ta	5	–	–
4864.351	Ne I	–	[30]	Ps
4864.312	Cr II	3	12	–
4864.282	Ni I	20	–	–
4864.24	Cs	–	[10]	Bs
4864.229	Sm II	15 d	–	–
4864.201	Nd	2	–	–
4864.182	Ti I	18	1	–
4864 10	Te	–	[800]	Bl
4864.009	Os	6	–	–
4863.931	Ni I	30	–	–
4863.868	Pr	15	–	–
4863.81	Tb	4	–	m
4863.655	Fe I	2	–	–
4863 61	Er	2	–	m
4863.61	K I	6	–	Fl
4863.560	Nd	2 h	–	–
4863.461	Co I	5	–	–
4863.27	Hf	20	3	Me
4863 259	Ce	10	–	–
4863 182	Th	20	10	–
4863.126	Pr	4	–	–
4863.111	Ru I	10	–	–
4863.107	Yt	2	–	–
4863.1	bh Zr	12	–	L
4863.083	W	12	–	–
4863.079	Ne I	–	[100]	IMe
4862.83	P	–	[15]	Gu
4862.728	Pr	4	–	–
4862.609	V I	15	12	–
4862.608	Gd	100	2	–
4862.54	Xe II	–	[400 hl]	Hu
4862.527	Ta	15	–	–
4862.393	Pt	3	–	–
4862.310	Pr	3	–	–
4862.31	I I	–	[700]	Ke
4862.27	Ra I	–	[4]	Rs
4862.13	I I, II	–	[25]	Bl
4862.1	Kr	–	[2 h]	Me
4862.08	Sm	3	–	–
4862.054	Mn	40	5	–
4862.00	Dy	2	–	Ed
4861.965	Pr	5	–	–
4861.867	Ru	15	–	–
4861.842	Cr	125	8	–
4861.84	Kr I	–	[2 h]	Me
4861.802	Gd	100	–	–
4861.771	Nd	2	–	–
4861.732	Ce	10	–	–
4861.589	Er	5	1	–
4861.49	Hf	3	2	Me
4861.378	Rh	4	–	–
4861.327	H	–	[500]	m
4861.215	Th	8	–	–
4861 21	Tb	2	–	Ed
4861.205	Cr I	80	–	–
4861.050	Sm	4	–	–
4861.043	Ta	3	1	–
4861.015	U	10	10	–
4860.93	O II	–	[20]	Mh
4860 908	La II	100	100	–
4860.893	W	10	–	–
4860 86	Eu	12 W	–	Kn
4860.755	Mo	10	8	–
4860.697	Sm	2	–	–
4860.67	Dy	3	–	Ed
4860.556	Mo	5	4	–
4860.443	Ru	6	–	–
4860 35	N II	–	[5]	Fl
4860.162	Ru	4	–	–
4860.05	Dy	2 h	–	Ed
4860 050	Mo	25	20	–
4860.04	Br	–	[12]	Ks
4859 953	Pr	10	–	–
4859.88	Tb	2	–	Ed
4859 852	Sm	5	–	–
4859.847	Yt I	50	5	–
4859.750	U	8	8	–
4859.748	Fe I	150	40	S
4859.604	Ne I	–	[15]	Ps
4859.592	Nd	10	–	–
4859.568	Sm II	80	–	–
4859.515	Eu	2	–	–
4859.480	Ce	15	–	–
4859.471	Os	3	–	–
4859.44	A	–	[5]	Ms
4859.41	Ra II	–	[100]	Rs
4859.37	F II	–	[50]	Di
4859.34	He II	–	[7]	Ps
4859.31	Ca	–	3 h	–
4859 237	Hf	30	5	–
4859.232	Gd	50	–	–
4859.18	La II	–	5 h	Me
4859.119	V	7	6	–
4859.06	Dy	2 h	–	Ed
4859.038	Pr	40 w	–	–
4859.030	Nd	60	60	–
4858 892	Tb	4	–	–
4858.75	Lu	2	8	Me
4858 716	Ce	6	–	–
4858.606	W	15	–	–
4858.585	Pr	9	–	–
4858.470	Os	2	–	–
4858.468	Er	8	3	–
4858.414	Hf	15	4	–
4858.306	Th	10	2	–
4858.30	Sn	–	5	Ar
4858.222	Mo	20	20	–
4858.2	bh V	2	–	L
4858.1	bh Sc	30	–	Me
4858.085	U	15	15	–
4858.081	Sc	5	1 h	–
4858 001	Ir	2	–	–
4858.000	Ru	4	–	–
4857 91	Dy	2 h	–	Ed
4857.8	bh Sc	20	–	Me
4857.425	Er	10	–	–
4857.382	Ni I	100	–	–
4857.365	Pr	15	–	–
4857.31	Dy	2 h	–	Ed
4857.291	Cr I	25	–	–
4857 20	Kr II	–	[150]	Me
4857.165	Sm	2	–	–
4857 15	Re	6	–	Me
4857.04	Cl II	–	[10]	Ks
4856.76	O II	–	[20]	Mh
4856.738	Gd	80	–	–
4856 714	Yt I	6	6	–
4856 709	Er	12	–	–
4856 675	U	10	–	–
4856.57	Ra I	–	[100]	Rs
4856 49	O II	–	[15]	Fl
4856.240	In II	–	[30]	Ps
4856 238	Dy	5	2	–
4856.2	Rn	–	[35]	Wa
4856.193	Gd	80	–	–
4856 080	Pr	9	–	–
4856.03	K I	6	–	Fl
4856 012	Ti I	100	10	I
4855.72	Hg II	–	[100]	Ps
4855.686	Fe I	8	1	–
4855.581	Dy	2	–	–
4855.414	Ni I	400 w	1	–
4855 361	Rb II	–	20	Rr
4855 322	Pr	6	–	–
4855.318	Nd	10	–	–
4855.146	Cr I	20	–	–
4855.045	Sr I	20	–	ISn
4855 005	Ce	5	–	–
4854.966	Cu II	–	10	Sh
4854 949	La I	15	–	–
4854.940	Os	3	–	–
4854.866	Yt II	100	150	–
4854 857	Er	40 s	–	–
4854.813	Tb	4	–	–
4854 810	Mn	30	5	–
4854.719	Nd	8	–	–
4854 69	P	–	[70]	Gu
4854 604	Mn	15	5	–
4854 564	Ru I	10	–	–
4854.469	Mo	3	3	–
4854.425	Er	2	1	–
4854 375	Sm II	125	–	–
4854 246	Yt I	3	2	–
4854 090	W	30	–	–
4853.928	Pt I	15	–	–
4853 845	W	10	–	–
4853 77	Xe II	–	[30]	Hu
4853 684	Pr	20	–	–
4853 611	Ce	6	–	–
4853 504	Ru	6	–	–
4853 336	Nd	10	–	–
4853.19	I II	–	[15]	Bl
4853 138	Tb	2	–	–
4853.117	Er	7	–	–
4852 865	Th	5	–	–
4852 72	Cl I	–	[8]	Ks
4852.705	Ce	5	–	–
4852.692	Yt I	30	15	–
4852.684	Ta	10	2	–
4852 681	Sc I	5	6	–
4852 679	Er	45	–	–
4852.655	Ne I	–	[100]	IMe
4852.619	Ce	5	–	–
4852.61	Kr II	–	[2]	Me
4852 598	Re	3 wh	–	–
4852 560	Ni I	150	–	–
4852 527	Dy	2	–	–
4852.166	Ta	80	2	–
4852.16	Ca	–	2 h	Ad
4852 03	Eu	5	–	Kn
4851 934	Ru	5	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4851.890	Cb	3	1	–
4851.879	Os	8	–	–
4851.700	Mo	15	15	–
4851.635	Er	6	–	–
4851.634	Rh	80	30	–
4851.583	Cs	–	[8]	Sv
4851.525	Sm	4	–	–
4851.501	Ne I	–	[60]	Ps
4851.485	V I	40	30	–
4851.481	Pr	9	–	–
4851.476	Dy	4 h	–	–
4851.465	Cr	35	–	–
4851.382	Ir	2	–	–
4851.363	Zr I	15	–	–
4851.248	Cu II	–	5	Sh
4851.246	Eu	2	–	–
4851.15	Yb	10	10	–
4851.10	Mg II	5	–	Fl
4851.05	I	–	[8]	Bl
4850.84	Ba II	–	[5]	Rs
4850.817	La I	20	3	–
4850.666	Pr	10	–	–
4850.607	Hf	10	3	–
4850.584	La II	25	20	–
4850.50	Sb II	–	[2]	Lg
4850.46	I	–	[25]	Bl
4850 45	Th	12	4	–
4850.39	Tb	2	–	Ed
4850 277	Pr	10	–	–
4850.26	I I	–	[25]	Db
4850.2	bh Zr	20	–	L
4849 914	Ce	10	–	–
4849.88	K I	3	–	Fl
4849.831	Mo	12	10	–
4849.771	Ir	2	–	–
4849.7	bh Zr	8	–	L
4849.647	Eu	15 w	2	–
4849.554	Ce	4	–	–
4849.530	Ne I	–	[30]	Ps
4849.445	Tb	2	–	–
4849.37	Br I	–	[25]	Ks
4849.217	Os	18	–	–
4849.064	Nd	15	–	–
4849.028	Th	8	4	–
4848 822	Er	9	–	–
4848.812	V I	6 h	5 h	–
4848.75	Br II	–	[150]	Bl
4848 605	V	5	–	–
4848.547	Pr	125 w	–	–
4848.468	Ti I	60	2	–
4848.46	Hf II	5	20	m
4848.46	Yb	3	20 h	–
4848.435	Re	25 w	–	–
4848.369	Cb	150	100	–
4848.361	Th	8	–	–
4848.329	Sm	100	–	–
4848.273	Cr II	2	15	–
4848.175	Mo	4	3	–
4848.16	Ru I	6	–	–
4848.156	Ag	–	2 h	–
4848.108	Gd	60	10	–
4847.90	A	–	[80]	Rt
4847 858	Ru	5	–	–
4847.766	Sm II	150	–	–
4847.754	Ce	12	–	–
4847.695	Zr I	3 wh	–	–
4847.688	Sc I	12	2	–
4847.660	U	10	10	–
4847.634	Er	2	–	–
4847.38	N	–	[5]	Du
4847.296	Ca I	3	–	IWg
4847.285	Tb	2	2	–
4847.234	Mo	3	3	–
4847.2	bh Zr	18	–	L
4847.177	Cr	10	–	–
4847.14	Ba II	–	[10]	Rs
4847.069	Sm II	3	–	–
4846.810	Ta	10 W	2	–
4846.73	A I	–	[5]	Ms
4846.643	Er	2	–	–
4846.60	Kr II	–	[700]	Me
4846.574	Ce	8	–	–
4846 447	Ta	100	2	–
4846.401	Pr	6	–	–
4846.352	Zr I	3	–	–
4846 301	Cr	18	–	–
4846.13	As II	–	10	Ro
4845.973	Pr	20	–	–
4845 91	Ru	4	–	–
4845.767	Ne I	–	[5]	Ps
4845 72	Dy	2	–	Ed
4845 675	Yt I	30	30	–
4845.67	Re	2	–	–
4845.656	Fe I	3	–	–
4845.655	Er	50	–	–
4845.62	Eu	1 w	2	Kn
4845.614	Tb	2	–	–
4845 610	Pr	5	–	–
4845.517	Ce	20	–	–
4845 377	Ir	6	2	–
4845 369	Sm	3	–	–
4845 184	Pr	4	–	–
4845.172	Mo	20	20	–
4845.171	Cb	8	5	–
4845.145	Ne I	–	[15]	Ps
4845 14	Kr II	–	[2 h]	Me
4844 96	Se II	–	[800]	Bl
4844.949	Mo	4	4	–
4844.89	Tb	6	2	m
4844.87	Dy	2	2	Ed
4844 86	Br	–	[20]	Bl
4844 759	Th	3	–	–
4844.716	U	3	2	–
4844 564	Th	8	2	–
4844 557	Ru I	20	–	–
4844.44	Lu	3	–	Me
4844 333	Xe II	–	[1000]	IMe
4844.315	Mn	80	5	–
4844 30	Eu	2	–	Kn
4844 25	P	–	[30]	Gu
4844 218	Pr	8	–	–
4844.212	Sm II	150	–	–
4844.124	Th	10	4	–
4844.045	Er	2	–	–
4844.016	Fe	2	–	–
4844 00	Hf II	10	15	Me
4843 99	Rh	100	60	Me
4843 983	Ti I	8	–	–
4843 868	Os	25	–	–
4843.828	W	50	12	–
4843.746	Ru	5	–	–
4843.74	Sb II	–	[20]	Lg
4843 73	Dy	2 h	–	Ed
4843 491	U	5	–	–
4843.461	Co I	300	–	–
4843 46	Ba II	–	[80]	Rs
4843.414	Dy	3 h	2 h	–
4843.372	Eu	2	–	–
4843 304	La	5	10	–
4843 293	Xe I	–	[300]	IMe
4843 19	Mn	15	–	–
4843 165	Ni I	20	–	–
4843 153	Cr	2	–	–
4843 150	Fe I	4	–	–
4843.033	Ce	8	–	–
4843 03	Lu	2	5	Me
4842 998	V I	4	3	–
4842 98	Er	2	–	Ed
4842 941	Ne I	–	[50]	Ps
4842.88	Te	–	[50]	Bl
4842 693	Tb	8	–	–
4842 588	Pr	8	–	–
4842 566	Ne I	–	[10]	Ps
4842.506	U	12	–	–
4842 5	bh Yt	3	–	Me
4842 44	Cl II	–	[8]	Ks
4842 43	Rh I	50	–	–
4842.407	U	5	–	–
4842 296	Ce	6	–	–
4842 2	Rb	–	[4]	Dr
4842 148	Cb	10	5	–
4842.030	Er	4	–	–
4842 0	bh Yt	5	–	Me
4841 88	Tb	2	–	Ed
4841.876	Pr	3	–	–
4841.796	Cr	3	–	–
4841.772	Dy	3	2 h	–
4841.749	Ru	4	–	–
4841.704	Sm	100	–	–
4841.553	Pr	5	–	–
4840.885	Sc I	–	3 h	–
4840.874	Ti I	125	25	I
4840.826	Th	8	–	–
4840.768	Ir	5	3	–
4840.738	Pr	20 l	–	–
4840.63	Se II	–	[800]	Bl
4840.480	Eu	15	3	–
4840.476	Pr	5	–	–
4840.467	Dy	5	2 h	–
4840 467	Sc I	1	2	–
4840.462	Er	2	–	–
4840.458	Th	12	3	–
4840.440	Cr	4	–	–
4840 39	Tb	4	–	Ed
4840.266	Co I	700 w	150	–
4840.148	Mn	50	–	–
4840 001	La II	35	10	–
4839 866	Yt I	20	25	–
4839 854	Er	35	–	–
4839.767	Ru I	12	–	–
4839 629	Re	5	–	–
4839.62	Lu	50	100	Me
4839 61	Tb	2	–	Ed
4839 587	Mo	20	20	–
4839.545	Fe I	5	1	–
4839.540	Pr	25	1	–
4839 531	Er	3	–	–
4839 516	La I	40	10	–
4839 433	Sc I	9	6	–
4839.336	Pr	8	–	–
4839.251	Ti I	15	–	–
4839 147	Yt I	3	2	–
4839 07	V	–	3 h	Me
4839 067	Eu	3 W	–	–
4839.04	Kr II	–	4 h	Me
4839 014	Ru I	15	–	–
4838.99	Eu	20 W	–	Kn
4838.980	Zr I	3	–	–
4838 961	Er	3	–	–
4838 952	Ce	6	–	–
4838.775	Zr I	4	–	–
4838.651	Ni I	150	4	–
4838 645	Sm	4	–	–
4838.616	Pr	15	–	–
4838 53	Br	–	[5]	Bl
4838.449	Ce	2	–	–
4838.442	Cr	10	–	–
4838.41	Tb	2	–	Ed
4838.40	Dy	2	–	Ed
4838.363	Th	8	2	–
4838.27	Sb II	–	[10]	Lg
4838 244	Mn	50	–	–
4838.162	Ru I	5	–	–
4838.141	Eu	3	2	–
4838.122	Os	2	–	–
4838 113	Mo	15	15	–
4837.990	Cb	15	1	–
4837 93	N	–	[2]	Du
4837.835	Er	3	–	–
4837.75	Dy	2	–	Ed
4837 649	Sm II	100	–	–
4837.624	Cb	5	2	–
4837.599	Tb	10	2	–
4837 492	W	10	–	–
4837.487	Ce	8	–	–
4837.465	Yb	10	–	–
4837 460	Er	4	–	–
4837 312	Ne I	–	[500]	IMe
4837 27	Ra I	–	[6]	Rs
4837.23	Hf	35	4	–
4837.041	Pr	80 w	–	–
4836 946	Yb	18	100	–
4836 857	Cr I	80	–	–
4836 79	Cl II	–	[20]	Ks
4836.734	Eu	2	–	–
4836.691	A I	–	[150]	Ms
4836 669	Ce	15	–	–
4836 666	Sm II	50	–	–
4836 625	Nd	25	–	–
4836.56	Kr II	–	[20 hl]	Me
4836.428	Pd	8	–	–
4836.364	Cr	6	–	–
4836.3	Pb II	–	[6]	Ea
4836.229	Cr II	–	2 h	–
4836 208	Er	5	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4836.132	Ti I	25	1	–
4836.002	Pr	4	–	–
4835.982	Nd	15	–	–
4835.97	A I	–	[30]	Ms
4835.90	Tb	2	–	Ed
4835 867	Fe I	2	–	–
4835.85	S II	–	[8]	Hn
4835 77	Tm	20	–	Me
4835.763	Mo	12	15	–
4835.722	Sm	2	–	–
4835.693	Cr	6	–	–
4835.665	Nd	10	–	–
4835.447	Ce	3	–	–
4835.437	Pr	9 d	–	–
4835.37	I I	–	[15]	Db
4835.321	Nd	2	–	–
4835.274	Gd	100	10	–
4835 18	I	–	[25]	Bl
4835 03	Cs	–	[15]	Bs
4835.019	W	15	–	–
4834.84	Hf II	–	3	Me
4834.830	Re	10 w	–	–
4834.74	Yb	2	8 h	–
4834.737	Er	3	–	–
4834.713	Pr	8	–	–
4834.65	Xe	–	[2]	Hu
4834.626	Sm II	100	–	–
4834.46	Br I	–	[25]	Ks
4834.302	Tb	2	–	–
4834.244	Gd	125	25	–
4834.187	Hf	20	3	–
4834 10	A I	–	[30]	Ms
4834.044	Ce	10	–	–
4833.965	Mo	25	25	–
4833.768	Dy	6	2	–
4833.7	Pb II	–	[5]	Ea
4833.68	Kr II	–	[4 h]	Me
4833.675	Sc I	6	5	–
4833.513	Nd	2	–	–
4833.47	Rh	2	2	Me
4833.369	Cb	10	10	–
4833.329	Sm II	80	–	–
4833.14	Pr	15 w	–	–
4833.020	V I	9	8	–
4832.997	Ru	25	1	–
4832.921	Mo	15	10	–
4832.82	Sb II	–	[5]	Lg
4832.808	Mo	15	10	–
4832 800	Th	12	3	–
4832.79	A I	–	[5]	Ms
4832.742	Tb	2	–	–
4832.734	Pr	3	–	–
4832.730	Fe I	5	–	–
4832.704	Ni I	70	–	–
4832.427	V I	25	20	–
4832 4	bh C	–	–	L
4832.388	Dy	7	2 h	–
4832.38	A I	–	[5]	Ms
4832.331	Sm	2	–	–
4832.31	Ho	3	2	Ex
4832.276	Nd	20	–	–
4832.236	Cu II	–	10	Sh
4832.2	Hg I	–	[5]	Wd
4832.185	Ta	100	–	–
4832.076	Ti I	20	1	–
4832.075	Sr I	200	8	–
4832 07	Kr II	–	[800]	Me
4832.070	Pr	100 w	–	–
4832.03	Tb	3	–	Ed
4831.956	Pt I	2	1 h	–
4831.645	V I	30	25	–
4831.627	Cr	25	–	–
4831.603	Th	4	–	–
4831.435	Pr	6	–	–
4831.36	W	5	–	–
4831.29	Te	–	[800]	Bl
4831.217	Pt I	3	–	–
4831.21	Tm	50	80	Me
4831.183	Ni I	200	2	–
4831.163	Er	25	–	–
4831.16	N	–	[2 h]	Du
4831.133	Th	10	2	–
4831.080	Nd	5	–	–
4830.88	Dy	2	–	Ed
4830.84	Tb	2	–	Ed
4830.8	Be	–	8	Sx
4830.78	Se II	–	[12]	Kh
4830.723	Er	5	–	–
4830.715	Yb	2	–	–
4830.681	Sm II	8	–	–
4830 518	La II	8	4	–
4830.513	Mo	125	100	–
4830.338	Eu	20	2	–
4830.265	W	5	–	–
4830.194	Pr	10	–	–
4830.161	Cs II	–	[30]	Sv
4829.950	Gd	30	–	–
4829.936	Mo	20	10	–
4829.89	Re	4 w	–	Me
4829.865	Eu	3	–	–
4829.838	Ce	5	–	–
4829.708	Xe I	–	[400]	IMe
4829.692	Dy	5	3 h	–
4829.579	Sm II	200	–	–
4829.468	Pr	6 w	–	–
4829.376	Cr I	200	40	–
4829.346	Yt	3	15 h	–
4829.301	Cb	10	5	–
4829.298	Eu	6	2	–
4829.288	Ne I	–	[5]	Ps
4829.212	K II	–	[100]	Dm
4829 2	Rn	–	[35]	Wa
4829.037	Ce	5	–	–
4829.028	Ni I	300 w	2 h	–
4829.0	Sb II	–	8	Dv
4828.880	Dy	5	–	–
4828 84	Si	–	12	Sy
4828.800	W	5	–	–
4828.736	Sm	2	–	–
4828.683	Ru	7	–	–
4828.653	Tb	3	–	–
4828.574	Nd	10	–	–
4828.562	Er	2	–	–
4828.467	Mo	25	25	–
4828.450	I II	–	[5]	Mu
4828.441	Os	3	–	–
4828.313	U	2	–	–
4828 28	I II	–	[3]	Mu
4828.150	I II	–	[2]	Mu
4828.119	Be II	–	[25]	Ps
4828.084	W	6	–	–
4828.07	I	–	[8]	Bl
4828.065	Pr	15	–	–
4828.062	Er	3	–	–
4828.044	Zr I	10	–	–
4827.813	Sm	2	–	–
4827.740	Nd	2	1	–
4827 587	Ne I	–	[300]	IMe
4827.578	Ti I	15	1	–
4827.562	Nd	5	–	–
4827.5	bh Zr	30	–	L
4827.499	Tb	3	–	–
4827.450	V I	20	15	–
4827.4	bh Zr	8	–	L
4827.338	Ne I	–	[1000]	IMe
4827.283	Sc I	5	–	–
4827.250	Pr	20 d	–	–
4827.243	Er	3	–	–
4827.14	Te	–	[50]	Bl
4827.12	Dy	2	2	Ed
4827.1	Hg I	–	[15]	Wd
4826 99	Tm	10	25	Me
4826.896	Mn	10	5	–
4826.886	La II	15	30	–
4826.819	Th	3	–	–
4826.798	Tb	2	–	–
4826.77	S II	–	[3]	Hn
4826.748	Ir	15	–	–
4826 656	Os	18	–	–
4826.649	Pr	40 wh	–	–
4826.575	Sm II	15	–	–
4826 559	Dy	4	2	–
4826.551	Ru	4	–	–
4826 310	Pr	9	–	–
4826.22	Tb	2	–	Ed
4826.194	Ru	4	–	–
4825.97	A I	–	[2]	Ms
4825.930	U	6	–	–
4825.91	Ra I	–	[800]	Rs
4825 822	Pr	10	–	–
4825.736	Ru	5	–	–
4825 646	Eu	5	2	–
4825 62	Hg	–	[70]	Ps
4825.593	Mn	20	5	–
4825.529	Ne I	–	[50]	Ps
4825.482	Nd	100	8	–
4825 474	Pr	5	–	–
4825.457	Ti I	10	1	–
4825.429	Ta	150	–	–
4825.42	Cs	–	[10]	Bs
4825.390	Eu	2 W	–	–
4825.382	Sm	9	–	–
4825.207	Er	5	–	–
4825.18	Kr II	–	[300]	Me
4824.966	Dy	5	2 h	–
4824.668	U	3	1	–
4824.664	Sm	10	–	–
4824.655	Pr	5	–	–
4824.586	Tb	2	–	–
4824.561	Er	3	–	–
4824.364	Tb	3	–	–
4824.357	Ru I	5	–	–
4824.288	Zr I	20	–	–
4824.26	Eu	2	2	Kn
4824 219	Pt	2	–	–
4824.20	Ge II	–	10	Lg
4824.185	Nd	10	–	–
4824.124	Cr II	4	35	–
4824.07	S II	–	[40]	Hn
4824.066	La II	150	150	–
4823.922	Cr	25	–	–
4823.732	Dy	2	–	–
4823.516	Mn	400	80	–
4823.43	Os	8 h	–	–
4823.419	V	–	2 h	–
4823.41	Xe II	–	[150 h]	Hu
4823.370	Ne I	–	[50]	Ps
4823.306	Yt II	15	10	–
4823 297	Er	15	15	–
4823.184	Th	3	2	–
4823.174	Ne I	–	[100]	Ps
4823.08	Gd	5	–	Ed
4822.980	Pr	125	10 w	–
4822.931	Mo	6	5	–
4822.865	Sm	5	–	–
4822.568	Ru I	10	–	–
4822.541	Ce	25	–	–
4822 424	Mo	15	12	–
4822.3	Hg I	–	[5]	Wd
4822.158	Tb	2	–	–
4822.132	Yt I	8	–	–
4822.119	Er	10	2	–
4822.00	Dy	2	–	Ed
4821.949	Pr	15	–	–
4821.924	Ta	3	–	–
4821.924	Ne I	–	[300]	IMe
4821.708	Gd	150	80	–
4821.636	Yt I	2	2 h	–
4821.298	Dy	4	–	–
4821.29	Sb II	–	[2]	Lg
4821.262	Th	2	2	–
4821 153	Pr	4	–	–
4821.143	Ni I	25	2	–
4821.047	Fe	200 h	200 h	–
4821.038	Tb	2	–	–
4821.03	Dy	2 h	–	Ed
4820.897	Th	3	2	–
4820.81	Eu	4 W	–	Kn
4820.766	Sm	8	–	–
4820.756	Tb	2	–	–
4820.747	Er	3	–	–
4820.612	Ce	8	–	–
4820.60	Re	20	–	–
4820.59	Ga	–	2	Kl
4820.577	Pr	4	–	–
4820.494	Eu	3	2	–
4820.415	Ti I	125	30	–
4820.36	Ho	2	1	Ex
4820.344	Er	25	2	–
4820.336	Nd	40	–	–
4820.237	Yb	15	60	–
4820.080	W	3	–	–
4820.064	Pr	3	–	–
4820.032	Ce	12	–	–
4819.937	Ne I	–	[70]	Ps

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4819.872	Eu	3	–	–
4819.803	Gd	25	–	–
4819.80	Se	–	[25]	Bt
4819.79	Cl II	–	[25]	Ks
4819.735	Pr	3	–	–
4819.734	Ir	2 h	–	–
4819.643	Nd	10	–	–
4819.642	Yt I	4	4	–
4819.60	S II	–	[25]	Hn
4819.57	Si	–	8	Sy
4819.56	Eu	2 w	–	Kn
4819.544	U	12	12	–
4819.533	Ta	100	–	–
4819.46	Cl II	–	[200]	Ks
4819.34	P	–	[15]	Gu
4819.251	U	2	–	–
4819.249	Mo	80	60	–
4819.19	Tb	2	–	Ed
4819.151	Pd I	2	–	–
4819.041	Dy	7	2	–
4819.034	V	3	2	–
4819 032	Ti	40	2	–
4818.987	Pr	6	–	–
4818.972	Nd	12	–	–
4818.947	W	4	–	–
4818.867	Hf	25	4	–
4818.789	Ne I	–	[150]	Ps
4818.78	U	2	–	–
4818 645	Th	5	5	–
4818.55	Cl I	–	[4]	Ks
4818.437	U	3	–	–
4818.41	Br	–	[5]	Bl
4818 376	Yb	3	20	–
4818.368	W	4	–	–
4818.331	Mn	3	–	–
4818.325	Pr	3	–	–
4818 231	Dy	2	–	–
4818.2	bh Yt	30	–	Me
4818.171	Er	10	–	–
4818.02	Xe II	–	[100]	Hu
4817.847	Ni I	15	–	–
4817.769	Er	2	–	–
4817.699	Mo	25	25	–
4817.694	W	5	1	–
4817.636	Ne I	–	[300]	IMe
4817.55	La	4	–	Me
4817.545	Pr	5	–	–
4817.509	Pd	40	8	–
4817.502	Dy	2	–	–
4817.480	Ce	5	–	–
4817.4	bh Yt	20	–	Me
4817.369	Er	12	–	–
4817.341	Ru I	10	–	–
4817.330	W	2	–	–
4817.33	C I	–	[5]	Jn
4817.22	Xe II	–	[20 whl]	Hu
4817 21	Hf II	15	40	m
4817 180	Nd	12	–	–
4817.167	La I	10	–	–
4817.15	Rn	–	[100]	Rc
4817.07	Rh	2	–	Me
4817.007	Pd	4	2 h	–
4816.964	Mo	3	3	–
4816 9	bh Pb	6	–	L
4816.845	Gd	50	20	–
4816.821	W	5	–	–
4816.71	Br II	–	[300]	Bl
4816.620	Er	2	–	–
4816.481	Sm II	8 d	–	–
4816.40	Yb	20	1	m
4816 377	Cb	50	50	–
4816.142	Cr	30	–	–
4816.133	Pr	7	–	–
4816.107	W	10	1	–
4816.027	Sm II	20	–	–
4815.957	Os	60	–	–
4815.894	Co I	4	1	–
4815.806	Sm II	125	80	–
4815.702	U	5	–	–
4815.672	Pr	7	–	–
4815.629	Zr I	40	–	–
4815.523	Ru I	20	–	–
4815.515	S II	–	[800]	Hn
4815.495	Os	18	–	–
4815.39	Ir	2	–	Me
4815.119	Ta	5	15	–
4815.114	Mn	15 h	–	–
4815.10	Ir	2	–	Me
4815.05	Lu	20	2	Me
4815.045	Zr I	15	–	–
4814.845	U	2	–	–
4814.80	Ge II	–	200	Lq
4814.73	Tb	3	–	Ed
4814.719	Ru I	4	–	–
4814.617	Ni I	5	–	–
4814.521	Eu	2	2	–
4814.493	Tb	2	–	–
4814.468	Mo	10	8	–
4814.344	Pr	30	3	–
4814.338	Ne I	–	[50]	Ps
4814.33	Sm	3	–	–
4814.265	Cr	100	–	–
4814.2	P II	–	[30 wh]	Gu
4814 099	Mo	2	5 h	–
4813.983	Co I	100	2	–
4813.936	V	–	25	–
4813.798	Os	18	–	–
4813.768	Gd	15	–	–
4813 767	Tb	25	–	–
4813.55	Eu	8	–	Kn
4813.484	Co I	1000 W	6	–
4813.40	Rh	2	–	Me
4813 28	Si	–	6	Sy
4813.226	Ru I	6	–	–
4813.179	Tb	2	–	–
4813.161	Mo	5	5	–
4812.940	Cu II	–	15	Sh
4812 906	Ti I	2	–	–
4812.848	Ru I	4	–	–
4812.84	C I	–	5	Fl
4812.812	Dy	2	2	–
4812.749	Ta	150	5	–
4812 670	Nd	3	–	–
4812.637	Kr I	–	[40]	IHu
4812.620	Os	2	–	–
4812 6	bh V	2	–	L
4812.588	W	4	–	–
4812.484	Mo	3	3	–
4812.37	Cr II	–	4	–
4812.25	Ac	–	60	Lx
4812.250	Ti I	18	2	–
4812.203	Ru	5	–	–
4812.01	As	–	10	Ro
4811.999	Ni I	10	–	–
4811.881	Sr I	40	–	ISn
4811.76	Kr II	–	[300]	Me
4811.735	Pr	7	–	–
4811.699	U	4 h	–	–
4811.62	Au I	50	15	–
4811.57	Cl II	–	[12]	Ks
4811.473	Er	2	–	–
4811.343	Nd	60	60	–
4811.300	Cb	15	2	–
4811.208	Re	4	–	–
4811.14	V	–	4	Me
4811.14	Hf	6	2	Me
4811.080	Ti I	12	1	–
4811.064	Pr	5	–	–
4811 062	Mo	50	50	–
4810.889	U	6	–	–
4810.733	Cr	30	–	–
4810.634	Ne I	–	[100]	Ps
4810.597	Cb	100	10	–
4810.534	Zn I	400 w	300 h	IHz
4810.51	Kr I	–	[3]	Me
4810.509	Nd	2	2 wh	–
4810.487	Rh	15	25	–
4810.392	Ce	6	–	–
4810.286	N II	–	[5]	Fl
4810.241	Dy	2	–	–
4810 203	Tb	3 r	–	–
4810.104	Re	4	–	–
4810.063	Ne I	–	[150]	IMe
4810.06	Cl II	–	[200]	Ks
4809.699	Ru	4	–	–
4809.648	W	2	1	–
4809.61	Se II	–	[4]	Bl
4809.500	Ne I	–	[10]	Ps
4809.468	Zr I	8	–	–
4809.467	Ir	3	–	–
4809.368	Cb	5	8	–
4809.289	Cr	12	–	–
4809.289	Eu	10	2	–
4809.18	Hf II	8	10	Me
4809.05	Cl II	–	[9]	Ks
4809.015	La II	150	150	–
4809.001	Sm	2	–	–
4808.874	U	8	–	Hb
4808.864	Ni I	25	–	–
4808.75	Dy	3	–	Ed
4808.723	Mn	20	–	–
4808.621	Eu	1	2	–
4808.60	Tb	2	–	Ed
4808.531	Ti I	12	2	–
4808.51	Yb	–	4 h	Me
4808.502	Ce	10	–	–
4808.487	Sm	8	–	–
4808.459	Mo	10	8	–
4808 29	Eu	5	–	Ed
4808.191	Pr	20	–	–
4808.087	Mo	25	25	–
4808.02	I I, II	–	[15]	Bl
4808.019	Gd	15	–	–
4807.945	Dy	4	–	–
4807.926	Tb	2	–	–
4807.712	Mo	4	4	–
4807.677	Ce	5	–	–
4807.62	Br I	–	[10]	Ks
4807.614	U	3	–	–
4807.530	V I	40 h	30 h	–
4807.53	Ca	2 h	–	–
4807.465	Gd	100	40	–
4807.419	Pr	3	–	–
4807 370	Sm	2	–	–
4807.366	W	15	1	–
4807.239	Pr	9	–	–
4807.180	Mn	12	–	–
4807 14	Hf II	6	8	Me
4807.091	Os	6	–	–
4807.058	Cb	5	5	–
4807.039	Cu II	–	4	Sh
4807.019	Xe I	–	[500]	IMe
4806.996	Ni I	150 W	1	–
4806.94	Eu	2 w	–	Kn
4806.92	Xe	–	[2 h]	Hu
4806 774	Tb	4	–	–
4806.679	Zr I	4	–	–
4806.624	Nd	12	–	–
4806.416	W	3 wh	1	–
4806.377	I II	–	[15]	Ke
4806.37	Pd I	2	–	Me
4806.362	Mo	3	20 h	–
4806.255	Cr I	80	–	–
4806.194	Ru	10	–	–
4806 07	A	–	[500]	Rs
4806.065	Th	–	3 h	–
4805.97	V	–	2 h	Me
4805.96	P II	–	[5 h]	Gu
4805 931	Ce	18	–	–
4805.870	Zr I	15	–	–
4805.833	Pr	4	–	–
4805.824	Gd	200	80	–
4805.77	Dy	2	–	Ed
4805.579	Mo	30	30	–
4805.532	Ce	2	–	–
4805.426	Ti I	70	4	I
4805 269	Tb	3	–	–
4805.196	Eu	1	2	–
4805.19	K I	4	–	Fl
4805.103	Nd	6	–	–
4805.102	Ti II	15	125	–
4804.914	Sm II	15	–	–
4804.912	Mo	10	10	–
4804.884	Ru I	20	–	–
4804.801	Yt I	5	3	–
4804.792	Er	15	1	–
4804.70	Cr I	35	–	–
4804.61	Cs	–	[10]	Bs
4804 509	Dy	3	2	–
4804.5	Pb II	–	[8]	Ea
4804.33	A I	–	[5]	Ms
4804.313	Yt I	3	3 h	–
4804.241	Pt	2	–	–
4804.218	Er	10	–	–
4804.086	Eu	8	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4804.041	La II	150	150	–
4804.039	Pr	15 w	–	–
4803.963	Th	2	2 w	–
4803.745	Nd	3	–	–
4803.551	Gd	100	40	–
4803.515	Dy	2	–	–
4803.493	Th	3	8 h	–
4803.440	Zr I	3	–	–
4803.407	Sm	3	–	–
4803.34	Re	2	–	–
4803 279	U	2 h	–	–
4803.272	N II	–	[30]	Fl
4803.11	Ra	–	[6]	Rs
4803.062	Ce	4	–	–
4803.000	Sm	10	–	–
4803.00	O I	–	[50]	Ps
4802.97	Kr II	–	[4]	Me
4802.904	Ru	7	–	–
4802.886	Fe	2	–	–
4802.81	S	–	[20]	Hn
4802.760	Er	2	–	–
4802.675	Pr	4	–	–
4802.674	Tm	5	–	–
4802.65	Br I	–	[25]	Ks
4802.583	Gd	100	40 h	–
4802.449	Cb	3	2	–
4802.389	Tb	4	–	–
4802 363	Ne I	–	[10]	Ps
4802.34	Br	–	[20]	Bl
4802.25	As	–	10	Ro
4802.23	Pb	–	10	Sx
4802 20	O I	–	[30]	Ps
4802.08	Dy	3	–	Ed
4802.034	Pr	5	–	–
4802.022	U	2	–	–
4802.01	Sb II	–	[40]	Lg
4801.870	Tb	6	2	–
4801.80	O I	–	[15]	Ps
4801.501	Pr	10	–	–
4801.415	Tm	10	5	–
4801.357	Ce	2	–	–
4801.176	Ru	10	–	–
4801.150	Pr	40	3	–
4801.077	Gd	200	200	–
4801.030	Cr	200	70	–
4801 012	Mo	3	4	–
4800.82	Eu	2 w	–	Kn
4800.68	Dy	4	–	Ed
4800.656	Fe	15	–	–
4800.499	Hf	50	6	–
4800.439	Tb	3	–	–
4800 258	La I	15	–	–
4800.176	Th	3	2	–
4800.16	K I	3	–	Fl
4800.111	Gd	30	80	–
4800.111	Ne	–	[15]	IMe
4800.07	I	–	[8]	Bl
4800.01	In	5	9	Sq
4800.005	La I	15	–	–
4799.919	W	50	10	–
4799.918	Cd I	300 w	300 w	Hz
4799.869	Gd	25	60	–
4799.802	Ti I	80	15	–
4799.774	V I	15	12	–
4799.68	As II	–	10	Ro
4799.61	Br	–	[8]	Bl
4799.497	Re	3	–	–
4799.45	Xe II	–	[10 hl]	Hu
4799 423	Nd	15	–	–
4799.418	Pr	4	–	–
4799.383	Eu	5	–	–
4799.303	Yt I	5	3	–
4799.114	Re	10	–	–
4798 925	Eu	5	–	–
4798.875	Sm II	50 r	–	–
4798.753	Pr	25	–	–
4798.742	A I	–	[30]	Ms
4798.673	Rh	3	–	–
4798.662	Tb	2	–	–
4798.535	Ti II	2	15	–
4798.52	Pb	–	20	Sx
4798.443	Ru I	25	–	–
4798 436	Dy	2	–	–
4798.4	Pb I	–	5	Kl
4798.40	Cl II	–	[15]	Ks

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4798.315	Pr	4 h	–	–
4798.24	Br	–	[8]	Bl
4798.065	Eu	10	1	–
4798 031	Nd	4	–	–
4797 985	Ti I	18	2	–
4797.962	V I	4	3	–
4797.957	Pr	3	–	–
4797 715	Cr	25	–	–
4797.700	Mn	25	–	–
4797.66	Se II	–	[12]	Bt
4797.598	Dy	2	2	–
4797.548	W	15	2	–
4797.157	Nd	30	–	–
4797.110	Tb	2	–	–
4797.042	Cu I	12	1 h	Hs
4797.041	W	6	–	–
4797.011	In II	–	[10]	Ps
4797.01	Hg	–	[300]	Ps
4796.918	V I	30	25 h	–
4796.908	Re	2	–	–
4796.889	Cr I	5 h	–	–
4796.861	Nd	6	–	–
4796.843	Pr	6	–	–
4796.709	Mn	15	–	–
4796.688	La II	12	10	–
4796.58	I I	–	[8]	Bl
4796.58	Rn	–	[5]	Rc
4796.53	Xe	–	[3 whl]	Hu
4796.522	Mo	40	40	–
4796.519	W	3	–	–
4796.424	Pr	4	–	–
4796.371	Co I	100	–	–
4796.33	Kr II	–	[60 hl]	Me
4796.259	U	2	–	–
4796.216	Ti I	30	3	–
4796.169	Cr	125	1 h	–
4796.10	Te	–	[70]	Bl
4795.963	Hf	3	2	–
4795.905	Sm	2	–	–
4795.888	Eu	2	–	–
4795 852	Co I	100	–	–
4795.828	Pr	5	–	–
4795 666	Ir	2 wh	2 wh	–
4795.62	Ne II	–	[15]	Bn
4795.568	Ru I	20	–	–
4795.504	Er	9	1	–
4795.40	Xe II	–	[2 h]	Hu
4795 371	Mo	4	3	–
4795.249	Pr	20	–	–
4795.247	Ir	2	–	–
4795.23	Br	–	[5]	Bl
4795.102	V	5	4	–
4794.955	Zr I	3	–	–
4794 903	Pr	7	–	–
4794.850	Dy	3	–	–
4794 604	Mo	12	10	–
4794.561	La	10	–	–
4794 54	Cl II	–	[250]	Ks
4794.48	Ca	–	2	–
4794 384	Ru I	25	–	–
4794 321	Pr	4	–	–
4794 307	Sm	9	–	–
4793 994	Os	300	6	–
4793 821	Mo	15	15	–
4793.82	Tb	2	–	Ed
4793.800	Cu	5 wh	2 wh	Mx
4793 656	N II	–	[5]	Fl
4793 570	Re	2	–	–
4793.454	Gd	5 h	–	–
4793 411	Mo	30	30	–
4793.276	Zr I	3	–	–
4793.24	Tb	2	–	Ed
4793.18	Ir	2	–	Me
4793.058	Cb	3	–	–
4793 004	Mn	8	–	–
4793 0	Rn	–	[10]	Wa
4792 957	V I	4	3	–
4792.921	Pr	10 h	–	–
4792.89	Dy	4 h	–	–
4792 863	Co I	600 W	5	–
4792.843	Sc	3	2	–
4792.824	W	3	–	–
4792.742	Mo	40	30	–
4792.73	Se I	–	[20]	Rd
4792.623	Nd	2	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4792.619	Xe I	–	[150]	IHu
4792.60	Au I	200 W	60	–
4792.566	Eu	20	2	–
4792.513	Cr	200	40	–
4792.488	Ti I	70	12	–
4792.465	La I	3	–	–
4792 463	U	2	–	–
4792.382	Tb	2	–	–
4792 22	Sn II	–	[2]	Mc
4792.12	A II	–	[20]	Rt
4792.06	P II	–	[70 l]	Gu
4792.04	Cl II	–	[12]	Ks
4792.02	S II	–	[40]	Hn
4791.952	Pr	8	–	–
4791.89	Dy	2	–	Ed
4791.84	Eu	10 W	–	Kn
4791.835	U	3	–	–
4791.826	Mo	5	5	–
4791.81	Br	–	[2]	Bl
4791.602	Gd	150	–	–
4791.597	Pr	3	–	–
4791.584	Sm II	150	–	–
4791.54	Au	–	2	–
4791.500	Sc I	12	6	–
4791.478	Rh I	2 h	–	Me
4791.419	Re	200 w	–	–
4791.397	La I	6	–	–
4791.299	Dy	8	2	–
4791.266	Pr	6	–	–
4791.248	Fe I	200	200 R	–
4791.158	Eu	3	–	–
4791.15	A I	–	[2]	Ms
4791.15	Kr II	–	[3]	Me
4791.10	U	3 s	–	–
4791.08	K I	2	–	Fl
4791.021	Rh	3	3	–
4791.020	Tb	2	–	–
4790.977	Mo	10 R	–	Pu
4790.915	Cb	3	2	–
4790.832	Pd I	3	–	–
4790.86	W	–	12	–
4790.842	Pr	5	–	–
4790.728	Ne I	–	[30]	Ps
4790.725	Hf II	20	20	–
4790.69	I	–	[8]	Bl
4790.337	Cr I	100	1	–
4790 218	Ne	–	[50]	IMe
4790.04	Ru I	2	–	–
4790.063	U	4	–	–
4789.961	Cb	5	15	–
4789.960	Sm	50	–	–
4789.918	Tb	8 w	–	–
4789.90	Tm	15	10	–
4789.803	Cb	–	3 h	–
4789.803	Ti I	4	–	–
4789.654	Fe I	100	–	S
4789.62	Eu	2 W	–	Kn
4789.600	Ne I	–	[100]	Ps
4789.428	Nd	40	–	–
4789.380	Cr I	300	100	–
4789.367	Pr	6 h	–	–
4789.343	Mo	8	8	–
4789.279	Ta	4	15 h	–
4789 212	Re	10	–	–
4789.109	Zr I	5	–	–
4788.926	Ne	–	[300]	IMe
4788.868	Co	4	–	–
4788.76	Kr II	–	[5 h]	Me
4788.753	Fe I	40	–	–
4788.669	Zr I	10	–	–
4788.513	Tb	3	–	–
4788.45	Dy	2	–	Ed
4788.434	W	15	1	–
4788.425	Ce	10	–	–
4788.339	Nd	3	–	–
4788.279	Pr	10	–	–
4788.25	I	–	2 h	Bl
4788.181	Mo	15	15	–
4788.175	Pd I	200 h	4 h	–
4788.126	N II	–	[25]	Fl
4788.1	Pb II	–	[6]	Ea
4787.992	Eu	2	–	–
4787.97	Tm	5	–	–
4787.940	W	15	1	–
4787.77	Xe II	–	[50]	Hu

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4787.752	Cr	12	–	–
4787.748	Ir	5	–	–
4787.735	Cb	3 h	–	–
4787.626	Mo	10	8	–
4787.624	Eu	2	–	–
4787.573	Pr	5	–	–
4787.433	Nd	8	–	–
4787.343	Ru	5	–	–
4787.29	As II	–	15	Ro
4787.229	Pr	3	–	–
4787.20	I II	–	[2]	Mu
4787.206	W	5	–	–
4787.2	bh Sr	2	–	L
4787.161	Tb	3	–	–
4786.935	Dy	8	4	–
4786.89	K I	2	–	Fl
4786.877	Yt I	15	15	–
4786.810	Fe I	150	–	S
4786.806	Gd	40	2	–
4786.783	Tb	35	–	–
4786.65	Xe II	–	[8 h]	Hu
4786.643	Ta	20	–	–
4786.603	Er	2	2	–
4786.598	Yb	50	200	–
4786.593	Pr	6	–	–
4786.577	Yt II	15	25	–
4786.541	Ni I	300 W	2	–
4786.540	Ce	10	–	–
4786.507	V I	30	25 h	–
4786.457	Mo	25	25	–
4786.457	Nd	2	–	–
4786.363	Cs II	–	[15]	Sv
4786.293	Ni I	25	–	–
4786 240	Dy	2	–	–
4786.192	Tb	5	–	–
4786.19	A	–	[2]	Rt
4786.151	Sm	4	–	–
4786 112	Nd	10	–	–
4785.961	W	2	–	–
4785.909	U	3	–	–
4785 869	Sm	100	–	–
4785.702	Cb	3	2	–
4785.617	Pr	10 w	–	–
4785.50	Br II	–	[400]	Bl
4785.44	Cl II	–	[50]	Ks
4785.42	Lu	100	200	Me
4785.34	Yb	2	–	Me
4785.315	Dy	3	2	–
4785.19	Br I	–	[20]	Ks
4785.122	Mo	30	30	–
4785.069	Co I	50	–	–
4784.919	Zr I	40	–	–
4784.918	Dy	4	2	–
4784.88	U	2	–	–
4784.85	Te	–	[70]	Bl
4784.777	Ce	10	–	–
4784.76	I	–	[5]	Ke
4784.76	Sb	–	2 h	Sp
4784.676	Er	2	–	–
4784.641	Gd	100	50	–
4784.635	Pr	3	–	–
4784.526	Yb	2	–	–
4784.469	V I	12	10	–
4784.427	Sm	6	–	–
4784.414	Mo	5	5	–
4784.320	Sr I	30	–	ISn
4784.29	B II	–	4	En
4784.278	Cb	3	1	–
4784.269	Ru I	25	–	–
4784.11	Tb	2	–	–
4784.03	Sb	–	[70]	Lg
4784.016	Eu	12	–	–
4783.828	Nd	20	–	–
4783.740	W	5	–	–
4783.63	Tm	5	1	–
4783.565	Gd	20	–	–
4783.420	Mn	400	60	–
4783.354	Pr	125	10 w	–
4783.306	Ti I	2	–	–
4783.287	Ru I	10	–	–
4783.100	Sm	150	–	–
4783.079	Cr	25 h	–	–
4782.941	Mo	40	40	–
4782.871	Rb II	–	25	Rr
4782.838	Pr	3	–	–
4782.762	Th	4	3	–
4782.739	Hf	40	5	–
4782.644	Ru	10	–	–
4782.599	Zr I	3	–	–
4782.58	Tb	2	–	–
4782.216	Ce	10	–	–
4782.100	Pr	3	–	–
4782.1	Hg I	–	[5]	Wd
4781 95	Ne II	–	[5]	Bn
4781.935	Gd	200	50	–
4781.92	Tb	2	–	–
4781 88	Yb	50	5	–
4781.88	Dy	3	–	Ed
4781.849	Er	3	–	–
4781.838	Sm II	60	–	–
4781.82	Cl II	–	[50]	Ks
4781.760	Ru	12	–	–
4781.718	Ti I	30	2	–
4781.716	Ce	8	–	–
4781.566	Sm	8	–	–
4781.55	Tb	2	–	–
4781.462	Nd	3	–	–
4781.433	Co I	400	2 h	–
4781.32	Cl II	–	[75]	Ks
4781.318	Eu	15	–	–
4781.30	Tm	5	10	–
4781.239	Ne I	–	[2]	Ps
4781.168	N II	–	[5]	Fl
4781.110	Ru	7	–	–
4781.06	Gd	25	–	Ed
4781.042	Dy	3	2	–
4781.035	Yt I	10	5	–
4781.019	Er	35	2	–
4780.935	Ta	50	200 l	–
4780.884	Ne I	–	[30]	Ps
4780.733	Ce	6	–	–
4780.559	La	4	–	–
4780.537	Nd	2	–	–
4780.518	W	10	1	–
4780.338	Ne I	–	[50]	IMe
4780 31	Br I	–	[125]	Ks
4780.29	Tb	3	–	–
4780 289	W	3	–	–
4780.197	U	3	–	–
4780.19	Dy	2	–	Ed
4780.18	Yt I	2	1	m
4780.007	Co I	500 w	500	–
4780.00	Tb	3	–	–
4779.953	Ti II	10	100 h	–
4779 939	Cr I	10	–	–
4779.939	Gd	2 h	–	–
4779.895	La I	6	–	–
4779.743	Er	2	–	–
4779.710	N II	–	[15]	Fl
4779.689	Eu	2	–	–
4779.632	U	8	3	–
4779.603	Th	2	2	–
4779.458	Nd	30	–	–
4779 44	Dy	2 h	–	–
4779.421	W	4	–	–
4779.4	Sb II	–	8	Dv
4779.347	Sc I	80	40	–
4779.223	Sm II	10	–	–
4779.196	Pr	15	–	–
4779.18	Xe II	–	[50]	Hu
4779.150	Mn	20 W	–	–
4779.11	S II	–	[25]	Hn
4778.980	Yb	2	–	–
4778.93	Cl II	–	[45]	Ks
4778.81	Tb	6	–	–
4778.80	P	–	[30]	Gu
4778 797	U	2	–	–
4778.647	Eu	20	–	–
4778.636	Sm	5	–	–
4778.5	bh Sc	3	–	Me
4778.500	Er	3	–	–
4778.401	Nd	5	–	–
4778.36	Tb	6	–	–
4778.303	Pr	35	–	–
4778.296	Th	2	–	–
4778.263	Ti I	40	6	–
4778.255	Co I	100	–	–
4778.165	Pr	35	–	–
4778.157	Ir	50	3	–
4778 102	U	6	–	–
4777.881	Mo	5	5	–
4777.85	Se II	–	[20]	Bl
4777 840	Sm II	100	–	–
4777.713	Nd	15 d	–	–
4777.700	Eu	40	–	–
4777.680	U	6	–	–
4777.579	Cr I	10	–	–
4777.48	Ho	2	1	Ex
4777.20	Hf	3	3 h	Me
4777.171	Rh	5	2	–
4777.151	Eu	3	–	–
4777.14	Br	–	[5]	Bl
4776.89	Dy	2	2	m
4776.567	Pd I	5	9	–
4776.519	V I	4 h	3 h	–
4776.478	Ce	6	–	–
4776.42	Br	–	[200]	Bl
4776.410	Rb II	–	[100]	Rr
4776.363	V I	9	8	–
4776.343	Mo	40	40	–
4776.317	Co I	300	–	–
4776.234	Ce	6	–	–
4775.998	Rb II	–	25	Rr
4775.996	Pr	9	–	–
4775.96	Sm	2	–	–
4775.87	C I	–	[20]	Jn
4775.804	Dy	7	2	–
4775 76	Xe II	–	[10 whl]	Hu
4775 740	Er	4	–	–
4775 665	Mo	25	25	–
4775 528	Sm II	30	–	–
4775.520	Cr	8 h	–	–
4775.419	Pr	10	–	–
4775 215	Er	2	–	–
4775.21	Br I	–	[25]	Ks
4775.18	Xe II	–	[10 whl]	Hu
4775.18	Tb	3	–	–
4775.170	Pr	10	–	–
4775.152	La I	20	–	–
4775.141	Cr	35	–	–
4775 077	Ce	10	–	–
4774.893	Hf	6	2	–
4774 804	Dy	5	2	–
4774.66	Tb	3	–	–
4774 557	Cr I	20	–	–
4774 537	Pr	8	–	–
4774.46	Kr II	–	[2]	Me
4774 3	Al II	–	[2]	Sy
4774 255	Th	10	5	–
4774 222	Mo	20	20	–
4774 222	N II	–	[5]	Fl
4774 138	Nd	10	–	–
4774.137	Sm II	100	–	–
4774.096	Mn	50	–	–
4773 997	Ru	15	–	–
4773.942	Ce	18	–	–
4773 911	W	30	2	Bk
4773.85	Br	–	[12]	Bl
4773.76	O I	–	[70]	Ps
4773.715	Hf	25	4	–
4773 69	Dy	2	2	–
4773.524	Pr	10	–	–
4773.440	U	4	–	–
4773.437	Mo	20	20	–
4773 429	Er	2	–	–
4773.412	Ni I	15	–	–
4773.286	Mo	10	10	–
4773.247	Cb	10	10	–
4773.19	Xe II	–	[50]	Hu
4773.151	Ru I	15	–	–
4773.094	Gd	20	–	–
4773.01	Eu	2 W	–	Kn
4773.01	Kr II	–	[40 h]	Me
4772.97	Tb	3	–	–
4772.89	O I	–	[50]	Ps
4772.884	Nd	10	–	–
4772.817	Fe I	10	4	S
4772.813	Cb	3	1	–
4772.73	Br	–	[8]	Bl
4772.701	U	6	18	–
4772.66	Eu	5 w	–	–
4772.582	V I	3	3	–
4772.542	W	12	–	–
4772 54	O I	–	[30]	Ps
4772.531	Pr	4	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4772.474	Sm	2	–	–
4772.320	Pt I	5	–	–
4772 312	Zr I	100	–	–
4772.296	Pr	5	–	–
4772.263	Nd	8	–	–
4772.03	Tb	3	–	–
4771 930	Dy	8	2	–
4771.866	Pr	10	–	–
4771.854	Cb	3 h	5 h	–
4771.805	Re	5	–	–
4771.728	Nd	4	–	–
4771 72	C I	–	[30]	Jn
4771.72	Eu	3 w	1	m
4771 68	Tb	2	–	–
4771.672	Mn	8	–	–
4771.667	Sm II	8	–	–
4771 66	Cl II	–	[20]	Ks
4771.611	Cr I	18	–	–
4771.563	Rh	2	–	–
4771.56	Te	–	[50]	Bl
4771.442	Sc	2	3	–
4771 30	Tb	5	–	–
4771 3	bh Zr	4	–	L
4771.108	Co I	500 w	–	–
4771 099	Ti I	10	1	–
4771 09	Cl II	–	[40]	Ks
4771.063	Nd	2	–	–
4770 872	Mo	8	8	–
4770 85	Tl II	–	5	Ml
4770 81	Dy	3	2	–
4770 792	Rh	2	15	–
4770 776	Eu	15	–	–
4770.768	W	6	–	–
4770.58	Tl II	–	[5]	Ml
4770 696	Sm	5	–	–
4770 670	Cr I	35	–	–
4770 455	Pr	4	–	–
4770.433	La I	25	5	–
4770.414	Ir	2	–	–
4770.34	A I	–	[2]	Ms
4770 290	Sm	3	–	–
4770.29	Tb	5 w	–	–
4770 192	Nd	20	–	–
4770.191	Sm	40	–	–
4770.181	Yb	2	–	–
4770.00	C I	–	[10]	Jn
4769.896	Pr	4	–	–
4769.813	Cr	6 h	–	–
4769.769	Ti I	12	2	–
4769.73	Te	–	[30]	Bl
4769 630	Dy	4	2	–
4769.615	Eu	5	–	–
4769.593	Pr	5	–	–
4769.56	Tb	3	–	–
4769.4	bh Zr	4	–	L
4769 36	Hf	4	–	Me
4769.315	Nd	5	–	–
4769.306	Ir	6	–	–
4769 303	Ru I	20	–	–
4769.260	U	6	15	–
4769.05	Xe II	–	[100]	Hu
4768.983	Ta	150 l	5	–
4768 946	Nd	2	–	–
4768.770	Ce	10	–	–
4768 68	Cl II	–	[150]	Ks
4768.672	A I	–	[150]	IMe
4768.667	U	6	–	–
4768.59	Rn	–	[100]	Wa
4768.5	Tl I	2	–	Fl
4768.460	Ru	7	–	–
4768.41	Cs	–	[10]	Bs
4768.397	Fe I	3	–	–
4768.393	Ir	2	–	–
4768 389	Sm	2	–	–
4768 340	Fe	6	–	–
4768.293	Eu	2	–	–
4768.160	I II	–	[20]	Ke
4768.121	Rh	2	–	–
4768.091	Pt I	3	–	–
4768.081	Co I	300	10	–
4767.860	Cr	100	8	–
4767.804	Pr	20	–	–
4767.785	W	12	1	–
4767.601	U	2	–	–
4767.251	Gd	100	25	–
4767.162	Dy	2	–	–
4767.146	Ru	10	–	–
4767.142	Co I	100	–	–
4767.10	Br	–	[200]	Bl
4767.050	Sm	2	–	–
4766.91	Sb II	–	[25]	Lg
4766 906	Pr	35	–	–
4766 894	La I	100	10	–
4766.812	Cb	5	10	–
4766 729	Cu II	–	2	Sh
4766.656	Eu	2	1	–
4766.653	Ru	4	–	–
4766.634	V I	15	12	–
4766 633	Cr I	80	6	–
4766.62	C I	–	[10]	Jn
4766.599	Th	2	–	–
4766.549	Ir	2 wh	–	–
4766.521	Cb	5	3	–
4766 51	Hf	20	4	m
4766.430	Mn	80	30	–
4766.334	Ti I	12	2	–
4766.19	Sb	–	2 w	Sp
4766.140	Sm	40	–	–
4766.065	Er	4	–	–
4766.03	Te	–	[150]	Bl
4766.00	Br II	–	[50]	Bl
4765.928	Pr	10	–	–
4765 859	Mn	60	25	–
4765 78	Hf II	3 h	15	m
4765.75	Tl II	–	[5]	El
4765 74	Kr II	–	[1000]	Me
4765 637	W	2	–	–
4765 62	Br I	–	[5]	Ks
4765.60	Eu	3 w	–	Kn
4765 57	Dy	2	–	Ed
4765.52	Se II	–	[40]	Bl
4765 36	Sb II	–	[40]	Lg
4765 30	Cl II	–	[10]	Ks
4765 222	Pr	80 w	5 w	–
4765.16	Eu	5	1	Kn
4765.134	W	3	–	–
4765.03	Te	–	[15]	Bl
4764 89	A	–	[150]	Rt
4764 84	P	–	[15]	Gu
4764.73	Dy	4	–	–
4764.722	Ce	8	–	–
4764.643	Cr I	35	–	–
4764 638	Er	2	–	–
4764.58	Tl II	–	[2]	El
4764.535	Ti	–	7	–
4764.50	Tb	4	–	–
4764 446	Pr	12	–	–
4764.419	Mo	50	50	–
4764.397	Ru	12	–	–
4764 35	Th	3	2	–
4764 294	Cr	200	35	–
4763 971	Eu	4	2	–
4763.950	Ni I	150	1	–
4763.91	P	–	[15]	Gu
4763.902	Ti	7	20	–
4763 865	Nd	20	–	–
4763 841	Gd	25	10	–
4763.82	Dy	2	–	–
4763 790	I	–	[25]	Ke
4763.664	Re	20 W	–	–
4763.65	Se II	–	[800]	Bl
4763.624	Nd	10	–	–
4763 616	Cs	–	[25]	Sv
4763 571	Pr	15	–	–
4763.437	Sm	2	–	–
4763 38	S II	–	[20]	Hn
4763.38	I I	–	[80]	Mu
4763.31	Tm	10	10	–
4763.242	Eu	15 W	–	–
4763.116	Sc I	5	4 h	–
4763.099	Os	18	–	–
4762.912	Eu	60	2	–
4762.903	U	5	1	–
4762.776	Zr I	10	–	–
4762.727	Pr	60	10	–
4762.643	Er	5	1	–
4762.627	Ni I	150	1 h	–
4762.626	Ru	4	–	–
4762.43	Kr II	–	[300]	Me
4762.41	C I	–	[30]	Jn
4762.402	Pr	3	–	–
4762.39	Ho	2	1 h	Ex
4762 383	Eu	3	1	–
4762.376	Mn	100	40	–
4762 37	Tb	4	–	–
4762 22	Hg II	–	[100]	Ps
4761.969	Pr	6	–	–
4761.873	Pd I	3	2 h	–
4761.85	Se II	–	[20]	Bl
4761.761	Nd	4	–	–
4761.587	Sm II	7	–	–
4761.526	Mn	60	15	–
4761.521	Ru	5	–	–
4761.362	U	3	–	–
4761.34	Dy	2	–	–
4761.278	Mo	3	2	–
4761.242	Cr	25	–	–
4761.16	Yb	–	5 h	Me
4761.125	Pr	25	–	–
4761.110	Th	10	12	–
4761.087	Mo	4	3	–
4761 032	W	4	–	–
4761 02	Er	5	5	m
4760 98	Pb I	–	6	Ro
4760.971	Yt I	50	25	–
4760.770	Os	5	–	–
4760.751	Gd	40	40	–
4760 724	Sm	10	–	–
4760 6	Tl I	2	–	Fl
4760.589	Hf II	5	12	–
4760.457	Nd	2	–	–
4760 262	Sm	150	–	–
4760.20	Au II	–	4 w	–
4760 20	Tb	8	–	–
4760.186	Mo	125	125	–
4760.028	Sm	20	–	–
4760 010	Dy	15	4	–
4759.911	Pr	6	–	–
4759 907	Cr I	15	–	–
4759.90	Tm	25	1	–
4759.718	La I	6	–	–
4759.7	Bi II	–	2	Ml
4759.67	Ho	2	–	Ex
4759 660	Mo	5	5	–
4759.651	Er	15	2	–
4759.341	Nd	5	–	–
4759 276	Ti I	100	8	–
4759 237	Pr	3	–	–
4759 100	Nd	20 s	–	–
4758 926	Sc I	3	5	–
4758.92	Cs	–	[10]	Bs
4758.904	Ti I	5	1	–
4758 855	Re	30	–	–
4758.819	Sm II	8	–	–
4758.78	C	–	[10]	Jn
4758.746	V I	3	2	–
4758.734	Eu	60 W	2	–
4758.728	Ne I	–	[150]	IMe
4758.708	Gd	35	–	–
4758.634	Nd	2	–	–
4758.542	Ce	4	–	–
4758.505	Nd	4	–	–
4758 502	Mo	40	40	–
4758 46	Tb	5	–	–
4758.421	Cu II	–	10	Sh
4758 272	Gd	25	–	–
4758.211	W	15	1	–
4758 148	Th	2	–	–
4758.120	Cb	2	3	–
4758.118	Ti I	125	60	–
4758.044	Pr	10	1	–
4758.033	Ta	20	–	–
4757.963	Ir	20	2 wh	–
4757.937	Pr	100 w	5 w	–
4757.87	Cs	–	[10]	Bs
4757.853	Rb II	–	10	Rr
4757.842	Ce	15	–	–
4757.841	Ru I	125	–	–
4757.82	Sb II	–	10	–
4757.781	W	15	1	–
4757.591	Cr	35	1	–
4757.584	Hf	15	4	–
4757.582	Fe I	3	–	–
4757.549	W	60	10	–
4757.516	Nd	5	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4757.485	V I	12	10	–
4757.415	Dy	3	–	–
4757.353	V I	4	3	–
4757.326	Cr	25	–	–
4757.272	Mo	3	3	–
4757.162	La	5	–	–
4757.150	Mo	4	4	–
4757.119	Pr	10 d	–	–
4757.116	Er	2	–	–
4757.01	Ho	2	–	Ex
4756.992	W	5	–	–
4756.981	La I	4	–	–
4756.803	U	12	6	–
4756.725	Co I	100	–	–
4756.674	Dy	4	2	–
4756.519	Ni I	250	3	–
4756.506	Ta	150	10	–
4756.459	Ir	20	2	–
4756.259	Ni	7	–	Ha
4756.233	Ru	40	–	–
4756.13	Tb	3	–	–
4756.13	Pr	50 d	2 h	–
4756 113	Cr	300	100	–
4755 978	Pr	50	2	–
4755 937	Eu	60 w	–	–
4755.886	Mo	8	10	–
4755.852	Nd	15	–	–
4755.79	P	–	[30 h]	Gu
4755.729	U	8	15	–
4755.72	Mn	10	5	–
4755.64	Cl II	–	[50]	Ks
4755 613	Th	4	6 w	–
4755 577	Rh I	4	15	–
4755.517	Gd	8	20	–
4755.495	Sr I	12 h	–	ISn
4755 47	Tb	2	–	–
4755 373	Sm II	100	–	–
4755 355	Pr	5	–	–
4755.329	Rb II	–	[10]	Rr
4755 327	Mo	3	4	–
4755 318	Cb	5	3	–
4755.155	Os	10	1	–
4755.137	Cr I	70	–	–
4755.129	W	4	–	–
4755.12	S II	–	[30]	Hn
4755.01	Dy	5	3	–
4754 966	Cb	5 h	2	–
4754.934	Mo	2	4	–
4754.768	Ni 1	100	–	–
4754.743	Cr	80	–	–
4754 659	Er	2 w	–	–
4754.635	Pr	15	–	–
4754.58	Tm	5	–	–
4754 456	Pr	8	–	–
4754.440	Ne I	–	[100]	Ps
4754 36	Co I	200	2	–
4754.042	Mn	400	60	–
4754 038	Cr	12	–	–
4753 934	V I	30	25	–
4753.904	Pr	8	–	–
4753.825	Ru	6	–	–
4753.716	Eu	3	1	–
4753.71	Sm	2	–	–
4753 497	U	2	–	–
4753.481	Cb	3 h	–	–
4753 393	W	10	–	–
4753 345	Mo	6	5	–
4753 18	Tb	2	–	–
4753 156	U	2	–	–
4753.152	Sc I	80	40	–
4753 138	La	5 h	–	–
4753.13	N	–	[5]	Du
4753 054	Zr I	4	–	–
4752.94	Sm	5	–	–
4752 938	A I	–	[150]	IMe
4752 92	Yb	8	20 h	–
4752.897	Cr	8	–	–
4752.848	Pr	8	–	–
4752.787	Yt I	8	10	–
4752.772	Er	20	2	–
4752.731	Ne I	–	[1000]	IMe
4752.70	O II	–	[15]	Fl
4752.67	I	–	[15]	Bl
4752.583	W	12	1	–
4752.577	Ce	10	–	–
4752.535	Nd	2	–	–
4752.52	Tb	100	80	–
4752.426	Ni I	150	–	–
4752.416	La I	3	–	–
4752.410	Th	20	12	–
4752.37	Eu	3 W	–	Kn
4752.286	Sm II	6	–	–
4752.28	Dy	2	2	Ed
4752 27	Br I	–	[100]	Ks
4752.209	W	12	1	–
4752.158	Os	30	–	–
4752.141	Ru	7	–	–
4752.124	Ni I	30	–	–
4752.108	U	4	–	–
4752.100	Re	2	–	–
4752.084	Cr	100	40	–
4752 02	Kr II	–	[100 hl]	Me
4751.907	Zr I	4	–	–
4751.891	Na I	20	–	Da
4751.802	Ne I	–	[30]	Ps
4751.782	Yb	3	–	–
4751.671	Pr	3	–	–
4751 655	U	3	–	–
4751.61	Tb	3	–	–
4751.565	V I	10	9	–
4751.526	Er	12	1	–
4751.423	Cb	3	5	–
4751.409	Ce	5	–	–
4751 365	Eu	6	–	–
4751.360	W	10	1 h	–
4751.354	Re	2	–	–
4751.34	O II	–	[50]	Fl
4751.318	Pr	5 d	–	–
4751.111	Mo	6	4	–
4751.008	Ru	10	–	–
4751.004	Re	2 h	–	–
4750.984	V I	15	12	–
4750.837	Ce	8	–	–
4750.75	Tm	15	20	–
4750 725	Sm	60	–	–
4750.686	Ne I	–	[30]	Ps
4750.668	U	2 h	–	–
4750.556	Pr	4	–	–
4750 414	La I	40	40	–
4750 393	Mo	30	30	–
4750.26	N	–	[5]	Du
4750.236	Tm	3	–	–
4750.227	Ce	6	–	–
4750.08	Eu	2 w	–	Kn
4750.020	Nd	4	–	–
4750.01	Yb	–	4 h	Me
4749.924	U	4	–	–
4749 92	Br	–	[4]	Bl
4749.91	Tb	2	–	–
4749.893	W	3	–	–
4749.809	Ru I	2	–	–
4749.750	Nd	40	–	–
4749.738	Bi II	–	[20]	–
4749.733	Pr	10	–	–
4749.706	W	7	1	–
4749.705	Cb	100	50	–
4749.683	Co I	500	100 h	–
4749 64	Sm	6	–	–
4749.634	Eu	6	–	–
4749.572	Ne I	–	[300]	IMe
4749 556	Nd	6	–	–
4749.45	Dy	2	–	Ed
4749 387	Zr I	3	–	–
4749 27	Rn I	–	[25]	Rs
4749.204	Th	2	–	–
4749.150	Gd	15	–	–
4749.132	Cs II	–	[10]	Ot
4749.033	Nd	3	–	–
4749.029	Re	25 w	–	–
4749.02	Ho	2	1 h	Ex
4748.981	Sc I	3	3	–
4748.865	Mo	4	5	–
4748.795	Sm	10	–	–
4748.729	La II	100	200	–
4748.709	Zr I	3 wh	–	–
4748 67	Cl II	–	[20]	Ks
4748.603	Pr	4	–	–
4748.520	V I	20	15	–
4748.38	Lu	–	10 hl	Me
4748.379	Re	50 w	–	–
4748.23	A I	–	[5]	Ms
4748.208	Dy	2 h	–	–
4748.181	Pr	3	–	–
4748.1	Hg I	–	[5]	Wd
4748.072	Re	4 h	–	–
4748.016	Na I	15	–	Da
4747.954	W	3	–	–
4747.880	Pt I	3	–	–
4747 81	Tb	5	–	–
4747.675	Ti I	25	2	–
4747.587	Pr	3	–	–
4747.480	Fe	30	25 h	–
4747.412	In II	–	[10]	Ps
4747 386	U	2	–	–
4747.256	Ti I	10	–	–
4747.143	Ce	30	–	–
4747.078	Er	3	–	–
4747 07	Ir	2	–	Me
4746 986	Cb	3	1	–
4746.93	Pr	100	25 w	–
4746.9	bh B	25	–	L
4746.823	A I	–	[80]	Ms
4746 806	W	4	–	–
4746.732	Hf	5 h	–	–
4746.70	Yb	–	15 h	Me
4746 628	V I	15	12	–
4746.111	Sc I	5	3	–
4746.107	Co I	100	–	–
4745 928	Ta	10	1	–
4745 84	Ir	2 wh	–	Me
4745.806	Fe I	8	1	S
4745.806	Gd	20	2	–
4745.806	Dy	4	3	–
4745.675	Sm II	250	–	–
4745.574	W	25	1 wh	–
4745.380	Nd	3	–	–
4745 308	Cr I	80	2	–
4745 283	Er	2	–	–
4745.16	Tb	3	–	–
4745.110	Rh I	20	10	–
4745 028	Cb	3	2	–
4744 925	Pr	100	10 w	–
4744 92	K II	–	[15]	Bn
4744 903	Nd	3	–	–
4744.9	bh Yt	6	–	Me
4744 90	C II	–	5	En
4744 818	Ce	10	–	–
4744.72	Cd II	–	4	Vs
4744 644	Ru	4	–	–
4744.623	Cb	10	8 h	–
4744 5	bh Yt	5	–	Me
4744 33	Br	–	[5]	Bl
4744 305	U	6	1	–
4744 164	Pr	80	–	–
4744 04	N	–	[10]	Du
4744.0	bh B	25	–	L
4743 994	Ru	4	–	–
4743.895	U	–	4	–
4743.890	Os	60	–	–
4743 847	Mn	2	–	–
4743 838	Cb	3	–	–
4743.814	Sc I	100	60 h	–
4743.700	Th	3	2	–
4743.655	Gd	300	300	–
4743.614	Mo	3	3	–
4743 60	Dy	2 h	–	Ed
4743.565	Pr	6	–	–
4743.52	Re	4	–	Me
4743.516	U	10	–	–
4743.31	Tb	3	–	–
4743.256	Ce	10	–	–
4743.112	Cr	40	–	–
4743.104	Er	2	–	–
4743.085	Mo	10	10	–
4743.085	La II	300 r	300	–
4743.076	Pr	5	–	–
4743.03	Dy	3	2	–
4743.024	Ru	12	–	–
4742.939	Zr I	3	–	–
4742.90	N	–	[4]	Du
4742.788	Ti I	100	40	–
4742.70	Tb	2	–	–
4742.70	Br	–	[200]	Bl
4742 630	V I	20	15	–
4742.626	Os	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4742.589	Mo	–	10	–
4742.549	Er	3 w	–	–
4742.5	bh Sc	5	–	Me
4742.481	Sm	3	–	–
4742.392	Nd	4	–	–
4742.333	U	10	3	–
4742.325	Pr	7	–	–
4742.266	Th	4 l	2	–
4742.25	Se I	–	[500]	Rd
4742.227	Sm	2	–	–
4742.110	Ti I	15	1	–
4742.04	Ho	10	3	Ex
4741.997	Er	3 w	–	–
4741.937	Ge II	–	50	–
4741.922	Sr I	30	–	ISn
4741.78	Cd II	–	3	Vs
4741.775	Eu	10 W	–	–
4741.726	Sm II	80	–	–
4741.71	O II	–	[20]	Fl
4741.539	Dy	3	2	–
4741.533	Fe I	12	1	S
4741.520	W	12	2	–
4741.503	Pr	30	–	–
4741.404	Yt I	2	3	–
4741.398	Er	20	–	–
4741.282	U	1	2	–
4741 269	Ru	4	–	–
4741.10	Tm	3	–	Me
4741.018	Sc I	100	60 h	–
4741.005	Pr	6	–	–
4740.97	Se II	–	[600]	Bl
4740.928	Dy	3	2	–
4740 68	Cl I	–	[10]	Ks
4740.614	Cb	3	3	–
4740.524	Eu	500	2	–
4740.517	Th	20	15	–
4740.5	bh Zr	8	–	L
4740.40	Cl II	–	[150]	Ks
4740 359	Mo	5	5	–
4740.331	Ru	7	–	–
4740 285	U	3	10	–
4740.277	La II	150	300	–
4740.264	Ir	2 wh	–	–
4740.165	Ni I	15	–	–
4740.163	Ta	100 R	100	–
4740.07	Ra	–	[4]	Rs
4739 962	Eu	2	2	–
4739 93	Tb	8	–	–
4739.908	Gd	10 h	–	–
4739.888	Nd	3	–	–
4739.886	Pr	4	–	–
4739 812	Hf	12	–	–
4739.792	La II	4	8	–
4739.758	Pt I	5	–	–
4739 665	Cs II	–	[20]	Ot
4739.59	Mg II	5	–	Fl
4739.561	Sm	10	–	–
4739.534	Ce	10	–	–
4739.49	P II	–	[30 l]	Gu
4739.478	Zr I	100	–	–
4739.440	Ta	2	–	–
4739.42	Cl II	–	[10]	Ks
4739.325	Pr	3	–	–
4739.223	Rh I	15	3	–
4739.193	U	8	–	–
4739.19	Tb	2	–	–
4739.17	Eu	80	–	m
4739.108	Mn	150	15	–
4739.03	Se I	–	[800]	Rd
4739 00	Kr II	–	[3000]	Me
4738.67	Te	–	[50]	Bl
4738.622	Pr	8 d	–	–
4738.575	Hf	20	3	–
4738.50	Dy	2	2	Ed
4738.440	U	3	–	–
4738.41	Cl II	–	[10]	Ks
4738.403	Ru	10	–	–
4738.351	Os	20	–	–
4738.347	Ta	5	2	–
4738.29	Mn	12	5	–
4738.160	W	8	–	–
4738.131	Gd	50	50 h	–
4738.13	Hf	4	–	Me
4738.040	Os	12	–	–
4737.768	Co	150	1	–
4737.642	Sc I	100	60 h	–
4737.626	U	2	–	–
4737.561	Pt I	4	2	–
4737.350	Cr	200	80	–
4737.282	Ce	20	–	–
4737.1	bh C	–	–	L
4737.05	Tl II	–	[40]	El
4736 965	Zr	3	–	–
4736.958	Sm	4 w	–	–
4736.945	Er	3	–	–
4736.9	bh Zr	60	–	L
4736.79	Dy	2	–	–
4736.782	Ca	5	2 hl	–
4736.780	Fe I	125	50	–
4736.688	Pr	125	1	–
4736.637	Mo	10	10	–
4736.608	Eu	60	–	–
4736 6	Rb	–	[12]	Dr
4736 491	Cb	3	5	–
4736.490	Sm	10	–	–
4736.30	Tb	3	–	–
4736 203	Nd	10	–	–
4736.151	Cr	6	–	–
4736.116	Sm	4	–	–
4736.089	Pt	2	–	–
4736.062	W	3	–	–
4735.94	Ca	–	2	Ad
4735.93	A	–	[400]	Rt
4735.848	Fe	10	1	–
4735.847	Eu	3	1	–
4735 77	Hf II	2	10	–
4735.763	Gd	150	150	–
4735.668	Hf II	10	20	–
4735.49	Dy	2	–	Ed
4735 42	Br II	–	[20]	Ks
4735.386	Sb II	–	25	–
4735.334	Cb	3 h	5	–
4735 297	Mo	6	8	–
4735 16	Tb	2	–	–
4735.079	Sc	10	8	–
4734.908	Nd	8	–	–
4734.833	Co I	150	–	–
4734.791	Nd	4	–	–
4734.75	C II	–	10 h	En
4734 697	Ce	8	–	–
4734.678	Ti I	10	1	–
4734 52	Yt	2	10 h	–
4734.441	Gd	100	40	–
4734.410	Os	3	–	–
4734.39	Dy	2	–	–
4734.37	F II	–	[3]	Di
4734 361	Zr I	3	–	–
4734.27	P	–	[15 h]	Gu
4734 21	Tb	15	–	–
4734.199	Eu	3 W	–	–
4734.177	Pr	100 w	8 w	–
4734.152	Xe I	–	[600]	I
4734.120	Mo	6	8	–
4734 094	Sc I	100	60 h	–
4734.032	Er	2	–	–
4734.0	Sb II	–	3	Dv
4733 945	Ce	10	–	–
4733 917	Nd	6	–	–
4733.887	Cb	30	30	–
4733.884	Sm	3	–	–
4733.873	Re	10	–	–
4733 806	La I	8	–	–
4733.776	Bi	2 l	–	Om
4733 751	Pr	8	–	–
4733.74	Hf II	–	2	Me
4733.67	Te	–	[15]	Bl
4733.596	Fe I	15	1	S
4733.57	Se II	–	[8]	Bl
4733.521	Ru I	40	–	–
4733.50	Lu	–	3 h	Me
4733.484	Cb	8	5	–
4733.429	Ti I	25	3	–
4733.395	Mo	3	5	–
4733.337	Er	7	–	–
4733.32	Tm	80	5	–
4733.3	bh C	–	–	L
4733.06	Cs	–	[20]	Bs
4732.975	Cs II	–	[20]	Sv
4732.800	Os	15	–	–
4732.77	Tb	3	–	–
4732.680	Th	2	2	–
4732.612	Gd	300	300	–
4732.53	Ne II	–	[5]	Bn
4732.51	Xe II	–	[10 hl]	Hu
4732.465	Ni I	100	–	–
4732.434	Sm	3	–	–
4732.36	Yt I	2	2	m
4732.329	Zr I	25	–	–
4732.3	Ne	–	[15]	Bl
4732.295	Sc I	10	6	–
4732.242	Er	3	–	–
4732.191	Pr	3 w	–	–
4732.08	A II	–	[5]	Rt
4732.056	Co I	40	–	–
4732.022	Yb	1	15	–
4731.855	Ir	8	5	–
4731.851	Dy	30	10	–
4731.85	Tb	4	–	–
4731.818	Eu	4 w	–	–
4731.809	Ni I	100	2	–
4731.783	Nd	40	–	–
4731.599	U	40	50	–
4731.586	Er	8	1	–
4731.492	Fe II	5	1	–
4731.443	Mo	100	100	–
4731.366	Hf II	15	20	–
4731.355	Sm	5	–	–
4731.334	Ru I	60	–	–
4731 3	Rb	–	[8]	Dr
4731 27	Te	–	[70]	Bl
4731.247	V I	3	3	–
4731.19	Xe II	–	[50 hl]	Hu
4731.18	Rh	2	–	m
4731.173	Ti I	50	6	–
4731.15	S	–	[15]	Ms
4731.138	Zr I	5	–	–
4731.100	Th	4 l	–	–
4730 998	U	6	4	–
4730 98	I II	–	[10]	Mu
4730.956	Sm	2	–	–
4730.92	As II	–	125	Ro
4730.80	Tb	2	–	–
4730 800	Er	2	–	–
4730.78	Se I	–	[1000]	Rd
4730.771	La II	2	2 h	–
4730.741	Eu	4 W	–	–
4730.711	Cr	100	50	–
4730.707	W	5	–	–
4730.686	Pr	60	1	–
4730.685	U	5	–	–
4730.66	A I, II	–	[5]	Ms
4730.52	Tb	3	–	–
4730.479	Rb II	–	10	Rr
4730 385	V I	9	8	–
4730.38	I	–	[25]	Ke
4730.361	Mn	15	5	–
4730.314	Cb	5	5 h	–
4730.3	Bi II	–	[25]	Ml
4730.16	Mg I	2	–	Fl
4730.135	Gd	30	–	–
4730.116	Ta	100	5	–
4729.883	Th	6	5	–
4729.83	Te	–	[50]	Bl
4729.82	Bi	–	2 h	–
4729.723	Sm	2	–	–
4729.723	Cr	30	6	–
4729.699	Fe I	25	25	–
4729.652	W	30	15	–
4729.532	V I	15	12	–
4729.466	Sr I	4 h	–	ISn
4729.45	S II	–	[8]	Hn
4729.291	Ni I	10	–	–
4729.226	Sc I	100	50 h	–
4729.141	Mo	30	30	–
4729.130	Pr	4	–	–
4729.114	Th	3 w	–	–
4729.056	Co	2	–	m
4729.030	U	1	2	–
4729.028	Er	8	–	–
4728.876	Dy	3	–	–
4728.861	Ir	150	3	–
4728.773	W	7	–	–
4728.769	Sc I	50	25	–
4728.652	V I	3 h	2 h	–
4728.630	Pr	40 w	6 w	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4728.560	Fe I	20	1	–
4728.530	Yt I	60	4	–
4728.474	Gd	150	100	–
4728.438	Sm	150	–	–
4728.417	La II	400 r	300	–
4728.36	Dy	2	2	–
4728.24	Br	–	[12]	Bl
4728.235	Mo	2	3	–
4728.18	Cs	–	[10]	Bs
4728.18	Tb	4	–	–
4728.148	Eu	40	–	–
4728.023	Ir	4	–	–
4727.940	Co I	300	–	–
4727.916	Nd	2	–	–
4727.851	Ni I	5	–	–
4727.676	U	4	1	Hb
4727.619	Re	40	–	–
4727.590	Ru	6	–	–
4727.588	Ce	5	–	–
4727.48	A	–	[5]	Ms
4727.476	Mn	150	20	–
4727.47	Eu	8 W	–	Kn
4727.46	P	–	[100]	Gu
4727.407	Fe I	10	–	–
4727.336	U	2	–	–
4727.328	Cb	3	5	–
4727.21	C II	–	5 h	En
4727.2	Rb	–	[5]	Dr
4727.153	Cr	80	20	–
4727.133	Dy	10	8	–
4727.111	Sm	3	–	–
4727.11	U	4	4	–
4726 91	A	–	[200]	Rs
4726 91	Te	–	[15]	Bl
4726.860	U	1	2	–
4726.783	Cb	2 h	3	–
4726.741	Gd	40	100	–
4726.556	Nd	15	–	–
4726.55	I II	–	[5]	Mu
4726.52	Tb	5	–	–
4726.518	Pr	10	–	–
4726.495	Sm	10	–	–
4726.477	Th	3	1	–
4726.450	Ba I	80	30	–
4726.371	Dy	3	2	–
4726 355	Pr	40 w	–	–
4726.280	W	6	–	–
4726.20	Lu	4	–	Me
4726 076	Er	12	5	–
4726 075	Yb	45	200	–
4726.026	Sm II	100	–	–
4725.937	Re	20	–	–
4725 846	Yt I	4 h	–	–
4725 703	Eu	8	2	–
4725.602	W	4	–	–
4725.597	U	1	2	–
4725.56	Tm	10	2	–
4725 339	Mo	8	8	–
4725.145	Ne I	–	[70]	IMe
4725.135	W	40	3	–
4725.090	Ce	10	–	–
4725.02	Re	4 w	–	Me
4724.936	Eu	4 w	–	–
4724.93	Tb	2	–	–
4724.89	Kr I	–	[20]	Me
4724 845	Ce	10	–	–
4724.795	Ru I	10	–	–
4724.787	Th	6	4	–
4724.765	Pr	4	–	–
4724.734	Ba	5	3	–
4724.679	Ti I	7	–	–
4724.517	Er	8	2	–
4724.438	Pr	2	–	–
4724.426	La II	15	20	–
4724.416	Cr	125	10	–
4724.358	Nd	30	2	–
4724 342	Rh I	2	2 h	–
4724.315	Ce	8	–	–
4724.25	Tm	35	2	–
4724 25	P	–	[75]	Gu
4724.223	Dy	3	–	–
4724.162	Ne I	–	[5]	Ps
4724.10	A	–	[5]	Ms
4724.057	Eu	30	–	–
4724.001	Pd I	15	2 h	–
4723 921	Dy	3	–	–
4723 913	Eu	20	–	–
4723.900	Zr I	3	–	–
4723.899	Pr	4	–	–
4723.810	Ne I	–	[20]	Ps
4723 795	Th	12	10	–
4723.795	Cb	5	5	–
4723.735	Gd	100	200	–
4723.716	La I	6	–	–
4723.686	Sm II	20	–	–
4723 452	Th	5	4	–
4723.449	Mo	4	4	–
4723.315	Mo	4	4	–
4723.245	Er	3 l	–	–
4723.222	Ru	6	–	–
4723.168	Ti I	40	7	–
4723.167	Dy	2	2	–
4723.149	Cb	1	3 h	–
4723.102	Cr	125	8	–
4723.089	W	4	–	–
4723.063	Mo	10	20	–
4722.947	Sm	3 h	–	–
4722.877	Ta	200	–	–
4722.865	V I	20	15	–
4722.831	Bi I	10	5	Om
4722.8	Hg I	–	[5]	Wd
4722.726	U	40	50	–
4722.714	Ne I	–	[15]	Ps
4722.703	Er	12	–	–
4722.670	Pr	5	–	–
4722.632	Sm	3 h	–	–
4722.616	Ti I	80	8	–
4722.552	Bi I	1000	100	–
4722 278	Sr I	30	–	ISn
4722 190	Bi I	10	5	Om
4722.16	Kr	–	[3]	Me
4722.159	Zn I	400 w	300 h	IHz
4722.150	Ne I	–	[5]	Ps
4722.14	La II	–	2 h	Me
4722.109	Th	2	–	–
4722.020	Er	4	–	–
4721 910	Pr	3	–	–
4721.88	Ir	2	–	Me
4721.76	Rn I	–	[150]	Rs
4721.711	Hf	10	4	–
4721.675	Pr	3	–	–
4721.62	A	–	[10]	Rt
4721.536	Ne I	–	[70]	Ps
4721.510	V I	15	12	–
4721.471	Pr	2	–	–
4721.466	Gd	20	20 h	–
4721.43	Cl II	–	[25]	Ks
4721.408	Co	8	100 h	–
4721.396	Sm II	20	–	–
4721.322	U	–	2 h	–
4721.284	Os	12	–	–
4721.28	Cl I	–	[6]	Ks
4721 246	V I	3	2	–
4721.234	Dy	12	5	–
4721.065	Er	5	–	–
4721.00	Xe	–	[2 whl]	Hu
4721 000	Rh I	8	5	–
4720.93	Ir	2 wh	–	Me
4720 925	Ru	15	–	–
4720 910	Nd	4	–	–
4720 830	Sc I	4	5	–
4720.779	Yb	7	1	–
4720.591	U	–	2 h	–
4720.550	Eu	10 W	–	–
4720.398	W	15	3	–
4720 38	As II	–	3	Ro
4720.37	Br	–	[10]	Bl
4720.26	P II	–	[30]	Gu
4720.25	Ca	–	2	Ad
4720.235	Pr	4	–	–
4720.223	Eu	8 W	–	–
4720.129	Sm II	20	–	–
4720.015	U	5	10	–
4719.997	Th	4	4	–
4719.947	La II	200 r	300	–
4719.94	A I	–	[20]	Ms
4719.842	Sm II	125	–	–
4719.77	Br	–	[80]	Bl
4719.766	Er	2	–	–
4719.735	Ce	6	–	–
4719.646	Pr	4	–	–
4719.515	Ti II	–	2	–
4719.405	Rh I	2 h	–	–
4719.37	Ne II	–	[10]	Bn
4719.347	Sc I	12	5	–
4719.318	Ir	2	–	–
4719.31	Er	4	–	Ed
4719.304	Pr	8 d	–	–
4719.26	Tm	10	–	–
4719.22	A I	–	[2]	Ms
4719.116	Zr I	8	–	–
4719.102	Hf II	30	40	–
4719.08	U	3 h	–	–
4719.054	Gd	50	20	–
4719.032	Nd	50	–	–
4718.989	Os	6	–	–
4718.98	Tb	3	–	–
4718.910	Ru	7	–	–
4718.901	W	2	7	–
4718.879	Mo	25 h	25 h	–
4718 715	Er	2	–	–
4718.680	Pr	8 d	–	–
4718.667	Sm	25	–	–
4718.66	Yb	6 W	–	–
4718.630	W	12	2	–
4718.627	Th	8 l	5	–
4718.614	Eu	60 W	2	–
4718.58	Se II	–	[4]	Bt
4718.478	Co I	50	–	–
4718.43	N II	–	[5]	Fl
4718.429	Cr I	200	150	–
4718.42	U	2	–	–
4718.346	Sm II	100	–	–
4718.10	A I	–	[2]	Ms
4718.065	Ru	7	–	–
4718.024	Cb	2	2 h	Me
4717.924	Mo	50	50	–
4717.829	U	3	1	–
4717.736	Sm II	100	–	–
4717.69	Tm	2	1	Me
4717.690	V I	20	15	–
4717.688	Cr	20	1	–
4717.620	Zr I	6	–	–
4717.608	Ne I	–	[70]	Ps
4717.586	La II	15	25	–
4717.52	Cb	1	3	Me
4717.52	Ho	2	1 h	Ex
4717.432	Sm	5	–	–
4717.39	Br	–	[8]	Bl
4717.29	Gd	10	–	Ed
4717.225	Eu	60 W	2	–
4717.088	Sm	80	–	–
4717.081	Nd	40	–	–
4717.076	Pr	3	–	–
4717.031	Sc I	8	4	–
4717.02	Tb	3	–	–
4717.00	P II	–	[15 h]	Gu
4716.9	bh Zr	4	–	L
4716.865	W	10	2	–
4716.81	Te	–	[30]	Bl
4716.71	Si	–	8	Sy
4716 70	Lu	5	–	Me
4716 693	Sm	2	–	–
4716 674	Mo	5	8	–
4716.586	Gd	15	15	–
4716.443	La II	100	200	–
4716 341	U	–	2	–
4716 26	Ca	–	4	Ad
4716.26	Eu	3 W	–	–
4716.248	Sc I	6	3	–
4716.226	S II	–	[600]	Hn
4716.19	Cs	–	[10]	Bs
4716 108	Sm	150	–	–
4716.06	Tb	15 w	–	–
4716 045	Ru I	10	–	–
4716 002	Th	4 h	2 h	–
4715.951	Er	3	–	–
4715 893	V I	10	9	–
4715.826	Cb	3	50 h	–
4715.778	Ni I	200	2	–
4715.669	U	10	5	–
4715.612	Ru	4	–	–
4715.589	Nd	30	1	–
4715.588	Pr	6	–	–
4715 51	Gd	8	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4715 436	Th	3	2	–
4715.432	V	4	3	–
4715.344	Ne I	–	[1500]	IMe
4715 298	Ti I	40	2	–
4715.272	Sm II	100	–	–
4715.246	Ne I	–	[30]	Ps
4715.230	Pr	4	–	–
4715.2	bh C	–	–	L
4715.18	Xe II	–	[80]	Hu
4715.132	Ne I	–	[30]	Ps
4715.072	Ce	6	–	–
4714 995	Er	4	1	–
4714 99	Hf II	3	4	Me
4714 89	Tb	2	–	–
4714.852	Pr	4	–	–
4714 630	Sm II	50	–	–
4714.595	U	4	–	–
4714.516	W	7	–	–
4714.510	Mo	15	15	–
4714.421	Ni I	1000	8	–
4714 336	Ne I	–	[70]	Ps
4714 331	Sc I	7	5	–
4714.228	Nd	4	–	–
4714 209	Ru	5	–	–
4714.20	Tm	10	15	–
4714.152	La I	5	2	–
4714.146	Pr	30	–	–
4714.118	V I	25	20	–
4714.074	Fe	50	50	–
4713.996	Ce	10	3	–
4713.993	Cr	15	1	–
4713.959	Sr I	3	–	ISn
4713.943	U	4	5	–
4713.861	W	6	–	–
4713.769	Er	4	–	–
4713 69	Tm	10	–	–
4713.606	Eu	400	2	–
4713 500	Cb	15	15	–
4713.48	Hf II	6	2	–
4713.448	V I	5 h	4 h	–
4713.433	Zr I	5	–	–
4713.373	He I	–	[7]	Ps
4713.32	Tm	10	–	–
4713.143	He I	–	[40]	IMr
4713.13	Ne	–	[100]	Wa
4713.100	Pr	30	–	–
4713.074	Sm II	100	–	–
4713.060	Er	2	–	–
4713.059	Nd	30	2	–
4713.046	Cb	2	3	–
4712 934	La II	100 r	150	–
4712 82	Yb	–	30 h	Me
4712.819	Gd	25	40	–
4712.800	Ne I	–	[10]	Ps
4712.8	bh Sr	2	–	L
4712.783	Re	20 w	–	–
4712.63	Xe	–	[20]	Hu
4712.491	W	18	5	–
4712.421	Eu	4	–	–
4712.395	Th	4	3	–
4712.285	Pr	5	–	–
4712.150	U	4	8	–
4712.135	Ne I	–	[15]	Ps
4712.105	Eu	2	–	–
4712.069	Ni I	30	–	–
4712.060	Ne I	–	[1000]	Ps
4712.02	Mn	5	–	–
4711.989	Ru	12	–	–
4711.983	Gd	30	30	–
4711.96	Sb	–	3 h	Sp
4711.916	Zr I	15	–	–
4711.876	Cb	3 h	3	–
4711.85	Ir	2	–	Me
4711.840	Pr	15	–	–
4711.732	Sc I	6	3	–
4711.72	Tm	10	2	–
4711.69	Tb	4	–	–
4711.40	I	–	[15 h]	Bl
4711.343	Pr	2	–	–
4711.26	Sb II	–	[100]	Lg
4711.240	Re	2	–	–
4711.188	W	15	3	–
4711.17	Tb	4	–	–
4711.16	Te	–	[70]	Bl
4710.76	Tb	3	–	–
4710 651	Sm II	50	–	–
4710.558	V I	25	20	–
4710 478	Ne I	–	[30]	Ps
4710 341	W	12	3	–
4710 286	Fe I	20	2	S
4710 223	Ce	2	–	–
4710.200	Tm	4	–	–
4710.194	Ti I	100	25	–
4710.189	U	4	6	–
4710 075	Zr I	60	–	–
4710 058	Ne I, II	–	[1000]	Ps
4710 018	Os	2	–	–
4710.004	Ce	4	–	–
4710.00	O II	–	[60]	Mh
4709.970	Mo	4	5	–
4709.84	Ho	3	2	Ex
4709.82	Eu	30 W	2	–
4709.80	I	–	[8 h]	Bl
4709.783	Gd	100	25	–
4709.78	Er	3	1	m
4709.73	Tb	2	–	–
4709.718	V I	10	9	–
4709.715	Mn	150	15	–
4709.714	Nd	30	1	–
4709.556	Nd	2	–	–
4709.519	Pr	40	1	–
4709 50	A I	–	[30]	Ms
4709.484	Ru I	150	80	–
4709.45	N II	–	[2]	Fl
4709.336	Sc I	15	15 hl	–
4709 226	Dy	4	2	–
4709.098	Fe I	20	2	–
4709 08	A I	–	[10]	Ms
4708 976	Ti I	2	–	–
4708.960	Fe	50	50	–
4708.94	Ba II	–	[80]	Rs
4708.92	Xe II	–	[8 h]	Hu
4708.879	Ir	15	–	–
4708.86	Yt I	3	1	–
4708 854	Ne I	–	[1200]	IMe
4708.84	Hf	2	4	–
4708 81	Ca	–	5	Ad
4708.663	Ta	2	5 d	–
4708 663	Ti II	2	20	–
4708 46	A I	–	[2]	Ms
4708 370	Nd	3	–	–
4708 288	Cb	50	30	–
4708.225	Mo	30	30	–
4708 21	Xe I	–	[5]	Me
4708 186	La I	25	2	–
4708 184	Ir	4	–	–
4708.169	U	–	2	–
4708.155	Pr	50	10 w	–
4708.043	Pd I	2	–	–
4708 040	Cr I	200	150	–
4708 040	Nd	2	–	–
4707.95	Tb	25	–	–
4707.940	Ce	8	–	–
4707.939	Pr	50	10 w	–
4707.891	Gd	30	30	–
4707.83	I	–	[8]	Bl
4707.82	As II	–	200	Ro
4707.786	Zr I	5	–	–
4707,754	Cr	8	1	–
4707.580	Nd	15	–	–
4707.541	Pr	80	10 w	–
4707.489	Fe I	3	–	–
4707.441	V I	6	5	–
4707.3	bh Sc	5	–	Me
4707.288	Sr I	10	–	–
4707.281	Fe I	100	12	S
4707.277	Ce	2 h	–	–
4707.255	Mo	125	125	–
4707 005	Ce	2	1	–
4707.0	bh Sc	10	–	Me
4706 967	Sc I	10	5	–
4706.960	Nd	40	–	–
4706.94	Rh	2 h	–	m
4706.782	Dy	4	–	–
4706.76	U	2	3	–
4706.730	Er	2	–	–
4706.7	bh Yt	10	–	Me
4706.572	V I	20	15	–
4706.556	Sm II	5	–	–
4706.548	Pr	2	–	–
4706.542	Nd	50	5	–
4706.53	Te	–	[70]	Bl
4706.461	Ce	2 h	–	–
4706.446	Th	3	–	–
4706.404	U	3	4	–
4706.31	Kr II	–	[3]	Me
4706.3	bh Yt	4	–	Me
4706.27	Tb	3	–	–
4706.228	Pr	6	–	–
4706.219	Th	5	4	–
4706.200	Mo	4	4	–
4706.170	W	15	1	–
4706.164	V I	15	12	–
4706.138	Cb	50	50	–
4706.102	Cr	30	1	–
4706.091	Ta	200	2	–
4706.057	Mo	25	25	–
4705 98	Eu	4 W	–	Kn
4705.936	Os	15	1	–
4705.808	Er	6 d	–	–
4705.767	Gd	25	–	–
4705.764	Th	10	6	–
4705.73	Dy	3 h	–	Ed
4705 579	Ce	3 h	–	–
4705 573	Pr	5 h	–	–
4705.50	Ni I	2	–	–
4705.48	Tb	2	–	–
4705 464	Fe	2	–	–
4705 443	Tm	3	–	–
4705.44	Kr II	–	[2 hl]	Me
4705 35	Bi II	–	50	Om
4705.32	O II	–	[300]	Mh
4705 305	Er	4	–	–
4705 159	Ru I	5	–	–
4705 087	V I	15	12	–
4705 034	Re	40 w	–	–
4705 000	Sm II	3	–	–
4704.963	Fe	10	1	–
4704.90	Tb	2 h	–	–
4704.870	Yb	4	–	–
4704 86	Br II	–	[250]	Bl
4704 67	Xe II	–	[8 whl]	Hu
4704.63	Hg II	–	[200]	Ps
4704.601	Eu	30 w	–	–
4704 596	Cu I	200	50	–
4704 58	Tb	2	–	–
4704 493	Er	2	–	–
4704 48	Sb II	–	10	–
4704 476	U	3	3	–
4704.408	Sm II	200	–	–
4704.395	Ne I	–	[1500]	IMe
4704 386	Co I	3	–	–
4704 289	Gd	4	–	–
4704.15	Tb	2	–	–
4704 081	Rh I	10	4	–
4704.054	Ir	12	–	–
4704.012	Ce	8	–	–
4703.998	Pr	4	–	–
4703 992	Th	3	1	–
4703 984	Sr I	2	–	ISn
4703.930	Cb	3 h	5 h	–
4703.887	Eu	8 W	–	–
4703.864	Nd	15	–	–
4703 808	Ni I	200	–	–
4703.779	Ce	2	–	–
4703.768	Er	3	–	–
4703.767	Re	2	–	–
4703.610	Hf II	4	12	–
4703.576	Nd	20	–	–
4703.471	Dy	5	2	–
4703 36	A II	–	[10]	Rt
4703 358	Eu	4	–	–
4703 278	La II	200 r	300 r	–
4703 258	Pr	3	–	–
4703.14	O II	–	[30]	Mh
4703.136	Gd	50	20	–
4703.12	Hf	20	–	–
4703.074	Nd	3	–	–
4703.054	Er	2	–	–
4703.035	Zr II	2	3	–
4703.02	Mg I	8 r	3	–
4702.886	Pr	3	–	–
4702.737	Ce	3	–	–
4702.644	La I	9	3	–
4702.621	Eu	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4702.605	Ir	7	–	–
4702.526	Ne I	–	[150]	Ps
4702.517	U	10	20	–
4702.471	W	15	5	–
4702.46	I II	–	[8]	Mu
4702.450	Pr	4	–	–
4702.42	Tb	80	–	–
4702.345	Yb	4	–	–
4702.323	Gd	50	100	–
4702.320	Th	4	2	–
4702.316	A I	–	[1200]	I
4702.202	W	5	–	–
4702.167	Er	3	2	–
4702.053	Cb	3 h	4	–
4702.047	U	8	18	–
4702.008	Ce	6	–	–
4701.97	Ra I	–	[4]	Rs
4701.922	Th	2	–	–
4701.8	Hg I	–	[5]	Wd
4701.793	Cs II	–	[25]	Ot
4701.70	Rn	–	[50]	Rc
4701.69	Ho	2	2	Ex
4701 600	W	7	–	–
4701.55	Tm	15	–	–
4701.55	Tb	2	–	–
4701.536	Ni I	150	–	–
4701.481	In	–	35	–
4701.445	Ce	8	–	–
4701.40	Br	–	[5]	Bl
4701.336	Ni I	100	–	–
4701.324	Ta	150	2 h	–
4701.296	Al	–	6	–
4701.234	U	12	–	–
4701.16	O II	–	[20]	Mh
4701.16	Ho	2	1 h	Ex
4701.159	Mn	100	5	–
4701.052	Fe I	2	–	–
4701.02	Yt I	4	2	m
4700.980	U	5	12	–
4700.910	Cb	3 h	5	–
4700.79	P II	–	[50 l]	Gu
4700.783	Er	4	–	–
4700.711	Rh I	2	–	–
4700.710	U	8	12	–
4700.66	Tb	3	–	–
4700.645	Pr	9	–	–
4700.624	Ce	2	–	–
4700 608	Cr I	50	4	–
4700.490	Mo	25	25	–
4700.469	Ne I	–	[5]	Ps
4700.436	Ba I	25	3	–
4700.433	Re	20	–	–
4700.419	Eu	6 W	–	Kn
4700.411	W	50	4	–
4700.39	Tb	2 h	–	–
4700.292	Ru	6	–	–
4700.272	Er	4	–	–
4700.263	La	8	3	–
4700 22	Sb II	–	2	Dv
4700.21	S II	–	[5]	Hn
4700.176	Zr I	3	–	–
4700.150	Th	6	4	–
4700 118	Pr	4	–	–
4700.110	Zr	3	–	–
4699.80	Tb	2 h	–	–
4699.715	Hf II	20	25	–
4699.710	Er	2	–	–
4699.696	Re	6	–	–
4699.69	Kr II	–	[30 whl]	Me
4699.627	La II	200 r	200 r	–
4699.62	Xe II	–	[3 h]	Hu
4699.589	Cr	30	1	–
4699 582	Pr	8	–	–
4699.552	Cb	–	15 h	–
4699.395	Eu	6 W	–	–
4699.345	Sm II	50	–	–
4699.315	V I	9	8	–
4699.28	Ra I	–	[40]	Rs
4699.244	Yt I	2	–	–
4699.24	Tb	5	–	–
4699.227	Er	5 l	–	–
4699.21	O II	–	[100]	Fl
4699.187	Co I	25	–	–
4699.128	Ce	2	–	–
4699.013	Hf	30	4	–
4698.99	O II	–	[30]	Mh
4698.947	Cr	15	–	–
4698.858	Pr	4	–	–
4698.815	U	8 r	–	–
4698.784	Mo	2	4	–
4698.778	Th	2	2 w	–
4698.765	Ti I	100	20	–
4698.687	Dy	10	8	–
4698.633	W	15	1	–
4698.615	Cr I	40	8	–
4698.58	Tm	5	–	–
4698.56	P	–	[30]	Gu
4698.56	Br	–	[2]	Bl
4698.52	Tb	5	–	–
4698.456	Cr I	60	12	–
4698.408	Ni I	30	–	–
4698.383	Pr	4	–	–
4698.379	Co I	300	8	–
4698.297	Nd	15	2	–
4698.276	Sc II	5	15	–
4698.22	Er	3	–	m
4698.15	Tm	10	–	–
4698 136	Eu	300	2	–
4698.105	W	10	1	–
4698 01	Xe II	–	[150 hl]	Hu
4698.006	Pr	5	–	–
4697.752	Cb	2 h	3 h	Me
4697.63	Tm	5	–	–
4697.6	bh C	–	–	L
4697.589	Eu	10	–	–
4697.490	Cu I	60 w	5 w	–
4697.488	Gd	100	4	–
4697.470	Cb	8	5	–
4697.395	Cr	15	1	–
4697.395	Th	5 wh	–	–
4697.295	Pr	4	1	–
4697.289	Nd	6	–	–
4697.173	Er	4	2	–
4697.08	Dy	3	–	–
4697.062	Cr I	50	12	–
4697.021	Xe I	–	[300]	IMe
4696.943	Ne I	–	[5]	Ps
4696 938	Ti I	15	3	–
4696 909	Mn	12	–	–
4696.805	Yt I	5	3	–
4696.789	Ce	2	–	–
4696 613	Gd	25	2	–
4696.523	Ce	3	–	–
4696 508	Mo	8	10	–
4696 445	Nd	30	–	–
4696.440	Pr	4	–	–
4696.43	Br	–	[2]	Bl
4696.416	Sm	4	–	–
4696 35	Te	–	[50]	Bl
4696.322	Rh I	30	–	–
4696 32	O II	–	[30]	Mh
4696 3	Bi II	–	7	Ml
4696 25	S I	–	[15]	Ms
4696 25	Hg II	–	[5]	Nu
4696 085	U	2	1	–
4695.98	Tb	3	–	–
4695 965	Hf	5	–	–
4695 862	Mo	4	6	–
4695 767	Pr	60	2	–
4695.66	Kr II	–	[50 hl]	Me
4695 637	U	1	3	–
4695.610	Cs	–	[10]	Sv
4695.486	Gd	25	10	–
4695.484	Th	2	–	–
4695.467	Cb	5	8	–
4695.45	S I	–	[30]	Ms
4695.363	Ne I	–	[20]	Ps
4695.339	Eu	10 w	1	–
4695 305	La I	4	–	–
4695.242	Ru I	10	–	–
4695 241	Dy	8	2	–
4695 233	U	8	6	–
4695.153	Cr	50	4	–
4695.14	Gd	15	–	–
4695.125	U	1	2	–
4695.038	Zr I	3	–	–
4695.011	Re	40	–	–
4694.95	Sb II	–	[6]	Lg
4694.919	Th	3	2	–
4694 880	Ce	4	–	–
4694.84	Kr I	–	[4]	Me
4694.667	Pr	4	–	–
4694.658	W	12	1	–
4694.57	Tm	5	–	–
4694.55	N II	–	[10 h]	Fl
4694.513	Cb	5	8	–
4694 44	Kr II	–	[200 hl]	Me
4694.354	Dy	5	2	–
4694.348	Ce	3 l	–	–
4694 339	Gd	50	8	–
4694.27	Tm	10	3	–
4694 13	S I	–	[50]	Ms
4694.092	Th	15	10	–
4693 99	Dy	2	–	–
4693.949	Cr	50	20	–
4693 931	Mo	20	25	–
4693.751	Pr	10 w	–	–
4693 729	W	50	12	–
4693 679	Ti I	25	3	–
4693 672	Dy	3	2	–
4693 630	Nd	20	1	–
4693 629	Sm II	50	–	–
4693.580	Ce	2	–	–
4693 403	Re	5 w	–	–
4693 347	Ta	150	3	–
4693 342	Mo	2	3	–
4693 34	Xe II	–	[10 hl]	Hu
4693 27	Br	–	[40]	Bl
4693 212	Co I	500	25	–
4693.11	Tb	20	–	–
4692 968	Nd	8	–	–
4692.737	Dy	3	2	–
4692.7	bh Sr	5	–	L
4692.694	Mo	2	4	–
4692.658	Pr	10	–	–
4692.635	Eu	60 w	2	–
4692.502	La II	200	300	–
4692 33	Br	–	[8]	Bl
4692.062	Os	80	3	–
4692 055	Ce	4	1	–
4692.047	U	–	3	–
4692 019	Pr	4	–	–
4692 008	Mo	5	6	–
4691.961	Yt I	2	–	–
4691 900	Ta	400	5 h	–
4691 789	Pr	9	–	–
4691 732	Zr I	3	–	–
4691.622	Ba	100	40	–
4691 580	Ne I	–	[15]	Ps
4691.554	W	6	2	–
4691.54	Cl I	–	[8]	Ks
4691.504	Tm	5	–	–
4691.414	Fe I	80	10	S
4691.37	O II	–	[15]	Mh
4691 338	Ti I	125	25	–
4691 28	Kr II	–	[100]	Me
4691 24	Br	–	[2]	Bl
4691 177	La II	10	25	–
4691.17	Gd	25	2	–
4691.10	Tm	35	20	–
4691.097	Er	2	–	–
4691.06	Th	3	2	–
4690.971	Xe I	–	[100]	IHu
4690.859	Mo	20	25	–
4690.834	Co	2	–	m
4690.815	Yb	2	5	–
4690 805	Ti I	15	2	–
4690.739	U	1	3	–
4690.712	Ce	2	–	–
4690.660	Th	3	3	–
4690.576	Pr	10	–	–
4690 497	Ce	2	–	–
4690.344	Nd	30	–	–
4690.27	Eu	3 W	–	–
4690.23	Dy	3	–	–
4690.170	Ce	2	–	–
4690.144	Fe I	7	–	–
4690.106	Ru I	25	–	–
4689.889	Ru	5	–	–
4689.776	Yt I	5	2	–
4689.77	Lu	4	–	Me
4689.768	Dy	8	8	–
4689.73	Eu	4 W	–	–
4689.588	Nd	25	–	–
4689.578	Sm II	10	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
4689.557	Pr	15	–	–
4689.545	Re	3	–	–
4689.503	Ce	2	–	–
4689.49	Ir	3	–	Me
4689.459	Rh	2	–	–
4689.374	Cr I	80	35	–
4689.341	Pr	4	–	–
4689.173	Th	10	6	–
4689.160	Cb	3	2	–
4689.10	Tb	3	–	–
4689.074	U	30	40	–
4689.039	Pr	3	–	–
4688.906	Gd	5	–	–
4688.889	Ce	6	–	–
4688.845	Ta	40	–	–
4688.735	Sm	50	–	–
4688.656	La II	6	20	–
4688.63	Er	5	2	m
4688.63	Tb	15	–	–
4688.559	Pr	4	–	–
4688.557	Nd	5	1	–
4688.51	Yb	1	5 h	Me
4688.50	Eu	3 w	1	Kn
4688.476	Co I	20	–	–
4688.448	Zr I	50	–	–
4688.394	Ti I	10	3	–
4688.39	Hf	30	4	Me
4688.3	Kr II	–	[3 h]	Me
4688.23	Eu	100	2	–
4688.229	Ce	2	–	–
4688.220	Mo	25	30	–
4688.20	Ho	2	2	Ex
4688.191	Ne I	–	[2]	Ps
4688.136	Gd	20	10	–
4688.132	Sm	4	–	–
4687.858	Re	15	–	–
4687.835	Er	3	–	–
4687.809	Pr	50	1	–
4687.803	Zr I	125	–	–
4687.781	Cb	5	5	–
4687.770	Cu II	–	2	Sh
4687.671	Ne I	–	[100]	IMe
4687.653	W	12	1	–
4687.637	Ce	2	–	–
4687.43	I I	–	[15]	Bl
4687.28	Kr II	–	[10 hl]	Me
4687.233	Pr	3	–	–
4687.182	Sm II	100	–	–
4686.95	Te	–	[300]	Bl
4686.922	U	8	–	–
4686.921	Ti I	8	2	–
4686.920	V I	15	12	–
4686.85	Eu	3 W	–	Kn
4686.806	Ce	2	–	–
4686.66	Eu	2 W	–	Kn
4686.587	Th	2	1	–
4686.491	Os	2	–	–
4686.42	Tb	3	–	–
4686.403	Gd	10	5 h	–
4686.383	W	8	–	–
4686.38	Hf	6	–	Me
4686.30	Kr II	–	[8 whl]	Me
4686.285	Pr	4	1	–
4686.218	Ni I	200	1	–
4686.193	Cr	20	1	–
4686 095	Mo	8	6	–
4685.927	Cb	2	2	–
4685.856	Co I	30	–	–
4685 837	Ge I	20	–	–
4685.83	Ho	3	2	Ex
4685.813	Mo	12	12	–
4685.783	Ru	15	–	–
4685.75	He II	–	[300]	Ps
4685.74	N	–	[10]	Du
4685.718	U	10	18	–
4685.70	Eu	3 w	–	Kn
4685.672	Zr	4	–	–
4685.533	U	1	3	–
4685.527	Cb	2	1	–
4685.45	Se II	–	[12]	Bl
4685.447	Pr	5	–	–
4685.3	Hg I	–	[5]	Wd
4685.266	Ta	80	2	–
4685.265	Ca I	25	1	IWg
4685.25	Eu	60 W	–	Kn
4685.232	Ce	3	–	–
4685.223	In II	–	[100]	Ps
4685.189	Zr II	2	3	–
4685.135	Cb	15	20	–
4685.10	Tm	25	–	–
4685.06	Ir	4	–	Me
4685.040	In II	–	[10]	Ps
4685.013	Ti	2	–	–
4684.936	Pr	125	10 w	–
4684.934	In II	–	[15]	Ps
4684.9	Pb II	–	[5]	Ea
4684.890	Nd	3	–	–
4684.867	Ta	100	2	–
4684.82	Eu	4 w	–	–
4684.8	bh C	–	–	L
4684.760	In II	–	[25 h]	Ps
4684.644	U	8	8	–
4684.605	Cr	20	–	–
4684.605	Ce	8 s	–	–
4684 592	Er	2	–	–
4684.587	In II	–	[25]	Ps
4684.541	Pr	6	–	–
4684.484	Ti I	7	1	–
4684.449	In II	–	[20]	Ps
4684.447	V I	8	7	–
4684.358	Nd	3	–	–
4684 336	Mo	5	4	–
4684.316	In II	–	[35]	Ps
4684.265	Yb	5	–	–
4684.250	Zr I	4	–	–
4684.206	Sm	2	–	–
4684.14	Tb	2	–	–
4684.134	U	–	3	–
4684.107	Pt I	5	1	–
4684.10	Ir	6	–	Me
4684.039	Nd	40	–	–
4684.035	Sm	4	–	–
4684 018	Ru I	100	–	–
4683.934	Hf	12	–	–
4683.836	Pr	3	–	–
4683.827	Mo	6	8	–
4683.819	Yb	7	20	–
4683.792	Dy	4	2	–
4683.764	Ne I	–	[30]	Ps
4683.719	Mo	5	5	–
4683.68	Kr II	–	[5]	Me
4683 611	U	2	–	–
4683.566	Fe I	6	–	–
4683.545	W	20	10	–
4683.441	Nd	50	–	–
4683.430	Pr	3	–	–
4683.421	Zr I	9	–	–
4683.343	Gd	100	50	–
4683 238	Ne I	–	[5]	Ps
4683.225	Pr	2	–	–
4683.103	Ru	7	–	–
4683.10	Ta	–	15	Ex
4683 10	Si	–	4	Sy
4683 072	Ce	2	–	–
4683.071	Gd	20	–	–
4683.047	U	2	8	–
4682.985	Cb	2	2	–
4682.959	Rh I	3	2	–
4682.910	Ne I	–	[10]	Ps
4682.79	Tb	8	–	–
4682.755	V I	3 h	2 h	–
4682 692	Pr	2	–	–
4682 682	Sm II	20	–	–
4682.667	Hf II	2	8	–
4682.664	Cb	2	3	–
4682.60	U	–	2	–
4682.569	W	12	–	–
4682 52	Tb	10	–	–
4682.445	Pr	2	–	–
4682.376	Co I	500	–	–
4682.332	Re	30 W	–	–
4682.325	Yt II	60	100	–
4682.312	Os	18	–	–
4682 29	A II	–	[10]	Rt
4682.28	Ra II	–	[800]	Rs
4682.244	Mo	4	5	–
4682.213	Pr	3	–	–
4682.208	Th	4 d	–	–
4682.146	Ne I	–	[20]	Ps
4682.133	U	4	2	–
4682.125	La II	3	3	–
4682.056	Pr	3	–	–
4682.03	Dy	3	2	–
4682 00	In	–	250 W	Sq
4681.990	Cu II	–	20	Sh
4681.944	Er	4 d	–	–
4681.933	Mo	3	3	–
4681.930	Ne I	–	[20]	Ps
4681.92	Tm	50	2	–
4681.916	Ti I	200	100	–
4681.9	bh C	–	–	L
4681.888	Re	2 h	–	–
4681.875	Ta	200	50	–
4681.87	Tb	15	–	–
4681.786	Ru I	100	–	–
4681.765	Nd	25	–	–
4681.626	Mo	4	5	–
4681.560	Sm	50	–	–
4681.558	Er	3	–	–
4681.51	Eu	10	1	Kn
4681.428	Os	2	–	–
4681.393	Ru	10	–	–
4681.32	S II	–	[5]	Hn
4681.255	Nd	5	–	–
4681.208	Th	2	2	–
4681.200	Ne I	–	[50]	Ps
4681.195	W	10	1	–
4681.183	U	2	4	–
4681.108	In II	–	[200]	Ps
4681.06	Eu	15	1	Kn
4681.06	Te	–	[15 h]	Bl
4681.046	Mo	6	8	–
4681.00	Dy	4	–	m
4680.993	Ce	3	–	–
4680.887	V I	4	3	–
4680.870	Cr	60	8	–
4680 83	Rn	–	[500]	Wa
4680.734	Nd	50	1	–
4680 652	Th	4	3	–
4680 65	Gd	3	–	–
4680.544	Cr I	50	25	–
4680.520	W	150	40	–
4680.481	Sc	5	4 h	–
4680.472	Pr	4	–	–
4680.465	Ir	2	–	–
4680.458	Ce	2	–	–
4680.41	Kr II	–	[500]	Me
4680.363	Ne I	–	[100]	Ps
4680.318	Pr	2	–	–
4680.305	Fe I	9	–	–
4680 138	Zn I	300 w	200 h	IHz
4680.127	Ce	6	–	–
4680.056	Gd	50	25	–
4680.045	Sm	10	–	–
4679.831	Pr	3	–	–
4679.774	V	4	3	–
4679.62	Tb	2	–	–
4679.498	Pr	2	–	–
4679.48	Eu	4 w	–	Kn
4679 475	Re	20	–	–
4679.45	Xe II	–	[3 h]	Hu
4679.179	Gd	25	25	–
4679.135	Ne I	–	[150]	IMe
4679 12	Dy	3	2	m
4679.112	Pr	8	3	–
4679.070	Er	6	2	–
4679.041	W	15	2	–
4679.039	Pr	5	–	–
4678 98	I	–	[8]	Bl
4678.94	P II	–	[100 l]	Gu
4678.908	Nd	2 h	1	–
4678.852	Fe I	150	100	S
4678.81	Tb	2	–	–
4678.69	Br	–	[200]	Bl
4678 621	Ce	2	–	–
4678.604	Ne I	–	[50]	Ps
4678.6	bh C	–	–	L
4678.523	Cb	5	5	–
4678.513	Ce	2	–	–
4678.426	Cb	5	5	–
4678.354	Yt I	2	–	–
4678.326	Sr I	20 h	–	ISn
4678.31	Xe II	–	[2 h]	Hu
4678 247	Gd	10 h	10 h	–
4678.220	Th	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4678.218	Ne I	–	[300]	IMe
4678.204	Mo	3	5	–
4678.17	In	–	30	Sq
4678.168	Pr	12	2	–
4678.156	Cd I	200 W	200 W	–
4678.123	Sm	3	–	–
4678.1	Tl I	8	–	Fl
4678.017	Ta	40	2	–
4677.94	I II	–	[10]	Ke
4677.94	N II	–	[10 w]	Fl
4677.898	U	–	4	–
4677.87	Ag	2 h	1 h	Kp
4677.85	Tm	50	2	–
4677.8	Pb II	–	[7]	Ea
4677.780	Pr	2	–	–
4677.76	Cl I	–	[4]	Ks
4677.694	W	25	3	–
4677.621	Gd	5	–	–
4677.483	Ti I	3	1	–
4677.461	Pd I	8	2	–
4677.407	Rh I	6	2	–
4677.31	Tb	2	–	–
4677.251	Co I	4	–	–
4677.19	Tm	5	–	–
4676 994	Pr	3	–	–
4676.98	Gd	8	–	m
4676.975	Ti I	10	–	–
4676 941	I II	–	[80]	Ke
4676.908	Sm II	100	50	–
4676.9	bh Yt	3	–	Me
4676.89	Tb	25	–	–
4676.88	Te	–	[15]	Bl
4676.75	Xe	–	[5 h]	Hu
4676.725	Pr	5	–	–
4676.632	W	20	2	–
4676.523	Th	2	–	–
4676.46	Xe	–	[100 whl]	Hu
4676.338	Ce	2	–	–
4676.3	bh Yt	5	–	Me
4676.30	U	1	3 h	–
4676 262	Nd	2	2 h	–
4676.246	O II	–	[125]	Fl
4676.181	Pr	10	8 h	–
4676.054	Th	2	–	–
4676.05	I II	–	[5]	Mu
4675 807	Dy	7	2	–
4675.78	P	–	[70]	Gu
4675.745	Sb	–	[15]	Lg
4675.705	Mo	2	4	–
4675 64	Br	–	[4]	Bl
4675.639	Ni I	8	–	–
4675.63	Ho	3	1	Ex
4675.622	Er	15	4	–
4675.55	Se	–	[10]	Bt
4675.537	Ir	15	2	–
4675.528	I II	–	[50]	Ke
4675.523	Nd	5	–	–
4675.48	Eu	20 W	–	Kn
4675.472	Pr	3	–	–
4675.455	Hf II	10	10	–
4675.390	Re	2 h	–	–
4675.370	Cb	50 w	30 w	–
4675 312	Ce	2	–	–
4675.31	Tm	35	–	–
4675.29	Lu	4	1	Me
4675.18	Tb	2	–	–
4675.123	Ti I	50	5	–
4675 093	W	8	1	–
4675.08	Tm	25	–	–
4675.038	Pr	5	–	–
4675.026	Rh I	100	50	–
4674.98	N II	–	[5]	Fl
4674.89	Cs	–	[10]	Bs
4674.878	Ce	2 h	–	–
4674.849	Er	50	15	–
4674.848	Yt I	80	100	–
4674.800	Pr	25	–	–
4674.76	Cu II	200	30 W	Hs
4674.654	Ru I	20	–	–
4674.62	Ho	4	3	Ex
4674.61	Dy	3	–	–
4674.595	Nd	50	10	–
4674.592	Sm II	80	40	–
4674.56	Xe II	–	[25]	Hu
4674.519	Ru	7	–	–
4674.492	Ce	3	–	–
4674.305	Re	15	–	–
4674.238	Pr	3	–	–
4674.228	U	8	8	–
4674.21	Tm	10	–	–
4674.184	Nd	5	–	–
4674.04	Tb	2	–	–
4674.014	Os	3	–	–
4673.988	W	2	1	–
4673.975	Nd	5	–	–
4673.80	Kr II	–	[3]	Me
4673.772	In II	–	[5]	Ps
4673.740	U	–	3 h	–
4673.71	O I, II	–	[30]	Mh
4673.661	Th	6	2	–
4673.621	Ba	40	5	–
4673.615	Dy	10	8	–
4673.61	Tb	4	–	–
4673.589	Cb	2	5	–
4673.555	Cu II	–	6	Sh
4673.462	Be II	–	[100]	Ps
4673.38	Br	–	[4]	Bl
4673.21	Dy	2	–	Ed
4673 172	Fe I	20	2	–
4673.1	bh Sc	10	–	Me
4673.032	Mo	3	3	–
4672 85	Eu	6	–	–
4672.75	O I	–	[30]	Ps
4672.70	As II	–	50	Ro
4672 7	Hg I	–	[5]	Wd
4672.687	Nd	5	2	–
4672.6	bh Sr	4	–	L
4672 6	bh Sc	10	–	Me
4672 595	Pr	3	–	–
4672.56	Br	–	[12]	Bl
4672 542	W	3	–	–
4672.482	Dy	5 h	–	–
4672 46	Nd	2 h	–	Kn
4672 20	Xe II	–	[50 hl]	Hu
4672.2	Be	–	100	Sx
4672.11	Br	–	[4]	Bl
4672.091	Cb	150	100	–
4672.09	Kr II	–	[2 whl]	Me
4672 081	Pr	100	25 w	–
4672 06	Tb	2	–	–
4671 98	Tm	15	20	–
4671 898	Mo	30	30	–
4671.845	Sm II	2	–	–
4671.833	La II	100	150	–
4671 8	Li II	–	[4]	Wr
4671 711	Ce	2	–	–
4671 693	Cu II	–	10	–
4671.688	Mn	100	5	–
4671.651	W	12	1	–
4671.61	Kr I	–	[10]	Me
4671.582	Er	3	1	–
4671.408	U	20	30	–
4671.38	Eu	10	–	–
4671.370	Ru	5	–	–
4671.296	W	3	1	–
4671.226	Xe I	–	[2000]	IMe
4671 18	Eu	30	1	m
4671.10	Dy	4	4	m
4671.094	Nd	20	–	–
4671 092	Er	2	1	–
4670.913	Ce	4	–	–
4670.91	Hf	5	2	Me
4670 909	Mo	2	–	–
4670 884	Ne I	–	[70]	IMe
4670.849	Gd	3	2 h	–
4670.833	Sm	30	–	–
4670.83	Yt	3	2	m
4670.82	Tb	5	–	–
4670.768	Sm	30	–	–
4670.737	Ce	4	–	–
4670.686	Os	6	–	–
4670.575	Yb	12	15	–
4670.560	Nd	20	–	–
4670.543	Pr	10	–	–
4670.489	V I	60 R	40 r	–
4670.445	Ce	2 h	–	–
4670.404	Sc II	100	300 wh	–
4670.280	Cs II	–	[20]	Sv
4670.241	Mo	5	5	–
4670.23	Tb	3	–	–
4670.11	Te	–	[30]	Bl
4670.104	Cb	1	4 h	–
4670.097	Ce	2	–	–
4670.095	Er	2	–	–
4670.03	Th	3	1	m
4670.000	Mo	2	–	–
4669 977	Ru I	40	–	–
4669.871	Cb	3	2	–
4669.77	N	–	[10]	Du
4669.647	Sm II	50	40	–
4669.638	Ce	3	–	–
4669.637	Mo	2	3	–
4669.518	Er	3	–	–
4669.502	Ce	4	–	–
4669 398	Dy	3	2	–
4669 39	Tb	3	–	–
4669 390	Sm II	40	35	–
4669.38	Se II	–	[10]	Bt
4669.336	Cr I	50	20	–
4669.309	U	8	15	–
4669.308	V I	10	8	–
4669 24	Hf	6	6	–
4669.184	Fe I	15	2	–
4669.143	Ta	300	15	–
4669.14	S	–	[35]	Ms
4669.138	Ru	15	–	–
4669.133	Nd	5	–	–
4669.02	Ne	–	[50]	Bl
4668 987	Ir	20	–	–
4668.941	U	3	3	–
4668.914	La II	200 r	300 r	–
4668.911	W	5	–	–
4668 805	Mo	5	5	–
4668 69	Tm	10	–	–
4668.597	Na I	200	100	Da
4668.58	S II	–	[50]	Hn
4668.49	Xe II	–	[50]	Hu
4668 483	Ag I	200	70	–
4668.462	W	20	3	–
4668.454	Pr	6	–	–
4668.357	Ti I	8	1	–
4668.230	Pr	10	1	–
4668 23	Gd	12	–	Kn
4668.20	Dy	2	2	m
4668.15	I II	–	[10]	Ke
4668 149	Th	3	–	–
4668.14	Eu	15 w	–	–
4668 140	Fe I	125	10	–
4667.866	Co	10	–	–
4667.80	Se I	–	[70]	Rd
4667.787	Dy	2	2	–
4667.766	Ni I	100	–	–
4667.59	Er	3	2	m
4667.588	Tl I	150	8	–
4667.542	Os	5	–	–
4667.462	Yt I	7	–	–
4667 459	Fe I	150	20	S
4667.420	Mo	–	20 l	–
4667.41	Eu	3	–	Kn
4667.364	Ce	2	–	–
4667.356	Ne I	–	[100]	IMe
4667.325	In	–	10	–
4667.297	Cu II	–	5	Sh
4667.28	N II	–	[5]	Fl
4667.28	Tb	3	–	–
4667.28	Tm	15	–	–
4667.223	Cb	15	10	–
4667.217	U	3	5	–
4667.145	Zr I	5	–	–
4666.994	Ni I	50	–	–
4666.857	Yt I	2	–	–
4666 856	U	25	40	–
4666.804	Th	2	–	–
4666 8	Al II	–	[5]	Sy
4666.73	Se II	–	[10]	Bt
4666.729	Re	3	–	–
4666.707	Ce	2 s	–	–
4666.701	Tm	8	2	–
4666 654	Ne I	–	[50]	Ps
4666.59	Eu	5 w	–	–
4666.548	Dy	4	2	–
4666.52	I II	–	[250]	Ke
4666.512	Cr I	50	25	–
4666.50	Pr	2	–	–
4666.49	Mn	12	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4666.443	Gd	25	10	–
4666.39	Yt I	3	1	m
4666.28	A II	–	[2 h]	Rt
4666.28	Xe II	–	[25 h]	Hu
4666.240	Cb	30	15	–
4666.24	Br	–	[4]	Bl
4666.215	Cr	35	8	Hl
4666.171	Pr	2	–	–
4666.14	Er	2	–	Ed
4666.136	V I	10	9	–
4666.126	Rh I	2 h	–	–
4666 021	U	3	6	–
4666.003	Th	8	4	–
4665.945	Pr	3	–	–
4665.92	Dy	2	–	m
4665.902	Cr	20	10	–
4665.834	Sc	6	7	–
4665.827	U	3	–	–
4665.749	W	–	12	–
4665.5	Pb II	–	[5]	Ea
4665.45	Tb	10	–	–
4665.42	Er	6	2	–
4665.380	Mo	5	5	–
4665.330	Cb	2 h	2 h	–
4665.33	Te	–	[70]	Bl
4665.276	Ce	2	–	–
4665.230	Re	2	–	–
4665.19	U	–	2	–
4665.111	Sm II	20	–	–
4665.07	Eu	30 W	–	Kn
4664.999	Ru	10	–	–
4664.98	Se I, II	–	[150]	Rd
4664.963	Rh	2 h	–	Me
4664.858	Na I	80	–	Da
4664.798	Cr I	70	20	–
4664.675	Dy	10	8	–
4664.67	Ir	6	–	Me
4664.647	Pr	100	15	–
4664.64	Tb	5	–	–
4664.513	Sm	2	–	–
4664.487	Ti	2	–	–
4664.446	Nd	15	–	–
4664.34	Te	–	[800]	Bl
4664.24	Gd	25	2	m
4664.235	Er	2	–	–
4664.220	Th	4 l	–	–
4664.20	Se I	–	[150]	Rd
4664.123	Hf II	50	100	–
4664.09	U	–	2 h	–
4664.070	Ce	3	–	–
4664.02	Tb	2	–	–
4664.012	Nd	2	–	–
4663.832	Cr I	50	15	–
4663.831	Cb	30	20	–
4663.822	Os	100	5	–
4663.765	La II	100	200	–
4663.755	U	18	3	–
4663.723	Pr	3	–	–
4663.672	I	–	[15]	Ke
4663.546	Sm	60	–	–
4663.52	Ra II	–	[6]	Rs
4663.518	Ne I	–	[20]	Ps
4663.410	Co I	700 W	–	–
4663.328	Cr I	40	25	–
4663.237	Ce	3	–	–
4663.235	Er	2	–	–
4663.153	Pr	2	–	–
4663.108	Mo	3	3	–
4663.10	Dy	3	2	–
4663.092	Ne I	–	[40]	Ps
4663.010	Re	4 h	–	–
4663.00	Ba I	5	–	Fl
4662.968	Nd	5	–	–
4662.961	Zr I	3	–	–
4662.960	Ir	8	–	–
4662.79	Tb	20	–	–
4662.77	Pr	2	–	–
4662.762	Mo	40	40	–
4662.746	Dy	4	2	–
4662.634	Cu II	–	5	–
4662.595	W	3	–	–
4662.539	U	–	3	–
4662.511	La II	150	200	–
4662.496	Re	25	–	–
4662.493	Ru II	7	–	–
4662 41	Cr	5	–	–
4662.4	Hg I	–	[5]	Wd
4662.352	Cd I	8 r	–	I
4662.258	Ce	2	–	–
4662.241	Ru I	5	–	–
4662.20	Dy	3	–	m
4662.16	Tb	3	–	–
4661.976	Fe I	9	–	–
4661.970	W	15	2	–
4661.934	Mo	25	25	–
4661.88	Eu	100	–	m
4661.872	Eu	80 R	20	–
4661.87	Mn	15	–	–
4661.85	Tb	2	–	–
4661.832	Yb	6 h	–	–
4661.78	P	–	[15]	Gu
4661.778	Zr II	2	4	–
4661.652	U	8	2 h	–
4661.650	O II	–	[125]	Fl
4661.621	Ce	4	–	–
4661.537	Fe	2 h	–	–
4661.478	Re	10	–	–
4661.390	Er	2	–	–
4661.350	Cu II	–	3	Sh
4661.33	Ho	4	3	Kn
4661.281	Nd	2 h	–	–
4661.233	W	12	2	–
4661.225	Er	3	–	–
4661.22	Cl I	–	[15]	Ks
4661.117	Ta	300	5 h	–
4661.104	Ne I	–	[150]	IMe
4661.05	Eu	15 W	–	–
4660.924	U	1 h	2 h	–
4660.915	Pr	25	–	–
4660.802	Dy	4	4	–
4660.73	Mn	5	–	–
4660.701	La I	5	2	–
4660.642	Ru	7	–	–
4660.544	Re	15	–	–
4660.472	Nd	3	–	–
4660.452	Sm	2 h	–	–
4660.44	Tb	2	–	–
4660.41	Cb	–	2 h	Me
4660.37	Eu	50	1	–
4660.294	Cu II	–	2	Sh
4660 28	Hg II	–	[200]	Ps
4660.277	Nd	10	–	–
4660.17	Tb	3	–	–
4660.156	Pr	3	–	–
4660.05	N	–	[5]	Du
4659.96	Er	3 Wh	–	m
4659.937	Ce	3	–	–
4659.89	Se	–	[20]	Bt
4659 867	W	200	70	–
4659.850	U	1	2	–
4659.847	Gd	10	10	–
4659.845	Pr	5	–	–
4659.710	Pr	3	–	–
4659.63	Tb	2	–	–
4659.596	Ti	2	–	–
4659.50	Pr	2	–	–
4659.497	Dy	2	2	–
4659.488	Zr I	5	–	–
4659.42	Ir	2	–	Me
4659.400	Ce	6	6	–
4659.373	Nd	10	–	–
4659.353	U	1	3	–
4659.34	Mn	8	–	–
4659.320	Rb II	–	[8]	Rr
4659.317	K II	–	[40]	Dm
4659.21	Hf II	8	8	m
4659.03	Lu	10	1	Me
4658.890	Yt I	5	4	–
4658.87	Kr II	–	[2000]	Me
4658.807	U	1	2	–
4658.778	Mn	25	–	–
4658.733	Pr	15	–	–
4658.73	Tb	25	–	–
4658.61	Eu	8	–	–
4658.610	Gd	5	–	–
4658.567	Os	6 h	–	–
4658.544	Mo	4	5	–
4658.47	Er	2	–	Ed
4658.38	Mn	12	–	–
4658 38	Tb	40	–	–
4658.361	Pr	3	–	–
4658.323	Yt I	8	15	–
4658.258	W	1	8	–
4658.187	Nd	5	–	–
4658.185	Cb	2	3	–
4658.11	P II	–	[100 l]	Gu
4658.09	Pr	20	1	–
4658.042	Ce	2	–	–
4658.02	Lu	100	15	Me
4658.0	bh Pb	5	–	L
4657.956	Pt I	9	4	–
4657.94	A	–	[150]	Rt
4657.907	Sb II	–	30	Sp
4657.9	Rb	–	[8]	Dr
4657.822	Ce	2	–	–
4657.641	Zr I	6	–	–
4657.64	Ir	4	–	Me
4657.622	Pr	2	–	–
4657.553	U	2	3	–
4657.48	Dy	2	2	m
4657.478	Mo	10	10	–
4657.460	Mn	10	–	–
4657.436	W	50	12	–
4657.387	Co I	100	35	–
4657.35	I II	–	[8]	Ke
4657.33	Tb	3	–	–
4657.251	Os	6	–	–
4657.235	Pr	3	–	–
4657.219	Nd	4	–	–
4657.210	Ce	3 l	–	–
4657.210	Ti II	5	18	–
4657.075	In II	–	[30]	Ps
4657.044	Er	2	1	–
4657.04	Yb	5 w	–	–
4657.036	W	7	1	–
4657.017	Ce	2	–	–
4656.997	In II	–	[30]	Ps
4656.812	In II	–	[35]	Ps
4656.764	Pr	5	–	–
4656.74	S II	–	[80]	Hn
4656.73	Eu	50	1	–
4656.707	In II	–	[5]	Ps
4656 677	Er	3	2	–
4656.67	I I	–	[25]	Db
4656.603	Ce	3	–	–
4656 544	In II	–	[20]	Ps
4656 538	Cs	–	[12]	Sv
4656.49	Re	10	–	–
4656.470	Ti I	150	70	–
4656.420	Ru I	12	–	–
4656.407	In II	–	[10]	Ps
4656.392	Ne I	–	[300]	IMe
4656.368	Mo	5	8	–
4656.35	Sb II	–	[15]	Lg
4656.302	In II	–	[10]	Ps
4656.237	Mn	10	–	–
4656.22	Se	–	[20]	Bt
4656 215	Mo	3	3	–
4656.189	Cr	50	4	–
4656.187	Ce	2	–	–
4656.178	Ir	60	–	–
4656.047	Mo	5	5	–
4656.045	Ti I	20	3	–
4656.005	Ce	3	–	–
4655.993	Pr	5	–	–
4655.905	Er	3 hl	–	–
4655.790	In II	–	[100]	Ps
4655.702	Ti I	8	2	–
4655.661	Ni I	40	–	–
4655.657	In II	–	[50]	Ps
4655.523	In II	–	[45]	Ps
4655.497	La II	150	300	–
4655.45	Tb	2 h	–	–
4655.409	In II	–	[45]	Ps
4655.361	Sm II	2 h	–	–
4655.36	O I	–	[50]	Ps
4655.323	Cb	–	2	–
4655.319	U	2	3	–
4655.227	Ce	2	–	–
4655.209	W	6	–	–
4655.204	Th	2	–	–
4655.202	Os	3	–	–
4655.186	Hf	50	4	–
4655.133	U	2	6	–
4655.124	Sm II	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4655.119	Er	4	–	–
4655.08	Tm	35	–	–
4655.05	Al II	–	[2]	Sy
4654.990	Gd	15	15	–
4654.849	Co I	25	–	–
4654.836	U	–	2 h	–
4654.795	Ru	7	–	–
4654.765	Gd	3	–	Kn
4654.74	Dy	4	2	m
4654.736	Cr I	70	8	–
4654.728	Nd	30 d	–	–
4654.624	Fe I	10	2	–
4654.57	N II	–	[5]	Fl
4654.56	O I	–	[30]	Ps
4654.553	Re	10 h	–	–
4654.503	Fe I	20	3	–
4654.38	Te	–	[800]	Bl
4654.379	Zr I	3	–	–
4654.315	Ru I	125	–	–
4654.291	Nd	6	–	–
4654.288	Sm	3	–	–
4654.286	Ce	6	–	–
4654.23	O I	–	[15]	Ps
4654.08	Si	–	8	Sy
4654.06	Cl I	–	[8]	Ks
4654.035	Pr	8	1	–
4654.0	Eu	6 w	–	Kn
4653.935	Mo	–	8	–
4653.900	La I	4	2 h	–
4653.866	Ce	2	–	–
4653.81	Pr	3	–	–
4653.790	Yt I	2	–	–
4653.744	Ru	10	–	–
4653.699	Ne I	–	[50]	Ps
4653.688	Mo	3	4	–
4653.64	Pr	4	1	–
4653.548	Gd	15	2	–
4653.48	Eu	25 w	–	m
4653 46	Tb	2 h	–	–
4653.442	U	8	10	–
4653.404	Ti	5	–	–
4653.4	Hg I	–	[5]	Wd
4653.381	Ce	2	–	–
4653.32	Sb II	–	[15]	Lg
4653.309	Er	3	–	–
4653 301	Nd	5	–	–
4653.062	U	1	2	–
4653.01	Tm	25	15	–
4653.0	Al II	–	[2]	Sy
4653.00	Xe II	–	[25]	Hu
4652.85	Tb	4	–	–
4652.678	Pr	5	–	–
4652.678	Nd	5	–	–
4652.663	Sm	4	–	–
4652.501	Ru	5	–	–
4652.4	bh Sr	3	–	L
4652 390	Nd	15	–	–
4652.323	Gd	8	8 h	–
4652.323	Re	30	–	–
4652.285	Mo	5 h	5 h	–
4652.182	Cb	–	2 h	–
4652.158	Cr I	200 R	150	–
4652.14	Ir	2	–	Me
4652.13	Yt I	2	2	m
4652.109	Hf	6 h	6 h	–
4652.101	Ne I	–	[30]	Ps
4652.084	La I	5	4	–
4652.027	Th	6	3	–
4652.015	Er	3	2	–
4651.99	Br	–	[25]	Bl
4651.94	Xe II	–	[100]	Hu
4651.823	Re	3	–	–
4651.691	Ce	2 h	–	–
4651.66	Yb	5	–	–
4651.60	Tb	4	–	–
4651.563	Nd	8	–	–
4651.556	Th	30	15	–
4651.55	Eu	5	–	Kn
4651.546	U	6	8	–
4651.541	Dy	4	2	–
4651.517	Pr	125	40 w	–
4651.40	Er	2	–	–
4651.39	Ho	2	–	Ex
4651.388	A I	–	[20]	Ms
4651.38	Br	–	[4]	Bl
4651.285	Cr I	100	100	–
4651.194	Nd	12	–	–
4651.134	Cu I	250	40	–
4651.1	Cs	–	[10]	Bs
4651.077	Ir	4	–	–
4651.07	Tb	4	–	–
4651.067	Ce	2 h	–	–
4651.049	Mo	15	15	–
4651.017	Nd	15	–	–
4650.923	Th	3	2	–
4650.88	Pr	4	8 h	–
4650.853	O II	–	[70]	Fl
4650.833	Re	2 h	–	–
4650.81	Er	2	–	m
4650.646	Al II	–	[6]	Sy
4650.603	Hf	10	3 h	–
4650 58	Os	2	–	Me
4650.544	Al II	–	[8]	Sy
4650.516	Ce	6	–	–
4650.48	Eu	10	–	–
4650.44	Pr	8 w	–	–
4650.38	Ca	–	3 wh	–
4650.345	Er	2	–	–
4650.331	La I	8	4	–
4650.234	Nd	25	–	–
4650.216	Ru	5	–	–
4650.2	bh Yt	15	–	Me
4650.17	Kr II	–	[30]	Me
4650.16	Dy	4	2	–
4650.08	Pr	3	–	–
4650.075	Yb	15	–	–
4650 07	Pt	3	–	Me
4650.019	Ti I	60	4	–
4650 000	U	5	5	–
4649 904	Ne I	–	[70]	IMe
4649 889	Ce	6	–	–
4649.840	Pr	6	–	–
4649.77	Ho	8	1 h	Ex
4649.70	Re	2	–	–
4649.669	Nd	40	–	–
4649.5	bh Yt	10	–	Me
4649.489	Sm	25	–	–
4649.477	Ce	2	–	–
4649.463	Dy	3	4	–
4649.461	Cr	60	3	–
4649 42	Pr	4	–	–
4649.269	Cb	3 wh	5 wh	–
4649 266	Cu II	–	60	Sh
4649.183	Re	2	–	–
4649 17	Xe	–	[2 h]	Hu
4649.148	O II	–	[300]	Fl
4649.117	Mo	15	15	–
4649.100	U	2	4 h	–
4649.088	Pr	3	10 h	–
4649.08	Er	2	–	Ed
4649.05	P	–	[50]	Gu
4649.04	Eu	8 w	–	–
4649.01	Mn	2 h	–	–
4648.949	Cb	50	20	–
4648.890	V I	9	8	–
4648.868	Cr	50	3	–
4648.85	Lu	25 h	–	Me
4648.826	Ce	4	–	–
4648.704	Gd	8	–	Kn
4648.70	Se	–	[2]'	Bl
4648.659	Ni I	400 w	3	–
4648.652	Co I	5	–	–
4648.649	La I	15	8	–
4648.630	Sm II	2	–	–
4648.62	Al II	–	[4]	Sy
4648.585	Gd	8	–	Kn
4648.58	Re	4	–	m
4648.562	Rb II	–	20	Rr
4648.546	Pr	3	–	–
4648.49	Sb II	–	[4]	Lg
4648.44	Se II	–	[800]	Bl
4648.338	Hf	10	2 h	–
4648.32	As	–	30	Ro
4648.32	Tb	6	–	–
4648.24	Ir	3	–	Me
4648.21	Lu	25 h	2	Me
4648.17	S II	–	[35]	Hn
4648.164	Sm II	12	–	–
4648.154	Ru	6	–	–
4648.126	Cr	40	6	–
4648.077	Sm	7	–	–
4648.05	Ti	15 W	–	–
4647.946	Nd	2	–	–
4647.943	Pr	8 w	–	–
4647.919	Sb II	–	[20]	Lg
4647.897	Th	2	–	–
4647.870	U	3	6	–
4647.814	Mo	25	25	–
4647.759	Nd	8	–	–
4647.704	Sb	–	20	Sp
4647.658	Gd	8	8	–
4647.606	Ru	125	–	–
4647.585	Mn II	–	[4]	Cz
4647.544	Sm II	8	–	–
4647.51	Te	–	[50]	Bl
4647.509	La II	10	50	–
4647.493	A I	–	[40]	Ms
4647.49	Eu	15 w	–	Kn
4647.47	Re	10 h	–	m
4647.438	Hf	6	–	–
4647.437	Fe I	125	40	S
4647.316	Sb II	–	[80]	Lg
4647.298	Dy	3	2	–
4647.280	Ce	3	–	–
4647.25	Ho	2	–	Ex
4647.23	Tb	15 d	–	–
4646.991	Pr	25	–	–
4646.950	Cb	5	10	–
4646.943	Ce	2	–	–
4646.93	Sm	3	–	–
4646.91	Tb	3	–	–
4646 9	bh Yt	5	–	Me
4646 825	Er	3	–	–
4646 808	Cr I	35	3	–
4646 802	Ru	6	–	–
4646 73	Dy	2	–	–
4646 692	Nd	60	4	–
4646 679	Sm II	50	–	–
4646 636	Th	2	–	–
4646 603	U	25	40	–
4646.508	Cs II	–	[25]	Sv
4646.495	Cr	5	1	–
4646.484	Mo	3	4	–
4646.399	Nd	50	–	–
4646.395	V I	40	30	–
4646.343	La I	8	3	–
4646.336	Gd	12	6	–
4646 30	Eu	3 w	–	–
4646.174	Cr I	100	150	–
4646.149	W	15	3	–
4646.059	Pr	50	8	–
4646 04	Tm	5	–	–
4646.01	Gd	12	1	–
4645.86	Er	2	–	–
4645.83	Tm	10	–	–
4645.765	Nd	20	2	–
4645.73	Eu	8 w	–	–
4645.523	U	2	3	–
4645.495	Th	3 w	–	–
4645.485	Pr	4 w	–	–
4645.47	Lu	25 h	2	Me
4645.416	Ne I	–	[300]	IMe
4645.399	Sm	40	–	–
4645.379	Mo	4	4	–
4645.281	La II	25	40	–
4645.26	Tb	60 W	–	–
4645.22	Te	–	[15]	Bl
4645.194	Ti I	100	10	I
4645.111	Pr	3	–	–
4645.089	Ru	100	30	–
4645.035	Mn	40	–	–
4644.979	Nd	5	–	–
4644.95	Re	15	–	m
4644.926	W	8	–	–
4644.910	U	2	3	–
4644.845	Nd	4	2 w	Kn
4644.833	Ne I	–	[40]	Ps
4644.829	Zr I	5	–	–
4644.7	bh Zr	40	–	L
4644.648	In II	–	[60]	Ps
4644.57	Tm	20	–	Me
4644.543	Yb	30	3	–
4644.536	In II	–	[125]	Ps
4644.445	V I	6	5	–
4644 371	Th	3 w	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4644.37	Er	3	–	Ed
4644.36	Ir	3	–	Me
4644.324	Co I	70	–	–
4644.24	Eu	50	–	Kn
4644.204	Ce	6	6	–
4644.18	Rn	–	[300]	Wa
4644.15	Tb	2	–	–
4644.137	U	1	3	–
4644.10	Ba	–	[10]	Rs
4644.01	Br	–	[4]	Bl
4643.722	Co	15	–	–
4643.695	Yt I	50	100	–
4643.691	Er	50	15	–
4643.677	Cb	3	3 h	–
4643 66	Ca	–	4 h	Ad
4643.623	U	12	–	–
4643.52	Br I	–	[25 l]	Ks
4643.505	Pr	60 w	5 w	–
4643.475	Fe I	35	2	–
4643.461	Dy	3	–	–
4643.311	Cb	3	3	–
4643.29	Lu	8 h	–	Me
4643.27	Tb	2 h	–	–
4643.19	Sb II	–	15	Dv
4643.19	Er	2	–	m
4643.184	Rh I	15	10	–
4643.182	Ne I	–	[5]	Ps
4643.174	Ce	5	–	–
4643.153	W	12	8 w	–
4643.124	La I	8	5 h	–
4643.11	Tm	35	–	–
4643.106	N II	–	[100]	Fl
4643.079	Ce	2	–	–
4642.94	Tm	25	–	–
4642.88	Ca	–	4 h	Ad
4642.812	Mn	50	–	–
4642.79	Tb	3	–	–
4642.779	Dy	2	3 h	–
4642.77	Eu	15 w	–	–
4642.700	Mo	8	6	–
4642.63	Br	–	[4]	Bl
4642.603	Ru	7	–	–
4642.58	Tm	10	–	–
4642.564	W	30	8	–
4642.485	U	1	2 h	–
4642.385	Ru	7	–	–
4642.29	Mn	12	–	–
4642.29	Tm	5	–	–
4642.278	Ce	3 h	–	–
4642.241	Hf	15	4	–
4642.232	Sm II	100	40	–
4642.212	Dy	2	–	–
4642.172	K I	5	–	Da
4642.148	A I	–	[80]	Ms
4642.038	Ba	3	–	Sz
4642.03	Br	–	[20]	Bl
4642.029	Pr	4 h	–	–
4642.02	I II	–	[3]	Mu
4642.011	Cr	15	1	–
4641.98	Tb	40	–	–
4641.831	Os	30	3 h	–
4641.827	O II	–	[150]	Fl
4641.800	W	20	6 w	–
4641.72	P	–	[50]	Gu
4641.7	Ho	2	–	Kn
4641.658	U	10	15	–
4641.585	K I	3	–	Da
4641.570	Mo	5	5	–
4641.520	Sm	2	–	–
4641.45	Tb	2 h	–	–
4641.415	Eu	20	–	Kn
4641.40	La II	–	2 h	Me
4641.315	Gd	6	–	–
4641.29	Ra I	–	[40]	Rs
4641.19	Te	–	[70]	Bl
4641.102	Nd	80	–	–
4641.058	Ce	6	–	–
4641.00	Tb	20	–	–
4640.985	Ru	10	–	–
4640.98	Br	–	[4]	Ks
4640.916	Mo	4	5	–
4640.88	I I	–	[50]	Bl
4640.875	Ce	3	–	–
4640.822	Pt I	15	–	–
4640.803	Co I	10	–	–
4640.79	Tm	2	–	–
4640.735	V I	25	20	–
4640.73	Ta	15 w	–	m
4640.66	Hg II	–	[2]	Ps
4640.61	Ho	2	–	Kn
4640.606	Er	4	2	–
4640.6	bh Zr	150	–	L
4640.53	Gd	4	–	–
4640.512	Sm	3	–	–
4640.46	air	–	10	Sq
4640.443	Ne I	–	[70]	Ps
4640.431	Ti I	6	1	–
4640.384	Al II	–	[18]	Sy
4640.362	Al II	–	[20]	Sy
4640.349	U	5	8	–
4640.303	W	10	2	–
4640.206	Pr	20	–	–
4640.20	Kr	–	[2 wh]	Me
4640.172	Nd	8	–	–
4640.128	Zr I	3	–	–
4640.094	Hf II	12	20	–
4640 093	Ce	2	–	–
4640.083	Ir	40	2 wh	–
4640.066	V I	25	15	–
4640.052	Th	10	5	–
4640 047	Gd	10	5	–
4639.947	Ti I	60	15	–
4639.877	Pr	5	–	–
4639.833	Al II	–	[6]	Sy
4639.73	Pt	2	–	–
4639.725	Al II	–	[8]	Sy
4639.715	Cr	10	2	–
4639.708	Th	10	6	–
4639.667	Ti I	40	15	–
4689.593	Nd	5	–	–
4639.591	Ne I	–	[30]	Ps
4639.555	Pr	60	2	–
4639.377	Nd	10	–	–
4639.37	Rh I	4	2	m
4639.366	Ti I	80	18	–
4639.358	Mo	3	3	–
4639.326	Al II	–	[2]	Sy
4639.318	Ru	12	–	–
4639.141	Nd	20	–	–
4639.14	Sm	3	–	–
4639.12	Tb	2 h	–	–
4639.108	U	2	3	–
4639.01	Gd	25	3	–
4638.970	Pr	2	–	–
4638.916	U	1	3	–
4638.905	W	1	7	–
4638 87	I	–	[8 h]	Bl
4638.865	O II	–	[70]	Fl
4638.861	In	3	70	–
4638.812	Dy	5	4	–
4638.753	Ce	2	–	–
4638.712	Nd	15	3	–
4638.65	Sm	3 w	–	–
4638.625	Os	25	–	–
4638.599	Gd	8	–	–
4638.522	Tb	3	–	–
4638.428	Ru I	10	–	–
4638.360	Mo	2	2	–
4638.345	Ce	2 h	–	–
4638.30	Ho	2	1 h	Ex
4638.245	In II	–	[125]	Ps
4638.19	Ho	2	–	Ex
4638.172	Cb	–	2	–
4638 103	Cb	10 h	10 h	–
4638.100	In II	–	[200]	Ps
4638.04	Tb	3	–	–
4638.018	Fe I	80	10	–
4637.974	In II	–	[20]	Ps
4637.940	U	8	10	–
4637.93	Mo	–	10	–
4637.882	Ir	10	–	–
4637.876	Ti I	20	4	–
4637.85	Er	2	1	m
4637.8	bh Zr	100	–	L
4637.772	Cr	20	6	–
4637.745	Mo	5	3	–
4637.571	Cb	–	20 h	–
4637.518	Fe I	100	10	–
4637.36	Au	–	2	–
4637.31	Sb II	–	[10]	Lg
4637.25	A II	–	[30]	Rt
4637.209	Ti I	4	1	–
4637.206	Nd	10	–	–
4637.182	Cr	20	8	–
4637.16	P	–	[50]	Gu
4637.112	In II	–	[10]	Ps
4637.08	Dy	3	2	–
4637.025	In II	–	[20]	Ps
4636.99	Tb	10	–	–
4636.974	Ne I	–	[50]	Ps
4636.915	In II	–	[10]	Ps
4636.765	Sm	2	–	–
4636.744	Ce	2	–	–
4636.727	Pr	3	–	–
4636.655	Gd	25	12	–
4636.65	Se	–	[150]	Bt
4636 634	Ne I	–	[70]	IMe
4636.592	U	2 h	2 h	–
4636 59	Tb	20	–	–
4636.569	Nd	5	2	–
4636.425	La II	10	20	–
4636.384	Al II	–	[4]	Sy
4636.345	Ti II	–	4 h	–
4636.333	Ba	20	–	Sz
4636.288	Nd	15	–	–
4636.274	Sm	8	–	–
4636.26	Pr	4	–	–
4636.158	V I	4	3	–
4636 14	Kr I	–	[20]	Me
4636.125	Ne I	–	[70]	IMe
4636.1	Li I	3	–	Fl
4636.076	W	7	1	–
4636 07	Tb	10 w	–	–
4636.05	Ir	2	–	Me
4635.852	Fe I	12	1	–
4635.802	Re	2	–	–
4635.7	Al II	–	[4]	Sy
4635.692	Pr	40	–	–
4635.690	Ru I	125	–	–
4635.539	Ti I	12	2	–
4635 510	U	3	3	–
4635.444	Cr	5	–	–
4635.42	Kr II	–	[8]	Me
4635.39	Eu	6	–	Kn
4635.328	Fe II	2	–	–
4635 316	Dy	4	2	–
4635.177	V I	30	25	–
4635.101	W	7	1	–
4635.050	Pr	5	–	–
4635.011	Mo	5	5	–
4634 971	La II	3	5	–
4634.870	Ti	8	2	–
4634.867	I	–	[30]	Ke
4634 810	W	20	7	–
4634.787	Dy	3	–	–
4634.768	Os	30	–	–
4634.742	Ti	6	1	–
4634.73	Ne II	–	[15]	Bn
4634.72	Eu	4 W	–	–
4634.717	Pr	3	–	–
4634.715	Cb	2	3	Me
4634.641	Zr I	3	–	–
4634.404	Re	4 h	–	–
4634.27	Er	2	1	m
4634.24	Tm	80	10	–
4634.229	Nd	50	–	–
4634.214	Ca	–	2	–
4634.210	V	–	3 h	–
4634.13	Tb	2 h	–	–
4634.089	Cr II	5	80 h	–
4634.026	Yb	2	10 h	–
4634.012	Pr	2	–	–
4633.985	Zr I	35	–	–
4633.97	air	–	10	Sq
4633.94	Tm	15	–	–
4633.88	Kr II	–	[800]	Me
4633.856	Rh	2	–	–
4633.835	Th	4	2	–
4633.681	Mo	4	4	–
4633.599	Ce	2	–	–
4633.483	Ru	5	–	–
4633.47	Pr	3	–	–
4633.363	I II	–	[15]	Ke
4633.30	Xe II	–	[25]	Hu
4633.286	Cr I	20	6	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4633.2	Al II	–	[2]	Sy
4633.185	Yb	4	–	–
4633.173	Os	6	–	–
4633.171	Ru I	5	–	–
4633.166	Sm II	2	–	–
4633.104	Mo	25 h	25 h	–
4633.1	Eu	8 w	–	Kn
4633 09	Au	–	10	–
4633.087	Ce	2	–	–
4633.06	Se	–	[10]	Bt
4633.06	Ta	150	3 h	–
4632.918	Fe I	70	4	–
4632.913	Pr	4	–	–
4632.771	Sm	2	–	–
4632.688	Nd	12	–	–
4632.67	As II	–	10	Ro
4632.67	Ca	–	4 h	Ad
4632.632	Pd I	3	–	–
4632.58	Eu	3 w	–	–
4632.564	Mo	5	5	–
4632.433	I II	–	[35]	Ke
4632.36	Er	2	–	m
4632.322	Ce	8	–	–
4632.32	I	–	[50]	Bl
4632.29	Tm	10	–	–
4632.280	Pr	40	1	–
4632.180	Cr	25	8	–
4632.06	Tb	30	–	–
4631.918	Rb II	–	5	Rr
4631.828	Os	100	5	–
4631.798	U	1	4	–
4631.762	Th	15	10	–
4631.738	Ru I	3	–	–
4631.73	Tm	10	–	–
4631.71	Rn	–	[5]	Rc
4631.673	Pr	4	–	–
4631.620	U	30	3	–
4631.614	Nd	5	–	–
4631.58	Er	2	1	m
4631.549	Mo	5	5	–
4631.506	Dy	4	2	–
4631.5	Al II	–	[2]	Sy
4631.39	Ca	–	4 h	Ad
4631.379	Pd I	2 h	–	–
4631.295	Nd	10	–	–
4631.22	Si*	–	4	Sy
4631.12	Pt	2	–	Me
4631 040	Tb	2	–	–
4630.967	Sm	3 w	–	–
4630.918	Mo	3	3	–
4630.885	Er	15	3	–
4630.839	Re	50	–	–
4630 816	Ce	3 h	–	–
4630.712	Pr	3	–	–
4630.706	Ru	4	–	–
4630.610	Hf	12	–	–
4630.58	Er	2	–	Ed
4630.57	Te	–	[50]	Bl
4630.569	Sm	2	–	–
4630 56	Se II	–	[12]	Bl
4630.551	N II	–	[300]	Fl
4630.52	C	–	2 d	En
4630.51	Gd	5	–	–
4630.457	Ru	7	–	–
4630.44	Tb	2 h	–	–
4630.409	W	5	–	–
4630.301	Nd	20	–	–
4630.24	Re	6	–	m
4630.211	Sm	40	–	–
4630.14	As II	–	200	Ro
4630.14	Hg	–	[30]	Ps
4630.128	Fe I	10	2	–
4630.112	Cb	30	20	–
4630.016	Mo	15	12	–
4629.903	Nd	10	–	–
4629.82	Eu	15 W	–	Kn
4629.82	Se II	–	[4]	Bt
4629.814	Zn I	35	–	Hz
4629.772	Th	3	–	–
4629.721	U	3 h	5	–
4629.7	Al II	–	[4]	Sy
4629.693	Ca	–	2	–
4629.675	Pr	6 w	–	–
4629.455	Pr	2	–	–
4629.431	Sm	10	–	–
4629.42	Br	–	[15]	Bl
4629.378	Co I	600 W	5	–
4629 356	Os	2	–	–
4629.342	Ti I	70	7	–
4629.328	Fe II	7	8	–
4629.257	W	5	1	–
4629.252	Nd	3	–	–
4629.19	Ta	5 w	3 h	–
4629.142	U	1	2	–
4629.13	Dy	4 h	2	m
4629.10	Ho	6	4	Kn
4629.028	Os	2	–	–
4628.936	Co I	125	–	–
4628.85	Tb	2	–	–
4628.794	Sm	2 h	–	–
4628.751	Pr	200	50 w	–
4628.717	Mo	2	2	–
4628.70	P II	–	[50]	Gu
4628.612	Os	10	–	–
4628.60	Tb	2 h	–	–
4628.600	W	3	–	–
4628.503	Nd	3 d	–	–
4628.473	Cr I	15	–	–
4628.47	Er	2	–	Ed
4628.460	Ne I	–	[30]	Ps
4628.449	Mo	3	4	–
4628.441	A I	–	[1000]	I
4628.414	Nd	3 d	–	–
4628.333	Ru I	10	–	–
4628.332	Ba	40	4	–
4628 310	In II	–	[5]	Ps
4628.309	Ne I	–	[150]	IMe
4628.30	U	–	2	–
4628 22	Ho	2	–	Kn
4628 19	Hf	4	–	Me
4628 182	In II	–	[10]	Ps
4628 161	Ce	20	20	–
4628.12	Se II	–	[25]	Bl
4628.081	Dy	5	4	–
4628.072	In II	–	[10]	Ps
4627.99	Th	10 h	–	–
4627.986	Nd	12	–	–
4627.80	As	–	200	Ro
4627 799	Ne I, II	–	[20]	Ps
4627.784	In II	–	[5]	Ps
4627.744	Mn	50	–	–
4627.720	Zr I	3	–	–
4627.63	Gd	8	1	–
4627.53	Tb	7	–	–
4627.475	Mo	80	80	–
4627.475	Cb	2	3 h	–
4627.385	In II	–	[150]	Ps
4627.372	Cr	5	–	–
4627 347	La I	3	–	–
4627.34	I II	–	[2]	Mu
4627.3	bh La	3 h	–	Me
4627.26	Er	2	–	Ed
4627.225	Eu	50	15	–
4627.20	Dy	2	–	Ed
4627.122	Eu	[300 R]	–	Kn
4627.097	Ir	20	–	Ab
4627.079	U	30	60	–
4627 05	Pr	15	3	–
4626.96	Tm	25	–	–
4626.92	Tb	30	–	–
4626.855	Cr	10	–	–
4626.78	A I	–	[30]	Ms
4626.60	P II	–	[70]	Gu
4626.60	Er	2	–	Ex
4626.55	Tm	50	3	–
4626.544	Mn	80	15	–
4626.497	Nd	10	–	–
4626.485	V I	25	20	–
4626.466	Mo	100	80	–
4626.435	U	2	–	–
4626.42	Hf II	15	6	–
4626.413	Zr I	12	–	–
4626.359	W	4	–	–
4626 31	Tb	9	–	–
4626.31	Tm	50	20	–
4626.28	Er	2	1 w	m
4626.21	Eu	6 W	–	–
4626.188	Cr I	100	125	–
4626.039	Ru	12	–	–
4626.01	Dy	3	–	–
4625.98	Re	40	–	m
4625.937	Rh I	2	–	–
4625.935	U	–	2	–
4625 925	Cr	8	6	–
4625.797	W	3	–	–
4625.780	Co I	200	–	–
4625 74	In	–	5	Sq
4625 68	Tb	2 h	–	–
4625.616	Pr	5 h	–	–
4625 572	Tm	3	–	–
4625 56	Er	3	2	m
4625.486	U	6	–	–
4625 48	Rn	–	[500]	Wa
4625 46	A I	–	[10]	Ms
4625.38	Mn	20	–	–
4625 37	Se II	–	[8]	Bl
4625 30	Eu	50 w	–	m
4625 298	Pr	4	1	–
4625 297	Cr	6	–	–
4625.295	Ce	2 h	–	–
4625.173	W	5	1	–
4625.14	Er	2	–	Ed
4625.055	Fe I	100	12	–
4625.04	Tb	2	–	–
4625.02	Th	4	3	–
4624.959	Sm II	4 w	–	–
4624.9	Eu	4 w	–	Kn
4624.898	Ce	8	10	–
4624 78	Er	3	1	m
4624.710	U	6	8	–
4624.70	Tb	2	–	–
4624.580	Co I	10	–	–
4624.575	Cr	15	6	–
4624.461	W	5	–	–
4624.44	Yb	6	–	–
4624.438	Ru	7	–	–
4624.428	Gd	15	8	–
4624.42	Dy	3	2	m
4624.406	V I	20	15	–
4624 39	Tm	10	–	–
4624.367	Ce	2	–	–
4624 33	Mn	8	–	–
4624.324	Ru	7	–	–
4624.276	Xe I	–	[1000]	I
4624.240	Mo	25	25	–
4624.201	Ce	2	–	–
4624.198	Nd	15	–	–
4624.142	Th	3	2	–
4624 137	Sm	2 h	–	–
4624.11	S	–	[20]	Hn
4624.103	Dy	3	2	–
4624.048	Pr	8	–	–
4623 96	Cl I	–	[6]	Ks
4623.889	Th	3	3	–
4623.77	Se I, II	–	[150]	Rd
4623 687	W	12	3	–
4623.676	Mo	–	2	–
4623.633	Pr	5	–	–
4623.58	Tb	2 h	–	–
4623 464	Mo	15	15	–
4623.463	Ce	2	–	–
4623 433	U	5	8	–
4623.39	Eu	8 W	–	Kn
4623 331	Re	2 h	–	–
4623.33	Mn	8	–	–
4623.190	Pr	3	–	–
4623.160	W	10	–	–
4623.094	Ti I	125	40	–
4623 091	Cs II	–	[20]	Sv
4623.070	Sb	–	20	Sp
4623.042	Co I	150	–	–
4623.02	Er	2	–	Ed
4622.959	Ta	50	1	–
4622.798	Mo	–	25	–
4622.761	Cr	20	10	–
4622.75	Br	–	[200]	Bl
4622.74	Mn	8	–	–
4622.726	Pr	7	–	–
4622.7	bh La	3	–	Me
4622.70	P II	–	[50 h]	Gu
4622.699	Hf II	20	60	–
4622.697	Co I	30	–	–
4622.567	Mo	2	2	–
4622.53	Er	3	–	Ed
4622.491	Cr	30	30	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
4622.447	Rb II	–	50	Rr
4622.427	U	12	18	–
4622.38	Dy	3	2	–
4622.311	Gd	4	–	Kn
4622.26	Pr	7	1	–
4622.214	Nd	3	–	–
4622.187	Gd	4	–	Kn
4622.135	Ir	2	–	Ab
4621.97	Tb	3	–	–
4621.963	Cr	50	40	–
4621.937	Nd	40	–	–
4621.93	Eu	2	–	–
4621.893	Cr	20	–	–
4621.887	I	–	[35]	Ke
4621.71	Tm	15	–	–
4621.70	Ca	–	5 hs	Ad
4621.7	Eu	2	–	Kn
4621.58	Se II	–	[8]	Bl
4621.58	Er	2		m
4621.54	Tb	2 h	–	–
4621.427	Dy	3	2	–
4621.405	N II	–	[50]	Fl
4621.384	Re	30	–	–
4621.375	Mo	30	25	–
4621.341	Pr	7	–	–
4621.34	Eu	15 W	–	Kn
4621.27	Te	–	[15]	Bl
4621.190	Sm	3	–	–
4621.077	Cr	10 d	–	–
4621.04	Mn	5 h	–	–
4620.98	Tm	10	–	–
4620 97	I I	–	[15]	Db
4620.91	Tb	4	–	–
4620.864	Hf	50	4	–
4620.828	In II	–	[5]	Ps
4620.817	Co I	25	–	–
4620.762	Sm II	3 h	–	–
4620.74	I	–	[15]	Bl
4620.70	Au I	4	–	Ml
4620.667	In II	–	[5]	Ps
4620.554	W	20	7	–
4620.529	In II	–	[10]	Ps
4620.48	Ag	–	4	–
4620.470	Gd	3	3 h	–
4620.431	U	8	–	–
4620.413	In II	–	[15]	Ps
4620 40	Er	2	–	Ed
4620.32	Se II	–	[8]	Bl
4620.32	Eu	4	–	Kn
4620 243	In II	–	[200]	Ps
4620 219	U	25	12	–
4620.21	Mn	5 h	–	–
4620 055	In II	–	[80]	Ps
4620.048	Ce	3	–	–
4620 04	Dy	8	4	–
4620.034	Ru	4	–	–
4620 02	Ag	–	4 h	–
4619.99	Kr II	–	[5 h]	Me
4619.978	Ba I	25	–	Sz
4619.907	Rh	8	5	–
4619.882	La II	150	200	–
4619.846	Pr	3	–	–
4619.8	bh Zr	80	–	L
4619.771	V I	8	5	Me
4619.718	Mo	2	4	–
4619.660	Pr	6	–	–
4619.646	V	6	5	–
4619.64	Tm	10	–	–
4619.63	Gd	3 h	–	Ed
4619.63	As	–	10	Ro
4619.62	Mn	3	–	–
4619.60	Si	–	2	Sy
4619.57	Xe	–	[2]	Hu
4619.562	Th	3	3	–
4619.551	Cr	50	30	–
4619.525	Ti I	12	2	–
4619.512	Ta	300	10	–
4619.472	Th	5	3	–
4619.30	Mn	20	–	–
4619.298	Fe I	100	8	–
4619.17	Tb	5	–	–
4619.15	Kr II	–	[1000]	Me
4619.130	Gd	5	3	–
4619.058	Tm	15	10	–
4619.03	Er	2	–	Ed
4618.933	Ce	2	–	–
4618.86	Tb	2 h	–	–
4618.85	C II	–	25 h	Fl
4618.84	Ho	2	–	Kn
4618.829	Cr II	6	80 h	–
4618.795	Ru	10	–	–
4618.782	V I	4	3	–
4618.77	Se II	–	[100]	Bl
4618.765	Fe I	10	1	–
4618.610	Ce	3	–	–
4618.485	V	–	3	–
4618.425	Cb	–	3 wh	–
4618 392	U	5	20	–
4618.36	Th	2	–	–
4618.33	Er	2	–	m
4618.257	Pr	3	–	–
4618 235	Sm	2	–	–
4618.12	Tb	3 d	–	–
4618.111	Nd	3	–	–
4618.067	Ce	2	–	–
4618.032	Nd	3	–	–
4618.011	Pr	10	2	–
4618.009	Ir	2 h	–	Ab
4617.949	Mo	12	12	–
4617.837	Ne I	–	[70]	IMe
4617.82	Mn	3	–	–
4617.73	Tb	2 h	–	–
4617.727	Pr	10	–	–
4617.69	Tm	10	12	–
4617.665	Ru I	12	–	–
4617.64	Er	2	–	Ed
4617.638	Mo	5	10	–
4617.613	Ir	3 h	–	Ab
4617.573	Pr	2	–	–
4617.541	U	3	6	–
4617.50	Xe II	–	[50]	Hu
4617.48	Tb	8	–	–
4617 368	Ir	5 h	–	Ab
4617 326	Pr	2	–	–
4617.30	As II	–	10	Ro
4617.28	Tb	3	–	–
4617.270	Ti I	200	100	I
4617.27	Dy	5	4	–
4617.2	Tl I	5	–	Fl
4617.159	In II	–	[200]	Ps
4617.121	Pr	5	–	–
4617.074	Pt	2	–	–
4617.033	U	–	2	–
4616.969	Ce	2	–	–
4616 911	Ne I	–	[5]	Ps
4616.783	Os	150	6	–
4616.754	Ir	5 h	–	Ab
4616 68	Nd	5	–	Ex
4616 665	Cr II	–	50	–
4616 65	Th	2	–	–
4616.618	Mo	15	15	–
4616.613	Sm	2 h	–	–
4616.595	Re	20 w	–	–
4616.585	In II	–	[10]	Ps
4616.49	Eu	30 w	–	–
4616 484	Sm II	3	–	–
4616.441	U	1	2	–
4616.43	Ga	–	2	Kl
4616 43	Tb	2	–	–
4616.388	Ir	200	5	–
4616.28	Cs	–	[15]	Sv
4616.18	Br	–	[20]	Bl
4616 176	In II	–	[20]	Ps
4616.167	Cb	10	10	–
4616.137	Cr I	300 r	200	–
4616.13	Cs II	–	[15]	Sv
4616.107	Ru	6	–	–
4616.084	Ce	3	–	–
4616.033	In II	–	[15]	Ps
4616.01	Cs	–	[10]	Sv
4615.98	Ne II	–	[50]	Bn
4615.93	Tm	200	300	–
4615.925	In II	–	[15]	Ps
4615.91	Tb	10 h	–	–
4615.91	Er	4	3	m
4615.86	Ag	4 h	1 h	Kp
4615.75	Cd	2	–	Ps
4615.689	Sm II	50	40	–
4615.688	Nd	30	5	–
4615.65	Mn	8	–	–
4615.571	U	1	2	–
4615.57	Dy	3	4	–
4615.570	In II	–	[5]	Ps
4615 50	Xe II	–	[100]	Hu
4615.476	Mo	8	–	–
4615.446	Sm II	25	–	–
4615.430	Ru	5	–	–
4615.4	bh B	40	–	L
4615.39	Cd I	3	–	Ps
4615 362	Pr	9	1	–
4615.325	Ce	2	–	–
4615.28	Kr II	–	[500]	Me
4615.195	Ce	6	1	m
4615 07	Th	3	–	–
4615 065	La I	10	2	–
4615 06	Xe II	–	[50 hl]	Hu
4614.987	U	2	3	–
4614.930	Pr	3	–	–
4614.92	Tb	3	–	–
4614.858	W	10	2	–
4614 83	Dy	3	2	–
4614.751	Cr	12	1	–
4614.748	Mo	10	12	–
4614.741	Cb	1	3 h	–
4614.696	Re	50	–	–
4614 678	U	6	8	–
4614 63	Eu	6	5	–
4614 60	Br I	–	[100 l]	Ks
4614.523	Cr	15	4	–
4614.505	Gd	50	25	–
4614 50	Kr II	–	[15]	Me
4614.46	Tm	35	15	–
4614.391	Ne I	–	[100]	IMe
4614.287	Ti I	7	1	–
4614.206	Hf	10	–	–
4614 173	Ir	10	–	Ab
4614.17	Cd I	4	–	Ps
4614.154	Cr	15	1	–
4614 09	Tb	2 h	–	–
4614 009	Co I	60	–	–
4613 981	Th	2	–	–
4613 96	Tm	15	–	–
4613 960	Re	3	–	–
4613.953	Zr II	4	4 h	–
4613 95	Er	2	–	Ed
4613 913	V I	2	2 h	Me
4613.887	N II	–	[30]	Fl
4613.845	Nd	4	25 h	–
4613.83	Dy	3	–	–
4613.81	Pr	4	–	–
4613.8	P	–	[30]	Gu
4613.79	Kr II	–	[2 h]	Me
4613.738	Hf II	12	25 wh	–
4613.503	Sm II	8	–	–
4613.393	La II	100	100	–
4613.373	Cr I	150	60	–
4613.37	Ho	4	–	Kn
4613.368	Zr	5 h	–	–
4613.316	W	50	10	–
4613.219	Fe I	30	2	–
4613.208	Mo	5	–	–
4613 19	Tm	15	20	–
4613.071	Mo	–	12	–
4613.023	Ce	6	–	–
4612.997	Yt I	3	2	–
4612.935	U	2	–	–
4612.92	Sb II	–	[50]	Lg
4612.89	Ne II	–	[5]	Bn
4612.83	P II	–	[30]	Gu
4612.80	Tb	3	–	–
4612.754	Pr	2	–	–
4612.7	bh C	50	–	L
4612.609	Mo	–	10	–
4612.602	U	1	2	–
4612.553	Pr	4	–	–
4612.54	Th	4	3	–
4612.473	Nd	12	–	–
4612.451	Cb	2	3 h	–
4612.35	Eu	2	2	–
4612.325	Ru I	15	–	–
4612.275	Dy	50	10	–
4612.27	Ho	3	–	Ex
4612.26	Tb	15	–	–
4612.244	Ir	2	–	Ab
4612.242	Mo	5	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4612.133	In	–	150	–
4612.122	Cb	3	3	–
4612.072	Pr	60	15	–
4612.041	Cb	2 h	8 h	–
4612.0	bh La	3	–	Me
4611.976	Ce	3	–	–
4611.968	Cr	15	4	–
4611.955	Mo	5	–	–
4611.94	Tb	9	–	–
4611.889	Xe II	–	[700]	I
4611.842	Th	10	6	–
4611.80	Er	3	–	Ed
4611.776	Ir	2 wh	–	Ab
4611.739	V I	6	5	–
4611.71	Dy	2	2	–
4611.673	Pr	2	–	–
4611.669	Sm	4 r	–	–
4611.557	Ce	4	–	–
4611.52	Eu	50 w	–	Kn
4611.436	U	12	25	–
4611.43	Mn	1	–	–
4611 289	Fe I	200	25	–
4611.27	Er	4	2	m
4611.257	Sm	50	–	–
4611.25	A II	–	[5]	Rt
4611.22	I II	–	[20]	Ke
4611.154	Mo	20	15	–
4611.14	Tb	2	–	–
4611.045	Gd	4	4 h	–
4611.044	Cr	10	–	–
4611.02	Mn	2	–	–
4610.915	V I	5	4	–
4610.843	Mo	10	8	–
4610.71	Tb	2	–	–
4610 686	Cb	2	3	–
4610 65	Kr II	–	[60 hl]	Me
4610 62	Pr	10	–	–
4610 509	Nd	5	–	–
4610.505	Cs	–	[10]	Sv
4610.502	Ru	7	–	–
4610.481	Mo	–	8	–
4610.474	Ce	6	–	–
4610.419	Sc I	5	3	–
4610 34	Tb	3	–	–
4610.3	bh Zr	4	–	L
4610 3	Lu	10	–	Kn
4610.26	Er	2	–	Ed
4610.186	Pr	3	–	–
4610.14	O II	–	[15 h]	Fl
4610.109	Zr I	4	–	–
4609.951	Sc I	10	8	–
4609.94	Tb	3	–	–
4609.931	Mn	20	–	–
4609.915	W	50	10	–
4609.910	Ne I	–	[150]	IMe
4609.894	Cr	15	3	–
4609.879	Mo	40	40	–
4609.876	Th	–	3	–
4609.874	Nd	25	–	–
4609.864	U	15	20	–
4609 827	Zr I	3	–	–
4609.809	Nd	12	–	–
4609.72	Kr II	–	[20 hs]	Me
4609.72	Hg	–	[10]	Ps
4609.7	Al II	–	[4]	Sy
4609.656	Ce	2	–	–
4609.649	V I	10	9	–
4609.61	Pr	5 d	–	–
4609.60	A II	–	[300]	Rt
4609.60	N II	–	[30]	Fl
4609.584	Nd	3	–	–
4609.527	Sc	10	5	–
4609.52	Ho	6	–	Kn
4609.5	Rb	–	[15]	Dr
4609.43	Er	3	–	Ed
4609.39	O II	–	[60 h]	Mh
4609.38	Rn I	–	[250]	Rs
4609.377	Th	6	4	–
4609.370	Ti	15	2 h	–
4609.365	Ne I	–	[30]	Ps
4609.34	Tm	5	–	–
4609.32	Ho	4	2 h	Ex
4609.293	Zr I	3	–	–
4609 238	Ce	2	–	–
4609.230	Nd	5 d	–	–
4609.20	Eu	2 w	–	–
4609.154	Zr I	3	–	–
4609.13	Pr	6 d	–	–
4609.06	Dy	2	2 h	m
4608.911	Co I	8	–	–
4608.844	W	5	1 wh	–
4608.813	U	3	5	–
4608.810	Re	3 h	–	–
4608.784	Er	2	–	–
4608.78	Tb	3 h	–	–
4608.750	Ce	2	–	–
4608 709	Mo	10	10	–
4608.675	Ru	6	–	–
4608.67	Ho	3	1	Ex
4608.591	Gd	6	–	–
4608.583	Cb	2	3 h	–
4608.54	Ca	–	2	Ad
4608.492	Ce	6	–	–
4608.457	Cu II	–	2	Sh
4608.44	Tb	8 R	–	–
4608.425	K II	–	[40]	Dm
4608.341	U	2	–	–
4608.280	Os	12	–	–
4608.15	Eu	2 w	–	m
4608 119	Rh I	15	5	–
4608.116	Mo	5	5	–
4608.092	Hf	25	4	–
4608 02	Gd	8	3	–
4608.005	Pr	5	–	–
4608.0	Ho	2	–	Kn
4607.97	Yt II	2 h	–	–
4607.89	Er	2	–	Ed
4607.887	Tm	2	–	–
4607 81	Tb	4	–	–
4607.654	Fe I	50	5	–
4607.625	Mn	50	–	–
4607.50	Au	–	15 r	–
4607.46	As	–	200	Ro
4607.381	Nd	25	–	–
4607.34	Au I	30	15	–
4607.331	Sr I	1000 R	50 R	IHz
4607 33	Co	2 h	–	Dn
4607 3	bh La	3	–	Me
4607.290	Ce	3	–	–
4607.226	V	4	3	Me
4607.167	N II	–	[50]	Fl
4607.087	Ce	2	–	–
4607.075	Mo	8	10	–
4606.920	Pr	3	–	–
4606.833	Ru	4	–	–
4606.8	bh Sc	10	–	Me
4606.768	W	2	–	–
4606.766	Cb	50	50	–
4606.723	Ti	4	–	–
4606 650	Gd	3	3	–
4606 613	Er	20	1	–
4606.60	Hg	–	[5]	Ps
4606.520	Sm II	40	–	–
4606.511	Mo	4	3	–
4606.506	Th	4	2	–
4606.446	Pr	30 w	3 w	–
4606.401	Ce	12	15	–
4606.375	Cr	15	3	–
4606 231	Ni I	100	–	–
4606 2	bh Sr	2	–	L
4606.151	V I	30	25	–
4606.1	bh C	–	–	L
4606.056	Gd	5	2	–
4606.048	Dy	4	–	–
4605 84	Eu	8	–	m
4605.829	Nd	4 h	–	–
4605.816	Cr	30	–	–
4605.782	La II	100	100	–
4605 774	Hf II	20	30	–
4605.734	Re	50	–	–
4605.665	Ru I	15	–	–
4605.66	Br	–	[10]	Bl
4605.480	Ce	4	–	–
4605.43	Pb	–	2	Sx
4605.42	Tb	2	–	–
4605.39	Lu	10 h	–	Me
4605.363	Mn	150	15	–
4605.350	V	–	8	Me
4605.22	Tm	10	–	–
4605 214	Pr	5	–	–
4605.148	U	12	25	–
4605.093	La I	5	2	–
4605 036	Os	15	–	–
4605.03	Tb	2 h	–	–
4604.994	Ni I	300	10 h	–
4604.990	Ba	10	3	–
4604.938	Ne I	–	[5]	Ps
4604.89	Pr	9	2	–
4604 890	Er	4	–	–
4604.863	Tm	5	–	–
4604 86	Te	–	[15]	Bl
4604.852	Ta	200 W	–	–
4604.83	Eu	6	–	–
4604 812	Sm	2	–	–
4604.800	Yt I	8	3	–
4604.77	Sb II	–	[30]	Lg
4604.713	Sc	4	–	–
4604.620	Cr	15	–	–
4604.609	W	2	10	–
4604 475	Ir	10 h	–	–
4604.421	Zr I	10	–	–
4604.40	Rn	–	[200]	Wa
4604.35	Tb	9	–	–
4604.34	Se II	–	[300]	Bl
4604.32	Dy	2	–	–
4604 239	La I	8	2	–
4604 234	Mo	–	20	–
4604.209	Ce	3	–	–
4604 205	Pr	3	–	–
4604.181	Sm II	60	–	–
4604 10	Tb	10	–	–
4604 095	Ne I	–	[15]	Ps
4604 02	Kr II	–	[60 hl]	Me
4603.987	Sm	2 h	–	–
4603.85	I	–	[8]	Bl
4603 836	Ir	2	–	–
4603.823	Nd	25	–	–
4603 810	Pr	10	2	–
4603 801	Cb	2	3	–
4603.755	Cs II	–	[60]	Ot
4603 73	Er	3	1	m
4603.7	bh Yt	5	–	Me
4603 665	U	25	40	–
4603.560	Mo	6	6 h	–
4603.478	Pr	4	–	–
4603.42	Tm	35	25	–
4603 21	Tm	10	–	–
4603.116	Sm	5	–	–
4603 028	Xe II	–	[300 h]	IMe
4602.95	Tb	8	–	–
4602.946	V I	7	6	–
4602.944	Fe I	300	100	S
4602 944	Gd	10	2	–
4602.884	Th	5	3	–
4602.863	Li I	800	–	Da
4602.860	Cb	2	5	–
4602.808	Ru I	15	–	–
4602 752	Ce	4	–	–
4602.73	As II	–	200	Ro
4602.713	Hf	6	3	–
4602.7	bh La	3	–	Me
4602.63	Eu	15 w	–	Kn
4602.60	Lu	3 h	–	Me
4602.573	Zr I	12	–	–
4602.562	Pr	10	–	–
4602.503	Tb	4	–	–
4602.37	Te	–	[800]	Bl
4602.242	Nd	10	–	–
4602.192	Ta	100	2	–
4602.08	O II	–	[10 h]	Mh
4602.06	Er	2	1	–
4602.046	La I	20	–	–
4602.025	Sm	2	–	–
4602.010	Fe I	20	2	–
4601.96	P II	–	[300 w]	Gu
4601.794	U	4	4	–
4601.763	Ru I	20	–	–
4601.65	La II	–	3	Me
4601.636	Rh I	3	2	–
4601.568	Ce	2	–	–
4601.490	N II	–	[100]	Fl
4601.430	Zr	2	–	–
4601.416	Ta	60	100 wh	–
4601.371	Ce	4	–	–
4601 36	Br	–	[20]	Bl

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4601.28	Yt I	2	–	–
4601.27	Tm	25	–	–
4601.19	Eu	12 W	–	m
4601.165	Co I	30	–	–
4601.130	U	18	25	–
4601.10	Er	4	–	Ed
4601 075	Pr	3	–	–
4601 05	Gd	40	6	–
4601.021	Cr	10	4	–
4601.019	Ce	2	–	–
4601 00	Cl I	–	[20]	Ks
4600.881	Mo	3	3	–
4600.752	Cr I	150	150	–
4600.744	U	2	5	–
4600.69	Kr	–	[2]	Me
4600 68	Dy	2	2	–
4600.59	La II	–	5 h	Me
4600.567	Tm	2	–	–
4600.555	Ru	6	–	–
4600 522	Nd	10	–	–
4600.442	W	20	4	–
4600 40	Ca	–	3 h	Ad
4600.391	Pr	20	3	–
4600.372	Ni I	200	–	–
4600.236	Ce	3	–	–
4600.206	Cb	10	15	–
4600.161	Tb	5	–	–
4600.16	Ne II	–	[5]	Bl
4600.155	V	1	60 h	–
4600 104	Cr	20	50	–
4599.961	W	50	10	–
4599 96	Se II	–	[70]	Bl
4599 865	U	–	2	–
4599 86	Dy	3	2	–
4599.806	I	–	[30]	Ke
4599.751	Ba	50	10	Sz
4599.68	Sb	–	10 h	Sp
4599.607	Tb	4	–	–
4599.48	Pr	3	–	–
4599.476	Cb	3 h	10	–
4599.469	U	–	3	–
4599 44	Hf II	10	25	–
4599 367	Th	3	–	–
4599.342	Nd	3	–	–
4599.304	Ce	2	–	–
4599.231	Ti	35	3	–
4599.22	Cs	–	[15]	Bs
4599.19	Eu	6 W	–	Kn
4599.157	Mo	25	20	–
4599.09	Sb II	–	[40]	Lg
4599.085	Ru I	100	–	–
4599.023	Ce	3	–	–
4599.003	Cr	10	–	–
4599.00	Tm	80	–	–
4598.951	Pr	10	–	–
4598.905	Gd	20	10	–
4598.800	Hf	20	3	–
4598.77	A II	–	[20]	Rt
4598.743	Pr	4	–	–
4598.590	Ce	2	–	–
4598.49	Kr II	–	[50 hl]	Me
4598.441	Cr	20	4	–
4598.436	Sc I	2 h	–	–
4598.432	Nd	4	–	–
4598 37	Yb	25	70	–
4598.365	Sm II	5	–	–
4598.340	U	2	3	–
4598.246	Mo	15	15	–
4598.2	bh La	4	–	Me
4598.14	Re	2 h	–	m
4598.135	Sc	2	–	–
4598 135	Fe I	50	4	–
4598.130	Er	2	1	–
4597.967	U	2	–	–
4597.936	Cu II	–	2	–
4597.93	Se II	–	[25]	Bl
4597.922	Gd	25	40	–
4597.904	Hf	8	2	–
4597.882	Mo	15	20	–
4597.863	Os	8	–	–
4597.792	Ce	3	–	–
4597.73	Tb	3	–	–
4597.72	Hg	–	[20]	Ps
4597.673	Cs II	–	[10]	Ot
4597.547	U	2 h	8 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4597.50	Dy	2	2	m
4597.4	Ca	–	4 wh	Ad
4597.33	Eu	40 W	–	–
4597.33	Re	2 h	–	–
4597.25	Yb	–	2	–
4597.20	Tm	15	–	–
4597.170	Ce	4	–	–
4597.160	Os	100	4	–
4597.08	Sb II	–	6	Dv
4597.013	Nd	25	2	–
4596.994	Gd	25	25	–
4596 948	Pr	20	4	–
4596.933	Th	4 w	–	–
4596.933	Ce	2	–	–
4596.927	Cr	6	–	–
4596 905	Co I	400	–	–
4596 903	Cu II	–	4 wh	Sh
4596 90	Sb II	–	[70]	Lg
4596.89	Tb	3	–	–
4596.89	Br	–	[10]	Bl
4596 81	Kr	–	[2]	Me
4596.747	Sm	20	–	–
4596.73	I, II	–	[25]	Bl
4596 73	Er	4	–	Ed
4596.710	Ru	20	–	–
4596.62	Tm	25	–	–
4596.59	Se II	–	[8]	Bl
4596.541	Yt I	10	5	–
4596.47	Tb	3	–	–
4596.42	Ir	4	–	–
4596.380	Cr	10	–	–
4596.380	Mn	10	–	–
4596 36	V	–	3 h	–
4596.198	La I	4	2	–
4596.167	Ce	2	–	–
4596 13	O II	–	[150]	Mh
4596 097	A I	–	[1000]	I
4596 096	Sb	–	2	Sp
4596.07	Tb	3	–	–
4596 062	Fe I	10	2	–
4595 98	P II	–	[30]	Gu
4595 951	Ni I	15	–	–
4595 87	Pr	6	3 h	–
4595.695	U	1	4 h	–
4595.627	Ce	2	–	–
4595 613	K II	–	[40]	Dm
4595 590	Cr	50	60	–
4595 579	U	2	–	–
4595.571	Rh	2	1 h	–
4595.53	P	–	[10]	Gu
4595.424	Th	4	2	–
4595 368	Gd	4	1	–
4595 365	Fe	15	2	–
4595 300	Sm II	100	60	–
4595.25	Tb	2	–	–
4595 249	Re	2 h	–	–
4595 249	Ne I	–	[50]	Ps
4595 159	Mo	40	40	–
4595.14	Dy	4	2	–
4595 126	U	1	2	–
4595 053	La II	3	–	–
4595.04	Cr	15	–	–
4595 040	Os	80	4	–
4594 963	Pr	3	–	–
4594.93	Sb II	–	[20]	Lg
4594 92	Tb	2 h	–	–
4594 908	Ni	15	10 h	–
4594.852	U	2	1	–
4594.675	Nd	4 l	–	–
4594.633	Co I	400	–	–
4594.577	Sm	2	–	–
4594.572	Pr	3	–	–
4594.447	Nd	10	–	–
4594.403	Cr	10	–	–
4594.31	Tb	2	–	–
4594 294	U	6	8	–
4594.21	Sb II	–	[15]	Lg
4594.129	Ce	4	–	–
4594 108	Mn	12	–	–
4594.108	V I	30 wh	25 wh	–
4594.02	Eu	500 R	200	–
4594.01	Er	2	–	m
4594.00	Yt	3	–	m
4593.947	Tb	4	–	–
4593.936	Nd	2 h	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4593 932	Ce	30	30	–
4593 926	Pr	30	2	–
4593 9	bh La	5	–	Me
4593.831	Cr	12	–	–
4593.785	Cb	–	15 h	–
4593 716	Ce	2	–	–
4593.70	Xe II	–	[5]	Hu
4593.698	In	–	20 h	–
4593.643	Mo	8	8	–
4593.642	Th	–	50 wh	–
4593.571	Pr	8 d	2 d	–
4593.531	Sm II	50	50	–
4593.44	A II	–	[2]	Rt
4593.407	Sm	2	–	–
4593.37	Yb	4	–	–
4593.30	Br	–	[4]	Bl
4593.290	Th	3	2	–
4593.243	Ne I	–	[50]	Ps
4593 213	Ru I	7	–	–
4593.177	Cs I	1000 R	50 R	Sv
4593.103	Ce	3	–	–
4593.06	Tb	3	–	–
4593.025	Ru	6	–	–
4592 939	Sc I	2	–	–
4592 933	U	3	–	–
4592 93	Er	3	–	Ed
4592.80	Kr II	–	[150 whl]	Me
4592.655	Fe I	200	50	S
4592.575	W	15	5	–
4592.557	U	1	3	–
4592.55	Re	2 h	–	–
4592.537	Cr	25	1	–
4592 529	Ni I	200	2	–
4592 520	Ru I	100	–	–
4592.49	Te	–	[30]	Bl
4592 422	W	20	10	–
4592 391	Tb	5	–	–
4592.39	Eu	4 w	–	–
4592.34	Se II	–	[8]	Bt
4592 271	Ce	3	–	–
4592.209	Mo	20	20	–
4592.153	Pr	8	2	–
4592 058	Cr II	3	35 h	–
4592.05	Xe II	–	[150 whl]	Hu
4592.015	Ru	6	–	–
4591.923	Pr	4	–	–
4591.880	Sb	–	20	–
4591.829	Ba	15	3	–
4591.826	Sm II	100	–	–
4591.78	Dy	3	3	–
4591.730	U	3	8	–
4591.70	Mn	8	–	–
4591.677	Re	25	–	–
4591 577	Ce	2	–	–
4591.57	Tb	12	–	–
4591 560	Ru I	20	–	–
4591.555	Pr	3	–	–
4591.53	Tm	10	–	–
4591.513	Mn	10	–	–
4591.459	Ce	3	–	–
4591.394	Cr II	200	125	–
4591.225	V I	30	25	–
4591 18	Tb	6	–	–
4591.13	Ir	3	–	–
4591.119	Ce	8	–	–
4591.103	Ru I	60	–	–
4591.07	Eu	4	–	m
4591.05	S	–	[35]	Hn
4591 02	As	–	30	Ro
4590.95	I II	–	[25]	Mu
4590 946	Os	8	1 h	–
4590.94	O II	–	[300]	Mh
4590 932	Pr	8	10 h	–
4590 91	Ir	5	–	–
4590.83	Yb	40	–	–
4590.83	U	–	4 h	–
4590.812	Th	3 h	–	–
4590.79	Yt	2	–	m
4590.77	Er	4	1	m
4590.739	Ce	2	–	–
4590.705	Pr	4	–	–
4590.571	Dy	3	–	–
4590.558	Re	2 h	–	–
4590.548	Zr I	8	–	–
4590 505	Nd	3	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4590.486	V	–	8	–
4590.380	Mo	15 wh	10 wh	–
4590.3	Rb	–	[8]	Da
4590.281	U	2	2	–
4590.159	Zr I	3	–	–
4590.15	Tb	2 h	–	–
4590.145	Pr	3	–	–
4590.010	U	1	5	–
4589.978	Pd I	6	3 h	–
4589.954	Ti II	40	100	–
4589.935	Cr II	–	4 h	–
4589.93	A II	–	[150]	Rt
4589.924	Ce	2	–	–
4589.91	Hg	–	[10]	Ps
4589.902	La I	4	–	–
4589.89	O I	–	[30]	Ps
4589.832	Ti	2	–	–
4589.78	P II	–	[300 w]	Gu
4589.76	Pr	5 d	–	–
4589.759	Ba	10	3	–
4589.750	Al II	–	[20]	Sy
4589 689	Al II	–	[4]	Sy
4589.670	Th	4	2	–
4589.585	Ru	7	–	–
4589.542	Gd	3	3	–
4589.5	bh La	5	–	Me
4589.419	Sm	2	–	–
4589.4	bh La	2	–	Me
4589.40	Ho	3	1	Ex
4589.388	Ce	2	–	–
4589.376	Dy	70	15	–
4589.36	Tb	15	–	–
4589.338	Mo	5 wh	3 wh	–
4589.30	Er	3	2	m
4589.292	U	2	6 h	–
4589.288	A I	–	[80]	IMe
4589.22	Yb	35	1	–
4589.171	Ce	3	–	–
4589.16	Pr	5	–	–
4589.119	Th	4	4	–
4589.021	Cb	–	8 h	–
4589.008	Cr	10	–	–
4588.98	O I	–	[15 d]	Ps
4588.96	Eu	8 w	–	Kn
4588.9	Ca	–	4 wh	Ad
4588.8	bh B	25	–	L
4588.77	Br	–	[4]	Bl
4588.750	W	40	15	–
4588.72	Tb	3	–	–
4588.699	Co I	100	1	–
4588.660	U	4	–	–
4588.591	Os	2	–	–
4588.431	Th	4	1	–
4588.440	U	1	2	–
4588.418	Ce	6	–	–
4588.36	Xe	–	[2]	Hu
4588.238	Th	4	4	–
4588.217	Cr II	10	600 h	–
4588.194	Al II	–	[30]	Sy
4588.15	Tb	8 d	–	–
4588.147	Mo	25	30	–
4588.14	Er	3	–	m
4588.13	Ne II	–	[30]	Bn
4588.082	Al II	–	[2]	Sy
4588.06	Tm	5	–	–
4588.00	Pr	5 d	–	–
4587.931	Dy	6	3	–
4587.90	A	–	[2]	Rt
4587.90	P II	–	[300 w]	Gu
4587.89	Au	–	15	–
4587.866	Cr I	30	–	–
4587.715	Tb	20	–	–
4587.473	Ir	5	–	Ab
4587.409	Ir	20	–	–
4587.400	Mo	5	5	–
4587.266	U	6 h	–	–
4587.21	A I	–	[5]	Ms
4587.136	Fe	12	2	–
4587.135	Pr	8	–	–
4587.135	Re	15	–	–
4587.130	La II	3 h	–	–
4587.099	Ru I	10	–	–
4586.982	Pr	6	–	–
4586.98	Te	–	[15]	Bl
4586.98	Gd	15	2	–
4586.967	Nd	10	–	–
4586.954	Cu I	250 w	80 w	Hs
4586.939	Co I	15	–	–
4586.93	Lu	2	6	Me
4586.923	U	–	2	–
4586.848	Er	3	–	–
4586.846	W	30	5	–
4586.84	Sb II	–	[25]	Lg
4586.82	Ca	–	2	Ad
4586.789	Mo	15	15	–
4586.642	Dy	4	2	–
4586.632	Th	2	3	–
4586.614	Nd	50	–	–
4586.610	A I	–	[10]	Ms
4586.58	I II	–	[8]	Ke
4586.574	Mo	15	15	–
4586.532	Pr	5 w	–	–
4586.44	Eu	30 w	–	–
4586.357	V I	40 h	30 h	–
4586.35	Tm	10	–	–
4586.248	Hf II	8	10	–
4586.215	Dy	2	2	–
4586.16	Pr	2	–	–
4586.138	Cr	25	6	–
4586.108	Mn	30 l	–	–
4586.061	Mo	20	20	–
4586.054	Re	2 w	–	–
4586.051	Ce	2	–	–
4586.03	Ca	2	3 h	Ad
4585.94	Pr	4	–	–
4585.89	Eu	2 w	–	Kn
4585.876	Ne I	–	[10]	Ps
4585.871	Ca I	125	10	IWg
4585.87	Tb	2	–	–
4585.820	Al II	–	[40]	Sy
4585.72	Dy	3	–	–
4585.67	Eu	8 w	5	–
4585.64	Sn	–	25 wh	–
4585.59	Ir	8	–	–
4585.588	U	2	2	–
4585.51	Tb	2 h	–	–
4585.5	bh Sr	3	–	L
4585.48	Xe II	–	[200 whl]	Hu
4585 13	Ir	2	–	–
4585.1	bh La	4	–	Me
4585.088	Cr	10	2	–
4585.03	Cl II	–	[15]	Ks
4584.958	A I	–	[10]	Ms
4584.937	Os	2	–	–
4584.934	Cr I	10	1	–
4584.921	Mn	20	–	–
4584.855	Er	8	–	–
4584.848	Cb	3	3 h	–
4584.847	U	10	15	–
4584.84	Tb	12	–	–
4584.834	Sm II	60	50	–
4584.824	Fe I	8	1	–
4584 78	Dy	3	2	m
4584.75	Ir	3	–	–
4584.450	Mo	3	3	–
4584.445	Ru I	150 R	80	–
4584.427	Pr	2	–	–
4584.376	Th	5	4	–
4584.282	Gd	3	2	–
4584.28	Cl II	–	[20]	Ks
4584 26	U	–	3	–
4584.249	W	3	–	–
4584.243	Zr I	5	–	–
4584.183	Ce	2 h	–	–
4584.10	Cb	–	3 h	Me
4584.095	Cr	20	1	–
4584.043	Nd	12	2	–
4583.95	Tb	4	–	–
4583.897	Cr I	10	–	–
4583.881	Co	2	–	–
4583.848	Fe II	150	150	–
4583.783	V I	15	12	Me
4583.698	Th	2	–	–
4583.644	Dy	2	–	–
4583.49	Cb	2	3 wh	Me
4583.443	Ti II	5	10	–
4583.274	U	8	10	–
4583.17	Ta	150	10	m
4583.096	Ce	5	–	–
4583.087	Gd	40	2	–
4583.07	Tb	3	–	–
4583.054	Dy	3	2	–
4583.050	Mn	8	–	–
4582.980	Ne I	–	[5]	Ps
4582.86	Tb	3	–	–
4582.85	Kr II	–	[300 hl]	Me
4582.835	Fe II	1	1	–
4582.805	Mn	20	–	–
4582.771	Th	2	–	–
4582.747	Xe I	–	[300]	IMe
4582.571	Pr	5 w	–	–
4582.56	Tb	2	–	–
4582.556	Ne I	–	[15]	Ps
4582.51	Gd	10	3	–
4582.502	Ce	10	8	–
4582.50	As	–	3	Ro
4582.498	Mo	10	10	–
4582.451	Cr	8	–	–
4582.450	Ne I	–	[150]	IMe
4582.39	Cl II	–	[2]	Mu
4582 385	Ce	5	–	–
4582.382	Gd	6	2	–
4582 370	U	4	4	–
4582.36	Yb	80	6	–
4582 346	Mo	10	10	–
4582 34	Pb II	–	[10]	Gs
4582 292	Zr I	8	–	–
4582 286	Cb	5	5	–
4582.17	Yt I	2	2	m
4582.105	Ne I	–	[15]	Ps
4582 065	Cr	5	–	–
4582 035	Ne I	–	[150]	IMe
4581 92	Ir	20 h	–	–
4581 833	Mn	125	–	–
4581.766	Yt I	3	–	–
4581.76	P II	–	[30 h]	Gu
4581.737	Sm	40	–	–
4581.724	U	8	18	–
4581.70	Er	7	–	m
4581.619	Cb	30	50	–
4581.597	Co I	1000 w	10	–
4581 584	Sm	8	–	–
4581.584	Pr	10 w	–	–
4581.581	Th	6	6	–
4581.522	Fe I	60	2	–
4581.46	Dy	2	2	m
4581.43	Tb	8	–	–
4581.402	Ca I	100	10	IWg
4581 302	Yt I	3	–	–
4581.301	Gd	30	4	–
4581.3	Pb II	–	[4]	Ea
4581.229	V I	5	4	–
4581.225	Th	3	3	–
4581 210	La I	15	5	–
4581.202	Nd	3	–	–
4581.09	Gd	5	–	–
4581.088	Ce	4	1	–
4581 070	Er	2	–	–
4581.063	Cr	15	1	–
4581.058	U	2	3	–
4580.965	Mo	–	20 h	–
4580.92	As	–	10	Ro
4580 827	U	2	4	–
4580 821	Pr	4 w	–	–
4580 8	bh La	3	–	Me
4580.76	Eu	6 w	–	Kn
4580.73	Yb	2	–	–
4580.70	Xe II	–	[40 wh]	Hu
4580.69	Ta	200 W	10	m
4580.668	Re	30	–	–
4580 668	Pt I	3	1	–
4580.619	Ni I	5	–	–
4580.600	Fe I	6	–	–
4580.546	Pt I	3	1	–
4580.50	Cb	1	2	Me
4580.460	Pr	3	–	–
4580.458	Ti II	–	5	–
4580.401	V I	30 h	25 h	–
4580.40	Tb	4	–	–
4580.35	Ne II	–	[30]	Bn
4580.27	Sn II	–	[4]	–
4580.20	Eu	5 w	5	–
4580 185	Sm	3	–	–
4580.140	Co I	300	3	–
4580.11	Kr II	–	[2 h]	Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4580.072	Ru I	25	–	–
4580 057	La II	80	100	–
4580.056	Cr I	300	125	–
4580.05	Tb	3	–	–
4579 992	I	–	[30]	Ke
4579.962	W	4	–	–
4579.95	Br	–	[25]	Bl
4579.928	Ce	2	–	–
4579.845	Pr	3	–	–
4579 81	Eu	3	–	–
4579 715	Mo	5	4	–
4579.701	W	12	3	–
4579 669	Mn	50	–	–
4579.667	Ba	75	40	Sz
4579.639	U	12	15	–
4579.63	Dy	2	–	Ed
4579.619	Cr	5	–	–
4579.606	Gd	15	4	–
4579.453	Cb	5 h	30 h	–
4579.39	A	–	[80]	Rt
4579.364	Co I	25	–	–
4579.345	Ir	8 h	–	Ab
4579.32	In	–	10	Sq
4579.311	Nd	25	3	–
4579.286	Th	2	3	–
4579.277	Ce	6	–	–
4579.192	V I	12	10	–
4579.158	Nd	2 h	2	–
4579.15	Pb II	–	[10]	Gs
4579.13	Sn II	–	[4]	Mc
4579.046	Sm	4	–	–
4579.041	Os	15	–	–
4578.966	U	2	10	–
4578.882	Nd	30	2	–
4578.86	Yt I	3	2	m
4578 809	Th	3 w	–	–
4578 80	Tm	10	–	–
4578 783	Mo	–	12 h	–
4578 778	Ce	6	–	–
4578.730	V I	25	20	–
4578.71	Pr	3	–	–
4578.705	Sm	4	–	–
4578.69	Tb	70	–	–
4578.60	Eu	5 w	–	–
4578.558	Ca I	80	5	IWq
4578 526	In II	–	[5]	Ps
4578.483	Mo	6	6	–
4578.393	In II	–	[60]	Ps
4578 336	W	12	4	–
4578.334	Cr	25	2	–
4578.257	U	3	6	–
4578.244	Re	2	–	–
4578.20	Tb	3	–	–
4578.18	Cl I	–	[2]	Ks
4578.153	Ce	2	–	–
4578.139	Pr	40 w	3 w	–
4578.087	In II	–	[50]	Ps
4578.07	Eu	10 W	–	–
4578.041	Mn	15	–	–
4578 004	Sm	4	–	–
4577.95	Sb II	–	[25]	Lg
4577.9	bh C	–	–	L
4577.804	Er	8	–	–
4577.796	Dy	15	8	–
4577.778	Mo	10	15	–
4577.72	Rn I	–	[250]	Rs
4577.687	Sm II	100	50	
4577.66	O I	–	[30]	Ps
4577.554	Re	2	–	–
4577.53	Pr	3	–	–
4577.422	Pt I	5	2	–
4577.416	Ru	5	–	–
4577.20	Kr II	–	[800]	Me
4577.185	U	2	2	–
4577.175	Ir	8	–	–
4577.174	V I	40	30	–
4577.06	Xe II	–	[100 wh]	Hu
4577.006	Pr	4	–	–
4576.92	Eu	10 W	–	–
4576.79	O I	–	[15 d]	Ps
4576.770	Cr	10	–	–
4576.64	Pr	3	–	–
4576.635	U	12	2	–
4576 62	Ta	3 wh	–	–
4576.62	Tm	10	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
4576.605	Dy	5	2	–
4576 60	Xe	–	[15]	Me
4576.58	I II	–	[25]	Ke
4576.57	Ca	–	4 h	Ad
4576 551	Ti I	4	–	–
4576.501	Mo	40	40	–
4576.481	Ce	6	–	–
4576.36	Eu	12 W	10	m
4576 331	Fe II	3	2	–
4576.320	Pr	50	15	–
4576 319	Ru	6	–	–
4576 202	Zr I	5	–	–
4576.20	Yb	90	10	–
4576.096	In	–	3 h	–
4576.009	U	–	4	–
4575.912	Gd	4	1	Kn
4575.863	Mo	15	15	–
4575.858	Ne I	–	[20]	Ps
4575.84	Gd	3	–	–
4575.783	Eu	20	–	–
4575.767	Ce	2	–	–
4575.751	Ru	7	–	–
4575.75	Br I	–	[100 l]	Ks
4575.59	Te	–	[30]	Bl
4575.519	Ti	7	1	–
4575.515	Zr I	50	–	–
4575.427	Th	4	3	–
4575.42	Tb	3	–	–
4575.410	Mn	50	–	–
4575 369	Cb	2	3	–
4575 246	Th	2	1	–
4575.22	Eu	15 W	–	Kn
4575.169	Mo	5	8	–
4575.121	Cr	25	5	–
4575.08	Er	2	–	Ed
4575.076	Ce	2	–	–
4575.060	Ne I	–	[300]	IMe
4575.026	U	2	–	–
4574.940	Co I	20	–	–
4574.906	Pr	4	–	–
4574.90	P	–	[30]	Gu
4574.88	Eu	2 w	m	
4574.875	La II	300	300	–
4574 840	Cb	10	10	–
4574.80	As	–	3	Ro
4574.793	U	–	2	–
4574.746	Ce	3	–	–
4574.736	Sm	2	–	–
4574.722	Fe I	12	1	–
4574.66	Si	–	20	Sy
4574 636	Pr	4	–	–
4574 608	Mo	10	8	–
4574.6	Tl I	2	–	Fl
4574.522	Mn	8	–	–
4574.503	Fe	7	3	–
4574.496	Zr II	3	2	–
4574.49	Ne II	–	[5]	Bn
4574.485	Mo	10	10	–
4574.43	U	–	2	–
4574.329	Cb	2	3	–
4574.32	Dy	2	–	–
4574.306	Ta	300	20	–
4574 271	U	2	–	–
4574.212	Cr	10	–	–
4574 203	Pr	5 w	–	–
4574.20	Eu	10	5	m
4574.18	As	–	3	Ro
4574.119	Ce	3	–	–
4574.107	I II	–	[30]	Ke
4573.993	Sc I	2	–	–
4573.956	Ru	5	–	–
4573.887	Tb	2	–	–
4573.87	Dy	5	2	–
4573.855	Ba	50	20	–
4573.81	Gd	5	–	–
4573.788	Hf II	15	15	–
4573.759	Ne I	–	[30]	IMe
4573.703	Th	4	4	–
4573 7	Eu	4 w	4	Kn
4573.69	Tm	5	–	–
4573 687	U	30	40	–
4573.635	Mn	10	–	–
4573.560	Yt I	4	2	–
4573.557	Ne I	–	[50]	Ps
4573.46	Tm	3	10	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
4573 41	Br	–	[8]	Bl
4573.33	Kr II	–	[30 hl]	Me
4573.293	Ta	200	2 h	–
4573.281	Pr	4	1	–
4573 276	U	5	8	–
4573.18	Tb	7	–	–
4573.1	Be	–	40	Sx
4573 075	Cb	30	50	–
4573 066	Ne I	–	[5]	Ps
4572.993	U	4	6	–
4572.98	Er	3 w	1	m
4572.953	Os	5	–	–
4572.904	In II	–	[10]	Ps
4572 851	Zr I	3 wh	–	–
4572.789	Ce	6	–	–
4572.74	Mn	20	–	–
4572.671	Be I	15	15	IHz
4572.641	Rh I	4	2	–
4572.617	Th	4 w	–	–
4572.611	Cs	–	[10]	Sv
4572.52	Tb	3	–	–
4572 51	Er	2	–	m
4572 5	Eu	3 W	–	Kn
4572.43	Ho	2	1	Kn
4572.42	Tm	10	6	–
4572.39	Mn	5	–	–
4572.35	Cl II	–	[2]	Mu
4572.30	Pr	3	–	–
4572 277	Ce	35 s	35	–
4572.26	Tb	3	–	–
4572.243	U	6	8	–
4572.215	Gd	8	8	–
4572.189	Re	2	–	–
4572.162	Rb II	–	3	Rr
4572.13	Cl II	–	[100]	Ks
4572.129	Pr	10	–	–
4572 11	Ca	–	8 h	Ad
4572 013	Ce	3	–	–
4571 978	Ti II	150	300	I
4571 948	Th	3	–	–
4571 898	W	10	1	–
4571 89	Tm	15	–	–
4571.88	Er	2	–	m
4571.85	Xe	–	[15 Wh]	Hu
4571.790	Rb II	–	30	Rr
4571.786	Cs II	–	[15]	Ot
4571.783	V I	30	25	–
4571.759	Mo	6 wh	6 wh	–
4571.72	Pb I	–	7	Ro
4571 683	U	3	1	–
4571.676	Cr	50	40	–
4571.613	Pr	20	5	–
4571.55	Mn	8	–	–
4571.51	I II	–	[10]	Ke
4571.481	Ce	2	–	–
4571.42	Tb	3	–	–
4571.402	In II	–	[2]	Fs
4571 390	Ir	2	–	Ab
4571.35	Pb	–	30	Sx
4571.330	In II	–	[5]	Ps
4571.306	Rh	8	5	–
4571.3	bh Sc	10	–	Me
4571.28	Eu	2 W	–	–
4571.240	U	3	1	–
4571.233	Mn	20	–	–
4571 215	In II	–	[30]	Ps
4571 20	Tm	10	–	–
4571.169	In II	–	[10]	Ps
4571.15	Mg I	20	2	–
4571.105	Cr I	10	1	–
4571.062	Mo	6 wh	6 wh	–
4571.045	Nd	5	–	–
4570.987	U	6	25	–
4570.979	In II	–	[5]	Ps
4570.974	Th	3	1	–
4570.971	La II	8	10	–
4570 948	Cb	2	3	–
4570.932	In II	–	[30]	Ps
4570.909	Ti I	40	2	–
4570.841	In II	–	[15]	Ps
4570.782	In II	–	[5]	Ps
4570.690	Hf II	8	20	–
4570.655	W	30	10	–
4570.650	Yt I	3	–	–
4570.638	Ce	6	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4570.629	Th	4 w	–	–
4570.614	Ir	8 h	–	Ab
4570.595	Mo	5	5	–
4570.565	Pr	40	15	–
4570.557	U	1	3	–
4570.534	Cr	6	–	–
4570.501	Os	2	–	–
4570.50	Eu	3 W	–	m
4570.424	V I	20	15	–
4570.417	Ir	8 h	–	Ab
4570.368	Th	4	–	–
4570.350	Pr	3	–	–
4570.335	Cr I	15 wh	–	–
4570.32	Rh	2	1	m
4570.31	Tm	10	15	–
4570.248	Ru	10	–	–
4570.24	I	–	[3]	Ke
4570.128	Mo	25	25	–
4570.116	Pr	20 w	2 h	–
4570.093	Ce	3	–	–
4570.027	La I	80	25	–
4570 025	Co I	300	–	–
4570.019	Ir	50	2	–
4569 95	Eu	2	–	–
4569.913	U	25	40	–
4569.849	Nd	8	–	–
4569.71	Te	–	[70]	Bl
4569 69	A I	–	[2]	Ms
4569.660	Ce	4	–	–
4569.644	Cr	50	10	–
4569.63	Er	4 W	–	m
4569.624	Pr	10	–	–
4569.585	Sm	15	–	–
4569.530	Cr	15	4	–
4569.484	Cb	2	5 h	–
4569.42	Cl II	–	[50]	Ks
4569.372	Pr	3	–	–
4569.330	Er	5	–	–
4569 29	Tb	3	–	–
4569.25	Tm	10	15	–
4569.192	U	2	4	–
4569.156	Cb	10	5	–
4569.140	Ce	2	–	–
4569.12	Xe	–	[2]	Hu
4569.05	Eu	6 w	–	–
4569 020	Mo	5	8	–
4569.01	Ne II	–	[70]	Bn
4569.005	Rh I	100	25	–
4568.91	Tb	2	–	–
4568.90	Eu	6 w	–	Kn
4568.864	Yb	4	–	–
4568.827	Er	4	–	–
4568.777	Fe I	10	1	–
4568.613	W	6	–	–
4568.587	Ce	3	–	–
4568 545	Pr	30	3 h	–
4568.518	Tb	2	–	–
4568.42	Dy	2	–	m
4568.40	Tm	10	–	–
4568.373	Rh I	2	–	–
4568 312	Ti II	3	8	–
4568.226	U	4 h	18	–
4568 092	Ir	100	3	–
4568.06	Rn	–	[5]	Rc
4567.95	As	–	5	Ro
4567.909	La I	100	25	–
4567.906	Ru I	7	–	–
4567.863	Co	2 h	–	–
4567.845	Ne I	–	[10]	Ps
4567.79	Ca	–	2	Ad
4567.740	Er	3	–	–
4567.72	Tb	10 w	–	–
4567.687	U	20	40	–
4567.683	Mo	25	25	–
4567.66	Si	–	30	Sy
4567.606	Nd	20	1	–
4567.590	W	9	2	–
4567.533	Co	2	–	–
4567.481	Pr	3	–	–
4567.48	Os	5 s	–	–
4567.408	Ce	3	–	–
4567.397	Mo	8	6	–
4567.355	Yb	10	2	–
4567.344	Nd	6	–	–
4567.242	Th	2	–	–
4567 19	Se II	–	[10]	Bl
4567.158	Ce	2	–	–
4567.139	Ne I	–	[15]	Ps
4567.11	Tm	35	15	–
4567.07	Dy	3	2	–
4566.983	Cs II	–	[15]	Ot
4566.929	U	2	4	–
4566.879	Mo	2 h	3 h	–
4566.861	Ta	100	2 h	–
4566.845	Pr	5	–	–
4566 830	Ne I	–	[40]	Ps
4566.8	Rb	–	[4]	Dr
4566.776	Sm	15	–	–
4566.707	Ru	7	–	–
4566.645	Th	6	3	–
4566.611	Co I	100	2 h	–
4566.602	Cr I	10	–	–
4566.592	Ce	2 h	–	–
4566.520	Fe	5	1	Bb
4566.484	Os	10	–	–
4566.422	Pr	3	–	–
4566 370	Er	5	1	–
4566 35	Ca	–	2 h	Ad
4566 226	W	8	2	–
4566 21	Dy	3	–	–
4566.205	Sm II	100	50	–
4565 936	Hf	40	6	–
4565.929	Pr	10	–	–
4565 888	Ne I	–	[60]	1Me
4565 850	Ta	200	15	–
4565 841	Ce	12 s	12	–
4565.73	Mn	10	–	–
4565.703	Mo	2	25 h	–
4565.667	Fe I	8	1	–
4565 586	Co I	800 W	12	–
4565.512	Cr I	20	30	–
4565 50	Re	10	–	m
4565.49	Ne II	–	[5]	Bn
4565.469	Zr I	8	–	–
4565.44	Eu	4 w	–	–
4565 329	Fe	6	–	–
4565 321	W	12	2	–
4565.31	Re	25	–	m
4565.235	Ce	6	1	–
4565 21	P II	–	[100 l]	Gu
4565 189	Rh I	15	4	–
4565 116	Dy	8	4	–
4564.97	In	–	10	Sq
4564.959	Nd	4	–	–
4564.94	Yt I	2	–	m
4564.863	La I	10	3	–
4564.85	Tb	6	–	–
4564.843	Co I	10	–	–
4564 830	Er	3	–	–
4564 82	A	–	[2]	Ms
4564.80	Pr	20 w	–	–
4564.8	bh Sr	5	–	L
4564 78	N II	–	[2]	Fl
4564.774	Ce	3	–	–
4564.691	Ru I	20	–	–
4564 67	Tm	35	2	–
4564.668	Mo	–	10 h	–
4564.622	Re	6	–	–
4564.592	V	–	150	Me
4564.57	Gd	4	–	Kn
4564.558	V	4	40	–
4564.53	Eu	15 w	–	Kn
4564 528	Cb	20	30	–
4564.44	Ca	–	4 h	Ad
4564 43	A	–	[20]	Rt
4564.388	Yt	4	2	–
4564 335	Pr	4	–	–
4564.279	U	2	3	–
4564.216	Ti I	3	–	–
4564.200	Cb	2	3	–
4564.183	Th	4	3	–
4564.170	Co	35	1	–
4564.166	Cr	15	10	–
4564.076	W	7	2	–
4564.070	Sm II	15	–	–
4564.056	Ir	2	–	Ab
4563.995	Yb	35	2	–
4563.989	Co I	10	1	–
4563.970	Er	5	–	–
4563.955	U	12	1	–
4563 95	Se II	–	[200]	Bl
4563.941	Pr	3	–	–
4563.81	Hf	–	8 h	Me
4563.78	A	–	[20]	Rt
4563.780	Pr	5	–	–
4563.766	Ti II	100	200	–
4563 68	Tb	50	–	–
4563.658	Th	4	2	–
4563.657	Cr	15	3	–
4563 63	Re	4	–	Me
4563.62	Mn	2	–	–
4563.590	W	15	5	–
4563.433	Ti I	15	3	–
4563.41	U	1	4	–
4563.375	Ce	4	–	–
4563 316	Th	2	–	Fd
4563.270	Er	10	3	–
4563.27	Hg	–	[5]	Ps
4563.245	Cr	12	2	–
4563.238	Th	5	5	–
4563.219	Nd	50	4	–
4563 126	Pr	100	40	–
4563 051	Ce	2	–	–
4562 909	Ir	2	–	Ab
4562 74	Mn	8 h	–	–
4562 68	Eu	10 W	–	Kn
4562 633	Ti I	25	3	–
4562.604	Os	5	–	–
4562 597	Ru I	15	–	–
4562.52	Ho	6	1 h	Kn
4562.5	La II	–	5 h	Me
4562 45	Te	–	[15]	Bl
4562.361	Ce	40	40	–
4562 344	Nd	5	–	–
4562 23	Tb	15	–	–
4562.05	Ne II	–	[5]	Bn
4561.942	Co I	25	–	–
4561.93	P II	–	[15]	Gu
4561 88	S	–	[25]	Hn
4561.847	Nd	20	–	–
4561 84	Tm	50	10	–
4561 8	bh Yt	6	–	Me
4561.75	Se II	–	[20]	Bl
4561.566	Ce	2	–	–
4561 534	Cb	3	2 h	–
4561.485	Cr	15 h	–	–
4561 461	Pr	6	–	–
4561.352	Th	4	–	–
4561.283	Ce	2 h	–	–
4561.224	U	2	6	–
4561.181	Nd	25	–	–
4561.179	Sm II	3	–	–
4561.160	Er	2	–	–
4561.152	Bi	–	10	Om
4561.13	Mn	2	–	–
4561.100	Pr	3	–	–
4561.05	Gd	8	4	Kn
4561.03	A II	–	[10]	Rt
4560.959	Ce	18	–	–
4560 958	Pr	5	–	–
4560 892	Rh I	20	6	–
4560.890	Ir	12	–	Ab
4560.83	Tm	10	15	–
4560.767	Tb	2	–	–
4560.714	V I	30	25	–
4560.60	I II	–	[5]	Mu
4560.557	Ce	2	–	–
4560.500	W	4	–	–
4560.483	Mn	20 h	–	–
4560.423	Sm II	50	–	–
4560.416	Nd	50	3	–
4560.38	Kr II	–	[3 hl]	Me
4560.280	Ce	25	25	–
4560.27	As	–	3	Ro
4560.261	U	–	3	–
4560.132	Mo	25	25	–
4560.11	Dy	2	–	–
4560.096	Fe I	20	–	–
4560.072	Pt	1	2	–
4559.982	Ru I	20	–	–
4559.945	Ni I	10	–	–
4559.923	Ti I	50	5	–
4559.848	U	1	4	–
4559.752	Mo	5	5	–
4559.70	Pr	3 h	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4559.700	Re	30 w	–	–
4559.673	Nd	40	–	–
4559.649	U	15	–	–
4559.622	Ce	3	–	–
4559.57	I	–	[8 h]	Bl
4559.49	Pr	3	–	–
4559.420	Cb	3 h	5 h	–
4559.360	Yt I	6	6	–
4559.342	Nd	4	–	–
4559.295	La II	100	150	–
4559.27	Se	–	[40]	Bt
4559.263	Re	25	–	–
4559.183	Nd	8	–	–
4559.182	Ce	2	–	–
4559.135	Pr	3	–	–
4559.123	Co I	10	–	–
4559.113	W	10	2	–
4559.070	Ru	6	–	–
4559.034	Mo	3	3	–
4559.01	Tm	15	25	–
4558.970	W	10	2	–
4558.908	Ce	2	–	–
4558.744	Mo	12	15	–
4558.743	Ir	8	–	Ab
4558.728	Rh I	10	3	–
4558.711	Zr	3	–	–
4558 659	Cr II	20	600 wh	–
4558.604	Ce	8	–	–
4558.485	Pr	4	1	–
4558.464	La II	100	200	–
4558.346	Th	2	–	–
4558.251	Cr	15	–	–
4558.16	Dy	3	2	–
4558.107	Ti I	15	3	–
4558.107	Mo	30	30	–
4558.094	Gd	30	3	–
4558.080	Ce	2 h	–	–
4558.078	Th	3 h	–	–
4558.048	U	12	4	–
4558.042	Zr I	4	–	–
4558.03	P II	–	[100 l]	Gu
4558.03	Br	–	[15]	Bl
4558.012	I	–	[15]	Ke
4557.980	Ce	3 h	–	–
4557.941	Yb	2	8	–
4557.856	Ti I	12	3	–
4557.855	Pr	8	1	–
4557.842	Ir	5	–	Ab
4557.84	Te	–	[300]	Bl
4557.814	Ru I	5	–	–
4557.805	U	3	15	–
4557.768	Nd	4	–	–
4557.629	Tb	2	–	–
4557.43	Pr	3	–	–
4557.406	Ce	3	–	–
4557.380	Nd	10	–	–
4557.31	Re	2 h	–	m
4557.30	Er	3	–	Ed
4557.28	Tb	4	–	–
4557.237	Sc I	3	–	–
4557.230	Tb	4	–	Kn
4557.2	Pb II	–	[2]	Ea
4557.161	Rh I	3	1	–
4557.038	Ce	3	–	–
4556.962	Tb	3 d	–	Kn
4556.96	Eu	4	–	m
4556.94	Pr	2	–	–
4556.869	W	15	5	–
4556 835	Cb	3	5 h	–
4556.809	Th	4	–	–
4556.738	V	1	5	–
4556.735	Nd	15	–	–
4556.698	Ne I	–	[2]	Ps
4556.67	Tm	35	70	–
4556.656	Pr	2	–	–
4556.626	Sm	10	–	–
4556.61	Kr II	–	[200 hl]	Me
4556.55	Br	–	[4]	Bl
4556.503	Sm	5	–	–
4556.459	Dy	3	4	–
4556.45	Tb	20 w	–	–
4556.354	Ta	200	5	–
4556.33	U	1	2	–
4556.26	Pr	4	–	–
4556.224	Ce	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4556.219	W	6	1	–
4556.169	Cr	40	12	–
4556.136	Nd	20	1	–
4556.125	Fe I	150	35	–
4556.028	Mo	2	4 l	–
4556.017	Re	2	–	–
4556.008	U	–	4	–
4555.982	Pr	3	–	–
4555.94	Xe II	–	[100 whl]	Hu
4555.922	Cu II	2	70	Sh
4555.895	Fe II	12	12	–
4555.815	Th	3	–	–
4555.71	Eu	12 W	–	m
4555.693	Er	3	–	–
4555.620	Ce	2	–	–
4555.61	Th	–	10 h	–
4555.561	Cb	3 h	2 h	–
4555.52	Zr I	30	2	Ks
4555.489	Ti I	125	60	–
4555.425	Ce	5	–	–
4555.392	Ne I	–	[30]	Ps
4555.38	Eu	4	4	–
4555.355	Cs I	2000 R	100	Sv
4555.327	W	7	1	–
4555.298	Yt I	2	2	–
4555.296	Cr	15	–	–
4555.27	Te	–	[30]	Bl
4555.26	Tm	25	50	–
4555.24	Dy	4	–	–
4555.140	Nd	15	–	–
4555.130	Zr I	15	–	–
4555.095	U	20	40	–
4555.092	Cr	15	50	–
4555.083	Ti I	12	2	–
4555.071	Th	3	–	–
4555.029	Cr II	–	40 h	–
4554.99	Gd	6	2	–
4554.967	Nd	5	1	–
4554.830	Cr	25	2	–
4554.824	Ne I	–	[40]	Ps
4554.80	P II	–	[100]	Gu
4554.790	Pr	4	1	–
4554.778	Ir	4	–	–
4554.683	W	4	–	–
4554.65	Tm	5	–	–
4554.593	Pt	10	5	–
4554.590	Ca	–	2	–
4554.561	Ne I	–	[5]	Ps
4554.557	Ce	6	–	–
4554.509	Ru I	1000 R	200	–
4554.498	Pr	2	–	–
4554.459	Yt I	3	6	–
4554.443	Sm II	60	–	–
4554.415	Ne I	–	[10]	Ps
4554.333	Ce	2	–	–
4554.319	A I	–	[15]	Ms
4554.234	Dy	2	–	–
4554.042	Ba II	1000 R	200	–
4554.035	Ce	35 s	–	–
4554.028	Mo	1	4	–
4553.967	Zr II	4	12	–
4553.949	Cr	20	3	–
4553.858	U	4	1	–
4553.85	Th	3	2	–
4553.836	Cb	5	8	–
4553.798	Mo	20	20	–
4553.776	Hf	10	–	–
4553.755	Ce	2	–	–
4553.7	bh Pb	6	–	L
4553 694	Ta	200 l	2	–
4553.662	W	6	1	–
4553.561	Yb	20	60	–
4553 503	Mo	–	25	–
4553.498	Pr	4	–	–
4553.419	Ce	2	–	–
4553.415	Ti I	6	–	–
4553 327	Co I	25	–	–
4553.320	Mo	12	4	–
4553.31	Mn	12 h	–	–
4553.3	Eu	3 w	–	Kn
4553.274	Ca	–	4 h	–
4553 256	Pr	5 h	–	–
4553.239	Hf	5 h	–	–
4553.220	Mo	12	6	–
4553.175	Ni I	15 r	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4553.16	Ne II	–	[50]	Bn
4553.129	Er	5	–	–
4553 1	bh C	–	–	L
4553.062	Ce	8	–	–
4553.051	V I	20	15	–
4553.038	Th	3	3 h	–
4553.012	Zr I	10	–	–
4552.892	Pd I	2	–	–
4552.89	Hg II	–	[30]	Ps
4552.829	Pr	5	–	–
4552.803	Mo	5	5	–
4552.77	Kr II	–	[3]	Me
4552.661	Sm II	80	40	–
4552.64	Ca	–	3	Ad
4552.64	Se II	–	[2]	Bl
4552.598	Ne I	–	[30]	IMe
4552.549	Fe	10	1	–
4552.533	W	12	3	–
4552.50	Si	–	40	Sy
4552.50	N II	–	[15]	Fl
4552.486	La I	5	–	–
4552.459	Ti	150	50	–
4552.45	U	2	2	–
4552.436	Co	25	–	–
4552.423	Pt I	60	10	–
4552.378	S II	–	[200]	Hn
4552.37	As II	–	50	Ro
4552.308	Ce	2	–	–
4552 262	Pr	60	–	–
4552.20	Te	–	[50]	Bl
4552.19	Eu	5 W	5	Kn
4552.144	Er	8	1	–
4552.110	Ru I	7	–	–
4552 068	Ce	5	–	–
4551 979	U	15	1	–
4551.950	Ta	400	8	–
4551.950	Pt I	2	1 h	–
4551.850	W	35	10	–
4551.843	V I	9	8	–
4551.7	Eu	2 w	–	–
4551.66	U	1	4	–
4551 638	Rh I	25	10	–
4551.61	Tb	3	–	–
4551.538	Pr	4	–	–
4551.517	Cb	3 h	2	–
4551.483	Re	2 h	–	–
4551.466	Gd	2	2	–
4551.368	Dy	3	–	–
4551.298	Os	150	8	–
4551.297	Ce	20	–	–
4551.236	Ni I	5	–	–
4551.177	Pr	3	–	–
4551.08	Eu	5 w	–	–
4551.04	Te	–	[15]	Bl
4551.035	Cb	1	3 h	–
4550.98	U	5	2	–
4550.964	Gd	10	10	–
4550.922	Ce	2	–	–
4550.92	Tb	2	–	–
4550.89	Dy	5	2	–
4550.882	Pr	10	2	–
4550.795	Fe	50	–	–
4550.79	Xe II	–	[8 h]	Hu
4550.777	La I	4	3	–
4550.775	Ir	80	–	–
4550.769	Pr	10	–	–
4550.714	Zr I	3	–	–
4550.67	Eu	20 w	–	–
4550.670	Pr	10 d	–	–
4550.643	Cb	1	3	–
4550.565	Ce	3	–	–
4550.445	Tb	15	–	–
4550.444	Th	4	–	–
4550.410	Os	150	10	–
4550.394	Nd	3 h	–	–
4550.36	Te	–	[15]	Bl
4550.343	W	7	1	–
4550.34	U	1	2	–
4550.298	Ce	6	–	–
4550.298	Kr I	–	[40]	I
4550.176	La I	3	2	–
4550.14	Hf	4	–	Me
4550.06	Pr	15	3	–
4550.047	Cb	3 h	10 h	–
4550.036	Sm	20	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4550.00	Dy	3 h	–	m
4549.967	Ce	2	–	–
4549.957	Ru	10	–	–
4549.87	As II	–	10	Ro
4549.852	U	12	20	–
4549.838	Pr	15	4	–
4549.74	Eu	6 w	–	–
4549.72	Tb	10 W	–	–
4549.718	Mn	12	–	–
4549.656	Co I	600	–	–
4549.647	V	30	20	–
4549.644	Ce	6	–	–
4549.628	Ti II	100	200	–
4549.625	Zr I	15	2	–
4549.547	S	–	[80]	Hn
4549.533	W	6	1	–
4549.52	Eu	6	5	–
4549.502	La I	15	6	–
4549.470	Fe II	100	100	–
4549.46	Au	–	5	–
4549.427	Ru I	10	–	–
4549.420	Mo	8	8	–
4549.353	In II	–	[10]	Ps
4549.23	As II	–	125	Ro
4549.159	Mo	6	5	–
4549.130	Tb	3	–	–
4549.06	Tb	20	–	–
4549.051	In II	–	[15]	Ps
4549.017	Nd	5	–	–
4548.93	Ho	3	2	Ex
4548.884	Ce	10	–	–
4548.804	Ir	4	–	–
4548.768	Cb	1	3 h	–
4548.767	Ti I	125	25	–
4548.738	In II	–	[15]	Ps
4548.727	Rh I	25	5	–
4548.662	Os	100	5	–
4548.59	Tm	35	–	–
4548.582	Mn	80	5	–
4548.560	U	4	6	–
4548.539	Pr	60	30	–
4548.485	Ir	100	5	–
4548.40	P	–	[50]	Gu
4548.387	Ce	2	–	–
4548.356	Yb	3	3	–
4548.35	Tb	3	–	–
4548.239	Nd	20	–	–
4548.112	Ti I	7	1	–
4548.087	Mo	–	10	–
4548 022	Sm	10	–	–
4548.010	Gd	50	50	–
4547.872	Pt I	3	1 h	–
4547.853	Ru	20	–	–
4547.851	Fe	200	100	S
4547.851	Cb	2	3	–
4547.850	Ti I	10	1	–
4547.78	A	–	[20]	Rt
4547.75	Eu	4 W	4	–
4547.728	Ne I	–	[15]	Ps
4547.710	Ce	2	–	–
4547.532	Mo	4 s	4 s	–
4547.43	Dy	2	–	–
4547.41	U	–	2	–
4547.33	Ru	25	–	–
4547.33	Mn	8	–	–
4547.290	Ce	2 h	–	–
4547.234	Ni I	30	–	–
4547.221	Eu	3	–	–
4547.218	Ne I	–	[10]	Ps
4547.205	Mo	4 l	4 l	–
4547.149	Ta	150	2	–
4547.026	Fe I	7	1	–
4546.966	Er	2	–	–
4546.930	Ni I	50	2	–
4546.930	Ru I	15	–	–
4546.837	Ce	2	–	–
4546.83	Hf	10	2	Me
4546.822	Cb	15	30	–
4546.8	Rn	–	[35]	Wa
4546.710	Th	4	–	–
4546.64	Te	–	[50]	Bl
4546.631	Pr	5 w	–	–
4546.572	Cr	3	–	–
4546.487	W	30	10	–
4546.475	Dy	2	–	–
4546.43	Tb	3	–	–
4546.329	Pr	3	–	–
4546.249	U	2	3	–
4546 063	Ce	8	–	–
4546.03	P	–	[70]	Gu
4545.99	Mo	–	4 h	–
4545.988	Co I	10	–	–
4545.97	Te	–	[70]	Bl
4545.956	Cr I	200	125	–
4545.873	Ce	5	–	–
4545.853	Pr	3	–	–
4545.801	Sm II	4	–	–
4545.800	Os	5	1	–
4545.720	Ru	6	–	–
4545.680	Ir	200	4	–
4545.62	Eu	3 W	–	–
4545.580	U	20	25	–
4545.532	Re	10	–	–
4545.452	Ce	4	–	–
4545.393	V I	40	30	–
4545.353	Dy	3	4	–
4545.335	Pr	6	2	–
4545.335	Cr I	25	12	–
4545.328	Nd	10	–	–
4545.310	Mn	12	–	–
4545.243	Co I	50	–	–
4545.23	Xe II	–	[200 whl]	Hu
4545.218	Na I	15	–	Da
4545 2	bh Zr	18	–	L
4545.197	Ce	3	–	–
4545.164	Re	30	–	–
4545.144	Ti II	3	15	–
4545.11	Gd	2	–	Kn
4545 103	Pr	4	1	–
4545.08	A	–	[200]	Rt
4545.044	Mo	4	6	–
4544.955	Ce	10	–	–
4544.901	Th	3	–	–
4544.834	Er	4	–	–
4544.826	Sm II	10	–	–
4544.8	Pb II	–	[4]	Ea
4544.746	A	–	[30]	Ms
4544 73	Sb II	–	5	Dv
4544.688	Ti I	150	60	I
4544.676	Sc I	3	–	–
4544.619	Cr I	100	70	–
4544.588	Pr	3	–	–
4544.570	W	10	1	–
4544.518	Th	8	5	–
4544.502	Ne I	–	[50]	Ps
4544.48	Cl II	–	[10]	Ks
4544.414	Mn	60	5	–
4544.367	W	2	2	–
4544.355	U	6	4	–
4544.305	Yt I	5	3	–
4544.29	I II	–	[8]	Ke
4544.271	Rh I	25	4	–
4544.257	Nd	6	–	–
4544 246	Gd	6 h	6 h	–
4544.12	Dy	2	–	m
4544.11	Ne II	–	[5]	Bn
4544.1	bh Sr	5	–	L
4544.019	Hf	20	2	–
4544.009	Ti II	5	20	–
4543.965	Pr	10	3	–
4543.945	Sm II	100	50	–
4543.942	Th	5	–	–
4543.935	Yb	–	10	–
4543.91	Tb	2	–	–
4543.86	I	–	[10]	Ke
4543.812	Co I	500 W	–	–
4543.793	Eu	6	–	–
4543.76	As	–	200	Ro
4543.74	Cr	20	2	–
4543.71	Cs	–	[10]	Bs
4543.688	Ce	2	–	–
4543.687	Ru I	15	–	–
4543.632	U	50	80	–
4543.575	Ce	3	–	–
4543.534	Pr	25 w	3	–
4543.509	W	25	10	–
4543.400	Mo	2	15	–
4543.399	Th	6	–	–
4543.278	W	7	1	–
4543.208	Th	3	2	–
4543.18	Eu	10 W	–	Kn
4543.05	Tb	4	–	–
4543.03	U	–	2 h	–
4543.01	Hf	5	2	–
4542.955	Ce	6 r	–	–
4542 93	Br	–	[250]	Bl
4542.887	W	15	3	–
4542.886	Mo	3	4	–
4542.871	Ir	3	2 wh	–
4542.799	Cb	5	5	–
4542.727	Gd	3	3	–
4542.621	Cr	30	8	
4542.603	Nd	50	5	–
4542.6	bh Zr	25	–	L
4542.59	U	–	2	–
4542.554	Sc I	2	–	–
4542.537	Pr	20	8	–
4542.436	Mn	80	5	–
4542.425	Ru	12	–	–
4542.424	Fe	3	1	–
4542.39	Tb	4 d	–	–
4542.229	Er	2	–	–
4542.216	Zr I	15	–	–
4542.114	U	1	3	–
4542.075	Ce	3	–	–
4542.050	Nd	50	5	–
4542 049	Sm	50	–	–
4542.040	Yt	3	2	–
4542.033	Gd	50	50	–
4541 993	Pr	3 h	–	–
4541.96	Eu	4 W	–	–
4541.797	Re	25	–	–
4541.788	La I	30	5	–
4541.775	Ce	3	–	–
4541.716	Hf	12	2	–
4541.705	U	8	12	–
4541.698	Dy	6	8	–
4541 673	Er	5	1	–
4541.671	Na I	10	–	Da
4541.617	Th	8 d	–	–
4541.61	He	–	[5]	Ps
4541.60	A I	–	[20]	Ms
4541.565	Ce	3	–	–
4541.556	Mo	20	20	–
4541.523	Fe II	2	2	–
4541.513	Cr	30	6	–
4541.40	Se II	–	[25]	Bl
4541.398	V	3 h	3 h	–
4541.35	Yb	–	6	Me
4541.339	U	4	–	–
4541.297	Hf II	15	20	–
4541.276	Er	5	1	–
4541.269	Nd	50	4	–
4541.267	Pr	20	1	–
4541.209	Th	6	–	–
4541.203	Ce	2	–	–
4541.137	Pd I	15	3	–
4541.12	P	–	[70]	Gu
4541.071	Cr I	30	8	–
4541.048	Pr	4	–	–
4541.032	Cu II	–	5	Sh
4541.022	Mo	4	4	–
4541.021	Ti I	2	–	–
4541.004	Th	2	–	–
4540.932	Hf	50	2	–
4540.89	Xe II	–	[200 hl]	Hu
4540.873	Ti I	6	1	–
4540.785	Co I	30	–	–
4540.771	Rb II	–	10	Rr
4540.755	Mo	25 d	25 d	–
4540.719	Cr	40 d	40	–
4540.707	La II	4	25	–
4540.66	Eu	4 W	4	–
4540.63	I II	–	[8]	Ke
4540.626	Ce	4	–	–
4540.57	Tb	3	–	–
4540.502	Cr I	40 d	40	–
4540.483	Ti I	7	1	–
4540.425	Th	8	8	–
4540.376	Ne I	–	[50]	IMe
4540.335	Cu	–	3	Sh
4540.313	W	7	1	–
4540.207	Cu	–	2	Sh
4540.20	P	–	[70]	Gu
4540.188	Sm II	40	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4540.180	Er	5	–	–
4540.151	Pr	5	1	–
4540.084	Cb	5	1	–
4540.025	Gd	80	200	–
4540.008	V I	15	12	–
4539.983	Zr I	15	–	–
4539.97	As II	–	200	Ro
4539.917	Os	100	2	–
4539.788	Cr I	40	25	–
4539.758	Hf II	3	6	–
4539.746	Ce	20	10	–
4539.696	W	4	1	–
4539.695	Cu I	100 W	80 W	–
4539.69	Eu	3 w	3	m
4539.638	Mo	6	6	–
4539.608	Yt I	2	–	–
4539.588	Ce	3	–	–
4539.423	Nd	3	–	–
4539.416	Er	2	–	–
4539.39	Tm	10	–	–
4539.294	Yb	2	–	–
4539.29	Eu I	12	2	Kn
4539.288	Pr	30 d	3 w	–
4539.28	U	–	3 h	–
4539.260	Nd	10	2	–
4539.206	Mo	4	3	–
4539.168	Ne I	–	[50]	Ps
4539.157	Dy	3	–	–
4539 096	Ti	15	4	–
4539.085	U	5	–	–
4539.069	Ce	8	–	–
4538.942	Cs II	–	[30]	Sv
4538.877	Mo	5	4	–
4538.87	La II	–	8 hl	Me
4538.77	Br	–	[15]	Bl
4538.76	Dy	5	2	–
4538.73	Tb	5	–	–
4538.671	Ir	25	–	–
4538.664	Ru	10	–	–
4538.548	Sm	10	–	–
4538.457	Mn	40	–	–
4538.422	Ce	2	–	–
4538.412	Mo	5	5	–
4538.309	Ne I	–	[300]	Ps
4538 190	U	25	40	–
4538.155	Er	2	–	–
4538.07	Eu	–	20 W	Kn
4538.06	Kr I	–	[3]	Me
4538.018	Pr	15 w	–	–
4537.954	Sm II	50	25	–
4537.884	Ce	6	–	m
4537 826	Ti	2	–	–
4537.821	Gd	150	100	–
4537.81	Tb	2	–	–
4537.751	Ne I	–	[1000]	IMe
4537.683	Ne I	–	[300]	Ps
4537.67	A II	–	[10]	Rt
4537 664	V I	25	20	–
4537.615	Os	50	–	–
4537.609	Zr I	3	–	–
4537.591	Cb	5	5 h	–
4537.587	Re	3	–	–
4537.578	La I	8	–	–
4537.569	Nd	2	–	–
4537.556	Sm	4	–	–
4537.443	Ru	7	–	–
4537.386	Pr	2	–	–
4537.325	Mo	1	3	–
4537.23	Tb	12	–	–
4537.228	Ti	10	3	–
4537.156	Yt I	3	2 h	–
4537.153	Pr	2	–	–
4537.14	Tb	4	–	–
4537.116	U	2	4	–
4537.07	Te	–	[50]	Bl
4537.070	Th	20	8	–
4537.01	Hg	–	[10]	Ps
4536.980	Gd	20	2	–
4536.92	Xe II	–	[40 wh]	Hu
4536 91	Tb	12	–	–
4536.886	Ce	6	–	–
4536 824	U	1	3	–
4536 800	Mo	40	80	–
4536.782	Yb	3	–	–
4536.78	Cl II	–	[20]	Ks
4536.73	Dy	2 h	–	–
4536.657	W	15	6	–
4536.647	Ce	3	–	–
4536.608	U	8	2	–
4536.6	bh Sc	40	–	Me
4536.513	Sm	40	–	–
4536.43	Hg	–	[5]	Ps
4536.312	Ne I	–	[150]	Ps
4536.201	Ce	4	–	–
4536.171	Sm II	4	–	–
4536.15	Dy	2	–	–
4536.053	Ti I	40	20	–
4536.048	U	2	3	–
4536.014	Re	20	–	–
4535.943	Nd	5	–	–
4535.939	Th	8 w	–	–
4535.922	Ti I	40	20	–
4535.921	Pr	125	100	–
4535.872	Er	4	1	–
4535.83	Te	–	[15]	Bl
4535.749	Zr I	10	–	–
4535.721	Cr I	125	100	–
4535.72	Tb	2 h	–	–
4535.707	Cb	1	3	–
4535.653	W	2	1	–
4535.59	Eu	15	–	Kn
4535.587	Ru	12	–	–
4535.578	Eu	4	–	–
4535.575	Ti I	80	50	–
4535.543	Mo	6	5	–
4535.532	U	2	–	–
4535 528	Ce	2	–	–
4535.51	A	–	[10]	Rt
4535.50	In	–	5	Sq
4535.47	Ne II	–	[30]	Bn
4535.385	Mo	20	20	–
4535.366	Hf II	10	20	–
4535.355	Ce	2 h	–	–
4535.263	U	2	3	–
4535 257	Th	3	–	–
4535 242	Pr	2	–	–
4535 155	Ce	2	–	–
4535.146	Cr I	50	30	–
4535 1	bh Ca	2	–	L
4535.09	U	–	4 h	–
4535.054	W	15	5	–
4535 001	Ir	2	–	–
4534.885	Pr	4	–	–
4534.881	Mo	20 h	20 h	–
4534.856	Sm	10	–	–
4534.837	Th	3	–	–
4534.782	Ti I	100	40	–
4534 78	A	–	[20]	Ms
4534 714	W	15	5	–
4534 69	Pb	–	5	Sx
4534.68	Se I	–	[10]	Rd
4534.66	Ne II	–	[15]	Bn
4534.64	Cs	–	[10]	Bs
4534.58	Ho	4	–	Kn
4534 490	Ru	6	–	–
4534.463	Mn	30	–	–
4534.429	Mo	20 h	30 h	–
4534.4	bh Zr	30	–	L
4534 370	W	3	2	–
4534.26	Mg II	4	–	Fl
4534.221	Ce	4	–	–
4534 166	Fe II	3	1	Do
4534.154	Pr	150	80	–
4534.13	Se II	–	[8]	Bt
4534.13	Tb	5	–	–
4534.129	Th	10	5	–
4534.076	Yt I	3	2	–
4533.994	Co I	500	8	–
4533.967	Ti II	30	150	–
4533 933	Pr	2	–	–
4533.925	Cb	1 h	5 h	–
4533.925	V	15	12	–
4533.824	Rb II	–	6	Rr
4533.81	P II	–	[15]	Gu
4533.799	Sm	40	–	–
4533.799	Nd	30	–	–
4533.791	Pr	5	2	–
4533.709	U	3	3	–
4533.628	Er	3	–	–
4533.561	Ce	3 h	–	–
4533.516	Gd	3	–	–
4533.499	Yb	15	3	–
4533.309	Th	12	8	–
4533.303	Pr	5	–	–
4533.244	Ti I	150	40	–
4533.228	Er	6	–	–
4533.225	Ce	2 h	1	–
4533.217	Sm	2	–	–
4533.152	Hf II	20	40	–
4533.11	Ra II	–	[300]	Rs
4533.048	U	2	4	–
4532.910	Tb	2	–	–
4532.867	Ir	80	2	–
4532.788	Pr	4	–	–
4532.750	Cr	15	2	–
4532.74	Se I	–	[20]	Rd
4532.717	Er	2	–	–
4532.586	U	4	1	–
4532.54	Dy	2	–	Ed
4532.50	Tb	2	–	–
4532.500	Cs	–	[10]	Sv
4532.49	Xe II	–	[100]	Hu
4532.488	Ce	6	–	–
4532.483	Cb	1	5	–
4532.446	Ru	7	–	–
4532.445	Sm	60	–	–
4532.36	As	–	10	Ro
4532.336	Pr	15	–	–
4532.31	Mn	3 h	–	–
4532.308	Nd	5	–	–
4532.264	Th	8	4	–
4532.190	V	–	20	Me
4532.156	Er	3	–	–
4532.15	Tm	15	1	Me
4532.143	Ti	3	–	–
4532 010	Ce	5	–	–
4531.849	Er	2	–	–
4531.846	Pr	2	–	–
4531.82	Tb	4 w	–	–
4531.81	Gd	3	1	–
4531.801	Ru	5	–	–
4531.8	bh C	–	–	L
4531.721	Th	3	3	–
4531.652	Fe I	8	1	–
4531.633	Ce	4	–	–
4531.62	Ho	5	2	Ex
4531.511	Pr	3	–	–
4531.45	Cs	–	[15]	Bs
4531.348	Sr I	10	–	ISn
4531.319	U	–	6	–
4531.312	Ce	8	–	–
4531.28	Ho	2	2 h	Kn
4531.152	Fe I	125	–	S
4531.12	Gd	5	–	m
4531.11	Er	5	–	Ed
4531.089	Pr	10 w	2 w	–
4531.067	Ce	3	–	–
4530.963	Co I	1000 w	8	–
4530.945	Ce	3	–	–
4530.890	Re	20	–	–
4530.854	Ru I	60	–	–
4530.846	Ta	300	50	–
4530 819	Cu I	200	50	–
4530.815	Ce	3	–	–
4530.810	Sb II	–	9	–
4530.79	U	–	2	–
4530.789	V	12	9	–
4530 78	P II	–	[150 l]	Gu
4530.739	Cr I	150	125	–
4530.595	Rh	4	2	–
4530.57	A II	–	[10]	Rt
4530.562	La II	15	25	–
4530.468	W	15	4	–
4530.37	N	–	[25]	Fl
4530.358	Rb II	–	15	Rr
4530.328	Nd	10	–	–
4530.309	Er	2	2	–
4530.22	I I	–	[8]	Db
4530.08	Ho	3	2	Ex
4530.050	In	–	10	–
4530.034	Mn II	–	[10]	Cz
4529.985	Ta	3	10 h	–
4529.949	Sm	4	–	–
4529.935	Nd	40	–	–
4529.930	Pr	25 w	4 w	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4529.928	Re	40 w	–	–
4529.914	Ce	5	–	–
4529.871	Yb	12	–	–
4529.851	Cr I	25	8	–
4529.790	Mn	50	–	–
4529.780	Dy	2	2	–
4529.77	Br I	–	[80]	Ks
4529.764	Nd	3	–	–
4529.76	Tb	4	–	–
4529.760	W	15	4	–
4529.707	U	12	3	–
4529.676	Fe	10	2	–
4529.674	Os	80	2	–
4529.60	Br	–	[10]	Bl
4529.586	V I	15	8	–
4529.563	Fe I	6	–	–
4529.54	Te	–	[30]	Bl
4529.49	Al	–	5	Gn
4529.487	Th	3	2	–
4529.476	Ne I	–	[30]	Ps
4529.465	Ti II	5	40	–
4529.416	Cb	2	3	–
4529 398	Mo	25	20	–
4529.378	Er	4	–	–
4529.37	Tm	80	5	–
4529.295	V I	9	3	–
4529.28	I	–	[25]	Bl
4529.277	Ce	3	–	–
4529.18	S	–	[8]	Ms
4529.17	U	–	2	–
4529.154	Nd	2	–	–
4529.054	Ru	10	–	–
4528.943	Re	2	–	–
4528.915	La I	2	–	–
4528 910	Pr	3	–	–
4528 725	Rh I	500 r	60	–
4528.705	Ce	2	–	–
4528.62	Kr II	–	[3 hl]	Me
4528.619	Fe I	600	200	S
4528 618	Mo	15 l	10 l	–
4528 61	As II	–	10	Ro
4528 56	U	–	6	–
4528.49	Eu	8 w	–	Kn
4528 472	Ce	30	15	–
4528.468	V	2	10 wh	–
4528.42	Ir	2	–	–
4528.171	U	1	3	–
4528.105	Yt I	2	–	–
4528.097	I	–	[40]	Ke
4528.068	Pr	2	–	–
4527.988	V	10	4 w	–
4527.971	U	1	5	–
4527.957	Ce	3	–	–
4527.933	Co I	100	2 h	–
4527.88	Tm	15	–	–
4527.869	Mo	4 h	4 h	–
4527.787	Yt I	25	40	–
4527.783	Er	40	9	–
4527.78	Dy	8	4	–
4527.74	Eu	2	–	Kn
4527.733	Th	3	2	–
4527.725	Ne I	–	[15]	Ps
4527.70	Rn	–	[10]	Wa
4527.695	U	3	2	–
4527.650	Cb	1	30	–
4527.495	Ta	150	5	–
4527.471	Cr	15 d	6	–
4527.455	Ti I	3	–	–
4527.420	Sm	5	–	–
4527.348	Ce	50	25	–
4527.34	Eu	6 W	5	–
4527.339	Cr I	15 d	8	–
4527.312	Ti I	100	50	–
4527.3	F	–	[3 h]	Di
4527.243	Nd	15	2	–
4527.237	Yt I	40	50	–
4527.236	Er	50	10	–
4527.175	Tb	2	–	–
4527.15	I	–	[15 h]	Bl
4527.035	Eu	3	–	–
4526.997	Ir	3	–	–
4526.962	Re	5 h	–	–
4526.935	Ca I	100	3 wh	IWg
4526.918	Er	2	2	–
4526.781	Co I	10	–	–
4526.725	Cs II	–	[35]	Sv
4526.686	Eu	100	–	–
4526.685	Ne I	–	[15]	Ps
4526.67	Eu	5	2	Ed
4526.641	U	1	3	–
4526.466	Cr I	50	30	–
4526.465	Pr	3 w	–	–
4526.45	Tb	2	–	–
4526.432	Ru	6	–	–
4526.419	Fe	10	1	–
4526.411	Zr I	5 h	–	–
4526.407	Ir	2	–	–
4526.380	Nd	8	–	–
4526.374	Ti I	5	1	–
4526.372	Ce	2	–	–
4526.369	Mo	25	25	–
4526.350	Ce	2	–	–
4526.21	Cl I	–	[25]	Ks
4526.177	Ne I	–	[50]	Ps
4526.14	Ho	2	2 h	Kn
4526.125	Zr I	3	–	–
4526.109	La II	100	150	–
4526.108	Cr	20	6	–
4526.096	Dy	3	–	–
4526.083	Eu	6	–	–
4526.04	Sb	–	[10]	Lg
4526.031	Th	3	–	–
4525.986	Re	30	–	–
4525.957	U	8 h	5	–
4525.938	Tb	3	–	–
4525.935	Ru	7	–	–
4525.934	Ti	2	–	–
4525.861	Mo	2	3	–
4525.787	Co I	5	–	–
4525.764	Ne I	–	[70]	IMe
4525.7	bh Yt	2	–	Me
4525.649	U	1	3	–
4525.62	Br I	–	[125 l]	Ks
4525.48	Lu	2 h	–	Me
4525.385	U	–	2	–
4525.34	Tb	2	–	–
4525.324	Mo	6	8	–
4525 303	La II	100	100	–
4525.3	bh Yt	5	–	Me
4525.208	Rh I	5	2	–
4525.157	V I	15	12	–
4525 146	Fe I	100	50	–
4525.01	Tb	3	–	–
4524.946	S II	–	[150]	Hn
4524.946	Ba II	80	30	Sz
4524.933	Co	3	–	–
4524.869	Os	80	2	–
4524.841	Cr	20	3	–
4524.741	Sn I	500 wh	50	–
4524.74	Hf II	10	15	Me
4524.732	Ti II	10	10	–
4524.726	Mo	4	5	–
4524.695	Pr	5	1	–
4524.68	S II	–	[20]	Hn
4524.680	Xe I	–	[400]	I
4524.591	Ce	2	–	–
4524.495	Eu	12	–	–
4524.365	Pr	10 w	2 w	–
4524.338	Mo	30	30	–
4524.33	Gd	3	1	Kn
4524.326	Tb	3	–	–
4524.216	V I	40	30	–
4524 21	Xe II	–	[100]	Hu
4524.133	Tb	2	–	Kn
4524.125	Cb	5 h	5 h	–
4524.099	Gd	8	2	–
4524.029	Ce	4	–	–
4523.991	Pr	4	–	–
4523.912	Sm II	100	50	–
4523.909	Zr I	3	–	–
4523.885	Re	40	–	–
4523.838	Gd	8	–	–
4523.73	P	–	[50]	Gu
4523.57	In	–	10	Sq
4523.569	Nd	12	2	–
4523.50	Dy	2	–	m
4523.410	Cb	30	30	–
4523.389	Mn	50	–	–
4523.344	U	6	8	–
4523 3	bh Sr	4	–	L
4523.237	Ba	60	10	–
4523.209	Pr	3	–	–
4523 182	Sm	8	–	–
4523.14	Kr II	–	[400 hl]	Me
4523.130	Zr I	4	–	–
4523.077	Ce	35	25	–
4523.036	Sm II	40	20	–
4523.006	Pt I	10	1	–
4522.92	P II	–	[50]	Gu
4522.897	Mo	3	3	–
4522.846	Cs	–	[15]	Sv
4522.838	Gd	50	4	–
4522.825	Nd	10	2	–
4522.805	Ti I	100	70	–
4522.737	Er	4 l	–	–
4522.72	Re	100	–	–
4522.68	Dy	3 h	–	m
4522.68	Hg	–	[2]	Ps
4522.66	Ne II	–	[50]	Bn
4522.634	Fe II	60	50	–
4522.602	Eu I	200 R	200	Kn
4522.590	Ce	3	–	–
4522.58	Eu	500	–	Kn
4522 57	Tm	200	300	Me
4522.544	Cb	1	3	–
4522.538	Sm	60	–	–
4522 468	Ce	2	–	–
4522.43	Gd	3	–	Kn
4522.372	La II	200	400	–
4522.36	Cs	–	[15]	Bs
4522 323	A I	–	[800]	I
4522 22	Te	–	[15]	Bl
4522.215	Ir	2	–	Ab
4522.192	Cb	1 h	10 h	–
4522.190	Mo	25	30	–
4522.143	Pr	3	–	–
4522.1	F	–	[2 h]	Di
4522.077	Ce	25	15	–
4522.042	Yt I	3	2	–
4522 037	Er	10	–	–
4522.018	Cr	12	1	–
4521.959	Ce	6	–	–
4521.956	Gd	25	5	–
4521.939	Zr I	3	–	–
4521 86	Xe II	–	[50 hl]	Hu
4521.834	Tb	3	–	–
4521.710	Ta	2	2	–
4521 591	U	4	15	–
4521 554	Mo	5	5	–
4521.339	Ir	3	–	–
4521.298	Gd	25	2	–
4521 266	Th	2	3 h	–
4521.26	bh Zr	20	–	L
4521.245	Nd	6	–	–
4521.149	Mo	8	15	–
4521.141	Cr	25	10	–
4521.135	Ce	3	–	–
4521.094	Ta	200	10 h	–
4521.09	Tm	15	15	–
4521.08	Lu	2 h	–	Me
4520.986	Eu	5	–	–
4520.951	Th	3	1	–
4520.950	Ru I	25	–	–
4520.901	Pt I	40	2 h	–
4520.836	Cb	1	3	–
4520.778	Pr	40	15	–
4520.57	Hf	10 h	4	–
4520.49	P	–	[15]	Gu
4520.441	U	1	3	–
4520.405	Ce	3	–	–
4520.386	Pr	3	1	–
4520.318	Os	20	1	–
4520.285	Mo	3	3	–
4520 252	Nd	5	–	–
4520.236	Fe II	40	30	–
4520.170	V I	25	20	–
4520.084	Gd	50	3	–
4520.083	U	6	–	–
4520.08	Tb	3	–	–
4520.037	Mn	12	–	–
4519.986	Ni I	25	–	–
4519.864	Os	10	–	–
4519.83	Dy	5	4	–
4519.828	Cr	10	–	–
4519 770	U	2	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4519.750	Th	4	1	–
4519.744	Re	40 d	–	–
4519.69	Xe	–	[2]	Hu
4519.657	Gd	150	100	–
4519.635	Sm II	150	80	–
4519.629	Pr	9	–	–
4519.592	Ce	8	–	–
4519.586	Mo	–	40	–
4519.58	Tm	50	1	–
4519.556	Eu	3	–	–
4519.527	Sm II	2	–	–
4519.440	Er	5	–	–
4519.3	bh Zr	20	–	L
4519.290	Co I	40	–	–
4519.273	Th	6 w	–	–
4519.223	U	2	3	–
4519.19	Cl II	–	[18]	Ks
4519.171	W	12	3	–
4519.115	Pr	3	–	–
4519.1	bh Ca	3	–	L
4519.071	Rb	–	10	Rr
4519.031	Hf	1	8	–
4518.968	Dy	2	1	–
4518.889	Os	15	–	–
4518.697	Ti I	30	10	–
4518.687	Pr	2	–	–
4518.68	Eu	8 w	5	Kn
4518.668	Mo	4 h	4 h	–
4518.647	Th	2	2	–
4518.640	Er	40 w	1 h	–
4518.628	Cr	6	–	–
4518.590	U	1	3	–
4518.57	Lu	300	40	Me
4518.538	Dy	6	4	–
4518.440	Mo	5	5	–
4518.294	Hf	10	4	–
4518.280	Ce	4	–	–
4518.208	Tb	2	–	–
4518.078	U	1	4	–
4518 032	Ti I	100	60	–
4518.017	Ce	12	–	–
4517.942	Er	2 w	–	–
4517.87	Tm	15	–	–
4517.818	Ru I	60	–	–
4517.779	Nd	2 h	–	–
4517.76	Eu	20 w	–	Kn
4517.736	Ne I, II	–	[100]	IMe
4517.595	Pr	40 w	15 w	–
4517.566	V	5	4	–
4517.530	Fe I	30	3	S
4517.42	In	–	10	Sq
4517.409	Mo	12	8	–
4517.372	Ir	4	–	–
4517.370	W	9	2	–
4517.356	Eu	6	–	–
4517.29	Ne	–	[15]	Bl
4517.250	Sm	4	–	–
4517.230	U	3	10	–
4517.19	Tb	2	–	–
4517.132	Mo	30	30	–
4517.109	Co I	300	6	–
4517.075	Gd	3	1	Kn
4517.046	Th	4	3	–
4517.008	Ir	4 h	–	–
4516.989	Gd	5	2	–
4516.96	Dy	6	4	m
4516.955	Pr	5	–	–
4516.95	Tm	3	–	Me
4516.938	Eu	4	–	–
4516.936	Ne I	–	[50]	Ps
4516.911	Cb	1	3	–
4516.893	Ru I	100	–	–
4516.814	Er	2	–	–
4516.725	U	15	1	–
4516.645	Nd	2 h	–	–
4516.63	Re	80	–	m
4516.60	Ca	–	8	Ad
4516.55	Eu	2	2	Ed
4516.534	Er	2	–	–
4516.531	Tb	2	–	–
4516.529	Ce	2	–	–
4516.461	Pr	8	3	–
4516.381	Nd	30	–	Kn
4516.38	La	–	5 hl	Me
4516.349	Nd	40	3	–
4516.290	Ce	4	–	–
4516.269	Ru I	12	–	–
4516.25	Se II	–	[70]	Bl
4516.18	Br	–	[20]	Bl
4516.177	Pd I	10	1	–
4516.14	As II	–	15	Ro
4516.138	Tb	2	–	–
4516.078	Ir	6	–	–
4516.050	Cu II	–	2	Sh
4515.990	U	2	–	–
4515.979	Th	4	4	–
4515.938	Dy	2	–	–
4515.881	W	6	1	–
4515.88	Tb	10 w	–	–
4515.857	Ce	18	–	–
4515.838	Zr	3	–	–
4515.624	Ti I	20	2	–
4515.553	V I	6	5	–
4515.536	U	2	3	–
4515.495	Cs II	–	[10]	Ot
4515.440	Cr	25	10	–
4515.421	Zr I	3	–	–
4515.411	Ne I	–	[30]	Ps
4515.382	Nd	5	–	–
4515.345	Fe II	10	10	–
4515.331	Ir	8	1	–
4515.280	U	25	40	–
4515.185	Mo	15	15	–
4515.148	Yb	45	100	–
4515.148	Re	8	–	–
4515.124	Th	3	–	–
4515.098	Sm	100	–	–
4515.036	Mo	5	8	–
4515.022	Ne I	–	[2]	Ps
4514.902	Os	5	–	–
4514.891	Ne I	–	[70]	Ps
4514 826	Ru	5	–	–
4514.8	air	–	10	m
4514.80	Ne II	–	[15]	Bn
4514.751	Er	4 w	–	–
4514.706	Sm	2	–	–
4514.7	bh C	–	–	L
4514.573	U	1	2	–
4514.531	Cr I	30	8	–
4514.517	Gd	60	10	–
4514.50	Sb	–	[10]	Lg
4514.457	Ce	3	–	–
4514.407	Mo	8	10	–
4514.373	Cr	10	8	–
4514.317	W	6	1	–
4514 299	Tb	15	–	–
4514.289	U	2	3	–
4514.275	Re	15 h	–	–
4514.215	Pr	10 w	–	–
4514.193	V I	25	20	–
4514.189	Co I	60	2	–
4514.14	Pt II	2	5 h	m
4514.06	Br	–	[8]	Bl
4514.060	Ce	4	–	–
4514.058	W	4	–	–
4514.05	Te	–	[30]	Bl
4514.047	Eu	15	–	–
4514.026	Yb	15 lw	–	–
4514.006	Yt I	5	3	–
4513.809	Gd	3	–	–
4513.723	Pr	10	2	–
4513.715	Ti I	3	1	–
4513.690	Th	2	–	–
4513.675	U	4	5	–
4513.60	Dy	3	–	·
4513.581	Yt I	4	3	–
4513.474	Cb	–	3	–
4513.44	Br I	–	[100 l]	Ks
4513.391	Yb	8	1	–
4513.373	U	2	2	–
4513.333	Nd	25	2	–
4513.30	Re	300	–	–
4513.300	W	30	10	–
4513.235	Th	3	–	–
4513.231	Pr	6	2	–
4513.216	Cr	10	–	–
4513.212	I II	–	[15]	Mu
4513.20	Eu	20 w	–	m
4513.20	Cu I	3	1 h	Hs
4513.138	Ce	2	–	–
4512.995	Ni I	2	–	–
4512.95	Tb	12	–	–
4512.907	W	30	10	–
4512 88	Ca	–	4	Ad
4512.827	U	1	2	–
4512.738	Ti I	100	60	–
4512.73	V	1	40 h	–
4512.71	P	–	[15]	Gu
4512.632	I	–	[30]	Bl
4512.616	Eu	2	–	–
4512.608	Cr	8 wh	–	–
4512.57	I	–	[30]	Bl
4512.564	Er	4	–	–
4512.54	Ho	2	1	Kn
4512.490	Th	4	4	–
4512.393	U	2	3	–
4512.305	Sm	2	–	–
4512.289	Nd	3	–	–
4512.282	Ca I	10	–	IWg
4512.272	Pr	8	–	–
4512.205	Er	3	–	–
4512.180	U	2	4	–
4512.148	Mo	25	25	–
4512.14	Eu	2	–	–
4512.129	Cb	2	3	–
4512.028	Ir	3	–	–
4511.903	Cr	80	100	–
4511.834	Sm II	100	100	–
4511.823	Nd	50	10	–
4511.815	Pr	3	–	–
4511.746	U	5 h	8 h	–
4511.715	Er	4 w	1 h	–
4511.635	Ce	10	–	–
4511.53	Eu	3 w	3	–
4511.52	Tb	40	–	–
4511.509	Ne I	–	[20]	Ps
4511.503	Ta	300	40 W	–
4511.455	Pr	5	–	–
4511.432	V I	2	2	–
4511.37	Ne II	–	[50]	Bl
4511.349	Pr	4	–	–
4511.34	Cd	5	–	Ps
4511.323	In I	5000 R	4000 R	–
4511.307	Sm	40	–	–
4511.30	Sn	200	–	Ar
4511.29	Ne II	–	[15]	Bn
4511.290	Nd	25	–	–
4511.257	Pt I	2	1 h	–
4511.238	Mn	2	–	–
4511.197	Ru I	25	–	–
4511.170	Ti	40	10	–
4511.170	Zr I	5	–	–
4511.158	U	4	8	–
4511.091	Pr	3	–	–
4511.089	Cb	5	15 h	–
4510.982	Ta	200 W	50 W	–
4510.921	Ce	6	–	–
4510.917	Er	2 w	–	–
4510.84	Al	–	6 h	Gn
4510.81	Ho	2	1	Kn
4510.761	Ce	3	–	–
4510.733	A I	–	[1000]	I
4510.535	Th	30	20	–
4510.386	Gd	10 h	10 h	–
4510.320	U	20	30	–
4510.210	Mn II	–	[6]	Cz
4510.2	Rn	–	[10]	Ny
4510.170	Ne I	–	[15]	Ps
4510.166	Ce	4	–	–
4510.160	Pr	200	125	–
4510.097	Ru I	25	–	–
4510.096	Os	2	–	–
4510.082	Ce	2 h	–	–
4510.005	Cr	15	1	–
4509.97	Dy	2	–	–
4509.968	Er	2 w	–	–
4509.885	U	–	4 h	–
4509.87	A	–	[2 d]	Ms
4509.824	Nd	6	–	–
4509.738	Ti	2	1	–
4509.698	Ru	6	–	–
4509.63	Ba II	–	[5]	Rs
4509.497	Ce	3	–	–
4509.447	Er	2	–	–
4509.426	Nd	5	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4509.388	Cu I	150	30	–
4509.381	Pr	4	2	–
4509.355	U	2	2 h	–
4509.351	W	6	1	–
4509.33	As	–	10	Ro
4509.286	V I	4	2	–
4509.286	Ta	60	2	–
4509.262	Ce	4	–	–
4509.161	Er	2	–	–
4509.143	Ce	12	–	–
4509.093	Gd	10	2	–
4509.048	Eu	4	–	–
4509.04	Tb	30	–	–
4508.995	Gd	7	–	–
4508.926	Pr	4	1	–
4508.80	Ca	–	4	–
4508.78	Er	2	–	–
4508.744	Cr	5	–	–
4508.729	Ce	5	–	–
4508.695	Eu	10 w	5 h	–
4508.675	Mo	–	5 h	–
4508.651	Th	8 w	–	–
4508.65	Tb	2	–	–
4508.561	Ru	15	–	–
4508.48	Rn I	–	[250]	Rs
4508.478	La II	3	2	–
4508.408	Cb	5	5	–
4508.370	Pr	8	2	–
4508.285	Fe II	40	30	–
4508.281	Ti I	3	1	–
4508.21	Ne II	–	[30]	Bn
4508.209	Mo	5	4	–
4508.170	Th	2	1	–
4508.11	Dy	2	–	m
4508.083	Ce	8	–	–
4508.07	Br	–	[4]	Bl
4508.048	Ti I	5	1	–
4508.042	Th	4	–	–
4508.039	Ru	12	–	–
4508.026	Zr	3	–	–
4508.01	Er	2	–	–
4507.99	Re	30 w	–	Me
4507.981	Nd	8	–	–
4507.96	Tb	2	–	–
4507.92	As II	–	30	Ro
4507.83	Rn	–	[80]	Wa
4507.786	U	–	2	–
4507.765	Pr	4	5	–
4507.756	Ce	3	–	–
4507.675	Gd	6	6	–
4507.639	Ir	4	–	–
4507.59	Se II	–	[20]	Bt
4507.58	N II	–	[10]	Fl
4507.55	P	–	[30]	Gu
4507.5	Cu I	50 w	30 wh	Hs
4507.45	A I	–	[2]	Ms
4507.443	Th	6 w	–	–
4507.424	Eu	6	–	–
4507.405	La I	4	3	–
4507.402	Er	3	–	–
4507.385	Sm	2	–	–
4507.343	Ce	2	–	–
4507.277	Zr I	3	–	–
4507.127	Ir	2	–	Ab
4507.119	Zr I	20	–	–
4507.11	Xe	–	[3 wh]	Hu
4507.099	U	2	1	–
4507.065	Gd	4 h	–	Kn
4507.052	Ce	3	–	–
4507.03	Re	40 w	–	Me
4506 963	Ce	3	–	–
4506.957	Dy	4	4	–
4506.948	Pr	10	2	–
4506.941	Gd	50	20	–
4506.913	Sb II	–	12	–
4506.853	Cr	30	30	–
4506 834	Cs II	–	[10]	Sv
4506.726	Mn	8	–	–
4506.709	Sb	–	3	Sp
4506.705	Cs	–	[15]	Sv
4506 680	Rh I	3	1	–
4506.673	Mo	25	25	–
4506.632	Ce	3	–	–
4506.582	Nd	50	3	–
4506.578	V I	6	4	–
4506 527	Th	3	–	–
4506 50	O	–	[15 h]	Fl
4506.418	Ce	15	–	–
4506.361	Ti	20	2	–
4506.346	Gd	80	5	–
4506.223	U	6	12	–
4506.221	Gd	100	50	–
4506.083	Dy	2	2	–
4506.082	V I	3	2	–
4506.063	U	2	6	–
4506.051	Mo	20	20	–
4505.997	Cu II	1	50	Sh
4505.958	Mo	20	20	–
4505.951	Yt I	50	50	–
4505.943	Er	40	5	–
4505.934	Ba	60	20	–
4505.9	F	–	[2 d]	Di
4505.89	Tb	3 d	–	–
4505.876	Pr	2	–	–
4505.844	La II	2	6 hl	–
4505.715	Ti I	3	1	–
4505.703	Ir	10	–	–
4505.596	Ce	3	–	–
4505.52	Tm	15	10	–
4505.42	In	–	10	Sq
4505.35	Tb	2	–	–
4505.340	K II	–	[30]	Dm
4505.26	Eu	8 w	–	Kn
4505.226	Th	5	–	–
4505.22	Lu	1	5	Me
4505.16	A	–	[2]	Ms
4505.125	Ce	6	–	–
4505.096	Pr	2	–	–
4505.072	Ir	10	–	–
4505.047	Sm II	5	5	–
4505 044	Nd	20	2	–
4505.0	bh Ca	4	–	L
4505.00	Ca I	2	3 h	Sd
4504.962	Gd	3	–	–
4504.897	Mo	2	4	–
4504.87	Tm	3	–	Me
4504.857	W	30	10	–
4504.849	Fe I	6	–	–
4504.725	U	3	5	–
4504.721	Th	6 w	–	–
4504.591	Pr	20	2	–
4504.57	Tb	3	–	–
4504.539	Eu	4	–	–
4504.42	Re	2 h	–	m
4504.27	Cl II	–	[20]	Ks
4504.170	U	–	4 h	–
4504.167	W	12	4	–
4504 10	Tm	5	–	–
4504.063	Ce	2	–	–
4504.06	P	–	[30]	Gu
4504.040	Os	4	–	–
4503.908	Cr	2	–	–
4503.869	Mn	60	5	–
4503.847	Ce	3	–	–
4503.803	Gd	3	–	Kn
4503.784	Rh I	30	10	–
4503.777	Ti I	15	5	–
4503.772	Er	2	–	–
4503.742	Pr	10	–	–
4503.72	Rn	–	[20]	Rc
4503.677	U	6	3	–
4503 613	Yb	12	–	–
4503.58	Tb	6	–	–
4503.558	Mo	–	25 w	–
4503.47	Tm	5	–	–
4503.43	Eu	3 W	–	Kn
4503.418	Cb	2	5	–
4503.381	Sm	4	2	–
4503.353	Ce	3 h	–	–
4503.317	Th	6 wh	–	–
4503.282	Ir	2	–	–
4503.273	Pr	15 w	–	–
4503.252	Dy	4	4	–
4503.24	Tb	2	–	–
4503.21	Gd	5	2	–
4503.157	W	3	1	–
4503.045	Cr	10	1	–
4503.043	Cb	10	20	–
4502.95	A	–	[20]	Rt
4502.856	Pr	10	–	–
4502.85	Se	–	[25]	Bt
4502.8	bh Sc	3	–	Me
4502.645	Ru	4	–	–
4502.600	Dy	2	2	–
4502.598	Fe	3	–	–
4502.575	Ce	2	–	–
4502.52	Ne II	–	[2]	Bn
4502.455	U	1 h	2 h	–
4502.454	W	2	2	–
4502.440	Nd	4	–	–
4502.3547	Kr I	–	[600]	S
4502.283	Pr	2	–	–
4502.27	N	–	[5]	Du
4502.264	Th	2	–	–
4502.255	U	2	3	–
4502.223	Cr	8	–	–
4502.220	Mn	125	40	–
4502 16	La II	–	10 hl	Me
4502.144	Ce	2	–	–
4502.116	Eu	2	–	–
4502.1	bh C	–	–	L
4501.954	V I	20	15	–
4501.945	U	2	4	–
4501.934	Nd	4	–	–
4501 835	Ce	2	–	–
4501.828	Pr	20	1	–
4501.827	Th	3	–	–
4501.808	Nd	50	8	–
4501.804	Er	4	–	–
4501.788	Cr	15	6	–
4501.73	Tb	2	–	–
4501.697	Ce	3	–	–
4501.577	La I	5	–	–
4501.525	Cs II	–	[35]	Sv
4501.498	U	4	1	–
4501.461	Gd	10 h	–	–
4501.444	V I	5	–	Me
4501.368	Sm II	5	9	–
4501.367	Pr	2	–	–
4501.290	Mo	25	25	–
4501.28	Tb	4	–	–
4501.274	Ti II	60	100	–
4501.213	Pr	4	–	–
4501.2	P	–	[15]	Gu
4501.112	Cr	40	30	–
4501 095	Ce	6	–	–
4501.02	Tb	2	–	–
4500.977	Xe I	–	[500]	IHu
4500.949	In II	–	[50]	Ps
4500.928	Ir	8	–	–
4500.923	Nd	5	–	–
4500.877	Gd	3	3	–
4500.770	In II	–	[30]	Ps
4500.752	Er	20	20	–
4500.729	Os	5	–	–
4500.678	Gd	5	2	–
4500.627	In II	–	[15]	Ps
4500.57	Se II	–	[10]	Kh
4500.552	Co I	5	–	–
4500.523	Mo	–	5 h	–
4500.518	Pr	20	2 w	–
4500.341	Ce	8	–	–
4500.295	Cr	50	30	–
4500.219	La I	15	4	–
4500.182	Ne I	–	[50]	IMe
4500.102	Pr	3	–	–
4500.03	Tl II	–	[8]	El
4499.985	Th	12	6	–
4499.90	Ca	–	10 h	Ad
4499.843	Ne I	–	[5]	Ps
4499.802	Cb	5	10	–
4499 800	Pr	5 w	–	–
4499.752	Ce	6	–	–
4499.650	Hf	15	6	–
4499.643	U	1	2	–
4499.58	I	–	[35]	Bl
4499.545	Pr	5 w	–	–
4499.511	Ce	4	–	–
4499.484	Sm II	100	100	–
4499.47	Tb	3	–	–
4499.444	Mo	20	20	–
4499.404	Er	6	–	–
4499.377	Pr	10 w	–	–
4499.282	Nd	15	2	–
4499 269	Cr	4	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4499.261	Co I	3	–	–
4499.25	Dy	2	–	–
4499.246	U	1	4	–
4499.229	Ce	4	–	–
4499.17	P II	–	[150 l]	Gu
4499.105	Sm	10	10	–
4499.052	La I	10	–	–
4499.000	Ne I, II	–	[20]	Ps
4498.992	Pr	5 w	–	–
4498.96	Tb	3	–	–
4498.950	Th	12	3	–
4498.897	Mn	150	40	–
4498.85	Lu	10	1	Me
4498.793	Sb	–	2	Sp
4498.761	Pt I	100	5 h	–
4498.751	La II	3	4 h	–
4498.741	Nd	2	–	–
4498.730	Cr	30	15	–
4498.633	Pr	4	–	–
4498.59	Te	–	[50]	Bl
4498.55	A II	–	[10]	Rt
4498.48	Dy	3	2	Ed
4498.467	W	12	4	–
4498.426	Er	5	–	–
4498.415	Ce	3 h	–	–
4498.389	Re	8	–	–
4498.295	Pr	5 w	–	–
4498.294	Gd	100	–	–
4498.265	U	2	2	–
4498.145	Ru I	125	40	–
4497.915	Nd	15	8	–
4497.904	Th	3	–	–
4497.890	U	4	–	–
4497.88	S II	–	[5]	Hn
4497.849	Ce	30	4	–
4497.730	Ti I	15	3	–
4497.724	Na I	70	–	Da
4497.714	Mn	2	–	–
4497.703	V I	2	2	–
4497.7	Ho	2	–	Kn
4497.69	W	7	2	–
4497.669	Pd I	3	–	–
4497.613	Ce	6 s	–	–
4497.55	Gd	2	–	Kn
4497.54	I	–	[15]	Bl
4497.53	Eu	4 W	–	Kn
4497.516	U	2	1 h	–
4497.397	V I	15	10	–
4497.380	Nd	4 wh	–	–
4497.328	Gd	10	5	–
4497.30	Cl II	–	[18]	Ks
4497.272	Pr	2	–	–
4497.259	Nd	10	5	–
4497.133	Gd	150	80	–
4497.005	La II	2	–	–
4496.989	Mn II	–	[4]	Cz
4496.971	Zr II	10	10	–
4496.92	Tb	3	–	–
4496.862	Cr I	200	200	–
4496.86	I II	–	[3]	Ke
4496.846	V I	40	30	–
4496 793	Ru	6	–	–
4496.758	Cs	–	[15]	Sv
4496.65	Tm	2	2	–
4496.631	Mn	40	5	–
4496.620	Gd	4	4	–
4496.52	I	–	[8]	Bl
4496.496	Ta	100	2	–
4496.446	Re	20 d	–	–
4496.429	Pr	200	125	–
4496.41	Dy	3	–	Kn
4496.4	bh Yt	5	–	Me
4496.383	Er	6	–	–
4496.323	Th	12	10	–
4496.268	W	4	–	–
4496.25	Tb	2	–	–
4496.245	Ti I	6	–	–
4496.231	Ce	10	–	–
4496.2	bh Zr	30	–	L
4496.149	Ti I	60	60	–
4496.131	U	2	3	–
4496.11	Mo	2	3	–
4496.065	V I	30	25	–
4496.032	Ir	40	2	–
4495.966	Fe I	7	–	–
4495.82	Dy	2	–	–
4495 72	I II	–	[10]	Mu
4495 622	U	–	3	–
4495.529	Er	4	–	–
4495.49	Th	3	2	–
4495.462	Cb	–	3	–
4495.387	Ce	18	2	–
4495.347	Ir	100	3	–
4495.34	Se II	–	[20]	Bt
4495.312	W	20	6	–
4495.275	Cr	15	2	–
4495.247	Th	3	3	–
4495.15	Br	–	[4]	Bl
4495.123	Sm II	–	10	–
4495.1	bh C	–	–	L
4495.03	Tb	3	–	–
4495.008	Ti	20	5	–
4494.969	Ta	50	2	–
4494.966	Th	5	3	–
4494.935	Zr I	3	–	–
4494.858	Gd	5	–	–
4494.758	Nd	5	–	–
4494.755	Co I	100	–	–
4494.75	U	4	2	–
4494.706	La I	10	–	–
4494.67	N	–	[25]	Du
4494.59	As II	–	200	Ro
4494.568	Fe I	400	150	S
4494.568	Cb	10	5	–
4494.507	W	20	12	–
4494.47	Te	–	[100]	Bl
4494.416	Zr II	2	5	–
4494.40	Tb	2	–	–
4494.342	Pr	4	–	–
4494.34	Eu	4	–	Kn
4494.266	Na I	60	–	Da
4494 223	Ce	20	3	–
4494.193	Pr	35 w	–	–
4494.102	Re	2 h	–	–
4494.090	Mo	5	5	–
4493.972	W	15	7	–
4493.967	Yb	4	10	–
4493.949	Rb II	–	8	Rr
4493.904	U	1	2 h	–
4493.9	bh C	–	–	L
4493.828	Er	5 wd	–	–
4493.809	La I	5	–	–
4493 8	bh Zr	25	–	L
4493 709	Pr	20	4	–
4493 699	Ne I	–	[50]	Ps
4493.693	Ce	3	–	–
4493 660	Cs	–	[10]	Sv
4493 639	Ba I	60	5	–
4493.53	Ti II	1	8	–
4493.528	Mo	–	10 h	–
4493.420	Nd	12	8	–
4493.418	Ce	4	–	–
4493.340	Th	12	4	–
4493.321	Ce	3	–	–
4493 187	Pt	2	1	–
4493.119	Pr	25 w	–	–
4493.111	La I	10	–	–
4493.108	Ne I	–	[5]	Ps
4493.08	Tb	100	–	–
4493.070	Er	3	–	–
4493.044	U	6	8	–
4492.961	Cb	1	50 h	–
4492.951	Ce	6	–	–
4492.927	Pr	12	–	–
4492.892	Ru	7	–	–
4492.858	U	2	3	–
4492.81	Hg II	–	[30]	Ps
4492.764	Ce	3	–	–
4492.730	Co	3	–	m
4492.689	Ne I	–	[15]	Ps
4492.68	I II	–	[2]	Mu
4492.546	Ti I	15	4	–
4492.474	Nd	8	3	–
4492.469	Rh I	30	8	–
4492.427	Pr	25	2 w	–
4492.422	Yt I	3	–	–
4492.412	Ne I	–	[30]	Ps
4492.412	Er	7	–	–
4492.40	N	–	[40]	Du
4492 40	Eu	4 w	–	–
4492 343	Ce	3 h	–	–
4492 328	W	12	5	–
4492.312	Cr	30	15	–
4492.301	Sm II	3	–	–
4492.239	Th	8	5	–
4492.158	Ir	35	2	–
4492.132	Ne I	–	[5]	Ps
4492.076	Co I	5	–	–
4492.066	Mo	3	3	–
4492.056	Nd	5	–	–
4492.038	Gd	2	–	–
4491.882	Th	2	1	–
4491.858	Cr	50	4	–
4491.838	Ne I	–	[50]	Ps
4491.78	Tb	3	–	–
4491.771	Ne I	–	[80]	Ps
4491.756	La I	8	3	–
4491.749	Yt I	4	–	–
4491 738	Er	10	–	–
4491.682	Ru	20	–	–
4491.678	Cr I	25 d	1	–
4491 656	Mo	5	6	–
4491.651	Mn	50	5	–
4491.644	Nd	6	2	–
4491.560	Zr I	4	–	–
4491.478	Pr	3	–	–
4491.443	Th	3	–	–
4491.435	U	2	4	–
4491.406	Fe II	2	2	–
4491.358	Ir	40	2 wh	–
4491.32	Dy	2	–	–
4491.290	Ce	4	–	–
4491 282	Mo	40	30	–
4491 27	Tb	2	–	–
4491.264	Gd	2	–	–
4491.23	O II	–	[30 h]	Mh
4491.164	V I	6	5	–
4491.137	Pr	3	–	–
4491 08	Cl I	–	[8]	Ks
4491.032	Dy	3 h	–	–
4491.02	Tb	7	–	–
4491.001	Ir	2	–	Ab
4490 99	A II	–	[20]	Rt
4490 835	U	18	25	–
4490 803	V I	25	20	–
4490.774	I II	–	[10]	Mu
4490 773	Nd	2	–	–
4490.77	Tl II	–	[25]	El
4490.765	Fe I	40	1	–
4490.697	Ti I	4	–	–
4490 64	Tb	12	–	–
4490 595	Hf II	5	15	–
4490.590	Er	2	–	–
4490.555	Cr I	15 h	–	–
4490.541	Ni I	3	–	–
4490 53	Lu	2	–	Me
4490.465	Ce	4	–	–
4490.43	Br I	–	[25]	Ks
4490.389	Pr	8 w	–	–
4490 322	Th	3	1	–
4490.309	Co I	2	–	–
4490.235	Ru I	25	–	–
4490.192	Mo	20	20	–
4490.171	Er	5	–	–
4490.087	Fe I	40	10	–
4490.081	Mn	100	25	–
4490 00	Cl II	–	[50]	Ks
4489.964	W	3	–	–
4489 88	Kr II	–	[400 hl]	Me
4489.87	Al II	–	[2]	Sy
4489.864	Ir	2	–	Ab
4489.821	Ce	2	–	–
4489.76	Tb	5	–	–
4489.742	Gd	3	–	–
4489.741	Fe I	100	12	S
4489.72	Tm	40	6	Me
4489.530	Ce	5	–	–
4489.527	Th	3	1	–
4489.479	Pd I	12	2	–
4489.471	Cr	25	15	–
4489.47	O II	–	[10 h]	Mh
4489.418	Ir	6	–	–
4489.33	Te	–	[30]	Bl
4489.317	Ta	–	10 h	–
4489 28	Mo	–	5 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4489.185	Fe II	2	2	–
4489.093	Ti I	100	40	–
4489.073	U	3	5	–
4489.021	W	12	3	–
4488.999	Mo	15	12	–
4488.969	Ba I	80	3	–
4488.96	Er	5 wl	1	m
4488.918	Fe I	3	1	–
4488.889	V I	60 h	30 h	–
4488.809	Ce	6	–	–
4488.680	Th	25	12	–
4488.601	Pr	9	–	–
4488.601	Os	60	–	–
4488.60	Xe	–	[2 wh]	Hu
4488.560	Gd	4	–	–
4488.557	Dy	4	2	–
4488.545	I II	–	[15]	Ke
4488.415	Gd	25	–	–
4488.392	Ru I	25	–	–
4488.322	Th	3	–	–
4488.317	Ti II	10	125	m
4488.285	Yb	9	–	–
4488.283	Eu	12 w	2	–
4488.25	Au I	40	30 l	–
4488.233	U	2	1	–
4488.22	Kr	–	[3 wh]	Me
4488.19	Te	–	[30]	Bl
4488.173	Pr	40	10	–
4488.17	O II	–	[15 h]	Mh
4488.16	Tb	12	–	–
4488.138	Ce	2	–	–
4488.132	Fe I	7	–	–
4488.093	Ne I	–	[300]	IMe
4488.051	Cr	25	15	–
4487.871	Ce	6	–	–
4487.821	Pr	40	3 w	–
4487.74	Tb	3	–	–
4487.618	Nd	8	3	–
4487.500	Th	20	10	–
4487.489	Ce	3	–	–
4487.48	Hg	–	[300]	Ps
4487.466	Yt I	8	–	–
4487.448	W	3	–	–
4487.36	In	–	10	Sq
4487.30	I II	~	[10]	Mu
4487.280	Yt I	6	–	–
4487.273	Er	20	1	–
4487.27	Yb	2	10	Me
4487.169	Ce	3	–	–
4487.047	Mo	25	25	–
4487.033	Pr	5	–	–
4486.995	Re	8	–	–
4486.909	Ce	40	15	–
4486 908	Gd	100	15	–
4486 904	Th	4	–	–
4486 812	Ru	6	–	–
4486.71	Tb	2	–	–
4486 710	Co I	50	1	–
4486.682	Er	6	–	m
4486.66	S II	–	[35]	Hn
4486.648	Hf II	3	15	–
4486 642	Th	10	6	–
4486 59	Re	2	–	m
4486.588	Pr	3	–	–
4486 51	Tb	2	–	m
4486.404	Ce	3 h	–	–
4486.364	Gd	25	80	–
4486.363	Zr I	3	–	–
4486.311	U	4	6	–
4486.296	Sm	9	20	–
4486 242	Dy	5	2	–
4486.15	Tm	2	–	Me
4486.132	Hf II	25	30	–
4486.056	La I	15	4	–
4486.02	Tb	2	–	–
4485.977	Pr	5	–	–
4485.952	Nd	12	3	–
4485.95	Xe II	–	[10]	Hu
4485.796	Th	10	5	–
4485.790	Mo	4	4	–
4485.77	Te	–	[30]	Bl
4485.680	Fe I	50	2	–
4485.67	Tb	5	–	–
4485.59	Eu	3 w	1	–
4485.570	Sm	4	1	Kn
4485.544	Pr	40	5 w	–
4485.522	Ce	15	1	–
4485.479	Gd	5	3	–
4485.445	Zr II	3	–	–
4485.311	Pr	4	–	–
4485.29	P	–	[50]	Gu
4485.215	U	6	12	–
4485 148	Eu II	40	2	–
4485.098	Ti I	8	–	–
4484.969	Mo	30	30	–
4484.959	Ca	–	5	–
4484 948	Nd	5	2	–
4484.883	Pr	4	–	–
4484.824	Sm II	2	2	–
4484.819	Ce	30	3	–
4484.80	Tb	2	–	–
4484.763	Os	100	1	–
4484.714	Pr	2	–	Kn
4484 710	Gd	25	10	–
4484.695	Pt I	5	1 h	–
4484 683	Cr	6	–	–
4484.67	Eu	8 w	–	Kn
4484.57	Ho	4	2	Ex
4484.55	Ti I	3	–	–
4484.516	Sm	2	–	–
4484.515	Co I	60	–	–
4484.504	U	2	3	–
4484.502	La II	10 h	10 h	–
4484.5	bh Sr	3	–	L
4484.477	Gd	5	5	–
4484.452	Er	8	–	–
4484.446	Yt I	2	–	–
4484.43	Yb	–	3 h	Me
4484.41	Ca	–	3	Ad
4484.37	Dy	5	2	Kn
4484 292	Th	5	3	–
4484.225	Fe I	125	40	–
4484.189	W	35	20	–
4483.948	Ir	2	–	–
4483.927	Co I	100	–	–
4483.904	Ru	10	–	–
4483.897	Ce	40	10	–
4483.831	Rh	5	2	–
4483.788	Ir	3	–	–
4483.756	U	3	6	–
4483.662	Er	3	–	–
4483.66	P II	–	[30]	Gu
4483.586	Co I	20 h	–	–
4483.530	W	4	–	–
4483.491	Pr	30	2	–
4483.466	U	6	1 h	–
4483.424	S II	–	[100]	Hn
4483.41	Tb	4	–	–
4483 347	Ce	8	1	–
4483.339	Th	4	–	–
4483 339	Gd	80	125	–
4483.29	Hf II	–	5	Me
4483.190	Ne I	–	[150]	IMe
4483.083	Pr	25	2	–
4483.053	Ce	3	–	–
4482.878	Cr	25	12	–
4482.787	Ce	4 h	–	–
4482.752	Fe I	20	2	–
4482.72	Tb	2	–	–
4482.694	Pr	8 w	–	–
4482 693	Ti I	40	20	–
4482.678	U	8	10	–
4482.601	Er	2	–	–
4482.591	Ce	3 h	–	–
4482 503	Zr I	3	–	–
4482.48	S	–	[8]	Hn
4482.44	Yb	20	2	m
4482.40	Tb	2	–	Ed
4482.33	Dy	4	2	Kn
4482 258	Fe I	150	70	–
4482.258	U	1	2	–
4482.172	Fe I	150	70	–
4482.1	Rb	–	[4]	Dr
4482.034	Ru I	12	–	–
4482.032	Ir	5	–	–
4482.03	Er	2	2 h	Ed
4482.02	Cl II	–	[10]	Ks
4481.99	Dy	3	–	Ed
4481.904	Ce	5	–	–
4481 893	Nd	20	–	–
4481 85	Kr II	–	[50 whl]	Me
4481.83	A II	–	[80]	Rt
4481.645	Pt I	2	1 h	–
4481.637	Th	6	3	–
4481.637	Ce	3	–	–
4481.46	Tl II	–	[5]	El
4481.447	Re	15	–	–
4481.443	Cb	2	3	–
4481.431	Cr	10	–	–
4481.410	Pr	30	4	–
4481.327	Mg II	100	–	Fl
4481.31	Tb	2	–	–
4481.284	W	15	6	–
4481.276	Mo	10	8	–
4481.273	Er	20	–	–
4481.27	Tm	400	50	Me
4481.262	Ti I	100	60	–
4481.198	La II	4	2 h	–
4481.198	Ir	4	–	Ab
4481 183	Th	3	2	–
4481.16	Mg	–	50	–
4481.068	Gd	70	100	–
4481.0	Ho	–	3 h	Ex
4480 970	Nd	25	–	–
4480.95	I	–	[25]	Ke
4480.934	Ta	200 w	10 h	–
4480 92	Tb	4	–	–
4480 868	Er	2	–	–
4480.86	Xe II	–	[200 whl]	Hu
4480.849	Ce	2	–	–
4480.823	Ne I	–	[15]	Ps
4480.822	Th	25	10	–
4480.80	Tl II	–	[5]	El
4480.795	Sm	6	2	–
4480.769	Zr I	3	–	–
4480 695	Dy	4	2	–
4480.688	Pr	3	–	–
4480.590	Ti I	40	15	–
4480.574	U	2	3	–
4480 570	Ni I	3	–	–
4480.507	Sr I	10h	–	ISn
4480.464	Ce	3	–	–
4480.448	Ru	60	–	–
4480 359	Cu I	200	20	–
4480 346	U	5	6	–
4480.328	Ce	3	–	–
4480.307	Sm	10	7	–
4480.278	Yb	7	2	–
4480.275	Pr	5	–	–
4480.263	Cr	3	1	–
4480.24	Er	3	1	
4480.15	Lu	3	–	Me
4480.144	Fe I	10	2	–
4480.133	Pr	5	–	–
4480.11	Eu	15 W	1	Kn
4480.06	Tb	4	–	–
4480 038	V I	25	20	–
4479.979	Ce	6	–	–
4479.86	Kr II	–	[5 whl]	Me
4479.822	La I	10	–	–
4479.808	Os	80 l	1	–
4479.74	I	–	[25 h]	Bl
4479.74	P	–	[70]	Gu
4479.705	Tl I	70	35	–
4479.622	Fe I	15	2	–
4479.618	Pr	35	–	–
4479.609	W	4	–	–
4479.50	Dy	2	–	Ed
4479.44	Ca	–	2	Ad
4479.438	U	2	4 h	–
4479.432	Ce	4	–	–
4479.410	Ru	15	–	–
4479.399	Mn	60	–	–
4479.359	Ce	40	18	–
4479.358	Er	2 w	–	–
4479 31	A I	–	[5]	Ms
4479.203	Ce	4	1	–
4479.186	W	4	–	–
4479.161	Th	4	3	–
4479.098	Pr	3	–	–
4479.041	Mo	3	5	–
4479.00	Yt I	2	–	–
4478.872	Cr	3	–	–
4478.812	Gd	80	–	–
4478.73	Te	–	[800]	Bl

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4478.658	Sm	100	100	–
4478.657	Co I	5	–	–
4478.64	I I	–	[15]	Mu
4478.638	Pr	3	–	Kn
4478.56	Tb	2	–	m
4478.525	Nd	4	–	–
4478.503	W	4	2	–
4478.476	Ir	200	10	–
4478.4	Eu	3 w	–	Kn
4478.387	Re	40 w	–	–
4478 321	Co I	100	3	–
4478 013	Ru	7	–	–
4477.991	Pr	2	–	–
4477.99	Re	40 w	–	m
4477.989	Ce	8	–	–
4477.982	Cr	5	–	–
4477.92	O II	–	[10 h]	Mh
4477.885	Nd	15	–	–
4477.839	W	5	7	
4477.83	Tb	5	–	Ed
4477.773	Sm	3	1	–
4477.75	Br I	–	[200 W]	Ks
4477.74	N II	–	[5]	Fl
4477.710	U	20	25	–
4477.69	Er	4	1	m
4477.646	Re	3	–	–
4477.63	Ho	3	3	Kn
4477.630	Ce	4	–	–
4477.510	Cr	5	–	–
4477.497	Dy	2	2	–
4477.493	Sm	2	2	–
4477.461	U	3	6	–
4477.452	Nd	15	5	–
4477.444	Yt I	9	–	–
4477.381	W	4	–	–
4477.354	Ce	2	–	–
4477.259	Pr	125	30 w	–
4477.238	Co I	30 wh	–	–
4477.218	Ce	4	–	–
4477.179	Eu	12 W	–	–
4477.166	W	4	–	–
4477.16	Mo	3	4	–
4477.12	Bi II	–	10 w	Om
4477.053	Cr I	20	–	–
4476.995	Ce	3 h	–	–
4476.97	Tb	4	–	Ed
4476.952	Yt I	10	–	–
4476.70	Se II	–	[10]	Bl
4476.631	Dy	2	2	–
4476.540	W	4	–	–
4476.510	Ce	3	–	–
4476.477	U	8	6	
4476.429	Tb	2	–	Kn
4476 37	Yt	2	–	Me
4476.3	Pb II	–	[3]	Ea
4476.28	Tb	3	–	–
4476.144	Gd	100	–	Ab
4476.079	Ag I	40	8	–
4476.05	I II	–	[60]	Mu
4476.022	Fe I	500	300	–
4475.974	Ce	3	–	–
4475.886	V I	6	2	–
4475.834	Nd	4	–	–
4475.82	Tb	3	–	–
4475.78	Eu	6 W	–	–
4475.712	Yt I	7	–	–
4475.697	Pr	6	–	–
4475.69	As	–	30	Ro
4475.681	U	4	5	–
4475.658	V	–	10 h	–
4475.656	Ne I	–	[100]	IMe
4475 650	Ce	2	–	–
4475 630	W	4	1	–
4475 618	Mo	25	25	–
4475.566	Nd	12	4	–
4475.544	Er	20	1	–
4475.518	Ti I	12 h	1 h	–
4475 382	Ce	2	–	–
4475.375	Pr	8	–	–
4475.345	Cr I	40	6 h	–
4475.330	Ru I	10	–	–
4475 296	Ce	4	–	–
4475.28	Cl II	–	[12]	Ks
4475.279	Cb	2 h	5 h	–
4475.277	U	4	5	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4475.26	P II	–	[150 l]	Gu
4475 26	Tb	4	–	–
4475 25	Mo	1	3	–
4475.235	Th	5 h	2	–
4475.165	Sm II	10	10	–
4475.131	Ne I, II	–	[5]	Ps
4475.080	Re	30	–	–
4475.02	Se II	–	[12]	Bt
4475.00	Kr II	–	[800 hs]	Me
4474.9	bh Zr	8	–	L
4474.865	Ce	4	–	–
4474.854	Ti I	80	30	–
4474.840	Pr	9	1	–
4474.836	U	3	3	–
4474.834	Os	2	–	–
4474.78	Tb	4	–	Ed
4474 77	A II	–	[20]	Rt
4474.718	Nd	5	1	–
4474.714	V I	25	20	–
4474.693	Ce	12	1	–
4474.666	W	4	–	–
4474.653	Mo	80	–	–
4474 621	Cb	–	5 h	–
4474 605	Eu	2 W	–	–
4474.60	As	–	200	Ro
4474.564	Mo	125	125	–
4474.564	U	2 h	2 h	–
4474 543	La I	4	–	–
4474.498	Er	4	–	–
4474.47	Tb	2	–	–
4474.463	Pr	20	–	–
4474.138	Gd	150	150	–
4474.12	Tb	2	–	–
4474.102	Eu	5 W	–	–
4474.078	Th	10	6	–
4474.045	V I	30	20	–
4474.035	W	12	5	–
4474.029	La II	3	20	–
4473.928	Ru I	100	–	–
4473.888	Yt	3	–	–
4473 85	Xe	–	[2 h]	Hu
4473.835	Pr	30	6	–
4473 782	Cr I	25	1	–
4473.70	Tb	3	–	–
4473.661	Ce	2	–	–
4473.590	Pd I	60	6	–
4473.58	Ho	3	2	Ex
4473.546	Dy	2	–	–
4473.515	Ta	3	10	–
4473 500	Er	10	1	–
4473.498	Pr	10	–	–
4473 492	U	2	3	–
4473.461	Pt I	2	2	–
4473.44	I II	–	[80]	Ke
4473.323	Pr	10	–	–
4473 283	Gd	10	10	–
4473 241	Re	3 h	–	–
4473.182	Mo	30	30	–
4473.138	Ce	3	–	–
4473 08	Os	3	–	–
4473.012	Sm II	150	150	–
4472 926	Pr	30	10	–
4472 83	Tb	4	–	–
4472 82	B II	–	4	En
4472.80	Tm	5	–	–
4472.792	Mn	100	25	–
4472 781	Yt	2	–	–
4472 77	Dy	2	–	Ed
4472.721	Fe	10	1	–
4472.718	Ce	15	3	–
4472.62	Br I	–	[125 l]	Ks
4472.571	Mo	5	5	–
4472.533	Cb	10	15	–
4472 519	W	6	1	–
4472 434	Yb	7 l	–	–
4472.416	Sm II	100	100	–
4472 335	U	50	80	–
4472 245	Th	10	5	
4472 19	Yb	–	2	Me
4472.152	Sm II	2	2	–
4472 082	Ce	3	–	–
4472 08	B II	–	4	En
4472.045	Mo	20	15	–
4472.004	Th	5	1	–
4472 00	Tm	2	–	Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4471.992	Eu	30 w	2	–
4471.932	Er	2 w	–	–
4471 818	Co	5	–	–
4471.81	W	4	–	–
4471.773	V I	6	3	–
4471.773	Th	5	4	–
4471.745	Pr	8	–	–
4471.72	Tb	12	–	–
4471 681	He I	–	[7]	Ps
4471.658	Mo	20	20	–
4471.65	Pt	–	2 h	–
4471.64	Eu	4	2	–
4471.633	Ce	6	–	–
4471.55	Lu	7	–	Me
4471 550	Co I	100	4	–
4471.543	Dy	2 h	–	–
4471 52	Ne II	–	[30]	Bn
4471.5	bh Zr	40	–	L
4471 477	He I	–	[100]	IMr
4471.43	As II	–	10	Ro
4471.428	Pr	10 d	–	–
4471 412	Nd	15	5	–
4471.350	V I	20	8	–
4471.303	Gd	50	–	–
4471.3	bh La	10	–	Me
4471 29	W	4	–	–
4471.287	Cb	20	30	–
4471 262	Ir	3	–	–
4471 240	Ce	35	8	–
4471 240	Ti I	100	40	–
4471 2	bh La	3	–	Me
4471.17	Tb	3	–	–
4471.162	U	3	–	–
4471 051	Mo	2	4	m
4471.029	Ru	7	–	–
4470 971	Ne I	–	[5]	Ps
4470.965	Nd	8 d	4 d	–
4470 90	Xe II	–	[15]	Hu
4470.886	Sm	60	60	–
4470.861	Ti II	12	25	–
4470.753	W	4	–	–
4470.689	Nd	10	–	–
4470.575	Pr	4	–	–
4470.559	Zr I	10	–	–
4470.540	Ce	4	–	–
4470 483	Ni I	15	20	–
4470.480	Sm	2	1	–
4470.475	Ir	4	–	–
4470.430	Gd	5	–	
4470 430	Pr	5 h	–	–
4470 36	Tb	2	–	–
4470 311	Zr I	5	–	–
4470.138	Mn	80	40	–
4470 02	Tm	2	–	–
4470 01	Br I	–	[2]	Ks
4469 96	S	–	[8 h]	Ms
4469 850	Ce	4	–	–
4469.837	Cr	3	–	–
4469.73	Tb	10 w	–	–
4469 718	W	5	1	–
4469 713	Cb	12	15	–
4469 710	V I	20 h	12 h	–
4469 66	Eu	6 W	–	Kn
4469 655	Pr	9	–	–
4469 650	Sm	15	15	–
4469 555	Co I	300	5	–
4469 528	Th	5	1	–
4469.518	Ce	2	–	–
4469.516	Rb II	–	10	Rr
4469.41	O II	–	[40]	Mh
4469.4	bh Zr	30	–	L
4469 38	Mo	2	3	–
4469.380	Fe I	200	100	–
4469.37	Cl I	–	[12]	Ks
4469.328	U	12	1	–
4469.322	Cb	10 h	5 h	–
4469.261	Nd	12	10	–
4469 238	Ce	2	–	–
4469 185	U	2	5	–
4469.160	Ti II	5 h	1	–
4469 12	Tb	5	–	m
4469 09	Cs	–	[2]	Sv
4469 084	Nd	8	2	–
4469.027	Pr	8	2	–
4468 964	La I	10	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
4468.91	Ne II	–	[70]	Bn
4468.895	U	4	6	–
4468.787	Zr I	3	–	–
4468.759	V I	12	9	–
4468.712	Pr	125	100	–
4468.649	Cr	3	–	–
4468 626	Ce	4	–	–
4468.495	Ti II	80	150	–
4468.365	Cr I	5	–	–
4468.322	Th	2	–	–
4468.318	U	4	4	–
4468.276	Mo	25	25	–
4468.219	Zr I	3	–	–
4468.196	Pr	10	–	–
4468.165	Dy	10	4	–
4468.140	Er	12	–	–
4468.087	Mo	5	5	–
4468.07	Tb	2	–	–
4468.03	Eu	15 w	–	Kn
4468.024	Ce	3	–	–
4468.010	V I	20	15	–
4467.98	Tm	10	–	–
4467.97	P II	–	[50]	Gu
4467.969	Ni	2	–	–
4467.968	Sm	3	–	–
4467.937	Re	50	–	–
4467.910	Cb	–	10 h	–
4467.89	Dy	6	2	–
4467.853	U	2	2	–
4467.853	Nd	10	5	–
4467.83	O II	–	[50]	Mh
4467.69	Tb	7	–	–
4467.664	W	4	1	–
4467.60	Se II	–	[300]	Bl
4467 561	Cr I	20	2	–
4467.546	Re	25	–	–
4467.539	Ce	30	4	–
4467.40	Mo	2	4	–
4467.342	Ir	4	–	–
4467.341	Sm II	200	200	–
4467.308	Ce	6	–	–
4467.260	Ru	20	–	–
4467.182	Ir	2	–	–
4467.17	Gd	20	–	Kn
4467.14	Yb	–	2	Me
4467 110	Ba	20	3	–
4467.09	Tb	2	–	–
4467 088	Gd	50	–	Kn
4467 080	Ce	4	–	–
4467.071	U	4	6	–
4466.940	Fe	7	–	–
4466.909	Zr I	8	1	–
4466 886	Co I	300	5	–
4466 852	V I	8	6	–
4466.807	Ne I	–	[70]	IMe
4466.794	Ce	3	–	–
4466 785	Pr	2	–	Kn
4466 733	Ir	25	–	·
4466.729	Ce	3	–	
4466.729	W	20	10	–
4466.658	K II	–	[20]	Dm
4466.60	As II	–	80	Ro
4466.554	Fe I	500	300	S
4466.553	Gd	200	150	·
4466.503	Ne I	–	[2]	Ps
4466.431	Pr	4	1	–
4466.423	Cb	2	2	–
4466.40	Hf II	10	20	–
4466.394	Ni I	3	–	–
4466.35	Br	–	[20]	Bl
4466 348	W	20	10	–
4466.343	Ru I	15	–	–
4466 34	Eu	4 W	–	–
4466.314	U	1 h	3	–
4466.28	O II	–	[30 h]	Mh
4466.165	Cr I	15	1	–
4466.10	P II	–	[30]	Gu
4466.07	Tm	3	–	–
4466.045	Ne I	–	[5]	Ps
4466.02	Eu	2 W	–	–
4466.007	Ce	3	–	–
4465.981	Pr	90	30	–
4465.940	Os	9	–	–
4465 924	Cb	2	2	–
4465.834	Nd	8	4	–
4465.831	Re	6	–	–
4465.810	Ti I	100	40	–
4465 809	Co I	5	–	Kb
4465.809	Gd	5	–	–
4465.729	U	2	2	–
4465.70	Tb	4	–	–
4465.651	Ne I	–	[50]	Ps
4465.601	Nd	20	10	–
4465.499	V I	15	7	–
4465.482	Ru	15	–	–
4465.45	O II	–	[50]	Mh
4465.438	Ce	6	–	–
4465.365	Pr	5	–	–
4465.357	Cr I	20	10	–
4465.345	Th	30 s	15	–
4465.267	Yt I	2	6	–
4465.230	Cb	2	2	–
4465.133	U	20	25	–
4465 075	Pr	30	3 w	–
4465.075	Nd	20	8	–
4465 038	Ir	3	–	–
4464.968	Eu	80	10	–
4464.907	Cr I	15	8	–
4464 776	Fe I	35	3	–
4464 769	Mo	20	20	–
4464 75	Dy	2	–	Ed
4464.748	Gd	20	20	–
4464.747	V I	10	4	–
4464.691	Ce	8 s	3	–
4464 677	Mn	60	50	–
4464.669	Cr I	15	1	–
4464.65	Er	8 d	2	–
4464 620	Re	3	–	–
4464 565	Eu	30	–	–
4464.48	Mo	4	5	–
4464.455	Ti II	12	40	–
4464.425	S	–	[100]	Hn
4464.318	I II	–	[30]	Ke
4464.270	V I	3	10	–
4464.2	bh La	10	–	Me
4464.173	Ce	10	1	–
4464.148	Cb	5	10	–
4464 127	Zr	3	–	–
4464.1	bh La	3	–	Me
4464 07	Tb	2	–	–
4463.925	Pr	2 h	–	–
4463 889	Sm	3	3	–
4463 856	Ce	5	–	–
4463 85	Mo	–	25	–
4463 829	Eu	2 w	2	–
4463 828	Th	3	–	–
4463 80	Hg II	–	[2]	Nu
4463.762	Pr	10	–	Kn
4463 755	U	2	4	–
4463.70	P II	–	[70]	Gu
4463.6902	Kr I	–	[800]	S
4463.582	S II	–	[200]	Hn
4463.541	Ti I	25	12	–
4463.533	Yt I	2	–	–
4463.527	Re	20	–	–
4463.504	W	15	7	–
4463 484	Ir	3	–	–
4463.48	Yb	–	2	Me
4463 45	Mo	2	4	–
4463 427	Ni I	10	–	–
4463 410	Ce	35	6	–
4463.384	Ti I	25	12	–
4463 317	Pr	6	–	–
4463 3	bh Sr	4	–	L
4463 249	Gd	15	–	–
4463 08	Pr	25	4	–
4462 99	Tb	2	–	–
4462.985	Nd	60	20	–
4462.974	U	18	30	–
4462.94	P	–	[70]	Gu
4462.856	Ne I	–	[2]	Ps
4462 799	Gd	10	–	–
4462 774	Cr I	20	2	–
4462.760	U	3	5	–
4462.69	I	–	[10]	Bl
4462.627	Pr	9	–	–
4462.583	Sm	5	2	–
4462.523	W	10	2	–
4462.460	Ni I	150	20	–
4462.407	Nd	30	15	–
4462 363	V I	20	9	–
4462 330	U	15	18	–
4462.302	Ce	4	–	–
4462 287	Os	8	1	–
4462.20	Tb	20 W	–	–
4462 19	Xe	–	[500 whl]	Hu
4462.14	Eu	5 w	–	Kn
4462.094	Ti I	10	1	–
4462.037	Ce	3	–	–
4462 022	Mn	40	60	–
4461.92	As	–	10	Ro
4461.84	Mo	5 h	5 h	–
4461.71	Th	–	5	–
4461.654	Fe I	300	125	S
4461.61	Kr	–	[2 hl]	Me
4461.55	Mo	4	5	–
4461.548	Eu	2	2	–
4461.46	A	–	[5]	Ms
4461.434	U	12	–	–
4461 373	Ce	3	–	–
4461.372	Gd	4	–	–
4461.302	Cr	5	–	–
4461 292	Pr	15	2	–
4461 27	As	–	30	Ro
4461 26	Tb	8 w	–	–
4461 224	Fe I	5	1	–
4461.223	Zr II	4	3	–
4461.19	Dy	4	2	–
4461.183	Hf	25	2	–
4461.136	Ce	30	6	–
4461.085	Th	10 d	8 d	–
4461.085	Mn	30	25	–
4460 988	V I	9	5	–
4460 927	U	12	10	–
4460 769	Cr I	25	–	–
4460.625	Mo	20	20	–
4460 531	U	3	6	–
4460 53	A	–	[20]	Ms
4460.497	W	25	7	–
4460.423	Cb	5	10	–
4460.4	bh Zr	4	–	L
4460 377	Mn	20	5	–
4460.341	Zr I	8	–	–
4460.31	Dy	2 h	–	–
4460 292	V I	20 wh	10 wh	–
4460 29	As	–	10	Ro
4460 23	Tb	2	–	–
4460 213	Ce	60	20	–
4460.204	Cb	8	–	–
4460.19	I	–	[8]	Bl
4460 18	Cb	2 h	10	–
4460 175	Ne I	–	[100]	IMe
4460.138	Nd	3	1	–
4460.13	Br	–	[2]	Bl
4460.035	Ru I	150	80	–
4460.00	Zr	2	–	Ks
4459 99	Kr II	–	[8 h]	Me
4459.99	Tm	5	1	Me
4459.96	N II	–	[2]	Fl
4459.804	U	2	3	–
4459.763	Ta	30	10	–
4459.760	V I	20 h	12 h	–
4459.738	Cr I	25	25	–
4459.63	Se II	–	[10]	Bf
4459.527	Os	15	2	–
4459.434	Pr	3	–	Kn
4459 391	Cr I	20	–	–
4459.38	Tb	10 w	–	–
4459 288	Sm	8	8	–
4459 25	Rn I	–	[250]	Rs
4459.242	Er	7	–	–
4459.121	Fe I	400	200	S
4459.120	La II	8	3	–
4459 086	Ce	4	–	–
4459.037	Ni I	400	20	–
4458.934	Nd	3	–	–
4458 848	Ce	3	–	–
4458.74	As	–	30	Ro
4458.703	U	10	3	–
4458.646	Mo	8	10	–
4458 602	Ce	4	–	–
4458.595	Co I	10	–	–
4458.538	Cr I	50	125	–
4458.519	Nd	25	20	–
4458.514	Sm II	150	200	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4458.5	bh La	15	–	Me
4458.47	I	–	[35 h]	Bl
4458.46	Tb	3	–	–
4458 4	bh La	5	–	Me
4458.336	Pr	90	10 w	–
4458.331	Os	3 l	–	–
4458 302	W	10	5	–
4458.294	Ce	2	–	–
4458 262	Mn	25	20	–
4458.118	Cb	5	5	–
4458.107	Fe I	30	1	–
4458.093	W	15	5	–
4458.006	Th	10	2	–
4457.805	Sm II	3	3	–
4457.776	Ce	6	–	–
4457.759	V I	7	6	–
4457.680	Cs II	–	[15]	Sv
4457.59	Tb	2	–	m
4457.549	Mn	20	15	–
4457.51	Re	2 h	–	–
4457.479	V I	15	9	–
4457.463	Ce	2 h	–	–
4457.432	Ti I	150	100	–
4457.432	Zr II	40	7	–
4457.424	Cb	15	15	–
4457 356	Mo	50	50	–
4457.344	Hf	25	2	–
4457.25	Kr II	–	[40 whl]	Me
4457.195	Th	3	1	–
4457.179	Nd	5	1	–
4457.145	Ce	2	–	–
4457.095	U	3	6	–
4457.045	Mn	20	10	–
4457.015	Sb II	–	2	Sp
4456.97	Eu	5 w	–	–
4456.95	Ne II	–	[70]	Bn
4456.901	Nd	5	1	–
4456.86	As	–	15	Ro
4456.800	Cb	5	5	–
4456.710	Re	10 w	–	–
4456.708	Sm	2 d	–	Kn
4456 706	Th	4	3	–
4456.69	Gd	3 h	–	–
4456.650	Ti II	1	10	–
4456.620	Ca I	20	15	–
4456 614	I II	–	[10]	Ke
4456.61	A	–	[2]	Ms
4456 561	Ce	5	–	–
4456.501	V	10	7	–
4456 43	S II	–	[35]	Hn
4456 42	Tb	2	–	m
4456.394	Nd	20	15	–
4456.380	Re	6	–	–
4456 298	Zr I	8	–	–
4456 26	I	–	[8]	Bl
4456.134	Nd	15	5	–
4456.112	W	15	5	–
4456.108	Sm II	30	25	–
4456 07	Eu	4 w	–	Kn
4456.02	Tb	2	–	–
4455 902	Ce	3	–	–
4455.887	Ca I	100	75	IWg
4455 886	U	6	8	–
4455.821	Mn	25	15	–
4455.795	La II	40	25	–
4455.687	Pr	8	–	–
4455 656	Ce	18	1	–
4455.623	Nd	10	3	–
4455 59	Ho	5	–	Kn
4455.564	Ne I	–	[15]	Ps
4455.49	Hg II	–	[30]	Ps
4455.49	Dy	10	–	Kn
4455.465	W	15	5	–
4455.462	Pr	8	–	–
4455.461	Ce	3	–	–
4455.458	Cr I	8	–	–
4455.434	Zr I	6	–	–
4455.326	Ti I	150	80	–
4455.318	Mn	25	15	–
4455.305	Mo	10	12	–
4455 28	Te	–	[15]	Bl
4455.258	Fe	2	3	Do
4455.232	Sm	3	–	–
4455.211	La I	3	–	–
4455.039	Th	4	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4455.035	Pr	10 d	–	–
4455.035	Fe I	20	1	–
4455.012	Mn	25	10	–
4455 00	K II	–	[5]	Bn
4454.985	Ce	12	1	–
4454.95	Se II	–	[50]	Bt
4454.89	Tb	4	–	–
4454.797	Zr II	7	1	–
4454.781	Ca I	200	5 hl	IWg
4454.778	Th	4	–	–
4454.776	U	2	–	–
4454 762	Ce	5	–	–
4454 697	Gd	3	–	–
4454.695	Pr	30	10	–
4454.668	Re	100	–	–
4454.629	Sm II	100	100	–
4454 531	Ce	3	–	–
4454.517	Th	8	4	–
4454 383	Fe I	200	80	S
4454 382	Pr	60	15	–
4454.37	Kr II	–	[10 whl]	Me
4454.33	Hg	–	[30]	Ps
4454 285	Ne I	–	[5]	Ps
4454.06	W	3	–	–
4454.050	Ce	2	–	–
4454.04	Tm	20	1	Me
4453.96	Tb	2	–	–
4453 929	Gd	10	10	–
4453.9179	Kr I	–	[600]	S
4453 875	Re	20	–	–
4453.87	Mo	4	5	Ex
4453 853	La I	3	3	–
4453.8	Pb II	–	[3]	Ea
4453 773	Ce	3	–	–
4453 706	Ti I	80	40	–
4453.62	W	5	–	–
4453.61	Dy	2 h	–	Ed
4453.35	V	–	20 hl	Me
4453 324	Ne I	–	[2]	Ps
4453 321	Ti I	150	70	–
4453.253	Ne I	–	[5]	Ps
4453 218	U	10	1 h	–
4453 21	Kr II	–	[50 whs]	Me
4453.160	Ce	15	–	–
4453.149	Pr	3	–	–
4453 121	V I	7	3	–
4453.1	bh La	20	–	Me
4453 10	Tb	4	–	Ed
4453.005	Mn	50	20	–
4453.00	Hf	8 h	2	–
4452.983	Ne I	–	[15]	Ps
4452.951	Sm	8	6	–
4452 881	I II	–	[700]	Ke
4452.81	Tb	25	–	–
4452.81	Dy	2	–	Ed
4452 808	Ir	15	2	–
4452.74	Mo	–	15	–
4452 728	Gd	30	–	–
4452.713	Sm II	200	200	–
4452.701	V I	10	6	–
4452.70	Hf II	–	10	Me
4452.612	Ir	10	–	–
4452.58	Tb	3	–	Ed
4452.568	Th	3	–	–
4452.56	Ne	–	[2]	Bl
4452.558	Mo	12	8	–
4452 553	Ce	25	–	–
4452.529	Pr	2	–	Kn
4452 524	Mn	8	–	–
4452.44	P II	–	[150 l]	Gu
4452.41	O II	–	[70]	Mh
4452.153	La I	15	5	–
4452 008	V I	20	15	–
4451.98	U	1	5 h	–
4451 978	Nd	50	20	–
4451.97	Eu	6 W	–	Kn
4451.968	Mo	–	30	–
4451.949	Pr	80	20	–
4451.82	Os	3	–	–
4451.804	Sr I	2	–	ISn
4451.76	Sm	3 h	–	–
4451.64	Tb	10	–	–
4451.637	Hg	–	[7]	St
4451.586	Mn	125	100	–
4451.581	Er	10	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4451.566	Nd	100	50	–
4451.545	Fe	2	4	Do
4451.534	Ce	3	–	–
4451.502	U	8	1	–
4451.474	Nd	10	15	Kn
4451.36	Tb	2	–	m
4451.318	Ir	12	–	–
4451.21	I	–	[8]	Bl
4451.178	Ir	2	–	–
4451.124	Ce	3	–	–
4451.08	I	–	[8]	Bl
4451.056	Th	3	1	–
4450.983	Sm	–	3	–
4450.901	V I	15	7	–
4450.899	Ti I	150	60	–
4450.81	Lu	40	2	Me
4450 806	Pr	5	–	–
4450.790	Ir	5	–	–
4450 787	Th	3	–	–
4450.732	Ce	35	5	–
4450.720	Ta	30	8	–
4450.57	Tb	2	–	–
4450 500	U	4	6	–
4450 486	Ti II	12	50	–
4450.364	W	12	4	–
4450.34	Kr	–	[4 hs]	Me
4450.311	Fe I	12	2	–
4450.301	Ni I	5	–	–
4450 285	Zr I	8	–	–
4450.258	Ce	2	–	–
4450 214	Pr	40 w	20 w	–
4450.178	Ir	60	3	–
4450.15	Ni I	2	–	m
4450.134	Ce	3	–	–
4450 11	Tb	4	–	–
4449 984	Ti I	10	–	–
4449.977	Sm	15 w	4	–
4449.946	Gd	4	40	–
4449.908	Cb	1 h	20 h	–
4449 9	bh Ca	2	–	L
4449.867	Pr	125	80	–
4449.738	Mo	40	40	–
4449.72	Tb	15	–	–
4449.703	Er	30	1	–
4449.702	Dy	20	12	Kn
4449.69	Ho	3	1	Ex
4449.635	Ce	12	1	–
4449.573	V I	12	9	–
4449.52	Tb	3 w	–	–
4449.372	Mn	3	–	–
4449.336	Ru I	125	100	–
4449.336	Ce	50	8	–
4449.326	Er	2	–	–
4449.23	Tb	2	–	–
4449 214	Fe II	2	4	Do
4449 16	Dy	4	2	Kn
4449.15	Se II	–	[300]	Bl
4449 148	Ti I	150	80	–
4449.13	Eu	10 w	–	Kn
4449.019	Gd	4	4 h	–
4449 010	W	20	6	–
4448 947	Zr I	3	–	–
4448 924	Ce	2	–	–
4448.88	A II	–	[15]	Rt
4448.760	Cb	2	2	–
4448 702	Pr	5	–	–
4448 611	Er	6	–	–
4448.510	Th	5	2	–
4448 333	U	12	3 h	–
4448 265	Re	4	–	–
4448 23	Dy	5	2	Kn
4448 228	Ce	2	–	–
4448.20	O II	–	[70]	Mh
4448 13	Xe	–	[200 wh]	Hu
4448.124	Re	4	–	–
4448.070	Er	5	–	–
4448.04	Tb	25	–	–
4448 0	bh La	20	–	Me
4447.994	Nd	10	2	–
4447.976	U	6	4	–
4447 910	Pr	4	–	Kn
4447.9	bh La	10	–	Me
4447.845	Th	12	5	–
4447.8	Al II	–	[15]	Sy
4447.722	Fe I	200	100	S

Wave-length	Element	Intensities Arc	Spk, [Dis.]	R
4447.722	Cb	–	5 h	–
4447.72	Se II	–	[4]	Bt
4447.686	Ce	6	–	–
4447.649	Cs	–	[10]	Sv
4447.62	As	–	3	Ro
4447.59	Tm	5	–	Me
4447.456	Ir	4	–	–
4447.44	Tb	3	–	–
4447 354	Os	200	3	–
4447.345	Gd	2	–	–
4447.280	Ce	2	–	–
4447.24	Ho	3	3 h	Ex
4447.233	Mo	10	6	–
4447.184	Cb	15	20 h	–
4447.18	F II	–	[200 h]	Di
4447.146	Mn	60	–	–
4447.064	U	12	8 wh	–
4447.035	N II	–	[300]	Fl
4446.985	Pr	50	30 wh	–
4446.92	Tb	10	–	Ed
4446.915	Sm II	10	4	–
4446.842	Fe I	10	10	–
4446.78	I II	–	[35]	Mu
4446.74	Mo	4	2	Ex
4446.714	Eu	6 W	–	–
4446.71	F II	–	[150 h]	Di
4446.639	Ce	3	–	–
4446.629	Yt I	4	–	–
4446.526	U	6	–	–
4446.51	F II	–	[40 h]	Di
4446.48	Gd	80	2	m
4446.48	Sb II	–	[25]	Lg
4446.46	Ne II	–	[30]	Bn
4446.427	Mo	25	25	–
4446.387	Nd	100	50	–
4446.331	U	6	–	–
4446.32	Tb	2	–	–
4446.258	Er	2	–	–
4446.168	Cb	5	8	–
4446.154	Ce	8	–	–
4446.12	Cl I	–	[4]	Ks
4446.02	Se II	–	[200]	Bl
4445.98	Tb	3	–	–
4445.964	U	4	3	–
4445.941	Ir	3	–	–
4445.900	Th	4	–	–
4445.866	Pr	25	5	–
4445.851	Cb	3	8	–
4445.851	Ir	8	–	–
4445.846	Sm	4	2	–
4445.84	A I	–	[5]	Ms
4445.82	Cl I	–	[4]	Ks
4445.715	Co I	125	2	–
4445.69	Os	9	2	–
4445.547	Pt I	20	2	–
4445.501	Gd	3 h	1	–
4445.480	U	2	1	–
4445.38	Mo	–	15	Ex
4445.354	Pr	2	–	–
4445.308	Th	4	–	–
4445.303	Yt I	2	–	–
4445.295	Sb	–	2	Sp
4445.265	Ce	3	–	–
4445.155	Pr	5	1	–
4445 150	W	20	6	–
4445.149	Sm	40	20	–
4445.12	La I	3	–	m
4445.11	Tb	2	–	–
4445.09	Cl	–	[10]	Bl
4445.036	Co I	40	2	m
4444.981	Nd	20	–	–
4444.979	Th	8 l	3	–
4444 978	Ne I	–	[30]	Ps
4444.93	Gd	5	–	–
4444.91	Mn	10	–	–
4444.908	I II	–	[25]	Ke
4444.823	Cu II	–	2 wh	Sh
4444.73	Mo	4	4	Ex
4444.704	Ce	35	6	–
4444.688	U	10	3	–
4444.61	Dy	10	2	Kn
4444.571	Er	8 d	–	–
4444.562	Ti II	4	12	–
4444.507	Ru I	40	–	–
4444.453	W	4	2	–
4444.438	Mo	3	3	–
4444.393	Ce	30	4	–
4444.277	Nd	20	8	–
4444.266	Ti I	18	2	–
4444.264	Sm	100	100	–
4444.258	Er	6	–	–
4444 207	V I	30 h	20 h	–
4444.115	Nd	5	–	–
4444.086	W	4	3	–
4444.006	Pr	30 w	3 w	–
4444.005	Mo	10 h	10 h	m
4444.004	Cs II	–	[10]	Sv
4443.949	La I, II	3	3	–
4443.87	P	–	[50]	Gu
4443.806	Ir	10	–	–
4443.804	Ti II	80	125	–
4443.743	Ce	18	2	–
4443.72	Kr II	–	[3]	Me
4443.707	Cr	15	2	–
4443.655	Yt I	4	–	–
4443.647	U	4	1 h	–
4443.400	Nd	10	3	–
4443.342	V I	12	10	–
4443.297	Cb	2	1	–
4443.296	Ce	3	–	–
4443.266	Sm	3	1	–
4443.197	Fe I	200	100	S
4443.195	Ti I	5 h	–	–
4443.099	Th	10	5	–
4443.07	Hf	15	20	Me
4443.069	Mo	25	20	–
4443.042	Ti	8 h	–	–
4443.04	O II	–	[50]	Mh
4443.039	Pd I	5	2 h	–
4443.014	Cb	1	5	–
4443.0	bh La	25	–	Me
4442.998	Zr II	8	6	–
4442.913	Pr	2	–	Kn
4442.9	bh La	12	–	Me
4442 74	Tm	8	–	Me
4442.675	La I	6	–	–
4442.67	Ne II	–	[30]	Bn
4442.560	I II	–	[30]	Ke
4442.552	Pt I	800	25	–
4442.485	Nd	6	6	–
4442.473	Sm	12	12	–
4442.463	Ce	6	–	–
4442.441	Ni I	5	–	–
4442.343	Fe I	400	200	S
4442.271	Sm	40	10	–
4442 268	Cr	15	3	–
4442.203	Mo	40	30	–
4442.141	Ir	2 wh	–	–
4442.1	bh Sr	3	–	L
4442.031	Ce	2	–	–
4441.99	N II	–	[10 h]	Fl
4441.948	Co I	5	–	–
4441.860	Ce	3	–	–
4441.811	W	20	10	–
4441.808	Cb	3	5	–
4441.800	Sm	30	20	–
4441.74	Br I	–	[80]	Ks
4441.683	V I	40 h	30	–
4441.678	Ta	100 l	2 h	–
4441.604	Ce	5	–	–
4441.591	Cb	1	2 h	–
4441.487	Eu	12 w	–	–
4441.48	Tb	4	–	–
4441.446	Ni I	5	–	–
4441.414	Pr	3	–	–
4441.301	Nd	3 d	–	–
4441.274	Ti I	25	10	–
4441.27	Tb	15	–	–
4441.213	Er	5	–	–
4441.21	I	–	[8]	Bl
4441.10	Sm	–	2	–
4441.09	U	6	2	–
4441.086	Pr	15	1	–
4441.029	Ta	60	2 h	–
4440.95	Xe II	–	[25 wh]	Hu
4440.883	Ce	20	2	–
4440.882	Nd	5	–	–
4440.872	Th	20	10	–
4440.837	Ir	10	–	–
4440 812	Ne I	–	[2]	Ps
4440.80	I	–	[8]	Bl
4440.739	U	20	20	–
4440.71	Mo	2	5	Ex
4440.616	Pr	15	–	–
4440.576	Th	15	6	–
4440.460	Zr II	4	3	–
4440.44	Re	40	–	m
4440.433	Cb	1	5	–
4440 363	Ne I	–	[15]	Ps
4440 36	Tb	2	–	m
4440.350	U	10	12	–
4440 348	Ti I	80	35	–
4440.26	Cs	–	[15]	Bs
4440.183	Mo	4	5	–
4440.13	Dy	3	–	Ed
4440.130	Rb	–	10	Rr
4440.126	Ce	4	–	–
4440.09	A II	–	[5]	Rt
4440 041	Eu	6 w	–	–
4439 988	Pr	5	–	–
4439.952	Nd	5	–	–
4439.95	Ne II	–	[15]	Bl
4439.885	Fe I	6	1	–
4439 830	Mn	10	–	–
4439.761	Ru I	125	50	–
4439.722	W	12	6	–
4439.71	Rn	–	[10]	Rc
4439.639	Os	30	2	–
4439.636	Er	2	–	–
4439.518	Ce	12	–	–
4439.489	Mo	3	3	–
4439 48	A II	–	[2]	Ms
4439.407	Ru	10	–	–
4439 38	Tb	9	–	–
4439.30	Ne II	–	[30]	Bl
4439.244	Ce	12	1	–
4439.21	Yb	45	10	m
4439.144	Pr	5	–	–
4439.14	Sm	5	–	–
4439.128	Th	20	15	–
4438.999	Nd	15	5	–
4438 96	Tb	12	–	–
4438.959	Mo	15	15	–
4438.958	Er	2	–	–
4438.81	Cl	–	[8]	Bl
4438.79	Lu	4	–	Me
4438.750	Th	5	2	–
4438.679	U	2	2 h	–
4438.48	Cl I	–	[15]	Ks
4438.463	Gd	3	–	Kn
4438.443	U	2	1	–
4438.40	Dy	2	–	Ed
4438.353	Fe I	10	1	–
4438.341	Ru	7	–	–
4438.295	W	15	7	–
4438.268	Gd	40	100	–
4438.226	Ti I	12	6	–
4438.184	Ce	2	–	–
4438.178	Pr	50	20	–
4438.143	Gd	5	–	Kn
4438.082	Ce	3	–	–
4438.057	Nd	4	–	–
4438.051	Zr I	8	–	–
4438.044	Sr I	25	–	ISn
4438.04	Hf	30	2	–
4438.0	bh La	30	–	Me
4437.952	Eu	4	1	–
4437.949	U	3	1	–
4437.901	Cb	1	5	–
4437.9	bh La	15	–	Me
4437.872	Co I	2	–	Kb
4437.837	V I	20 h	12 h	–
4437.823	Ir	2	–	–
4437.82	Gd	4	–	–
4437.688	Pr	5	–	–
4437.63	Tb	2	–	–
4437.613	Ce	20	2	–
4437.570	Ni I	10	–	–
4437.549	He I	–	[10]	IMr
4437.451	Pr	2	–	–
4437.434	Mo	4	4	–
4437.40	Tm	10	10	Me
4437.348	Yt I	4	–	–
4437 288	Ce	2	–	–
4437 283	Pt I	25	2 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4437.27	Au I	50	10	–
4437.217	Cb	40	50	–
4437.151	Mo	8	6	–
4437.088	Os	12	–	–
4437.075	Ce	2	–	–
4437.03	Eu	3 w	–	–
4437.01	S	–	[25]	Ms
4436.981	Ni I	25	5	–
4436.941	U	5	5	–
4436.930	Fe I	15	2	–
4436.904	W	30	12	–
4436.888	Mo	20	15	–
4436.811	U	2	3	–
4436.81	Kr II	–	[600]	Me
4436.709	Cb	1	2	–
4436.67	Eu	2 w	–	Kn
4436.653	Mo	4	3	–
4436.653	Ti I	3	1	–
4436.65	Dy	4	2	Kn
4436.627	Re	6	–	–
4436.592	Ti I	15	7	–
4436.592	Ce	2	–	–
4436.558	Th	10	5	–
4436.48	Mg II	5	–	Fl
4436.454	Pr	2	–	–
4436.352	Mn	80	50	–
4436.348	Er	2	–	–
4436.317	Os	80	3	–
4436.288	Th	8	4	–
4436.27	Ra II	–	[200]	Rs
4436.225	Gd	30	100	–
4436.211	Ce	6	–	–
4436.204	Co I	15	–	–
4436.138	V I	25 h	15 h	–
4436.11	Tb	15	–	–
4436.103	Gd	4	–	Kn
4436.06	Cs II	–	[2]	Sv
4436.046	Th	8	4	–
4436.025	Mn	12	–	–
4435.847	La II	5	3	–
4435.840	Zr	3	–	–
4435.78	Dy	4	–	Kn
4435.76	Br	–	[4]	Bl
4435.742	W	10	4	–
4435.730	Pr	15 w	–	–
4435.708	Cs I	–	[20]	Sv
4435.688	Ca I	100	15	IWg
4435.620	Ce	5	–	–
4435.602	Eu	400 R	100	Kn
4435.592	Ir	8	–	–
4435.55	Tb	12	–	–
4435.533	U	8	6	–
4435.53	Eu	2000	–	Kn
4435.475	Ce	2	–	–
4435.44	W	6	–	–
4435.252	Pr	5	–	–
4435.152	Fe I	70	3	–
4435.095	Nd	15	4	–
4435.094	Ne I	–	[5]	Ps
4435.05	Rn I	–	[200]	Rs
4435.02	Dy	2	–	Ed
4435 00	Tb	4	–	–
4434.96	Te	–	[70]	Bl
4434.960	Ca I	150	25	IWg
4434.958	Ir	3	–	–
4434.953	Mo	80	80	–
4434.953	Th	4	–	–
4434 952	Ce	8	–	–
4434.945	U	8	–	–
4434.931	Ir	3	–	Ab
4434.92	Se II	–	[40]	Bl
4434.852	Pr	25	3 w	–
4434.803	Eu II	20 w	2	–
4434 600	V I	20	12	–
4434.52	Hf	6 h	–	Me
4434.48	Tb	20	–	–
4434.474	Ir	5	–	–
4434.372	Ce	3	–	–
4434.321	Sm II	200	200	–
4434.233	I	–	[20]	Ke
4434.23	Mo	–	6 h	Ex
4434.06	Tb	2	–	–
4434.05	W	3	–	–
4434.001	Ti I	100	50	–
4433.991	Mg II	8	–	Fl
4433 968	Cr	10	1	–
4433.908	Ir	10	–	–
4433 889	U	15	12	–
4433 884	Sm II	200	200	–
4433.83	A II	–	[20]	Rt
4433.786	Fe I	30	2	–
4433.74	Se II	–	[25]	Bl
4433.725	Ce	12	1	–
4433.721	Ne I	–	[70]	IMe
4433.683	Mn	12	–	–
4433.65	Tb	4	–	–
4433.642	W	3	–	–
4433.638	Gd	20	12	–
4433.576	Ti I	15	2	–
4433.501	Mo	4	125	–
4433.48	N	–	[5 h]	Fl
4433.398	Ne I	–	[10]	Ps
4433.347	Sm	4	–	–
4433.320	Rh I	15	5	–
4433.235	Ce	3 h	–	–
4433.221	Fe I	150	20	–
4433.22	Eu	6 w	1	–
4433.071	Sm	9	2	–
4433.0	bh La	15	–	Me
4432.978	Ta	5	2	–
4432.971	Th	25	15	–
4432.949	La II	25	5	–
4432.93	Hf	6 h	4 h	–
4432.917	Ce	5	–	–
4432.880	Mo	5	3	–
4432.840	Re	2	–	–
4432.82	Al II	–	[4]	Sy
4432.78	Dy	2	–	Ed
4432.720	Ce	8	1	–
4432.715	Tb	12	–	m
4432.71	N II	–	[30 h]	Fl
4432.602	Ti	18	2	–
4432.573	Fe	5	1	–
4432.526	Ne I	–	[20]	Ps
4432.412	Os	30	1	–
4432.41	S II	–	[50]	Hn
4432.336	Pr	80	10 w	–
4432.33	Se II	–	[60]	Bl
4432.293	Nd	12	2	–
4432.279	Ce	4	–	–
4432.262	Th	8	–	–
4432.26	Ne II	–	[5]	Bl
4432.224	Er	4 l	–	–
4432.218	Nd	2	–	–
4432.192	W	8	1	–
4432.175	Cr	30	15	–
4432.160	Tb	3	–	m
4432.089	Ti II	2	1	–
4431.922	Mn	8	–	–
4431.904	Ir	2	–	–
4431.898	Ba	60	30	–
4431.890	Pr	40	5 w	–
4431.875	U	6	–	–
4431 872	Nd	5	–	–
4431.87	Sb II	–	[5]	Lg
4431.769	Gd	60	1	Kn
4431.73	As II	–	200	Ro
4431.730	I	–	[20]	Ke
4431.725	Nd	8	–	–
4431 67	Ne II	–	[5]	Bl
4431 67	Kr II	–	[500]	Me
4431.66	U	2	1 h	–
4431.619	Co I	5	–	–
4431.559	Pr	10	–	–
4431.493	Zr I	8	1	–
4431.369	Sc II	50	3	–
4431.35	Ca	–	6	–
4431.282	Ti I	25	12	–
4431.107	Zr I	3	–	–
4431.086	Ta	4	–	–
4431.02	S II	–	[20]	Hn
4431.02	A	–	[80]	Rt
4431.00	Dy	6	4	Kn
4430.97	Br	–	[2]	Bl
4430.954	Ta	4	1	–
4430.90	Ne II	–	[50]	Bn
4430.875	Mo	5	4	–
4430.80	Eu	10 W	–	Kn
4430.737	Tb	8	–	m
4430.7	Rb	–	[20]	Dr
4430.627	Gd	150	40	–
4430.618	Fe I	200	8	S
4430.504	V I	10	5	–
4430.486	Cr	15	8	–
4430.48	Lu	30	2	Me
4430.48	Mo	–	8	Ex
4430.410	Ta	20	5	–
4430.371	Ti I	35	15	–
4430.311	Ru I	20	–	–
4430.225	Yb	12	1	–
4430.207	Fe I	10	1	–
4430.20	Pt I	4	1 h	–
4430.18	A	–	[100]	Rt
4430.147	Ce	2	–	–
4430.14	Tb	8	–	–
4430.126	Pr	5	–	–
4430.088	U	8	3	–
4430.020	Ti I	12	1	–
4429.999	Ce	8	1	–
4429 938	Cr	15	5	–
4429.904	La II	200	300	–
4429.90	Br	–	[4]	Bl
4429.896	Er	4 w	–	–
4429.80	Ho	3	1 h	Ex
4429.796	V I	30	25	–
4429.756	Eu	3	2	–
4429.644	Sm	25	15	–
4429.618	U	6	5	–
4429.60	Ne II	–	[15]	Bn
4429.445	Cb	10	10	–
4429.274	Th	5	2	–
4429.270	Ce	35	5	–
4429.238	Pr	200	125	–
4429.23	Dy	2	–	Ed
4429.111	Mo	4	4	–
4429.106	Zr I	5	–	–
4429.037	Sm	2	2	–
4428.992	Nd	5	–	–
4428.94	Gd	3	–	–
4428.928	Ir	4	–	–
4428.878	U	5	5	–
4428.85	Tm	4	5	Me
4428.7	Pb II	–	[2]	Ea
4428.576	Sb	–	5 h	–
4428.541	Th	–	2	–
4428.54	Ne II	–	[100]	Bn
4428.515	V I	25	20	–
4428.501	Cr I	25	6	–
4428.488	W	8	2	–
4428.461	Ru I	125	–	–
4428.458	Pr	3	–	–
4428.438	Ce	18	3	–
4428.379	U	4	1	–
4428 34	Tb	3	–	–
4428.225	I II	–	[35]	Ke
4428.216	Ce	2	–	–
4428.211	Mo	5	4	–
4428.2	bh La	40	–	Me
4428.15	P	–	[70]	Gu
4428.1	bh La	30	–	Me
4428.0	bh La	15	–	Me
4427.995	Mg II	7	–	Fl
4427.981	Ne I	–	[15]	Ps
4427.97	N	–	[5]	Fl
4427.953	Re	25 w	–	–
4427.918	Ce	25	4	–
4427.883	Pr	9 w	–	–
4427.791	Sm II	8	8	–
4427.755	Ne I	–	[30]	Ps
4427.725	Cr I	8	–	–
4427.71	Tb	3	–	–
4427.672	Re	3	–	–
4427.658	Th	8	5	–
4427.653	U	12	15	–
4427.605	Gd	20	15	–
4427.581	Sm II	25	25	–
4427.567	La I	30	50	–
4427.44	Yb	5	–	m
4427.391	Tb	4	–	Kn
4427.382	W	10	3	–
4427.38	As II	–	200	Ro
4427.312	V I	20	15	–
4427.312	Fe I	500	200	S
4427.25	Sb II	–	[15]	Lg
4427.243	Zr I	10	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4427.21	N II	–	[5]	Fl
4427.101	Ti I	125	60	–
4427.071	Ce	20	3	–
4426.961	Pr	2	–	–
4426.936	U	20	1	–
4426.87	Dy	4	2	Kn
4426.822	Nd	12	2	–
4426.80	Eu	10 W	–	–
4426.771	Er	12	–	–
4426.685	Cb	8	8	–
4426.676	U	18	15	–
4426.671	Mo	30	30	–
4426.508	Pr	3	–	–
4426.422	Eu	4 W	2	–
4426.35	Ra	–	[4]	Rs
4426.34	Tm	4	–	Me
4426.325	Pr	3	–	–
4426.301	Ce	4	–	–
4426.30	Tb	5	–	Ed
4426.269	Ir	400 w	10	–
4426.178	Hf II	3 h	8	–
4426.146	Gd	50	2	–
4426.139	U	3	1	–
4426.12	Se II	–	[20]	Bl
4426.103	Nd	5	–	–
4426.1	Rb	–	[30]	Dr
4426.079	Ce	4	–	–
4426.055	Ti I	80	25	–
4426.013	Ru I	10	–	–
4426.01	A	–	[300]	Rt
4426.005	V I	25 h	15 h	–
4425.99	Ca	–	2	Ad
4425.987	Th	6	4	–
4425.984	Sm II	9	7	–
4425.96	Tm	3	–	Me
4425.94	P II	–	[15]	Gu
4425.921	Ce	4	–	–
4425 914	W	15	6	–
4425.867	U	4	2	–
4425.865	Pr	2	–	–
4425.828	Ti I	10	1	–
4425.82	Dy	3	–	Ed
4425 8	bh Ca	3	–	L
4425.773	Re	3	–	–
4425.761	Ir	10	–	–
4425.712	V I	9	7	–
4425.663	Cs	–	[20]	Sv
4425.607	Ce	6	–	–
4425.498	Pr	3	–	–
4425.482	Sb	–	2 h	Sp
4425 441	Ca I	100	20	IWg
4425.412	U	8	–	–
4425.400	Ne I	–	[150]	IMe
4425.326	Ce	3 s	–	–
4425.25	Tb	2 h	–	–
4425.22	Hg II	–	[30]	Ps
4425.220	Pr	2	–	–
4425.196	U	2	5	–
4425.191	Kr I	–	[100]	I
4425.14	Br I	–	[12]	Ks
4425 129	Cr	15	1	–
4425.118	Ce	2	–	–
4425.009	Gd	8	4	–
4424.99	Sm	3	2	–
4424.965	Ta	10	3 h	–
4424.906	W	8	2	–
4424.800	Ne I	–	[300]	IMe
4424.781	Ru	25	–	–
4424.752	Ir	3	–	–
4424.657	Cb	–	5 h	–
4424.595	Pr	90	35	–
4424.570	Er	10	–	–
4424.563	V I	20	15	–
4424.540	Ce	3	–	–
4424.46	Tb	3	–	–
4424.393	Ti I	15	2	–
4424.343	Nd	50	50	–
4424.342	Sm II	300	300	–
4424.314	Ce	6	–	–
4424.281	Cr I	25	35	–
4424.197	Mo	5	3	–
4424.140	Ce	3	–	–
4424.102	Gd	25	10	–
4424.075	Cr	10	2	–
4424.047	Rh I	5	2	–
4424.046	Cs II	–	[10]	Sv
4423.994	A I	–	[80]	IMe
4423.945	Th	8 w	4 w	–
4423.933	Pr	5	1	–
4423 914	V I	7	6	–
4423 9	P II	–	[30]	Gu
4423.898	La I	5	5	–
4423.871	Cb	1	5	–
4423.86	Tb	2	–	Ed
4423.817	Re	2	–	–
4423.778	W	12	5	–
4423.759	I II	–	[80]	Ke
4423.737	U	6	8	–
4423.716	K II	–	[10]	Dm
4423 685	Pr	2	–	–
4423.678	Ce	25	3	–
4423 618	Mo	40	40	–
4423.55	P	–	[30]	Gu
4423.444	Ce	12	–	–
4423.379	Sm	9	2	–
4423 35	Eu	4 W	–	Kn
4423.32	Pr	10 w	–	–
4423.318	Cr	15	6	–
4423 31	Na I	3	–	Da
4423.291	U	6	6	–
4423.212	V I	40	25 w	–
4423 11	Tb	35	–	–
4423.1	bh La	20	–	Me
4423 057	Mo	8	6	–
4423.04	Br I	–	[4]	Ks
4423.004	Re	2	–	–
4423 000	Ni I	3	–	–
4422 984	U	12	10	–
4422 976	Ru	12	–	–
4422.96	Eu	3 w	–	Kn
4422.850	Mo	6	6	–
4422 825	Ti I	80	25	–
4422 783	Th	6	3	–
4422.74	Hf II	15	25	–
4422.70	Kr II	–	[100 hs]	Me
4422.697	Cr	10	6	–
4422 587	Yt I	60	60	–
4422 570	Fe I	300	125	S
4422 56	Ho	3	–	Ex
4422 519	Ne I	–	[300]	IMe
4422 477	V I	4	3	–
4422.47	Er	30	20	m
4422.444	W	4	–	–
4422 439	Nd	10	–	–
4422.420	Ce	3	–	–
4422.413	Gd	100	40	–
4422.236	V I	6	6	–
4422.23	Hf	12	6	–
4422.140	Ce	6	–	–
4422.092	Pr	3	–	–
4422.063	Mo	8	6	–
4422.055	Th	4	–	–
4422.02	I II	–	[15]	Ke
4421.961	Ir	20	2	–
4421.955	Ti II	6	35	–
4421.850	W	12	5	–
4421.788	Ce	3	–	–
4421.759	Ti I	60	15	–
4421.709	Er	5	–	–
4421.69	Dy	4	4	Kn
4421.68	Se	–	[20]	Bt
4421.656	Cb	1 h	10 h	–
4421.573	V I	30 h	20 h	–
4421.559	Ne I	–	[50]	Ps
4421.557	Th	8	2	–
4421.474	Ti I	10	–	–
4421.473	Ce	3	–	–
4421.456	Ru I	60	–	–
4421.38	Ne II	–	[30]	Bl
4421.345	Co I	10	–	–
4421.321	Ce	4	–	–
4421.24	Gd	100	8	–
4421.231	Pr	100	35 w	–
4421.14	Tb	2	–	–
4421.14	Te	–	[70]	Bl
4421.136	Sm II	150	150	–
4421.130	Ce	8	–	–
4421.06	As	–	10	Ro
4421.040	Pd I	6	–	–
4421.010	W	12	3	–
4420.96	Lu	15	–	Me
4420.942	Cr I	8	–	–
4420.90	A	–	[40]	Rt
4420.9	bh Sr	5	–	L
4420.841	Ru I	40	–	–
4420.8	Rb	–	[2]	Dr
4420.742	Mo	6	5	–
4420.665	Sc II	20	2	–
4420.641	U	2 h	3 h	–
4420.64	P	–	[70]	Gu
4420 64	Gd	10	–	Kn
4420.635	Cb	15	15	–
4420.63	Au II	–	4	–
4420.54	Ho	2	2	Kn
4420.534	Er	15	–	–
4420.529	Sm II	200	200	–
4420.52	Tb	4	–	–
4420.468	Os I	400 R	100	–
4420.468	W	30	10	–
4420.456	Zr I	20	1	–
4420.452	Cb	3	3	–
4420.417	Ce	3	–	–
4420.407	U	12	3	–
4420 348	Ir	10	–	–
4420.304	Pr	4	–	–
4420.20	Tb	12	–	–
4420.023	Pr	3	–	–
4419.94	Na I	3	–	Da
4419.935	V I	30	20	–
4419.927	Ce	3	–	–
4419.834	Cb	3	5	–
4419.776	Mn	100	20	–
4419.721	Mo	3	2	–
4419.675	Ce	3	–	–
4419.667	Pr	100	50	–
4419.657	Eu	3 W	2	–
4419.611	Er	25	4	–
4419.60	Ho	3	2	Ex
4419.551	Ta	10	5	–
4419.543	Fe	8	1	–
4419.444	Cb	10	20	–
4419.338	Sm	40	20	–
4419 298	Ce	18	1	–
4419.258	W	10	2	–
4419.25	Mn	8	–	–
4419.161	La II	4	6	–
4419.103	Cr	8	–	–
4419.08	U	–	2	–
4419.058	Pr	80	30	–
4419.036	Gd	200	200	–
4419.00	Th	5	3	–
4418.85	Dy	2	2	Ed
4418.812	Re	10	–	–
4418.811	W	5	1	–
4418.784	Ce	40	10	–
4418.763	Kr I	–	[50]	IHu
4418.702	Er	5	–	–
4418.669	Th	8	4	–
4418.473	U	15	–	–
4418.456	Pr	2	–	–
4418.451	W	12	4	–
4418.342	Ti II	10	20	–
4418.295	Ce	3	–	–
4418.27	Tb	3 w	–	–
4418.25	Hf	8	–	–
4418.23	Pr	4	–	–
4418.2	bh La	50	–	Me
4418.1	bh La	25	–	Me
4418.10	Sm	4	2	–
4418.09	Dy	3	2	Ed
4418.070	Ce	3	–	–
4417.99	Tb	4	–	–
4417 983	U	4	2	–
4417 915	Ce	4	–	–
4417.91	Hf	25	1	–
4417.873	Pr	10 d	–	–
4417.721	Ti II	40	80	–
4417.69	Ga	–	5	Kl
4417.583	Sm II	80	80	–
4417.58	I	–	[8]	Bl
4417.55	Tb	3	–	–
4417.442	Ti I	2 h	–	–
4417.440	Yt I	2	–	–
4417.419	U	4	5	–
4417.403	Co I	10	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4417.374	Ce	4	–	–
4417.35	Hf II	25	50	–
4417.30	P II	–	[30]	Gu
4417.29	Re	20	–	m
4417.280	Ti I	80	20	–
4417.25	Eu	60 w	–	m
4417.24	Kr II	–	[40]	Me
4417.228	Mo	5	5	–
4417.185	Pr	4	–	–
4417.14	La I, II	2 h	2 h	Me
4416.974	O II	–	[150]	Fl
4416.902	Ce	25 s	4 h	–
4416.884	Nd	20	8	–
4416.884	Kr I	–	[20]	IHu
4416.879	Cb	2 w	2 h	Me
4416.847	Th	4	–	–
4416.84	I II	–	[15]	Ke
4416.825	U	3	3	–
4416.817	Fe II	–	7	Do
4416.817	Ne I, II	–	[50]	Ps
4416.71	Eu	3 w	–	–
4416.687	V I	3	2	–
4416.66	Tb	3 d	–	–
4416.618	Ce	5	–	–
4416.586	Pr	10	1	–
4416.57	U	1	3 h	–
4416.563	Nd	15	4	–
4416.536	Ti I	70	10	–
4416.483	Co	3	–	m
4416.474	V I	15 w	7	–
4416.45	Lu	6	–	Me
4416.44	Dy	2	–	Ed
4416.400	Ce	2	–	–
4416 26	Tb	30	–	–
4416.241	Th	15	8	–
4416.07	Xe II	–	[80 whl]	Hu
4416.00	Sm	5	3	–
4415.982	Nd	12	4	–
4415.977	Pr	3	–	–
4415.97	Gd	3	–	Kn
4415.865	U	8	6	–
4415.85	Se	–	[10]	Bl
4415.825	Re	40	–	–
4415.770	Ce	5	–	–
4415.741	Ta	40	10	–
4415.710	W	10	3	–
4415.700	Cd II	1	20	–
4415.69	In	–	15 h	Sq
4415.670	Mo	2	3	–
4415.63	Gd	3	–	Kn
4415.621	Ce	5	–	–
4415.60	Cu I	40 w	–	Hs
4415.587	Pr	3	–	–
4415.578	Ti	8	–	–
4415.559	Sc II	100	25	–
4415.435	Gd	3 h	1	–
4415.40	Sb II	–	4	Dv
4415.391	Yt I	3	2	–
4415.241	U	12	12	–
4415.220	Ce	5	–	–
4415.141	Ne I	–	[5]	Ps
4415.125	Fe I	600	400	S
4415.075	W	15	6	–
4415.060	V I	7	4	–
4415.029	Gd	3	–	Kn
4414.893	Zr I	3	2	–
4414.888	O II	–	[300]	Fl
4414.881	Cb	4 w	3 w	–
4414 879	Mn	150	60	–
4414.84	Xe II	–	[150]	Hu
4414.743	U	6	3 h	–
4414.735	Gd	100	50	–
4414.7	bh La	3	–	Me
4414.647	Eu	6	2	–
4414 63	Cd	–	200	Tk
4414.60	P II	–	[70]	Gu
4414.577	Ti	2	–	–
4414.544	Zr II	4	3	–
4414.541	V I	10	5	–
4414.530	Th	4	–	–
4414.508	Ce	3 l	–	–
4414.436	Ru	10	–	–
4414.432	Nd	12	3	–
4414.403	Pr	20	4	–
4414.355	Cr I	15 h	–	–
4414.35	Mo	5	4	Ex
4414.28	P	–	[100]	Gu
4414.254	Pt I	2	1	–
4414.162	Gd	100	60	–
4414.140	Zr I	5	–	–
4414.108	Ti	10	–	–
4413.866	Cr	25	15	–
4413.86	W	5	1 h	–
4413.804	Ce	20	1	–
4413.784	Nd	5	1	–
4413.765	Pr	90	40	–
4413.74	Ca	–	3	Ad
4413.683	Ba	10	3	–
4413.678	V I	15	10	–
4413.672	Mo	6	6	–
4413.64	As II	–	50	Ro
4413.63	Tb	4	–	–
4413.561	Ne I	–	[15]	Ps
4413.51	Eu	10 w	–	–
4413.506	Re	2	–	–
4413.47	Gd	5	2	–
4413.436	La I	3	–	–
4413.378	Th	6	3	–
4413.326	Nd	10	2	–
4413.291	Ru	12	–	–
4413.249	Pr	5	–	–
4413.24	W	5	–	–
4413.20	Ne II	–	[50]	Bn
4413.190	Ce	35	2	–
4413.17	Ac	–	100	Lx
4413.16	Se	–	[20]	Bl
4413.137	U	15	4	–
4413.042	Cd I	3	2	–
4413.040	Zr I	12	–	–
4413.017	W	10	2	–
4412.993	Cr	5	–	–
4412.897	Th	8	5	–
4412.871	U	4	2 h	–
4412.84	Tb	2 h	–	–
4412.80	Dy	3 h	–	Ed
4412.770	Mo	30	20	–
4412.766	Pr	3	–	–
4412.745	Th	12	8	–
4412.740	Ce	3	–	–
4412.621	Sr I	4	–	ISn
4412.54	Ne II	–	[15]	Bl
4412.533	Th	10	6	–
4412.52	Tb	3	–	–
4412.512	U	3	2	–
4412.428	Ti I	15	1	–
4412.39	Kr I	–	[6]	Me
4412.37	I II	–	[25]	Ke
4412.329	Ce	3	–	–
4412.31	Cd II	–	10	Vs
4412.30	Ca I	5	–	Cw
4412.285	Ne I	–	[20]	Ps
4412.265	Nd	40	15	–
4412.25	As	–	10	Ro
4412.250	Cr I	35	10	–
4412.225	Mo	–	25	–
4412 207	La II	2	2 h	–
4412 198	W	20	10	–
4412 155	Pr	50	15	–
4412.139	V I	25	20	–
4412 03	Eu	6 w	–	Kn
4412.017	Ce	20	2	–
4411.94	P	–	[15 h]	Gu
4411.936	Ti II	8	12	–
4411.931	Zr I	3	–	–
4411.93	Tb	3	–	Ed
4411.878	Mn	100	20	–
4411.827	Sm II	15	10	–
4411.802	Pr	4	1	–
4411.78	Te	–	[50]	Bl
4411.702	Mo	25	25	–
4411.70	Tm	3	–	Me
4411.70	W	10	2	–
4411.691	Ce	8	–	–
4411.634	Th	4	2	–
4411.584	Sm	25	5	–
4411.567	Mo	10	8	–
4411.522	Cb	5	8	–
4411.52	C II	–	40	Fl
4411.51	Tb	4	–	m
4411.50	Sb	–	10 h	–
4411.401	Pt I	2	1 h	–
4411.37	Dy	3	2	Kn
4411.34	S I	–	[3]	Hn
4411.334	Pr	25	–	–
4411.204	La II	4	10 h	–
4411.20	C II	–	40	Fl
4411.176	Ir	40	2	–
4411.159	Gd	100	50	–
4411.135	Sm	10	5	Kn
4411.13	Tb	3	–	–
4411.11	Eu	2 w	–	–
4411.093	Cr I	15 d	12	–
4411.077	Ti II	7	100	–
4411.074	Yb	20 l	–	–
4411.052	Nd	50	20	–
4411.00	Dy	2	–	Ed
4410.967	Cr	10 d	2	–
4410.95	Te	–	[50]	Bl
4410.876	U	3 h	4	–
4410.855	Pr	2	–	–
4410.760	Ce	10 l	2	–
4410.714	Fe	20	–	–
4410.65	Eu	4 w	1	Kn
4410.641	Ce	12 s	3	–
4410.628	Pr	3	–	–
4410.537	Ir	10	–	–
4410.516	Ni I	25	4	–
4410.487	Mn	50	–	–
4410.42	Tb	2	–	–
4410.420	Th	4	2	–
4410.4	bh Pb	5	–	L
4410.369	Kr I	–	[50]	I
4410.304	Cr I	25	8	–
4410.247	Nd	10	4	–
4410.244	Pr	4	–	–
4410.213	Cb	15	30	–
4410.208	Cs	–	[20]	Sv
4410.12	U	3	1	–
4410.066	Ce	3	–	–
4410.06	C	–	30	Fl
4410.06	Tb	2	–	–
4410.026	Ru I	150	80	–
4409.950	Mo	15	15	–
4409.944	W	6	–	–
4409.683	Pr	25 w	2 w	–
4409.668	U	4	4	–
4409.64	Eu	6 W	–	–
4409.634	Zr I	3	–	–
4409.620	Ne I	–	[20]	Ps
4409.6	bh La	4	–	Me
4409.553	Cr	5	–	–
4409.520	Nd	8	2	–
4409.519	Ti II	3	10	–
4409.51	Tb	40 w	–	–
4409.443	Mo	10	12	–
4409.384	Dy	30	8	Kn
4409.36	Ho	3	1	Ex
4409.359	Er	35	2	–
4409 34	Yb	6	10	m
4409.337	Sm II	100	100	–
4409.31	I	–	[15]	Ke
4409.301	Ce	2	–	–
4409.30	Ne II	–	[150]	Bn
4409.256	Gd	10	10	–
4409.22	Ti II	2	8	–
4409.047	Ce	4	–	–
4408.962	I II	–	[250]	Ke
4408.891	Th	6	2	–
4408.89	Kr II	–	[40 hs]	Me
4408.87	U	–	2	–
4408.869	Ce	12	1	–
4408.861	Ir	4	–	–
4408.844	Pr	125	100	Kn
4408.819	Nd	15	5	–
4408.81	Hf	8	–	–
4408.79	Tb	3	–	–
4408.768	Ce	4	–	–
4408.710	W	8	4	–
4408.511	V I	30 h	20 R	–
4408.419	Fe I	125	60	S
4408.341	Ce	3	–	–
4408.280	W	25	12	–
4408.261	Gd	100	150	–
4408.204	V I	30	–	–
4408.163	Pr	10	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4408.085	Mn	60	5	–
4408.05	Dy	3	4	Kn
4407.958	U	12	12	–
4407.91	Be I	20	[35]	Ps
4407.822	Ce	3	–	–
4407.716	Fe I	100	50	–
4407.678	Ti II	2	10	–
4407.637	V I	15 h	9 R	–
4407.62	Br	–	[12]	Bl
4407.54	Dy	2	–	Ed
4407.521	Sm II	10	7	Kn
4407.444	Mo	–	30	–
4407.278	Ce	40	3	–
4407.19	Gd	3	–	Kn
4407.083	Eu	12 W	–	–
4407.072	Nd	15	8	–
4406.88	Xe II	–	[100 whl]	Hu
4406.866	Mo	8	10	–
4406.85	Sr	50 h	–	–
4406.845	Ba	20	[3]	–
4406.782	Eu	15 w	–	–
4406.759	Ir	25	2	–
4406.75	Tb	3	–	–
4406.690	W	6	1	–
4406.672	Gd	70	200	–
4406.666	Cr	5	–	–
4406.665	Pr	25	8	–
4406.641	V I	40	30	–
4406.58	Se II	–	[70]	Bt
4406.546	Pd I	30	2	–
4406.543	Cb	3	5	–
4406.530	Nd	5	–	–
4406.529	U	4	8	–
4406.404	Re	60	–	–
4406.396	W	7	1	–
4406.38	Tb	2 h	–	–
4406.33	Ca	–	8	Ad
4406 273	Cr I	10	–	–
4406.147	V I	20 W	15 W	–
4406.12	Sr I	3	–	Sd
4406.004	Ce	2 h	–	–
4405.99	W	3	7	–
4405.952	U	4	8	–
4405.906	Nd	8	2	–
4405.849	Pr	100	100	–
4405.732	U	6	2	–
4405.685	Ti I	20	6	–
4405.645	Sm II	8	8	–
4405.58	Dy	3	2	Ed
4405 501	Ir	3	–	–
4405.49	Te	–	[15]	Bl
4405.469	Ce	18	2	–
4405.41	Tb	15	–	–
4405.303	Ce	4	–	–
4405.271	Eu	15 W	–	–
4405.253	Cs II	–	[35]	Sv
4405.23	Ba II	–	[20]	Rs
4405.153	Ce	2	–	–
4405.145	Pr	25	20	–
4405.027	Mo	5	4	–
4405.011	V I	12	6	–
4404.948	Co I	5	–	–
4404.91	U	–	2	–
4404.91	A	–	[2]	Rt
4404 904	Ti I	15	10	–
4404.9	bh La	3	–	Me
4404.86	Hg II	–	[50]	Ps
4404.86	Lu	5	–	Me
4404.819	Yt I	2	–	–
4404.771	Ce	2	–	–
4404.752	Fe I	1000	700	S
4404.707	Pr	25 w	4	Kn
4404.574	Ce	3	–	–
4404.56	I	–	[8]	Bl
4404.546	Mo	15	8	–
4404.53	As II	–	15	Ro
4404.46	W	3	1	–
4404.43	Tb	3	–	–
4404.396	Ti I	12	7	–
4404.382	Ce	2	–	–
4404.33	Kr II	–	[30 h]	Me
4404.275	Ti I	50	30	–
4404.250	Ce	4	–	–
4404.213	Os	18	1	–
4404.18	Mo	1	15 h	Ex
4404.045	U	2 h	1 h	–
4403.951	W	20	9	–
4403.9	bh Ca	6	–	L
4403.854	Cs	–	[20]	Sv
4403.784	Ir	300	10	–
4403.767	Nd	5	–	–
4403.72	Ta	–	8	–
4403.678	Re	12	–	–
4403.668	V I	20	15	–
4403.605	Pr	100	40	–
4403.56	Dy	3	–	Ed
4403.555	Ce	6	–	–
4403.55	I	–	[20]	Ke
4403.498	Cr	15 d	25	–
4403.372	Cr	15 d	6	–
4403.364	Sm II	50	50	–
4403.344	Zr II	5	3	–
4403.34	Mo	–	20	Ex
4403.295	Ce	8	1	–
4403.282	Pr	25	10	–
4403.271	W	9	2	–
4403.27	Ho	3	1 h	Kn
4403.231	Gd	3	–	–
4403.19	Tb	20	–	–
4403.165	Eu	8 W	2	–
4403.136	Gd	100	100	–
4403.118	Sm	25	10	–
4403.053	Ce	6	–	–
4403.049	Sm II	15	10	–
4403.03	Cl I	–	[12]	Ks
4403.02	La I, II	4	2	Me
4402.953	Zr I	8	–	–
4402.95	B	–	2	Sy
4402.929	Th	4	2	–
4402.900	Mo	20	20	–
4402.89	Eu	2	1	–
4402.86	S II	–	[3]	Hn
4402.78	W	4	–	–
4402.736	Os	50	3	–
4402.676	Co I	5 h	–	–
4402.649	La I	5	–	–
4402.605	Re	30	–	–
4402.580	Pr	4	–	–
4402.551	Ba	80	10	–
4402.52	Cl I	–	[2]	Ks
4402.498	Ta	100	20 h	–
4402.491	Mo	15	15	–
4402.470	Nd	10	1	–
4402.437	U	8	8	–
4402 412	Ce	2	–	–
4402.374	Ne I	–	[2]	Ps
4402.303	U	6	6	–
4402.30	Yb	6	20	m
4402.158	Pr	2	–	–
4402.06	Hg	–	[50]	Ps
4402.054	Cb	1	8	–
4402.005	Ce	4	–	–
4401.986	Th	3	1	–
4401.89	Te	–	[100]	Bl
4401.853	Gd	200	100	–
4401.848	Er	12	–	–
4401.669	Th	3	3	–
4401.547	Ni I	1000 W	30	–
4401.54	Tb	20	–	–
4401.515	Ce	5	–	–
4401.450	Fe I	7	2	–
4401.4	Rb	–	[30]	Dr
4401.300	Fe I	60	15	–
4401.246	Ir	12	–	–
4401.24	Ho	3	3	Ex
4401.172	Cb	–	10	–
4401.166	Sm	50	30	–
4401.151	Ce	2	–	–
4401.145	Yt I	3	–	–
4401.02	Se II	–	[100]	Bl
4401.02	A	–	[40]	Rt
4400.99	P	–	[50]	Gu
4400.89	Pb	–	10	Sx
4400 873	Ce	10	2	–
4400.87	Kr II	–	[100 hl]	Me
4400.870	Ni I	15	3	–
4400.86	W	5	–	–
4400.838	Pr	3	–	–
4400.831	Cb	2	3	–
4400.828	Nd	50	20	–
4400.764	Gd	15	8	–
4400.658	Mo	3	3	–
4400.582	Ti I	25	2	–
4400.579	Os	18	1	–
4400.575	V I	60	40	–
4400.543	Ce	10	2	–
4400 527	U	1	2	–
4400.51	Tb	2	–	–
4400.387	Th	6	3	–
4400.355	Sc II	150	30	–
4400.354	Cb	5	10	–
4400.351	Fe	20	1	–
4400 254	Pr	25	10	–
4400 240	Zr I	8	–	–
4400 214	W	12	6	–
4400 19	Sm	2	2	–
4400.183	Gd	10	5	–
4400.148	Ce	6	–	–
4400.1	bh La	4	–	Me
4400 10	Dy	4	2	Kn
4400.10	Tb	3	–	–
4400.09	A	–	[30]	Rt
4400.028	Pr	30	20	–
4400.0	bh La	2	–	Me
4399.9670	Kr I	–	[200]	S
4399.94	Se II	–	[12]	Bl
4399.865	Sm II	20	15	–
4399.84	Re	12 w	–	m
4399.823	Cr I	20	3	–
4399.771	Ti II	40	100	–
4399.73	Dy	3	–	Kn
4399.72	Br I	–	[10]	Ks
4399.64	Ca	–	10	Ad
4399.631	U	15	6	–
4399.607	Ni I	10	5	–
4399.6	bh Sr	6	–	L
4399.60	Eu	2 w	–	Kn
4399.587	Ru I	20	–	–
4399.579	Nd	10	3	–
4399.541	Ce	4	–	–
4399.495	Cs	–	[20]	Sv
4399.472	Ir	400	100	–
4399.444	Zr II	3	–	–
4399.417	V I	7	4	–
4399.39	Kr	–	[15 hs]	Me
4399.38	Th	3	1	–
4399.326	Pr	40	20	–
4399.313	Eu	12 w	1	–
4399.22	Mo	4	4	Ex
4399.203	Ce	35	6	–
4399.18	Tb	4	–	–
4399.17	Se II	–	[15]	Bl
4399.14	Cl II	–	[15]	Ks
4399.096	Th	8	8	–
4399.086	I	–	[20]	Ke
4398.95	Yb	5	1	Me
4398.787	Ce	20	3	–
4398.625	Ni I	2	3	–
4398.62	Hg II	–	[300]	Ps
4398.61	Tb	2	–	–
4398.592	I	–	[8]	Ke
4398.542	Ce	4	–	–
4398.491	Mo	6	12	–
4398.45	Te	–	[70]	Bl
4398.449	Ta	40	10	–
4398.314	Ti II	3	10	–
4398 27	W	5	1 h	–
4398.265	Pr	25	9	–
4398.252	Ce	2	–	–
4398.136	Ne I	–	[5]	Ps
4398.05	Ho	4	–	Ex
4398.030	Nd	15	5	–
4398.011	Yt II	150	100	–
4397.994	Cs	–	[10]	Sv
4397.975	Ce	2	–	–
4397.95	Eu	6 w	–	–
4397.94	Ne II	–	[100]	Bl
4397.919	Th	10	8	–
4397.857	Ce	6	–	–
4397.797	Ru I	150	–	–
4397.79	Yt I	2	–	m
4397.71	Eu	6	2	–
4397.679	Ce	4	–	–
4397.670	Nd	8	2	–
4397.517	Gd	100	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4397.346	Sm	20	5	–
4397.312	Nd	15	2	–
4397.31	Lu	7	–	Me
4397 292	V	8	6	–
4397.292	Mo	30	30	–
4397 277	Ce	5	–	–
4397.263	Os	18	3	–
4397.251	Cr I	25	5	–
4397.197	Pr	2	–	–
4397.191	Ce	3	–	–
4397.15	Hf	–	3 h	Me
4397.121	Pr	2	–	Kn
4397.04	La I	3	–	Kn
4397.038	Cb	2	3	–
4396.909	Cs II	–	[15]	Sv
4396.872	Pr	12	2	–
4396.850	Mo	5	6	–
4396.79	Re	25	–	m
4396.79	La I	4	2 h	Kn
4396.759	Sm	5	3	–
4396.75	Br	–	[4]	Bl
4396.686	Ru	7	–	–
4396.661	Mo	25	25	–
4396.582	Ce	20	1 h	–
4396.55	Tb	10	–	–
4396.50	Yb	2	2	m
4396.49	Tm	8	–	Me
4396.479	Th	10	8	–
4396.437	Ce	2	–	–
4396.40	Br II	–	[20]	Bl
4396.370	Nd	2	–	Kn
4396.369	Mo	4	4	–
4396.32	Ag	100	–	Kp
4396 318	La	4	–	–
4396.191	Ce	5	–	–
4396.16	Lu	2	–	Me
4396.117	Pr	80	50	–
4396.087	Re	20 w	–	–
4396.05	Dy	4	2	Ed
4396.03	Tb	2	–	–
4396.028	Ce	8	2	–
4396.00	Te	–	[100]	Bl
4395.96	Tm	5	–	Me
4395.95	O II	–	[80]	Fl
4395.930	Ag	10	30	–
4395.879	Co I	4 wh	2	–
4395.842	Ti II	10	30	–
4395.788	Pr	30	2 w	–
4395 77	Xe	–	[200 whl]	Hu
4395.75	U	1	2	–
4395.725	Ce	6	–	–
4395.7	bh La	6	–	Me
4395.6	bh La	3	–	Me
4395.556	Ne I	–	[50]	IMe
4395.500	Nd	12	4	–
4395.417	Cr	15	1	–
4395.29	Au II	5	2	–
4395.286	Fe I	80	–	–
4395.228	V I	60 R	40 R	–
4395.207	Zr I	10	–	–
4395.081	W	6	2	–
4395.051	Ce	5	–	m
4395.035	Ti II	50	150	–
4395 01	Hf	8 h	–	–
4395.005	Pr	25	15	–
4394.98	Dy	25	4	Kn
4394.959	Ru	15	–	–
4394.95	Br	–	[12]	Ks
4394.941	Zr I	8	–	–
4394.93	Tb	15 d	–	–
4394.899	Th	10	8	–
4394.858	Os	150	6	–
4394.855	Ti I	8	–	–
4394.807	V I	5	5	–
4394.779	Ce	30	3	–
4394.773	Ne I	–	[15]	Ps
4394.746	Pr	9	2	–
4394.73	Gd	10	–	–
4394.677	Yt I	2	–	–
4394.65	A II	–	[2 h]	Rt
4394.64	U	2	1	–
4394.55	I	–	[8]	Bl
4394.514	W	7	1	–
4394.497	Zr I	5	–	–
4394.471	Mo	8	8	–
4394.42	Tm	30	–	Me
4394.413	Er	3	–	–
4394 384	Re	100 r	–	–
4394.370	Ne I	–	[15]	Ps
4394.322	Mo	20	15	–
4394.286	Ce	4	–	–
4394 195	Nd	15	5	–
4394.083	W	20	9	–
4394.065	Ti II	5	15	–
4394.043	Pr	8	–	–
4394.02	Tb	9	–	–
4394.013	Yt I	3	–	–
4394.00	Ca	–	2	Ad
4393 925	Ti I	60	12	–
4393.904	Ce	3	–	–
4393.835	V I	15	10	–
4393.76	Th	3	1	–
4393.75	Yb	25 hl	–	–
4393.709	Mo	8 h	5 h	–
4393.588	U	40	6	–
4393.56	Br	–	[25]	Bl
4393.552	Ce	5	–	–
4393.534	Cr	5	–	–
4393.505	La	4	2	–
4393.492	Pr	8	2	–
4393.45	Na I	20	–	Da
4393.37	Mn	8	5 h	–
4393.360	Sm	20	6	–
4393.348	Nd	15	2	–
4393.28	Dy	2 h	–	Kn
4393.24	Mg	–	2	–
4393.20	Xe II	–	[200 wh]	Hu
4393.192	Ce	35	3	–
4393.177	Sm	1	2	–
4393.168	Ca	5	2	–
4393 088	V I	12	9	–
4393.057	Th	3	3	–
4393.045	Pr	3	–	–
4392.95	Tb	4	–	–
4392.83	Yb	3	20	–
4392.76	As II	–	5	Ro
4392.713	Pr	2	–	–
4392.691	Cb	5	10	–
4392.69	Hf	2	–	Me
4392.676	Ce	4	–	–
4392.605	Sm II	10 h	6	–
4392.591	Ir	100	4	–
4392.506	U	6	2	–
4392.486	Re	100	–	–
4392.442	Pr	2	–	–
4392.432	Ce	3	–	–
4392 34	Tb	3	–	–
4392.23	Tb	3	–	Kn
4392.211	U	3	6	–
4392.17	Re	5	–	m
4392.167	Ce	2	–	–
4392.123	Mo	15	15	–
4392 117	Nd	10	4	–
4392 079	Pr	5	–	–
4392.074	V I	25	15	–
4392.071	Gd	100	100	–
4392 07	Sm	–	2	–
4392.028	Ce	2	–	–
4392 00	I	–	[8]	Bl
4391.988	Pr	30 w	5 w	–
4391.94	Ne II	–	[150]	Bl
4391.893	Ce	2	–	–
4391.884	Co I	10	3	–
4391.848	U	3 h	1	–
4391.84	S II	–	[30]	Hn
4391.826	Pt I	50	3	–
4391.753	Cr I	50	35	–
4391.675	V I	8	6	–
4391.661	Ce	40	15	–
4391.657	Er	5	–	–
4391.652	Gd	3	–	Kn
4391.61	Br I	–	[25]	Ks
4391.6	bh La	8	–	Me
4391.571	Co I	10 wh	4	–
4391.535	Mo	15	15	–
4391.514	Pr	20	4	–
4391.5	bh La	4	–	Me
4391.496	U	5	4	–
4391.440	Gd	15	25	–
4391.369	Eu	8 w	–	–
4391.337	Ce	3	–	–
4391.33	Re	60 w	–	–
4391.26	Hf	3	–	Me
4391.19	Eu	10 w	–	–
4391.114	Th	50	40	–
4391.111	Pr	10	–	–
4391.110	Nd	10	4	–
4391.080	Os	15	3	–
4391.034	Ti II	6	25	–
4391.027	Ru I	20	–	–
4390.955	Gd	100	100	–
4390.954	Fe I	100	35	S
4390.93	Mo	1	8 h	Ex
4390.91	Tb	30	–	–
4390.865	Sm II	150	150	–
4390.809	Ce	4	–	–
4390.70	Hf	3	–	–
4390.662	Nd	20	15	–
4390.608	V I	10	3	–
4390.585	Mg II	10	–	Fl
4390.550	U	2	2	–
4390 53	Ho	2	–	Kn
4390.496	Ce	5	–	–
4390.435	Ru I	150 R	80	–
4390.38	Cl I	–	[8]	Ks
4390.363	Eu	4 w	2	–
4390.34	I	–	[15 h]	Bl
4390.322	Ni I	2	–	–
4390.279	Ce	10	–	–
4390.19	Er	6	–	m
4390.159	U	1	3	–
4390.153	Ce	2	–	–
4390.145	Pr	8	1	–
4390.14	Na I	15	–	Da
4390.051	Nd	30	3	–
4389.995	Gd	30	80	–
4389.974	V I	80 R	60 R	–
4389.92	Tb	2	–	m
4389.92	Te	–	[50]	Bl
4389.885	Gd	40	40 h	–
4389.870	Ni I	5	5	–
4389.868	La I	5	–	–
4389.843	W	15	6	–
4389 81	Tb	3	–	–
4389 807	Ce	4	–	–
4389.79	Dy	3	2	Kn
4389.76	Cl I	–	[25]	Ks
4389.76	Yb	1	10	Me
4389 752	Mn	50	–	–
4389.72	Kr II	–	[20 hl]	Me
4389.597	Sc I	10	–	–
4389.570	Mo	6	6	–
4389.511	Pr	8	–	–
4389.48	In	–	5 h	Sq
4389.40	Tb	3	–	–
4389.32	Cl	–	[6]	Bl
4389 247	Fe I	35	2	–
4389 22	Eu	2 w	–	–
4389.112	Ce	5	–	–
4389.071	Eu	5	2	–
4389.04	Tb	6	–	–
4388 991	Gd	4	4	–
4388 990	Ru	12	–	–
4388.987	Sm	10	8	–
4388 90	Kr II	–	[3 hl]	Me
4388.764	Cs II	–	[10]	Sv
4388.729	Pr	10	1	–
4388.620	Pd I	8	2	–
4388 549	Ti	10	1	–
4388.513	Zr II	3	–	–
4388.51	I	–	[15 h]	Bl
4388.413	Th	8	3	–
4388.411	Fe I	125	50	–
4388.36	Er	8	1	–
4388.358	Cb	10	15	–
4388.333	Ir	8	–	–
4388.275	Mo	6	20	–
4388.25	Tb	20	–	–
4388.129	K II	–	[40]	Dm
4388.082	Mn	60	–	–
4388.075	Ti I	25	5	–
4388.007	Ce	8	3	–
4387 929	Co I	3	1	–
4387.928	He I	–	[30]	IMr
4387.897	Fe I	150	35	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4387.884	Eu	200	–	–
4387.745	Cb	3	5	–
4387.731	Yt	4	–	–
4387.678	Gd	150	–	–
4387.6	bh La	10	–	Me
4387.590	U	4	1	–
4387.577	Pr	2	–	–
4387.53	Cl I	–	[6]	Ks
4387.501	Ce	3	–	–
4387.5	bh La	5	–	Me
4387.496	Cr	15 d	15	–
4387.460	W	4	–	–
4387.444	Pr	5	1	–
4387.42	Tb	2	–	–
4387.412	Re	25 w	–	–
4387.380	Cr	10 d	2	–
4387.315	U	15	4	–
4387.299	Mo	3	2	–
4387.213	V I	15	12	–
4387.16	Gd	3	–	–
4387.101	Th	4	3	–
4387.058	Ce	5	1	–
4386.854	Ti II	8	80	–
4386.835	Ce	15	6	–
4386.82	Dy	2	–	Ed
4386.8	Bi	–	2 h	Rr
4386.772	W	10	3	–
4386.71	Tb	2	–	–
4386.700	Ce	8	3	–
4386.69	Br	–	[4]	Bl
4386 646	Pr	3	–	–
4386 58	Pb II	–	[20]	Sx
4386.54	Kr II	–	[300 hl]	Me
4386.461	Ni I	3	4	–
4386.42	Tm	200	10	Me
4386.420	Pd I	10	–	–
4386.37	Ac	–	100	Lx
4386.346	Ce	10 s	–	–
4386 272	Ru	20	–	–
4386.220	Sm	25	5	–
4386.201	Gd	4	–	–
4386.07	Tb	25	–	–
4386.068	Ta	50	15	–
4386.0	Pb II	–	[2]	Ea
4385.986	Ir	8	–	–
4385.890	Mo	12	8	–
4385.769	Xe I	–	[70]	IHu
4385 663	Nd	40	20	–
4385.66	Tb	15	–	–
4385.648	Ru I	125	50	–
4385.56	Mo	–	20	Ex
4385.548	U	1	3	–
4385.503	Ce	3	–	–
4385.481	Pr	8	1	–
4385.479	Yt I	3	–	–
4385.474	Hf II	2 h	4	–
4385.454	Re	20	–	–
4385.391	Ru I	125	40	–
4385 381	Fe II	4	10	–
4385 33	P	–	[100 l]	Gu
4385 324	Ce	4	–	–
4385 29	Dy	4	4	Kn
4385.27	Kr II	–	[50 whl]	Me
4385.238	Pr	15	5	–
4385 204	La II	8	10	–
4385.08	A I	–	[5]	Rt
4385.08	Te	–	[50]	Bl
4385.06	I	–	[8]	Ke
4385 056	Ag	–	12	–
4385.02	Tb	2	–	–
4385.00	Ne II	–	[15]	Bn
4384.977	Cr I	150	200	–
4384.94	Eu	4 w	–	–
4384.94	Ho	3	–	Kn
4384 93	Xe II	–	[30]	Hu
4384.864	Cb	2	5	–
4384.858	W	25	15	–
4384.813	Sc II	25	10	–
4384.797	Pr	40	15	–
4384.77	U	2	2	–
4384.76	Ho	3	3 h	Ex
4384.722	V I	125 R	125 R	–
4384.70	Tb	2	–	–
4384.699	Fe I	5	2	–
4384.698	Er	30	5	–
4384 643	Mg II	8	–	Fl
4384.633	Ce	3	–	–
4384.59	U	2	2	–
4384.543	Ni I	25	1	–
4384.514	Nd	5	2	–
4384.454	Ce	4	–	–
4384.428	Cs II	–	[25]	Sv
4384.30	Dy	4	2	Kn
4384.3	bh Ca	6	–	L
4384.294	Sm II	50	50	–
4384 192	Mo	8	8	–
4384.136	Pr	30 w	25 w	–
4384.08	Ne II	–	[5]	Bl
4384 06	Tb	10	–	–
4384.00	Br	–	[20]	Bl
4383 909	Xe I	–	[100]	IHu
4383 880	Ce	2	–	–
4383.79	A	–	[10]	Rt
4383.76	In	–	5 h	Sq
4383.740	Ce	4	–	–
4383.63	U	4	1	–
4383.555	Ce	8	1	–
4383.547	Fe I	1000	800	S
4383.5	bh La	15	–	Me
4383.45	La II	10	50	m
4383.4	bh La	8	–	Me
4383.360	Ru I	12	–	–
4383.30	Rn	–	[35]	Wa
4383.266	U	10	1	Hb
4383.18	Dy	3	–	Ed
4383.158	Eu I	100 W	20	–
4383.137	Gd	30	40	–
4383.067	Mn	10	–	–
4382.963	Ce	4	–	–
4382.95	B	–	4	Sy
4382.927	Ca	5	2	–
4382.87	Se II	–	[800]	Bl
4382.853	Cr I	12	2	–
4382.843	Cb	3	5	–
4382.83	U	2	–	–
4382 817	Pr	25 w	8 w	–
4382.773	Fe	10	10	–
4382.737	Nd	15	10	–
4382.733	Zr	3	–	–
4382.626	Mn	80 h	–	–
4382.5	bh C	–	–	L
4382.492	Cb	3 h	5 h	–
4382.45	Tb	25	–	–
4382.418	Pr	30	20	–
4382.413	Mo	10	20	–
4382 340	U	18	5	–
4382.168	Er	9	1	–
4382.167	Ce	40	12	–
4382.16	Hg II	–	[10]	Ps
4382.070	U	6	1	–
4382.059	Gd	40	–	–
4382.052	Eu	2	1	–
4381.942	Nd	4	–	–
4381.873	Nd	4	–	–
4381 859	Th	30	30	–
4381.853	Sc I	2	–	–
4381.775	Ce	6	2	–
4381.700	Mn	80	20	–
4381 640	Mo	150	150	–
4381.622	Pr	15	–	–
4381.52	Kr II	–	[100 h]	Me
4381.392	Th	10	5	–
4381.385	U	4	3	–
4381.359	Ir	3	–	–
4381.30	Tb	8	–	–
4381.290	Nd	10	3	–
4381.266	Ru	15	–	–
4381.26	Mn	5	–	–
4381.249	Sm	2	–	–
4381.232	Sc I	9	–	–
4381.220	Ne I	–	[30]	IMe
4381.19	Ca	–	3	Ad
4381.126	Cb	3	20	–
4381.112	Cr I	30	25	–
4381.11	Tm	5	5	Me
4381.091	Ce	4	–	–
4381.082	Pr	20 w	–	–
4380.977	Eu	2	1	–
4380.774	Ir	10	–	–
4380.705	Ce	3	–	–
4380.7	Rb	–	[20]	Dr
4380.648	Er	6	–	–
4380.640	Gd	100	125	–
4380.592	Mo	15	15	–
4380.555	La I	4	–	–
4380.554	V I	15	10	–
4380.422	Sm	25	6	–
4380.333	Ce	4	–	–
4380.316	Pr	50	20	–
4380.293	Mo	30	25	–
4380.270	U	12	6	–
4380.23	Dy	5	2	Kn
4380.167	Eu	3 w	–	–
4380.115	W	8	2	–
4380.11	Kr	–	[2]	Me
4380.071	Co I	5 wh	3	–
4380.060	Ce	30	2	–
4379.917	Rh I	60	25	–
4379.91	Cl I	–	[15]	Ks
4379.876	Nd	4	–	–
4379.841	Ce	2	–	–
4379 813	Eu	5 w	2	–
4379.782	Cr I	15	2	–
4379.78	Br	–	[6]	Ks
4379.776	Zr II	10	8	–
4379.74	A	–	[80]	Rt
4379.7	bh La	20	–	Me
4379.644	U	2	2	–
4379.64	Ho	–	2	Ex
4379.6	bh La	10	–	Me
4379.60	Tb	3 w	–	–
4379.561	Pd I	6	2 h	–
4379.55	O	–	[15 h]	Fl
4379.525	Cb	2	3	–
4379.52	Gd	2	–	Kn
4379.50	Ne II	–	[100]	Bn
4379 44	Xe II	–	[5 whl]	Hu
4379.41	Dy	2	–	Ed
4379.4	Bi II	25	20	Ml
4379.335	Pr	100 w	2	–
4379.324	Yt I	4	–	–
4379.26	Tb	4	–	–
4379 25	Ag	5	1	–
4379.238	V I	200 R	200 R	–
4379.167	Hf	10 h	4 h	–
4379.15	Ho	3	–	Ex
4379.111	Nd	2	1	Kn
4379.081	Ce	3	–	–
4378.97	Br	–	[4]	Bl
4378.836	Pr	3	–	–
4378.822	Ta	40	2	–
4378.818	Ce	4	–	–
4378.70	Tb	9 w	–	–
4378.635	Pr	3	–	–
4378.576	Ce	5	–	–
4378.570	Gd	40	–	–
4378.527	U	6	2	–
4378.493	W	25	12	–
4378.430	Cu II	–	2	Sh
4378.41	O II	–	[10 h]	Mh
4378.407	Ce	3	–	–
4378 342	Er	9	–	–
4378.322	Cr	5	1	–
4378.263	Pr	15	3	–
4378.230	Sm II	100	100	–
4378.20	Cu I	200 w	30 w	–
4378.127	Th	4	1	–
4378.097	La II	40	30	–
4377.956	Cb	10	30	–
4377.95	Ne II	–	[15]	Bl
4377.94	Br	–	[12]	Bl
4377.89	Sb	–	5 wh	Sp
4377.846	Pr	4	–	–
4377.765	Mo	5	200	–
4377.754	Ne I	–	[2]	Ps
4377.71	Kr	–	[40 h]	Me
4377.614	Pr	5	–	–
4377.549	Cr	25	10	–
4377.396	Nd	18	3	–
4377.34	Tb	2	–	–
4377.33	Eu	2 w	–	–
4377.27	Th	5	5	–
4377.23	Br	–	[4]	Bl
4377.150	Rb II	–	10	Rr
4377 10	Te	–	[70]	Bl

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4377.099	Nd	12	3	–
4377.046	Ce	2	–	–
4377.006	Ir	100	4	–
4376.972	Sm	3	2	–
4376.904	Os	6	–	–
4376.880	Ce	4	–	–
4376.85	Sb II	–	[3]	Lg
4376.798	Cr	20	20	–
4376.789	U	6	6	–
4376.783	Fe I	7	1	–
4376.78	C	–	10 h	En
4376.684	Mo	8	8	–
4376.609	Pr	6	–	–
4376 599	Ru	6	–	–
4376.48	Yb	10	–	–
4376.440	Nd	15	4	–
4376.43	Tb	12	–	–
4376.412	Eu	3 W	2	–
4376 194	Hg	–	[50]	St
4376.184	Rh I	3	1	–
4376 16	Eu	2	–	Kn
4376.16	I	–	[20]	Ke
4376.1220	Kr I	–	[800]	S
4376.076	Gd	8	8	–
4376.046	Sm II	4	1	–
4375.96	A	–	[20]	Rt
4375.932	Fe I	500	200	S
4375.918	Ce	40	5	–
4375.8	bh La	30	–	Me
4375.726	Pr	10	2	–
4375.7	bh La	15	–	Me
4375 687	Ce	2	–	–
4375.620	Yt I	4	–	–
4375.61	Tb	3	–	–
4375.60	B	–	2	Sy
4375 543	Co	5	–	–
4375.425	Ti I	10	1	–
4375.333	Cr	25	30	–
4375.33	Tb	6	–	–
4375.33	Dy	10	4	Kn
4375.304	V I	20	12	–
4375.174	Ce	12	–	–
4375.170	Sc I	3	–	–
4375.143	Ta	15	5	–
4375.12	Eu	4	2	–
4375.1	bh Zr	8	–	L
4375.08	In II	–	[2 h]	Ps
4375.039	Nd	30	5	–
4375.014	Mo	8	8	–
4374.997	Ne I	–	[2]	Ps
4374 986	Gd	25	–	Kn
4374.975	Sm II	200	200	–
4374.947	Mn	150	20	–
4374.935	Yt II	150	150	–
4374.925	Er	40 wh	25 wh	–
4374.925	Co I	10	3	–
4374.923	Nd	20	5	–
4374.90	Lu	5	–	Me
4374.888	Mo	8	5	–
4374.870	K II	–	[2]	Dm
4374.87	A	–	[5]	Rt
4374.83	Tb	6	–	Ed
4374.822	Ti II	7	35	–
4374.80	Rh I	1000 W	500	–
4374.80	Dy	12	4	Kn
4374.790	Th	15	10	–
4374.783	Cb	3	5	–
4374.760	Ce	3	–	–
4374.61	Ca	10	2 h	Ad
4374.455	Sc II	100	25	–
4374.43	Tb	3	–	–
4374.429	Co I	2 wh	–	Kb
4374.410	Pr	50	15	–
4374 28	C II	–	40	Fl
4374.254	Gd	20	20	–
4374.241	Er	7	–	–
4374.24	Tb	8	–	–
4374 24	Dy	12	4	Kn
4374.24	Se II	–	[40]	Kh
4374.210	Ta	15	15	–
4374.158	Cr	50	60	–
4374.131	Th	4	1	–
4374.085	Ce	3	–	–
4373.907	Th	10	5	–
4373.839	Gd	200	80	–
4373.829	Er	5	–	–
4373 827	V I	20	12	–
4373 818	Ce	40	4	–
4373 815	Pr	40	10	–
4373.78	Xe II	–	[50 whl]	Hu
4373.728	Sm II	2	2	–
4373.718	Ir	5	–	–
4373.657	Nd	2 h	–	–
4373.656	Cr	15	12	–
4373.633	Co I	15 wh	–	–
4373.59	Tb	3	–	–
4373.566	Fe I	50	3	–
4373.459	Sm II	50	50	–
4373.407	U	12	12	–
4373 321	Mo	10	12	–
4373.320	Er	2	–	–
4373 31	Se	–	[40]	Bl
4373.254	Cr I	50	50	–
4373 230	V I	25	20	–
4373 219	Ce	25	–	–
4373 20	Re	5	–	m
4373 070	Zr I	7	–	–
4373.042	Rh I	60	10	–
4373 040	In II	–	[15]	Ps
4373 018	Cs II	–	[30]	Sv
4373 00	Te	–	[50]	Bl
4372 945	Pr	3	–	–
4372.91	Cl II	–	[80]	Ks
4372 88	Xe	–	[2 hl]	Hu
4372.874	In II	–	[80]	Ps
4372 804	In II	–	[15]	Ps
4372.768	Ta	30 h	2	–
4372.757	U	18	5	–
4372.729	Nd	12	6	–
4372 720	Pr	15 h	–	–
4372.706	Ce	3	–	–
4372.645	Cb	2	20 h	–
4372.64	Tb	3	–	–
4372.572	U	15	18	–
4372.528	W	25	10	–
4372.49	C II	–	30	Fl
4372.48	Tb	4	–	–
4372.419	Sm II	3	1	–
4372 401	Ce	35	1	–
4372.385	Pr	10	–	–
4372 382	Ti I	20	6	–
4372.33	Tb	2	–	–
4372.287	Xe I	–	[20]	IMe
4372.276	Nd	12	–	–
4372.208	Ru I	125	100	–
4372.207	Eu	10 W	4	–
4372 157	Ne I	–	[30]	Ps
4372.138	Nd	2 h	–	–
4372.128	Mo	10	10	–
4372.127	Ir	40 w	–	–
4372 04	Tb	20	–	–
4372.01	Gd	3	–	Kn
4372.01	U	5	–	–
4372.00	Br	–	[8]	Bl
4372.0	bh La	40	–	Me
4371 921	Pt	–	2 h	–
4371 9	bh La	20	–	Me
4371.856	Ce	2	–	–
4371.8	Rb	–	[20]	Dr
4371 796	Ne I	–	[2]	Ps
4371.760	U	18	1	–
4371.738	W	12	3	–
4371 710	Ce	2	–	–
4371.69	B	–	2	Sy
4371.621	Zr	4	–	–
4371.614	Pr	125	40 w	–
4371.59	O II	–	[10 h]	Mh
4371.59	C II	–	6	Fl
4371.571	Ce	3	–	–
4371.55	Cl I	–	[2]	Ks
4371.546	Eu	4 w	–	–
4371.53	Rn	–	[30]	Rc
4371.500	Sm II	3	1	–
4371.44	Yt	2	–	Me
4371.435	Er	5	–	–
4371.43	Ho	3	1 h	Ex
4371.4	bh C	–	–	L
4371.38	As II	–	50	Ro
4371.36	A	–	[80]	Rt
4371.33	C I	–	30	Jn
4371.33	Dy	2	–	Ed
4371.28	Ca	–	2	Ad
4371.279	Cr I	200	150	–
4371.25	Kr II	–	[20 hl]	Me
4371.218	Pr	8	2	–
4371.201	Ru	15	5	–
4371 13	Tb	2	–	–
4371.130	Co I	25 wh	–	–
4371.069	Nd	10	3	–
4371.006	Ce	2	–	–
4370.97	Hf II	30	40	–
4370.951	Zr II	10	7	–
4370.92	Tb	3	–	–
4370.875	Mn	30	–	–
4370.81	Yb	15	40	–
4370.808	W	7	1	–
4370 800	Pr	20	7	–
4370.76	A II	–	[30]	Rt
4370.756	Nd	3	–	–
4370.73	Ca	–	2	Ad
4370.661	Os	50	3	–
4370 651	Ce	12 r	–	–
4370.58	Tb	2	–	–
4370.474	Sm II	8	6	–
4370.464	Eu	60 W	2	–
4370.415	Ru I	15	–	–
4370.359	Cb	3	5	–
4370.33	Tb	3	–	Ed
4370 303	Nd	10	3	–
4370.195	Gd	40	–	–
4370.138	Mo	5	3	–
4370.109	Nd	10	2	–
4370.041	Ni I	5	–	–
4369.995	Sb	–	2	Sp
4369 96	U	6	2	–
4369.96	S	–	[3 h]	Hn
4369.919	Sm II	40	25	–
4369.866	Pr	5	–	–
4369.775	Gd	250	150	–
4369.774	Fe I	200	100	S
4369.772	Re	4	–	–
4369.77	Ne II	–	[70]	Bn
4369.7	bh La	5	–	Me
4369.69	Kr II	–	[200]	Me
4369.677	Ti I	25	5	–
4369.662	Re	2	–	–
4369.52	Cl I	–	[12]	Ks
4369 467	Eu	20 w	2	–
4369 437	Nd	5	–	–
4369.384	Er	12	–	–
4369.353	Ta	15	10	–
4369 325	Th	10	5	–
4369.28	O II	–	[50]	Fl
4369 25	Br I	–	[2]	Ks
4369 243	Ce	10	1	–
4369 20	Xe	–	[100 wh]	Hu
4369 168	Gd	50	20	–
4369.062	V I	9	5	–
4369 050	Pr	5 w	–	–
4369.047	W	5	2	–
4369.045	Mo	40	25	–
4368 939	Ti I	20	–	–
4368 910	Cr	5	–	–
4368.886	Ce	3	–	–
4368.878	Mn	50	–	–
4368 772	Mo	5	4	–
4368 77	Cs	–	[10]	Bs
4368.767	W	10	2	–
4368 632	Nd	50	15	–
4368.598	V I	15	9	–
4368.53	Gd	5	–	Kn
4368.472	U	3	–	–
4368.432	Cb	15	30	–
4368 42	Eu	8 w	2	–
4368 36	A	–	[5]	Ms
4368.327	Pr	125	90	–
4368 312	Ni I	5	–	–
4368.30	O I	–	[1000]	Ps
4368.252	Cr I	15	6	–
4368.242	U	3	3	–
4368.234	Ce	8	1	–
4368.2	bh Zr	8	–	L
4368.14	C II	–	[30 h]	En
4368.09	Te	–	[30]	Bl
4368.042	V I	12	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4368.032	Sm II	60	60	–
4367.967	Cb	2	50 h	–
4367.906	Fe I	60	70	–
4367.905	Hf II	25	20	–
4367.90	Tm	20	10	–
4367.87	A II	–	[10]	Rt
4367.66	Cs	–	[10]	Bs
4367.658	Ti II	8	25	–
4367 6	bh Sr	2	–	L
4367.582	Fe I	100	50	–
4367.582	Re	80	–	–
4367.558	Ce	6	1	–
4367 390	Cb	1	10 h	–
4367 38	Sb II	–	3	Dv
4367 313	Ce	5 s	–	–
4367 31	Tb	30	–	m
4367.233	Pr	25 w	5 w	–
4367.160	Nd	10	2	–
4367.10	As	–	5	Ro
4367.05	Xe II	–	[15 wh]	Hu
4367.001	Ce	25	4 s	–
4366.974	Th	5	3	–
4366.94	Tb	8 w	–	–
4366 906	O II	–	[100]	Fl
4366.90	V II	–	5 h	Me
4366.85	U	6	1 h	–
4366 73	Dy	8	2	Kn
4366.725	Er	8 d	–	–
4366.7	bh Ca	5	–	L
4366.693	Pr	5	–	–
4366.63	Ca	–	2	–
4366.536	Mo	25	25	–
4366.535	Ce	2	–	–
4366.52	Eu	10 W	–	–
4366.447	Zr I	25	2	–
4366.391	Nd	12 d	3 d	–
4366 38	Tb	2	–	–
4366.348	W	4	1	–
4366.315	Nd	12 d	3 d	–
4366 30	Ra	–	[4]	Rs
4366.26	Kr II	–	[6 hl]	Me
4366 217	Co I	2	5 h	–
4366 114	Ce	2	–	–
4366.11	Dy	3	4	Ed
4366.088	Pr	30 w	–	–
4366 069	W	12	4	–
4366 030	Yt I	20	–	–
4366 00	Tb	10	–	–
4365.965	W	12	4	–
4365 953	Sm	7	1	–
4365.909	Th	4	2	–
4365.9	bh B	25	–	L
4365.896	Mo	3	4	–
4365 760	Pr	5	–	–
4365 745	V I	9	6	–
4365.72	Ne II	–	[15]	Bl
4365.674	Os	60	4	–
4365 630	Ce	2	–	–
4365 62	Dy	2	–	Kn
4365.60	Br	–	[200]	Bl
4365 553	U	10	8	–
4365.520	Ce	4	–	–
4365.377	Sm	5	4	–
4365.37	Hf	8	8	–
4365.362	Cu II	–	6	Sh
4365.349	Ce	2	–	–
4365 328	Pr	6	–	–
4365.24	Mn	25	5	–
4365 225	Nd	10	2	–
4365.2	bh C	–	–	L
4365.15	Br I	–	[15]	Ks
4365.1	bh Zr	12	–	L
4365.067	U	2	2	–
4365 06	In II	–	[15]	Ps
4364 983	Pr	5	–	–
4364.940	Nd	8	2	–
4364.916	Sc	12	–	–
4364 842	Re	15	–	–
4364 838	Ta	15	8	–
4364.786	W	25	12	–
4364.773	Pr	20 w	–	–
4364.77	In II	–	[10]	Ps
4364.698	Mo	4	4	–
4364.666	La II	50	50	–
4364.658	Ce	30	6	–
4364.65	In II	–	[2]	Ps
4364.61	Kr II	–	[4 hl]	Me
4364 510	Pr	3	–	–
4364 474	Mo	8	6	–
4364.463	Pt I	3	2	–
4364.441	Ce	3 l	–	–
4364.417	U	6	4	–
4364.4	bh Zr	12	–	L
4364.28	Dy	6	8	Kn
4364.216	V I	15	10	–
4364.18	Ho	3	–	Kn
4364.163	Pr	8 d	–	–
4364.143	Nd	15	8	–
4364.142	Cr I	8	–	–
4364.14	Gd	10	–	–
4364.129	Re	15	–	–
4364.12	Ca	–	2	Ad
4364.115	Ce	5	–	–
4364.104	Ru	6	–	–
4364.06	Dy	4	–	Ed
4364.059	Sm	4 w	4 w	–
4364.038	Yt II	2	–	–
4364.02	Te	–	[400]	Bl
4364.0	Be	–	50	Sx
4363.988	Pr	10	–	–
4363.93	Ho	2	3	Kn
4363.92	Tb	2	–	–
4363.825	U	5	2	–
4363.794	A I	–	[80]	Me
4363.65	Tm	20	15	–
4363.644	Mo	5	200	–
4363.525	V I	20	12	–
4363 524	Ne I	–	[70]	IMe
4363.487	Ce	3	–	–
4363.446	Sm II	60	50	–
4363.4	bh B	40	–	L
4363.385	Ce	4	–	–
4363 359	Re	4 w	–	–
4363.30	Cl I	–	[12]	Ks
4363.30	Yb	–	2	Me
4363.275	Cs II	–	[50]	Sv
4363.25	Mn	20	5	–
4363 228	Ne I	–	[2]	Ps
4363.219	Pr	25	8	–
4363.191	U	2	–	–
4363.134	Cr	25	35	–
4363.100	Ce	3	–	–
4363.062	La II	8	3	–
4363.017	Mo	4	3	–
4363.0	bh Zr	4	–	L
4362.981	Pr	50	20	–
4362.96	K II	–	[20]	Bn
4362.929	U	6	8	–
4362.92	Dy	3	2	Ed
4362.911	Sm	60	25	–
4362.88	Ca	–	2	Ad
4362.817	Mo	3	2	–
4362.789	U	2	3	–
4362.710	Mo	5	5	–
4362.702	Ru I	6	–	–
4362.690	Ne I	–	[30]	Ps
4362.6423	Kr I	–	[500]	S
4362.513	U	3	3	–
4362.477	I II	–	[15]	Ke
4362.45	Tb	4	–	m
4362.444	Ce	4	–	–
4362.409	Sm II	2	2	–
4362.29	Dy	3	2	Ed
4362.262	U	15	18	–
4362.260	Er	4	1	–
4362.146	Pr	10 w	–	–
4362.121	Ir	25	2	–
4362.07	A II	–	[20]	Rt
4362.05	U	30	3	–
4362.033	Sm II	150	150	–
4362.023	Mo	8	5	–
4362.0	bh Zr	8	–	L
4361.99	Mo	–	20	–
4361.945	Zr	4	–	–
4361.919	Co I	2 h	–	–
4361.865	Nd	5	–	–
4361.846	Ir	4	–	–
4361.818	Pr	15	4	–
4361.815	W	20	9	–
4361.775	Th	4	3	–
4361.710	Sr I	20	–	ISn
4361.661	Ce	18	2	–
4361.659	Er	2	1	–
4361.653	Cb	2	2	–
4361.576	Eu	10 w	2	–
4361.538	W	7	12	–
4361.527	Pr	10	2	–
4361.404	Nd	10	3	–
4361.404	Mo	6	6	–
4361.402	V I	12	9	–
4361.39	Dy	6	4	Kn
4361.352	Ce	10	–	–
4361 317	Th	12	10	–
4361.276	Re	3 w	–	–
4361.27	Te	–	[50]	Bl
4361.261	Pr	20	4	–
4361.211	Ru	40	50	–
4361.156	U	3	4	–
4361.142	Ti I	10	1	–
4361.099	Mo	3	2	–
4361.067	W	10	3	–
4361.067	Sm II	30	20	–
4361.031	Co I	2	–	–
4361.025	Be II	–	[40]	Ps
4360.956	Pr	2	–	–
4360.926	Gd	200	–	–
4360.847	La I	3	–	–
4360.830	Ta	40 s	5	–
4360.829	Co I	10	2	–
4360.818	Nd	25	8	–
4360.807	Zr	25	2	–
4360.712	Sm II	100	60	–
4360.690	Be II	–	[35]	P
4360.63	Tb	4	–	–
4360.582	V I	15	12	–
4360.568	Pr	4	–	–
4360.496	La I	5	–	–
4360.493	Ti I	60	15	–
4360.49	S	–	[8]	Hn
4360.443	Ce	15	1	–
4360 375	Re	15	–	–
4360.337	Er	2	–	–
4360.32	Xe	–	[2 wh]	Hu
4360.31	In II	–	[10]	Ps
4360 282	Pd I	10 h	–	–
4360.21	Dy	5	4	–
4360.178	Ce	10	1	–
4360.16	Tb	25	–	m
4360.12	Gd	3	–	–
4360 090	W	2	4	–
4359 992	Cr	15	2	–
4359.945	Ce	2	–	–
4359.93	Tm	300	30	Me
4359.90	As	–	10	Ro
4359.854	Cb	50	50	–
4359.805	Mn	25	–	Fu
4359.795	Pr	100	40	–
4359.736	Zr II	8	8	–
4359.67	A II	–	[2]	Rt
4359.654	Sc	12	–	–
4359.644	Gd	15	–	–
4359.631	Cr I	200	150	–
4359.629	Ce	2	–	–
4359 627	Mn	15	–	–
4359.621	Mo	15	15	–
4359.585	Ni I	100	10	–
4359.580	Ir	12	–	–
4359.554	Ba	15	3	Sz
4359.473	U	2	3	–
4359.434	Co I	15	1	–
4359.376	Th	4	2	–
4359.368	Ce	2	–	–
4359.34	Tb	2 d	–	–
4359.311	Re	12	–	–
4359.244	Nd	15	3	–
4359.162	Gd	20	–	–
4359.107	Pr	70	25	Kn
4359.09	Ac	–	30	Lx
4359 077	Sc	12	–	–
4359.068	Ce	15	2	–
4359.05	Tb	2	–	–
4359.02	Cs	–	[10]	Bs
4358.832	Th	3	2	–
4358 82	Tl II	–	[5]	El
4358.816	Ne I	–	[2]	Ps

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4358.77	Tb	2	–	–
4358.742	Zr I	10	–	–
4358.74	Ho	3	–	Ex
4358.726	Yt II	60	50	–
4358.699	Nd	15	8	–
4358.688	Re I	80	–	–
4358.654	U	2	3	–
4358.654	Ta	10	–	–
4358.645	Sc I	10	–	–
4358.599	Pd I	25	–	–
4358.556	Th	4	4	–
4358.551	Mo	20 w	10 w	–
4358.505	Fe I	70	20	S
4358.50	In II	–	[2]	Ps
4358.461	Dy	25	4	–
4358.43	Tb	3	–	–
4358.42	Ca	–	5	Ad
4358.35	Hg I	3000 w	500	–
4358.336	Pt I	2	–	–
4358.333	Th	3	–	–
4358.324	Mo	–	40	–
4358.279	Ir	8	–	–
4358.27	N	–	[250]	Du
4358.172	Er	4	–	–
4358.169	Nd	50	20	–
4358.141	Os	9	1	–
4358.033	Ta	3	10 h	–
4357.980	Os	12	–	–
4357.97	Re	15	–	–
4357.92	In II	–	[2]	Ps
4357.918	Ne I	–	[5]	Ps
4357.917	La I	5	2 h	–
4357.907	Ce	12	1	–
4357.891	Sm	3	2 h	–
4357.867	Mo	6	2	–
4357.80	Gd	2	–	Kn
4357.761	Eu	7	2	–
4357.726	Yt I	10	–	–
4357.627	U	3	3	–
4357.587	Th	8	4	–
4357.574	Fe	2	3	Do
4357.572	Nd	3	–	–
4357.525	Cr	12	4	–
4357.503	Pr	25	5	–
4357.49	Tm	6	2	Me
4357.47	Tb	5	–	–
4357.452	V I	7	6	–
4357.39	Er	2	–	–
4357.335	Mo	5	15	–
4357.33	Se	–	[20]	Bl
4357.298	Ne I	–	[2]	Ps
4357.222	Nd	8	–	–
4357.173	Co I	10	–	–
4357.125	Ce	3 s	–	–
4357.091	Re	10	–	–
4356.99	Hf	10	–	–
4356.962	Ce	4	–	–
4356.93	Br II	–	[4]	Bl
4356.922	Nd	10	2	–
4356.904	Co I	3	–	–
4356.882	U	1	2	–
4356.84	Tb	60	–	–
4356.807	Al II	–	[6]	Sy
4356.793	V I	2	4	–
4356.760	Cr I	15	8	–
4356.748	Ce	10	–	–
4356.74	Ho	8	8	Ex
4356.72	Se II	–	[12]	Bt
4356.711	Al II	–	[7 wh]	Sy
4356.695	Er	12	–	–
4356.672	Pr	5	–	–
4356.65	Yb	4	–	Me
4356.626	Mn	20	5	–
4356.548	U	5	2	–
4356.327	Hf	30	4	–
4356.287	Cr	8	1	–
4356.222	Pr	3	–	–
4356.157	Ce	2	–	–
4356.13	Mn	10	–	–
4356.13	Dy	3 h	–	Kn
4356.09	Tb	20	–	–
4356.07	Mo	–	30	–
4356.018	Nd	30	15	–
4355.945	Ce	2	–	–
4355.943	V I	25	20	–
4355.911	Ni I	15	–	–
4355.842	Ir	4	–	–
4355.831	Sm	3	–	–
4355.813	Ce	2	–	–
4355.753	Pr	5	1	–
4355.741	U	10	20	–
4355.68	B	–	6	Sy
4355.632	U	6	10	–
4355.493	Nd	5	–	–
4355.478	Kr II	–	[3000]	Me
4355.431	Ce	6	–	–
4355.349	Nd	12	4	–
4355 327	Th	12	8	–
4355 308	Ti I	10	1	–
4355.21	Mo	–	20	–
4355.190	Pr	25	5	–
4355.165	W	15	9	–
4355.157	Ce	2 s	–	–
4355.15	Se II	–	[40]	Bl
4355.145	Ta	80	10 h	–
4355.097	Eu I	150	20	–
4355.096	Ca I	50	–	IWg
4355.07	Tb	2	–	–
4354.979	V I	20	15	–
4354.912	Pr	80	30	–
4354.898	W	6	2	–
4354.852	Ce	8 l	–	–
4354.804	La I	40	3	–
4354.802	Ru I	12	–	–
4354 787	Eu	100 w	2	–
4354.721	W	6	2	–
4354.692	Mo	5	5	–
4354.64	Se II	–	[2]	Bl
4354.609	Sc II	60	10	–
4354.548	U	10	8	–
4354.51	Tb	2	–	–
4354.489	Th	3	–	–
4354.464	Os	9	1	–
4354.419	Ce	6	–	–
4354.399	La II	80	100	–
4354.365	U	4	6	–
4354.35	Yt	2	–	Me
4354.23	Kr	–	[2]	Me
4354.131	Ru I	25	20	–
4354.062	Ti I	25	5	–
4354.02	Gd	20	–	Kn
4353.983	Cr	20	3	Hl
4353.90	Kr	–	[2]	Me
4353.866	Ce	5	–	–
4353.821	Co I	4	2	–
4353.798	Pr	10	2	–
4353.79	Gd	10	–	–
4353.639	Er	5	–	–
4353.633	Yt	2	–	–
4353.615	Nd	5	1	–
4353.559	Pr	5	–	–
4353.517	Eu	2	1	–
4353.513	Ce	3	–	–
4353.404	Th	8	5	–
4353.382	Ir	20	–	–
4353.370	Ce	6	2	–
4353.34	Hf	8	6 h	–
4353.331	V I	6	5	–
4353.310	Mo	25	25	–
4353.298	W	7	2	–
4353.272	Cb	3 h	5	–
4353.246	Nd	8	–	–
4353.19	Tb	50	–	–
4353.175	Pr	10	1	–
4353.17	B	–	2	Sy
4353.132	Ce	3	–	–
4353.108	W	8	4	–
4353.033	Nd	5	1	–
4353.02	As II	–	100	Ro
4352 971	Ce	2	–	–
4352.95	Yb	8 h	–	–
4352.883	Mo	5	3	–
4352.872	V I	10	6	–
4352.737	Fe I	300	150	S
4352.735	Yt I	7	–	–
4352.706	Ce I, II	40	5	–
4352.7	Pb II	–	[10]	Ea
4352.566	Hf	10	6	–
4352.562	Ir	50	2	–
4352.513	Pr	5	1	–
4352 5	Rb	–	[8]	Dr
4352.486	Nd	10	2	–
4352.438	V	5	6	–
4352.417	Re	2 w	–	–
4352.323	Yt I	5	–	–
4352.25	Sb	–	6 h	Sp
4352.25	As II	–	200	Ro
4352.241	Eu	4	2	–
4352.23	A	–	[30]	Rt
4352.22	P	–	[30]	Gu
4352.140	Sc	9	–	–
4352.096	Sm	125	100	–
4352.047	Pr	4	2	–
4351.982	Ce	2 h	–	–
4351.91	Mg I	15	2	Fl
4351.849	Pr	80	60	–
4351.812	Ce	8	–	–
4351.770	Cr I	300	300	–
4351.762	Fe II	30	30	–
4351.712	Re	2	–	–
4351.645	Er	4	–	–
4351.58	Tb	15 d	–	–
4351.571	Cb	10	20	–
4351 552	Fe I	30	5	–
4351.549	Mo	15	15	–
4351 528	Os	9	2	–
4351.5	Pb II	–	[3]	Ea
4351.388	Ce	2	3 wh	–
4351 3607	Kr I	–	[100]	S
4351.299	Ir	50	–	–
4351.295	Nd	30	10	–
4351.275	O II	–	[125]	Fl
4351.265	Eu	3 w	–	–
4351 22	Br	–	[20]	Bl
4351.2	bh Ca	5	–	L
4351.185	Nd	15	5	–
4351.179	Er	2	–	–
4351.18	Tm	20	–	–
4351.15	Hf	8	–	–
4351.051	Cr I	100	150	–
4351.02	Mo	5 h	5 h	–
4351.02	Kr II	–	[40 wh]	Me
4351.008	Pd I	5 h	–	–
4350 996	Ta	10	–	–
4350.99	Tm	5	–	–
4350 910	Pr	4	–	–
4350.834	Ti II	6	30	–
4350.834	Th	6 h	2	–
4350.822	V I	8	4	–
4350 811	Sm	3	1	–
4350.74	Tb	5	–	–
4350.733	Er	15	–	–
4350.73	Ho	40	15	Kn
4350.508	Hf II	20	40	–
4350.500	Ce	3	–	–
4350.460	Sm II	150	150	–
4350.399	Pr	70	25	–
4350 375	Ba	40	20	Sz
4350.339	Mo	50	40	–
4350 324	Ce	2	–	–
4350.203	Nd	10	5	–
4350.119	Eu	10 w	–	–
4349.968	V II	1	3	–
4349.789	Ce II	40	5	–
4349.773	Er	3	–	–
4349.74	Hf	8	3	–
4349.715	Eu	20 w	–	–
4349.698	Ru I	20	–	–
4349.672	Pr	15	–	–
4349.60	Tb	12	–	–
4349.60	Rn I	–	[5000]	Rs
4349.566	Nd	15	–	–
4349 55	Kr	–	[2]	Me
4349.485	Eu	2	2	–
4349.435	O II	–	[300]	Fl
4349.41	S	–	[4]	Bl
4349.390	Ce	3 W	6 wh	–
4349.388	U	3	5	–
4349.29	Te	–	[30]	Bl
4349.25	Eu	2 w	–	Kn
4349.224	Mo	6	4	–
4349.175	Rh I	4	2	–
4349.107	Ce	2	–	–
4349.101	Nd	10	2	–
4349.09	Dy	2	2	Ed

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4349.029	Cb	10	10	–
4348.939	Fe I	8	2	–
4348.933	Zr I	8	–	–
4348.835	Cr	4 wh	–	–
4348.790	Yt I	100	–	–
4348.68	Tb	2	–	–
4348.654	Cb	15	20	–
4348.600	Ce	4	–	–
4348.528	Sc I	10	–	–
4348.526	Nd	25	15	–
4348.342	Ce	3	–	–
4348.341	Er	10	–	–
4348.33	Tb	9	–	–
4348 3	Rb	–	[80]	Dr
4348.194	Ce II	4	–	–
4348.168	Pr	8	2 h	–
4348.126	Eu	4 w	–	–
4348.120	W II	50	40	–
4348.11	A	–	[500 h]	Rt
4348.102	Zr	4	2 h	–
4348 07	C	–	[30]	Jn
4348.06	Ca	–	3	Ad
4347.892	Zr I	40	5	–
4347.851	Fe I	5	2	–
4347.802	Al II	–	[18]	Sy
4347.801	Sm II	150	60	–
4347.79	Se II	–	[8]	Bl
4347.785	Al II	–	[20]	Sy
4347.72	Dy	5	4	Kn
4347.710	Ce	4	–	–
4347.598	Ce	4	–	–
4347.59	Hg	2 h	2 h	–
4347 520	Mn	10	–	–
4347.509	W	10	3	–
4347.504	Cr	30	1	–
4347.496	Hg I	200	50	–
4347.490	Pr	100	40	–
4347.429	O II	–	[70]	Fl
4347.424	U	2	2	–
4347.389	Ce	4	–	–
4347.372	Zr	3	–	–
4347.320	Gd	100	100	–
4347.316	Al II	–	[6]	Sy
4347.310	Cb	4 w	3	–
4347.308	Er	6	1 h	–
4347 269	Eu	5 w	–	–
4347.242	Sm II	2	2	–
4347.225	Zr I	5	–	–
4347.223	Al II	–	[8]	Sy
4347.221	Nd	5	1	–
4347.196	Th	6 w	4 w	–
4347.192	U	18	18	–
4347.076	Ce	3	–	–
4347.002	W	20	7	–
4346.996	Rb II	–	8	Rr
4346.96	Ho	3	1 h	Ex
4346.92	I I	–	[35]	Db
4346.918	Al II	–	[4]	Sy
4346 895	Mo	2	3	–
4346.892	Pr	30	2 h	–
4346 882	Nd	6	2	–
4346 866	Al II	–	[2]	Sy
4346.86	Te	–	[15]	Bl
4346.833	Cr	200	40	–
4346.66	Ho	3	–	Ex
4346.626	Gd	50	20	–
4346.610	Ti I	15	1	–
4346.582	Rb II	–	20	Rr
4346.556	Fe	50	10	–
4346.556	Ir	6	–	–
4346.517	Zr I	10	–	–
4346.48	Tm	6	–	Me
4346.479	Sm II	30	15	–
4346.476	Ru I	15	–	–
4346.459	Gd	150	60	–
4346.450	Th	4	1	–
4346.33	Dy	5	4	Ed
4346 291	W	5	2	–
4346.245	Pr	25	–	–
4346.204	Mo	15	10	–
4346.115	Cb	3	5	–
4346.111	Ti I	40	7	–
4346.036	Ne I	–	[15]	Ps
4345.961	Ce II	6	2	–
4345.904	Eu	80 W	1	–
4345.9	bh Sr	3	–	L
4345.853	Sm II	100	100	–
4345 835	W	10	3	–
4345.832	Ce	5	–	–
4345.809	Cr	15	–	–
4345.762	Ne I	–	[2]	Ps
4345.681	Mo	2	3	–
4345.570	O II	–	[125]	Fl
4345.566	Zr I	4	–	–
4345 518	Cb	2	5	Me
4345 513	Re	2	–	–
4345.503	Pr	4	5 h	–
4345.489	Nd	3	–	–
4345.479	Ne I	–	[2]	Ps
4345.466	Rh I	10	4	–
4345.457	Ce	8	3 wh	–
4345.41	Se II	–	[25]	Bl
4345.347	Cb	5	8	–
4345 285	Cb	5	8	–
4345 214	Ce	2	–	–
4345.167	A I	–	[1000]	I
4345.086	Rh I	3	1	–
4345.085	Cr	30	3	–
4345 076	Er	2	–	–
4345 05	Th	3	2	–
4345.03	Tb	2	–	–
4344.963	W	8	1	–
4344.927	Nd	6	–	–
4344.924	Ce II	6	–	–
4344 895	Pr	7	2	–
4344.835	Sb II	–	5 h	–
4344.77	B	–	4	Sy
4344 750	Ce	3	–	–
4344.74	Ca	–	2 h	–
4344 672	Pd I	5	–	–
4344 660	Mo	20	20	–
4344.655	Re	2	–	–
4344.648	Yt I	5	–	–
4344.638	W	5	1	–
4344 623	Th	5 h	1 h	–
4344.62	Dy	2	–	Ed
4344.507	Cr I	400 r	300	–
4344.5	Na I	3	–	Fo
4344.5	Bi II	–	2	Ml
4344.47	Tm	5	–	Me
4344.45	Gd	25	25	Kn
4344 334	Pr	150 w	80 w	–
4344.334	Th	12	8	–
4344.312	Ta	20	8	–
4344.305	Gd	50	–	–
4344.290	Ce	6	–	–
4344.286	Ti II	12	50	–
4344.26	Dy	4	–	Ed
4344 22	Yb	10	–	–
4344.21	Tb	6	–	–
4344.179	U	2	2	–
4343.974	Nd	2	–	–
4343.97	Mn	100	30	–
4343.954	Th	10	6	–
4343.891	Pr	10	3	–
4343.871	Ce	4	–	–
4343.86	Tb	4	–	m
4343.786	Ti I	10	1	–
4343.770	Nd	8	3	–
4343.705	Fe	12	2	–
4343.663	Pt I	3	–	–
4343.634	Hg I	20	5	–
4343.62	Cl II	–	[100]	Ks
4343.606	Th	4	4	–
4343.558	Ce	6	–	–
4343.535	W	5	–	–
4343.497	Nd	10	–	–
4343.41	Ca	–	2	–
4343.401	Zr I	3	–	–
4343.389	Pr	3	–	–
4343 29	Tb	10	–	–
4343.257	Fe	20	3	–
4343.252	Eu	20 W	–	–
4343.163	Cr I	60	12	–
4343.038	Zr I	2	–	–
4342.832	V I	50	30	–
4342.815	Cb	5	10	–
4342.810	Pr	40	5 w	–
4342.792	W	6	2	–
4342.595	Tb	25	–	–
4342.56	Xe II	–	[4 whl]	Hu
4342.521	Os	4	–	–
4342.52	W	–	10	–
4342.500	Tb	50 w	–	Kn
4342.49	Eu	4 w	–	–
4342.487	Ce	12	1	–
4342.444	Rh I	15	4	–
4342 444	Th	3	1	–
4342 42	Te	–	[15]	Bl
4342.384	Sm	2	3 h	–
4342.379	U	2	3	–
4342.273	Th	8	6	–
4342.239	Zr II	4	–	–
4342.204	V I	15	10	–
4342.191	Gd	200	200	–
4342.159	Re	3	–	–
4342.140	Ce II	10	–	–
4342.137	U	3	3	–
4342.105	I II	–	[30]	Ke
4342.071	Nd	20	6	–
4342.068	Ru I	60	40	–
4342.009	Cr	8	–	–
4342.0	bh B	25	–	L
4341.98	Lu	3	30 hl	Me
4341.964	Mo	5	4	–
4341.95	Tb	2	–	–
4341.94	O II	–	[30 h]	Mh
4341.9	Gd	2 h	–	Kn
4341.757	Nd	6	2	–
4341.752	U	–	8	–
4341.688	U	50	50	–
4341.490	Zr I	3	–	–
4341.450	Cr I	12	–	–
4341 421	Mo	25	25	–
4341.42	Ne II	–	[15]	Bl
4341.375	Ti II	12	40	–
4341.375	Pr	10	1	–
4341.33	Kr II	–	[8 whl]	Me
4341.3	Na I	3	–	Fo
4341.292	Gd	200	125	–
4341.185	Cr	8	–	–
4341.134	W	4	2	–
4341.133	Zr I	50	4	–
4341.110	Ca	5	1	–
4341.09	Dy	2	–	Ed
4341.042	Ru	7	–	–
4341.032	Th	6	6	–
4341 013	V I	60	30	–
4341.01	Tb	10	–	–
4340.918	Er	8 d	–	–
4340.888	Pr	5	–	–
4340.746	Mo	20	20	–
4340.727	La I	50	3	–
4340.704	U	1	2	–
4340.64	Ra II	–	[1000]	Rs
4340.63	Tb	40	2	–
4340.59	Bi II	–	40 h	Om
4340.59	Eu	8 w	1	Kn
4340.558	Ce	12	1	–
4340.53	Tl II	–	[20]	El
4340.47	Dy	3	–	Ed
4340.465	H I	–	[200]	m
4340.446	U	5	8	–
4340.432	Pb	10	–	Kl
4340.420	Ne I	–	[2]	Ps
4340.343	Ru	10	–	–
4340 29	O II	–	[10 h]	Mh
4340.256	Ne I	–	[2]	Ps
4340.255	Pr	4	–	–
4340 2	bh Zr	4	–	L
4340.130	Cr I	80	30	–
4340.018	Ti I	12	–	–
4339.977	K II	–	[20]	Dm
4339.938	Eu	3 w	1	–
4339.934	La	20	–	–
4339.929	Sm	8	3	–
4339.90	Tb	8	–	–
4339.823	Mo	15	15	–
4339.8	Bi II	–	[12 w]	Ml
4339.78	Ne II	–	[15]	Bn
4339.718	Cr I	150	150	–
4339.681	Re I	20	–	–
4339.68	Pr	20	2	–
4339.68	Dy	15	8	Kn
4339.637	Er	15	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4339.63	Tb	8	–	–
4339.625	Co I	50	–	–
4339.6	bh B	25	–	L
4339.59	Se I	–	[200]	Rd
4339.555	Zr II	3	1	–
4339.55	Tl II	–	[8]	El
4339 452	W	8	3	–
4339.450	Cr I	300 r	300	–
4339.353	Sm	2	2	–
4339.317	Ce	25	5	–
4339.235	Hg I	150	20	–
4339.234	Mo	15	12	–
4339.11	Yb	4	10	–
4339.066	W	6	3	–
4339.059	Ce	3	–	–
4338.997	Er	9	–	–
4338.960	Sm	10	2	–
4338.824	Mn	15	–	–
4338.799	Cr	50	8	–
4338.753	Os	9	1	–
4338.714	Mo	12	12	–
4338.697	Nd	40	15	–
4338.694	Pr	100	50	–
4338.69	He II	–	[3]	Ps
4338.678	Ru	7	–	–
4338.57	Si	–	4	Sy
4338.564	Mo	6	5	–
4338.52	I	–	[3]	Ke
4338.484	Ti I	12	1	–
4338.46	Eu	3 w	–	Kn
4338.45	Tb	100	3	–
4338.45	Dy	3	–	–
4338.412	Cr	35	4	–
4338.40	I	–	[8]	Bl
4338.309	U	3	4	–
4338.285	Pr	8	–	–
4338.279	W	10 r	3	–
4338 200	Ne I	–	[2]	Ps
4338.199	Ta	1	8	–
4338.146	Ce	2	–	–
4338 139	Mn	12	–	–
4338.121	Th	3	1	–
4338.12	I	–	[3]	Ke
4337.919	Ti II	70	125	–
4337.89	Sr I	150	50	Fl
4337.777	Ce I, II	25	10	–
4337.777	La II	6	3 h	–
4337.684	Eu	100 W	2	–
4337.664	Sr I	30 h	–	ISn
4337.64	Tb	25	2	–
4337.636	U	8	–	–
4337 623	Zr II	3 h	2	–
4337.60	Se II	–	[40]	Bl
4337.586	Ce	3	–	–
4337.566	Cr I	500	300	–
4337.561	Cb	10	30	Me
4337.515	Pr	4	–	–
4337.510	Gd	50	50	–
4337.49	Dy	5	–	Ed
4337.49	I II	–	[2]	Mu
4337.423	Mn	80	–	–
4337.408	U	12	3	–
4337 394	Th	10	10	–
4337.33	Ti II	–	2	–
4337.30	Sb II	–	2	Dv
4337.293	Ce	3	–	–
4337.283	Yt I	4	3	–
4337.281	Th	3	–	–
4337.267	Cr	8	4	–
4337.266	Ru	15	–	–
4337.232	Nd	10	–	–
4337.13	Ho	4	4	Kn
4337.10	A II	–	[30]	Rt
4337.07	Xe II	–	[15 whl]	Hu
4337.049	Fe I	400	150	S
4336.85	O II	–	[70]	Mh
4336.85	As II	–	100	Ro
4336.742	Sm	10	6	–
4336.708	Eu	8 w	–	–
4336.66	Hf II	30	60 h	–
4336.515	U	2	2	–
4336.51	A	–	[5]	Rt
4336.50	Tb	40	–	m
4336.50	Gd	5	–	Kn
4336 48	N	–	[20]	Du
4336.48	Yb	5 l	3 h	–
4336.424	Ru I	12	–	–
4336 339	In II	–	[15]	Ps
4336.26	Cl II	–	[45]	Ks
4336.255	Ce	25	6	–
4336.221	Ne I	–	[50]	Ps
4336.199	Ta	3	3	–
4336 130	Sm	100	30	–
4336.108	Zr I	6	–	–
4336.088	Ce	2	–	–
4336.020	Rh I	2	1	–
4336.01	Dy	3	–	Kn
4336.00	Cu I	2	–	–
4335.99	Tm	4	6	Me
4335.969	Pr	8	1	–
4335.88	Tb	5	–	–
4335.859	Re	10	–	–
4335.81	Xe II	–	[5]	Hu
4335.78	Rn I	–	[35]	Rs
4335 756	Th	10	10	–
4335 748	Pr	80	20	–
4335 742	U	10	1	–
4335.74	Tb	6	–	Ed
4335.57	W	2	15	–
4335.52	Se II	–	[25]	Bt
4335.487	Ce	6	–	–
4335.459	Eu	2	1	–
4335.411	Cs	–	[8]	Sv
4335.408	Ce	2	–	–
4335.357	W	10	2	–
4335.348	Sb II	–	4 wh	–
4335.337	A I	–	[800]	I
4335.313	Th	3	2	–
4335.292	Gd	10	–	–
4335.279	U	8	1	–
4335.200	Nd	4	–	–
4335.148	Hf II	8	8	–
4335.029	I	–	[10]	Ke
4335.027	Er	2	–	–
4334.964	La II	40	50	–
4334.946	U	3	1 h	–
4334.868	Ce	18	–	–
4334.835	Ti I	30	5	–
4334.811	Mo	25	25	–
4334.752	Eu	2	2	–
4334.67	Tb	12	1 h	–
4334.658	Pt I	2	–	–
4334.638	Hf II	10	20	–
4334.634	Ce	3	–	–
4334.616	Pr	40	6 w	–
4334.61	Dy	5	–	Ed
4334.538	Nd	5	1	–
4334.470	Mo	6	5	–
4334.469	U	2	3	–
4334.331	Ce	2	–	–
4334.227	Ce	3	–	–
4334.149	Sm II	200	200	–
4334.125	Ne I	–	[70]	IMe
4334.092	V I	20	12	–
4333.942	Th	5	4	–
4333.913	Pr	150	100	Kn
4333.84	S II	–	[3]	Hn
4333.749	Eu	6 w	–	–
4333.748	Er	9	–	–
4333.734	La II	800	500	–
4333.72	Dy	2	–	Ed
4333.71	Tb	4	–	–
4333.560	A I	–	[1000]	I
4333.524	U	5	4	–
4333.412	Ce	4	–	–
4333.394	Nd	5	–	–
4333.34	Kr II	–	[50 wh]	Me
4333.262	Zr II	8	5	–
4333.248	Gd	10	–	–
4333.217	Nd	3	–	–
4333.211	Mo	10	12	–
4333.148	Pr	40	10	–
4333.00	I I	–	[15]	Db
4332.92	Dy	3	–	Ed
4332.905	Ba I	20	3	–
4332.85	Eu	3 w	1	Kn
4332.823	V I	60	40	–
4332.80	Cl II	–	[9]	Ks
4332.744	Mo	6	5	–
4332.72	Lu	10	1	Me
4332.708	Ce	35 s	4	–
4332.64	Sb II	–	[3]	Lg
4332.575	Nd	6	2	–
4332.569	Cr	125	2	–
4332.55	Ho	3	1 h	Ex
4332.54	Te	–	[15]	Bl
4332.506	Mo	15	15	–
4332.504	Ru	6	–	–
4332.487	Pr	30	2	–
4332.471	Ce	3	–	–
4332.470	Nd	4	–	–
4332.403	Eu	2 w	1	–
4332.379	V I	8	7	–
4332.332	Ir	10	–	–
4332.319	Ce	2	–	–
4332.261	Re I	50	–	–
4332.132	W	15	7	–
4332.13	Tb	40	2	–
4332.11	Dy	2	–	Ed
4332.06	A	–	[80]	Rt
4332.024	K	–	[10]	Dm
4331.995	Al II	–	[2]	Sy
4331.941	Ce	6	–	–
4331.931	Th	8	4	–
4331.93	Mg II	3	–	Fl
4331.84	O II	–	[15]	Mh
4331.828	U	3	2	–
4331.758	Ce	20	2	–
4331.645	Ni I	200	12	–
4331.63	W	4	–	–
4331.551	Ir	4	–	–
4331.550	V II	1	3	–
4331.5	Rb	–	[10]	Dr
4331.472	Pr	5	1	–
4331.457	U	8	–	–
4331.443	Sm	25	4	–
4331.422	Nd	12	–	–
4331.396	Mo	12 d	15 d	–
4331.381	Gd	15	8	–
4331.376	Re	5	–	–
4331.374	Cb	10	10	–
4331.368	Er	5	–	–
4331.294	Pr	10	3	–
4331.25	A	–	[200]	Rt
4331.24	Kr II	–	[80 wh]	Me
4331.235	Co	5 h	2	–
4331.181	Nd	2	–	Kn
4331.176	Eu	80	–	–
4331.165	Ru I	15	–	–
4331.14	Dy	2	–	Ed
4330.98	Tb	7	–	–
4330.970	W	12	6	–
4330.959	Fe	5	–	–
4330.95	S	–	[3]	Hn
4330.937	Ce	6	–	–
4330.877	Nd	3	–	–
4330.83	Tb	8	–	–
4330.775	Yt I	6	–	–
4330.720	Ni I	5	–	–
4330.708	U	3	1 h	–
4330.708	Ti II	15	30	–
4330.660	W	12	6	–
4330.64	Ho	2	2	Kn
4330.616	Gd	100	–	–
4330.611	Eu	20	4	–
4330.52	Xe II	–	[500 whl]	Hu
4330.445	Ce II	50	5	–
4330.440	Pr	50	3 w	–
4330.43	Br	–	[8]	Bl
4330.35	Tb	8	–	–
4330.320	Gd	5	–	–
4330.29	W	4	1	–
4330.28	Se I, II	–	[200]	Rd
4330.273	Er	5	–	–
4330.27	Hf	15	3	Me
4330.243	Ti II	10	40	–
4330.239	Ce II	–	[20]	Sv
4330.155	Fe	10	2	–
4330.088	Mo	10	8	–
4330.04	Sn	–	7	Ar
4330.024	V I	40	30	–
4330.020	In II	–	[50]	Ps
4330.013	Sm	80	15	–
4329.97	Eu	100 w	1	–
4329.938	Ce	6	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4329.92	Tb	3	–	–
4329.902	Ir	30	2	–
4329.897	Yt	4	–	–
4329.89	Dy	4	2	Kn
4329.732	Cb	5	10	–
4329.72	Yb	5	–	–
4329.649	In II	–	[2]	Ps
4329.629	Mo	15	10	–
4329.62	Ba II	–	[10]	Rs
4329.584	Gd	100	100	–
4329.57	Ta	10	5	–
4329.561	Zr I	5	–	–
4329.56	Tb	2	–	Ed
4329.500	Th	6	6	–
4329.476	Cb	–	5	–
4329.44	Tb	4	–	–
4329.420	Mn	15	–	–
4329.415	Pr	50	20	–
4329.361	Eu	100 W	2	–
4329.335	Mo	10	10	–
4329.22	Ca	–	6 h	Ad
4329.079	Re	2	–	–
4329.016	Sm II	300	300	–
4328.99	Ho	3	–	Kn
4328.985	Pr	50	10	–
4328.955	Tb	20	2 h	–
4328.941	Gd	3	–	–
4328.90	Dy	10	2	Kn
4328.81	Er	7	1	m
4328.742	U	20	1	–
4328.72	Re	2	–	–
4328.71	Bi	–	4 h	Om
4328.70	Se I	–	[200]	Rd
4328.695	Mo	3	5	–
4328.693	Th	6	6	–
4328.68	Cu I	2	–	–
4328.677	Os	60	4	–
4328 62	O II	–	[15]	Fl
4328.602	U	2	1	–
4328.558	Ru I	6	–	–
4328.430	Cb	10	20	–
4328.421	Pr	50	15	–
4328.417	W	4	1	–
4328.202	Pr	35	4 w	–
4328.161	Nd	10	3	–
4328.144	U	2	3	–
4328.086	Pd I	2 h	–	–
4328.08	Tb	4	1 h	–
4328.02	Mo	–	30	–
4327.98	Dy	4	2	Ed
4327.932	Nd	30	15	–
4327.78	Tb	3	–	–
4327.78	Hf	4	12	Me
4327.762	Ce	3 l	–	–
4327.698	Pr	3	–	–
4327.580	Cs II	–	[10]	Ot
4327.55	Hf II	–	4	Me
4327.512	Sm II	10	6	–
4327.511	Pr	8	–	–
4327.50	Tb	5 w	–	–
4327.47	O II	–	[20]	Mh
4327.429	Ru I	7	–	–
4327.413	W	12	7	–
4327.381	Cb	10	10	–
4327.334	In II	–	[80]	Ps
4327.265	Ne I	–	[10]	Ps
4327.14	Th	15	7	–
4327.104	Gd	500 R	100	–
4327.098	Fe	100	50	–
4327.065	Pt I	80	4	–
4326.967	Ti I	12	1	–
4326.927	U	3	6	–
4326.826	Ce	15	–	–
4326.825	Ru I	20	–	–
4326.809	In II	–	[5]	Ps
4326.761	In II	–	[15]	Ps
4326.760	Fe I	10	4	–
4326.756	Mn	80	30	–
4326 743	Mo	50	50	–
4326.74	Ba II	–	[5]	Rs
4326.595	U	2	2	–
4326.48	Tb	150	4	–
4326.445	Sr I	8	–	ISn
4326.44	Eu	8 w	–	Kn
4326.426	U	2	2	–
4326.40	Yb	20 h	–	–
4326.39	Ho	2	1	Kn
4326.39	Dy	2	–	Kn
4326 355	Ti I	60	25	–
4326.335	In II	–	[5]	Ps
4326.327	Cb	30	5	–
4326.315	Cs	–	[10]	Sv
4326.291	Gd	3	–	–
4326.254	Os	30	12	–
4326.24	Hf	6 h	–	Me
4326.229	In II	–	[15]	Ps
4326.185	La I	5	–	–
4326.137	Mo	50	40	–
4326.13	Eu	4 w	–	Kn
4326.127	Sm	2	–	–
4326.019	In II	–	[10]	Ps
4325.897	U	10	10	–
4325.885	In II	–	[10]	Ps
4325.88	C II	–	10	En
4325.83	Tb	100	–	–
4325.823	Mo	25	20	Pu
4325.77	Te	–	[30]	Bl
4325.766	Nd	100	30	–
4325.765	Fe I	1000	700	S
4325.76	O II	–	[20]	Mh
4325.757	In II	–	[5]	Ps
4325.73	Ba II	–	[50]	Rs
4325.7	Li II	–	[3]	Wr
4325.690	Gd I	500 R	250	–
4325 665	Ca	–	4	–
4325 607	Ni I	70	–	–
4325.568	Gd	5	–	–
4325.53	Eu	30 w	–	Kn
4325.50	Tb	15	–	–
4325.435	Zr I	8	2	–
4325.361	Ni I	10	–	–
4325.358	Pr	20 d	2 h	–
4325 314	Ce	4	–	–
4325 28	Yb	–	10	Me
4325.256	Mo	15	20	–
4325.216	V	1	5	Me
4325 17	W	2	3	–
4325.163	Ba	15	3	–
4325 148	Sm	3	2 h	–
4325.14	Ho	–	2 h	Ex
4325.14	Dy	10	4	Kn
4325 134	Ti I	100	40	–
4325.126	Ce	2	–	–
4325 075	Cr	125	130	–
4325.052	Ru I	25	10	–
4325.010	Sc II	50	40	–
4324.802	Pr	3	–	–
4324.789	Ce	18	3	–
4324.598	Ce	10	–	–
4324.59	W	–	7	–
4324.568	Gd	8	4	–
4324.555	U	6	4	–
4324.542	Mo	5	4	–
4324.455	Sm	20	3	–
4324.343	Re	10	–	–
4324 318	Pr	3	–	–
4324.3	bh Sr	3	–	L
4324.3	Na I	10	–	Fo
4324.19	Ho	–	2	Ex
4324.10	As II	–	50	Ro
4324.091	Ce	4 h	–	–
4324 09	Tb	3	–	–
4324 074	Gd	100	–	–
4324.030	Zr I	9	–	–
4323.922	Pr	35	3 w	–
4323.902	Nd	12	6	–
4323 893	Zr I	3	–	–
4323.794	Dy	5	–	Kn
4323 79	Te	–	[30]	Bl
4323.757	U	8	10	–
4323.66	Tb	25 d	2	–
4323.612	Ba I	10	3	–
4323.609	Gd	5	–	–
4323.551	Pr	100	35	–
4323.523	Cr	100	15	–
4323 441	Ti I	20	2	–
4323 426	Ir	5	–	–
4323.401	Mn	50	–	–
4323.34	Cl I	–	[12]	Ks
4323 319	U	2	1	–
4323.279	Nd	20	15	–
4323 277	Sm II	125	100	–
4323.071	Pr	8	1	–
4322.999	Ba	15	5	–
4322.98	Kr II	–	[150 whl]	Me
4322.961	Ru	7	–	–
4322.88	Tb	12	1	–
4322.789	Ce	8	–	–
4322.765	Pr	6	1	–
4322.75	I II	–	[8]	Ke
4322.749	W	12	3	–
4322.684	Ta	5	5	–
4322.66	Ne II	–	[5]	Bl
4322.637	Er	7	–	–
4322.575	Eu	60	–	–
4322.56	Yt	3	–	m
4322.55	Dy	5	2	Kn
4322.538	Nd	5	1	–
4322.503	La II	150	150	–
4322.471	Mo	8	10	–
4322.410	Pr	10 w	–	–
4322.397	U	8	3	–
4322.353	V I	6	5	–
4322.283	Yt	3	2	–
4322.26	Ne	–	[15]	Bl
4322.24	Tb	30	2	–
4322.23	Yb	6	20	–
4322.221	Zr I	3 h	–	–
4322.195	Gd	50	25	–
4322.19	Se	–	[60]	Bl
4322.116	Ce	4	–	–
4322.071	U	3	2	–
4322 036	Pr	5	–	–
4322.020	V II	3	3	–
4322 008	Gd	6	–	–
4321.968	Mo	15	15	–
4321.96	Te	–	[30]	Bl
4321.868	Sm	3	2	–
4321.829	Nd	4	4	–
4321.82	Xe II	–	[20]	Hu
4321.81	Si	–	2	Sy
4321.800	Fe	20	4	–
4321.781	Mo	12	12	–
4321.665	Ti I	70	25	–
4321.617	Cr	70	3	–
4321.54	Ca	3	1	Ad
4321.519	Ce	4	–	–
4321.50	Tb	8	–	–
4321.492	Cb	–	30	–
4321.492	Ne I	–	[2]	Ps
4321.439	Zr I	3	–	–
4321.36	Hf II	4	10	Me
4321.329	Pr	15	2	–
4321.301	Ru I	7	–	–
4321.255	Ce	8	–	–
4321.238	Cr	70	2	–
4321.207	Eu	2 W	–	–
4321.207	Gd	40	–	–
4321.167	Zr I	10	–	–
4321.161	Mn	60	5	–
4321.108	Gd	50	20	–
4321.1	Na I	3	–	Fo
4320.958	Ti II	12	40	–
4320.84	Fe	3 h	1 h	–
4320.816	Ru I	5	–	–
4320.754	Pr	20	2	–
4320.745	Sc II	50	40	–
4320.723	Ce II	50	8	–
4320.672	Hf II	15	20	–
4320.597	Th	8	5	–
4320 592	Cr I	125	6	–
4320.580	Ru	5	–	–
4320.527	Gd	60	20	–
4320.50	W	3	1 h	–
4320.401	U	5	2	–
4320.39•	Se II	–	[100]	Bl
4320.387	Co I	2	1	–
4320.367	Pr	5	–	–
4320.28	Tb	12	–	–
4320.273	V I	6	4	–
4320.27	Sb II	–	3	Dv
4320.168	Pr	20	2 h	–
4320.156	Eu	12	1	–
4320.131	Th	12	10	–
4319.948	Nd	20	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4319.938	Er	12	–	–
4319.894	Ir	30	–	–
4319.869	Ru I	20	40	–
4319.782	U	8	8	–
4319.723	Pr	8	2 h	–
4319.717	Fe II	1	1	Do
4319.682	Ce	6	3 wh	–
4319.647	O II	–	[150]	Fl
4319.641	Cr I	100	20	–
4319.5797	Kr I	–	[1000]	S
4319.54	Ca	2 h	2	Ad
4319.530	Re I	20	–	–
4319.526	Sm	50	15	–
4319.520	U	5	4	–
4319.512	Mo	5 h	4 h	–
4319.51	Hf II	2	10 wh	Me
4319.339	Os	9	1	–
4319.336	Nd	8	2	–
4319 321	Cr	15	–	–
4319.26	Te	–	[50]	Bl
4319.13	Ca	–	3	Ad
4319.125	Ru I	6	–	–
4319.12	Sr I	50	20	Fl
4319.12	Kr II	–	[4]	Me
4319.108	Th	5	4	–
4319.087	Ce	8	–	–
4319.056	U	1	5	–
4319.053	Sr I	25 h	–	ISn
4319.048	Zr I	10	–	–
4319.003	Pr	25	8	–
4318.985	Dy	3	–	Kn
4318.935	Sm II	300	300	–
4318 92	C II	–	10	En
4318.91	Se II	–	[8]	Bl
4318.85	Tb	150	30	–
4318.834	Ne I	–	[5]	Ps
4318.809	Ta	15	5	–
4318.70	V	5	2	Me
4318.68	S II	–	[40]	Hn
4318.652	Ca I	60	20	IWg
4318.643	Ir	8	–	–
4318.639	Ti I	100	50	–
4318.636	Ce	12	1	–
4318.61	Se	–	[10]	Bl
4318.577	Re	20	–	–
4318.573	W	9	3	–
4318.5525	Kr I	–	[400]	S
4318.550	Mo	5	6	–
4318.49	Tb	8	–	–
4318.440	Pr	3	1	–
4318.433	Ru I	15	–	–
4318.39	Tm	3	–	–
4318.300	Th	6	5	–
4318.251	Mo	5	4	–
4318.139	Hf	12	6	–
4318.049	Ce	3	–	–
4318.024	U	–	3	–
4318.006	Cb	3	5	–
4317.985	Ce	12 l	–	–
4317.947	Re	2 h	–	–
4317.93	Tb	3	–	–
4317.93	Dy	2	–	Ed
4317.929	Mo	30	25	–
4317.85	K II	–	[5]	Bn
4317.836	Pr	40	5 w	–
4317.81	Kr II	–	[500 whl]	Me
4317.714	Cb	–	20	–
4317.70	N	–	[20]	Du
4317.668	Eu	20	–	–
4317.667	Re	2 h	–	–
4317.589	U	4	3	–
4317 42	C II	–	30	En
4317.4	Eu	10 w	–	Kn
4317.36	Tb	4 h	–	–
4317.333	Ce	25 s	1	–
4317.313	Zr II	10	4	–
4317.3	F II	–	[6]	Di
4317.265	Mo	5 d	5 d	–
4317.249	Nd	4 d	–	–
4317.244	U	1	3	–
4317.160	O II	–	[150]	Fl
4317.117	Re	6 w	–	–
4317.109	Ce	8	3 h	–
4317.1	bh Pb	4	–	L
4317.080	U	12	1	–
4317.045	Pr	35	10 wh	–
4316.992	Cs II	–	[2]	Ot
4316.969	Yb	20	40	–
4316.949	Rb	–	2	Rr
4316.896	Sb	–	2	Sp
4316.88	I	–	[8 h]	Bl
4316.84	P	–	[30]	Gu
4316.813	W	15	7	–
4316.801	Ti II	7	35	–
4316.80	Tb	5	–	–
4316.701	Sm	3	3	–
4316.638	Ru I	12	–	–
4316.518	Nd	5	–	–
4316.494	U	15	1 h	–
4316.481	Cb	5	15	–
4316.420	Ce	6	–	–
4316.41	Er	4	1	m
4316.366	Mo	4	4	–
4316.304	Ir	12	–	–
4316.296	Yt I	3	–	–
4316.275	Gd	40	–	–
4316.21	Se II	–	[40]	Bt
4316.176	Re	5	–	–
4316.091	Nd	10	3	–
4316.061	Gd	150	60	–
4316.057	Pr	50	8	–
4316.036	U	4	2	–
4316.008	Ne I	–	[15]	Ps
4316.008	Ce	5	–	–
4315.957	Th	5	4	–
4315.902	La II	50	3 h	–
4315.887	U	3	2 h	–
4315 86	As II	–	50	Ro
4315.799	Mo	5	6	–
4315.772	Er	4	–	–
4315.75	Tb	12	1 h	–
4315.745	Sm	3	3	–
4315.71	Re I	40 w	–	–
4315.686	Ce	10	–	–
4315.66	I	–	[8 h]	Bl
4315.523	Pr	30	8	–
4315.463	Yt	6	2 h	–
4315.406	Ce II	6	2	–
4315.386	Mo	6	4	–
4315.355	Sm II	5	5	–
4315.25	Mo	–	10	Ex
4315.17	Au II	8	10 h	–
4315.09	Au I	40	18	–
4315.087	Fe I	500	300	S
4315.07	Eu	8 w	–	Kn
4315.02	Ho	–	2 h	Ex
4314.985	Pd I	3	–	–
4314.978	Ti II	6	20	–
4314.934	Ce II	6	–	–
4314.832	V	8	3	–
4314.801	Ti I	100	20	I
4314.695	Ne I	–	[30]	Ps
4314.691	Pr	10	1	–
4314.582	Re	20	–	–
4314.517	Ta	30	5 h	–
4314.511	Nd	20	12	–
4314.480	Ce	10	1	–
4314.403	Gd	100	20	–
4314.369	Nd	15	10	–
4314.356	Pr	25	3	–
4314.348	Ti I	30	7	–
4314.32	Si	–	3	Sy
4314.32	Sb II	–	[3]	Lg
4314.302	Ru	20	–	–
4314.297	Eu	4 w	–	–
4314.289	Fe II	3	3	Do
4314.14	Tb	3	–	–
4314.084	Sc II	50	150	–
4313.972	Zr	10 r	–	–
4313.892	V I	10	8	–
4313.886	Dy	12	4	Kn
4313.884	U	15	10	–
4313.877	Cb	2	10	–
4313.871	Sm	40	10	–
4313.851	Gd	200	80	–
4313.851	Eu	10	2	–
4313.715	Sm II	15	10	–
4313.69	Tb	3	–	–
4313.689	Er	2	–	–
4313 594	Ce	10	–	–
4313.547	Mo	6	6	–
4313.50	C II	–	15	En
4313.451	Eu	5	–	–
4313.43	Tb	8	–	–
4313.416	Er	2	–	–
4313.37	W	4	2	–
4313.355	Nd	20	10	–
4313.34	I II	–	[5]	Mu
4313.316	Sm II	8	4	–
4313.314	Th	6	4	–
4313.3	bh Zr	8	–	L
4313.260	Pr	15 w	–	–
4313.24	Tb	15	1 h	–
4313 22	Ti II	–	[2]	El
4313.182	Sr I	3 h	–	ISn
4313 18	W	2	4	–
4313.148	Pr	2	–	–
4313.147	U	20	1 h	–
4313.11	N	–	[15]	Mt
4313 103	Ce II	12	1	–
4313 1	Hg I	–	[5]	Cn
4312 997	Th	8	4	–
4312 967	Mo	10	10	–
4312 870	Ti II	35	100	–
4312.859	Ce	6	–	–
4312.846	Sm	20	8	–
4312.798	Mo	15	6	–
4312.778	Cs	–	[10]	Sv
4312.74	Sr II	7	3	Sd
4312.629	U	6	4	–
4312.560	Ce	10	–	–
4312.550	Mn	100	20	–
4312.477	Ru	6	–	–
4312.469	Cr	30	1	–
4312.453	Cb	5	5	–
4312.452	Mo	–	15	–
4312.429	Dy	2	–	Kn
4312 4	C	–	[20]	Jn
4312 37	Ti II	–	[5]	El
4312.367	Yb	7	–	–
4312.355	Pr	8	1	–
4312 348	W	10	3	–
4312.344	U	–	2 h	–
4312.10	Tb	12	2	–
4312.075	Nd	5	1	–
4311.93	Dy	4	–	Kn
4311.919	Pr	10	2	–
4311.799	Th	6	1	–
4311.743	La I	15	5 h	–
4311.700	Cb	3	3	–
4311.653	Mo	2	40	–
4311.653	Ti I	25	7	–
4311.590	Ce	25	3	–
4311 57	Tb	10	1 h	–
4311.54	Pr	15	1	–
4311.498	Ir	300	10	–
4311.399	Os	150	9	–
4311.391	Cb	5	5	–
4311.305	Eu	4 W	1	–
4311.30	Tb	4	–	–
4311.265	Cb	30	100	–
4311.254	Nd	15	1	–
4311.102	Pr	50	10 w	–
4311.10	W	8	3	–
4311.074	Ag	5	25 l	–
4311.04	Ho	2	1	Kn
4311.038	Ce	2	–	–
4311.028	Eu	10	2	–
4311.023	Mo	1	30	–
4310.988	Gd	100	–	–
4310.98	Tb	12	1	–
4310 699	Ce II	30 s	3	–
4310 68	Tb	3	–	–
4310.591	Ir	150	8	–
4310.59	I	–	[8]	Ke
4310.585	Eu	7	2	–
4310.51	Xe II	–	[200 h]	Hu
4310.506	Nd	20	6	–
4310 47	A	–	[20]	Ms
4310.45	Tb	20	1	–
4310.44	Re	5	–	–
4310.435	Er	2	–	–
4310.390	Mo	15	12	–
4310.388	Ce	10	–	–
4310.386	U	8	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4310.366	Ti I	10	1	–
4310.3	Bi II	–	[8]	Ml
4310.259	W	12	3	–
4310.203	Pr	4	–	–
4310.19	Eu	4 w	–	Kn
4310.130	Ne I	–	[2]	Ps
4310.074	Co I	2	–	–
4309.994	Th	15	12	–
4309.877	W	8	2	–
4309.873	Pr	5	–	–
4309.82	Yb	10	–	–
4309.818	Zr I	8	–	–
4309.795	V I	30	20	–
4309.767	Ir	3	–	–
4309.739	Ce II	25	4	–
4309.712	Cr	12	–	–
4309.697	U	12	3	–
4309.627	Yt II	50	50	–
4309.583	Ce	8	–	–
4309.57	Lu	25	2	Me
4309.561	Cb	3	10	–
4309.560	Nd	5	2	–
4309.526	V I	7	4	–
4309.50	Re	10	–	–
4309.43	Co I	2	–	m
4309.380	Fe I	125	70	–
4309.32	Ba II	–	[80]	Rs
4309.294	Gd	20	10	–
4309.25	A II	–	[5]	Rt
4309.208	Ru	12	–	–
4309.175	U	10	1	–
4309.172	Pt	3	–	–
4309.11	A II	–	[2]	Rt
4309.108	Zr	3	–	–
4309.097	Ti I	10	1	–
4309.09	Se II	–	[25]	Bl
4309.076	K II	–	[40]	Dm
4309.06	Cl II	–	[50]	Ks
4309.039	Fe	40	20	–
4309.004	Sm II	200	150	–
4309.00	Pr	8	2	–
4308.955	W	10	4	–
4308.888	Pr	25	5	–
4308.877	Os	18	2	–
4308.831	Rh I	4	2	–
4308.78	Re	4	–	–
4308.738	Co	2	–	–
4308 691	Cb	5	10	–
4308 68	Tb	10	2	m
4308.651	Mo	6	6	–
4308.65	Ho	4	2	Ex
4308.630	Er	30	3	–
4308.623	Dy	100	12	Kn
4308.525	Bi I	4	1	–
4308.504	Ti I	20	2	–
4308.50	W	8	4	–
4308.344	Dy	7	–	Kn
4308.260	Th	3	2	–
4308.210	Gd	10	–	–
4308.182	Ir	3	–	–
4308.177	Bi I	50	12	–
4308.120	Cb	5	10	–
4308.105	Sr I	20 h	–	ISn
4307.95	Se II	–	[12]	Bl
4307.942	Cs II	–	[8]	Ot
4307.906	Fe I	1000 R	800 R	S
4307.905	Ti II	100	100	–
4307.80	Br	–	[10]	Bl
4307.799	Ir	8	–	Ab
4307.778	Nd	5	6	–
4307.76	Rn I	–	[400]	Rs
4307.741	Ca I	45	20	IWg
4307.673	Pr	30	10	–
4307.640	W	12	12	–
4307.595	Ru I	20	50	–
4307.486	Cr	35	1	–
4307.422	Co I	3	–	–
4307.42	Cl II	–	[75]	Ks
4307.316	U	3	3	–
4307.286	Ni I	4	–	–
4307.24	Pr	30	2 w	–
4307.20	Tb	12	1 h	–
4307.185	Th	5	3	–
4307.184	V I	30	20	–
4307.165	Al II	–	[20]	Sy
4306.945	Ti I	10	1	–
4306.875	W	20	15	–
4306.861	Eu	2 w	–	–
4306.82	Cd I	8	3	Ps
4306.808	Pr	4	–	–
4306.80	Tl II	–	[40]	El
4306.80	Ta	1	5 h	–
4306.782	U	40 r	4	–
4306.77	Dy	2	–	Kn
4306.743	Nd	15	10	–
4306.724	Ce	30	15	–
4306.646	Mo	4	5	–
4306 54	Cs	–	[10]	Bs
4306 535	Pr	5	1	–
4306.523	U	5	5	–
4306.49	Yb	–	3	Me
4306.381	Th	8	6	–
4306 350	Gd	200	80	–
4306 343	Er	6	–	–
4306.33	W	4	2	–
4306.299	Rb II	–	10 h	Rr
4306.284	Cb	3	5	–
4306.244	Ne I	–	[70]	Ps
4306.22	Dy	3	–	Ed
4306 214	V I	30	20	–
4306.147	Sm	2 h	2 h	–
4306 083	Pr	25	15	–
4306 002	La I	30	–	–
4305 967	Yb	15	3	–
4305 948	Ir	25	2	–
4305 916	Ti I	300	150	–
4305 812	Nd	5	2	–
4305 81	Kr	–	[3 h]	Me
4305 763	Pr	150	90	–
4305 715	Sc II	20	20	–
4305 660	Mn	50	–	–
4305 628	W	10	4	–
4305 609	Ce II	4	–	–
4305 595	Pr	3	1	Kn
4305 49	Yb	5	–	–
4305.482	Ti I	10	5	–
4305 478	V I	25	20	–
4305.467	Nd	4	2	–
4305 46	N	–	[30]	Mt
4305.455	Fe I	100	50	S
4305 453	Cr I	150	20	–
4305 447	Sr I	40	–	ISn
4305.415	Ce	4	–	–
4305.4	Bi II	–	[5]	Ml
4305 322	Re	30	–	–
4305.265	K II	–	[2]	Dm
4305.198	Ir	15	–	–
4305.184	U	2 h	3 h	–
4305 141	Ce	20	5	–
4305.00	Ra I	–	[10]	Rs
4304.944	Sm II	100	100	–
4304.94	W	3	–	–
4304.937	K II	–	[40]	Dm
4304.916	Mo	15	15	–
4304.897	Gd	100	100	–
4304.784	Re	5	–	–
4304.721	Ce II	10	2 h	–
4304.687	Cb	3	5	–
4304.680	Zr I	15	–	–
4304.651	Pr	4	1	–
4304.58	Dy	3	–	Ed
4304.551	Mo	4	5	–
4304.471	U	8	6	–
4304.444	Nd	20	12	–
4304.411	Re I	5 w	–	–
4304.407	Hf	6	2	–
4304.28	Tb	4	–	–
4304.278	Ce	15	2 h	–
4304.15	Si	–	2	Sy
4304.137	U	15 r	1	–
4304.13	Se II	–	[10]	Bl
4304.117	La II	3	2	–
4304.07	Cl II	–	[40]	Ks
4304.02	Tb	12	–	–
4304.020	Mo	12	10	–
4304.0	C	–	[10]	Jn
4303.961	Ti	8	–	–
4303.955	Ne I	–	[5]	Ps
4303.891	Mo	–	10	–
4303.881	Cb	3	10	–
4303 813	Er	12	–	–
4303.78	O II	–	[60 h]	Mh
4303.60	Dy	3	–	Ed
4303.596	Hf	10	6	–
4303.594	Pr	100	60	–
4303.573	Nd	100	40	–
4303.54	Ta	1	15	–
4303.533	W	4	–	–
4303.527	V	15	7	–
4303.456	Gd	6	6	–
4303 328	W	–	15	–
4303.325	U	6	6	–
4303.248	Ne I	–	[30]	Ps
4303.236	Co I	15	2	–
4303.168	Fe II	12	15	–
4303.139	Pr	20	5	–
4303 03	Dy	8	–	Ed
4302.979	Ti I	10	–	–
4302.978	Ta	125 W	40 W	–
4302.94	Tb	10 d	–	–
4302.906	Cb	2	10 h	–
4302.886	Zr I	100	1	–
4302.774	Cr	40	2	–
4302.72	Dy	10	–	Kn
4302.7	bh Sr	4	–	L
4302.653	Ce	10	–	–
4302.57	Dy	2	–	Kn
4302.530	U	2	–	–
4302.527	Ca I	50	25	IWg
4302.446	Kr	–	[10]	IHu
4302.43	Pt	–	2	–
4302 294	Yt I	30	8	–
4302.26	As	–	5	Ro
4302.192	Fe I	50	10	–
4302.149	V I	8	7	–
4302.136	Bi II	2 h	50 wh	Om
4302.108	W I	60	60	–
4302.10	Pr	60	5 w	–
4302.089	U	5	4	–
4301.934	Ti II	25	50	–
4301.932	Mo	10	10	–
4301.723	U	6	2	–
4301.62	Ho	3	1	Ex
4301.604	Er	25	2	–
4301.603	Ir	200	10	–
4301.592	Zr I	4	–	–
4301.583	Pr	20	30	–
4301.56	Eu	5	1	–
4301.54	Ca	–	5	Ad
4301.54	Tb	2 h	–	–
4301.533	Ce	10	–	–
4301.53	Kr II	–	[40]	Me
4301.470	U	15	15	–
4301.277	Sm	7	1	–
4301.264	Mo	20	20	–
4301.260	Er	4	–	–
4301.252	Nd	15	8	–
4301.210	Cb	1	2	–
4301.18	Tb	5	–	–
4301.178	Cr	100	25	–
4301.170	V II	–	10	–
4301.147	Ru	5	–	–
4301.09	Ho	2	2 h	Kn
4301.088	Ti I	150	50	–
4301.053	Re	3	–	–
4301.031	Co I	3	–	–
4300 993	Cb	30	30	–
4300.97	Ca	–	5	Ad
4300.96	Yb	15	1	–
4300.95	Tb	4	–	–
4300.902	Nd	10	4	–
4300.862	Ce	15	–	–
4300.838	Eu	10	2	–
4300.81	Zn	–	[25]	Vs
4300.799	Th	5	4	–
4300.785	U	3	2	–
4300.76	Dy	5	–	Kn
4300.66	A II	–	[30]	Rt
4300.641	Ir	10	2	–
4300.636	Cs II	–	[30]	Sv
4300.618	La I	5	–	–
4300.565	Ti I	125	20	–
4300.511	Cr	100	20	–
4300.49	Tb	2	–	–
4300.4877	Kr I, II	–	[200]	S

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4300.435	La II	25	20	–
4300.335	Yt	3	2 h	–
4300.331	Ce II	40	15	–
4300 300	U	10	–	–
4300 25	Dy	2	–	Ed
4300.197	Mn	60	5	–
4300.100	A I	–	[1200]	I
4300.049	Ti II	40	100	–
4300.003	U	8	8	–
4299.923	Re	15	–	–
4299.92	Tb	15	–	–
4299.873	U	4	4	–
4299.846	Th	8	4	–
4299.718	Cr I	100	50	–
4299.696	Nd	15	5	–
4299.639	Ti I	60	10	–
4299.599	Cb	20	30	–
4299.51	As II	–	10	Ro
4299.398	U	3	3	–
4299.361	Ce II	15	2	–
4299.338	Sm II	15	10	–
4299.301	Gd	20	–	Kn
4299.241	Fe I	500	400	–
4299.24	A	–	[5]	Ms
4299.229	Ti I	70	20	–
4299.177	F II	–	[150]	Di
4299.15	Tb	2	–	–
4299.140	Sm	2	–	–
4299.092	Ce II	5	–	–
4299.015	Nd	10	4	–
4298.986	Ca I	30	18	IWg
4298.920	Pr	30	30	–
4298.913	Er	10	–	–
4298.9	Rb	–	[6]	Dr
4298 90	Dy	4	–	Kn
4298.897	Mo	20	10	–
4298.831	Th	8	8	–
4298.767	Ni I	3	–	–
4298.724	Eu	20 W	2	–
4298.665	Ti I	125	50	I
4298 515	Ni I	5	–	–
4298.465	Nd	5	2	–
4298 44	Dy	2	–	Ed
4298.424	Gd	25	1	–
4298.42	Sm	3	3	–
4298.410	W	6	3	–
4298.38	Tb	12	1	–
4298.37	Tm	20	2	Me
4298.327	Zn I	25	25	IHz
4298.217	Re	3 h	–	–
4298.160	Ce	2	–	–
4298.07	Eu	6 w	–	Kn
4298.040	Fe I	100	400	S
4298.029	V I	25	20	–
4297.99	A II	–	[20]	Rt
4297.934	Co I	2	2 h	–
4297.86	Eu	2 w	–	–
4297.811	Ce	2	–	–
4297.764	Pr	50	40	–
4297.738	Cr	125	30	–
4297.711	Ru I	60	50	–
4297.681	V I	20	15	–
4297.638	Mo	6	6	–
4297.604	U	5	5	–
4297.60	Ba II	–	[5]	Rs
4297.514	Cs	–	[10]	Sv
4297.43	As II	–	10	Ro
4297.428	Eu	10 W	–	–
4297.351	Nd	12	4	–
4297.349	Th	10	4	–
4297.31	Se II	–	[40]	Bl
4297.30	Er	2	–	Ed
4297.26	Ca	2 h	1	Ad
4297.179	Gd	100	4	–
4297.12	Br	–	[15]	Bl
4297.112	U	18	18	–
4297.050	Cr I	100	15	–
4297.030	Ir	3	–	–
4296.984	Ni I	2	–	–
4296.90	Gd	4	–	Kn
4296.82	Sr	3	2	Sd
4296.786	Ce	5	–	–
4296.770	Rh I	40	20	–
4296 752	Er	10 d	–	–
4296 75	Xe I	–	[5]	Hu
4296.750	Sm	100	50	–
4296.742	Zr II	3	2	–
4296.71	Pb II	–	[6]	Gs
4296.689	Ru	7	–	–
4296.680	Ce	40	25	–
4296.631	Cr	15	–	–
4296.624	Mo	15	15	–
4296.585	Fe II	2	2	–
4296.55	Pr	15	2 w	–
4296.41	Hf	10	6	m
4296.40	Xe II	–	[200 h]	Hu
4296.371	Ce	10	–	–
4296.363	Nd	12	3	–
4296.35	I	–	[5]	Ke
4296.35	Tb	20	2 h	–
4296 34	Dy	2	–	Kn
4296.291	Gd	40	40	–
4296.275	Cr	15	–	–
4296.218	Os	12	1	–
4296.18	Pr	10	1	–
4296.160	Mo	15	15	–
4296.158	Cb	10	30	–
4296.114	Lu	6	1	Kn
4296.11	C II	–	6	En
4296.107	V I	30	25	–
4296 079	Gd	200	4	–
4296.069	Ce II	15	2	–
4296.048	La II	200	200	–
4295.950	Lu	30	3	Kn
4295 928	Ru I	20	20	–
4295.888	Ni I	100	2 h	–
4295.757	Cr I	125	40	–
4295 756	Ti I	100	40	–
4295.716	Sm II	15	5	–
4295.689	W	–	3	–
4295.631	Ca	2 h	2	–
4295.618	Cb	3	5	–
4295.58	Dy	8	2	Ed
4295 446	Sm	2	3	–
4295.441	Eu	20	5	–
4295.368	Mo	5	–	–
4295 35	Tb	10	–	–
4295 346	U	10	10	–
4295 226	Nd	10	2	–
4295 21	Kr	–	[8 hl]	Me
4295.150	Zr	4	–	–
4295.11	Pr	12	5	–
4295.103	U	15	1	–
4295.088	Th	4	1	–
4295.039	Er	15	–	–
4295.038	Dy	20	–	Kn
4295.01	Ho	3	–	Ex
4295.008	Sb	–	2 h	Sp
4295.005	W	5	4	–
4294.97	A	–	[20]	Ms
4294.936	Dy	25	15	Kn
4294.792	Zr I	40	1	–
4294.791	Ru I	20	–	–
4294.787	Hf	25	2	–
4294.767	Sc II	20	20	–
4294.756	Ce II	10	–	–
4294.74	O II	–	[30 h]	Mh
4294.735	Nd	15	2	–
4294.700	Pr	25	10	–
4294.67	Eu	4	2	–
4294.651	U	3h	1	–
4294.65	Sn I I	–	[3]	Mc
4294.614	W I	50	50	–
4294.599	Mo	6	6	–
4294.567	Rb II	–	2	Rr
4294.432	S II	–	[80]	Hn
4294.362	Rb II	–	3	Rr
4294.36	Tb	10	1 h	–
4294.25	Te	–	[70]	Bl
4294.128	Fe I	700	400	S
4294.124	Ti II	60	80	–
4294.11	P II	–	[15]	Gu
4294.099	W	20	10	–
4294 05	Tb	5	–	–
4293.994	Rb II	–	40	Rr
4293.949	Os I	60	6	–
4293.880	Mo	20	20	–
4293.87	Eu	6 w	–	–
4293.84	Pb II	–	[7]	Gs
4293.753	Mo	10	4	–
4293.735	Sm	3	1	–
4293.61	Sn II	–	[2]	Mc
4293.582	Pr	20	8	–
4293.565	Cr I	50	8	–
4293.484	Rb II	–	2	Rr
4293 35	Te	–	[70]	Bl
4293.305	U	18	5	–
4293.284	Ru I	15	–	–
4293.216	Nd	3 d	–	–
4293.210	Mo	125	100	–
4293.14	Tb	12	–	–
4293.135	Pr	25	8	–
4293.131	Ce	10	–	–
4293.128	Zr II	5	2	–
4292.991	Eu	10 W	–	–
4292.99	Zn II	–	[2]	Vs
4292.96	Tm	3	5	–
4292.94	Dy	5	–	Ed
4292.92	Kr II	–	[600]	Me
4292.895	Nd	6	1	–
4292.885	Zn I	25	25	IHz
4292.767	Ce II	10	2	–
4292.749	Gd	5	4	–
4292.735	W	4	2	–
4292.676	Ti I	12	1	–
4292 65	Tb	9	1 h	–
4292.64	Kr I	–	[6]	Me
4292.581	Ce	10	2	–
4292.479	Cb	30	50	–
4292.469	Cu II	–	6	Sh
4292.424	Eu	4 W	–	–
4292.290	Fe I	15	–	–
4292.239	Co	3 h	–	–
4292.182	Sm II	100	60	–
4292.17	Er	7	1	–
4292.16	W	4	3	–
4292.132	Mo	100	80	–
4292.11	Tb	3	–	–
4292 05	Se	–	[10]	Bt
4292.035	Cb	15	20	–
4292.008	Cs	–	[12]	Sv
4291 976	Ne I	–	[2]	Ps
4291.964	Cr	35	20	–
4291.95	I	–	[20]	Ke
4291.93	Dy	25	–	Kn
4291 864	Ti I	5 h	–	–
4291.816	V I	40	30 r	–
4291 80	Re	3	–	–
4291.76	Cl II	–	[50]	Ks
4291.72	Tl II	–	[2]	El
4291.671	Mo	3	2	–
4291.652	U	5	1	–
4291.646	Re I	25	–	–
4291.63	Pr	18	2	–
4291.610	Sm	8	8	–
4291.469	Nd	5	–	–
4291.466	Fe I	125	20	–
4291.45	S II	–	[5]	Hn
4291.40	Tb	3	–	–
4291.40	Br	–	[150]	Bl
4291.36	Tm	5	5	Me
4291 349	Zr I	6	–	–
4291.299	V I	15	10	–
4291.210	Ti I	3	1	–
4291 204	Zr I	6	–	–
4291.202	Mo	15	15	–
4291.192	Cb	10	15	–
4291 19	O II	–	[15 h]	Mh
4291.183	Re	100 w	–	–
4291.165	Ba	10	3	Sz
4291.138	Ti	10	4	–
4291.034	Yt I	4	2	–
4291.019	La I	4	–	–
4290.99	Pr	5	1	–
4290.957	Nd	15	8	–
4290.937	Ti I	70	30	–
4290.887	Pt	2	1	–
4290.885	U	15	15	–
4290 868	Fe I	20	2	–
4290.78	Kr	–	[4]	Me
4290.6	Na I	3	–	Fo
4290.593	Ce	4	–	–
4290.57	Se II	–	[20]	Bt
4290.529	Ru I	6	–	–
4290.512	Pr	4	–	Kn

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4290.44	Dy	5	–	Kn
4290.431	Ce II	2	–	–
4290.40	Ne II	–	[100]	Bl
4290.381	Fe	35	5	–
4290.35	Cb	–	2 h	–
4290.295	Ce	2	–	–
4290.227	Ti II	35	60	–
4290 208	Zr I	40	20	–
4290.184	Mo	30 h	25 h	–
4290.17	Ho	2	2	Kn
4290.144	W	8	3	–
4290.12	Ca	–	5 h	Ad
4290.112	Mn	8	–	–
4290.067	Gd	6	–	–
4289.938	Ce	50	25	–
4289.919	Ti I	15	2	–
4289.901	Gd	40	100	–
4289.89	Pr	15	4	–
4289.882	U	12	12	–
4289.799	Ne I	–	[2]	Ps
4289.73	Tb	30	–	–
4289.721	Cr I	3000 R	800 r	–
4289.65	Se	–	[10]	Bl
4289.556	U	4	3	–
4289.454	Ce II	25	4	–
4289.444	Cb	10	20	–
4289.42	Pr	12	3	–
4289.415	Mo	20	15	–
4289.365	Sm	15	2	–
4289.364	Ca I	35	20	IWg
4289.363	Nd	15	3 h	–
4289.35	Dy	2	–	Ed
4289.30	Sb II	–	[6]	Lg
4289.291	W	1	5	–
4289.09	A	–	[5]	Ms
4289.073	Ti I	125	50	–
4289.01	La I	4	–	Rl
4288.965	Fe I	5	1	–
4288.841	U	20	2	–
4288.809	V II	3	2	–
4288.706	Rh I	400	100	–
4288.677	Th	5	1	–
4288.666	Ce II	30	–	–
4288.651	K II	–	[15]	Dm
4288.637	Mo	80	100	–
4288.605	Eu	10	1	–
4288.541	Ne I	–	[5]	Ps
4288 52	P II	–	[50]	Gu
4288.51	Te	–	[50]	Bl
4288 492	Ir	2	–	–
4288 46	Pr	10	2 w	–
4288.428	Pt II	–	2	–
4288.422	U	2	2	–
4288.381	Cr	15	3	–
4288 35	W	3	1	–
4288.350	Cs II	–	[35]	Sv
4288.247	Mo	4	4	–
4288.162	Ti I	20	4	–
4288 154	Fe I	50	6	–
4288.058	Pt I	75	1 h	–
4288 056	Th	8	6	–
4288.02	Tb	3	–	–
4288.02	Kr I	–	[5]	Me
4288 01	Dy	2	–	Kn
4288.005	Rb II	–	20	Rr
4288.005	Ni I	150	–	–
4287.98	I II	–	[5]	Mu
4287.899	Ir	12	2	–
4287.881	Ti II	10	30	–
4287.869	U	15	18	–
4287.809	V I	15	9	–
4287.8	Eu	5	–	Kn
4287.8	bh Zr	4	–	L
4287.795	Ba II	–	[10]	–
4287.75	Mn	5 h	–	–
4287.5	Na I	3	–	Fo
4287.45	Kr	–	[4 wh]	Me
4287.431	Eu	9	1	–
4287.405	Ti I	100	50	–
4287.400	Nd	10	2	–
4287.382	Co I	2	2	–
4287.32	Tb	10	1 h	–
4287.27	Eu	2	–	Kn
4287.13	Tb	8	–	–
4287.075	Mo	10	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4287 057	Sb	–	2 h	Sp
4287 046	Ru	15	–	–
4287.002	Ce	8	–	–
4286.992	Fe I	10	1	–
4286 990	Cb	15	30	–
4286.98	Pr	3	1	–
4286.973	La II	400	300	–
4286.972	Zr I	5	–	–
4286.922	Ce	8 wh	–	–
4286.90	Tb	20	2	–
4286.89	Dy	2	–	Ed
4286.889	Fe	2	1	–
4286.641	Sm II	100	60	–
4286.619	Ir	200	3	–
4286.560	Er	20	–	–
4286.547	Sc	4	3	–
4286.54	Ho	3	1	Ex
4286.51	Tl II	–	[12 d]	El
4286.4873	Kr I	–	[40]	S
4286.472	Re	12	–	–
4286.437	Fe I	3	1	–
4286.420	V I	20	15	–
4286.38	Pr	5 d	–	–
4286 376	Ta	80	20 h	–
4286.215	Cb	5	5	–
4286.214	W	6	2	–
4286.191	8	6	–	–
4286.124	V II	3	2	–
4286.122	Gd	60	20	–
4286.12	Tb	10	1 h	–
4286.090	Re	5	–	–
4286.013	W	15	8	–
4286 009	Ti I	100	40	–
4285.96	C II	–	5	En
4285.895	Os	30	3	–
4285.85	Pr	5	–	–
4285.842	Ce	2	–	–
4285.84	Te	–	[70]	Bl
4285.827	Gd	60	20	–
4285.787	Co I	125	–	–
4285 745	U	–	6	–
4285 74	Tb	9	1 h	–
4285 717	Eu	3 l	–	–
4285 62	O II	–	[20 h]	Mh
4285.598	Mo	4	4	–
4285.59	Er	3	1	–
4285 540	Pr	5	2	–
4285.479	Sm II	200	200	–
4285.445	Fe	125	50	S
4285.41	Tb	3	–	–
4285 40	Kr	–	[4 h]	Me
4285 366	Ce	25	8	–
4285.239	Cu II	2	4	Sh
4285.238	Zr I	4	–	–
4285.232	U	10	1	–
4285.192	Th	5	5	–
4285.13	Tb	25	3	–
4285.070	Cd II	–	8	Vs
4284.994	Ti I	40	20	–
4284.984	Th	8	8	–
4284.948	Gd	4	–	–
4284.92	N	–	[5]	Du
4284.904	Cr I	15	10	–
4284.853	K II	–	[10]	Dm
4284.838	U	–	2	–
4284.725	Cr I	40	8	–
4284.719	Zr	4	–	–
4284.683	Ni I	25	10	–
4284.652	Eu	2 w	–	–
4284.6	Hg	–	[10]	Ps
4284.597	Mo	125 h	80 h	–
4284.54	Ho	2	2	Kn
4284.520	U	2 h	2 h	–
4284.518	Nd	25	20	–
4284.497	Sm	12	8	–
4284.48	Pr	10	–	–
4284.40	Ca	2	6 h	Ad
4284.331	Ru I	25	20	–
4284.217	Cr I	–	30	–
4284.13	Cs	–	[10]	Bs
4284.084	Mn	80	20	–
4284.055	V I	20	20	–
4283.912	U	10	1	–
4283.88	Sb II	–	[5]	Lg
4283 869	Eu	12	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4283 807	W	10	5	–
4283.78	Pr	25 w	1	–
4283.74	Tb	6 d	–	–
4283 722	Sm	5	–	Kn
4283.70	S	–	[3]	Hn
4283.562	Sc	4	–	–
4283.550	Ce II	5 h	–	–
4283.525	Th	10	10	–
4283.496	Sm	30	6	–
4283.47	Hf	5	–	–
4283.45	Cl I	–	[6]	Mj
4283.395	Ir	3	–	–
4283.316	Ce	8	–	–
4283.284	Mo	2	4	–
4283.242	Ne I	–	[10]	Ps
4283.109	Ba	25	20	–
4283.042	Nd	15	2	–
4283 038	U	2	2	–
4283 02	Dy	2	–	Ed
4283.012	Yb	20	–	–
4283.01	Pr	5	1	–
4283.010	Ca I	40	20	IWg
4282.988	Cr	12	1	–
4282.97	Al II	–	[2]	Sy
4282 9683	Kr I	–	[100]	S
4282.911	V I	20	15	–
4282.90	A	–	[40]	Rt
4282.827	Sm	20	8	–
4282.82	O II	–	[10 h]	Mh
4282.813	Ce	3	–	–
4282.8	Rb	–	[8]	Dr
4282.792	Gd	15	15	–
4282.740	Re I	15	–	–
4282.711	Ti I	70	25	–
4282.63	S II	–	[30]	Hn
4282.6	Eu	6	–	Kn
4282.6	Hg	–	[10]	Ps
4282.59	Cs	–	[10]	Bs
4282.570	Nd	10	8	–
4282.45	U	5	5	m
4282.443	Nd	15	–	–
4282.44	Mo	4	3	–
4282.440	Pr	75	40	–
4282.406	Fe I	600	300	S
4282.200	Sm	15	8	–
4282.200	Zr II	30	4	–
4282.10	Se II	–	[100]	Bt
4282.044	Th	30	25	–
4282 028	U	30	30	–
4282.026	Zr I	8	–	–
4281.94	Hg	–	[20]	Ps
4281.930	Ru	7	–	–
4281.922	Eu	25	2	–
4281.917	Ce II	5	–	–
4281.902	Pd I	3 h	–	–
4281.86	I II	–	[5]	Ke
4281.826	Mo	15	10	–
4281.82	Pr	18	2	–
4281.425	Th	15	10	–
4281.39	N	–	[5]	Du
4281.376	Ti I	80	20	–
4281.357	U	1	2	–
4281.342	Nd	5	1	–
4281.34	Er	2	1	m
4281.31	Cs	–	[10]	Bs
4281.30	Tb	5	–	–
4281.20	W	6	4	–
4281.173	Mo	5	30	–
4281.158	Ce II	15	–	–
4281.099	Mn	100	50	–
4281.09	Eu	2	–	–
4281.072	Th	20	10	–
4281.05	Pr	8	1	–
4281.03	Lu	40	4	Me
4281.002	Sm	50	30	–
4281.0	bh Sr	5	–	L
4280.996	Ce II	15	4	–
4280.875	Mo	4	3	–
4280.85	Er	12	2	m
4280.779	Sm II	200	200	–
4280.774	Nd	20	20	–
4280.659	U	18	3	–
4280.61	Kr II	–	[5 hl]	Me
4280.600	Re	6	–	–
4280.598	Cb	10	15	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4280.578	Mo	2	15	–
4280.567	Th	4	1	–
4280.501	Gd	200	100	–
4280.49	Tb	5	1	–
4280.467	Ta	10	1 h	–
4280.405	Cr	80	50	–
4280.380	Nd	25	15	–
4280.36	Se II	–	[150]	Bl
4280.333	Ti	8	1	Bh
4280 321	Sm II	8	4	–
4280.312	Zr I	4	4	–
4280.261	La I	50	30.	–
4280.212	U	6	8	–
4280.168	Nd	6	2	–
4280.141	Ce	15	2	–
4280.105	Pr	60	30	Kn
4280.079	Ti I	15	1	–
4280.05	Kr	–	[2 h]	Me
4280.001	Mo	5	5	–
4279.98	Se	–	[10]	Bl
4279.959	Cu II	–	5	Sh
4279.946	Sm II	50	40	–
4279.927	Sc II	10	3	–
4279 78	Dy	8	–	Kn
4279.76	Ca	2	4	Ad
4279.748	Sm II	15	15	–
4279 69	Eu	10	–	Kn
4279.666	Sm II	100	100	–
4279.501	Sm	4	2	–
4279.499	Cb	5	5	–
4279.48	Te	–	[15]	Bl
4279.480	Fe I	5	1	–
4279.390	Mo	3	–	–
4279.331	U	10	–	–
4279.324	Ce	4	–	–
4279.3	Yt II	3	15	Me
4279.279	Ne I	–	[15]	Ps
4279.25	Eu	8	–	Kn
4279 200	Re	3	–	–
4279.167	Ce	2	–	–
4279.056	Ta	30	10	–
4279.023	Mo	8	100	–
4278.99	Pr	15	3	–
4278.93	W	4	4	–
4278.92	V II	–	15	Me
4278.89	F II	–	[20 h]	Di
4278.883	V	2	8 h	–
4278.866	Ce II	20	5	–
4278.850	Ne I	–	[5]	Ps
4278.82	As II	–	10	Ro
4278.813	Ti I	25	3	–
4278.689	Ru	7	–	–
4278.676	Mn	15	5	–
4278.62	Pr	10	2	–
4278.61	Dy	3	–	Ed
4278.598	Rh I	25	10	–
4278.584	Mo	5	2	–
4278.54	S II	–	[30]	Hn
4278.51	Tb	200	100	–
4278.410	W	10	3	–
4278.323	Th	8	2	–
4278.28	Ca	–	4	Ad
4278.248	Ce	10	1	–
4278 227	Ti I	50	15	–
4278.202	Gd	6	6	–
4278.171	U	5	4	–
4278.04	Pr	35	15	–
4277.99	In	–	2	Sq
4277.95	Si	1	3	Sy
4277.91	W	6	1	–
4277.80	Hg II	–	[10]	Ps
4277.792	Cr	25 wh	–	–
4277.76	Tb	8	–	–
4277.76	Dy	2	–	Kn
4277.73	Yb	25	2	m
4277.64	Eu	4	–	m
4277.55	A II	–	[80]	Rt
4277.537	U	5	4	–
4277.51	F II	–	[40 h]	Di
4277.50	Lu	30	3	Me
4277.496	Cb	5	1	–
4277.410	Mo	15	15	–
4277.369	Zr II	4	1	–
4277.322	Th	20	12	–
4277.3	Rb	–	[8]	Dr
4277 279	Nd	20	5	–
4277.255	Ru I	7	–	–
4277.242	Mo	30	30	–
4277.23	Pr	3	–	–
4277.198	U	2	2 h	–
4277.147	Os	12	1	–
4277.100	Cs II	–	[50]	Sv
4276.974	Th	4	3	–
4276 958	V I	25	20	–
4276.912	Mo	30	30	–
4276 822	Rh I	10	3	–
4276 814	Th	10	8	–
4276.75	Tb	50 w	2 h	–
4276.746	W	15	10	–
4276.74	Dy	15	–	Kn
4276.722	Zr I	2 d	–	–
4276.686	Er	6	–	–
4276.68	Te	–	[50]	Bl
4276.678	Fe I	10	1	–
4276.660	Ti I	10 h	1	–
4276.64	O II	–	[15 h]	Mh
4276.54	Er	6	3	Ed
4276.51	Cl II	–	[30]	Ks
4276.467	U	10	12	–
4276.433	Ti I	50	20	–
4276 333	Ce	4	–	–
4276.3	Na I	3	–	Fo
4276.295	Nd	5	3 h	–
4276 204	Eu	10	2	–
4276 203	Sm	4	4	–
4276.19	Pr	12	3	–
4276.14	Tb	4	–	–
4276.104	Co I	2	1	–
4276.039	Cu II	–	6	–
4276.031	W	10	4	–
4275.978	U	8	3	–
4275 973	Cr	30	15	–
4275.96	Dy	2	–	Kn
4275 912	Eu	4	–	–
4275.82	Pr	18	4	–
4275 762	Nd	15	3	–
4275 75	Kr	–	[2]	Me
4275.727	U	12	8	–
4275.676	Mo	12	12	–
4275.642	La II	40	500	–
4275.561	Ce	25	4	–
4275 560	Ne I	–	[70]	Ps
4275.493	W	15	10	–
4275 47	O II	–	[50 h]	Mh
4275.45	Dy	5	–	Kn
4275.37	Tb	3	–	–
4275 32	Pr	5	1	–
4275 21	Tb	15	1 h	–
4275 21	F II	–	[100 h]	Di
4275.19	A	–	[10]	Rt
4275.17	Pr	12	2	–
4275.149	W	6	2	–
4275.131	Cu I	80	30	–
4275.083	Nd	20	10	–
4275.069	Co I	3	–	Dn
4275.02	U	2	1	–
4275 00	Dy	5	–	Kn
4274.98	Tl II	–	[100]	El
4274.959	Pr	3	–	–
4274 938	W	10	5	–
4274.905	Os	9	1	–
4274.892	Cb	5	5 h	–
4274.803	Cr I	4000 R	800 r	–
4274 769	Zr I	9	–	–
4274.689	Cb	5	3	–
4274.656	Ne I	–	[50]	Ps
4274.584	Ti I	100	40	I
4274.550	W	20	12	–
4274.41	Mo	–	30	Ex
4274.400	Ti I	5	–	–
4274.36	Tb	2 h	–	–
4274.34	Re	20 w	–	–
4274.331	Th	8	4	–
4274.27	Pr	8 d	1 d	–
4274.24	Tl II	–	[8]	El
4274.182	Yt I	2 h	–	–
4274.171	Gd	100	–	–
4274.16	Sm	5	1	–
4274.047	Mo	6	6	–
4274.04	Dy	5	2	Ed
4274 035	Sm	3	1	–
4274.032	Th	10	8	–
4273.975	U	12	15	–
4273.9700	Kr I	–	[1000]	S
4273.909	Pt	2	–	–
4273.907	Ca	–	2	–
4273.87	Fe I	10	2	–
4273 788	Ce	2	–	–
4273.74	Tb	3 W	–	–
4273.739	Nd	10	2	–
4273.72	Hg	–	[2 h]	St
4273.703	Rb II	–	2	Rr
4273.692	W	10	5	–
4273.63	Ho	2	2	Kn
4273.61	Eu	2	–	–
4273.524	Rb II	–	2	Rr
4273.517	Zr II	9	3	–
4273.48	Kr	–	[4]	Me
4273.445	U	8	5	–
4273.444	Ce	20	2	–
4273.426	Rh I	25	10	–
4273.40	Te	–	[70]	Bl
4273 363	Th	20	15	–
4273 317	Fe II	3 h	2 h	Do
4273.303	Ti I	20	1	–
4273 28	Li I	200 r	100 h	Fl
4273.25	Gd	4	–	Kn
4273 21	Pr	3	1	–
4273.2	Na I	3	–	Fo
4273.191	U	8	–	–
4273.18	Tb	8	1	–
4273.176	Rb II	–	25	Rr
4273.14	Dy	4	4	Kn
4273 066	Mo	20	10	–
4273.011	Ce	2	–	–
4272 969	Cb	2	4	–
4272 94	U	3	1	–
4272.93	Pr	5	1	–
4272 910	Cr I	40	30	–
4272.885	Th	4	–	–
4272.87	Cs	–	[10]	Bs
4272.855	Ce	2	–	–
4272.848	Hf II	12	20	–
4272.789	Nd	15	5	–
4272.757	Eu	5	1	–
4272 640	Rb II	–	2	Rr
4272.63	Pb I	–	30	Sx
4272.55	Pb II	–	2	Kl
4272.49	Bi II	–	10 wh	Om
4272.44	Er	4	1 h	–
4272.432	Ti I	40	10	–
4272.34	Eu	4	–	–
4272 339	Ce	2	–	–
4272 312	W	8	3	–
4272 280	U	3	3	–
4272.271	Pr	50	35	–
4272.22	Tb	3	–	–
4272.168	A I	–	[1200]	I
4272.143	Yt I	3	–	–
4272.12	Yb	6	–	–
4272 057	Mo	15	15	–
4272 034	Ce	2	–	–
4272.008	Sm II	5	3	–
4272.0	Tl	–	[8]	Cx
4271.970	Er	4	1	–
4271.87	Ca	–	7 h	Ad
4271.858	Sm	5	2	–
4271.764	Fe I	1000	700	S
4271.764	Pr	18	15	–
4271.744	Cs	–	[10]	Sv
4271.72	Tm	20	2	Me
4271.558	Ca	2 h	3	–
4271.554	V I	20	10	–
4271.54	Sb II	–	[10]	Lg
4271.53	I	–	[5]	Bl
4271.513	Ta	40	5 wh	–
4271.479	Ce	5	–	–
4271.24	A	–	[2]	Ms
4271.161	Fe I	400	300	–
4271.157	La I	30	–	–
4271.103	Th	5	3	–
4271.070	Ce	2	–	–
4271.061	Cr	30	12	–
4270.908	W	5	3	–
4270.89	U	6	6	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4270.834	Sm II	15	15	–
4270.788	Os	12	1	–
4270.775	Gd	4 h	1 h	–
4270.73	Tb	3	–	–
4270.716	Ce	25	–	–
4270.701	Sm II	5	3	–
4270.691	Cb	30	50	–
4270.65	U	5	4	–
4270.61	Cl II	–	[25]	Ks
4270.565	Nd	15	4	–
4270.56	Hf	8	4	–
4270.55	Yb	–	3 h	–
4270.508	Eu	15	–	–
4270.45	Eu	15	2	Kn
4270.431	Co I	2	–	–
4270.332	Th	6	3	–
4270.318	V I	20	4	–
4270.303	Rb II	–	8	Rr
4270.277	Gd	5	–	–
4270.254	U	3	2 h	–
4270.245	Eu	20	2	–
4270.227	Ne I	–	[50]	Ps
4270.189	Ce II	25	–	–
4270.138	Ti I	50	3	–
4269.951	Cr	40	6	–
4269.930	Er	4	1	–
4269.84	Xe II	–	[20]	Hu
4269.82	Re	2 h	–	–
4269.780	W	15	10	–
4269.770	Sm II	6	3	–
4269.762	V I	15	9	–
4269.76	S II	–	[30]	Hn
4269.724	Ne I	–	[70]	Ps
4269.706	Ir I	8	–	–
4269.70	Tb	15	2	–
4269.67	Pr	18	1	–
4269.65	Hf II	10	20	–
4269.613	U	20	30	–
4269.610	Os	30	3	–
4269.60	Dy	10	2	Kn
4269.495	Eu	5	1 h	–
4269.494	La II	150	150	–
4269.392	W	40	30	–
4269.364	Os	12	1	–
4269.32	Tb	5	–	–
4269.296	Cr	–	3	–
4269.282	Mo	30	30	–
4269.259	Pt I	2	1 h	–
4269.251	Ce	5	2	–
4269.100	Pr	12	4	–
4269.085	U	3	1	–
4268.99	C I	–	[10]	Jn
4268.942	Ir	10	2	–
4268.928	Ti I	8	–	–
4268.89	Cs	–	[10]	Bs
4268.851	U	12	10	–
4268.81	Kr II	–	[100 whl]	Me
4268.788	Cr	30	3	–
4268.761	Ir I	3	–	–
4268.758	Fe	30	10	–
4268.75	Re	2 h	–	–
4268.739	Gd	40	40	–
4268.668	Cb	5	10	–
4268.643	V I	40	20	–
4268.57	Kr II	–	[60 whl]	Me
4268.56	Tm	3	–	–
4268.438	Co I	2	2	–
4268.330	Pd I	10 h	–	–
4268.31	Dy	8	–	Kn
4268.301	Ce	10	–	–
4268.283	Nd	3 d	–	–
4268.255	Ta	50	15 h	–
4268.101	Ir I	200	15	–
4268.10	Hf II	–	5	Me
4268.075	Mo	20	20	–
4268.052	W	10	5	–
4268.032	Co I	3 h	–	–
4268.016	Zr I	40	1	–
4268.009	Ne I	–	[70]	Ps
4267.95	Ba II	–	[80]	Rs
4267.934	U	15	4	–
4267.92	Dy	7	–	Kn
4267.852	Ce	2	–	–
4267.85	Eu	10	–	Kn
4267.830	Fe	125	60	S
4267.802	S II	–	[60]	Hn
4267 78	Pr	12	–	–
4267.741	La I	8	–	–
4267.724	Ne I	–	[5]	Ps
4267.668	Ce	2	–	–
4267.635	Cb	–	10 h	–
4267.493	Nd	–	200 wh	–
4267.303	U	12	10	–
4267.298	Ta	1	20	–
4267.286	Ne I	–	[2]	Ps
4267.27	C II	–	500	Fl
4267.24	As	–	3	Ro
4267.221	Ce	10	–	–
4267 02	C II	–	350	Fl
4267.016	Gd	40	40	–
4266.99	Yb	4	8 h	–
4266.968	Fe I	70	30	–
4266.889	Yt I	2	–	–
4266.821	Cr	30	1	–
4266.76	Eu	2	–	–
4266.73	Pr	3	–	–
4266.716	Nd	20	–	–
4266 698	Ce	2	–	–
4266 666	U	3	3	–
4266.622	Rb II	–	10	Rr
4266.608	Mo	2	15 h	–
4266.601	Gd	50	–	–
4266.542	W	15	8	–
4266.53	A	–	[200]	Rt
4266.52	Dy	2	2 h	m
4266.45	Pr	4	–	–
4266.40	Lu	–	2 h	Ms
4266.37	Eu	3	–	–
4266 362	Ir I	10	–	–
4266.35	Tb	30	1	–
4266 331	U	15	–	–
4266 311	Sm II	9	1	–
4266 286	A I	–	[1200]	I
4266.222	Ti I	20	–	–
4266.181	Mo	25	20	–
4266.081	Ce	2	–	–
4266.04	Ho	5	2	Kn
4266.038	Ir I	10	–	–
4266.018	Cb	15	20	–
4265.98	Tb	3	–	–
4265.925	Ce	2	–	–
4265 924	Mn	100	50	–
4265.83	Dy	6	2	Kn
4265.811	Eu	6	–	–
4265 741	Zr I	5	–	–
4265 710	Ce	2	–	–
4265 708	Ti I	12	–	–
4265 66	Pr	3	–	–
4265 630	U	3	2	–
4265 607	Ru I	12	–	–
4265.52	A	–	[2]	Ms
4265.490	Pr	3	–	Kn
4265.305	Ir I	60	2	–
4265.275	Ti I	20 h	–	–
4265.237	Sm	4	–	–
4265.186	Ce	4	–	–
4265.178	U	6	–	–
4265.170	V	30	15	–
4265.13	As	–	30	Ro
4265.12	Ra I	–	[6]	Rs
4265.117	Mo	15	15	–
4265.074	Sm II	60	25	–
4264.99	Tb	8	–	–
4264.987	W	3	1	–
4264.929	Sb	–	10 h	Sp
4264.911	Zr II	3	2 h	–
4264.909	Eu	12	2 h	–
4264.86	Er	4	2	–
4264.746	Os	20	3	–
4264.74	Fe I	12	2	–
4264.72	Tb	4	–	–
4264 69	Eu	4	–	–
4264.688	Ce	10	–	–
4264.675	Cs	–	[50]	Sv
4264.65	Hg	–	[20]	Ps
4264.631	Mo	15	15	–
4264.63	Tb	6	–	m
4264.58	Cl I	–	[6]	Ks
4264.386	Ba I	15	4	Sz
4264 370	Ce II	10	–	–
4264.32	Te	–	[30]	Bl
4264.215	Fe I	35	4	–
4264.114	Th	4	–	–
4264 07	Ho	15	8	Kn
4264.008	Zr	5	–	–
4263.995	Nd	2	–	–
4263 947	Ce	10	–	–
4263.908	Nd	3	1	–
4263 830	V II	–	3	–
4263.812	Eu	3	1	–
4263.805	Pr	50	5 w	–
4263.772	I	–	[15]	Ke
4263.769	Re	2 h	–	–
4263.746	U	12	8	–
4263.744	Co I	2	–	–
4263.68	Tb	12	–	–
4263.580	La II	150	150	–
4263.57	Xe II	–	[5 h]	Hu
4263.55	Tb	8	–	–
4263.511	Pt I	10	1 h	–
4263.44	Xe	–	[15 h]	Hu
4263.440	Nd	15	4	–
4263.427	Ce	40	–	–
4263.419	U	6	5	–
4263.396	Ru I	10	–	–
4263.389	Hf	20	10	–
4263.359	Th	10	3	–
4263 355	Re	2 h	–	–
4263.315	W	25	15	–
4263.312	K II	–	[40]	Dm
4263.288	Kr I	–	[20]	IHu
4263.15	Pr	4	1	–
4263.141	Cr	125	80	–
4263.134	Ti	125	35	–
4263.133	Ce	3	–	–
4263.120	U		2 h	–
4263.103	Mo	4	2	–
4263.066	Ce	3	–	–
4263.065	Ir	3	–	Ab
4262.890	U	10	5	–
4262.80	Pr	12	2	–
4262.795	Ce	6	–	–
4262.72	Hf II	10	15	Me
4262.716	Th	4	1	–
4262.678	Sm II	200	150	–
4262.59	Tb	2	–	–
4262.479	Ne I	–	[2]	Ps
4262.367	Ce	2	–	–
4262.356	Cr	30	2	–
4262.334	La I	15	2 h	–
4262 314	Pr	10	4	Kn
4262.269	W	7	8	–
4262.239	Nd	15	3	–
4262.177	Eu	2	–	–
4262.161	V I	20	12	–
4262.155	U	6	2	–
4262 133	Cr	40	8	–
4262.095	Gd	150	10	–
4262.053	Cb	20	15	–
4262.02	Lu	–	8	Me
4261.93	Ga	–	4	Kl
4261.907	Cr II	–	30	–
4261.888	Ir	10	–	–
4261.88	Hg	–	[70]	Ps
4261.837	Nd	20	10	–
4261.83	Tb	8	–	–
4261.8	bh Ca	2	–	L
4261.796	Pr	15	2	–
4261.794	Eu	4	–	–
4261.78	Ga II	–	2	Sy
4261.714	Cb	5	8	–
4261 615	Cr	35	8	–
4261 602	Ti I	70	8	–
4261.505	U	8	8	–
4261.480	Ce	4	–	–
4261.443	Mo	20	20	–
4261.425	Zr I	6	–	–
4261.354	Cr I	125	50	–
4261.296	Mn	20	5	–
4261.276	Th	5	2	–
4261.26	Re	5	–	–
4261.258	Ir	25	–	–
4261.22	Cl II	–	[20]	Ks
4261.210	Zr I	7	–	–
4261 208	V I	9	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4261.17	Eu	4	2	–
4261 164	Ce	18	1	–
4261.08	Te	–	[300]	Bl
4261.069	Ce	3	–	–
4261.04	Pr	4	1	–
4260.98	Hf	20	–	–
4260.980	Eu	12	–	–
4260.977	Mo	15	15	–
4260.915	Re I	10	–	–
4260 898	Ir	10	–	–
4260 854	Os I	200	200	–
4260.85	Kr II	–	[5 hl]	Me
4260 802	Ge	20	10 h	–
4260 78	Tb	8 h	–	–
4260.755	V II	–	3	–
4260.751	Ti I	12	1	–
4260 723	Ce	2	–	–
4260.655	Mo	20	20	–
4260 58	Br	–	[4]	Bl
4260.55	Sb II	–	[10]	Lg
4260.479	Fe I	400	300	S
4260.359	Mo	20	20	–
4260.345	Ce	2	–	–
4260 342	Th	4	1	–
4260 293	W	10	5	–
4260.14	I II	–	[15]	Mu
4260.134	Fe I	7	3	–
4260.112	Gd	30	10	–
4260.06	Pr	3	1	–
4260.031	Ir	25	–	–
4260.011	Sb	–	2	Sp
4260.004	Ru I	12	–	–
4260.003	Fe I	15	5	–
4259.96	Tb	5	–	–
4259.941	W	12	5	–
4259.938	Pt	5	–	–
4259.89	Au II	–	15	–
4259.883	Re I	3	–	–
4259.748	Ce	15	1	–
4259 64	Pr	5 d	–	–
4259.62	Bi II	–	60 wh	Om
4259.608	Nd	12	2	–
4259.600	Ce	3	–	–
4259.588	Sc	8	–	–
4259.52	Cl II	–	[35]	Ks
4259.51	La II	–	2 h	Me
4259.452	U	12	3	–
4259.44	Kr	–	[80 hs]	Me
4259.43	Cu I	25 wh	2 wh	Hs
4259.393	Sm II	3	2	–
4259 361	A I	–	[1200]	I
4259 357	W	30	20	–
4259 338	Mn	8	10	–
4259 312	V I	15	9	–
4259.30	Hg II	–	[20]	Ps
4259.227	Ce	2	–	–
4259 200	U	10	8	–
4259.18	S II	–	[15]	Hn
4259.158	Cr I	35	1	–
4259.113	Ir	200	10	–
4259.064	Ce	10	–	–
4258.987	Ru I	15	–	–
4258.958	Fe I	8	2	–
4258.933	I	–	[20]	Ke
4258.913	Cb	5	10	–
4258.883	Ce	3	–	–
4258.660	Mo	20	15	–
4258.62	Ho	3	1 h	Ex
4258 614	Fe I	12	2	–
4258.59	A	–	[5]	Ms
4258.561	Sm II	50	40	–
4258.56	Dy	15	2	Kn
4258.535	Ti I	70	7	–
4258.532	W	15	5	–
4258.49	U	2	2	–
4258.466	Rh I	2	1	–
4258.401	Ce	8	–	–
4258.332	Zr I	5	2	–
4258.330	Ca	2	4	–
4258.324	Fe I	60	4	–
4258.321	Ce	4	–	–
4258.23	Tb	30 d	3	–
4258.218	Ce	5	–	–
4258.155	Fe II	2	2	Do
4258.14	Dy	8	–	Kn
4258.12	Eu	7	–	–
4258.101	Nd	5	–	–
4258.093	Ir	4	–	–
4258.07	Tl II	–	[5]	El
4258 043	Zr II	25	8	–
4257.94	Pr	3	–	–
4257.850	Eu	10	1	–
4257.82	Ne II	–	[30]	Bl
4257.813	Ce	2	–	–
4257.81	Tb	2	–	–
4257.783	Nd	20	10	–
4257.72	Dy	6	2	Kn
4257.71	U	2	2	–
4257.69	Pr	5	1	–
4257.66	Yb	7	15	–
4257.659	Mn	100	40	–
4257.593	Re I	125 w	–	–
4257.502	Th	8	2	–
4257.476	Ce	3	–	–
4257.42	S II	–	[30]	Hn
4257.373	Ir	30	–	–
4257.369	V I	15	9	–
4257.368	Cr I	35	1	–
4257.276	Nd	12	4	–
4257.17	Tb	2	–	–
4257.121	Ce II	20	1	–
4257.1	bh Zr	4	–	L
4257.020	V	–	5	Me
4256.99	Mo	3	2	–
4256.95	U	10	3	–
4256.915	La I	50	–	–
4256.82	Tl II	–	[2]	El
4256.820	Nd	15	3	–
4256.80	Mo	3	3	–
4256 74	Yb	5	3 h	–
4256.714	Ce	2	–	–
4256.69	Ca	–	6	Ad
4256.620	Cr I	12	1	–
4256.60	Mo	–	15	–
4256.498	Ne I	–	[2]	Ps
4256.490	La	2	2	–
4256.479	Nd	40	20	–
4256.445	Zr I	25	–	–
4256.396	Sm II	150	150	–
4256.354	Ce	3	–	–
4256.34	Tb	9	–	–
4256.33	Pr	4	1	–
4256.323	Dy	25	8	Kn
4256.239	Nd	10	–	–
4256.227	Th	6	1	–
4256.223	Fe I	4	1	–
4256.204	Dy	8	–	Kn
4256.17	Ga	–	2	Kl
4256.155	Ce II	12	1	–
4256.102	Th	12	10	–
4256.10	Tb	8	–	–
4256.10	Te	–	[50]	Bl
4256 09	Tl II	–	[2]	El
4256.037	Zr I	60	–	–
4256.036	Ti I	80	15	–
4255.992	Ce	5	–	–
4255.944	Cb	3	10	–
4255 941	Eu	4	1 h	–
4255 858	Nd	12	2	–
4255.852	Fe	2	1	–
4255.789	Th	4	–	–
4255.784	Ce	40	6	–
4255.77	Yb	5	8	–
4255 752	Re I	20	–	–
4255.729	Co	3 h	–	m
4255.708	Ru	6	–	–
4255.702	U	8	6	–
4255.66	Pr	4	1	–
4255.62	A	–	[5]	Rt
4255.57	Gd	10	–	–
4255 52	Ga II	–	[3]	Sy
4255.509	Ca	–	6	–
4255 502	Cr	30	30	–
4255.499	Fe	5	2	–
4255.442	Cb	30	50	–
4255.44	Gd	10	–	Kn
4255.38	U	2 h	1 h	–
4255.361	Ce II	10	–	–
4255.339	Re	2 h	–	–
4255.27	Eu	15	–	–
4255.24	Tb	25	1 h	–
4255.178	Ce	2	–	–
4255.110	Re	2 h	–	–
4255.00	Pr	4	1	–
4254.955	Mo	25	25	–
4254.95	A	–	[10]	Ms
4254.938	Fe	2	1	–
4254 905	Ce	8	–	–
4254.85	Kr II	–	[100 hl]	Me
4254.77	Yb	4	4	–
4254.75	N I	15	–	Ry
4254.701	Ce	20	–	–
4254.694	Cb	10	10	–
4254.458	Th	8	6	–
4254.43	Ho	100	20	Kn
4254.429	Mo	10	5	–
4254.425	V II	3	5	–
4254.420	Pr	35	18	–
4254.392	Cb	10	15	Me
4254.370	Ce	8	–	–
4254.346	Cr I	5000 R	1000 R	–
4254.32	Er	7	1	–
4254.288	W	4	3	–
4254.152	Bi I	10	10	Om
4254.13	Ga	–	2	Kl
4254.12	Be I	–	[5]	Ps
4254.060	W	8	2	–
4254.03	Gd	3	–	Kn
4254.004	Ce	3	–	–
4254.00	Tb	5	–	–
4253.98	O II	–	[100 h]	Fl
4253.93	Fe	2	1	–
4253.875	Th	6	4	–
4253.868	Nd	12	3	–
4253.848	U	12	3	–
4253.831	Ce	3	–	–
4253.814	Eu	15	3	–
4253.76	Be I	–	[15]	Ps
4253.74	O II	–	[50 h]	Mh
4253.715	Sm II	5	2	–
4253.700	U	8	2	–
4253 695	Cb	25	40	–
4253.65	Dy	3	–	Ed
4253.619	Gd	50	50	–
4253.582	Er	9	2	–
4253.576	Mo	8	5	–
4253.569	Zr I	20	–	–
4253.544	Th	8	3	–
4253 51	Cl II	–	[75]	Ks
4253 5	Sr	2	–	Sd
4253.370	Gd	50	4	–
4253.356	Ce	40 s	3	–
4253.34	Cu I	7 wh	–	Sh
4253.28	N I	–	[15]	Du
4253 05	Be I	–	[20]	Ps
4253.032	Pr	12	2	Kn
4252.972	Cb	30	50	–
4252.97	Sr I	2	–	Fl
4252 925	La II	5	2	–
4252.79	Dy	6	2	Ed
4252.775	Ne I	–	[2]	Ps
4252.69	Tb	4	5	–
4252.67	Kr II	–	[50 hs]	Me
4252.661	Cr II	–	10	–
4252.637	Pr	3	–	–
4252.538	Os	9	–	–
4252.52	Yb	9	20	–
4252.514	Ir	4	–	–
4252 494	Mo	6	5	–
4252.455	Ce	3	–	–
4252.437	Nd	30	15	–
4252 426	U	15	20	–
4252.418	Ne I	–	[2]	Ps
4252.41	Tm	3	–	–
4252.4	Na I	3	–	Fo
4252 37	Dy	6	–	Ed
4252 308	Co I	150	–	–
4252.243	Cr I	35	10	–
4252.107	Ni I	2	–	–
4252.07	Pr	4	1	–
4251.938	Er	18	1	–
4251.873	Mo	60	60	–
4251.858	Ce	10	1	–
4251.788	Sm II	200	200	–
4251.761	Ti I	10	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4251.736	Gd	300	10	–
4251.73	Dy	7	–	Kn
4251 72	Tb	12	3	Ed
4251.606	Ti I	20	3	–
4251.602	Ce	8	1	–
4251 57	Xe II	–	[50 whl]	Hu
4251.490	Pr	40 w	15 w	–
4251.489	Yb	15	1	–
4251 389	Mo	5	3	–
4251 364	Ce	5	–	–
4251.33	Tb	10	–	–
4251.326	U	10	6	–
4251 303	Sm	2	1	–
4251 205	Yt I	25	8	–
4251 185	A I	–	[800]	I
4251 170	Os	6	–	–
4251 15	Te	–	[70]	Bl
4250 941	U	–	2 h	–
4250.91	Ga II	–	[2]	Sy
4250 84	Dy	5	–	Ed
4250.816	Ce	8	–	–
4250.790	Fe I	400	250	S
4250.689	Mo	5	125	–
4250.68	Ne II	–	[50]	Bl
4250.67	Ga	–	4	Kl
4250.664	Ce	18	–	–
4250.58	Kr II	–	[150]	Me
4250.41	A	–	[2]	Ms
4250.401	Pr	18	12	–
4250.35	Dy	8	–	Kn
4250.339	Th	12	10 l	–
4250 275	Gd	3	–	–
4250 24	Tb	5	–	–
4250 219	Nd	4	–	Kn
4250 130	Fe I	250	150	–
4249 991	La II	100	50	–
4249.92	S II	–	[3]	Hn
4249.89	Br	–	[20]	Bl
4249.685	Th	12	10	–
4249.677	Ce	4	–	–
4249.57	P	–	[100]	Gu
4249.538	Ne I	–	[2]	Ps
4249.536	Sm II	50	40	–
4249.525	U	4 h	3 h	–
4249 494	Mo	5	5	–
4249.484	Pr	20	2	–
4249.458	W	5	12	–
4249.457	Cb	5	8	–
4249.43	Eu	20	–	Kn
4249.4	Na I	3	–	Fo
4249.40	As II	–	10	Ro
4249.37	A	–	[20]	Ms
4249.34	Hf	4	15	–
4249.32	Tb	2	–	–
4249.123	Ti I	60 h	3 h	–
4249.099	Ce	2	–	–
4249.085	Rb II	–	15	Rr
4249.083	Pr	12	2	–
4249 05	Tb	2	–	–
4249 005	Ce	5	–	–
4248.999	Ir	2	–	–
4248.957	Cu I	80	15	–
4248.956	Ca	2 h	10	–
4248.822	V II	4	4	–
4248.806	Ir	4	–	–
4248.709	Cr	35	2	–
4248.676	Ce	60	8	–
4248.658	Cb	3 h	5	–
4248.56	Tb	10	1 h	–
4248.44	Dy	7	2	Kn
4248.344	Cr I	30	2	–
4248.32	La II	–	2	Me
4248.226	Fe I	150	40	–
4248.193	Co I	2	–	m
4248.147	Nd	10	4	–
4248.143	Ru I	12	–	–
4248.089	Ce	6	1	–
4248 00	Se II	–	[100]	Bl
4247.994	Th	15	12	–
4247.964	Ce	2	–	–
4247.900	U	8	1	–
4247.888	Yb	3	7	–
4247.831	Eu	5 h	2	–
4247.73	Eu	8	–	Kn
4247.7	Rb	–	[8]	Dr
4247.695	Ce	2	–	–
4247.694	Re	3	–	–
4247.690	Cb	2	5 h	–
4247.662	Pr	60	35	–
4247.653	Ce	2	–	–
4247.599	Th	8	5	–
4247.433	Fe I	200	100	–
4247.430	U	5	4	–
4247.395	Sm II	15	15	–
4247.367	Nd	50	20	–
4247.36	Dy	30	4	Kn
4247.136	U	10	8	–
4247.069	Eu	15	3	–
4246 938	Ce	3	–	–
4246.88	P	70	[150 w]	Sa
4246 879	Nd	10	4	–
4246.829	Sc II	80	500	–
4246.813	Re	25	–	–
4246.734	Ru	20	–	–
4246.711	Ce	30	4	–
4246 616	Mo	–	25	–
4246.59	Tb	12	1 h	–
4246.547	Gd	150	3	–
4246.47	Te	–	[15]	Bl
4246.398	Ce	10	–	–
4246.38	Tm	20	4	–
4246.338	Th	3	1	–
4246 334	Ru	15	–	–
4246 295	Cb	8	10	–
4246.261	U	30	2	–
4246.16	F II	–	[300 h]	Di
4246.15	Pr	10	2	–
4246 115	Sc I	4	–	–
4246.13	Eu	12	–	Kn
4246.095	Ca	2 h	5	–
4246 090	Fe	80	30	–
4246.022	Mo	30	30	–
4245 978	Ce II	8	2	–
4245.950	U	1	3	–
4245 923	Dy	25	4	–
4245.880	Ce	6	2	–
4245.869	Cd	–	2	–
4245.86	Eu	5	1	–
4245 842	Hf II	9	12	–
4245.565	Co I	2	–	m
4245.529	Ce	4	–	–
4245.513	Ti	20	3	–
4245.464	Th	4	1	–
4245 46	Pr	10	1	–
4245.39	Eu	15 d	1	m
4245 39	Ho	3	2	Ex
4245 38	Xe II	–	[200 h]	Hu
4245 350	Ta	30	15	–
4245 345	Gd	25	–	–
4245 34	Sb	–	2 h	Sp
4245 33	In	–	5	Sq
4245.260	Fe I	80	40	–
4245 222	Ce	3	–	–
4245.173	Sm II	8	6	–
4245.16	Hf	10	2	–
4245.14	Tb	8	–	–
4245.14	Pr	10 w	1 w	–
4245 117	Ir	2	–	–
4244 99	Pb II	–	20	Gs
4244.981	Rb II	–	2	Rr
4244.971	Nd	10	2	–
4244 916	Ce	6	–	–
4244.86	Tb	2	–	–
4244 832	Ru I	25	–	–
4244 800	Mo	4	80	–
4244.800	Rb II	–	2	Rr
4244.79	Dy	5	2	Kn
4244.751	Eu	10 d	–	–
4244.72	Ra II	–	[40]	Rs
4244 696	Sm II	100	80	–
4244 664	Ir	2	–	–
4244.562	Nd	12	2	–
4244.552	Ce	5	–	–
4244.55	P II	–	[30]	Gu
4244.53	Tb	5	1 h	–
4244.490	Pr	4	1	–
4244.470	Ce	3	–	–
4244.443	Rh I	15	5	–
4244.436	Rb II	–	25	Rr
4244.41	Xe II	–	[15]	Hu
4244 373	W	40	20	–
4244.372	U	25	25	–
4244.244	Sm	3	1	–
4244 21	Yb	–	2 h	Me
4244.143	Re I	30	–	–
4243.986	Ta	5	2	–
4243.929	Th	12	8	–
4243.91	Se II	–	[8]	Bt
4243.888	Rb II	–	2	Rr
4243.88	Xe II	–	[5]	Hu
4243 845	Gd	60	100	–
4243.817	Zr	3	–	–
4243.804	Ir	12	2 h	–
4243.789	Ce	12	–	–
4243 76	Ho	3	2	Kn
4243.71	A II	–	[2 h]	Rt
4243.65	Tb	2	–	–
4243.638	W	10	3	–
4243.57	A	–	[20]	Ms
4243.56	I I	–	[3]	Db
4243.557	Zr I	8	–	–
4243.546	U	3	3	–
4243.528	Pr	20	8	–
4243.45	Dy	10	2	Kn
4243 39	Cd	–	2	Tk
4243.368	Fe	10	3	–
4243 362	W	5	1	–
4243.347	U	8	8	–
4243.298	Ce	6	–	–
4243.26	As	–	100	Ro
4243.14	Mo	–	25	–
4243 082	U	6	6	–
4243.061	Ru I	100	40	–
4243.06	Tb	3	–	–
4243.00	Dy	4	–	Kn
4242.894	V	–	15 h	Me
4242 86	Sb II	–	2 h	Dv
4242 853	Cr I	15	–	–
4242 852	Ce	5	–	–
4242 803	Mo	15	4	–
4242.725	Th	5	2	–
4242.723	Ce II	15	3	–
4242.632	Cb	10	20	–
4242.617	Ba	10	5	–
4242.617	Zr I	3	–	–
4242.6	Rb	–	[150]	Dr
4242.588	Fe I	3	–	–
4242.572	U	3	3	–
4242.55	Tb	12	2 h	–
4242.47	Eu	6	1 h	Kn
4242.47	Pb II	–	10	Kl
4242.47	Mg II	4	–	Fl
4242.381	Cr II	4	50	–
4242.290	U	6	3	–
4242.26	Cu I	20	–	–
4242 259	Ce	5	–	–
4242.25	Tb	4	–	–
4242 20	Ne II	–	[5]	Bn
4242.20	Pb II	–	2	Sx
4242.15	Tm	500	100	Me
4242.013	Zr I	4	–	–
4242.009	Ce	10	–	–
4241 973	Cs	–	[10]	Sv
4241 93	Hf II	2	10	Me
4241 886	Co I	3 h	–	–
4241.83	Dy	2	–	Kn
4241.822	Re I	2	–	–
4241 80	N II	–	[100 h]	Fl
4241 77	Au I	40	30	–
4241.743	Ce	3	–	–
4241.7	Pd I	2 h	–	Ex
4241.687	Zr I	100	2	–
4241.669	U	40	50	–
4241.644	Ce	2	–	–
4241.6	Na I	3	–	Fo
4241 521	Os	9	–	–
4241.514	Co I	3 h	–	–
4241.449	Cb	3	5	–
4241.448	W	30	10	–
4241.405	Ce II	5	–	–
4241 387	Re I	30	–	–
4241 38	Cl II	–	[60]	Ks
4241.318	V I	15	8	–
4241.30	Pr	10	2	–
4241.282	Gd	10	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4241.244	Ce	3	–	–
4241.208	Nd	12	4	–
4241.202	Zr I	100	2	–
4241.20	La II	–	15 hl	Me
4241.194	Cr	10	–	–
4241.156	Re I	20	–	–
4241.112	U	10	2	–
4241.112	Fe I	1	4	–
4241.08	Tb	4	–	–
4241.053	Ru I	100	20	–
4241.019	Pr	50	12	–
4240.9	Eu	2	1	Kn
4240.831	Mo	30	25	–
4240.81	Dy	2	–	Ed
4240.8	bh Ca	3	–	L
4240.75	Dy	3	–	Ed
4240.75	Al II	–	[15]	Sy
4240.74	Ca	–	8 h	Ad
4240.705	Cr	200	30	–
4240.680	Gd	4	–	–
4240.669	Ce	2	–	–
4240.587	U	10	10	–
4240.584	Ce	5	–	–
4240.54	Sr II	1	3	Sd
4240.493	Ir	15	–	–
4240.456	Ca I	10	10	IWg
4240.453	Sm	5	1	–
4240.40	I II	–	[3]	Bl
4240.370	Fe	30	5	–
4240.358	V I	15	9	–
4240.339	Zr I	100	1	–
4240.279	Mo	25	20	–
4240.183	U	–	2	–
4240.134	W	8	2	–
4240.13	Tb	12	2 h	–
4240.120	Eu	3	–	–
4240.084	V I	3	–	–
4240.076	Mo	25	20	–
4240.033	Pr	12	3	–
4240.032	Ru	6	–	–
4239.963	Re	3	–	–
4239.95	Ne II	–	[15]	Bn
4239.93	Tb	5	–	–
4239.912	Ce	35	4	–
4239.868	Dy	50	4	–
4239.860	Er	12	–	–
4239.849	Fe I	40	15	–
4239.828	Nd	20	10	–
4239.74	Br	–	[4]	Bl
4239.740	U	10	10	–
4239.733	Fe	30	10	–
4239 725	Mn	100	50	–
4239.652	Ru	7	–	–
4239.641	Ce	5	–	–
4239.573	Ba I	10	4	–
4239.565	Sc I	5	–	–
4239.47	Pr	5	1	–
4239.448	Cu II	–	6	Sh
4239.314	Zr I	100	5	–
4239.28	Tb	12	–	–
4239.194	Mo	15	10	–
4239.073	Mo	15	12	–
4239.021	Ce	3	–	–
4238.960	V	6	2	–
4238.957	Cr I	100	15	–
4238 821	Fe II	200	100	–
4238.785	Gd	200	200	–
4238.734	Sm	5	–	Kn
4238.705	Eu	15	2	–
4238.6	Na I	3	–	Fo
4238.593	La I	6	–	–
4238.584	Re I	20	–	–
4238.557	Ce	4	–	–
4238.44	Dy	7	2	Kn
4238.440	Co I	2	–	–
4238.379	La II	500	300	–
4238.25	Xe II	–	[200 h]	Hu
4238.039	Sc I	12	–	–
4238 039	Fe I	80	15	–
4238.032	Re	15	–	–
4238.028	Mo	–	5	–
4237.893	Ti I	20	8	–
4237.812	Cb	3	5 h	–
4237.798	Sc	12	2	–
4237.798	Ce	8	–	–
4237.780	Ti I	8	–	–
4237.710	Cr I	70	–	–
4237.657	Sm II	60	50	–
4237.54	Dy	8	2	Kn
4237.519	Eu	15	2	–
4237.49	Hg	–	[20]	Ps
4237.429	Zr I	15	–	–
4237.35	Tb	2	–	–
4237.273	Nd	10	2	–
4237.23	A II	–	[40]	Rt
4237.205	Ce	8 s	–	–
4237.2	Rb	–	[8]	Dr
4237.195	Zr I	4	–	–
4237.167	Fe	5	2	–
4237.162	Mo	20	10	–
4237.139	Ce	4	–	–
4237.12	Yt I	2 h	–	–
4237.119	Th	5	2	–
4237.04	Er	2	–	–
4237.010	Pr	5	1	Kn
4236.996	Cb	1	5 h	–
4236.98	N	–	[30 h]	Fl
4236.93	Tm	15	20	–
4236.88	Br	–	[25]	Bl
4236.815	V II	–	3	–
4236.740	Sm II	60	50	–
4236.731	Ce	2	–	–
4236.674	Ru	20	–	–
4236.667	Ir	10	–	–
4236.64	Kr II	–	[100 hl]	Me
4236 635	Pr	10	3	–
4236.576	Sm	6	1	–
4236.554	Zr II	8	1	–
4236 45	Si	–	3 wh	Sy
4236.447	U	10	6	–
4236 372	Ni I	5	–	–
4236.355	Ce	15	–	–
4236 239	Re	25	–	–
4236.23	Eu	3	–	–
4236 210	Pr	20 w	3 w	–
4236 063	Zr I	8	–	–
4236.042	U	12	10	–
4236.023	Ce	30	1	–
4236.0	C	–	[10 h]	Jn
4235.943	Yt I	60	30	–
4235.942	Fe I	300	200	–
4235 940	Ta	5 h	5	–
4235 890	Gd	5	–	Kn
4235 872	Sm	10	4	–
4235 756	V I	10	3	–
4235.728	Yt II	3	20	–
4235.602	Eu	400 r	–	Kn
4235 49	Cl II	–	[25]	Ks
4235 47	I II	–	[25]	Ke
4235 468	Th	6	1	–
4235.34	Tb	20	1 h	–
4235 290	Mn	80	100	–
4235.290	Sc I	2 h	–	–
4235 229	Nd	15	6	–
4235 18	Er	2	–	–
4235 14	Eu	2	–	–
4235.140	Mn	80	–	–
4235.06	Gd	6	–	–
4235 034	Mo	10	8	–
4235 02	Eu	6	–	Kn
4234 991	Re I	15 w	–	–
4234.989	Th	6	3	–
4234.83	Dy	10	–	Kn
4234 79	Ho	2	–	Kn
4234 78	Er	12	2	–
4234.727	Ce II	12	–	–
4234.688	U	10	8	–
4234.656	Ti	12	1	–
4234.632	Zr I	25	1	–
4234 63	Tb	4	–	–
4234.574	Sm II	60	40	–
4234.56	Yb	4	15	–
4234.555	U	5	2	–
4234.530	U	18	15	–
4234.524	V I	15	6	–
4234.515	Cr	60	2	–
4234.422	Re I	15 w	–	–
4234.408	Cs	–	[20]	Sv
4234 351	W	25	7	–
4234 306	Th	5	2	–
4234.296	Zr	3 h	–	–
4234.29	Eu	3	–	Kn
4234.250	V II	1	3	–
4234.211	Ce	30	2	–
4234.196	Nd	20	10	–
4234.099	Eu	2	–	–
4234.09	Cl II	–	[50]	Ks
4234 062	U	8	8	–
4234.000	V I	15	6	–
4233.996	Co I	100 W	–	Dn
4233.985	Hg	–	[20]	St
4233.976	Mo	5	5	–
4233.952	Ce II	8	–	–
4233.86	Ne	–	[30]	Bn
4233.742	U	–	4 h	–
4233 738	Ca	–	4	–
4233.612	Fe I	250	150	–
4233.610	Sc I	10	2	–
4233 609	Eu	8	–	–
4233.491	Mo	8	8	–
4233.460	Os	12	3	–
4233.453	Yb	3	–	–
4233 43	Dy	5	–	Ed
4233 43	Kr	–	[2 h]	Me
4233 368	Mo	4	4	–
4233 32	O	–	[100]	Ps
4233 291	Th	10	6	–
4233.277	Re I	20	–	–
4233 266	Cr II	–	6	–
4233 2	bh Sr	2	–	L
4233.197	Ce	15	1	–
4233 168	Fe II	100	100	–
4233 147	Nd	12	3	–
4233 134	Pr	15	5	Kn
4233 134	U	12	1	–
4232.998	W	12	4	–
4232.958	Re I	20	–	–
4232.952	V I	10	3	–
4232.941	Gd	4	–	Kn
4232.866	Cr I	60	–	–
4232 82	Tb	15	–	–
4232.732	Fe I	10	1	–
4232.65	Pr	8	1 h	–
4232.586	Mo	125	100	–
4232.569	Ce II	20	2	–
4232 54	Yt I	3	–	m
4232.462	Eu	12	3	–
4232.460	V I	10	3	–
4232 46	Gd	15	–	Kn
4232 443	Hf II	20	6	–
4232 43	Pb II	–	[2]	Sx
4232.39	U	12 h	5 h	–
4232 378	Nd	40	15	–
4232 330	Pr	5	1	–
4232 322	Ru I	40	–	–
4232 31	Br	–	[8]	Bl
4232 222	Cr	70	5	–
4232 19	Tb	20	3	–
4232.188	Cs	–	[25]	Sv
4232 093	Zr	3	–	–
4232 055	V II	1	6	–
4232 050	Ce	20	2	–
4232 04	Pr	4	1	–
4232 037	U	15	15	–
4232.033	Dy	20	2	–
4232.026	Er	10	–	–
4231.989	Yb	20 l	2	–
4231.952	Cb	8	10	–
4231.942	W	3	2	–
4231.921	Sc	10	–	–
4231 88	Tb	12	–	–
4231 745	Ce	30	5	–
4231.74	Te	–	[30]	Bl
4231.728	W	10	2	–
4231.703	Fe	3	1	–
4231.676	U	25	–	–
4231 664	Cr	3	–	–
4231.643	Sc I	6	2	–
4231 632	Zr II	9	5	–
4231.625	Mo	5	4	–
4231 61	Hf II	–	4	Me
4231.60	Ne II	–	[50]	Bn
4231.364	Cu II	–	8	–
4231.36	Tb	5	–	–
4231.35	C I	–	[5]	Jn

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4231.329	Ce	2	–	–
4231.322	W	7	3	–
4231.23	Eu	2	–	Kn
4231.20	Hf	5	–	–
4231.188	U	6	6	–
4231.174	Ce	3	–	–
4231.151	Nd	10	2	–
4231.143	V II	1	2	–
4231.07	B	3	2	Sy
4231.040	Ni I	15	–	–
4230.98	S II	–	[35]	Hn
4230.953	La II	150	50	–
4230.827	Ta	–	10 W	–
4230.667	Pr	8	2	–
4230.636	Cr II	–	[30]	Ot
4230.63	Eu	5	1	–
4230.61	Tb	5	–	–
4230.556	Ce	6	–	–
4230.515	U	6	–	–
4230.481	Cr I	70	8	–
4230.444	Cu II	–	3	Sh
4230.431	Th	5	1	–
4230.35	N I	–	[15]	Du
4230.316	Cb	3	5	–
4230.314	U	5	5	–
4230.312	Ru I	60	–	–
4230 24	Yb	–	4	Me
4230.202	Er	25	–	–
4230.202	Rh I	10	3	–
4230.126	Hg	–	[20]	St
4230.120	Ce	12 l	–	–
4230.05	Se II	–	[40]	Bl
4230.00	Br II	–	[12]	Bl
4229.979	Ce	3	–	–
4229.955	Co I	3 h	–	–
4229.89	A	–	[10]	Rt
4229.831	Cb	5	5	–
4229.822	U	2	2	–
4229.808	Gd	15	20	–
4229.80	Pr	8	1	–
4229.761	Fe I	20	2	–
4229.702	Sm II	40	30	–
4229 687	V I	12	6	–
4229 66	Yb	3	–	Me
4229.66	U	1	2	–
4229.632	Ce	2	–	–
4229 63	Dy	5 h	–	Ed
4229.59	N	–	[5]	Du
4229 59	In II	–	[5]	Ps
4229.525	Mo	4	4	–
4229.515	Nd	10	2	–
4229.49	Ho	6	3	Kn
4229.459	Th	10	8	–
4229 333	Eu	10	3	–
4229 309	Ru I	40	–	–
4229.268	U	6	1	–
4229.22	Yt I	2	–	Me
4229.21	Kr	–	[8 whl]	Me
4229.149	Cb	50	100	–
4229.118	W	1	2	–
4229.10	Pr	15 w	2	–
4229 0	bh Pb	4	–	L
4229.00	In II	–	[10]	Ps
4228.947	Ce	2	–	–
4228.837	Nd	10	3	–
4228.827	Ce	5	–	–
4228.8	Cu	3	–	Hs
4228.79	Kr II	–	[20 hl]	Me
4228.787	Mo	4	4	–
4228.759	U	18	12	–
4228.608	Ta	25	10	–
4228.572	Nd	10	2	–
4228.55	Tm	2	1	–
4228.50	Pr	15 w	3 w	–
4228.46	Te	–	[50]	Bl
4228.428	U	10	1	–
4228.42	As	–	10	Ro
4228.350	Cs II	–	[35]	Ot
4228.297	Ce	15	–	–
4228.28	C	–	[5]	Jn
4228.23	Ca	–	3	Ad
4228.200	Nd	15	6	–
4228.18	A	–	[40]	Rt
4228.082	Hf	8	2	–
4228.04	Eu	3 w	–	–
4228.025	Nd	12	5	–
4227 982	Al II	–	[20]	Sy
4227.98	In II	–	[10]	Ps
4227.94	Yb	–	10	Me
4227.936	Cu II	–	7	Sh
4227.923	Al II	–	[6]	Sy
4227.87	Hg	–	[70]	Ps
4227.861	Al II	–	[2]	Sy
4227.83	N II	–	[10 h]	Fl
4227.758	Zr I	150	8	–
4227.746	Ce	40	5	–
4227.744	V I	10	5	–
4227.719	Nd	20	8	–
4227.658	Th	3	1	–
4227.650	Ti I	18	2	–
4227.58	Eu	8	–	Kn
4227.500	Al II	–	[30]	Sy
4227.46	Re I	200 W	–	–
4227.432	Fe I	300	250	–
4227.412	Ce	10	–	–
4227.406	Al II	–	[8]	Sy
4227.330	U	6	8	–
4227.3	Rn I	–	[15]	Rs
4227.29	Hg	–	[100]	Ps
4227.16	In II	–	[50 h]	Ps
4227.145	Gd	50	20	–
4227.100	Cs II	–	[50]	Ot
4227.085	Mo	3	25	–
4227.02	A II	–	[10]	Rt
4226.992	Nd	6	5	–
4226.915	W	15	3	–
4226.809	Al II	–	[35]	Sy
4226.758	Cr	125	30	–
4226.735	Ir	30	–	–
4226.734	Ce	50	30	–
4226.728	Ca I	500 R	50 R	IWg
4226.726	Yt	5	15	–
4226.726	Mo	15	2	–
4226.656	Ru I	15	–	–
4226.65	A II	–	[2]	Rt
4226.628	Ir	5	–	–
4226.624	V I	8	3	–
4226.60	U	1	2	–
4226.570	Ge I	200	50	–
4226.549	Mo	10	5	–
4226.527	Os	12	6	–
4226.44	Tb	50	–	–
4226.43	Cl I	–	[10]	Ks
4226.430	Fe I	80	25	–
4226.37	Se II	–	[20]	Bl
4226.343	W	10	3	–
4226.335	Ce	2	–	–
4226.291	Mo	20	20	–
4226.247	Cb	4	3	–
4226.209	Cb	3 w	5	–
4226.205	Ir	2	–	Ab
4226.196	Ce	3	–	–
4226.175	Sm	5	2	–
4226.15	Tb	3	–	–
4226.15	Br	–	[4]	Bl
4226.15	B	4	2	Sy
4226.1	Rb	–	[8]	Dr
4226.065	U	6	8	–
4226.06	Rn I	–	[50]	Rs
4225.957	Fe I	80	30	–
4225.87	As II	–	10	Ro
4225 853	Gd	150	50	–
4225.75	U	1	3	–
4225.746	Ce	6	8	–
4225 70	Te	–	[50]	Bl
4225.605	K II	–	[40]	Dm
4225 58	Sc I	4	–	–
4225.556	Nd	3	2	–
4225.54	I II	–	[15]	Ke
4225.496	Ir	15	2	–
4225.465	Fe I	80	20	–
4225.463	Zr I	6	–	–
4225.369	U	8	8	–
4225.327	Pr	50	40	–
4225.318	Sm II	40	30	–
4225.264	Gd	3	–	Kn
4225.263	Zr I	4	–	–
4225.248	Mo	5	3	–
4225 225	V II	3	10	–
4225.153	Dy	40	8	Kn
4225.148	Gd	20	10	–
4225 13	Ho	3	2	Ex
4225.12	F	–	[20 h]	Di
4225.109	Co	5	–	–
4225.10	Hf II	–	5	Me
4225.092	Ru	25	–	–
4225.028	Gd I	15	–	Ab
4224.988	W	–	12	–
4224.98	I	–	[8]	Bl
4224.929	Mo	5	5 l	–
4224.92	Cl II	–	[15]	Ks
4224.88	Eu	4	–	Kn
4224.85	Tb	5	–	–
4224.847	Nd	15	5	–
4224.793	Ti I	40	8	–
4224.766	Mo	5	3	–
4224.765	W	10	2	–
4224.74	N	–	[15]	Du
4224.68	Dy	6	–	Kn
4224.650	Zr I	3	–	–
4224.649	Ir	3	–	Ab
4224.616	Th	5	3	–
4224.613	Ta	15 s	–	–
4224.57	Ne II	–	[5]	Bl
4224 552	Ce	8	1	–
4224.517	Fe I	60	15	–
4224.515	V II	2	3	–
4224.514	Cr	60	12	–
4224 43	P II	–	[15]	Gu
4224.427	U	8	10	–
4224 31	Tl	–	[8]	El
4224.30	Eu	3	–	Kn
4224.30	Sb	–	8 wh	–
4224 28	Tb	12	–	–
4224.256	Yt	5	–	–
4224.237	Sm II	15	5	–
4224.221	Ce	2	–	–
4224 22	Gd	5	–	Kn
4224.176	Re I	20	–	–
4224.176	Fe I	200	80	–
4224.138	V I	12	9	–
4223 99	Lu	2	–	Me
4223.963	Ba	5	3	–
4223.918	Mo	5	4	–
4223.884	Ce II	20	1	–
4223 88	Br	–	[80]	Bl
4223.82	Tb	3	–	–
4223.72	Er	9	2	–
4223.711	Sm II	50	20	–
4223.69	Pt II	–	3	Sh
4223 648	U	6	1	–
4223.64	Ho	–	2	Ex
4223.57	In	–	5	Sq
4223.51	Pr	12	3	–
4223 47	Ho	4	–	Kn
4223.470	Cr I	15	–	–
4223.38	Dy	2	–	Ed
4223.34	Sb II	–	4	Dv
4223.327	I	–	[15]	Ke
4223.32	Tb	10	1	–
4223 30	U	1 h	3	–
4223.208	Nd	15	3	–
4223.159	Ir	15	2 h	–
4223.153	Ce	3	–	–
4223.09	Lu	1	4	Me
4223.056	Sm	3	2	–
4223.05	Tl	–	[25]	El
4223.04	N I	–	[25]	Du
4223.00	Xe II	–	[200 h]	Hu
4222.98	Gd	10	–	Kn
4222.98	Pr	125	40	–
4222.975	K II	–	[40]	Dm
4222.961	Mo	15	10	–
4222.94	U	1	2	–
4222.91	Tb	6 W	–	–
4222.884	Ce	3	–	–
4222.8	Na I	3	–	Fo
4222.78	O	–	[50]	Ps
4222.739	U	6	–	–
4222.732	Cr I	100	15	–
4222.71	Tb	9	–	–
4222.67	A	–	[20]	Rt
4222 67	Tm	10	4	–
4222.599	Ce	80	18	–
4222.411	Mo	20	15	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4222.40	Br	–	[4]	Bl
4222.375	U	18	8	–
4222.31	Eu	5	–	–
4222.26	Ho	3	1 h	Ex
4222.221	Dy	10	–	–
4222.221	Fe I	200	200	–
4222.20	Kr II	–	[20 hl]	Me
4222.15	P	300	[150 w]	Gu
4222.15	U	1	3 h	–
4222.058	Nd	5	2	–
4222.055	W	15	8	–
4222.02	Tb	3	–	–
4221.95	Tm	2	2	–
4221.9	bh Ca	5	–	L
4221.877	Sc I	10	–	–
4221.859	Sm II	4	2	–
4221.805	U	12	8	–
4221.76	Hf	2	–	–
4221.731	Ce	2	–	–
4221.722	W	6	1	–
4221.715	Nd	8	2	–
4221.696	Ni I	5	–	–
4221 629	Ce	4	–	–
4221.58	Se II	–	[20]	Bt
4221.572	Cr	80	35	–
4221.486	Ce	2	–	–
4221.45	Pr	4	1	–
4221.38	Tb	3	–	–
4221.23	As	–	5	Ro
4221.171	Ce	12	1	–
4221.138	Nd	15	8	–
4221.119	Cs II	–	[15]	Sv
4221.104	Dy	60	8	Kn
4221.084	Re I	100	–	–
4221.080	Eu	10	2	–
4221.07	Ho	4	2	Ex
4221.04	V I	2	2 h	Me
4220.993	Er	18	1	–
4220 958	I	–	[80]	Ke
4220.92	Ne II	–	[15]	Bn
4220 83	Bi	12	2	To
4220.81	Br	–	[4]	Bl
4220.800	Ir	30	2	–
4220.79	N	–	[5]	Du
4220.769	Ce	6	–	–
4220.701	U	4	4	–
4220 675	Eu	2	–	–
4220.675	Ru I	60	–	–
4220.653	Sm II	100	100	–
4220.646	Zr I	9	–	–
4220.637	Yt I	15	7	–
4220.610	Mn	60	20	–
4220 586	Cb	2	8	–
4220 549	Ce	3	–	–
4220.541	W	5	1	–
4220.541	Sm	3	1	–
4220 47	Tb	2	–	–
4220.42	Te	–	[100]	Bl
4220.348	Fe	80	40	–
4220 3	Na I	10	–	Fl
4220.27	W	7	2	–
4220.27	Co	2	1	m
4220.258	Nd	10 d	5 d	–
4220.185	Ce	3	–	–
4220.151	Sm II	12	10	–
4220.14	Pr	10	2	–
4220.116	U	3	4	–
4220.11	Tb	15	1 h	m
4220 083	Th	8	8	–
4220.042	V II	3	10	–
4219.989	Mo	5	5	–
4219 976	U	12	2 h	–
4219.83	In II	–	[50]	Ps
4219.76	Ne II	–	[100]	Bn
4219.729	Sc I	8	–	–
4219.716	U	12	8	–
4219.704	Ce	6	–	–
4219.652	Pr	30 w	8 w	–
4219.568	Nd	8	4	–
4219.516	Cs	–	[5]	Sv
4219.508	U	1	3	–
4219.50	In II	–	[30]	Ps
4219.401	U	4	3	–
4219.40	In II	–	[5]	Ps
4219.395	Ce	6	–	–
4219.395	Mo	15	12	–
4219.378	W	25	15	–
4219.364	Fe I	250	200	S
4219.302	Sm	5	1	–
4219.21	Br	–	[4]	Bl
4219.18	I II	–	[10]	Ke
4219.17	Tb	12	–	–
4219.070	Sb II	–	30	–
4219.015	Mo	8	10	–
4218.842	Ir	3	–	–
4218.84	Hf II	3	–	Me
4218.84	Tb	5	–	–
4218.72	In II	–	[5]	Ps
4218.710	V I	15	8	–
4218.69	A	–	[20]	Rt
4218.69	Yb	15	–	–
4218.634	Sm	6	1	–
4218.58	Dy	6	–	Kn
4218.567	Yb	3	50	–
4218.557	W	12	2	–
4218.548	Nd	10	4	–
4218.545	Th	8	8	–
4218.520	Cb	–	10 h	–
4218.464	U	8	3	–
4218.448	Zr I	15	–	–
4218.426	Er	12	–	–
4218.289	Ir	20	2	–
4218.258	Sc I	4	–	–
4218.190	Th	8	8	–
4218.13	U	3	1	–
4218.094	Er	15	1	–
4218.091	Dy	50	8	Kn
4218.085	Ir	8	–	–
4218.07	Ho	3	2	Ex
4218.002	Ce	3	–	–
4218.001	Rh I	2	1	–
4217.945	Cb	50	50	–
4217.91	Tb	5	–	–
4217 9	F	–	[2 h]	Di
4217.88	Kr II	–	[2]	Me
4217.81	Pr	12	8	–
4217.790	Yt I	10	4	–
4217.779	Eu	6	1 h	–
4217.770	U	10	1	–
4217.760	Ir	40	3	–
4217.626	Cr I	150	70	–
4217.591	Ce	25	3	–
4217.555	Fe I	200	100	–
4217.554	La II	200	100	–
4217.517	U	1	5	–
4217.45	A	–	[10]	Rt
4217.282	Nd	20	3	–
4217.27	Eu	4	–	–
4217.268	Ru I	100	20	–
4217.258	Zr I	5 h	–	–
4217.23	S II	–	[30]	Hn
4217.226	Ce	5	–	–
4217.225	Th	8	5	–
4217.195	Gd	100	100	–
4217.19	Pr	5	1	–
4217.17	Tb	3	–	m
4217.15	Ne II	–	[30]	Bl
4217.118	U	1	3	–
4217.09	O	–	[30]	Ps
4217.08	I I	–	[3]	Db
4216.96	Dy	3	–	Kn
4216 85	Cl	–	[8]	Bl
4216.841	Mo	10	8	–
4216.816	U	1	2	–
4216.773	Pr	3	–	–
4216.725	Hg	–	[50 h]	St
4216.72	Yb	2	10	–
4216.68	Tb	10	1 h	–
4216.61	U	8	1	–
4216.584	Ir	8	–	–
4216.56	P II	–	[15]	Gu
4216.549	La I	10	–	–
4216.365	Cr I	60	25	–
4216.228	Cb	1	10	Me
4216 186	Fe I	200	100	S
4216.101	Sc I	3	–	–
4216.06	W	1	5	–
4216 04	Ba II	–	[25]	Rs
4216.0	bh C	–	–	L
4215.99	U	5	3 h	–
4215.98	Pr	4	3	–
4215.970	Fe I	2	1	–
4215 964	Er	9	–	–
4215.95	Tb	3	–	Ed
4215.92	N I	–	[5]	Du
4215.90	In	–	5	Sq
4215.753	Zr II	–	3	–
4215.64	Cl	–	[6]	Bl
4215.60	Xe II	–	[100]	Hu
4215.556	Rb I	1000 R	300	Rr
4215.53	Tm	10	–	–
4215.524	Sr II	300 r	400 W	ISn
4215.51	U	3	2	–
4215.506	Re	20	–	–
4215.425	Fe I	60	15	–
4215.4	Na I	3	–	Fo
4215.382	W	12	5	–
4215.313	Zr I	4	1	–
4215.169	Dy	50	8	–
4215.155	Os	8	1	–
4215.14	Pr	8	3	–
4215.13	Tb	30 d	1 h	–
4215.024	Gd	200	150	–
4215.02	Se	–	[150]	Bt
4215.013	U	4	4	–
4214.959	W	5	1	–
4214.874	Co	2	1	–
4214.817	Cb	5	10	–
4214.733	Cb	40	–	–
4214.73	N I	–	[25]	Du
4214.698	Ce	4	–	–
4214.69	Xe II	–	[3]	Hu
4214.672	Cb	–	100	–
4214.603	Nd	10	10	–
4214.557	Ru	7	–	–
4214.552	Th	–	3	–
4214.524	Ir	5	–	–
4214.478	Pr	3	2	Kn
4214.442	Ru	100	40	–
4214.421	U	10	10	–
4214.42	Tb	25	2	–
4214.38	Dy	3	–	Kn
4214.285	U	10	2	–
4214 227	Nd	10	8	–
4214.065	Mo	20	15	–
4214.039	Ce I, II	35	4	–
4214.004	Th	–	3	–
4213.96	Pr	12	3	–
4213.924	Sm	10	3	–
4213.912	Eu	2 l	–	–
4213.879	U	20	4	–
4213.865	Zr I	40	3	–
4213.859	Os	30	3	–
4213.73	In II	–	[15]	Ps
4213.72	Xe II	–	[200 h]	Hu
4213.650	Fe	100	60	S
4213.58	In II	–	[10]	Ps
4213.573	Pr	18	10	–
4213.546	Yt I	4	2	–
4213 54	Eu	3	2	–
4213.49	Tb	8 d	2 h	–
4213.285	Ir	3	2	–
4213 26	Pr	4	2	–
4213 26	Tm	3	–	–
4213.210	Nd	10	–	–
4213.182	Dy	5	8	Kn
4213.179	Cr	60	8	–
4213.167	Ca	–	5	–
4213.15	Ho	3	1	Ex
4213.129	Cs II	–	[30]	Sv
4213.10	In II	–	[50]	Ps
4213.073	Th	10 w	5 w	Fd
4213.057	Nd	2	–	–
4213.036	Ce II	15	2	–
4213.031	Sm II	2	–	–
4213.027	Yt I	5	4	–
4212.991	U	5	5	–
4212.97	In II	–	[15]	Ps
4212.950	Pd I	500 W	300 W	–
4212.931	Sm	–	2	–
4212.90	C	–	[5]	Jn
4212.89	W	8	2	–
4212.86	Tm	20	4	–
4212.746	Nd	2	1	–
4212.730	U	5	4 h	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
4212.70	Pr	5	2	–
4212.68	Ag I	150 h	20 h	Bx
4212.66	Si	–	2	Sy
4212 660	Cr I	80	8	–
4212.625	Zr I	15	–	–
4212.58	Se II	–	[200]	Bl
4212.54	Tb	5	–	–
4212.534	Cb	2	3	–
4212.53	Hg II	–	[50]	Ps
4212.489	Sc I	4	–	–
4212.477	U	5	3	–
4212.4	Na I	3	–	Fo
4212.391	Ce	1	2	–
4212.36	C	–	[5]	Jn
4212.34	Sc I	3	–	m
4212.262	U	12	10	–
4212.23	Tb	3 w	–	–
4212.22	Hg	–	[30]	Ps
4212.158	Zr I	3	–	–
4212.063	Ru I	125	80	–
4212.040	Cb	4	3	–
4212 019	Gd	150	50	–
4211.906	Ce	1	2	–
4211.875	Zr II	18	15	–
4211.861	Cu II	1 h	6	Sh
4211.858	Pr	50 d	25 d	Kn
4211.855	Os	150	50	–
4211.83	Se II	–	[200]	Bt
4211.748	Mn	30	20	–
4211.73	Ho	5	3	Ex
4211.728	Ti I	30	6	–
4211.72	Tb	25	2	–
4211.719	Dy	200	15	Kn
4211.718	Er	30	5	–
4211.68	U	10	10	–
4211.641	Ca	–	2	–
4211.620	U	18	–	–
4211.582	Ce	3	–	–
4211.519	Th	8	8	–
4211.349	Cr	100	30	–
4211.335	Zr I	12	–	–
4211.32	Te	–	[15]	Bl
4211.310	U	10	6	–
4211.286	Nd	30	15	–
4211.248	Dy	4	2	–
4211.24	Pr	5	2	–
4211.24	Ho	3	1 h	Ex
4211.2	bh Sr	3	–	L
4211.16	Tb	2	1 h	–
4211.141	Rh I	15	200	–
4211.024	Mo	15	12	–
4210.978	Nd	25	5 h	–
4210.936	Ag I	200 h	30 h	–
4210.920	Th	8	3	–
4210.873	U	12	12	–
4210.768	Th	3	1	Fd
4210.751	Cr	12	–	–
4210.67	Eu	2	1	–
4210.67	Kr	–	[25 whl]	Me
4210.611	Zr II	3	3	–
4210.587	Ir	3 wh	2 wh	–
4210.448	U	10	15	–
4210.352	Fe I	300	200	–
4210.340	Sm II	50	20	–
4210.30	Yb	4	–	Me
4210.240	Ce	3	–	–
4210.22	La	–	10 h	Me
4210.209	Mo	5	5	–
4209.997	Ce	6	2 h	–
4209.857	V I	30	10	–
4209.804	Nd	5	4	–
4209.80	V II	–	12	Me
4209.788	W	3	1	–
4209.756	Cr	80	20	–
4209.739	V	–	12	Me
4209.71	As II	–	10	Ro
4209.70	Hf	5	2	m
4209.67	Cl I	–	[8]	Ks
4209.67	Sb II	–	[10]	Lg
4209.649	Mo	4	80	–
4209.498	K II	–	[15]	Dm
4209.492	U	15	1	–
4209.47	Xe II	–	[100 h]	Hu
4209.41	Tb	2 h	–	Ed
4209.409	Ce	25	3 l	–
4209.368	Cr	100	40	–
4209.198	Ce	4	–	–
4209.116	Nd	5	5	–
4209.11	Eu	2	–	Kn
4208.983	Zr II	30	25	–
4208.98	I I	–	[10]	Mu
4208.93	Eu	5	–	Kn
4208.893	Th	15	15	–
4208.775	Mo	5	5	–
4208.70	Tb	15 d	1 h	–
4208.699	Ce	2	–	–
4208.615	Fe	100	50	–
4208.48	Xe II	–	[200 h]	Hu
4208.440	Ta	2	30 h	–
4208.439	Ce	6	–	–
4208.380	Nd	8	5	–
4208.357	Cr	100	25	–
4208.305	Pr	18	12	–
4208.245	Ce	4	–	–
4208.16	Eu	10	1	–
4208.160	Cb	4	4	–
4208.089	Zr I	5	–	–
4208.064	Gd	5	–	Kn
4208.03	Cl II	–	[30]	Ks
4208.00	As II	–	30	Ro
4207.87	F II	–	[3]	Di
4207.810	Pr	12	5	Kn
4207.68	Dy	5	–	Kn
4207 636	Ru	20	–	–
4207.617	La II	5	3 h	–
4207.615	Co I	2 h	–	–
4207.577	Ce	2	–	–
4207.561	Mo	10	5	–
4207.56	Tb	8	–	–
4207.442	F II	–	[30]	Di
4207.401	Mo	10	5	–
4207.40	Hf II	–	4	–
4207 276	Ca	–	10	–
4207 249	Mo	10	10	–
4207.23	U	4	1 h	–
4207.162	F II	–	[50]	Di
4207 131	Fe I	80	40	–
4207.053	W	25	12	–
4206.899	Cr	80	25	–
4206.832	Ce	8	–	–
4206.80	Tb	5	–	Ed
4206.78	Gd	4 h	–	–
4206.739	Pr	50	50	–
4206.702	Fe I	125	25	–
4206.68	V I	2	2 h	Me
4206.619	Sm II	10	10	–
4206 617	Rh I	8	5	–
4206.577	Hf II	10	10 h	–
4206.544	Dy	12	4	Kn
4206.53	Se	–	[10]	Bl
4206 49	Tb	20 d	1 h	–
4206.43	Ne II	–	[15]	Bl
4206.409	U	10	10	–
4206.404	Ta	50	20	–
4206.324	Ce	3	–	–
4206.296	U	5	5	–
4206.240	W	6	2	–
4206.132	Cb	4	3	–
4206.124	Sm II	20	20	–
4206.10	Hg	–	[30]	Ps
4206.07	Br	–	[2]	Bl
4206 016	Ru I	100	40	–
4206.00	Tm	20	5	–
4205.92	Er	6	–	–
4205.919	Zr II	10	3	–
4205.892	Ce	4	1 h	–
4205.876	Ta	100	30	–
4205.809	Mo	2	1	–
4205.792	Ce	4	–	–
4205.773	Sm	4	2	–
4205.72	Pr	5	1	–
4205.65	N	–	[5 h]	Du
4205.64	Tb	3	–	–
4205.64	Dy	5	2	Ed
4205.63	U	3	–	–
4205.595	Nd	20	15	–
4205.559	W	7	12	–
4205.546	Fe I	50	6	–
4205.404	Xe I	–	[10]	IMe
4205.4	Tl	–	[2]	Cx
4205.361	Sm	8	4	–
4205.311	Cb	15	15	–
4205.255	Nd	5	4	–
4205.23	Tb	2	–	–
4205.222	Os	9	1	–
4205.217	In II	–	[15]	Ps
4205.194	Sc I	10	1	–
4205.161	Ce	6	2 h	–
4205.151	In II	–	[30]	Ps
4205.1	bh Ca	6	–	L
4205.086	V II	5	20	–
4205.079	In II	–	[50]	Ps
4205 07	Cl II	–	[10]	Ks
4205.046	Eu II	200 R	50	Kn
4205.03	Dy	7	2	Kn
4204.909	Eu	5	–	Kn
4204.839	Gd	25	–	Kn
4204 813	Sm II	8	10	–
4204.809	Mo	25	20	–
4204.739	Ce	15	–	–
4204.696	Yt II	15	15	–
4204.623	Ca	–	2	–
4204.609	Mo	15	10	–
4204.58	Pr	5	1	–
4204.560	Os	12	–	–
4204.54	Cl II	–	[18]	Ks
4204.538	Sc I	4	2 h	–
4204.53	Re	25 w	–	–
4204.471	Cr	80	30	–
4204.409	W	20	10	–
4204.4	Tl	–	[2]	Cx
4204.371	U	15	10	–
4204 351	Nd	10 d	3 d	–
4204.321	Cb	4	3	–
4204.31	Kr	–	[3 whl]	Me
4204 296	Ce	1	3	–
4204.200	V II	2	6	–
4204.198	Cr I	50	6	–
4204 038	La II	200	25	–
4203 987	Fe I	200	120	S
4203 820	W	15	6	–
4203.73	Tm	250	25	Me
4203.71	Tb	25	1	–
4203.695	Xe I	–	[50]	IHu
4203.590	Cr I	100	20	–
4203.572	Fe I	10	1	–
4203.505	Ce	6	2 h	–
4203.49	Pr	4	2	–
4203.464	Ti I	50	10	–
4203.434	Nd	10 d	8	–
4203.43	A	–	[20]	Rt
4203.413	Cb	4	3	–
4203.330	Ce	2	–	–
4203.323	Re	10 h	–	–
4203.270	Ne I	–	[2]	Ps
4203.23	Rn	–	[200]	Rc
4203.22	Ca I	2	–	Cw
4203.22	Xe II	–	[3]	Hu
4203.174	Ce	2	–	–
4203.12	Mo	4	2	–
4203.094	U	6	4	–
4203.07	Tb	3	–	–
4203.047	Sm II	15	20	–
4202.944	Ce II	40	18	–
4202.912	Sm II	15	8	–
4202.88	Br	–	[4]	Bl
4202.758	Fe	10	4	–
4202.709	Ce	2	–	–
4202.70	Pr	8	3	–
4202.68	Eu	15	–	–
4202.676	U	6	2	–
4202.522	Sr I	6	–	ISn
4202.516	Ir	8	–	–
4202.512	Gd	15	–	–
4202.50	Br	–	[25]	Ks
4202.426	Ir	8	–	–
4202.41	Pr	3	2	–
4202.4	Al II	–	[8]	Sy
4202.34	V II	6	15	Me
4202.250	Dy	20	4	–
4202.24	P	–	[30 h]	Gu
4202.219	Mo	5	5	–
4202.154	Ni I	5	–	–
4202.062	Os	100	4	–
4202.031	Fe I	400	300	S

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4202.03	Eu	5	–	–
4201.99	A	–	[20]	Rt
4201.97	Ta	5 h	–	Ks
4201.852	Th	8	10	–
4201.851	Rb I	2000 R	500	Rr
4201.768	Ca	–	2	–
4201.757	Mn	40	20	–
4201.723	Ni I	30	–	–
4201.628	U	1	2	–
4201.60	Er	8 d	–	–
4201.58	A II	–	[2]	Rt
4201.529	Pr	30 w	12 w	–
4201.519	Cb	10	10	–
4201.50	La	2	12 h	Me
4201.457	Zr I	50	3	–
4201.449	Os	30	3	–
4201.42	Kr II	–	[30 whl]	Me
4201.416	U	8	8	–
4201.372	Dy	8	4	Kn
4201.35	Br	–	[5]	Bl
4201.318	Dy	30 w	–	–
4201.318	Mo	5	5	–
4201.300	Ce	4	20	–
4201.25	Xe II	–	[8 wh]	Hu
4201.239	Ce	8 l	3	–
4201.216	Pt I	2	2	–
4201.184	Pr	15	10	–
4201.178	Mo	4	3	–
4201.14	Tm	4	5	Me
4201.131	U	4	4	–
4201.01	Dy	5	–	Kn
4200.99	Tb	40	4	–
4200.927	Fe I	80	20	–
4200.81	Eu	2	–	Kn
4200.749	Ti I	35	8	–
4200.694	Ce	–	2 h	–
4200.675	A I	–	[1200]	I
4200.66	Tb	4	–	–
4200.64	Er	9 d	1	–
4200.570	Mo	15	15	–
4200.52	Pr	4	1	–
4200.486	Sb II	–	2 wh	–
4200.464	Ni I	40	–	–
4200.199	Mo	4	2	–
4200.191	V I	10	5	–
4200.139	Ce	3	1	–
4200.12	Tb	2	–	–
4200.103	Cr	80	8	–
4200.098	U	6	8	–
4200.031	Nd	6	4	–
4200.028	W	12	3	–
4199.93	A II	–	[5]	Rt
4199.92	Tm	100	20	–
4199.918	Er	8	–	–
4199.902	Ru I	150	300	–
4199.85	He II	–	[2]	Ps
4199.830	Mo	5	5	–
4199.67	Tb	3	–	–
4199.667	Ce	3	–	–
4199.662	Ir	4	–	–
4199.653	Mo	5	5	–
4199.634	U	6	2	–
4199.626	W	9	2	–
4199.6	P II	–	[5 h]	Gu
4199.58	Pr	3	2	–
4199.488	Sc	3	–	–
4199.454	Sm II	8	12	–
4199.305	Ir	2	–	–
4199.272	Yt II	3	10	–
4199.099	Nd	15	15	–
4199.099	Ca	2	2	–
4199.099	Fe I	300	200	–
4199.091	Zr I	20	2	–
4199.05	Tb	3	–	–
4199.022	Th	3	5	–
4199.00	Dy	2	–	Ed
4198.99	Tb	4	–	Kn
4198.91	Mo	1	25	–
4198.875	Ru I	60	100	–
4198.847	Cb	4	3	–
4198.724	Ce	8	3	–
4198.69	Er	10 d	2	–
4198.66	Eu	3	–	–
4198.643	Fe I	10	2	–
4198.611	V I	10	6	–
4198.61	Mo	4	4	–
4198.525	Cr	100	30	–
4198.510	Cb	3	5	–
4198.503	Ir	10	–	–
4198.432	Ce II	5	1	–
4198.425	Co I	3 h	–	–
4198.42	Tb	7	–	–
4198.367	Cb	2	5 h	–
4198.317	A I	–	[1200]	I
4198.312	Fe I	250	150	–
4198.3	Na I	10	–	Fl
4198.25	Si	–	3	Sy
4198.241	U	10	3	–
4198.168	Nd	–	4	–
4198.099	Ne I	–	[70]	Ps
4198.05	Se II	–	[40]	Bl
4198.026	Dy	20	4	–
4197.998	Ce I, II	12	2	–
4197.93	Dy	4	–	–
4197.869	Sm II	2	2	–
4197.81	Xe II	–	[5 wh]	Hu
4197.762	Zr I	3	–	–
4197.696	Gd	40	50	–
4197.669	Ce II	6	3	–
4197.63	Tm	3	–	–
4197.613	Cb	2	5	–
4197.61	As II	–	30	Ro
4197.601	V I	12	7	–
4197.579	Ru I	100	100	–
4197.536	Ir	40	2	–
4197.518	U	8	8	–
4197.511	Ce II	6	1	–
4197.415	U	6	4	–
4197.393	Mo	3	3	–
4197.234	Cr	70	25	–
4197.22	Te	–	[15]	Bl
4197.160	U	8	6	–
4197.1	bh C	–	–	L
4197.075	Er	12 w	1	–
4197.054	Gd	10	10	–
4197.05	Mo	3	3	–
4197.03	Tb	2	1 h	m
4196.99	In	–	10	Sq
4196 950	Cb	3	5	–
4196.871	Ru	60	50	–
4196.79	Pr	10	4	–
4196.73	Tb	15	1 h	–
4196.706	U	12	1	–
4196.60	Ca	12 w	1 h	Ad
4196.573	Ce	4	4	–
4196.547	La II	200	150	–
4196.533	Fe	3	–	–
4196.504	Rh I	100	50	–
4196.415	Ne I	–	[15]	Ps
4196.335	Ce II	20	3	–
4196.24	Se II	–	[20]	Bl
4196.214	Fe I	100	50	–
4196.188	Eu	7	3	–
4196.133	Zr I	10	–	–
4195.96	Pr	12	5	–
4195.950	Th	8	5	–
4195.834	Th	5	5	–
4195.817	Ce II	10	–	–
4195.804	U	–	2	–
4195.755	Re	20	–	–
4195.657	Cb	5	3	–
4195.626	Co	3	–	–
4195.623	Fe I	25	3	–
4195.603	V I	10	2	–
4195.56	Ra II	–	[4]	Rs
4195.550	Th	5	8	–
4195.531	Ni I	30	–	–
4195.524	U	–	2	–
4195.52	Pr	8 h	3 h	–
4195.51	Se II	–	[100]	Bt
4195.5	Na I	3	–	Fo
4195.5	Pb II	–	[3]	Ea
4195.40	Eu	2	–	Ed
4195.398	Gd	8	–	–
4195.37	Se	–	[10]	Bl
4195.347	Eu	10	2	–
4195 337	Fe I	150	100	–
4195 281	Ce	6	2	–
4195.22	Dy	12	–	Kn
4195.190	U	8	3	–
4195.169	Sb II	–	50	–
4195.144	Os	100 s	1	–
4195.11	Cl II	–	[18]	Ks
4195.094	Cb	20	20	–
4195.030	U	3	3	–
4195.029	Nd	15	10	–
4194.951	Cr	70	25	–
4194.906	Ce	8 s	2	–
4194.88	Ho	3	2 h	Ex
4194.845	Er	18	1	–
4194.832	Ce	3	–	–
4194.827	Dy	50	12	Kn
4194.82	Tb	25	1 h	–
4194.82	B II	–	2	En
4194.762	Zr I	25	1	–
4194.670	Re I	40	–	–
4194.62	Pr	15	5	–
4194.561	Mo	30	30	–
4194.55	Se II	–	[50]	Bl
4194.474	Eu	10	–	–
4194.450	Zr I	8	1	–
4194.354	La II	15	15	–
4194.344	Co	5	–	–
4194.34	Ho	30	15	Kn
4194.24	Pr	10	3	–
4194.229	Ca	–	3	–
4194.127	U	4	1	–
4194.108	Ce	4	–	–
4194.09	Ra II	–	[80]	Rs
4194.009	Mo	5	3	–
4194.007	Zr I	8	–	–
4194.00	Tb	5	–	–
4193.972	W	8	2	–
4193.88	Mo	5	3	–
4193.88	Pr	5	2	–
4193.874	Ce II	35	5	–
4193.856	U	2	3	–
4193.84	Dy	3	–	Ed
4193.828	Cb	5	–	Me
4193.800	Cb	–	15	–
4193 76	Tb	6 w	1 h	–
4193.662	Cr	100	25	–
4193.612	Rb II	–	2	Rr
4193.608	U	3	1	–
4193 529	Xe I	–	[150]	IMe
4193.51	S II	–	[15]	Hn
4193 49	N	–	[10]	Du
4193.467	Rb II	–	2	Rr
4193.46	Br II	–	[25]	Bl
4193.44	Mg II	2	–	Fl
4193.425	U	4	2 h	–
4193.42	P II	–	[5 h]	Gu
4193.371	La II	15	10	–
4193.33	Tb	5	–	–
4193.32	Se	–	[20]	Bt
4193 283	Ce	18	3	–
4193.198	Cs	–	[8]	Sv
4193.158	Gd	25	–	–
4193.15	Xe	–	[200 h]	Hu
4193.11	Br	–	[5]	Bl
4193.097	Ta	8	10 h	–
4193.097	Rb II	–	40	Rr
4193.094	Ce	25	4	–
4193.022	Th	2	–	–
4193.01	Xe I	–	[20]	Me
4192.905	U	10	1	–
4192.9	Rn	–	[10]	Wa
4192.837	Ir	25	2	–
4192.836	Co I	3 h	–	–
4192 756	Ce II	6	1	–
4192.730	La I	10	–	–
4192.637	Os	9	1	–
4192.62	F II	–	[3]	Di
4192.6	Na I	3	–	Fo
4192.566	Rb II	–	2	Rr
4192.564	Eu	8	–	–
4192.563	Er	7	–	–
4192.56	Bi II	–	8	Ml
4192.549	Cr	6	–	–
4192.53	O II	–	[15]	Mh
4192.51	Fe	2	–	–
4192.50	Pr	18	5	–
4192.429	Pt I	100	2	–
4192.410	Er	8	–	–
4192.358	La II	50	50	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4192.35	Br	–	[4]	Bl
4192.322	U	3	3	–
4192.31	Bi II	–	6	Ml
4192.29	Mo	–	40	–
4192.190	Os	4	–	–
4192.177	Mo	4	–	–
4192.152	Sm II	5	9	–
4192.148	U	6	5	–
4192.103	Cr	40	15	–
4192.10	Bi II	–	2	Ml
4192.096	Zr I	10	1	–
4192.070	Cb	20	20	–
4192.00	Tb	3	–	–
4191.938	U	12	2 h	–
4191.923	Sm	8	15	–
4191.891	Re	3 h	–	–
4191.829	Th	5	8	–
4191.793	Zr I	8	3	–
4191.750	Cr I	50	6	–
4191.680	Fe I	20	6	–
4191.627	Dy	40	2	Kn
4191.624	Gd I	40	15	–
4191.615	Pr	40	25	–
4191.59	Cl II	–	[15]	Ks
4191.59	Tb	25 d	–	–
4191.558	V I	15	5	–
4191.487	Zr II	–	4	–
4191.436	Fe I	200	100	–
4191.345	Ce	6	4 h	–
4191.32	Er	6 w	–	–
4191 271	Cr I	70	15	–
4191.26	Ta	3	1	–
4191.161	Ta	5	2	–
4191.079	Gd	100	–	–
4191.07	Tb	10	1	–
4191.031	Ce	8	2	–
4191.03	Mo	–	30	–
4191.028	A I	–	[1200]	I
4190 92	Si	–	4	Sy
4190.90	Dy	10	2	Kn
4190.896	V II	1	4	–
4190.884	Cb	20	30	–
4190.82	Br	–	[8]	Bl
4190.785	Gd I	100	40	–
4190.78	Tb	2	–	–
4190.712	A I	–	[600]	I
4190.706	Co I	10 W	5	–
4190.698	Er	10 l	–	–
4190.660	Cr I	12	–	–
4190.650	Cb	5	10	–
4190.64	Pr	10	3	–
4190.626	Ce	30	3	–
4190.547	Ir	5	–	–
4190.461	Nd	5	3	–
4190.42	Tb	3	·	–
4190.420	Mo	6	3	–
4190.400	V II	2	6	–
4190 395	U	1	2	–
4190.37	As II	–	10	Ro
4190.331	Ce	4	–	–
4190 30	Yb	7	30	m
4190.27	Dy	3	–	Ed
4190.15	W	5	–	–
4190.147	Gd	100 W	–	–
4190.131	Cr	40	15	–
4190.12	Tb	2	–	Ed
4190.005	Mo	20	15	–
4190.0	Ho	–	2 h	Ex
4189.992	Yt	4	–	–
4189.990	Cb	5	10	–
4189.988	Mn	80	40	–
4189 984	Er	9	–	–
4189.906	Os	60	3	–
4189.876	Ir I	2	–	Ab
4189.841	V I	20	10	–
4189.793	O II	–	[500]	Fl
4189.755	Eu	5	1 h	–
4189.71	S II	–	[250]	Hn
4189.67	A	–	[10]	Rt
4189.640	Ce	8	1	–
4189.587	Cb	2	5 h	–
4189.564	Fe	3	–	–
4189.518	Pr	100	50	Kn
4189.503	Er	9	–	–
4189.462	Ru I	15	9	–
4189.4	Dy	6	–	Kn
4189.29	Tb	3	–	–
4189.277	U	10	10	–
4189.200	U	3	3	–
4189.179	Ce II	8	–	–
4189.170	W	5	3	–
4189.1	bh Sr	4	–	L
4189.08	P	–	[30 h]	Gu
4188.93	Er	10 d	–	–
4188.892	U	8	–	–
4188.82	Cl II	–	[15]	Ks
4188.691	Ti I	35	8	–
4188.661	Ce	3	–	–
4188.594	Th	1	3	–
4188.51	Tb	20	2 h	–
4188.384	Ce	5 l	1 h	–
4188.321	Mo	100	80	–
4188.24	Hf	8	–	–
4188.121	Sm II	10	25	–
4188.10	Tb	15	1 h	–
4188 099	Gd	20	–	–
4188.07	P	–	[30 h]	Gu
4188.066	U	10	8	–
4187.983	Er	7 wd	–	–
4187.967	Ir	8	–	–
4187.921	Re I	6	–	–
4187.87	U	–	5	–
4187.81	Rn	–	[35]	Wa
4187.801	Fe I	200	150	–
4187.79	Pr	2	2	–
4187.66	Hf II	8	10	–
4187.62	Tm	300	30	Me
4187.609	Mo	3	3	–
4187.589	Fe	3	1	–
4187.564	Zr I	9	3	–
4187.467	Zr	4	–	–
4187.323	Ce II	35	15	–
4187.316	La I	50	40	–
4187.250	Co I	50	3	–
4187.16	Tb	15	–	–
4187.044	Fe I	250	200	–
4186.977	U	10	4	–
4186.90	Yb	–	10 h	Me
4186.860	Ce	2	–	–
4186.84	Ho	3	3	Ex
4186 810	Dy	100 w	12	Kn
4186.790	U	6	5	–
4186.777	Zr I	3	–	–
4186.71	Er	8	2	–
4186 688	Zr II	3	3	–
4186.60	Tb	2	–	–
4186.599	Ce II	80	25	–
4186 477	U	6	5	–
4186 42	Eu	6	–	Kn
4186.395	Pr	12	3	–
4186.359	Cr	50	10	–
4186.34	Sb II	–	4	Dv
4186 311	Nd	25	3	–
4186 31	Tm	5	8	–
4186.281	Mo	15	12	–
4186.280	Ir	2	–	Ab
4186 24	Tb	10	1 h	m
4186 226	K II	–	[60]	Dm
4186.123	Ti I	100	40	–
4186.105	Cb	5	8	–
4186 037	U	6	1	–
4186 033	Nd	8	4	–
4186.02	W	12	2	–
4185.95	S	–	[15]	Hn
4185.89	Tb	8	–	–
4185 825	Mo	40	40	–
4185.82	Pr	15	5	–
4185.780	U	6	6	–
4185.766	Nd	15	8 s	–
4185 724	Er	15 w	–	–
4185.722	Re	2 h	–	–
4185.67	Cb	2	2 h	–
4185.658	Ir	25	–	–
4185.61	Cl II	–	[20]	Ks
4185.541	Cb	1	30	–
4185.528	Ce	3	–	–
4185.459	Ru	12	2	–
4185.453	O II	–	[150]	Fl
4185.44	Tb	3	–	–
4185 345	Cr	30	3	–
4185.333	Ce II	30	4	–
4185.154	Pr	5	2	–
4185.12	Kr II	–	[50]	Me
4184.995	Er	7	–	–
4184.985	Eu	7	–	–
4184.980	Nd	15	10	–
4184.95	Tb	2	–	–
4184.895	Cr	35	10	–
4184.895	Fe I	100	80	S
4184.66	Tb	2	–	Ed
4184.628	Ce	2	–	–
4184.50	U	1	3 h	–
4184.475	Ni I	6	–	–
4184.473	Kr I	–	[20]	IHu
4184.444	Cb	20	50	–
4184.391	Mo	4	4	–
4184.379	Ce	3	1	–
4184.329	Ti II	8	20	–
4184.30	Tb	10	2	–
4184.282	Ca	2	8 l	–
4184.264	Gd	150	150	–
4184.26	Se II	–	[25]	Bt
4184.25	Lu	100	200	Me
4184.242	Pr	4	1	–
4184.170	Mo	4	4	–
4184.151	U	2	2	–
4184.131	Os	25	2	–
4184.08	Se	–	[10]	Rd
4184.066	Ce	3	4	–
4184.063	Er	4	–	–
4183.99	Te	–	[30]	Bl
4183.826	W	12	5	–
4183.801	Ce	3	–	–
4183.757	Sm II	10	15	–
4183 732	Dy	15	8	–
4183.668	W	10	–	–
4183.619	Gd	35	–	–
4183.611	Dy	8	–	Kn
4183.599	U	2	5	–
4183.574	Th	8	8	–
4183.434	V II	3	20	–
4183.385	Cb	–	10 h	–
4183.335	Sm	2	2	–
4183.318	Zr I	40	1	–
4183.295	Ti I	20	7	–
4183.266	U	10	1	–
4183.207	Ir	40	4	–
4183.19	Eu	4	–	
4183.163	Ce	6	3 l	–
4183.134	Nd	6	2	Kr
4183.06	Mo	4 h	2 h	–
4183.01	Tb	3	–	–
4182.979	Re I	150 r	–	–
4182.943	U	6	6	–
4182.91	Pr	5	2	–
4182.831	Ru	12	8	–
4182.770	Gd	5	–	–
4182.666	U	2	2	–
4182.644	Ru I	15	12	–
4182.591	V I	20	7	–
4182.513	Nd	8	8	–
4182.467	Ir	50	6	–
4182.457	Ru	20	30	–
4182.450	Os	6	–	–
4182.42	Dy	8	4	Kn
4182.386	Fe I	80	30	–
4182.33	Pr	10	5	–
4182.324	W	3	–	–
4182.292	Nd	8	1 h	–
4182.270	Er	9	–	–
4182.26	Eu	8	1	m
4182.20	Se II	–	[4]	Bl
4182.161	Pb	–	5 h	–
4182.077	V I	10	5	–
4181.99	Th	5	8	Ex
4181.883	A I	–	[1000]	IHu
4181.757	Fe I	200	150	–
4181.75	Br	–	[8]	Bl
4181.579	Ce	2	–	–
4181.550	U	3	3	–
4181.512	Cb	–	2	–
4181.393	W	2	2	–
4181.345	Ce	–	2	–
4181.340	Cb	5	5	–
4181 33	Tb	10	2 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4181.25	Dy	5	–	–
4181.152	Ta	40	25	–
4181.099	Sm II	8	25	–
4181.081	Ce	20	3	–
4181.049	Mo	25	15	–
4180.97	La II	–	10 h	Me
4180.95	Hg	–	[100]	Ps
4180.94	In	–	15	–
4180.94	Se II	–	[800]	Bl
4180.91	Dy	7	4	Ed
4180.886	U	5	5	–
4180.88	Tb	4	1 h	–
4180.88	Eu	10	1	–
4180 875	Er	25 w	–	–
4180.868	Ti I	100	20 h	–
4180.828	Yb	10	100	–
4180.8	bh C	–	–	L
4180.702	U	4	3	–
4180.69	Ca	–	2	Ad
4180.68	Pr	8	1	–
4180.503	Mo	8	4	–
4180.501	Ti I	6	–	–
4180.40	Pr	5	2	–
4180.40	Tb	20	1 h	–
4180.385	Sm	10	2	–
4180.33	Dy	2	2	Ed
4180.307	U	12	1 h	–
4180.28	Er	6 d	2	–
4180.239	W	10	5	–
4180.2	Na I	3	–	Fo
4180.10	Xe II	–	[500 h]	Hu
4180.02	Tm	5	2	–
4179.965	Th	8	8	–
4179.959	Cr	25	1	–
4179.936	Mo	8	5	–
4179.93	Ac	–	60	Lx
4179.885	Ti I	4	–	–
4179.809	Zr II	15	8	–
4179.806	Ce	1	2	–
4179.80	Tb	6	1	–
4179.755	Cb	10	20	–
4179.75	Re	2 h	–	–
4179.74	Ca	–	2	Ad
4179.718	Th	8	8	–
4179.68	N II	–	[2 h]	Fl
4179.64	Br	–	[40]	Bl
4179.634	U	2	1	–
4179 585	Nd	10	10	–
4179.58	Kr II	–	[20 whl]	Me
4179 53	Hf II	5	8	–
4179.508	Cu II	1 h	6	–
4179.46	Dy	3	–	Ed
4179.459	Cr	–	8	–
4179.432	U	10	1	–
4179.422	Pr	200	40	–
4179.419	V I	20	10	–
4179.401	Er	5	–	–
4179.40	Eu	2	1 h	–
4179.372	Ba	6	–	–
4179.31	A	–	[20]	Rt
4179.289	Ce II	10	1	–
4179.257	Cr	100	40	–
4179.24	Te	–	[70]	Bl
4179.229	Co I	15	2	–
4179.079	Ce	8	–	–
4179.062	V	–	2	Me
4179.041	Ge	–	25 wh	–
4179.001	U	15	12	–
4178.97	Tb	50 d	2 h	m
4178.868	Fe II	10	10	Rl
4178.641	Pr	18	10	–
4178.639	Nd	10	6	–
4178.602	Er	8 s	–	–
4178.597	Re	3	–	–
4178.59	Dy	8	2	Ed
4178.56	Tb	2	–	–
4178.535	Mo	5	2	–
4178.532	Nd	5	–	–
4178.525	U	8	8	–
4178.441	Nd	–	5	–
4178.406	Cb	1	10	–
4178.39	A	–	[20]	Rt
4178.390	Ce	1	2	–
4178.389	V II	3	9	–
4178.36	P	–	[300 w]	Gu
4178.342	Ir	4	–	–
4178.283	Ce	1	2	–
4178.272	Mo	25	20	–
4178.153	Ce	3	–	–
4178.14	Tb	2	–	–
4178.084	Ce	3	–	–
4178.072	Dy	12	–	Kn
4178.064	Th	10	12	–
4178.051	Fe	3	1	–
4178.025	Hg	–	[50 h]	St
4178.006	Sm II	3	10	–
4177.98	Ra I	–	[10]	Rs
4177.919	Ta	20	15	–
4177.917	Mo	–	15 h	–
4177.899	Cr	40 h	1 h	–
4177.89	Pr	12	3	–
4177.867	Cb	–	5	–
4177.85	Tb	2	–	–
4177.838	U	4	3	–
4177.83	Gd	5	–	Ed
4177.830	W	10	3	–
4177.758	Cu I	60 w	1	Hs
4177.754	Dy	6	–	Kn
4177.635	Rh I	25	5	–
4177.596	Fe I	100	25	–
4177.57	Eu	8	2	Kn
4177.552	Yt II	50	50	–
4177.505	Hf II	5	8	–
4177.50	Pr	4	2	–
4177.486	La I	15	–	–
4177.46	Tl II	–	[8]	El
4177.4	Na I	3	–	Fo
4177.390	U	2	5	–
4177.358	Ir	5	–	–
4177.357	Ti I	10	2	–
4177.349	Ce	2	3 l	–
4177.321	Nd	15	25	–
4177.257	Mo	20	20	–
4177.072	V I	15	3	–
4177.02	Kr	–	[3 hs]	Me
4176.986	Ta	15	40	–
4176.910	U	3	3	–
4176.90	Re	5	–	–
4176.900	Mo	10	10	–
4176.86	Tb	4	–	–
4176.795	V I	5	2	–
4176.75	Tl II	–	[2]	El
4176.725	Eu	5	–	–
4176.703	Ce	18	2	–
4176.686	Cr	15	2	–
4176 64	Dy	3	–	Kn
4176.62	Eu	8	2	Kn
4176 602	Mn	100	40	–
4176.572	Fe I	100	50	–
4176.56	Re I	12 w	–	–
4176.33	A	–	[20]	Ms
4176.33	Pr	5	2	–
4176.32	Er	10 d	–	–
4176 183	Ir	10	2	–
4176.17	N	–	[10 h]	Fl
4176.169	Cb	2	–	–
4176.080	Ce II	12	–	–
4175 945	Cr	40	10	–
4175.945	Ce	6	1	–
4175.943	U	–	3	–
4175.864	Ir	3	–	Ab
4175.86	Tb	6	–	–
4175.79	Br I	–	[50]	Ks
4175.644	Pr	20	10	–
4175.64	Hg	–	[20]	–
4175.640	Fe I	100	80	S
4175.639	Ca	–	5	–
4175.627	Os	100	4	–
4175.606	Nd	40	10	–
4175.59	W II	7	25	–
4175.539	Gd	50	–	–
4175.498	Ce	3	1	–
4175.488	Ne I	–	[40]	Ps
4175.448	U	2	2	–
4175.433	Ru	7	10	–
4175.40	A	–	[10]	Ms
4175.32	Se II	–	[800]	Bl
4175.299	Pr	20	10	Kn
4175.236	Ce	15	2 h	–
4175.227	Cr	30	8	–
4175 223	Ne I	–	[60]	Ps
4175.216	Ir	4	–	–
4175 21	S	–	[5]	Hn
4175.206	Ta	100	40 h	–
4175.180	Er	4	–	–
4175.17	Re	6	–	–
4175.17	Eu	8	2	–
4175.141	U	2	2	–
4175.124	Mo	12	8	–
4175 08	Tb	5	–	m
4174.941	Cr I	10	3	–
4174.917	Fe I	100	25	–
4174.905	Er	10 d	–	–
4174.795	Cr I	100	40	–
4174.701	Nd	3	2	–
4174.63	Pr	5	1	–
4174 57	Yb	10	1	–
4174.475	Ti I	15	3	–
4174.475	Ce	8 l	–	–
4174.460	Nd	5	10	–
4174.432	Sm II	5	10	–
4174.389	Ce II	8	–	–
4174.369	Ne I	–	[70]	Ps
4174.342	Cb	3	5	–
4174.34	Hf	25	6	–
4174.326	Cr I	3	–	–
4174.32	Tb	6	–	–
4174.300	S	–	[150]	Hn
4174.194	U	12	12	–
4174.133	Yt I	100	8	–
4174.091	Ti I	15 h	12 h	–
4174.080	Mo	12	10	–
4174.042	S II	–	[50]	Hn
4174.014	V I	12	7	–
4173.987	Re	20	–	–
4173 966	Ne I	–	[2]	Ps
4173.953	Cb	5	15	–
4173 952	Ce	3	–	–
4173 926	Fe I	50	5	–
4173.795	I II	–	[30]	Ke
4173 792	U	3	3	–
4173.75	Eu	8	–	–
4173.70	Pr	5	2	–
4173.682	Re	2	–	–
4173.669	U	6	1	–
4173.660	Ce	–	2 h	–
4173.561	Gd	30	30	–
4173.549	Ti II	12	40	–
4173.533	Cs	–	[15]	Sv
4173.475	Fe II	8	8	Rl
4173.46	Tb	15	2	–
4173.379	Nd	12	2	–
4173.34	Yt	8	–	Me
4173.323	Fe I	25	5	–
4173.234	Os	100	6	–
4173.23	Ho	50	–	Kn
4173.143	Ce	2	–	–
4173.128	Zr I	3	1	–
4172.974	U	10	15	–
4172.885	Ce	2	2	–
4172 83	Kr I	–	[3]	Me
4172.82	Tb	10	–	–
4172.80	Eu	12	3	Kn
4172.79	P II	–	[5]	Gu
4172.769	Cr	35	15	–
4172.751	Mo	3	2	–
4172.750	Fe I	60	10	–
4172.652	Fe I	3	1	–
4172.621	Ce	2	–	–
4172.609	Ti I	5	–	–
4172.59	Tb	12	2	–
4172.57	Os	60	3	–
4172.559	Ir I	150	12	–
4172.51	Kr II	–	[20 hl]	Me
4172.316	La I	8	–	–
4172.273	Pr	75	40	–
4172.23	Ho	2	–	Kn
4172.23	Yb	2	2	–
4172.18	U	3	3	–
4172.161	Ce II	18	1	–
4172.127	Fe	80	50	–
4172.056	Ga I	2000 R	1000 R	–
4171.992	Dy	15	–	Kn
4171.964	Ce	2	–	–
4171.925	Dy	4	2	Kn

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
4171.903	Ti II	15	70	–
4171.90	Mo	–	25	–
4171.854	Cu II	–	5	–
4171.824	Pr	75	40	Kn
4171.80	Tb	8	–	–
4171.769	Ce	2	3	–
4171.71	Gd	25	1	–
4171.708	Er	15	–	–
4171.700	Fe	8	2	–
4171.675	Cr	70	8	–
4171.63	N	–	[5 h]	Fl
4171.591	U	30	30	–
4171.568	Sc I	3	–	–
4171.56	I I	–	[8]	Db
4171.554	Sm II	7	12	–
4171.477	Zr I	20	–	–
4171.454	Mo	10	3	–
4171.386	Ce II	18	–	–
4171.349	Th	10	12 l	–
4171.296	V I	15	7	–
4171.185	W	25	12	–
4171.132	La I	8	–	–
4171.074	Mo	15	10	–
4171.045	Sb	–	3 wh	Sp
4171.04	Tb	20	3	–
4171.04	Pr	12	4	–
4171.040	Ce	6	1 h	–
4171.029	Ti I	35	7	–
4170 99	Xe II	–	[4 whl]	Hu
4170 906	Fe I	80	40	S
4170.905	Co I	4	2	–
4170.904	Hf	10	1	–
4170.760	U	3	4	–
4170.751	Nd	6	5	–
4170.656	Ce	2	–	–
4170.592	Ru	10	–	–
4170.55	Dy	7	–	Kn
4170.535	W	15	7	–
4170.492	Er	6	–	–
4170.485	Zr I	5	2 h	–
4170.48	Tb	7	–	–
4170.475	Th	10 l	10 l	–
4170.468	I	–	[25]	Ke
4170.453	Nd	8	8	–
4170 44	Tm	3	–	Me
4170 41	Hf II	4	4	Me
4170.394	Re	40	–	–
4170.35	Sb II	–	8	Dv
4170.348	Mo	8	2	–
4170.309	Ir	4	–	Ab
4170.202	Cr	70	15	–
4170.11	Yb	3	20	–
4170.110	Gd	50	50	–
4170.051	Ru I	20	25	–
4170 001	W	3	1	–
4169.961	U	5	6	–
4169.92	Tb	5	–	–
4169.92	Rn	–	[20]	Wa
4169.880	Ce II	12	3	–
4169.842	Pd I	200	50	–
4169.838	Cr	80	25	–
4169.820	Mo	20	20	–
4169.773	Fe I	3	–	–
4169.773	Ce	12	2	–
4169.77	Te	–	[100]	Bl
4169.678	Pr	3	–	Kn
4169.65	Se II	–	[12]	Bl
4169.60	Ca	2 h	2 hl	Ad
4169.566	Cb	10	10	–
4169.480	Sm II	15	25	–
4169.465	U	6	2	–
4169.46	Eu	10	1 h	–
4169.459	Pr	15	10	–
4169.41	Ho	2 h	–	Ex
4169.358	Zr I	9	2 h	–
4169.348	Ti I	25	7	–
4169.31	Tb	12	2 h	m
4169.260	V I	15	5	–
4169.241	Dy	5	2	Kn
4169.23	O II	–	[50]	Fl
4169.167	Ir	15	2 h	–
4169.09	Tb	8	–	–
4169.050	U	20	2 h	–
4168.98	A	–	[5]	Rt
4168 967	He I	–	[7]	IOf
4168.95	Th	3	–	–
4168.946	Fe	10	1	–
4168.762	Ru	7	–	–
4168.756	Nd	5	5	–
4168.74	Tb	2 d	–	–
4168.71	Tm	2	–	Me
4168.70	A	–	[2]	Ms
4168.661	W	10	15	–
4168.64	Th	8	12	–
4168.586	Re I	15	–	–
4168.52	Tm	2	–	Me
4168 516	Al II	–	[2 h]	Sy
4168.494	Mo	15	15	–
4168.490	Er	8	–	–
4168.467	Zr	5	2	–
4168 424	Al II	–	[4]	Sy
4168.41	A	–	[2]	Ms
4168.409	S II	–	[50]	Hn
4168.40	Ac	–	100	Lx
4168.126	Cb	100	80	–
4168 08	Pr	20	8	–
4168 045	Pb	20	10	–
4168.043	Ir	3	–	Ab
4168.02	Ho	3	–	Ex
4167.999	Nd	8	10	–
4167.98	Er	2	1	–
4167.97	Tb	15	1 h	–
4167.966	Dy	50	12	Kn
4167.960	Fe	10	2	–
4167.862	Fe	8	2	–
4167.804	Ce	12	3	–
4167.8	Na I	3	–	Fo
4167.73	U	5	2	–
4167.69	Pr	10	3	–
4167.662	Th	10	8 w	–
4167.65	Mg	5	–	–
4167.6	bh C	–	–	L
4167.585	Ce	4	–	–
4167.523	Nd	5	3	–
4167.512	Ru I	100	150	–
4167.507	Yt I	50	10	–
4167.50	Lu	2	–	Me
4167.40	Dy	5	–	Kn
4167.389	Mg I	6	4	–
4167.381	Zr	15 h	10 h	–
4167.369	U	4	–	–
4167.28	Kr I	–	[5 d]	Me
4167.271	Gd I	10	–	–
4167.229	Sm	–	3	–
4167.2	bh Sr	5	–	L
4167.20	Se II	–	[12]	Bt
4167.157	Gd	20	–	Kn
4167.032	U	6	2	–
4167.025	Ir	10	–	–
4166.970	Ni I	2	–	–
4166.884	Ce	20	6	–
4166.876	Ru I	20	25	–
4166.84	Pr	4	2	–
4166.833	Ca	2	1 h	–
4166.83	Eu	2	1 h	–
4166.73	P II	–	[15 h]	Gu
4166 7	bh C	–	–	L
4166.654	Ce	10	1	–
4166.64	Hf II	–	4	Me
4166.63	U	6	2	–
4166.560	Nd	8	4	–
4166.522	Zr I	3	–	–
4166.50	Tb	12	1 h	–
4166.43	Rn	–	[500]	Ro
4166.412	Re	15 w	–	–
4166.365	Zr I	50	4	–
4166.36	Pr	5	2	–
4166.333	Sm	15	8	–
4166.320	Ti I	35	10	–
4166.282	Mo	20	15	–
4166.279	Pd I	10	–	–
4166.202	Ce	6	–	–
4166.153	W	7	3	–
4166.091	Ne I	–	[30]	Ps
4166.040	Ir	150	10	–
4166.010	Ba II	12	50	–
4165.978	Re	10	–	–
4165.855	Ce	5	–	–
4165.847	Cb	3	5	–
4165 84	Dy	2	–	Ed
4165.813	Th	8 w	5	–
4165.759	Mo	6	4	–
4165.676	U	8	8	–
4165 66	Se II	–	[40]	Bl
4165.628	Zr I	3	–	–
4165.606	Ce II	40	6	–
4165.532	Sm	2	3	–
4165.519	Cr	80	35	–
4165.50	Pr	2	1	–
4165.48	Ca	4	2 h	Ad
4165.466	Th	20 w	10 w	–
4165.427	U	4	6	–
4165.420	Fe	12	2	–
4165.395	Er	15	–	–
4165.332	Re	2	–	–
4165 187	Pr	5	2	–
4165 184	Sc I	15	5	–
4165.182	U	6	2	–
4165 11	S II	–	[10]	Hn
4165.087	Th	10 l	8 l	–
4165.08	Tb	2	–	–
4165.039	Nd	15	15	–
4165.0	Na I	3	–	Fo
4164.986	Yt	8	2	–
4164.96	S	–	[8]	Hn
4164.854	Nd	4	3	–
4164.834	Er	5	–	–
4164.81	Tb	3	–	–
4164.802	Ne I	–	[50]	Ps
4164.790	U	8	10	–
4164.74	Dy	3	–	Kn
4164.660	Cb	30	50	–
4164.64	Yb	2	2	–
4164.557	Pt I	100	80	–
4164.514	Ce	3	–	–
4164.48	Kr I	–	[2]	Me
4164.43	B	–	4	Sy
4164.412	Nd	10	5	–
4164.392	Ru	10	–	–
4164.359	Ca	–	5 h	–
4164.283	Cu II	–	3 h	–
4164.253	Th	10	10	–
4164.247	Er	7	–	–
4164.23	Eu	2	–	–
4164.192	Pr	200	50	Kn
4164.179	A I	–	[1000]	I
4164.136	Ti I	10	–	–
4164 079	Mo	15	10	–
4164.016	V II	1	7	–
4163.984	Ce	5	–	–
4163.85	Tb	5	–	–
4163.83	Dy	7	–	Ed
4163.82	Kr II	–	[2]	Me
4163 722	Sm II	2	5	–
4163.677	U	10	10	–
4163.676	Fe I	12	1	–
4163.657	Cb	60	40	–
4163.654	Ti II	35	150	–
4163.653	Th	8	10	–
4163.620	Cr	100	50	m
4163.559	Ir	25	2	–
4163.53	Te	–	[50]	Bl
4163.516	Ce	20	8 s	–
4163.472	Cb	3	5	–
4163.455	Eu	4	–	–
4163.453	Er	8	–	–
4163.444	Hf II	5	10	–
4163.305	La I	8	4	–
4163.243	Cs	–	[15]	Sv
4163.225	U	6	6	–
4163.147	Sm	5	10	–
4163.111	Gd	25	–	Kn
4163.031	Er	12	–	–
4163.03	Ho	100	100	Kn
4163.01	Pr	5	1	–
4163.004	U	4	4	–
4162.97	Tb	6	–	–
4162.885	Pd I	4 h	–	–
4162.876	Ce II	4	3 h	–
4162.813	Cb	3	5	–
4162.74	Gd	50	–	–
4162.698	S II	–	[600]	Hn
4162.688	Hf	10	3	–
4162.685	Th	10	12	–
4162.682	Mo	25	30	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
4162.632	Ce	12	3	–
4162.632	U	6	6	–
4162 51	Pr	5	2	–
4162.468	Ce	2	1 h	–
4162.430	U	18	3 h	–
4162.39	S II	–	[18]	Hn
4162.36	Hf II	5	10	–
4162.298	Cu II	–	2	–
4162.296	Ce	6	2	–
4162.25	Dy	8	–	Kn
4162.17	Eu	5	1	m
4162.169	Co I	7	3	–
4162.16	Xe II	–	[30]	Hu
4162.112	Ir	3	–	Ab
4161.963	La	–	10	–
4161 947	Ce	6	3 h	–
4161.885	U	6	4	–
4161.881	Sc I	15	4	–
4161.806	Ca	2 h	1 h	–
4161.796	Sr I	30	–	ISn
4161.793	Ce	6	–	–
4161.781	U	2	4	–
4161.763	Re	2	–	–
4161.656	Ru I	25	50	–
4161.65	Pr	8	2	–
4161.642	Er	12	–	–
4161.64	P	–	[15]	Gu
4161.64	Dy	3	–	Ed
4161.575	Th	5	3	–
4161.536	Ti II	8	30	–
4161.492	Fe	15	–	–
4161.458	Nd	2	4	–
4161.415	Cr	50	30	–
4161.36	Eu	10	–	Kn
4161.35	Tb	5	2 h	–
4161.30	Pr	5	2	–
4161.298	Mo	1	25	–
4161.251	Cb	5	15	–
4161.210	Zr II	40	30	–
4161.175	Ce	18	1	–
4161.155	Cu II	–	6	Sh
4161 080	Fe I	10	–	–
4160.999	Ta	20 h	2 h	–
4160 950	U	12	1 h	–
4160.87	Mo	4	2	–
4160.86	Pr	12	3	–
4160.859	Nd	15	2	–
4160.763	Re	15 w	–	–
4160.72	As II	–	10	Ro
4160.565	Nd	10	10	–
4160.56	P II	–	[30]	Gu
4160.525	Sc I	1	2	–
4160.476	Eu	9	1	–
4160.47	Pr	20 w	5 w	–
4160.418	Ce	4	–	–
4160.410	U	2	1	–
4160 351	W	5	2	–
4160.310	Er	8	–	–
4160 273	U	6	1	–
4160.268	Os	6	–	–
4160.264	La I	40	50	–
4160.263	Al II	–	[15]	Sy
4160.251	Mo	4	5	–
4160.24	Dy	10	2	Kn
4160.239	Al II	–	[12]	Sy
4160 182	Ce	8	–	–
4160.108	Ce II	8	–	–
4160 040	W	5	3	–
4160.0	Ho	3	–	Kn
4160.00	Br	–	[8]	Bl
4159.976	Ta	5	–	–
4159 965	Os	20	1	–
4159.918	Re	20	–	–
4159.881	Er	20 w	–	–
4159.869	Ce	3	8 h	–
4159.865	U	3	5 h	–
4159 83	Pr	15	3	–
4159.809	Al II	–	[4]	Sy
4159.792	W	5	2	–
4159.75	P	–	[15]	Gu
4159.75	Se II	–	[70]	Bl
4159.727	Ce	2	–	–
4159.725	Al II	–	[6]	Sy
4159.686	V I	20	12	–
4159.667	Th	5	10	–
4159.641	Ti I	60	15	–
4159 622	W	5	2	–
4159.558	Nd	10	15	–
4159.55	Tm	10	15	Me
4159.513	Sm II	2	4	–
4159.47	Pr	8	3	–
4159.450	Al II	–	[4]	Sy
4159.407	Al II	–	[2]	Sy
4159.393	Sm II	4	4	–
4159.393	U	5	4	–
4159.381	Ir	2	–	Ab
4159.34	Dy	12	2	Kn
4159.23	Eu	10	1	–
4159.18	Tb	2	–	–
4159.172	Ru	15	6	–
4159.120	Ca	2 h	–	–
4159.105	U	6	5	–
4159 032	Ce II	30	5	–
4159.00	Kr	–	[4 hs]	Me
4158.88	Hf II	5	6	–
4158.798	Fe I	100	25	–
4158.784	Os	50	1	–
4158.78	Eu	8	–	Kn
4158 610	Cs	–	[18]	Sv
4158.590	A I	–	[1200]	I
4158.59	Tm	5	–	–
4158.561	U	3	3	–
4158.54	Tb	15	1 h	–
4158.469	Gd	5 h	–	Kn
4158.428	Er	9	–	–
4158.425	Co	25 h	5	–
4158.425	Sm	8	2	–
4158.413	Ti	2	–	–
4158.319	U	6	6	–
4158.291	Ti	3	–	–
4158 28	Tb	10	1	–
4158.261	Ru	7	–	–
4158.120	Yt I	2	–	–
4158.081	Mo	3	3	–
4158 081	Ir	25	–	–
4158.08	In	–	8	Sq
4158 07	Pr	10	5	–
4158.059	Ce	2 h	8 h	–
4158 049	Ti	15 h	2 h	–
4158.04	Xe II	–	[100 whl]	Hu
4158 021	U	6	1 h	–
4158.010	Cb	3	5	–
4158 0	bh C	–	–	L
4157.86	Dy	5	2	Kn
4157.82	Cl II	–	[25]	Ks
4157.80	Eu	20	–	–
4157.791	Fe I	150	80	–
4157.788	Gd I	25	–	–
4157 77	Pr	8	2	–
4157.736	Ru	15	5	–
4157.70	S I	–	[10]	Ms
4157.64	As II	–	30	Ro
4157.640	U	6	–	–
4157.623	Yt I	2	–	–
4157.575	Nd	3	5	–
4157.572	Ce	3 h	1	–
4157.513	La I	10	3	–
4157.403	Mo	25	25	–
4157.39	Br I	–	[4]	Ks
4157.33	P	–	[30 h]	Gu
4157.26	Re	2	–	–
4157.14	Br	–	[10]	Bl
4157.036	W	3	25	–
4157.019	Mn	40	2 d	–
4156.955	Pd I	3	3 h	–
4156.953	Ce	2 h	3 h	–
4156.90	Pr	10	4	–
4156 803	Fe I	100	80	S
4156 79	Mo	15	10	–
4156 74	Hf II	–	3	–
4156.682	Cb	5	100	–
4156.681	Fe I	2	–	–
4156.68	Hg	–	[50]	Ps
4156.652	U	15	8 h	–
4156.54	O II	–	[30]	Fl
4156.523	Th	10	10	–
4156.518	Pr	12	10	–
4156.388	Ce	2	1	–
4156 376	U	2	2	–
4156 31	Tm	10	–	–
4156.28	Tb	8	–	–
4156 265	Nd	5	8	–
4156 261	Ru	10	5 wh	–
4156.243	Th	8	8	–
4156 240	Sm II	10 w	5	–
4156.236	Zr II	25	15	–
4156.11	A	–	[20]	Rt
4156 083	Nd	10	20	–
4156 0	Na I	3	–	Fo
4155.978	Ce	4	–	–
4155.702	Ir	80	5	Ab
4155 578	Mo	25	20	–
4155.532	Ce	6	1	–
4155.525	Mn	40	5	–
4155.411	U	12	18	–
4155 38	Tb	2	–	–
4155.38	Er	4 d	–	Ed
4155.36	Th	5	3	Ex
4155 283	Mo	30	25	–
4155 221	Sm II	8	10	–
4155.15	Tb	10 d	–	–
4154.87	Gd	10	–	–
4154.865	Ti	15	1	–
4154.812	Fe I	100	8	–
4154.723	Sc	3	1	–
4154.675	W	15	10	–
4154 63	Tb	5	–	–
4154.59	La II	2	2	Me
4154 503	Fe I	100	80	–
4154.501	Er	6	–	–
4154.50	A	–	[80]	Ms
4154.466	Ce	2	2	–
4154 393	Ta	4	–	–
4154.369	Rh	60	1	–
4154 29	Mo	–	10 h	
4154.27	Dy	10	2	Kn
4154.14	Te	–	[15]	Bl
4154.108	Fe	3	–	–
4154.08	Lu	40	3	Me
4154.05	Pr	10	2	–
4153.976	U	15	5	–
4153.93	Se II	–	[40]	Bl
4153.925	Ce	12	3	–
4153 910	Fe I	120	100	–
4153.86	Tb	2	–	–
4153.816	Cr I	50	30	–
4153 760	U	2 h	2	–
4153 754	Zr I	5	–	–
4153.730	Nd	3	4	–
4153 663	Pr	6	–	Kn
4153 65	Ca	–	6	–
4153.623	Cu II	–	2 h	Sh
4153.51	Tb	3	–	–
4153 510	Gd	10	–	–
4153.506	Ir	30	–	Ab
4153.482	U	8	8	–
4153 44	Eu	5	2	–
4153 405	Fe	1	1 h	–
4153 396	Ce	4	–	–
4153 374	Os	9	–	–
4153.36	Dy	5	–	Kn
4153.328	V I	12	3	–
4153 326	Sm II	5	10	–
4153 310	O II	–	[200]	Fl
4153.173	Mo	10	2	–
4153.129	Ce II	12	2	–
4153.11	Dy	6	–	Kn
4153.098	S II	–	[600]	Hn
4153.067	Cr I	40	6	–
4152.93	Pb II	–	5	Sx
4152.928	Ce	4	1	–
4152.775	La II	40	50	–
4152.775	Cr	50	12	–
4152.771	Er	6	–	–
4152 75	Ho	30	40	Kn
4152.658	V	9	4	–
4152.637	Zr I	25	–	–
4152.631	Re I	30	–	–
4152.576	Cb	100	300	–
4152.54	Ho	30	30	Kn
4152 54	A	–	[20]	Ms
4152 43	Dy	15 r	4	Kn
4152 4	P	–	[15]	Gu
4152 355	Sc I	10	4	–
4152 34	Se	–	[80]	Bl

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
4152.34	Pr	5	4	–
4152.308	Er	7 w	–	–
4152.29	Tm	18	–	–
4152.285	Re	12	–	–
4152.25	Eu	2	1 h	m
4152.22	Tb	6	–	–
4152.211	Sm II	8	15	–
4152.170	Fe I	70	5	–
4152.12	Pd	2	–	Sh
4152.067	Sm	3	3	–
4152.035	Cb	10	8	–
4151.970	Ce	30	8	–
4151.955	Fe	4	1	–
4151.955	La II	200	300	–
4151.951	Ir	2	–	Ab
4151.879	Mo	20	15	–
4151.721	Ce	2	–	–
4151.679	Nd	5	10	–
4151.66	Eu	4	–	–
4151.59	Gd	3	–	Kn
4151.575	U	2	3 h	–
4151.55	Eu	4	1 h	m
4151.46	N I	–	[1000]	Du
4151.373	Mo	4	2	–
4151.357	Pd I	2	–	–
4151.352	Ir	30	2	Ab
4151.267	Cs II	–	[20]	Sv
4151.26	Ag	–	2 h	–
4151.238	U	6	1	–
4151.209	Sm	5 d	–	–
4151.19	P	–	[15]	Gu
4151.14	Ho	4	4	Kn
4151.13	Tb	6	1	–
4151.109	Er	20	3	–
4151.047	Re	2 h	–	–
4151.01	Pr	6 d	3 d	–
4150.968	Zr II	25	10	–
4150.962	Ti I	35	15	–
4150.908	Ce	18	3	–
4150.88	Tb	4	–	–
4150.85	Mo	–	20 h	–
4150 82	U	3	3	–
4150.8	Ho	2	–	Kn
4150.793	Re	2	–	–
4150.788	Nd	3	3	–
4150.78	Er	7 w	2	–
4150.71	B	–	2	Sy
4150.699	Os	8	1 h	–
4150.672	V	10	8	–
4150.67	Ne II	–	[30]	Bn
4150 61	Gd	5	–	Kn
4150.550	Ti I	10	1	–
4150 531	Re	10	–	–
4150.53	Tb	12	1 h	–
4150.432	Co I	3	2	–
4150.41	U	8	8	–
4150.401	Ce	2	1	–
4150.366	Ni I	3	–	–
4150 299	Ru	20	9	–
4150.264	Fe I	50	2	–
4150 236	La I	2	–	–
4150.122	Cb	15	20	–
4150.08	Tm	3	–	–
4150 04	Pr	5	2	–
4150 029	U	5	2	–
4149.991	Th	10	12	–
4149.972	Re I	40 w	–	–
4149.936	Ce II	6 l	4 l	–
4149.834	Sm II	20	15	–
4149.8	bh Ca	2	–	L
4149.786	Ce	4	1	–
4149 747	W	10	2	–
4149.710	In II	–	[30]	Ps
4149.695	Mo	6	5	–
4149.582	Mo	5	–	–
4149.475	Gd	5	–	Kn
4149.454	Ti I	12	1	–
4149.442	W	10	4	–
4149.41	Mo	4	3	–
4149.370	Fe I	100	35	–
4149.23	Eu	12	–	Kn
4149.204	U	2	2	–
4149.203	Zr II	100	100	–
4149.203	Sm	4	1 h	–
4149.18	Tb	15	2	–
4149.171	K II	–	[20]	Dm
4149.150	Ce	5	2 l	–
4149.07	Yb	20	6	–
4148.97	Ho	3	1	Kn
4148.945	Mo	40	25	–
4148.91	S	–	[5]	Hn
4148.901	Ce	25	3	–
4148.88	Dy	3	–	Ed
4148.861	Gd	10	–	–
4148.859	V I	8	3	–
4148.797	Mn	50	30	–
4148.751	U	3	3 h	–
4148.680	Mo	6	5	–
4148.61	Eu	2	–	–
4148.564	U	5	5	–
4148.487	Zr	4	2	–
4148.482	Ti	4	1	–
4148.478	Ce	2	3	–
4148.457	Pr	15	12	–
4148.403	Ca	2	2	–
4148.390	Ti I	7	–	–
4148.375	Ru I	60	15	–
4148.348	Th	5	5	–
4148 30	Pt II	–	5	Sh
4148.288	Re	10	–	–
4148.23	Tb	10	1	–
4148.193	U	2	2 h	–
4148.182	Th	10	10	–
4148.161	Ce	15	2	–
4148.155	La II	–	4	–
4148 025	U	12	–	–
4148 0	Na I	3	–	Fo
4147.976	Sm	8 h	–	–
4147.891	Ta	40	30	–
4147.80	Yb	2	2	Me
4147.78	Eu	3	–	–
4147.768	V I	3 h	–	–
4147.713	Sm II	3	10	–
4147.673	Ca	3	2	–
4147.673	Fe I	200	100	S
4147.55	Pr	4	2	–
4147.532	Mn	40	20	–
4147.525	Ce	10	2	–
4147.43	Tb	6	–	–
4147.403	Sc I	3	1	–
4147 388	U	8	8	–
4147.367	Zr I	10	–	–
4147 331	Os	9	–	–
4147 314	Ce	2	–	–
4147 196	Ce	1	3	–
4147.19	Eu	8	1	–
4147.190	Cb	8	10	–
4147 18	Tm	8	–	–
4147 14	Pr	12	4	–
4147.138	Nd	15	3	–
4147 10	Dy	4	2	Ed
4147.09	Cl II	–	[30]	Ks
4146 979	U	4	4	–
4146 95	Tb	12	–	m
4146 94	S II	–	[30]	Hn
4146 846	Mo	–	30	–
4146 81	Tm	7	–	–
4146 78	Xe I	–	[2]	Me
4146.771	Ru I	100	70	–
4146.743	Sm II	2	–	–
4146 695	Cr	25	2	–
4146.614	U	15	–	–
4146.60	Sb II	–	6	Dv
4146 600	Nd	10	4	–
4146 537	Pr	20	12	–
4146.485	Ce	4	–	–
4146.479	Mo	4	2	–
4146.454	Cr II	20	1	–
4146 35	Eu	8	1 h	Kn
4146 239	Re	20	–	–
4146 235	Cr	20	2	–
4146 234	Ce II	25	4	–
4146.132	Nd	10	10	–
4146.08	Tb	10	–	–
4146.071	Dy	40	4	–
4146 070	Fe I	15	3	–
4146.06	O II	–	[40]	Mh
4146.003	Cb	4	3	–
4145.97	Eu	2	–	Ed
4145.949	W	8	3	–
4145.884	Er	9	–	–
4145.87	Tm	5	–	–
4145.856	Ce	–	2	–
4145 804	Cr	–	20	–
4145.782	I I	–	[15]	Ke
4145.759	N II	–	[10]	Fl
4145.759	Hf	10	1	–
4145.738	Ru I	125	150	–
4145.596	Mo	5	3	–
4145.59	Dy	5	–	Kn
4145.491	Ce	3	–	–
4145.44	Tb	2	–	Ed
4145 391	U	6	8	–
4145.244	Eu	8	1	–
4145 243	Sm	4	1	–
4145.159	W	15	8	–
4145.155	Cb	4	2	Me
4145.12	Kr II	–	[250]	Me
4145.100	S II	–	[250]	Hn
4145.052	Ti I	15	2	–
4144.995	Ce	10 l	4	–
4144.923	Nd	5 d	1	–
4144.852	Ce	2	1	–
4144.766	Er	12 d	–	–
4144.75	Pr	6	3	–
4144.697	U	10	5	–
4144.553	Nd	10	10	–
4144.51	Eu	8	1	Kn
4144.492	Ce	10	3	–
4144.45	Tb	80	10	–
4144.370	Ce	2	–	–
4144.359	Re I	125 w	–	–
4144.354	La I	3	–	–
4144 320	Sm	–	3	–
4144.240	Gd	3	–	Kn
4144.232	Er	5	–	–
4144.23	Pr	4	3	–
4144 22	Eu	2	–	–
4144.205	Ce	–	3	–
4144.164	Ru I	150	200	–
4144.147	Ca	–	3	–
4143.98	Br I	–	[20]	Ks
4143.936	La I	25	15 h	–
4143 931	Cb	5 h	5 h	Me
4143.877	U	5	1 h	–
4143.871	Fe I	400	250	S
4143 84	P	–	[50]	Gu
4143.76	O II	–	[15]	Mh
4143 759	He I	–	[15]	IMr
4143.742	La II	–	10 h	–
4143.700	Tb	15	1	–
4143.65	N I	–	[30]	Ry
4143.587	U	2	3	–
4143.549	Mo	100	100	–
4143.53	Tb	25	–	m
4143.420	Fe I	200	100	–
4143 280	Ti I	6	–	–
4143.24	Tb	4	–	Ed
4143 206	Cb	10	10	–
4143.140	Ir	8	–	–
4143.136	Pr	200	50	–
4143.100	Dy	40	8	Kn
4143 046	Ti I	30	8	–
4143.039	Cu II	–	2 wh	–
4142.97	Eu	2	–	–
4142.96	Er	30	15	m
4142.958	Sm	15	–	–
4142.882	V I	6	3	–
4142.86	Ho	–	3	Ex
4142.839	Yt I	100	25	–
4142 826	Ce	6	2	–
4142.813	Sm	10	2	Kn
4142.771	Re	8	–	–
4142.717	Ce	2	–	–
4142.703	Th	10	10	–
4142.50	Cr	10	1	Ex
4142.492	Ti I	12	2	–
4142 482	Th	10	10	–
4142.46	Tb	3	–	–
4142.434	Pr	3	–	–
4142.398	Ce	30	30	–
4142 350	U	3	2	–
4142.343	Ce	35	6	–
4142 320	Ni	15	–	–
4142.291	S II	–	[150]	Hn

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4142.256	W	15	9	–
4142 245	Cb	4	3	–
4142.193	Cr	35	8	–
4142.19	Ho	2	1 h	Kn
4142.184	Ni I	2	–	–
4142.162	Mo	8	4	–
4142.109	U	4	2	–
4142 047	Mo	8	4	–
4142.036	Ce	4	–	–
4142.00	Pr	8	3	–
4141.96	Ca	2	3	Ad
4141.867	Fe I	15	5	–
4141.832	V I	7	3	–
4141.83	Hf II	–	8	Me
4141.746	Eu	10	–	–
4141.740	La II	200	200	–
4141.641	Th	8	10 l	–
4141.58	Cd II	–	10	–
4141.56	Tb	25	–	–
4141.516	Dy	15	4	–
4141.489	Mo	1	30	–
4141.460	In II	–	[15]	Ps
4141.42	Pb	–	10	Sx
4141.370	V I	15	3	–
4141.296	Cu II	–	3	Sh
4141.291	Ir	6	–	–
4141.257	Pr	150	50	–
4141.228	U	20	30	–
4141 21	Sb II	–	7	Dv
4141.17	Se I	–	[10]	Rd
4141.063	Mn	50	30	–
4141.04	Si	–	2	Sy
4141.034	Eu	9	2	–
4141.02	Gd	5	–	–
4141.0	Na I	3	–	Fo
4140.964	In II	–	[5]	Ps
4140.945	Ce	5	–	–
4140.827	Pd I	100 r	–	–
4140.818	Ir	6	–	–
4140.769	Er	12	–	–
4140.751	Ce	8	6 l	–
4140.75	Tb	8	1	–
4140.607	Sb II	–	15	Sp
4140.587	Nd	2	–	Kn
4140.573	Pr	3	–	–
4140.512	Ce	5	–	–
4140.5	Cd	5	–	Sd
4140.454	Gd	20	20	–
4140.420	In II	–	[5]	Ps
4140.407	W	12	3	–
4140.40	Se I	–	[20]	Rd
4140 38	Hg	–	[200]	Ps
4140.35	Sr	5	2	Sd
4140.32	Pr	5	1	–
4140.304	Sc I	10	2	–
4140.239	Th	15 s	15 s	–
4140.21	Br	–	[30]	Bl
4140.21	Hf II	–	4	Me
4140.200	Ce	3	6	–
4140.192	Er	12	–	–
4140.189	Mn	15	5	–
4140.12	Dy	3	–	Ed
4140.111	Ir	5	–	–
4140.045	W	12	3	–
4140.03	Hg I	–	[5]	Wd
4140.03	Tm	2	–	Me
4140.02	Eu	5	2 h	–
4140.008	Zr I	9	–	–
4139.967	Ir	2	–	–
4139.923	Fe I	40	30	–
4139.844	Ti I	7	–	–
4139.819	Ce	5	1	–
4139.81	Tb	10	–	–
4139.707	Cb	50	50	–
4139.693	Eu	6	–	–
4139.66	Se I	–	[40]	Rd
4139.646	Sm	5 d	2	–
4139.56	Dy	8	2	Kn
4139.528	Mo	10	3	–
4139.47	Eu	3	–	–
4139.450	Co I	10	–	–
4139.436	Cb	10	10	–
4139.426	Ce	8	2	–
4139.36	Tb	3	–	–
4139.330	U	6	–	–
4139.322	W	12	5	–
4139.258	V I	10	6	–
4139.140	U	10	10	–
4139.11	Kr	–	[100 wh]	Me
4139.06	Tb	4	–	Ed
4139.048	Yb	5 wd	–	–
4139.031	Ce	2	2 l	–
4138.99	Se II	–	[10]	Bl
4138.969	Sm II	8	1	Kn
4138.81	Xe	–	[2 h]	Hu
4138.743	Ce	2	1	–
4138.731	Sm	8	–	–
4138.704	Hf II	–	6	–
4138.664	U	10	10	–
4138 65	Mo	–	5	–
4138.6	Na	3	–	Fo
4138.58	Br	–	[5]	Bl
4138.543	Mo	20	12	–
4138.54	Dy	10	–	Kn
4138.530	Re	2	–	–
4138.38	Br	–	[8]	Bl
4138.36	Tm	80	8	Me
4138.352	Ce	12	4	–
4138 335	Er	9	–	–
4138.30	Eu	2	–	–
4138.300	Cb	4	2	–
4138.210	Zr	10	10 h	–
4138.19	Pr	20	8	–
4138.185	Mo	20	15	–
4138.14	Dy	2	–	Ed
4138 102	Ce	12	3	–
4138 022	I	–	[8]	Ke
4138.020	Gd	5	–	Kn
4137.989	Nd	10	4	
4137.96	Kr	–	[50 wh]	Me
4137 925	La II	4	2	–
4137.923	Ir	5	–	–
4137.903	U	6	3	–
4137.840	Os	100	3	–
4137.711	U	6	1	–
4137 646	Ce	25	12	–
4137.63	N I	–	[50]	Du
4137.606	Re I	15	–	–
4137.593	Cb	3	5	–
4137.543	W	12	12	–
4137.49	Pr	2	1	–
4137.49	Tm	3	–	–
4137.473	Ce II	6	2	–
4137.31	Se II	–	[50]	Bl
4137.3	P	–	[15 h]	Gu
4137.288	Ti I	50	15	–
4137.272	Er	8	–	–
4137.257	Mn	40	5	–
4137.234	Ru I	25	15	–
4137.16	Pr	3	1	–
4137.095	Cb I	100	60	–
4137.083	Gd	20	40	–
4137.076	Eu	10	–	–
4137.04	Tb	5	1 w	–
4137.025	La I	15	–	–
4137.004	Fe	100	80	–
4136.95	Mo	15	8	–
4136 897	Ce	5	2	–
4136.807	U	15	8	–
4136.769	Ce	5	–	–
4136.752	Nd	3	5	–
4136.612	Eu	12	2	–
4136.46	Tb	4	–	–
4136.446	Re I	150 w	–	–
4136.442	U	12	–	–
4136.439	Rb	–	3	Rr
4136.386	V I	9	4	–
4136.383	Th	5	8	–
4136.361	Hf	10	6	–
4136.351	W	9	8	–
4136.347	Ca	2 h	3	–
4136.328	I	–	[15]	Ke
4136.28	Se II	–	[100]	Bl
4136.24	Ho	40	25	Kn
4136.232	Nd	3	5	–
4136.198	Ta	80	30	–
4136.19	Eu	6	–	Kn
4136.125	Rb II	–	15	Rr
4136.109	V I	10	7	–
4135.932	Nd	4	3	–
4135.916	Ir	8	–	–
4135 894	Sm	6	3	–
4135.887	Ce	10	2	–
4135.86	Kr II	–	[3 h]	Me
4135.793	Nd	5	3	–
4135.784	Os	200	50	–
4135.756	U	10	6	–
4135.680	Zr I	20	1	–
4135.66	Br	–	[20]	Bl
4135.496	Sm	15	2	–
4135.443	Ce	20 l	4 l	–
4135.439	Gd	4	4	–
4135.424	Cb	4	2	–
4135.383	Mo	10	10	–
4135 38	Tb	12	–	–
4135.325	Nd	10	15	–
4135 272	Rh I	300	150	–
4135.212	Mo	5	4	–
4135.163	U	6	5	–
4135 146	Ir	2	–	Ab
4135.135	Sm II	5	10	–
4135 133	Xe I	–	[20]	IMe
4135.105	Ce	5	–	–
4135.10	Yb	15	50	m
4135.038	Os	6	1	–
4135.036	Mn	50	30	–
4135 0	bh Sr	4	–	L
4134.955	Eu	7	1 h	–
4134.880	U	4	6	–
4134.85	Ru	12	5	–
4134.78	Cd II	–	15	Vs
4134.75	Dy	10	–	Kn
4134.721	K II	–	[40]	Dm
4134 713	Nd	6	–	–
4134.681	Fe I	150	100	S
4134.591	Cb	10	10	–
4134 565	Ce	–	2 s	–
4134.56	Ho	5	1 h	Kn
4134.488	V I	40 r	15 r	–
4134.45	Tm	3	4	Me
4134.425	Fe I	10	3	–
4134.389	Cr	25	3	–
4134.340	Fe I	2	–	–
4134 314	Zr I	8	–	
4134.31	Tb	4	1 h	m
4134 172	Sb II	–	8	–
4134.167	Gd I	25	1	–
4134.14	Dy	12	2	Kn
4134.117	Th	10	10	–
4133 95	Sb	–	5	Sp
4133 863	Dy	15	2	–
4133.862	Fe I	50	7	–
4133 800	Ce	35	8	
4133 797	Sm	2	–	–
4133.777	V I	9	6	–
4133.715	Ce	3	1	–
4133.695	Zr I	5	3	–
4133.68	Kr II	–	[5 wh]	Me
4133.66	Cl II	–	[20]	Ks
4133.654	N II	–	[5]	Fl
4133.65	Ne II	–	[30]	Bl
4133 618	Pr	10	5	–
4133.569	U	–	6	–
4133.55	Tb	2	–	–
4133.524	Zr I	4	–	–
4133.492	U	15	–	–
4133 482	W	6 d	4 d	–
4133 418	Cb	2	5 h	–
4133.417	Re I	200	–	–
4133.370	Dy	10	4	–
4133 361	Nd	15	10	–
4133.334	La	15	25	–
4133.246	I	–	[15]	Ke
4133 201	U	8	8	–
4133.171	Sm II	4	4	–
4133.148	Ir	10	–	–
4133.115	Eu	4	1 h	–
4133 048	Ce	3	–	–
4133.006	Sc I	8	3	–
4133.002	Mo	15	–	–
4132.904	In	–	15	–
4132.877	V I	2	–	Me
4132.85	Dy	9	2	Kn
4132.83	Tb	9	–	–
4132.82	O II	–	[100]	Fl

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
4132.76	Se	–	[200]	Bt
4132 751	Th	10	12	–
4132.750	Mo	12	10	–
4132.69	Tm	12	15	–
4132.637	Ce II	8	2 h	–
4132.554	Nd	4	5	–
4132.501	La II	–	10 h	Me
4132.497	Ca I	–	2	–
4132.48	Cl II	–	[200]	Ks
4132.47	Tb	5	–	–
4132.447	Ce	4	–	Kn
4132.441	Cr II	–	2	–
4132.431	Ba	10	4	–
4132.313	Ce	8	2 s	–
4132.29	Li I	400 wh	–	Fl
4132.282	Re I	20	–	–
4132.281	Gd	25	20	–
4132 24	Eu	4	1 h	–
4132 230	Mo	20	20	–
4132.230	Pr	15	8	–
4132.22	Tb	3	–	–
4132.214	W	6	8	–
4132.155	Co I	15 h	–	–
4132.14	Yb	3 h	–	Me
4132.060	Fe I	300	200	S
4132.017	V I	12	10	–
4132.003	Cs II	–	[10]	Ot
4131.920	Mo	20	10	–
4131.855	Ce	5	2	–
4131.82	Pr	12	4	–
4131.79	Lu	10	–	Me
4131.784	U	6 h	6	–
4131.74	La II	3	3	Me
4131.73	A II	–	[80]	Rt
4131.527	Cb	2	10	–
4131.502	Er	9	–	–
4131.482	Gd	50	50	–
4131.45	Tb	10	2	–
4131.433	Th	8	8	–
4131.430	Mn	10	–	–
4131.360	Cr	30	20	–
4131.353	U	6	6	–
4131 347	Ce	2	–	–
4131.306	Nd	8	4	–
4131.254	Ti I	15	2	–
4131.225	Ru	10	–	–
4131.117	Mn	50	40	–
4131.11	Tb	8	1	–
4131.100	Ce II	30	8	–
4131.054	Ne I	–	[70]	Ps
4131.049	Os	12	1	–
4131.049	Th	8 d	5 d	–
4131.038	Dy	12	4	–
4131.01	Xe II	–	[10]	Hu
4130.96	Si	–	25 w	Sy
4130.95	S	–	[15]	Bl
4130 86	Cl II	–	[20]	Ks
4130 846	Mo	–	15	–
4130.77	P II	–	[30]	Gu
4130.770	Pr	25	20	–
4130.740	U	–	3 h	–
4130.731	Ir	2	–	Ab
4130.722	Nd	15	8	–
4130.706	Ce II	25	8	–
4130.664	Ba II	50 r	60 wh	–
4130.512	Ne I	–	[20]	Ps
4130.462	Re	10	–	–
4130.454	Zr I	4	–	–
4130.43	Ca	–	2	Ad
4130.42	Dy	12	2	Kn
4130.378	Gd	200	10	–
4130.35	Tb	3	1	–
4130.257	Mo	–	8	–
4130.234	Ce	–	4	–
4130.21	Cl	–	[4]	Bl
4130.145	V I	3	2	–
4130.14	Tb	10	–	–
4130.123	Ce	–	2	–
4130.105	Mo	10	8	–
4130.100	Ir	15	–	Ab
4130.04	Fe I	20	3	–
4129.989	Sm	10	–	–
4129.98	W	5	6	–
4129.927	Cb	15	30	–
4129.921	Ce	3	–	–
4129.873	Nd	2	–	Kn
4129.737	Eu II	150 R	50 R	–
4129.70	A	–	[10]	Rt
4129.695	Mo	8	4	–
4129.663	U	4	4	–
4129.621	Eu	15	–	–
4129.54	Tm	1	2	Me
4129.460	U	6	5	–
4129.44	Ho	3	1	Ex
4129.433	Er	10	2	–
4129.426	Cb	15	20	–
4129.425	Dy	20	8	Kn
4129.42	Tb	10	1 w	–
4129.378	Ta	200	40	–
4129.368	Cr I	10	–	Hl
4129.34	O II	–	[15]	Fl
4129.225	Sm II	5	12	–
4129.22	Fe	5	1	–
4129.176	Ce	5	1	–
4129.173	Ti	15	7	–
4129.15	Se II	–	[200]	Kh
4129.148	Pr	20	15	–
4129.13	I I	–	[2]	Mu
4129.13	Dy	10	2	Kn
4129.12	Ca	2 h	2	Ad
4129.103	Ce	3	–	–
4128.961	Os	60	3	–
4128.905	Ce	3	1 h	–
4128.889	U	4	–	–
4128.870	Rh I	300	150	–
4128.858	V I	9	5	–
4128.833	Mo	40	40	–
4128.756	U	2	2	–
4128.735	Fe II	2	2 h	–
4128.72	Tb	4	–	–
4128.705	Nd	10	10	–
4128.690	I	–	[35]	Ke
4128.65	A	–	[20]	Rt
4128.479	Ce	3	–	–
4128.46	Tb	3	–	–
4128.429	Ir	10	2	Ab
4128.405	Cr	10	6	–
4128.368	Pd I	5 h	–	–
4128.363	Ce	10 s	4	–
4128.336	U	18	20	–
4128.32	Ho	–	3	Ex
4128.304	Yt I	150	30	–
4128.284	Mo	50	25	–
4128.241	Dy	20	4	Kn
4128.21	Pb	–	5	Sx
4128.14	Mn	15	15 s	–
4128.132	Nd	8	4	–
4128.116	Sm	5	2	–
4128.11	Si	–	20 w	Sy
4128.10	Eu	2	–	Kn
4128.094	Re	6	–	–
4128.080	Ca	2	4	–
4128.072	Ne I	–	[30]	Ps
4128.071	V I	30 r	20 r	–
4128.068	Ce II	10	3	–
4127.962	Zr I	4	2	–
4127.925	U	6	3	–
4127.917	Ir	30	2	–
4127.879	Ta	15	8	–
4127.868	Ru I	25	35	–
4127.803	Fe	25	15	–
4127.795	Hf II	10	10	–
4127.743	Ce	8	4	–
4127.685	Gd	10	20	–
4127.645	Mo	6	3	–
4127.643	Cr I	30	10	–
4127.612	Fe I	100	80	S
4127.582	Yt II	2	2	–
4127.54	S	–	[3]	Hn
4127.540	Ti I	70	15	–
4127.49	P II	–	[70]	Gu
4127.454	Cb	4	10	–
4127.440	Ru I	20	30	–
4127.367	Ce	30	12	–
4127.36	Bi	1	2	To
4127.35	Tm	3	–	–
4127.34	Te	–	[30]	Bl
4127.34	Yb	2	–	Me
4127.331	U	8	1 h	–
4127.322	Mo	–	20	–
4127.302	Cr I	20	10	–
4127.30	Tb	9	2	–
4127.288	Eu	3	–	–
4127.251	W	5	5	–
4127.16	Ho	150	60	Kn
4127.113	Er	10	–	–
4127.104	Ce	4	1	–
4127.04	Te	–	[15]	Bl
4126.995	Ce	3	1	–
4126.96	F II	–	[3]	Di
4126.941	Ne I	–	[2]	Ps
4126.94	Tb	3	–	–
4126.925	Cr	30	4	–
4126.902	Cb	3	10	–
4126.883	Ce	5	1	–
4126.88	Fe I	8	1	–
4126.854	U	3	3	–
4126.799	W	12	12	–
4126.72	Tb	6	–	–
4126.660	Ce	8	3 s	–
4126.57	Se II	–	[150]	Bl
4126.564	Sc	2	–	–
4126 564	Nd	10	2	–
4126 529	Mo	25	20	–
4126 521	Cr I	100	50	–
4126 477	Ir	25	–	–
4126.436	U	5	5	–
4126.412	Ru I	12	1	–
4126.364	Ce	6	–	–
4126 227	Er	10 s	2	–
4126 190	Fe I	80	60	–
4126 185	Cb	1	10	–
4126.15	Pr	10	5	–
4126.14	Dy	8	2	Kn
4126.113	Sm	10	–	–
4126.101	I	–	[8]	Ke
4126 099	Cr	15	2	–
4126.067	Ir	12	–	Ab
4126.022	Ce	2	–	–
4126.0	bh Ca	3	–	L
4125.883	Fe I	25	15	–
4125.868	Sm	15	10	–
4125.777	Ce II	6 s	1	–
4125.761	Gd	3	–	–
4125 735	W	1	3	–
4125.709	Ce	2	–	–
4125.65	Ho	20	15	Kn
4125.635	Er	5	–	–
4125.621	Fe	80	30	–
4125 619	Mo	–	50	–
4125.575	Cb	3	5	–
4125 53	Eu	10	–	Kn
4125.500	Nd	8	1 h	–
4125 429	Ce	6	2	–
4125.42	Tb	2	–	–
4125.248	Cb	10	20	–
4125.239	Sm	5	1	–
4125.21	Tb	10 w	1 w	–
4125.180	W	9	12	–
4125.129	U	15	1	–
4125.10	Hf	2	6	Me
4125.06	Pr	12	5	–
4125.048	Nd	4 d	4	Kn
4124.91	Hg II	–	[5]	Ps
4124.910	Yt II	7	18	–
4124.910	Eu	8	2	–
4124.901	Rh I	5	3	–
4124.796	Er	2	–	–
4124.790	Re	4	–	–
4124.785	Ce	25	5	–
4124.745	Ir	8	–	Ab
4124.73	Lu	200	10	Me
4124.725	U	30	25	–
4124.7	bh Sr	2	–	L
4124.65	Th	3	3	–
4124.626	Dy	15	8	Kn
4124.599	Os	30	9	–
4124.553	Eu	8	2	–
4124.545	Mo	30	25	–
4124.540	Ir	4	–	Ab
4124.35	Pr	5	2	–
4124.27	Tb	3 h	–	m
4124.115	Nd	2	–	–
4124.10	N II	–	[2]	Fl
4124.072	V I	8	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4124.071	Hg	–	[30]	Cn
4124.06	Pr	5	2	–
4124.02	Eu	2	–	Kn
4124.00	Cl II	–	[12]	Ks
4123.959	U	20 r	1	–
4123.951	Sm II	10	20	–
4123.881	Nd	40	20	–
4123.872	Ce	25	6	–
4123.813	Ru	20	10	–
4123.810	Cb I	200	125	–
4123.78	Tb	10	–	–
4123.778	Ni	2	–	–
4123.745	Fe	80	20	–
4123.71	As II	–	5	Ro
4123.66	U	5	6	–
4123.657	Ta	5	1	–
4123.650	Mo	5	25	–
4123.617	Pd I	10	2	–
4123.59	Gd	3	–	Kn
4123.572	Ti I	40	10	–
4123 569	Th	5	5	–
4123.566	V I	30 r	12 r	–
4123.543	Mn	15	5	–
4123.534	Hf II	1	10	–
4123.505	Re	2	–	–
4123.488	Ce	20	5	–
4123.387	Cr	35	15	–
4123.310	U	5	2 h	–
4123.306	Ti I	25	6	–
4123.287	Cu I	30 w	1 h	–
4123.279	Mn	12	5	–
4123 237	Er	5	–	–
4123.228	La II	500	500	–
4123 188	V I	6	3	–
4123.173	Ta	50 r	4 w	–
4123.143	Ti I	10	–	IKs
4123.14	U	3	–	–
4123.069	Na II	10	[15]	Fr
4123.064	Ru I	25	35	–
4123.055	W	7	8	–
4123.053	Er	8	–	–
4123.010	Gd	8	10	–
4123.006	Sm	5	2	–
4123.005	Nd	15	8	–
4122.98	Pr	8	2	–
4122.973	Th	3	5	–
4122.942	Eu	3	1	–
4122.874	Yb	10	20	–
4122.857	Ce	3	–	–
4122.808	Cb	5	10	–
4122.791	In II	–	[30 h]	Ps
4122.787	Ru	6	–	–
4122.786	Eu	3	–	–
4122.763	Re	10	–	–
4122.510	Fe I	70	30	–
4122.499	Sm II	5	10	–
4122.49	Lu	15	2	Me
4122.47	Tb	8	–	–
4122.395	Mo	15	50	–
4122 354	U	15	4	–
4122 31	Pr	8	2	–
4122.271	Co I	10 h	–	–
4122.237	Ce	3	3 l	–
4122 21	Tb	3	–	–
4122.166	Ti I	40	10	–
4122.166	U	10	8	–
4122 162	Cr I	30	5	–
4122.145	Ce	–	2	–
4122.121	Hg	–	[20]	St
4122.09	Pr	12	3	–
4122.017	W	7	8	–
4122.017	Sm	2	4	–
4121.95	B II	–	20	En
4121.936	Nd	4	8	–
4121.908	Ce	3	–	–
4121.891	Th	–	3	–
4121.86	Xe II	–	[3 h]	Hu
4121.855	Bi I	5	2	–
4121.817	Cr	40	10	–
4121.81	Eu	2 w	–	Kn
4121.806	Fe I	100	40	S
4121.74	Cu I	20	–	–
4121 682	Rh I	150	50	–
4121.671	Zr I	5	–	–
4121.642	Ti	15	3	–
4121.63	Re I	50	–	–
4121.602	Ce II	8	1	–
4121.57	Tb	2	–	–
4121.543	Sm II	10 h	4	–
4121.527	Bi I	125 wh	50	–
4121.473	Cr	10	1	–
4121.46	O II	–	[50]	Mh
4121.456	Zr I	30	2	–
4121.351	Sm II	15	15	–
4121.319	Co I	1000 R	25	–
4121.278	Ce	2	–	–
4121.260	Cr	35	8	–
4121.230	U	3	3	–
4121.210	Cs II	–	[15]	Ot
4121.07	Gd	3	1	–
4121.069	Ce	2	2	–
4121.01	Tb	5	–	–
4120.989	He I	–	[5]	Ps
4120 987	Ru I	25	30	–
4120 96	Pr	3	1	–
4120.89	Sb II	–	5	Dv
4120.857	W	9	8	–
4120.842	Er	8	–	–
4120.829	Ce	25	6	–
4120.812	He I	–	[25]	IMr
4120.798	Ce	4	–	–
4120.78	P II	–	[15 h]	Gu
4120.77	V I	2	–	Me
4120.697	Mo	8	–	–
4120 69	U	3	1 h	–
4120.66	Dy	5	–	Kn
4120.654	Nd	6	4	–
4120 613	Cr I	40	10	–
4120.6	Hg II	–	[50]	Ps
4120.55	O II	–	[20]	Fl
4120 538	V I	15	4	–
4120.52	Tb	12	2	–
4120.507	Ce	2	2	–
4120.43	Tb	2	–	Kn
4120.27	O II	–	[50]	Mh
4120 211	Fe	80	35	–
4120.20	Ho	50	25	Kn
4120.188	Er	8	–	–
4120.177	I	–	[15]	Ke
4120.10	U	4	8	–
4120.096	Mo	25	50	–
4120 034	Ti I	10	–	–
4120 00	Pr	8 d	2 dh	–
4119 987	Tb	15	–	–
4119.98	U	3	1	–
4119.877	Ce II	20 d	3	–
4119 85	As	–	50	Ro
4119.826	Zr I	10	–	–
4119.80	Pr	5	1	–
4119 724	Cb	1 h	20	–
4119.692	U	8	4	–
4119.680	Rh I	100	25	–
4119.633	Mo	5	50	–
4119 601	Ir	15	–	Ab
4119 569	Sm II	4	5	–
4119.49	Tb	6	–	–
4119.457	V I	12	6	–
4119 43	Yb	10	20	m
4119.394	Fe	2	1	–
4119.38	Zn II	–	[7]	Vs
4119.380	Gd	8	–	Kn
4119.37	Pr	5	2	–
4119 35	Ho	3	2 h	Ex
4119.343	Ce	–	2 h	–
4119.33	Eu	10	3	m
4119.329	Er	18 wl	2 wh	–
4119.325	Dy	15	4	–
4119.29	Yb	4	–	–
4119.288	Cs	–	[8]	Sv
4119.283	Cb	2	200	–
4119.266	Ce	–	2 h	–
4119.222	O II	–	[300]	Fl
4119.219	F II	–	[50]	Di
4119.199	Gd	3	–	Kn
4119 10	V I	2	2	Me
4119.015	Ce	25	3	–
4118.965	Mo	10	8	–
4118.96	P II	–	[15]	Gu
4118.913	Hf	3	–	–
4118.903	Fe I	2	1	–
4118 773	Co I	1000 R	–	–
4118.756	F II	–	[6]	Di
4118.686	Pt I	400	10	–
4118.68	Br	–	[2]	Bl
4118.663	Ir	8	–	Ab
4118.643	V I	9	3	–
4118.60	Hf	3	1	Me
4118.549	Fe	200	100	S
4118.549	Mo	–	10	–
4118.546	Sm II	50	60	–
4118.498	Ru I	40	–	–
4118.481	Pr	250 d	50 d	–
4118.426	Tb	5	–	Kn
4118.394	U	3	8	–
4118.20	Tb	5	–	–
4118.192	Ce	3	–	–
4118.184	W	9 l	10 l	–
4118.182	V I	10	5	–
4118.144	Ce	25	8	–
4118.144	U	2	2	–
4118.14	Kr II	–	[30 whl]	Me
4118.066	Ta	5	4 h	–
4118.054	W	8	9	–
4118.01	Dy	4	–	Ed
4117.987	Ce	3	1	–
4117.863	Fe I	6	1	–
4117.826	Ce	4	1 h	–
4117.73	Eu	2 d	–	–
4117.678	La	20	8	–
4117.635	U	3	3	–
4117.596	Ir	50	3	–
4117.586	Ce	30	5	–
4117.541	Nd	8	4	–
4117.456	U	3	–	–
4117.45	Br	–	[20]	Bl
4117.288	Ce	20	4	–
4117.22	Tb	9	–	–
4117 21	Pr	3	1	–
4117.210	Ir	2	3	Ab
4117.09	P II	–	[50]	Gu
4117.05	Dy	2 h	–	Ed
4117.013	Ce	30	6	–
4117.008	F II	–	[30]	Di
4116.978	Eu	2 s	–	–
4116.896	Cb	10	10	–
4116.887	U	10	8 h	–
4116.858	Ru	7	–	–
4116.85	Tb	3	–	–
4116 838	Ir	5	–	Ab
4116.791	I II	–	[3]	Ke
4116.764	Nd	10	10	–
4116.718	Th	12	15	–
4116.713	Ce	6	1	–
4116.703	V I	3	2	–
4116.65	Br	–	[4]	Bl
4116.649	Mn	15 h	5	–
4116.63	Ho	3	1 h	Kn
4116.585	Os	6	1	–
4116 547	F II	–	[50]	Di
4116.51	Tb	8 W	–	–
4116.470	V I	20 r	15 r	–
4116.456	Sm II	8	9	–
4116 437	U	3	3	–
4116.39	A II	–	[10]	Rt
4116.362	Er	4 d	–	–
4116 331	Rh I	30	10	–
4116.27	Os	20	1 h	–
4116.178	I	–	[8]	Ke
4116.15	Si	–	2	Sy
4116.115	Xe I	–	[80]	I
4116.097	U	25	35	–
4116.095	Ca	2	3	–
4115.982	Ni I	6	–	–
4115.879	Ce	–	6 h	–
4115.83	Pr	12	5	–
4115.806	Eu	6	–	–
4115.782	Mo	–	5 h	–
4115.778	Ir	100	30	–
4115.773	Th	3	3	–
4115.657	Ce	3	–	–
4115.645	U	10	–	–
4115.597	Cb	–	5	–
4115.586	W	8	8	–
4115.54	Eu	2	–	–
4115.483	V I	2	1	–

Wave-length	Element	Intensities Arc	Spk., [Dis.]	R
4115.48	In II	–	[2]	Ps
4115.41	Hg II	–	[50]	Ps
4115.374	Ce	40	6	–
4115.37	Tb	8	1	–
4115.353	Gd	25	–	–
4115.28	Se II	–	[10]	Bt
4115.185	V I	30 r	20 r	–
4114.957	Fe	10	2	–
4114.952	K II	–	[30]	Dm
4114.95	Na II	–	15	So
4114.928	Mo	10	12	–
4114.916	Ce	12	–	–
4114.893	U	5	5	–
4114.84	Pr	8	2	–
4114.827	W	7	6	–
4114.770	Ta	5	2 h	–
4114.680	Re	4	–	–
4114.607	U	10	2 h	–
4114.58	Eu	2	–	Kn
4114.575	Cb	–	5	–
4114.56	Rn	–	[80]	Rc
4114.530	V I	6	3	–
4114.52	A II	–	[2]	Rt
4114.458	Nd	2 h	–	Kn
4114.449	Fe I	80	50	S
4114.384	Mn	20	20	–
4114.35	Se II	–	[40]	Bl
4114.31	Pr	3	1	–
4114.19	Ca	2	2	Ad
4114.149	Ce II	12	2	–
4114.14	Tb	12	1	–
4114.134	Ru I	20	5	–
4114.09	Dy	12	4	Kn
4114.074	Er	12 w	–	–
4114.00	N I	–	[30]	Du
4113 997	Ce	2	3 h	–
4113.944	Cb	10	10	–
4113.936	U	8	10	–
4113.896	Sm II	5	10	–
4113.887	Pr	30 w	70 w	–
4113.876	Mn	20	5	–
4113.826	Nd	10 d	5 d	–
4113.82	O II	–	[15]	Mh
4113.771	Ce	2 l	–	–
4113.769	Gd	4	4 h	–
4113.73	Kr II	–	[8 whl]	Me
4113.726	Ce II	30	3	–
4113.634	Ir	12	–	Ab
4113.605	Mo	6	6	–
4113.6	bh Sr	5	–	L
4113.60	Te	–	[15]	Bl
4113.553	Ce	6	1	–
4113.55	Eu	2	–	–
4113.531	Hf II	5	10	–
4113.525	U	2	2	–
4113.518	V I	20	9	–
4113.395	Re I	20	–	–
4113.383	Ru	40	50	–
4113.381	Pr	3	–	–
4113.332	Ce	3	–	–
4113.28	La II	10	20	Me
4113.27	Pb II	–	[4]	Gs
4113.236	Mn	40	20	–
4113.210	Zn I	10	–	Hz
4113.170	Ce	3	1 h	–
4113.112	Nd	20 h	2	–
4113.107	U	12	12	–
4113.05	Yb	4	15	–
4113.05	Dy	12	2	Kn
4113.03	Eu	2	–	Kn
4112.975	F II	–	[30]	Di
4112.966	Fe	70	10	–
4112.964	Gd	5 h	–	–
4112.88	Tb	9	–	–
4112.865	Ne I	–	[10]	Ps
4112.83	A	–	[20]	Rt
4112.762	Th	5	5 w	–
4112.745	Nd	15	–	–
4112.741	Ru I	125	200	–
4112.74	Pr	10	2	–
4112.734	F II	–	[20]	Di
4112.714	Ti I	70	20	–
4112.694	Ne I	–	[20]	Ps
4112.67	Lu	5	–	Me
4112.63	Ho	–	2 h	Ex
4112.622	Er	6	1	–
4112.54	Tb	25	1	m
4112.503	U	4	2	–
4112.485	W	8	7	–
4112.484	Ce	6	–	–
4112.481	Cb	2	–	–
4112.347	Fe I	6	1	–
4112.332	V I	2	3	–
4112.322	Th	3	5	–
4112.287	Ir	12	2	–
4112.28	S	–	[3]	Hn
4112.259	Re	3 h	–	–
4112.257	Ce	–	2	–
4112.252	Sm	10	2	–
4112.174	Eu	15 w	2 w	–
4112.173	Ce	2	–	–
4112.14	Xe II	–	[15 whl]	Hu
4112.127	Cb	5	15	–
4112.120	Mo	4	3	–
4112.100	Ne I	–	[15]	Ps
4112.085	Ce	3 l	–	–
4112.071	K II	–	[15]	Dm
4112.055	Eu	10	2	–
4112.02	O II	–	[50]	Mh
4112.018	Os	150	9	–
4111.99	Ho	4	2 h	Kn
4111.98	Pr	3	1	–
4111.931	Ce II	8	1 h	–
4111.88	Se I	–	[10]	Rd
4111.871	Pr	30 w	8 w	–
4111.813	W	8	7	–
4111.791	Nd	15	3 h	–
4111.786	U	3	1	–
4111.785	V I	100 WR	100 WR	–
4111.77	Gd	10	2	–
4111.768	Ir	2	–	Ab
4111.67	Cr I	20 h	–	Ct
4111.597	Re	3	–	–
4111.59	Sn	–	[2]	Mc
4111.56	S	–	[30]	Hn
4111.527	U	2	2	–
4111.440	Gd	15	15	–
4111.394	Ce	35	5	–
4111.37	Ho	–	2 h	Ex
4111.36	Cr I	20 h	–	Ct
4111.351	Er	15	1	–
4111.346	Dy	30	12	Kn
4111.34	Tb	12	–	–
4111.202	Sb II	–	10	–
4111.2	Tl	–	[2]	Cx
4111.069	Eu	10	1	–
4111.028	Os	6	1	–
4111.017	U	10	–	–
4111.01	Tb	2	–	–
4110.92	Pr	10	2	–
4110.911	Cr I	20 Wh	–	–
4110.903	Mn	80 r	40	–
4110.899	Re I	40	–	–
4110.870	Th	8	8	–
4110.85	Tb	4	–	–
4110.840	Ce II	20	–	–
4110.832	Cb	–	5 h	–
4110.830	U	8	8	–
4110.802	Yt I	7	2 h	–
4110.79	O II	–	[40]	Mh
4110.77	Pb II	–	[5]	Gs
4110.761	V I	2	2	Me
4110.704	Mo	6	5	–
4110.662	Zr I	4	–	–
4110.640	Th	5	5	–
4110.607	Ce	2	–	–
4110.603	Gd	10	15	–
4110.572	W	7	6	–
4110 535	Co I	600	–	–
4110.51	Sn II	–	[2]	Mc
4110.472	Nd	10	10	–
4110.47	Pr	5	1	–
4110.444	U	6	1 h	–
4110.431	Gd	5	–	–
4110.41	Xe II	–	[15]	Hu
4110.381	Ce	35	10 h	–
4110.295	Cb	1	10	–
4110.287	Mo	3	5	–
4110.185	Sm II	5	5	–
4110.16	Kr II	–	[5 whl]	Me
4110.11	Pr	3	1	–
4110.073	Co I	5 h	–	–
4110.07	Tb	3	–	–
4110.053	Zr II	3	1	–
4110.027	Ce	3	–	–
4110.00	Br	–	[10]	Bl
4109.98	N I	–	[1000]	Du
4109.98	Ca	2	3	Ad
4109.905	Ce	–	3 h	–
4109.900	Er	7 w	–	–
4109.89	Eu	2	–	–
4109.875	Ba	2	–	–
4109.808	Fe I	120	100	–
4109.805	La I	15	10	–
4109.786	V I	40 r	20 r	–
4109.756	W	20	20	–
4109.709	Xe I	–	[60]	I
4109.646	Ru I	20	6	–
4109.609	Yb	3	–	–
4109.584	Cr I	40	10	–
4109.559	Ce	12	–	–
4109.54	Mg II	2	–	Fl
4109.531	U	6	–	–
4109.51	Tb	5	–	–
4109.485	La I	15	5	–
4109.455	Nd	30	30	–
4109.41	Pr	15	2	–
4109.407	Sm II	10	10	–
4109.34	In II	–	[5 h]	Ps
4109.23	Kr II	–	[100 hs]	Me
4109.20	Dy	2	–	Ed
4109.19	P II	–	[70]	Gu
4109.173	F II	–	[100]	Di
4109.09	Pr	5	1	–
4109.087	Er	5	–	–
4109.08	Tb	2	–	–
4109.073	Nd	15	15	–
4109.072	Fe I	12	2	–
4109.043	V I	3	2	–
4108.83	Se II	–	[800]	Bl
4108.729	Ce	8	–	–
4108.702	Cb	2	1 h	–
4108.695	Mo	–	8 h	–
4108.63	Ho	100	40	Kn
4108 624	Re	10	–	–
4108.543	Ce	2	–	–
4108.57	Eu	4	–	Kn
4108.559	Ca I	6	3	–
4108.551	Er	9	–	–
4108.531	W	8	9	–
4108 475	U	4	4	–
4108.467	Ir	4	2	–
4108.43	Kr I	–	[3]	Me
4108.426	Th	15	15	–
4108.42	Gd	4	2	Kn
4108.401	Zr I	20	–	–
4108.400	Cr I	30	4	–
4108.39	Tb	2	–	–
4108.353	U	10	–	–
4108.34	Pr	15	3	–
4108.323	Sm II	5	4	–
4108.281	I I	–	[20]	Ke
4108.28	Dy	2	–	Ed
4108.255	Ce	8	1	–
4108.232	Cs	–	[5]	Sv
4108.215	V I	12	9	–
4108.208	Ir	4	3 h	–
4108.124	Mo	5	6	–
4108.087	Ce	–	2	–
4108.066	Hg I	20	5	–
4108.060	Ru	10	7	–
4107.974	Os	25	–	–
4107.960	Re	3	–	–
4107.955	Nd	4	8	–
4107.92	Tm	4	–	Me
4107.871	Mn	20	5	–
4107.87	Eu	2	6	–
4107.865	Th	5	5	–
4107.837	Ru	25	20	–
4107.825	W	7	6	–
4107.823	Ir	10	2	–
4107.804	Sm II	10 d	2	–
4107.797	Ce	15	2 h	–
4107.79	Tb	6	–	–
4107.754	Pr	15	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4107.744	Nd	2h	–	Kn
4107.55	Sr II	1	3	Sd
4107.495	Zr I	10	–	–
4107.492	Fe I	120	100	S
4107.49	Rh I	25	8	–
4107.487	V I	10	9	–
4107.468	Mo	30	40	–
4107.45	Dy	4	–	Kn
4107.421	Ce II	30	8	–
4107.394	Sm II	5	5	–
4107.388	U	5	3	–
4107.264	Sm II	9	5	–
4107.195	Ce	2	–	–
4107.16	Dy	6	2	Ed
4107.129	Ir	3	–	Ab
4107.11	Pr	10	1	–
4106.931	U	25	10	–
4106.915	Ce	10	–	–
4106.88	Eu	10	8	–
4106 852	Ce II	12	2	–
4106.842	Re	10	–	–
4106.702	W	6	7	–
4106.70	Dy	8	2	Kn
4106.661	Er	12 d	–	–
4106.652	Ce	–	2	–
4106.6	Ho	2	–	Kn
4106.596	Sm II	100	5	–
4106.582	Nd	25	15	–
4106.58	Hf	10	2	–
4106.50	Ho	4	1 h	Kn
4106.444	Re	15	–	–
4106.439	Fe I	10	2	–
4106.416	U	8	12	–
4106.41	Br	–	[5]	Bl
4106.39	Dy	8	–	Kn
4106.388	Yt I	8	–	–
4106.35	Tb	5	–	–
4106.345	Eu	3	–	Kn
4106.284	U	8	–	–
4106.276	Sm	5	–	–
4106.265	Fe I	6	1	–
4106.175	Cb	4	3	–
4106.134	Ce	30	2	–
4106.022	Cr	12	1	–
4106 01	Tb	6	–	–
4105 991	Th	8	8	–
4105 97	Dy	5	–	Ed
4105.912	Ru I	12	2	–
4105.888	U	4	5	–
4105.863	Sb II	–	12	–
4105.85	Ho	2	–	Kn
4105.84	Tm	300	30	Me
4105.84	Yb	10	–	–
4105.83	Eu	2	2	m
4105.79	Gd	3	1 h	Kn
4105.755	Ir	15	2	–
4105.733	Pr	4	2	Kn
4105.712	U	3	3	–
4105 625	Ce	–	2	–
4105.62	Tm	6	–	–
4105 6	Ho	–	2 h	Ex
4105 595	Nd	8	3	–
4105.526	Mo	10	10	–
4105 495	Ce	2	–	–
4105.47	Br	–	[2]	Bl
4105.42	Os	6	–	–
4105.38	Tb	15	1	–
4105.365	Mn	50	20	–
4105.343	Th	12	12	–
4105.343	Ce	2	–	–
4105.311	U	10	3	–
4105.203	Ir	25	2	–
4105.167	V I	20 r	12 r	–
4105.083	Mo	15	20	–
4105.051	Dy	10	4	–
4105.021	Ta	12	8	–
4105.001	O II	–	[125]	Fl
4104.996	Ce	40	3	–
4104.986	Gd	5	–	–
4104.95	Fe	4 h	4 h	–
4104.95	Xe II	–	[20]	Hu
4104.945	U	6	–	–
4104.877	La I	40	2	–
4104.867	Cr	35	8	–
4104.86	Pr	4	1	–
4104.823	Rb	–	3	Rr
4104.80	Br	–	[2]	Bl
4104.779	U	2	2h	–
4104.778	V I	12	5	–
4104.770	Sb	–	3	Sp
4104.750	Co I	50	–	–
4104.73	O II	–	[50]	Mh
4104.665	Rb	–	2	Rr
4104.536	Nd	8	5	–
4104.48	Pr	5	2	–
4104.440	U	2	2	–
4104.430	Co I	30	2	–
4104.425	Ce	30	1	–
4104.422	Re	30	–	–
4104.396	V I	15	7	–
4104.392	Th	10	10	–
4104.34	Er	3	–	Ed
4104.313	Rb II	–	20	Rr
4104.30	Ho	2	–	Kn
4104.242	Ta	6	5	–
4104.235	Ir	20	2	–
4104.233	Hf	8	4	–
4104.227	Nd	10	4	–
4104.226	Cu I	30	1 h	–
4104.169	Cb	3	30	–
4104.128	Fe I	100	25	–
4104.121	Sm II	5	10	–
4104.1	bh Ca	4	–	L
4103.91	A	–	[200]	Rt
4103.90	Tb	30	2	–
4103.88	Eu	5	–	–
4103.878	Dy	30	4	Kn
4103.871	F II	–	[50]	Di
4103.87	Hg	–	[50]	Ps
4103.84	Ho	400	400	Kn
4103 806	Er	12	–	–
4103.801	Yt	7	2	–
4103.779	Re	2 h	–	–
4103.753	Mo	5	5	–
4103.730	Ce	4	–	–
4103.724	F II	–	[50]	Di
4103.72	Tm	5	10	Me
4103.667	Ir I	10	–	Ab
4103.65	Sm	3	2	–
4103.616	Os	20	3	–
4103.549	Mn	12	10	–
4103 525	F II	–	[300]	Di
4103.463	Mn	12	–	Fu
4103.46	Tb	8	–	–
4103.448	Ce	4	–	–
4103.41	Eu	2 W	3	Kn
4103 410	Gd	5 h	–	–
4103.4	air	–	20	m
4103.37	Tb	30	–	Kn
4103.312	Dy	50	50	Kn
4103.311	Er	18	1	–
4103.30	Ho	3	3	Ex
4103.217	F II	–	[30]	Di
4103.21	Tb	4	–	Kn
4103.20	Pr	2	1	–
4103.118	U	18	1 h	–
4103.10	Xe II	–	[5 h]	Hu
4103.085	F II	–	[150]	Di
4103.01	O II	–	[50]	Fl
4102.965	Mn	100	20	–
4102 946	Si I	12	10	–
4102.883	I	–	[10]	Ke
4102.865	U	5	6	–
4102.724	Ce	2	1	–
4102.72	Eu	10	3	–
4102.715	Ti	3	1	–
4102.704	W	35	30	–
4102.563	Nd	10	5	–
4102.53	Br	–	[10]	Bl
4102 52	Tb	25 w	2	–
4102.40	Ho	–	3	Ex
4102.376	Yt I	150	30	–
4102.364	Ce	18	2	–
4102.3	bh Sr	2	–	L
4102.285	Ru I	15	10	–
4102.281	Zr	10	–	–
4102 21	U	1	4	–
4102.18	N	–	[5]	Du
4102.159	V I	30	15	–
4102.159	Re	4 h	–	–
4102.153	Mo	30	25	–
4102.073	Ce	2	–	–
4101.95	Dy	8	2	Kn
4101.905	U	18	1	–
4101.847	W	7	8	–
4101.773	In I	2000 R	1000 R	–
4101.772	Ce	35	6	–
4101.745	Ru I	20	60	–
4101.735	H I	–	[100]	m
4101.682	Nd	8	–	–
4101.679	Fe I	5	2	–
4101.667	Ir	3	–	Ab
4101.665	Zn	5	–	IHz
4101.65	Tb	20 w	–	–
4101.550	Ce	2	3	–
4101.456	Nd	8	6	–
4101.44	Eu	2	–	–
4101.43	Dy	5	2	Kn
4101.357	Ce	1	2	–
4101.319	U	2	2 h	–
4101 315	Sm	15 d	2 h	–
4101.274	Fe I	40	10	–
4101.232	Ru	7	2 h	–
4101.157	Cr	30	2	m
4101.093	Er	3	–	–
4101.09	Ho	40	40	Kn
4101.07	Te	–	[50]	Bl
4101.01	La II	2	2 h	Me
4101.003	V I	5	7	–
4100.933	Hf	10	1	–
4100.923	Cb I	300 w	200 w	–
4100.90	Tb	50 d	2	–
4100.895	W	7	6	–
4100.889	Ce	8	1	–
4100.834	Th	18	18	–
4100.746	Pr	200	50	–
4100.743	Fe I	80	30	–
4100.71	Eu	2	–	Kn
4100.563	Er	15	1	–
4100.398	Cb	15	20	–
4100.373	Ru	12	10	–
4100 350	Th	8	5	–
4100.34	Xe II	–	[10]	Hu
4100 333	Sc I	5	1	–
4100 322	Mo	–	20	–
4100.30	Ne II	–	[5 h]	Bn
4100.300	Os	60	3	–
4100.261	Gd I	15	5	–
4100 25	Eu	2	–	–
4100 240	Nd	10	8	–
4100.22	Pr	15	10	–
4100.2	Ho	4	–	Kn
4100.166	Fe	10	1	–
4100 148	Ir	100	3 h	–
4100.00	He II	–	[2]	Ps
4099.954	Sm	4	–	–
4099.94	N I	–	[150]	Du
4099.930	U	5	5	–
4099.886	Dy	6	2	Kn
4099.88	Pr	4	1	–
4099.796	V I	25	12	–
4099.749	Ce	12	2	–
4099.72	Eu	12 d	5	–
4099.71	Kr II	–	[3]	Me
4099.542	La II	100	100	–
4099.482	Ir	4	–	Ab
4099.47	A II	–	[5]	Rt
4099.46	Tb	25 w	1	–
4099.44	S	–	[8]	Hn
4099.387	Ce	6	–	–
4099.313	Zr I	10	–	–
4099 27	Pd I	–	4 h	Sh
4099.269	U	20 r	1	–
4099.21	Dy	4	–	Ed
4099.172	Ti I	25	8	–
4099.14	Tb	9	1	–
4099.083	Zr	3	1	–
4099.072	Cb	5	5	–
4099.05	Eu	8 d	–	–
4099.029	Ca	2 h	1	–
4099.026	W	7	6	–
4099.016	Cr	30	8	–
4098.981	Ce	15	1	–
4098.953	Sm	8	–	–
4098.939	Th	10	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4098.936	Nd	8	8	–
4098.912	Gd	100	100	–
4098.904	Pd I	2	–	–
4098.89	Xe II	–	[50 h]	Hu
4098.83	Tb	3	–	–
4098.77	Ne II	–	[50]	Bn
4098.743	Mo	20	20	–
4098.74	Cl	–	[8]	Bl
4098.73	La II	–	4	Me
4098.72	Kr II	–	[250]	Me
4098.65	Pr	8	3	–
4098.613	Gd	25 h	6	–
4098.60	Tb	2	2	–
4098.533	Ca I	15	3	IWg
4098.513	Nd	10	5	–
4098.490	W	4	3	–
4098.466	Ce	4	–	–
4098.410	Pr	20	12	–
4098.40	Cl	–	[12]	Bl
4098.339	Sc I	6	–	–
4098.24	O II	–	[5 h]	Mh
4098.218	Cb	5	5	–
4098.187	Fe I	100	40	–
4098.183	Mo	20	15	–
4098.18	Cr I	20 h	–	Ct
4098.175	Nd	15	5	–
4098.153	Ce	8	–	–
4098.103	Er	8	–	–
4098.10	Os	9	3	–
4098.04	Gd	10	–	Kn
4098 034	U	12	12	–
4097.96	Cr I	20	–	Ct
4097.91	Se II	–	[60]	Mz
4097.88	Br	–	[2]	Bl
4097.87	Sb II	–	4	Dv
4097.86	Yb	2	8	–
4097.791	Ru I	25	125	–
4097.751	Th	5	–	–
4097.745	U	10	1	–
4097.708	Mo	3	2	–
4097.686	Th	5	3	Fd
4097.670	W	6	5	–
4097.65	Cr I	20 h	–	Ct
4097.642	Cb	4	3 h	–
4097.617	Ce	2	–	–
4097.521	Rh I	25	10	–
4097.45	Tb	20	5	–
4097.400	U	1	2	–
4097.339	Th	5	3	–
4097.338	Ce	4	–	–
4097.250	Ir	3	–	Ab
4097.24	O II	–	[70]	Mh
4097 24	Dy	2	–	Ed
4097.24	Hf II	4	10	–
4097.203	Co I	2	–	–
4097.2	Bi II	4	3	Ml
4097.188	Ta	5	3 h	–
4097.15	A II	–	[5]	Rt
4097.112	Fe I	4	1	–
4097.026	Ru I	15	15	–
4096.98	Cl	–	[6]	Bl
4096 97	Fe	2	–	–
4096 939	V I	7	2	–
4096.926	Ce	–	2	–
4096 926	Er	8	–	–
4096.839	Er	8	–	–
4096.837	Ce	2	2	–
4096.822	Pr	30	15	–
4096.815	Eu	15	2	–
4096 810	Mo	20	15	–
4096.78	Dy	6	–	Ed
4096.706	U	6	3	–
4096.705	Nd	10	3	–
4096.632	Zr II	10	2	–
4096.56	Ag	–	5 h	–
4096.53	O II	–	[30]	Mh
4096.424	W	2	5	–
4096.38	Tb	2	–	–
4096.352	U	20	5	–
4096.342	Pr	20	8	–
4096.131	Nd	10	8	–
4096.13	Br	–	[5]	Bl
4096.109	Dy	15	2	Kn
4096.099	Ce	4	–	m
4095.976	Fe I	80	40	–
4095.97	Pr	3	1	–
4095.945	Co I	3	–	–
4095.936	Cb	3	10	m
4095.93	Eu	2	–	–
4095.90	Tb	8	–	–
4095.819	Ce	6	–	–
4095.778	Nd	5	3	–
4095.746	U	18	25	–
4095.701	W	12	15 w	–
4095.63	O II	–	[10 h]	Fl
4095.577	U	4	5	–
4095.556	Cb	4	3	–
4095.493	Hf	5	1	–
4095.486	V I	40	15	–
4095.448	Ce	8	–	–
4095.420	Nd	5 d	5	–
4095.318	Mo	2	3	–
4095 248	Mn	15	15	–
4095.113	Ce	8	–	–
4095.110	Ir	3	–	Ab
4095.093	Cb	4	3 h	–
4095.053	Mn	12	5	–
4094.970	Pr	50	12	–
4094.930	Ca I	15	7	IWg
4094.908	Mo	–	30	–
4094.90	Eu	6 d	–	–
4094.893	U	8	8	–
4094.881	Ir	8	–	Ab
4094.837	Sc I	8	6	–
4094.751	Th	15	15	–
4094.68	Pb	–	5	Sx
4094.656	Er	6	–	–
4094.623	U	6	5	–
4094.615	Nd	8	2	–
4094.591	Ce	2	–	–
4094.491	Gd	25	15	–
4094.467	Mo	5	4	–
4094.45	Tb	10	5	m
4094.43	P	–	[30]	Gu
4094.347	Mo	3	2	–
4094.312	Ce	–	2	–
4094.309	Eu	4	1 h	–
4094 3	Rn	–	[10]	Wa
4094.283	V I	10	5	–
4094.266	Zr I	30	1	–
4094.199	Ce	3	–	–
4094.18	Tm	300	30	Me
4094.042	Sm II	10	10	–
4094.04	Tb	7	–	–
4093.994	U	12	3 h	–
4093.955	Ce	20	3	–
4093.79	Pr	8	1	–
4093.776	Ru	5	1	–
4093 725	Gd	15	15	–
4093.697	K II	–	[20]	Dm
4093.647	Dy	5	–	Kn
4093.634	Ir	2	–	Ab
4093.61	U	3	1	–
4093.513	I	–	[10]	Ke
4093.497	V I	9	5	–
4093.394	Th	10	8	–
4093.35	Tb	2	–	–
4093.285	Ce	15	–	–
4093.285	U	1	2	–
4093.163	Zr I	12	–	–
4093.161	Hf II	25	20	–
4093.161	Mo	5	5	–
4093.143	W	5	4	–
4093.133	Sc I	6	8	–
4093.10	Nd	2	2 h	Ex
4093.053	Co I	10	–	–
4093.042	Sm II	3	3	–
4092.95	Eu	5	–	Kn
4092.94	O II	–	[80]	Fl
4092.901	Er	6	–	–
4092.85	Pr	5	2	–
4092.848	Co I	25	10	–
4092.715	Ce II	18	2	–
4092.712	Gd I	100	40	–
4092.694	V I	20	12	–
4092.652	Nd	4	–	–
4092.633	Ca I	15	2	IWg
4092.63	Pr	15	5	–
4092.610	Ir	60	20	–
4092.6	bh Sr	4	–	L
4092.53	Cl	–	[8]	Bl
4092.43	Dy	4	–	Ed
4092.407	V I	15	6	–
4092.397	W	5	4	–
4092.391	Co I	600 W	15	–
4092.388	Mn	30	20	–
4092.287	Fe	6	1	–
4092.286	U	2	1 h	–
4092.261	Pt I	4	1	–
4092.257	Sm II	10	25	–
4092.19	Tb	12	–	–
4092.174	Cr	25	2	–
4092.085	Ce	10	1	–
4091.95	Se II	–	[70]	Bl
4091.945	V I	8	5	–
4091.88	Xe II	–	[2 h]	Hu
4091.852	Ce	6	–	–
4091.837	U	3	4	–
4091.817	Os	100	12	–
4091.77	Dy	8	4	Kn
4091.770	Er	6	–	–
4091.754	Gd	5 h	–	Kn
4091.75	Eu	2	–	Ed
4091.642	Ta	2	–	–
4091.636	U	12	–	–
4091.591	Ce	3	–	–
4091.562	Fe I	8	3	–
4091.533	Dy	9	4	–
4091.53	P II	–	[30 l]	Gu
4091.52	U	6	12	m
4091.50	Yb	2	5	m
4091.41	Tb	4 d	–	–
4091.33	Tb	3	–	m
4091.260	Ta	4	10	–
4091.218	W	4	3	–
4091.112	Pr	3	–	–
4091 062	Ru	20	20	–
4091.058	Ce	3	–	–
4091.04	W	5	3	–
4090.993	Nd	5 d	5	–
4090.973	Ir	3	–	Ab
4090.953	Mo	–	20	–
4090.947	Ce II	6	2	–
4090 877	Mo	10	20	–
4090.863	Sb	–	2	Sp
4090.794	Zr I	25	2	–
4090 775	Ce	–	2	–
4090 771	Er	9	–	–
4090.770	Eu	3	–	–
4090.769	Os	3	3	–
4090.747	Gd	5	–	Kn
4090.74	Pr	15	8	–
4090 639	W	6	5	–
4090 62	Br	–	[5]	Bl
4090.606	Mn	12	5 s	–
4090.579	V I	60	25	–
4090.513	Zr II	15	10	–
4090.466	Ce	15	1	–
4090.422	Gd I	100	20	–
4090.407	La I	3	–	–
4090.399	Dy	4	–	Kn
4090.370	U	6	1	–
4090.354	Co I	20 h	–	–
4090.308	W	4	2	–
4090.305	Cr	30	15	–
4090.29	Tm	10	3	–
4090.20	Eu	6 d	–	Kn
4090.164	Cb	5	5	–
4090.135	Er	6 d	–	–
4090.135	U	25	40	–
4090.13	Tb	2	–	–
4090.077	Fe I	2	–	–
4090.071	Pd I	4	–	–
4089.938	Mn	80	20	–
4089.916	Re I	25	–	–
4089.87	Pr	5	2	–
4089.87	As II	–	3	Ro
4089.855	Ce	6	–	–
4089.745	Eu	9	1 h	–
4089.743	Zr	12	10 h	–
4089.742	Ce	6	–	–
4089.731	Mo	6	6	–
4089.73	Br	–	[8]	Bl
4089.685	Yb	50	7	–
4089.678	Nd	10	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4089.639	Ir	15	2	Ab
4089.612	La I	40	5	–
4089.55	I II	–	[3]	Bl
4089.511	Dy	7	–	Kn
4089.51	Tb	10	1	–
4089.47	Pr	3	1	–
4089.43	Re	2 h	–	–
4089.399	Cb	–	5	–
4089 385	W	6	5	–
4089.371	U	4	–	–
4089.33	Tb	20	1	–
4089.27	O II	–	[60 h]	Mh
4089.25	P	–	[30]	Gu
4089.222	Fe I	10	2	–
4089.20	Br	–	[5]	Bl
4089.157	Ce	4	–	–
4089.134	Th	3	–	–
4089.061	W	2	1	–
4089.009	Ce II	6	–	–
4089.006	Re	2 h	–	–
4088.88	Si	–	3	Sy
4088.87	Pr	4	2	–
4088.851	Ce	15	2	–
4088.846	U	6	6 h	–
4088.82	Ca	2	3	Ad
4088.804	Gd	6	–	–
4088.793	Eu	3	–	–
4088.790	Nd	10	2	–
4088.770	W	7	7	–
4088.746	Sm	5	1 h	–
4088.660	Mo	5 h	5 h	–
4088.64	Tb	4	–	–
4088.583	Ce	8	1	–
4088.577	Fe	7	2	–
4088.554	Nd	5	1	–
4088.50	Rh I	5	4	m
4088.442	Os	100 h	3	–
4088.37	Ac	–	100	Lx
4088.360	Ru	10	1	–
4088.35	Pr	3	1	–
4088.333	W	12	10	–
4088.33	Kr II	–	[500]	Me
4088.299	Co I	50	–	–
4088.254	U	25	18	–
4088.199	Zr	4	–	–
4088.15	Cl	–	[6]	Bl
4088.123	Ce	3	–	–
4088.034	Re I	3	–	–
4088.0	Rn	–	[10]	Wa
4087.959	Hf	6	1	–
4087.86	Eu	8	–	Kn
4087.79	Rh	3	4	–
4087.743	Mo	3	4	–
4087.709	Gd	80	100	–
4087.70	Tb	8	1	m
4087.689	Zr I	12	1	–
4087.65	Ho	4	2	Kn
4087.638	Er	20	1	–
4087.609	Eu	2	–	–
4087.566	Ce	8	2	–
4087.52	Rh I	3	–	–
4087.471	Nd	10	2	–
4087.463	Mo	3	3	–
4087.394	W	6	6	–
4087.390	U	6	12	–
4087.388	Dy	6	–	Kn
4087.377	Ba	3	–	–
4087.360	Ce II	6	–	–
4087.35	Ho	4	–	Kn
4087.344	Sr I	12 h	–	ISn
4087.343	Pd I	500	100	–
4087.332	Gd	5	–	–
4087.303	Ce II	8	–	–
4087.213	Dy	15	4	–
4087.206	Pr	50	3	–
4087.163	Sc I	10	1	–
4087.14	O II	–	[40 h]	Mh
4087.106	Eu	4	1 h	–
4087.103	Ce	3	–	–
4087.103	Fe I	50	5	–
4086.957	W	1	4	–
4086.957	Ir	2	–	Ab
4086.93	Tb	3	–	–
4086.90	Kr I	–	[2]	Me
4086.768	Ce	3	–	–
4086.714	La II	500	500	–
4086.713	Er	8 s	–	–
4086.69	Ne II	–	[5]	Bl
4086.674	U	8	1	–
4086.673	Sc I	10	8 wh	–
4086.632	Cb	3	2	–
4086.60	Tb	15	–	–
4086.520	Th	12	12	–
4086.424	Ce	8	2	–
4086.422	Eu	4	–	–
4086.383	U	2	2	–
4086.307	Co I	400	15	–
4086.24	Pr	25	2	–
4086.151	Nı	4	–	–
4086.145	U	5	6	–
4086.072	Ce	3	–	–
4086.030	Sc I	3	–	–
4086.025	Mo	15	15	–
4086.000	Fe	2	–	–
4085.998	Ce	3	–	–
4085.987	Cr	8	–	–
4085.931	Ir	15	15 h	Ab
4085.907	Sb II	–	6	–
4085.871	Ag	–	25	–
4085.815	Nd	10	6	–
4085.797	Ta	5	80 W	–
4085.748	Ce	8	–	–
4085.664	Zr I, II	25	2	–
4085.658	V	–	10 h	Me
4085.648	Gd	100	80	–
4085.579	Co I	2 h	1	–
4085.520	Mo	10 h	6 h	–
4085.51	Eu	3	–	–
4085.429	Ru I	40	50	–
4085.422	Th	5	1	–
4085.388	Eu	10 l	2	–
4085.344	Dy	10	2	Kn
4085.34	Pr	15	8	–
4085.332	Cb	1	5 h	–
4085.324	Fe I	100	70	–
4085.232	Ce II	20	5	–
4085.15	Nd	2	4	Ex
4085.140	Dy	8	2	Kn
4085.13	Pr	4	2	–
4085.12	O II	–	[70]	Fl
4085.036	Th	15	15	–
4085.03	Eu	8	1	–
4085.021	Cr	15	1	–
4085.008	Fe I	80	30	–
4084.93	U	6	8	–
4084.89	Eu	3	–	–
4084.87	Ba I	3	–	Fl
4084.860	Cb	10	10	–
4084.83	Tb	7	–	–
4084 783	Ce	3	1 h	–
4084.74	Pr	10	5	–
4084 69	Gd	10	–	–
4084 66	O II	–	[30]	Mh
4084.646	Ce	3	–	–
4084 501	Ca I	2	2	–
4084.499	Fe I	120	80	–
4084.403	Sm II	80	–	Kn
4084 383	Mo	40	40	–
4084.35	Pd I	5 h	–	Sh
4084.3	bh Ca	5	–	L
4084.298	Zr I	30	1	–
4084.285	Rh I	2	2	–
4084.268	Nd	5	–	–
4084.25	Tb	10	–	–
4084.197	Ce	3	–	–
4084.177	Cb	3	3	–
4084.13	As II	–	15	Ro
4084.12	Au I	25	12	–
4084.113	Co I	2	–	m
4084.094	U	10	2	–
4084.01	Mo	–	5	–
4083.95	Gd	5	–	Kn
4083.927	Rb II	–	12	Rr
4083 919	F II	–	[40]	Dı
4083.918	Nd	4 d	2	–
4083.91	O II	–	[40 h]	Mh
4083.84	I	–	[8]	Bl
4083.780	Fe I	15	2	–
4083.772	U	3	1	–
4083.77	Ba II	–	[5]	Rs
4083.74	Dy	4	–	Kn
4083.714	W	6	5	–
4083.713	Yt I	50	10	–
4083.707	Gd	10	5	–
4083.67	Ho	3	–	Ex
4083.637	Ce	6	2	–
4083.632	U	2	1	–
4083.628	Mn	80	60	–
4083.594	Re I	25	–	–
4083.554	Fe I	10	2	–
4083.482	Ce	6	1	–
4083.474	Th	3	–	–
4083.372	Re I	25	–	–
4083.352	Hf	10	2	–
4083.336	Pr	20	20	–
4083.24	Au II	5	8	–
4083.233	Ce	35 d	6	–
4083.225	Sm II	5	5	–
4083.215	Mn	1	2	–
4083.21	Tb	9	–	–
4083.162	Ce	8	–	–
4083.109	Dy	4	–	Kn
4083.083	Zr I	10	–	–
4082.98	Yb I	3	–	Me
4082.972	W	12	15	–
4082.962	Ce	4	–	–
4082.948	U	8	–	–
4082.944	Mn	80	60	–
4082.927	V I	15	6	–
4082.794	Ru	15	10	–
4082.79	Tb	8	–	–
4082.78	Pr	10	2	–
4082.78	Rh I	100	50	–
4082.68	Hf II	2	2	–
4082.639	U	6	8	–
4082.62	B	–	2	Sy
4082.602	Co I	50	–	–
4082.589	Sm II	10	25	–
4082.584	Nd	10	10	–
4082.57	As II	–	15	Ro
4082.462	Ti I	60	25	–
4082.429	Nd	15	15	–
4082.40	A	–	[30]	Rt
4082.396	Sc I	25	10	–
4082.377	Ir	25	3	–
4082.295	Zr I	5	–	–
4082.28	N II	–	[5 h]	Fl
4082.263	Th	10	8	–
4082.23	Tb	5	1	–
4082.117	Fe I	10	2	–
4082.116	Mo	3	2	–
4082.100	Ce	6	–	–
4082.052	W	3	4	–
4082.003	U	5	6	–
4081.963	Sm II	6	5	–
4081.901	Pr	75	30	Kn
4081.853	Ce	2	–	–
4081.83	Dy	5	2	Ed
4081.813	Rh I	2	2	–
4081.764	Mo	5	5	–
4081.74	Ca	2	4	Ad
4081.737	Cr	25	2	–
4081.716	Ce	2	–	–
4081.666	Pd I	2	–	–
4081.615	Ce	6	–	–
4081.54	Pr	5	1	–
4081.474	Pt	3	1 h	–
4081.471	Cs	–	[10]	Sv
4081.438	Mo	50	50	–
4081.428	Re I	30	–	–
4081.40	I II	–	[3 h]	Bl
4081.397	Ir	15	2	–
4081.388	Th	8	3	–
4081.333	Ba	2	–	–
4081.298	W	2	25	–
4081.263	U	10	4	–
4081.237	Er	10 s	1	–
4081.23	Tb	30	1	–
4081.223	Yt I	6	3	–
4081.222	Ce	40	8	–
4081.215	Zr I	150	7	–
4081.20	Hg II	–	[10]	Ps
4081.078	Mo	–	30	–
4081.042	Eu	5	1 h	–
4081 018	Pr	50	25	–

Wave-length	Element	Intensities Arc	Spk., [Dis.]	R
4080.93	Ba I	2	3	Fl
4080.926	Yt I	5	4	–
4080.887	Fe	5	1	–
4080.781	Gd	5h	–	–
4080.772	Eu	7	–	–
4080.707	Th	8	3	–
4080.67	A	–	[10]	Rt
4080.609	U	12	20	–
4080.600	Ru	125	300	–
4080.553	Ce	6	1	–
4080.553	Cu I	30 w	–	–
4080.547	Sm II	15	10	–
4080.539	Rh I	2	2	–
4080.534	Gd I	10	10	–
4080.51	Eu	2	–	Kn
4080.48	Ne II	–	[15 h]	Bn
4080.479	Ir	5	–	Ab
4080.442	Hf II	15	15	–
4080.436	Ce II	8	2	–
4080.37	Dy	3	–	Ed
4080 227	Nd	20	10	–
4080.221	Fe I	60	10	–
4080.221	Cr	15	1	–
4080.148	Ne I	–	[50]	Ps
4080.1	bh Sr	2	–	L
4080.04	P	–	[150]	Gu
4080.025	Ce	5	–	–
4079.901	I II	–	[5]	Mu
4079.897	Ir	25	–	Ab
4079.88	Cl II	–	[15]	Ks
4079 847	U	1	2	–
4079.845	Fe I	80	40	–
4079 829	Sm	20	1	–
4079.786	Pr	50	35	–
4079.785	W	4	3	–
4079.729	Cb I	500 w	200 w	–
4079.721	Ti I	40	7	–
4079.667	Ce	15	–	–
4079.612	Th	5	3	–
4079.60	A II	–	[20]	Rt
4079.595	Dy	8	–	Kn
4079.422	Mn	50	40	–
4079 363	Re	20	–	–
4079.359	Ne I	–	[2]	Ps
4079.342	Mo	4	4	–
4079.277	Ru I	12	5	–
4079 277	Ce	6	–	–
4079 27	Dy	6	–	Kn
4079 257	W	6	3	–
4079.241	Mn	50	40	–
4079.207	Bi II	2 h	[40 w]	Om
4079.189	Ta	10	4	–
4079.178	La I	25	3	–
4079.170	Ir	3	–	–
4079.15	Tb	4	–	–
4079.135	Cb	1 h	3 w	–
4079.016	Ce	15	1 h	–
4078 90	Ga	–	5	–
4078 85	O II	–	[70]	Mh
4078 827	U	3	8	–
4078.820	Xe I	–	[100]	I
4078.78	Tb	5	–	m
4078.709	V I	2	–	–
4078 709	Gd I	20	10	–
4078 606	Ce	5	–	–
4078.584	Sc I	10	10	–
4078.515	Ce	5	1	–
4078.474	Ti I	125	50	–
4078.47	Tb	5	1	–
4078.465	Gd	15	10	–
4078.385	Sb	–	4	Sp
4078.381	Mo	5	3	–
4078.358	Fe I	80	40	–
4078 352	Cb	4	3	–
4078.321	Ce	15	4	–
4078.309	Zr I	10	–	–
4078.26	Tb	3	–	Ed
4078.231	Eu	3	–	–
4078.16	Pr	5	1	–
4078.14	Zn II	–	[5]	Vs
4078.124	W	7	6	–
4078.124	Re	10	–	–
4078.074	Mo	4	4	–
4078.00	Ho	3	3	Ex
4077 98	Pr	10	2	–
4077.977	V I	2	–	–
4077.974	Dy	150 r	100	Kn
4077.97	Tb	25	2	–
4077.970	Er	20 s	18 s	–
4077.811	Hg I	150	150	–
4077.786	U	15	6	–
4077.721	Ta	4	2 h	–
4077.72	Sn	2	3	–
4077.716	Cu	5	–	–
4077.714	Sr II	400 r	500 W	ISn
4077.69	Pr	4	2	–
4077.682	Mo	8	10	–
4077.677	Cr	30	10	–
4077.620	Nd	8	3	–
4077.61	Pb	–	2	Sx
4077.57	Rh I	5	4	–
4077.470	Ce II	18	4	–
4077.406	Co I	100 wh	2 h	–
4077.366	Yt I	50	40	–
4077.35	Dy	4	–	Kn
4077.340	La II	600	400	–
4077.27	Yb	30	100	m
4077.153	T i I	18	2	–
4077.150	Nd	10	4	–
4077.089	Cr	35	10	–
4077.088	Cb	3	5	–
4077.08	As	–	10	Ro
4077.059	W	6	5	–
4077.046	Zr II	3	1	–
4076.96	A	–	[10]	Rt
4076 952	Eu	10	–	–
4076.854	Sm II	10	5	–
4076.806	Ir	2 h	–	Ab
4076 803	Fe	8	1	–
4076.733	Ru I	60	25	–
4076.72	U	8	10	–
4076.711	La II	15	5	–
4076.64	A	–	[20]	Rt
4076.637	Fe I	80	50	–
4076 632	Sm II	25	15	m
4076 573	Co I	3 h	1	–
4076.553	Ir	25	–	Ab
4076.530	Zr I	10	–	–
4076 506	Mo	5	5	–
4076.502	Fe I	2	1	–
4076 375	Ti I	15	1	–
4076.370	Ir	2	2	–
4076 352	Yt	30	8	–
4076 33	Au II	4	25 w	–
4076 237	Ce	12	1	–
4076.225	U	2	3	–
4076 222	Fe I	2	1	–
4076.21	Pr	10	1	–
4076.194	Mo	25	25	–
4076.132	Co I	70	–	–
4076.093	Cb	4	3	–
4076.061	Cr	30	15	–
4076 01	Er	2	–	m
4076.01	Dy	2	–	Ed
4076 00	C II	–	80	En
4075 984	Ru	5	25	–
4075.96	Eu	7	–	–
4075 94	U	6	1 h	–
4075 937	Fe	5	5	–
4075 937	Mo	10	5	–
4075.90	Tb	4	–	Ed
4075.869	O II	–	[800]	Fl
4075 850	Ce II	4 s	–	–
4075 835	Sm II	40	40	–
4075 786	Ce	10	2	–
4075.74	P	–	[15]	Gu
4075.714	Ce	15	2	–
4075.713	Th	5	1	–
4075.664	U	5	6	–
4075.652	V	–	2	–
4075.634	Ir	10	–	–
4075.616	Eu	2	–	–
4075.588	Cu I	40	–	–
4075.56	I I	–	[25]	Db
4075.559	Nd	5 d	2	–
4075.541	Mo	20	20	–
4075.538	Ce	2	–	–
4075.51	Br	–	[12]	Bl
4075.472	Gd	5	–	–
4075 33	Pr	5	1	–
4075.272	Nd	12	4	–
4075.254	Mn	25	5	–
4075.246	Mo	25	25	–
4075.23	Tb	8	1	–
4075.173	Ce	2	–	–
4075.116	Nd	15	10	–
4075.085	U	2	2	–
4075.046	Zr I	7	–	–
4074.976	Sc I	10	3	–
4074.931	Zr I	12	1	–
4074.897	Ni I	10	–	–
4074.89	C II	–	40	Fl
4074.863	Cr	25	10	–
4074.84	Pr	5	1	–
4074.791	Fe I	80	40	–
4074.692	Yb	–	2	–
4074.682	Os	80	6	–
4074.651	Ce II	6	–	–
4074.65	Pr	3	1	–
4074.558	Ce	2	–	–
4074.53	C II	–	50	Fl
4074.514	Eu	4 d	–	–
4074.49	Br	–	[4]	Bl
4074.488	U	10	10	–
4074.438	Mo	–	20	–
4074.416	Nd	8	3	–
4074.368	Ge	2 h	–	–
4074.364	W	50	45	–
4074.362	Ti I	15	1	–
4074.354	Zr I	5	–	–
4074.34	Pr	3	–	–
4074.241	U	6	2	–
4074.19	Tb	6	–	Ed
4074.127	Ce	6	–	–
4074 02	Dy	7	2	Kn
4074.003	Er	7	–	–
4073.94	Tb	5	–	–
4073 94	Pr	5	1	–
4073.867	W	4	3	–
4073.775	Fe I	80	20	–
4073 771	Gd	100	50	–
4073.76	Eu	3	–	Kn
4073 75	Tb	9	2	m
4073 735	Ce	30	3	–
4073 650	Er	3 h	–	–
4073 62	Os	6	3	–
4073 57	Te	–	[300]	Bl
4073 554	U	8	–	–
4073 52	Eu	3 l	–	Kn
4073 50	Xe II	–	[8]	Hu
4073.477	Ce	50	8	–
4073.450	Fe II	8	8	Do
4073 27	Cu I	15	–	Ex
4073.212	Gd	80	80	–
4073.16	Tb	10	1	m
4073 150	W	9	8	–
4073 13	Ho	3	2	Ex
4073 120	Er	20	1	–
4073 116	Ru	6	25	–
4073.110	Dy	80	15	Kn
4073.086	Cb	2	8	–
4073 062	Re I	5 h	–	–
4073.04	N II	–	[5 h]	Fl
4072.996	Ta	2	15 W	–
4072.917	Ce	20	2	–
4072 913	Ni I	2	–	–
4072.908	Cr	8	–	–
4072.830	U	8	2 h	–
4072.704	Zr I	100	3	–
4072.684	Cr	12	1	–
4072 67	Tb	4	–	–
4072.667	Ce	2	–	–
4072.65	Dy	7	2	Kn
4072.630	Th	8	–	–
4072.549	Ce	2	–	–
4072.52	Pr	10	2	–
4072.509	Fe I	2	1	–
4072.40	In	–	200 wh	Sq
4072.40	A	–	[40]	Rt
4072.386	Ir	10	3	–
4072.377	Er	10 d	3 wh	–
4072 33	Tb	3	–	–
4072.22	Pr	2	–	–
4072 156	O II	–	[300]	Fl
4072.141	V I	15	2	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
4072 14	Tm	2	–	–
4072 13	P II	–	[30]	Gu
4072 11	Se	–	[20]	Bl
4072 10	Xe II	–	[4 h]	Hu
4072.068	Cb	–	15	–
4072 031	U	2	4	–
4072 01	A II	–	[150]	Rt
4072.01	I II	–	[2]	Mu
4071.99	Pr	5	1	–
4071 932	W	8	7	–
4071.9	Rb	–	[12]	Dr
4071 814	Ce	30	5	–
4071.79	Sn	–	[4]	Lg
4071 740	Fe I	300	200	S
4071.64	As	–	10	Ro
4071.56	Os	30	3	–
4071.541	V I	15	2	–
4071 473	Ce	3	–	–
4071.469	Ti I	8	1	–
4071.398	Ru I	12	20	–
4071.387	Eu	5	–	–
4071.38	Pr	4	1	–
4071.346	Ce	4	–	–
4071.30	Ca	–	2	Ad
4071.24	O II	–	[5]	Mh
4071.223	Hf II	2	4	–
4071.211	Ti I	10	1	–
4071.201	Eu	6	2 h	–
4071.19	Tb	6	–	–
4071.108	U	15	25	–
4071.091	Zr II	3	2	–
4071.080	Ce	20	2	–
4071.032	Dy	5	–	Kn
4071.013	Os	12	4	–
4071.000	Cr	15	4	–
4070 980	Sm II	5	3	–
4070 964	Cb	3	5	–
4070 92	As	–	10	Ro
4070 897	Nd	4 d	1	–
4070 890	U	6	1	–
4070.86	Sr I	3	–	Sd
4070.855	Os	20	4	–
4070.836	Ce	10	–	–
4070.779	Fe I	50	20	–
4070.777	U	2	4	–
4070.771	V I	10	5	–
4070 748	I	–	[150]	Ke
4070.72	Tb	4	–	–
4070 677	Ir	30	10	–
4070 606	W	15	12	–
4070 57	Tb	12 w	1	m
4070 53	Eu	5	–	Kn
4070.443	U	6	2	–
4070 399	Gd	40	10	–
4070.287	Gd	80	–	–
4070 279	Mn	80	30	–
4070.277	Fe	2	–	–
4070 259	Pr	20	8	–
4070.24	Dy	4	2 h	Ed
4070 16	Se II	–	[500]	Bl
4070.11	Tb	10	–	–
4070.094	Ce	12	1	–
4070.012	U	12	1	–
4070.002	Mo	25	25	–
4069 921	Ce	2	3	–
4069.919	Ir	30	20	–
4069 903	O II	–	[125]	Fl
4069.883	Fe II	1	1	Do
4069 882	Mo	25	25	–
4069.804	W	7	6	–
4069.704	Ce	4	–	–
4069.635	O II	–	[60]	Fl
4069.611	U	8	–	–
4069.562	Er	6	–	–
4069.548	Co I	2 h	–	–
4069.540	Zr	4	–	–
4069.52	Ga	–	2	Kl
4069.469	Th	3	–	–
4069.389	Ne I	–	[5]	Ps
4069.29	Tb	3	–	–
4069.267	Nd	15	12	–
4069.248	Er	7	–	–
4069.243	Ne I	–	[30]	Ps
4069.243	Ni	2	–	–
4069.210	Th	40	30	–
4069 154	W	7	6	–
4069.13	Re	4 w	–	–
4069 074	U	3	3	–
4069 049	Ne	–	[2]	Ps
4069.02	Eu	4	–	Ed
4069 01	Ca	–	3	Ad
4069.003	Ti I	20 h	1 h	–
4068.991	Ce	3	–	–
4068.97	Eu	4	–	Kn
4068.967	U	4	6	–
4068.899	Nd	12	8	–
4068.836	Ce	25	4	–
4068.835	Ne I	–	[30]	Ps
4068 804	Pr	40	15	–
4068.773	Cs II	–	[30]	Sv
4068 77	Gd	5	–	Kn
4068.719	Zr I	20	1	–
4068 695	U	2	4	–
4068.661	Ti I	10	1	–
4068.544	Co I	150	100	–
4068.444	Ce	10 h	1 h	–
4068.366	Ru	40	60	–
4068.357	Gd	10	–	–
4068.332	Er	5 s	–	–
4068.320	Sm II	40	40	–
4068.256	Cb	10 r	15 r	–
4068.176	U	6	–	–
4068.144	Ti I	20	5	–
4068 09	Pr	5	1	–
4068 057	Ce	3	–	–
4068 05	Ho	6	2	Kn
4068 01	Ag	–	2 h	Fn
4068.003	Mn	50	20	–
4067 982	Fe I	150	100	–
4067 979	V I	10	9	–
4067.958	Cs II	–	[30]	Sv
4067 908	Ta	100	40	–
4067.839	Cr	30	4	–
4067.838	Hf	6	2	–
4067.8	Ho	2	–	Kn
4067 766	Ce	3	–	–
4067.756	U	12	20	–
4067.745	V I	50	15	–
4067 727	Nd	2 h	1	–
4067.720	Mo	10	10	–
4067 668	Sc I	5	–	–
4067.666	Th	8 w	5	–
4067.613	Ru	25	35	–
4067.465	Th	8	1	–
4067 392	La II	150	80	–
4067.384	Sm II	2	4	–
4067 36	Tb	4	–	–
4067.279	Ce	25	–	–
4067.275	Fe I	80	70	S
4067.235	Ta	40	10 h	–
4067.20	U	4	4	–
4067 159	Cb	3	5	–
4067.110	Eu	8	1	–
4067.085	U	3	5	–
4067 051	Ni II	–	30	–
4067.04	Ho	2	–	Kn
4067.03	V II	–	2	Me
4067 000	Sc I	3	2	–
4066.979	Fe I	100	80	S
4066 975	Mo	10 h	10 h	–
4066.938	Cr	25	30	–
4066 908	W	9	10	–
4066 906	Ce II	6	–	–
4066 854	Nd	2	–	–
4066 800	U	6	12	–
4066 782	Ca	2 h	2	–
4066.728	Sm II	20	20	–
4066.693	Os	100	100	–
4066 69	Dy	6	–	–
4066 590	Fe	40	20	–
4066.566	Ce	2 h	–	–
4066 53	U	4	8	–
4066.497	Ce	8	2	–
4066.369	Co I	5	5	–
4066.367	Mo	15	20	–
4066.313	Os	9	4	–
4066.30	Dy	5	2	Ed
4066.243	Ru	6	–	–
4066.223	Mn	12	5	–
4066.22	Hf	10	1 h	–
4066 21	Tb	40	3	m
4066.194	Zr	3	–	–
4066.182	Sm II	10	5	–
4066 155	Ce	5	1	–
4066 124	Cb	3	5	–
4066 11	Gd	3	3 h	Kn
4066.09	Kr	–	[6 whl]	Me
4066.065	Eu	10	1	–
4066.01	Pr	18	3	–
4065.997	W	5	5	–
4065.941	Pt	5	2	–
4065.766	Nd	5	2	–
4065.716	Cr	80	35	–
4065.637	Gd	50 l	50 h	–
4065 590	Ti I	12	2	–
4065.580	La I	30	2	–
4065.553	Ce	2 l	–	–
4065.54	As II	–	10	Ro
4065 406	Eu	5	–	–
4065 404	Pr	2	–	–
4065.400	Dy	7	–	Kn
4065 392	Fe I	15	6	–
4065 320	W	8	7	–
4065 31	Sb II	–	3 h	–
4065 209	K II	–	[15]	Dm
4065 164	Ce II	12	3	–
4065 11	Kr II	–	[300]	Me
4065 101	Ti I	80	35	–
4065 1	C	–	[10]	Jn
4065 10	Ho	10	5	Kn
4065.082	Mn	20	20	–
4065 08	Au I	50	30	–
4065 080	V	2	100	–
4065.065	Er	8	–	–
4065 008	Sm II	7	3	–
4064 988	Yt II	8	7	–
4064 907	Ce II	8	–	–
4064 83	Tb	4	1	–
4064 829	Ne I	–	[15]	Ps
4064.810	Cb	4	3	–
4064 793	Ce	3	1	–
4064.789	W	15	12	–
4064 783	La I	40	3	–
4064.69	Cs	–	[10]	Bs
4064 67	Ca	–	2	Ad
4064.667	Mo	25	25 d	–
4064.64	P II	–	[30]	Gu
4064 63	Ta	40	5	Ks
4064.569	Sm II	15	15	–
4064.53	Tb	2	–	–
4064 456	Ru I	20	60	–
4064 45	S	–	[25]	Hn
4064 450	Fe I	2	1	–
4064 41	U	6	–	–
4064 400	Ti II	–	2	–
4064 374	Ni I	10	–	–
4064 338	Th	8 h	3	–
4064 325	Re I	8	–	–
4064 315	Sm	15	6	–
4064.219	Ti I	50	15	–
4064 2	C	–	[5]	Jn
4064.171	Mo	5	8	–
4064 165	U	6	10	–
4064 155	Zr I	100	6	–
4064 105	Ru	15	25	–
4064.036	Ne I	–	[50]	Ps
4063 931	V I	15	5	–
4063 93	Cs	–	[15]	Bs
4063 919	Ce	8 l	2	–
4063 904	Mo	5	5	–
4063.90	Tb	12	–	–
4063 732	Cb	–	5	–
4063.60	Br	–	[10]	Bl
4063 597	Fe I	400	300	S
4063 528	Mn	100	60	–
4063 528	Sm II	10	4	–
4063 43	Gd	10	5	–
4063.410	Th	10	10	–
4063 35	Tm	4	5	Me
4063.337	Zr I	8	–	–
4063.293	Cu I	30 w	7	–
4063.285	Nd	5	3	–
4063.284	Fe I	10	10	–
4063.177	Co I	3 h	–	–
4063.119	U	15	1	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
4062.988	Ru I	12	35	–
4062.948	Er	7	–	–
4062.941	Ce II	25	5	–
4062.94	O II	–	[30 h]	Mh
4062.90	Ne II	–	[30]	Bn
4062.899	Nd	8	–	–
4062.853	Ru	10	10	–
4062.842	Hf	10	3	–
4062.817	Pr	150	50	–
4062.801	Ta	3	5 h	–
4062.78	Tb	10	1	–
4062.73	As II	–	10	Ro
4062 72	V I	2	2	Me
4062.698	Cu I	500 w	20	–
4062.673	Ir	8	–	–
4062.654	Zr	3	–	–
4062.65	Eu	10 W	–	Kn
4062.594	Gd	30	6	–
4062.573	Ta	2	3 h	–
4062.557	Ce	3	–	–
4062 549	U	12	18	–
4062 49	Ca I	2	–	Fl
4062.444	Fe I	120	100	–
4062 325	U	6	–	–
4062.319	Sm	5	1	–
4062.225	Pr	5	3	–
4062 223	Ce	40	8	–
4062 20	Eu	3	–	m
4062 20	Tb	5	–	–
4062 152	Eu	10	2	–
4062 144	Pb	20	20	–
4062.12	Xe II	–	[3]	Hu
4062.08	P II	–	[15 h]	Gu
4062 076	Mo	80	80	–
4062 06	Se II	–	[70]	Bl
4062 052	Sm	–	6	–
4061.977	Cb	2	10	–
4061 955	Fe	3	1	–
4061.862	Re I	20	–	–
4061.858	Gd	3	–	–
4061.811	Ce	5	–	–
4061.744	U	2	5	–
4061.742	Mn	80	30	–
4061.715	Nd	5	3	–
4061.705	Ce	2	–	–
4061 66	Pt II	–	10	Sh
4061.574	Dy	3	–	–
4061.57	Tb	40	2	–
4061.552	Eu	12	2	–
4061.529	Zr I	25	1	–
4061.423	Ce II	6	–	–
4061.399	Ta	50	30	–
4061.349	U	12	1	–
4061 336	Pr	4	2	–
4061.298	Gd	8	12	–
4061 263	Cb	4	3	–
4061.164	Gd	3	–	–
4061.110	Fe	3	1	–
4061 085	Nd	40	30	–
4061.082	Er	5	–	–
4061.06	Sr I	8	6	Sd
4061.06	Xe II	–	[2]	Hu
4061.054	Dy	3	2	Kn
4061 049	Sm II	8	8	–
4061 00	O II	–	[15 h]	Mh
4060 99	Au II	3	4	–
4060.907	U	4	5	–
4060.89	Hg	–	[10]	Ps
4060.86	Tb	25	3	–
4060 85	V I	2	2	Me
4060 787	Cb	10	10 W	–
4060.768	U	6	–	–
4060.765	Cr	12	6	–
4060 716	Ce	8	1	–
4060.708	W	8	7	–
4060.60	O II	–	[30 h]	Mh
4060 58	Dy	8	2	Kn
4060 579	Zr I	10	–	–
4060.562	Nd	10	5	–
4060.471	Ce	10	2	–
4060.38	Tb	20	1	–
4060.321	La I	80	5	–
4060.313	Cb	5	5	–
4060.301	Eu	2	–	–
4060.30	Ho	3	2	Ex
4060 265	Ti I	60	25	–
4060.234	W	4	9	–
4060.232	U	3	1	–
4060.199	Hf	10	4	–
4060.175	I II	–	[5]	Ke
4060.169	Ce	6	1	–
4060.103	U	4	8	–
4060.082	Zr I	10	–	–
4060.02	Eu	3	–	Kn
4059.961	Nd	20	12	–
4059 883	Th	8	8	–
4059.881	Gd	50	20	–
4059.875	Ca	2 h	3	–
4059.785	Er	18	2	–
4059.721	Fe	15	8	–
4059.608	Mo	10	10	–
4059.509	Er	7	–	–
4059.506	Cb	5	2	–
4059.431	Ru	7	–	–
4059.40	Tb	3	1	–
4059.392	Mn	20	15	–
4059.376	Eu	25	–	–
4059.37	Pr	4	3	–
4059.367	Ce	3	1 h	–
4059.346	Gd	10 w	3	–
4059.322	Ce II	8 h	–	–
4059.27	P	–	[100]	Gu
4059.259	Th	8	5	–
4059.254	W	5	4	–
4059.234	Ir	30	4	–
4059.035	Eu	4	–	Kn
4059.025	U	1	2	–
4058 985	Zr I	8	–	–
4058 96	Mg	2	–	–
4058.938	Cb I	1000 w	400 w	–
4058.930	Mn	80	60	–
4058.930	Ca I	3 d	–	–
4058 92	Tm	20	6	–
4058 882	Ru	10	–	–
4058.867	Sm II	30	20	–
4058.81	Tb	3 W	–	–
4058.778	Pr	25	15	–
4058 772	Cr	80	50	–
4058 760	Fe I	40	10	–
4058 624	Zr I	9	1	–
4058 61	Mo	–	10	–
4058 600	Co I	100	–	–
4058.49	Si	–	3	Sy
4058 464	Ta	10	5	–
4058 449	Eu	2	–	–
4058 44	Tb	5	1	–
4058.25	Dy	2 h	–	Ed
4058 244	Ce II	18	–	–
4058 231	Gd I	100	60	–
4058.229	Fe	80	25	–
4058 20	Se II	–	[20]	Bl
4058 19	Pr	6	8	–
4058.190	Co I	100	–	–
4058.16	U	10	4	m
4058 144	Ti I	50	6	–
4058 136	Ta	2	1	–
4058.085	La II	4	–	–
4058 02	Tb	2	–	–
4058 0	bh Sr	3	–	L
4057.955	U	1	6	–
4057 950	Mn	80	20	–
4057 866	In	80	10	–
4057.825	V I	10	2	–
4057 823	Th	2	3	–
4057.820	Pb I	2000 R	300 R	–
4057.819	Er	30	–	–
4057.71	Zn II	80	–	Vs
4057 68	Tb	2	–	–
4057.653	Sm	10	3	–
4057.632	Mg I	10 w	–	–
4057.624	Ti I	40	6	–
4057.584	Mo	10	4	–
4057 556	Ce	2	–	–
4057.55	Ho	2	2 h	Kn
4057.46	Xe II	–	[100 whl]	Hu
4057 452	W	6	7	–
4057.438	Mo	4	4	–
4057.43	Hf	3	2	m
4057.40	Dy	4	4	Kn
4057.39	P	–	[50]	Gu
4057.347	Ni I	2	–	–
4057.346	Fe I	20	3	–
4057.337	Th	10	8	–
4057.303	Ce	2	–	–
4057.199	Co I	100	–	–
4057.188	In II	–	[10]	Ps
4057.10	Ca	2	3	Ad
4057.08	Cl	–	[10]	Bl
4057.074	V I	20	10	–
4057.070	In II	–	[100]	Ps
4057.06	Tb	4	1	m
4057.01	Kr II	–	[300 hs]	Me
4056 979	Co I	20 h	2	–
4056.941	Cb	3	5	–
4056.936	In II	–	[500]	Ps
4056.900	Ce	15	2	–
4056 842	Nd	8	8	–
4056.8	Al II	–	[2]	Sy
4056.793	Cr	15	3	–
4056.785	In II	–	[30]	Ps
4056.747	In II	–	[50]	Ps
4056.740	U	1	2	–
4056.7	Cu I	8 wh	–	Hs
4056.67	Sr II	4	4	Sd
4056.591	In II	–	[5]	Ps
4056.583	Sc I	5	2	–
4056.57	Kr I	–	[3]	Me
4056.543	Pr	100	60	–
4056.513	Zr I	6	–	–
4056.473	Ir	12	2	Ab
4056.465	W	2	5	–
4056.342	Rh I	3	2	–
4056 338	Ce	4	–	–
4056 321	I	–	[15]	Ke
4056 318	Mo	15	15	–
4056.291	U	5	–	–
4056 258	V	1	3	–
4056 248	Ce	3	–	–
4056.212	Ti II	3	2	–
4056.182	Yb	2	10	–
4056 13	Pr	5	2	–
4056.11	Tb	2	–	–
4056.07	U	–	5	–
4056.052	Cr	30	8	–
4056 04	Gd	3	–	Kn
4056.012	Mo	25	30	–
4055.990	Er	5	–	–
4055 985	U	8	–	–
4055 848	Er	6	–	–
4055.838	Ce	12	–	–
4055 76	Pr	6 wh	3	–
4055.730	U	–	5	–
4055.717	Ir	7	–	Ab
4055 707	Zr I	25	3	–
4055.671	Nd	10	5	–
4055 648	W	6	5	–
4055.545	Mo	2	10	–
4055 543	Mn	80	80	–
4055 50	Ho	–	2	Ex
4055.496	Os	30	3	–
4055.471	Er	12	2	–
4055 353	Ir	6	–	Ab
4055.32	Tb	5	–	–
4055.306	Zr I	3	–	–
4055 3	Rn	–	[5]	Wa
4055.282	Sm	5	3	–
4055.264	Ag I	800 R	500 R	–
4055 255	Eu	2	–	–
4055 232	W	7	6	–
4055 214	Mn	10	5	–
4055.20	Tb	3	–	m
4055 159	Dy	5	8	–
4055.158	Ce	8	1	–
4055 039	Fe I	40	10	–
4055 034	Ir	4	–	–
4055 03	Er	3	–	m
4055.030	Zr I	100	5	–
4055 019	Ti I	80	30	–
4055 013	Dy	2 h	–	Kn
4054 991	Ce II	12	6	–
4054.96	Tb	2 h	–	–
4054.883	Fe I	25	5	–
4054.864	Th	5	3	–
4054 845	Pr	50	40	–
4054 84	U	1	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4054.833	Fe I	25	5	–
4054.775	Pt I	5	2	–
4054.734	Gd I	80	20	–
4054.732	Ru I	5	–	–
4054.724	Nd	12	4	–
4054.658	Ce	5	–	–
4054.64	Ca	2	2	Ad
4054.622	Co I	2	–	–
4054.60	Tb	2	–	–
4054.555	Sc I	10	9	–
4054.525	A I	–	[80]	I
4054.512	Sm	–	2	–
4054.49	Ho	3	2	Kn
4054.45	Lu	25	3	Me
4054.433	Zr I	20	–	–
4054 391	Ta	4	–	–
4054.313	U	12	15	–
4054.183	Fe I	2	–	–
4054.183	Cr II	1	3	–
4054.18	Cl II	–	[9]	Ks
4054.12	Tb	9	1	m
4054.099	Ce	2	–	–
4054.051	Ru I	40	100	–
4054.03	Br	–	[4]	Bl
4054.00	Tb	5	–	m
4053.956	Cs	–	[15]	Sv
4053.940	W	9	10	–
4053.922	Co I	6	2	–
4053.92	Ho	400	200	Kn
4053.885	Er	20	1	–
4053 86	Dy	3	–	Ed
4053.837	Ti II	25	8	–
4053 837	Nd	12	3	–
4053.659	V	2	–	–
4053.651	Cu II	–	2 h	–
4053.648	Gd I	100	40	–
4053.587	V	–	70	Me
4053.570	U	5	5	–
4053.531	Th	10	5	–
4053.525	Nd	5	–	–
4053.506	Ce II	40	8	–
4053.48	Pr	8	4	–
4053.443	Rh I	4	3	–
4053.34	Dy	2	2	Ed
4053.33	Tb	4	1	m
4053.302	Gd	100	80	–
4053 273	Fe	6	2	–
4053.268	U	2	–	–
4053 260	V I	6	2	–
4053.094	Eu	2	–	–
4053.070	Ce	5	–	–
4053.026	U	8	8	–
4053.011	Zr	5	–	–
4052.94	A II	–	[20]	Rt
4052.937	Ti I	25	1	–
4052.922	Co I	40	–	–
4052.86	Tb	40 w	2	m
4052.81	Au II	–	60	–
4052.664	Fe I	3	1	–
4052.662	U	6	–	–
4052.628	Ce	2	–	–
4052.575	Pr	10	3	–
4052.477	U	3	3	–
4052.472	Mn	20	20	–
4052.41	Tb	5	1	m
4052.40	Dy	2	–	Kn
4052.321	W	6	7	–
4052.307	Fe I	2	–	–
4052.293	Mo	15 h	5 h	–
4052.290	Sm II	10	2	–
4052.28	Yb	10	2	m
4052.22	Cl II	–	[12]	Ks
4052.21	Tm	8	–	Me
4052 195	Ru I	25	50	–
4052.084	Eu	2	–	–
4052.080	U	5	5	–
4052.058	Ce	6	–	–
4051.985	Ce	18 l	3 h	–
4051.936	Mo	4	5	–
4051.914	U	20	25	–
4051.908	Fe	10	2	–
4051.899	Hf	8	4	–
4051.85	Tb	25	2	m
4051.849	Sc I	3	–	–
4051.817	Sm	2	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4051 731	Mn	15	20	–
4051.66	Xe	–	[2]	Hu
4051.64	Cl	–	[6]	Bl
4051.619	Gd	4	–	–
4051.614	Ce	4	–	–
4051.515	Cb	5	5	–
4051.47	Tb	8	1	–
4051.429	Os	12	3	–
4051.427	Ce	20	3	–
4051.400	Ru I	125	200	–
4051.352	V I	15	4	–
4051.329	Cr	35	8	–
4051.304	W	2	9	–
4051.27	Xe II	–	[5 h]	Hu
4051.233	Ce	3	–	–
4051.190	Ir	5	–	Ab
4051.184	Mo	5	10	–
4051.152	Pr	50	30	–
4051.145	Nd	15	15	–
4051.11	Ca	2	3	Ad
4051.103	Th	8	5	–
4051.087	U	6	3	–
4051 0	Rn	–	[10]	Wa
4050 963	V I	15	4	–
4050.947	Ce	2	–	–
4050.930	U	3	5	–
4050.926	Re	10	–	–
4050.9	Sr	1 h	2 h	Sd
4050 891	Th	15 h	5	–
4050.885	Hf	20	1 h	–
4050.812	Ce	12	1	–
4050.688	Fe	5	–	–
4050 667	Hf II	4	5	–
4050.656	Cu I	30	–	Hs
4050.579	Dy	30	15	–
4050.570	Er	25	1	–
4050.483	Zr I	25	–	–
4050.46	Cl	–	[8]	Bl
4050.43	Eu	6	–	Kn
4050.42	Kr II	–	[50 whl]	Me
4050 370	Gd	8	–	–
4050 329	Zr II	20	10	–
4050 282	U	2	3	–
4050 13	B	–	2	Sy
4050.11	S II	–	[10]	Hn
4050.109	Yb	–	6	–
4050.092	Mo	6	8	–
4050.09	I I	–	[35]	Db
4050 079	La II	60	60	–
4050.039	U	25	35	–
4050 035	Cr I	30	1	–
4049.951	Sc I	8	–	–
4049.90	Gd	100	60	m
4049 885	I	–	[30]	Ke
4049.87	Fe	30	3	–
4049.859	Nd	10 d	2 d	–
4049.832	Sm	40	20	–
4049.83	Pr	8	2	–
4049.790	Ce II	8	1 h	–
4049.783	Cr	30	6	–
4049.760	Cb	5	5	–
4049 74	Hf	6	2	Me
4049.74	U	8	2 h	–
4049.61	Pr	8	2	–
4049.573	Sm II	3	1	–
4049.555	Ce	2	–	–
4049.548	Gd	3	–	Kn
4049.527	U	–	4	–
4049.48	Er	10 d	2	–
4049.45	Hf II	10	10	–
4049.441	Gd	80	20	–
4049.431	Mn	5	5	–
4049.413	Ru I	15	12	–
4049.399	Ti I	35	1	–
4049.374	Dy	6	–	Kn
4049.362	Ce	6	–	–
4049.331	Fe I	10	2	–
4049.290	Co I	4	2	–
4049 196	Gd	5	–	–
4049.194	Ce	6	–	–
4049.170	U	10	3	–
4049.158	Cr	4	3	–
4049.039	Rh I	2	2	–
4049.030	Ce	18	1	–
4049.006	Cr	4	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4048 992	Re I	30	–	–
4048.942	Dy	5	–	Kn
4048.89	Te	–	[70]	Bl
4048 861	Th	–	10 wh	–
4048.848	W	5	6	–
4048.82	Gd	10 W	–	Kn
4048 814	Nd	15	10	–
4043 81	Tb	5	–	–
4048.79	Ho	2	–	Kn
4048.780	Cr	80	50	–
4048.755	Mn	60	60	–
4048.674	Zr II	30	30	–
4048 661	Cb	3	5	–
4048 654	Eu	2	–	–
4048.616	Sm II	10	10	–
4048.590	Gd	8	8	–
4048.448	Th	5	5	–
4048.409	Rh	4	3	–
4048.4	Bi II	3 h	10	Ml
4048.366	Ce II	8	1	–
4048 35	Dy	15	2	Ed
4048.346	Er	15	1	–
4048 266	Eu	4	–	–
4048.252	W	6	7	–
4048.22	O II	–	[10 h]	Fl
4048.14	Pr	8	4	–
4048.065	U	8	2	–
4048.057	Th	8	8	–
4048.054	Os	20	2	–
4047.96	Hf	8	25	Me
4047.935	W	9	8	–
4047.875	Ce	5	–	–
4047.87	Cl	–	[6]	Bl
4047.850	Er	5	–	–
4047.846	Gd	150 l	50	–
4047.792	Sc I	25	10	–
4047.77	Se II	–	[8]	Bl
4047 74	Eu	2	–	Kn
4047 740	Dy	4	2	Kn
4047.699	Ce	3	–	–
4047 632	Yt I	50	10	–
4047 620	Ce	3	–	–
4047 610	U	18	3	–
4047 563	Mo	4	4	–
4047 51	A II	–	[2]	Rt
4047.50	Ho	3	3	Ex
4047 4	Rb	–	[4]	Dr
4047 398	Mo	4	4	–
4047 392	Ce	4	–	–
4047.39	Yb	–	4	Me
4047 363	Sm II	8	6	–
4047 351	Ca	2	3	–
4047 329	Ir	4	–	Ab
4047 310	Fe I	3	–	–
4047.275	Ce	18	2	–
4047.204	Mo	4	3	–
4047.201	K I	400	200	Da
4047.184	Cs II	–	[20]	Sv
4047.18	Te	–	[15]	Bl
4047.16	Tb	9	–	–
4047.158	Nd	12	10	–
4047.098	Pr	20	12	–
4047.093	Gd	6	5	–
4047.05	U	6	8	–
4046.960	Er	8	–	–
4046.886	Mo	3	20	–
4046.853	Ce	3	–	–
4046.842	Gd	10	10	–
4046.761	Ni I	2	–	–
4046.760	Cr I	30	3	–
4046 734	Ce	2	–	–
4046.702	Nd	8	2	–
4046 701	W	10	12	–
4046 635	Pr	8	3	–
4046.561	Hg I	200	300	–
4046.539	Ir	8	–	Ab
4046 521	U	5	5	–
4046.486	Sc I	10	–	–
4046.45	Pt II	–	20	Sh
4046.402	U	3	5	–
4046.340	Ce I, II	30	10	–
4046.27	Cb	3	1	Me
4046.264	V	1	15	–
4046.154	Sm II	12	10	–
4046 082	Zr I	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4045.983	Dy	150	12	–
4045.973	Ce II	5	–	–
4045.97	Tb	25	1	–
4045.966	A I	–	[150]	IHu
4045.95	Ho	10	2	Ex
4045.89	Er	2	–	Ed
4045.862	Gd	[30]	–	Kn
4045.82	Ag	10	2	–
4045.815	Fe I	400	300	S
4045.762	Ru	25	–	–
4045.662	Ne I	–	[2]	Ps
4045.612	Zr II	10	10	–
4045.601	W	12	15	–
4045.590	Cb	1	5 h	–
4045.543	Mo	3	3	–
4045.43	Ho	200	80	Kn
4045.43	Er	8 wd	1 wd	m
4045.390	Co I	400	–	–
4045.316	Ce	3	–	–
4045.31	Tb	5	–	–
4045.3	Rn	–	[35]	Rc
4045.281	Dy	3	–	Kn
4045.209	Ce	8	3	–
4045.206	Mn	15	15	–
4045.136	U	4 h	4 h	–
4045.133	Mn	15	–	–
4045.125	Mo	2	3	–
4045.047	Sm II	10	6	–
4045.010	Gd I	20	5	–
4044.948	Sm	10	10	–
4044.90	Xe	–	[4 whl]	Hu
4044.892	Ir	2	6	Ab
4044.824	U	10	2	–
4044.818	Pr	50	35	–
4044.75	N II	–	[2]	Fl
4044.712	Cb	5	3	–
4044.67	Kr II	–	[80]	Me
4044.64	Xe	–	[3 wh]	Hu
4044.611	Fe I	70	35	–
4044.58	Cl	–	[10]	Bl
4044.564	Zr I	25	2	–
4044.49	P II	–	[150 w]	Gu
4044.47	Tm	15	–	Me
4044.419	Ca	5 d	3	–
4044.418	A I	–	[1200]	I
4044 416	U	18	25	–
4044.39	Hf	10	4	–
4044.347	Nd	3	–	Kn
4044.330	Ce	4 h	1	–
4044.288	W	15	12	–
4044.140	K I	800	400	Da
4044 113	Sm	4	–	–
4044 105	Cb	5	10	–
4044 10	Hg II	5	10	–
4044.09	Cl II	–	[4]	Ks
4044.062	Ce	3	–	–
4044.041	U	1	4	–
4044 030	Gd	3 h	–	Kn
4043 97	Eu	20	–	Kn
4043 955	Ce	3	–	–
4043 905	Fe I	25	7	–
4043 879	I	–	[20]	Ke
4043 804	Sc I	12	4	–
4043.775	Ti I	20	–	–
4043.751	Cu II	–	10	Sh
4043.747	Ce	3	–	–
4043.738	Mo	8	8	m
4043 710	Gd	5	5	–
4043.696	Cr	30	2	–
4043.66	Tb	8 w	1 w	–
4043.596	Nd	15	5	–
4043.576	Zr I	25	–	–
4043.54	N	–	[10 h]	Fl
4043.502	Cu II	–	25	Sh
4043.473	Ce	4 s	–	–
4043.422	Cs	–	[20]	Sv
4043.409	Ce	2	–	–
4043.401	Th	8	1	–
4043.365	Sm II	5	3	–
4043.270	Mo	3	2	–
4043.162	Cb	3	10	–
4043.150	Th	10	3	–
4043.127	U	2	3	–
4043.09	Gd	4	–	Ed
4043.078	Ce	2	–	–
4043.06	Yb	–	8 h	Me
4043.046	Nd	15	1	–
4043.015	Er	10	–	–
4042.979	Th	5	3	–
4042 911	La II	400	300	–
4042.91	A II	–	[80]	Rt
4042.896	Sm II	10	10	–
4042 873	Mo	15	15	–
4042.761	Gd	5	5	–
4042.752	U	40	10	–
4042.711	Sm II	10	9	–
4042.642	Ne I	–	[50]	Ps
4042.635	V I	15	2	–
4042.594	K II	–	[30]	Dm
4042.584	Ce I, II	50	3	–
4042.570	Cb	3	5	–
4042.507	Nd	2	–	–
4042.463	U	5	8	–
4042.391	W	8	7	–
4042.33	Tb	9	–	–
4042.327	Ne I	–	[10]	Ps
4042.246	Cr I	30	1	–
4042 225	Zr I	25	–	–
4042.135	Ce	8	–	–
4042.06	Eu	10 w	2	–
4042.045	Co	3	–	–
4041.998	Ru	12	1	–
4041.989	Dy	12	4	Kn
4041.937	I	–	[15]	Ke
4041.917	Os	100 l	6	–
4041.87	Pr	4	1	–
4041.843	Tb	7	–	–
4041.82	Se II	–	[8]	Bt
4041.79	Cr I	20	–	m
4041 667	Sm II	25	10	–
4041 640	Zr I	7	–	–
4041.61	Br	–	[8]	Bl
4041 604	V	10	2 W	–
4041 558	U	2	4	–
4041.536	Tb	4	–	–
4041.529	Cb	2	–	–
4041.4	Rb	–	[4]	Dr
4041.37	Pr	5	–	–
4041.361	Ta	2	–	–
4041 361	Mn	100	50	–
4041.325	N II	–	[20 h]	Fl
4041.3	Pb	–	5 h	Kl
4041.285	Fe	5	2	–
4041 270	Ce	6	–	–
4041 207	Th	20	10	–
4041 122	Mo	6	5	–
4041 065	Nd	15	5	–
4041 057	Ta	40	4 h	–
4040.973	La I	8	–	–
4040.94	Au I	50	40	–
4040.938	Tb	3	–	–
4040 87	Ta	50	5 h	–
4040 84	Ho	150	30	Kn
4040.802	Co I	15	1	m
4040.796	Nd	40	40	–
4040.777	Er	20	–	–
4040.762	Ce II	70	5	–
4040 76	Dy	6	–	Ed
4040.732	Ir	2	–	Ab
4040.678	Tb	3	–	–
4040.67	Pr	2	–	–
4040 647	Co I	2	–	–
4040.644	Fe	20	7	–
4040 64	Cl II	–	[9]	Ks
4040.637	Mo	5	3	–
4040.591	W	9	8	–
4040.54	Sb	–	[2 h]	Lg
4040.481	Ru	12	3	–
4040.47	Eu	5	–	–
4040.468	Cb	2	5 h	Me
4040.440	Ir	5	2	Ab
4040.40	Tb	10	1	–
4040.40	Hg II	–	[20]	Ps
4040.318	Ti I	40	1	–
4040 31	V I	2	1	Me
4040.3	Ca	2	3	Ad
4040.239	Zr II	4	4	–
4040.178	Re	15	–	–
4040.100	Tb	8	–	Kn
4040.096	Fe	1	2	–
4040.09	Yb	1	8	Me
4040.078	Ir	40	5	–
4040.00	Tm	3	4	Me
4039.944	Nd	8	–	–
4039.896	Th	8	1	–
4039.890	Ce	12 l	–	–
4039.855	W	12 l	9 l	–
4039.841	Cs	–	[50]	Sv
4039.834	Yt I	12	8	–
4039.781	U	15	2	–
4039.727	Tb	2	–	–
4039.692	K II	–	[15]	Dm
4039.669	Gd	10	5	–
4039.639	U	1	3	–
4039.633	Ta	5	1	–
4039.576	V II	3	8	Me
4039.57	B	–	4	Sy
4039.544	Nd	5	1	–
4039.529	Cb	30	50	–
4039.50	Sm	10	2	–
4039.50	Gd	10	–	Kn
4039.482	Tb	7	–	–
4039.423	W	7	6	–
4039.4	Rn	–	[5]	Wa
4039.357	Pr	50	20	–
4039.302	Al II	–	[2]	Sy
4039.298	Ce	2	–	–
4039.22	Cr	15	3	–
4039.210	Ru	25	50	–
4039.20	Tb	5	–	–
4039.192	Eu	15	–	–
4039.105	Sm	2	2	–
4039.100	Cr	100	40	–
4039 095	Cb	5	10	–
4039 00	Mo	3	3	
4038.90	Pr	4	1	–
4038.864	Tb	10	–	Kn
4038.86	Ho	4	2 d	Ex
4038.834	Dy	5	2	Kn
4038.82	A	–	[40]	Rt
4038 805	Fe	2	–	–
4038 802	U	3	–	–
4038.732	Mn	15	15	–
4038.640	Os	9	3	–
4038.631	Mo	–	10 h	–
4038.631	U	3	3	–
4038.545	V	–	2	Me
4038.528	Dy	15	4	Kn
4038.519	Ca	2	2	–
4038.512	U	5	5	–
4038.467	Pr	15	10	
4038.43	Cl	–	[6]	Bl
4038.387	Sb	–	2 h	Sp
4038.37	Eu	2	–	–
4038.344	Ce	10	5	Kn
4038.333	Ti	12	1	–
4038 31	Se II	–	[40]	Bl
4038.24	Tb	4	1	–
4038.179	Cb	3	5 h	–
4038.168	U	5	6	–
4038.154	Pr	12	3	–
4038.124	Nd	15	10	–
4038.084	Mo	20	15	–
4038.083	Sm II	6	4	–
4037.993	Cr	15 h	–	–
4037 987	U	8	2	–
4037.960	Ce	18	2	–
4037.906	Gd	100	30	–
4037.841	Os	80 l	4	–
4037.834	U	3	1	–
4037.83	Kr II	–	[30]	Me
4037.778	Mo	10	15	–
4037.750	W	–	6 l	–
4037.737	Ru	12	5	–
4037.722	Cr	15	–	–
4037.696	Ne I	–	[5]	Ps
4037.680	Er	4	–	–
4037.665	Ce II	25	3	–
4037.665	Eu	8 W	–	–
4037.659	Cb	–	20	–
4037.643	Nd	5	2	Kn
4037.628	Dy	6	–	Kn
4037.615	Ne I	–	[15]	Ps
4037.60	Ho	3	1	Ex
4037.59	Xe II	–	[100]	Hu

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
4037.554	Mn	3	3	–
4037.511	Re	30	–	–
4037.4	bh B	25	–	L
4037.390	Ce	6	–	–
4037.380	Nd	–	5	–
4037.35	Br	–	[5]	Ks
4037.338	Gd	100	30	–
4037.303	Mo	8	8	–
4037 294	Cr I	80	12	–
4037.29	Xe II	–	[50]	Hu
4037.262	Ne I	–	[5]	Ps
4037.26	Ag	–	2 h	–
4037.258	Th	8	5	–
4037.22	Pr	8	2	–
4037.214	La I	50	3 h	–
4037.203	Co I	2	–	m
4037.18	Ca	2	2	Ad
4037.16	Tb	5	–	–
4037.135	Eu	6	2	–
4037.092	Sm II	10	4	–
4036.882	Sc I	8	–	–
4036.867	U	10	–	–
4036.860	W	12	12	–
4036 840	Gd	10	8	–
4036.776	V II	8	40	–
4036.76	Ag	–	3	–
4036.667	Mo	5	5	–
4036.596	La II	5	15	–
4036.573	Ce	2	–	–
4036.567	Th	15	15	–
4036.56	Eu	3	–	–
4036.560	Mn	2	2	–
4036.555	Nd	10	1	–
4036.554	U	3	8	–
4036.53	Cl II	–	[10]	Ks
4036.492	Ru	10	3	–
4036.45	Tb	10	–	–
4036.43	Br	–	[10]	Bl
4036.335	Dy	15	4	Kn
4036.26	Ba II	–	[10]	Rs
4036.249	Mn	2	2	–
4036.22	P II	–	[15 h]	Gu
4036 219	Tb	10	–	–
4036.116	Er	3	–	–
4036.11	Eu	50 W	–	Kn
4036.10	Ho	2	–	Kn
4036.088	Ce	5	–	–
4036.080	I II	–	[50]	Ke
4036.056	Th	10	3	–
4036.05	Pr	15	1	–
4036.005	Nd	10	3	–
4035.990	Ce	2	–	–
4035.928	Cb	3	5	–
4035.896	V I	3	–	Me
4035.893	Ta	10	5 h	–
4035.893	Zr I	40	2	–
4035.83	Cs	–	[15]	Bs
4035.830	Ti I	50	5	–
4035.79	Pr	3	1	–
4035.728	Mn	50	60	–
4035.661	Mo	3	25	–
4035.626	V II	40	80	–
4035.554	Co I	150	3	–
4035.47	A II	–	[30]	Rt
4035.42	Pr	10	1	–
4035.403	Gd I	8	5	–
4035.399	Nd	8 d	2	–
4035.355	W	10	9	–
4035.335	Ir I	6	–	Ab
4035.24	Cr	8	–	–
4035.168	Nd	2	–	Kn
4035.101	Sm II	50	3	–
4035.098	Cb	4	3	–
4035.090	N II	–	[15 h]	Fl
4035.07	Pr	2	1	–
4034.998	Cr	8	–	–
4034.910	Ti I	25	2	–
4034.886	Th	8	5	–
4034.858	Co	2	–	–
4034.74	Tm	10	10	–
4034.570	Ce	2	–	–
4034.523	Cb	10	5	m
4034.490	Mn I	250 r	20	–
4034.38	Gd	5	–	Kn
4034.30	Pr	20	5	–
4034 259	Ce	2	–	–
4034.256	Th	10	10	–
4034 23	Sc I	8	2 h	–
4034.17	Pt II	–	5	Sh
4034.147	Nd	10 d	2	–
4034.11	Eu	2	3	–
4034.086	Zr II	5	2	–
4034.048	Cr I	20	–	–
4034.012	Nd	4	2	–
4034 01	S	–	[8]	Ms
4034.002	U	4	4	–
4033.999	Mo	3	3	–
4033.913	W	–	10	–
4033.906	Ti I	40	3	–
4033.900	Nd	10	4	–
4033.88	Hf II	5	8	m
4033.857	Pr	50	35	–
4033.83	A	–	[30]	Rt
4033.786	Ce	6	–	–
4033.762	Ir	100	25	–
4033.728	U	12	12	–
4033.69	Eu	8 w	–	–
4033.68	P II	–	[15]	Gu
4033.666	Dy	15	4	Kn
4033.64	N	–	[2]	Du
4033.631	Mo	6	6	–
4033.630	Mn	5	5	–
4033.584	Zr	3	–	–
4033.543	Sb	70	60	–
4033.504	Nd	10	5	–
4033.491	Gd	10	5	–
4033.427	U	12	10	–
4033.378	Ce	2 h	–	–
4033 307	Re I	40	–	–
4033.263	Cr I	30	8	–
4033 24	Pr	3	2	–
4033.203	Cb	5	5	–
4033.191	Sr I	6	–	ISn
4033 073	Mn I	400 r	20	–
4033 072	Cr	15	2	–
4033.069	Ta	100	10	–
4033.066	In	4	–	–
4033.04	Tb	125	5	–
4032 982	Ga I	1000 R	500 R	–
4032.977	Sm	20	8	Kn
4032.974	Pr	15	10	–
4032.97	A I	–	[20]	Ms
4032 89	Se	–	[10]	Bl
4032.856	V I	2	1	–
4032.85	Br	–	[20]	Bl
4032.847	Dy	8	–	Kn
4032.812	S II	–	[125]	Hn
4032.748	Ce	2	–	–
4032.705	Tb	3	–	Kn
4032.632	Ti I	35	1	–
4032.630	Fe I	80	15	–
4032.626	Tb	4	–	–
4032.554	Ce	3	–	–
4032.54	Th	10	8	Ex
4032.524	Cb	30	50	–
4032.521	Ru	10	5	–
4032.508	Nd	2	–	–
4032.502	Mo	8	8	–
4032.492	Pr	20	12	–
4032.480	Dy	20	12	Kn
4032.477	Er	9	–	–
4032.471	Zr	5	–	–
4032.469	Fe I	4	1	–
4032.385	W	6	7	–
4032 379	Sr I	20	–	ISn
4032.294	U	2	2 h	–
4032.282	Tb	30	–	Kn
4032.266	Hf	5	2	–
4032.22	Se II	–	[8]	Bt
4032.214	Ir	10	–	Ab
4032.205	Ru I	20	20	–
4032.19	Cl	–	[4]	Ks
4032.146	Re	10	–	–
4032.092	I	–	[10]	Ke
4032.089	Th	3	–	–
4031.965	Fe	80	50	–
4031.96	I	–	[10]	Bl
4031.96	Ta	5	–	–
4031.830	V I	10	3	–
4031.807	Nd	15	15	–
4031.790	Mn	8	10	–
4031.781	U	8	2	–
4031.755	Pr	50	30	–
4031.754	Ti I	35	1	–
4031.75	Ho	4	1 h	Kn
4031.692	La II	400	300	–
4031.690	Er	6 w	–	–
4031.675	W	8	7	–
4031.669	Ce	10 d	–	–
4031.64	Tb	50	3	–
4031.64	Re	2	–	–
4031.633	Al II	–	[2]	Sy
4031 558	Ir I	3	–	Ab
4031.545	Nd	10	3	–
4031.41	A	–	[2]	Rt
4031.397	Sc I	10	2	–
4031 38	Eu	7	3	–
4031 355	Zr II	3	1	–
4031.336	Ce II	40	8	–
4031.33	Pb I	–	5	Sx
4031.327	Th	5	5	–
4031.314	Cb	–	5	–
4031.306	U	8	8	–
4031.243	Fe I	2	–	–
4031.219	V I	10	3	–
4031.135	Al II	–	[2]	Sy
4031.130	Cr	30	6	Hl
4031.10	Cs	–	[10]	Bs
4031.099	Th	5	5	–
4031.09	Pr	12	8	–
4031.081	Dy	7	–	Kn
4030.997	Ru I	15	12	–
4030 915	Mo	3	5	–
4030.881	Gd	8	–	Kn
4030.867	Al II	–	[8]	Sy
4030.86	Lu	–	5 hl	Me
4030 855	Th	10	8	–
4030.853	Ce	2	–	–
4030 83	Yt	2	2	Ed
4030.759	Zr I	20	–	–
4030.758	U	5	6	–
4030.755	Mn I	500 r	20	–
4030 681	Cr	40	30	–
4030.668	Ta	10	1 d	–
4030.66	Eu	5 w	–	Kn
4030.657	Sc I	10	2	–
4030.514	Ti I	80	18	–
4030.492	Fe I	120	60	–
4030.470	Nd	20	15	–
4030.425	Sm II	10	3	–
4030.377	Sr I	40	–	ISn
4030.344	Ce II	18	4	–
4030.3	Ca	10	2 h	Ad
4030 293	Th	8	5	–
4030 29	Br	–	[12]	Bl
4030.203	Eu	10 w	–	–
4030.194	Fe I	20	4	–
4030.155	Ce	5	–	–
4030.143	Ru	7	–	–
4030.07	Se II	–	[150]	Bt
4030.039	Zr I	35	2	–
4029.996	Eu	5	–	–
4029.97	Tb	3	–	–
4029.95	W	6	7	–
4029.941	Mo	1	30	–
4029.94	Ta	50	5	Ks
4029.92	U	6	4	–
4029.914	Nd	10	3	–
4029.84	Yt I	5	–	Me
4029.798	U	1	2	–
4029.753	Ce II	4	–	–
4029.73	Pr	15	12	–
4029.73	Te	–	[15]	Bl
4029.681	Zr II	40	15	–
4029.66	Kr I	–	[2]	Me
4029.639	Re I	80	–	–
4029.636	Fe I	80	25	–
4029.608	W	6	7	–
4029.58	Eu	7	–	–
4029.562	Rb II	–	15	Rr
4029.51	Mo	3	3	–
4029.41	Dy	5	2	Ed
4029.310	Th	8	5	–
4029 268	Ce	5	1 h	–
4029.22	Tb	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4029.20	Cl	–	[8]	Bl
4029.173	Hf II	10	12	–
4029.143	Ir I	6	–	Ab
4029.08	Cd II	–	5	Vs
4029.046	Th	5	3	–
4029.041	Pr	12	5	–
4029.025	W	5	7	–
4028.951	Zr I	40	1	–
4028.85	Ho	4	1	Kn
4028.82	Mo	3	3	–
4028.791	S II	–	[200]	Hn
4028.790	W	12	10	–
4028.777	Fe	2	–	–
4028.754	Nd	10	5	–
4028.69	Pr	5	1	–
4028.657	Th	8	8	–
4028.646	Mo	6	6	–
4028.63	Eu	15 w	–	–
4028.60	Tb	3	–	–
4028 593	Mn	2	2	–
4028.563	Re	25	–	–
4028.52	Eu	10 W	–	Kn
4028.48	Au	–	10	–
4028.435	Ru	10	2	–
4028.418	Dy	5	8	Kn
4028.411	Ce II	35	8	–
4028.403	U	5	2 h	–
4028.345	Ti II	20	80	–
4028.325	Dy	10	–	Kn
4028 31	Tb	8	1	–
4028.27	Yb	–	8 h	Me
4028.198	Ce II	2	–	–
4028.158	Gd	25	8	–
4028.02	Cr	35	–	–
4027.990	Ce	4	–	–
4027.976	Cb	5	10	–
4027.97	Xe	–	[2 h]	Hu
4027.95	Tb	3	–	–
4027.878	Ce	4	–	–
4027.805	U	12	8	–
4027.79	In II	–	[50 h]	Ps
4027.787	Dy	15	4	Kn
4027.693	Ce II	20 s	3	–
4027.644	Th	5	3	–
4027.64	Pr	15	5	–
4027.613	Gd I	10	8	-
4027.485	Ti	30	3	–
4027.402	U	4	2	–
4027.34	Tb	3	–	–
4027.330	Th	5	3	–
4027.312	Cb	5	5	–
4027.28	Eu	2 w	–	Kn
4027.205	Zr I	100	4	–
4027.20	Ho	5	1	Kn
4027.128	Re	3	–	–
4027.103	Cr	80	30	–
4027.066	Er	2	–	–
4027.048	Ce	5	–	–
4027.037	Co I	200	4	–
4027.012	Th	8	1	–
4026.999	U	6	8	–
4026.944	Ta	40	30	–
4026.936	Ce	2	–	–
4026.93	Tb	2	–	–
4026.924	Mo	5	5	–
4026.9	Rb	–	[25]	Dr
4026 839	Pr	20	5	Kn
4026.723	Re	2	–	–
4026.67	Cl	–	[4]	Bl
4026.657	Nd	10	3	–
4026.625	Eu	5 w	–	–
4026.541	Ti I	70	10	–
4026.502	Ru	7	1	–
4026.5	Al II	–	[30]	Sy
4026.435	Mn	50	40	–
4026.434	U	10	–	–
4026.41	Tb	4	–	–
4026.39	Ce	2	–	–
4026.363	He I	–	[5]	Ps
4026.325	Cb	–	10	–
4026.30	Ba I	2	2 h	Sd
4026.253	Ce	2	–	–
4026.20	Xe II	–	[3 whl]	Hu
4026.189	He I	–	[70]	IMr
4026.166	Cr	100	35	–
4026.158	Th	10	10	–
4026.143	Ce	2	–	–
4026.087	N	–	[10 h]	Fl
4026.084	Nd	10	2	–
4026.019	U	25	25	–
4025.99	Mo	30 h	30 h	–
4025.954	Hg	–	[20]	St
4025.95	Eu	5	–	–
4025.949	Rh I	3	1	–
4025.910	Mn	3	3	–
4025.882	La II	50	50	–
4025.75	Dy	2	–	Kn
4025.73	Tb	15	2	–
4025.68	Cl II	–	[7]	Ks
4025.67	Cs	–	[10]	Sv
4025.650	Ce	2	–	–
4025.614	Re I	15	–	–
4025.612	Th	20	20	–
4025.605	Dy	10	2	Kn
4025.600	W	–	10	–
4025.546	Pr	40	25	–
4025 537	Er	3	–	–
4025.495	F II	–	[300]	Di
4025.487	Mo	6	5	–
4025.443	Eu	2	–	–
4025.434	U	3	2	–
4025.39	Ho	3	–	Kn
4025.294	Ce	2	–	–
4025 19	W	8	6	–
4025.19	Xe II	–	[15]	Hu
4025.19	Pr	15	8	–
4025.150	Ce	12	2	–
4025.146	Tb	4	–	Kn
4025 136	Ti II	15	25	–
4025 114	Ni I	2	–	–
4025 076	I	–	[30]	Ke
4025.013	U	8	3	–
4025.012	Cr	100	25	–
4025.010	F II	–	[150]	Di
4024.920	K II	–	[15]	Dm
4024 918	Zr I	25	3	–
4024 906	Dy	10	–	Kn
4024.83	In	–	100 wh	Sq
4024.785	Nd	20	10	–
4024 781	Tb	7	–	Kn
4024.739	Fe I	120	30	–
4024.727	F II	–	[500]	Di
4024.703	Tb	4	–	–
4024 695	Ru I	12	5	–
4024.68	Ca	3 wh	3	Ad
4024.573	Ti I	80	35	–
4024.567	Cr I	20	1	–
4024.491	Ce	15	5	–
4024.472	Th	5	5	–
4024.44	Tb	4	–	–
4024.438	Zr II	5	4	–
4024.437	Dy	20	–	Kn
4024.41	Pr	15	2	–
4024.348	Ce	5	–	-
4024.34	Eu	3 W	–	Kn
4024.305	Ru	7	4	–
4024.24	Tm	7	–	Me
4024.137	Sb	–	4	Sp
4024.104	Fe I	8	2	–
4024.091	Mo	30	25	–
4024.07	Tb	40 W	1	–
4024.07	Pr	5	1	-
4024.04	Br	–	[20]	Bl
4024 01	Yb	–	2	Me
4023 981	Zr I	30	2	–
4023.973	He I	–	[5]	Ps
4023.93	Ho	4	1 h	Kn
4023.84	Eu	2	–	–
4023 833	Ru I	25	60	–
4023.824	Nd	12	3	–
4023.82	I II	–	[2]	Mu
4023.81	Pt II	–	3	Sh
4023.76	In II	–	[15]	Ps
4023.74	Gd	3 h	–	–
4023.739	Cr	40	15	–
4023.737	Pr	3	–	–
4023.722	Dy	10	2	Kn
4023 716	Tb	6	–	–
4023.688	Sc I	100	25	–
4023.640	Ce	4	–	–
4023 597	U	3 h	6 h	–
4023 588	La II	50	15	–
4023 582	Cs	–	[10]	Sv
4023.56	Mo	–	25	–
4023.533	Th	3	1	–
4023.43	Cr I	15	–	–
4023.403	Co I	200	–	–
4023.389	V II	10	30	–
4023.370	Ce	8	1	–
4023.353	Re I	40 w	–	–
4023 350	Gd I	20	10	–
4023.302	Zr I	5	–	–
4023.23	Se I	–	[20]	Rd
4023.223	Sc I	60	–	–
4023.223	Sm II	30	25	–
4023.174	V I	7	2	–
4023 170	U	6	6	–
4023.154	Gd	20	10	–
4023.144	Rh I	10	5	–
4023.141	Cb	4	3	–
4023.030	Zr	6	–	–
4023.002	Nd	15	15	–
4022.965	Re I	25 d	–	–
4022.933	Ce	3 l	–	–
4022.91	Eu	6 W	–	Kn
4022.872	Tb	15 d	–	–
4022 84	Hf	2	–	Me
4022.833	W	4	5	–
4022.748	Ce	4	–	–
4022.744	Fe I	3	–	–
4022 738	Pr	12	6	–
4022.714	Sm II	6	5	–
4022.692	Ru	7	3	–
4022.657	Cu I	400	25	–
4022.453	Ce	5	–	–
4022 388	Cb	2	10	–
4022.345	Gd	15	–	–
4022 33	Tb	3	–	–
4022 32	As II	–	5	Ro
4022.272	Ce	15	4	–
4022.263	Cr	80	40	–
4022 199	Pr	8	4	–
4022.161	Ru I	40	100	–
4022.119	W	12	10	–
4022 093	Th	20	15	–
4022 052	Ni I	3	–	–
4022 032	Nd	4	2	–
4021.99	In II	–	[10]	Ps
4021.96	Er	5	–	Ed
4021.929	U	2	3	–
4021.925	V I	8	2	–
4021.89	Br	–	[4]	Bl
4021.870	Fe I	200	100	–
4021 827	Ti I	100	20	–
4021.795	Nd	12	10	–
4021.78	Br I	–	[2]	Ks
4021.74	Tb	2	–	–
4021.66	In II	–	[50]	Ps
4021.618	Fe I	2	–	–
4021.558	Er	5	–	–
4021.408	Sm II	4	1	–
4021.40	U	3 h	3 h	–
4021.39	Tm	4	10	Me
4021.330	Nd	12	12	–
4021.26	Se I	–	[20]	Rd
4021.254	U	6	6	–
4021 242	Ce	5	–	–
4021.12	Tb	10	1	–
4021.019	Zr I	3 h	–	–
4021.015	Mo	15	25	–
4021 01	Eu	5 w	–	–
4021.005	U	–	4	–
4020 995	Ru I	15	12	–
4020.991	Pr	40	30	–
4020.905	Co I	500 w	–	–
4020 897	Dy	10	4	Kn
4020.872	Nd	15	15	–
4020.771	Sm II	3	2	–
4020.736	Tb	2	–	–
4020.695	U	2	2	–
4020.679	Pd	5 h	–	–
4020.668	Mo	5	–	–
4020 540	Ce II	5	–	–
4020.519	Er	20	1	–
4020 487	Fe	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4020.47	Tb	20	3	–
4020.455	Mo	10	10	–
4020.399	Sc I	50	20	–
4020.319	W	–	2	–
4020.28	Pr	10	2	–
4020.247	Hf II	6	2 h	–
4020.237	Cb	2	10 h	–
4020.225	Pd I	15 wh	–	–
4020.169	U	3	3	–
4020.1	bh Sr	2	–	L
4020.096	Th	3	3	–
4020.092	Mn	10	5	–
4020.062	Nd	6 d	3 d	–
4020.06	Cl II	–	[15]	Ks
4020.028	Ir	80	100	–
4020.015	Ne I	–	[2]	Ps
4019.976	Sm II	30	15	–
4019.897	Ce	8	3	–
4019.84	Pr	15	8	–
4019.827	Sm II	8	8	–
4019.809	Nd	10	8	–
4019 805	W	–	5	–
4019.789	Mo	10	–	–
4019.732	Gd I	15	10	–
4019.72	Se I	–	[20]	Rd
4019.712	Eu	3	–	–
4019.66	Tb	2	–	–
4019.639	Pb	6	6	–
4019.553	Ru I	12	8	–
4019.50	Se II	–	[10]	Bl
4019.48	Dy	5	2	Ed
4019.480	Ce	6	1	–
4019.45	P II	–	[50]	Gu
4019.44	Pr	10	3	–
4019.35	Yb	–	7	Me
4019.302	Co I	80	–	–
4019.280	Ce II	4	–	–
4019.231	W	18	15	–
4019.203	U	6	8	–
4019.193	Ce	2	–	–
4019.140	Co I	5	–	–
4019.137	Th	8	8	–
4019.130	Re I	15	–	–
4019.12	Tb	40	5	–
4019.046	V	–	6	–
4019.046	Ni I	5	–	–
4019.046	Mo	2	4	–
4019.044	Ce	15	4	–
4018.990	U	25	15	–
4018.919	Ce	2	–	–
4018.88	Ca	–	4	–
4018.826	Nd	15	10	–
4018.6	Bi II	–	2	Cf
4018.539	Sm II	4	5	–
4018.52	Se II	–	[70]	Bl
4018 511	Ce	2	–	–
4018.44	Tb	2	–	–
4018.409	Re	25	–	–
4018.400	Eu	10	4	–
4018.400	Ce	2	–	–
4018.383	Zr II	8	5	–
4018.33	Br I	–	[4]	Ks
4018.309	W	2	3	–
4018.282	U	8	3	–
4018.275	Fe I	50	7	–
4018.257	Os	60	4	–
4018.227	Ce II	2	–	–
4018.202	Cr I	35	8	–
4018.121	Zr	25	–	–
4018.102	Mn	80	60	–
4018.10	Ho	3	1 h	Ex
4018.066	Ce	2	–	–
4017.83	Tb	4	1	–
4017.769	Ti I	70 h	8	–
4017 76	Dy	6	2	Ed
4017.75	Rn	–	[150]	Rc
4017.731	Eu	3	–	–
4017.723	U	25	25	–
4017.717	Gd	10	8	–
4017.714	Er	3 d	–	–
4017.596	Ce II	10 s	–	–
4017.582	Eu	25 W	25	–
4017.559	Cb	3	10	–
4017.509	K II	–	[15]	Dm
4017.495	Th	8	8	–
4017.462	Ni I	15 Wh	–	–
4017.458	U	8	6	–
4017.382	Mo	6	6	–
4017.351	W	4	5	–
4017.311	Nd	6	3	–
4017.286	V	–	15 h	Me
4017.27	C II	–	5	Fl
4017.252	Gd	5	3	–
4017.21	I I, II	–	[25]	Ke
4017.153	Fe I	80	50	–
4017.093	Fe I	5	–	–
4017.080	Nd	4	2	–
4016.985	Zr I	15	–	–
4016.975	Ti I	12	2	–
4016.883	Co I	10	5 h	–
4016.87	Tb	5	–	–
4016.846	U	6	8	–
4016.828	Co	5	–	m
4016.821	V	–	15 wh	Me
4016.76	In II	–	[2]	Ps
4016 753	Ru I	7	–	–
4016.748	Pr	25	20	–
4016.703	Eu	8	–	–
4016.702	Mo	5	5	–
4016.665	Mn	8	5	–
4016.527	W	10	12	–
4016.429	Fe I	15	4	–
4016.419	Ce	2	–	–
4016 36	Tb	10	1	–
4016 341	U	12	8	–
4016 304	Th	5	5	–
4016.284	Ti I	30	5	–
4016.24	In II	–	[50]	Ps
4016.15	Ca	2 wh	2	Ad
4016.12	I	–	[3]	Ke
4016.118	Sm	–	2	–
4016.109	W	6	4	–
4016 103	Ce	3	–	–
4016.079	Cb	5	30	–
4016.062	Mo	–	10	Pu
4016.05	Th	3	–	–
4016.050	Au II	10	15	–
4016.046	U	5	6	–
4016.004	Sm	15	–	Kn
4015.94	I I	–	[8]	Db
4015.93	Tb	8	1	–
4015.877	Ce	20	4	–
4015.815	Cu I	7 wh	–	Hs
4015.80	In II	–	[2]	Ps
4015.789	Ir	4	2	–
4015.765	Sm II	8	4	–
4015.715	Ce	2	–	–
4015 625	Tb	4	–	–
4015.596	Gd I	4	–	–
4015.579	Er	18	1	–
4015.557	Nd	10	8	–
4015.50	Tb	9 w	1	–
4015.393	La I	100	2 h	–
4015.389	Pr	50	30	–
4015.384	Ti I	70 h	10 h	–
4015.247	Ta	8	2	–
4015.240	U	10	–	–
4015.224	Co	2	2	m
4015.22	Gd	5	–	–
4015.216	W	25	30	–
4015.21	Tb	3	–	–
4015.18	Dy	10	2	Kn
4015.06	Cl	–	[10]	Bl
4015.037	Os	20	5	–
4014.99	Cs	–	[10]	Bs
4014.939	W	8	6	–
4014.926	Cb	5	8	–
4014.901	Eu	3 w	–	–
4014.899	Ce II	60	12	–
4014.85	Re	2 h	–	–
4014.816	U	12	2	–
4014.77	Se I	–	[70]	Rd
4014.713	Dy	18	4	Kn
4014.668	Cr	40	8	–
4014.66	Pr	10	2	–
4014.658	Ir	8	2	–
4014.655	Eu	3	–	–
4014.63	Ta	6 h	1	Ks
4014.534	Fe	200	100	S
4014.489	Sc II	20	8	–
4014.39	Eu	2	–	Kn
4014.35	Pr	9	3	–
4014.346	Ce	2	–	–
4014.32	Br	–	[25]	Bl
4014.31	Pt II	–	2	Sh
4014.271	Fe I	3	1	–
4014.18	Ho	2	4	Kn
4014.177	Ir	3	–	Ab
4014.160	U	8	8	–
4014.153	Ru	12	5	–
4014.150	Ce	3	–	–
4014.09	Tb	4	–	–
4013.997	Ir I	4	–	Ab
4013.995	Ne I	–	[2]	Ps
4013.945	Co I	300	–	–
4013.941	Ce	3	–	–
4013.935	Nd	5	3	–
4013.93	In II	–	[80]	Ps
4013.92	Gd	10	–	m
4013.88	Ca	2	2 h	Ad
4013.87	A	–	[200]	Rt
4013.826	Dy	12	2	Kn
4013.824	Fe	200	–	–
4013.817	Gd	25	3	–
4013.80	P	–	[30]	Gu
4013.80	Mg II	2	–	Fl
4013.795	Fe I	80	40	–
4013.794	I	–	[15]	Ke
4013.738	Ru I	10	5	–
4013.647	Ce	3	–	–
4013.647	Fe I	8	1	–
4013.584	Ti I	70 h	7 h	–
4013.55	Eu	2 W	–	–
4013.54	Ta	5	–	Ks
4013.505	Ru I	15	12	–
4013.49	In II	–	[30]	Ps
4013.431	U	2	2 h	–
4013 43	Pr	15	8	–
4013.430	Gd	5	–	–
4013.35	Nd	3	3	–
4013.288	U	2	2	–
4013.276	Tb	20 d	–	Kn
4013.270	Cb	3	5	–
4013 265	Ce	2	–	–
4013.264	Th	5	5	–
4013.23	Pr	10	4	–
4013.224	Nd	10	5	–
4013.21	Mo	1	40	Ex
4013.19	Ta	5	1	–
4013.183	W	6	5	–
4013.029	U	8	–	–
4012 96	In II	–	[10]	Ps
4012 96	Se I	–	[150]	Rd
4012.91	Pr	8	1	–
4012.87	Tb	6	1	–
4012.82	Dy	5	2	Ed
4012.816	Eu	20	25	–
4012.806	Ti I	12	1	–
4012.80	Mo	3	2	Ex
4012.708	U	2 h	2	–
4012.704	Nd	15	10	–
4012.58	Er	4	2	m
4012.523	Dy	4	–	Kn
4012.51	Mo	3	3	Ex
4012.497	Th	15	15	–
4012.469	Cr	70	60	–
4012.45	Tb	5	–	–
4012.391	Ti II	35	50	–
4012.388	Ce I, II	60	20	–
4012.270	Mo	3	3	–
4012.260	Re	25	–	–
4012.253	Er	12	–	–
4012.252	Zr I	20	–	–
4012.250	Nd	80	40	–
4012.168	Cb	–	100	–
4012.161	U	6	4	–
4012.160	Co I	2	–	–
4012.139	Ce	4	–	–
4012.111	Ta	5 h	2 h	–
4012.10	K II	–	[20]	Bn
4012.096	W	–	5	–
4011.966	Mo	25	25	–
4011.944	Hf	3	–	–
4011.905	Mn	12	10	–
4011 9	Rb	–	[15]	Dr

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4011.88	Se I	–	[200]	Rd
4011.809	W	4	3	–
4011.78	U	10	5	–
4011.773	Ce	2	–	–
4011.752	Th	15	15	–
4011.729	Ru	7	–	–
4011.728	Fe I	2	–	–
4011.719	Sm II	8	4	–
4011.683	Eu II	25	–	–
4011.68	Te	–	[30]	Bl
4011.560	Ce II	15	3	–
4011.534	Ti I	4	–	–
4011.532	Pr	5	1	–
4011.531	Mn	15	15	–
4011.514	Re	35	–	–
4011.450	U	8	10	–
4011.412	Fe I	5	1	–
4011.309	V I	9	2	–
4011.296	Ce	4	–	–
4011.295	Dy	12	8	Kn
4011.23	A	–	[5]	Rt
4011.069	Nd	15	10	–
4011.024	W	4	5	–
4010.99	N	–	[5]	Du
4010.947	Fe I	2	1	–
4010.941	Co I	3 h	2	Dn
4010.869	Tb	7	–	Kn
4010.85	Cu I	6	–	Ex
4010.816	U	10	1	–
4010.805	Eu	2	–	–
4010.795	Ce	2	–	–
4010.756	Nd	4	–	–
4010.741	Tb	5	–	Kn
4010.66	As II	–	10	Ro
4010.645	Tb	2	–	–
4010.643	Pr	8 r	5 r	Kn
4010.54	Er	6 d	2	m
4010.54	Cs	–	[10]	Bs
4010.454	Nd	20	6	–
4010.422	Eu	20 W	–	–
4010.375	W	9	8	–
4010.353	U	2	2 h	–
4010.30	Mo	–	10	Ex
4010.26	Ca	2	2 h	Ad
4010.18	Eu	8	4	–
4010.136	Ce	15	3	–
4010.136	Mo	5	5	–
4010.08	Dy	10	4	Kn
4010.064	Tb	8	–	–
4009.984	Ni I	3	–	–
4009.97	Pr	10	3	–
4009.90	C II	–	10	Fl
4009.854	Ir I	8	2 h	Ab
4009.806	W	–	9	–
4009.785	Er	3	–	–
4009.78	Hf	5	–	Me
4009.75	Sr	–	2	Sd
4009.717	Fe I	120	100	–
4009.714	Cb	5	10	–
4009.663	Ti I	60	25	–
4009.58	Al II	–	[4]	Sy
4009.55	Ce	2	1 h	–
4009.546	Th	3	1	–
4009.54	Tb	10	1	–
4009.410	U	4	8	–
4009.39	S II	–	[3]	Hn
4009.387	Zr	3	–	–
4009.367	Nd	8	5	–
4009.366	Mo	20	25	–
4009.27	Tb	2	–	–
4009.270	He I	–	[10]	Ps
4009.24	Pr	5	2	–
4009.21	Gd	50	2	m
4009.193	Tb	5	–	Kn
4009.170	U	8	15	–
4009.165	Er	15	1	–
4009.066	Th	10	8	–
4009.063	Ce	12 l	–	–
4008.967	Ir I	5	–	Ab
4008.928	Ti I	80	35	–
4008.922	Gd	20	3	–
4008.918	U	8	–	–
4008.873	Fe	5	1	–
4008.872	Eu	8 W	2	–
4008.76	Br	–	[20]	Bl
4008.754	Nd	12	10	–
4008.753	W I	45	45	–
4008.714	Pr	150	50	–
4008.70	U	2	1	–
4008.667	Mo	–	20	–
4008.664	Ce	8	–	–
4008.49	Dy	5	–	Ed
4008.48	Kr II	–	[10 whl]	Me
4008.46	Hf II	5	8	m
4008.446	Ce	6	–	–
4008.416	Nd	5	3	–
4008.331	Gd I	15	10	–
4008.330	Sm	8	10 h	–
4008.280	Cb	5	10	–
4008.269	Ru I	20	20	–
4008.216	Th	10	8	–
4008.185	Er	8	1	–
4008.169	V II	2	10	Me
4008.091	Sm II	10	3	–
4008.08	Kr II	–	[25]	Me
4008.062	Ti I	50	7	–
4008.054	Mo	4	5	–
4008.052	Ir I	12	2	Ab
4008.020	Mn	15	5	–
4007.98	Eu	6	–	m
4007.967	Er	35	7	–
4007.96	Ho	4	3	Ex
4007.943	Co I	3	–	–
4007.934	U	8	3	–
4007.90	Se II	–	[150]	Bl
4007.78	S II	–	[5]	Hn
4007.78	Pr	8	3	–
4007.77	Dy	12	2	Kn
4007 75	Tb	3	–	–
4007.689	U	2	4	–
4007.687	Eu	5 d	–	–
4007.662	La	3	2 h	–
4007.608	In II	–	[10]	Ps
4007.601	Zr I	25	1	–
4007.588	Ce	15	4	–
4007.543	In II	–	[15]	Ps
4007.535	Ru	20	10	–
4007.486	Sm II	50	25	–
4007.470	Pd I	5 h	–	–
4007.469	U	2	2	–
4007.451	Ce	4 h	–	–
4007.45	Mo	4	5	Ex
4007.435	Nd	20	20	–
4007.36	Yb	5	–	m
4007.35	Hf II	5	4 h	m
4007.33	Br	–	[10]	Bl
4007.273	Fe I	80	50	–
4007.233	Ta	4	2	–
4007.192	Ti I	15	1	–
4007.137	Dy	6	–	Kn
4007.037	Mn	10	5	–
4007.027	Th	20	20	–
4007.022	Ce	2	–	–
4007.003	W	–	6	–
4006.995	Cb	–	5	–
4006.98	Sm	3	–	–
4006.969	Gd I	3	–	–
4006.95	Mo	–	5	Ex
4006.835	Ta	30	20	–
4006.834	Sm II	8	5	–
4006 772	Cs	–	[10]	Sv
4006.761	Nd	5 d	2 d	–
4006.761	Fe I	7	2	–
4006.704	Pr	10	5	Kn
4006.70	Mo	5	5	Ex
4006 68	Cd	–	5	Tk
4006.631	Fe	20	15	–
4006.598	Ru I	25	15	–
4006.585	Sm II	8	8	–
4006.56	Eu	6	–	–
4006.537	Cs	–	[30]	Sv
4006.50	Te	–	[100]	Bl
4006.395	U	3	5	–
4006.386	Nd	5	3	–
4006.386	Th	10	10	–
4006.34	As II	–	50	Ro
4006.315	Fe	60	35	–
4006.301	Ca	2	2	–
4006.27	Hg	–	[30]	Ps
4006.136	Ni	10	–	–
4006.105	Eu	2	–	–
4006.10	I	–	[8]	Bl
4006.071	Dy	10	2	Kn
4006.049	Mo	20	20	–
4005.971	Ti I	35	3	–
4005.96	Tb	9	1	–
4005.927	Cb	2	5 h	–
4005.895	W	7	6	–
4005.840	Dy	12	2	Kn
4005.75	Mo	3	3	Ex
4005.712	V II	10	30	–
4005.698	U	25	3	–
4005.640	Ru I	25	30	–
4005.639	Ce	20	6	–
4005.58	Br	–	[4]	Bl
4005.580	Ir I	20	3	Ab
4005.57	Kr II	–	[30 hl]	Me
4005.55	Tb	100 d	125	m
4005.549	Th	20 w	30 w	–
4005.404	W	8	10	–
4005.32	Ag	10	2	Wx
4005.246	Fe I	250	200	S
4005.244	Ce	18	–	–
4005.155	Os	35	20	–
4005.12	Mo	–	20	Ex
4005.095	Th	3	1	–
4005.020	Ir	25	–	Ab
4004.932	Re	30	–	–
4004 93	Gd	8	3	m
4004.868	Zr I	20	–	–
4004.843	Fe	10	7	–
4004.834	In II	–	[10]	Ps
4004.830	Nd	10	3	–
4004.747	W	–	6	–
4004.714	Pr	20	25	–
4004.709	In II	–	[15]	Ps
4004.618	Tb	2	–	Kn
4004.617	U	3	5	–
4004.592	Eu	5	–	–
4004.582	Ce	12	3	–
4004.579	Er	4 d	–	–
4004.528	In II	–	[30]	Ps
4004.50	Tb	5	1	–
4004.48	Dy	5	–	Kn
4004.415	U	6	–	–
4004.399	Zr I	10	–	–
4004.392	Sb	–	3	Sp
4004.33	Dy	8	2	Ed
4004.264	Nd	15	10	–
4004.245	Sm II	8	3	–
4004.063	U	15	20	–
4004.047	Ce	6 h	–	–
4004.046	Er	5	–	–
4004.024	Os	50	6	–
4004.010	Nd	20	15	–
4003.921	Cr	30	12	Hl
4003.91	Tb	5	1	–
4003.89	S II	–	[8]	Hn
4003 855	Gd	8	8	–
4003.836	W	–	7	–
4003.806	Ti I	50	70	–
4003.771	Ce	40	18	–
4003.767	Fe	30	80	–
4003.76	Tb	8	1	–
4003.715	Eu	18	25	–
4003.704	Ta	15	5	–
4003.693	Sm	6	3	–
4003.605	Co I	15	–	–
4003.601	Ce	3	–	–
4003.544	V I	9	2	–
4003.48	Os	50	6	–
4003.454	Sm II	30	20	–
4003.452	Mo	3	3	–
4003.405	U	6	10	–
4003.38	Gd	3 h	–	–
4003.36	Ho	4	1	Kn
4003.35	Ca	2	2 h	Ad
4003.33	Cr	–	20	Ex
4003.320	Ce	2	–	–
4003.316	Th	15	15	–
4003.26	Pr	3	1	–
4003 255	Mn	20	5 h	–
4003.196	U	8	5	–
4003.171	Nd	10	3	–
4003 170	Ce II	10	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
4003.111	Th	10	10	–
4003.10	Hg	–	[20]	Ps
4003.096	Zr I	20	1	–
4003.08	Se II	–	[60]	Bl
4003.038	Cu I	40	1 h	Hs
4002.974	Ce II	8	1	–
4002.97	Mo	–	20	–
4002.938	V II	6	80	–
4002.91	Eu	15	–	–
4002.89	Pr	3	1	–
4002.813	Ce	20	4	–
4002.785	W	–	5	–
4002.70	Ho	3	1 h	Kn
4002.663	Fe I	2	–	–
4002.624	Eu	5	–	–
4002.592	U	6	–	–
4002.58	Tb	50	5	–
4002.56	Eu	30	2	Kn
4002.550	Zr I	18	–	–
4002.490	Ti I	40	5	–
4002.35	Xe II	–	[40 whl]	Hu
4002 338	U	10	18	–
4002.262	Cb	2	5 h	–
4002.257	Ce	4	–	–
4002.18	Tb	40 w	2	–
4002.162	Mn	15	5	–
4002.128	Ir	4	–	Ab
4002.07	Se	–	[60]	Bt
4002.020	Eu	4	–	–
4002.003	Pr	3	1	Kn
4001.976	U	–	2	–
4001.97	Gd	8	1	–
4001.913	Mn	15	10	–
4001.892	W	–	15	–
4001.740	Th	10	8	–
4001.732	Ce	5	2	–
4001.682	Cs	–	[20]	Sv
4001.667	Fe I	80	50	–
4001.63	Gd	15	–	Kn
4001.555	Ce	20 s	5 s	–
4001.47	Pr	15	5	–
4001.45	Br	–	[4]	Bl
4001.444	Cr	200	80	–
4001.38	La I	3	–	Me
4001.373	W	9	9	–
4001.31	Eu	6	2	–
4001.280	Tb	5	–	–
4001.246	U	10	3	–
4001.24	Gd	80	3	–
4001.227	Zr I	9	–	–
4001.200	K II	–	[40]	Dm
4001.19	Re I	5	–	–
4001.183	Mn	12	5	–
4001.180	V	–	2	–
4001.130	Cb	10	15	–
4001.087	Zr I	10	–	–
4001.065	Th	10	5	–
4001.055	Ce II	20	2	–
4000.91	Pr	20	8	–
4000.910	U	5	6	–
4000.89	Yb	–	6 h	Me
4000.807	Eu	3	–	–
4000.799	Ce	4	1	–
4000.732	U	6	1	–
4000.72	Kr I	–	[2]	Me
4000.698	Eu	3	–	–
4000 694	W	12	10	–
4000.675	Ce	5	1	–
4000.63	Cr	5	–	Ex
4000.62	Ho	4	–	Kn
4000.605	Cb	2	50	–
4000.562	Nd	8 d	3 d	–
4000.55	Xe	–	[3 h]	Hu
4000.497	Mo	8	8	–
4000.493	Nd	10 d	5 d	–
4000.478	Pr	8	4	Kn
4000.46	Tb	15	2	–
4000.454	Dy	400	300	Kn
4000.452	Fe	35	10	–
4000.452	Er	35	6	–
4000.45	Ho	5	5	Ex
4000.386	Mo	6	5	–
4000.287	Th	8	3	–
4000.266	Fe I	8	1	–
4000.190	Pr	50	25	–
4000.16	Gd	10 h	–	Kn
4000.093	W	–	8	–
4000.078	V I	8	2	–
4000.01	Tb	5	1	–
3999.98	N	–	[15]	Du
3999.950	U	6	8	–
3999.945	Cr	3	–	–
3999.864	Mo	–	5	–
3999.82	Dy	3	2	Ed
3999.709	Cb	1	5	–
3999.679	Cr	40	10	–
3999.62	Br	–	[8]	Bl
3999.56	Ho	6	2	Ex
3999.407	Tb	12	15	–
3999.393	Ru	3	–	–
3999.391	Pr	2	–	–
3999.383	Nd	20	6	–
3999.359	Ti I	30	5	–
3999.283	Ta	30	20 d	–
3999.240	Ce II	80	20	–
3999.191	V	–	40 h	Me
3999.188	Pr	50 d	40 d	–
3999.183	U	10	3 h	–
3999.182	Cb	5	10	–
3999.181	W	4	5	–
3999.17	Er	5	2	–
3999.13	Ca	2	2 h	Ad
3999.10	Br I	–	[3]	Bl
3998.968	Zr II	30	30	–
3998.940	Dy	5 h	–	Kn
3998.933	Os	80	12	–
3998.892	Tb	5	–	–
3998.860	Cr	25	2	–
3998.828	Ir	2	–	Ab
3998.820	U	3	5	–
3998.818	Eu	3 W	–	–
3998.79	S II	–	[60]	Hn
3998 755	W	8	8	–
3998 750	Ce	2	–	–
3998.730	V I	100	25	–
3998.697	U	6	4	–
3998.690	Pr	4	2	–
3998.689	Nd	40	15	–
3998.640	Ti I	150	100	–
3998.631	Mo	–	25	–
3998.51	Hf II	–	4 d	Me
3998.444	Cb	2	5	–
3998.441	Pr	9	3	–
3998.404	Tb	7	–	–
3998.353	Sm	10	2	–
3998.286	Mo	8	5	–
3998.28	Ho	40	6	Ex
3998.242	U	5	18	–
3998.235	Ce	2	–	–
3998.159	W	7	6	–
3998.155	Nd	20	12	–
3998.12	I	–	[5]	Bl
3998.10	Dy	3	–	Kn
3998.055	Fe I	150	100	–
3997.97	S	–	[8]	Hn
3997.963	Pr	20	9	–
3997.95	Kr II	–	[100 whl]	Me
3997.929	Nd	20	10	–
3997.92	Ba I	5	–	Sd
3997.906	Co I	200	20	–
3997.864	Th	10	10	–
3997.775	Gd	20	30	–
3997.756	W	5	6	–
3997.716	Ce	18	2	–
3997.7	bh Sr	4	–	L
3997.483	Ce	5	–	–
3997.454	Th	8	8	–
3997.406	Tb	10	–	–
3997.396	Fe I	300	150	–
3997.325	U	5	5	–
3997.268	Ce	3	–	–
3997.214	Mn	12	25	–
3997.18	Rn I	–	[3]	Rs
3997.17	Ho	6	4 h	Ex
3997.16	P	–	[70]	Gu
3997.134	W	6	7	–
3997.133	Nd	2	1	–
3997.13	Br	–	[12]	Bl
3997.122	V II	25	40	–
3997.088	U	12	2	–
3997.054	Pr	100	40	–
3996.974	Ir	2	–	–
3996 972	Fe	40	20	–
3996 92	Re	3 h	–	–
3996.909	Sm	2	2	–
3996.805	Os	50	10	–
3996.80	Hf II	1	5	Me
3996.768	Ce	4	–	–
3996.70	Ho	6	4	Ex
3996.699	Dy	200	80	–
3996.696	Tb	9	3	–
3996.695	Er	25	–	–
3996.69	Kr II	–	[3]	Me
3996.686	Pr	20	4	–
3996.65	I I	–	[5]	Bl
3996.649	Ti	12	–	–
3996.607	Sc I	40	10	–
3996 593	Tb	3	–	–
3996 574	Pt I	50	–	–
3996.516	Tm	200	40	Me
3996.509	Ru I	10	4	–
3996.5	bh Ca	4	–	L
3996.487	Ce II	10	–	–
3996 450	Ir I	8	2	–
3996.381	Al II	–	[10]	Sy
3996 359	Ce	2 h	–	–
3996.325	Gd	100	100	–
3996 323	Al II	–	[2]	Sy
3996 274	Cr	2	–	–
3996.251	Mo	3	2	–
3996.182	Al II	–	[2]	Sy
3996 171	Ta	100	30 h	–
3996 159	Al II	–	[18]	Sy
3996 154	Rh I	25	10	–
3996 075	Al II	–	[2]	Sy
3996 066	Th	15	10	–
3996 05	Xe II	–	[2]	Hu
3995.994	Eu	3	2	–
3995.989	Fe I	60	20	–
3995 977	Ru I	30	30	–
3995.972	U	10	8	–
3995.860	Al II	–	[30]	Sy
3995 846	Pr	4	2	–
3995 786	Tb	8	–	–
3995 775	U	4	3	–
3995.755	Eu	12	–	–
3995 754	Er	4	–	–
3995 752	Ce	6	–	–
3995.750	La II	600	300	–
3995.7	Rn I	–	[3]	Rs
3995.68	Re	10 h	–	–
3995.664	Ba I	18	5	–
3995 607	Rh I	15	10	–
3995.590	Sm	8	3	–
3995.584	Tm	100	–	Me
3995.531	U	4	–	–
3995.482	Mo	3	2	–
3995.428	Tb	2	–	–
3995.423	Ce II	4	–	–
3995.310	Co I	1000 R	20	–
3995.291	Ir I	6	–	–
3995.290	Ta	3 l	–	–
3995 268	Er	6	–	–
3995 244	Nd	20	–	–
3995.200	Fe	10	–	–
3995.196	Ir I	3	–	–
3995.18	Cl II	–	[2]	Mu
3995.158	In	–	18 Wh	–
3995.142	Tb	3	–	–
3995.10	K II	–	30	Bn
3995.07	Eu	4 w	–	Kn
3994.995	N II	–	[300]	Fl
3994.980	U	8	20 wh	–
3994.979	I	–	[35]	Ke
3994.929	Os	30	5	–
3994.90	Sb	–	10	Dv
3994.886	V I	35	–	–
3994.858	Er	5	–	–
3994.834	Pr	300	25	–
3994.83	Kr II	–	[100]	Me
3994.82	Kr I	–	[3]	Me
3994.81	A II	–	[10]	Rt
3994.807	Ce	3	–	–
3994.762	W	4	2	–
3994.76	Rn I	–	[10]	Rs

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3994.718	U	2	2	–
3994.704	Ti I	25	–	–
3994.684	Nd	80	40	–
3994.68	Eu	5	–	–
3994.628	Mo	3	3	–
3994.573	Ce	6	–	–
3994.572	U	4	–	–
3994.560	Ru I	5	–	–
3994.552	Th	30	10	–
3994.537	Co I	60	–	–
3994.535	Dy	5	–	Kn
3994.51	Sn II	–	[2]	Mc
3994.474	La II	–	5	–
3994.461	Cb	–	2 h	–
3994.456	Nd	2	–	–
3994.426	Cb	4	–	–
3994.342	Pr	4	–	–
3994.294	U	6	6	–
3994.179	Gd	8	6	–
3994.14	Re	5 h	–	–
3994.121	Fe I	25	10	–
3994.099	Nd	20	2	–
3994.040	Tb	4	–	–
3994.01	Pr	20	3	–
3993.968	Cr I	60	20	–
3993.952	Ni I	30 h	–	–
3993.934	Mo	5	5	–
3993.928	Eu	8	2	–
3993 903	W	7	6	–
3993.863	Cs	–	[4]	Sv
3993.822	Ce	50	6	–
3993 815	U	12	4	–
3993.770	Yb	3	–	–
3993.725	Th	8	5	–
3993 71	Ho	10	4	Ex
3993.575	Dy	8	–	Kn
3993.549	Tb	30 d	8	–
3993.531	Ru	10	5	–
3993.526	S II	–	[50]	Hn
3993.404	Ba I	100 R	50 r	–
3993.402	Ce	3	–	–
3993 302	Sm II	25	25	–
3993 291	Cu II	–	4 h	–
3993.265	U	2	2	–
3993.227	Gd	15	10	–
3993.190	Ce	5	–	–
3993.133	Zr	3 h	–	–
3993.106	Fe	2	–	–
3993 051	Mo	5	5	–
3992.981	Nd	6 d	–	Kn
3992.960	U	2	3	–
3992.92	Pr	15	3	–
3992.913	Ce	15	3	–
3992.845	Cr I	150	70	–
3992.801	V I	60	20	–
3992.750	W	7	6	–
3992.725	Re I	20	–	–
3992.711	Ce	3	–	–
3992.698	Gd	15	15	–
3992.661	Ta	2 h	–	–
3992.661	Ti	3	–	–
3992.574	Nd	30	20	–
3992 55	Ho	4	–	Kn
3992.539	U	10	8	–
3992.505	W	–	7	–
3992.491	Mn	40	75	–
3992.463	Zr I	3	–	–
3992.45	Dy	3	–	Ed
3992.400	Ti	6	–	–
3992.39	Br I	–	[20]	Ks
3992.386	Ce II	50	8	–
3992.367	Eu	4	–	–
3992.330	Pd I	5 h	–	–
3992.278	Th	10	10	–
3992.228	U	6	2	–
3992.206	Tb	4	–	–
3992.181	Pr	25	10	–
3992.16	Nd	20	8	–
3992.126	Ce	4	–	–
3992.121	Ir I	150	60	–
3992.109	Cr	20	1	–
3992.06	A	–	[25]	Rt
3992.057	Zr	3	–	–
3992.051	Th	5	5	–
3991.962	V	–	2	Me
3991.94	Kr II	–	[15]	Me
3991.89	Dy	5	–	Kn
3991.890	Pr	25	10	–
3991.854	Mo	2	3	–
3991.831	Co I	15	–	–
3991.775	K II	–	[15]	Dm
3991.743	Nd	60	40	–
3991.737	Th	8	3	–
3991.705	Gd	5	5	–
3991.686	Co I	60	6	–
3991.678	Cb	15	20	–
3991.673	Cr I	100	50	–
3991.62	Si	–	2	Sy
3991.617	U	4	6	–
3991.596	Mn	20	25	–
3991.590	Tb	10 d	–	–
3991.580	Re	20	–	–
3991 543	Co I	30	–	–
3991.514	W	5	4	–
3991.498	U	4	–	–
3991.487	Os	40	10	–
3991.468	V II	–	6	Me
3991 412	Nd	–	4	–
3991.391	Mo	6	8	–
3991.39	Br I	–	[4]	Ks
3991 38	Lu	3	–	Me
3991.331	Dy	40	–	–
3991.326	Ce II	5	–	–
3991.258	Kr I	–	[10]	IHu
3991.224	W	9	8	–
3991.223	Ce	2	–	–
3991.158	Er	15	–	–
3991.15	Eu	3 W	–	Kn
3991.131	Zr II	100	60	–
3991.123	Cr I	200	60	–
3991.079	Kr I	–	[20]	Hu
3991.039	Re I	25	–	–
3991.017	Sm	10	2	–
3990.94	S II	–	[40]	Hn
3990.895	Yb	60	20	–
3990.838	Mo	–	30	–
3990 69	Ca	3	8	Ad
3990.687	Ce	6	1	–
3990.667	Cb	2	5	–
3990.663	Re I	15	–	–
3990 66	Kr II	–	[15 hl]	Me
3990.631	Tb	12	3	–
3990.566	V I	125	40	–
3990.558	Th	8	5	–
3990.423	U	18	20	–
3990.415	Ce	3	–	–
3990.396	Ta	6	5 h	–
3990.381	W	–	10	–
3990.379	Fe	70	25	–
3990.35	Dy	6	–	Kn
3990.33	Xe II	–	[30 whl]	Hu
3990.299	Co I	80	10	–
3990.221	Tb	3	–	–
3990.19	Cl II	–	[20]	Ks
3990.184	Ti I	10 w	1 w	–
3990.155	U	5	10	–
3990.106	Ce II	20	2	–
3990.103	Nd	40	20	–
3990.081	Th	5	8	–
3990.020	Nd	20	15	–
3990.003	Sm II	40	25	–
3989.986	Cr	80	40	–
3989.955	Tb	3	3	–
3989.953	U	4	6	–
3989.922	Mo	5	6	–
3989.893	U	2	1	–
3989.860	Fe	30	5	–
3989.802	V II	–	10	Me
3989.763	Ti I	150	100	–
3989.756	Ce	4	–	–
3989.718	Pr	200	125	–
3989.568	Ti I	2 h	–	–
3989.506	Mo	–	25 h	–
3989.506	Tb	5	–	–
3989.499	Zr I	12	1 h	–
3989.441	Ce	20	6	–
3989.435	Ir I	25	2	–
3989.292	U	8	1 h	–
3989.287	Zr I	12	1 h	–
3989 249	Gd	10	20	–
3989.23	Zn II	–	[100]	Vs
3989.23	Br	–	[3]	Bl
3989.137	Pr	10	1	–
3989 113	U	2	1	–
3989.06	Sc II	3	2	m
3989.010	Fe	15 wh	1 wh	–
3988.98	Rn I	–	[8]	Rs
3988 978	Ir I	4	–	–
3988.89	Dy	5	–	m
3988.885	U	12	15	–
3988.878	Co I	2	–	–
3988.852	Th	10	10	–
3988.833	V I	70	35	–
3988.812	Nd	20	6	–
3988.701	Ta	15	10	–
3988.681	Zr II	15	–	–
3988.671	Mn	12	12	–
3988.656	Cr	5	–	–
3988.644	U	8	8	–
3988.601	Th	10	8	–
3988.583	Eu	5	–	–
3988.518	La II	1000	800	–
3988.518	Ce	8 h	–	–
3988.33	Te	–	[5]	Bl
3988.293	U	2	1	–
3988.253	Eu	10 W	2	–
3988.21	Dy	4	–	m
3988.18	A	–	[5]	Rt
3988.179	Os	50	12	–
3988.157	Cb	5	10	–
3988.029	U	8	12	–
3988.019	Pr	25	7	–
3988.015	Th	50	30	–
3988.007	W	7	6	–
3988.00	Ho	–	6	Ex
3987 994	Yb	1000 R	500 R	–
3987.990	Ce	5	–	–
3987.98	Ho	8	–	Ex
3987.951	Er	100 r	20	–
3987.929	Re	3	–	–
3987 89	Cr	3	–	–
3987.842	Gd	50	25	–
3987.83	Eu	20 w	–	–
3987.829	Ir	12	–	–
3987.810	Nd	25	6	–
3987.804	Tb	4	–	–
3987.795	Ru	3	50	–
3987.78	Kr II	–	[25]	Me
3987.720	U	2	2	–
3987.713	Th	10	8	–
3987.699	Ce	2 l	–	–
3987.671	Tb	6	–	–
3987.663	Er	4	–	–
3987.657	Ir I	4	–	–
3987.610	Ti	8	12	–
3987.55	Ho	3	–	Kn
3987.524	W	5	4	–
3987.508	Ce	2 s	–	–
3987.5	Pb II	–	5	Gs
3987.497	Yt I	2	3	–
3987.464	Mn	15	15	–
3987.426	Nd	20	20	–
3987.424	Sm II	15	8	–
3987.376	Ir	5	–	–
3987.373	Mo	4	5	–
3987.371	Pr	25	15	–
3987.286	Tb	3	3	–
3987.26	Eu	3 W	–	–
3987.226	Th	10	8	–
3987.218	Gd	100	100	–
3987.171	Pr	15	3	–
3987.149	W	–	10	–
3987.115	Co I	80	–	–
3987.098	Mn	30	60	–
3987.098	Eu	2	–	–
3987.09	Kr II	–	[5 whs]	Me
3987.083	Re	6	–	–
3987.070	Sm II	2	2	–
3987.06	Dy	7	–	Kn
3987.058	Ce	2	–	–
3987.053	U	2	4	–
3987.012	Cu II	–	3	–
3986.978	Mo	4	1	–
3986.945	Tb	3	–	–
3986.923	Eu	6	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3986.905	Sm	8	8	–
3986.851	U	–	8	–
3986.826	Mn	40	75	–
3986.803	Zr I	10	–	–
3986.75	Br	–	[3]	Bl
3986.733	Mg I	15 w	3	–
3986.687	Er	7 d	–	–
3986.637	Th	8	8	–
3986.618	Eu	10	–	–
3986.54	Br	–	[3]	Bl
3986.5	Ho	5	–	Kn
3986.438	U	2	1	–
3986.395	Ce	15	1	–
3986 381	Ir	2	2	Ab
3986.347	Tb	10	8	–
3986.234	Sm	3	3	–
3986.233	Nd	30	20	–
3986.201	Mo	5	20	–
3986.176	Cb	2	5	–
3986.172	Fe I	125	8	–
3986.171	Pr	40	15	–
3986.134	Ce	2	–	–
3986.115	Zr II	5	–	–
3986.081	Th	8	5	–
3986.08	Eu	4 W	–	–
3986.05	Dy	5	–	Kn
3986.031	Sb II	–	5	Sp
3985.987	Sm II	5	6	–
3985.921	Ce	2	–	–
3985.866	Ir	2	–	–
3985.86	P	–	[30]	Gu
3985.80	Ho	6	4 h	Ex
3985.795	U	25	30	–
3985.79	Li I	100	–	Fl
3985.790	V	1	40	–
3985.723	Mo	5	3	–
3985.68	I I	–	[5]	Bl
3985.67	Gd	2	–	Kn
3985.664	W	3	6	–
3985.659	Pr	25	9	–
3985 65	Eu	4 W	–	–
3985.64	Ho	8	4 h	Ex
3985.589	Ti	10 h	1	–
3985.490	Pd I	2	–	–
3985.454	Tb	3	–	–
3985.45	Ti	4 h	–	–
3985.448	Co I	2 h	1	m
3985.395	Th	5	8 h	–
3985.39	Eu	10	–	–
3985.388	Fe	125	40	–
3985.260	U	1	3	–
3985.252	Ti	12	1	–
3985.241	Mn	75	100	–
3985.238	Ce	4	–	–
3985.222	Eu	7	–	–
3985.202	Xe I	–	[30]	IMe
3985.2	Pb II	–	[10]	Ea
3985.19	Ag	2	20	–
3985.15	I II	–	[2]	Mu
3985.057	Tb	4	3	–
3985.041	U	10	6	–
3985.034	Nd	4	2	–
3984.977	Ta	2	–	–
3984.935	Fe	2	–	–
3984.923	Eu	8	–	–
3984.859	Th	5 w	2 w	–
3984.858	Ru I	60	70	–
3984.85	Hf II	3	4 h	Me
3984.815	Tb	5	–	–
3984.814	Cb	2	5	–
3984 803	Gd	2	–	–
3984.747	Zr I, II	20	2	–
3984.722	Ca	2	2	–
3984.712	U	1	5	–
3984.70	Dy	8	–	Kn
3984.682	Ru	4	2	–
3984.675	Ce	40	8	–
3984.614	Th	10 h	8	–
3984.600	V I	40	15	–
3984.447	Sm II	4	4	–
3984.40	Rh I	25	10	–
3984.374	Th	8	5	–
3984.338	Cr I	80	60	–
3984.335	V I	35	15	–
3984.333	Ti I	20	3	–
3984.308	Ce	2	–	–
3984.278	Ir	2	–	–
3984.267	Pr	20	8	–
3984.253	Ne I	–	[7]	Ps
3984.249	Ta	2	5 h	–
3984.226	Dy	80	–	–
3984.225	Re	20	–	–
3984.214	Er	12	1	–
3984.208	Nd	4 d	4	–
3984.185	U	6	4 h	–
3984.177	Mn	20	20	–
3984.176	W	–	8	–
3984.140	Ni I	30 wh	–	–
3984.11	Ho	6	2	Ex
3984.071	Hg	–	[5]	Cn
3984.051	Tb	8	8	–
3984.03	Hf II	4	8	m
3983.977	Hg II	–	[400]	Cn
3983.962	Fe I	200	125	–
3983.948	I	–	[25]	Ke
3983.939	Cb	–	5 h	Me
3983.93	Re	5	–	m
3983.920	Hg	–	[5]	Cn
3983.908	U	5	15	–
3983.907	Cr I	200	60	–
3983.845	Hg	–	[15]	Cn
3983.845	Tb	8	8	–
3983.825	Ta	5	1	–
3983 7	Al II	–	[2]	Sy
3983 664	Dy	150	8	–
3983.655	Er	20	3	–
3983.65	Ho	6	2	Ex
3983.58	Nd	10	5	–
3983.580	Pr	25	8	–
3983.422	Re	5 w	–	–
3983 398	Nd	20	8	–
3983 295	U	–	4 h	–
3983.292	Ce	10	3	–
3983.288	W	12	25	–
3983.237	Cr	20	6	–
3983 22	Nd	6	2	–
3983.195	Ce	2	–	–
3983.143	Er	3	–	–
3983.137	Sm II	100	60	–
3983.028	Gd	40	40	–
3982.991	Eu	2 h	–	–
3982.979	U	4	2	–
3982.974	Nd	15	6	–
3982 960	W	7	6	–
3982.938	Tb	2	–	–
3982.907	Mn	20	30	–
3982.903	Ce II	30	6	–
3982.90	Ba	5	–	–
3982 89	Ce	6	–	–
3982 870	W	5	4	–
3982.80	Br	–	[3]	Bl
3982.725	O II	–	[20]	Fl
3982.605	Mo	5	5	–
3982.595	Yt II	60	100	–
3982.59	Cb	1 h	2	–
3982.583	Mn	20	30	–
3982.531	U	–	2 h	–
3982.516	Ir	2 h	–	–
3982.503	Pr	15 w	6 w	–
3982 484	Ti I	80	30	–
3982.45	As	–	25	Ro
3982 333	Er	4	–	–
3982.269	Nd	8	4	–
3982.238	Ce	8	–	–
3982.236	Th	3	3	–
3982.230	Ru	4	–	–
3982 170	Kr I	–	[6]	IHu
3982.169	Mn	12	25	–
3982.169	Ce	6	–	–
3982.161	Zr I	9	–	–
3982.117	U	6	6	–
3982.105	Th	8	8	–
3982.063	Pr	125	100	–
3982.056	Cb	6	5	–
3982.052	Mo	8	8	–
3982.03	Ho	–	6	Ex
3982.03	Sb II	–	3	–
3982.010	Ti II	1	3	–
3981.990	Zr II	3	2	–
3981 947	Ta	30	15	–
3981.94	Cl II	–	[15]	Ks
3981.938	Dy	150	100	–
3981.930	Er	9	1	–
3981.902	Ru	5	3	–
3981.896	Ce	5	–	–
3981.879	Tb	80	200	–
3981.875	Th	3	–	–
3981.774	Fe I	150	100	–
3981.77	Cd I	10 r	–	Ps
3981.764	Ti I	100	70	–
3981.74	Te	–	[10]	Bl
3981.68	Rn	–	[150]	Rc
3981.641	Ag I	30	20	Fn
3981.640	Mo	2	5	–
3981.596	Zr I	15 h	–	–
3981.539	Th	3	3	–
3981.531	U	6	5	–
3981.467	Ti I	2 h	–	–
3981.452	Eu	3	–	–
3981 372	Dy	4	–	Kn
3981.35	La II	–	10 l	–
3981 313	Eu	4	–	–
3981.264	W	6 d	7	–
3981 234	Ce	2	–	–
3981.233	Cr I	100	50	–
3981.225	Er	4	–	–
3981.216	Nd	30	15	–
3981.204	Pr	2	4	–
3981.151	Tb	25	8	–
3981.110	Th	20	20	–
3981.108	Eu	4	–	–
3981.104	Fe I	2	–	–
3981.097	Sm	4	4	–
3981.01	Lu	–	2 h	Me
3981.008	Ta	2	40	–
3980.982	Sb II	2 h	2	–
3980.981	Nd	20	8	–
3980.8?7	U	–	3	–
3980 883	Ce II	35	8	–
3980.883	Sm	8	5	–
3980.882	Mn	8	8	–
3980 822	Ti	8	–	–
3980.800	U	10	1	–
3980 766	Th	8	10	–
3980.709	Mo	5	5	–
3980.640	W	12	15	–
3980.609	Er	4	–	–
3980.522	V	40	35	–
3980.484	Cb	10	15	–
3980.453	Ce	2	–	–
3980.430	Yb	2 h	–	–
3980 39	Br II	–	[25]	Bl
3980.35	C II	–	[12]	Fl
3980 31	Ca	2	2	Ad
3980.294	W	4	5	–
3980 293	Nd	20	8	–
3980 281	Tb	4	3	–
3980 254	Ce	6	–	–
3980 230	Pr	5	10	–
3980 204	Mo	15	15	–
3980.149	Er	10	–	–
3980.139	Mn	10	10	–
3980 127	Gd	2	–	–
3980.042	Eu	3	–	–
3980.02	Br II	–	[12]	Bl
3979.95	Dy	5	–	Ed
3979.941	U	4	–	–
3979 933	Ce	12	–	–
3979.86	S II	–	[35]	Hn
3979.798	Cr I	80	20	–
3979.749	Gd	4 h	–	–
3979.735	Eu	3	2	–
3979.71	A I	–	[10]	Ms
3979.687	Pr	5 d	2 d	–
3979.641	Fe	6	–	–
3979.628	Eu	10	2	–
3979.59	Au II	5	12	–
3979.52	Cr	–	5	–
3979.519	Co I	150 w	12	–
3979.516	U	2 h	2	–
3979.481	Dy	30	–	–
3979.479	Nd	40	30	–
3979.424	V I	40	10	–
3979.424	Ru I	60	60	–
3979.40	Hf II	6	40	Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3979.372	Cb	5	5	–
3979.36	A	–	[25]	Rt
3979.336	Gd I	100	30	–
3979.324	Cr	10	2	–
3979.317	Pr	10	3	–
3979.286	W	12	12	–
3979.284	Ta	50 h	3 h	–
3979.221	Mo	6	12	–
3979.195	Sm II	50	50	–
3979.142	V I	50	8	–
3979.13	Er	7 d	2	–
3979.121	U	1	3	–
3979.08	La II	–	2	Me
3979.056	Th	10	10	–
3979.033	Nd	20	8	–
3979.018	Eu	4	–	–
3978 97	Rn I	–	[12]	Rs
3978.912	Pd I	3 h	–	–
3978.895	Ce	50	50	–
3978.864	Co I	20	3	–
3978.796	U	8	18	–
3978.753	Cb	5	5	–
3978.735	Zr I	20	–	–
3978.677	Cr I	80	40	–
3978.655	Co I	100	–	–
3978.650	Ce	35	6	–
3978.646	Pr	20	4	–
3978.63	Re	8 h	.	m
3978.59	Yt	4	2 h	m
3978.573	Dy	200	15	–
3978.565	Er	18 s	3	–
3978.55	Ho	6	6	Ex
3978.464	Fe I	6	1	–
3978 448	Nd	–	2	–
3978.446	Eu	30 W	–	–
3978.445	Ru I	60	70	–
3978.405	U	6	–	–
3978.336	Ce	3	–	–
3978 284	Nd	10	6	–
3978 274	U	4	4	–
3978.253	Zr	9	–	–
3978 240	Sm	6	–	–
3978.207	Rb II	–	[40]	Rr
3978.159	U	4	–	–
3978.107	Ir I	10	2	–
3978 000	Cs	–	[10]	Sv
3977.994	Nd	15	8	–
3977.941	Cb	10	15	–
3977 902	Mo	10	10	–
3977.86	Br	–	[3]	Bl
3977.847	Th	1	2	–
3977.82	Ca	–	2	Ad
3977.771	Ce	15	–	–
3977.744	Fe I	300	150	–
3977.741	V II	–	10	–
3977.738	Tb	2	–	–
3977 628	Eu	5	–	–
3977.533	Ce	6	–	–
3977.479	Zr I	20	–	–
3977.417	Pr	12	6	–
3977 351	U	6	1	–
3977 335	Zr I	10	–	–
3977 325	Nd	12 d	6 d	–
3977.231	Os I	300	40	–
3977 183	Co I	20	–	–
3977 093	Ce	4	–	–
3977 080	Mn	50	100	–
3977 064	U	6	8	–
3977.05	Ho	5	4	Ex
3977.024	Er	10	–	–
3976 869	Ir I	6	2	–
3976 864	Gd	5	–	–
3976 864	Fe I	30	10	–
3976 862	Sm	5	2	–
3976.86	Ho	6	4	Ex
3976.859	Eu	12	–	–
3976.836	Nd	40	30	–
3976 826	Pr	12	5	–
3976.821	Tb	150	200	–
3976.778	Ce	4	–	–
3976.743	Er	3 wd	–	–
3976.674	Cb	10	10	–
3976 665	Cr I	300	300	–
3976 614	Fe	8	35	–
3976.562	Fe	2	1	–
3976.56	Pr	15	8	–
3976.514	W	–	3 h	–
3976.510	Cb	–	80 h	–
3976.426	Sm II	25	10	–
3976.418	Th	15	20	–
3976 390	Fe	3	1	–
3976.311	Ir I	10	70	–
3976.310	Cr	12	2	–
3976.297	Pr	30	15	–
3976.29	Sc	4	–	m
3976.287	Pr	50	10	–
3976.284	W	3	5	–
3976.266	Sm II	40	15	–
3976.259	Ce	3 s	2	–
3976.176	Zr I	5	–	–
3976.112	Nd	6 d	4 d	–
3976.110	Rh I	2	2	–
3976.049	Ce	4	–	–
3976 002	Tb	3 W	–	–
3975.956	Mo	10	8	–
3975 943	Eu	8 wh	–	–
3975 90	Te	–	[10]	Bl
3975 892	W	8	9	–
3975.888	Mn	40	50	–
3975 88	Ho	3	2	Ex
3975 842	Fe	8	1	–
3975 837	Nd	20	10	–
3975 686	Pr	20	4	–
3975 654	Re I	20	–	–
3975.59	Xe II	–	[3]	Hu
3975.562	Eu	8	–	–
3975.53	Tm	2	10	Me
3975 464	W	10	12	–
3975.441	Os	50	12	–
3975 4	bh Sr	8	–	L
3975.384	Re	2	–	–
3975 362	Ba I	10 r	–	Sz
3975 352	V I	35	6	–
3975.322	Co I	30	5	m
3975 314	Rh I	20	10	–
3975 303	Yb	8	–	–
3975 296	Er	2	–	–
3975.294	Zr I	50	1	–
3975 253	U	3	2	–
3975 228	Th	8	8	–
3975.220	Sm II	10	5	–
3975 210	Fe I	4	–	–
3975 203	Nd	40	30	–
3975 200	Eu	6 W	–	–
3975.15	Hf II	3	3	Me
3975.121	Gd	8	15	–
3975.066	Ce	20	3	–
3975 04	Dy	3	1	Ed
3974.976	Pr	5	2	–
3974 975	U	4	8	–
3974 859	Mo	–	20	–
3974 858	Pr	15	10	–
3974.816	Ce	3	–	–
3974.814	Gd I	10	10	–
3974 791	F II	–	[20]	Di
3974 764	Fe I	8	–	–
3974.76	A	–	[15]	Rt
3974 734	Co I	100	10	–
3974 723	Er	15	3	–
3974.70	Ho	6	4	Ex
3974 666	Tb	4	–	–
3974.663	Nd	20	2	–
3974.660	Sm	15	4	–
3974.650	Ni I	40 h	–	–
3974 501	Ru I	20	8	–
3974.489	Ce	8	–	–
3974.484	Nd	20	20	–
3974.48	A	–	[10]	Rt
3974.417	Xe I	–	[40]	IMe
3974.398	Fe I	10	1	–
3974 37	Pr	30	8	–
3974.336	Ce	2 l	–	–
3974.272	Tb	15	8	–
3974.243	Gd	5	–	–
3974.239	Cs	–	[6]	Sv
3974.232	Th	5	5	–
3974.201	Zr	4	–	–
3974.192	Ce II	6	–	–
3974.066	Gd	100	80	–
3974.004	Ce	5	5	–
3973 942	U	15	4	–
3973.928	Mo	5	3	–
3973.912	Nd	8	–	–
3973.9	bh Ca	8	–	L
3973.900	Pr	10	3	–
3973.879	Dy	10	–	Kn
3973.870	Cb	2 d	1 h	–
3973.84	C II	–	2 h	En
3973.837	Eu	6 W	–	–
3973.771	Mo	25	25	–
3973 75	I I	–	[5]	Bl
3973 707	Ca I	200	15	IWg
3973.654	Fe	40	10	–
3973 650	Nd	30	20	–
3973.639	V II	25	40	–
3973 638	Th	5 h	–	–
3973.624	Cb	5	10	–
3973.59	Ho	1	4	Ex
3973 577	Er	18	2	–
3973.562	Ni I	800	10	–
3973 561	Co I	15	5	–
3973 505	Zr I	25	–	–
3973 464	Yt	5	4	–
3973.391	Zr I	10	–	–
3973.38	Eu	3	–	–
3973.358	V I	30	3	–
3973.284	W	4	4 h	–
3973 269	Nd	40	25	–
3973 266	O II	–	[125]	Fl
3973.264	Fe	2	–	–
3973 263	Er	3	1 wh	–
3973 234	U	6	8	–
3973 230	Th	8	3	–
3973 178	Ta	1	400 W	–
3973 149	Co I	150 w	6	–
3973.124	Pr	4	3	–
3973.107	Sm II	5	2	–
3973.10	P	–	[15]	Gu
3973 038	Er	25	–	–
3973 034	Ce	8	–	–
3972 948	Mo	4	20	–
3972 911	Tb	4	–	–
3972 823	I II	–	[15]	Ke
3972 808	W	4	3	–
3972.710	Gd I	20	10	–
3972 69	Rn I	–	[5]	Rs
3972.688	Cr I	60	12	–
3972 670	F II	–	[10]	Di
3972.648	Th	5	3	–
3972 60	Ho	2	2 h	Kn
3972.58	Xe II	–	[25 whl]	Hu
3972.570	Ca I	12	–	IWg
3972 559	W	–	6	–
3972 551	K II	–	[30]	Dm
3972.527	Co I	100	6	m
3972.523	Cb	20	15	–
3972.414	Dy	7	–	Kn
3972.411	F II	–	[2]	Di
3972 393	Nd	20	8	–
3972 340	U	4	10	–
3972 305	Zr I	10	–	–
3972.218	U	10	4	–
3972.181	Gd	4	4	–
3972.171	Ni I	100	6	–
3972.164	Pr	125	80	–
3972.159	Th	15	8	–
3972.130	Ti I	3	–	–
3972.071	Ce II	25	4	–
3972.051	Tb	12	8	–
3972.047	Eu	5	5	–
3972.047	F II	–	[6]	Di
3972.004	U	3	3	–
3972.000	W	6	5	–
3971.99	Eu I	1000 Rwh	–	–
3971.951	V I	5	2	–
3971.925	Cb	15	5	–
3971.90	Eu	100 Rwh	–	–
3971.876	Ce II	6	–	–
3971.862	U	6	6	–
3971.852	Cb	5	5	–
3971.811	Fe I	2	–	–
3971.770	Tb	10	–	–
3971.762	Gd	25	20	–
3971.695	Cb	–	15 h	–
3971.693	Pr	60	40	–

Wavelength	Element	Intensities Arc	Spk,[Dis]	R
3971.684	Ce II	35	6	–
3971.67	Rn	–	[80]	Wa
3971 669	Nd	10	4	–
3971.626	F II	–	[3]	Di
3971.596	U	4	–	–
3971.397	U	–	4	–
3971.394	Sm II	50	30	–
3971.374	Mo	2	3	–
3971.329	Fe I	200	125	–
3971.3	Pb II	–	[30]	Ea
3971.255	Cr I	80	50	–
3971 214	Dy	12	–	Kn
3971.18	Cl II	–	[7]	Ks
3971.164	Pr	100	60	–
3971.088	Eu	4	–	–
3971.077	Gd	20	20	–
3971.031	U	–	2	–
3971.014	Ce	3	–	–
3970 959	Mo	5	5	–
3970 828	Tb	4	–	–
3970 800	W	12	12	–
3970.788	Ce	3	–	–
3970.69	S II	–	[5]	Hn
3970 652	Cb	3	10 s	–
3970 636	Ce II	15	3	–
3970 612	Eu	4	–	–
3970 60	Br	–	[10]	Bl
3970.588	U	10	2	–
3970.527	Sm II	15	10	–
3970.517	Ir I	5	–	–
3970.503	Ni I	40 w	–	–
3970.45	Zr	10	–	Ks
3970.424	Ce	6	1	–
3970.394	Fe	50	30	–
3970.385	Ru	3	–	–
3970.263	Fe	5	2	–
3970.198	Gd	4 h	–	–
3970.178	Tb	30	3	–
3970.143	U	1	5	–
3970 098	Ta	100	40	–
3970.074	H I	–	[80]	m
3970.070	Pr	15	4	–
3970.06	Pt II	4	15	m
3970.051	Hf	10	3	–
3970.043	Sr I	20	–	ISn
3970.041	Ce	12	3	–
3969 95	N	–	[2]	Du
3969.920	Tb	3	–	–
3969.90	Eu	8 W	–	–
3969.834	Th	5	5	–
3969 794	Ru I	8	4	–
3969.755	Pr	12	3	–
3969.748	Cr I	200	90	–
3969 671	Os	100	100	–
3969 666	Nd	20	4	–
3969 633	Fe	5	5	–
3969.534	Th	5	5	–
3969.510	Pr	8	3	–
3969.434	Er	6	1	–
3969 422	U	5	–	–
3969 343	Th	3 w	2 w	–
3969.261	Sr I	30	–	ISn
3969 261	Fe I	600	400	S
3969 261	Gd	200	–	–
3969.233	Dy	6	–	Kn
3969.23	Eu	20 W	–	–
3969.199	W	12	10	–
3969 18	Te	–	[10]	Bl
3969.172	Ir	30	10	–
3969.156	Ce	2	–	–
3969.135	Cb	–	20 h	–
3969.13	In	–	15	Sq
3969.117	Co I	100 w	6	–
3969 061	Cr I	80	50	–
3969 022	U	5	8	–
3969.015	Mo	3	3	–
3969.005	Gd I	40	–	–
3969.003	Th	10	5	–
3968.876	Nd	20	4	–
3968.870	Eu	3 wh	–	–
3968.748	Mo	8	50	–
3968 73	Tb	2	–	Ed
3968.723	Zr	3	–	–
3968.66	Br	–	[8]	Bl
3968.590	W	6	6	–
3968.475	Ir	25	–	–
3968 471	Cb	3	10	–
3968.469	Ce	35	35 w	–
3968.468	Ca II	500 R	500 R	I
3968.464	Lu	50	–	Kn
3968.461	Ru	12	200	–
3968.43	Yt	10	30	–
3968.395	Dy	300	–	–
3968 374	U	1	2	–
3968.370	Fe	2	–	–
3968.36	A	–	[200]	Rt
3968 35	Gd	20	–	–
3968.257	Zr I	100	4	–
3968.22	Ag	100	60	Ct
3968.171	W	8	8	–
3968.164	Rh I	2	–	–
3968.16	Ta	4 h	–	Ks
3968 158	Pr	25	10	–
3968.146	Tb	2	–	–
3968 094	V II	25	40	–
3968.03	Hg	–	[50]	Ps
3968.03	Yb	–	3	Me
3968.01	Hf	5	1	m
3968 007	U	6 h	4	–
3967.969	Fe I	60	15	–
3967 915	Ce	3	–	–
3967.779	Sm	6	2	–
3967.705	Nd	20	6	–
3967.69	Yt II	3	10 h	–
3967.675	Sm II	8	6	–
3967 661	Pr	10	3	–
3967 649	Tb	6	–	–
3967 644	Ce	3	–	–
3967 639	U	–	2	–
3967.541	Xe I	–	[200]	IMe
3967 54	P	–	[15]	Gu
3967.53	Ce	5	1	–
3967.517	Dy	8	–	Kn
3967.507	Ir I	3	–	Ab
3967 48	U	10	–	–
3967.423	Fe	125	100	S
3967.424	Re	25	–	–
3967.413	Th	2	1	–
3967.374	Cb	–	50 h	–
3967.313	Nd	10	2	–
3967 30	Cs	–	[4]	Bs
3967 214	Th	8	8	–
3967.211	Tb	20	–	–
3967.178	Ce II	6	2	–
3967.131	Pr	40 d	25 d	–
3967.13	Eu	25 W	–	m
3967.068	Nd	30	10	–
3967.048	Ce II	35	6	–
3967 013	U	2	2	–
3966 971	Th	5	5	–
3966 854	Gd	8	–	–
3966 755	W	5	3	–
3966 72	Th	3	1	–
3966 687	K II	–	[30]	Dm
3966 662	Zr I	–	3	–
3966 629	Fe I	80	40	–
3966 615	Eu	5 W	–	–
3966.580	Ir	3	–	Ab
3966 573	Pr	100 d	70 d	–
3966.567	U	20	30	–
3966 54	Pt	3	2	Ex
3966 518	Fe I	4 h	1	–
3966 499	Tb	3	–	–
3966 398	U	1	4	–
3966.362	Dy	5	–	Kn
3966 361	Pt I	80	40	–
3966 355	Er	3	–	–
3966 332	Sm II	5	4	–
3966.279	Gd	25	12	–
3966 264	Zr	7	–	–
3966 250	Cb	10	30	–
3966 250	Tb	3	–	–
3966.149	Mo	5 d	6	–
3966.092	Cb	15	10	–
3966 088	Ir I	30	4	–
3966.066	Fe I	100	70	S
3966 051	Sm II	60	50	–
3965.967	U	1	4	–
3965.943	Tb	12	3	–
3965.930	Ce	3	–	–
3965 850	U	2	2	–
3965.832	Pr	10	4	–
3965 757	Mo	10	10	–
3965.756	I	–	[7]	Ke
3965 690	Cb	10	15	–
3965 619	Pr	10	5	–
3965 526	I II	–	[15]	Ke
3965.513	Fe I	10	3	–
3965.487	W	4	5 h	–
3965.449	Eu	3	2	–
3965.432	Zn I	15	–	IHz
3965.293	U	3	1	–
3965.263	Pr	100	50	–
3965.235	Co I	8	–	–
3965.212	Ce	2	–	–
3965.187	Cs II	–	[25]	Sv
3965.145	W	12	12	–
3965.098	Tb	6	–	–
3965.077	Ce	2	–	–
3965.04	Gd	5 h	–	–
3965.01	Eu	15 w	–	Kn
3964 994	W	9	6	–
3964.965	Os	60	12	–
3964 963	U	8	8	–
3964 95	Hf II	8	15	m
3964.92	Ce	2	1 h	–
3964.9	Rn	–	[5]	Wa
3964 899	Nd	20	6	–
3964 896	Ru	50	40	–
3964 89	Eu	40 wd	–	–
3964 89	Kr II	–	[30 hl]	Me
3964 884	Sm	3	–	–
3964 880	Th	5	3	–
3964 825	Pr	125 d	80 d	–
3964 811	Re	20	–	–
3964.747	Sb II	2 h	15	Sp
3964.727	He I	–	[50]	IMr
3964 70	Dy	5	–	Kn
3964 666	U	10	10	–
3964.57	I I	–	[5]	Db
3964 542	Rh	–	3	–
3964 520	Fe I	80	25	–
3964 507	Er	12	–	–
3964 503	Ce II	25	6	–
3964 50	V I	2	–	Me
3964.49	Eu	20 W	–	–
3964 356	Sm	8	1	–
3964 305	Tb	2	–	–
3964 304	Nd	15	6	–
3964 279	Cb	1	50	–
3964 272	Ti I	80	40	–
3964 261	Pr	60	50	–
3964.226	U	5	4	–
3964 178	Ce	15	5	–
3964 133	W	–	10	–
3964 112	U	6	8	–
3964 074	Sm II	10	2	–
3963 986	Mo	10	10	–
3963 96	Sb II	2 h	3	–
3963 912	Nd	30	20	–
3963.801	Zr I	10	–	–
3963 80	Dy	10	–	Kn
3963.781	Ce	3	–	–
3963 713	Pr	30	15	–
3963.700	Re I	10	–	–
3963 696	W	5	4	–
3963 690	Cr I	300	300	–
3963.658	Gd	50	60	–
3963.628	Os I	500	50	–
3963.626	V	20	10	–
3963.62	Eu	8 W	–	m
3963.582	Cb	–	5 h	–
3963.526	Mo	6	6	–
3963.468	Th	10	10	–
3963.401	Tb	2	–	–
3963.374	Ce	6	2	–
3963.362	Er	8	–	–
3963.354	Ti I	2	–	–
3963 27	Ho	5	4	Ex
3963 270	Re I	25	–	–
3963.226	Th	10	10	–
3963.16	Dy	3	–	m
3963.13	S II	–	[10]	Hn
3963 114	Nd	30	25	–
3963.109	Fe I	125	50	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
3963.04	La	–	5 l	Me
3963.037	U	–	2	–
3962.996	Sm	50	40	–
3962.941	Tb	4	–	–
3962.899	Ce	3	–	–
3962.852	Ti I	80	35	–
3962.788	U	15	8	–
3962.783	Ir I	20	–	–
3962.75	Sn	–	5	Ar
3962.722	Fe	2 h	–	–
3962.61	Sr	10 h	–	m
3962.609	Tb	5	–	–
3962.609	In II	–	[25]	Ps
3962 601	Dy	8	–	Kn
3962.588	In II	–	[25]	Ps
3962.476	Re I	100	–	–
3962.470	U	1	4	–
3962.445	Pr	60	50	–
3962.443	Ir	6	–	–
3962.418	In II	–	[5]	Ps
3962 353	Fe I	7	1	–
3962 346	Th	8	8	–
3962 34	Kr II	–	[10 hl]	Me
3962 332	W	9	9	–
3962.28	Ca	3 w	2	Ad
3962.275	In II	–	[25]	Ps
3962 271	U	4	2	–
3962.244	Sm II	10	5	–
3962 216	Nd	3θ	20	–
3962.187	Cr	8	1	–
3962.186	Pr	9	3	–
3962 167	Zr	2	–	–
3962.163	Cb	–	10 h	–
3962 160	U	5	–	–
3962 159	In II	–	[18]	Ps
3962.153	Cb	3	–	–
3962.136	Sm	5	3	–
3962.12	Ni I	10 h	–	–
3962 105	Gd	25	25	–
3962 086	Ce	15	4	–
3962.041	In II	–	[25]	Ps
3962.03	La	2	3	Me
3961.99	Eu	10 W	–	Kn
3961 988	Mo	3	–	–
3961.984	U	6	2	–
3961 970	Tb	3	–	–
3961.808	Sm	25	10	–
3961.760	W	5	5	–
3961.661	Ce	6	2	–
3961 660	U	1	3	–
3961.62	Cl II	–	[12]	Ks
3961 62	Cb	–	10 h	Me
3961 587	Zr	500	8	–
3961.55	S I	–	[10]	Hn
3961 544	Yb	30	–	–
3961 527	Al I	3000	2000	Ks
3961 518	Ru	6	4	–
3961 515	U	8	1	–
3961.503	Mo	5	500	–
3961.386	Ce	2	–	–
3961.3	Ag	15	5	Ct
3961.284	Pr	10	5	–
3961.210	Er	6	–	–
3961.178	W	–	9	–
3961.145	Fe I	25	7	–
3961 14	Eu	50 W	–	–
3961.064	U	6	–	–
3961.033	Re I	30	–	–
3961.016	Os	125	20	–
3960.995	Co I	60	10	–
3960.984	Cb	8	5	–
3960.947	Th	2	1	–
3960.914	Ce II	40	8	–
3960.895	Fe	3	3 h	Do
3960.871	W	–	10	–
3960.804	U	5	8	–
3960 763	Cr	40	8	–
3960.733	Eu	3	–	–
3960.695	Tb	5	–	–
3960.599	Pr	50	25 h	–
3960.584	Re	15	–	–
3960.555	Ir I	4	–	–
3960.55	Sb II	–	18 h	–
3960.523	U	6	10	–
3960.511	Sm	5	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
3960 506	Os	50	15	–
3960 47	Br	–	[6]	Bl
3960 46	Ca	3	2 h	–
3960.387	U	6	8	–
3960.376	Ce	10	2	–
3960 339	Th	10	15	–
3960.296	Tb	2	–	–
3960 285	Fe	30	6	–
3960 24	Hg	–	[30]	Ps
3960 199	Zr	2	1	–
3960.171	U	6	5	–
3960.137	Mo	–	5	–
3960 121	Sm	5	3	–
3960.115	Gd	20	20	–
3960.095	Tb	3	3	–
3959.953	Mo	3	2	–
3959.908	Er	3	1	–
3959.906	Ta	5	–	–
3959 84	Ho	–	4	Ex
3959 799	Ce	18	3	–
3959.780	Pr	25	5	–
3959.777	K II	–	[10]	Dm
3959 726	Ta	3	3	–
3959 69	Dy	3	1	m
3959 68	Ho	6	–	Kn
3959.673	Mo	2	3	–
3959 647	U	3	2	–
3959.616	Ce	10	2	–
3959.530	Sm	50	40	–
3959 524	Gd	25	5	–
3959.517	Pr	25	10	–
3959 51	Ho	–	4	Ex
3959.495	Cs II	–	[20]	Sv
3959.435	Gd	25	–	–
3959.412	Pr	25 d	10 d	–
3959.4	bh Ca	4	–	L
3959.359	Cb	10	10	–
3959 35	Dy	9	–	Kn
3959.295	Th	2	1	–
3959 25	Eu	3 W	–	–
3959 205	U	5	1	–
3959 113	Au	8	20	–
3959 088	Nd	10	4	–
3958 88	Eu	3 W	–	–
3958 880	W	10	10	–
3958 868	Ce	20	6	–
3958 865	Rh I	200	100	–
3958 860	Mo	3	3	–
3958 740	Fe	2 h	–	–
3958 709	Sm II	10	5	–
3958 682	Gd	15	–	–
3958 648	Th	5	–	–
3958.642	Pd I	500 w	200	–
3958 604	Mo	8	8	–
3958 54	La II	2	2 h	–
3958.500	U	8	–	–
3958 495	Pr	25	10	–
3958.400	Fe	2	–	–
3958 39	A	–	[10]	Rt
3958 363	Re	10	–	–
3958 359	Tb	100 w	15	–
3958 315	Pd	–	2 h	Dn
3958 266	Ce II	20	3	–
3958 240	Rh	5	4	–
3958 218	Zr II	500	150	–
3958.213	Ti I	150	100	–
3958 185	Pr	7	3	–
3958.139	U	2 h	3 h	–
3958.135	Cb	3	20	–
3958.100	Tm	200	40	Me
3958 07	Cr	5	2	–
3958 008	U	8 h	6	–
3958.004	Dy	2	–	Kn
3958.001	Nd	30	20	–
3957.975	Tb	60 d	15	–
3957.971	Mo	3	3	–
3957.969	Ce	10	2	–
3957.935	Co I	100 R	–	Dn
3957 915	Eu	10	–	–
3957.90	V	–	2	Me
3957.860	Ce	2	–	–
3957.812	U	10	15	–
3957.802	Dy	70	–	–
3957 682	Pr	20	8	–
3957.681	Gd	300 W	200	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3957.651	Mo	2	3	–
3957.629	Co I	10	2	Dn
3957.623	W	–	5	–
3957 62	P	–	[100]	Gu
3957 475	Sm	15	3	–
3957.465	Nd	60	40 s	–
3957.46	In	–	15	Sq
3957.45	Er	5	–	–
3957.449	Ru I	8	5	–
3957.40	Cd II	–	8	Tk
3957.400	Zr	3	–	–
3957.366	Re	12	–	–
3957 365	Tb	9	–	–
3957.25	La	–	2 h	Me
3957.221	Ru	8	2	–
3957 21	Dy	3	1	m
3957 209	Ce	5 s	–	–
3957 20	N	–	[10]	Du
3957 15	Rn	–	[25]	Rc
3957.146	Ce	3	–	–
3957.12	W	–	5 d	–
3957.10	I I	–	[10]	Bl
3957.053	Ca I	80	3	IWg
3957 040	Eu	12	–	–
3957 030	Fe	50	15	–
3956 898	Ce II	8	3	–
3956 85	Xe I	–	[6]	Me
3956 818	Nd	10	4	–
3956 81	Dy	3	1	m
3956 787	Zr	2	–	–
3956 772	Ce	2	–	–
3956 762	Pr	20	12	–
3956 682	Ir I	7	–	–
3956 682	Th	10	10	–
3956 681	Fe I	150	150	S
3956 68	Eu	4 W	–	–
3956 624	Cb	2	5	–
3956 603	Th	10	10	–
3956.570	Ta	15	2	–
3956 460	Fe	100	100	–
3956 432	Er	10	–	–
3956 40	Cb	2 w	1	Me
3956 382	U	–	2	–
3956 362	Nd	20	2	–
3956 343	Ti I	100	50	–
3956 284	Ce	30	8	–
3956 280	Co I	15	2	–
3956 256	Zr	2	–	–
3956 24	Dy	4	–	m
3956 170	Tb	10	–	–
3956 115	Ir I	6	–	–
3956 099	K II	–	[10]	Dm
3956.07	La II	–	4	–
3956 063	Ce	5	2	–
3955 966	Nd	20	10	–
3955 960	Fe	10	5	–
3955 958	Th	8	–	–
3955 94	Tl II	–	[3]	Sx
3955.923	Cs	–	[10]	Sv
3955 917	Ce	20	3	–
3955 881	Cb	2	20	–
3955 851	N II	–	[35]	Hl
3955 809	Zr	2	–	–
3955 805	Tb	2	–	–
3955.754	Eu	50 W	–	–
3955 74	Ho	15	4	Ex
3955 717	U	3 h	6	–
3955 681	Cb	5	3	–
3955 633	Zr I	4	–	–
3955 630	Tb	3	–	–
3955.615	W	–	5	–
3955.57	I	–	[2]	Ke
3955 562	Nd	10	4	–
3955.493	Mo	10	15	–
3955.45	Tl II	–	[10]	Sx
3955 421	Pr	7	2	–
3955 378	U	8	15	–
3955 367	Os	12	10	–
3955 363	Ce	5	5	–
3955 354	Fe I	25	5	–
3955 35	Br	–	[8]	Bl
3955 310	W	12	10	–
3955 207	K II	–	[30]	Dm
3955 19	La	3	2 h	–
3955.179	Th	8	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3955.12	Dy	4	–	Ed
3955.095	Yt	2	2	–
3955.093	Nd	20	6	–
3955.073	Tb	3	–	–
3955.05	Ho	4	–	Kn
3954.995	Pr	9	2	–
3954.972	Sm	5	3	–
3954.965	Re	2	–	–
3954.890	Ru	5	–	–
3954.792	Tb	3	–	–
3954.78	Kr II	–	[90 whl]	Me
3954.73	Xe II	–	[15 hl]	Hu
3954.715	Fe	2	–	–
3954.69	Nd	20	4	–
3954.663	U	20	30	–
3954.64	Ca	–	2	Ad
3954.596	O I	–	[40]	Fh
3954 565	Dy	40	–	–
3954.512	Tb	8	–	–
3954.477	U	2	2	–
3954 451	Ce	2	8 wh	–
3954.433	Re	20	–	–
3954.406	Nd	20	12	–
3954.38	O I, II	–	[100]	m
3954.294	Ta	5 wh	–	–
3954 255	Eu	6 wd	–	–
3954.234	U	6	8	–
3954.21	Cl II	–	[20]	Ks
3954.209	Nd	12	4	–
3954.195	Sm II	15	5	–
3954.136	Tb	3	–	–
3954.11	Eu	2 W	–	–
3954.050	Tb	9	3	–
3953.951	Ce II	18	2	–
3953.928	Mo	15	20	–
3953.861	Fe	8	2	–
3953.835	Ru	5	–	–
3953.776	Ce	2	–	–
3953.713	W	4	3	–
3953.680	La I	30	–	–
3953.660	Ce II	12	4	–
3953.644	Pt I	2	1	–
3953.59	Kr II	–	[20]	Me
3953.578	U	6	15	–
3953.525	Nd	60	60	–
3953.516	Pr	150	100	–
3953.515	Dy	5	–	Kn
3953.509	Cb	1 h	5 h	–
3953.47	Eu	6 W	1	–
3953.395	Nd	20	8	–
3953 378	Sm	2	2	–
3953.371	Gd I	100	50	–
3953.36	La	2	2	Me
3953 246	Re	3	–	–
3953.201	Pr	15 d	5 d	–
3953.163	Cr I	60	12	–
3953 159	W	10	12	–
3953.155	Fe I	80	40	–
3953.154	Eu	4	–	–
3953 12	Dy	3	1	m
3953.078	Cb	3	5	–
3953.067	Rh I	3	–	–
3953.056	O I	–	[5]	Fh
3953 015	Cb	4	–	Me
3953.015	Tb	3	–	–
3952 992	Mo	1	5	–
3952.949	U	15	–	–
3952.917	Co I	100	75	–
3952.902	W	8	8	–
3952.890	Zr I	5	–	–
3952 870	Nd	25	20	–
3952.842	Mn	60	75	–
3952.768	Os	40	15	–
3952 74	A	–	[15]	Rt
3952.702	Fe I	8	1	–
3952.678	Ru	20	30	–
3952 620	Tb	2 w	–	–
3952.616	Ir I	20	3	–
3952 606	Fe I	80	50	–
3952.60	Se II	–	[5]	Bt
3952 541	Ce II	60	30	–
3952.521	W	8	7	–
3952.451	Th	3	1	–
3952.447	U	4	2	–
3952 399	Cr I	60	18	–
3952.370	Cb	3	50	–
3952.36	Rn I	–	[25]	Rs
3952.357	Pr	8	3	–
3952.326	Co I	40	4	–
3952.290	Ru	4	1	–
3952.278	Sc	3	–	–
3952.273	Mo	4	2	–
3952.263	U	3	6	–
3952 262	W	5	4	–
3952 26	F II	–	[3]	Di
3952.25	Eu	3 W	–	–
3952.21	N	–	[10]	Du
3952.195	Nd	30	20	–
3952.159	Ta	8	3	–
3952.106	Ce	10	1	–
3952 08	C II	–	6	Fl
3952 046	Tb	2	–	–
3952.020	Pr	5	4	–
3952.009	Gd	100	60	–
3951.987	O I	–	[10]	Fh
3951.968	V II	35	50	–
3951.962	Mn	40	50	–
3951.952	Ir I	20	8	–
3951.94	Pb I	–	50 h	Sx
3951.89	Nd	8	–	–
3951.885	Sm	10	3	–
3951.876	W	7	8	–
3951.875	Tb	6	–	–
3951.855	U	1	4	–
3951.843	Pr	12	5	–
3951.84	Se	–	[25]	Bt
3951.826	Hf	15	4	–
3951.765	Cr I	40	5	–
3951.725	Co I	4 h	2	–
3951.705	Tb	4	–	–
3951.624	Ce	8	1	–
3951.61	Xe II	–	[3 whl]	Hu
3951.596	Yt II	6	8	–
3951.553	U	1	8	–
3951.533	Mo	4	4	–
3951.521	Th	20	20	–
3951.50	P	–	[70]	Gu
3951.49	Er	2	1	m
3951.43	La II	4	2 h	Me
3951.420	Ce	4	–	–
3951 348	Mo	4	4	–
3951.328	Zr I	5	–	–
3951.313	Eu	3	–	–
3951.207	Ru I	10	6	–
3951.168	Fe	150	125	–
3951.168	W	5	12	–
3951.154	Nd	40	30	–
3951.101	Th	2	2	–
3951 097	Cr I	50	8	–
3950.986	Mo	15	15	–
3950 924	Xe I	–	[125]	IMe
3950.854	Eu	7	–	–
3950.81	Sr I	8 h	–	Sd
3950 802	Ce	6	1	–
3950.779	Tb	5	–	–
3950.759	Hf	10 h	–	–
3950.748	Nd	10	6	–
3950.699	U	3	1	–
3950 659	Pr	10	4	–
3950 61	Br	–	[30]	Bl
3950.610	Re	30 d	–	–
3950.50	Ho	8	–	Kn
3950 477	U	8	–	–
3950 424	Ce II	10	3	–
3950.417	Nd	20	10	–
3950 416	Tb	20 d	–	–
3950.412	Ru	10	10	–
3950.399	Dy	50	–	–
3950.394	Th	30	30	–
3950.359	Yt II	60	100	–
3950.351	Er	30	10 h	–
3950.288	Zr	2 h	–	–
3950.257	Mo	4	4	–
3950.231	V	20	10	–
3950 214	Ru I	12	15	–
3950.132	U	3	6	–
3950.126	Tb	4	–	–
3950.118	W	9	12	–
3950 004	Ru	10	8	–
3949 96	Cl II	–	[10]	Ks
3949 957	Fe I	150	100	–
3949.935	Cb	4	3	–
3949.92	Ca	–	2 r	Ht
3949.904	I	–	[20]	Ke
3949.868	Tb	6	–	–
3949.845	Sm	2	2	–
3949.837	Eu	5	–	–
3949 816	Ce	10	–	–
3949.784	Os	50	10	–
3949.617	Cr	6	–	–
3949.586	Eu	50 W	–	–
3949 585	Cr I	5	1	–
3949.57	Ca	–	2	Ad
3949.516	U	2	8	–
3949.51	Ba II	–	[20]	Rs
3949.509	Tb	10	3	–
3949.457	Nd	2	–	–
3949.455	Cb	1	50	–
3949.44	Ag	3	8	–
3949.438	Pr	150	100	–
3949.417	Ru I	10	5	–
3949.39	Tb	4	–	Ed
3949 385	Ce II	20	3	–
3949 328	Cb	3	2 h	–
3949.309	U	2	6	–
3949.27	Tm	50	5	Me
3949.213	W	–	3	–
3949.208	Gd	10	20	–
3949.15	Fe	4	1	–
3949.123	Eu	25 w	1	–
3949.116	Ce	6	–	–
3949.106	La II	1000	800	–
3948 991	U	8	–	–
3948 979	A I	–	[2000]	I
3948 971	Th	30	30	–
3948.949	Ce	4	–	–
3948.901	Ca I	40	15	IWg
3948 853	Cr	25	2	–
3948.80	Se II	–	[25]	Bt
3948.779	Fe	150	100	S
3948.779	Eu	4	–	–
3948.778	Nd	–	8	–
3948 74	As II	–	50	Ro
3948 72	Xe I	–	[10]	Me
3948 674	Ti I	80 h	40	–
3948.649	Mo	6	10	–
3948 621	Pr	9	2	–
3948 606	Eu	3	–	–
3948 506	Ir	4	–	–
3948 454	Ce	2	–	–
3948 395	Pt I	60	5	–
3948.35	Tb	20	15	Ed
3948.325	Nd	20	10	–
3948 317	Ir I	10	3	–
3948 29	Hg	–	[100]	Ps
3948.203	W	–	5	–
3948.163	Xe I	–	[60]	IMe
3948.15	C II	–	2	En
3948.108	Sm II	50	50	–
3948.107	Fe I	125	50	–
3948 067	Er	8 l	–	–
3948.038	Th	3	1	–
3947 982	W	10	9	–
3947.973	Ce	20	3	–
3947.959	U	2	8	–
3947.93	Te	–	[10]	Bl
3947.832	Sm II	15	8	–
3947 775	Ti I	70	35	–
3947.708	Ce	2	–	–
3947.66	Kr II	–	[5 hl]	Me
3947 652	Th	3	1	–
3947.633	Pr	125 d	60 d	–
3947.61	O I	–	[18]	Ps
3947 608	Nd	5	–	–
3947.593	Ce	3	–	–
3947.58	Eu	4 w	–	–
3947.532	Fe I	70	20	–
3947.528	Cb	10	10	–
3947.51	Tb	2	–	Ed
3947.51	O I	–	[50]	Ps
3947.509	U	10	10	–
3947.504	A I	–	[1000]	IHu
3947.475	Ba I	5 h	–	Sz
3947 391	Fe I	1	–	–
3947 339	Th	8	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
3947.33	O I	–	[300]	Ps
3947.258	Ce	4	–	–
3947.25	Tb	5	–	Ed
3947.173	Mo	10	10	–
3947.127	Co I	20	2	–
3947.122	Ce	4	–	–
3947.081	U	1	2	–
3947.05	Gd	4	–	Kn
3947.005	Fe I	50	20	–
3946.98	Br	–	[3]	Bl
3946 98	S II	–	[5]	Hn
3946.953	Pr	8	5	–
3946.939	Dy	30	–	Kn
3946.886	Mo	4	3	–
3946.880	U	1	3 h	–
3946.87	Tb	150	30	Ed
3946.811	Nd	20	8	–
3946.681	Ce	20	1	–
3946.677	U	15	10	–
3946.66	Br II	–	[2]	Bl
3946.635	Co	18	–	m
3946.552	Eu	6	–	–
3946.506	Sm II	40	30	–
3946.406	Al II	–	[2]	Sy
3946 35	Dy	3	–	m
3946.314	Ru I	8	3	–
3946.311	W	9	8	–
3946.269	Ir I	50	15	–
3946.251	U	6	5	–
3946.224	Pr	8	1	–
3946.217	Yt II	2	3	–
3946.18	Eu	4 w	–	Kn
3946.166	Ce	6	–	–
3946.151	Th	20	20	–
3946.10	A II	–	[25]	Rt
3946.05	Ca I	2	–	Cw
3946.048	Ce	2	–	–
3946.012	Hf II	–	4 h	–
3946.01	Br	–	[3]	Bl
3945.980	W	1	5	–
3945 968	Cr	50	7	–
3945 94	Dy	3	–	–
3945 93	As II	–	10	Ro
3945.925	Ce	2	–	–
3945.910	Re I	40	–	–
3945.825	Th	10	8	–
3945.82	Ce	2	–	–
3945.74	Gd	3	–	–
3945.726	U	2	3	–
3945.67	Eu	8 w	1	–
3945 662	Pr	30	10	–
3945.65	F II	–	[10]	Di
3945.61	Ba I	5 h	–	Sd
3945 572	Ru	50	100	–
3945.570	Cu II	–	2	Sh
3945.544	Gd	200 W	150	–
3945.52	I I	–	[2]	Bl
3945 515	Th	20	15	–
3945.507	Ce	3	1	–
3945.495	Cr	50	15	–
3945.48	Kr II	–	[5 hl]	Me
3945.424	Pr	12	4	–
3945.39	Tb	8	–	Ed
3945.364	Ce	2	–	–
3945.36	Hf II	8	6 h	Me
3945.328	Co I	200	15	–
3945.250	Mo	10	6	–
3945.206	W	5	6	–
3945.17	V I	2	–	Me
3945.160	Eu	5	–	–
3945.126	Fe	30	10	–
3945.09	Hg	–	[100]	Ps
3945.04	O II	–	[20]	Mh
3944.950	Co I	5 h	2	–
3944.924	Ce	6	–	–
3944.899	Pr	30	12	–
3944.896	Fe I	15	8	–
3944.835	Ce	5	–	–
3944.798	W	7	6	–
3944.785	Ru	4	–	–
3944.752	Fe I	4	1	–
3944.744	Sm	5	5	–
3944.727	Re	30	–	–
3944.692	Dy	300	150	–
3944.687	Yt	3	–	–
3944.621	U	8	2	–
3944.617	Pr	8	3	–
3944.592	Eu	5 W	–	–
3944.58	Sb II	–	8	Dv
3944.423	Er	12	–	–
3944.421	Nd	20	–	–
3944.375	Ir I	20	4	–
3944.349	Re	15	–	–
3944.33	F II	–	[20]	Di
3944.29	Ga	–	2	Kl
3944.27	A	–	[50]	Rt
3944 254	Th	3	1	–
3944.20	Tb	6	–	Ed
3944 190	Ru I	10	4	–
3944.15	La II	–	2	Me
3944.137	Pr	9	5	–
3944.130	U	8	15	–
3944.126	Ni I	5 wh	–	–
3944 093	Ce II	8	–	–
3944.07	Se	–	[20]	Bt
3944.058	Ir	2	–	Ab
3944.032	Al I	2000	1000	Gn
3944.019	Rh	5	4	–
3944 016	Re	15	–	–
3944 014	Er	2	–	–
3944 01	Eu	8 h	–	–
3943 888	Ce II	40	15	–
3943 820	U	35	5	–
3943.80	Pb	–	5	Sx
3943.753	Pr	10	8	–
3943.694	Th	10	10	–
3943 666	Cb	20	50	–
3943.664	V I	50	18	–
3943.66	Tb	8	–	Ed
3943.631	Gd	20	20	–
3943 621	Sm	8	3	–
3943 614	Cr I	18	4	–
3943 602	Eu	3	–	–
3943 594	Fe	2 h	–	–
943 57	Xe II	–	[10]	Hu
3943.507	Mo	5	4	–
3943.498	U	6	10	–
3943.497	Ce	6	1	–
3943 47	As II	–	3	Ro
3943 371	Pr	5	3	–
3943 348	Fe I	40	8	–
3943.246	Gd	40	40	–
3943 235	Sm II	40	25	–
3943.205	Ir	6	–	–
3943 191	Er	10	–	–
3943.138	Ce II	12	3	–
3943 086	Mo	10	10	–
3943.085	Eu	50	15	–
3943.06	Hf	3	–	Me
3943.044	Mo	10	6	–
3943.000	Ce	3	–	–
3942.95	U	4	2	–
3942.95	Ag	5 h	10 h	–
3942.94	Tb	6	–	Ed
3942.938	Eu	15 W	–	–
3942.93	Kr	–	[20 whl]	Me
3942.918	Pr	15	6	–
3942.855	Mn	75	75	–
3942 84	Ca	2	3	–
3942.829	U	20	8	–
3942.746	Ce	50	20	–
3942.716	Rh I	60	25	–
3942.713	Mo	–	20	–
3942.692	Co I	8	–	–
3942.69	Eu	2 w	–	Kn
3942.659	Sm	10	2	–
3942 646	Th	10	8	–
3942 642	Gd	60	30	–
3942.631	Nd	25	25	–
3942.59	Hg	–	[100]	Ps
3942.561	Re	10	–	–
3942.551	U	8	10	–
3942.536	Dy	30	5	–
3942 533	Er	3	–	–
3942.505	K II	–	[30]	Dm
3942.46	I	–	[15]	Ke
3942.443	Fe I	100	70	S
3942.377	W	3	8	–
3942.352	Eu	20 W	–	–
3942.339	Pr	5	3	–
3942.29	Xe I	–	[2]	Me
3942.260	Pr	10	3	–
3942.253	U	6	8	–
3942.24	Hg	–	[100]	Ps
3942.235	Ta	3	4 d	–
3942.21	Xe II	–	[2]	Hu
3942 203	Eu	15	2	–
3942.20	Tb	15	8	Ed
3942.19	Ne	–	[7]	Bn
3942.183	Mo	4	2	–
3942.151	Ce II	35	8	–
3942.144	Nd	15	4	–
3942.065	Th	8	5	–
3942.063	Ru I	12	9	–
3942.061	U	12	1	–
3942.050	Dy	4	–	Kn
3942 006	V I	15	5	–
3941 944	Zr II	4	1	–
3941.868	Sm II	50	40	–
3941.830	W	7	7	–
3941.82	I I	–	[5]	Db
3941.807	Gd	5	5	–
3941.766	U	6	1	–
3941.761	Ir	3	–	Ab
3941.757	Mo	6	2	–
3941.732	Co I	200 wh	–	–
3941.727	Th	8 h	1 h	–
3941.72	Rn I	–	[25]	Rs
3941.654	Ru	12	8	–
3941.625	Zr I	20	1 h	–
3941.585	Ce	5	–	–
3941.563	Eu	5 W	4	–
3941.539	Re	20 d	–	–
3941.52	F II	–	[6]	Di
3941.515	Er	5	–	–
3941.512	Nd	60	30	–
3941.507	Pr	10	3	–
3941.490	Cr I	200 r	60	–
3941.478	Mo	5	150	–
3941.460	U	5	6	–
3941.45	Se	–	[20]	B
3941.364	Th	2	–	F
3941.35	Tb	4	–	E
3941.33	In	–	3	S
3941 280	Fe I	60	10	–
3941.273	Cb	10	15	–
3941.254	V I	30	12	–
3941.16	Tb	15	8	–
3941.154	Cr	15	8	–
3941.110	Ir	6	–	–
3941.089	U	3	6	–
3941.05	Br	–	[6]	Bl
3940.972	Ce	10	2	–
3940.92	Kr	–	[5 whl]	Me
3940.887	Co I	100	–	–
3940.882	Fe I	150	80	S
3940.800	Sr I	20	–	ISn
3940.64	Ce	8 s	–	–
3940.593	V I	15	4	–
3940.568	Rb II	–	[200]	Rr
3940.563	Ru	4	–	–
3940.55	Ho	12	4 h	Ex
3940.487	U	10	15	–
3940.40	Hg II	–	[2]	Ps
3940.377	Pr	10 d	3 d	–
3940.37	Ho	6	4 h	Ex
3940 357	Eu	3 W	–	–
3940.338	Ce II	35	6	–
3940.262	U	4	6	–
3940.24	I	–	[500]	Ke
3940.152	Pr	80	15	–
3940.10	Tb	2	–	Ed
3940.044	Fe	2	–	–
3939.985	Eu	2 W	1	–
3939.908	W	5	5	–
3939.85	La II	2	3 h	Me
3939 835	Nd	20	4	–
3939.806	Er	2	–	–
3939.77	Ce	2 h	–	–
3939.758	U	6	10	–
3939.70	Dy	3	2	Ed
3939.69	Br	–	[15]	Bl
3939 672	Ba II	2	[5]	–
3939.656	Ce II	10	–	–
3939.643	Sm II	3	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3939 60	Tb	200	200	Ed
3939 60	Se II	–	[8]	Bt
3939.57	Sb II	–	3	Dv
3939.566	Os	50	12	–
3939.548	Nd	20	3	–
3939.518	Ce	18	1	–
3939.495	Mo	4	4	–
3939.455	Eu	6 W	–	–
3939.451	U	6	1 h	–
3939.441	W	8	10	–
3939.355	Er	4	–	–
3939.334	V I	40	15	–
3939.298	Cr	8	–	–
3939.23	Dy	3	–	Kn
3939.195	Eu	5	–	–
3939.138	Mo	4	4	–
3939.127	Ce	4	–	–
3939 111	U	6	12	–
3939.100	Ru	5	–	–
3939.066	Al II	–	[2]	Sy
3939.044	Hf	8	–	–
3939.03	F II	–	[30]	Di
3938.982	Gd	20	40	–
3938.969	Fe II	4	4	Do
3938.923	Er	4	–	–
3938.92	Xe II	–	[10]	Hu
3938.915	Pr	4	1	–
3938.903	Co I	5	–	m
3938.887	V I	15	1	–
3938.88	Kr II	–	[20 whl]	Me
3938.874	Nd	30	25	–
3938.84	Ho	2	2 h	Kn
3938.774	Ce	3	–	–
3938.732	Th	15 w	10 w	–
3938.722	Mo	8	10	–
3938.631	Er	20	3	–
3938.621	Al II	–	[2]	Sy
3938.62	Br	–	[10]	Bl
3938.62	Ho	–	4	Ex
3938.593	Os	125	20	–
3938.589	Ce	10	–	–
3938.547	Cb	–	100 h	Me
3938.426	Mo	2	3	–
3938.424	Sm II	8	2	–
3938.423	Mg I	10 w	3	–
3938.38	Eu	4	–	–
3938 352	U	8	–	–
3938.341	Cr	40	3	–
3938.312	Pr	40	30	–
3938.26	Eu	3	–	–
3938 209	Dy	5	–	Kn
3938.198	V I	30	12	–
3938 16	Tb	3	–	Ed
3938.159	Ce	8	–	–
3938.153	Gd	10	20	–
3938.117	W	–	6	–
3938.086	Ce II	35	6	–
3938.06	Dy	20	–	–
3938.04	Tb	4	–	Ed
3938.026	Ti I	18	2 h	–
3938.020	Fe	3	–	–
3937.990	Dy	5	–	Kn
3937.965	Cb	5	10	–
3937.949	Co I	7 h	–	–
3937.929	Th	15	10	–
3937.906	I	–	[25]	Ke
3937.903	Ru I	20	15	–
3937.883	U	6	8	–
3937.876	Ba I	12	10	–
3937.843	Ta	5	10	–
3937.807	Ce	12	–	–
3937.762	Mn	15	15	–
3937.694	Pr	10	2	–
3937.636	Tb	15	–	Kn
3937.634	Ce II	15	1	–
3937.627	W	10	12	–
3937.619	Eu	2 W	–	–
3937.61	Lu	–	5 hl	Me
3937.575	Nd	20	6	–
3937.529	V I	50	20	–
3937.468	Eu	2 w	–	–
3937.438	Cb	30	30	–
3937.332	Fe I	80	35	–
3937.223	I II	–	[12]	Ke
3937.165	Dy	4	–	Kn
3937.15	Tb	5	–	Ed
3937.147	Ce	15 l	2	–
3937.068	U	3	8	–
3937.056	Sm	15	6	–
3937.043	Th	15	10	–
3937.030	Pr	50	8	–
3937.018	Er	20	–	–
3937.00	Ho	2	2	Kn
3936.991	Nd	15 d	6 d	–
3936.985	W	12	15	–
3936.962	Ce	2	–	–
3936.903	Re I	40	–	–
3936.79	In	–	18	Sq
3936.782	Ru	4	–	–
3936.761	Mn	25	50	–
3936.744	U	5	5	–
3936.728	Mo	4	4	–
3936.721	Nd	20	6	–
3936.715	Dy	10	–	–
3936.689	Pr	5	2	–
3936.668	W	–	10	–
3936.632	Eu	20	–	–
3936.517	U	1	2	–
3936.51	Ho	10	4 h	Ex
3936.447	Cb	3	5	–
3936.35	Ho	–	4 h	Ex
3936.29	Dy	4	–	Kn
3936.282	V I	30	8	–
3936.232	W	9	8	–
3936.221	La II	100	50	–
3936.21	Te	–	[5]	Bl
3936.158	Ru	4	–	–
3936.143	Mo	3	3	–
3936.136	Nd	30	20	–
3936.059	Zr II	10	4	–
3936.03	Dy	15	2	m
3936.023	Cb	5	200	–
3936 008	U	8	2	–
3935.985	Eu	10	–	–
3935.970	Co I	400 R	15	–
3935 953	Fe II	2	1	–
3935.940	Th	5	3	–
3935.927	Ce	6	–	–
3935.917	Nd	5	1	Kn
3935.914	He I	–	[4]	Ps
3935.838	Rh I	40	12	–
3935.823	Pr	125	50	–
3935 815	Fe I	100	8	S
3935.760	Sm II	30	10	–
3935.75	Se	–	[6]	Bl
3935.725	Ba I	80 R	30 r	–
3935 697	Mo	6	6	–
3935.647	Hf II	15	15	–
3935.642	Th	2	–	Fd
3935.501	Ce	6	–	–
3935.461	Sm	2 h	–	–
3935.448	Cb	5	10	–
3935.440	W II	7 d	20	–
3935.393	Gd I	10	10	–
3935.382	U	15	18	–
3935.36	Se	–	[60]	Bt
3935 346	Ru I	5	–	–
3935.306	Fe I	40	8	–
3935.287	Co I	6	–	–
3935.25	Tb	50	8	Ed
3935.188	Sm II	4	3	–
3935.183	Mo	5	5	–
3935.18	Sr I	6 h	–	Sd
3935.180	Th	5	5	–
3935.15	Br II	–	[15]	Bl
3935.141	V I	40	25	–
3935.134	Pr	10 d	3 d	–
3935.041	W	12	10	–
3935.024	Mo	5	5	–
3935.00	F II	–	[6]	Di
3934.982	Rh I	3	2	–
3934.956	Mo	5	6	–
3934.894	U	10	–	–
3934.883	Pr	8	2	–
3934.844	Ir I	200	50	–
3934.823	Nd	60	30	–
3934 818	Sm	4	8	–
3934.813	Cb	1 h	5 h	–
3934.812	Er	5	–	–
3934.801	Gd I	100	50	–
3934.791	Zr II	20	15	–
3934.752	Ce	10	–	–
3934.707	Co	5	2	–
3934.601	W	5	5	–
3934.509	Ce	2	–	–
3934.470	U	2	1	–
3934.46	K	–	[20]	Bn
3934.431	In II	–	[5]	Ps
3934.408	Cb	5	5	–
3934.40	Tb	10	–	Ed
3934.387	Eu	5	–	–
3934.30	Yb	2	4	m
3934.260	Mo	5	5	–
3934.257	Pr	12	2	–
3934.236	Ti I	30	2	–
3934.230	Fe	2	–	–
3934.229	Rh I	100	2	–
3934.17	Dy	12	–	m
3934.139	Cb	5	15	–
3934.123	In II	–	[10]	Ps
3934.121	Zr II	20	12	–
3934.11	Br I	–	[2]	Ks
3934.107	Nd	5	–	Kn
3934.093	Nd	20	–	–
3934.076	Ce	6	–	–
3934.013	V I	100	30	–
3933.985	U	6	–	–
3933.914	Co I	60	–	–
3933.905	Tb	4	–	Kn
3933.901	Ir	20	8	–
3933.731	Ce	60	60	–
3933.680	Ru	5	200	–
3933.677	Eu	10	–	–
3933.666	Ca II	600 R	600 R	I
3933.664	Hf II	20	15	–
3933.664	Ir	20	–	–
3933.662	U	2	10	–
3933.654	Co	80	–	–
3933.62	Ag	80	80	–
3933.605	Fe I	200	200	–
3933.592	Sm II	200	200 h	–
3933.469	Tb	6	–	Kn
3933.394	Cb	3	3	–
3933 381	Sc I	60	60	–
3933.37	P	–	[50]	Gu
3933 300	Pr	9	2	–
3933 294	S II	–	[80]	Hn
3933.178	Zr I	9	–	–
3933.030	U	5	10	–
3933.013	Cb	3	3	–
3932 98	Dy	10	–	m
3932.979	Ce	6 s	1	–
3932 978	Pr	25	8	–
3932 971	Ir I	6	–	–
3932.97	Gd	10	10	–
3932.966	Sm II	6	3	–
3932 921	Fe	8	4	–
3932.917	Cu I	10	–	–
3932.915	Th	10	3	–
3932.794	Ce	3	–	–
3932.630	Fe I	80	40	–
3932.55	Tb	3	–	Ed
3932.55	A	–	[25]	Rt
3932.523	La II	–	2 h	–
3932 40	Hf II	3	10	Me
3932.393	Ce	3	–	–
3932.366	Tb	12	–	Kn
3932.30	S II	–	[10]	Hn
3932.287	Ru	3	–	–
3932 28	Eu	3 W	–	–
3932.27	Fe	3	–	–
3932.253	Er	20	5	–
3932.230	Th	15	10	–
3932.228	Dy	30	–	–
3932.145	Ce	12	2	–
3932.130	Pr	25	5	–
3932.026	U	35	50	–
3932 017	Ti II	20	30	–
3931 938	S II	–	[15]	Hn
3931.935	W	2	2	–
3931.9	Bi II	–	[10]	Ml
3931.827	Ce	18	3	–
3931.82	Rn	–	[250]	Wa
3931.794	Cb	1	20 h	–
3931.785	Sb II	2	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3931.759	Ru	50	70	–
3931.75	Hf	2	2	Me
3931.72	Se	–	[8]	Bl
3931.56	Se	–	[5]	Bl
3931.537	Dy	200	–	–
3931.528	Er	20	4	–
3931.525	Os	40	12	–
3931.488	U	25	6	–
3931.460	Cb	4	3	–
3931.43	Te	–	[5]	Bl
3931.425	I	–	[3]	Ke
3931.403	Mo	5	5	–
3931.377	Hf	10	3	–
3931.369	Ce I, II	15	4	–
3931.340	V I	25	20	–
3931.290	Dy	20	–	–
3931.28	As II	–	15	Ro
3931.24	A	–	[15]	Rt
3931.227	Nd	6	2 h	–
3931.203	U	5	6	–
3931.199	Re I	20	–	–
3931.156	Sm II	4	2	–
3931.123	Fe I	35	15	–
3931.11	In	–	3	Sq
3931.088	Ce I, II	35	8	–
3931.014	I	–	[400]	Ke
3930.982	U	12	35	–
3930.970	W	10	12	–
3930 965	Pr	9	3	–
3930.942	Ta	5	3	–
3930 81	U	–	3 h	–
3930.806	Ce	12	3	–
3930.76	Tb	8	3	Ed
3930.667	Yt II	20	25	–
3930.619	Pr	9	3	–
3930.592	Ce	3	–	–
3930.522	Re	5 w	–	–
3930.506	Nd	20	30	–
3930.503	Eu II	1000 R	400 R	–
3930.480	W	8	10	–
3930.47	La	–	3	Me
3930.44	Eu	100 W	–	–
3930.430	U	6	10	–
3930.37	Sn II	–	[6]	Lg
3930.299	Fe I	600	400	S
3930.248	W	12	10	–
3930.23	Ta	1	2	Ks
3930.203	Mo	5	5	–
3930.2	C	–	[6]	Jn
3930.153	Dy	10	–	Kn
3930.109	Yt	2 h	3	–
3930.073	U	–	4	–
3930.023	V I	50	20	–
3930.022	Cb	–	10 h	Me
3929.997	Os	80	12	–
3929.961	Ce	8	1	–
3929.953	Nd	10	6	–
3929.892	Eu II	7 w	–	–
3929.88	Tb	10	–	Ed
3929.877	Pr	8	6	–
3929.875	Ti I	70	35	–
3929.851	Ru	3	–	–
3929.843	Re I	100	–	–
3929.819	Eu	10 w	–	–
3929.80	In II	–	[5]	Ps
3929.75	Tb	5	–	Ed
3929.730	V II	3	35	–
3929.722	U	2	4	–
3929.697	Cr	35 wh	–	–
3929.671	Th	30	20	–
3929.671	Ce	6	–	–
3929.652	Mn	12	25	–
3929.584	Mo	–	25	–
3929.584	Tm	70	50	Me
3929.56	Br	–	[15]	Bl
3929.554	Sm	2	–	–
3929.535	Hf II	3	1 h	–
3929.53	In II	–	[10]	Ps
3929.530	Zr I, II	100	6	–
3929.46	Cs	–	[2]	Bs
3929.435	Zr	5 h	–	–
3929.42	Tb	2	–	Ed
3929.33	Dy	10	–	Kn
3929 315	W	1	5	–
3929 293	Cb	15	15	–
3929 26	Kr II	–	[20 hl]	Me
3929.260	Nd	30	15	–
3929.256	Pr	40	30	–
3929.254	Co I	15	2	–
3929.241	Mn	30	30	–
3929.23	Sb II	–	[2 h]	Lg
3929.225	Er	3	–	–
3929.216	La II	400	300	–
3929.212	Hf	2	1	–
3929.212	Fe	15	8	–
3929.209	Ce	2 h	–	–
3929.205	Re	10	–	–
3929.125	Ce	2 h	–	–
3929.124	Fe	10	5	–
3929.055	U	6	2	–
3928.99	Tb	3	–	Ed
3928.98	Eu	8 w	–	Kn
3928.956	Ce	2	–	–
3928.921	Eu	10 w	2	–
3928.914	Sm	25	3	–
3928.911	Pr	30	8	–
3928.848	Ce	6	–	–
3928.830	U	15	–	–
3928.788	Mo	5	5	–
3928.707	Re I	12	–	–
3928.703	Mo	5	5	–
3928.66	Tm	15	5	Me
3928.636	Cr I	150	40	–
3928.63	Cl II	–	[5]	Ks
3928.62	A	–	[125]	Rt
3928.615	Pr	30	15	–
3928.553	Ce	2	–	–
3928.541	Os	50	10	–
3928.450	U	–	3	–
3928.438	Ir I	12	2	–
3928.409	Os	40	10	–
3928.318	Ce II	20	2	–
3928.295	Pr	4	2	–
3928 285	U	1	5	–
3928 281	Mo	8	8	–
3928.272	Sm II	60	60	–
3928 229	Ir I	2	–	–
3928 083	Fe I	15	15	–
3927.96	As	–	3	Ro
3927.926	V I	50	40	–
3927.922	Fe I	500	300	S
3927 88	Cl II	–	[6]	Ks
3927.866	Dy	5	–	Kn
3927 79	Pb	–	2	Kl
3927.755	U	3	5	–
3927.712	Pr	8	8	–
3927.66	Au I	5	6	–
3927 63	Te	–	[5]	Bl
3927 615	Mo	–	10	–
3927.60	Re I	20 w	–	m
3927.574	Ce	2 h	–	–
3927.570	Hf	10	1	–
3927.558	La I	40	–	–
3927.454	Pr	80	35	–
3927.450	Ce I, II	15 l	2	–
3927.446	Eu	2 h	–	–
3927.425	Th	15	10	–
3927.41	Pb II	–	5 h	Sx
3927.404	Zr I	10 h	–	–
3927.362	Ti I	7	–	–
3927.35	Tb	2	–	Ed
3927.29	P	–	[30]	Gu
3927.181	Th	15	10	–
3927.164	Ce	2	–	–
3927.15	Tb	4	–	Ed
3927 106	Nd	80	50 s	–
3927.001	Ce	8	1	–
3926 97	Eu	2 W	–	Kn
3926.955	Mo	–	20	–
3926.938	U	5	10	–
3926.922	Pd I	2	–	–
3926.904	Ce	3	–	–
3926 840	Re	10 h	–	–
3926.836	Fe	5	1	–
3926.834	Ba	5	5	–
3926.778	Zr I	25 h	1 h	–
3926.770	Os	30	10	–
3926.728	U	10	1 h	–
3926.711	Th	10	8	–
3926.680	Gd	5	–	–
3926.649	Cr	35	25	–
3926.62	Lu	2	–	Me
3926.614	Cb	5	5	–
3926 608	Nd	15	12	–
3926.591	Pr	9	3	–
3926.530	He I	–	[7]	Ps
3926.518	Re	10	–	–
3926.494	V	2	15	–
3926.489	Rb II	–	[15]	Rr
3926.467	Mn	40	50 l	–
3926.466	Ru	4	1	–
3926.441	Mo	4	3	–
3926.424	Hf	10	–	–
3926 397	Pr	5 d	5	–
3926.338	K II	–	[20]	Dm
3926.333	V	1	15	–
3926.327	Mo	3	3	–
3926.324	Sm	20	2	–
3926.322	Ti I	25	12	–
3926.282	Ce	6	–	–
3926.216	U	30	6	–
3926.167	Ce II	3	–	–
3926.13	Sr I	4 h	–	m
3926.083	Ce	3	–	–
3926.038	Ir I	5	–	–
3926.034	W	7	7	–
3925.989	Pr	3	3	–
3925.947	Fe I	50	30	–
3925.925	Ru I	60	100	–
3925.874	Ce	3	–	–
3925.832	Mo	1	30	–
3925.71	A II	–	[3]	Rt
3925.65	Hg	–	[100]	Ps
3925.650	W	2	7	–
3925.649	Mo	–	20	–
3925.646	Fe I	80	50	–
3925.583	Cs II	–	[25]	Sv
3925.497	U	4	1	–
3925.456	Pr	125	100	–
3925.45	Tb	150	200	Ed
3925 340	Pt I	60	3	–
3925.309	U	–	2	–
3925.30	Lu	20	1	Me
3925.274	Cu I	50	2 h	–
3925.241	Ta	25 h	5 h	–
3925.240	V I	40	25	–
3925 23	Pb	–	2	Sx
3925.200	Fe I	15	3	–
3925.200	Sm	15	3	–
3925.163	Co I	18	–	–
3925.14	W	–	4 d	–
3925.103	Os	30	10	–
3925.100	Ce	2	–	–
3925.096	Th	10	5	–
3925.09	La II	4	3 h	Me
3925.031	U	5	1	–
3925.00	Ce	2	–	–
3925.00	Sr	4 w	2	Sd
3924.996	Cb	10	15	–
3924.995	Pr	2	2	–
3924.984	Nd	20	20	–
3924 885	Zr I	3	–	–
3924.81	Tb	10	3	Ed
3924.803	Ce	10	1	–
3924.785	U	6	3 h	–
3924.695	W	8	9	–
3924.69	La	–	3	Me
3924.674	Re	5 w	–	–
3924.673	Sm	2	–	–
3924.658	V I	35	25	–
3924.644	Ce I, II	3	–	–
3924.633	Ru	6	5	–
3924.543	Ce	18	5	–
3924.54	Ho	–	4 h	Ex
3924.54	Br	–	[3]	Bl
3924.529	Ti	70	35	–
3924.507	Pr	5	–	–
3924.503	U	5	5	–
3924.488	Cb	5	10	–
3924.485	Nd	20	8	–
3924.44	Si	–	3	Sy
3924.427	Ir I	15	2	–
3924.40	Tb	4	3	Ed
3924.39	Ga II	–	25 W	Sy
3924.371	W	9	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3924.35	In II	–	[10]	Ps
3924.272	U	15	15	–
3924.25	Gd	10	–	–
3924.248	Ce	4	–	–
3924.179	Fe	2	–	–
3924.144	Pr	100	15	–
3924.10	Br II	–	[35]	Bl
3924.089	Re	10	–	–
3924.075	Mn	20	20 h	–
3924.02	Se II	–	[2]	Bl
3924.013	I II	–	[5]	Ke
3923.970	Fe	2	–	–
3923.94	In II	–	[2]	Ps
3923 920	U	8	10	–
3923.904	Hf II	12	12	–
3923.821	Pr	9	3	–
3923.808	Th	5	–	–
3923.80	Er	3	–	–
3923.75	Ca	2	2	Ad
3923.748	Mo	10	20	–
3923.681	Sm	10	2	–
3923.639	U	6	–	–
3923.580	Re I	20	–	–
3923.562	Pr	6	8	–
3923.522	Ir I	30	–	–
3923.512	Ce	3	–	–
3923.503	Sc II	3	5	–
3923.483	S II	–	[200]	Hn
3923.467	Ru	60	100	–
3923.465	Zr I	3	1	–
3923.439	Cu II	2	1 h	–
3923.394	Dy	30	–	–
3923.38	U	–	2 h	–
3923.38	Se	–	[8]	Bl
3923.37	Ho	5	2 h	Ex
3923.35	Br	–	[15]	Bl
3923.345	Gd	6	4	–
3923.33	Tb	6	3	Ed
3923.327	Mn	10	20	–
3923.300	Dy	10	–	Kn
3923.255	Gd	10	–	–
3923.110	Nd	3	1	–
3923.109	Ce	15	4	–
3923.054	U	15	6	–
3923.053	K II	–	[20]	Dm
3922.961	Pr	4	3 h	–
3922.960	Pt I	100	20 r	–
3922 915	Ta	100	10 h	–
3922.914	Fe I	600	400	S
3922 908	Mn	5	5 w	–
3922.863	Ce	8	–	–
3922.779	Ta	100	15	–
3922.752	Co I	100	–	–
3922.74	Tb	50	8	Ed
3922.71	P •	–	[50]	Gu
3922.695	Sm II	8	4	–
3922.682	W	–	2	–
3922.668	Mn	20	–	–
3922.661	Mo	3	3	–
3922.609	Th	5 h	–	–
3922.533	Eu	3	–	–
3922.444	Zr II	2	–	–
3922.431	V I	80	40	–
3922.427	U	6	8	–
3922.421	Ta	5	50	–
3922.385	Sm II	60	60	–
3922.351	Cb	5	10	–
3922.335	Ru	4	–	–
3922.335	W	6	7	–
3922.320	Mo	10	10	–
3922.272	Re	10	–	–
3922.259	Rb II	–	[10]	Rr
3922.245	Pr	4	3	–
3922.221	Th	8	3	–
3922.194	Rh I	15	8	–
3922.16	In II	–	[10]	Ps
3922.09	Tb	20	8	Ed
3922.08	In II	–	[10]	Ps
3922.039	Sm II	40	6	–
3922.037	U	–	2	–
3922.033	Os	30	10	–
3922.005	Ce	2 s	–	–
3921.990	Ru	3	–	–
3921.905	V I	35	20	–
3921.886	Er	20	–	–
3921.792	Zr I	100	4	–
3921.785	Re	5	–	–
3921.767	Mo	3	1	–
3921.762	Mn	20 h	20 wh	–
3921.76	Tb	3	–	Ed
3921.731	Ce I	25 l	1	–
3921.69	Cs	–	[4]	Bs
3921.68	Kr II	–	[6 hl]	Me
3921.674	Cb	3	2	–
3921.65	Li I	2	–	Fl
3921.550	U	8	8	–
3921.541	Mo	–	20	–
3921.535	La II	400	200	–
3921.424	Ti I	40	6	–
3921.406	Pr	10	2	–
3921.39	Dy	5 h	–	Ed
3921.346	Cb	–	10 h	–
3921.267	Cu I, II	40	1 h	–
3921.264	Tb	4	–	Kn
3921.260	Fe	2	–	–
3921.236	U	8	6	–
3921.180	Fe	2 h	–	–
3921.082	Ce	4	–	–
3921.022	Cr I	150	40	–
3920.965	Nd	40	15	–
3920.923	Mo	5	5	–
3920.915	Ru I	20	20	–
3920.879	Re	40 W	–	–
3920.870	Os	20	12	–
3920.840	Fe I	7	2	–
3920.783	Ce	3	–	–
3920.758	Cb	1	50 h	–
3920.733	Co I	25	–	–
3920.72	Tb	10	3	Ed
3920.68	S	–	[8]	Bl
3920.677	C II	–	200	Fl
3920.65	Br	–	[15]	Bl
3920.641	Cu II	–	2	Sh
3920.581	Co I	8	–	–
3920.54	In	–	18	Sq
3920.533	U	6	2	–
3920.524	Pr	30	10	–
3920.487	V I	35	15	–
3920.346	U	–	2	–
3920.33	Ce	2 h	–	–
3920 260	Fe I	500	300	S
3920.259	Th	8	5	–
3920.198	Cb	30	100	–
3920.143	Co I	20	–	–
3920.14	Kr II	–	[200 hl]	Me
3920.095	Sm	3	2	–
3920.079	Mo	3	3	–
3920.040	W	5	5	–
3920.00	I	–	[5]	Ke
3919.989	V I	25	7	–
3919.923	Nd	20 d	6 d	–
3919.819	Ti I	20	2	–
3919.813	Ce	45	2	–
3919.720	Cb	2	100	–
3919.719	U	5	5	–
3919.635	Co I	4	1	–
3919.620	Pr	35	15	–
3919.6	bh Sr	4	–	L
3919.54	Tb	40	15	Ed
3919.51	Br	–	[15]	Bl
3919.453	Mo	–	20	–
3919.45	Ho	6	4	Kn
3919.343	U	3	4	–
3919.338	Ta	2	–	–
3919.279	O II	–	[35]	Fl
3919 2	Eu	3 w	–	Kn
3919.165	Cb	5	5	–
3919.159	Cr I	300 r	125	–
3919.145	Dy	4	–	Kn
3919.11	Re	8	–	–
3919.106	Eu	20	–	–
3919.070	Fe I	15	7	–
3919.062	Ir I	4	–	–
3919.003	N II	–	[35]	Fl
3919.003	Th	10	1	–
3919.00	Tb	6	–	Ed
3919.000	Cb	5	5	–
3918.977	C II	–	80	Fl
3918.971	Os	30	10	–
3918.946	Ce	2	–	–
3918.92	Hg II	–	[200]	Ps
3918.90	Nd	20	4	–
3918.86	Lu	4	–	Me
3918.856	Pr	100	30	–
3918.82	Tb	8	–	Ed
3918.646	Fe I	60	40	–
3918.612	Sm II	25	4	–
3918.599	W	12	9	–
3918.59	Ca	3	3	Ad
3918.556	Er	4	–	–
3918.54	Dy	8	–	m
3918.518	Eu	20 w	–	–
3918.512	Ta	25	10	–
3918.50	Te	–	[5]	Bl
3918.500	Th	3	1	–
3918.420	Fe	15	10	–
3918.320	Fe I	20	10	–
3918.315	Mn	40	50	–
3918.285	Th	5	1	–
3918.276	Ce	60	6	–
3918.270	Er	4	–	–
3918.264	Nd	10	6	–
3918.25	Gd	10	10	–
3918.25	Yt I	6	3	m
3918.213	Sc	2 h	3 h	–
3918.208	W	1	3	–
3918.158	Eu	7	2	–
3918.154	U	–	2	–
3918.091	Hf II	20	12	–
3918.065	U	3	8	–
3918.052	Er	5 s	–	–
3918.051	Gd	10	10	–
3918.046	Nd	40	6	–
3918.010	Th	10 h	5	–
3917 967	Sm	4	–	–
3917.95	Se II	–	[5]	Bt
3917.915	Pr	10 h	5 h	–
3917.83	Br I	–	[4]	Ks
3917.824	U	6	12	–
3917.818	Eu	5 w	–	–
3917.779	Mo	15	5	–
3917 77	A	–	[3]	Rt
3917.710	Ru	3	–	–
3917 681	Eu	5 w	–	–
3917.648	Nd	20	15	–
3917.644	Ce	18	3	–
3917.642	W	8	8	–
3917.64	Kr II	–	[50 whl]	Me
3917 611	U	6	5	–
3917.596	Cr I	20	12	–
3917.57	Cl II	–	[18]	Ks
3917.545	Mo	15	10	–
3917.448	Hf II	5	15	–
3917.438	Sm II	20	15	–
3917.391	U	3	3	–
3917.372	Dy	5	–	Kn
3917.32	Tb	6	3	Ed
3917.298	Dy	5	–	–
3917 282	Eu	20 w	–	–
3917.28	W	–	6	–
3917.275	Re I	100 w	–	–
3917.258	Th	8	1	–
3917.252	Ce	6	–	–
3917.229	Pr	25	10	–
3917.20	Rn I	–	[25]	Rs
3917.185	Fe I	150	70	S
3917.14	V	2	–	Me
3917.113	Co I	80	10	–
3917.064	U	1	2	–
3917.06	Se II	–	[20]	Bl
3916.980	Cr I	30	8	–
3916.94	Tb	4	–	Ed
3916.925	Mo	8	5	–
3916.90	Kr II	–	[3 hl]	Me
3916 895	Ce	12	2 h	–
3916.836	Eu	10 W	–	–
3916.802	Pr	4	4	–
3916.733	Fe	100	80	–
3916.730	Th	15	10	–
3916.70	Cl II	–	[20]	Ks
3916.683	Ce	6	–	–
3916.666	Gd	2	–	–
3916.645	Zr I	10	–	–
3916.64	Tb	4	3	Ed
3916.609	Mn	12	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3916.589	Gd	150 w	100	–
3916.530	Ce	2	–	–
3916.527	U	12	3	–
3916.49	Se II	–	[8]	Bl
3916.47	Tm	80	8	Me
3916.458	Pr	6	2	–
3916.433	Mo	5	5	–
3916.413	V II	15	40	–
3916.413	Th	10	3	–
3916.400	W	5	4	–
3916.359	Sm	6 h	5 h	–
3916.347	U	8	2	–
3916.25	Hg II	–	[18]	Ps
3916.243	Cr I	100	60	–
3916.141	Ce	20	4	–
3916.104	Ti	10	1	–
3916.083	U	2	–	–
3916.045	La II	400	400	–
3915.995	Eu	20	–	–
3915.948	Nd	25	20	–
3915.938	Zr II	25	15	–
3915.884	U	20	30	–
3915.876	Ti I	15	1	–
3915.843	Cr I	125	80	–
3915.69	Er	3	1	–
3915.661	Mo	3	1	–
3915.633	Ce	3	–	–
3915.605	Dy	80	–	–
3915 572	U	6	–	–
3915.522	Ce	10	3	–
3915.510	Co I	2	1	–
3915.507	Cr	15	10	–
3915.467	Pr	40	20	–
3915.460	W	–	7	–
3915.45	Tb	30	3	Ed
3915.438	Mo	6	50	–
3915.384	Ir	150	50	–
3915.36	V	2	–	Me
3915.242	Eu	5 w	–	–
3915.239	W	–	5	–
3915.233	Re	2	–	–
3915.225	Ce	3	–	–
3915.219	U	15	1	–
3915.216	I	–	[18]	Ke
3915.211	Th	15 h	1 h	–
3915.18	Br	–	[3]	Bl
3915.131	Nd	20	12	–
3915.125	V I	15	3	–
3915.083	W	–	7	–
3915.014	Mo	3	1	–
3915 0	Li I	200 wh	–	Fl
3914.957	U	2 h	1 h	–
3914.949	Ce	18	2	–
3914.940	Nd	2	–	–
3914.913	20	Ir	3	–
3914.877	Dy	50	–	–
3914.872	Pr	6	3	–
3914.867	Er	15	1	–
3914.853	Ru I	20	15	–
3914.84	Eu	4 w	–	–
3914.764	Pr	10	8	–
3914.76	A	–	[25]	Rt
3914.736	Ti I	18	2	–
3914.732	U	12	8	–
3914.73	Tb	2	–	Ed
3914.73	Ba II	–	[15]	Rs
3914.717	Au I	15	3	–
3914.701	Cb	30	100	–
3914.59	Tb	5	–	Ed
3914.47	Th	2	1	–
3914.417	Ce	2	–	–
3914.389	Sm	6	–	–
3914.338	Zr II	70	8	–
3914.335	Cr	3	2	–
3914.335	Ti I	50	10	–
3914.330	V II	25	70 wh	–
3914.29	Hg II	–	[100]	Ps
3914.281	Fe I	15	3	–
3914.28	Br II	–	[150]	Bl
3914.27	Sb	3	2 h	–
3914.268	U	10	18	–
3914.26	P	–	[100 l]	Gu
3914.19	Au	10	4	–
3914.190	W	–	4	–
3914.175	Ce	6	1	–
3914.155	Eu	5 w	–	–
3914.131	Ca	–	2 h	–
3914.10	Br II	–	[10]	Bl
3914.073	Sm	3	3	–
3913.994	Ce II	10	2	–
3913.96	Ho	3	–	Kn
3913.95	Dy	8	–	m
3913.92	Cl II	–	[30]	Ks
3913.918	Re I	30	–	–
3913.826	Th	10	8	–
3913.81	Se II	–	[8]	Bl
3913.80	U	–	5	–
3913.791	Gd	10	10	–
3913.79	Tb	2	–	Ed
3913.745	Eu	5 W	1	–
3913.72	Dy	2	–	m
3913.690	Nd	8	2 h	–
3913.678	Mo	4	3	–
3913.638	W	–	10	–
3913.638	Sm	10	3	–
3913.635	Fe I	100	25	–
3913.628	Dy	6	–	Kn
3913.561	Pr	80	30	–
3913.56	V	2	1	Me
3913.552	Nd	4	–	–
3913.531	Mo	4	4	–
3913.513	Rh I	4	2	–
3913.505	U	4	2	–
3913.464	Ti	40	70	–
3913.45	Tb	8	–	Ed
3913.37	Cs	–	[2]	Bs
3913.365	Sm	5	8	–
3913.362	Mo	8	8	–
3913.357	Ce	3	–	–
3913.257	W	–	5	–
3913.250	U	8	3	–
3913.245	Eu	4	1	–
3913.210	Fe	2 h	1 h	–
3913.145	Ce	3	–	–
3913.14	Cb	5	5	m
3913 095	Pd I	2	–	–
3913.013	Ru	3	–	–
3913.013	Cb	5	10	–
3913.012	Th	15	15	–
3912.979	Ni I	5	–	–
3912.970	Sm II	20	5	–
3912 898	Pr	150	80	–
3912 895	Bi	2 h	2 h	Om
3912.886	V I	40	15	–
3912.88	Kr II	–	[5 hl]	Me
3912.85	Dy	5	1	m
3912 826	Rh I	2	1	–
3912 822	W	7	6	–
3912.81	In	–	15	Sq
3912.76	Tb	5	8	Ed
3912.748	Mn	5	5	–
3912 745	U	2	4	–
3912.745	Gd	5	–	–
3912.614	Pr	10	5	–
3912.59	Kr II	–	[70]	Me
3912 588	Ti I	15	–	–
3912.544	Dy	5	–	Kn
3912.477	I	–	[25]	Ke
3912.448	Fe	2 h	1 h	–
3912.44	Ho	4	2	Ex
3912.436	Ce I, II	50	5	–
3912.435	Ta	15	10 h	–
3912.43	Eu	5	1	–
3912.429	Er	12	–	–
3912.410	Ir	2	–	Ab
3912.408	U	6	8	–
3912.310	Ni	2	–	–
3912 285	Th	15	15	–
3912.268	Pr	10	3	–
3912.25	Tb	5	–	Ed
3912.234	U	2	1	–
3912.228	Nd	20	20	–
3912 207	V I	50	20	–
3912.189	Ce II	25	3	–
3912.127	Ta	10	3 s	–
3912.112	Ru	10	8	–
3912.088	O II	–	[5]	Fl
3912.05	Fe	5 wh	5 wh	–
3911.999	Cr	40 wh	–	–
3911.989	Pr	20 d	6	–
3911.97	Eu	4 w	–	Kn
3911.951	O II	–	[150]	Fl
3911.945	Mo	5	5	–
3911.914	Th	8	3	–
3911.911	Er	5	–	–
3911.909	Nd	12	6	–
3911.82	Cr I	10	–	Ct
3911.812	Os	30	5	–
3911.810	Sc I	150	30	–
3911.80	Ho	3	–	Kn
3911.798	Pr	8	2	–
3911.775	Re	3	–	–
3911.77	Lu	3 h	–	Me
3911.726	Ce	3	–	–
3911.699	Fe	1	–	–
3911.677	Dy	5	1	Kn
3911.673	U	18	18	–
3911.66	Gd	5	–	Kn
3911.606	Eu	5	–	–
3911.58	A	–	[10]	Rt
3911.558	Er	8	–	–
3911.419	Mn	15	15	–
3911.362	Ti I	7	–	–
3911 308	Th	5	3	–
3911.307	Pr	5	3	–
3911.303	Ce	15	1	–
3911.293	W	6	5	–
3911.28	Yb	8	–	–
3911.231	U	3	3	–
3911.189	Tl I	40	5	–
3911.169	Nd	25	25	–
3911.144	Ru	6	2	–
3911.123	Mn	20	–	–
3911.092	Mo	20	20	–
3911.09	Se II	–	[2]	Bt
3911.003	Th	5	1	–
3911.001	Fe	6	2	–
3910.978	U	10	3	–
3910.919	Sm II	1	2	–
3910.906	Pt I	5	2	–
3910.85	Tb	5	–	Ed
3910.844	Fe I	30	10	–
3910.806	La II	10	5 h	–
3910.790	V I	35	20	–
3910.703	Ce	12	2 h	–
3910.572	Pr	10	–	–
3910.57	Tb	2	–	Ed
3910.512	Er	3	–	–
3910.502	U	1	3 h	–
3910.40	Tb	5	–	Ed
3910.301	Sm	4	1	–
3910.241	U	1	4	–
3910.239	Gd	10 h	10	–
3910.14	Eu	5 w	1	m
3910.13	Tb	4	3	Ed
3910.086	Sm II	5	5	–
3910.05	Tl	–	[3]	Sx
3909.944	Sm	3	–	–
3909.943	Gd	5	–	–
3909.934	Co I	200 W	–	–
3909 934	Ce	12	1	–
3909.917	Ba I	50 R	20 r	–
3909 908	Eu	10	1	–
3909.894	V I	50 w	30 w	–
3909.835	Fe I	40	12	–
3909.752	Ce	6	1	–
3909.706	U	3	6	–
3909.672	V I	15	8	–
3909.669	Fe I	20	5	–
3909.620	Pr	20	10	–
3909.595	Cb	8 l	10 w	–
3909.57	Er	4	–	–
3909.56	Ho	2	–	Kn
3909.548	Mo	6	6	–
3909 54	Tb	15	8	Ed
3909.49	Tl II	–	[2]	Sx
3909.477	I I	–	[7]	Ke
3909.376	Au I	10	15	–
3909.37	Br	–	[2]	m
3909 332	Ta	15	1 h	–
3909.313	Ce II	35	3	–
3909.312	Pr	4	2	–
3909.276	Nd	15	10	–
3909 273	Sm	5	5	–
3909.247	Gd	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3909.18	Hf	3	3 d	Me
3909.17	Pb II	–	40	Sx
3909.15	Tl II	–	[3]	Sx
3909.150	Tb	15	3	Kn
3909.075	Ru	30	50	–
3909.065	U	5	7	–
3909 045	Ce	6	1	–
3908.973	Cb	10	8	–
3908 931	Ni I	2	–	–
3908.834	Ir	5	–	–
3908.765	Ce	12	2	–
3908.765	Ru	12	12	–
3908.755	Cr I	200	150	–
3908.682	U	2	3	–
3908.66	Tb	4	3	Ed
3908.612	Mo	–	30	–
3908.594	Cb	3	5	–
3908.543	Ce I, II	20	3	–
3908.488	Th	3	2	–
3908.473	U	8	10	–
3908.431	Pr	100	60	–
3908.418	Er	10	–	–
3908.408	Ce	30	6	–
3908.331	U	10	1	–
3908.317	V	50	2 h	–
3908.258	Sm	6	–	–
3908.249	Mo	5	3	–
3908.202	Re	25	–	–
3908.162	Mn	3	3	–
3908.146	Gd	5	3 h	–
3908.094	Ce II	8	1	–
3908.076	Tb	20	–	Kn
3908.033	Pr	100	50	–
3907.964	Ce	2	–	–
3907.937	Fe	100	60	S
3907.912	Tb	5	–	Kn
3907.91	Xe II	–	[50 hl]	Hu
3907.896	Ir I	10	2	–
3907.843	Nd	20	12	–
3907.79	Tb	3	3	Ed
3907.778	Cr	30	10	–
3907.753	Ir I	4	–	–
3907.736	Sb	–	[8]	Lg
3907.675	Fe	2	1	–
3907.65	Tb	3	–	Ed
3907.650	Au	5	3	–
3907.639	Ce	2	1	–
3907.59	Ag	3	2 h	–
3907.558	U	6	8	–
3907.519	V	–	2	Me
3907.476	Sc I	125	25	–
3907.470	Fe	15	6	–
3907.445	Ce	6	2	–
3907.44	O II	–	[18]	Mh
3907.342	Th	8	3	–
3907.296	Pr	8	3	–
3907.289	Ce	35	6	–
3907.202	W	6	5	–
3907.186	I II	–	[18]	Ke
3907.17	V	2 h	2	m
3907.150	Sn	–	4	–
3907.125	Gd	100 W	100	–
3907.124	Sm	10	15	–
3907.110	Eu II	1000 RW	500 R	–
3907.018	U	5	1	–
3906.976	Mo	5	5	–
3906.933	Cs II	–	[20]	Sv
3906.924	Ce	8	3	–
3906.916	Mo	5	5	–
3906.906	Cb	5	5	–
3906.89	Hf	3	3 d	m
3906.805	Sm II	6	5	–
3906.796	Th	8	–	–
3906.751	Fe	10	10	–
3906.748	V I	50	20	–
3906.53	Tb	4	–	Ed
3906.482	Fe I	300	200	S
3906.480	Mo	5	10	–
3906.452	Ce	8	2	–
3906.410	Hg I	25	15	–
3906.316	Er	25	12	–
3906.294	Co I	150	–	–
3906.291	Pt I	2	1 h	–
3906 26	Ho	3	3	Ex
3906 25	Kr II	–	[150 hl]	Me
3906.151	Zr	3	–	–
3906.104	Ce	2	–	–
3906.096	Nd	15	10	–
3906.093	Pr	6	8	–
3906.037	Fe II	2 w	2 w	–
3906.010	Ba I	4	2	–
3905.991	Ru	6	3 h	–
3905.970	W	8	7	–
3905.95	Dy	6	1	Ed
3905.920	Ce	3	–	–
3905 896	U	8	–	–
3905.886	Nd	40	30	–
3905.876	Yb	2	10	–
3905 85	Xe II	–	[5]	Hu
3905.85	Ce	3	–	–
3905.83	Tb	2	–	Ed
3905.78	Ho	30	6	Ex
3905.721	I I	–	[10]	Ke
3905.659	Cr	2	4	–
3905.657	Eu	3	–	–
3905.651	Gd	50	50	–
3905.61	Tb	10	–	Ed
3905.6	Rn	–	[3]	Rc
3905.56	Dy	6	–	m
3905.555	Nd	10	10	–
3905.55	Ho	15	8	Ex
3905.528	Si I	20	15 W	–
3905.451	Ir I	8	–	–
3905 415	Er	18	1	–
3905.37	Si	–	4	Sy
3905.298	Ce	6	–	–
3905.285	Ta	6 h	2	–
3905.190	Th	30	30	–
3905.158	Ru	3	–	–
3905.124	U	3 h	–	–
3905.120	Re	20	–	–
3905.11	Te	–	[5]	Bl
3905.1	Cd I	8	–	Sd
3905 019	Mo	–	5	–
3904.965	Mn	10	10 d	–
3904.922	Ce	2	1	–
3904.914	Eu	8	–	–
3904.853	U	8	15	–
3904.85	Se II	–	[25]	Bt
3904.828	Yb	12	150	–
3904.806	Cs	–	[4]	Sv
3904.800	Pr	6	2	–
3904.785	Ti I	70	35	–
3904.78	P	–	[100]	Gu
3904.63	Fe	2	–	–
3904.587	Yt	3	3	–
3904.587	Er	10	1	–
3904.582	Ce II	6	1	–
3904.565	U	8	8	–
3904.472	V I	20	7	–
3904.45	Ho	4	2	Kn
3904.402	V I	2	–	Me
3904.4	C	–	[6 h]	Jn
3904.393	Pt I	5	1	–
3904.340	Ce I, II	12	3	–
3904.305	Mn	5	5	–
3904.299	U	8	15	–
3904.289	Gd I	10	10	–
3904.224	Rh I	3	2	–
3904.218	V I	10	2	–
3904.186	Tb	4	–	Kn
3904.185	Sm	3	1	–
3904.182	Cb	10	20	–
3904.160	Ce	4	–	–
3904.14	Dy	20	–	Kn
3904.089	Th	20	20	–
3904 052	Co I	8	–	–
3904.035	Mg I	2	12	–
3904.006	U	8	8	–
3903.993	Er	5	–	–
3903.985	W	10	10	–
3903.932	Ce	10	3	–
3903.918	Eu	10 W	–	–
3903.908	Pr	10	8	–
3903.906	Er	5	1 h	–
3903.900	Fe I	100	80	–
3903.819	F II	–	[10]	Di
3903.77	Zr II	1	2	–
3903.722	Pt I	2	1	–
3903.638	Hg I	3	–	–
3903.634	Eu	10	–	–
3903.534	Ce	3	–	–
3903.510	Nd	10	2	–
3903.412	Sm	60	60	–
3903.342	Ce	15	3	–
3903.332	Dy	8	–	Kn
3903.298	W	6	7	–
3903.262	U	10	1	–
3903.262	V II	3	3	–
3903.240	Eu	10 W	–	–
3903.164	Cr I	35	30	–
3903.163	Cu II	–	5	Sh
3903.120	Ce	2	2	–
3903.11	Tb	3	–	Ed
3903.093	Th	15	5	–
3902.963	Mo I	1000 R	500 R	–
3902.948	Fe I	500	400	S
3902 915	Cr I	100	100	–
3902.89	Ce	8	1	–
3902 849	Ir I	8	2	–
3902.84	Cl II	–	[9]	Ks
3902 821	Re	3	–	–
3902.816	Ru	5	–	–
3902.766	Er	10	1	–
3902.745	Ce	2	–	–
3902.717	Gd I	25	–	–
3902.684	W	5	4	–
3902.662	Ir I	8	8	–
3902.583	Re	6	–	–
3902.576	La I	20	–	–
3902.561	U	18	18	–
3902.558	V I	6	2	–
3902.509	Ce	3	–	–
3902.506	Ir I	10	15	–
3902.470	Pr	60	40	–
3902.459	Th	8	5	–
3902.453	Nd	10	8	–
3902.44	Ce	2	1	–
3902.404	Gd	100	80	–
3902.39	Dy	5	–	m
3902.35	Tb	10	–	Ed
3902.324	Sm II	10	–	–
3902.272	Ce	2	–	–
3902.257	U	1	2	–
3902.250	V I	20	5	–
3902 24	Ho	8	6	Ex
3902.13	Ce	2	–	–
3902.123	In II	–	[10]	Ps
3902.122	Th	10	10	–
3902.108	Cr	40	30	–
3902.076	In II	–	[18]	Ps
3902.072	Ru	4	–	–
3902.024	In II	–	[18]	Ps
3901.99	S	–	[20]	Hn
3901.98	Tb	15	3	Ed
3901.955	F II	–	[15]	Di
3901.95	B	3	2	En
3901.903	Hg I	15	5	–
3901.852	F II	–	[3]	Di
3901.850	Nd	30	30	–
3901.833	W	10	10	–
3901.787	U	1	2	–
3901.769	Mo	15	20	–
3901.708	Os	150	20	–
3901.689	V I	5	–	–
3901.681	Eu	5 w	–	–
3901.68	Tb	6	3	Ed
3901.679	Pr	10	3	–
3901.670	Th	5	–	–
3901.66	Er	2	–	–
3901.551	U	15	–	–
3901.53	Se	–	[5]	Bl
3901.53	Tl II	–	[12]	El
3901.513	Zr I	8	–	–
3901.35	Tb	50	8	Ed
3901.344	W	2	6	–
3901.338	Dy	25	–	–
3901.304	Ce	10	2	–
3901.25	Br	–	[8]	Bl
3901.242	Ru I	50	12	–
3901.158	Th	10	8	–
3901.152	V I	50	3 h	–
3901.15	Kr II	–	[10 hl]	Me
3901.132	Ce	3	–	–
3901 13	I	–	[3]	Ke

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3901.096	Re I	10	–	–
3901.09	Dy	4	–	m
3901.056	Sm	3	2	–
3901.005	Os	10	5	–
3900.960	Ti I	25	2	–
3900 918	Eu	5 w	–	–
3900.91	W	–	15	–
3900.901	Re I	20	–	–
3900.886	Th	30	30	–
3900.886	Sm II	10	10	–
3900.883	Ce	3	1	–
3900 865	Yb	50	10	–
3900.863	Er	18	1	–
3900.823	Cb	2	2	–
3900.82	Cs	–	[4]	Bs
3900.799	U	2	3	–
3900.79	Tm	80	50	Me
3900.734	Pt I	40	3	–
3900.72	Tb	4	–	Ed
3900.680	Al II	–	[200]	Sy
3900.665	Mo	2	–	–
3900.651	Hf II	2	15	–
3900.63	A	–	[10]	Rt
3900.584	Th	8	3	–
3900.540	Ti II	30	50 h	–
3900.528	Cb	30	10	–
3900.519	Fe I	60	3 d	–
3900.519	Eu	12 w	–	–
3900.517	Zr I	100	–	–
3900.423	Eu	8 w	2	–
3900.40	Tb	2	–	Ed
3900.394	Os	50	12	–
3900.39	Dy	3	–	m
3900.327	U	6	12	–
3900.227	Mo	1	3	–
3900.226	Nd	30	30	–
3900.204	Ce	10	2 h	–
3900.175	V I	50	2 h	–
3900.169	Eu	12 w	–	–
3900.11	K II	–	[10]	Bn
3900 108	Pr	3	1	–
3900.09	Cs II	–	[4]	Sv
3899.936	Hf	15	6	–
3899.86	A I	–	[100]	Ms
3899.859	Ce	2	2 h	–
3899.778	W	–	5	–
3899.712	Ti I	15	2	–
3899.709	Fe I	500	300	S
3899.708	Eu	4	–	–
3899.64	Ho	–	6	Ex
3899.555	Pr	10	8	–
3899.54	Tb	15	8	Ed
3899.54	Lu	–	3 h	Me
3899.455	Eu	5 w	3	–
3899 385	Ce	6	2	–
3899.333	Mn	12	25	–
3899.270	Ce	2	–	–
3899.246	Cb	10	15	–
3899.242	K II	–	[10]	Dm
3899.19	Tb	200	100	Ed
3899.15	Dy	20	–	m
3899.134	V I	12	5 h	–
3899.106	Cu I	2 wh	–	–
3899.097	U	5	3	–
3899.095	Zr	5	1	–
3899.038	Fe I	20	8	–
3899.036	Er	2	1	–
3899.01	Fe	6	–	–
3898.944	Ce I	15	3	–
3898.840	Pr	15	9	–
3898.837	U	6	6	–
3898.833	F II	–	[20]	Di
3898.794	Th	2	1	–
3898.782	W	–	6 d	–
3898.781	Ta	10	5 h	–
3898.78	Eu	20 W	–	–
3898 747	Pt I	20	2 h	–
3898.734	Tb	4	–	Kn
3898.725	F II	–	[3]	Di
3898.693	U	6	–	–
3898.604	La I	30	5	–
3898.600	Ce II	4	–	–
3898.58	Ba I	5	–	Sd
3898.557	Cb	5	5	–
3898.557	Zr I	2	–	–
3898.55	Ho	6	8	Ex
3898.544	Dy	100	–	–
3898.530	Er	30	10	–
3898.514	U	6	3	–
3898.508	Sm	–	4	–
3898.50	Eu	2 W	–	–
3898.494	Ti I	20	5	–
3898.494	Co I	80 r	6	–
3898.48	Gd	10	10	m
3898.477	Th	10	8	–
3898.44	I I	–	[25]	Bl
3898.433	Ce	2	–	–
3898.362	Mn	30	–	–
3898.361	Ru I	12	6	–
3898.285	Cb	3	200	–
3898.278	V	10	–	–
3898.273	Ce	80	6	–
3898.26	Eu	5 W	8 Wh	–
3898.139	V I	40	–	–
3898.120	Mg I	5	8	Ps
3898.019	V I	10	2	–
3898.014	Ce	5	–	–
3898.013	Fe I	80	50	–
3897.909	W	12	15	–
3897.895	Fe	100	60	–
3897.89	Au I	30	25	–
3897.870	K II	–	[60]	Dm
3897.852	Tb	15	8	Kn
3897.73	Br	–	[3]	Bl
3897.73	Eu	20 W	–	–
3897.717	Pr	8	3	–
3897.707	U	6	8	–
3897.658	Zr I	6	–	–
3897.650	Cr I	40	25	–
3897.638	Nd	20	10	–
3897.585	Ti I	6	–	–
3897.507	Mo	5	8	–
3897.447	Fe I	10	5	–
3897.432	Ce	6	–	–
3897.429	La II	3	4	–
3897.39	Tb	4	–	Ed
3897.348	Gd	4	–	–
3897.304	Ti I	8	–	–
3897.284	Pr	20	8	–
3897.27	Ho	4	4	Kn
3897.265	U	15	5	–
3897.260	I	–	[40]	Ke
3897.252	Sm II	8	5	–
3897.25	Tb	4	–	Ed
3897.236	Ru	12	6	–
3897.23	Eu	10 W	10 W	–
3897.23	Ca	2	3	–
3897.128	Ir	5	–	–
3897.1	bh Sr	8	–	L
3897.075	V I	40	2	–
3897.062	U	8	18	–
3897.039	Pr	9	3	–
3896.978	Cs II	–	[7]	Sv
3896.971	Sm II	50	50	–
3896 929	W	2	15	–
3896.9	Pb II	–	[2]	Ea
3896.852	Mo	5	5	–
3896.843	Pr	12	4	–
3896.82	Eu	4 W	–	–
3896.804	Yt II	2	5	–
3896 804	Ce I, II	35	6	–
3896 794	V I	2	–	–
3896.779	U	20	25	–
3896 75	Ho	5	4	Kn
3896.675	Cu II	–	2	–
3896.66	F II	–	[6]	Di
3896 656	Dy	8	–	Kn
3896.622	V	6	1	–
3896.62	Tm	15	1	Me
3896.60	Tb	25	15	Ed
3896.534	Zr I	15	–	–
3896.488	Tb	4	–	Kn
3896.479	Gd	5	5	–
3896.45	Eu	2 W	–	Kn
3896.43	Ta	5	–	Ks
3896.379	Mo	8	10	–
3896.333	Mn	12	12	–
3896.24	Ho	4	6	Kn
3896.234	Er	30	15	–
3896 156	V I, II	50	40	–
3896.143	Nd	20	10	–
3896.132	U	3	6	–
3896.111	Re	25	–	–
3896.04	Tb	25	8	Ed
3895.991	Zr	–	3	–
3895.969	Tb	3	–	Kn
3895.968	Gd	10	–	–
3895.946	U	2 h	3 h	–
3895.905	Nd	8	4	–
3895.900	Cb	10	30	–
3895 828	Ce	2	–	–
3895.805	Er	6	1	–
3895.784	Gd	25	10	–
3895.770	Ru	3	–	–
3895.662	Mg I	–	15	Ps
3895.66	Se	–	[2]	Bt
3895.658	Fe I	400	300	S
3895.655	La	10	–	–
3895.592	Ir	30	25	–
3895.53	Ho	4	–	Kn
3895.46	Eu	2 W	–	–
3895.425	Th	20	10	–
3895.423	Sm	10	2	–
3895.409	Re	10	–	–
3895.376	Nd	10	10	–
3895.376	Tb	3	–	Kn
3895.35	Dy	15	3	m
3895.272	U	12	20	–
3895.26	A II	–	[3]	Rt
3895.246	Ti I	70	10	–
3895.232	Gd	20	20	–
3895.230	Fe	2 h	–	–
3895.177	Os	20	10	–
3895.146	Fe	2	–	–
3895.12	Eu	2 W	–	–
3895.119	Ce I, II	40	6	–
3895.093	Sm	3	3	–
3895 078	Pr	5	3	–
3895.065	Tb	4	–	Kn
3895.027	Nd	–	5	–
3895.02	P	–	[100]	Gu
3894.982	Co I	300 R	3	–
3894.97	Eu	4 W	4 Wh	–
3894.957	Sc	2 h	1	–
3894.943	Pr	15 d	3 d	–
3894.923	U	10	–	–
3894.901	Th	2	1	–
3894 82	In II	–	[18]	Ps
3894.756	U	2	6	–
3894.72	Eu	3 W	–	–
3894.71	Kr II	–	[60 whl]	Me
3894.708	Mn	40	40	–
3894.708	Gd	150 W	80	–
3894.7	bh Ca	4	–	L
3894.700	Cb	3	3	–
3894.671	Ta	–	40 h	–
3894.660	A I	–	[300]	IHu
3894.659	Ca	–	3	–
3894.63	Tb	20	3	Ed
3894.627	Nd	20	20	–
3894.6	Pb II	–	[5]	Ea
3894.571	Cb	–	5 h	–
3894.568	Cr	10	–	–
3894.55	Ra II	–	[25]	Rs
3894.533	Dy	4	–	Kn
3894.416	Th	8	5	–
3894.352	Ba I	5	–	–
3894.34	Eu	2	–	–
3894.281	Sm	8	2 h	–
3894.245	Ru I	8	2	–
3894.201	Pd I	200 W	200 W	–
3894.17	Eu	9 w	5 wh	–
3894.141	Pr	8	2	–
3894.123	U	30	4	–
3894.081	Co I	1000 R	100	–
3894.052	Sm II	15	15	–
3894.042	V I	20	3	–
3894.035	Cr I	60	40	–
3894.034	Cb	15	30	–
3894.015	Mo	1	3	–
3894.012	Fe	8	8	–
3893.930	W	6	12	–
3893 917	Re	2	–	–
3893.915	Fe I	10	4	–
3893 89	Hg I	–	[2 h]	W

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
3893.837	Zr I	3	–	–
3893.821	U	10	10	–
3893.75	Sb II	–	[6]	Lg
3893.732	Cb	15	10	–
3893.703	Nd	12	4	–
3893.70	Tb	5	–	Ed
3893.635	Ti	6	–	–
3893.54	Ho	5	2 h	Kn
3893.52	O II	–	[5]	Mh
3893.473	W	5	6	–
3893.396	Th	15 w	10 w	–
3893 394	Fe I	100	8	–
3893.384	Sm	3	1	–
3893.38	Eu	2 w	–	–
3893.376	Mg I	–	8	Ps
3893.35	Tb	15	8	Ed
3893.325	Mo	5	5	–
3893 318	Fe I	5	4	–
3893 307	U	–	3	–
3893.303	Co I	15	–	–
3893.233	Ce	18	1	–
3893.113	Th	8	5	–
3893.11	Eu	2 W	–	–
3893.10	Ho	4	4	Ex
3893 09	Cs	–	[4]	Bs
3893.070	Co I	10	2	m
3893.04	F II	–	[3]	Di
3893.032	Ta	4	2	–
3892.988	I I	–	[15]	Ke
3892.95	Ho	6	4	Ex
3892.913	Cu II	1	2	Sh
3892.894	Fe	5	2	–
3892.893	U	8	–	–
3892.87	Dy	8	2	m
3892.859	V I	60	35	–
3892.81	Eu	6 w	–	–
3892.773	Ru	10	4	–
3892.75	Gd	5 h	–	Kn
3892.722	W	10	12 l	–
3892.70	Ho	2	2 h	Ex
3892.692	Er	25	2	–
3892.684	U	20	30	–
3892.678	Sm	–	3 h	–
3892.662	Ba	5 h	–	–
3892.615	Mn	20	20	–
3892.523	Pr	15	4	–
3892.475	V	5	–	–
3892.472	Hf	5	1 h	–
3892.47	La II	–	3 h	Me
3892.422	Er	2	–	–
3892.413	U	10	12	–
3892.410	Fe I	2	–	–
3892.408	Yt I	3	–	–
3892 330	W	8	7	–
3892.321	S II	–	[35]	Hn
3892.32	Ce	2	–	–
3892.311	Th	10	8	–
3892.292	Mo	5	15	–
3892.265	Zr	2	–	–
3892 209	Ru I	50	40	–
3892.206	Cs	–	[4]	Sv
3892.125	Co I	20	–	–
3892.118	Mg	3	12	–
3892.112	U	8	3	–
3892.065	Nd	20	20	–
3892.063	Ce	3	–	–
3892.05	La II	–	3 h	Me
3892.030	Zr I	10	–	–
3891.982	Dy	12	–	Kn
3891.97	A	–	[25]	Rt
3891.938	Sm	4	–	–
3891.934	Cr I	40	25	–
3891.929	Fe	100	70	–
3891.877	Mo	2	20 d	–
3891.85	Dy	6	4	Kn
3891.822	U	18	1	–
3891.785	Ba II	18	25	–
3891.774	Ce	6	–	–
3891.763	Th	5	–	–
3891.76	Tb	2	3	Ed
3891.704	Pr	10	4	–
3891.682	U	12	–	–
3891.680	Co I	5	2	–
3891.63	Br II	–	[25]	Bl
3891.55	Si	–	3	Sy
3891.512	Nd	20	15	–
3891.48	Eu	3 w	–	–
3891.410	Ru	20	3	–
3891.40	A	–	[15]	Rt
3891.398	Re	15	–	–
3891.383	Zr I	100	5	–
3891.34	Eu	4 w	–	–
3891.300	Cb	50	100	–
3891.249	W	9	5	–
3891.220	V I	8	2	–
3891.179	Sm II	50	8	–
3891.119	V	5	–	–
3891.090	U	10	10	–
3891.083	Yt	2 h	3	–
3891.060	Th	10	10	–
3891.02	Ho	200	40	Ex
3890.986	Ce II	12	3	–
3890.95	Tb	5	–	Ed
3890.940	Nd	20	20	–
3890.884	Gd	15	15	–
3890.858	Yt	4	4	–
3890.844	Fe	60	30	–
3890.761	Ce	8	2	–
3890.749	Cb	2	3	–
3890.741	W	7	6	–
3890.714	Ta	2	2	–
3890.706	Mo	5	8	–
3890.619	Er	10	2	–
3890.583	Ba I	3	–	–
3890.580	Nd	30	25	–
3890.527	Ce II	4	–	–
3890.52	Tm	40	10	Me
3890.499	Ta	2	10 l	–
3890.46	As II	–	5	Ro
3890.455	Mo	2	3	–
3890.441	Ce	2	–	–
3890.421	Gd	5	–	–
3890.42	Ho	5	–	Kn
3890.420	W	10	8	–
3890 390	Fe I	4	2	–
3890.364	U	35	30	–
3890 318	Zr I	150	6	–
3890.241	Mg I	3	8	Ps
3890.237	Fe	15	–	–
3890.221	Nd	12	8	–
3890 197	Ru I	30	8	–
3890.184	V I	100	30	–
3890 170	Pr	8	2	–
3890.074	Sm II	10	10	–
3890.073	Cu II	–	3	Sh
3890 007	U	1	3	–
3889 990	Ce	50	8	–
3889 969	Pr	5	3	–
3889.957	Re	25	–	–
3889.954	Ti I	25	5	–
3889.953	Mo	2	4	–
3889 929	Nd	30	20	–
3889 923	Fe	2	–	–
3889 85	Tb	10	3	Ed
3889 799	Er	15	1	–
3889 78	In II	–	[100]	Ps
3889 671	Ni I	30	10 h	–
3889.664	Nd	30	25	–
3889 634	Cb	3	5	–
3889.577	Ir	2	3	–
3889.549	Ce	3	–	–
3889.51	Eu	10 W	5 W	–
3889.476	Ce II	4	–	–
3889.47	Au I	3	8	–
3889.457	Ta	–	40 W	–
3889.450	Mn	25	50	–
3889.446	Zr	2	–	–
3889.419	Pr	10	6	–
3889 415	U	1	5	–
3889.369	W	–	5	–
3889 330	Pr	150	70	–
3889 328	Hf	5	1	–
3889.316	Ba	10	2	m
3889.304	Ce	6	1	–
3889.285	U	12	–	–
3889.285	Mo	2	3	–
3889.235	V I	12	2	–
3889.232	Hf	4	1 h	–
3889.218	Nd	10	15	–
3889.216	Sm	5	7	–
3889.151	Sm II	4	4	–
3889.141	Ca I	8	–	Cw
3889.055	H I	–	[60]	m
3889.024	Er	9	1	–
3889.004	Zr	2 h	2 h	–
3888.997	Ce	12	3	–
3888.99	Dy	20	–	m
3888.95	Ho	40	20	Ex
3888.934	Gd	6	–	–
3888.890	W	3	4	–
3888.875	Mo	8	8	–
3888 823	Fe	40	15	–
3888.68	Eu	8 w	5 w	–
3888.65	Cs I	150	10	Fl
3888.646	He I	–	[1000]	IMr
3888.607	U	4	3	–
3888.52	Br	–	[10]	Bl
3888.517	Fe I	4 w	3 w	S
3888.40	Dy	6	–	m
3888 388	Ce II	15	4	–
3888.335	Rh I	5	2	–
3888.329	V I	10	1	–
3888 291	Pr	5	4	–
3888.233	Bi I	40	2	–
3888.21	Tb	30	–	Ed
3888.206	U	12	6	–
3888.178	Mo	10	8	–
3888 110	Ce	2	–	–
3888.093	Er	18	1	–
3888.080	V I	15	4	–
3888.024	Ti I	15	–	–
3887.960	Mo	3	4	–
3887.952	Re	20	–	–
3887.945	W	–	10	–
3887.935	Bi I	5	2	Om
3887.88	Tb	10	–	Kn
3887.866	Nd	25	20	–
3887.81	Eu	5 w	–	–
3887.776	Yt	3	3	–
3887 772	Ru I	15	8	–
3887.745	Gd	5	–	–
3887.700	U	20	10	–
3887 672	Mo	3	3	–
3887 67	Tb	25	3	Ed
3887.54	Dy	12	2	–
3887.54	Kr II	–	[5 whl]	Me
3887.49	Tb	4	–	Ed
3887.482	Re	20	–	–
3887.447	U	20	–	–
3887.381	Ir	3	–	Ab
3887.365	Ti I	5	–	–
3887.354	Tm	80	8	Me
3887 318	Cb	–	5	–
3887 315	Yb	6	40	–
3887 29	Tb	2	–	Kn
3887.198	U	–	3	–
3887.177	Gd	10	10	–
3887.160	Er	2	1	–
3887.15	Tl II	–	[30]	El
3887.104	Sm	8	8	–
3887.051	Fe I	3 w	2 w	S
3887 050	Ir	8	–	–
3886.921	Th	8	1	–
3886.84	K II	–	[5]	Bn
3886 83	Tb	20	8	Ed
3886.822	Mo	30	30	–
3886.789	Cr I	125	125	–
3886.750	Os	30	8	–
3886.70	Tb	3	–	Kn
3886 672	Cb	2 h	5 wh	–
3886.587	V I	25	15	–
3886.496	Ce II	6 l	3 h	–
3886.451	W	8	10	–
3886.45	U	2	4	–
3886.4	Ho	6	–	Kn
3886 390	Ir	6	–	Ab
3886 368	La II	400	200	–
3886 284	Fe I	600	400	S
3886 200	V I	4	2	Me
3886.072	Cb	10	10	–
3886.049	Nd	10	10	–
3886.038	Sm	5	–	–
3886.01	Tb	3	–	Ed
3885 997	U	2	–	–
3885 98	Eu	3 w	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3885.902	Sm II	5	5	–
3885.770	V I	20	1	–
3885.769	Ce	4	1	–
3885.766	Th	8	5	–
3885.749	Os	20	8	–
3885.682	Cb	15	30	–
3885.678	U	5	1	–
3885.514	Fe I	100	60	–
3885.508	Mo	5	5	–
3885.45	Xe	–	[3 whl]	Hu
3885.441	Cb	50	100	–
3885.425	Zr I	25	6	–
3885.418	Ir I	8	–	–
3885.304	Ca	5	3	–
3885.30	Eu	3 w	4 wh	–
3885.291	Er	10	–	–
3885.288	Co I	70	4	–
3885.284	Sm II	50	50	–
3885.282	U	3	–	–
3885.236	Ce	5	–	–
3885.218	Cr I	40	50	–
3885.202	Ta	15	10	–
3885.190	Pr	100 w	40 w	–
3885.17	P	–	[150 l]	Gu
3885.153	Fe I	6	3	–
3885.150	Th	5	5	–
3885.12	Tb	8	–	Kn
3885 09	La II	4	4	Me
3885 084	Cr I	15	10	–
3885.00	Xe II	–	[10]	Hu
3884.992	Ce	3	–	–
3884.939	U	2	4	–
3884.843	V II	4	70	–
3884.842	Yt	3	2 h	–
3884.829	Th	20	15	–
3884.765	Ce	8	–	–
3884.76	Eu	50 W	5 Wh	–
3884.745	Ce	3	1	–
3884.741	Nd	8	4	–
3884.741	Pr	4	1	–
3884.71	Gd	10 h	10	Kn
3884.681	U	8 h	20	–
3884.676	Ru	20	6	–
3884.667	Fe I	1	–	–
3884 615	Co I	100	–	–
3884.585	Pr	2	1	–
3884.562	Ce	3	–	–
3884.531	Th	10	8	–
3884 523	Cu II	–	2	Sh
3884 465	V I	30	1	–
3884.44	Eu	8 W	5 W	–
3884.37	Tb	8	–	Ed
3884.363	Sm	5	2	–
3884 362	Fe	80	35	–
3884.203	Ce	8	3	–
3884.129	Cu II	–	5	–
3884.109	Ti I	10	–	–
3884.076	Nd	6	8	–
3884.05	I II	–	[2]	Mu
3884.039	Pr	5	4 h	–
3884.016	Ru	20	6	–
3883 987	Sm	2	2	–
3883.978	Ce II	6	–	–
3883.887	V I	40	5	–
3883.829	W	7	8	–
3883.804	Sm II	2	3	–
3883 80	Cl II	–	[12]	Ks
3883.767	Hf II	3	10	–
3883.757	Nd	6	20	–
3883.698	Mo	–	20	–
3883.660	Cr I	30	20	–
3883 64	Eu	10 W	10 W	–
3883.636	U	12	–	–
3883.566	Ce II	4 s	1	–
3883.462	Mo	4	2	–
3883.43	Tm	150	30	Me
3883.4	bh C	–	3	L
3883.364	Ir	4	–	–
3883.358	K II	–	[10]	Dm
3883.350	Au	–	20	–
3883.342	W	3 wd	5 l	–
3883.340	Zn I	50	2 h	Hz
3883.334	U	10	18	–
3883.292	Cr I	60	80	–
3883.289	Fe	70	40	–
3883.203	V	1	2	–
3883.137	Cb	30	30	–
3883.13	Tm	100	10	Me
3883.12	O II	–	[7]	Mh
3883.103	U	3	3	–
3883.06	Dy	5	–	–
3882.950	Mo	5	15	–
3882.892	Ti I	35	10	–
3882.868	Er	8	2	–
3882.857	Sm II	5	5	–
3882.679	Cb	2	3	–
3882.565	Ce	2	2	–
3882.519	Ir	2	–	–
3882.503	Sm	25	10	–
3882.480	Fe	2	–	–
3882.446	Ce	5	–	–
3882 43	O II	–	[10]	Mh
3882.361	U	18	18	–
3882.328	Ti I	20	7	–
3882 315	Pr	2	–	–
3882.306	Mo	–	4	–
3882.194	O II	–	[35]	Fl
3882.148	Ti I	25	8	–
3882.006	Ru I	12	–	–
3882.001	Dy	25	–	–
3881.980	Fe	2	–	–
3881.902	Zr II	1	3 h	–
3881.890	Re I	25	–	–
3881.878	U	6	–	–
3881.876	Pr	4	–	–
3881.874	Co I	300 R	30	–
3881.874	Ce II	6	4	–
3881 858	Os	125	20	–
3881.856	Cr I	50	6	–
3881.787	Sm	20	–	Kn
3881.75	Tb	4	–	Ed
3881.707	Cu I	5	–	–
3881.665	Ce II	5	3	–
3881.61	Ho	–	6	Ex
3881.598	Mo	–	4	–
3881.497	Ce	2	–	–
3881.461	U	30	20	–
3881.399	Ti I	12	3	–
3881 390	W	20	20	–
3881.387	Sm II	10	10	–
3881.31	Eu	4 W	–	–
3881.29	Tb	8	–	Ed
3881 214	Cr I	60	18	–
3881.141	W	5	4	–
3881.111	U	6 h	3	–
3881.054	V	2	5	–
3881.015	Fe	2 h	1 h	–
3881.006	Co I	3	–	–
3880.989	Sm	10	8	–
3880 839	Co	8	–	–
3880 818	Hf II	20	30	–
3880.806	Ru I	5	–	–
3880 780	Fe	3 h	2 h	–
3880.779	Nd	–	20	–
3880.768	Os	10	12	–
3880.757	W	7	6	–
3880.755	Sm II	40	30	–
3880.728	Ru	5	–	–
3880 674	U	2	3	–
3880 66	Er	25 wd	6 wd	–
3880 65	Ho	–	6	Ex
3880 59	C II	–	2	En
3880.5	Pb II	–	[2]	Ea
3880.466	Pr	80	60	–
3880.406	Ce	2	3	–
3880.399	Cr	12	–	–
3880.376	Nd	25	4	–
3880.35	Tb	4	–	Ed
3880.34	A	–	[5]	Rt
3880.260	V I	15	4	–
3880 225	Fe	2	–	–
3880.21	Eu	2 W	–	–
3880.200	Au II	–	20	–
3880.079	W	8	8	–
3880.07	Kr II	–	[2 whl]	Me
3880.043	Er	20 wd	2 W	–
3880.029	U	6 wh	–	–
3879.99	Tb	4	–	Ed
3879.984	Mo	4	4	–
3879.968	Ce	4	3	–
3879.925	Co	2	–	–
3879.715	U	20	3	–
3879.661	V I	50	5	–
3879.66	Er	20 d	2 w	–
3879.650	Fe	2 wh	–	–
3879.642	Cb	2	2	–
3879.605	Ce	4	3	–
3879.60	C II	–	2	En
3879.59	Ho	–	6	Ex
3879.548	U	18	–	–
3879.543	Nd	30	5	–
3879.522	Mo	10	8	–
3879.436	Ta	5	2	–
3879.43	S	–	[3]	Bl
3879.387	Cu II	1 h	2 h	Sh
3879.361	Ti	10	4	–
3879.346	Cb	5	300	–
3879.311	Ce II	5	3	Ab
3879.274	Fe	2 W	2 W	–
3879.27	Er	15 wd	1 w	–
3879.232	V I	35	3	–
3879.222	Cr I	60	15	–
3879 214	Pr	100	80	–
3879.2	bh Ca	4	–	L
3879.196	W	5	6	–
3879.074	Ce	5	1	–
3879.051	Zr I	10	1	–
3879.05	Dy	25	2	m
3879 020	Mo	5	5	–
3878 992	W	6	7	–
3878.969	Cb	5	3	–
3878.967	U	3	3	–
3878.877	Ir I	2	–	–
3878.852	Re	10	–	–
3878.84	Er	10	1	–
3878.822	Cb	5	5	–
3878.766	Ce	3	2	–
3878.753	Ru	3	–	–
3878.737	Co I	70 r	–	–
3878.736	Fe	10	10	–
3878.712	V II	35	100	–
3878 676	Fe I	30	–	–
3878 62	K II	–	[15]	Bn
3878.582	Nd	30	2	Kn
3878.575	Fe I	300 R	300	S
3878.574	Ir	4	–	–
3878.573	Mg I	10	–	–
3878.572	Os	50	12	–
3878.511	W	4	5	–
3878.372	Ce I, II	15	12	–
3878.307	Pr	–	4	–
3878.290	Yt II	15	15	–
3878.22	C II	–	2	En
3878.21	Tb	10	–	Ed
3878.183	He I	–	[3]	Ps
3878.091	U	8	4	–
3878.021	Fe I	400	300	S
3877.984	Ce	8	8	–
3877.94	Dy	4	2	m
3877.93	Er	6	1	–
3877.929	Pr	–	4	–
3877 88	Eu	4 wl	–	–
3877.595	Zr I	10	1	–
3877.592	Ti I	3	–	–
3877.56	Tb	6	–	Ed
3877.559	Ce	3 s	–	–
3877.558	Cb	50	20	–
3877.530	Ru	3	5 h	–
3877.52	Er	15 d	1	–
3877.510	Fe	2	–	–
3877.473	Sm	50	8	–
3877.47	Ag	2	1	–
3877.452	U	5	4 h	–
3877.345	Rh I	20	5	–
3877.307	Os	20	10	–
3877.281	W	–	12	–
3877.28	Se II	–	[50]	Bl
3877.27	Eu	5 w	–	Kn
3877.225	Pr	125 w	80 w	–
3877.192	I II	–	[5]	Ke
3877.180	Sm	30	5	–
3877.122	Ce	4	–	–
3877.104	Hf II	4	30	–
3876.974	Ce II	15	3 s	–
3876.965	Cb	5	5	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3876.95	Er	15 d	1 w	–
3876.95	U	3	2	–
3876.893	Re I	60	–	–
3876.89	Br	–	[3]	Bl
3876.835	Co I	300 w	40	–
3876.819	Yt	5	3	–
3876.768	Os I	300	50	–
3876.739	V	25	2	–
3876.728	Nd	3	–	–
3876.69	Lu	15	–	Me
3876.671	Fe I	1	–	–
3876.67	Tb	8	–	Ed
3876.670	C II	–	40	Fl
3876.648	Ru I	12	1	–
3876.63	Lu	50	100	Kn
3876.593	U	6	4	–
3876.562	Ta	10	5	–
3876.55	Lu	3	–	Kn
3876.47	Tb	3	–	Ed
3876.45	Er	15 d	1	–
3876.409	C II	–	60	Fl
3876.39	Cs I	300	–	Fl
3876.378	Fe	2	–	–
3876.370	Ce	2	–	–
3876.188	C II	–	125	Fl
3876.183	Pr	80	30	–
3876.140	Ce	6	1	–
3876.134	U	15	2	–
3876.13	Tb	8	–	Ed
3876.086	V I	50	30	–
3876.082	Ru	20	3	–
3876.07	A I	–	[10]	Ms
3876.051	C II	–	40	Fl
3876.045	Fe I	40	15	–
3875.95	Eu	3 W	–	–
3875.902	V I	40	3	–
3875.902	Ce	5	2 s	–
3875.866	Nd	30	4	–
3875.823	I	–	[15]	Ke
3875.807	Ca I	50	–	Cw
3875.80	O II	–	[12]	Mh
3875.763	Cb	10	50	–
3875.738	Nd	15	6	–
3875.72	Pt	–	2 h	–
3875.697	Cb	3 h	–	Me
3875.682	W	12	9	–
3875.648	Th	3	–	–
3875.541	Sm II	5	10	–
3875.44	Kr II	–	[150 whl]	Me
3875.426	V I	10	2	–
3875.418	Cb	5	10	–
3875.383	Fe	2 h	1 h	–
3875.379	Th	10	5	–
3875 35	Eu	10 W	–	–
3875.338	U	12	6	–
3875.314	Pr	–	5	–
3875.311	Gd	4	–	–
3875.261	Ce	4	2	–
3875.26	A	–	[25]	Rt
3875.256	Ti I	35 h	8	–
3875.248	Re I	40	–	–
3875.21	Tb	20	8	Ed
3875.21	Ta	5 h	2 h	Ks
3875.209	Cr I	2 h	1 h	–
3875.198	W	–	6	–
3875.174	Sm	50	10	–
3875.157	U	8	–	–
3875.15	Dy	3	–	m
3875.075	V I	70 r	50	–
3875.072	Au	3	–	–
3875.036	Ce II	6	–	–
3874.977	Hg	–	[30 h]	St
3874.866	Th	5	3	–
3874.76	Pr	2	5	–
3874.73	Tb	5	–	Ed
3874.70	Ho	6	6	Ex
3874.692	Fe	3 h	–	–
3874.677	Ce	6	2	–
3874.672	Au	5	15	–
3874.65	Pb	–	2	Sx
3874.61	Lu	4	–	Me
3874.533	Cr I	70	12	–
3874.474	Gd	3 h	–	–
3874.460	U	10	2	–
3874.45	Pr	20	4	–
3874.406	W	12	12	–
3874.366	Sm	5 h	4	–
3874.357	U	10	–	–
3874.345	V I	10	2	–
3874.333	Ce	4	–	–
3874.285	Mo	1	6	–
3874 2	bh Ca	4	–	L
3874.18	Tb	200	200	Ed
3874.154	Mo	5	6	–
3874.142	Ti	12	4	–
3874.134	Ce	4	4	–
3874.125	Er	18 d	1 w	–
3874.11	Ho	2	8	Ex
3874.07	O II	–	[5]	Mh
3874.051	Fe I	1	–	–
3874.042	U	15	15	–
3873.995	Dy	100	–	–
3873.955	Co I	400 R	80	–
3873.948	Fe	1	–	–
3873.823	Th	10	5	–
3873.78	Tb	8	3	Ed
3873.763	Fe I	125	80	S
3873.747	K II	–	[20]	Dm
3873.724	Os	20	20	–
3873.718	Sm	12	3	–
3873 635	V I	35	12	–
3873.564	Pd I	6	–	–
3873.54	Eu	8 w	5 w	–
3873.53	Er	5 d	1 w	–
3873.525	Ru I	30	45	–
3873.471	Sm	10	3	–
3873.277	Cb	2	3	–
3873.259	Mo	–	10	–
3873.255	Ce	4	–	–
3873.213	Ti I	40	7	–
3873.200	Sm II	20	3	–
3873.196	Mn	12	12	–
3873.153	Ir I	25	10	–
3873.115	Co I	500 R	80	–
3873.088	U	12	2	–
3873.032	Ce	2	–	–
3873.00	Tb	10	–	Ed
3872.943	Ir	7	–	–
3872.924	Fe I	3	1	–
3872.9	bh Ca	4	–	L
3872 866	U	2	1	–
3872.863	Yb	12	5	–
3872.830	W	12	10	–
3872.748	V I	10 h	2 h	–
3872.738	Ta	2	2	–
3872.73	Eu	6 w	–	–
3872.729	Ce	8	15	–
3872.728	Th	30	20	–
3872.72	W	–	4	–
3872.718	Ru	4	6	–
3872.64	Pb	–	2	Sx
3872.560	Ca I	30	–	–
3872.55	Hf II	6	20	m
3872.510	Ce	2 h	–	–
3872.504	Fe I	300	300	S
3872.392	Rh I	50	3	–
3872.372	Ru	4	8	–
3872.333	U	2	1	–
3872.308	Yt II	2 h	3 h	–
3872.223	Sm	9	3	–
3872.173	Zr I	6	6	–
3872.15	Er	3	2	m
3872.15	A	–	[10]	Rt
3872.14	Ho	6	8	Ex
3872 139	Ce II	3	3	–
3872.125	Mn	10	10	–
3872.117	Dy	300	150	–
3872.10	Tb	2	8	Ed
3872.056	Mn	10	–	–
3872.050	Zr	8	6	–
3871.882	Mo	–	25	–
3871.878	U	8	12	–
3871.851	Ir I	8	2	–
3871.819	He I	–	[5]	Ps
3871.809	Ce	8	–	–
3871.782	Sm II	6	25	–
3871.750	Fe I	100	60	–
3871.688	Ru	8	3	–
3871.643	Ce	–	3	–
3871.635	Dy	20	–	–
3871.631	La II	200	15	–
3871.62	C II	–	6	En
3871.583	W	–	6	–
3871.57	U	2	3 h	–
3871.546	Ir I	2	–	–
3871.446	Mo	–	50	–
3871.4	bh C	–	–	L
3871.400	Ce	8	15	–
3871 39	B	–	20 h	Sy
3871.390	Zr I	10	10	–
3871 381	U	3 h	20 h	–
3871.35	Au	25	20	–
3871.215	Ru I	10	1 h	–
3871.21	Br II	–	[12]	Bl
3871.186	Cb	15	20	–
3871 078	V I	60	35	–
3871 042	U	30	1	–
3870 885	Sm II	5	4	–
3870.88	Lu	5	–	Me
3870.87	Eu	2 w	–	–
3870.866	Ce	6	2	–
3870.821	W	5	6	–
3870.810	Fe	2 h	–	–
3870.725	Pr	4	3	–
3870.7	Na	–	[3]	Nm
3870.687	Ta	–	5 h	–
3870.661	Cb	2	3	–
3870.64	Si	–	3	Sy
3870.593	Mo	5	5	–
3870.576	V I	35	10	–
3870.558	U	8	8	–
3870.530	Co I	70	8	–
3870.506	Ca I	15	–	Cw
3870.436	Mo	5	6	–
3870.355	Er	10	1	–
3870.267	Cr I	80 W	3 W	–
3870.164	Cs	–	[4]	Sv
3870 131	Ti	12	5	–
3870.131	Ir I	8	1	–
3870.057	Al II	–	[2]	Sy
3870.05	U	6	5	–
3870.011	Rh I	15	3	–
3869.922	Re I	40	–	–
3869.873	Ir I	2 h	–	–
3869.870	Dy	100	–	–
3869.81	Tl II	–	[6]	Sx
3869.75	U	5	1	–
3869.75	Tb	15	15	Ed
3869.73	Eu	20 wh	–	–
3869.639	Th	5	3	–
3869.63	Xe II	–	[10]	Hu
3869.617	Au II	–	10	–
3869.610	Ti I	10	4	–
3869.566	Ce	3	1	–
3869.564	Fe I	100	80	–
3869.563	Fe	4	–	–
3869.51	W	–	5	–
3869.468	Ir I	15	2	–
3869 430	Dy	25	–	–
3869 363	Th	10	8	–
3869 323	Ce	2	3	–
3869.310	W	3	5	–
3869.294	Ti I	15	8	–
3869.19	Tl II	–	[18]	Sx
3869.16	Eu	6 W	–	–
3869.14	Hg II	–	[10]	Nu
3869.10	Dy	5	2	m
3869.10	N	–	[15]	Du
3869.080	Mo	25	30	–
3869.045	Nd	20	4	–
3868.90	Tb	4	8	Ed
3868.84	C II	–	2	En
3868.826	Cb	4	4	–
3868.814	Dy	60	–	–
3868.813	U	2	4	–
3868.808	Mo	3	7	–
3868.784	Pr	2	5	–
3868 708	U	8	–	–
3868.686	Os	30	10	–
3868.644	Ce	3	2	–
3868.62	Cl II	–	[40]	Ks
3868.620	Fe	3	–	–
3868.59	Tl II	–	[6]	Sx
3868.573	Cb	3	5	–
3868.570	W	5	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3868.53	A	–	50	Rt
3868.502	Ce II	3	–	–
3868.461	Dy	50	–	–
3868.456	W	3	3	–
3868.415	U	6	6	–
3868.412	Pt	–	2	–
3868.410	Ca	–	2	–
3868.403	Ti I	50	8	–
3868.35	La	–	3 h	Me
3868.266	Cr	8	5	–
3868.241	Fe I	3	1	–
3868.138	Ce II	6	2	–
3868.058	Ce	2	–	–
3867.990	U	4	–	–
3867.975	W	30	35	–
3867.923	Fe I	30	8	–
3867.917	Cb	30	20	–
3867.84	Dy	6	–	m
3867.839	Ru I	60	35	–
3867.744	Ti I	8	4	–
3867.673	Mo	3	4	–
3867.631	He I	–	[4]	Ps
3867.623	Sm	10	8	–
3867.619	Gd	10	–	–
3867.604	Ce	5	6	–
3867.602	V I	70	35	–
3867.60	Se	–	[50]	Bt
3867.56	S	–	[150]	Ms
3867.55	Pr	20	2	m
3867.53	Rn	–	[8]	Wa
3867.515	U	10	–	–
3867.477	He I	–	[15]	Ps
3867.415	W	4	3	–
3867.346	V I	15	3	–
3867.337	Hf II	3	12	–
3867.219	Fe I	150	100	S
3867.18	U	6	–	–
3867 177	Ru	4	–	–
3867.110	Ce	2	–	–
3867.1	Sr I	2 h	–	Sd
3866.984	Pr	3	3	–
3866.981	Gd	10	–	–
3866.830	Co I	2	2	–
3866.819	Ce	12	6	–
3866.818	Pr	2	4	–
3866.796	Nd	15	2	–
3866.787	Mo	–	10	–
3866.736	V II	5	50	–
3866.691	Mo	5	3	–
3866.592	Dy	25	–	–
3866.546	Cr	–	3	–
3866 54	Tb	6	–	Ed
3866.524	Nd	10	2	–
3866.480	Os	10	5	–
3866.47	Ta	4	–	Ks
3866.443	Ti I	40 h	10	–
3866.28	A I	–	[5]	Ms
3866.21	Eu	5 W	6 W	–
3866.160	Al II	–	[5]	Sy
3866.046	W	9	4	–
3866.03	Be I	15	–	Ps
3866.028	Ti I	12	5	–
3865.987	Pr	–	2	–
3865.985	Nd	35	30	–
3865.976	Ir I	3	–	–
3865.923	U	20	25	–
3865.805	Zr	2	–	–
3865.803	W	–	8	–
3865.743	Ru	4	4	–
3865.74	Be I	2	–	Ps
3865.688	Sm II	5	5	–
3865.660	Mn	12	12	–
3865.639	Ir I	25	20	–
3865.601	Cr	5	3	–
3865.56	Eu	30 W	–	–
3865.526	Fe I	600	400	S
3865.521	Be I	10	–	–
3865.469	Os I	125	200	–
3865.46	Sr I	50	–	Fl
3865.458	Pr	200 r	125 r	–
3865.45	Dy	10	2	m
3865.43	Be I	30	–	Ps
3865.403	Ru	10	4	–
3865.392	Ce	5	2	–
3865.320	W	7	8	–
3865.29	Eu	2	2	Kn
3865.240	Sm II	10	–	–
3865.153	Mo	–	20	–
3865.148	U	5 h	8	–
3865.147	Pr	–	2	–
3865.146	Be I	5	–	–
3865.105	Ce	2	–	–
3865.045	Os	10	5	–
3865.039	Cb	10 d	–	–
3865.036	Th	8	3	–
3865.024	Cb	–	200 h	–
3864.896	Nd	4	–	Kn
3864.869	Ce	2	–	–
3864.862	V I	100 r	50 r	–
3864.857	Ru I	5	–	–
3864.81	Er	7	1	–
3864.78	Eu	2 W	–	–
3864.767	Fe	2 h	–	–
3864.764	Re	3	–	–
3864.75	Hf II	2	20	Me
3864.722	U	4	4	–
3864.703	Ti	4	–	–
3864.66	O II	–	[5]	Mh
3864.60	Cl II	–	[15]	Ks
3864.534	Pr	2	4	–
3864.497	Ti	15	6	–
3864.488	La II	100	150	–
3864.478	U	8	10	–
3864.464	Ce	2	3	–
3864.42	O II	–	[18]	Mh
3864.367	Cs	–	[4]	Sv
3864.358	Cb	3	5	–
3864.336	W	12	10	–
3864.335	Zr I	50	20	–
3864.306	Fe	2	–	–
3864.305	U	8	10	–
3864.300	V I	30	–	Me
3864 26	A I	–	[10]	Ms
3864.249	Cs	–	[6]	Sv
3864.2	Bi	–	150 h	Om
3864.121	Cu II	–	2 wh	Sh
3864.12	Br	–	[2]	Ks
3864.110	Mo I	1000 R	500 R	–
3864.10	Eu	7 w	10 w	–
3864.059	Pr	3	5	–
3864.051	Sm	10	2	–
3864.04	Eu	2 w	–	Kn
3863.9	Bi II	–	[100]	Ml
3863.874	Zr I	20	6	–
3863.866	V I, II	25	15	–
3863.78	Cb	2	–	Me
3863.750	Re I	15	–	–
3863.746	Ce II	3	–	–
3863.742	Fe I	60	30	–
3863.71	Br	–	[3]	Bl
3863.655	Eu	3	–	–
3863.607	Co I	30	–	–
3863.595	Ce	2	1	–
3863.49	O II	–	[5]	Mh
3863.470	W	8	7	–
3863.46	Yb	1	5	Me
3863.46	Er	5	3	–
3863.413	Fe II	1 h	1 h	–
3863.409	Nd	20	20	–
3863.407	Sm	15 d	8	–
3863.404	V I	2	1	–
3863.403	U	5	20	–
3863.391	Th	20	20	Fd
3863.384	Cb	15	10	–
3863 33	Zr I	2	–	Ks
3863.327	Nd	10	4	–
3863.20	Dy	5	–	m
3863.153	Re	10	–	–
3863.11	La II	2	2	Me
3863.08	Er	3	1	–
3863.08	U	10	1	–
3863.072	Ni I	4	5	–
3863.065	Gd	8	10	–
3863.052	Cb	3	20	–
3862.946	Ce	4	2	–
3862.94	Eu	5 wh	–	–
3862.931	Cb	10	5	–
3862.826	Ti I	30 h	4	–
3862.791	Ce	4	2	–
3862.762	Cu I	10	–	–
3862.66	Dy	7	1	m
3862.646	Ru	2	60	–
3862.548	Cr	25	20	–
3862.51	Si	–	7	Sy
3862.490	V	10	–	–
3862.487	Nd	20	12	–
3862.477	Sm	10	3	–
3862.465	Ce	15	10	–
3862.411	Er	15	3	–
3862 376	Th	3	2	–
3862.28	U	3	2	–
3862.236	Sm II	3	9	–
3862.223	V I	80	20	–
3862.134	Ce	2	–	–
3862.116	Re	10	–	–
3862.051	Sm II	4	9	–
3862.05	U	8	1	–
3861.959	Eu	2	1 h	–
3861.946	Zr	4	2	–
3861.945	Ir I	15	10	–
3861.928	Ce	3	1	–
3861.91	Ba	3	–	m
3861.88	Cl II	–	[20]	Ks
3861.788	Sm	10	6	–
3861.746	Cu I	50	2	–
3861.736	Ti	10	3	–
3861.730	U	8	6	–
3861 7	bh C	–	–	L
3861.68	Ho	40	20	Ex
3861.608	V I	10 h	3 h	Me
3861.60	Fe	3	2	–
3861.592	Sm II	15	8	–
3861.580	Ce	3 h	4 h	–
3861.489	Cs	–	[4]	Sv
3861.426	Ru I	5	–	–
3861.412	K II	–	[10]	Dm
3861.342	Fe	80	50	–
3861 34	Cl II	–	[50]	Ks
3861.318	Ir	3	2	–
3861.313	Pr	15	5	–
3861.288	Mo	–	4	–
3861.240	W	8	8	–
3861.2	Rb	–	[2]	Dr
3861.2	Sn	–	2	Ar
3861.183	Sm II	15	7	–
3861.18	Eu	30 w	30 w	–
3861.165	Co I	300 R	15	–
3861.123	U	5	–	–
3861.084	Ti	10 h	3	–
3861.08	Hg	–	[10 h]	Wd
3861.077	Ta	3 h	1	–
3861.062	W	10	10	–
3861.059	Sm II	15 d	4	–
3860.993	Ce	2	2	–
3860.99	Cl II	–	[100]	Ks
3860.942	Nd	4	4	–
3860.915	Fe	1	2	Do
3860.910	Hf	6	6	–
3860.857	Cb	5	10	–
3860.857	Re I	3	–	–
3860.83	Cl II	–	[150]	Ks
3860.796	Rb II	–	[5]	Rr
3860.73	In II	–	[5]	Ps
3860.723	Ru I	20	4	–
3860.72	Eu	5 d	6	–
3860.64	S II	–	[15]	Hn
3860 630	U	1	15 h	–
3860 628	V	20	–	–
3860.627	Zr	5	–	–
3860.626	Ce	8	15	–
3860.619	Sm	25	10	–
3860.460	Cu I	30	7	–
3860.401	Ce	6	3	–
3860.31	La II	–	2	Me
3860.280	Sm II	4	5	–
3860.178	Ce	2	4	–
3860.15	S II	–	[8]	Hn
3860.144	Sm	5	1	–
3859.983	W	15	30	–
3859.942	Ce	3	5	–
3859.913	Fe I	1000 r	600	S
3859.832	Th	5	10	–
3859.798	Ta	10	2	–
3859.792	Ce	3	–	–
3859.712	Ru	6	15	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3859.675	Ca	6	5 h	–
3859.670	Nd	25	25	–
3859.580	U	20	30	–
3859.52	Eu	4 d	–	Kn
3859.422	Nd	10	12	–
3859.416	Pr	3	3	–
3859.37	Au II	–	3	–
3859.341	V I	20	8	–
3859.33	Al II	–	[10]	Sy
3859.294	W	10	12	–
3859.22	Eu	2 wh	–	–
3859.216	Fe I	100	100	–
3859.211	Mg I	2	–	–
3859.142	Pr	4	4	–
3859.014	U	8	4	–
3858.950	Cb	20	50	–
3858.891	Cr I	35 wh	20 wh	–
3858.846	W	5	6	–
3858.84	Mo	–	15	–
3858.81	Ca	–	2 h	–
3858.78	Kr II	–	[5 whl]	Me
3858.741	Sm	20	–	–
3858.686	Ru	4	4	–
3858 685	V I	50	15	–
3858.682	U	3	6	–
3858.608	Ta	10 h	2 h	–
3858.555	Yb	–	3	–
3858.55	Nd	3	3	–
3858.53	Xe II	–	[10]	Hu
3858.514	Sm	10 d	10 h	–
3858.508	U	2	2 h	–
3858.40	Dy	5	–	m
3858.395	Er	4	2	–
3858 321	Mo	5	5	–
3858.309	Hf	5 wh	5 wh	–
3858.301	Ni I	800 r	70 h	–
3858.299	Co	18	4	–
3858.256	Pr	20	8	–
3858.184	U	–	2	–
3858.144	Ti I	40	7	–
3858.09	Dy	6	–	m
3857.944	Ce II	3	2	–
3857 904	Sm II	8	10	–
3857.904	Ti I	6	3	–
3857.85	Nd	20	20	–
3857.84	Tm	15	5	Me
3857.821	Ce II	3	1	–
3857.79	Er	6 d	–	–
3857.68	Eu	4 w	–	–
3857.65	Ho	–	4	Ex
3857.644	Ce II	8	4 l	–
3857.631	Cr I	50	25	–
3857.551	Ru	50	25	–
3857.332	Sm	5	1	–
3857.32	Sb II	–	5	–
3857.32	Kr II	–	[20 whl]	Me
3857.295	W	7	6	–
3857.240	Ce II	5	3	–
3857.21	Br	–	[6]	Bl
3857.203	Mo	–	60	–
3857.16	O II	–	[10]	Mh
3857.153	U	6	8	–
3857.14	Nd	30	20 h	–
3857.089	Os I	150	15	–
3857.018	Ce	10	2	–
3856.981	Ru	5	5 h	–
3856.98	Ho	8	6 h	Ex
3856.95	Nd	20	15	–
3856.818	W	–	10	–
3856.800	Co	80	2	–
3856.745	U	6	–	–
3856.678	Cb	20	5	–
3856.669	V	20	–	–
3856.535	Mn	15	30	–
3856 523	Eu	4 w	–	–
3856.515	Rh I	50	20	–
3856 459	Ru	50	8	–
3856 374	Th	8	5	–
3856.373	Mo	5	4	–
3856.373	Fe I	500	300	S
3856.293	Ce	2 h	–	–
3856 281	Cr I	20	15	–
3856.27	U	–	3	–
3856.16	O II	–	[18]	Fl
3856.09	Si	–	8	Sy
3856.072	Ir I	25	4	Ab
3856.07	N II	–	[10]	Fl
3856.025	Rh	6	4	–
3856.024	Ca	–	2 h	–
3855.972	Mo	5	5	–
3855.935	Re	20	–	–
3855.894	Sm II	5	15	–
3855.884	Pr	2	4	–
3855.872	Ce	3	2	–
3855.862	Fe	4	2	–
3855.841	V I	200	200	–
3855.723	In II	–	[5]	Ps
3855.703	Ce	2	2	–
3855 632	U	3 h	12	–
3855.620	Sc	15	15	–
3855 60	Au	4	4	–
3855.60	Dy	8	2	m
3855.60	Ho	–	4	Ex
3855.581	Gd	15	6	–
3855.58	Tb	10	–	Ed
3855.578	Ru	4	15	–
3855.571	Cr I	30	30	–
3855.544	W	10	9	–
3855.500	Cb	→	50 h	Me
3855.453	Cb	10	–	–
3855.443	U	8	1	–
3855 430	Zr II	8	3	–
3855.38	Tb	10	–	Ed
3855.370	V I	50 r	50 r	–
3855 328	Fe	2	1	–
3855.321	W	–	6	–
3855.302	Ce	8	3	–
3855.286	Cr I	35	35	–
3855 24	Se	–	[8]	Bt
3855.192	Ce	2	–	–
3855 16	U	2	2	–
3855.146	Cb	5	5	–
3855 08	N II	–	[5]	Fl
3854 965	Ce	3	3	–
3854.941	Sm II	5	5	–
3854.910	La II	–	40	–
3854.905	Mo	4	5	–
3854.905	Pr	80 w	30	–
3854 90	Dy	5	2	m
3854.862	U	2 h	6	–
3854 855	Au	5	5	–
3854.82	Eu	6	–	Kn
3854.788	Cr	20 d	15 d	–
3854.76	Ba II	–	[2]	Rs
3854.75	Cl II	–	[30]	Ks
3854.727	Ru I	10	5 wh	–
3854.705	Os	30	12	–
3854.696	Cb	3	4	–
3854.68	Rh	4	4	–
3854.655	U	20	30	–
3854.64	Eu	3	–	Kn
3854.574	Pr	2	4	–
3854.565	Er	4	1	–
3854 560	Sm	5	5	–
3854.547	Th	20	20	–
3854.538	Mg I	2	5	–
3854.322	Ce II	6	1	–
3854 230	U	20	–	–
3854.220	Cr I	40	15	–
3854.198	Sm	200 wh	25	–
3854.187	Ce I, II	6	1	–
3854.123	Cb	2	3	–
3854.117	Mg I	2	8	–
3854.1	bh Ca	4	–	L
3854.053	Pb I	–	100	–
3854.05	Ho	10	20	Kn
3854.04	Tb	2	–	Ed
3853 90	Eu	3	–	–
3853.824	Fe	3	–	–
3853.776	W	6	6	–
3853 730	Ti I	12	3	–
3853.72	U	8	–	–
3853.59	Cb	3 w	1	Me
3853.589	Os	8	8	–
3853 567	Ta	3	2	–
3853.492	Pr	10	8	–
3853.490	Sc	8	8	–
3853.487	Mo	2	–	–
3853.48	Nd	40	20	–
3853.471	Mn	25	20	–
3853.463	Fe I	7	3	–
3853.439	Os	100	15	–
3853.382	Cb	10	20	–
3853.379	In II	–	12	–
3853.370	U	4	8	–
3853.29	Lu	10	–	Me
3853 290	Sm	–	5	–
3853 28	Se	–	[4]	Bl
3853 216	W	4	3	–
3853.215	Er	5	1	–
3853.176	Cr I	20	10	–
3853.164	Ce I, II	25	3	–
3853.095	Cb	1	3	–
3853.09	S II	–	[8]	Hn
3853.060	Zr II	8	2	–
3853.049	Ti I	18	4	–
3853.041	Dy	100	–	–
3853.01	Si	–	5	Sy
3852.985	U	6	6 h	–
3852.962	Th	8	10	–
3852.930	Ce	2	2	–
3852.90	Nd	10	8	–
3852.837	Ru I	5	3 h	–
3852.831	W	5	5	–
3852.805	Pr	100	50	–
3852.706	Re	8	–	–
3852.703	U	6	6 h	–
3852 615	Cb	1	8 h	–
3852 575	Fe I	150	100	–
3852.564	Ru	4	5 h	–
3852.497	Gd	100	8	–
3852.397	Mn	8	–	–
3852.392	Sc	15	15	–
3852.387	Ce	8	25	–
3852.38	Nd	60	50	–
3852.218	Cr I	60	12	–
3852.137	Ru	12	10	–
3852.135	Th	5	–	–
3852.106	Ce II	6	3	–
3852.10	Tl II	–	[10]	Sx
3852.096	V I	20	10	–
3852.089	U	4	8	–
3851.997	W	5	2	–
3851.990	Mo	10	15	–
3851.983	Re	20	–	–
3851.957	U	8	2	–
3851.90	Ra II	–	[25]	Rs
3851.882	Sm II	10	8	–
3851 86	Tb	5	8	Ed
3851.818	Ir	2	–	Ab
3851.748	Nd	8	15	–
3851.732	U	15	2	–
3851.69	Cl II	–	[30]	Ks
3851 67	Tl II	–	[6]	Sx
3851.667	F II	–	[200]	Di
3851.657	Nd	20	–	–
3851.617	Pr	200 w	150 w	–
3851.59	Eu	8 w	5 wh	–
3851.58	Fe	4	–	–
3851.569	W II	6	3	–
3851.47	O II	–	[2]	Mh
3851.459	Zr	2	–	–
3851 443	Ta	1	2	–
3851.42	Cl II	–	[75]	Ks
3851.4	Ho	4	–	Kn
3851 393	Mo	6	5	–
3851.352	Ce	3	4	–
3851.296	U	4	8	–
3851.259	Ir I	8	–	Ab
3851.02	Cl II	–	[100]	Ks
3851.2	Rb	–	[20]	Dr
3851.171	V I	50	15	–
3851.116	W	–	6	–
3851.04	O II	–	[10]	Fl
3850.981	Gd	10	6	–
3850.978	Fe	4	–	–
3850.953	Co I	100	–	–
3850.935	U	1	4	–
3850.93	S II	–	[8]	Hn
3850.825	Pr	50	15	–
3850.82	I II	–	[15]	Ke
3850.820	Fe I	200	75	S
3850.819	Mo	–	25	–
3850.81	O II	–	[5]	Fl
3850.779	Ce	2	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3850.713	Ce	2 h	–	–
3850.703	Gd	5	2	–
3850.667	Ir I	4	–	Ab
3850.58	Cl II	–	[12]	Ks
3850.57	A	–	[400]	Rt
3850.53	Eu	8 W	–	–
3850.527	Dy	4	–	Kn
3850.449	Dy	4	1	Kn
3850.432	Ru I	50	10	–
3850.405	V II	1	10	–
3850.40	Mg II	8	5	Fl
3850.244	U	1	8 h	–
3850.23	Sb II	–	20	–
3850.227	Nd	10	2	–
3850.164	V I	15 W	2	–
3850.122	Ce	3	–	–
3850.103	Co I	5	–	–
3850.049	Dy	3	–	Kn
3850.042	Cr I	40 r	40 r	–
3849.987	F II	–	[600]	Di
3849.969	Fe I	500	400	S
3849.944	Os I	125	20	–
3849.87	Xe II	–	[25 whl]	Hu
3849.853	U	4	4	–
3849.785	Mo	5	5	–
3849.758	Ta	3 h	4 h	–
3849.756	V	–	3	–
3849.752	Sm	8	3	–
3849.746	Cb	2	2	–
3849.707	U	2	10 h	–
3849.681	Ce	2	–	–
3849.63	Eu	2	–	–
3849.60	Se	–	[4]	Bl
3849.59	Tb	4	–	Ed
3849.58	Ni II	–	15 h	–
3849.569	Ce II	3	–	–
3849.534	Cr I	20	20	–
3849.524	Hf II	2 h	4	–
3849.42	Ta	4 h	2 h	m
3849.40	Eu	4 w	3 w	–
3849.400	Dy	20	–	–
3849.365	Cr I	40 h	30 h	–
3849.339	U	2	3	–
3849 324	V I	60	25	–
3849.274	Hg	–	[2]	St
3849.254	Zr I	10	4	–
3849.183	Hf	15	15	–
3849.068	Ce	4 l	4 l	–
3849.013	La II	200	150	–
3849.012	Sm	10	4	–
3849 007	Bi	–	2	–
3849 005	Rh I	2	2	–
3849 002	Er	12	2	–
3848 983	Cr I	80 d	50 d	–
3848 96	Re	3	–	m
3848.945	Ru	8	12	–
3848.92	Mg	–	2	–
3848.806	Sm	150 d	10	–
3848.773	Mg I	2	12	–
3848.75	Tb	100	200	Ed
3848.716	U	4	3	–
3848.7	bh B	200	–	L
3848.618	U	10	8	–
3848.597	Ce	20	2	–
3848.58	Xe II	–	[3]	Hu
3848.524	Nd	10	20	–
3848.482	W	–	2 h	–
3848.40	Eu	2	1 h	–
3848.36	Dy	4	–	m
3848.332	Pr	3	2	–
3848.310	Ti I	10	2	–
3848.309	Nd	40	–	Kn
3848.301	Mo	25	20	–
3848.298	Fe	5	2	–
3848.24	Mg II	10	10	Fl
3848.233	Nd	10 d	10 d	–
3848.20	Eu	2 w	1	–
3848.194	Yt II	2	4 h	–
3848.160	Ir	10	2	–
3848.105	Ce II	8	1	–
3848.090	Mg I	2	3	–
3848.069	U	6	6	–
3848.046	Ta	30	5	–
3848.018	Tm	400	250	Me
3847.89	Er	18d	1	–
3847.89	O II	–	[10]	Fl
3847.88	Tb	8	–	Ed
3847.873	Yt	8	4	–
3847.856	Yb	40 w	–	–
3847.85	Nd	60	50	–
3847.84	Eu	12 w	–	–
3847.835	U	8	12 h	–
3847.812	Ce	6 l	6 l	–
3847.73	Cr	5 h	–	–
3847.521	Sm II	6	10	–
3847.495	Ru	4	–	–
3847.490	W	18	15	–
3847.423	Au	5	5	–
3847.40	Cr	5 wh	–	–
3847.38	N II	–	[10]	Fl
3847.331	V I	100	70 h	–
3847.262	Er	4	–	–
3847.25	Nd	20	10	–
3847.248	Mo	25	25	–
3847.242	W	5	4	–
3847.19	Eu	2	–	–
3847.120	Ce	2	–	–
3847.086	F II	–	[800]	Di
3847.062	U	5	6	–
3847.010	Zr I	10	4	–
3847.0	bh B	100	–	L
3846.99	Dy	10	2	Kn
3846.989	Ce	2	3	–
3846.986	Sm	9	3	–
3846.974	Er	7	–	–
3846.969	Nd	20	20	–
3846.86	Re	3	–	m
3846 83	Kr II	–	[5 h]	Me
3846.805	Ru	5	–	–
3846.803	Ce	4	1	–
3846.803	Fe I	125	100	S
3846.761	Sm	5	–	Kn
3846.71	Nd	30 d	30 d	–
3846.689	Ir	12	–	–
3846.68	Ho	10	10	Kn
3846.676	Ru	12	10	–
3846.661	U	2	10	–
3846.654	Sc	8	8	–
3846.636	Ta	5	4 h	–
3846.605	Pr	70 d	30	–
3846.563	U	10	–	–
3846.520	Ce	4	1	–
3846.516	Yt II	2	2	–
3846.449	Ti	15	3	–
3846.415	Fe	50	75	–
3846 411	Os	15	12	–
3846.39	Eu	4	2	Kn
3846.358	Dy	25	–	–
3846.282	Sm	8	3	–
3846.243	U	10	1	–
3846.242	Th	10	8	–
3846.214	W	20	20	–
3846.180	Mo	5	5	–
3846.140	Ce	2	–	–
3846.12	Kr I	–	[2]	Me
3846.027	Bi	–	100	–
3846.001	Fe	10	1	–
3845.997	Sm	10	4	–
3845.997	La II	40	50	–
3845.994	Nd	30	25	–
3845.98	Se II	–	[12]	Kh
3845.978	Kr I	–	[15]	IHu
3845.974	V	5	2	–
3845.962	Ir	4 h	2 h	–
3845.954	Mo	20	20	–
3845.934	Ce	2	1	–
3845.897	Cb	10	30	–
3845.857	U	4	4	–
3845.845	W	–	9	–
3845.842	Ti	4	1	–
3845.82	Cl II	–	[30]	Ks
3845.8	Bi II	–	[100]	Ml
3845.704	Fe	10	6	–
3845.68	Cl II	–	[75]	Ks
3845.61	Tb	10	15	Ed
3845.483	Ce	5 s	5 s	–
3845.471	Co I	500 R	100	–
3845.454	V	20	–	–
3845.454	Sc	10	10	–
3845.445	Zr I	20	20	–
3845.435	Ir	8	–	–
3845.42	A	–	[10]	Rt
3845.42	Cl II	–	[50]	Ks
3845.275	Ce	3	2	–
3845.21	S II	–	[2]	Hn
3845.174	Fe I	100	60	–
3845.149	Hg	–	[30]	St
3845.125	U	2	6	–
3845.099	Ti	2	–	–
3845.016	Th	20 w	10 w	–
3845.014	Ir I	15	2 h	–
3844.973	Mg I	2	10	–
3844.937	U	6	–	–
3844.892	V I	25	7	–
3844.89	Au	–	5	–
3844.844	Ce	4	–	–
3844.75	A	–	[5]	Rt
3844.680	U	4	–	–
3844.584	Gd	15	15	–
3844.558	Pr	50	10	–
3844.504	Sm II	2	2	–
3844.45	Kr II	–	[50 whl]	Me
3844.449	Ir	7	–	–
3844.438	V I	100	50 h	–
3844.30	Dy	6	3	m
3844.283	Fe	10	1	–
3844.276	Ni I	3 h	–	–
3844.248	Ce	5 s	4 s	–
3844.232	Sc	10	10	–
3844.232	U	8	15	–
3844.231	Er	18	2	–
3844.23	Eu	10 W	–	–
3844.200	W	–	9	–
3844.085	Cb	4	3	–
3844.039	Ta	8 h	2 h	m
3844.02	K II	–	[10]	Bn
3844.005	U	10	10	–
3843 983	Mn	75	100	–
3843 926	Cb	5	3	–
3843 895	Mo	5	6	–
3843.86	Ho	8	10	Ex
3843.811	U	6	2 h	–
3843.788	Sm II	10 d	10	–
3843.768	Ce	12	1 h	–
3843.692	Co I	60	–	–
3843.665	Os	80	12	–
3843 61	Lu	15 h	–	Me
3843 58	O II	–	[10]	Fl
3843.512	Sm II	3	10	–
3843.51	Nd	–	20	–
3843.506	V I	50	15	–
3843.474	W	3	6	–
3843.469	Ce	3	5	–
3843.46	U	8	8 h	–
3843.453	Re I	50	–	–
3843.453	Cb	2	2	–
3843.41	S	–	[15]	Ms
3843.261	Gd	10	–	–
3843 26	Cl II	–	[100]	Ks
3843.259	Fe	125	100	S
3843.159	Ru	10	5	–
3843.14	Eu	3 w	2	–
3843.024	Zr II	40	40	–
3843.004	Ir	8	–	Ab
3843.000	Sc II	25	20	–
3842.995	V	20	–	–
3842.988	Nd	30	40	–
3842.988	Ce	18	25	–
3842.986	U	12	12	–
3842.98	Er	15	2	–
3842.98	Dy	5	2	Ed
3842.975	Fe I	3	–	–
3842.958	Mo	3	3	–
3842.93	Tl II	–	[6]	El
3842.92	I II	–	[7]	Ke
3842.912	Th	10	8	Fd
3842.885	Fe	6	2	–
3842.874	Ta	5	5	–
3842.82	As II	–	50	Ro
3842.82	O II	–	[10]	Fl
3842.80	Ba II	–	[5]	Rs
3842.713	U	4 h	6 h	–
3842.707	Cb	5	5	–
3842.70	V I	5	2	m
3842.695	Nd	30	12	Kn

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3842.661	Ru	6	3 h	–
3842.65	Fe	1	–	–
3842 614	Ti I	15	5	–
3842.58	Mo	–	25	–
3842.57	Ca	–	2	–
3842.568	Cu II	–	2	–
3842.54	Eu	10 W	–	Kn
3842.49	Tb	40	50	Ed
3842.463	U	3	6	–
3842.432	Nd	10	10	–
3842.363	Pr	80	40	–
3842.36	Eu	3 W	2	–
3842.348	Sm II	5	5	–
3842.341	Ta	3 h	–	–
3842.317	Al II	–	[2]	Sy
3842.303	W	10	12 l	–
3842.28	Kr II	–	[20 whl]	Me
3842.272	In II	–	[35]	Ps
3842.26	Zn II	–	[15]	Vs
3842.217	In II	–	[25]	Ps
3842.213	Al II	–	[5]	Sy
3842.213	Gd	10	15	–
3842.20	N II	–	[10]	Fl
3842.191	U	5	8	–
3842.168	In II	–	[25]	Ps
3842.125	In II	–	[18]	Ps
3842.051	Ce	3	–	–
3842.05	Ho	4	8	Ex
3842.050	Co I	400 R	20	–
3842.037	Al II	–	[10]	Sy
3842.02	Cr I	3	2	–
3842.016	Dy	20	–	–
3841.964	Th	20	20	–
3841.95	Nd	30	30	–
3841.93	Se	–	[20 h]	Bt
3841.91	Pb	–	5 h	Kl
3841.890	V I	35	12	–
3841.844	Er	12 d	1 d	–
3841.810	Cb	10	10	–
3841.77	Tb	5	–	Ed
3841.749	U	6 h	8 h	–
3841.747	Ti	20	12	–
3841.716	Ce	5 l	6 l	–
3841.703	Ir I	10	2 h	–
3841.691	Cb	–	10	–
3841.624	Ti I	2	–	–
3841.62	Pb	–	60	Sx
3841.603	Ce	2	–	–
3841.6	Bi II	–	[25]	Ml
3841.54	A	–	[5]	Rt
3841.493	Re	15	–	–
3841.467	Sn II	–	6	–
3841.457	Co I	60	–	–
3841.435	Ce	3 h	2	–
3841.40	S	–	[5]	Bl
3841.316	Dy	100	–	–
3841.292	Os	30	10	–
3841.277	Cr I	150	80	–
3841.19	Sb	–	5 h	–
3841.18	Lu	100	8	Me
3841.15	Ba I	5	–	Fl
3841.082	Mn	50	50	–
3841.051	Fe I	500	400	S
3841.037	Ce	3	2	–
3841.03	As	–	10	Ro
3841.006	Pr	30	10	–
3840.985	Ru	8	6	–
3840.96	Eu	7 d	5	–
3840.921	Er	6	–	–
3840.92	Kr II	–	[5 whl]	Me
3840.92	I	–	[2]	Ke
3840.91	Dy	5	–	–
3840.80	Ag I	20	3 h	Fn
3840.76	Ru I	4	6	–
3840.752	V I	12 r	–	–
3840.747	Ce	2	–	–
3840.709	La II	50	70	–
3840.596	Sm	3	3	–
3840.58	Mo	6 w	6 w	–
3840.453	Ce	30	35	–
3840.441	Sm II	15	10	–
3840.44	Dy	4 h	–	Ed
3840.440	V I	40	20	–
3840.439	Fe I	400	300	S
3840.34	Zn II	3	[50]	Vs
3840.328	Ti	2	–	–
3840.304	Os	150	20	–
3840.295	Ir	2	–	Ab
3840 26	Tb	50	–	Ed
3840.254	Gd	2	–	–
3840.140	V I	12	5	–
3840.026	Hf	10	6	–
3839.935	Yb	3	–	–
3839.904	U	8	4	–
3839.81	Nd	30	20	–
3839.80	Dy	4 h	1	m
3839.777	Mn	100	125	–
3839.76	Sb	–	4	Kz
3839.748	Ce	2	–	–
3839.699	Th	15	15	–
3839.695	Ru	50	30	–
3839.642	Gd	25	–	–
3839.632	U	30	2	–
3839.630	Fe	3	4	–
3839.62	Tb	15	–	Ed
3839.53	U	–	5	–
3839.497	Nd	10	12	–
3839.497	Ce	6	1	–
3839.475	Mo	5	5	–
3839.455	Yb	2	15	–
3839.418	Ta	2	–	–
3839.381	V I	30	5	–
3839.37	Kr II	–	[4 whl]	Me
3839.317	Ir	4	–	–
3839.26	Hg	–	[50]	Ps
3839.259	Fe	100	75	S
3839.257	W	7	6	–
3839.19	S	–	[8]	Ms
3839 190	Sm	25	3	–
3839.18	Tb	8	–	Ed
3839.155	Ce	4	3 l	–
3839.134	Ir	6	–	Ab
3839 130	Zr I	10	10	–
3839.034	Ta	30	5	–
3839.002	V I	60	10	–
3838 996	U	6	10	–
3838.981	Nd	20	30	–
3838.931	Sm II	10	15	–
3838.728	Ru	10	10	–
3838.724	Nd	50	25	–
3838.67	Dy	10	–	–
3838.59	Os I	3	–	Ab
3838 542	Ce	35	3	–
3838.504	W	15	20	–
3838.39	N II	–	[25]	Fl
3838.37	Cl II	–	[20]	Ks
3838 37	Hf II	2	3	–
3838 36	Eu	2 w	–	–
3838 341	Pr	5	3	–
3838.339	Er	10	–	–
3838.33	Nd	40	25	–
3838 318	Ca	2	2	–
3838.283	Zr II	10	4	–
3838.258	Mg I	300	200	–
3838 247	Mn	10	–	–
3838 24	Eu	4	–	Kn
3838 24	I	–	[10]	Ke
3838 204	Tm	80	60	Me
3838.15	Li I	5	–	Fl
3838 150	U	8	10	–
3838.094	He I	–	[2]	Ps
3838 067	Ru I	12	5 wh	–
3838.036	Fe	1	1	Do
3837.919	W	–	6	–
3837.910	Rb II	–	[2]	Rr
3837.909	Nd	10	2	Kn
3837.882	Mo	3	3	–
3837.88	Eu	6 W	5 W	–
3837.880	Th	10	8	–
3837.86	Dy	2	1	m
3837.852	V	5	–	–
3837.83	Tb	8	–	Ed
3837.828	U	12	8 h	–
3837.816	Kr I	–	[30]	I
3837.723	Ir	15	4	–
3837.703	Kr I	–	[30]	IHu
3837.65	Si	–	3	Sy
3837.631	Er	15	1	–
3837.631	V I	10	–	–
3837.60	Ho	2	6 h	Ex
3837.534	Ce	2	–	–
3837.527	Ir I	8	–	Ab
3837.510	U	2	2 h	–
3837.49	Tl II	–	[6]	Sx
3837.45	Ho	15	6 h	Ex
3837.449	Cs	–	[4]	Sv
3837.43	Eu	3 W	3 Wh	–
3837.418	Er	10	1	–
3837.29	Mo	–	100 w	–
3837.272	U	15	–	–
3837.230	W	–	10	–
3837.212	Ce II	8	–	–
3837.18	Tb	5	–	Ed
3837.142	Fe I	25	6	–
3837.141	Mo	–	20	–
3837.14	P	–	[30]	Gu
3837.080	Cb	5	10	–
3836.969	Ru	4	–	–
3836.960	W	9	7	–
3836.923	Gd	15	18	–
3836.905	Mo	4	1	–
3836.81	Tl II	–	[12]	Sx
3836.775	Ti	18	5	–
3836.764	Zr II	15	20	–
3836.742	Cb	4 w	15	–
3836.703	Ru	8	40	–
3836.603	Ta	30	3	–
3836.60	Se	–	[8]	Bt
3836.598	Ti	10	3	–
3836.541	Nd	80	100	–
3836.54	Kr II	–	[30 whl]	Me
3836.522	V	10	–	–
3836.520	U	6	15	–
3836.519	Sc	25	25	–
3836.515	Sm	50	25	–
3836.514	Gd	100 wh	60	–
3836 512	Eu	10	–	–
3836.51	Dy	100	40	–
3836.505	Th	50 w	50 w	–
3836.505	Er	40	10	–
3836 501	Ir	15	–	Ab
3836.489	Ca	2	2 h	–
3836.477	Au	30	30	–
3836.448	Cb	5	3	–
3836 333	Fe	100	60	–
3836.324	Re I	40	–	–
3836.25	Se II	–	[20]	Bl
3836.150	Cu II	–	2 wh	Sh
3836.13	Eu	6 W	–	–
3836.121	Sm	20	4	–
3836.112	Ce II	15	6	–
3836.108	Nd	40	15	–
3836.10	C II	–	2 h	En
3836.084	Ti II	15	30	–
3836 070	Cr I	25	8	–
3836.056	Os I	150	20	–
3836 054	V I	10	15	–
3835 990	Ru	6	1 h	–
3835 964	Zr I	25	5	–
3835.919	U	4	3	–
3835.904	Ce	3	–	–
3835.900	Co I	8	–	–
3835 884	W	7	5	–
3835 748	Ce	4	2	–
3835 727	Sm II	15	15	–
3835.703	Ir	2	–	Ab
3835.700	W	–	5	–
3835 689	Co	10	4	–
3835 65	Er	9 w	–	–
3835.560	V I	50	12	–
3835 497	Co I	3	2	–
3835 397	H I	–	[40]	Rk
3835 363	Ir	3	–	–
3835 35	Ho	2	6 h	Ex
3835.343	Th	5	3	–
3835.312	Mo	8	25	–
3835 26	Er	25 d	2 d	–
3835.185	V I	30	–	–
3835.183	In	–	15	–
3835.175	Cb	20	20	–
3835.14	U	4	8	–
3835.074	La II	12	15	–
3835.049	W	15	20	–
3835.048	Ru	50	6	–
3834.997	Gd	8	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3834.974	Mo	8	6	–
3834.945	Sm	3	–	Kn
3834.918	Pr	30	15	–
3834.91	Eu	4 W	4 W	–
3834.84	N	–	[5]	Du
3834.811	V I	6	1	–
3834.809	U	3	6	–
3834.782	Ce II	6	–	–
3834.754	Rh I	4	5	–
3834.735	Cr I	25	12	–
3834.722	In II	–	[18]	Ps
3834.69	Br	–	[2]	Bl
3834.686	In II	–	[25]	Ps
3834.679	A I	–	[800]	IHu
3834.647	In II	–	[35]	Ps
3834.639	Mo	8	6	–
3834.608	Th	15 w	10 w	–
3834.606	In II	–	[40]	Ps
3834.601	Sm	25	15	–
3834.58	U	2	4	–
3834.574	Pr	–	2	–
3834.563	In II	–	[40]	Ps
3834.556	Ce II	10	4 l	–
3834.55	Dy	3	1	m
3834.473	Sm	5	2	–
3834.404	Nd	2	–	Kn
3834.364	Mn	75 r	75	–
3834.24	N I	–	[15]	Du
3834.228	Re I	50	–	–
3834.225	Fe I	400	400	S
3834.224	V I	20	12	–
3834.22	Rh	3	–	–
3834.220	Ce	6	12	–
3834.199	Pr	–	4	–
3834.147	V I	5	2	Me
3834.039	W	7	10	–
3833.963	Ca I	5	–	–
3833 936	Cb	3	3	–
3833.920	Ti I	7	2	–
3833.889	Rh I	25	50	–
3833 883	Ir	50	–	Ab
3833.862	Zr II	3	1	–
3833.862	Mn	75	75	–
3833.828	Sm II	15	10	–
3833.80	V I	10	–	Me
3833.783	Cb	2	5	–
3833.770	Ce	3	–	–
3833.748	Mo	80	25	–
3833.742	Ta	40	200	–
3833.704	Re I	30	–	–
3833 681	Ti	5	1	–
3833.669	Hf	10	6	–
3833.629	Ce	4	4	–
3833 604	Nd	20	12	–
3833.604	Pr	10	8	–
3833.574	He I	–	[4]	Ps
3833.47	Mo	–	25	–
3833.40	Tb	8	3	Ed
3833.40	I II	–	[7]	Ke
3833.310	Fe I	100	60	–
3833.279	Ir	2	–	Ab
3833.261	Cb	5 w	10	–
3833 226	V I	10	2	–
3833.190	Ti	12	3	–
3833.151	Gd	2 h	–	–
3833.10	O II	–	[10]	Fl
3833.059	Sc II	10	8	–
3833 047	Sm	15	3	–
3833 042	Pr	20	20	–
3833 041	Er	4	–	–
3833.037	Th	20 w	10 w	–
3833 035	Nd	60	30	–
3833.023	U	20 r	15	–
3832.904	Pb	–	5	–
3832 90	Dy	10	–	–
3832 899	Co I	5	–	–
3832 889	Yt II	30	80	–
3832 884	Ce	3	2	–
3832.873	Ni I	25	–	–
3832.856	W	8	7	–
3832.835	V I	25	5	–
3832.83	Pb	–	50	Sx
3832.802	Sm	6	1	–
3832.788	Th	3	5	–
3832.753	Ce II	5	–	–
3832.68	Tb	8	–	Ed
3832.659	Ce	2	4	–
3832.648	Pr	10	8	–
3832.641	W	4	5	–
3832.565	U	5	1	–
3832.46	Hg	–	[18]	Ps
3832.436	Er	12	1	–
3832.432	V	2	–	–
3832.431	Th	8	5	–
3832.43	Eu	6 W	4 W	–
3832.406	Re	20	–	–
3832.37	Mo	–	10 h	–
3832.349	Cr I	18	2	–
3832.336	Ce	2	–	–
3832.312	V	–	2	–
3832.306	Mg I	250	200	–
3832.30	Tl II	–	[30]	El
3832.291	Pd I	150	150	–
3832.275	Ta	5 h	3 h	–
3832.244	W	4	6	–
3832.231	Ce	5	–	–
3832.20	U	6	–	–
3832.179	Ir	15	–	Ab
3832.176	Os	30 l	10	–
3832.12	C II	–	6 h	En
3832.110	Mo	10	8	–
3832.055	Ce	3	2	–
3831.928	Ce	3	2	–
3831.9	Ho	–	6 h	Ex
3831.865	U	15	3 h	–
3831.85	Tb	15	–	Ed
3831.838	Cb	5	300	–
3831.832	V I	15	2	–
3831 795	Ru	60	50	–
3831.785	Ce	3	4 h	–
3831.765	Mo	4	3	–
3831.736	Th	5	8	–
3831.690	Ni	300	10	–
3831.672	Ce	3	1	–
3831.643	Dy	10	–	–
3831.550	Ce	4	–	–
3831.507	Sm II	6	15	–
3831.494	Zr	2	–	–
3831.465	U	25	25	–
3831.41	S	–	[10]	Hn
3831.394	Pr	6	2	–
3831.305	Zr I	5 h	1	–
3831.201	Cb	2	2	–
3831.17	Eu	4 W	6 Wh	–
3831 17	Kr II	–	[2 whl]	Me
3831 14	Au	8	5	–
3831.135	Hf	25	25	–
3831.083	Ce	10	2	–
3831.071	Mo	4	4	–
3831.04	Dy	5	3	m
3831.033	Ir	10	–	–
3831 032	Cr I	40	25	–
3831 032	V	1	5	–
3831.030	Nd	60 d	30	–
3830.993	W	6	7	–
3830 94	S	–	[8]	Ms
3830 915	Nd	3	–	Kn
3830.910	Ce	3	–	–
3830.877	Ru I	10	4	–
3830.860	Fe I	12	4	–
3830.815	Mo	5	5	–
3830.80	Cl II	–	[15]	Ks
3830.761	Fe I	10	3	–
3830.722	W	8	9	–
3830.719	Pr	100	60	–
3830.650	Ir I	4	–	Ab
3830.641	Cb	1 h	20 w	–
3830.612	U	3 h	5	–
3830.555	Ce	4	–	–
3830.516	Ir	2 h	–	–
3830.51	Er	8 w	1 h	–
3830.49	Ho	2	6	Ex
3830.476	Nd	10	10	–
3830.45	O II	–	[18]	Fl
3830.43	A II	–	[10]	Rt
3830.39	N I	–	[150]	Du
3830.365	Pr	10	7	–
3830.341	Ir	2	2 h	–
3830.300	Sm II	50	10	–
3830.29	Tb	30	8	Ed
3830.273	V	40	4	–
3830.215	U	5	6	–
3830.2	bh B	50	–	L
3830.133	W	7	8	–
3830.069	Th	4	3	–
3830.067	Er	6	–	–
3830.055	Mo	5	6	–
3830.051	Ir	2	–	–
3830.032	Cr I	150 w	50	–
3830.030	Ce	4	2	–
3830.018	Hf	10	6	–
3830.002	Cb	5	5	–
3830.000	Nd	20	8	Kn
3829.945	Mn	8	–	–
3829.942	Ce II	3	–	–
3829.914	Mo	4	3	–
3829.816	Ce	2	–	–
3829.806	Re I	25	–	–
3829.803	U	15	–	–
3829.80	N II	–	[10]	Fl
3829.791	Mo	5	5	–
3829.77	Fe	8	2	–
3829.77	Xe II	–	[5 h]	Hu
3829.77	Ne II	–	[40]	Bn
3829 76	Br	–	[3]	Ks
3829 733	Ti I	7	2	–
3829 694	Ce II	4	2	–
3829.680	Mn	60	60	–
3829.676	Ir I	4 h	–	Ab
3829 67	Hf	3	1	Me
3829 661	V	2	6	–
3829.659	Cb	3 h	3 h	–
3829.647	Pr	10	10	–
3829.63	Nd	40	30	–
3829.532	V	–	4	Me
3829 52	Er	12	2	–
3829.479	Ru I	4	5	–
3829.459	Fe	15	8	–
3829.435	Eu	5	10	–
3829.435	Pr	10	10	–
3829.411	Gd	25 h	–	–
3829 41	Nd	50	40	–
3829.410	Th	40 w	20 w	–
3829.408	Ce	3	2	–
3829.406	Sm	15	–	–
3829.406	Ti	30	12	–
3829.390	U	6	5	–
3829 382	Au	25	20	–
3829 350	Mg I	100 w	150	–
3829.332	Ru	8	3	–
3829.33	S	–	[5]	Bl
3829.283	Ce	2	–	–
3829.27	Cl II	–	[15]	Ks
3829 211	Cb	–	10 h	–
3829.2	Pb II	–	[2]	Ea
3829.156	Sm	5	6	–
3829.151	Nd	10	15	–
3829.127	W	12	10	–
3829.126	Fe	4	2	–
3829.108	Zr	5 h	4 h	–
3829.07	Lu	10 h	–	Me
3829.033	U	8	10	–
3828.947	Ta	25	10	–
3828.93	Eu	6 wh	8 wh	–
3828.92	Ba I	5	–	–
3828.873	Mo	40	30	–
3828.842	Nd	20	20	–
3828.836	V I	15	3	–
3828.81	U	2	5	–
3828.74	As II	–	10	Ro
3828.714	Ru I	30	8	–
3828.599	Ce	4	–	–
3828.559	V I	20	5	–
3828.55	Br I	–	[12]	Ks
3828.51	U	6	–	–
3828.500	Fe	2	1	–
3828.49	Br	–	[6]	Bl
3828.479	Rh I	100	60	–
3828.465	Ir	30	–	–
3828.409	Sm	8	2	–
3828.389	Ce	3	2	–
3828.388	Th	5	5	–
3828.328	Re I	30	–	–
3828.238	Cb	5	15	–
3828.206	Ce			

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3828.193	Ti I	35	15	–
3828.19	Dy	10	3	m
3828.18	Er	15 w	3 w	–
3828.179	Sc	30	30	–
3828.17	Nd	50	40	–
3828.144	Th	8	8	–
3828.058	U	3	8	–
3828 055	Sm	–	8	–
3828 021	Ti	6	1	–
3827.986	Nd	6	8	–
3827.985	Ce	3	–	–
3827.89	Pb	–	2	Kl
3827.855	Ce	8	1	–
3827 825	Fe I	200	200	S
3827.674	Ti I	5	1	–
3827.621	Re	15	–	–
3827.62	Cl II	–	[150]	Ks
3827.605	Ce	3	3	–
3827.572	Fe I	4	2	–
3827.554	Ru	4	1 wh	–
3827.481	U	4	1	–
3827.470	Ti I	3	–	–
3827.44	P II	–	[150 l]	Gu
3827.41	Cd II	–	5	m
3827.375	Ce	8	10	–
3827.365	Gd	10	10	–
3827.356	Sm	10	8	–
3827.348	W	4	3	–
3827.29	Eu	4 W	5 W	–
3827.274	Zr	2	–	–
3827.214	Ce II	6	1	–
3827.2	Rb	–	[40]	Dr
3827.2	Pb II	–	[20]	Ea
3827.156	Mo	25	25	–
3827.136	Os	50	20	–
3827.135	Pd I	4	25 wh	–
3827.041	Re I	30	–	–
3827.012	Cb	5	5	–
3826.969	V	1	25	–
3826.969	Ti I	12	2	–
3826 960	Ir	8	1 h	Ab
3826 947	Th	10	8	–
3826.933	W	5	4	–
3826 91	Nd	40 w	25 w	–
3826.908	Cu II	–	2 h	Sh
3826.86	Xe I	–	[15]	Me
3826.849	Ta	25	3	–
3826.846	Fe	6	2	–
3826 83	A	–	[15]	Rt
3826.819	Er	12 d	2 d	–
3826.774	V I	12	3	–
3826.74	Tb	8	–	Ed
3826.708	Pr	–	4	–
3826.708	Rb II	–	[15]	Rr
3826 708	Ce	4 l	6 l	–
3826.695	Mo	30	25	–
3826.68	Eu	15 W	10 W	–
3826 634	Os	30	12	–
3826.626	Ir I	2	–	Ab
3826.613	Hg	–	[30]	St
3826.565	Sm	2	3	–
3826.530	Ce	4	–	–
3826.425	Cr I	40	20	–
3826.416	Nd	10	20	–
3826.41	Eu	3 W	–	–
3826.39	Tm	10	–	Me
3826 292	Pr	80 d	50 d	–
3826.27	Xe II	–	[2 h]	Hu
3826.210	Sm II	10	15	–
3826.193	W	10	12	–
3826.172	Ta	10	8	–
3826.15	Kr II	–	[2 h]	Me
3826.105	Ru I	8	3	–
3826.056	Gd	8	8	–
3825.884	Fe I	500	400	S
3825.855	Ce	3	–	–
3825.70	A II	–	[10]	Rt
3825.68	Pr	–	5	–
3825.66	Eu	5	5	–
3825.660	Th	8	8	–
3825.646	Au II	20	30	–
3825.480	U	3	5	–
3825.461	Mo	3	4	–
3825.409	Cb	1	2	–
3825.406	Fe	2	1	–
3825 390	Cr I	40	15	–
3825.323	Mo	4	4	–
3825.317	V I	6	2	–
3825 27	Nd	20 d	10 d	–
3825.267	Zr	40	60	–
3825.249	O I	–	[18]	Fh
3825.247	Er	10 d	2 w	–
3825.160	U	5	5	–
3825.134	Eu	3	5 h	–
3825.090	O I	–	[20]	Fh
3825.047	Cu I	40	3	IBu
3825.040	Th	8	10	–
3825.029	U	15	–	–
3825.023	Sb II	–	2 h	Sp
3825.013	Gd	4	8	–
3824.996	Sm II	2	8	–
3824.932	Ru I	30	25	–
3824.876	Cb	30	50	–
3824.860	Ce	5	–	–
3824.803	Sm	10	1	–
3824.789	Nd	40	30	–
3824.78	Yt II	1	5 hl	–
3824.779	Mo	4	4	–
3824.764	Er	8 w	1	–
3824.762	Th	20 d	10	–
3824.721	U	5	10	–
3824.533	Sm II	5	8	–
3824.524	Ir	25	8	–
3824.444	Fe I	150	100	S
3824.425	O I	–	[10]	Fh
3824.419	Ce	3	3	–
3824.386	W	12	15	–
3824.349	Th	20 w	20 w	–
3824.302	Fe	7	7	–
3824.169	Sm II	5	8	–
3824.168	Mo	5	5	–
3824.146	W	7	8	–
3824.116	Ce	2	1	–
3824.08	Nd	6 d	4 d	–
3824.078	Fe I	5	3	–
3824.071	Pr	2	2	–
3824.00	Dy	5	–	m
3823.995	Cb	–	10 wh	–
3823 990	V I	35	15	–
3823.903	Ce I, II	8	–	–
3823.893	Mn	50 h	50	–
3823.823	U	3	–	–
3823 80	Nd	20 d	10 d	–
3823 795	Sm	15	10	–
3823 761	Sc	15	10	–
3823.760	Ca	2	2	–
3823.754	Re	25 w	–	–
3823.748	V I	10	2	–
3823.74	Xe I	–	[10]	Me
3823.695	Ce	5	–	–
3823.595	Ta	15	10	–
3823.589	Th	5	10	–
3823.522	Cr I	40	30	–
3823.513	Mn	75 h	75	–
3823.511	Hf II	2 h	1 h	–
3823.510	Sm	15	15	–
3823 486	Ce	2	1	–
3823 469	O I	–	[125]	Fh
3823.447	U	5	3	–
3823.41	Zr II	15	5	Ks
3823.377	Ir	20	3	–
3823.349	Eu	3	5	–
3823 327	Th	5	8	–
3823 29	A	–	[3]	Rt
3823.255	Nd	4	6	–
3823.213	V I	35	20	–
3823.184	Pr	125	25	–
3823 15	Mo	–	20 h	–
3823.135	Cb	2	3	–
3823.12	Tb	15	3	Ed
3823.087	Ce	4 s	4 s	–
3823.079	Th	20 w	10 w	–
3823.062	W	–	10	–
3823.06	Eu	4 W	4 W	–
3823.04	U	4	10 h	–
3823.04	Er	9	1	–
3822.984	Mo	20	15	–
3822.965	Sm	25	–	–
3822.954	Cb	2	3	–
3822.930	Ir	2 h	–	Ab
3822.888	V I	40	25	–
3822.874	Ce	2	1	–
3822 865	Th	5	3	–
3822.70	V	2	2	Me
3822.591	Dy	10	–	–
3822.577	Ir	2	–	Ab
3822.555	U	12	12	–
3822.474	Nd	4	10	Kn
3822.414	Zr I	10	1	–
3822.410	U	4	4	–
3822.4	bh Sr	4	–	L
3822.317	Sm	15	4	–
3822.316	Pr	2	2	–
3822 312	Er	18 d	2 w	–
3822.29	Nd	20 d	10 d	–
3822.262	Rh I	100	100	–
3822.210	W	–	8	–
3822.170	Ce	2	–	–
3822.149	Th	10	10	–
3822.092	Cr I	10	6	–
3822.091	Ru	50	25	–
3822.07	N I	–	[35]	Du
3822.028	Ti I	18	8	–
3822.022	Pd I	3 h	–	Sh
3822 009	V I	70	40	–
3821.959	U	15	–	–
3821.950	Mo	5	5	–
3821.91	Au	–	5 wh	–
3821.838	Fe I	50	30	–
3821.827	Sm II	25	8	–
3821.817	Pr	50	50	–
3821.77	Nd	50 w	40 w	–
3821.735	Er	10 h	1	–
3821.726	Sm	25	5	–
3821.725	Ti I	20	10	–
3821.710	Ir	3 h	–	Ab
3821.700	Ce II	6	10	–
3821.646	Ru	4	–	–
3821.642	Mo	5	5	–
3821 642	Os	8	5	–
3821.64	O II	–	[10 l]	Mh
3821.582	Cr I	12	8	–
3821.574	Ce	2	–	–
3821.5	F	–	[3 h]	Di
3821.487	V I	50	30	–
3821.47	Dy	4	–	m
3821.431	Th	15	15	–
3821.43	Eu	3 w	3 w	–
3821 353	I	–	[25]	Ke
3821.30	K II	–	[10]	Bn
3821.270	Ce II	8	1	–
3821.223	U	–	8	–
3821.191	Cb	10 W	10 W	–
3821.178	Fe	100	100	–
3821.132	Nd	2	–	Kn
3821.020	U	4 h	4	–
3820.921	Mo	6	4	–
3820 884	Cu I	10	3	–
3820.874	Cr I	10	6	–
3820.871	Ce II	5	3	–
3820.866	Nd	4	2	Kn
3820.817	Sm	8	6	–
3820 807	Pr	4	6	–
3820.806	Th	20	20	–
3820 801	Er	15	5	–
3820.744	Cb	2	–	Me
3820.742	Ta	6	4	–
3820.734	Hf	5 h	4 h	–
3820.545	Ce	3	2	–
3820.431	Nd	–	40	–
3820.429	Fe I	800	600	–
3820 422	Ce	3	4	–
3820 411	Pr	2	2	–
3820.297	V I	25	20	–
3820.25	Cl II	–	[100]	Ks
3820.13	Hg	–	[2]	Wd
3820.109	W	8	10	–
3820.088	Ir	4	–	–
3819.999	Ce	4	3	–
3819.981	Cr I	12	10	–
3819.965	Nd	15	4	–
3819.963	V I	60	35	–
3819.925	Hf	12	10	–
3819.910	Co I	20	3	–
3819.88	Pt	3	–	m

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3819.873	Mo	6	6	–
3819.778	Mo	6	6	–
3819.767	Ru I	12	6	–
3819.761	He I	–	[4]	Ps
3819.713	Ta	5	3	–
3819.703	Nd	2	2	–
3819.678	Sm	10	20	–
3819.66	Eu II	500 wd	500 wd	–
3819.61	Cs	–	[4]	Bs
3819.606	He I	–	[50]	IMr
3819.564	Cr I	60	40	–
3819.534	Ce	2	3	–
3819.50	Fe	2	1	–
3819.376	Hf	15	20	–
3819.28	Th	2	5	–
3819.271	Er	12 d	2 w	–
3819.22	Mo	–	5	–
3819.204	Ce	3	3	–
3819.147	Cb	12	10	–
3819.068	Eu	2	1 h	–
3819.068	Pr	3	3	–
3819.05	U	5 h	4	–
3819.046	Th	–	2	–
3819.04	A II	–	[5]	Rt
3819.033	Ru I	50	30	–
3819.024	Ce II	18	6	–
3818.858	Cb	8	300	–
3818.837	Nd	4	6	–
3818.810	Ce	2	–	–
3818.76	Dy	5	–	–
3818 760	Gd	10	15	–
3818 757	U	8 h	3	–
3818.75	Se II	–	[5]	Bl
3818.707	Pr	2	2	–
3818.704	Er	10 d	1 d	–
3818.691	Pt	40	10	–
3818.69	Ho	–	6	Ex
3818.688	Ce II	5	2	–
3818.672	Th	8	5	–
3818.663	Mo	8	15	–
3818.641	Os	8	15	–
3818.62	Fe	2	1	–
3818.6	Bi II	–	[10]	Ml
3818.52	F II	–	[3]	Di
3818.5	Cd I	5	–	Sd
3818.481	U	12	4	–
3818.481	Cr I	50	20	–
3818.44	Ne II	–	[25]	Bn
3818.40	Cl II	–	[30]	Ks
3818.353	Sm	2	3	–
3818.352	Ru	5	2	–
3818.342	Yt II	30	50	–
3818.281	Pr	125	100	–
3818.27	N I	–	[5]	Du
3818.244	V I	20	2	–
3818.240	Ce	3	5	–
3818.224	Ti I	20	7	–
3818.204	Cb	5 w	5 h	–
3818.187	Rh I	50	25	–
3818.082	Os	12	15	–
3818.064	U	8	2 h	–
3818.04	S	–	[8]	Bl
3817.975	V I	7	3	–
3817.974	Mo	5	10	–
3817.948	Ru	6	3	–
3817.941	Co I	18	4	–
3817.873	Pr	20	10	–
3817.847	Ce	2	3	–
3817.844	Cr I	30	20	–
3817.844	V I	15	6	–
3817.841	Nd	20	10	–
3817.727	Th	15	15	–
3817.706	U	4	10	–
3817.69	Er	15 w	2 w	–
3817.69	Eu	4 wh	10 wh	–
3817.675	Nd	40	40	–
3817.650	Fe	50	15	–
3817.645	Ti I	15	6	–
3817.584	Zr II	8	12	–
3817.561	Re I	40	–	–
3817.541	K II	–	[40]	Dm
3817.54	Dy	2	–	Ed
3817.509	Cu I	6	–	–
3817.480	W	18	15	–
3817.455	Ce	25	2	–
3817.40	Tm	60	15	Me
3817.373	Nd	30	25	–
3817.372	Th	20	10	–
3817.269	Ru	50	60	–
3817.244	Ir I	15	30	–
3817.224	La II	–	5	–
3817.205	Hf II	5 h	15	–
3817.175	Mo	3	5	–
3817.155	U	8	10	–
3817.11	Kr II	–	[15 whl]	Me
3817.10	Se	–	[8]	Bt
3817.01	Eu	5 d	4 d	–
3816.90	Tb	3	–	Ed
3816.874	Co I	70	5	–
3816.847	Sm	2	–	–
3816.8	Na	–	[3]	Nm
3816.793	Ce	3	–	–
3816.79	Ho	–	4	Ex
3816.770	Dy	100	50	–
3816.753	Mn	60	50	–
3816 69	Ba II	–	[5]	Rs
3816.66	Tb	5	–	Ex
3816.640	Gd	10	10	–
3816.634	Cb	2	5 wh	–
3816.61	Mo	–	20	–
3816.606	U	10	10	–
3816.582	Th	8	5	–
3816.549	K II	–	[30]	Dm
3816.473	Co I	60	–	–
3816.470	Rh I	15	15	–
3816.386	W	10	12	–
3816.341	Cb	5	3	–
3816.340	Fe I	25	20	–
3816.326	Co I	60	50 r	–
3816.310	Ce	3	3	–
3816.27	Tb	8	3	Ed
3816.197	Yb	12	35	–
3816.173	Cr I	30	10	–
3816.173	Bl	–	25 h	–
3816 168	La II	–	10 h	–
3816.166	Pr	40	40	–
3816.16	Dy	4	2	m
3816.134	Ce	5	6	–
3816.130	Au	20	40	–
3816.08	Hf	2	–	m
3816.032	U	1	8	–
3815.842	Fe I	700	700	S
3815.84	Hg I	–	[2]	Cn
3815.831	Ce	50	5	–
3815.81	Eu	3 wh	3 wh	–
3815.8	Bi II	–	[300]	Ml
3815.779	W	12	5	–
3815.68	Br	–	[15]	Ks
3815.66	Re I	25	–	m
3815.516	Ir I	25	3	–
3815.514	V I	30	1	–
3815.511	Cb	20	30	–
3815.50	Eu	20 wh	15 wh	–
3815.49	Er	6 d	–	–
3815.433	Cr	35	12	–
3815.392	V	1	150 h	–
3815.376	U	2	–	–
3815.371	Ce	2	–	–
3815.36	Mo	–	8 l	–
3815 339	Nd	6	4	–
3815.155	W	–	5	–
3815.151	U	1	6	–
3815.069	Th	8	8	–
3815.055	Mo	5	4	–
3815.012	Rh	20	20	–
3815.010	Ce	3	–	–
3814.961	Zr II	5	5	–
3814.96	Tb	8	–	Ed
3814.932	Ce II	2	3	–
3814.890	Nd	10 d	6 d	–
3814.885	Th	10	5	–
3814.87	Eu	5 wh	5 wh	–
3814.864	Ti I	30	4	–
3814.857	Ru I	20	35	–
3814.785	Fe	10	5	–
3814.755	Gd	8	10	–
3814.725	Nd	6	8	–
3814.70	Rn I	–	[12]	Rs
3814.65	F II	–	[10]	Di
3814.631	Sm II	–	5	–
3814.622	Cr	35	30	–
3814.622	Ce	2	2	–
3814.591	Th	15	15	–
3814.585	Ti II	12	35	–
3814.58	Tb	15	–	Ed
3814.57	Dy	4 h	3	m
3814.523	Fe I	80	40	–
3814.517	Ce	4	3	–
3814.49	Mo	4	4	–
3814.459	Co I	35	–	–
3814.426	W	2	6	–
3814.42	Ra II	–	[2000]	Rs
3814.259	Os	30	10	–
3814.23	Yb	3	10	–
3814.099	Mo	4	3	–
3814.070	U	25	15	–
3814.02	La II	2	2	–
3814.02	Lu	2	–	Me
3814.017	Cr	2	4	–
3813.981	Gd	100 w	60	–
3813.97	Tb	3	3	Ed
3813.925	Co I	30 r	–	–
3813 902	Mo	2	20	–
3813.890	Fe	50	25	–
3813.85	Se	–	[2]	Bt
3813.822	Sm	5	–	–
3813.791	U	20	15	–
3813 786	Ir I	5	–	Ab
3813.684	Dy	20	–	–
3813.632	Fe	35	15	–
3813 632	Sm	10	4	–
3813.575	Ce	5	–	–
3813.542	Cu I	8	–	–
3813.492	V I	50	–	–
3813.472	Cb	3	5 h	–
3813.417	Be I	50	–	–
3813.394	Ti II	4	20	–
3813.355	V I	3	1	–
3813 323	Er	10 d	1 d	–
3813.293	Co	2	–	–
3813.270	Ti I	12	3	–
3813.24	Ho	15	8 h	Ex
3813.222	U	6	8	–
3813.177	Ru	4	3	–
3813.12	Dy	5	–	–
3813.07	Eu	2	–	Kn
3813.064	Th	15	20	–
3813.059	Fe I	2	2	–
3813.059	Ce	2	–	–
3812.964	Fe I	400	300	–
3812.96	Er	15	2	–
3812.958	Ce	4	4	–
3812.881	Ta	3	3	–
3812.86	Zn	–	[2]	Vs
3812.852	Nd	2	1	Kn
3812.834	Sm	8	–	–
3812.826	Re	3	–	–
3812.73	Tb	8	8	Ed
3812.718	Ru I	12	–	–
3812.716	U	8	1	–
3812.660	W	5	6	–
3812.657	Ir	3	–	–
3812.589	Ce	3	–	–
3812.582	U	15	4 h	–
3812.533	Nd	10	15	–
3812.472	Mo	5	4	–
3812.470	Co I	100 w	–	–
3812.451	Rh I	5	4	–
3812.32	Ta	2	2	Ks
3812.29	Dy	3	–	–
3812.289	Os	20	5	–
3812.276	Mo	–	25	–
3812.260	Re	15	–	–
3812.250	Cr	40	15	–
3812.233	U	4	6	–
3812.216	Kr I	–	[20]	I
3812.206	Ce	8	2	–
3812 18	Yt II	6	3	–
3812 16	Se	–	[4]	Bl
3812.068	Sm II	20	20	–
3812.061	Er	9	–	–
3812.06	Tb	15	–	Ed
3812.053	Nd	20 d	20 d	–
3812.032	Pr	15 d	9	–
3812.03	Eu	8 W	5 wh	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3812.021	Gd	200 R	200 h	–
3811.999	U	18	6	–
3811.895	Fe I	15	10	–
3811.845	Pr	25	10	–
3811.84	Mo	–	25 d	–
3811.79	Ag I	5	–	Bx
3811.782	Ir I	3	–	–
3811.780	Hf	3	1	–
3811.774	Nd	8	10	–
3811.65	Tb	15	8	Ed
3811.62	Se II	–	[4]	Bl
3811.620	U	15	–	–
3811.610	Ce	5	–	–
3811.539	Ir	3	–	Ab
3811.492	Ce	2	–	–
3811.476	U	15	–	–
3811.428	Cb	–	5 h	–
3811.404	Ti I	25	10	–
3811.40	Br	–	[6]	Bl
3811.390	Mo	5	5	–
3811.383	Th	20	10	–
3811.348	Pr	10 d	20	–
3811.34	Nd	20 d	10 d	–
3811.34	Tb	15	–	Ed
3811.34	Eu	10 W	–	–
3811.339	Gd	5 h	–	–
3811.324	Ce	4	6	–
3811.32	V I	3	–	Me
3811.310	Ti	15	7	–
3811.14	Bi II	–	[150]	Om
3811.073	Nd	10	10	–
3811.067	Co I	30	–	–
3811.063	Th	5	3	–
3811.05	Xe II	–	[20]	Hu
3811.032	Cb	10	12	–
3810.976	Sm	8	1 h	–
3810.93	U	8	12	–
3810.902	Ce	5	–	–
3810.86	Ag I	100 wh	10 h	–
3810.816	Mo	4	4	–
3810.798	W	10 s	10 s	–
3810.787	Er	10	1	–
3810.761	Fe	70	25	–
3810.76	Eu	3	3	–
3810.73	Tm	30	10	Me
3810.70	Ho	20	40	Ex
3810.693	Mn	15	15	–
3810.617	Th	8	5	–
3810.611	Hf II	15	15	–
3810.608	Ir I	3	2	–
3810.57	Tb	8	–	Ed
3810.491	Cb	30	50	–
3810.480	Nd	20 d	20	–
3810.433	Sm	5	10	–
3810.387	Ir I	10	4	–
3810.385	W	15	15	–
3810.330	Er	9	1	–
3810.245	Ce	3	1	–
3810.192	U	3	8	–
3810.129	Mo	4	5	–
3810.103	Re I	20	–	–
3810.10	Cl II	–	[30]	Ks
3810.099	Ce	6	–	–
3809.962	Pr	20 r	10 r	–
3809.953	Sm	4	–	–
3809.923	U	15	2 h	–
3809.90	Nd	20	20	–
3809.882	Sm II	10	8	–
3809.88	Se II	–	[2]	Bt
3809.853	W	6	7	–
3809.84	Xe I	–	[30]	Me
3809.84	Dy	3	2	Ed
3809.839	Th	8	5	–
3809.743	Sm II	10	10	–
3809.74	Eu	7 W	5 W	–
3809.73	Tb	8	–	Ed
3809.718	Ta	4	3 h	–
3809.691	Zr I	25	–	–
3809.64	I	–	[2]	Ke
3809.6	Rb	–	[2]	Dr
3809.597	V I	70	40	–
3809.592	Mn	150	150	–
3809.574	Fe	15	5	–
3809.51	Cl II	–	[40]	Ks
3809.498	Rh I	3	3	–
3809 497	Ce	4	2	–
3809.496	Cr	12	6	–
3809.49	A	–	[25]	Rt
3809.49	Ho	–	4	Ex
3809.480	Mn	150	–	–
3809 258	Ta	2	–	–
3809 228	W	25	20	–
3809.224	Ce	25	1 h	–
3809.224	U	15	12	–
3809.162	Pr	80	40	–
3809.151	Fe	1	–	–
3809.13	Tb	8	–	Ed
3809.099	Eu	10	5	–
3809.096	Mn	8	8	–
3809.082	Th	10	5	–
3809 046	Nd	15	20 d	–
3809 044	Fe I	2	–	–
3809.035	Dy	5	–	–
3808.942	U	20	–	–
3808.781	La II	–	10	–
3808.772	Nd	20	12	–
3808.730	Fe I	100	70	–
3808 690	Ir	4	–	Ab
3808.684	Ru	50	30	–
3808.659	Ce	3	3	–
3808.623	Mo	5	5	–
3808.61	A	–	[10]	Rt
3808.521	V I	50	30	–
3808.463	Sm II	7	7	–
3808.392	Ce II	3	2 h	–
3808 287	Fe	4	1	–
3808.251	Nd	4	2	–
3808.219	Re	15	–	–
3808 205	Zr	30	25	–
3808.20	U	6	8	–
3808 161	Eu	6	5	–
3808.149	Er	25	4	–
3808.146	Th	10	10	–
3808.143	Pr	5	5	–
3808.14	Tb	8	–	Ed
3808.121	Ce I, II	35	35	–
3808.11	V I	3	–	Me
3808.11	In II	–	[2]	Ps
3808.106	Co I	200 w	7	–
3808.075	I I	–	[40]	Ke
3808.03	S	–	[7]	Bl
3807.943	Er	18	3	–
3807.935	Nd	30	20	–
3807.926	Cr I	25	12	–
3807.923	Sm II	15	2	–
3807.89	Eu	5	4	Kn
3807.875	Th	10	10	–
3807.87	Pd I	5 h	–	Sh
3807.87	U	2 d	4 d	–
3807.855	W	3	5	–
3807.854	Mo	4	4	–
3807.803	Nd	4	2	–
3807.761	Ti I	5	–	–
3807.742	Re I	20	–	–
3807.72	Tm	10	1	Me
3807.691	Ce	5	2	–
3807.654	Mo	3	2	–
3807.65	Tb	8	–	Ed
3807.636	W	3	5	–
3807.612	Pr	8 d	2	–
3807.61	U	–	3	–
3807.59	Eu	20 W	15 W	–
3807.54	Yb	3	15	Me
3807.537	Fe I	150	100	–
3807.505	V I	80	50	–
3807.45	Dy	2 h	1	Ed
3807.436	W	–	6	–
3807.403	Zr II	2	1	–
3807.38	Sr I	50	–	Fl
3807.29	Xe II	–	[8]	Hu
3807.267	Ce	3	–	–
3807.227	Ti	8	–	–
3807.227	Nd	15	20	–
3807.199	U	4	4	–
3807.144	Ni I	800 W	40 h	–
3807.082	Er	4	–	–
3807.008	Mo	1	20 w	–
3807.003	Ir I	3	–	Ab
3806.91	Pt II	–	5	Sh
3806.87	Ga	–	4	Kl
3806.857	Pr	10	4	–
3806.85	Tb	50	50	Ed
3806.829	Cr	35	35	–
3806.796	V I	35	12	–
3806.792	Th	10	5	–
3806.770	Sm II	10	8	–
3806.76	Eu	4	–	Kn
3806.758	Rh I	50	50	–
3806.719	Mn	50 h	20	–
3806.710	Ce	2	–	–
3806.699	Fe I	200	150	–
3806.636	Ce	3	–	–
3806.633	Cb	3 h	10 h	–
3806.60	Si	–	7	Sy
3806.573	Ir	8	5	–
3806.540	Nd	20	10 d	Kn
3806.49	Ca	3	2	–
3806.460	Sm	10	3	–
3806.447	Ti I	15	7	–
3806.42	Tb	15	3	Ed
3806.415	Pr	25 d	15	–
3806 394	Ce	12	12	–
3806 38	Hg II	–	[200]	Ps
3806.375	Zn II	3	15	–
3806 30	Ne II	–	[4]	Bn
3806 294	Ir	2	–	Ab
3806.280	Dy	25	80	–
3806.262	U	3 h	3	–
3806.219	Fe	40	20	–
3806.196	Cb	8	10	–
3806.17	Kr II	–	[8 whl]	Me
3806.16	Eu	6 W	5 W	–
3806.125	Pr	8	4	–
3806 095	Ir	4	–	Ab
3806 074	Hf II	5	20	–
3806.044	Ti I	2	–	–
3806 031	Sm	2	2	–
3805.993	Mo	10	10	–
3805.930	Mo	5	5	–
3805 917	Rh I	25	50	–
3805.90	F II	–	[15]	Di
3805.829	Ce	2	2	–
3805.825	U	1	2	–
3805.824	Th	20	15	–
3805.81	Eu	7 W	5 W	–
3805.769	Co I	20	–	–
3805.765	He I	–	[3]	Ps
3805.717	U	–	6	–
3805 693	Ru	4	–	–
3805 626	Sm II	5	7	–
3805.547	Nd	8	8	–
3805.537	Ce	3	3	–
3805.526	Gd	10	10	–
3805.508	Pr	10	8	–
3805 477	Ti I	8	3	–
3805 434	Ru I	10	5	–
3805.42	Mo	–	5	–
3805.417	Re	2 h	–	–
3805.412	Cs II	–	[2]	–
3805 359	Nd	50	30	–
3805.345	Fe	400	300	S
3805.339	Ce	2	–	–
3805 30	Cu I	20	2 h	m
3805.24	Cl II	–	[75]	Ks
3805.187	Sm II	6	1	–
3805.118	Ti I	8	1	–
3805.107	Gd	10	10	–
3805 096	Cs II	–	[25]	Sv
3805.058	U	1	4	–
3804.959	Ce	2	–	–
3804.952	W	7	6	–
3804.916	V I	25	9	–
3804.874	U	12 r	4	–
3804.852	Pr	25 w	50 w	–
3804.798	Cr I	100	30	–
3804.778	Er	10	1	–
3804.768	Nd	10	10	–
3804.76	La II	–	2 h	–
3804.757	Mn	5	5	–
3804.736	Cb	20	50	–
3804.735	Gd	8	–	–
3804.71	Tb	15	–	Ed
3804.698	Th	10	8	–
3804.697	Ce	3	3	–
3804.67	Kr II	–	[30 hl]	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3804.589	V I	5	2	–
3804.55	W	–	8 h	–
3804.529	Hf	3	2	–
3804.520	Mo	20	20	–
3804.26	Eu	10 W	10 W	–
3804.204	Cb	5	3 h	Me
3804.165	Hf	5	4	–
3804.156	Ce	4	2	–
3804.152	Dy	20	–	–
3804.103	Th	–	2	–
3804.102	Nd	15 d	10 d	–
3804.080	W	7	5	–
3804.013	Fe I	40	10	–
3804.00	Au II	25	150	–
3803.987	Th	8	5	–
3803.940	Sm	15	2	–
3803.902	V I	10	3	–
3803.882	Cb	30	20	–
3803.868	U	2	–	–
3803.841	Ce	6	–	–
3803.799	Mo	3	5	–
3803.784	V I	10	3	–
3803.68	W	–	15 w	–
3803.59	Dy	2	–	m
3803.49	I	–	[5 d]	Bl
3803.474	V I	50	40	–
3803.474	Nd	20	20	–
3803.447	Ir	2	–	Ab
3803.41	Mo	–	20 w	–
3803.350	U	8	8	–
3803 32	W	–	6 h	–
3803 197	Ru	10	8	–
3803.19	A II	–	[15]	Rt
3803.13	O II	–	[20 l.]	Mh
3803.123	Er	8 d	1 d	–
3803.110	Pr	50 d	20	–
3803.099	Eu	9 w	10 w	–
3803.097	Ce II	35	5	–
3803.093	U	1	8	–
3803.090	Sm	10	3	–
3803.087	Gd	5	–	–
3803.08	Tb	15	–	Ed
3803.077	Th	15	15	–
3803 07	Ho	–	4 h	Ex
3802.986	Cr	2 h	–	–
3802.982	Ir	2	–	Ab
3802.928	W	7	6	–
3802.923	Cb	50	50	–
3802 883	V I	20	8	–
3802.856	U	3	5	–
3802.802	Ce	3	4	–
3802.791	Th	10	5	–
3802.778	Ir I	3	–	Ab
3802.763	Pr	30 d	15	–
3802.749	Eu	5 w	5 w	–
3802.68	Dy	4	2	m
3802 678	Ir	10	1 h	Ab
3802 636	Cb	3	2	Me
3802.62	Lu	3	–	Me
3802.612	Os	5 h	5	–
3802.592	Ce	3	2	–
3802.555	Cb	2	1	Me
3802.525	Pd	–	3	–
3802.417	Sm	10	–	–
3802.340	Ce	3	–	–
3802.299	Pr	10	2 h	–
3802.285	Fe	25	10	–
3802.228	Eu	4	3	–
3802.17	Tb	30	3	Ed
3802.170	Mo	5	5	–
3802.150	Th	8	8	–
3802.07	P	–	[100]	Gu
3802.02	Ta	2 h	–	Ks
3801.985	Au I	2	–	–
3801.985	Fe I	25	5	–
3801.955	U	15	–	–
3801.927	Th	5	5	–
3801.925	Rb II	–	[20]	Rr
3801.924	Ce	4	–	–
3801.921	W	9	10	–
3801.907	Mn	20	20	–
3801.90	Xe I	–	[3]	Me
3801.88	Dy	8	2	Ed
3801.837	Mo	20	25	–
3801.807	Fe	7	3	–
3801.801	Ta	3	–	–
3801.80	Tb	15	–	Ed
3801.682	Fe	50	25	–
3801.658	Hg I	15	2	–
3801.633	Mn II	–	[6]	Cz
3801.61	Eu	7 W	10 W	–
3801.604	Os	20	5	–
3801.560	Ti	7	3	–
3801.529	Ce	25	3	–
3801.524	W	9	7	–
3801.5	In II	–	[50]	Ps
3801.450	I	–	[5]	Ke
3801.39	Xe I	–	[30]	Me
3801.373	Nd	60	40	–
3801.373	U	3 h	5	–
3801.368	Th	10	8	–
3801.36	Eu	9 W	10 W	–
3801.348	Pr	30 d	9	–
3801.334	Gd	15	15	–
3801.33	Fe	1	–	–
3801.30	Ho	6	4 h	Ex
3801.298	Cb	5	8	–
3801.200	Cr	35 h	3 h	–
3801.158	V I	3	1	–
3801.154	Cb	3	20	–
3801.148	U	20	–	–
3801.147	Ta	1	10	–
3801.118	Nd	15	15	–
3801.09	F II	–	[6]	Di
3801.084	Ti I	15	5	–
3801.05	Pt	–	4	Ex
3800.996	Sn	200 h	150 h	Hz
3800.99	Xe	–	[10]	Hu
3800.948	Re	3	–	–
3800.942	Mo	1	4	–
3800.941	Cb	10	8	–
3800.890	Sm II	20	25	–
3800.883	Yt II	2	5 h	–
3800.783	Sm	5	2	–
3800.771	U	–	2	–
3800.703	Zr II	5	1	–
3800.67	Lu	5	–	Me
3800.67	Ho	–	4 h	Ex
3800 619	Nd	20	6	–
3800 605	Th	2	2	–
3800.552	Mn	60	60	–
3800.55	Eu	10 W	10 W	–
3800.544	Kr I	–	[30]	I
3800.503	Pt	4	–	–
3800.502	Cu I	20	2 h	–
3800.437	Os	50	15	–
3800.39	Hf II	20	12	Me
3800.378	Th	5	2	–
3800.368	Sm II	20	–	–
3800.324	Ce II	15	3	–
3800.303	Pr	100	50	–
3800.278	U	1	2	–
3800.261	Ru I	12	40	–
3800.240	Mn II	–	[4]	Cz
3800.21	Pt	3	–	Ex
3800 197	Cb	3	3	Me
3800.141	K II	–	[30]	Dm
3800.123	Ir	150	100	–
3800.090	Mo	2	3	–
3800.042	Sm	8	5 W	–
3800.04	Tb	8	–	Ed
3800.033	Th	10 w	5 w	–
3800.029	Sc	5	12	–
3800.028	Yt	25	5	–
3800.026	Nd	30 d	20	–
3800.02	Ne II	–	[18]	Bn
3799.991	Ta	2	2 h	–
3799.93	Dy	2	–	m
3799.93	Ca	2	2	–
3799.912	V I	60	50	–
3799.903	Ce	3	3	–
3799.87	Pt	5	–	Ex
3799.819	I	–	[7]	Ke
3799.713	Ce	4	2	–
3799.679	Pr	50	25	–
3799.66	Th	2	2	–
3799.58	As II	–	10	Ro
3799.552	U	1	4	–
3799.549	Fe I	400	300	S
3799 547	Ce	3	4	–
3799.546	Sm II	30	10	–
3799.52	Hf II	–	4	Me
3799.50	Eu	18 wd	–	Kn
3799.488	Cb	5	2	–
3799.423	In II	–	[10]	Ps
3799.39	A	–	[15]	Rt
3799.371	In II	–	[25]	Ps
3799.356	Pr	6	3	–
3799.347	Ru I	70 r	100	–
3799.314	In II	–	[10]	Ps
3799.311	Rh I	25	100	–
3799.269	V I	10	7	–
3799.259	Mn	50	50	–
3799.236	Nd	10 d	10 d	–
3799.218	Th	10	5	–
3799.21	S	–	[8]	Ms
3799.204	In II	–	[18]	Ps
3799.202	U	6	12	–
3799.190	Pd I	200 w	150	–
3799.15	Tb	8	–	Ed
3799.118	In II	–	[10]	Ps
3799.097	Ce	3	–	–
3799.06	Ho	–	4 h	Ex
3799.055	In II	–	[10]	Ps
3799.038	Ce II	4	–	–
3799.01	Eu II	100 wh	–	–
3799.002	Zn I	5	–	Hz
3798.95	Tb	8	8	Ed
3798.922	W	7	10	–
3798.901	Ru I	70	100	–
3798.837	U	15	1	–
3798.80	Cl II	–	[50]	Ks
3798.76	Tm	20	10	Me
3798.71	Eu	2 wh	–	–
3798.666	Ir I	5	–	Ab
3798.662	Hf	5	3	–
3798.661	V I	7	5	–
3798.65	Dy	2	–	m
3798.65	Er	4	–	–
3798.624	Ce	3	3	–
3798.59	Tb	15	–	Ed
3798.55	Tm	15	–	Me
3798.513	Fe I	400	300	S
3798.51	Ce	3	3	–
3798.46	F II	–	[6]	Di
3798.44	Yb	4	–	–
3798.314	Ti I	10	6	–
3798.28	Br	–	[6]	Ks
3798.272	Ir	8	–	–
3798.25	Er	5	–	–
3798.259	U	2	8	–
3798.252	Mo I	1000 R	1000 R	–
3798.25	Ho	–	4	Ex
3798.238	Ce	2	–	–
3798.19	La II	–	2	Me
3798.17	Yb	4	–	–
3798.121	Cb	50	80	–
3798.103	Th	5	1	–
3798.08	Ce	2	2	–
3798.059	Ir	6	–	–
3798.052	Ru I	30	40	–
3797.949	Fe I	4	2	–
3797.93	Tb	15	–	Ed
3797.924	Ir	2	–	–
3797.923	Hf II	25	25	–
3797.91	Th	2	5	–
3797.910	H I	–	[20]	Rk
3797.908	Cs	–	[4]	Sv
3797.89	Nd	20 d	10 d	–
3797.832	Cu II	–	2 h	Sh
3797.773	U	10	1	–
3797.76	Dy	4	–	m
3797.727	Sm	25	5	–
3797.716	Cr I	100	20	–
3797.591	Re I	40	–	–
3797.520	U	–	3	–
3797.517	Fe	300	200	S
3797.516	Th	8	10	–
3797.42	Sn	–	3	Ar
3797.403	Ta	6	3	–
3797.322	Ce	2	–	–
3797.300	Mo	5	5	–
3797.278	Sm II	15	–	–
3797 276	Rb II	–	[2]	Rr
3797 231	Pr	15	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3797.170	Rb II	–	[2]	Rr
3797.142	U	1	3	–
3797.126	Cr I	50	30	–
3797.065	Er	2	–	–
3797.05	Sb II	1	4	–
3797.031	Mo	5	5	–
3797.0	Bi II	–	5	Ml
3796.98	Tb	15	–	Ed
3796.952	Th	10	5	–
3796.947	W	5	4	–
3796.925	Pr	40 d	20 d	–
3796.892	Nd	20 d	10 d	–
3796.885	Ti II	12	15	–
3796.884	Kr I	–	[20]	I
3796.849	Cb	10 w	15 w	–
3796.845	U	12	15	–
3796.84	Dy	2 h	1 h	m
3796 823	Rb II	–	[40]	Rr
3796.790	Ir I	4	–	Ab
3796.738	Th	3	–	–
3796.73	Ho	20	40	Ex
3796.69	Eu	2 W	–	–
3796.674	Ce	6	–	–
3796.60	A II	–	[5]	Rt
3796.600	Re I	60	–	–
3796.591	Cb	5	5	–
3796 570	Mo	–	20	–
3796.536	U	10	15	–
3796.484	Zr II	8	15	–
3796.470	V I	30	12	–
3796.440	Cb	15	15	–
3796.432	Ce	2	–	–
3796.413	U	6	4	–
3796 393	Gd	150 w	150	–
3796.393	Rb II	–	[2]	Rr
3796.313	Eu	5 w	10 w	–
3796.30	Xe I	–	[40]	Me
3796.292	Pr	4	3	–
3796.285	W	7	6	–
3796.223	Ir	2	–	–
3796.208	Ta	–	50	–
3796.204	U	8	12	–
3796.20	Tb	15	–	Ed
3796.184	Th	10	8	–
3796.18	Si	–	7	Sy
3796.16	Eu	4 w	8 w	–
3796.15	Sm	8 d	2 d	–
3796.112	Ca	2	2	–
3796.043	Mo	10	5	–
3796.038	Nd	15	1	–
3796.00	Fe I	1	–	–
3796 000	U	6	1	–
3795.95	Eu	4	–	Kn
3795.95	Xe I	–	[3]	Me
3795 90	Au I	20	3 h	Ml
3795.895	Ti I	15	6	–
3795.801	Nd	20	15	–
3795.800	Re	40 W	–	–
3795.765	Pr	30 d	20 d	–
3795.765	Tm	250	150	Me
3795.751	Th	20 w	10 w	–
3795.667	Os	40	12	–
3795.63	Ca I	3	–	–
3795.608	U	1	6	–
3795.59	Mo	–	20 d	–
3795.570	Ce	4	–	–
3795.543	Cb	15 h	–	–
3795.542	Cb	10	20 h	–
3795.532	Fe	2	1	–
3795.454	Nd	6	10	–
3795 387	Th	20	10	–
3795.379	Er	9	–	–
3795.340	Pr	25 d	25 d	–
3795.34	Eu	9 W	5 W	–
3795.29	Er	18 d	1 d	–
3795.272	In II	–	[10]	Ps
3795.256	Ce	5	3	–
3795.211	In II	–	[50]	Ps
3795.185	Ta	–	30	–
3795.175	Ru I	12	6	–
3795.17	Tm	40	6	Me
3795.166	In II	–	[18]	Ps
3795.132	U	8 h	8	–
3795.09	P II	–	[30]	Gu
3795.03	Eu	10 W	–	–
3795.013	Ce	6	2	–
3795.004	Fe I	500	400	S
3794.964	V I	50 h	50 h	–
3794.947	Pr	2	3	–
3794.924	Ru	20	30	–
3794.794	Eu	4	3	–
3794.787	Sm	–	2	–
3794.779	Er	2	–	–
3794.773	La II	400	200	–
3794.771	Ba	8	–	Sz
3794.771	Pr	4	2	–
3794.764	Ti I	7	–	–
3794.722	Li I	60	–	–
3794.689	Nd	10	2	–
3794.680	Ce	5	–	–
3794.662	Os	40	10	–
3794.608	Cr I	50	30	–
3794.60	F II	–	[3]	Di
3794.48	O II	–	[10 l]	Fl
3794.471	Cb	5	5	–
3794.432	Mo	5	10	–
3794.416	U	–	3	–
3794.38	Er	5	1	–
3794.379	Pr	50 d	25 d	–
3794.370	Eu	8 w	5 w	–
3794 358	V	1	25 h	–
3794 347	Sm	30 w	2 h	–
3794.345	W	10	10	–
3794.341	Th	10	10	–
3794.340	Fe	80	50	–
3794.269	Ru	3	8 w	–
3794.23	Tb	30	–	Ed
3794.208	Ce	4	–	–
3794.158	Eu	2	–	–
3794.154	Th	10	10	–
3794.056	Ir	30	6	–
3794.04	Br I	–	[6]	Ks
3793.972	U	3	8	–
3793.969	Sm II	10	30	–
3793.951	Ir	20	–	–
3793.95	Tl II	–	[25]	El
3793.91	Zn II	10	–	Vs
3793.909	Os I	125	300	–
3793.879	Cr I	50	30	–
3793.877	Fe I	25	10	–
3793.857	Ce	6	–	–
3793.85	Eu	18 w	5	Kn
3793.792	Ir	30	10	–
3793 789	Pr	40 d	30 d	–
3793.786	Th	20	8	–
3793.786	Er	10	1	–
3793.75	Cl II	–	[25]	Ks
3793.73	Cb	4 w	2	–
3793.7	bh Ca	4	–	L
3793.681	Ti I	8	–	–
3793 640	Nd	20 d	6 d	Kn
3793 63	Se II	–	[25]	Bl
3793.621	Mo	5	5	–
3793.614	V I	35	15	–
3793.608	Ni I	50	–	–
3793.60	P II	–	[30]	Gu
3793.576	U	10	12	–
3793.565	Dy	4	2	–
3793.55	Tb	15	15	Ed
3793.522	Ce	5	–	–
3793.488	Th	20 w	8	–
3793.484	Fe I	10	5	–
3793.425	Ce	3	1	–
3793.42	I	–	[3]	Ke
3793 372	Hf II	10	20	–
3793.360	Fe I	5	2	–
3793.358	Ca	–	2	–
3793.332	Sm	20	1	–
3793.323	W	6	5	–
3793 289	Cr I	50	30	–
3793 282	U	20	12	–
3793 24	Lu	4	–	Me
3793 217	Rh I	200	60	–
3793.160	Sm	3	–	Kn
3793.104	U	12	18	–
3793.02	Eu	5 W	–	–
3793 0	Bi II	–	[25]	Ml
3792.995	Ti	8	–	–
3792.95	Ho	–	4 h	Ex
3792.933	Pr	12	4	–
3792.920	Th	10	5	–
3792.915	Er	8	–	–
3792.833	Fe I	10	3	–
3792.812	Er	8	1	–
3792.809	Ce	4	3	–
3792.8	Bi	–	500 h	Wt
3792.79	Cb	–	20 h	Me
3792.769	W	15	15	–
3792.745	Ce	2	–	–
3792.69	Tb	8	–	Ed
3792.641	Th	10	5	–
3792.629	U	8	4	–
3792.60	Sm	25 w	3 h	–
3792 56	Yt II	5	3	–
3792.55	Nd	20 d	10 d	–
3792.524	Pr	100	8	–
3792.5	B II	–	[500]	Ml
3792.46	S II	–	[35]	Bt
3792.435	Pr	4	3	–
3792.426	Cr	2	1	–
3792.410	U	10	4	–
3792.405	Zr I	9	2	–
3792.40	F II	–	[10]	Di
3792 396	Gd	20	25	–
3792.377	Th	5	1	–
3792 337	Ni I	25	5	–
3793 326	Ce II	20	2 h	–
3792.321	Mo	4	5	–
3792.317	Nd	6	1	–
3792.255	Ir	8	–	Ab
3792.182	Rh I	10	4	–
3792 18	Tb	15	8	Ed
3792.163	Pr	9	5	–
3792 160	Fe I	40	20	–
3792.137	Cr I	60	40	–
3792.094	Mo	1	15	–
3792.023	Sm II	25	6	–
3792.015	Cb	5 W	3 W	–
3792.015	Ta	50	10	–
3791.981	Th	3	3	–
3791.967	Ir I	4	–	Ab
3791.964	Ce	4	–	–
3791 845	Er	18	6	–
3791.843	U	3	3	–
3791.82	Dy	6	4	Ed
3791.772	W	4	1	–
3791 74	Yb	4	6	–
3791.73	Fe	5 h	2 h	–
3791.689	Ce	15	–	–
3791.63	Eu	2 W	–	–
3791.60	W	–	5	–
3791.56	Tl II	–	[6]	El
3791.507	Fe I	7	2	–
3791.503	Nd	20	10	–
3791.49	Eu II	5 W	–	–
3791 46	Cl	–	[3]	Bl
3791.447	Cb	3	3	–
3791.41	Mo	–	10 h	–
3791.400	Zr I	25	6	–
3791.376	Cr I	80	40	–
3791 339	U	10	1	–
3791.326	V I	20	4	–
3791 302	Th	8	8	–
3791 275	Sm	10	6	–
3791.243	Nd	10	4	Kn
3791 223	Ce	3	2	–
3791.207	Cb	80	80	–
3791.20	Fe	2	–	–
3791.135	Gd	25	25	–
3791 13	Si	–	5	Sy
3791.091	U	2	8	–
3791.062	Zr I	5	5	–
3791.00	Ho	–	6	Ex
3790.999	Ce	2	–	–
3790.928	Ir	2	–	–
3790 878	Ce	4	3	–
3790 851	Th	10	5	–
3790.843	U	–	3	–
3790.840	Nd	20 d	10 d	–
3790.836	Er	12	1	–
3790.823	Pr	15	5	–
3790.822	La II	400	300	–
3790.81	Tb	8	–	Ed
3790.808	Ce	6	4	–
3790.779	Sm	5	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3790.760	Fe I	10	3	–
3790.731	Os	100	20	–
3790.71	Eu	10	2	Kn
3790.709	Ir I	3	–	Ab
3790.664	Fe I	2	1	–
3790.644	Nd	10	–	–
3790.621	Gd	8	15	–
3790.595	Pr	12	6	–
3790.537	Er	12	5 wh	–
3790.537	Th	10	5	–
3790.527	Ir	50	–	–
3790.526	Zr	3	3	–
3790.513	Ru I	70	150	–
3790.50	Eu	8 W	5 W	–
3790.469	V I	12	7	–
3790.454	Cr I	50	15	–
3790.335	Ce II	4	–	–
3790.333	U	6	6	–
3790.324	V I	40	12	–
3790.300	Ir I	3	–	–
3790.23	Hg	–	[2 h]	Cn
3790.228	Cr I	30	10	–
3790 216	U	1	6	–
3790.215	Mn	100	125	–
3790.152	Cb	100 r	50 r	–
3790.14	Os I	80	30	m
3790.095	Fe I	200	100	S
3790.086	Ce	2 h	–	–
3790.07	Rn I	–	[12]	Rs
3789.991	Pr	25	20	–
3789.978	Th	2	5 h	–
3789.92	Tb	15	–	Ed
3789.919	Er	8	–	–
3789.913	Sm	3	1	–
3789.888	U	2	6	–
3789.837	Ce	3	3	–
3789.818	Hg	–	[2 h]	St
3789.810	Fe	4	1 h	–
3789.77	W	–	12	–
3789.723	Cr I	50	10	–
3789.72	Ba I	3	–	Sd
3789.716	Pr	10	–	Kn
3789 68	Se	–	[5]	Bt
3789.68	Tb	8	3	Ed
3789.64	Ca	3	2	Ad
3789.603	U	4	12	–
3789.571	Fe I	1	–	–
3789.495	Cb	10	10	–
3789.474	Ir I	10	2 h	–
3789.473	Ce	5	–	–
3789.438	Fe	2	1	–
3789.295	Ti I	50	15	–
3789.214	U	–	5	–
3789.177	Fe	80	50	–
3789.170	Eu	6	4	–
3789.116	Th	20	20	–
3789.106	Os	30	12	–
3789.039	Pr	15	9	–
3789.00	Tb	8	3	Ed
3788.967	Nd	15 d	10 d	–
3788.930	Pr	50 d	25 d	–
3788.864	Cr I	60	10	–
3788 804	Ti I	7	2	–
3788.76	Eu	15 w	10 w	–
3788.753	Ce	15	3 h	–
3788.748	Ta	10	3	–
3788.736	Ir	2 h	–	–
3788.697	Yt II	30	30	–
3788.684	Cb	10 W	5 h	–
3788.595	U	3 h	1 h	–
3788.57	Rh I	2	–	–
3788.493	Pr	2	2	–
3788.48	Nd	20 d	6 d	–
3788.474	Rh	50	25	–
3788.47	Tb	3	–	Ed
3788.45	Ho	–	4 h	Ex
3788.449	Dy	100	40	–
3788.430	Ce	3	3	–
3788.359	Th	10	8	–
3788.256	Mo	15	15	–
3788.236	U	–	6	–
3788.208	Hf	3	1	–
3788.206	Ce	5	2	–
3788.18	Ba I	3	–	Sd
3788.159	Ir	2 h	–	–
3788.130	Sm II	25	10	–
3788.11	Re	3	–	–
3788.10	Ho	–	4	Ex
3788.06	P II	–	[15 h]	Gu
3788.058	Pr	6	3	–
3788.036	U	2	8	–
3787.910	Er	15	2	–
3787.906	Ce	15	2	–
3787.883	Fe I	500	300	S
3787.644	Nd	6	4	–
3787.62	Tb	8	8	Ed
3787.572	Ce	4	–	–
3787.56	Gd	25	25	–
3787.540	V I	30	1	–
3787.526	Re I	80	–	–
3787.519	Nd	10	6	–
3787.504	Th	10	5	–
3787.483	Cb	5	5	–
3787.462	Ce	3	1	–
3787.425	Fe	2	–	–
3787.42	Er	3 d	1 d	–
3787.372	Hf	3	2	–
3787 356	Sm	10	–	–
3787.32	Xe II	–	[2]	Hu
3787.280	Cb	4 h	3 h	Me
3787 276	Ir	4	–	–
3787.27	Er	25 d	5 d	–
3787.270	Dy	6	5	–
3787.239	V	2	20	–
3787.235	Ba I	4	4	–
3787 233	U	1	10	–
3787 22	Tb	30	8	Ed
3787.213	Re	10	–	–
3787 201	Sm II	100	35	–
3787.191	Th	40 w	20 w	–
3787 19	Eu	9 W	5 W	–
3787.18	As II	–	15	Ro
3787.167	Fe	25	15	–
3787.159	Ce	3	5	–
3787.158	Yt I	5	–	–
3787.158	Nd	60 d	50	–
3787.154	Sc	30	10	–
3787 146	Ta	–	20 w	–
3787.145	V I	25	7 h	–
3787.062	Cb	30	30	–
3787 011	Ce	3	–	–
3786 975	Eu	2	–	–
3786.895	Nd	10	6	–
3786 884	Th	15	15	–
3786.882	Pr	30 d	15	–
3786 85	Ho	–	4	Ex
3786.839	Er	20	7	–
3786 83	Eu	5 W	10 W	–
3786.830	U	12	2 h	–
3786.69	P II	–	[15]	Gu
3786 679	Fe I	125	50	–
3786 632	Ce II	10 s	3	–
3786.61	Se	–	[12]	Bt
3786 606	Zr	8	–	–
3786.574	U	5	10	–
3786.532	Ce	3	–	–
3786.40	A	–	[15]	Rt
3786 378	W	10	10	–
3786.361	Mo	2	125	–
3786 32	Eu	4	2	Kn
3786.268	Ti I	6	–	–
3786 261	Cu II	–	2 h	Sh
3786.243	Pb II	–	10 h	Kl
3786.222	Cb	10	8	–
3786.212	Cr	5	2	–
3786.20	Dy	20	15	m
3786.18	Lu	4	–	Me
3786.177	Er	20	12	–
3786.176	Fe I	100	60	–
3786 15	Ho	6	4	Ex
3786.142	U	3 h	1 h	–
3786.100	Cb	3 h	3 wh	–
3786.058	Ir	30	–	Ab
3786.055	Ru I	70	100	–
3786.045	Ti I	40	40	–
3786.00	Pb II	–	40	Sx
3785 992	Nd	20	4	Kn
3785.97	F II	–	[3]	Dl
3785.969	Pr	4	2	–
3785.951	Fe	125	80	–
3785.852	Th	5	–	–
3785.80	Eu	10 wh	10 wh	–
3785.76	Ca	2	2 h	–
3785.713	Fe	10	4	–
3785.652	Th	15	15	–
3785.63	W	–	10	–
3785.62	Yt	3	3	Me
3785.564	Ce	2	2	–
3785.514	Mo	5	5	–
3785.498	Pr	50	20	–
3785.47	Eu	25 W	10 Wh	–
3785.460	Hf	20	15	–
3785.424	Dy	7	3	–
3785.424	Cs II	–	[20]	Sv
3785.421	Mn	4	4	–
3785.42	Ho	–	4 h	Ex
3785.38	Tb	15	8	Ed
3785.356	Er	15 d	1 d	–
3785.35	U	–	15 h	–
3785.350	Sm	30	8	–
3785.335	Th	10	5	–
3785 265	Ta	8	2	–
3785.249	Ce	2	2	–
3785.175	U	6	2	–
3785.105	W	4	3	–
3785.094	Nd	10 d	10	–
3785.071	Pr	3	2	–
3785 06	Ho	–	4 h	Ex
3785.032	Mo	8	10	–
3785.021	Ce	12	2	–
3784 929	Ir	3	–	Ab
3784 886	He I	–	[2]	Ps
3784.881	Cb	1	10	–
3784.871	Zr I	2	–	–
3784 850	Nd	20	20	–
3784 797	La II	5	2	–
3784.737	Ru I	4	–	–
3784 717	Ir	2 h	3 h	Ab
3784.707	U	2	6	–
3784.674	V I	15	5	–
3784.65	Dy	6	2	m
3784.352	Ce	4	3	–
3784.348	Zr	6	4	–
3784 310	Pr	9 d	3 d	–
3784.254	Ta	150	50 w	–
3784.250	Nd	25	25	–
3784.23	Eu	10 W	10 W	–
3784.177	Re	20	–	–
3784.0	Pb II	–	[10]	Ea
3783.985	Pr	3	–	–
3783.96	Dy	6	4	Ed
3783 87	Eu	10 W	5 W	–
3783.859	Pr	100 d	30 d	–
3783.857	Er	10 d	1 d	–
3783.85	Tb	8	–	Ed
3783.840	U	20	25	–
3783.839	Cb	15	20	–
3783.821	Th	15	5	–
3783 815	Ce	2	4	–
3783 811	Gd	5	5	–
3783.806	Sm	50 d	10 d	–
3783.777	Nd	20 d	20 d	–
3783.774	Ta	2	1	–
3783.74	Sn	–	2 h	–
3783.730	W	10	12	–
3783.728	Co I	5 h	3	–
3783.658	Os	20	10	–
3783.630	U	2	5	–
3783.608	Dy	8	3	–
3783.579	Ce II	8	3	–
3783.56	Tm	30	15	Me
3783.544	Er	10	1	–
3783.54	Tb	15	8	Ed
3783.532	Mo	8	1	–
3783.530	Ni I	500	40 h	–
3783.52	Eu	10 d	5	–
3783.509	Pr	30 d	20 d	–
3783.49	S	–	[15]	Bl
3783.46	Sm	8 d	5 d	–
3783.429	Ce	3	4	–
3783.42	Br	–	[3]	Bl
3783.354	Sm II	10	15	–
3783.347	Fe II	1 h	1 h	–
3783.296	Th	20	15	–
3783.24	Ca	3	3	Ad

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3783.23	Xe II	–	[5 h]	Hu
3783.192	K II	–	[30]	Dm
3783.181	Mo	–	40	–
3783.16	S II	–	[8]	Hn
3783 13	Kr II	–	[500 hl]	Me
3783.082	Th	8	1	–
3783.070	Nd	25 d	10	–
3783.062	Gd	25	20	–
3783.062	Sm II	25	8	–
3783.035	Ce	12	3	–
3783.016	Th	20	20	–
3782.888	Dy	8	2	–
3782.841	U	25	30	–
3782.78	Hf II	4	5	Me
3782.740	Ru I	8	6	–
3782.724	Zr II	3	5	–
3782.679	Sm	15	–	–
3782.673	Mo	3	1	–
3782.66	Rn I	–	[12]	Rs
3782.65	Ho	–	4	Ex
3782.62	Tb	8	–	Ed
3782.612	Fe	7	2	–
3782.6	S II	–	[8]	Hn
3782.56	Yb	5	25	–
3782.550	V I	20	7	–
3782.525	Ce I, II	18	2	–
3782.456	Fe I	10	2	–
3782.43	Hf	5	3	m
3782.425	Zr	7	3	–
3782.423	Sm II	15	–	–
3782.346	Pr	25	9	–
3782.310	Nd	8 d	4 d	–
3782.302	U	4	1	–
3782.302	Yt II	8	5	–
3782.302	Ta	1	3 h	–
3782.284	Gd	25	50	–
3782.26	Er	3	1	–
3782.26	S	–	[35]	Bl
3782.225	Zr II	2	2	–
3782.206	Th	10	5	–
3782.195	Os I	400 R	200	–
3782.189	Mo	5	–	–
3782.18	Tb	8	–	Ed
3782.152	V	15	3	–
3782.149	Sm	10	3	Kn
3782.130	Fe	8	2	–
3782.109	Ti I	10	3	–
3782.075	Mo	–	100	–
3782.034	Ce	2	–	–
3781.981	Ce	2	–	–
3781.935	Fe	12	5	–
3781.926	Pr	20	8	–
3781.837	W	9	8	–
3781.771	Nd	2	–	–
3781.746	U	10	–	–
3781.686	Th	20	10	–
3781.683	Ru	5	3	–
3781.656	I I	–	[2]	Ke
3781.645	Pr	100 d	50 d	–
3781.64	Sm	5 d	3 d	–
3781.63	Tb	8	–	Ed
3781.620	Ce	25	4	–
3781.593	Mo	25	20	–
3781.48	Dy	8	3	m
3781.464	U	3	3 h	–
3781.421	Pr	10	4	–
3781.412	I	–	[7]	Ke
3781.393	V I	40	6	–
3781.39	Eu	25 W	30 W	–
3781.379	Cb	5	200	–
3781.361	A I	–	[300]	IHu
3781.330	Sm	2	2	Kn
3781.315	Nd	20	20	–
3781.23	Cl II	–	[30]	Ks
3781.211	Mo	4	4 h	–
3781.190	Fe I	40	12	–
3781.182	U	4	6	–
3781.181	Ru	50	40	–
3781.133	Ir	5	–	Ab
3781.102	Ce II	5	–	–
3781.1	Rb	–	[3]	Dr
3781.09	Eu	4 W	–	–
3781.051	U	3	6	–
3781.018	Er	10	3	–
3781.014	Cb	20	20	–
3780.975	Th	15	3	–
3780.97	Ho	–	4	Ex
3780.93	Dy	3	–	m
3780.927	W	–	8	–
3780.922	Sm II	15	15	–
3780.922	Nd	–	20	–
3780.862	Ca	2	3	–
3780.855	Th	20	5	–
3780.84	A	–	[50]	Rt
3780.770	W	20	18	–
3780.762	Sm	20	20	–
3780.729	Cr	3	–	–
3780.716	U	15	20	–
3780.674	La II	50	50	–
3780.664	Pr	20	5	–
3780.64	S	–	[3]	Hn
3780.617	Mo	3	4	–
3780.561	Ce	2	–	–
3780.538	Zr I	40	15	–
3780.515	La II	–	20	–
3780.51	Eu	9 W	10 W	–
3780.507	Th	20	10	–
3780.504	Sm	10	3	–
3780.492	Gd	5	–	–
3780.46	Sr I	30	–	Fl
3780.430	Er	10 d	1	–
3780.403	Ti	10	–	–
3780.391	Nd	20 d	15	–
3780.37	Ho	–	6	Ex
3780.361	Re	20	–	–
3780.33	Dy	4	1	–
3780.268	Pr	12	5	–
3780.262	U	1	8	–
3780.234	W	–	8	–
3780.214	Os	20	10	–
3780.173	Ta	30	2	–
3780.145	Sm II	15	–	–
3780.09	Hf II	4	10	Me
3780.079	Cr	2	–	–
3779.968	W	8	7	–
3779.964	Ru I	10	4	–
3779.869	Ce	3	–	–
3779.86	Eu	20	10	Kn
3779.806	Th	20	10	–
3779.803	Er	10	–	–
3779.769	Mo	25	30	–
3779 768	V I	2	1	–
3779.767	Nd	20 d	10 d	–
3779.735	Pr	15	8	–
3779.648	V I	30	10	–
3779.644	Ir	15	–	–
3779.63	Dy	3	1	–
3779.611	Ce	6	–	–
3779.580	Cb	2	20	–
3779.563	Sm II	15	4	–
3779.52	Sn	–	2	Ar
3779.483	Fe	2	–	–
3779.47	Si	–	3	Sy
3779.468	Pr	10	2	–
3779.466	Nd	15	15	–
3779.446	Fe I	100	70	–
3779.431	Ru	4	–	–
3779.373	I II	–	[3]	Ke
3779.34	Ba	–	2	Py
3779.32	Eu	3 w	5 w	–
3779.315	Pr	3	2	–
3779.31	Yb	2	4	–
3779.247	Dy	6	3	–
3779.227	Cb	2	2 h	–
3779.22	Tb	15	8	Ed
3779.208	W	–	7	–
3779.163	Ir	2 h	–	Ab
3779.15	Se	–	[5]	Bt
3779.146	Ta	2 h	3 s	–
3779.048	U	8	15	–
3779.040	Ti I	8	–	–
3778.977	Ce	2	2	–
3778.915	Er	3	–	–
3778.897	I II	–	[2]	Mu
3778.826	Nd	10 d	8 d	Kn
3778.814	Eu	20 w	5 w	–
3778.782	Th	15	10	–
3778.747	Pr	40	20	–
3778.701	Ru	12	10	–
3778.701	Fe I	10	4	–
3778.684	W	8	12 l	–
3778.684	V I	60	4	–
3778.676	Cb	3	5 h	–
3778.62	Er	10	8	–
3778.586	W	7	8	–
3778.513	Fe	60	25	–
3778.512	Cb	–	5 wh	–
3778.40	Eu	5 Wl	5 Wh	–
3778.360	U	12	–	–
3778.358	V II	3	35	–
3778.320	Fe I	8	4	–
3778.313	Pd I	2	–	–
3778.23	Er	8	2	–
3778.148	W	6	9	–
3778.140	Nd	40	40	–
3778.135	Sm	40	100	–
3778.126	Rh I	25	10	–
3778.09	Kr II	–	[500 hl]	Me
3778.063	Ni I	25	5	–
3778.006	U	4	2	–
3777.964	Mo	5	4 h	–
3777.919	Cr	3	–	–
3777.914	Th	15	10	–
3777.842	Pr	10	8	–
3777.840	Sm	10	4	–
3777.82	Hg II	–	[10]	Ps
3777.759	Ru	3	4	–
3777.728	U	8	3	–
3777.724	Mo	5	8	–
3777.673	Cb	20	30	–
3777.672	Ce II	12	3	–
3777.663	Re I	40	–	–
3777.65	Ho	–	4 h	Ex
3777.644	Hf	20	12	–
3777.633	Pr	15	6	–
3777.63	Er	7	2	–
3777.60	O II	–	[18 l]	Fl
3777.60	Eu	15 W	5 W	–
3777.586	Ru I	60	50	–
3777.55	A II	–	[3]	Rt
3777.542	Co I	200	–	–
3777.496	V I	8	2	–
3777.48	Tb	8	–	Ed
3777.46	W	–	10	–
3777.45	Dy	6	2	Ed
3777.447	Fe I	20	10	–
3777.41	Nd	10	2	–
3777.392	U	2	–	–
3777.351	Th	10	5	–
3777.27	Yt	6	2	–
3777.16	Ne II	–	[75]	Bn
3777.16	Eu	10	5	Kn
3777.15	Lu	–	2 h	Me
3777.120	Th	40	20	–
3777.102	Ta	25	10	–
3777.102	Pr	20	10	–
3777.091	Ce	6	15	–
3777.089	Er	25	10 h	–
3777.088	Sm	30	10	–
3777.080	Zr	15	10	–
3777.078	Co I	2	2	–
3777.062	Fe	12	7	–
3776.992	Os	150	20	–
3776.934	Ir I	10	2	–
3776.879	V I	10	2	–
3776.80	S II	–	[3]	Hn
3776.738	U	3	5 h	–
3776.711	Ce II	2	–	–
3776.69	W	–	2 h	–
3776.608	Ce II	6	3	–
3776.601	Cb	3	3	–
3776.561	Yt II	12	12	–
3776.550	Mo	5	8	–
3776.527	Mn	25	25	–
3776.52	Eu	4 W	4 W	–
3776.49	Tb	100	100	Ed
3776.459	Fe	125	70	–
3776.338	Nd	15	12	–
3776.32	Cd	–	3	Tk
3776.276	Th	8	1	–
3776.26	Hg II	–	[30]	Ps
3776.254	Os	50	15	–
3776.20	Eu	10 W	–	–
3776.161	Cb	2	5	–
3776.157	V I	50	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3776.146	Ce	5	5	–
3776.104	Mo	5	5	–
3776.089	Pr	8	3	–
3776.06	Sm	15	–	–
3776.059	Ti II	8	60	–
3776.02	Tb	8	–	Ed
3776.01	Dy	2	–	Ed
3776.0	Ba	3	7	Py
3775.991	U	10	12	–
3775.986	Ce	12	15	–
3775.942	Th	20	10	–
3775.868	Fe I	2	–	–
3775.86	Ca	2	2	–
3775.849	Sm	2	–	–
3775.745	Bi	2	–	Om
3775.72	Tl I	3000	1000 R	Fl
3775.719	V I	30	2	–
3775.716	Rh I	8	3	–
3775.697	Hg	–	[2]	St
3775.69	Eu	4 W	4 W	–
3775.665	Er	8	2	–
3775.647	Mo	15	20	–
3775.608	U	12	5	–
3775.572	Ni I	500 h	40 h	–
3775.564	Ce	4	–	–
3775.501	Nd	10	20	–
3775.464	Re	10	–	–
3775.461	Zr I	7	1 h	–
3775.459	Sm	10	3	Kn
3775.45	A I	–	[10]	Ms
3775.448	Cb	5	10	–
3775.446	W	8	7 s	–
3775.442	U	4	4	–
3775.41	Eu	4 W	–	–
3775.363	Ce	2	4	–
3775.319	Th	20	5	–
3775.262	U	6	3	–
3775.26	Tb	15	8	Ed
3775.24	Nd	15 d	8 d	–
3775.211	Pr	10	4	–
3775.206	Ir	8	–	–
3775.187	V I	25	5	–
3775.02	P II	–	[30]	Gu
3774.96	Tb	8	–	Ed
3774.928	Nd	10	6	–
3774.907	U	10	1	–
3774.836	Dy	4	1 h	Ed
3774.827	Fe I	100	40	–
3774.74	Si	–	4	Sy
3774.678	Sm II	15 W	–	–
3774.675	V	1	12	–
3774.650	Ti	2	1	–
3774.645	Mn	20	–	–
3774.619	Os	60	12	–
3774.605	Co I	200 W	–	–
3774.588	Pr	10	2	–
3774 54	A	–	[3]	Rt
3774.52	Hg	–	[30]	Ps
3774 440	Cb	3	5	–
3774.400	Os	60	15	–
3774.399	Ce	2	–	–
3774.382	Cb	2	5	–
3774.332	Yt II	12	100	–
3774.331	Ti I	8	–	–
3774.322	Nd	20	30	–
3774.32	Yb	8	–	–
3774.305	Sm II	10	–	–
3774.25	Cl II	–	[25]	Ks
3774.22	Sr II	1	2 h	Sd
3774.212	Th	8	8	–
3774.138	W	–	18	–
3774.127	Sm	20	5 h	Kn
3774.109	V I	20	3	–
3774.08	Nd	20 d	10 d	–
3774.08	Eu	50 W	10 W	–
3774.064	Pr	100	50	–
3774.06	U	–	12 w	–
3773.895	Ce	2	–	–
3773.83	Br	–	[3]	Bl
3773.806	V	–	2	–
3773.793	Ru	3	–	–
3773.780	Os	12	5	–
3773.760	Th	20	20	–
3773.758	I	–	[10]	Ke
3773.705	W	20	18	–
3773 699	Fe I	40	10	–
3773.68	Cl II	–	[20]	Ks
3773.625	Cb	3	3	–
3773.547	U	2	5	–
3773.540	Hg	–	[2]	St
3773.476	Pr	8	3	–
3773.46	Yb	2	6	–
3773.437	Ce	5	3	–
3773.425	U	20	10	–
3773.424	Kr I	–	[50]	I
3773.420	Sm II	15	4	–
3773.366	Fe	2	–	–
3773.342	Sm	15	1	–
3773.335	Nd	4	–	–
3773.325	Mo	2	3	–
3773.319	Dy	8	3	–
3773.214	Ce	8	2	–
3773.2	bh Ca	4	–	L
3773.198	Pr	9	5	–
3773.175	Nd	10 d	10	–
3773.170	Ru I	12	4	–
3773.157	Au II	–	10	–
3773.152	Cb	5	8	–
3773.12	Hf	2	–	Me
3773.117	La II	2	20 l	–
3773.072	Th	5	2	–
3773.062	Dy	8	3	–
3772.972	V	2	40	–
3772.932	Nd	20 d	10	–
3772.863	Ce	5	3	–
3772.854	Pr	80 d	20	–
3772.852	Hf II	1	2	–
3772.822	Mo	20	20	–
3772.813	U	6	20	–
3772.775	Sb II	–	3 h	–
3772.748	V I	10	–	–
3772 72	Eu	2 W	–	–
3772.660	Th	8	1	–
3772.650	Ce II	8	1	–
3772.645	Sm	20	10	–
3772.552	Pr	10	2	–
3772.530	Ni I	15	5	–
3772.469	Er	2	–	–
3772.450	Ce	4	1	–
3772 423	W	7	7	–
3772.402	Nd	10	6	Kn
3772.357	U	2	4	–
3772.252	Th	10	8	–
3772.18	Tb	8	–	Ed
3772.16	Eu	18 d	–	–
3772.148	V I	20	1	–
3772.138	Nd	20 d	10 d	Kn
3772.138	Sm	25 d	5 d	–
3772.077	Pr	1	3	–
3772.06	Ca	2	3	Ad
3772.059	Zr II	1	2	–
3772.056	Nd	5	1	–
3772.052	W	9	10	–
3772.029	Ce	3	–	–
3771.952	Mo	30	30	–
3771.944	Os	40 s	12	–
3771.93	Ba	3	–	Sd
3771.904	Cu I	30	5	–
3771.852	Cb	20	20	–
3771.803	Th	10	5	–
3771.799	Nd	15 d	6 d	–
3771.766	Pr	40 d	20 d	–
3771.76	Eu	10 d	–	–
3771.74	Tb	8	–	Ed
3771.725	Gd	10	–	–
3771.655	Ti I	70	30	–
3771.640	Os	20	10	–
3771.632	Rh I	5	2	–
3771.606	Ce II	15	2	–
3771.604	Ir I	40	4	–
3771.57	Ra	–	[10]	Rs
3771.493	Fe I	2	–	–
3771.436	I II	–	[2]	Mu
3771.424	Mo	3	3	–
3771.42	Eu	4 d	–	–
3771.412	U	1	8	–
3771.381	Ce	3	2	–
3771.377	Th	30 w	20 w	–
3771.373	Pr	25 d	10 d	–
3771.365	Hf II	2	6	–
3771 350	Sm	50 d	2	–
3771 34	Kr II	–	[30 h]	Me
3771 325	Nd	10 d	6 d	–
3771.18	Dy	3	–	Ed
3771.16	Eu	10 W	20 W	–
3771.110	Er	12	2	–
3771.103	Nd	10	8	–
3771.10	As II	–	10	Ro
3771.08	Dy	10	5	Ed
3771.075	Ru	3	–	–
3771.010	Hg	–	[10]	St
3770.973	V II	30	60	–
3770.936	Sm	3	–	Kn
3770.927	Ta	15	1	–
3770.867	Cb	10	10 h	–
3770.766	Ce	18	3	–
3770.736	Re I	8	–	–
3770 730	Ir	40	5	–
3770.729	Sm II	25	50	–
3770.71	Cb	5 w	–	–
3770.699	Gd	50	60	–
3770.653	Cb	–	20 h	–
3770.64	Hf II	–	2	Me
3770.634	H I	–	[15]	Rk
3770.606	W	7	6	–
3770.54	Se II	–	[8]	Bt
3770.54	A	–	[15]	Rt
3770.530	V I	10	1	–
3770.523	Mo	5	5	–
3770.484	Pr	30	9	–
3770.458	U	2	8	–
3770.447	Mo	5	5	–
3770.412	Ti II	2	5	–
3770.412	Fe	4	1	–
3770.388	Ce	3	–	–
3770.369	A I	–	[400]	IHu
3770.353	Mo	3	3	–
3770.332	Cb	3	1 h	Me
3770.303	Fe I	35	12	–
3770.244	Er	10 d	1 d	–
3770.240	Rh	3	2	–
3770.239	Sm	8	1	–
3770.23	Eu	15 W	25 W	–
3770.211	Pr	25 d	15 d	–
3770.20	Th	10 d	5 d	–
3770.19	Tb	8	–	Ed
3770.170	U	–	4	–
3770.12	Xe	–	[2 wh]	Hu
3770.107	Yb	12	15	–
3770.062	Th	10	5	–
3770.003	V I	20	2	–
3769.996	Mo	5	10	–
3769.99	Sr II	3	3	Sd
3769.99	Au	–	5 h	–
3769.990	Fe I	80	30	–
3769.984	Cb	5	5	–
3769.974	Rh I	25	30	–
3769.948	Er	8	2	–
3769.939	Ce	8	3	–
3769.867	W	10	10	–
3769.816	Nd	20	4	–
3769.736	Ti	10	–	–
3769.695	Pr	20	6	–
3769.644	Nd	100	20	–
3769.600	Th	5	1	–
3769.535	U	4	18	–
3769.48	Ba I	4	–	Sd
3769.455	Ni II	2	50 h	–
3769.453	Gd	50	40	–
3769.449	Ne I	–	[7]	Ps
3769.408	Ce	3	–	–
3769.356	Ce	2	–	–
3769.343	Nd	12	6	–
3769.32	Eu	12 wh	5 wh	–
3769.307	Re	6	–	–
3769.250	Ce	3	–	–
3769.210	W	12	10	–
3769.146	Cb	10	15	–
3769.13	Cl II	–	[20]	Ks
3769.073	V I	30	10	–
3769.041	Ce II	6	1	–
3769.0	Eu	10 d	–	Kn
3768.997	Ir	4	–	–
3768 994	Cr	2	2	–
3768.98	La II	–	2	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3768.978	W	–	7	–
3768.934	Pr	50	30	–
3768.81	He I	–	[2]	Ps
3768.810	Sm	3	–	–
3768.796	U	15	12	–
3768.791	Er	5	–	–
3768.762	Ce	8	2	–
3768.742	Mo	4	5	–
3768.734	Cr I	35	25	–
3768.70	P II	–	[50]	Gu
3768.676	Ir I	60	10	–
3768.658	Ce	2	1	–
3768.624	Mo	4	4	–
3768.532	U	2	5	–
3768.51	Eu	8 wh	–	–
3768.457	Gd	10	–	–
3768.447	W	20	18	–
3768.437	Th	8	8	–
3768.411	U	1	2	–
3768.405	Gd	20	20	–
3768.39	Pt II	–	10	Sh
3768.388	Pr	2	2	Kn
3768.35	Tb	8	8	Ed
3768.307	Sm	10	–	–
3768.305	Ce	4	8	–
3768.254	Hf	4	1	–
3768.254	Sm	10	–	–
3768.253	Re	6	–	–
3768.240	Cr I	60	60	–
3768.23	Eu	18 w	–	–
3768.218	Er	10 d	–	–
3768.157	Mn	10	10	–
3768.138	Os	80	15	–
3768.13	Cl II	–	[18]	Ks
3768.10	Cd II	–	2	–
3768.029	Fe I	15	8	–
3767.996	Ce	3	–	–
3767.931	Sm	3	2	–
3767.92	S	–	[4]	Bl
3767 905	Th	20	15	–
3767.903	Ce	3	–	–
3767.883	Zr II	3	4	–
3767.846	W	10	8	–
3767.835	U	–	2 h	–
3767.761	Er	2	–	–
3767.759	Nd	15	20	–
3767.758	Sm	15	10	–
3767.732	Mo	4	25	–
3767.73	S	–	[8]	Bl
3767.721	V	2	10	–
3767.696	Mn	12	12	–
3767.642	Dy	15	5	–
3767.60	Eu	15 wh	5 wh	–
3767.57	Cl II	–	[30]	Ks
3767.566	Ce	2	4	–
3767.50	Tb	75	8	Ed
3767.431	Cr	20	10	–
3767.43	Ca I	2	–	–
3767.427	Cb	3	4	–
3767.423	W	7	10	–
3767.372	K II	–	[30]	Dm
3767.362	Sm II	20	10	–
3767.350	Ru	50	50	–
3767.257	V I	20 w	10	–
3767.194	Fe I	500	400	S
3767.193	Ce	2	–	–
3767.05	La II	2 h	10 h	Me
3767.036	Gd	15	10	–
3766.952	Zr I	2	–	–
3766.924	Hf II	5	25	–
3766.923	Sm	5	–	Kn
3766.889	U	10	–	–
3766.846	Ce	3	1	–
3766.820	Zr II	15	20	–
3766 715	Zr I	15	–	–
3766.696	Ce	4	–	–
3766.666	Fe I	3	2	–
3766.590	Nd	10	2	–
3766.56	La II	–	3 h	–
3766.553	Ir	3	–	–
3766.509	Ce II	12	3	–
3766.480	Ru	3	2	–
3766.478	Pr	8	4	–
3766.476	Re I	20	–	–
3766.46	U	–	6 w	–
3766.446	Ti I	10	3	–
3766.403	V I	15	5	–
3766 398	Mo	3	5	–
3766 385	Pt II	–	20	–
3766.375	Zr	3	3	–
3766.36	Tb	8	–	Ed
3766.347	Th	5	2	–
3766.301	Os	100	20	–
3766.30	Eu	6 d	–	–
3766.293	Ce	2	3	–
3766.29	Ne II	–	[75]	Bn
3766.262	Zr	3	3	–
3766.249	Er	5	–	–
3766.22	Ho	4	2	Ex
3766.162	Er	9	3	–
3766.157	Ir I	4	1 h	Ab
3766.134	Cb	15	20	–
3766.13	A II	–	[10]	Rt
3766.10	Yb	2	6	–
3766.087	Fe I	2	1	–
3766.08	Eu	2 W	–	–
3766.064	Ce	6	–	–
3765.993	Pr	8	3	–
3765.940	Eu II	10	–	–
3765.924	Nd	6	4	–
3765.889	Ce	5	1	–
3765.88	Kr II	–	[2 wh]	Me
3765.870	U	1	8	–
3765.85	Tm	10	10	Me
3765.822	Ru	5	–	–
3765.787	Cb	2	3	–
3765.752	Sm	5	–	Kn
3765.737	Mo	5	10 h	–
3765.727	Ce	2	–	–
3765.706	Fe	1	1	–
3765.615	Sm	5	–	Kn
3765.612	Cr II	–	15	–
3765.542	Fe	200	150	S
3765.527	Ce	2	–	–
3765.427	Sm	8	8	–
3765.412	Ir	3	–	–
3765.345	U	18	1	–
3765 344	Nd	10	4	Kn
3765.310	W	7	7	–
3765.27	A	–	[15]	Rt
3765.256	Th	20	10	–
3765.225	Mo	6	6	–
3765.181	Zr I	3	–	–
3765.14	Tb	70	100	Ed
3765.078	Rh I	100	70	–
3765.076	Cb	25 w	10 w	–
3765.044	Ce II	12	3	–
3765.035	Mo	5	4	–
3765.033	Fe	3	–	–
3764.987	Pr	10	4	–
3764.939	Ir	10	2	–
3764.86	Dy	6	4 h	m
3764.841	Zr	3	3	–
3764.837	Cu I	9	–	–
3764.83	Au	5	3	–
3764.811	Pr	100	50	–
3764.799	V I	10	6	–
3764.785	U	6	12	–
3764.76	Eu	5 W	1 Wh	–
3764.75	Tb	8	–	Ed
3764.663	Th	2	3	–
3764.641	Cb	–	3	–
3764.634	Gd	10	10	–
3764.608	Ce	4	3	–
3764.603	Cr	2	–	–
3764.570	U	8	10	–
3764.47	Sn	–	5	Ar
3764.435	Mo	5	10	–
3764.393	Zr I	20	10	–
3764.382	Nd	10 d	4	–
3764.377	Sm II	40	25	–
3764.33	Eu	8	–	–
3764.312	W	8	9	–
3764.31	Er	20 d	–	–
3764.277	Th	10	5	–
3764.202	Gd	5	8	–
3764.169	U	1	5 h	–
3764.118	Cb	10	10	–
3764.117	Ce II	18	5	–
3764.086	Pr	12 d	5 d	–
3764.032	Ru	6	5	–
3764.02	Eu	2 W	–	–
3764.013	Mo	3	4	–
3763.800	Mn	40	25	–
3763.790	Fe I	500	400	S
3763.724	Ce	3	–	–
3763.72	Cb	5	1	–
3763.638	W	–	5	–
3763.612	Ru	4	–	–
3763.605	Ce II	6	2	–
3763.601	Th	2	2	–
3763.573	Pr	4	2	–
3763.52	A	–	[10]	Rt
3763.50	Tb	8	–	Ed
3763.495	Re I	15 wl	–	–
3763.492	Cb	10	10	–
3763.475	Nd	20	20	–
3763.443	Ta	12	60	–
3763.44	U	6	–	–
3763.377	Mn	20 s	20	–
3763 37	Xe II	–	[8]	Hu
3763.351	Mo	10	10	–
3763.335	Th	15	8	–
3763 328	Gd	8	8	–
3763 266	U	12	25	–
3763.24	Er	15 d	1	–
3763.24	Se II	–	[20]	Bl
3763.198	Ir	3	–	–
3763.161	Sm	15	–	Kn
3763.141	V I	80	6 h	–
3763.121	Cb	1 h	10 h	–
3763 033	Pr	9	5	–
3763.018	Eu	4	2	–
3763.009	U	6	1	–
3763.004	Gd	10	5	–
3762.982	Cb	1	5 h	–
3762.975	Ce	15	4	–
3762.973	Yt	5	3	–
3762.913	Fe II	2	4	–
3762 885	W	–	5	–
3762 885	Th	20	20	–
3762.85	Ho	–	4 h	Ex
3762.74	Tb	8	–	Ed
3762.74	Dy	6	2	m
3762.668	Ce	2	3	–
3762 663	U	2	2	–
3762 64	Ca	2	3	–
3762 618	Ni	2	–	–
3762.594	Nd	15	20	–
3762.563	Pr	8	2	–
3762 55	Yb	4	10	–
3762.513	Zr	2 h	–	–
3762.51	O II	–	[12 l]	Mh
3762 51	Hf II	2	25	Me
3762.452	Cb	5	20 h	–
3762.42	Si	–	3	Sy
3762.366	Pr	5	3	–
3762.363	Th	10	3	–
3762.361	Nd	10	4	–
3762.34	Tb	3	–	Ed
3762 33	Eu	9 w	–	–
3762 305	Tı	10	1	–
3762.28	Dy	3	1 h	Ed
3762 280	Ce	4	5	–
3762.26	Xe	–	[5]	Hu
3762.220	Ce	3	–	–
3762 212	Gd	10	3	–
3762 209	Fe I	7	3	–
3762.208	Ir	2	–	Ab
3762.114	U	10	6	–
3762.086	Mo	10	30	–
3762.05	Xe	–	[3 h]	Hu
3762.00	Sr	1	3	Sd
3761 961	U	2	8	–
3761 953	Ce	2	–	–
3761.941	Ir	2	4	–
3761.917	Tm	200	120	Me
3761 888	Ti II	12	15	–
3761.868	Cr	5 h	10 h	–
3761.867	Pr	150	100	–
3761.81	P II	–	[30]	Gu
3761.755	Mo	6	6	–
3761.72	Ca I	2	4	Cw
3761.701	Cr	4	8	–
3761.621	W	7	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3761.606	Pr	10	6	–
3761.601	U	2	6	–
3761.575	Nd	20	10	–
3761.555	Ir I	5	–	–
3761.508	Ru	12	45	–
3761.475	Th	10	1	–
3761.450	Ce	2	–	–
3761.442	V I	40	7	–
3761.408	Fe I	20	8	–
3761.40	Dy	2 h	–	Ed
3761.381	Pr	8	2	–
3761.349	Ta	8	–	–
3761.333	Tm	250	150	Me
3761.323	Ti II	100	300 r	–
3761.185	Ce	3	–	–
3761.144	Sm	6	2 h	Kn
3761.134	Eu II	10	10	–
3761.126	Cb	15	20	–
3761.12	Tb	15	–	Ed
3761.104	Th	15	8	–
3761.044	U	4	8	–
3761.025	Re	2 h	–	–
3761.00	Yb	3	6	–
3760.956	Pr	5	3	–
3760.942	Nd	10 d	4 d	–
3760.931	Gd	10	10	–
3760.885	Mo	6	10	–
3760.884	U	10	15	–
3760.839	Ir	2 h	–	Ab
3760.824	Ce	2	–	–
3760.8	Rn	–	[10]	Wo
3760.794	V I	30	5	–
3760.76	Eu	10 W	–	–
3760.760	Cb	2	8 h	–
3760.715	Gd	25	25	–
3760.697	Sm II	25	40	–
3760.694	Ce	6	–	–
3760.644	Cb	5	4	–
3760.639	W	7	6	–
3760.534	Fe	100	70	–
3760.405	Rh I	6	2	–
3760.399	Ce II	5	3	–
3760.393	Co I	30	–	–
3760.380	W	–	9	–
3760.36	Er	15 d	1 d	–
3760.360	Nd	10 d	6 d	–
3760.345	U	1	2	–
3760.34	Eu	10 W	10 W	–
3760.297	Pr	2	1	–
3760.277	Th	20	5	–
3760.274	Os	20	10	–
3760.231	V II	6	40	–
3760.209	Ta	8	2 d	–
3760.177	Ce	2	–	–
3760.175	Sm	5	–	–
3760.13	Tb	15	3	Ed
3760.126	W	15	10	–
3760.080	Pr	20	8	–
3760.052	Fe I	150	100	S
3760.049	Sm II	25	10	–
3760.031	Ru I	20	50	–
3759.94	Er	4 d	–	–
3759.880	U	1	10	–
3759.836	Ru	12	25	–
3759.8	air	–	9	m
3759.795	Nd	10	12	–
3759.754	Ce	10	2	–
3759.753	Ta	35	2	–
3759.690	Co I	30	–	–
3759.609	Pr	30	10	–
3759.603	Mo	10	10	–
3759.553	Cb	40	50	–
3759.54	Er	2	–	–
3759.492	Cu I	20	2 h	–
3759.460	Fe II	–	2	–
3759.445	Th	8	1	–
3759.43	Eu	2 W	–	–
3759.35	Tb	15	8	Ed
3759.319	V I	50	2	–
3759.314	Th	20	10	–
3759.295	Ti II	100	400 R	–
3759.26	Ho	–	4	Ex
3759.231	U	15 h	15	–
3759.158	Fe	3	2	–
3759.132	Ce	4	4	–
3759.093	Er	5	–	–
3759.080	La II	400	150	–
3759.078	Ce	4	–	–
3759.011	Gd	20	15	–
3758.974	Sm	25	30	–
3758.944	Nd	20	30	–
3758.942	W	–	15	–
3758.93	Kr II	–	[6 whl]	Me
3758.801	V I	4	1	–
3758.743	U	1	3	–
3758.718	Ca	3	3	–
3758.699	Ce	3	–	–
3758.56	Eu	5 W	1 Wh	–
3758.549	V I	25	3	–
3758.523	Mo	25	25	–
3758.517	Ce	8	4	–
3758.468	Th	5	3	–
3758.454	Sm II	10	8	–
3758.32	Tb	3	–	Ed
3758.297	V I	4 h	20	–
3758.237	Gd	10 h	8	–
3758.235	Fe I	700	700	S
3758.221	Ce	5	–	–
3758.05	Hf II	5	–	Me
3758.049	Ce	3	–	–
3758.044	Cr I	50	35	–
3757.969	U	2	–	–
3757.947	Gd	15	5	–
3757.944	Nd	6	2	Kn
3757.923	W	15	20	–
3757.90	Tb	30	15	Ed
3757.862	Ce II	15	2	–
3757.850	Mo	2	3	–
3757.820	Nd	15	12	–
3757.794	Zr II	3	6	–
3757.746	Ta	20	1 h	–
3757.74	Sm	3	3	–
3757 73	Gd	15	20	–
3757.700	Th	10	5	–
3757.689	Ti II	30	100	–
3757.662	Cr I	50	50	–
3757.648	Eu	7	2	–
3757.628	Re I	25 w	–	–
3757.530	Sm	15	15	–
3757.501	Ce	3	2	–
3757.455	Fe	15	10	–
3757.44	Tb	30	15	Ed
3757.42	Eu	3 W	2 W	–
3757.372	Dy	200	50	–
3757 369	Er	20	7	–
3757.349	W	8	7	–
3757.335	Th	5	2	–
3757.26	Ca	3	3	–
3757.26	Ho	40	30	Ex
3757.256	Th	5	2	–
3757.24	Zr	5	5	Ks
3757.222	Ce	18	3	–
3757.209	Hf	6	2	–
3757.185	Ir	10	1 h	Ab
3757.174	Cr I	50	30	–
3757.116	Os	40	15	–
3757.1	Rn	–	[5]	Wo
3757.1	C	–	[12]	Jn
3757.088	W	10	9	–
3757.063	Dy	10	5	–
3757.056	Er	5	–	–
3756 946	Zr II	–	2	–
3756.941	Fe	80	60	–
3756.925	U	2	8	–
3756.892	Ta	–	8	–
3756.87	Xe II	–	[5]	Hu
3756.867	W	6	15	–
3756.861	Tm	40	20	Me
3756.811	Pr	5	3	–
3756.81	Eu	3 W	1 Wh	–
3756.79	Lu	6	–	Me
3756.78	S	–	[8]	Bl
3756.70	Lu	8	–	Me
3756.68	A	–	[3]	Rt
3756.662	Th	5	3	–
3756.659	U	6	–	–
3756 657	Pr	12 d	7 d	–
3756.639	Mn	20	20	–
3756.635	K II	–	[10]	Dm
3756.58	Ca	3	4	–
3756.580	Nd	15	12	–
3756.539	Sm	35	4	–
3756.499	V	–	2	Me
3756.48	Tb	2	–	m
3756.409	Sm II	25	10	–
3756.375	Bl	–	5 h	–
3756.370	W	7	6	–
3756.340	Er	20 wd	–	–
3756.320	Th	50 r	20 r	–
3756.255	Ce	6	5	–
3756.252	Cb	5	10	–
3756.143	Pr	2	–	–
3756.114	Ce	2	–	–
3756.10	Dy	4	–	m
3756.094	Nd	4 h	2 h	Kn
3756.071	Fe	15	8	–
3756.068	Sm	8	1	–
3756.053	Er	12	–	–
3756.035	V I	35	5	–
3756.00	Eu	3 W	1 W	–
3755.948	Cb	2 W	5 h	–
3755 931	Ru I	30	60	–
3755.842	Mo	5	3	–
3755.828	Cr	2	2	–
3755.786	Ce	3	–	–
3755.768	Cb	10	10	–
3755.727	Ru	6	8	–
3755.722	Ce	8	2	–
3755.701	V I	70	3	–
3755.639	Cb	5 w	2	–
3755.625	Re	15	–	–
3755.602	Nd	15	12	–
3755.584	Rh I	4	2	–
3755 54	Mo	1	50	–
3755.5	Ho	–	4 h	Ex
3755 50	W	8 d	7 d	–
3755.486	Pr	3	2	–
3755.482	U	1	5	–
3755.476	Sm	10	3	–
3755.45	Eu	6 d	1 h	–
3755.449	Co I	100	–	–
3755.425	Ce II	20	3	–
3755.407	Th	10	5	–
3755.37	Dy	6	2 h	m
3755.285	Cb	5	5	–
3755.278	Sm II	20	20	–
3755.256	Gd	1	2	–
3755.25	Hg	–	[2]	Wd
3755 24	Tb	50	100	Ed
3755.217	Th	8	5	–
3755.107	Ta	25	4 h	–
3755.102	Mo	30 d	20	–
3755.090	Ru I	20	25	–
3755.012	Ti	12	–	–
3754.976	Pr	20	7	–
3754.974	U	1	2	–
3754.90	Eu	4	–	–
3754.883	W	6	5	–
3754.863	Sm II	15	10	–
3754.830	Nd	20	20	–
3754.824	Ce	4	–	–
3754.794	Zr I	5	–	–
3754.77	Dy	7	2	m
3754.770	Ce	2	–	–
3754.682	Mo	–	25	–
3754.675	Sm II	10	2	Kn
3754.6	air	–	10	m
3754.596	Th	20	10	–
3754.575	Cr II	8	30	–
3754.517	Ta	20	3	–
3754.510	Ir I	25	2	–
3754.504	Fe I	2 h	10	–
3754.479	Ce	8	1	–
3754.411	Pr	5	2	–
3754.353	Nd	8 d	4 d	Kn
3754.348	Co I	30	3	m
3754.31	Se II	–	[20]	Bl
3754 308	U	6	12	–
3754.294	Sm	10	–	–
3754.273	Rh I	10	9	–
3754 266	Er	2	–	–
3754.24	Kr II	–	[80]	Me
3754 22	Sm	10	2	–
3754 216	Ne I	–	[50]	IHu
3754.154	W	5	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3754.123	Rh I	8	8	–
3754.075	Zr I	2	1	–
3754.06	A II	–	[3]	Rt
3754.042	Ir	3	–	Ab
3754.037	Th	20 w	5 w	–
3754.0	Bi II	–	3	Ml
3753.958	Ce	2	2	–
3753 916	Nd	4	8	–
3753.83	Ne II	–	[18]	Bn
3753.767	Ce	6	1	–
3753.763	Eu	5	1	–
3753.762	Dy	80	10	–
3753.75	Ho	20	10 h	Ex
3753.703	U	–	4	–
3753.65	Rn I	–	[50]	Rs
3753 635	Ti I	80	35	–
3753.614	Fe I	150	100	–
3753.614	Sm	15	–	–
3753 545	Ru	30	60	–
3753.53	A II	–	[5]	Rt
3753.53	Mo	–	25	–
3753 52	Tb	30	3	Ed
3753 514	Dy	50	20	–
3753.481	W	5	6	–
3753.375	Pr	9	2	–
3753.367	Ca I	30	3	Cw
3753.324	Ir I	15	–	–
3753.274	V I	30	2	–
3753.241	Th	10	1	–
3753.2	bh Ca	8	–	L
3753.196	Sm	10	–	–
3753.180	Cb	10	10	–
3753.155	Fe	3	1	–
3753.142	W	–	8	–
3753.10	Al II	–	[2]	Sy
3753.096	Sm	15	–	–
3753.08	U	5 h	–	–
3753.061	Eu	5	–	–
3753.059	Ce	6	2	–
3753.04	La II	2	1	Me
3753.024	Sm	1	2	–
3752.93	Tb	3	–	Ed
3752.867	U	1	2	–
3752.865	Ir I	3	–	Ab
3752.860	Ti I	200	80	–
3752.860	Eu	5	1	–
3752.787	Co	10	3	–
3752.78	Re	3 d	–	–
3752.778	Ru	8	3	–
3752.775	Os	4 d	–	–
3752.723	Cb	4	3	Me
3752.714	Ce	2	–	–
3752.692	Pr	10	2	–
3752.68	Au	5	10	–
3752.679	Nd	10	12	–
3752.663	U	6	15	–
3752.65	Sm	–	2 h	–
3752.573	Th	40	50	–
3752.54	Eu	7 W	–	–
3752.524	Os I	400 R	100	–
3752.515	Ir	4	–	Ab
3752.496	Nd	10	15	–
3752.49	Ca	2 h	2 h	–
3752.453	Ce	3	–	–
3752.420	Fe I	12	4	–
3752.378	Mo	5	1	–
3752.336	Ce	5	2	–
3752.297	Cb	2	1	Me
3752.295	U	6 r	5	–
3752.291	Pr	40 d	30 d	–
3752.287	Nd	10 d	4 d	Kn
3752.261	Mo	–	10	–
3752.256	Sm	25	1 h	–
3752.191	Er	20	–	–
3752.190	Ce	3	3	–
3752.07	Ho	–	4 h	Ex
3752.058	Fe	2 h	–	–
3752.02	Sb II	–	2 h	–
3751.97	Er	2	–	–
3751.943	Os	15	10	–
3751.940	Mo	4	5	–
3751.853	Ru	5	3	–
3751.820	Fe I	5	2	–
3751.816	Tm	50	5	Me
3751.814	Dy	7	3	–
3751.782	V I	50	2	–
3751.757	Ce	6	4	–
3751.744	Sm	25	2	–
3751.737	Th	10	3	–
3751.737	Hg	–	[5]	St
3751.72	Eu	7 W	–	–
3751.717	U	10	12	–
3751.629	Co I	100	60	–
3751.62	Nd	10 w	8 w	–
3751.62	Tb	8	3	Ed
3751.601	Pr	2	1	–
3751.595	Zr II	25	40	–
3751.562	Sm II	25	6	–
3751.53	Eu	5 w	1 wh	Kn
3751.449	Ce	15 s	6	–
3751.428	W	7 l	8 l	–
3751.402	Cs	–	[4]	Sv
3751.315	Os	20	10	–
3751.289	Cb	1	15	–
3751.26	Ne II	–	[18]	Bn
3751 236	U	–	8	–
3751 228	V	4	100	–
3751.203	Mo	6	40 d	–
3751.185	U	6	–	–
3751.121	Sm	15	4	–
3751.108	Th	10	–	–
3751.060	Fe	1	–	–
3751.05	Eu	6 w	1 wh	–
3751.002	Ce II	15	5	–
3751.001	Pr	40	30	–
3750.873	V II	10	20	–
3750.81	Cl	–	[8]	Bl
3750.804	Os	15	5	–
3750 78	W	–	12	–
3750.768	Ir	15	2	–
3750.763	Mn	60	30	–
3750.735	Nd	10	6	–
3750.731	Ce	2	2	–
3750.705	Eu	2	–	–
3750 690	Th	10	5	–
3750.680	Re	10	–	–
3750.670	Sm	10	8	–
3750.645	Zr II	4	3	–
3750.634	Cb	4	4	–
3750.590	Os	15	5	–
3750.562	Cr	–	12 h	–
3750.544	Er	7	–	–
3750.50	A	–	[5]	Rt
3750.497	Th	8	–	–
3750.486	Pr	20	10	–
3750.404	Ir	30	–	–
3750.349	Ca I	20	3	Cw
3750.334	Dy	8	4	–
3750.307	Nd	8	10	–
3750.223	Cb	3	5	–
3750.167	Er	12 d	–	–
3750.152	H I	–	[10]	Rk
3750.150	Th	20	5	–
3750.13	Eu	8 wh	2 wh	Kn
3750.125	Pr	30	15	–
3750.078	Ce	12	3	–
3750.00	Cl II	–	[30]	Ks
3749.935	Co I	60	5	–
3749.892	Yt I	3	4	–
3749.859	U	–	8	–
3749.853	Nd	6	8	Kn
3749.796	Pr	5	2	–
3749.795	Sm	–	3 h	–
3749.77	As II	–	100	Ro
3749.75	Eu	3 W	–	–
3749.74	U	2 h	–	–
3749.70	Tb	15	–	Ed
3749.69	Yb	2	10	–
3749.660	W	7	8	–
3749.493	Ce	2	2 h	–
3749.487	Fe I	1000 r	700	S
3749.48	Rn I	–	[8]	Rs
3749.47	O II	–	[125]	Mh
3749.365	Ce	5	–	–
3749.159	U	2	8	–
3749.15	Pb	–	2	Sx
3749.073	Os	4	2	–
3749.045	Ni I	50	5	–
3749.020	Re	5	–	–
3749.005	Pr	2	–	–
3748.998	Cr I	125 R	125 R	–
3748.970	Th	8	5	–
3748.969	Fe I	35	20	–
3748.822	Pr	9	3	–
3748.678	U	15	25	–
3748.629	Sm II	10	5	–
3748.614	Cr I	40	30	–
3748 564	Ir I	3	–	Ab
3748 554	Cb	10	10	–
3748.527	Ce	2	–	–
3748.515	Sm	5	–	–
3748.504	Pr	5	3	–
3748.490	Fe II	2 h	–	m
3748.490	Mo	15	10	–
3748.46	Cl II	–	[15]	Ks
3748.374	Ca I	12	–	Cw
3748 304	Th	10	8	–
3748.264	Fe I	500	200	S
3748.217	Rh I	200	100	–
3748.207	Cu II	–	10	Sh
3748.17	Ho	60	40	Ex
3748.153	Sm	5	4	–
3748 13	Mo	1	50	–
3748.102	Ti I	10	1	–
3748.06	I I	–	[5]	Bl
3748.058	Pr	9	4	–
3748.056	Ce	10	3 h	–
3748.003	Ti II	2	25	–
3747.99	La	2	4 l	–
3747.982	V I	50	4	–
3747.827	Dy	60	20	–
3747.782	Ti I	7	1	–
3747.753	Sm	3	–	–
3747.64	Tb	30	–	Ed
3747.623	Sm II	25	25	–
3747 554	Yt II	12	15	–
3747.554	Er	20	10	–
3747 547	Th	30	30	–
3747.546	Ce	6	–	–
3747.50	Kr	–	[2 wh]	Me
3747.49	Hf II	6	8	m
3747.473	Pr	10	3	–
3747.457	W	7	5	–
3747.437	Er	2	–	–
3747.353	Sm	8	1	–
3747.265	Pr	5	2	–
3747.264	Cr	12	6	–
3747.246	Ta	35	–	–
3747.24	Eu	5 W	1 wh	–
3747.204	Ir I	100	60	–
3747.192	Mo	15	10	–
3747.17	Tb	30	–	Ed
3747.136	V I	25	2	–
3747.115	U	6	10	–
3747.087	Ce	2	1	–
3746.934	Re	10	–	–
3746.929	Fe	40	25	–
3746.92	A	–	[5]	Rt
3746.907	Cb	20	80	–
3746.9	Pb II	–	[30]	Ea
3746.803	Hf	20	8	–
3746 716	Eu	4	3	–
3746 677	U	1	5	–
3746.62	Er	2	–	–
3746.616	Mn	25	25	–
3746.568	Ce	2	1	–
3746.54	Tb	8	8	Ed
3746.485	Fe I	3	1	–
3746.466	Os	100	20	–
3746.46	A	–	[5]	Rt
3746.423	Gd	5	10 h	–
3746.413	U	3	12	–
3746.41	Mo	–	40 w	–
3746.381	Rb II	–	[10]	Rr
3746.374	Ce II	8	2	–
3746.365	Ta	35	5	–
3746.246	Ce II	3	–	–
3746.218	Ru I	4	4	–
3746.128	Nd	2	–	Kn
3746.06	Er	12 W	1 W	–
3746.05	Sm	–	2 h	–
3746.03	Eu	10	–	Kn
3745.986	Zr II	–	15	–
3745.983	Th	15	20	–
3745.903	Fe I	150	100	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3745.803	V	35	600	–
3745.8	Sn	–	6	Ar
3745.69	Xe I	–	[4]	Me
3745.64	Dy	4	–	Ed
3745.616	Sm II	40	30	–
3745.564	Fe I	500	500	–
3745.56	W	–	25	–
3745.504	Co I	300 R	–	–
3745.48	Mo	30 hd	20 d	–
3745.461	Sm	40	10	–
3745.44	Re I	40 W	–	–
3745.43	Ir I	3	–	–
3745.38	Xe I	–	[10]	Me
3745.111	Er	4	1	–
3745.07	Tb	15	3	Ed
3744.987	Er	9	2	–
3744.98	Hf II	15	20	m
3744.954	Ir I	5	–	Ab
3744.945	Mo	5	8	–
3744.911	W	5	3	–
3744.85	La	1	2 h	–
3744.817	Pr	3	–	–
3744.805	Gd	25	12	–
3744.805	U	–	2	–
3744.804	Nd	8	4	–
3744.80	Kr II	–	[150 hs]	Me
3744.739	Th	15	10	–
3744.723	Ce	3	2	–
3744.66	Ne II	–	[12]	Bl
3744.562	Ni I	6	–	–
3744.55	Eu	10 w	5 wh	–
3744.490	Cr I	30	12	–
3744.404	K II	–	[20]	Dm
3744.395	Ru	8	35	–
3744.366	Mo	20	80	–
3744.24	U	6 hd	10 hd	–
3744.219	Ru I	8	25	–
3744.21	P	–	[70]	Gu
3744.20	Eu II	20 W	–	–
3744.167	Rh I	30	15	–
3744.105	Fe I	40	20	–
3744.075	Ce II	3	–	–
3744 071	Tm	100	10	Me
3744.002	Cb	30	30	–
3743.99	Tb	8	3	Ed
3743 989	Pr	7	4	–
3743.986	Ce	6 h	2 h	–
3743.945	Ru I	5	4	–
3743 884	Cr I	40	40	–
3743.863	Sm II	50	25	–
3743.812	W	7	6	–
3743.810	Mo	5	5	–
3743.787	Fe I	1	–	–
3743.76	A I	–	[100]	Ms
3743.607	V II	10	40	–
3743.578	Cr I	40	40	–
3743.561	Eu	10	–	–
3743.513	Th	8	8	–
3743.484	Gd	25	25	
3743.482	Fe	4	10	–
3743.365	Cu I	40	40	–
3743.363	Fe I	200	150	–
3743.322	Ru	6	5	–
3743.09	Tb	15	8	Ed
3743.004	Th	8	1	–
3742.968	Cr I	25	10	–
3742.94	Ir	2	3	–
3742.925	Th	20	8	–
3742.784	Ru	50	50	–
3742.685	W	15 d	12 d	–
3742.67	Ta	2 h	–	Ks
3742.643	Er	20	12	–
3742.624	Fe I	50	25	–
3742.56	Ir I	2	–	–
3742.43	Tb	8	3	Ed
3742.389	Cb	30	50	–
3742.353	U	6	4	–
3742.34	Eu	3 W	–	Kn
3742.309	Ce	2	3	–
3742.285	Mo	20	–	–
3742.280	Ru I	70	100	–
3742.27	Ir	25	2	–
3742.269	Re	15	–	–
3742.260	Pr	4	2	–
3742.249	Th	20	10	–
3742 23	Eu	25 W	–	–
3742.223	Ce	6	3	–
3742.208	Zr	3	3	–
3742.156	Nd	6	4	–
3742.126	I	–	[40]	Ke
3742.093	Ta	3	–	–
3742.08	Lu	2	–	Me
3741.945	Hf	2	2 h	–
3741.89	Tb	8	8	Ed
3741.851	Er	18 d	–	–
3741.823	Pr	5	2	–
3741.81	Mo	–	20	–
3741.791	Fe	3 h	–	–
3741.778	Cb	20	15	–
3741.731	Ir I	25	2	–
3741.727	Ce II	10	1	–
3741.713	W	12	20	–
3741.710	I I	–	[40]	Ke
3741.69	Kr II	–	[200 hl]	Me
3741.644	Ti II	30	200	–
3741.62	Eu	3	–	–
3741.58	Tb	15	8	Ed
3741.577	U	4	3	–
3741.529	Os	20	5	–
3741.504	V I	80	8	–
3741.484	Fe I	3	–	–
3741.427	Nd	20	15	–
3741.399	Ce	8	–	–
3741.32	Eu	10	5	–
3741.299	Cb	2	15	–
3741.283	Sm	25	25	–
3741.280	U	–	3	–
3741.276	Ta	7 h	1 h	–
3741.242	Cu I	50	2	–
3741.24	Tb	15	8	Ed
3741.190	Th	80	80	–
3741.18	Dy	6	2	Ed
3741.15	S	–	[3]	Hn
3741.14	Ti I	2	3	Rl
3741.121	Mo	10 h	–	–
3741.101	Er	15	2	–
3741.085	Os	40	15	–
3741.062	Ti I	150 r	40	–
3741.030	Mn	15	15	–
3741.007	Pr	40	15	–
3741.006	Ce	8	–	–
3740.964	Nd	6	8	–
3740.849	Th	40	20	–
3740 838	Cb	10	10	–
3740.764	Mo	10	4	–
3740.754	Sm	4	1	–
3740.73	Kr II	–	[6]	Me
3740.725	Cb	3	50	–
3740.574	Ce	2	–	–
3740.571	Mo	3	3	–
3740.537	Cb	3 h	2 h	Me
3740.51	Br	–	[4]	Bl
3740.429	Re I	20	–	–
3740.427	Ce	2	–	–
3740.32	Tb	15	8	Ed
3740.279	Er	10	3	–
3740.27	Eu	8	2	–
3740.251	Fe	70	35	–
3740.241	V I	100	10	–
3740.195	Co I	60	–	–
3740.133	Ce	6	–	–
3740.096	Re I	50 W	–	–
3740.074	Dy	6	2	–
3740.061	Fe	8	4	–
3740.049	Ir I	2	–	Ab
3740.048	Gd	50	50	–
3740.036	Ce	3	–	–
3739.998	Sm	5	–	–
3739.99	Zn	20	–	Vs
3739.95	In	–	3	–
3739.95	Sb	–	4 h	Sp
3739.947	Pb	150	60 h	–
3739.947	Ce	8	–	–
3739.92	O II	–	[35 l]	Fl
3739.89	Rn I	–	[25]	Rs
3739.86	I	–	[7]	Ke
3739.795	Cb	100	200	–
3739.79	O II	–	[10 l]	Mh
3739.788	Th	20	5	–
3739.782	Ni I	2	–	–
3739.764	Gd	100	50	–
3739 690	Ce II	6	2	–
3739.620	Re	3	–	–
3739 60	F II	–	[10]	Di
3739.589	Pr	9	3	–
3739.531	Fe	80	35	–
3739.50	Eu	18 w	–	–
3739.484	W	10	12	–
3739.465	Ru	20	18	–
3739.360	Sm	10	2	–
3739.355	Dy	12	5	–
3739.34	I	–	[18]	Bl
3739.312	Fe I	7	2	–
3739.311	U	1	2	–
3739.261	Sb	2	5	–
3739.229	Ni I	100	10	–
3739.199	Sm II	10	10	–
3739.193	Pr	80	30	–
3739 16	W	–	8	–
3739.129	Fe I	10	5	–
3739.125	K II	–	[20]	Dm
3739.120	Sm	10	10	–
3739.041	Hf	3	1	–
3739.028	Ce	3	–	–
3738.912	Ru	10	10	–
3738.901	Ti I	40	10	–
3738 898	W	7	6	–
3738.86	Pd II	–	15	–
3738.846	Th	20	20	–
3738.841	Mo	1	10	–
3738.76	Eu	4 w	–	–
3738.757	V I	100	7	–
3738.629	Ru	8	8	–
3738 624	U	1	8	–
3738.604	Yt I	6	–	–
3738.531	Ir	60	10	–
3738.424	Cb	10	15	–
3738.376	Cr II	6	40	–
3738.346	V	–	4 h	Me
3738.308	Fe	100	100	S
3738 261	Sm	5	–	–
3738.253	Ce	5	–	–
3738 214	Ta	10	1	–
3738.168	Er	8	2	–
3738.115	Zr II	4	2	–
3738.111	W	6	7	–
3738.068	Eu	10	10	–
3738 057	Nd	25	–	–
3738 048	U	8	20	–
3738.003	Al II	–	[10]	Sy
3737.992	V I	50	5	–
3737.958	Ce	4	–	–
3737.906	Mo	20	20	–
3737.89	A II	–	[15]	Rt
3737.876	Hf II	15	25	–
3737.873	Sm	2	–	Kn
3737.845	W	4	5	–
3737.741	Ru	6	5	–
3737.736	Ce	10	2	–
3737.670	Pr	10	7	–
3737.65	Ho	6	10 h	Ex
3737.554	Cr	–	18	–
3737.516	Ce II	5	–	–
3737.513	Th	5	1	–
3737.472	Sm II	2	2	–
3737.435	V I	2	2	–
3737.401	Ru I	12	12	–
3737 392	Zr I	3	2	–
3737.37	Eu	2	–	Kn
3737.273	Rh	50	10	–
3737.254	U	8	10	–
3737.20	Xe	–	[3 wh]	Hu
3737.134	Sm	10	3	–
3737.133	Fe I	1000 r	600	S
3737.12	Rh I	50	1	–
3737.020	Ce	3	–	–
3736.949	Th	5	5	–
3736.913	Ce	2	1	–
3736.901	Ca II	12	50	IWg
3736.899	Mn	25	25	–
3736.834	Re	15	–	–
3736.813	Ni I	300	15	–
3736.798	Ru	3	–	–
3736.787	Ti	10	2	–
3736.759	Ta	35	3	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3736.751	Ir	2	–	–
3736.653	Ir I	2	–	Ab
3736.603	U	2	–	–
3736.508	Zr	2	2	–
3736.497	Pr	20	20	–
3736.480	Ir	2	–	Ab
3736.476	U	2	–	–
3736.469	Ce	–	3	–
3736.44	Nd	–	4	–
3736.415	La II	–	6	–
3736.402	Ce	3	3	–
3736.40	Mo	–	20 l	–
3736.35	Ho	6	2	Ex
3736.333	Cb	3	5 h	–
3736.28	Be I	10	–	Ps
3736.26	Eu	4 w	–	–
3736.215	W	5	10	–
3736.20	Tm	3	8	Me
3736.174	Mo	4	1	–
3736.060	Ce	3	2	–
3736.038	Eu	6	1	–
3736.029	U	3 h	–	–
3736.024	V I	3	20	–
3735.970	Sm II	50	8	–
3735.95	Eu	5	–	–
3735.94	O II	–	[10]	Fl
3735.928	Co I	200 R	–	–
3735.912	Ce	2	–	–
3735.909	Mo	5	3	–
3735.851	La II	20	10	–
3735.83	Br	–	[6]	Ks
3735.78	Kr II	–	[40 hl]	Me
3735.773	Ce	2	–	–
3735.760	Pr	2	2	–
3735.75	Ba II	1	2	Rs
3735 671	Tı	15	4	–
3735.622	Mo	5	5	–
3735.62	Eu	3 W	–	–
3735.599	Nd	10	50	Kn
3735.599	Ce	3	4	–
3735.538	Nd	10	–	–
3735.536	Os	20	10	–
3735.528	Th	8	1	–
3735.499	Ir	8	–	Ab
3735.49	A	–	[5]	Rt
3735.4	Rn	–	[5]	Wo
3735.330	Fe I	30	20	–
3735.329	Re I	40	–	–
3735.281	Rh I	70	2	–
3735.224	Nd	2	–	–
3735.169	V	3	25	–
3735.021	Ru	4	–	–
3735.02	Sn	–	5	Ar
3735.00	Re I	30 W	–	m
3734.94	Ne II	–	[40]	Bl
3734.94	Tb	8	–	Ed
3734.91	Ca	–	3	Ad
3734.87	Ga II	–	[4]	–
3734.867	Fe I	1000 r	600	–
3734.867	Co I	60	–	–
3734.862	Nd	6	4	–
3734.856	Ce	2	2	–
3734 8	Pb II	–	[10]	Ea
3734.80	Tb	8	–	Ed
3734.770	Ir	100	30	–
3734.736	Cb	2	5	–
3734.715	Al II	–	[2]	Sy
3734.703	Yb	25	5	–
3734.683	U	6	1	–
3734.66	Eu	2 W	–	–
3734.601	Th	8	10	–
3734.589	Er	4	–	–
3734.567	Al II	–	[2]	Sy
3734.50	Se I	–	[8]	Rd
3734.459	Er	4	–	–
3734.428	V I	10	5	–
3734.407	Pr	40	30	–
3734.372	H I	–	[8]	Rk
3734.370	Mo	15	5	–
3734.353	I I	–	[18]	Ke
3734.337	Cs	–	[10]	Sv
3734.332	Ir	5	–	–
3734.284	V I	3	–	–
3734.23	Eu	5 W	–	–
3734.211	Ce	2	–	–
3734.21	Dy	4	2	Ed
3734.141	Co I	70	–	–
3734.13	Tm	150	50	Me
3734.059	Ce	2	–	–
3734.026	Pr	4	2 h	–
3733.92	Ca	–	2	Ad
3733.910	Al II	–	[5]	Sy
3733.84	Mo	–	25	–
3733.788	Hf	12	5	–
3733.785	Ti I	10	2	–
3733.773	Ce	2	–	–
3733.76	Er	2	–	–
3733.752	U	3	1	–
3733.749	Mo	4	1	–
3733.73	Cl II	–	[10]	Ks
3733.66	Eu	8 w	2 w	–
3733.622	Cb	10	10	–
3733.612	V	–	10	–
3733.582	U	6	2	–
3733.517	Ce	2	–	–
3733.491	Co I	150	–	–
3733.404	Mo	10	10	–
3733.34	Se I	–	[20]	Rd
3733.324	Cb	10 d	8	–
3733.322	Ta	–	3 h	–
3733.319	Fe I	400	300	S
3733.26	P	–	[50]	Gu
3733.23	Eu	2 w	–	Kn
3733.108	Ce	2	–	–
3733.092	Gd	20	20	–
3733.069	U	8	6	–
3733.054	Nd	2	2 h	–
3733.049	Ru	10	3	–
3733.030	Mo	10	10	–
3733.027	Pr	40 d	20	–
3732.987	He I	–	[3]	Ps
3732.92	Kr II	–	[6]	Me
3732 886	Pr	5	2	–
3732 861	He I	–	[10]	Ps
3732.850	Os	200 R	5 h	–
3732.805	Mo	10	10	–
3732.765	Ru	4	–	–
3732 761	Nd	6	8	–
3732.758	V	70 R	500 R	–
3732 750	Ta	3	1	–
3732 73	Eu	5 W	1 Wh	–
3732 708	Mo	10	10	–
3732 668	Gd	5	–	–
3732 618	U	10	6	–
3732 61	Kr II	–	[15 h]	Me
3732.59	Ho	6	2 h	Ex
3732.582	Ce	2	2	–
3732.579	Ir	20	3	–
3732.55	Pr	3	–	–
3732.543	W	6	7	–
3732 535	Cs II	–	[4]	–
3732 479	Pr	5	–	Kn
3732.461	Ce	2	–	–
3732 399	Fe	200	150	S
3732.399	Co I	200 r	–	–
3732 39	Tb	30	15	Ed
3732.275	Re I	30	–	–
3732 259	U	6	3	–
3732.21	Eu	30 W	–	–
3732.186	Ce	2	–	–
3732 16	Er	2	–	–
3732 09	Ho	6	2	Ex
3732.034	Cb	5	10	–
3732 032	Cr I	50	15	–
3732 029	Ru	6	8	–
3731 99	Ca	2	3	–
3731.983	V	–	25	–
3731.950	Al II	–	[2]	Sy
3731.932	Mn	75	100	–
3731.91	Fe	2	–	–
3731 876	Ce	4	1	–
3731.871	Re I	25	–	–
3731.82	Eu	10 W	2 W	–
3731.802	Os	15	10	–
3731.794	Er	2	–	–
3731.766	U	4	2	–
3731.679	Ce	2	–	–
3731.67	Kr II	–	[2 h]	Me
3731.539	Cb	4	8	–
3731.51	Tb	8	–	Ed
3731.496	Pr	3	2	–
3731.46	Sm	–	8 d	–
3731.453	U	12	–	–
3731.42	La II	2	8	–
3731.40	Ho	8	6	Ex
3731.378	Fe	40	20	–
3731.359	Ir	50	50	–
3731.35	Dy	5	2	m
3731.278	Co I	18	3	–
3731.273	Er	15 s	4	–
3731.264	Zr II	10	25	–
3731.26	Eu	10 w	1 w	–
3731.260	Sm II	50	10	–
3731.258	Ce	2	1	–
3731.218	Nd	6	1	–
3731.18	Xe II	–	[10]	Hu
3731.17	Ce	2	1	–
3731.035	V I	4	–	–
3731.017	Ta	50	3	–
3730.95	Tb	15	–	Ed
3730.947	Fe	50	30	–
3730.936	Pr	15	2	–
3730.904	Ru	3	5	–
3730.88	I I	–	[5]	Ke
3730.857	Gd	100 W	100	–
3730.831	U	–	4	–
3730.81	Tm	15	5	Me
3730.807	Cr I	60	12	–
3730.753	Th	10	8	–
3730.751	Ni I	25	–	–
3730.731	Sm	15	–	–
3730.731	Os	40	12	–
3730 679	Ce	2	2	–
3730 64	S	–	[5]	Hn
3730.599	Er	8 d	–	–
3730.592	Ru I	2	5	–
3730.578	Pr	30 W	10	–
3730.578	Nd	8	10	–
3730.559	Mo	5	30	–
3730.485	Co I	200 r	–	–
3730.44	Ir	25	4	–
3730.433	Ru I	12	70	–
3730.427	W	10	12	–
3730 390	Fe	70	40	–
3730.383	Th	15	3	–
3730 334	Ce	10	3	–
3730.196	Ir	2	–	Ab
3730 183	V I	15	3	–
3730.131	U	2	3	–
3730.10	Sn	–	5 Wh	–
3730.04	Ga	–	20	–
3730.01	Mo	–	20	–
3729.980	Cs	–	[4]	Sv
3729.922	Ce II	8	1	–
3729.91	Tb	15	15	Ed
3729.821	U	8	15	–
3729.815	Tı I	500	150	–
3729.755	Sm	20	5	–
3729 752	Eu	10	–	–
3729.723	Zr II	4	2	–
3729.697	Eu	10	1 h	–
3729.616	Cb	3	5	–
3729.6	C	–	[6]	Jn
3729 53	Ho	6	4	Ex
3729.526	Er	25	7	–
3729 501	Nd	8	4	–
3729.43	Eu	3	2 h	–
3729.404	Pr	30	4	–
3729 34	Sr	–	5	Sd
3729.34	O II	–	[5]	Fl
3729.29	A	–	[200]	Rt
3729 23	Ni I	2	–	Ha
3729.220	Os	30	12	–
3729.201	W	5	6	–
3729.20	Dy	2	2	m
3729 137	Nd	10 d	4 d	–
3729.108	Pr	40	7	–
3729.104	Hf	8	–	–
3729.10	Eu	6 W	1 W	–
3729.06	Cd I	15 r	–	Fl
3729.035	V I	80	15	–
3729.001	Ce	5	–	–
3728.98	La II	–	2 h	–
3728.96	Tb	8	3	Ed
3728.933	Ni I	2	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3728.926	Sm	10 w	4	–
3728.889	Mn	75	100	–
3728.860	U	6	6	–
3728.855	Ir I	3	–	Ab
3728.841	Co I	18	–	–
3728.83	Pb I	–	20	Sx
3728.823	Ta	8	–	–
3728.747	U	4	–	–
3728.74	Dy	4	2	m
3728.676	Ti I	15	5	–
3728.667	Fe I	18	10	–
3728.666	Rb	–	[20]	Rr
3728.66	P II	–	[50 d]	Gu
3728.65	Eu	2 w	–	–
3728.65	Tb	8	3	Ed
3728.501	Mo	10	10	–
3728.470	Sm II	100	100	–
3728.46	Ca	2	3	Ad
3728.457	Ir I	4	–	–
3728.435	U	–	8 h	–
3728.423	Ce	50	10	–
3728.411	Os	20	5	–
3728.341	V	20	150	–
3728.301	Mo	10	5	–
3728.279	W	7	8	–
3728.23	Eu	5 w	–	–
3728.23	Se	–	[20]	Bt
3728.213	Hg	–	[2]	St
3728.182	Ce	5	1	–
3728.162	Sm	15	2	–
3728.130	Nd	6	8	–
3728.111	Ta	7	–	–
3728.04	Kr II	–	[7 hl]	Me
3728.032	Ir	60	10	–
3728.030	Ru I	100	150	–
3728.023	Ce	8	5	–
3727.999	Er	5	–	–
3727.99	Dy	15	3	m
3727.903	Th	15	5	–
3727.86	W	6	7	–
3727.845	Ir I	8	–	Ab
3727.819	U	3 h	2	–
3727.815	Fe I	5	3	–
3727.717	Zr II	2	4	–
3727.69	Mo	25 w	25 w	–
3727.633	Ce	3	–	–
3727.621	Fe I	200	150	S
3727.492	Re	8	–	–
3727.454	U	5	–	–
3727.390	Ir	2	–	Ab
3727.371	Sm II	4	2	–
3727.359	Cr	–	5 h	–
3727.35	Xe	–	[2 h]	Hu
3727.345	V II	40	200	–
3727 331	Ce	3	5 wh	–
3727.30	O II	–	[50]	Mh
3727.271	Th	5	8 h	–
3727.230	Cb	5	10	–
3727.162	Th	3	–	–
3727.095	Fe I	30	10	–
3727.09	Yt II	3	8 h	–
3727.08	Ne II	–	[125]	Bn
3727.054	Ti I	2	–	–
3726.955	Ce	15	5	–
3726.931	Mn	5	5	–
3726 928	Ir	30	2	–
3726.926	Ru I	100	150	–
3726.925	Fe I	100	70	–
3726.92	Eu	4 w	1 w	–
3726.865	U	2	8	–
3726.800	Sm II	100 r	3	–
3726.793	W	3	6	–
3726.746	Re	15 d	–	–
3726.730	Th	30	20	–
3726.657	Co I	30	–	–
3726.62	Eu	3 w	–	–
3726.590	Mo	3	3	–
3726.500	Re	8	–	–
3726.49	Hf	6	3	m
3726.456	Ce II	6	–	–
3726.37	Eu	3 w	1	–
3726.345	Nd	10	2	–
3726.319	Mo	4	5	–
3726.308	Pr	20	4	–
3726.3	bh Zr	5	–	L
3726.287	U	2	10	–
3726.236	Sm	3	1	–
3726.236	Cb	30	100	–
3726.220	Mo	4	5	–
3726.096	Ru	12	60	–
3726.06	W	–	6	–
3726.038	U	12	1	–
3726.019	Ce	5	–	–
3725.99	Ho	6	4	Ex
3725.976	Cr	2	2 h	–
3725.90	Dy	5	2	m
3725.841	Th	5	5	–
3725.767	U	2	1	–
3725 767	Re I	40 h	–	–
3725.764	Ca	2	4	–
3725.74	Eu	2 w	–	–
3725.71	Cl	–	[4]	Bl
3725.675	Ce	40	10	–
3725.651	U	3	15	–
3725.571	Ta	5 h	–	–
3725.556	Mo	20	20	–
3725.490	Fe	15	8	–
3725.487	Gd	50	50	–
3725.486	Ru I	8	5	–
3725.44	Dy	6	4	m
3725.396	Th	10	1	–
3725.394	U	1	8	–
3725.385	Ir I	50	20	–
3725.32	Tb	8	3	Ed
3725.284	Os	15	10	–
3725.219	Cb	30 w	10 w	–
3725.195	Ce	2	–	–
3725.165	Ti I	150	60	–
3725.163	W	7	8	–
3725.071	U	4	10	–
3725.065	Tm	60	15	Me
3725.052	La II	25	15	–
3725.034	Pr	15	8	–
3725.013	Ta	5	–	–
3724.99	Eu	250	50	Kn
3724.988	U	6	8	–
3724.969	Ru I	12	12	–
3724.942	Rh I	5	2	–
3724.92	Tb	8	3	Ed
3724.916	Er	7	1	–
3724.91	Dy	4	–	m
3724.9	Bi II	–	[60]	Cf
3724.9	Cs	–	[4]	Bs
3724.897	Sm II	40	15	–
3724 877	Nd	15	2	–
3724.827	Ni I	4	–	–
3724.812	I	–	[50]	Ke
3724.772	La	2	2	–
3724.76	Yt	2	1	m
3724 755	Pr	2	2	–
3724 739	Th	30	20	–
3724.636	Ce II	12	2	–
3724.574	Ti I	100	50	–
3724.51	A II	–	[5]	Rt
3724.45	Ho	6	4	Ex
3724.449	Er	15	4	–
3724.42	Dy	15	15	Ed
3724 380	Fe I	200	150	S
3724.380	Pr	2	–	–
3724.321	Mo	2	3	–
3724.32	Lu	2 h	–	Me
3724.233	U	8	–	–
3724 221	Ce	2	–	–
3724.211	Yb	15	50	–
3724.20	Eu	2	–	–
3724.175	Pr	3	–	Kn
3724.106	Ti II	4	18	–
3724.017	Sm	3	2	–
3723.894	Nd	8	–	–
3723.88	Fe	2	–	–
3723.877	W	6	7	–
3723 87	Ca	–	5	Ad
3723.87	Pb I	–	2	Sx
3723.84	Eu	5 w	1 w	–
3723.836	Ce	1	2	–
3723.814	Mo	20	30 h	–
3723.696	Th	10	8	–
3723.686	Gd	5	10 h	–
3723.657	U	3	10	–
3723.656	Ce	12	–	–
3723.645	In II	–	[25]	Ps
3723.631	Ti II	4	15	–
3723.62	P II	–	[30]	Gu
3723.583	Pr	7	2	–
3723.514	Mo	5	8	–
3723.506	Nd	30	20	–
3723.478	U	1	3	–
3723.444	Cb	1	30	–
3723.407	In II	–	[35]	Ps
3723.395	Cr	–	15	–
3723.324	V I	40	10	–
3723.291	Th	10	8	–
3723 218	V	5	15	Me
3723 205	In II	–	[35]	Ps
3723.204	Zr I	3	–	–
3723.104	Cb	2	1	–
3723.073	Ta	18	1	–
3723 04	Tb	15	3	Ed
3723.007	Mo	–	20	–
3722.950	Cb	8	3	–
3722.793	Sb II	40 Ws	50	–
3722.759	Ce	12	2	–
3722.747	Ir I	30	5	–
3722.68	U	10	10	–
3722.65	Hf	–	2	Me
3722.62	Tb	3	8	Ed
3722.61	Eu	40 W	10	–
3722.601	V I	5	2	–
3722.58	Lu	3	–	Me
3722.566	Cb	–	60 h	–
3722.566	Ti I	100	60	–
3722.564	Fe I	500	400	S
3722.563	Sm	40	–	–
3722.554	Ce	2 h	–	–
3722.484	Ni I	200	20	–
3722.434	Ir	2	6	Ab
3722.320	Cb	3	5	–
3722.312	Ru	5	2	–
3722.306	Mo	3	4	–
3722.293	Yb	7	60	–
3722.291	Ce II	15	1	–
3722.247	W	12	15	–
3722.195	V I	40	40	–
3722 192	Th	35	25	–
3722.098	Ce	10	1	–
3722.066	Pr	4	2	–
3722.035	Gd	50	30	–
3722 024	Sm	10	4	–
3722 021	Ir I	10	2	–
3721.998	V I	70	20	–
3721.959	Os	30	15	–
3721.949	Ce	2	–	–
3721.948	H I	–	[6]	Rk
3721.932	Ru	3	–	–
3721.921	Fe	15	10	–
3721.86	Ne II	–	[4]	Bn
3721.842	Sm	100	50	–
3721.831	Th	40	30	–
3721 83	Ho	8	4 h	Ex
3721.82	Eu	2	–	Kn
3721.812	Ce	5	–	–
3721.746	Nd	4	1	–
3721.722	U	10	–	–
3721.671	Pr	2	–	–
3721.648	Ce	4	1	–
3721.636	Ti II	60	125	–
3721.611	Fe	6	4	–
3721.517	Cb	4	3	Me
3721.515	Pr	10	3	–
3721.510	Fe I	10	4	–
3721.507	Hf	10	–	–
3721.483	Ir I	15	4	–
3721.465	Er	8	–	–
3721.402	Th	8	3	–
3721.398	Yt I, II	8	3	–
3721.395	Fe I	3	2	–
3721.358	V I	10	6	–
3721.35	Kr II	–	[150 hl]	Me
3721.344	K II	–	[20]	Dm
3721.33	Ho	8	4	Ex
3721.330	Nd	15	15	–
3721.271	Fe I	7	4	–
3721.27	Pr	8	2	–
3721.192	Fe	1	1	–
3721.18	Ba I	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3721.12	W	–	12	–
3721.060	V	–	2	Me
3721.020	Sm	4 h	1	–
3720.85	Ba I	2	.	Sd
3720.83	Pr	10	8	–
3720.821	Ir I	6	–	–
3720.80	Xe II	–	[20]	Hu
3720.776	Th	5	–	–
3720.771	Cu I	10	1 h	–
3720.75	La II	–	3 h	Me
3720.74	Ho	6	4	Ex
3720.74	Pt	5	–	m
3720.695	Eu	4 w	–	–
3720.644	Sm	2	–	–
3720.595	Ce	2	–	–
3720.572	Sm	4	4	–
3720.54	Nd	8	8	–
3720.513	W	8	10	–
3720.456	Cb	5	100 h	–
3720.43	A	–	[10]	Rt
3720.40	Ca	–	3	Ad
3720.394	U	6	10 h	–
3720.384	Ti I	40	10	–
3720.380	Ce	2	2	–
3720.36	Tb	8	–	Ed
3720.31	As II	–	15	Ro
3720.309	Th	15	10	–
3720.254	Mo	10	40	–
3720.222	Pr	15	6	–
3720.132	Os I	80	40	–
3719.969	Th	2	1 h	–
3719.946	Ce	2 w	–	–
3719.935	Fe I	1000 R	700	S
3719.93	Ba I	2	–	–
3719.797	Ce II	15 s	5	–
3719.74	Mo	–	30	–
3719.72	Tm	10	4	Me
3719.70	Sb II	–	8	–
3719 692	Mo	3	–	–
3719.69	U	1 h	8	–
3719.635	Cb	–	50 w	–
3719.595	Nd	10	8	Kn
3719.553	Mo	5	3	–
3719.522	Os I	40	12	–
3719.464	Gd	40	40	–
3719.451	Sm	50	10	Kn
3719.45	Tb	30	8	Ed
3719.436	Th	30	10	–
3719.435	Pr	15	10	–
3719.430	Ce	8	–	–
3719 418	Ta	3	–	–
3719.405	W	12	10	–
3719 329	Ru	20	25	–
3719.300	Sm	3	–	Kn
3719.295	Er	4 d	–	–
3719.293	U	12	–	–
3719.279	Hf II	15	30	–
3719.167	Eu	30	–	Kn
3719.081	Ce II	3	–	–
3719.047	Mo	–	20	–
3718.930	Mn	75	100	–
3718 912	V	20	5	–
3718.909	Pd I	300	200	–
3718.880	Sm II	100	5	–
3718.877	Pr	3	3	–
3718 844	U	–	4	–
3718 843	Zr II	9	9	–
3718.842	Hf	–	3	–
3718.836	In II	–	[40]	Ps
3718.707	In II	–	[18]	Ps
3718.7	Li I	30	–	Fl
3718 698	Sm II	8	1	–
3718.660	Th	20 h	8	–
3718 634	In II	–	[25]	Ps
3718.63	Kr II	–	[200 hl]	Me
3718.614	U	4	8	–
3718.611	Ru	2	9	–
3718.60	Er	2	–	–
3718.523	Cb	2	3	–
3718.479	Mo	5	5	–
3718.455	Ta	3	1	–
3718.44	Tb	15	3	Ed
3718.408	Fe I	80	50	–
3718.400	Ru	8	2	–
3718.390	In II	–	[25]	Ps
3718.380	Ce	15	5	–
3718.34	Pb II	–	2	Sx
3718.339	Os	30	10	–
3718.332	In II	–	[25]	Ps
3718.316	W	–	6	–
3718.218	In II	–	[18]	Ps
3718.211	Ir	3	–	–
3718.21	A II	–	[15]	Rt
3718.190	Ce I, II	15	5	–
3718.167	Th	15	10	–
3718 160	V II	5	70	–
3718.108	Yt I	12	4	–
3718.106	U	8	12	–
3718.072	Ta	2	–	–
3718.02	Kr II	–	[300 hl]	Me
3718.016	Pr	3 h	2	–
3717.98	La II	3	3	–
3717.94	Cl II	–	[15]	Ks
3717.926	Os	10	12	–
3717.92	Tm	100	10	Me
3717.841	Pr	8	3	–
3717.832	Th	20	10	–
3717.80	W	–	12	–
3717.800	Hf	20	8	–
3717.767	Ce	3	–	–
3717.729	U	6	–	–
3717.69	Eu	18 w	2	–
3717.682	Ru	6	5	–
3717 62	P II	–	[70]	Gu
3717.542	Cb	10	8 h	–
3717.487	Gd	100 w	50	–
3717.484	Ce	8	1	–
3717.482	Nd	2	–	Kn
3717.47	Tb	8	3	Ed
3717.425	U	10	8	–
3717.396	Ti I	80	50	–
3717.30	Sr II	1	5	Sd
3717.29	Dy	3	–	m
3717.29	Re I	150 W	–	m
3717.262	Er	9	–	–
3717 259	Ti I	6	1	–
3717.2	Rn	–	[10]	Wo
3717.20	Xe II	–	[10]	Hu
3717.17	A	–	[10]	Rt
3717.096	Sc	4	4	–
3717.095	W	12 d	10 d	–
3717.066	Cb	8	1000	–
3717.03	Ca	–	3	Ad
3717.012	U	1	4	–
3717.009	Zr II	2	–	–
3717.004	Ru I	30	25	–
3716 991	Cb	10 W	–	–
3716 980	Pr	10 h	2 h	–
3716.97	Mo	–	3 h	–
3716.93	Dy	5	5	m
3716 930	Ce II	10	2	–
3716.91	Yt II	2	5 h	–
3716.91	Eu	10 w	2	–
3716 870	Mo	4	25	–
3716.783	U	6	8	–
3716 780	Sm	5	–	Kn
3716 738	W	9	6	–
3716.714	Ce	2	–	–
3716 594	K II	–	[20]	Dm
3716.585	Th	8	1	–
3716.577	Nd	8	6	–
3716.54	U	–	2 h	–
3716.531	Cr	20	6	–
3716.448	Fe I	150	100	–
3716.43	Tb	15	3	Ed
3716.369	Gd	150 w	125	–
3716.365	Ce I, II	15	10	–
3716.336	Os	12	10	–
3716.284	In II	–	[25]	Ps
3716.255	Th	5	1	–
3716.233	In II	–	[40]	Ps
3716.209	Cb	30 W	10 w	–
3716.198	Pr	4	3	–
3716.183	In II	–	[18]	Ps
3716.179	Ru	12	8	–
3716.162	I II	–	[5]	Ke
3716.15	Kr II	–	[4]	Me
3716.135	U	18	–	–
3716.130	In II	–	[25]	Ps
3716.091	Zr	4	2	–
3716.081	In II	–	[18]	Ps
3716.08	Tb	15	3	Ed
3716.079	W II	9	18	–
3716.070	Mo	5	5	–
3716.048	In II	–	[18]	Ps
3716.004	In II	–	[10]	Ps
3715.972	Cb	3	5	–
3715.956	Er	5 d	–	–
3715.917	W	3	7	–
3715.915	Fe I	80	50	–
3715.914	Gd	10	–	–
3715.912	Ce	4	–	–
3715.87	Ca	2	4	Ad
3715.85	P II	–	[50]	Gu
3715.795	Ti I	15	1	–
3715 69	Xe II	–	[2 wh]	Hu
3715.680	Nd	20	20	–
3715.676	Ir	5	–	Ab
3715.669	U	3	6	–
3715.65	Eu	8 w	–	–
3715.647	Mo	5	5	–
3715.640	Rb II	–	[2]	Rr
3715.615	Pr	15	2	–
3715.568	Th	5	–	–
3715.562	Ru	12	8	–
3715.54	Dy	4	4	m
3715.524	La II	100	50	–
3715.499	Ni I	2	–	–
3715.470	U	6	12	–
3715.470	V	70	400 R	–
3715.466	Ce	10	2	–
3715.428	Cr	–	30	–
3715.400	Ti I	40	2 h	–
3715.393	Nd	12	8	–
3715.28	Dy	4	4	m
3715.21	Sn II	–	2 h	–
3715.186	Cr II	6	20	–
3715.184	U	3	1	–
3715.15	Er	2 d	–	–
3715 143	Ce	8	1	–
3715.09	Tb	8	3	Ed
3715.047	Nd	10	10	–
3715.047	W	10	7	–
3715 04	Kr II	–	[12 h]	Me
3715.02	Re	5	–	m
3714.947	U	5	8	–
3714.911	Eu I	40	2	–
3714 858	La II	60	40	–
3714.858	W	10	7	–
3714.852	Cb	3 h	2	Me
3714.828	Rh I	3	2	–
3714 808	Nd	8 d	6 d	–
3714.778	Zr II	15	10	–
3714.772	Ce	10	2	–
3714.758	U	8	8	–
3714.74	A	–	[3]	Rt
3714.727	Nd	8 d	6 d	–
3714 624	Ru I	8	1	–
3714.564	W	–	10	–
3714.553	Mo	5	4	–
3714.526	Ce	3	–	–
3714 399	U	–	3	–
3714 393	Th	8	5	–
3714.31	Yt II	2	3	m
3714.30	Br	–	[8]	Bl
3714 293	La I	10	2	–
3714.240	W	9	7	–
3714.194	Nd	20	15	–
3714.133	Zr I	20	–	–
3714.057	Pr	50	20	–
3714.05	Pb II	–	10	Sx
3714.045	Ir	2 h	2 h	–
3714.03	Er	3 h	–	–
3713.988	Ce	8	–	–
3713.96	Mo	–	40	–
3713.957	V I	60	10	–
3713.851	Er	10	–	–
3713.84	Dy	6	4	Ed
3713.817	Cb	8	5	–
3713.774	U	5	2	–
3713.734	Ti I	15	1	–
3713.726	Os	100	20	–
3713.72	Cb	–	5 h	Me
3713.72	Zn	–	2 h	Vs
3713.695	Nd	25	20	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
3713.662	Ce II	5	–	–
3713.649	U	2	10	–
3713.60	Al	–	10 h	Gn
3713.583	Gd	100 W	80	–
3713.544	La II	200	60	–
3713 470	Mo	8	8	–
3713.459	Eu	50	2	–
3713.456	Ce	5 w	2 w	–
3713.429	Rh I	4	3	–
3713.358	Cb	–	10 h	–
3713.278	Pr	12	3	–
3713.23	Si	–	2	Sy
3713.18	Re	5	–	–
3713.084	Ne II	–	[250]	Ps
3713.039	Ce	3	–	–
3713.03	A II	–	[3]	Rt
3713.028	Ti	12	1	–
3713.026	Ir	20	–	–
3713.022	Rh I	100	100 r	–
3713 014	Cb	100	80 h	–
3712.964	Fe	5	1	–
3712.958	Zr I	2	–	–
3712.949	Cr II	12 s	125	–
3712.947	Mo	8	8	–
3712.94	Re	6	–	m
3712.90	Ho	6	4	Ex
3712.86	Dy	2	2	m
3712.838	Os	50	12	–
3712.759	Sm II	100	100	–
3712.74	O II	–	[25]	Mh
3712.724	Ce	2	1	–
3712.714	Gd	200 W	250	–
3712.566	U	6	–	–
3712.554	Cb	3	3	Me
3712.539	V	–	20	–
3712.538	Th	15	8	–
3712.50	Eu	3 W	–	–
3712.476	Ir I	30	10	–
3712.40	Eu	7	–	–
3712.392	Er	20	2	–
3712.37	Ca	2	3	Ad
3712.369	Nd	10	4	–
3712.345	Pr	12	3	–
3712.308	U	5	–	–
3712.295	Ru	30	10	–
3712.214	W	–	18	–
3712.18	Eu	4	1 h	–
3712.180	Co I	40	8	–
3712.120	Nd	25	10	–
3712.106	Sm	20	8	–
3712.098	Ce	2 l	–	–
3712.052	Mo	4	4	–
3712.009	Cu I	20	4 h	–
3711.990	Ce	2	–	–
3711.98	H I	–	[5]	Rk
3711.946	Zr II	2	–	–
3711.851	U	4	5	–
3711.851	Os	15	10	–
3711.825	Er	7	–	–
3711.779	Cb	4	5	–
3711.758	Ir	2	–	–
3711.750	V	–	10	Me
3711.74	Tb	200	30	Ed
3711 687	Ce II	3	–	–
3711.66	Eu	10 w	1 h	–
3711 652	Co I	35	–	m
3711.65	Dy	6	6	Ed
3711.64	Xe II	–	[15 whl]	Hu
3711 628	Th	8	3	–
3711.628	Ce	2 w	2	–
3711.545	Nd	2	1	Kn
3711.545	Sm II	10	10	–
3711.526	Re I	15	–	–
3711.509	Mo	5	5	–
3711.485	W	6	3	–
3711.441	I I	–	[18]	Ke
3711.410	Fe	50	25	–
3711.340	Mn	10	–	–
3711 338	Cb	20	20	–
3711.309	Th	30	20	–
3711.30	Ho	6	4	Ex
3711.282	Cr	–	12	–
3711.225	Fe I	80	50	–
3711.218	Pr	3	2	–
3711.153	Ir I	7	–	–
3711.15	Ta	5	–	Ks
3711.123	V	–	80	–
3711.099	Pr	8	3	–
3711 074	Na II	8	[60]	Fr
3711.001	Ce	2	–	–
3710.95	Lu	3	–	Me
3710.908	U	3	8	–
3710.881	Eu	35 l	30 h	–
3710.869	Sm II	100 r	7	–
3710.79	Ta	7 wh	–	Ks
3710.785	U	4	2	–
3710.774	Cs	–	[4]	Sv
3710.753	Ca	–	3	–
3710.75	Ho	8	8 h	Ex
3710.73	Dy	4	2	m
3710.60	Cr	2	2	–
3710.59	La II	3	2	–
3710.534	U	3	4	–
3710.519	Sb II	2	5	–
3710.45	P II	–	[30 h]	Gu
3710.448	Cb	15	20	–
3710 365	F	–	[10]	Di
3710.316	Ru	4	–	–
3710.31	Yb	4	6	–
3710.308	U	8	1	–
3710 300	Sm	25	15	–
3710.290	Er	15 wh	8 wh	–
3710.290	Yt II	80	150	–
3710.29	Eu	20 w	1 wh	–
3710.289	W	4	5	–
3710.253	Ce	2	1	–
3710.186	Ti I	6	–	–
3710.168	U	1	5	–
3710.142	Mo	20	15	–
3710.09	Cr	4	2	–
3710.080	Dy	20	5	–
3710.012	Pr	6	2	–
3710.01	Eu	5	–	Kn
3709.961	Ti I	80	25	–
3709.937	Re I	40	–	–
3709.933	Ce	25	10	–
3709.90	A	–	[5]	Rt
3709.878	U	2	2	–
3709.742	Cb	2	2	–
3709.673	Th	5	3	–
3709.665	Pr	3	–	–
3709.665	Fe	4	4	–
3709.64	Ne II	–	[40]	Bn
3709.588	Ce	5	–	–
3709.533	Fe	6	6	–
3709.526	Sm	10	6	–
3709 514	I II	–	[3]	Ke
3709.46	U	–	3 d	–
3709.417	Cb	5	10	–
3709 333	V	–	25	–
3709.30	Tb	15	–	Ed
3709.286	Ce	25	–	m
3709 257	Zr II	50	30	–
3709 249	Fe I	600	400	–
3709 248	Ag I	10	3	–
3709.247	Cb	5	30	–
3709.145	Os	4	1	–
3709.097	Ru I	5	–	–
3709.024	Sm	8	–	–
3708 897	Cb	3	4	–
3708.823	Co I	100	–	–
3708 787	Sm	2	–	–
3708.764	Re	15	–	–
3708.760	Th	8	5	–
3708.75	Tb	8	8	Ed
3708.721	V I	100	60	–
3708.709	Ce	2	–	–
3708.687	Pr	2	–	–
3708.683	Ir	8	2	–
3708 66	Yb	2	4	–
3708 660	Sm II	50	25	–
3708.648	Ti I	50	3	–
3708 618	Ru	4	–	–
3708 602	Fe I	5	2	–
3708.592	U	6	–	–
3708.555	Mo	5	5	–
3708.510	W	3	35	–
3708.410	Sm II	25	10	–
3708 37	Eu	10	–	Kn
3708.246	In II	–	[18]	Ps
3708.227	Dy	20	10	Ed
3708.106	In II	–	[10]	Ps
3708 090	Ir	8	2	–
3708.067	Mo	2	3	–
3708.05	Au	–	5	–
3708.001	In II	–	[10]	Ps
3707.931	W	20	20	–
3707.925	Fe I	80	60	–
3707.92	Sn	–	2 h	–
3707.918	Cb	3 W	100 W	–
3707.886	Ce	3	–	m
3707.850	Sm	20	–	Kn
3707.824	Fe I	80	50	–
3707.804	Cb	5	–	–
3707.735	Nd	8	4	–
3707.681	Ce	3	–	–
3707.648	U	1	10	–
3707.644	Er	15 d	2 d	–
3707.628	Sm	3	–	–
3707.602	Ce	3	–	–
3707 561	Fe	2	1	–
3707.54	Tb	15	–	Ed
3707.531	Ti I	100	10	–
3707.52	W	3	10	–
3707.468	Co I	30	–	–
3707.459	Fe	3	1	–
3707.429	Th	10	5	–
3707.416	Dy	5	2	–
3707.40	Eu	8 w	5	Kn
3707.387	Ce	10	–	–
3707.363	Hf	3	2	–
3707.3	air	–	3	m
3707.290	U	1	2	–
3707.24	Pr	8	6	–
3707.174	Nd	2	–	–
3707.172	Ir	6	–	Ab
3707.171	Mo	5	5	–
3707.165	Sm II	10	2 h	–
3707.049	Fe I	150	100	–
3707.047	Cb	7 w	–	m
3706.993	Th	8	5	–
3706.982	Ir	30	8	–
3706.976	Sm	9	8	–
3706.94	A II	–	[5]	Rt
3706.936	Ce	4	2	–
3706.863	Ce	2	–	Kn
3706.82	Au	–	15 h	–
3706.769	Th	15	10	–
3706.766	Pr	25	12	–
3706.752	Sm II	10	8	–
3706.732	U	2	–	–
3706.658	Mn	5	5	–
3706.632	Zr I	10	–	–
3706.587	Ta	5	–	–
3706.57	Eu	12 W	–	–
3706.556	Os	50	15	–
3706.533	U	6	–	–
3706.527	Pt	15	4	–
3706 524	Er	12 d	–	–
3706.34	Tb	15	–	Ed
3706.326	Ta	3 h	2 h	–
3706.3	Eu	3	–	Kn
3706.226	Ti II	30	125	–
3706.16	Lu	2	–	Me
3706.13	Pb I	–	10	Sx
3706.078	Mn	75	–	–
3706.055	Ta	2	–	–
3706.05	P II	–	[150 w]	Gu
3706.035	V I	50	50	–
3706.03	Ho	–	10	Ex
3706.026	Ca II	15	40	IWg
3705.995	Sm	4	–	Kn
3705.983	U	6	10	–
3705.901	Sr I	30	10	ISn
3705.85	Ga II	–	[2]	Sy
3705.818	La II	50	80 h	–
3705.776	Er	5 w	–	–
3705.69	Re I	5	–	–
3705.605	Cb	2	–	–
3705.569	Sm	8	1	–
3705.568	Ce	3	–	–
3705.567	Fe I	700	500	S
3705 486	W	10	10	–
3705.47	Cl	–	[3]	Bl
3705.411	Mo	4	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3705.407	V	–	5	–
3705.405	Hf II	15	25	–
3705.365	Ce	2	–	–
3705.357	Ru I	8	2	–
3705.34	W	–	7	–
3705.338	Pr	–	3 d	–
3705.263	Ir	10	2	–
3705.169	Ta	7	–	–
3705.140	He I	–	[3]	Ps
3705.063	Sm	15	2	–
3705.06	Tb	15	3	Ed
3705.059	Sn II	–	3	–
3705.05	Eu	12	–	–
3705.048	Ce	5	2	–
3705.040	U	6	8	–
3705.035	V I	100	70	–
3705.003	He I	–	[30]	IMr
3704.994	Re I	20	–	–
3704.98	Eu	12 w	1 wh	–
3704.977	Ce II	8	5	–
3704.972	Pr	15	8	–
3704.967	Th	10	8	–
3704.92	Hf	2	–	Me
3704.846	Tm	35	15	Me
3704.845	Re I	20	–	–
3704.796	W	12	8	–
3704.79	Lu	–	3 h	Me
3704.699	V I	200 R	150 R	–
3704.674	Ce	6	–	–
3704.658	U	1	2	–
3704.531	La I	25	4	–
3704.51	F II	–	[60]	Di
3704.463	Fe I	125	100	S
3704.462	Re	25	–	–
3704.344	U	1	5	–
3704.319	Pr	–	2	–
3704.295	Ti I	70	25	–
3704.22	Ba I	2	2 h	–
3704.216	Ta	3	–	–
3704.18	Hg I	20	20	–
3704.141	Cb	30	30	–
3704.14	Mo	–	20	–
3704.099	U	6	8	–
3704.060	Co I	300 r	35	–
3704.03	Ca	3	4	–
3704.021	Fe	2	1	–
3703.996	Th	10	5	–
3703.996	V I	5	2	–
3703.92	Tb	70	100	Ed
3703.914	Cb	15	20	–
3703.912	Ce	3	–	–
3703.9	Eu	5	3	Kn
3703.86	H I	–	[4]	Rk
3703.823	Fe	15	10	–
3703.816	V	2	10	–
3703.787	Th	8	–	–
3703.696	Fe I	12	7	–
3703.652	U	3	2	–
3703.602	W	10	9	–
3703.584	V I	200 R	100 R	–
3703.555	Fe I	30	25	–
3703.55	Eu	7	–	Kn
3703.41	Zn	5	2 h	Vs
3703.366	Ce	2	–	–
3703.36	W	12	10	–
3703.342	Pr	12	1	–
3703.323	Yt II	4	10 w	–
3703.278	U	8	–	–
3703.258	Ta	7	–	–
3703.247	Os	100	30	–
3703.241	Re I	40	–	–
3703.235	Th	5	–	–
3703.217	Al II	–	[18]	Sy
3703.21	Dy	3	–	Ed
3703.206	Ru I	12	3	–
3703.165	Cb	20	30	–
3703.145	Nd	30	6	–
3703.052	Zr	2	1	–
3703.017	U	2	2	–
3702.986	Ti I	20	5	–
3702.933	Ru	5	–	–
3702.9	air	–	3	m
3702.872	Th	10	20	–
3702.866	U	5	–	–
3702.85	Tb	50	200	Ed
3702.85	Yt	4	2	–
3702.790	Ce II	10	5 w	–
3702.763	Os	4	2	–
3702.74	Xe I	–	[2]	Me
3702.615	U	8	1	–
3702.588	Ce	4	–	–
3702.57	Al	–	5 h	Gn
3702.553	Mo	10	150	–
3702.506	Er	8	–	–
3702.495	Fe I	20	7	–
3702.36	Hg I	–	[2]	Wd
3702.36	Hf II	–	2 h	m
3702.35	Ho	10	6	Ex
3702.320	W	10	9	–
3702.3	Eu	4	–	Kn
3702.30	Au	–	5 h	–
3702.292	Ti I	60	20	–
3702 246	Ce	2	–	Kn
3702.243	Co	200	–	–
3702.240	Ru	6	3	–
3702 218	U	2	12 h	–
3702.192	Ce	3	–	–
3702.178	Mo	4	1	–
3702.100	Re	10	–	–
3702.032	Mo	10	5	–
3702.031	Fe	50	30	–
3702.027	I	–	[10]	Ke
3702.02	Eu	3	–	Kn
3702.01	Si	–	6	Sy
3701.981	Nd	2	1	–
3701.866	Ce	4 w	–	–
3701.848	Ru	5	–	–
3701.812	Pr	30	10	–
3701.81	Ne II	–	[12]	Bn
3701.807	La II	8	10	–
3701.80	Ho	4	6	Ex
3701.78	W	–	5	–
3701.751	Nd	10	4 h	–
3701.745	U	10	2	–
3701.730	Mn	60	30	–
3701.724	Ce II	4	–	–
3701.716	Ba	3	–	Sz
3701.697	Sm	20	1	–
3701.62	Dy	6	10	Ed
3701.60	Ga	–	2	–
3701.596	Os	12	15	–
3701.57	Er	12 d	2 W	–
3701.558	Sm II	5	4	–
3701.541	Ti	12	–	–
3701.522	U	10	25	–
3701.517	Mo	5	2	–
3701.487	Nd	8	6	–
3701.476	Pr	15	4	–
3701.442	Hg I	15	2	–
3701.43	Mo	–	3 W	–
3701.36	Tm	150	80	Me
3701.336	Ta	25 s	–	–
3701.320	Ru	10	3	–
3701.225	Ne	–	[40]	IHu
3701.2	Rn	–	[2]	Wo
3701.197	Ce	3	–	–
3701.18	Re	5 d	–	–
3701.178	Sm	3	3	–
3701.16	Eu	5 w	1 h	–
3701.15	Ca	–	2	Ad
3701.148	Hf II	15	40	–
3701.090	Fe I	300	200	–
3701.015	Ce	3 w	1	–
3700.991	Ru	50	20	–
3700.988	Pr	20	8	–
3700.987	Th	5	1	–
3700.981	V	1	15	–
3700.926	Sm	50	4	–
3700.925	Nd	20	15	–
3700.921	Gd	10	–	–
3700.909	Rh I	150 d	150 d	–
3700.771	Th	15	10	–
3700.742	Ce	3	–	–
3700.728	Er	10	2	–
3700.661	Pr	6	1	–
3700.65	Nd	8	2	–
3700 649	W	5	6	–
3700 593	Sm II	50	30	–
3700.59	Dy	5	2	m
3700.575	U	12	18	–
3700.57	Yb	4	–	–
3700.550	Ir I	2 h	–	Ab
3700.536	Cu I	20	7	–
3700.444	Nd	2	1	–
3700.431	Sm	2	–	–
3700.366	Re	2 h	–	–
3700.352	Ru	8	3	–
3700.344	V	10	100	–
3700.299	Os	5 h	5 h	–
3700.296	Mn	5	–	–
3700.29	U	3	–	–
3700.277	Ta	–	10	–
3700.269	W	–	5	–
3700.26	Tm	150	80	Me
3700.248	Pr	6	–	–
3700.197	Sm	9	10	Kn
3700.14	Pt II	–	10	Sh
3700.130	Mn	10	–	–
3700.128	V	2	15	–
3700.12	Tb	30	–	Ed
3700.098	U	3	–	–
3700.09	S	–	[3]	Hn
3700.090	Ir	2 h	–	Ab
3700.077	Ti	60	5	–
3700.019	Zr	9	–	–
3700.012	Mo	5	3	–
3699.99	Ta	5	–	Ks
3699.952	Pr	12	1	–
3699.929	Cb	15 w	30 w	–
3699.920	Ce I, II	20 s	2	–
3699.914	Pt I	80	5	–
3699 884	Th	5	1	–
3699.87	Tm	10	6	Me
3699.857	U	4	1	–
3699.85	Mo	–	25 d	–
3699.81	Yb	–	2	Me
3699.748	Gd	200 W	250	–
3699.744	Er	3	–	–
3699.740	Nd	20	10	–
3699.724	U	4	5	–
3699.716	Hf II	20	25	–
3699.70	Tb	8	3	Ed
3699 622	Rb II	–	[15]	Rr
3699.578	Cb	2	3	–
3699.56	Hf II	–	3	Me
3699.556	La I	10	2	–
3699.506	Pr	40	10	–
3699.50	Yb	2	–	–
3699.476	V I	35	10	–
3699.475	Cs	–	[10]	Sv
3699.437	U	5	3 h	–
3699.415	W	10	12	–
3699.404	Nd	10	2	Kn
3699 37	S	–	[8]	Hn
3699.309	Rh I	4	2	–
3699.305	Ce	4	–	–
3699.24	Eu	2 w	–	–
3699.2	Pb II	–	[10]	Ea
3699 176	Ce	8	–	–
3699.141	Fe I	15	3	–
3699.14	Yt	3	3	Me
3699.135	Ce	6	1	–
3699.113	Mo	4	4	–
3699.110	V	2	5 h	–
3699 077	Cb	2	3	–
3699 017	Co	8 h	–	–
3698 969	Er	10	–	–
3698.94	Dy	7	2	m
3698.832	Os	20	12	–
3698.727	Pr	2	–	–
3698.720	W	9	9	–
3698.658	Ce II	20	1	–
3698.605	Fe	40	20	–
3698.595	Rh I	20	15	–
3698.59	Yb	3	15	Me
3698.530	Mo	5	5	–
3698.45	Tb	8	–	Ed
3698.43	U	4 d	1 d	–
3698.430	Ti I	5	–	–
3698.41	Au	–	2	–
3698.395	Hf II	10	25	–
3698.364	Ce	10	2	–
3698.305	Th	12	10	–
3698.28	Dy	6	–	Ed
3698.260	Rh I	15	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3698.209	Er	3	–	–
3698.183	Ti I	10	8	–
3698.178	Cr	2	–	–
3698.17	Dy	10	30	m
3698.17	Tb	8	3	Ed
3698.167	Zr II	50	80	–
3698.166	Mo	15 h	5	–
3698.15	Fe	3	–	–
3698.125	Ce	12	1	–
3698.112	Th	8	2	–
3698.102	Ir I	30	8	–
3698.069	Pr	25	12	–
3698.045	Kr I	–	[6]	IHu
3697.997	Cr	–	40	–
3697.95	Eu	4 w	1 h	–
3697.930	U	6	8	–
3697.90	Dy	3	–	Ed
3697.861	Ru	4	3	–
3697.846	Cb	50	50	–
3697.823	W	–	4	–
3697.764	Ru I	8	6	–
3697.739	Gd	200 w	200 w	–
3697.72	Tb	8	3	Ed
3697.704	Re	150 w	–	–
3697.698	Ir I	3	–	Ab
3697.660	Ce	10	1	–
3697.58	Tm	8	3	Me
3697.551	U	4	6	–
3697.536	Nd	20	10	–
3697.536	Fe	4	–	–
3697.50	Cd	–	2	Tk
3697.46	W	10	9	–
3697.458	Zr II	20	20	–
3697.432	Fe I	100	60	–
3697.392	Cb	10	20	–
3697.293	Ce	2	–	–
3697.25	Dy	10	4	Ed
3697.165	Nd	20	10	–
3697.15	H I	–	[3]	Rk
3697.131	U	10	3 h	–
3697.09	Ne II	–	[4]	Bn
3697.034	Mo	1	25	–
3697 034	Th	6	5	–
3696.922	Er	12	1	–
3696.913	Ni I	3	–	–
3696.9	bh Ca	4	–	L
3696.885	Ti I	20	3	–
3696.87	Dy	10 h	2	m
3696 85	Tb	30	8	Ed
3696.824	U	1	3	–
3696.82	Xe I	–	[4]	Me
3696.818	W	5	3	–
3696.765	Gd	10	15	–
3696.690	U	1	2	–
3696.677	Cb	2	50	–
3696.672	Ce II	3	–	–
3696 658	Pr	9	2	–
3696.653	Th	6	5	–
3696.62	Yt II	6	20 h	m
3696.587	Ru I	50	15	–
3696.568	Mn	100	50	–
3696.51	Hf	8	2	–
3696.51	A I	–	[20]	Ms
3696.485	Ce	3	–	–
3696.44	Eu	12 d	1	–
3696.39	Ti II	3	12	–
3696 352	U	6	–	–
3696 349	Sm	1	3	–
3696 30	Tb	15	8	Ed
3696 282	I	–	[3]	Ke
3696.255	Er	18	2	–
3696 25	S	–	[5]	Hn
3696.195	W	3	5	–
3696.158	Ir	20	2	–
3696.11	La II	–	2	Me
3696.08	Dy	2 h	–	Ed
3696.045	Mo	5	8	–
3696.027	Fe I	1	–	–
3695.980	Th	8	8	–
3695.963	Ce	6	1	–
3695.898	Cb	4	200	–
3695.865	V I	150	100 r	–
3695.858	Cr	12	3	–
3695.856	Ce	2	–	–
3695.84	Eu	5 w	1	–
3695.82	Sm	2	–	Kn
3695.811	U	5	3	–
3695.69	Tb	8	–	Ed
3695 650	Fe	2	–	–
3695.646	I	–	[5]	Ke
3695.61	Dy	4	2	Ed
3695.598	Zr	3 h	–	–
3695.55	Bi	–	50	Wt
3695.525	Rh	15	10	–
3695.515	Fe I	1	–	–
3695.510	I I, II	–	[2]	Ke
3695.462	Pr	4	–	–
3695.419	Ce	2	–	–
3695.382	Ta	15	7 s	–
3695.358	Cu I	6	–	–
3695.335	V I	125	70 h	–
3695.292	Th	5	1	–
3695.244	W	5	4	–
3695.237	Ce	2	–	–
3695.206	U	8	–	–
3695.2	La	2 h	2	Me
3695.158	V	–	3	Me
3695.091	Er	2	–	–
3695.054	Fe	200	150	S
3694.974	Cr	–	6 h	–
3694.953	Rh I	3	2	–
3694.946	W	2	–	–
3694.945	Mo	40	30	–
3694.911	Ce I, II	15 s	2	–
3694.894	Th	5	1	–
3694.817	Sm	15	3	–
3694.816	U	–	3 wh	–
3694.811	Er	15	6	–
3694.81	Ho	–	4	Ex
3694.795	Cb	–	5	–
3694.792	Nd	30	20	–
3694.76	Tm	20	20	Me
3694.75	Dy	20	30	m
3694.75	Tb	50	8	Ed
3694.695	Pr	40	4 h	–
3694.666	Cb	10	10	–
3694.622	V I	60	5	–
3694.62	Ag	2 h	1 h	–
3694.519	Ta	7 h	18	–
3694.508	W	10	20 l	–
3694.454	Ir	2	–	Ab
3694.447	Ti I	80	20	–
3694.421	Mo	–	20	–
3694.36	Dy	6	4	Ed
3694.355	Th	5	1	–
3694.325	U	6	1	–
3694.321	Pr	3	1	–
3694.314	Sm	15	8	–
3694.27	La II	4	10	Me
3694.24	Ho	10	20	Ex
3694 203	Yb	500 R	1000 R	–
3694.20	Yt	4	–	–
3694.197	Ne II	–	[250]	Ps
3694.193	Er	25 d	15	–
3694.173	Ce	4 w	–	–
3694.12	Tb	8	–	Ed
3694.115	Mn	5	5	–
3694.029	In II	–	[40]	Ps
3694.011	Gd	25	25	–
3694.010	Fe I	400	300	–
3693.996	Sm II	100	150	–
3693.94	Th	2	3	–
3693.932	Ni I	50	–	–
3693.899	In II	–	[35]	Ps
3693.84	Dy	4	1	Ed
3693.82	Eu	25 w	1	–
3693.788	In II	–	[25]	Ps
3693.765	Cb	1	2	–
3693 708	Ce I, II	8	–	–
3693.705	U	4	18	–
3693.698	Th	6	4	–
3693.667	Mn	50	60	–
3693.591	Ru	20	5	–
3693.56	Tb	30	–	Ed
3693.493	Pr	2	1	–
3693.49	Xe I	–	[40]	Me
3693.478	Co I	35	10	–
3693.422	Ce	10	1	–
3693 375	Mo	5	3	–
3693.368	Cb	8	10	–
3693.364	Co I	18	–	–
3693.363	Pr	30	8	–
3693 320	U	4	6	–
3693 232	Mo	3	–	–
3693.133	Nd	20	8	–
3693.112	Co I	80	15	–
3693.089	Cr	10	5	–
3693.047	Ta	35 r	3 h	–
3693.032	Fe	15	7	–
3692.95	Tb	30	8	Ed
3692.91	U	5	10	–
3692.91	W	–	7	–
3692 899	Sm	10	2	–
3692.812	Mn	50	50	–
3692.768	Nd	12	8	–
3692.763	Sm	20	6	–
3692.750	U	10	–	–
3692.725	W	7	3	–
3692.694	Ir I	15	4	–
3692.66	Eu	5 w	–	–
3692.652	Er	20	12	–
3692.652	Fe	5	1	–
3692.65	Ho	10	15	Ex
3692.645	Mo	3	150	–
3692.635	Zr II	2	1	–
3692.571	Th	10	2	–
3692.552	Ce	2	–	–
3692.529	Yt I	7	7	–
3692.44	O I	–	[50]	Ps
3692.370	Ru	6	–	–
3692.357	Rh I	500 hd	150 wd	–
3692 31	La II	–	2	Me
3692 310	U	–	2	–
3692.293	Pr	4	1	–
3692.264	I II	–	[5]	Ke
3692.225	V I	200 R	150 R	–
3692.222	Ce	3	–	–
3692.221	Sm II	90	40	–
3692 22	Eu	4 wh	–	–
3692 20	Ir	2	5	–
3692.183	Cb	–	5	–
3692.134	Ti	12	1	–
3692.126	Re	15	–	–
3692 081	Mo	5	3	–
3692.080	Th	8	4	–
3692.052	U	4	4	–
3692.02	Tb	15	8	Ed
3691.98	Eu	3 W	1	–
3691.917	U	6	8	–
3691.881	Th	8	2	–
3691.88	W	4 d	20 d	–
3691.879	Ta	–	15	–
3691.693	Yb	10	–	–
3691.617	Th	6	1	–
3691.574	Sm	25 w	3	–
3691.551	W II	5	9	–
3691.55	Eu	20 d	–	–
3691.55	H I	–	[2]	Rk
3691.500	Re I	100 w	–	–
3691.484	Pr	9	3	–
3691.470	U	3	3	–
3691.45	Ho	6	4	Ex
3691.415	Th	5	1	–
3691.381	Re	12	–	–
3691.335	Fe	2	–	–
3691.333	Rh I	4	2	–
3691.26	Ho	6	–	Ex
3691 183	Cb	5	15	–
3691.16	Dy	3	1	m
3691.152	Fe	4	–	–
3691.15	Tb	50	50	Ed
3690.935	Ce	3 w	–	–
3690.931	Sm II	15	2	–
3690.896	A I	–	[300]	IHu
3690.84	Ca	2	3	Ad
3690.817	U	2	1	–
3690.730	Fe	80	60	–
3690.724	Os	15	20	–
3690.723	Co I	60	10	–
3690.704	Rh I	125	50	–
3690.653	Sm	3 d	–	Kn
3690.65	Kr II	–	[30]	Me
3690 65	Ho	–	4	Ex
3690.626	Th	5	1	–
3690.593	Mo	10	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3690.577	Yb	10	50	–
3690.57	Dy	3	1 h	m
3690.543	Nd	8	4	–
3690.53	I	–	[5]	Bl
3690.490	Th	10	10	–
3690.459	Fe	15	6	–
3690.450	Pr	15	2	–
3690.44	Tb	8	–	Ed
3690.384	Re	8	–	–
3690.359	Mo	–	25	–
3690.342	Zr I	5	–	–
3690.341	Pd I	300 h	1000 w	–
3690.31	Rn I	–	[8]	Rs
3690.281	V I	200	125	–
3690.259	W	9	8	–
3690.239	U	2	6	–
3690.122	Ce	8	–	–
3690.119	Th	10	10	–
3690.118	Mo	4	1	–
3690.086	Nd	8	–	–
3690.082	Sm	10	–	–
3690.029	Ru	5	100	–
3689.985	Pr	9	3	–
3689.968	U	2	3	–
3689.911	Ti I	100	40	–
3689 897	Fe	5	1	–
3689.877	W	10	8	–
3689.729	Ta	35	2	–
3689.72	Tb	8	3	Ed
3689.714	Pr	20	10	–
3689.692	Nd	25	15	–
3689.691	Ir	2	–	Ab
3689.685	Ce	8	–	–
3689.672	U	1	6	–
3689.671	Ti I	5	–	–
3689.628	Cr	8	5	–
3689.61	W	–	10	–
3689.602	Sm	4	–	–
3689.522	Re I	100 W	–	–
3689.494	Ce	5	–	–
3689.463	Fe I	200	150	–
3689.42	Eu	10 w	–	–
3689.404	Cb	2	5	–
3689.399	Pr	40	10	–
3689.309	Pb I, II	–	40	–
3689.307	Ir I	7	10	–
3689 305	Ni I	2	–	–
3689.302	Cr	6	3	–
3689.204	U	10	1	–
3689 201	Pb	–	5	–
3689.166	Nd	6	4	–
3689.161	Ce I, II	8	–	–
3689.12	Er	2	–	–
3689.12	Tb	15	8	Ed
3689.058	W	7	6	–
3689.058	Os	200	30	–
3689.038	Cb	5	5	–
3689.037	U	5	8	–
3689.0	Pb II	–	[2]	Ea
3688.973	Mo	20	5	–
3688.935	Ir I	2	–	m
3688.90	Dy	3	–	Ed
3688.894	Re	10	–	–
3688.877	Sm	7	7	–
3688.810	Ru	4	–	–
3688.785	U	–	2	–
3688.763	Th	12	12	–
3688.697	Cb	5	5	–
3688.659	Ce	10	1	–
3688.648	Re	10	–	–
3688.476	Fe	40	8	–
3688.468	Zr I	5	–	–
3688.467	Ba I	12	–	–
3688.457	Cr	18	6	–
3688.44	Cl II	–	[15]	Ks
3688.44	Eu II	1000 W	500 W	–
3688.422	W	7	5	–
3688.421	Sm II	20	8	–
3688.420	Ce	2	–	–
3688.415	Ni I	150	15	–
3688.390	U	3	10	–
3688.331	W II	–	6	–
3688.331	Nd	10	8	–
3688 32	Dy	6	3	m
3688 307	Mo	4	150	–
3688.3	Rn	–	[40]	Wo
3688.282	Cd II	–	2	–
3688 213	I	–	[125]	Ke
3688.182	Cb	5	20	–
3688.168	Ir I	10	–	Ab
3688.15	Tb	30	15	Ed
3688.126	Sm	4 h	–	–
3688.069	V I	200	200 R	–
3688.069	W	12	7	–
3688.050	Nd	15	6	–
3687.988	Th	5	1	–
3687.971	Cb	20 w	300 w	–
3687.962	Mo	5	3	–
3687.92	U	4	6	–
3687.88	N	–	[5]	Du
3687.876	Sm	50	–	–
3687.802	Ce I, II	10	2	–
3687.79	Eu	40 w	50 w	–
3687.760	U	–	5	–
3687.759	Gd	200 w	200	–
3687.758	Er	10	3	–
3687.664	Th	5	5	–
3687.662	Pr	3	–	–
3687.662	Fe I	15	15	–
3687.545	Cr I	12 h	5	–
3687.526	Cr	4	1	–
3687.473	V I	20	15	–
3687.461	U	–	3	–
3687.458	Fe I	400	300	S
3687.455	Ce	2 h	–	–
3687.445	Cb	5	3	–
3687.44	Tb	3	8	Ed
3687.426	Pt I	35	3	–
3687.354	Ti I	10	–	–
3687.294	Nd	20	10	–
3687.252	Cr I	6 h	4 l	–
3687.200	Pr	50 d	15 d	–
3687.15	Tb	15	3	Ed
3687.13	S	–	[15]	Ms
3687.101	Fe I	15	7	–
3687.100	Sm	5	6	–
3687.100	Er	10	–	–
3687.080	Ir I	40	4	–
3687 039	Pr	60 d	20 d	–
3686 987	Th	4	4	–
3686 970	Ce	2	–	–
3686.964	Mo	4	3	–
3686 86	Sb	–	4 wh	–
3686 82	Ta	20 w	1 h	Ks
3686.803	Cr I	20 h	5 h	–
3686.742	U	1	4 h	–
3686 706	V	5	2	–
3686.65	Ca	–	5	–
3686.65	Ho	6	6 h	Ex
3686.601	Ru	5	1	–
3686.596	Ce	3	–	–
3686.575	Mo	5	4	–
3686.557	Cb	5	5	–
3686.555	Cu II	–	25	Sh
3686.547	I	–	[70]	Ke
3686.484	Co I	8	–	m
3686.478	Pr	25	6	–
3686.463	U	2	6	–
3686.458	Re	8	–	–
3686.41	W	–	6	–
3686.340	Gd	150 W	200	–
3686 263	Ce	5	–	–
3686.262	V I	100	100	–
3686.258	Fe	10	4	–
3686.21	Se II	–	[35]	Bl
3686.185	Ta	35	2	–
3686.16	Tm	5	5	Mo
3686.16	Ra II	–	[10]	Rs
3686.15	Kr II	–	[80 whl]	Me
3686.114	Mo	5	5	–
3686.036	Ce	8	–	–
3686.003	Fe I	150	125	–
3685.955	Ti I	40	–	–
3685.951	Ru I	10	5	–
3685.906	Ta	3	–	–
3685.90	Xe I	–	[40]	Me
3685.871	Th	4	3	–
3685.804	Nd	30	20	Kn
3685.773	Mo	3	2	–
3685.772	U	15	1	–
3685.74	Dy	6	6	Ed
3685.736	Ne I	–	[75]	IHu
3685.688	Pr	7	2	–
3685 67	Eu	3 w	1	–
3685.626	Zr	5	–	–
3685.597	W	7	4	–
3685.556	Mn	12	12	–
3685 548	Cr I	4	3	–
3685.522	Ce II	6	–	–
3685.398	Ce	2	–	–
3685.318	Ir	2	–	–
3685.30	Rn I	–	[8]	Rs
3685.265	Pr	60	8	–
3685.255	Cr	3 h	1 h	–
3685.234	Ce	3	1	–
3685.212	Mn	15	–	–
3685.195	Ti II	150	700 R	–
3685.17	Er	6 w	–	–
3685.16	Ho	6	15	Ex
3685.128	Cb	10 W	2 W	Me
3685.068	Ru	8	3	–
3685.019	W	9	7	–
3685.005	Ce	2	–	–
3684.993	Cr	2	2 h	–
3684.97	Ta	3	–	Ks
3684.958	Co I	8	–	m
3684.930	Cb	1	5	–
3684.930	Cu I	7	3	–
3684.924	Pr	8	1	–
3684.917	Th	2	–	–
3684.91	Hg	–	[18]	Ps
3684.909	Nd	10	10	–
3684.903	Yt II	5	8	–
3684 868	Mn	15	15	–
3684 861	Er	10 W	1	–
3684 83	Dy	3 h	2 h	m
3684.81	Tb	15	8	Ed
3684 776	Sm	2	–	Kn
3684 759	Pr	4	1	–
3684 740	Ce	2	–	–
3684.672	Cu I	12	4	–
3684.659	W	10	9	–
3684.64	Nd	8	1	–
3684.64	Br	–	[2]	Bl
3684.617	U	5	5	–
3684.546	Os	15	8	–
3684.539	Sm	6	6	–
3684.521	Mn	5	5	–
3684.479	Co I	200 W	–	–
3684.332	V I	40	10	–
3684 327	Ir I	6	5	–
3684.327	Mo	5	1	–
3684.32	Lu	15	1	Me
3684.31	Ta	2	–	Ks
3684.293	Nd	10	6	–
3684.285	U	–	2	–
3684.284	Er	15	3	–
3684.252	Cb	1	5	–
3684.247	Cr	–	3	–
3684.243	Ce	6	–	–
3684.22	Mo	1	25 d	–
3684.131	Nd	3	–	Kn
3684.124	Gd	200 W	150	–
3684.120	Sm II	20	5	–
3684.112	Fe I	300	200	–
3684.1	Li II	–	[2]	Wr
3684.014	Er	6	–	–
3683.973	Cb	2 h	3 h	Me
3683 944	Th	3	3	–
3683.941	W	10	9	–
3683.85	Eu	8 W	1 h	–
3683.846	Pr	4	2	–
3683.64	I I	–	[2]	Bl
3683.616	W	–	6	–
3683.616	Fe I	3	1	–
3683.592	Ru	3	–	–
3683.59	U	2 d	8 d	–
3683.58	As	–	15	Ro
3683.523	Ir	5	–	–
3683.520	In	–	15	–
3683.481	Sb	3	2	–
3683.474	Mn	12	–	–
3683.472	Er	25	–	–
3683.471	Zn II	20	[15]	–
3683.471	Pb I	300	50	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3683.470	Zr I	2	–	–
3683.453	Ag	4	2	–
3683.393	Ce	2	–	–
3683.392	W	8	7	–
3683.332	Th	5	4	–
3683.316	Ag	–	10	–
3683.310	W	8	7	–
3683.27	Eu	18 w	1 h	–
3683.26	Tb	15	–	Ed
3683.20	Tm	10	20	Me
3683.196	Pr	3	1	–
3683.126	V I	100	60	–
3683.058	Fe I	200	100	–
3683.058	Ta	18	1	–
3683.050	Co I	200 R	–	–
3682.983	Pt I	8	2	–
3682.953	Cb	–	10 h	–
3682.86	Au	20	10 h	–
3682.742	Gd	10	20	–
3682.707	Er	18	4	–
3682.651	Zr II	1	2 h	–
3682.65	Ho	6	4	Ex
3682.647	Ce II	8	1	–
3682 56	A II	–	[5]	Rt
3682.541	Sm	8 d	–	–
3682.52	Dy	5 h	2 wh	Ed
3682.490	Th	4	1	–
3682.47	Ag I	50	4	Bx
3682.459	U	8	–	–
3682.44	Eu	12	1	–
3682.428	Cu II	–	4	Sh
3682.4	bh Zr	30	–	L
3682.359	Th	4	4	–
3682 26	Tb	50	30	Ed
3682.243	Ne I	–	[75]	IHu
3682.236	Hf	25	30	–
3682.212	Sm II	10	2	–
3682.209	Fe I	400	300	–
3682.092	W	25	20	–
3682.087	Mn	25	40	–
3682 077	Ce	10 s	2	–
3682 075	Sm	5	3	–
3682 05	Cl	–	[6]	Bl
3682.037	U	6	15	–
3682.03	Ca	2	4	Ad
3681.950	Mo	4	1	–
3681.93	Dy	2	1	Ed
3681 886	Th	8	8	–
3681 873	Nd	6	1	–
3681.856	Pr	10	5	–
3681.791	Ce	2	–	–
3681.725	Mo	8	25	–
3681.719	Sm	30	6	–
3681.71	Tb	8	–	Ed
3681.691	Cr	18	8	–
3681.683	Cb	1	10	–
3681.651	Fe I	6	2	–
3681.648	Pr	2	–	–
3681.646	Zr	5	–	–
3681.568	Os	30	8	–
3681.553	Mo	4	3	–
3681.54	Eu	3	1 h	–
3681.525	K II	–	[30]	Dm
3681.39	Hf II	3	4	m
3681.38	Si	–	3 w	Sy
3681.376	Ce	10	3	–
3681.311	Re	15	–	–
3681.303	V I	2	–	–
3681.272	Ti I	15	–	–
3681.243	Ta	15	1	–
3681.227	Fe	6	2	–
3681.194	Th	6	5	–
3681.113	Ce	2	1	–
3681.10	N	–	[10]	Du
3681.08	Ca	2	2 h	Ad
3681.039	Rh I	20	25	–
3680.964	Sm	25	5	–
3680.880	U	20	1	–
3680.86	W	4 d	5 d	–
3680.857	Cb	2	2	–
3680.848	Ce	6	–	–
3680.798	Fe	12	7	–
3680.787	Pr	3	1	–
3680.76	Eu	4	3	Kn
3680.684	Mo	20	20	–
3680.675	Fe	3	–	–
3680.66	Br	–	[6]	Bl
3680.633	Ce	3	–	–
3680.602	Mo	20	20	–
3680.574	Th	2	1	–
3680.509	U	1	3	–
3680.454	Cs	–	[4]	Sv
3680.454	Th	3	1	–
3680.425	Ce	4	–	–
3680.385	Fe	2	–	–
3680.374	Zr I	9	2	–
3680.37	Kr II	–	[100 whl]	Me
3680.270	Ti	–	6 h	–
3680.235	U	1	3	–
3680.216	Re	15	–	–
3680.209	Mo	3	5	–
3680.148	Mn	5	5	–
3680.113	V I	125	50 h	–
3680.101	Cs	–	[4]	Sv
3680.10	Er	6	–	–
3680.079	Ce II	10	2	–
3680.063	Ru	4	–	–
3680.06	A II	–	[10]	Rt
3680.008	Hg I	–	[40]	St
3679.997	Sm II	20	4	Kn
3679.985	Pr	5	2	–
3679.915	Fe I	500	300	S
3679.879	Ce II	2	–	–
3679.819	Cr	40	8	–
3679.806	U	–	5	–
3679.80	Ne II	–	[4]	Bn
3679.712	Th	12	12	–
3679.711	Ir	2		Ab
3679.70	Ho	6	4 h	Ex
3679.673	Ti	5	12	–
3679.67	F II	–	[15]	Di
3679.638	Zr II	2	2	–
3679.611	Kr I	–	[50]	IHu
3679.608	Cb	–	10 h	–
3679.607	W	12	9	–
3679.561	Kr I	–	[50]	IHu
3679 56	Tb	15	–	Ed
3679.49	Eu	15	1	–
3679.424	Ce	12	4	–
3679.404	Nd	4 h	2 h	Kn
3679 375	U	2	–	–
3679 31	Xe I	–	[4]	Me
3679.25	Sm	25	1	–
3679.227	Mo	4	4	–
3679.19	Ho	6	4	Ex
3679.157	Ce	6	1	–
3679.140	Th	3	–	–
3679.1	bh B	200	–	L
3679.070	Cr	15	5	–
3679.067	Ce	3	–	–
3679.002	Fe	2	2	–
3679 0	Rn	–	[30]	Pe
3678.98	Fe I	5	1	–
3678.958	Er	12	–	–
3678.905	Zr II	6	5	–
3678.864	Fe I	100	50	–
3678.864	Tm	50	40	Me
3678.848	Ce	8	–	–
3678.791	Th	3	1	–
3678.78	Tb	30	3	Ed
3678.752	U	6	15	–
3678 717	Cb	5	3 h	–
3678.66	Kr	–	[7 hl]	Me
3678.611	I	–	[7]	Ke
3678.61	Ho	6	4	Ex
3678.55	I	–	[3]	Bl
3678.543	Sc	3	15	–
3678.541	Pb	–	2	–
3678.519	Dy	5	1	m
3678.466	Th	4	1	–
3678.39	Re	6	–	–
3678 342	Sc II	4	15	–
3678.315	Ru	6	15	–
3678.302	Pr	6	–	–
3678.286	Ir	10	–	Ab
3678.27	Eu	50	–	–
3678.27	A	–	[10]	Rt
3678.255	Ru	5	–	–
3678.24	La II	2 h	2 h	–
3678 234	Ca I	15	2 h	–
3678.223	Ce	8	–	–
3678.19	W	1	5	–
3678.189	Nd	10	12	–
3678.167	Sm	15 d	–	–
3678.13	S	–	[10]	Hn
3678.12	Eu	8 w	2	–
3678.086	Hf II	–	5 h	–
3678.081	Sm	15	2	–
3678.078	Cb	1	10	–
3678.069	U	2	2	–
3678.059	Ru	4	2	–
3678.035	Th	10	10	–
3678.016	Os	10	10	–
3678 00	Dy	3	1	m
3677.982	Ru	5	1	–
3677.980	Tm	30	20	Me
3677.927	Ce	2	–	–
3677.89	Tb	70	8	Ed
3677.888	Cr II	3 l	70	–
3677.859	Ce	2	–	–
3677.85	Mo	–	5	–
3677.8	bh B	50	–	L
3677.778	Cb	5	5 h	–
3677.775	Sm	25	10	–
3677.770	Ti I	8	1	–
3677.741	Th	5	4	–
3677.720	Pr	10	2	–
3677.700	Mo	6	6	–
3677.678	Cr II	6	35	–
3677 630	Fe	80	60	S
3677.62	Ho	6	6	Ex
3677.56	Sr	–	3	Sd
3677.54	Xe I	–	[2]	Me
3677.477	Fe I	2	1	–
3677.41	W	–	10	–
3677.390	U	10	–	–
3677.308	Fe	40	30	–
3677.26	Dy	3	1	Ed
3677.248	Sm	15	–	Kn
3677.170	Ce II	8	–	–
3677.089	Ir	3	–	Ab
3677 085	V I	25	70	–
3677 080	Cb	5	8	–
3676 984	Ce	3	–	–
3676.959	Mn	60	100	–
3676.955	Ru	8	3	–
3676.890	Ta	5	1 h	–
3676.879	Fe I	10	2	–
3676.878	Cu	25 wh	1 h	–
3676.87	Eu	15	1	–
3676.837	Sm	10	5	–
3676.826	Pr	–	2	–
3676.802	W	10	10	–
3676 694	Th	6	4	–
3676 684	V I	300	150 h	–
3676.670	Ru	8	4	–
3676.656	Ir	15	2	–
3676.62	Eu	20 W	2	–
3676.604	Sc	2	1	–
3676.59	Ho	6	4	Ex
3676.572	Re	8	–	–
3676.56	Dy	6	30	Ed
3676.560	U	3	15	–
3676.554	Co	100	35	–
3676 508	Er	20	2	–
3676.5	bh Ca	8	–	L
3676.408	Ru	5	2 h	–
3676.377	Pb	–	2	–
3676.35	Tb	100	200	Ed
3676.335	Cb	–	5	Me
3676.322	Cr	40	15	–
3676 315	Sm	8	3	–
3676.314	Fe I	200	100	S
3676 312	Cb	10	20	–
3676.311	W	6	5	–
3676.26	P II	–	[100 W]	Gu
3676.235	Mo	8	10	–
3676.156	Ce	12	1	–
3676.14	Eu	2 w	–	–
3676.06	Hf	–	3	Me
3676.05	K II	–	[10]	Bn
3676.030	Zr	2 h	–	–
3676.01	Dy	6	2	m
3676.002	Re	20	–	–
3675.981	Mo	10	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3675 915	Pr	6	2	–
3675.85	S	–	[4]	Bl
3675.85	Er	2 W	1	–
3675.78	Tb	30	8	Ed
3675.740	Hf	10	6	–
3675.730	Fe	2 h	–	–
3675.730	Ce	2	–	–
3675.718	Rb	–	[5]	Rr
3675.700	V I	100	70	–
3675.673	Mn	20	–	–
3675.64	Yt II	2	3 h	–
3675.571	Th	10	10	–
3675.555	W	12	10	–
3675.524	Ce	5	–	–
3675.519	U	–	3 h	–
3675.518	Pr	4	–	–
3675.497	V I	40	10	–
3675.49	Ta	18	–	Ks
3675.451	Os	40	15	–
3675.439	Sm	–	3	–
3675.365	Ce	8	1	–
3675.355	Mo	25 r	25	–
3675.307	Ca I	10 h	2	Cw
3675.305	Cb	3	5	–
3675 268	Ba	2	–	Sz
3675.265	Sc II	5	2	–
3675.262	Ru I	6	3	–
3675.255	U	8	–	–
3675.22	A I	–	[300]	Ms
3675.172	Cb	3	1	–
3675.143	Th	5	1	–
3675.125	Ta	3	1	–
3675.115	Sm	2	–	Kn
3675.093	Yb	50	200	–
3675.085	U	4	6	–
3675.03	Tb	8	3	Ed
3674.994	Ce	3	–	–
3674.989	U	2	6	–
3674 984	Ir I	100	50	–
3674.97	W	–	8	–
3674.95	Pb	–	2	Sx
3674.90	Au	4	5	–
3674.893	Th	5	1	–
3674 883	Pr	5	2	–
3674.827	Ta	20	3 h	–
3674.778	Cb	20	5	–
3674.77	Ho	8	15	Ex
3674.768	Fe	40	25	–
3674.765	Rh I	10	4	–
3674.76	Tı	2	2	–
3674.718	Zr II	100	40	–
3674.685	V	2	20	–
3674.678	Cb	20	4	–
3674.67	Eu	25	–	–
3674.648	Ce	2	–	–
3674.645	Nd	15	6	–
3674.580	W	10	12	–
3674.473	Ce	4	–	–
3674.454	Dy	7	1	–
3674.415	Fe	12	5	–
3674.36	Ho	6	2	Ex
3674.335	Sm	2	–	–
3674.18	Eu	15 w	–	Kn
3674.16	W	4 d	5 d	–
3674.15	Ni I	200	50 r	–
3674.150	Ce	6	1	–
3674.140	Pr	9	2	–
3674.130	U	8	–	–
3674.093	Dy	100	50	–
3674.087	Er	20	2	–
3674.071	Th	3 d	1 d	–
3674 063	Gd	100 W	30	–
3674.055	Nd	30	10	–
3674.053	Sm II	50	10	–
3674.05	Tb	15	3	Ed
3674.047	Ce	5	–	–
3674.045	Pt I	80	4	–
3674.043	Fe	7	1	–
3673.90	Fe	6	2	–
3673.871	Mo	3	4	–
3673.83	Cl II	–	[18]	Ks
3673.799	Th	10	10	–
3673.747	Ce	5	–	–
3673.73	Tb	8	3	Ed
3673.638	Ce	10 s	1	–
3673.558	Rh I	2	–	–
3673.542	Nd	20	20	Kn
3673.493	Pr	7	2	–
3673.448	Ca I	5	3	Cw
3673.41	Rn I	–	[15]	Rs
3673.404	V I	150	80 h	–
3673.265	Ce	3	–	–
3673.262	Th	10	10	–
3673.26	A	–	[5]	Rt
3673.228	Cb	5	10	–
3673 216	Mo	4	4	–
3673.196	Eu	20	2	–
3673.152	Dy	25	5	–
3673.143	Ir	10	–	–
3673.142	Er	12	1	–
3673.14	Tm	10	15	Me
3673.087	Fe	10	4	–
3673.059	U	6	–	–
3673 02	Hg	–	[5]	Wd
3672.95	W	4 d	2 h	–
3672.820	Mo	20	20	–
3672.789	Ce	15	5	–
3672.712	Fe I	4	2	–
3672.67	Dy	10	4	m
3672.665	Zr II	5	–	–
3672 616	Pr	7	1	–
3672.586	W	1	18	–
3672.579	U	8	15	–
3672.576	Cb	3	3	–
3672.57	Xe II	–	[10]	Hu
3672.534	Th	2 d	1 d	–
3672.441	Cb	5	5	–
3672.403	V I	100	40 h	–
3672.400	Re I	20	–	–
3672.383	Ru I	6	4	–
3672.363	Nd	30	12	Kn
3672.312	Dy	100	100	Ed
3672 304	Th	4	1	–
3672.303	Er	18	2	–
3672.30	Tb	8	3	Ed
3672.30	Ho	6	2	Ex
3672.269	Hf	25	3	–
3672 257	Ce	2	–	–
3672.213	Sm	6	5	–
3672.21	Eu	7 w	–	–
3672.187	U	5	–	–
3672.180	W	5	4	–
3672 166	Ce I	10	1	–
3672.14	S II	–	[20]	Hn
3672.066	Ru	4	1	–
3672 016	La I	25	3	–
3671 994	Pt I	80	10	–
3671.953	Cu I	20	3	–
3671.937	Ce II	10	1	–
3671.92	As II	–	15	Ro
3671.915	Pr	20	5	–
3671 82	Ag	–	7 h	Fn
3671.734	Cb	2	5	–
3671.700	Fe	3	1	–
3671.697	Dy	6	1 h	–
3671.673	Tı I	150	70	–
3671.660	Nd	10	6	–
3671.65	Mo	5	3	–
3671.65	Ho	6	4	Ex
3671.563	Pr	8	2	–
3671.543	Th	6	4	–
3671 539	U	4	1	–
3671.525	Fe I	2	–	–
3671.515	Ce	2	–	–
3671.503	Pb	50	7	–
3671.5	bh Sr	4	–	L
3671.449	Nd	10	6	
3671.42	Tb	3	3	Ed
3671.39	Pb	–	70	Sx
3671.370	Pr	8	2	–
3671 368	Cb	3	5	–
3671.316	Ce	5	1	–
3671.306	Er	12	1	–
3671.269	Zr II	40	30	–
3671.219	Ru I	10	4	–
3671.216	Gd	150 w	100	–
3671.205	V I	100	70	–
3671.042	Zr	3	–	–
3671.01	A II	–	[3]	Rt
3670.915	Nd	4	–	–
3670.891	Os I	200	20	–
3670.830	Eu	4	1 h	–
3670.817	Sm II	100	50	–
3670.812	Fe I	20	6	–
3670.794	Pr	8	2	–
3670.786	W	–	5	–
3670.767	W	7	6	–
3670.68	Yb	2	10	–
3670.672	Ce II	6	–	–
3670.668	Mo	–	25	–
3670.657	Sm	10	5	–
3670.64	A I	–	[300]	Ms
3670.635	Th	5	1	–
3670.55	Tb	15	3	Ed
3670.530	U	6	–	–
3670.522	Re I	20	–	–
3670.517	Mn	25	15	–
3670.51	Nd	10	4	–
3670.503	Sm II	10	3	–
3670.49	Sı	–	4	Sy
3670.490	Ce	10	1	–
3670.427	Ni I	150	20	–
3670.4	Li I	5	–	Fl
3670.361	Re	15	–	–
3670 29	Cl	–	[8]	Bl
3670.29	Ho	6	6	Ex
3670.265	U	3	2	–
3670.263	Pr	8	3	–
3670.23	La II	2	3	Me
3670.21	Ca	2	4	–
3670.072	U	15	18	–
3670 072	Ce	2 w	–	–
3670.071	Fe	200	200	–
3670.062	Th	3 d	4 d	–
3670.058	Co I	20	–	–
3670 053	Cb	1	15	–
3670.028	Fe I	100	–	–
3670.025	Re I	15	–	–
3670.022	Nd	4	2	–
3669.962	Ce	3	–	–
3669 958	Th	5 d	1 d	–
3669.92	W	–	7	–
3669.91	Xe I	–	[10]	Me
3669.886	Sm II	8	2	–
3669.838	Mn	30	30	–
3669 817	Pr	9	2	–
3669.81	Eu	8 W	1 wh	–
3669.774	Re I	25	–	–
3669.757	Fe	2	–	–
3669.737	Cb	5	8	–
3669 719	Ce	2	–	–
3669 710	Yb	50	80	–
3669.7	Rn	–	[5]	Pe
3669.62	A	–	[10]	Rt
3669.62	Tb	30	–	Ed
3669.523	Fe I	200	150	S
3669.523	Pr	9	3	–
3669.52	Ho	6	4	Ex
3669.494	Ru	50	70	–
3669.433	Re	15	–	–
3669.413	Th	4	4	–
3669.408	V	20 W	300	Me
3669 399	Mn	3	3	–
3669.39	Dy	2	–	Ex
3669.36	U	–	3	–
3669 346	Cb	2	3 h	–
3669.344	Mo	8	8	–
3669.328	W	4	6	–
3669.313	Ce	3	–	–
3669.27	La	–	3 h	Me
3669.241	Ni I	150	10	–
3669.21	Tb	8	3	Ed
3669.157	Fe I	50	30	–
3669.13	Eu	7 w	1 h	–
3669.084	Ce	2	1	–
3669.05	Ho	6	6	Ex
3669.049	S II	–	[60]	Hn
3669.023	Er	4	–	–
3669.01	Kr	–	[150 hl]	Me
3669.007	Cb	10	10	–
3668 966	Tı I	100	40	–
3668.911	Dy	6	3	–
3668.893	Fe	5	1	–
3668.887	Sm	2	–	–
3668.830	Pr	100	40	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3668.789	Nd	25	4	–
3668.737	Kr I	–	[10]	I
3668.732	Er	1	4 wh	–
3668.729	Ru	4	2	–
3668.719	Ce II	12 s	2	–
3668.665	W	10	12	–
3668 627	K II	–	[10]	Dm
3668.622	Cb	5	5	–
3668.59	Kr II	–	[6]	Me
3668.59	P	–	[50]	Gu
3668.51	Eu	2 w	2 w	–
3668.50	Dy	3	1	Ed
3668.50	Tb	15	3	Ed
3668.491	Er	25	3	–
3668.489	Yt II	7	20	–
3668.488	Mo	5	5	–
3668.477	Pr	3	–	–
3668.447	Zr II	10	9	–
3668.428	U	4	–	–
3668.31	Gd	5	10	–
3668.216	Ni I	3	4	–
3668.214	Fe I	15	4	–
3668.207	Hf	10	1	–
3668.184	Ir	8	–	–
3668.170	Sm	2 d	–	Kn
3668.147	Th	8	2	–
3668 13	Zn	3	3 h	Vs
3668.08	Tm	80	20	Me
3668 07	Tb	15	3	Ed
3668.04	Er	6 d	1	–
3668.03	Cl II	–	[20]	Ks
3668.029	Cr I	15	4	–
3668.002	Mo	4	3	–
3667.999	Fe I	60	10	–
3667.981	Ce	80 s	15	–
3667 975	U	15	8	–
3667 97	Ho	10	6	Ex
3667.93	Ba I	2	–	Sd
3667.907	Sm II	25	10	–
3667.757	Cb	3	5	–
3667.741	V I	80	25 h	–
3667.740	U	2	2	–
3667.719	W	10	10	–
3667.680	Ta	10	–	–
3667.674	Pr	10	4	–
3667.662	Cb	3	10	–
3667 60	Ba I	2	–	Sd
3667.550	Ce	3	–	–
3667.541	Sm	10	–	Kn
3667.45	Cr	–	25	–
3667 35	Tb	15		Ed
3667 32	Cd II	–	10	m
3667.277	Ce	4	–	–
3667.262	Fe	80	25	–
3667 182	W	8	7	–
3667.143	Pr	9	2	–
3667.134	U	8	5	–
3667.064	Zr II	3	1	–
3667.056	Ta	1	5	–
3667.05	Ho	6	10	Ex
3667 001	Cb	8	15	–
3666.985	Th	5	2	–
3666.951	Sm	10	2 h	–
3666.948	Fe I	3	–	–
3666 935	Mo	6	6	–
3666 911	Rh I	10	4	–
3666.890	Ta	15	–	–
3666.858	U	2	1 h	–
3666.850	Dy	6	3	–
3666 84	Eu	5 w	4 w	–
3666.813	W	5	4	–
3666.781	Fe	3	–	–
3666.775	Hf II	25	4	–
3666.774	Rb II	–	[2]	Rr
3666.715	Mo	8	10	–
3666 65	Ho	6	4	Ex
3666.642	Cr I	20	15	–
3666.620	U	3		–
3666.592	Ti II	2	1	–
3666.565	Sm	8	2	–
3666.565	Nd	10	4	–
3666.55	Hg	9	–	–
3666.537	Sc II	15	8	–
3666.533	Cb	8	10	–
3666 380	Th	4	2	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3666.348	Ce II	5	–	–
3666.31	Dy	5	1	Ed
3666.309	Os	40	15	–
3666.265	Sm	6	3	Kn
3666.249	Fe I	20	7	–
3666.215	Rh I	70	30	–
3666.210	U	6	8	–
3666.171	Cr I	12	2	–
3666.101	U	1	6	–
3666.10	Ta	20	–	Ks
3666.024	Ce	15	–	–
3666.01	Kr II	–	[5]	Me
3665.986	Ir	2	–	–
3665.980	Cr	20	15	–
3665.924	Ni	3	–	–
3665 881	W	9	8 s	–
3665.878	Eu	2 w	–	–
3665.878	Ir	3	–	Ab
3665.81	Tm	40	20	Me
3665.795	Yt I	3	2	–
3665.751	Nd	10	4	–
3665.747	Mo	15	15	–
3665.735	Cu I	20	5	–
3665.731	Th	6	5	–
3665 60	Tb	30	3	Ed
3665 574	Ce	3	–	–
3665.496	Ce	4	–	–
3665.485	Pb II	–	2	–
3665.484	Th	3	–	–
3665.40	Dy	4	–	m
3665.396	U	3	–	–
3665.377	Sm	6	–	Kn
3665.35	Ta	10	–	Ks
3665.346	Hf II	20	25	–
3665 326	Kr I	–	[80]	I
3665.22	La II	4	4	Me
3665 21	Er	8	–	–
3665.207	U	5	1	–
3665 20	Dy	7	5	Ed
3665.185	Th	5	4	–
3665.180	Nd	25	12	–
3665.159	Cb	4 h	5 h	–
3665 15	Eu	4 w	–	–
3665.142	V I	100	50 h	–
3665.069	Ir	5	2	Ab
3665.05	Pb I	–	2	Sx
3665.050	Ce	8	–	–
3664.96	Dy	3	–	Ed
3664.949	Ce II	8	–	–
3664.942	Cr	1	40	–
3664 822	Cb	3	2	Me
3664 813	Mo	20	40	–
3664 81	Rn	–	[25]	Rc
3664 731	Ce	8	1	–
3664.73	Yb	2	4	–
3664.70	U	2 d	2 d	–
3664 695	Cb	30	30	–
3664 694	Fe	12	3	–
3664 649	Nd	20	10	Kn
3664.64	Tb	50	8	Ed
3664.640	Pr	10	3	–
3664 63	Dy	10	6	m
3664.621	Gd	200 w	200	–
3664 618	Ir I	60	15	–
3664 614	Yt II	100	100	–
3664 60	Yb	2	2	–
3664.598	Ba	2	–	Sz
3664 540	Fe I	35	8	–
3664 529	U	2	2	–
3664.440	Er	40	20 h	–
3664.437	Ce	2	–	–
3664 305	Mo	5	5	–
3664 28	Tb	8	–	Ed
3664.267	Ir I	3	–	–
3664.255	U	1	6	–
3664 254	Sc II	4	2	–
3664.19	P II	–	[100 w]	Gu
3664 112	Ne II	–	[250]	Ps
3664.095	Ni I	300	30	–
3664 011	Sm	15	–	Kn
3663 965	Mo	3	3	–
3663.954	Fe	4	2	–
3663 934	U	10	–	–
3663.93	Xe II	–	[3 h]	Hu
3663 884	Mo	3	3	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3663.859	Rb II	–	[15]	Rr
3663.845	Ta	15	–	–
3663.825	W	7	6	–
3663.76	A I	–	[5]	Ms
3663.751	Cb	–	8 h	Me
3663.708	Th	10	10	–
3663.701	Ce	10 s	1	–
3663.659	Mo	4	4	–
3663.654	Sm	3	4	–
3663.651	Zr I	100	10	–
3663.594	V I	150	1 wh	–
3663.458	Fe I	25	7	–
3663.44	Eu	4 w	4 w	–
3663.44	Kr II	–	[20]	Me
3663.439	Cb	3	3	–
3663.373	Ru	5	60	–
3663.361	W	8	9	–
3663.348	U	3	1	–
3663.30	Mo	8	8	–
3663.276	Hg I	500	400	Cn
3663.267	Fe	8	3	–
3663 206	Cr I	35	20	–
3663.204	Th	4	5	–
3663.178	Cb	5	3 h	–
3663.151	W	7	6	–
3663.12	Tb	50	15	Ed
3663.10	Ta	18 d	–	Ks
3663.095	Pt I	50	2	–
3663.09	Hg	5 d	3	–
3663.033	Nd	6	2	–
3663.029	Re	5	–	–
3662.990	Mo	8	10	–
3662 990	Ce	8 s	1	–
3662.98	Ho	6	4	Ex
3662.94	Eu	15 w	5 w	–
3662.921	Cb	2	2	–
3662 897	Sm II	25	10	–
3662.878	Hg I	50	400	Cn
3662.867	Er	10	–	–
3662 849	Fe	30	5	–
3662.840	Cr II	25	8	–
3662 784	Rb II	–	[15]	Rr
3662.731	Ce	2	–	–
3662.693	Sm	25	10	Kn
3662.659	U	15 r	2	–
3662 64	Tb	8	–	Ed
3662 528	Ba	10	5 l	m
3662.52	Eu	3 w	–	–
3662.487	Ce	8	–	–
3662.457	Pr	3	1	–
3662.382	Cr	6	4 h	–
3662 343	Ta	15	15	–
3662.331	U	10	10	–
3662.33	Eu	8	–	Kn
3662 275	Er	15	1	–
3662 27	Ho	20	10	Ex
3662.268	Gd	200 w	200	–
3662.265	Ce	2	–	–
3662.263	Nd	30	30	Kn
3662.254	Sm II	50	50	–
3662 25	Tb	8	–	Ed
3662 24	Dy	6	–	Ed
3662.237	Ti II	40	100	–
3662 194	Th	4	4	–
3662.161	Co I	100	25	–
3662.152	Mo	6	8	–
3662.144	Zr II	5	5	–
3662 121	Re	10	–	–
3662.073	La II	60	40	–
3662 050	Cb	5	3	–
3662 04	Er	9	1	–
3661.951	Ni I	50	6	–
3661 95	S	–	[8]	Bl
3661.911	Ce	6	–	–
3661 91	Eu	3 w	–	–
3661.90	U	12 r	–	–
3661.863	Rh I	10	5	–
3661.782	Mo	10	10	–
3661.773	I II	–	[40 d]	Ke
3661 75	Dy	6	4	Ed
3661 732	Ce	10	2	–
3661.73	Hf II	1	2	Me
3661 708	Ir I	50	30	–
3661 70	Xe II	–	[10 whl]	Hu
3661.691	Nd	10	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3661.688	Ta	20 r	3	–
3661 687	Sm	6	4	Kn
3661.677	Cb	5	5 h	–
3661 668	Gd	10	20	–
3661.624	Pr	25	5	–
3661 624	Th	10	5 h	–
3661.601	Rh I	2	–	–
3661 577	Ru I	1	5	–
3661.525	Th	–	5 h	–
3661.482	U	5	1 h	–
3661.391	Cs	–	[6]	Sv
3661 382	V I	10	150	Me
3661.374	Fe I	10	1	–
3661.367	U	1	2 h	–
3661.353	Ru I	60	100	–
3661.350	Sm II	100	50	–
3661.345	Nd	40	25	–
3661.332	Zr II	5	1	–
3661.252	Os	10	10	–
3661 239	Cr	2	1 h	–
3661 236	W	3	7 d	–
3661.203	Zr I	18	–	–
3661.076	Mo	5	5	–
3661.06	Dy	3	1	m
3661.046	Hf II	10	25	–
3661.030	U	3	1	–
3661.00	Kr II	–	[15]	Me
3660.974	Nd	10	2	–
3660.917	Mo	6	6	–
3660.912	Zr II	4	1	–
3660.814	Ru	2	8	–
3660.800	Fe	2	–	–
3660.783	Er	10	1	–
3660.75	Tb	30	–	Ed
3660.736	U	1	8	–
3660.693	Co	5	2	–
3660.641	Ce	40	10	–
3660.633	Ti I	90	18	–
3660.609	W	8	9	–
3660.60	Eu	30 d	–	–
3660.528	Re	25	–	–
3660 44	A II	–	[15]	Rt
3660.44	Tb	15	3	Ed
3660.404	Mn	75	75	–
3660.397	Ce	2	–	–
3660.375	Pr	40	20	–
3660.370	W	5	4	–
3660.366	Cb	20	30	–
3660 335	Fe I	5	1	–
3660.171	W	6	3	–
3660.156	Ce	12	4	–
3660.124	Th	4	2	–
3660.110	U	3	2	–
3660.075	Pr	10	3	–
3659.975	Cr	2	1	–
3659.972	Ce II	20	5	–
3659.948	Nd	15	4	–
3659 93	Ne II	–	[7]	Bn
3659.91	Eu	3 wh	–	Kn
3659.90	Dy	3	1	m
3659.862	Sm	1	2	–
3659.767	Cl II	–	[2]	Mu
3659.765	Ti II	50	150	–
3659.75	Fe	3	–	–
3659 633	Th	4	1	–
3659.620	Sm II	10	6	–
3659 606	Cb	15	500	–
3659.586	U	10	2	–
3659.55	Er	12 w	1	–
3659.54	W	6	3	–
3659.521	Fe I	125	80	–
3659.513	Th	10	12	–
3659.502	Ce	2	–	–
3659.50	A I	–	[100]	Ms
3659.50	Br	–	[25]	Bl
3659.45	Tb	15	3	Ed
3659.419	Pt I	5	2	–
3659.4	Bi II	–	2	Ml
3659.359	Mo	30	30	–
3659.353	Cu I	8	4	–
3659.316	W	10	6	–
3659.26	P	–	[50]	Gu
3659.227	Ce	20	6	–
3659.159	U	15	1	–
3659.154	W	3	5	–
3659.13	Eu	2 h	2 h	–
3659.045	Hf II	3	8	–
3659.038	Pr	10	8	–
3659.009	U	2	8	–
3658.92	Mo	–	20	–
3658.88	Tb	100	100	Ed
3658.84	Er	10 W	1 W	–
3658.811	Th	5	1	–
3658.80	Eu	2 w	–	–
3658.777	Ta	35	3 l	–
3658.774	Ce	6	–	–
3658.74	Re	4	–	–
3658.677	U	6	–	–
3658.64	Dy	3	1 h	Ed
3658.598	Cb	5 h	5 h	–
3658.552	Fe I	5	1	–
3658.55	Ho	–	4	Ex
3658.518	Mn	5	5	–
3658.46	Se II	–	[5]	Bl
3658.44	Xe II	–	[3 h]	Hu
3658.424	Ce	2	–	–
3658.41	La II	3	3	–
3658.370	W	6	3	–
3658.347	Pr	7	1	–
3658 333	Mo	4	25	–
3658.33	Cl II	–	[4]	Mu
3658.301	Zr	2	–	–
3658.264	V I	1	10	Me
3658.258	Ce II	10	–	–
3658 22	Tb	15	3	Ed
3658.213	Pr	15	2	–
3658 186	Gd	2	–	–
3658.173	Th	8	6	–
3658.168	Cr	–	20	–
3658.161	U	–	2	–
3658.147	Mo	5	5	–
3658.104	Nd	2	–	–
3658.100	Ti I	150	60	–
3658 089	Ce	5	–	–
3658.069	Th	10	10	–
3658.020	Fe	3	1	–
3657.991	Nd	4 h	2 h	–
3657.987	Rh I	500 W	200 W	–
3657.915	Co I	18	5	–
3657.904	Fe I	20	4	–
3657.902	Mn	12	10	–
3657.897	Cb	4	5	–
3657.882	W II	5	15	–
3657.821	U	10	–	–
3657.808	Sm	2	3 h	–
3657.750	Cb	3 d	–	Me
3657.74	Xe II	–	[3]	Hu
3657.681	Ce	5	–	–
3657.625	Pr	10	1	–
3657 616	Ir I	5	2	–
3657.605	Eu	2 w	–	–
3657.592	W II	10	25	–
3657.551	Ru	–	50	–
3657.538	Th	3	2	–
3657.495	Ta	15	2	–
3657.492	V I	20	5	–
3657.43	Fe	2	–	–
3657.421	Pr	25	4	–
3657.408	Eu	2 h	2 h	–
3657.384	Ce	2	–	–
3657.354	Mo	30	30	–
3657.322	U	6	15	–
3657.316	Sm	15	1	–
3657.271	Ta	18	1 h	–
3657 2	Rn	–	[10]	Pe
3657.174	Ca	2	2	–
3657.173	Ru I	2	4	–
3657.139	Fe I	20	7	–
3657.110	Cb	5	5	–
3657.056	I II	–	[15]	Ke
3656 966	Co I	60	6	–
3656 95	Cl	–	[15]	Bl
3656 932	U	8	8	–
3656 902	Os I	150	30	–
3656.894	Ta	15	2 h	–
3656.880	Zr I	10	–	–
3656 85	Dy	4	2	m
3656.788	Cu I	4	3	–
3656 78	As II	–	5	Ro
3656.77	Tb	8	3	Ed
3656 755	Ce II	10 s	–	–
3656 706	V I	80	20 h	–
3656.696	Th	6	1	–
3656 684	W	7	5	–
3656.679	Hf II	–	2	–
3656 677	Ir I	5	–	–
3656.64	Ag	–	8 h	Fn
3656.626	U	8	–	–
3656.6	bh Ca	12	–	L
3656.576	Ce	3	–	–
3656.495	Cb	2	2	–
3656.48	Tb	15	3	Ed
3656.46	W	–	7	–
3656.416	Ir	6	–	–
3656.38	Dy	3	–	Ed
3656.34	Ta	3	–	Ks
3656.319	Al II	–	[2]	Sy
3656.301	Ce	2	–	–
3656.28	Ca	2	3	–
3656.271	Pr	9	1	–
3656 27	Eu	4	–	Kn
3656 261	Cr I	80	25	–
3656 245	Sm	6	5	–
3656.227	Fe	15	5	–
3656.204	Th	10	10	–
3656.193	U	1	2	–
3656.17	W	8	3	–
3656 163	Gd	200 W	200	–
3656 05	A	–	[10]	Rt
3656.05	Ta	7	–	Ks
3655 975	Cb	5	10	–
3655.963	Nd	10	4	–
3655 94	Ta	5	–	Ks
3655.90	Dy	3	1	Ed
3655.859	Cu I	20	7	–
3655 851	Ce I, II	25	12	–
3655 788	Mo	–	25	–
3655.778	Sn	30	25 h	–
3655 760	Sm	5	3	–
3655 732	Er	5	–	–
3655.73	Cs	–	[4]	Bs
3655 729	Yb	8	–	–
3655 675	Fe	15	2 h	–
3655.65	Ta	3	–	Ks
3655.60	Dy	10	2	Ed
3655 558	Zr II	3	3	–
3655.548	Sm	6	5	–
3655.467	Fe I	25	25	–
3655 435	U	3 h	5 h	–
3655.359	Ce II	3	–	–
3655.29	A II	–	[15]	Rt
3655.25	Eu	6 W	–	–
3655.25	Sb II	1	4	–
3655 185	Sm	7	3	–
3655.125	Th	3	–	–
3655.118	Pr	9	2	–
3655.111	U	8	4	–
3655 076	Mo	8	20	–
3655 031	Nd	5	1	Kn
3655 021	Ce	3	–	Kn
3655 000	Al II	–	[100]	Sy
3654 99	Fe	3	1	–
3654.979	Al II	–	[18]	Sy
3654.974	Ce	15	3	–
3654.930	Re	15	–	–
3654.89	Se	–	[3]	Bl
3654.890	U	25	–	–
3654.88	Tb	70	30	Ed
3654.878	Dy	5	1	–
3654.873	Rh I	40	10	–
3654.847	Sm II	9	1	–
3654.833	Hg I	–	[200]	Cn
3654.71	W	–	12	–
3654.67	Au	3	3	–
3654 66	Fe I	4	–	–
3654.637	Gd	200 W	200	–
3654.609	Pr	6	–	–
3654.592	Ti I	100	40	–
3654.592	Ce	2	–	–
3654.583	Mo	25	20	–
3654.579	Th	4	4	–
3654.51	S II	–	[8]	Hn
3654.492	Os	100	15	–
3654.466	Th	4	1	–
3654.45	Ho	6	6	Ex

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3654.446	Co I	35	–	–
3654.425	Pd I	–	4	–
3654.423	Cb	10	10	–
3654.405	Ru	3	40	–
3654.38	Bi II	7	5 s	–
3654.363	Er	4	–	–
3654.358	Re I	8	–	–
3654.341	Pr	8	2	–
3654.30	Cu I	10 wh	2 h	–
3654.30	Tb	8	–	Ed
3654.294	U	3	4	–
3654.227	Cb	–	5 h	–
3654 202	W	12	10	–
3654.17	Dy	4	1	m
3654.156	Nd	10	10	–
3654.130	U	5	1	–
3654.094	Ce	2	–	–
3653.992	Pt I	2	1 h	–
3653.976	Fe	4	2 h	–
3653.97	Kr II	–	[250 hl]	Me
3653.93	Au	5	2	–
3653.928	Sr I	15	3	ISn
3653.912	Cr I	100	25	–
3653.897	Mo	3	2	–
3653.87	Tb	15	8	Ed
3653.828	Ta	3	1	–
3653.763	Fe I	25	10	–
3653.759	Ir I	2 h	–	–
3653.725	Os	30	10	–
3653.670	Ce	18	8	–
3653.653	Pr	4	1	–
3653.615	Re I	15	–	–
3653.615	Cb	10	5	–
3653.61	Tm	30	20	Me
3653 606	Yt	5	2	–
3653 59	Th	3	2	–
3653.55	Mo	4 d	4	–
3653.524	W	5	1	–
3653.496	Ti I	500	200	–
3653.495	Ca	–	3	–
3653.491	Au II	3	5	–
3653.479	Sm	15	2	–
3653 393	Ta	3	1	–
3653.38	P	–	[100 w]	Gu
3653.338	W	1	12	–
3653.323	Ir I	3	–	Ab
3653.270	Sr I	30	8	ISn
3653.209	U	10	1	–
3653 201	Os	10 W	5 W	–
3653 191	Ir	15	50	–
3653.161	Re	4 h	–	–
3653.150	Nd	10	4	Kn
3653.113	Sm	10	2	–
3653 108	Ce	15	5	–
3653 05	Se II	–	[25]	Bt
3652.97	Tb	15	8	Ed
3652.95	Tl I	150	50 l	Fl
3652.879	Er	20	4	–
3652.760	W	3	4	–
3652.73	Fe	6	–	–
3652.65	Eu	5 w	4 wh	–
3652.587	Cr	3	–	–
3652.583	Er	20	3	–
3652.56	Ca	3	2	–
3652.560	Gd	20	25	–
3652.543	Co I	200 r	–	–
3652.542	Th	10	10	–
3652.474	Mo	–	25	–
3652.47	Fe	4	–	–
3652.43	Cu I	10 wh	1 h	–
3652.423	V I	40	30 h	–
3652.409	Ta	5	–	–
3652.380	Pr	20	3	–
3652.332	Mo	–	25	–
3652.325	Ce	2	–	–
3652.316	Ru	2	5	–
3652.275	Cb	1	3 h	Me
3652.263	Ce	3	–	–
3652.26	Tb	30	8	Ed
3652.252	Pt	2	1 h	–
3652.210	Sm II	5	4	–
3652.168	Th	10	10	–
3652.114	W II	3	12	–
3652 104	He I	–	[2]	Ps
3652.074	U	12	8	–
3652.04	I II	–	[2]	Mu
3651.981	He I	–	[7]	Ps
3651.967	Re I	40	–	–
3651 927	U	6	–	–
3651.86	Tb	30	8	Ed
3651.823	Sm	2 h	2 h	–
3651.798	Sc II	50	45	–
3651.772	Hf	15	1	–
3651.704	Sb	2 h	3	Sp
3651.685	U	4	5	–
3651.661	Re	25 W	–	–
3651.66	Si	–	3	Sy
3651 660	Cr II	1	18	–
3651 651	Ce	5	–	–
3651.592	Nd	10	6 h	–
3651.583	Th	5	2	–
3651.516	Sm	6	5	Kn
3651.472	Zr II	–	5	–
3651.469	Fe I	300	200	S
3651.423	Sm	3 d	–	Kn
3651.356	Rh I	2	1	–
3651.352	Mo	10	2	–
3651.344	U	–	2	–
3651.306	Ce	2	1	–
3651.305	Cb	2	–	–
3651.258	Co I	20	–	–
3651.244	U	2	–	–
3651.186	Cb	10	400	–
3651.119	Gd	10	15	–
3651.107	Mo	2	50	–
3651.10	Fe I	10	3	–
3651.090	Al II	–	[18]	Sy
3651.073	Cs	–	[4]	Sv
3651.064	Al II	–	[50]	Sy
3651.038	Pr	9	2	–
3651.02	Kr II	–	[25 hl]	Me
3651.004	W	10	12	–
3650.989	Zr	2	–	–
3650.981	Sm II	25	10	–
3650.968	Gd	25	30	–
3650.93	Tb	8	8	Ed
3650.90	A	–	[5]	Rt
3650.881	Ce	12	3	–
3650.855	Cu I	4	1 h	–
3650.806	Cb	15	15	–
3650.771	Th	10	10	–
3650.747	Au I	5	10	–
3650.725	Zr II	2	2 h	–
3650.694	Nd	15	6	–
3650.679	U	3	2	–
3650 62	Ca	–	3	Ad
3650.583	Mo	3	2	–
3650 53	Fe	3	–	–
3650.53	Hf	2	2	Me
3650 517	Cb	2	3	–
3650.510	Th	2 d	1 d	–
3650.473	Zr	3	–	–
3650.415	Nd	12	6	–
3650.414	Er	15	2	–
3650.40	Tb	50	100	Ed
3650.381	Os	15	4	–
3650.344	Cr	–	40	–
3650.339	U	3	–	–
3650.322	Ru I	3	12	–
3650.280	Fe I	70	50	–
3650.19	N	–	[70]	Du
3650.176	Pr	30	6	–
3650.174	La II	100	60	–
3650.168	Sm II	25	5	–
3650 146	Hg I	200	500	Cn
3650.121	Ce	10	1	–
3650.12	Xe	–	[3]	Hu
3650.10	Cl II	–	[4]	Mu
3650.046	Mo	3	25	–
3650.032	Fe I	70	30	–
3650.00	Dy	5	2	m
3649.862	Cr	15	4	–
3649.852	Cb	20	20	–
3649.832	A I	–	[800]	IHu
3649.818	Eu	5	2	–
3649.737	Th	8	3	–
3649.729	U	1	8	–
3649.726	Ce II	10	1	–
3649 597	Cd I	20	15	–
3649 55	Ra II	–	[1000]	Rs
3649.52	Ho	2	4 h	Ex
3649 509	La I	40	8	–
3649 508	Fe I	100	100	S
3649 507	Re	3 h	–	–
3649.506	Sm II	100	30	–
3649.47	Mo	5	5	–
3649.441	Gd	5	5	–
3649.41	Tb	8	3	Ed
3649.410	U	–	4	–
3649.405	Pr	10	3	–
3649.351	Co	200	4	m
3649.304	Fe I	60	25	–
3649 251	Th	10	10	–
3649.221	Al II	–	[2]	Sy
3649.182	Al II	–	[5]	Sy
3649.105	Hf	20	5	–
3649.09	Au	3	5 h	–
3649.020	W	6	7	–
3649.006	Sm	2	1	–
3649.0	Pb II	–	[20]	Ea
3648.997	Cr I	40	20	–
3648.978	Er	4	1	–
3648.966	V I	80	50	–
3648.935	U	4	4	–
3648.86	Ti II	3	10	–
3648.820	Ce	4	–	–
3648.807	Dy	50	30	–
3648.806	Os	100	10	–
3648.639	Th	4	2	–
3648.61	Kr II	–	[40 hl]	Me
3648.607	Mo	10	10	–
3648.545	U	5	2	–
3648.534	Cr I	10	8	–
3648 528	Ce	2	–	–
3648.475	Gd	20	–	–
3648.422	Th	8	4	–
3648.40	Dy	3	1	Ed
3648.391	Zr	2	–	–
3648.383	Cu I	10	7	–
3648.35	Hf II	5	8	Me
3648 304	Os	10	5	–
3648.3	Bi II	–	3	Ml
3648.299	Pr	30	10	–
3648.27	Eu	6 w	5	Kn
3648.251	U	5	–	–
3648.188	Nd	12	8	–
3648.170	Th	6	4	–
3648.146	U	2	5	–
3648.145	Co	20	2	–
3648.096	Ce	3	–	–
3648.028	Ta	3	–	–
3648.01	Cl II	–	[2]	Mu
3647.954	Ce	10	5	–
3647.95	K II	–	[5]	Bn
3647.88	Ca	–	3	–
3647.867	Cb	3	–	Me
3647.844	Fe I	500	400	S
3647.77	Lu	100	5	Me
3647.751	Ce	10	3	–
3647.75	Tb	50	–	Ed
3647.73	Tm	30	15	Me
3647.724	Cb	2	2	Me
3647.702	Ir I	20	–	–
3647.659	Co I	100	8	–
3647 659	U	2	3 h	–
3647.648	Th	8	8	–
3647.616	Rb II	–	[2]	Rr
3647.546	Ce	3	–	m
3647.542	Pr	4	2	–
3647.525	W	8	9	–
3647.492	Hf II	20	2	–
3647.426	Fe I	20	15	–
3647.394	Cr II	2	20	–
3647.388	Co	8 h	–	–
3647.338	V I	20	–	–
3647.309	Cb	10	20	–
3647.307	Th	3 d	2 d	–
3647.270	Sm	8	3	–
3647.24	Tm	10	20	Me
3647.23	Er	4	–	–
3647.147	W	4	3	–
3647.105	Ir I	3	–	Ab
3647.089	Co I	30	4	–
3647.06	Tb	30	8	Ed
3647.03	Eu	2 h	–	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
3646.965	Ce	15	5	–
3646.892	Zr	3	–	–
3646.886	Th	5	4	–
3646.878	Pr	4	2 h	–
3646.869	Mo	3	5	–
3646.85	Dy	4	–	Ed
3646.847	U	4	10	–
3646.847	V	–	20 h	Me
3646.782	Er	5	–	–
3646.750	Eu	20	5 h	Kn
3646.660	Eu	10 W	–	–
3646.652	Ce	10	3	–
3646.628	Re	10	–	–
3646 60	Dy	5	2	m
3646.525	W II	10 l	35	–
3646.491	U	2	6	–
3646.46	Tb	8	3	Ed
3646.321	Rb II	–	[10]	Rr
3646.299	Pr	50	15	–
3646.217	U	10	–	–
3646 200	Ti I	70	25	–
3646 196	Gd	200 w	150	–
3646.161	Cr	18	8	–
3646.114	Ru	2	8	–
3646 053	Ca	–	2 h	–
3646.03	U	–	4 wh	–
3646.013	Sm	2	–	–
3646.0	bh Sr	4	–	L
3645 968	Pd I	15	–	–
3645 938	Er	15	2	–
3645 929	Cb	1	5	–
3645 905	V	–	20	Me
3645.90	Ho	–	4	Ex
3645.898	Sm II	4	2	–
3645.86	Dy	6	4	Ed
3645.825	Fe	80	60	–
3645.789	Sm	5 d	–	Kn
3645.776	Nd	8	1	–
3645.711	Ce	2	–	–
3645.660	Pr	30	20	–
3645.634	Gd	20	20	–
3645.626	Nd	15	6	–
3645.60	Tb	8	–	Ed
3645.599	W II	4	20	–
3645.596	V	15	1	–
3645.590	Re	6	–	–
3645.589	Mo	3	3	–
3645.583	Cr	4	3	–
3645.539	Pr	20	8	–
3645.494	Fe I	15	7	–
3645.461	U	1	2	–
3645.452	Ce II	10 w	2	–
3645.43	Eu	5	–	–
3645.416	Dy	300	100	–
3645.414	La II	100	60	–
3645.41	Ho	8	8	Ex
3645.403	Yt	4	4	–
3645 399	Er	25 s	12	–
3645.387	Sm II	8	6	–
3645.38	Tb	50	15	Ed
3645.356	Cb	5	5	–
3645.311	Sc II	50	50	–
3645.303	Ir	25	2 h	–
3645.290	Sm II	9	7	–
3645 232	Cu I	20	5	–
3645.228	Ce II	5	1	–
3645.222	Fe	9	–	–
3645.195	Co I	60	3	–
3645.17	Eu	10 w	5 wh	–
3645.167	Nd	6	2	–
3645.114	Pr	5	2	–
3645.080	Ca I	3	2 h	–
3645.080	Fe I	20	8	–
3645.030	U	8	15	–
3644.99	Eu	5 w	–	–
3644.967	Ce	2	–	–
3644.935	Cb	5	10	–
3644.93	Tb	15	–	Ed
3644.91	Xe II	–	[3]	Hu
3644.897	Pr	5	2	–
3644.86	Ne II	–	[12]	Bn
3644.851	U	4	6	–
3644.798	Fe	20	6	–
3644.765	Ca I	30	–	IWg
3644.73	Er	3	2	–
3644.717	Th	5	4	–
3644.706	V I	80	50	–
3644.699	Ti	35	5	–
3644.693	Cr II	5	18	–
3644.686	Sc	2	–	–
3644.66	Nd	10	4	–
3644.587	Fe	2	1	–
3644.548	Ce II	5	1	–
3644 543	Pr	8	3	–
3644 50	Eu	6 w	1 wh	–
3644.46	Ti I	3	–	m
3644.46	Te	–	[10]	Bl
3644.43	Xe II	–	[3]	Hu
3644.426	Nd	–	15	–
3644.42	Ag	–	2 h	–
3644 410	Ca I	200	15	IWg
3644.39	Ho	–	4	Ex
3644.355	Hf II	25	50	–
3644.347	Th	5	4	–
3644.320	Hg	–	[40]	St
3644.297	Ce	8	1	–
3644.27	Eu	5 W	–	Kn
3644 27	Te	–	[25]	Bl
3644 245	U	18	2	–
3644 185	Fe	4	–	–
3644.13	Tb	15	3	Ed
3644.08	Eu	2	1	–
3643.991	Sm	8	–	–
3643.941	Ni I	2	–	–
3643.89	Dy	15	6	Ed
3643.89	Ne II	–	[18]	Bn
3643 864	V I	40	30	–
3643.815	Fe	7	1	–
3643.76	Tb	30	3	Ed
3643.721	Cb	15	15	–
3643.715	Sm	5	3	–
3643.713	Fe I	6	4	–
3643.652	Tm	60	40	Me
3643.631	Cu I	5	–	–
3643.630	Nd	5	1	–
3643.626	Fe I	20	8	–
3643 522	Cb	2	2	–
3643 515	Th	5	1	–
3643 514	W	–	6	–
3643.50	Dy	3	–	Ed
3643.481	Ir	2	–	Ab
3643.47	Mo	1 h	20	–
3643.45	Ce	5	–	–
3643.337	Cb	5	10	–
3643 317	Pr	25	8	–
3643.314	W	7	5	–
3643 26	Tb	15	3	Ed
3643.199	Cr II	5	30	–
3643.184	Co I	80	15	–
3643.172	Pt I	60	8	–
3643 11	Fe	30	5	–
3643.09	A I	–	[100]	Ms
3643 014	Ce	2	–	–
3642.987	Re I	100	–	–
3642 923	Pr	8	2	–
3642.893	Th	3	2	–
3642 846	U	6	–	–
3642.833	Ce	8	1	–
3642.819	W	7	5	–
3642 81	Fe	20	–	–
3642.8	Au II	10	5 h	Ex
3642.798	F II	–	[30]	Di
3642 785	Sc II	60	50	–
3642 776	U	2	5	–
3642 739	Sm II	25	5	–
3642.723	Mo	4	2	–
3642.68	Tb	15	8	Ed
3642.675	Ti I	300	125	–
3642 620	Ce	6	–	–
3642.505	Os	20	10	–
3642.5	Rn	–	[5]	Pe
3642.46	Nd	20	6	–
3642.443	U	10	8	–
3642.413	Mo	3	2	–
3642.387	Ni I	2	–	–
3642.35	Lu	2	–	Me
3642.34	Au	5	1 wh	–
3642.250	Ce	4	–	–
3642.249	Th	10	4	–
3642.205	Nd	2	–	–
3642.204	Mo	5	10	–
3642.174	Ce	2	–	–
3642.057	Ta	125	18	–
3642.033	U	6 h	2 h	–
3641.985	F II	–	[60]	Di
3641.88	Er	12	1	–
3641.873	Pr	8	2	–
3641 852	W	7	5	–
3641.841	Th	6	4	–
3641.830	Cr I	40	15	–
3641.825	Mo	3	3	–
3641.788	Co I	60	8	–
3641.734	Ce	8	1	–
3641.693	Cu I	60	5	–
3641.66	Tb	70	30	Ed
3641.656	La II	–	4	–
3641.648	Sm	7	2	–
3641.641	Ni I	6	–	–
3641 616	Pr	50	5	–
3641.537	Ce	10	1	–
3641.522	La I	25	4	–
3641.502	Nd	20	10	–
3641 50	Br	–	[3]	Bl
3641 49	S	–	[3]	Bl
3641.470	Cr I	30	25	–
3641.454	U	6	–	–
3641 408	W II	12	40	–
3641.40	Cs	–	[4]	Bs
3641 391	Mn	50	50 h	–
3641 390	Mo	3	3	–
3641 385	Cb	5	1	–
3641 38	Gd	12	12	–
3641 332	Cs	–	[5]	Sv
3641 331	Ti II	60	150	–
3641.289	Cb	1	5	–
3641.285	Th	4	3	–
3641 269	Er	20	2	–
3641.24	Eu	2 wh	1 h	–
3641.227	Os	30	10	–
3641 21	U	3	4	–
3641.114	Th	5	4	–
3641.114	Pr	8	1	–
3641.114	Nd	6	4	–
3641 10	La II	2	3	Me
3641 096	V I	100 h	30 wh	–
3641 07	Dy	3	1	m
3641 011	F II	–	[6]	Di
3640.989	Mo	4	4	–
3640.948	U	8	20	–
3640.911	Mo	4	4	–
3640.891	F II	–	[100]	Di
3640.889	Pr	10	2	–
3640.88	Tb	8	–	Ed
3640 869	Ir I	30	4	–
3640 84	Sb II	–	3	Dv
3640 80	Dy	4	1	Ed
3640.757	U	8	20	–
3640 687	Ce	10	–	–
3640 640	Ru I	3	12	–
3640 636	Cb	8	10	–
3640.623	Mo	8	5	–
3640.391	Ba	8	4	–
3640 390	Fe I	300	200	–
3640.388	Cr I	30	5	–
3640.329	Os I	200	40	–
3640.315	Ti I	3	–	–
3640 252	Er	20	1	–
3640 24	Dy	15	6	Ed
3640 235	Nd	16	10	–
3640.225	Rb II	–	[2]	Rr
3640 189	Gd	10	8	–
3640 132	W	9	8	–
3640.104	Mn	2	2	–
3640 050	V I	5	2	–
3640.035	U	1	4	–
3639.906	Er	8	–	–
3639.867	Ce II	3	–	–
3639.860	Rb II	–	[15]	Rr
3639.86	Dy	4	2	Ed
3639 854	Ir	2	–	–
3639 85	A II	–	[25]	Rt
3639.82	Tb	30	8	Ed
3639.802	Cr I	60	25	–
3639.770	Pr	10	2	–
3639.71	U	–	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3639.64	Mo	–	10	–
3639.6	air	–	15	m
3639.580	Pb I	300	50 h	–
3639.574	Zr	2	–	–
3639.570	Ce	5	–	–
3639.546	Mo	4	3	–
3639.53	Zn	20	[5]	Vs
3639.512	Rh I	125	70	–
3639.489	U	25	–	–
3639.48	Tb	8	–	Ed
3639.449	Th	10	10	–
3639.444	Co I	200	20	–
3639.409	Sm	6	5	–
3639.40	Se II	–	[12]	Bl
3639.336	Ir	3	–	–
3639.331	Cb	15	20	–
3639.312	Ce	5	–	–
3639.287	Yt I	3	2	–
3639.257	Sm II	10	2	–
3639.25	La II	2	2	Me
3639.206	U	–	5	–
3639 18	W	–	10	–
3639.175	Nd	4 d	1	–
3639.165	Ir	3	–	–
3639.15	Cl II	–	[2]	Mu
3639.148	Re	10 h	–	–
3639.055	Cb	2	20	–
3639.053	Gd	10	15	–
3639.024	V I	70	60	–
3639.014	Er	6 l	–	–
3639.007	Mo	3	4	–
3638.95	Tb	15	–	Ed
3638.89	Dy	2	1 h	m
3638.865	Pr	3	–	–
3638.81	W	1	5	–
3638.793	Pt I	250	10	–
3638.786	Cb	10	10	–
3638.748	Sm	40	8	–
3638.722	Zr I	5	–	–
3638.70	O	–	[10]	Fl
3638.678	Er	15	1	–
3638.65	U	5	8	–
3638.645	Th	6	2	–
3638.576	Pr	8	1	–
3638.56	Mo	3	3	–
3638.46	Tb	80	50	Ed
3638 425	Mo	3	3	–
3638.42	Tm	10	2	Me
3638 35	V	2	–	Me
3638 34	Hg	–	[100]	Ps
3638.32	Eu	5	2	Kn
3638 32	Ho	8	10	Ex
3638 300	Pr	9	2	–
3638 298	Fe I	100	80	–
3638.275	Ce	10	2	–
3638.205	Mo	20	10	–
3638.200	U	5	2	–
3638.15	S	–	[3]	Hn
3638.083	Eu	5	5	–
3638.046	Ce	6	–	–
3638.016	Ru	1	4	–
3637 966	Ti I	30	8	–
3637.936	W	5	4	–
3637.93	Kr II	–	[4 whl]	Me
3637.89	A	–	[3]	Rt
3637.866	Fe I	20	7	–
3637 843	Re I	50	–	–
3637.837	I	–	[18]	Ke
3637 829	Sb	2 h	60	–
3637.827	Cb	20	30	–
3637.791	Mo	–	20	–
3637.783	Nd	10	8	–
3637.760	V	40	40	–
3637.755	Yb	15	30	–
3637.75	Tb	8	–	Ed
3637.749	Ce	8	1	–
3637.742	Gd	4	–	–
3637.676	Eu	12	10	–
3637.647	Pr	12	5	–
3637.59	Hf	6	2	–
3637.574	Ce	2	–	–
3637.557	Th	8	5	–
3637.538	Cb	10	10	–
3637.518	Mo	8	5	–
3637.506	U	5	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3637.48	Kr II	–	[20 hl]	Me
3637.466	Ru	2	10	–
3637.460	Ce II	5	–	–
3637.384	W	10	10	–
3637.36	Tb	8	–	Ed
3637.34	Au	2	3 h	–
3637.323	Co I	30	5	–
3637.27	Dy	10	3	Ed
3637.250	Fe I	12	5	–
3637.235	Re	6	–	–
3637.229	Nd	20	12	–
3637.168	Er	12	1	–
3637.163	Pr	4	1	–
3637.148	La II	50	40	–
3637.062	Re I	25	–	–
3637.05	A	–	[10]	Rt
3637.00	K II	–	[10]	Bn
3636 997	Ir	2 h	–	–
3636.995	Fe I	20	10	–
3636.990	Nd	20	12	–
3636.957	Cb	20 W	30 W	–
3636 946	Ba	18	4	Sz
3636.831	Rb	–	[3]	Rr
3636 827	Mo	3	2	–
3636 761	Re	3	–	–
3636.750	Fe	3	–	–
3636 736	Ce	2	–	–
3636.736	W	7	6	–
3636.73	Eu	5	4	–
3636 721	Co I	40	6	–
3636 660	La I	20	2	–
3636.650	Fe	5	3	–
3636.64	Mo	–	10	–
3636.590	Cr I	60	30	–
3636.567	Th	4	4	–
3636.558	Ce	2	–	–
3636.499	Pr	8	2	–
3636.490	Fe	3	1	–
3636.448	Zr II	200	30	–
3636.371	Ce	3	1	–
3636.312	U	10	–	–
3636.25	Lu	25	3	Me
3636 235	Sm	10	2	–
3636.234	Fe	15	10	–
3636.199	Ir I	50	25	–
3636.186	Fe I	40	10	–
3636.168	Sc	3	–	–
3636.167	Th	3	3	–
3636.16	Tb	15	–	Ed
3636 109	Sm	5	1	–
3636 070	Ce	5	1	–
3636 044	Sm	5	2	–
3635 95	Ca	4	2 h	Ad
3635 944	Th	8	4	–
3635 916	Cu I	50	7	–
3635 883	Ce	2	–	–
3635 874	V	50	25 h	–
3635 87	Eu	–	4	–
3635 854	Cb	3	8	–
3635 784	Ce	2	–	–
3635 682	Mn	10	5	–
3635 67	A	–	[3]	Rt
3635 65	Eu	7 W	–	Kn
3635 612	Mo	4	3	–
3635 579	U	4	8	–
3635 516	Ru I	2	8	–
3635 488	Ir I	35	4 h	–
3635.463	Ti I	200	100	–
3635 463	Cb	5	5	–
3635.463	V I	40	5	–
3635.434	W	2	–	–
3635 429	Mo	25	5	–
3635.42	Tb	30	8	Ed
3635.403	U	6	5	–
3635.372	Th	15	10	–
3635.35	Ho	–	4	Ex
3635 334	Yt II	2 h	12	–
3635 324	Cb	5	8	–
3635 310	Sc	3	2	–
3635 299	U	10	–	–
3635 284	Pr	25	7	–
3635.281	Cr I	25	8	–
3635.26	Dy	10	6	Ed
3635.246	Th	4	5	–
3635.202	Ti I	10	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3635.196	Fe I	12	2	–
3635.17	Tb	8	–	Ed
3635.144	Mo	100 h	10	–
3635.133	Au II	3	10	–
3635.106	Nd	6	6	–
3635.010	U	1	2	–
3634.994	Cr	25	12	–
3634.941	Ni I	50	10	–
3634.929	Ru	50	100	–
3634.908	Sm II	20	2	–
3634.871	Nd	30	15	–
3634.83	A II	–	[5]	Rt
3634.8	Rn	–	[250]	Wo
3634.760	Gd	20	20	–
3634.75	Cs	–	[6]	Bs
3634.75	Tb	8	–	Ed
3634.712	Co	70	10	–
3634.695	Pd I	2000 R	1000 R	–
3634.687	Fe	20	2	–
3634 68	Ho	6	4 h	Ex
3634.679	Er	8	–	–
3634.600	Cb	2	–	–
3634.584	Th	8	4	–
3634.560	U	8	1	–
3634 551	Yb	2	–	–
3634.467	Pr	20	4	–
3634 461	A I	–	[300]	IHu
3634.443	Cb	5	15	–
3634.432	Ce	2	–	–
3634.42	Kr II	–	[3 whl]	Me
3634.367	He I	–	[2]	Ps
3634 334	Fe I	15	5	–
3634 282	Nd	25	30	–
3634 271	Sm II	100	25	–
3634.27	Dy	3	3 h	m
3634 25	S	–	[35 h]	Ms
3634.235	He I	–	[15]	Ps
3634.214	Th	5	6	–
3634.151	Zr I	25	2	–
3634.014	Cr	–	6	–
3633.921	Ru	2	5	–
3633.91	V I	35	8	Me
3633.865	Ce	2	–	–
3633.862	Ir I	3	–	–
3633.833	Fe	7	3	–
3633.788	Ta	35	10 h	–
3633.77	Dy	4	1	m
3633.714	Cb	8	3	–
3633.700	Th	1 d	2	–
3633 665	Ne I	–	[75]	IHu
3633 66	Tb	8	–	Ed
3633 64	Br	–	[6]	Bl
3633 574	W	4	3	–
3633 541	Er	15	2	–
3633.54	Kr II	–	[3 h]	Me
3633.489	Zr II	8	8	–
3633.469	Nd	12	4	–
3633 458	Ti	35	5	–
3633.400	Ce II	8	–	–
3633 36	Th	3	3	–
3633 348	Pr	7	2	–
3633 333	Co I	8	–	–
3633.311	Cb	3	30	–
3633 29	Tb	30	30	Ed
3633.29	U	8 d	15 d	–
3633.29	Mo	–	20	–
3633 26	Dy	25	–	m
3633 24	Au II	1	15	–
3633.185	Hf II	6	8	–
3633 123	Yt II	50	100	–
3633.078	Fe	10	3	–
3633 075	Ce	2	–	–
3633 06	Xe I	–	[6]	Me
3633 00	Dy	10	3	Ed
3632 999	Cb	5	3	–
3632 979	Fe I	12	8	–
3632 842	Co	60	–	–
3632.839	Cr	80	35	–
3632.785	Er	5	1	–
3632.782	Ce	3	–	–
3632.75	Ne II	–	[4]	Bn
3632.73	Dy	10	4	Ed
3632.713	U	3	2	–
3632 708	W	9	8	–
3632 691	Hf	5	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3632.684	A I	–	[300]	IHu
3632.626	Th	6	6	–
3632.56	Au	–	2 wh	–
3632.558	Cu I	25	3	–
3632.557	Ir	2	–	–
3632.556	Fe	30	25	–
3632.490	Kr I	–	[4]	IHu
3632.48	I II	–	[2]	Mu
3632.38	Hg II	–	[10]	Ps
3632.303	Ce	6	–	–
3632.175	Eu	30	10	–
3632.17	U	–	3 hd	–
3632.124	V	–	70	Me
3632.106	Ce	10	2	–
3632.040	Fe	50	50	–
3631.999	Tı	6	–	–
3631.948	W	15	10	–
3631.948	Co I	20	–	–
3631.93	Zn	15	[1]	Vs
3631.88	I II	–	[2]	Mu
3631.87	Kr II	–	[200 hl]	Me
3631.78	Eu	3	–	m
3631.75	Ho	8	4 h	Ex
3631.714	Ir I	10	2	–
3631.711	Ru I	2	8	–
3631.687	Cr II	10	60	–
3631.51	Ca	–	2	Ad
3631.464	Fe I	500	300	S
3631.46	Tb	30	–	Ed
3631 40	P II	–	[50]	Gu
3631.391	Co I	50 W	25	m
3631.38	Se	–	[25]	Bt
3631.315	Tı	2	–	–
3631.266	Na II	12	[100]	Fr
3631.194	Ce I, II	50	3	–
3631.139	Sm	40	15	–
3631.096	Fe I	25	10	–
3631.020	Nd	10	8	–
3630.967	Pr	50	20	–
3630.955	W II	–	7	–
3630.947	Ca I	10	–	IWg
3630.88	Tb	15	–	Ed
3630.874	Hf II	15	6	–
3630.853	Sm	3	3	–
3630.821	W	9	8	–
3630.787	Ce	3 w	–	–
3630.748	Ca I	150	9	IWg
3630.740	Sc II	50	70	–
3630.733	U	8	20	–
3630.695	Cb	2	1	–
3630.669	Sm	5	5	–
3630.65	Hg	–	[100]	Ps
3630.642	Ba	15	5	–
3630.616	Cb	5	15	–
3630.50	Eu	3 d	–	–
3630.46	Dy	10	–	m
3630.421	Ce	6	1	–
3630.349	Fe I	40	15	–
3630.318	W	10	10	–
3630.28	Tb	30	8	Ed
3630.242	Er	25	6	–
3630.20	Ho	–	4	Ex
3630.18	Dy	15	15	Ed
3630.147	Ce	5	–	–
3630.086	W	1	7	–
3630.061	Er	8	1	–
3630.024	Zr II	15	12	–
3629.99	La II	2	2	Me
3629.953	Os	40	12	–
3629.932	Nd	10	6	–
3629.915	Sb II	2	15 h	–
3629.906	Nı I	4	3 h	–
3629.90	Yb	2	5	–
3629.853	Er	4	1	–
3629.806	Ce	5	–	–
3629.797	Eu	40	50 h	–
3629.794	Cu I	15	2	Hs
3629.755	Ir I	15	4	–
3629.741	Mn	100	30	–
3629.715	Pr	20	3	–
3629.7	Rn	–	[10]	Pe
3629.61	Fe	4	–	–
3629.591	U	2	3	–
3629.517	Gd	40	60	–
3629.477	Sm	5	–	–
3629.467	Cb	–	30	–
3629.440	Dy	100	50	–
3629.43	Tb	15	8	Ed
3629.39	Er	10	1	–
3629.309	V I	50	2	–
3629.309	Mo	6	6	–
3629.305	Ce	2	–	–
3629.217	Sm II	6	1	–
3629.200	Re	4	–	–
3629.158	Ir I	10	2	–
3629.144	Sr I	30	–	ISn
3629.126	Zr II	2	–	–
3629.058	Eu	4	–	–
3628.94	Er	2	–	–
3628.930	W	–	15	–
3628.90	Lu	2	–	Me
3628.870	Pt	6	2 h	–
3628.822	La II	80	40 h	–
3628.818	Pr	8	1	–
3628.813	Ce	8	–	–
3628.810	Fe	4	1	–
3628.706	Yt II	40	50	–
3628.705	Er	25	12 h	–
3628.68	Tb	15	3	Ed
3628.670	Ir I	100	30	–
3628.669	Ta	–	18	–
3628.655	Mo	5	6	–
3628.622	Ce	10 s	1	–
3628.60	Ca I	8	–	Cw
3628.46	Eu	–	2	–
3628.445	Nd	6	4	Kn
3628.345	Sr I	10	–	ISn
3628.38	W	3	20 d	–
3628.350	Mo	10	5	–
3628 247	Ce	10	–	–
3628.20	Tb	100	15	Ed
3628.177	Pr	6	1	–
3628.176	Cb	1	50	–
3628.157	Kr I	–	[10]	I
3628.113	Pt I	300 W	20	–
3628.094	Fe I	10	3	–
3628.06	Ne II	–	[12]	Bn
3628.041	Er	15	1	–
3627.965	Sm II	8	3	–
3627.870	Cb	3	3	Me
3627.843	Er	5	1	–
3627.832	Hf	5	–	–
3627.808	Co I	200	–	–
3627.803	Rh I	5	3	–
3627.799	Pr	12	2	–
3627.790	Fe	8	1	–
3627.785	Eu	2	–	–
3627.782	In II	–	[5]	Ps
3627.712	V	4	50	Me
3627.71	Tı II	2	12	–
3627.70	U	8	–	–
3627.67	Tb	8	–	Ed
3627.55	Fe	3	–	–
3627.499	I	–	[3]	Ke
3627.484	U	2	8	–
3627.444	Sm	9	4	–
3627.44	Sb II	1	3 h	–
3627.424	Eu	3	5	–
3627.41	Nd	20	15 h	–
3627.35	Mo	–	30	Ex
3627.33	Cu I	10 wh	5 wh	Hs
3627.289	Ru	2	4	–
3627 240	W	12	10	–
3627.19	Tb	8	–	Ed
3627.183	Rh I	4	2	–
3627.18	Ho	15	15	Ex
3627.048	Eu	2	–	–
3627.04	Fe	10	3	–
3627.017	Ta	18	1	–
3626 994	Sm II	50	40	–
3626.986	Ce	6 w	–	–
3626.925	Tı	10	–	–
3626.91	Kr I	–	[2]	Me
3626.873	Er	3	–	–
3626.87	Tb	15	3	Ed
3626.859	Nd	10	1 h	–
3626.76	Dy	4 h	1 h	Ed
3626.759	I	–	[3]	Ke
3626 744	Ru	3	40	–
3626.715	Fe	2 h	–	–
3626.70	Ho	20	15	Ex
3626 617	Ta	125	18	–
3626.590	Rh I	150	60	–
3626.53	S	–	[10]	Hn
3626.5	Rn	–	[25]	Pe
3626.50	Tb	30	15	Ed
3626.496	Sm II	2	1	–
3626.485	Pr	8	2	–
3626.42	Er	2 d	2	–
3626.42	K	–	[15]	Bn
3626.42	Gd	5	5	–
3626.360	U	10	–	–
3626.337	Cr	20	3	–
3626.33	Eu	–	2	–
3626.286	Ir I	30	10	–
3626.184	Mo	20	20	–
3626.171	Fe	2	–	–
3626 13	Tb	8	3	Ed
3626.085	Tı I	25	5	–
3626.010	Co I	5	–	–
3625.980	U	5	15 wh	–
3625.940	Th	6	6	–
3625 906	Re I	10	–	–
3625.768	Ce	2	–	–
3625.75	Ca I	5	2	–
3625 713	Cb	10	15	–
3625.706	Ir I	30	7	–
3625.68	Ta	15	–	Ks
3625.637	Ce	4	–	–
3625.628	Th	8	8	–
3625.607	V	4	125	Me
3625 571	U	8	–	–
3625.56	Mo	–	25	–
3625.54	Tb	50	15	Ed
3625.46	Ho	6	4 h	Ex
3625 405	W	10	10	–
3625.405	Pr	5	2	–
3625.395	Zr I	4	–	–
3625.375	Ce I	6	–	–
3625.37	Rn I	–	[3]	Rs
3625 282	Er	8	1	–
3625 267	Gd	15	15	–
3625 250	Tı	2	1	–
3625 238	Ta	70 r	2 h	–
3625 196	Ru I	4	30	–
3625 171	Cb	8	15	–
3625.161	Ce	4	–	–
3625.148	Fe I	70	35	–
3625 088	U	–	3	–
3624.96	Ca	–	3	–
3624.958	Co I	20	–	–
3624 901	Gd	20	30	–
3624.898	Th	8	8	–
3624 890	Fe II	–	2	–
3624.825	Tı II	60	125	–
3624.818	U	5	–	–
3624.814	Fe	12	2	–
3624.8	bh Ca	4	–	L
3624.80	Tb	15	3	Ed
3624.733	Nı I	150	15	–
3624.71	Ag I	25 h	–	Bx
3624.68	P II	–	[5]	Gu
3624 654	Nd	20	6	Kn
3624.625	Mo	5	5	–
3624 621	Sc	2	2 h	–
3624.601	Er	10	1	–
3624.571	U	4	1	–
3624.56	Cs	–	[4]	Bs
3624.474	Th	4	1	–
3624.468	W	3	1	–
3624.464	Mo	25	25	–
3624.419	Sm	3 d	–	–
3624.357	Cb	3	3	Me
3624 329	Co I	8	4	–
3624 319	Nd	6	2	Kn
3624 307	Fe I	10	2	–
3624.306	Pr	3	–	–
3624.278	Er	10	1	–
3624.27	W	–	10	–
3624.25	Dy	10	10	Ed
3624.236	Cu I	30 W	3 wh	Hs
3624.20	Tm	6	–	Me
3624.179	Ce	10	1	–
3624.17	Ta	3 h	3 s	–
3624 111	Ca I	150	15	IWg

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3624.070	Zn	10	3	–
3624.055	Fe	2	–	–
3624.000	Hf II	15	20	–
3623.99	Lu	20	40	Me
3623.977	Th	4	6	–
3623.957	Zr	2	1	–
3623.92	Tb	30	8	Ed
3623.864	Zr I	40	7	–
3623.843	Ce I, II	60	5	–
3623.803	Ir I	20	4	–
3623.792	Mn	75	40	–
3623.772	Fe I	35	7	–
3623.758	Ce	8	1	–
3623.72	Eu	4 d	4 d	–
3623.70	Mo	–	50	–
3623 635	Ru	2	10	–
3623.61	Kr II	–	[30 hl]	Me
3623.53	Rn I	–	[3]	Rs
3623.514	W	8	7	–
3623.446	Fe I	15	5	–
3623.44	Eu	4	–	Kn
3623.44	Au	–	3	–
3623.315	Sm II	15	7	–
3623.231	Mo	15	15	–
3623.186	Fe I	100	80	–
3623.13	Eu	3 d	2	–
3623.13	W	–	5	–
3623.10	P	–	[15]	Gu
3623.096	Ti	12	1	–
3623.055	U	12	15	–
3623 035	Th	3	1	–
3622.850	Mo	–	20	–
3622.807	Gd	20	20	–
3622.796	Th	4 d	1 d	–
3622.787	Ir	2	–	–
3622.737	Pr	7	2	–
3622 717	Th	2 d	2 d	–
3622.700	U	15	1	–
3622 691	Cs	–	[6]	Sv
3622.69	Cl	–	[8]	Bl
3622.68	S	–	[3]	Hn
3622 646	Sm	2	–	–
3622 632	V I	35	1	–
3622.613	Cb	4	1	–
3622 6	bh La	6 h	–	Me
3622.558	Eu	20 h	50	–
3622.506	Sm II	10	4	–
3622.501	Ir	3	–	Ab
3622.493	Cb	–	5 h	–
3622.46	Hf II	2	5	Me
3622.439	Ce	8	1	–
3622 384	Pr	25	5	–
3622.339	Th	8	4	–
3622 290	U	1	3	–
3622 289	V	–	30	–
3622.20	Ti	–	10	–
3622.19	Yt	2	1	Me
3622 157	Er	4	–	–
3622 15	A	–	[15]	Rt
3622.145	Ce	15	5	–
3622.11	Tb	30	3	Ed
3622.005	Fe I	125	100	–
3622 0	bh La	4 h	–	Me
3621.98	Xe II	–	[2 h]	Hu
3621.903	Eu	8	10	–
3621.887	Ir I	4	–	Ab
3621 86	Yt	2	1	Me
3621.783	U	1	2	–
3621.77	La II	5	8	–
3621 715	Fe	6	5	–
3621.656	Pt I	4	1	–
3621 618	Mo	4	3	–
3621.465	Re I	30	–	–
3621.463	Fe I	125	100	S
3621.435	Ce	2	–	–
3621.39	Tb	8	3	Ed
3621.273	Fe II	–	1	–
3621.245	Cu I	20	5	–
3621.216	Sm II	60	10	–
3621.208	V	15	80	–
3621.2	bh La	4 h	–	Me
3621.181	Pr	9	1	–
3621.179	Co II	15	50 h	–
3621.146	Ce	8	–	–
3621.121	Th	10	10	–
3621.108	Fe	2	–	–
3621.088	Pr	20 h	2 h	Kn
3621.032	U	2	5	–
3621 027	Cb	10	15	–
3621 00	Yb	–	5	Me
3621.0	Rn	–	[250]	Wo
3620.945	Er	25	15	–
3620.941	Yt I	2 h	12	–
3620.938	Sm	4 d	3	–
3620.93	Br	–	[6]	Bl
3620.91	Ho	–	4	Ex
3620.890	Eu	7	5	–
3620.85	Pb	–	5	Sx
3620 83	W	–	8	–
3620.8	bh La	3 h	–	Me
3620.78	Fe	3	–	–
3620.74	Nd	10	4	–
3620.65	P	–	[15]	Gu
3620.6	bh La	2 h	–	Me
3620.590	Cb	–	5 h	–
3620.582	Sm II	4	2	–
3620.56	Dy	3	1	m
3620.557	U	1	2	–
3620.550	Ir I	3	–	Ab
3620.54	Sn II	–	[6]	Mc
3620.472	V	10	50	–
3620.471	Fe	15	2	–
3620.461	Gd	25	25	–
3620.456	Rh I	20	10	–
3620.429	Co I	5	–	–
3620.426	Pr	5	2	–
3620.372	Th	6	6	–
3620.352	Cu I	30	5	–
3620.328	Ce	5	–	–
3620.31	Lu	4	–	Me
3620.29	Tb	15	–	Ed
3620.285	Ru I	2	5	–
3620.241	Os	15	12	–
3620.23	Au	–	10	–
3620.228	Fe I	4	1	–
3620.177	Er	50	3	–
3620.176	Dy	80	20	–
3620.1	bh La	6 h	–	Me
3620.095	Sm II	3	3	–
3620.085	U	15	2 h	–
3620.08	Sn II	–	[2]	Mc
3620.041	Hf	8	–	–
3620.017	Ti I	10	–	–
3619.981	Er	9	1	–
3619.97	Tm	20	20	Me
3619.966	Hf	3	–	–
3619.96	Dy	25	5	Ed
3619.924	Ce	8	1	–
3619.809	Yb	30	100	–
3619.806	U	–	3	–
3619.772	Fe I	3	1	–
3619.77	Ag	–	7 h	Fn
3619.73	Tb	15	8	Ed
3619.727	Cb	3	300	–
3619.711	Th	4	4	–
3619.590	Pr	8	2	–
3619.513	Cb	5	200	–
3619.49	Ti II	–	[6]	El
3619.47	Dy	3	1	Ed
3619.464	Ti I	2	2	–
3619.460	Cr	30	8	–
3619.431	Os	60	25	–
3619.43	Ho	6	6	Ex
3619.4	bh La	4 h	–	Me
3619.395	Zr I	3	–	–
3619.392	Ni I	2000 R	150 h	–
3619.391	Ce	8	–	–
3619.390	Th	2	1	–
3619.390	Fe	12	1	–
3619.37	Bi	5	–	To
3619.288	Sm	2	2	–
3619.284	Mn	75	50	–
3619.272	W	10	10	–
3619.202	Ru I	2	9	–
3619.200	Cb	2	1	–
3619.163	Ir I	30	3	–
3619.134	U	5	2	–
3619.098	Pr	9	3	–
3618.969	Nd	20	15	–
3618.968	Ce	2	–	–
3618 928	V	–	100	–
3618.92	Er	10 w	6	–
3618.901	Cb	5	5	–
3618 88	Cl II	–	[3]	Mu
3618.780	Ce	2	–	–
3618.769	Fe I	400	400	S
3618.745	Th	2	–	–
3618.73	Se II	–	[35]	Bl
3618.70	Rn I	–	[8]	Rs
3618.582	Ce II	10	3	–
3618.53	Hg	–	[50]	Ps
3618 523	Sm	4	–	–
3618.522	Dy	80	10	–
3618.486	U	2	10	–
3618.452	W II	–	12	–
3618.442	Cb	10	5	–
3618.429	K II	–	[20]	Dm
3618.423	Ce	3	–	–
3618.389	Fe I	8	4	–
3618.384	Th	5	1	–
3618 35	Mo	–	20	–
3618.301	Fe I	4	1	–
3618.191	Eu	8 h	–	–
3618.18	Tb	8	3	Ed
3618 161	Cs	–	[6]	Sv
3618.129	Ce	2	–	–
3618.082	Pr	15	3	–
3618.07	Dy	6	–	m
3618 006	Co I	2	–	–
3617.88	Re	12 w	–	–
3617.88	Tb	8	8	Ed
3617.82	Er	12	5	–
3617.811	Ce	2	–	–
3617.788	Fe	125	80	S
3617.732	Th	2	1	–
3617.713	Cb	3	15	–
3617.685	Hf	4	3	–
3617.554	Mo	–	20	–
3617.55	Te	–	[25]	Bl
3617.521	W	35	20	–
3617.487	U	3	1	–
3617.41	Cs I	60	–	Bv
3617.318	Fe	25	15	–
3617.317	Ta	7	–	–
3617.307	Cr	–	6	–
3617.247	Re I	15	–	–
3617.24	Dy	6	2	Ed
3617.213	Ti I	8	1	–
3617.212	Ir I	50	15	–
3617.183	Er	7	–	–
3617.119	Th	5 d	4 d	–
3617.101	Ce	4	–	–
3617.095	Fe	1	–	–
3617.09	P	–	[100 w]	Gu
3617.080	Re I	50	–	–
3617.019	Th	4 d	3 d	–
3617 016	Ce	2	–	–
3617.004	Ag	1	2 h	–
3616.951	Ru I	2	4	–
3616.916	S II	–	[60]	Hn
3616.892	Hf	25	10	–
3616.888	U	8	–	–
3616 878	Ce	3	–	–
3616.84	Mo	15	15	–
3616.757	U	2	10	–
3616.723	V	30	30	–
3616.701	Th	4	3	–
3616.676	Pr	20	8	–
3616.675	U	2	1	–
3616.642	Ce	2	–	–
3616.58	Tb	8	8	Ed
3616.574	Os I	150	20	–
3616.573	Er	30	20	–
3616 572	Fe I	30	7	–
3616.56	Ho	6	6	Ex
3616.51	Eu	10 d	–	–
3616.498	Cb	2	2	–
3616.458	Ce	4	–	–
3616.400	W	4	3	–
3616.35	Dy	3	1	–
3616.332	U	12	2 h	–
3616.325	Nd	15	1 h	–
3616.324	Fe I	4	1	–
3616.317	Zr	5	–	–
3616 307	Ce	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3616.3	bh La	3 h	–	Me
3616.209	Cb	5	5	–
3616.204	Ce	5	1	–
3616.154	Eu	40	10	–
3616.145	Fe	7	–	–
3616.112	Ce	2	1	–
3616.085	Dy	3	1	–
3616.071	Er	10	–	–
3616.055	Pr	5	2 h	–
3616.026	Ta	2	1	–
3615.88	N II	–	[2]	Fl
3615.877	I II	–	[5]	Ke
3615.840	U	4	–	–
3615.817	Nd	20	10	–
3615 8	Bı II	–	[5]	Ml
3615.740	Mo	5	6	–
3615.665	Fe I	10	2	–
3615.66	Tb	50	15	Ed
3615 645	Cr I	30	10	–
3615.64	Mg II	2	–	Fl
3615.625	Ce	10	–	–
3615.56	U	10	–	m
3615.540	W	6	5	–
3615.498	Cb	30	30	–
3615.475	Kr I	–	[20]	I
3615.392	Co I	8	–	–
3615.35	Fe	9	–	–
3615 33	Tı	–	10	–
3615.244	Sm II	40	2	–
3615.236	U	1	5	–
3615.201	Fe	10	1	–
3615.159	Pr	40	4	–
3615.15	Mo	4	5	–
3615.133	Th	10	10	–
3615.097	Yb	3	–	–
3615.090	Zr I	3	–	–
3615.07	Cl II	–	[2]	Mu
3615.045	Hf	4	1	–
3615.039	Ce	2	–	–
3615.007	U	3	5	–
3615.0	Rn	–	[30]	Pe
3614.989	Cs	–	[4]	Sv
3614.873	Fe II	–	2	–
3614.86	Eu	–	2	–
3614.801	W	6	2	–
3614.8	bh La	5 h	–	Me
3614.775	Rh I	15	10	–
3614.774	Zr II	40	80	–
3614.743	Sm	4	1	–
3614.715	Fe	6	1 h	–
3614.707	Dy	15	5	–
3614.70	Eu	3	–	–
3614.686	Mo	1	20	–
3614.637	Er	12 l	1	–
3614.63	Tb	30	8	Ed
3614.561	Fe	15	6	–
3614.511	Rh	4	2	–
3614 454	Ir	2	2 h	–
3614.450	Cd I	60	100	–
3614.41	Gd	3	–	m
3614.4	bh La	4 h	–	Me
3614.362	Ce	3	–	–
3614.255	W	5	2	–
3614.253	Mo	50 d	30	–
3614.233	Ce	3	–	–
3614.218	Cu I	50	6	–
3614.207	Tı	35	4	–
3614 2	bh La	3 h	–	Me
3614.116	Fe	10	3	–
3614.084	Eu	2 d	2 d	–
3614.083	Dy	30	10	–
3614 029	Ce	5	1	–
3614.011	Th	6	8	–
3614.00	Au	–	20	–
3613.997	U	–	2	–
3613.939	Rh I	2	–	–
3613.902	Sm	2	–	–
3613.836	Sc II	40	70	–
3613.817	Bı	–	30	Om
3613.81	I	–	[10 h]	Bl
3613.80	Mg II	4	–	Fl
3613.8	bh La	3 h	–	Me
3613.790	W II	10	30	–
3613.779	Th	5	3	–
3613.761	Cu I	60	7	–
3613.76	Eu	2 h	1 wh	–
3613.756	Tı	12	–	–
3613.748	U	4	–	–
3613.702	Zr I	9	–	–
3613.701	Ce I, II	18	5	–
3613.70	Pr	6 dh	2 wh	–
3613.68	Tb	15	3	Ed
3613.669	Cr	10	8	–
3613.642	Mo	3	4	–
3613.641	He I	–	[30]	IMr
3613.609	Fe	3	–	–
3613.607	Hg	–	[40]	St
3613.595	Sm	3	2	–
3613.549	W	–	6	–
3613.521	Sm	2	2	–
3613.452	Cb	5	3	–
3613.452	Fe	10	2	–
3613.451	Zr II	7	1	–
3613.435	Tı I	8	–	–
3613.403	U	4	3 h	–
3613.400	Gd	8	6	–
3613.374	Mo	5	5	–
3613.33	Ho	6	8	Ex
3613.329	Os	30	12	–
3613.244	Nd	10	4	–
3613.239	Cb	2	5	–
3613.183	Cr	5	8	–
3613.152	U	3	2	–
3613.148	Fe I	6	2	–
3613.100	Zr II	40	40	–
3613.096	Er	7	–	–
3613.077	La I	12	3	–
3613.06	Dy	6	4	Ed
3613.06	Xe I	–	[8]	Me
3613.06	Tb	15	3	Ed
3613.03	S II	–	[12]	Hn
3613.013	Cb	2	2	Me
3612.945	Fe I	20	4	–
3612.90	Te	–	[5]	Bl
3612.875	Cd I	800	500	IMe
3612.87	Er	10 w	2 h	–
3612.869	Th	5	1	–
3612.86	Cl	–	[10]	Bl
3612.86	In	–	15	–
3612.838	Ce	3	–	–
3612.824	Tı I	4	–	–
3612.82	Ta	3 W	–	Ks
3612.788	Dy	25	10	–
3612.784	Yt	2	–	–
3612.77	Ca	–	3	Ad
3612.741	Ni I	400	50 h	–
3612.715	Pr	10	2	–
3612.669	U	6	8	–
3612.654	Cb	3	4	–
3612 61	Rn	–	[20]	Rc
3612.609	Cr	35	25	–
3612.572	Zr I	3	–	–
3612.562	Er	4 h	–	–
3612.503	Fe	3	1	–
3612.470	Rh I	200	50	–
3612.467	Al	–	80 h	–
3612 466	Ce	6	–	–
3612.454	Mo	6	6	–
3612 44	Nd	6	20	–
3612.431	Sm	2	2	–
3612.427	Th	8	4	–
3612.398	Er	8	–	–
3612.37	Xe II	–	[10]	Hu
3612.37	Ta	2	–	Ks
3612.35	Ne II	–	[7]	Bl
3612 34	Yt	2	–	Me
3612.334	La II	8	15 h	–
3612.332	Zr II	1	2	–
3612 322	Ce	8 s	1	–
3612.31	Tb	8	–	Ed
3612 251	Tı	15	1	–
3612.20	Mo	–	20	–
3612.19	Eu	6 w	2	–
3612.108	Th	2	1	–
3612.074	Fe I	80	50	–
3611.998	Mo	8	5	–
3611.942	Pr	15	7	–
3611.90	Dy	2	1	m
3611 893	Zr II	15	40	–
3611.855	W	–	20	–
3611.84	A II	–	[5]	Rt
3611.77	Te	–	[5]	Bl
3611.733	Ce	5	–	–
3611.701	Co I	25	–	–
3611.650	Ce	20 w	2 w	–
3611.58	V	–	15 wh	–
3611.580	Eu	40	5	–
3611.52	Cs I	200	–	Bv
3611.41	Tb	8	8	Ed
3611.4	bh La	4 d	–	Me
3611.394	U	12	1	–
3611.338	Ce II	10	–	–
3611.332	Eu	10 h	–	–
3611.33	Tb	50	8	Ed
3611.307	Yb	12	50	–
3611.285	Cb	3	5 h	–
3611.239	U	5	10	–
3611.16	Dy	3	1	m
3611.159	Pr	5	2	–
3611.132	Ta	25	1	–
3611.103	La II	–	3	–
3611.1	bh La	6 h	–	Me
3611.056	Sm	4	2	–
3611.049	Gd	5	5 h	–
3611.047	Yt II	40	60	–
3611.02	Eu	10 w	1	Kn
3611.002	Ba	10	3	Sz
3611.001	U	2 h	2	–
3610.914	Ce	10	–	–
3610.909	Pt	4	1	–
3610.809	Cu I	25	6	–
3610.794	Th	8	4	–
3610.77	Dy	4	2	Ed
3610.766	Gd	25	6	–
3610.764	Cb	3	5	–
3610.702	Fe I	10	3	–
3610.69	U	3 d	12 d	–
3610.684	Pr	3	2	–
3610 619	Mo	3	5	–
3610 598	Ta	–	15	–
3610.572	Eu	–	2 h	–
3610.510	Cd I	1000	500	IMe
3610.508	In	–	18	–
3610 50	Se II	–	[35]	Bl
3610.493	Re	40	–	–
3610.487	U	4	8	–
3610.462	Ni I	1000 r	–	–
3610.446	Ce	2	–	–
3610 399	Th	8	4	–
3610.32	Xe I	–	[15]	Me
3610.299	Mn	60	40	–
3610 257	Ce	5	–	–
3610.245	La	7	5	–
3610.162	Fe I	100	90	–
3610.156	Tı I	100	70	–
3610.052	Cr	20	8	–
3610.039	Th	3	1	–
3610.02	Cl	–	[4]	Bl
3610.003	Cb	3	5	–
3609.94	Eu	3 w	–	Kn
3609 931	Ta	1 h	18	–
3609.894	Ce	2	–	–
3609.88	Tb	8	–	Ed
3609.788	Nd	15	10	–
3609.772	Ir	30	25	–
3609.758	Co	5	3	–
3609.74	Cl II	–	[2]	Mu
3609 687	Ce	40	10	–
3609.682	U	15	12	–
3609.64	Zr	3	–	Ks
3609.591	Ti I	12	2	–
3609 55	Tb	15	–	Ed
3609.548	Pd I	1000 R	700 R	–
3609.54	Tm	15	25	Me
3609.495	Nd	25	30	–
3609.493	Mo	5	10	–
3609.484	Sm II	60	100	–
3609.479	Cr	20	12	–
3609.447	Th	12	10	–
3609.44	Er	6 d	1 h	–
3609.360	Cb	1	5	–
3609.357	Ta	8	1	–
3609.314	Ni I	200	15	–
3609.307	Cu I	25	5	–
3609 30	Ca	3	2 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3609.289	V I	30 W	30 W	–
3609.250	Dy	3	1	–
3609.23	La II	2	3	–
3609.228	Th	5	4	–
3609.212	Ce	2	–	–
3609.179	Ne I	–	[50]	IHu
3609.177	Ta	8	1	–
3609.147	Os	20	12	–
3609.107	Ru I	3	4	–
3609.09	N II	–	[5]	Fl
3609.06	Tb	8	–	Ed
3608.96	U	18	10	–
3608.89	F II	–	[6]	Di
3608.871	K II	–	[10]	Dm
3608.861	Fe I	500	400	S
3608.847	Ce	2	–	–
3608.781	Ta	15 r	1 d	–
3608.77	Tm	100	20	Me
3608.758	Gd	100	125	–
3608.727	Ru I	2	8	–
3608.72	Eu	10	1 h	Kn
3608.686	U	–	4 h	–
3608.494	Mn	60	40	–
3608.468	Pr	10	3	–
3608.401	Cr	12	8	–
3608.379	Th	4	1 d	–
3608.37	W	–	10	–
3608.369	Mo	15	15	–
3608.354	U	3	2 h	–
3608.354	Ir I	6	2	–
3608.313	Cb	3	3	–
3608.309	Ce	2	–	–
3608.307	Co I	2 h	–	–
3608.285	Cs	–	[10]	Sv
3608.25	Tb	15	–	Ed
3608 22	Er	10	–	–
3608.16	La II	2	6	–
3608.150	Fe I	15	25	–
3608.146	U	2	1	–
3608.1	bh La	3 h	–	Me
3608.086	Rh I	10	3	–
3608.06	Dy	4	2	m
3608 014	Cb	5	5	–
3608.001	U	2	4	–
3607.907	Th	1	2	–
3607.89	Pt II	–	5	Sh
3607.88	Kr II	–	[100 whl]	Me
3607.874	Ce	3 w	–	–
3607.86	Tb	8	–	Ed
3607.820	Pr	5	3	–
3607.8	bh La	5 h	–	Me
3607.776	U	1	3	–
3607.722	Nd	10	6	–
3607.635	Sm	3	–	–
3607.625	Ce	15	8	–
3607.60	Hg	–	[18]	Ps
3607.54	Tb	8	–	Ed
3607.54	Au	–	20	–
3607.537	Mn	75	40	–
3607.522	U	–	2	–
3607.511	I	–	[18]	Ke
3607.431	Er	8	–	–
3607.412	Mo	4	4	–
3607.41	Xe II	–	[5]	Hu
3607.406	Ta	70	35	–
3607.395	Th	3	4	–
3607.376	Zr II	8	9	–
3607.36	Tm	8	10	Me
3607.327	Cb	2	5	–
3607.32	F II	–	[6]	Di
3607.229	Re	3	–	–
3607.225	Pr	10	2	–
3607.131	Ti I	25	5	–
3607.124	Ir I	3	–	–
3607.1	bh Sr	4	–	L
3607.066	W	10	12	–
3607.066	Gd	15	20	–
3607.015	Cb	1	10	–
3606.946	U	3	1	–
3606.92	Hg	–	[30]	Ps
3606.908	Mo	–	30	–
3606.852	Ni I	100 r	–	–
3606.806	Cb	3	1	Me
3606.80	F II	–	[10]	Di
3606.786	Ti I	12	4	–
3606.716	Th	1	2	–
3606.71	Eu	50	–	Kn
3606.689	V I	80	70	–
3606.682	Fe I	200	150	–
3606.68	W	–	4	–
3606.674	Mo	8	20	–
3606.66	Br	–	[15]	Bl
3606.624	Sc	4	–	–
3606.558	Re	3 w	–	–
3606.522	A I	–	[1000]	IHu
3606.487	Cb	3 h	5	–
3606.47	Yb	15	60	–
3606.432	La II	2	3 h	–
3606.401	Nd	12	2	–
3606.382	Eu	5	–	–
3606.35	Cb	–	3 h	Me
3606.338	W	10	8	–
3606.329	Sm	2	1	–
3606.324	U	8	12	–
3606.295	Mo	1	10	–
3606.285	Nd	12	4	–
3606.271	Cb	2	5 wh	–
3606.21	Eu	2 h	1 h	–
3606.204	Th	–	5 h	–
3606.153	Ru	2	1	–
3606.130	Ce	5	–	–
3606.126	Dy	200	100	–
3606.12	Tb	30	15 d	Ed
3606.116	U	1	6	–
3606.09	Ho	–	4	Ex
3606.08	Er	15 d	4	–
3606.067	W	12	10	–
3606.062	Ti I	12	1	–
3605.962	Pr	10	3	–
3605.908	Fe	3	1	–
3605.899	Zr I	3	–	–
3605.89	A II	–	[15]	Rt
3605.863	Rh I	25	30	–
3605.823	U	8	8	–
3605 80	Hg II	–	[200]	Ps
3605.783	Ce	5	–	–
3605.748	U	1	4	–
3605.695	Er	3	–	–
3605 691	Mn	10	–	–
3605.657	Th	8	6	–
3605.641	Ru	2	9	–
3605.62	Gd	20	15	m
3605 61	Eu	4 w	–	Kn
3605.6	Rn	–	[10]	Pe
3605 589	V	30	20 h	–
3605.535	Cs	–	[4]	Sv
3605.48	U	1	4	–
3605.46	Yt II	2 h	6 h	–
3605.458	Fe I	300	150	–
3605.356	Co I	60	–	–
3605.338	Eu	3	1 h	–
3605 333	Cr I	500 R	400 R	–
3605.276	U	8	–	–
3605.249	Gd	15	15	–
3605 211	Fe I	12	2	–
3605.21	Ca	2	2 r	–
3605.09	Dy	4	2	m
3605.054	Pr	20	10	–
3605.018	Mo	2	5	–
3605.015	Co I	15	–	–
3604.987	Sm	3	1	–
3604.983	Ta	7	1 h	–
3604.928	Ce	6	1	–
3604.901	Er	12	4	–
3604.90	Tb	3	15	Ed
3604.884	Gd	50	12	–
3604.85	Dy	4 w	2	m
3604.715	Er	9	2	–
3604.712	Sm	2	–	–
3604.697	Ce	3	1	–
3604.689	Mn	12	–	–
3604.684	Eu	7	1 h	–
3604.680	Th	5	1	–
3604.655	Ce	3	–	–
3604.641	Cb	5 w	10 w	–
3604.6	Rb	–	[2]	Dr
3604.564	Mo	5	5	–
3604.521	Ce	2	1	–
3604.5	bh La	5 h	–	Me
3604.475	Os	15	100	–
3604.470	Co	3	–	–
3604.396	U	1	6	–
3604.396	Re	15 w	–	–
3604.380	Fe	10	1	–
3604.377	V	–	50 h	–
3604.36	Dy	3	1	Ed
3604.315	Ir I	5	–	–
3604.284	Ti I	20	6	–
3604.276	Sm II	6	20	–
3604.27	Fe	5	–	–
3604.224	U	1	6	–
3604.197	Ce	8	1	–
3604.16	W	–	3	–
3604.15	Tb	8	–	Ed
3604.101	Ce	3	1	–
3604.09	Hg II	–	[50]	Ps
3604.075	Cb	3 W	2 W	–
3604.074	Mo	6	15	–
3604.046	Th	4	4	–
3604.04	Nd	–	6	–
3604.0	bh Ca	4	–	L
3603.957	Cb	2	5	–
3603.949	Fe	2	–	–
3603.91	A	–	[3]	Rt
3603.910	W	5	5	–
3603.845	Ti I	15	2	–
3603.823	Fe I	20	12	–
3603.745	Cr I	15	50	–
3603.733	Ce	5	–	–
3603.732	Pr	2	1	–
3603.724	Mo	4	5	–
3603.72	F II	–	[20]	Di
3603.67	U	5 d	–	–
3603.65	I	–	[3]	Bl
3603.624	Th	4	2	–
3603.597	Al	–	[2]	Sy
3603.592	Mo	3	4	–
3603.572	Fe	1	–	–
3603.53	Sb	2	25 whl	–
3603.504	Sm	1	4	–
3603.476	Ce	5	–	–
3603.46	A	–	[3]	Rt
3603.434	Cb	4	5	–
3603.40	Ba I	2	–	–
3603.363	U	10	1 h	–
3603.363	Th	5	5	–
3603.358	Ce II	6	–	–
3603.208	Th	8	8	–
3603.208	Fe I	150	80	–
3603.20	Eu	100 w	50	Kn
3603.15	Dy	3	1	Ed
3603.13	U	4 hd	–	–
3602.97	W	1	5	–
3602.943	V	10	12	–
3602.941	Mo	20	25	–
3602.93	Tb	15	–	Ed
3602.88	In	–	3	Sq
3602 875	Cb	2	2	–
3602.852	Cs	–	[8]	Sv
3602.85	F	–	[60 d]	Di
3602.82	Dy	10	4	Ed
3602.803	Ce	2	1	–
3602.780	Zr I	5 h	2 h	–
3602.574	Cr I	15	10	–
3602 562	Cb	30	30	–
3602.55	Ho	–	4 h	Ex
3602.529	Fe I	50	30	–
3602.51	Tb	15	3	Ed
3602.51	U	12 d	1 d	–
3602.50	I II	–	[2]	Mu
3602.50	Eu	6 w	1	–
3602.484	Os	15	10	–
3602 470	Mo	2	3	–
3602.466	Fe	10	5	–
3602.464	Th	4	1	–
3602.462	W	–	12	–
3602.281	Ni I	150	15	–
3602.12	Kr II	–	[2 h]	Me
3602.10	Cl	–	[12]	Bl
3602.085	Fe I	20	5	–
3602.084	Co I	200	35	–
3602 08	Ca	–	3	–
3602 064	Ir I	3	–	Ab
3602.032	Cu I, II	50	25 W	–
3601.984	Th	2	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3601.984	Sm	2	1	–
3601.921	Yt II	18	60	–
3601 916	Pr	3	–	–
3601.87	Ho	6	–	Ex
3601.84	Mo	1	3	–
3601.833	Os	60	20	–
3601 8	Pb II	–	[20]	Ea
3601 798	W	5	4	–
3601.75	Tb	15	3	Ed
3601.74	Al	–	15	Gn
3601.73	Eu	2 w	-	–
3601.695	Sm II	5	5	–
3601.666	Cr I	50	30	–
3601.6	Rn	–	[5]	Wo
3601.578	W	–	6	–
3601.51	A II	–	[5]	Rt
3601.50	Tb	8	–	Ed
3601.485	Ru	2	5	–
3601.42	U	–	3	–
3601.403	Ir I	30	8	–
3601.403	F	-	[30]	Di
3601.39	Dy	3	1 h	m
3601.376	Ti	15	-	–
3601.321	Nd	10	2	–
3601.268	Mn	15	15 h	–
3601.252	Sm	4	1	–
3601 193	Ti I	7	3	–
3601.193	Zr I	400	15	–
3601.054	La II	5	15	–
3601.040	Th	8	10	–
3601.023	Pr	10	2	–
3600.966	Gd	30	30	–
3600.955	W	–	9	–
3600.95	Ho	6	10	Ex
3600.915	Nd	20	10	–
3600.826	Th	3	1	–
3600.809	Co I	4	–	–
3600.80	Tb	8	–	Ed
3600.769	I	–	[5]	Ke
3600.756	Yb	10	20	–
3600.754	Rh I	8	2	–
3600.750	Pr	25	5	–
3600.742	Er	30 w	20 w	–
3600.737	Mo	2	4	–
3600.734	Yt II	100	300	–
3600.73	Cs	–	[10]	Sv
3600.73	Ho	6	–	Ex
3600.701	Ta	2	1 h	–
3600.678	Rb	–	[20]	Rr
3600.583	Ce I, II	15	2	–
3600.494	U	1	2	–
3600.44	Tb	8	50	Ed
3600.434	Th	4	1	–
3600.39	Yb	2	2	–
3600.34	Dy	20	30	Ed
3600.293	U	10	–	–
3600.287	W	4	3	–
3600.284	Mo	5	5	–
3600.22	A II	–	[3]	Rt
3600.209	I	–	[10]	Ke
3600.204	Mo	3	3	–
3600.169	Ne I	–	[75]	IHu
3600.118	Nd	15	10	–
3600.08	S	–	[3]	Hn
3600.055	Hf II	2	8 h	–
3600.04	Tb	15	3	Ed
3600.030	V I	50	40	–
3599.974	Ce	10	1	–
3599.974	Fe	5	–	–
3599.94	Bi	2	–	To
3599.901	Zr II	5	5	–
3599.90	Kr II	–	[40 hl]	Me
3599.88	S	–	[5]	Bl
3599.870	Hf	10	8	–
3599.844	U	6	18	–
3599.829	Mo	3	5	–
3599.829	Er	30 w	20 s	–
3599.81	Ho	–	4	Ex
3599.764	Ru	12	100	–
3599.731	Th	3	1	–
3599.67	A I	–	[20]	Ms
3599.633	Cb	10	10	–
3599.623	Fe	40	30	–
3599.62	Sb	–	4	Dv
3599.51	Pr	4 d	2 hd	–
3599.508	Er	18	5	–
3599.49	Ho	–	4	Ex
3599.442	He I	–	[2]	Ps
3599.420	Ba I	10	3	m
3599.400	Ru I	2	3	–
3599.395	Cr	30	20	–
3599.360	Th	3	4	–
3599.349	U	4	10	–
3599.304	He I	–	[5]	Ps
3599.278	Cb	15	15	–
3599.21	Kr II	–	[25 h]	Me
3599.16	Tm	4	8	Me
3599.146	Fe	10	5	–
3599.140	Cu I	60	30	–
3599.139	Hf II	4	10	–
3599.070	Nd	10	–	–
3598.984	Fe	3	1	–
3598.97	Cs	–	[4]	Bs
3598.96	Tb	8	3	Ed
3598.946	U	8	3	–
3598.927	La II	–	3 hl	–
3598.914	Pr	8	2	–
3598.9	bh Zr	2	–	L
3598.881	Mo	10	15	–
3598.878	W	10	7	–
3598 85	Er	8 hs	1	–
3598 77	Ho	40	30	Ex
3598.769	Re	20	–	–
3598.763	Ir I	25	5	–
3598.74	Sn	–	3 wh	–
3598.721	Fe	6	2	–
3598.718	V	–	10	–
3598.716	Ti I	70	30	–
3598.704	F	–	[30]	Di
3598.57	Eu	2	1	–
3598.43	W	–	12	–
3598.352	Cb	5 d	2 h	–
3598.265	Dy	10	5 h	Ed
3598.196	Ce I, II	20	1	–
3598.124	Th	6	4	–
3598 114	Eu	2 h	–	–
3598.111	Os I	300	30	–
3598.08	Au I	35	10	Ml
3598.06	Tb	15	8	Ed
3598.040	U	2	–	–
3598.026	Nd	10	6	–
3598.014	Cu I	40 wh	–	–
3597.961	W	5	4	–
3597.943	Dy	3	2	–
3597.928	Sm	2	4	–
3597.892	Rh	6	3	–
3597.80	Tb	8	-	Ed
3597.773	Er	6	–	–
3597.759	U	12	6	–
3597.73	Cs	–	[6]	Sv
3597.714	W	7	6	–
3597.705	Ni I	1000 r	50 h	–
3597 638	U	–	2	–
3597.519	Os	15	10	–
3597.514	Cb	3	3	Me
3597 51	Sb	2	200 whl	–
3597.510	Hf	3	–	–
3597.50	Al II	–	[5]	Sy
3597.498	Th	3	1	–
3597.430	Cs	–	[10]	Sv
3597.430	Zr I	3	1	–
3597 42	Hf II	5	15	Me
3597.400	V	–	5	Me
3597.372	Mo	2	3	Pu
3597.263	W	10	9	–
3597 255	Cb	8	10	–
3597.245	U	–	2	–
3597.232	Ce	5	–	–
3597.147	Rh I	200	100	–
3597.132	U	–	2	–
3597 064	Sm	–	3	–
3597.061	Fe	40	10	–
3597.0	Rn	–	[5]	Pe
3596.96	Sb	–	[100]	Lg
3596.884	U	6	8	–
3596.861	Ta	7	1	–
3596.86	Eu	3 w	2 h	Kn
3596.86	Kr II	–	[2 hl]	Me
3596.80	Tb	8	–	Ed
3596.765	U	2	8	–
3596.725	Ce II	10	1	–
3596.661	Pd	5	1	–
3596 65	La II	2	3	Me
3596.645	Sm	4	2	–
3596.608	W	5	4	–
3596.57	Ba II	1	4	Rs
3596.55	Ti II	3	2	–
3596.514	Co I	5	–	–
3596.491	Dy	3	1	–
3596.433	W	5	4	–
3596.417	Ir I	3	–	–
3596 390	Re I	25	–	–
3596 38	Tb	50	15	Ed
3596.351	Mo	–	30	–
3596.34	Lu	6	–	Me
3596.33	Ba I	2	–	Sd
3596 23	Er	2 d	–	–
3596.23	Eu	3 W	1 h	Kn
3596.222	Re I	20 h	–	–
3596.198	Fe	15	5	–
3596.194	Rh I	200	50	–
3596.193	Pr	25	8	–
3596.18	W	–	15	–
3596 179	Ru I	30	100	–
3596.115	Ce	12	2	–
3596.11	Ho	–	4 h	Ex
3596.110	Bi I	150 wh	50	–
3596.067	Dy	50	20	–
3596 052	Ti II	50	125	–
3596.016	Rh	25	5	–
3595.991	S II	–	[50]	Hn
3595.945	U	1	3	–
3595.917	F	–	[15]	Di
3595.91	Rb II	–	[2]	Ok
3595 857	Fe	4	1	–
3595 838	Er	7	–	–
3595.794	Os	1	5	–
3595.753	U	5	–	–
3595.706	Mo	3	4	–
3595 638	Ta	70	5	–
3595 623	Th	3	1	–
3595.551	Mo	8	5	–
3595 526	U	2	3 h	–
3595.491	Ir	3	–	Ab
3595.47	Er	7 d	1	–
3595.40	Mo	–	10	–
3595.386	W	8	6	–
3595 323	Th	3 d	3 d	–
3595.308	Fe I	20	7	–
3595 241	U	5	–	–
3595.166	Re	20 h	–	–
3595.119	Mn	50	25	–
3595 07	W	–	5	–
3595 046	Dy	200	100	–
3595.042	Er	18	8	–
3595.00	Ho	–	4	Ex
3594 99	Sm	6 d	–	Kn
3594.98	Tb	15	–	Ed
3594 954	U	8	15	–
3594.94	Hg II	–	[2]	Ps
3594.872	Co I	200 W	–	–
3594.65	Tb	15	–	Ed
3594 636	Fe I	125	100	–
3594 6	air	–	3	m
3594.57	Dy	4	2	m
3594 550	Mo	3	4	–
3594.531	W	5	7	–
3594.462	S II	–	[35]	Hn
3594.427	Hf II	–	2	–
3594.391	Ir	15	30	–
3594.308	Cr	–	4	–
3594.25	Tb	15	8	Ed
3594.18	Ne II	–	[12]	Bn
3594.15	Au	25	6	–
3594.137	Ir I	10	4	–
3594.128	Er	9	–	–
3594 12	Ca I	3	2	–
3594.116	Th	5	2	–
3594.111	U	1	4	–
3594.096	Ce	5	2	–
3594.032	Ce	5	–	–
3594.023	Cu I	15	2	–
3594.01	Pt	3	–	Ex
3593.995	Sm	2	–	–
3593.971	W	9	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3593.966	Cb	80	50	–
3593.952	Er	8	–	–
3593.889	Rh	3	–	–
3593.881	Th	5	5	–
3593.75	Tb	30	8	Ed
3593.730	Sm II	4	2	–
3593.685	U	8	1	–
3593.685	Pr	4	2	–
3593.640	Ne I	–	[250]	IHu
3593.61	Tl II	–	[10]	El
3593.60	N II	–	[10]	Fl
3593.561	W	4	3	–
3593.547	Cb	15	3	–
3593.530	Rh I	10	2	–
3593.526	Ne I	–	[500]	IHu
3593.488	Cr I	500 R	400 R	–
3593.48	Hg	–	[10]	Ps
3593.432	Gd	15	15	–
3593.402	Sm II	2	3	–
3593.397	Re	15 W	–	–
3593.34	Te	–	[5]	Bl
3593.334	V II	30	300 R	–
3593.329	Fe I	7	2	–
3593.29	La	2	–	m
3593.282	Ba I	3	–	Sz
3593.22	K II	–	[5]	Bn
3593.214	Sr II	3	2	–
3593.198	U	10	1	–
3593.15	Dy	6	4	–
3593.134	Ce II	8	–	–
3593.13	Eu	2 w	–	–
3593.13	Ho	6	6	Ex
3593.129	Zr I	7	1	–
3593.12	Pb	–	30	Sx
3593.1	bh Zr	2	–	L
3593.10	Tb	15	8	Ed
3593 093	Ti II	5	30	–
3593.036	Pr	5	2 h	–
3593.022	Ru I	60	150	–
3592.979	W	5	3	–
3592.97	Hg I	–	2 h	St
3592.95	Ho	6	–	Ex
3592.927	Eu	7	1 h	–
3592 921	Pb	–	3	–
3592.913	Yt I	80	25	–
3592.905	Sm	4	–	–
3592 890	Fe I	3	–	–
3592.846	W	6 d	3 d	–
3592 801	U	1	6	–
3592 80	Xe I	–	[2]	Me
3592.776	Th	2 d	6	–
3592.696	Gd	50	70	–
3592.692	Fe I	12	2	–
3592 65	Mo	–	20	–
3592.595	Sm II	40	50	–
3592.595	Nd	20	30	–
3592.533	V	40	–	–
3592 495	Ta	2	1 h	–
3592.486	Fe	3	1	–
3592.48	Cs	–	[4]	Bs
3592 423	W II	9	35	–
3592.4	Bi II	–	[5]	Ml
3592.317	Os	20	12	–
3592.301	U	4	4	–
3592.24	Mo	–	15	–
3592 22	Ho	6	10	Ex
3592.209	Fe	6	–	–
3592.14	Ta	2	1 h	–
3592.117	Dy	80	30	–
3592.073	Nd	8	8	–
3592.065	U	4	3	–
3592.024	V II	50	300 R	–
3592 015	Mo	5	3	–
3591.99	Au	15	5	–
3591.972	W	6	4	–
3591.907	Gd	8	4	–
3591.884	U	6	10	–
3591.821	Dy	80	20	–
3591.809	Mn	15	–	–
3591.792	Cb	5	5	–
3591.79	Eu	3	1	–
3591.769	W	6	3	–
3591.749	Co I	3	–	–
3591.747	U	10	2	–
3591.745	Ce	4	1	–
3591.741	Sm II	–	2	–
3591.725	Zr I	8	–	–
3591.69	Mo	–	25	–
3591.680	Sm	2	–	–
3591.66	Tb	15	3	Ed
3591.602	Os	2	5	–
3591.59	Rb I	80	20	Fl
3591.583	Ir	2 h	–	–
3591.560	U	4	15	–
3591.5	Rn	–	[2]	Pe
3591.487	Fe	6	–	–
3591.48	Hg I	–	[3]	Wd
3591.455	Th	4	1	–
3591.429	Gd	10	5	–
3591.423	Dy	200	100	–
3591.404	Mo	4	2	–
3591.39	Tb	8	3	Ed
3591.345	Fe I	12	3	–
3591.34	Eu	10	1	–
3591.33	Ho	–	6	Ex
3591.31	Br	–	[4]	Bl
3591.283	Ir I	8	2	Ab
3591 26	Ca I	2	2 h	Cw
3591 209	Pr	4	1	Kn
3591.198	Cb	2	50	–
3591.158	Er	7 h	–	–
3591.065	Th	2	4	–
3591.03	Se I	–	[8]	Rd
3591.001	Fe I	4	1	–
3590.95	Hg I	–	[4]	Wd
3590.905	Cb	3	2	–
3590 886	Ru	2	4	–
3590.879	Re	15	–	–
3590.87	C II	–	6	Fl
3590.826	W	10	10 l	–
3590.77	Si	–	5	Sy
3590.738	Mo	10	10	–
3590.728	U	4	–	–
3590 72	Er	6 d	1	–
3590.714	Cb	3	4	–
3590.667	Dy	30	20	–
3590.62	Eu	2 h	1 h	–
3590.598	Ce	50	1	–
3590.592	Fe	3	–	–
3590.519	Rh I	4	3	–
3590 499	U	8	10	–
3590.475	Sc II	18	12	–
3590.472	Gd	15	15	–
3590.47	Ne II	–	[4]	Bl
3590.46	Tb	15	–	Ed
3590.45	Eu	10 wh	–	Kn
3590.43	W	–	5	–
3590 352	Nd	400 W	300 W	–
3590.351	Ce	5 wh	5 wh	–
3590.35	In	–	12	m
3590 35	Er	25	–	–
3590.348	Yt	2	–	–
3590.320	U	5	15	–
3590.306	Mo	3	2	–
3590 3	bh C	–	–	L
3590 20	Mo	–	15 d	–
3590.107	Os	30	15	–
3590.085	Fe	6	3	–
3589.97	Ta	2	–	Ks
3589.96	Eu	2 h	1 h	–
3589.959	Cb	2	3	–
3589.92	Pb I	–	40	Sx
3589 8	bh Zr	5	–	L
3589.791	U	8	–	–
3589.78	Te	–	[5]	Bl
3589.760	V II	80	600 R	–
3589.750	Zr	3	3	–
3589.742	Sm	2 wh	–	–
3589.708	Th	2	2	–
3589 698	W	4	3	–
3589.686	Yt I	3	–	–
3589.67	C II	–	20	Fl
3589.658	U	6	1	–
3589.65	Kr II	–	[70 whl]	Me
3589.635	Sc II	5	12	–
3589.609	Fe	2	–	–
3589.52	Mo	–	30 d	–
3589.5	Rn	–	[5]	Pe
3589.49	Ca I	2	–	Cw
3589.47	Pr	4	2	–
3589.456	Fe I	50	30	–
3589 356	Cb	100	100	–
3589.345	F	–	[20]	Di
3589.296	Sm	4	–	–
3589.267	Eu	3	–	Kn
3589.215	Ru I	60	100	–
3589.109	Th	4	3	–
3589.108	Pd I	5	–	–
3589.107	Fe I	70	30	S
3589.107	Cb	50	30	–
3588.949	Mo	10	10	–
3588.948	Er	9	3	–
3588.92	C II	–	2	Fl
3588.914	Fe I	10	4	–
3588.8	Rb	–	[6]	Dr
3588.784	Zr II	2	2 h	–
3588.764	Er	6	1	–
3588 62	Xe II	–	[3 h]	Hu
3588.616	Fe I	35	10	–
3588.564	Ce	2	1	–
3588.55	Eu	3	1	Kn
3588.539	Ca	–	3	–
3588.5	Bi II	–	[60]	Ml
3588.496	Ce	3	–	–
3588.44	A	–	[300]	Rt
3588.430	Ce	5	–	–
3588.348	U	3	–	–
3588.343	Er	20	–	–
3588.320	Zr II	9	9	–
3588.305	Pr	7	3	–
3588.234	Ir	5	–	–
3588.16	Se II	–	[8]	Bl
3588.139	V	1	20	–
3588.132	Ba	5	3	Sz
3588.130	Ce	6	1	–
3588.11	A I	–	[3]	Ms
3588 108	Eu	2	1	–
3588.106	Mo	–	15	–
3588 09	Fe	4	–	–
3588 02	Cb	–	3 h	Me
3587 984	Zr II	10	10	–
3587.980	F	–	[15]	Di
3587.956	Cb	2	–	–
3587 931	Ni I	200	12	–
3587.873	Os	2	10	–
3587.865	Pr	8	6	–
3587.835	U	–	2	–
3587.784	U	2	–	–
3587.76	Tb	30	–	Ed
3587.758	Fe I	50	25	–
3587.753	Yt	15	2	–
3587.748	Er	10	3	–
3587.68	C II	–	6	Fl
3587.680	Ce	2	–	–
3587.639	Ce II	10	2	–
3587.504	Nd	8	20	–
3587.473	Sm	15	3	–
3587.441	Al II	–	[80]	Sy
3587.44	Tb	15	15	Ed
3587.424	Ag	3 h	–	–
3587.422	Fe I	10	5	–
3587.42	F	–	[6]	Di
3587.406	Cb	2	4	–
3587.405	Pt I	4 h	–	–
3587.396	He I	–	[2]	Ps
3587.35	P	–	[30]	Gu
3587.342	Pr	10	5	–
3587.33	Sn II	–	[3]	Mc
3587.327	Al II	–	[5 h]	Sy
3587.315	Os	60	15	–
3587.26	Er	3	–	–
3587.252	He I	–	[10]	Ps
3587.240	Fe	5	2	–
3587.223	Ce	5	1	–
3587.203	Ru	5	70	–
3587.191	Gd	25	15	–
3587.190	Co I	200 r	50 h	–
3587.176	Al II	–	[2]	Sy
3587.15	Eu	3	1 h	Kn
3587.14	Pr	8	8	–
3587.13	F	–	[6]	Di
3587.130	Ti II	12	25	–
3587.08	Rb I	200	40	Fl
3587.079	Ce	3	2	–
3587.057	Al II	–	[100]	Sy

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3587.02	Xe I	–	[4]	Me
3586.99	W	–	8	–
3586.986	Fe I	200	150	–
3586.982	U	–	2	–
3586.98	Ag I	6 h	–	–
3586.908	Al II	–	[500 h]	Sy
3586.9	bh Sr	8	–	L
3586.869	Cb	2	–	–
3586.861	Mo	6	6	–
3586.802	Al II	–	[200 wh]	Sy
3586.78	Mo	–	5	–
3586.756	Cb	2	20	–
3586.753	Ce II	10	4	–
3586.747	Fe	4	2	–
3586.74	Au I	20	15	–
3586.692	Al II	–	[200]	Sy
3586.691	Cb	1	20	–
3586.64	Er	8 d	–	–
3586.60	K II	–	[5]	Bn
3586.546	Al II	–	[200]	Sy
3586.543	Mn	50 h	40	–
3586.54	Sm	3	3	–
3586.531	Pr	10	4	–
3586 523	Ba	5	3	–
3586.506	Os	30	15	–
3586.44	Pb	–	20	Sx
3586.359	Sm	40 r	–	–
3586.326	U	3	–	–
3586.294	Zr I	20	3	–
3586.291	Ta	18	3	–
3586.25	Kr II	–	[12 hl]	Me
3586.25	Pr	2	1	–
3586.116	Dy	4	2 h	–
3586.114	Fe	80	80	S
3586.113	V I	6	–	–
3586.07	Tm	6	–	Me
3585 90	Mo	–	15	m
3585.86	In	–	12	Sq
3585.852	Ti	7	3	–
3585.832	Sm	5	4 h	–
3585.83	C II	–	6	Fl
3585.820	Ru	–	10 h	–
3585.808	Co I	2 h	–	–
3585.8	bh C	–	–	L
3585.79	Er	10 W	2 h	–
3585 78	Tb	8	3	Ed
3585.776	Dy	150	100	–
3585.774	Th	4	4	–
3585.71	W	–	4	–
3585.707	Fe I	125	80	–
3585.700	Mo	–	20	–
3585.571	Mo	4	–	–
3585 540	Zr I	2	2 h	–
3585.523	La II	–	6 h	–
3585.506	Cr II	6	35	–
3585.468	Yb	10	20	–
3585.44	Br	–	[6]	Bl
3585.34	Te	–	[350]	Bl
3585.321	Re	30	–	–
3585.320	Fe I	150	100	S
3585.295	Cr	6	5	–
3585.160	Co I	60	–	–
3585.066	Dy	300	100	–
3585.057	Th	1	4	–
3585.03	Tb	15	50	Ed
3585.025	Re	15	–	–
3584.98	C II	–	2	Fl
3584.969	Cb	30	50	–
3584 964	Gd	100	100	–
3584.960	Fe	30	25	–
3584.879	U	30	12	–
3584.805	Ce	2	1	–
3584.801	Co I	25	–	–
3584.790	Fe I	3	–	–
3584.787	W	3	2	–
3584.663	Ir I	10	1 h	–
3584.663	Fe I	100	60	S
3584.6	Rn	–	[2]	Pe
3584.532	Ir I	3	–	Ab
3584.518	Er	25	15 h	–
3584.514	Yt II	20	15	–
3584.512	Ta	35	3	–
3584.46	I I	–	[5]	Db
3584.447	Ce	2	2	–
3584.426	Dy	50	20	–
3584.404	Os	15	20	–
3584.403	V	–	6	–
3584.337	Ce	6	2	–
3584.33	Cr	10 wh	10 wh	–
3584.257	Pr	15	8	Kn
3584.256	Mo	5	10	–
3584.255	Sm II	25 d	3	–
3584.213	Ta	50	7 h	–
3584.198	Ru I	2	6	–
3584.18	S	–	[10]	Hn
3584.107	W	9	9	–
3584.09	Pd	3	–	–
3584.07	Cl	–	[4]	Bl
3583.968	Ce	2	1	–
3583.927	U	3	6	–
3583.920	Sm	2	1	–
3583.9	bh C	–	–	L
3583.871	Mo	2	3	–
3583.85	In	–	12	Sq
3583.704	V I	60	30	–
3583.7	bh Ca	8	–	L
3583.692	Fe	6	1	–
3583.676	Mn	5	–	–
3583.664	Ce	3	–	–
3583.60	P	–	[50]	Gu
3583.60	Ga II	–	[2]	Sy
3583.528	Rh I	10	5	–
3583.46	W	–	10	–
3583.45	Pr	4	3	–
3583.398	Os	15	10	–
3583.388	Ir	6	3	–
3583 372	Sm II	15	4	–
3583 341	Fe	50	15	–
3583 324	I	–	[18]	Ke
3583 28	Hf	2	–	–
3583.22	Pr	5	3	–
3583.218	U	–	2	–
3583.151	Mo	3	4	–
3583 107	Ce	3	–	–
3583.098	Rh I	200	125	–
3583 091	Os	20	10	–
3583 022	Re I	100 w	–	–
3582.972	Pr	4	3	Kn
3582.913	W	4	2	–
3582.814	V I	40	25	–
3582.704	Pr	4	2	–
3582.72	W	–	4 d	–
3582.70	A I	–	[30]	Ms
3582 688	Fe	3	–	–
3582.683	Sm II	10	–	–
3582.676	Mo	20	1	–
3582 63	Tb	8	–	Ed
3582 624	Cr	35	12	–
3582 602	Ce	3	1	–
3582 6	Rn	–	[18]	Wo
3582.431	Mn	10	–	Fu
3582 42	Mo	–	15	–
3582.39	Sn II	–	[3]	Mc
3582.363	Cb	5	10	–
3582.35	A	–	[50]	Rt
3582.25	Pr	–	2 h	–
3582 243	W	7	6	–
3582 201	Fe	30	30	–
3582.124	Ce	2	–	–
3582 085	Zr II	3	3	–
3582.063	Cb	3	5	–
3582.030	Dy	25	10	–
3582 022	U	6	15	–
3582 015	Th	5	6	–
3581.916	Gd	15	15	–
3581.891	Mo	10	15	–
3581.887	W	4	9	–
3581.874	Co I	3	–	–
3581.842	Er	10 h	2	–
3581.840	Pr	10	7	–
3581.838	U	6	15	–
3581.810	Fe	3	2	–
3581.805	Mo	10	5	–
3581.794	Os	5	8	–
3581 68	Sn II	–	6	Ro
3581.68	La II	–	20 hl	Me
3581.649	Fe I	4	3	–
3581.62	A	–	[15]	Rt
3581 3	Cs	–	[4]	Bs
3581 295	Ca	–	2	–
3581.238	W	8	8	–
3581.195	Fe I	1000 R	600 r	S
3581.00	Mo	2	3	–
3580.968	Re I	40 w	–	–
3580.927	Sc II	12	40	–
3580.922	U	3	–	–
3580.906	Sm	40	6	–
3580.889	Ta	3	1 h	–
3580.861	Ir I	15	3	Ab
3580.825	V I	50	50	–
3580.779	Ce	10	2	–
3580.75	Ho	–	4	Ex
3580.63	Tb	8	–	Ed
3580.629	Gd	5	–	–
3580.586	Sm II	2	–	–
3580.57	Eu	3	1 h	–
3580.562	Ce	2	–	–
3580.543	Mo	5	10	–
3580.530	Os	2	4	–
3580.48	Er	12 d	5	–
3580.45	Hf II	2	3	m
3580.35	P	–	[30]	Gu
3580.291	Ti	15	5	–
3580.29	Mo	–	10	–
3580.273	Cb	100	300	–
3580.267	Ta	7	–	–
3580.262	Rh I	10	2	–
3580.26	Lu	3	–	Me
3580.244	U	6	1	–
3580.235	Th	5	5	–
3580.232	Eu	4	1 h	–
3580.133	Re	80	–	–
3580.124	U	–	2	–
3580.102	Mn	2	–	–
3580.099	La II	2	3 h	–
3580.08	Au	20	15	–
3580 043	Dy	80	30	–
3580.023	Ta	10	–	–
3579.98	Tb	8	3	Ed
3579 95	Pr	7	3	–
3579.948	Sm	2	1	–
3579.917	Zr	6 h	5 h	–
3579.905	Hf	15	10	–
3579 867	Os	2	5	–
3579.828	Fe I	1	–	–
3579.768	Ru I	3	8	–
3579.672	Ba I	10	8	–
3579.668	Sm	4	3	–
3579.661	Mn	3	–	–
3579.558	Fe	2	1	–
3579.550	Gd	5	5	–
3579.499	Sm	4	2	–
3579.450	Ca	–	2	–
3579.448	Ta	–	35	–
3579.44	Er	15 d	–	–
3579.42	Dy	2	1	m
3579 364	U	6	10	–
3579.36	Eu	4	1 h	–
3579.343	Th	4	8	–
3579.20	Tb	50	50	Ed
3579.127	Re I	50	–	–
3579 125	Dy	3	1	–
3579.12	Ho	–	4	Ex
3579.091	V I	7	1	–
3579.08	Eu	6 w	1 h	–
3579.076	Ta	15	1	–
3579.073	Mo	–	25	–
3579.029	Co I	5	–	–
3578.950	Ce	3	–	–
3578.93	Se	–	[12]	Bt
3578.903	Co I	8	2	–
3578.89	La II	2 h	3 h	Me
3578.822	Ce	3	–	–
3578.80	Dy	2	1	m
3578.762	Ta	2	1 h	–
3578.75	Pr	8	5	–
3578.747	Hg	–	[40]	St
3578.70	Tb	8	–	Ed
3578.687	Ti II	25	5	–
3578.687	Cr I	500 R	400 r	–
3578.639	V	35 d	80 d	–
3578.584	Cb	15	1	–
3578.58	Gd	8	–	–
3578.571	Pr	2	1	–
3578.49	Eu	2	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3578.47	Dy	4	2	Ed
3578.424	Pr	9	3	–
3578.40	Tb	8	–	Ed
3578.380	Fe I	40	5	–
3578.34	Gd	5	5	–
3578.33	Er	3 w	–	–
3578.327	U	8	1	–
3578 266	Ti I	8	1	–
3578.234	Cb	1	5	–
3578.226	Zr II	5	6	–
3578.110	Eu	6	1	–
3578.106	Pr	10	5	–
3578 075	Co I	18	–	–
3578.03	Co II	–	30	Me
3578.00	Tb	8	–	Ed
3577.989	Dy	150	50	–
3577.959	Rb II	–	[15]	Rr
3577.919	U	10	–	–
3577.880	Mn	50	25	–
3577.874	V I	50	40	–
3577.846	Pr	6	–	–
3577.798	Ce	2	2	–
3577.783	U	4	1	–
3577.774	Sm II	20	3	–
3577.75	Fe	2	–	–
3577.718	Cb	10	15	–
3577.688	Co I	2 h	–	–
3577.644	V	–	3	Me
3577.64	W	–	6 d	–
3577.622	Ir I	4	–	Ab
3577.615	Ba	4	–	–
3577.60	P	–	[50 d]	Gu
3577.60	Kr II	–	[4 hl]	Me
3577.553	Zr I	12	1	–
3577.53	I	–	[5]	Bl
3577.51	Tm	5	8	Me
3577.487	U	3	–	–
3577.487	Os	3	–	–
3577.465	Pr	30	8	–
3577.458	Ce	300	12	–
3577.41	Rb	–	[20]	Ok
3577.350	Re	2	–	–
3577.349	U	6	1	–
3577.262	Co I	3	–	–
3577.243	Sr I	2	–	ISn
3577.240	Ni I	4	–	–
3577.231	Cb	4	3	–
3577.23	F	–	[60]	Di
3577.225	V	–	20	Me
3577.219	Th	1	2	–
3577.2	air	–	3	m
3577.20	Pt II	–	10	Sh
3577.093	Ir	3	–	–
3577.08	Tb	8	3	Ed
3577.076	U	15	3	–
3577.05	Yb	7	20	–
3576 98	Ga	–	4	–
3576.873	Dy	200	50	–
3576.854	Zr II	15	25	–
3576.851	Mo	1	3	–
3576.85	Ho	–	4	Ex
3576.838	U	2	1	–
3576 83	Tb	15	3	Ed
3576.83	Pr	2	–	–
3576.8	Rb	–	[6]	Dr
3576.762	Ni II	2	40 h	–
3576 760	Fe	80	40	S
3576.759	Gd	5	3 h	–
3576.737	Ir I	10	2	Ab
3576.70	W	–	5 d	–
3576.62	A	–	[300]	Rt
3576.581	La II	–	3 d	–
3576.562	Th	3	3	–
3576.51	Cd	–	3	–
3576 382	W	7	5	–
3576.340	Sc II	18	45	–
3576.32	Pr	10	3	–
3576.28	Ba II	–	3	Rs
3576 25	Ho	4	6	Ex
3576.250	Dy	300	–	–
3576.242	Ta	18	1 h	–
3576 233	Ir	2 h	–	–
3576.232	Ce	18	1	–
3576.219	U	8	12	–
3576.174	Mo	3	5	–
3576.156	Nd	15	6	–
3576.15	Si	–	2 h	Sy
3576.053	Yt I	15	2	–
3576.047	Ba	3	3	Sz
3576.01	Eu	5	1 h	Kn
3575.980	Fe I	80	25	–
3575.976	W	8	7	–
3575.952	Ni I	3	–	–
3575.90	Tb	15	3	Ed
3575.856	I I, II	–	[15]	Ke
3575 848	Cb	50	80	–
3575.792	Zr I	100	5	–
3575 765	U	1	6	–
3575 68	Er	3	–	–
3575.67	Mo	3 d	4 d	–
3575.662	Ce	3	–	–
3575.607	Mo	3	4	–
3575.573	Yb	20	2	–
3575.544	Pr	9	3	–
3575.474	U	1	8	–
3575.45	Sn II	–	5 wh	Mc
3575 448	Sm	2	1	–
3575 42	Eu	2 wh	1 h	–
3575 375	Fe	40	30	–
3575.361	Co I	200 r	25	–
3575.323	Th	6	10	–
3575 3	Rn	–	[5]	Pe
3575.288	Ce	4	1	–
3575.250	Fe I	10	5	–
3575.226	W	10	9	–
3575.177	Ce	2	1	–
3575.129	Cb	10	10	–
3575.129	V I	20	15	–
3575 118	Fe I	15	5	–
3574.977	Nd	30	8	–
3574 964	Co I	200	25	–
3574.960	U	4	–	–
3574.958	Pr	10	4	–
3574 935	Cr I	8	6	–
3574.92	F II	–	[6]	Di
3574.805	Cr I	8	15	–
3574.78	Ho	10	20	Ex
3574.772	V I	25	12	–
3574.759	U	12	1	–
3574.743	Er	10	1	–
3574 738	Gd	25	25	–
3574.64	Ne II	–	[18]	Bn
3574.63	Dy	2	1	m
3574.577	Ru	4	15	–
3574.457	Mo	5	5	–
3574 426	La I	30	8	–
3574.346	V	–	40	–
3574.337	Nd	20	8	–
3574.330	U	2	3 h	–
3574.245	Ti I	15	3	–
3574.201	Cb	1	10	–
3574 20	Ho	–	4 h	Ex
3574.160	Dy	200	100	–
3574.13	Tb	8	–	Ed
3574 110	U	12	8	–
3574 079	Os	30	5	–
3574.06	Tm	20	30	Me
3574 039	Cr I	50	15	–
3573 969	W	4	3	–
3573.904	Eu	3	1	–
3573 888	Fe	40	30	–
3573.888	Sm	10 h	–	–
3573 882	Mo	20	25	–
3573.87	Sn II	–	2	Ro
3573.843	Er	10	4	–
3573 838	Dy	80	80	–
3573 836	Fe	20	15	–
3573.77	Yt	3	3	Me
3573.737	Ti II	20	40	–
3573.724	Ir I	8	100	–
3573.701	Ce	10	3	–
3573 666	I II	–	[18]	Ke
3573.643	Cr I	60	15	–
3573.612	Ir I	5 h	–	Ab
3573.57	Tb	15	–	Ed
3573.516	V I	20	20 h	–
3573.511	Th	3	3	–
3573.45	Eu	3 W	–	–
3573.438	Ta	15	70 w	–
3573.411	W	8	7	–
3573.400	Fe	50	20	–
3573.396	Sm	5	2	–
3573.3	Rn	–	[2]	Pe
3573.24	Cs	–	[4]	Bs
3573.222	Th	5	6	–
3573.22	Ho	8	10	Ex
3573.183	Nd	10	4	–
3573.094	Cb	2	5	–
3573.084	Zr II	10	9	–
3573.077	Er	10	–	–
3573.03	Dy	3	1	m
3572.931	U	6	1	–
3572.86	W	–	7	–
3572.825	Sm	–	2	–
3572.805	Re I	2 h	–	–
3572.754	Ce	5	1	–
3572.751	Nd	10	10	–
3572.75	In	–	6	–
3572.748	Cr I	25	5	–
3572.734	Pb	200	20	–
3572.68	Kr II	–	[15 whl]	Me
3572.65	Zn	5	[1]	Vs
3572 628	V I	5 h	2 h	–
3572 60	Eu	3	1 h	–
3572 592	Mo	–	20	–
3572.523	Sc II	30	50	–
3572.476	W II	10	35	–
3572.473	Zr II	60	80	–
3572.428	Ce	12	5	–
3572.405	Nd	25	6	–
3572 399	Th	8	8	–
3572.29	A I	–	[300]	Ms
3572 24	Pr	5	2	–
3572.117	Er	5	–	–
3572.11	Eu	3 w	1	–
3572.07	Tb	30	8	Ed
3572.02	W II	4	9	m
3572.015	Ru	3	5	–
3571.999	Pt II	–	15	–
3571.996	Fe I	100	80	–
3571.941	Gd	25	20	–
3571.869	Ni I	1000 R	40 h	–
3571.854	Ta	18	3	–
3571.787	Pr	10	3	–
3571.769	Sm	5 h	–	–
3571.73	Er	15 d	1	–
3571.72	I	–	[5]	Bl
3571.706	Re	5	–	–
3571.691	U	2	6	–
3571.68	F II	–	[6]	Di
3571.68	Fe	2	–	–
3571.67	Dy	3	2	m
3571.66	Eu	2 w	–	–
3571.653	V I	40	35	–
3571.575	Th	8	8	–
3571.560	U	3	2	–
3571.480	Cb	2	3	–
3571 454	Ce	3	–	–
3571.432	Yt I	15	2	–
3571 362	Ce	4	1	–
3571.35	I II	–	[5]	Bl
3571.35	Tb	8	–	Ed
3571.32	Eu	2 W	–	–
3571.262	Mo	5	8	–
3571.26	Ne II	–	[12]	Bn
3571.227	Fe I	40	6	–
3571.212	V	10	5	–
3571.180	U	6	–	–
3571.155	Pd I	40 h	40 h	–
3571.140	Ta	5	3	–
3571.099	Eu	3	–	–
3571.075	Sm	6	2	–
3571.037	V I	35	20	–
3571.03	Tb	15	–	Ed
3571.02	Dy	3	–	Ed
3570.99	Tm	4	10	Me
3570.983	Ce II	6	1	–
3570.98	Nd	6	2	–
3570.930	U	2	2	–
3570.773	Ta	5	1 h	–
3570.756	Er	10	1	–
3570.655	W	15	15	–
3570.65	U	3 d	8 d	–
3570 647	Mo	15	20	–
3570 594	Ru	12	60	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3570.56	Pr	8	4	–
3570.56	Yb	2	15	–
3570.462	Mo	2	4	–
3570.408	Nd	2	–	–
3570.34	Tb	8	–	Ed
3570.33	P II	–	[30 d]	Gu
3570.32	Ta	2	–	Ks
3570.258	Fe	50	15	–
3570.256	Re	30	–	–
3570.182	Rh I	400 r	150	–
3570.109	Sn	–	5	–
3570.100	Mn	20 R	15	–
3570.097	Fe I	300	300	–
3570.095	La II	10	10	–
3570.088	Ce	3	–	–
3570.07	Tb	8	–	Ed
3570.05	Si	–	2	Sy
3570 041	Mn	20 R	–	–
3569.888	Th	8	5	–
3569.882	U	–	3	–
3569.852	Cb	3	3	m
3569.833	Ir I	7	3	–
3569.827	Ce	5	1	–
3569.82	Eu	4	–	–
3569 804	Mn	12	5	–
3569.775	Os	100	30	–
3569.76	Ag I	4 h	–	Bx
3569.695	Cb	2	2	m
3569.68	Kr II	–	[2 h]	Me
3569.669	Dy	40	10	–
3569.627	Th	2	2	–
3569.584	W	4	5	–
3569.56	Pr	10	5	–
3569.529	U	1	5	–
3569 505	Mo	2	5	–
3569.498	Nd	12	–	–
3569.494	Sm	3	–	–
3569.494	Zr I	15	2 h	–
3569.493	Mn	25 h	8	–
3569.47	F II	–	[3]	Di
3569.466	Cb	20	15	–
3569 379	Co I	400 R	100	–
3569 316	Ce	8	2	–
3569.28	Cs	–	[4]	Bs
3569.252	Er	8	–	–
3569 25	Dy	2	–	m
3569.235	W	8 d	7 d	–
3569.229	Nd	20	4	–
3569.19	Ta	2	–	Ks
3569.17	Eu	4 W	1 h	–
3569 147	Cr	4	4	–
3569.083	V I	7	1	–
3569.062	U	12	20	–
3569.041	Hf II	20	50	–
3568 994	Dy	100	–	–
3568.987	W	9	9	–
3568.98	Tb	15	15	Ed
3568.979	Fe I	50	35	–
3568.940	V I	20	15	–
3568.91	Ca I	2	–	Cw
3568.891	Sm II	4	1	–
3568 879	Mo	4	2	–
3568.879	Nd	6	12	–
3568.875	Zr I	12	–	–
3568.822	Fe	15	7	–
3568.815	U	6	3	–
3568.725	Cb	5	5	–
3568.690	U	3	–	–
3568.68	Tm	5	5	Me
3568.65	Dy	4	–	Ed
3568.566	Os	2	5	–
3568.53	Ne II	–	[25]	Bn
3568.525	U	2	2	–
3568.513	Ce	2	–	–
3568.51	Tb	50	50	Ed
3568.506	Cb	10	50	–
3568.435	Ag	2	1	–
3568.426	Co I	2	–	–
3568.423	Fe I	20	4	–
3568.418	Cr	6 wh	–	–
3568.418	W	4	4	–
3568.33	Dy	4	2	m
3568.29	Pr	5	4	–
3568.258	Sm II	40	50	–
3568.231	Re	40	–	–
3568.181	Mo	3	4	–
3568.135	Zr II	4	2	–
3568.126	Ce	10	1	–
3568.067	Mo	3	3	–
3568.040	W	10	10	–
3568.00	Sb II	1	6	–
3567.995	Ir	15	5	–
3567.995	Cb	2	50	–
3567.98	Cl	–	[6]	Bl
3567.978	Th	5	5	–
3567.86	Tb	8	–	Ed
3567.84	Lu	100	7	Me
3567.735	Mo	2	3	–
3567.73	Ba II	2	3	–
3567.723	Eu	3	–	–
3567.720	Fe	2	–	–
3567.707	Th	3	3	–
3567.701	Sc II	15	40	–
3567.678	W	6 s	7	–
3567.657	A I	–	[300]	IHu
3567.576	Er	8	–	–
3567.56	Tl II	–	[10]	Sx
3567.486	U	3 h	1 h	–
3567.465	Mo	1	3	–
3567.383	Fe I	10	2	–
3567.364	Hf	20	10	–
3567.36	Tm	10	–	Me
3567.35	Ta	4	–	Ks
3567.35	Tb	15	15	Ed
3567.30	Dy	4	–	Ed
3567.266	Th	2	2	–
3567.25	Ho	–	4	Ex
3567.247	W	7	6	–
3567.171	S II	–	[40]	Hn
3567.166	Ce	2	2	–
3567.155	Ru I	3	9	–
3567.103	Cb	5	30 w	–
3567.1	Pb	–	5	Sx
3567.092	Yb	1	4	–
3567.068	Mo	5	5	–
3567.046	Th	4	4	–
3567.038	Fe I	50	15	–
3566.962	U	1	8	–
3566.830	Sm	20	3	–
3566.830	Ir I	2	–	–
3566 80	Dy	4	2 h	m
3566.79	Eu	4	1 h	–
3566.75	Tl II	–	[10]	Sx
3566.747	Mo	3	3	–
3566.742	Pr	6	2	–
3566 716	Ta	50	5 l	–
3566.687	Ba	5	–	–
3566.64	Sb	–	25 wh	Sp
3566.626	Pd	60	–	–
3566.598	U	30	10	–
3566 582	Fe	2	–	–
3566.551	Nd	3	–	–
3566.491	Ir I	8	–	–
3566.474	Tm	60	20	Me
3566.471	Sm	10	2	–
3566.42	P II	–	[70]	Gu
3566.409	Ir I	6	5	Ab
3566.374	Mo	3 d	3 d	–
3566 372	Ni I	2000R	100 wh	–
3566.336	Nd	8	–	Kn
3566.311	Fe I	3	1	–
3566.309	Mo	3	3	–
3566.24	I II	–	[5]	Mu
3566.20	Ho	–	4 h	Ex
3566.182	V II	25	100	–
3566.163	Cr	80 wh	12 wh	–
3566.148	Fe II	2	–	Do
3566.14	Cu I	3	–	Hs
3566.104	Zr I	20	10	–
3566.1	bh La	5 h	–	Me
3566.10	Ca I	2	–	–
3566 095	Ti	8	2 h	–
3566.090	Er	12	–	–
3566 089	Cb	5	5	–
3566.089	Pr	10	6	–
3566.08	Th	10	3	–
3566.06	Dy	4	2	m
3566.054	Mo	10	10	–
3566.033	Ce	10 w	6 w	–
3566.01	Ta	7	–	Ks
3566.005	U	6	–	–
3565 987	Ti II	6	25	–
3565.93	Au I	20	15	–
3565.903	Tm	40	50	Me
3565.855	Cb	3	2	Me
3565.85	W	–	5	–
3565.84	Ne II	–	[12]	Bn
3565 8	bh La	4 h	–	Me
3565.80	Eu	2	1	–
3565.750	U	1	15 h	–
3565.74	Tb	15	15	Ed
3565 691	Cb	–	5 h	–
3565 65	Dy	6	2	Ed
3565 627	Ta	–	50 l	–
3565.62	W	7	6	–
3565 588	Fe I	10	4	–
3565.431	Zr II	3	7	–
3565.424	Ce	6 s	2	–
3565.381	Fe I	400	300	S
3565 34	Dy	6	–	Ed
3565.326	Ti II	2	5	–
3565.32	Hf	2	–	Me
3565.23	Eu	5	–	Kn
3565.202	Re	2	–	–
3565.177	Er	6	–	–
3565.161	Cr	6	1	–
3565.156	W	4	5	–
3565.111	Cs	–	[10]	Sv
3565.056	Cb	10	15 h	–
3565.044	U	6	–	–
3565.02	A	–	[10]	Rt
3564.953	Cr	8	1	–
3564.951	Co I	150 w	–	–
3564.881	U	3	6	–
3564 798	Ru	2	5	–
3564.794	Ta	18	2	–
3564.730	Re	20	–	–
3564.71	Th	–	5	–
3564.710	Cr	20	8	–
3564.643	Co I	2	–	–
3564 64	Gd	2	4	–
3564.587	U	5	8	–
3564 562	Ru I	4	5	–
3564.540	Ti I	12	2	–
3564.530	Fe	30	15	–
3564.516	Mo	1	8	–
3564.40	Er	8 d	1 h	–
3564.397	Ti I	10	1	–
3564.38	W	3 d	6 d	–
3564.353	Ru I	3	6	–
3564 314	Hf	2	1	–
3564 30	Xe II	–	[10]	Hu
3564 293	Cr	15	6	–
3564.291	Mo	5	5	–
3564.27	A I	–	[100]	Ms
3564.244	Dy	25	10	–
3564.208	Sm	2	1	–
3564 20	Pr	3 h	–	–
3564.181	U	6	4	–
3564.132	Rh I	25	1	–
3564.125	Co I	4	5	–
3564.116	Fe I	15	2	–
3564.094	Nd	30	4	–
3564.092	Os	5	10	–
3564.077	Cb	2	20	–
3564.053	Gd	10	10	–
3564.006	W II	–	6	–
3564.0	bh Ca	20	–	L
3563.93	Th	2	2	–
3563.925	Cr	–	8	–
3563.885	Tm	15	3	Me
3563.885	U	–	4	–
3563.823	Ce II	2	1	–
3563 80	Xe I	–	[3]	Me
3563.771	Pr	30	8	–
3563.755	Mo	10	10	–
3563.74	Tb	8	–	Ed
3563 72	Eu	6 w	1 h	–
3563.699	Dy	50	30	–
3563.661	U	12	5	–
3563 65	W	–	5	–
3563.620	Cb	10	15	–
3563 61	Si	–	2	Sy
3563.591	Ce	2	–	–
3563.590	Sm	3	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3563.553	Er	5	–	–
3563.497	Cb	30	30	–
3563.490	Pr	3	–	–
3563.452	W	9	7	–
3563.403	Nd	50	10	–
3563.402	Er	12	1	–
3563.397	U	–	6	–
3563.396	V I	15	8	–
3563.384	Th	10	3 h	–
3563.26	A I	–	[100]	Ms
3563.230	Cb	2	2	–
3563.16	Er	15 w	6	–
3563.154	Dy	200	100	–
3563.138	Mo	15	15	–
3562.980	Pr	8	3	–
3562.950	He I	–	[4]	Ps
3562.942	Ne I	–	[15]	Ps
3562.918	Co I	10	–	–
3562.90	Tb	30	8	Ed
3562.89	Pb	–	20	Sx
3562.882	Hg	–	[2]	St
3562.88	Cr	10	–	–
3562.822	Ir I	6	2	–
3562.712	U	3	–	–
3562.67	Dy	5	1	m
3562.649	Cb	3	3 h	Me
3562 616	Ru	2	3	–
3562.548	Pr	10	4	–
3562.52	Tb	8	–	Ed
3562.519	W	–	12	–
3562.484	Zr I	8	–	–
3562.475	Cr	10	5	–
3562.47	P II	–	[30]	Gu
3562.456	Re	2 h	–	–
3562 337	Os	50	20	–
3562 28	Cr	20	12	–
3562.22	Pr	10	4	–
3562.203	Sm	2	1	–
3562 19	A II	–	[5]	Rt
3562.18	Eu	4	1	–
3562.15	K II	–	[15]	Bn
3562 137	V I	12	8	–
3562.106	Mo	5	5	–
3562.097	Co I	15	–	–
3562.091	Ce	6	–	–
3562 050	U	–	6	–
3561.981	Ba	3	3	Sz
3561.910	Ti II	5	12	–
3561.897	Zr	3	2	–
3561.894	Ru	2	5	–
3561 891	Er	8	–	–
3561.881	Cb	–	8	–
3561.812	Fe	4	–	–
3561.809	Th	3	1	–
3561.800	U	12	30	–
3561 751	Ni I	70	12	–
3561.74	Tb	200	200	Ed
3561.737	Hg	–	[2]	St
3561.73	Al	–	2	Gn
3561.691	Cb	4	10	–
3561.68	Pr	6	3	–
3561.664	Hf II	20	35	–
3561.594	Nd	8	2	–
3561 581	Sm	15	4	–
3561.575	Ti II	10	20	–
3561.538	Ce	6	–	–
3561.452	W	–	10	–
3561.413	U	12	–	–
3561.373	Ir	5	–	–
3561 361	Mo	1	20	–
3561.28	Eu	3	1 h	–
3561 273	Er	12 s	–	–
3561.27	Pr	25	4	–
3561.253	W	8	4	–
3561.23	Ne II	–	[12]	Bn
3561.203	Hg	10	6 h	St
3561.177	I	–	[40]	Ke
3561.172	Ir I	5	2	Ab
3561.143	Cb	5	10	–
3561.11	Zr II	2	–	Ks
3561.04	A II	–	[15]	Rt
3560.92	Tm	8	–	Me
3560.901	Cr	2 h	1 h	–
3560.893	Co I	200	25	–
3560 887	Fe	2	–	–
3560.864	Th	10	4	–
3560.855	Os I	150 R	100	–
3560.798	Ce	300	2	–
3560.77	Tl II	–	[25]	Sx
3560.729	Nd	30	20	–
3560.727	Yb	8	100	–
3560.697	Fe	50	15	–
3560.603	Ca	–	2	–
3560.596	V II	10	50	–
3560.57	Eu	7 w	1 h	–
3560.51	I	–	[2]	Bl
3560.482	Cb	–	10	–
3560.468	Os	1	5 h	–
3560.40	Tl II	–	[12]	Sx
3560.357	Cb	3	2	Me
3560.33	Yb	20	50	–
3560.308	U	4	2 h	–
3560.306	Co I	18 h	3	–
3560.266	Sm	25	3	–
3560.15	Ho	6	8	Ex
3560.149	Dy	40	20	Ed
3560.071	W	5	4	–
3559 958	Th	6	8	–
3559.930	Ni I	5	–	–
3559 92	P II	–	[30]	Gu
3559.902	Er	15	7	–
3559.901	Cb	–	10	–
3559 882	Mo	5	5	–
3559.81	I	–	[5]	Bl
3559.798	Cs	–	[5]	Sv
3559.786	Os I	150	50	–
3559.781	Cr	15	10	–
3559.76	Tb	15	8	Ed
3559.720	Mo	–	25	–
3559.709	W	10	8	–
3559.607	Yb	10	–	–
3559.596	Cb	2	100	–
3559.51	A	–	[15]	Ms
3559.509	Fe	50	25	–
3559.456	Th	10	10	–
3559.409	Re I	2	–	–
3559 39	Tb	8	8	Ed
3559.328	Co II	6	–	–
3559.27	Dy	10	4	m
3559.245	Mo	3	3	–
3559 242	Sb	2 h	50 wh	–
3559.21	Cr	2 h	–	–
3559.2	Rn	–	[5]	Wo
3559.123	Cb	8	8	–
3559.105	Sm	40 d	20	–
3559.092	W	6	4	–
3559.087	Sr II	–	2 h	–
3559.083	Fe	4	2	–
3559.081	Pr	8	4	–
3559.076	Yb	5	–	–
3558 992	Ir I	50	50	Ab
3558.961	Zr I	8	2	–
3558.946	Re I	50 w	–	–
3558.877	Ce	3	2	–
3558.866	Sm	5	–	–
3558.813	Pr	9	2	Kn
3558.805	Os	4 h	2	–
3558.795	Mo	3	5	–
3558.781	Co I	40 w	–	–
3558.77	Tb	15	8	Ed
3558.745	Yt I	3	–	–
3558.736	Er	10	1	–
3558.706	Ce II	8	1	–
3558.58	Cr	–	8 h	–
3558.538	Sc II	15	40	–
3558.519	Cr	20	–	–
3558.519	Gd	100 r	50	–
3558.518	Fe I	400	300	S
3558.518	Ti	15	7	–
3558.483	Hf	3	1	–
3558.20	Dy	15	4	m
3558.189	Gd	25	25	–
3558.15	Ho	–	4 h	Ex
3558.100	Mo	15	15	–
3558.100	Fe	2	–	–
3558.019	Er	10	1	–
3558.015	U	3	3 h	–
3558.013	I	–	[7]	Bl
3558 012	Cb	5	5	–
3558.007	Pr	10	3	–
3557.982	Ta	35	2 h	–
3557.920	W	2	12	–
3557.842	U	12	1	–
3557.84	Ne II	–	[12]	Bn
3557 81	Er	10 wd	2 w	–
3557.800	Rb I	–	[15]	Rr
3557.79	Tm	40	20	Me
3557.75	Eu	3	1	–
3557.70	Pr	2	2	–
3557.632	Dy	3	2	–
3557.568	U	1	2 h	–
3557.487	Ce	6	1	–
3557.464	Th	5	5	–
3557.453	Sm	15	1	–
3557.362	Sm II	30	2	–
3557.323	U	1	2	–
3557 298	Fe	15	–	–
3557.251	La II	10	8	–
3557.212	W	8	8	–
3557.170	Ir I	25	30	–
3557.163	V I	8	–	–
3557.14	Pr	15	5	–
3557.11	Er	4	1	–
3557.062	Gd	25	25	–
3557.058	Ru	3	5	–
3557.015	W	3	4	–
3557.01	U	–	3 d	–
3556.940	Mo	2 d	25	–
3556 91	A II	–	[10]	Rt
3556.893	Ce	6	–	–
3556.883	Fe I	300	150	–
3556 85	Eu	10 w	–	Kn
3556.801	V II	30	40 WR	–
3556.76	Ho	15	40	Ex
3556.728	Sm II	35	3	–
3556.696	Fe I	4	1	–
3556.67	Tb	15	3	Ed
3556.626	Ru	3	5	–
3556.617	Ti	2	1	–
3556.597	Zr II	15	50	–
3556.548	Ta	3	–	–
3556.487	Eu	2	1 h	–
3556.48	P II	–	[100]	Gu
3556.44	Sr	–	2	Sd
3556 365	Ce	5	1	–
3556.36	Dy	2	–	Ed
3556 327	Mo	–	25	–
3556.312	Th	2 d	2	–
3556.249	V	40	2	–
3556.184	Ti	15	1	–
3556.130	Cr II	20	4	–
3556.098	Ce	8	–	–
3556.083	Yt II	2	3 h	–
3556.02	W	–	6	–
3556.017	Cb	5	10	–
3555.973	Os	30	12	–
3555.97	A I	–	[100]	Ms
3555.96	Dy	6	4	Ed
3555.940	Co II	–	6	–
3555.906	U	1	3	–
3555.82	Tm	6	–	Me
3555.788	Ce II	4	1	–
3555.788	Cr	20	6	–
3555.755	Th	12	3	–
3555.752	W	8	7	–
3555.740	V I	15	1	–
3555.729	Ta	10	2 h	–
3555.723	Nd	100	15	–
3555.707	Os	10	8	–
3555.70	Tb	8	–	Ed
3555.69	Dy	2	–	Ed
3555.677	U	4	2	–
3555.603	Ir I	10	2	–
3555.54	Kr II	–	[8 whl]	Me
3555.512	U	1	4 h	–
3555.475	Fe	2	–	–
3555.433	Mo	3	3	–
3555.37	Eu	4 d	1 h	–
3555.353	Sm	2	2	–
3555.327	Ir	2	–	–
3555.323	U	15	6	–
3555.29	Tb	15	3	Ed
3555 27	Dy	6	–	m
3555.24	Rn I	–	[3]	Rs
3555.219	Ce	3	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
3555.20	Pr	10 rd	4 rd	–
3555.175	W II	6	15	–
3555.160	Ce	5	2	–
3555.142	V I	10	3	–
3555.058	Th	4 d	1 d	–
3554.993	Ce II	25	–	–
3554.929	Fe I	400	300	–
3554.85	Ca	2	4	–
3554.83	Dy	4	4	m
3554.67	Er	6 d	1	–
3554.664	Cb	15	20	–
3554.627	Ce	10	2	–
3554.583	W	–	5	–
3554.544	Os	8	5	–
3554.519	Cb	15	20	–
3554.513	Fe I	4	2	–
3554.505	U	3	–	–
3554.43	Lu	50	150	Me
3554.394	He I	–	[7]	Ps
3554.385	Pr	5	3	–
3554.318	Th	2 d	1 d	–
3554.306	A I	–	[300]	IHu
3554.293	Er	9	–	–
3554.213	W	9	8	–
3554.195	Mo	5	10	–
3554.175	Sm II	25	3	–
3554.125	Cb	–	30	–
3554.120	Fe I	50	20	–
3554.070	Zr II	10	6	–
3554 048	Os	8	10	–
3554.04	Xe I	–	[10]	Me
3554.00	Hf	5	–	Me
3553.988	Nd	10	4	–
3553.968	Cr	6	6	–
3553.849	Pr	4	2	–
3553.848	Ru I	4	10	–
3553.835	Mo	10	1	–
3553.815	Ti I	3	–	–
3553.812	U	1	2	–
3553.744	Gd	15	–	–
3553.741	Fe	100	100	–
3553.668	Ru	5	1	–
3553.652	Re I	25 w	–	–
3553.64	Pr	3 d	2 d	–
3553.616	Cb	20 w	15 l	–
3553.58	A I	–	[15]	Ms
3553 572	Au I	20	10	–
3553.57	Nd	30	30	–
3553.56	Tb	8	–	Ed
3553.55	Dy	4	–	Ed
3553.51	Mg II	8	–	Fl
3553 49	Kr II	–	[20 hl]	Me
3553.483	Ni I	50	10	–
3553.437	U	15	–	–
3553.415	Ta	7	2	–
3553.4	Sr I	4	–	Sd
3553.379	Th	4	4	–
3553.340	Pr	4	2	–
3553.271	V I	80	30	–
3553.204	Er	25	15	–
3553.19	Dy	3	2	Ed
3553.161	Co I	5 h	–	–
3553 111	Th	5	6	–
3553 082	Pd I	100 R	15 wh	–
3553 010	U	5	2	–
3552.990	Co I	20	–	–
3552.953	Cr	3 wh	–	–
3552.929	Ce	3	–	–
3552.92	Tb	8	–	Ed
3552.846	Cr	2 h	5 wh	–
3552 831	Fe I	80	50	–
3552.81	V I	7	10	m
3552 76	I II	–	[5]	Mu
3552.748	Th	2 d	1	–
3552.727	Ce II	18 s	10	–
3552.721	Mn	12	–	–
3552.721	Co I	20	–	–
3552.720	Mo	3	5	–
3552.696	Hf II	20	35	–
3552.693	Yt I	6	4	–
3552.677	Pr	15	6	–
3552.668	U	5	10	–
3552.664	Zr I	5	4	–
3552.52	Eu	6	2	–
3552.45	Ba II	1	8	Rs
3552 397	Mo	3	3	–
3552 367	Ce	2	2	–
3552.36	Rn I	–	[3]	Rs
3552.342	Yb	15	15	–
3552.323	W	5	4 s	–
3552.317	Er	15	–	–
3552.284	Sm II	15	3	–
3552.241	Ce	2	–	–
3552.225	Cb	2	1	–
3552.195	Sm	2	–	–
3552.19	I II	–	[18]	Ke
3552.172	U	8	12	–
3552.15	Te	–	[15]	Bl
3552.118	Fe	10	6	–
3552.100	Ir I	20	2	Ab
3552.07	Pr	10	2	–
3552.067	Ce II	5	2	–
3552.00	Al II	–	[2]	Sy
3551.99	Dy	4	–	Ed
3551.961	Cb	2	5	–
3551.96	Pr	8 hd	–	–
3551.96	Tb	15	–	Ed
3551.951	Zr II	30	40	–
3551 870	Th	2 d	3	–
3551.82	As II	–	10	Ro
3551.795	Er	5 s	1	–
3551.790	Yt I	6	2	–
3551.775	Ce	10	1	–
3551.755	U	2	3	–
3551.748	Nd	15	6	–
3551.666	Co I	2	–	–
3551.664	Ce II	10	1	–
3551.60	Ho	–	4	Ex
3551.595	Re	25	–	–
3551.59	Dy	10	6	Ed
3551.540	W	–	10	–
3551.537	V I	25	12	–
3551.534	Ni I	50	12	–
3551 434	Ce	10	1	–
3551.405	Pr	8	2	Kn
3551.386	Th	2 d	1	–
3551.37	Pt II	–	15	Sh
3551 306	Re	40 w	–	–
3551.29	Er	20	2	–
3551.28	Eu	3 d	1 h	–
3551.276	W	6	5	–
3551.269	U	3	5	–
3551.156	Dy	25	1	–
3551.15	P II	–	[30 h]	Gu
3551.120	Fe	2	–	–
3551.118	Ta	–	18	–
3551.109	Cb	5	10 h	–
3551.1	Rn	–	[5]	Pe
3551.05	Pr	5 d	2 d	–
3551.043	U	6	6	–
3551.03	Tb	30	3	Ed
3551.028	W	7	10 l	–
3550.962	Mo	4	6	–
3550 939	Os	6	10	–
3550.842	W	8	8	–
3550.822	U	12	20	–
3550.815	La II	10	4	–
3550.714	Os	15	10	–
3550.681	W	7	6	–
3550 635	Cr I	70	60	–
3550.630	Ru	4	5	–
3550.615	Cb	2	3	–
3550.595	Co I	200	–	–
3550.533	U	2	2 h	–
3550.504	V	–	10	–
3550.460	Zr I	35	4	–
3550.450	Cb	40	30	–
3550.395	Ir	2	–	–
3550.286	Th	4	4	–
3550.271	Ir I	3	–	–
3550.269	Ru I	4	8	–
3550.239	Cb	4	5	–
3550 228	Dy	200	100	–
3550.222	Sm	25	2	–
3550 222	Er	12	8	–
3550.22	Pr	30 rd	8 rd	–
3550.2	Ra II	–	[5]	Rs
3550 20	Ho	–	4	Ex
3550.175	U	1	4 h	–
3550.16	Tm	5	15	Me
3550.03	A	–	[5]	Rt
3550.03	Ca I	3	–	Sd
3549.992	Rh I	10	2	–
3549.889	Re I	40	–	–
3549.872	Fe I	15	5	–
3549.86	Xe I	–	[10]	Me
3549.848	Er	25	20 s	–
3549.82	Yb	10	20	–
3549.80	Dy	6	–	Ed
3549.741	Th	4	4	–
3549.736	Zr I	15	3	–
3549.735	Ru	3	5	–
3549.733	Ce	2	1	–
3549.72	S	–	[8]	Hn
3549.72	Pr	5	1	–
3549.718	U	1	2	–
3549.684	Os	20	12	–
3549.68	Eu	3	2 h	–
3549.61	Mg II	4	–	Fl
3549.597	Th	2	1	–
3549.553	Er	7	1	–
3549.543	Rh I	150	50	–
3549.526	Pr	10	3	–
3549.510	Zr II	10	10	–
3549.45	Ca	2	2	Ad
3549.42	Hg II	–	[200]	Ps
3549.370	Nd	–	20	–
3549 365	Gd	125	125	–
3549 338	Th	2 d	1	–
3549.326	Ce	3	2	–
3549.323	Re	3	–	–
3549.291	Ir	8	2	–
3549 283	Cr	5 wh	–	–
3549 263	Cb	8	8	–
3549.255	Dy	4	2	–
3549.204	U	12	1	–
3549.139	Mo	1	3	–
3549.120	Ce	6	1	–
3549.053	W II	5	25	–
3549.046	Ta	35	3	–
3549.028	V	1	2	–
3549.011	Yt II	12	50	–
3549.0	Rn	–	[5]	Pe
3548 95	Ho	6	–	Ex
3548.927	Eu	4	–	–
3548.907	Th	2	1	–
3548.852	U	4	3 h	–
3548.835	Ce	8	1	–
3548 82	Tb	15	3	Ed
3548.812	Hf	5	2	–
3548.742	Cu II	–	5	Sh
3548.731	Cr	2 wh	4 wh	–
3548.730	Mo	2	3	–
3548.726	Dy	3	2	–
3548.71	Kr II	–	[6]	Me
3548.66	Sr I	2	–	Fl
3548 648	Ir	25	1 h	–
3548.636	Zr I	3	2	
3548 616	U	8	–	–
3548 55	Ho	–	4	Ex
3548.51	A	–	[25]	Rt
3548.51	Eu	4 w	1 h	–
3548.494	Pt II	–	8	Sh
3548.48	Tm	8	20	Me
3548.444	Co I	18	6	–
3548.439	Mo	3 h	2 h	–
3548.421	U	5	–	–
3548.402	Zr I	2 h	–	–
3548.260	U	3	–	–
3548.259	W	5	7	–
3548 24	Si	–	2	Sy
3548 23	Er	8 d	1	–
3548.202	Mn	40 h	40	–
3548.202	Dy	8	2	–
3548.185	Ni I	400	25	–
3548.169	Ce	10 h	5	–
3548.133	Th	2 d	1 d	–
3548.131	Cb	2 h	5	–
3548.111	Re	3	–	–
3548.083	Sr I	50	–	ISn
3548.09	Pr	4 d	5 d	–
3548.089	Cb	5	5 h	–
3548.089	Fe	9	–	–
3548.03	Eu	4	1 h	–
3548.029	Mn	40 h	15	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3548.024	Fe I	10	7	–
3547.982	Cr	5 wh	–	–
3547.89	Dy	4	–	m
3547.876	Os	1	8	–
3547.807	Ce	3	–	–
3547.802	Mn	40 h	15	–
3547.767	Ba I	10	6	Sz
3547.682	Zr I	200	12	–
3547.533	U	1	3	–
3547.53	Dy	6	2	Ed
3547.514	Er	25 l	1 h	–
3547.470	W	8	6	–
3547.409	Th	1 d	2 d	–
3547.404	Mo	3	4	–
3547.382	Ca I	2	3	–
3547.37	Eu	3 w	–	–
3547.339	Th	2 d	1 d	–
3547.198	Fe I	25	8	–
3547.189	U	10	12	–
3547.11	Eu	15 w	–	Kn
3547.029	Ti I	30	12	–
3547.001	Ce	15	3	–
3546.982	Ru I	2	5	–
3546.96	V	–	20	Me
3546.841	Dy	50	10	–
3546.83	In	–	3	Sq
3546.821	Sm	3	–	–
3546.710	Co I	8	–	–
3546.680	U	6	8	–
3546.657	Ce II	8	–	–
3546 6	bh Sr	4	–	L
3546 58	Er	8 w	–	–
3546.553	U	5	3	–
3546.538	Ti	4	1	–
3546.52	Tb	50	8	Ed
3546.488	W	3	7	–
3546.487	Cb	5	5	–
3546.46	Kr I	–	[3]	Me
3546.45	Cu I	2	1 h	Hs
3546.443	Pt	3	–	–
3546 39	Lu	7	–	Me
3546.383	U	1	15	–
3546 28	Pr	6	2	–
3546.260	Th	5	3	–
3546 22	Fe I	1	–	–
3546.190	Ce II	20	2	–
3546.160	Cb	2	3	Me
3546.133	Os	8	5	–
3546.132	U	12	6	–
3546 096	Ir I	5	–	Ab
3546.05	Tb	15	3	Ed
3546.031	Cb	5	8	–
3546.02	Pr	8	1	–
3546 01	Yt	2	2 h	–
3545.997	Mo	–	25	–
3545.97	Ho	20	20	Ex
3545.914	Ce	5	1	–
3545.84	A II	–	[125]	Rt
3545 84	Rn I	–	[5]	Rs
3545 834	Fe	2	1	–
3545.794	Gd	125	125	–
3545.781	Ce II	8	1	–
3545.77	As	–	5	Ro
3545 74	Dy	6	2	Ed
3545.668	U	3	8	–
3545.640	Fe I	90	70	–
3545 62	N	–	[5]	Du
3545.603	Ce II	10	1	–
3545.58	A	–	[300]	Rt
3545.58	Ca I	3	4	Cw
3545.48	I	–	[10]	Bl
3545.437	U	3	–	–
3545.416	Sm	3	–	Kn
3545.40	Tb	8	3	Ed
3545.396	Cb	3 w	5 w	–
3545.37	Rb	–	[2]	Ok
3545.348	Th	3	3	–
3545.339	V	35	–	–
3545.290	Th	5	3	–
3545.229	W	12 l	10	–
3545.196	V II	40	300 R	–
3545.16	Er	2	–	–
3545.06	Hg	–	2	St
3545.036	Co II	2	30	–
3544.99	Ti	10	2	–
3544.983	Sm	5	2	–
3544.981	Gd	3	3	–
3544.980	Yt	7	5	–
3544.971	W	7	6	–
3544.963	Cu I	35	6	–
3544.96	Pr	30	10	–
3544.949	Th	5	2	–
3544.93	Tb	15	–	Ed
3544.92	Ho	8	–	Ex
3544.91	Yb	2	–	–
3544.796	W	7	5	–
3544.773	Ce	3	–	–
3544.77	Eu	10 w	1	–
3544.713	Ba I	20	5	Sz
3544.659	U	4	–	–
3544.651	Cb	20	15	–
3544.633	Fe	50	6	–
3544.617	Mo	40 h	2	–
3544.582	Os	12	10	–
3544.54	Kr II	–	[30 whl]	Me
3544.464	W II	1	12	–
3544.392	F II	–	[6]	Di
3544.389	Ce	3	–	–
3544.369	Re	2	–	–
3544.36	Tb	8	3	Ed
3544.350	Er	10	1	–
3544.345	Cb	1	5	–
3544.273	Ce	3	2	–
3544.211	Dy	25	10 h	–
3544.209	U	3 h	6	–
3544.15	Eu	10 w	1	–
3544.14	Kr II	–	[30 whl]	Me
3544.07	Ho	8	–	Ex
3544 024	Cb	8	10	–
3544.014	Th	2	1	–
3544.001	Yt II	2	5 h	–
3544.00	Pr	40 r	10 r	–
3543.96	Te	–	[10]	Bl
3543.948	Rh I	150	40	–
3543 933	Cb	3	5	–
3543.88	Eu	15 W	4	–
3543.86	Tb	50	15	Ed
3543.832	Ce	3	–	–
3543.724	Os	15	12	–
3543.713	W	8	7	–
3543 70	Hg	–	3 h	St
3543.686	Ce	3	–	–
3543.682	Re	3	–	–
3543.674	Fe	60	30	–
3543.523	Ce II	10	–	–
3543.500	V I	50	50	–
3543.468	Nd	8	–	–
3543.392	Fe	10	2	–
3543.352	Nd	10	2	–
3543.35	U	12 rd	1 d	–
3543.283	Ce	10	2	–
3543 259	Co I	35	–	–
3543 23	Tb	30	8	Ed
3543.16	A	–	[10]	Rt
3543 156	U	2	8	–
3543.15	Yb	2	5	–
3543.115	Mo	4	3	–
3543 107	W	4	12	–
3543 079	Hg	–	40	St
3542.981	Cb	10	10	–
3542.98	Pr	3	1	m
3542 98	Er	7 d	3	–
3542.90	Ne II	–	[40]	Bn
3542.86	Dy	6	2	m
3542.82	In	–	3 wh	Sq
3542.775	Mo	3	2	–
3542.768	Gd	25	25	–
3542.75	Ca	3	2	–
3542.717	U	2	6	–
3542.711	Os	150	10	–
3542.657	V I	15	2	–
3542.655	W	4	3	–
3542.632	Th	3 d	3	–
3542.63	Pr	8	2	–
3542.623	Zr II	12	30	–
3542.612	Ag	30	5	Fn
3542.575	Ir I	10	10 h	–
3542.570	U	8	–	–
3542.558	Cb	5	30 d	–
3542 546	Ti	7	1	–
3542.508	Co I	2 h	–	–
3542.496	Th	2 d	1 d	–
3542.490	V	–	3	–
3542.458	Sm II	9 d	2	–
3542 391	Pr	8	3	–
3542.381	U	4	1	–
3542.36	Er	10 d	4	–
3542.333	Dy	90	20	Ed
3542.33	Ho	–	4	Ex
3542.28	Ne II	–	[4]	Bn
3542.279	Ce	2	1	–
3542.273	W	3	6	–
3542.243	Th	2	1	–
3542.240	Ta	–	5	–
3542.235	Fe I	5	1	–
3542.182	Ce	4	1	–
3542.166	Mo	5	5	–
3542.16	Eu	20 w	5 w	–
3542.078	Fe I	150	100	–
3541.977	Th	2	2	–
3541.937	F II	–	[60]	Di
3541.912	Rh I	50	10	–
3541.911	Ce	4	1	–
3541.906	Os	20	5	–
3541.897	Cb	10	15	–
3541.888	U	2	6	–
3541 885	Ta	35	15	–
3541.86	Dy	3	–	Ed
3541 765	F II	–	[100]	Di
3541.75	Tb	8	3	Ed
3541.662	Ce	10	2	–
3541.647	W	10	10	–
3541.631	Ru	60	10	–
3541.626	Nd	10 d	4 d	–
3541.622	Th	8	6	–
3541 60	I	–	[2]	Ke
3541.45	Cs	–	[4]	Bs
3541.45	Ca	3	3	–
3541.373	Sm	10	1	–
3541.36	Bi	–	5 h	Om
3541.34	Eu	12	2	Kn
3541 336	V	–	35	–
3541 29	Dy	6	–	Ed
3541.284	U	–	8	–
3541.252	Cb	50	5	–
3541.216	Rb II	–	[100]	Rr
3541 2	Rn	–	[10]	Wo
3541.147	Ru	4	–	–
3541.086	Fe I	200	200	–
3541.046	Ru	10	–	–
3540.986	U	–	2 h	–
3540.962	Cb	15	500	–
3540.956	Nd	–	4	–
3540 954	Kr I	–	[5]	IHu
3540.821	Ta	18	1	–
3540.792	Ce	5	1	–
3540.77	Eu	3 w	–	–
3540.76	Ho	6	8	Ex
3540.731	W	10	12	–
3540.713	Fe I	10	4	–
3540.686	Ir I	5	2 h	–
3540.67	Dy	10	2	Ed
3540 623	U	2	5	–
3540.530	V I	25	4	–
3540.465	U	6	15	–
3540.454	Mo	2	3	–
3540.44	Eu	6	–	Kn
3540 380	Ce	2	2	–
3540.34	Dy	4	–	Ed
3540.312	Ce	2	3	–
3540.310	Th	3 d	1 d	–
3540.24	Tb	50	50	Ed
3540 23	Eu	3 W	–	–
3540 219	Ru	12	1	–
3540.212	Mo	3	3	–
3540 118	Fe I	100	60	–
3540.117	Ce	3	–	–
3540 05	Tl II	–	[20]	Sx
3540.04	Ho	–	6 h	Ex
3539 947	Re	15	–	–
3539.927	W	6	4	–
3539 922	Pr	25	5	–
3539.906	Zr	8	7	–
3539.892	Sm	10	–	–
3539.88	Dy	4	–	Ed

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3539.860	Os	1	3	–
3539.836	Ce	5	–	–
3539.81	Tb	15	3	Ed
3539.78	Ti II	–	[6]	Sx
3539.76	Eu	3	–	–
3539.654	U	12	2	–
3539.648	Cb	15	15	–
3539.63	Pr	5	2	–
3539.62	Dy	6	4	Ed
3539.598	Er	9	–	–
3539.589	Th	8	8	–
3539.542	Kr I	–	[15]	IHu
3539.465	Mo	3	3	–
3539.458	W II	3	7	–
3539.376	Dy	18	2 h	–
3539.372	Nd	4	4	–
3539.369	Ru I	60	15	–
3539.330	W	6	3	–
3539.329	Re	25	–	–
3539.325	Th	5	5	–
3539.289	Er	3	–	–
3539.263	Ru	30	5	–
3539.255	Sm II	8	1	–
3539.24	Eu	2	–	–
3539.212	U	4	4	–
3539 200	Fe	1 h	1 h	–
3539.183	Nd	10	4	–
3539.15	Al	–	8	Gn
3539.116	Cb	1	15	–
3539.086	Ce II	100	10	–
3539.006	Zr II	4	3	–
3538 976	U	1	3	–
3538.97	Ho	4	–	Ex
3538 960	Ce	3	–	–
3538.923	Mo	3	4	–
3538.90	Tb	15	3	Ed
3538.864	Sm II	10	1	–
3538.86	Mg II	8	–	Fl
3538.858	Nd	20	6	–
3538.85	Pr	9	2	–
3538.844	Th	4 d	–	–
3538.795	Fe	1 h	–	–
3538.792	Ce	3	2	–
3538.759	Ce	5	2	–
3538.75	Th	–	50	Ex
3538.679	U	–	6 h	–
3538.633	W	8	9	–
3538 550	Fe I	1 h	–	–
3538.530	Yt	10	3	–
3538.523	Dy	150	40	–
3538.52	Ho	–	6	Ex
3538 519	Er	18	9	–
3538.50	Dy	5	2	Ed
3538.50	Tb	3	3	Ed
3538.474	F II	–	[6]	Di
3538.462	Ce	2	1	–
3538.445	Th	3 d	–	–
3538.418	U	2	8	–
3538.415	Ce	2	1	–
3538.31	Pr	3	2	–
3538.304	Ce	2	–	–
3538.290	Fe	2 h	1 h	–
3538 273	Ag	10	2	–
3538.256	Rh I	50	4	–
3538.241	V II	10	100	–
3538.223	Th	8	3	–
3538.221	U	8	6	–
3538.152	Ir	18	1 h	Ab
3538.142	Rh I	100	10	–
3538.09	Eu	20 w	10 h	–
3538.08	Xe II	–	[2]	Hu
3537.99	Ne II	–	[7]	Bn
3537.988	Os	1	4	–
3537.951	Ru I	70	25	–
3537.94	Tb	15	15	Ed
3537.91	Tm	15	2	Me
3537.897	Fe I	50	25	–
3537.895	Mn	12	–	–
3537.849	Ce	3	–	–
3537.826	U	–	2	–
3537.75	Eu	10	10 h	–
3537.733	Ca	3	4	–
3537.731	Fe I	25	15	–
3537.726	Co I	2	–	–
3537.673	Dy	9	–	–
3537.624	Cb	2	30	–
3537.564	Sn II	–	2	–
3537.56	Eu	4	–	Kn
3537.553	Ta	2	1 h	–
3537.498	Os	2	3	–
3537.493	Fe I	25	8	–
3537.482	Ti	7	2	–
3537.475	Cb	30	30	–
3537.47	Pr	8	3	–
3537.466	Re I	80 w	–	–
3537.452	W	12	12	–
3537.445	U	5	12	–
3537.437	Ce II	10	3	–
3537.434	Th	4 d	3	–
3537.346	U	2	1 h	–
3537.31	Pr	7	2	–
3537.282	Er	6	–	–
3537.276	Eu	4	–	–
3537.275	Mo	15	15	–
3537.233	Cr	15	1	–
3537.161	Th	10	10	–
3537.15	Gd	2	2	–
3537.134	Ce	10	1	–
3537.11	Tb	15	3	Ed
3537.09	Mo	–	50	–
3537.058	U	8	1	–
3536.944	Zr II	8	5	–
3536.900	Sm	1	2	–
3536.838	F II	–	[30]	Di
3536.820	He I	–	[3]	Ps
3536.803	U	1	4	–
3536.765	Sm	5	3	–
3536.764	Er	2	–	–
3536.70	Ti II	–	[6]	El
3536.696	Ce	10	2	–
3536.676	Nd	6	4	–
3536.62	Tb	30	3	Ed
3536.62	Hf	10	2	Me
3536.57	Tm	60	20	Me
3536.567	Ru	50	–	–
3536.56	Dy	10	–	Ed
3536.557	Fe I	300	200	–
3536.52	I	–	[5]	Bl
3536.482	Ce	8	2	–
3536 37	La II	3	3	Me
3536.32	Tb	15	8	Ed
3536.300	Ta	20	2	–
3536 29	P II	–	[30]	Gu
3536 273	W	3	15	–
3536.225	Sm	–	2	–
3536.213	Cb	3	5 h	–
3536.21	Tm	40	60	Me
3536.186	Fe I	40	10	–
3536.158	Re	8	–	–
3536.126	Mo	2	3	–
3536.077	U	1	2	–
3536.051	Th	5	1	–
3536 041	V I	2	–	–
3536.04	Ho	4	6	Ex
3536.024	Dy	125	10	–
3536.023	Er	20 s	12	–
3536.006	Ce	2	–	–
3535.859	I	–	[7]	Ke
3535.848	Pt II	–	10	–
3535.841	Mo	1	3	–
3535.840	Ce	2	1	–
3535.836	U	6	2	–
3535.831	Ru	60	12	–
3535.787	Ir	12	10	–
3535.729	Sc II	15	30	–
3535.71	In	–	10 wh	Sq
3535.689	Ce	3	1	–
3535.687	Cd II	5	15	–
3535.649	U	1 h	3 h	–
3535.633	Sm II	25	5	–
3535.60	Dy	4	–	m
3535.566	Ce	10	1	–
3535.549	W	12	10	–
3535.545	Hf II	15	50	–
3535.534	Ca I	4	–	–
3535.520	Tm	80	25	Me
3535.51	Pr	3	3	–
3535.481	U	6	–	–
3535.412	Ti II	15	125	–
3535.404	Ta	15	18 wh	–
3535.372	Ru	30	8	–
3535.35	Kr II	–	[50 hl]	Me
3535.339	U	2	–	–
3535.336	Th	2	–	–
3535.33	A	–	[15]	Rt
3535.307	Ru	5	–	–
3535.307	Mn	5	–	–
3535.301	Cb	300	500	–
3535.271	Mo	3	3	–
3535.259	W	4	7	–
3535.162	F II	–	[10]	Di
3535.162	Zr I	10	–	–
3535.161	Ce	3	–	–
3535.052	Ru	10	1	–
3535.046	Ce	8	–	–
3535.04	Mg II	8	–	Fl
3534 984	Ir I	10	–	–
3534.963	Dy	125	–	–
3534.962	Er	20	9	–
3534.93	Ho	–	4	Ex
3534.914	Fe I	5	2	–
3534.913	Sm II	10	–	–
3534.90	Pr	5	2	–
3534.85	Tm	20	30	Me
3534.826	Re I	25	–	–
3534.773	Co I	5	–	–
3534.742	Ce	5	–	–
3534.733	V I	20	5	–
3534.688	Mo	10	25	–
3534.577	Ru	4	–	–
3534.55	Er	15 d	2	–
3534.54	Nd	15 d	4	–
3534.529	Th	5 d	2 d	–
3534.529	Fe	4	2	–
3534.529	W	3	12 l	–
3534.527	Sm	10	–	–
3534.52	Pr	25	4	–
3534.443	Dy	6	2	Ed
3534.436	Ce	10	–	–
3534.425	Cb	3	2	–
3534.346	Er	2	–	–
3534 335	U	8	2	–
3534.224	Cb	1	15	–
3534.21	Tb	8	3	Ed
3534.2	Rn	–	[5]	Pe
3534.2	Al	–	15	Gn
3534.176	Nd	6	4 h	Kn
3534.174	W II	4	5	–
3534.14	Eu	7 w	2	–
3534.117	Cb	15	15 h	–
3534.065	U	1	6	–
3534 051	Ce	35	10	–
3534.05	Dy	4	–	Ed
3534.037	Cb	1	4 h	–
3533.913	Ru	6	–	–
3533.91	Pb	–	2	Sx
3533.88	Sb	1	10 Wh	–
3533.868	Ti II	6	35	–
3533.86	Tb	30	8	Ed
3533.757	V II	20	40 h	–
3533.749	Pr	20	5	–
3533.746	Cu I	50	15	–
3533.716	Ce	5 w	3	–
3533.706	Th	5	3	–
3533.70	Dy	6	2	Ed
3533.679	Ce	4	–	–
3533.676	V I	40	10 h	–
3533.67	La II	–	3 h	Me
3533.665	Cb	20	30	–
3533.66	P II	–	[30]	Gu
3533.60	Tb	15	–	Ed
3533.588	Nd	6	6	Kn
3533.568	U	10	20	–
3533.564	Ce	12	3	–
3533.48	Xe I	–	[2]	Me
3533.441	Ce	–	2 h	–
3533.408	Os	40	20	–
3533.364	Cs	–	[6]	Sv
3533.36	I	–	[5]	Bl
3533.358	Co I	200 w	–	–
3533 217	Zr I	30	3	–
3533.202	Fe I	50	50	–
3533.114	Ce	8	–	–
3533.07	Mo	–	25 d	–
3533.06	P II	–	[15]	Gu

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3533.010	U	–	4 h	–
3533.010	Na II	50	[200]	–
3533.010	Ca	2	4	–
3533.010	Fe	50	75	–
3532.888	Cr	8	2	–
3532.879	Ce II	10	1	–
3532.815	Pr	4	2	–
3532.814	Ru	60	12	–
3532.800	Os I	100	20	–
3532.781	U	4	8	–
3532.70	Tb	30	8	Ed
3532.65	N	–	[15]	Du
3532 63	Hg	–	[200]	Ps
3532.608	Ce II	6	1	–
3532.576	Fe	5	2	–
3532.55	Mo	–	10	–
3532.541	Sm	20	4	–
3532.530	Cb	3	5 h	–
3532.46	Zr	8	–	Ks
3532.44	Dy	6	2	m
3532.390	Ce	4	1	–
3532.3	Rn	–	[10]	Pe
3532.276	V	1	25 h	–
3532.267	Ir	12	3	–
3532.23	Eu	5	1	–
3532.208	Ta	15	2	–
3532.121	Mn	50 h	30	–
3532.06	Ir	2 d	–	–
3532.055	Ru	5	–	–
3532 051	U	1	2	–
3532.008	Sm	5	–	–
3531.998	Mn	50 h	8	–
3531.935	Th	4 d	3 d	–
3531.90	S	–	[5]	Hn
3531.848	Mn	40 R	30 r	–
3531.832	Eu	12	2	–
3531.798	Ir I	2	–	Ab
3531.794	Ru	8	1	–
3531.74	Ho	10	20	Ex
3531.714	Er	40	25	–
3531.712	Dy	100	100	–
3531.712	Nd	6	4	–
3531.71	Rn I	–	[5]	Rs
3531.707	Yt	7	–	–
3531.70	Tb	15	50	Ed
3531.641	U	15	1	–
3531.623	Pr	4	2	–
3531.602	Rb II	–	[100]	Rr
3531.593	Ce	18	2	–
3531.584	Ta	35	3	–
3531.451	Th	4	1	–
3531.446	Fe I	3	1	–
3531.440	W	–	9	–
3531.39	Nd	4	1	–
3531.390	Ru	60	9	–
3531.376	Cs	–	[4]	Sv
3531.303	Mo	3	3	–
3531.264	Er	12 l	1	–
3531.25	Yb	2	5	–
3531.227	Hf	5	3	–
3531.22	A II	–	[3]	Rt
3531.14	Eu	10	10	–
3531.129	Os	15	12	–
3531.113	U	8	20	–
3531.09	Ca	–	2	Ad
3531.083	Cr	15	–	–
3531.021	W	7	7	–
3530.946	Ce	10	1	–
3530.88	Dy	4	–	Ed
3530.874	Hf	5	1	–
3530.869	V I	1	20	Me
3530.851	Zr II	5	5	–
3530.837	Pr	9	2	–
3530.824	Cb	3	15	–
3530.809	Mo	1	3	–
3530.773	V II	40	100	–
3530.756	W	8	7	–
3530.739	Ir	10	2	–
3530.707	K II	–	[40]	Dm
3530.661	La II	15	6	–
3530.64	Tb	8	–	Ed
3530.635	Ce	10	–	–
3530.598	Sm II	8	4	–
3530.595	Ni I	30	–	–
3530.580	Ti I	15	1	–
3530.554	Co I	2	–	–
3530.54	Dy	6	4	Ed
3530.540	U	6	–	–
3530.497	Th	4 d	2 d	–
3530.487	He I	–	[5]	Ps
3530.45	V	–	30	–
3530.403	Ce	3	–	–
3530.389	Fe I	50	25	–
3530.386	Cu I	50	20	–
3530.38	Tb	15	–	Ed
3530.36	Eu	12 w	1	–
3530.36	Er	6 w	1	–
3530.35	Pb	–	5	Sx
3530.24	P II	–	[70]	Gu
3530.223	Zr I	10	1	–
3530.21	Xe II	–	[3 wh]	Hu
3530.137	Ce	4	2	–
3530.089	Cb	5	5	–
3530.062	Os	100	20	–
3530.022	Ce II	18	3	–
3529.998	Sm	15	–	–
3529.982	Zr II	2	6 hl	–
3529.967	Ca	2	3	–
3529.820	Fe	125	80	–
3529.816	Re	10	–	–
3529.813	Co I	1000 R	30	–
3529.773	U	2	5	–
3529.76	Tb	15	3	Ed
3529.74	Pr	5	2	–
3529.735	V I	20	2	–
3529.732	Ce	3	–	–
3529 7	Rn	–	[5]	Pe
3529.619	U	2	6	–
3529 611	Ru	3	–	–
3529.563	W II	10	20	–
3529.537	Ce	5	2	–
3529.532	Fe	2	–	–
3529.53	K II	–	[10]	Bn
3529.52	Dy	4	–	Ed
3529.495	Ba	4	–	Sz
3529.43	Tl I	1000	800	Fl
3529.391	Cb	3	5	–
3529.34	Er	7 w	–	–
3529.276	Ru	30	3	–
3529.271	Ce	8	2	–
3529.212	Re	25	–	–
3529.19	Nd	8	2	–
3529.077	U	3	3	–
3529.055	Nd	10 d	–	–
3529.041	Ce II	12	2	–
3529.036	Dy	5	–	–
3529.033	Co I	200 R	–	–
3528 947	Th	6	6	–
3528 926	Dy	2	10	–
3528.896	Cb	2	40	–
3528.891	Ni I	15	–	–
3528.824	Th	4	3	–
3528.723	Pd I	10	–	–
3528.71	Pr	3	2	m
3528.687	U	6	15	–
3528.683	Ru I	60	12	–
3528.644	Ce	8	1	–
3528.614	Ta	35	18 W	–
3528 602	Os I	400 R	50	–
3528.60	Eu	8 w	–	–
3528.549	Gd	10	10	–
3528.544	Pt	5	2 h	–
3528.51	K II	–	[2]	Bn
3528.51	Dy	6	2	Ed
3528.495	W	5	10	–
3528.476	Cb	3	50	–
3528.38	Rn I	–	[5]	Rs
3528.345	U	1	2	–
3528 307	Cb	10	1	–
3528 212	V I	10	1 h	–
3528.19	Tm	5	10	Me
3528.151	Th	3 d	–	–
3528.105	Cb	–	3	–
3528.074	U	–	5	–
3528.053	Ce II	10	1	–
3528.024	Rh I	1000 w	150	–
3528.014	Ru	12	–	–
3527.982	Ni I	200	15	–
3527.98	Dy	6	2	m
3527.955	Cb	10	8	–
3527.947	Co I	3	–	–
3527.928	W	8	6	–
3527.91	Bi	–	2 h	–
3527.878	Sm	–	2	–
3527.87	Mo	1	30 d	–
3527.87	Eu	20 w	5 w	–
3527.863	V	–	5	–
3527.848	Ce II	15 s	2	–
3527.797	Fe I	100	80	–
3527.641	Ir I	5	–	–
3527.631	U	2	1	–
3527.610	Ce II	8	2	–
3527.599	W	7	5	–
3527.529	Nd	20	10	–
3527.482	Cu I	50	10	–
3527.45	Tb	8	3	Ed
3527.441	Tl	2	–	–
3527.436	Zr II	3	4	–
3527.42	Kr	–	[3 hl]	Me
3527.379	U	1	2	–
3527.350	Th	4 d	1	–
3527.310	Ce	2	2	–
3527.293	Cb	3 h	2 h	–
3527.209	Ce	2	–	–
3527.133	Er	15 d	–	–
3527.101	Cb	5	5	–
3527.10	P II	–	[30]	Gu
3527.091	Cr	30	5	–
3527.065	Ta	50	2 h	–
3527.059	Sm	8	–	–
3527 031	Cb	–	3 h	–
3527.002	W II	10	12 l	–
3526.909	Dy	4	1	–
3526.893	Sm II	10	3	–
3526.893	I	–	[18]	Ke
3526.857	Hf	10	1 h	–
3526.854	W	10	12	–
3526.849	Co I	300 R	25	–
3526.813	Er	10 w	–	–
3526.775	Sm	15	–	–
3526.77	La II	–	2 h	Me
3526.765	Ir	20	2	–
3526.764	Th	2 d	2	–
3526.735	Re	20	–	–
3526.73	Tb	15	–	Ed
3526.70	Eu	12	1 h	–
3526.682	Ce	25	3	–
3526.676	Fe I	80	50	–
3526.639	Th	5	1	–
3526.61	Dy	4	2	m
3526.600	U	3	8	–
3526 575	Ru	12	3	–
3526.540	Ni I	5	–	–
3526.537	Mo	2	3	–
3526.464	Fe I	20	10	–
3526.383	Fe	20	10	–
3526.35	Mo	2	3	–
3526.239	Th	4	4	–
3526.23	I II	–	[5]	Ke
3526.169	Fe I	50	25	–
3526.13	Cl II	–	[30]	Ks
3526.042	Fe I	80	50	–
3526.041	Ti	12	2	–
3526.035	Os	80	20	–
3526.01	Eu	4	–	–
3526.006	Ce	3	–	–
3525.987	Cb	–	15 h	–
3525.94	Lu	2	–	Me
3525.939	Mo	5	3	–
3525.936	Ce	2	1	–
3525.885	Cb	3	5 h	–
3525.872	Co I	8 h	–	–
3525.847	U	3	8	–
3525.817	Ru I	5	–	–
3525.814	Zr II	9	10	–
3525.784	Eu	9	5 h	–
3525.770	V I	8	–	–
3525.751	Dy	12	–	–
3525.742	W	1	12	–
3525.73	U	6 d	6 d	–
3525.658	Rh I	50	2	–
3525.653	Th	2 d	4	–
3525.644	Ru	5	1	–
3525.61	Tb	50	8	Ed
3525.496	Sm II	15	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3525.49	Pr	4	2	–
3525.4	bh Sr	8	–	L
3525.34	Br	–	[3]	Bl
3525.290	Os	4	5	–
3525.232	Cb	15 w	30 w	–
3525.161	Ti I	10	1	–
3525.142	Th	2 d	1	–
3525.141	U	5	8	–
3525.13	Tb	8	8	Ed
3525.089	Co I	2 h	–	–
3525.065	Sm	2	–	–
3524.985	Ba I	20	5	–
3524.981	Mo	5	5	–
3524.936	Cb	2	5	–
3524.92	Dy	6	–	m
3524 920	Er	20	8	–
3524.902	Ru I	12	2	–
3524 87	Ti II	–	5	–
3524.715	V II	10	60	–
3524.681	W	7	5	–
3524.646	Mo	5	50 h	–
3524.61	Dy	6	4	m
3524.541	Ni I	1000 R	100 wh	–
3524.540	Mn	15	–	–
3524.538	Sm	10	–	–
3524.538	Zr I	9	2 h	–
3524.47	Pr	3	2	–
3524.454	Ru	–	6	–
3524.372	Ir	2 h	–	–
3524.34	Eu	3 w	1 h	–
3524.277	I	–	[3 d]	Ke
3524.27	Hg I	–	[15]	Wd
3524.246	W	9	8	–
3524.242	Zr	12	–	–
3524.241	Fe I	60	50	–
3524.240	Ti	2	–	–
3524.239	Cu I	40	10	–
3524.228	Mo	8	3	–
3524.198	Gd	25	15	–
3524.19	Hg II	–	[100]	Ps
3524.152	Ru	6	–	–
3524.073	Ce	8	–	–
3524.072	Cd II	–	8	–
3524.071	Fe	50	40	–
3524.03	Dy	15	20	Ed
3524.008	Ce	8	–	–
3523.983	Er	25	8	–
3523.97	Ho	–	4	Ex
3523.89	Mo	–	10	–
3523.735	Ce	5	–	–
3523.701	Co I	15	3	–
3523.67	Eu	2 w	1 h	–
3523 66	Tb	30	50	Ed
3523 636	Os	150	30	–
3523.636	Zr I	5	1	–
3523.625	Nd	15	8	–
3523.613	Ce	2	2	–
3523.59	Cr	10	1	–
3523.565	U	4	15	–
3523.557	Th	5 wh	1 wh	–
3523.55	W	–	5	–
3523.51	Sr	1	2	Sd
3523.50	Eu	15 w	–	–
3523.444	Ni I	100	–	–
3523.434	Co I	300 r	25	–
3523.413	Sm	12	–	–
3523.331	Ce	2	2	–
3523.316	Mo	4	3	–
3523.312	Fe	10	4	–
3523.22	Dy	4	–	Ed
3523.20	Tb	8	–	Ed
3523.18	Eu	15 w	–	Kn
3523.171	Ta	15 h	15	–
3523.167	Os	10	5	–
3523.154	Cb	5	10	–
3523.114	Sm	8	8	–
3523.104	Ce	8	–	–
3523.074	Ni I	5	–	–
3523.050	Sm	8	8	–
3523.021	Hf	20	10	–
3523.00	Hg I	2	–	Wd
3522.991	Nd	2	2	–
3522.980	Pr	2	–	–
3522.963	Ce	2	–	–
3522.950	Cr	8	1	–
3522 893	Fe I	10	3	–
3522.883	F II	–	[20]	Di
3522.868	Dy	10	2	–
3522.847	Co I	5	1	–
3522.803	Sm	3	–	–
3522.797	Ce	2 w	1	–
3522.78	Cr I	8 wh	–	–
3522.70	Pr	3	2	m
3522.700	Ca	–	3	–
3522.695	Ce	1	2	–
3522.675	Kr I	–	[15]	IHu
3522 605	Ce	1 h	2	–
3522.576	U	5	2 h	–
3522.569	V I	25	2	–
3522.524	Er	3	–	–
3522.451	Ce	2	–	–
3522.43	Tm	15	5	Me
3522.371	Mo	5	3	–
3522.367	Eu	18	–	–
3522.363	Cb	–	50 W	–
3522.324	Re	3 w	–	–
3522 276	Ru	10	8 r	–
3522.276	Fe I	50	30	–
3522.275	Dy	3	–	–
3522.274	U	2	–	–
3522.211	Ce	2	–	–
3522.180	Zr I	3	2	–
3522.174	Re	8	–	–
3522.145	Cr	–	6	–
3522.14	Cl II	–	[40]	Ks
3522.11	W	–	7	–
3522.11	Pr	4	2	Ex
3522.063	Mo	–	10	–
3522.044	Nd	12	8	–
3522.036	U	1	5	–
3522.028	Ir I	–	50	–
3521.98	A II	–	[5]	Rt
3521.968	Ru I	8	5 r	–
3521.965	Os	15	10	–
3521.917	Th	10	10	–
3521 909	W	10	8	–
3521.880	Ce	35	5	–
3521.85	Dy	4	2	Ed
3521 841	Fe I	50	20	–
3521.839	V	20	80	–
3521.82	Tb	8	–	Ed
3521.771	Sb II	1	[10]	–
3521.746	Re	5	–	–
3521.731	Co I	5	–	–
3521.712	W	9	6	–
3521.602	Cb	–	10 h	–
3521.567	Co I	200 r	25	–
3521.558	Hf	3	2	–
3521.535	Ce	2	–	–
3521.534	Yt I	7	–	–
3521.521	Sm	6	–	–
3521.482	U	3	8 h	–
3521.439	Rb II	–	[200]	Rr
3521.413	Mo	8	3	–
3521.390	Zr	2	–	–
3521.331	Ce	2	–	–
3521.27	A	–	[10]	Rt
3521 264	Fe I	300	200	S
3521.262	Th	2	–	–
3521.18	Lu	3	–	Me
3521.179	Ce	2	–	–
3521.175	Mo	3	10 w	–
3521.16	Ag I	5	2	Bx
3521.16	Pd I	2	–	–
3521.140	Cb	2	10 h	–
3521.13	Dy	15	6	m
3521.128	Ce	2	1	–
3521.09	Eu	50	4 h	–
3521.07	Te	–	[15]	Bl
3521.062	Th	3 d	1 d	–
3521.030	U	5	–	–
3520.976	Ce	5	1	–
3520.873	Zr II	9	4	–
3520.855	Fe	10	4	–
3520.793	U	6	10	–
3520.79	Tb	15	8	Ed
3520.732	Er	20 r	–	–
3520.732	Re I	30	–	–
3520.721	Th	5	2	–
3520.715	Cb	3	5	–
3520.711	La II	4	4	–
3520.6	Tl	–	3	Cx
3520.543	V	1	20	–
3520.522	Ce I, II	30	2	–
3520.495	Ta	25 wh	18	–
3520.474	Sb II	–	[125]	Lg
3520.472	Ne I	–	[1000]	IHu
3520.305	Zr I	2	–	–
3520.29	Yb	10	70	–
3520.253	Ti II	10	18	–
3520.247	Ce	4	–	–
3520.198	Mo	1	20	–
3520.16	Ho	8	10 h	Ex
3520.14	Eu	4	4	–
3520.130	Ru	60	40	–
3520.100	Ce	2	1	–
3520.081	Co I	100 W	–	–
3520.071	Sb	4	2 h	–
3520.055	Cb	20	20	–
3520.034	Er	12	4	–
3520.031	Cu I	30	10	–
3520.025	V II	5	50	–
3520.00	A	–	[15]	Rt
3519.998	Os	30	20	–
3519.956	U	6	12	–
3519.939	Ti I	5	–	–
3519.928	Ce	3	–	–
3519.92	Ho	10	10 h	Ex
3519.818	Co	2 h	25 h	–
3519.77	Nd	10 d	2	–
3519.770	Dy	2	1 h	–
3519.766	Ni I	500 h	30	–
3519.76	Tb	50	15	Ed
3519.736	Ce	18	–	–
3519.693	Th	3 d	6	–
3519.65	Ho	–	4 h	Ex
3519.649	Cb	5	20	–
3519.635	Ru	70	30	–
3519.605	Zr I	100	10	–
3519.541	Rh I	40	2	–
3519.45	Cr	6 h	–	–
3519.334	Cb	2	3	–
3519.24	Tl I	2000 R	1000 R	Fl
3519.22	P II	–	[15]	Gu
3519 18	Bi	10	–	To
3519.176	Os	15	8	–
3519.167	V I	10	–	–
3519.128	Pr	10	2	–
3519.094	Er	20 rh	2 rh	–
3519.077	Ce	25	4	–
3518 983	Ru	30	3	–
3518.96	Tb	15	–	Ed
3518.951	U	3	–	–
3518.942	Os	20	5	–
3518.906	Ir I	2 h	–	Ab
3518.904	Eu	5	–	Kn
3518.894	Th	3 d	3	–
3518 882	Fe I	10	2	–
3518.869	Zr	4	1 h	–
3518.752	Hf II	5	15	–
3518 734	Ce	3	–	–
3518 725	Os	200	30	–
3518.71	Dy	4	2	Ed
3518.706	Ca	–	2 h	–
3518.685	Fe	7	1	–
3518.685	Th	3	–	–
3518.682	Sm	5	–	–
3518.634	Ni I	90	8	–
3518.60	P II	–	[50 h]	Gu
3518.570	Mo	1	3	–
3518.554	W II	–	5	–
3518.508	Pr	4	–	–
3518.495	Ce	3	–	–
3518.48	Eu	20	10	–
3518.478	W	10	7	–
3518.475	U	2	–	–
3518.404	Th	6	2	–
3518.40	Cr	8	1	–
3518.38	Tb	8	–	Ed
3518.38	Hf II	–	3	Me
3518.371	Ce	12	1	–
3518.349	Co I	200 W	100	–
3518.304	Sm	1	2	–
3518.221	Mo	6	15	–
3518.178	Cb	3	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3518.176	Er	20	8	–
3518.172	Yb	6	30	–
3518.15	Cs	–	[6]	Bs
3518.109	U	6	–	–
3518.066	Sm II	8	1	–
3518.040	Ce	8	1	–
3517.906	Ce	5	1	–
3517.90	A	–	[3]	Rt
3517.90	Xe I	–	[2]	Me
3517.894	Er	8	1	–
3517.855	Zr	2	–	–
3517.81	Tb	8	–	Ed
3517.761	Cb	5	1	–
3517.671	Cb	2	200	–
3517.642	U	1	12	–
3517.60	Tm	7	–	Me
3517.58	Dy	4	–	m
3517.566	In II	–	[5]	Ps
3517.557	Mo	2	20	–
3517.505	W	10	8	–
3517.475	Zr I	5	–	–
3517.46	W	–	4 d	–
3517.457	U	1	5	–
3517.448	Ta	3	1 h	–
3517.446	Co II	2	10	–
3517.407	Ru	10	–	–
3517.380	Ce	40	6	–
3517.37	Kr II	–	[5 hs]	Me
3517.327	He I	–	[2]	Ps
3517.326	Re	50	–	–
3517.301	V	20	30 WR	–
3517.292	Os	15	10	–
3517.270	Dy	70	4	–
3517.21	Ga	–	3	Kl
3517.164	Os	8	8	–
3517.11	La	–	25 h	Kn
3517.106	Cb	1	8	–
3517.052	U	4	8	–
3517.039	Cu I	20	3 h	–
3517.035	Sm	–	3 h	–
3517.015	Yb	25 w	–	–
3516 99	Er	20 w	2	–
3516.973	Ce	1	3 h	–
3516.96	Dy	4	–	Ed
3516.943	Pd I	1000 R	500 R	–
3516 92	W	–	7	–
3516.899	Nd	10	–	Kn
3516.857	Cb	2	10	–
3516.854	U	6	15	–
3516.838	Ti I	12	1	–
3516.825	Th	5	5	–
3516 776	W	7	3	–
3516.71	Er	5	–	–
3516.675	Co I	2	–	–
3516.648	Re	60	–	–
3516.64	Tb	15	–	Ed
3516.630	Os	20	20	–
3516 567	Th	2	1	–
3516.558	Fe	30	4	–
3516.53	Rb II	–	[5]	Ok
3516.520	Er	8	–	–
3516.51	I II	–	[5]	Ke
3516.48	Dy	4		Ed
3516.420	Fe	40	15	–
3516.418	Co I	2	–	–
3516 357	Th	5	5	–
3516.32	F	–	[3 l]	Dı
3516.234	Ni I	5 wh	–	–
3516.22	W	–	8	–
3516.206	Ce	2	–	–
3516.198	Cb	3	5	–
3516.186	Ru	3	–	–
3516.154	Re	2	–	–
3516.15	P	–	[70]	Gu
3516.15	Dy	6	–	Ed
3516.14	Tb	15	3	Ed
3516.03	Cs	–	[4]	Bs
3516.023	I	–	[10]	Ke
3516.012	V II	–	10	–
3516.003	Er	10	1	–
3515.962	W	7 d	6 d	–
3515.949	Ir I	35	15	–
3515.936	Ce	5	–	–
3515.894	Ru	10	8 r	–
3515.8	bh Zr	2	–	L

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3515.779	Ce II	8	1	–
3515.754	Re	3	–	–
3515.712	Th	5	4	–
3515.689	Mo	–	6	–
3515.678	Ru I	10	8 r	–
3515.676	U	6	1 h	–
3515.64	Dy	6	–	Ed
3515.637	Ce	8	–	–
3515.63	Se	–	[35]	Bl
3515.58	Ho	40	40	Ex
3515.575	Er	25 w	5 w	–
3515.549	Be I	30	–	–
3515.546	Ce	2	–	–
3515.448	U	4	–	–
3515.44	Tb	15	3	Ed
3515.423	Cb	20	300	–
3515.390	Ce	2	–	–
3515.285	Ce	4	–	–
3515 244	Zr I	3	–	–
3515.235	U	3	10	–
3515.191	Ne I	–	[150]	IHu
3515.11	Zn I	2 h	–	Fl
3515.07	W	1	9	–
3515.054	Ni I	1000 R	50 h	–
3515.053	Dy	3	1	–
3515.053	Mo	–	6	–
3515.04	Tb	30	8	Ed
3515.003	Re	2	–	–
3514 966	Ce	2	–	–
3514.966	Th	4	4	–
3514.894	Er	15	5	–
3514 87	La II	3	2	Me
3514 802	Ce	2	1	–
3514.8	bh Ca	4	–	L
3514 8	Ra II	–	[5]	Rs
3514.80	Dy	2	–	m
3514.782	Mo	4	3	–
3514.766	Ru I	12	4	–
3514.715	Pt	2	2	–
3514.641	Zr II	3	2	–
3514 626	Fe	7	2	–
3514.615	U	18	5	–
3514 60	Rn I	–	[12]	Rs
3514 58	Xe	–	[4 wh]	Hu
3514.529	Th	8	8	–
3514.49	Eu	18	5	–
3514.488	Ru I	70	40	–
3514.43	Dy	6	–	Ed
3514.420	V	1	40	–
3514.404	Ta	5	1 h	–
3514.39	A	–	[125]	Rt
3514.328	Ce	6	–	–
3514 322	Zr I	2	–	–
3514.22	Eu	15	–	–
3514.213	Co II	–	20	–
3514 18	Tb	8	–	Ed
3514.16	W	–	10	–
3514.141	Ru	4	–	–
3514.10	Dy	4	2	m
3514 063	La I	8	3	–
3514.044	Cb	–	50	–
3514.022	Cs	–	[6]	Sv
3513 933	Ni I	200	40 h	–
3513 88	Rb II	–	[10]	Ok
3513 877	V	–	30 h	Me
3513 86	Tb	30	–	Ed
3513.856	Ce	8	–	–
3513.84	Dy	4	–	m
3513 822	Os	10	3	–
3513.820	Fe I	400	300	S
3513.80	Tl II	–	[3]	El
3513.790	Ce	6	–	–
3513 758	Th	3	3	–
3513.708	Mo	3	1	–
3513 69	Cl II	–	[12]	Ks
3513.678	U	10	1	–
3513.66	Gd	4	–	–
3513 645	Ir I	100 h	100	–
3513.612	Ta	35	1 h	–
3513.484	Ni	3	–	–
3513.480	Co I	300 R	25	–
3513.475	Ce	4	–	–
3513.370	U	3	10	–
3513.34	Eu	10 w	–	–
3513.283	Ce	6	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3513.276	Hf	10	1	–
3513.27	Pr	5	–	–
3513.22	Cl II	–	[35]	Ks
3513.219	Th	3	3	–
3513.13	As	–	5	Ro
3513.102	Rh I	50	3	–
3513.10	Tb	30	8	Ed
3513.10	Dy	4	–	Ed
3513.065	Fe I	10	2	–
3513.048	Sm	15 d	4	–
3513.048	Ce	1	2	–
3513.044	Cr	–	8	–
3513.039	U	6	6	–
3513.038	Tm	10	20	Me
3512.988	Os	–	30	–
3512.958	Fe	2	1	–
3512.93	W	5	7	–
3512.917	La II	50	15	–
3512.909	Sm II	6 d	3	–
3512.909	Nd	8	10	–
3512.887	U	8	1	–
3512.886	Yt I	8	3	–
3512.882	Ru	8	–	–
3512.834	Ta	15	–	–
3512.772	Er	2	–	–
3512.756	Cb	3	2	–
3512.746	Th	5	6	–
3512.707	Dy	12	–	–
3512.701	I	–	[18]	Ke
3512.695	Er	9	1	–
3512.684	Zr II	5	3 h	–
3512.673	U	1	5	–
3512.65	Cr	8 h	–	–
3512.650	Sm	15	3	–
3512.641	Co I	400 R	100	–
3512.619	W	7	5	–
3512.60	Tb	15	3	Ed
3512.566	Ce	5	–	–
3512 563	Dy	10	–	–
3512.511	Gd	30	30	–
3512.511	He I	–	[4]	Ps
3512.355	Zr I	4	–	–
3512.309	Cb	3	2	–
3512.287	Re I	50	–	–
3512.272	Ce	6	–	–
3512.27	Eu	10 W	–	–
3512.227	Gd	30	20	–
3512.227	Fe	5	1	–
3512.22	Pr	3 d	–	–
3512.200	Ir I	12	5	–
3512.150	I	–	[10]	Ke
3512 130	V	–	10	Me
3512.121	Cu I	50	30	–
3512.093	W	–	10	–
3512.08	Fe	1	–	–
3512.075	Ti	2	–	–
3512.040	Nd	20	–	–
3511 98	Dy	4	–	Ed
3511.9	bh Zr	2	–	L
3511.896	Kr I	–	[4]	IHu
3511.893	Ir I	20	7	–
3511.88	Hf II	5	10	Me
3511.85	Eu	25 w	1	–
3511.849	U	5	8	–
3511.836	Cr II	20	50	–
3511.833	Mn	4	4	–
3511.793	Mo	1	3	–
3511.785	Rh I	50	3	–
3511.76	Ho	–	4	Ex
3511.741	Fe	2	1	–
3511.732	W	6	8	–
3511 694	Dy	10	2	–
3511.689	Er	9	–	–
3511.674	Th	10	8	–
3511 626	Ti I	10	–	–
3511.615	Th	10	8	–
3511.590	Sm II	1	2	–
3511.589	Ce	8	1	–
3511.581	U	6	10	–
3511.560	Ru I	6	–	–
3511.538	Rh I	25	2	–
3511.459	Ce	2	2	–
3511.439	U	10	1	–
3511.436	Pr	15	3	–
3511.422	V	–	7	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3511.413	Ce	2	–	–
3511.40	Dy	4	2	m
3511.347	I	–	[3]	Ke
3511 275	W	–	10	–
3511.225	Os	30	12	–
3511.213	Sm II	5	5	–
3511.191	Cb	5	5	–
3511.19	Rb	–	[60]	Ok
3511.188	Yt I	8	3	–
3511.18	Eu	4 w	1	–
3511.157	Cb	50	1	–
3511.156	Th	5	–	–
3511.15	A	–	[3]	Rt
3511.145	U	6	–	–
3511.136	Ce	3	1	–
3511.126	Ru I	8	–	–
3511.07	Eu	30 w	2	–
3511.043	Ta	100	35 w	–
3511.04	Tb	15	3	Ed
3511.00	Dy	6	2	Ed
3510.998	U	1	2	–
3510.894	Re	15	–	–
3510.853	Bi I	200 wh	30	Om
3510.841	Ti II	40	125	–
3510.84	Ca	2	4	–
3510.804	U	5	12	–
3510.780	Mo	4	6	–
3510.779	Ce	3	–	–
3510.75	Ho	–	4	Ex
3510.732	Th	5	4	–
3510.721	Ne I	–	[50]	IHu
3510.694	Nd	10	2	–
3510.688	Ce	12	1	–
3510.68	Hg II	–	[10]	Ps
3510.642	Ir I	20	10	–
3510.596	Sm	–	2	–
3510.540	Th	5	4	–
3510.538	Cr	40	8	–
3510.521	Yt I	8	1	–
3510.509	U	10	–	–
3510.457	Zr II	12	5	–
3510.446	Fe I	15	8	–
3510.426	Ce	3	–	–
3510.405	Pr	5	2	–
3510.346	Zr I	2	–	–
3510 338	U	6	–	–
3510.338	Ni I	900 R	50 h	–
3510.311	Ru	6	–	–
3510.293	Ce	5	–	–
3510.266	V	–	10	Me
3510.257	Cb	15	200	–
3510.220	Ce	8	1	–
3510.151	Sm	2	1	–
3510.10	Tb	50	8	Ed
3510.088	Dy	2	1	–
3510.07	Eu	4	–	Kn
3510.032	W	10 s	10	–
3509.989	La II	10	10	–
3509.986	Mo	1	3	–
3509.934	Ce	8	–	–
3509.868	Fe I	15	4	–
3509.858	U	2	–	–
3509.844	Ti II	8	20	–
3509.843	Co I	400 R	40	–
3509.801	Sm	3	1	–
3509.8	Rn	–	[5]	Wo
3509.78	A	–	[15]	Rt
3509.76	Tb	8	–	Ed
3509.729	Ce	12	–	–
3509.717	Ru I	50	2	–
3509.684	V	–	6	Me
3509.669	W	8	6	–
3509.668	U	10	15	–
3509.531	Ce	3	–	–
3509.447	Sm	4	4	–
3509.41	Dy	6	2	Ed
3509.39	Cl II	–	[40]	Ks
3509.381	W	–	12	–
3509.35	Ho	6	2	Ex
3509.349	U	3	6	–
3509.323	Zr I	40	5	–
3509.313	Ce	3	2	–
3509.254	Ce II	10	2	–
3509.241	Ir I	8	2	Ab
3509 235	Nd	10 d	–	–
3509.23	Mo	–	3	–
3509 201	Ru	10	100	–
3509.197	Th	–	2 d	–
3509.17	Tb	200	200	Ed
3509.132	Fe I	2	–	–
3509.122	U	1	2	–
3509.117	Sm	8	10	–
3509.113	Th	4	1 d	–
3509.061	Ce	2	–	–
3509.041	V	2	150	–
3509.015	W	9	7	–
3509.00	Dy	6	4	Ed
3508.94	Cl II	–	[12]	Ks
3508.938	Er	5	–	–
3508.88	Xe II	–	[10]	Hu
3508.865	Ce	2	–	–
3508.859	Eu	10	1	–
3508.851	Os	8	10	–
3508.846	U	8	10	–
3508.836	Cr	12 h	1 h	–
3508.811	Er	8	–	–
3508.740	Eu	8	–	–
3508.735	W	9	10	–
3508.719	Ir I	2	–	–
3508.711	Ce	12	2	–
3508.706	Sm	3	2	–
3508.602	Rh I	3	–	–
3508.60	Tb	8	–	Ed
3508.576	Ir I	6	1	–
3508.537	Cb	5	5 h	–
3508.535	Fe I	20	10	–
3508.51	Rh	2	–	–
3508.485	Fe	40	20	–
3508.476	Mo	2	5	–
3508 467	Ce II	10	–	–
3508.42	Lu	30	3	Me
3508.42	Xe I	–	[2]	Me
3508.395	Er	15	6	–
3508.35	Ho	–	4 h	Ex
3508.335	Ce	4	–	–
3508.306	U	2	–	–
3508.22	Rn I	–	[10]	Rs
3508.213	Fe II	1 h	1 h	–
3508.212	Pr	12	3	–
3508.2	bh Zr	20	–	L
3508.115	Mo	20	20	–
3508.115	W	5	1	–
3508.098	Cr	15	2	–
3508.09	Ag I	10	1	–
3508.031	Ce	3	–	–
3507.964	Yt II	2	12	–
3507.960	Cb	20	20	–
3507.95	Pd II	–	30 h	Ex
3507.945	Ce II	12	3	–
3507.925	W	6	6	–
3507.90	La	–	4 hl	Me
3507.84	Kr I	–	[3]	Me
3507.835	Yb	12	60	–
3507.811	Ce	5	–	–
3507.8	Rn	–	[5]	Pe
3507.706	U	3	4	–
3507.698	Sm	4	–	–
3507.694	Ni I	100	12	–
3507 683	U	3	4	–
3507.674	Zr II	5	3	–
3507.644	Er	7	–	–
3507.55	Eu	8 w	5 wh	–
3507.539	V	–	50	–
3507.53	Dy	6	–	Ed
3507.528	Ce	2	–	–
3507.522	Th	–	10	Fd
3507 506	Ir	1	2	–
3507.480	Er	20	4	–
3507.47	Lu	30	–	Kn
3507.45	Tb	50	8	Ed
3507.426	Ti	15	2	–
3507.397	Fe II	2	1	–
3507.39	Lu	100	150	Kn
3507.38	Cu I	3	2 h	Ex
3507.36	P II	–	[100 w]	Gu
3507 345	Ce	8	–	–
3507.344	U	10	3	–
3507.34	Pr	6	2	–
3507 333	Ta	3	1 h	–
3507 316	Rh I	500	125	–
3507.287	Mo	3	3	–
3507.284	W	10	9	–
3507.223	Ir I	2	–	–
3507.221	Ce	5	–	–
3507.209	Cr	12 h	–	–
3507.170	Fe	3 h	1 h	–
3507.14	Tb	15	–	Ed
3507.108	Sm	15	2	–
3507.051	U	10	5	–
3507.049	Os	10	5	–
3507.024	Mo	3	2	–
3507.015	Ce	2	–	–
3506.994	Cb	10	10	–
3506.94	Ho	10	10	Ex
3506.94	Te	–	[5]	Bl
3506.873	Ta	3	1	–
3506.854	Th	6	6	–
3506.847	Sm II	4	2	–
3506.843	V I	15	4	–
3506.820	Dy	80	–	–
3506.815	Er	15	6	–
3506.790	U	6	10	–
3506.74	Xe I	–	[5]	Me
3506.726	Ce	8	–	–
3506.722	Nd	2	–	–
3506.704	Mo	–	20	–
3506.66	Kr I	–	[3]	Me
3506.643	Ti I	35	3	–
3506.641	W	8	7	–
3506.564	V	–	7	Me
3506.56	Xe II	–	[8]	Hu
3506.498	Fe I	50	30	–
3506.491	Yt	2	2	–
3506.485	Zr II	6	2	–
3506.464	Ce	2	–	–
3506.46	A I	–	[30]	Ms
3506.392	Re I	15	–	–
3506.319	U	2	–	–
3506.315	Co I	400 R	15	–
3506.282	Ca	–	2 h	–
3506.252	Ce	15	1	–
3506.2	bh Zr	20	–	L
3506.046	Zr II	8	4	–
3506.028	Nd	6 d	–	–
3506.025	Cb	3	3	–
3505.97	Eu	10 w	1	–
3505 955	Ce	4	–	–
3505.901	Ti II	2	5	–
3505 90	Tb	30	8	Ed
3505.83	Dy	20	2	m
3505.808	Cb	5	2	–
3505.763	F	–	[10]	Di
3505.690	V I	50	35	–
3505 688	Ce	3	–	–
3505.686	Er	8	–	–
3505.669	Zr II	40	30	–
3505.627	Cb	3	5	–
3505.614	F II	–	[600]	Di
3505.552	U	8	–	–
3505.530	Cl	–	[4]	Mu
3505.520	Gd	60	60	–
3505.508	F II	–	[20]	Di
3505 507	Ce	2	–	–
3505.498	Th	6	6	–
3505.485	Zr II	30	30	–
3505.457	Ce	2	–	–
3505.457	Dy	70	2	–
3505.455	U	4	6	–
3505.44	Cl II	–	[12]	Ks
3505.42	Ho	–	4	Ex
3505 409	Rh I	30	3	–
3505 315	Mo	10	20	–
3505 305	Eu	25 w	5 w	–
3505 297	Nd	15	6	–
3505.228	Zr	3 h	–	–
3505.227	Hf II	20	50	–
3505 181	Ce	8	–	–
3505.175	Ta	35	2 h	–
3505.15	Pb	–	5	Sx
3505.136	Co	8	–	–
3505.09	Tb	15	3	Ed
3505.074	U	8	15	–
3505.074	Er	12	8	–
3505.061	Fe	10	10	–
3505.06	Eu	2	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3505.014	Os	–	5 h	–
3504.976	Ta	70	2	–
3504.936	U	8	–	–
3504.91	Eu	4 W	–	–
3504.892	Ti II	20	150	–
3504.866	Ir	2	–	–
3504.859	Fe I	10	5	–
3504.85	Cs	–	[4]	Bs
3504.783	Pr	5	2	–
3504.773	Ti I	2	–	–
3504.732	Co I	18	2	–
3504.661	U	1	3	–
3504 659	Os I	300	20	–
3504.646	W	9 s	6	–
3504.606	Ce	5	10 wh	–
3504.522	Dy	90	3	–
3504.521	Ce	6	–	–
3504.518	Er	25	4 h	–
3504.50	P	–	[15]	Gu
3504.496	Pr	4	1	–
3504.484	U	8	2	–
3504.469	Sb	20	18	–
3504.439	V II	60	200	–
3504.415	W	3	1 h	–
3504.413	Mo	20	20	–
3504.30	As II	–	5	Ro
3504.27	Sr I	4	–	Hp
3504.270	Pr	12	3	–
3504.236	U	4	–	–
3504.215	Nd	6	20	–
3504.212	Sm	2	5	–
3504.2	Bi II	–	3	Ml
3504.149	Ce	5	–	–
3504.124	Ir I	5	–	–
3504 090	Ce	5	3	–
3504 077	Nd	10 d	5	–
3504.06	Er	10 d	1	–
3504.04	Tb	15	3	Ed
3504.039	Th	4	3	–
3504.008	U	10	1	–
3503.981	Ce II	5	–	–
3503.955	Ce	4	–	–
3503.925	Zr	4 h	–	–
3503.898	Kr I	–	[15]	IHu
3503.876	Cr	20 wh	–	–
3503.868	Ta	70	10 h	–
3503.8	bh Sr	30	–	L
3503 781	Th	3	–	–
3503.78	S	–	[8 h]	Bl
3503.760	Ti I	7	–	–
3503.75	Eu	8 d	–	–
3503.748	Zr	3	–	–
3503.718	Re	15 W	–	–
3503.717	Co	5	–	–
3503.67	Cs	–	[4]	Sv
3503.66	Dy	4	2	m
3503.634	Ce	4	–	–
3503.620	Th	8	8	–
3503.61	Ne II	–	[18]	Bn
3503 56	Al	–	2	Gn
3503.558	W	9	5	–
3503.534	Ce	4	–	–
3503.502	Mo	3	3	–
3503 474	Fe II	1 h	1 h	–
3503.451	Os	15	8	–
3503.430	Pr	10	2	–
3503.390	Cr	8	–	–
3503.373	Er	10	1	–
3503.324	U	2	–	–
3503.318	Zr I	2	–	–
3503.291	Sm	20	–	–
3503.25	Kr II	–	[50 whl]	Me
3503.234	W II	–	5	–
3503 232	Eu	5	–	–
3503.200	Cb	10	5	–
3503.179	Dy	8	3 h	–
3503.176	V	10	4	–
3503.15	Xe II	–	[8]	Hu
3503.095	F II	–	[400]	Di
3503.085	Ce	10	–	–
3503.060	Pr	15	4	–
3503.059	Re I	80	–	–
3503.041	U	2	1	–
3503.038	W	8	7	–
3502.99	P II	–	[70]	Gu
3502.978	Ce	5	–	–
3502.954	F II	–	[60]	Di
3502.936	Ir I	8	4	–
3502.889	Ce II	8 s	–	–
3502.869	Ta	7	3	–
3502.859	F II	–	[10]	Di
3502.81	Eu	15 d	5	–
3502.783	Er	10	1	–
3502 783	Th	8	8	–
3502.75	I	–	[10]	Bl
3502.731	Re	20	–	–
3502.705	Nd	8 d	4	–
3502.673	Mo	–	20	m
3502 646	Ce II	8	–	–
3502.635	Fe	2	–	–
3502 624	Co I	60	5	–
3502 616	Ir I	2	–	Ab
3502 6	Rn	–	[2]	Pe
3502.595	Ni I	100	–	–
3502.554	Kr I	–	[20]	IHu
3502.524	Rh I	1000	150	–
3502.495	Ta	7	2 h	–
3502.49	Tb	15	–	Ed
3502.46	Eu	10 w	2	–
3502.418	Ru I	20	4	–
3502 381	He I	–	[2]	Ps
3502.307	Cr	35	6	–
3502.306	Zr	5	–	–
3502.280	Mn	2 h	–	–
3502.279	Co I	2000 R	20	–
3502 239	U	5	–	–
3502.23	W	–	10	–
3502.10	Tb	8	–	Ed
3502 09	Dy	6	4	m
3502 02	Ca	–	3	Ad
3502.01	Nd	8	4	–
3501.974	Ta	3	1	–
3501.963	Mo	–	30	–
3501.96	Yt I	3	2	m
3501.943	Ag	5	2	Fn
3501.9	Pb II	–	[10]	Ea
3501.869	Dy	4	1	–
3501.815	Ce	8	–	–
3501.77	Xe	–	[10 h]	Hu
3501.725	Co II	5	100	m
3501.687	Os	30	5	–
3501.68	Ag	8 h	20 h	–
3501.649	U	4	2	–
3501.594	Ce	12	–	–
3501.562	F II	–	[15]	Di
3501.535	Nd	10 d	4	–
3501.529	Cu I	2 h	1 h	–
3501.52	Se I	–	[50]	Rd
3501.494	Zr I	12	3	–
3501.487	F II	–	[6]	Di
3501.485	V I	25	20	–
3501.457	Th	10	10	–
3501.453	Ce I, II	18 w	3	–
3501.436	Dy	10	3	–
3501.416	F II	–	[200]	Di
3501.354	Ru	30	3	–
3501.347	Zr I	15	1	–
3501.341	Cb	3	30	–
3501.34	U	5 d	3 d	–
3501.339	Ce	4	–	–
3501.338	Cu I	5	1 h	–
3501.228	Sm II	2	1	–
3501 217	Ne I	–	[150]	IHu
3501.19	Tb	8	–	Ed
3501.162	Os	100	15	–
3501.144	Er	9	–	–
3501.116	Ba I	1000	20	–
3501.031	Ce	5	–	–
3501.005	U	8	–	–
3500.864	Fe	2	–	–
3500.852	Mn	5	–	–
3500.852	Ni I	500 wh	80	–
3500.851	Th	5	3	–
3500.84	Tb	70	15	Ed
3500.834	Ce	4	–	–
3500.824	V I	35	25	–
3500.741	Cb	–	30 h	–
3500.680	Ce	18	–	–
3500.639	Yt I	5	–	–
3500.6	Rn	–	[2]	Pe
3500.567	Fe	50	20	–
3500.552	Th	6	5	–
3500.50	Dy	2	4	m
3500.498	Sm II	30	15	–
3500.36	Xe II	–	[15]	Hu
3500.346	V I	2	2	–
3500 340	Ti II	15	35	–
3500.333	U	3	10	–
3500 328	Pr	6	–	–
3500.324	Cu I	20	2 h	–
3500.318	Pt	2 h	–	–
3500.280	W	10	10	–
3500.27	Tb	50	–	Ed
3500.269	Th	2	2	–
3500.26	Ca	–	3	Ad
3500.230	Ir	5	–	–
3500 146	Zr II	4	3	–
3500.107	Cb	5	1	–
3500 077	U	15	2	–
3500 02	Tb	8	3	Ed
3500.00	Cd I	25	15	–
3499.996	Th	8	8	–
3499.994	Ce	15	1	–
3499.985	Mo	–	25	–
3499.97	Nd	8	4	–
3499.965	Tm	10	–	Me
3499.965	Er	9	–	–
3499.949	Cb	5	50	–
3499.877	Fe II	2 h	2 h	–
3499.825	Sm	8	5	–
3499.824	V II	3	50	–
3499.82	Dy	5	–	m
3499.777	Ce	3	–	–
3499.764	Ir I	3	–	–
3499.672	Sr I	50	–	ISn
3499.627	W	9	9	–
3499 622	Ce	5	–	–
3499 61	Si	–	2	Sy
3499 61	Dy	4	–	–
3499.576	Zr II	10	9	–
3499.568	Pr	10	4	–
3499.535	Os	10	3	–
3499.49	A	–	[10]	Rt
3499.466	Ce	2	–	–
3499.388	Ce	4	–	–
3499.368	Ir I	2	–	–
3499.34	Tb	15	–	Ed
3499.327	U	6	15	–
3499.300	Ce	4	–	–
3499.266	Os	3	2	–
3499.199	Mo	3	–	–
3499.112	Ir I	5	–	–
3499.104	Er	18	15	–
3499.099	Ti I	25	10	–
3499.088	Pr	40	3	–
3499.08	Ho	10	10	Ex
3499.071	U	6	8	–
3499.071	Mo	–	20	–
3498.986	Th	8	8	–
3498.985	Hf	6	–	–
3498.951	Ir	25	–	–
3498 943	Yt I	8	6	–
3498.942	Ru I	500 R	200	–
3498.939	Dy	15	–	–
3498.924	Ce	2	–	–
3498.923	Mo	3	1	–
3498 92	Kr II	–	[2 wh]	Me
3498.912	Sc I	8	2	–
3498.87	Ho	8	10	Ex
3498.826	Ce	2	–	–
3498.758	Fe	1 h	–	–
3498.737	Ir	15	–	–
3498.73	Tb	8	–	Ed
3498.730	Rh I	500	60	–
3498.711	Er	10	3	–
3498.679	Ce	15	–	–
3498.67	Dy	50	50	m
3498.641	He I	–	[3]	Ps
3498.629	Cb	30	50	–
3498.625	Th	6	3	–
3498.600	U	2	4	–
3498.562	Ce	8	–	–
3498.536	Os	80	15	–
3498.50	Kr II	–	[4 wh]	Me
3498.456	Sb II	–	300 wh	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3498.434	Cb	2	1	–
3498.384	U	8	3	–
3498.200	V I	12	7	–
3498.17	Pt I	1	2	–
3498.150	W	–	10	–
3498.074	Os	15	10	–
3498.064	Ne I	–	[75]	IHu
3498.063	Cu I	20	5	–
3498.06	Tb	15	–	Ed
3498.028	I	–	[25]	Ke
3498.016	Th	8	8	–
3497.937	Ru I	30	5	–
3497.919	Zr II	–	10	–
3497.848	Ta	70	5	–
3497.843	Fe I	200	200	S
3497.841	Dy	30	3	–
3497.812	Cb	30	15	–
3497.70	Th	3	3	–
3497.65	Eu	9 w	–	–
3497.622	U	6	12	–
3497.538	Mn II	15	150	–
3497.491	Hf	20	10	–
3497.45	Kr II	–	[3 h]	Me
3497.444	Ce	2	–	–
3497.394	V	–	12	–
3497.377	I II	–	[7]	Ke
3497.340	S	–	[100]	Hn
3497.309	Ce	15	–	–
3497.265	U	6	4	–
3497.264	Th	6	5	–
3497.25	Nd	10	6	–
3497.160	Hf	10	4	–
3497.111	Dy	3	3	–
3497.108	Fe I	200	100	–
3497.067	U	3	3	–
3497.03	Er	3	1 h	–
3497.030	Sc	12 w	–	–
3497.030	V	–	150	–
3497.020	Th	6	5	–
3496.939	V I	12	–	–
3496.910	U	1	4	–
3496.860	Er	25	20	–
3496 812	Th	5	3	–
3496.807	Mn II	10	30	–
3496.794	Co I	30	–	–
3496.72	Dy	3	2	–
3496.704	Mo	3	3	–
3496.681	Co I	150 R	4	–
3496.444	Ce	5	–	–
3496.439	Ir I	3	–	–
3496.415	U	8	15	–
3496.350	Ni I	15	–	–
3496.326	Ce	12	–	–
3496.32	O II	–	[5]	Fl
3496.282	Cb	3 d	1 w	–
3496.27	Dy	4	–	Ed
3496.210	Ce	2	–	–
3496.210	Zr II	100	100	–
3496.20	Tb	15	–	Ed
3496.18	Pr	8	2	–
3496.127	Ru I	12	–	–
3496 080	Yt II	20	35	–
3496.070	Co	10	–	–
3496 05	Nd	4	4	–
3496 026	Cb	10	10	–
3496.010	Ir I	8	–	–
3495 990	Kr I	–	[10]	I
3495.973	Ru	60	10	–
3495 960	Ti I	10	–	–
3495.941	Ce II	15	1	–
3495.928	Hf II	10	10	–
3495.922	Sm	8	2	–
3495 92	Yb	20 Rwh	–	–
3495.896	Fe	6	1	–
3495.889	Re	15	–	–
3495.848	Os	–	10 h	–
3495.839	Mn II	25	150	–
3495.83	Tb	8	–	Ed
3495.754	Ti I	25	7	–
3495.748	Hf II	10	15	–
3495.748	U	5	5	–
3495.729	Ce	10	–	–
3495.703	Th	10	1	–
3495.687	Co I	1000 R	25	–
3495.615	Os	20	12	–
3495.598	U	6	2	–
3495.559	Cr	–	15	–
3495.48	Nd	4	2	–
3495.478	Ce	10	–	–
3495.375	Cr II	12	35	–
3495.374	Zr I	3	–	–
3495.36	Tb	30	8	Ed
3495.34	Cd	–	[100]	–
3495.289	Fe I	100	60	–
3495.246	W	12	20 l	–
3495.20	Tm	6	15	Me
3495.155	Eu	18 ws	2	–
3495.007	Ce	15	–	–
3494.967	Cr	35	25	–
3494.93	Tb	8	–	Ed
3494.863	Ce	3	–	–
3494.838	U	6	15	–
3494.826	Sm	5	–	–
3494 815	Er	20	3	–
3494.78	Dy	2	–	–
3494.77	Ho	30	40	Ex
3494 755	W	6	3	–
3494 727	Re I	20	–	–
3494.7	bh Ca	8	–	L
3494.672	Fe II	–	3	Do
3494.648	Ce	10	–	–
3494.624	Ir	5	2	–
3494.557	U	6	–	–
3494.522	Cr II	1	2	–
3494.496	Dy	100	5	–
3494.494	Er	15	9	–
3494.459	Zr I	4	–	–
3494.442	Rh I	50	3	–
3494.44	Tb	30	8	Ed
3494.418	Gd	70	60	–
3494.397	Ce	2	–	–
3494.30	Pr	6	2	–
3494.27	Te	–	[15]	Bl
3494.26	Nd	10	2	–
3494.251	Ru I	50	8	–
3494.21	Tb	15	8	Ed
3494.17	Fe I	2	–	–
3494.136	Er	12	3	–
3494.135	Dy	20	2 h	–
3493.997	U	12	2 h	–
3493 936	Ce	8	–	–
3493.90	Tb	8	3	Ed
3493.85	Hg II	–	[100]	Ps
3493.724	Ce II	18	–	–
3493.721	Er	5	–	–
3493 697	Fe	3	1	–
3493.678	Zr I	6	–	–
3493 600	Nd	6 d	6	–
3493.597	Sm	5	4	–
3493.526	Th	30	15	–
3493.474	Fe II	40	80	–
3493.473	Cb	3	3	–
3493.465	Ta	15 W	–	–
3493.408	Sm II	2	1	–
3493.407	Eu	7	–	–
3493.407	U	2	5	–
3493.337	Mo	6	10	–
3493 333	U	6	15	–
3493.290	Fe I	1	–	–
3493.280	Ti I	15	1	–
3493 27	Tb	8	–	Ed
3493.26	Dy	3	–	m
3493.25	A I	–	[20]	Ms
3493.220	Ru	20	1	–
3493.215	F II	–	[3]	Di
3493.195	W	6	3	–
3493 167	V II	15	100	–
3493.158	Pr	10	2	–
3493.110	Ce	12	1	–
3493.10	Ho	10	10	Ex
3493.04	Kr II	–	[8 wh]	Me
3493.036	W	5	4	–
3492.99	Tb	15	–	Ed
3492.983	Ce	3	–	–
3492.969	Eu	2	–	–
3492.96	Tb	15	–	Ed
3492.960	Mn	10	–	–
3492.956	Ni I	1000 R	100 h	–
3492.954	Au II	–	4	–
3492.895	Sm	3	–	–
3492.825	Mo	3	4	–
3492.799	U	2	10	–
3492.775	Sm	3	3	–
3492.77	Hg	–	[50]	Ps
3492.765	Rb	–	[300]	Rr
3492.73	Pr	4	1	–
3492.683	Th	2	2	–
3492.622	Sm II	8	1	–
3492.59	Tm	20	10	Me
3492.56	Tb	15	8	Ed
3492.559	Ce	3	–	–
3492.543	Er	25 d	2 d	–
3492.52	Dy	2	1	–
3492.5	Ti II	–	35 wh	Rl
3492.486	Ce	5	–	–
3492.334	U	8	1	–
3492.260	W	4	–	–
3492.249	Ce	12	–	–
3492.207	U	2	8	–
3492.100	Ru	6	–	–
3492.060	Ir I	2	–	–
3492.058	W II	2 d	12	–
3492.0	bh Zr	30	–	L
3491.987	Co I	10	–	–
3491.98	air	–	6	Sq
3491.967	Gd	50	25	–
3491.942	Pr	10	2	–
3491.92	Lu	–	3 h	Me
3491.901	Th	3	–	–
3491.892	Cb	1	15	–
3491.871	Mo	3	3	–
3491.834	W	9	4	–
3491.80	Al	–	2	Gn
3491.8	bh Zr	20	–	L
3491.768	Mo	3	3	–
3491.738	Gd	4	8	–
3491.696	Ce	12	–	–
3491.62	Sr II	1	2	Sd
3491.579	Th	5	5	–
3491.576	Ce	8	–	–
3491.54	A	–	[50]	Rt
3491.53	Pr	10 d	2	–
3491.495	Os	30	15	–
3491.477	Cb	10	5	–
3491.47	Ca	–	4	Ad
3491.439	Re	3	–	–
3491 395	Ce	3	–	–
3491.364	Nd	4 d	5 h	–
3491.340	U	6	10	–
3491 321	Co I	200 R	8	–
3491.24	Tb	15	3	Ed
3491.24	A	–	[15]	Rt
3491.201	Rh I	15	1	–
3491.136	Mo	3	5	–
3491.133	W	7	10	–
3491.09	Eu	10	1	–
3491.072	Rh I	40	2	–
3491.054	Ti II	8	8	–
3491.045	Sm	2	–	–
3491.031	Cb	30	50	–
3490 995	Pt	2	2	Sf
3490.95	Ho	6	4 h	Ex
3490 950	U	6	1	–
3490 932	Ta	10	3	–
3490.925	W II	7	15	–
3490.89	A II	–	[5]	Rt
3490 862	Re	25	–	–
3490.765	Ti I	2	–	–
3490 741	Co I	60	–	–
3490.716	Ru	12	2	–
3490 713	Ce	6	–	–
3490 63	Dy	5	–	m
3490.604	U	6	8	–
3490.575	Fe I	400	300	S
3490.50	A I	–	[3]	Ms
3490.456	Th	5	5	–
3490.44	P II	–	[70]	Gu
3490.418	Cb	1	10	Me
3490.331	Os	40	30	–
3490 320	W II	4	12	–
3490.29	Tb	8	–	Ed
3490.279	Th	5	5	–
3490.259	Ce	4	–	–
3490.242	U	12	20	–
3490.236	Er	8	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
3490.125	Ce	25	3	–
3490.057	Er	10	3	–
3489.943	V	–	40	–
3489.845	W II	–	6	–
3489.832	Th	4	3	–
3489.78	Tb	15	3	Ed
3489.772	Pd I	150 W	35	–
3489.749	Ru	12	–	–
3489.739	Ti II	18	20	–
3489.670	Fe	20	15	–
3489.59	Ho	10	10	Ex
3489.58	Nd	10	–	–
3489.572	Ir	2	–	–
3489.568	U	6	10	–
3489.555	Ce	5	–	–
3489.511	Th	4	–	Fd
3489.51	Tb	15	3	Ed
3489.467	V I	30	7	–
3489.455	Ce	5	–	–
3489.430	Mo	–	3	–
3489.402	Co I	100 R	25	–
3489.379	Ce	3	–	–
3489.371	U	20	1	–
3489.353	Er	10	–	–
3489.293	Nd	10	–	–
3489.287	W	10	9	–
3489.25	Eu	18 w	2	–
3489.188	Th	5	1	–
3489.161	Ta	3	–	–
3489.090	Cb	5	50	–
3489.054	Ce	3	–	–
3489.03	Se	–	[20]	Bl
3489.02	Tb	8	–	Ed
3489.013	Pr	15	4	–
3488.97	Dy	5	1 h	m
3488.87	Os	10 d	8	–
3488.858	Cu I	30	5	m
3488.847	Ta	18	1 h	–
3488.846	Re	5	–	–
3488.837	Th	3	–	Fd
3488.832	Cb	2	30	–
3488.815	U	8	15	–
3488.811	Ce	8	–	–
3488.80	Yb	12	15	–
3488.77	Tb	8	–	Ed
3488.77	P	–	[70]	Gu
3488.765	Os	30	10	–
3488.742	Cb	1	10 h	Me
3488.680	Mn	50	200	–
3488.65	Kr II	–	[30 h]	Me
3488.619	U	6	–	–
3488.575	Ir I	15	3	–
3488.553	Ce	35	5 h	–
3488.545	Ta	2 h	1 h	–
3488.529	Er	6	–	–
3488.453	Cr	35	10	–
3488.372	Ce	4	–	–
3488.35	Hg	–	2 h	St
3488 331	Nd	6 d	4	–
3488.306	Eu	18	1	–
3488.301	U	6	–	–
3488.293	Ni I	2	–	–
3488.235	Pr	5	–	–
3488.168	U	3	1 h	–
3488.164	Ce	5	–	–
3488.14	Mo	–	20	–
3488.13	Tb	8	–	Ed
3488.052	Ir	2	–	–
3487.996	Fe II	1 h	1 h	–
3487.902	Zr I	2	–	–
3487.863	Ce	4	–	–
3487.849	Th	10	8	–
3487.803	Zr I	2	–	–
3487.76	Ag I	3 h	3 h	Bx
3487.721	He I	–	[2]	Ps
3487.713	Co I	20	1	–
3487.651	U	1	6	–
3487.62	Tb	15	3	Ed
3487.609	Sm	3	1	–
3487.598	Ca I	100	2	IWg
3487.582	U	8	1	–
3487.58	Dy	6	2	–
3487.574	Pr	25	5	–
3487.57	Hf II	6	15	–
3487 566	Cu I	30	5	–
3487 533	Cb	3	2	–
3487.521	Re	4	–	–
3487.49	Kr II	–	[7 h]	Me
3487.463	Os	50	15	–
3487.461	Rh I	10	1	–
3487.456	Ru	5	–	–
3487.403	Sm	10	4	–
3487.396	Ta	3	–	–
3487.39	Pr	3	1	–
3487.384	Tm	15	–	Me
3487.381	Ce	4	–	–
3487.33	A II	–	[3]	Rt
3487.288	Ce	3	–	–
3487 282	U	4	1 h	–
3487.28	Tb	15	3	Ed
3487.248	Os	40	12	–
3487.214	Rh I	10	1	–
3487 202	Dy	6	–	–
3487.162	Ce	10	–	–
3487.090	U	5	5 h	–
3487 08	Th	4	2	–
3487.08	Tm	10	20	Me
3487.021	Pr	6	1	–
3487.008	V I	6	4	Me
3486 976	Th	5	3	–
3486.97	Ag	2 h	5 h	–
3486 95	Tb	8	3	Ed
3486 90	Nd	8 d	–	–
3486.879	Ir I	3	–	–
3486 855	Ce	8	–	–
3486.83	Nd	15	4	–
3486.828	Er	20	7	–
3486 79	Si	–	6	Sy
3486.789	Ru I	30	–	–
3486.717	Cb	5	1	–
3486.688	Ta	3	–	–
3486.664	Ce	2	–	–
3486.6	Rn	–	[10]	Wo
3486 557	Fe I	2	–	–
3486 520	Th	12	12	–
3486.483	Pr	12	2	–
3486.48	Cr	20	4	–
3486 40	Ca	–	2	Ad
3486 34	Ho	2	6	Ex
3486.32	Nd	6 d	8	–
3486 303	U	5	15	–
3486 269	Ce	10	–	–
3486 24	Tb	8	–	Ed
3486 206	Ru I	20	–	–
3486.196	Gd	3	3	–
3486.142	Dy	2	–	–
3486.128	W II	5	20	–
3486 128	Zr	2 h	–	–
3485 972	U	5 r	8	–
3485 931	Cb	10	5	–
3485 928	Mo	8	4	–
3485 924	V II	8	70	–
3485 90	Dy	5	1	–
3485.888	Ni I	150	30	–
3485.867	V I	3	1	Me
3485 865	Eu	20	2	–
3485.860	Er	25	6	–
3485.86	Ho	6	6	Ex
3485 796	Sm II	2 h	1	–
3485 76	Yb	20	40	–
3485 73	Mo	–	20	–
3485 726	Yt I	12	4	–
3485.723	U	2	–	–
3485 7	bh Pb	30	–	L
3485 700	Co I	15	–	–
3485 689	Ti I	25	4	–
3485.56	Tb	15	–	Ed
3485 502	Ir I	15	3	–
3485.500	W	10	9	–
3485.483	Mo	–	25	–
3485.475	Th	4	4	–
3485.435	Eu	20	–	–
3485 366	Co	100 wh	3	–
3485.342	Fe I	100	50	S
3485.325	Zr II	15	20	–
3485 285	W	10	8	–
3485.267	Pt I	150	200 R	–
3485 259	U	1	2	–
3485.216	Th	8	8	–
3485.17	Hf II	8	3	–
3485.169	Er	10	2	–
3485.16	Eu	18 s	2 h	–
3485.110	Ni I	6	–	–
3485.097	Cb	5	5 h	–
3485.054	Ce	30	10	–
3485.00	P	–	[50]	Gu
3484.979	Eu	4	–	–
3484.972	Fe I	4	1	–
3484.921	U	2	2 h	–
3484.89	Nd	3 d	1	–
3484.87	Hg II	–	[5]	Ps
3484.855	Fe I	1	–	–
3484.830	Er	30 d	7 d	–
3484.80	Pr	9	2	–
3484.743	Ce	10	1	–
3484.733	Re	3	–	–
3484.73	Ho	40	30	Ex
3484.723	Sm	3	1	–
3484 71	Hf	6	–	–
3484.70	Tb	8	3	Ed
3484 698	Ce	5	–	–
3484 683	Dy	10	3	–
3484.644	V II	–	5	–
3484 627	Cb	3	15	–
3484.621	Ta	5	3	–
3484.559	Ce	4	–	–
3484.557	Er	10	1	–
3484.481	Ir I	15	4	–
3484.38	La II	5	5	–
3484.367	Nd	6	2	–
3484.354	Re	3	–	–
3484.32	Pr	6	1	–
3484.230	Ta	3	–	–
3484.15	Cr II	8	35	–
3484.120	Ce	3	–	–
3484.09	Nd	12	6	–
3484.086	Th	8	8	–
3484.083	Ir I	15	3	–
3484.070	Eu	2	–	–
3484.054	Ce	3	–	–
3484.049	Yt I	7	4	–
3484.049	Cb	10	100	–
3484.036	Rh I	40	4	–
3484 021	U	3	–	–
3483 985	Ce	5	–	–
3483.88	Ho	–	4 h	Ex
3483 86	W	–	6 d	–
3483.86	I	–	[7]	Ke
3483 843	Mo	20 w	10	–
3483 84	Rb	–	[5]	Ok
3483 80	Ti II	–	70 wh	–
3483.790	Pr	5	–	–
3483.774	Ni I	500 R	30	–
3483.773	U	2	4	–
3483.761	Cu I	60	25	–
3483.69	Tb	30	8	Ed
3483.673	Mo	5	5	–
3483.576	U	2	1 h	–
3483.539	Zr II	20	25	–
3483.52	Cr	15	30	–
3483.518	Pr	15	3	–
3483.512	Ce	6	–	–
3483 428	Pt	70	10	–
3483.412	Th	8	8	–
3483.410	Co I	300 R	10	–
3483 39	Pb	–	30	Sx
3483 323	Ce	3	–	–
3483.292	Ru I	60	10	–
3483.29	Dy	2	1 h	–
3483.200	Sm	2	2	–
3483.18	Ca	2	5	Ad
3483.175	Th	2	3	–
3483.17	A I	–	[5]	Ms
3483 159	Ru	50	8	–
3483.141	Co I	10	–	–
3483.04	Tb	15	8	Ed
3483.04	Cd II	–	6	Vs
3483.013	Zr I	15	–	–
3483.010	Fe I	50	10	–
3483.010	Ti I	8	–	–
3482.951	Cb	2	100	–
3482.909	Mn II	50	250	–
3482.836	Th	2 d	2 d	–
3482.824	Sm	4	–	–
3482.809	Zr I	20	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3482.807	Ce	10	–	–
3482.80	Tb	8	–	Ed
3482.777	W	10	5	–
3482 77	Dy	6	1	–
3482.76	Mo	–	10	–
3482.694	Sm II	2	–	–
3482.69	Eu	3	–	–
3482.613	Gd	15	15	–
3482.605	Er	10	1	–
3482.598	Ir I	15	4	–
3482.591	Cr	1	6	–
3482.552	Th	10	10	–
3482.54	Eu	6 w	2	–
3482.525	Cb	5 h	1	–
3482.49	Nd	8	4	–
3482.420	Ce	5	-	–
3482.395	Mo	5	3	–
3482.345	Ce II	20	2	–
3482.341	Ru	30	3	–
3482.340	Mo	5	3	–
3482 248	Pr	15	–	–
3482.237	Re	40	–	–
3482.231	Os	20	10	–
3482.187	V I	40	50	–
3482.140	Ce II	20	–	–
3482.131	Zr I	2	–	–
3482.112	Os	40	15	–
3482.09	Dy	2	2	–
3482.039	Ir I	2	–	–
3481.96	Ne II	–	[25]	Bn
3481.909	Cu I	3	3	Sh
3481.863	Fe	1 h	–	–
3481.854	Hf	5	–	–
3481.833	I	–	[40]	Ke
3481.825	W	10	12	–
3481.818	Gd	80	60	–
3481.807	Er	8	–	–
3481.787	Mo	5	5	–
3481.752	Ce	2 h	–	–
3481.75	Tm	20	10	Me
3481.675	Ti I	15	1	–
3481.673	Ce	3	–	–
3481.62	Dy	2	1 h	–
3481.61	Eu	45 W	2	–
3481.565	Fe I	1	–	–
3481.55	Si	–	5	Sy
3481.536	Cr	30	30	–
3481.447	Zr II	2	2	–
3481.438	Nd	4	2	–
3481 359	Gd	150	150	–
3481.331	W	6	5	–
3481.303	Cr I	15	35	–
3481 297	Ru I	70	35	–
3481.159	Ce II	12	1	–
3481.152	Rh	10	–	–
3481.152	Pd I	500 r	2 h	–
3481.146	Zr II	50	80	–
3481.126	Ti I	12	5	–
3481.11	K II	–	[30]	Bn
3481.085	Ir I	6	2	–
3481.051	Cb	5	2	–
3481.051	Th	5	3	–
3481.028	Pr	9	1	–
3480.979	Ce	18	1	–
3480.897	Ti II	6	25	–
3480.853	Re I	50	–	–
3480 834	Eu	10	–	–
3480.817	Dy	12	–	–
3480.757	Ce	2	–	–
3480.75	Ne II	–	[4]	Bl
3480.722	Er	4	–	–
3480.71	Rb II	–	[10]	Ok
3480.614	Ce	4	–	–
3480.607	La I	7	–	–
3480.560	Sm	5	5	–
3480.560	Nd	6	4	–
3480.530	Ti I	40	10	–
3480.52	A	–	[5]	Rt
3480.516	Ta	70	200 ws	–
3480.466	W	5	5	–
3480.441	Er	25	8	–
3480.44	Tb	15	3	Ed
3480.44	Eu	8	1	–
3480.42	Dy	5	1	–
3480.406	Zr II	6	6	–
3480.381	Re I	50	–	–
3480.379	Ce II	15	–	–
3480.361	Ag	–	6 h	–
3480.359	U	3	2	–
3480.347	Fe	2	–	–
3480.29	Cr I	30	1	–
3480.28	Te	–	[5]	Bl
3480.273	Ce II	15	–	–
3480.252	Sm	5	4	–
3480.213	Cb	2	20	–
3480.183	Ni I	5	–	–
3480.17	Tb	15	8	Ed
3480.16	In	–	3	Sq
3480.131	Ru	10	5 h	–
3480.13	Cs I	50	–	Bv
3480.089	Mo	5	5	–
3480.05	Th	5	1	–
3480.020	Co I	80 W	2 h	–
3479.982	Ce	3	–	–
3479.854	Nd	–	4	–
3479.836	V II	20	80	–
3479.82	Cl II	–	[30]	Ks
3479.76	Dy	2	1	–
3479.744	Ce	4	–	–
3479.686	Fe	2	–	–
3479.607	Ce	15	1	–
3479.564	Cb	5	200	–
3479.512	Sm II	8	3	–
3479.5	Rn	–	[30]	Pe
3479.46	Pr	8 d	1 h	–
3479.46	Ga	–	6	Kl
3479.443	Ta	3	1	–
3479.426	Mo	20	20	–
3479.416	Er	25	10	–
3479.402	Ce	2	–	–
3479.392	Zr II	60	80	–
3479.308	Cr I	35 r	–	–
3479.29	Tb	8	3	Ed
3479.285	Hf II	10	15	–
3479.283	Pr	9	–	–
3479.264	Ni I	5	–	–
3479.25	Cs	–	[4]	Bs
3479.202	Ir I	2	–	–
3479.177	Th	15	10	–
3479.135	Sm II	3	2	–
3479.124	Cr I	30	1	–
3479.099	Th	3	2	–
3479.028	Ce	20	–	–
3479.025	Zr II	10	15	–
3479.00	Kr II	–	[3 h]	Me
3478.990	Hf II	30	40	–
3478.97	He I	–	[2]	Ps
3478.962	V	–	25	Me
3478.951	Sm	4 d	–	–
3478.93	Nd	5	–	–
3478.92	W	6	5	–
3478.918	Ti I	20	5	–
3478.906	Rh I	500	100	–
3478.90	Hg II	10 h	[18]	Ps
3478.84	Yb	40	300	–
3478.787	Fe I	1	–	–
3478.787	Zr I	12	2	–
3478.778	Cb	2	50	–
3478.771	Cr I	35	3	–
3478.744	Co I	60	2	–
3478.73	P II	–	[30]	Gu
3478.708	W	4	–	–
3478.692	Cb	30	15	–
3478.629	Fe	20	6	–
3478.623	Ca	–	2	–
3478.573	Ce	3	–	–
3478.556	Re I	2	–	–
3478.555	Co I	40	2	–
3478.529	Os	100	15	–
3478.498	Zr II	5	5	–
3478.492	Rh I	6	1	–
3478.48	Dy	7	–	–
3478.464	Th	8	8	–
3478.445	Sm	5	–	m
3478.377	Fe I	1	–	–
3478.324	Ce	2	–	–
3478.303	U	–	2 h	–
3478.302	Zr II	9	7	–
3478.292	Ni I	3	–	–
3478.24	A II	–	[5]	Rt
3478.23	Dy	2	1	m
3478.20	Eu	10	–	–
3478.136	Th	10	10	–
3478.05	Ho	6	10	Ex
3478.006	Cb	3	2	–
3477.994	U	3	1 h	–
3477.989	Ce	10	–	–
3477.947	W	10	8	–
3477.94	Dy	4	1	–
3477.938	Er	9	1	–
3477.89	Kr II	–	[5]	Me
3477.864	Ni I	5	3	–
3477.856	Fe	20	4	–
3477.85	Hg I	2	–	Wd
3477.848	Co I	18	–	–
3477.837	U	4	5	–
3477.779	Rh	2	10	–
3477.767	Ir I	15	–	–
3477.74	Ho	4	6	Ex
3477.72	Ca	2	2	Ad
3477.705	Th	8	8	–
3477.69	Ne II	–	[7]	Bn
3477.67	Pt II	–	2	Sh
3477.642	Os	20	3	–
3477.636	Zr I	2	–	–
3477.635	Ta	3 h	–	–
3477.56	Eu	8	–	–
3477.516	V	–	100	Me
3477.498	U	3	3	–
3477.452	Ce	15	1	–
3477.448	Ta	18 d	7 d	–
3477.44	P	–	[30]	Gu
3477.428	Sm	8	–	–
3477.392	Ce	8	–	–
3477.269	Ce	2	–	–
3477.268	W	5	3	–
3477.256	Nd	10 wh	–	–
3477.24	Tb	8	–	Ed
3477.25	Cr	6	1	–
3477.220	Ta	5	35 h	–
3477.19	Eu	4	–	–
3477.182	Ti II	60	100	–
3477.161	Cr I	25	5	–
3477.143	Re	15	–	–
3477.13	W	–	5 d	–
3477.093	U	2	3	–
3477.074	Dy	90	30	–
3477.07	Eu	5 w	–	–
3477.068	Er	15	6	–
3477.007	Fe I	3	1	–
3476.982	Ti II	8	8	–
3476.98	Eu	15	2	–
3476.917	Th	5	3	–
3476.88	Cs I	100	–	Bv
3476.858	Fe I	3	4	–
3476.852	Os	20	1	–
3476.842	Ce	35	10	–
3476.830	Mo	2	3	–
3476.755	Pt I	10	2	Ml
3476.74	A	–	[20]	Rt
3476.74	Dy	2	–	–
3476.704	Fe I	300	200	S
3476.69	Tm	7	–	Me
3476.63	Ni I	4	–	–
3476.61	Eu	20	2	–
3476.61	Be I	5	–	Ps
3476.575	Ce	5	–	–
3476.543	Th	10	10	–
3476.506	W	6	6	–
3476.457	Ir I	15	2	–
3476.452	Ti I	12	12	–
3476.441	Re	30	–	–
3476.437	U	4	3	–
3476.364	Nd	4	–	–
3476.36	Dy	4	1	–
3476.360	Co I	100 R	–	m
3476.355	Ce	15	–	–
3476.347	Gd	5	5	–
3476.344	Fe I	5	2	–
3476.301	Er	30	7	–
3476.30	Yb	80	10	–
3476.293	U	4	3	–
3476.28	Cb	–	15	–
3476.25	Pb	–	2	Sx
3476.248	V	–	40	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3476.029	Zr	2	–	–
3476.023	Re	3 h	–	–
3476.015	Ir	5	–	–
3475.999	Cu I	25	10	–
3475.991	Cb	15	3 h	–
3475.969	Th	3	2	–
3475.866	Fe	2	1	–
3475.835	W	10	7	–
3475.784	Ag	–	20	–
3475.762	Mn	8	–	–
3475.72	Tb	15	–	Ed
3475.68	F II	–	[3]	Di
3475.675	Ce II	15	–	–
3475.651	Fe I	6	6	–
3475.65	Dy	2	1	–
3475.585	Cb	10	15	–
3475.536	Th	4	4	–
3475.535	Ir I	2	3 h	Ab
3475.454	Fe I	400	300	–
3475.34	Dy	2	2 h	–
3475 33	Tb	8	–	Ed
3475.31	Kr	–	[3 hl]	Me
3475.29	W	–	25	–
3475.185	Re	8	–	–
3475.129	Sm II	8	1	–
3475.129	Cr I, II	6	40	–
3475.102	Nd	10	2	–
3475.037	Sc I	2	–	–
3475.032	Mo	5	10	–
3475.0	bh Ca	30	–	L
3474.990	U	4	3	–
3474.98	Tb	8	–	Ed
3474.887	Sr II	80	50	ISn
3474.865	Cr I	35	3	–
3474.843	Ru	20	4	–
3474.84	La II	4	8	Me
3474.81	Yb	10	20	–
3474.800	F II	–	[30]	Di
3474.780	Rh I	700	125	–
3474.780	Ce	12	–	–
3474.763	Ca I	40	5	IWg
3474.71	Dy	2	1	–
3474.707	Er	6	–	–
3474.67	Tb	8	–	Ed
3474.668	Cb	100	4	–
3474.643	Mo	2	3	–
3474.578	Cu I	5	–	m
3474 535	U	2	5	–
3474.530	Co I	30	2	–
3474.52	Eu	15	2	–
3474.46	Rb	–	[20]	Ok
3474.450	Pr	10	1	–
3474.440	Fe	10	6	–
3474 401	Ce	2	–	–
3474.379	Cr	35	8	–
3474.371	Sm	3	–	–
3474.304	Th	6	6	–
3474.29	Dy	12	2	–
3474 275	Er	8	6 w	–
3474 25	Ho	40	20	Ex
3474.23	Xe II	–	[12]	Hu
3474.216	Ce II	15	1	–
3474.208	Re I	25	–	–
3474.203	Mo	2	3	–
3474.200	I	–	[3]	Ke
3474 167	U	4	2	–
3474.145	Zr	2	–	–
3474.14	P	–	[70]	Gu
3474.133	Mn II	12	400	–
3474.125	Os	4	10	–
3474.093	Er	8	6 w	–
3474.044	Mn II	20	–	–
3474.022	Co I	3000 R	100	m
3473.994	Cb	2	20	–
3473.953	Sm II	8	5	–
3473.95	Er	2	–	–
3473.92	Ho	10	10	Ex
3473.915	Sb	3	300 wh	–
3473.901	Ta	10	1 h	–
3473.86	Eu	12	1	–
3473.854	Pr	30	4	–
3473.812	Ce	8	–	–
3473.79	Tb	15	3	Ed
3473.784	Th	5	5	–
3473.746	Ru I	70	35	–
3473.729	Bi	2 h	3	–
3473.725	Ce	5	–	–
3473.703	U	–	3 w	–
3473.702	Dy	80	40	–
3473.682	Fe	3 h	–	m
3473.621	F II	–	[3]	Di
3473.612	Cr I	35	10	–
3473.502	U	3	–	–
3473.502	Fe I	3	–	–
3473.478	Ce	2	–	–
3473.475	Re I	10	–	–
3473.431	U	8	–	–
3473.428	Nd	10	2	–
3473.409	Th	10	8	–
3473 39	Ga	–	4	Kl
3473 314	Ta	3	1	–
3473 314	F II	–	[15]	Di
3473 309	Fe	10	2	–
3473 30	Dy	3	–	–
3473.288	U	2	–	–
3473.229	Gd	50	40	–
3473 223	Mo	4	4	–
3473 18	Yt	5	2	–
3473.131	Ce	10	–	–
3473.13	Tb	8	3	Ed
3473.126	Cb	3	2	–
3473 035	Ce	2	–	–
3473.034	U	5	–	–
3473 033	Th	10	10	–
3473 024	Cb	30	30	–
3473 01	Hg	–	[30]	Ps
3472 964	F II	–	[20]	Di
3472.94	Dy	3	1	–
3472.906	Cr	30	8	–
3472 896	Zr I	5	–	–
3472 874	Re I	15	–	–
3472 87	P II	–	[70]	Gu
3472.832	Ta	7	3 h	–
3472 82	Er	8 h	–	–
3472 82	Tb	50	15	Ed
3472 793	Ti I	8	–	–
3472 774	Cb	2	2	–
3472 764	Cr I	30	8	–
3472 724	Re I	25	–	–
3472.716	Zr I	2	–	–
3472 71	Ba II	–	5	Sd
3472.707	Co I	6	–	–
3472.693	Ru I	8	–	Sv
3472 653	Ru	12	3	–
3472.571	Ne I	–	[500]	IHu
3472.559	U	3	5	–
3472 545	Ni I	800 R	40	–
3472.521	Ta	18	10	–
3472 509	U	5	6	–
3472 48	Lu	50	150	Me
3472 46	Sn II	–	3 h	Mc
3472 405	Hf	25	10	–
3472 4	bh Zr	20	–	L
3472 37	Tb	15	8	Ed
3472 362	W II	–	10	–
3472 36	Fe	1 wh	–	–
3472 36	Xe I	–	[4]	Me
3472 357	Pr	8	1	–
3472.33	Yb	10	–	–
3472.258	Nd	12	–	–
3472 251	Rh I	100	8	–
3472 25	Ho	6	8	Ex
3472 25	Dy	4	1	–
3472 231	Ru	60	9	–
3472.141	Cu I	20	5	–
3472.107	U	3	2	–
3472.07	Cr	–	80	–
3472 034	Sm	10 wh	–	–
3472 03	Fe	1	–	–
3472 027	Ce	10	–	–
3471.994	Re	10 h	–	–
3471 979	U	2	2	–
3471.973	Th	4	1	–
3471.95	Dy	3	–	–
3471.915	Fe	1	–	–
3471.75	Yt	6	5	–
3471.73	Tb	15	8	Ed
3471.725	Eu	7	1 h	–
3471.714	Er	25	8	–
3471.703	U	2	2	–
3471.650	Ce	3	–	–
3471.546	Ce II	3	–	–
3471.531	Dy	10	5 h	–
3471.523	Cb	5	5	–
3471.497	Cr I	30	3	–
3471.49	In	–	6	Sq
3471.378	Co I	80	25 wh	–
3471.36	Sn II	–	10 wh	Ro
3471.34	Fe I	40	15	–
3471.302	Rh	2	–	–
3471.286	Ce	2 h	–	–
3471.270	Sm	3	–	–
3471 270	Fe I	40	15	–
3471.220	Th	6	2	–
3471.191	Cb	5	4	–
3471.189	Zr I	25	3	–
3471.171	Ce	3	–	–
3471.145	Dy	10	–	–
3471.137	Er	10	1	–
3471 124	Zr II	–	5	–
3471.122	Sm	6	2	–
3471.086	U	2	3	–
3471 048	Ta	–	18	–
3471.039	Cb	2	1	–
3471.008	Ce	3	10	–
3470.924	Mo	5	8	–
3470.92	Cs	–	[4]	Bs
3470.914	Er	9	–	–
3470 866	Nd	10	2	–
3470.82	P II	–	[50]	Gu
3470.77	O II	–	[100]	Mh
3470.68	Si	–	2	Sy
3470.657	Rh I	500	125	–
3470 651	Ru	3	–	–
3470.59	Nd	8 d	2 d	–
3470 576	U	–	2	–
3470.570	Th	4	1	–
3470.551	Sc I	8	–	–
3470.529	Cr I	25	6	–
3470.407	Ce	10	–	–
3470.401	Cr I	30	8	–
3470 37	O II	–	[25]	Mh
3470 36	Tb	15	3	Ed
3470.34	Ga II	–	[5]	Sy
3470.27	A	–	[3]	Rt
3470 265	V	–	70	–
3470.262	U	4	2	–
3470 254	Cb	3 h	100	–
3470.181	Zr I	2 h	–	–
3470.18	Yt II	4	5	–
3470.17	Dy	7	1	–
3470.05	Kr II	–	[30 wh]	Me
3470.035	Ce	6	–	–
3470.010	Mn	2	2	–
3470.0	Rn	–	[2]	Wo
3469.940	Zr II	4	2	–
3469.926	Th	12	15	–
3469.87	Dy	3	1	–
3469.85	Tb	30	3	Ed
3469 834	Fe I	35	10	–
3469.81	Xe I	–	[4]	Me
3469.81	Cs	–	[4]	Bs
3469.776	U	4	3	–
3469 722	Er	12	3	–
3469.705	Co I	8	–	–
3469.634	Mo	3	4	–
3469.624	Rh I	100	10	–
3469.617	Sc I	4	2 h	–
3469.600	Fe	1	–	–
3469.590	Cr I	50	15	–
3469.525	V	2	100	Me
3469.492	U	6	2 h	–
3469.486	Ni I	300	20	–
3469.478	Er	4 d	–	–
3469.438	Cb	10	5	–
3469 40	Ho	–	4	Ex
3469.400	Ce	10	–	–
3469.395	Fe	2 h	1	–
3469.368	Os	12	5	–
3469.341	Th	6	3	–
3469.318	Pr	8	1	–
3469.30	Eu	5	2	–
3469 25	W	2	12	–
3469.23	Hf II	5	–	Me
3469.219	Mo	20	10	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3469.213	U	1	2	–
3469.206	Ag	10	8	Fn
3469.130	Cb	2	1	–
3469.101	U	1	4	–
3469.065	Zr I	8	–	–
3469.028	Pr	8	1	–
3469.011	Fe	18	1	–
3469.007	Ce	8	–	–
3468.994	Gd	150	150	–
3468.99	Tb	15	–	Ed
3468.974	Co I	20	–	–
3468.920	U	4	–	–
3468.885	Ce	8	–	–
3468.848	Hf II	3 h	3	–
3468.848	Fe I	30	12	–
3468.77	Dy	3	1	–
3468.75	Cr	30	8	–
3468.720	Th	3	3	–
3468.708	Ce	3	–	–
3468.679	Fe II	10	20	–
3468.659	Pr	10	1	–
3468.648	Re	10	–	–
3468.593	Ir I	2	2	–
3468.592	Co I	5	–	–
3468.556	U	4	1 h	–
3468.541	Cb	10	3	–
3468.54	Pd II	–	50 h	–
3468.476	Ca I	20	3	IWg
3468.435	Dy	50	3	–
3468.42	Tb	8	–	Ed
3468.420	Nd	10	2	–
3468.403	W	10	9	–
3468.383	Ce	6	–	–
3468.325	Zr	4	–	–
3468.24	W II	1	6	m
3468.221	Th	10	12	–
3468.16	Nd	6 d	2 d	–
3468.127	Cb	–	50	Me
3468.113	Ce	20	1	–
3468.087	Gd	3	2	–
3468.065	Pr	8	1	–
3468.044	U	3	3 w	–
3468.03	Tb	50	15	Ed
3467.99	I II	–	[7]	Bl
3467.955	Re I	100 w	–	–
3467.928	Th	10	8	–
3467.887	Eu	5	–	–
3467.885	W	10	8	–
3467.874	Sm II	6	3	–
3467.873	Yt II	12	12	–
3467.872	Pr	8	2	–
3467.86	Dy	4	1	–
3467.853	Mo	5	10	–
3467.776	Ce II	15	–	–
3467.76	Ca	–	3	Ad
3467.732	Ni I	8	–	–
3467.73	Te	–	[15]	Bl
3467.715	Cr	50	30	–
3467.66	In	–	12	Sq
3467.656	U	2	2	–
3467.656	Cd I	800	400	IMe
3467.603	Hf	8	–	–
3467.51	Tm	5	–	Me
3467.502	Ni I	300	15	–
3467.5	bh Sr	4	–	L
3467.497	Ce	2	–	–
3467.49	Dy	2	1	–
3467.468	Cb	15	20	–
3467.452	U	2	–	–
3467.323	V	–	3	–
3467.280	Gd	100	100	–
3467.26	Tb	3	3	Ed
3467.260	Ti I	25	6	–
3467.245	Sb	1	2 h	–
3467.07	Dy	3	1	–
3467.07	Ho	8	6	Ex
3467.046	Ru	50	3	–
3467.040	Pr	8	2	–
3467.022	Cr I	50	20	–
3466.969	Mo	5	8	–
3466.961	Gd	15	10	–
3466.946	Ce II	10	–	–
3466.92	Tb	8	–	Ed
3466 899	Th	3	3	–
3466.895	Fe I	10	4	–
3466.88	Eu	20	1	–
3466.852	Ta	2	18 h	–
3466.828	W	2 hd	–	–
3466.826	Mo	6	10	–
3466.803	Ce	10	–	–
3466.784	Sm	4	–	–
3466.749	Pr	10	2	–
3466.740	Sm	3	–	–
3466.647	Th	5	2	–
3466.646	Ce	2	–	–
3466.588	V	–	30	–
3466.579	Ne I	–	[150]	IHu
3466.57	Tb	8	–	Ed
3466.536	Th	5	1	–
3466.503	U	3	–	–
3466.500	Fe I	30	70	–
3466.416	Eu	30	2	–
3466.34	A	–	[10]	Rt
3466.336	Mn II	–	[18]	Cz
3466.30	U	8	2	–
3466.24	In	–	18	Sq
3466.237	Pr	2	1 h	–
3466.201	Cd I	1000	500	IMe
3466.139	U	4	–	–
3466.12	Dy	2	1	–
3466.077	Ce	5	–	–
3466.029	Ce	3	–	–
3465.983	Re I	20	–	–
3465.98	Tb	30	–	Ed
3465.929	Th	5	5	Fd
3465.92	Hf II	5	2	Me
3465.865	Cb	30	40	–
3465.863	Fe I	500	400	S
3465.86	Mo	5	5	–
3465.80	A II	–	[3]	Rt
3465.800	Co I	2000 R	25	–
3465.766	Th	10	10	–
3465.757	Pr	9	4	–
3465.75	Hg	–	2	St
3465.73	Sn	–	[3]	Lg
3465 661	Mo	6	6	–
3465.632	Zr I	3	–	–
3465.583	Cr	30	8	–
3465.562	Ti II	6	60	–
3465.505	Ta	–	15 h	–
3465.503	Ce	5	–	–
3465.457	Sm	5	–	–
3465.44	Nd	6 wh	–	–
3465.435	Os	60	12	–
3465.416	Ce	8	–	–
3465.41	Kr II	–	[6 whl]	Me
3465.408	W	4	4	–
3465.401	Cu I	10	2 h	–
3465.302	Ce	8	–	–
3465.30	Dy	2	–	–
3465.286	Ru	5	2 h	–
3465.250	Cr	35	30	m
3465 249	V	2	25	–
3465 225	Ir I	12	1	–
3465 20	Cs	–	[4]	Sv
3465 195	Mn	2	–	–
3465.12	Er	8 d	–	–
3465 09	W	–	10	–
3465.037	Mn II	–	[18]	Cz
3465.019	Th	5	5	–
3464.988	Ce	12	–	–
3464.948	U	4	4	–
3464.934	Nd	10	2 h	–
3464 917	Fe I	2	–	–
3464.881	Os	15	5	–
3464 869	U	2	–	–
3464.862	Ce	12	–	–
3464.836	Cr	30	3	–
3464.722	Ce	2	–	–
3464.722	Re I	100	–	–
3464.672	U	–	2	–
3464.66	S	–	[8]	Bl
3464.63	Tb	8	3	Ed
3464.536	Er	10	3	–
3464.493	Fe II	1 h	1 h	–
3464.470	U	4	–	–
3464.46	Dy	2	1	–
3464.457	Sr II	200	200	ISn
3464.449	W	–	12	–
3464.428	Sm II	3	1	–
3464.419	Th	2 d	2 d	–
3464.37	Yb	200 R	50 r	–
3464.37	Cd II	–	10	–
3464.36	Eu	15 d	–	–
3464.339	Ne I	–	[75]	IHu
3464.233	Ba	5	–	Sz
3464.214	Ce	8	1 w	–
3464.19	Yb	12	–	–
3464.17	Xe II	–	[2 h]	Hu
3464.170	V	–	40	–
3464.160	Ce II	10	–	–
3464.14	Si	–	3	Sy
3464.14	A II	–	[15]	Rt
3464.139	Gd	4	3	–
3464.082	Sm	30	10	–
3464.043	Mn II	–	[15]	Cz
3464.00	Cr II	1	2	–
3463.984	Gd	100	125	–
3463.941	Pt	2	1 h	–
3463.915	Ta	3	10	–
3463.910	U	4	–	–
3463.876	Dy	12	2	–
3463.829	V	–	25	–
3463.811	Cb	30	50	–
3463.771	Ta	50	–	–
3463.762	Ce	15 s	1	–
3463.722	Th	10	12	–
3463.683	Cb	5	2	–
3463.63	Al II	3	[1]	Sy
3463.611	Sm	2	–	–
3463.610	Cr	15	1	–
3463 6	Pb II	–	[50]	Ea
3463.573	Mo	10 w	20 w	–
3463 513	W II	8	25	–
3463.499	Cu I	6 h	–	–
3463.499	Co I	8	–	–
3463.425	Cs	–	[6]	Sv
3463.395	V I	10	2	–
3463 36	Dy	5	2	–
3463.349	Ce	3	–	–
3463.330	Mn II	–	[12]	Cz
3463.302	Fe I	7	1	–
3463 28	Eu	18 W	1 h	–
3463 250	W	10	15	–
3463.218	Ce	12	1	–
3463.205	Ti I	6	3	–
3463 184	Sm	2	1	–
3463.144	Ru I	60	4	–
3463.128	Ce	3	–	–
3463.120	Ir	4	–	Ab
3463.111	Pr	8	1	–
3463.1	Rn	–	[2]	Pe
3463.078	V	–	30	Me
3463.032	Mo	–	20	–
3463.03	Eu	8	–	–
3463 030	Cb	5	30	–
3463 017	Zr II	18	40	–
3463.00	Gd	6	4	Ed
3462.97	Tb	15	3	Ed
3462 894	Ta	2 h	1 h	–
3462 878	Mn II	–	[10]	Cz
3462.855	Th	10	12	–
3462 804	Ni I	6	10	–
3462 803	Co I	1000 R	80	–
3462.767	Ce	10	–	–
3462.73	Cr II	2	8	–
3462 688	Sm II	5	2	–
3462 647	Cb	5	3	–
3462 641	Hf II	15	12	–
3462 62	Ca	2	4	Ad
3462.58	Er	10	–	–
3462.51	Tb	8	3	Ed
3462.494	Na II	2	[15]	Fr
3462.433	Ce	8	–	–
3462.361	Fe I	10	3	–
3462.36	Pr	3	–	–
3462.32	La	2	2 h	Me
3462.234	Ce	3	–	–
3462.21	Eu	5	1 h	–
3462.20	Tm	250	200	Me
3462.191	Os	20	10	–
3462.183	Sc I	4	2 h	–
3462.10	Pr	6	–	–
3462.06	Mo	–	25	–
3462 040	Ru	5	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3462.040	Rh I	1000	150	–
3461.96	Ho	20	20	Ex
3461.956	Gd	5	5	–
3461.924	Ru	30	–	–
3461.873	Pr	6	2	–
3461.814	W	9	5	–
3461.793	Ce	10	–	–
3461.71	Yb	1	3	Me
3461.665	Eu	3	–	–
3461.655	W	3	3	–
3461.652	Ni I	800 R	50 h	–
3461.611	Cb	5 h	2	–
3461.582	Ir	4	–	Ab
3461.576	V	–	3	–
3461.574	Rb II	–	[200]	Rr
3461.500	Ti II	80	125	–
3461.417	Ce	2	–	–
3461.405	Sm	5	4	–
3461.40	Er	10	1	–
3461.380	Eu	25	2	–
3461.364	W	7	6	–
3461.36	Ho	–	4	Ex
3461.344	Ce	15 s	–	–
3461.31	Dy	3	1	–
3461.26	Xe II	–	[50 h]	Hu
3461.244	Pr	4	–	–
3461.218	Th	10	4	–
3461.217	Ce	4	–	–
3461.184	La I	10	2	–
3461.176	Co I	100 wh	3	–
3461.17	Tm	15	5	Me
3461.138	Sm	8	3	–
3461.092	Zr I	20	1	–
3461.078	A I	–	[300]	IHu
3461.056	Pr	10	2	–
3461.021	Th	10	4	–
3461.01	Yt II	7	12	m
3461.007	I II	–	[25]	Ke
3461.003	U	3	3	–
3461.00	Tb	15	8	Ed
3460.999	Ce	12	–	–
3460.971	Dy	100	3	–
3460.968	Er	20 l	7	–
3460.95	Ho	6	4	Ex
3460.90	Kr	–	[2]	Me
3460.784	W	3	3	–
3460.784	Mo	25	25	–
3460.783	Ce	2	–	–
3460.781	U	2	–	–
3460.774	Pd I	300 r	600 h	–
3460.719	Co I	18	–	–
3460.700	Sc I	6	2 h	–
3460.663	Pr	3	–	–
3460.64	Dy	4	1	–
3460.63	Sm	3 w	1	–
3460.581	Ce	2	–	–
3460.581	Nd	25	6	–
3460.544	Ir	3	–	Ab
3460.525	Ne I	–	[75]	IHu
3460.48	Tl II	–	[20 d]	El
3460.47	Re I	1000 W	–	–
3460.430	Cr I	40	30	–
3460.42	W	–	15	–
3460.40	Dy	20	2	–
3460.38	Tb	15	8	Ed
3460.351	U	3	5	–
3460.328	Mn II	60	500	–
3460.31	La II	2	3	Me
3460.290	Eu	15	1 h	–
3460.27	Yb	30	5	–
3460.226	Mo	5	5	–
3460.163	Ce	6	–	–
3460.13	Kr I	–	[2]	Me
3460 13	Nd	6	2 h	–
3460.09	Kr II	–	[50]	Me
3460.08	Xe II	–	[5]	Hu
3460.058	U	5	–	–
3460.05	Dy	5	1	m
3460.018	Mn II	5	5	–
3459.933	Zr II	20	2	–
3459.923	Mo	8	8	–
3459.918	Fe I	80	50	–
3459.917	U	8	–	–
3459.87	Tb	8	–	Ed
3459.833	Ce	12	1	–
3459.740	Fe	2	1	–
3459.709	U	3	4	–
3459.703	Cb	30	20	–
3459.641	Th	5	5	–
3459.569	Ru I	30	–	–
3459.568	Sb	2	3 h	–
3459.54	Cb	–	20	–
3459.522	W	9	8	–
3459.500	Th	4	4	–
3459.435	Ce	2	–	–
3459.431	Ti	20	1	–
3459.429	Fe	10	3	–
3459.428	Cu I	25	2 h	–
3459.396	Sm	10	2	–
3459.385	Ce	2 h	15 wh	–
3459.38	Ne II	–	[4]	Bl
3459.330	U	–	3	–
3459.30	Dy	4	1	–
3459.29	Cr	–	35	–
3459.26	Sb	–	[15]	Lg
3459.218	Rh	2	2	–
3459.189	Sm	6	3	–
3459.185	Cs II	–	[15]	Ot
3459.165	U	3	–	–
3459.144	Ce	5	–	–
3459.024	W	6	3	–
3459.018	Os	100	10	–
3458 99	Dy	10	1	–
3458.96	U	2 d	1 d	–
3458 952	Cb	10	10	–
3458.949	Nd	6	2	–
3458 934	Zr II	25	20	–
3458.884	Re I	25	–	–
3458 87	Cb	2	1	–
3458 863	Mo	–	25	–
3458 862	Ce	8	–	–
3458.796	Pr	3	–	–
3458.792	Er	5	–	–
3458.779	Nd	12	2	–
3458.741	Cb	5	–	–
3458.728	Cb	–	10	Me
3458 683	U	5	3	–
3458 6	Rn	–	[5]	Wo
3458.57	Dy	2	–	–
3458.474	Ni I	800 R	50 h	–
3458 460	U	2	–	–
3458 385	Os	200	12	–
3458 319	W	9	9	–
3458 309	Fe	60	25	–
3458.28	Yb	12	100	–
3458.24	Pr	7	2	–
3458 230	Al	–	[10]	Sy
3458 218	Ce	4	–	–
3458 171	U	8	–	–
3458.152	Mo	5	8	–
3458.090	Cr	35	15	–
3458.028	Co I	60 w	–	–
3458.020	Ti I	8	1	–
3458.000	Nd	12	4	–
3457.926	Rh I	125	10	–
3457.921	Sm II	5	1	–
3457.906	Th	3	3	–
3457.851	Cu I	50	15	–
3457 85	K II	–	[5]	Bn
3457.81	A I	–	[3]	Ms
3457.794	Cb	15	10	–
3457.720	W	10 s	9	–
3457.714	U	5	10	–
3457.683	Th	5	5	–
3457.63	Cr	4	125	–
3457.6	Tl	–	10	Cx
3457.570	Eu	25	1	–
3457.564	Zr II	25	25	–
3457.560	Ce	18	–	–
3457.55	Tb	8	–	Ed
3457.515	Fe I	1	–	–
3457.494	Ti I	10	1	–
3457.448	Sc I	8	2	–
3457.366	W	9	8	–
3457.298	Ti I	7	–	–
3457.26	Er	10	1	–
3457.203	Cb	5	3	–
3457.184	Zr I	10	–	–
3457.18	Cs	–	[4]	Bs
3457.173	Ce II	6	–	–
3457.152	V	2	150	–
3457.13	Ca	2	3	Ad
3457.09	Ag I	2	1 h	–
3457.088	Yt II	5	7	–
3457.086	Fe	5	–	–
3457.075	Th	5	1	–
3457.071	Rh I	100	4	–
3457.054	Eu	25	2	–
3457.053	Gd	5	5	–
3457.051	U	8	10	–
3457.04	Cb	–	15 wh	–
3457.03	Tb	50	8	Ed
3456.988	Cb	5 h	–	–
3456.936	Th	3	3	–
3456.934	Fe II	3	4	–
3456.926	Co I	30	2	–
3456.914	V I	20	2	–
3456.87	Kr I	–	[3]	Me
3456.84	Te	–	[10]	Bl
3456.83	Tb	30	–	Ed
3456.772	Ce II	8	1	–
3456.68	Ne II	–	[12 l]	Bn
3456.674	Ce	20	1	–
3456.661	Ti I	2	–	–
3456.620	Ru I	60	8	–
3456.605	U	2 h	2	–
3456.6	Ho	–	4 h	Ex
3456.566	Dy	50	30	–
3456.561	Er	12	6	–
3456.538	Cb	15	10	–
3456.524	Mo	3	4	–
3456.52	Sr I	3	–	Fl
3456.52	Ne	–	[7]	Bl
3456.441	Th	5	4	–
3456.437	Co I	5	–	–
3456.390	Ti II	25	125	–
3456.387	Mo	15 w	10	–
3456.340	Ce II	10	–	–
3456.297	U	3	2 h	–
3456.2	Ra II	–	[5]	Rs
3456.17	Hg	–	[10]	Ps
3456.152	Mo	5	6	–
3456 139	Os	20	10	–
3456.114	Sm	4	–	–
3456.031	Ce	2	–	–
3456.01	Dy	40 W	–	–
3456 004	Nd	4	–	–
3456.003	Er	25 d	10 d	–
3456.00	Ho	60	60	Ex
3455.99	Tb	8	–	Ed
3455.972	Pr	30	3	–
3455.949	Th	4	4	–
3455 933	U	3	2	–
3455.908	Zr I	12	1	–
3455.898	Sc I	3	2 h	–
3455.86	Mo	–	10	–
3455.767	Nd	2	–	–
3455.755	Ti I	6	–	–
3455.742	U	5	4	–
3455.732	Ru	12	–	–
3455.70	Ho	6	6 h	Ex
3455 602	Cr	50	35	–
3455.49	Pb I	–	70	Ro
3455.48	Cs	–	[4]	Bs
3455.471	Ce	2	–	–
3455.425	Ti I	8	–	–
3455.422	Rh I	50	2	–
3455.394	Ti I	10	–	–
3455 386	Ru	20	–	–
3455.35	Tb	15	3	Ed
3455.281	Cr	35	10	–
3455.275	Bi II	–	100 h	–
3455.275	Th	5	5	–
3455.234	Co I	2000 R	10	–
3455 234	Fe	2	–	–
3455.219	Rh I	300	12	–
3455.212	V I	5	3	–
3455.20	Be I	20	–	Ps
3455.1	Rn	–	[2]	Pe
3455.08	Dy	3	1 h	–
3455 07	Te	–	[15]	Bl
3455.038	Ir	3	1 h	–
3455.031	Os	50	15	–
3455 023	Ce	5	–	–
3455.021	W	–	20	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3455.01	Bi II	–	[10]	Ml
3455.0	Pb II	–	[10]	Ea
3454.99	Cr	–	100	–
3454.959	Sm II	25	12	–
3454.95	Th	1 d	3	–
3454.94	A I	–	[20]	Ms
3454.914	Cb	3	80	–
3454.911	Ce	5	–	–
3454.900	Gd	25	20	–
3454.882	V I	15	12	–
3454.844	U	–	2	–
3454.82	Bi II	–	[5]	Ml
3454.807	Ce	8	–	–
3454.777	Sm	4	–	–
3454.77	Lu	–	3 h	Me
3454.76	Eu	40 W	2	–
3454.73	Ti I	3	–	–
3454.73	In	–	3	Sq
3454.706	Cb	3	50	–
3454.686	Cu	40	10 h	–
3454.657	Th	3 d	1 d	–
3454.617	U	10	–	–
3454.576	Zr II	7	4	–
3454.539	W	–	9	–
3454.516	Dy	18	2	–
3454.5	Bi II	–	[5]	Ml
3454.475	Ce	10	40	–
3454.47	Pr	6	1 h	–
3454.389	Nd	6	2	–
3454.326	Dy	100	10	–
3454.318	Er	20	8	–
3454.256	Ce	2	–	–
3454.228	U	2	2	–
3454.223	Mo	5	5	–
3454.208	Th	8	8	–
3454.195	Ne I	–	[75]	IHu
3454.18	Yt I	5	2	–
3454.165	Ti I	15	–	–
3454.161	Ni II	–	2	–
3454.15	Eu	3	1	–
3454.149	Gd	15	15	–
3454.134	Pt I	2	2	–
3454.10	A	–	[10]	Rt
3454.07	Yb	40	250	–
3454.06	Tb	80	30	Ed
3454.05	Se	–	[8]	Bl
3454.022	Ce	3	–	–
3453.97	Cb	–	100	–
3453.922	Th	4	4	–
3453.88	W	–	10	–
3453.88	Eu	2 w	–	–
3453.86	Pt	1	8	Sh
3453.83	Tl II	–	[10]	El
3453.784	Pr	6	–	–
3453.780	U	4	3	–
3453.760	Ce	3	–	–
3453.743	Cr I	30	25	–
3453.66	Tm	150	80	Me
3453.654	Ti I	3	–	–
3453.639	Ce	2	–	–
3453.570	U	5	8	–
3453.547	Sm	15	4	–
3453.531	Ti I	5 h	–	–
3453.505	Co I	3000 R	200	–
3453.502	Re I	40	–	–
3453.47	Eu	3	2	–
3453.46	Kr	–	[3 h]	Me
3453.46	Tb	15	3	Ed
3453.354	Ta	–	10 h	–
3453.328	Cr I	35	35	–
3453.285	Re	20	–	–
3453.241	Ce	8	–	–
3453.226	Sm	4	4 w	–
3453.168	La II	50	40	–
3453.13	Ho	30	20	Ex
3453.12	Dy	5 wh	2	–
3453.10	Er	12	1	–
3453.10	Ne II	–	[7]	Bn
3453.084	V	–	60	–
3453.054	Os	20 s	10	–
3453.04	Er	12	1	Ed
3453.023	Fe	30	15	–
3453.0	Pb II	–	[2]	Ea
3452.971	Ta	5	2	–
3452.962	U	2	–	–
3452.93	Pr	6	1	–
3452.903	Ru I	60	6	–
3452.890	Ni I	600 R	50	–
3452.806	Ce	5	–	–
3452.795	Mo	–	20	–
3452.768	Sm II	4	1	–
3452.726	U	–	3 w	–
3452.683	Th	10	10	–
3452.647	Cb	15	5	–
3452.623	Ce II	5	–	–
3452.622	W	7	4	–
3452.603	Mo	10	8	–
3452.538	Ce	5	–	–
3452.507	W II	4	12	–
3452.470	Ti II	12	100	–
3452.39	Yb	12	–	–
3452.37	Cb	15 W	–	–
3452.37	Tb	15	3	Ed
3452.346	Cb	5	200	–
3452.32	A	–	[3]	Ms
3452.315	Co	8	5	–
3452.31	Hf	3	–	Me
3452.30	Sr II	1	2	Sd
3452.280	B II	5	30	–
3452.279	Ce	2	–	–
3452.277	Fe I	150	8	–
3452.26	Er	8	1	–
3452.245	Eu	10	–	Kn
3452.214	Ce	4	–	–
3452.184	La II	50	40	–
3452.057	Ce	2	–	–
3452.015	U	4	–	–
3451.919	W	6	7	–
3451.918	Fe I	100	60	–
3451.903	Ce	2	–	–
3451.90	Pb I	–	10	Sx
3451.808	Re I	100	–	–
3451.749	Mo	10	20	–
3451.747	W	9	7	–
3451.703	Th	8	5	–
3451.7	Pb II	–	[80]	Ea
3451.70	Dy	3	2	–
3451.70	Tb	8	–	Ed
3451.69	Hg II	–	[200]	Ps
3451.636	Cb	1	30	–
3451.629	Ce II	3	–	–
3451.619	Fe I	15	4	–
3451.619	Pb II	–	10	–
3451.564	Ce	5	–	–
3451.523	Sm	3	2 h	–
3451.48	Pr	25	3	–
3451.479	Mn	2	–	–
3451.41	B II	–	100	En
3451.346	Pd II	–	400 h	–
3451.329	Ce	3	–	–
3451.241	Gd	50	40	–
3451.239	Er	10	1	–
3451.228	Fe	1	1	Do
3451.209	U	5	5	–
3451.149	Rh	50	2	–
3451.148	W	4	10	–
3451.12	La II	2	4 h	Me
3451 045	V	–	60	Me
3451.04	Hg	–	2	St
3451.03	Ca	–	2	Ad
3450.981	Ce	2	–	–
3450.951	Yt I	3	–	–
3450.949	Th	8	8	–
3450.946	Er	20	–	–
3450.917	Ce	3	–	–
3450.86	I II	–	[2]	Mu
3450.83	Cr	25	4	–
3450.81	Th	3	2	–
3450.801	Ce	2	–	–
3450.765	Ne I	–	[50]	IHu
3450 762	Cb	2	50	–
3450.751	W	4	6	–
3450.735	Ti I	4	–	–
3450.73	Nd	8	2	–
3450.722	Ce	2	–	–
3450.641	La I	10	2	–
3450.605	Mn	4	–	–
3450.590	Mo	–	20	–
3450.47	Er	5	–	–
3450.403	Ta	5	1 l	–
3450.390	Os	10	10	–
3450.385	Gd	100	100	–
3450.361	Ce	3	–	–
3450.36	Cs	–	[6]	Sv
3450.332	Cu I	150	30	–
3450 330	Fe I	150	80	–
3450.30	Tb	15	3	Ed
3450.288	Rh I	100	10	–
3450.232	Ce	8	–	–
3450.22	Dy	4	2	m
3450.18	Nd	10	–	–
3450.18	Eu	3	–	–
3450.084	Re	30	–	–
3450.0	Pb II	–	[10]	Ea
3449.984	Ce	10	–	–
3449.981	U	8	3	–
3449.951	Th	5	2	–
3449.915	Zr I	10	–	–
3449.910	Ce II	5	–	–
3449.898	Dy	40	5	–
3449.874	Ti I	6	–	–
3449.869	W II	6	25	–
3449.851	Mo	5	5	–
3449.826	Pr	30	4	–
3449.80	U	2	–	–
3449.77	Tm	10	20	Me
3449.706	Co I	5	–	–
3449.648	Th	8	8	–
3449.628	Gd	10	8	–
3449.57	Te	–	[5]	Bl
3449.46	Tb	30	8	Ed
3449.450	W	3	3	–
3449.441	Co I	500 R	125	–
3449.404	Zr	3	–	–
3449.371	Re	100 r	–	–
3449.314	W	6	4	–
3449.300	Nd	10	4	–
3449.287	Th	5	5	–
3449.23	U	2	–	–
3449.196	Os	100	20	–
3449.170	Co I	500 R	125	–
3449 14	T6	2	–	Ed
3449.074	Mo	10	10	–
3449.01	Ho	–	4 h	Ex
3448.971	Ir I	60	10	–
3448.953	Ru	70	20	–
3448.929	Ta	18 w	2 h	–
3448.856	Sm	6	–	–
3448.865	Ce	5	–	–
3448.86	Tb	8	–	Ed
3448 833	W	10	9	–
3448.812	Yt II	18	18	–
3448.775	U	3	8	–
3448.673	Cb	1	30	–
3448.645	Ce	6	–	–
3448.575	Rh I	25	2	–
3448.55	Rn I	–	[3]	Rs
3448.542	Mo	2	20	–
3448.503	Sc I	8	3	–
3448.50	Dy	2	2	–
3448.43	Eu	3	2	–
3448.358	Co I	10	2	–
3448.31	Ca	–	2	Ad
3448 288	Ce II	12	–	–
3448.27	Nd	8 d	2 h	–
3448.255	Ti I	6	–	–
3448.221	Cb	3 h	50	–
3448.213	W	10	12	–
3448.205	Pr	15	4	–
3448.190	Cr I	12	1	–
3448.163	Eu	4	2	–
3448.09	S	–	[8]	Bl
3448.08	Dy	2	2	–
3448.069	Er	18	2	–
3448.05	U	6	–	–
3448.023	Ce	2	–	–
3447.968	Ce	2	–	–
3447.95	W	8 d	7	–
3447.92	O II	–	[18]	Mh
3447.874	Eu	2	–	–
3447.844	Pr	8	–	–
3447.802	Co	5 h	–	Dn
3447.783	Sm	2	1	–
3447.78	Dy	10	4	m
3447.78	Pt II	1	15	Sh

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3447.760	Cr I	35	30	–
3447.736	Rh I	50	5	–
3447.726	W	6	4	–
3447.703	Ne I	–	[150]	IHu
3447.701	K I	100 R	75 R	Da
3447.67	Pt II	–	5	Sh
3447.631	Th	3	2	–
3447.623	Nd	6	–	–
3447.590	He I	–	[15]	Ps
3447.531	Ce	2	–	–
3447.520	Er	10 d	–	–
3447.430	Cr I	35	35	–
3447.365	Zr I	150 w	3	–
3447 32	Tb	8	–	Ed
3447.291	Ta	35	3	–
3447.281	Fe I	100	60	–
3447.281	Co I	10	–	–
3447.28	Dy	10	2	–
3447.280	Ga II	–	[2]	–
3447.273	Ce	3	–	–
3447.27	Tm	7	3	Me
3447.22	Hg I	2	–	Wd
3447.128	W	8	3	–
3447.123	Mo	25 r	20	–
3447.015	Cr I	35	25	–
3447 001	Dy	50	8	–
3446.930	Cb	–	15	–
3446.910	Ta	2 W	150 W	–
3446.900	W	7	7	–
3446 88	Yb	10	50	–
3446 88	Nd	12	–	–
3446 87	Er	15	1	–
3446.856	Ce	2	–	–
3446.792	Fe	1	–	–
3446.764	U	4	–	–
3446.722	K I	150 R	100 R	Da
3446.721	Ce	15	1	–
3446.636	Ir I	8	2	–
3446.614	Zr I	15	1	–
3446.603	Ti I	4	–	–
3446.6	Rn	–	[2]	Pe
3446.60	W	–	5	–
3446.576	Re	2 w	–	–
3446.546	Th	5	3	–
3446.51	Kr II	–	[50 wh]	Me
3446.488	Ru	50	–	–
3446.46	Ga II	–	[3]	Sy
3446.40	Tb	50	–	Ed
3446 388	Co II	3	60	–
3446.372	Eu	5	3	–
3446.36	Er	8	1	–
3446.34	Xe II	–	[12 h]	Hu
3446 301	Ir I	30	4	–
3446.263	Ni I	1000 R	50 h	–
3446.206	Ce	15	–	–
3446.18	Nd	8	4	–
3446.088	Co I	60 h	–	–
3446.085	Mo	1	40 h	–
3446.070	Ru	50	6	–
3445.939	Ru	10	–	–
3445.912	Ta	7	3	–
3445.895	Nd	2	–	–
3445.870	U	3 h	1	–
3445.84	Eu	3	2	–
3445.808	Mo	3	–	–
3445.807	V I	15	12	–
3445.771	Fe	10	3	–
3445.748	Th	8	8	–
3445.718	W	10	7	–
3445.714	U	3 h	3	–
3445.681	Cb	50	80	–
3445.621	Sm	150 R	10 R	–
3445.618	Cr	100	80	–
3445.582	Dy	80	8	–
3445.575	Er	20	8	–
3445.566	Ti I	3	–	–
3445.56	Ho	6	6	Ex
3445.551	Os	80	15	–
3445.506	Ta	2 h	1 h	–
3445.475	Mo	2	25	–
3445.46	Er	6	–	–
3445.43	Hg	–	2	St
3445.403	W	7	5	–
3445.382	Th	10	8	–
3445.301	Ru I	12	–	–
3445.260	Mo	8	2	–
3445.216	Th	5	5	–
3445.2	bh Sr	12	–	L
3445.17	Eu	40	2	m
3445.151	Fe I	300	150	S
3445.149	Ta	10	2 h	–
3445.036	Mo	5	5	–
3444.91	Tb	8	–	Ed
3444.899	Ti I	2	–	–
3444.871	Al	–	[5]	Sy
3444.790	Ce	5	–	–
3444.695	U	6	5	–
3444.681	Ta	5	2	–
3444.613	Sm	8	10 w	–
3444.608	W	9	8	–
3444.594	U	3	3	–
3444.58	Tb	15	8	Ed
3444.578	Sc I	5	–	–
3444.460	Os	50	12	–
3444.419	U	1	2	–
3444.403	Ti I	5	–	–
3444.311	Ti II	60	150	–
3444.307	Pr	5	–	–
3444.29	Er	2	–	–
3444.279	Cb	1 h	50	–
3444.27	Se II	–	[35]	Bl
3444 26	Dy	9	2	–
3444.251	Ni I	10	–	–
3444.185	Ce	5	–	–
3444.067	Ta	5	1	–
3444.047	Th	5	4	–
3443 989	Sc I	3	–	–
3443 88	Cs	–	[4]	–
3443.878	Fe I	400	200	S
3443.790	Cr	30	25	–
3443.742	Cb	1	20	–
3443.70	Er	25	2	–
3443.70	Ne II	–	[4]	Bn
3443.683	Ce	8	15	–
3443.651	Al	–	[10]	Sy
3443.650	Fe	4	1	–
3443.644	Ti I	12	1	–
3443.641	Co I	500 R	100	–
3443.603	Nd	8	2	–
3443.569	Zr II	8	8	–
3443.535	U	2	2	–
3443.525	Ce	8	–	–
3443.46	Dy	3	2	m
3443 387	Ti II	3	35	–
3443.350	Ce	2	–	–
3443.308	Nd	8	2	–
3443.29	Kr	–	[5 h]	Me
3443.260	Mo	20	15	–
3443.23	Er	5	–	–
3443.22	Tb	8	–	Ed
3443.203	Co	25	2	–
3443.155	Ru I	30	–	–
3443 124	Th	6	6	–
3443.006	W	10	10	–
3442.965	Re I	20	–	–
3442.960	U	15	–	–
3442.955	Ce II	18	–	–
3442.926	Co I	400 R	15	–
3442.82	Nd	8	–	–
3442.793	Cb	3	3	–
3442.759	Pr	8	2	–
3442 683	Zr I	9	–	–
3442 677	Fe I	30	5	–
3442.67	Tb	15	–	Ed
3442.665	Mo	5	5	–
3442.66	Xe I	–	[3]	Me
3442 650	Cb	5	5	–
3442.638	Er	10	1	–
3442.631	Rh I	3	4	–
3442.581	Th	5	1	–
3442.58	A I	–	[10]	Ms
3442.559	Ni I	4	–	–
3442.557	Ce	4	–	–
3442.53	Dy	2	4	m
3442.53	W II	–	12	–
3442.470	Mo	–	6	–
3442.41	Pr	3	–	–
3442.403	Pd I	5	2 h	–
3442.380	Ce II	25	3	–
3442.37	Er	10	1	–
3442.365	Eu	2 h	–	–
3442 362	U	2	2	–
3442.361	Fe I	50	15	–
3442.361	Co II	–	8	–
3442.36	Tb	8	–	Ed
3442.334	V I	15	15	–
3442.251	Ce	8	–	–
3442.239	Fe II	2	–	–
3442 22	Te	–	[10]	Bl
3442.203	Nd	15	6	–
3442.183	Ce	10	–	–
3442.044	Ni I	15	–	–
3442.005	V I	10	8	–
3441.988	Mn II	75	75	–
3441.975	In II	–	[5]	Ps
3441.970	W	8	6	–
3441.949	U	8	–	–
3441.894	Ce	2	–	–
3441.872	Mo	5	8	–
3441 84	Hf	10	–	–
3441.793	Gd	3	2	–
3441.68	Tb	15	3	Ed
3441.653	Cb	2	40	–
3441.544	Ta	3	2 h	–
3441.51	Tm	150	80	Me
3441.453	Dy	50	5	–
3441.445	Mo	10	10	–
3441.439	Cr I	80	90	–
3441.43	Sr	–	2 h	Sd
3441.41	Nd	10	2	–
3441.401	Ce	10	–	–
3441.396	Pd I	800 h	2 h	–
3441.366	Th	8	8	–
3441.33	I	–	[5]	Bl
3441.256	Re	40	–	–
3441 233	Sm	3	–	–
3441.210	Ce	35	5	–
3441.140	Co	8	–	–
3441.135	Er	12	5	–
3441.115	Cr I	30	25	–
3441.07	I	–	[10]	Bl
3441.06	Tb	8	–	Ed
3441.019	Th	5	8	–
3440.996	Eu	40	25	–
3440.991	Fe I	300	200	–
3440.972	Zr	10	2	–
3440.94	Dy	25	5	–
3440.88	Hf	3	–	Me
3440.819	Eu	5	–	–
3440.75	Xe	–	[3 h]	Hu
3440.7	Rn	–	[18]	Wo
3440 63	W II	5	20	–
3440.610	Fe I	500	300	–
3440.597	Al	–	[2]	Sy
3440.590	Cb	15	80	–
3440.583	Zr	10	4	–
3440.577	Ce	3	–	–
3440.534	Rh	2	100	–
3440.507	Cu I	10	4	IBu
3440.504	Sm II	40	3	–
3440.472	Ce	15 w	–	–
3440.46	Dy	4	–	–
3440.446	Zr I	10	–	–
3440.40	O	–	[20]	Mh
3440.37	Tb	30	8	Ed
3440.237	Ta	18	50	–
3440.205	Ru I	100	30	–
3440.131	Pr	10	2	–
3440.061	Nd	4	–	–
3440.055	Mn	2	–	–
3440.05	K II	–	[40]	Bn
3440.003	Ce	2	–	–
3439.992	W	8	5	–
3439.990	Gd	70	50	–
3439.924	Cb	4	50	–
3439.897	U	6	–	–
3439.872	Fe	15	7	–
3439.832	Mo	3	3	–
3439.831	Ce	25	2	–
3439.831	Os	15	8	–
3439.785	Gd	50	50	–
3439.72	Tb	15	8	Ed
3439.714	Th	10	12	–
3439.712	U	6	–	–
3439.676	Ru	30	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3439.602	Sm II	2	–	–
3439.587	Eu	3	–	–
3439.553	Mo	3	3	–
3439.486	Os	40	12	–
3439.440	Ce	3	–	–
3439.434	U	10	–	–
3439.418	Ir	4	–	Ab
3439.409	Th	3	–	–
3439.40	Sc I	3	1	–
3439.37	Cr	30	2	–
3439.352	Al	–	[2]	Sy
3439.340	Rb	–	[200]	Rr
3439.339	Cb	2	3	–
3439.33	Dy	10	5	–
3439.305	Ti I	18	6	–
3439.230	Mo	2	2	–
3439.212	Gd	60	35	–
3439.210	Nd	30	12	–
3439.05	Tb	15	–	Ed
3439.001	Ta	–	70 W	–
3438.978	Sm	8	–	–
3438.974	Mn II	20	20	–
3438.97	Ne II	–	[4]	Bl
3438.97	Nd	6	–	–
3438.966	W	5	4	–
3438.953	Th	10	12	–
3438.952	Dy	25	9	–
3438.924	U	3	–	–
3438.909	Co I	30	–	–
3438.881	Ce	3	–	–
3438.88	Kr II	–	[3 h]	Me
3438.871	Mo	20	20	–
3438.84	Yb	20	100	–
3438.815	W	9	6	–
3438.73	Te	–	[10]	Bl
3438.72	Yb	4	80	–
3438.713	Co I	80 W	–	–
3438.697	U	2	3	–
3438.611	Os	4	10 h	–
3438.57	Tb	15	8	Ed
3438.519	In II	–	[10]	Ps
3438.474	Nd	6	1	–
3438.473	Er	9	1 h	–
3438.432	Hf	12	3	–
3438.419	Cb	1	50 wh	–
3438.407	U	3	3	–
3438.368	Ru I	70	35	–
3438.339	In II	–	[50]	Ps
3438 32	Er	12	1	–
3438.31	Eu	5	–	–
3438.31	Pr	25 w	1 h	–
3438.306	Fe	10	3 h	–
3438.235	Hf II	25	25	–
3438.235	Ce	3	–	–
3438.230	Zr II	250	200	–
3438.210	W	7	3	–
3438.094	Ir I	6	–	Ab
3438.066	Ce	15	–	–
3438.054	Sm II	9	3	–
3437.953	Yt	3	–	–
3437.952	Fe	15	7	–
3437.934	U	6	10	–
3437.873	V I	2	1 h	–
3437.813	Ce	10	–	–
3437.773	V I	4	2	–
3437.73	Xe	–	[2 wh]	Hu
3437.720	Re I	100	–	–
3437.692	Co I	150 Wh	–	–
3437.671	U	6	–	–
3437.64	Er	10	1	–
3437.64	Tm	10	15	Me
3437.614	Sm	3	2 h	–
3437.603	Pr	6	–	–
3437.498	Ir I	30	3	–
3437.49	Sb	2 h	8	–
3437.373	Ta	7	300 wh	–
3437.36	Pb I	–	10	Ro
3437.324	Ce	12	–	–
3437.310	Th	6	2	–
3437.280	Ni I	600 R	40	–
3437.220	W II	3	10	–
3437.216	Mo	25	25	–
3437.162	N II	–	[35]	Fl
3437.137	Zr II	15	10	–
3437.115	Sm II	15	2	–
3437.09	U	3 d	5 d	–
3437.074	Ta	2 r	–	–
3437.051	Fe	80	15	–
3437.05	Ho	–	4 h	Ex
3437.027	Th	5	2	–
3437.015	Ir I	20	15	–
3436.97	Tb	15	–	Ed
3436.962	Cb	20 r	50	–
3436.960	Co I	10	–	–
3436.959	Ce	5	–	–
3436.95	Dy	3	–	–
3436 94	I	–	[10]	Bl
3436.830	Cb	2	20	–
3436.780	U	12	15	–
3436.737	Ru I	300 R	150	–
3436.727	Ce	3	–	–
3436.70	Sm	3	2	–
3436.687	Th	3 d	5	–
3436.66	Ga II	–	[2]	Sy
3436.629	Pr	15	–	–
3436.543	Cu I	7	–	–
3436.46	Pr	–	3 h	–
3436.46	Yb	5	30	–
3436.395	V	–	3	Me
3436.336	Er	10	1	–
3436.332	Ru I	12	8	–
3436.32	Ho	–	4 h	Ex
3436.304	Ce	15	–	–
3436.199	Ce	5	–	–
3436.19	U	6	–	–
3436.187	Cr I	50	50	–
3436.136	Sm	3	–	–
3436.112	Fe II	5	15	Do
3436.07	Eu	5	–	–
3436.00	Ta	70 w	18 w	–
3435.979	Th	12	10	–
3435 91	Dy	3	4	–
3435.819	Cr	30	12	–
3435.753	Co I	8	–	–
3435.734	Eu	12	9	–
3435.715	W	9	12	–
3435.682	Ce	3	–	–
3435.679	Cr I	20	12	–
3435 65	Eu	4 h	–	Kn
3435.61	Ho	–	4 h	Ex
3435.587	Cb	–	10 wh	–
3435.555	Sc I	12	4	–
3435.53	Tb	8	3	Ed
3435.53	U	15 d	–	–
3435.489	Ni I	3	–	–
3435.488	Cr	8	1	–
3435.451	Mo	6	–	–
3435.434	Nd	20	4	–
3435.432	Ti	10	1	–
3435.4	Rn	–	[18]	Pe
3435.40	Mo	–	60 h	–
3435.373	V	–	20	–
3435.27	Dy	4	2	–
3435.256	Sm II	5	3	–
3435.256	Os	20	10	–
3435.243	W	6	5	–
3435 207	Ce	20	–	–
3435 205	Eu	35	2	–
3435.200	U	10	–	–
3435.186	Ru I	60	20	–
3435.075	I II	–	[7]	Ke
3435.064	Eu	12	3	–
3434.92	Tb	30	–	Ed
3434.893	Rh	1000 r	200 r	–
3434.89	Hf	5	–	–
3434.889	Os	20	3	–
3434.805	U	2 h	1 h	–
3434.790	Mo	50	12	–
3434.762	Th	8	8	–
3434.757	Ir I	10	–	–
3434 757	Pr	20	2	–
3434.75	Ho	–	4 h	Ex
3434.74	Eu	3	–	Kn
3434.730	Hg	–	15	St
3434.72	Rb	–	[40]	Ok
3434.646	Ag I	2 h	–	–
3434.634	Er	12	2	–
3434.614	U	12	1 h	–
3434.61	Yb	5	20	–
3434.54	Tb	15	3	Ed
3434.500	Ta	35	18	–
3434.496	Mo	5	4	–
3434.486	Pr	3	–	–
3434.373	Dy	80	30	–
3434.367	Er	25	8	–
3434.290	Ce	3	–	–
3434.283	U	6	–	–
3434.28	Kr	–	[2]	Me
3434.28	Sr I	2	–	Fl
3434.263	Rb II	–	[60]	Rr
3434.16	Hg	–	2	St
3434.148	U	6	10	–
3434.142	Kr I	–	[8]	IHu
3434.134	Ce	5	–	–
3434.112	Cr I	30	25	–
3434.045	Mo	4	4	–
3434.026	V	1	20	Me
3434.025	Fe I	2 h	–	–
3434.000	Th	12	12	–
3433.972	Cu I	5 h	–	–
3433.950	Cb	–	10	–
3433.906	Zr II	8	6	–
3433.79	Yt	12	2 h	–
3433.780	W	9	7	–
3433.768	V	–	3	–
3433.747	Cb	–	10	–
3433.728	Re	3	–	–
3433.707	U	5	6	–
3433.689	Ce	10	–	–
3433.685	Sm	5	5	–
3433.598	Cr I	50	35	–
3433.569	Ce	10	–	–
3433.565	Mn	15	–	–
3433.558	Ni I	800 R	50 wh	–
3433.552	Pr	30	3	–
3433.449	Pd I	1000 h	500 h	–
3433.377	Mo	3	1	–
3433.314	Ir I	8	–	–
3433.311	Cr II	30	150	–
3433.28	W	–	12 l	–
3433.279	Mo	–	5	–
3433.26	Tb	15	8	Ed
3433.260	Ru I	60	25	–
3433.160	Cb	2 h	2	–
3433.131	Er	25	2	–
3433.091	Ce	25	5	–
3433.088	Cb	10	2	–
3433.06	W	7 d	4	–
3433.045	Fe	50	1 h	–
3433.040	Co I	1000 R	150	–
3432.997	Gd	50	40	–
3432.985	Nd	20	10	–
3432.90	Tb	15	8	Ed
3432.87	Dy	5	4	–
3432.870	Mo	5	5	–
3432.851	Cr	10	1	–
3432.845	Co	3	–	–
3432.81	La II	3	3	Me
3432.775	Ce	4	–	–
3432.741	Ru	70	40	–
3432.701	Cb	10	100	–
3432 630	Sm	5 hs	3 W	–
3432.58	Dy	25	5	–
3432.523	Eu	9	–	–
3432.493	U	1	5 h	–
3432.472	Ru	4	–	–
3432.424	Cb	10	3	–
3432.419	Ce	3	–	–
3432.406	Zr II	9	9	–
3432.373	Ru	5	–	–
3432.35	Tb	15	3	Ed
3432.324	Cr	25	6	–
3432 318	Co I	60 W	–	–
3432.232	Mo	–	25	–
3432.209	Ru I	50	12	–
3432.091	Rh I	3	–	–
3432.09	Ho	6	8	Ex
3432.051	Pr	5	–	–
3432.029	Ir	3	–	Ab
3431.998	Cr	25	4	m
3431.990	U	2 h	3	–
3431.948	Cb	8	5	–
3431.897	Sm	12	–	–
3431.86	Tb	15	–	Ed
3431.85	Ti I	5 h	5 wh	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3431.848	Pt I	5	3	–
3431.816	Th	5	10	–
3431.816	U	2	–	–
3431.815	Re I	4	–	–
3431.814	Fe	50	20	–
3431.79	Dy	20	5	–
3431.739	Ce	8	–	–
3431.722	Kr I	–	[20]	IHu
3431.69	Cr	12	2	–
3431.67	Yt	3	2 h	–
3431.65	Se II	–	[5]	Kh
3431.62	Pr	15	2	–
3431.59	Cr	6	–	–
3431.575	Co I	500 R	40	–
3431.57	Nd	–	6	–
3431.569	Zr II	10	8	–
3431.556	Ir	8	–	Ab
3431.54	U	6	6	–
3431.498	Ce	12	1	–
3431.45	Kr I	–	[2]	Me
3431.39	Tb	8	–	Ed
3431.38	Yb	8	–	–
3431.358	Sc I	10	2	–
3431.35	Pb	–	2	Sx
3431.297	Ir	4	–	–
3431.284	Cr	35	8	–
3431.23	Bi II	–	[150]	MI
3431.20	Tm	50	50	Me
3431.196	Ce	8	–	–
3431.173	Cb	–	5 h	–
3431.138	U	10	2	–
3431.12	Yb	40	15	–
3431.066	Cb	8 wr	–	–
3431.06	Er	6 d	1 h	–
3431.03	Kr	–	[8 hl]	Me
3431.03	Dy	2	–	–
3431.024	Th	4	4	–
3431.019	Ce	10	–	–
3430.99	Yt I	2	–	–
3430.982	Gd	4	2	–
3430.944	Zr I	2	–	–
3430.938	Ta	50	70	–
3430.90	Eu	5	2	–
3430.885	W	7	5	–
3430.874	Ti I	5	–	–
3430.848	Ce	12	–	–
3430.83	Bi II	–	[200]	MI
3430.772	Ru I	70	45	–
3430.716	U	2	2	–
3430.665	Ce	4	–	–
3430.61	Tb	15	8	Ed
3430.600	Ce	4	–	–
3430.58	W II	–	3	–
3430.558	Th	5	4	–
3430.551	Ti I	5	3	–
3430.532	Zr II	50	50	–
3430.53	Bi II	–	[60]	MI
3430.510	Pr	25	3	–
3430.51	Si	–	2 h	Sy
3430.484	U	12 r	5 h	–
3430.44	A	–	[5]	Rt
3430.408	Ir	3 h	–	Ab
3430.4	Cs	–	[4]	Bs
3430.371	Eu	5	3	–
3430.342	Th	2 d	1 d	–
3430.316	Ce	10	2	–
3430.30	Bi II	–	[35]	MI
3430.289	Zr I	10	–	–
3430.278	Pr	25	4	–
3430.262	W	6	4	–
3430.252	Ce	5	–	–
3430.222	Mo	3	4	–
3430.21	Dy	2	–	–
3430.18	Ba	–	2	Sd
3430.176	U	6	1 h	–
3430.10	Bi II	–	[25 d]	MI
3430.09	P	–	[30]	Gu
3430.066	Os	4	5	–
3430.035	Ir I	3	–	Ab
3429.987	Os	–	8	–
3429.97	Tm	100	100	Me
3429.91	Kr II	–	[3 h]	Me
3429.904	Th	6	6	–
3429.856	Ce	12	–	–
3429.749	Sm II	8	2	–
3429.7	Rn	–	[60]	Wo
3429.681	Co	30	–	–
3429.64	A II	–	[3]	Rt
3429.638	Ce	3	–	–
3429.6	Pb II	–	[5]	Ea
3429.600	W	10	12	–
3429.542	Ru	60	25	–
3429.483	Sc I	12	2	–
3429.47	Cs	–	[3]	Bs
3429.442	Dy	50	5	–
3429.42	Yt II	2	4	–
3429.392	Th	6	6	–
3429.34	Tm	10	–	Me
3429.327	U	3	6	–
3429.314	Ta	1	2	–
3429.29	Eu	2 hd	2 d	–
3429.215	Er	5	–	–
3429.206	Sc I	12	7	–
3429.19	Ho	10	15	Ex
3429.176	Ce	5	–	–
3429.1	bh Ca	4	–	L
3429.09	Tb	8	3	Ed
3429.043	Cb	10 l	5 l	–
3429.032	U	18 r	2 h	–
3429.00	Dy	4	4	–
3429.000	Th	6	3	–
3428.955	Ti I	10	1	–
3428.944	Ce	2	–	–
3428.925	Nd	20	8	–
3428.916	Al II	–	[50]	Sy
3428.890	Mo	1	25	–
3428.870	Ce	4	–	–
3428.868	Ir I	5	–	Ab
3428.830	Re	3	–	–
3428.789	Cb	10	10	–
3428.782	U	12	–	–
3428.77	Eu	12 s	2	–
3428.762	Co I	8	–	–
3428.76	Ne II	–	[18]	Bn
3428.753	Fe	5	2	–
3428.71	Tb	8	3	Ed
3428.697	Ce II	10	–	–
3428.634	Ru I	30	12	–
3428 62	Tm	15	15	Me
3428 511	Re I	10	–	–
3428.51	Ca	2	4	Ad
3428.502	Ce	5	–	–
3428.47	Dy	3	2	–
3428.469	Gd	5	3	–
3428.46	Yb	25	80	–
3428.405	Rh	5	–	–
3428.394	Er	4	1	–
3428.366	Hf II	15	15	–
3428.361	Cb	3	3	–
3428.33	Eu	3	–	–
3428.309	Ru	100	100	–
3428.233	Co	100 W	2	–
3428.197	Fe I	50	50	–
3428.13	Ho	40	40	Ex
3428.055	Ce	3	–	–
3427.995	Th	5	5	–
3427.961	Sm	8	2	–
3427.930	Pt I	50	6	–
3427.902	Mo	4	4	–
3427.834	Ce	3	–	–
3427.768	Co I	6	–	–
3427.756	Eu	5	–	–
3427.718	W	9	8	–
3427.71	Kr II	–	[30]	Me
3427.671	Os	80	15	–
3427.66	Cr	40	1	–
3427.622	Re I	50	–	–
3427.605	Ce II	5	–	–
3427.57	La II	2	3	Me
3427.466	Th	2	2	–
3427.449	Cb	30 r	30	–
3427.438	Os	30	12	–
3427.42	O	–	[10 h]	Mh
3427.283	Ce	12	10 h	–
3427.13	K II	–	[5]	Bn
3427.121	Ce	8	–	–
3427.121	Fe I	50	50	S
3427.121	Na	10	–	–
3427.087	Ce	5	–	–
3427.05	Eu	4	–	Kn
3427.02	Pr	–	2	–
3427.014	Fe I	1	–	–
3426.939	Th	3	2	–
3426.933	Zr I	2	–	–
3426.879	Ce	2	–	–
3426.790	Mo	10	2	–
3426.76	Ho	6	6 h	Ex
3426.732	Ta	20	10	–
3426.722	Pt I	8	1	–
3426.636	Fe I	80	60	–
3426.583	Ce II	20	1	–
3426.570	Cb	5	200	–
3426.53	Sm	3 w	–	–
3426.5	Tl	–	3	Cx
3426.456	Ru	6	–	–
3426.454	Ba	2	–	–
3426.453	Co I	15	2	–
3426.45	I	–	[7]	Ke
3426.446	Ce	2	–	–
3426.44	Eu	8	2	–
3426.393	U	8	12	–
3426.388	Fe I	80	20	–
3426.37	Tb	8	–	Ed
3426.327	Gd	3	3	–
3426.32	Fe I	5	2	–
3426 27	Kr I	–	[2]	Me
3426.23	W	–	7	–
3426.208	Ce	30	6	–
3426.2	Rn	–	[5]	Pe
3426.192	Ta	7	3 h	–
3426.191	Re I	30	–	–
3426.19	P II	–	[50]	Gu
3426.187	Sm	8	2	–
3426 07	Dy	2	–	–
3426.04	Yb	40	15	–
3426.002	Mo	10	10	–
3425.98	Cr	25	2	–
3425.964	Ru I	30	4	–
3425.95	Sb	–	8 h	–
3425.948	Th	5	5	–
3425.944	Ce	20	–	–
3425.94	W	–	6	–
3425.92	Tb	8	3	Ed
3425.918	Gd	10	8	–
3425 848	Cb	50 r	30	–
3425.842	U	10	1 h	–
3425.679	Ce	2	–	–
3425.63	Tm	100	50	Me
3425.60	Dy	2	–	–
3425.582	Fe II	2	4	Do
3425.548	W	6	5	–
3425.479	Mo	8	8	–
3425.47	Sb	–	[8]	Lg
3425.424	Cb	30 r	300	–
3425.42	Tb	8	–	Ed
3425.41	U	4	3	–
3425.367	Ir	3	–	–
3425.35	Ho	40	40	Ex
3425.344	Ce	10	–	–
3425.282	V	8	4	–
3425 254	Sm II	3	1	–
3425.209	Nd	8	4	–
3425.190	Th	5	6	–
3425.119	U	6	3	–
3425.08	Tm	200	300	Me
3425.070	V	25	20	–
3425.06	Dy	40	5	–
3425.03	W	5	4	–
3425.02	Eu	50	4	–
3425.015	Fe	70	40	–
3424.971	I	–	[25]	Ke
3424.943	Kr I	–	[15]	IHu
3424.92	Ca	–	2	Ad
3424.87	P II	–	[100]	Gu
3424.826	W	4	–	–
3424.825	Zr II	15	9	–
3424.810	U	8	12	–
3424.765	Sm	5	2	–
3424.758	Mo	5	3	–
3424.693	Ir I	20	2	–
3424.634	Zr II	2	–	–
3424.604	Re I	300 W	–	–
3424.601	Gd	30	–	–
3424 600	Mo	8	5	–
3424 596	Eu	3	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3424.557	U	20	15	–
3424.506	Co I	80	2	–
3424.450	Ta	35 r	7 r	–
3424.449	W	2	15	–
3424.42	Er	9	1	–
3424.382	Rh I	30	5	–
3424.366	Ce	3	–	–
3424.35	Tb	8	3	Ed
3424.288	Fe I	200	150	–
3424.14	Yt	3	2	–
3424.135	U	1	2	–
3424.075	Nd	2	2	–
3424.020	Ce	8 w	–	–
3423.991	Th	6	3	–
3423.96	Tb	8	8	Ed
3423.928	Gd	30	20	–
3423.913	Ne I	–	[50]	IHu
3423.9	La II	–	2	Me
3423.864	V I	25	25	–
3423.853	Ce	20 w	2	–
3423.842	W	6	3	–
3423.833	Co II	15	20	–
3423.82	Br	–	[3]	Bl
3423.82	Dy	3	4	–
3423.765	Cb	15	5	–
3423.73	Kr II	–	[20 hs]	Me
3423.711	Ni I	600 R	25	–
3423.699	Ir	5	–	–
3423.66	Si	–	2	Sy
3423.648	Cb	–	10 w	–
3423.63	Nd	6	–	–
3423.616	Ce	3	–	–
3423.504	Sm	2 h	–	–
3423.477	Ce	4	–	–
3423.303	W	7	6	–
3423.24	Dy	4	2	–
3423.172	Ti I	4	–	–
3423.131	Th	5	6	–
3423.110	Eu	10	9	–
3423.1	Ra II	–	[5]	Rs
3423.05	U	12 d	15 d	–
3423.05	Tb	15	–	Ed
3422.964	Cd II	–	3	–
3422.896	Co I	18	4	–
3422.878	Ni I	10	5	–
3422.878	Ca	–	2	–
3422.878	Dy	15	5	–
3422.87	Er	3 d	1	–
3422.849	Cb	1	30	–
3422 80	W	–	6	–
3422.786	Cb	3 r	5	–
3422.784	Co	7	–	–
3422.777	Mo	–	30 h	–
3422.760	Sm	9	3	–
3422.739	Cr II	35	125	–
3422.713	Gd	8	6	–
3422.708	Ce	30	10	–
3422.661	Ti II	4	10	–
3422.660	Fe I	100	50	–
3422.657	Th	3	1	–
3422.62	Er	4	–	–
3422.57	Dy	10 d	–	–
3422.507	Ce	18	–	–
3422.493	Fe	40	10	–
3422.476	Sm	2	–	–
3422.471	Er	6	–	–
3422.466	Gd	80	100	–
3422.44	Tb	3	15	Ed
3422.426	W	10	9	–
3422.420	Ce	8	–	–
3422.4	Rn	–	[18]	Pe
3422.352	U	18 r	15 r	–
3422.332	Ni I	10	5	–
3422.309	Mo	10	10	–
3422.291	Rh I	12	–	–
3422.275	Os	20	10	–
3422.26	Pr	5	3	–
3422.260	V	–	15 h	Me
3422.215	Ce	2	–	–
3422.189	Sm II	3	–	–
3422.14	Fe	2	–	–
3422.07	Dy	3	2	–
3422.063	Sm	5	–	–
3422.000	Ce	5	–	–
3421.800	Ta	–	18	–
3421.760	Ir	6	–	–
3421.72	Pt	2 h	–	m
3421.72	Cr	12	–	–
3421.714	Ce	3	–	–
3421.69	U	8	8	–
3421.687	Os	30	10	–
3421.667	Eu	5	5	–
3421.64	A	–	[10]	Rt
3421.64	Cr	2 h	6	–
3421.64	Ho	20	20	Ex
3421.626	Co I	20	2	–
3421.579	Re	15	–	–
3421.542	Ce II	5	–	–
3421.48	Ba I	2	2 h	Sd
3421.45	Hf II	3	4	Me
3421.428	W	–	7	–
3421.419	Zr I	3	–	–
3421.38	U	8 d	2 d	–
3421.348	Co I	3	–	–
3421.342	Ni I	30	8	–
3421.32	Dy	7	5	–
3421.297	Sm	2	–	–
3421.250	Mo	6	6	–
3421.24	Pd I	2000 R	1000 R	–
3421.212	Cr II	50	200	–
3421.212	Ta	1	3 wh	–
3421.204	Ni I	4	–	–
3421.189	Th	10	10	–
3421.162	Cb	10 w	50 w	–
3421.16	Rb	–	[20]	Ok
3421.134	W	3 d	20	–
3421.112	Pr	10	1	–
3421.071	Ce	6	–	–
3421.065	Er	9	1	–
3421.01	Ba I	3	2 h	Sd
3420.955	Ce	5	–	–
3420.82	Ca	–	2 h	–
3420.81	Dy	5	2	–
3420.795	Mn	8	–	–
3420.792	Co I	80	2	–
3420.758	Re I	40	–	–
3420.741	Ni I	30	3	–
3420.73	Xe II	–	[25]	Hu
3420.706	V	–	10	–
3420.631	Cb	5	50	–
3420.63	O	–	[7 h]	Mh
3420.54	La II	–	2	Me
3420.534	Ce II	8	–	–
3420.514	Sm	3	2	–
3420.487	Ir I	20	2	–
3420.483	Co I	3	2	–
3420.42	I	–	[10]	Bl
3420.358	W	7	6	–
3420.35	Yb	9	–	–
3420.34	Tb	50	15	Ed
3420.338	Ba I	8 r	2 h	–
3420.32	Si	–	2	Sy
3420.183	Er	4 h	2 h	–
3420.176	Ce II	35	2	–
3420.17	I	–	[3]	Bl
3420.166	Cu I	15	3 h	–
3420.16	Cd II	–	5	–
3420.099	Cb	3 h	3 wh	–
3420.09	Nd	15	2	–
3420.078	Ru	60	8	–
3420.07	U	5	3	–
3420.07	W	4 w	12	–
3420.037	Mo	15	15	–
3420.02	U	2	3	–
3420.00	Xe I	–	[2]	Me
3419.99	Dy	2	2	–
3419.985	Ag	1	2 h	–
3419.963	U	5	2	–
3419.962	Er	10	3	–
3419.91	O	–	[3 h]	Mh
3419.90	Cr	12 h	–	–
3419.852	Eu	18	3	–
3419.769	Sm	10	6	–
3419.748	Ta	50 w	5 h	–
3419.70	W	–	8	–
3419.699	Fe	7	2	–
3419.67	Cr	8 h	–	–
3419.659	Zr I	18	–	–
3419.652	Pd I	10	2	–
3419.643	Dy	20	2	–
3419.61	Yb	6	15	–
3419.550	Ta	10 r	3 s	–
3419.54	Tb	15	8	Ed
3419.423	Ir I	30	5	–
3419.400	Re I	80	–	–
3419.359	U	6	–	–
3419.358	Sc I	3	–	–
3419.328	Ce	2	–	–
3419.288	W	10	7	–
3419.252	Ru I	30	2	–
3419.246	Ce	2	–	–
3419.244	Re I	15	–	–
3419.241	Pr	10	2	–
3419.24	P II	–	[100]	Gu
3419.22	Er	2	–	Ed
3419.175	Hf	15	4	–
3419.159	U	6	–	–
3419.154	Fe	2	–	–
3419.146	Th	8	10	–
3419.107	Zr II	6	4	–
3419.04	I	–	[5]	Bl
3418.958	Mo	8	10 h	–
3418.95	Tb	15	8	Ed
3418.931	Th	2 d	3 h	–
3418.930	Ce	20	2	–
3418.88	Fe	1	–	–
3418 850	U	3	3	–
3418.809	Eu	8	2	–
3418.782	Th	6	8	–
3418.735	Gd	50	25	–
3418.731	Er	9	2	–
3418.528	Sc I	5	2 h	–
3418.519	Mo	10	12	–
3418.515	V I	25	20	–
3418.512	Fe I	150	100	–
3418.51	A I	–	[3]	Ms
3418.510	Sm II	50	10	–
3418.467	Pr	30	3	Kn
3418.39	U	10	2	–
3418.39	Yb	3	5	–
3418.37	Xe I	–	[2]	Me
3418.363	Ir	3	–	–
3418.36	Sr	1	2	Sd
3418.341	Mo	4	1	–
3418.310	Ta	8	2 h	–
3418.176	Fe	4	1 h	–
3418.14	Dy	15	5	–
3418.134	Sm	20	6	–
3418.11	Cs	–	[6]	Sv
3418.01	Cr	8	–	–
3418.007	Ne I	–	[50]	IHu
3417.98	Pr	4	–	–
3417.91	Tb	8	–	Ed
3417.904	Ne I	–	[500]	IHu
3417.897	Ce	20	–	–
3417.860	Cb	5	5	–
3417.843	Fe I	150	100	–
3417.799	Re I	40 r	–	–
3417.795	Co I	30	2	–
3417.730	Th	3	4	–
3417.72	Tb	8	3	Ed
3417.72	Ca	2	4	Ad
3417.71	Ne II	–	[18]	Bn
3417.68	A I	–	[3]	Ms
3417.673	Co I	25	–	–
3417.638	Er	10	4	–
3417.528	Nd	8	6	–
3417.512	Mo	5	4	–
3417.501	Th	3	–	–
3417.450	Ce	30	5	–
3417.42	Eu	4	2	–
3417.396	Cd II	10	15	–
3417.353	Ru I	1	70	Sv
3417.345	Hf	10	2	–
3417.336	Ir I	3	–	Ab
3417.298	U	3	1	–
3417.29	Er	10	3	–
3417.262	Fe I	6	–	–
3417.262	Cb	5 hl	–	–
3417.21	F	–	[10]	Di
3417.18	Cb	–	10	–
3417.164	Fe	5	–	–
3417.160	Co I	400 R	–	–
3417.140	Dy	15	5	–
3417.12	Ga	–	5	Kl

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3417.12	Th	3	3	–
3417.067	Pt	3	–	Sf
3417.064	V I	35	25	–
3417.026	Ta	3	15	–
3417.02	F II	–	[20]	Di
3417.00	Mo	–	6	–
3416.957	Ti II	7	50	–
3416.957	Gd	50	30	–
3416.89	Yb	7	15	–
3416.879	Eu	5	–	–
3416.87	Ne II	–	[12]	Bn
3416.861	Ce	10	1	–
3416.854	U	2	2	–
3416.80	A I	–	[5]	Ms
3416.76	K	–	[5]	Bn
3416.735	Eu	6	6	–
3416.700	Ce	12	–	–
3416.687	Zr	4	–	–
3416.678	Fe I	1	–	–
3416.674	Sc I	5	2 h	–
3416.623	W	7	20	–
3416.60	Tm	10	–	Me
3416.58	F	–	[10]	Di
3416.556	Ce	20	–	–
3416.551	U	4 h	2	–
3416.545	V I	7	3	–
3416.46	Ho	30	40	Ex
3416.45	Er	20 d	6 d	–
3416.45	F II	–	[10]	Di
3416.422	Th	4	5	–
3416.309	U	6	2	–
3416.291	Fe	2	–	–
3416.24	Tb	15	8	Ed
3416.19	Nd	8	–	–
3416.182	Ru	50	4	–
3416.143	Mo	4	25	–
3416.132	Er	8	1	–
3416.125	U	12	5	–
3416.028	Fe II	2 h	2 h	–
3416.025	Mo	2	10	–
3416.015	Sm	6	1	–
3415.993	Ti I	15	2	–
3415.974	Cb	50	50	–
3415.886	Th	1 d	5	–
3415.866	Ta	10	3	–
3415.865	U	12	5	–
3415.783	Co II	100 R	20	–
3415.78	Cu	10 Wh	3 Wh	–
3415.75	Cl	–	[4 h]	Bl
3415.744	Ir I	7	1 h	–
3415.708	Pr	25	4	–
3415.648	Rb II	–	[30]	Rr
3415.633	Mo	10	5	–
3415.614	Ce	10	–	–
3415.613	U	1	2	–
3415.57	Cr	8 wh	–	–
3415 553	Nd	15	6	–
3415.55	W	7	6	–
3415 534	Fe I	60	20	–
3415 530	Co I	20	–	–
3415.43	Tb	8	–	Ed
3415.419	W	3	4	–
3415.38	Ca	2	3	Ad
3415.35	Dy	4	–	m
3415.325	U	3	–	–
3415.307	Ce	3	–	–
3415.273	Mo	5	5	–
3415.270	Ta	3	35	–
3415 241	Ir	10	2 h	–
3415.224	Os	5	8	–
3415.13	Th	2	1	–
3415.12	Tb	8	–	Ed
3415.079	Pr	4	3	–
3415.069	Ce	8	–	–
3414.953	Sm II	10	2	–
3414.950	Zr I	2	–	–
3414.92	Ho	30	30	Ex
3414.880	V	–	4 h	Me
3414.830	Dy	35	5	–
3414.82	Ne II	–	[4]	Bn
3414.80	Kr II	–	[10]	Me
3414.79	Er	8	1	–
3414.773	Eu	40	–	–
3414.767	Pr	7	–	–
3414.766	Ce	5	–	–
3414.765	Ni I	1000 R	50 wh	–
3414.736	Co I	200 W	–	–
3414.663	F II	–	[15]	Di
3414.661	Zr II	20	15	–
3414.642	Ru I	50	5	–
3414.63	U	3 d	1 d	–
3414.605	Ce	5	–	–
3414 60	Ca	–	2 h	Ad
3414.55	Ag I	4	–	Bx
3414.52	Sm	–	4	–
3414.513	Th	6	8	–
3414.49	Yt	3	2	–
3414.46	A II	–	[5]	Rt
3414.422	Mo	–	20	–
3414.36	U	8 d	1 d	–
3414.313	Ce	8	–	–
3414.305	Cr	8 wh	–	–
3414.30	Dy	2	2	–
3414.298	Nd	10	2	–
3414.282	Ru	12	–	–
3414.26	Ho	–	10	Ex
3414.245	Os	10	8	–
3414.196	V I	20	40	–
3414.168	Ce II	8 s	–	–
3414.14	Ta	18 W	100 W	–
3414.066	Cb	10	8	–
3414.02	Eu	4 h	2	–
3413.980	Ru	3	–	–
3413.939	Ni I	300	10	–
3413.895	Sm II	6	2	–
3413.891	I	–	[15]	Ke
3413.836	Ba I	–	5	–
3413.806	U	4	10	–
3413 794	Dy	40	9	–
3413.78	Kr	–	[2 h]	Me
3413.76	Tb	50	30	Ed
3413.74	Hf II	12	10	–
3413.74	S	–	[8]	Bl
3413.737	Re	25	–	–
3413.714	Ru	3	–	–
3413.69	Er	5	1	–
3413.657	Mo	12	6	–
3413.636	Ta	5	2 h	–
3413.614	Ce	3	–	–
3413.537	W	10	10	–
3413 51	P	–	[70]	Gu
3413 501	Cb	5 W	2 h	–
3413.48	Fe	2	–	–
3413 478	Ni I	500	15	–
3413.452	Ce	4	–	–
3413.409	Th	5	5	–
3413.400	Zr II	8	5	–
3413.370	Mo	8	8	–
3413.36	Er	8	1	–
3413.343	Cu I	20	7	–
3413.329	Ce	8	–	–
3413.279	Gd	5	2	–
3413 231	Ce	4	–	–
3413 213	Cb	1	40	–
3413.20	Xe II	–	[4 wh]	Hu
3413.14	Pr	–	3	–
3413.135	Fe I	400	300	S
3413.13	Ne II	–	[7]	Bl
3413.03	Sn	–	[15]	Ar
3413.019	Th	5	2	–
3412.964	W	10	9	–
3412.955	Mo	–	15	–
3412.935	Cb	5	150	–
3412.892	Ta	20	3	–
3412.86	Ho	–	4	Ex
3412.8	Sn	–	5 Wh	Ar
3412.8	bh Sr	4	–	L
3412.800	Ru I	50	5	–
3412.743	W	2	12	–
3412.740	Os	15	–	–
3412.731	Eu	20	8	–
3412.693	U	6	–	–
3412.640	Fe	8	–	–
3412.633	Co I	1000 R	40	–
3412.60	Tm	10	2	Me
3412.595	Ir I	9	2 h	–
3412 571	Sm	4	1	–
3412 481	Cb	2 h	20 h	–
3412.47	Dy	2	2	–
3412 469	Yt I	4	4	–
3412.45	Yb	15	5	–
3412.407	Th	2	3	–
3412.36	U	12 d	12 d	–
3412 339	Co I	1000 R	100	–
3412.338	Hf	10	–	–
3412 334	Ce II	10	–	–
3412 295	Mo	1	20	–
3412.274	Rh	300	60	–
3412.261	Eu	2 h	4	–
3412.095	U	6	10	–
3412 078	Ru	30	–	–
3412.05	W	5 d	5 d	–
3412.04	F II	–	[3]	Di
3412.016	Mo	5	5	–
3412.013	Gd	2	2	–
3411.94	Sr I	4	–	Fl
3411.89	Er	6	1 h	–
3411.835	Ce	12 s	–	–
3411.8	Bi II	–	[15 h]	Ml
3411.791	Zr I	3	–	–
3411.789	Th	6	6	–
3411.76	La II	5	25 hl	Me
3411.73	Tb	8	–	Ed
3411.716	Ta	5	2	–
3411.680	Ti I	10	2	–
3411.66	F II	–	[6]	Di
3411.636	Ru	80	20	–
3411.58	Tm	8	5	Me
3411.577	Ir I	7	1	Ab
3411.569	Ce	12	–	–
3411 56	Ho	6	6	Ex
3411.532	U	10	8	–
3411.52	Dy	3	2	–
3411.434	Ce	10	–	–
3411.362	Th	3	3	–
3411.356	Fe	80	30	–
3411.313	Cs	–	[10]	Sv
3411.275	Sm	5	2	–
3411.24	Yb	7	–	–
3411.22	Sm	3	1	–
3411.21	Dy	2	2	–
3411.20	Tb	8	–	Ed
3411.133	Fe	2	–	–
3411.112	Ce	5	–	–
3411.094	Mo	4	3	–
3411.080	U	1	2	–
3411.051	Cr	80 wh	3 wh	–
3411.028	Nd	8	2	–
3411.018	W	5	4	–
3410.900	Fe I	10	2	–
3410.876	W	10	9	–
3410.82	F	–	[2]	Di
3410.78	Ag I	8	–	Bx
3410.735	Ru	4	30	–
3410.72	Dy	3	2	–
3410.71	Tb	15	3	Ed
3410.681	U	2	3 h	–
3410.65	Ho	10	10	Ex
3410.62	Mo	–	25	–
3410.620	Eu	4	2	–
3410.488	W	7	6	–
3410.404	U	3	3	–
3410.40	Tb	15	8	Ed
3410 381	Sm	10	–	–
3410.280	Sm	4	2 h	–
3410.25	Ho	20	15	Ex
3410 248	Zr II	50	50	–
3410 234	Nd	8	4	–
3410.226	Ce	12	–	–
3410.176	Fe	30	20	–
3410.171	Hf II	25	60	–
3410.169	W	–	15	–
3410.112	Ir I	3	–	–
3410.1	Bi II	–	[5 h]	Ml
3410.10	Eu	3 d	2 d	–
3410.05	Tm	30	5	Me
3410.031	Sm	5	–	–
3410.022	Ir I	8	2	–
3409.99	U	6	–	–
3409.984	Pr	7	1	–
3409.953	Eu	4	–	–
3409.94	Tb	15	3	Ed
3409.929	I II	–	[5]	Mu
3409.92	Cl II	–	[5]	Ks
3409.908	Cb	8	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3409.89	Kr I	–	[2]	Me
3409.872	Er	10	1	–
3409.87	Yt II	3	12	–
3409.863	Ce	2	–	–
3409.829	Re I	30	–	–
3409.81	Br	–	[3]	Bl
3409.809	Ti II	18	40	–
3409.775	Ir	4	–	Ab
3409.77	O II	–	[25 l]	Mh
3409.719	U	5	3	–
3409.675	Nd	4	–	–
3409.647	Eu	7	2	–
3409.646	Co I	15	–	–
3409.618	W	5	4	–
3409.578	Ni I	300	–	–
3409.568	Ru I	20	2	–
3409.502	Ce	8	–	–
3409.49	Xe	–	[5 whl]	Hu
3409.45	Dy	3	2	–
3409.438	W	7	6	–
3409.418	Zr	3	–	–
3409.405	Ce II	10	–	–
3409.397	Cr	60 wh	1 wh	–
3409.377	U	10	2	–
3409.301	Gd	5	5	–
3409 277	Ru	100	40	–
3409.273	Th	6	8	–
3409.27	Tb	8	–	Ed
3409.25	Nd	20	6	–
3409.24	Er	8	1	–
3409.24	W	–	5	–
3409.20	Fe	40	4	–
3409.188	Cb	10	100	–
3409.177	Co I	1000 R	125	–
3409.1	bh Ca	12	–	L
3409.095	V I	12	4	–
3409.06	Ho	6	4 h	Ex
3409.02	F II	–	[6]	Di
3409 011	W	5	4	–
3409.008	U	6	2	–
3408.97	Kr I	–	[2]	Me
3408 953	Ce	5	–	–
3408.891	Co I	8	–	–
3408.86	Tb	8	3	Ed
3408.804	Ce	10	–	–
3408.777	Zr	9	–	–
3408.765	Cr II	35	100	–
3408 756	Os	40	10	–
3408.750	Th	5	1	–
3408.68	F II	–	[2]	Di
3408.678	Er	10	3	–
3408.678	Cb	5	50	–
3408.676	Re	100	–	–
3408.668	Sm	20	10	–
3408.648	Th	5	5	–
3408.634	Mo	1	25	–
3408.6	Bi II	–	[15]	Ml
3408.599	U	4	–	–
3408.575	Sm II	4	2	–
3408.51	Yb	–	10	–
3408.468	Ce	2	–	–
3408.394	Ce	8	–	–
3408.39	Ca	–	3 r	Ad
3408.383	W	10	7	–
3408.376	Cb	10	5	–
3408.21	Ho	6	4 h	Ex
3408.21	W	–	5	–
3408.188	Ce	2	–	–
3408.157	Dy	12	5	–
3408.136	N II	–	[10]	Fl
3408.134	Pt I	250 W	60	–
3408.079	Zr II	10	9	–
3408.048	Sm	2	–	–
3408.044	Ce	2	–	–
3408.04	Cr	40 wh	1 wh	–
3408.024	Nd	4	–	–
3407.999	V I	12	6	–
3407.976	Cb	8	10	–
3407.83	Tb	3	8	Ed
3407.83	Ho	6	4	Ex
3407.80	Dy	150	9	–
3407.791	Er	15	8	–
3407.77	I	–	[10]	Bl
3407.759	Hf II	20	25	–
3407.742	Rh I	6	–	–
3407.7	Yt	–	5 h	Me
3407.695	Ce	8 h	–	–
3407.639	Mo	4	5	–
3407.635	Th	3	3	–
3407.633	W	7	5	–
3407.599	Ce	2	–	–
3407.596	Gd	100 r	100	–
3407.48	Sn II	–	[2]	Mo
3407.461	Fe I	400	400	S
3407.42	Ta	–	18 h	–
3407.355	U	2	2	–
3407.35	O II	–	[40 l]	Mh
3407.304	Ni II	–	25	–
3407.303	Cb	–	30	–
3407.303	Er	4	–	–
3407.27	Cr	50 wh	1 wh	–
3407.243	Ce	25	2	–
3407.238	Rh I	5	–	–
3407.205	Ti II	12	50	–
3407.168	Dy	20	5	–
3407.143	Hf	10	1	–
3407.10	Tb	8	3	Ed
3407.09	Te	–	[5]	Bl
3407.00	La II	2	4	Me
3406.994	Nd	8	4	–
3406.96	Er	10	1	–
3406.948	Cb	1	30	–
3406.942	Ce	2	–	–
3406.935	Ta	70	15	–
3406.93	P	–	[50]	Gu
3406.93	Cr	4	1	–
3406.926	U	2	2	–
3406.917	Ru	4	–	–
3406.88	Ne II	–	[18]	Bl
3406.837	V I	25	12	–
3406.831	W	9	12	–
3406.805	Fe I	100	60	–
3406 77	Te	–	[15]	Bl
3406.75	Dy	3	–	–
3406.667	Os	30	10	–
3406.664	Ta	70 w	18 s	–
3406 626	Cs	–	[10]	Sv
3406 613	Cb	8	5	–
3406.61	Ca	–	3	Ad
3406.591	Ru	50	3	–
3406.582	W	–	9	–
3406.56	F II	–	[3]	Di
3406.546	Rh I	50	8	–
3406 545	Sm	4	–	–
3406.442	Fe	30	10	–
3406.441	Eu	4	–	–
3406.426	Ce	2	–	–
3406.42	Tb	8	–	Ed
3406.392	Nd	8	2	–
3406.364	Ce II	8	–	–
3406 279	Os	30	12	–
3406 278	U	10	5	–
3406 27	Ho	–	4 h	Ex
3406 243	Th	4	4	–
3406 215	Ce	10	–	–
3406 17	A I	–	[30]	Ms
3406.133	Cb	30	30	–
3406.12	Eu	15 w	4	–
3406.095	Ce	5	–	–
3406.094	W	–	8	–
3406.065	V	–	3	–
3406.042	Pd I	3	2	–
3406.01	Tb	15	8	Ed
3405.980	F	–	[10]	Di
3405.977	Ce	25	3	–
3405.937	Mo	25	25	–
3405.890	Re I	150	–	–
3405.880	Ru	50	2	–
3405 833	Fe	3	1	–
3405.816	Co	30 R	–	–
3405.807	Ce	10	–	–
3405.746	U	12	–	–
3405.681	Nd	4	–	–
3405.68	Mo	1 d	3 d	–
3405.67	Eu	6 w	–	–
3405.663	Dy	10	5	–
3405.660	Bi I	60	–	–
3405.631	Ce	4	–	–
3405.578	Fe	1	–	–
3405.561	Th	3	4	–
3405.444	Ce	6	–	–
3405.411	Cb	80	50	–
3405.326	Bi	40	10	–
3405.277	W	7	6	–
3405.277	Ru	3	–	–
3405.22	Cr	12	1	–
3405.204	Mo	8	5	–
3405.16	Kr II	–	[80 whl]	Me
3405.160	V I	30	15	–
3405.120	Co I	2000 R	150	–
3405.094	Ti I	20	2	–
3405.03	Ag	3	2 h	–
3404.99	Dy	4	4	–
3404.97	Ti II	–	2 d	–
3404.960	V I	8	1	–
3404.933	U	3	2	–
3404.918	Au	–	3 h	–
3404.910	Ce	18	2	–
3404.864	Mo	6	4	–
3404.832	Zr II	40	35	–
3404 803	W	8	6	–
3404.77	Ne II	–	[12]	Bl
3404.767	Sm	2	2	–
3404.763	Nd	4	6	–
3404.754	Fe I	2	–	–
3404.724	Re I	100	–	–
3404.71	Tb	3	8	Ed
3404.654	Th	4	4	–
3404.580	Pd I	2000 R	1000 R	–
3404.52	La I	9	2	–
3404.448	In II	–	[10]	Ps
3404.428	Ce	12	–	–
3404.425	V	–	50 h	Me
3404.359	Fe I	100	50	–
3404.342	Mo	20	25	–
3404.33	P II	–	[50]	Gu
3404.304	Fe I	25	25	–
3404.297	In II	–	[18]	Ps
3404.24	K II	–	[30]	Bn
3404.24	Tb	15	3	Ed
3404.224	W	8	7	–
3404.163	Ta	5	1	–
3404.14	W	–	4	–
3404.131	In II	–	[18]	Ps
3404.13	Er	8	–	–
3404.130	Ce	18	–	–
3404.10	Yb	9	30	–
3403.91	Sb II	2	10 h	–
3403.894	U	2	2	–
3403.846	Ce	8	–	–
3403.790	W	4	3	–
3403.775	Ru I	8	–	–
3403.750	Cb	5	4	–
3403.728	Ce	3	–	–
3403.70	In	–	18	Sq
3403.684	Zr II	15	15	–
3403.678	Er	9	1	–
3403.66	Tb	8	–	Ed
3403.653	Cd I	800	500 h	IMe
3403 603	Ce	15	–	–
3403.595	Cr	35	3	–
3403.568	Pr	8	2	–
3403.546	U	10	10	–
3403.49	Cb	–	5	–
3403.459	Nd	10	4	–
3403.45	Dy	4	4	m
3403.432	Ni I	40	–	–
3403.369	Ti I	12	2	–
3403.360	V I	30	15	–
3403.353	Mo	20	3	–
3403.322	Cr II	30	200	–
3403.32	Fe	7	3	–
3403.275	Th	3 d	3 d	–
3403.27	Dy	6	5	–
3403.217	U	4	2	–
3403.183	Ce	10	–	–
3403.163	Eu	5	2	–
3403.15	Nd	20	15	–
3403.085	Sm	15	8	–
3403.03	Eu	5	–	–
3403.015	Cb	20 w	80 w	–
3402.992	Ta	–	25 w	–
3402.873	Zr II	10	10	–
3402.87	Er	8	1	–
3402.812	Mo	5 d	100	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
3402.80	Bi I	3	–	To
3402.791	Ir I	10	2	–
3402.79	Kr II	–	[2]	Me
3402.78	Tb	8	3	Ed
3402.775	U	4	1	–
3402.77	Hg	–	[18]	Ps
3402.767	W	5	4	–
3402.701	Th	10	15	–
3402.683	Ir I	3	–	–
3402.571	V I	60	25	–
3402.542	Ce	3	–	–
3402.523	Zr II	2	–	–
3402.522	Ru	5	–	–
3402.514	Hf	20	3	–
3402.511	Os I	200	15	–
3402.463	Sm II	50	10	–
3402.457	Eu	4	4	–
3402.44	U	2 d	2 d	–
3402.422	Ti II	15	90	–
3402.399	Cr II	25	80	–
3402.33	Tb	30	15	Ed
3402.315	Mo	5	1	–
3402.27	Yb	6	3	–
3402 262	Fe	150	150	–
3402.244	Cu I	45	10	–
3402.184	Ce	10	–	–
3402.17	Ho	–	4	Ex
3402.16	Cd II	–	5	–
3402.074	Gd	15	18	–
3402.064	Co I	10	2	–
3402.031	Th	5	6	–
3402.020	Ce	2	–	–
3402.017	Cb	–	50	–
3402.00	V	–	3	Me
3401.98	Dy	5	2	–
3401.913	Co I	20	–	–
3401.9	bh Pb	20	–	L
3401.890	W II	7	40	–
3401.870	U	8	4	–
3401.859	Os I	200	20	–
3401.830	Er	12	6	–
3401.796	Zr I	4	–	–
3401.770	Ir I	20	3	–
3401.766	Ni II	–	15	–
3401.739	Ru I	100	50	–
3401 649	Th	4	6	–
3401.617	Co I	18	–	–
3401.59	Ho	–	4	Ex
3401.521	Fe I	150	90	S
3401.505	Ru	30	2	–
3401.49	I II	–	[10]	Mu
3401.40	Kr I	–	[5]	Me
3401.393	W	7	6	–
3401.342	V I	15	8	–
3401.28	Dy	2	2	–
3401.23	Sr I	3	–	Fl
3401.226	Cb	2	40	–
3401.213	U	8	8	–
3401.201	Er	10	1	–
3401.195	Re	10 w	–	–
3401.174	Os	40	15	–
3401.166	Ni I	40	1	–
3401.060	Gd	2	1	–
3401.03	Th	1 d	2 d	–
3401.014	U	10	8	–
3401.01	Yb	12	30	–
3400.980	Rh I	10	2	–
3400.877	Pr	10	1	–
3400.86	Tb	30	8	Ed
3400.765	Zr	2	–	–
3400.754	Ru I	30	1	–
3400.75	U	6	3 h	–
3400.604	Ru	10	–	–
3400.60	Yb	6	–	–
3400.57	Ho	–	4	Ex
3400.550	W	5	3	–
3400.53	Tb	15	8	Ed
3400.469	Co I	5	–	–
3400.467	U	8	2	–
3400.395	V I	100	8	–
3400.351	Nd	10	4	–
3400.327	U	2	2	–
3400.254	Ce	8 W	–	–
3400.211	Hf	15	2	–
3400.18	Rb	–	[5]	Ok
3400.162	Ti I	10	1	–
3400.117	Os	20	10	–
3400.110	Na II	–	[5]	Fr
3400.100	Mo	1	10	–
3400.07	Xe I	–	[2]	Me
3400.00	Cs I	30	–	Bv
3399.993	Gd	15	15	–
3399.974	Ru I	4	–	–
3399.97	Tb	15	3	Ed
3399.963	Cb	10	2	–
3399.958	U	6	3	–
3399.95	Tm	50	40	Me
3399.93	Sb II	1	2	–
3399.840	Sm	10	3	–
3399.810	U	5	2	–
3399.795	Hf II	60	100	–
3399.711	Cb	15	15	–
3399.696	Rh I	500	60	–
3399.688	Sm	5	1	–
3399.67	Cd II	–	5	–
3399.601	Er	5	–	–
3399 53	Cr	1	60	–
3399.528	U	3	1	–
3399.41	Nd	10	4	–
3399.400	Cb	20	30	–
3399 375	Ru	60	3	–
3399.349	Zr II	100	40	–
3399.34	Dy	3	–	–
3399 336	Fe I	200	200	S
3399.299	Re I	200 w	–	–
3399.29	F II	–	[6 h]	Di
3399 234	Fe I	5	–	–
3399.193	Nd	8	2	–
3399.10	Tb	15	8	Ed
3399.074	Ce	2	–	–
3399.04	Sn	–	25 Wh	–
3398.995	U	15	–	–
3398.98	Ho	40	60	Ex
3398.94	Er	40 wd	7 wd	–
3398.927	W	4	12	–
3398 925	Ce	15	1	–
3398.881	Nd	10	2	–
3398.811	Co	20	–	–
3398 790	Re	15	–	–
3398.722	Ce	10	–	–
3398 67	U	2 d	1 d	–
3398 65	Yb	10	–	–
3398 639	Ce	4	–	–
3398.634	Ti I	20	6	–
3398 575	Os	20	10	–
3398.548	Th	5	2	–
3398.498	U	6	1	–
3398.47	Eu	–	2	–
3398.44	Sm	1	3 h	–
3398.35	Tb	30	8	Ed
3398 34	Dy	4	2	–
3398.339	Ce	10	–	–
3398.33	W	–	4 wh	–
3398 327	Ta	35	18 l	–
3398.327	Nd	12	4	–
3398 29	La II	2	3	Me
3398 276	Er	12 l	2	–
3398 265	V I	12	10	–
3398 256	U	12	6	–
3398 254	Cb	15	40	–
3398.220	Fe	2	1	–
3398 14	Cs I	60	–	Bv
3398.097	W	10	9	–
3398 02	Tm	30	40	Me
3397.99	Dy	3	2	–
3397.945	U	4	2	–
3397.918	Zr I	8	–	–
3397.90	A I, II	–	[20]	Ms
3397.843	V I	30	20	–
3397.763	Sm	9	3	–
3397.76	La II	5	8	–
3397.758	Os	12	10	–
3397.688	Mo	20	20	–
3397.683	Re	6	–	–
3397.646	Zr	8	–	–
3397.642	Fe I	10	2	–
3397.60	Tb	15	–	Ed
3397.597	Hf	20	3	–
3397.580	V I	3	25	–
3397.564	Fe	1	2	–
3397.56	Pr	3	3	–
3397.519	Th	8	4	–
3397.517	Cb	–	15	–
3397.503	Tm	100	50	Me
3397.465	W	4	4	–
3397.453	Nd	2	2	–
3397.418	Ta	3	1	–
3397.39	Dy	2	2	–
3397.34	Ho	–	4 h	Ex
3397.320	Cb	–	50	–
3397.257	Hf	20	3	–
3397.248	Ni	2	–	–
3397.213	Bi I	100 wh	50	–
3397.213	Fe	1	–	–
3397.21	Tb	15	–	Ed
3397.210	Re	15	–	–
3397.20	U	12	–	–
3397.187	Cs	–	[6]	Sv
3397.108	Th	2	3	–
3397.083	Ce	12	–	–
3397.07	Lu	50	20 r	Me
3397.05	Yt I	7	5	Me
3396.978	Fe I	125	25	S
3396.85	Rh I	1000 w	500	–
3396.83	Er	12 s	2	–
3396.825	Mo	4	3	–
3396.825	Ru I	20	–	–
3396.82	Lu	30	1	Me
3396 780	Pd I	10	–	–
3396.732	Th	5	1	–
3396.724	Ce	15	–	–
3396.658	Zr II	8	5	–
3396 58	Pr	4	4	–
3396.58	Eu	100	10	–
3396.515	V I	15	12	–
3396.457	Co I	3	–	–
3396.398	Th	2 d	2 d	–
3396.385	Fe I	1	–	–
3396.372	Cb	2	150	–
3396.333	Zr II	12	10	–
3396 324	Cu I	30	3	Hs
3396 32	Yb	4	20	–
3396.315	Hg	–	10	St
3396.184	Ni I	8	–	–
3396 183	Sm II	35	15	–
3396.178	Nd	10	8	–
3396 169	Dy	20	10	–
3396.13	Ho	–	4	Ex
3396.05	Er	12 d	3	–
3395.942	Fe	3	–	–
3395.94	Hf	10	–	–
3395.929	Cb	10	5	–
3395.91	Sb	–	4 wh	–
3395.87	S	–	[15]	Bl
3395.816	W	8	7	–
3395.79	Er	4	–	–
3395.725	Cb	1	30	–
3395 719	Os	40	12	–
3395 615	Mo	4	–	–
3395.61	Cr	2	100	–
3395.58	U	3 d	1 d	–
3395.534	Nd	8	2	–
3395.524	V I	25	10	–
3395 50	Xe II	–	[2]	Hu
3395.478	W	7	6	–
3395.476	Cu I	30	7	–
3395.43	Pr	7	–	–
3395.414	Ce	10	–	–
3395 381	Th	4	4	–
3395.375	Co I	400 R	50	–
3395.360	Mo	–	25	–
3395.35	P	–	[50]	Gu
3395.35	Eu	15	3	–
3395.345	Nd	10	2	–
3395.329	Fe II	–	2	–
3395.315	U	6	5	–
3395.280	Er	8	1	–
3395.175	Eu	2 h	2	–
3395.127	Th	3	2	–
3395.126	Gd	10	12	–
3395.036	Ce	15	–	–
3395.02	Tb	30	–	Ed
3394.987	Nd	8	2	–
3394.983	Hf II	20	50	–
3394.98	Yt	4	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3394.975	Cb	2	50	–
3394.92	W	–	5	–
3394.916	Co I	7	–	–
3394.891	Rh I	15	5	–
3394.860	Er	15	3	–
3394.84	Dy	2	2	–
3394.818	Sm	2	–	–
3394.807	Mo	–	10	–
3394.804	Th	4	6	–
3394.776	U	8	6	–
3394.77	Tb	15	3	Ed
3394.76	I	–	[5]	Bl
3394.63	Zr II	2	3	–
3394 63	Ho	8	8	Ex
3394.613	Pr	25	5	–
3394.61	W	6	3	–
3394.593	Os	20	12	–
3394.589	Hf II	20	25	–
3394.589	Fe I	150	80	–
3394.575	Ti II	70	200	–
3394.503	Th	–	3 h	–
3394.47	W II	1	10	–
3394.44	Yb	8	20	–
3394.394	Er	10	1	–
3394.295	Cr	15	150	–
3394.283	U	8	1	–
3394.22	F II	–	[3 hd]	Di
3394.151	Th	4	4	–
3394.144	Pr	5	1	–
3394.138	Ce II	15	1	–
3394.127	Re	20	–	–
3394.099	Er	10	1	–
3394.087	Fe I	7	2	–
3394.083	Cb	5 r	3	–
3394.069	Eu	10	–	–
3393.99	Dy	4	3	–
3393.920	Ce	30	1	–
3393.917	Fe	6	1	–
3393.91	U	5 d	4 d	–
3393.839	Cr II	15	125	–
3393.810	Cb	1 h	15	–
3393.769	Eu	3	2	–
3393.757	W	5	4	–
3393.752	A I	–	[250]	IHu
3393.653	Mo	20	10	–
3393.641	Nd	10	4	–
3393.629	Gd	2	2	–
3393.61	Au	–	3 h	–
3393.60	Ho	6	4	Ex
3393.583	Dy	100	10	–
3393.58	Tb	30	8	Ed
3393.574	Ce	10	–	–
3393.572	Er	25	10	–
3393.530	Bi	–	2 R	Om
3393.46	Cl	–	[15]	Bl
3393.381	Fe I	6	3	–
3393.25	Cs	–	[3]	Bs
3393 25	Eu	8	4	–
3393.232	Th	3	3	–
3393 19	Tm	5	–	Me
3393.124	Zr II	30	25	–
3393.111	Rb II	–	[40]	Rr
3393.106	Mo	–	10	–
3393.1	Rn	–	[10]	Wo
3393.01	Tb	15	–	Ed
3392.992	Ni I	600 R	–	–
3392.992	U	2	2	–
3392.99	Dy	2	2	–
3392.988	Cu I	5	–	–
3392.987	Cr II	10	100	–
3392.970	Th	3	3	–
3392.94	La II	4	3	Me
3392.87	Cl	–	[15]	Bl
3392.811	Hf	20	3	–
3392.81	A I	–	[100]	Ms
3392.81	Ca	1	2	Ad
3392.784	Ce II	10	–	–
3392.78	Ne II	–	[20]	Bn
3392.735	V I	1	30	–
3392.713	Ti I	20	8	–
3392.657	Fe I	300	200	–
3392.63	K II	–	[10]	Bn
3392.589	Ir I	3	–	–
3392.537	Ru	100	40	–
3392.534	Gd	40	25	–
3392.475	Ir	2	4 h	–
3392.384	Re	3 h	–	–
3392.338	Cb	20 r	30	–
3392.313	Fe I	125	80	–
3392.31	A I	–	[3]	Ms
3392.256	Ce	3	–	–
3392.2	Rn	–	[2]	Pe
3392.197	Ti	2	1	–
3392 173	Mo	15	2	–
3392.05	Ho	6	8	Ex
3392.040	Th	10	15	–
3392.016	Cu I	7	–	–
3392 014	Fe	20	6	–
3392.01	Tb	15	8	Ed
3391.992	Eu	40	5	–
3391 99	Dy	4	–	–
3391.989	Er	30	12	–
3391.975	Zr II	300	400	–
3391.948	Nd	6	–	–
3391.890	Ru	50	6	–
3391.884	Ce	3	–	–
3391.851	Mo	1	30	–
3391 841	Sm	2	3	–
3391.73	Rh I	3 d	1	–
3391.72	Tb	15	3	Ed
3391.717	Th	1	3	–
3391.593	Ce	10	–	–
3391.591	Cb	1	5	–
3391.55	Lu	10	2	Me
3391.536	Mo	4	–	–
3391.531	W	10	10	–
3391.434	Cr II	4	150	–
3391.398	U	6	–	–
3391.372	Cr	12	–	–
3391 330	Cb	5	3	–
3391.286	Os	2	5	–
3391.27	Rn I	–	[8]	Rs
3391.237	Re	2 h	–	–
3391.13	Dy	3 d	3 d	–
3391.122	Sm II	8	2	–
3391.10	Yb	10	40	–
3391.100	W	10	10	–
3391.050	Ni I	400	40	–
3391.04	Hg	–	2 h	St
3391 04	U	2	2	–
3390.911	Pr	9	2	–
3390.910	Ru I	12	–	–
3390.868	Ir I	5	–	Ab
3390.812	Ce	8	–	–
3390.81	Dy	2	2	–
3390.800	Cb I	20	–	–
3390.787	Eu	12	8	–
3390.781	Th	2	2	–
3390.773	Cr	30	3	–
3390.765	V I	40	15	–
3390.75	Ho	6	8	Ex
3390.682	Ti I	35	10	–
3390 67	Sr I	4	–	Fl
3390.630	Cb	30	50	–
3390.60	Tb	15	8	Ed
3390.56	Ne II	–	[4]	Bl
3390.515	Ce II	20	1	–
3390.412	Cb	10	3 wh	–
3390.403	Co I	30	2	–
3390.40	La II	2	2	Me
3390.389	U	18	10	–
3390.380	V I	12	8	–
3390.365	Th	4	3	–
3390.29	A I	–	[3]	Ms
3390.26	O II	–	[100]	Mh
3390.25	Yb	10 w	–	–
3390.242	Re	40	–	–
3390.105	Mo	5	3	–
3390.080	Fe	2	–	–
3390.06	Hg	–	50 wh	Cn
3390.02	Tb	15	3	Ed
3389 95	U	6	4	–
3389.90	Ti I	3 h	–	–
3389.89	Ca	1 h	3	Ad
3389.85	A I	–	[20]	Ms
3389.837	Ce	8	–	–
3389.833	Hf II	30	40	–
3389.83	Yt I	4	2	–
3389.8	bh Sr	12	–	L
3389.799	Mo	15	20	–
3389 764	Re	15	–	–
3389.749	Fe I	15	4	–
3389.744	Er	20	3	–
3389 744	U	4	3 h	–
3389.67	Kr II	–	[5]	Me
3389.645	Th	6	8	–
3389.643	Ce	8	–	–
3389.620	Ti I	6	–	–
3389.599	Er	10	2	–
3389.59	Tb	8	–	Ed
3389.55	Ho	–	4	Ex
3389.524	Os	10	5	–
3389.52	W	–	4 s	–
3389.500	Ru I	60	18	–
3389.464	Th	3	–	–
3389.46	Dy	2	2	–
3389.425	Re	25	–	–
3389.419	Ce	5	–	–
3389.4	Pb II	–	[10]	Ea
3389.38	Ag	–	2 h	Fn
3389.325	Sm II	40	20	–
3389.325	Nd	20	20	–
3389.270	Zr	2 h	–	–
3389.219	Rh I	6	–	–
3389.202	Ce II	5	–	–
3389.15	Cs	–	[6]	Bs
3389.039	Pd I	10	–	–
3388.964	Fe I	3	–	–
3388.952	Mo	3	3	–
3388.941	Cb	1	80	–
3388.863	Dy	20	5	–
3388.85	Cd II	–	6	Vs
3388 827	W	10	12	–
3388.823	Ta	5	1	–
3388.755	Ti II	12	35	–
3388.730	Mo	3	3	–
3388.710	Cr I	40	4	–
3388.709	Ru I	80	20	–
3388 639	Os	3	3	–
3388.63	Tb	15	–	Ed
3388.626	Fe	5	1	–
3388 612	La I	10	2	–
3388 6	Rn	–	[10]	Pe
3388 582	Yt I	2	2	–
3388.582	Th	4	5	–
3388.54	A	–	[25]	Rt
3388.494	Co I	3	–	–
3388.485	Ce	5	–	–
3388.46	Ne II	–	[25]	Bn
3388.451	Mo	10	8	–
3388.41	U	3 d	1 d	–
3388.407	Ce II	8	–	–
3388.37	Tb	8	–	Ed
3388.35	A I	–	[20]	Ms
3388.338	Ta	2	15	–
3388.299	Zr II	50	40	–
3388.180	Sm	3	1	–
3388.173	Co I, II	250 R	12	–
3388.05	Xe II	–	[2]	Hu
3388.036	Pr	20	3	–
3388.025	Nd	10	4	–
3387.988	Ir	5	–	–
3387.960	Nd	3	–	–
3387.928	Cb	–	20 w	–
3387.922	Th	2	–	–
3387.872	Zr II	100	100	–
3387.866	Ir	3	–	–
3387.837	Ti	60	125	–
3387.836	Os I	100	15	–
3387.780	Ce	20	2 h	–
3387.752	Cb	8	5	–
3387.750	Mo	10	8	–
3387.73	Er	6 d	–	–
3387.693	Co II	2	15	–
3387.668	Sm	6	3	–
3387.632	W	–	12	–
3387.63	Tb	8	–	Ed
3387.630	Fe	5	–	–
3387.613	U	5	–	–
3387.59	Cl	–	[12]	Bl
3387.58	A I	–	[20]	Ms
3387.576	Cb	3	5	–
3387.553	Ce	2	–	–
3387 52	Rn I	–	[5]	Rs
3387.50	Yb	30	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3387.466	Ni I	2	–	–
3387.457	Ta	5	2	–
3387.418	Eu	4	2	–
3387.411	Fe	35	8	–
3387.380	V I	8	8	–
3387.35	S	–	[8]	Hn
3387.342	Ce	4	–	–
3387.232	Ru I	30	2	–
3387.226	Ta	3	1	–
3387.11	Kr	–	[7 h]	Me
3387.110	Zr I	2	–	–
3387.106	Ag	–	3 h	–
3387.075	Nd	4	2 h	–
3387.065	Sm II	8	3	–
3387.061	Co I	2	–	–
3386.993	Cb	10	15	–
3386.905	Zr I	2	–	–
3386.859	Ce	8 W	–	–
3386.792	W	4	2	–
3386 627	Os	10	4	–
3386.603	Sm	2 h	–	–
3386.601	U	4	1	–
3386.58	Dy	2	2	–
3386.578	Pr	2	–	–
3386.544	Ta	–	3 h	–
3386.521	Cr	30	2	–
3386.518	Nd	15	4	–
3386.505	W	–	12	–
3386 504	Th	6	10	–
3386.49	Tb	15	8	Ed
3386 405	Ce	2	–	–
3386.39	Ca	1 h	3	Ad
3386 307	Mo	1	8	–
3386.30	Xe II	–	[2 h]	Hu
3386.285	Nd	10	4	–
3386.251	Ru I	30	2	–
3386 244	Cb	5	100	–
3386 24	Ne II	–	[4]	Bn
3386.173	Ir	15	2	–
3386 138	Os	30	8	–
3386.133	U	6	15	–
3386.101	W	9	7	–
3386.10	Hf	5	6	Me
3386.089	Ce	8	–	–
3386.025	Pr	9	–	–
3385 946	Ti I	80	25	–
3385.940	Os	40	10	–
3385.876	Mo	6	10	–
3385.822	W	7	10	–
3385.81	S	–	[25]	Hn
3385.810	Cb	3 h	5 h	–
3385.792	V	–	5 h	Me
3385.788	Zr	3	–	–
3385.781	Rh I	30	10	–
3385.774	Re	20	–	–
3385.749	Ce	4	–	–
3385.707	Ru I	50	4	–
3385.668	Cb	5	8	–
3385.664	Ti I	25	10	–
3385.597	Ir I	5	–	–
3385.559	Co I	6	–	–
3385.55	Fe	2	–	–
3385.537	Th	6	8	–
3385.50	Lu	30	4	Me
3385.474	Ru I	8	2	–
3385.443	Fe	3	–	–
3385.41	U	12 d	8 d	–
3385.41	Tb	8	–	Ed
3385.4	Cu I	2	–	Sh
3385.40	Cd II	–	[40]	Tk
3385.399	Sm II	6	4	–
3385.346	Cd	8	–	–
3385.327	Cr	30	2	–
3385.25	Hg II	–	[200]	Ps
3385.246	Mo	5	2	–
3385 23	Kr II	–	[15 whl]	Me
3385.23	Hf	–	3 h	–
3385.224	Co I	250 R	15	–
3385.144	Ru	60	35	–
3385.094	Ir I	5	–	Ab
3385.087	Er	25 d	15 d	–
3385.072	Ce	5	–	–
3385.053	Ta	18	10	–
3385.05	Ho	10	10	Ex
3385.03	Tb	8	8	Ed
3385.027	Dy	25	8	–
3385.005	Th	3	5	–
3384.98	Se II	–	[25]	Bl
3384.948	Cu II	–	3	Sh
3384.897	W	9	12	–
3384.867	Sm	3	2	–
3384.815	Cu I	10	3	Hs
3384.86	K II	–	[30]	Bn
3384.702	Hf II	10	12	–
3384.666	Nd	20	20	–
3384.663	Sm II	10	8	–
3384.658	Cb	2	8	–
3384.644	Cr I	40	1	–
3384.616	Mo	30 r	25	–
3384.614	W	5	3	–
3384.599	V I	60	40	–
3384.596	Os	20	3	–
3384.47	Tl II	–	[6]	El
3384.446	U	10	8	–
3384.4	Rn	–	[5]	Pe
3384.339	W	7	6	–
3384 25	Er	6	1	–
3384.241	Cr I	35	–	–
3384.220	U	3	3	–
3384.14	Hf II	15	15	m
3384.13	Xe II	–	[20 h]	Hu
3384.127	Nd	4	4	–
3384.09	Er	6	1	–
3384.069	Ce	8	–	–
3384.04	Yb	–	20	Me
3384.003	Os	80	5	–
3383.981	Mo	1	30	–
3383.980	Fe I	200	100	I
3383.925	Ce II	8	–	–
3383.920	Co I	60	–	–
3383.857	I II	–	[3]	Ke
3383.82	Pt	1	8	–
3383.800	Cb	15	5	–
3383.78	Er	12	1	–
3383.78	Tb	8	–	Ed
3383.761	Ti II	70	300 R	–
3383.73	Pr	12	3	–
3383.698	Fe I	100	70	–
3383.687	Ce	20	2	–
3383 554	Mo	5	1	–
3383.449	Nd	2	–	–
3383.402	U	6	3	–
3383.394	Ce	12	1	–
3383.376	Pr	15	3	–
3383.279	Ce	8	–	–
3383.137	Sb	40	50	–
3383.12	W	–	18	–
3383.120	Th	5	10	–
3383.05	Yt	3	3	m
3382.90	Zr	3	–	–
3382.892	Er	18	1	–
3382.891	Ag	1000 R	700 R	–
3382.888	Ce	8	–	–
3382.83	Yt	3	3	m
3382.811	Nd	200	10	–
3382.80	Tb	15	8	Ed
3382.698	Ce	8	–	–
3382.683	Cr II	35	200	–
3382.68	O I	–	[12]	Mh
3382.675	U	4	4	–
3382.660	Pr	10	2	–
3382.606	W	10	12	–
3382.566	Pd II	–	2 h	–
3382.530	V	–	125	Me
3382.512	Ce	8	–	–
3382.484	Mo	15	15	–
3382.412	Eu	2 h	–	–
3382.409	Fe I	50	10	–
3382.407	Sm II	100	40	–
3382.407	Cb	5	40 h	–
3382.312	Ti I	30	7	–
3382.308	Ce	8	–	–
3382.304	U	3	1	–
3382.292	Mo	10	6	–
3382.28	Bi	2	–	To
3382.096	W	8	7	–
3382.093	Nd	4	–	–
3382.08	Cr	30	1	–
3382.067	Er	15	1	–
3382.00	Au II	6	8	–
3381.95	U	4 d	6 d	–
3381.806	I	–	[10]	Ke
3381.80	Tl II	–	[12]	El
3381.77	Pr	3	1	–
3381.761	Mo	4	4	–
3381.73	Eu	2	3	–
3381.691	U	6	–	–
3381 669	Os	15	1	–
3381.60	Tb	8	3	Ed
3381.498	Co I	100 W	–	–
3381.491	Ce	20	–	–
3381.49	A I	–	[20]	Ms
3381.445	Rh	4	–	–
3381.442	Ti I	2	–	–
3381.438	La I	5	2	–
3381.421	Cu I	20	7	–
3381.376	Pr	3	–	–
3381.375	Th	5	12	–
3381.370	Ir I	3	–	Ab
3381.337	Fe I	5	2	–
3381.335	Ti I	5	–	–
3381 32	Er	20	4	–
3381.124	Cu I	15	5 h	–
3381.121	Ce	10	–	–
3381.119	Mo	3	2	–
3381.11	Kr II	–	[20 wh]	Me
3381.079	Er	15	2	–
3381.052	Nd	4 d	4	–
3381.04	Zn II	–	[20]	Vs
3381.00	Tl II	–	[20]	El
3380.998	Fe II	–	2	–
3380.994	Ir I	15	1	–
3380.98	I	–	[3]	Ke
3380.938	Cb	–	200	–
3380.916	Ce	10	–	–
3380.915	Ru	10	2	–
3380.910	La II	200	100 h	–
3380.90	U	3	3 h	–
3380.89	Tb	8	–	Ed
3380.885	Ni I	200	12	–
3380.883	Th	5	2	–
3380.861	Cb	5	–	–
3380.717	Cu II	–	5	Sh
3380.711	Sr II	150	200	ISn
3380.703	Sm	2	1	–
3380.700	U	5	10	–
3380.695	W	–	3	–
3380.674	Pd I	150 w	2 h	–
3380.636	Rh I	4	–	–
3380.62	K II	–	[30]	Bn
3380.60	Tb	15	3	Ed
3380.574	Ni I	600 R	100	–
3380.519	Gd	2	2	–
3380.489	Cb	3	2 h	–
3380.410	Cb	20	3	–
3380.280	Ti II	25	150 r	–
3380 25	Eu	15	10	–
3380.215	Mo	1	25	–
3380.175	Ru I	60	15	–
3380.15	Tb	3	–	Ed
3380.114	Yt II	7	12	–
3380.111	Fe	200	25	I
3380.11	Pr	3	1	–
3380 053	Cb	5	5	–
3379.968	W	4	–	–
3379.966	Mo	25	1	–
3379.961	Cu II	2 h	3 h	Sh
3379.930	Ti II	2	5	–
3379.923	Zr I	10	2	–
3379.835	Ir	4	2 h	–
3379.825	Cr I, II	15	100	–
3379.803	Nd	12	4	–
3379.78	Yb	12	20	–
3379.763	Gd	2	2	–
3379.762	Mo	1	25	–
3379.759	Pr	10	2	–
3379.719	Re I	80	–	–
3379.69	Cu I	3 h	–	–
3379.674	Th	4	3	–
3379.672	U	2	3	–
3379.62	W	–	5	–
3379.605	Ru I	60	18	–
3379.58	A	–	[10]	Rt
3379.564	Cr I	12 h	–	–
3379.52	Tb	8	–	Ed

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3379.515	Ta	18 r	50 r	–
3379.48	A II	–	[3 h]	Rt
3379.409	Ir	3	–	–
3379.397	Sc II	4	10 hl	–
3379.378	U	3	1	–
3379.371	Cr II	6	100	–
3379.37	V	6	3	–
3379.300	Cb	1	100	–
3379.29	F II	–	[3]	Di
3379.277	W	4	1	–
3379.264	Ru I	30	2	–
3379.263	Eu	3	2	–
3379.216	Ti I	25	10	–
3379.19	Nd	10	4	–
3379.18	Sc II	3	3 h	–
3379.172	Ce	30	2	–
3379.171	Cr I	40	6	–
3379.15	Tb	8	–	Ed
3379.135	Th	3	3	–
3379.046	Re	50	–	–
3379 03	Kr II	–	[15 wh]	Me
3379 029	Ru	20	–	–
3379.024	W II	4	15	–
3379.022	Fe I	80	50	–
3379.0	Cs	–	[6]	Bs
3378.93	Pr	4	1 h	–
3378.928	Hf	25 r	20	–
3378.899	Dy	2	2	–
3378.86	Tb	15	8	Ed
3378.815	Ce	5	–	–
3378.76	P	–	[50]	Gu
3378.75	Er	7	–	–
3378.744	Co	40	2	–
3378.730	W	3	2	–
3378.685	Fe	150	80	–
3378.683	U	2	–	–
3378.679	Os	50	10	–
3378.579	Th	6	10	–
3378.552	Sm	8	2	–
3378.524	W	8	7	–
3378.512	Cu II	–	2	Sh
3378.461	Mo	10	10	–
3378.43	Dy	4	2	–
3378.360	Co I	30	2	–
3378.337	Cr II	25	150	–
3378.312	Sm II	5	2	–
3378.302	Zr II	7	3	–
3378.28	Ne II	–	[18]	Bn
3378.209	Sc II	4	6 hl	–
3378.202	U	15	1	–
3378.20	Dy	2 d	2 d	–
3378.198	Mo	10	10	–
3378.188	Ce	5	–	–
3378.177	Ta	–	3	–
3378.127	Ce	5	–	–
3378.11	W	–	7	–
3378.020	Ru	60	12	–
3377.949	Ir I	4	–	–
3377.91	Tm	6	10	Me
3377.89	I	–	[10]	Bl
3377.86	Nd	4 d	2 d	–
3377.846	Ce	5	–	–
3377.820	Sm II	8	2	–
3377.771	Ce	8	–	–
3377.769	Ta	2 h	1 h	–
3377.741	Re	25	–	–
3377.739	Cb	2	2	–
3377.711	Yt I	3	–	–
3377.708	Rh I	25	5	–
3377.706	Cu II	–	3	Sh
3377.703	Eu	10	2	–
3377.625	V I	60	30	–
3377.593	Os	6	5	–
3377.585	Ti I	20	15	–
3377.52	P II	–	[50 h]	Gu
3377.485	Ti I	15	10	–
3377.455	Zr II	25	10	–
3377.449	Pr	9	1	–
3377.44	F II	–	[10]	Di
3377.43	Th	–	20 h	Ex
3377.394	V I	35	15	–
3377.392	U	4	6	–
3377.39	Ba I	2	–	Sd
3377.374	Cb	–	20 w	–
3377.35	Pd	–	[2]	Bx

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3377.307	Ce	2	–	–
3377.23	Ne II	–	[4]	Bn
3377.2	Rn	–	[30]	Wo
3377.20	Fe	5 wh	5 wh	–
3377.20	O II	–	[40]	Fl
3377.146	Nd	6	4 h	–
3377.138	Rh	40	10	–
3377.127	Ce	50	5 s	–
3377.126	Ir	4 h	–	–
3377.11	Dy	4	4	–
3377.10	Tb	8	3	Ed
3377.063	Co I	100	–	–
3377.04	Pr	8	1	–
3377.00	Er	10	–	–
3376.993	Ba I	15 r	6	–
3376.963	Ce	2	–	–
3376.957	Os	15	10	–
3376.934	Co I	2	–	–
3376.924	U	8	–	–
3376.903	W	7	6	–
3376.848	Th	2	3	–
3376.835	Sm	5	2	–
3376.778	Cd	–	3	–
3376.773	Mo	3	–	–
3376.730	Cb	8	15	–
3376.689	Mo	–	25	–
3376.681	Ce	4	–	–
3376.68	Hf II	6	2	–
3376.66	Tb	15	3	Ed
3376.660	Pr	10	2	–
3376.644	In II	–	[5]	Ps
3376.63	Dy	4	4	–
3376.62	Yb	4	–	–
3376.604	In II	–	[10]	Ps
3376.554	In II	–	[10]	Ps
3376.549	U	8	4	–
3376.50	Lu	100	10	Me
3376.50	Fe	5	1 h	–
3376.494	Sm II	20	8	–
3376.49	Nd	20	10	–
3376.490	Ta	15 h	70	–
3376.46	A II	–	[25]	Rt
3376.397	Cr	30	20	–
3376 38	Dy	3	3	–
3376.36	Tb	8	3	Ed
3376 35	Sr II	–	4	Sd
3376.335	Cb	3	2	–
3376.332	Ce	2	–	–
3376.331	Ni	25	–	–
3376.329	La II	100	50	–
3376.268	Zr II	10	8	–
3376.206	Co I	18	3	–
3376.15	Cr	25 h	–	Kn
3376.144	W II	9	40	–
3376.09	Er	12	1	–
3376.057	V I	80	60	–
3376.053	Ru I	5	–	–
3376.053	Ta	35	15	–
3376.040	U	6	–	–
3376.02	Tb	8	–	Ed
3376.01	Dy	4	2	–
3376.003	Ce	2	–	–
3375 998	Ir I	3	–	–
3375.78	Kr II	–	[3 h]	Me
3375.780	U	12	10	–
3375.775	Ce	20	2	–
3375 75	Dy	5	4	–
3375.706	Ti I	15 h	–	–
3375.672	Cu I	25	5	–
3375.650	Ne I	–	[50]	IHu
3375.648	Mo	20	10	–
3375 634	Nd	12	6 h	–
3375 63	Cr	6	–	–
3375 630	Pr	8	2	–
3375.588	Ce	5	–	–
3375.561	Ni I	4	–	–
3375.510	Ce	5	–	–
3375.48	U	8 d	–	–
3375.48	Yb	30	100	–
3375.30	Ga	–	12	–
3375.245	Ru	12	–	–
3375 244	Nd	10	4	–
3375.222	Mo	20	20	–
3375.16	Xe II	–	[3 h]	Hu
3375.135	Ce	10	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3375.131	Os	3	5	–
3375.116	W	10	9	–
3375.03	Tb	30	15	Ed
3374.978	Th	3	3	–
3374.953	Cu II	–	10	Sh
3374.952	U	5	3 h	–
3374.94	Ga II	–	[4]	Sy
3374.936	Nd	10	2	–
3374.935	Cr	25	4	–
3374.925	Cb	20	20	–
3374.903	Ru I	30	1	–
3374.89	La	2	3	Me
3374.870	W II	6	12	–
3374.86	I	–	[2]	Ke
3374.826	Ce	5	–	–
3374.768	Mo	2	20	–
3374.726	Zr II	20	30	–
3374.693	Gd	5	3	–
3374.65	Sb	2 h	3	–
3374.646	Ru I	80	18	–
3374.642	Ni I	15	6	–
3374.608	Ti I	3	–	–
3374.60	Cr	25	2	–
3374.581	Th	5	10	–
3374.51	Tm	60	30	Me
3374.499	Ce	2	–	–
3374.468	U	5	2	–
3374.458	Fe	4	–	–
3374.453	Ir I	4	–	–
3374.44	I	–	[7]	Ke
3374.41	Tb	15	8	Ed
3374.352	Ti II	10	30	–
3374.303	Co I	60	–	–
3374.28	Dy	4	2	–
3374.247	Cb	5	15	–
3374.226	Fe I	2	–	–
3374.221	Os	1	3	–
3374 221	Ni I	400	6	–
3374 170	Er	25	5	–
3374 16	Ho	6	8 h	Ex
3374.157	Ce	10	1	–
3374.151	U	4	2	–
3374.1	air	–	10	m
3374 10	Ne II	–	[4]	Bn
3374.10	Te	–	[25]	Bl
3374.10	U	3 d	3 d	–
3374.090	Cb	–	30 h	–
3374 033	V I	15	10	–
3374.00	I	–	[5]	Bl
3373.982	Ce	4	–	–
3373.978	Ru I	60	4	–
3373.973	Ni II	–	4	–
3373.972	Co I	60	–	–
3373.92	Xe	–	[2 h]	Hu
3373.875	Fe	3	1	–
3373.811	Mo	6	6	–
3373.788	Sm	15	4	–
3373.754	W	10	10	–
3373 729	Ce II	25	3	–
3373 727	U	10	1	–
3373.67	Er	5	1	–
3373 60	K	–	[30]	Bn
3373.594	Cu II	–	8	Sh
3373.581	Ti I	4	–	–
3373.54	Tb	8	–	Ed
3373.499	Th	2	1	–
3373.49	F II	–	[15]	Di
3373.481	A I	–	[300]	IHu
3373.455	Ce	25	3 h	–
3373 417	Zr II	12	10	–
3373.300	Nd	8	–	–
3373.233	W	7	6	–
3373.230	Co I	60	–	–
3373.228	Eu	3	2	–
3373.204	Os	6	8	–
3373.19	S	–	[5]	Hn
3373.126	Mo	5	25	–
3373.095	Nd	4	–	–
3373.038	Os	15	5	–
3373.001	Pd I	800 r	500 wh	–
3372.996	Pt	10	–	–
3372.920	Mo	5	1	–
3372.88	A I	–	[3]	Ms
3372 861	Fe	2	–	–
3372.800	Ti II	80	400 R	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3372.797	Pr	10	4	–
3372.794	Th	3 d	4 d	–
3372.791	Pt	2	–	–
3372.79	Ho	12	15	Ex
3372.77	Yt	15	3	–
3372.750	Er	35	20	–
3372.72	Tb	50	–	Ed
3372.7	Rn	–	[18]	Pe
3372.70	P II	–	[50]	Gu
3372.696	Th	1 d	2 d	–
3372.68	Ca	1	3	Ad
3372.668	V	–	6	Me
3372.648	Ce	3	–	–
3372.61	Rb	–	[30]	Ok
3372.600	U	4	1	–
3372.562	Cb	10 h	200	–
3372.539	Ce	8	–	–
3372.526	Rh I	10	–	–
3372.524	Os	3	2	–
3372.510	Pr	20	3	–
3372.505	Ag II	1	3 h	–
3372 48	S	–	[3]	Hn
3372.391	Ce	3	–	–
3372.36	Tb	15	15	Ed
3372.351	Fe	1	–	–
3372.254	Rh I	300	200	–
3372.208	Ti II	10	15	–
3372.193	W	–	12	–
3372.151	Sc II	7	150	–
3372.13	Cr	–	30	–
3372.090	Cb	5	3	–
3372.083	Os	40	8	–
3372.080	Fe I	40	7	–
3372.065	Mo	5	2	–
3372.01	U	8	4	–
3372.00	Ca	2	–	Cw
3371.993	Ni I	400	10	–
3371.90	S	–	[20]	Hn
3371.87	Ne II	–	[12]	Bn
3371.860	Ru I	70	18	–
3371.85	O II	–	[5 h]	Fl
3371.845	Ce	8	–	–
3371.800	Th	4	10	–
3371.76	Dy	8 d	5 d	–
3371.698	Eu	4	2	–
3371.692	Mo	–	25	–
3371 670	Pd	–	2 h	–
3371.539	Ta	70	20	–
3371.516	Os	3	3	–
3371.50	Tb	15	8	Ed
3371.454	Ti I	100	15	–
3371.441	Ir I	20	2	–
3371.43	Cr	–	2 h	–
3371.412	Cu II	–	4	Sh
3371.354	W	10	9	–
3371.329	Cb	10	15	–
3371.292	U	8	15	–
3371.212	Sm II	10	8	–
3371.172	Ce	25	3	–
3371.114	V I	30	20	–
3371.10	P	–	[70]	Gu
3371.063	Ce	8	–	–
3371.046	W	7	6	–
3371.019	Sm II	3	2	–
3371.015	Co I	2	–	–
3371.00	Sr	2	6	–
3370 97	A	–	[10]	Rt
3370.95	U	1 d	2 d	–
3370.94	Co II	–	50	Me
3370 910	Cd	–	2	–
3370.894	Re	6	–	–
3370.863	Ce	6	–	–
3370.86	Dy	7	4	–
3370.86	Ho	6	8	Ex
3370.788	Th	4	1	–
3370.786	Fe	300	200	S
3370.7	Rn	–	[2]	Pe
3370.696	W	5	4	–
3370.69	Hf II	3	3 h	–
3370.64	In	–	3	Sq
3370.633	Ir	8	2 h	–
3370.611	Cb	3	30	–
3370.592	Zr I	9	–	–
3370.59	Er	15 l	3	–
3370.588	Os I	300 R	30	–
3370.586	Sm II	9	3	–
3370.52	Eu	3 d	3 d	–
3370.520	Mo	2	25	–
3370.519	W	9	8 s	–
3370.5	C	–	[20]	Jn
3370.454	Cu	–	15	–
3370.45	U	2	2 h	–
3370.439	Ti I	80	15	–
3370.396	Ce	8	–	–
3370.39	Th	2 d	2 d	–
3370.326	Co I	80	2	–
3370.30	Pr	10 d	5 d	–
3370.24	W II	5	10 s	–
3370.231	Cr	30	1 h	–
3370.202	Os	50	10	–
3370.158	Cb	–	80	–
3370.145	Ru	5	–	–
3370.14	Tb	15	3	Ed
3370.134	U	6	4	–
3370.054	Ru	3	10	–
3370.045	Ce	12	–	–
3369.994	Ce	3	–	–
3369.964	U	6	1 h	–
3369.939	Mo	5	20	–
3369.908	Ne I	–	[700]	IHu
3369 844	Ta	3	1	–
3369.831	Cb	10	3	–
3369.821	W II	1	4	–
3369.809	Ne I	–	[500]	IHu
3369.749	Ce	2	–	–
3369.690	W	5	4	–
3369.679	Rh I	25	5	–
3369.673	Ag	–	5 h	–
3369 672	Ce	2	–	–
3369 669	Ru	30	2	–
3369.64	Dy	2	2	–
3369.64	Tm	10	20	Me
3369.620	Er	12	1	–
3369.616	Gd	2	2	–
3369.58	Nd	4 d	2 d	–
3369.573	Ni I	500 R	100	–
3369.549	Fe	300	200	–
3369.452	Sm II	10	5	–
3369.43	Tb	8	–	Ed
3369.387	Ce	10	–	–
3369.349	Fe	2	–	–
3369.282	Ru	12	60	–
3369.280	Ta	18	5	–
3369.27	Dy	2	2	–
3369.262	Zr II	7	5	–
3369 253	Mo	20	15	–
3369.242	Nd	6	–	–
3369 212	Ti II	6	25	–
3369.157	Cb	5	50	–
3369.15	Tl II	–	[40]	El
3369.147	Fe	2	–	–
3369.125	Pr	3	–	–
3369.102	Ce	8	–	–
3369.101	Th	1	2	–
3369.075	Cb	15	–	–
3369.054	Ti I	2	–	–
3369.052	Eu	40	5	–
3369.050	Nd	10	8	–
3369.044	Ce	5	–	–
3369.041	Sm	8	3	–
3368.96	U	5 d	–	–
3368.957	Pr	5	1	–
3368 953	Er	10	1	–
3368 946	Sc II	50	20	–
3368.937	Ce	5	–	–
3368.876	Nd	6	2	–
3368 804	U	6	6	–
3368.794	Ce	12	1	–
3368.775	Rh I	15	–	–
3368.690	Ce II	20	2	–
3368.636	Zr I	7	–	–
3368.619	Re	2 h	–	–
3368.572	Sm II	12	6	–
3368.570	Co I	8	–	–
3368.555	Cs II	–	[30]	Sv
3368.55	Tb	8	–	Ed
3368.481	Ir I	25	20	–
3368.451	Ru I	100	60	–
3368.442	Ta	1	18	–
3368.432	Cb	4 h	8 h	–
3368.375	Ce	10	–	–
3368.375	Rh I	300	50	–
3368.36	La I	5	–	–
3368.33	Tm	10	30	Me
3368.31	U	2 d	2 d	–
3368.168	Fe	5	1	–
3368.120	Ce	5	–	–
3368.116	Dy	60	5	–
3368.09	S	–	[25]	Hn
3368.07	Er	18	5	m
3368.06	Ho	–	4	Ex
3368.054	Cr II	35	125	–
3367.973	W	–	8 wh	–
3367.969	Mo	2	100	–
3367.896	U	6	2	–
3367.892	Ni I	80	–	–
3367.881	Ti I	2 l	1	–
3367.823	Th	8	12	–
3367.820	Zr II	12	8	–
3367.81	Ca	1 h	5 r	Ad
3367.778	Ce	5 w	–	–
3367.687	Re	5	–	–
3367.670	V	–	5	Me
3367.66	Tb	8	8	Ed
3367.650	W	4	4	–
3367.634	Eu	20	–	–
3367.630	Mo	5	–	–
3367.624	Be I	25	–	–
3367.60	U	8 d	1 d	–
3367.550	W	5	4	–
3367.53	Dy	4	2	–
3367.53	Cr I	50 wh	–	–
3367.53	Pr	–	10 d	–
3367.525	Ce	5	–	–
3367.489	Re I	15	–	–
3367.400	Mo	5	1	–
3367.376	Cb	5	3	–
3367.316	Ce	8	–	–
3367.3	air	–	15 wh	m
3367.275	Sm II	10	5	–
3367.24	I I	–	[2]	Db
3367.213	W	6	5	–
3367.20	Ne II	–	[25]	Bn
3367.18	Tb	15	3	Ed
3367.162	Mo	5	1	–
3367.161	Fe	10	3	–
3367.16	Pr	2	1	–
3367.158	Ce	2	–	–
3367.121	Th	2	1 h	–
3367.109	Co I	300 R	30	–
3367.09	Hf II	2	3	Me
3367.085	Cb	2	2	–
3367.06	I	–	[5]	Bl
3367.050	Ir I	3	–	–
3366.998	Pt I	25	5	–
3366.960	Fe II	2	4	Do
3366.956	Cb	20	20	–
3366.93	Sb	3	8 h	–
3366.91	Mo	–	15	–
3366 904	Ir I	4	1 h	–
3366.880	V I	20	8	–
3366.878	Re I	3	–	–
3366.867	Fe I	50	15	–
3366.807	Ni I	60	1	–
3366.789	Fe	50	25	–
3366.72	Xe II	–	[150 h]	Hu
3366.72	W	–	15	–
3366 69	Er	15	1	–
3366.68	Hf	15	1	–
3366 675	Ce	2	–	–
3366.661	Ta	50	15 w	–
3366.59	A	–	[5]	Rt
3366.581	U	2	–	–
3366.560	Cu II	–	2	Sh
3366.554	Ce II	30	3	–
3366.526	Th	5	6	–
3366.476	Ir	3	–	–
3366.370	U	1	2	–
3366.333	Sr I	100	10	ISn
3366.269	Cu II	–	2 h	Sh
3366.231	Ir I	4	–	–
3366.212	Mn	5 w	5 w	–
3366.184	Re I	15 w	–	–
3366.176	Ti I, II	20	50	–
3366.168	Ni I	400 W	12	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3366.13	Eu	2d	2d	–
3366.115	Mo	–	20	–
3365.96	Yb	4	30	–
3365 958	Sm	4	2	–
3365.944	Cb	1	30	–
3365.936	W	8s	7s	–
3365.931	Pr	10	2	–
3365.876	Cb	2	10	–
3365.872	Os	15	10	–
3365.865	Sm	25	10	–
3365.848	U	10	–	–
3365.840	Re	20	–	–
3365.837	Ce	15	2	–
3365.8	air	–	10	m
3365.80	Hf	2	2 wh	Me
3365.80	Dy	10	5	–
3365.766	Ni I	400 w	12	–
3365.740	Re	20	–	–
3365.708	Ce	5	–	–
3365.707	Nd	20	15	–
3365.65	Cu II	–	8	Sh
3365.633	Th	1	2	–
3365.584	Cb	5	50	–
3365.553	V I	125	80	–
3365.54	A II	–	[5]	Rt
3365.524	Ir I	5	–	–
3365.523	Cr	25	2	–
3365.48	Tl II	–	[4]	El
3365.476	Mo	5	4	–
3365.399	Mo	5	2	–
3365.349	Cu I	70	30	–
3365.366	Th	2	3	–
3365.329	Ce	8	–	–
3365.303	Mo	–	5	–
3365.3	Rn	–	[2]	Pe
3365.29	Tb	15	3	Ed
3365.17	Te	–	[15]	Bl
3365.130	U	5	–	–
3365.10	Eu	2d	–	–
3365.031	Ta	3	1	–
3365.014	Co I	8	–	–
3364.950	Nd	10	6	–
3364.93	Tb	30	15	Ed
3364.92	Pr	15d	4d	–
3364.900	La I	4	2h	–
3364.825	Ru	3	–	–
3364.821	Ce II	15	4	–
3364.795	Sm	3	2	–
3364.786	Yt I	3	2	–
3364.747	Sm	2	–	–
3364.698	Th	4	5	–
3364.691	Cr	–	2	–
3364.64	U	6	2	–
3364.623	Ce	12	4	–
3364.591	Ni I	15	–	–
3364.561	W	–	9	–
3364.52	Cs	–	[4]	Bs
3364.43	P	–	[100]	Gu
3364.43	Er	5	–	–
3364.40	Fe	2	–	–
3364.37	Nd	8	2	–
3364.362	Os	10	8	–
3364.345	Ce	18	1	–
3364.278	Fe	7	1	–
3364.26	Ho	–	10	Ex
3364.255	Co I	30	2	–
3364.249	Gd	3	1	–
3364.24	Tb	15	3	Ed
3364.231	Ir	5	2h	–
3364.122	Os	100	12	–
3364.102	Ta	2	1	–
3364.099	Ru	30	5	–
3364.09	Er	25	7	–
3364.05	Tl II	–	[6]	El
3364.019	Ce	10	–	–
3363.945	Pr	6	–	–
3363 921	U	5	1h	–
3363.908	Sm	10	3	–
3363.820	Zr II	12	9	–
3363.811	Fe	6	1	–
3363.783	Mo	40	30	–
3363.760	Co I	80r	–	–
3363.745	Cb	10	4	–
3363.737	Th	2d	5	–
3363.73	Cr II	8	35	–
3363.725	W II	4d	12	–
3363.65	Yb	10	–	–
3363.613	Ni I	20	–	–
3363.612	Ti I	2	–	–
3363.545	V I	25	8	–
3363.537	Ce	8	–	–
3363.501	Sc II	2	2	–
3363.47	A I	–	[20]	Ms
3363.43	U	12rd	3hd	–
3363.41	Ho	–	4	Ex
3363.369	Ce	2	–	–
3363.351	Eu	4	2	–
3363.338	W	10	9	–
3363.29	U	6d	1d	–
3363.274	Co I	30	2	–
3363.249	Pr	5	2	–
3363.207	Ce	2	–	–
3363.112	Th	4	5	–
3363.068	Zr I	2h	–	–
3363.032	Re	20	–	–
3363.031	U	3	–	–
3363.001	Mo	1	30	–
3362.930	Ce	3	–	–
3362.926	Os	5	5	–
3362.89	Ne II	–	[4]	Bn
3362.860	Cb	3	2	–
3362.83	Te	–	[50]	Bl
3362.806	Ni I	100	–	–
3362.802	Co I	80	–	–
3362.791	Ir	2	–	–
3362.783	Eu	5	2	–
3362.771	U	4	2	–
3362.748	Re I	40	–	–
3362.725	Mo	8	1	–
3362.711	Cr I	40	–	–
3362.684	Zr II	6	5	–
3362 672	Th	3	4	–
3362.653	Ti II	2	5	–
3362.619	W II	–	2	–
3362.61	Tm	250	200	Me
3362.559	Os	2	5	–
3362.533	Th	3	4	–
3362.530	Ta	10r	1	–
3362.43	Yb	15	–	–
3362.4	Rn	–	[5]	Wo
3362.366	Mo	25	25	–
3362 335	Ru	50	5h	–
3362.28	Ca I	2	1h	Cw
3362.279	Fe	6	–	–
3362.262	Nd	12	8	–
3362.244	Gd	150	180	–
3362 213	Cr I	80	8	–
3362.196	Th	3	4	–
3362.184	Rh I	100	20	–
3362 172	Cb	–	100	–
3362.17	Dy	3	2	–
3362.131	Ca I	15	5	Cw
3362.100	Ti I	6	3	–
3362.050	U	2	1	–
3362.040	La I	10	3	–
3362 003	Ru I	60	8	–
3362 00	Yt II	12	25	Me
3361.971	W	4	3	–
3361.952	Fe	6	1	–
3361.935	Sc II	25	9	–
3361.918	Ca I	125	10	IWg
3361.853	Ce II	8	–	–
3361.852	W	6	3	–
3361.835	Ti I	12	1	–
3361.833	Re	4	–	–
3361.773	Nd	8	2	–
3361.770	Cr II	10	100	–
3361.762	Ce	25	1	–
3361.75	C II	–	6	Fl
3361.74	Kr I	–	[2]	Me
3361.739	Th	4d	4d	–
3361.73	A II	–	[5]	Rt
3361.727	U	15	8	–
3361.67	Er	6	1	–
3361.640	Ta	125 W	50 W	–
3361.615	Eu	2h	3	–
3361.58	Pb I	–	15	Sx
3361.558	Co I	80	2	–
3361.556	Ni I	500 W	20	–
3361.555	Ce II	10	–	–
3361.508	V	–	200	Me
3361.49	Rb	–	[10]	Ok
3361.435	Sm	10	2	–
3361.373	Mo	30	30	–
3361.270	Sc II	25	9	–
3361.267	Co I	18	–	–
3361.263	Ti I	80r	50r	–
3361.241	Ni I	10	–	–
3361.24	Tb	3	8	Ed
3361.232	Ce	8	5	–
3361.214	Eu	20	2	–
3361 213	Ti II	100	600 R	IKs
3361.213	U	2	–	–
3361.21	Au	3	4	–
3361.209	Bi	3	2	–
3361.149	Os	80	20	–
3361.148	Ru	30	–	–
3361.142	Re I	25	–	–
3361.107	W II	10	15	–
3361.093	Co I	5	–	–
3361.09	C II	–	12	Fl
3361.04	Tm	10	15	Me
3361.02	Er	12	1	–
3360.993	Ce	3	–	–
3360.990	Ti I	10	1	–
3360.928	Fe I	7	1	–
3360.902	Cb	3	50	–
3360.900	Pr	8	2	–
3360.86	Ho	–	4h	Ex
3360 85	In	–	6	Sq
3360.803	Rh I	2	1	–
3360.792	Ru	4	–	–
3360.741	W	4	2	–
3360.716	Gd	25	25	–
3360.714	Ce	5	–	–
3360.65	Dy	2	2	–
3360.640	Sm	2	1	–
3360.63	Ne II	–	[18]	Bl
3360.541	Ce	35	4	–
3360.49	P	–	[30]	Gu
3360.455	Zr I	20	–	–
3360.405	Ce	2	–	–
3360.381	Th	4	5	–
3360.366	Ce	2	–	–
3360.337	U	5	1	–
3360.325	W	4	12 l	–
3360.313	Ir	3	–	–
3360 313	Fe	3	1	–
3360 295	Cr II	50	200	–
3360.291	Ce	3	–	–
3360.29	Tb	8	3	Ed
3360.28	Mo	–	25	–
3360.162	Pr	4	1	–
3360.161	Th	2	3	–
3360.13	Cr	20	–	–
3360.103	Fe II	4	5	Do
3360.09	B	2	20	Sy
3360.08	U	10	5	–
3360.066	Ir	2h	–	–
3360.06	Ca	–	4	–
3360.055	Hf	8	1	–
3359.955	Zr II	12	12	–
3359.895	Rh I	100	50	–
3359.86	Tb	8	3	Ed
3359.815	Fe	10	2	–
3359.814	Re I	25 W	–	–
3359.767	Nd	8	1	–
3359.752	Th	1	3	–
3359.743	Os	8	10	–
3359.738	Ir	5	6	–
3359.679	Sc II	50	25	–
3359.62	U	10	1	–
3359.56	Lu	150	15	Me
3359.538	Mo	3	2	–
3359.491	Fe I	15	3	–
3359.49	Ho	–	4	Ex
3359.49	Pr	–	4h	–
3359.48	A I	–	[10]	Ms
3359.478	Dy	12	5	–
3359.474	Ir I	8	4	–
3359.445	Ce	8	–	–
3359.34	Ca	–	4	Ad
3359.305	Ce	10	–	–
3359.30	Tb	8	3	Ed
3359.286	Ir	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3359.286	Co I	100	2	–
3359.269	Pr	8	2	–
3359.236	W II	–	6	–
3359.205	Re I	40	–	–
3359.200	Mo	4	5	–
3359.18	Cr	25	–	–
3359.106	Ni I	60	–	–
3359.095	Ru I	70	20	–
3359.085	Co I	35	–	Dn
3359.070	Th	1	3	–
3358.981	Ta	7	1	–
3358.96	Yt I	2	2 h	m
3358.96	Dy	2	2	–
3358.909	Fe	5	–	–
3358.906	Hf	25	2	–
3358.895	Ir	2	–	–
3358.868	U	3	2	–
3358.8	Cs	–	[4]	Bs
3358.78	Hg	–	[18]	Ps
3358.74	In	–	6	Sq
3358.72	Nd	20	10	–
3358 65	Tb	15	8	Ed
3358.628	Gd	100	100	–
3358.61	Dy	15	2	–
3358.606	Th	10	12	–
3358.604	W II	10	40	–
3358 60	Co II	–	20	–
3358.568	Re I	10	–	–
3358.56	A	–	[3]	Rt
3358.527	Ta	70	25 W	–
3358.501	Cr II	40	200	–
3358.501	Pr	10	2	–
3358.494	Ce	8	–	–
3358.479	Ti I	15	1	–
3358.44	Au	5	–	–
3358.426	Ce	8	–	–
3358.417	Cb	100	100	–
3358.38	Tb	8	–	Ed
3358.34	Ca	–	2	–
3358.32	F	–	[10]	Di
3358.310	W	–	7	–
3358.303	Hf II	10	15	–
3358 292	Ir	2	–	–
3358.277	Ti I	35	5	–
3358.273	Sm II	6	2 h	–
3358.27	Dy	3	2	–
3358.252	Fe II	3 h	7	Do
3358.158	Nd	6	2	–
3358.15	Er	10	1	–
3358.141	U	4	–	–
3358.124	Mo	60 W	30	–
3358 12	Te	–	[10]	Bl
3358 032	Re	25	–	–
3358.007	Co I	15	–	–
3357.969	Os	100	15	–
3357.931	U	8	8	–
3357.920	Ce	8	–	–
3357.90	Ho	6	8	Ex
3357.90	Ne II	–	[7]	Bn
3357.853	Ce	8	–	–
3357.849	Rh I	3	–	–
3357.778	Mo	25	2	–
3357.734	Ir	2	–	–
3357.726	Ce	8	–	–
3357.692	Pr	8	–	–
3357.687	Cs	–	[6]	Sv
3357.68	Tb	8	–	Ed
3357.61	Dy	2	2	–
3357.58	Kr II	–	[2]	Me
3357.56	Fe	2	–	–
3357.528	Os	4	8	–
3357.521	U	10	–	–
3357.49	La I	7	–	–
3357.41	Cr	6	125	–
3357.37	Tb	15	3	Ed
3357.31	Dy	2	2	–
3357.303	Sc	4	–	–
3357.30	Tm	6	10	Me
3357.264	Zr II	50	40	–
3357.232	Th	4	4	–
3357.215	Ce	30	3	–
3357.14	U	4	3	–
3357.106	Eu	2	2	–
3357.094	W	4	3	–
3357.078	Mo	–	30	–
3357.049	Th	4	3	–
3357.043	Cb	10	10	–
3356.97	Yb	3	20	–
3356.894	Ba I	40 r	3	Sz
3356.89	Te	–	[5]	Bl
3356.838	Co I	25	–	–
3356.829	Th	5	5	–
3356.825	Re	4	–	–
3356.80	Tm	6	10	Me
3356.78	Hf	10	–	Me
3356.765	Ce	8	–	–
3356.72	Cr	35 wh	–	–
3356.715	W	7	6	–
3356.693	Fe	15	1	–
3356.644	Ta	15	5 h	–
3356.59	Tb	8	–	Ed
3356.554	Nd	10	2	–
3356.534	Ir	2	–	–
3356.51	K II	–	[5]	Bn
3356.5	Rn	–	[40]	Pe
3356.472	Co I	150 W	2	–
3356.46	Cb	10 w	3	–
3356.461	Ru I	10	–	–
3356.461	Re I	18	–	–
3356.453	Mo	3	10	–
3356.41	S	–	[15]	Hn
3356.410	Ce	25	2	–
3356.402	Fe I	35	8	–
3356.400	Cr	35 wh	–	–
3356 396	U	8	–	–
3356.352	V I	125	60	–
3356.35	Ne II	–	[4]	Bn
3356.328	Re	20	–	–
3356 266	Fe II	1	2	–
3356.220	Dy	10	5	–
3356.21	Er	18	2	–
3356 205	U	8	–	–
3356.199	Ru	30	3	–
3356.196	Ti I	10	1	–
3356.193	Ir I	4	–	–
3356.092	Hf II	15	5	–
3356.091	Zr II	50	40	–
3356.074	Ce	8	–	–
3356.030	Ta	3	1	–
3355.98	F	–	[6]	Di
3355.944	Co I	10	–	–
3355.93	Pd	–	[5]	Bx
3355 920	Nd	10	4	–
3355.912	Re	15 w	–	–
3355.89	U	3	2	–
3355.87	Yb	4	20	–
3355.845	Pr	10 W	2	–
3355.793	Ir I	10	3	–
3355 68	Nd	10	4	–
3355.668	Pr	25	4	–
3355 663	Ru	20	–	–
3355.626	Re	10	–	–
3355.60	Dy	2	2	–
3355.599	Ta	5	3 h	–
3355 585	Ir I	4	–	–
3355 541	Th	2	5	–
3355.525	I II	–	[10]	Ke
3355 487	Mn	3	–	–
3355.43	U	2	2	–
3355.419	Cb	5	5	–
3355 4	Tl	–	5	Cx
3355.368	V	–	30	Me
3355.361	Ce	4	–	–
3355 36	Ca	1 h	2 h	Ad
3355.30	Cd II	–	[3]	Tk
3355.290	Re	60 h	–	–
3355.245	Th	3	6	–
3355.229	Fe	100	100	I
3355.14	Au I	25	–	–
3355.118	Co I	10	–	–
3355.112	U	8	4	–
3355.1	Bi II	–	[35]	Ml
3355.07	Dy	4	4	–
3355.05	Ne II	–	[40]	Bn
3355.026	Ir	4	4 h	–
3355.021	Ce II	20 s	3	–
3354.989	Mo	5	–	–
3354.98	S	–	[8]	Bl
3354.978	W	–	5	–
3354.90	Pr	2	2	–
3354.86	Sb	–	2 h	–
3354.86	Tm	30	50	Me
3354 81	Yt I	6	4	Me
3354.760	Mo	8	–	–
3354.758	Ce	2	–	–
3354.752	U	8	–	–
3354.741	Cb	20	15	–
3354.726	Ir	2	–	–
3354.719	Sm	10	5	–
3354.707	Rh I	10	2	–
3354.635	Ti I	100	20	–
3354.621	Nd	10	2	–
3354.618	Th	5	6	–
3354 589	Yt I	10	4	–
3354.58	Er	10	–	–
3354.57	Ho	6	8	Ex
3354.550	He I	–	[10]	Ps
3354.520	Ce II	10	–	–
3354.502	U	12	8	–
3354.488	Mo	10	–	–
3354.474	Cu I	30	10 h	–
3354.451	W	10	10	–
3354.386	Zr II	10	10	–
3354.377	Co I	200 R	–	–
3354.375	Eu	12	–	–
3354.37	U	6 d	–	–
3354.34	F	–	[3]	Di
3354.281	Sm	5	2	–
3354.213	Co	30	–	–
3354.185	Th	5	8	–
3354.182	Sm II	10	5	–
3354.16	Tb	15	–	Ed
3354.14	Ca	1	2	Ad
3354 124	Mo	10	–	–
3354.064	Fe	40	40	–
3354.05	air	–	12	Sq
3353.98	Rb	–	[30]	Ok
3353.944	Ce	10	–	–
3353.912	Os	40	15	–
3353.88	Cs	–	[4]	Bs
3353.871	Ru	4	–	–
3353.775	V	2	100	–
3353.766	Sm	2	–	–
3353.741	W	9	8	–
3353 74	Yb	5	8	–
3353.734	Sc II	50	60	–
3353.703	Eu	10	–	–
3353.687	Rh I	10	–	–
3353 687	Cb	5 h	2	–
3353.67	Se II	–	[20]	Bl
3353.656	Zr I	20	–	–
3353.648	Ru	50	4	–
3353.63	Ne II	–	[4]	Bn
3353 61	Cr	30	–	–
3353.599	U	2	1 h	–
3353.595	Dy	35	5	–
3353.592	Nd	5	3	–
3353.57	Ho	6	8	Ex
3353.555	W	8	7	–
3353.544	Ir I	2	–	–
3353.521	Nd	10	6	–
3353.503	Cb	10	20	–
3353.49	Pr	6	1	–
3353.45	Ho	6	–	m
3353.39	Nd	8	–	–
3353.39	Cl II	–	[125]	Ks
3353.359	Cb	5 w	3 h	–
3353.330	Ce	10	30	–
3353.308	Ru I	30	15	–
3353.267	Fe I	10	5	–
3353.211	Re I	40	–	–
3353.150	Zr I	2	–	–
3353.126	Cr	15	50	–
3353.026	Cr	20	30	–
3352.986	Ce II	10	2	–
3352.976	Ru I	6	–	–
3352.950	W	10	12	–
3352.938	Ce	18	–	–
3352.937	Ti I	25	2	–
3352.930	Fe I	5	3	–
3352.89	Tb	30	8	Ed
3352.869	Cb	10	2 h	–
3352.844	Ir	–	2 h	–
3352.834	Cb	–	5 h	–
3352.80	Co II	–	30	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3352.771	W	4	12	–
3352.724	Sm	4	–	–
3352.696	Dy	20	5	–
3352.679	U	4	2	–
3352.63	Tb	8	–	Ed
3352.592	Eu	2 h	2	–
3352.590	Cb	15	10	–
3352.49	Yb	20	–	–
3352.435	Sn	–	100 h	–
3352.392	W II	3	10	–
3352.373	Rh I	5	–	–
3352.33	In II	–	[10]	Ps
3352.284	Cb	5	5	–
3352.283	Ce II	25	1	–
3352.221	Nd	8	2	–
3352.19	Pd	–	[3]	Bx
3352.11	Te	–	[35]	Bl
3352.11	Tm	6	6	Me
3352.08	Ag	–	10 h	–
3352.08	Ho	6	6	m
3352.071	Ti II	8	15	–
3352.055	Hf II	30	50	–
3352.05	Tb	8	3	Ed
3352.048	Sc II	12	3	–
3352.044	Cu II	–	4	Sh
3351.97	Sn II	–	[60]	Mc
3351.967	W	7	4	–
3351.966	Cr I	50	50	–
3351.932	Ru I	50	4	–
3351.89	La II	2	2	Me
3351.875	Ta	2 wh	1 h	–
3351.833	U	5	2	–
3351.80	Nd	8 d	1 h	–
3351.750	Ce	3	–	–
3351.745	Fe	80	60	–
3351.744	Ne I	–	[25]	Ps
3351.735	Os	50	12	–
3351.686	Sm	3	–	–
3351.67	Ti II	1	5	–
3351.662	Mn	8	–	–
3351.66	U	4	2	–
3351.61	Hg	–	2	St
3351.599	Th	4	4	–
3351.596	Cr	35	8	–
3351.556	Eu	12	2	–
3351.536	Co I	35	2	–
3351.525	W	–	6	–
3351.521	Fe I	70	60	–
3351.520	Ce	12	–	–
3351.512	Mo	5	8	–
3351.510	Ta	18 r	15 r	–
3351.456	Al II	–	[10]	Sy
3351.427	Mn	4	–	Fu
3351.30	Hg	10	20 h	Cn
3351.30	Er	10 w	2	–
3351.283	Sm	5	2	–
3351.252	Pr	5	1	–
3351.251	U	8	3	–
3351.246	Sr I	300	15	ISn
3351.230	Th	10	15	–
3351.228	Zr I	4	–	–
3351.19	Eu	15 W	–	–
3351.185	W	5	3	–
3351.148	Co I	4	–	–
3351.118	Mo	3	5	–
3351.077	Ce II	3	–	–
3351.036	Eu	2	2	–
3350.961	Ta	25 W	18 W	–
3350.95	Dy	2	2	–
3350.94	A II	–	[5]	Rt
3350.935	Ce	3	–	–
3350.9	Rn	–	[5]	Wo
3350.897	U	3	2	–
3350.89	Rb I	150	–	Fl
3350.883	Sm	9	4	–
3350.747	Ce	10	–	–
3350.692	Cb	10	7 h	–
3350.683	Ce	20	–	–
3350.68	Te	–	[5]	Bl
3350.66	Dy	3	2	–
3350.652	Sm	8	–	–
3350.614	W	4	10	–
3350.56	Ag I	2 h	–	Bx
3350.549	Ru	12	–	–
3350.548	Ti I	10	1	–
3350.52	U	8	2 h	–
3350.482	Gd	150	180	–
3350.48	I	–	[5]	Bl
3350.46	Ho	6	8	Ex
3350.44	Xe	–	[4 whl]	Hu
3350.43	Eu	30	–	–
3350.42	Ni II	–	2	–
3350.401	Mn	4	–	–
3350.376	Co I	4 h	–	–
3350.36	Ca I	15	3	Cw
3350.33	Th	2	2 d	–
3350.299	Mo	5	6	–
3350 285	Fe I	8	4	–
3350.28	U	4 d	1 hd	–
3350.275	Pr	10	3	–
3350.255	Er	10	2	–
3350.251	Ru	10	2	–
3350.240	I	–	[15]	Ke
3350.209	Ca I	100	10	IWg
3350.107	Ru	12	–	–
3350.099	Gd	3	3 h	–
3350.063	Er	18	6	–
3349.99	Tm	20	–	Me
3349.967	Ce II	30	1	–
3349.910	Re I	20	–	–
3349.866	Th	–	2	–
3349.835	Sm	3	1	–
3349.834	La I	4	–	–
3349.793	I	–	[10]	Ke
3349.738	Fe	1	–	–
3349.538	W	4	7	–
3349.526	Co	7	–	–
3349.523	Cb	30	5 h	–
3349.463	Cu II	–	2 h	Sh
3349.445	Cs	–	[10]	Sv
3349.43	U	4 d	3 d	–
3349.42	Tb	30	50	Ed
3349.406	Ti II	100	400 R	–
3349 405	Ce	4	5	–
3349.40	Au	15	5	–
3349.348	Cb	5	100	–
3349.340	W	2	10	–
3349.340	Th	5	10	–
3349.322	Cr	35	50	–
3349.292	Cu I	70	40	–
3349.222	Co I	3 h	–	–
3349.22	Sc I	4	–	–
3349.193	Mo	6	5	–
3349 17	Hf II	5	4	Me
3349 072	Cr	125	40	–
3349.059	Cb	80	100	–
3349.036	U	4	–	–
3349.035	Ti II	125	800 R	–
3348.961	Th	4	6	–
3348.940	Mo	1	30	–
3348 88	Dy	2	–	–
3348 871	Sm	3	1	–
3348 844	Ti II	12	12	–
3348.784	Cb	1	30	–
3348 775	Ce	6	–	–
3348 766	Th	5	4	–
3348 74	Er	10	1	–
3348.72	Rb I	100	–	Fl
3348 72	Cs I	15	–	Bv
3348.705	Ru I	50	2	–
3348 691	U	4	1	–
3348.682	Sm	10	10	–
3348.662	Os	30	15	–
3348.586	Nd	2	–	–
3348.58	Ho	–	4 h	Ex
3348.54	Tb	15	–	Ed
3348.535	Ti I	7	–	–
3348 374	V	–	20	Me
3348.33	U	5 d	1	–
3348 293	W	2	15 l	–
3348.284	Cb	1 h	50	–
3348 190	Ce	8	–	–
3348 161	Nd	10	2	–
3348.140	Er	15	2	–
3348 113	Co I	80	–	–
3348.075	Mo	6	1	–
3348.07	Tb	30	3	Ed
3348.012	Ru	50	3	–
3347.927	Fe I	150	100	S
3347.89	Nd	8	6	–
3347.863	Ir I	3	–	–
3347.86	Er	7	1	–
3347.837	Cr II	35	125	–
3347.82	Dy	12	10	–
3347.734	Er	9	1	–
3347.64	Er	5	2 h	–
3347.613	Ru I	60	6	–
3347.586	Re	4 h	–	–
3347.576	Th	1	4	–
3347.574	Co I	7	–	–
3347.569	Nd	8	2	–
3347.555	Cb	3	1	–
3347.547	Ir I	7	1	–
3347.53	Yb	5	10	Me
3347.508	Fe	2	1	–
3347.50	Kr I	–	[2]	Me
3347.48	Cr	12	–	–
3347.472	Ce	8	–	–
3347.441	W II	–	6	–
3347.44	Cs I	30	–	Bv
3347.43	S	–	[8]	Hn
3347.296	Sm II	8	7	–
3347.27	Tb	15	8	Ed
3347.27	Xe II	–	[3 wh]	Hu
3347.269	Mo	1	30	–
3347.18	Nd	10 d	4 d	–
3347.063	Ta	2 h	–	–
3347.042	U	3	2	–
3347.018	Mo	40	4	–
3347.00	Rb	–	[60]	Ok
3346.96	Br	–	[3]	Bl
3346.96	Eu	2	2	–
3346.936	Fe I	30	15	–
3346.935	Co I	100	2	–
3346.931	Cb	15	10	–
3346.907	Sm	5	3	–
3346.819	Ir	2 h	–	–
3346.77	Pd II	–	4 h	Ex
3346.750	Cb	5	80	–
3346.742	Cr	150 R	80 r	–
3346 733	U	2	2	–
3346 728	Ti II	60	60	m
3346 7	bh Ca	8	–	L
3346 685	Er	3	–	–
3346 64	Dy	2	2	–
3346.629	Eu	4	2	–
3346.608	Re	5	–	–
3346.589	Nd	6	–	Kn
3346 56	Se	–	[35]	Bl
3346.559	Th	4	3	–
3346.517	Ce II	15	2	–
3346.50	Yb	15	–	–
3346.461	Ir I	2	–	–
3346.403	Mo	2	50	–
3346 400	U	2	1	–
3346.40	Eu	4 wd	–	–
3346 353	Sm II	5	3	–
3346.350	Er	10	2	–
3346.32	Tb	8	3	Ed
3346.310	Co I	5	–	–
3346.286	Cb	–	40	Me
3346.199	Re I	100	–	–
3346.198	U	3	1 h	–
3346.167	Ce	4	–	–
3346.142	Mo	–	20	–
3346.14	Dy	3	–	–
3346.111	W	7	2	–
3346.10	Eu	2	2	–
3346.085	Ir	2	–	–
3346.062	In II	–	[10]	Ps
3346.06	Ho	–	4	Ex
3346.03	Er	30	10	–
3346.018	Cr	35	35	–
3345.991	Gd	20	15	–
3345.940	In II	–	[5]	Ps
3345.934	Zn I	150	50	Hz
3345.93	Te	–	[35]	Bl
3345.900	V	–	125	Me
3345.890	U	12	1 h	–
3345.860	W II	10	15 l	–
3345 85	Tm	6	15	Me
3345.79	Dy	3	2	–
3345.73	Kr I	–	[4]	Me
3345 711	Nd	20	4	–
3345.682	Fe	1	–	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3345.572	Mo	5	2	–
3345.572	Zn I	500	100	Hz
3345.54	U	12	4	–
3345.522	Nd	10	2	–
3345.5	Rn	–	[2]	Pe
3345.49	Ne II	–	[7]	Bl
3345.46	Er	6	1	–
3345.451	Be I	2	–	–
3345.436	Ce	20	–	–
3345.37	Dy	3	2	–
3345.37	Cr	18	1	–
3345.352	Mn	15	–	–
3345.32	K	–	[30]	Bn
3345.317	Ru	60	5	–
3345.311	Eu	3	2	–
3345.230	Ce	3	–	–
3345.15	Cr	15	2	–
3345.108	Ta	3	3 h	–
3345.089	W	9	8	–
3345.088	Nd	12	2	–
3345.02	Sm	1	3 h	–
3345.020	Zn I	800	300	Hz
3344.97	Xe II	–	[2 h]	Hu
3344.931	Ti I	8	–	–
3344.904	W II	3	12	–
3344 882	Th	8	8	–
3344 870	U	6	6	–
3344.797	Ru	5	–	–
3344.79	A	–	[3]	Rt
3344.786	Zr II	15	15	–
3344.761	Ce II	50	8	–
3344.758	Pr	2	–	–
3344.75	Er	8	1	–
3344.746	Mo	50	40	–
3344.73	Rb	–	[15]	Ok
3344.66	Ag	–	2 h	–
3344.630	Ti I	2	–	–
3344.564	Pr	8	1	–
3344.561	U	4	–	–
3344.560	La II	300	200 wh	–
3344.552	Ce	4 w	–	–
3344 55	Yt	3	2 h	–
3344.532	Ru I	60	6	–
3344.513	Ca I	100	7	IWg
3344.51	Cr	20	2	–
3344.50	Tb	8	3	Ed
3344.49	Dy	3	2	–
3344.46	Ho	4	6	Ex
3344.445	W	8	7	–
3344.43	Ne II	–	[18]	Bn
3344.36	Er	12	1	–
3344 349	Sm II	40	10	–
3344.347	Re I	150	–	–
3344.34	Th	2	2	–
3344.335	Ce	8	–	–
3344.32	U	4	1	–
3344.245	Cb	–	10	–
3344.245	Co I	4	–	–
3344.218	Ir I	10	1	–
3344.198	Rh I	100	20	–
3344.172	Sm	4	–	–
3344.17	Er	4	–	–
3344.1	Rn	–	[2]	Pe
3344.076	U	2	1	–
3344.004	Cs	–	[10]	Sv
3343.965	Cb	3	15	–
3343.934	Pr	9	1	–
3343.900	Pt I	100	80	–
3343.861	Ce	50	6	–
3343.852	W	7	4	–
3343.815	Th	3	3	–
3343.813	Zr II	20	15	–
3343.770	Ti II	60	70	–
3343.743	Cu II	–	10	Sh
3343.74	Cr	30 h	–	–
3343.731	Mn	30	–	–
3343.722	Mo	10	5	–
3343.711	Zr I	8	–	–
3343.709	Cb	15	20	–
3343.70	Er	10 w	2	–
3343.676	Fe	2	1	–
3343.644	Sm	25	5	–
3343.614	Th	5	10	–
3343.591	Ir I	2	–	–
3343 56	Ho	20	20	Ex
3343.492	Sm	15	8	–
3343.48	Dy	3	–	–
3343.471	Ta	2	3	–
3343.46	Sr	–	6	Sd
3343.44	U	3 d	1	–
3343.43	Rh I	2	–	–
3343.43	Er	4 wh	1 h	–
3343.417	W II	6	12 l	–
3343.38	Nd	6	2 h	–
3343.379	Ti I	2	–	–
3343.357	Ru	4	–	–
3343.342	Cr I	30	10	–
3343.315	V	–	10	Me
3343.28	Cb	–	15	–
3343.271	Th	4	5	–
3343.27	Sc II	7	12 w	–
3343.248	W	8	2	–
3343.242	Fe I	5	2	–
3343.233	Ce	3	–	–
3343.227	Cr	12	6	–
3343.15	Cd II	–	15	Vs
3343.15	Ca	–	3	–
3343.12	Er	3	–	–
3343.102	W II	4	10	–
3343.06	Yb	6	40	–
3342.98	Tb	15	–	Ed
3342.93	Yb	30 w	8	–
3342.904	Rh I	2	1	–
3342.900	Cb	2	–	–
3342.896	Er	10	–	–
3342.879	Ru	3	–	–
3342.853	W	–	9	–
3342.845	Ce	2	–	–
3342.797	Ir I	2	–	–
3342.74	S	–	[8]	Bl
3342.734	Co I	150 W	–	–
3342.71	Ho	–	4	Ex
3342.707	Ti I	10	5	–
3342.707	Ru	3	–	–
3342 68	U	10	10	–
3342.675	Eu	2 h	2	–
3342 664	Sm	2	3	–
3342.65	Dy	5	2	–
3342.59	Mo	–	20	–
3342.586	Cr II	30	125	–
3342.564	Co I	4	–	–
3342 561	I	–	[18]	Ke
3342.531	Ce II	8	–	–
3342.462	W II	10	30	–
3342.4	Rn	–	[2]	Wo
3342.312	Ce	3	–	–
3342.292	Fe	20	20	–
3342.28	V	5	2	–
3342.278	Ca	–	2	–
3342.263	Re I	200	–	–
3342.26	I	–	[5]	Bl
3342.224	La I	80	5	–
3342.216	Fe I	40	40	–
3342.214	Th	–	2	–
3342.195	Ce	3	–	–
3342.151	Ti I	12	8	–
3342.11	Er	7	1	–
3342 021	Cr	6	3 h	–
3341.974	Cb	100 r	50	–
3341.947	Co I	25	–	–
3341.914	Os	10	10 s	–
3341.905	Fe	100	80	–
3341.892	Eu	5	2	–
3341.88	S	–	[8]	Hn
3341.88	Dy	30	–	–
3341.875	Ti I, II	100	300 R	–
3341.868	Ce I, II	40	5	–
3341.846	Mo	8	5	–
3341.836	Er	18	3	–
3341.832	Sm	5	1	–
3341.664	Ru	70	50	–
3341 661	U	12	15	–
3341.640	Ce	2	–	–
3341 61	Er	12	2	–
3341.600	Cb	3	50	–
3341.554	Ti I	2	–	–
3341.478	Hg I	100	100	Cn
3341 473	Pr	10	3	–
3341.435	Sm II	5	2	–
3341.433	Dy	10	2	–
3341.43	Cr	50	1	–
3341.422	W	4	3	–
3341.344	Co	60	2	–
3341.293	Ce	10	–	–
3341.281	U	2	1	–
3341.277	I II	–	[5]	Ke
3341.230	Ru	10	–	–
3341.182	Cu I	5	–	–
3341.087	Ru	50	5	–
3341.076	Eu	3 d	2 d	–
3341.010	Ce	6	–	–
3340.994	U	2	1	–
3340 986	Dy	3	–	–
3340.955	Pr	10	2	–
3340.886	Ce II	18	–	–
3340.767	U	2	1	–
3340.689	Os	2	3	–
3340.65	Ca	–	3	Ad
3340.631	U	3	1	–
3340.605	Rb II	–	[60]	Rr
3340 60	Dy	5	–	–
3340.585	Sm II	40	25	–
3340.574	Cs	–	[10]	Sv
3340 566	Fe I	125	100	S
3340.555	Zr II	25	20	–
3340.508	Mo	1	25	–
3340.48	Er	3	2	–
3340.464	Cb	2	20 d	–
3340.46	Ho	–	4 h	Ex
3340.42	Ca	–	2	Ad
3340.387	Yt I	4	2	–
3340.36	Cl	–	[20]	Jv
3340.351	Ir I	10	–	–
3340.344	Ti II	80	100	–
3340.308	Re	2	–	–
3340.307	Ce	12	–	–
3340.167	Mo	30	25	–
3340.114	U	3	1	–
3340.096	W	5	2	–
3340.08	Pt	1	15	Sh
3340.07	Te	–	[25]	Bl
3340.02	Er	20	3	–
3340.010	Dy	80	4	–
3339.91	Tl II	–	[12]	El
3339.910	Ta	15	70	–
3339.804	Cr II	25	150	–
3339 797	Ce	10	–	–
3339.783	Co I	150 w	–	–
3339.781	Ru	10	70	–
3339.740	Nd	15	4	–
3339.716	U	3	1	–
3339.692	Fe	2	1	–
3339.692	Re	30	–	–
3339.63	Tm	3	10	Me
3339.61	Tb	15	3	Ed
3339.582	Fe I	10	5	–
3339.573	W	–	10 l	–
3339.556	Th	–	20 h	–
3339.552	Ru	100	60	–
3339.54	Ti I	2	–	–
3339.51	Dy	25	4	–
3339.508	Ce II	12	–	–
3339.504	Ta	8	1 h	–
3339.446	U	5	1	–
3339.440	Nd	10	2	–
3339.392	Ir I	15	2	–
3339.35	Mo	3 d	3 h	–
3339.265	Cb	3	5 h	–
3339.22	Ag	2 h	2 h	–
3339.215	U	6	3	–
3339.195	Fe I	80	50	–
3339.158	Cb	10 w	5 w	Me
3339.12	Er	4	1	–
3339.063	Nd	10	4	–
3339.050	Ni I	5	–	–
3339.024	W II	2	12	–
3339.00	Tb	50	8	Ed
3338.865	Sm	6	–	–
3338.813	Tl I	6	–	–
3338.80	Xe II	–	[5]	Hu
3338.76	Ho	12	20	Ex
3338.758	Ni I	3	–	–
3338.742	Eu	15	5	–
3338 707	Ru	30	3	–
3338 64	Dy	4	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3338.640	Cu II	1 h	5	–
3338.636	Fe	70	25	–
3338.620	W II	5	15	–
3338.575	In II	–	[18]	Ps
3338.545	Rh I	200	50	–
3338.534	Ce	2	–	–
3338.519	Co I	5	–	–
3338.518	Fe II	–	1	–
3338 515	Sm	2	–	–
3338.51	Eu	4	3	–
3338.487	Ta	–	2	–
3338.486	In II	–	[10]	Ps
3338.48	U	4 d	1	–
3338.431	Mo	5	6	–
3338.42	Hg II	–	[5]	Ps
3338.415	In II	–	[5]	Ps
3338 408	Zr II	15	12	–
3338.400	Th	8	8	–
3338 374	Ir I	15	2	–
3338.243	W	–	10	–
3338.180	Pt	2	–	–
3338 174	Re I	150	–	–
3338.112	Mo	1	20	–
3338.03	Tb	30	15	Ed
3338.018	Er	12	1 h	–
3337.929	U	4	4	–
3337.924	Zr II	2	2	–
3337.872	Ce	10	–	–
3337.869	Th	12	15	–
3337.853	Ti II	12	60	–
3337.849	Yt I	2	2	–
3337.846	V	2	150	Me
3337.844	Cu I	70	50	–
3337.823	Ru I	60	8	–
3337.82	Tm	5	15	Me
3337.799	Ta	100	18 s	–
3337.79	Er	20	3	–
3337.79	U	12	10	–
3337.682	W	10	8	–
3337.67	K II	–	[2]	Bn
3337.67	Tb	15	–	Ed
3337.666	Fe	125	100	I
3337.584	Eu	2 h	2	–
3337.505	W	5	3	–
3337.502	Ce	20	–	–
3337.5	Cl II	–	[2]	Mu
3337.5	bh Sr	8	–	L
3337.498	Ta	35	1	–
3337.488	Th	3	1	–
3337.488	La II	800	300 wh	–
3337.393	U	3	3	–
3337.254	Re	5 d	–	–
3337.25	Er	15	3	–
3337.22	Cr I	10	–	–
3337.20	Ho	12	12	Ex
3337.172	Co I	60	2	–
3337.17	Yb	25 l	30	–
3337.16	Zn	–	[5]	Vs
3337.16	Th	6	5	–
3337.15	Sb	2	10 h	Sp
3337.138	Os	2	3	–
3337.12	Dy	2	2	–
3337.036	U	10	–	–
3337.014	Ni I	6	–	–
3336.998	Ti II	–	6	–
3336.98	Cr	18	8	–
3336.969	Ti I	4	–	–
3336.846	W	6	5	–
3336.83	Dy	2	2	–
3336.819	V I	6	1	–
3336.77	Th	2	2	–
3336.76	Er	15	1	–
3336.742	Ce	10	–	–
3336.685	U	10	6	–
3336.680	Mg I	125	60	–
3336.639	Ru	50	4	–
3336.571	Mo	2	–	–
3336.571	W	8	9	–
3336.551	Ce	10	–	–
3336.507	Mo	25 d	25 d	–
3336.47	Eu	15	4	Kn
3336.372	Ce	20 s	–	–
3336.358	Ta	5	–	–
3336.350	V I	10	3	Me
3336.330	Cr II	18	80	–
3336 32	U	3	1	–
3336.315	Cb	10	5	–
3336.26	In	–	3	Sq
3336.254	Fe	40	30	–
3336.25	Yt II	3	7	–
3336.20	A	–	[5]	Rt
3336.183	Gd	30	30	–
3336.16	Th	5	5	–
3336.150	Os I	200 R	50	–
3336 148	Ce	2	–	–
3336.12	Ne II	–	[4]	Bn
3336 12	Al	–	2	Gn
3336.120	Sm II	25	5	–
3336 09	Cl	–	[10]	Jv
3336.077	Mo	5	20	–
3336.073	Ce	2	–	–
3336 056	Ir I	2	–	–
3335.933	W	–	10	–
3335.93	U	2	1	–
3335.9	Rn	–	[5]	Pe
3335.883	Ce	2	–	–
3335.835	Pt I	2	–	–
3335 83	Dy	4	2	–
3335.771	Nd	20	–	–
3335.768	Fe	125	100	–
3335.692	Ce	8	–	–
3335.686	Ru I	70	12	–
3335.668	Cb	–	30 w	–
3335.63	U	2 d	2	–
3335.62	Se	–	[8 h]	Bl
3335.552	Ce	2	–	–
3335.514	Fe I	2	2	–
3335.503	Mo	3	20	–
3335.483	V	1 h	60	Me
3335.43	Er	8	–	–
3335.422	Cb	30	40	–
3335.42	Tb	15	3	Ed
3335.419	W II	–	7	–
3335.372	Re I	100	–	–
3335.32	Er	6	1	–
3335.244	Cb	1 w	30 w	Me
3335.225	Yt I	3	–	–
3335 219	U	2	1	–
3335.215	Cu	60	15	IBu
3335.195	Ti II	60	150	–
3335 16	Kr II	–	[4 hl]	Me
3335 11	Ho	–	4 h	Ex
3335.076	Mo	4	20	–
3335 062	Th	8	8	–
3335.06	Tm	10	20	Me
3335.039	Sm	9	3	–
3334.98	Nd	6 d	–	–
3334.966	Mo	8	3	–
3334.925	Cr	10	6	–
3334.882	Ce II	4	–	–
3334.88	Er	5	1	–
3334.87	Ne II	–	[250]	Bn
3334 870	Ti I	2 h	–	–
3334.86	Dy	2	2	–
3334.830	Cb	1	5	–
3334.820	U	10	–	–
3334.778	W	–	10	–
3334.742	Ta	35 w	1 h	–
3334.690	Cr	150 wh	–	–
3334.679	Sm	2	1	–
3334.616	Zr II	15	10	–
3334.605	Th	10	15	–
3334 603	Ce	4	–	–
3334.525	Cb	–	5	–
3334.48	Tb	15	3	Ed
3334.471	Nd	15	6	–
3334.455	Ce	20 s	3	–
3334.45	Dy	4	2	–
3334.434	U	2	2	–
3334.326	Eu	50	5	–
3334.279	Ce	10	–	–
3334.251	Zr II	25	20	–
3334.25	Tb	8	–	Ed
3334.247	U	1	2	–
3334.217	Fe I	150 h	100 h	–
3334.159	Ir I	40	3	–
3334.151	Os	15	10	–
3334.144	Eu	3	2	–
3334.14	Dy	12	2	–
3334.137	Co I	250 R	–	–
3334.114	Sm	8	4	–
3334.058	Th	2 d	2 d	–
3334 056	Zr	2	–	–
3333 974	Cb	5	2	–
3333.945	Pr	7	1	–
3333.94	U	1 d	3	–
3333.93	Tb	30	3	Ed
3333.912	Ti I	4	–	–
3333.901	Ce	8	–	–
3333.849	Os	12	10	–
3333.68	Ag	2 h	4 h	Fn
3333 660	Ce	20	–	–
3333.654	Eu	3	4	–
3333.64	Cl II	–	[40]	Ks
3333.632	Sm II	15	5	–
3333 624	U	4	–	–
3333 61	Rb	–	[40]	Ok
3333.606	Yt II	2	5	–
3333.605	Cr	125	3 h	–
3333.565	V I	25	12 w	–
3333.556	Zr I	5	–	–
3333.54	Dy	3	2	–
3333.506	U	6	–	–
3333 49	Hf II	–	3 h	Me
3333.48	Si	–	2	Sy
3333 450	Pr	8	1	–
3333.389	Th	4	4	–
3333.388	Co I	100	–	–
3333.334	Mo	5	3	–
3333.311	Ce	5	–	–
3333.27	Tm	5	15	Me
3333.261	W	–	12	–
3333.258	U	2	6	–
3333.21	Tb	30	3	Ed
3333 190	Sb II	2	10 h	Sp
3333 16	Ho	–	4	Ex
3333.129	Th	6	2	–
3333.084	Ta	7 h	15 w	–
3333 07	Yb	20	60	–
3333.058	Nd	6 d	2 d	–
3333.037	Ce	15	–	–
3333.031	Ti I	5 w	–	–
3332.895	U	4	1	–
3332 881	Ce	10	–	–
3332.879	Cr	30	10	–
3332.814	Ta	35 w	15 w	–
3332.729	Hf	40	10	–
3332.71	Ho	–	4	Ex
3332 703	Er	25	2	–
3332.703	Sm II	10	2	–
3332.697	Cb	5 w	8	–
3332.643	Ru	60	5	–
3332 64	Sb II	10	20	Dv
3332 61	Lu	–	8 h	Me
3332.52	Mo	–	80	–
3332.474	Ce	10	–	–
3332.425	U	8	3	–
3332.42	Cl II	–	[15]	Ks
3332.411	Ta	50	3	–
3332.395	Th	5	5	–
3332.204	Ce	5	–	–
3332.180	Ni	8	–	–
3332.174	Nd	30	4	–
3332.159	Cb	10	10	–
3332.153	Mg I	100	25	–
3332.15	Ba	1	9	–
3332.137	Gd	10	12	–
3332.112	Ti II	40	125	–
3332.07	Th	3	1	–
3332.052	Ru	60	10	–
3332.04	Dy	2	–	–
3331.963	U	3	1	–
3331.92	air	–	12 wh	Sq
3331.91	Ho	4	6 h	Ex
3331.889	Cb	5	3	–
3331.887	Hf	12	–	–
3331.85	Ag	1	4 h	–
3331.793	Ce	10	–	–
3331.776	Fe	40	10	–
3331.678	Co I	2	–	–
3331.672	W	15 l	12	–
3331.643	Pr	9	1	–
3331.62	Rb	–	[40]	Ok
3331.612	Fe I	125	70	–
3331.609	U	5	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3331.59	Mo	–	6 d	–
3331.567	Nd	8	2	–
3331.558	Er	6	–	–
3331.518	Re I	30	–	–
3331.487	Ta	5	15 w	–
3331.413	Ce	3	–	–
3331.405	Mo	15	15	–
3331.388	Gd	100	80	–
3331.36	Tb	8	–	Ed
3331.32	N II	–	[10]	Fl
3331.303	U	6	2 h	–
3331.28	Dy	4	2	–
3331.245	Rh	40	10	–
3331.224	Ce II	10	–	–
3331.17	Eu	2 h	4 h	–
3331.093	Rh I	50	10	–
3331.078	Sm	2	–	–
3331.07	Sc II	5	4 hl	–
3331.05	Er	4	1	–
3331.01	Ho	–	4 h	Ex
3331.007	Ta	18	200 w	–
3330.90	Mo	–	20	–
3330.880	Yt II	4	30	–
3330.804	Nd	4	–	–
3330.78	Ne II	–	[4]	Bn
3330.677	Pr	8	1	–
3330.668	Mn	75	–	–
3330.663	Mo	–	10	–
3330.638	Ce	3	–	–
3330.60	Cr	80	–	–
3330.60	Dy	4	2	–
3330.594	Sn	100 h	100 h	–
3330.55	Ag	–	2 h	Fn
3330.532	W	5	4	–
3330.5	Bi II	–	[10]	Ml
3330.484	Ce	8	–	–
3330.475	Th	10	2	–
3330.399	U	8	1	–
3330.379	Ce	4	–	–
3330.341	Gd	10	10	–
3330.33	Cs	–	[4]	Bs
3330.313	Fe	5	2	–
3330.30	N II	–	[5]	Fl
3330.294	Mo	–	25	–
3330.27	Rb	–	[40]	Ok
3330.09	Nd	8 d	1 h	–
3330.0	Rn	–	[40]	Pe
3329.988	Sr I	100	10	ISn
3329.930	Mg I	80	8	–
3329.922	U	10 h	2	–
3329.91	Rb II	–	[5]	Ok
3329.855	V I	100	40	–
3329.83	Ag II	–	2 h	–
3329.804	Eu	3	–	–
3329.731	Th	5	–	–
3329.66	Ho	–	4 h	Ex
3329.659	Er	25	3	–
3329.636	Cu I	60	10	–
3329.623	Sm II	8	2	–
3329.619	Cb	3	3	–
3329.535	Ta	18	1	–
3329.533	Eu	9	5	–
3329.532	Fe	35	6	–
3329.5	air	–	10	m
3329.471	Co I	80	–	–
3329.456	Ti II	80	200 r	–
3329.428	Cs II	–	[10]	Ot
3329.361	Cb	10	15	–
3329.349	Gd	2	2	–
3329.305	U	6	2	–
3329.25	Te	–	[100]	Bl
3329.217	Os	3	3	–
3329.215	Mo	2	100	–
3329.20	Ne II	–	[12]	Bn
3329.16	Cb	–	8 h	Me
3329.129	Zr	2	–	–
3329.126	Os	20	5	–
3329.12	Cl II	–	[150]	Ks
3329.08	Tb	30	8	Ed
3329.07	La II	4	4	Me
3329.054	Fe	8	3	–
3329.053	Cr I	30	6	–
3329.035	Mo	15	–	–
3329.025	Co I	20	–	–
3329.02	Ho	4	6 h	Ex
3329 002	Ce	10	–	–
3328.991	Nd	6	–	–
3328.939	Sm II	10	2	–
3328.930	Ta	7	–	–
3328.920	Ce	5	–	–
3328.867	Fe	150	100	I
3328.79	N II	–	[15]	Fl
3328.79	Dy	5	–	–
3328.747	U	8	–	–
3328.714	Ni I	15	–	–
3328.640	Eu	3	4	–
3328.563	Mo	1	20	–
3328.456	Ru I	12	–	–
3328.402	V I	7	1	–
3328.351	Cr II	20	40	–
3328.326	Ti I	2	–	–
3328.305	Ta	10	1 h	–
3328.270	Nd	15	6	–
3328.270	U	2	2	–
3328.25	Th	4	4	–
3328.213	Hf II	20	15	–
3328 209	Co I	40	–	–
3328 175	Re	3	–	–
3328.157	Cb	3	3	–
3328.115	W	9	8	–
3328.057	Eu	3	3	–
3328.037	Nd	8	2	–
3328.00	Kr I	–	[2]	Me
3327.991	Ce	5	–	–
3327.983	V I	5	3	–
3327.958	Fe	2	–	–
3327.920	Cb	4	5	–
3327.901	Sm	50	20	–
3327.899	Ce	12	–	–
3327.88	Dy	2	–	–
3327.875	Yt II	60	60	–
3327 812	Hf	5	–	–
3327.77	Yb	2	10	–
3327.726	Ag	5	2 h	–
3327.725	Re	15 h	–	–
3327.708	Ru	50	6	–
3327.688	Nd	12	2	–
3327.685	Na II	6	[20]	Fr
3327.667	Zr II	2	2	–
3327.661	Mo	5	4	–
3327.661	Ce	12	–	–
3327.623	W	7	7	–
3327.59	Tm	20	15	Me
3327.560	Nd	15	2	–
3327.504	U	12	6	–
3327.50	Pr	4 d	–	–
3327.491	Fe I	15	7	–
3327.46	Xe II	–	[8]	Hu
3327.425	Os	80	15	–
3327.392	Ni I	5	–	–
3327.325	Ti I	2	–	–
3327.301	Mo	40	20	–
3327 30	Dy	5	2	–
3327.244	U	2	1	–
3327.24	Cr I	8 h	–	–
3327.23	Pd II	–	50 h	Ex
3327.225	Ce	10	–	–
3327.204	Re	10	–	–
3327.194	Th	5	5	–
3327.171	Pt I	3	–	Ml
3327.17	Rb	–	[15]	Ok
3327.16	Ne II	–	[18]	Bn
3327.150	Ag	–	2 h	Fn
3327.147	Nd	8	2 h	–
3327.11	Tb	15	3	Ed
3327.1	Rn	–	[2]	Wo
3327.087	Eu	3	2	–
3327.08	Dy	9	2	–
3327.051	U	2	3	–
3326.991	Co	100	–	–
3326.977	Sm	3	2 h	–
3326.947	Ce	15	–	–
3326.900	Ir I	10	1	–
3326.88	Er	9	1	–
3326.876	Re	3 h	–	–
3326 797	Zr II	100	100	–
3326.765	Ti II	15	125	–
3326.670	Ni I	5	–	–
3326.639	Ti I	3	–	–
3326.619	Cb	10	5	–
3326.590	Cr	40	18	–
3326.564	Co I	60	–	–
3326.54	Cb	–	3 h	–
3326.531	Ir I	2	–	–
3326.517	Os	12	8	–
3326.47	Tb	15	–	Ed
3326.468	Th	5	5	–
3326.42	Dy	5	4	–
3326.417	W	5	4	–
3326.414	Zr I	5	–	–
3326.403	Ir	2	–	–
3326.389	I	–	[3]	Ke
3326.386	Os	15	10	–
3326.26	Nd	6	2	–
3326.21	La II	3	3	Me
3326.19	Tb	8	–	Ed
3326.19	Dy	20	10	–
3326 190	W	15	12	–
3326.185	U	12	–	–
3326.109	Mo	5	4	–
3326.100	Ir I	2	–	–
3326.077	Ce	10	–	–
3326.00	W	–	9	–
3325.976	Eu	20	2	–
3325.889	Nd	10	4	–
3325.864	U	2	–	–
3325.812	Cu II	–	4	–
3325.76	Eu	2 h	–	–
3325.76	U	3 d	1	–
3325.741	Ta	50	3	–
3325.732	Nd	4 h	–	–
3325.729	Pt	2	–	Sf
3325.71	Se	–	[20]	Bl
3325.686	Pr	10	1	–
3325.674	Mo	50	25	–
3325.57	Yb	–	20	Me
3325.52	Tb	30	–	Ed
3325.50	A I	–	[100]	Ms
3325.475	Sm	15	4	–
3325.467	W	–	7	–
3325.462	Fe I	100	80	–
3325.453	Ir	3	1 h	–
3325.436	Cb	–	8 h	Me
3325.394	Ru	3	40	–
3325.365	Ti I	2	–	–
3325.33	La II	2	2	Me
3325.329	Ce	25 s	1	–
3325.28	Dy	2	–	–
3325.258	Sm	15	5	–
3325.243	Co I	80	3	–
3325.233	Ru	5	–	–
3325.229	Ti I	4	–	–
3325.226	Mo	–	40	–
3325.21	Cb	–	15 h	–
3325.168	U	2	2	–
3325.155	Ti I	4	–	–
3325.146	Nd	10	–	–
3325.144	Ce	8	–	–
3325.132	Th	10	15	–
3325.131	Mo	4	–	–
3325.063	Ce	4	–	–
3324.997	U	10	–	–
3324.995	Ru I	60	12	–
3324.985	Ce II	15	–	–
3324.933	Re I	25	–	–
3324.870	Sm	3	–	–
3324.847	Ta	5	1	–
3324.789	Fe	2	–	–
3324.764	Ce	12	–	–
3324.754	Ti I	10	1	–
3324.754	Th	10	10	–
3324.749	Os	15	8	–
3324.689	W	8	7	–
3324.660	Cb	4	50	–
3324.606	Ti I	2	–	–
3324.60	U	3 d	1	–
3324.594	Ce	3	–	–
3324.58	N II	–	[5]	Fl
3324.556	Cb	2	10	–
3324.551	Pr	10	1	–
3324.537	Fe I	100	80	–
3324.5	Cs	–	[4]	Bs
3324.40	Tb	70	50	Ed
3324.393	V I	7	6	–
3324.390	Ca	1 h	6	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3324.366	Fe	5	3	–
3324.346	Cr	10	60	–
3324.33	Os	50 d	15 d	–
3324.20	Dy	3	–	–
3324.18	Hf II	8	6	Me
3324.17	Yb	6	20	–
3324.136	Pr	10	1	–
3324.060	Cr II	20	20	–
3324.058	W	8	7	–
3324.031	U	3	–	–
3323.976	Ce	2	–	–
3323.95	Dy	2	–	–
3323.949	Mo	40	25	–
3323.940	Ru	5	–	–
3323.933	Ca	–	5	–
3323.896	Ti I	3	–	–
3323.894	Cb	1	50	–
3323.89	Tb	15	3	Ed
3323.82	A I	–	[30]	Ms
3323.803	Ti I	5	–	–
3323.795	Pt I	150	10	–
3323.769	Sm	15	8	–
3323.75	Ne II	–	[40]	Bn
3323 737	Fe	150	150	I
3323.660	Ti I	2 h	–	–
3323.61	B II	–	10	En
3323.53	Cr	–	12	–
3323.50	I	–	[3]	Bl
3323.452	Ce	2	–	–
3323.409	W	5	8	–
3323.38	Tb	15	3	Ed
3323.36	Hf II	12	15 h	–
3323.34	Rb	–	[10]	Ok
3323.34	B II	–	10	Sy
3323.294	Ce	10	–	–
3323.27	Dy	4	–	–
3323.25	Cr	25	–	–
3323.22	Tm	20	40	Me
3323.21	Ho	–	4	Ex
3323.20	B II	–	5	En
3323.20	Er	25	4	–
3323.19	Au I	10	5	–
3323.172	Os	3 h	3 h	–
3323.119	U	2	1 h	–
3323.100	Ce	3	–	–
3323.092	Rh I	1000	200	–
3323.068	Fe II	–	100	–
3323.06	Te	–	[15]	Bl
3323.06	Ba I	2	–	Sd
3322.988	Zr II	10	10	–
3322.937	Ti II	80	300 R	–
3322.936	Nd	25	2	–
3322.93	U	4 d	1	–
3322.916	Ce	2	1	–
3322.874	Ba I	30 r	–	–
3322.871	Ir I	20	15	–
3322.807	Cb	3	2	–
3322.8	Cs	–	[4]	Bs
3322.743	Eu	3	–	–
3322 70	Cr	1	20	–
3322.675	W	–	5	–
3322.670	U	4	2	–
3322.634	Ce	10	–	–
3322.603	Ir I	30	18	–
3322.478	Re I	150	–	–
3322.477	Fe	150	100	–
3322.47	Th	2	2	–
3322.44	A I	–	[5]	Ms
3322.310	Ni I	400	10	–
3322.3	Rb	–	[15]	Dr
3322.30	Ca	1	7	–
3322.30	Tl II	–	[25]	Sx
3322.282	Zr	8	–	–
3322.266	Pr	7	1	–
3322.261	Eu	20	2	–
3322.246	W	10	12 d	–
3322.231	Sr I	100	8	ISn
3322.226	Ru	8	–	–
3322.205	Re I	25 W	–	–
3322.199	Co I	100 W	–	–
3322.175	Ce	2	–	–
3322.170	Mo	4	30	–
3322.118	U	18	12	–
3322.051	Os	10	10	–
3321.94	Tl II	–	[3]	Sx
3321.912	Co I	25	–	–
3321.857	Eu	30	5	–
3321.707	U	5	1	–
3321.700	Ti II	15	125	–
3321.685	V I	12	–	–
3321.588	Ti I	15	15	–
3321.58	A I	–	[5]	Ms
3321.565	W	8	7	–
3321.545	Rb II	–	[60]	Rr
3321.538	V	3	150	–
3321.515	I	–	[7]	Ke
3321.462	Re	10	–	–
3321.453	Th	10	12	–
3321.395	Nd	8	–	–
3321.344	Sr II	–	10 d	–
3321.343	Be I	1000 r	30	–
3321.30	F	–	[3]	Di
3321.275	Ce	3	–	–
3321.254	Ru	12	–	–
3321.242	Ni I	4	–	–
3321.196	Mo	1	15	–
3321.19	Cr	20	1	–
3321.184	Sm II	50	15	–
3321.17	Tl II	–	[25]	Sx
3321 16	Kr II	–	[8]	Me
3321.15	Tb	30	30	Ed
3321.133	W	6	5	–
3321.11	Ho	–	4	Ex
3321.086	Be I	100	15	Ps
3321.03	Br	–	[6]	Bl
3321.013	Be I	50	–	Ps
3320.987	Pd I	15	–	–
3320.95	W II	–	9	–
3320.940	Ce II	10	–	–
3320.92	U	1	2	–
3320.902	Mo	3	80	–
3320.81	Th	–	10 h	–
3320.81	air	–	6	Sq
3320.810	Cb	3	100	–
3320 787	Ce II	8	–	–
3320.785	V	–	8 h	–
3320.779	Fe	30	12	–
3320.779	Ni I	10	–	–
3320.73	I	–	[5]	Bl
3320.709	Sc II	5	–	–
3320.693	Mn	60	30 h	–
3320.651	Re	2	–	–
3320.650	Fe I	20	10	–
3320.587	Sm	4	2	–
3320.553	Ce	5	–	–
3320.51	Cl	–	[15]	Jv
3320.437	Gd	3	3	–
3320.425	Os	10	8	–
3320.423	Ce	12	–	–
3320.422	Sc II	5	12	–
3320.39	Ca	–	6 h	Ad
3320.370	W	9	8	–
3320.359	Ir I	2	–	–
3320.337	U	2	1	–
3320.31	Yb	3	20	–
3320.302	Th	10	12	–
3320.29	Ne II	–	[4]	Bn
3320 285	Mo	8	2	–
3320.257	Ni I	400 w	15	–
3320.24	Ho	6	8	Ex
3320.163	Sm II	40	8	–
3320.151	Au I	20	5	–
3320.141	V I	12	3	–
3320.14	Eu	3	2 h	–
3320.14	Cl II	–	[30]	Ks
3320.06	A I	–	[3]	Ms
3319.975	Pr	8	2	–
3319.914	Th	2	1	–
3319.91	Tb	8	3	Ed
3319.91	Tl II	–	[35]	El
3319.902	Os	4	5	–
3319.887	Eu	20	5	–
3319.887	Dy	150	9	–
3319.872	Er	18	1	–
3319.87	Ho	6	6	Ex
3319.825	Co I	35	2	–
3319.808	Ru I	6	–	–
3319.780	Er	4	1	–
3319.78	Yt II	7	10	–
3319.75	Ne II	–	[7]	Bn
3319.684	Cu I	60	20	–
3319.666	W	4	2	–
3319.643	Pr	8	–	–
3319.63	Lu	–	3 h	Me
3319.63	Th	3	3	–
3319.63	Ca	–	8	–
3319.593	Mo	10	5	–
3319.584	Cb	4	50	–
3319.58	U	8 d	–	–
3319.563	Sm	8	2	–
3319.561	Co I	8	–	–
3319.54	Er	2	1	–
3319.531	W	–	10	–
3319.524	Ru I	10	–	–
3319.478	Co	80	–	–
3319.47	Ta	3	1	–
3319.421	Dy	4	–	–
3319.41	Yb	25	–	–
3319.345	A I	–	[300]	IHu
3319.324	U	3	6	–
3319.261	Cb	5	5 h	–
3319.249	Fe	70	50	–
3319.237	Cb	5	5	–
3319.209	U	10	6	–
3319.185	Ir	3	–	–
3319.18	Yb	4	10	–
3319.16	Tb	15	–	Ed
3319.156	Co I	60	–	–
3319.122	Sm	8	2	–
3319.092	Ir I	3	–	–
3319.083	Ti II	3	4	–
3319.04	Nd	10	2	–
3319.025	Zr II	25	6	–
3319.024	V I	15	1 h	–
3319 022	W	–	4	–
3318.984	Cb	10	5	–
3318.981	Th	8	8	–
3318.964	Ce II	15	1	–
3318 908	Ru	12	3	–
3318.907	V	–	60	–
3318.87	air	–	6 wh	Sq
3318.85	U	8 d	4	–
3318 840	Ta	125	35	–
3318 822	Ru	50	8	–
3318 771	Er	15	1	–
3318.74	Hf II	3	–	Me
3318.672	Ir	2 h	–	–
3318.671	Re	30	–	–
3318.65	Au	3	4 h	–
3318.590	Os	6	5	–
3318.534	Ta	70	3	–
3318 53	Yt II	12	4	m
3318 512	Zr II	6	4	–
3318.47	Al	–	2	Gn
3318.448	Ir I	3	–	–
3318.44	Rn I	–	[5]	Rs
3318.42	Dy	2	2	–
3318.413	Nd	8	2	–
3318.403	Ce	8	–	–
3318.400	Co I	35	–	–
3318 366	Mo	4	3 h	–
3318 362	Ti I	12	6	–
3318 292	Cb	1	5	–
3318.28	Hf	6	–	Me
3318 273	U	5	1	–
3318.26	Tm	6	15	Me
3318.23	Er	10	1	–
3318.167	Os	4	4	–
3318 14	N II	–	[5]	Fl
3318.13	Dy	4	2	–
3318.095	U	5	3	–
3318.08	Cr	80 Wh	–	–
3318.05	Tb	15	3	Ed
3318.032	Na II	6	[20]	Fr
3318.025	Ti II	60	125	–
3317.989	W	8	7	–
3317.988	Hf II	25	18	–
3317.965	Ru	30	–	–
3317.928	Ta	200	25 W	–
3317.912	V	–	80	–
3317.901	Ce	4	–	–
3317.888	Ru I	50	12	–
3317.866	Sm	8	2	–
3317.857	Os	8	8	–
3317.797	Ce	15	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3317.787	U	10	–	–
3317.75	Th	6	6	–
3317.693	Sc II	2	2 hl	–
3317.62	Hg	–	[5]	Ps
3317.62	Th	6 d	4 d	–
3317.606	U	4	–	–
3317.597	Ru	3	15	–
3317.59	Pr	4	–	–
3317.58	Tb	8	3	Ed
3317.54	Sb II	2 h	2 h	–
3317.53	Ca	1 h	8	Ad
3317.525	Ir I	2	–	–
3317.47	Er	15	2	–
3317.43	U	2 d	–	–
3317.399	W II	1	15	–
3317.319	Ir I	2	–	–
3317.305	Mn	100	30 h	–
3317.30	Hg II	–	[10]	Ps
3317.276	Os	6	5	–
3317.268	Eu	3	2	–
3317.229	Gd	2	–	–
3317.224	Ce	2	–	–
3317.224	Hf II	6	1	–
3317.223	Cu I	60	20	–
3317.121	Fe I	100	80	–
3317.119	Dy	35	4	–
3317.074	W	6	5	–
3317.04	Mo	–	20	–
3317.038	Sc II	5	8	–
3317 017	Re	5	–	–
3316.983	Ce	5	–	–
3316.917	Nd	4	–	–
3316.905	W	5	9	–
3316.902	Ru	5	50	–
3316.876	V	–	60	–
3316.87	Tm	60	20	Me
3316.86	Cl II	–	[50]	Ks
3316.84	Yb	5	15	–
3316.704	U	6	3	–
3316.69	Mo	–	8	–
3316.688	Os	30	15	–
3316.636	Ir	8	–	–
3316.621	Cb	1	20	–
3316.582	Sm	25	10	–
3316.544	U	10	1 h	–
3316.540	Ce	5	–	–
3316.503	Cr I	20	10	–
3316 50	Mo	4 d	1	–
3316.48	Mn	20 h	–	Fu
3316.476	Eu	2	–	–
3316.39	Xe II	–	[5 h]	Hu
3316.389	Ti I	5	–	–
3316.386	Ru I	80	–	–
3316 385	Er	12	5	–
3316.37	Ho	–	4	Ex
3316.325	Dy	50	4	–
3316.324	Mn	12	–	–
3316.31	Ag	–	4 wh	–
3316 277	Cu II	–	10	–
3316.23	Th	5	3	–
3316.23	Cr	10	–	–
3316.207	Zr I	4	–	–
3316 20	Nd	12	6 h	–
3316.195	Sm II	5	2	–
3316.19	Hf	15	–	–
3316.17	Tm	10	20	Me
3316.14	Rn I	–	[3]	Rs
3316.113	Ce	2	–	–
3316.086	W	10 s	9	–
3316.06	Er	8	–	–
3316.047	U	8	–	–
3316 011	Nd	10	4	–
3315 803	Ba	10	–	Sz
3315.785	Ti I	5	–	–
3315.72	Kr II	–	[15 h]	Me
3315.688	Os	40	15	–
3315.663	Ni I	400 R	20	–
3315.66	Ho	4	6	Ex
3315.62	Tb	8	3	Ed
3335.614	Al II	–	[2]	Sy
3315.597	Gd	2	1	–
3315.522	V	–	4	–
3315.498	Cs	–	[10]	Sv
3315.446	Nd	12	–	–
3315.442	Ru	30	5	–
3315.44	Cl II	–	[100]	Ks
3315.421	Os	50	15	–
3315.38	Yb	3	20	–
3315.324	Ti II	12	100	–
3315.29	Cr	–	8	–
3315 237	Ti I	6	–	–
3315.228	Ru I	60	25	–
3315.219	Cb	20	20	–
3315.20	Cr I	10	–	–
3315.176	V	2	35	–
3315.112	Ce	8	–	–
3315.10	Yb	10 wh	–	–
3315.091	W	12	10	–
3315.07	Tb	15	3	Ed
3315.057	U	2	–	–
3315.047	Ru I	50	12	–
3315.046	Pt I	200	10	–
3315.035	Co I	10	–	–
3315.01	Nd	20	–	–
3314.978	Pr	10	1	–
3314.95	Dy	8	2	–
3314.941	Er	12	1	–
3314.93	Sm	3 d	1 h	–
3314.904	Mn	35	–	Fu
3314.889	Al II	–	[5]	Sy
3314.831	Th	10	10	–
3314.774	Ru	20	1	–
3314.77	Os	15 h	12	–
3314.742	Fe	200	200	I
3314.721	Ce II	25	3	–
3314.563	Cr	10	100	–
3314.541	Rh I	4	–	–
3314.536	W	5	3	–
3314.523	Ti I	10	5	–
3314.50	S II	–	[8]	Hn
3314.495	Zr II	15	10	–
3314.463	Mo	–	20	–
3314.447	Fe	15	6	–
3314.427	Er	15	2	–
3314.424	Mn	30 h	–	Fu
3314.423	Ti I	40	20	–
3314.38	Tb	15	3	Ed
3314.376	Pr	12	2	–
3314.345	Co I	8	–	–
3314 303	W	–	8	–
3314.19	Cr I	8	–	–
3314.076	Co I	100	–	–
3314.072	Fe I	5	2	–
3314.058	Ru	8	–	–
3314 053	Cr	–	30	–
3314.052	U	4	3	–
3314 04	Cs I	5	–	Bv
3314.035	Ce	20	–	–
3314 03	Hf II	5	1	Me
3314.023	W	9	6	–
3314.01	Ho	–	4	Ex
3313.97	V I	10	–	Me
3313.950	Re I	40	–	–
3313 94	U	10	10	–
3313 893	Mo	3	–	–
3313 734	Gd	5	5	–
3313 728	Fe I	3	1	–
3313.721	Cr	30	1	–
3313.718	U	2	1	–
3313.698	Zr II	10	10	–
3313.680	Ce	2 h	–	–
3313.653	Er	10	2	–
3313.65	Cb	–	5 s	–
3313.650	Th	4	50 h	–
3313 624	Mo	5	50	–
3313.595	W	4	10 l	–
3313.539	Sc II	3	10	–
3313.531	Ce	8	–	–
3313.524	Mn	12	–	–
3313 49	Er	6	1	–
3313.48	Xe	–	[2 h]	Hu
3313.47	Tb	8	–	Ed
3313.467	Al II	–	[2]	Sy
3313.459	Os	10	5	–
3313.395	Cb	–	10 h	–
3313.351	Al II	–	[10]	Sy
3313.323	Eu	35	40	–
3313 31	Dy	10	4	–
3313.300	Ce	18	1	–
3313.223	Mn	50	–	Fu
3313.221	W	3	12 d	–
3313.16	Cs I	10	–	Bv
3313.146	Nd	10	2	–
3313.120	Co	10	–	–
3313.086	Cb	5 h	3 h	–
3313.08	U	5 d	3	–
3313.04	Dy	3	–	–
3313.010	V I	5	3	–
3312.992	Ni I	15	–	–
3312.985	Pd I	15	–	–
3312.97	A	–	[3]	Rt
3312.94	Mo	1	50	–
3312 918	Pr	9	2	–
3312.865	Hf	30	10	–
3312 829	Co I	20	–	–
3312 8	Rn	–	[100]	Wo
3312 80	Tb	15	3	Ed
3312.78	Cl II	–	[15]	Ks
3312 743	Nd	10	2	–
3312.736	Sc II	5	8	–
3312.729	Dy	50	5	–
3312.703	Fe II	5	3	–
3312 70	Cr	3	–	–
3312 700	U	15 r	–	–
3312 690	Ti I	15	4	–
3312 64	Ag	–	8 h	–
3312 600	Cb	40	50	–
3312 53	Tb	15	3	Ed
3312.488	Pt	2	2 h	–
3312.424	Er	25	15	–
3312 415	Sm II	12	10	–
3312.4	air	–	7	–
3312.40	U	4	3	–
3312.39	Yt II	10	10	–
3312.330	Mo	15	8	–
3312.33	Dy	4	2	–
3312.321	Pr	9	2	–
3312 320	Ni I	70	2	–
3312.31	Hg II	–	[18]	Ps
3312.294	Re I	25	–	–
3312 277	Co I	3	–	–
3312.226	Fe	5	2	–
3312 224	Ru	4	–	–
3312 215	Ce	30	5	–
3312.179	Cr II	5	125	Hl
3312 17	Eu	3 w	1	–
3312.148	Co I	60	2	–
3312.134	Ir I	25	15	–
3312 11	Lu	100	10	Me
3312.081	Cr I	10	–	–
3312.08	Th	3	4	–
3312 027	Os	8	5	–
3311 929	Cr II	6	125	Hl
3311.905	Mn	75	–	–
3311.85	Sr	1	4	Sd
3311.80	Xe II	–	[2]	Hu
3311.732	Ce	2 h	–	–
3311.72	U	10 d	12	–
3311.708	Sc II	3	6	–
3311.52	Cs	–	[4]	Bs
3311.51	Dy	5	–	–
3311.497	Ce	15	1	–
3311.46	Ca	–	6	Ad
3311.453	Fe I	1	1	–
3311.388	Ce	3	–	–
3311.382	W	15 l	12	–
3311.35	U	4 d	1 h	–
3311.339	Zr II	8	3	–
3311.338	Cb	5	10	–
3311.30	Ne II	–	[7]	Bn
3311.30	Cr I	8	–	–
3311.26	A	–	[5]	Rt
3311.162	Ta	300 w	70 w	–
3311.112	W	5	4	–
3311.09	Er	3	–	–
3311.023	Pd	4	2 h	–
3311.023	Ir I	2	–	–
3311.00	Cu I	3	–	Hs
3310.96	Dy	5	3	–
3310.957	Ru I	30	5	–
3310.912	Os	200	30	–
3310.900	Nd	25	2	–
3310.877	Ce	10	–	–
3310.87	U	2 d	2	–
3310.856	Hf II	15	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3310.80	Eu	3 wh	1	–
3310.80	Tb	8	3	Ed
3310.771	Mo	20	20	–
3310.662	Cb	–	15 wh	–
3310.655	Sm II	25	10	–
3310.647	Cr	2	200	–
3310.629	Ce	5	–	–
3310.624	U	10	–	–
3310.62	La II	2	3	Me
3310.587	Tm	60	20	Me
3310.551	Zr	3	–	–
3310.525	Ir I	30	12	–
3310.52	Th	3 d	4 d	–
3310.51	Ag I	2	–	Bx
3310.50	U	6 d	8 d	–
3310.489	Fe	50	40	–
3310.47	A	–	[3]	Ms
3310.468	Cb	10	10	–
3310.405	Mo	3	3	–
3310.38	Xe	–	[2]	Hu
3310.360	Nd	8	2	–
3310.342	Fe	100	80	–
3310.34	Eu	2 w	2	–
3310.329	Sm	4	–	–
3310.274	Hf	20	5	–
3310.249	Th	8	15	–
3310.202	Ni I	50	–	–
3310.20	W	–	12	–
3310.123	Pd I	6	–	–
3310.093	Cb	3	5 h	–
3310.086	Ru	4	–	–
3310.057	Mo	4	8	–
3309.99	I	–	[5]	Bl
3309.90	Au II	–	3 h	Ex
3309.889	Zr II	5	3	–
3309.836	Cr	30	2	–
3309.834	Ce	5	–	–
3309.825	Ru	4	–	–
3309.80	Tm	80	60	Me
3309.800	Cb	3	4	–
3309.78	Ne II	–	[7]	Bl
3309.778	Ta	70	5	–
3309.730	Ti I	12	2	–
3309.667	Os	10	8	–
3309.659	U	10	2	–
3309.54	Rh	2	–	–
3309.516	Sm II	20	8	–
3309.501	Ti I	60	25	–
3309.500	Ce	2	–	–
3309.473	W	8	7	–
3309.428	Ni	4	–	–
3309.42	Mo	3	25	–
3309.395	Ir I	5	1 h	–
3309.39	A	–	[3]	Rt
3309.39	Xe	–	[2 h]	Hu
3309.37	Yb	12	30	–
3309.362	Th	4	1	–
3309.321	Re	6	–	–
3309.281	Cb	–	10	–
3309.273	Ce	10	1	–
3309.212	U	–	3 h	–
3309.2	Pb II	–	[15]	Ea
3309.187	Hf	15	1	–
3309.176	V I	30	20	–
3309.17	Tb	15	3	Ed
3309.137	Th	6	8	–
3309.132	Ce	8	–	–
3309.128	Pr	10	1	–
3309.017	Co	2	–	–
3308.977	Eu	2 h	2	–
3308.932	Sm	10	4	–
3308.898	U	3	3	–
3308.89	Dy	25	–	–
3308.886	Ta	18 w	–	–
3308.88	Er	15	2	–
3308.876	Re	15	–	–
3308.86	Ho	–	4	Ex
3308.85	P II	–	[100 w]	Gu
3308.809	Co I	40	–	–
3308.806	Ti II	35	100	–
3308.80	Ca	1 h	7	–
3308.785	Mn	20	–	–
3308.749	Fe	5	3	–
3308.719	U	2	1	–
3308 691	Ce	2	–	–
3308.69	Er	3	–	–
3308.626	Ru I	10	–	–
3308.545	Ta	20	1 h	–
3308.51	Tb	15	8	Ed
3308.488	Co I	30	–	–
3308.479	V	–	80	–
3308.475	Re	4	–	–
3308.47	Yt II	10	20	m
3308.465	Sm	3	2	–
3308.442	Ir I	2	–	–
3308.43	U	6	1	–
3308.391	Ti I	50	10	–
3308.342	W	3 d	25	–
3308.342	Pr	10	1	–
3308.310	Au I	50	15	–
3308.271	Ce	2	–	–
3308.250	Re	20	–	–
3308.246	V I	10	1	–
3308.088	Ce	10	–	–
3308.084	Sm	4 h	1	–
3308.071	Th	2	2	–
3308.05	Dy	2	–	–
3308.046	Cb	10	10	–
3308.018	Eu	20	30	–
3308.017	Ce	15	–	–
3308.01	Tm	20	15	Me
3308.0	bh Ca	4	–	L
3307.984	Ru I	50	–	–
3307.97	Nd	20	2	–
3307.948	Cu I	60	30	IBu
3307.948	Rh I	5	–	–
3307.90	Cl II	–	[50]	Ks
3307.802	Nd	15	2	–
3307.80	Tb	8	3	Ed
3307.755	Cr I	40	8	–
3307.717	Ti II	6	12	–
3307 630	Ir I	5	–	–
3307 554	U	8	6	–
3307.544	Ru	8	–	–
3307.534	Sr I	200	10 s	ISn
3307.473	Co I	4	–	–
3307.46	Er	12	2	–
3307.44	Tb	30	15	Ed
3307.428	Mo	–	50	–
3307.30	Eu	2 h	2	–
3307.24	A	–	[15]	Rt
3307 233	Ce II	25	1	–
3307.232	Fe	80	60	–
3307.154	Co I	80	–	–
3307.146	Fe	3	2	–
3307.122	Mo	30	15	–
3307.077	Ta	35	1 h	–
3307.07	Pd	4 l	–	–
3307.016	Sm	40	15	–
3307.013	Ni I	3	–	–
3307.012	Fe	5	4	–
3307.010	Re	15 h	–	–
3307.005	Mn	15	–	–
3306 99	Te	–	[150]	Bl
3306.98	La II	10	8	–
3306.93	Rb	–	[15]	Ok
3306.91	Tm	25	20	Me
3306 879	Ti I	30	12	–
3306.79	Dy	2	2	–
3306 785	Pr	5	–	–
3306.78	Yb	10	30	–
3306.7	Rn	–	[100]	Pe
3306.648	Mo	8	5	–
3306.632	Ce	20	–	–
3306.616	Sm	10	4	–
3306.54	O II	–	[20 l]	Mh
3306.50	A	–	[3]	Rt
3306.481	Re	2	–	–
3306.45	Cl II	–	[40]	Ks
3306.41	Tb	15	–	Ed
3306.375	Nd	12	12	–
3306.372	Sm II	100	40	–
3306.354	Fe I	200	150	I
3306.278	Zr II	80	80	–
3306.275	Pr	6	2	–
3306.233	Os	80	12	–
3306.217	U	6	6	–
3306 19	Dy	12	6	–
3306.182	Ce	5	–	–
3306.172	Ru I	60	12	–
3306.17	Kr I	–	[7]	Me
3306.157	W	–	7	–
3306.118	Hf	15	3	–
3306.053	Ti II	–	10	–
3306.048	Ce	8	–	–
3306 02	Tm	20	15	Me
3305.971	Fe I	400	300	I
3305.96	Zn II	–	[20]	Vs
3305.926	U	10	12	–
3305.905	Mo	15	10	–
3305.845	Ir	3	1	–
3305.752	Ti I	3	–	–
3305.750	Sm	5	4	–
3305.731	Co I	20	–	–
3305.73	Yb	30	125	–
3305.73	Tb	8	–	Ed
3305.68	Lu	2	1	Me
3305.643	Ir I	2	–	–
3305.64	Ag	5	2 h	–
3305.609	Cb	1	100	–
3305.568	Er	15	3	–
3305.565	Mo	40	30	–
3305.564	W	10	8	–
3305 47	Dy	10 d	5 d	–
3305.4	bh B	50	–	L
3305 377	Os	20	10	–
3305 37	Tb	8	3	Ed
3305.337	Ta	15	1 h	–
3305.33	Nd	8	2	–
3305.318	Th	2 h	–	–
3305.296	Ti I	7	–	–
3305.25	Yb	20	–	–
3305.25	Mo	–	15	–
3305.23	Cr	25	–	–
3305.179	Sm II	15	7	–
3305.172	Rh I	40	10	–
3305.16	Ho	6	4 h	Ex
3305.152	Zr II	25	20	–
3305.135	Fe	5	2	–
3305.124	U	2	1 h	–
3305.120	Er	5 wh	–	–
3305.110	Co I	8	–	–
3305 09	O II	–	[20 l]	Mh
3305.09	Hg I	2	–	Cn
3305.051	Ce	10	–	–
3304.95	Tb	15	3	Ed
3304.950	Ni I	25	–	–
3304.923	Ir I	8	–	–
3304.894	Mn	8	8 h	–
3304.836	Ce	30	3	–
3304.832	Cb	10	5	–
3304 825	Ru I	50	3	–
3304.80	Zn II	–	[2]	Vs
3304.790	Co I	5	–	–
3304.76	Yb	12	40	–
3304.741	Cr	–	2	–
3304.717	Cb	1	30	–
3304.71	Dy	3	–	–
3304.649	Nd	8	–	–
3304.639	Ru I	6	–	–
3304.63	Sb II	–	2	Dv
3304.56	Yb	15	40	–
3304.521	Sm II	30	8	–
3304.52	Mo	–	20	–
3304.507	Ru I	12	2	–
3304.495	Eu	20	–	–
3304.47	W	10 w	20	–
3304.470	V	–	125	–
3304.42	Rb	–	[20]	Ok
3304.375	Ta	70	15	–
3304.326	Cr I	30 h	–	–
3304.30	Dy	4	–	–
3304.239	Th	15	3	–
3304.224	Mo	25	10	–
3304.200	Eu	7	2	–
3304.140	Rh I	4	–	–
3304.119	Co I	15	–	–
3304.11	Sb	–	40 wh	Sp
3304.10	Tb	15	3	Ed
3304.074	Er	10	–	–
3304.039	Ta	35	3	–
3304.022	Ce	3	–	–
3304.01	Yt II	5	7	–
3303.995	Ru	60	8	–
3303.957	Mo	2	15	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3303.95	Er	10	2	–
3303.89	F II	–	[20]	Di
3303.878	Co I	60 r	–	–
3303.845	U	6	–	–
3303.771	Ce	8	–	–
3303.753	Re I	40	–	–
3303.72	Cs	–	[4]	Bs
3303.670	Ce	5	–	–
3303.660	W	6	–	–
3303.628	Ir	4	–	–
3303.605	Sm	5	–	–
3303.60	Dy	2	–	–
3303.597	U	10	12	–
3303.567	Fe	70	10	–
3303.54	Mo	–	20	–
3303.516	Cu II	–	2	Sh
3303.487	Th	5	10	–
3303.471	Fe II	5	5	–
3303.370	U	4	3 h	–
3303.342	Mo	25	5	–
3303.335	W	7	3	–
3303.320	Cb	1	30	–
3303.278	Mn	40	–	–
3303.225	Ce II	10	–	–
3303.212	Re	30	–	–
3303.113	Mo	4	2	–
3303.11	La II	400	150	–
3303.091	Ir I	3	–	–
3303.080	I II	–	[25]	Ke
3302.988	Na I	300 R	150 R	–
3302.941	Zn	700 R	300 R	Hz
3302.94	Ca	4	6	–
3302.913	Ce	10 W	–	–
3302.876	Cr	30	2	–
3302.859	Fe II	1	5	–
3302.82	U	6	4	–
3302 765	Ta	50	1 h	–
3302.716	Mo	–	25	–
3302.666	Zr II	10	6	–
3302.66	Pr	15	2	–
3302.64	Tb	8	–	Ed
3302.621	Cb	1	10	–
3302.588	Zn I	800	300	Hz
3302 563	I II	–	[10]	Mu
3302.55	Bi	150	–	To
3302 54	Kr I	–	[10]	Me
3302.51	B	–	10	Sy
3302.492	U	3	1	–
3302 489	I II	–	[5]	Mu
3302.472	Dy	4	2	–
3302 45	Tm	125	80	Me
3302 44	Yb	7	5	–
3302.432	I II	–	[2]	Mu
3302.328	Ta	3	1 h	–
3302 323	Na I	600 R	300 R	–
3302 28	Kr	–	[4 hl]	Me
3302.26	U	1 h	2 h	–
3302.227	Re	30	–	–
3302 19	Cr	50 h	1 h	–
3302.176	Cb	5	10	–
3302 17	Yt	5	2	Ed
3302 128	Pd I	1000 wh	200 h	–
3302 12	Pt	2 h	–	–
3302.096	Ti II	8	20	–
3302.092	Sm	8	4	–
3302.02	Dy	2	–	–
3301.95	Eu	25	2	–
3301 93	Er	15	2	–
3301 911	Ru	30	8	–
3301.905	Ce	10	–	–
3301.898	Pr	10	–	–
3301.895	Ta	25	3	–
3301.87	A	–	[10]	Rt
3301 861	Pt I	300	250 W	–
3301.86	Al	–	2	Gn
3301.85	W II	1	10	–
3301.757	Ir I	2	–	–
3301 754	U	10	3	–
3301.75	Kr II	–	[5,h]	Me
3301.734	Sr I	100	10	ISn
3301.72	Dy	2	–	–
3301.707	Mo	4	4	–
3301.68	Er	3	–	–
3301.672	Sm II	15	8	–
3301.652	Ce	3	–	–
3301.651	Th	6	1 h	–
3301.651	V	–	80	Me
3301.650	U	6	1	–
3301.60	K II	–	[10]	Bn
3301.600	Re I	50	–	–
3301.587	Ru I	70	40	–
3301.57	Eu	15 w	1	–
3301.56	O II	–	[10 l]	Fl
3301.559	Os I	500 R	50	–
3301.55	Ag	–	8 h	–
3301.52	Ca	4	6	Ad
3301.51	Tm	5	10	Me
3301.491	Cb	1	100	–
3301.48	Te	–	[5]	Bl
3301.426	Fe	1	–	–
3301.41	F II	–	[6]	Di
3301.347	Th	6 d	5 d	–
3301.346	Na II	–	[5]	Fr
3301.28	W	2	8	–
3301.24	Eu	4 w	1	–
3301.230	Ce	3	–	–
3301.228	Cu	–	15	Sh
3301.222	Fe	15	7	–
3301.22	Cr	–	15	–
3301.18	Te	–	[5]	Bl
3301.13	Br	–	[4]	Bl
3301.094	U	8	1	–
3301.08	Er	10	–	–
3300.970	Sm II	20	10	–
3300.970	Re I	25	–	–
3300.955	Ce	8	–	–
3300.948	Mn	3	–	–
3300.93	Dy	4	2	–
3300.908	Nd	8 d	2 d	–
3300.903	V	–	35	Me
3300.885	Cu II	–	6	Sh
3300.86	Cl	–	[6]	Jv
3300.820	W	15 l	12	–
3300.819	Zr	2	–	–
3300.80	Cr	10	–	–
3300.75	Eu	4	1 h	Kn
3300.73	Rb II	–	[10]	Ok
3300.689	Mo	6	6	–
3300.676	U	15 h	8 h	–
3300.644	Cu II	–	3	Sh
3300.613	Th	5	–	–
3300.597	Mo	–	15	–
3300.577	Er	12	–	–
3300.49	Th	–	30 h	Ex
3300.465	Rh I	100	20	–
3300 444	Cu II	–	2	Sh
3300.39	A I	–	[20]	Ms
3300 38	Eu	3	2	–
3300.356	Rh I	5	–	–
3300 355	Pr	5	1	–
3300.345	Cb	–	10 h	–
3300 337	W	6	10	–
3300.28	Tb	8	–	Ed
3300 18	Kr II	–	[4 wh]	Me
3300 152	Ce	30	3	–
3300 148	Nd	10	6	–
3300.105	Sm	9	2	–
3300 09	F	–	[3 hd]	Di
3299.985	Ce	15	1	–
3299.973	V I	5	4	–
3299 96	Tb	15	–	Ed
3299.86	Cs	–	[6]	Sv
3299.791	Ru I	3	–	–
3299.79	Bi II	–	[15]]	Ml
3299.784	Mo	3	–	–
3299 767	Ta	70	10	–
3299.738	W	3	12	–
3299.697	U	8	6	–
3299.669	Th	5	8	–
3299 609	Cb	5	10	–
3299.57	Bi II	–	[10]	Ml
3299.56	Cb	–	10	–
3299.506	Fe I	4	2	–
3299.453	Ag	–	5 h	–
3299.42	Er	10	–	–
3299.413	Ti I	50	35	–
3299.39	Zn II	–	[15]	Vs
3299.375	U	4	2	–
3299 334	Ru I	50	4	–
3299.3	Bi II	2 h	3	Ml
3299.27	Tb	15	–	Ed
3299.257	Ta	5	1	–
3299.15	Dy	2	–	–
3299.14	Eu	2	1 h	–
3299.086	V I	10	2	–
3299.075	Fe	5	2	–
3299 059	Mo	5	1	–
3298 997	Sm	1	2 h	–
3298 97	Cd	15	–	Ps
3298.956	Hf	8	6	–
3298.940	Rh I	3	–	–
3298.89	Eu	2	1 h	–
3298.888	U	5	–	–
3298.805	Eu	3	–	–
3298.736	V II	12	80	–
3298.72	La	2 h	3 h	Me
3298.72	Te	–	[5]	Bl
3298.72	Xe II	–	[4]	Hu
3298.716	U	4	–	–
3298.676	Co I	70	2	–
3298.66	Tb	30	8	Ed
3298.609	Nd	8	6	–
3298.411	Ru I	50	25 R	–
3298.410	Ir I	2	–	–
3298.405	Cb	3	5	–
3298.368	U	4	–	–
3298.346	Ce	15	–	–
3298.32	Eu	5 w	2 w	–
3298.318	Cr	30	8	–
3298.224	Mn	50	25 h	–
3298.20	Ba	3	4	–
3298.186	Ce	4	–	–
3298.139	V I	50	15	–
3298.133	Fe I	200	150	S
3298.129	W	12 s	10	–
3298.104	Sm	60	60	–
3298.052	Th	4	1 h	–
3297.955	Ru I	50	6	–
3297.954	Ce	4	–	–
3297.925	Ir	2 h	–	–
3297.891	Fe II	4	15	–
3297.886	U	6	18	–
3297.85	Yb	4	20	–
3297.828	Th	10	12	–
3297.787	Ti I	7	–	–
3297.74	Ne II	–	[40]	Bl
3297.684	Mo	1	60	–
3297.664	Cb	1	30	–
3297.64	Ag	3	4 h	Fn
3297.64	Pb	–	30	Sx
3297.634	Zr I	2	–	–
3297.607	Dy	6	2	–
3297.543	Mo	5	–	–
3297.517	V	–	60	–
3297.508	Ir	3	1 h	–
3297 48	Eu	3	–	–
3297 373	Th	6	10	–
3297 290	Cb	5 r	2 h	–
3297.286	Rh I	5	–	–
3297.258	Ru	50	4	–
3297.253	Ti I	3	–	–
3297.199	Cu II	–	5	Sh
3297.193	Ta	18 h	1 wh	–
3297.15	La II	2	2	–
3297.095	Ti I	4	–	–
3297.06	Ho	–	4 h	Ex
3297.048	Cb	3	50	–
3296 991	Re I	60	–	–
3296 973	Zr	2	–	–
3296 883	Ce	25	2	–
3296.882	Mn	60	30	–
3296.803	Fe	3	2 h	–
3296.763	Ce	2	–	–
3296.786	He I	–	[7]	Ps
3296.733	Zr I	3	–	–
3296.717	Rh I	40	10	–
3296 698	Re I	80	–	–
3296 649	Ru I	50	5	–
3296.607	Th	8	10	–
3296.582	Mo	–	25	
3296 56	F II	–	[15]	Di
3296 478	Cb	5	3	Me
3296 467	Fe	12	6	–
3296 404	Mo	15	5	–
3296.398	Zr II	8	6	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3296.390	Pr	10	2	–
3296.373	Ti	7	–	–
3296.31	Dy	10	2	–
3296.29	Mo	–	5	–
3296.226	U	6	–	–
3296.218	Ti I	2	–	–
3296.19	F II	–	[3]	Di
3296.185	Ce	20	2	–
3296.111	Ru I	50	10	–
3296.052	V	–	30	–
3296.032	U	2	–	–
3296.03	Tb	8	–	Ed
3296.027	Mn	20	–	–
3296.012	Cb	20	40	–
3295.92	Dy	2	1	–
3295.91	Bi	–	2	Om
3295.90	I	–	[2]	Ke
3295.816	Fe II	4	30	–
3295.806	Sm II	30	10	–
3295.770	Th	3	–	–
3295.655	Ti I	5	–	–
3295.529	Th	10	10	–
3295.528	Pr	10	2	–
3295.518	U	4	6	–
3295.503	Cb	1	20	–
3295.467	Ag	–	4 h	–
3295.45	Eu	2 w	–	–
3295.440	Sm	30	10	–
3295.432	Mo	5	5	–
3295.427	Cr II	10	200	–
3295.420	Fe II	1	4	Do
3295.383	U	3	1	–
3295.33	Tb	15	3	Ed
3295.326	Ta	125 W	20 w	–
3295.320	Th	10	10	–
3295.29	Kr	–	[3 h]	Me
3295.289	Ce I, II	30	3	–
3295.231	U	3	2	–
3295.205	Dy	3	1 h	–
3295.181	Mo	3	1	–
3295 103	Cu II	–	8	Sh
3295.09	O II	–	[10 l]	Mh
3295.087	Ir I	8	–	–
3295.08	Tb	8	–	Ed
3295.023	Zr II	2	–	–
3295.000	Th	8	8	–
3294.948	Ce	20	–	–
3294.942	Pr	3	–	–
3294.94	Dy	3	1	–
3294.903	Ti I	20	4	–
3294.851	Mo	15	5	–
3294.831	Re I	30	–	–
3294.812	U	3	2	–
3294.80	I	–	[2]	Ke
3294.714	Ta	18	1	–
3294.68	Hf II	4	5 h	Me
3294 661	Nd	8	2	–
3294.661	Dy	2	–	–
3294.606	Ce	3	–	–
3294.536	Co I	8	–	–
3294.53	Ca	–	2	Ad
3294.53	Th	4	3	–
3294.444	U	8	8	–
3294.44	La II	2	5	Me
3294.43	Kr	–	[2 h]	Me
3294.37	F II	–	[10]	Di
3294.360	Cb	2	100	–
3294.34	Yb	3	20	–
3294.278	Rh I	60	25	–
3294 239	Th	5	5	–
3294.110	Ru I	60	200	–
3294.098	Co I	3	–	–
3294.086	Gd	2	–	–
3294.04	Tb	50	3	Ed
3293.95	A	–	[5]	Rt
3293.945	Ce	3	–	–
3293.944	U	2	1	–
3293.943	Th	10	10	–
3293.930	Ta	70	10	–
3293.861	Co I	40 R	–	–
3293.844	Mo	4	1	–
3293.83	Cr	30	1	–
3293 82	Dy	9	1	–
3293.820	Nd	12	4	–
3293.797	Sm II	4	1	–
3293.707	W	10	10	–
3293.67	Yt	2	2	–
3293.66	A	–	[25]	Rt
3293.656	Mo	6	1	–
3293.64	Th	3 d	3 d	–
3293.605	Sm	5	1	Kn
3293.597	Th	4	4	–
3293.595	Zr	2	–	–
3293.590	U	30	5	–
3293.589	Ce	18	–	–
3293.536	Sm II	3	1	–
3293.450	Zr I	2	–	–
3293.43	Te	–	[10]	Bl
3293.43	Yt	2	2	–
3293.360	Sm II	15	8	–
3293.328	U	2	–	–
3293.212	Co I	15	–	–
3293.162	Os	4	3	–
3293.150	V	–	50	–
3293.142	Fe	10	5	–
3293.07	Tb	50	100	Ed
3293.01	Ag	–	2 h	–
3292.983	Mo	1	10	–
3292.943	U	10	2	–
3292.929	Ce	12	–	–
3292.903	Cu I	8	2	Hs
3292.830	Cu I	10	2	–
3292.802	W	7	5	–
3292.590	Fe I	300	150	–
3292.518	Th	10	12	–
3292.51	Ca	1 h	3	Ad
3292.482	Ta	70	3	–
3292.393	Cu I	6	1 h	–
3292.372	Cb	–	20	–
3292.312	Mo	10	300	–
3292.265	Ru	12	–	–
3292.215	Gd	10	10	–
3292.124	Cu II	–	5	Sh
3292.11	Cd II	–	[2]	Tk
3292.099	Ce	2	–	–
3292.087	Co I	18	–	–
3292.075	Ti I	70	40	–
3292.023	Fe	150	125	–
3292.020	Cb	3	100	–
3291.918	Cb	3	2	–
3291.887	Ta	35	1 h	–
3291.762	Cr	10	200	–
3291.743	Th	10	12	–
3291.676	V I	10	4	–
3291.659	Ru	12	–	–
3291.64	Eu	3	–	–
3291.595	Mo	8	4	–
3291.56	Tb	15	8	Ed
3291.490	Gd	2	–	–
3291.47	A	–	[5]	Rt
3291.423	Sm	6	6 h	–
3291 41	Eu	2 h	–	–
3291.410	Ta	1	5	–
3291.36	Th	2 w	2 w	–
3291.335	U	12	10	–
3291.27	Er	5	1	–
3291.127	Os	10	5	–
3291.119	Dy	4	–	–
3291.117	Ru I	20	–	–
3291.1	Br	–	[3]	Bl
3291.075	Ti I	2	–	–
3291.059	Cb	10	100	–
3291.050	Hf	20	6 h	–
3291 01	Tl II	–	[40]	El
3291.00	Tb	8	–	Ed
3291.00	Tm	125	80	Me
3290.99	Cr	30 Wh	–	–
3290.989	Fe I	125	80	–
3290.988	Mn	10	–	–
3290.96	Ho	8	6	Ex
3290.896	Ir	2 h	–	–
3290.823	Mo	40	100	–
3290.719	Fe	15	7	–
3290 65	K II	–	[10 h]	Bn
3290.643	Nd	10	6	–
3290.639	Sm	10	5	–
3290.60	Yt	3 d	2	–
3290.59	Th	–	40 h	–
3290.577	Ce	10	1	–
3290.544	Cu I	25	25	–
3290.508	W	6	5	–
3290.473	U	6	5	–
3290.42	Ca	1 h	3	Ad
3290.381	Sm II	10	8	–
3290.341	Ce II	20	1	–
3290.282	Sm	10	4	–
3290.263	Os	200	20	–
3290.258	Ir I	2	–	–
3290.238	V	2	70	–
3290.220	Pt I	150	10	–
3290.127	Th	6	5	–
3290.121	U	8	–	–
3290.098	Re I	5 h	–	–
3290.08	O II	–	[18 l]	Mh
3290.042	U	8	–	–
3290.041	Fe	3	2	–
3290.008	Cb	10	10	–
3289.95	A I	–	[3]	Ms
3289.944	Ce	4	–	–
3289.85	Yb	1000	–	Kn
3289.85	Yt	15	10	–
3289.844	Mo	10	10	–
3289.838	Ta	25	1	–
3289.790	Ce	2	–	–
3289.749	U	2	1	–
3289.74	Hf II	5	3	Me
3289.72	Cl	–	[12]	Jv
3289.636	Rh	50 r	5	–
3289.548	Cb	–	10	–
3289.523	Ce	2	–	–
3289.450	Cb	2	1	–
3289.436	Fe	10	4	–
3289.39	A I	–	[3]	Ms
3289.389	V II	10	70	–
3289.38	Eu	2	–	–
3289.38	Ho	10	20	Ex
3289.37	Yb	500 R	1000 R	–
3289 36	Er	25	8	–
3289.346	Fe II	–	40	–
3289.34	Dy	2	2 h	–
3289.307	U	4	4	–
3289.280	Ce	10	–	–
3289 245	Ru	5	–	–
3289.170	Ag	–	5	–
3289.138	Rh I	150	50	–
3289.13	Cs I	2	–	Bv
3289 015	Mo	40	30	–
3288 982	V	10	15	Me
3288.967	Fe	30	15	–
3288 941	Ce	2	–	–
3288 897	Ti I	2	–	–
3288 858	I II	–	[8]	Ke
3288 837	Os	30	15	–
3288 803	Zr II	10	7	–
3288.770	Ce	15	–	–
3288 654	Fe	15	6	–
3288 650	Pr	12	1	–
3288 635	Dy	5	–	–
3288 575	Ti II	12	20	–
3288.561	Ce	2	–	–
3288 56	Cs I	4	–	Bv
3288 53	Eu	5	–	–
3288.466	Ta	18	1 h	–
3288.46	Ho	6	6	Ex
3288.433	V I	8	2	–
3288.43	Eu	2	1 h	–
3288.428	Ti II	6	8	–
3288 355	I	–	[35]	Ke
3288.343	Ce	2	–	–
3288.32	Tb	8	–	Ed
3288.311	V	1	30	–
3288.209	U	25	20	–
3288.199	Ce	3	–	–
3288.15	S	–	[8]	Bl
3288.147	Ce	12	–	–
3288.142	Ti I, II	10	6	–
3288.1	bh Sr	4	–	L
3288.039	Rh I	4	–	–
3288.00	Sr	1 h	5	Sd
3287.96	Te	–	[15]	Bl
3287.96	Er	10 s	2	–
3287.953	Dy	5	2	–
3287.920	Cb	5	5	–
3287.884	Ce	10	–	–
3287.855	U	2	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3287.827	Co I	5	–	–
3287.790	Ce	6	–	–
3287.737	Th	12	15	–
3287.69	Kr II	–	[2 wh]	Me
3287.676	Fe	1	–	–
3287.655	Ti II	40	200	–
3287.593	Cb	25	2	–
3287.589	Ir I	12	1	–
3287.571	Co I	18	2	–
3287.57	O II	–	[70 l]	Mh
3287.55	Tb	30	8	Ed
3287.51	Eu	4	4	–
3287.448	U	6	8	–
3287.41	Nd	6	2 h	–
3287.4	bh Ca	8	–	L
3287.399	Ce	10	–	–
3287.383	Mo	20	4	–
3287.38	Kr II	–	[2 h]	Me
3287.304	Zr II	4	2	–
3287.265	Ta	50	–	–
3287.249	Pd I	300 w	25	–
3287.221	Ni I	3	–	–
3287.202	Mo	1	25	–
3287.194	Co I	60	–	–
3287.15	Sb	1 h	2 h	–
3287.134	Re	20 h	–	–
3287.113	Fe	5	3	–
3287.058	Ir I	12	1	–
3286.97	Yb	7	30	–
3286.946	Ni I	100	1	–
3286.834	Al	–	2	Gn
3286 828	Ce	4	–	–
3286.756	Ti II	10	10	–
3286.755	Ba	1	7	–
3286.755	Fe I	500	400	S
3286.754	Er	12	2	–
3286.71	Yt II	4	2 h	m
3286.676	Ce	4	–	–
3286 674	Os	30	5	–
3286.607	Nd	6	2	–
3286.577	Th	10	12	–
3286.573	Dy	2	–	–
3286.561	W II	5	12	–
3286.545	Co I	3	–	–
3286.528	Sm II	10	3	–
3286.47	Rb	–	[60]	Ok
3286.446	Fe	5 h	3 h	–
3286.437	U	2	3	–
3286.430	Ta	3	1 h	–
3286.396	Rh I	5	–	–
3286 375	Ce	8	–	–
3286.36	Cr	20	1	–
3286.333	Cb	1	20	–
3286.251	U	3	2	–
3286 223	Sm II	40	10	–
3286.216	Ce	5	–	–
3286.18	Er	10	2	–
3286.067	Ca I	30	2	IWg
3286.029	Ce I, II	18	1	–
3286.022	Fe I	30	15	–
3285.996	Mo	4	1	–
3285.98	Cd	–	[12]	Es
3285.920	U	3	2	–
3285.910	Ru	4	–	–
3285.902	Eu	20	–	–
3285 883	Zr II	10	8	–
3285.874	Co	5	–	–
3285.87	A	–	[10]	Rt
3285.849	Pr	12	2	–
3285.81	Ca	–	2	Ad
3285.80	In	–	3 wh	Sq
3285.786	Ce	3 w	–	–
3285.762	Zr II	4	3	–
3285.752	Th	8	1	–
3285.748	Na II	40	[100]	–
3285.70	Cb	–	10 w	–
3285 670	V	–	3	Me
3285.659	Cb	5	5	–
3285.657	Sm II	25	7	–
3285.654	Re	25	–	–
3285.61	Tm	40	40	Me
3285.607	Mo	1	4	–
3285.60	Er	15	2	–
3285.60	Yb	7	–	–
3285.589	U	5	2	–
3285.415	Fe II	60	40	–
3285.359	Mo	20	10	–
3285.34	Ca	3	5	–
3285.29	Te	–	[5]	Bl
3285.259	Sm II	6	1	–
3285.254	Ti I	7	–	–
3285.224	Ce II	35	5	–
3285 223	U	12	10	–
3285.20	Fe	4	2	–
3285.190	Zr I	4	–	–
3285.104	Co	6 h	–	–
3285.093	Nd	10	4	–
3285.052	Ti I	4	–	–
3285.04	Tb	30	8	Ed
3285.024	V	4	40	–
3285.024	Mo	15	5	–
3284.932	Ru I	30	5	–
3284.713	Zr II	25	30	–
3284.68	S	–	[15]	Bl
3284.622	Mo	–	40	–
3284.612	Ta	18	–	–
3284.606	Ce	8	–	–
3284.59	Tb	8	–	Ed
3284.588	Fe I	200	125	S
3284.568	Ir I	3	1	–
3284.560	Mo	3	–	–
3284.537	Os	6	1	–
3284.421	Ce	8	–	–
3284.395	Eu	4	–	–
3284.37	Dy	2	1	–
3284.368	U	6	2	–
3284.360	V I	25	5	–
3284.340	Ni	2	–	–
3284.218	Ce II	20	–	–
3284.10	Th	–	8 h	–
3283.95	La II	3	4	Me
3283 950	Ti I	6	–	–
3283.888	Ce	3	–	–
3283.885	Sm	5 h	2 h	–
3283.82	Cd	–	[12]	Es
3283.81	Tb	8	3	Ed
3283.807	Ta	3	2 wh	–
3283.777	Co I	60 W	–	–
3283 75	U	2 d	2 d	–
3283.740	Sm	5 h	–	–
3283.706	Eu	2	5	–
3283 69	Si	–	2	Sy
3283.680	Ce II	25	1	–
3283.586	Ir I	20 Rh	–	–
3283 573	Rh I	150	–	–
3283.556	W	9	8	–
3283 543	Cd II	–	2	–
3283.543	Fe	7	3	–
3283.537	U	3	–	–
3283.51	Sn II	–	100 h	–
3283.463	Cb	2	100	–
3283.462	Co I	80	–	–
3283.427	Fe I	4	2	–
3283.40	Tm	40	40	Me
3283.39	Yb	12	–	–
3283.384	Hf II	10	6	–
3283.365	Mo	5	1	–
3283.354	Ce	20 s	1	–
3283 329	Co I	7	–	–
3283.32	Ca	–	2	Ad
3283.32	Cl	–	[10]	Jv
3283.312	Pt I	8	3	–
3283.311	V I	35	10	–
3283.21	Sn II	–	[50]	Mc
3283.21	Yt	3	4	–
3283.209	Pt	8	–	–
3283.20	P	–	[15]	Gu
3283.175	Ce	3	–	–
3283.121	Pr	15	2	–
3283.104	U	6	4	–
3283.10	Tb	30	8	Ed
3283.07	Ho	–	4 h	Ex
3283.06	Cr	–	35	–
3282.969	Th	8	12	–
3282.909	Mo	1	30	–
3282.892	Fe	80	80	–
3282.890	Be I	8	–	–
3282.834	Zr II	10	10	–
3282.827	Ni I	25	1	–
3282.79	Dy	2	1	–
3282.777	Nd	8	2	–
3282.732	Zr I	10	–	–
3282.716	Cu I	25	15 W	–
3282.696	Ni I	100	–	–
3282.67	Te	–	[10]	Bl
3282.610	Th	7	12	–
3282.542	U	10	6	–
3282.533	V	12	80	–
3282.525	Ag I	3	1 h	–
3282.522	Eu	3 W	2	–
3282.51	Yt II	3	5	Me
3282.481	Mo	2	8	–
3282.44	Fe	2	1	–
3282.360	U	2	–	–
3282.333	Zn I	500 R	300	IHz
3282.329	Ti II	30	150	–
3282.327	Ir I	2	2	–
3282.319	Ce	2	–	–
3282.297	Pr	6	1	–
3282.257	Gd	5 r	5	–
3282.232	Co I	3	–	–
3282.1	Cs	–	[3]	Bs
3282.08	Kr II	–	[15 h]	Me
3282.041	Co I	4	–	Dn
3282.01	B	4	12	Sy
3281.996	Ce	3	–	–
3281.98	Ho	12	15	Ex
3281.969	Pt I	10	3	–
3281.951	Ce	3	–	–
3281.939	W	12	10	–
3281.92	Tb	8	–	Ed
3281.899	Ir I	3	–	–
3281.880	Ni I	20	–	–
3281.873	Zr I	2 h	–	–
3281.766	Sm	3	–	–
3281.754	V	–	30	–
3281.74	Lu	60	5	Me
3281 735	Ba I	8	–	Sz
3281.72	A	–	[15]	Rt
3281.701	Rh I	5	1	–
3281.696	Cu II	–	5	Sh
3281.652	U	2	–	–
3281.64	Si	–	3	Sy
3281.617	Mo	–	20	–
3281.611	Gd	5	5	–
3281.588	Co I	7	–	–
3281 587	Ce	3	–	–
3281.549	U	5	1	–
3281.50	Ba I	25	–	Sd
3281.49	Rb II	–	[20]	Ok
3281.487	Nd	4	6	–
3281.48	Ca	1 h	4	Ad
3281.415	Th	8	10	–
3281.40	Tb	50	15	Ed
3281 345	Mo	5	1	–
3281.300	Fe II	15	100	–
3281.283	Th	4	5	–
3281.26	Xe II	–	[8 h]	Hu
3281.17	Ho	–	4 h	Ex
3281.115	V	3	50	–
3281.115	U	2	1	–
3281.095	Ce	18	–	–
3281.068	Mo	25	3	–
3281.034	Th	2	5	–
3280.915	Os	5	–	–
3280.913	Yt II	8	12	–
3280.877	Mo	–	25	–
3280.872	Ta	3	2	–
3280.842	Sm	20	6	–
3280.756	Mn	60	30	–
3280.748	Zr II	3	2	–
3280.736	Th	2 d	2 d	–
3280 692	In	–	3	–
3280.685	Cu	10	2	–
3280.683	Ag I	2000 R	1000 R	–
3280.682	Eu	1000 R	–	–
3280 681	Co	2	–	–
3280.678	Pd	–	2 h	–
3280.671	Mo	3	–	–
3280.668	Ce	6	–	–
3280.608	U	1	2	–
3280.60	Cl	–	[8]	Jv
3280.55	Rh I	30 R	10	–
3280.50	Lu	10	–	Me
3280.485	Ce II	15	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3280.48	Xe	–	[4]	Hu
3280.399	U	5	1	–
3280.391	Ti I	3	–	–
3280.374	Th	10	12	–
3280.318	Mo	5	5	–
3280.28	Tb	30	15	Ed
3280.261	Fe	150	150	I
3280.22	Er	12	3	–
3280.218	Sm	4	–	Kn
3280.202	Nd	2 h	4 h	–
3280.20	P	–	[30 h]	Gu
3280.10	Dy	70	5	–
3280.004	U	8	8	–
3279.995	Ti II	10	40	–
3279.98	Hf II	25	25	Me
3279.98	Yb	5	–	–
3279.974	Cb	–	5	–
3279.923	Gd	2	–	–
3279.85	Pb II	–	10	Gs
3279.845	V	20	8	–
3279.842	Ce I, II	30	5	–
3279.826	Cb	4	–	–
3279.816	Cu I	25	30	–
3279.739	Fe	7	3	–
3279.653	Fe	–	2	–
3279.582	W	5	6	–
3279.550	U	12	5	–
3279.527	Gd	5	8	–
3279.52	Eu	10	–	Kn
3279.46	I	–	[10]	Bl
3279.442	Mo	15	3	–
3279.33	Pb	–	10	Sx
3279.32	Er	20	5	–
3279.292	Ta	50 r	3	–
3279.265	Zr II	50	50	–
3279.26	Ho	8	10	Ex
3279.256	Co I	60	2	–
3279.25	A I	–	[3]	Ms
3279.250	Cb	–	10	–
3279.224	U	3	1	–
3279.205	Ce	2	–	–
3279.149	Fe	2	1	–
3279.096	U	6	4	–
3279.04	Tb	8	3	Ed
3279.028	Pr	7	–	–
3279.027	W	8	5	–
3279.009	Ce	18	3	–
3278.989	Ti II	–	2	–
3278.97	Lu	50	5	Me
3278.96	Yb	12	–	–
3278.96	Se II	–	[20]	Kh
3278.93	A I	–	[3]	Ms
3278.922	Ti II	40	150	–
3278.91	Zr II	–	5	–
3278.881	Mo	1	50	–
3278.874	Sm	6	2	–
3278.844	Co I	70	2	–
3278.839	Pr	9	2	–
3278.77	Te	–	[10]	Bl
3278.734	Fe	100	60	–
3278.655	Mo	4	1	–
3278.561	Zr I	2 h	–	–
3278.553	Mn	60	30	–
3278.483	U	6	2	–
3278.433	Yt	4	2	–
3278.317	Ta	2	–	–
3278.290	Ti II	25	100	–
3278.26	Cs	–	[4]	Bs
3278.222	Er	15	3	–
3278.15	Ho	10	15	Ex
3278.107	Co I	8	–	–
3278.066	Mn	10	–	–
3278.05	Pd II	–	2 h	Bx
3277.989	Ce	2	–	–
3277.966	Os	80	8	–
3277.939	V I	20	–	–
3277.934	Ce	8	–	–
3277.87	Hg II	–	[50]	Ps
3277.833	Ti I	2	–	–
3277.83	La II	2 h	3 h	Me
3277.80	P	–	[30]	Gu
3277.78	Eu	20	3	–
3277.73	Tb	15	3	Ed
3277.728	U	6	–	–
3277.721	Re	15	–	–
3277.698	Er	12	2	–
3277.672	Cb	3	5	–
3277.664	Co I	18	2	–
3277 66	O II	–	[25 l]	Mh
3277.636	Zr	3	–	–
3277.567	Ru	30	12	–
3277.511	U	2	2	–
3277.50	Te	–	[15]	Bl
3277.444	V	2	15	–
3277.366	Zr I	4	–	–
3277.346	Fe II	40	200	–
3277.32	Tb	15	8	Ed
3277.318	Co I	60 W	–	–
3277.310	Cu I	7	2	–
3277.283	Ir I	8	1	–
3277.168	Mo	4	2	–
3277.16	Ho	–	4 h	Ex
3277.143	Ce	5	–	–
3277.085	V	1	10	–
3277.056	Th	3	–	–
3276.998	Ti II	5	5	–
3276.966	Ce	2	–	–
3276.81	Tm	40	15	Me
3276.81	Cl II	–	[40]	Ks
3276.8	Cd	–	[12]	Es
3276.80	Yb	10	–	–
3276.774	Ti II	12	70	–
3276.765	U	10	–	–
3276.743	Sm II	50	10	–
3276.667	Pr	10	2	–
3276.606	Fe II	–	10	–
3276.55	Zn II	–	[3]	Vs
3276.54	I II	–	[2]	Ke
3276.480	Co I	35	2	–
3276 470	Cb	–	5	–
3276.468	Fe I	100	50	–
3276.44	Pb	–	5 h	Kl
3276.411	Os	3	1	–
3276 366	Zr II	2 h	–	–
3276.360	Ce	6	–	–
3276.336	Mo	2	40	–
3276.251	Ce	18	1	–
3276.19	Pb	–	60	Sx
3276.167	Ir I	2	–	–
3276.16	Th	3 d	8	–
3276.158	U	8	1 h	–
3276.132	Nd	12	2	–
3276 124	V II	50	200 R	–
3276.10	Si	–	2	Sy
3276 076	Mo	8	1	–
3275.986	Rh I	4	–	–
3275.954	Cb	2	2	–
3275.941	Ta	50	1 h	–
3275.866	Sm II	10	3	–
3275.842	Nd	10	4	–
3275.81	Yb	12	100	–
3275.776	Al II	–	[18]	Sy
3275.68	Cs	–	[4]	Bs
3275 679	Ta	70	35	–
3275.66	Tb	8	3	Ed
3275.645	Zr II	2 h	–	–
3275.603	Ir I	3	–	–
3275 6	Sb	–	2	Sp
3275 572	Yt	10	8	–
3275.567	Ce	2 w	–	–
3275 442	Er	15	2	–
3275.293	Ti II	8	50	–
3275.218	Nd	15	8	–
3275.201	Os	200	15	–
3275 20	Ne II	–	[4]	Bn
3275.142	Zr II	3	1	–
3275 115	I	–	[25]	Ke
3275.035	U	2	1	–
3275.031	Ir	2 h	–	–
3275.010	Th	10	12	–
3274.947	Ta	200	35 W	–
3274.94	Xe	–	[2 wh]	Hu
3274.90	Ni II	–	5	Me
3274.864	Ce	35	8	–
3274.788	Cb	1	10	–
3274.778	Rh	2	–	–
3274.747	Er	10	1	–
3274 706	Ru I	60	25	–
3274.661	Ca I	20		Cw
3274.640	Be II	–	[50]	Ps
3274.628	Mo	–	30	–
3274.616	Ce	8	–	–
3274.576	Pr	8	–	–
3274.561	Ir I	4	–	–
3274.458	Ta	35	1	–
3274.453	Fe	80	60	–
3274.410	Ag	–	5 h	Fn
3274.399	Th	6	3	–
3274.29	Eu	3	1 h	–
3274.24	Tb	70	–	Ed
3274.220	Na II	15	[40]	Fr
3274.204	Mo	–	5 h	–
3274.112	Ce	8	–	–
3274.064	Ce	10	–	–
3274.047	Ti I	7	1	–
3274.02	In II	–	15	Sq
3273.97	Sb	–	4	Sp
3273.964	Ce	5	–	–
3273.962	Cu I	3000 R	1500 R	–
3273 961	Mo	20	–	–
3273.958	Ca	2	4	–
3273.931	Co	10	–	–
3273.926	Ce	5	–	–
3273.886	Cb	20 r	100 W	–
3273.884	Th	10	15	–
3273.68	Au II	–	2	–
3273.655	Hf II	20	10	–
3273.621	Ru	2	5	–
3273.619	Sc I	35	12	–
3273 596	U	5	–	–
3273.582	Mo	–	25	–
3273.54	O II	–	[35 l]	Mh
3273.516	Ce	4	–	–
3273.509	Cb	1	20	–
3273.499	Fe II	–	6	–
3273.477	Sm	30	8	–
3273.45	I	–	[3]	Ke
3273.384	Os	15	5	–
3273.36	A	–	[5]	Rt
3273.325	Er	7	–	–
3273.316	Sm II	6	3	–
3273.225	U	2	2	–
3273.173	Nd	8	2	–
3273.132	Ta	70	3 h	–
3273.12	Tb	15	–	Ed
3273.08	Er	25	15	–
3273.078	Ru I	60	20	–
3273.058	Pt II	–	5	–
3273.047	Zr II	50	80	–
3273.027	V I	30	5	–
3273.023	U	5	1 h	–
3273.015	Mn	20	20	–
3272.947	Ce	3	–	–
3272.91	Xe II	–	[30]	Hu
3272.898	Mo	4	1	–
3272.897	Pr	10	1	–
3272.89	Cr	–	4	–
3272 803	Sm II	20	9	–
3272.76	Eu	20	3	–
3272.73	Dy	6	–	–
3272.725	Ce	10	–	–
3272.70	Fe	2	–	–
3272.64	Yb	3	–	–
3272 636	Ta	3	–	–
3272.606	Ce	8	–	–
3272.595	Fe	6	3	–
3272 589	Sm	10	4	–
3272.56	Pd II	–	60 h	Ex
3272.479	Os	20	1	–
3272.469	Sm	10	4	–
3272.405	Ba	3	–	Kn
3272.405	Co I	3	–	–
3272.382	Mo	–	25	–
3272.36	Er	5	–	–
3272.35	Tb	15	3	Ed
3272.349	Cb	–	10 wh	–
3272.253	Ce	40	15	–
3272.224	Cb	1	10	–
3272.222	Zr II	15	10	–
3272.192	V I	8	1	–
3272.104	Os	40	10	–
3272.10	Er	12	1	–
3272.080	Ti II	25	100	–
3272.073	Dy	2	1	–
3272 070	Cb	12	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3272.064	Ce	8	–	–
3272.026	Th	6	1	–
3271.984	Ir	3	–	–
3271.984	Os	15	8	–
3271.978	Cb	4	2	–
3271.961	Ce	5	–	–
3271.96	Cr	60 wh	–	–
3271.807	Ir I	10	1	–
3271.783	Co I	60	–	–
3271.683	Gd	2	–	–
3271.683	Ca	1 h	3	–
3271.683	Fe I	25	15	–
3271.666	Mo	–	60	–
3271.652	Ti II	35	125	–
3271.637	V I	25	–	–
3271.626	Cs II	–	[20]	Ot
3271.612	Rh I	200	60	–
3271.56	Cb	–	3 wh	–
3271.550	Ce	25	1	–
3271 54	Yb	6	10	–
3271.486	Fe	15	7	–
3271.454	U	6	5	–
3271.445	Ir I	2	–	–
3271.411	V I	8	–	–
3271.235	Ir I	10	1	–
3271.225	Sm	6	2	–
3271.188	Ta	70 wh	18 w	–
3271.18	Yb	10	20	–
3271.16	A I	–	[10]	Ms
3271.151	Ce II	18	2	–
3271.127	Zr II	8	8	–
3271.125	V II	25	50 R	–
3271.118	Ni I	125	1	–
3271.112	U	6	–	–
3271.089	Re	3	–	–
3271.03	Rb II	–	[40]	Ok
3271.002	Fe I	300	300	S
3270.96	O II	–	[25 l]	Mh
3270.904	Mo	50	25	–
3270.851	Os	15 h	4	–
3270.841	Ca	1 h	2	–
3270.816	Th	8	5	–
3270.79	Ne II	–	[4]	Bl
3270.761	Cb	5	8	–
3270.75	Yb	25 d	–	–
3270.72	Cr	50	1	–
3270 686	Ce	5	–	–
3270 672	Sm	10	4	–
3270.63	Tb	15	3	Ed
3270.590	Zr	4	–	–
3270.576	Rh I	3	–	–
3270.562	Ti I	10	1	–
3270.502	Ca	1	2	–
3270.483	Sm	10	4	–
3270.467	Cb	15	10	–
3270.44	Cs I	2	–	Bv
3270.43	P	–	[15]	Gu
3270.351	Mn	30	30	–
3270.263	W	9	4	–
3270.242	Ru	3	–	–
3270.23	Th	2 d	5	–
3270.22	Te	–	[5]	Bl
3270.198	Co I	10	–	–
3270.133	Ce	12	–	–
3270.124	U	20	25	–
3270.116	V	3	5	–
3270.108	Ba	4	–	Sz
3270.048	Re	5 h	–	–
3269.959	Fe	5	3	–
3269.904	Sc I	30	12	–
3269.887	Os	8	2	–
3269.86	Ne II	–	[7]	Bn
3269.819	Ag II	–	10	–
3269.779	U	10	6	–
3269.772	Fe II	–	4	–
3269.765	Cr	–	35	–
3269.66	Eu	4 wh	–	–
3269.657	Zr I	12	1	–
3269.628	W	10 l	12	–
3269.527	Dy	2	1	–
3269.494	Ge I	300	300	–
3269.469	Th	10	10	–
3269 458	U	2	2	–
3269.414	Eu	2	1 h	–
3269.411	Er	18	4	–
3269.39	Sm	–	15	–
3269.235	Fe	20	6	–
3269.229	U	2	1	–
3269.209	Os	200	20	–
3269.140	Ta	70 r	7 l	–
3269.129	Ce	10	–	–
3269.12	Dy	20	3	–
3269.117	Cb	2	10	–
3269.101	Ca I	10	2	–
3269.05	A II	–	[5]	Rt
3269.037	Re	30	–	–
3269.007	U	3	2	–
3269.00	Tm	40	150	Me
3268 979	Mo	–	25	–
3268.971	Ni I	2	–	–
3268.943	Ru	4	–	–
3268.923	W	9	10 s	–
3268.897	Re I	30	–	–
3268.888	Co	4	–	–
3268.84	Te	–	[15]	Bl
3268.80	Er	12	1	–
3268.794	Ru	4	60	–
3268.722	Mn	30	30	–
3268.66	Eu	6 W	–	Kn
3268.649	U	2	–	–
3268.61	Ti I	4	–	–
3268.580	W	8	9	–
3268.52	Tb	15	3	Ed
3268.509	Fe II	–	5	–
3268.479	Re I	40	–	–
3268.474	Rh I	25	5	–
3268.462	U	3	–	–
3268.424	Pt	15	4	–
3268.341	Gd	4	2	–
3268.33	Rb	–	[2]	Ok
3268.314	Cs	–	[10]	Sv
3268.278	Cu I	15	10	Hs
3268.236	Fe I	125	100	–
3268.233	Pr	10	1	–
3268.208	Ru I	60	12	–
3268.193	Mo	6	2	–
3268.123	W	5	3	–
3268.10	Tb	30	8	Ed
3268.079	Re	40	–	–
3268.064	Ni	5	–	–
3268.05	Se	–	[20]	Bl
3268.022	Ce	2	–	–
3267.97	Bi I	2 h	–	To
3267.945	Os I	400 R	30	–
3267.89	Yb	6	–	–
3267.794	Mn	40	40	–
3267.764	Dy	2	–	–
3267.702	V II	30	80 R	–
3267.677	Cb	1	10	–
3267.64	Gd	2	–	–
3267.639	Mo	4	30	–
3267.638	U	8	2	–
3267.56	Ta	5 h	–	–
3267.510	Sm	2	–	–
3267.502	Sb I	150	150 Wh	–
3267.48	Rh	2	15	–
3267.45	W	–	12	–
3267.41	Ti I	2	–	–
3267.41	Tm	50	40	Me
3267.362	Zr I	3	–	–
3267.35	Ag	–	12	–
3267.35	Pd II	–	200 h	–
3267.34	Xe II	–	[4]	Hu
3267.31	La II	2	3	Me
3267.251	Nd	10	4	–
3267.244	U	8	6	–
3267.237	Ce II	12	–	–
3267.200	Os	20	15	–
3267.175	Hf	10	1	–
3267.15	Er	4	4	–
3267.135	Cs II	–	[30]	Ot
3267.100	Ir I	2	–	–
3267.08	Au	10	8	–
3267.067	Ti I	10	–	–
3267.05	Xe	–	[3]	Hu
3267.050	Cb	5	5	–
3267.036	Fe II	–	4	–
3267.01	Eu	4 wh	2	Kn
3267 009	Hf	8	–	–
3267.002	Th	10	12	–
3266.95	Si	–	2	Sy
3266.940	U	12	1	–
3266 938	Fe II	–	15	–
3266 890	Ta	35 r	1 h	–
3266.887	Mo	–	40	–
3266.865	Ce	3	–	–
3266.850	Re I	30	–	–
3266.84	I	–	[5]	Ke
3266.763	W	7	6	–
3266.747	Os	10	5	–
3266.733	Gd	3	–	–
3266.635	Th	8	3	–
3266.634	Cr I	35	4	–
3266.63	Tm	70	50	Me
3266.63	Yb	4	–	–
3266.622	W	7	5	–
3266.53	Hf II	1	3	Me
3266.445	Ru I	50	9	–
3266.444	Ir I	50	10	–
3266.412	Cb	2	4 h	–
3266.40	Tb	30	15	Ed
3266.39	Eu	20	20	–
3266.289	Mo	6	3	–
3266.211	U	3	3	–
3266.207	Dy	12	5	–
3266.164	Mo	6	5	–
3266.12	Cb	–	5	–
3266 089	Ce	3	–	–
3266.085	V I	12	–	–
3266.08	Xe	–	[4 wh]	Hu
3266.023	Cu I	20	15	–
3266.004	Cb	3 w	–	–
3266.00	Dy	9	5	–
3265 93	Tb	8	3	Ed
3265.924	Cs II	–	[30]	Ot
3265.899	V I	15	12	–
3265.828	Ce	10	–	–
3265.806	U	25	18	–
3265 78	Eu	20	–	Kn
3265.679	Ce	5	–	–
3265 67	La II	300	200	Me
3265 62	Lu	2	–	Me
3265 619	Fe I	300	300	–
3265.568	Ce	8	–	–
3265.480	Ti I	6	1	–
3265.423	Ce	15	1	–
3265 373	Nd	10	2	–
3265.352	Co I	35	2	–
3265.345	Ta	35	–	–
3265.34	Ca	1	2	–
3265 310	Cb	2	2	–
3265.292	Hf	10	1	–
3265.2	air	–	5	m
3265 150	W	9	8	–
3265.145	Ce	2	–	–
3265.139	Mo	25	25	–
3265.124	Nd	10	4	–
3265.048	Fe I	200	150	–
3265.00	Lu	–	10 hl	Me
3264.938	Sm II	25	8	–
3264.90	Tb	15	3	Ed
3264.85	Rb	–	[20]	Ok
3264.843	Co I	35	2	–
3264.812	Zr II	4	4	–
3264.781	Er	25	5	–
3264.781	Yt	10	8	–
3264.77	Ho	6	8	Ex
3264.718	Co I	7 h	–	Dn
3264.711	Mn	75	50	–
3264.711	Ce	2	–	–
3264.710	Fe I	4	2	–
3264.686	Os	100 h	10	–
3264.663	Ru I	30	6	–
3264.620	Pr	6	1 h	–
3264.592	Cb	15	10	–
3264.550	Ru I	30	5	–
3264.513	Fe I	80	60	–
3264.437	Th	6	6	–
3264.404	Mo	25	20	–
3264.4	Cd	–	[10]	Es
3264.341	W	7	6	–
3264.33	Kr II	–	[5 wh]	Me
3264 31	Pr	10	–	–
3264 29	A I	–	[3]	Ms
3264 290	Dy	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3264.264	Cr	6	50	–
3264.260	Cb	2 h	1 h	–
3264.190	Ag	1	3 h	–
3264.16	F II	–	[30]	Di
3264.142	Sm	6	3	–
3264.125	Th	5	6	–
3264.10	Tm	30	10	Me
3264.09	Ca	1	3	–
3264.083	Ta	35	1	–
3264.06	Hg II	–	[200]	Ps
3264.041	In II	–	[5]	Ps
3264.005	In II	–	[10]	Ps
3263.99	La II	3	4	–
3263.89	Tb	30	8	Ed
3263.884	Ce II	25	3	–
3263.853	Ru	30	3	–
3263.845	Ti I	2	6	–
3263.832	Mo	15	15	–
3263.821	Rh	2	–	–
3263.78	A I	–	[3]	Ms
3263.759	Ta	70	2	–
3263.747	U	2	3	–
3263.70	Eu	3	–	–
3263.686	Ti II	10	70	–
3263.639	Th	4	3	–
3263.60	A	–	[10]	Rt
3263.50	Eu	6 w	4	–
3263.445	Ce	18	3	–
3263.43	Ne II	–	[7]	Bn
3263.404	Ta	–	35 h	–
3263.369	Fe I	30	15	–
3263.366	Cb	3	500	–
3263.339	Ce	8	–	–
3263.321	V II	–	50	–
3263.309	Ir I	3	1 h	–
3263.238	V I	40	–	–
3263.213	Co I	30	–	–
3263.144	Rh I	200	40	–
3263.112	U	25	8	–
3263.104	W	8	7	–
3263.071	Ce II	10	–	–
3263.07	Fe	1	–	–
3263.06	Cs	–	[4]	Bs
3263.033	Th	8	8	–
3263.02	Eu	2 W	–	–
3263.001	Ta	20	1	–
3262.97	Tb	30	3	Ed
3262.930	Ir I	4	–	–
3262.80	Er	15	4	–
3262.765	Re I	25	–	–
3262.751	Os	100	20	–
3262.718	Ir I	3	–	–
3262.68	Tb	8	3	Ed
3262.671	Th	12	15	–
3262.628	Mo	15	4	–
3262.61	Eu	15	–	–
3262.579	Sm	3	1	–
3262.561	Cb	–	5 h	–
3262.495	Eu	5	2 h	–
3262.474	Hf	10	1	–
3262.435	Co	2	–	–
3262.40	Tb	2	–	Ed
3262.39	Pr	2	–	–
3262.36	Nd	10 d	2 h	–
3262.353	Mo	8	1	–
3262.353	Pb	20 h	5 h	–
3262.328	Sn I	400 h	300 h	–
3262.29	Cs	–	[6]	Bs
3262.290	Os I	500 R	50	–
3262.28	W	–	18	–
3262.280	Fe	50	25	–
3262.275	Ba I	3	3	–
3262.27	Dy	2	–	–
3262.263	Sm II	10	4	–
3262.188	Mo	1	20	–
3262.15	Rb	–	[30]	Ok
3262.138	Ce	5	–	–
3262.062	V I	10	3	–
3262.02	Dy	2	1	–
3262.02	Xe II	–	[3 h]	Hu
3262.013	Fe	30	15	–
3262.010	Ir I	20	2	–
3261.96	Ba I	40	–	Sd
3261.879	Cb	10	3	–
3261.84	Mo	2	–	–
3261.74	Tb	15	3	Ed
3261.73	Pd	–	2 h	–
3261.718	U	15	10	–
3261.70	Yb	–	5	Me
3261.695	Cb	1	50	–
3261.692	Pt	8	2	–
3261.66	Tm	30	100	Me
3261.633	Ce	2	2 h	–
3261.605	Tl II	70	300 r	–
3261.60	S	–	[8]	Bl
3261.59	Eu	2 h	–	–
3261.58	Kr II	–	[8 h]	Me
3261.554	Re	50	–	–
3261.544	Th	8	10	–
3261.524	Ce	2	–	–
3261 511	Ta	–	35 h	–
3261.509	Yb	5	18	–
3261.333	Fe	25	7	–
3261.33	Nd	–	4 h	–
3261.242	Ce II	8	–	–
3261.22	Dy	5	2	–
3261.21	Pb	–	2	Sx
3261.165	W	10	8	–
3261.129	Ru	30	3	–
3261.116	Ce	2	–	–
3261.11	Th	5	4	–
3261.081	V	15	10	–
3261.078	Zr I	2 h	–	–
3261.072	Pt I	3	–	–
3261.057	Cd I	300	300	–
3261.0	air	–	8	m
3261.0	Pb II	–	[50]	Ea
3260.998	Ir I	2 h	–	–
3260 975	Ce II	25	3	–
3260.93	Ca	1 h	3	Ad
3260.922	Th	8	10	–
3260.916	Zr	2 h	–	–
3260 883	Eu	5	–	–
3260 83	Tb	15	3	Ed
3260.819	Co I	70	4	–
3260.74	B II	4	10	Sy
3260 69	I	–	[10]	Bl
3260 69	Dy	10	2	–
3260 655	Nd	10	4	–
3260 64	Se	–	[8]	Bl
3260.568	Os	15	5	–
3260.562	Cb	15	300	–
3260.535	U	2	1	–
3260.484	Mo	10	5	–
3260.353	Ru I	100	50	–
3260 333	Th	2	–	–
3260.320	Ce	3	–	–
3260 299	Os	60	10	–
3260.286	Co I	5	–	–
3260.265	Sm	9	2	–
3260.261	Fe	20	15	–
3260.259	Ti I, II	12	30	m
3260.231	Mn	75	50	–
3260.218	Na II	–	[15]	Fr
3260.182	Ta	125	18 w	–
3260.167	Ru	12	–	–
3260.138	Cb	5	5	–
3260.111	Zr I	10	1	–
3260 00	Dy	9	2	–
3259.994	Fe I	150	100	–
3259.975	Cr	50	30	–
3259 870	Ta	50	3	–
3259.847	Co	3	–	–
3259.84	Tb	15	–	Ed
3259.840	U	10	3	–
3259.784	Ce II	20	–	–
3259.733	Pt I	3	6	–
3259.71	A	–	[5]	Rt
3259 680	V	–	4	Me
3259.667	Ru I	60	9	–
3259.662	W	9	9	–
3259 623	Ta	35	3	–
3259.618	Th	8	10	–
3259.557	Ce	3	–	–
3259.549	Re	100	–	–
3259.539	Mo	5	3	–
3259.537	V I	15	3	–
3259.438	W	9	9	–
3259.42	Ti I	2	–	–
3259.38	Tb	15	3	Ed
3259.36	Xe II	–	[6]	Hu
3259.251	Th	5	6	–
3259.231	Nd	10	4	–
3259.18	Cl	–	[8]	Bl
3259.17	Ho	–	6	Ex
3259.161	Mo	5	4	–
3259.138	Cb	3	3	–
3259.103	Yb	2	8	–
3259.060	Th	6	1	–
3259.048	Er	18 d	6 d	–
3259.048	Fe II	1	200	–
3258 967	Ru	10	60	–
3258.948	U	3	1	–
3258.94	Pr	10	1	–
3258.874	Ce	25	1	–
3258.850	Re I	100	–	–
3258.81	K II	–	[10]	Bn
3258.8	Ho	–	4 h	Ex
3258.780	Pd I	300	200 h	–
3258.773	Fe II	–	150	–
3258.77	Cr	–	50	–
3258.687	Mo	1	25	–
3258.668	Eu	2 h	2 h	–
3258.62	Tm	10	5	Me
3258.564	In I	500 R	300 R	–
3258.484	Er	10	2	–
3258.47	Ho	–	4 h	Ex
3258.45	Si	–	2 h	Sy
3258.413	Mn	75	40	–
3258.38	Tb	8	3	Ed
3258.306	Pr	4	–	–
3258.275	He I	–	[5]	Ps
3258 255	Sm II	9	3	–
3258.24	Ta	10	2 h	–
3258.143	W	5	3	–
3258.110	Th	2 h	2 h	–
3258.097	U	3	2	–
3258.067	Re I	4 w	–	–
3258 06	Ho	–	4	Ex
3258 04	Tm	125	60	Me
3258 040	Ru I	50	8	–
3258.025	Co I	60	–	–
3257.965	Na II	35	[60]	Fr
3257.935	Th	8	8	–
3257.93	I	–	[5]	Bl
3257.894	Fe II	–	3	–
3257.889	V	6	40	–
3257.888	Ir	2	–	–
3257.83	S II	–	[10]	Bl
3257.822	Cr	40	30	–
3257.822	Ta	25	2	–
3257.813	Ce	6	–	–
3257.80	W II	–	10	–
3257 773	U	1	3	–
3257.710	U	6	–	–
3257.69	Er	2	–	Ed
3257.594	Fe I	100	100	S
3257 59	Hg II	–	[10]	Ps
3257.589	Pr	10	–	–
3257.58	A I	–	[100]	Ms
3257.39	Ho	6	6	Ex
3257 369	Th	6	2	–
3257.361	Dy	4	2 h	–
3257 240	Fe I	25	12	–
3257.162	Th	8	8	–
3257.132	Ce	4	–	–
3257.116	Fe	1	–	–
3257.011	Cb	4	3 h	–
3257.0	bh B	100	–	L
3256.924	Os	80	12	–
3256.904	Nd	10	2	–
3256.83	Tb	8	–	Ed
3256.81	Te	–	[35]	Bl
3256.784	Ir I	4	–	–
3256.777	V I	8	1	–
3256.774	Ta	100	1	–
3256 74	Cb	–	4	–
3256.728	Mo	4	2	–
3256.70	Ag	–	2 h	Fn
3256.698	Fe	20	7	–
3256.682	Ce	20	–	–
3256 67	Kr II	–	[4]	Me
3256.601	La	3	–	–
3256.463	I	–	[18]	Ke
3256.46	V	8	1	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
3256.458	U	2	1	–
3256.433	Pt	2	–	Sf
3256.35	Er	10	2	–
3256.331	Ru	50	3	–
3256.289	Re	8	–	–
3256.273	Th	10	15	–
3256.27	Ho	–	4	Ex
3256.251	Ce	12	–	–
3256.25	Dy	25	5	–
3256.232	Ce	6	–	–
3256.230	W	8	7	–
3256.210	Mo	40	25	–
3256.137	Mn	75	50	–
3256.133	Cb	–	2 wh	–
3256.090	In I	1500 R	600 R	–
3255.962	W	9	8	–
3255.916	Pt I	3	30	–
3255.890	Fe II	20	100	–
3255.843	Sm	6	2	–
3255.811	Ca	1 h	3	–
3255.801	Re	4	–	–
3255.787	Er	10	1	–
3255.69	Ta	18 h	2 wh	–
3255.678	Sc I	15	8	–
3255.649	V I	25	5	–
3255.626	U	3	–	–
3255 625	Nd	8	4	–
3255.624	Sm II	8	3	–
3255.513	Th	10	10	–
3255.39	Ne II	–	[4]	Bn
3255 35	Cs	–	[10]	Bs
3255 343	Ge	–	100 Wh	–
3255 28	Hf II	20	30	Me
3255 270	Os	10 h	3	–
3255.269	Cb	2 h	20	–
3255.246	Mo	–	40	–
3255.22	Tb	15	3	Ed
3255.215	Ce	8	–	–
3255.202	Ir I	2	–	–
3255.068	W	9	12	–
3255.058	Ir I	5	–	–
3254 97	Rh I	10	–	–
3254 94	Cr	50 wh	–	–
3254 914	Os	60	12	–
3254.880	Cb	1	50	–
3254.866	Ce	12	–	–
3254.857	Hf	10	–	–
3254.85	Tm	8	10	Me
3254.84	W II	–	6	–
3254.817	U	3	2	–
3254.811	Th	8	10	–
3254.778	Sm II	3	1	–
3254.768	V I	40	80 h	–
3254.734	Fe	15	6	–
3254.728	Sm II	10	3	–
3254.708	Ru	50	9	–
3254.680	Mo	8	50	–
3254 667	Ce	3	–	–
3254 542	Ru I	50	9	–
3254.5	Rn	–	[30]	Wo
3254.488	U	2	1	–
3254.483	Dy	5	2	–
3254.403	Ir I	20	1	–
3254.378	Sm II	100	15	–
3254.363	Fe	200	150	I
3254.363	Ca	1 h	2	–
3254.359	W	6	4	–
3254.31	Lu	50	150	Me
3254.290	Sm II	10	1	–
3254.287	Ce	3	–	–
3254.276	Zr I	40	40	–
3254.250	Ti II	35	125	–
3254.23	Eu	5	4 h	–
3254.206	Co I	300 R	–	–
3254.067	Cb	20	300	–
3254.066	Nd	8	2	–
3254.066	Th	3	–	–
3254.039	Mn	50	25	–
3254.013	Ce II	30	4	–
3253.949	Fe	20	8	–
3253.948	Re	15	–	–
3253.931	Sm II	50	8	–
3253.91	Dy	4	1	–
3253.870	Th	5	1	–
3253.835	Fe	2	1	–
3253.82	Rb	–	[10]	Ok
3253.80	Ta	15	–	–
3253.803	I	–	[10]	Ke
3253.78	Mo	1 d	50 d	–
3253.702	Hf II	30	30	–
3253.686	Th	5	1	–
3253.640	Sm	5	1	–
3253.602	Fe	100	80	–
3253.54	Tb	8	3	Ed
3253.510	Mo	3	–	–
3253.46	S	–	[15]	Bl
3253.42	La II	3	4	–
3253.390	Sm	40	10	–
3253.37	Ir	2	1	–
3253.36	Eu	3	–	–
3253.351	U	5	2	–
3253.343	Rh	2	–	–
3253.342	Ce	8	–	–
3253.34	Ta	15 d	2 h	–
3253.27	Cr	20	1	–
3253.195	Pr	5	1	–
3253.185	Re	8 w	–	–
3253.067	Ba	5 h	–	Kn
3253.011	Sm	8	3	–
3253.00	Te	–	[5]	Bl
3252.997	Ru	12	–	–
3252.982	Ce	2	–	–
3252.948	Mn	75	50	–
3252.926	Fe	80	50	–
3252.925	Th	5	10	–
3252.914	Ti II	60	200 r	–
3252.907	V	5	–	–
3252 905	Ru I	20	–	–
3252.764	Cb	5	3	–
3252.75	Ag	–	8 h	–
3252.675	Th	8	10	–
3252.642	U	1	2	–
3252.539	Ru I	12	–	–
3252.525	Cd I	300	300	IMe
3252.490	Cr	–	25 h	–
3252.483	Ce	30	3	–
3252.437	Fe	90	40	–
3252.429	Cb	1	10	–
3252.34	Tb	50	30	Ed
3252.33	Mo	–	30	–
3252.304	U	6	3 h	–
3252.294	W	10	9 s	–
3252.29	Yt	4	2	–
3252.257	Re I	40	–	–
3252.220	Cu I	4	3	–
3252.21	Hg II	–	[30]	Ps
3252.19	Dy	15	2	–
3252.05	Tb	8	–	Ed
3252.01	Os	50	15	–
3251.982	Pt I	100	1	–
3251.944	Mo	3	1	–
3251.917	Th	10	8	–
3251.912	Ta	35	1	–
3251 911	Ti II	50	150	–
3251 90	Dy	10	2	–
3251.890	Ru	30	3	–
3251.885	Ce	15	–	–
3251.870	V	10	50	–
3251.836	Cr	35	–	–
3251.804	Nd	4 d	–	–
3251.649	Mo	6	3	–
3251.64	Tm	25	20	Me
3251.64	Se	–	[20]	Bl
3251.640	Pd I	200	500	–
3251.625	Cb	5	3	–
3251 58	Cr	30	–	–
3251.487	Cb	4	2	–
3251.45	Eu	5	3	–
3251.37	Te	–	[150]	Bl
3251.370	Ce	4	–	–
3251.361	Mo	4	2	–
3251.34	Tm	10	12	Me
3251.329	Ru	30	3	–
3251.32	Sc II	15	8	–
3251.265	Yt I	2 h	3	–
3251.260	Cb	2	15	Me
3251.260	Dy	100	100	–
3251.235	Fe I	300	150	–
3251.225	W II	10	18	–
3251 135	Mn	50	25	–
3251 07	Cl	–	[5]	Bl
3250.974	Nd	4	2 h	–
3250.95	Tb	8	–	Ed
3250.949	Na II	–	[15]	Fr
3250.777	V	10	50	–
3250.747	Mo	2	100	–
3250.743	Ni I	125	1	–
3250 627	Fe I	60	40	–
3250 58	Cs	–	[6]	Bs
3250.56	Xe II	–	[15]	Hu
3250 469	Cu II	–	5	Sh
3250.458	Zr II	6	8	–
3250.394	Fe	20	6	–
3250.392	Zr I	15	–	–
3250.38	In	–	10	Sq
3250.361	Sm II	50	10	–
3250.358	Ta	70	3	–
3250.355	Pt	40	8	–
3250.335	Co I	4	–	–
3250.301	Cd	–	25	–
3250 3	Rn	–	[2]	Pe
3250 277	U	10	10	–
3250 27	Cb	5 h	100	–
3250.26	Ca	–	2	–
3250.234	Gd	2	4	–
3250.193	Th	6	5	–
3250.17	Cd II	–	100	–
3250.07	Hf II	5	–	Me
3250.034	Rh I	2	–	–
3250.034	V I	8	–	–
3250.033	Ta	25 h	–	–
3250.009	Ru	30	3	–
3250.002	Co I	60	–	–
3249.931	V I	8	–	–
3249.927	Ru	30	3	–
3249.924	Mo	6	3	–
3249.886	Sm II	6	2	–
3249.860	Th	10	10	–
3249.85	Fe	1	–	–
3249.84	Tm	10	50	Me
3249.831	Ce	4	–	–
3249.82	A	–	[25]	Rt
3249.747	Pr	10	2	–
3249.732	Sm	25	7	–
3249.730	Ir I	10	3	–
3249.657	Fe II	–	10	–
3249.61	Tb	8	3	Ed
3249.566	V I	40	30	–
3249.534	Hf	20	1	–
3249.515	Cb	10	10	–
3249.508	Ir I	10	10	–
3249.498	Ce	3	–	–
3249.47	Lu	–	4	Me
3249.46	V	–	5 h	Me
3249.440	Ni I	30	–	–
3249.429	Ce	10	–	–
3249.370	Ti II	8	20	–
3249.351	La II	300	80	–
3249.342	Er	25	8	–
3249.192	Fe	70	35	–
3249.170	Ce	25	–	–
3249.033	Fe	1	–	–
3248.935	Cb	5	50	–
3248.909	U	2	1	–
3248.892	Th	10	10	–
3248.843	Ru	5	–	–
3248.75	Pr	4	–	–
3248.698	V I	15	3	–
3248.602	Ti I, II	25	200 r	–
3248.554	Th	4 d	4 h	–
3248.547	Re	25	–	–
3248.528	Ce	4	–	–
3248.522	Ta	100	3 h	–
3248.516	Mn	100	100	–
3248.502	Pt I	2	–	–
3248.457	Ni I	150	2	–
3248.428	Ce	12	–	–
3248 364	Dy	12	4	–
3248.336	U	5	3	–
3248.28	Ca	1 h	3	–
3248.206	Fe I	200	150	–
3248.15	Ne II	–	[7 l]	Bn
3248.140	Sm	10	4	–
3248.065	Ce	5	–	–
3248.03	Kr II	–	[6 wh]	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3247.996	Os	1	5	–
3247.908	V	–	5	Me
3247 898	Ce	3	–	–
3247.8	Rn	–	[10]	Pe
3247.79	Tb	8	–	Ed
3247.74	Xe	–	[4 whl]	Hu
3247.709	U	4	5	–
3247.667	Ir I	3	1	Ab
3247.621	Mo	30	20	–
3247.61	In	–	15	Sq
3247.552	Ce	15	–	–
3247.55	A	–	[3]	Rt
3247.55	Ag	15	15	–
3247.547	Sb	2 h	10	–
3247.542	Mn	125	–	–
3247.540	Cu I	5000 R	2000 R	IBu
3247.530	Eu	50 W	5	–
3247.52	Er	18 d	2	–
3247.5	Cs	–	[4]	Bs
3247.474	Cb	50 w	100 w	–
3247.393	Fe II	–	2	–
3247.366	Sm	4	–	–
3247.30	Eu	4	1	–
3247.278	Fe I	20	10	–
3247.274	Cr I	20	1	–
3247.250	Ce	3	–	–
3247.213	Fe	10	10	–
3247.209	U	2	1	–
3247.18	Tb	15	3	Ed
3247.179	Co I	80	–	–
3247.171	Fe II	–	10	–
3247.17	Sm	1	10	–
3247.118	Ce	3	–	–
3247.04	La I	8	2	–
3247.034	U	8	–	–
3247.00	Kr II	–	[12 wh]	Me
3246.997	Co I	35	–	–
3246.962	Fe I	100	70	–
3246.90	Ta	35 h	–	Ks
3246.843	Sm	9	2	–
3246.780	Eu	4 wh	2	–
3246.780	Cb	5	–	–
3246.689	Cb	–	5	–
3246.674	Ce I, II	35	3	–
3246.581	Th	5	5	–
3246.51	Tb	8	3	Ed
3246.482	Fe	40	25	–
3246.41	Eu	12	5	Kn
3246.311	Re	20	–	–
3246.293	Ir I	2	–	–
3246.210	Ru	1	25	–
3246.18	Kr	–	[2]	Me
3246.111	U	12	8	–
3246.02	Eu	10	–	–
3245.984	Fe I	200	150	Bu
3245.923	Mo	10	6	–
3245.86	Tm	20	10	Me
3245.801	Sm	20	4	–
3245.760	Th	12	15	–
3245.744	Co I	3	–	–
3245.703	Nd	8	4	–
3245.684	Ce	2	–	–
3245.678	Os	5	3	–
3245.618	Ru	3	4	–
3245.546	Ce	15	–	–
3245.542	Cr	20	15	–
3245.485	Cr I	10	2	–
3245.469	Eu	2 h	–	–
3245.462	Pr	40	4	–
3245.42	Tb	15	3	Ed
3245.370	Ni I	2	–	–
3245.284	Ta	70	2	–
3245.17	Tb	15	8	Ed
3245.166	Ce	25	1	–
3245.165	Sm II	9	2	–
3245.14	Dy	2	1	–
3245.13	Eu	3 w	–	–
3245.124	Ce	8	–	–
3245.120	La II	400	300	–
3245.07	Cb	–	5	–
3244.954	Ag	–	10 h	–
3244.950	Ce	10	–	–
3244.794	U	12	6	–
3244.673	Sm	15	6	–
3244.645	Eu	4	–	–
3244.60	Tb	8	3	Ed
3244 578	Ru	5	–	–
3244.511	Cb	2 h	30	–
3244.472	Mo	5	5	–
3244.47	Eu	2 W	1	–
3244.456	Ru	6	–	–
3244.450	Th	5 d	1 d	–
3244.36	Cl	–	[5]	Jv
3244.341	Ru	5	–	–
3244.31	Pr	3	–	–
3244.21	I	–	[10]	Bl
3244.20	Eu	10	2	Kn
3244.190	Fe I	300	200	S
3244 189	Ba I	3	–	–
3244.15	Ne II	–	[18]	Bl
3244.115	Cr I	30	4	–
3244.09	Tm	6	15	Me
3243.976	Zr I	4	–	–
3243.949	Ce	3	–	–
3243.842	Co I	100	–	–
3243.828	Cb	2	5	–
3243.803	Ti I	10	1	–
3243.78	Dy	12	3	–
3243.780	Mn	100	75	–
3243.724	Fe II	–	60	–
3243.71	Pt II	4	20	Sh
3243.71	A	–	[20]	Ms
3243.68	Tl II	–	[12]	El
3243.646	U	8	8	–
3243.579	Co I	8	–	–
3243.573	Ce	5	–	–
3243.513	Ti I	7	1	–
3243.498	Ru	70	12	–
3243.469	Er	4	1	–
3243.403	Fe	70	20	–
3243.40	Au II	3	8	–
3243.370	Ce II	–	10	–
3243.359	Ta	25	1	–
3243.353	Hf	15	–	–
3243.34	Ne II	–	[4]	Bn
3243.336	W II	5	20	–
3243.329	Cb	1 h	5 h	–
3243.272	V I	20	10	–
3243.252	Er	3	1	–
3243.214	Ce	2	–	–
3243.202	Mo	–	25	–
3243.20	Tb	15	3	Ed
3243.164	Cu I	15	15	–
3243.15	Cd	–	15	Vs
3243.131	Pd II	–	60 h	Dn
3243.109	Fe	50	20	–
3243.058	Ni I	400 R	15	–
3243.034	Th	8	8	–
3243.00	Hf II	6	8	Me
3242.93	Lu	–	4 h	Me
3242.86	Pb I	–	40	Sx
3242.848	Ru I	20	–	–
3242.834	Ta	125	10	–
3242.79	Se	–	[10]	Ro
3242.788	Ce	3	–	–
3242.764	Zr I	2 h	–	–
3242.703	Pd I	2000 wh	600 R	–
3242.608	Ir I	3	–	–
3242.566	Ta	7	1	–
3242.539	Ce	2	–	–
3242.531	Cb	3	10	–
3242.51	Dy	4	–	–
3242.482	Sm II	4	2	–
3242.455	Nd	4	2	–
3242.415	Cb	1	5	–
3242.323	Ir I	8	–	–
3242.285	Dy	4	–	–
3242.28	Cs	–	[10]	Bs
3242.280	Yt II	60	100	–
3242.272	Fe	3	1	–
3242.257	Th	8	5	–
3242.19	Se II	–	[25]	Bl
3242.165	Ru	80	–	–
3242.163	Zr II	1	2 h	–
3242.135	Ce II	12	–	–
3242.048	Ta	125	15	–
3242.031	Sm	40	4	–
3242.025	W	10	10	–
3241.991	U	10	8	–
3241.986	Ti II	60	300 R	–
3241.982	Os	15	12	–
3241 94	Tb	8	3	Ed
3241.835	Be II	5	[50]	Ps
3241.818	Cb	2	10	–
3241.80	Si	–	6	Sy
3241.796	Os	15	10	–
3241.79	Pd	–	2	Bx
3241.76	Ca	1	2 h	–
3241.685	Fe II	–	2	–
3241.646	Be II	5	[15]	Ps
3241.593	U	3	1	–
3241.572	Sm II	20	6	–
3241.546	Co I	5	–	–
3241.534	Th	3	3 h	–
3241.53	Tm	150	125	Me
3241.517	Ir I	100	50	–
3241.5	Rn	–	[40]	Pe
3241.464	Re I	25	–	–
3241.426	Os	15	10	–
3241.411	W	6	5	–
3241.397	Eu	25	1 h	–
3241.358	Ce	3	–	–
3241.280	Sb	–	[350 Wh]	Lg
3241 27	I	–	[5]	Bl
3241.235	Ru I	60	12	–
3241 214	Ce	10	–	–
3241.167	V I	20	10	–
3241.143	Sm II	50	10	–
3241.112	Th	10	12	–
3241.046	Zr II	10	10	–
3241.044	Os	80	20	–
3240.951	Cr I	35	2	–
3240.886	Mn	3	–	–
3240 878	Dy	10	5 h	–
3240.714	U	3	–	–
3240.713	Mo	3	60	–
3240 71	Ti II	3	3	–
3240.672	Ce	3	–	–
3240.67	Eu	4 W	1	–
3240.65	Tb	15	8	Ed
3240.616	Mn	60	30	–
3240.605	Th	5	3	–
3240.562	Ir I	3	–	–
3240.493	Mo	25	5	–
3240.484	Er	12	2	–
3240.476	Th	10	10	–
3240 399	Mn	60	30	–
3240 398	Ce	4	–	–
3240.354	U	8	6	–
3240.229	Tm	100	80	Me
3240 214	Ir I	15	1	–
3240.203	Pt I	40	6	–
3240.20	Kr II	–	[2]	Me
3240.192	Pb	30 h	–	–
3240.167	Ca	–	2	–
3240.14	U	2 d	2 d	–
3240.11	Eu	3	1 wh	–
3240.043	Dy	7	–	–
3240.027	Pr	10	1	–
3240.015	Fe	1	1	–
3240.00	Tb	15	8	Ed
3239.987	Ta	200	18 w	–
3239.93	Eu	6	–	–
3239.834	V	–	30	Me
3239.73	Bi I	10	3	To
3239.664	Ti II	25	80	–
3239.66	Tb	15	8	Ed
3239.64	Br	–	[3]	Bl
3239.638	Sm II	100	25	–
3239.62	U	4	4	
3239.611	Yb	2	–	–
3239.605	Ru I	50	5	–
3239.59	Dy	5	–	–
3239.438	Hf	15	–	–
3239.436	Fe I	400	300	S
3239.366	Sm	5	–	Kn
3239.32	I	–	[10]	Bl
3239.32	Tb	8	–	Ed
3239.289	Th	10	8	–
3239.193	Yb	2	8	–
3239.169	Re	10 h	–	–
3239.038	Ti II	60	300 R	–
3239.034	Fe I	5	3	–
3239.02	Ho	–	4	Ex
3238.934	Th	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3238.902	Ce	4	–	–
3238.89	Eu	2 h	3 wh	Kn
3238.867	Pr	12	2	–
3238.836	Cu II	–	3	–
3238.81	Cd II	–	[5]	Tk
3238.799	Th	4	3	–
3238.775	Ru I	50	1	–
3238.76	Cr	6	200	–
3238.757	U	2	1	–
3238.70	Dy	4	–	–
3238.691	W	5	4	–
3238.628	Os	100	20	–
3238.6	air	–	5	–
3238.527	Ru	100	45	–
3238.51	Cr	25	8	–
3238.490	W	7	6	–
3238.474	Nd	10	–	–
3238.43	Se II	–	[15]	Bl
3238.399	Mo	–	40	–
3238.364	Re	2	–	–
3238.259	Nd	6	2	–
3238.224	Ti I	8	4	–
3238.178	Dy	3	–	–
3238.118	Th	12	15	–
3238.087	Cr	30	20	–
3238.024	Cb	20	200	–
3237.985	Mo	15	3	–
3237.979	Er	20	3	–
3237.96	Ti II	–	[12]	El
3237.929	U	3	1	–
3237.911	Nd	10	4	–
3237.881	Sm II	10	5	–
3237.874	V II	30	100 h	–
3237.867	U	8	–	–
3237.866	Ir I	2	–	–
3237.846	Ta	70	7 h	–
3237.84	Mo	–	20	–
3237.819	Fe II	1	100	–
3237.729	Cr	40	30	–
3237.685	Cb	2	50	–
3237.68	W	–	8	–
3237 68	Nd	2	4 h	–
3237.662	Rh I	60	20	–
3237.511	Re I	30	–	–
3237.414	Mn	30 h	–	–
3237.402	Fe II	–	10	–
3237.39	Eu	12 w	5	–
3237.38	Ho	–	4	Ex
3237.227	Th	3	5	–
3237.222	Fe	3	1	–
3237.22	Tb	9	–	Ed
3237.197	Sm II	9	4	–
3237.189	Cb	2	2	–
3237.157	U	3	1	–
3237.098	Dy	3	–	–
3237.089	W	10 s	5	–
3237.075	Mo	40	25	–
3237.028	Co I	100	–	–
3236.998	Re	2 W	–	–
3236.86	In II	–	[5]	Ps
3236.856	Ce	8	–	–
3236.82	A	–	[5]	Rt
3236.797	Tm	100	80	Me
3236.778	Mn	75	75	–
3236.735	Ce II	35	8	–
3236.67	Cd	–	[12]	Es
3236.63	Dy	5	3	–
3236.630	Sm	100	40	–
3236.62	W	–	8	–
3236.578	Zr II	20	40	–
3236.573	Ti II	70	300 r	–
3236.56	Ho	–	4	Ex
3236.499	Nd	6 d	–	–
3236.420	Mo	4	2	–
3236.403	Cb	10	200	–
3236.34	U	2 d	2 d	–
3236 224	Zr II	8	10	–
3236.223	Fe I	300	200	S
3236.223	Ti I	2	–	–
3236.20	Tb	8	3	Ed
3236.16	Yb	2	10	–
3236.122	Ti II	10	15	–
3235.974	Ru	12	–	–
3235.942	Re	50	–	–
3235.921	W	8	6	–
3235.90	Dy	35 s	8	–
3235 878	Mo	3	2	–
3235 867	Ta	25	–	–
3235.864	U	8	–	–
3235 843	Th	12	12	–
3235.836	Fe	2	1	–
3235.81	Eu	8	5	–
3235.79	Tb	15	3	Ed
3235.785	Rh	5	–	–
3235 783	Co I	5 h	–	–
3235.753	Ni I	15	–	–
3235.713	Cu I	15	7	–
3235.694	I	–	[10]	Ke
3235.670	Ce	15	1	–
3235.65	La I	8	–	–
3235.62	Ho	–	4 h	Ex
3235.59	Fe	5	2	–
3235.551	U	2	–	–
3235.538	Co I	60	–	–
3235.45	Tm	80	40	Me
3235.432	Pr	10	1	–
3235.385	Mo	20	25	–
3235 227	U	6	8	–
3235 13	Eu	10	–	–
3235 101	Ru	6	–	–
3235.020	Mo	–	25	–
3235.011	Ce	10	1	–
3235.003	Mn	30 h	–	–
3234.995	Th	5	1 h	–
3234 990	Ca	–	2	–
3234 985	W	9	7	–
3234.96	Ba	–	3	–
3234.926	Na II	6	[20]	Fr
3234.892	Ce	18 s	5	–
3234.801	Zr I	2	–	–
3234.798	Er	4	–	–
3234.798	Ru I	10	1 h	–
3234.731	Os	100	10	–
3234 73	I	–	[3]	Ke
3234 728	V I	8	–	–
3234.693	Ta	70	10	–
3234.649	Ni I	300	15	–
3234 64	Rb	–	[5]	Ok
3234.611	Fe I	200	125	–
3234.52	Ho	2	6	Ex
3234 516	Ti II	100	500 r	–
3234.516	V	–	20	–
3234.51	A I	–	[100]	Ms
3234 510	Ir I	3	–	–
3234.50	Tb	15	15	Ed
3234.495	Ce	10	3	–
3234.430	Ru	3	50	–
3234.421	Sm	10	4	–
3234.30	Eu	3 w	–	–
3234 274	Ce	5	–	–
3234 223	Pr	12	2	–
3234.196	Os	150	12	–
3234.180	Mo	8	5	–
3234.161	Ce I, II	40	8	–
3234 16	Cs	–	[6]	Bs
3234.124	Zr I	8	3	–
3234.119	Co I	2	–	–
3234.06	Cr	10	150	–
3234 05	Si	–	7	Sy
3233.971	Fe I	300	150	–
3233.968	Mn	75 wh	–	–
3233.90	Cu I	2 h	2 h	–
3233.80	Hf II	3	4	Me
3233.773	Ce	15	–	–
3233.768	V	5	20	–
3233.75	Tm	10	–	Me
3233.661	Sm	20	9	–
3233.66	Ca	–	2 h	–
3233.61	P	–	[20]	Gu
3233.541	V I	10	25	–
3233.538	Be II	5	[5]	Ps
3233.53	Tb	8	–	Ed
3233.483	Sm	8	4	–
3233.441	Ce II	30	2	–
3233.422	Pt I	40	10	–
3233.422	Dy	2	–	–
3233.36	Ho	6	2 h	Ex
3233.334	Th	8	8	–
3233.32	Rh	2	5	–
3233.251	Ag	5	2	–
3233 24	W	2	9	–
3233.234	Cr I	30	4	–
3233.208	Ce	2	–	–
3233.190	V I	40	3	–
3233.174	Ni I	4	–	–
3233 154	Ag	–	10	–
3233 142	W II	2	6	–
3233.140	Mo	50	30	–
3233.11	Zr I	6	–	Ks
3233.054	Fe	100	60	–
3233 02	Ca	–	4	Ad
3232.963	Ni I	300 R	35	–
3232 875	Ce	3	–	–
3232 874	Co I	60	25	–
3232.80	Kr I	–	[2]	Me
3232.793	Cb	–	2 h	–
3232 791	Ti I	8	–	–
3232 791	Fe II	–	50	–
3232 78	I	–	[5]	Bl
3232.751	Ru I	50	4	–
3232 665	Ce	3	–	–
3232.652	W	9	8	–
3232.652	Dy	15	4	–
3232.63	Te	–	[10]	Bl
3232.620	Sm	10	3	–
3232.61	Li I	1000 R	500	Fl
3232.58	Cl	–	[4]	Jv
3232.540	Os	150	10	–
3232.504	Rh I	6	–	–
3232.499	Sb I	150	250 wh	–
3232.497	Sm	4	–	–
3232.486	W	9	8	–
3232.38	Ne II	–	[7]	Bl
3232.356	Cd II	–	2	–
3232.353	Pb	30	–	Kl
3232.32	Pd I	2	–	–
3232.31	Eu	4 w	1	–
3232.308	Th	8	–	–
3232.290	Ce	15	–	–
3232.280	Ti II	30	100	–
3232.279	Ta	25	1	–
3232.27	Se	–	[8]	Bl
3232.231	W	3	2	–
3232.157	U	12	12	–
3232.15	Kr II	–	[2 h]	Me
3232.134	W	6	9	–
3232.123	Th	3	25 h	–
3232.055	Os I	500 R	20	–
3232.027	Yt II	3	3	–
3232.026	Er	18	3	–
3232.001	Ir	20	1	–
3232.00	Tb	8	3	Ed
3231.98	Yb	2	6	–
3231.980	Ce	3	–	–
3231.950	V	8	100	–
3231.938	Sm II	20	8	–
3231.86	Eu	3 w	–	–
3231.807	Ce	2	–	–
3231.712	Fe II	–	30	–
3231.70	Cl	–	[5]	Bl
3231.693	Zr II	10	10	–
3231 665	Ta	18 h	1 h	–
3231.582	Fe I	3	1	–
3231.513	Sm II	20	9	–
3231.51	Tm	40	30	Me
3231.46	Tb	15	3	Ed
3231.417	Os	150	12	–
3231 315	Ti II	15	25	–
3231 266	He I	–	[3]	Ps
3231.236	Ce II	30	10	–
3231.235	Yt II	2	3	–
3231.23	Pb	–	10	Sx
3231.2	bh Ca	4	–	L
3231.175	Cu I	15	10	–
3231.123	Mo	5	1	–
3231.06	Tb	30	8	Ed
3230.967	Sm	4	1	–
3230.967	Fe I	300	200	–
3230.96	Tm	5	10	Me
3230.89	F	–	[3 h]	Di
3230.869	Th	15	12	–
3230.855	Ta	200	18 w	–
3230.836	W II	1	7	–
3230.786	Mo	4	2	–
3230.763	Ir I	20	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3230.719	Mn	75	75	–
3230.70	Tb	8	–	Ed
3230.69	Cl	–	[6]	Bl
3230.68	Kr I	–	[2]	Me
3230.646	V I	20	8	–
3230.636	Au I, II	15	80	–
3230.59	W II	1	10 s	–
3230.585	Er	25	15	–
3230.58	Eu	4	–	–
3230.572	I	–	[10]	Ke
3230.57	Ho	6	6	Ex
3230.55	Rb	–	[15]	Ok
3230 544	Sm II	100	30	–
3230.43	Si	–	3	Sy
3230.399	Os	40	5	–
3230.32	Dy	2	–	–
3230.288	Ce	8	–	–
3230 287	Pt I	100	6	–
3230.240	Cb	2	30	–
3230.211	Fe I	100	80	–
3230.16	Ne II	–	[18]	Bn
3230.15	Tm	10	20	Me
3230.12	Er	4	1	–
3230 079	Ce	10	1	–
3230.061	Hf	10	–	–
3230.03	Tb	15	8	Ed
3230.023	Ce	3	–	–
3229.994	Fe	20	20	–
3229.993	I	–	[15]	Ke
3229.99	Ag	1	4 h	–
3229.94	Dy	8 d	2	–
3229.93	Er	10	2	–
3229.91	A I	–	[3]	Ms
3229.880	Ta	35 h	50	–
3229.873	Fe	10	10	–
3229.872	Nd	–	10	–
3229.866	Cr	–	8	–
3229.794	Mo	25	4	–
3229.791	Fe I	1	1	–
3229.75	Tl I	2000	800	Fl
3229.721	Zr II	2 h	–	–
3229.711	Mn	2	–	–
3229.710	Mo	–	50	–
3229.69	Be I	15	–	–
3229.660	W	9	8	–
3229 606	V I	15	8	–
3229.599	Ce	10	–	–
3229.595	Sm II	8	2	–
3229.593	Fe	10	5	–
3229.59	Tb	8	–	Ed
3229.563	Cb	5	50	–
3229.52	Te	–	[25]	Bl
3229.502	U	18	25	–
3229.5	Rn	–	[5]	Pe
3229.50	Ne II	–	[7]	Bn
3229.423	Ti II	15	70	–
3229.371	Mg I	25	–	–
3229.37	Dy	10	2	–
3229.363	Ce II	25	3	–
3229.36	Mo	–	5	–
3229.282	Ir I	35	2	–
3229.236	Ta	300 w	70 w	–
3229.206	Os	125	5	–
3229.204	Cr	35	–	–
3229.193	Ti II	30	60	–
3229.19	Tb	15	8	Ed
3229.123	Fe I	80	50	–
3229.122	Ce	25	1	–
3229.112	Rb I	10 h	–	–
3229.072	U	6	–	–
3229.03	Xe	–	[3 h]	Hu
3229.00	F	–	[2 h]	Di
3228.97	Dy	9	1	–
3228.969	Th	12	15	–
3228.96	W II	1	10	–
3228.952	Cb	1	3	–
3228.91	Tm	15	30	Me
3228.905	Fe	80	40	–
3228.810	Zr II	10	8	–
3228.777	Sm II	20	4	–
3228.732	Re	25	–	–
3228.605	Ti II	30	100	–
3228.599	Yb	1	10	–
3228.597	Fe	5	2	–
3228.530	Ru I	50	150	–
3228.492	Sm	20	6	–
3228.486	Cb	–	2 h	–
3228.435	Ta	2 h	25 h	–
3228.330	Re	5	–	–
3228.27	Te	–	[5]	Bl
3228.254	Fe I	100	80	–
3228.215	Mo	40	25	–
3228.183	Ti I	6	–	–
3228.182	V I	15	5	Me
3228.17	Se II	–	[8]	Bl
3228.157	Ru	12	4	–
3228.090	Mn	100	100	–
3228 048	Ce	25	–	–
3228.048	Nd	8	2	–
3228.001	Rb I	20	–	–
3228.001	Au II	–	10	–
3227.996	Fe	3	1	–
3227.95	Ti I	2 h	–	–
3227.885	Ru I	20	10	–
3227.840	Hg	–	2	St
3227.802	Fe I	4	–	–
3227.763	Co I	5	–	–
3227.75	Cl	–	[3]	An
3227.747	Fe II	200	300	–
3227.71	Dy	3	1	–
3227.69	Cb	–	3 h	–
3227.491	W	9	8	–
3227.48	Tb	8	3	Ed
3227.456	Re	40 w	–	–
3227.43	Dy	2	–	–
3227.421	U	2	1	–
3227.409	V I	15	10	–
3227.317	Ta	70 l	10	–
3227.280	Os	125	12	–
3227.2	Cs	–	[4]	Bs
3227.165	Pt	4	3	–
3227.16	Er	18	2	–
3227.114	Ce	25	–	–
3227.113	V I	10	–	–
3227 08	Pb	–	5	Sx
3227.063	Fe I	30	10	–
3227.011	Th	8	8	–
3226.996	Hf II	6	3	–
3226.985	Co	80 r	–	–
3226 984	Ni I	100	–	–
3226.922	V	1	50	Me
3226.899	Ru	4	2	–
3226.843	Ta	35	1	–
3226.842	Sm	30	10	–
3226.81	Tm	15	30	Me
3226.795	Mo	2	3 h	–
3226.785	U	4	3	–
3226.771	Ti II	10	35	–
3226.720	Fe I	8	3	–
3226.710	Ir I	20	1	–
3226.602	Cu I	12	7	–
3226.58	W	–	10	–
3226.57	Kr II	–	[5 whl]	Me
3226 555	Cr I	30	1	–
3226.55	Mo	–	20	–
3226.50	Ti I	2 h	–	–
3226.412	Th	10	10	–
3226 383	Fe II	–	1	–
3226.38	Dy	6	1	–
3226.374	Ru I	50	12	–
3226.326	Gd	3	3	–
3226.307	Ta	2	1	–
3226.240	Ti I	2	–	–
3226.171	U	10	10	–
3226.13	Ca I	8	–	Cw
3226.128	Ti I	25	7	–
3226 121	Th	10	8	–
3226.106	V I	25	5	–
3226.036	Ce II	8	–	–
3226.034	Mn	40	20	–
3226.021	Fe	2	1	–
3226.008	La II	2	2	–
3226.00	A	–	[3]	Rt
3225.976	Na II	2	[20]	Fr
3225.96	Dy	18	3	–
3225.922	Sm	10	4	–
3225.896	Ca I	80	10	IWg
3225.856	Th	5	2	–
3225.852	Yb	3	15	–
3225.789	Fe I	300	150	S
3225.672	Ce	25	3	–
3225.631	W	10	8	–
3225.616	Th	5	5	–
3225.58	A I	–	[20]	Ms
3225.486	Zr I	5 r	2 h	–
3225.485	Ce	2	–	–
3225.479	Cb	150 w	800 wr	–
3225.44	Gd II	2	1	–
3225.43	Tb	8	3	Ed
3225.412	U	8	–	–
3225.408	Ce	2	–	–
3225.359	Th	12	15	–
3225.356	Cr	–	20	–
3225.289	B II	5	–	–
3225.20	Pr	3	–	–
3225.193	Cb	3	1	–
3225.184	Sm	8	2	–
3225.17	Yt II	8	12 hl	–
3225.16	W II	1	4	–
3225.08	Dy	10	1	–
3225.08	Xe II	–	[10]	Hu
3225.026	Hf II	4	3	–
3225.023	Co	3	–	–
3225.020	Ni I	300	6	–
3225.016	U	5	1	–
3224.999	Pr	10	1	–
3224.931	Fe	3	1	–
3224 834	Ce	10	–	–
3224.82	Ne II	–	[12]	Bn
3224.761	Mn	75	40	–
3224.664	Cu I	25	10	–
3224.651	Ru	4	–	–
3224.642	Co I	60	–	–
3224.430	Cb	3	4	–
3224.419	Pr	10	1	–
3224.408	Mo	4	–	–
3224.33	Ca	–	3	–
3224.295	Ce	3	–	–
3224.27	Ho	–	4	Ex
3224.261	U	10	12	–
3224.25	B II	–	5	En
3224.241	Ti II	15	150	–
3224.233	Sm	9	3	–
3224.21	Cd	–	[10]	Es
3224.15	Tm	2	20	Me
3224.018	U	2	–	–
3223.905	Ce	15	1	–
3223 901	Cb	5 w	3 h	–
3223.886	Ir I	3	1 h	–
3223.858	Os	100	8	–
3223.844	Fe I	2	2	–
3223.826	Ta	200 W	50 W	–
3223.803	Th	6	2	–
3223.776	Nd	3	2	–
3223.740	Gd	5	2	–
3223.692	U	6	–	–
3223.69	Te	–	[5]	Bl
3223.574	Sn	10	15	Ar
3223 55	V	3	1	Me
3223.534	Ni I	5	–	–
3223.52	Kr II	–	[12 h]	Me
3223 519	Ti I	15	2	–
3223.519	Ce	5	–	–
3223.512	Ir I	3	–	–
3223.51	Ag II	1	25 h	–
3223.494	Mo	6	6	–
3223.452	Fe	1	1	–
3223.435	Cu I	20	10	–
3223.4	Rb	–	[20]	Dr
3223.365	Ce	15	1	–
3223.324	Cb	10	100	–
3223.319	Sm	10	4	–
3223.308	Er	25	5	–
3223.29	Dy	20	1	–
3223.284	Th	5	3	–
3223.274	Ru I	60	35	–
3223.27	Ho	–	4 h	Ex
3223.268	Fe	4	2	–
3223.224	Mn	4 h	–	–
3223.147	Co I	3	–	–
3223.116	W	8	4	–
3223.009	Ir I	2	–	–
3223.00	Kr II	–	[6]	Me
3222.97	Tb	8	3	Ed
3222.952	Cb	2	2	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
3222.90	Mo	–	40	–
3222.853	Ce	6 l	1	–
3222.842	Ti II	20	150 r	–
3222.751	Cb	3	2	–
3222.741	Ti I	3	–	–
3222.64	Rb	–	[40]	Ok
3222.624	Nd	8	4	–
3222.611	Ce	6	–	–
3222.57	Lu	–	8 h	Me
3222.565	Cd II	–	2	–
3222.470	Zr II	2	3	–
3222.44	Ba I	3 l	–	–
3222.42	A II	–	[3]	Rt
3222.411	Ce	18	1	–
3222.37	Tb	8	3	Ed
3222.293	U	8	3	–
3222.278	Ba I	2	–	–
3222.22	Ba I	20	–	–
3222.173	Nd	6	–	–
3222.070	Cb	5	30	–
3222.069	B II	–	5	–
3222.069	Fe I	200	100	S
3222.04	Tm	7	20	Me
3222.003	Ce	2	–	–
3221.931	Fe I	2	1	–
3221 911	W	10	9	–
3221.735	Mo	20	20	–
3221.70	Rb	–	[10]	Ok
3221.69	Eu	8 w	1	–
3221.652	Ni I	300	4	–
3221.651	Cb	–	10 w	–
3221.64	A II	–	[3]	Rt
3221.63	Cd	–	[12]	Es
3221.628	Ba I	2	–	–
3221.617	W	7	6	–
3221.6	Rn	–	[18]	Wo
3221.50	Dy	12	2	–
3221.470	Ce	2	–	–
3221.42	Ho	–	4 h	Ex
3221.412	U	6	2	–
3221.383	Os	15	5	–
3221.381	Ti I	25	6	–
3221.378	V	–	10	Me
3221.315	Ta	70	15 s	–
3221.293	Th	15	40 h	–
3221.29	Tb	8	3	Ed
3221.281	Ir	10	1 h	–
3221.273	Ni I	35	–	–
3221.22	Yb	2	3	–
3221.212	W	12 d	10 d	–
3221.190	Ru	4	3	–
3221.171	Ce II	50	8	–
3221.151	Ti I	4	–	–
3221.125	Cb	4	5	–
3221.08	Tm	7	–	Me
3221.061	Ce	2	–	–
3220.927	Cb	10	10	–
3220.871	Ce	30	–	–
3220.855	Mo	8	8	–
3220.78	Rh	4	2	–
3220.780	Ir I	100	30	–
3220.778	Pt	2	–	–
3220.75	Ca	–	3	Ad
3220.730	Er	25	5	–
3220.606	Hf II	25	35	–
3220.60	K II	–	[15]	Bn
3220.538	Pb	50 h	5	–
3220.529	Nd	2 h	4 h	–
3220.488	Cb	3 h	5	–
3220.467	Ti II	–	25	–
3220.467	Pd II	–	2	–
3220.46	Dy	10	2	–
3220.402	Ce	12 s	–	–
3220.304	Th	12	10	–
3220.277	Ti I	3 h	–	–
3220.25	Kr	–	[6 h]	Me
3220.189	Os	30	10	–
3220.17	Tb	15	–	Ed
3220.069	Ru	4	3	–
3220.062	W	8	7	–
3219.95	Tb	50	50	Ed
3219.948	Ce	2	–	–
3219.917	Re	2	–	–
3219.865	Sm	10	2	–
3219.811	Ni I	4	–	–
3219.810	Fe I	100	80	–
3219.72	Er	10	–	–
3219.671	Cb	2	2	–
3219.585	Ta	20 s	2 s	–
3219.581	Fe I	200	125	–
3219.551	Pr	20	5	Kn
3219.514	Ir I	35	2	–
3219.416	Sm	25	10	–
3219.402	Mo	5 h	25	–
3219.30	P	–	[100 w]	Gu
3219.212	Ti I	15	3	–
3219.177	Pr	7	1	–
3219.169	U	6	3	–
3219.153	Co I	60	–	–
3219.135	Os	25	8	–
3219.133	Cr	–	30	–
3219.1	Cs	–	[4]	Bs
3219.09	Lu	–	3 h	Me
3218.983	Ti I	2 h	–	–
3218.974	Pd I	300	8	–
3218.944	Ce	50	8	–
3218.93	Tb	50	50	Ed
3218.869	V I	20	15	–
3218.81	Th	5 d	2	–
3218.69	Cr	80 wh	2 wh	–
3218.686	Zr II	2	–	–
3218.684	Sn	18	50	–
3218.683	Ti I	2	–	–
3218.63	Eu	4 w	–	–
3218.606	W	10	9	–
3218.597	Sm	100	25	–
3218.508	Mo	5	1	–
3218.460	Ir I	20	1	–
3218.44	Te	–	[100]	Bl
3218.380	Ce I, II	30	2	–
3218.358	V I	8	1	–
3218.336	U	8	6	–
3218.32	Yb	2	10	–
3218.313	Th	8	4	–
3218.277	Rh I	60	–	–
3218.270	Ti II	15	150	–
3218.245	Pr	8	–	–
3218.21	Ne II	–	[75]	Bn
3218.20	Hf II	8	8	Me
3218.10	O II	–	[7]	Mh
3218.036	Sm	15	5	–
3218.023	Os	20	4	–
3217.984	Ta	2 r	1 h	–
3217.942	Ti I	12	1	–
3217.9	Pb II	–	[15]	Ea
3217.882	Rh I	60	20	–
3217.866	Ce	3	–	–
3217.864	Cb	5	5	–
3217.830	Ni I	10	5	–
3217.8	Cd	–	[15]	Es
3217.797	Cb	3	1	Me
3217.790	Er	4	–	–
3217.733	Th	8	5	–
3217.70	A	–	[3]	Rt
3217.576	Sm	3	2 h	–
3217.533	Nd	4	–	–
3217.522	Ce	20	–	–
3217.503	K I	50 R	25	–
3217.457	Th	10	10	–
3217.400	Cr	30	20	–
3217.380	Fe I	200	125	S
3217.305	Hf II	30	15	–
3217.286	Cb	10	5	–
3217.17	Yb	2	2	–
3217.132	Ce	12	–	–
3217.12	La II	2	10 h	Me
3217.116	Nd	2 d	–	–
3217.113	V I, II	30	80 h	–
3217.060	Ti II	40	150	–
3217.057	Os	20	10	–
3217.017	K I	100 R	20 h	–
3217.02	Cb	2 w	200 w	–
3216.996	Co I	2	–	–
3216.946	Mn	75	75	–
3216.923	Ta	100 w	18 w	–
3216.899	Ti	2	–	–
3216.836	Sm II	40	10	–
3216.821	Ni I	6	–	–
3216.8	Bi	8 h	2 h	To
3216.798	Ir	3 h	–	–
3216.779	Mo	5	5	–
3216.76	O II	–	[3]	Mh
3216.75	A	–	[10]	Rt
3216.717	Ce	12	–	–
3216.708	Ag	–	8 h	Fn
3216.682	Yt II	40	70	–
3216.67	Ho	–	8	Ex
3216.64	Tm	5	10	Me
3216.63	Dy	25	15	–
3216.625	Th	3	20 h	–
3216.620	Ta	3	–	–
3216.61	Tb	8	3	Ed
3216.587	Ce	3	–	–
3216.586	Zr I	2	–	–
3216.56	Cr	3	125	–
3216.523	Ru I	12	6	–
3216.395	Ce	3	–	–
3216.3	Rn	–	[15]	Pe
3216.284	Na II	–	[5]	Fr
3216.25	Kr II	–	[7 h]	Me
3216.225	Ce	3	–	–
3216.22	W II	6	10 s	–
3216.203	Ti I	8	–	–
3216.201	U	5	3	–
3216.189	Cb	2	10	–
3216.181	Ce	3	–	–
3216.12	Tm	10	30	Me
3216.08	O II	–	[2]	Mh
3216.068	Mo	–	50	–
3215.977	Ta	5	1	–
3215.940	Fe I	300	150	S
3215.896	Ce	8	–	–
3215.813	La I	10	3	–
3215.782	Th	10	5	–
3215.70	Cl II	–	[3]	Mu
3215.688	U	1	2	–
3215.678	Ag	5	3	Fn
3215.65	W II	6	10	–
3215.602	Ce	4	–	–
3215.595	Cb	50	200	–
3215.588	Sm	10	3	–
3215.560	W	10	9	–
3215.54	Tb	8	3	Ed
3215.416	Fe	10	4	–
3215.375	V I	20	5	–
3215.37	Ho	–	4 h	Ex
3215.336	Co I	5	–	–
3215.327	Ca I	5	–	–
3215.281	Mo	4	2	–
3215.265	Gd	5	3	–
3215.26	W	–	15	–
3215 243	Sm II	50	15	–
3215.228	Fe	4	2	–
3215.226	Cb	5	2	–
3215.189	Dy	40	10	–
3215 129	Ca I	20	4 w	–
3215.093	Ce	10	–	–
3215.092	U	2	3 h	–
3215.073	Mo	25	20	–
3215.01	Tb	8	8	Ed
3214.999	Cb	–	5	–
3214.883	Ce	2	–	–
3214.872	Rh I	30	–	–
3214.822	Re	3	–	–
3214.750	Ti II	20	80	–
3214.750	V II	20	100	–
3214.697	U	12	6	–
3214.636	Dy	15	5	–
3214.63	Tm	15	10	Me
3214.630	Ce	2	–	–
3214.446	Er	15	4	–
3214.442	Mo	20	50	–
3214.40	Tb	8	–	Ed
3214.400	Pr	8	1	–
3214.399	Fe I	100	50	–
3214.38	Ne II	–	[18]	Bn
3214.325	Rh I	70	20	–
3214.323	Th	6	1	–
3214.253	Ce	12	–	–
3214.243	Ti I	30	6	–
3214.189	Zr II	12	18	–
3214.121	Sm II	30	6	–
3214.107	Re	25	–	–
3214 059	Ni I	18	–	–
3214.040	Fe I	400	200	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3214.024	Ce	15	–	–
3213.938	V I	15	8	–
3213 907	U	3	2	–
3213.891	Re	10	–	–
3213.882	Cb	2	2	–
3213.747	Eu	100	20 h	–
3213.719	Hf	10	–	–
3213.7	Cs	–	[6]	Bs
3213.70	Ne II	–	[7]	Bn
3213.618	U	6	2	–
3213.578	Pr	10	1	–
3213.573	Th	12	10	–
3213.548	Ir I	10	2	–
3213 530	Ce	2	–	–
3213.489	Re	20 w	–	–
3213.463	Os	20	2	–
3213.423	Ni I	12	–	–
3213.399	U	5	3	–
3213 317	Mo	10	1	–
3213.314	Fe II	50	300	–
3213 312	Os	50	40	–
3213 30	Ho	–	4	Ex
3213.286	Nd	4	–	Kn
3213 146	W	7	4	–
3213 145	Ti I, II	25	25	–
3213 086	U	10	8	–
3213.060	Ce	20	–	–
3212.969	Ru I	10	6	–
3212.945	Re	50	–	–
3212 899	Ce	3	–	–
3212.895	Cr	–	30	–
3212.884	Mn	100	100	–
3212 858	Sm	10	2	–
3212.854	Zr II	5	3	–
3212.811	Th	6	3	–
3212.808	Eu	200	20	–
3212.78	Ba	–	5	Py
3212.720	Os	40	10	–
3212.684	Dy	6	2	–
3212.649	U	8	6	–
3212.593	Mo	15	10	–
3212.591	Ce	8	–	–
3212.577	Zr I	4	–	–
3212 56	La II	2	2	Me
3212.54	A	–	[10]	Rt
3212 50	Ca	–	2	Ad
3212 480	Ce	20	–	–
3212.447	Dy	4	2	–
3212 434	V I	70	50	–
3212.379	Re	2	–	–
3212 374	Pt I	6	–	–
3212 320	Ce	3	–	–
3212 29	Xe II	–	[3 h]	Hu
3212 28	Yt II	6	8	–
3212.221	Ir I	5	–	–
3212.186	Na II	35	[60]	Fr
3212.172	Fe	4	2	–
3212.143	Cb	1	3	–
3212.119	Ir I	25	15	–
3212.03	Dy	5	1	–
3212.013	Zr I	15	3	–
3212 01	Tm	50	40	Me
3211.992	Fe I	70	50	–
3211.98	Hg	–	[5]	Ps
3211.881	Fe	10	10	–
3211.87	Ho	–	4 h	Ex
3211.812	Cb	1	10	–
3211.756	Re I	40	–	–
3211.755	Sm	100	15	–
3211.683	Fe I	80	50	–
3211.612	Ce	10	–	–
3211.59	Xe	–	[2 wh]	Hu
3211.573	V I	5	3	–
3211.510	Mo	5	2	–
3211.496	He I	–	[2]	Ps
3211.487	Fe	80	40	–
3211.40	Cb	–	5	–
3211.387	Rh I	10	–	–
3211.336	Ce	10	–	–
3211.309	Cr	35	12	–
3211.20	Te	–	[35]	Bl
3211.196	Th	6	1	–
3211.17	Tb	8	3	Ed
3211.07	Ti I	2	–	–
3211.006	U	–	2 h	–
3210 976	Hf	12	1	–
3210.973	Nd	6	2	–
3210 966	Mo	15	20	–
3210.951	Ce	20	2	–
3210.89	Kr II	–	[7]	Me
3210.880	U	6	–	–
3210.838	Co	18 wh	–	–
3210.834	Fe I	150	100	–
3210.832	Sm II	5	2	–
3210.82	Tm	40	10	Me
3210 701	U	5	4	–
3210.656	Fe	1	–	–
3210.652	Mo	4	1	–
3210.64	Kr II	–	[2 h]	Me
3210 574	U	6	3	–
3210.57	Tm	40	50	Me
3210.566	Eu	80	–	–
3210.555	Mo	4	1	–
3210 456	Mo	4	1	–
3210.451	Fe II	5	50	–
3210.448	Pd II	–	60 h	–
3210.430	V I	10	5	–
3210.4	Rn	–	[5]	Pe
3210 39	Ho	6	6 h	Ex
3210 290	Cb	3	4	–
3210 273	Th	10	10	–
3210 27	Si	–	7 h	Sy
3210 236	Fe I	150	100	–
3210.226	Co I	80	2	–
3210 22	Tb	15	8	Ed
3210 207	Cb	1	3	–
3210 113	Sb	–	[6]	Lg
3210 11	Yb	1	8	–
3210 1	Cd	–	[12]	Es
3210 097	V I	10	5	–
3210 094	Ce	8	–	–
3209 98	Ag	1 h	5 h	–
3209.970	U	4	4	–
3209.96	W	2	25	–
3209 930	Ca I	30	2	Cw
3209 912	Ni I	20	–	–
3209 866	Ta	3	1	–
3209 726	Sm	3	2	–
3209 712	Mo	–	30	–
3209 65	Cs	–	[10]	Bs
3209.636	U	6	6	–
3209 61	I I, II	–	[5]	Bl
3209.56	Sr II	–	4	Sd
3209.54	Tb	8	3	Ed
3209 510	Ce	3	–	–
3209 412	Pd II	–	2 h	
3209 38	Ne II	–	[7]	Bn
3209.359	Ce	3	–	–
3209 297	Fe	200	125	–
3209.187	U	8	8	–
3209 183	Cr II	40	125	–
3209 17	Kr II	–	[7 hl]	Me
3209.13	La II	3	3	Me
3209.048	Ce	2	–	–
3209.030	Ti I	8	1	–
3208 99	Ne II	–	[4]	Bn
3208.88	I	–	[5]	Bl
3208.851	Pt	3	–	–
3208.834	Mo	150 r	60	–
3208.81	Dy	10	2	–
3208.71	Ca	–	2	Ad
3208.629	Ta	7	1	–
3208.607	Ti II	–	20 wh	–
3208 590	Cr II	20	40	–
3208.585	Cb	3 w	100 w	–
3208.570	W	9	10	–
3208 565	U	5	5	–
3208.475	Fe	100	80	–
3208.392	Cb	–	2	–
3208.352	V II	10	100	–
3208.33	Br	–	[6]	Bl
3208.312	Zr II	3	1	–
3208.28	Kr II	–	[40 h]	Me
3208.280	W	12	10	–
3208.234	Cu I	25	15	–
3208.227	Ag	2	4 h	–
3208.224	Re	15	–	–
3208.20	Hg II	–	[18]	Ps
3208.197	Ta	3	10	–
3208.173	U	1	2	–
3208.167	Sm	25	8	–
3208.151	Ir I	10	–	–
3208.13	La	2 h	10 hl	Me
3208.100	W	9	8	–
3208.09	Cb	2 h	10	–
3208.049	Er	12	2	–
3208.043	U	3	4	–
3208.025	Th	18	10	–
3207.995	Cr	–	10	–
3207.96	Tb	8	–	Ed
3207.906	Ne	–	[10]	Ps
3207.897	Ti I	10	2	–
3207.894	Pr	20	2	–
3207.853	Ta	70	15	–
3207.799	W	8	6	–
3207.780	Th	10	8	–
3207.70	Yb	–	2	–
3207.671	U	8	–	–
3207.654	Fe	2 h	1 h	–
3207.624	Ce II	12	–	–
3207.61	A II	–	[10]	Rt
3207.53	Tb	15	8	Ed
3207.50	A I	–	[10]	Ms
3207.410	V I	80 r	20	–
3207.35	Ag	–	4 h	–
3207.335	Cb	5	30	–
3207.327	Ti I	8	2	–
3207.31	U	2	1	–
3207.29	Rh	3	6	–
3207.286	Ce	8	–	–
3207.252	W	12	10	–
3207.23	Ca	1 h	2	–
3207.176	Sm II	50	9	–
3207.170	Mo	–	10	–
3207.168	Ce	3	–	–
3207.10	Dy	20	3	–
3207 094	Ir I	5	–	–
3207.09	Tb	8	3	Ed
3207.089	Fe I	80	50	–
3207.08	Eu	2 h	–	–
3207.07	Cs	–	[4]	Bs
3206.952	Ni I	8	–	–
3206 935	Th	10	8	–
3206 921	V I	5	–	–
3206 921	Ce II	12	–	–
3206.908	Mn	60	–	–
3206.885	Pd II	–	2	–
3206 86	Ho	6	4	Ex
3206.825	Ti I	10	2	
3206.808	Cb	3	2	–
3206 804	Mo	–	20	–
3206 8	Rn	–	[18]	Wo
3206.785	Ta	7 h	1 h	–
3206.774	Hf II	6	5	–
3206 692	U	6	1	–
3206 62	I	–	[5]	Bl
3206.509	Ce	12	–	–
3206.461	Re	2 h	–	–
3206.406	W II	6 d	15	–
3206.40	Dy	40	5	–
3206.386	Ta	70	15	–
3206.344	Ti I	10	3	–
3206.343	Cb	10	300	–
3206.227	U	10	8	–
3206.171	Th	6	3 h	–
3206.15	Yb	1	3	–
3206.14	V	–	10 h	Me
3206.108	Hf	20	2	–
3206.10	Ca	–	5	Ad
3206.086	Rh	10	–	–
3206.049	U	12	10	–
3206.035	Ce	2	–	–
3206.018	Sm	3 h	–	Kn
3205.990	Ti II	3	15	–
3205.960	Ce	10	1	–
3205.917	Nd	8	–	–
3205.886	Co I	2	–	–
3205 883	Mo	30	20	–
3205.848	Ti I	10	1	–
3205.777	Os	10	5	–
3205.76	La II	4	5	–
3205.632	Sm	2	–	–
3205 582	V I	20	10	–
3205.541	Mo	5	2	–
3205 503	W	9	7	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3205.49	Ta	10 W	–	–
3205.46	Dy	5	2	–
3205.44	Kr II	–	[2]	Me
3205.406	Ce	5	–	–
3205.402	Re	15 h	–	–
3205.400	Fe I	300	200	S
3205 312	Ru	4	1	–
3205.300	Th	10	6	–
3205.262	V I	15	5 h	–
3205.26	Kr II	–	[4]	Me
3205.217	Mo	20	4	–
3205.168	Ti I	4	1	–
3205.148	Er	15	3	–
3205.098	Cr	1	40	–
3205.091	Ir I	20	5	–
3205.08	Ca	1 h	2	Ad
3205.073	U	–	2	–
3205.03	A II	–	[5]	Rt
3205.018	Pr	8	2	–
3204 978	U	3	1	–
3204.970	Cb	10	150	–
3204.935	Mo	–	25	–
3204 920	Ce	10	–	–
3204 895	Zr I	10	–	–
3204 892	Sm	25	9	–
3204.870	Ti I	15	5	–
3204.808	Pr	10	2	–
3204.74	Au I	50	30	–
3204.685	Re	2	–	–
3204 68	Yb	1	3	–
3204 669	U	6	6	–
3204.654	Cb	5	1 h	–
3204.58	Se II	–	[40]	Bl
3204.567	Sm II	4	2	–
3204.55	La II	2	2	Me
3204.515	Os	8	5	–
3204.453	Ir	2	–	–
3204.356	Ce	15	–	–
3204 348	Zr II	2	1	–
3204.34	A	–	[10]	Rt
3204.27	Ho	–	4	Ex
3204.27	Cs	–	[4]	Bs
3204.21	Tb	8	3	Ed
3204.202	Re	300	–	–
3204.196	V I	20	10	–
3204.160	Ce	30	–	–
3204.118	U	3	1	–
3204.060	Ru I	8	5	–
3204.04	P	–	[30]	Gu
3204.040	Pt I	250	100	–
3203.950	Er	6	1	–
3203.881	Th	10	6	–
3203.87	Si	–	3	Sy
3203.862	Ba I	2 h	–	–
3203.828	Ti I	40	6	–
3203 742	Mn	12	–	–
3203.735	Ta	3	2 hl	–
3203.726	U	8	4	–
3203 674	Hf II	5	10	–
3203.66	A I	–	[10]	Ms
3203.515	Cr	–	12	–
3203.462	Nd	10	4	–
3203.435	Ti II	10	15	–
3203.42	W II	5	12	–
3203 406	U	8	6	–
3203 36	Er	20	12	–
3203.353	Cb	8	50	–
3203.337	W II	4	20	–
3203.33	Ho	–	6	Ex
3203.327	Os	5	5	–
3203.323	Yt II	30	50	–
3203 234	Th	10	6	–
3203.223	U	8	6	–
3203.22	Ca	1	3	–
3203.144	Ce	4	–	–
3203.14	He II	–	[100]	Ps
3203.138	Cb	–	5 wh	–
3203.054	W	9	8	–
3203.05	Cl II	–	[20]	Ks
3203.031	Co I	40	–	–
3202.951	Fe	3	2	–
3202.95	Tb	8	3	Ed
3202.906	Ce	15	–	–
3202.85	A I	–	[5]	Ms
3202.834	Os	40	10	–
3202.740	F II	–	[200]	Di
3202.735	U	4	4 h	–
3202.70	Tb	8	3	Ed
3202.654	Fe I	2	1	–
3202.653	Ce	2	–	–
3202.56	Dy	4	1	–
3202.560	Fe	40	20	–
3202.555	Mn	12	–	–
3202.54	Kr II	–	[15 hl]	Me
3202.538	Ti II	25	200	–
3202.525	Th	5	4	–
3202.506	Cr	–	15	–
3202.469	U	4	4 h	–
3202.443	Ce	2	–	–
3202.381	V I	100 r	20 r	–
3202.356	Ce	10	–	–
3202.243	Ce	15	–	–
3202.239	Dy	2	–	–
3202 221	Re	2	–	–
3202.219	Sm	2 h	2 h	–
3202 16	Hf II	5	5	Me
3202.142	Ni I	25	–	–
3202.133	Mo	4	1	–
3202.132	Th	6	4	–
3202.12	Cl II	–	[6]	Ks
3202.04	Xe II	–	[8]	Hu
3201.976	Ta	40	7	–
3201.8	Cd	–	[8]	Es
3201 8	Rn	–	[5]	Pe
3201 792	Sm	30 d	3	–
3201.77	Ho	6	6	Ex
3201.714	Ce	50	10	–
3201.68	Xe II	–	[3 h]	Hu
3201.63	Dy	4	1	–
3201 594	Ti I	12	1	–
3201 59	V	–	10 wh	–
3201 581	W	7	20	–
3201 551	U	8	4	–
3201.500	Mo	1	30	–
3201 499	Ru I	4	5	–
3201.421	Ce	10	–	–
3201.36	Hg	–	[5]	Ps
3201 29	Dy	4	1	–
3201.260	Cr	1	50	–
3201.258	Ru	2	100	–
3201.238	U	6	4	–
3201 226	V I	8	–	–
3201.159	Yb	4	40	–
3201.121	Mn	8	–	–
3201.12	A I	–	[3]	Ms
3201.105	Ce	15	–	–
3201.09	Cs	–	[4]	Bs
3201 06	Te	–	[5]	Bl
3200.975	U	4	2	–
3200.93	Se II	–	[8]	Bl
3200.894	Ag	1 h	8 h	–
3200.889	Mo	5	–	–
3200.887	Ir I	10	5	–
3200.867	Ce	8	–	–
3200.84	Ca	1	2	–
3200.784	Fe I	25	15	–
3200.782	Os	10	4	–
3200.731	W	7	6	–
3200.73	Tb	15	3	Ed
3200.724	Re I	25	–	–
3200.714	Pt I	100	40	–
3200.678	Zr II	3	1	–
3200.658	U	6	4 h	–
3200.625	Ce	6	–	–
3200.623	Nd	8	4	–
3200.59	Er	6	1	–
3200.534	Cb	4	5	–
3200.515	Ce	10	1	–
3200.475	Fe I	150	150	S
3200.423	Ni	30	–	–
3200.40	Kr II	–	[50 h]	Me
3200.39	A I	–	[100]	Ms
3200.378	U	5	2	–
3200.270	Yt II	30	40	–
3200.22	Sr I	2 h	–	Sd
3200.213	Mo	5	30	–
3200.135	U	15	15	–
3200.126	Ce	2	–	–
3200.04	Rb	–	[10]	Ok
3200 039	Re I	50 w	–	–
3200.037	Ir I	6	–	–
3200.030	Ag	–	4 h	–
3200.00	Tm	15	30	Me
3199.994	Hf II	20	30	–
3199.965	W	8	7	–
3199.915	Ti I	200	150	–
3199.877	U	4	1	–
3199.820	V I	25	10	–
3199.802	Sm	4	–	Kn
3199.74	I II	–	[5]	Bl
3199.66	Br	–	[8]	Bl
3199.596	Sm	3	2	Kn
3199.583	U	4	1	–
3199.56	Tb	30	15	Ed
3199.525	Fe I	300	200	–
3199.518	Re I	3 h	–	–
3199.42	Si	–	4	Sy
3199.37	Sc II	2	8	–
3199.342	Ni	5	–	–
3199 324	Co I	35	–	–
3199.305	W	9	8	–
3199.279	Ce	25	2	–
3199.241	Mo	–	15	–
3199.225	Ta	–	70 l	–
3199.198	U	5	1	–
3199.049	Pr	20	3	–
3198.99	Sr I	10	4	Sd
3198.969	Th	10	9	–
3198 944	U	2	2	–
3198 936	Ta	–	70 l	–
3198.929	Pt	3	–	–
3198.924	Ir I	30	10	–
3198.852	Mo	6	1	–
3198 841	W	12	10	–
3198.77	Rb	–	[60]	Ok
3198.76	Eu	15 w	1 h	–
3198.729	Ce	4	–	–
3198 726	Ti I	3	–	–
3198.702	Th	9	9	–
3198.7	Cs	–	[4]	Bs
3198 670	Ta	125	18	–
3198.663	Co I	60	2	–
3198.644	Yb	2	20	–
3198.62	Ne II	–	[20]	Bn
3198.582	Re	30	–	–
3198.55	Tb	8	–	Ed
3198.485	Fe	2	1	–
3198.470	U	4	1	–
3198.42	Yt II	3	3	–
3198.411	Mo	1	25	–
3198.33	W	1	15	–
3198.327	Ru I	3	–	–
3198.322	U	1	2	–
3198.266	Fe	8	6	–
3198.240	Ce	5	–	–
3198.221	Cb	1	50	–
3198.184	In II	–	[10]	Ps
3198.176	Th	10	10	–
3198.154	U	5	8	–
3198.12	Lu	40	80	Me
3198.111	Cr	40	10	–
3198.097	Ir I	6	5 h	–
3198.037	In II	–	[35]	Ps
3198.012	V I	100 r	30 r	–
3198.01	Tb	15	3	Ed
3197.981	Cr	–	8	–
3197 956	Pt II	4	20 h	Sh
3197.904	U	12	2	–
3197.83	Ho	6	4	Ex
3197.8	Cd	–	[8]	Es
3197.678	Nd	6	–	–
3197.65	Kr II	–	[4 hl]	Me
3197.592	Dy	4	2	–
3197.578	V	1	10	Me
3197.56	W	–	20	–
3197.518	Ti II	12	40	–
3197.517	Fe	10	8	–
3197.275	Cb	–	10 h	–
3197.200	Os	40 s	10	–
3197.182	Mo	4	3	–
3197.158	Be II	–	15	–
3197.133	Rh I	50	10	–
3197.113	Ni I	300	–	–
3197.088	Zr II	1	2	–
3197.079	Cr II	35	30 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3197.04	Zr I	20	–	Ks
3197.036	Ce	2	–	–
3197.02	Zn II	–	[5]	Vs
3196.997	Fe I	150	–	–
3196.98	Sb	–	5 h	–
3196.930	Fe I	500	300	S
3196.926	Hf	15	1	–
3196.92	I	–	[5]	Bl
3196.9	Rn	–	[30]	Wo
3196.760	He I	–	[2]	Ps
3196.738	U	8	10	–
3196.591	Ru	50	2	–
3196.565	V	5	20	–
3196.545	Eu	8	–	–
3196.54	Tm	20	10	Me
3196.431	U	6	1	–
3196.429	Dy	2	1	–
3196.370	Ta	8 W	–	–
3196.35	Yb	–	2	–
3196.29	Zn II	–	[15]	Vs
3196.22	Xe	–	[12]	Hu
3196.186	Sm II	20	9	–
3196.184	Cb	3 h	–	–
3196.179	Cb	–	5	–
3196.129	Fe	100	–	–
3196.12	Si	–	2	Sy
3196.076	Fe II	10	150	–
3196.07	Ho	–	4 h	Ex
3196.036	Pr	15	2	–
3195.994	Ti II	2	2 h	–
3195.966	Os	30	10	–
3195.958	Mo	12	50	–
3195.936	Ce	20	–	–
3195.8	Li II	–	[3]	Wr
3195.717	Ti II	5	20	–
3195.713	Ce	12	–	–
3195.691	Th	8	1	–
3195.615	Yt II	30	50	–
3195.614	Hf II	6	8	–
3195.60	Tb	15	15	Ed
3195.58	Yb	2	6	–
3195.573	Ni I	125	–	–
3195.56	Ho	–	4	Ex
3195.550	Ce	12	–	–
3195.526	U	3	3	–
3195.5	Cs	–	[4]	Bs
3195.50	Kr II	–	[2]	Me
3195.479	V	–	25 h	–
3195.382	Os	100	12	–
3195.34	Tm	30	15	Me
3195.323	Ce	5	–	–
3195.312	Th	8	6	–
3195.255	U	2	1	–
3195.235	Mo	1	20	–
3195.231	Fe	6	3	–
3195.21	Ba	–	4	–
3195.151	Ru	–	100	–
3195.12	A I	–	[5]	Ms
3195.08	Eu	4 w	–	–
3195.076	W	9	5	–
3194.977	Cb II	30	300	–
3194.915	V I	5	–	–
3194.873	Mo	3	3	–
3194.853	U	–	2 h	–
3194.852	Ir	2	–	–
3194.842	Ta	1 h	40	–
3194.825	Ce	25	–	–
3194.76	Ti II	–	40 wh	–
3194.75	Ca	1	2	–
3194.738	Ru	4	1	–
3194.71	Au I	25	20	–
3194.71	Tb	15	8	Ed
3194.70	La II	–	2	Me
3194.687	Os	50	10	–
3194.683	Ce	5	–	–
3194.634	In II	–	[25]	Ps
3194.61	Ne II	–	[12]	Bn
3194.60	Tm	10	5	Me
3194.597	Fe	60	20	–
3194.56	V I	6	–	–
3194.56	Ti II	2	8	–
3194.55	Rh I	50	10 h	–
3194.477	Re I	50 w	–	–
3194.47	Hf II	6	3	Me
3194.435	In II	–	[10]	Ps
3194.423	Fe I	100	70	–
3194.41	Te	–	[10]	Bl
3194.38	Yt I	8	–	–
3194.374	V	8	1	–
3194.37	Eu	2	5 h	–
3194.36	Cd	–	2	–
3194.360	In II	–	[10]	Ps
3194.278	In II	–	[5]	Ps
3194.275	Cb	2 w	150 w	–
3194.26	Ti II	2	7	–
3194.25	A	–	[10]	Rt
3194.24	Yb	1	3	–
3194.234	Os	125	15	–
3194.193	Hf II	40	40	–
3194.102	Ce	15	–	–
3194 095	Cu I	70	60	–
3194.09	Se	–	[20]	Bl
3194.09	Er	9	1	–
3194.008	I	–	[20]	Ke
3193.981	Cu	2	–	–
3193.981	Ce	2	–	–
3193 978	Fe	3	1	–
3193.978	Ba I	2	–	–
3193 973	Mo	1000 r	50 r	–
3193.967	Ir	6	–	–
3193.95	I	–	[100]	Bl
3193.916	V I	100	20	–
3193.91	Ba I	2	–	Sd
3193 867	Os	40 l	10	–
3193.845	Rh I	5	–	–
3193.802	Fe I, II	10	50	–
3193.801	Be I	2	–	–
3193.66	Dy	2	–	–
3193.6	Cs	–	[4]	Bs
3193.59	Te	–	[10]	Bl
3193.526	Hf II	25	25	–
3193.48	Yt II	–	3 h	–
3193 333	Ce	15	–	–
3193.311	Th	6	4	–
3193.308	Dy	25	5	–
3193.303	Fe I	20	15	–
3193 301	U	3	3	–
3193 29	Yt	2	7	–
3193 228	Fe I	100	70	–
3193.226	U	5	10	–
3193.202	Re	25	–	–
3193 193	V	1	20	–
3193.160	Co I	50	–	–
3193.126	Ce	9	–	–
3193.12	Te	–	[10]	Bl
3193.116	Ir	2	–	–
3193 084	Nd	4	–	–
3193.02	La II	15	60	–
3193.004	Sm	40	10	–
3192.926	Fe II	5	–	–
3192 878	Yb	12	80	–
3192.802	Fe I	150	8	–
3192.797	Mo	6	2	–
3192 76	Tb	8	3	Ed
3192 731	Sm	3	1	–
3192.708	V	1	20	–
3192.69	Si	–	2	Sy
3192.68	Ti II	–	20 wh	–
3192.665	U	6	8	–
3192 634	Er	20	12	–
3192.586	Th	8	1	–
3192.54	Kr II	–	[2]	Me
3192.505	Pt I	6	–	–
3192.503	Fe	2	1	–
3192.418	Cb	–	2	–
3192.408	Fe	12	6	–
3192.392	W	6	5	–
3192.368	Re I	40	–	–
3192.26	Ti II	1	5	–
3192.253	Ta	70	18 w	–
3192.224	Co I	35	–	–
3192.160	U	2	1	–
3192.13	W II	–	10	–
3192.114	Cr I	30	2	–
3192.104	Mo	3	50	–
3192.1	Cs	–	[4]	Bs
3192.098	Th	8	5	–
3192.069	Ru I	10	5	–
3192.064	Fe II	–	10	–
3192.031	Dy	3	–	–
3192.0	Rn	–	[30]	Pe
3191.996	Sm	8	2	–
3191.994	Ti I	100	20	–
3191.905	Zr II	8	5	–
3191.875	Ni I	4	–	–
3191.855	Nd	4	–	–
3191.848	Ag	–	4 h	–
3191.84	B	3	10	Sy
3191.835	Th	6	4	–
3191.80	Lu	3	60 hl	Me
3191.776	Ru	3	1	–
3191.765	U	6	6	–
3191.659	Fe I	200	150	S
3191.572	W	12	10	–
3191.519	Mo	4	3	–
3191.427	Cb	3	200	–
3191.414	Pr	25	3	–
3191.41	Yb	1	8 h	Me
3191.40	Cl	–	[15]	Jv
3191.395	Ce	2	–	–
3191.39	Eu	5	5 h	–
3191.39	La II	3	8 hl	Me
3191.308	Yt I	10	3	–
3191.298	Co I	35	–	–
3191.28	Ca	1	2	–
3191.214	Zr I	9	2	–
3191.191	Os	20	8	–
3191.187	Rh I	300	50	–
3191.185	Ce	15	–	–
3191.167	Th	8	6	–
3191.156	Ta	50	5	–
3191.112	Fe	20	8	–
3191.096	Cb	100 w	300 w	–
3191.095	Th	5	3	–
3191.093	Nd	4	–	–
3191.081	Ce	5	–	–
3191.036	Sm	3	1	–
3191.03	Hg II	–	[100]	Ps
3191.024	Mo	4	–	–
3191.005	Sc II	3	2 h	–
3190.97	Ho	–	4 h	Ex
3190.892	U	6	6	–
3190.89	Pb	–	2	Sx
3190.874	Ti II	40	200 r	–
3190.86	Ne II	–	[4]	Bl
3190.833	Ce	5 w	–	–
3190.816	Fe	40	20	–
3190.789	Re I	30	–	–
3190.72	Tb	8	–	Ed
3190.707	Nd	6	–	–
3190.703	U	12	12	–
3190 678	V II	50	150 R	–
3190.651	Fe I	50	25	–
3190.648	Dy	3	–	–
3190.430	U	5	3	–
3190.429	Cb	–	3	–
3190.403	Sc II	2	2	–
3190 395	Ce	15	–	–
3190.342	Rh I	40	10	–
3190 341	Ce II	25	–	–
3190.282	Gd	5	–	–
3190.232	Mo	4	4	–
3190.2	Rn	–	[2]	Pe
3190.173	Re	25	–	–
3190.163	Ce	2	–	–
3190.074	Th	5	4	–
3190.07	K II	–	[20]	Bn
3190.06	Pb	–	2	–
3190.033	Sr	10	8	–
3190.016	Fe	30	10	–
3189.976	Ru I	50	50	–
3189.97	Tb	8	3	Ed
3189.927	U	6	–	–
3189.87	Te	–	[5]	Bl
3189.838	Cr	–	10	–
3189.783	Na II	35	[60]	Fr
3189.76	Dy	4	1	–
3189.756	Co I	60	3	–
3189.754	V	–	3	Me
3189.719	Ta	10 w	1 h	–
3189.718	Ru	5	5	–
3189.638	Ce II	30	–	–
3189.625	Hf	15	1	–
3189.62	I I	–	[5]	Bl
3189.557	Sm II	6	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3189.52	Ti II	1	4	–
3189.459	Os	125	15	–
3189.34	Pd	–	2 h	Bx
3189.335	Ir I	7	–	–
3189.296	Ru	3	–	–
3189.282	Cb	10 w	300 r	–
3189.281	Mo	3	25	–
3189.28	K	–	[5]	Bn
3189.265	Ce	15	–	–
3189.236	W II	10	20	–
3189.23	Sr I	4 W	4	Sd
3189.20	Cs	–	[4]	Bs
3189.105	Ce	2	–	–
3189.100	Ta	2 wh	4 h	–
3189.078	V I	10	–	Me
3189.064	Dy	3	1	–
3189.048	Rh I	100	20	–
3189.04	Cl II	–	[20]	Ks
3189.017	U	8	12	–
3188.907	Ru	4	3	–
3188.85	Si	–	2	Sy
3188.823	Cb	–	5 h	–
3188.821	Fe I	150	100	–
3188.787	Ce II	25	–	–
3188.74	Ne II	–	[7]	Bn
3188.734	Nd	10	–	–
3188.710	Sm II	10	4	–
3188.667	Dy	5	2	–
3188.609	Ru I	3	5	–
3188.571	Fe I	150	100	–
3188.55	Tb	8	3	Ed
3188.513	V II	35	100 R	–
3188.459	Ta	2	1	–
3188.403	Mo	5	3	–
3188.373	Co I	100	2 h	–
3188.37	Te	–	[10]	Bl
3188.339	U	10	10	–
3188.338	Ru I	60	50	–
3188.307	Ce	5	–	–
3188.292	Rh I	8	–	–
3188.188	Th	4 d	4 d	–
3188.094	V I	10	–	–
3188.094	Mo	5	3	–
3188.078	Pt II	1	5	Sh
3188.03	Tb	15	8	Ed
3188.026	Fe	4	10	–
3188.011	Cr	150 h	60 h	–
3187.992	U	10	–	–
3187.9	Rn	–	[10]	Pe
3187.88	Rh	2	4	–
3187.862	Ce	15	–	–
3187.83	Ag	1	8 h	–
3187.785	Er	25	12	–
3187.775	Sm	25	8	–
3187.764	W	8	7	–
3187.743	He I	–	[200]	IMr
3187.74	Tl II	–	[50]	El
3187.708	V II	35	100 R	–
3187.683	Mo	5	–	–
3187.680	Fe	6	2	–
3187.676	Dy	25	10	–
3187.669	Ce	20	–	–
3187.61	Kr II	–	[4]	Me
3187.6	Bi	–	2 h	Wt
3187.60	Ne II	–	[4]	Bn
3187.592	Mo	1	50	–
3187.513	U	3	1	–
3187.493	Cb	12	10	–
3187.42	Cl II	–	[5]	Ks
3187.41	Tm	10	25	Me
3187.408	Th	4	2	–
3187.37	Ho	–	4	Ex
3187.335	Os	80	12	–
3187.293	Fe II	–	60	–
3187.25	Tb	15	15	Ed
3187.213	Sm II	15	8	–
3187.163	Fe	5	1	–
3187.133	Ir I	2 h	–	–
3187.13	W	–	20	–
3187.03	In	–	12	Sq
3187.006	Sm II	15	8	–
3187.002	Th	10	8	–
3187.00	Eu	6	2	Kn
3186.980	Os	100	15	–
3186.858	V	1	10	–
3186.744	Cr	–	30	–
3186.741	W	6	5	–
3186.741	Fe II	20	300	–
3186 63	A I	–	[5]	Ms
3186.58	Yb	1	3	–
3186 56	Tl II	–	[10]	El
3186.544	Cb	5	5	–
3186.533	Os	30	8	–
3186.46	Te	–	[5]	Bl
3186.454	Ti I	150	80	–
3186.402	Os	15	30	–
3186.386	Mo	–	25	–
3186.375	Dy	25	10	–
3186.35	I	–	[5]	Bl
3186 348	Co I	70	–	–
3186.323	U	10	–	–
3186.291	Re	10	–	–
3186.280	Sm	6	3	–
3186.24	P	–	[50]	Gu
3186.23	Tb	8	3	Ed
3186.19	A II	–	[3]	Rt
3186.126	Ce	40	–	–
3186.113	Ir	3	–	Ab
3186.044	Ru I	80	25	–
3186.017	Cu II	–	3	Sh
3186.015	Sm	40	5	–
3185.956	Yt I	7	2 h	–
3185.950	Co I	40	–	–
3185.886	Ir I	2 h	–	–
3185.837	Sm	3	1	–
3185.711	Mo	8	3	–
3185.71	U	12	10	–
3185.593	Rh I	100	20	–
3185.563	Re I	200	–	–
3185.56	Eu	10 wh	10 wh	–
3185.55	Cd II	–	[15]	Tk
3185.51	Tl II	–	[6]	El
3185.506	Ce	2	–	–
3185.5	Rn	–	[10]	Pe
3185.48	Tm	20	40	Me
3185.442	Ru I	12	–	–
3185.413	Ce	4	–	–
3185.397	U	4	–	–
3185.396	V I	500 R	400 R	–
3185.327	Os	150	12	–
3185.316	Fe II	–	25	–
3185.28	Si	–	3	Sy
3185 247	Er	15	2	–
3185.202	W	6	5	–
3185.145	U	4	3	–
3185.104	Mo	20	8	–
3185 088	Ag	–	4 h	–
3185.075	Zr I	2	–	–
3185.05	W II	1	10	–
3184.898	Th	10	10	–
3184.897	Ru I	4	–	–
3184.896	Fe I	200	150	S
3184.843	Cu II	–	8	Sh
3184.82	P	–	[50]	Gu
3184.777	Dy	18	5	–
3184 764	U	3	1	–
3184.754	Re I	150	–	–
3184.721	Ce	10	–	–
3184.622	Fe I	60	40	–
3184.622	Ce	12	–	–
3184 59	Pd II	–	2	Bx
3184.572	Mo	6	4	–
3184.552	Ta	70	18	–
3184.415	W	10	9	–
3184.41	Ba	3	–	–
3184.406	U	6	2	–
3184.402	Mo	3	1	–
3184.367	Ni I	150	3	–
3184.341	Cr	–	30	–
3184.337	Os	10	5	–
3184.330	Ce	2	–	–
3184.223	Cb	5	150	–
3184.22	Eu	10 W	–	–
3184.212	Ce II	20	–	–
3184.205	Dy	2	1	–
3184.194	Sm	3	–	–
3184.15	Ag II	–	20	–
3184.13	Ho	–	4 h	Ex
3184 107	Fe	5	2	–
3184.09	Ti II	3	10	–
3184.043	W	10	7	–
3184.017	Ti	5	10	–
3183.994	Ce	4	–	–
3183.982	V I	500 R	400 R	–
3183.98	W II	1	6	–
3183.971	Th	12	5	–
3183.968	Ti	12	2	–
3183.948	Ba I	2	–	–
3183.916	Sm	60	40	–
3183.88	Tb	15	3	Ed
3183.85	Ho	6	6	Ex
3183.844	Ce	2	–	–
3183.81	Eu	2 h	8	–
3183.794	Th	8	8	–
3183.73	Lu	3	6	Me
3183.64	Tb	15	3	Ed
3183.58	I	–	[10]	Bl
3183.573	Fe	5	3	–
3183.554	Th	8	6	–
3183.523	Ce	40	–	–
3183.513	W	9	6	–
3183.41	Er	15	4	–
3183.406	V I	200 R	100 R	–
3183.325	Cr	6	150	–
3183.322	Mo	6 d	–	–
3183.302	Sm	4	2	–
3183 29	Tb	15	3	Ed
3183.251	Ni I	25	–	–
3183.196	Dy	7	3	–
3183.16	Ba I	5	–	Sd
3183.108	Fe II	7	50	–
3183.093	Ce	5	–	–
3183.038	Ni I	5	–	–
3183.033	Mo	10	–	–
3182.975	Fe	125	70	–
3182.91	Cd	–	[8]	Es
3182.868	Re I	100	–	–
3182.858	Zr II	12	18	–
3182.855	W	9	8	–
3182.833	U	6	8	–
3182.82	Zn	–	[3]	Vs
3182.803	Os	40	8	–
3182.798	Ir I	2	–	–
3182.675	V I	–	35	Me
3182.667	Re	15	–	–
3182.662	Ce	20	–	–
3182.648	Th	10	10	–
3182.591	V	–	35	–
3182.571	Ta	70 r	18	–
3182.57	Ti II	–	40 wh	–
3182.567	Os	100	15	–
3182.554	U	6	5	–
3182.447	Pr	15	3	–
3182.42	Yt II	3	7 hl	Me
3182.403	Th	10	8	–
3182.373	U	5	–	–
3182.3	Sr	5	–	Fl
3182 229	Os	20	8	–
3182.209	U	3	1	–
3182.200	Ce	15	–	–
3182.175	Cu II	–	5	Sh
3182.123	Co I	80	2 h	–
3182.07	I	–	[10]	Bl
3182.061	Fe	80	80	–
3181.985	Mo	4	3	–
3181.948	Ce	10	–	–
3181.940	Dy	10	5 h	–
3181.923	Er	18	5	–
3181.922	Zr II	6	4	–
3181.908	Fe	15	15	–
3181.879	Os	100	12	–
3181.855	Fe	15	15	–
3181.85	Se	–	[8]	Bl
3181.84	Ti II	–	50 wh	–
3181.840	Ce	4	–	–
3181.833	U	3	1	–
3181.812	W	12 l	12	–
3181.756	Hf II	4	2	–
3181.740	Ni I	50	1 h	–
3181.70	Cl II	–	[7]	Ks
3181.692	Ta	7	18 d	–
3181.68	Er	5 d	2 h	–
3181.672	Th	6	–	–
3181.61	Ag	2	3	–
3181.592	Ce	15	–	–

Wavelength	Element	Intensities Arc	Spk, [Dis]	R
3181.576	Zr II	9	6	–
3181.52	Ho	8	40	Ex
3181.520	Fe	80	70	–
3181.516	Nd	6	2	–
3181.44	Ga	–	2	Kl
3181 428	Cr II	15	40	–
3181.399	Cb	5	20	–
3181.39	Xe II	–	[3 h]	Hu
3181.388	Sm	2	–	–
3181.378	Ce	3	–	–
3181.373	U	6	2	–
3181.28	Eu	4	5 h	–
3181.275	Ca II	8	15	IWg
3181.26	Cl II	–	[5]	Ks
3181.25	Kr	–	[5 wh]	Me
3181.222	Rh I	10	–	–
3181 22	Tb	8	–	Ed
3181.192	Ce	4	–	–
3181.189	Th	10	10	–
3181.187	Ru I	4	–	–
3181.173	Mo	–	8	–
3181.153	Hf	10	1	–
3181.080	U	2	1	–
3181.05	A	–	[25]	Rt
3181.012	Hf	10	2	–
3180.947	Ta	100	35	–
3180 912	Yb	2	30	–
3180.824	Ce	20	–	–
3180 755	Fe I	100	100	–
3180.739	W	10	10	–
3180.71	Ag	2 h	15	–
3180.701	Cr II	30	150	–
3180.585	U	3 h	2 h	–
3180.559	V I	3	1	–
3180.54	Tb	30	3	Ed
3180.516	Ca I	20	–	–
3180.444	Ru	3	–	–
3180.43	Cl II	–	[7]	Ks
3180.354	Ir I	25	1	–
3180.305	Sm	8	1	–
3180.299	W	6	5	–
3180.290	Cb	5	200	–
3180.283	Co I	10	–	–
3180.226	Fe I	300	300	–
3180.225	Ti II	–	20 wh	–
3180.199	Th	15	15	–
3180.174	Ir I	6	–	–
3180.164	Fe II	10	15	Do
3180.012	Cd II	–	2	–
3179.975	W	6 d	20	–
3179.84	Tb	8	–	Ed
3179.827	U	12	10	–
3179.793	Cu II	–	3	Sh
3179.78	La I	8	2	–
3179.774	Mo	6	5	–
3179.746	Zr I	2	–	–
3179.729	Rh I	50	–	–
3179.61	Er	4	4	–
3179.542	Ta	15 h	2 h	–
3179.507	Fe II	–	6	–
3179.476	Ir I	2	–	–
3179.45	Cr	–	10	–
3179.425	W II	6	12	–
3179.418	Yt II	20	30	–
3179.415	V	1	25	–
3179.410	Pd I	15	1 h	–
3179.378	U	8 r	6 h	–
3179.351	B II	5	100	–
3179.341	Ce	5	–	–
3179.338	Th	5	2	–
3179.332	Ca II	100	400 w	IWg
3179.322	Mo	6	5	–
3179.32	Hg	–	2	Cn
3179.291	Ti I	10	2 h	–
3179.283	Cr	100	10 h	–
3179.264	Ru	50	50 r	–
3179.259	Os	20	4	–
3179.24	Ag	2	15 h	Fn
3179.233	Cb	2	10	–
3179.201	Ir I	12	2 h	–
3179.148	Pr	10	1	–
3179.14	Ag	2	2	–
3179.056	W	10	8	–
3179.055	Na II	6	[40]	Fr
3179.047	Th	10	10	–
3179.037	U	10	6	–
3179.026	Dy	3	–	–
3179.002	Pt	1	8	Sh
3178.967	Fe	30	15	–
3178.925	Nd	6	–	–
3178.908	U	1	5	–
3178.869	Mo	–	4	–
3178.785	Th	5	5	–
3178.778	Cr	–	10	–
3178.77	Pd II	–	10	Ex
3178.754	Ce	15	–	–
3178.733	Ru I	30	–	–
3178.689	Ir	10	10	–
3178.630	Cb	2	5 wh	–
3178.630	Ti II	–	25 wh	–
3178.612	Re I	30	–	–
3178.61	Cs	–	[10]	Bs
3178.546	Fe	10	6	–
3178 54	Zn II	–	[2]	Vs
3178.495	Mn	150	50	–
3178.492	Re	15	–	–
3178.485	Ce II	12	–	–
3178.443	Sm	4	2	–
3178.41	Rh I	15	–	–
3178.373	Dy	20	5	–
3178 320	U	6	4	–
3178 266	Ta	15	7	–
3178.244	Th	8	1	–
3178.243	W	7	3	–
3178.243	Ce	3	–	–
3178.240	Os	80	10	–
3178.20	Se	–	[12]	Ro
3178.20	Tm	10	15	Me
3178 164	Ta	18	3	–
3178.119	Sm II	10	5	–
3178.107	Ce	15	–	–
3178.087	Zr II	8	8	–
3178.065	Os	150	20	–
3178.02	W II	8 d	20	–
3178.015	Fe I	300	150	S
3177.933	Ta	20	3	–
3177.902	Mo	5	–	–
3177.88	Dy	30	5	–
3177.874	Th	5	4	–
3177.840	Sm	8	4	–
3177.762	Cb	1	3	–
3177.715	Re	80	–	–
3177.683	V	–	20	–
3177.677	Fe	2	1	–
3177.620	Ce	2	–	–
3177.582	Ir I	25	2	–
3177.535	Fe II	5	300	–
3177.531	Dy	7	3	–
3177.53	Tb	8	3	Ed
3177.46	Tm	30	20	Me
3177.389	Os	10	5	–
3177.331	U	15	18	–
3177.273	Co	100	–	–
3177.210	W II	8 d	25	–
3177.198	Th	10	8	–
3177.137	Ce	20	–	–
3177.092	Rh	15	–	–
3177.049	Ru	60	200	–
3177.049	Mn	8	–	–
3176.964	U	3	2	–
3176.96	Ho	6	4 h	Ex
3176.94	Kr II	–	[15 whl]	Me
3176.856	Hf II	30	30	–
3176.814	Mo	5	5	–
3176.799	Ce	30	–	–
3176.74	Tb	8	3	Ed
3176.626	U	2	2	–
3176.590	W	12 d	10 d	–
3176.54	Pb I	–	100	Kl
3176.507	Th	10	6	–
3176.475	In II	–	[5]	Ps
3176.363	Fe I	20	10	–
3176.33	Mo	–	50	–
3176.309	In II	–	[10]	Ps
3176.294	Ta	70	18	–
3176.292	Ni I	4	–	–
3176.292	Ru	50	3	–
3176.208	U	20	15	–
3176.16	Ne II	–	[7]	Bn
3176.112	In II	–	[18]	Ps
3175.989	Fe	12	5	–
3175.987	La I	15	3	–
3175.987	Nd	8	2	–
3175.945	W II	8	20 l	–
3175.850	Cb	5	50	–
3175.84	Mg II	5	–	Fl
3175.830	Sm	1	2	–
3175.785	Cb	1	20	–
3175.75	Yb	1	5	–
3175.737	U	4	1	–
3175.730	Th	12	15	–
3175.716	Ce	8	–	–
3175.714	Mn	8	–	–
3175.683	Cb	1	20	–
3175.67	Kr II	–	[40 wh]	Me
3175.66	Ti II	–	20 wh	–
3175.648	Os	20	8	–
3175.64	Xe	–	[40]	Hu
3175.6	Rn	–	[40]	Wo
3175.587	Mo	5	3	–
3175.581	Ce	2	–	–
3175.53	Mo	5	1	–
3175.52	Er	10	2	–
3175.45	Tb	8	3	Ed
3175.447	Fe I	200	200	S
3175.358	U	8	–	–
3175.30	Cl II	–	[6]	Ks
3175 298	Ru	30	40	–
3175.25	Xe	–	[3]	Hu
3175.147	Ru	20	100	–
3175.14	P II	–	[70]	Gu
3175.11	Te I	30	[15]	Bl
3175.088	Na II	–	[15]	Fr
3175.080	Fe II	–	2	–
3175.059	Ce	10	–	–
3175.049	Mo	2	60	–
3175.047	I II	–	[10]	Ke
3175.035	Fe	1	–	–
3175.03	In	–	3	–
3175.019	Sn I	500 h	400 hr	–
3174.96	Fe	5	4	–
3174.905	Co I	80	–	–
3174.883	Dy	12	4	–
3174.88	La II	3	10 hl	Me
3174.86	Ho	6	6	Ex
3174.843	U	6	–	–
3174.824	Pt I	2	–	–
3174.80	Ti II	–	100	–
3174.780	Re	20 w	–	–
3174.76	Yb	2	4	Me
3174.672	Mo	4	1	–
3174.66	Tb	15	15	Ed
3174.651	Mn	15 h	–	–
3174.619	Re I	30	–	–
3174.539	V	1	80	–
3174.526	Pt	–	2	Sh
3174.508	Sm	3	1	–
3174.489	Cd II	–	2	–
3174.460	Th	8	5	–
3174.44	Cb	–	10 h	–
3174 378	Ta	3	1	–
3174.166	Th	10	10	–
3174.140	Co I	20	–	–
3174.131	Ru	50	3	–
3174.079	V	5	35	–
3174.077	Ce	15	–	–
3173.944	U	5	5	–
3173.926	Os	80	30	–
3173.865	Pd II	–	2	–
3173.79	Ho	6	10	Ex
3173.78	Yb	1	6	–
3173.777	Mo	1	20	–
3173.76	Tb	15	2	Ed
3173.706	U	6	6	–
3173.691	Ba I	3	–	–
3173 687	Fe	20	20	–
3173.66	Cl II	–	[20]	Ks
3173.622	Ce	15	–	–
3173.614	Fe	20	20	–
3173.613	Cd	–	2	–
3173.601	Eu	35	1	–
3173.59	Ag	3	5 h	–
3173.586	Ta	70	10	–
3173.58	Ne II	–	[7]	Bl
3173.58	Tm	50	100	Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3173.565	Cr	–	25	–
3173.5	Pb II	–	[2]	Ea
3173.497	U	6	1	–
3173.443	Ta	15 l	3	–
3173.427	Th	8	1	–
3173.412	Fe	20	10	–
3173.399	Ru	30	–	–
3173.337	Ir I	2	–	–
3173.235	Ce	4	–	–
3173.229	U	4	–	–
3173.214	Th	8	4	–
3173.200	Cb	2	100	–
3173.196	Os	100	15	–
3173.110	Ru I	30	–	–
3173.091	Re	25	–	–
3173.09	I	–	[10]	Bl
3173.052	Yt II	20	70	–
3172.96	A I	–	[150]	Ms
3172.942	Hf	30	8	–
3172.874	Ta	50	25 h	–
3172.837	Yt I	3	3	–
3172.82	Tm	200	200	Me
3172.800	Os	8	5	–
3172.792	Ir I	25	1	–
3172.79	Mg II	4	–	Fl
3172.742	Mo	3	50	–
3172.731	Ti I	12	3	–
3172.672	Ru	20	15	–
3172.64	Er	7	1	–
3172.600	U	5	2	–
3172.56	Cs	–	[10]	Bs
3172.56	Cl II	–	[6]	Ks
3172.541	Ce	3	–	–
3172 510	Cb	3	3	–
3172.503	Th	8	5	–
3172 370	Mo	5	20	–
3172 314	Pr	25	5	–
3172 303	Cb	2	2	–
3172.299	Ce II	20	–	–
3172.27	Rh I	25	–	–
3172.26	Cb	–	3 h	–
3172.24	Ag	2 h	4 h	–
3172.228	V	–	25	Me
3172.2	Sr	5	–	Fl
3172.18	Zn II	–	[12]	Vs
3172.18	A I	–	[5]	Ms
3172.103	Th	5 d	3 d	–
3172.079	Cr	2	200	–
3172.067	Fe I	100	100	–
3172 058	U	6	3	–
3172.026	Mo	2	25	–
3171.939	Eu	10	1	–
3171.90	Tb	8	3	Ed
3171.84	P	–	[50]	Gu
3171.81	K II	–	[5]	Bn
3171.79	Cb	–	25 h	–
3171.75	Ca	1 h	2	Ad
3171.738	V	–	30	Me
3171.71	Ho	10	15	Ex
3171 668	La	2 h	1000 wh	–
3171.667	Yt	6	2 h	–
3171.665	Th	5 d	1 d	–
3171.663	Fe I	30	10	–
3171.663	Cu I	7	–	–
3171.616	Os	10	5	–
3171.613	Ce I, II	20	–	–
3171.53	Rh	3	–	–
3171.518	Er	6	2	–
3171.465	Ce	2	–	–
3171.45	Sb	–	[6]	Lg
3171.428	Cb	5	10 w	–
3171.40	Zn II	–	[3]	Vs
3171.375	Mo	5	4	–
3171.36	Dy	5	–	–
3171.36	Lu	40	5	Me
3171.353	Fe I	100	80	–
3171.281	Th	8	1	–
3171.239	Ru	20	–	–
3171.19	Tb	8	3	Ed
3171.188	Yb	2	4	–
3171.168	Cb	2	3	–
3171.052	U	3	2	–
3170.987	Re	4 w	–	–
3170.97	Eu	6	10	–
3170.925	Ti I	8	1	–
3170.92	Dy	5	–	–
3170.855	U	10	8	–
3170.746	Dy	10	3	–
3170.715	Ni I	4	–	–
3170.63	Kr II	–	[2]	Me
3170.579	Ag	5	3	–
3170.538	U	3	3	–
3170.528	Ce	2	–	–
3170.429	Th	10	4	–
3170.38	Eu	15	1	–
3170.347	Mo	1000 R	25 r	–
3170.346	Fe II	10	50	–
3170 289	Ta	250 w	35	–
3170.26	Pd II	–	50 wh	Sh
3170.23	Cl II	–	[15]	Ks
3170.204	V	–	3	Me
3170.203	Sm II	15	5	–
3170.201	W	15	9	–
3170.160	Cb	2	3	–
3170.12	I II	–	[5]	Mu
3170.093	Ru	30	–	–
3170 09	U	2	2	–
3170.069	Ce	12	–	–
3170.015	Nd	10	–	–
3169.989	U	6	3	–
3169.978	Dy	100	50	–
3169.958	Mo	–	20	–
3169 928	W	10	15	–
3169.89	Tm	15	40	Me
3169.870	Sm II	25	8	–
3169.854	Ca I	10	2 h	Cw
3169 84	Tb	30	8	Ed
3169.80	K II	–	[10]	Bn
3169.767	Co	100	–	–
3169.73	Cs	–	[4]	Bs
3169.7	Rn	–	[30]	Pe
3169.681	Cu I	50	20	–
3169 68	A	–	[50]	Rt
3169.615	Fe	2	2	–
3169.613	Sm	3	–	–
3169.584	Cr I	25	2	–
3169.553	Dy	5	1 h	–
3169.474	Gd	2	2	–
3169.45	Cl II	–	[7]	Ks
3169.43	Rb	–	[15]	Ok
3169.396	Ce	3	–	–
3169.367	Pr	12	1	–
3169.294	U	2	1	–
3169.29	Er	7	1	–
3169 279	Th	12	10	–
3169 192	Cr	2	50	–
3169.183	Ce	30	–	–
3169.165	Mo	4	1	–
3169.058	Yb	2	20	–
3168.98	Mg II	8	–	Fl
3168.967	W	8	7	–
3168.95	Dy	6	–	–
3168 880	Ir I	25	2	–
3168.857	Fe	30	15	–
3168.82	Tm	15	10	Me
3168 726	Mo	–	20	–
3168.67	Xe II	–	[2 h]	Hu
3168 621	Ce	25	–	–
3168 598	Cb	2	2	–
3168.59	Tb	8	3	Ed
3168.58	Dy	2	2 h	Ed
3168.525	Ru	100	25 r	–
3168.521	Ti II	70	300 r	–
3168 432	U	5	4	–
3168.417	Sb	–	[12]	Lg
3168.41	Yb	–	2	–
3168.390	Hf	30	2	–
3168 384	Re I	150 w	–	–
3168.32	Tb	8	3	Ed
3168.282	Eu	10	–	–
3168 281	Os	100	15	–
3168.242	Pr	25	5	–
3168.239	Ru I	40	–	–
3168.205	U	4 h	1	–
3168.19	Tm	25	60	Me
3168.183	Ta	–	70	–
3168.178	Ir I	20	2	–
3168.151	Fe	10	3	–
3168.138	V II	12	40	–
3168 12	Dy	6	2 h	–
3168.060	Co I	100	–	–
3168 02	I	–	[18]	Bl
3167.95	C II	–	12	Fl
3167.922	Fe	100	30	–
3167.918	Ce II	12	–	–
3167.89	Ho	–	4	Ex
3167.87	Ca	1	2	Ad
3167.859	Fe II	2	100	–
3167.790	Ce	4	–	–
3167.784	U	3	1	–
3167.771	Dy	2	1 h	–
3167.725	Mo	1	20	–
3167.594	Re	3	–	–
3167.581	W	10	9	–
3167.568	Ne I	–	[50]	Ps
3167.529	Ta	35	3	–
3167.52	Tb	15	8	Ed
3167.487	Na II	–	[5]	Fr
3167.467	Ru	5	100	–
3167.446	Hf II	2	1	–
3167.436	V	5	150 R	–
3167.42	Dy	10 d	2	–
3167 378	Ru I	3	–	–
3167 33	Lu	1	15 hl	Me
3167.324	Ce II	15	–	–
3167.226	Ce	15	–	–
3167.203	Ir I	12	1	–
3167.157	Re I	20	–	–
3167.103	Er	15	3	–
3167.098	U	10	10	–
3167.03	Mo	–	20	–
3166.95	Rh	2	3	–
3166.932	U	3	1	–
3166.93	Sm	4	4	–
3166.904	Re	8	–	–
3166 749	Ir I	8	1	–
3166.743	W	7	2	–
3166.699	Fe II	–	3	–
3166.62	Ho	10	15	Ex
3166.608	Ce	20	–	–
3166.574	Cu II	–	2 h	–
3166.557	Ce	5	–	–
3166.539	Ru	3	35	–
3166.512	Os	200	20	–
3166.50	Eu	18 w	1 h	–
3166.473	Re I	8	–	–
3166.438	Fe	100	80	–
3166.377	Ta	2 r	35	–
3166.341	Ir	4	–	–
3166.26	La II	3	3	Me
3166.256	Zr II	5	5	–
3166 249	Fe	5	3	–
3166.243	Ce II	20	–	–
3166.131	U	2 h	–	–
3166.104	Ru	8	40	–
3166.054	Th	10	6	–
3165.99	C II	–	2	En
3165 974	Zr II	10	12	–
3165 94	Mg II	5	–	Fl
3165.887	V	1	80	–
3165.861	Fe I	100	80	–
3165.822	Th	10	5	–
3165.803	Re	2	–	–
3165.8	Rn	–	[5]	Pe
3165.78	Ca	1 h	2	Ad
3165.78	Si	–	7	Sy
3165.74	Tb	15	8	Ed
3165.72	I	–	[10]	Bl
3165.70	Ne II	–	[12]	Bn
3165.67	Ho	–	4 h	Ex
3165.659	Os	20	20	–
3165.60	Ba I	2	2	Sd
3165.598	V I	4	–	–
3165 579	Th	10	4	–
3165 51	C II	–	20	Fl
3165.508	Ni I	15	–	–
3165.505	U	10	8	–
3165.446	Zr II	6	4	–
3165.376	W	10	10	–
3165.31	A	–	[5]	Rt
3165.282	U	6	18	–
3165.27	Xe II	–	[4]	Hu
3165.21	Yb	2	15	–
3165.195	Ir I	3	–	–
3165 19	La II			Me

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3165 057	U	3	2	–
3165 006	Fe I	100	60	–
3164 985	Pr	8	1	–
3164.948	Ru	3	70	–
3164.94	Kr II	–	[3 whl]	Me
3164.910	Ti	1	50	Bh
3164.9	Au II	–	8 h	Ex
3164.87	Tm	20	10	Me
3164.866	Re	3	–	–
3164.828	V II	10	100	–
3164.826	U	3	1	–
3164 823	Pr	10	3	–
3164.81	Eu	5 w	1 h	–
3164.77	Tb	8	3	Ed
3164.643	U	5	3	–
3164.618	Ca I	5	3	Cw
3164.612	Os	60	12	–
3164.54	V	4	–	–
3164.53	Er	7	2	–
3164.526	Mo	10	10	–
3164.520	Re I	30	–	–
3164.46	Ne II	–	[7]	Bn
3164.442	W	10	8	–
3164.44	Xe	–	[2]	Hu
3164.437	Th	10	10	–
3164.42	Cd II	–	[2]	Tk
3164.418	U	2	1	–
3164.310	Zr II	10	8	–
3164.299	Fe I	20	10	–
3164.23	Xe II	–	[4]	Hu
3164.166	Ni I	4	–	–
3164.154	Ce II	40	–	–
3164.151	U	5	12	–
3164.10	Tb	8	3	Ed
3164 041	Dy	3	1	–
3164.03	Ho	–	4 h	Ex
3163.923	Cr	–	10	–
3163.905	V I	10	–	–
3163.905	Mo	10	20	–
3163.874	Fe	40	25	–
3163.87	Ir	–	2	–
3163.87	P	–	[50]	Gu
3163 85	Tb	15	3	Ed
3163.828	Ru	10	–	–
3163.825	Ta	40	5	–
3163.80	Yb	2	18	–
3163.76	V	–	25	Me
3163.756	Cr	40	25	–
3163.735	Pr	4	–	–
3163.731	Na II	35	[60]	Fr
3163.727	U	8	6	–
3163.545	Ta	15 s	3	–
3163.418	W	12	15 l	–
3163.402	Cb II	15	8	–
3163 391	Sm II	5	2	–
3163.345	Ce	15	–	–
3163.288	Mo	4	3	–
3163 272	Ba	–	2 h	–
3163.184	Ru	12	100	–
3163.146	Cb	1	4	–
3163.128	Ta	70 r	35	–
3163.098	Fe II	1	10	–
3163 021	V	5	30	–
3162.996	Ce	8 h	–	–
3162.980	U	3	2	–
3162.93	Tb	15	8	Ed
3162.93	Xe II	–	[12]	Hu
3162.86	Pd II	–	4	Ex
3162.836	Th	10	10	–
3162.835	Ce	4	–	–
3162.824	Ir	2	–	–
3162.824	Dy	80	60	–
3162.819	U	3 h	4 h	–
3162.800	Fe II	1	100	–
3162.739	Ir	2	–	–
3162.724	Ta	70	7	–
3162 713	V	5	30	–
3162.632	Nd	6 d	2	–
3162.611	Hf II	40	30	–
3162.606	Mo	2	20	–
3162.570	Ti II	50	200 r	–
3162.44	Tm	15	40	Me
3162.436	Cr	25	–	–
3162.42	Tb	15	3	Ed
3162.357	V	–	20	–
3162.34	P	–	[50]	Gu
3162.335	Fe I	70	50	–
3162.30	Yb	2	–	–
3162.288	Sm	7	3	–
3162.260	Rh I	2	2	–
3162 214	Zr II	15	15	–
3162.148	Sm II	6	3	–
3162.00	Mo	3	1	–
3161.949	Fe I	200	150	–
3161 947	Pd II	–	100 h	–
3161.852	Ta	3	1	–
3161.85	Cd II	2	3	–
3161.822	Ir I	7	1	–
3161 783	U	5	3	–
3161 774	Ti II	35	150	–
3161.771	Sm	3	1 h	–
3161.728	Os	100	10	–
3161.693	Th	10	8	–
3161.654	Co I	60	–	–
3161.62	Lu	–	10 hl	Me
3161.556	Fe	2	1	–
3161.528	U	8	6	–
3161.47	I	–	[5]	Bl
3161.45	A	–	[3]	Rt
3161.445	Os	80	12	–
3161.442	Ta	7	2	–
3161.44	Cl II	–	[20]	Ks
3161.38	A II	–	[5]	Rt
3161.379	Gd	30	30	–
3161.371	Fe I	80	60	–
3161.37	Er	18	3	–
3161.357	Ir I	6	1 h	–
3161.312	V	1	50	–
3161.205	Ti II	30	125	–
3161.11	Rb II	–	[2]	Ok
3161.071	Th	5	1	–
3161.039	Mn	150	50	–
3161.028	Dy	10	5	–
3161.026	Ce	15	–	–
3160.95	I	–	[5]	Bl
3160.917	Fe	5	4	–
3160.886	Sm	2	1	–
3160.821	Th	6	3	–
3160.814	Cd	2	1	–
3160.808	Ta	2 h	1	–
3160.780	V	1	30	Me
3160.660	Gd	2	1	–
3160.658	Fe I	150	125	S
3160.63	Te	–	[25]	Bl
3160.56	La II	3	3 h	Me
3160.52	Cl II	–	[10]	Ks
3160.499	Dy	10	3	–
3160.498	Mo	3	2	–
3160.427	Os	20	8	–
3160.35	Er	20	2	–
3160.344	Fe	40	20	–
3160.306	Ce	5	–	–
3160.286	Os	30	10	–
3160.283	U	1	3 h	–
3160.280	Ce	4	–	–
3160.200	Fe	70	50	–
3160.179	Th	8	4	–
3160.145	Mn	5	–	–
3160.12	Mo	–	15	–
3160.12	Tb	8	–	Ed
3160 097	Cr	–	10	–
3160.06	A I	–	[5]	Ms
3160.047	Cu I	12	2 h	Hs
3160.020	W II	9	30	–
3159.948	Mn	12	–	–
3159 944	U	6	1	–
3159.93	Hf II	5	1	Me
3159.923	Ru I	70	25	–
3159.872	V	2	1 h	–
3159.856	Ir I	2	–	–
3159.853	Cb	1	10	–
3159.845	Cr	–	6	–
3159.823	Hf	20	2	–
3159 817	U	8	15	–
3159.8	Rn	–	[18]	Pe
3159.75	Xe II	–	[4 h]	Hu
3159.714	Ce	4	–	–
3159.67	Ho	6	–	Ex
3159.665	Co I	100	2 h	–
3159.59	Cr	60 wh	20 h	–
3159.526	U	4	2	–
3159.522	Ir I	7	1	–
3159.521	Ni I	10	–	–
3159.419	W	4	3	–
3159.39	Tb	15	–	Ed
3159.378	Ce	3	–	–
3159.364	V	1	40	–
3159.356	Os	20	5	–
3159.343	Mo	20	5	–
3159.330	U	2	2 h	–
3159.325	Cb	2	3	–
3159.311	Re I	15	–	–
3159.31	Te	–	[10 h]	Bl
3159.309	Dy	4	–	–
3159.25	Rh	5	10	–
3159.23	Mo	–	25	–
3159.216	Nd	6	4	–
3159.184	W	10	10	–
3159.149	Ir I	50 r	2 h	–
3159.117	Zr II	2	2	–
3159.105	Cr II	4	25	–
3159.080	Pt II	3	15	Sh
3159.072	Ce	8	–	–
3159.049	Ta	25 w	3	–
3159.023	Fe	7	3	–
3158.944	Mo	2	10	–
3158.89	U	3 d	4 d	–
3158.889	Ru I	60	12	–
3158 882	Ce	5	–	–
3158 871	Th	4	1 h	–
3158.869	Ca I	100	300 w	IWg
3158.833	Cr	6	1	–
3158.812	Ce	15	–	–
3158 806	W	7	6	–
3158.775	Co I	150 r	–	–
3158.740	Mn	8	–	–
3158.66	Tb	8	–	Ed
3158.646	Pr	12	2	–
3158.62	Cu II	–	2	–
3158.612	Th	10	4	–
3158.6	C	–	[6]	Jn
3158.542	Sc	2	–	–
3158.54	B	5	2	Sy
3158.526	U	1	4	–
3158 514	Ba I	2	–	–
3158.511	Fe	1	–	–
3158.434	Ce	20	–	–
3158.40	Ag	3	1 h	–
3158.400	Fe	6	3	–
3158.396	In II	–	[100]	Ps
3158.315	Re I	200	–	–
3158.30	Yb	2	18	–
3158.262	Ce	2	–	–
3158 23	Te	–	[10 h]	Bl
3158.201	U	2	1	–
3158.18	Ga II	–	2	–
3158.165	Mo	300 R	30 r	–
3158.163	Fe	–	3	–
3158.105	Rb I	8	–	–
3158.102	Cb	1	5	–
3158.024	Cr	1	35	–
3158.01	Tb	8	–	Ed
3157.98	Fe I	10	6	–
3157.955	Ta	3 r	50	–
3157.902	V	2	40	Me
3157.887	Fe I	100	100	–
3157.859	U	10	15	–
3157.841	Sm	7	3	–
3157.823	Zr I	10	1	–
3157.8	Rn	–	[10]	Pe
3157.73	P II	–	[15]	Gu
3157.718	Ce	8	–	–
3157.711	Re	2	–	–
3157.668	Ti I	3	–	–
3157.648	Ta	1 h	18	–
3157.627	Ru	30	–	–
3157.58	La II	2	2	Me
3157.57	Rh I	6	–	m
3157.56	Rb I	20	–	Bv
3157.549	Dy	8	1 h	–
3157.494	Ir I	6	–	–
3157.451	Fe	10	5	–
3157.446	U	8	10	–
3157.419	Ru	30	1	–
3157.399	Ce	5 w	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3157.397	Ti II	8	35	–
3157.34	Tm	200	150	Me
3157.328	Mo	–	20	–
3157.29	Eu	15	–	Kn
3157.238	Os	100	2	–
3157.203	Dy	4	1 h	–
3157.178	I	–	[5]	Ke
3157.151	Fe	4	3	–
3157.15	K II	–	[5]	Bn
3157.111	Cd II	–	2	–
3157.040	Fe I	150	100	S
3156.996	Zr II	10	5	–
3156.96	Ho	6	6	Ex
3156.881	V I	1	2	–
3156.846	Mo	1	30	–
3156.822	Ca	–	2	–
3156.817	Ru I	50	–	–
3156.775	Ce	20	–	–
3156.775	Os	100	3	–
3156.763	Ta	1	35	–
3156.761	U	3	1	–
3156 627	Cu I	50	15	–
3156 626	Hf	20	3	–
3156 592	U	5	5	–
3156.588	Au II	–	10	–
3156.565	Pt I	150	50	–
3156.539	Gd	25	25	–
3156.52	Dy	50	20	–
3156.52	Tb	8	3	Ed
3156.513	Mo	8	–	–
3156.458	Fe	3	2	–
3156.422	Ce	5	–	–
3156.399	Th	12	10	–
3156.274	Fe	125	100	–
3156.259	Nd	8	–	Kn
3156.248	Os I	500 R	15 wh	–
3156.222	V	15	5	–
3156.18	Ho	6	4	Ex
3156 148	Ir I	4	–	–
3156 071	U	6	15	–
3155.963	Mo	–	5	–
3155.953	Fe II	–	2	–
3155.860	U	8	8	–
3155.833	Th	12	10	–
3155 794	Fe	5	1	–
3155 793	Ce II	20	–	–
3155.79	Yb	2	2	–
3155.779	Mn	5	–	–
3155.775	Rh	150	2	–
3155.771	In II	–	[200]	Ps
3155.763	Nd	4	–	–
3155.704	Ce	20	–	–
3155.671	Zr II	10	12	–
3155.670	Ti II	25	125	–
3155.659	Ba I	2	–	–
3155.644	Yt I	2 h	–	–
3155.644	Mo	–	50	–
3155 62	Tb	15	3	Ed
3155.597	Cb	–	15	–
3155.59	Pd II	–	40	Ex
3155 518	W	9	6	–
3155.502	Ta	10	–	–
3155.409	U	6	4	–
3155.408	V	5	100	–
3155.4	Li II	–	[2]	Wr
3155.35	Rh	6	–	m
3155.343	Ba I	2	–	–
3155.328	Os	20	5	–
3155 299	Fe	50	35	–
3155.256	U	3	6	–
3155.246	Ta	–	18 h	–
3155.191	Mo	3	–	–
3155.18	Yb	2	15	–
3155.149	Cr	30	25	–
3155.121	Fe	4	1	–
3155.10	Tb	8	3	Ed
3155.095	W	10	20	–
3155.024	Sm	2	1	–
3154.856	Ca	1	2	–
3154.815	Cb	3 w	200 w	–
3154.808	U	2	2	–
3154.794	Co I	100	4 h	–
3154.737	Ir I	20	2	–
3154.730	Th	15	15	–
3154.696	Ta	3	1	–
3154.69	Tb	8	3	Ed
3154.678	Co	100	–	–
3154.673	Cd	3	–	–
3154.585	Ni I	4	–	–
3154.551	Ir I	20	1	–
3154.55	Cs	–	[4]	Bs
3154.506	Ce II	15	–	–
3154.504	Fe	20	5	–
3154.487	Ta	15 l	3	–
3154.434	Ru	30	–	–
3154.409	U	6	3	–
3154.360	Sm II	3	1	–
3154.286	Er	15	5	–
3154.26	Th	15	12	–
3154.24	Te	–	[5]	Bl
3154.22	Ho	–	4	Ex
3154.206	Fe II	–	400	–
3154.195	Ti II	20	100	–
3154.175	W II	5	2 h	–
3154.107	Cr	–	5	–
3154.005	Ce	5	–	–
3153.987	Cb	2	–	–
3153.926	Ta	1	15	–
3153.88	Yb	3	30	–
3153.88	Cs	–	[6]	Bs
3153 853	Cb	1	20	–
3153.833	Pr	12	2	–
3153.823	Ru	60	12	–
3153.80	A II	–	[5]	Rt
3153.787	Re I	80	–	–
3153.748	Fe	40	15	–
3153 611	Os	125	20	–
3153 601	Ti	8	2	–
3153.549	V	5 h	–	–
3153.498	U	6	4	–
3153.492	F II	–	[20]	Di
3153.474	Ce	8	–	–
3153 404	Ne I	–	[50]	Ps
3153 4	Rn	–	[5]	Pe
3153 372	Cb	1	30 h	–
3153 367	Fe	15	15	–
3153 345	Ce	3 h	–	–
3153 34	Kr	–	[2 wh]	Me
3153 307	Dy	9	3	–
3153 206	Fe I	100	80	–
3153 19	Yb	2	5	–
3153.14	Pd II	–	2 h	–
3153 120	U	12	15	–
3153 11	Ag	2	5 h	–
3153 098	Ta	8 W	1 h	–
3152.960	Hf	8	–	–
3152 955	W	10	8	–
3152 819	Mo	6	80	–
3152 81	Te	–	[5]	Bl
3152 782	Cb	2	30	–
3152 745	W II	3	9	–
3152 707	Co I	100	–	–
3152 673	Os	150	18	–
3152.656	Yt I	7	3	–
3152 615	Ir I	10	1 h	–
3152 603	Rh	80	3	–
3152.538	Ta	8	1 h	–
3152 521	Sm	15	9	–
3152 489	Ce	2	–	–
3152.473	W	10	15	–
3152.470	U	6	6	–
3152.45	Yb	–	2	–
3152 379	Dy	12	–	–
3152.377	Er	12	3	–
3152.341	Mo	–	4	–
3152.307	U	8	10	–
3152.301	Ir	2	–	–
3152 30	Cs	–	[6]	Bs
3152 29	A I	–	[3]	Ms
3152 251	Ti II	30	125	–
3152.250	Ce	8	–	–
3152.159	Cb	2	50	–
3152 125	Ir	2	–	–
3152.095	Sm II	10	5	–
3152.070	Os	80	15	–
3152.026	Fe	2	1	–
3151.998	W	4	3	–
3151.996	Ta	3 r	1	–
3151.893	Dy	18	5	–
3151.88	Eu	6	5	Kn
3151.870	Cb	5	2	–
3151.869	Fe I	40	15	–
3151.66	Rb	–	[2]	Ok
3151.651	U	6	3	–
3151.648	Th	10	10	–
3151.633	Re I	150 w	–	–
3151.630	Mo	2	40	–
3151.629	Hf	20	1	–
3151.627	Ir	2	1 h	–
3151.62	Cu I	7	–	–
3151.565	W II	4	10 l	–
3151.539	Pr	10	3	–
3151.52	A I	–	[3]	Ms
3151.487	Sm	5	3	–
3151.46	Te	–	[15]	Bl
3151.44	Yb	–	2	–
3151.363	Rh	80	2	–
3151 351	Fe	300	150	–
3151.322	V	8 w	150 w	–
3151 29	W	5	20	–
3151.280	Ca I	6	2	Cw
3151 259	Ni	6	–	–
3151.168	Re	25	–	–
3151.16	Ne II	–	[4]	Bn
3151.14	Cs	–	[6]	Bs
3151 127	Ce	25	–	–
3151.084	U	10	4	–
3151.049	Cu II	2	5	Sh
3151 035	Tm	200	200	Me
3151.005	Fe	2	2	–
3150.999	Ir	3	–	–
3150.93	Kr II	–	[80 h]	Me
3150.86	Se	–	[8]	Bl
3150.85	Ta	50 w	35 w	–
3150.819	Co	7	–	–
3150.738	Ca I	50	2	IWg
3150.727	Ir	5	–	–
3150.706	U	3 w	2 h	–
3150.693	Ru	60	60	–
3150.655	Co	8	–	–
3150 607	Ir I	20	1	–
3150.573	Ce	2	–	–
3150.568	V	5	2	–
3150.55	Er	12	1	–
3150.533	U	5	2	–
3150.520	Re I	4	–	–
3150.461	Ce	5	–	–
3150.46	Eu	4 h	1 h	–
3150.457	Th	12	15	–
3150.407	Cb	1	50	–
3150.357	U	6	3	–
3150.304	Fe	60	30	–
3150.273	Rh I	8	–	–
3150.164	Ru	3	–	–
3150.12	Dy	10	5	m
3150.109	Cr	6	50	–
3150 07	Tm	8	10	Me
3150.050	Re	2	–	–
3150 042	V	2 h	–	–
3149.995	Ir	2 h	–	–
3149.974	U	6	5	–
3149 960	Th	10	5	–
3149.937	Ce II	12	–	–
3149.92	Ho	–	4	Ex
3149.920	Cd II	5	3	–
3149.883	Eu	40 w	20 w	–
3149.849	W II	10	15	–
3149.848	Fe	1	1	–
3149.822	Cr	6	40	–
3149.808	U	6	2	–
3149.807	Os	15	8	–
3149.776	Ta	2 w	1	–
3149.67	Si	–	6	Sy
3149 646	U	6	3	–
3149.562	Pr	15	1	–
3149.511	Nd	8	4	Kn
3149.508	Cu I	50	2	–
3149.504	Ca	1	3	–
3149.46	I	–	[35]	Bl
3149.426	Ce	25	–	–
3149.36	Cs	–	[10]	Bs
3149.313	Co I	60	–	–
3149 296	Nd	8	6	–
3149.267	Na II	12	[40]	Fr
3149.253	Ce	12	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3149 21	U	18 d	18 d	–
3149.14	Tm	15	–	Me
3149.077	Ce	2	–	–
3149.061	Zr I	2	–	–
3149.055	U	2	4	–
3149.00	Yb	2	4	–
3148.99	Xe II	–	[4]	Hu
3148 98	Rb II	–	[20]	Ok
3148.915	Fe	2 h	2 h	–
3148.857	Mn	5	–	–
3148.85	Ho	4	6	Ex
3148.832	Ce	4	–	–
3148.820	Zr I	6	–	–
3148.817	Sm	2	–	–
3148.738	V	–	50	Me
3148 713	Cb	2	2	–
3148.71	Tb	30	15	Ed
3148 69	Se	–	[20]	Bl
3148 651	Ce	20	–	–
3148.603	Ne I	–	[75]	Ps
3148.525	Nd	6	2	–
3148.51	La I	6	–	Me
3148.485	Ru	30	–	–
3148.463	Ce II	18	–	–
3148.445	Cr	30	15	–
3148.414	Fe	100	40	–
3148.414	Hf	20	1	–
3148.320	U	2	2	–
3148.299	Mo	–	10	–
3148 213	U	6	2	–
3148.21	Tb	15	8	Ed
3148 204	Re	3	–	–
3148.179	Mn	150	40	–
3148.040	Th	3	40 h	–
3148.040	Mo	3	–	–
3148.036	Ti II	25	150	–
3148.035	Ta	50	7	–
3147.965	F II	–	[15]	Di
3147.954	Mo	–	25	–
3147.86	Cl II	–	[20]	Ks
3147.837	Ce	15	–	–
3147.793	Fe	40	15	–
3147.765	U	2	1	–
3147.739	Ir I	10	–	–
3147.701	Ne I	–	[25]	Ps
3147.627	Rh I	5	–	–
3147.605	Fe	10	5	–
3147.58	Au I	10	–	–
3147 580	Sm	3	–	Kn
3147.555	Ce	2	–	–
3147.54	S	–	[35]	Bl
3147 533	Dy	10	2	–
3147.458	Ir	3	–	–
3147.451	Ru	6	80	–
3147.425	Ti I	3	1	–
3147.42	Eu	18	5 h	Kn
3147.374	Ta	70	50	–
3147.351	Mo	20	10	–
3147.290	Fe	20	10	–
3147.268	Ti I	10	2	–
3147.256	V	5	1	–
3147.227	Cr II	25	150	–
3147.208	Ru I	50	3	–
3147.188	Sm II	7	5	–
3147.09	U	12	15	–
3147.064	Co I	150 R	–	–
3147.04	Tb	50	3	Ed
3147.01	Si	–	2 h	Sy
3146 926	Cb	2	10	–
3146.90	Ba I	2	2	Sd
3146.884	Gd	5	5	–
3146.882	Dy	2	1 h	–
3146.868	Cb	1	15	–
3146.821	Cu I	100	20	–
3146.812	V	2	50	–
3146.806	In II	–	[50]	Ps
3146.78	Cd II	–	[10]	Vs
3146.780	Ce	5	–	–
3146.772	Ta	5	2	–
3146.75	U	6	6	–
3146.748	Fe II	–	4	Do
3146.715	Eu	5	2	–
3146.683	Mo	25	5 h	–
3146.67	Tb	8	8	Ed
3146 601	In II	–	[25]	Ps
3146 544	Re	10	–	–
3146.471	Fe I	5	2	–
3146.466	Pr	15	3	–
3146.410	Ce II	30	–	–
3146.37	Au II	3	8	Ex
3146.351	W	6	–	–
3146.325	Mn	4	–	–
3146.285	Zr	3	–	–
3146.260	U	3	3	–
3146 260	Ti I	2 h	1	–
3146.230	V	2	70	–
3146.225	Ce	4	–	–
3146.165	Dy	20	5	–
3146.165	Ce	20	–	–
3146.16	Tm	30	15	Me
3146.14	Yb	–	2	–
3146.10	Ag II	–	[8]	Bx
3146.067	Ru I	30	20	–
3146 055	U	2 h	2	–
3146.041	Th	12	15	–
3146.016	Nd	6	–	–
3145 971	V II	10	15	–
3145.956	Os	60	10	–
3145.905	Mo	5	1	–
3145.834	Sm	5	2	–
3145.766	Cr	–	25	–
3145.76	Ca	–	2	Ad
3145.755	W	6 d	12	–
3145 751	Mo	–	12	–
3145.719	Ni I	200	3	–
3145.7	La II	2 h	2 h	Me
3145 697	Na II	–	[15]	Fr
3145 636	Th	8	1	–
3145.62	Cr	20	1	–
3145 61	Rh	2	–	–
3145.60	Pb I	–	10	Sx
3145.559	U	12	10	–
3145.54	Yb	2	2	–
3145.540	W	7	5	–
3145.521	Au II	3	8	–
3145.521	Gd	10	8	–
3145.519	Fe	2	2	–
3145.515	Ti I	2	–	–
3145 402	Ti II	3	15	–
3145.400	Cb	10	100	–
3145.357	U	6	5	–
3145 342	V II	25	60	–
3145 319	Hf II	50	20	–
3145 286	Mo	6	3	–
3145.283	Ce II	30	–	–
3145.222	Dy	18	5	–
3145 22	Tb	8	15	Ed
3145.2	Cs	–	[4]	Bs
3145 18	Te	–	[10]	Bl
3145.121	Ni I	6	–	–
3145 103	Cr II	10	35	–
3145 068	Ir	20	2	–
3145.057	Fe	40	25	–
3145.052	Yb	3	15	–
3145.030	Pt II	1	5 h	Sh
3145.021	Co I	30	–	–
3145.02	Xe	–	[4]	Hu
3145.006	Gd	50	30	–
3144.965	U	10	8	–
3144.89	Tm	25	60	Me
3144.839	Nd	20	4	–
3144.817	Ce	8	–	–
3144 806	Mo	3	–	–
3144.758	Fe II	–	50	–
3144.730	Ti II	4	20	–
3144.720	Ru	4	–	–
3144 697	V	1	60	Me
3144.613	Mo	3	45	–
3144 6	Bi I	8 wh	–	To
3144.596	Ce II	25	–	–
3144.564	Nd	15	4	–
3144.504	Er	10	2	–
3144.50	W II	–	15	–
3144.495	Fe I	150	100	–
3144.48	Hg I	10	–	Cn
3144.46	Tb	8	3	Ed
3144.409	Cr	50	12	–
3144.38	P	–	[30]	Gu
3144.380	Ce	6	–	–
3144 37	Yt II	2 h	7	Me
3144.35	Ho	8	6	–
3144 343	Cb	5 h	10	–
3144.338	Os	20	8	–
3144.337	Mo	6	1	–
3144.32	Er	10 s	2	–
3144.260	Ru	60	8	–
3144.217	Eu	3	–	–
3144.154	Ce	5	–	–
3144.125	U	1	3	–
3144.097	Pt II	7	10 h	Sh
3143.9896	Fe	200	150	IMe
3143.939	Zr I	3	–	–
3143.903	Mo	3	1	–
3143.831	Dy	20	5	–
3143.802	Ir	3	–	–
3143.756	Ti II	18	125	–
3143.74	Ne II	–	[4]	Bn
3143.7	Li	–	3	An
3143.68	Cr	2	6	–
3143 655	Ru	20	80	–
3143.63	Er	15	1	–
3143.62	Xe II	–	[5]	Hu
3143.593	Ce	5	–	–
3143.555	U	4	2	–
3143.507	Sm	4	2	–
3143.473	V	1	50	–
3143.350	Ti I	4 h	–	–
3143.310	Nd	5	4	–
3143.306	Sm	8	3	–
3143.245	Fe	60	30	–
3143.239	Ru	5	4	–
3143.23	Er	4	1	–
3143.210	W	8	3	–
3143 181	Dy	6	2	–
3143.170	U	4	3	–
3143.141	Gd	5	3	–
3143.054	Mo	1	25	–
3143.043	Os	30	10	–
3143 008	Ir	2	–	–
3142.955	Ta	10	50	–
3142.890	Ce	2	–	–
3142.889	Gd	2	1	–
3142.883	Fe	80	70	–
3142.839	Th	12	12	–
3142.812	Ca	–	2	–
3142.812	Pd I	300	100	–
3142.79	Er	9	2	–
3142.790	In II	–	[10]	Ps
3142.762	La II	150	50	–
3142.75	K II	–	[5]	Bn
3142.750	Mo	20	–	–
3142 742	Cr	1	20	–
3142 714	In II	–	[25]	Ps
3142 670	Mn	50	–	–
3142.616	Re	25 w	–	–
3142 601	U	12	10	–
3142.60	A I	–	[3]	Ms
3142 547	Ce	12	–	–
3142.515	Ir I	2 h	–	–
3142.475	V	15	100 r	–
3142.453	Fe I	125	100	–
3142.444	Nd	8	8	–
3142.444	Cu I	60	15	–
3142.312	Ce	25	–	–
3142 303	Dy	10	3	–
3142.29	Th	–	10 h	–
3142.256	Cb	–	15	–
3142.186	V	3	20	–
3142.145	W	9	8	–
3141.96	Tm	8	10	Me
3141.953	U	8	6	–
3141.887	Fe	2	2	–
3141.849	Th	12	10	–
3141.82	Cr	4	2	–
3141.818	Mn	3	–	–
3141.810	Ir	2 h	–	–
3141.809	Sn	20	30	–
3141.80	Er	5	2 d	–
3141.73	Yb	2	10	–
3141.730	Mo	–	25	–
3141.670	Ti I	15	7	–
3141.658	Pt	150	5 h	–
3141.62	Te	–	[5]	Bl
3141 6	Cd	–	[12]	Es
3141.538	U	5	15	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3141.537	Ti I	30	12	–
3141.485	V	5	100	–
3141.476	Nd	10	10	–
3141.46	Cs	–	[4]	Bs
3141.424	W	9	10	–
3141.415	Mo	–	30	–
3141.384	Re I	30	–	–
3141.380	Ta	1 h	50 l	–
3141.35	Ne II	–	[7]	Bn
3141.212	Pr	10	2	–
3141.177	W	6	5	–
3141.164	Ca I	3	–	Cw
3141.13	Dy	50	20	–
3141.13	Se II	–	[100]	Bl
3141.12	Er	20	3	–
3141.08	Sb II	–	[15]	Lg
3141.05	V	–	5	–
3140.973	Ru I	60	6	–
3140.938	Os	50	12	–
3140.934	Yb	8	30	–
3140.84	Cl	–	[4]	Bl
3140.783	Ca I	15	3	–
3140.763	Hf II	25	25	–
3140.750	W	10 s	9	–
3140.740	Ir	2	–	–
3140.734	Fe	2	2	–
3140.731	Sc	2	–	–
3140.721	Co I	20	3	–
3140.692	Pr	10	2	–
3140 676	Ce	12 h	–	–
3140.648	Mo	3	1	–
3140.645	Dy	40	20	–
3140.62	Tb	8	3	Ed
3140.499	Cb	3	10	–
3140.484	Ru	50	–	–
3140.44	Kr II	–	[3 whl]	Me
3140.432	Ce	2	–	–
3140 412	Ir I	50 r	1	–
3140.408	W	9	8 s	–
3140.391	Fe	100	80	–
3140.382	Sm	8	3	–
3140.37	Eu	2 h	1 h	–
3140.346	Ce	2	–	–
3140.314	Os	60	12	–
3140.312	Cu I	50	12	–
3140.304	U	6	4	–
3140 271	Th	8	1	–
3140.21	Cr	-	6	–
3140.084	Ru	8	–	–
3140.05	Tb	15	3	Ed
3139.990	V I	6	–	–
3139.973	Sm	10	5	–
3139.948	Re	15	–	–
3139.943	Co I	150 r	10	-
3139.913	U	2	–	–
3139.908	Fe	70	40	–
3139.871	Mo	6	1	–
3139.87	Ti I	2	–	–
3139.86	Kr II	–	[4]	Me
3139.822	Th	10	5	-
3139.801	Zr I	5	–	–
3139.797	Re	25 w	–	–
3139.780	I	–	[18]	Ke
3139.75	O II	–	[10 l]	Mh
3139.745	V	15	150	–
3139.729	Sc II	6	12	–
3139.658	Fe I	15	8	–
3139.653	Hf II	25	20	–
3139.64	Tb	30	15	Ed
3139.588	Ir I	5	–	–
3139.58	Kr II	–	[20]	Me
3139.560	U	25	25	–
3139 503	Dy	4	1	–
3139.5	Mg	3	2	Ed
3139.386	Pt I	300	80	–
3139.360	Sm II	6	2	–
3139.330	Eu	6	5	–
3139.307	Th	10	15	–
3139.3	air	–	6	m
3139.272	Ru	20	–	–
3139.241	Ce	4	–	–
3139.198	U	6	3	–
3139.182	Ce	4	–	–
3139.169	Ir	3	–	–
3139.166	Fe	2	2	–
3139.16	Cl	–	[15]	Bl
3139.069	V I	5	–	–
3139.02	A	–	[25]	Rt
3138.885	Ti I	5	–	–
3138.882	W	6	5	–
3138.760	Ru	10	–	–
3138.715	Mo	1	30	–
3138.678	Zr II	10	12	-
3138.642	In II	–	[50]	Ps
3138.632	Ti I	2	2	–
3138.63	Yb	–	4	Me
3138.63	Tb	15	3	Ed
3138 605	Sm	2	2	–
3138.60	Ag	–	3 h	–
3138.56	In II	–	[50]	Ps
3138.532	V I	5	–	–
3138.518	Fe	10	5	–
3138.513	U	10	5	–
3138.49	Er	9	1	–
3138.485	Ta	15	1 h	–
3138.40	O II	–	[35 l]	Mh
3138.355	Mo	5	–	–
3138.32	Pd	–	2 h	–
3138.299	Ta	2 h	1	–
3138.296	Ce II	20	–	–
3138.24	Kr	–	[2]	Me
3138.240	U	6	4	-
3138.219	Mn	3	–	–
3138.203	Cr	15	6	–
3138 06	V	–	70	–
3137.912	W	9	3	–
3137 852	Na II	–	[15]	Fr
3137 85	Er	10	2	–
3137.850	Mo	3	1	–
3137.83	Pb I	–	100	Kl
3137.809	Ce	4	–	–
3137.80	Ba I	2	–	Sd
3137.785	Fe	2	1	–
3137.751	Co I	60	2	–
3137.73	Ba I	2	2	–
3137 721	Ir	8	3	–
3137 707	Rh I	100	–	–
3137.693	U	5	4	-
3137.66	A II	–	[5]	Rt
3137 631	W	7	8 d	–
3137.601	Ce	25	–	–
3137.56	I II	–	[2]	Mu
3137.519	Os	25	10	-
3137.512	Hf	30	10	–
3137.454	Co I	50	–	Dn
3137.442	Ta	3	50	–
3137.406	Ce	2	–	–
3137.4	Rn	-	[2]	Wo
3137.352	Ti I	3	–	–
3137.327	Co I	150 r	–	–
3137.323	Rh I	15	–	–
3137.275	Ir	2 h	-	–
3137.253	Nd	10	4	–
3137 22	Tb	8	3	Ed
3137.174	Th	10	5	–
3137.116	Cr	–	4	–
3137 053	Pr	10	2	–
3136.999	Co I	10	–	–
3136.970	Cb	8	3	–
3136.958	Mn	10	10	–
3136 958	Zr I	8	1 h	–
3136.94	Eu	3 w	–	–
3136.909	Ru	6	–	–
3136.903	Ce	5	–	–
3136.896	Ir	3	–	–
3136.893	Fe	2	2	–
3136 893	U	6	8	–
3136.85	B II	3	3 h	Sy
3136.830	Th	5	–	–
3136 789	Pr	10	2	–
3136.76	Yb	2	15	–
3136.749	Mo	1	5	–
3136.726	Co I	60	–	–
3136.722	Ce	25	–	–
3136.70	Th	5	5	–
3136 692	Dy	5	–	–
3136.680	Cr II	20	50	–
3136.679	Nd	6	-	Kn
3136.67	Pd	–	2 h	Bx
3136.555	Ru	60	6	–
3136.55	A	–	[5]	Rt
3136.514	V	20	200	–
3136.499	Fe	60	40	–
3136.480	I	–	[5]	Ke
3136.476	Ir	3	–	Ab
3136.465	Mo	1	40	–
3136.412	Mo	-	40	–
3136.36	Eu	3	–	–
3136.342	Ru	12	–	–
3136.300	Ir I	2	–	–
3136.297	Sm	15	7	–
3136.292	Ta	5	–	–
3136.243	Ce	8	–	–
3136 218	Th	10	3	–
3136.15	Te	–	[5]	Bl
3136.100	Ir I	2 h	–	–
3136.070	W	9	7	–
3136.066	U	5	3	–
3136.028	Ti I	8	–	–
3136.003	Ca I	15	3	Cw
3135.924	Ru	12	–	–
3135.916	Cb	2	10	–
3135 894	Mo	5	4	-
3135 893	Ta	35	100	-
3135.875	Al II	–	[10]	Sy
3135 87	Cr	8	–	Ex
3135.861	Fe I	7	4	–
3135.833	Ce	4	–	–
3135.808	U	8	4	–
3135.802	Ru	10	80	–
3135.78	Pd II	–	5 h	Sh
3135.76	Hg	10	-	Cn
3135.718	Ba I	2	3	–
3135.68	Dy	5	–	–
3135 680	Fe	3	2	–
3135.64	B II	–	3	Sy
3135.61	Er	5	1	–
3135 602	Mo	4	3	–
3135.590	Fe	3	2	–
3135.569	Ce	15	–	–
3135.483	Na II	12	[40]	Fr
3135.47	Rh I	5	–	–
3135.453	Fe	10	3	–
3135.404	Cb	2	10	–
3135.37	Dy	100	50	-
3135.364	Fe II	1	100	–
3135.351	Pr	10	2	-
3135 35	Tb	15	8	Ed
3135 341	Cr	1	25	–
3135.227	Ir	2 h	–	–
3135.193	V I	8	–	–
3135 179	Ce	15	-	–
3135 168	Yt II	10	18	–
3135.10	Kr II	–	[8]	Me
3135.069	Ti I	2	–	–
3135.068	Re I	15	–	–
3135.039	Gd	5	2	–
3135.023	Ag	–	8 h	-
3135.0	Mg	4	2 h	Ed
3134.931	V	30	150 r	-
3134.92	Cr	10	–	Ex
3134.90	Rb	–	[10]	Ok
3134.897	Nd	40	30	–
3134.802	Ru I	10	100	–
3134.8	Cs	–	[4]	Bs
3134.79	O II	–	[100 l]	Mh
3134.718	Hf II	80	125	–
3134.70	Eu	3 W	1	–
3134.695	U	5	2	–
3134.654	Ti I	2	-	–
3134.604	Ce	4	–	–
3134.56	Ca	1	2	–
3134.427	Th	10	12	–
3134.42	Se II	–	[70]	Bl
3134.405	Fe	3 h	1 h	–
3134.40	Ho	6	4 h	Ex
3134.338	Cb	2	15	–
3134.32	O II	–	[10 l]	Fl
3134 307	Cr	3	50	–
3134.26	Tb	8	8	Ed
3134.186	Sm	6	1	–
3134.111	Fe I	200	125	S
3134.108	Ni I	1000 R	150	–
3134.018	Re I	30	–	–
3133.920	U	6	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3133.89	Tm	200	200	Me
3133.889	W	10	10	–
3133.859	Gd	25	25	–
3133.716	W	6	2 h	–
3133.697	Ru	12	–	–
3133.619	Th	10	10	–
3133.603	Nd	15	10	–
3133.553	Ta	15	3	–
3133.533	Ce	2	–	–
3133.50	Hf II	15	5	Me
3133.475	Zr II	6	12	–
3133.424	U	8	6	–
3133.407	Ce	5	–	–
3133.40	I II	–	[15 d]	Mu
3133.342	Ca	–	2	–
3133.328	V II	50	200 r	–
3133.327	Ce	20	–	–
3133 321	Ir I	40	2 h	–
3133.24	Eu	10	–	–
3133.231	Zr I	5	–	–
3133.226	Fe	5	4	–
3133.167	Cd I	200	300	IMe
3133 15	Tb	8	–	Ed
3133.135	Ti I	4	–	–
3133 10	Hf II	5	3	Me
3133.096	Sc II	2	10	–
3133.092	Gd	3	1	–
3133.086	Ir I	20	1	–
3133.083	Cb	3	4	–
3133.053	Fe II	–	35	–
3132.98	Dy	6	2	m
3132.93	In	–	3	Sq
3132.878	Ru	60	5	–
3132.87	A I	–	[3]	Ms
3132.858	Ce	3	–	–
3132.84	Kr	–	[4 wh]	Me
3132.820	Cr	20	2	–
3132.792	Mn	8	–	–
3132.775	Er	15	5	–
3132.775	Ag	1 h	2 h	–
3132.764	Cb	1	15	–
3132.707	Ti I	2	–	–
3132.680	Fe	5	3	–
3132.643	Ta	250 w	25	–
3132.640	Ce	15	–	–
3132.60	Yb	15	6	–
3132.594	Mo	1000 R	300 R	–
3132.594	V	80 r	20	–
3132.590	Ce	25	–	–
3132.58	Se	–	[20]	Bl
3132.58	Te	–	[10]	Bl
3132.514	Fe	70	40	–
3132.513	Pd II	–	15 h	–
3132.51	Er	12	3	–
3132 285	Mn	15	–	–
3132.22	Ne II	–	[4]	Bn
3132 216	Co I	40	–	–
3132.177	U	2	1	–
3132.16	Eu	15 w	–	–
3132.14	La II	2	3 h	Me
3132.137	Cb	1	2	–
3132.122	Dy	5	2	–
3132 066	Zr I	10	2	–
3132.058	Cr II	25	125	–
3132.043	Ce	15	–	–
3132 03	Er	6	2	–
3132 025	Re I	2	–	–
3132 011	Cb	1	5	–
3131.987	U	8	6	–
3131.833	Hg I	200	100	–
3131.830	Co I	8	–	–
3131.814	Hf	40	10	–
3131.75	Sr II	–	10	Sd
3131.75	Eu	20 W	5	Kn
3131.718	Fe II	–	35	–
3131.679	Ce	4	–	–
3131.618	U	1	2	–
3131.546	Hg I	400	300	–
3131.534	U	4	2	–
3131.505	Ce	2 d	–	–
3131.481	Os	20	10	–
3131.455	Fe	2 h	–	–
3131.35	Tb	8	3	Ed
3131.325	U	8	6	–
3131.26	Tm	400	500	Me
3131.216	Ta	5 h	25 h	–
3131.211	Cr	20	6	–
3131.195	Mo	–	5	–
3131.115	Os	125	30	–
3131.110	Zr I	7	–	–
3131.072	Be II	200	150	–
3131.07	Er	3	–	–
3131.070	Th	12	10	–
3130.99	Ho	6	6	Ex
3130.919	Ce	5	–	–
3130.872	Ce	30	2	–
3130.814	Gd	3	1	–
3130.80	A I	–	[20]	Ms
3130 800	Ti II	25	100	–
3130.790	Rh I	60	2	–
3130.786	Cb	100	100	–
3130.74	Eu	100 W	100	–
3130.732	U	10	6	–
3130.71	S	–	[15]	Bl
3130.7	Cs	–	[4]	Bs
3130.578	Ir	3	–	–
3130.578	Ta	100 W	35	–
3130.570	Ba I	2	3	–
3130.567	Fe II	4	4	–
3130.565	Cr	1	12	–
3130.564	U	–	15	–
3130.516	Ce	5	–	–
3130.48	Si	–	5	Sy
3130.456	W	10	8	–
3130.416	Be II	200	200	–
3130.40	Xe II	–	[2 wh]	Hu
3130.38	P II	–	[30]	Gu
3130.38	Ho	–	4 h	Ex
3130.376	Ti I	2	1	–
3130.373	U	3 h	–	–
3130.334	Ce	30	1	–
3130.29	Ta	15 l	1	–
3130.285	Ir	4	–	–
3130.278	Fe	5	4	–
3130.267	V II	50	200 r	–
3130.25	La II	3	4	Me
3130.235	Sm	5	–	–
3130.197	Ce	15	–	–
3130.175	Ti I	2	–	–
3130.159	Dy	4	2 h	–
3130.155	W	5	4	–
3130.12	Se	–	[8]	Bl
3130.063	Zr I	3	–	–
3130 060	Mo	–	20	–
3130.009	Ag	25 h	15 h	–
3130.002	Os	30	8	–
3129.965	Gd	2	1	–
3129.950	Sm	5	–	Kn
3129 946	Ta	50	8	–
3129.933	Yt II	8	50	–
3129.911	Th	10	8	–
3129.837	Ru I	60	4	–
3129.761	Zr II	10	10	–
3129.728	U	8	15	–
3129.644	Cb	1	5	–
3129 63	Pb I	–	3	Sx
3129.624	Ti I	2	–	–
3129.604	Ru	50	1	–
3129.584	Hf	15	–	–
3129.549	Ta	50	7	–
3129.482	Co I	40	2	–
3129.41	O II	–	[25 l]	Mh
3129.368	Na II	35	[60]	Fr
3129.331	Ca	–	2	–
3129.330	Fe I	100	60	–
3129.316	Ce	12	–	–
3129.314	Ni I	125	–	–
3129.24	Dy	3	–	m
3129.236	Ir	2 h	1 h	–
3129.229	Os	60	15	–
3129.206	Cd	–	10	–
3129.204	Pr	12	2	–
3129 176	Zr II	10	10	–
3129.14	Yb	–	2	–
3129.128	Ta	15 w	5 h	–
3129.105	Fe	15	8	–
3129.1	Cs	–	[4]	Bs
3129.075	Ti I	15	–	–
3129 041	Ce	4	–	–
3128.997	Co I	25	–	Dn
3128.975	W	2	12	–
3128.961	Ce	2	–	–
3128.952	Re I	100 W	–	–
3128.899	Cb	2 h	5 h	–
3128.896	Fe	10	5	–
3128.83	Tb	3	3	Ed
3128.789	Yt II	10	40	–
3128.788	Zr II	2	–	–
3128.786	U	8	6	–
3128.755	Hf	20	1	–
3128.74	Te	–	[15]	Bl
3128.701	Cu I	70	15	–
3128.699	Cr II	30	150	–
3128.686	V	3	70	–
3128.640	Ti I, II	12	70 wh	–
3128.569	Gd	2	2	–
3128.51	Mo	1 d	20 d	–
3128.439	Os	20	5	–
3128.431	Ru	12	–	–
3128.409	Dy	40	10	–
3128.390	Ir I	20	1	–
3128.368	Cb	2	10	–
3128.323	Mn	2 h	–	–
3128.286	Sc II	3	10	–
3128.285	Fe	5	4	–
3128.284	V	2	60	Me
3128.074	U	6	10	–
3128.002	Ce	10	–	–
3127.913	Ru	10	100	–
3127.883	Ti I, II	7	35 wh	–
3127.86	Yb	1	4	–
3127.808	Mo	–	30	–
3127.765	Ta	18 w	100	–
3127.750	Ce	15	–	–
3127.73	W	–	10	–
3127.72	Sm	2 d	1 h	–
3127.693	Ir	3	–	–
3127.689	Sc	3	1 h	–
3127.687	Fe	3	2	–
3127.684	Ti I	2 h	2	–
3127.530	Ce II	40	–	–
3127.526	Cb	10 w	50	Me
3127.37	I	–	[5]	Bl
3127.339	W	10	9 s	–
3127.32	Er	10	1	Ex
3127 249	Co I	100	–	–
3127.234	Ti I	3	–	–
3127.182	Ce	5	–	–
3127 175	Nd	4	2 h	–
3127.160	Sm	2	2 h	–
3127.15	Th	10	10	–
3127 14	Yb	–	2	–
3127.100	Ce	20	–	–
3127 022	Mo	1 d	2	–
3126 99	As II	–	15	Ro
3126.925	Pt	1	8	Sh
3126.802	Dy	3	1	–
3126.777	Mo	–	20	–
3126 758	Fe	6	3	–
3126 725	Co I	70	–	–
3126 625	U	2	2	–
3126.608	Ru	12	50	–
3126.488	Co I	20	–	–
3126 48	Ba	–	2	Py
3126 42	W	2	12	–
3126 291	Hf II	18	5	–
3126.215	V II	60	100 R	–
3126.190	Ne I	–	[150]	Ps
3126.18	Er	4	–	–
3126.18	Dy	15	1 h	–
3126 176	Yt II	6	6	–
3126.174	U	12	20	–
3126.173	Fe	150	70	–
3126.108	Cu I	80	20	–
3126.06	Yb	1	25 h	Me
3126.026	Mo	–	10	–
3126 02	Kr	–	[6 h]	Me
3126.01	Tm	25	–	Me
3125.997	Sm	5	–	–
3125.963	Ru I	70	12	–
3125.96	Cl II	–	[5]	Ks
3125.92	I	–	[10]	Bl
3125.918	Zr II	8	5	–
3125 91	Te	–	[10]	Bl
3125.892	Cb	1	15	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3125.762	Ce II	20	–	–
3125.72	La II	–	3	Me
3125.71	Th	8	3	–
3125.663	Hg I	200	150	–
3125.656	Ti I	5	–	–
3125.654	Fe I	400	300	I
3125.65	Er	10	2	–
3125.6	Pb II	–	[50]	Ea
3125.553	Ti I	2	–	–
3125.518	Re I	30	–	–
3125.470	Cr	8	4	–
3125.463	Th	10	10	–
3125.44	Cl II	–	[6]	Ks
3125.44	Yb	1	2	–
3125.358	W	10	9	–
3125.358	Ce	2	–	–
3125.3	Cs	–	[4]	Bs
3125.284	V II	80	200 R	–
3125.268	Fe	5	2	–
3125.254	Ir	2 h	–	–
3125.193	Zr II	3	2	–
3125.17	Er	15	2	–
3125.16	Th	10	8	–
3125.105	Eu	5	1 h	–
3125.002	V	4	50	Me
3124.978	Cr II	20	125	–
3124.969	Ta	50	20	–
3124.939	Os	150 h	10 wh	–
3124.935	Sc	2	1 h	–
3124.927	Sm	9	3	–
3124.927	Ir	4	–	–
3124.90	Tm	15	30	Me
3124.900	U	12	10	–
3124.889	Fe	15	7	–
3124.87	Eu	6 w	5	–
3124.859	Ce	3	–	–
3124.817	Ge I	200	80	–
3124.734	W	8	3	–
3124.607	Ru	50	2	–
3124.567	Nd	12	10	–
3124.54	Tb	8	8	Ed
3124.504	W	6	5	–
3124.426	U	10	6	–
3124.414	Na II	2	[15]	Fr
3124.402	Rh I	5	–	–
3124.4	Cd	–	[10]	Es
3124.388	Th	12	15	–
3124.366	Ru I	30	2	–
3124.30	P II	–	[15]	Gu
3124.264	Gd	4	–	–
3124.21	Eu	2 h	1 h	–
3124.19	F II	–	[3 h]	Di
3124.167	Ru I	60	8	–
3124.131	U	5	2	–
3124.101	Ce	20	–	–
3124.09	Fe I	1	–	–
3124.081	Ir I	4	–	–
3124.074	Nd	4	2 d	–
3124.02	O II	–	[5 l]	Fl
3124.02	Tb	15	3	Ed
3124.02	Xe II	–	[8 h]	Hu
3124.004	Os	15	8 h	–
3124.002	Gd	10	8	–
3123.957	Eu	20	–	–
3123.956	Sc	2	5	–
3123.953	Hf	8	–	–
3123.951	Fe	5	5	–
3123.949	Ce	15	–	–
3123.921	Ir	2	–	–
3123.769	Ti I	15	3	–
3123.72	Cl II	–	[15]	Ks
3123.717	U	4	2	–
3123.70	Tb	8	3	Ed
3123.697	Rh I	150	2	–
3123.571	U	6	8	–
3123.566	Ce	12	–	–
3123.548	Fe	3	1	–
3123.51	Yb	1	2	–
3123.365	Mo	5	25	–
3123.349	Ce	8	–	–
3123.346	Fe	10	4	–
3123.30	Tm	10	20	Me
3123.30	Sr	2	2	Sd
3123.217	Ir I	2	–	–
3123.179	U	2	1	–
3123.168	Re	25	–	–
3123.13	Sn	–	2 wh	–
3123.087	Er	12	1	–
3123.074	Ti I	35	15	–
3123.069	Nd	8	6	–
3123.05	Tb	15	3	Ed
3123.032	Sm	2	1	–
3123.004	Pr	10	2	–
3122.962	Th	20	20	–
3122.954	Sc II	2	8	–
3122.946	Dy	3	1 h	–
3122.895	V	12	300 r	–
3122.854	Ce	3	–	–
3122.83	Tb	8	3	Ed
3122.781	Au I	500 h	5	–
3122.758	Mo	5	1	–
3122.65	Er	12	8	–
3122.646	Cb	8	3	–
3122.64	Ho	–	4	Ex
3122.62	O II	–	[20 l]	Fl
3122.620	Ce	10	–	–
3122.611	U	5	4	–
3122.596	Cr II	10	80	–
3122.55	Sn	–	2	–
3122.547	Hf	8	1	–
3122.547	Fe	4	4	–
3122.542	Sc II	2 h	–	–
3122.54	Tm	10	–	Me
3122.50	Au II	–	2	–
3122.49	Eu	5 d	–	–
3122.432	Cu	7	1	–
3122.384	Ir I	25	1	–
3122.356	Sm	4	1	–
3122.301	Fe	70	20	–
3122.213	Ce	2	–	–
3122.18	As II	–	10	Ro
3122.065	Ti II	2	50	–
3122.03	Rb	–	[2]	Ok
3122.03	Dy	5	5 h	m
3122.004	Ru	6	–	–
3121.999	Mo	5	150	–
3121.99	Si	–	3	Sy
3121.965	Zr I	2	–	–
3121.960	Cb	2	3	–
3121.94	Tb	15	8	Ed
3121.89	Er	12	1	–
3121 87	Xe II	–	[150]	Hu
3121.828	U	6	2	–
3121.8	Cd	–	[10]	Es
3121.796	Cr	–	8	–
3121.78	Eu	2 h	1 h	–
3121.778	Ir I	35	1	–
3121.773	Fe	7	5	–
3121.770	Cd	–	2	–
3121.755	Rh I	150	–	–
3121.749	V I	12	–	–
3121.741	Re	5	–	–
3121.740	U	4	2	–
3121.7	air	–	5	–
3121.64	Cr	10	–	–
3121.62	Cl II	–	[10]	Ks
3121.599	Ti II	4	20	–
3121.571	Pr	50	4	–
3121.57	I	–	[5]	Bl
3121.566	Co I	60 r	3	–
3121.55	In	–	3	Sq
3121.502	Ta	2 h	1	–
3121.479	Ce	3	–	–
3121.43	Tb	8	3	Ed
3121.415	Co I	150 r	6	–
3121.4	Tl	–	3	Cx
3121.370	Re I	100	–	–
3121.330	U	6	4	–
3121.281	Ce	2	–	–
3121.228	Mo	–	5 h	–
3121.20	Cr	–	6	–
3121.18	Br	–	[3]	Bl
3121.157	W	9	6	–
3121.145	V II	60	200 r	–
3121.092	U	6	5	–
3121.085	Ce	2	–	–
3121.037	Cr	–	5	–
3121.02	Ba I	2	–	Sd
3120.920	Ta	18	5	–
3120.874	Fe	80	50	–
3120.866	U	8	8	–
3120.758	Ir I	50	2	–
3120.741	Zr I	10	2	–
3120.734	V	12	80	–
3120.729	W	9	8	–
3120.655	U	6	5	–
3120.650	Os	20	5	–
3120.64	Cr	10	–	–
3120.6	Tl	–	3	Cx
3120.543	Ru	10	–	–
3120.473	Ce	2	–	–
3120.436	U	4	2	–
3120.435	Cu I	25	3	–
3120.434	Fe	100	80	–
3120.4	Rn	–	[20]	Pe
3120.371	Cr II	40	150	–
3120.36	Te	–	[10]	Bl
3120.336	Mn	50	–	–
3120.231	Fe	5	2	–
3120.212	Ti I	5	–	–
3120.186	Gd	2	1	–
3120.185	W	10	9	–
3120.184	Dy	25	10	–
3120.06	A I	–	[3]	Ms
3120.022	Fe II	–	2	–
3119.99	Tl I	2	–	–
3119.980	Hf	25	1	–
3119.946	Gd	15	10	–
3119.895	Os	30	15	–
3119.879	U	5	2	–
3119.82	Cl II	–	[12]	Ks
3119.807	Mo	3	1	–
3119.802	Pt	6	3	–
3119.800	Ti II	4	150	–
3119.766	W	10	9	–
3119.755	Nd	4	2	–
3119.725	Ti I	20	15	–
3119.706	Cr	30	6	–
3119.675	Sc I	3	2 h	–
3119.674	Ir	5	1	–
3119.671	Ca	–	8	–
3119.67	Au	5	–	–
3119.667	Fe	1	1	–
3119.62	Tb	15	8	Ed
3119.60	As I	100	50	Me
3119.594	Ta	18	5	–
3119.577	Ce	12	–	–
3119.494	Fe	100	80	–
3119.491	Ru	4	–	–
3119.484	Th	15	15	–
3119.351	Ce	2	–	–
3119.348	U	10	10	–
3119.324	V	–	3	–
3119.246	Cr	4	–	–
3119.242	U	8	8	–
3119.203	Re	5	–	–
3119.05	Er	8	2	–
3119.049	U	6	6	–
3119.028	Pr	15	2	–
3119.018	Gd	2	1	–
3119.00	Rb	–	[20]	Ok
3118.920	Pb	5 h	–	–
3118.915	Cd	3	2	–
3118.859	Sm	2	–	–
3118.839	Ce	2	–	–
3118 836	Ir	2	2	–
3118.833	Er	12	3	–
3118 824	Ti II	2	15	–
3118.812	Mo	–	10	–
3118.786	W	8	7	–
3118.738	U	2	2	–
3118 685	Ru	50	3	–
3118 652	Cr II	35	200	–
3118 603	Gd	2	1	–
3118.51	Ho	8	10	Ex
3118.440	Er	6	–	–
3118.43	Lu	40	5	Me
3118.383	V II	70	200 R	–
3118.355	Cu I	5	1 h	–
3118.354	W	10	7	–
3118.35	Cs	–	[4]	Bs
3118.328	Os	150	20	–
3118.246	Co I	60	2	–
3118 193	Re	200	–	–
3118 19	Pb	–	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3118.130	Ti I	10	1	–
3118.128	Mn	4 h	–	–
3118.122	Os	80	15	–
3118.071	Ru I	50	50	–
3118.02	Ne II	–	[12]	Bn
3118.012	Pt II	1	15 h	Sh
3117.99	Te	–	[25]	Bl
3117.98	U	6 d	8 d	–
3117.96	Rh	4	10	–
3117.94	Ba I	2	–	Sd
3117.899	Sm	5	3	–
3117.899	Ti I	4	–	–
3117.898	Dy	2	1 h	–
3117.891	Os	30	10	–
3117.890	Sc I	2	–	–
3117.888	Fe	3	3	–
3117.88	Ag	2	3 h	–
3117.856	Ir	5	–	–
3117.85	A	–	[3]	Ms
3117.804	Yb	7	30	–
3117.773	Ce	3	–	–
3117.762	Fe	2	2	–
3117.760	Ir	5	–	–
3117.725	Sm	8	3	–
3117.7	Pb II	–	[100]	Ea
3117 669	Ti II	15	200	–
3117.653	Ca	10	2	–
3117 640	Fe	20	10	–
3117.636	Th	12	12	–
3117.629	Eu	2 h	–	–
3117.580	W	10	12	–
3117 545	Mo	5	20	–
3117.523	Ir	6	–	–
3117.510	Dy	6	2	–
3117.471	Ce	2	–	–
3117.455	Ti I	8	–	–
3117.441	Ta	70	10	–
3117.385	W	6	5	–
3117.332	Ir	2	2	–
3117.279	U	6	4	–
3117.26	Tb	8	3	Ed
3117 258	Cr	1	30	–
3117 191	Sc	2 h	–	–
3117.191	Fe	2	2	–
3117 186	Sm	4	1	–
3117.185	Ir	3	–	–
3117.006	Ce	4	–	–
3116.982	Fe	2	–	–
3116.950	Hf II	20	20	–
3116.947	Er	20	2	–
3116.869	Dy	4	2	–
3116.869	W	9	3	–
3116.839	Ru	30	–	–
3116.781	V	–	25	–
3116.78	Xe	–	[2]	Hu
3116.744	Cr	–	35	–
3116.714	Ni I	2	–	–
3116.70	Yb	2	–	–
3116 68	Zr	–	4 h	Ks
3116 658	Ru	30	–	–
3116.633	Fe I	150	–	S
3116.63	As II	–	150	Ro
3116 63	A	–	[3]	Ms
3116.63	Se	–	[20]	Bl
3116 60	I	–	[7]	Ke
3116 590	Fe II	–	150	Do
3116 57	Cb	1	4 wh	–
3116.49	Yb	1	3	–
3116.476	Th	10	10	–
3116.475	Os	50	15	–
3116.428	U	6	4	–
3116.365	Cb	8	3	–
3116.348	Cu I	50	12	–
3116.3	Rn	–	[5]	Pe
3116.30	Te	–	[5]	Bl
3116 288	Th	5 d	10	–
3116.250	Fe I	5	4	–
3116.24	Hg II	–	[100]	Ps
3116.214	W	7	3	–
3116.141	Nd	10	4	–
3116.092	Mo	1	60	–
3116.06	Yb	1	3	–
3116.055	V	–	10 h	Me
3115.979	Ce	5	–	–
3115.929	U	8	15	–
3115.91	Dy	3	–	–
3115.859	Ta	50	18 w	–
3115.795	U	6	4	–
3115.74	Eu	6	–	Kn
3115.74	Th	10	10	–
3115.727	Zr II	2	2	–
3115.674	Ag	–	3 h	–
3115.658	Fe	3	1	–
3115.647	Ce	2 h	–	–
3115.645	Cr	–	40	–
3115.572	U	2	–	–
3115.542	Sm	2	–	–
3115.537	Cb	1	5	–
3115.534	Er	15	1	–
3115.465	Mn	50	25	–
3115.452	Ru	3	–	–
3115.423	Bi	–	500	Om
3115.359	Fe	–	1	–
3115.333	Yb	2	20	–
3115.274	Cr II	–	30	–
3115.172	Nd	4	2	–
3115.15	Cb	–	8 h	–
3115 116	Ce	4	–	–
3115.09	Er	12	1	–
3115.088	Ti II	1	12	–
3115.042	Sm II	6	4	–
3115.002	U	10	8	–
3114.909	Rh I	100	2	–
3114.88	Rb	–	[20]	Ok
3114.877	Mo	3	25	–
3114.86	Cr	15	–	–
3114.860	Nd	4	–	–
3114.814	Os	50	12	–
3114 778	Sm	6	1	–
3114.778	Sc	2	2 h	–
3114.775	Fe	4	2	–
3114.682	Fe II	–	10	–
3114.631	Re	3	–	–
3114.623	Sm	2	1	–
3114.6	Rn	–	[50]	Pe
3114.594	U	12	4	–
3114.583	W	6	3	–
3114.549	Ir I	25	10	–
3114.45	Cr	10	–	–
3114.43	Yt II	7	3 h	–
3114.293	Fe II	–	80	–
3114.283	Yt	10	–	–
3114.137	Pr	3 r	–	–
3114.124	Ni I	300	50	–
3114.121	Mn	3	–	
3114.092	Ti I	15	2 h	–
3114.08	Cr	2 wh	–	–
3114.068	Th	10	5	–
3114.047	Ir I	25	15	–
3114.040	Pd I	400 w	500 w	–
3114.039	Pt	3	–	–
3113.92	Kr II	–	[2]	Me
3113.903	Ta	50	35 w	–
3113.885	Zr	–	2 h	–
3113.788	Ir I	2	–	–
3113.693	Ce	2	–	–
3113 637	U	8	12	–
3113.62	Tb	15	8	Ed
3113 592	Fe	25	10	–
3113.567	V	7	100	–
3113.536	Er	12	3	–
3113.506	Zr I	3	–	–
3113.482	Cu I	12	2	–
3113.48	Ho	–	4 h	Ex
3113.480	Mo	2	6	–
3113 479	Co I	100	4	–
3113.407	Sm	5	–	–
3113.397	Ru I	50	–	–
3113.370	Sc	3	1	–
3113.367	Fe	2	2	–
3113 355	Ir	6	–	–
3113.31	Tm	10	20	Me
3113.228	Nd	4	1	–
3113.214	Re	10	–	–
3113.179	Gd	3	3	–
3113.175	Cb	1	5	–
3113.131	Ir I	2 h	–	–
3113.130	Mn	15	–	–
3113.104	Dy	5	2 h	–
3113.02	Eu	10 W	5	–
3112.986	Ag	5	–	–
3112.982	U	5	5	–
3112.98	Yb	–	2	–
3112.98	Cr	12	–	–
3112.973	Ce	8	–	–
3112.964	Cd II	–	2	–
3112.96	I	–	[18]	Bl
3112.925	V I	12	–	–
3112.920	Ta	1	50 l	–
3112.879	Dy	3	–	–
3112.83	Rb I	15	–	Bv
3112.755	Ce	6	–	–
3112.74	Xe II	–	[12]	Hu
3112.677	Ru	50	3	–
3112.63	La II	3	10 hl	Me
3112.50	B	–	5	Sy
3112.482	Ti I	10	2	–
3112.375	Cb	1 h	4 h	–
3112.356	Ir I	3	–	–
3112.35	Th	–	20 h	–
3112.304	Ru	30	–	–
3112.249	U	10	6	–
3112.206	Cd	3	2	–
3112.202	Ce	15	–	–
3112.182	Hf	3	–	–
3112.18	Cs	–	[4]	Bs
3112.178	Ir	3	–	–
3112 124	V	20	1	–
3112.124	Mo	40	10	–
3112 087	Th	10	4	–
3112.087	Ir	4	2	–
3112.081	Fe	30	20	–
3112.050	Ti II	7	70	–
3112 032	Yt II	12	10	–
3112.03	Er	20	6	–
3112.00	Te	–	[15]	Bl
3111.959	W	6	9	–
3111.941	Cr II	–	40	–
3111.912	Ru I	50	5	–
3111.831	Th	20 d	8 d	–
3111.826	Ce	4 w	–	–
3111 821	Fe	10	6	–
3111.810	Yt I	10	–	–
3111 8	Rn	–	[2]	Wo
3111.684	Fe	8	3	–
3111.67	Bi II	–	[25]	Ml
3111 640	Mo	–	25	–
3111.621	U	15	15	–
3111.612	Cb	–	4 h	–
3111.569	Re I	25	–	–
3111.548	Dy	4	–	–
3111.52	Pd II	–	3 h	–
3111.462	U	3	3	–
3111.45	Kr	–	[2 h]	Me
3111.450	Cb	4	5	–
3111.432	Eu	200	–	–
3111.43	Rb	–	[30]	Ok
3111.41	Bi II	–	[15]	Ml
3111.38	Pb	–	2	Sx
3111.34	Cr	6	–	–
3111.339	Co I	20	3	–
3111.337	Pr	15	2	–
3111.283	Ti I	15	8	–
3111.234	Ce	10	–	–
3111 224	Mo	1	15	–
3111.20	Bi II	–	[10]	Ml
3111.165	Ce	20	–	–
3111.160	Zr II	2	1	–
3111.123	W	9	15	–
3111.09	Os	100	20	–
3111.02	Bi II	–	[7]	Ml
3111.00	Cr	8	–	–
3110.998	Ce	2	–	–
3110.965	Be I	15	–	–
3110 88	Bi II	–	[5]	Ml
3110.878	Zr II	10	8	–
3110.874	Hf II	30	40	–
3110.87	Er	12	3	–
3110.862	Re I	100	–	–
3110.860	Cr	25	8	–
3110.844	Mo	–	30	–
3110.842	Be I	20	–	–
3110.841	Fe	20	10	–
3110.832	U	6	8	–
3110.825	Co I	60	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3110.815	Ta	–	70 w	–
3110.800	Cb	1 h	5	–
3110.784	U	3	1	–
3110.757	Dy	10	5 h	–
3110.71	Fe	2	–	–
3110.706	V II	70	300 R	–
3110.677	Mn	35	35	–
3110.673	Ti	10	100	–
3110.66	A I	–	[3]	Ms
3110.644	Mo	3	–	–
3110.620	Ti II	8	18	–
3110.618	Os	30	10	–
3110.580	Pr	10	1	–
3110.549	Ru I	60	6	–
3110.525	U	3	8	–
3110.281	Fe	40	30	–
3110 278	Ce	30	1	–
3110.24	Eu	20	–	–
3110 238	Sc I	3	5	–
3110.227	Ir	4	1	–
3110.226	U	3	3	–
3110.193	Sm	15	4	–
3110.188	Fe	6	6	–
3110.103	Ta	3	1	–
3110.095	Ti II	3	35	–
3110.038	U	6	3	–
3110.022	Th	15	15	–
3110 021	Co I	60	2	–
3109 965	Sm	1	10 h	–
3109.93	Ho	6	2 h	Ex
3109.84	Hg	–	[18]	Ps
3109.79	Cr	2	–	–
3109 78	Yb	1	2	–
3109.768	Dy	40	20	–
3109 759	Re I	20	–	–
3109.757	Pr	10	2	–
3109.75	A	–	[3]	Rt
3109 736	Cb	2	2	–
3109.679	Os	20	20	–
3109.626	U	6	3	–
3109.624	Ba I	2	–	–
3109.620	Fe	2	1	–
3109.581	Ti	10	1	–
3109 51	Ca I	4	–	Sd
3109.510	Co I	60	1 h	–
3109.436	La I	25	2	–
3109 403	Ru	20	–	–
3109.383	Ce	15	–	–
3109.381	Os	125	20	–
3109.372	V	1	70	–
3109.357	Ir I	8	8	–
3109.341	Sc	3	4	–
3109.337	Fe	3	3	–
3109 336	Cr	30	12	–
3109.3	Cs	–	[4]	Bs
3109.211	U	6	2	–
3109.156	Pd II	5	30 h	–
3109.15	Tb	8	3	Ed
3109.117	Hf II	50	100	–
3109.070	Fe	2	2	–
3108.981	Os	125	15	–
3108.964	Ce	10	–	–
3108.954	Fe	2	2	–
3108.927	Ti II	2	15	–
3108.924	Ce	8	–	–
3108.875	Yt I	5	–	–
3108.811	Re I	125	–	–
3108.781	W II	3	12	–
3108.770	Mn	5	–	–
3108.701	V	3	50	–
3108.690	U	8	4	–
3108.649	Cr	–	35	–
3108.635	Mn	8	–	–
3108.63	Ho	–	4	Ex
3108.605	Cu I	20	5	–
3108.58	Ca I	30	3	Sd
3108.552	Ce	2	–	–
3108.54	Se II	–	[15]	Bl
3108.511	Sc II	4	5 hl	–
3108.462	La II	10	8	–
3108.452	Cu	15	1 h	–
3108.426	Ru I	30	–	–
3108.41	Tb	8	3	Ed
3108.374	Zr I	5	–	–
3108.367	U	5	5	–
3108.364	Gd	3	3	–
3108.33	Ho	6	4	Ex
3108.327	Ir	2	–	–
3108.298	Th	15	20	–
3108.29	Rh	3	–	–
3108.203	Eu	10	1 h	–
3108.176	Ba	10	6	–
3108 100	U	3	2	–
3108.022	W	12	10	–
3108.008	Nd	6	2	–
3107.978	Fe	20	10	–
3107.976	Os	25	8	–
3107.935	U	4	5	–
3107.897	Yb	10	60	–
3107.871	Re	2	–	–
3107.864	Os	30	8	–
3107.841	Hf II	1	2	–
3107.821	Ir	2 h	–	–
3107.82	Xe	–	[15 whl]	Hu
3107.81	Cd	–	2	–
3107.799	Ta	3 r	1 h	–
3107.774	Mn	12	–	–
3107.758	Yb	2	20	–
3107.73	Tl II	–	2	Sx
3107.715	Ru I	60	5	–
3107.714	Ni I	25	–	–
3107 636	Ce	2	–	–
3107.579	Ru	10	50	–
3107.572	Cr	2	125	–
3107.556	Ir	4	–	–
3107.549	Mo	–	25	–
3107.546	U	6	6	–
3107 542	Co I	15	3	–
3107.538	Ce	2	1	–
3107.529	Sc II	8	12	–
3107.524	Sm	4	2	–
3107.468	Ce	25	–	–
3107 468	Ti I	5 h	2	–
3107 388	Ca	5	2	Cw
3107.387	Sc II	4	1	–
3107 378	Os	40	10	–
3107.348	U	10	6	–
3107.327	Fe	2	1	–
3107.24	Cr	8 h	–	–
3107.234	W	12	10	–
3107.211	Ta	20	3	–
3107.144	V	10	–	–
3107.10	Te	–	[15]	Bl
3107 044	Co I	70	3	–
3107.029	Th	15	15	–
3107.02	Mg	–	5	Ed
3106 984	Cb	2	10	–
3106.93	Dy	6	–	–
3106.927	Ca	1	2	–
3106 859	Mo	1	5	–
3106.840	Ru I	50	3	–
3106.829	V	–	5	Me
3106 806	Ti I	12	2	–
3106.797	U	1	2	–
3106 787	Er	15	2	–
3106.744	Mn	5	–	–
3106.71	Cd	2	4	–
3106.7	Rn	–	[30]	Pe
3106.691	Th	12	10	–
3106 67	Au	5	5	–
3106 63	I	–	[5]	Bl
3106.576	Zr II	10	15	–
3106 559	Fe II	1	30	Do
3106.546	Sc	4	1	–
3106 520	Sm II	15	5	–
3106 520	Cb	2	5	Me
3106.50	Rb	–	[2]	Ok
3106.460	Mo	2	–	–
3106 341	Mo	10	25 d	–
3106 34	Cl	–	[4]	Bl
3106.234	Ti II	25	150	–
3106.173	Nd	6	4	–
3106.172	Eu	20	1	–
3106.167	U	8	6	–
3106.16	F II	–	[10]	Di
3106.14	Si	–	2	Sy
3106.11	V I	8	–	–
3106.023	Hf	12	1	–
3106.022	Sc	2 h	1 h	–
3106.021	Ir	4	–	–
3106 018	Fe	4	4	–
3105.992	Os	150	20	–
3105.972	V	–	5 h	Me
3105.95	Te	–	[5]	Bl
3105.946	Ir I	4	–	–
3105.924	Co I	30	–	–
3105.878	W	10 l	7	–
3105.864	Ce	2	–	–
3105.750	Th	15	20	–
3105.7	Rn	–	[60]	Wo
3105.671	Ir	2	–	–
3105.668	Hf	10	–	–
3105.667	Sc I	2	–	–
3105 666	Fe	4	2	–
3105.646	U	5	4	–
3105.56	Cr	10	–	–
3105.548	Fe II	1	30	Do
3105.501	Ce	3	–	–
3105.50	Se II	–	[20]	Bl
3105.477	Th	10	4	–
3105.469	Ni I	200	35	–
3105.419	Nd	8	2	–
3105.412	U	3	4	–
3105.411	Ru I	50	1	–
3105.400	Pr	20	1	–
3105.283	Ru	50	40	–
3105 266	Ce	15	–	–
3105 220	Ti I	2 h	–	–
3105.168	Fe II	–	60	–
3105.160	Ta	2 h	–	–
3105.148	Ce	4	–	–
3105.099	U	8	8	–
3105 084	Ti II	12	100	–
3105 053	Th	10	10	–
3105.001	Dy	20	5	–
3105.00	K II	–	[30]	Bn
3104.995	Rh I	4	–	–
3104.98	Os	200 d	15 d	–
3104.98	Lu	–	25 hl	Me
3104 928	Ce	4 w	–	–
3104 913	V	7	25	–
3104.9	Rn	–	[10]	Pe
3104.805	Mg II	15	–	Fl
3104.78	Yt II	2	7	–
3104.713	Mg II	15	–	Fl
3104.70	Cr	10	18	–
3104.651	Re I	30	–	–
3104.621	Ru	5	–	–
3104 593	Ti II	3	15	–
3104.593	Ce	3	–	–
3104.59	Cd	–	4	–
3104.589	La II	200	50	–
3104.47	Cl	–	[8]	Bl
3104.464	Ru	30	–	–
3104.426	W	5	2	–
3104.425	Ta	15 h	1 h	–
3104.41	Te	–	[10]	Bl
3104.40	Xe II	–	[40 h]	Hu
3104 396	Na II	2	[20]	Fr
3104 381	Mo	15	–	–
3104.38	A II	–	[10]	Rt
3104.372	U	6	4	–
3104.260	Cb	1	5	–
3104.169	Ir I	2	–	–
3104.168	Fe	2	2	–
3104.167	Ta	2 h	–	–
3104.162	U	20	20	–
3104.121	Dy	5	–	–
3104 067	Mo	2	3	–
3104.012	Ce	10 h	–	–
3103 994	V I	15	–	–
3103.983	Co I	60 r	–	–
3103 94	Au II	–	8	–
3103.916	Mo	3	–	–
3103 849	Fe	2	2	–
3103.839	Dy	30	10	–
3103.804	Ti II	20	200	–
3103.80	Si	–	2	Sy
3103.771	U	8	6	–
3103.767	Fe	2	2	–
3103.754	Ir I	10	1	–
3103.742	Co I	80	2	–
3103 736	I	–	[3]	Ke
3103.69	Hf	10	–	Me
3103.672	Yt	3	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3103.516	W II	2	15	–
3103.474	Cr	–	50	–
3103.415	Os	20	8	–
3103.413	Ru	3	50	–
3103.377	Ce	15 h	2	–
3103.269	Ce	3	–	–
3103.256	Re	3	–	–
3103.251	Ta	70	15	–
3103.246	Dy	30	1	–
3103.239	Yt II	8	7	–
3103.133	U	2	1	–
3103.073	Mn	2	–	–
3103.008	Ce	2	–	–
3102.975	Ti II	2	2	–
3102.97	Tb	30	15	Ed
3102.899	U	6	3	–
3102.88	Tm	20	15	Me
3102.874	Pb I	–	10	–
3102.872	Fe	30	20	–
3102.73	Xe	–	[2]	Hu
3102.72	I II	–	[2]	Mu
3102.716	Os	20	8	–
3102.686	Er	15	2	–
3102.68	Ho	–	4	Ex
3102.666	Th	15	12	–
3102.66	Ag	3	–	–
3102.638	Fe	6	5	–
3102.63	A	–	[3]	Rt
3102.613	U	6	5	–
3102.563	Ce	15 h	–	–
3102.557	Gd	25	25	–
3102.527	Rh I	10	–	–
3102.517	Ti I	5	–	–
3102.431	Ce	10	–	–
3102.407	Co I	60	4	–
3102.396	Ru	20	–	–
3102.39	U	12 d	10 d	–
3102.361	Fe	2	2	–
3102.359	Ca	2 h	4	–
3102.358	Ce	12	–	–
3102.358	Hf	15	3 h	–
3102.355	Ir	4	–	–
3102.299	Sm	8	4	–
3102.299	V II	70	300 R	–
3102.25	K I	20 R	–	Fl
3102.23	Sn	–	[2]	Mc
3102.221	W	2	12	–
3102.19	Dy	4	1 h	–
3102.149	Sc I	3	4	–
3102.147	Hf	6	1	–
3102.144	Fe	2	2	–
3102.144	Ir	4	–	–
3102.09	B II	–	5	Sy
3102.07	Yb	1	8	–
3102.03	K I	50 R	–	Fl
3101.99	La	–	4 hl	Me
3101.930	Sm	10	8	–
3101.925	Gd	5	3	–
3101.917	Cb	2	10	–
3101.915	Mo	5	–	–
3101.91	Dy	4	2	–
3101.879	Ni I	400 R	150	–
3101.865	U	6	4	–
3101.80	Ra I	–	[75]	Rs
3101.791	Ce	20	–	–
3101.722	Ta	7	2	–
3101.703	Re	3	–	–
3101.699	U	8	8	–
3101.691	Th	10	8	–
3101.557	Mn	50	50	–
3101 554	Ni I	1000 R	150	–
3101.528	Os	125	20	–
3101.526	Ti I	8	12	–
3101.51	Xe II	–	[30 h]	Hu
3101.45	Te	–	[5 h]	Bl
3101.407	Ne	–	[7]	Ps
3101.397	Hf II	60	90	–
3101.392	Ce	10	–	–
3101.357	Yb	2	12	–
3101.345	Mo	80	10	–
3101.27	Pr	40	2	–
3101.23	W II	–	5	–
3101.218	Mo	4	–	–
3101.186	Gd	3	2	–
3101.167	Ir I	5	1	–
3101.11	Mo	1	15	–
3101.033	Ta	–	100 W	–
3101.005	In II	–	[10]	Ps
3101.004	Fe	8	8	–
3101.003	Re	2 h	–	–
3100.97	Cb	2	1	–
3100.961	Pt I	15	4	–
3100.939	Th	12	12	–
3100.935	V	20	100	–
3100.934	In II	–	[10]	Ps
3100.875	Mo	40	2	–
3100.867	In II	–	[18]	Ps
3100.839	Fe	3	3	–
3100.839	Ru I	70	50	–
3100.810	Cb	1	5	–
3100.771	U	6	2	–
3100.74	W II	2	20	–
3100.698	In II	–	[18]	Ps
3100.666	Fe I	100	100	–
3100.666	Re I	100	–	–
3100.666	Ti I	30	15	–
3100.659	In II	–	[10]	Ps
3100.571	In II	–	[5]	Ps
3100.51	Tb	15	8	Ed
3100.508	Gd	100	80	–
3100.507	Mo	2	6	–
3100.446	Ir I	18	3	–
3100.304	Fe I	100	100	–
3100.302	Mn	60	60	–
3100.286	Ir I	30	2	–
3100.25	Cb	–	20	Me
3100.22	Ca I	2	–	Cw
3100.19	Rn	–	[50]	Rc
3100.168	Cb	1	5	–
3100.09	A I	–	[5]	Ms
3100.038	Pt I	2	25	–
3100 00	I II	–	[2]	Mu
3099.971	Fe I	40	40	–
3099.934	Cu I	60	10	–
3099.932	Mo	25	3	–
3099.897	Fe I	60	60	–
3099.866	In II	–	[40]	Ps
3099.863	Th	10	6	–
3099.804	U	8	2	–
3099 80	Ca	1	2 h	Ad
3099.744	Th	10	6	–
3099.739	In II	–	[18]	Ps
3099.73	Rb	–	[10]	Ok
3099.670	Co I	50	–	–
3099.665	Zr I	2	–	–
3099.61	Tm	10	50	Me
3099.58	V	2 h	–	–
3099.569	Mo	10	–	–
3099.547	Eu	6 w	3 h	–
3099.515	Nd	6	4	–
3099.426	Ce	5	1	–
3099.422	Sc	2 h	1 h	–
3099.417	Fe	2	2	–
3099.34	Ca I	10	2	Sd
3099.320	U	6	5	–
3099.283	Ru I	70	60	–
3099.261	Os	40	8	–
3099.24	Mo	–	20	–
3099.230	Zr II	9	5	–
3099.19	Er	18	6	–
3099 186	Cb	3	15	–
3099.162	Sm	6	–	–
3099.159	Mo	10	–	–
3099.142	Ce	4	–	–
3099.123	Hf II	–	3	–
3099.122	Ag	10	8	–
3099.115	Ni I	200	50	–
3099.049	U	12 r	4	–
3098.958	Ce	2	–	–
3098.928	Ir I	10 r	–	–
3098.903	Gd	5	2	–
3098.836	Ru I	3	–	–
3098.804	U	8	4	–
3098.686	U	3	3	–
3098.651	Gd	15	8	–
3098 64	Tb	15	–	Ed
3098.597	Sc	2 h	1	–
3098 593	Hf	10	–	–
3098 59	Tm	80	60	Me
3098.590	Ir	5	–	–
3098.588	Fe	5	5	–
3098.55	Rb II	–	[5]	Ok
3098.503	Pr	20	3	–
3098.476	Nd	8	2	–
3098.470	Cb	1	5	–
3098.465	Mo	20	25	–
3098.448	W	8	4	–
3098.436	Ir	2	–	–
3098.331	Th	8	1	–
3098.310	W II	2	10	–
3098.25	Cl	–	[3]	An
3098.196	Co I	100 r	5	–
3098.192	Fe I	70	60	–
3098.191	Sm	–	4 h	–
3098.17	Eu	25 d	5	–
3098.160	Cr	–	30	–
3098.148	Ce	5	–	–
3098.050	Dy	4	–	–
3098.011	U	10	10	–
3098.01	Tm	5	20	Me
3098.005	Sm	1	2	–
3097.985	Ag	5	–	–
3097.96	Th	1	50 h	–
3097.879	Ru	6	15	–
3097.815	Ir I	12	10	–
3097.815	Fe	20 h	10 h	–
3097.81	I	–	[5]	Bl
3097.78	Pr	15	2	–
3097.689	Mo	10	30	–
3097.626	Ti II	1	5	–
3097.605	Ru	2	18	–
3097.506	Fe	1 h	1 h	–
3097.456	Eu	200 w	5	–
3097.385	Mo	10	–	–
3097.38	Cs	–	[10]	Bs
3097.349	Ir	2 h	–	–
3097.33	Te	–	[5 h]	Bl
3097.270	Th	10	8	–
3097 231	Ru	30	–	–
3097.201	Mo	20	–	–
3097.2	Rn	–	[18]	Wo
3097.186	Ti II	20	150	–
3097.15	Ne II	–	[7]	Bl
3097.122	Cb	3 w	100 w	–
3097.118	Ni I	200	50	–
3097.079	Ce II	18	–	–
3097.063	Mn	75 w	40	–
3096.97	Tm	15	50	Me
3096.941	Ir I	2 h	–	–
3096.94	Pr	2	–	–
3096.92	Si	–	4	Sy
3096.90	Xe II	–	[5]	Hu
3096.899	Mg I	150	25	–
3096.898	Ca	1	2 h	–
3096.883	Ce II	20	–	–
3096.88	U	5 d	5 d	–
3096.877	Sm	10	4	–
3096.86	Tb	3	8	Ed
3096.836	Fe	30	20	–
3096 829	Nd	2	2	–
3096 823	Ir	5	–	–
3096 80	Sc	7 d	3	–
3096.758	Hf	25	1	–
3096 726	Ce	2	–	–
3096 72	Cl II	–	[25]	Ks
3096.70	Cr	15	2	–
3096.700	Co I	60	3	–
3096.668	Sm II	8	3	–
3096.622	Yt I	3	–	–
3096.608	U	2	5	–
3096.568	Ru	70	60	–
3096.54	Ag	1	3 h	–
3096.531	Cr	35	–	–
3096.52	Kr II	–	[20 hs]	Me
3096.501	Ce	25	–	–
3096.495	Cb	4	3	–
3096.434	Th	10	8	–
3096.424	Ti II	3	35	–
3096.411	Re I	20	–	–
3096.405	Co I	60	3	–
3096.402	Ce	5	–	–
3096 340	Ir	2 h	–	–
3096.324	Ca	1	2	–
3096.296	Fe II	2	30	Do
3096.13	Cr	1	100	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3096.128	Ir	3	–	–
3096.116	Ta	1	2 h	–
3096.069	Sm	3	5 h	–
3096.044	Fe	3	1	–
3096.023	La I	15	2	–
3096.012	W	6	3	–
3095.902	V I	15	–	–
3095.88	Er	25	8	–
3095.878	Yt II	10	8	–
3095.873	W	2	20	–
3095.859	Ce	5	–	–
3095.859	Cr	125	3	–
3095.823	Zr I	8	–	–
3095.81	Re I	30 w	–	–
3095.77	Cs	–	[6]	Bs
3095.762	Ce	8	–	
3095.75	Dy	15	1 h	–
3095.748	U	10	10	–
3095.718	Co I	60	2	–
3095.716	Sm	3	2	–
3095.701	Mo	25	–	–
3095.581	Ce	20	–	–
3095.488	Cr	–	12	–
3095.472	Sm II	2	2 h	–
3095.45	Cd	–	[10]	m
3095.40	Yb	3	–	–
3095.393	Ta	70 w	18 w	–
3095.382	Cr	15	2	–
3095.364	Sc I	2	–	–
3095.344	Ir	4	–	–
3095.278	Ca I	10	2	–
3095.269	Fe	10	6	–
3095.262	Ce	3	1	–
3095 231	U	10	10	–
3095.23	Yb	–	2	–
3095.14	Kr II	–	[30 hs]	Me
3095.099	Ce II	15	–	–
3095.071	Zr II	8	5	–
3095.061	Re	40	–	–
3095.041	U	12	12	–
3094.98	A	–	[3]	Rt
3094.927	Cr	–	15	–
3094.92	Yb	1	2	–
3094.900	Fe I	30	15	–
3094.830	U	10	10	–
3094.82	Cs	–	[4]	Bs
3094.799	Zr I	5	–	–
3094.76	La	2	3	Me
3094.74	Th	10	6	–
3094.692	V I	40	–	–
3094.69	Sn II	–	[6]	Mc
3094.664	Mo	150	25	–
3094.629	Eu	3	1 h	–
3094.625	Sc	4	1	–
3094.622	Fe	3	4	–
3094.617	Ir	3	–	–
3094.558	Ru	6	50	–
3094.53	Xe II	–	[12 h]	Hu
3094.460	U	3	4	–
3094.393	Ru	50	3	–
3094.366	Ir I	5	–	–
3094.359	Cb	2	–	–
3094.328	Fe	2 h	2 h	–
3094.199	V	20	125 r	–
3094.184	Eu	10 w	–	–
3094.183	Cb II	100	1000	–
3094.08	Ne II	–	[12]	Bn
3094.074	Os	30	8	–
3094.032	W	8	10	–
3094.009	Ir I	20	10	–
3093.992	Cu I	150	50	–
3093.950	Ce	4 l	–	–
3093.947	Cr	–	25	–
3093.901	Ru	30	100	–
3093.883	Nd	6	–	–
3093.883	Fe	40	30	–
3093.879	Yb	3	15	–
3093.869	Ta	50	15	–
3093.868	U	3	4	–
3093.82	Dy	10	1	–
3093.813	Tl I	5	–	–
3093.806	Fe I	50	40	–
3093.792	V I	30	–	–
3093.77	Yt II	9 d	15 d	–
3093.75	Er	6	1	–
3093.740	Cd II	3	2	–
3093.680	Mo	10	–	–
3093.652	Re I	60	–	–
3093.614	Ce	18	–	–
3093.587	Os	125	15	–
3093.58	Bi I	10 w	8	To
3093.512	W	12	10	–
3093.488	Cr	1	100	–
3093.48	Rh I	2	3	–
3093.460	Ca	2	3	–
3093.447	Ru	4	–	–
3093.44	Yb	–	2	–
3093.41	A II	–	[50]	Rt
3093.37	U	4 d	3 d	–
3093.357	Fe	70	40	–
3093.339	Ce II	12	–	–
3093.321	Zr I	3	–	–
3093.3	Au II	–	5	Ex
3093.28	Si	–	6	Sy
3093.243	Ce	6	–	–
3093.12	Tm	30	60	Me
3093.108	V II	100 R	400 R	Me
3093.108	Dy	15	5	–
3093.055	Th	12	6	–
3093.012	U	20	20	–
3093.0	Rn	–	[18]	Pe
3093.00	Cl	–	[4]	Bl
3092.994	Ta	18	1	–
3092.991	Mg I	125	20	–
3092.92	Mo	–	10 d	–
3092.915	Nd	8	6	–
3092.91	Ne II	–	[4]	Bl
3092 886	Cb	1 h	5	–
3092.842	Al	50 R	18	–
3092.818	Ce	4	1	–
3092.778	Fe	50	30	–
3092 729	Na II	50	[200]	Fr
3092.724	Ce	4	–	–
3092.720	V	100 r	50 r	–
3092.720	U	5	3	–
3092.713	Al I	1000	1000	–
3092.712	Yt	8	–	–
3092.70	Mo	20	2	–
3092.56	Yb	–	30	–
3092.519	Sc II	3	4	–
3092.444	Ta	50	15	–
3092.42	Sc	3	–	–
3092.41	Xe II	–	[10]	Hu
3092.401	Ir	5	–	–
3092.399	Fe	4	5	–
3092.393	Cd II	10	15	–
3092 32	Te	–	[15]	Bl
3092.285	W	7	3	–
3092.245	Hf II	20	20	–
3092.240	Zr	3	–	–
3092 22	Cl II	–	[50]	Ks
3092.197	Ce	3	–	–
3092.074	Mo	30	100	–
3092.064	Gd	3	2	–
3092.057	Ta	15	1	–
3092.035	Ce	2	–	–
3091.976	U	2	2	–
3091.93	Er	5	–	–
3091.918	Ce	20	–	–
3091.873	Ru	50	5	–
3091.840	Mo	10	–	–
3091.79	Hf II	8	3 h	Me
3091.706	Ce	5	1	–
3091.699	Yt	6	3	–
3091.66	Tl II	–	50	Ml
3091.626	I	–	[25]	Ke
3091.61	Tl II	–	25	Ml
3091.6	Cs	–	[4]	Bs
3091.578	Fe I	300	200	S
3091.52	V I	8	1	Kn
3091.461	U	5	4	–
3091.437	V I	10	–	–
3091.4	Rn	–	[10]	Pe
3091.366	Hf	12	–	–
3091.366	Ce	2	1	–
3091.366	Ir	3	–	–
3091.34	Pr	10	2	–
3091.30	Au	5	–	–
3091.294	Ce I, II	20	–	–
3091.25	U	15 rd	12 rd	–
3091.248	Os	40	15	–
3091.200	Eu	10	–	–
3091.108	Ce	3	–	–
3091.097	Fe	2	1	–
3091.077	Mg I	80	10	–
3090.98	Hg	–	[5]	Ps
3090.897	Ru	30	1	–
3090.880	Ce	20	–	–
3090.779	V I	8	–	–
3090.701	Ce	18	–	–
3090.65	S	–	[8]	Bl
3090.647	Mo	4	–	–
3090.60	Hg II	–	[200]	Ps
3090.585	W	9	8	–
3090.554	U	8	8	–
3090.536	V	2 h	–	–
3090.516	Ce	15	1	–
3090.492	Os	80	15	–
3090.446	Sm	3	1	–
3090.437	Zr I	8	1 h	–
3090.416	W	8	6 d	–
3090.39	Rh	4	–	–
3090.372	Ce	20	3	–
3090.372	Ir	2	–	–
3090.357	U	10	8	–
3090 296	Os	100	12	–
3090.254	Co I	80	1	–
3090.229	Ru	50	6	–
3090.209	Fe	30	15	–
3090.190	Dy	5	–	–
3090.163	Ir I	10	1	–
3090.137	Ti I	12	2	–
3090.102	Th	15	10	–
3090.085	Os	100	15	–
3090.051	Ti II	–	100 wh	–
3089.957	Gd	8	8	–
3089.937	Re	20	–	–
3089.907	Ta	2	7 h	–
3089.88	U	6 d	1 d	–
3089.856	Cd II	–	3	–
3089.801	Ru I	60	5	–
3089.787	Ce	4	–	–
3089.77	Er	5	1	–
3089.741	Fe	2	2	–
3089.73	Te	–	[25]	Bl
3089.706	Mo	40	5	–
3089.677	Nd	10	–	Kn
3089.631	Th	10	10	–
3089.628	V	–	10	–
3089.62	Yb	1	2	–
3089.604	Dy	5	–	–
3089.595	Co I	100 r	–	–
3089.584	Ce	3	–	–
3089.58	Tb	30	15	Ed
3089.512	Fe	2	–	–
3089.401	Tl II	12	100	–
3089.388	Fe II	–	10	–
3089.345	Eu	20	–	–
3089.314	W	8	7	–
3089.184	W	8	8	–
3089.145	Ru I	60	12	–
3089.130	V I	30	2	–
3089.122	Mo	30	3	–
3089.10	Tb	3	3	Ed
3089.093	Pb I	–	30	–
3089.092	Yb	3	12	–
3089.060	W	8	8	–
3089.02	Lu	–	8 h	Me
3089.015	Ca	1	3	–
3089.008	Zr II	2	–	–
3088.987	U	20	15	–
3088.980	Sm II	5	2	–
3088.92	Xe	–	[2]	Hu
3088.9	Cs	–	[4]	Bs
3088.842	Th	10	6	–
3088.821	Sm	2 h	–	–
3088.799	Fe	2 h	2 h	–
3088 767	Re	60	–	–
3088.76	Er	8	2	–
3088.680	Co I	10	–	–
3088.6	bh B	100	–	L
3088.53	La II	2	3 h	Me
3088 523	Al II	–	[10]	Sy
3088 508	U	8 r	1	–
3088.473	Th	20	20	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3088.43	Tb	15	8	Ed
3088.42	Dy	2	–	–
3088.361	U	2	1	–
3088.350	Fe	2	1	–
3088.320	Rh I	3	–	–
3088.318	Mo	20	–	–
3088.312	Ce	5	–	–
3088.267	Cb	2	–	–
3088.266	Os	60	12	–
3088.24	A II	–	[10]	Rt
3088.231	Ru	4	–	–
3088.23	Ne II	–	[7]	Bn
3088.187	I	–	[35]	Ke
3088.184	Sm	6	–	Kn
3088.132	Cu I	30	7	–
3088.114	V I	30	–	–
3088.075	Ru I	30	2 wh	–
3088.038	Ir I	50	2	–
3088.031	Th	10	10	–
3088.029	Cb	3	5	–
3088.025	Ti II	70	500 R	–
3087.95	U	6 d	4 d	–
3087.922	Sm	4	2	–
3087.884	Cr	–	40	–
3087.880	U	6	6	–
3087.859	Cb	2	10	–
3087.806	Co I	60	–	–
3087.79	Er	9	1	–
3087.76	Ta	5 wh	70	–
3087.748	Os	50	10	–
3087.680	U	8	6	–
3087.642	W	6	2	–
3087.621	Mo	30	200	–
3087.540	Cr	10	2	–
3087.526	Ta	35	5	–
3087.52	Te	–	[10]	Bl
3087.52	Dy	2	1 h	–
3087.415	Rh I	20 s	–	–
3087.413	Th	8	1	–
3087.399	Ce	8	1	–
3087.379	Sm	15	4	–
3087.348	Fe	2	2	–
3087.345	Sc	4	1	–
3087.320	U	6	4	–
3087.172	Ce	10	–	–
3087.161	Re I	25	–	–
3087.12	Er	5	–	–
3087.112	U	6	3	–
3087.077	Ni II	–	150	–
3087.065	V I	25	2	–
3087.047	Na II	–	[5]	Fr
3087.039	Pb	–	20	–
3087.02	Tm	30	60	Me
3087.011	Ce	2	–	–
3086.98	Yb	1	4	–
3086.972	W	10	5	–
3086.930	Ru	30	1	–
3086.91	Rb	–	[20]	Ok
3086.879	Mo	5	–	–
3086.858	Yt II	12	50	–
3086.825	Ti I	3	–	–
3086.784	Ru I	8	–	–
3086.78	Tb	15	8	Ed
3086.777	Co I	200 R	–	–
3086.77	Cr	8	1	–
3086.742	Sm	1	4	–
3086.73	U	5 d	3 d	–
3086.69	Fe	2 h	2 h	–
3086.678	Ce	4	–	–
3086.560	Fe	2 h	2 h	–
3086.54	Ho	8	6	Ex
3086.54	Pd II	–	2 h	–
3086.520	Ru	30	40	–
3086.503	V	2	40	–
3086.465	U	3	1	–
3086.461	Zr II	2	1	–
3086.447	Sm	6	8	–
3086.44	Si	–	7	Sy
3086.440	Ir I	35	2	–
3086.396	Co I	80	2	–
3086.389	Ag	5	1 h	–
3086.37	Cl	–	[6]	Bl
3086.363	Mo	20	–	–
3086.274	Os	50	10	–
3086.272	Pd II	–	2 h	–
3086.229	Ca	2	4	–
3086.210	V	1	30	–
3086.072	Cb	–	10	–
3086.067	Ru	60	6	–
3086.06	B	–	2	Sy
3086.046	U	6	5	–
3085.82	Yb	1	4	–
3085.790	Sm	2	–	–
3085.758	Ce	8	–	–
3085.74	Se	–	[8]	Bl
3085.68	Eu	4 w	–	–
3085.67	Rh	2 h	–	–
3085.615	Mo	125	25	–
3085.577	Ce	2	–	–
3085.542	Re	2	–	–
3085.535	Ta	70	18	–
3085.469	Ru	4	–	–
3085.453	Ce	4	–	–
3085.415	Ce	4	–	–
3085.40	Te	–	[5 h]	Bl
3085.388	U	8	1	–
3085.352	Cr	–	15	–
3085.352	Re	2	–	–
3085.344	Zr I	9	–	–
3085.29	Hg I	2 h	–	Cn
3085.206	Cu	4	1 h	–
3085.202	Fe	3	3	–
3085.198	Ir	4	1	–
3085.081	Gd	2	1	–
3085.05	A	–	[5]	Rt
3085.029	Pr	10	1	–
3085.018	Ti I	2	1	–
3084.952	Ir	2 h	–	–
3084.911	W	10	7	–
3084.866	Cd	10	40 h	–
3084.860	Pt	2	–	–
3084.823	W	10	9	–
3084.819	Ti I	10	2	–
3084.776	Re	3	–	–
3084.736	Ir	2 h	–	–
3084.723	Ce	4	–	–
3084.667	U	6	4	–
3084.596	Os	60	10	–
3084.56	Cr	10	1	–
3084.526	Ru	30	2	–
3084.525	Ta	3 h	–	–
3084.475	Eu	2	–	–
3084.466	Ce	40 s	3	–
3084.458	Sm II	3	1	–
3084.453	Cr	–	35	–
3084.4	Cs	–	[4]	Bs
3084 381	V I	40	–	–
3084.373	Cb	1	15	–
3084 36	Ho	8	10	Ex
3084.36	Er	10	2	–
3084.35	Yb	–	4	–
3084.286	Sm II	3	2	–
3084.257	Ce	5	–	–
3084 239	Mo	25	1	–
3084.238	U	15	12	–
3084.214	Re I	40	–	–
3084.20	Se	–	[20]	Bl
3084 116	Pt	10	2	–
3084.02	Er	15	4	–
3084.003	Gd	2	2	–
3083.985	Ir	5	–	Ab
3083.965	Rh I	150	2	–
3083.959	Ce	3	–	–
3083.91	Te	–	[5]	Bl
3083.742	Fe I	500	500	S
3083.740	Ca	1	2	–
3083.738	In II	–	[10]	Ps
3083.670	Ce	20 s	5	–
3083.653	In II	–	[5]	Ps
3083.647	Hf	6	–	–
3083.612	U	10	8	–
3083.601	Cr	–	35	–
3083.539	V I	60	–	–
3083.408	Ce	3	–	–
3083.371	Cu II	2	2 h	–
3083.347	Th	12	15 h	–
3083.333	Cb	2	15 h	–
3083.283	Sc	3	8	–
3083.224	Ir I	25	2 h	–
3083.214	V	2	50	–
3083.15	Fe	1	1	–
3083.148	Ru I	50	3	–
3083.067	Ce	5	–	–
3083.050	Th	12	6	–
3083.027	Fe II	1	2	–
3083 022	U	5	4	–
3082 99	A II	–	[5]	Rt
3082.875	I	–	[25]	Ke
3082.857	Cb	3	5	–
3082.844	Co I	35	–	–
3082.771	Re	2	–	–
3082.703	Mn	12	12	–
3082.68	Cd I	30	–	Ps
3082.62	Xe II	–	[12]	Hu
3082.618	Co	150 R	50	–
3082.615	Ti I	6	–	–
3082.587	U	6	4	–
3082.57	Tm	10	–	Me
3082.56	Sc II	2	2 h	–
3082.523	V	3	30	–
3082.515	Dy	15	5	–
3082.447	Ta	15 h	1 h	–
3082.432	Re I	100 w	–	–
3082.36	Tb	3	8	Ed
3082.304	Ce	20	2	–
3082.3	Rn	–	[10]	Wo
3082.27	Rb I	10	–	Bv
3082.261	Sm	1	2 h	–
3082.220	Mo	4	40	–
3082.176	Th	10	10	–
3082.167	Yt II	4	10 d	–
3082.155	Al I	800	800	–
3082 111	V I	80 r	2 h	–
3082.08	Er	12	3	–
3082.052	Mn	50	–	–
3082.031	Th	12	8	–
3082.020	U	8	8	–
3082.012	V I	15	2 h	–
3082.000	Gd	100	60	–
3081.984	Ce	5	–	–
3081.98	S	–	[15]	Bl
3081.950	Mo	25	–	–
3081.864	W	10	7	–
3081.850	Ta	50	5	–
3081.84	Fe	2	2	–
3081.769	Cb	1	15	–
3081.666	U	6	4	–
3081.664	I	–	[100]	Ke
3081.662	Th	10	5	–
3081.656	Fe	2 h	2 h	–
3081.65	Mo	–	20	–
3081.600	Yt II	–	2	–
3081.58	Cd II	–	2	Vs
3081.575	Ti II	–	40 wh	–
3081.550	Fe	2	2	–
3081.548	Sc I	1	2 h	–
3081.547	Ca I	2	–	–
3081.47	Lu	80	8	Me
3081.46	O	–	[5 h]	Fl
3081.42	La II	4	7	Me
3081.388	U	2	1	–
3081.384	Ru	4	50	–
3081 38	Er	3	1	–
3081 375	W	7	3	–
3081.330	Mn	75	25	–
3081.253	V	5	50	–
3081.245	Ce	3	–	–
3081.225	Fe	2 h	2 h	–
3081.21	W II	–	3	–
3081.188	U	4	2	–
3081.155	Mo	25	–	–
3081.13	Tm	20	–	Me
3081.097	Cb	–	10	–
3081.05	In	–	3	Cx
3081 004	V	2	30	–
3080.985	Fe	4	4	–
3080.930	Nd	10	4	–
3080.927	Dy	10 s	5	–
3080.923	Re	5 w	–	–
3080.900	Ru I	50	6	–
3080.874	Cs II	–	[6]	Ot
3080.845	Hf	25	5	–
3080.827	Cd I	150	100 l	IMe
3080.826	Ca I	20	2	–
3080.755	Ni I	200	60	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3080.754	Fe	2	2	–
3080.741	U	12	12	–
3080.72	Cr	12	1	–
3080.709	Sm II	3	2	–
3080.701	W	10	8 s	–
3080.657	Hf II	30	100	–
3080.636	Ce	18	2	–
3080.635	Mo	8	–	–
3080.6	P II	–	[15 h]	Dj
3080.421	W	8	5	–
3080.408	Mo	60	6	–
3080.403	Fe II	–	2	–
3080.350	Cb	8	100	–
3080.333	V I	15	1 h	–
3080.27	Pr	–	5 d	–
3080.250	Na I	2	[15]	Fr
3080.221	Th	12	15	–
3080.20	Kr	–	[2 h]	Me
3080.193	Ru	30	–	–
3080.184	Ti I	2	8 wh	–
3080.146	V I	8	1 h	–
3080.112	Fe	30	15	–
3080.11	Lu	15	2	Me
3080.11	Tb	3	3	Ed
3080.099	Nd	4	2	–
3079.993	Ir	2 h	–	–
3079.985	Fe	30	20	–
3079.97	Pd	–	2 h	Bx
3079.958	Ce	10	2	–
3079.955	Ta	50 w	5 h	–
3079.954	U	10	10	–
3079.953	Sc	2	–	–
3079.943	Th	10	4	–
3079.906	Ce II	8	–	–
3079.879	Mo	40	3	–
3079.824	Ti I	2	–	–
3079.724	U	2	1	–
3079.643	Ce	18 s	2	–
3079.627	Mn	125	40	–
3079.572	Pt	3	2	–
3079.560	Os	40	10	–
3079.474	U	4	2	–
3079.453	Ce	10	–	–
3079.398	Co I	80	2	–
3079.369	Ta	3	2 h	–
3079.366	V I	10	–	–
3079.365	Nd	8	2	–
3079.341	Dy	15	5	–
3079 332	Cr	–	25	–
3079.256	U	8	8	–
3079.222	W	8	5	–
3079.175	Ne I	–	[75]	Ps
3079.124	Ba	–	5 w	Sz
3079.10	Ca	1	3	Ad
3079.056	Eu	3	–	–
3078.950	V	–	15	Me
3078.908	Ce	8	–	–
3078.875	Ne I	–	[75]	Ps
3078.873	Er	8 s	2	–
3078.86	Tb	30	80	Ed
3078.857	Re I	25 w	–	–
3078.832	Th	10	25 h	–
3078.774	I	–	[350]	Ke
3078.698	Fe II	4	15 h	Do
3078.686	Dy	25	–	–
3078.655	Yt II	6	8	–
3078.645	Ti II	60	500 R	–
3078.576	Ir	5	5	–
3078.50	Rb	–	[2]	Ok
3078.463	Sc	2	–	–
3078.434	Fe I	80	50	–
3078.433	U	4	2	–
3078.383	Os	125	15	–
3078.35	Dy	12	1	–
3078.315	Na II	12	[60]	Fr
3078.27	In	–	10	Cx
3078.267	Mo	10	–	–
3078.233	Er	5	1	–
3078.232	Ta	50	5	–
3078.113	Os	125	15	–
3078.09	Ca	–	[6]	Bs
3078.018	Fe	100	80	–
3077.923	I	–	[10]	Ke
3077.882	Ir	2 h	–	–
3077.853	V	5 h	–	–
3077.831	Cr I	25	125 r	–
3077.730	U	2	1	–
3077.720	Os	100	30	–
3077.718	V I	10	30	–
3077.7	Rn	–	[30]	Pe
3077.661	Mo	20	125	–
3077.648	Ir I	8	1	–
3077.648	I	–	[18]	Ke
3077.644	Ce	15	–	–
3077.643	Fe	60	25	–
3077.60	Lu	100	200	Me
3077.552	Ru	30	1	–
3077.519	W	2	40 wh	–
3077.443	Cb	1	10	–
3077.437	Os	80	8	–
3077.353	Eu	30	20	–
3077.334	Ce	15	–	–
3077.331	U	4	1	–
3077.247	Cr	–	40	–
3077.245	Ta	150 w	50 w	–
3077.2	Cd	–	[12]	Es
3077.168	Fe II	1	300	–
3077.14	Yt II	7	2	Me
3077.093	Gd	5	3 h	–
3077.063	Ru	30	40	–
3077.056	Os	100	12	–
3077.034	Sc	2 h	–	–
3077.01	Pd II	–	2 h	Bx
3076.99	Ca I	7	–	Sd
3076.973	Sm	10	–	–
3076.971	Ne I	–	[150]	Ps
3076.971	Gd	25	25	–
3076.90	Dy	10 s	–	–
3076.893	Ce	6	–	–
3076.874	Hf	5	8	–
3076.873	Cb	10 w	50	–
3076.777	Ru I	50	3	–
3076.751	Os	30	5	–
3076.719	Pt	1	8	–
3076.718	Sm	3	–	–
3076.70	Hf II	4	–	Me
3076.688	V I	2	–	–
3076 686	Ir I	10 h	2	–
3076.662	Bi I	20	18	–
3076.642	Rh I	3	–	–
3076.64	Cl	–	[15]	Jv
3076.616	V I	5	2	–
3076.57	Te	–	[25]	Bl
3076.54	Cr I	10	–	–
3076.531	Ta	3	1	–
3076.496	Sm II	2	2	–
3076.478	Yt	7	2	–
3076.455	Fe II	–	5	Do
3076.384	Ta	35	25 ws	–
3076.306	Re	5	–	–
3076.250	Ce	15	1	–
3076.20	S	–	[25]	Bl
3076.173	W	7	3	–
3076.15	Cr	10	–	–
3076.147	Re	25	–	–
3076.132	Ce	3	–	–
3076 08	U	4 d	4 d	–
3076.065	Eu	8	1	–
3076.04	Tb	30	3	Ed
3076.038	Yb	1	3	–
3076.016	V II	–	15	–
3075.933	Pt II	–	5	–
3075.933	V I	20	–	–
3075.901	Zn I	150	50	IHz
3075.87	Ga	–	2	Kl
3075.827	U	–	8	–
3075.721	Fe I	400	400	S
3075.534	Ce	2	–	–
3075.51	La II	2 h	2	Me
3075.452	U	6	2	–
3075.38	Sc II	4 l	–	Me
3075.380	Nd	8	6	–
3075.322	Ta	18	2	–
3075.317	As I	60	35	Ro
3075.309	Ru	10	40	–
3075.30	Hf	15	–	Me
3075 269	V I	15	2 h	–
3075.244	Cb	1	15	–
3075.224	Ti II	40	300 R	–
3075.219	W	4	2	–
3075.206	Ce	3	2	–
3075.20	Dy	3	4	–
3075.166	Pd I	2	2 h	–
3075.14	P	–	[15 h]	Gu
3075.06	V	–	5 h	–
3075.042	U	10	8	–
3075.03	Re	5 h	–	m
3075 01	Sr II	1	3	Sd
3075.00	K II	–	[10]	Bn
3074.96	Os	125	20	–
3074.929	Mo	20	–	–
3074.827	V I	25	–	–
3074.791	Hf	30	4	–
3074.762	Ir I	12	–	–
3074.71	Tb	3	3	Ed
3074.665	Al II	–	[50]	Sy
3074.658	V	–	30	–
3074.63	Mo	1	8	–
3074.62	Cd	1 h	3	–
3074.492	U	2	3	–
3074.438	Fe	40	25	–
3074 374	Mo	60	15	–
3074.372	U	4	4	–
3074.334	Na II	8	[60]	Fr
3074 324	Ce	12	–	–
3074.30	Ho	–	4	Ex
3074.27	Cb	1	5	–
3074.164	Ce	6	–	–
3074.151	Fe	40	25	–
3074.146	Pt II	–	5	Sh
3074 097	Hf	25	1	–
3074.089	W	10	12	–
3074.08	Os	125	20	–
3074.06	V I	10 h	–	–
3074.00	Dy	3	–	m
3073.989	Ce	8	–	–
3073.987	Mg	8	10	–
3073.983	Fe	40	25	–
3073.915	Sm	3	–	–
3073.9	Cd	–	[10]	Es
3073.85	Tm	15	50	Me
3073.823	V I	60	20 r	–
3073.820	I	–	[10]	Ke
3073.812	U	15 r	10 r	–
3073.801	Cu I	70	20	–
3073.687	W	9	6	–
3073 68	Yb	1	3	–
3073.679	Cr	35	25	–
3073.542	Dy	30	8	–
3073.538	Ce	2	–	–
3073.53	Te	–	[100]	Bl
3073.521	Co I	60	2	–
3073.515	Ru	10	80	–
3073.501	U	8	5	–
3073.50	Tm	25	60	Me
3073.387	Ta	18	5	–
3073 382	Mo	12	10	–
3073.347	Er	12	4	–
3073.336	Ru I	50	5	–
3073.336	Ce	10	–	–
3073.281	Ir I	10	–	–
3073.280	W	12	10	–
3073.244	Fe	2	–	–
3073 243	I	–	[7]	Ke
3073.24	Mo	–	20	–
3073 236	Cb	2	15	–
3073.228	Cr II	–	15	–
3073.18	Ca	1	2	Ad
3073.173	U	6	3	–
3073.17	Xe II	–	[2]	Hu
3073.126	Mn	75	20	–
3073.085	Nd	4	2	–
3073.085	Tm	60	150	Me
3073.01	Te	–	[10]	Bl
3072.971	Ti II	35	200 r	–
3072.965	Re	40	–	–
3072.886	Ce	20	1	–
3072.877	Hf I	80	18	–
3072.783	U	20	20	–
3072.73	W II	3	12	–
3072.71	V	70 r	40 r	–
3072.7	Cs	–	[4]	Bs
3072.664	Co I	20	–	–
3072.647	Sm	2	2	–
3072 60	Tb	3	15	Ed

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3072.574	Gd	20	25	–
3072.52	Er	15	6	–
3072.512	Cb	2	15	–
3072.462	Cr	–	15	–
3072.453	Re	5	–	–
3072.448	U	6	3	–
3072.406	Cb	5	2	–
3072.391	Ce II	20	–	–
3072.351	Ta	2 s	1 h	–
3072 344	Co I	200 R	100	–
3072.336	U	6	6	–
3072.335	Ru	5	40	–
3072.335	Fe	8	7	–
3072.334	Yt	8	8	–
3072.305	Cb	2	1	–
3072.254	I	–	[7]	Ke
3072.18	Cb	1	5	–
3072.14	Ga	–	3	Kl
3072.13	Er	6	1	–
3072.120	Th	10	8	–
3072.107	Ti II	25	125	–
3072.071	Ta	2 wh	–	–
3072.062	Zn I	200	125	IHz
3072.05	Fe	6	3	–
3071.962	Co	80	2	–
3071.937	Pt I	60	15	–
3071.920	Dy	25	4	–
3071.83	P	–	[30]	Gu
3071.816	U	3	2	–
3071.753	Re	10 hl	–	–
3071.721	U	5	4	–
3071.72	W II	8	15	–
3071.648	Cd II	–	2	–
3071.617	Ce	18 s	1	–
3071.6	air	–	5	–
3071.591	Ba I	100 R	50 R	–
3071.59	Yb	–	3	–
3071.587	Ca I	5	1	–
3071.572	Cr II	–	12	–
3071.56	Cb	10	50	–
3071.499	Ru	20	–	–
3071.483	U	4	1	–
3071.482	Nd	2	–	–
3071.439	Mo	25	3	–
3071.426	Nd	4 d	2	–
3071.39	Xe	–	[3 h]	Hu
3071.365	Cb	2	–	–
3071.35	Cl II	–	[40]	Ks
3071 327	U	5	1	–
3071.30	Cr I	15	1	–
3071.274	Sm	8	4	–
3071.267	Fe II	1	2	–
3071.242	Ti II	12	70	–
3071.2	Sn	–	2 Wh	Ar
3071.178	Cb	3	15	–
3071.165	Re	50	–	–
3071.146	Fe II	2	2	–
3071.110	Ce II	20 s	1	–
3071.08	Ne II	–	[4]	Bn
3071.027	Rh I	20	–	–
3070.992	U	8	8	–
3070.918	Ir	3	–	Ab
3070.901	Cb	3	15	–
3070.895	Mo	40	3	–
3070.892	V I	10	2 h	–
3070.873	Sm	2	2	–
3070.857	Co I	5	–	–
3070.821	Th	12	10	–
3070.76	Rb	–	[15]	Ok
3070.752	Co I	5	–	–
3070.743	Er	15	4	–
3070.694	Fe II	–	7	–
3070.678	U	3	5	–
3070.637	Ir	3	–	–
3070.619	Mo	–	25	–
3070.6	Rn	–	[5]	Pe
3070.539	Ta	5 h	1 h	–
3070.481	Hf	5	–	–
3070.394	Sm	4	3	–
3070.278	U	12	6	–
3070.266	Mn	100	25	–
3070.260	Pt	3	–	–
3070.12	V	–	50	–
3070.05	Tb	15	15	Ed
3070.00	Hf II	–	5 h	–
3069.970	Mo	20	1	–
3069.945	Re	125	–	–
3069.936	Os	125	15	–
3069.881	U	5	3	–
3069.82	Rb	–	[5]	Ok
3069.790	Mo	15	–	–
3069.76	In II	–	[18]	Ps
3069.73	Cs	–	[4]	Bs
3069.721	Ce	6	–	–
3069.716	Nd	8	4	–
3069.706	Ir I	25	5	–
3069.690	Sm	6	3	–
3069.680	Cb	4	15	–
3069.676	Hf II	3	–	–
3069.645	V I	30	10	–
3069.644	Ce	18 s	–	–
3069.518	Cb	–	3	–
3069.517	Mo	20	–	–
3069.494	U	5	1	–
3069.465	W	5	2	–
3069.453	Fe	6	4	–
3069.45	La II	2	3	Me
3069.409	Sm	3	–	–
3069.34	Fe	2	1	–
3069.320	Ce	4	–	–
3069 284	W II	6	15	–
3069.258	Th	10	6	–
3069.25	Yt II	2 h	8 h	–
3069.237	Ta	150	70	–
3069.229	Er	15	1	–
3069.184	Pd II	–	2 h	–
3069.184	Ru I	30	1	–
3069.182	Hf	15	–	–
3069.169	U	4	4	–
3069.147	Ce	3	–	–
3069.122	Os	30	10	–
3069.099	Eu	7	–	–
3069.094	Ir I	25	10	–
3069.050	Mo	5	–	–
3069.031	Cb	4	3	–
3069.02	Tb	15	15	Ed
3068.994	U	5	3	–
3068.987	Th	12	8	–
3068.98	I	–	[18]	Bl
3068.96	La II	2 h	3	Me
3068.94	Te	–	[50]	Bl
3068.93	Cb	–	5	–
3068.906	Cu I	15	–	–
3068.9	Rn	–	[100]	Wo
3068.890	Ir I	40	20	–
3068.887	Rh	2	1	–
3068.885	Pd II	–	2 h	–
3068.82	Ca	–	2	–
3068.817	Ce	2	–	–
3068.790	Cd II	–	2 h	–
3068.765	Re	15	–	–
3068.678	Ce	20	–	–
3068.650	U	8	10	–
3068.649	Gd	50	50	–
3068.642	Mo	15	–	–
3068.5	Pb II	–	[10]	Ea
3068.28	Yb	–	3	–
3068 261	Ru	60	8	–
3068.176	Fe I	150	150	–
3068.056	Cb	–	10	–
3068.047	I	–	[5]	Ke
3068.024	Zr II	2	2	–
3067.997	Mo	30	1	–
3067.944	Fe	15	10	–
3067.939	Ir	2 h	–	–
3067.895	Ce	6	–	–
3067.866	W	3	12	–
3067.83	Lu	–	3 h	Me
3067.8	Cs	–	[4]	Bs
3067.784	Eu	7	–	–
3067.758	U	8	6	–
3067.755	Sn	10	15	–
3067.734	Th	12	20	–
3067.73	In	–	3	Sq
3067.716	Bi I	3000 hR	2000 wh	–
3067.672	Sm	15	15	–
3067.672	Eu	8	–	–
3067.642	Mo	10	50	–
3067.568	W II	3	12	–
3067.533	Cb	–	15	–
3067.443	Ce	4	–	–
3067.414	Hf	30	10	–
3067.41	W II	2	5	–
3067.390	Re I	60	–	–
3067.37	Yb	–	3	–
3067.305	Rh	80	1	–
3067.30	Xe II	–	[20]	Hu
3067.247	U	–	5	–
3067.244	Fe I	300	300	S
3067.214	Ne	–	[5]	Ps
3067.2	Cs	–	[4]	Bs
3067.16	Cr II	25	40	–
3067.132	Ge I	2	–	–
3067.124	Zr I	5	4	–
3067.120	Fe I	6	6	–
3067.116	V I	15	–	–
3067.009	Ca I	6	2	–
3067.007	Ge	60	40	–
3067.004	Fe	2	2	–
3066.994	Dy	20	4	–
3066.98	W II	4	12	–
3066.95	Eu	10	–	–
3066.89	A	–	[3]	Rt
3066.89	S	–	[35]	Bl
3066.870	U	6	6	–
3066.833	Os	30	10	–
3066.80	V	–	2	–
3066 757	Ta	10	3	–
3066.741	Zr I	3	–	–
3066.74	Pr	1	3	–
3066.72	Kr II	–	[2]	Me
3066.62	Cs	–	[10]	Bs
3066.598	Os	20	8	–
3066.55	In	–	6	–
3066.536	Na II	2	[20]	Fr
3066.53	V I	15	–	–
3066.514	Ti II	7	20	–
3066.483	Fe	60	40	–
3066.442	Ni I	5	–	–
3066.42	Tm	6	20	Me
3066.420	Th	10	3	–
3066.399	Mo	15	–	–
3066.396	Ru	10	25	–
3066.380	Ce	18	–	–
3066.375	V I	400 r	125 r	–
3066.354	Ti II	15	40	–
3066 286	U	12 r	8	–
3066 225	Er	15	2	–
3066 22	Th	5	10 h	–
3066.220	Ti II	25	18	–
3066.162	Al	25	25	Gn
3066.133	Ce	3	–	–
3066.116	Os	50	10	–
3066.103	Pd I	150	2	–
3066.097	Cb	2	30	–
3066.019	Mn	75	–	–
3066.019	Sm	6	2	–
3066 00	Yt II	3	8 h	–
3065.980	U	8	4	–
3065.935	Th	12	10	–
3065.780	Ce	6	–	–
3065.775	Sm II	5	3	–
3065.69	Tb	3	8	Ed
3065.668	Ne	–	[5]	Ps
3065.663	U	2	1	–
3065 605	V	2	35	–
3065.578	Re I	5	–	–
3065.548	U	2	3	–
3065.395	Ce	5	–	–
3065.315	Fe II	–	60	Do
3065.306	Pd I	10	100	–
3065.282	Re	5	–	–
3065.264	Cb	10	200	–
3065.25	Rb	–	[2]	Ok
3065 211	Zr II	5	2	–
3065.206	Sm	3	2	–
3065.198	U	6	4	–
3065.14	Dy	4	1 h	–
3065 106	Sc II	12 d	25	–
3065.067	Cr	20	50	–
3065.048	Yb	4	30	–
3065.042	Mo	30	10	–
3065.008	Sm	4	2 h	Kn
3064.97	Er	3	1	–
3064.955	Cd	–	15 h	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
3064.937	W	10 s	7	–
3064.91	Yb	2	2	–
3064.908	U	1	2	–
3064.84	Er	7	–	–
3064.838	Ru	70	60	–
3064.790	Ir I	5	–	–
3064.712	Pt I	2000 R	300 R	–
3064.68	Hf II	10	30	–
3064.634	Zr II	5	3	–
3064.623	Ni I	200 r	50	–
3064.6	Rn	–	[40]	Pe
3064 600	Re	20	–	–
3064.591	U	4	3	–
3064.555	Mo	15	–	–
3064.533	Cb	5 w	200	–
3064.509	Ir I	20	1 h	–
3064.45	Ga	–	2	Kl
3064.38	Hf II	–	2	Me
3064.372	Na II	2	[20]	Fr
3064.370	Co I	100	–	–
3064.304	Al	20	20	Gn
3064.279	Mo	80	10	–
3064.217	Fe	4	4	–
3064.19	Ho	–	4	Ex
3064.182	U	6	3	–
3064.09	Tb	15	8	Ed
3064.04	Dy	8	–	–
3064.024	Ce	15	–	–
3064.01	Tm	15	20	Me
3063.97	W II	2	20	–
3063.937	Ni II	–	2	–
3063.933	Fe	40	30	–
3063.925	I	–	[10]	Ke
3063.881	U	8	4	–
3063.875	Ta	18	3	–
3063.839	Cr	5	12	–
3063.790	Cb	4	10	–
3063.78	Hf	25	1	–
3063.776	Ce	2	–	–
3063.734	V I	35	1 h	–
3063.730	Sc	2 h	–	–
3063.728	Fe	3	3	–
3063.726	Ir	4	–	–
3063.725	Cd	2	2	–
3063.7	Cs	–	[4]	Bs
3063.695	Ne I	–	[150]	Ps
3063.69	Yb	3	5	–
3063.573	Zr I	5	1	–
3063.57	Kr II	–	[3 hl]	Me
3063.563	Fe	2	2	–
3063.558	Ta	70	15	–
3063.521	U	8	3	–
3063.51	Lu	20 h	–	Me
3063.502	Tl II	5	25	–
3063.49	Ca	2	3	Ad
3063.44	A I	–	[5]	Ms
3063.415	Cu I	300	50	–
3063.41	W II	–	20	–
3063.389	Ce	4	–	–
3063.36	Ne	–	[4]	Bn
3063.280	Tl II	1	8 h	–
3063.258	Cr	–	8	–
3063.247	V	30	80 r	–
3063.181	W	10	9	–
3063.18	Te	–	[10]	Bl
3063.152	Fe	2	1	–
3063.132	Th	–	10 h	–
3063.131	U	–	4	–
3063.130	Cb	4 d	15	–
3063.12	Yb	1	4	–
3063.09	Cl	–	[10]	Jv
3063.026	Th	25 d	25 d	–
3063.010	Ce	40	10	–
3062.892	W	6	5	–
3062.871	Fe	4	2	–
3062.711	U	4	1	–
3062.7	Cs	–	[4]	Bs
3062.698	V II	5	20	–
3062.695	Os	20	8	–
3062.65	Lu	–	2 h	Me
3062.620	Dy	25	10	–
3062.604	W	10	9	–
3062.58	Ne	–	[4]	Bl
3062.536	U	12	15	–
3062.468	Os	20	8	–
3062.44	Pb	–	10	Sx
3062.438	Mo	15	–	–
3062.233	Fe II	2	400	–
3062.201	Co I	60	1	–
3062.192	Os	100	30	–
3062.19	Rh	–	2	–
3062.190	Dy	12	6	–
3062.18	K II	–	[20]	Bn
3062.179	V	–	4 h	–
3062.121	U	2	6	–
3062.119	Mn	75	20	–
3062.102	Mo	–	3	–
3062.09	Tb	3	3	Ed
3062.06	Tm	10	20	Me
3062.06	A I	–	[3]	Ms
3062.05	Ca I	1 h	2	Sd
3062.048	Ru	8	6 h	–
3062.009	U	5	1	–
3061.997	Ta	2	–	–
3061.959	Cb	–	10	–
3061.824	Fe	5	3	–
3061.819	Co I	200 R	125	–
3061.81	Cr	10	2	–
3061.80	Tb	3	–	Ed
3061.703	Th	12	15	–
3061.683	Er	15	2	–
3061.68	W II	2	12	–
3061.652	Cr I	20	3	–
3061.616	U	12	10	–
3061.614	Re	20	–	–
3061.586	Mo	50	3	–
3061.56	Sm	5 d	3	–
3061.54	Xe II	–	[8]	Hu
3061.51	Kr	–	[6 h]	Me
3061.506	Dy	9	–	–
3061.408	Ir I	25	2	–
3061.404	Cb	–	5 h	Me
3061.346	Zr II	5	3	–
3061.32	Pb	–	2	Sx
3061 287	U	4	1	–
3061.28	Er	5	1 h	–
3061.24	Cs	–	[6]	Bs
3061.237	Cb	4	2	–
3061.223	Re	3	–	–
3061.218	Ce	10	–	–
3061.141	Sm	10	–	–
3061.14	Tm	10	30	Me
3061.110	Cb	3	2	–
3061.021	Co I	15	–	–
3060.988	Fe I	50	35	–
3060.94	A	–	[10]	Rt
3060.93	V I	7	2	–
3060.928	Mo	6	6	–
3060.86	S	–	[8]	Bl
3060.84	Kr II	–	[30 whs]	Me
3060.838	Ir I	25	1	–
3060.792	Fe	4	4	–
3060.777	Mo	25	15	–
3060.68	U	5 d	8 d	–
3060.653	Dy	30	10	–
3060.645	Fe	2	2	–
3060.538	Fe	6	6	–
3060.531	Sc II	2 h	1 h	–
3060.50	Rb I	12	–	Bv
3060.492	Ru	8	50	–
3060.460	V I	150 r	100 r	–
3060.452	Ti	6	3	–
3060.447	Th	10	1	–
3060.400	Cb	2	2	–
3060.324	Re	25	–	–
3060.305	Os	100	30	–
3060.30	Dy	9	1	m
3060.288	Ta	125	35 W	–
3060.28	Cd	4	5	–
3060.27	Ca	–	3	Ad
3060.230	Ru	20	50	–
3060.182	Th	12	15	–
3060.12	Cs	–	[6]	Bs
3060.113	Zr II	5	3	–
3060.055	U	8	12	–
3060.052	Co I	150	1	–
3060.00	Dy	10	5	m
3059.960	F II	–	[60]	Di
3059.933	Al	8	10	Gn
3059.91	La II	2	7	Me
3059.909	Gd	2	–	–
3059.820	W	6	3	–
3059.743	Ir	3	–	–
3059.741	Tl II	8	35	–
3059.739	Ce	12	–	–
3059.7	Rn	–	[20]	Pe
3059.69	Cl	–	[5]	Jv
3059.642	Pt I	25	5	–
3059.552	U	5	3	–
3059.521	Cr II	8	60	–
3059.496	Yt	2 h	2 h	–
3059.48	Dy	6	4	–
3059.431	Pd II	–	150 w	–
3059.356	Rh I	4	–	–
3059.299	Cb	2	10	–
3059.266	U	4	3	–
3059.22	Cd II	–	2	–
3059.169	Ru	50	–	–
3059.16	Ne II	–	[7]	Bn
3059.11	I	–	[5]	Bl
3059.086	Fe I	600 r	400	S
3059.07	S	–	[8]	Bl
3059.00	Eu	20	–	–
3058.99	Tm	10	30	Me
3058.98	U	8 d	5 d	–
3058.97	Pr	–	5	–
3058.786	Ru I	30	3	–
3058.786	Re I	50	–	–
3058.66	Os I	500 R	500	–
3058.655	Ru I	30	3	–
3058.653	Ir	5	–	–
3058.636	Ta	50	3	–
3058.6	Cs	–	[6]	Bs
3058.597	Mo	20	–	–
3058.551	Ce	12	–	–
3058.493	Fe	3	3	–
3058.431	Th	10	10	–
3058.345	Cr II	–	30	–
3058.15	Ga	–	4 w	Kl
3058.142	Th	8	3	–
3058.141	F II	–	[30]	Di
3058 107	Ce	5	–	–
3058.10	As II	–	15	Ro
3058.090	Ti II	12	70	–
3058.00	Cl II	–	[40]	Ks
3057.951	Ir	3	–	–
3057.91	U	20 d	20 d	–
3057.904	Th	8	6	–
3057.90	Lu	3	150 h	Me
3057.889	Rh	10	–	–
3057.88	Mo	–	30	–
3057.861	Cr	–	30	–
3057.86	V	–	3 h	Me
3057.853	Re	8	–	–
3057.790	Fe	2	2	–
3057.75	Cl	–	[8]	An
3057.659	Re I	25	–	–
3057.65	Fe	2	2	–
3057.642	Th	10	6	–
3057.638	Ni I	400 R	125	–
3057.559	Mo	25	1	–
3057 52	Er	5	–	–
3057.51	Cd	–	2	–
3057.446	Fe I	400	400	S
3057.395	Ti II	5	15	–
3057.388	Ne I	–	[250]	Ps
3057.383	Ce	5	–	–
3057.342	Ru I	30	2	–
3057.278	Ir I	35	2	–
3057.219	Zr II	2	3	–
3057.154	Al	15	18	–
3057.12	Ta	25 w	125	–
3057.083	F II	–	[20]	Di
3057.07	V	–	5 w	–
3057.03	Cb	–	10	–
3057.016	Hf	70	10	–
3056.990	Mn	2	–	–
3056.97	Dy	12	4	–
3056.901	Os	20	8	–
3056.865	Ru	12	150	–
3056.802	Fe II	4	25	Do
3056.777	Ce II	40	3	–
3056.740	Ti II	12	70	–
3056.731	Mo	20	–	–
3056.723	U	12	6	–

Wave-length	Element	Intensities Arc	Spk., [Dis.]	R
3056.72	Lu	50	100	Me
3056.698	Nd	8	4	–
3056.635	Ir I	2 h	–	–
3056.619	Cr II	–	8	–
3056.615	Ta	1 wh	70 l	–
3056.615	Cb	3	3	–
3056.6	Rn	–	[5]	Pe
3056.58	In	–	10	–
3056.49	Xe II	–	[12]	Hu
3056.459	Re	2	–	–
3056.456	Mn	3	–	–
3056.41	Cd	1	2	Vs
3056.338	Yt	5	–	–
3056 334	V I	125 r	70 r	–
3056.32	Hg II	–	[10]	Ps
3056.306	Sc	4	–	–
3056 28	A I	–	[3]	Ms
3056.251	U	3	1	–
3056.25	Fe	8	4	–
3056.229	W	6	8	–
3056.157	Na II	35	[60]	Fr
3056.130	Ce	4	–	–
3056.099	Th	10	4	–
3056.071	Pt II	1	5	Sh
3056.06	Tm	40 d	100	Me
3056.058	Ru	30	1	–
3506.04	Cs	–	[6]	Bs
3056.01	Kr II	–	[30 wh]	Me
3055.94	V	–	50 w	–
3055.884	U	4	2	–
3055.71	Fe	10	6	–
3055.65	Rh	2 h	2	–
3055.592	U	2	2	–
3055.524	Sm	3	1	–
3055.522	Cb	2	100	–
3055.472	Cr	–	20	–
3055.44	Hf II	15	15	–
3055.397	W	9	10	–
3055.370	I	–	[350]	Ke
3055.368	Fe II	–	2	Do
3055.325	Ca I	5 h	–	–
3055 323	Mo	50	5	–
3055.318	Pt I	4	–	–
3055.31	Kr II	–	[3]	Me
3055.29	Pd II	–	3 h	–
3055.263	Fe I	200	150	I
3055.243	Ce	18	3	–
3055.22	Yt II	8	50	m
3055.211	Os	80	15	–
3055.15	Yb	1	3	–
3055.098	Ce	4	–	–
3055.086	U	5	2	–
3054.968	Os	50	10	–
3054.937	Ru I	70	12	–
3054.93	Eu	400 w	3	–
3054.904	Re I	40	–	–
3054.88	Ho	–	4 h	Ex
3054.835	Zr II	15	25	–
3054.798	Ta	3	1	–
3054.763	Mo	–	3	–
3054.73	U	10	6	–
3054.724	Co I	60	–	–
3054.697	Al	20	10	Gn
3054.69	Ne II	–	[18]	Bn
3054.613	Ce	2	–	–
3054.56	Cs	–	[4]	Bs
3054.52	Hf II	15	15	–
3054.460	Ir	2	–	–
3054.443	Ce	3	–	–
3054.42	Yt	3	2	–
3054.42	Er	10	2	–
3054.388	U	3	4	–
3054.362	Mn	75	40	–
3054.316	Ni I	400 R	100	–
3054.310	U	2	4	–
3054.3	Rn	–	[250]	Pe
3054.27	Se	–	[20]	Bl
3054.24	V	–	5	–
3054.20	Cs	–	[4]	Bs
3054.132	Co I	18	–	–
3054.093	U	6	4	–
3054.05	Tm	30	60	Me
3054.02	La II	2	6	Me
3054.014	W	9	8	–
3053.99	Ho	6	4 h	Ex
3053.89	V	10	60 r	–
3053.887	U	1	2	–
3053.880	Cr I	3 r	150	–
3053.872	Rh I	8	–	–
3053.78	Er	6	1	–
3053.74	Cl II	–	[10]	Ks
3053.71	Tm	7	30	Me
3053.701	Ce	2	–	–
3053.7	Bi II	–	[60]	Ml
3053.673	Cr	–	5	–
3053.664	Na II	8	[60]	Fr
3053.65	V I	90 r	–	–
3053.637	Cb	1	30	–
3053.636	Sm	2	–	–
3053.631	Re	30	–	–
3053.630	Mo	20 W	–	–
3053.596	Ir I	12	1 h	–
3053.577	Gd	5	3	–
3053.55	Tb	8	30	Ed
3053.5	Cs	–	[4]	Bs
3053.49	As II	–	15	Ro
3053.464	Mo	4	6	–
3053.44	Fe I	80	50	–
3053.387	V II	10	90 r	–
3053.36	W II	5	–	–
3053.302	U	–	15	–
3053.289	Mo	20	–	–
3053.289	Ce	8	–	–
3053 27	Yt II	10 h	20 h	–
3053.24	Tb	8	3	Ed
3053.20	A	–	[3]	Rt
3053.17	Te	–	[10]	Bl
3053.1	Cd	–	[10]	Es
3053.088	Cb	3	5	–
3053.070	Fe	100	80	–
3053.02	Mo	8	–	–
3053.02	Si	–	5	Sy
3053.015	Ce	4	–	–
3052.992	Cb	2	3	–
3052.929	Sc II	10	15 hl	–
3052.911	U	12	8	–
3052.84	Re	2 w	–	–
3052.822	W	6	3	–
3052 814	Zr I	3	–	–
3052.729	Cb	2	3	–
3052.684	Ce	4	–	–
3052.559	Mo	20	–	–
3052.534	Ta	–	70 l	–
3052.53	Tm	10	25	Me
3052.461	U	8	10	–
3052.44	Te	–	[5]	Bl
3052.418	Os	40	12	–
3052.342	Ru I	8	–	–
3052.324	Dy	18	4	–
3052.320	Mo	10	50	–
3052.240	Ir	3	1	–
3052.232	Re	2	–	–
3052.229	Cr	20	10	–
3052.194	V I	50	5	–
3052.18	Tb	3	8	Ed
3052.161	Ir I	8	1	–
3052.15	Pd II	–	150 h	–
3052.147	Nd	10	6	–
3052.000	Zr I	2	–	–
3051.994	Cb	2	4	–
3051.987	Mg I	2	–	–
3051.975	Ce	10	2	–
3051.931	W	10 d	6	–
3051.924	Ce	10	–	–
3051.904	Ta	3 h	3	–
3051.796	Th	10	10	–
3051.679	Rh I	3	–	–
3051.676	Cb	2	3	–
3051.597	Ru I	30	–	–
3051.43	Rb II	–	[2]	Ok
3051.425	U	5	5	–
3051.39	V	–	5	–
3051.341	Cb	1	10	–
3051.30	U	4 d	6 d	–
3051.291	W II	10	30 l	–
3051.287	Ce	2	–	–
3051.25	In I	–	[15]	Sy
3051.166	Os	80	15	–
3051.162	Ce II	6	–	–
3051.149	Ir I	5	1	–
3051.139	U	15 r	10 r	–
3051.12	Tb	15	8	Ed
3051.108	Nd	6	2	–
3051.093	Ir I	5	–	–
3051.003	Sm	6	2	–
3050.989	Th	10	10	–
3050.98	Xe II	–	[2]	Hu
3050.932	Co I	60	–	–
3050.890	V I	30	–	–
3050.83	Er	5	1 h	–
3050.819	Ni I	1000 R	–	–
3050.819	Sm	5	8	–
3050.818	Rh	2	–	–
3050.8	Cs	–	[6]	Bs
3050.758	Hf	50	10	–
3050.73	Tm	50	150	Me
3050.730	V	1	50	–
3050.73	Ho	–	4	Ex
3050.587	Ce	12	–	–
3050.582	I	–	[7]	Ke
3050.502	U	4	6	–
3050.500	Co I	60	–	–
3050.46	Hg I	2 h	–	Cn
3050.400	V I	30	1	–
3050.386	Os	100	50	–
3050.35	Pr	2	4	–
3050.322	Zr I	3	–	–
3050.300	Ce	8	–	–
3050.214	Mo	10	1	–
3050.198	U	12	8	–
3050.193	Ru	5	–	–
3050.137	Cr	10	150	–
3050.101	Ta	35	5	–
3050.1	Rn	–	[15]	Pe
3050.084	Pd II	–	100 h	–
3050.079	Al	18	10	Gn
3050.018	Ir I	5	–	–
3050.01	Te	–	[10]	Bl
3050.004	W	6	9	–
3049.99	Er	10	1	–
3049.883	Cr I	20 r	–	–
3049.866	Th	10	10	–
3049.86	W II	2	10	–
3049.842	U	8	1	–
3049.803	Re I	4 w	–	–
3049.71	I	–	[3]	Ke
3049.691	W II	12	8	–
3049.645	Th	10	10	–
3049.584	U	4	2	–
3049.558	Ta	150	30	–
3049.525	Cb	–	150	–
3049.456	Os	80	15	–
3049.44	C II	–	2 h	En
3049.435	Ir I	25	10	–
3049.39	La II	3	3	Me
3049.38	Ho	6	4	Ex
3049.36	Fe	25	8	–
3049.36	Te	–	[35]	Bl
3049.354	W	7	5	–
3049 329	Zr I	6	1 h	–
3049.31	Eu	3 d	–	–
3049.29	Hf	15	–	–
3049.29	Er	4	1	–
3049.29	Mo	3	–	–
3049.23	Kr II	–	[8 whs]	Me
3049.217	Rh I	5	–	–
3049.171	Ru	2	70	–
3049.133	Dy	25	4	–
3049.095	Th	20	20	–
3049.075	Ru I	6	–	–
3049.042	Os	40	8	–
3049.03	Eu	15 W	–	–
3049.011	Fe II	4	3	Do
3049.01	Ca I	5	2 h	Sd
3049.003	W	8	9	–
3048.932	Ce	2	–	–
3048.92	Xe	–	[2 h]	Hu
3048.908	U	6	8	–
3048.892	V	10	50	–
3048.89	Rh I	2	3	–
3048.888	Co I	150 r	–	–
3048.864	Ta	100	15	–
3048.864	Mn	25	–	–
3048.83	Mo	–	5	–
3048.82	Tm	20	40	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3048.82	Cd	–	[2 h]	Tk
3048.785	Ru I	60	9	–
3048.766	Ti II	2	35	–
3048.666	Ir I	12	–	–
3048.663	W II	9	12	–
3048.66	Tm	6	10	Me
3048.65	V	–	2	–
3048.634	Cb	–	5	–
3048.63	U	15	8	–
3048.591	Re	8	–	–
3048.517	Ce	3	–	–
3048.50	Xe II	–	[2 h]	Hu
3048.495	Ru	50	5	–
3048.455	Fe	100	8	–
3048.437	Ce	3	–	–
3048.425	Zr II	8	2 h	–
3048.41	Dy	6	–	–
3048.40	Er	9	1	–
3048.371	U	–	10	–
3048.36	As II	–	10	Ro
3048.308	Ce	3	–	–
3048.283	Ta	10	1	–
3048.243	Zr II	2	2	–
3048.215	V	10	125 r	–
3048.204	Cb	1	50	–
3048.17	Xe	–	[3]	Hu
3048.123	W	7	5	–
3048.113	Co I	25	–	–
3048.096	Cb	10	2	–
3048.05	Mo	1	25	–
3047.97	Rh	2	–	–
3047.93	In	–	3	Sq
3047.880	U	2	4	–
3047.821	Mo	15	1	–
3047.788	Ir I	15	–	–
3047.784	Ce	2	–	–
3047.768	Cr II	3	15	–
3047.76	Xe	–	[6 h]	Hu
3047.709	Ru	5	12	–
3047.610	Dy	10	–	–
3047.605	Fe I	800 r	500 r	S
3047.572	W	10	10	Bk
3047.571	U	15	20	–
3047.57	Ne II	–	[25]	Bn
3047.503	Ce	2	–	–
3047.455	Cr	25	6	–
3047.40	Yt	5	–	–
3047.363	Sm	5	3	–
3047.36	Lu	3 h	–	Me
3047.312	Mo	50	4	–
3047.280	Re	30 w	–	–
3047.207	Ce	2	–	–
3047.16	K II	–	[5]	Bn
3047.157	Ir I	50	20	–
3047.153	Rh	15	3	–
3047.14	I	–	[10]	Bl
3047.117	Mo	15	–	–
3047.11	Yt	6	3	–
3047.1	Li	–	6	An
3047.05	Sn II	–	8	–
3047.050	Fe	2	3	–
3047.048	Yb	1	6	–
3047.042	U	3	1	–
3047.040	Ag	–	5 wh	–
3047.035	Mn	60	60	–
3047.00	In	–	6 h	Cx
3047.00	Te	–	[350]	Bl
3046.954	Th	12	20	–
3046.933	Sm	25	20	–
3046.930	Fe	4	4	–
3046.87	Tm	20	–	Me
3046.845	U	6	15	–
3046.805	Mo	50	2	–
3046.758	Rh I	4	–	–
3046.711	Ce	15	–	–
3046.685	Ti II	10	60	–
3046.676	Be II	10	[20]	Ps
3046.673	Cb	–	10 w	–
3046.596	Mn	5	–	–
3046.573	U	8	6	–
3046.520	Be II	–	[15]	Ps
3046.50	Pd II	2 h	2 h	–
3046.493	Yb	2	10	–
3046.480	Gd	2	–	–
3046.463	U	8	6	–
3046.447	W	12	10	–
3046.404	Mo	–	3	–
3046.38	Dy	4	–	–
3046.27	Xe II	–	[12]	Hu
3046.266	Mn II	1	6 h	Cz
3046.242	Ru	20	–	–
3046.24	Se II	–	[35]	Bl
3046.19	Rh I	2	–	–
3046.127	Ru	4	6	–
3046.124	Ce	6	–	–
3046.105	U	2	2	–
3046.10	A	–	[5]	Rt
3046.08	Hf II	25	25	Me
3046.004	Re	10	–	–
3045.964	Ta	150	50 w	–
3045.949	Ne I	–	[7]	Ps
3045.9	Cs	–	[4]	Bs
3045.829	Zr I	9	1 h	–
3045.82	Pr	–	3	–
3045.808	Mn	25	12	–
3045.792	Ce	4	–	–
3045.777	Os	30	10	–
3045.773	Rh I	30	–	–
3045.75	Ca I	2 h	–	Sd
3045.719	Mo	1	10	–
3045.714	Sc II	15	25	–
3045.710	Ru I	60	12	–
3045.672	Ce	6	–	–
3045.654	Ir	8	2 h	–
3045.594	Fe	10	7	–
3045.593	Mn	40	20	–
3045.593	Na II	–	[40]	Fr
3045.58	Ne II	–	[12]	Bn
3045.580	W	7	6	–
3045.568	Th	12	15	–
3045.56	Hg	–	[10]	Ps
3045.545	Cb	3 h	2	–
3045.460	U	5	5	–
3045.369	Yt I	10	6	–
3045.323	Os	30	12	–
3045.25	Xe II	–	[20]	Hu
3045.231	Mo	8	–	–
3045.2	Rn	–	[60]	Pe
3045.085	Ti	2	50 wh	–
3045.078	Fe	150	100	–
3045.006	Ni I	200	10	–
3045.00	Cl II	–	[10]	Ks
3044.991	U	2	5	–
3044.97	Tb	15	8	Ed
3044.936	V I	30	15	–
3044.910	Os	100	12	–
3044.843	Fe II	–	12	Do
3044.83	Yb	1	3	–
3044.83	Yt	3 h	–	–
3044.763	Cb	2	30	–
3044.75	Xe II	–	[6]	Hu
3044.733	Mo	10	–	–
3044.71	Se	–	[8]	Bl
3044.705	Sm	3	5	–
3044.567	Mn	100 wh	40	–
3044.547	Dy	6	4	–
3044.41	Ho	–	4 h	Ex
3044.408	Os	50	10	–
3044.395	Ce	15	–	–
3044.223	Cr	–	12	–
3044.21	Rb I	7	–	Bv
3044.16	Ne II	–	[4]	Bn
3044.159	U	12	10	–
3044.120	Zr II	3	1	–
3044.085	Re I	25	–	–
3044.067	Os	30	8	–
3044.028	Cu I	20	1 h	–
3044.006	Yb	2	3	–
3044.005	Co	400 R	–	–
3043.997	U	4	8	–
3043.925	Ta	18	3	–
3043.90	Pb I	–	100	–
3043.899	Mo	20	–	–
3043.883	Cr	–	50	–
3043.861	Ti II	3	50	–
3043.831	Ir	2	–	–
3043.808	W	12	3	–
3043.790	U	15	8	–
3043.770	Mn	15	–	–
3043.75	Mg I	2	–	Fl
3043.713	Ce	3	–	–
3043.70	Si	–	5	Sy
3043.692	Mo	20	–	–
3043.65	Tb	8	8	Ed
3043.638	Os	60	12	–
3043.6	bh B	100	–	L
3043.555	V I	60	40	–
3043.528	Sm	2	1	–
3043.505	Os	100	15	–
3043.356	Mn	40	40	–
3043.354	Ca	1	2	–
3043.35	Ba	–	4	–
3043.447	Mo	15	15 h	–
3043.44	Dy	18	2	–
3043.40	In	–	3	Sq
3043.277	Cb	1	5	–
3043.269	Ce	3	–	–
3043.251	Zr II	4	–	–
3043.249	Th	10	3	–
3043.144	Dy	30	10	–
3043.143	Mn	12	–	–
3043.124	V I	60	7	–
3043.094	Ce	10 w	–	–
3043.068	Th	12	12	–
3043.015	W	7	4	–
3043.0	Rn	–	[5]	Wo
3042.957	Mo	10	–	–
3042.831	Ru I	60	5	–
3042.790	Cb	1	10 wh	–
3042.789	Cr II	1	100	–
3042.739	Os	20	50	–
3042.733	Mn	25 r	25	–
3042.733	U	4	8	–
3042.665	Fe I	300	200	–
3042.65	Yb	5	50	Me
3042.646	Ir	25	15	–
3042.637	Pt I	200 R	250 R	–
3042.540	Ti I	5	2 h	–
3042.50	Tb	3	15	Ed
3042.484	Co I	80 r	8	–
3042.475	Ru	70	12	–
3042.439	Ta	1	20	–
3042.35	Tm	50	–	Me
3042.3	Cs	–	[4]	Bs
3042.297	Re	10	–	–
3042.279	W	7	5	–
3042.264	V	6	80	–
3042.12	Xe	–	[6 h]	Hu
3042.077	Ce	3	–	–
3042.060	Ta	5	100	–
3042.022	Fe I	125	100	–
3041.995	Re	15	–	–
3041.99	Cb	–	5 w	–
3041.919	Ru I	30	1	–
3041.891	Cb	1	5 wh	–
3041.866	W	10	9	–
3041.864	U	6	3	–
3041.86	V	5	–	–
3041.853	Ir	7	1 h	–
3041.763	Ce	5	–	–
3041.74	Cr	2	125	–
3041.738	Fe I	100	80	–
3041.737	W	8	7	–
3041.702	Mo	40	5	–
3041.664	Pd II	–	35 h	Ml
3041.648	Dy	7	–	–
3041.639	Fe I	80	80	–
3041.610	Ce	8	–	–
3041.47	Ca	–	3	Ad
3041.420	V	5	40	–
3041.359	Cb	2	3	–
3041.31	Se II	–	[60]	Bl
3041.278	Al II	–	[50]	Sy
3041.252	U	6	5	–
3041.224	Mn	25	25	–
3041.217	Pt I	3	–	–
3041.079	Pt II	5	20 h	Sh
3041.05	Ca I	2	–	Sd
3041.01	Mo	1	25	–
3041.004	Re I	20	–	–
3040.976	Ta	50	7 w	–
3040.96	Fe	8	4	–
3040.937	Ir I	5	–	Ab
3040.900	Os	200	100	–
3040.846	Cr I	500 R	200	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
3040.814	Co I	10	–	–
3040.77	Eu	25 w	–	–
3040.669	Sb II	–	[400 wh]	Lg
3040.603	Mn	50	25	–
3040.57	Eu	10	–	–
3040.54	Cb	–	5 h	–
3040.49	Yb	1	3	Me
3040.467	Ir I	35	2	–
3040.46	Te	–	[5]	Bl
3040.428	Fe I	400	400	I
3040.380	Sm	5 d	1	–
3040.34	Tb	8	–	Ed
3040.310	Ru I	60	10	–
3040.28	Dy	4	–	–
3040.252	Ce	4	–	–
3040.049	Th	12	10	–
3040.04	Re	20 w	–	–
3040.04	Lu	–	20 hl	Me
3039.961	Ru I	30	2	–
3039.926	U	5	10	–
3039.92	Sc II	4	20 hl	–
3039.89	Eu	15	5	–
3039.824	Mo	20	2	–
3039.815	Cb	5	300	–
3039.780	Cr I	80	35	–
3039.768	Ir	2	–	–
3039.763	V	–	5	–
3039.714	Ir	2	–	–
3039.71	Bi	–	2 h	Om
3039.70	Eu	10	–	–
3039.684	Ru I	12	–	–
3039.682	Cb	3	10 h	–
3039.68	Rb	–	[15]	Ok
3039.66	Yb	3	15	–
3039.65	Ne II	–	[7]	Bn
3039.575	W II	2	20	–
3039.572	Cd	4	–	–
3039.572	Ce	8	–	–
3039.567	Co I	70	–	–
3039.551	Mn II	1	6 h	Cz
3039.512	Ce	8	–	–
3039.501	U	10	3	–
3039.50	Se	–	[20]	Bl
3039.406	Cb	3	5	–
3039.358	Sm	6	2	–
3039.356	In I	1000 R	500 R	Ps
3039.316	Fe	20	15	–
3039.311	W	10	12	–
3039.31	Cs	–	[4]	Bs
3039.263	U	15	12	–
3039.260	Ir I	25	2	–
3039.253	Ce	4	–	–
3039.21	Ca I	1 h	4	Sd
3039.187	Cb	2	3	–
3039.136	U	5	5	–
3039.128	Sm	15	9	Kn
3039.12	Bi	–	2	Om
3039.064	Ge I	1000	1000	–
3039.058	Mo	–	25	–
3038.993	Ce	4	–	–
3038.962	Nd	4	2	–
3038.790	Mo	–	3	–
3038.784	Ru	3	6	–
3038.779	Fe II	–	3	–
3038.706	Ti II	2	40	–
3038.706	V	20	1	–
3038.69	Ho	4	6	Ex
3038.67	In	–	3	Cx
3038.66	Se II	–	[60]	Bl
3038.66	Tb	8	3	Ed
3038.602	Mn	3	–	–
3038.600	Th	12	12	–
3038.596	Zr	–	2	–
3038.54	Yb	–	2	–
3038.521	V	–	45	–
3038.503	Mn	4	4	–
3038.493	U	3	6	–
3038.472	Yt I	3	–	–
3038.39	I	–	[18]	Bl
3038.38	Kr	–	[3 whl]	Me
3038.367	I	–	[25]	Ke
3038.306	Co I	25	–	–
3038.291	Dy	20	10	–
3038.2	P	–	[15]	Gu
3038.176	Ru I	80	5	–
3038.16	Cb	–	10 wh	–
3038.047	U	8	2	–
3038.043	Cr	–	10	–
3037.99	Yb	1	4	–
3037.98	Cl II	–	[35]	Ks
3037.964	Ru I	50	5	–
3037.960	Re	30	–	–
3037.948	Sm	6	3	–
3037.935	Ni I	800 R	100	–
3037.914	U	–	20	–
3037.888	I	–	[3]	Ke
3037.782	Fe I	4	4	–
3037.748	Ir	40	2	–
3037.733	Ru	30	3	–
3037.731	Ce	25	3	–
3037.73	Ne II	–	[12]	Bn
3037.7	Rn	–	[40]	Pe
3037.686	Sm	7	3	–
3037.535	U	3	2	–
3037.505	Ta	8 h	100	–
3037.388	Fe I	700 R	400 r	S
3037.372	V I	3	–	Me
3037.35	Xe II	–	[4]	Hu
3037.280	U	8	6	–
3037.274	Ce	6	–	–
3037.11	In	–	12	Cx
3037.071	Na II	8	[40]	Fr
3037.049	Ce II	8	–	–
3037.044	Cr I	200 r	100	–
3037.04	Tb	8	3	Ed
3036.986	Fe II	–	2	Do
3036.82	Yb	1	3	–
3036.815	U	4	1	–
3036.8	Rn	–	[60]	Wo
3036.80	Xe II	–	[15 h]	Hu
3036.784	Ti II	2	15	–
3036.709	Dy	20	4	–
3036.660	W II	8	20	–
3036.606	U	8	6	–
3036.59	Yt II	10	40	–
3036.550	Re	20	–	–
3036.503	Zr II	10	8	–
3036.466	Ru	50	150	–
3036.451	U	10	8	–
3036.450	Pt I	200	10	–
3036.393	Zr II	20	20	–
3036.33	I	–	[5]	Bl
3036 314	Mo	30	2	–
3036.287	Ta	8	2	–
3036.222	Er	20	4	–
3036.104	Cu I	200	50	–
3036.08	V	–	35 h	–
3035 99	Tm	15	30	Me
3035.98	Ne II	–	[7]	Bn
3035.965	U	15	8	–
3035.863	Ce	12	–	–
3035.808	Ca	–	3	–
3035 802	Ta	2	–	–
3035.781	Zn I	200	100	IHz
3035.771	Ru	4	20	–
3035.761	Cd	–	2	–
3035.74	Fe	100	60	–
3035.542	Th	10	5	–
3035.534	Ir	3	–	–
3035 51	U I	10 d	8 d	–
3035 473	Ru I	60	4	–
3035 38	Eu	10 w	–	–
3035.365	Mn	5	8	–
3035.333	Mo	30	2	–
3035.18	Bi I	60 h	–	To
3035.113	Th	15	15	–
3035.10	Hg	–	[30]	Ps
3035.025	Cb	2	30	–
3035.008	Ce	6	–	–
3034.99	Rh	2	4	–
3034.95	Cb	1	100 w	Me
3034.925	Mo	5	25	–
3034.91	Tb	8	3	Ed
3034.895	U	3	1	–
3034.873	Bi	30	30	–
3034.843	Sm	20	10	–
3034 82	K I	30 h	–	Fl
3034 661	U	3	2	–
3034.632	Yb	2	6	–
3034.62	Te	–	[10]	Bl
3034.556	Ir I	20	–	–
3034.542	Cr	–	30	–
3034.538	Fe I	70	40	–
3034.536	Re I	30	–	–
3034.535	Ca I	2	–	–
3034.492	Sm	5	2	–
3034.48	Ne II	–	[18]	Bn
3034.433	Co I	80	2	–
3034.375	U	3	1	–
3034.20	Pr	–	3	–
3034.195	W	10	9	–
3034.190	Cr I	200 r	60	–
3034.174	Sm	5	–	–
3034.16	Kr II	–	[2 h]	Me
3034.122	In	8	1	–
3034.121	Sn I	200 wh	150 wh	–
3034.12	Fe	2	–	–
3034.112	Ag	4	1 h	–
3034.069	Th	15	15	–
3034.060	Ru I	60	5	–
3034.059	Gd	100	60	–
3034.049	U	6	5	–
3034.039	Ir I	4	–	–
3033.894	Ru	–	6	–
3033.86	Yb	1	3	–
3033.822	V II	20	90 r	–
3033.77	U	4 d	4 d	–
3033.71	Xe II	–	[8]	Hu
3033.622	Ir I	25	1	–
3033.575	W	12	15	–
3033.563	Mn	1	2	–
3033.52	A II	–	[8]	Rt
3033.5	Bi II	–	[15]	Ml
3033.457	Zr	–	2	–
3033.451	Ru I	70	10	–
3033.448	V	20	40	–
3033.445	Fe II	4	2	Do
3033.444	U	1	12	–
3033.44	Ra II	–	[150]	Rs
3033 393	Cb	2	2	–
3033.393	Sm	1	2 h	–
3033.392	Ta	2	–	–
3033.35	Te	–	[5]	Bl
3033.33	Mo	1	30	–
3033 31	Pr	–	4 h	–
3033 275	I	–	[5]	Ke
3033.234	Mo	8	10	–
3033 2	Rn	–	[10]	Pe
3033.193	U	12	12	–
3033 18	Dy	8	1	–
3033.18	Au	25	30 h	–
3033.124	Ce	8	–	–
3033 11	Xe	–	[3]	Hu
3033.101	Fe	40	20	–
3033.050	Ce	10	–	–
3032.979	U	4	2	–
3032 927	Cr II	10	100	–
3032.865	Sm	15	–	–
3032 850	Gd	100	100	–
3032.84	As I	125	70	m
3032.83	Tb	8	8	Ed
3032.806	Os	50	15	–
3032.789	Re	20	–	–
3032.775	Sn	50	20	–
3032.77	Kr	–	[5 wh]	Me
3032.768	Cb	3	300	–
3032.765	U	2	2	–
3032.727	Ce II	10	–	–
3032.672	Ru	3	–	–
3032.545	Mo	5	–	–
3032.5	Rn	–	[40]	Pe
3032.47	O II	–	[3 h]	Mh
3032.445	U	1	4 h	–
3032.41	Cs	–	[4]	Bs
3032.410	Ir I	50	1	–
3032.334	Ce	8	–	–
3032.28	B II	–	10	En
3032.20	Pd II	2	100 h	–
3032.192	V	–	8	–
3032.09	O II	–	[7 h]	Mh
3032.08	Rb I	4	–	Bv
3032.057	I	–	[3]	Ke
3032.006	Zr II	2	2 h	–
3031.991	U	15	15	–
3031.914	Ru	30	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3031.878	Ir	2 h	–	–
3031.870	Ni I	200	–	–
3031.701	Th	10	3	–
3031.68	Tm	7	15	Me
3031.65	Pb	–	20	Sx
3031.639	Fe I	200	200	–
3031.621	Ce	12	10	–
3031.60	Tb	8	15	Ed
3031.59	Kr	–	[5 whs]	Me
3031.573	U	1	6	–
3031.504	Sm	5	2	–
3031.5	Cs	–	[4]	Bs
3031.497	Ce	2	–	–
3031.486	Cr	15	8	–
3031.353	Cr I	40	30	–
3031.308	Er	8	3	–
3031.295	Os	40	10	–
3031.291	Th	8	6	–
3031.279	Re	10	–	–
3031.216	Pt II	10	40 h	–
3031.215	Fe	150	150	–
3031.213	Mo	20	–	–
3031.18	Dy	4	1 h	–
3031.17	Eu	–	10 h	–
3031.16	Hf II	70	90	–
3031.11	Yb	100 h	30	–
3031.063	Mn	8	25	–
3031.007	V I	15	10	–
3031.006	Os	30	10	–
3030.93	V I	3	–	–
3030.918	Zr II	15	10	–
3030.868	Th	10	5	–
3030.858	Ce	3	–	–
3030.85	Ne II	–	[4]	Bn
3030.828	U	12	12	–
3030.781	Ru I	30	2	–
3030.769	Sc I	20	8	–
3030.695	Os I	500	40	–
3030.67	Cd II	–	6	–
3030.622	U	3	3 h	–
3030.619	Ce	5	–	–
3030.61	Fe	5	3	–
3030.507	I	–	[20]	Ke
3030.490	Th	10	1	–
3030.471	Ce	5	–	–
3030.450	Re I	100	–	–
3030.43	K II	–	[5]	Bn
3030.41	Dy	8 s	4	–
3030.35	Cs	–	[4]	Bs
3030.328	Ir	2 h	–	–
3030.325	Mo	2	20	–
3030.313	Ne I	–	[50]	Ps
3030 309	Ce	25	–	–
3030.291	Ta	18	3	–
3030.258	Cu I	10	1 h	–
3030.245	Cr I	200 r	150	–
3030.238	Ir I	8	–	–
3030.214	Ca	1	2	–
3030.214	Yt II	2 h	10	–
3030.149	Fe	300	300	I
3030.01	Kr II	–	[4]	Me
3029.90	Te	–	[5]	Bl
3029.86	Cb	–	5 wh	–
3029.826	Dy	30	4	–
3029.82	Eu	4	10	–
3029.807	Sb	100	200 wh	–
3029.745	Cb	2	10	–
3029.730	Ti II	12	150	–
3029.694	Mn	12	–	–
3029.580	V II	–	40	–
3029.554	Yb	1	40 h	–
3029.534	Ta	5	2	–
3029.515	Zr I	60	5	–
3029.419	U	10	6	–
3029.41	Eu	2	–	–
3029.393	Pr	–	10	–
3029.362	Ir I	60	3	–
3029.297	Ni I	3	–	–
3029.234	Yb	2	–	–
3029.233	Fe I	80	60	–
3029.23	Tb	3	3	Ed
3029.230	W	8	1	–
3029.205	Au I	25	30	–
3029.164	Cr I	70	50	–
3029.15	Cs	–	[4]	Bs
3029.131	U	20	15	–
3029.068	Na II	–	[60]	Fr
3029.041	Mn II	2	6 h	Cz
3029.01	Tl II	–	[15]	El
3028.979	Gd	3	3	–
3028.97	Ca I	2	2	Sd
3028.958	Ce	12	–	–
3028.93	A II	–	[15]	Rt
3028.917	Os	40	12	–
3028.881	Ir I	4	–	–
3028.878	U	2	1	–
3028.87	Rh	2 h	–	–
3028.86	Br	–	[3]	Bl
3028.84	Ne II	–	[12]	Bn
3028.782	Ta	50	7	–
3028.762	Pd	3 h	–	–
3028.753	Ce	4	–	–
3028.75	Cb	–	4	–
3028.74	W II	–	10	–
3028.73	Tm	5	30	Me
3028.684	Cb	2	5 h	–
3028.67	Eu	3	–	–
3028.665	Ca	1	2	–
3028.664	Ce	4	–	–
3028.605	U	4	1	–
3028.580	Th	12	12	–
3028.565	In II	–	[2]	Ps
3028.478	Sm	4	3	–
3028.464	Ir	3	–	Ab
3028.45	Te	–	[15]	Bl
3028.443	Cb	50	200	–
3028 426	Rh I	80	–	–
3028 38	Yb	–	2	–
3028.378	U	4	4	–
3028.278	Er	20	2	–
3028.25	Cs	–	[4]	Bs
3028.187	U	10	10	–
3028 171	Ce	5	–	–
3028.125	Cr	2	125	–
3028.043	V II	2	50	–
3028.040	Zr II	20	30	–
3027.992	Sm	4	–	–
3027.932	U	3	6	–
3027.910	Pd I	150	200 h	–
3027.888	Cb	2	2	–
3027.790	Ru	12	50	–
3027.789	W	8	6	–
3027.771	Mo	20	30	–
3027.75	Yt II	6	7	Me
3027.7	Rn	–	[5]	Wo
3027.689	U	15	8	–
3027.63	Xe II	–	[2 h]	Hu
3027.626	Ce	10	–	–
3027.612	Gd	100	60	–
3027 601	V	–	25	–
3027.57	Dy	10	4	–
3027.510	Ta	125	35 w	–
3027.496	Hg I	25	15	–
3027 476	Sm	6	3	–
3027.33	Tb	8	3	Ed
3027.29	Lu	–	8	Me
3027.27	Xe II	–	[3]	Hu
3027.247	U	2	1	–
3027.2	P	–	[15 h]	Gu
3027 084	Ru	20	–	–
3027.04	Ne II	–	[12]	Bn
3026.94	Rh I	2	–	–
3026.913	Ne	–	[15]	Ps
3026.782	W	9	7	–
3026 762	Al II	–	[3]	Sy
3026.75	A II	–	[5]	Rt
3026.75	Eu	–	15	–
3026.705	U	8	10 h	–
3026 675	W	9 s	8	–
3026.668	Yb	4	–	–
3026.647	Cr	8	125	–
3026.620	Ce	18 w	–	–
3026.580	Sm	3	–	–
3026.580	Th	15	15	–
3026.47	Yt II	7	20	–
3026.461	Fe I	200	200	–
3026.371	Co I	100	40	–
3026.363	Ir	–	3	–
3026.26	Re	2	–	–
3026.183	Zr II	1	3 h	–
3026.163	Dy	30	4	–
3026.15	U	8 d	3 d	–
3026.07	Tm	60	30	Me
3025.92	Er	5	2	–
3025.88	La II	–	3	Me
3025.842	Fe I	400 r	300 r	–
3025.822	Ir I	50	3	–
3025.638	Fe	100	100	–
3025.617	Hg I	15	10	–
3025.61	Dy	8	–	–
3025.51	Pb	–	2	Sx
3025.435	Th	20 d	5	–
3025.397	Rh I	6	–	–
3025.372	Cb	1	10	–
3025.298	Ce	2	–	–
3025.29	Hf II	30	30	–
3025.282	Fe	50	30	–
3025 259	W	10	8	–
3025.23	Pr	–	8	–
3025.164	Ta	70	15	–
3025.153	Zr II	3	2 h	–
3025 126	Ce II	8	–	–
3025.099	Ru	8	–	–
3025.060	Ti I	3	–	–
3025.060	Re I	10	–	–
3025.034	U	12 h	20 h	–
3025.004	Mo	50	4	–
3024.994	Cu I	30	3	–
3024.980	V II	2	60	Me
3024.95	Ca I	2	–	–
3024.920	W	15	12	–
3024 89	Rb	–	[2]	Ok
3024 782	Ir I	4	–	–
3024.76	Hf II	18	25	–
3024.745	Zr II	2 h	2 h	–
3024.738	Cb	10 w	200	–
3024.70	Sb	2 h	4 h	–
3024.70	Ca	–	4	Ad
3024.681	Cr	10	8	–
3024.669	Th	10	6	–
3024.635	Bi I	250 wh	50	–
3024 603	Hf	15	–	–
3024.571	Ce	12	–	–
3024.510	U	18	15	–
3024.496	W II	9	20 l	–
3024.385	U	25 r	20 r	–
3024.350	Cr I	300 r	125	–
3024.33	Ga	–	2 w	Kl
3024.299	Pt I	5	–	–
3024.296	Ir I	30	–	–
3024.29	Pd	–	4 h	–
3024.273	Ta	3	1	–
3024.247	Cb	2	5	–
3024.074	Al II	–	[2]	Sy
3024.033	Fe I	300	200	I
3023.966	Ce	4	–	–
3023.94	Sn II	–	2 h	Mc
3023.911	Rh I	100	2	–
3023.883	V	–	30	–
3023.880	Ce	5	–	–
3023.86	Ti II	–	100 wh	–
3023.85	U	4	1	–
3023.80	N II	–	[5]	Fl
3023.70	Tb	3	3	Ed
3023.690	Mo	20	–	–
3023.66	Rb	–	[20]	Ok
3023.657	U	6	4	–
3023.61	Yb	–	2	–
3023.584	Re	2	–	–
3023.512	Yt II	7	3	–
3023.485	Ce	10	–	–
3023.476	Hg I	60	10 h	–
3023.433	Ce	5	–	–
3023.39	In	–	3	Sq
3023.34	Eu	–	10 h	–
3023.303	U	2	–	–
3023.300	Mo	5	100	–
3023.29	Te	–	[100]	Bl
3023.161	U	3 h	3 h	–
3023.14	Ho	–	4	Ex
3023.076	Sm	2	1	–
3022.994	Mo	25	1	–
3022.994	Re	25	–	–
3022.947	Ru	–	12	–
3022.93	Cl II	–	[30]	Ks

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3022.871	U	4	2	–
3022.847	Pt	5	2	–
3022.820	Ti II	–	150 Wh	–
3022.791	Ce	12	–	–
3022.76	V I	10 h	–	–
3022.753	U	3	2	–
3022.749	Mn	50	25	–
3022.740	Mo	1	6	–
3022.739	Cb	5 w	100	–
3022.688	Ir I	20	1	–
3022.66	W II	2	12	–
3022.643	Zr I	3	2 h	–
3022.613	Cu I	30	3	–
3022.60	Rb I	–	[10]	Bv
3022.566	V	2	50	–
3022.49	Kr II	–	[5 h]	Me
3022.47	Cb	–	5	–
3022.469	Ce	5	–	–
3022.466	U	3	3	–
3022.46	Yb	1	4	–
3022.410	Ir	30	1	–
3022.372	In II	–	[18]	Ps
3022.362	Co I	60	2	–
3022.353	Ce	2	–	–
3022.286	Ta	3	1	–
3022.281	Yt	7	2	–
3022 26	La II	2	3	Me
3022.207	U	12	12	–
3022.189	Sb II	–	60	Sp
3022.154	Eu	25	10	–
3022.145	V	–	10	–
3022.114	Hf II	8	2	–
3022 10	Xe	–	[3 wh]	Hu
3022.097	Th	12	12	–
3021.998	W II	15	20	–
3021.95	Tb	3	3	Ed
3021.890	Re	30	–	–
3021.881	Cb	–	15 W	–
3021.79	Dy	5	–	–
3021.78	V I	8	4	–
3021.749	Pd I	2	–	–
3021.724	Yt I	10	–	–
3021.68	Pr	–	10	–
3021.617	Mo	–	40	–
3021.608	W	9	7	–
3021.558	Cr I	300 r	200 r	–
3021.557	Cu I	25	5	–
3021.499	Hg I	80	40	Cn
3021.225	Sm	6	–	Kn
3021.22	U	10	15	–
3021.219	I	–	[18]	Ke
3021.073	Fe I	700 R	300 r	–
3021.038	Ce	15	–	–
3020.92	U	8 d	12 d	–
3020.9	Cs	–	[4]	Bs
3020.883	Ce	15	–	–
3020.882	Ru I	60	40	–
3020.70	Yb	–	5	Me
3020.693	Mo	5	10	–
3020.673	Cr I	200 r	100	–
3020.666	Cb	5	8	–
3020.65	Dy	10	–	–
3020.640	Fe I	1000 R	600 r	–
3020.639	Co	60	–	–
3020.58	Tb	3	–	Ed
3020.571	U	6	6	–
3020.54	Lu	–	100	Me
3020.529	Hf	15	2	–
3020.496	Os	–	3	–
3020.489	Fe I	300 r	300 r	–
3020.467	Zr II	50	30	–
3020.3	Cs	–	[4]	Bs
3020.29	Tb	8	15	Ed
3020.242	U	8	6	–
3020.214	W	7	6	–
3020.15	Ca I	2	2 h	Sd
3020.02	Te	–	[15]	Bl
3020.009	Ir	35	1	–
3019.94	I	–	[10]	Bl
3019.841	Zr II	10	6	–
3019.81	U	5	10	–
3019.80	Tm	5	15	Me
3019.790	Cb	1	2 h	–
3019.78	Xe II	–	[2]	Hu
3019.769	Er	12	1	–
3019.764	Ru	8	12	–
3019.666	Ta	15	3	–
3019.616	Pd II	–	30 h	–
3019.60	Be I	5	–	Ps
3019.567	Cb	–	5	–
3019.544	Rh I	5	–	–
3019.511	Be I	15	–	–
3019.507	Zr	2	–	–
3019.419	Ce	3	–	–
3019.378	Th	12	10	–
3019.375	Os	100	20	–
3019.371	Ru I	20	–	–
3019.37	Ca I	1	3	Sd
3019.350	Sc I	20	10	–
3019.34	Be I	30	–	Ps
3019.303	Sm II	10	3	–
3019.291	U	8	15	–
3019.290	Fe	2	2	–
3019.229	Ir	35	2 h	–
3019.2	Rn	–	[18]	Wo
3019.196	Cb	–	2	–
3019.17	Tb	3	8	Ed
3019.143	Ni I	200 R	30	–
3019.095	Ta	3	1	–
3019.07	Cb	1	3	–
3019.06	Yb	–	2	–
3018.982	Fe I	150	150	–
3018.95	Yt I	3	–	–
3018.95	Pd II	–	2 h	Bx
3018.95	La	4	3	Me
3018.855	Cb	1 h	10	–
3018.838	U	3	6	–
3018.821	Cr I	200 r	60	–
3018.82	Cl II	–	[12]	Ks
3018.771	Ce	3	–	–
3018.61	Tm	10	40	Me
3018.587	U	8	8	–
3018.55	Mo	1	100	–
3018.53	Zr II	–	3 wh	Ks
3018.498	Pd II	–	50 h	–
3018.496	Cr I	200 r	125	–
3018.470	Sm	2	1	–
3018.352	Zn I	125	40	1Hz
3018.333	Nd	8	4	–
3018.314	Hf	60	10	–
3018.31	Cb	1	5 h	–
3018.17	I	–	[10]	Bl
3018.13	Fe	4	4	–
3018.103	U	5	5	–
3018.081	Zr II	–	2 wh	–
3018.039	Os I	300 R	50	–
3018.032	Ir I	15	–	–
3017.883	Pt	60	10	–
3017.810	Ru	10	60	–
3017.78	In	–	3	Sq
3017.769	Ce	6	–	–
3017.740	Er	10	1	–
3017.73	Dy	2	–	–
3017.726	Ir	2 h	–	–
3017.65	Kr II	–	[20 whs]	Me
3017.632	Fe I	150	150	–
3017.569	Cr I	300 r	200	–
3017.56	Yb	3	40	–
3017.546	Co I	100 r	5	–
3017.51	Te	–	[350]	Bl
3017.47	Eu	15 d	–	–
3017.46	Pb	–	10	–
3017.443	W	12	10	–
3017.43	Xe	–	[50 h]	Hu
3017.43	Fe	3	3	–
3017.351	U	6	4	–
3017.348	Ne I, II	–	[50]	Ps
3017.32	Cd	–	[12]	Es
3017.313	Ir	35	2 h	–
3017.262	Co I	60	–	–
3017.247	Os	100	25	–
3017.246	Pt	2	8	–
3017.236	Ru	100	50	–
3017.195	Ce	20	5	–
3017.187	Ti II	15	200	–
3017.15	W	3 d	10	–
3017.122	Th	12	10	–
3017.10	Tm	20	40	Me
3017.096	Ce	10	–	–
3016.976	Re	20	–	–
3016.96	Dy	8	3	–
3016.956	U	15	12	–
3016.94	Hf II	15	6	Me
3016 838	Er	10	2	–
3016 784	V II	15	80	–
3016.78	Hf	25	10	–
3016.777	Mo	25	2	–
3016.697	Ru I	4	–	–
3016.556	Ce	2	–	–
3016.491	Re	100	–	–
3016.470	W	12	10	–
3016.454	Mn	25	25	–
3016.45	Br	–	[4]	Bl
3016.426	Ir I	35	2 h	–
3016.4	Pb II	–	25	Ea
3016.384	U	1	4 h	–
3016.374	Ta	7	7	–
3016.37	Lu	–	15 hl	Me
3016.185	Fe I	200	150	–
3016.18	Tb	15	15	Ed
3016.16	V I	25	8	–
3016.052	U	6	4	–
3016.02	Re I	80 W	–	–
3015.983	V	–	25	–
3015.9129	Fe	70	50	IMe
3015.87	Br	–	[3]	Bl
3015.825	Au II	–	12	–
3015.823	Cb	–	20	–
3015.8	Rn	–	[10]	Pe
3015.8	Cs	–	[4]	Bs
3015.721	Th	15	10	–
3015 694	Dy	10	3	–
3015.687	Sm	3	3	–
3015.684	Co I	60	2	–
3015.682	U	5	4	–
3015.653	Os	100	15	–
3015.642	I	–	[15]	Ke
3015.60	Ga	–	2	Kl
3015.59	S II	–	[5]	Bl
3015.541	Ti	4 h	–	–
3015.52	Tl II	–	[2]	El
3015.52	Xe II	–	[10 h]	Hu
3015.510	Cr	1	150	–
3015.418	Mo	5	10	–
3015.414	Ce	8	–	–
3015.406	Ru	8	50	–
3015.400	Na II	–	[60]	Fr
3015.364	Sc I	20	9	–
3015 29	Tm	125	100	Me
3015.237	Cb	3	1	–
3015.194	Cr I	200 r	80	–
3015.17	Pr	–	10	–
3015.09	Te	–	[20]	Bl
3015.074	Dy	20	5	–
3015.06	Pd II	–	2	–
3015.00	Cb	–	15	–
3014.925	Th	12	8	–
3014.915	Cr I	300 r	100	–
3014.884	U	6	2	–
3014.823	V II	10	100	–
3014.780	Mo	15	–	–
3014.760	Cr I	300 r	100	–
3014.743	Pd II	–	2 h	–
3014.735	Nd	4	2 h	–
3014.727	Ir	8	–	–
3014.691	Mo	20	3	–
3014.668	Mn	15	15	–
3014.65	Tm	40	10	Me
3014.61	Ho	–	4	Ex
3014.571	U	2	–	–
3014.554	Ce	3	–	–
3014.503	Pr	10	8	–
3014.5	Rn	–	[18]	Pe
3014.49	A II	–	[10]	Rt
3014.470	Ce	3	–	–
3014.466	Ir I	10	–	–
3014.45	Yb	2	15	–
3014.445	Cb	3	10	–
3014.438	Zr I	15	–	–
3014.37	V I	15 h	–	–
3014.366	Sm	5	10	–
3014.261	Ce	8	–	–
3014.23	Rh I	2	–	–
3014.23	Au	5	15	–
3014.175	Fe I	70	35	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3014.165	Nd	8	2	–
3014.159	Mo	5	50	–
3014.105	Ce	5	–	–
3014.050	Sm	2	1	–
3013.831	U	2	1 h	–
3013.787	W	12	12	–
3013.763	Mo	100 h	5	–
3013.713	Cr I	200 r	150	–
3013.63	Te	–	[5]	Bl
3013.61	Tb	3	3	Ed
3013.596	Co I	60 r	4	–
3013.508	Sm	3	2 h	–
3013.44	U	5 d	1 d	–
3013.41	O II	–	[12 h]	Mh
3013.393	Sm	4	–	–
3013.388	Mo	25	5	–
3013.370	U	6	2	–
3013.359	Ru I	60	5	–
3013.321	Zr II	10	5	–
3013.28	B	–	3	Sy
3013.199	W	10	10 s	–
3013.18	I	–	[10]	Bl
3013.170	Ce	8	–	–
3013.151	Re I	30	–	–
3013.135	U	2	–	–
3013.124	Sm	2 h	2 h	–
3013.104	V	10	70	–
3013.074	Os	150	20	–
3013.030	Cr I	80	40	–
3012.975	U	3	2 h	–
3012.955	Ne I	–	[50]	Ps
3012.927	Ag	–	10	–
3012.916	Ru I	60	4	–
3012 902	Hf II	80	100	–
3012.858	Ir	5	–	–
3012.853	Mn	8	–	–
3012.708	U	3	1	–
3012.708	Th	12	10	–
3012.574	Ir I	20	–	–
3012.549	Cb	2	5	–
3012.537	Ta	125	100 l	–
3012.523	Pt	1	3	–
3012.505	Sm	2	1	–
3012.484	Ce	5	–	–
3012.468	Er	10	2	–
3012.450	Fe	50	30	–
3012.447	U	10	1	–
3012.38	Eu	20 w	1	–
3012.380	Pt I	2	–	–
3012.30	Dy	3	–	–
3012.20	Hf II	–	3	–
3012.196	Gd	4	2	–
3012.183	Sm	20	10	Kn
3012.18	Sn II	–	[2 h]	Mc
3012.138	U	2	–	–
3012.129	Ne I	–	[50]	Ps
3012.086	Sm	5	3	–
3012.05	Te	–	[25]	Bl
3012.041	Cs II	–	[8]	Ot
3012.015	V	2	50	–
3012.005	Cu I	50	6	–
3012.004	Ni I	800 R	125 W	–
3011.945	Re	20 w	–	–
3011.94	Fe	3	2	–
3011.902	U	2	1	–
3011.90	Ga II	–	2	Sy
3011.881	Ce	15	–	–
3011.877	Ta	100 w	15	–
3011.862	Sm	3 h	2 h	Kn
3011.748	Zr I	100	4	–
3011.690	Ir I	35	1	–
3011.678	W	8	7	–
3011.61	Cb	–	4 h	–
3011.547	Pt	3	–	–
3011.482	Fe	125	125	–
3011.471	Ce	2	–	–
3011.376	Mn	25	25	–
3011.3	Cd	–	[10]	Es
3011.24	Hf II	15	20	Me
3011.19	U	3 d	2 d	–
3011.162	Mn	25	25	–
3011.16	Er	8	1	–
3011.117	Ta	100 W	25	–
3011.09	Cr	15	2	–
3011 070	Sb	–	70	Sp
3011.05	Hg I	3 h	–	Cn
3011.017	Ce	3	–	–
3010.964	Sm	2	–	–
3010.956	Ce	2	–	–
3010.844	Ta	5	70	–
3010.839	Cu I	250	30	–
3010.8	Rn	–	[100]	Wo
3010.78	La I	5	–	Me
3010.769	Sm	3 d	2	–
3010.76	W II	8 d	20	–
3010.754	U	10	3	–
3010.724	Ce	2	–	–
3010.686	Cb	1	15	–
3010.68	Pr	3	20	–
3010.642	Cr	–	40	–
3010.622	Yb	2	10	–
3010.55	Tb	8	8	Ed
3010.549	Ce	5	–	–
3010.515	Ru	10	45	–
3010.462	Ce	6	–	–
3010.421	W	9	6	–
3010.375	Cb	1	15	–
3010.37	U	8 d	2 d	–
3010.327	Sm	4	–	Kn
3010.29	Er	6	–	–
3010.284	Zr II	12	25	–
3010.19	Pb	–	2	Sx
3010.141	Ti I	2	–	–
3010.139	Gd	100	100	–
3010.011	Sm	10	–	–
3009.96	Te	–	[5]	Bl
3009.901	Ir I	25	10	–
3009 896	Os	20	8	–
3009.875	Zr II	2	2 h	–
3009.777	Pd I	50 r	10	–
3009.770	Ce	5	–	–
3009.725	Th	15	10	–
3009.694	Ru I	20	–	–
3009.572	Ir	2	–	–
3009.570	Fe I	500	400	I
3009.57	Rh	2	2	–
3009.53	Eu	10 W	–	Kn
3009.48	Ho	–	4 h	Ex
3009.42	U	15 d	2 d	–
3009.39	Yb	2	20	–
3009.30	Tb	8	8	Ed
3009.205	Ca I	20	5	IWg
3009.147	Sn I	300 h	200 h	–
3009.138	Na II	3	[20]	Fr
3009.092	Fe	80	60	–
3009.076	W	10	5	–
3008.98	Rh	2	3	–
3008.98	W	–	12	Ex
3008.964	Cb	–	10	–
3008.922	U	5	1	–
3008.92	Tm	20	20	Me
3008.83	O II	–	[10 h]	Mh
3008.821	Dy	5	–	–
3008.820	Sm II	3	2	–
3008.796	Ru	50	5	–
3008.789	Ce	40	3	–
3008.757	W	8	7	–
3008.625	Ir I	4	–	–
3008.614	V	3	70	–
3008.505	V	–	50	Me
3008.491	Th	15	12	–
3008.42	Kr II	–	[8 h]	Me
3008.415	Cb	–	50	–
3008.322	Ti II	1	25	–
3008.31	In	–	500 W	Cx
3008.265	Mn	15	15	–
3008.259	Ru	50	3	–
3008.18	U	4 d	2 d	–
3008.142	Zr II	10	5	–
3008.139	Fe I	600 r	400 r	–
3008.131	Ce	12	–	–
3008.02	Cd II	10	5	–
3007.98	Pr	5	15	–
3007.975	Nd	6	2	–
3007.909	U	2	1	–
3007.896	Os	40	8	–
3007.82	Mo	1	5	–
3007.797	Ce	2	–	–
3007.74	O II	–	[10 h]	Mh
3007.713	Mo	15	–	–
3007.655	Mn	40	40	–
3007.618	Ir I	6	2 h	–
3007.533	Ta	2	–	–
3007.487	Ti	2 h	–	–
3007.442	Na II	–	[20]	Fr
3007.405	W	7	3	–
3007.32	La II	4	4	Me
3007.283	V II	2	50	–
3007.282	Ir I	25	–	–
3007.281	Fe I	80	60	–
3007.28	O	–	[2]	Fl
3007.200	Re	5	–	–
3007.145	Fe I	100	80	–
3007.11	Tb	8	3	Ed
3007.08	O II	–	[10]	Fl
3007.047	Re	15	–	–
3007.032	Ce	2	–	–
3007.013	U	2	–	–
3007.01	I	–	[10]	Bl
3006 98	Cl II	–	[20]	Ks
3006.930	Th	12	15	–
3006.92	V I	5 h	–	–
3006.90	O II	–	[12 h]	Mh
3006.86	Yb	1	3	–
3006.86	N II	–	[50]	Fl
3006.858	Ca I	25	5	IWg
3006.8	Rn	–	[300]	Pe
3006.657	W	6	5	–
3006.614	Ce	4	–	–
3006.590	Ru	70	15	–
3006.57	Hg II	–	[50]	Ps
3006.559	Ta	3 w	3 h	–
3006.501	V	–	50	–
3006.429	Re I	40	–	–
3006.36	Tm	10	–	Me
3006.35	V I	5	–	–
3006.35	Te	–	[50]	Bl
3006.314	W	9	12	–
3006.273	Eu	30	–	–
3006.24	V I	5 h	–	–
3006.150	Sm	6	3	–
3006.05	Cl II	–	[20]	Ks
3006.01	O II	–	[5 h]	Mh
3005.973	Ru	12	–	–
3005.966	Re I	10 W	–	–
3005.88	Rb	–	[2]	Ok
3005.823	Rh	6	–	–
3005.812	V	–	50	–
3005 783	Pt	3	–	–
3005.767	Cb	1	50	–
3005.765	Yb	10	100	–
3005.764	Co I	100	2	–
3005.72	Rn	–	[3]	Rc
3005 62	O II	–	[5]	Fl
3005 557	Hf	50	8	–
3005.52	U	2	–	–
3005.52	Tb	8	3	Ed
3005.497	Zr I	25	2	–
3005.41	Cd I	25	4	Fl
3005.370	Zr I	10	–	–
3005.357	Ti I	3	–	–
3005.306	Fe	70	40	–
3005.262	Yt I	8	–	–
3005.213	Ce	2	–	–
3005.212	Ir I	35	20	–
3005.143	Cb	2	2	–
3005.126	Ru	–	60	–
3005.101	U	6	4	–
3005 057	Cr I	300 r	125	–
3005.039	Ir I	3	–	–
3005.02	Ta	2 h	3 h	–
3005.006	W	7	6	–
3004.919	Ta	2	18 l	–
3004.87	Te	–	[10]	Bl
3004.824	V I	12	1	–
3004.80	Eu	18	1 h	–
3004.71	Tl II	–	[10]	El
3004.630	Fe I	5	3	–
3004.626	Cb	–	15	–
3004.600	Ru	50	2	–
3004.56	Tb	8	3	Ed
3004.553	U	3	–	–
3004.47	Hg	–	[30]	Ps
3004.460	Mo	5	40	–
3004.457	Rh I	4	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
3004.39	Cl II	–	[10]	Ks
3004.339	Re	25	–	–
3004.33	V I	8	–	–
3004.263	Fe II	–	2	–
3004.25	W II	5	9	–
3004.217	Ru	30	–	–
3004.15	Ta	7	1	–
3004.15	U	10 d	2 d	–
3004.14	Mo	5	–	–
3004.138	Re I	40	–	–
3004.125	Sm	3	1	–
3004.123	Fe	18	10	–
3004.06	Ga	–	15	–
3003.98	Xe II	–	[20]	Hu
3003.952	Sm	2	–	–
3003.93	As	–	50	Ro
3003.924	Cr	1	150	–
3003.86	Se	–	[8]	Bl
3003.831	Er	9	–	–
3003.762	Dy	15	5	–
3003.74	Cb	–	10	–
3003.736	Zr II	15	15	–
3003.680	Ce	2	–	–
3003.65	Lu	–	3 h	Me
3003.637	Ti I	2	–	–
3003.632	Ir I	60	30	–
3003.629	Ni I	500 R	80	–
3003.587	U	2	–	–
3003.562	Ce	12 s	1	–
3003.485	Ru I	30	–	–
3003.482	Os	60	12	–
3003.457	V II	8	70	–
3003.315	U	3	1	–
3003.284	V	5	–	–
3003.180	Pr	5	20	–
3003.172	Mo	10	–	–
3003.070	U	4	–	–
3003.031	Fe I	200	100	I
3003.00	A	–	[3]	Rt
3002.88	Cs	–	[6]	Bs
3002.869	Gd	15	20	–
3002.821	W	7	6	–
3002.748	Ce	20	1	–
3002.74	Mo	10	–	–
3002.74	Pb II	–	10	Gs
3002.728	Ti I	10	3	–
3002.66	Er	15	3	–
3002 652	Pd I	100 r	60	–
3002.65	V I	10	–	–
3002.649	Fe II	20	150	–
3002.645	U	2	–	–
3002.61	Yb	15	150	–
3002.491	Ni I	1000 R	100	–
3002.489	Mn	12	–	–
3002.485	Ir	6	–	Ab
3002.48	Kr II	–	[2 hl]	Me
3002.45	Cl	–	[8]	Jv
3002.45	Tb	3	–	Ed
3002.442	V	10	1	–
3002.441	U	3	–	–
3002 39	Th	15	12	–
3002.38	Dy	10	1 h	–
3002.376	Ce	12 s	–	–
3002.37	Si	–	3	Sy
3002.334	Fe II	–	5	–
3002.28	W II	1	15	–
3002.269	Pt I	200	30	–
3002.253	Ir I	50	10	–
3002.213	Mo	40	3	–
3002.212	Cb	5 W	30	–
3002 136	Ce	20	1	–
3002.067	Ru I	6	–	–
3002.03	Yb	–	15	–
3001.977	W	10	9	–
3001.90	V I	18 h	3	–
3001.85	Hf II	5	1	m
3001.85	Cb	–	15 wh	–
3001.82	Al	–	[10]	Sy
3001.751	V	1	30	–
3001.70	Sb II	–	[15]	Lg
3001.660	U	4 r	–	–
3001.65	Ne II	–	[25]	Bn
3001.642	Ru I	60	5	–
3001.545	Ta	1	3	–
3001.51	Cd II	–	[10]	Tk
3001.435	Mo	15	–	–
3001.42	Yt II	7	4	Me
3001.35	Eu	4 W	–	–
3001.28	Yb	–	2	–
3001.271	Cs II	–	[10]	Ot
3001.264	Th	12	12	–
3001.256	Ir I	5	–	–
3001 220	U	2	–	–
3001.205	V II	20	200 r	–
3001.169	Pt II	3	50 w	–
3001.132	Re	40	–	–
3001.125	Cb	1	15	–
3001.03	Dy	3	–	m
3000.951	Fe I	800 R	300 r	–
3000.942	Mo	2	3	–
3000.922	Th	30 d	10	–
3000.890	Cr I	150 r	125	–
3000.868	Ti I	20	20	–
3000 863	Ca I	20	6	IWg
3000.855	Mo	25	1	–
3000.79	I	–	[5]	Bl
3000.788	U	2	–	–
3000.619	W II	4	20	–
3000.607	Zr II	–	2 wh	–
3000.576	Re	8	–	–
3000.546	Co I	80	1	–
3000.46	Yb	3	20	–
3000.454	Pr	5	15	–
3000.452	Fe I	100	80	–
3000.45	Mo	20	–	–
3000.45	A II	–	[10]	Rt
3000.330	Ce	5	–	–
3000.240	W	7 s	8	–
3000.232	Mo	25	30	–
3000 227	Ru I	30	1	–
3000.18	I	–	[18]	Bl
3000 14	A	–	[5]	Rt
3000.132	Ce	2	–	–
3000.119	Cb	2	5	–
3000.096	Hf II	40	30	–
3000.094	U	3	1	–
3000 068	Ce	10	–	–
3000 065	Fe II	–	10	–
3000.027	Ir	30	–	–
2999.97	Tb	3	10	Ex
2999.84	Kr II	–	[40 h]	Me
2999.808	Ru	8	50	–
2999.777	Ti I	2	–	–
2999.773	Th	10	8	–
2999.641	Ca I	20	10	IWg
2999.592	Re I	125	–	–
2999.56	Rb I	–	[2]	Ok
2999.550	Pd II	–	100 h	–
2999.541	Ir I	35	1	–
2999.513	Cs	–	8	–
2999.512	Fe I	500	300	S
2999.503	In II	–	[10]	Ps
2999.480	Ce	6	–	–
2999.432	Ce	6	–	–
2999.397	In II	–	[30]	Ps
2999.316	In II	–	[10]	Ps
2999.238	V I	12	3	–
2999.215	U	10	6 h	–
2999.21	Xe	–	[8 wh]	Hu
2999.202	Ce	3	–	–
2999.20	Fe	5	3	–
2999.093	Th	12	12	–
2999.066	Ce	15	–	–
2999.056	Gd	40	30	–
2999.05	Tb	20	10	Ex
2999.033	U	8	2	–
2999.014	Ir I	2	–	–
2998 89	Te	–	[10]	Bl
2998.890	Ru	50	100	–
2998.855	Fe II	–	3	Do
2998.787	Cr I	200 r	70	–
2998.769	Ce	15	–	–
2998.687	W II	6	12	–
2998.626	V I	2	–	–
2998.553	Re	8	–	–
2998.517	U	2	–	–
2998.483	Zr II	1	2 h	–
2998.384	Cu I	20	2 h	IBu
2998.38	Yb	–	3	Me
2998.362	U	6	2	–
2998.348	Ru	80	8	–
2998.287	W	6	2	–
2998.28	S	–	[25]	Bl
2998.260	Sm	4	–	–
2998.226	Cb	2	2	–
2998.20	Cs	–	[2]	Bs
2998.174	Al II	–	[8]	Sy
2998.149	Mo	10	–	–
2998.14	Eu	4	–	–
2998.121	Cr	12	2	–
2998.058	Er	10	1	–
2998.02	Yb	1	9	–
2998.014	Ce	3	–	–
2997.968	Ir	7	–	–
2997.967	Pt I	1000 R	200 r	–
2997.947	V	–	35	–
2997.93	Ga	–	[5]	Kl
2997.789	W	12	10	–
2997.74	O II	–	[7 h]	Mh
2997.715	Ce	2	–	–
2997.703	Re I	15	–	–
2997.666	Mo	2	3	–
2997.647	Os	40	8	–
2997.615	Ru	30	5	–
2997.603	W	8	12	–
2997.491	Pd II	–	2 wh	–
2997.486	Cb	1	10	–
2997.468	Ce	6	–	–
2997.426	Ru I	30	5	–
2997.413	Mo	20	–	–
2997.408	Ir I	25	2	–
2997.364	Cu I	300	30	IBu
2997.354	U	2	2	–
2997.346	Mo	3	25	–
2997.314	Ca	25	5	–
2997.301	Fe II	–	60	–
2997.2	Cs	–	[2]	Bs
2997.192	Ir I	25	1	–
2997.15	Th	10	4	–
2997.143	Ce	2	–	–
2997.13	Sn II	–	[2]	Mc
2997.124	U	3	2	–
2997 08	V I	5 h	–	Me
2997.07	Pr	–	10	–
2997.05	Te	–	[50]	Bl
2997.01	Ta	5 h	2 h	–
2996.980	Th	10	10	–
2996.970	W	8	9	–
2996 966	Sm	8	3	–
2996.944	Yt I	12	5	–
2996 895	Ru	60	5	–
2996.885	Ta	2	5 h	–
2996.797	Cb	1	5	–
2996.77	Hf II	–	2	–
2996.76	Dy	2	–	–
2996.759	U	3	2	–
2996.726	I II	–	[15]	Ke
2996.72	Br	–	[4]	Bl
2996.67	Ca I	7	–	Sd
2996.662	Ir	3	–	–
2996 63	Cl II	–	[40]	Ks
2996.60	Kr II	–	[20]	Me
2996.580	Cr I	300 r	125	–
2996.552	Co I	9	–	–
2996.513	Cb	3	3 h	–
2996.5	Cd	–	[10]	Es
2996.489	V I	8	1	–
2996.476	Sm	6	1	–
2996.47	Ca	–	5	Ad
2996.391	Rb I	5	–	–
2996.391	Fe	90	50	–
2996.379	Er	12	1 h	–
2996.293	Mo	1	20	–
2996.15	Cs	–	[2]	Bs
2996.095	U	6	4	–
2996.078	Ir I	50	2	–
2996.03	Cd	–	25	–
2996.01	Tb	10	3	Ex
2995.998	V II	5	70	–
2995.991	Ru	4	50	–
2995.987	W	8	9	–
2995.916	Ru	8	–	–
2995.875	Sm	3 h	–	–
2995.86	Yb	2	10	–
2995.84	Lu	–	15 hl	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2995.840	Fe	3	1	–
2995.78	Tb	20	–	Ed
2995.752	Ti	10 h	70 wh	–
2995.739	W	6	5	–
2995.71	U	5	2	–
2995.67	Te	–	[15]	Bl
2995.644	Ce	30	1	–
2995.62	Eu	2	–	–
2995.612	V I	2	–	–
2995.533	Mo	–	15	–
2995.524	Al II	–	[6]	Sy
2995.516	U	2	2	–
2995.451	Dy	2	–	–
2995.378	Re	20	–	–
2995.350	U	2 h	–	–
2995.34	Cs	–	[20]	Bs
2995.27	Fe	4	2	–
2995.270	Th	10	4	–
2995.258	W	10	8	–
2995.255	Yt I	8	2	–
2995.24	Eu	15	–	–
2995.157	Ce	3	–	–
2995.150	Co I	50	1	–
2995.103	Cr I	200 r	75	–
2994.99	Au II	–	100	–
2994.964	Ru I	80	40	–
2994.958	Ca I	25	3	IWg
2994.89	U	2 d	2	–
2994.802	Yb	10	80	–
2994.737	Cr	3	2	–
2994.734	Nd	3	2	–
2994.728	Cb	100	300	–
2994.538	V	2 h	50	–
2994.507	Fe I	2	–	–
2994.5	Rn	–	[20]	Pe
2994.48	Er	6 d	1	–
2994.460	Ni I	125 R	10	–
2994.451	U	3	2	–
2994.44	Sn II	–	[3 h]	Mc
2994.429	Fe I	1000 R	600 r	–
2994.418	Ce	12	–	–
2994.33	Tm	2	10	Me
2994.280	Al II	–	[3]	S
2994.250	Ne I	–	[3]	Ps
2994.137	Ce	4 w	–	–
2994.09	Er	3	–	–
2994.069	Cr I	150	50	–
2994.029	U	4	–	–
2993.96	Cb	–	50	–
2993.94	Yb	1	7	–
2993.90	Tm	10	–	Me
2993.864	I	–	[70]	Ke
2993.826	Sm	10	4	–
2993.807	Cb	2	5	–
2993.803	Th	12	15	–
2993.699	U	5 h	2 h	–
2993 629	Ce	3	–	–
2993.629	Ir	2	–	–
2993.611	W	12	10	–
2993.571	Os	15	8	–
2993.515	Mo	15	25	–
2993.4	K	–	[10]	MI
2993.355	U	5	2 h	–
2993.342	Bl I	200 wh	100 wh	–
2993.272	Ru I	60	9	–
2993.27	Tm	25	10	Me
2993.183	Re	15	–	–
2993.179	Nd	40	2	–
2993.135	Ta	5	2 h	–
2993.117	Dy	2	–	–
2993.09	Cl II	–	[8]	Ks
2993.064	Tl I	2	–	–
2993.058	Ir	8	–	–
2993.038	Gd	3	3 h	–
2992.989	U	2	–	–
2992.988	V	–	20	–
2992.957	Ru	12	1	–
2992.918	W	8	4	–
2992.913	Sm	5	1	–
2992.89	Tm	3	20	Me
2992.84	Ga II	–	[2]	Sy
2992.838	Mo	20	30	–
2992.817	Re	3 W	–	–
2992.717	U	8	6	–
2992.66	I	–	[12]	Bl
2992.645	Mo	1	10	–
2992.63	C II	–	20 h	Fl
2992.61	Fe	2	2	–
2992.595	Ni I	80 R	10	–
2992.59	O	–	[10 h]	Mh
2992.577	Ru	4	18	–
2992.521	Sm	4 d	–	Kn
2992.45	Cr	–	18	–
2992.438	Ne I	–	[150]	Ps
2992.420	Dy	3	–	–
2992.41	Fe	2 h	1 h	–
2992.39	Ta	2 h	1 h	–
2992.379	V	–	4	–
2992.372	Re I	100	–	–
2992.366	Ce	6	–	–
2992.3	Cd	–	[10]	Es
2992.268	Mo	1	15	–
2992.229	Ce	10	–	–
2992.21	K I	15 R	–	Fl
2992.169	W	7	4	–
2992 112	Os	20	8	–
2992.110	Mn	5	–	–
2992.089	Ru	2	40	–
2992.00	Hf	8	1	–
2991.97	Tb	10	5	m
2991.950	Cb	1	100	–
2991.94	W	5	–	–
2991.898	Ce	10	–	–
2991.886	Cr I	125 r	60	–
2991.870	Yb	4	20	–
2991.839	Re	2	–	–
2991.789	Ti I	2	–	–
2991.754	Cu	15	–	–
2991.743	Rh I	5	–	–
2991.735	V	–	5	–
2991.73	U	2	2	–
2991.73	Xe II	–	[3]	Hu
2991.715	Ce	10	–	–
2991.693	Th	10	8	–
2991.637	Fe	100	80	–
2991.621	Ru	50	100	–
2991.618	Dy	2	1 h	–
2991.570	Sm	12	10	–
2991.435	Cb	–	10	–
2991.41	Hg II	–	5	Nu
2991.406	Zr II	8	3	–
2991.400	Ce	2	–	–
2991.396	Ir I	6	–	–
2991.39	I	–	[20]	Bl
2991.364	Dy	2	1	–
2991.34	Eu	80	40	–
2991.248	U	3	–	–
2991.246	Ta	50	10	–
2991.145	V I	2	–	–
2991.095	Ni I	15	–	–
2991.095	Fe	1	–	–
2991.065	Th	15	10	–
2991.00	Sn II	–	[2 h]	Mc
2990.99	As I	10	18	Me
2990.989	Ti I	7	–	–
2990.988	U	2	2	–
2990.948	V I	50	5	–
2990.873	Ce	40	1	–
2990.850	W II	–	10	–
2990.811	Hf II	6	2	–
2990.78	Cs	–	[2]	Bs
2990.73	Te	–	[5]	Bl
2990.710	W	10 s	6	–
2990.617	Ir I	35	3	–
2990.582	U	3	2	–
2990.54	Xe II	–	[8]	Hu
2990.540	Tm	80	30	Me
2990.497	Ti I	6	–	–
2990.392	Fe	150	100	I
2990.391	Yt	3	–	–
2990.36	Yb	3	15	–
2990.291	Ru I	30	1	–
2990.28	Au II	–	50	–
2990.27	Ho	–	10	Ex
2990.258	Cb	5	200	–
2990.258	Eu	12	–	–
2990.210	U	4	–	–
2990.16	Ti II	–	80 Wh	–
2990.130	Zr II	2	4 h	–
2990.046	Ti I	7	–	–
2990.044	Cb	–	3	–
2990.00	Cl	–	[5]	An
2989.944	Cb	–	5 wh	–
2989.910	Ti I	2	–	–
2989.89	Mo	–	15	–
2989.877	U	8	6	–
2989.87	Ta	2 h	2 h	–
2989.801	Mo	25	3	–
2989.78	Tb	10	5	m
2989.748	V	2	5	–
2989.655	Ru I	30	2	–
2989.605	U	3	–	–
2989.595	V	8	40	–
2989.59	In	–	2	Cx
2989.588	Co I	75 R	30	–
2989 575	Ce	6	–	–
2989.55	Er	5 d	1	–
2989.526	Os	5	4	–
2989.502	W	–	4	–
2989.497	Ta	200	15	–
2989.395	U	5 r	2	–
2989.330	Ru	12	1	–
2989.313	Ce	4	–	–
2989.30	Ca	–	6	Ad
2989.300	V	1	20	–
2989.287	Er	18	1	–
2989 27	Lu	50	4	Me
2989.194	Cr	10	90	–
2989.127	Os	12	40	–
2989.11	U	2 d	1	–
2989.054	Ta	40 W	5 h	–
2989.029	Bi I	250 wh	100 wh	–
2989 019	Ce	2 h	–	–
2989 000	U	2	–	–
2988.98	Ca I	5	–	Cw
2988.979	Ir I	35	–	–
2988.97	Te	–	[10]	Bl
2988.952	Sc I, II	20 s	2 d	–
2988.948	Ru I	250	100	–
2988.940	Fe	2	1	–
2988 924	Sm	4	4 h	–
2988.885	W	6	12	–
2988.878	Ce	3	–	–
2988.845	Sm	6	5	–
2988.792	Cb	2	2	–
2988.77	Zr II	–	6 wh	–
2988.715	Dy	2	–	–
2988 71	U	5 d	4	–
2988.69	Kr II	–	[3 whl]	Me
2988.679	Mo	25	2	–
2988.649	Cr I	200 r	150	–
2988.60	Ca	–	7	–
2988.59	Tb	10	5	m
2988.581	Ta	40	20	–
2988.5	Li	–	15	An
2988.479	Re I	40	–	–
2988.474	Fe I	60	30	–
2988.45	F	–	[10 r]	Di
2988.42	U	2	1	–
2988.395	I	–	[15]	Ke
2988.36	Rh	2	2	–
2988.262	Os	8	1	–
2988 234	Th	15	20	–
2988.228	Mo	25	1	–
2988.195	Ir	3	–	–
2988.094	Ru	8	–	–
2988.053	Ni II	–	4	–
2988.021	V II	10	80	–
2987.99	Ga	–	6	Kl
2987.99	Si	–	[5]	Sy
2987.958	W	8	4	–
2987.95	U	2 d	2	–
2987.95	Tl II	–	[10]	El
2987.92	I	–	[12]	Bl
2987.920	Mo	25	30	–
2987.892	Dy	2	–	–
2987.802	U	5	2	–
2987.799	Zr II	3	10	–
2987.705	Ru	30	4	–
2987.651	Sm	5 h	–	–
2987.648	Si I	100	100	–
2987.646	Ir	5	1	–
2987.585	Co	2	–	–
2987.55	Cb	1 w	10 w	–
2987.543	Ce	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2987.518	U	4	–	–
2987.449	Rh I	40	20	–
2987.4	Rn	–	[20]	Pe
2987.351	Ce	8	–	–
2987.35	Mo	–	25	–
2987.292	Fe I	300	200	S
2987.289	Cb	5	4	–
2987.287	W II	8	15	–
2987.2	Cd	–	[25]	Es
2987.162	Co I	75 R	50	–
2987.06	U	2	1	–
2987.04	Tb	10	5	m
2986.989	Rh I	80	20	–
2986.950	Nd	3	2	–
2986.92	In	–	2	Cx
2986.920	Eu	25	–	–
2986.912	Mo	3	25	–
2986 9	Pb II	–	[20]	Ea
2986.89	Cs	–	[2]	Bs
2986.840	Cb	1	5 h	–
2986.82	Xe II	–	[8]	Hu
2986.807	Ta	20 d	100	–
2986.788	Th	12	5	–
2986.668	Ce	10	–	–
2986.653	Fe	15	–	–
2986.62	Be I	10	–	Ps
2986.616	Ir	3	–	Ab
2986.614	Fe II	–	30	–
2986.52	Tm	50	150	Me
2986.48	Br	–	[4]	Bl
2986.473	Cr I	125 r	125	–
2986.460	Fe I	100	60	–
2986.457	Be I	15	–	–
2986.42	W	–	10	–
2986.418	Ta	10	3	–
2986.40	Cb	–	5 wh	–
2986.335	Ru	20	25 wh	–
2986.311	Fe	3	–	–
2986.208	Ce	2 h	–	–
2986.202	Rh I	150	60	–
2986.182	W	6	2	–
2986.18	Xe	–	[5]	Hu
2986.173	Ir I	25	5 h	–
2986.162	Mo	4	50	–
2986.137	Cr I	6	8	–
2986.09	Be I	8	–	Ps
2986.051	Re	4	–	–
2986.001	Mn	20	–	–
2985.995	Cr I	25 r	15	–
2985.954	Cu	3	–	–
2985.93	Dy	4	2	Ed
2985.907	Ce	10	–	–
2985.9	K	–	[5]	Ml
2985.88	Yb	2	9	–
2985.87	W	6	12	–
2985.849	Cr I	25 r	15	–
2985.841	Mo	10	4	–
2985.823	Ru	20	–	–
2985.818	Ce	12	–	–
2985.800	Ir I	25	2	–
2985.795	U	2 s	2	–
2985.79	Br	–	[4]	Bl
2985.77	Pr	–	25	–
2985.75	La II	2	2	–
2985.74	Fe	3	2	–
2985.690	Ta	2 h	1	–
2985.659	W	6	3	–
2985.64	Ho	–	10	Ex
2985 614	Os	10	4	–
2985.550	Fe II	80	300	–
2985.477	Ti I	5	–	–
2985.47	Te	–	[15]	Bl
2985.455	Mo	6	–	–
2985.432	La II	2	3	–
2985.389	Zr I	50	3	–
2985.38	Tm	8	20	Me
2985.33	Nd	2	–	–
2985.33	Kr	–	[4 whl]	Me
2985.325	Cr	10	60	–
2985.308	Mo	–	8	–
2985.3	Cs	–	[2]	Bs
2985.249	Sm	5	–	–
2985.246	Th	15	12	–
2985.170	V	1	60	–
2985.162	Mo	15	8	–
2985.084	U	3	2	–
2985.079	Yb	5	30	–
2985.049	Cb	2 h	50	–
2985.032	Ce	3	–	–
2985.0	Rn	–	[3]	Pe
2984.993	Sm	7	1	–
2984.88	Mo	–	25	–
2984.866	Ce	3	–	–
2984.830	Fe I, II	200 r	400	–
2984.826	Cr	12	–	–
2984.81	Yb	–	5	–
2984.762	Re	3	–	–
2984.713	Ce	4	–	–
2984.656	Ir	2 h	–	–
2984.613	U	12	8	–
2984.575	Fe	2	–	–
2984.560	Ce	20	–	–
2984.430	Na II	20	[80]	–
2984.363	Hf II	–	2	–
2984.355	Ta	30	10	–
2984.336	La II	2	2	–
2984.290	Os	5	5	–
2984.256	Yt I	12	10	–
2984.143	W	10	8	–
2984.133	Co	4	–	–
2984.131	Ni I	50 R	10	–
2984.106	Ce	2	–	–
2984.05	Hf	20	5	–
2984.050	U	3	2	–
2984.026	Cr	15	4	–
2983.99	In	–	2	Sq
2983.988	Mo	–	25	–
2983.98	Yb	10	70	–
2983.94	Kr II	–	[2 whl]	Me
2983.918	Ce	6	–	–
2983.91	Cs	–	[2]	Bs
2983.818	Th	10	10	–
2983.809	Mo	20 r	–	–
2983.793	Er	9	1	–
2983.756	U	2	2	–
2983.747	Pt I	6	–	–
2983.69	Yb	2	8	–
2983.626	Mo	1	25	–
2983.574	Cb	5	15 wh	–
2983.572	Fe I	1000 R	400 r	–
2983.546	V	10	60	–
2983.51	U	2	2	–
2983.45	La II	–	2	–
2983.438	Sm	8	4	–
2983.422	Ni I	10	–	–
2983.343	I	–	[20]	Ke
2983.306	Ti I	25	10	–
2983.3	Rn	–	[3]	Pe
2983.24	Te	–	[10]	Bl
2983 223	Er	12	1	–
2983.141	Cb	2	2	–
2983.13	Tm	10	4	Me
2983.085	Rh I	35	–	–
2983.058	Er	9	1	–
2983.045	Mo	10	1	–
2983.020	Th	10	6	–
2983.016	V	2	10	–
2982.98	Tb	–	10	Ex
2982.966	Ce	4	–	–
2982.91	Cb	–	5 h	–
2982.902	Os	40	10	–
2982 894	Sm	4	–	–
2982.89	Ca I	2	2	Fl
2982 87	In	–	30	–
2982.83	W	7 l	4	–
2982.78	Cl II	–	[18]	Ks
2982.78	Mo	–	10	–
2982.765	Cu I	6	–	–
2982.748	V	4	50	–
2982.740	U	12	12	–
2982.721	Hf	30	1	–
2982.663	Ne I	–	[250]	Ps
2982.65	Yb	1	4	–
2982.609	W	10	9	–
2982.603	Ir I	5	–	–
2982.557	Os	10	6	–
2982.541	Ce	3	–	–
2982.5	Cs	–	[2]	Bs
2982.49	Yb	3	15	–
2982 46	Hg II	–	[15]	Ps
2982.45	Mo	–	10	–
2982.414	Ir I	15	–	–
2982.398	Rh	2	–	–
2982.263	Co I	9	–	–
2982.235	U	4	4	–
2982.232	Fe II	5	10	–
2982.23	Yt II	3	4	–
2982.23	Xe	–	[2]	Hu
2982.215	W II	3	12	–
2982.183	Re	30 W	–	–
2982.173	V I	2	–	–
2982.134	Mo	20	–	–
2982.125	Os	8	4	–
2982.11	Au II	–	15	–
2982.106	Cb	10 w	80	–
2982.062	Fe II	–	90	–
2982.048	Th	150	5	–
2982.03	Cs	–	[2]	Bs
2981.960	Ta	15	3	–
2981.935	Ru	60	3	–
2981.930	V	–	40	–
2981.905	Ce	15	–	–
2981.89	Cd I	50	[10]	Fl
2981.854	Fe I	100	50	–
2981.850	Th	8	3	–
2981 809	U	3	2	–
2981.80	Br	–	[3]	Bl
2981.74	Hg II	–	2	Nu
2981.651	Ni I	80 r	20	–
2981.643	Cb	3	4	–
2981.629	W	7	6	–
2981.53	B II	–	2	Sy
2981.497	Th	8	5	–
2981.49	Tm	60	100	Me
2981.448	Ti I	20	8	–
2981.446	Fe I	300	200	S
2981.395	Ce	2	–	–
2981.362	Th	5	5	–
2981.34	Cd I	200 R	[40]	Fl
2981.325	Sm	10	–	–
2981.202	V	4	60	–
2981.190	Ta	15	5	–
2981.116	Rh I	5	–	–
2981.110	W	6	3	–
2981.040	U	2	2	–
2981.016	Zr II	10	10	–
2981.012	Re	15 h	–	–
2980.962	Sb	–	[125 hd]	Lg
2980.958	Fe II	–	10	–
2980.958	Ru	10	50	–
2980.922	Ne I	–	[50]	Ps
2980.831	Re	40	–	–
2980.810	Hf	50	10	–
2980.791	Cr I	75 r	50	–
2980.790	Ta	10	2	–
2980.752	Sc I	20	9	–
2980.717	Cb	3	50	–
2980.69	Yt II	2	10 h	–
2980 69	U	6	2	–
2980.655	Pd II	–	200 R	–
2980.649	Ir I	15 h	10	–
2980.642	Ne I	–	[40]	Ps
2980.628	Cd I	1000 R	500	–
2980.614	Na II	–	12	–
2980.61	Hg II	–	[3]	Ps
2980.6	P II	–	[5 h]	Gu
2980.539	Fe	100	70	–
2980.538	Yt	8	30	–
2980.52	Pr	–	25	–
2980.409	Ce	10	–	–
2980.344	U	4	4	–
2980.338	Th	15	10	–
2980.308	Ta	2	–	–
2980.296	Ti I	2	–	–
2980.285	U	4	2	–
2980.222	Ir I	3	–	Ab
2980.21	Hf II	5	1	–
2980.160	Gd	25	25	–
2980.160	Pb	2	–	–
2980.02	Te	–	[15]	Bl
2979.959	Ru	60	80	–
2979.950	Er	10	–	–
2979.875	Cb	2	30	–
2979.873	Mo	3	20	–
2979.87	Fe	4	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2979.858	W	10	10	–
2979.85	Yb	1	4	–
2979.81	Kr II	–	[20]	Me
2979 806	Pt	1	8	Sh
2979.806	Ne I	–	[50]	Ps
2979.741	Cr	10	60	–
2979.721	W	6	6	–
2979.72	Ru	30	40	–
2979.704	Mo	4	–	–
2979.683	Sc II	2 h	10	–
2979.680	Eu	3	–	–
2979.67	Yb	–	2	–
2979.662	Na II	35	[40]	Fr
2979.658	Dy	2	–	–
2979.63	Ho	20	40	Ex
2979.58	In	–	10	Cx
2979.44	Tm	3	10	Me
2979.432	Os	12	6	–
2979.367	Cu I	9	–	IBu
2979.356	Ce	2	–	–
2979.352	Fe II	20	100	–
2979.32	Xe II	–	[200]	Hu
2979.28	Mo	3	–	–
2979.280	Hf	18	1	–
2979.199	Ti II	–	100 wh	–
2979.19	U	4	2	–
2979.184	Zr II	10	10	–
2979.183	Pt II	1	2	–
2979.17	W	–	5	–
2979.107	V	–	35	–
2979.095	Fe II	–	30	–
2979.08	Eu	2 w	–	–
2979.06	I	–	[12]	Bl
2979.05	A II	–	[40]	Rt
2979.050	Na	–	[5]	Fr
2978.943	Cb	1	50	–
2978 936	V I	10	–	Me
2978.90	Yb	–	3	–
2978.87	Kr II	–	[25]	Me
2978.848	Fe II	–	7	–
2978.810	Ce	6	–	–
2978.754	Ta	200 r	30	–
2978.641	Ru	50	150	–
2978.64	Th	1	100 h	–
2978.640	W	4	1	–
2978 609	Mo	2	20	–
2978.563	Mn	12	–	–
2978.56	Cl	–	[6]	An
2978.528	Os	10	8	–
2978.43	Tm	30	10	Me
2978.426	Ir	3	5	–
2978.380	W	–	10	–
2978.380	Ru	6	–	–
2978.285	Mo	30	2	–
2978.274	Cu I	10	1 h	IBu
2978.232	V	–	40	–
2978.208	Os	20	5	–
2978.18	Yt II	3	10 h	–
2978.180	Ta	–	150 l	–
2978.159	Re	40	–	–
2978.140	U	10	6	–
2978.124	I	–	[15]	Ke
2978.121	Mn	10 h	–	–
2978.054	Zr II	12	12	–
2978.05	Fe	8	3	–
2978.014	Co I	30	–	–
2977.96	Nd	–	5	–
2977.946	W	–	12	–
2977.941	Ce	5	–	–
2977.94	Te	–	[30]	Bl
2977.935	Ir I	8	–	–
2977.93	Tl I	5 s	–	Fl
2977.90	Xe	–	[5 wh]	Hu
2977.827	U	2	2	–
2977.80	Ti	–	50 wh	–
2977.769	Ce	10	–	–
2977.765	Mo	1	25	–
2977.76	Tb	10	10	m
2977.681	Ir	8	–	–
2977.681	Cb	1	300	–
2977.679	Rh I	125	30	–
2977.678	W	6	–	–
2977.637	Os	30	12	–
2977.6	P	–	[5 h]	Gu
2977.595	Hf II	30	25	–
2977.548	Ce	8	–	–
2977.542	Ta	20	1	–
2977.539	V I	50	6	–
2977.52	Yb	–	4	–
2977.482	Ru	30	60	–
2977.47	U	3	2	–
2977.461	Ce	10	–	–
2977.435	W II	–	3	–
2977.426	Dy	2	–	–
2977.306	Re	20	–	–
2977.270	Mo	15	1	–
2977.266	U	10	10	–
2977.258	Cs II	–	[2]	Ot
2977.227	Ru	50	80	–
2977.213	W	10	6	–
2977.132	Na II	3	[12]	Fr
2977.119	Hf	–	3	–
2977.099	W	10	7	–
2977.072	Sm	12	4	–
2976.975	Pr	–	20	–
2976.925	Ru	60	5	–
2976.923	Mo	–	20	–
2976.905	Ce	8	–	–
2976.83	La II	–	3	–
2976.81	Cs	–	[2]	Bs
2976.794	W	10 s	6	–
2976.765	Ta	3 h	40	–
2976.727	Ir I	6	–	–
2976.718	Cr	1	12	–
2976.649	Th	10	5	–
2976.613	Zr II	5	8	–
2976.586	Ru	60	200	–
2976.55	Fe I	15	10	–
2976.520	V I	35	2	–
2976.512	Sm	4	3	–
2976.474	W II	10	12	–
2976.445	Ir	3	5	–
2976.42	Si	–	[2]	Sy
2976 39	Xe	–	[4]	Hu
2976.315	Ti I	8	2	–
2976.308	U	12	8	–
2976.3	Rn	–	[3]	Pe
2976.292	Re I	50 w	–	–
2976.28	Kr II	–	[3 h]	Me
2976 26	Ta	2 wh	150	–
2976.197	V	6	50	–
2976.131	Fe	100	60	–
2976.100	Ta	40 l	5 h	–
2976.020	Th	15	10	–
2975 939	Ce	20	–	–
2975.936	Fe II	3	40	–
2975 92	Kr II	–	[3 h]	Me
2975 91	Te	–	[100]	Bl
2975 882	Hf II	80	100	–
2975 876	U	4	4	–
2975.82	Dy	2	–	–
2975.70	Br	–	[3]	Bl
2975.679	Er	5	2	–
2975 652	V	4	50	–
2975.65	Cs	–	[2]	Bs
2975 639	U	6	4	–
2975.614	Mo	–	20	–
2975.59	Eu	2	–	–
2975.56	Yb	–	2	–
2975.558	Ta	200	50	–
2975.518	Ne I	–	[35]	Ps
2975.483	Cr I	100 r	50	–
2975.464	Co I	4	–	–
2975.404	Mo	3	30	–
2975.343	Os	15	8	–
2975 249	Re	20	–	–
2975.221	U	8	6	–
2975.19	Hg	–	[50]	Ps
2975.13	Cs	–	[2]	Bs
2975.08	W	–	10	–
2975 056	V I	15	2	–
2975.026	Re I	15	–	–
2974.991	Na II	15	[60]	Fr
2974.947	Ir I	25	10	–
2974.934	Ti I	15	5	–
2974.921	Sm	6	–	–
2974.909	U	5	4	–
2974.86	Xe II	–	[20 whl]	Hu
2974.859	Ru	–	5	–
2974.79	Eu	3	–	–
2974.778	Fe	10	6	–
2974.77	Ga II	–	[8]	Sy
2974.725	Cb	–	10	–
2974.714	Ne I	–	[250]	Ps
2974 702	Ir	3	–	–
2974.605	Ce	2	–	–
2974.593	Yt I	12	10	–
2974.555	Cb	2	1	–
2974.540	Ir I	4	–	–
2974.482	Ce	3	–	–
2974.48	Er	4	1	–
2974.463	U	3	2	–
2974.394	W II	8	12	–
2974 335	Ru I	30	2	–
2974.29	Tm	10	30	Me
2974 236	Na II	–	[5]	Fr
2974.224	V I	15	–	–
2974.12	Hg II	–	[10]	Ps
2974.105	Mn	15	–	–
2974.101	Ir I	10	5	–
2974.098	Cb	5	200	–
2974.09	Hf II	3	6	Me
2974 081	U	2	2	–
2974.04	Kr II	–	[25 h]	Me
2974.03	Yt II	5	12	–
2974 030	Rh I	10	–	–
2974.025	W	6	4	–
2974 018	Ce	3	–	–
2974 013	Th	10	10	–
2974.006	Sc I	15	8	–
2974.002	Mo	1	5	–
2973.991	Ru	50	5	–
2973 969	V	–	40	–
2973 826	Ru	–	25	–
2973.743	Er	3	–	–
2973.69	Te	–	[50]	Bl
2973.55	I	–	[20]	Bl
2973.536	Th	5	10	–
2973.45	Br	–	[5]	Bl
2973.436	Ce	8	–	–
2973.39	Tm	15	40	Me
2973.373	Hf	15	15	–
2973.31	Cb	–	5	–
2973.263	U	4	2	–
2973.237	Fe I	500 R	400 R	–
2973.23	Tm	15	–	Me
2973.186	Ce	2	–	–
2973.18	Dy	4	–	–
2973.134	Fe I	500 R	400 R	–
2973 08	U	4	2	–
2973.00	Pb	2	–	Kl
2973.00	Ho	20	–	Ex
2972.961	Mo	20	1	–
2972.915	W	4	2	–
2972.89	Ca	–	5	–
2972.8	Cs	–	[2]	Bs
2972.614	Mo	20	50	–
2972.612	U	5	4	–
2972.60	Cl	–	[2]	Bl
2972.60	Se	–	[10]	Bl
2972.582	Ce	5 h	–	–
2972.572	Cb	40	100	–
2972.48	Yb	–	3	–
2972.465	Ru	12	35	–
2972.34	Kr II	–	[2 h]	Me
2972.31	Xe II	–	[5]	Hu
2972.279	Fe I	100	40	–
2972.279	Er	5 l	–	–
2972.254	V	2	50	–
2972.251	Os	12	8	–
2972.224	Th	4	3	–
2972.22	Br	–	[25]	Bl
2972.22	Ba	–	2	Py
2972.103	U	3	–	–
2972.004	V	–	8	–
2971.955	Ta	3	5	–
2971.906	Mo	2	40	–
2971.906	Cr	8	30 Wh	–
2971.840	Ce	2 h	–	–
2971.822	U	2	–	–
2971.80	Kr II	–	[4 h]	Me
2971.771	Ru	10	15	–
2971.76	Fe	5	2	–
2971.70	Mg II	10	–	Fl
2971.673	W	10	8	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2971.629	U	2	1	–
2971.60	Ga II	–	[5]	Sy
2971.571	V	–	10	–
2971.5	Rn	–	[3]	Wo
2971.482	Th	10	10 w	–
2971.46	Se	–	[10]	Bl
2971.39	Ir	–	15 h	–
2971.260	Er	4 d	–	–
2971.202	W	3	–	–
2971.2	Cd	–	[10]	Es
2971.196	Ce	3	–	–
2971.145	Mo	–	3	–
2971.112	Cr I	80 r	15	–
2971.082	Ir I	10	–	–
2971.064	U	12	12	–
2971.01	Ga II	–	[2]	Sy
2970.972	Os	40	10	–
2970.967	Mn	3	–	–
2970.922	Sm	15	–	–
2970.91	W II	2	10 l	Ln
2970.88	Nd	–	5	–
2970.86	I	–	[12]	Bl
2970.851	Cs II	–	[2]	Ot
2970.83	Yb	2	20	–
2970.80	Rb	–	[40]	Ok
2970.782	U	2 h	2	–
2970.73	Cl	–	[5]	An
2970.725	Na II	1	[2]	Fr
2970.689	Os	8	5	–
2970.684	Fe II	–	10	–
2970.656	Ru	–	18	–
2970.65	Tb	5	3 h	m
2970.57	Hf	–	3 h	–
2970.564	Yb	150	150	–
2970.556	Ti I	10	4	–
2970.513	Fe II	30	100	–
2970.484	U	2	2	–
2970.483	Sm	6	–	Kn
2970.468	Cb	1	5	–
2970.421	V	–	8	–
2970.394	Cb	–	5	–
2970.384	Ti I	30	8	–
2970.36	Eu	2	–	–
2970.35	W	–	8 d	–
2970.347	Si I	20	20	–
2970.316	Ce	10	–	–
2970.105	Fe I	400	200	–
2970.07	Er	2	–	–
2970.03	Nd	–	5 W	–
2970.027	I	–	[20]	Ke
2969.955	Sm	10 d	10	–
2969.934	Fe II	–	15	–
2969.922	Ce	3	–	–
2969.902	Ta	50 h	10 h	–
2969.842	V II	–	8	–
2969.835	Th	2 h	–	–
2969.82	Lu	30	100	Me
2969.80	Xe	–	[6]	Hu
2969.736	Mo	–	5	–
2969.73	U	2	2	–
2969.628	Zr II	10	15	–
2969 624	W	10	10	–
2969.50	Tm	20	4	Me
2969.477	Fe I	60	60	–
2969.473	Ir I	10	–	–
2969.470	Ta	150	80	–
2969.41	Ga II	–	[5]	Sy
2969.39	Mo	–	15	–
2969.364	Ti I	3	1	–
2969.362	Fe I	80	80	–
2969.334	Dy	2	–	–
2969.23	Xe	–	[2]	Hu
2969.22	U	2	2	–
2969.189	Zr I	10	–	–
2969.069	Th	2	–	–
2969.02	Mg II	6	–	Fl
2969.020	Sm	12	2	–
2969.0	Cs	–	[8]	Bs
2968.997	Cr I	3	–	–
2968.981	V I	6	–	Me
2968.973	Re	20	–	–
2968.961	Zr II	15	30	–
2968.954	Ir I	12	5	–
2968.954	Ru I	60	6	–
2968.946	Hf II	12	6 h	–
2968.87	Tb	10	3	Ex
2968.822	U	2	2	–
2968.812	Hf II	30	30	–
2968 80	Pr	3	8	–
2968.780	W	6	–	–
2968.774	Mo	–	30	–
2968.761	Er	12	2	–
2968.732	Fe II	–	2	–
2968.691	Ce	8	–	–
2968.685	Th	6	3	–
2968.663	Rh I	125	30	–
2968.562	U	4	2	–
2968.487	Ir I	12	2 h	–
2968.482	Ru	15	–	–
2968.481	Fe	30	20	–
2968.446	Os	5	5	–
2968.401	U	6	6	–
2968.383	Cs II	–	[2]	Ot
2968.378	V	10	20 h	–
2968.362	Ce	3	–	–
2968.36	W	4 d	–	–
2968.3	Bi II	–	3	Cf
2968.292	Cb	1 d	5	–
2968.288	V I	10	–	–
2968.231	Ti I	12	2	–
2968.207	Ir I	12	5 h	–
2968.20	W	6	4 d	–
2968.177	Cr I	5 h	–	–
2968.16	Rb	–	[20]	Ok
2968.11	Kr	–	[2]	Me
2968.051	Re I	40	–	–
2968.036	V	–	5	–
2967.994	Ru	–	40	–
2967.938	Er	5	1	–
2967.927	W II	2	10	–
2967.91	C II	–	6	Fl
2967.894	U	15	20	–
2967.87	Mg II	10	–	Fl
2967.866	Ce	2	–	–
2967.76	Tm	10	30	Me
2967.642	Cr I	60 r	30	–
2967.592	Hg I	10	–	–
2967.552	W	8	7	–
2967.546	V	1	12	–
2967.517	Hg I	5	–	–
2967.51	Rb	–	[40]	Ok
2967.341	Ru	30	1	–
2967.315	Ce	2	–	–
2967.31	C	–	6	Fl
2967.278	Hg	100 w	100	Cn
2967 25	Kr II	–	[80 wh]	Me
2967.250	Re	15	–	–
2967.239	Ir I	10	–	–
2967.231	Hf II	20	25	–
2967.23	Br	–	[20]	Bl
2967.225	Ti I	35	8	–
2967 21	Te	–	[300]	Bl
2967 20	Ne II	–	[8]	Bl
2967.108	Ce	8	–	–
2967.069	W	8	8	–
2967 004	Ir	6	–	–
2967.00	Mo	–	15	–
2966.929	Hf	25	4	–
2966.9	K	–	[2]	Ml
2966.900	Fe I	1000 R	600 r	–
2966.900	Co	30	–	–
2966.88	C II	–	2	En
2966.798	Ce	3	–	–
2966.75	Yb	–	15	–
2966.697	Mo	2	5	–
2966.661	U	6	8	–
2966.573	W	10	8	–
2966.57	La II	2	4	–
2966.559	Ru	12	–	–
2966.52	Eu	2 h	–	–
2966.514	Pb	2	–	–
2966.396	Ru	3	25	–
2966 390	Ti I	3	–	–
2966.388	U	3	4	–
2966.24	Fe I	4	4	–
2966.22	Sb	–	2	Sp
2966 201	In II	–	[20]	Ps
2966.20	W	2	7	–
2966.185	Er	4	1	–
2966 147	In II	–	[5]	Ps
2966.13	Kr	–	[3 whs]	Me
2966.127	Ir I	10	–	–
2966.123	Ce	3	–	–
2966.12	U	15	25	–
2966.051	Cr	2	70	–
2966.05	La II	1 h	2	–
2965.920	Ta	30	80	–
2965.871	Cb	–	3 h	Me
2965.87	Tm	50	100	Me
2965.860	W	6	4	–
2965.837	Ce	6	–	–
2965 811	Fe	25	15	–
2965.785	U	4	4	–
2965.758	Re I	150 w	–	–
2965.750	Na II	–	[5]	Fr
2965.711	Ru	20	–	–
2965.707	Ti I	15	5	–
2965.70	Nd	–	5	–
2965.68	Ti I	7	2	–
2965 64	Cb	–	5 h	–
2965 546	Ru	60	200	–
2965 545	Ta	150	50	–
2965.501	Th	8	6	–
2965.50	Cl	–	[10]	Jv
2965.480	Cb	5	2	–
2965.420	Gd	3	3	–
2965 4	Cs	–	[2]	Bs
2965.377	U	3	2	–
2965 32	Tb	10	–	Ed
2965.270	Mo	8	40	–
2965.269	Ce	15	–	–
2965.255	Fe I	400	150	S
2965 231	Ti I	25	7	Bh
2965.22	Er	4	–	–
2965 202	Ir I	25 h	5	–
2965 20	Ta	–	10	–
2965.19	Mg II	6	–	Fl
2965.162	Ru I	80	20	–
2965.161	Rh	8	–	–
2965.16	Yb	–	4	–
2965 135	Ce	8	–	–
2965 133	Ta	40	800	–
2965.125	Re I	100	–	–
2965.11	Kr II	–	[2]	Me
2965 1	Cd	–	[5]	Es
2965 037	Fe II	4	50	–
2965.034	U	8	12	–
2965.0	Cs	–	[8]	Bs
2964.968	Yt I	6	5	–
2964 958	Mo	5	10	–
2964 93	Eu	2 d	–	–
2964 924	Th	8	6	–
2964.876	Hf	50	10	–
2964 811	Ta	3 w	3 h	–
2964.801	Ce	25 s	–	–
2964.76	Tb	10	3	m
2964.76	Pr	10	10	–
2964.75	Yb	15	25	–
2964.7	Cd	–	[5]	Es
2964.630	Fe II	8	150	–
2964.629	Ir	2 h	–	–
2964.62	Dy	2	–	–
2964.615	Os	8	5	–
2964 563	Zr II	2	2	–
2964.526	Ce	2	–	–
2964.518	Er	20	4	–
2964 515	W	12	10	–
2964.48	Ho	–	10 h	Ex
2964.40	Yb	1	2 h	–
2964.344	Mo	1	6	–
2964.309	Ru	8	–	–
2964.3	Cd	–	[10]	Es
2964.254	Er	3	1	–
2964.247	U	6	15	–
2964.22	Fe	3	–	–
2964.19	Xe	–	[6]	Hu
2964.133	Fe II	–	7	–
2964 113	Th	5	4	–
2964.099	Ir	–	4	–
2964.062	Os	25	13	–
2963.996	Ce	2	–	–
2963.98	Tb	10	3 h	m
2963.91	Se II	–	[25]	Bl
2963.910	Ta	50	10	–
2963.909	U	5	–	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
2963.901	Er	5	1	–
2963.876	Ce	3	–	–
2963.86	W	–	10	–
2963.806	V I	10	7	–
2963.794	Mo	10	40	–
2963.779	W	4	–	–
2963.74	Au	–	10	–
2963.715	Ru I	60	5	–
2963.71	Fe	2 h	1 h	–
2963.706	Er	6	1	–
2963.683	Cb	2	3	–
2963.610	Mn	20	–	–
2963.609	Th	6	4	–
2963.604	U	5	6	–
2963.56	Fe	2	1	–
2963.560	Nd	30	–	–
2963.536	Rh	15	5	–
2963.469	Cr	–	18	–
2963.43	Yb	2	20	–
2963.427	W	5	1	–
2963.41	Xe II	–	[30]	Hu
2963.402	Ru	60	150	–
2963.4	Bi II	–	4	Cf
2963.37	Nd	–	5	–
2963.322	Ta	300	100	–
2963.32	Lu	50	150	Me
2963.29	Ne II	–	[4]	Bl
2963.259	Mn	12	–	–
2963.249	V	–	20	–
2963 24	K I	8 R	–	Fl
2963.16	Yb	–	10	–
2963.11	Kr	–	[2]	Me
2963.056	Ta	40	10	–
2962.994	Ir I	25	5	–
2962.910	La II	2	15	–
2962.887	Mo	8	5	–
2962.870	Re	20	–	–
2962.865	Nd	20	2	–
2962.8	Cs	–	[2]	Bs
2962.80	Tb	10	3 h	m
2962.783	U	6	6	–
2962.772	V I	60	60 r	–
2962.744	Sm	7	5	–
2962.683	Zr II	15	20	–
2962.59	Fe	2	1	–
2962.517	Yb	3	15	–
2962.51	W II	–	10	Ln
2962.502	Er	8	2	–
2962.455	Ir I	10	–	–
2962.4	Cs	–	[2]	Bs
2962.395	Cr	8	–	–
2962.372	Dy	2	1	–
2962.341	Ba	–	3 h	Sz
2962.334	Er	3	–	–
2962.327	Os	20	8	–
2962.269	Re	25	–	–
2962.212	Mo	–	20	–
2962.207	U	6	4	–
2962.148	Os	30	15	–
2962.12	Fe I	8	4	–
2962.091	Ru	2	20 wh	–
2962.032	Sm	3	–	Kn
2962.014	V II	1	10	–
2961.967	Sm	5	–	–
2961.849	Sm	4	–	–
2961.797	Hf I	20	30	–
2961.79	Yb	–	3	–
2961.77	Ca	1 h	3	Ad
2961.757	Re I	30 w	–	–
2961.732	Cr	10	60	–
2961.708	W	6	10	–
2961.69	Rh	2	–	–
2961.689	Ru	60	3	–
2961.676	Mn	1	2	–
2961.628	Cb	1	10	–
2961.58	Dy	2	–	–
2961.529	Ru	5	50	–
2961.5	Bi II	–	[2 h]	Ml
2961.49	Th	–	12 wh	–
2961.472	Ir	12	–	–
2961.47	Cd I	20	15	m
2961.463	Ti I	5	–	–
2961.45	Nd	–	5	–
2961.41	Tm	5	10	Me
2961.379	Ta	2	1	–
2961.367	Ce	3	–	–
2961.324	Sm	4	–	–
2961.320	Mo	4	30	–
2961.281	Fe II	3	40	–
2961.179	U	8	10	–
2961.165	Cu I	350	300	IBu
2961.124	V I	12	–	–
2961.07	Br	–	[5]	Bl
2961.05	Kr II	–	[4]	Me
2961.036	Mo	–	10	–
2961.019	W	6	12	–
2961.012	Os	40	10	–
2960.975	Ru	30	1 h	–
2960.942	U	15	25	–
2960.893	Gd	2	2	–
2960.886	Ir I	20	5	–
2960.870	Zr I	15	–	–
2960 84	Yb	1	5	–
2960.83	Cd II	–	[5]	Vs
2960.823	Hf II	18	20	–
2960.812	Sm	4	–	–
2960.784	V II	–	15	–
2960.78	Kr II	–	[5]	Me
2960.751	Pt	25	4	–
2960.66	Fe	6	3	–
2960.640	Ce	6	–	–
2960.58	Tb	10	3	Ex
2960.555	Fe	10	5	–
2960 438	Ce	10	–	–
2960.299	Fe	60	30	–
2960.29	Nd	–	5	–
2960.27	A	–	[20]	Rt
2960.241	Mo	3	15	–
2960.23	Eu	150 W	–	–
2960.228	Ru	5	–	–
2960.177	Sm	8	5	–
2960.14	Kr II	–	[40 wh]	Me
2960.140	W	10	3	–
2960.120	Er	5	1	–
2960.112	Na II	1	[2]	Fr
2959.998	Ba	–	3 wh	–
2959.993	Ti I	18	2	–
2959.992	Fe	150	80	–
2959.92	W	–	10	–
2959.850	U	8	12	–
2959.850	La II	4	5	–
2959.835	Fe	–	2	–
2959.804	Mo	8	1	–
2959.736	Ru I	12	2 h	–
2959.72	In	–	2	Sq
2959.708	Ti I	15	–	–
2959.70	As	–	75	Ro
2959.682	Fe	150	10	–
2959.65	Tm	20	60	Me
2959.646	Rh I	5	–	–
2959.599	Fe II	–	60	–
2959.550	Cr II	–	18	–
2959.5	Li	–	2	An
2959.479	Eu	30	–	–
2959.476	Mo	5	2	–
2959.446	Ir I	5	–	–
2959.43	Te	–	[25]	Bl
2959.34	Fe	60	25	–
2959.163	Hf II	–	2	–
2959.123	U	2	4	–
2959.105	Ce	15	–	–
2959.095	Pt I	20	3	–
2958.99	Ti II	–	150 wh	–
2958.987	Sm	4	3	–
2958.97	Eu	7	–	–
2958.906	Re	8	–	–
2958.89	Eu	5 l	–	–
2958.89	Er	6	1 h	–
2958.838	W	6	2	–
2958.73	Mo	–	10	–
2958.723	W	6	2	–
2958.598	V	1	40	–
2958.491	Pt II	1 h	3 h	Sh
2958.44	Fe	3	2	–
2958.364	I	–	[25]	Ke
2958.35	Kr II	–	[20 wh]	Me
2958.341	Os	8	4	–
2958.284	Ti II	–	6 wh	–
2958 142	Th	8	6	–
2958 12	Ta	2	–	–
2958.102	U	4	2	–
2958.038	Ce	3	–	–
2958.018	Hf	30	5	–
2958.000	Ru I	60	5	–
2957.922	Th	8	8	–
2957.922	W	7	7	–
2957.883	Re	2	–	–
2957.844	U	4	2	–
2957.841	Ce	2	–	–
2957.83	S	–	[8]	Bl
2957.792	Ce	3	–	–
2957.762	Dy	3	–	–
2957.749	Mo	3	1	–
2957.745	U	4	2	–
2957.675	Co	50	1	–
2957.66	I II	–	[10 d]	Mu
2957.633	Fe	2	2	–
2957.63	Yb	–	3	–
2957.598	Ta	100	30	–
2957.590	Th	10	8	–
2957.56	Cr I	10 h	1 h	–
2957.56	A	–	[5]	Rt
2957.518	V I	20	125 r	–
2957.491	Fe	4	3	–
2957.49	I II	–	[30]	Bl
2957.483	Sm	5	–	–
2957.381	Yt II	–	8	–
2957.365	Fe I	300	300	S
2957.364	Ir I	20	–	–
2957.33	V I	10	–	–
2957.293	Ne I	–	[8]	Ps
2957 26	W	–	10	–
2957.229	U	5	2	–
2957.165	Ce	3	–	–
2957.149	V I	7 h	–	–
2957.084	Os	10	6	–
2957.05	Tm	3	20	Me
2957.012	In I	50	25	Uh
2956 971	Mn	12	1	–
2956.955	Er	6	1	–
2956.902	Mo	1	30	–
2956.890	Cb	1	15	–
2956.859	Fe	5	4	–
2956.84	Ta	1 h	100 l	–
2956.824	W	4	2	–
2956.797	Ti I	35	8	–
2956.780	U	6	6	–
2956.707	Ce	15	–	–
2956.70	Fe I	25 h	8 h	–
2956.667	W	8	10	–
2956.655	V	–	7	–
2956.603	Cr	–	18	–
2956.561	Ir	3	5	–
2956.55	A	–	[10]	Rt
2956.50	Te	–	[15]	Bl
2956.495	Pd II	–	6 h	–
2956.448	Er	5	1 h	–
2956.438	U	2	2	–
2956.330	Cr	18	1	–
2956.30	Kr II	–	[3 h]	Me
2956.245	Sm	7	2	–
2956.21	Tb	10	40	Ed
2956.152	Ru	5	–	–
2956.131	Ti I	125	25	–
2956.12	Rb	–	[70]	Ok
2956.102	Mn	20	1	–
2956.060	U	10	60	–
2956.055	Mo	10	25	–
2956.046	Sm	6	–	–
2956.04	Yt II	7	15 h	Me
2955.941	Ce	25	–	–
2955.849	Th	6	4	–
2955.842	Ru	15	–	–
2955.838	Mo	2	30	–
2955.807	Ce	5	–	–
2955.8	K	–	[2]	Ml
2955.799	V I	20	2	–
2955.783	Zr II	10	30	–
2955.78	Lu	2	60 hl	Me
2955.73	Ne II	–	[40]	Bn
2955.648	U	12	10	–
2955.605	Th	6	4	–
2955.604	Ru	12	–	–
2955.603	Ce	18	–	–
2955.60	Gd	2	25	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2955.584	V	1	60	–
2955.55	Te	–	[10]	Bl
2955.52	Zr II	1	3 wh	–
2955.446	Cb	2 h	2	–
2955.412	Rh I	20	–	–
2955.412	Ce	4	–	–
2955.39	A II	–	[40]	Rt
2955.386	Co	30	–	–
2955.359	Ru	50	1	–
2955.31	Yb	3	9	–
2955.284	Rh	6	–	–
2955.28	Pd II	–	5	Sh
2955.156	Mo	1	25	–
2955.13	Hg II	–	[100]	Ps
2955.100	Ce	2	–	–
2955.087	U	5	4	–
2955.06	Tm	4	10	Me
2955.038	Th	6	5 h	–
2955.000	Os	8	5	–
2954.98	W II	2	8	–
2954.934	Sm	5 s	3	–
2954.904	W	10	8	–
2954.889	Th	6	4	–
2954.82	Te	–	[10]	Bl
2954.78	Xe	–	[2 wh]	Hu
2954.779	Ir	–	5 h	–
2954.766	U	10	15	–
2954.76	Ti II	–	150 wh	–
2954.74	Co	2	100	–
2954.7	Bi II	–	[2]	Cf
2954 655	Fe	100	70	–
2954 616	Re	10	–	–
2954 583	Ti	2	–	–
2954.531	Cb	2	5	–
2954.514	Mo	–	3	–
2954.486	Ru I	100	20	–
2954.409	Ce	2	–	–
2954 394	Pd II	–	60 h	–
2954 39	Au	–	50	–
2954.39	I	–	[12]	Bl
2954 39	U	12	15	–
2954 346	Fe	2	2	–
2954.344	Re	25	–	–
2954.332	V I	30	20	–
2954.28	Kr II	–	[12 h]	Me
2954.205	Hf	15	10	–
2954.170	Mo	3	–	–
2954.098	Ru	6	20	–
2954 050	Fe II	–	3	Do
2954.022	Cb	1	5	–
2953.947	Mo	1	20	–
2953.940	Fe I	400 r	150	S
2953.778	Fe II	5	80	–
2953.774	Pd II	–	2 h	–
2953.709	Dy	2	1	–
2953.706	Er	4	–	–
2953.706	Cr	6	25	–
2953.65	Hf II	5	1	Me
2953 59	Tm	5	30	Me
2953.560	Ta	10	–	–
2953.560	Mo	3	1	–
2953.537	Pr	10	10	–
2953.486	Fe	100	50	–
2953 358	Cr	4	50	–
2953.287	U	2	2	–
2953.28	Yt II	3	12 h	Me
2953.2	Cd	–	[5]	Es
2953.189	Sm	12	4	–
2953.11	Ho	20	10	Ex
2953.076	Ce	4	–	–
2953.039	Dy	2	–	–
2953.03	Yb	–	5	–
2953.015	Ru	8	–	–
2953.008	Mn	10	–	–
2952.99	Ta	30 h	100 h	–
2952.883	U	2	2 h	–
2952.732	Ir	10	–	–
2952.702	U	5	2	–
2952.692	Ru	–	10	–
2952.68	Eu	200 w	150	–
2952.574	Ir	2 h	–	–
2952.528	Sm	8	3	–
2952.527	Ne I	–	[5]	Ps
2952.498	Ru I	60	2	–
2952.48	Xe II	–	[2]	Hu
2952.459	Cr	–	20	–
2952 395	Na II	–	[12]	Fr
2952 369	U	2	2	–
2952.344	Os	15	8	–
2952.288	W II	12 s	30	–
2952.28	Se II	–	[12]	Mz
2952.248	Ru	4	25	–
2952.244	Zr II	8	8	–
2952.221	Sm	8	2	–
2952.128	Dy	2	–	–
2952.100	U	3	–	–
2952.081	Ti II	–	25 wh	–
2952 075	V II	35	150 R	–
2951.922	U	8	4	–
2951.92	Br	–	[4]	Bl
2951.918	Ta	400 wl	200	–
2951.90	Hf	8	–	–
2951.82	Cd	–	25	–
2951.814	Mo	–	4 h	–
2951.793	W	6	3	–
2951.777	Ce	4	–	–
2951.69	Lu	20	80	Me
2951.687	Ce	4	–	–
2951 66	Pd II	–	2 h	Bx
2951.59	Cs	–	[2]	Bs
2951.562	V	–	9	–
2951.56	Fe	10	4	–
2951.489	Ce	4	–	–
2951.48	Te	–	[15]	Bl
2951.479	Zr II	15	15	–
2951.45	La II	1	3	–
2951.407	W	5	3	–
2951 379	Fe	4	2	–
2951 291	Ce	10	–	–
2951.264	Tm	30	150	Me
2951.26	Cu I	3 h	–	–
2951.24	Ca	1 h	2 h	–
2951.231	Na II	40	[100]	Fr
2951.222	Ir I	10 h	3	–
2951.218	Pt	2 h	–	–
2951 207	Th	8	6	–
2951.19	Eu	2 h	–	–
2951.160	Mn	4	4	–
2951.10	Ne II	–	[4]	Bn
2951.098	Fe II	–	3	–
2951.07	U	6	2	–
2951.05	Rb	–	[5]	Ok
2951.02	Yb	1	4	–
2950.93	Fe	2	–	–
2950.88	K II	–	5	Bn
2950 878	Cb	150	200	–
2950.847	Eu	4	–	–
2950.828	Re I	25	–	–
2950.766	Ir I	12	2	–
2950.69	W	4	–	–
2950.687	Cr	–	5	–
2950 679	Hf	15	12	–
2950.536	Ru	30	2	–
2950.506	U	4	2	–
2950.498	Ce	2	–	–
2950.492	La II	3	50	–
2950.482	Ir I	12	–	–
2950 442	Th	8	6	–
2950 44	W	–	20	–
2950.4	Bi II	–	[3 h]	Cf
2950.348	V II	25	100 r	–
2950.339	Dy	2	–	–
2950 32	Yb	2	10	–
2950.304	Ce	12	–	–
2950 243	Fe	700	300	–
2950.21	Te	–	[10]	Bl
2950.21	Kr	–	[30 h]	Me
2950 070	Er	5	–	–
2949.970	U	6 h	4 h	–
2949.965	Ru	4	20	–
2949.96	Ca	–	2	–
2949.935	Th	8	6	–
2949.904	V I	2 h	–	–
2949 896	Os	5	4	–
2949.880	Re I	20	–	–
2949.83	Zr	–	3 h	–
2949.810	Os	8	5	–
2949.800	Cs II	–	[2]	Ot
2949.77	Xe	–	[4 h]	Hu
2949.762	Ir I	25	10	–
2949.73	Lu	20 h	1	Me
2949.70	Fe	10	5	–
2949.68	Rb	–	[10]	Ok
2949.626	V I	30	15 r	–
2949.62	Hf II	–	3	Me
2949.609	U	5	6	–
2949.54	Kr II	–	[15 h]	Me
2949.532	Os	30	10	–
2949.52	Te	–	[100]	Bl
2949.502	Cb	–	5	–
2949.500	Ru I	80	12	–
2949.44	Cr	–	18	–
2949.380	Rh I	2	–	–
2949.316	Ne I	–	[15]	Ps
2949.263	Re	15	–	–
2949.236	Th	3	2	–
2949.205	Fe II	2	–	–
2949 205	Mn	100	30	–
2949.20	Ca	1 h	2 h	–
2949.197	Ir	4	–	–
2949.19	Ho	–	20	Ex
2949.168	V	6	80	–
2949.16	Eu	5 d	5	–
2949.119	W	5	4	–
2949.105	I	–	[30]	Ke
2949.098	Re	20 h	–	–
2949.069	Pd II	–	4 h	–
2949.069	Th	10	8	–
2949.043	Ne I	–	[10]	Ps
2949.042	Ir	4	–	–
2948.98	Yt II	–	3 h	Me
2948 95	Fe I	10	4	–
2948 945	Zr II	12	20	–
2948.936	U	2	4	–
2948.89	Cr I	8 wh	–	–
2948.857	Ce	4	–	–
2948 802	Er	9	1	–
2948.735	Ce	4	–	–
2948 73	Ti II	–	[30]	El
2948.726	Fe I	10	7	–
2948.719	Pb II	–	125	–
2948 51	Ta	3	–	Ks
2948 433	Fe	80	70	–
2948.432	Ir I	5	–	–
2948.405	Yt I	20	5 h	–
2948 385	Ce	10	–	–
2948 323	Dy	2	1	–
2948 255	Ti I	100	30	–
2948.229	Os	12	5	–
2948.16	Cd	–	35	–
2948 15	Tm	15	10	Me
2948 14	P	–	[5 h]	Gu
2948 092	U	10	12	–
2948 075	V	2	70	–
2948.01	Tm	15	20	Me
2947.876	Fe I	600 r	200	–
2947 85	Cs	–	[2]	Bs
2947.80	Ta	10	2	–
2947.742	Ce	3	–	–
2947.72	W	–	8	–
2947.719	Ti I	8	–	–
2947.658	Fe II	10	100	–
2947.497	Cr	–	25	–
2947 453	Ni II	–	10	–
2947.441	Na II	6	[40]	Fr
2947.384	W	12	10	–
2947.377	Ta	1	2 h	–
2947.367	Ir I	12	2	–
2947.363	Fe	30	20	–
2947.300	Eu	30	–	–
2947.297	Ne I	–	[150]	Ps
2947.285	Mo	2	25	–
2947.27	F	–	[2 h]	Di
2947.25	Ca	–	2 h	Ad
2947.221	Dy	2	1 h	–
2947.194	Sm	8	3	–
2947.149	Ce	4	–	–
2947.13	Se II	–	[4]	Mz
2947.13	Fe	4	2	–
2947.130	Hf II	15	15	–
2947.113	Yb	–	2	–
2947.08	Hg II	–	[25]	Ps
2947.062	Dy	2	–	–
2946.991	Ru I	60	12	–
2946.981	W	20	18	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
2946.972	Ir I	20 h	10	–
2946.910	Ta	150	10	–
2946.898	Cb	3	30	–
2946.859	Ce	4	–	–
2946.842	Cr	5	30	–
2946.84	Tm	10 d	30	Me
2946.783	Dy	2	–	–
2946.75	Yb	1	8	–
2946.72	Nd	–	10	–
2946.690	Mo	3	25	–
2946.615	Er	8	5	–
2946.576	Re	10	–	–
2946.527	V I	10	5	–
2946.514	W	5	–	–
2946.44	Pd II	–	2	–
2946.429	W	–	12	–
2946.422	Mo	10	6	–
2946.420	Sm	6	–	–
2946.41	U	3	2	–
2946.382	Ce	8	–	–
2946.316	Dy	2	–	–
2946.29	Yb	3	15	–
2946.283	U	4	4	–
2946.265	Th	8	2	–
2946.261	Ta	10	2	–
2946.17	Br	–	[2]	Bl
2946.116	Cb	4	20	–
2946.101	Ce	2	–	–
2946 10	Fe	3	1	–
2946.056	Ce	10	–	–
2946.009	Mo	20	40	–
2945.95	Yt	2	100	–
2945.913	Nd	–	5	–
2945.90	Yb	10	60	–
2945.895	Re	2	–	–
2945.889	U	8	12	–
2945.883	Cb	2	100	–
2945.88	Fe	2	–	–
2945.856	Ce	2	–	–
2945.83	Ho	3	70 h	Ex
2945.748	Cb	3	–	–
2945.706	Re	3	–	–
2945.70	Tb	10	3	Ed
2945.70	Fe	10	5	–
2945.695	Na II	2	[20]	Fr
2945 67	W	4	1	–
2945.668	Ru	60	300	–
2945.665	Mo	20	2	–
2945 582	Ce	3	–	–
2945.52	P	–	[5]	Gu
2945.47	Ti II	–	100 wh	–
2945.463	Zr II	4	10 h	–
2945 428	Mo	5	1	–
2945.385	Ce	4	–	–
2945 303	Ti	2	–	–
2945.280	Er	15	–	–
2945.262	Fe II	1	3	–
2945.104	He I	–	[100]	IMr
2945.101	Ru	6	50	–
2945.055	Fe	100	30	–
2945.04	Tl I	50 l	25 l	Fl
2944.96	Te	–	[5]	Bl
2944.87	Tb	5	–	Ed
2944.821	Mo	2	50 h	–
2944.773	Ce	4	–	–
2944.755	V I	2 h	–	–
2944.754	Pt I	15	2	–
2944.72	Eu	3	–	–
2944.711	Hf	20	1	–
2944.644	Cb	4	2 h	–
2944.637	U	2	8	–
2944.61	Xe	–	[2 h]	Hu
2944.571	V II	50	300 r	–
2944.564	Dy	2	1 h	–
2944.51	Fe	2	–	–
2944.50	Ho	10	20	Ex
2944.46	Yb	–	3	–
2944.398	Fe II	70	600	–
2944.395	W	30	20	–
2944.346	Ce	18	–	–
2944.321	Re	10	–	–
2944.287	Bi	5	4	–
2944.213	Mo	25	2	–
2944.20	Zr II	2 h	3	–
2944.20	Cl	–	[4]	An
2944.189	U	8	12	–
2944 184	Ru	12	–	–
2944.175	Ga	10	15 r	–
2944.1	Cs	–	[2]	Bs
2944.071	Er	12	–	–
2943 989	Mo	–	3	–
2943 987	Ce	6	–	–
2943 959	W	5	4	–
2943 921	Ru	50	5	–
2943.914	Ni I	50 r	20	–
2943.908	Mn	2	2	–
2943.895	U	10	25	–
2943 89	Cd II	–	[5]	Vs
2943 87	Ir	4 d	5 d	–
2943.827	V I	7 h	–	–
2943.786	Sm	8	2	–
2943.769	Ta	10	5	–
2943 725	Ir	3 h	–	–
2943 673	Ce	8	–	–
2943.637	Ga I	10	20 r	–
2943.636	V	2	4	–
2943.628	Ir	3 h	–	Ab
2943.62	Sn II	–	2	–
2943.57	Fe	12	6	–
2943.551	La II	2	6 hl	Me
2943.500	Nd	3	5	–
2943.492	Sm	8	3	–
2943 484	Co I	30	–	–
2943 481	Ru I	30	–	–
2943.41	Xe	–	[2]	Hu
2943.405	U	6	4	–
2943.380	Mo	1	25	–
2943 380	Re I	15	–	–
2943 36	Tm	6	15	Me
2943.326	W	7	6	–
2943.260	Ir	4	–	–
2943.215	Ce	6	–	–
2943.20	Cl	–	[4]	An
2943.196	V I	30	25 r	–
2943.184	U	5	8	–
2943.151	Ir I	30	20	–
2943.15	Co II	–	100 wh	–
2943 144	Re I	60	–	–
2943.132	Mn	1	3	–
2943.13	Ti II	–	60 wh	–
2943.00	O	–	[5 h]	Mh
2942.90	A II	–	[100]	Rt
2942.88	O	–	[5 h]	Fl
2942.862	Th	10 s	10	–
2942.853	U	6	6	–
2942.850	Mo	10	1	–
2942 848	Os	30	8	–
2942.82	Yb	1	5	–
2942.755	Pt I	20	3	–
2942.745	Mn	10	1	–
2942.7	K I	5 R	–	Fl
2942 634	Th	5	4	–
2942.63	Fe	10	5	–
2942.610	W II	2	10	–
2942.445	W	8	3	–
2942.433	U	4	2	–
2942.352	V I	80 r	20 h	–
2942.302	Pr	–	10	–
2942.27	I	–	[20]	Bl
2942.256	W II	2	10	–
2942 250	Ru	30	100	–
2942.222	Mo	–	3	–
2942.211	Er	8	1	–
2942.21	Cs	–	[8]	Bs
2942.204	Os	8	5	–
2942.16	Te	–	[100 h]	Bl
2942.139	W II	6	10	–
2942.137	Ta	150	40	–
2942.120	U	8	12	–
2942.11	Mg I	20	2 h	–
2942.10	Xe	–	[10 h]	Hu
2942.05	Ho	–	10	Ex
2942.03	Yb	1	6	–
2941.995	Ti I, II	100	150	–
2941.919	U	15	30	–
2941.880	Cr I	12	25	–
2941.75	Fe	2	–	–
2941.715	Er	6	1	–
2941.70	Tb	3	10	Ed
2941.557	Re	15	–	–
2941.55	I	–	[12]	Bl
2941 543	Cb	50	300	–
2941 492	V II	12	150 r	–
2941.48	Se	–	[15]	Bl
2941.38	Xe	–	[4]	Hu
2941 369	V II	40	300 r	–
2941.343	U	8	12	–
2941.343	Fe I	600	300	S
2941.245	W	8	4	–
2941.222	Mo	2	40	–
2941.197	Ce	5	–	–
2941.179	Er	6	1	–
2941.11	V I	2	–	Kn
2941.090	Pt	2	–	–
2941.079	Ir I	20	5	–
2941.064	Dy	2	1	–
2941 050	In II	–	[80]	Ps
2941 041	Mn	25	1	–
2940.978	Mo	10	1	–
2940.978	Cr	–	10	–
2940.953	Cs II	–	[8]	Ot
2940.95	Te	–	[5]	Bl
2940.949	W	5	3	–
2940.877	Ce	5	–	–
2940.85	Cb	–	5	–
2940.820	Eu	10	–	–
2940.785	Ce	15	–	–
2940 772	Hf I	60	12	–
2940 663	Ce	4	–	–
2940 591	Fe	200	80	–
2940.542	Ir I	15	10	–
2940.51	Yb	3	25	–
2940.483	Mn	40 Wh	–	–
2940.46	Eu	15	–	–
2940.428	Ir I	5	–	–
2940 392	Mn	40 Wh	–	Fu
2940 367	U	6	12	–
2940.358	Ru I	50	3	–
2940.340	Cr	8 hs	–	–
2940 225	Cr	–	30	–
2940 215	Ta	150	50	–
2940.199	W II	4	18	–
2940.101	Mo	2	40	–
2940.06	Ta	100 l	40 w	–
2940.03	Tb	10	3 h	Ed
2940.022	Mo	3	–	–
2939 944	Ru I	30	3	–
2939.904	Mn	12	–	–
2939 770	Ce	2	–	–
2939.769	Eu	3	–	–
2939.743	W II	2	12	–
2939.72	Xe	–	[3]	Hu
2939 70	Kr II	–	[2]	Me
2939.692	Ru	12	5	–
2939.618	La II	–	3 h	Me
2939.614	Th	5	5	–
2939.538	Ce	12	–	–
2939.535	Nd	–	5	–
2939.53	Yb	2	6	–
2939.508	Fe II	3	30	–
2939.5	K	–	[5]	Ml
2939.494	U	5	4	–
2939.47	Rh I	2	–	–
2939.45	Cr	6	20	–
2939.43	Pd II	–	2 h	–
2939.36	In	–	10	Cx
2939.318	Ba	–	2 h	Sz
2939.311	U	4	2	–
2939.310	Er	5	–	–
2939.304	Mn	50	–	–
2939.29	Ho	–	10	Ex
2939.28	Ta	200	40 h	–
2939.271	Ir I	20	15	–
2939.177	W	8	2	–
2939.131	Ru I	12	–	–
2939.080	Fe I	80	20	–
2939 043	W	9	4	–
2939.04	U	6	2	–
2939.03	Hg	–	[10]	Ps
2938.886	Mo	–	3	–
2938.852	W II	1	9	–
2938.85	Cr	6 wh	–	–
2938.816	Sm	6	–	–
2938.813	Pt	15	2	–
2938.768	Mo	2	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2938.757	Ir I	10	–	–
2938.73	Fe	2	–	–
2938.71	In	–	10	Cx
2938.70	Ti II	–	100 wh	–
2938.682	Ce	3	–	–
2938.666	V I	12	2	–
2938.59	Mo	1	10	–
2938.564	Ta	10	–	–
2938.55	Ag II	200	200 wh	–
2938.539	Ti	2	–	–
2938.538	Mg I	25	–	–
2938.5	Cs	–	[20]	Bs
2938.499	W	8	6	–
2938.469	Ir I	18 h	12	–
2938.426	Ta	50	3	–
2938.317	Ce	2	–	–
2938.300	Mo	1	30	–
2938.298	Bi I	300 w	300 w	–
2938.254	V I	2	60	–
2938.220	Ce	5	–	–
2938.18	Yb	1	3	–
2938.106	Th	5	4	–
2938.073	Cb	3	5	–
2938.051	Ce	5	–	–
2938.05	Fe	2	1	–
2937.956	Ir I	5	–	–
2937.924	Mn	25 Wh	–	–
2937.90	Te	–	[15]	Bl
2937.814	Re	8	–	–
2937.811	Fe	300	150	–
2937.795	Hf II	50	100	–
2937.730	Zr II	1	2	–
2937.725	Na II	6	[40]	Fr
2937.707	Cb	–	20 wh	Me
2937.707	Ce	6	–	–
2937.687	V I	20 w	10	–
2937.665	Mo	20	1	–
2937.661	W	6 d	10	–
2937.551	Ru	20	–	–
2937.487	Sm	12	5	–
2937.484	Ta	2	–	–
2937.445	Th	5	5	–
2937.351	U	5	4	–
2937.342	Ru	20	–	–
2937.333	Cb	2	15	–
2937.316	Ti I	35	5	–
2937.260	Ir I	6	–	–
2937.18	Yb	2	10	–
2937.151	U	3	2	–
2937.141	W	8	12	–
2937.040	V	2	25	–
2937.00	I	–	[20]	Bl
2936.93	Cr	4	18	–
2936.908	Ir	3 h	–	–
2936.905	Fe I	700 r	500 r	–
2936.895	Mg I	12	–	–
2936.781	Mo	2	25	–
2936.776	U	6	4	–
2936.77	Ho	–	1000 R	Ex
2936.77	Pd I	2	1	Sh
2936.77	Te	–	[5]	Bl
2936.72	Ca	–	4 h	Ed
2936.7	Bi II	–	[3]	Cf
2936.682	Ir I	15 h	5	–
2936.672	W	10	20	–
2936.66	Cb	–	30	–
2936.625	Ir	40	–	Ab
2936.537	Mg II	20	–	–
2936.498	Re	25	–	–
2936.469	Th	12	12	–
2936.457	Cb	1	2 h	–
2936.453	U	12	20	–
2936.449	Fe	5	5	–
2936.308	Zr II	10	15	–
2936.258	Ru	10	–	–
2936.194	Th	10	10	–
2936.17	Ti II	–	100 wh	–
2936.16	Br	–	[5]	Bl
2936.156	Mn	10	–	–
2936.105	Ir I	10	1	–
2936.024	Fe II	5	10	–
2936.016	Ru	20	–	–
2936.002	W	10	3	–
2936.0	Rn	–	[3]	Pe
2935.997	Tm	80	300	Me
2935.949	Ta	2	5	–
2935.92	Hg II	–	[2]	Ps
2935.893	Sm	8	2	–
2935.874	V I	30	15 h	–
2935.86	Xe	–	[30 h]	Hu
2935.757	Ce	3	–	–
2935.75	W	–	10 d	–
2935.695	Mo	1	15	–
2935.656	Mn	20	–	–
2935.621	W	8	2	–
2935.615	U	3	4	–
2935.57	A II	–	[5]	Rt
2935.570	Ta	2	3	–
2935.538	Cr	8	–	–
2935.518	Ru	10	80	–
2935.413	Sm	2 h	–	–
2935.37	Hf	5	–	–
2935.347	W II	5	10	–
2935.30	Ne II	–	[2]	Bn
2935.287	Cb	2	15	–
2935.195	Mo	2	10	–
2935.192	Ir I	12	–	–
2935.165	Ta	20	2	–
2935.148	U	3	–	–
2935.139	Cr	8	40	–
2935.10	Yb	3	15	–
2934.991	W	15	12	–
2934.976	Cb	2	2	–
2934.9	bh B	100	–	L
2934.90	U	4	2	–
2934.847	Ta	40	4	–
2934.84	Pd II	–	10 h	–
2934.840	Mo	5	1	–
2934.80	Xe II	–	[2 h]	Hu
2934.79	Tb	5	10	m
2934.76	V I	5 h	–	–
2934.648	V I	2	–	–
2934.642	Os	30	5	–
2934.638	Ir	15 wh	6	–
2934.638	Er	4	1	–
2934.610	Zr II	4	6	–
2934.60	Cl II	–	[5]	Ks
2934.529	Dy	2	1	–
2934.517	Er	15	1	–
2934.50	Ta	2	–	Ks
2934.493	Cr	25 h	–	–
2934.493	Fe II	–	8	–
2934.42	U	3	2	–
2934.401	V II	10	50 h	–
2934.4	Ca	–	2 hs	Ad
2934.37	Fe I	7	3	–
2934.35	Yb	3	–	–
2934.345	Ce	10	–	–
2934.32	Cr	–	6	–
2934.299	Mo	30	50 h	–
2934.23	Ag II	10	200 h	–
2934.185	Ru	30	–	–
2934.18	Se II	–	[2]	Mz
2934.15	Cd	–	[2]	Vs
2934.141	Th	8	4	–
2934.09	I	–	[12]	Bl
2934.065	Na II	1	[5]	Fr
2934.022	Mn	25	–	–
2934.009	Re I	3	–	–
2934.003	Ir I	6	–	–
2933.970	Cr	2 h	40	–
2933.86	U	8	10	–
2933.835	V II	2	35	–
2933.81	Fe	3	1	–
2933.79	Tb	5	3 h	m
2933.70	Ne II	–	[4]	Bn
2933.657	Ir I	2	–	–
2933.57	U	2	2	–
2933.550	Ta	400	150	–
2933.548	Ti I	4	8	–
2933.548	Sm	3	2	–
2933.529	Ce	6	–	–
2933.442	Mn	4	–	–
2933.436	Re	2	–	–
2933.43	Cr	5 h	–	Kn
2933.31	U	3 h	–	–
2933.27	In	–	3	Cx
2933.245	Ru	20	150	–
2933.228	V I	2 h	–	–
2933.204	Mo	–	8	–
2933.138	Ir I	20	5	–
2933.104	Th	8	5	–
2933.063	Mn	80	15	–
2933.061	Sm	3	–	–
2933.056	U	4	6	–
2933.05	Tb	10	–	Ex
2933.05	Ho	–	10	Ex
2932.982	W	2	6	–
2932.97	Tm	10	–	Me
2932.96	U	3	6	–
2932.91	Tb	10	3 h	m
2932.86	W	1	10	–
2932.84	Eu	4 d	–	–
2932.721	Ne I	–	[75]	Ps
2932.705	Cr	2	25	–
2932.695	Ta	400	80 w	–
2932.662	Cb	1 h	80	–
2932.647	Th	8	3	–
2932.623	Ni	10	–	–
2932.624	In I	500	300	–
2932.61	U	10	25	–
2932.60	A II	–	[20]	Rt
2932.59	Tm	5	25	Me
2932.523	Eu	6	3	–
2932.52	Th	–	25 wh	–
2932.323	V	12	80	–
2932.310	Re	10	–	–
2932.274	Ce	10	–	–
2932.213	W	4	2	–
2932.19	Au I, II	8	40	–
2932.189	Mo	–	15	–
2932.180	U	5 h	6 h	–
2932.15	Nd	–	5 h	–
2932.13	Cb	–	50	–
2932.090	Ce	4	–	–
2932.060	Sm	6	–	–
2932.037	W	4	1	–
2931.98	Fe	5	3	–
2931.941	Rh I	80	20	–
2931.90	Zr II	–	5 h	–
2931.891	U	8	8	–
2931.88	Te	–	[5]	Bl
2931.87	Cl	–	[8]	Jv
2931.869	W	2	10	–
2931.857	V	2	15	–
2931.830	Sr I	30	8	ISn
2931.81	Fe	10	6	–
2931.727	I	–	[20]	Ke
2931.624	V	4	20	–
2931.600	Fe	–	15	–
2931.53	W	–	12 l	–
2931.53	Lu	7 h	–	Me
2931.521	U	3	2	–
2931.49	A	–	[20]	Rt
2931.469	Cb	3	50	–
2931.462	Pd I	10	2	–
2931.43	Fe	10	3	–
2931.414	U	12	12	–
2931.41	Tb	5	3 h	m
2931.280	Os	40	10	–
2931.261	Ti II	–	150 wh	–
2931 14	Cd	–	[5 d]	Vs
2931.11	Cs	–	[20]	Bs
2931.081	Mo	15	1	–
2931.060	Zr II	3 h	15 whl	–
2930.99	Ta	30 w	3 h	–
2930.913	Th	8	8	–
2930.87	V I	4 h	–	–
2930.883	Na II	1	[2]	Fr
2930.845	Cb	–	5	–
2930.853	Cr	–	50	–
2930.806	V II	30	150 r	–
2930.805	U	4	30 h	–
2930.786	Pt	15	3 h	–
2930.771	Mo	5	25	–
2930.773	Yt II	8	12 h	–
2930.66	Fe	2	–	–
2930.647	Er	12	–	–
2930.643	Cb	–	10	–
2930.628	Ir	15	5	–
2930.616	Re	50	–	–
2930.588	U	4 h	2 h	–
2930.57	Tm	2	10	Me
2930.566	Os	15	4	–
2930.51	W	2	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2930.503	Mo	25	50 h	–
2930.43	Co II	–	150 wh	–
2930.430	U	8	12	–
2930.40	Kr II	–	[2 whl]	Me
2930.400	Mo	5	–	–
2930.263	Cb	–	20 wh	–
2930.247	Mn	25	–	–
2930.191	Os	10	4	–
2930.18	I	–	[12]	Bl
2930.176	Ir I	12	5	–
2930.17	Te	–	[10]	Bl
2930.16	Ca	–	2 h	Ad
2930.146	W	10	6	–
2930.14	Yt II	8	20	–
2930.128	V	4	35	–
2930.08	Pr	3	5	–
2930.064	Mo	1	20	–
2929.99	W	5	3	–
2929.930	Ru	12	–	–
2929.898	Hf	5	3	–
2929.88	La II	2	7	Me
2929.848	Pd	–	2 h	–
2929.794	Pt I	800 R	200 w	–
2929.777	U	2	2	–
2929.751	Ir	–	3 h	–
2929.734	Er	12	–	–
2929.71	Ca	–	4 h	Ad
2929.66	Xe	–	[2 wh]	Hu
2929.626	Hf II	30	50	–
2929.624	Fe I	50	10	–
2929.536	Re	30	–	–
2929.509	Co I	75	–	–
2929.507	Os	30	3	–
2929.497	Mo	–	5	–
2929.445	Cr	–	40	–
2929.442	Ru	20	–	–
2929.44	Ca	–	2 h	–
2929.351	Ag II	20	40	–
2929.312	Ne I	–	[15]	Ps
2929.285	Cd II	–	50	–
2929.24	Fe	3	1	–
2929.121	Fe	10	10	–
2929.119	U	8	6	–
2929.115	Zr II	2	2	–
2929.109	Ce	10	–	–
2929.107	Rh	100	10	–
2929.009	Hf	15	–	–
2929.008	Fe I	150	100	S
2928.93	Br	–	[2]	Bl
2928.814	Co I	50	1 h	–
2928.79	Ho	–	100	Ex
2928.753	Fe I	5	–	–
2928.75	Mg II	25	100	–
2928.69	Ti	–	40 wh	Ex
2928.680	Mn	25	–	–
2928.67	Nd	–	5	–
2928.67	Th	–	12 wh	–
2928.662	W	8	7	–
2928.648	Pt II	1	6 h	Sh
2928.599	U	15	35	–
2928.580	Re	6	–	–
2928.493	Mo	–	10	–
2928.492	Ru	30	10	–
2928.468	I	–	[12]	Ke
2928.40	Er	4	1	–
2928.344	Ti I	40	6	–
2928.301	Cr	6	15	–
2928.29	Ho	–	10 h	Ex
2928.284	Er	15	2	–
2928.259	Sm	3 wh	1	–
2928.256	Th	12 s	12	–
2928.23	Tm	10	30	Me
2928.23	Ca	8	2	–
2928.23	Te	–	[15]	Bl
2928.21	Tl II	–	[10]	El
2928.190	W	10	6	–
2928.149	Cr	6	20	–
2928.11	Nd	–	5 h	–
2928.107	Pt I	8	6	–
2928.105	Fe I	10	4	–
2928.04	In	–	2	Cx
2927.933	W	7	6	–
2927.91	Cd II	–	8	–
2927.9	K I	2 R	–	Fl
2927.888	Ti II	–	5 wh	–
2927.88	Fe	3	2	–
2927.864	Ce	3	–	–
2927.85	Yb	2	10	–
2927.810	Cb	200	800 r	–
2927.749	Sm	6	–	–
2927.735	U	4	6 h	–
2927.717	Er	7	1	–
2927.716	Re	10	–	–
2927.70	W	2	10	–
2927.670	Co I	50	1	–
2927.64	V I	7 h	4 h	–
2927.609	Sm	8	1	–
2927.58	Xe II	–	[2 h]	Hu
2927.552	Fe	20	12	–
2927 548	Ce	5	–	–
2927.539	Mo	3	40	–
2927.536	Ru	50	200	–
2927.529	W	5	3	–
2927.404	Re	125 w	–	–
2927.376	U	12	10	–
2927.304	Pd II	–	10	–
2927.249	Ce	4	–	–
2927.119	Ru	30	2	–
2927.109	Sm	10	1	–
2927.081	Cr	2	80	–
2927.08	In	–	2	–
2927.067	Dy	2	–	–
2927.05	Fe	1	–	–
2927.015	Ir I	10	–	–
2926.988	Zr II	15	30	–
2926.982	W	10	12	–
2926.940	Re	10 w	–	–
2926.93	Cd	–	[3]	Vs
2926.928	Ce	3	–	–
2926.826	W II	1	10	–
2926 75	Ti II	–	50 wh	Ex
2926.748	Tm	80	60	Me
2926.733	Mo	–	20	–
2926.657	Sm	8	–	–
2926.646	Pb	2 h	–	Kl
2926.588	U	3	4	–
2926.587	Fe II	150	400	–
2926.457	Ta	100	10	–
2926.446	V	2	35	–
2926.42	W	5	–	–
2926.349	Er	3 l	–	–
2926.32	Hf II	10	2	–
2926 256	V I	10	–	–
2926 22	Mo	–	40	–
2926 19	Eu	4 w	–	–
2926.159	Cr II	2	40	–
2926 103	U	3	2	–
2926.1	Bi II	–	[2]	Cf
2926.06	Hf	–	2	–
2926.01	Fe	2	1	–
2925 975	U	6	8	–
2925.925	Ce	8	–	–
2925.92	Tm	10	2	Me
2925.900	Fe I	15	10	–
2925 874	V I	12	–	–
2925.805	W	–	15 l	–
2925.791	Fe	15	6	–
2925.659	Ta	100	4	–
2925 65	Tm	20	60	Me
2925.641	Ce	6	–	–
2925.63	Ne II	–	[9]	Bn
2925.630	Zr II	1	2 h	–
2925.60	Cr	4 h	–	–
2925 59	Th	–	10 h	–
2925.57	Mn	150 Wh	1 Wh	–
2925.568	U	15	25	–
2925.568	Os	40	10	–
2925.439	Cu I	9	–	–
2925.417	Pd II	–	2 wh	–
2925.406	Hg I	60	50	Cn
2925.405	Mo	5	30	–
2925.37	Te	–	[25]	Bl
2925.363	Fe	70	50	–
2925.320	Os	8	4	–
2925.288	V	2	20 h	–
2925.265	Ta	100 W	40 ws	–
2925.222	U	3	4	–
2925.200	Re	25	–	–
2925 193	Ta	100	5	–
2925.185	Ce	10	–	–
2925.148	La II	1 h	5 h	–
2925.124	W	12	10	–
2925.113	Ir	2 h	10	–
2925.091	I II	–	[12]	Ke
2925.076	Ru	10	–	–
2925.050	Th	10 s	15 h	–
2925.035	Eu	150 l	100	–
2924.984	W II	2	15	–
2924.908	V I	2 h	–	–
2924.882	Cu I	2	–	–
2924.827	Cb	4	3	–
2924.792	Ir I	25 wh	15	–
2924.785	Ta	15	2	–
2924.74	I	–	[12]	Bl
2924.66	A	–	[20]	Rt
2924 654	Sm	6	–	–
2924.650	Ru	10	–	–
2924.644	V II	60	200 r	–
2924.640	Zr II	4	4	–
2924.632	Mn	5	–	–
2924.615	Hf	25	2	–
2924.600	Re I	40 W	–	–
2924.580	U	10	10	–
2924 52	Al	–	[15]	Sy
2924.52	Tb	5	3 h	m
2924 48	Cs	–	[2]	Bs
2924.437	Mn	12	–	–
2924.38	Xe II	–	[3]	Hu
2924.35	Fe	6	3	–
2924.33	Ca	–	5	Ad
2924.318	Mo	10	25	–
2924.24	Yb	3	15	–
2924 16	Tb	3	10 h	Ed
2924.09	Rh	3	3	–
2924.025	V II	70 r	300 R	–
2924.024	Rh I	100	–	–
2924.02	Te	–	[15]	Bl
2924 01	Si	3	[5]	–
2923.99	Fe	5	2	–
2923.95	Xe	–	[3]	Hu
2923.94	Th	–	12 wh	–
2923.90	La II	3	20	–
2923 88	Ru	–	30	–
2923.852	Fe	100	70	–
2923.851	Ir I	10	5	–
2923.851	Zr I	20	–	–
2923.834	Ce	3	8 h	–
2923.83	Ba	–	3	Py
2923.704	Cu	6	–	–
2923.684	Cr	1	25	–
2923.67	I	–	[12]	Bl
2923.661	Na II	2	[12]	–
2923.620	V I	50 r	150 r	–
2923.542	W	10	5	–
2923.519	Ta	4 h	–	–
2923.505	U	8	12	–
2923.455	Ce	6	–	–
2923.439	Fe	30	12	–
2923.439	Nd	–	5 h	–
2923.397	V	2	2	–
2923 391	Mo	30	30	–
2923.384	U	3	6	–
2923 371	Gd	2	2	–
2923.341	V	4	20	–
2923.290	Fe	50	35	–
2923.220	Mo	3	4	–
2923.174	U	8	10	–
2923.17	Fe	3	1	–
2923.114	Ru	–	10	–
2923.105	Rh I	40	–	–
2923 098	W	12	10	–
2923 028	Cb	3	2	–
2922.990	Th	5	4	–
2922.924	Ti I	10	–	–
2922.880	Ce	3	–	–
2922.867	U	6	8	–
2922.83	Tm	5	15	Me
2922 822	Sm	3	1	–
2922.801	Th	5	4	–
2922.738	Mo	1	20	–
2922.70	I	–	[12]	Bl
2922.635	U	6	6	–
2922.620	Fe	50	25	–
2922.607	Th	8	10	–
2922 581	Ce	10	–	–

Wavelength	Element	Intensities Arc	Spk ,[Dis]	R
2922 575	V I	6	1 h	–
2922.492	Pd I	200	25	–
2922.47	Cb	–	5 w	–
2922.451	Cr	–	6	–
2922.415	Ta	10	1 h	–
2922 38	Fe I	10	4	–
2922.370	Ce	8	–	–
2922.331	Ru	–	40	–
2922 291	Ce	2	–	–
2922.222	U	2	2	–
2922.22	Fe	3	1	–
2922.21	Cs	–	[2]	Bs
2922.09	Tm	8	15	Me
2922.080	Ce	8	–	–
2922.058	U	8	8	–
2922 024	Fe II	–	50	–
2921.972	I II	–	[2]	Mu
2921.97	Te	–	[5]	Bl
2921.92	Kr	–	[4 whl]	Me
2921 905	Mo	2	4	–
2921.903	W	4	8	–
2921.89	I II	–	[4]	Bl
2921 83	Cs	–	[2]	Bs
2921.817	Cr II	4	60	–
2921.727	U	6	6	–
2921.71	Fe	4	2	–
2921.684	U	10	15	–
2921.625	Th	8	10	–
2921.60	Fe	3	1	–
2921 54	O	–	[30]	Mh
2921.52	Tl I	200 R	100 R	Fl
2921.484	Nd	–	5	–
2921.422	Sm	4	2	–
2921.421	Ce	6	–	–
2921.383	Pt I	100	6	–
2921.371	Ce	6	–	–
2921.354	Cr	6	–	–
2921.314	Sm	6	1	–
2921.27	Tm	5	10	Me
2921.26	Nd	5 d	5	–
2921.245	Cr	1	25	–
2921.18	V I	7 h	–	Kn
2921.156	Ru	8	–	–
2921.12	Yb	2	20	–
2921.119	Ir	–	2 h	–
2921.115	W	10	10	–
2921.084	Th	4	3	–
2921 03	Cs	–	[20]	Bs
2920.99	Fe	12	7	–
2920.956	Ru	30	30	–
2920.940	Na II	6	[20]	Fr
2920.935	Th	5	5	–
2920.828	Sm	6	–	Kn
2920.690	Fe I	150	80	I
2920.599	Sm	4	–	–
2920.482	Ce	6	–	–
2920.47	Ca	–	5	–
2920.386	U	8	6 h	–
2920 385	V II	20	125 r	–
2920.372	Th	5	4	–
2920.36	Pd II	–	4 wh	Bx
2920.322	Ta	2	–	–
2920.292	Ce	2	–	–
2920.29	Fe I	2	1	–
2920.263	Mo	1	10	–
2920.257	Ru	30	–	–
2920.243	Er	10	–	–
2920.177	U	3	6	–
2920.15	Fe	2	1	–
2920.04	Ag II	–	100 wh	–
2919.992	V II	10	70 r	–
2919.96	Te	–	[50]	Bl
2919.87	Xe II	–	[25]	Hu
2919.858	Ce	12	–	–
2919.847	Fe	80	35	–
2919.845	Na II	–	[5]	Fr
2919.842	Th	10	10	–
2919.82	Sn II	–	[30]	Mc
2919.794	Os	100	15	–
2919.786	Ir	3	5	–
2919.695	W	5 d	2	–
2919.692	U	2	–	–
2919.680	V	1	4 h	–
2919.608	Ru	80	12	–
2919.594	Hf II	40	80	–
2919.59	Ho	–	10	Ex
2919 554	Co I	30	–	–
2919.49	W	–	10	–
2919.411	Re	25	–	–
2919.383	Mo	8	1	–
2919.366	U	5	2	–
2919.35	Yb	15	90	–
2919.344	Pt I	150	40	–
2919.32	Cb	–	5 h	–
2919.291	W	8	3	–
2919.27	Er	12 d	7	–
2919.264	Sm	3	–	–
2919.22	Se	–	[10]	Bl
2919.21	Fe	15	10	–
2919.202	Mo	8	1	–
2919.189	Ir	3 h	10	–
2919.14	Ca	–	2	Ad
2919.13	Cd	–	[3]	Vs
2919.124	Mn	12	–	–
2919.07	Kr	–	[2 whl]	Me
2919.048	Yt	18	6	–
2919.048	Na II	6	[40]	Fr
2919.04	Fe	1	–	–
2918.99	Tb	15	10	m
2918.974	U	6	4	–
2918.96	Ta	2	50	–
2918 917	Cb	1	10 h	–
2918.878	Re	10	–	–
2918.869	U	3	2	–
2918.828	Mo	15	25 l	–
2918.824	Fe	15	8	–
2918.781	Ce	10	–	–
2918.78	Ti II	–	10 wh	–
2918.683	U	5	10	–
2918.670	Dy	2	1	–
2918.665	Ce	30 s	–	–
2918.631	W	8	20	–
2918.576	Hf	30	8	–
2918.568	Ir I	18	2	–
2918.56	Cb	–	10	–
2918.498	Ru	–	60	–
2918.44	Gd	2	3	–
2918.42	Ca	–	2 s	Ad
2918.37	Au II	–	25	–
2918.357	Fe	40	25	–
2918.32	Tl I	400 R	200 R	Fl
2918.27	Tm	25	50	Me
2918.250	W	12	8	–
2918.240	Zr II	15	15	–
2918.209	V	–	15 h	–
2918.16	Fe	3	2	–
2918.15	B II	–	2	Sy
2918.035	Ir I	12	–	–
2918 027	Fe	125	100	–
2917.932	V I	12	2 h	–
2917.923	Dy	2	–	–
2917.886	Ce	2	–	–
2917.874	Fe	2	–	–
2917.827	Os	10	3	–
2917.8	Rn	–	[3]	Wo
2917.79	Th	4	6	–
2917.774	Ru	60	2	–
2917.770	Ir I	10	–	–
2917.733	I	–	[15]	Ke
2917.686	Ce	2	–	–
2917.666	W	8	1	–
2917.624	Nd	2 h	5 h	–
2917.623	Sm	10	10	–
2917.554	V	4	–	–
2917.516	Na II	8	[40]	Fr
2917.491	Ce	3	–	–
2917.49	Hf II	10	8 h	–
2917.470	Fe II	2	25	–
2917.46	Eu	15	–	–
2917.408	Ce	6	–	–
2917.39	Th	25 d	6	–
2917.385	W II	1	3	–
2917.376	Sm	2	1 h	–
2917.366	V II	10	20	–
2917.298	W	7	3	–
2917.258	Os	40	20	–
2917.252	Eu	2	–	–
2917.23	Br	–	[15]	Bl
2917.229	Ir I	2 h	–	–
2917.226	V	1	9	–
2917.151	Mo	–	20	–
2917.137	Ru	20	15	–
2917.127	Ce	3	–	–
2917.120	Ta	10	3 h	–
2917.094	Fe II	–	20	–
2917.082	U	2	2	–
2917.052	Cb	10 w	100 r	–
2917.027	Ce	2	–	–
2916 920	Fe II	–	3	–
2916.863	Ta	2	3 h	–
2916.86	W II	–	7	–
2916.787	W II	1	6	–
2916 735	Nd	2	–	–
2916 71	Ti II	–	5	–
2916.706	U	6	8	–
2916.682	Ce	10	–	–
2916.635	Zr II	4	4	–
2916.52	Tm	15	40	Me
2916 504	Cb	3	3	–
2916.481	Hf I	50	15	–
2916 467	In II	–	[10]	Ps
2916.465	U	8	10	–
2916.440	Th	–	8 s	–
2916.43	Yb	1	10	–
2916.40	O	–	[15]	Mh
2916.384	W II	4	4	–
2916 365	Ir I	25	2	–
2916.354	Ru	–	35	–
2916.322	Ta	5	1	–
2916.300	U	5 h	2 h	–
2916.27	Hg II	–	[30]	Ps
2916 26	Tb	5	10	m
2916 255	Ru I	100	25	–
2916.250	Zr I	6	–	–
2916.165	Cr I	18	15	–
2916 153	Fe II	2 h	6	–
2916.13	Se	–	[10]	Bl
2916 108	W	5	4	–
2916 10	Ti	–	50 wh	–
2916.100	Mo	20	–	–
2916.094	Cb	–	10	–
2916.038	Ta	2 h	–	–
2916.019	V I	9	–	–
2915 991	Zr II	25	20	–
2915 861	V	1	30	–
2915 81	U	3	2	–
2915.80	Ho	–	10	Ex
2915.747	Ce	2	–	–
2915.73	I	–	[12]	Bl
2915.67	Tm	3	7	Me
2915.63	In	–	2	–
2915.626	Er	18	2	–
2915.625	Ru	20	–	–
2915.62	A	–	[5]	Rt
2915 59	Tb	10	10 h	m
2915 586	W	9	8	–
2915 555	Ce	10	–	–
2915.537	U	5	6	–
2915.52	Mg	20	12	m
2915.494	Ir	2 h	–	–
2915.492	Ta	150	40	–
2915.419	Rh I	80	40	–
2915 408	Cb	1	10	–
2915.380	Mo	10	1	–
2915.337	Ta	150 w	50	–
2915.331	V I	12	20	–
2915.33	Tb	10	10	Ex
2915.30	Cl	–	[5]	Jv
2915.27	Yb	10	40	–
2915.256	Mo	6	–	–
2915.252	Ce	2	–	–
2915.24	Cs	–	[2]	Bs
2915.232	Cr	1	25	–
2915.110	W	5	4	–
2914.936	Ta	20	3	–
2914.933	Ce	2	–	–
2914.926	V I	60	50 r	–
2914.89	Se	–	[15]	Bl
2914.835	U	5	6	–
2914.83	Tm	10	–	Me
2914.79	Tb	15	10 h	m
2914.75	Ca	–	2	Ad
2914.747	Ce	2	–	–
2914.710	Os	10	6	–
2914.709	Sm	8	3	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2914.69	Cd II	–	[45]	Vs
2914.667	Er	4	–	–
2914.652	Cs II	–	[8]	Ot
2914.645	W II	–	10	–
2914.629	U	12	15	–
2914.603	Mn	150 Wh	–	–
2914.513	Pr	–	10	–
2914.5	Pb II	–	[10]	Ea
2914.499	Nd	–	15	–
2914.48	Yb	–	4	–
2914.431	V I	2	–	–
2914 43	Eu	3	–	–
2914.428	Mo	1	5	–
2914.347	Ce	6	–	–
2914.314	Mo	–	10	–
2914.306	Fe I	50	25	–
2914.301	V I	7	35	–
2914.299	Ru	50	–	–
2914.253	U	18	25	–
2914.25	W	1	12	–
2914.25	Nd	5 d	–	–
2914.21	Yb	10	60	–
2914 20	Fe	10	5	–
2914.127	Pt	1	10	–
2914.125	Ta	200	30	–
2914 105	Ce	2	–	–
2914.007	Ni I	20	–	–
2913.987	Rh I	20	–	–
2913.968	Ru	–	50	–
2913 963	U	14	4	–
2913.96	Tm	15	–	Me
2913.952	Dy	2	1	–
2913.844	Os	30	8	–
2913.808	Mo	1	50 w	–
2913.804	Mn	5	–	–
2913.802	Re	2	–	–
2913.746	W II	4	10	–
2913.738	Ce	5	–	–
2913.727	Cr	60 r	5	–
2913.719	V	–	12	–
2913.68	Ca	–	2	Ad
2913 61	La II	–	2	–
2913 593	Rh I	6	–	–
2913.586	Ni II	–	20	–
2913.542	Sn	100 wh	125 wh	Ar
2913.542	Pt I	300	25	–
2913.54	Au II	–	50	–
2913.528	Ce	8	–	–
2913.519	Mo	20	1	–
2913.440	U	6	12	–
2913.41	Tb	3	–	Ex
2913 362	Ce	5	–	–
2913.33	Ti	–	50 wh	–
2913 317	Ta	15 W	2	–
2913 271	Sb	–	4	Sp
2913.249	Pt I	25	–	–
2913.23	Kr II	–	[4]	Me
2913.219	Hf II	3	3 h	–
2913.195	Ce	4	–	–
2913.170	Ru	50	3	–
2913.168	Ne I	–	[150]	Ps
2913.157	Re	20	–	–
2913.110	Mn	2 h	2	–
2913 109	Ti II	3	5	–
2913 048	V	–	7	–
2913.03	Sc II	2 h	5	–
2912.960	U	5	6	–
2912.906	Ce	12	–	–
2912.86	Yb	–	3	–
2912.8	P II	–	[5]	Dj
2912.80	Sn II	–	[3]	Mc
2912.775	Hf II	3	2	–
2912.769	Ce	12	–	–
2912.760	Th	5	5	–
2912 752	U	4	8	–
2912.75	W	3	–	–
2912.749	Ru	2	18	–
2912.70	Lu	15 h	–	Me
2912.68	Xe	–	[3]	Hu
2912.664	Th	5	5	–
2912 66	Cd II	–	2	–
2912.616	Rh I	50	20	–
2912.584	Re	4	–	–
2912.581	U	8	8	–
2912.570	W II	1	10	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2912.564	Sm	15	–	Kn
2912.501	V	1	20 h	Me
2912.487	Ti I	3	–	–
2912.435	Ru I	30	3	–
2912.34	Eu	3 w	5 w	–
2912 334	Os	50	50	–
2912.257	Fe I	8	4	–
2912 256	Pt I	300	25	–
2912 243	W	7	3	–
2912.158	Fe I	150	150	S
2912.12	Eu	5	–	Kn
2912 082	Ti I	35	15	–
2912 06	Cl II	–	[15]	Ks
2912.04	P II	–	[5]	Gu
2912.012	Th	8	6	–
2911.915	Mo	30	50 h	–
2911.87	Tm	4	6	Me
2911 86	Sb	–	[5]	Lg
2911 85	O II	–	[7 h]	Mh
2911.81	Tb	5	3 h	m
2911.765	Mo	5	–	–
2911.764	U	3	2	–
2911 745	Cb	8	100	–
2911.712	Sm	6	1	–
2911.70	Pr	–	15	–
2911.682	Cr	–	40	–
2911.655	V	1	10	–
2911.65	Ca	–	2	Ad
2911 64	Cd II	–	[15]	Vs
2911.548	U	12	6 h	–
2911.52	Yb	5	40	–
2911.514	Ce	8	–	–
2911.461	Ne I	–	[25]	Ps
2911.45	In	–	3	Cx
2911.417	Er	30	15	–
2911.39	Lu	100	300	Me
2911.35	Te	–	[10]	Bl
2911.341	Os	5	5	–
2911 324	Th	8	6	–
2911.287	U	3	2	–
2911.272	Sm	15	1 h	–
2911.231	Re I	8	–	–
2911 215	Cu I	2 h	–	–
2911.20	O II	–	[5 h]	Mh
2911 145	Cr I	40	8	–
2911 120	Ce	2	–	–
2911.104	U	6	4	–
2911.08	Fe	3	–	–
2911 07	Se	–	[5]	Bl
2911 069	Er	4 s	–	–
2911 064	V II	30	200 r	–
2911.03	Pd II	–	2 wh	Bx
2911 01	Fe	3	–	–
2911 001	W	10	8	–
2910 94	Br	–	[5]	Bl
2910.933	Mo	–	10	–
2910 92	Fe	10	4	–
2910.902	Cr I	60 r	8	–
2910.852	Ce	2	–	–
2910.824	U	12	8	–
2910.82	Cs	–	[2]	Bs
2910.82	C II	–	2	En
2910.8	Cd	–	[30]	Es
2910.77	Ga II	–	[3]	Sy
2910.77	Ti II	–	6 wh	–
2910 759	Fe II	–	2	–
2910.708	Pd	–	2 wh	–
2910.686	Cb	2	5	–
2910 67	Fe	4	–	–
2910 653	Cr	–	50	–
2910.638	U	4	4	–
2910.597	Th	12 s	10	–
2910.587	Cb	10	100	–
2910.526	Gd	8	4	–
2910.52	In	–	5	Cx
2910.477	W	12	10	–
2910.448	Pt I	3	–	–
2910.44	Ne	–	[4]	Bl
2910.39	P	–	[5 h]	Gu
2910.389	V II	35	150 r	–
2910.385	Ce	3	–	–
2910.36	Tb	3	10 h	Ed
2910.357	Er	20	6	–
2910.35	Ho	–	10	Ex
2910.31	Ca	–	5 d	Ad

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2910 27	Xe	–	[2 wh]	Hu
2910 269	Sm	12	3	–
2910.248	Zr II	3	4	–
2910.242	Mn	5	–	–
2910.213	Ce	5	–	–
2910.201	U	3	2	–
2910.193	Th	–	10 wh	–
2910 171	Rh	50	12	–
2910.10	Ne II	–	[18]	Bn
2910.084	Re I	15	–	–
2910.019	V II	35	150 r	–
2909 943	Ir I	7	–	–
2909 925	Ti II	7	15	–
2909.914	Hf II	30	20	–
2909.86	Fe	4	1	–
2909 818	Re	40	–	–
2909 789	Ir	2	–	–
2909 742	U	4	4	–
2909 740	Ru	–	150	–
2909 669	Os	12	5	–
2909 631	La	2	–	–
2909 628	W	4	3	–
2909 614	Ce	5	–	–
2909.59	Fe	2	–	–
2909.577	Er	7	1	–
2909 558	Ir	18	5	–
2909 503	Fe	70	35	–
2909.48	Yb	2	8	–
2909 46	Ti II	–	4 h	–
2909.42	Ho	40	10	Ex
2909.36	Hg II	–	[25]	Ps
2909.325	Dy	2	–	–
2909.31	Fe	4	2	–
2909.250	U	6	15	–
2909.224	Ru	12	2	–
2909.19	Yb	2	7	–
2909.123	W	8	8	–
2909 116	Mo II	25	40 h	–
2909.061	Os I	500 R	400	–
2909.052	Cr I	60 r	12	–
2909.01	Eu	40	–	–
2908.98	Nd	–	5 h	–
2908 979	Cb	1	5	–
2908 910	Ta	150	10	–
2908 881	Cb	2	20	–
2908 879	Mn	10	–	–
2908 878	U	2	2	–
2908 877	Ru	–	8	–
2908 859	Fe	80	40	–
2908 858	Hf II	3	5	–
2908.817	V II	70 r	400 R	–
2908.74	Cd I	5 l	–	Fl
2908 69	Tm	5	10	Me
2908.62	Kr II	–	[5]	Me
2908.598	Nd	–	5	–
2908.535	Er	6	–	–
2908.493	W	–	10	–
2908.49	Tb	3	20	Ex
2908.438	V	2	20	–
2908.421	Ce	30 s	–	–
2908.410	U	8	8	–
2908 395	W	7	2	–
2908.36	Te	–	[5]	Bl
2908.359	Th	12 s	12	–
2908.343	Re	20	–	–
2908.33	Yb	1	5	–
2908.275	U	12	30	–
2908.261	W	7	3	–
2908.243	Cb	20 r	200	–
2908.164	Mo	5	8	–
2908.14	Ti	–	25 wh	–
2908.140	Nd	–	5	–
2908.097	Ce	3	–	–
2908.09	Yb	–	4	–
2908.026	Os	5	3	–
2907.993	Mn	20	–	–
2907.93	In	–	2	Cx
2907.90	Ca	–	5	Ad
2907.899	Pt I	15	4	–
2907.857	Fe II	2	20	–
2907.819	Ce	4	–	–
2907.784	Mo	6	–	–
2907.783	Ta	3	–	–
2907.70	Br	–	[5]	Bl
2907.573	U	2	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2907.520	Fe I	100	80	–
2907.520	Cb	–	15 h	–
2907.471	V II	40	150 h	–
2907.462	Ce	2	–	–
2907.460	Co	4	–	–
2907.459	Ni I	40	–	–
2907.384	Zr II	2	3	–
2907.260	W	8	3	–
2907.235	Ir I	25	10	–
2907.216	Mn	50	–	–
2907.209	Rh I	100	30	–
2907.18	Xe II	–	[40 h]	Hu
2907.18	Yt II	–	4 h	–
2907.17	Tm	5	10	Me
2907.116	Mo	10	30	–
2907.105	Re	15	–	–
2907.093	Ce	4	–	–
2907.08	In	–	2	Cx
2907.06	Au	–	25	–
2906.98	Te	–	[15]	Bl
2906.97	Fe	2	–	–
2906.913	U	18 r	15 h	–
2906.87	Yb	–	3	–
2906.85	Ne II	–	[10]	Bl
2906.795	Cb	–	6 wh	–
2906.798	U	15	50	–
2906.731	W	6	2	–
2906.71	Se	–	[10]	Bl
2906.68	Ti	–	100 wh	–
2906.676	Eu	300 W	300	–
2906.62	O II	–	[15 h]	Mh
2906.61	Fe	2 h	1	–
2906.603	I	–	[12 l]	Ke
2906.576	W	6	2	–
2906.500	Er	6	–	–
2906.48	Ta	2 h	–	–
2906.457	V II	40	150 h	–
2906.44	Nd	–	10	–
2906.432	U	2	2	–
2906.421	Fe	60	25	–
2906.410	W	–	10	–
2906.394	Dy	2	1	–
2906.34	Yb	–	40	Me
2906.315	Ru	30	5	–
2906.25	Cl II	–	[20]	Ks
2906.17	Cs	–	[2]	Bs
2906.17	Ta	2	–	Ks
2906.156	Ir I	3	–	–
2906.134	V I	30	25 h	–
2906 126	Th	8	4	–
2906.122	Fe II	–	40	–
2906.088	Ce	3	–	–
2906.056	Mo	15	1	–
2906 032	Ce	2	–	–
2906 018	Re I	30	–	–
2905.970	Os	12	8	–
2905.934	Th	6	5 h	–
2905.902	Pt I	100	15	–
2905.90	Au I, II	10	30	–
2905.88	Se	–	[5]	Bl
2905.88	Br	–	[5]	Bl
2905.833	Mo	–	15	–
2905.828	Ru	20	5	–
2905.812	U	6	6 h	–
2905.739	Ta	40	3	–
2905.730	Os	40	8	–
2905.660	Ti	30	2	–
2905.650	Ru I	50	12	–
2905 638	Ir	20	4	–
2905.602	V	4	20	–
2905.596	W	3	10	–
2905.59	Si	–	[5]	Sy
2905.582	Re I	50	–	–
2905.52	La II	2	4 hl	–
2905.487	Cr I	60 r	8	–
2905.41	Tm	10	5	Me
2905.396	Re	20	–	–
2905.38	Fe	7	4	–
2905.313	Gd	20	20	–
2905.28	U	3	2	–
2905.266	Mo	30	4	–
2905.239	Ta	80	100	–
2905.226	Zr II	10	10	–
2905.178	W	9	3	–
2905.16	In	–	2	Cx
2905.10	Xe II	–	[2 h]	Hu
2905 07	Se II	–	[7]	Bl
2905 00	O II	–	[5 h]	Fl
2904 986	V	2	25	–
2904.914	Na II	20	[80]	Fr
2904.86	Cb	–	10	–
2904.799	Ir I	25	10	–
2904.778	W	9	9	–
2904.751	Hf	30	6	–
2904.71	Gd	–	30	–
2904.681	Cr	20	2	–
2904.68	Dy	2	–	–
2904.6	Rn	–	[3]	Wo
2904 60	Fe	1	–	–
2904 54	W	–	7	–
2904.519	Hf II	8	8	–
2904 506	U	8	8	–
2904 467	Er	25	5	–
2904 430	Ta	15	3	–
2904.408	Hf I	30	6	–
2904.333	Mo	–	10	–
2904.302	Nd	–	10	–
2904 29	O II	–	[5 h]	Mh
2904.288	Co I	2	–	–
2904.274	Zr II	2	2	–
2904 254	Th	–	5	–
2904.212	Eu	10	–	–
2904.18	Xe	–	[2]	Hu
2904.18	Rb	–	[2]	Ok
2904.163	Fe	15	8	–
2904.160	Cb	1	4	–
2904.15	Br	–	[5]	Bl
2904 126	V I	20	6 h	–
2904.08	Fe	6	3	–
2904.074	Ta	300 w	40	–
2904.072	W II	3	18	–
2904.05	Te	–	[5]	Bl
2904.01	Si	–	[5]	Sy
2903.873	Ir I	8	–	–
2903.76	Fe	2	–	–
2903.745	Ir I	8	–	–
2903 74	Al II	–	[2]	Sy
2903.72	Rb	–	[10]	Ok
2903.698	V I	15	1	–
2903.654	Cb	5	3	–
2903.64	Zr II	1	20 wh	–
2903.571	Nd	–	10	–
2903.577	Hf	1	2	–
2903.554	U	3	4	–
2903.547	V	–	9	Me
2903.519	Ce	3	–	–
2903.496	W	–	15	–
2903.443	Er	4	–	–
2903.36	Fe	2	–	–
2903.31	Rh I	2	–	–
2903.30	O	–	[15 h]	Mh
2903.21	Tb	15	3 h	m
2903.195	Co	25	1	–
2903.19	Al II	–	[3]	Sy
2903.188	Ti I	2	–	–
2903.170	Th	6	5	–
2903.13	Cd I	5 h	–	Fl
2903.119	Os	8	5	–
2903.08	Tm	15	25	Me
2903.079	Ru	6	2	–
2903.078	V II	35	150 r	–
2903.069	Mo	20	100 h	–
2903.05	Lu	20	1	Me
2903.048	U	4	4	–
2903.013	I	–	[12]	Ke
2902.951	Ir I	3	–	–
2902.92	Yb	–	6	–
2902.86	Fe	2	–	–
2902 860	Ru	4	–	–
2902.808	U	6	2	–
2902.715	Ce	3	–	–
2902 664	Ce	5	–	–
2902.66	Nd	–	5	–
2902.632	Ta	30	2	–
2902.622	Mo	5	–	–
2902.606	W	6	10	–
2902.481	Re I	125 W	–	–
2902.469	Fe II	1	35	–
2902.41	Yb	–	2	–
2902.406	U	6	6	–
2902.401	Mn	12	–	–
2902 385	Ce	2	–	–
2902 323	Ce	3	–	–
2902.317	Fe II	–	2	–
2902.317	Ir I	4	–	–
2902.26	Zn II	–	[50]	Vs
2902.243	Mo	5	–	–
2902.23	Zr II	1	2	–
2902.205	Mn	50	–	–
2902.198	W	9	10	–
2902.147	Ce	8	–	–
2902.098	Ru	6	–	–
2902.08	Al II	–	[8]	Sy
2902 07	Ag II	5	200 wh	–
2902.046	Ta	1000 w	200	–
2902.039	W	8	2	–
2902.009	Ru	–	25	–
2901.951	Ir I	25	15	–
2901.94	Tl II	2	5	–
2901.937	Ru	12	5	–
2901.92	Br	–	[5]	Bl
2901.915	Fe	125	40	–
2901.84	I	–	[12]	Bl
2901.819	Zr II	4	4	–
2901.81	Fe	3	2	–
2901.794	Mo	–	15	–
2901.784	W	9	7	–
2901.780	Ru	4	–	–
2901.708	Ce	2	–	–
2901.642	U	5	6	–
2901.617	Zr II	3	5	–
2901.545	Ce	3	–	–
2901.54	Tb	10	3	m
2901.481	Yt I	5	–	–
2901.409	Ru	–	8	–
2901.385	Fe I	100	80	–
2901.381	Na II	3	[20]	–
2901.322	Os	10	4	–
2901.225	U	12	10	–
2901.17	W	–	9	–
2901.1	Cs	–	[2]	Bs
2901.051	Ta	100	3	–
2901.002	Ir I	5	–	–
2900.888	V	2 h	–	–
2900.83	Ho	–	10	Ex
2900.825	Dy	2	–	–
2900.807	W	8	3	–
2900 795	Mo	2	40	–
2900.750	Ta	3 h	100 l	–
2900 675	Cb	–	100 wh	–
2900.606	Ce	6	–	–
2900.56	In	–	12	Cx
2900.547	Mn	50	–	–
2900.52	Te	–	[10]	Bl
2900.516	W	8	7	–
2900.454	U	5	2	–
2900.421	Ru	–	50	–
2900 389	Ir I	20	5	–
2900.368	Ce	6	–	–
2900.363	Ta	200	40	–
2900.30	Lu	50	150	Me
2900.265	Cr I	18	–	–
2900.25	Pd	–	2 wh	Bx
2900.22	I	–	[12]	Bl
2900.163	Mn	12	3	–
2900.16	Br	–	[3]	Bl
2900 114	U	6	8	–
2900.01	Tb	–	10	Ex
2899.96	W	–	5 h	–
2899.955	Rh I	70	30	–
2899.938	V	–	12	–
2899.85	Nd	–	10	–
2899.817	Co I	25	1	–
2899 80	La II	2	4 hl	–
2899.78	Ca	–	8	Ad
2899.727	Ru	5	1	–
2899.724	Th	15	12	–
2899.71	Yb	2	10	–
2899.7	Cs	–	[2]	Bs
2899.69	Rh I	5 r	–	–
2899.66	Li	–	60	An
2899.645	Pt II	2 h	25 h	–
2899.629	Ir I	25	5	–
2899.620	Ce	2	–	–
2899.60	Nd	–	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2899.597	V I	30	4 h	–
2899.59	U	6 rh	4 h	–
2899.56	W	–	4 h	–
2899.52	Si	–	[5]	Sy
2899.488	Ru	–	8	–
2899.483	Cr	2	40	–
2899.446	Ce	3	–	–
2899.415	Fe	125	100	I
2899.373	Th	5	3	–
2899.239	Cb	20	500	–
2899.208	Cr I	50	25	–
2899.201	V I	30	7 h	–
2899.073	Ce	5 l	–	–
2899.044	Ta	200	15	–
2898.944	Ce	6	–	–
2898.942	Ir I	8	–	–
2898.94	Yt II	8	10	–
2898.93	Th	–	25 wh	–
2898.93	Fe	2	–	–
2898.86	Fe	7	4	–
2898 84	Tb	15	10	m
2898.817	V I	10	–	–
2898.787	Re	15	–	–
2898.735	Fe II	–	3	–
2898.712	Zr II	7	7	–
2898.711	U	8	4	–
2898.71	As I	25 r	40	Me
2898.709	Hf II	25	50	–
2898.693	Mn	12	3	–
2898.652	Mo	20	6	–
2898.563	U	8	4	–
2898.538	Ru	20	4	–
2898.536	Cr	12	40	–
2898.481	Mo	–	15	–
2898.47	Fe	2	–	–
2898.45	Cl	–	[8]	An
2898.425	Ta	30	5	–
2898.386	Mo	2	–	–
2898.366	U	4	4	–
2898.355	Fe	100	30	–
2898.350	Ir I	10	–	–
2898.336	Ce	6	–	–
2898.33	Yb	–	10	–
2898.27	Be I	20	–	Ps
2898.267	Th	4	3	–
2898 259	Hf I	50	12	–
2898.256	Zr	4	–	–
2898 253	W	8	3	–
2898.219	Ru	–	60	–
2898.20	Tb	–	10	Ex
2898.19	Be I	15	–	Ps
2898.09	W II	–	3	–
2898.06	Fe	2	–	–
2898.013	U	6	6	–
2897.990	Mn	15	–	–
2897.975	Bi I	500 WR	500 WR	–
2897.896	V	1	25	–
2897.873	Pt I	400	15	–
2897.85	Fe	2	–	–
2897.83	I	–	[20]	Bl
2897.812	Cb	15	150	–
2897.797	Mn	15	–	–
2897.76	La II	2	5 hl	–
2897.715	Ru	6	60	–
2897.704	Cr	3	25	–
2897.676	Yt II	3	12	–
2897.653	Ir	3	–	–
2897.64	Fe	4	1	–
2897.636	U	3 h	6 h	–
2897.633	Rh	2	10	–
2897.628	Mo	20	25	–
2897.592	Re	10 d	–	–
2897.518	Er	12	2	–
2897.49	N	–	[15 h]	Fl
2897.46	Tb	3	20 h	Ed
2897.458	U	6	4 h	–
2897.427	Mn	8	–	–
2897.421	Mo	–	20	–
2897.36	Ho	–	20 h	Ex
2897.351	Cb	3	2	–
2897.30	A	–	[10]	Rt
2897.262	Fe II	–	200	–
2897.200	W	4	3	–
2897.172	Ce	4	–	–
2897.152	Ir I	20	10	–
2897.071	Th	12	5	–
2897.065	Mn	5	2	–
2897.03	Ne II	–	[5]	Bl
2897.002	Cb	2	3	–
2897.00	Cl	–	[6]	An
2896.98	Nd	–	5 h	–
2896.971	Mo	3 h	1	–
2896.965	U	6	6 h	–
2896.960	Er	15	3	–
2896.960	Ir I	5	–	–
2896.96	Fe	3	–	–
2896.915	W	4	2	–
2896.90	Yb	2	5	–
2896.878	V	–	9	–
2896.862	Ce	5	–	–
2896.753	Cr I	60 r	30	–
2896.75	A	–	[20]	Rt
2896.733	Ce	20 s	–	–
2896.71	Th	–	20 Wd	–
2896.69	Fe	3	–	–
2896.678	U	8	8	–
2896.574	Er	5	–	–
2896 530	Ru	30	4	–
2896.49	Ag II	2	150 wh	–
2896 461	Cr	6	30	–
2896.448	Re	8	–	–
2896.446	W	15	25	–
2896 444	Mo	1	20	–
2896 438	Ta	2 h	50	–
2896.404	Ce	8	–	–
2896.40	Fe	2	–	–
2896 248	Cb	2	1	–
2896.211	V II	35	150 r	–
2896.090	Sn	–	2 h	–
2896 08	Rh	2	10	–
2896 074	U	6	4	–
2896 063	Os	40	8	–
2896 016	Re I	125 w	–	–
2896.008	W	10	12	–
2895.949	Ce	4	–	–
2895.927	Er	4	–	–
2895.900	U	2	2	–
2895.891	Co I	3	–	–
2895 88	Se II	–	[25]	Bl
2895 657	Re I	25	–	–
2895 639	Ce	8	–	–
2895.605	V	1	12	–
2895.545	U	6	4	–
2895.49	Te	–	[300 h]	Bl
2895.485	Co I	20	–	–
2895.45	W	–	9	–
2895.436	U	5	4	–
2895.41	Tl I	30 s	15 s	Fl
2895 364	Cb	1	10	–
2895.336	Co	4	–	–
2895.328	Zr II	–	10 h	–
2895.32	Cs	–	[2]	Bs
2895.32	P	–	[25 w]	Gu
2895 262	U	5	4	–
2895.22	Xe II	–	[80 h]	Hu
2895 215	Fe II	–	80	–
2895.190	Mn	12	–	–
2895.18	V	4 h	–	–
2895.143	Th	10	10	–
2895.103	Ta	125	15	–
2895.064	Os	25	8	–
2895 035	Fe I	125	70	I
2894.99	Yb	–	5 d	Me
2894.99	Ho	20	10	Ex
2894.98	O	–	[10 h]	Mh
2894.911	Cb	2	5 wh	–
2894 881	Ce	4	–	–
2894 855	Mo	–	8	–
2894.85	Cs	–	[2]	Bs
2894.842	U	5	2	–
2894.84	Lu	60	200	Me
2894.832	V	–	7	–
2894.794	Zr II	2	–	–
2894.778	Fe II	–	80	–
2894.77	Tb	–	10	Ex
2894.732	Ce	2	–	–
2894.63	Kr II	–	[2 whl]	Me
2894.616	W	5	2	–
2894.577	V I	12	–	–
2894.512	U	15	15	–
2894.505	Fe	150	150	I
2894.48	Tb	10	10	Ed
2894.47	Tm	20	40	Me
2894.451	Mo	50	80 h	–
2894.425	Cb	1	20	–
2894.326	Re	20	–	–
2894.296	Ce	4	–	–
2894.253	W	8	3	–
2894.25	Cr II	–	25	–
2894 216	Ce	10	–	–
2894.171	Cr	40	2	–
2894.141	U	12	15	–
2894.12	Nd	–	5	–
2894.086	Ce	8	–	–
2894.023	Ce	8	–	–
2894.009	Hf II	2	2	–
2893.98	A	–	[2]	Rt
2893 946	Na II	8	[60]	Fr
2893 907	Er	12	1	–
2893 884	Fe I	25	20	–
2893 865	Pt I	500	25	–
2893 85	Eu	150	100	–
2893.81	Cs	–	[2]	Bs
2893.792	Ta	2	10 h	–
2893.778	Mo	–	3	–
2893 764	Fe I	15	8	–
2893 756	U	3	2	–
2893 74	Cd II	–	[3]	Tk
2893 730	Ru	2	–	–
2893 70	O	–	[10 h]	Mh
2893 682	Ir I	10	–	–
2893 63	Yb	1	8	–
2893 617	W	7	3	–
2893 595	Hg I	40	50	–
2893 50	U	5	1	–
2893 496	Er	4	–	–
2893 486	Cr	–	5 h	–
2893 44	Br	–	[35]	Bl
2893.43	Fe	1 h	–	–
2893.42	Au	–	30	–
2893.331	U	2 h	2 h	–
2893.320	V II	50	300 r	–
2893 28	Cd	–	[2]	Vs
2893.27	Te	–	[30]	Bl
2893.254	Cr I	80 r	10	–
2893.226	Mo	10	1	–
2893 220	Pt I	25	5	–
2893.123	W	8	4	–
2893.089	Pd II	–	100	–
2893 071	La II	6	60	–
2893 069	Cb	–	100 W	–
2893.056	Ce	2	–	–
2893 03	Eu	40	–	–
2892.953	Cr	2	20	–
2892.93	Br	–	[5]	Bl
2892 905	Bi	12 Wh	8	Om
2892.86	N	–	[25 h]	Fl
2892.828	Fe II	2	20	–
2892.819	U	4	2	–
2892.812	Mo	25	30	–
2892.78	Ti	3	–	–
2892.76	Se	–	[10]	Bl
2892.7	Rn	–	[150]	Wo
2892.68	Nd	5	–	–
2892.659	V II	30	150 r	–
2892 658	Mn	20	–	–
2892.644	Re	25	–	–
2892.637	U	6	4	–
2892 605	W	4	3	–
2892.565	Mo	5	–	–
2892.561	Hf	12	5	–
2892.560	Ru	20	6	–
2892.54	Eu	40 w	30 h	–
2892.485	Mn	5	–	–
2892.483	Fe	100	40	–
2892.47	O II	–	[5 h]	Mh
2892.441	V II	30	150 r	–
2892.392	Mn	8	4	–
2892 265	Zr I	20	–	–
2892.261	Ir	5	3 h	–
2892.247	Co	25	–	–
2892.22	Ag II	–	2 h	–
2892.216	Rh I	30	–	–
2892.215	Fe II	2	1	–
2892 206	U	6	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
2892 2	bh B	200	–	L
2892.175	Th	6	5	–
2892.145	Ce	15	–	–
2892.116	W	4	3	–
2892.06	Br	–	[5]	Bl
2892.028	Mo	–	15	–
2892.000	Ta	80 h	10	–
2891.973	Ru	–	4	–
2891.96	Au I	8	20	–
2891.96	Ca	–	2	Ad
2891.950	V I	2	–	–
2891.906	Fe	25	10	–
2891.882	Re	40	–	–
2891.88	Cr	–	35	–
2891.843	Ta	500 W	100	–
2891.796	U	10	8	–
2891.77	Th	6 d	5 d	–
2891.75	Cs	–	[2]	Bs
2891.728	Ce	6	–	–
2891.72	Cl	–	[6]	An
2891.71	Fe	15	10	–
2891.649	Ru	8	5	–
2891 642	V II	40	200 r	–
2891.636	Ce	3	–	–
2891.61	A II	–	[40]	Rt
2891.51	Sb	–	20 wh	–
2891.483	Re	25	–	–
2891.46	W	1	10	–
2891.415	Cr	30	15	–
2891.41	Cb	–	10 wh	–
2891.41	Tb	3	500	Ex
2891.40	Fe I	4	2	–
2891.39	Ho	–	10	Ex
2891.387	Er	20	12	–
2891.38	Yb	50 h	100	–
2891.321	Mn	3	3	–
2891.286	U	3	2	–
2891.275	Mo	15	20	–
2891.254	Th	10	10	–
2891.214	Sb	–	[12]	Lg
2891.139	Ru	5	–	–
2891.104	Cr	10	40	–
2891.074	U	8	10	–
2891.066	Ti II	20	50	–
2891.038	Ta	150 W	30 h	–
2891.03	Hf	6	–	Me
2891.026	Dy	3	1	–
2890.994	Mo II	30	50 h	–
2890.99	W	2	8	–
2890.93	Tm	60	15	Me
2890.893	Th	6	4	–
2890.886	Ru	2	–	–
2890.849	Os	10	4	–
2890.84	Nd	5	2 h	–
2890.746	Dy	2	1	–
2890.726	Cr	18	–	–
2890.687	Ce	2 W	–	–
2890.66	W	2	12	–
2890.61	Ti	–	50 wh	–
2890.558	Cb	1	5	–
2890 554	V	1	12	–
2890.535	Ir I	8	–	–
2890.52	Ta	1	2	–
2890.48	Co	–	10	Ex
2890.444	Dy	2	–	–
2890.428	U	6	4	–
2890.42	Fe	4	1	–
2890.409	Ce	2	–	–
2890.374	Pt II	5 r	25	–
2890.36	Yt I	3	–	–
2890.351	Cb	1 h	10	–
2890.24	As II	–	3	Ro
2890 200	In II	–	[20]	Ps
2890.181	Cb	3	1	–
2890.173	Ce	8	–	–
2890.161	In II	–	[40]	Ps
2890.16	Cr	20	–	–
2890.141	V	2	12	–
2890.111	U	6 h	2	–
2890.060	Ta	15	2	–
2889.992	Fe	15	8	–
2889.97	Pd II	–	2 h	Bx
2889.965	W	7	2	–
2889.929	Sb	–	5	Sp
2889.900	Cb	4	2	–
2889.88	Fe	20	15	–
2889.839	Rh I	70	30	–
2889.837	Mo	12	–	–
2889.77	W	2	20	–
2889.73	Tb	10	–	Ex
2889.72	B	–	2	Sy
2889.64	Tm	10	20	Me
2889.627	U	30	50	–
2889.621	V II	40	150 r	–
2889.619	Hf	30	10	–
2889.581	Ir I	10	5	–
2889.58	Mn	12 d	10	–
2889.54	Tb	3	10	Ed
2889.54	I	–	[20]	Bl
2889.484	Cr	2	25	–
2889.463	Re I	30 w	–	–
2889 460	Ce	2	–	–
2889.430	Zr II	3	3	–
2889 385	Ru	–	15	–
2889.380	Ta	40	5	–
2889.3	Rn	–	[15]	Pe
2889.266	U	5	2	–
2889 265	Cr I	60 r	30	–
2889.234	Ir I	5	–	–
2889.205	Cr	15	20	–
2889 19	Nd	–	5	–
2889 129	Zr I	3	–	–
2889.121	U	5	4	–
2889.106	Rh I	80	1 h	–
2889.07	Xe II	–	[8]	Hu
2888 932	Ti II	15	25	–
2888 833	Cb	10	100	–
2888 784	W	4	3	–
2888 762	Sm	–	20	–
2888.741	U	10	6	–
2888.74	Cr	3	40	–
2888 700	Ce	10	–	–
2888.692	W II	–	5	–
2888.690	Mo	–	10	–
2888 63	Ti	–	70 wh	–
2888.628	Ru	4	10	–
2888.54	Dy	2	–	Ex
2888.530	Mo	10	–	–
2888.521	V I	2	–	–
2888.48	I	–	[12]	B
2888.456	Ce	6	–	–
2888 43	Ne II	–	[2]	Bn
2888.382	Cr I	15	–	–
2888 380	U	3	2	–
2888.32	B	–	2	Sy
2888 305	W II	6	10	–
2888.26	U	12	12	–
2888 246	V	20	125 r	–
2888 196	Pt I	50	–	–
2888.160	Er	7	1	–
2888.153	Mo	1	40	–
2888.093	Fe II	–	80	–
2888.074	Ce	2	–	–
2888.036	Zr II	2	6	–
2888.03	Yb	4	20	–
2888.013	Re	3	–	–
2888.012	Hf II	5	3	–
2887 995	Ru I	30	4	–
2887.96	Fe	4	1	–
2887.91	O II	–	[10 h]	Mh
2887.907	U	3	2	–
2887.88	Eu	30	30	–
2887.821	Th	18	18	–
2887.807	Fe	80	60	–
2887.77	Cr	–	35	–
2887.77	Sn	–	2 h	–
2887.697	V I	2	–	–
2887.692	Cb	2	15	–
2887.666	Re I	125	–	–
2887.656	W	8	7	–
2887.619	Mo	20 d	–	–
2887 594	U	6	8	–
2887.56	Nd	–	5	–
2887.541	Hf	15	2	–
2887.453	Ti II	3	12	–
2887.36	I	–	[20]	Bl
2887.312	Re	25	–	–
2887.312	Fe II	3	20	Do
2887.298	Cb	2	1	–
2887.264	Ru	2	–	–
2887.252	U	25	25	–
2887.2	Rn	–	[125]	Pe
2887.19	Pb II	–	[10]	Gs
2887.17	Br	–	[5]	Bl
2887.158	V	1	9	–
2887.154	Fe	6	2	–
2887.135	Hf	25	3	–
2887.125	Ir I	10	–	–
2887 12	Xe II	–	[8]	Hu
2887 113	Ru	3	–	–
2887.106	Er	10	2 h	–
2887.093	Cb	1 h	10	–
2887.053	Ru	–	4 h	–
2886 997	Cr I	100	18	–
2886.972	Mo	1	25	–
2886 967	V	2	15	–
2886.938	Re	20	–	–
2886 925	U	3	6	–
2886 92	Eu	5	–	–
2886 895	W II	3	20	–
2886.825	Er	2	–	–
2886.804	U	3	2	–
2886.80	B	–	2	Sy
2886.71	Zr II	–	2 w	Ks
2886.678	Mn	15	6	–
2886.67	Cs	–	[20]	Bs
2886 647	Ta	5 h	2	–
2886.63	Cl II	–	[3]	Ks
2886 62	Cb	–	8	–
2886.606	Mo	30	1	–
2886 60	Cd II	–	[3]	Vs
2886 542	Os	5	5	–
2886.536	Ru	60	50	–
2886 510	Th	5	6	–
2886.46	W	–	7	–
2886.459	Tm	30	5	Me
2886.457	Yt I	15	6	–
2886.449	U	15	6 h	–
2886 445	Co I	50	2	–
2886 332	Ce	3	–	–
2886 322	Cb	2	5	–
2886 318	Fe I	50	15	–
2886.28	Tb	15	10	m
2886.26	Yb	2	5	–
2886 250	Na II	6	[20]	Fr
2886 248	Th	6	5	–
2886.228	Fe II	–	3	
2886 049	U	5	4	–
2886 046	Ti	8	2	–
2886 04	Lu	3	–	Me
2885 974	Rh I	2	1	–
2885 96	Yb	1	4	–
2885 932	Ce	2	–	
2885 931	Re	15	–	–
2885 928	Fe II	–	70	–
2885 921	W	4	3	–
2885 90	Tb	10	10	Ex
2885.82	Nd	–	5	–
2885.736	Mo	10	25	–
2885 605	U	4	4	–
2885 60	Au II	–	12	–
2885 600	Gd	5	10	–
2885 50	Dy	2	1	–
2885.50	C II	–	6 h	En
2885.473	Hf II	12	15	–
2885.442	W II	1	5	–
2885.362	U	6	4	–
2885.36	O	–	[10 h]	Mh
2885.350	Fe	7	2	–
2885 33	Tb	3	–	Ex
2885.305	Co I	3	–	–
2885.291	Ce	10	–	–
2885 25	N	–	[50 h]	Fl
2885.187	U	12	6	–
2885.167	Re	2	–	–
2885.141	La II	5	50	–
2885.14	Tb	–	70	Ex
2885.14	Lu	40 h	3	Me
2885.125	Mn	1	2	–
2885.045	Th	12	15	–
2884.972	Cb	3	4	–
2884.93	C II	–	2 h	En
2884.925	U	2	2	–
2884.848	Ru	8	–	–
2884.82	Dy	2	1 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2884.788	Mo	–	6	–
2884.785	V II	40	200 r	–
2884.779	Fe II	–	25 h	Do
2884.729	Ce	3	–	–
2884.70	Tb	5	3	m
2884.636	W	5	4	–
2884.634	Re	25	–	–
2884.613	U	2	2	–
2884.590	Mo	5	–	–
2884.56	Zr II	–	4 h	–
2884.556	Rh I	5	–	–
2884.51	As II	–	25	Ro
2884.507	Ru	20	5	–
2884.455	Ce	2	–	–
2884.42	Cs	–	[8]	Bs
2884.408	Os	20	5	–
2884.383	Cu II	–	30	–
2884.305	W	–	10	–
2884.302	U	3	2	–
2884.295	Th	12	12	–
2884.28	Dy	2 h	1 h	–
2884.25	N	–	[8 h]	Fl
2884.21	Kr II	–	[2]	Me
2884.21	A	–	[5]	Rt
2884.20	Al	–	[30]	Sy
2884.175	W	8	4	–
2884.13	F	–	[2]	Di
2884.107	Ti II	35	125	–
2884.08	In	–	2	Sq
2884.07	Sb II	–	[3]	Lg
2884.063	V	–	12	–
2884.055	Re	20	–	–
2884.052	Ce	2	–	–
2883.957	Mo	–	10	–
2883.91	W II	–	5	–
2883.90	P	–	[25]	Gu
2883.895	Ta	8	5 wh	–
2883.82	O I	–	[15]	Fh
2883.81	Bi	3	3	To
2883.8	Rn	–	[25]	Pe
2883 798	Zr II	5	2	–
2883.749	U	3	4	–
2883.745	Cs II	–	[2]	Ot
2883 735	Fe	30	–	–
2883.71	Xe II	–	[7]	Hu
2883.702	Fe II	–	300	–
2883.607	Ce	2	–	–
2883.603	Co I	15	–	–
2883.595	Ru	30	5	–
2883.56	W	4	–	–
2883.45	Au I	15	20	–
2883.450	Re	60	–	–
2883.38	Ca	–	3	Ad
2883.297	Mo	–	6	–
2883.25	W	2	10 d	–
2883.231	Ti I	3	–	–
2883.178	Cb	100	800 R	–
2882.934	Cu I	3	–	IBu
2882.929	U	8	12	–
2882.902	Mn	25	–	–
2882.75	P	–	[18]	Gu
2882.741	U	18	20	–
2882.635	Ir I	40	6	–
2882.609	Ce	15	–	–
2882.603	Er	6	–	–
2882.587	U	8	6	–
2882.584	Ru	4	1 h	–
2882.557	I	–	[8]	Ke
2882.543	Mo	6	–	–
2882.516	Th	8	8	–
2882.501	V II	35	200 r	–
2882.474	Cb	1	5	–
2882.4	Rn	–	[3]	Wo
2882.378	Mo	1	25	–
2882.366	Rh	80	10	–
2882.345	U	6	8	–
2882.332	Ta	3	80	–
2882.235	Re	6	–	–
2882.220	Co I	30	–	–
2882.20	Ag II	–	10 h	–
2882.192	W	3	–	–
2882.15	Yb	–	2	–
2882.15	Zn II	–	[25]	Vs
2882.116	Ru	30	200	–
2882.087	Zr II	2	3	–
2882 036	Mo	–	3	–
2882.014	Th	10	12	–
2882.01	I	–	[20]	Bl
2881 951	Ti I	2	–	–
2881.937	Mo	–	3	–
2881.931	Cr	1	30	Hl
2881.92	Yb	–	3	–
2881.909	U	4	2	–
2881.80	Ca	–	4	Ad
2881.772	Ce	2	–	–
2881.737	Ir	3	–	Ab
2881.70	O	–	[10]	Mh
2881.643	Ir I	7	–	–
2881.61	In	–	2	Sq
2881.59	Dy	2 h	–	–
2881.580	Co	4	1	–
2881.578	Si I	500	400	–
2881.578	Ce	40	2	–
2881.578	Gd	40	–	–
2881.463	Al II	–	[30]	Sy
2881.420	Ce	4 s	–	–
2881.370	Mo	–	10	–
2881.357	Ir	4	–	–
2881.328	Gd	2	3	–
2881.31	Tb	10	–	m
2881.276	Ru	30	3	–
2881.254	Rh I	20	–	–
2881.247	Ni II	–	8	–
2881.232	Ta	30	5	–
2881.23	Cd I	50 R	[30]	Fl
2881.16	Cs	–	[20]	Bs
2881.158	Ir	15	3	–
2881.147	Th	10	10	–
2881.141	Cr	25	2	–
2881.140	Na II	8	[60]	Fr
2881.131	Ce	12	–	–
2881.07	W	5	1	–
2881.058	Dy	2	1 h	–
2881.017	U	2	2	–
2880.99	Ho	20	10	Ex
2880.928	Ce	2	–	–
2880.87	Ca	–	2	Ad
2880.869	Cr II	20	25	–
2880.849	Ce	2	–	–
2880.830	Zr I	5	–	–
2880.827	Fe II	1	25	–
2880.800	V	2	20	–
2880.77	Cd I	200 R	125	–
2880.756	Fe II	15	50	–
2880.715	Cb	4 w	50	–
2880.648	Rh I	10	2 wh	–
2880 644	La II	4	40	–
2880 637	Ce	18	–	–
2880.627	W	7	6	–
2880.582	Fe I	15	5	–
2880.489	U	12	15	–
2880.356	Ce	6	–	–
2880.32	Pd II	–	[3]	Bx
2880.31	Se	–	[25]	Bl
2880.293	Ti II	–	20	–
2880.29	Co II	–	50 wh	–
2880.290	Ne I	–	[3]	Ps
2880.27	Ho	20	10	Ex
2880.230	Ru	2	–	–
2880.211	Ir	10	2 h	–
2880.192	U	1	4	–
2880.159	W	–	7	–
2880.080	Ru	–	25	–
2880.067	Ir I	7	–	–
2880.030	V II	25	150 r	–
2880 018	Ta	150	50	–
2879.986	U	8	2	–
2879.755	Ru	50	12	–
2879.737	Ta	150	10	–
2879.73	N	–	[25 h]	Fl
2879.689	Mo	1	25	–
2879.621	Co	25	–	–
2879.593	U	6	4	–
2879.58	Te	–	[5 h]	Bl
2879.533	Th	6	4	–
2879.516	Ta	50 s	10 h	–
2879.495	Cb	25	2	–
2879.488	Mn	12	5	–
2879.43	Fe	7	2	–
2879.407	Ir I	20	5	–
2879.393	W	10	10	–
2879.366	Ce	2	–	–
2879.364	Cb	2 d	10	–
2879.36	Nd	5 h	2 wh	–
2879 360	Ru	3	–	–
2879 31	A	–	[5]	Rt
2879.276	Re	25	–	–
2879.274	Cr I	60	12	–
2879.25	Cs	–	[8]	Bs
2879.242	Fe II	–	25	–
2879.22	Cb	–	5 h	–
2879.205	Th	10	5	–
2879.163	V II	50	35	–
2879.16	Yb	–	5	–
2879.12	Fe	2	–	–
2879.112	Hf II	15	10	–
2879.107	W	10	10	–
2879.062	Ru	–	60	–
2879.047	Mo	15	100 h	–
2879.04	O	–	[7]	Mh
2878 951	Ta	40 r	3 s	–
2878 913	Er	7	2 h	–
2878.869	U	5	4	–
2878 86	Eu	20	–	–
2878 786	Ce	2	–	–
2878.761	Fe	8	5	–
2878.76	A	–	[2]	Rt
2878.739	Cb	3	10	–
2878 719	U	6	4	–
2878.716	W	10	8	–
2878 703	Dy	2	1 h	–
2878 655	Rh I	50	10	–
2878.643	I II	–	[400]	Ke
2878 64	Fe	3	2	–
2878 635	Ce	8	–	–
2878 558	Co I	12	–	–
2878.52	Tb	–	10	Ex
2878.514	Ir	4	–	–
2878.48	Xe	–	[2 whl]	Hu
2878.449	Sm	4	25	–
2878.449	Cr	20	80	–
2878.400	Os	40	12	–
2878.382	Mo	20	–	–
2878 36	Tm	10	20	Me
2878.30	W	1	10	–
2878.299	V	–	7	–
2878.240	U	5	2	–
2878.21	Tm	3	20	Me
2878.20	Ta	4	15 h	–
2878.165	Cb	2	–	–
2878.079	W	4	8	–
2878.040	Ru	–	15	–
2878 022	V	2	10	–
2878.018	Ce	2	–	–
2877.978	Cr II	30	100	–
2877.915	Sb I	250 W	150	–
2877.91	Ca	1 h	4	–
2877.890	Eu	2	1	–
2877.885	Dy	2	1 h	–
2877.87	Pd II	–	15 wh	–
2877.852	Cb	2	4	–
2877.840	Ru I	3	1	–
2877.830	U	2	2	–
2877.76	Eu	5	–	–
2877.689	Cu II	5	20	IBu
2877.688	V	15	100 R	–
2877.686	Ta	15	80 h	–
2877 678	Ir I	20	10	–
2877.66	N	–	[8 h]	Fl
2877.62	Cb	–	5 W	–
2877.569	U	6	4	–
2877.551	Zr II	4	4 h	–
2877.53	P	–	[10]	Gu
2877.520	Pt II	40	200 h	Sh
2877.436	Ti II	30	100	–
2877.351	Os	30	2	–
2877.301	Fe I	200	125	I
2877.29	Cs	–	[8]	Bs
2877.16	Hf	12	–	Me
2877.089	Ru	5	1	–
2877.047	U	6	12	–
2877.032	Cb	3	10 w	–
2877.0	Rn	–	[7]	Pe
2876 947	Cb	40 W	500 W	–
2876.936	V	4	25	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2876.930	W	8	12	–
2876.872	Re	15	–	–
2876.802	Fe II	–	100	–
2876.73	Rb II	–	[5]	Ok
2876.71	Fe	5	2	–
2876.661	Cr	–	20	–
2876.56	Fe	3	–	–
2876.537	Mo	15	2	–
2876.49	F II	–	[10]	Di
2876.433	U	8	2	–
2876.43	Ne II	–	[18 l]	Bn
2876.421	Th	10	8	–
2876.392	Dy	2	–	–
2876.329	Hf II	30	100	–
2876.245	Cr II	25	80 Wh	–
2876.183	Ce	2	–	–
2876.111	Ta	50 r	5	–
2876.095	W	–	5	–
2876.06	Eu	20	–	–
2876.046	Nd	–	10	–
2876.028	Re	3	–	–
2876.01	Fe	15	–	–
2875.993	Cr II	30	80 wh	–
2875.983	Ir I	25	15	–
2875.983	Zr I	70	1	–
2875.9	P	–	[5 h]	Gu
2875.881	U	5	4	–
2875.88	Yb	–	8	–
2875.88	F II	–	[5]	Di
2875.849	Pt II	20	80 h	Sh
2875.79	Ti	–	40 wh	–
2875.744	Pd	2	–	–
2875.71	Kr	–	[2 h]	Me
2875.689	V II	10	40	–
2875.605	Ir I	25	15	–
2875.42	Br	–	[7]	Bl
2875.392	Cb	50 r	300	–
2875.346	Fe II	–	70	–
2875.317	Ru	4	–	–
2875.304	Fe I	125	50	–
2875.30	Cs	–	[8]	Bs
2875.286	Re I	80	–	–
2875.25	I	–	[12]	Bl
2875.208	W	10	4	–
2875.198	U	18	12	–
2875.190	Dy	2	–	–
2874.988	U	2	2	–
2874.984	Ru	80	50	–
2874.955	Os	50	15	–
2874.936	Ta	25	2	–
2874.917	Ce	2	–	–
2874.882	Fe	60	20	–
2874.847	Mo	2	60	–
2874.83	Er	12	1	–
2874.821	Ce	2	–	–
2874.80	F II	–	[15]	Di
2874.790	U	3	2	–
2874.635	Os	10	4	–
2874.566	Cb	5	3	–
2874.56	Cu	3 h	–	–
2874.551	Ce	2	–	–
2874.55	A	–	[5]	Rt
2874.521	Ta	20	3	–
2874.469	U	6	4	–
2874.30	Fe	2	–	–
2874.28	La II	5	3	Me
2874.244	Ga I	10	15 r	–
2874.22	F II	–	[2]	Di
2874.207	V	7	20	Me
2874.173	Zr	–	2 wh	–
2874.172	Fe I	300	200	I
2874.167	Ta	150	15	–
2874.135	Ce	30 w	–	–
2874.083	U	15	10	–
2874.052	Ru	5	–	–
2873.99	Rh I	6	–	–
2873.93	Rb	–	[2]	Ok
2873.819	Cr II	20	40	–
2873.808	Er	10	2	–
2873 796	Ir I	2	5	–
2873.731	Ru	–	12	–
2873.72	Kr II	–	[4 whl]	Me
2873.717	Th	8	5	–
2873.65	Ag II	3	100 wh	–
2873.65	Fe	8	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2873.650	Hf	10	–	–
2873.640	U	3	6	–
2873.637	Mo	10	1	–
2873.623	Rh	60	10	–
2873.557	Ta	150	50 l	–
2873.53	Ag	3	2	–
2873.528	Fe	15	1	–
2873.50	In	–	2	Sq
2873.485	Cr II	30	125	–
2873.44	U	3	2 h	–
2873.41	Se	–	[5]	Bl
2873.401	Fe II	–	300	–
2873.383	W	4	10	–
2873.360	Ta	200 W	40 h	–
2873.356	V I	20	–	–
2873 354	Ce	2	–	–
2873.334	Ir I	18	3	–
2873.316	Pb	100 R	60	–
2873.308	Ru	4	60	–
2873.298	U	6	4	–
2873.24	Hg	–	[20]	Ps
2873.19	Zn	–	[3]	Vs
2873.186	Cr	25	–	–
2873.182	V	4	50	–
2873.18	La II	1	2	–
2873.13	F II	–	[5]	Di
2873.10	Si	–	[2]	Sy
2873.01	Tm	15	20	Me
2873.005	U	10	6	–
2873.0	Pb II	–	[20]	Ea
2873.00	Ne II	–	[10]	Bn
2872.914	Mn	1	3	–
2872.888	I	–	[60]	Ke
2872.884	Mo	2	50	–
2872.837	Er	6	1	–
2872.799	Cb	1	10	–
2872.673	Re	10	–	–
2872.663	Ne I	–	[35]	Ps
2872.592	Ce	3	–	–
2872.59	Br	–	[25]	Bl
2872.581	Mn	30	–	–
2872.527	Zr II	2	3	–
2872.50	Fe	4	–	–
2872.496	W	5	4	–
2872.481	Ce	3	–	–
2872.435	Ce	2	–	–
2872.405	Os	50	8	–
2872 382	Fe II	2	20	Do
2872 35	Cs	–	[8]	Bs
2872 336	Fe I	150	50	–
2872 303	Re	15	–	–
2872.18	Te	–	[5]	Bl
2872.111	Ir	2	3 h	–
2872.110	U	3	4	–
2872.08	Se II	–	[3]	Bl
2871 988	U	6 h	4 h	–
2871.899	W	–	10	–
2871.892	Mo	10	–	–
2871.814	Re I	50	–	–
2871.73	Fe	3	1	–
2871.681	Er	9	1	–
2871.644	U	6	4	–
2871 638	Ru	50	5	–
2871 633	Ce	6	–	–
2871 632	Cr I	50	2	–
2871.576	Ce	6	–	–
2871 57	Eu	4	1 h	–
2871.508	Mo II	100	100 h	–
2871 47	Ru	–	30	–
2871.454	Cr	–	80	–
2871.44	Nd	5	–	–
2871 417	Ta	200	50	–
2871 40	F II	–	[25]	Di
2871 37	Pd II	–	10 wh	–
2871.367	W	10	8	–
2871.354	Rh	100	10 h	–
2871.32	Cs	–	[2]	Bs
2871.270	Na II	6	[40]	Fr
2871.24	Xe	–	[25 hs]	Hu
2871.24	Co	–	100	Ex
2871.186	Ru	4	–	–
2871.183	Mo	10	–	–
2871.129	Fe II	–	20	–
2871.075	Ce	15	–	–
2871.060	Fe II	–	40	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2871.05	Tb	3	10	Ex
2870.98	Ca	–	2	Ad
2870.974	U	18	20	–
2870.917	Sc II	2	5	–
2870.905	W	9	12	–
2870.903	Mo	15	–	–
2870.89	Na	6	6	Fo
2870.825	Th	6	5	–
2870.742	U	4 h	4 h	–
2870.654	Cb	2	–	–
2870.626	W	3 d	4 d	–
2870.624	Ce	6	–	–
2870.602	Fe II	–	15	–
2870.561	Ir I	3	–	Ab
2870.548	Ru	–	50	–
2870.547	V I	50 r	20 r	–
2870.527	Er	3	–	–
2870.526	W	6	2	–
2870.500	Ce	2	–	–
2870.468	Pt	10	2	–
2870.436	Cr II	25	300 W	–
2870.423	U	8	2	–
2870.413	Th	18	20	–
2870.35	Cb	–	10 wh	–
2870.220	Ir	5	–	Ab
2870.214	Ru	4	–	–
2870.179	Mo	10	1	–
2870.178	Cr	12	–	–
2870.16	Pd II	–	2 h	–
2870.113	V	1	12	Me
2870.083	Mn	4	4	–
2870.06	Yb	1	10	–
2870.045	Ce	2	–	–
2870.04	Cr	12 h	–	–
2870.04	Ti	–	100 wh	–
2870.04	V I	7 w	–	–
2870.03	Co II	–	50 wh	–
2869.969	Mo	–	5	–
2869.961	V II	7	20	–
2869.95	Ca	–	7	Ad
2869.95	Ne II	–	[5]	Bn
2869.927	Th	6	8	–
2869.91	Rh	8	1 h	–
2869.90	Li	–	3	An
2869.83	Fe	10	5	–
2869.828	Cb	1	10	–
2869.825	Hf II	25	20	–
2869.82	Rb	–	[10]	Ok
2869 811	Zr II	30	30	–
2869.73	Si	–	[2]	Sy
2869 72	Te	–	[10]	Bl
2869.704	Ir I	15	2	–
2869 690	Fe II	–	3	–
2869 647	Ce	3	–	–
2869.607	W	7 s	10	–
2869 565	Mo	15	–	–
2869 559	Ce	2	–	–
2869.52	Ta	3	5 h	–
2869.463	V I	7	–	–
2869.373	U	6	4	–
2869.308	Fe I	300	70	S
2869.22	Tm	100	300	Me
2869.217	Mo	–	15	–
2869.20	Ta	2	–	–
2869.163	Fe II	–	3	–
2869.134	V	25	150 r	–
2869.100	W	9	3	–
2868.975	U	6	6	–
2868 960	Ce	6	–	–
2868.871	Fe II	5	60	–
2868.865	U	2	2	–
2868.86	Te	–	[100]	Bl
2868.85	Nd	–	5	–
2868.767	I	–	[30]	Ke
2868.742	Ti II	15	25	–
2868.729	W II	6	25	–
2868.7	Rn	–	[70]	Wo
2868.678	Th	8	6	–
2868.651	Ta	150	40	–
2868.537	Ru	5	–	–
2868.525	Cb	15	300	–
2868.521	Zr I	3	–	–
2868.52	Al II	–	[80]	Sy
2868.455	Fe II	80	40	–
2868.436	U	2	6	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2868.41	Cl II	–	[10]	Ks
2868.33	Cs	–	[8]	Bs
2868.316	Mo	2	20	–
2868.309	Ru	8	5	–
2868.28	Cl	–	[3]	An
2868.276	Rh I	10	–	–
2868.26	Cd I	100	80	m
2868.230	Ce	8	–	–
2868.214	Fe	15	8	–
2868.188	Ru I	8	4	–
2868.187	U	10	8	–
2868.151	Re	5	–	–
2868.148	Pb	–	5	–
2868.110	Mo	3	20	–
2868.103	V I	40	30 r	–
2868.053	Nd	–	5	–
2868.01	Tm	15	40	Me
2867.918	W II	1	10	–
2867.880	Fe I	5	2	–
2867.82	Ho	–	40 h	Ex
2867.805	U	6	4	–
2867.702	Hf	10	2	–
2867.67	Te	–	[5]	Bl
2867.648	Cr II	80	100 R	–
2867.630	Ir I	12	2	–
2867.62	Dy	2	–	–
2867.563	Fe	60	30	–
2867.560	W	4	3	–
2867.473	Co	4	–	–
2867.463	Ru	3	–	–
2867.41	Ta	5 h	150	–
2867.401	W II	3	10	–
2867.387	In II	–	[10]	Ps
2867.314	Fe	60	30	–
2867.30	F II	–	[10]	Di
2867.30	Eu	2	–	–
2867.273	Ce	5	–	–
2867.222	In II	–	[10]	Ps
2867.198	Re	40	–	–
2867.096	Cr	20	35	–
2867.094	Ru	–	18	–
2867.050	Mo	10	–	–
2867.04	Yb	4	40	–
2867.04	Br	–	[7]	Bl
2866.986	U	4	2	–
2866.951	V I	20	–	–
2866.90	Cs	–	[2]	Bs
2866.891	Pt II	6	15	–
2866.840	Cb	–	2	–
2866.809	Ce	12	–	–
2866.76	Xe II	–	[3]	Hu
2866.746	W II	3	9	–
2866.742	Cr II	80	125 R	–
2866.71	Sc II	3	–	Me
2866.693	Mo	30	30	–
2866.693	Th	6	5	–
2866.689	Ir I	20	2	–
2866.669	Cb	3	3	–
2866.66	Ta	3 d	1 dh	–
2866.644	Ru I	60	25	–
2866.629	Fe I	125	80	–
2866.615	W II	3	9	–
2866.594	V I	25	6	–
2866.57	Ca	–	7	Ad
2866.464	In II	–	[18]	Ps
2866.45	Li	–	2	An
2866.44	Tb	3	10	Ex
2866.440	Th	6	3	–
2866.420	U	3	4	–
2866.418	V I	35	–	–
2866.373	Hf	50	12	–
2866.373	W II	10	10	–
2866.355	Er	3	–	–
2866.32	Cs	–	[8]	Bs
2866.28	Si	–	[7]	Sy
2866.271	Dy	2	–	–
2866.261	Mo	2	4	–
2866.253	Ru	–	30	–
2866.18	Yb	–	3	Me
2866.160	U	6	6	–
2866.141	Ta	5	–	–
2866.14	P	–	[20]	Gu
2866.084	Mo	–	3	–
2866.082	Ru	–	30	–
2866.076	Pt	1	3	Sh
2866.061	W	15	10	–
2866.057	Ce	3	–	–
2866.05	Sc II	4	5 wh	–
2865.892	Cr	1	15	–
2865.89	Se	–	[10]	Bl
2865.87	Fe	2	–	–
2865.85	A II	–	[20]	Rt
2865.80	W	–	10	–
2865.734	In II	–	[5]	Ps
2865.684	In II	–	[50]	Ps
2865.680	Os	15	5	–
2865.679	U	30	50	–
2865.676	Cr	–	20	–
2865.637	In II	–	[5]	Ps
2865 63	Nd	5	–	–
2865.620	Mo	5	20	–
2865.609	Cb	5	30	–
2865.604	Zr II	4	4	–
2865.571	Hf II	3	1 h	–
2865.569	W	7	9	–
2865.563	Ce	2	–	–
2865.530	Ru	–	20	–
2865.513	Ce	8	–	–
2865.505	Mo	1	8	–
2865.502	Ni I	5	–	–
2865.501	Co I	2	1 h	–
2865.45	Ca	–	[2]	Bs
2865.378	Ce	8	–	–
2865.334	Cr	15	15	–
2865.311	W	8	–	–
2865.252	Ir	8	–	–
2865.189	Fe	2	–	–
2865.17	I II	–	[2]	Mu
2865.140	U	10	10	–
2865.118	Mo	4	–	–
2865.107	Cr II	60	200 R	–
2865.097	Zr II	2	2	–
2865.051	Pt II	20	80 h	Sh
2864.973	Fe II	–	50	–
2864.84	W	1	9	–
2864.834	Re	8	–	–
2864.819	Ce	4	–	–
2864.73	Xe II	–	[100]	Hu
2864.724	Ta	3	–	–
2864.656	Mo	40	3	–
2864 654	Th	8	6	–
2864.569	Re	10	–	–
2864.52	Au II	–	10	–
2864.517	V	6	35	–
2864.514	Pb	–	60	–
2864.503	Ta	125	30	–
2864.484	Ce	5	–	–
2864.46	W	–	12	–
2864.42	Eu	10	10 h	–
2864.404	Rh	70	10	–
2864.4	Rn	–	[12]	Pe
2864 367	Fe II	–	10	Do
2864.359	V I	40	25 r	–
2864.34	Nd	–	5 h	–
2864.321	Cb	5	10	–
2864.306	Mo	40	2	–
2864.276	U	18 h	12 h	–
2864.26	Ta	3	3 h	–
2864.257	Pb	–	60	–
2864.23	In	–	3	Cx
2864.15	Ni II	–	300 wh	–
2864.099	U	8	12	–
2863.949	Nd	5	2	–
2863 882	W	10	12	–
2863.864	Fe I	125	100	I
2863.844	Ir I	15	–	–
2863.811	Mo	30	100 h	–
2863.79	V	4	12	–
2863.76	Tm	15	40	Me
2863.754	Bi I	80 w	18	Om
2863.700	Ni II	–	250	–
2863.68	Sc II	4	–	–
2863.57	O	–	[10 h]	Mh
2863.55	Cl II	–	[7]	Ks
2863.538	Co	3	–	–
2863.44	U	6	4	–
2863.435	Fe I	100	80	–
2863.35	Tm	10	–	Me
2863.341	Ce	12	–	–
2863.33	Fe	5	–	–
2863.327	Sn I	300 R	300 R	–
2863.324	Ru	30	80	–
2863.260	Mn	3	–	–
2863.225	Ce	2	–	–
2863.20	Cl	–	[3]	An
2863.189	U	3 h	4 h	–
2863.121	Mo	–	20	–
2863.08	Fe	3	2	–
2863.049	V I	20	7 wh	–
2863.018	Sb	–	4 wh	Sp
2863.006	W	9 s	8 s	–
2863.000	Ru I	6	–	–
2862.967	La II	2	15 hl	–
2862.935	Rh I	150	60	–
2862.881	Ru	6	60	–
2862.839	Mo	10	–	–
2862.802	U	6	6	–
2862.785	Ce II	15	–	–
2862.77	W	6	2	–
2862.766	Co I	9 h	–	–
2862 695	Dy	2	–	–
2862.618	U	6	4	–
2862.606	Co I	50	–	–
2862.605	Er	5	–	–
2862.571	Cr II	80	300 R	–
2862.57	Eu	100 W	70	–
2862.52	O	–	[10 h]	Mh
2862.498	Fe I	100	50	–
2862.493	Gd	5	5	–
2862.485	Ir I	10	–	–
2862.424	W	7	2	–
2862.410	U	15	10	–
2862.40	Cs	–	[8]	Bs
2862 385	V I	12	–	–
2862 385	Ta	2	1	–
2862.373	La II	2	6	–
2862.349	Ir I	10	–	–
2862.321	Ti II	20	40	–
2862.31	Cd I	15	10	–
2862.302	V	1	25	–
2862 26	O	–	[10 h]	Mh
2862.17	Kr II	–	[2 whl]	Me
2862.070	Ne I	–	[8]	Ps
2862.06	Cl II	–	[5]	Ks
2862.06	P	–	[10]	Gu
2862.025	Ta	40	10	–
2861.99	Ti	–	100 wh	Ex
2861.981	Ta	30	5	–
2861.90	Xe II	–	[10 h]	Hu
2861.858	Mo	–	10	–
2861.833	I	–	[12]	Ke
2861.74	Tm	20	30	Me
2861.719	Ru I	12	–	–
2861.696	Hf II	50	125	–
2861.679	U	3	2	–
2861.647	Cb	–	10 w	–
2861.642	V	2	–	–
2861.621	Ce	20	–	–
2861.561	Mo	–	3 h	–
2861.49	Ho	–	10	Ex
2861.443	W	8	7 d	–
2861.407	Ru I	60	35	–
2861.401	V	–	15	–
2861.38	O	–	[10 h]	Mh
2861.37	Th	8 d	8 d	–
2861.364	Co I	15 r	–	–
2861.345	Ce	10	–	–
2861.34	Tb	10	10	Ed
2861.31	Yb	3	25	Me
2861.302	Ti II	7	15	–
2861.21	Yb	3	30	–
2861.21	W	2	6	–
2861.189	Fe II	1	30	–
2861.169	Ce	3	–	–
2861.13	U	10	15	–
2861.117	Ta	30	–	–
2861.099	Ru	–	20	–
2861.093	Cb	10	100	–
2861.054	W II	1	5	–
2861.03	Te	–	[25]	Bl
2861.012	Hf II	40	90	–
2861.011	Na II	1	[2]	Fr
2860.956	Os	100	25	–
2860.934	Cr II	60	100	–
2860.92	I	–	[12]	Bl

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2860.864	Ce	2	–	–
2860 851	Zr I	15	–	–
2860 85	Cs	–	[8]	Bs
2860.84	Ti	–	25 wh	–
2860.801	U	15	12	–
2860.762	Rh I	30	10 h	–
2860.73	A	–	[5]	Rt
2860.71	Cl II	–	[5]	Ks
2860.70	Dy	2	–	–
2860.679	W	6	9	–
2860.678	Pt II	30	150 h	Sh
2860 675	Rh I	30	–	–
2860.665	Ir I	12	2	–
2860.643	Ce	2	–	–
2860.64	Pb	–	2	Sx
2860.557	Hf	20	2	–
2860.555	Ce	3	–	–
2860.55	Tm	10	–	Me
2860.52	In	–	5	Cx
2860.466	U	35	30	–
2860.452	As I	50 r	50	Ro
2860.40	Yb	1	8	Me
2860.374	Ru	3	–	–
2860.312	Hf II	15	30	–
2860.31	Lu	–	3	Me
2860.277	Ti I	7	–	–
2860.257	Er	4	–	–
2860.21	Fe	2	–	–
2860.172	Dy	2	–	–
2860.163	W	5	9	–
2860.13	Tm	15	20	Me
2860.063	Os	25	10	–
2860.016	Ru I	60	12	–
2859.971	V I	50	10	–
2859.963	Cb	5	3	–
2859.89	O	–	[5 d]	Mh
2859.858	W	4	2	–
2859.814	Er	25	10	–
2859.806	U	3	4	–
2859.80	Yb	18	30	–
2859.785	Rh	6	–	–
2859.778	W	4	2	–
2859.757	La II	1	5	–
2859.737	U	6	10 h	–
2859.727	Dy	2	–	–
2859.667	Eu II	40	–	–
2859.659	Co I	40	–	–
2859.615	Rh	6	–	–
2859 608	Zr II	–	10 wh	–
2859.521	Ce	10	–	–
2859.482	W	3	15	–
2859.481	Na II	2	[40]	Fr
2859.48	Fe	2	–	–
2859.435	Cb	–	3	–
2859.385	Er	6	6	–
2859.38	Yb	2	20	–
2859.38	Te	–	[5]	Bl
2859.36	Ca	–	2	Ad
2859.32	Cs	–	[20]	Bs
2859.32	Sc II	7 d	5 wh	Me
2859.316	Pd II	–	15	–
2859.290	U	5	8	–
2859.115	Mo	3	–	–
2859.062	Ce	3	–	–
2859.038	Cb	1	50	–
2859.024	Ir	4	–	–
2858.995	Mo	–	15	–
2858.977	V I	40	20	–
2858.911	Cr II	50	80 Wh	–
2858.903	U	35	25	–
2858.897	Fe I	100	30	–
2858.762	V I	20	2 h	–
2858.74	In I	–	[30]	Sy
2858.740	W	7	6	–
2858.734	Cu I	30	2 h	IBu
2858.716	Ce	2	–	–
2858.661	Hf II	5	4	–
2858.659	Mn	50	–	–
2858.654	Cr II	18	30	–
2858.558	Er	10	2	–
2858.472	Ce	2	–	–
2858.45	Yb	–	4	Me
2858.435	Ta	100	300	–
2858.420	W	9	7	–
2858.412	Ti II	10	20	–
2858.35	Yb	1	5	Me
2858.343	Fe II	3	200	–
2858.34	Ho	–	10	Ex
2858 29	Te	2	[100]	Bl
2858 225	Cu I	30	2 h	IBu
2858 154	U	8	6	–
2858.14	Si	–	[2]	Sy
2858.08	Yt II	7	15	–
2858.08	Fe	4	1	–
2858.054	Mo	–	4	–
2858.044	Sb	10	5	–
2858 039	W	10	9	–
2858 01	Ne II	–	[5]	Bn
2858.009	Ce	15 s	–	–
2857.996	Fe	12	2	–
2857.979	Zr I	8	–	–
2857.97	Cr	2	40	–
2857.944	V I	50	7 h	–
2857.930	U	4	2	–
2857.89	O	–	[10 h]	Mh
2857.83	Cs	–	[2]	Bs
2857.81	Ti	–	70 wh	–
2857.807	Fe	12	2	–
2857.776	Ru	4	60	–
2857.746	Cu II	–	4 h	Sh
2857.726	Pd II	–	100	–
2857.68	Tb	5	3	m
2857.65	W	1	7	–
2857.650	Ru	2	1 wh	–
2857.650	Hf II	20	20	–
2857.537	Os	5	5	–
2857.494	Th	5	3	–
2857.474	U	8	6	–
2857.445	W II	–	3	–
2857.436	Re	15	–	–
2857.415	Fe II	–	10	–
2857.402	Cr II	20	80	–
2857.362	Cb	–	5	–
2857.293	Cb	4	3	–
2857 282	Ta	60	5	–
2857 26	Ag	2 h	1 h	Fn
2857 220	Ru	–	25	–
2857.19	Tb	–	10	Ex
2857.172	Fe II	–	30	–
2857.132	W	10	10	–
2857 125	U	4 h	2 Wh	–
2856.98	Hf II	2	1	–
2856.976	Ce	3	–	–
2856 969	Hg I	20	10	–
2856 96	P	–	[5]	Gu
2856 941	Ir I	10	2 h	–
2856.937	Ce	6	–	–
2856 928	Fe II	–	15 h	Do
2856 91	Au	–	20	–
2856.880	Mo	1	6	–
2856 831	Ce	3	–	–
2856 78	O	–	[10 h]	Mh
2856.766	Cr II	20	60	–
2856.674	Ce	2	–	–
2856.620	Ti II	3	8	–
2856.552	Ru	–	50	–
2856 492	U	5	4	–
2856.473	Ce	4	–	–
2856.45	Cd II	–	[8]	Vs
2856.42	Dy	2	–	–
2856 394	Ce	6	–	–
2856 390	Fe II	–	5 h	–
2856.294	Yt II	8	15	–
2856.24	Ti II	–	100 wh	Ex
2856.22	U	8	2	–
2856.180	U	3	2	–
2856.164	Rh I	60	30 h	–
2856.136	Fe II	1	40	–
2856.089	Ti	3	–	–
2856.065	Zr II	2	4 hl	–
2856.05	Fe	2	–	–
2856.047	Ru	6	1	–
2856.046	Ce	3	–	–
2856.027	W	10 s	9	–
2855.995	Mo	2	25	–
2855.960	U	4	2	–
2855.929	Ir I	10	–	–
2855.91	Fe	2	–	–
2855.902	La II	3	50 hl	–
2855.900	Th	10	8	–
2855.87	I	–	[12]	Bl
2855.823	Ir I	10	2 h	–
2855.718	Ce	12	–	–
2855 716	V I	4	–	–
2855.706	Mo	–	20	–
2855 68	Tb	5	20	m
2855 676	Cr II	60	200 Wh	–
2855 674	Bi	–	12	Om
2855.670	Fe II	2	200	–
2855.603	U	12 h	8 h	–
2855.538	Cb	1	10	–
2855.531	Re	15	–	–
2855.508	W	–	10	–
2855.491	V I	12	–	–
2855.491	Ti II	–	5 wh	–
2855.448	Ce	15	–	–
2855.414	Er	15	3	–
2855.346	W	9	3	–
2855.340	Ru	–	18	–
2855 337	Os	25	8	–
2855 33	A	–	[5]	Rt
2855 321	Ce	10	–	–
2855.295	V	1	35	–
2855 24	Nd	5	–	–
2855 221	V I	50	1	–
2855.188	U	3	2	–
2855.132	Ti I	2	–	–
2855 082	Cb	–	4	–
2855.073	Cr	4	100	–
2855 07	Se	–	[5]	Bl
2854 95	Tb	5	3 h	m
2854 920	Th	4	4	–
2854 917	U	8	6	–
2854 89	Tm	5	20	Me
2854.883	Ce	25 s	–	–
2854 870	Ru	2	15	–
2854.869	Mo	5	–	–
2854 805	Mn	5	–	–
2854 722	Ru	2	60	–
2854.71	W	1	9	–
2854.667	Ce	30 s	–	–
2854 581	Pd II	4	500 h	–
2854 53	Xe II	–	[30]	Hu
2854 491	Ce	5	–	–
2854.49	Yb	1	8	Me
2854.46	W	–	4 s	–
2854.458	U	3	2 h	–
2854.45	Cs	–	[8]	Bs
2854.427	Zr II	5	5	–
2854 420	Yt II	10	18	–
2854.336	V	20	100 R	–
2854.196	U	8 h	4 h	–
2854 168	Cb	5	4	–
2854 16	Tb	5	3 h	m
2854.155	I	–	[30]	Ke
2854 131	Th	8	8	–
2854.12	Yb	2	10	–
2854.111	Mo	–	10	–
2854 074	Ru I	60	35	–
2854.029	V I	2	–	–
2853.95	K	–	[5]	S
2853 933	Ti II	12	40	–
2853.86	Tl II	–	[2]	El
2853 835	W	9	3	–
2853.819	V I	6	–	–
2853.774	Fe	15	7	–
2853.762	V	–	6	–
2853 72	La II	–	4 h	Me
2853.688	Fe I	15	7	–
2853.658	Pd II	–	5 wh	–
2853.584	Mo	1	25	
2853.569	U	15	10	–
2853.556	V I	7	–	–
2853.519	Cb	1	10	
2853.486	W	12	15 h	–
2853.435	Ti I	3	–	–
2853.424	U	12	12	–
2853.40	Yb	–	4	Me
2853.384	Pt	2	–	–
2853.326	Ru	2	8	–
2853.314	Ir I	8	–	–
2853.229	Mo	25	100 h	–
2853 22	W	–	4	–
2853.218	Cr	5	100 R	–
2853.204	Fe II	–	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2853.19	Tb	–	20	Ex
2853.107	Pt I	15	2	–
2853.031	Na I	80 R	15	Fl
2852.958	Fe I	6	2	m
2852.950	Ta	5	15	–
2852.935	U	3	6	–
2852.909	W	8	9	–
2852.866	V I	60	7 h	–
2852.857	Re	30 w	–	–
2852.846	I	–	[4]	Ke
2852 828	Na I	100 R	20	Fl
2852.750	U	15	15 h	–
2852.56	Eu	5 W	–	–
2852.54	Au II	–	5	–
2852.536	V	6	35	–
2852.53	Ag	1	5 wh	Fn
2852.502	Th	2 h	6	–
2852.479	Ir	2	–	–
2852 469	U	6	4	–
2852.42	Hg	–	[8]	Ps
2852.415	Cs II	–	[2]	Ot
2852 399	Re	10	–	–
2852.39	Xe	–	[2 h]	Hu
2852.355	Ta	5	100 l	–
2852.35	Fe	2	–	–
2852.237	Ce	3	–	–
2852 131	Mo	10 h	10	–
2852.131	Ir	20	–	–
2852.13	Fe	150	80	–
2852.129	Mg I	300 R	100 R	–
2852.129	Dy	5	–	–
2852.124	Ce	50 d	1	–
2852.10	W	1 d	18 h	–
2852.012	Hf II	20	50	–
2851.977	Cb	4	5	–
2851.967	Zr II	12	20	–
2851.798	Fe I	200	150	S
2851 748	V I	30	4	–
2851 65	Mg I	25	–	Fl
2851.598	Ce	3	–	–
2851.50	Fe	5	2	–
2851.447	Cb	5	3	–
2851.445	Th	5 d	5 d	–
2851.410	Ir	8	–	–
2851 356	Cr	20	80	–
2851 295	Cb	–	5	–
2851 29	I	–	[12]	Bl
2851.261	Th	10 d	10 d	–
2851.254	V	2	15	–
2851.23	Cs	–	[20]	Bs
2851.206	Hf II	25	50	–
2851.179	Mo	15	–	–
2851.12	Yb	10	50	–
2851.112	Sb	50	45	–
2851.102	Ti II	20	80	–
2851.035	Ir I	2	–	–
2850.985	Ta	400	150	–
2850.977	Re I	40	–	–
2850.960	Hf	25	5	–
2850.951	Co I	30	–	–
2850.95	Xe II	–	[3]	Hu
2850.898	Mo	10	–	–
2850.820	U	6	6	–
2850.800	W	12	12	–
2850.787	Mo	20	–	–
2850.785	Ir	–	5 h	–
2850.768	V	10	30	–
2850.762	Os	75	25	–
2850.73	Pd II	–	5 wh	Bx
2850.709	Cr	–	6	–
2850.686	V	10	25	–
2850.681	Ru	–	12	–
2850.674	Mo	1	40	–
2850.65	Yt	3	8	–
2850.618	Sn	80	100 wh	–
2850.6	bh B	50	–	L
2850.491	Ta	200	100	–
2850.487	U	8	12	–
2850.4	Cs	–	[2]	Bs
2850.390	W	9	7	–
2850.381	Cb	1	5	–
2850.293	Cr	–	5	–
2850.279	Re	2	–	–
2850.254	Ir I	5	–	–
2850.148	Hf II	20	20	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2850.11	Fe	2	–	–
2850 043	Co I	75	–	–
2849.983	U	5	8 h	–
2849.838	Cr II	80	150 r	–
2849 823	Ta	15 Ws	50 W	–
2849.80	Tl II	–	[200]	El
2849.725	Ir I	40 h	20 h	–
2849.70	I	–	[4]	Bl
2849 66	Xe	–	[4]	Hu
2849 606	Fe II	–	50	–
2849.565	Ru	–	18	–
2849.557	Cb	2 w	100 w	–
2849 549	Ta	5 h	1 h	–
2849.480	U	18	15	–
2849.465	W	7	6	–
2849 42	Ag	–	2 h	–
2849 381	Mo	50	5	–
2849 343	Rh	3	–	–
2849.34	Yb	–	4	–
2849.302	Os	8	4	–
2849.289	Ru	3	100	–
2849.287	Cr	35	30	–
2849 208	Hf II	30	100	–
2849 198	Ce	2	–	–
2849.19	Fe	2	–	–
2849.175	V I	25	–	–
2849 16	U	5 h	8 h	–
2849.10	Ho	10	20	Ex
2849 050	V	7	50	–
2849 046	Os	15	5	–
2849.033	Ce	15	–	–
2848.97	Tb	–	10	Ex
2848 91	O	–	[30]	Mh
2848 909	Fe II	1	8	–
2848 898	U	8	6	–
2848 87	Tm	10	15	Me
2848 819	Ce	2	–	–
2848.774	V I	20	2	–
2848 718	Fe I	60	30	–
2848.715	Cu II	–	2	–
2848.614	U	4	2	–
2848 579	Ru	50	3	–
2848.525	Ta	300	50	–
2848 525	Cu	–	2	–
2848 523	Zr I	100	–	–
2848.522	Ta	10	5	–
2848 441	Ir	2	–	–
2848.44	Yb	2	15	–
2848 42	Mg I	20	–	–
2848.415	Nd	–	5	–
2848.40	Cr	6	30	–
2848.381	Mo	5	–	–
2848 37	Mg	–	3	–
2848.37	Co II	–	60 h	–
2848.368	Er	10	4	–
2848 34	La II	2	6	–
2848 332	Fe II	–	5 h	Do
2848 295	Cb	2	10	–
2848 247	Os	30	15	–
2848.232	Mo II	125	200 h	–
2848.192	Zr II	12	12	–
2848 173	U	5	2	–
2848.122	Fe II	–	10	Do
2848.079	Ce	2	–	–
2848.054	Ta	150	15	–
2848 051	U	8	8	–
2848 046	Fe II	–	70	–
2848.026	W	15	12	–
2848.017	Cb	1	8	–
2847.83	Hg I	15	100	Cn
2847.823	W	9	12	–
2847.81	A II	–	[5]	Rt
2847.748	Re	3	–	–
2847.720	U	5	4 h	–
2847.718	I	–	[15]	Ke
2847.689	Ce	4	–	–
2847.683	Mo	–	6	–
2847.67	Hg II	–	[300]	Ps
2847.598	Ru	–	5	–
2847.59	Cl	–	[5]	An
2847.572	V	15	150	–
2847.51	Lu	40	125	Me
2847.50	Ho	–	40	Ex
2847.48	Ca	–	4	Ad
2847.41	S	–	[8]	Bl

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2847.36	Kr II	–	[25 h]	Me
2847.358	Th	10	10	–
2847.355	W	10	12	–
2847 340	U	15	4	–
2847.291	Ta	2	2	–
2847 24	Yb	–	30 h	–
2847.237	Cb	1	10	–
2847.236	Ce	3	–	–
2847.221	Fe II	–	3	–
2847.19	Cs	–	[2]	Bs
2847.17	Yb	4	–	–
2847.13	Sb	–	[3]	Lg
2847.130	W	2	15	–
2847.09	Au II	–	25	–
2847.018	Er	3	–	–
2847.005	Ce	3	–	–
2847.00	Mg	8	8	m
2846 988	I	–	[15]	Ke
2846.976	Re	30 w	–	–
2846.827	U	4	2	–
2846.825	Fe I	20	12	–
2846.762	Pd II	–	15	–
2846.750	Ta	150 hs	10 h	–
2846.75	Mg I	18	4	–
2846.749	Ru	3	–	–
2846.70	Cr	1	12	–
2846 69	La II	–	5	–
2846.646	Ir I	10	–	–
2846.620	Mo	1	10	–
2846 615	U	6	4	–
2846.58	Nd	5	–	–
2846.573	V	50	20 h	–
2846 554	Os	12	5	–
2846 48	Xe	–	[8 h]	Hu
2846.478	Cu I	8	–	–
2846.478	Re	3	–	–
2846 44	Sn II	–	3	–
2846.437	Cr	2	25	–
2846 40	Hf	–	3	Me
2846.391	Os	40	10	–
2846.38	W	6 d	1	–
2846 373	U	9	6	–
2846 363	Ce	2	–	–
2846 316	Ru	12	1	–
2846.285	Cb	10	50	–
2846 265	Ce	4	–	–
2846 265	Er	5	2 h	–
2846.193	Ca II	–	[2]	Ot
2846.15	Br	–	[7]	Bl
2846.14	Te	–	[25]	Bl
2846.092	U	2	1	–
2846 092	Ti II	–	70 wh	–
2846 023	Cr	25	4	–
2845 959	U	6	4	–
2845.95	Fe	4	–	–
2845.92	Xe	–	[4]	Hu
2845 866	Er	8	1	–
2845.844	Ta	30	10 h	–
2845.84	O	–	[10 h]	Mh
2845.828	Hf	25	5	–
2845.805	Ce	2	–	–
2845.802	Cb	3	10	–
2845.753	Rh	8	4	–
2845.751	Ce	4	–	–
2845.714	Fe I	8	3	–
2845.67	Cs	–	[20]	Bs
2845.647	Mo	–	10	–
2845 64	Ho	–	70 h	Ex
2845.63	Co II	–	50	–
2845.597	U	6	4	–
2845.595	Fe I	125	7	–
2845.544	Fe	125	7	–
2845.524	Ru	8	–	–
2845.52	Rb	–	[10]	Ok
2845.48	Ge II	–	12	–
2845.452	Ce	10	–	–
2845.450	Fe II	–	6	Do
2845.450	Ta	8 h	2	–
2845.385	Fe II	–	3	–
2845.357	Ce	4 W	–	–
2845.353	Ta	150	10	–
2845.35	Tm	2	10	Me
2845.298	U	3	4	–
2845.245	V	18	80	–
2845.210	Ru	–	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2845.2	Pb II	–	[2]	Ea
2845.180	Ce	2	–	–
2845.13	Lu	30 h	2	Me
2844.991	U	18	8	–
2844.973	Fe II	–	5	Do
2844.926	V I	9	–	–
2844.914	W	10	12	–
2844.882	Ce	2	–	–
2844.852	Ir	5	–	Ab
2844.835	V	–	10	–
2844.814	Mo	–	20	–
2844.760	Ce	5	–	–
2844.757	Ta	150	30	–
2844.75	Yb	–	2 h	–
2844.727	Ce	5	–	–
2844.711	Ru	–	150	–
2844.680	Os	15	5	–
2844.67	Tm	40	15	Me
2844.579	Zr II	50	50	–
2844.54	Eu	2	–	–
2844.516	U	2	12 h	–
2844.51	In	–	2	Cx
2844.495	W	–	8	–
2844.48	Cs	–	[2]	Bs
2844.463	Ta	200	200 l	–
2844.46	Kr II	–	[20]	Me
2844.45	Xe	–	[3]	Hu
2844.435	Cb	2	10	–
2844.396	Os	50	25	–
2844.390	Mo	30	5	–
2844.37	Cl	–	[3]	An
2844.311	Ce	5	–	–
2844.251	Ta	400 r	50	–
2844.224	V	–	12 h	–
2844.18	Ho	–	10 h	Ex
2844.165	Re	25	–	–
2844.12	A II	–	[5]	Rt
2844.09	Ti II	–	3 wh	–
2843.979	Fe I	300	300	–
2843.97	Eu	20 w	–	–
2843.95	Ag	5	2	–
2843 923	Fe I	2	–	–
2843.821	V	–	15 h	Me
2843.82	Yb	–	2 h	–
2843.778	W	9	8	–
2843.728	Mo	1	8	–
2843.69	Br	–	[2]	Bl
2843.659	La II	4	4	–
2843.637	Cb	3	10	–
2843.632	Fe I	125	100	–
2843.516	Zr II	8	8	–
2843.51	Ta	3	80	–
2843 484	Fe II	–	3	–
2843.39	Ho	–	10 h	Ex
2843 37	A	–	[2]	Rt
2843.319	Fe II	–	3	–
2843 27	Tl I	5	–	Fl
2843.252	Cr II	125	400 r	–
2843 24	Fe	6	2	–
2843.171	Ru I	30	3	–
2843.001	Re I	30	–	–
2843.0	Rn	–	[3]	Pe
2843.00	Yb	–	5	–
2842.93	Fe	5	2	–
2842 924	Ce	3	–	–
2842.908	Mo	4	–	–
2842.869	U	4	6 h	–
2842.830	Ce	25 d	–	–
2842.82	Eu	2	1 h	–
2842.815	Ta	200	50	–
2842.815	Th	12	10	–
2842.767	Cr	–	12	–
2842.755	Ru	20	–	–
2842.692	V	1	12	–
2842.673	Fe II	–	1 h	–
2842.648	Cb	10	100	–
2842.58	Yb	–	2	–
2842.57	Ne I	–	[15]	Ps
2842.565	W	10	1	–
2842.533	Ru	30	–	–
2842.519	Ce	10	–	–
2842.484	U	8	6	–
2842.48	Se	–	[5]	Bl
2842.457	Mo	3	30	–
2842.428	Cr	–	8	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2842.420	Ni II	–	150	–
2842.383	Co I	30	–	–
2842.369	Mo	10	–	–
2842.35	Si I	3	–	Ks
2842.289	V	–	9 h	Me
2842.283	Ir I	12	2	–
2842.240	U	5	8 h	–
2842.195	Ce	2	–	–
2842.151	Mo	2	40	–
2842.126	Rh	15	–	–
2842.1	Rn	–	[150]	Wo
2842.088	U	15	12	–
2842.086	Mn	12 Wh	–	–
2842.076	Fe II	–	5	–
2842.075	Ce	2	–	–
2842.041	V	1	7	–
2842.04	Ho	–	10	Ex
2842.030	Pt	1	10	–
2842.021	Cb	3	2	–
2842.02	Te	–	[2]	Bl
2841.97	Pr	–	8	–
2841.95	Hf	–	5 wh	Me
2841.938	Ti II	40	125	–
2841.895	Er	5	–	–
2841.81	Xe	–	[2 hs]	Hu
2841.773	Mo	–	15	–
2841.721	Na II	20	[80]	Fr
2841.72	I	–	[20]	Bl
2841.715	Ce	10	–	–
2841.691	Ir I	7	2	–
2841.677	Ru	50	200	–
2841.60	Cd	–	[5]	Es
2841.570	W	12	12	–
2841.5	Cs	–	[2]	Bs
2841.492	Hf	10	–	–
2841.486	Ce	8	–	–
2841.359	U	4	4	–
2841.343	Er	5	–	–
2841.335	Gd	4	4	–
2841.18	Te	–	[30]	Bl
2841.17	U	5	4	–
2841.168	Th	8	8	–
2841.153	Ce	3	–	–
2841.146	Cb	10	100	–
2841 125	Ru	–	125	–
2841.11	W	2	10	–
2841.039	V	15	35	–
2841.029	Pd II	–	100	–
2840.96	Yt II	7	18	–
2840.936	Cb	5	2	–
2840 932	Fe	7	3	–
2840 830	Er	9	2	–
2840.762	Fe II	–	35	–
2840.736	W	5	4 d	–
2840.686	Ce	5	–	–
2840.66	Pb II	–	20	–
2840 647	Fe II	–	70	–
2840.623	U	5	4	–
2840.599	V	2	12	–
2840.539	Ru	60	8	–
2840.50	La II	3	25 hl	–
2840.466	U	3	2	–
2840.438	Cr	–	6	–
2840 423	Fe I	125	20	–
2840.39	Ta	2	50	–
2840.348	Re I	40	–	–
2840.342	Fe II	–	8	–
2840.236	Gd	50	60	–
2840.220	W	9	4	–
2840.219	Ir I	15	10	–
2840.156	Ce	3	–	–
2840.156	Th	8	6	–
2840.106	V	2	25	–
2840.097	W	9	2	–
2840.05	Al	–	[15]	Sy
2840.021	Cr	25	125	–
2840.001	Mn	20	–	–
2839.989	Sn I	300 R	300 R	–
2839.980	In	–	2	–
2839.92	W	–	10	–
2839.892	Pd II	–	100	–
2839.890	U	18	20	–
2839.85	Tm	5	10	Me
2839.819	Fe II	–	10 h	Do
2839.810	W II	1	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2839 80	Ti II	–	100 wh	Ex
2839.80	Cb	2	5	–
2839.778	Ta	8	2	–
2839.69	Nd	–	5	–
2839.651	U	5	4	–
2839.598	Cb	–	10 h	–
2839.585	Mo	25	1	–
2839.561	Ce	5	–	–
2839.555	Na II	2	[20]	Fr
2839.529	Fe II	4	25	–
2839.523	Ce	2	–	–
2839.437	V I	12	7	–
2839.374	Ru	–	6	–
2839.364	Ce	18	–	–
2839.339	Zr II	7	6	–
2839.337	W	10 s	10	–
2839.335	Th	5	4	–
2839.33	In	–	2	Cx
2839.245	Ir I	12	–	–
2839.243	Th	8	6	–
2839.235	Ce	3	–	–
2839.235	Cr	–	20	–
2839.20	Kr II	–	[2]	Me
2839.186	Re	6	–	–
2839.164	Mo	–	25	–
2839.158	Ir I	25	15	–
2839.11	Tm	10	6	Me
2839.030	Ce	2	–	–
2839.02	Te	–	[10]	Bl
2838.958	Ni I	25	–	–
2838 945	Ce	2	–	–
2838.94	Tm	15	40	Me
2838.890	W	10	6	–
2838.87	In	–	6	Sq
2838 857	Ce	2	–	–
2838.846	Ru	–	10	–
2838.810	Ce	2	–	–
2838.79	Kr II	–	[20]	Me
2838 786	Cr	3	80	–
2838 72	Tb	3	20	m
2838.714	Er	15	3	–
2838.702	Nd	–	5 h	–
2838.674	W	10	5	–
2838 65	Yb	–	2	–
2838.626	Os I	100 R	100	–
2838.623	U	6	12	–
2838 621	Ru	30	–	–
2838.535	V	–	10	–
2838.5	Rn	–	[70]	Pe
2838.45	Fe I	8	5	–
2838 438	La II	2	5	–
2838.24	Ta	2	150	–
2838.235	Fe II	–	8	Do
2838 204	U	3	2	–
2838.173	Os	30	12	–
2838.120	Fe I	150	150	S
2838.120	Re	8	–	–
2838 09	Cs	–	[20]	Bs
2838.058	V I	7	2	–
2838.03	Au	–	80	–
2838.022	Zr I	3	1	–
2837.994	Ce	8	–	–
2837.95	Al	–	[8]	Sy
2837.942	Ta	30	30	–
2837.901	Mo	15	–	–
2837.896	Ce	10	–	–
2837.877	Cr	2	35	–
2837.762	W	10	10 s	–
2837.76	Ag II	–	5	–
2837.726	U	6	6 h	–
2837.655	Pd II	–	10 wh	–
2837.613	Dy	2	–	–
2837.602	C II	–	40	Fl
2837.598	Ce	8	–	–
2837.549	Re	40	–	–
2837.547	Cu II	–	250	–
2837.51	Nd	5	–	–
2837.422	Os	25	10	–
2837.344	W	12	10 s	–
2837.328	U	10	8	–
2837.327	Ir I	20	10	–
2837.320	Mo	5 h	1	–
2837.311	Sb	–	3	Sp
2837.299	Fe II	–	25	–
2837.299	Th	15	10	–

Wave-length	Element	Intensities Arc	Spk.,[Dis]	R
2837.293	Sc	4 h	7	–
2837.289	Ce	50 s	–	–
2837.274	Ru	20	–	–
2837.232	Zr I	100	–	–
2837.230	Pt I	2	–	–
2837.21	Se	–	[35]	Bl
2837.187	U	10	8	–
2837.151	Co I	75 r	–	–
2837.12	Pd II	–	[40]	Bx
2837.106	Er	5	–	–
2837.10	Nd	5	–	–
2837.03	Fe	1	2	–
2837.015	Re	2 h	–	–
2836.994	Dy	2 h	–	–
2836.965	Mo	8	–	–
2836.955	Gd	2	–	–
2836 922	I	–	[40]	Ke
2836.919	In I	80	80	–
2836.918	U	5	10 h	–
2836.907	Cd I	200	80	–
2836.87	Ga	–	2	Kl
2836.716	Fe II	–	20	Do
2836.710	C II	–	200	Fl
2836 705	Mo	1	25 h	–
2836 698	V I	10	–	–
2836 690	Rh I	60	–	–
2836 67	Hg	–	5	Cn
2836 64	Ti II	–	100 wh	–
2836.618	Ta	80 r	2	–
2836.612	Ti I	5	2	–
2836 573	Ru	30	1 h	–
2836 520	V	20	80	–
2836.509	Fe II	3	12	Do
2836.494	Zr I	5	–	–
2836 479	Cr	3	20	–
2836.46	Ra II	–	[25]	Rs
2836 438	Th	5	2	–
2836 412	Ti I	4	–	–
2836 404	Ir I	25	10	–
2836.35	O II	–	[5]	Mh
2836 322	Fe	8	5	–
2836 313	Mn	15	–	–
2836 3	Rn	–	[25]	Pe
2836.295	Mo	2	10	–
2836 27	Br	–	[2]	Bl
2836 259	Ta	2	–	–
2836 252	W	10	10 s	–
2836 241	Cb	3	5	–
2836 2	K		[10]	Ml
2836.188	Fe II	3	10	–
2836 147	Ru	20	–	–
2836 11	Tb	–	20	Ex
2836 100	Ti I	5	–	–
2836 097	Ir I	5	1	–
2836 049	Th	10	8	–
2836 039	Ce	6	–	–
2836.028	Mo	8	–	–
2835 955	Fe I	15	10	–
2835 95	In		3	–
2835.914	Mo	15	–	–
2835.89	Au	–	10	–
2835 803	U	8	10	–
2835 800	Ce	2	–	–
2835 656	Ir I	12	–	–
2835.65	Nd	5	–	–
2835 643	Ti I	8	6	–
2835.636	W	12	10	–
2835 635	V I	12	2	–
2835 633	Cr II	100	400 r	–
2835.604	Ce	10	–	–
2835.572	U	5	6	–
2835.459	Fe I	100	100	–
2835.43	Au	–	8	–
2835 393	Ce	2	–	–
2835 35	Kr II	–	[8 hl]	Me
2835.347	V	1	10	Me
2835.331	Mo	20	40	–
2835.305	Ir I	2	–	–
2835.25	Lu	–	10 hd	Me
2835.233	Ne I	–	[15]	Ps
2835.18	Hf II	1	3 h	Me
2835.136	Dy	2	–	–
2835 116	Cb	5 d	100	–
2835 01	Cs	–	[8]	Bs
2834.99	Ho	–	10	Ex
2834.97	Yb	–	8	–
2834.939	Co II	2	75	–
2834 902	Ce	2	–	–
2834.882	V	12	–	–
2834.780	Mo	15	10	–
2834.760	Ti I	6	–	–
2834.755	Fe	15	10	–
2834 744	Ce	6	–	–
2834.743	U	5 h	4 h	–
2834.713	Pt I	80	5	–
2834.615	Re I	30	–	–
2834 57	Yt II	2	18	Me
2834.553	Ni I	40	15	–
2834.551	U	8	4 h	–
2834.53	V	–	40 h	–
2834.484	Th	7	5	–
2834.474	Ce	5	–	–
2834.428	Co I	50	–	–
2834.41	Fe I	3	2	–
2834.408	Ta	1	8	–
2834 395	Zr II	4	4	–
2834 394	Mo	20	40	–
2834 35	Lu	5	40 h	Me
2834 262	Cr	–	125	–
2834 212	W II	–	30	–
2834.211	U	4 h	2	–
2834.19	Cd II	–	[100]	Tk
2834.18	Fe	5	3	–
2834 161	Ti II	–	8 wh	–
2834 146	W	10	–	–
2834 14	Ca	–	3	Ad
2834 134	Hf	18	12	–
2834 117	Rh I	70	30	–
2834 099	Ce	2	–	–
2834 060	Re	100 r	–	–
2834.001	Ru	30	5	–
2833 923	Co I	40	–	–
2833 910	Er	5	2 h	–
2833 908	Zr II	2	5	–
2833 821	U	15	25	–
2833 82	Tm	7	10	Me
2833 792	Mo	1	8	–
2833 784	Ru	–	80	–
2833 753	Gd	20	20	–
2833 671	Ir	3	–	Ab
2833 64	Au	–	3	–
2833 636	Ta	300 w	40 w	
2833 628	W	15	12	–
2833 580	Ce	2	–	–
2833 40	Fe	10	8	–
2833 393	Cr	–	3	–
2833 37	Tb	–	20	Ex
2833 339	Th	8	8	
2833 31	Tl II		[25]	El
2833 309	Ce	50 d	–	–
2833.304	Cb	1	10	–
2833 276	Hf	25	4	
2833 25	Eu	10 w	5 wh	–
2833 244	U	8	4	–
2833 236	Ir	7	20	–
2833.14	K	2 h	[2]	Sg
2833.100	Fe II	–	5 h	Do
2833 069	Pb I	500 R	80 R	–
2833 061	Er	25	–	–
2833.061	Zr	2	1	–
2833 06	In	–	3	–
2833.056	Eu	3	–	–
2833.044	Ce	3	–	–
2833.03	Cl	–	[4]	Bl
2833 00	Kr II	–	[100]	Me
2832.952	W	10	3	–
2832.95	Zn	–	[25]	Vs
2832.928	Ce	2	–	–
2832 921	Ne I	–	[8]	Ps
2832 917	I	–	[20]	Ke
2832.790	Cb	–	5 h	–
2832 774	Ir	5	–	–
2832 769	Rh I	5	–	–
2832.753	Ce	2	–	–
2332.657	Mo	–	5	–
2832.645	U	2	2	–
2832.625	Ru	20	–	–
2832 568	Ce	2	–	–
2832 55	La II	4	5	–
2832 480	W	10	9	–
2832 46	Cr	2	125	–
2832 46	Xe	–	[2 h]	Hu
2832.436	Fe I	300	200	S
2832 39	Kr II	–	[2]	Me
2832 34	Sc	3	–	Me
2832.319	Th	18	25	–
2832.307	Ce	18	–	–
2832.26	Ti I	2	–	–
2832.20	Nd	5	–	–
2832.20	Yb	–	2	–
2832 160	Ti II	25	100	–
2832.073	Mo	1	20	–
2832.063	U	35	50	–
2831 956	Mo	2	8	–
2831.843	Ru	10	50	–
2831.833	W	5	10	–
2831 811	Ir I	6	5	–
2831 794	Er	3	–	–
2831.77	Ge II	–	8	–
2831.67	Ba	1	20	Py
2831 647	Ce	3	–	–
2831.60	V	–	12 h	–
2831.60	Ho	–	70	Ex
2831 562	Fe II	1	500	–
2831 56	Tm	10	40	Me
2831.558	Pt II	–	3	–
2831 540	In II	–	[18]	Ps
2831.534	U	3	2	–
2831.48	Te	–	[10]	Bl
2831.441	Mo	1 h	30	–
2831.406	Ti I	5	–	–
2831.40	Si	–	[5]	Sy
2831 378	W	25	10	–
2831 360	Ir I	7	2	–
2831.37	Zr I	4	–	–
2831.324	U	8	4	–
2831.26	As II	–	8	Ro
2831.237	W II	2	12	–
2831.169	U	6	4	–
2831 036	Cr	15	1	–
2830.98	Yb	2	40	–
2830 964	Fe	10	–	–
2830.962	V	–	6 h	–
2830 899	Ce	30	–	–
2830.864	Ir I	3	–	–
2830 836	Cb	–	5	–
2830 834	Re	2 h	–	–
2830.794	Mn	50	–	–
2830 79	Ho	–	10 hd	Ex
2830.744	Ir I	4	–	Ab
2830 73	I	–	[15]	Bl
2830.703	Ru	20	–	–
2830.6	Rn	–	[70]	Wo
2830 571	Cb	1	30	–
2830.509	Ir I	8	5	–
2830.468	Cr	15	80 h	–
2830.45	As II	–	25	Ro
2830.445	Th	10	8	
2830.431	Ce	3	–	–
2830.43	Kr II	–	[3 hl]	Me
2830.416	Er	7	2	–
2830.402	V	10	60	–
2830 341	Ce	2	–	–
2830.309	U	6	2	–
2830.295	Pt I	1000 R	600 r	–
2830.288	W	10	3	–
2830.27	Au II	–	2	–
2830.19	Ga	–	2	Kl
2830 168	Ir I	12	–	–
2830 10	W	4	20 l	–
2830.091	Re	3 h	–	–
2830.075	U	8	4 h	–
2830.06	Ag	2	1 h	–
2830 045	Ti I	8	–	–
2830 018	Ta	20	1	–
2829.942	Mo	25	5	–
2829 936	Th	6	6	–
2829.877	Re	3 h	–	–
2829.854	Na II	2	[5]	Fr
2829.825	W	15 l	10	–
2829.820	U	6	4	–
2829.806	Zr I	9	–	–
2829.793	Mo	15	–	–
2829.752	Cb	3	50	–
2829.618	Ce	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2829.612	Ir I	5	–	–
2829.607	U	6	2	–
2829.556	Ce	4	–	–
2829 423	Cs II	–	[2]	Ot
2829.42	Lu	–	3 h	Me
2829 373	Er	5	–	–
2829.37	U	6	4	–
2829.322	Hf II	15	30	–
2829.306	Rh I	30	–	–
2829 300	Eu	20	10	–
2829.269	Os	40	6	–
2829 247	Ce	2	–	–
2829 213	Pd II	–	2 h	–
2829.160	Ru I	50	8	–
2829.15	Ag II	3	3	–
2829.081	Ru	–	5	–
2829.073	He I	–	[40]	Ps
2829.045	Cs II	–	[2]	Ot
2829.031	Mo	1	6	–
2829.011	Ge I	8	5	–
2828.9	Ti II	–	150 wh	Ex
2828.90	U	18	20	–
2828 813	Fe	100	60	–
2828 790	W	10	2	–
2828.789	Mo	10	1	–
2828.786	Cr	–	12	–
2828.762	Mn	50 wh	–	–
2828.703	Ce	3	–	–
2828.691	Eu	200 W	150	–
2828.681	Fe II	–	8	Do
2828.634	Fe II	–	80	–
2828.579	Ta	75	100	–
2828.545	Nd	–	5	–
2828.517	Hf	–	2	–
2828.51	I	–	[20]	Bl
2828.478	Co	15	–	–
2828 376	Dy	2	–	–
2828 167	Cr	15	2	–
2828.150	Ti II	2	200 h	–
2828.149	Hf II	3	1	–
2828.14	Ho	–	20 h	Ex
2828.107	U	6	2	–
2828.068	Ti I	18	–	–
2828.039	Ce	8	–	–
2827.992	Th	5 d	4 d	–
2827.981	U	8	4	–
2827.958	Cr	–	8	–
2827.92	Tm	50	100	Me
2827.91	Yb	–	2	–
2827.90	Xe	–	[4 h]	Hu
2827.900	Er	12	2	–
2827.895	Fe I	70	50	–
2827.869	Ru	30	12	–
2827.834	Re	6	–	–
2827.815	Sc II	5	–	–
2827.810	U	4	2	–
2827.743	Mo	8	40	–
2827.654	Ce	5	–	–
2827.60	Fe	15	12	–
2827.584	Ne I	–	[3]	Ps
2827.55	Ta	3 d	100 d	–
2827.544	Zr I	3	–	–
2827.528	Re	30	–	–
2827.522	Ru	5	8	–
2827 495	Zr II	5	3	–
2827.434	Fe II	–	25	–
2827.38	Tb	3	10 h	m
2827.310	Rh I	50	–	–
2827.305	U	6	2	–
2827.282	W	10	12 l	–
2827.26	Eu	12	6	–
2827 21	Ti II	–	80 wh	–
2827.20	Te	–	[15]	Bl
2827.176	Ta	200	10	–
2827.172	Mo	–	5	–
2827.163	Ir I	6	4	–
2827.149	W	9	4	–
2827.116	Cb	–	20	Me
2827.08	Fe	1	–	–
2827.077	Cb	8	50	–
2827.044	Ru	–	8	–
2827.02	Tm	20	50	Me
2827.00	Rb	–	[5]	Ok
2826.995	U	8	10	–
2826.99	Cb	–	4 h	–
2826.94	Xe	–	[10 whl]	Hu
2826.92	V	–	10 h	–
2826 858	Th	12	12	–
2826 82	Lu	–	6 hl	Me
2826.805	Co I	50 W	–	–
2826.802	Cs II	–	[2]	Ot
2826 800	I	–	[8]	Ke
2026.793	Sb	–	5 h	Sp
2826.764	Re	3 h	–	–
2826 746	Cr	70	3	–
2826.746	Mo	15	1	–
2826 718	Mn	12 Wh	–	–
2826 69	U	6	2	–
2826 677	Ru	–	100	–
2826 675	Rh I	100	50 d	–
2826.664	Sc II	10	25	–
2826 647	Ce	2	–	–
2826 63	Ho	3	20 h	Ex
2826.547	U	8	2	–
2826.545	Mo	40	5	–
2826 5	Rn	–	[70]	Pe
2826 5	P	–	[20 hl]	Gu
2826 50	Fe	10	8	–
2826.499	Ce	5	–	–
2826.475	Cb	3	5	–
2826 44	Tm	10	25	Me
2826.419	Ta	20	3	–
2826.407	Cr	–	6	–
2826.385	Ti I	2	–	–
2826 336	Pd II	–	2 wh	–
2826.33	Yt II	7	12	–
2826 220	Ru	–	80	–
2826 219	Ir	3	–	Ab
2826.193	U	18	12 h	–
2826.183	Ta	60	5	–
2826 16	Tl I	200 R	100 R	Fl
2826.151	Cr	–	12	–
2826.13	Zn	3	[10]	Vs
2826.085	W	10	3	–
2826.026	Fe II	–	25	–
2826 00	Fe I	6	–	–
2825.994	Mo	15	4	–
2825.867	V	7	70 h	–
2825.855	Cb	2	5	–
2825 715	Ce	2	–	–
2825.7	K	–	[5]	Ml
2825 689	Fe I	70	60	–
2825 671	Mo	25	1	–
2825 609	Ne I	–	[8]	Ps
2825 56	Ca	–	2	–
2825.560	Fe	150	150	–
2825.558	Zr II	30	30	–
2825.52	Sr II	–	[4 h]	Mc
2825 51	La II	5	5	Me
2825 503	Ir I	8	1	–
2825.490	Cr	1	20	–
2825.463	Ru	–	80	–
2825 461	Re	20	–	–
2825 45	Au	10	40	–
2825.431	Dy	2	–	–
2825.400	Ti	15	–	–
2825.369	Yt II	7	10	–
2825 347	U	5	2	–
2825.32	W	1	4	–
2825 296	Ce	2	–	–
2825 259	Ne I	–	[10]	Ps
2825 242	Co II	5	200	–
2825 236	Ni II	–	125	–
2825 183	Cb	5	3	–
2825 18	Eu	3	–	–
2825 16	P	–	[5]	Gu
2825 151	Co I	75 w	–	–
2825 073	Ti I	4	–	–
2825.056	Ru	–	60	–
2825 032	Ta	2	1 h	–
2825 025	V	–	20 h	–
2824.967	W	–	8	–
2824 96	Yb	2	10	–
2824 880	Ce	10	–	–
2824.860	U	12	8	–
2824.836	I	–	[8]	Ke
2824 821	Zr I	4	–	–
2824.809	Ta	60 W	5 h	–
2824.79	Ho	–	10 h	Ex
2824 772	Ru	10	–	–
2824 68	Th	–	25 d	–
2824.67	Fe	2 d	2 d	–
2824 630	U	10	6	–
2824.629	Ce	2	–	–
2824.54	Eu	2 w	–	–
2824.537	Cr	–	10	–
2824 448	Ir I	20	15	–
2824.441	V	2	15	–
2824 41	Pt	2	2	–
2824 370	Ag	150 wh	200 w	–
2824 369	Cu I	1000	300	–
2824 364	Co I	2	–	–
2824 322	Er	3	–	–
2824.296	W II	1	8	–
2824 28	U	25	30	–
2824.247	Re	20	–	–
2824.19	Ho	20	3	Ex
2824.172	Mo	–	3	–
2824.166	Os	20	4	–
2824.15	I	–	[4]	Bl
2824.12	Cs	–	[8]	Bs
2824.048	Ta	4	–	–
2824 034	Ce	15	–	–
2823 99	In	–	3	Sq
2823 95	Ag	–	3 h	–
2823 881	Cb	1	10	–
2823.710	W	12	5	–
2823 67	N II	–	[25]	Fl
2823 647	Co	5 h	–	–
2823.57	Yb	–	3	–
2823.555	Th	2 h	4	–
2823 470	Ti I	3	–	–
2823.421	Ce	8	–	–
2823.370	Rh I	25	–	–
2823 327	Cb	1	5	–
2823.276	Fe I	200	300	S
2823 193	Re	25	–	–
2823 19	Cd II	–	[20]	Tk
2823.189	Pb	150 R	40	–
2823.179	Ir I	12	5	–
2823 178	U	2	2	–
2823.177	Ru	20	80	–
2823.133	Nd	–	5	
2823.03	Cs	–	[8]	Bs
2823 03	Kr II	–	[2 h]	Me
2822.99	P	–	[20 hl]	Gu
2822 943	Pd II	–	5 wh	
2822 863	Mo	20	6	–
2822.856	Rh I	8	–	–
2822.8	Rn	–	[3]	Wo
2822 729	U	10	10	–
2822.72	Au	–	80	–
2822.677	Hf II	30	90	–
2822 63	Kr II	–	[5]	Me
2822 572	W II	12	30	–
2822 567	U	5	6	–
2822 561	Ir I	4	1	–
2822 559	Yt II	3	6	–
2822 552	Ru	30	150	–
2822 550	Mn	12	1	–
2822.492	Pt II	2 h	15	–
2822.44	V	4	70 h	–
2822.429	Mo	15	4	–
2822.409	Re I	10	–	–
2822 373	Ta	10 h	–	–
2822.371	Cr	20	100	–
2822.366	Ce	6	–	–
2822 362	Th	4 d	2 d	–
2822 30	Cl	–	[10]	An
2822.270	Pt II	10	60 h	Sh
2822.198	U	2	2 h	–
2822.136	V	–	30 h	–
2822.131	Sc II	50	20	–
2822.124	Re	20	–	–
2822 035	Th	10 d	10 d	–
2822 032	Ru	50	5	–
2822.029	Mo	15	20	–
2822 017	Ce	5	–	–
2822 012	Cr	10	80	–
2821 990	Ta	12	4	–
2821.921	Cb	4	3	–
2821.88	Fe	2	1	–
2821.853	Pd II	–	10 wh	–
2821.834	Mo	1	25	–
2821.827	Ir	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2821.745	Co II	30 h	10 h	–
2821.682	Ce	6	–	–
2821.63	Fe	2	1	–
2821.610	Th	8	6	–
2821.57	Te	–	[5]	Bl
2821.558	Zr I	10	–	–
2821.54	Ti I	7	–	–
2821.52	Se II	–	[20]	Bl
2821.473	Ce	8	–	–
2821.452	Mn	40	–	–
2821.424	Ru	5	100	–
2821.42	Ti II	–	70 wh	–
2821 311	W	10	6	–
2821.293	Ni I	125	125	–
2821.251	Os	20	6	–
2821.23	Lu	2	50 hl	Me
2821.181	Ru	30	–	–
2821.176	Ta	3	1	–
2821.15	I	–	[20]	Bl
2821.14	Yb	2	25	–
2821.122	V	7	40	–
2821.122	U	20	35	–
2821.040	La II	1	5	–
2821.01	Fe	5	3	–
2820.836	Rh I	3	–	–
2820 824	Cr	20	1	–
2820 809	Fe I	20	15	–
2820 804	Cb	3	20	–
2820.77	Eu	200 W	200 W	–
2820.744	Ce	2	–	–
2820.65	Te	–	[10]	Bl
2820.65	I	–	[12]	Bl
2820.633	Mo	8	–	–
2820.632	Ir I	4	–	–
2820.632	Al II	–	[3]	Sy
2820.555	Os	10	5	–
2820.507	U	2	2	–
2820 419	Hf II	10	5	–
2820 365	Ti	8	15	–
2820 337	Th	10	6	–
2820 323	Ce	2	–	–
2820 268	Cs II	–	[2]	Ot
2820 266	U	6	10	–
2820 224	Hf II	40	100	–
2820 22	Fe	4	3	–
2820 186	Er	18	3	–
2820.178	Os	12	5	–
2820 10	Se	–	[15]	Bl
2820 06	Xe II	–	[5 h]	Hu
2820 009	Co I	50	–	–
2820 003	Mo	–	8	–
2820.0	Hg	10 h	20 h	Cn
2820.00	Ti II	–	70 wh	–
2819.955	Re I	150 W	–	–
2819.95	Au	–	150	–
2819 905	Fe	–	3 h	–
2819 894	Cb	–	10 wh	–
2819 89	Tb	3	20	Ex
2819 89	Cd II	–	[3]	Vs
2819.835	U	6	25	–
2819 815	Er	6	2	–
2819 8	Rn	–	[12]	Pe
2819.74	Ho	–	10 h	Ex
2819 738	Hf	20	1	–
2819 73	La II	–	2	–
2819.728	Mn	10	–	–
2819.64	Nd	5 h	–	–
2819.626	Rh I	15	–	–
2819.581	Mo	–	8	–
2819.557	Zr I	7	–	–
2819.521	Sc II	8	20	–
2819 52	In II	–	[40]	Ps
2819.50	Lu	–	6 hl	Me
2819.47	Fe	4	2	–
2819 443	V	10	40	–
2819.377	Mn	5	–	–
2819.370	Ta	100	5	–
2819.333	Fe II	–	3	–
2819.329	Th	12	10	–
2819.309	Ce	3	–	–
2819.294	Zr II	–	2	–
2819.294	Fe	10	–	–
2819.26	K II	–	[10]	Bn
2819.253	Ce	2	–	–
2819.240	Cs	–	[2]	Bs
2819.214	Cb	8	3	–
2819.212	Ag	–	2 h	Fn
2819.21	I	–	[12 h]	Bl
2819.202	U	3	2	–
2819.174	Co I	10	–	–
2819.08	Tm	6	10	Me
2819.08	Ho	–	10 h	Ex
2819 05	W	2	15	–
2819.039	In II	–	[30]	Ps
2818.952	Ru I	50	3	–
2818.940	Hf	15	–	–
2818.932	In II	–	[10]	Ps
2818.919	Mn	20	–	–
2818 873	Pt II	1	10	–
2818.852	Er	10	8	–
2818.849	Yt I	2	–	–
2818.815	Ru I	30	–	–
2818.771	Mn	25	–	–
2818 765	Ta	2	–	–
2818.75	Yb	–	80	Me
2818.740	Cb	2	10	–
2818.739	Zr II	15	15	–
2818.73	Cd I	10	10	–
2818.712	U	2	2	–
2818.70	Te	–	[25]	Bl
2818 69	Ho	–	10 h	Ex
2818.597	Co I	30	–	–
2818 535	U	3	4	–
2818 527	V	–	6 h	–
2818.48	Tm	30	20	Me
2818.48	I	–	[15]	Bl
2818.473	Cr	15	–	–
2818 39	La II	–	3	–
2818.376	Ce	10	–	–
2818 361	Ru I	50	12	–
2818.359	Cr	8	80	–
2818.300	Mo	25	1	–
2818.298	U	3	4 h	–
2818.271	Na II	2	[5]	Fr
2818.248	Pt	70	4	–
2818.199	Cb	–	10 W	Me
2818.173	Ce	2	–	–
2818.15	Tm	5	20	Me
2818.14	Ho	–	10 h	Ex
2818.060	W	15	20	–
2818 04	Fe	4	3	–
2818.029	Ce	2 h	–	–
2817.98	Cs	–	[20]	Bs
2817 972	Mn	50	1	–
2817.959	U	18	30	–
2817.949	Cr	–	20	–
2817.938	Fe I	4	3	–
2817.9	Rn	–	[12]	Pe
2817 866	Ti II	10	200	–
2817.837	Ti I	3 h	1 h	–
2817.675	Hf	18	1	–
2817 669	Mn	15	–	–
2817 658	U	5	4	–
2817.570	Cr	–	15	–
2817 566	Ru	–	20	–
2817.56	I	–	[12]	Bl
2817 56	S	–	[15]	Bl
2817 508	Fe I	100	60	–
2817.503	Ta	80 l	10	–
2817.500	V	18	50	–
2817.500	Mo	15	25	–
2817 500	La	2	–	–
2817.499	Ce	15	–	–
2817.440	Mo	8	25	–
2817.405	Ti I	20	–	–
2817.364	Ce	2	–	–
2817.36	Bi II	–	6	Cf
2817.31	Tm	5	20	Me
2817 310	Cb	1	5	–
2817.22	Mg	3	8	–
2817.17	Bi II	–	3	Cf
2817.168	Mn	10	–	–
2817.107	Fe II	–	20 h	Do
2817.101	Ta	80 d	100	–
2817.093	Ru I	50	4	–
2817.01	Se	–	[25]	Bl
2817.01	Yb	–	20	Me
2816 963	Re I	30	–	–
2816.943	Cs II	–	[2]	Ot
2816.941	Mo	5	–	–
2816 936	Ir I	8	1	–
2816 90	U	4	6	–
2816 87	Kr II	–	[30]	Me
2816.842	Cr	3	30	–
2816.82	I	–	[4]	Ke
2816.81	Rb	–	[5]	Ok
2816.740	U	8	8	–
2816.699	Cr	12	–	–
2816.677	Cb	2	50	–
2816.669	W	5	1	–
2816.66	Fe	5	4	–
2816.56	Tm	2	10	Me
2816.52	O	–	[25]	Mh
2816 46	Kr II	–	[60]	Me
2816.417	U	3	6 h	–
2816 395	Dy	5	2	–
2816.38	Ho	–	10	Ex
2816 33	Yb	–	2	–
2816 33	Ca	–	3	Ed
2816.329	Re	40	–	–
2816 324	Mn	1	2	–
2816 18	Eu	50 w	50	–
2816.179	Al II	–	[15]	Sy
2816.154	Mo II	200	300 h	–
2816 076	Th	10	5	–
2816 07	Ba	–	30	Py
2816.069	Hf II	10	6	–
2816 052	Ce	2	–	–
2815.985	U	8	6	–
2815.968	V	12	–	–
2815.908	Mo	20	–	–
2815 815	Hf	10	–	–
2815.780	Os	40	4	–
2815.757	U	6	8	–
2815 642	Re	10	–	–
2815 596	Mn	12 h	–	–
2815.559	Co I	50 r	–	–
2815.547	Ti II	7	20	–
2815.545	V	1	12 h	–
2815.542	Mo	10	–	–
2815.54	Ag II	3	80 wh	–
2815.54	Mg	3	8	–
2815.507	Fe I	40	25	–
2815.499	Zr I	10	–	–
2815.45	W	–	9 h	–
2815.41	Br	–	[2]	Bl
2815 399	Cb	–	12	Me
2815 35	La II	2	6	–
2815.33	Cs	–	[2]	Bs
2815.272	Os	8	3	–
2815 231	Dy	2	–	–
2815.207	U	2	2	–
2815.150	U	2	2	–
2815 123	Ta	100	4	–
2815.032	V	2	9	–
2815.018	Mn	25	75	–
2815.016	Fe	15	8	–
2815.011	Ta	150	15	–
2814.997	Ce	3	–	–
2814.993	Mo	–	3	–
2814.981	Co I	25	–	–
2814.955	Ce	20	–	–
2814 93	Hg II	–	[200]	Ps
2814.905	Zr I	70	1	–
2814 899	V	7	25	–
2814 877	Ir I	5	1	–
2814 869	Ru	30	–	–
2814.839	Os	10	3	–
2814.824	U	3	2	–
2814 811	Ce	40 d	–	–
2814 801	Ta	125	5	–
2814 798	W	1	12	–
2814 758	Hf II	15	35	–
2814.74	Ho	10	20	Ex
2814.706	Zr I	2	–	–
2814 685	Ne I	–	[20]	Ps
2814 677	Re	50	–	–
2814.672	Mo	1	20	–
2814.65	Nd	5 h	–	–
2814.648	U	6	2 h	–
2814 576	Ti II	1	2	–
2814.574	Th	6	5	–
2814 568	Ce	2	–	–
2814.536	Cr	15	2	–
2814 54	Yb	1	5	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2814.475	Hf II	25	40	–
2814.470	Ce	4	–	–
2814.460	Mn	2h	–	–
2814.430	Ir	4	4	–
2814.361	Ni I	15	–	–
2814.318	Th	8	5	–
2814.315	Ce	3	–	–
2814.313	Ta	50r	50	–
2814.24	Yb	–	2	–
2814.220	Cr	–	5	–
2814.200	Os	50	25	–
2814.046	Mo	2	6	–
2814.004	Pd II	–	10	–
2814.001	Pt II	4	15	Sh
2813.992	Mn	12h	–	–
2813.982	U	1	4h	–
2813.962	Re	30	–	–
2813.96	Te	-	[5]	Bl
2813.95	Eu	300w	300wh	–
2813.88	Ca	–	4	Ad
2813.865	Hf II	25	30	–
2813.839	Os	10	4	–
2813.795	U	3	2	–
2813 77	Ho	–	10h	Ex
2813.76	Ra II	–	[400]	Rs
2813.72	La II	2h	5	–
2813.711	Ru	50	125	–
2813.653	Yt I, II	7d	20h	–
2813.613	Fe II	5	60	–
2813 61	Si	–	[5]	Sy
2813.582	Sn	50	50	–
2813 549	U	4	6	–
2813.473	Mn	30	1	–
2813.41	Cd II	–	[10]	Tk
2813.4	Rn	–	[3]	Pe
2813.30	Ru	–	75	Ex
2813.288	Fe I	400	400	S
2813.115	Re	20	–	–
2813.08	Eu	15	5	–
2813.042	U	12	12	–
2813.03	La II	1h	3	–
2813.02	Cu	–	3h	–
2812.982	Ti	30	30	–
2812.975	Pt	2	–	–
2812.903	Ce	10	–	–
2812.87	Ho	–	20	Ex
2812.845	Mn	20	–	–
2812.823	Ru	12	1	–
2812.800	Ir I	10	2	–
2812.694	V	2h	12h	–
2812 66	Tb	3	10	m
2812.61	Mn	1	3	–
2812.585	Mo	2	30	–
2812.566	Sn	12	15	–
2812.493	Fe II	2	25	–
2812.449	Co I	3	–	–
2812.360	Re	25	–	–
2812.31	Fe I	2	1	–
2812 270	Mn	1	2	–
2812 26	Tm	5	20	Me
2812 25	W	3d	20	–
2812 235	U	6	4	
2812.18	Rb	–	[5]	Ok
2812.169	V	2	20	–
2812.147	Mo	4	–	–
2812.1	Rn	–	[25]	Wo
2812.09	Ir	–	2h	–
2812.070	Re	20	–	–
2812.049	Fe	15	10	–
2812 044	Ti II	3	7	–
2812.006	Cr	8	80	
2812.00	Ho	–	10	Ex
2811.980	V II	2	12	–
2811.980	Ru	4	12	–
2811.93	In	–	2	–
2811.866	Ce	12	–	–
2811.747	Eu II	50	–	–
2811.724	Ta	1	150	–
2811.659	U	3	6	–
2811.627	Cb	2	15	–
2811.596	V	2	20	–
2811.593	Pd II	–	3h	–
2811.518	Co I	50w	–	–
2811.503	Mo	20	–	–
2811.459	Cr	–	6	–
2811.455	Ru	5	12	–
2811.427	Dy	3	1h	–
2811.419	Ce	6	–	–
2811 374	Mo	–	3	–
2811.36	Ho	–	10	Ex
2811 345	U	35	30	–
2811.343	Mn	3h	–	–
2811.27	Mg	–	8	–
2811 268	Fe II	–	40	–
2811.249	Ru	8	–	–
2811.171	Cr	10	–	–
2811.153	Mo	–	10	–
2811.127	Co I	50	–	–
2811.056	U	3	2	–
2811.049	Cr	–	15	–
2810.93	Cd II	–	[3]	Tk
2810.916	Ta	200W	40W	–
2810.914	Zr II	10	7	–
2810.90	In	–	2	Cx
2810.895	Cr	–	3	–
2810.892	Rh I	15	1h	–
2810.860	Co II	5	75h	–
2810 855	Dy	3	–	–
2810.812	Cb	3	100	–
2810.81	Cs	–	[20]	Bs
2810.803	Cu II	–	2h	–
2810.74	Se	–	[5]	Bl
2810.72	Yb	–	2	–
2810.70	Eu	5w	–	–
2810.553	Ru I	50	200	–
2810.51	Hg	2	–	Cn
2810.433	Mo	10	10	–
2810.350	U	6	8h	–
2810.302	Ti II	6	150	–
2810.269	V	50	50	–
2810 265	Fe	40	15	–
2810 233	Mo	–	8	–
2810.177	Ce	10	–	–
2810.155	V	10	30h	–
2810 10	Yb	–	2	–
2810.06	Nd	–	5	–
2810.050	Ta	2	–	–
2810.033	Ru I	50	12	–
2810 012	I	–	[12]	Ke
2809 99	Ho	–	10h	Ex
2809 955	Mo	20	–	–
2809.952	U	20	20	–
2809.940	Cr	10	–	–
2809 91	Cs	–	[8]	Bs
2809.9	bh B	60	–	L
2809.90	Te	–	[10]	Bl
2809 847	Ir I	3	–	Ab
2809 806	Fe II	1	100h	–
2809 78	Mg	8	8	–
2809.72	B	–	2	Sy
2809.720	Gd	60	80	–
2809.657	Cb	–	10	–
2809 625	Bi I	200W	100	Om
2809 612	Cr	–	4h	–
2809.606	Hf II	3	2	–
2809 590	U	2	4h	–
2809 560	Ce	8	–	–
2809 514	Na II	8	[40]	Fr
2809.514	V	10	20	–
2809.50	Ne II	–	[18]	Bn
2809.396	Mo	5	–	–
2809.34	La II	2	2	–
2809.32	Tb	3	10	Ed
2809.279	Cr	–	6	–
2809.222	W	6	6	–
2809.18	I	–	[12]	Bl
2809.172	Cb	2	10	–
2809.170	Ti	35	–	–
2809.106	Mn	25	–	–
2809.08	Ho	–	10	Ex
2809.01	Cd	–	[3]	Vs
2808 99	K II	–	[10]	Bn
2808.98	Ce	5	–	–
2808.98	U	8	6	–
2808.955	Mo	–	6	–
2808 943	W	1	15	–
2808.94	Th	10d	5d	–
2808 935	Os	40	8	–
2808.84	O II	–	[5]	Mh
2808 835	Pt	1	15	–
2808 823	Ce	2	–	–
2808.79	Fe	1	–	–
2808.750	Cb	1h	15	–
2808.695	V	2	10	–
2808.685	Na II	–	[2]	Fr
2808 652	Nd	5	–	–
2808.62	Fe	6	2	–
2808.584	I	–	[40]	Ke
2808.566	W	10	–	–
2808 56	Xe	–	[2h]	Hu
2808.543	U	2	4	–
2808.51	W	–	20l	–
2808.507	Pt I	20	2	–
2808.43	Tm	20	10	Me
2808.4	Rn	–	[40]	Pe
2808.39	La II	10d	150	–
2808.384	Mn	8	–	–
2808.374	Mo	25	1	–
2808.360	Ce	2	–	–
2808.359	Ni II	–	40	–
2808.331	Pd II	–	2h	–
2808.320	Fe	100	40	–
2808 30	Yb	–	3	–
2808 231	V	6	30	–
2808.228	Ru	50	–	–
2808 161	Zr II	2	1h	–
2808 054	Cb	5	2	–
2808.021	V	–	2h	–
2808.018	Cr	–	30	–
2808.016	Mn	20	–	–
2808 002	Hf II	25	30	–
2807 99	Tm	20	30	Me
2807.928	W	7	5	–
2807 870	Re	50w		–
2807.85	Fe	2	1	–
2807.820	Ce	4	–	–
2807.755	Mo	60	80h	–
2807.718	W	10	8	–
2807 717	Th	5d	3d	–
2807 674	Ce	4	–	–
2807.654	Ir I	5	1	–
2807 63	Rb	–	[70]	Ok
2807 57	Br	–	[15]	Bl
2807 55	Pd II	–	15h	–
2807 55	Xe	–	[5whl]	Hu
2807 537	Ru	–	20	–
2807.527	Hf II	–	2	–
2807 370	Er	4	–	–
2807 355	Mo	20	–	–
2807.327	Pd II	–	15h	–
2807.245	Fe I	15	8	–
2807.22	Yb	–	2d	–
2807 194	Ru	–	20	–
2807 18	Eu	2	–	–
2807.174	Co II	1	25	–
2807 142	Rh I	8	–	–
2807 05	U	18	30	–
2807.038	Ce	10	–	–
2806.984	Fe I	200	200	I
2806 913	Cb	–	8h	Me
2806 906	Os	100w	1	–
2806 80	Tl II	–	[8]	El
2806 793	Mn	12	–	
2806.775	Zr I	12	–	–
2806.742	Ru	50	100	–
2806 72	Ho	–	10	Ex
2806 711	Ce	2	–	–
2806.69	U	1	4	–
2806 581	Ta	200	50	–
2806.550	V	2	10	–
2806.499	Ti	6	20	–
2806.42	Hg I	–	[15]	Ps
2806.41	Eu	2w	–	–
2806.396	Ir I	6	1	–
2806.391	W II	2	6	–
2806.34	U	5	4	–
2806.301	Ta	300	50	–
2806.181	Mo	–	15	–
2806.16	A	–	[40]	Rt
2806.136	Mn	25	–	–
2806.070	Fe	15	5	–
2806.060	U	6	2	–
2806.051	Ir I	3	–	–
2805.976	Re	6	–	–
2805.96	O	–	[10]	Mh

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2805.95	Cb	–	10 h	–
2805.923	W II	9 s	30	–
2805.898	Er	–	3	–
2805.808	Cb	1	10 h	–
2805.791	Fe II	–	50	–
2805.785	Rh I	20	1	–
2805.71	U	3 w	1	–
2805.71	Zr II	–	2 w	Ks
2805.704	Ti I	35	2	–
2805.674	Ni II	–	200 h	–
2805.65	Al	–	[30]	Sy
2805.627	W	10	2	–
2805.624	Ce	2	–	–
2805.59	Cd	–	30	–
2805.59	La II	1 d	5	–
2805.540	V	12	35	–
2805.457	Ce	2	–	–
2805.400	In II	–	[18]	Ps
2805.362	Mn	1	5	–
2805.32	Au II	–	30	–
2805.315	Fe II	–	15	–
2805.31	Pd	–	[2 h]	Bx
2805.288	In II	–	[5 h]	Ps
2805.244	U	10	8	–
2805.207	Mn II	2	6	Cz
2805.113	Ce	3	–	–
2805.083	Ni I	50	15	–
2805.064	Ta	3	2 h	–
2805.01	Ti II	–	200 wh	Ex
2804.96	W	–	12	–
2804.924	Mn	10	–	–
2804 882	Ru	–	60	–
2804 865	Fe	20	15	–
2804.855	Ca	–	3 wh	–
2804.814	Ce	2	–	–
2804.764	Ta	20	2	–
2804 76	I	–	[20]	Bl
2804 69	Zn II	–	[10]	Vs
2804.673	W	12	9	–
2804 53	La II	–	4	–
2804.521	Fe I	300	200	S
2804 462	Hg I	18	10	Cn
2804.442	V	–	12	–
2804.389	Ce	4	–	–
2804.362	Mn	8	–	–
2804 358	Er	12	2	–
2804.26	Yb	–	2	–
2804 237	W	10	9	–
2804.099	Co I	5	–	–
2804.095	Mn	15	–	–
2804 088	Ce	2	–	–
2804 067	Os	80	20	–
2804 021	Fe II	–	15	–
2804 014	W	10	4	–
2804.004	Ta	3	10 h	–
2803.99	U	3 d	10 h	–
2803 943	Ce	4	–	–
2803 903	Rh I	4	2	–
2803.833	U	8	8	–
2803 808	Cb	3	15	–
2803.8	K	–	[30]	MI
2803.772	Co I	100	12	–
2803.72	Ca	–	2	Ad
2803.663	W II	6	12 l	–
2803.653	Bi II	–	15	Om
2803 620	Mn	12	–	–
2803 620	Fe	50	20	–
2803 60	Kr II	–	[4 h]	Me
2803.570	Bi II	2	10	–
2803.541	Er	6	8	–
2803.54	Cb	–	3 Wh	Me
2803.498	Ru	50	4	–
2803 482	Bi II	2 h	30	–
2803 48	Yb	–	40	–
2803.472	Hg I	20	20 h	–
2803.467	V	30	25	–
2803.381	Th	2 h	8	–
2803.357	Cr	1	30	–
2803.30	W	–	9 l	–
2803.239	Pt I	400	5	–
2803.236	Re	8 h	–	–
2803.20	Kr II	–	[20 h]	Me
2803.18	In	–	2	Sq
2803.172	Fe I	15	–	–
2803.148	Ni I	5	–	–
2803.131	Mo	3	–	–
2803.121	Ce	2	–	–
2803.12	Fe	35	15	–
2803.11	Tm	7	10	Me
2803.042	Ce	8	–	–
2803.02	Xe	–	[3]	Hu
2802.953	W	12 d	10 d	–
2802.868	Er	6	1	–
2802.86	Eu	150 w	–	–
2802.86	Te	–	[15]	Bl
2802.840	Re	5 w	–	–
2802.806	Ru	50	150	–
2802.800	Mn	12	–	–
2802 797	V	15	25 h	–
2802 76	Hg	5	15	Cn
2802.715	Cb	2	5	–
2802 707	Bi II	–	10	–
2802.706	Co	100	200 h	–
2802 702	Ta	10	4	–
2802.70	Dy	2	–	–
2802 699	Ce	18	5 h	–
2802.695	Mg II	150	300	–
2802 683	Cu I	10	2	–
2802 65	Mn	2 d	–	–
2802 559	U	15	30	–
2802.55	Bi II	–	3	Cf
2802.53	Te	–	[10]	Bl
2802.528	Er	12	1	–
2802 500	Ti I	100	15	–
2802.493	Ta	15	2	–
2802.473	Pd II	–	10	–
2802 44	Bi II	–	2	Cf
2802.414	Mn	12	–	–
2802 354	Mo	15	25	–
2802.282	Ce	2	–	–
2802 274	Ni	50	15	–
2802 27	Br	–	[3]	Bl
2802 251	Re	10 h	–	–
2802 25	Fe	3	–	–
2802.23	S	–	[8]	Bl
2802 19	Au	–	200	–
2802 168	Mn	5	–	–
2802 162	Ru	30	40	–
2802 157	U	6	4	–
2802 1	Rn	–	[3]	Wo
2802 071	Ta	300	80	–
2802.01	In	–	3	–
2802 003	Pb	250 Rh	100 h	–
2801 949	W	8	6 l	–
2801.93	Ag II	–	10 w	Bx
2801.887	Nd	–	2	–
2801 865	Ru	30	–	–
2801 81	Tl II	–	[25]	El
2801 79	Zn II		[25]	Vs
2801 747	Ce	2	–	–
2801.654	U	10	10	–
2801 551	Cb	–	10 w	Me
2801.547	Pd II	–	3	–
2801 546	Mo	20	1	–
2801 467	Mo	20	3	–
2801 426	W II	4	6	–
2801 410	Dy	3	1 h	–
2801 337	U	3	2	–
2801.312	Sc II	6	5 h	–
2801.31	C II	–	6 h	En
2801.23	Kr II	–	[2 whl]	Me
2801 22	Hg	2	–	Cn
2801.196	Ce	2	–	–
2801 173	Al II	–	[3]	Sy
2801.169	W	10	8	–
2801.167	Zn I	5	–	Hz
2801 064	Mn	600 R	60	–
2801.056	Zn I	100	20	Hz
2801.051	W II	6	15	–
2800 98	Kr II	–	[2 whl]	Me
2800 93	V	–	30 h	Me
2800.869	Zn I	400	300	Hz
2800.820	Ir I	18	5	–
2800.771	Cr	12	150	–
2800.74	Pd II	–	[10 wh]	Bx
2800.731	Mo	2	15	–
2800.695	Ru	8	–	–
2800.695	Re	15 h	–	–
2800.638	Pd II	–	10 wh	–
2800 61	Ti II	–	150 wh	–
2800.572	Ta	150 W	40 h	–
2800.572	Th	6	8	–
2800.556	Ce	2	–	–
2800.51	Tb	10	40	m
2800.464	Fe	50	10	–
2800.449	U	5	4	–
2800.41	Tm	10	10	Me
2800 344	Mo	–	10 h	–
2800 33	Dy	3	1 h	–
2800.32	Rb	–	[10]	Ok
2800.318	Cb	3	4	–
2800.298	U	3	8	–
2800.28	Fe	6	2	–
2800.22	Cl	–	[4]	Bl
2800.174	Cr	–	40	–
2800.103	U	5	6 h	–
2800.102	Yt II	10	20	–
2800.085	W	6	3	–
2800.04	Yb	2	8	–
2800.02	V	–	4 h	Me
2799.99	Ho	–	10	Ex
2799 981	Pt II	20	80 h	Sh
2799.924	W	12	12 s	–
2799.911	Ru	–	50	–
2799.842	Mn	20	–	–
2799 825	Ir I	3	–	–
2799.784	Hf II	–	2	–
2799.764	U	6	4	–
2799 76	Hg I	10	10 h	Cn
2799 738	Ir I	6	5	–
2799.728	Er	4	–	–
2799 721	Fe II	–	10	–
2799 72	Dy	2 h	–	–
2799 7	bh C	50	–	L
2799 677	W	7	3	–
2799 676	I	–	[12 l]	Ke
2799 66	Ag II	20	100 h	–
2799.573	Ru	–	12	–
2799.536	Cu II	–	3	–
2799.47	Cs	–	[2]	Bs
2799.451	V	25	100 h	–
2799 43	Cl	–	[4]	An
2799 417	Ir I	3	–	–
2799 37	Yb	2	3	–
2799 357	Cb	3	2	–
2799 286	Fe II	1	100	–
2799 20	N II	–	[25]	Fl
2799 175	Cb	2	8	–
2799 155	Ce	3	–	–
2799 153	Ir	2	–	–
2799 153	Fe	50	10	–
2799 149	Zr II	5	6	–
2799 12	U	10 d	4 d	–
2799.120	Th	5	4	–
2799 112	Ce	3	–	–
2799 034	W II	8	20	–
2799 00	Br	–	[35]	Bl
2798 98	Cd II	–	3	–
2798.91	Rb	–	[40]	Ok
2798 909	Cb	2	15	–
2798 899	Mo	–	10 h	–
2798.894	Ce	2	–	–
2798 86	Dy	2	–	–
2798.765	Ru	–	35	–
2798 760	In II	–	[30]	Ps
2798.758	V	25	80 h	–
2798 685	Bi I	200	25	–
2798 672	Cr	10	20	–
2798 670	Th	6	4	–
2798 653	Co	4	–	–
2798.653	Ni I	125	–	–
2798.546	La II	2	40 hl	–
2798.50	Se	–	[10]	Bl
2798 447	W	8	1	–
2798.404	Ta	150	–	–
2798.271	Mn	800 R	80	–
2798 270	Zr I	100	–	–
2798 22	Yb	4	10	–
2798.21	U	1 hd	4 hd	–
2798.182	Ir I	15	5	–
2798.14	Cd	–	3	–
2798.111	Re	20	–	–
2798.06	Mg II	30	80	–
2798.011	Mo	15	30	–
2797.931	Mo	15	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2797.914	Fe II	–	20	–
2797.807	Pt II	2	20	Sh
2797.795	V	12	70 h	Me
2797.775	Fe I	150	80	I
2797.77	Yb	–	6	–
2797.760	Ta	100 d	100 d	–
2797.740	Th	10	10	–
2797.724	Ce	4	–	–
2797.709	Ru	12	4 h	–
2797.702	Ir I	18	10	–
2797.693	Cb	10	200	–
2797.69	Sb II	–	5 hs	–
2797.65	Xe II	–	[15 h]	Hu
2797.641	Sb	–	4 wh	Sp
2797.627	Ce	3	–	–
2797.625	W	5	3	–
2797.468	W	10	4	–
2797.465	Re	3	–	–
2797.43	Hg	–	[8]	Ps
2797.300	U	5	4	–
2797.289	W	–	3 h	–
2797.269	Tm	60	100	Me
2797.22	Nd	5	–	–
2797.20	I	–	[12]	Bl
2797.195	W	9	4	–
2797.174	Ce	4	–	–
2797.15	Ca	–	4	Ad
2797.145	U	10	8	–
2797 094	Mn	5	–	–
2797.081	Co I	50	2	–
2797.026	Th	8	6	–
2797 018	V	12	80 h	–
2797.009	Ce	3	–	–
2796.942	Mn	8	–	–
2796.94	Gd	70	80	–
2796.901	Zr II	10	7	–
2796.89	Mo	–	15 wh	–
2796.871	Fe I	15	3	–
2796.859	W II	3	10	–
2796.83	Co II	–	3	–
2796.777	Mo	4	10	–
2796.727	Os	100	15	–
2796.70	U	3 w	2 h	–
2796.699	Ru	20	–	–
2796.65	A	–	[2]	Rt
2796.649	Fe II	–	20	–
2796.632	Rh I	100	1	–
2796.63	Lu	25	100	Me
2796.620	Re	8	–	–
2796.606	Pd II	–	5	–
2796.565	Ta	150	–	–
2796.554	Ru	20	3 h	–
2796.49	Xe	–	[3 hl]	Hu
2796.456	Ir I	10	5	–
2796.366	La II	2	5	–
2796.339	Ta	400	80	–
2796.26	Kr II	–	[2]	Me
2796.236	U	6	2	–
2796.231	Co I	50	5	–
2796.206	Ce	2	–	–
2796.147	W	12 s	3	–
2796.13	Hg II	–	[8]	Ps
2796.081	Re	10	–	–
2795 963	Ne I	–	[8]	Ps
2795.945	Ce	2	–	–
2795 865	Cb	4	3	–
2795.85	Fe	15 W	10	–
2795.819	Co I	15	–	–
2795.818	Cr	35	3	–
2795.81	Kr	–	[80 h]	Me
2795.767	Fe II	–	3 h	–
2795.701	Rh I	15	–	–
2795.64	Yb	–	8	–
2795.60	Co	–	10 wh	Ex
2795.55	W	1	10	–
2795.544	Fe I	90	60	–
2795.532	Ag	10	10	–
2795.53	Mg II	150	300	–
2795.53	Au II	–	15	–
2795.525	Ce	30 s	8	–
2795.45	A	–	[2]	Rt
2795.384	Ce	2	–	–
2795.353	Ru	80	8 h	–
2795.331	Cu II	–	2	–
2795.33	A	–	[2]	Rt
2795.232	U	18	12	–
2795.21	Ra II	–	[125]	Rs
2795.138	Cb	1	15	–
2795.129	Zr I	5	–	–
2795.101	Ne I	–	[35]	Ps
2795.07	Yb	–	3	–
2795.007	Fe I	50	35	–
2794.817	Mn	1000 R	5	–
2794.816	Co	100 R	15	–
2794.80	Yb	–	3	–
2794.704	Fe I	50	30	–
2794.60	Tm	60	20	Me
2794.592	Ne I	–	[5]	Ps
2794.59	Tl II	–	[2]	El
2794.573	Mo	3	3	–
2794.553	Ir I	3	–	–
2794.50	Cs II	–	[8]	Bs
2794.43	Yb	1	5	–
2794.417	U	3	4	–
2794.301	V	–	9 h	–
2794.26	Ne II	–	[10]	Bn
2794.260	Th	10	10	–
2794.247	Ce	3	–	–
2794.208	Pt II	10	100 wh	–
2794.2	air	–	3	–
2794.163	Re	2	–	–
2794.16	Fe	10	–	–
2794.086	Ir I	8	–	–
2794.02	La	4	–	–
2793.972	Mo	3	15 wh	–
2793.938	Ge I	8	5	m
2793.937	U	25	30	–
2793 92	Co II	–	5 h	–
2793 888	Fe II	8	150	–
2793.885	Cb	–	10	–
2793.846	Er	4	1	–
2793 809	Ir	–	4 h	–
2793.695	Cb	–	5	–
2793 663	Re	4 h	–	–
2793.649	Pt I	10	–	–
2793.568	Ce	4	–	–
2793.52	Sb II	–	[10]	Lg
2793.51	I	–	[20]	Bl
2793.479	W	6	1	–
2793.43	U	4 d	4 d	–
2793.390	Zr	10	–	–
2793.316	Cs II	–	[2]	Ot
2793 28	Yb	1	8	–
2793 266	Pt I	100	5	–
2793 24	Te	–	[300]	Bl
2793.168	Er	3	–	–
2793 120	W	9	4	–
2793 048	Cb	10 w	100	–
2792.964	Mo	30	2	–
2792.884	Ce	2	–	–
2792.802	Hf II	2	2	–
2792 796	W	9	7	–
2792.78	Rh	2	3	–
2792.743	In	–	2	–
2792.696	W	10	10	–
2792 660	Ne I	–	[3]	Ps
2792.645	Ru	50	1	–
2792.637	Ta	8	2	–
2792.53	Ho	–	10 h	Ex
2792.524	Er	–	7	–
2792 523	U	2	–	–
2792 521	W	9	8	–
2792.51	Eu	–	2	–
2792.439	Co I	40	3	–
2792.439	Ce	3	–	–
2792.43	V	–	12 h	Me
2792.402	Fe	50	25	–
2792 380	Ce	2	–	–
2792.332	Ru	10	100	–
2792.318	Ne I	–	[20]	Ps
2792 209	W	7	4	–
2792.164	Cr	5	80	–
2792.16	Cs	–	[8]	Bs
2792.074	U	5	2	–
2792.053	Fe II	–	2	–
2792.05	Ne II	–	[25]	Bn
2792.037	Zr I	12	–	–
2791.97	Gd	25	15	–
2791.96	Cu	7	–	–
2791.953	W	12	8	–
2791.95	Te	–	[30]	Bl
2791.80	Tb	–	10	Ex
2791.792	Fe	60	40	–
2791.787	Ce	2	–	–
2791 785	Cu II	1 h	5	–
2791.740	Cb	3	100	–
2791.674	Ta	100	10	–
2791.631	Re	10	–	–
2791.63	Ca	–	6	Ad
2791.62	Tm	10	40	Me
2791.62	Pd II	–	[3]	Bx
2791.584	Mn	3	–	–
2791.540	Mo	1	30	–
2791.513	La II	2	25	–
2791.495	V	4	10	–
2791.462	Fe	40	20	–
2791.418	Ce	18	–	–
2791.372	Cb	1	5	–
2791.370	Ta	25	150	–
2791.293	Re	60	–	–
2791.260	U	5	2	–
2791.169	Ta	2	–	–
2791.158	Rh I	100	1 h	–
2791.11	Pd	–	[5]	Bx
2791.080	Mn	15	–	–
2791.068	U	6	12	–
2791.052	Ru	10	3	–
2791.04	Hg	6	10	Cn
2791.016	Th	10	10	–
2791.011	Co I	50	–	–
2791.008	Ce	3	–	–
2791.008	Fe	–	10	–
2790.945	Re	40	–	–
2790.93	Fe	2	–	–
2790.915	Mn	8	–	–
2790.787	Mg II	40	80	–
2790.755	Rh	3	3	–
2790.710	Ta	150	10	–
2790.688	Ir I	3	2	–
2790.665	U	8	10	–
2790 66	Tl II	–	30 wh	–
2790.573	Cb	2	10	–
2790.564	W	9	1 h	–
2790.559	Fe II	–	35	–
2790.529	Ce	10	–	–
2790.47	I	–	[4]	Ke
2790.46	Hg II	–	[3]	Ps
2790.45	Hf II	3	3	–
2790.425	Th	4	10	–
2790.417	W II	2	15	–
2790.409	Mo	3	25	–
2790.387	Sb	–	6	Sp
2790.356	Mn	20	–	–
2790.318	U	2	2	–
2790.308	Mo	30	1	–
2790.283	Co	30 h	–	–
2790 28	As	–	3	Ro
2790.216	Ru	–	30	–
2790.186	Sn	5	4	–
2790.143	Zr I	20	–	–
2790.088	V	1	9 h	–
2790.010	Mo	15	–	–
2789 83	Kr	–	[3 whl]	Me
2789 805	Ir I	3	1	–
2789 804	Hf II	15	5 h	–
2789 802	Fe	50	25	–
2789.797	Cs II	–	[8]	Ot
2789.742	Cb	–	3 h	–
2789.731	Mn	2	–	–
2789.73	Hf II	20	30	–
2789.685	Fe	3	1	–
2789.677	W	12 s	5	–
2789.50	Hf	5	15	–
2789.483	Fe I	60	30	–
2789.43	Yb	–	2	–
2789.430	I	–	[30]	Ke
2789 396	Cr	–	20	–
2789.372	W	5	1	–
2789.351	Mn	12 h	–	–
2789.328	Ce	2	–	–
2789.323	Sn	5	3	Ar
2789.273	Re	20	–	–
2789.206	Cb	2	5 h	–
2789.2	Rn	–	[20]	Pe
2789.197	Mn	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2789.169	Sc II	4	10 wh	–
2789.163	W	3	12	–
2789.133	Mo	10	–	–
2789.071	W	10	7	–
2789.063	U	12	10	–
2788.962	Ir	2	–	–
2788.87	Sb	–	[4]	Lg
2788.81	Cs	–	[2]	Bs
2788.710	Ru	–	50	–
2788.689	Ce	8	–	–
2788.686	Cb	–	5	–
2788 684	Th	8	8	–
2788.681	Mn	5	–	–
2788.671	U	5	2	–
2788 67	V	–	7 h	–
2788.625	Pt II	6	20	–
2788.62	Cl	–	[4]	Bl
2788.526	U	4	4	–
2788.526	W	–	6	–
2788.462	Er	4	–	–
2788.40	Hg II	–	[12]	Ps
2788.31	Yb	–	8	–
2788.302	Ta	150	3	–
2788.22	Cs	–	[20]	Sv
2788.190	V	10	–	–
2788.132	U	2	2	–
2788.105	Fe I	150	150	–
2788 022	Ce	2	–	–
2788.02	Ti II	–	70 hd	–
2787.978	W	12	10	–
2787.97	Yb	–	3	–
2787.935	Fe I	25	15	–
2787 929	Sn	50	50	–
2787 924	V	–	30 h	–
2787 921	Pd II	–	15 wh	–
2787.895	Cr	–	20	–
2787.830	Mo	40	4	–
2787.826	Ru	60	150	–
2787.819	Mn	12	–	–
2787.711	Er	12	3	–
2787.693	Ta	400 R	40	–
2787.650	Ce	2	–	–
2787.628	Cr	5	30	–
2787.406	Er	8	1	–
2787.391	Re	2	–	–
2787 331	U	6	8	–
2787 325	V	–	4	–
2787 315	Mo	1	5	–
2787.260	Fe II	–	10 h	Do
2787 246	Ru	–	30	–
2787 22	Eu	4 w	–	–
2787 132	Th	8	8	–
2787.128	Ce	6	–	–
2787.11	Fe	1	–	–
2787.02	Cs	–	[8]	Bs
2787.020	Co I	5	–	–
2786.996	V	2 wh	20 h	–
2786 952	Zr II	–	3 wh	–
2786 95	Ho	–	10	Ex
2786 917	Th	5	8	–
2786 909	Ce	2	–	–
2786 855	Zr I	5	–	–
2786 804	U	3	4	–
2786 798	Os	40	8	–
2786 780	Fe	15	7	–
2786.688	Ce	2	–	–
2786 628	U	4	2	–
2786.560	Re I	25	–	–
2786.520	Ce	2	–	–
2786 514	W	8	2	–
2786.496	Cu I	8	–	–
2786 49	Ag II	10	10 h	–
2786.486	Cr	1	30	–
2786.41	Te	–	[5]	Bl
2786.366	Ru	–	8	–
2786.313	W II	2 d	15	–
2786.306	Os	25	5	–
2786.301	Hf II	10	15	–
2786.25	In	–	8	Cx
2786.230	Mo	–	4	–
2786.215	U	4	4 h	–
2786.19	Tm	10	30	Me
2786.19	Fe	8	2	–
2786.139	Re	20	–	–
2786.109	Er	10	1	–
2786.002	Sb	–	4	–
2786 00	Ti II	–	60 wh	–
2785.912	U	–	4 h	–
2785.902	Co I	50	–	–
2785.883	W	7	2	–
2785.791	Nd	5	–	–
2785.718	Re	15	–	–
2785.700	Cr	5	80	–
2785.689	V I	25	–	–
2785.650	Ru I	60	200	–
2785.647	U	3	2	–
2785.633	W II	3	20	–
2785.619	Mo	1	15	–
2785.613	Th	2 h	3	–
2785.594	Yt II	5	18	–
2785.543	V	25	–	–
2785.428	Re	20	–	–
2785.42	Xe II	–	[2]	Hu
2785.4	bh C	30	–	L
2785 347	Ce	12	–	–
2785.334	U	4	2	–
2785 264	Ba I	50	–	Sz
2785.26	Br	–	[3]	Bl
2785.235	Yt II	7	20	–
2785.224	Ir I	25	10	–
2785.213	Fe II	–	40 h	Do
2785.208	Re I	30	–	–
2785 2	Rn	–	[3]	Wo
2785.17	U	3 d	2 d	–
2785.161	Ru	–	20	–
2785.14	B	–	35	Sy
2785 125	Ce	4	–	–
2785.104	Cr	–	10	–
2785 08	Tm	60	30	Me
2785.068	Cb	1	5	–
2785.031	Sn	60	60	–
2784.992	Mo	100	200	–
2784 978	Th	8	6	–
2784.971	Ce	2	–	–
2784.967	Ta	50	100	–
2784.954	Er	10	1	–
2784 919	U	6	8	–
2784.882	Ru	6	–	–
2784.80	Lu	–	8 h	Me
2784 669	U	8	8	–
2784 666	Cs II	–	[2]	Ot
2784.664	Ce	4	–	–
2784.65	Yb	2	20	–
2784.643	Ti II	7	20	–
2784 526	Ru	60	100	–
2784 450	U	8	12	–
2784 445	Cb	–	10	–
2784.346	Fe	15	6	–
2784.317	Cr	–	3	–
2784 282	Fe II	–	5	–
2784.271	Ce	15	–	–
2784.27	V	4	50 h	–
2784.10	Cs	–	[8]	Bs
2784.066	Th	6	5	–
2784 056	Ce	2	–	–
2784 011	Fe	12	3	–
2784 008	Mo	20	1	–
2784.004	U	6	6	–
2783 97	I	–	[12]	Bl
2783 94	V	1	10 h	Me
2783.867	U	6	8	–
2783.843	Cr	–	35	–
2783 84	Rb	–	[10]	Ok
2783 786	Ce	3	–	–
2783.783	V I	15	–	–
2783.696	Fe II	20	400	–
2783 694	Ta	2 h	–	–
2783.692	Hf	15	–	–
2783.691	Er	2	2	–
2783 678	W	7	5	–
2783.573	Re I	150 w	–	–
2783.559	Zr II	5	5	–
2783.551	Cu I	18	–	–
2783.496	Th	6	6	–
2783 490	Ce	2	–	–
2783.405	U	3	4	–
2783.290	U	6	1	–
2783 15	O II	–	[3]	Mh
2783 145	Re	10	–	–
2783 14	Cl	–	[7]	Jv
2783.129	Mo	3	–	–
2783.119	W	10	12	–
2783 082	Mn	12	–	–
2783.054	Th	10	10	–
2783.043	Ce	5	–	–
2783.029	Rh I	150	10	–
2782.99	V	1	10 h	–
2782.974	Mg	15	15	–
2782.83	Zn II	–	[20]	Vs
2782.805	Cb	–	5	–
2782 734	Mn	50	–	–
2782.73	Br	–	[2]	Bl
2782.730	Nd	5	2	–
2782.699	Ce	2	–	–
2782.654	W	4	–	–
2782.6	Rn	–	[3]	Pe
2782.592	Cu I	20	1 h	–
2782.592	Cr	–	20	–
2782.576	V	–	9 h	–
2782.552	Os	40	15	–
2782.46	O	–	[5]	Mh
2782.363	Cb	10	20	–
2782 358	Sc II	4	5	–
2782 354	Cr	–	35	–
2782 261	Co I	3	–	–
2782.229	Ir I	2	–	–
2782.209	Ru I	50	1	–
2782.135	W II	4	30	–
2782.118	Er	5	–	–
2782.10	I	–	[12]	Bl
2782.071	U	5	10	–
2782 05	Fe	12	6	–
2782.004	Mo	–	3 h	–
2781.986	Ce	10	–	–
2781.93	Hg	–	[8]	Ps
2781 894	Ce	6	–	–
2781.89	Eu	100 w	100 w	–
2781 835	Fe I	90	60	I
2781.80	Rh	1	150	–
2781.788	Ta	25	1	–
2781 68	Ne I	–	[3]	Ps
2781.616	U	8	8	–
2781.573	Dy	2	–	–
2781 48	Pd II	–	[2 wh]	Bx
2781 47	Lu	4 h	–	Me
2781.454	V	4	125 h	Me
2781.448	Re	40	–	–
2781.431	Ce	6	–	–
2781.42	Ne	–	[3]	Ps
2781.417	Mg	20	8	–
2781.408	U	3	6 h	–
2781.405	Gd	30	40	–
2781.369	Ta	50	4	–
2781 289	Ir I	18	10	–
2781.23	Zn I	25	5 h	Fl
2781.187	Er	4 s	1	–
2781.155	Cr	10	12	–
2781 035	U	8	8	–
2781.032	Co	8	–	–
2781.01	Cl	–	[8]	Jv
2781.01	Fe	8	2	–
2780.994	Mo	15	1 h	–
2780.983	Cb	1	4	–
2780.98	I	–	[12]	Bl
2780.943	Ir I	5	5	–
2780.890	Fe	10	3	–
2780.888	Cr	–	20	–
2780.87	Tm	10	20	Mo
2780 83	Au	–	20	–
2780.826	Re	3 w	–	–
2780.81	Cs	–	[2]	Bs
2780.79	P	–	[10]	Gu
2780.772	U	6	6	–
2780.771	Ru	30	8	–
2780 76	Nd	5	–	–
2780.703	Cr I	600 R	15	–
2780.700	Fe	30	15	–
2780 54	Fe	10	2	–
2780.526	Eu	20	–	–
2780.521	Bi I	200 W	100	Om
2780.56	Ti II	–	60 wh	–
2780.409	Ir I	3	–	–
2780 299	Cr	–	100	–
2780.283	W II	10	20	–
2780 28	I	–	[20]	Bl

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2780.28	Cd	–	[25]	Es
2780.25	Tl II	–	[20]	El
2780.245	Cb	30	200 r	–
2780.234	La II	20	10 h	–
2780.208	Ta	4	–	–
2780.197	As I	75 R	75	–
2780.15	Ga II	–	[40]	Sy
2780.1	K	–	[2]	Sg
2780.097	V	–	10	–
2780.06	Ne II	–	[5]	Bn
2780.045	Fe II	–	20	–
2780 04	Yb	–	2	–
2780.040	U	8	8	–
2780.036	Mo	60	100 h	–
2780.005	Ce	15	–	–
2779.998	Mn	25	–	–
2779.906	Fe II	–	40	Do
2779.9	Cs	–	[8]	Bs
2779 841	Co II	–	3	–
2779 834	Mg	40	50	–
2779.825	Ce	2	–	–
2779 817	Sn	80	100	–
2779.778	La II	1	10	–
2779.724	W	8	7	–
2779.719	Cb	5	4	–
2779.704	Ta	30 r	4	–
2779.701	Pd II	–	5	–
2779.70	Fe	4	–	–
2779.654	Ir I	3	–	–
2779.56	Tm	30	10	Me
2779.537	Rh I	100	6	–
2779.51	Kr II	–	[4]	Me
2779 476	Mo	25	1	–
2779.406	U	6	6	–
2779.392	Ru	–	30	–
2779.366	Hf	20	4	–
2779.361	Cb	5	5	–
2779 317	W	5	4	–
2779.299	Re	5	–	–
2779.299	Fe II	25	300	–
2779.26	B	–	100	Sy
2779.239	Mo	–	25	–
2779.135	Cr	20	5	–
2779.11	Kr II	–	[20]	Me
2779.1	Cs	–	[8]	Bs
2779.098	Ta	150 w	5 h	–
2778.99	Kr II	–	[2]	Me
2778.986	Ru	50	50	–
2778.953	U	4	2	–
2778.938	Cr	–	12	–
2778 845	Fe	70	40	–
2778.822	Co I	75	8	–
2778.757	La II	1	10	–
2778.710	Th	10	10	–
2778 699	Ce	2	–	–
2778.686	W	3	20	–
2778.59	Fe	6	1	–
2778.578	V	–	60 h	–
2778.560	Mn	60	–	–
2778.502	Re	20	–	–
2778.49	Ti II	–	30 wh	–
2778.449	U	6	2	–
2778.40	Tm	5	10	Me
2778.395	Ce	2	–	–
2778 379	Ru	–	150	–
2778.346	Sn II	–	2	–
2778 288	Mg	25	20	–
2778.221	Fe I	100	80	S
2778.19	Ho	–	10 h	Ex
2778 15	Rh	2	100	–
2778.135	U	4	4	–
2778.091	Re	20	–	–
2778 08	Te	–	[10]	Bl
2778.073	V I	10	–	–
2778.071	Fe	30	10	–
2778.060	Cr	12	60	–
2778.056	Ce	2	–	–
2778.055	Rh I	100	3	–
2778 027	Th	3	2	–
2778.016	Cb	–	5	–
2777.89	K II	–	[2]	Bn
2777.877	Ir I	4	–	Ab
2777.870	W	2	12	–
2777.856	Mo	15	10	–
2777.807	Th	10	8	–
2777.798	Ce	3	–	–
2777.76	Sm	2	2	–
2777.743	Mo	30	2	–
2777.733	V II	40 h	100 R	–
2777.723	Re	20 w	–	–
2777.667	Cr	40	1	–
2777.530	Ir I	3	–	–
2777.51	Tm	10	15	Me
2777.497	Ru	5	50	–
2777.464	Mn	10	–	–
2777.434	Ir I	8	5	–
2777.42	I	–	[12]	Bl
2777.392	Ru	–	50	–
2777 258	W	6	2	–
2777.226	Re	10	–	–
2777.10	Ho	–	10	Ex
2777.05	Tm	8	25	Me
2776.962	Re	15	–	–
2776.961	Ce	2	–	–
2776.923	Fe II	–	25 h	Do
2776.910	Os	25	8	–
2776.843	Pd II	–	25 wh	–
2776.690	Mg	30	20	–
2776 685	V	2 h	–	–
2776.672	Mo	1	20	–
2776 652	Cr	–	25	–
2776.59	Zr II	1	2 w	–
2776 52	Eu	4	–	–
2776.513	U	6	6	–
2776 502	W II	12 d	25	–
2776.471	V	30 h	–	–
2776 42	Cs	–	[20]	Bs
2776.400	Ru	6	–	–
2776 399	Fe	100	30	–
2776 29	U	6 w	6 w	–
2776.27	Yb	6	40	–
2776 231	Mn	80	–	–
2776 23	V	–	6 h	–
2776.21	Co	–	10	–
2776.175	Fe II	–	40	–
2776 13	I	–	[20]	Bl
2776.086	W	9	2	–
2776.08	Cd	–	3	–
2776.02	W	2	8	–
2775.907	Ru I	50	–	–
2775.877	Ta	200	30	–
2775.780	U	3	4	–
2775.769	Rh	5	125	–
2775 763	V	12	70 h	–
2775.76	Sb	–	3 h	Sp
2775.668	Cr	30	–	–
2775.654	Mn II	4	10 h	Cz
2775.646	Re	15	–	–
2775.631	Ru	50	150	–
2775.580	Co I	50	–	–
2775.554	Ir I	12	2	–
2775 551	Mo	10	–	–
2775 451	U	6	4	–
2775.41	Yb	–	2	–
2775.40	U	6	4	–
2775.400	Mo	80	100 h	–
2775 355	In I	80	30	Uh
2775 346	Ta	80	15	–
2775.327	Ni II	–	250 wh	–
2775 266	Hf II	15	15	–
2775 216	U	6	6	–
2775 185	Ru	50	–	–
2775.181	Co II	30 h	100 h	–
2775.158	Ce	10	–	–
2775 108	Ta	100 W	80	–
2775.049	Ne I	–	[5]	Ps
2775 047	Cd I	50	20	Hz
2775.019	U	6	8	–
2774.99	Tm	20	40	Me
2774.982	W	2	12	–
2774.968	V	10	20 h	–
2774.968	Ir	2	5	–
2774.96	I	–	[20]	Bl
2774.959	Co I	50	–	–
2774.900	Os	8 s	4 w	–
2774.876	Ta	100	3	–
2774.86	Xe II	–	[10]	Hu
2774.843	Th	5	4	–
2774.78	Tm	5	15	Me
2774.779	Pt II	10	100 wh	–
2774.736	U	3	10	–
2774.734	Fe I	80	10	–
2774.717	V	20	50 h	–
2774.70	Ho	–	300	Ex
2774.691	Fe II	–	50	–
2774.620	Er	6	2	–
2774.59	Kr II	–	[3]	Me
2774.585	Ir I	5	1	–
2774.486	Cb	–	10	–
2774.483	Ru	60	2	–
2774.480	W	15	20 l	–
2774.46	Cs	–	[8]	Bs
2774.436	Cr	–	100	–
2774.43	U	4 d	4 d	–
2774.392	Mo	30	50 h	–
2774.387	Re	6	–	–
2774.375	Os	8	5	–
2774.32	Yb	–	3	–
2774.276	V	25	100 R	–
2774 205	Pt	4	–	–
2774.181	Ru	–	6	–
2774.17	Rh	1	40	–
2774.169	U	1	4 wh	–
2774.157	Zr II	10	10	–
2774 151	Os	5	2	–
2774.14	Fe	1	–	–
2774 091	W	–	10	–
2774.072	Th	6	6	–
2774.060	Cb	2	5 d	–
2774.059	Ce	2	–	–
2774.038	Zr I	10	–	–
2774.016	Os	12	6	–
2774.016	Hf II	25	50	–
2774.005	V I	9	–	–
2774.002	W	12	2	–
2773 996	Pt I	50	2	–
2773 947	Ce	2	–	–
2773 901	Ir I	7	5	–
2773 9	Rb	–	[2]	Dr
2773.90	Fe	10	5	–
2773.87	W II	4	9	–
2773.84	Ho	–	10	Ex
2773.80	Tm	10	–	Me
2773.784	Mo	15	25	–
2773 77	U	3 d	2 d	–
2773.698	W	12	8	–
2773 680	Fe II	–	1	–
2773.679	V I	35	7	–
2773.67	Co I	3	–	–
2773.664	Mn	15	–	–
2773 607	U	6	10	–
2773 597	Pt I	7	–	–
2773.594	Ir I	4	–	–
2773.55	Xe	–	[3 h]	Hu
2773.500	Hf II	10	10 h	–
2773.357	Hf II	25	60	–
2773 312	Cr	1	40	–
2773 31	Rh I	3	2 h	–
2773 241	Pt I	50	5	–
2773.236	Fe	90	40	–
2773.203	Cb	15	10	–
2773.115	Re	30	–	–
2773 11	Rh	–	15	–
2773 084	U	5	4	–
2773 069	Os	12	5	–
2773.04	In	–	3	Cx
2773 025	Mn	10	–	–
2773 022	Ce	2	–	–
2773 017	Hf	20	3	–
2772 963	Ru	30	8	–
2772.927	Ce	2	–	–
2772.90	Eu	3	–	–
2772.829	Pt I	15	2	–
2772.827	Fe	15	4	–
2772 81	Sm	–	20	–
2772 71	Pb II	–	2	–
2772.696	Co	30 h	–	–
2772.64	Te	–	[5]	Bl
2772.62	Br	–	[3]	Bl
2772.612	Ru	50	–	–
2772.61	Dy	3	–	–
2772.60	Kr II	–	[10 h]	Me
2772.596	Ta	15	–	–
2772.593	U	8	12	–
2772.58	Lu	5	150 h	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2772.552	Co I	15h	–	–
2772.511	Fe	30	20	–
2772.483	W	10	60	–
2772.456	Ir I	15	10	–
2772.453	Ru	–	150	–
2772 427	Re	3	–	–
2772.341	Cr	–	8	–
2772.34	U	4d	4d	–
2772.33	Fe	50	10	–
2772.326	Ce	3	–	–
2772.324	Hf II	15	20	–
2772.32	Nd	5	–	–
2772.181	U	5	8	–
2772.16	Cd	–	[5]	Es
2772.14	Te	–	[10]	Bl
2772.109	Fe I	300	300	IJa
2772.01	V	2	80 h	–
2771.990	Ru	–	5	–
2771.96	Cd II	–	5	–
2771.93	Cr	–	12 h	–
2771.925	W	–	12	–
2771.912	I	–	[15]	Ke
2771.89	Fe	12	6	–
2771.884	Pd II	–	5	–
2771.874	U	2	2	–
2771.833	Ta	3h	100	–
2771.775	Mo	5	–	–
2771.708	Co	9h	–	–
2771.689	Mo	–	20	–
2771.666	Pt I	500	15	–
2771.654	Cb	2	20	–
2771.621	W	12	5	–
2771.619	Re	3	–	–
2771.612	Ir I	12	4	–
2771 560	Fe II	1	10	–
2771 550	U	8	4	–
2771 515	Th	10	10	–
2771.510	Rh I	100	8	–
2771.508	Ce	8	–	–
2771.465	Ce	3	–	–
2771.452	Ru	–	4	–
2771 448	Cr	18	2	–
2771.435	Mn	25	–	–
2771.404	V	6	50 h	Me
2771.404	Cb	2	15	–
2771 358	Ba II	12	8	–
2771.356	Mo	20	–	–
2771.32	Yb	2	20	–
2771.289	Cr	–	12	–
2771.27	Ca	–	4	Ad
2771.225	Dy	2	–	–
2771 21	U	1d	4d	–
2771.184	Fe II	–	50	Do
2771.148	Ce	8	–	–
2771.07	Ti	2	2	–
2771 067	Ru	–	100	–
2771 05	Tm	15	15	Me
2771.001	W	–	10	–
2770 992	V	1	10	
2770.984	Zn I	300	150	Hz
2770 93	I	–	[12]	Bl
2770.929	V I	2	–	–
2770.908	Mo	–	3	–
2770 881	W	25	12	–
2770.865	Zn I	300	25	IHz
2770 822	Th	10	10	–
2770.811	Ce	10	–	–
2770 782	Ta	50 wh	1	–
2770.740	U	4	2	–
2770.701	Ru	60	–	–
2770.701	Fe	20	7	–
2770.582	Mo	–	25	–
2770.52	Br	–	[5]	Bl
2770.508	Fe II	–	50	–
2770.457	Hf II	15	20	–
2770.418	Re I	60	–	–
2770.299	Ru	60	3	–
2770.206	W	10	2	–
2770.18	Gd	15	2	–
2770.158	Mo	–	8	–
2770.098	Os	5	3	–
2770.06	Ne II	–	[3]	Bn
2770.044	U	10	12	–
2769.939	Sb	100	75	–
2769.915	Cr I	400 r	40	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2769.875	Os	20	8	–
2769.862	Mo	5	–	–
2769.837	Pt I	50	2	–
2769.81	Gd	20	20	–
2769.762	Mo	10	100	–
2769 741	W	15	10	–
2769.74	A	–	[20]	Rt
2769.739	V	6	40	–
2769.69	Al	–	[3]	Sy
2769.672	Hf	–	2	
2769.671	Fe I	60	20	–
2769.67	Te I	–	[30]	Bl
2769.670	Co I	10	–	–
2769.666	Cu II	5h	400	IBu
2769.629	Mn	3	10	–
2769 61	Br	–	[2]	Bl
2769.567	Cb	2	30	–
2769.53	Tb	10	10	m
2769.5	Cs	–	[2]	Bs
2769.41	Cl	–	[4]	An
2769 351	Fe II	1	20	–
2769.332	Re	30 w	–	–
2769.302	Fe	90	10	–
2769.300	Cb	–	15	–
2769 275	Ce	2	–	–
2769.26	Hg II	–	[3]	Nu
2769 145	Fe II	1	15	–
2769.085	Co	–	35 h	–
2768.985	W	18	10	–
2768 957	Pt	1	4	–
2768.937	V I	30	4	–
2768 934	Fe II	40	100	–
2768 934	Ta	2	30	–
2768 926	Ru	60	200	–
2768.878	Cu I	25	1 h	–
2768 860	Mo	10	–	–
2768.857	U	10	8	–
2768.856	Re I	25	–	–
2768.848	Th	15	15	–
2768 848	Zr II	3	5	–
2768 837	Ce	12	–	–
2768 785	Ni II	–	250 wh	–
2768 741	Er	–	2 h	
2768 731	Zr II	10	4	–
2768 689	Co	20	–	–
2768 6	Tl	–	2 d	Cx
2768 591	Cr	1	60	–
2768 556	V	35	150 R	–
2768.522	Ce	3	–	–
2768.50	Gd	3	3	–
2768.47	Cd	–	[5]	Es
2768 46	Mg I	8	–	
2768 447	Mn	3	20	–
2768 439	Fe	25	5	–
2768 434	Ir I	2	–	–
2768 385	U	6	2	–
2768 337	Ce	5	3 w	–
2768 337	Fe II	–	1	–
2768 332	W II	10	20 l	–
2768 314	V I	9	–	–
2768 307	Ta	10	2	–
2768 294	Co I	9	–	–
2768 282	Re	3	–	–
2768 27	Yb	–	2	–
2768.229	Rh	50	4	–
2768 17	U	3d	2d	–
2768 154	Cr	–	10	–
2768.131	V	12	18	–
2768.128	Cb	10	100	–
2768.112	Fe	35	8	–
2768 1	K	–	[2]	Ml
2768 094	Mo	10	–	–
2767.99	A	–	[2]	Rt
2767.88	Bi	4	–	To
2767.87	Tl I	400 R	300 R	Fl
2767.783	U	2	2 h	–
2767.783	Ag	5	1 h	–
2767.751	Re	6	–	–
2767.74	Cl	–	[4]	An
2767.728	Rh I	100	4	–
2767.654	Ir I	6	5 h	–
2767.54	Cr	30	8 d	Ex
2767.523	Fe I	300	–	S
2767.523	Ag II	30	200	–
2767.503	Fe II	10	400 wh	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2767.49	Cd II	–	[2]	Vs
2767.413	U	5	4	–
2767.40	La II	4	8	Me
2767.349	Zr I	3	–	–
2767.34	Hf II	6	8	–
2767.328	Ir	2	–	–
2767.28	Ne I	–	[3]	Ps
2767.277	Cr	–	4	–
2767.224	Mo	20	–	–
2767.208	Cb	1	5	–
2767.16	Te	–	[10]	Bl
2767.151	V	2	30 h	–
2767.15	Cd	–	[12]	Es
2767.141	W	12	1	–
2767.122	Os	10	3	–
2767.10	Tm	5	8	Me
2767.007	Ce	18	–	–
2766.969	W	–	12	–
2766.963	Hf	15	1	–
2766 912	Fe I	90	40	–
2766.875	U	10	10	–
2766 85	Co II	–	3 h	–
2766.732	W	8	1	–
2766.722	Mo	20	1	–
2766 662	Fe	15	6	–
2766 660	Pt	10	2	–
2766.588	Ce	2	–	–
2766 556	Re	10	–	–
2766 549	Ru	–	100	–
2766 54	Rh	5	150	–
2766.540	Cr II	40	300 r	–
2766.507	Dy	2	1	–
2766 458	La I	4	–	–
2766 455	V II	40	100 h	–
2766.403	Re	50 w	–	–
2766 387	Co I	50	3	–
2766 387	Er	12	2	–
2766 381	Ce	2	–	–
2766.371	Cu I	500	25	IBu
2766 353	Ne I	–	[3]	Ps
2766.319	W	–	20	–
2766.27	I	–	[12]	Bl
2766.258	Mo	30	3	–
2766.228	Ru	30	–	–
2766 221	Co	50	45	–
2766 184	Cb	3	2	–
2766.18	C II	–	2	Fl
2766 157	Mo	–	10	–
2766.156	U	5	4	–
2766 117	Ta	40 h	20	–
2766.095	Cs II	–	[2]	Ot
2766.058	Re	10	–	–
2766.03	Fe	1	–	–
2765 96	Nd	5d	–	–
2765 928	Cb	5	10	–
2765.874	Ru	–	50	–
2765.863	Cr	–	35	–
2765 833	Pd	–	2 h	–
2765 74	Lu	20	3	Me
2765 70	Fe	7	1	–
2765.668	V	50	200 h	–
2765.657	W	12	4	–
2765.65	Ti II	–	20 wh	–
2765 639	I	–	[20]	Ke
2765 617	Er	10	1	–
2765.55	Yb	–	5	–
2765 534	Ce	6	–	–
2765.495	Fe II	–	5	–
2765.49	Nd	5	–	–
2765 474	Cr	2	20	Hl
2765.447	Os	10	4	–
2765.443	Mn	3	–	–
2765.441	Ru	50	150	–
2765 400	U	10	10	–
2765.385	Ce	8	–	–
2765.34	Mg I	8	3	Fl
2765.336	W	–	10	–
2765.279	Cb	3	10	–
2765.21	Ti II	2	3	–
2765 206	U	1	4	–
2765.205	W	8	1	–
2765.133	Ru	–	80	–
2765.127	Th	10	8	–
2765.117	Ce	8	–	–
2765.096	Mo	15	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2764.982	Nd	10	–	–
2764.98	Ba	–	8	Py
2764.95	Cl	–	[4]	Bl
2764.885	Hf II	10	10	–
2764.83	Rh	15 r	125	–
2764 821	Ti II	15	70	–
2764.784	Fe II	–	20	–
2764.753	Ta	10 h	3	–
2764.725	Ru	50	1	–
2764.707	U	2	8 h	–
2764.701	Er	3	–	–
2764.696	Ce	5	–	–
2764.66	A II	–	[10]	Rt
2764.643	Th	8	8	–
2764.633	Ce	5	–	–
2764.562	Cb	3	10	–
2764.42	Cs	–	[20]	Bs
2764.41	Yb	1	8	–
2764.397	Ce	3	–	–
2764.350	Cr I	200 r	6	–
2764.330	Fe	70	40	–
2764.293	V	–	10 h	–
2764.266	W II	20	60	–
2764.249	U	10	10	–
2764.188	Co I	100 r	–	–
2764.142	Ce	2	–	–
2764.11	Cd	50 h	25	Es
2764.080	Gd	25	30	–
2764.058	Os	2	1	–
2764 004	W	10	2	–
2763.972	Cr	–	30	–
2763.935	Os	20	8	–
2763.934	Mo	25	1	–
2763 930	Ti II	2	4	–
2763.907	Fe II	1	25	–
2763.903	Ru	30	1	–
2763.89	Cd I	100 h	50	–
2763.88	Cl II	–	[10]	Ks
2763.88	Zn II	–	[3]	Vs
2763.803	Re	50	–	–
2763.800	He I	–	[20]	Ps
2763.722	Ce	2	–	–
2763 692	U	2	2	–
2763 69	Cu	3 h	2 h	–
2763.620	Mo	25	50 h	–
2763 613	Th	10	10	–
2763.598	Ce	5	–	–
2763.597	Cb	2	10	–
2763.59	Cr	1	30	–
2763.419	Ru	50	15	–
2763.415	U	8	6	–
2763.41	Fe	2	–	–
2763.384	Cb	5	5	–
2763.370	Ta	25 d	60 d	–
2763.306	Re I	40 w	–	–
2763 298	Mo	1	20	–
2763.273	Os	25	10	–
2763.23	I	–	[30]	Bl
2763.224	Pt II	6	15 wh	–
2763.142	Ru	30	5	–
2763.14	Rb	–	[2]	Ok
2763.108	Fe I	100	70	I
2763.092	Pd II	300 r	30 r	–
2763.063	Cr	35	4	–
2763.027	Mo	25	1	–
2763.027	Zr I	6	–	–
2762.97	Ne II	–	[10]	Bl
2762.932	Pd	–	15	–
2762.898	Ce	12	–	–
2762.850	U	15	20	–
2762.828	Rh I	10	–	–
2762.778	Fe I	25	10	–
2762 76	Cr	1	5	–
2762.716	V	2	12	Me
2762.700	W	9	3	–
2762.697	Mo	25	2	–
2762.687	Hf	10	4	–
2762.68	Fe	50	1	–
2762.593	Cr II	40	100	–
2762 497	W	–	10	–
2762.489	Cb	2	5	–
2762.460	Al II	–	[8]	Sy
2762.442	Mo	1	10	–
2762 441	Fe II	–	10	–
2762.426	U	6	1	–
2762.35	Ba	–	2 h	Py
2762.345	W	20	10	–
2762.34	Se	–	[10]	Bl
2762.325	Cb	2	10	–
2762.324	Ne I	–	[3]	Ps
2762.306	Ru	50	3	–
2762 244	Ti II	5	12	–
2762.215	Ce	18	–	–
2762.18	A	–	[5]	Rt
2762.12	Ca	–	2 h	Ad
2762.104	W	–	4	–
2762.090	Mn II	2	10 h	Cz
2762.05	Ta	1	40 l	–
2762.05	Ru	–	2	–
2762.032	Fe I	100	60	–
2762.028	Ir I	2	4	–
2761.97	Hg	–	[40]	Ps
2761.932	Re	25	–	–
2761.911	Zr II	3	4	–
2761.905	Er	–	3	–
2761.9	Cs	–	[2]	Bs
2761.813	Fe II	50	200	Bu
2761.787	Mo	–	10	–
2761.785	Fe I	200	–	–
2761.776	Sn	10	10	–
2761.757	Ce	2	–	–
2761.755	Cr I	300 r	35	–
2761.74	U	4 d	4 h	–
2761.676	Ta	200	150	–
2761.672	Ce	2	–	–
2761.631	Hf	25	3	–
2761.590	W II	10	25	–
2761.547	Ta	80	–	–
2761.542	La I	6	–	–
2761.533	Mo	40	20	–
2761 51	Fe	4	–	–
2761.501	Ce	8	–	–
2761.449	U	5	2	–
2761.418	Os	50	10	–
2761.415	Ce	20	–	–
2761.372	Co I	75	5	–
2761.37	Yb	2	18	–
2761.357	Mn	5	–	–
2761.30	O	–	[10 h]	Mh
2761.294	Ti II	10	35	–
2761.26	Rh	1	50	–
2761.20	Hf II	–	5 h	Me
2761.18	U	6 d	6	–
2761.153	Ta	2 h	–	–
2761.137	W	8	–	–
2761.13	Rb	–	[5]	Ok
2761.111	La II	–	5	–
2761.082	Os	20	5	–
2760.998	Cb	5	5	–
2760.930	Mn	80	–	–
2760.897	Fe	15	8	–
2760.852	Al II	–	[3]	Sy
2760.837	Cr	–	15	–
2760.77	Yb	2	18	–
2760.742	W	8	20	–
2760.725	Ru	–	18	–
2760.70	Th	–	6 h	–
2760.698	V	25	100 h	–
2760 685	Ta	1	2 h	–
2760 671	Ni II	–	40	–
2760.586	Ir	4	2	–
2760.526	Mo	1	30	–
2760.523	Cr	–	20	–
2760 504	La II	–	3	–
2760.396	Th	5	8	–
2760.384	Ce	5	–	–
2760.357	Cr	1	18	–
2760.334	U	8	4	–
2760.271	Ce	2	–	–
2760.167	Ru	20	12	–
2760.124	V II	20	35 h	–
2760.11	Zr II	1	2 wh	–
2760.093	Yt I	10	8	–
2760.054	Cr	1	10	–
2760.034	W	8 d	7	–
2760.006	Mo	10	–	–
2759.970	Cb	2	10 h	–
2759.910	Ir I	10	5	–
2759.880	Ce	2	–	–
2759.86	F	–	[2]	Di
2759 817	Fe I	100	60	–
2759.787	U	6	6	–
2759.729	Cr	1	15	–
2759.712	Hg I	20	15	–
2759.582	Mo	20	1	–
2759.580	V	2	20 h	–
2759.545	La	4	–	–
2759.534	W	–	10 l	–
2759.53	Yb	–	3	–
2759.51	Te	–	[5]	Bl
2759.482	Zr I	4	–	–
2759.47	Tb	10	10	m
2759.415	Th	4	3	–
2759 391	Cr	10	35	–
2759.335	Fe II	2	12	–
2759.316	Ir I	10	5	–
2759.30	Ho	–	10 h	Ex
2759 252	I	–	[12]	Ke
2759.204	Er	–	6	–
2759 183	Mo	–	5	–
2759.161	Cb	–	10	–
2759.156	La II	–	3	–
2759.138	Ru	–	20	–
2759.086	V	1	2	–
2759.054	Ce	2	–	–
2759 033	W	8	3	–
2759.02	Kr II	–	[4 whl]	Me
2759.019	Ni II	–	500 wh	–
2759.002	Ir	5	5	–
2758.99	Yb	1	8	–
2758.98	Tm	10	30	Me
2758.977	Cr	1	40	–
2758 956	U	10	10	–
2758.952	Mn	10	–	–
2758 90	Ti II	–	10 wh	–
2758.877	W	6	3	–
2758.86	Zn	–	[10]	Vs
2758.821	Os	15	6	–
2758.814	V	4	10	–
2758.813	Zr II	30	30	–
2758 78	Cb	1	100 w	–
2758.711	Re	15	–	–
2758.69	Cl II	–	[5]	Ks
2758.687	W	6	3	–
2758 67	Tb	–	10	Ex
2758.652	La II	–	3	–
2758.64	Ne I	–	[3]	Ps
2758.634	Mo	10	10	–
2758 616	Cr	–	30	–
2758.612	Cb	10	15	–
2758.58	Cl	–	[2]	An
2758 538	Co I	30	–	–
2758 52	P	–	[20]	Gu
2758.512	V	2	12 h	–
2758.51	Fe	2	25 h	–
2758.506	Mo	2	20	–
2758.497	U	6	6	–
2758.478	Ir I	3	–	–
2758 432	U	3	4	–
2758.34	Ti II	–	15 wh	–
2758.328	W II	6	12	–
2758.310	Ta	200	40	–
2758 309	Hf	10	–	–
2758.265	Ru	4	8	–
2758 226	Ir I	10	5 h	–
2758.18	U	4 d	4 d	–
2758.075	Ti I	70	4	–
2758.009	Ru	20	–	–
2758.000	Re	60 w	–	–
2757.988	Ta	2 h	–	–
2757.915	U	6	4	–
2757.865	Fe	25	10	–
2757.86	Xe II	–	[20 h]	Hu
2757.83	Cd	–	[5]	Es
2757.808	Ru	50	–	–
2757.808	Os	25	8	–
2757.758	U	6	4	–
2757.753	V I	9	2	–
2757.723	Cr II	35	150	–
2757.699	W	–	12	–
2757.694	Pt I	15	–	–
2757.554	U	10	6	–
2757.506	Cb	2	30	–
2757.485	Re	20	–	–
2757.467	Ce	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2757.43	I	–	[12 h]	Bl
2757.4	Cs	–	[2]	Bs
2757.395	Ti I	25	2	–
2757.320	Fe I	100	60	–
2757.26	A	–	[5]	Rt
2757.260	Cb	3	50	–
2757.209	W	6	12	–
2757.186	Ce	2	–	–
2757.140	U	5	4	–
2757.125	Ta	5	1	–
2757.099	Cr I	300 r	10	–
2757.095	Mo	5	–	–
2757.089	Dy	2	–	–
2757.075	Ru	30	–	–
2757.025	Fe II	10	30	–
2756.927	Cr	–	30 r	–
2756.911	Hf II	15	40	–
2756.835	U	5	2	–
2756.83	Rh	–	10	–
2756.798	Ce	10	–	–
2756.79	Cd I	50 h	–	–
2756.773	W	1	12 s	–
2756.753	Cr	10	1	–
2756.68	Ne II	–	[10]	Bl
2756.573	V	–	15 h	–
2756.57	La	2	–	–
2756.512	Fe II	10	7	–
2756.510	Ag II	5	200	–
2756.452	Zn I	200	100	IHz
2756.391	Ru	–	20	–
2756.381	V	–	4 h	Me
2756 334	Fe I	300	100	–
2756.3	Rn	–	[25]	Wo
2756.30	Cr	1	100	–
2756.264	Fe I	300	100	–
2756.259	Mo	15	–	–
2756.112	Ir I	5	5	–
2756.086	Ce	2	–	–
2756 072	Mo	10	50 h	–
2756.01	Yb	–	3	–
2755 962	Ce	2	–	–
2755.942	W	10	6	–
2755 82	Ne I	–	[15]	Ps
2755.76	Dy	6	–	–
2755.739	Ir	3	–	–
2755.737	Fe II	300	100	I
2755.69	W	–	6	–
2755.661	V	15	–	–
2755 649	Mn	3	–	–
2755.643	Er	20	3	–
2755 637	Cb	5	2	–
2755.58	I	–	[12]	Bl
2755.565	Cb	1	4	–
2755.413	Ce	8	–	–
2755 367	Mo	15	10	–
2755 31	Br	–	[5]	Bl
2755 289	Cb	5	10	–
2755.27	Cr	50 d	2	–
2755 265	W	10	4	–
2755 233	Ru	–	30	–
2755 223	Re I	25	–	–
2755 20	Cs	–	[20]	Bs
2755 18	Fe	15	–	–
2755 133	U	10	12	–
2755 067	V	–	20 h	–
2754 95	Fe	25	–	–
2754.944	Er	15	1	–
2754.943	Pd	–	5	–
2754 93	Yb	2	3	–
2754.920	Pt I	200	5 h	–
2754.918	W	12	9	–
2754.91	A II	–	[2]	Rt
2754.907	Fe II	–	18	Do
2754.90	Cr	10	–	Ex
2754.72	I	–	[20]	Bl
2754.71	W II	–	5	–
2754.612	Ru I	50	1	–
2754.592	Ge	30	20	–
2754.565	U	3	2	–
2754.522	Cb	10 w	100	–
2754.426	Fe	70	20	–
2754.294	Mo	20	20	–
2754.28	Cr	3	50	–
2754.232	Ce	5	–	–
2754.212	Zr II	3	1	–
2754.18	Ca	1	3	Ad
2754.17	Lu	40	125	Me
2754.155	U	20	35	–
2754.10	Cl II	–	[25]	Ks
2754 09	Rh	1	25	–
2754 073	Cb	3	3	–
2754.04	Cl	–	[6]	Bl
2754.037	Fe I	90	35	–
2753.922	Mo	–	5	–
2753.92	A	–	[10]	Rt
2753 878	In I	300 R	300 wh	Ps
2753.856	Pt I	100	4	–
2753.817	Mo	1	10	–
2753 81	Fe	5	–	–
2753.80	Cd II	–	2	–
2753.760	Pt I	15	–	–
2753.742	Cb	2	5	–
2753.722	Os	8	4	–
2753.692	Fe I	70	25	–
2753 688	Re	2	–	–
2753.67	Yb	–	2 h	–
2753.64	Te	–	[10]	Bl
2753.61	Hf	–	60	Me
2753.553	Cb	2	3	–
2753.541	Ce	2	–	–
2753.444	Ru	50	50	–
2753.404	V	50	200 R	–
2753.4	bh B	100	–	L
2753.34	Co II	–	4 h	–
2753 323	W	1	12	–
2753 302	Ce	2	–	–
2753 287	Fe II	25	150 h	–
2753 25	Zr	2 w	2 w	–
2753 210	Ce	2	–	–
2753.19	Tm	20	20	Me
2753 166	W	8	–	–
2753.138	Cb	2	80	–
2753.102	Fe	25	–	–
2753.092	V	10	–	–
2753 09	Cl	–	[6]	An
2753 073	Ce	6	–	–
2753.051	W II	15	10 d	–
2753 046	Re I	40	–	–
2753 029	Fe	2	–	–
2753.006	Cb	5	50 h	–
2752.987	U	6	4	–
2752.945	Ce	2	–	–
2752 881	Ti II	–	50 wh	–
2752 877	Cr I	300 r	40	–
2752 875	Ir	2	4 h	–
2752.858	La II	1	10	–
2752 857	Re	25	–	–
2752 84	Hg	40	10 h	–
2752 839	Rh I	50	2	–
2752.834	In II	–	[5]	Ps
2752.775	Hg I	100 R	50	–
2752.766	Ru	50	150	–
2752.743	In II	–	[2]	Ps
2752.583	Mo	–	4 h	–
2752.548	Hf	–	4	–
2752.489	Ta	300	300	–
2752.451	Ru	50	–	–
2752.445	U	4	12	–
2752 42	I	–	[12]	Bl
2752.387	Cr	–	10	–
2752.35	W II	6	5	–
2752.317	Mn	20 d	–	–
2752.295	Ta	150	8	–
2752.266	Ru I	30	–	–
2752 238	W	2	20 l	–
2752.21	Te	–	[10]	Bl
2752.206	Zr II	40	40	–
2752.19	Ag II	2	[4]	Bx
2752.172	Th	15	12	–
2752.166	Ce	15	–	–
2752.16	Eu	20 w	–	–
2752.159	Fe II	–	10	Do
2752.15	Se	–	[5]	Bl
2752.150	Mo	3	3 h	–
2752.132	V	1 h	35 h	–
2752.105	Ru	–	60	–
2752.095	Fe	1	20	–
2752.073	Co I	40	1	–
2752.018	Cb	2	5	–
2751.94	I	–	[12]	Bl
2751.93	U	2 d	20 h	–
2751.88	Cd	–	[5]	Es
2751.871	Cr II	20	125	–
2751.812	Hf II	25	80	–
2751.811	Fe	15	5	–
2751.810	Cu I	5	–	–
2751.786	V	–	2 h	–
2751.70	Ti II	–	200 wh	Ex
2751.599	Cr I	30	–	–
2751.59	Te	–	[10]	Bl
2751.59	Kr II	–	[5 whl]	Me
2751.55	Pd II	–	[2 h]	Bx
2751 52	Cl II	–	[5]	Ks
2751.50	Nd	5	2	–
2751.472	Mo	50	5	–
2751.45	Yb	2	15	–
2751 42	I	–	[20]	Bl
2751 39	Zn I	10 h	–	Fl
2751.37	Fe	15	–	–
2751.3	Rn	–	[3]	Wo
2751 29	Cu	10 w	–	–
2751 23	Cl	–	[5]	Jv
2751.228	U	6	6	–
2751.215	W	5	4	–
2751.147	Os	8	5	–
2751.123	Fe II	–	70	–
2751.11	Cs	–	[2]	Ps
2751.06	Pd II	–	[2 wh]	Bx
2751.036	Ta	20	2 w	–
2751.02	Au	–	5 h	–
2750.940	Zr II	6	8	–
2750.894	Ce	12	–	–
2750 878	Fe	60	20	–
2750.77	Tm	10	30	Me
2750 764	W	–	12	–
2750 728	Cr II	30	150	–
2750.722	Fe I	15	–	–
2750.61	S	–	[8]	Bl
2750 578	Cb	2	30	–
2750 534	Ta	20	–	–
2750 51	Pd	–	[2 wh]	Bx
2750.48	Yb	20	150	–
2750.451	Ce	8	–	–
2750 44	Ho	–	10 h	Ex
2750.410	Ta	3 h	10	–
2750 40	Yt II	5	8 h	Me
2750.386	U	6	6	–
2750.350	Ru	50	–	–
2750.321	W II	2	12	–
2750.30	V	–	7 h	–
2750.19	Yt	7	1 h	–
2750.17	Er	15	3	–
2750.147	W	12	5	–
2750 144	Fe I	300 h	100	–
2750.141	Co	15	–	–
2750.140	Ti	30	2	–
2750.13	U	5	4	–
2750.029	Mo	2	50	–
2750.01	V	–	2 h	–
2749.964	U	10	12	–
2749.96	Yb	–	8	Me
2749.954	Ce	5	–	–
2749.94	Se	–	[15]	Bl
2749 89	B	–	2	Sy
2749.83	Hg II	–	[3]	Ps
2749.829	Ta	200	50	–
2749.824	Cb	2	8	–
2749 82	Cr	–	20	–
2749.81	Br	–	[2]	Bl
2749.803	In II	–	[30]	Ps
2749.712	Th	4	4	–
2749.705	Ce	2	–	–
2749.702	In II	–	[50]	Ps
2749.685	Cb	1	5	–
2749.68	Fe	3	–	–
2749.677	Ru	50	10	–
2749.62	Yb		2	–
2749.542	Th	10	8	–
2749.526	Ce	8	–	–
2749.51	La	3	–	–
2749.484	Fe II	15	20	–
2749.357	Th	3	1	–
2749.324	Fe II	30	30	I
2749.323	Ir I	6	–	–
2749 184	Fe II	40	40	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2749.180	Os	15	6	–
2749.098	Ru	–	8 h	–
2749.058	Ti I	30	–	–
2749.00	S	–	[8]	Bl
2749.000	W	9	4	–
2748.985	Cr II	35	200	–
2748.863	Os	12	5	–
2748.86	Al	–	[30 h]	Sy
2748.85	Au II	–	5 r	–
2748.849	W	12	10	–
2748.849	Cb	10	10	–
2748.798	Ce	2	–	–
2748.778	Ta	400	50	–
2748.72	In	–	25 wh	–
2748 66	Yb	5	30	–
2748.608	Zr I	2	–	–
2748.58	Cd II	5	200	–
2748.576	W	10	3	–
2748.494	Mo	20	–	–
2748.451	U	18	15	–
2748.433	W	–	9	–
2748.414	Mo	–	10	–
2748 317	La II	1	8	–
2748.308	W	10	12	–
2748.294	Ir I	2	–	–
2748 286	Cr I	300	5	–
2748 26	Au I, II	40	80	–
2748.18	Cs	–	[20]	Bs
2748.072	Cb	1	15	–
2748.03	Yb	–	2	–
2748.021	Ce	2	–	–
2747.972	Ru	50	100	–
2747 93	U	–	4 d	–
2747.926	Cr	–	6	–
2747.9	In	–	2	Cx
2747.853	Th	6	3	–
2747.848	Ta	10	2	–
2747.84	Eu	12 W	–	–
2747.833	W	12	5	–
2747.833	Ce	2	–	–
2747.73	Nd	5	–	–
2747.7	Rn	–	[7]	Pe
2747.692	Ru	8	25	–
2747 68	Fe	2	–	–
2747.63	Rh	1	100	–
2747 609	Pt I	150	2	–
2747.600	Cb	–	10	–
2747.57	Yb	2	15	–
2747.557	Fe I	30	5	–
2747.542	V I	10	5	–
2747.513	Ir	5	1 h	–
2747 50	O II	–	[25]	Mh
2747.475	V	6	60	–
2747.438	Re I	30	–	–
2747.41	Kr	–	[2 whl]	Me
2747.376	Cb	1	5	–
2747 362	U	8	10	–
2747.31	C II	–	40	Fl
2747 29	Te	–	[5]	Bl
2747.28	Eu	20 w	–	–
2747.251	Ta	50	5	–
2747.161	Th	10 d	5 d	–
2747.16	Br	–	[2]	Bl
2747.155	Ce	12	–	–
2747.15	U	–	4 d	–
2747 145	Mo	–	10	–
2747.018	W	12	10	–
2746.982	Fe II	200	300 wh	I
2746.914	Cb	5	20	–
2746.892	Mo	8	2	–
2746.746	Ni I	125	50	–
2746 735	W	12	20	–
2746.71	Ti II	–	150 wh	–
2746 697	Ru	–	4 h	–
2746.681	Ta	100	5	–
2746 66	U	2 d	1 d	–
2746.654	Ce	3	–	–
2746.617	Hf	3	–	–
2746.562	Ce	2	–	–
2746.50	I	–	[12]	Bl
2746.50	C II	–	25	Fl
2746.483	Fe II	150	300 wh	I
2746.38	Te	–	[5 h]	Bl
2746.36	Bi II	–	2	Cf
2746.31	Kr II	–	[15]	Me
2746.301	Mo	30	25	–
2746 209	W	10	7	–
2746 2	Bi II	–	2	Cf
2746.180	Cr	–	25	–
2746 158	U	25	6	–
2746 157	Fe II	–	10	Do
2746.104	Cb	–	50 h	–
2746 074	Ru	50	8	–
2746.059	Er	–	2	–
2746.032	Co I	50	–	–
2745.97	Fe	3	–	–
2745.901	V	–	35	–
2745.868	Re	25	–	–
2745.864	U	5	4 h	–
2745 855	Zr II	25	25	–
2745.837	W	10	6	–
2745 834	Ru	50	80	–
2745.82	Fe	8	–	–
2745.729	Cb	3	50	–
2745.723	Ce	10	–	–
2745 71	Yb	–	3	–
2745 62	W	8	6	–
2745 60	Eu	10	–	–
2745.57	Rb	–	[2]	Ok
2745 57	Te	–	[25]	Bl
2745 565	Ta	2 h	–	–
2745.550	Mn	15	–	–
2745.47	Pb	–	5 h	Sx
2745.452	Cu I	8	150	–
2745.427	Cr	–	12	–
2745 384	Mo	20	–	–
2745 323	W	6	3	–
2745.302	Cb	5 w	30 w	–
2745.276	Cu II	30	30	–
2745 272	Mo	5	5 h	–
2745 249	Ru	12	150	–
2745.107	W	9	–	–
2745 100	Co I	50	60	–
2745 088	Mo	20	1	–
2745.082	Fe	10	1	–
2745.080	U	10	–	–
2745 076	Ru	30	–	–
2745 028	W II	2	25	–
2745.007	Ce	5	–	–
2744 991	As I	8 R	8	Ro
2744 977	Cr	–	20	–
2744 965	Cb	1	5 w	–
2744 903	W	8	–	–
2744 894	Fe II	–	2	–
2744 846	Ti I	30	–	–
2744 830	Pt	5 r	1 h	–
2744.82	A	–	[20]	Rt
2744.79	Br	–	[2]	Bl
2744.591	Cr	–	40	–
2744.541	V	2	20	–
2744.540	Ce	4	–	–
2744 527	Fe I	70	50	–
2744 50	I	–	[12]	Bl
2744.450	Ru	30	50	–
2744 447	Cb	1	10	–
2744 404	U	12	10	–
2744.274	U	4	10	–
2744 255	Eu	20	–	–
2744 212	Re I	6 w	–	–
2744.193	Mo	2	25	–
2744.13	Er	2	2 h	–
2744.09	Tm	20	50	Me
2744.072	Fe I	150	8	–
2743 998	Ir I	12	2	–
2743.936	Ru	50	100	–
2743 899	Ag II	–	50	–
2743.871	Re	25	–	–
2743.774	V	7	30	–
2743.714	Mo	30	1	–
2743 674	Ir I	3	–	–
2743.661	U	4	8	–
2743.643	Cr II	30	125	–
2743.638	Hf	15	1	–
2743.586	Ta	–	8	–
2743.565	Fe	50	15	–
2743.55	K II	–	[5]	Bn
2743.534	Ru	50	50	–
2743.53	Ne I	–	[15]	Ps
2743.491	Pt II	6	40 h	–
2743.478	Cb	1	20	–
2743.425	W	12	10	–
2743.40	U	–	20 h	–
2743.378	Ir	2	–	–
2743.328	Ce	2	–	–
2743.25	Eu	3 d	–	–
2743.196	Fe II	80	150	–
2743.156	Ir	–	2 h	–
2743.068	Mo	15	–	–
2743.067	Th	12	8	–
2743.062	Ce	8	–	–
2742.994	Ni II	–	500	–
2742.96	Tm	15	25	Me
2742.919	Ta	2	–	–
2742.898	W	3	25	–
2742.890	Mo	1	20	–
2742.850	Re	20	–	–
2742.739	Re	10	–	–
2742 674	V	25	20	–
2742.603	Pd II	–	100	–
2742 6	bh C	20	–	L
2742.60	U	–	6 h	–
2742.596	Cb	1	20	–
2742.56	Kr II	–	[40]	Me
2742 557	Zr II	15	25	–
2742.50	Yt I	4	–	–
2742.469	W	5	25	–
2742.42	Rb	–	[2]	Ok
2742 410	V	35	20	–
2742.408	Fe I	50	50	–
2742.349	Ru	4	50	–
2742.324	Ti II	30	40 whl	–
2742.256	Fe I	25	25	–
2742.25	Tb	10	–	m
2742.171	Cr	30	3	–
2742.060	U	5	2	–
2742.030	Cr II	15	50	–
2742.017	Fe I	35	15	–
2741.967	Re	10	–	–
2741.957	Ce	12	–	–
2741.901	W	–	10	–
2741.828	Fe	1	–	–
2741.809	Ti I	3	–	–
2741 75	Cl	–	[5]	An
2741.748	U	18	6	–
2741.72	Yb	2	15	–
2741 621	U	5	2	–
2741.618	Mo	5	25	–
2741.58	Fe	4	1	–
2741 575	Ce	3	–	–
2741 567	V	2	10	–
2741.550	Zr II	10	8	–
2741 521	Ce	3	–	–
2741.397	Fe II	–	70	–
2741.384	Ta	5	2	–
2741 38	As	–	2	Ro
2741.319	Mo	2	20	–
2741.31	Li I	200		Fl
2741.20	W	–	8	–
2741 188	Li II	–	30	Da
2741 168	Ta	–	5	–
2741 147	Cb	4	10	–
2741.11	Fe	10	3	–
2741.09	A	–	[2]	Rt
2741 068	Cr	35	30	–
2741 065	U	6	6	–
2741.01	Sb	–	2	–
2740.975	V	–	15 h	–
2740 965	Mo	8	–	–
2740 867	Ti I	6	–	–
2740 859	U	12	8	–
2740.8	Rn	–	[3]	Pe
2740.791	W	5	25	–
2740 753	Os	8	5	–
2740 71	Dy	3	–	–
2740.67	Cs II	–	[8]	Bs
2740 628	Eu	20	10	–
2740 607	Os	10	8	–
2740 577	Ce	3	–	–
2740.563	Mn	3 h	–	–
2740 552	Rh I	40	2	–
2740.508	Zr II	5	5	–
2740 459	Co I	50	4	–
2740.431	Ge	10	10	m
2740.417	Hf II	4	2 wh	–
2740.39	Pt II	–	4 h	Sh

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2740.37	Te	–	[10]	Bl
2740.352	Zr II	3	3	–
2740.330	Ir	1	4 h	–
2740.321	Os	15	8	–
2740.305	U	2	2	–
2740.223	Ru	30	–	–
2740.211	Ta	100	10 h	–
2740.208	Rh I	40	2	–
2740.184	Cb	3	50	–
2740.177	Ir I	4	–	–
2740.176	W	1	12	–
2740.095	Cr II	20	60	–
2740.077	Ir	2	–	–
2740.068	Mo	1 h	4 whl	–
2740.0	bh C	12	–	L
2739.997	Ir I	5	–	–
2739.950	Re	25	–	–
2739.923	Rh	10	300	–
2739.90	P	–	[10]	Gu
2739.807	Ti I	50	3	–
2739 771	Zr II	–	2	–
2739.764	Cu II	–	12	–
2739.760	Cr	–	12	–
2739.711	V	50	80	–
2739.548	Pd	–	2	–
2739.546	Fe II	200	300 h	I
2739.394	U	10	10	–
2739 383	Cr	35	25	–
2739.373	W	–	10	–
2739.32	P	·	[25]	Gu
2739 318	Ir I	8	2 h	–
2739.306	Er	20	4	–
2739.269	La	3	–	–
2739.265	Ta	2	80	–
2739.238	Cb	–	50	–
2739.236	Ba	–	10	–
2739.218	Ru I	60	5	–
2739.207	V	–	15 h	–
2739.124	W	–	10	–
2738.980	U	8	8 h	–
2738 96	Co	–	20	–
2738.892	Ru	60	2	–
2738.862	Mn	25	–	–
2738 805	Ce	2	·	–
2738.80	Yb	–	2	–
2738 760	Hf II	40	100	–
2738.749	Re	6	·	–
2738.711	Ti II	–	25 wh	–
2738 638	Ce	4	–	–
2738.605	Mo	1	40	–
2738 566	U	3	2	–
2738 56	Eu	7	1 h	–
2738 514	W	2	9	–
2738.50	Te	–	[5 h]	Bl
2738.50	Er	–	2	–
2738 484	Pt I	100	5	–
2738 45	Fe	8	1	–
2738 44	I	–	[20]	Bl
2738 43	Zn II	–	[10]	Vs
2738.41	U	5 d	4 d	–
2738 328	Re	20	–	–
2738.316	Ce	2	–	–
2738.268	Rh I	10	2	–
2738 213	Fe I	10	2	–
2738 17	Lu	2	25 hl	Me
2738.16	Se II	–	[10]	Bl
2738.13	U	8 d	8 d	–
2738.09	Be I	10	–	Ps
2738.077	V I	2	1	–
2737.999	W	12	6	–
2737.90	Te	–	[25]	Bl
2737.89	U	4 d	2 d	–
2737.888	Zr	4	–	–
2737.880	Mo	12	20	–
2737.834	Fe	25	10	–
2737.832	Hf	10	4	–
2737.792	Ru	–	60	–
2737.760	W	–	6	–
2737.65	U	2 d	2 d	–
2737.642	Fe	10	–	–
2737.634	Fe II	–	10	–
2737.61	Yb	–	2	–
2737.605	Rh	30	2	–
2737.595	Ru	–	50	–
2737.50	La	2	–	–
2737.49	I	–	[20]	Bl
2737.475	Ru	12	–	–
2737.416	Th	8	8	–
2737.414	Ce	2	–	–
2737.400	Rh	30	400 wh	–
2737.371	W	–	20	–
2737.331	Cu II	–	4	–
2737.314	Fe I	300 r	150	–
2737.31	Cr	10	–	–
2737.309	Ir	12	5 h	–
2737.27	S	–	[8]	Bl
2737.094	Cr	–	10	–
2737.088	Cb	5	100	–
2737.071	U	5	6	–
2737.057	Ce	2	–	–
2737.006	Mn	8	10	–
2736.968	Fe I, II	7	–	–
2736.960	Mo	25	30	–
2736.90	La II	3	2	Me
2736.86	Zn I	10 wh	–	Fl
2736 84	Te	–	[5]	Bl
2736.812	Ru	30	60	–
2736 8	Rn	–	[7]	Pe
2736.78	Fe	10 h	2 h	–
2736.761	Rh I	100	3	–
2736 72	Mg	8	2	m
2736 699	V	1	20	–
2736.680	Ti I	12	·	–
2736.648	Mo	–	4	–
2736.575	W	–	15	–
2736 57	Yb	–	2	–
2736.533	Mg I	30	3	–
2736 531	Ca	–	6	–
2736 528	Fe II	2	3	–
2736.521	Cb	1	3 w	Me
2736.484	Ru	12	80	–
2736 473	Cr I	300 r	50	–
2736.417	Mo	5	10	–
2736.414	Ir I	3	–	–
2736 41	La II	–	3	Me
2736 326	Ce	10	–	–
2736.319	Ru	12	–	–
2736 314	U	5	4 h	–
2736 250	Ta	300 s	8 s	–
2736.24	Tb	10	3	m
2736.177	Ne I	–	[5]	Ps
2736.13	V	–	9 h	–
2736 0	K	–	[20]	Sg
2735.978	U	3	2 h	–
2735 970	W	10	4	–
2735 952	Cb	–	40	–
2735.883	Mo	10	2	–
2735 781	W	1	9	–
2735 769	U	4	2	–
2735.76	Hf II	–	5 h	Me
2735.756	Cr	–	8	–
2735.755	Pt II	1	10	–
2735 718	Ru	60	60	–
2735.69	Ne I	–	[8]	Ps
2735 653	Mo	3	5	–
2735 614	Fe I	20	10	–
2735 612	Ti I	20	4	–
2735 580	U	10	6	–
2735.475	Fe I	125	100	S
2735.33	Tm	6	–	Me
2735 326	U	–	4	–
2735.307	Mo	–	10	–
2735 289	Ti I	30	4	–
2735.246	Eu	15	–	–
2735.168	Ne I	–	[3]	Ps
2735.155	Mo	8	–	–
2735.12	Hf II	6	3	Me
2735.052	Ir I	2	–	–
2735.0	N II	–	[3 h]	Fl
2734.97	Yt II	5	15	–
2734.97	Fe	4	–	–
2734.964	U	6	6	–
2734.888	Fe	5	–	–
2734.885	Re	15	–	–
2734 855	Zr II	40	40	–
2734.85	Cs	–	[2]	Ot
2734.836	Ce	2	–	–
2734.82	Ca	8	2	Sd
2734 803	Fe	–	5	Do
2734 8	Rn	–	[7]	Pe
2734.770	W	10	20	–
2734.732	Cb	–	10	–
2734.729	Mn	10	–	–
2734.71	U	2 hd	4 h	–
2734 68	Co II	–	3 h	–
2734 619	Fe I	20	8	–
2734.564	Cr	–	10	–
2734.517	Ta	15	–	–
2734 513	Ir I	3	–	–
2734.498	Pt I	100	10	–
2734 389	Ce	8	–	–
2734 374	Mo	–	5	–
2734 354	Th	10	10	–
2734 350	Cb	5	80	–
2734 349	Ru	80	200	–
2734 318	Re	20	–	–
2734 30	V	–	15 h	–
2734 273	Fe I	40	25	–
2734 14	Xe II	–	[25]	Hu
2734.089	Sc	6 d	12	–
2734.08	Yb	1	4	–
2734 077	Ce	3	–	–
2734 004	Fe I	40	25	–
2733 967	U	10	15	–
2733 961	Pt I	1000 h	200 h	–
2733 95	Ho	–	10	Ex
2733 905	V	15	25	–
2733 879	Cs II	–	[2]	Ot
2733 86	Cd I	50	25	–
2733 837	Mo	10	–	–
2733 772	W	10	7 d	–
2733 772	U	6	6	–
2733.737	Cb	2	50	–
2733.691	Pt	15	5 h	–
2733 667	Ta	10 w	1	–
2733 61	Rb	–	[5]	Ok
2733 592	Ru	80	4	–
2733.584	Fe I	300	200	–
2733.57	Mg I	25	·	–
2733.463	Cb	3	40	–
2733 456	Zr	4	–	–
2733 443	W	–	10	–
2733 40	O II	–	[150]	Mh
2733.388	Mo	30	8	–
2733.374	U	3	4	–
2733 363	Ce	2	–	–
2733 363	Fe	2	1	–
2733 36	Nd	5	2	·
2733 34	Se	–	[5]	Bl
2733 340	V I	10	1	–
2733 32	He II	–	[100]	Ps
2733 30	As	–	2	Ro
2733 26	Kr	–	[50]	Me
2733 259	Ti I	60	15	–
2733 259	Cb	30	50	–
2733.231	Mo	10	–	–
2733.183	W	15	9	–
2733 15	Xe II	–	[12 hs]	Hu
2733.117	Mo	–	5	–
2733.087	Ru	10	·	–
2733 08	I	–	[12]	Bl
2733.06	A	–	[5]	Rt
2733 042	Re	40 w	–	–
2732.98	Hf II	–	10 Wh	Me
2732.951	U	6	4	–
2732 936	Fe	–	40	Do
2732 924	Ta	100 W	5	–
2732 893	V	10	12 h	–
2732 880	Mo	20	30	–
2732 827	Ce	20	–	–
2732.815	Th	10	8	–
2732.814	W	10	4 l	–
2732 805	Os	75	15	–
2732.73	Yb	6	30	–
2732 721	Zr II	40	30	–
2732 689	Ce	2	–	–
2732 68	Hf II	10	15	Me
2732 670	Ir	20	2 h	–
2732 650	Mo	–	10	–
2732 60	Hg II	–	[12]	Ps
2732 60	Eu	12	–	–
2732.56	Ca	–	4	Ad
2732 555	U	4	2	–
2732 53	A	–	[20]	Rt
2732 448	Fe II	8	20	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2732.415	La II	1	10	–
2732.407	Ir	–	5 h	–
2732.404	Ce	2	–	–
2732.374	W II	–	10	–
2732.36	Pd II	–	[3]	Bx
2732.33	Kr II	–	[4 h]	Me
2732.25	Rb	–	[2]	Ok
2732.211	Re	40	–	–
2732.21	V	–	25 h	–
2732.17	W	–	10 d	–
2732.166	Ce	10	–	–
2732.145	Hg II	–	[2]	Ps
2732.13	Ti	–	25 wh	–
2732.08	Mg I	12	3	–
2732.07	Pd II	–	[5]	Bx
2732.063	Ta	40	3	–
2732.035	Ce	8	–	–
2732.01	Au II	–	30	–
2732.005	Fe II	–	40	–
2732.0	K	–	[2]	MI
2731 94	B	–	2	Sy
2731.912	Ce	2	–	–
2731 908	Cr I	300 r	30	–
2731.901	Ru	50	–	–
2731.9	Rn	–	[3]	Pe
2731.869	Ir I	3	–	–
2731.810	Pd II	–	5	–
2731.8	Cs	–	[2]	Bs
2731.796	W	–	5 wh	–
2731.707	Ce	3	–	–
2731.61	Pd II	–	[50]	Bx
2731.583	Th	5	4	–
2731.578	Ti I	30	1	–
2731.559	Re	10 w	–	–
2731.528	Ne I	–	[3]	Ps
2731.519	V	20 h	–	–
2731.407	Ce	2	–	–
2731.36	Pd II	–	[5]	Bx
2731.358	Ce	2	–	–
2731.358	Ne I	–	[3]	Ps
2731.349	Fe	4	1	–
2731.346	V I	80	50	–
2731.32	Eu	12	–	–
2731.28	Fe	4	1	–
2731.266	U	15	8	–
2731.16	V	–	2 wh	–
2731.142	Hf II	8	10	–
2731.131	Ti I	20	–	–
2731.124	W	10	–	–
2731.115	Co	50 W	15	–
2730.984	Fe I	70	15	–
2730.981	Ti II	–	40 wh	–
2730.932	Ru I	80	5	–
2730 929	Mo	1	10	–
2730.852	Hf	15	–	–
2730.847	W	–	9	–
2730.829	Re	15	–	–
2730.800	Ce	6	–	–
2730.738	Fe II	80	150	–
2730.712	Ir I	20	5	–
2730.71	Rh	2	10	–
2730.71	Hf	4	–	–
2730.699	Ce	4	–	–
2730.672	Ru	–	8	–
2730.521	Ce	2 w	–	–
2730.505	Bi I	200	100	Om
2730.407	Ir I	2	–	–
2730.4	Rn	–	[2]	Pe
2730.36	S	–	[8]	Bl
2730.328	Ru I	60	2	–
2730.318	Cb	2	200	–
2730 310	U	18	8	–
2730.267	Th	8	6	–
2730 258	Ce	2	–	–
2730.197	Mo	2	60	–
2730.16	Fe	1	–	–
2730.138	La	2 h	–	–
2730.131	I	–	[50]	Ke
2730.093	Er	8	1	–
2730.089	Yt I	10	2 h	–
2730.076	Ce	2	3	–
2730.069	U	2	15 h	–
2730.03	Fe	8	1	–
2729.936	W	1	15	–
2729.932	Zr II	1	2	–
2729.915	Pt I	500	50	–
2729.877	La I	4	–	–
2729.828	Cb	3	1	–
2729.813	V I	2	–	–
2729.737	Cr	–	12	–
2729.683	Mo	15	60	–
2729.683	Ce	6	–	–
2729.639	Re	20	–	–
2729.625	W II	10	25 d	–
2729.57	Hg II	–	[12]	Ps
2729.557	Ir I	12	2	–
2729.538	Ce	2	–	–
2729.500	Ta	5	–	–
2729.49	Yb	–	2	–
2729.48	I	–	[12]	Bl
2729.46	Kr II	–	[30 h]	Me
2729.455	Ru	60	–	–
2729.417	Mn	12	–	–
2729.39	Eu II	100 d	60	–
2729.374	Cb	2 d	5	–
2729.330	Th	10	12	–
2729.322	Ce	8	–	–
2729.275	Ta	10	–	–
2729.262	U	8	4	–
2729.19	P	–	[10]	Gu
2729.162	Ce	8	–	–
2729.15	Se	–	[5]	Bl
2729.149	W	1	12	–
2729.134	Mo	20	1	–
2729.100	Hf	10	8	–
2729.065	U	3	6 h	–
2729.05	Tm	20	6	Me
2728.972	Fe I	15	5	–
2728.95	Lu	40	2	Me
2728.945	Rh I	200	200	–
2728.915	Th	6	4	–
2728.905	Fe	3	5	–
2728.902	Ce	2	–	–
2728.873	W II	–	10	–
2728.834	Ru	60	–	–
2728 826	Be II	–	8	–
2728.825	Fe	50	15	–
2728.80	P	–	[20]	Gu
2728.73	Ag II	–	[5]	Bx
2728.704	Mo	20	25	–
2728.640	V	50	400 R	–
2728.627	Re	20	–	–
2728 608	Mn	–	50	–
2728.485	Ce	2	–	–
2728.45	Br	–	[5]	Bl
2728.410	Ir I	4	–	–
2728.4	Li II	–	[2]	Wr
2728.337	Mo	15	–	–
2728.272	Os	12	5	–
2728 26	Cd	–	[5]	Es
2728 178	Mo	–	10	–
2728 162	Cr	–	25	–
2728.082	Mn	–	5	–
2728.078	Cb	3	1	–
2728.021	Fe	100	40	–
2727.960	Ce	3	–	–
2727.950	W	12	3	–
2727.934	V	–	7	–
2727.92	Co II	–	15 wh	–
2727.891	Pd II	–	200	–
2727.82	Sn II	–	[8]	Mc
2727.801	Mo	–	3	–
2727.80	Cs	–	[2]	Bs
2727.780	Eu	300 l	500	–
2727 778	Ta	200	40	–
2727.74	Sm	6 d	5 d	–
2727.7	Rn	–	[12]	Pe
2727.685	Ce	3	–	–
2727 546	Re	30	–	–
2727.54	La II	2	2	–
2727.539	Fe II	150	150	I
2727 437	Ta	50	150	–
2727.433	Cb	2	10	–
2727.418	Ti I	35	7	–
2727 384	Fe II	1 h	40	–
2727.335	U	8	6	–
2727.331	W	–	5	–
2727 257	Cr	4	70	–
2727.24	Th	2 h	4	–
2727.21	Sb	30	30	–
2727.05	Br	–	[15]	Bl
2727.022	Zr I	10	–	–
2727.01	Tb	–	10	Ex
2726 98	Zr II	1 w	2 w	–
2726.973	Mo	10	100	–
2726.973	Ru	60	10	–
2726.93	Cd	–	[15]	Es
2726.802	Cs II	–	[2]	Ot
2726.78	Pd II	–	[10 wh]	Bx
2726.78	Fe	2	–	–
2726.699	Hf	15	–	–
2726.685	U	5	2	–
2726.648	Mo	12	–	–
2726.547	V	7	80	–
2726.518	U	5	2	–
2726.511	Cr I	300 r	40	–
2726.509	Fe II	–	15	Do
2726.493	Zr II	50	50	–
2726.490	Th	10	5	–
2726.482	Ce	2	–	–
2726.475	Ir I	8	5	–
2726.424	W II	2	5	–
2726.410	Pt II	4	20	–
2726.371	Ce	2	–	–
2726.36	Te	–	[30]	Bl
2726.319	Ta	15	1	–
2726 27	In	–	2	Cx
2726.263	W	10	3	–
2726.255	Ir I	4	–	Ab
2726.254	Fe	–	8	Do
2726.241	Cr	–	15	–
2726.240	Fe	25	12	–
2726 230	Er	15	1	–
2726.144	Ce	10	–	–
2726.139	Mn	300 Wh	–	–
2726 080	Cb	3	2	–
2726.054	Fe	100	80	–
2725.950	Mo	15	–	–
2725 942	U	12	12	–
2725.922	Mn	–	50	–
2725.81	Fe	4	2	–
2725.781	Ti II	5	35	–
2725 606	Fe I	15	5	–
2725.586	La I	10	–	–
2725.523	U	10	6 h	–
2725.467	Zr I	12	–	–
2725.466	Ru	80	200	–
2725.424	Ta	20 w	100	–
2725 33	Fe	8	4	–
2725 325	Ce	3	–	–
2725.29	Fe I	8	4	–
2725.170	Ce	6	–	–
2725.147	Mo	20	4	–
2725 094	Ta	15 l	1	–
2725.070	U	8	6	–
2725.069	Ti I	30	4	–
2725 066	V I	7	2	–
2725.057	W	12	9	–
2725 00	Zr I	8 w	–	–
2724.959	Fe I	25	15	–
2724.955	Cb	1	4	–
2724.948	Ce	10	–	–
2724 886	Th	10	8	–
2724 885	Fe II	15	25	–
2724 875	Ru	–	100	–
2724 86	P	–	[20]	Gu
2724.84	A	–	[2]	Rt
2724.81	Lu	–	4	Me
2724.796	Ir	4	5 h	–
2724.765	Ne I	–	[3]	Ps
2724.68	Fe	10	2	–
2724.660	Er	3	–	–
2724.63	V	–	10 h	–
2724.627	W	10	8	–
2724 449	Mn	2	80	–
2724.42	U	6	6	–
2724.417	Hg I	–	20	Ss
2724.413	Mo	4	–	–
2724.352	W	20	10	–
2724.349	Ta	10	–	–
2724.25	Te	–	[30]	Bl
2724.18	I	–	[30 l]	Bl
2724.167	Mn	–	3	–
2724.097	U	3	2	–
2724.08	W	2	15	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2724.071	Ce	2	–	–
2724.063	Ru	60	4	–
2724.04	Cr	1	40	–
2724.03	Cl	–	[5]	Jv
2724.018	Mo	1	25 h	–
2723.984	Cb	10	2	–
2723.953	Cu I	50	1 h	–
2723.951	W	10	–	–
2723.95	Cs	–	[8]	Bs
2723.932	V I	2	–	–
2723 92	Eu	30	–	–
2723.888	Ce	2	–	–
2723.858	Re	20	–	–
2723.847	Ta	2	15 h	–
2723.791	U	1	4	–
2723.79	Fe	3	1	–
2723.755	Ir I	15	3	–
2723 707	W	–	7	–
2723.697	Zr	2	–	–
2723.68	U	3 w	2 w	–
2723.662	Cb	2	200	–
2723.63	Cr	–	35	–
2723.577	Fe I	300	200	S
2723.459	V	–	12	–
2723.381	Ce	8	–	–
2723 361	Re	15	–	–
2723.355	Mo	2	10	–
2723.34	U	–	4	–
2723 323	Th	–	4	–
2723.309	Ce	10	–	–
2723.274	Ta	20	–	–
2723.23	Er	–	5	–
2723 218	V	12	20	–
2723.191	He I	–	[10]	Ps
2723 103	Ru	–	50	–
2723.091	Al II	–	[8]	Sy
2723.06	I	–	[20]	Bl
2723 030	U	6	4	–
2722.998	Yt I	10	8	–
2722 824	Ru	10	–	–
2722.808	U	3	2	–
2722.806	W II	8	25	–
2722.749	Cr II	30	80	–
2722.737	Fe	–	80	–
2722.709	Re I	50	–	–
2722 683	Cb	1	10	–
2722.683	W	8	–	–
2722 651	Ru I	60	1	–
2722 610	Zr II	50	50	–
2722.594	Ce	2	–	–
2722.559	Mo	2 h	10	–
2722.558	V I	100	40	–
2722.461	W	12	5	–
2722 391	Ru	20	–	–
2722.383	Th	10	8	–
2722.374	Ce	6	–	–
2722.321	La I	5	–	–
2722.319	Ta	5	–	–
2722 306	Cb	3	1	–
2722 243	V	2	10	–
2722.205	Re	30	–	–
2722.20	Yb	–	4	–
2722.114	Co I	50 w	–	–
2722.081	Mn	1	50 h	–
2722.040	Fe II	20	70	–
2721.990	Ce	3	–	–
2721.983	Cb	10	200	–
2721.862	Os	75	10	–
2721.848	W II	–	10	–
2721.839	Pt	1	10	–
2721.826	Ta	50	–	–
2721.819	Fe II	–	30	–
2721.768	Ag	20	25	–
2721.697	Th	10	12	–
2721.685	Ce	10	–	–
2721.675	Cu II	–	150	IBu
2721.665	W	9 s	15	–
2721.645	Ca I	20	2	IWg
2721.627	Cb	4	8	–
2721.6	Cs	–	[2]	Bs
2721.592	Er	5	1	–
2721.562	Ru I	60	5	–
2721.459	U	5	4	–
2721.39	Tb	–	20	Ex
2721.367	Th	–	5	–
2721.192	Tm	60	100	Me
2721 186	Ce	4	–	–
2721.163	U	3	6	–
2721.156	Cb	2	5	–
2721 142	V	35	12	–
2721 132	Ce	4	–	–
2721.12	Fe	3	2	–
2721 001	Ir I	3	–	Ab
2721 0	Rn	–	[3]	Wo
2720.932	Cb	3	5	–
2720 918	Al II	–	[3]	Sy
2720.905	Fe I	700 r	–	–
2720 780	V	–	7	–
2720 756	Ta	150	1	–
2720 74	Er	4	–	–
2720 686	Cr	–	20	–
2720 67	U	–	4 d	–
2720 658	Re	15	–	–
2720 612	W II	6	12	–
2720 523	Rh I	50	2	–
2720 521	Eu	10	4	–
2720 52	Fe	8	5	–
2720 451	Ir I	12	5	–
2720 44	Br	–	[15]	Bl
2720.43	I	–	[20]	Bl
2720.404	W II	4 d	18	–
2720.403	U	4	2	–
2720.352	Zr II	4	4	–
2720.261	Cb	2	5	–
2720.26	Cr	1	30	–
2720.2	Cd	–	[2]	Es
2720 199	Fe	35	25	–
2720 199	Cu I	18	–	–
2720 171	Mo	25	1	–
2720 137	Rh	100	6	–
2720 124	Ce	2	–	–
2720 07	Cr	5	35	–
2720 045	W	9	3	–
2720.044	Os	75	15	–
2720.022	Cb	3	–	–
2720.00	In I	10 h	–	Fl
2719.979	Ce	12	–	–
2719 939	Th	8	5	–
2719.90	Kr	–	[5 whl]	Me
2719 893	Mn	–	10	–
2719 862	Al II	–	[2]	Sy
2719.857	W	12	10	–
2719 854	Ir	2	–	–
2719 80	Pb II	–	[20]	Sx
2719 77	I	–	[20]	Bl
2719.723	Mn	2	15	–
2719.718	Ru	12	50	–
2719.685	Mo	–	5	–
2719 653	Ga	5	15	–
2719 582	Co	25	–	–
2719.556	Zr I	3	–	–
2719 537	Re	20	–	–
2719 515	Ru I	100	30	–
2719.48	Se	–	[35]	Bl
2719.465	Th	5	3	–
2719.423	Fe	20	12	–
2719 418	Ti II	7	15	–
2719.345	Ce	1	2	–
2719.327	W	15	20 Ws	–
2719 301	Fe II	–	4	–
2719.300	Mn	–	20 h	–
2719 237	Ce	6	–	–
2719.177	Mo	–	5	–
2719.117	Ce	2	–	–
2719.10	Tl I	5	–	Fl
2719.09	Lu	10 h	–	Me
2719.038	Pt I	1000 w	100 W	–
2719.03	Br	–	[5]	Bl
2719.025	Fe I	500 r	300 r	–
2719.02	Yb	–	2	–
2719.003	Mn	–	20	–
2719 0	Cs	–	[2]	Bs
2718.96	Al	–	[8]	Sy
2718.901	W	25	20	–
2718.90	O II	–	[7]	Mh
2718.900	U	5	6	–
2718.893	Sb	50	50	–
2718.828	Ru	30	5 h	–
2718.775	Cu II	40	300 w	IBu
2718.644	Mo	15	–	–
2718.635	Fe II	–	6	–
2718.618	U	3	2	–
2718 588	Hf	15	1	–
2718.544	Rh I	150	20	–
2718.51	Hf II	10	20	Me
2718.435	Fe I	80	60	I
2718.42	Br	–	[5]	Bl
2718.383	Ta	80	–	–
2718 38	Ca	–	5	Ad
2718 34	Yb	5	30	–
2718.30	Cl	–	[4]	An
2718 29	Se	–	[5]	Bl
2718 279	Zr I	3	–	–
2718.145	Mo	–	2	–
2718.087	Ce	4	–	–
2718.070	Cr	8	6	–
2718 042	W II	10	20	–
2717 98	Rh	–	50	–
2717 90	Hf II	–	6	Me
2717 861	Ru	–	50	–
2717.790	Fe	50	25	–
2717 785	Mo	10	–	–
2717.699	W II	4	10	–
2717 66	Yb	–	2	–
2717 655	Ir I	2	–	–
2717.629	Cb	2	20	–
2717.624	Pt II	4	40	–
2717.557	U	8	4	–
2717.531	W	9	1	–
2717.512	Rh I	100	5	–
2717.51	Br	–	[2]	Bl
2717 509	Cr II	12	40	–
2717 5	Pb II	–	[20]	Ea
2717.484	Zr I	5	–	–
2717.436	V I	2	3	–
2717.399	Ru	50	100	–
2717 37	Pb	–	2 h	Sx
2717.367	Fe	15	5	–
2717 360	La	2	–	–
2717 352	Mo	20	100	–
2717 35	Xe	–	[15]	Hu
2717.329	Cb	2	20	–
2717.303	Ti II	4	35	–
2717 30	Gd	–	5	Ex
2717 275	Ce	10	–	–
2717 20	Fe	2 h	1 h	–
2717.183	Ta	100	–	–
2717.167	W	4	15	–
2717.157	Mo	20	–	–
2717 053	Cr	–	2	–
2717.007	Ru	30	–	–
2717.0	Rn	–	[3]	Pe
2716.982	U	6	2	–
2716.97	Eu	300	300	–
2716.897	W	8	12	–
2716 819	Rh I	50	3	–
2716.787	Mn	1	40	–
2716.761	Re	25	–	–
2716 72	Sb II	–	[8]	Lg
2716 624	Cb	10	200	–
2716 584	Ru	–	80	–
2716 54	Rb	–	[2]	Ok
2716.534	Ir	6	–	–
2716.387	U	3	4	–
2716.34	Cd	–	[5]	Es
2716 318	Th	10	10	–
2716.315	W II	8	20	–
2716.308	Cb	3	30	–
2716.291	Ce	3	–	–
2716 258	Fe	5	–	–
2716.254	Ti II	5	70	–
2716 25	Si	–	[5]	Sy
2716.218	Fe II	20	150	–
2716.218	Ag	–	8	–
2716.181	Cr I	20	4	–
2716.16	Kr II	–	[10 h]	Me
2716 146	Ce	2	–	–
2716 124	Ru	–	100	–
2716.095	Cb	5	1	–
2716.00	Cd	–	[5]	Es
2715.987	Co I	75 w	75	–
2715.94	Yb	–	2	–
2715.91	Lu	4 h	–	Me
2715.879	Cb	2	100	–
2715 80	Zr	–	2 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2715.80	P	–	[5 h]	Gu
2715.8	Cs	–	[2]	Bs
2715.776	Ru	50	–	–
2715.771	Re	30	–	–
2715.770	Pt	5	–	–
2715 76	Xe II	–	[2]	Hu
2715 746	Ce	5	–	–
2715.72	In	–	2	–
2715 687	Cb	4	1	–
2715 686	V	50	300 R	–
2715.636	Os	8	2	–
2715 592	Mo	4	6 Wh	–
2715 539	U	8	8	–
2715.52	Cu	20 w	–	–
2715 503	Ru	12	2 h	–
2715 495	W	20	8	–
2715.470	Re I	100	–	–
2715 45	O II	–	[15]	Mh
2715.426	Ce	5	–	–
2715.416	La II	1	10 hl	–
2715 364	Os	12	5	–
2715 344	Cb	2	100	–
2715.338	W II	8	20	–
2715 323	Fe I	12	5	–
2715 314	Ce	3	–	–
2715.308	Rh	50	500 wh	–
2715.243	Ce	6	–	–
2715.241	Ru	20	5 h	–
2715.170	Mo	20	1	–
2715 170	Ce	10	–	–
2715.125	Fe	5	2	–
2715 092	Th	6	5	–
2715.08	Ca	–	3	Ad
2715.045	Rh I	50	2	–
2715.031	V	10	2	–
2714.998	U	6	4	–
2714.975	Ce	5	–	–
2714.935	W	–	3	–
2714.902	Pd II	–	200	–
2714.868	Fe I	40	15	–
2714.815	W	4	3	–
2714.734	Mn	–	5	–
2714.723	Ce	5	–	–
2714.674	Ta	200	8	–
2714.642	Os	50 r	10	–
2714 617	Th	2 h	4	–
2714.584	U	10	8	–
2714.550	Ir I	4	–	–
2714.538	La I	6	–	–
2714.49	Kr II	–	[3 h]	Me
2714.418	Co II	12	200 W	–
2714.412	Fe II	200	400	I
2714.410	Rh I	150	5	–
2714.4	Rn	–	[3]	Pe
2714.40	Yb	–	4	–
2714.38	Cl II	–	[8]	Ks
2714.333	W	–	3	–
2714.319	Pd	–	150	–
2714.291	U	2	2 h	–
2714.258	Zr II	7	7	–
2714.199	V	60	100	–
2714.198	Cb	3	5	–
2714.103	Ir	–	10 h	–
2714.062	Fe	20	3	–
2714.0	Cs	–	[2]	Bs
2713.935	In I	200 R	125 wh	–
2713.92	Rb	–	[10]	Ok
2713.914	U	6	6	–
2713.847	W	7	2	–
2713.843	Mn	–	15	–
2713.839	Hf	10	1	–
2713.8	bh B	200	–	L
2713 763	Ti II	–	2	–
2713 74	Br	–	[25]	Bl
2713.737	Ru	60	2 h	–
2713.734	Cb	–	5	–
2713 670	Re	15	–	–
2713 583	Ru	–	100	–
2713.51	Hf II	2	5	Me
2713.506	Mo	20	40	–
2713.505	Cu II	50	300 w	IBu
2713.49	U	–	15 wh	–
2713.331	Mn	300 Wh	–	–
2713.32	Rh	–	25	–
2713 3	Bi II	–	10 h	Cf
2713.295	Ce	2	–	–
2713.194	Ru	60	2	–
2713.165	Re	25	–	–
2713 127	Pt	200	10	–
2713.093	Mo	5	–	–
2713.070	Ru	–	80	–
2713.046	V	40	80	–
2713.033	Re	25	–	–
2712.976	Ce	2	–	–
2712.941	Mo	–	5	–
2712.879	Ru	30	–	–
2712 814	V	9 h	4 wh	–
2712.740	Ir I	40	10	–
2712 695	W	1	20	–
2712 689	Mo	3	–	–
2712.662	Er	4	2	–
2712.65	Yb	2	5	–
2712.585	W	5	–	–
2712 582	U	–	2	–
2712 57	Cd I	75	20	–
2712.488	Zn I	300	8	IHz
2712.483	Re	30	–	–
2712.425	Hf II	25	50	–
2712 420	Zr II	20	15	–
2712.410	Ru	80	300	–
2712 40	Kr II	–	[80 h]	Me
2712.388	Fe II	2	100	–
2712 372	Ce	2	–	–
2712.348	Mo	1	40	–
2712.307	Cr II	30	70	–
2712 235	I	–	[100]	Ke
2712.223	V I	6	10 hl	–
2712.137	Hf II	10	10	–
2712.120	Er	7	1	–
2712.116	U	3	2	–
2712.1	bh C	12	–	L
2712.1	Rn	–	[7]	Pe
2712.089	Ru	30	–	–
2712.061	U	8	6	–
2712.06	Ag II	3	200 h	–
2711.993	Hf II	10	10	–
2711 935	Ce	2	–	–
2711 917	Mo	10	–	–
2711 88	Cu II	–	3	Sh
2711.845	Fe II	4	100	–
2711.82	Rb	–	[10]	Ok
2711.76	U	5 d	4 d	–
2711.736	V	50	150 R	–
2711.66	I	–	[20]	Bl
2711 654	Fe I	100	50	I
2711 65	Xe	–	[2]	Hu
2711.61	Te	–	[50]	Bl
2711 6	Cs	–	[2]	Bs
2711 584	Mn	2	125 h	–
2711.572	Ir	–	6 h	–
2711.55	U	4 w	6 w	–
2711 52	Tm	8	–	Me
2711.508	Zr II	40	20	–
2711 486	Mo	1	25	–
2711.463	Fe	12	3	–
2711.456	Th	6	4	–
2711.432	Ce	4	–	–
2711.368	Cb	1	5	–
2711.343	Sc I	10	–	–
2711 31	W	–	4	–
2711.28	P	–	[5]	Gu
2711.244	Ce	4	–	–
2711 21	Ag II	1 h	300 wh	–
2711 11	Kr II	–	[2]	Me
2711.105	U	8	4	–
2711.09	Dy	2	–	Ed
2711.011	Ce	5	–	–
2710.927	Mo	1	25	–
2710.922	Pt II	1	15	–
2710.92	Cr	1	70	–
2710.782	W II	6 d	15	–
2710.742	Mo	20	1	–
2710.738	Ru	20	–	–
2710.723	Ta	1	10 h	–
2710.7	Rn	–	[3]	Wo
2710.685	La	3	–	–
2710.67	Tl I	30 R	10	Fl
2710.66	Hf	–	3	–
2710.625	Mn	–	25 h	–
2710.602	U	–	6	–
2710.60	Ca	–	4	Ad
2710.547	Fe I	80	35	–
2710.54	Yb	2	10 d	–
2710.5	Cs	–	[2]	Bs
2710.45	Hg	–	[12]	Dj
2710.40	P	–	[10]	Gu
2710 38	Cl	–	[10]	Jv
2710.333	Mn	12	40 h	–
2710.32	W	–	7	–
2710.27	Kr II	–	[3]	Me
2710.265	In I	800 R	200 Rh	–
2710.234	Re	15 w	–	–
2710.232	Ru	50	100	–
2710 23	Cr	50 h	–	–
2710.194	Mo	10	20	–
2710 162	V	6	60	–
2710.127	Ta	200	3	–
2710.083	Ir I	10	5	–
2710 04	Nd	5	2	–
2710.000	W	8	4	–
2709.997	Hf II	–	4	–
2709.993	Fe	40	10	–
2709.990	Eu	20	–	–
2709 956	Mn	–	25	–
2709.92	La II	1 h	3	Me
2709.864	Os	20	5	–
2709 82	Pd II	–	[5]	Bx
2709.82	N II	–	[50]	Fl
2709.784	Zr	3	–	–
2709.757	Mo	–	6	–
2709.752	W	8	–	–
2709.73	Eu	8 w	–	–
2709.71	Yb	–	2	–
2709.67	Br	–	[35]	Bl
2709.626	Ge	30	20	–
2709 610	Mn	–	12	–
2709.598	Cb	1	5	–
2709.582	Al II	–	[6]	Sy
2709.575	W II	6	15	–
2709.527	Mo	15	–	–
2709.523	Rh I	50	2	–
2709 508	U	8	8	–
2709 406	Ce	8	–	–
2709.374	Fe II	–	4	–
2709 334	Zr I	12	–	–
2709 31	Cr	2	60	–
2709 274	Ta	40	150	–
2709.246	Mo	20	1	–
2709 23	Tl I	400 R	200 R	Fl
2709 206	Pd II	–	30 wh	–
2709 204	Ru	60	8	–
2709.2	In	–	5	Cx
2709.07	Zr	–	3	–
2709 07	Ba	–	2	Py
2709 056	Fe II	3	100	–
2709.054	Co II	–	30 wh	–
2709.03	Cl II	–	[10]	Ks
2709.03	U	3 w	4 w	–
2709.0	Cs	–	[2]	Bs
2709.00	B II	–	2	En
2708 96	Ra II	–	[200]	Rs
2708.953	Ce	8	–	–
2708 921	W	10	9	–
2708 843	Ru	20	–	–
2708.84	Yb	1	3	–
2708 817	Co	30	2	–
2708.807	Mn	–	12	–
2708.794	W	9	2	–
2708.791	Ni II	–	500	–
2708.79	Cr	3	40	–
2708.680	Ce	2	–	–
2708.675	Ir	–	10 h	–
2708.66	Br	–	[3]	Bl
2708.646	Ru	20	–	–
2708.584	W	10	15	–
2708 570	Fe	80	50	–
2708.451	Mn	15	50 h	–
2708.435	Ce	4	–	–
2708.348	Ta	8	–	–
2708 28	A	–	[40]	Rt
2708.23	Eu	–	5	–
2708.181	W	10	6 s	–
2708.181	Th	10	20	–
2708 179	Os	10	15	–
2708 173	Ce	6	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2708.156	I	–	[30]	Ke
2708.144	Ta	3	–	–
2708.131	Ce	8	–	–
2707.971	Ru	50	3	–
2707.95	U	–	2 d	–
2707.94	Fe	2	–	–
2707.93	Cd II	–	[3]	Tk
2707.9	Rn	–	[12]	Pe
2707.878	W	10	4	–
2707.863	V	70	150	–
2707.860	Re	8	–	–
2707.833	Cb	3	80	–
2707.829	Ta	10	–	–
2707.714	U	3	4 h	–
2707.639	Ta	2 h	–	–
2707.589	V I	4	–	Me
2707.530	Mn	10	50 h	–
2707.520	Ta	2	–	–
2707.502	Co II	–	100 wh	–
2707.473	Ru	30	–	–
2707.470	Ce	2	–	–
2707.451	Fe	20	6	–
2707.444	Al II	–	[2]	Sy
2707.421	Os	12	4	–
2707.411	Re	25	–	–
2707.39	Xe	–	[3]	Hu
2707.294	Ru	–	60	–
2707.226	Rh I	100	4	–
2707.211	Cb	1	5	–
2707.175	Ir I	2	–	–
2707.14	Cd II	–	[30]	Tk
2707.132	Fe II	–	70	–
2707.07	La I	3	–	Me
2707.05	Fe	4	–	–
2707.045	Ti II	2	15	–
2707.024	Ce	2	–	–
2707.020	W	6	15	–
2707.006	Mo	–	6	–
2706.96	Se	–	[5]	Bl
2706.95	U	15 d	20 d	–
2706.921	Ta	15	–	–
2706.884	Ce	15	–	–
2706.882	Ir I	2	–	–
2706.79	Cs	–	[20]	Bs
2706.76	Sc I	7	–	–
2706.739	Co II	–	100 wh	–
2706.727	Hf II	10	50	–
2706.702	Os	50	8	–
2706.698	V	60	200 R	–
2706.696	W II	6	20	–
2706.688	Ta	50	1	–
2706.634	Mn	–	12	–
2706.581	Fe I	150	150	I
2706.580	W	12	10	–
2706.510	Sn	200 R	150 R	–
2706.49	La II	5	2	–
2706.489	Re	10	–	–
2706.395	Cb	2	15	–
2706.367	Zr II	1	2	–
2706.336	Ce	2	–	–
2706 28	Tb	10	10	Ed
2706.174	Zr I	12	–	–
2706.169	V	100	400 R	–
2706.147	Ta	3	–	–
2706.141	Ce	3	–	–
2706.119	Mo	20	20 Wh	–
2706.08	Rb	–	[2]	Ok
2706.072	Fe	8	3	–
2706.056	Re	25	–	–
2706.015	Fe	60	40	–
2706.006	W	10	8	–
2705.93	W	–	6	–
2705.894	Pt I	1000 wh	200 wh	–
2705.872	Yt I	3	–	–
2705.848	Co I	15 w	100 w	–
2705.735	Mn	25	25 h	–
2705.726	Cr	12	–	–
2705.629	Rh	100	300 wh	–
2705.611	Hf	5	1	–
2705.572	W II	1	12	–
2705.561	Mn II	4	20	Cz
2705.55	Ti II	–	[20]	El
2705.537	Ir I	10	2	–
2705.430	Cr	12	2	–
2705.39	Se	–	[5]	Bl
2705.38	I	–	[8]	Ke
2705.36	Hg II	–	[30]	Ps
2705.360	Ir	2	–	–
2705.329	Ru	12	–	–
2705.326	Cb	1	5	–
2705 3	Cs	–	[2]	Bs
2705.263	Eu	50 l	–	–
2705.245	U	3	4	–
2705.242	Mo	20	1	–
2705.23	Fe	1 h	–	–
2705.224	V	25	50	–
2705.2	In	–	2	Cx
2705.186	U	8	6	–
2705.119	Ir I	3	8 h	–
2705.04	Br	–	[2]	Bl
2704.96	Rh	3	40	–
2704.934	Mo	1	50	–
2704.931	Ir I	12	2	–
2704.899	Cb	–	5	–
2704.87	Ca	–	6	Ad
2704.814	Ru	–	25	–
2704.78	W	–	5 h	–
2704.747	Cr	15 r	2	–
2704.694	Cb	2	10	–
2704.64	I	–	[12]	Bl
2704.623	Ir I	3	–	–
2704.60	Li	–	2	An
2704 582	Fe II	5	10	–
2704 566	Ru	–	100	–
2704.54	Nd	10 d	2	–
2704.50	Yb	–	2	–
2704.483	In II	–	[30]	Ps
2704.448	Os	10	1	–
2704.427	Cb	2	10 h	–
2704.379	Er	3	–	–
2704.373	Re	25	–	–
2704.312	Ta	50	–	–
2704.26	Br	–	[3]	Bl
2704.257	Cb	2 w	50	–
2704.191	Ru	10	35	–
2704.1	Cs	–	[2]	Bs
2704.07	Tb	10	10	Ed
2704.034	Ir I	15	–	–
2703.990	Mn	100 wh	25	–
2703.989	Fe II	30	400	–
2703.962	Th	15	15	–
2703.944	Ce	10	–	–
2703.856	Cr II	8	30	–
2703.844	Mo	–	3	–
2703.801	Ru	60	3	–
2703.732	Rh I	150	25	–
2703 610	Mo	1	15	–
2703.554	Cr	–	50	–
2703.54	Te	–	[25]	Bl
2703.528	Ta	8	–	–
2703.495	Ce	4	–	–
2703.480	Cr I	15	–	–
2703.456	W	2	20	–
2703.453	Mn	–	12	–
2703.44	Xe II	–	[8]	Hu
2703.397	Pd II	–	5 h	–
2703.36	Au	–	8	–
2703.36	Tl II	–	[10]	El
2703.316	Ru	12	–	–
2703.250	Re	5	–	–
2703.184	Cu II	10	200	IBu
2703.164	Hf II	1	5	–
2703.148	V	1	2	–
2703.138	Ce	6	–	–
2703.13	Lu	7 h	–	Me
2703.12	W II	4	5	Ln
2703.062	W II	3 d	15	–
2703.057	Ta	60	–	–
2702.999	Mn	–	10 h	–
2702.979	Mo	5 h	–	–
2702.879	Ce	4 w	–	–
2702.832	Ru I	80	8	–
2702.830	Os	8	2	–
2702.80	Ta	40 d	30 wh	–
2702.78	Br	–	[10]	Bl
2702.772	Mo	8	–	–
2702.7	Cd	–	[5]	Es
2702.665	Re	25	–	–
2702.66	Se	–	[10]	Bl
2702.639	Ba I	50	5 h	–
2702.629	Ru	–	10	–
2702.612	Mo	8	–	–
2702.61	Cu I	8 d	–	–
2702.554	Ne I	–	[3]	Ps
2702.55	Fe	7	3	–
2702.539	Ce	2	–	–
2702.533	Cr	10	2	–
2702.520	W	10	3	–
2702.519	Cb	8	80	–
2702.48	Hg	–	[15]	Ps
2702.455	Nd	10	2	–
2702.453	Fe	15	10	–
2702.45	Co	–	3	–
2702.416	Ru	12	–	–
2702.401	Os	2	–	–
2702.399	Pt I	1000	300	–
2702.233	Rh I	5	2	–
2702.196	Cb	10	100	–
2702.189	V	80	300 R	–
2702.159	La II	2	8	–
2702.119	Ce	3 w	–	–
2702.114	Co II	–	25 wh	–
2702.111	W	8	25	–
2701.989	Cr I	35	8	–
2701.924	Ce	2 w	–	–
2701.911	Fe	20	5	–
2701.90	I	–	[12]	Bl
2701.894	Eu	300 W	200	–
2701.873	Mo	2	30	–
2701.86	Th	2 h	5	–
2701.819	U	6	2	–
2701.817	W	8	–	–
2701.810	Zr I	2	–	–
2701.8	Bi II	–	6	Cf
2701.71	Lu	40	150	Me
2701.703	Ce	3	–	–
2701.700	Mn	150	40 h	–
2701.656	Cr	–	5	–
2701 610	Ta	8	–	–
2701.549	U	8	10	–
2701.535	V	10	6	–
2701.53	Si	–	[5]	Sy
2701.52	Ti	–	4 h	–
2701.477	W II	2	18	–
2701.417	Mo	20	100	–
2701.36	Cl	–	[4]	Jv
2701.34	Kr II	–	[15 h]	Me
2701.338	Ru	60	8	–
2701.269	V	10	–	–
2701.250	Cr	–	5	–
2701.18	Cs	–	[20]	Bs
2701.169	Mn	8	10 h	–
2701.160	Fe	–	2	Do
2701.125	Eu II	60 h	60 h	–
2701.115	Ir	4	1	–
2701.09	Cr	1	8	–
2701.06	W	2	12	–
2701.030	Mo	15	1	–
2701.005	Mn	5	12 h	–
2700.990	Ru	–	50	–
2700.963	Cu II	20	400	IBu
2700.96	U	10 d	4	–
2700.936	V	125	500 R	–
2700.92	Hg I	–	[2]	Dj
2700.89	Au I	20	25	–
2700.876	Cb	2	20	–
2700.80	Yb	–	8	–
2700.746	Mo	15	–	–
2700.746	Os	10	1	–
2700.702	Ta	10	–	–
2700.672	Ru	30	1 h	–
2700.60	Kr	–	[3 h]	Me
2700.598	Ta	3	–	–
2700.597	Cr I	30	2	–
2700.59	Rh	2	80	–
2700.555	Ne I	–	[8]	Ps
2700 555	Cb	5 d	10	–
2700.511	V I	2	–	–
2700.481	Ru I	50	–	–
2700.471	Ce	3	–	–
2700.47	Ga II	–	[70]	Sy
2700.430	Mo	–	3 Wh	–
2700.314	Cb	1	5	–
2700.312	W	–	15	–
2700.30	Cs	–	[8]	Bs

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2700.288	Ta	5wh	–	–
2700.231	Ce	5	–	–
2700.213	Mo	20	1	–
2700.2	Tl I	10 l	–	Fl
2700.17	Te	–	[5]	Bl
2700.154	Ru	–	100	–
2700.153	Cb	3	10	–
2700.131	Zr II	50	50	–
2700.051	V	6	2 h	–
2700.009	W	15	10	–
2699.988	Mo	–	15	–
2699.883	Ru I	30	3	–
2699.84	Br	–	[3]	Bl
2699.77	Fe	7	4	–
2699.75	Rh	–	25	–
2699.74	Lu	–	3	Me
2699.676	U	3	2	–
2699.63	Ca	–	2	Ad
2699.63	Hf	10	–	–
2699.605	Zr II	10	10	–
2699.590	W	15	10	–
2699.589	Os	50	8	–
2699.583	Re	25	–	–
2699.528	Ce	2	–	–
2699.50	Hg I	25	[5]	Dj
2699.407	Mo	3	30	–
2699.389	Pt II	–	6	–
2699.372	U	8	6 h	–
2699.349	Cr	–	8	–
2699.259	W	–	8	–
2699.253	Ru	4	4	–
2699.185	Fe	–	5	Do
2699.16	Xe	–	[2 h]	Hu
2699.16	Cs	–	[8]	Bs
2699.152	Ce	3	–	–
2699.109	V I	40	–	–
2699.107	Fe I	100	60	S
2699.104	Sc	3	25	–
2699.033	W	–	8	–
2698.968	Mn	–	40	–
2698.862	Cb	5	200	–
2698.851	Hg I	25	30	–
2698.850	Cr	–	35	–
2698.837	W	12	4	–
2698.801	Re	20	–	–
2698.752	Ru	–	3 h	–
2698.742	Th	6	5	–
2698.731	Ce	3	–	–
2698.730	V I	70	15 h	–
2698.686	Cr II	12	35	–
2698.607	Ir	5	1	–
2698.547	Pd II	–	200	–
2698.54	Cl	–	[3]	An
2698.516	Ti	–	200 h	–
2698.452	U	6	6	–
2698.428	Pt I	500	50	–
2698.409	Cr II	12	35	–
2698.392	Er	–	5	–
2698.378	V	30	300	–
2698.359	Ce	3	–	–
2698.347	W	–	8	–
2698.321	I II	–	[50]	Ke
2698.31	Zr	–	3 h	–
2698.302	Ta	150	3	–
2698.3	bh C	20	–	L
2698.165	Fe	35	6	–
2698.14	Mg I	12	–	–
2698.057	U	20	50	–
2698.054	Ru	12	6	–
2698.033	Ce	6	–	–
2697.907	Cr	3	35	–
2697.806	Mo	25	4	–
2697.745	V I	100	50 R	–
2697.734	Fe	1	3	–
2697.714	W II	15	25	–
2697.710	U	4 h	–	–
2697.67	Te	–	[15]	Bl
2697.550	Th	5	5	–
2697.535	Ce	2	–	–
2697.527	Pb	15 wh	5 h	Kl
2697.512	W	15	3	–
2697.512	Ru	30	–	–
2697.506	Mo	–	4	–
2697.50	Cr	1	35	–
2697.50	Tm	15	15	Me
2697.462	Fe II	3	50	–
2697.398	U	10	6	–
2697.33	Be II	–	[2]	Ps
2697.308	Fe II	2	15	–
2697.29	Hg I	–	[5]	Dj
2697.27	W	–	7	–
2697 266	Re I	50	–	–
2697.262	Mo	4	10	–
2697.241	Os	8	1	–
2697.210	V	–	12	–
2697.20	Si	–	[2]	Sy
2697.067	Ru	4	30	–
2697.063	Cb	10	500	–
2697.041	Co II	–	60	–
2697.031	Ce	5	–	–
2697.021	Fe I	50	25	–
2696.993	V I	70	2	–
2696.977	U	2	2	–
2696.895	W	–	18	–
2696.84	B	–	2	Sy
2696.836	Th	2 h	4	–
2696.833	Mo	1	40	–
2696.824	Ce	5	–	–
2696.814	Ta	125	1	–
2696.767	V I	10	–	–
2696.763	Bi I	25 R	15 R	–
2696.750	Cr	–	20	–
2696.62	Yb	–	4	–
2696.614	Bi	100	100	–
2696.550	Ru	30	–	–
2696.544	V	–	20	–
2696.543	Cr I	30	1	–
2696.491	Ni I	2	50	–
2696.489	Ru	–	5	–
2696.41	Pd II	–	10 wh	–
2696 37	W	4	–	–
2696.284	Fe	90	50	–
2696.219	V	10	2	–
2696.180	Hf	10	–	–
2696.119	He I	–	[7]	Ps
2696.11	O	–	[7]	Mh
2696.072	Mo	25	1	–
2696.072	Ce	20	–	–
2696.050	Cb	5	2	–
2695 996	Fe	80	50	–
2695.961	Ce	10	–	–
2695.958	Mn	–	20	–
2695.930	Ir I	8	2	–
2695.908	U	5	6	–
2695.87	W	–	8	–
2695.849	Co I	50 w	–	–
2695.822	Th	4	3	–
2695.78	Rh	1	15	–
2695.70	Kr II	–	[30 h]	Me
2695.666	W	20	12	–
2695.662	Fe	20	12	–
2695.597	Cb	–	5	–
2695.562	Re	30	–	–
2695.555	Th	8	10	–
2695.55	Te	–	[50]	Bl
2695.542	Ta	3 s	2	–
2695.538	Ce	5	–	–
2695.534	Fe	40	30	–
2695.490	U	12	30	–
2695.468	Ir I	5	5	–
2695.458	La II	3	35	–
2695.43	Yb	1	6	–
2695.427	Zr II	5	5	–
2695.382	Yt I	7	2	–
2695.360	Mn	100 R	50	–
2695.237	V I	7	7	–
2695.217	Mo	5	40	–
2695.215	Ce	8	–	–
2695.214	Mg I	10	–	–
2695.207	Th	6	8	–
2695.2	Si	–	[5]	Sy
2695.18	B	–	6	Sy
2695.048	Mn	–	15	–
2695.040	Cb	10	3	–
2695.039	Fe	30	20	–
2694.982	W II	2	12	–
2694.759	Ta	50	–	–
2694.755	Cb	1	5	–
2694.748	Os	5	1	–
2694.741	V	2	70	–
2694.705	Mo	–	3	–
2694.694	Cr	–	2	–
2694.680	Co II	25	200 w	–
2694.65	V	–	10 h	Me
2694.594	W	–	18	–
2694.55	Te	–	[15]	Bl
2694.538	Fe	100	35	–
2694.533	Ir I	2 h	–	–
2694.523	Os	10	3	–
2694.468	V	1	20	–
2694.399	Re		–	–
2694.398	Co I	25	–	–
2694.380	W II	9	18	–
2694.37	Au	–	3	–
2694.315	Cb	1 h	5	–
2694.308	Rh I	5	4	–
2694.239	Pt	2	–	–
2694.233	Ir I	150 h	50	–
2694.23	Br	–	[5]	Bl
2694.222	U	10	4	–
2694.207	La II	1 h	5	–
2694.205	Yt	8	–	–
2694.105	V	4	1	–
2694.093	Mn	8	50	–
2694.066	I II	–	[30]	Ke
2694.060	Zr II	15	15	–
2693.920	V I	10	2 h	–
2693.91	Rb	–	[2]	Ok
2693.882	Pd II	–	15 wh	–
2693.882	In II	–	[30]	Ps
2693.857	Fe II	–	30	–
2693.77	U	6 d	4 d	–
2693.724	Re	10	–	–
2693.71	Mg I	10	–	–
2693.663	Ru	6	–	–
2693.574	Mn	–	15	–
2693.532	Mo	8	–	–
2693.526	Zr II	15	15	–
2693.52	Cr	1	40	–
2693.500	Ta	10 h	–	–
2693.490	Ir I	10	–	–
2693 476	W	–	4	–
2693.450	Ru	8	15	–
2693.447	Ce	6	–	–
2693.35	U	5 d	2 d	–
2693.342	Ta	30	–	–
2693.287	Ru	80	2 h	–
2693.194	Mn	8	20 W	–
2693.177	Mo	1	25	–
2693 12	Co	–	25	Ex
2693.041	Mo	15	–	–
2693.027	Ce	3	–	–
2693.01	Co	–	25	Ex
2693.007	V I	4 h	4 h	–
2693.0	Bi II	–	15	Cf
2692.943	Mo	–	15	–
2692.917	Zr I	6	–	–
2692.876	Ir I	10	–	–
2692.85	Dy	4	–	–
2692.844	Ru	30	–	–
2692.836	Fe II	15	20	–
2692.832	Gd	1 h	2 h	–
2692.832	Er	3	2 h	–
2692.701	Os	8	2	–
2692.68	Yb	–	2	–
2692.657	Mn	150	–	–
2692.655	Fe I	20	–	–
2692.653	Cb	–	4 h	–
2692.62	A II	–	[20]	Rt
2692.613	Mo	2	40	–
2692.600	Zr II	6	5	–
2692.597	Fe II	–	300	–
2692.447	Mn	–	15	–
2692.422	Th	20	20	–
2692.407	Ce	12	–	–
2692.40	Yb	–	2	–
2692.395	Ta	100	1	–
2692.365	U	8	8	–
2692.36	Rh I	2	–	–
2692.344	Ir I	15	2	–
2692.34	Lu	5 h	–	Me
2692.308	Rh I	6	3	–
2692.254	Fe I	20	4	–
2692.253	Sb	40	40	–
2692.236	Pt II	4	40	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2692.190	Ir I	5	–	–
2692.182	Mo	3	–	–
2692.12	Cr	1	12	–
2692.065	Ru	8	200	–
2692.02	Se	–	[10]	Bl
2692.02	Yb	–	4	–
2692.019	Eu	200	200	–
2692.013	Ce	2	–	–
2692.01	Zr II	1	2 h	–
2692.000	Cb	1	8	–
2691.974	Mn	–	20	–
2691.904	Ir	2	–	–
2691.90	Te	–	[15]	Bl
2691.83	Cs	–	[2]	Bs
2691.812	Mo	5	2	–
2691.795	U	6	6	–
2691.773	Cb	10	100	–
2691.732	Fe II	–	35	–
2691.702	Mo	–	5	–
2691.687	Ce	6	–	–
2691.559	W	8	1	–
2691.49	Fe	5	1	–
2691.344	Ge	25	15	–
2691.310	Ta	150	–	–
2691.29	Ga I	–	[25]	Sy
2691.280	W	10	3	–
2691.254	In II	–	[10]	Ps
2691.230	Th	8	6	–
2691.219	Ce	3	–	–
2691.20	Kr II	–	[2]	Me
2691.175	Ce	2	–	–
2691.13	Hg II	–	[5]	Ps
2691.12	Rh	1	60	–
2691.091	W	15	8	–
2691.064	Ir I	15	–	–
2691.050	In II	–	[10]	Ps
2691.041	Cr II	35	125	–
2691.038	U	15	30	–
2690.99	Yb	–	30	Me
2690.979	Ce	3	–	–
2690.977	Mn	–	25 w	–
2690.972	Mo	–	5	–
2690.820	Ru	8	–	–
2690.793	Re	30 h	–	–
2690.786	V	70	300 R	–
2690.72	Br	–	[2]	Bl
2690.717	Mo	10	–	–
2690.708	W	–	15	–
2690.640	Ni II	1	250 h	–
2690.576	Ir	–	10 h	–
2690.574	W	5	–	–
2690.542	Ta	15	–	–
2690.509	U	10	6	–
2690.50	Zr	–	4	–
2690.50	I	–	[20]	Bl
2690.414	W	6	–	–
2690.405	Mn	–	10	–
2690.399	Ru	20	–	–
2690.260	Re	50 h	–	–
2690.257	Cr I	30	2	–
2690.245	V	50	200 R	–
2690.193	Ru	–	20	–
2690.13	Br	–	[20]	Bl
2690.071	Fe I	30	30	–
2689.897	Ru	50	–	–
2689.88	Fe	10	–	–
2689.878	Cb	–	4 h	–
2689.876	V	50	150 R	–
2689.829	Fe I	40	40	–
2689.82	Co	–	40	–
2689.816	Os	50	10	–
2689.798	Mn	–	40	–
2689.70	Xe	–	[2]	Hu
2689.679	Ir I	5	1	–
2689.654	W	8	2	–
2689.62	Rh	1	100	–
2689.516	Ta	8	–	–
2689.50	Fe	4	2	–
2689.483	Ce	2	–	–
2689.458	Zr II	10	5	–
2689.423	Fe	5	3	–
2689.412	Cs II	–	[2]	Ot
2689.398	Pt II	1	10	–
2689.350	Os	5	2	–
2689.347	V I	2	–	–
2689.341	W	–	5	–
2689 329	Re	25	–	–
2689.299	Cu II	–	300	IBu
2689.24	Ta	20 h	20 h	–
2689.212	Fe I	150	150	S
2689.19	Cr	–	10	–
2689 176	Ce	2	–	–
2689 114	V I	6	–	Me
2689 072	Cb	2	5 h	–
2689.06	Te	–	[10]	Bl
2688.989	I	–	[100]	Ke
2688.941	V I	9	–	–
2688.900	Ru	30	–	–
2688.822	Ti	40	5	–
2688.728	Al II	–	[25]	Sy
2688.715	V I	35	100 R	–
2688.71	Au I	2	20	–
2688.643	Mo	20	–	–
2688.587	Ru	30	1	–
2688.551	Pd II	–	200	–
2688.527	Re	100	–	–
2688.403	Er	3	–	–
2688.37	Kr	–	[4 h]	Me
2688.35	Ag II	–	10 wh	–
2688.35	Hf	3	–	Me
2688.329	Th	6	2	–
2688.32	S	–	[15]	Bl
2688.293	Cr	1	15	–
2688.29	Se	–	[10]	Bl
2688.246	Mn	3	100 h	–
2688.223	W II	8 s	20	–
2688.16	Au II	–	10	–
2688.160	Ce	2	–	–
2688.155	Ru	8	–	–
2688.109	Ru	8	100	–
2688.095	Rh I	4	6	–
2688.08	Rb	–	[2]	Ok
2688.077	Os	8	2	–
2688.042	Cr I	30	–	–
2688 04	Cl II	–	[150]	Ks
2688.02	P I	4	[1]	Ks
2687.995	W	8	1	–
2687 993	Mo	30	100	–
2687.988	Ce	8	–	–
2687.97	Yb	2	4	–
2687.966	U	2	1	–
2687 956	V	150	500 R	–
2687.802	Fe	20	10	–
2687.78	Ca	–	8	Ad
2687.75	Si	–	[5]	Sy
2687.746	Zr I	10	–	–
2687 72	La II	2	2	–
2687 69	Cd	–	[3]	Vs
2687.658	Pd II	–	150	–
2687.63	Au	–	15	–
2687.621	Ce	2	–	–
2687.524	W	–	8	–
2687.497	Ru	12	100	–
2687.412	Mn	25	80 r	–
2687.411	V	9	–	–
2687.394	U	5	4	–
2687.367	W	15	3	–
2687.317	Rh I	2	–	–
2687.22	Hf	–	25	Me
2687.151	Cb	10	5	–
2687.138	Th	10	10	–
2687.138	Ru	12	–	–
2687.137	W	7	–	–
2687.126	Ce	5	–	–
2687.090	Cr II	30	60	–
2687.069	Ru	–	50	–
2687.03	Xe	–	[3]	Hu
2686.993	W	4 d	20	–
2686.887	Ru	–	30	–
2686.815	U	4	4	–
2686.779	Mn	10	–	–
2686.766	Ce	4	–	–
2686.75	Ne	–	[15]	Ps
2686.748	Fe	50	6	–
2686.73	Ca	–	3	Ad
2686.64	Cs	–	[8]	Bs
2686.620	W	8	2	–
2686.6	Hg	5 h	[2]	Dj
2686.513	V I	15	–	–
2686.488	Fe	1	4	–
2686.48	Te	–	[5]	Bl
2686.394	Fe II	–	10	–
2686.391	Cb	2	300	–
2686.357	V I	15	–	–
2686.355	W	–	8 ws	–
2686.333	Ce	2	–	–
2686.3	Rn	–	[3]	Pe
2686.294	Ru I	80	12	–
2686 29	Ta	15 d	–	–
2686.284	Pd I	3	1	–
2686.26	Zr	1	2	–
2686.18	I	–	[12]	Bl
2686.16	Th	–	40 d	–
2686.14	Xe II	–	[2 h]	Hu
2686.100	Fe II	–	7	–
2686 00	Yb	–	3	–
2685.979	U	10	12	–
2685.940	Mn	12 h	100 w	–
2685.916	Zr	3	–	–
2685.889	Ru	–	6	–
2685.840	V I	10	–	–
2685.790	Mo	–	25	–
2685.774	Ce	2	–	–
2685.76	Fe	4	–	–
2685.713	W	7	–	–
2685.688	V	12	30	–
2685.65	Eu II	150	100	–
2685.609	U	6	2	–
2685.589	Mo	10	–	–
2685.54	Lu	10 h	1	Me
2685.52	Hg	–	[8]	Dj
2685.516	V I	6	–	–
2685.454	Ta	2	–	–
2685 428	Ce	2	–	–
2685.341	Co I	75 w	–	–
2685.340	W	2	10	–
2685.317	Re	15	–	–
2685.25	Br	–	[10]	Bl
2685.22	Hf II	10	20	Me
2685.182	Cr	–	4	–
2685.157	Ru I	10	35	–
2685.146	W	6	–	–
2685.139	Ti I	15	1	–
2685.135	V I	18	35	–
2685.11	Ta	15	25	–
2685.08	Lu	50 h	3	Me
2685.08	Cd	–	[3]	Vs
2685.049	W	2	15	–
2685 038	Ce	5	–	–
2685.021	V I	9	–	–
2684.98	P	–	[5]	Gu
2684.857	Fe I	8	–	–
2684.803	Ti	20	20	–
2684.768	V	1	10	–
2684.761	Pd II	–	100	–
2684.76	Pb II	–	5	–
2684.76	Yb	3	25	–
2684.751	Fe II	3	400	–
2684.75	Ho	–	10	Ex
2684.747	Er	4	3	–
2684.72	I	–	[12]	Bl
2684.697	Ce	2	–	–
2684.622	U	3	2	–
2684.597	Ru	10	30	–
2684.55	Co II	–	20 wh	–
2684.546	Mn	2	80	–
2684.52	Te	–	[30]	Bl
2684.418	Ce	4	–	–
2684.412	Ni II	–	600 wh	–
2684.386	W	–	10 l	–
2684.38	Ca	–	5	Ad
2684.294	Th	15	15	–
2684.293	U	5	4	–
2684.284	Ce	10	–	–
2684.276	Ta	150	2	–
2684.244	Ce	3	–	–
2684.233	Sc II	2 h	–	–
2684.214	Rh	2	150	–
2684.17	Rb	–	[5]	Ok
2684.161	Zn I	300	6	IHz
2684.143	Mo	40	150	–
2684.142	La	5	–	–
2684.095	Cr	–	2	–
2684.090	Ru	20	2 h	–
2684.08	Tm	10	4	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2684.071	Fe	30	15	–
2684.07	W	9	2d	–
2684.045	U	15r	10	–
2684 036	Ir I	15	–	–
2684.02	Hf II	1	3	Me
2684.0	bh C	10	–	L
2683.963	Ce	2	–	–
2683.949	Fe	15	8	–
2683.84	W	1	10	–
2683.833	Ir	–	10 h	–
2683.824	Mn	–	25	–
2683.810	Zr I	3	–	–
2683.76	Te	–	[5]	Bl
2683.746	Mn	12	–	–
2683.73	Nd	5	–	–
2683.682	Ru	20	–	–
2683.622	W	–	10	–
2683.565	Re	50	–	–
2683.563	Rh	1	200	–
2683.55	Kr II	–	[15]	Me
2683.441	Cr	–	12	–
2683.43	Yb	–	10	–
2683.353	Hf II	15	100	–
2683.341	W	12	2	–
2683.280	Al II	–	[15]	Sy
2683.279	U	25	25	–
2683.231	Mo	20	150	–
2683.219	Cb	2	5	–
2683.218	W	4	12	–
2683.21	Te	–	[5]	Bl
2683.14	A	–	[2]	Rt
2683.14	Er	–	2	–
2683.117	In II	–	[50]	Ps
2683.091	V I	35	150 R	–
2683.057	Ce	2	–	–
2683.016	Mn	15	15	–
2682.986	Fe	–	40	–
2682.98	Hg	–	[3]	Dj
2682.872	V	50	200 R	–
2682.844	Zn	–	10	–
2682.762	Sb	50	35	–
2682.75	Xe	–	[2]	Hu
2682.740	Ru	–	5	–
2682.727	Ce	10	–	–
2682.640	W	10	8	–
2682.624	Mo	20	–	–
2682.61	Tl II	–	[10]	El
2682.592	Eu	6	–	–
2682.540	Rh I	2	2	–
2682.538	V	4	15	–
2682.518	Fe	–	40	–
2682.467	Cb	1	10	–
2682.455	Ir I	10	2	–
2682.430	Mo	–	10	–
2682.42	Si	–	[5]	Sy
2682.371	Mn	–	12	–
2682.351	Ce	2	–	–
2682.214	Fe	30	15	–
2682.20	In II	–	[20]	Lg
2682.187	Os	10	3	–
2682.160	Zr	–	5	–
2682.153	W	6	1	–
2682.130	Cb	5	2	–
2681.99	Cs	–	[8]	Bs
2681.902	W	5	2	–
2681.869	Ta	50	–	–
2681.791	Pt	1	10	–
2681.784	Rh I	2	3	–
2681.756	Zr II	4	1	–
2681.726	U	3	2	–
2681.725	Mn	20	15	–
2681.659	Ce	3	–	–
2681.65	Yt I	6	2 h	–
2681.632	W	8	2	–
2681.629	Ta	15	–	–
2681.60	Rh	–	100	–
2681.589	Fe	50	25	–
2681.57	Br	–	[3]	Bl
2681.523	Mo	15	–	–
2681.501	La II	2	10	–
2681.49	O	–	[7]	Mh
2681.468	Cr I	8	3	–
2681.46	Fe	2	–	–
2681.413	W	20	18	–
2681.40	Zr	4	–	–
2681.379	Ag II	–	100 wh	–
2681.36	Se	–	[5]	Bl
2681.359	Mo	10	100	–
2681.34	Cs	–	[8]	Bs
2681.288	Ce	2 w	–	–
2681.235	Mn	–	50	–
2681.18	Ho	–	20	Ex
2681.172	V I	2	–	–
2681.132	U	5 h	2	–
2681.096	Ir I	10	2	–
2681.029	Fe II	–	20	–
2681.012	Re	15	–	–
2680.965	Th	–	25	–
2680.95	Ti	–	20 h	–
2680.91	Fe I	4	–	–
2680.8	bh C	15	–	L
2680.793	Fe II	–	12	–
2680.67	Pd II	–	[3]	Bx
2680.665	Ta	30	40	–
2680.646	U	2	4	–
2680.631	Rh I	60	10	–
2680.60	Te	–	[10]	Bl
2680.564	W	4	10	–
2680.543	Ru	5	50	–
2680.476	V	1	12	–
2680.454	Fe I	70	35	–
2680.443	Na I	40 R	–	Fl
2680.44	Co	–	7	–
2680.425	Ce	4	–	–
2680.40	Yb	1	3	–
2680.36	P	–	[10 wh]	Gu
2680.36	Ca I	15	–	Sd
2680.341	Cr I	10	4	–
2680.340	W	5	–	–
2680.335	Na I	60 R	10	Fl
2680.28	Rh	3	2	–
2680.16	Fe	20	8	–
2680.12	Ca	–	2	Ad
2680.108	Co	25	3	–
2680.08	Cd II	–	[15]	Tk
2680.06	Ta	30	50	–
2680.059	Pt II	–	3	Sh
2680.057	Cb	4	80	–
2680.039	W	12	7	–
2679.95	Mn	–	5	–
2679.94	Tb	–	20	Ex
2679.926	Ti I	100	12	–
2679.916	Re	30	–	–
2679.890	Cr	–	3	–
2679.881	Cb	4	1	–
2679.870	W	7	–	–
2679.87	Dy	2	–	–
2679.86	La II	–	4 h	–
2679.854	Mo	30 h	20	–
2679.827	Ce	2	–	–
2679.762	Ru	12	1 h	–
2679.756	Co	75 W	–	–
2679.735	Os	8	1	–
2679.703	V I	4	–	–
2679.632	W II	8	12	–
2679.578	Pd II	–	100	–
2679.57	Tm	30	50	Me
2679.50	Pr	–	10	–
2679.434	Ru	–	20	–
2679.42	Gd	3	–	–
2679.418	Ir I	8	5	–
2679.322	V	70	300 R	–
2679.241	Ni II	–	500 wh	–
2679.2	Bi II	–	2	Cf
2679.161	Mn	–	40	–
2679.129	Pt II	6	50	–
2679.12	Pd II	–	15 wh	–
2679.077	Re	25	–	–
2679.063	Ir I	15	3	–
2679.062	Fe I	200	200	S
2679.008	Cb	10	2	–
2678.946	Ce	2	–	–
2678.938	Th	5	–	–
2678.92	Cs	–	[20]	Bs
2678.883	W	20	10	–
2678.873	V I	15	–	–
2678.861	U	6	4	–
2678.804	Ta	3	20	–
2678.792	Cr II	10	80	–
2678.758	Ru	100	300	–
2678.675	V I	12	–	–
2678.666	Mo	20	–	–
2678.656	Cb	3	10	–
2678.632	Zr II	80	100	–
2678.618	Ce	2	–	–
2678.568	V	30	150 R	–
2678.522	W	10	7	–
2678.426	Hf II	10	12	–
2678.42	U	3	2	–
2678.28	Eu	150	100	–
2678.178	Ru I	10	–	–
2678.165	Cr I	8	3	–
2678.098	Cb	1	10	–
2678.086	Na II	6	[40]	Fr
2678.052	U	3	12 h	–
2678.05	Fe	20	10	–
2678.045	Ru	–	6	–
2678.04	Co	–	3	–
2677 95	Ho	–	20	Ex
2677.910	W	8	2	–
2677.9	air	–	3	–
2677.860	Ta	2	–	–
2677.851	Pd II	–	30	–
2677.846	Mn	–	40	–
2677.802	V	70	300 R	–
2677.791	W II	8	20	–
2677.77	Lu	1	10 h	Me
2677.764	Re	25	–	–
2677.76	La I	2 h	–	–
2677.756	U	3	2	–
2677.660	Cb	2	50	–
2677.64	Cd I	100	25	Fl
2677.592	Ce	5	–	–
2677.589	Er	2	–	–
2677.578	Hf II	10	1	–
2677.37	Yb	–	40	Me
2677.36	Ne	–	[15]	Ps
2677.34	Br	–	[4]	Bl
2677.318	Ru	12	–	–
2677.293	Ce	2	–	–
2677.278	W	12	10	–
2677.25	Lu	10 h	–	Me
2677.246	Mn	–	15	–
2677.20	Kr II	–	[6]	Me
2677.18	Xe	–	[25 h]	Hu
2677.16	Te	–	[5]	Bl
2677.159	Cr II	35	300 r	–
2677.149	Pt I	800 w	200 w	–
2677.135	He I	–	[5]	Ps
2677.12	P I	10	[2]	Ks
2677.119	V I	9	4 h	–
2677.037	Re	25	–	–
2677.025	Pd II	–	10 wh	–
2677.01	Cs	–	[2]	Bs
2676.997	W	–	5	–
2676.972	Ru	12	–	–
2676.95	Cl II	–	[150]	Ks
2676.877	Fe	2	25	–
2676.84	Dy	3	–	–
2676.828	Ir I	35	10	–
2676.762	Ru	–	18	–
2676.755	Ce	4	–	–
2676.747	Mn	–	10	–
2676.687	U	6	4	–
2676.634	V I	6	–	–
2676.63	Hf II	10	12	Me
2676.623	Ce	4	–	–
2676.542	Cr	–	3	–
2676.538	Zr I	3	–	–
2676.484	Mo	3	25	–
2676.483	Rh I	2	2	–
2676.467	Ce	3	–	–
2676.412	W	9	1	–
2676.410	U	4	4	–
2676.355	Ce	2	–	–
2676.353	Ru	50	3	–
2676.35	V	–	18 h	–
2676.331	Mn	15	–	–
2676.310	W	–	6	–
2676.28	P	–	[10]	Gu
2676.25	Rh	1	100	–
2676.190	Ru	8	100	–
2676.13	Yb	–	2	–
2676.125	Cb	2	10 h	–
2676.121	Ce	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2676.11	Fe	15 w	7 w	–
2676.110	Rh I	10	5	–
2676.080	Ti I	6	–	–
2676.05	Eu	–	5	Ex
2676.043	V	–	15 h	Me
2676.03	Tl II	–	[30]	El
2676.01	Co II	–	10 h	–
2675.982	Co I	10 W	5	–
2675.973	V I	6	–	–
2675.95	Au I	250 R	100	–
2675.944	Cb	10	100	–
2675.901	Ta	150	200	–
2675.880	U	15	10	–
2675.869	W	12	6	–
2675.761	V I	12	2	–
2675.76	Tl II	–	[30]	Fl
2675.733	Ce	2	–	–
2675.73	W	–	12	–
2675.682	Cr	1	15	–
2675.670	Th	8	4	–
2675.655	La II	2	5	–
2675.64	Ne I	–	[150]	Ps
2675.54	Ta	2	–	–
2675.523	Ru	–	50	–
2675.506	Mn	–	25	–
2675.400	W	10	3	–
2675.36	Cd	–	[2 d]	Tk
2675.347	Er	5	1	–
2675.31	Kr II	–	[4 h]	Me
2675.3	bh B	60	–	L
2675.284	Ta	–	12	–
2675.283	Fe	30	15	–
2675.25	Si	–	[5]	Sy
2675.24	Ne I	–	[150]	Ps
2675.24	S	–	[8]	Bl
2675.204	W	–	8	–
2675.185	Ru	–	30	–
2675.128	W	10	–	–
2675.119	U	15	10	–
2675.101	Cb	–	4 h	–
2674 99	Hg I	5	5	m
2674.979	Mn	1	15	–
2674.89	Br	–	[2]	Bl
2674.885	Os	25	5	–
2674.87	Yb	–	4	–
2674.838	Cb	1	5	–
2674.830	Ce	3	–	–
2674.82	Cd II	–	[2]	Tk
2674.804	I	–	[60]	Ke
2674.744	Mn	–	20	–
2674.72	Fe	2	–	–
2674.704	W	10	2	–
2674.70	W	–	6	–
2674.700	Cb	2	–	–
2674.632	In II	–	[40]	Ps
2674.62	Cs	–	[2]	Bs
2674.587	Ce	2	–	–
2674.574	Pt	200	10	–
2674.568	Os	15	5	–
2674.490	Ta	15	–	–
2674 480	In II	–	[40]	Ps
2674.47	Sb II	–	2 h	–
2674.447	Ce	2	–	–
2674.441	Rh	1	200 w	–
2674.434	Mn	2	25	–
2674.4	Li II	–	[2]	Wr
2674.337	Re I	100	–	–
2674.30	V	–	7 h	–
2674.200	Rh I	3	2	–
2674.195	Ru	–	50	–
2674.18	Fe	6 h	3 h	–
2674.138	W	–	6	–
2674.084	Ti	18	–	–
2674.0	Cs	–	[2]	Bs
2673.962	V	1	10	–
2673.95	Ho	–	10	Ex
2673.930	Co I	25	–	–
2673.844	Mo	5	–	–
2673.80	Xe	–	[2]	Hu
2673.743	La II	–	3	–
2673.7	Rn	–	[7]	Pe
2673.677	Th	–	6	–
2673.656	Cr I	6	1	–
2673.607	Ir I	40	10	–
2673.603	Ru	50	3	–
2673.591	W	7	20	–
2673.580	U	6	6 h	–
2673.574	Ta	4	–	–
2673.567	Cb	10	500	–
2673.545	Ce	2	–	–
2673.477	Ru	50	3	–
2673.409	Eu	125	50	–
2673.368	Mn	–	50	–
2673.286	Ta	3	–	–
2673.273	Mo	1	100	–
2673.23	V	10	60	Me
2673.213	Fe I	30	15	I
2673.208	Cs	–	2	–
2673.073	Ce	10	–	–
2673.013	Ru	8	50	–
2672.947	W	–	6	–
2672.906	La II	3	30	–
2672.843	Mo	15	100	–
2672.831	Cr II	12	15	–
2672.803	Ir I	4	–	–
2672.79	Kr II	–	[3]	Me
2672.777	Ce	2	2	–
2672.774	Re	25	–	–
2672.77	Fe	2	–	–
2672.69	U	12 r	6 h	–
2672.68	Cd II	–	[10]	Vs
2672.67	Hg I	5	[2]	Cn
2672.669	W	6	12	–
2672.65	Yb	20	80	–
2672.586	Mn	15	125 h	–
2672.53	Br	–	[5]	Bl
2672.506	Fe II	–	15 wh	Do
2672.497	Ta	20	30 h	–
2672.45	Mg I	20	–	–
2672.403	Ce	2	–	–
2672.374	Cr	1	5	–
2672.362	Ru	8	40	–
2672.342	Ta	20	–	–
2672.280	Ce	2	–	–
2672.246	Er	12	2	–
2672.22	Xe II	–	[3]	Hu
2672.214	Ru	–	25	–
2672.210	U	6	2	–
2672.19	Cl II	–	[50]	Ks
2672.173	In II	–	[25]	Ps
2672.162	W	9	2	–
2672.148	Fe II	1 Wh	25 wh	–
2672.08	Cl	–	[10]	An
2672.074	Yt I	5 d	4	–
2672.004	V	50	300 R	–
2671.985	Cr I	8	–	–
2671.98	Yb	10	2	–
2671.967	U	2	2	–
2671.931	Cb	20	200	–
2671.908	Ce	2	–	–
2671.892	La	2	–	–
2671.841	Re	60	–	–
2671.838	Ir I	50	10	–
2671.834	Mo	1	100	–
2671.829	Na II	12	[60]	Fr
2671.809	Cr II	30	15	–
2671.805	Mn	–	50	–
2671.770	W	12	12	–
2671.70	Cs	–	[2]	Bs
2671.673	V I	20	2	–
2671.634	Ta	30	–	–
2671.53	Br	–	[3]	Bl
2671.490	U	3	4 h	–
2671.471	Mo	10	–	–
2671.466	W	15	5	–
2671.43	Cl II	–	[6]	Ks
2671.404	Fe II	–	25 wh	Do
2671.26	I	–	[12]	Bl
2671.256	Cb	2	15	–
2671.25	Hf II	10	10	Me
2671.185	Ce	2	–	–
2671.180	W	5	1	–
2671.055	Rh I	3	4	–
2670.963	Zr II	5	5	–
2670.95	I	–	[12]	Bl
2670.94	Hg	–	[5]	Dj
2670.935	Mo	–	25	–
2670.923	V I	12	4	–
2670.887	U	6	4	–
2670.84	Eu	3	–	–
2670.810	Mn	5	1	–
2670.80	Fe	10	4	–
2670.797	Re	50	–	–
2670.78	Lu	5 h	–	Me
2670.717	Ru	8	–	–
2670.693	W	–	5	–
2670.68	Xe	–	[2]	Hu
2670.66	Cd I	10 w	–	Fl
2670.643	Sb	50	35	–
2670.530	Zn I	200	4	IHz
2670.527	Os	2	1	–
2670.516	U	8	6	–
2670.493	Ru	8	30	–
2670.47	Nd	5	2	–
2670.386	W	3	15	–
2670.384	Fe II	–	10	Do
2670.328	Ni II	–	80	–
2670.322	Mo	25	1	–
2670.255	Er	25	3	–
2670.240	Cr	1	10	–
2670.236	Re I	30	–	–
2670.234	V	2	70	–
2670.21	Cd II	–	[2]	Vs
2670.205	Mn	15 h	–	–
2670.152	Cb	1	5	–
2670.07	Cr	2	12	–
2670.07	S	–	[8]	Bl
2669.98	Mo	1	15	–
2669.934	Fe	–	25	–
2669.913	Ir I	60	10	–
2669.910	Co II	–	100 wh	–
2669.792	Cs II	–	[8]	Ot
2669.774	W	10	2	–
2669.641	Sb	–	3	Sp
2669.598	Ti I	60	12	–
2669.59	I	–	[20]	Bl
2669.585	Ce	2	–	–
2669.56	Hf II	2	4	–
2669.54	Mg I	12	–	–
2669.529	Os	8	3	–
2669.496	Fe	50	25	–
2669.494	Zr II	–	2	–
2669.462	Ir I	10	5	–
2669.417	Ru	–	100	–
2669.371	Cr I	6	1	–
2669.36	Ne	–	[5]	Ps
2669.313	Mn	–	20	–
2669.302	W II	15	30 d	–
2669.29	Tb	10	3	Ed
2669.263	Ti I	15	1	–
2669.26	Tm	2	8	Me
2669.20	Rh	1	15	–
2669.174	U	6	4	–
2669.166	Al II	3	100	Sy
2669.13	Ne I	–	[3]	Ps
2669.002	Hf II	15	8	–
2668.993	Ir I	50	5	–
2668.949	W II	3	7	–
2668.895	V I	2	4	–
2668.76	Cs	–	[8]	Bs
2668.74	Yb	2	20	–
2668.712	Cr II	10	12	–
2668.685	In II	–	[50]	Ps
2668.623	In II	–	[30]	Ps
2668.619	Ta	1	100	–
2668.609	Ru	–	10	–
2668.598	V	–	12	–
2668.499	Cb	1	5	–
2668.468	W	8	3 l	–
2668.345	Ru	20	–	–
2668.335	Ti I	5	–	–
2668 33	Cd II	–	[10]	Tk
2668.33	Eu	300 w	400	–
2668.291	Cb	10	3	–
2668.279	Hf	3	2	–
2668.233	W II	–	6	–
2668.219	Ce	2	–	–
2668.20	Tm	20	20	Me
2668.11	Mg I	10 h	–	–
2668.07	Dy	2	–	–
2668.069	Ta	80	–	–
2668.02	Xe II	–	[3]	Hu
2668.018	U	8	4	–
2668.006	V	–	20 wh	–
2667.968	Ru	50	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2667.919	Fe I	50	20	–
2667.879	Cr	–	3	–
2667.826	Mn	–	15	–
2667.799	Zr II	12	12	–
2667.796	Re	15	–	–
2667.790	Ru	–	80	–
2667.765	Cb	3	30	–
2667.675	W	–	15	–
2667.62	In I, II	–	[5]	Lg
2667.55	Pr	–	10	–
2667.530	V	–	12	–
2667.458	Ir I	10	2	–
2667.395	Ru	10	150	–
2667.36	Cl II	–	[40]	Ks
2667.297	Cb	5	10	–
2667.171	Ta	20	–	–
2667.149	Cb	2	5	–
2667.133	Re	30	–	–
2667.082	Cb	1	5	–
2667.005	Mn	5	50 h	–
2666.97	Yb	5	150	–
2666.97	Au II	–	5	–
2666.970	Fe I	30	10	–
2666.9	In I	–	6	Cx
2666.87	Th	–	6	–
2666.83	Co II	–	3 h	–
2666.818	Fe I	80	15	–
2666.786	V	1	12 h	Me
2666.768	Mn	8	50 h	–
2666.751	Mo	10	10	–
2666.74	Te	–	[15]	Bl
2666.635	Fe II	5	80	–
2666.61	Kr II	–	[6 h]	Me
2666.594	Cb	5	50	–
2666.580	Ir I	4	–	–
2666.546	Mn	8	–	–
2666.54	La II	1	3	Me
2666.536	U	8	6	–
2666.496	Ce	10	–	–
2666.490	W II	8	20	–
2666.46	Cl II	–	[20]	Ks
2666.412	Ir I	10	2	–
2666.41	Rh	2	2	–
2666.405	Fe I	70	10	–
2666.296	Er	5	–	–
2666.288	Cu II	–	20	IBu
2666.211	Os	5	1	–
2666.178	La II	1	6	–
2666.135	Ce	2	–	–
2666.10	Ho	–	10 h	Ex
2666.084	W	–	15	–
2666.08	Yb	5	150	–
2666.021	Cr II	10	8	–
2665.986	Os	5	2 l	–
2665.966	Hf II	20	35	–
2665.964	V I	25	10	–
2665.935	Ta	15	–	–
2665.903	Ce	2	–	–
2665.870	U	10	6	–
2665.8	air	–	8	–
2665.772	W	12 d	5 d	–
2665.722	Ru	12	–	–
2665.695	U	12	8	–
2665.65	I	–	[12]	Bl
2665.642	W II	–	7	–
2665.62	La II	–	4	Me
2665.60	Ta	80 d	40 h	–
2665.57	Tl I	10 h	3	Fl
2665.487	Mo	5	–	–
2665 361	Ru	–	3	–
2665.31	I	–	[30]	Bl
2665.3	Rn	–	[7]	Pe
2665.275	V	2	3	–
2665.271	Ce	5	–	–
2665.251	Cb	3	300	–
2665.249	Ni II	–	125	–
2665.185	Mn	–	15	–
2665.177	Zr II	1	3	–
2665.154	Au	–	5	–
2665.096	Mo	25	2	–
2665.068	Mn	10	–	–
2665.067	Ir I	8	–	–
2665.05	Ga I	–	[40]	Sy
2665.044	Er	20	5	–
2665.03	Yb	10	60	–
2665.002	Ce	2	–	–
2664.958	W	12	6	–
2664.93	Sn II	–	[5]	Mc
2664.810	Re	25	–	–
2664.786	Ir I	200 h	50	–
2664.757	Ru I	60	5	–
2664.75	La II	1	3	Me
2664.737	Ce	2	–	–
2664.664	Fe II	20	300	–
2664.640	Pt I	30	–	–
2664.49	Rh	1	30	–
2664.454	Ir	–	10 h	–
2664.37	Kr II	–	[4]	Me
2664.318	W II	10	20	–
2664.259	Fe	–	10	Do
2664.235	Ta	10 h	100 h	–
2664.220	Re	25	–	–
2664.209	Fe II	–	3	Do
2664.153	U	18	20	–
2664.040	Fe	15	5	–
2664.031	Mn	–	25	–
2664.00	Kr II	–	[8]	Me
2663.99	P	–	[10]	Gu
2663.940	W	–	8	–
2663.78	Fe	10 h	3 h	–
2663.734	Ru	–	8	–
2663.72	Rh	1	8	–
2663.679	Cr II	6	5	–
2663.669	Ir I	2	5 h	–
2663.638	Ce	4	–	–
2663.632	Re	150	–	–
2663.559	Cb	2	10	–
2663.557	W	9	3	–
2663.529	Co II	15 w	60 w	–
2663.457	Er	2	–	–
2663.423	Cr II	12	6	–
2663.326	Mo	10	1 h	–
2663.314	Ir I	10	5	–
2663.297	Ce	2	–	–
2663.29	Xe II	–	[2]	Hu
2663.28	Ne	–	[8]	Ps
2663.271	He I	–	[4]	Ps
2663.260	W	3	–	–
2663.248	V	12	100	–
2663.194	Sb	2	1	Sp
2663.166	Pb	300 wh	40	–
2662.9	bh C	12	–	L
2662.866	Th	8	5	–
2662.861	Ce	1	4	–
2662.856	Ru	–	40	–
2662.835	W	15	10	–
2662.833	Mo	10	–	–
2662.82	S	–	[15]	Bl
2662.721	Cb	1	3	–
2662.685	In II	–	[30]	Ps
2662.651	Co II	–	5	–
2662.638	W	8	3	–
2662.626	Ir I	40	10	–
2662.587	Ce	2	–	–
2662.583	In II	–	[30]	Ps
2662.57	Kr II	–	[2 hl]	Me
2662.563	Fe II	2 h	15 h	Do
2662.536	Mn	–	50	–
2662.42	Nd	10	2	–
2662.4	K	–	[10]	Sg
2662.349	Th	10	8	–
2662.315	Fe	25	10	–
2662.205	W	1	10	–
2662.170	Ce	2	–	–
2662.160	Ru	–	30	–
2662.11	Te	–	[25]	Bl
2662.102	Ta	25	–	–
2662.056	Fe I	70	40	I
2662.05	Se	–	[25]	Bl
2662.024	Ce	4	–	–
2661.983	Ir I	150 h	15	–
2661.970	Ti I	35	5	–
2661.886	Ta	60	–	–
2661.875	Hf II	25	40	–
2661.864	Ru	50	–	–
2661.856	Cb	3	1	–
2661.848	W	–	12	–
2661.817	Ru	–	10	–
2661.728	Cr II	8	6	–
2661.715	Co	2	5	–
2661.665	La II	–	3	–
2661.617	Ce	4	–	–
2661.613	Ru	80	150	–
2661.557	W	10	12	–
2661.5	bh C	12	–	L
2661.48	Gd	2	1	–
2661.47	Kr II	–	[5]	Me
2661.423	V I	100	80	–
2661.401	Cr	–	2	–
2661.39	Tb	5	–	m
2661.38	Th	8	5	–
2661.38	Br	–	[2]	Bl
2661.36	La II	1 h	4	–
2661.352	Ce	2	–	–
2661.336	Ta	200	10	–
2661.312	Fe	12	10	–
2661.261	Ir	2	4	–
2661.248	Sh	100	80	–
2661.22	I	–	[12]	Bl
2661.196	Fe I	10	7	–
2661.179	Os	20	5	–
2661.174	Ru	20	100	–
2661.143	Pd II	–	100	–
2661.13	Te	–	[30]	Bl
2661.034	Re	10	–	–
2660.996	Na II	–	[80]	Fr
2660.993	Ir	5	–	–
2660.97	Kr II	–	[8 hl]	Me
2660.918	Os	5	1	–
2660.821	Mg II	40	6	Fl
2660.755	Mg II	40	6	Fl
2660.75	I	–	[20]	Bl
2660.640	Ti I	12	1	–
2660.638	Ce	4	–	–
2660.619	Mn	–	10	–
2660.603	Ru	12	–	–
2660.579	Mo	25	125	–
2660.536	Re	6	–	–
2660.522	W	10	8	–
2660.52	Hf II	–	2	–
2660.49	Br	–	[25]	Bl
2660.456	Ag II	30	150	–
2660.402	Fe I	40	15	–
2660.4	Hg	5 h	[2]	Dj
2660.40	Cd I	50 h	[5]	Fl
2660.393	Al I	150 R	60	Gn
2660.34	Mn	–	5	–
2660.19	Pd II	–	[5]	Bx
2660.144	U	15	10	–
2660.09	Tm	30	10	Me
2660.076	Ir I	3	–	–
2660.035	Cb	2	30	–
2660.01	Yb	1	3	–
2659.946	Ir I	2	–	–
2659.866	Ga	5	12	–
2659.86	Th	3	1	–
2659.833	Os	30	8	–
2659.792	Re	15	–	–
2659.746	Cr	–	2	–
2659.716	Ce	2	–	–
2659.697	W	–	12	–
2659.69	Hf	–	3 h	Me
2659.655	Ta	15	–	–
2659.615	Ru I	80	12	–
2659.606	V	9	40	–
2659.6	bh C	20	–	L
2659.60	Kr II	–	[2 whl]	Me
2659.472	Rh I	3	3	–
2659.454	Pt I	2000 R	500 R	–
2659.43	Au	–	5	–
2659.42	Eu	4	–	–
2659.41	Ta	20	10	–
2659.29	Cd II	–	[5]	Vs
2659.28	Yb	2	5	–
2659.27	I	–	[20]	Bl
2659.24	Fe	8	2	–
2659.21	Mn	–	10 d	–
2659.189	W	–	10	–
2659.144	Ir	4	1	–
2659.11	Rh	–	100	–
2659.084	Mn	–	25	–
2659.052	Cb	3 h	30	–
2659.025	U	8	2	–
2659.023	Re	25	–	–
2659.011	Rh I	2	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2658.975	V	10	40	–
2658.93	Fe	10	2	–
2658.92	Cr	1	5	–
2658 91	Tb	–	500	Ex
2658.906	W	10	2	–
2658.902	Mo	10	–	–
2658.876	Cb	3	5	–
2658.862	Ta	25	50	–
2658.770	Ru	10	–	–
2658.74	Cl II	–	[100]	Ks
2658.722	Pd II	20	300	–
2658.718	W	–	4	–
2658.71	Cs	–	[2]	Bs
2658.701	Pt I	40	5	–
2658.688	Re	15	–	–
2658.687	Zr I	9	1	–
2658.668	Ce	4	–	–
2658.667	Th	15	10	–
2658.65	Br	–	[7]	Bl
2658.609	Sn	–	4	–
2658.600	Os	50	10	–
2658.592	Cr II	18	35	–
2658.564	W	4	–	–
2658.51	Hg	5 h	10 h	Dj
2658.506	V	–	15	–
2658.49	Tm	20	6	Me
2658.47	Fe	20	2	–
2658.40	Eu	15 w	–	–
2658 395	Ru	20	2	–
2658 383	Ce	3	–	–
2658.364	U	6	2	–
2658.36	Rh	2	25	–
2658 251	Fe II	–	80	Do
2658.241	Ru	–	35	–
2658.194	W	8	1	–
2658.174	Pt I	100	10	–
2658.14	Ta	3 h	15 h	–
2658.110	Mo	40	5	–
2658.037	W II	10	20	–
2658.027	Cb	–	200	–
2657.921	Fe II	–	20	–
2657.890	Mn	20 wh	–	–
2657.837	Hf II	20	25	–
2657.80	Lu	50	150	Me
2657.789	Ce	2	–	–
2657.72	Te	–	[10]	Bl
2657.712	Ir I	10	5	–
2657.710	V I	7	1	–
2657.68	Ta	2	–	–
2657.616	Cb	15	3	–
2657.563	Pd II	–	200	–
2657.552	Cr	–	3	–
2657.52	Ne I	–	[15]	Ps
2657.50	Hf II	10	20	Me
2657.498	Ir	3	3	–
2657.445	Re	20	–	–
2657.381	W	12	10	–
2657.324	U	3	2 h	–
2657.32	Rh	–	70	–
2657.296	Ta	25	–	–
2657.292	V	1	35	–
2657.193	Ti I	10	1	–
2657.192	Ru	–	50	–
2657.169	Ru	30	–	–
2657.106	Pb	–	3	–
2657.00	Xe II	–	[3 h]	Hu
2657.00	Cd	10	[1]	Fl
2656.984	Cb	4	2	–
2656.983	Mo	–	25	–
2656.92	Ag II	–	20 h	Fn
2656.907	W	8	3	–
2656.906	Ti	12	–	–
2656.844	Ce	8	–	–
2656.83	Cs	–	[2]	Bs
2656.83	Br	–	[25]	Bl
2656.812	Ir I	15	3	–
2656.796	Fe I	50	25	–
2656.73	Sb	–	9 wh	–
2656.704	W	–	8	–
2656.70	Rb	–	[10]	Ok
2656.692	Ru I	30	–	–
2656.681	Os	20	8	–
2656.66	Ag II	1 h	15 h	–
2656.61	Ta	200 R	2	–
2656.562	Ru	30	–	–
2656.547	V	12	1	–
2656.539	W	15	5	–
2656.490	Mo	10	–	–
2656.47	Zr	–	5	–
2656.460	U	5	2	–
2656.440	Ce	4	–	–
2656.38	Kr	–	[15 h]	Me
2656 364	Ti	12	–	–
2656.248	Ru	20	150	–
2656.225	V I	40	4	–
2656.170	Mn	–	12	–
2656.153	W	3	–	–
2656.149	Fe	70	40	–
2656.11	Yb	2	7	–
2656.08	Ta	5	5 h	–
2656.078	Cb	8	200	–
2656.021	W	–	8	–
2655.934	Mo	15	1	–
2655.914	Mn	5	20	–
2655.907	Ni II	–	500 Wh	–
2655.902	Rh I	2	2	–
2655.865	Cb	2	5	–
2655 846	Zr I	2	–	–
2655.84	I	–	[20]	Bl
2655.816	Re	25 W	–	–
2655.812	Mo	–	20	–
2655.8	K	–	[2]	Ml
2655.792	Mn	5	10	–
2655.780	Os	8	1	–
2655.778	Cr	–	2	–
2655.7	Rn	–	[7]	Wo
2655.698	Cb	5	1	–
2655.676	V	10	100 h	Me
2655.675	Ta	15	–	–
2655.670	W II	5	10	–
2655.56	Gd	–	6	–
2655.549	W	4	10	–
2655.47	Ni II	–	400 wh	–
2655.42	Hf II	2	–	–
2655.41	Nd	5	2	–
2655 246	Er	4	–	–
2655.219	Ru	20	–	–
2655.19	Os	15	2	–
2655.182	Re	25	–	–
2655.13	Fe	7	3	–
2655.121	Hg I	80	40	–
2655.112	Ru	10	–	–
2655.027	Mo	50 h	8	–
2654 97	Te	–	[5]	Bl
2654.927	Ti I	20	1	–
2654.85	I	–	[12]	Bl
2654.810	Ru	12	5 h	–
2654.771	Rh	–	25	–
2654.76	In II	–	[30]	Ps
2654.75	Pr	–	6	–
2654.671	W	7	2	–
2654.65	In II	–	[18]	Ps
2654 58	U	15	6 h	–
2654.573	Ir I	3	–	–
2654.465	Ru	8	–	–
2654.448	Cb	10	5	–
2654.390	V	–	5 h	–
2654.327	Ru	12	–	–
2654.27	Fe	4	2	–
2654.27	Cd II	–	[2]	Vs
2654.117	Re	50	–	–
2654.096	Er	2	–	–
2654.011	Ta	15	–	–
2654.008	V I	2	–	–
2653 95	Kr II	–	[6]	Me
2653.947	Ru	–	80	–
2653.946	Ir I	10	5 h	–
2653.91	Br	–	[2]	Bl
2653.827	V I	20	15	–
2653.790	Mo	1	20	–
2653.776	Os	12	1	–
2653.765	Ir I	15	5 h	–
2653.75	Yb	50	200	–
2653.743	Er	15	10	–
2653.738	Re	15	–	–
2653.72	Ho	–	10	Ex
2653.703	Co II	5	40	–
2653.697	Ru	20	1 wh	–
2653.681	Hg I	80	40	Cn
2653.60	Pd	–	3	–
2653.598	Eu	15	15 h	–
2653.586	Cr I	12	35	–
2653.567	W II	10	15	–
2653.561	Mn	–	15	–
2653.495	La I	2	–	–
2653.475	Cb	3	2	–
2653.425	W	–	8	–
2653.381	Cb	5	3	–
2653.349	Mo	25	150	–
2653.321	W	6	–	–
2653.32	Ca	–	2	Ad
2653.274	Ta	200	15	–
2653.150	Ru	12	5	–
2653.076	Ru	–	10	–
2653.029	Ir	8	5	–
2653.012	W	2	9	–
2652.977	Os	10	2	–
2652.921	V I	18	–	–
2652.912	Re	30	–	–
2652.86	Hf II	4	3	Me
2652.848	He I	–	[3]	Ps
2652.83	Co	–	8	–
2652.828	U	12	10	–
2652.81	B II	–	2	Sy
2652.78	V	–	40 h	–
2652.660	Rh I	100	25	–
2652.609	W	10	12	–
2652.606	Sb	50	75	–
2652.58	B II	4	2	Sy
2652.571	Fe II	1	40	–
2652.531	Ce	2	–	–
2652.489	Al I	150 R	60	–
2652.485	Mn	3	100	–
2652.424	W II	–	3	–
2652.35	Mo	1	10	–
2652.34	Co II	3	4	–
2652.33	Hf II	–	3	Me
2652.323	Ta	15	–	–
2652 297	W II	–	2	–
2652.23	Yb	2	60	Me
2652.188	U	6	4	–
2652.152	Ce	2	–	–
2652.134	Ru	8	2	–
2652.097	Cr	–	2	–
2652.042	Hg I	100	60	Cn
2652.012	W	8	2	–
2652.006	Ce	10	–	–
2651.95	A	–	[2]	Rt
2651.902	Re I	100	–	–
2651.898	V I	50	4	–
2651.874	W	2	12	–
2651.861	Mn	–	12	–
2651.844	U	3	15 h	–
2651.841	Ru	100	9	–
2651.82	Cl	–	[5]	An
2651.807	Cb	2	15	–
2651.768	Ir	–	5	–
2651.71	Yb	2	60	–
2651.71	La	1	8	–
2651.706	Fe I	60	60	I
2651.575	Ge I	30	20	–
2651.57	V	–	5 h	Me
2651.507	Ru	20	–	–
2651.503	Pt II	–	4	Sh
2651.483	Ta	50	–	–
2651.48	Se	–	[10]	Bl
2651.441	W	9 d	4 d	–
2651.418	Ce	2	–	–
2651.292	Ru I	60	5	–
2651.291	Fe II	–	2	–
2651.221	Ta	–	80	–
2651.178	Ge I	40	20	–
2651.165	Hf II	15	40	–
2651.122	Cb	3	200	–
2651.09	Pd II	–	10 h	Bx
2651.023	W	1	10	–
2651.01	Ne	–	[50]	Ps
2651.006	Ce	25	2	–
2650.994	Mn	–	150	–
2650.857	Pt I	700	100	–
2650.781	Be I	25	–	–
2650.76	Br	–	[2]	Bl
2650.74	Yb	2	4	–
2650.73	Si	–	[5]	Sy
2650.711	W	2	3 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2650.702	Be I	10	–	–
2650.7	Cs	–	[20]	Bs
2650.682	Mo	10	1	–
2650.636	Be I	25	–	Ps
2650.615	Be I	20	15	–
2650.591	Ru	12	5 wh	–
2650.588	Th	10	5	–
2650.584	Ce	4	–	–
2650.550	Be I	30	–	–
2650.492	Fe II	–	150 h	Do
2650.470	Be I	100	15	Ps
2650.452	W	8	1	–
2650.44	Cd II	–	[3]	Vs
2650.405	Ru	50	–	–
2650.4	Pb	100	80	Kl
2650.39	Pd II	–	6	–
2650.381	Zr II	10	8	–
2650.351	In II	–	[18]	Ps
2650.28	Hf	–	4 h	Me
2650.280	Ta	25	–	–
2650.27	Tm	20	7	Me
2650.270	Co I	50 w	25	–
2650.268	W II	–	8	–
2650.26	Pb	–	5 h	Sx
2650.253	Ru	–	10	–
2650.180	U	6	2	–
2650.10	Al II	–	[30]	Sy
2650.016	Ta	8	–	–
2649.999	Mo	1	20	–
2649.992	Ru	20	–	–
2649.983	W	9	6	–
2649.940	Co I	50 w	5	–
2649.878	Th	8	4	–
2649.80	Te	–	[15]	Bl
2649.78	Yb	4	10	–
2649.712	Cb	1	4	–
2649.693	W	–	12 l	–
2649.67	Kr II	–	[4 hl]	Me
2649.585	Ti	12	2 h	–
2649.583	Re	20	–	–
2649.54	U	3	2 h	–
2649.52	Cd	–	[5]	Es
2649.517	Cb	10	5	–
2649.513	Ru	30	3	–
2649.481	Th	10	3	–
2649.470	Pd II	–	200	–
2649.464	Fe II	–	70	–
2649.460	W	2	1	–
2649.460	Mo	30 h	10	–
2649.42	Se	–	[50]	Bl
2649.360	V	2	100 h	Me
2649.335	Os	25	6	–
2649.330	Ce	10	–	–
2649.300	Ti	20	–	–
2649.290	W	6	5	–
2649.27	Kr II	–	[20]	Me
2649.250	Mo	10	25	–
2649.15	Hf II	10	20	Me
2649.069	U	15	15	–
2649.049	Re	100	–	–
2649.02	Mg I	12	–	Fl
2648.938	Mn	1	50	–
2648.89	Nd	10	2	–
2648.882	V	4	1	–
2648.806	Mn	20 w	–	–
2648.80	Yb	2	8	–
2648.789	U	10	2	–
2648.780	Ru	30	150	–
2648.736	W	6	2	–
2648.719	Ni II	–	80	–
2648.646	Ti I	8	1	–
2648.635	Co I	5	40 w	–
2648.61	Te	–	[10]	Bl
2648.56	Ne I	–	[25]	Ps
2648.54	Fe	6	2	–
2648.505	Re	10	–	–
2648.470	V	2	60	–
2648.451	Ru I	20	1	–
2648.43	Fe	7	2	–
2648.299	Ce	4	–	–
2648.247	Ce	2	–	–
2648.226	U	2	2	–
2648.216	Mo	–	2	–
2648.21	Ne I	–	[15]	Ps
2648.19	Cl II	–	[10]	Ks
2648.162	Fe II	2	2	–
2648.15	Kr	–	[20 wh]	Me
2648 14	Tm	8	4	Me
2648.105	Cr	–	2	–
2648.1	Tl	–	2	Cx
2648.054	W II	6	2	–
2648.044	Mn	–	25	–
2648.033	Cb	–	4	–
2647.935	Ru	12	–	–
2647.927	U	6	2	–
2647.782	Zr I	8	–	–
2647.76	Ne I	–	[8]	Ps
2647.740	W	10	20	–
2647.730	Os	25	6	–
2647.710	V I	50	10 h	–
2647.615	Mn	–	15	–
2647.557	Fe I	100	70	I
2647.53	U	6	2	–
2647.505	Cb	15 h	5	–
2647.472	Ta	200	10	–
2647.47	Yb	2	7	–
2647.42	Ne I	–	[150]	Ps
2647.363	U	3	2	–
2647.36	La II	–	4	Me
2647.315	Ru	50	5	–
2647.292	Hf II	40	125	–
2647.29	A	–	[10]	Rt
2647.289	Ba II	10	40	–
2647.253	Mo	20	–	–
2647.25	Yb	–	4	–
2647.144	La	2	–	–
2647.124	Re I	100	–	–
2647.105	Ce	8	–	–
2647.096	W	10	8	–
2647.056	Ni II	–	500 wh	–
2647.021	U	3	2 h	–
2647.007	Ce	3	–	–
2646.892	Os	15	5	–
2646.886	Pt I	1000 h	100	–
2646.88	Cl II	–	[25]	Ks
2646.84	Cd	–	[2]	Vs
2646.82	Cl	–	[3]	An
2646.77	Ta	50 h	50	–
2646.735	W	12	10	–
2646.640	Ce	2	–	–
2646.637	Ti I	20	15	–
2646.630	Ru	10	–	–
2646.543	W	8	1	–
2646.50	Tb	–	10	Ex
2646.488	Mo	25	100	–
2646.46	Yb	2	10	–
2646.417	Co I	10 w	8	–
2646.380	Re	20	–	–
2646.369	Ta	125	2	–
2646.32	Fe	5	–	–
2646 258	Cb	8	200 wh	–
2646.246	Ir I	10	5	–
2646 222	Ta	50	2	–
2646.217	Fe II	–	10	–
2646.20	Cs	–	[8]	Bs
2646.19	Ne I	–	[15]	Ps
2646.186	W	15	10 d	–
2646.16	Mg I	5	–	–
2646 13	Sn	–	2 h	Ar
2646.11	Ti II	–	200 wh	–
2646 016	Ru	20	150	–
2645 86	Cd	–	[5]	Vs
2645 840	V	15	100	–
2645.802	Re	20	–	–
2645.793	Mo	15	–	–
2645 70	Ne I	–	[35]	Ps
2645.694	W	12	10	–
2645.59	Si	–	[2]	Sy
2645.51	Ne	–	[50]	Ps
2645.5	Rn	–	[3]	Wo
2645.47	U	20	25	–
2645.427	Fe I	50	10	–
2645 410	Ir I	10	5	–
2645 373	Pt I	40	5	–
2645.343	V	4	–	Me
2645.330	Fe	–	8	–
2645.32	Dy	3	–	Ed
2645.297	W	3	2	–
2645.29	Eu	–	5	–
2645.273	Cb	–	10 wh	–
2645.259	V I	10	1	–
2645.191	Fe	–	8	Do
2645.149	W	9	4 s	–
2645.100	Ta	80	30 h	–
2645.084	Fe II	–	20	–
2644.927	Cb	1	5	–
2644.84	Te	–	[5]	Bl
2644.802	He I	–	[2]	Ps
2644.78	Mg I	4	4	–
2644.775	Co I	10 w	5	–
2644.768	Re	10	–	–
2644.7	Cs	–	[20]	Bs
2644.65	Pr	–	18	–
2644.614	Ru	8	100	–
2644.603	W	10	2	–
2644.598	Ta	20 W	50 W	–
2644.48	U	6	2 h	–
2644 389	W	10	4	–
2644.355	V	12	100 h	–
2644.353	Mo	30	60	–
2644.32	Yb	5	40	–
2644 264	Ti I	100	12	–
2644 20	P	–	[25]	Gu
2644.190	Ge	4	3	–
2644.186	Ir I	35	5	–
2644 16	Ne I	–	[5]	Ps
2644.124	U	8	4	–
2644.114	Os	75	10	–
2644.057	Pd II	–	2	–
2644.027	Ce	2	–	–
2644.000	Fe I	150	150	I
2643.891	Ta	50	–	–
2643 89	W	–	5	–
2643 83	Eu	4	–	–
2643.808	Mo	20	–	–
2643.750	Mn	–	15	–
2643.73	Ra II	–	[125]	Rs
2643 66	Yb	–	5	–
2643.65	V	–	12 h	–
2643.629	Os	6	1	–
2643.58	Tm	–	30	Me
2643.545	U	6	2	–
2643.532	Cr	–	6	–
2643.523	Ru	4	3	–
2643.50	Tm	5	–	Me
2643.43	Se	–	[10]	Bl
2643.395	Zr II	5	5	–
2643 393	Ru	–	5	–
2643 31	I	–	[20]	Bl
2643.290	W	2	20	–
2643.252	Ta	5	–	–
2643.242	U	6	2 h	–
2643.160	V I	25	10	–
2643.132	Ru	5	30	–
2643.124	W II	12	15	–
2643.07	I	–	[12]	Bl
2643 06	Kr II	–	[20 h]	Me
2643.051	Mn	–	12	–
2643.00	Rh	10	5	–
2642.977	Fe	–	2	–
2642 960	Ru I	150	–	–
2642.874	Co I	10 r	–	–
2642.84	Hg I	15	–	Di
2642.83	Tm	6	1	Me
2642.794	Ru	–	150	–
2642.773	U	5	2	–
2642.766	Mn	–	8	–
2642.76	Rh	1	20	–
2642.760	Re	125	–	–
2642.753	Hf	15	1	–
2642.74	Ca	–	3	Ad
2642.723	V	–	10	–
2642.678	W	6	2	–
2642.63	Cs	–	[20]	Bs
2642.615	Th	5	2	–
2642.60	Hg I	10 wh	–	Di
2642.572	Cb	1	5	–
2642.55	Yb	3	80	–
2642.483	Ce	3	–	–
2642.48	Hg I	5 h	[2]	Di
2642.47	Ne I	–	[8]	Ps
2642.408	Mo	–	30	–
2642.344	W	6	2	–
2642.270	V I	10	40	–
2642.26	Ho	–	10 h	Ex

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2642.238	Cb	5	300	–
2642.231	Mn	–	15	–
2642.22	Br	–	[5]	Bl
2642.206	V	10	40	–
2642.168	Pd II	–	100	–
2642.15	Ti II	–	150 wh	–
2642.116	Cr	35	3	–
2642.09	Te	–	[10]	Bl
2642.08	Hf	5	–	–
2642.08	Kr II	–	[4 hl]	Me
2642.022	W	8	3	–
2642.015	Fe II	–	20	Do
2641.978	Ru	20	–	–
2641.933	U	18	8 h	–
2641.90	Yb	4	10	–
2641.796	Cr	–	8	–
2641.65	Rh	1	10	–
2641.650	Pd	–	2	–
2641.649	Fe I	100	60	–
2641.616	Ru	–	100	–
2641.55	U	10	4	–
2641.53	O	–	[10 h]	Mh
2641.494	Th	15	10	–
2641.493	Ce	5	–	–
2641.49	Au I	5	20	–
2641.463	Ru I	12	–	–
2641.456	Ce	8	–	–
2641.44	C II	–	20	Fl
2641.406	Hf II	40	125	–
2641.39	I	–	[40]	Bl
2641.375	Ba II	5	5	–
2641.368	Cr	–	2	–
2641.26	Eu	100 w	60	–
2641.174	Os	10	–	–
2641.170	Re	20	–	–
2641.15	Mo	–	20	–
2641.126	Fe II	–	20	–
2641.126	U	3	2 h	–
2641.099	Ti I	150	20	–
2641.077	W	–	8 l	–
2641.058	Cb	2	30	–
2641.023	Re	5	–	–
2641.0	Cs	–	[2]	Bs
2640.987	Mo	40 h	40 wh	–
2640.93	C II	–	12	Fl
2640.918	Cb	5	2	–
2640.89	Si	–	[5]	Sy
2640.855	V	2	50	Me
2640.77	Tm	40	8	Me
2640.750	Ce	2	–	–
2640.74	Kr II	–	[2 hl]	Me
2640.720	W	5	2	–
2640.69	Cd	–	[5]	Vs
2640.687	V	6	2 h	–
2640.646	Ce	2	–	–
2640.58	C II	–	10	Fl
2640.54	Yb	–	15 h	–
2640.518	Os	2	5 h	–
2640.377	Ir I	5	1	–
2640.368	W	5	2	–
2640.36	Al II	–	[15]	Sy
2640.35	Te	–	[15]	Bl
2640.347	U	3	2	–
2640.33	Th	5 d	2 d	–
2640.327	Ru	60	5	–
2640.282	Mo	20	1	–
2640.27	Cs	–	[8]	Bs
2640.268	V	10	4	–
2640.22	Fe	3 W	2 W	–
2640.184	Pd II	–	70	–
2640.151	Zr I	3	–	–
2639.97	Ne I	–	[15]	Ps
2639.93	Hg I	5 wh	10	m
2639.92	Pr	–	2 wh	–
2639.895	Th	5	2	–
2639.89	U	8	2	–
2639.886	Cb	2	10	–
2639.870	Ru	50	–	–
2639.837	U	10	2	–
2639.835	Mn	12	80 h	–
2639.770	Ce	2	–	–
2639.712	Ir I	100 h	15	–
2639.712	Ru	10	35	–
2639.60	Br	–	[3]	Bl
2639.579	U	3	2	–
2639.553	Fe II	1	100	–
2639.508	Th	8	4	–
2639.50	Cd I	75	15	Fl
2639.44	Yb	5	15	–
2639.430	Cr	30	–	–
2639.424	Ir I	15	5	–
2639.404	W	1	6 d	–
2639.38	U	2	2 h	–
2639.367	Ce	3	–	–
2639.350	Pt I	500	50	–
2639.25	Rh	2	100	–
2639.24	Se	–	[5]	Bl
2639.17	Te	–	[5]	Bl
2639.14	S	–	[8]	Bl
2639 119	Ru	60	5	–
2639.086	Zr II	20	15	–
2639.011	U	12	4	–
2638.988	La II	–	5	–
2638.969	Ir I	5	–	–
2638.895	Cr	15	1	–
2638.880	Cb	3	8	–
2638.85	Hg I	2	1	Di
2638.807	Ce	5	–	–
2638.764	Eu	300	200	–
2638.758	Mo	20	125	–
2638.748	W	10	5	–
2638.74	Rh	2	100	–
2638.714	Zr	3	–	–
2638.710	Hf II	40	100	–
2638.705	Ti II	–	100 wh	–
2638.695	Al II	–	[8]	Sy
2638.673	Ta	8	10 h	–
2638.639	Th	–	8	–
2638.625	Al II	–	[2]	Sy
2638.62	Mn	–	9 d	–
2638.612	W	12	8	–
2638.597	Cb	2	10	–
2638.548	Mn	–	8	–
2638.510	Ru	60	4	–
2638.507	V	–	4	Me
2638.50	Gd	2	–	–
2638.49	Cd	–	[3]	Tk
2638.41	Tm	7	10	Me
2638.36	Pb	–	2	–
2638.348	Ru	8	25	–
2638.32	Kr II	–	[2 h]	Me
2638.312	Ir	–	8 h	–
2638.304	Mo	25	5	–
2638.266	Ta	2	–	–
2638.263	Al II	–	[30]	Sy
2638 243	Fe	–	2	–
2638 222	W	–	10	–
2638.182	Al II	–	[5]	Sy
2638.18	P II	–	[5]	Gu
2638.171	Mn	25	80 h	–
2638.130	Cb	–	20 h	–
2638.09	Yb	1	60	Me
2637.982	Cb	2	15	–
2637.958	Ce	2	–	–
2637.93	Ta	1	10 h	–
2637.92	Si	–	[2]	Sy
2637.87	Ag	2	3	–
2637.861	Mn	–	20	–
2637.84	Te	–	[30]	Bl
2637.806	Er	–	6	–
2637.72	Pb	–	2	–
2637.696	U	10	6	–
2637.696	Al II	–	[40]	Sy
2637.649	Th	–	5 h	–
2637.646	In II	–	[5]	Ps
2637.644	Fe II	2	200	–
2637.62	I	–	[20 h]	Bl
2637.6	Cs	–	[2]	Bs
2637.574	W II	6	15	–
2637.477	Cr	–	4	–
2637.405	U	2	2 h	–
2637.312	Ir	3	–	–
2637.23	Tm	7	8	Me
2637.222	V	40 h	15	Me
2637.194	Cr	–	2	–
2637.17	Nd	5	–	–
2637.157	Mn	–	15	–
2637.149	W	3	10	–
2637.133	Os I	150	30	–
2637.10	Fe	3 wh	1 h	–
2637.069	Pd II	–	100	–
2637.055	Ce	4	–	–
2637.012	Re	20	–	–
2637.001	Hf	10	1	–
2636.991	Sn	15	15 w	–
2636.954	W	–	12	–
2636.899	Ta	100	3	–
2636.876	Ir I	3	–	–
2636.87	Rb	–	[10]	Ok
2636.866	Mn	–	5	–
2636.821	Ru	–	50	–
2636.755	U	1	4	–
2636.749	I II	–	[25]	Ke
2636.725	Al II	–	[3]	Sy
2636.673	Ta	70	1	–
2636.670	Ru	60	–	–
2636.670	Mo	25	150	–
2636.658	Ce	2	–	–
2636.637	Re I	125	–	–
2636.550	W	9	2	–
2636.542	Ru	8	100	–
2636.51	Kr II	–	[3 hl]	Me
2636.50	Ho	–	70	Ex
2636.482	Fe I	50	20	–
2636.46	Yb	–	5 h	–
2636.450	Cr	–	2	–
2636 371	Ta	4	–	–
2636.365	Co I	5	10	–
2636.355	Ce	2	–	–
2636.32	S	–	[8]	Bl
2636.30	I	–	[20]	Bl
2636.29	Cd	–	[2]	Vs
2636.252	U	8	4	–
2636.172	Ti I	2	–	–
2636.02	Co	–	40	Ex
2635.98	Ne I	–	[25]	Ps
2635.942	Pd II	50	300	–
2635.929	Ta	50 h	–	–
2635.871	Cs II	–	2	–
2635.865	Th	–	10 h	–
2635.861	Ru	30	100	–
2635.837	Cb	–	5 h	–
2635.824	Re	20 w	–	–
2635.812	U	8	8	–
2635.808	Fe I	300	200	S
2635.79	Hf II	12	20	Me
2635.639	V	1	12	–
2635.633	Ti II	–	50 wh	–
2635.61	Rb	–	[2]	Ok
2635.600	Mn	–	60	–
2635.583	Ta	8	12	–
2635.566	Mo	25	15	–
2635.55	Te	–	[350]	Bl
2635.528	U	25	50	–
2635.464	Eu	30	30 h	–
2635.424	Zr I	10	–	–
2635.42	Th	2	8	–
2635.418	V	–	10	–
2635.393	Fe II	–	20	–
2635.39	Yb	–	5 h	Me
2635.376	W II	3	18	–
2635.354	Ru I	12	10	–
2635.322	Rh	3	40	–
2635.30	I	–	[60]	Bl
2635.271	Ir I	15	3	–
2635.20	Li	–	3	An
2635.189	Mo	12	4	–
2635.17	Al II	–	[3]	Sy
2635.148	Ce	20	1	–
2635.123	U	8	2	–
2635.03	Al II	–	[15]	Sy
2634.990	Rh	10	4	–
2634.95	Cl II	–	[12]	Ks
2634.91	Co	–	20	Ex
2634.897	Pt II	4	15	–
2634.878	Mo	6	–	–
2634.850	W II	6	9	–
2634.811	Dy	40	20	–
2634.783	Ba II	30	50	–
2634.772	Fe	1	1	–
2634.771	Hg I	20	12	Cn
2634.755	Mo	10	–	–
2634.712	Cb	5	3	–
2634.7	In	–	2	Cx
2634.59	Nd	5	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2634.576	W	1	20	–
2634.573	Zr	2	–	–
2634.547	Ce	4	–	–
2634.439	Os	4	1	–
2634.41	Kr II	–	[6 h]	Me
2634.32	Yb	3	10	–
2634.311	Cr	–	2	–
2634.3	Pb II	–	[20]	Ea
2634.291	Os	5	1	–
2634.253	Ir I	15	5	–
2634.20	Xe	–	[2]	Hu
2634.17	Ca	–	6	Ad
2634.17	Cs	–	[2]	Bs
2634.167	Ir I	10	–	–
2634.157	Cb	–	15	–
2634.123	U	4 h	2 h	–
2634.105	Ta	5	–	–
2633.882	W II	1	15	–
2633.88	Xe II	–	[3]	Hu
2633.801	Mn	–	12	–
2633.797	Ru	–	80	–
2633.79	Ta	10 wh	80 wh	–
2633.64	Fe	5	1	–
2633.63	Cd	–	3	–
2633.622	Re	40	–	–
2633.591	V I	6	4	–
2633.507	Mo	2	25	–
2633.457	Ru	50	1 h	–
2633.419	Rh	2	2	–
2633.333	Th	5	2	–
2633.325	Mn	–	20	–
2633.288	Rh I	3	3	–
2633.271	U	2	2	–
2633.25	Se	–	[5]	Bl
2633.249	Mn	8 h	–	–
2633.20	Cd	–	[2]	Vs
2633.194	Fe	–	80	–
2633.161	Cb	–	200	–
2633.127	W	15	12	–
2633.11	Zr	2	–	–
2633.029	U	5	15	–
2633.008	Re	20	–	–
2632.99	Fe	10	–	–
2632.979	U	15	8	–
2632.967	Mn	–	2	–
2632.892	Os	5	2	–
2632.891	Ni II	–	2000 wh	–
2632.88	Mg I	10	4	–
2632.87	Br	–	[2]	Bl
2632.78	O	–	[10]	Mh
2632.711	Ru	–	80	–
2632.700	W	10	12	–
2632.66	Yb	–	4	–
2632.66	Ga I	–	[40]	Sy
2632.657	U	12	8	–
2632.61	Tb	–	10	Ex
2632.598	Fe I	80	40	–
2632.516	Cb	4 w	300 h	–
2632.504	Ru	50	1	–
2632.487	W	12	10	–
2632.467	Pd II	–	10 wh	–
2632.418	Ti I	50	7	–
2632.398	U	6	2	–
2632.352	Mn	12	80 h	–
2632.27	Ta	15	80	–
2632.244	Cd I	40	[3]	–
2632.239	Co II	10 w	40 w	–
2632.236	Fe I	100	60	–
2632.127	Ru	50	2	–
2632.116	W	–	2 h	–
2632.106	Ce	2	–	–
2632.02	Tb	–	10	Ex
2631.99	I	–	[12]	Bl
2631.981	Mn	–	12	–
2631.968	U	2	–	–
2631.93	La II	3	8	–
2631.8	Rb	–	[40]	Ok
2631.781	W	8	2	–
2631.74	Al	5	3 h	–
2631.72	Yb	1	4	–
2631.663	U	–	4 h	–
2631.609	Fe II	10	50	–
2631.584	Re	80	–	–
2631.568	Ru	60	3	–
2631.553	Al II	–	[60]	Sy
2631.543	Ti I	40	2	–
2631.520	Ni II	–	100 wh	–
2631.52	La II	–	4	Me
2631.503	Mo	25	10	–
2631.492	V	–	7	–
2631.449	Cb	1	5 wh	–
2631.323	Fe II	150	60	–
2631.310	Si I	60	50	Fl
2631.3	air	–	4	–
2631.09	Ru	–	50	–
2631.051	Fe II	200	125	–
2630.977	Cb	2	10	–
2630.94	In	–	2	Sq
2630.929	W	–	4	–
2630.92	Se	–	[35]	Bl
2630.916	Cr	3	10	–
2630.908	Zr II	10	6	–
2630.795	Pd II	–	2 h	–
2630.757	Re	2	–	–
2630.732	W	6	2	–
2630.726	Mo	5	40	–
2630.666	V	30	150 h	–
2630.634	U	5	2	–
2630.63	Cd	–	[3]	Vs
2630.616	Ce	3	–	–
2630.566	Mn	100	15	–
2630.528	Ta	10	8	–
2630.526	W II	6	9	–
2630.418	Rh I	10	4	–
2630.40	Xe II	–	[5]	Hu
2630.380	W II	1	10	–
2630.352	Zr	5	–	–
2630 334	Rh	2	50	–
2630.330	Pd II	–	15 wh	–
2630.3	bh C	12	–	L
2630.278	Ni II	–	150 w	–
2630.260	Mn	15	2	–
2630.235	Ru	50	1 h	–
2630.22	Cd	–	[2]	Vs
2630.195	W	–	8	–
2630.181	Ru	8	–	–
2630.153	Re	15	–	–
2630.066	Fe II	10	100	–
2630.02	Ru	–	50	–
2630.020	Mg I	8	–	–
2630.017	Th	5	2	–
2630.004	Cu I	12	2 h	–
2629.977	Ce	2	–	–
2629.977	Ta	3	–	–
2629.974	Co I	30	1	–
2629.928	Ru	20	–	–
2629.912	Rh I	3	3	–
2629.854	U	5	2 h	–
2629.850	Mo	50	6	–
2629.824	Cr I	8	1	–
2629.79	Tm	15	10	Me
2629.713	V	1	70 h	Me
2629.587	Fe I, II	60	150	–
2629.548	Mn	–	35	–
2629.54	Xe	–	[4]	Hu
2629 498	W	–	5	–
2629.409	Ir I	10	2	–
2629.364	Ru	–	10	–
2629.208	Cb	1	5	–
2629.20	Br	–	[3]	Bl
2629.19	Fe	2	–	–
2629.18	S II	–	[5]	Bl
2629 154	W	6	3	–
2629 154	U	4	2	–
2629.096	V	4	2	–
2629.05	Cd I	50	10	–
2629.014	Pd II	–	10 wh	–
2628.996	W II	2	12	–
2628.928	U	15	10	–
2628.892	W	9	2 h	–
2628.851	Ta	5 h	10 wh	–
2628.816	Th	8	5	–
2628.813	Ce	2	–	–
2628.77	Yb	–	2	–
2628.761	Co	3	–	–
2628.740	V II	4	50 h	–
2628.740	Mo	40	2	–
2628.729	Ru	–	100	–
2628.69	Tb	20	3	Ed
2628 681	W	–	6	–
2628.673	Cb	–	30 wh	–
2628.63	Mg I	8	4	–
2628.58	Ag	1	25	–
2628 570	Fe II	1	2	–
2628.54	P II	–	[5]	Gu
2628.534	Ru	12	–	–
2628.504	U	10	6	–
2628.493	Cb	10	1	–
2628.479	Os	20	5	–
2628.408	Cb	1	3	–
2628.292	Fe II	400	400	I
2628.263	Pb II	50	10	Hz
2628.254	Pd II	–	200	–
2628.250	W	12	12	–
2628.24	Te	–	[10]	Bl
2628.202	Ir I	5	–	–
2628.125	Rh	1	150	–
2628.083	V	–	7 h	Me
2628.044	W	–	8	–
2628.04	Yb	1	4	–
2628.029	Pt I	1000 w	100	–
2628.005	Cr	–	3	–
2627.961	U	8	2	–
2627.952	Cs II	–	[2]	Ot
2627.906	Bi I	200 w	200	–
2627.90	Hg II	–	[5]	Ps
2627.84	Cs	–	[8]	Bs
2627.795	Ru	–	9	–
2627.79	Rh	–	8	–
2627.767	Er	4	–	–
2627.75	Kr II	–	[7]	Me
2627.700	W II	1	9 s	–
2627.68	Al II	–	[60]	Sy
2627.651	Ru	60	1	–
2627.640	Co I	50 W	–	–
2627.551	U	–	12 h	–
2627.550	Mo	20	15	–
2627.444	W	8	2	–
2627.440	Cb	20	5	–
2627.41	A II	–	[2]	Rt
2627.392	Pt I	40	5	–
2627.365	Cu I	7	–	–
2627.305	Ru	–	9	–
2627.24	Fe	8	–	–
2627.22	Kr	–	[3 wh]	Me
2627.14	Fe	1	10	–
2627.128	U	6	–	–
2627.055	Cb	–	5 w	–
2627.054	Ta	4	–	–
2627.05	Yb	–	20	–
2627.050	Mn	–	8	
2627.04	I	–	[60]	Bl
2627.03	Au II	–	7	
2626.971	Zr II	1	3	–
2626.95	Hf II	10	10	–
2626.931	W	–	3	–
2626.892	Co II	–	10 Wh	–
2626.86	Dy	2	–	–
2626.85	Se	–	[5]	Bl
2626.826	Ir I	2	–	–
2626.782	Cr	–	3	–
2626.780	Eu	8	–	–
2626 761	Ir	20	5	–
2626 710	W	5	1	–
2626.640	Mn	125	5	–
2626.633	Cb	1	5	–
2626 63	Cu I	4	–	–
2626 61	Rh	1	25	–
2626 599	U	2	2	–
2626 597	Cr	12	1	–
2626.561	Ni II	–	500 h	–
2626 533	W	1	9	–
2626.500	Fe II	3	80	–
2626.49	Br	–	[6]	Bl
2626.475	Ru	50	–	–
2626.453	Mn	–	20	–
2626.403	Th	6	3	–
2626.402	Zr II	2	2	–
2626.398	Cb	1	5	–
2626 352	Ru	20	50	–
2626.265	Ce	2	–	–
2626.245	W	12	6	–
2626.210	Ru	50	–	–
2626 15	P II	–	[20]	Gu
2626 11	Cd	–	3	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2626.081	Mo	3	30	–
2626.059	Ta	2	–	–
2626.0	Rn	–	[12]	Wo
2625.884	Rh I	60	25	–
2625.860	W	–	6	–
2625.855	U	5	2	–
2625.814	Re	15	–	–
2625.793	Ta	5 h	–	–
2625.736	Th	8	8	–
2625.736	Ce	10	–	–
2625.674	Ir I	20	–	–
2625.668	Ag II	6	15 h	–
2625.666	Fe II	300	60	I
2625.585	Mn	–	100 h	–
2625.566	Ru	–	6	–
2625.56	Hf II	3	5	Me
2625.50	Au	–	10	–
2625.490	Fe	1	60	–
2625.462	Ta	40	–	–
2625.44	Tb	–	10	Ex
2625.405	Rh	2	200 Wh	–
2625.380	Ru	–	40	–
2625.331	W	–	6	–
2625.330	Pt II	35	60	–
2625.323	Cr I	12	1	–
2625.316	Ir I	20	–	–
2625.263	U	10	6	–
2625.24	Hg I	10	15	m
2625 215	W	15	7	–
2625.214	Rh	2	–	–
2625.14	S	–	[8]	Bl
2625.12	Te	–	[15]	Bl
2625.120	Mn	3	2	–
2625.08	Pd II	–	[30]	Bx
2625.00	I	–	[40]	Bl
2624.991	W	7	5	–
2624.915	U	12	6	–
2624.856	V	–	25 h	Me
2624.82	Ga I	–	[25]	Sy
2624.804	Mn	25	12	–
2624.78	Kr	–	[6 whl]	Me
2624.76	P II	–	[10]	Gu
2624.699	Ru	–	4 h	–
2624.646	Mn	3	–	–
2624.64	Mo	–	10	–
2624.63	Pd II	–	[3]	Bx
2624 63	A	–	[5]	Rt
2624.475	W	1	15 s	–
2624.418	Ce	2	–	–
2624.37	Fe	5	–	–
2624.360	W	3	–	–
2624.34	Tm	80	40	Me
2624.181	Er	10	–	–
2624.155	Ru	–	18	–
2624.146	W	8	1	–
2624.14	Fe	10	1	–
2624.116	Ta	60	–	–
2624.11	Ca	–	4	Ad
2624.1	Cs	–	[2]	Bs
2624.045	Mn	25 l	60	–
2623 887	W	–	15 d	–
2623.830	Ru	50	–	–
2623.793	V	–	40	–
2623.78	Zn	5 h	–	Fl
2623.755	Co I	40	3	–
2623.727	Fe II	–	20	–
2623.71	Dy	5	–	–
2623.641	Ir	10	5	–
2623.63	Fe	2	–	–
2623.537	U	6	2	–
2623.532	Fe I	100	80	–
2623.509	Cb	10	3	–
2623.5	Rn	–	[7]	Pe
2623.454	Th	10	10	–
2623.442	Ce	6	–	–
2623.433	In II	–	[18]	Ps
2623.42	Mo	–	30	–
2623.386	Cr	–	2	–
2623.366	Fe I	25	10	–
2623.33	Mn	12 d	1	–
2623.315	Ce	6	–	–
2623.313	Cb	1	8	–
2623.306	Re	50 w	–	–
2623.281	In II	–	[18]	Ps
2623.21	Yb	1	5	–
2623.172	Cb	2 w	5	–
2623.123	Fe	–	30	–
2623.109	W II	2	20	–
2623.05	O	–	[5 h]	Mh
2622.972	Ce	6	–	–
2622.954	Cb	2	20	–
2622.90	Ne I	–	[15]	Ps
2622.898	Mn	200	15	–
2622.863	Cr	25	2	–
2622.860	W II	–	10	–
2622.84	I	–	[30]	Bl
2622.83	Fe	2 wh	2 wh	–
2622.82	Kr II	–	[2]	Me
2622.784	Ce	5	–	–
2622.758	Re	30	–	–
2622.738	Hf II	30	80	–
2622.735	V	–	50 h	Me
2622.657	Nd	10	2	–
2622.575	Rh I	50	25	–
2622.429	Co I	30 r	15	–
2622.41	O	–	[7]	Mh
2622.394	U	3	2	–
2622.335	W	6	3	–
2622.31	Br	–	[2]	Bl
2622.26	Te	–	[15]	Bl
2622.21	Tm	15	8	Me
2622.207	W	15	10 d	–
2622.062	Co I, II	40 w	20	–
2622.003	Cb	3	2	–
2621.976	Re	30	–	–
2621.94	Fe	3	–	–
2621.83	Hf II	–	2 h	–
2621.818	Os	25	4	–
2621.809	U	10	2	–
2621.794	V	–	15 h	Me
2621.74	Xe	–	[3]	Hu
2621.738	Ru	–	4	–
2621.67	Yb	1	4	–
2621.668	Fe II	200	400	I
2621.593	Zr II	2	5	–
2621.592	W	8	12	–
2621.527	Ir I	2	–	–
2621.503	Pt	1	25	Sh
2621.452	U	5	2	–
2621.39	Xe	–	[3]	Hu
2621.371	Os	5	1	–
2621.322	U	–	10 h	–
2621.264	Ru	–	12	–
2621.147	Re	20	–	–
2621.12	Yb	2	100	m
2621.10	Ne	–	[8]	Ps
2621.081	Ru	20	4	–
2621.071	Mo	40 h	1	–
2621.032	Pt II	1	25	Sh
2621.03	A	–	[10]	Rt
2621.000	Rh	2	2	–
2620.959	U	5	4	–
2620.953	Hf II	2	3	–
2620.931	Ce	2	–	–
2620.93	Tm	5	2	Me
2620.876	Ru	20	–	–
2620.845	Cr	6	–	–
2620.822	Zr	2	–	–
2620.82	Ca	–	6	Ad
2620.815	Mo	10	–	–
2620.744	W II	3	12	–
2620.700	Ir I	2	2 h	–
2620.695	Fe II	3	80	–
2620.675	Cu II	1 h	8 h	IBu
2620.65	Kr	–	[6 h]	Me
2620.619	Os	10	3	–
2620.610	Ru	50	5	–
2620.588	Cb	3	1	–
2620.576	Zr	–	6	–
2620.557	Pd II	–	10 wh	–
2620.510	Cr	–	5	–
2620.5	Tl	–	10 d	Cx
2620.476	Cr I	8	3	–
2620.448	Cb	3	200	–
2620.44	Kr II	–	[40 h]	Me
2620.407	Fe II	70	40	–
2620.349	Re	50	–	–
2620.290	V I	18	2	–
2620.226	W	12	15	–
2620.182	Ta	5	–	–
2620.173	Fe II	–	40	–
2620.068	Ru	10	6	–
2620.060	Mo	–	15	–
2620.054	V	–	4	–
2620.04	O	–	[8]	Mh
2620.03	La II	1	7	–
2620.023	Re	60	–	–
2619.980	Mn	50	12	–
2619.978	Cr	6	1	–
2619.952	W	8	2	–
2619.944	Os	30	8	–
2619.939	Ti I	35	7	–
2619.91	Yb	2	5	–
2619 883	Ir I	35	5	–
2619.88	I	–	[20]	Bl
2619.810	Zr I	4	–	–
2619.804	Ce	5	–	–
2619.802	Co	–	40	–
2619 715	Ce	2	–	–
2619.671	Ru	50	5	–
2619.650	Cr	–	15	–
2619.61	Tb	–	40	Ex
2619.567	Pt I	300	5	–
2619.509	Mn	125	10	–
2619.490	Cr	8	–	–
2619.354	Ru	–	60	–
2619 341	Mo	20	40	–
2619 296	Mn	–	15	–
2619.276	Co I	50 w	4	–
2619.26	U	4	2	–
2619.26	Lu	30	100	Me
2619.22	Cs	–	[2]	Bs
2619.210	Zr II	2	3	–
2619.177	W	10	12	–
2619.076	Fe II	5	150	–
2619.06	Yb	2	6	–
2619.053	Pd II	–	10 h	–
2619.02	Ne	–	[5]	Ps
2619.020	Ru	30	1 h	–
2618.97	Cd II	–	[30]	Tk
2618.920	Ce	4	–	–
2618.915	V I	4	2	–
2618.914	Mn	40	12	–
2618.913	Th	12	5	–
2618.91	Co	–	30	Ex
2618.84	Tm	–	30	Me
2618.807	W	12	3	–
2618.8	Rn	–	[20]	Wo
2618.740	Ru	10	–	–
2618.706	Fe I	70	25	–
2618.633	Sn	–	3 Wh	Ar
2618.597	Ru	–	3	–
2618.446	Cb	1	5	–
2618.366	Cu I	500 w	100	IBu
2618.281	W	–	5	–
2618.269	Cr I	15	1	–
2618.268	Ir I	2	–	–
2618.19	Br	–	[3]	Bl
2618.17	U	3	2	–
2618.143	Mn	50	100 h	–
2618.10	Be II	–	[4]	Ps
2618.1	Tl	–	2	Cx
2618.080	W	–	15	–
2618.017	Fe I	150	60	–
2618.01	Pd II	–	[4]	Bx
2617.878	Mo	15	–	–
2617.87	Cd	–	[2]	Vs
2617.861	Co I	50 w	–	–
2617.796	Os	5	30	–
2617.789	Ru	50	4	–
2617.781	Ir I	25	10	–
2617.723	Ce	3	–	–
2617.64	A	–	[2]	Rt
2617.629	W II	3	12	–
2617.616	Fe II	300	400	I
2617.48	Mg I	5	5	Fl
2617.45	I	–	[20]	Bl
2617.445	Re	25	–	–
2617.444	Mn	–	12	–
2617.441	Ru	–	5	–
2617.430	Cb	–	10	–
2617.417	Ir I	4	–	–
2617.41	Au	–	7	–
2617.320	Sb	–	6 w	Sp
2617.156	W	–	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2617.14	Fe	8	1	–
2617.13	Cd	–	[2]	Vs
2617.118	Re	25	–	–
2617.108	Ce	4	–	–
2617.094	Cb	–	5 h	–
2617.09	V	–	15 h	–
2617.066	Ru	–	50	–
2617.02	Yb	3	15	–
2617.01	Ag II	–	[10 h]	Bx
2616.918	Mn	–	12	–
2616.91	Te	–	[5]	Bl
2616.873	Er	4	1	–
2616.782	Mo	30	5	–
2616.755	Pt II	10	60	–
2616.711	Re	5	–	–
2616.71	Kr II	–	[10 h]	Me
2616.68	V	–	15 h	–
2616.62	Ne I	–	[25]	Ps
2616.606	Hf	10	8	–
2616.57	Au	–	8	–
2616.508	Mn	–	60	–
2616.479	Cb	15	3	–
2616.44	Fe	5	3	–
2616.36	Eu	–	2 h	–
2616.339	W	6	3	–
2616.329	Ru	–	18	–
2616.32	Fe	3	–	–
2616.314	La II	1	7 hl	–
2616.31	Tm	8	15	Me
2616.27	Cs	–	[8]	Bs
2616.261	Co I	40 w	2	–
2616.248	V	4	70	–
2616.230	Cr	–	6	–
2616.218	Cb	2	30	–
2616.21	Br	–	[3]	Bl
2616.073	Rh	2	3	–
2616.068	U	12	6	–
2616.046	W	–	3	–
2616.02	Cd	–	[2]	Vs
2616.0	Rn	–	[12]	Pe
2615.998	Ir I	10	2	–
2615.99	Tm	5	6	Me
2615.962	Os	5	1	–
2615.950	U	6	2	–
2615.881	Ir I	8	2	–
2615.877	Ce	4	–	–
2615.87	Fe	3	–	–
2615.75	Pr	–	3	–
2615.695	W	1	8	–
2615.681	Re	10	–	–
2615.656	Ta	50	1	–
2615.59	Zr II	–	4	–
2615.465	Ta	50	1	–
2615.453	Ce	5	–	–
2615.445	W II	6	20	–
2615.422	Fe	25	10	–
2615.42	Lu	100	250	Me
2615.420	Er	15 l	10	–
2615.40	V	–	50 wh	–
2615.391	Mo	25	3	–
2615.335	Co I	10	2 h	–
2615.26	Yb	3	12	–
2615.250	Ta	40	–	–
2615.193	Ni II	–	900 h	–
2615.13	Cl II	–	[10]	Ks
2615.122	W	10	3	–
2615.12	Pd	–	[25]	Bx
2615.120	U	2	2 h	–
2615.093	Ru	60	100	–
2615.01	I	–	[12]	Bl
2614.984	Ir I	25	5	–
2614.96	Cd	–	[2]	Vs
2614.872	Fe II	–	10	–
2614.865	Ru	–	30	–
2614.763	Cb	–	30	–
2614.70	I	–	[30]	Bl
2614.67	Mg I	5	2 h	–
2614.666	Sb	4	3	–
2614.64	Cl	–	[3]	An
2614.63	Cr	–	6	–
2614.62	Cs	–	[8]	Bs
2614.610	Pt I	10	–	–
2614.59	Ag II	–	300 wh	–
2614.59	Hf	–	3 h	Me
2614.586	Ru	50	4	–
2614.566	Ce	5	–	–
2614.561	Re	60	–	–
2614.555	Er	3	2	–
2614.490	Fe I	40	5	–
2614.445	W	6	5 s	–
2614.41	Cu	–	5 w	–
2614.405	V	1	35	–
2614.377	W	–	6	–
2614.361	Co II	6	60 w	–
2614.31	Cb	2	20	–
2614.31	In	–	2	–
2614.30	Zn II	–	[10]	Vs
2614.293	Hf II	6	6	–
2614.292	Ce	2	–	–
2614.26	Ne I	–	[5]	Ps
2614.198	Ir I	10	2	–
2614.180	Fe II	–	3	–
2614 178	Pb	200 r	80	Hz
2614 178	Sn	5	5	–
2614.173	Ta	200 wh	–	–
2614.128	Co I	30	–	–
2614.1	K	–	[5]	Sg
2614.068	Ru	60	3	–
2614.037	Mn	–	5	–
2613.952	U	10	4	–
2613.931	Cb	1	30	–
2613.897	Ce	15	1	–
2613.854	Cb	3	30 h	–
2613.823	Fe II	400	400	I
2613.823	W	15	9	–
2613.756	Re	25	–	–
2613.719	Mo	15	–	–
2613.715	Bi	8	2	Om
2613.653	Pb	50 R	5	–
2613.603	Hf II	20	80	–
2613.6	Cs	–	[2]	Bs
2613.59	Ne I	–	[30]	Ps
2613.59	Tm	5	6	Me
2613.589	Mn	12	2	–
2613.576	Fe II	2	5	Do
2613.503	Cr	–	2	–
2613.492	Co	25	–	–
2613.434	Pd II	–	100	–
2613.40	Lu	30	100	Me
2613.311	Cr	10	1	–
2613 24	Fe	10	2	–
2613.233	Re	15	–	–
2613.206	Ru	5	10 wh	–
2613 19	Fe	15	–	–
2613.12	Cd	–	[2]	Vs
2613 097	La II	–	4	–
2613 079	Mo	40 h	20	–
2613.073	U	2	–	–
2613.072	W	12	10	–
2613.068	Zr	2	–	–
2613.058	Os	50	10	–
2613.03	Pd II	–	10 h	–
2612.925	Re	10	–	–
2612.917	Ru	5	–	–
2612.91	I	–	[12]	Bl
2612.86	Lu	3 h	–	Me
2612.855	Mn	15	2	–
2612 771	Fe I	50	10	–
2612.74	Au	–	3	–
2612.724	Re	20	–	–
2612.648	W	2	12	–
2612.630	Co II	–	20 wh	–
2612 630	Os	20	5	–
2612.627	Mn	–	12	–
2612.62	Yb	1	4	–
2612.609	Ta	50	40	–
2612.59	Hf	4	3	–
2612.555	Cr	–	2	–
2612.515	Ru	–	80	–
2612.456	U	10	4	–
2612.382	Cb	8	2	–
2612.379	Er	4	–	–
2612.301	Sb	50	60	–
2612.289	Mo	10	6 h	–
2612.26	Cb	–	5 wh	–
2612.259	Ir I	10	2	–
2612.204	Cr	8	1	–
2612.19	Cd	–	[3]	Vs
2612.188	W	10	15	–
2612.181	Zr I	4	–	–
2612.1	Cs	–	[2]	Bs
2612.068	Ru	100	30	–
2612.040	Ir I	10	–	–
2612.03	Yb	1	4	Me
2612.024	Cr	8	1	–
2612.01	In	–	2	Sq
2611.872	Fe II	500	500	I
2611.815	Na II	–	[80]	Fr
2611.81	Cd	–	[2]	Vs
2611.76	Rh	–	10	–
2611.654	Ni II	–	125	–
2611 628	Cr	–	3	–
2611.627	Mo	15	–	–
2611 625	U	5	2	–
2611.604	Re	30	–	–
2611.580	W	–	6	–
2611.510	Ru	3	80	–
2611.485	Ti I	15	2	–
2611.459	Ta	15	–	–
2611.396	W	7	–	–
2611.340	Ta	100	–	–
2611.332	Fe II	–	1	–
2611.330	Os	8	1	–
2611.295	Ir I	80	10	–
2611.285	Ti I	80	15	–
2611.274	W	–	8	–
2611.256	V I	20	10	–
2611.209	Sc II	5	10 wh	–
2611.199	Mo	25	15	–
2611.14	U	6	2 h	–
2611.102	W	5	–	–
2611.072	Fe II	20	80	–
2611.048	Ru	50	5	–
2611.045	Cr	–	2	–
2610.985	Ce	2	–	–
2610.98	Kr	–	[10 h]	Me
2610.93	Br	–	[5]	Bl
2610.891	V I	7	2	Me
2610.87	Yb	3	20	–
2610.849	Mn	–	10	–
2610.790	Cr	–	6	–
2610.782	Os	20	6	–
2610.775	Ce	2	–	–
2610.759	Co I	40 w	1 h	–
2610.757	I	–	[30]	Ke
2610.749	Fe I	40	4	–
2610.745	W	8	4	–
2610.646	U	2	2	–
2610.64	V	–	40 h	–
2610.588	W	1	8	–
2610.572	Mn	–	8	–
2610.531	Ce	2	–	–
2610.515	Fe	–	1 h	–
2610 492	W	–	6	–
2610.401	U	6	4 h	–
2610 335	La II	10	150	–
2610.334	Ce	2	–	–
2610.294	Cr I	8	–	–
2610.275	Cb	10	2	–
2610.26	B	–	2	Sy
2610 259	Mo	15	–	–
2610 201	W	8	1	–
2610 200	Mn	15	100 h	–
2610.140	Cs II	–	[6]	Ot
2610.129	Ta	10	–	–
2610.103	Ir	2	–	–
2610.092	Ni II	–	900 h	–
2610.078	Ru	–	60	–
2609 962	Hf	5	–	–
2609.905	Ir I	4	1 h	–
2609.900	Ce	8	–	–
2609.871	W	5	1	–
2609.866	Fe II	–	40	–
2609.862	Pd II	–	200	–
2609.855	Th	10	5	–
2609.809	V	–	12	–
2609.77	Tl I	30 R	–	Fl
2609.72	Zr II	–	5	–
2609.602	V	–	6	–
2609.589	W	4	–	–
2609.57	Ca	–	4	Ad
2609.560	Os	20	4	–
2609.552	Mn	–	15	–
2609.502	Ce	12	–	–
2609.485	Ru	30	6	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2609.48	Au	–	5	–
2609.47	Tm	7	5	Me
2609.437	Fe II	–	10	–
2609.435	Cb	–	4	–
2609.431	Zr I	6	–	–
2609.43	Cs	–	[20]	Bs
2609.41	Se	–	[10]	Bl
2609.399	Re	20	–	–
2609.312	Cu	–	30	–
2609.264	Hf II	–	2	–
2609.258	U	15	2	–
2609.241	W	2	12	–
2609.223	Th	–	10	–
2609.22	Mo	–	40 wh	–
2609.220	Fe	10	1	–
2609.203	Os	8	4	–
2609.17	Rh	3	200	–
2609.126	Fe II	–	20	–
2609.12	Yb	–	4	Me
2609.116	Ce	2	–	–
2609.057	Ru I	80	12	–
2609.039	U	4	2	–
2608.999	Ta	80	1	–
2608.99	Tl I	80 R	10	Fl
2608.962	Cb	2	10	–
2608.907	Ir I	2	–	–
2608.864	Mo	15	10	–
2608.851	Fe II	–	20	–
2608.841	Cb	3	1	–
2608.806	Mn	–	20	–
2608.685	Cb	1	4	–
2608.67	Dy	3	–	Ed
2608.67	Sn II	–	[3]	Mc
2608.640	Zn I	300	100	Hz
2608.627	Ta	125	4	–
2608.578	Fe	100	10	–
2608 57	Tb	10	20	Ed
2608 558	Zn I	200	50	IHz
2608.501	Re	25	–	–
2608.451	Hf	10	5	–
2608.437	W	–	4	–
2608.432	Mn	–	20	–
2608.4	Pb II	–	[5]	Ea
2608.396	Cr	8	–	–
2608 393	Zr I	2	–	–
2608.327	Th	5	2	–
2608.318	W	12	5	–
2608.246	Ir I	50	10	–
2608 200	Ta	15	–	–
2608 197	U	25	6	–
2608 18	Te	–	[5]	Bl
2608 162	Cr	–	4	–
2608.12	Ti	–	15 h	–
2608 094	Mn	–	2	–
2608 07	Br	–	[5]	Bl
2608.065	Pt II	–	5	–
2608 054	W	–	5	–
2607.98	V	–	30 h	Me
2607.918	Ru	8	35	–
2607.906	Cr	1	35	–
2607.87	Yb	3	7	–
2607.854	Mn	–	2	–
2607.840	Ta	20 h	150	–
2607.81	Fe	2 w	–	–
2607.810	W	1	9	–
2607.766	V	10	2	–
2607.732	W	1	9	–
2607.633	Cr	–	3	–
2607.519	Ir I	10	2	–
2607.482	Th	4	2	–
2607.47	Ga I	–	[15]	Sy
2607.380	U	5	2	–
2607.378	W	12	5	–
2607.374	Mo	50 h	5	–
2607.347	Ru	12	–	–
2607.344	Ce	5	–	–
2607.32	Lu	–	4 h	Me
2607.32	I	–	[30]	Bl
2607.316	Re	20	–	–
2607.284	Mn	–	3	–
2607.243	Hf II	10	20	–
2607.13	V	15	–	–
2607.087	Fe II	300	400	–
2607.05	Br	–	[5]	Bl
2607.05	Tm	50	30	Me
2607.03	Hf II	30	80	–
2606.975	W II	–	8	–
2606.944	Ru	10	15	–
2606.93	Xe	–	[3]	Hu
2606 904	W II	–	8	–
2606 825	Fe I	200	30	–
2606.726	U	10	4	–
2606.654	Mg I	8	2 h	–
2606.651	Fe	4	–	–
2606.583	Mn	–	8	–
2606.58	Mo	–	20	–
2606.555	W II	–	10	–
2606.543	Ta	3	–	–
2606.523	Cr	–	5	–
2606.520	U	8	6	–
2606.504	Fe II	–	80	–
2606.440	Rh	8	5	–
2606.42	U	3	1	–
2606.42	Ta	–	10	–
2606.40	Se	–	[5]	Bl
2606.387	Ni II	–	600 h	–
2606.386	W	10	–	–
2606.372	Hf II	25	50	–
2606.343	Pd II	–	5 h	–
2606.31	Fe	10	–	–
2606.275	W II	–	9	–
2606.252	Mn	–	5	–
2606.204	Cb	–	5 wh	Me
2606.20	Ru	–	20 wh	–
2606.20	Pd II	–	[4]	Bx
2606.18	Br	–	[6]	Bl
2606.16	Ag II	10	200 wh	–
2606.151	U	2	2	–
2606.122	Co I	40	–	–
2606.088	Ce	4	–	–
2606 066	Cr	–	2	–
2606.02	P II	–	[10]	Gu
2606.02	Tm	20	10	Me
2605 963	W II	2	8	–
2605.933	Mo	5	10	–
2605.905	Fe	–	20	–
2605.892	W	6	2	–
2605.89	Te	–	[10]	Bl
2605.857	Ru	50	3	–
2605.809	Ta	3	–	–
2605.74	U	4	2	–
2605.70	Cl II	–	[2]	Mu
2605.688	Mn II	100 R	500 R	–
2605.678	Pd	–	2	–
2605.677	Co	30	200	–
2605.67	Cl II	–	[5]	Ks
2605 653	Fe I	80	10	–
2605.611	Cr	–	4	–
2605.55	I	–	[20]	Bl
2605.54	Xe	–	[25]	Hu
2605.507	W	12	2	–
2605.474	W II	–	4	–
2605.45	P	–	[20]	Gu
2605.42	Tb	–	10	Ex
2605.415	Fe II	–	40	–
2605.40	Cs	–	[20]	Bs
2605.378	Ce	4	–	–
2605.349	Ru	50	4	–
2605.347	Ni II	–	250 wh	–
2605.319	Ta	10	–	–
2605.303	Fe II	–	50	–
2605.151	Ti I	100	12	–
2605.084	V I	4	2	Me
2605.075	Mo	15	5	–
2605.07	I	–	[20]	Bl
2605.068	Cb	1	40	–
2605.057	Pd	3	–	–
2605.040	Fe	–	80	–
2605.016	Cb	1	40	–
2604.95	Bi II	–	2	Cf
2604.89	C II	–	2	En
2604.88	Er	4	1	–
2604.878	Ti I	7	–	–
2604.867	Fe	18	–	–
2604.758	Fe	20	1	–
2604.756	Zr	2	2	–
2604.754	Cb	2	40	–
2604.663	U	2	2 h	–
2604.61	Eu	18 w	–	–
2604.604	Os	20	3	–
2604.552	Ir I	10	2	–
2604.408	Co	–	30	–
2604 356	Mn	–	10	–
2604.32	Tl II	–	[5]	El
2604.318	Ru	12	–	–
2604.31	U	6	2	–
2604.294	V I	12	1	Me
2604.197	Zr II	3	5	–
2604.18	Cl II	–	[8]	Ks
2604.152	Cr	–	4	–
2604.120	Ru	–	80	–
2604.096	Ti II	4	12	–
2604.049	Fe	–	4	–
2604.045	In II	–	[30]	Ps
2604.042	W	–	6	–
2604.03	Yb	2	8	–
2604.01	Fe	3	–	–
2604.01	Tl II	–	[2]	El
2603.948	U	3	2	–
2603.88	Mg I	8	5	–
2603.870	Re	100	–	–
2603.84	Hg I	3	–	Di
2603.822	Ta	25	–	–
2603.802	Ru	12	–	–
2603.734	Cb	2	10	–
2603.725	Cr	–	2	–
2603.72	P II	–	[5]	Gu
2603.72	Cs	–	[2]	Bs
2603.719	Mn	5	50	–
2603.681	Pt II	–	5	–
2603.68	I	–	[12]	Bl
2603.590	Ce	4	–	–
2603.573	Ta	5	300	–
2603.570	Cr I	30	1	–
2603.565	Fe	20	3	–
2603.551	U	6	6 h	–
2603.544	W	12	7	–
2603.493	Ta	10	15	–
2603.463	Re	25	–	–
2603.444	Ce	2	–	–
2603.41	V	–	20 h	–
2603.39	Lu	5	–	Me
2603.36	Cl II	–	[10]	Ks
2603.321	Rh	–	100	–
2603.316	Mo	15	1	–
2603.309	Cb	3	1	–
2603.28	Lu	5	–	Me
2603.253	Mn	–	8	–
2603.220	Os	5	1	–
2603.15	Hg I	20 wh	20	m
2603.15	Br	–	[5]	Bl
2603.142	Pt I	300	20	–
2603.114	Mn	–	8	–
2603.021	W II	5	15	–
2603.02	Tb	3	20	Ex
2603.016	U	6 h	2	–
2602.96	I	–	[12]	Bl
2602.96	As	–	12	Ro
2602.96	V	–	20 h	–
2602.927	Re	25	–	–
2602.885	Ru	–	20	–
2602.868	Hf	4	4	–
2602.804	W	12	2	–
2602.798	Mo	25	100	–
2602.772	Ce	2	–	–
2602.760	Pd II	20	200	–
2602.720	Mn	–	80	–
2602.672	Er	3	–	–
2602.668	Hf	7	5	–
2602.62	Se	–	[15]	Bl
2602.550	Re	10	–	–
2602.512	W	10	25	–
2602.488	Cb	1	5	–
2602.45	Mg I	6	–	–
2602.419	W	3	–	–
2602.418	U	4	12 h	–
2602.377	Ta	40	–	–
2602.34	V	–	10	–
2602.249	Ru	–	100	–
2602.18	Cd I	25 h	[5]	Fl
2602.142	Ag	–	2 h	–
2602.135	Mn	12	1	–
2602.11	Kr II	–	[7]	Me
2602.088	Ce	2	–	–
2602.06	Au	–	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2602.04	Ga	–	3	Kl
2602.035	Ir I	15	2	–
2602.007	Cb	4	2 l	–
2601.973	Mn	–	10	–
2601.963	W	15	6	–
2601.96	Mo	1	20	–
2601.880	Re	30	–	–
2601.845	Cr	–	3	–
2601.836	Cb	4	2	–
2601.830	Mn	–	10	–
2601.825	Mo	15	–	–
2601.777	La II	–	5	–
2601.756	In I	50 R	15 wh	Ps
2601.691	Mo	20	1	–
2601.54	Br	–	[4]	Bl
2601.537	U	6	12	–
2601.48	Cd	–	[2]	Vs
2601.460	Ru	30	5	–
2601.433	W II	2	15	–
2601.345	Mo	20	–	–
2601.291	Cb	4	200	–
2601.28	Zr II	2	5	–
2601.16	Br	–	[15]	Bl
2601.126	Ni II	–	2000 h	Me
2601.09	Tm	8	2	Me
2601.076	V	–	40 h	Me
2601.055	Ta	50	5 wh	–
2600.980	Co I	10 w	3	–
2600.94	Zn I	10 wh	–	Fl
2600.885	Th	15	4	–
2600.878	Ce	3	–	–
2600.871	Re	25	–	–
2600.869	La II	–	2	–
2600.85	Yb	1	3	–
2600.798	V I	4	–	Me
2600.79	Cd	–	[2]	Vs
2600.788	Ce	2	–	–
2600.77	Dy	4	–	–
2600.749	Os	5	1	–
2600.737	W	12	5	–
2600.71	Tb	–	20	Ex
2600.635	Th	–	15	–
2600.61	Bi	12 h	2	To
2600.588	Mn	–	10	–
2600.52	Se	–	[5]	Bl
2600.518	W	–	12	–
2600.452	Os	8	2	–
2600.434	Ce	3	–	–
2600.366	Mo	20	1	–
2600.36	Cs	–	[20]	Bs
2600.347	La II	–	4	–
2600.32	Cd	–	[2]	Vs
2600.3	bh C	20	–	L
2600.282	U	2	2	–
2600.267	Mn	1	10	–
2600.266	Cu II	1 h	200	IBu
2600.218	W	10	2	–
2600.202	Fe	10	–	Bu
2600.19	Yb	1	3	–
2600.17	Dy	5	–	–
2600.152	Cb	12	10	–
2600.15	Tb	–	20	Ex
2600.141	Ta	80	–	–
2600.12	Mo	–	10	–
2600.10	Fe	10	–	–
2599.916	Pt I	5	–	–
2599.915	Ti I	70	10	–
2599.907	Os	12	3	–
2599.871	Mn	10	1	–
2599.859	Re	80	–	–
2599.805	U	4	2	–
2599.764	W	2	12	–
2599.661	Fe	6	–	–
2599.658	Ru	10	25	–
2599.643	Mo	20	1	–
2599.642	W II	1	5	–
2599.570	Fe I	1000	–	–
2599.521	Cb	–	5 wh	–
2599.400	Ir	40	–	–
2599.397	Ta	100	30	–
2599.396	Fe II	1000	1000 h	–
2599.22	Fe	1	–	–
2599.215	Hf II	10	10	–
2599.207	Co I	5	–	–
2599.182	Mo	1	15	–
2599.15	Yb	2	50	m
2599.131	Fe	1	–	–
2599.129	Os	5	1	–
2599.090	Ta	2	–	–
2599.040	Ir I	25	10	–
2599.036	Mn II	2	12	Cz
2598.97	Dy	3	–	–
2598.902	Mn	5	100 wd	–
2598.883	Cb	–	150	–
2598.859	U	4	2 h	–
2598.854	Fe	20	–	–
2598.851	Hf II	–	2	–
2598.813	Cu II	–	200	IBu
2598.802	In II	–	[18]	Ps
2598.766	Ru	4	50	–
2598.746	Ta	15	–	–
2598.738	W II	12	20	–
2598.7	Cs	–	[2]	Bs
2598.692	In II	–	[10]	Ps
2598.68	Ag II	10	10 h	m
2598.68	W II	3	3	–
2598.593	Re	6	–	–
2598.581	Ru	20	–	–
2598.47	Fe	1	–	–
2598.45	Hg	–	[5]	Dj
2598.421	W	10	5	–
2598.42	Xe	–	[4]	Hu
2598.369	Fe II	700	1000 h	I
2598.284	Ir I	8	–	–
2598.250	Ce	5	–	–
2598.21	Ta	2 s	50	–
2598.174	Mn	12	–	–
2598.107	W	6	–	–
2598.072	Rh	4	3	–
2598.062	Sb I	200	100	–
2598.041	Cb	2	10	–
2598.028	Fe II	4	4	Do
2598.000	Ir I	2	–	–
2597.964	Re	20	–	–
2597.953	W	–	12	–
2597.943	Fe II	–	3	Do
2597.89	I	–	[4]	Bl
2597.862	Ir	3	–	–
2597.828	Fe	6	–	–
2597.793	Ru	–	20	–
2597.752	Cb	–	15 wh	–
2597.73	Kr II	–	[7]	Me
2597.726	W	10	4	–
2597.689	U	25	15	–
2597.683	Rh I	2	2	–
2597.572	O	10	2	–
2597.518	Ru	10	18	–
2597.51	Ho	–	20	Ex
2597.510	Mn	–	10	–
2597.493	Ta	2	–	–
2597.470	W	–	7	–
2597.376	Mo	2	30	–
2597.353	Ir I	12	4	–
2597.326	Ru	30	–	–
2597.312	U	2	2	–
2597.31	Th	–	10 d	–
2597.31	Tb	–	10	Ex
2597.291	Os	4	1	–
2597.289	W	5	2	–
2597.27	Yb	1	20	–
2597.225	Mo	20	–	–
2597 201	Os	5	2	–
2597.193	V	–	12	–
2597.18	Al II	–	[50]	Sy
2597.147	Ru	–	50 h	–
2597.139	Cb	8	3	–
2597.13	Mo	–	20 h	–
2597.07	Rh	3	150	–
2597.05	Tb	–	10	Ex
2597.050	Th	20	5	–
2597.047	Ce	8	–	–
2597.01	Xe II	–	[5]	Hu
2597.003	U	3	2	–
2596.968	Cb	–	5 h	–
2596.95	Cs	–	[20]	Bs
2596.941	Re	25	–	–
2596.924	Rh	2	2	–
2596.86	Xe	–	[3]	Hu
2596.858	W II	1	15 s	–
2596.85	Pr	–	6	–
2596.827	Mn	–	50 r	–
2596 781	Re	25	–	–
2596 768	Mo	20	–	–
2596.74	Yb	2	3	–
2596.73	Kr	–	[5 wh]	Me
2596.692	Os	10	3	–
2596.68	Hf	–	3 h	Me
2596.678	Ba I	40	–	Sz
2596.667	W	12	3 s	–
2596.607	Ta	20	–	–
2596.585	Ti I	40	4	–
2596.50	Tm	7	–	Me
2596.485	Ce	3	–	–
2596.48	I	–	[12]	Bl
2596.450	Ta	80	150	–
2596.44	Eu	–	5	–
2596.434	Fe	3	–	–
2596.402	Re	25	–	–
2596.358	Ce	2	–	–
2596.343	W	–	10	–
2596.32	La II	–	3	Me
2596.30	Yb	2	7	–
2596.173	Cr	–	6	–
2596.16	Yb	2	6	–
2596.13	Cd	–	[3]	Vs
2596.118	U	4	2	–
2596.116	Ta	30	10 wh	–
2596.112	W	5	–	–
2596.10	Pr	–	2	–
2596.091	La II	–	20	–
2596.005	Os	12	3	–
2596.00	Pt	200	20	–
2595.969	Pd II	3	150	–
2595.94	Br	–	[5]	Bl
2595.940	Mg I	8	5 h	–
2595.932	Ru	8	–	–
2595.829	Ir	3 h	25 h	–
2595.796	Ru	–	100	–
2595.761	Mn	200	25	–
2595.761	W II	1	10	–
2595.70	S	–	[8]	Bl
2595.649	Mn	–	25	–
2595.639	Ru	20	–	–
2595.63	U	–	8 h	–
2595.627	Ag II	–	40 wh	–
2595.61	Hf II	1	3	Me
2595.586	Ta	40 d	50 h	–
2595.575	Ce	4	–	–
2595.568	W	2	20	–
2595.558	Cr	–	6	–
2595.530	Ru	–	3 wh	–
2595.428	Fe	3	–	–
2595.425	Ru	10	–	–
2595.403	Mo	25	20	–
2595 385	U	6	6 h	–
2595.36	Kr II	–	[4 wh]	Me
2595.33	Te	–	[5]	Bl
2595.30	Pr	–	5	–
2595.294	Fe II	–	3	–
2595.261	Ta	50	2	–
2595.237	Re I	60	–	–
2595 21	Ne	–	[50]	Ps
2595.19	Tb	–	10	Ex
2595.15	Ra II	–	[4]	Rs
2595.096	V	–	70 h	–
2595.036	Er	10	3	–
2595.033	Th	7	5	–
2594.989	U	2	4	–
2594.98	Tm	6	6	Me
2594.967	Cb	1	5	–
2594.965	Na II	–	[2]	Fr
2594.91	Yt	5	–	–
2594.853	Re I	40	–	–
2594.852	Ru	60	4	–
2594.804	W	–	10	–
2594.787	Ce	2	–	–
2594.740	Cb	3	80	–
2594.720	Mn	1	12	–
2594.629	Ti I	5	–	–
2594.543	W	4	15 l	–
2594.536	Ta	6	–	–
2594.5	bh C	2	–	L
2594.49	Yb	2	5	m
2594.45	Br	–	[4]	Bl
2594.423	Sn	60	80	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2594.4	Tb	–	10	Ex
2594.40	Kr II	–	[4]	Me
2594.392	Ru	–	35 wh	–
2594.338	Cb	2	10	–
2594.275	U	5	2	–
2594.273	Pd II	–	25 wh	–
2594.247	Ta	5	5	–
2594.18	Yb	1	5	Me
2594.158	Co I	10 w	–	–
2594.150	Fe I	20	2	–
2594.143	Os	10	3	–
2594.039	Bi I	12 h	4	–
2594.038	Fe	20	2	–
2594.005	Mo	15	–	–
2593.927	Na I	15 R	–	Fl
2593.828	Na I	20 R	–	Fl
2593.82	U	1 h	4	–
2593.802	Ce	2	–	–
2593.764	Cb	2 h	100	–
2593.76	Br	–	[20]	Bl
2593.729	Mn II	200 R	1000 R	–
2593.726	Fe II	15	70	–
2593.71	Si	–	[2]	Sy
2593.705	Mo	20	40	–
2593.700	Ru	20	–	–
2593.660	Ta	80 d	100	–
2593.642	Ti I	20	2	–
2593.636	Ru	10	–	–
2593.618	Rh	–	15	–
2593.571	U	18	6	–
2593.518	Fe	25	–	–
2593.466	I II	–	[150]	Ke
2593.41	Hg I	5	3	Dj
2593.382	W	12	4	–
2593.378	Mo	3	20	–
2593.34	Br	–	[2]	Bl
2593.281	Mn	–	2	–
2593.269	Pd I	3	100	–
2593.182	Mg I	5	2	–
2593.134	Ir	3	–	–
2593.085	Ta	150	1	–
2593.052	V	–	50 h	–
2593.04	Sn	–	5 wh	Ar
2592.944	Mn	150	3	–
2592.882	Co II	–	2	–
2592.87	La II	–	3 h	Me
2592.868	Re	50 w	–	–
2592.801	Ce	2	–	–
2592.792	Mo	3	15	–
2592.779	Fe	20	100	–
2592.71	Yb	–	3	Me
2592.627	Cu I	1000	50	IBu
2592.60	Br	–	[2]	Bl
2592.594	W	–	4	–
2592.581	Er	10	1	–
2592.572	U	12	6	–
2592.56	Dy	3	–	–
2592.537	Ge	20	15	–
2592.53	Ta	5	–	–
2592.48	Kr II	–	[60]	Me
2592.464	W	2	5	–
2592.440	Ta	12 h	–	–
2592.393	Zr I	5	–	–
2592.34	Lu	–	5 h	Me
2592.338	Ce	10	–	–
2592.298	Mn	12	2	–
2592.292	Fe	12	–	–
2592.208	V	–	10	–
2592.198	Cb	20	3	–
2592.192	Zr I	6	–	–
2592.160	Rh	–	80	–
2592.14	Cd I	30	–	Fl
2592.09	Pd II	–	[5 h]	Bx
2592.09	Au	–	10	–
2592.056	Ir I	100	20	–
2592.032	Cb	2	4	–
2592.029	Mn	–	8	–
2592.024	Ru	60	6	–
2591.975	Mo	40	1	–
2591.970	W	–	6	–
2591.96	C II	–	4 h	En
2591.905	Er	1	3	–
2591.848	Cr I	100 r	12	–
2591.845	Ir I	3	–	–
2591.83	Tb	–	20	Ex
2591.822	Mn	–	5	–
2591.770	Mo	2	25	–
2591.740	W	–	6	–
2591.686	Co I	10 r	3	–
2591.646	Ir	2	–	–
2591.640	Ru	30	1	–
2591.588	Re	30	–	–
2591.543	Fe II	50	100	–
2591.51	Dy	5	–	Ed
2591.49	W II	12	7	–
2591.430	Re	15	–	–
2591.424	Mn	2	12	–
2591.41	Se	–	[150]	Bl
2591.35	Te	–	[30]	Bl
2591.326	Hf II	10	12	–
2591.256	Fe	20	–	–
2591.252	U	18	12	–
2591.237	Ru	–	50	–
2591.229	Mn	–	12	–
2591.17	Cs	–	[20]	Bs
2591.15	Ne I	–	[3]	Ps
2591.138	Re	15	–	–
2591.118	Ru	50	–	–
2591.04	Yb	1	5	–
2591.040	Ir	2	4	–
2591.02	I	–	[20]	Bl
2591.013	Pt II	–	10	Sh
2590.971	Ru	12	100	–
2590.944	Cb	15	800	–
2590.943	Ta	5	–	–
2590.91	N II	–	[25]	Fl
2590.81	Er	–	2	–
2590.805	Ce	2	–	–
2590.791	U	3	2	–
2590.755	Os	75	8 l	–
2590.74	Kr II	–	[2 h]	Me
2590.729	Cr	1	12	–
2590.691	Mn	–	2	–
2590.67	Ne I	–	[10]	Ps
2590.594	Co I	75 W	–	–
2590.545	Fe II	2	35	–
2590.526	Cu II	1 h	250	IBu
2590.492	Ta	5 h	–	–
2590.44	U	4	2 h	–
2590.39	Pr	–	5	–
2590.34	Ca	–	2	Ad
2590.34	Br	–	[3]	Bl
2590.256	Ti I	30	1	–
2590.238	Sb	–	3 h	Sp
2590.2	Cs	–	[2]	Bs
2590.199	Ir I	2	–	–
2590.18	U	2	2	–
2590.143	Mn	–	5	–
2590.04	Au I, II	30	50	–
2590.03	Lu	–	3	Me
2590.03	Fe	2	–	–
2590.017	Mn	–	3	–
2589.811	Ta	8	25	–
2589.79	Hg	–	[5 d]	Dj
2589.785	Ru	8	5	–
2589.708	Mn	10	50 h	–
2589.695	Cr	–	8	–
2589.654	W	2 d	12	–
2589.653	Zr I	12	–	–
2589.593	U	10	4	–
2589.566	Ru	60	3	–
2589.559	Ce	2	–	–
2589.507	Os	5	1	–
2589.5	In	–	2	Cx
2589.413	Ru	–	60	–
2589.391	Os	8	2	–
2589.381	Ir I	5	–	–
2589.3	Cs	–	[2]	Bs
2589.267	Cb	3	2	–
2589.188	Ge I	6	6	–
2589.167	W II	15 d	25	–
2589.118	Ir	2	–	–
2589.10	Br	–	[6]	Bl
2589.08	Kr	–	[30]	Me
2589.071	Zr II	5	10	–
2589.063	Th	20	10	–
2589.057	Ce	5	–	–
2589.053	Cr	–	2	–
2589.038	Ru	20	–	–
2588.965	Cb	1	20	–
2588.964	Ir I	3	–	–
2588.957	Mn	–	80	–
2588.946	Zr	15	–	–
2588.92	Ga	–	5	Kl
2588.915	U	5	2	–
2588.885	Ce	3	–	–
2588.862	Ru	–	3	–
2588.795	Fe II	1	20	–
2588.783	Mo	10	30	–
2588.683	I II	–	[40]	Ke
2588.655	Ru	–	3	–
2588.65	Yb	–	8 h	Me
2588.59	Tb	–	10	Ex
2588.554	W	–	8	–
2588.533	Ta	5	–	–
2588.51	Cd	–	[4]	Vs
2588.426	Ce	3	–	–
2588.362	Cb	2	–	–
2588.314	Ni II	–	80	–
2588.28	Mg I	8	8	–
2588.27	Tm	40	80	Me
2588.26	Gd	1	2	–
2588.25	Br	–	[3]	Bl
2588.203	Cr I	8	1	–
2588.195	Ru	10	–	–
2588.191	Fe	–	2	–
2588.093	W	–	12	–
2588.0	bh B	50	–	L
2587.999	Fe	40	–	–
2587.957	Cb	3	20	–
2587.948	Fe II	–	50	–
2587.883	Ce	2	–	–
2587.86	Ru	–	8	Ex
2587.79	Hg	–	[2]	Dj
2587.790	Pt	10	–	–
2587.76	Pr	–	15 l	–
2587.758	W	12	2	–
2587.593	Mn	–	5	–
2587.493	Mn	–	5	–
2587.486	Os	8	2	–
2587.458	Ru	6	–	–
2587.426	Ir I	2	–	–
2587.405	Cr	–	2	–
2587.404	Cb	–	30	–
2587.358	Er	4	–	–
2587.320	W	9	8	–
2587.31	Mo	1 h	30 wh	–
2587.289	Pd II	–	15 h	–
2587.287	Rh	2	100	–
2587.277	Mn	–	12	–
2587.26	Ag II	1 h	[3]	–
2587.246	Ni II	–	50	–
2587.221	Co II	10 w	100 h	–
2587.160	Fe	6	–	–
2587.137	Re	40 w	–	–
2587.10	S	–	[8]	Bl
2587.09	Ca	–	3	Ad
2587.072	U	6	15 h	–
2587.045	Er	10	1	–
2587.04	Mo	–	10	–
2586.998	Re	20	–	–
2586.95	Al II	–	[50]	Sy
2586.941	W	75	30	–
2586.93	Br	–	[10]	Bl
2586.91	Rb	–	[5]	Ok
2586.910	Cb	1	10	–
2586.857	Zr II	5	8	–
2586.788	Re	100	–	–
2586.734	I II	–	[40]	Ke
2586.733	W	–	6	–
2586.72	Se	–	[5]	Bl
2586.640	W	10	6	–
2586.61	Ra II	–	[50]	Rs
2586.586	W II	1	3	–
2586.567	Mn	–	10	–
2586.562	Ce	2	–	–
2586.56	Pd II	–	2	–
2586.44	Se	–	[15]	Bl
2586.43	Cd	–	[5]	Vs
2586.40	Zr II	–	2	–
2586.37	La II	–	10	–
2586.344	W	8	12	–
2586.331	Ru	6	–	–
2586.312	Na II	–	[5]	Fr
2586.29	Yb	1	4	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2586.279	Tl I	7	–	–
2586.201	U	6	6	–
2586.153	Th	5	2	–
2586.13	Gd	2	–	–
2586.096	Cb	–	40 wh	–
2586.084	Ru	12	–	–
2586.04	Te	–	[15]	Bl
2585.959	W II	8	20	–
2585.948	Mo	15	30	–
2585.889	Mn II	4	6 h	Cz
2585.876	Fe II	70	100	I
2585.8	In	–	2	Cx
2585.735	Ru	50	–	–
2585.647	Ru	10	–	–
2585.620	Fe II	–	3	–
2585.607	Ta	30	–	–
2585.603	Cr	–	2	–
2585.59	Tl I	30 R	2	Fl
2585.57	Mg I	5	–	–
2585.483	Mn	–	10 wh	–
2585.434	W	8	2	–
2585.341	Ru	20	–	–
2585.336	Co I	50 W	–	–
2585.32	Dy	4	–	–
2585.30	Xe	–	[2]	Hu
2585.25	S	–	[10]	Bl
2585.25	Se	–	[15]	Bl
2585.222	W	9	3	–
2585.215	U	6	2	–
2585.187	Ce	2	–	–
2585.07	Cd I	3	[1]	m
2585.00	Fe	3	–	–
2584.96	Br	–	[4]	Bl
2584.956	V	2	100	–
2584.904	Cr	–	2	–
2584.901	Ta	2	–	–
2584.898	U	10	4	–
2584.843	I II	–	[2]	Mu
2584.778	Ir I	2	–	–
2584.768	Re	25	–	–
2584.765	I II	–	[20]	Mu
2584.74	Hg	–	5 h	Dj
2584.72	Fe	3	–	–
2584.691	Ta	40	–	–
2584.656	Cr	10	1	–
2584.61	Tb	3	3	m
2584.6	In	–	2	Cx
2584.536	Fe I	100	30	S
2584.533	Mn	12	12	–
2584.5	Tl	–	2	Cx
2584.420	U	12	8	–
2584.379	W	15	10	–
2584.308	Mn	150 w	15	–
2584.303	Fe	2	–	–
2584.30	Mg I	8	8	–
2584.29	S	–	[15]	Bl
2584.230	W	5	6	–
2584.203	Ce	5	–	–
2584.19	Ag II	–	3 wh	–
2584.18	Mo	–	5	–
2584.15	Kr II	–	[3 h]	Me
2584.138	Ru	50	3	–
2584.132	Pd II	–	75	–
2584.110	Mn	15	5 w	–
2584.10	Br	–	[2]	Bl
2584.098	Cr	1	25	–
2584.027	Ta	80 w	200	–
2583.995	Ni II	–	200	–
2583.99	Zr	4	3	–
2583.986	Cb	10	800 wh	–
2583.849	Pd II	–	200	–
2583.746	Fe	250	–	–
2583.73	Yb	–	2	–
2583.660	W	6	1	–
2583.655	Zr I	15	–	–
2583.65	Gd	–	3	–
2583.626	Cr	–	2	–
2583.514	W II	–	9	–
2583.480	U	10	4	–
2583.405	Zr II	10	15	–
2583.39	Th	–	10 h	–
2583.277	Mn	15	–	–
2583.225	Ti I	15	1	–
2583.220	Cb	5	2	–
2583.215	W	12	9	–
2583.177	Ir I	6	–	–
2583.176	Co	–	40 w	–
2583.156	Pt II	–	10	–
2583.128	Ce	5	–	–
2583.108	Cb	8	2	–
2583.092	Mn	5	1	–
2583.048	Fe II	–	3	–
2583.037	Ru	30	40	–
2583.029	Pd II	–	6	–
2583.018	Cr	10	–	–
2583.010	V	–	50	–
2582.99	O	–	[5]	Mh
2582.965	Mn	–	50	–
2582.960	La II	–	8	–
2582.923	Hf	1	2 h	–
2582.92	Fe	3	–	–
2582.88	C I	–	[4]	Ps
2582.83	Rh	2	10	–
2582.825	W	–	8	–
2582.818	Ru	3	20	–
2582.816	Fe	5	–	–
2582.808	I II	–	[400]	Ke
2582.793	Ce	3	–	–
2582.772	Re	15	–	–
2582.627	Ru	4	9	–
2582.590	Ce	2	–	–
2582.585	Fe II	25	80	–
2582.56	La II	–	6	–
2582.54	Hf II	25	35	–
2582.522	W	–	12	–
2582.5	Cs	–	[2]	Bs
2582.487	Zn I	300	40	Hz
2582.440	Zn I	100	–	Hz
2582.37	Co II	–	3	Fr
2582.299	Fe	50	–	–
2582.292	Mo	10	–	–
2582.241	Co II	50 w	500 wh	–
2582.20	Br	–	[3]	Bl
2582.157	Mo	25	3	–
2582.145	Bi	35	5	–
2582.13	Lu	3	20	Me
2582.118	Cr	–	3	–
2581.958	Os	80 s	5	–
2581.910	Ru	30	2	–
2581.86	Eu	3	1	–
2581.843	V	–	12	–
2581.741	U	5 h	2	–
2581.74	Kr	–	[5 whl]	Me
2581.716	Ti II	4	30	–
2581.71	Zr II	–	3	–
2581.692	Rh	1	150	–
2581.649	Mn	–	15	–
2581.603	Ta	2	3 h	–
2581.60	I	–	[20]	Bl
2581.582	Er	8	2	–
2581.498	W	8	–	–
2581.463	Fe	12	–	–
2581.430	Ru	–	8	–
2581.425	Re	25	–	–
2581.411	Ir I	2	–	–
2581.200	W II	7	20	–
2581.195	Cb	4	2	–
2581.137	Ru	60	2	–
2581.12	Yb	20	100	–
2581.113	Fe	1	25	–
2581.084	Pt II	–	5	Sh
2581.07	U	–	12 h	–
2581.061	W	12	–	–
2581.052	Os	25	4	–
2581.05	Te	–	[15]	Bl
2581.02	S	–	[8]	Bl
2580.96	Fe	5	–	–
2580.955	Co II	–	4	–
2580.907	Ir	2	4	–
2580.837	Co I	50 W	4	–
2580.823	La II	–	8 hl	–
2580.817	Ti	30	–	–
2580.8	In	–	2	Cx
2580.799	Ru	50	3	–
2580.742	Ag II	1	150 wh	–
2580.714	Fe II	–	10	–
2580.700	Th	8	4	–
2580.69	Cl	–	[15]	Jv
2580.64	Ag	–	2	–
2580.62	I	–	[20]	Bl
2580.60	Eu	25 w	–	–
2580.584	Ta	2	5 h	–
2580.488	W	12	7	–
2580.457	Fe I	8	–	–
2580.451	Zr	4	–	–
2580.444	Ru	–	8	–
2580.360	Th	5	2	–
2580.35	Si	–	[2]	Sy
2580.332	W	10	5	–
2580.326	Co II	15 w	100 wh	–
2580.314	Re	20	–	–
2580.30	Cd I	50	[5]	–
2580.30	Fe	6	1	–
2580.285	Cb	2	100	–
2580.205	Ru	–	9	–
2580.183	Mn	10	–	–
2580.156	Ta	150	–	–
2580.14	Tl I	100 R	80 R	Fl
2580.13	Pr	–	2 wh	–
2580.12	Kr	–	[2]	Me
2580.10	Tb	–	10	Ex
2580.07	Hg II	–	[3]	Ps
2580.064	Hf	–	2	–
2580.064	Fe I	10	–	–
2580.048	W	9	1	–
2580.026	Os	15	100 w	–
2579.97	Dy	3	–	–
2579.9	Rn	–	[7]	Wo
2579.845	Fe	10	1	–
2579.759	Ir I	3	–	–
2579.670	Mn	125	1	–
2579.619	Ta	80	–	–
2579.611	Er	6	5 h	–
2579.58	Yb	5	200	Me
2579.572	U	8	4	–
2579.550	Zr	25	–	–
2579.541	W II	8	25	–
2579.533	Ru	30	4	–
2579.488	Ir	–	15 h	–
2579.442	Mo	10	20	–
2579.437	U	6	1	–
2579.437	Th	10	6	–
2579.428	Ce	2	–	–
2579.414	Fe II	1	10	–
2579.400	W	10 s	–	–
2579.388	Mn	–	5	–
2579.272	Fe I	12	6 h	–
2579.258	W	2	20	–
2579.24	Te	–	[50]	Bl
2579.217	Ru	30	1	–
2579.157	U	8	2	–
2579.155	Cr I	12	3	–
2579.08	Sn II	–	[2]	Mc
2579.052	Hf	–	3 h	–
2579.047	Ta	3 h	100 h	–
2579.021	Re	30 R	–	–
2579.017	Ru	12	80	–
2578.98	Kr II	–	[2]	Me
2578.95	Br	–	[4]	Bl
2578.949	Ru	20	–	–
2578.926	Co I	30	–	–
2578.911	Ir I	12	2	–
2578.91	Hg I	–	[2]	Dj
2578.910	Mn	–	25 wh	–
2578.909	Mo	2	60	–
2578.9	In	–	3	–
2578.886	Ti I	4	–	–
2578.86	S	–	[8]	Bl
2578.821	Fe	3 h	5	–
2578.794	Er	–	5	–
2578.79	Lu	40	125	Me
2578.766	Mo	25	1	–
2578.738	Cb	20	10	–
2578.712	Ir I	5	1	–
2578.695	W	3	5	–
2578.567	Ru	30	9	–
2578.470	Ni I	20	–	–
2578.455	V	–	15	–
2578.44	Hg I	5 wh	[2]	Dj
2578.398	Pt II	2	20	–
2578.371	Ta	3	–	–
2578.356	Mo	1	25	–
2578.354	Mn	–	10 h	–
2578.323	U	–	4	–
2578.321	Os	10	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2578.264	Cr	10	5	–
2578.243	Ta	3 h	30 h	–
2578.197	Cb	4	2	–
2578.17	Br	–	[5]	Bl
2578.164	Os	8	1	–
2578.143	Hf II	25	30	–
2578.02	Fe	2	–	–
2577.971	W	3	1	–
2577.970	Ta	10	–	–
2577.950	Mn	–	5	–
2577.923	Fe II	30	100	–
2577.921	La II	–	2	–
2577.84	Br	–	[5]	Bl
2577.780	Ta	90	1	–
2577.696	W	8	1	–
2577.67	Yb	2	30	–
2577.651	Cr I	35	3	–
2577.57	Te	–	[25]	Bl
2577.56	Eu	5 W	–	–
2577.529	Ir I	3	–	–
2577.468	Mn	12	–	–
2577.427	Fe II	–	2	–
2577.37	Ta	80 d	150 d	–
2577.320	U	18	6	–
2577.305	W II	–	4	–
2577.300	Ru	–	5	–
2577.293	Fe	3	–	–
2577.292	V I	20	7	–
2577.265	Ir I	60	15	–
2577.263	Pb	100 wh	40	–
2577.21	As	–	3	Ro
2577.153	Eu	20	20	–
2577.13	Si I	10	–	Ks
2577.097	Pd II	3	150	–
2577.025	W	15	4	–
2576.97	Xe II	–	[8]	Hu
2576.954	Ru	12	8	–
2576.865	Fe II	2	70	–
2576.865	W	–	15	–
2576.823	Hf II	5	60	–
2576 691	Fe I	40	5	–
2576.690	Th	15	5	–
2576.597	Cb	3	2	–
2576.563	Mo	2	25	–
2576.55	Pb II	–	[100]	Gs
2576.480	V	1	50	–
2576.428	Ta	–	3 h	–
2576.399	Pd II	–	100	–
2576.360	W II	2	15	–
2576.336	Th	6	3	–
2576.319	Re	15	–	–
2576.295	Hg I	20	15	–
2576.229	Rh	2	2	–
2576.17	Br	–	[15]	Bl
2576.165	W	2	20	–
2576.105	Zr I	8	–	–
2576.104	Mn II	300 R	2000 R	–
2576.104	Co	30	–	–
2576.082	Ru	–	50	–
2575.963	Cb	1	10	–
2575.933	Ce	6	–	–
2575.897	W	9	1	–
2575.803	Cr	–	4	–
2575.75	Rh I	2	4	–
2575.744	Ag	10 h	3 h	–
2575.744	Fe	80	10	I
2575.743	Ir I	10	2	–
2575.70	Te	–	[10]	Bl
2575.60	Zn	–	[10]	Vs
2575.56	Co II	–	15	–
2575.511	Hf II	–	8	–
2575.509	Mn	150	1	–
2575.490	Pd II	–	100	–
2575.481	Ir I	3	2	–
2575.473	Ta	80	–	–
2575.47	I	–	[20]	Bl
2575.465	W	10	1	–
2575.422	U	6	2	–
2575.411	Al	30	30	–
2575.354	Ag	2 h	1	–
2575.344	Fe	3	–	–
2575.300	O II	–	[100]	Fl
2575.242	Ru	30	1	–
2575.225	U	6	2	–
2575.100	Al	200 R	80 R	–
2575.06	Zn I	5 wh	–	Fl
2575.02	Pr	–	3	–
2575.01	Tm	–	20	Me
2574.91	Mg I	8	–	–
2574.89	Fe	3	–	–
2574.889	Hf	10	20	–
2574.862	Co	3	40	–
2574.86	Hg	–	[25]	Ps
2574.86	C II	–	2 h	Fl
2574.843	Cb	2	100	–
2574.80	Yb	1	3	–
2574.764	Eu	2	1	–
2574.681	W	5	–	–
2574.673	U	5	2	–
2574.657	Rh	5	5	–
2574.59	Cs	–	[2]	Bs
2574.55	Ne I	–	[8]	Ps
2574.55	Tm	1	25	Me
2574.525	Ru	–	5	–
2574.522	V II	9	80	–
2574.512	In II	–	[5]	Ps
2574.490	Pt I	15	5 h	–
2574.484	Th	10	5	–
2574.424	Mo	15	20	–
2574.379	Ta	80	–	–
2574.372	In II	–	[10]	Ps
2574.368	Fe II	50	150	–
2574.350	Co I	6 r	–	–
2574.291	Hf	2	2 h	–
2574.25	Kr	–	[25]	Me
2574.215	Re	15	–	–
2574.200	W	3	6 s	–
2574.113	Sb	30	40	–
2574.073	Cb	2	10	–
2574.063	Ru	–	18	–
2574.020	V I	60	50	–
2573.953	W II	10	4	–
2573.934	Ti II	1	2 h	–
2573.910	Cb	–	4 h	–
2573.897	Hf II	25	100	–
2573.812	W II	2	9	–
2573.793	Ta	100	1	–
2573.774	Re	60	–	–
2573.77	Fe	2	2 h	–
2573.742	Fe II	2	3	–
2573.715	Ti II	2	10	–
2573.61	Gd	–	4	–
2573.589	W	–	10 d	–
2573.545	Ru	5	50	–
2573.544	Ta	125	1	–
2573.540	Cr	–	6	–
2573.537	Co	30 r	12	–
2573.534	W	15	–	–
2573.49	Fe	3	–	–
2573.481	La	–	2 h	–
2573.397	Co	40	12	–
2573.35	Dy	3	–	–
2573.313	Mo	25	–	–
2573.25	As	–	5	Ro
2573.250	W	–	4 d	–
2573.218	Ir	2	–	–
2573.206	Fe II	–	40	–
2573.201	U	2	2	–
2573.146	W	6	–	–
2573.141	Ce	15	–	–
2573.14	Te	–	[15]	Bl
2573.14	Yb	3	10	–
2573.14	Br	–	[5]	Bl
2573.133	Cb	1	20	–
2573.09	Ca II	3	150	–
2573.055	Cs	–	20	–
2573.017	Cb	2	10	–
2572.966	Fe	1	15	–
2572.96	Hf II	5	3	–
2572.94	U	3	4 h	–
2572.8	In I	–	2	Cx
2572.758	Mn	200	50	–
2572.701	Ir I	25	5	–
2572.660	Ru	–	8	–
2572.651	Ti	10	40	–
2572.647	U	–	15 h	–
2572.643	Pd II	–	2 h	–
2572.618	Pt II	15	50	–
2572.578	W	–	8	–
2572.52	Dy	3	–	–
2572.5	Rn	–	[12]	Pe
2572.442	W	10	–	–
2572.440	Ir I	2	2	–
2572.428	Mn	–	10	–
2572.409	Ru I	30	1	–
2572.367	Ir I	8	–	–
2572.352	W II	3	10	–
2572.341	U	1	12 h	–
2572.341	Mo	60 h	10	–
2572.325	Mg I	8	–	–
2572.279	Ru	30	1	–
2572.25	Mo	–	15	–
2572.237	Co I	50 w	12	–
2572.235	W II	2	12	–
2572.15	Hg	–	[20]	Ps
2572.146	Cr I	5	3	–
2572.14	Fe	2	–	–
2572.102	Cb	6	3	–
2572.09	Yb	–	3	–
2572.069	Ir I	10	4	–
2572.03	Kr	–	[10 h]	Me
2571.930	Ce	5	–	–
2571.892	Mn	–	12	–
2571.83	Pr	–	4	–
2571.82	Re	5 w	–	–
2571.782	Os	25	5	–
2571.78	Tb	–	40	Ex
2571.75	Hg I	3	[1]	Dj
2571.742	Cu II	–	150	IBu
2571.741	Cr I	50 r	35	–
2571.670	Hf II	30	80	–
2571.620	W	2	12	–
2571 612	Th	–	25	–
2571.592	Sn	100	125	–
2571.56	Sb	–	8 wh	Sp
2571.548	Fe II	–	15	–
2571.49	U	–	4 h	–
2571.476	O II	–	[30]	Fl
2571.45	Mo	2	20	–
2571.445	W II	15	30	–
2571.41	Cs	–	[2]	Bs
2571.391	Zr II	300 R	400 R	–
2571.361	Ce	3	–	–
2571.35	Yb	6	20	–
2571.326	Cb	4	100	–
2571.258	Re	25	–	–
2571.25	Dy	3	–	–
2571.24	Mo	–	10	–
2571.23	Lu	30	100	Me
2571.192	Ta	3	–	–
2571.172	W	5	–	–
2571.13	Hf II	–	3	Me
2571.10	Cl II	–	[8]	Ks
2571.085	Ru	6	100	–
2571.057	V	4	70	–
2571.054	Cb	3	2	–
2571.041	U	2	2	–
2571.034	Ti II	20	70	–
2570.972	Ru	50	–	–
2570.940	Mn	–	80	–
2570.885	Mg I	4	–	–
2570.841	Fe II	70	100	–
2570.803	Er	2	1 h	–
2570.80	Mo	–	25 wh	–
2570.80	Br	–	[5]	Bl
2570.784	Cb	3	2	–
2570.78	Si	–	[2]	Sy
2570.721	Zn II	–	10 r	–
2570.712	Hf II	10	12	–
2570.668	U	6	4	–
2570.622	Ir I	20	4	–
2570.525	Fe	10	5	–
2570.46	A	–	[5]	Rt
2570.302	U	6	2 h	–
2570.3	In	–	2	Cx
2570.267	V	2	2	–
2570.212	W	–	2 h	–
2570.111	Rh I	4	2	–
2570.092	W	12	2	–
2570.088	Mn	–	10	–
2570.086	Ru	10	–	–
2570.01	A II	–	[2]	Rt
2569.979	W	–	12	–
2569.879	Ce	6	–	–
2569.877	Ir I	20	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2569.871	Zn I	100 h	5	IHz
2569.8	K	–	[2]	MI
2569.764	Fe II	–	60	–
2569.743	Fe I	10	12	–
2569.740	Co	–	30	–
2569.736	Ru I	20	–	–
2569.712	U	12	8	–
2569.660	Ir	3	–	–
2569.656	Ru	3	2	–
2569.601	Fe I	20	1	–
2569.554	Pd II	20	150	–
2569.5	bh C	12	–	L
2569.469	Sr I	25 R	5	ISn
2569.361	Fe	3	–	–
2569.35	Tm	6	4	Me
2569.323	Mn	–	10	–
2569.293	Fe	3	–	–
2569.253	W II	15	25	–
2569.25	A	–	[2]	Rt
2569.23	Pr	–	12 h	–
2569.23	Br	–	[15]	Bl
2569.185	Cb	1	5	–
2569.168	Ce	8	–	–
2569.126	Ta	40	40 h	–
2569.07	Rh	3	125	–
2569.032	Cb	10	3	–
2568.980	W	10	–	–
2568.980	U	6	2	–
2568.971	Ti II	3	12	–
2568.882	Fe II	–	25	–
2568.878	Ru	–	35	–
2568.873	Zr II	100	200	–
2568.866	U	5	4	–
2568.865	Fe I	20	10	–
2568.852	W	2	15	–
2568.834	Os	25 l	10 l	–
2568.83	Rh	2	100	–
2568.767	Ru I	60	8	–
2568.718	Mn	–	15	–
2568.71	Cs	–	[8]	Bs
2568.705	Ce	2	–	–
2568.676	Cb	1	4	–
2568.644	Re	30 w	–	–
2568.64	Si I	15	10	–
2568.587	Pt II	1	40	–
2568.557	W	12	2	–
2568.548	Eu	6	1	–
2568.526	Cr I	5	2	–
2568.519	Mn	–	12	–
2568.43	Pb	–	10	–
2568.407	Cb	2	20	–
2568.400	Fe II	–	80	–
2568.389	V	35	30 h	–
2568.315	Ir	3	–	–
2568.308	Mn	–	10	–
2568.26	Tm	5	1	Me
2568.210	W	12	10	–
2568.174	Eu	15	15	–
2568.13	Te	–	[15]	Bl
2568.108	W	–	10	–
2568.100	Cr I	8	–	–
2568.08	Zn II	50 h	10	Vs
2568.059	V	–	10	–
2568.03	Pd II	–	15 wh	–
2567.99	Mo	10 h	2 h	–
2567.987	Al	200 R	80 R	–
2567.955	U	6	2	–
2567.915	W	–	8	–
2567.895	Ru	30	–	–
2567.87	Fe	12	–	–
2567.826	Th	–	20	–
2567.805	Fe	6	–	–
2567.740	Sb	–	5	–
2567.679	Ce	2	–	–
2567.638	Zr II	100	100	–
2567.63	Yb	5	150	Me
2567.607	W II	7	15	–
2567.599	Cr	–	2	–
2567.511	Cb	10	5	–
2567.498	W	12	1 h	–
2567.46	Hf	–	20	Me
2567.451	Zr I	20	–	–
2567.447	Ta	2	–	–
2567.444	Cb	–	5 h	–
2567.44	V	–	40 h	–
2567.346	Co I	50 r	–	–
2567.326	Fe	2	–	–
2567.30	Br	–	[5]	Bl
2567.20	Pd II	–	[2 h]	Bx
2567.16	Ag II	–	15 wh	–
2567.108	U	6	4	–
2567.075	Zr II	15	8	–
2567.050	Mo	40 h	3	–
2567.04	Ba	–	2	Py
2566.92	Rh	–	10	–
2566.912	Ir	4	–	–
2566.912	Fe II	60	150	–
2566.871	Cr	–	2	–
2566.82	Yb	–	3	–
2566.785	Mn	2	–	–
2566.752	Ir I	2	–	–
2566.662	U	4	2	–
2566.63	Hf	–	3 h	–
2566.619	Fe II	3	15	–
2566.603	V	–	20	–
2566.589	Ce	5	–	–
2566.589	Th	15 s	10 h	–
2566.587	Ru	30	25	–
2566.553	Cr I	10	3	–
2566.53	I	–	[10]	Bl
2566.52	Br	–	[4]	Bl
2566.490	Os	25	4	–
2566.406	Fe	1	15	–
2566.40	B II	–	2	Sy
2566.374	Ce	2	–	–
2566.347	Ir I	2	–	–
2566.331	Ta	6	–	–
2566.315	W	–	12	–
2566.29	Fe	3	10	–
2566.27	Dy	6	–	–
2566.26	B II	–	15	Sy
2566.259	Mo	10	20	–
2566.258	I II	–	[300]	Ke
2566.234	Ru	–	50	–
2566.214	Fe	2	40	–
2566.098	W	4	–	–
2566 081	Ni II	–	600 h	–
2566.078	La II	–	10 h	–
2566.072	Cb	2	30	–
2566.043	Rh I	5	4	–
2566.033	V	1	12	–
2566.01	Gd	–	3	–
2565.98	Tm	5	2	Me
2565 953	Mn	15 h	10	–
2565.907	U	–	4	–
2565.88	Cd I	3	[10]	Fl
2565.843	Ru	15	–	–
2565 808	Ru	12	5	–
2565.789	W	3	8	–
2565.787	Rh I	5	4	–
2565.778	Ta	3	–	–
2565.71	Au	–	12	–
2565.708	Fe	4	–	–
2565.702	Ru	4	50	–
2565.68	Al II	–	[30]	Sy
2565.676	Cb	1	10	–
2565.597	Th	10	15	–
2565.590	Ce	8	–	–
2565.58	Yb	5	15	–
2565.546	V	–	25	–
2565 54	Sb	–	25 W	m
2565.507	Pd II	2	200	–
2565.502	Cb	2	12	–
2565.48	Ca	–	4	Ad
2565.46	Fe	2	–	–
2565.408	Cb	15	10	–
2565.406	U	30	30	–
2565.397	In II	–	[5]	Ps
2565 372	Ni II	–	150 wh	–
2565.37	Co	–	20	–
2565.29	Cl II	–	[15]	Ks
2565.223	Mn	2	80	–
2565.196	Ta	3 h	–	–
2565.182	Ru	50	–	–
2565.167	Os	12	1	–
2565.13	In II	–	[40]	Ps
2565.11	Rh	1	30	–
2565.11	Nd	5	–	–
2564.98	S	–	[8]	Bl
2564.843	Cb	1	15	–
2564.84	Cl II	–	[20]	Ks
2564.83	Mg I	6	–	–
2564.827	Ir I	2	–	–
2564.82	Si I	3	–	Ks
2564.816	V I	35	7	–
2564.809	Ru	–	4 wh	–
2564.769	Mo	10	1 h	–
2564.732	Cb	2	5 h	–
2564.725	In II	–	[10]	Ps
2564.706	Fe	3	–	–
2564.685	W	12	3	–
2564.58	Te	–	[150]	Bl
2564.577	Ru	50	2	–
2564.558	Ir I	3	–	–
2564.548	Fe I	15	–	–
2564.51	Gd	–	5	Ex
2564.507	Pd II	–	10 wh	–
2564.45	Zn II	–	[25]	Vs
2564.45	A II	–	[10]	Rt
2564 437	W	1	4	–
2564.424	U	6	2	–
2564.42	Ag II	–	15 wh	m
2564.417	Ru	8	–	–
2564.401	I II	–	[70]	Ke
2564.369	Os	8	1	–
2564 356	Th	–	20 wh	–
2564.341	V	4	–	–
2564.338	Mo	3	40	–
2564 31	Tb	–	10	Ex
2564.295	Zr I	4	–	–
2564 228	V I	20 h	2	–
2564.188	Re	50	–	–
2564.182	Eu	20	60	–
2564.177	Ir I	40	8	–
2564.13	Cl II	–	[6]	Ks
2564.120	Mn	–	8	–
2564.069	Cb	1	30	–
2564.036	Co II	15 w	100 wh	–
2564.02	Cd	–	[2]	Vs
2563.918	Cb	2	10	–
2563.906	W	7	15	–
2563.90	Hg I	–	3	Dj
2563.893	Ru	–	35	–
2563.861	Ta	3 h	–	–
2563.86	Tm	15	4	Me
2563.834	Fe I, II	2	10	–
2563.703	Ta	80	–	–
2563.67	Si I	4	–	Ks
2563 648	Mn	25	50 wh	–
2563.606	Hf II	20	35	–
2563.581	Cr	1	15	–
2563.56	Zr I	12	–	–
2563.52	Lu	1	80 h	Me
2563.474	Fe II	70	125	–
2563.430	Cr II	–	5	Hl
2563.402	Fe	5	25 h	–
2563 36	Cr	–	10 d	–
2563 334	Ta	50	–	–
2563 329	Na	–	[2]	Fr
2563 284	Ir I	15	3	–
2563.246	Mn	–	5	–
2563.19	Br	–	[2]	Bl
2563.183	Sc II	10	20	–
2563.164	Os	8	25	–
2563.162	W	8	30	–
2563.151	Ru	50	1	–
2563.095	Fe	6	–	–
2563.009	Re	30	–	–
2562.943	U	15	6	–
2562.907	Ag	–	10	–
2562.907	Ir	–	10 h	–
2562.841	U	5	4	–
2562 840	Ru	3	1	–
2562.761	V	1	25	–
2562.665	Os	12	1	–
2562.65	W	–	8 l	–
2562.64	Au II	–	5	–
2562.63	Fe	2	–	–
2562.61	Zn I	10 h	–	Fl
2562.537	Li I	150	15	–
2562.534	Fe II	50	150	I
2562.47	I	–	[30]	Ke
2562.424	Ce	5	–	–
2562.406	Cb	4	100	–
2562.28	Pb	–	100	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2562.28	Te	–	[10]	Bl
2562.247	Mn	–	10	–
2562.229	Fe I	15	–	–
2562.225	Mg I	3	–	–
2562.173	Ru	5	–	–
2562.146	Co I	10 r	–	–
2562.130	V I	50	4	–
2562.125	Ni	15	–	–
2562.12	Tb	–	10	Ex
2562.12	A II	–	[20]	Rt
2562.097	Fe II	2	25	–
2562.097	Ta	100	–	–
2562.084	U	6	2	–
2562.081	Mo	1	30	–
2561.98	Ir	–	5 d	–
2561.962	W	12	8	–
2561.960	U	2 h	4 h	–
2561.94	Kr II	–	[3 hl]	Me
2561.937	Th	10	5	–
2561.92	Rb	–	[10]	Ok
2561.92	Rh	–	50	–
2561.855	Fe I	15	–	–
2561.848	La II	–	20	–
2561.803	Ru	20	–	–
2561.80	Lu	–	6 h	Me
2561.79	Ne I	–	[8]	Ps
2561.782	Ir	2	4 h	–
2561.71	Fe	3	–	–
2561.703	Cb	2	10	–
2561.69	Se	–	[25]	Bl
2561.67	Pd	–	[3 h]	Bx
2561.65	Yb	2	1	–
2561.65	Tm	60	30	Me
2561.623	Mo	25	–	–
2561.584	U	12	6 h	–
2561.550	Mn	–	8	–
2561.514	W	8	1	–
2561.511	Ce	3	–	–
2561.49	I	–	[150]	Bl
2561.48	Xe II	–	[2]	Hu
2561.467	Re	25	–	–
2561.46	Fe	3	–	–
2561.44	Pd	–	2 h	–
2561.424	Ni I	40	–	–
2561.393	Ce	2	–	–
2561.389	W	–	3	–
2561.280	Co	25	12 h	–
2561.27	Fe I	4	–	–
2561.18	Hg I	3 h	3	Di
2561.18	As	–	5	Ro
2561 024	Pd II	–	200	–
2560.956	U	5	2	–
2560.89	Xe	–	[3]	Hu
2560 88	Se	–	[15]	Bl
2560.86	Mg I	4	–	–
2560.830	Ru	30	5	–
2560.760	Mn	–	12	–
2560.748	W	8	4	–
2560.741	Cb	1	5 h	–
2560.74	Hf	–	25	Me
2560 688	Cr I	30	15	–
2560.678	Ta	70	–	–
2560.626	Cb	2	15	–
2560.57	Yb	–	5	–
2560.559	Fe I	15	–	–
2560.539	Ir I	10	2 h	–
2560.494	W	4	–	–
2560.374	La II	–	50	–
2560.37	Cs	–	[8]	Bs
2560.300	Ir I	8	2 h	–
2560.300	Ni II	–	500 h	–
2560.281	U	6	2	–
2560.272	Fe II	10	80	–
2560.262	Ru	60	5	–
2560.228	In I	150 R	50 Rh	–
2560.227	Sc II	10	30	–
2560.21	Rh I	2 r	–	–
2560.20	Dy	7	–	–
2560.147	V	–	10	–
2560.12	Tb	–	10	Ex
2560.119	W	15	8	–
2560.109	Cb	1	10	–
2560.09	Co	1 d	60 wd	–
2560.02	U	3	2 h	–
2559.928	Fe II	2	15	–
2559.905	Rh	5	100	–
2559.885	Re	15	–	–
2559.806	Ru	3	8	–
2559.80	Cr	–	8	–
2559.768	Fe II	3	30	–
2559.755	W	–	5	–
2559.718	I II	–	[40]	Mu
2559.712	Re	15	–	–
2559.71	Te	–	[25]	Bl
2559.694	Mo	–	20	–
2559.664	Mn	–	40 d	–
2559.664	Ni	20	–	–
2559.614	Al II	–	[15]	Sy
2559.587	Ba	–	2 h	–
2559.553	Ir I	5	–	–
2559.494	W	3	15	–
2559.488	U	10	4	–
2559.429	Cb	–	8	–
2559.427	Ta	100	2	–
2559.412	Mn	2	50	–
2559.407	Co II	10	60 wh	–
2559.405	Ru	30	4	–
2559.331	W	8	2	–
2559.31	A	–	[5]	Rt
2559.277	I II	–	[25]	Mu
2559.247	U	3	10 h	–
2559.243	Fe II	–	20	–
2559.2	K	–	[5]	Ml
2559.20	Si	–	[15]	Sy
2559.20	Tb	–	10	Ex
2559.191	Hf II	20	40	–
2559.18	Th	–	5	–
2559.177	Eu	10	20	–
2559.15	Mo	1	10 h	–
2559.10	Kr II	–	[8 h]	Me
2559.079	Re	30	–	–
2559.02	Hf	8	–	–
2558.991	La II	–	3	–
2558.940	Cb	12	2	–
2558.936	Mo	15	–	–
2558.897	V I	10	12	–
2558.896	W	2	4	–
2558.88	Mo	5 h	30 h	–
2558.857	Mn	–	12	–
2558 739	Ir I	2	–	–
2558.622	Cb	1	5	–
2558.62	Rh	5	–	–
2558.593	Ta	3	–	–
2558.588	Mn	–	80	–
2558.570	W	–	7	–
2558.55	Pr	–	6	–
2558.545	Ir	2	6 d	–
2558.535	Ru	50	1	–
2558.483	Fe	10	20	–
2558.42	Lu	–	6 h	Me
2558 354	Ce	2	–	–
2558.345	Ta	–	5 wh	–
2558.289	Mn	–	12	–
2558 1	Po	–	[20]	Ka
2558 093	Os	12	2	–
2558.049	Re	60	–	–
2558.048	Sn	30	6	–
2558.023	W	–	6	–
2558.016	Ru	4	10	–
2557.960	U	4	2	–
2557.958	Zn II	10	300	IHz
2557.944	Cb	–	100 h	–
2557.94	Dy	8	–	Ed
2557.92	Rh	1	50	–
2557.870	Ni II	–	80	–
2557.82	Br	–	[4]	Bl
2557.768	Os	10	1	–
2557.75	Hg	–	[5]	Dj
2557.71	Al II	–	[40]	Sy
2557.709	Ta	50	100	–
2557.70	Yb	–	4	Me
2557.697	Ru I	30	5 wh	–
2557.560	W II	12	6	–
2557.537	Mn	1	50	–
2557.52	B	–	6	Sy
2557.502	Fe II	1	50	–
2557.454	Cr	–	2	–
2557.39	Mo	1	10	–
2557.346	Co	2	30	–
2557 28	I II	–	[20]	Bl
2557.27	Er	–	2	–
2557.265	Fe	1	–	–
2557.264	Mg I	6	–	–
2557.25	Yb	2	8	–
2557.20	Rh	1	100	–
2557.200	Ir	2	–	–
2557.153	Cr I	35	2	–
2557.129	Ru	5	50	–
2557.081	Fe II	–	10	–
2557.008	W	8	5	–
2557.0	bh C	5	–	L
2556.936	Cb	5	200	–
2556.93	Br	–	[25]	Bl
2556.895	Mn	3	40	–
2556.864	Fe	20	1	–
2556.822	V I	2	2	–
2556.78	Al II	–	[15]	Sy
2556.774	Ir I	8	2 h	–
2556.758	Co I	50 w	150	–
2556.753	Mo	2	20	–
2556.743	W	12	3	–
2556.697	Ru	–	30	–
2556.63	A	–	[5]	Rt
2556.61	Tb	–	20	Ex
2556.573	Mn	10	80 h	–
2556.57	Fe	2	–	–
2556.511	Re	100	–	–
2556.510	Ta	25	30	–
2556.45	Ca	–	4	Ad
2556.430	Zr I	3 d	–	–
2556.36	Kr	–	[6]	Me
2556.312	Ru	50	–	–
2556.305	Ge	20	2	–
2556.30	Fe	15	1	–
2556.30	Hg I	3	–	Di
2556.270	W	10	3	–
2556.25	Yb	–	3	–
2556.194	U	15	12	–
2556.10	F II	–	[15]	Di
2556.083	W	–	6	–
2556.077	Os	10	2	–
2556.049	Ru	–	18	–
2556.022	V I	4	–	–
2556.01	Al II	–	[30]	Sy
2555.996	Ru	30	–	–
2555.987	Ti I	15	80	–
2555.949	Ce	2	–	–
2555.91	Kr	–	[6]	Me
2555.910	V	2	80	–
2555.884	Ir I	20	4	–
2555.864	Ru	20	18	–
2555.803	Os	10	2	–
2555.799	Sc II	10	20	–
2555.73	Fe	5	–	–
2555.73	Pr	–	4	–
2555.661	Re	15	–	–
2555.654	Ru	12	8	–
2555.648	Fe I	3	–	–
2555.633	Cb	2	80	–
2555.55	Cr	6	3	–
2555.442	Fe II	2	35	–
2555.42	Mo	3	50	–
2555.360	Rh I	100	60	–
2555.347	Ir I	25	5	–
2555.33	Hf	–	2 h	–
2555.319	Cb	1	30	–
2555.31	Yb	–	50 h	Me
2555.28	Ga II	–	[6]	Sy
2555.273	Os	10	3	–
2555.220	Fe	10	–	–
2555 210	U	4	4	–
2555.205	W	10	–	–
2555.20	Th	–	15	–
2555.113	Ni II	–	1000 h	–
2555.091	W II	10	15	–
2555.066	Fe II	20	20	–
2555.052	Ta	50	–	–
2554 931	Re	15	–	–
2554.93	P I	60	[20]	Ks
2554.907	Ta	50 h	50 h	–
2554.862	W II	15	10	–
2554.862	V I	15	2	–
2554.8	Cs	–	[2]	Bs
2554.795	Cb	1	20	–
2554.785	Eu	10	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2554.76	S	–	[8]	Bl
2554.73	Th	–	15 d	–
2554.687	Ru	8	–	–
2554.668	W	4	15	–
2554.631	Re	5	–	–
2554.622	Ta	50	100	–
2554.62	Mg I	4	–	–
2554.617	Sb	30	10	–
2554.58	Se	–	[15]	Bl
2554.520	Fe	2	–	–
2554.513	Mn	–	20	–
2554.51	Cd I	3	[1]	Fl
2554.477	In II	–	[50]	Ps
2554.465	Os	20	4	–
2554.399	Ir I	15	15 h	–
2554.399	In II	–	[50]	Ps
2554.31	Zr	20	–	–
2554.220	V	–	50 wh	–
2554.162	Re	30 R	–	–
2554.107	Cb	5	2	–
2554.087	W	6	–	–
2554.08	Gd	–	3 h	–
2553.981	Mn	–	10	–
2553.98	I	–	[20]	Bl
2553.964	Ru	12	–	–
2553.91	Gd	–	4	Ex
2553.826	Fe	9	6	–
2553.819	W	12	4	–
2553.74	Pd	–	[20]	Bx
2553.734	Fe II	–	15	–
2553.73	U	3	2	–
2553.698	Mo	15	–	–
2553.669	V	10	20	–
2553.598	W	10	3	–
2553.588	Ce	2	–	–
2553.586	Na	–	[2]	Fr
2553.56	In II	–	[40]	Ps
2553.56	Cd I	25	[2]	m
2553.556	Re	5	–	–
2553.50	Fe	2	–	–
2553.492	Cb	1	30	–
2553.456	Ce	2	–	–
2553.407	Ag II	2	10	–
2553.398	La II	–	3 h	–
2553.377	Ni I	20	–	–
2553.374	Co I	10 r	–	–
2553.344	Ce	3	–	–
2553.33	In II	–	[5]	Ps
2553 310	Ru	6	5	–
2553.28	P I	80	[20]	Ks
2553.256	Mn	–	50	–
2553.185	Fe	10	20	–
2553.181	Ta	10 h	10 h	–
2553.162	W	12	15	–
2553.062	Cr I	20	1	–
2553.047	Zr II	2	2	–
2553.024	V	7	15	–
2553.003	Co I	40 r	–	–
2552.99	Cd II	–	[10]	Tk
2552.987	Mn	–	3	–
2552.98	Tl I	10 R	–	Fl
2552.962	V	10	30	–
2552.91	Cd II	–	[10]	Tk
2552.873	Mo	20	2	–
2552.87	Ga II	–	[5]	Sy
2552.87	Hg	–	[25]	Ps
2552.832	Fe I	5	1	–
2552.80	Au	–	5 h	–
2552.773	Fe	20	–	–
2552 701	Re	20	–	–
2552.70	Yb	8	30	–
2552.652	V I	75 R	10	–
2552.607	Fe	15	2	–
2552.600	La II	–	7	–
2552.53	Tl I	80 R	1	Fl
2552.49	Tm	–	50	Me
2552.481	W	10	1	–
2552.424	Ru	12	–	–
2552.38	U	3	2	–
2552.38	Co	–	20	–
2552.378	Hf	–	5 h	–
2552.359	Sc II	25	40	–
2552.356	W	1	10	–
2552.305	Ru	20	–	–
2552.29	Dy	8	–	–
2552.28	Pd II	–	2 h	–
2552.267	V	–	4 h	–
2552.261	Ce	2	–	–
2552.250	Pt I	150	20	–
2552.241	W II	1	3	–
2552.18	Cd II	5 h	[100]	–
2552.15	Yb	10	40	–
2552.12	Al II	–	[40]	Sy
2552.113	W	–	7	–
2552.026	Re	80	–	–
2552.014	Cb	–	3 h	Me
2552.01	Tb	–	10	Ex
2552.0	In	–	2	Cx
2551.984	W	8	–	–
2551.984	Ru	10	150	–
2551.90	Au	–	5	–
2551.88	Mn	1	100 d	–
2551.848	Pd II	–	100 h	–
2551.847	Hf II	3	1 h	–
2551.771	Ce	5	3 h	–
2551.732	Ta	100	4 h	–
2551.731	Zr	3	–	–
2551.729	V	–	25	–
2551.726	Ru	30	–	–
2551.70	Xe II	–	[3]	Hu
2551.67	Hg	–	[2]	Dj
2551.63	Gd	–	2	–
2551.590	Cr	1	18	–
2551.564	Mn	–	5	–
2551.554	Ru	–	12	–
2551.52	Pr	–	15 s	–
2551.52	Tm	4	8	Me
2551.45	U	3	2	–
2551.450	W II	–	12	–
2551.44	Fe	2	–	–
2551.43	I	–	[40]	Bl
2551.4	bh B	150	–	L
2551.40	Hf II	25 d	125 d	–
2551 399	Ir I	20	4	–
2551.382	Cb	5	100	–
2551.347	W	12	–	–
2551.341	Ta	2	–	–
2551.26	Ga II	–	[2]	Sy
2551.212	Fe II	–	6	–
2551.206	Ce	2	–	–
2551.192	Rh I	8	2	–
2551.188	Ta	150	–	–
2551.17	Cs	–	[2]	Bs
2551.164	W	–	9	–
2551.096	Mg I	6	–	–
2551.092	Fe	25	1	I
2551.074	Ta	150	–	–
2551.033	Ni II	–	80	–
2550.995	W	10	6	–
2550.989	Pd II	–	35	–
2550.903	Ir I	2	–	–
2550.851	Mo	30 h	3 h	–
2550.814	U	2	2 h	–
2550.811	Fe	2	–	–
2550.80	Yb	–	5 h	–
2550.775	Ta	20	–	–
2550.756	Ir	2	–	–
2550.751	Rh	1	20	–
2550.75	Mo	–	15	–
2550.744	Zr II	100	50	–
2550.681	Fe II	3	30	–
2550.674	Co II	–	5 wh	–
2550.67	Lu	–	3	Me
2550.656	Pd II	–	150	–
2550.553	Ta	20	–	–
2550.514	Zr I	15	–	–
2550.508	Fe	25	–	–
2550.462	Ta	20	–	–
2550.41	U	2	–	–
2550.41	Yb	–	3	–
2550.373	W	10	2	–
2550.328	W II	–	8	–
2550.29	Pb	–	2	Sx
2550.24	Au	–	5 h	–
2550.23	Al II	–	[15]	Sy
2550.212	Ir I	2	–	–
2550.19	Gd	2	–	–
2550.17	Yt	10	–	–
2550.13	Kr	–	[2]	Me
2550.104	W	6 d	8	–
2550.097	Re	5	–	–
2550.095	Ce	2	–	–
2550.04	Yb	2	4	–
2550.035	Cb	1	5	–
2550.027	U	4	4	–
2550.02	Co II	–	60	–
2550.02	K II	–	[20]	Bn
2550.020	Fe II	15	40	–
2549.968	V I	10	4	–
2549.904	Cb	4	1	–
2549.884	Co II	–	10 h	–
2549.85	Cl II	–	[50]	Ks
2549.841	V	4	1	–
2549.84	A II	–	[2]	Rt
2549.819	Mn	–	8	–
2549.792	Ru	3	100	–
2549.774	Fe II	1	2	–
2549.690	Ir I	5	–	–
2549.66	Rh	1	20	–
2549.656	V	–	10	–
2549.613	Fe I	70 R	2	–
2549.610	Mn	–	8	–
2549.577	Ru	50	3	–
2549.558	Ni II	–	150	–
2549.535	Cr I	25	2	–
2549.53	Sr	5	–	Sd
2549.52	Lu	20 h	–	Me
2549.515	Th	–	15	–
2549.479	Ru	20	3	–
2549.464	Pt I	80	10	–
2549.461	Fe II	1	15	–
2549.433	Cb	–	3 h	–
2549.395	Fe II	1	10	–
2549.380	Ta	100	–	–
2549.327	Mn	–	8	–
2549.30	Al II	–	[6]	Sy
2549.296	U	10	6 h	–
2549.279	V II	20	150	–
2549.260	Ce	2	–	–
2549.21	Te	–	[5]	Bl
2549.19	Se	–	[50]	Bl
2549.182	Ru	5	150	–
2549.175	U	1 h	2 h	–
2549.103	Th	–	12	–
2549.092	W II	8	12	–
2549.081	Fe II	3	30	–
2549.06	Tb	–	10	Ex
2548.919	Fe II	1	3	–
2548.889	Re	25	–	–
2548.832	Os	3	15	–
2548.799	Ce	10	10 h	–
2548.744	Mn	8	150	–
2548.739	Fe	–	12	–
2548.71	Yb	–	4	–
2548.692	V II	10	80	–
2548.689	Ru	2	4	–
2548.683	Ce	20	20 h	–
2548.682	W	–	3 h	–
2548.633	Cb	2	80	–
2548.63	Lu	–	10 h	Me
2548.593	Cr	–	8	–
2548.586	Fe II	2	8	–
2548.567	W	12	2 h	–
2548.55	Hg I	4 h	2	Di
2548.51	Hf II	1	2	–
2548.49	Mg I	2	–	–
2548.486	Ru	3	4	–
2548.381	W	1	10	–
2548 336	Co I	20	75	–
2548.335	Mn	–	12	–
2548.328	U	5	2	–
2548.326	Fe II	–	10	–
2548.27	Te	–	[5]	Bl
2548.233	V	4	25	–
2548.225	Mo	30 h	5	–
2548.202	V	–	20 whl	–
2548.2	Tl	–	2 d	Cx
2548.20	Hf II	15	20	Me
2548.154	W	9	1	–
2548.138	Re	25	–	–
2548.12	I	–	[12]	Bl
2548.08	Fe	50	–	–
2548.056	Cr	–	5	–
2547.998	U	5	2	–
2547.98	Se I	–	[60]	Rd

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2547.941	Ru	–	10	–
2547.902	Th	15	10	–
2547.901	Mn	–	3 h	–
2547.893	Ce	4	–	–
2547.88	Ca	–	6	Ad
2547.838	W II	–	7	–
2547.76	Cl II	–	[12]	Ks
2547.700	Os	5	2	–
2547.694	Ir I	15	5	–
2547.672	Ru	5	80	–
2547.629	U	6	2	–
2547.625	W	9	2	–
2547.571	Mo	15	20	–
2547.57	Yt	10	–	–
2547.554	Cr	–	3	–
2547.508	Ru	12	–	–
2547.50	Yb	–	3	–
2547.476	W	9	2	–
2547.457	Mn	–	12 wh	–
2547.413	Ni I	20	–	–
2547.352	U	4	2	–
2547.351	Mo	1	20	–
2547.330	Fe II	1	35	–
2547.270	Er	8	1	–
2547.25	Hg	–	[2]	Dj
2547.214	Ta	4	–	–
2547.205	Ir I	25	5	–
2547.188	Ni II	–	100	–
2547.187	Ce	2	–	–
2547.139	U	4	–	–
2547.136	W	20	10	–
2547.08	Zr	2	–	–
2547.075	V I	4	2	–
2546.95	Ba	–	2	Py
2546.94	Cl II	–	[20]	Ks
2546.874	Fe	40	1	–
2546.87	Lu	–	9 h	Me
2546.803	Ta	80	–	–
2546.79	Br	–	[2]	Bl
2546.78	W	1	9	–
2546.737	Co	1	50	–
2546.671	Ru	8	3	–
2546.661	Fe II	1	30	–
2546.653	W	8	1	–
2546.607	Mn	10 h	–	–
2546.552	Sn	100	100	–
2546 497	W	–	4	–
2546.456	Cr	–	2	–
2546.41	Br	–	[5]	Bl
2546.40	La II	–	20 hl	Me
2546 37	Xe	–	[3]	Hu
2546 350	U	2	2	–
2546.32	Lu	–	5 h	Me
2546.311	V	–	7	–
2546.284	W	2 h	12	–
2546.165	Co	–	20	–
2546.1	Cs	–	[2]	Bs
2546 034	Ir I	100 h	20	–
2545.983	V I	50	10	–
2545.979	Fe I	100 R	30	–
2545.96	Pr	–	3	–
2545.91	U	5	2	–
2545.900	Ni II	20	900 h	–
2545.79	U	2	2	–
2545.778	Ir I	2	–	–
2545.769	Ru	12	3 wh	–
2545.747	Th	10	3	–
2545.746	Ce	2	–	–
2545.695	Rh	50	10	–
2545.644	Cr I	15	1	–
2545.637	Cb	1	150	–
2545.6	Bl II	–	2	Ml
2545.60	Al II	–	[50]	Sy
2545.57	Ho	–	10	Ex
2545.570	W	8	3	–
2545.538	Ir I	10	2	–
2545.520	Fe II	–	1	–
2545.494	Re	60	–	–
2545.490	Ta	15	15	–
2545.462	V	2	15	–
2545.433	Fe II	–	4	–
2545.410	U	4	4	–
2545.371	Mo	10	–	–
2545.354	Rh	8	150	–
2545.345	Th	15	4	–
2545.339	W	15	9	–
2545.33	Hg II	–	[8]	Ps
2545.217	Fe II	4	25	–
2545.215	Cr	8	–	–
2545.204	Sc II	15	20	–
2545.163	Mn	–	25	–
2545.13	Dy	5	–	–
2545.10	Th	–	20	–
2545.04	Co	3	30	–
2544.971	Fe II	2	10	–
2544.89	Te	–	[5]	Bl
2544.886	Re	20	–	–
2544.87	Hg I	3	[5]	Di
2544.84	Cl II	–	[15]	Ks
2544.833	Pd II	–	200	–
2544.81	W	–	10	–
2544.803	Cb	5	300	–
2544.802	Cu II	–	700 R	IBu
2544.80	Ta	40	–	–
2544.80	Hf	–	3 h	–
2544.79	Al	–	[5]	Sy
2544.739	Re	25	–	–
2544.72	A	–	[40]	Rt
2544.710	Cd I	50	[5]	–
2544.708	Fe	100	5	–
2544.648	U	5	4	–
2544.62	Tb	–	10	Ex
2544.561	Ir	–	5	–
2544.376	Ce	2	–	–
2544.372	Ta	–	10 h	–
2544.358	U	8	2	–
2544.32	Cr II	–	2	–
2544.295	Mn	–	3	–
2544.269	Ce	3	–	–
2544.267	Ta	2	–	–
2544.253	Co I	50 r	100	–
2544.25	Au II	–	10	Ex
2544.223	Rh	8	4	–
2544.222	Ru	60	6	–
2544.214	Re	25	–	–
2544.19	Au I	30	8	–
2544.172	W	8	2	–
2544.042	U	4	2	–
2543.999	W	–	5 d	–
2543 981	Cb	4	1	–
2543 98	Cl II	–	[10]	Ks
2543.973	Mn	–	3 h	–
2543 971	Ir I	200 h	100	–
2543.941	Rh	15	100 r	–
2543.92	Cs	–	[20]	Bs
2543.920	Fe	40	20	–
2543.875	Na I	12 R	–	Fl
2543.84	Sb	–	25	m
2543.831	Re	20	–	–
2543.82	Dy	10	–	–
2543.817	Na I	6 R	–	Fl
2543.804	Os	10	1	–
2543.728	V I	12	9	–
2543.72	Te	–	[10]	Bl
2543.71	Gd	2	–	–
2543.678	Ru	20	–	–
2543.667	Re	20 r	–	–
2543.647	Fe	700	–	–
2543.639	Zr II	2	2	–
2543.611	Mo	3	15	–
2543.536	Ce	4	–	–
2543.47	Ru	–	8	–
2543.452	Mn	4	100	–
2543.438	W	12	2	–
2543.431	Fe II	–	5	–
2543 384	Fe II	5	50	–
2543 37	Hg II	–	[3]	Ps
2543.35	Pd II	–	[2]	Bx
2543.349	Mo	25	2	–
2543.316	W	–	12	–
2543.250	Ru	50	150	–
2543.205	U	2	2	–
2543.140	Cr	–	10	–
2543.13	Hf II	–	2 h	–
2543.086	Ce	12	2	–
2543.06	Br	–	[2]	Bl
2542.935	V	2	35	–
2542.925	Mn	1	100	–
2542.82	Yb	–	4 wh	Me
2542.796	Ir	10	2 h	–
2542.792	Mo	10	10	–
2542.732	Fe II	1	40	–
2542.7	air	–	5	–
2542 671	Mo	20	25	–
2542.66	Tm	7	3	Me
2542.648	Mn	–	15	–
2542.642	Th	8 s	3	–
2542.604	W	1	15	–
2542.512	Os	50	8	–
2542.495	Mn	15	–	–
2542.44	V	1	20 wh	–
2542.40	La II	–	6	Me
2542.361	Ce	3	–	–
2542 345	Ta	–	2 h	–
2542.32	Zn I	40 h	–	Fl
2542.301	Ir I	2	–	–
2542.235	W	7	1	–
2542.230	Ru	–	5	–
2542.229	Ta	10	–	–
2542.156	Rh	1	50	–
2542.103	Zr II	100	50	–
2542.101	Fe	40	8	I
2542.035	Ru	–	12	–
2542 016	Ir I	35	10	–
2541.998	Pd II	–	15 wh	–
2541.972	Cb	3	1	–
2541.95	Cl	–	[8]	An
2541.940	Ta	10	–	–
2541.938	Co II	40	300 h	–
2541.917	Ti I	25	2	–
2541.913	Th	–	5	–
2541.91	Si	–	5	Sy
2541.835	Fe II	2	5	–
2541.767	V	7	2	–
2541.692	W	10	4	–
2541.669	Cr I	12	–	–
2541.64	Cd I	2	[1]	Fl
2541.62	In	–	2	Sq
2541.59	La II	–	4	–
2541.522	U	3	2	–
2541 510	W	–	3	–
2541.49	Ca	–	6	Ad
2541.475	Ir I	12	2	–
2541.45	Br	–	[40]	Bl
2541.424	Cb	3	80	–
2541.370	U	6	2	–
2541.353	Cr I	60	3	–
2541.352	Pt I	15	3	–
2541.284	Ru	50	–	–
2541.153	Rh	2	15	–
2541.109	Mn	–	80	–
2541.097	Fe II	1	15	–
2541.090	Re	20 h	–	–
2541.089	Cb	–	3 h	–
2541.056	W	1	7	–
2541.044	U	–	8	–
2541 029	Rh I	5	3	–
2540.976	Fe I	100 R	10	–
2540.97	Yb	–	2 wh	–
2540.94	W	7	3	–
2540.9	Rn	–	[3]	Wo
2540.811	Cb	1	3 h	–
2540.765	Mn	–	10	–
2540.741	Os	40	3	–
2540.70	Al II	–	[15]	Sy
2540.666	Fe II	6	30	–
2540.658	Ir I	4	–	–
2540.65	Co	6	40	–
2540.615	Cb	2	150	–
2540.531	Fe	–	2	–
2540.52	Cs	–	[2]	Bs
2540.519	Re I	25	–	–
2540.451	Mo	40 h	1	–
2540.422	W	–	5	–
2540.404	Ir I	10	2	–
2540.4	Tl	–	2 d	Cx
2540.30	U	2	2	–
2540.300	Ru	10	100	–
2540.28	Yt	10	–	–
2540.188	Mn	–	5	–
2540.169	W	1	5	–
2540.14	Mo	–	15	–
2540.13	I	–	[12]	Bl
2540.12	Al II	–	[30]	Sy
2540.12	Tb	3	50	Ed

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2540.08	A	–	[2]	Rt
2540.020	Ni I	40	1	–
2539.979	Fe	3	20 h	–
2539.902	W II	2	20	–
2539.878	U	2	2	–
2539.796	Mn	10	–	–
2539.721	Rh	5	2	–
2539.719	Ru	12	100	–
2539.702	Ta	2	–	–
2539.650	Zr I	50	–	–
2539.648	Mn	10	–	–
2539.612	W	8	–	–
2539.610	Ir	2	5	–
2539.54	Se	–	[10]	Bl
2539.504	U	2	2	–
2539.44	Mo	1	20	–
2539.42	Tb	–	10	Ex
2539.400	Mn	–	20 Wh	–
2539.358	Pd II	–	50 wh	–
2539.357	Fe I	15	–	–
2539.356	Zr II	1	4	–
2539.346	Re	15	–	–
2539.311	W	6	15	–
2539.31	U	2	2	–
2539.226	Cb	1	10	–
2539.205	Pt I	400	20	–
2539.192	V	–	10 hl	Me
2539.174	Cs II	–	[2]	Ot
2539.1	bh C	12	–	L
2539.100	Ni II	–	250 w	–
2539.08	Cs	–	[2]	Bs
2539.01	Hg I	3 h	[3]	Ps
2538.997	Fe	10	20	–
2538.989	U	3	2	–
2538.953	Cr	–	2	–
2538.94	O	–	[8]	Mh
2538.915	Mn	–	8	–
2538.912	Zr	1	2	–
2538.904	Fe II	1	3	–
2538.884	Ir I	8	–	–
2538.809	Fe II	15	30	m
2538.733	U	6	2	–
2538.699	Fe II	–	5	–
2538.68	Br	–	[2]	Bl
2538.67	Yb	10	20	–
2538.67	Cs	–	[2]	Bs
2538.6	K	–	[10]	Sg
2538.497	Fe II	2	10	–
2538.455	Mo	30	125	–
2538.453	Ir	3	–	–
2538.430	U	15	6	–
2538.40	La II	–	2	–
2538.38	Pr	–	10	–
2538.347	W	9	–	–
2538.34	Kr II	–	[5 whl]	Me
2538.29	Cr	–	25	–
2538.201	Fe II	2	35	–
2538.19	Yb	1	3	–
2538.18	Tl I	10 R	5	Fl
2538.12	Lu	–	3	Me
2538.102	Os	5	1	–
2538.058	Cb	3	4 h	–
2538.047	Mn	–	25	–
2538.02	Xe II	–	[2 h]	Hu
2538.019	Zr I	15	–	–
2538.00	Au	–	5 h	–
2537.997	Os	–	15	–
2537.974	Pd II	–	100	–
2537.950	Fe	6	–	–
2537.940	Ta	8	15	–
2537.80	Te	–	[300]	Bl
2537.79	As	–	5	Ro
2537.729	Rh	4	50	–
2537.703	U	3	4 h	–
2537.675	Ir I	15	3	–
2537.64	Yb	4	15	–
2537.619	V	–	25	–
2537.618	W	4	–	–
2537.46	Co	–	10	–
2537.458	Fe	3	–	–
2537.353	Mn	–	2	–
2537.330	Hf II	20	15	–
2537.296	U	10	2	–
2537.225	Ir I	35	10	–
2537.19	Te	–	[5]	Bl
2537.173	Fe I	3	–	–
2537.169	Pd II	–	100	–
2537.145	W	1	15	–
2537.141	Fe II	–	2	–
2537.039	Rh	15	100	–
2537.02	Br	–	[4]	Bl
2536.95	Lu	10	20	Me
2536.926	V	10	–	–
2536.849	Mo	25	4	–
2536.830	Mn	–	5	–
2536.817	Fe II	10	4	–
2536.802	Co	–	2	–
2536.794	U	4	2	–
2536.76	La II	–	3 d	–
2536.75	Tb	3	10	m
2536.71	Pr	–	8	–
2536.706	Rh	15	5	–
2536.673	Fe II	1	5	Do
2536.67	Ta	2 h	–	–
2536.669	In II	–	[10]	Ps
2536.665	Ir	3	–	–
2536.605	W	1	12	–
2536.600	U	3	2	–
2536.56	Bi	5 h	2 h	To
2536.558	Th	5	10	–
2536.519	Hg I	2000 R	1000 R	Cn
2536.493	Co I	1	2	–
2536.487	Pt I	100	10	–
2536.238	U	4	2	–
2536.227	Ta	100 W	–	–
2536.224	Fe	3	–	–
2536.216	Ru	12	6	–
2536.127	Ir	2	1	–
2536.08	Mn	–	12	–
2536.04	A II	–	[20]	Rt
2536.01	Yb	–	6	Me
2535.988	W	4	12	–
2535.967	Ni	25	–	–
2535.967	Pt	25	5	–
2535.964	Co I	10 r	40	–
2535.96	Ta	4	–	–
2535 94	Pd	–	[3 h]	Bx
2535 90	U	5	2	–
2535 871	Ti II	20	60	–
2535 870	Th	5	2	–
2535.65	P I	100	[30]	Ks
2535.645	Mn	–	80	–
2535.604	Fe I	1000	–	–
2535.598	Ta	50 h	–	–
2535.592	Ru	–	100	–
2535 58	U	–	8	–
2535.576	W	–	10	–
2535.57	I	–	[30]	Bl
2535.477	Fe II	–	20	–
2535.364	Fe	1	3	–
2535.332	W	8	1	–
2535.307	Ag II	10	25	–
2535.28	A II	–	[2]	Rt
2535.222	Ru	–	30	–
2535.15	Zr II	1	5	Ks
2535.124	Fe I	2	–	–
2535.102	W	12	–	–
2535.07	Ag II	–	[10]	Bx
2535.031	Mn	–	3	–
2534.98	La II	–	6	Me
2534.979	Er	4	1	–
2534.967	Ta	30	–	–
2534.949	U	12	4	–
2534.944	Ru	3	40	–
2534.92	Pr	–	2 wh	–
2534.866	Ce	5	–	–
2534.83	Ga I	–	[20]	Sy
2534.826	V	20	–	–
2534.825	W II	2	15	–
2534.801	Re	100 w	–	–
2534.78	Pb	–	2	Sx
2534.775	Hg I	30	30	–
2534.74	A	–	[40]	Rt
2534.676	W	12	–	–
2534.621	Ti II	25	80	–
2534.599	Pd II	–	100	–
2534.57	Rh	2 w	100 w	–
2534.520	V II	10	80	–
2534.467	Ta	25	–	–
2534.457	Ir I	100	10	–
2534.45	I	–	[12]	Bl
2534.441	Cb	1	40	–
2534.416	Fe II	7	50	–
2534.336	Cr II	8	10	–
2534.332	Hf	–	5 h	–
2534.259	V I	2	12	–
2534.24	I	–	[12 h]	Bl
2534.210	Mn II	–	25	–
2534.180	Ce	2	–	–
2534.166	Os	8	2	–
2534.162	Ta	3	–	–
2534.15	Mn	–	25 d	–
2534.146	W	2	15	–
2534.101	Re	10	–	–
2534.1	air	–	6	–
2534.072	Rh	4	4	–
2534.01	P I	50	[20]	Ks
2534.006	Ir I	2	–	–
2534.001	Ru	4	80	–
2533.982	W	10	1	–
2533.966	Pd	–	5 h	–
2533.963	V	1	10	–
2533.920	Cb	1	12 hl	–
2533.91	Cd I	2	[1]	Fl
2533.81	Co	5 r	60	Ex
2533.805	V	10	–	–
2533.804	U	4	–	–
2533.803	Fe	12	–	–
2533.69	Au	–	10 h	–
2533.633	W	10	5	–
2533.627	Fe II	8	50	–
2533.626	Zr II	–	2	–
2533.619	I II	–	[100]	Mu
2533.61	Ho	–	10	Ex
2533.591	Rh	2	2	–
2533.556	Mo	–	20	–
2533.44	Cs	–	[20]	Bs
2533.41	Al II	–	[2]	Sy
2533.41	Te	–	[5]	Bl
2533.362	V	1	15	–
2533.317	Mn	–	10	–
2533.312	Re	25	–	–
2533.286	W	–	8	–
2533.236	Ru I	50	–	–
2533.233	U	8	4	–
2533.229	Ge I	5	5	–
2533.21	Ho	–	10	Ex
2533.189	Zr	3	–	–
2533.188	Cb	2	80	–
2533.16	Al II	–	[3]	Sy
2533.143	Fe	2	1	–
2533.14	La II	–	15	Me
2533.131	Ir I	100	20	–
2533.061	Mn	20	1	–
2533.05	Te	–	[10]	Bl
2533.042	Ru	–	5	–
2533.002	Ta	30	–	–
2532.97	Hf II	3	4	Me
2532.962	Re	15	–	–
2532.951	W II	2	12	–
2532.877	Fe I	3	1	–
2532.763	Mn	–	20	–
2532.721	U	2	2	–
2532.716	W	–	7	–
2532.69	Mo	–	4 whd	–
2532.661	Rh	4	5	–
2532.655	Al II	–	[8]	Sy
2532.57	Yb	–	2 h	–
2532.569	Bi	25 wh	–	–
2532.53	Fe	10	–	–
2532.520	Ir I	20	3	–
2532.460	Zr II	30	20	–
2532.452	Th	10	2	–
2532.436	Os	12	3	–
2532.43	Br	–	[5]	Bl
2532.415	Ce	4	–	–
2532.41	W	–	9	–
2532.378	Si I	30	40	–
2532.368	U	8	2	–
2532.33	Dy	3	–	–
2532.31	Mo	8	30	–
2532.279	V	4	–	–
2532.274	Ir	2	–	–
2532.21	Pd	–	[5 h]	Bx
2532.199	Ir I	4	1	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2532.175	Co I	–	75	–
2532.125	Ta	80	100	–
2532.10	Al II	–	[15]	Sy
2532.076	Ni I	30	–	–
2532.015	Ru	10	–	–
2531.985	Os	8	20	–
2531.900	V	–	4 wh	Me
2531.876	W	–	5	–
2531.840	Cr II	4	5	–
2531.801	U	6	2	–
2531.780	V	2	–	–
2531.745	Fe	4	–	–
2531.742	Rh	2	–	–
2531 69	Hg I	3 h	[3]	Ps
2531.615	V	–	4	–
2531.6	Tl	–	100	Cx
2531.60	La II	–	8	Me
2531.548	Na II	6	[60]	Fr
2531.516	Ta	25	–	–
2531.444	W	–	3	–
2531.44	Fe	4	–	–
2531.402	U	2 h	2	–
2531.36	Xe	–	[3]	Hu
2531.35	Pr	–	5	–
2531.293	Ta	10	–	–
2531.254	Cb	1	80	–
2531.251	Ti II	30	125	–
2531.216	V	2	1 h	–
2531.193	Hf II	25	50	–
2531.147	Ce	2	–	–
2531.115	Sn	40	15 W	–
2531.084	Fe II	–	4	–
2531.00	Cr	–	8	–
2530.992	Ba	–	2 h	Sz
2530.990	W	9	15	–
2530.977	I II	–	[60]	Mu
2530.970	Cb	2	100	–
2530.88	Tl II	–	[80]	Ml
2530.836	U	5	2	–
2530.82	Tl II	–	[60]	Ml
2530.70	Te I	–	[30]	Bl
2530.700	W II	8	12	–
2530.692	Fe	25	70	I
2530.67	Tl II	–	[100]	Ml
2530.57	Ca	–	6	Ad
2530.56	Bi II	–	3	Ml
2530.55	Lu	–	8 h	Me
2530.464	Ru	5	4	–
2530.46	Pr	–	2	–
2530.447	Cr I	35	1	–
2530.41	Bi II	–	3	Ml
2530.410	Ir	–	10	–
2530.338	Mo	3	25	–
2530.3	Rn	–	[7]	Pe
2530.30	O II	–	[40]	Fl
2530.298	U	6	2	–
2530.28	Bi II	–	3	Ml
2530.22	Cr	–	6	–
2530.18	Xe II	–	[2]	Hu
2530.179	V I	100	70 R	–
2530.17	Se	–	[5]	Bl
2530.165	Cb	–	3	–
2530.133	Co I	40 w	300	–
2530.106	Fe II	2	30	–
2530.105	Cb	–	5	–
2530.09	Zn I	10 l	–	Fl
2530.07	Te	–	[15]	Bl
2530.04	Hg	–	[2]	Dj
2529.98	Th	–	12	–
2529.95	Cr	–	20	–
2529.93	Cl	–	[5 h]	Jv
2529.92	O	–	[8]	Mh
2529.854	Ti I, II	25	2	–
2529.839	Mo	25	20	–
2529.833	Fe I	50 R	2	IJa
2529.781	Ir I	5	1	–
2529.78	Hf II	–	3 h	Me
2529.724	W	12	6	–
2529.699	Ru	20	8	–
2529.547	Fe II	15	100	–
2529.546	Cb	–	5	–
2529.53	Yb	–	2 h	–
2529.53	Hg I	2	[1]	Di
2529.51	U	2	2	–
2529.503	Re	30	–	–
2529.474	Ir I	25	5	–
2529.407	Pt I	80	–	–
2529.339	W	8	4	–
2529.306	Fe	10	–	–
2529.302	Cu II	–	600	IBu
2529.3	Rn	–	[3]	Pe
2529.224	Fe II	–	2	–
2529.216	W	–	6	–
2529.14	Cr	2 w	–	–
2529.133	Fe I	80 R	5	–
2529.132	Mn	80	5 d	–
2529.080	Fe	–	70	–
2528.976	Ni	20	2	–
2528.972	Ta	3	–	–
2528.967	U	2	2	–
2528.967	Co I	50 R	–	–
2528.912	W	3	15	–
2528.88	Cl	–	[8]	An
2528.879	Fe	2	2	–
2528.878	Ru	60	2	–
2528.866	Mo	1	25	–
2528.836	V	25	150 R	–
2528.8	Cs	–	[8]	Bs
2528.77	U	5	2	–
2528.715	Ru	30	–	–
2528.71	A II	–	[5]	Rt
2528.702	Mn	12	2	–
2528.615	Co II	4	200	–
2528.59	Lu	–	5 h	Me
2528.59	Ta	4	1	–
2528.535	Sb I	300 R	200	Lg
2528.516	Si I	400	500	Fl
2528.508	Ba II	–	50 r	–
2528.49	Dy	4	–	–
2528.49	Xe II	–	[3]	Hu
2528.468	V	50	150 R	–
2528.392	Ir	–	10 h	–
2528.36	Th	–	5	–
2528.33	A	–	[10]	Rt
2528.33	Yb	–	3	–
2528.287	Ce	15	1	–
2528.244	Cr I	30	–	–
2528.23	Tb	–	20	Ex
2528.184	Co	–	40	–
2528.174	Fe	6	–	–
2528.17	In	–	5	Sq
2528.163	W	–	6	–
2528.11	Au	–	5 h	–
2528.099	U	10	2	–
2528.050	Ni I	20	–	–
2528.041	Ru	–	60	–
2528.013	Cr I	35	1	–
2527.985	Ti I	15	–	–
2527.98	Se	–	[25]	Bl
2527.938	Ir	3	–	–
2527.927	Fe	2	–	–
2527.920	Cb	2	50	–
2527.903	V	35	300 R	–
2527.897	Ru	2	40	–
2527.86	Yb	1	5	–
2527.84	La II	–	3	Me
2527.784	Ir	3	–	–
2527.769	W	12	5	–
2527.756	Os	3	10 h	–
2527.72	I	–	[20]	Bl
2527.694	Fe II	1	30	–
2527.68	U	4	2	–
2527.556	W	–	8	–
2527.47	Al II	–	[3]	Sy
2527.436	Mn	150	12	–
2527.433	Fe I	200 R	50	Bu
2527.433	U	–	10	–
2527.36	Ta	3 h	2 h	–
2527.352	Ru	5	4	–
2527.292	Rh	1	25	–
2527.28	I	–	[12]	Bl
2527.201	W II	6	10	–
2527.16	Kr	–	[3 hl]	Me
2527.14	Mo	1	25	–
2527.14	Te	–	[10]	Bl
2527.139	U	–	8	–
2527.115	Cr I	8	2	–
2527.107	Zr	4	–	–
2527.102	Fe II	1	60	–
2527 087	Os	30 r	5 r	–
2527.053	Ru	2	5	–
2527.03	Pb	–	2	Sx
2526.98	Xe II	–	[8]	Hu
2526.91	O II	–	[25]	Mh
2526.88	I	–	[40]	Bl
2526.834	Fe II	–	1	–
2526.83	Lu	1	10 h	Me
2526.828	Ru	50	20	–
2526.819	Re	20	–	–
2526.79	Xe	–	[8]	Hu
2526.766	Ir I	3	1	–
2526.76	Pd	–	[3 h]	Bx
2526.73	Cu II	–	50	–
2526.664	Ta	50	–	–
2526.62	Pb II	–	[100]	Gs
2526 60	I	–	[12]	Bl
2526.589	Cu II	–	200	IBu
2526.542	U	8	2	–
2526.477	Al II	–	[3]	Sy
2526.453	Ta	150	–	–
2526.420	W	8	4	–
2526.354	Ta	100	–	–
2526 295	Fe II	10	60	–
2526 28	Yb	–	3 h	–
2526.215	V I	150	150 R	–
2526.209	W II	3	7	–
2526.200	Cd II	–	2	–
2526.075	Fe II	3	20	–
2526.024	Ta	100	80	–
2526.013	Os	10	1	–
2525.98	Hg I	3 h	[5]	Ps
2525 941	Ir	2	5	–
2525.932	Ru I	8	2 wh	–
2525.931	Th	8	4	–
2525.865	Fe II	–	5	–
2525.85	U	2 h	2	–
2525.819	Ta	2	–	–
2525.808	Cb	3	80	–
2525.78	Te	–	[5]	Bl
2525.683	W	12	3	–
2525.68	Cs	–	[20]	Bs
2525.669	Mn	10	10	–
2525.632	Ru	30	–	–
2525.601	Ti II	35	125	–
2525.561	Re	20	–	–
2525.51	A	–	[5]	Rt
2525 389	Cd	25 h	–	–
2525.388	Ni II	–	300 Wh	–
2525.387	Fe II	20	60	–
2525.386	U	3	2	–
2525.332	Ta	15	–	–
2525.174	Ru	30	–	–
2525 107	Fe	–	2	–
2525.1	bh C	12	–	L
2525.052	Ir I	20	3	–
2525.022	Fe	20	1	–
2525.00	Yb	–	2	–
2524.987	Cb	5	2	–
2524.986	W	2	4	–
2524.965	Co II	50 w	700	–
2524.93	Br	–	[15]	Bl
2524.918	U	8	2	–
2524.90	Te	–	[15]	Bl
2524.876	Ir	5	1	–
2524.858	Ru	10	80	–
2524.857	Zr	4	–	–
2524.852	Pt II	–	3 h	Sh
2524.811	Mo	40 h	–	–
2524.71	Mo	–	25	–
2524.702	W	–	3	–
2524.639	Ti II	15	60	–
2524.601	Co	–	30	–
2524.55	N II	–	[3]	Fl
2524.54	Gd	3	–	–
2524.492	Bi I	100	25	–
2524.473	Mn	12	1	–
2524.47	U	–	4	–
2524.46	Xe II	–	[3]	Hu
2524.385	Ru	–	8	–
2524.33	Br	–	[2]	Bl
2524.311	U	5	4	–
2524.304	Pt I	–	10	–
2524.289	Fe I	100 R	50	–
2524.216	Ni I	50 R	–	–
2524.20	In	–	2	Sq

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2524.12	Dy	2	–	–
2524.118	Si I	400	400	Fl
2524.113	Ba	–	5	Sz
2524.11	Hg I	5	–	Di
2524.1	air	–	4	–
2524.09	Tm	10	3	Me
2524.034	W	–	10	–
2524.0	Rb	–	[2]	Dr
2524.000	Ce	10	–	–
2523.955	V II	10	100	–
2523.907	Sn	60	60	–
2523.89	U	2	2	–
2523.755	Cb	1 w	5 w	–
2523.699	U	2	2	–
2523.660	Fe	15	10	–
2523.654	Hf	–	4 h	–
2523.589	W	2	–	–
2523.511	V	4	–	m
2523.482	Rh	–	25	–
2523.413	U	6	4	–
2523.406	W	10	6	–
2523.37	Hg II	–	[2]	Ps
2523.32	Cr	–	20 h	–
2523.27	Lu	–	2	Me
2523.20	O II	–	[15]	Mh
2523.18	Mo	1	25	–
2523.14	Fe	1	–	–
2523.098	Ru	12	3	–
2523.07	La II	–	5 hl	Me
2522.985	In I	10	–	Ps
2522.94	Co	–	30	Ex
2522.882	Cb	–	10	–
2522.85	Tb	3	20	Ed
2522.848	Fe I	300 R	50	–
2522.752	W	–	8	–
2522.61	Sn II	–	[20]	Mc
2522.59	Mo	1	20	–
2522.582	Ru	–	8	–
2522.53	A II	–	[5]	Rt
2522.51	N II	–	[3]	Fl
2522.507	V	2	40	m
2522.495	Fe I	3	–	–
2522.42	Yb	4	10	–
2522.390	V	–	7	Me
2522.340	Cb	1	15	–
2522.320	Ru	12	2	–
2522.27	N II	–	[25]	Fl
2522.196	Fe II	1	10	–
2522.185	Er	5	1	–
2522.17	Eu	–	4 w	–
2522.164	W	8	–	–
2522.16	Tm	15	6	Me
2522 094	U	3	2	–
2522.06	Ca	–	2	Ad
2522.043	W II	10	20	–
2521.917	Fe I	6	–	–
2521.917	Zr II	15	10	–
2521.917	Pd II	–	2 h	–
2521.86	Br	–	[5]	Bl
2521.814	Fe	1	60	–
2521.796	U	5	15	–
2521.78	Th	2	1	–
2521.72	Hf II	–	3 h	Me
2521.69	Mo	1	10	–
2521.69	Hg	–	[2]	Dj
2521.66	Br	–	[50]	Bl
2521.64	In	–	2	Sq
2521.615	V	2	–	–
2521.613	Ru	60	1	–
2521.586	Re	100 R	–	–
2521.575	V	7	10 h	–
2521.522	W	–	3	–
2521.50	Hf	10	18	Me
2521.496	Pd II	–	2 h	–
2521.485	Hf II	5	10	–
2521.485	Fe	–	5	–
2521.404	Cb	3	100	–
2521.371	In I	30	–	Ps
2521.367	U	6	2	–
2521.363	Co	75 R	150	–
2521.320	W	15	2	–
2521.30	Pd II	–	[5 h]	Bx
2521.23	Hg I	3 h	[1]	Di
2521.212	Ir	–	5	–
2521.208	Fe	1	2	–
2521.146	W	1	7	–
2521.144	V	–	10 whl	Me
2521.12	Mo	1	20	–
2521.094	Fe II	2	20	–
2521.089	Ir I	2	–	–
2521.03	Yb	1	4	–
2520.978	W	12	1	–
2520.968	Fe	3	–	–
2520.94	Tm	8	2	Me
2520.883	Fe	80	–	–
2520.883	U	2 h	2	–
2520.88	Tm	6	1	Me
2520.85	N II	–	[15]	Fl
2520.8	Cs	–	[2]	Bs
2520.790	W	–	3	–
2520.789	Ru	6	18	–
2520.677	Fe II	–	6	–
2520.661	Th	10	6	–
2520.659	Cb	–	3 h	–
2520.656	Cr	–	15	–
2520.64	Al II	–	[8]	Sy
2520.584	Mn	–	25 d	–
2520.543	Ti I	40	4	–
2520.540	Ce	2	–	–
2520.533	Rh	10	1000 wh	–
2520.53	Hf	1	2 h	–
2520.511	Cb	6	2	–
2520.452	W	15	10	–
2520.38	Gd	–	2	–
2520.351	Ni II	–	2	–
2520.32	Yb	–	3	Me
2520.311	Ta	10	–	–
2520.304	V	10 h	1 h	–
2520.27	Br	–	[6]	Bl
2520.27	N II	–	[8]	Fl
2520.250	U	6	2	–
2520.190	W	–	3	–
2520.180	Sb	20	5	Sp
2520.13	Th	5	2	–
2520.009	Re I	50	–	–
2519.976	Zr	6	–	–
2519.949	Ru	12	1	–
2519.876	W	15	2	–
2519.841	Cb	1	3	–
2519.822	Co II	40	200	–
2519.814	Ti II	3	7	–
2519.80	Tm	1	50	Me
2519.788	Os	12	5	–
2519.776	Ta	50	–	–
2519.689	Cb	2 w	15 w	–
2519.627	Fe	30	20	I
2519.623	V I	125 r	50	–
2519.515	Cr I	150 r	6	–
2519 441	W II	2	12	–
2519.41	In	–	2	–
2519.405	Fe II	–	4	–
2519.39	U	2	2	–
2519.30	Sb	–	2 h	–
2519.249	Ba	–	2 h	Sz
2519.215	La II	–	50	–
2519.208	Ru	20	80	–
2519.207	Si I	300	300	–
2519.17	Xe	–	[3]	Hu
2519.161	W II	10	5	–
2519.047	Fe II	–	70	–
2519.037	Ti I	15	12	–
2519.03	Te	–	[5]	Bl
2519.028	Os	1	30 h	–
2519.025	Cb	2	–	–
2518.974	U	15	6	–
2518.96	Tb	–	10	Ex
2518.95	Cu II	–	7 h	–
2518.824	Fe	7	–	–
2518.79	Cd I	15 h	[1]	–
2518.764	Ta	2	–	–
2518.74	Se	–	[15]	Bl
2518.711	Cr I	18	1	–
2518.702	W	–	9	–
2518.542	Ir I	2	–	–
2518.505	Ce	10	20	–
2518.505	W	10	3	–
2518.478	U	2	2	–
2518.441	Os	20	5	–
2518.44	Mo	–	10	–
2518.44	S	–	[8]	Bl
2518.400	Ru	3	50	–
2518.35	Cr	–	15 h	–
2518.291	Pd	–	3 h	Dn
2518.147	Mn	–	40	–
2518.142	W	6	15	–
2518.117	Pd II	–	15 wh	–
2518.101	Fe I	200 R	50	–
2518.085	Cr	2	–	–
2518.04	Lu	–	4	Me
2517.99	Yb	–	4	Me
2517.97	O II	–	[25]	Fl
2517.94	Ir	–	10 h	–
2517.920	Os	12	5	–
2517.869	Co I	10 w	–	–
2517.868	Cr	8	–	–
2517.859	Hf	5	–	–
2517.832	Mo	20	–	–
2517.800	Co I	6	10	–
2517.659	Cb	1	5 h	–
2517.659	Fe I	20	12	–
2517.616	Ru	50	–	–
2517.61	Dy	10	–	–
2517.566	Cr I	15	–	–
2517.523	Rh	–	150	–
2517.502	V I	4	1	–
2517.488	Cb	1	10	–
2517.464	Mo	25	–	–
2517.45	Si	–	10	–
2517.45	Hg I	3 h	[1]	Di
2517.434	Ti II	20	30	–
2517.41	Tl I	30 R	–	Fl
2517.41	O	–	[50]	Mh
2517.41	Co	–	40 W	–
2517.40	W	–	8	–
2517.317	Ru	60	80	–
2517 25	Cd II	–	[3]	Tk
2517.239	W	–	4	–
2517.211	Fe II	1	3	–
2517.185	Pt I	15	–	–
2517.145	V I	35 r	25	–
2517.124	Ti I	3	2	–
2517.122	U	8	2	–
2517.120	Fe II	10	60	–
2517.03	Ca	–	6	Ad
2517.011	W	–	4	–
2516 969	U	4	2	–
2516 916	Cr I	35	2	–
2516 881	Hf II	35	100	–
2516.83	Yb	2	20	Me
2516 81	A II	–	[20]	Rt
2516.73	Mn	–	12	–
2516.717	Ta	5	–	–
2516.702	Ru	6	8	–
2516.65	Cr	–	6 h	–
2516.577	W	12	3	–
2516.57	Se	–	[15]	Bl
2516.570	Fe I	10	1	–
2516.49	Te	–	[15]	Bl
2516.42	Cl	–	[2]	An
2516.40	In	–	3	–
2516 362	Yb	2	5	–
2516.34	Cd II	–	25	–
2516.250	Fe I	2	–	–
2516.123	Si I	500	500	Fl
2516.12	Xe	–	[6]	Hu
2516.118	V	25	100	–
2516.116	Re	125	–	–
2516.111	Ta	6	2	–
2516.11	Dy	5	–	–
2516.109	Mo	25	25	–
2516.1	air	–	7	–
2516.05	Br	–	[3]	Bl
2516.006	Ru	20	5 wh	–
2515.807	Zn I	150 w	20	IHz
2515.798	W II	1	10	–
2515.79	La II	–	4	Me
2515.759	Ru	6	8	–
2515.746	Rh I	60	10	–
2515.729	U	6	2	–
2515.723	V	1	9	Me
2515.686	Bi I	100	25	Om
2515.66	Mo	10	10	–
2515.649	V	6	–	–
2515.60	Yb	–	3	Me
2515.60	A II	–	[10]	Rt

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2515.576	Pt I	500	20	–
2515.524	U	3	2	–
2515.498	W	1	5	–
2515.481	Hf II	20	30	–
2515.471	Re	10	–	–
2515.460	Na II	3	[5]	Fr
2515.364	Ir I	20	3	–
2515.360	Ce	2	–	–
2515.33	Pd II	–	[10 wh]	Bx
2515.330	W	2 d	12	–
2515.325	Rh	2	25	–
2515.285	Ru	60	2	–
2515.23	Tb	–	10	Ex
2515.16	Au II	–	5	–
2515.156	Hf	1	40	–
2515.154	Ta	6	–	–
2515.149	V I	20	10	–
2515.147	U	–	10	–
2515.12	Cr	–	12 wh	–
2515.105	Fe	–	30	–
2515 082	Mo	8	30	–
2515.06	B II	–	6	Sy
2515.044	Os	40 s	5	–
2515.032	Pt I	150	20	–
2515.012	I II	–	[20]	Mu
2514.96	B	–	6	Sy
2514.914	Fe II	1	25	–
2514.87	Se	–	[5]	Bl
2514.862	Ce	2	2	–
2514.79	Hg II	–	[20]	Ps
2514.768	U	12	4	–
2514.761	Ni II	–	2 h	–
2514.72	Ho	–	10	Ex
2514.711	Fe	2	–	–
2514.645	Mn	–	12 wh	–
2514.636	V	10	12	–
2514.628	Mo	25	–	–
2514.568	Sb	30	9	–
2514.56	La II	–	3	–
2514.559	Fe	6	–	–
2514.518	W	2	12	–
2514.504	Re	20	–	–
2514.478	Pd II	–	200	–
2514.39	B	–	50	Sy
2514.384	V	10	2	–
2514.378	Fe II	2	8	–
2514.353	Cb	3	8	–
2514.352	W II	–	3 h	–
2514.34	Dy	3	–	–
2514.331	Si I	300	200	Fl
2514.318	V	15	2	–
2514.3	air	–	4	–
2514.29	Xe	–	[3]	Hu
2514.26	Hg I	2 h	–	Di
2514.181	Mo	–	10 h	–
2514.153	Ru	–	4	–
2514.15	Ga II	–	[5]	Sy
2514.08	In II	–	[10]	Ps
2514.076	W	–	8	–
2514.072	Pt I	150	10 h	–
2514.066	U	–	12	–
2513.934	W	10	2	–
2513.926	Er	4	–	–
2513.881	Ta	4 w	6	–
2513.881	Pt II	6	50	–
2513.868	Ce	2	–	–
2513.856	Fe	5	–	–
2513.79	Eu	–	6 w	–
2513.71	Cr	–	10 h	–
2513.708	Ir I	15	–	–
2513.666	W	9	–	–
2513.620	Cr I	20	2	–
2513.57	Dy	5	–	–
2513.55	Ga II	–	[7]	Sy
2513.450	W	–	15	–
2513.363	W	8	–	–
2513.356	Rh	8	6	–
2513.332	Mo	25	–	–
2513.330	Fe	6	4 wh	–
2513.329	U	1	20	–
2513.322	Ru	50	80	–
2513.304	Ce	12	–	–
2513.246	Os	50	8	–
2513.21	I	–	[20]	Bl
2513.15	Al II	–	[15]	Sy
2513.098	Ta	10	1	–
2513.028	Hf II	25	70	–
2512.927	W	10	12	–
2512.873	Os	40	3	–
2512.848	Fe	3	–	–
2512.814	Ce	3	–	–
2512.806	Ru	80	2	–
2512.74	Th	–	15 d	–
2512.689	Hf II	25	50	–
2512.652	Ta	100	–	–
2512.651	Ir I	3	–	–
2512.587	U	3	4 h	–
2512.58	Yb	–	5 h	Me
2512.580	Ir	5	15 h	–
2512.557	Re	25	–	–
2512.524	Fe II	–	40	–
2512.481	Ru	4	8 wh	–
2512.40	Cr	–	6	–
2512 370	In II	–	[30]	Ps
2512.363	Fe	12	1	–
2512.247	In II	–	[25]	Ps
2512.222	U	2	–	–
2512.210	Na I	4 R	–	Fl
2512.192	W	–	4	–
2512.128	Na I	2 R	–	Fl
2512.105	Fe	–	30	–
2512.103	Ir	–	25 h	–
2512.1	Cs	–	[2]	Bs
2512.06	Yb	10	50	–
2512.048	Mo	–	10	–
2512.036	Ta	5	800	–
2512.03	C II	–	400	Fl
2512.03	Hg	–	5	Cn
2511.987	Ru	20	40	–
2511.972	Cb	–	50 h	–
2511.956	Cr	25	1	–
2511.946	V I	35	2 h	–
2511.937	Ir	20	–	–
2511.828	W	–	8	–
2511.760	Cb	–	10	–
2511.759	Fe II	25	100	–
2511.74	Kr II	–	[3]	Me
2511.71	C II	–	60	Fl
2511.69	Ta	2 d	100 d	–
2511.652	V I	40	–	–
2511.64	Hg I	2 h	[1]	Di
2511.566	Zr I	4	–	–
2511.557	Ru	30	5 wh	–
2511.51	Cs	–	[8]	Bs
2511.50	I	–	[20]	Bl
2511.443	W	–	6	–
2511.370	Fe II	3	3	–
2511.254	W	–	5	–
2511.22	He II	–	[50]	Ps
2511.22	Pd II	–	[3 h]	Bx
2511.21	Ru	–	6 w	–
2511.181	V	15	–	–
2511.157	Ir I	2	–	–
2511.15	Co	3	15	–
2511.13	Pr	–	6	–
2511.12	Ho	–	20	Ex
2511.098	W	6	7	–
2511.052	Ir	3	–	–
2511.027	Rh	15	15	–
2511.016	Co I	10 r	20	–
2511.005	Cb	3	100	–
2511.0	bh C	20	–	L
2510.971	Ru	20	–	–
2510.910	Ti II	–	2	–
2510.873	Ni II	50 h	250 h	–
2510.834	Fe I	300 R	50	–
2510.706	Ta	10	5 d	–
2510.68	Mn	–	10	–
2510.655	Rh	5	200 wh	–
2510.619	Cr I	8	–	–
2510.56	Kr II	–	[5]	Me
2510.529	Sb	50	20	–
2510.50	Yb	–	3	–
2510.49	Au I	25	15	–
2510.472	W II	3	15	–
2510.41	In	–	4	Sq
2510.331	Na II	–	[2]	Fr
2510.32	Dy	2	–	–
2510.25	Cr	1	2	–
2510.245	V I	4	2	–
2510.165	W	10	2	–
2510.15	Cd II	–	[2]	Tk
2510.139	Ru	30	–	–
2510.138	U	–	6 h	–
2510.12	Co	–	20	–
2509.97	Th	8	3	–
2509.958	W II	1	15	–
2509.936	Os	25	1 d	–
2509.779	Ir I	2	–	–
2509.768	Zr II	5	8	–
2509.710	Ir I	15	2	–
2509.708	Os	8	20	–
2509.697	Rh I	40	20	–
2509.684	W	–	10	–
2509.557	Mo	20	–	–
2509.47	Hg I	2 h	[1]	Di
2509.383	W	–	12	–
2509.25	Cd II	–	[30]	Tk
2509.189	Ta	4	2	–
2509.154	Ba	–	2 h	Sz
2509.122	Fe II	1	50	–
2509.114	Pd II	–	2 h	–
2509.11	C II	–	200	Fl
2509.09	Hg	–	3	Cn
2509.08	Tm	80	40	Me
2509.069	Ru	50	20	–
2509.043	Cd I	10	[3]	–
2509.04	Lu	–	3	Me
2509.034	Zr II	3	2	–
2508.988	Re I	125	–	–
2508.980	Cr I	25	1	–
2508.949	Fe	1	–	–
2508.92	Pd II	–	[50]	Bx
2508 90	Pb	–	5	Sx
2508.825	V I	3	2	–
2508.749	Fe	20	1	–
2508.740	W II	12	10	–
2508.68	I	–	[12]	Bl
2508.667	Ru	–	50	–
2508.667	Mo	30 h	–	–
2508.63	Er	–	3	–
2508 610	Os	8 s	1	–
2508.538	Cb	–	25	–
2508.496	Pt I	300	20	–
2508.495	Fe	2	–	–
2508.45	B	–	2	Sy
2508.441	W	10	2	–
2508.426	Ru	12	–	–
2508 37	In	–	8	–
2508.357	U	–	4 h	–
2508.351	Ir I	8	2	–
2508.333	Fe	–	20 h	–
2508.267	Ru I	50	2	–
2508.157	In II	–	[30]	Ps
2508.15	S II	–	[40]	Ig
2508.110	Cr I	35	1	–
2508.06	Pd II	–	15 wh	–
2508.002	W	5	10	–
2507.962	Co	2	30	–
2507.94	Tl I	5 R	–	Fl
2507.899	U	–	8	–
2507.899	Fe	40	6	I
2507.856	V	20	1 h	–
2507.783	Sb	–	10 h	Sp
2507.782	V I	20	1	–
2507.77	O	–	[20]	Mh
2507.741	U	1	2 h	–
2507.730	Fe	3	–	–
2507.70	Tl II	–	[30]	El
2507.676	Co I	40 w	8	–
2507.628	Ir I	10	2	–
2507.620	Er	4	–	–
2507.586	W	–	8	–
2507.553	Ru	1	2	–
2507.452	Ta	150	1	–
2507.430	Fe	2	–	–
2507.412	Re	30	–	–
2507.40	Be II	–	[10]	Ps
2507.39	Tl II	–	[20]	El
2507.35	air	–	8	Sq
2507.326	Cr	15	–	–
2507.234	W	–	12	–
2507.22	Ag II	–	5 h	–
2507.14	Tm	10	15	Me
2507.137	Cb	3	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2507.067	U	6	2	–
2507.014	Fe II	1	10	Do
2507.014	Ru	60	80	–
2506.906	U	6	2	–
2506.905	V I	50 r	35	–
2506.899	Si I	300	200	–
2506.88	Ag II	2	[2 h]	Bx
2506.877	Co I	10 w	3	–
2506.86	Xe	–	[4]	Hu
2506.601	Ir	10	2	–
2506.60	Ag II	15	50 h	–
2506.569	Fe	10	–	–
2506.56	Kr	–	[5 whl]	Me
2506.56	O	–	[8]	Mh
2506.462	Co II	50 w	200 h	–
2506.453	U	–	2 h	–
2506.429	Fe II	1	3	–
2506.414	Ru	–	12	–
2506.30	Au	–	5	–
2506.295	Na II	–	[5]	Fr
2506.270	Cu II	–	500 r	IBu
2506.26	Ru	–	3 wh	–
2506.220	V	10	150	–
2506.2	Rn	–	[7]	Pe
2506.19	Mo	–	40 h	–
2506.148	W	8	–	–
2506.093	Fe II	2	70	–
2506.030	W	10	15	–
2505 990	Zr	12	–	–
2505.936	Re	20	–	–
2505.926	Pt	150	10	–
2505.907	Cb	1	10	–
2505.880	Ru	–	10	–
2505.837	Ni II	–	50	–
2505.818	W II	–	3	–
2505.740	Ir I	15	2	–
2505.739	Pd II	3	30	–
2505.673	Rh I	10	8	–
2505.672	Ru	3	6	–
2505.648	W	10	2	–
2505.628	Fe	12	–	–
2505.615	Th	10	3	–
2505.546	V I	7	4	–
2505.487	W	–	9	–
2505.486	Fe	10	1	–
2505 46	Yb	2	5	–
2505.391	Re	20	–	–
2505 375	W II	10	3	–
2505 35	Se	–	[5]	Bl
2505 316	Ta	12	2	–
2505 289	U	6	2	–
2505 229	Ir I	5	–	–
2505 218	Fe II	2	25	–
2505.17	Hf II	–	2 h	–
2505.105	Mo	25	–	–
2505.104	Rh	2	200	–
2505.089	Ba	–	2 h	Sz
2505.04	In	–	2	Sq
2505.006	Fe	10	1	–
2504.944	Cb	–	4	–
2504.92	Br	–	[3]	Bl
2504.913	Ru	–	5	–
2504.796	Zr	8	–	–
2504.76	Ag	–	3	–
2504.74	Tm	–	30	Me
2504.705	W	12	5	–
2504.70	O	–	[15]	Mh
2504 693	U	5	2	–
2504.651	Cb	10	4	–
2504.60	K II	–	[5]	Bn
2504.598	Re	80	–	–
2504.59	Sn	–	[30]	Mc
2504.535	Ti	20	1	–
2504.533	Zr I	2	–	–
2504.527	W	10	1	–
2504.517	Co I	4	10	–
2504.507	Os	10	1	–
2504.453	Ta	200	1	–
2504.387	Os	8	2	–
2504.369	Ir I	10	5	–
2504 308	W	5 d	–	–
2504 306	Cr I	150 r	3	–
2504.294	Rh	1	10	–
2504.290	V	–	7 h	Me
2504.275	Th	8	6	–
2504.25	Al II	–	[3]	Sy
2504.249	Cb	–	4 wh	–
2504 098	Fe	2	–	–
2504.08	Ag II	–	50 h	m
2504.042	Pt I	60	5	–
2504.014	Zr II	10	5	–
2503.962	W	10	1	–
2503.87	Kr II	–	[7 whl]	Me
2503.870	Fe II	8	70	–
2503.843	Rh	2	150	–
2503.670	Os	15 h	10 h	–
2503.655	Fe	80	–	–
2503 64	Si	–	[2]	Sy
2503.612	W	3	–	–
2503.59	Mo	–	5	–
2503.556	Fe II	2	20	–
2503.491	Fe	4	–	–
2503 488	Er	4	1	–
2503 325	Fe II	5	50	–
2503.32	Au	–	30	–
2503 303	V I	25	10	–
2503.042	W	6	1	–
2503.020	V	7	100	–
2503.007	Ta	–	2	–
2502 985	I II	–	[150]	Mu
2502.983	Ir I	100 w	5	–
2502 903	Th	6	3	–
2502.839	Mo	10	15	–
2502.818	W	–	4	–
2502.8	Rn	–	[7]	Pe
2502.75	Cl II	–	[40]	Ks
2502.70	Tb	–	10	Ex
2502.70	Tm	5	6	Me
2502.656	Hf	8	6	–
2502.628	Ir I	10	2	–
2502.531	Cr	100 r	3	–
2502.491	Cb	3	50	–
2502.474	Mn	–	3	–
2502.456	Rh I	2	6	–
2502.407	U	2	10	–
2502.390	Fe II	3	60	m
2502.377	Re	60	–	–
2502.377	Ru	20	4 h	–
2502.3	Tl	–	20	Cx
2502.290	Os	10 s	1	–
2502.222	Mo	–	20	–
2502.2	Cs	–	[2]	Bs
2502.176	W	2	6	–
2502.077	W	2	6	–
2502.001	Zn II	20	400 w	Hz
2502.0	Rn	–	[7]	Pe
2501.99	Yb	5	20	–
2501.985	Ta	20	12	–
2501.90	U	2	2	–
2501.900	W II	10	10	–
2501.888	Ru	30	30	–
2501.80	O	–	[35]	Mh
2501.781	W	10	–	–
2501.722	Re	80	–	–
2501.695	Fe I	20	4	–
2501.613	V I	35	30	–
2501.609	Mo	2	3	–
2501.482	Ru	60	1	–
2501.405	Cb	–	150	–
2501.381	U	3	4 h	–
2501.335	W	1	9	–
2501.272	Rh	50 r	50	–
2501.18	La II	–	15 h	Me
2501.18	Hg	–	[2 h]	Di
2501.132	Ni	20	–	–
2501.127	Fe I	100 R	25	–
2501.122	Th	–	20 h	–
2501.078	In II	–	[18]	Ps
2501.036	W	–	3	–
2501.0	Bi II	–	8	Ml
2500.926	Fe	12	40	–
2500.922	P II	–	[50]	Ri
2500.911	Os	12	4	–
2500 90	Si	–	[2]	Sy
2500.900	In II	–	[25]	Ps
2500.88	Te	–	[10]	Bl
2500.864	U	18	12	–
2500.86	Cd II	–	[2]	Tk
2500.86	Lu	5 h	1	Me
2500 838	Ru	30	–	–
2500.736	Hf II	12	20	–
2500.705	Ga	5	5 r	–
2500.671	Cr I	8	–	–
2500.575	Re	20	–	–
2500.501	Co	10 h	–	–
2500.50	Pb	–	2	Sx
2500.44	Mo	–	25	–
2500.42	A	–	[5]	Rt
2500.420	Cb	2	8	–
2500.381	V I	2	–	–
2500.271	Ir I	4	1 h	–
2500.173	Ga	12	10 r	–
2500.136	Ru	–	20	–
2500.110	W	3	12	–
2500.036	Pd	–	4 h	Dn
2499.941	W II	1	2	–
2499.924	Os	5 h	2	–
2499.849	Cd II	–	15	–
2499.844	Cr I	20	–	–
2499.781	V I	2	–	–
2499.780	Ru	50	4	–
2499.75	Te	–	[300]	Bl
2499.750	Cb	–	200	–
2499.689	W II	10	15	–
2499.599	In II	–	[80]	Ps
2499.563	Ru	4	3	–
2499.56	I	–	[30]	Bl
2499.55	A II	–	[2]	Rt
2499.53	Tm	5	2	Me
2499.51	Bi	25	12	Rk
2499.438	W	10	1	–
2499.426	Mn	15	–	–
2499.372	Ru	–	8	–
2499.37	Hg II	–	3	Dj
2499.34	In II	–	[10]	Ps
2499 319	I II	–	[60]	Mu
2499.29	O	–	[20]	Mh
2499 259	Mo	1	5	–
2499.251	V I	2	2	–
2499.25	Br	–	[6]	Bl
2499.22	Te	–	[10]	Bl
2499 216	W	2	15	–
2499.21	Tm	8	4	Me
2499.11	Pd II	–	[6]	Bx
2499.099	V I	7	2	–
2499.03	Gd	2	–	–
2499 017	Rh	15 w	2 h	–
2498.99	Lu	–	3	Me
2498 949	Ti II	–	35	–
2498.90	Pb II	–	15	–
2498.894	Fe I	20	70	–
2498.891	Ir I	2	–	–
2498 88	Au	–	5	–
2498.868	Th	10	5	–
2498 83	Co	2	80	–
2498 829	U	8	10	–
2498 822	Cr	–	8	–
2498 81	Ag	1	3	Fr
2498 784	Pd II	4	150 h	–
2498.757	Ta	10	–	–
2498.63	Tb	–	10	Ex
2498 590	In II	–	[50]	Ps
2498 572	Ru	60	40	–
2498.57	Hf II	–	2 h	–
2498.53	Cl II	–	[30]	Ks
2498.500	Pt I	400	50	–
2498.419	Ru	60	40	–
2498.414	Os	20 hl	5	–
2498.402	Th	8	3	–
2498.40	Br	–	[3]	Bl
2498.35	Yb	1	3	Me
2498.330	Ta	30	1 h	–
2498.281	Mo	10	25	–
2498.267	U	3	8	–
2498.26	W	–	8	–
2498.253	Cb	1	25	–
2498.25	As	–	5	Ro
2498.232	V I	10	4	–
2498.22	Pd II	–	3 h	–
2498.220	Re	30	–	–
2498.21	Rh	–	3 h	Ex
2498.208	Fe	3	–	–
2498.097	W	–	3	–
2498.092	Mo	–	8	–
2498.044	V	7	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2497.963	Ge I	8	10	–
2497.922	Pt II	–	3	–
2497.863	Mo	20	15	–
2497.85	Al II	–	[8]	Sy
2497.820	Fe II	15	50	–
2497.817	Ni II	–	5	–
2497.780	Mn	–	3 h	–
2497.77	Hg	–	3	Cn
2497.733	B I	500	400	m
2497.720	Sn	8	–	m
2497.717	Fe II	1	3	–
2497.678	Ru	50	1 h	–
2497.66	Ca	–	5	–
2497.655	V I	4 h	–	Me
2497.59	Th	3	12 h	–
2497.580	Mo	30 h	–	–
2497.501	Co	1	40	–
2497.484	W II	10	15	–
2497.42	Br	–	[2]	Bl
2497.42	Kr	–	[2 h]	Me
2497.376	Mo	–	15	–
2497.328	P II	–	[100]	Ri
2497.300	Fe II	–	15	–
2497.292	W	5	1	–
2497.26	Th	–	10 h	–
2497.20	In	–	3	Sq
2497.10	O	–	[8]	Mh
2497.099	V I	2	–	Me
2497.059	Na	–	[5]	Fr
2497.02	Mo	–	8	–
2497.01	I	–	[20]	Bl
2497.002	V	–	6	Me
2496.991	Fe	20	1	–
2496.986	Hf II	30	40	–
2496.973	Cb	1	3	–
2496.957	Ta	2	–	–
2496.914	Ce	–	2	–
2496.9	Cs	–	[2]	Bs
2496.88	N II	–	[25]	Fl
2496.846	Ru	–	9	–
2496.78	Hg	–	3	Cn
2496.778	B I	300	300	m
2496.768	Sn	10	–	Ar
2496.70	Re	20	–	–
2496.686	Pd II	–	100	–
2496 638	W II	10	20	–
2496.635	Ta	20	–	–
2496.533	Fe	40	15	I
2496.533	Cd II	–	4	–
2496.480	Zr II	2	5	–
2496.40	Gd	2	1	–
2496.333	In II	–	[18]	Ps
2496 309	Cr I	125 r	2	–
2496 271	Ir I	10	2	–
2496.237	Ta	2 h	2 h	–
2496.215	In II	–	[10]	Ps
2496 071	Fe	4	–	–
2496.06	Mo	–	5 h	–
2496 05	Se	–	[100]	Bl
2496.04	Cl II	–	[20]	Ks
2496.003	P II	–	[50]	Ri
2495.97	In	–	2	–
2495.951	Rh	2	50	–
2495.938	W	4	–	–
2495 9	Rb	–	[20]	Dr
2495.863	Fe I	25	35	–
2495.817	Pt I	40	10	–
2495.79	Si	–	[2]	Sy
2495.788	V I	6	6	–
2495.77	U	–	8 h	–
2495.73	Cd II	–	[30]	Tk
2495.722	W	4	9	–
2495.719	Sn	100	100	–
2495.694	Ru	80	35	–
2495.69	Yb	–	5 h	Me
2495.6	Tl	–	2	Cx
2495.58	Pb	–	2	Sx
2495.518	W	–	8	–
2495.353	Th	8	4	–
2495.292	Ir	4	–	–
2495.291	U	2	4 h	–
2495.274	Zr	9	–	–
2495.264	W	20	5	–
2495.17	Hf	–	60	Me
2495.17	Br	–	[15]	Bl
2495.077	Cr I	35	–	–
2495.04	Cs	–	[20]	Bs
2494.90	Ta	2	–	–
2494.89	Cu I	2 wh	–	–
2494 828	W II	7	4	–
2494.77	U	–	8 h	–
2494.733	Be I	30	20	–
2494.71	I	–	[100]	Bl
2494.689	Mo	1	6	–
2494.67	Te	–	[15]	Bl
2494 64	Th	4	2	–
2494.64	Lu	–	6	Me
2494.576	Be I	25	–	–
2494.559	Be I	30	–	–
2494.481	Ru	50	60	–
2494.40	U	2	2	–
2494.400	Mn	15	–	–
2494.37	Hf II	1	5 h	–
2494.250	Fe I	10	–	–
2494.12	Hg	–	[2]	Dj
2494.109	Fe II	–	2	–
2494.089	Ru	8	6	–
2494.022	Ru	80	–	–
2494.02	N II	–	[3]	Fl
2493.999	Fe I	20	1	–
2493.933	Co	30 w	1	–
2493.91	Tl I	10 R	–	Fl
2493.75	O	–	[50]	Mh
2493.72	U	–	4	–
2493.716	Zr	6 r	–	–
2493.693	Ru	20	80	–
2493.63	Yb	1	4	Me
2493.616	Os	8 s	1	–
2493.582	V	1	25	–
2493.541	W	–	5	–
2493.393	W	10	2	–
2493.33	O	–	[35]	Mh
2493.32	Zn I	25	–	Fl
2493.3	bh C	12	–	L
2493.300	Cr	–	2	–
2493.295	Hg	–	[3]	Ps
2493.261	Fe II	10	100	–
2493.26	Er	2	1	–
2493.180	Fe II	10	100	–
2493.159	W	7	–	–
2493.152	Na II	–	[40]	Fr
2493.080	Ir I	20	5	–
2493.022	Cb	–	20 wh	–
2493.00	Ca	–	7	Ad
2492 934	W II	6	25	–
2492.91	As I	25	5	Ro
2492 889	Cr	–	4	–
2492.847	Re	20	–	–
2492 75	Cl	–	[3]	An
2492 720	Mn	–	8	–
2492.705	Ir	2 h	–	–
2492.646	Cr	–	6	–
2492.644	Fe I	3	–	–
2492.64	Au II	–	5	–
2492.568	Cr I	50	–	–
2492.56	Se	–	[6]	Ro
2492.552	Re	15	–	–
2492.531	Pt II	–	3	–
2492.367	W	12	8	–
2492.367	Os	50 r	8 r	–
2492 337	Fe II	–	30	–
2492.321	Ir I	2	–	–
2492.313	U	3	2	–
2492.299	Rh I	100	10	–
2492.172	Ta	15	2	–
2492.15	Br	–	[2]	Bl
2492.146	Cu I	200 r	50	–
2492.09	Hg II	–	[10 h]	Ps
2492 011	Ta	5	2	–
2491.994	W	6	1	–
2491.984	Fe	10	–	–
2491.855	Rh	2	400 h	–
2491.78	Xe II	–	[3]	Hu
2491.776	Ru	30	–	–
2491.768	W	1 h	5	–
2491.72	Sn	12 wh	5 w	–
2491.69	Yb	–	3	Me
2491.689	Os	10	3	–
2491 61	I	–	[40]	Bl
2491 60	Tm	12	5	Me
2491.591	Ta	10	–	–
2491.59	Mo	–	4 h	–
2491.558	Ru	–	15	–
2491.48	Zn I	100	50	Fl
2491.413	Pt II	–	2	Sh
2491.390	Fe II	–	30	–
2491.348	Cr I	30	1	–
2491.338	Ru	–	4	–
2491.317	U	5	2	–
2491 24	Au I	10	5 h	–
2491.236	Re	2	–	–
2491.187	Ni	20	–	–
2491.183	W	–	5	–
2491.16	Cd I	3	[2]	Fl
2491.156	Mn	100	2	–
2491.155	Fe I	150 R	10	–
2491.099	Ru	10	40	–
2491.06	A	–	[5]	Rt
2491.021	Os	8 w	8	–
2490.988	Cb	–	10 Wh	Me
2490.93	Tm	6	6	Me
2490.928	U	8	4	–
2490.918	Mn	–	10 h	–
2490.861	Fe II	–	15	–
2490.848	Cb	–	20 wh	–
2490.843	W	9	–	–
2490.84	Se	–	[35]	Bl
2490.800	Cr	–	2 wh	–
2490 770	Rh	100	1000 wh	–
2490.76	Xe II	–	[10]	Hu
2490.733	Na I	3 R	–	Fl
2490 728	Fe II	1	10	–
2490 710	W II	3	5	–
2490.700	Ni	40	–	–
2490.644	Fe I	200 R	10	–
2490.643	Mn	125	3	–
2490.62	Dy	3	–	–
2490.605	W	–	8	–
2490.531	Ru	–	4	–
2490 492	W	8	–	–
2490.45	Yb	1	20	Me
2490.44	As	–	2	Ro
2490.42	Yt I	20	3	–
2490.394	Co	5	80	–
2490.38	Au	–	5 h	–
2490.37	N II	–	[8]	Fl
2490.36	Tb	–	10	Ex
2490.33	Te	–	[15]	Bl
2490.261	W	–	7	–
2490.213	Cb	1	15	–
2490.125	Pt I	300	20	–
2490.107	Cb	–	10	–
2490 088	Cr	–	4	–
2490.02	Mo	–	10 h	–
2489.915	W	2	7	–
2489.912	Ru	60	–	–
2489.822	Fe II	1	50	–
2489.782	U	12	15	–
2489 751	Fe I	200 R	2	–
2489.718	W	8	2	–
2489.652	Cu II	3	50	lBu
2489.64	Th	5	3	–
2489.611	Pd II	–	75	–
2489.510	W II	2	8	–
2489.507	Ni I	40	6	–
2489.5	Cs	–	[2]	Bs
2489.486	Fe II	1	40	–
2489.47	Br	–	[3]	Bl
2489.463	Cb	1	3	–
2489.46	Tm	2	100	Me
2489.4	Bi	8 h	2	Om
2489.39	Kr II	–	[8 h]	Me
2489.336	Ru	–	40	–
2489.293	Cr	–	10	–
2489.280	Os	10	10 h	–
2489.24	Ho	–	10	Ex
2489 233	W II	10	20	–
2489.204	Ir I	2	1	–
2489.20	Te	–	[10]	Bl
2489.11	Xe II	–	[25]	Hu
2488.96	Yb	–	3	Me
2488.951	In II	–	[60]	Ps
2488.950	Fe	10	1	–
2488.921	Pd II	10	30	–
2488 910	W	10	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2488.88	Pt	–	25	–
2488.82	N II	–	[3]	Fl
2488.771	W	10	20	–
2488.75	Pr	–	30	–
2488.747	Cb	–	40	–
2488.74	Cl	–	[5]	An
2488.736	Pt	10	25	–
2488.696	Ta	200	150	–
2488.69	Cd II	–	[2]	Tk
2488.666	In II	–	[40]	Ps
2488.620	V	–	7	–
2488.577	Ru	–	15	–
2488.556	In II	–	[18]	Ps
2488.548	Os I	50 w	15	–
2488.460	Mn	–	12	–
2488.412	Pd II	–	10	–
2488.397	Ta	60	–	–
2488.37	Br	–	[40]	Bl
2488.29	Br	–	[2]	Bl
2488.284	Ir	–	5	–
2488.236	Cb	2	10	–
2488.207	Ta	5	–	–
2488.148	Fe I	600 R	100 r	–
2488.145	Mn	150	12	–
2488.118	W II	2	12	–
2488.096	Ru	3	–	–
2487.96	Lu	–	4	Me
2487.940	W	3	–	–
2487.937	Cd II	–	15	–
2487.9	Sn	–	10 w	Ar
2487.90	Tb	–	10	Ex
2487.857	U	4	2	–
2487.804	Pd II	–	2 h	–
2487.766	W	10	–	–
2487.668	Mo	3	10 h	–
2487.64	Ta	5	2	–
2487.62	Kr II	–	[4]	Me
2487.60	U	2	–	–
2487.588	La II	–	40	–
2487.532	V I	6	4	–
2487.53	Tm	15	10	Me
2487.50	Kr II	–	[3]	Me
2487.492	W	15	5	–
2487.48	Tl I	5 R	–	Fl
2487.470	Rh	100	8	–
2487.42	Co II	10	20	–
2487.367	Fe I	6	2	–
2487.288	Zr II	20	20	–
2487.23	Re	50	–	–
2487.228	W	–	4	–
2487.200	Ru	–	4	–
2487.168	Pt I	600 r	20	–
2487.16	Hf	5	–	Me
2487.064	Fe I	25	10	I
2486.99	Sn II	–	[30]	Mc
2486.989	Pt II	6	10	–
2486.975	Mn	–	5	–
2486.780	W	–	5	–
2486.776	Re	50 w	–	–
2486.747	Ir I	2	1	–
2486.72	Ag II	–	4 h	–
2486.705	Ta	20	–	–
2486.693	Fe	30	3	–
2486.681	Cr	–	4	–
2486.528	Pd II	5	30	–
2486.5	air	–	3	–
2486.44	Co II	1	40	–
2486.425	W II	–	10	–
2486.371	Fe	40	–	–
2486.371	Ir I	2	1	–
2486.345	Fe II	–	80	–
2486.32	Hg	–	[3]	Ps
2486.318	Cr	–	8	–
2486.300	W	15	2 h	–
2486.28	Si	–	[5]	Sy
2486.244	Os	8 h	15 h	–
2486.163	Mn	–	20	–
2486.15	In II	–	[40]	Ps
2486.028	Cb	–	20 wh	–
2485.985	Fe	10	1	–
2485.817	Rh	2	50	–
2485.809	Re	50	–	–
2485.787	Cu II	5	50	–
2485.779	W	–	10	–
2485.775	Ag II	1	10 h	–
2485.775	P II	–	[2]	Ri
2485.62	Gd	2	1	–
2485.597	Zr II	2	3	–
2485.49	Cr	–	2 h	–
2485.490	V	–	4	Me
2485.473	W	–	6	–
2485.42	Cs	–	[20]	Bs
2485.418	Cb	1	12	–
2485.382	Ir I	6	1	–
2485.38	Br	–	[3]	Bl
2485.356	Co II	25	75	–
2485.35	Al II	–	[3]	Sy
2485.313	Mo	30 h	–	–
2485.24	Te	–	[10]	Bl
2485.205	W	3	4 d	–
2485.17	Pr	–	4	–
2485.16	Al	–	[3]	Sy
2485.12	Dy	2	–	–
2485.096	U	3	2	–
2485.075	Fe II	–	2	–
2485.056	Mn	–	5	–
2484.954	Ta	30	–	–
2484.932	Cb	2	25	–
2484.891	U	6	2	–
2484.88	Yb	2	5	Me
2484.753	Mo	2	20	–
2484.735	W	20	6	–
2484.671	U	2	12	–
2484.666	Ru	–	8	–
2484.64	I	–	[20]	Bl
2484.556	Fe II	–	10 h	–
2484.5	bh C	12	–	L
2484.4	Rb	–	[5]	Dr
2484.398	W	2	15	–
2484.327	Ni II	–	50 wh	–
2484.25	Ir	–	10 h	–
2484.236	Fe II	–	20	–
2484.217	U	10	15	–
2484.187	Fe I	100 R	5	–
2484.152	P II	–	[20]	Ri
2484.034	Ni I	18	–	–
2484.01	Pd	–	[2]	Bx
2484.008	U	15	4	–
2484.003	W II	2	15	–
2483.972	Ru	30	18	–
2483.918	Re	150	–	–
2483.882	Cb	3	80	–
2483.829	Hg I	30	5 h	Cn
2483.74	Se	–	[2 h]	Bl
2483.726	W II	2	7	–
2483.723	Fe II	–	25	–
2483.717	Cb	2	10	–
2483.648	V	10	–	–
2483.612	Co I	–	25	–
2483.599	W	–	4	–
2483.535	Fe I	1	–	–
2483.457	W	–	4	–
2483.403	Sn II	125	125	–
2483.367	Pt	40	2	–
2483.333	Rh I	100 r	5	–
2483.33	Hf II	6	5	–
2483.29	Si	–	[2]	Sy
2483 270	Fe I	500 rh	50	–
2483.227	W	1	4	–
2483.073	Cr	–	6	–
2483.070	V	20	150	m
2483.0	Cs	–	[2]	Bs
2483.00	La II	–	2 h	–
2482.776	Ru	–	15	–
2482.76	Ga I	–	[15]	Sy
2482.734	Rh	2	100	–
2482.721	Hg I	25	10	Cn
2482.711	V	20	–	Me
2482.69	W	–	3	–
2482.662	Mn	–	2	–
2482.654	Fe II	1	50	–
2482.577	Ta	50	50	–
2482.572	Mo	5	25	–
2482.57	Br	–	[3]	Bl
2482.541	Ru	30	–	–
2482.427	Os	12 w	2	–
2482.35	Se	–	[5]	Bl
2482.341	Cu	–	20	–
2482.326	Fe	–	6	m
2482.310	V	6	12	–
2482.212	W	10	3	–
2482.176	Ru	20	–	–
2482.17	A II	–	[5]	Rt
2482.147	Mn	–	8 w	–
2482.130	V I	35	–	–
2482.115	Fe II	3	50	–
2482.098	W	10	3	–
2482.05	I	–	[20]	Bl
2482.044	Rh	25	3	–
2482.042	Pt II	2	25	–
2482.008	Hg I	30	5	Cn
2481.983	P II	–	[10]	Ri
2481.884	W	–	5	–
2481.865	Pd	–	6	–
2481.86	Ta	2 h	10	–
2481.859	Ru	–	5	–
2481.814	Mo	50 h	–	–
2481.791	Os	10 s	1	–
2481.736	Sb	15	5	–
2481.72	Lu	20	100	Me
2481.574	Fe II	–	15	–
2481.54	W II	–	10	–
2481.517	Ti II	2	4	–
2481.50	A	–	[5]	Rt
2481.443	W	25	3	–
2481.44	Tb	–	10	Ex
2481.438	Hf II	6	10	–
2481.43	Zr	6	–	–
2481.40	Yb	1	3	Me
2481.362	Zr II	2	4	–
2481.22	Te	–	[10]	Bl
2481.191	Mo	10	30	–
2481.187	Pt	2	1	–
2481.183	Ir I	50	10	–
2481.18	Hg	–	[5]	Dj
2481.15	Tm	15	7	Me
2481.132	V	12	–	–
2481.111	Ru I	12	80	–
2481.09	I	–	[12]	Bl
2481.049	Fe II	–	40	–
2481.033	U	2	2	–
2480.954	Mn	–	10	–
2480.949	W	20	3	–
2480.92	Dy	5	–	–
2480.87	A	–	[10]	Rt
2480.808	Ru	–	12	–
2480.7	Cs	–	[2]	Bs
2480.654	W	10	2	–
2480.630	V I	25	–	–
2480.62	Hg	–	[40]	Ps
2480.61	Ho	–	10	Ex
2480.589	Ir	2	1	–
2480.442	Sb	25	9	–
2480.44	Rh	2 w	25 w	–
2480.407	Ag II	–	15 h	–
2480.28	Au	–	15 h	–
2480.25	Bi II	–	3	Ml
2480.176	Zr II	–	2	–
2480.174	Bi II	–	2	–
2480.158	Fe II	10	80	–
2480.13	Tm	60	20	Me
2480.126	W	25	10	–
2480.11	Ra II	–	[12]	Rs
2480.04	Si	–	[2]	Sy
2480.03	Bi II	–	5	Ml
2480.0	Rn	–	[3]	Pe
2479.938	Cb	3	50	–
2479.85	Te	–	[5]	Bl
2479.84	La II	–	10	–
2479.825	Cr	–	2	–
2479.776	Fe I	200 R	30	–
2479.756	Rh	6	–	–
2479.74	Zn I	30	–	Fl
2479.624	Fe	7	–	–
2479.522	V	15	150	–
2479.481	Ni	8	–	–
2479.476	Fe I	8	3	–
2479.359	Ru	20	–	–
2479.21	Mo	–	8	–
2479.165	Ir	2	1	–
2479.134	Cr	20	–	–
2479.13	W	–	12	–
2479.115	Pd II	–	5 h	Dn
2479.08	A II	–	[5]	Rt
2479.050	V	15	150	m

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2478.988	Re	5	–	–
2478.928	Ru	80	60	–
2478.872	W II	–	8	–
2478.85	Kr II	–	[3]	Me
2478.82	Xe	–	[2]	Hu
2478.802	Pd II	–	15 h	–
2478.66	Hg I	15 h	15 h	Dj
2478.646	Ti II	–	50	–
2478.621	V	2	20	Me
2478.594	Pb	–	2	Kl
2478.59	Cr	–	3 w	–
2478.573	C I	400	[400]	Ps
2478.57	Tm	15	15	Me
2478.569	Fe II	4	40	–
2478.566	Cb	–	4 wh	–
2478.565	Pd	–	25	–
2478.563	Hf II	100	300 wh	–
2478.448	Fe II	–	5 h	–
2478 399	Ru	8	5 wh	–
2478.315	W	–	10	–
2478.311	Sb	75	100	–
2478.290	Cb	4	8	–
2478.22	P	–	[10]	Gu
2478.219	Ta	60	–	–
2478.219	Mo	–	4	–
2478.207	Co	4	20	–
2478.116	Fe II	–	20	–
2478.109	Ir I	6	1	–
2478.066	Zr	3	–	–
2478.04	I	–	[12]	Bl
2478.010	U	4	8 h	–
2477.990	Mo	–	5	–
2477.945	Cb	2	10	–
2477.932	Ru	10	2 h	–
2477.796	W II	15	30	–
2477.77	P	–	[10]	Gu
2477.71	Au II	–	15	–
2477.58	Cs	–	[20]	Bs
2477.567	Mo	2	50	–
2477.565	Pd	–	5 h	–
2477.535	Rh	6	10 wh	–
2477.480	Fe II	–	1	–
2477.477	Co	1	20	–
2477.46	Pd II	–	[6]	Bx
2477.40	Tl II	–	[20]	El
2477.384	Cb	5	200	–
2477.338	Fe II	1	40	–
2477.284	Ag II	–	150 wh	–
2477.271	W	–	12	–
2477.257	Ru	–	40 r	–
2477.206	Ti II	3	5	–
2477.190	Rh	2	8	–
2477.178	U	8	2	–
2477.13	Cu	–	2 w	–
2477.005	Pd II	–	25	–
2476.97	Tm	5	1	Me
2476.96	Th	6	2	–
2476.922	Cr	–	4	–
2476.876	Ru	60	2	–
2476.874	Ni I	40 W	2	–
2476.861	Fe I	3	–	–
2476.836	Os	25	8	–
2476.810	W	5	–	–
2476.75	La	–	30 h	–
2476.740	Ag II	–	2 wh	–
2476.67	Ta	20	6	–
2476.654	Fe I	15	25	–
2476.641	Co I	40 w	25	–
2476.57	Pd	–	[20]	Bx
2476.508	V I	4 h	–	–
2476.479	Cb	4	–	–
2476.474	U	2	8 h	–
2476.418	Pd I	300 r	50	–
2476.379	Pb	150 wh	25	–
2476.329	Ta	2	–	–
2476.308	Ru	50	–	–
2476.30	Al II	–	[30]	Sy
2476.295	V	–	12	Me
2476.278	Re	15	–	–
2476.268	W	–	3	–
2476.267	Fe II	–	35	–
2476.24	Ag II	–	2 wh	–
2476.162	Ba	–	5 w	Sz
2476.149	Ru	–	3	–
2476.06	Tb	–	10	Ex
2476.04	Hf II	1 h	2 wh	–
2476.04	Au	–	5 h	–
2476 029	Fe	20 h	–	–
2476.017	W	7	–	–
2475.905	Pd	–	2 h	–
2475.89	Xe	–	[50]	Hu
2475.887	Cb	–	25 h	–
2475.870	V	–	60	–
2475.837	W	–	8	–
2475.695	Cr	–	12	–
2475.586	W	1	20	–
2475.565	In	–	12	–
2475.548	Fe II	–	10 h	–
2475.533	Na I	2 R	–	Fl
2475.5	Tl	–	10	Cx
2475.50	Ra II	–	[125]	Rs
2475.48	A II	–	[5]	Rt
2475.460	Mn	–	3	–
2475.460	V	2	60	–
2475.45	S	–	[8]	Bl
2475.406	Ru	100	3	–
2475.34	Lu	–	3	Me
2475.332	Ta	12	8	–
2475.328	Th	–	15	–
2475.29	Li I	100 w	5	Fl
2475.260	Al II	–	[30]	Sy
2475.23	Cd I	–	[2]	m
2475.180	V	3	2	–
2475.172	Re	25	–	–
2475.122	Ir I	100	10	–
2475.091	W	10	2	–
2475.025	U	6	2	–
2474.973	Mn	–	15	–
2474.948	Cr	–	2	–
2474.91	Tb	–	10	Ex
2474.814	Fe	40	50	I
2474.812	Cb	2	30 h	–
2474.771	Na	–	[2]	Fr
2474.765	Fe II	–	60	–
2474.748	Ru	–	6	–
2474.727	Re	25	–	–
2474.709	Mo	20	2 h	–
2474.69	Kr II	–	[2 h]	Me
2474.663	Cb	5 h	2	–
2474.617	Ta	150	1	–
2474.584	Sb	25	10	–
2474.51	La II	–	3	–
2474.484	W	6	3	–
2474.45	Tm	–	6	Me
2474.407	Ru I	12	–	–
2474.24	Mo	–	10 h	–
2474.2	K	–	[10]	Sg
2474.194	Ti II	4	8	–
2474.19	Gd	2	1	–
2474.186	Cb	–	3 h	–
2474.149	W	20	10	–
2474.140	Zr	3	–	–
2474.10	Hf II	2	2 h	–
2474.077	Ir	2	1 h	–
2474.072	Cr	35	–	–
2474.036	Ru	50	1 Wh	–
2474.02	A	–	[5]	Rt
2474.010	Zr	6	–	–
2473 98	Th	–	15	–
2473.954	W	–	2	–
2473.915	Hf II	15	25	–
2473.818	W	7	–	–
2473.800	Ag II	20	150 h	–
2473.76	Ho	–	10 h	Ex
2473.720	Re	5	–	–
2473.692	W	4	–	–
2473.657	Mn	–	10 wh	–
2473.577	Ru	–	5	–
2473.532	Pd	–	2 h	–
2473.332	Cu II	5	20	IBu
2473.321	Fe II	1	4	–
2473.312	Ta	15 h	1 h	–
2473.279	Zn II	–	8 wh	–
2473.222	W	1	10	–
2473.18	Br	–	[5]	Bl
2473.156	Fe	5	–	–
2473.151	Ni II	80	500	–
2473.13	Ta	20	8	–
2472.990	W	–	5	–
2472.982	Cb	–	3 h	–
2472.95	Al II	–	[3]	Sy
2472.942	Ir	5 h	3 h	–
2472.919	Ag II	–	25 h	–
2472.909	Fe I	1000	–	–
2472.894	Mn	125	100	–
2472.880	Fe I	300 R	25	–
2472.865	V	7	40	–
2472.86	Cr	–	5	–
2472.830	Ru	–	8	–
2472.82	Se	–	[35]	Bl
2472.724	W	–	4	–
2472.66	Cl	–	[4]	Bl
2472.623	Ir I	3	–	–
2472 57	Tl I	5 R	–	Fl
2472.512	Pd II	–	150	–
2472 51	Rh	40 w	4 w	–
2472.508	W	15	5	–
2472.435	Ru	–	5	–
2472.43	La II	–	10	–
2472.430	Fe II	–	15	–
2472.378	Cb	4 d	25	–
2472.344	Fe I	30	5	–
2472 31	Hg	–	[5]	Dj
2472 281	Os	15 s	4	–
2472.229	Ni I	5	1	–
2472 21	Ho	–	10	Ex
2472.134	Ta	80	–	–
2472 124	W	5	–	–
2472 106	Fe	9	–	–
2472 072	Fe II	–	25	–
2472.065	Ni I	15	–	–
2472 0	Rb	–	[20]	Dr
2471.967	Mo	50 h	2	–
2471.95	Zr	3	–	–
2471.9	Rn	–	[3]	Pe
2471.900	La II	–	20	–
2471.768	Rh	3	100	–
2471.744	W	1	15	–
2471.597	Sr II	8	5	ISn
2471.487	Ru	30	–	–
2471.472	Rh I	70	8	–
2471.463	W	–	4	–
2471.448	V I	2	1	–
2471.41	Dy	3	–	–
2471.383	Ta	20	–	–
2471.34	Ag	–	2 h	–
2471.317	Cb	2 w	12 w	–
2471.26	Tm	–	6	Me
2471.243	Ta	2	–	–
2471.209	W	10	–	–
2471.152	Pd II	–	150	–
2471.124	V	–	40	–
2471.12	Eu	4 h	–	–
2471.06	La II	–	5	Me
2471.018	Ru	–	4 h	–
2471.01	I	–	[12]	Bl
2471.007	Pt I	100	20	–
2470.996	Ti I	15	–	–
2470.966	Fe I	25	1	–
2470.897	Ta	60	40	–
2470.803	W II	5 d	20	–
2470.752	Fe II	–	3	–
2470.715	Ru	12	–	–
2470.658	Fe II	8	50	–
2470.645	U	12	4	–
2470.61	Cd II	–	[50]	Tk
2470.597	Th	6	4	–
2470.55	La II	–	3	Me
2470.517	Ru	20	18	–
2470.45	Kr	–	[10 h]	Me
2470.428	Re	5	–	–
2470.406	Fe II	1	40	–
2470.4	K	–	[10]	Ml
2470.391	Rh I	70	5	–
2470.276	Co	20 w	8	–
2470.254	W	–	7	–
2470.18	Xe II	–	[3]	Hu
2470.067	Os	–	2	–
2470.06	Fe	6	–	–
2470.060	Ir I	2	1	–
2470.043	Mo	1	25	–
2470.011	Pd II	–	150	–
2469.92	Ho	–	10	Ex
2469.884	W	–	5	–
2469.84	Cd II	–	[500]	Tk

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2469.834	Fe	–	8	–
2469.77	Pd II	–	[6]	Bx
2469.76	Tl	–	30	Sd
2469.76	Ta	3	–	Ks
2469.75	Se	–	[5]	Bl
2469.684	Ru	3	12	–
2469.62	Te	–	[300]	Bl
2469.562	Ag	–	4	–
2469.512	Fe	2	40	–
2469.51	Ir	–	10	–
2469.46	Xe	–	[3]	Hu
2469.412	Cb	1	80	–
2469.408	Mn	10	–	–
2469.389	V	–	12	–
2469.38	Zn I	12 r	–	Fl
2469.294	Mn	–	5	–
2469.27	Lu	10	40	Me
2469.254	Pd II	–	150	–
2469.215	Ru	6	5 h	–
2469.179	Hf II	20	50	–
2469.16	Tl II	–	10	Ml
2469.139	Cr	–	20	–
2469.104	Mo	20	–	–
2469.080	Cb	10 h	2	–
2469.07	Tl II	–	20	Ml
2469.013	Pd	–	2	–
2468.98	Pr	–	5	–
2468.95	Tl II	–	15	Ml
2468.95	Hg II	–	5 h	Nu
2468.944	Ir I	2	–	–
2468.898	Os	10	30	–
2468.878	Fe	40	15	I
2468.83	Se	–	[10]	Bl
2468.777	Mo	2	25	–
2468.740	Cb	–	50	–
2468.73	Hg	–	10 h	Dj
2468.664	W	–	5	–
2468.653	V	–	15	–
2468.619	Ir I	2	–	–
2468.584	Cu II	5	70	–
2468.578	Tl I	3	–	–
2468.43	Xe	–	[3]	Hu
2468.409	W	–	20 r	–
2468.408	Ta	4 d	2 h	–
2468.369	Tl I	10	1	–
2468.295	Fe II	1	30	–
2468.261	U	10	4	–
2468.25	Cd I	2	[1]	Fl
2468.22	Gd	1 h	2	–
2468.22	Pr	–	15	–
2468.176	Ir I	2	1	–
2468.150	Th	6	4	–
2468.106	Fe	2	–	–
2468.084	W	–	9	–
2468.054	Ta	10	–	–
2468.04	Zr I	5	–	–
2468.031	Cb	2	3 h	–
2468.023	In I	25 h	2 wh	Ps
2467.982	Mn	–	15	–
2467.971	Zr II	–	2 w	–
2467.967	Hf II	15	10	–
2467.92	Pd II	–	[2]	Bx
2467.91	Tm	3	8	Me
2467.767	Ir	2	–	Ab
2467.730	Fe I	10	2	–
2467.72	Te	–	[50]	Bl
2467.702	Re	3	–	–
2467.691	Co I	20 w	3	–
2467.668	Th	–	10 h	–
2467.628	W	3	–	–
2467.593	Pt II	5	100	–
2467.578	Ru	30	–	–
2467.52	Hg	–	[20]	Dj
2467.51	Ir	–	3 h	–
2467.443	Pt	800 R	100	–
2467.368	Ta	15 s	3	–
2467.345	Mo	5	20	–
2467.314	Ru	2	5	–
2467.302	Ir I	40	5	–
2467.228	Rh	–	50	–
2467.06	Co	2	80	–
2466.990	Ta	20	2	–
2466.968	Mo	10	20	–
2466.958	Ni I	40 W	–	–
2466.85	Sm	4	10	–
2466 848	W	15	7	–
2466.83	Nd	–	5	–
2466.818	Fe II	1	30	–
2466.8	Cs	–	[2]	Bs
2466.727	Cb	10	2	–
2466.680	Fe II	1	10	–
2466.678	Mo	5	25	–
2466.63	Cr	–	5 wh	–
2466.62	Yb	1	5	–
2466.60	Xe	–	[3]	Hu
2466.562	Cb	1	5	–
2466.53	Ho	–	10	Ex
2466.524	W II	12	20	–
2466.472	In	–	2	–
2466.419	Mn	–	40	–
2466.334	W II	–	5	–
2466.313	Cb	4	1	–
2466.3	Cs	–	[2]	Bs
2466.28	Al II	–	[2]	Sy
2466.211	Mn	–	50	–
2466.149	Rh	1	100	–
2466.126	Th	10	6	–
2465.957	W	–	12	–
2465.914	Fe II	7	100	–
2465.904	Yt II	2	10 hl	–
2465.776	Cr	–	3	–
2465.664	V	4 h	–	Me
2465.65	As	–	3	Ro
2465.641	W	–	20 d	–
2465.577	Mo	15	–	–
2465.46	Tl I	5 R	–	Fl
2465.458	Pd	–	2 h	–
2465.455	Fe	15	–	–
2465 395	Zr II	2	5	–
2465.370	Ta	2	–	–
2465 320	Fe	3	–	–
2465.278	V	2	100	–
2465.264	Ni I	20	5	–
2465 264	Ta	60	–	–
2465 204	W	12	20	–
2465.203	Cb	3	5	–
2465 200	Fe II	–	50	–
2465.162	Os	25	40	–
2465.148	Fe I	70	–	I
2465 089	Ir I	10	–	–
2465.06	Hf II	10	15	–
2464 995	Ru	–	4	–
2464 979	Ti I	10	1	–
2464 95	I	–	[12]	Bl
2464.94	Tm	6	6	Me
2464 903	Fe II	4	50	–
2464.901	Ir I	5	1	–
2464 82	Lu	5	–	Me
2464.81	Br	–	[15]	Bl
2464.77	Kr II	–	[100 h]	Me
2464 769	Ru	–	6	–
2464 699	Ru	50	4	–
2464.679	I II	–	[100]	Mu
2464 648	Cb	1	15	–
2464 63	Ho	–	10	Ex
2464.626	W II	3	20	–
2464.501	Os	4	1	–
2464 49	Yb	5	2	–
2464.432	Cb	5	1	–
2464 397	Na I	2 R	–	Fl
2464.365	Ru I	12	–	–
2464.351	Ir	2	2	–
2464 307	W	15	2	–
2464.195	Co II	40	150	–
2464 19	Hf II	30	100	–
2464 128	W	3	5	–
2464.096	V	–	25	–
2464.068	Hg I	15	15	–
2464 04	U	–	10	–
2464.007	Fe II	5	80	–
2464 007	Mn	–	10 h	–
2463.997	Ti II	1	12	–
2463.98	I	–	[12 h]	Bl
2463 972	Ru	5	–	–
2463.97	Se	–	[10]	Bl
2463.970	Pd	–	15 h	–
2463 967	Hf II	15	15	–
2463.954	W	2	15	–
2463.95	Lu	–	3	Me
2463.89	As	–	3	Ro
2463 816	Ta	20 w	30	–
2463.728	Cb	1	5 h	–
2463.728	Fe I	15	7	–
2463.7	bh C	12	–	L
2463.693	Th	–	25	–
2463.688	W	2	1	–
2463.637	Cb	3	2	–
2463.609	Rh	30	2	–
2463.507	Fe	5	–	–
2463.496	W	–	5	–
2463.47	Zn I	20	2	Fl
2463.44	Rh	2	150	–
2463.4	Rn	–	[20]	Pe
2463.38	U	3	–	–
2463.314	Re	25	–	–
2463.278	Fe II	6	60	–
2463 27	Kr II	–	[2]	Me
2463.157	V	–	3	Me
2463.034	Ir I	4	1	–
2463.002	Mn	15	1	–
2462.989	W	3	–	–
2462.941	V	–	7 h	–
2462.937	Ru	60	–	–
2462.90	Pr	–	6	–
2462.892	Cb	8	3	–
2462.788	W	15	10	–
2462.778	Mn	10	1	–
2462.644	Fe I	200 R	50	–
2462.496	Cb	1 w	5 w	–
2462.482	Mo	1	6	–
2462.478	W	–	5	–
2462.366	Cr	–	3	–
2462.364	Ir I	3	1	–
2462.35	Br	–	[3]	Bl
2462.33	Kr II	–	[2]	Me
2462.32	Ho	–	10 h	Ex
2462.236	Ag II	5	80 h	–
2462.230	Ir I	2 h	–	–
2462.180	Fe I	50 r	3	–
2462.12	Co	20	1	–
2462.050	Cb	1	100	–
2462.045	W	–	3	–
2462.0	Cs	–	[2]	Bs
2461.93	Tl I	5 R	–	Fl
2461.89	Pd	–	2 h	–
2461.860	Re	80	–	–
2461.857	Fe II	15	70	–
2461.810	Mo	2	25	–
2461.795	Zr I	2	–	–
2461.76	As	–	3	Ro
2461.757	Cb	5	–	–
2461.72	Hf	–	30	–
2461.671	Fe II	–	2	–
2461.572	W	12	6	–
2461.520	Ru	–	5 h	–
2461.51	Pb	–	20	Sx
2461.495	V	–	40	Me
2461.449	Ir I	2 h	–	–
2461.431	W	–	5	–
2461.417	Os	50	10	–
2461.40	Yb	–	3 h	–
2461.30	N II	–	[15]	Fl
2461.279	Fe II	5	50	–
2461.277	Ag II	–	8 h	–
2461.25	Ta	2	–	–
2461.209	Ir	2	8 h	–
2461.179	Re	125	–	–
2461.175	Cb	2 w	8 w	–
2461.144	W	–	12	–
2461.128	I II	–	[60]	Mu
2461.07	In II	–	[5]	Ps
2461.065	Ta	2 d	2 dh	–
2461.056	Fe	20	–	Bu
2461.036	Rh	80	200 wh	–
2461.03	Zr	5	–	–
2461.011	Mn	25	5	–
2460.890	W	7	–	–
2460.887	Mn	25	3	–
2460.86	U	4	2	–
2460.806	Co I	20	3	–
2460.73	Pr	–	12	–
2460.717	Ru	20	5	–
2460.713	Ir I	2 h	–	–
2460.70	Er	3	4 w	–
2460.653	Fe	–	5 h	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2460.62	Yt II	10	30 h	–
2460.596	Fe	15	–	–
2460.551	Ta	50	–	–
2460.55	Ra II	–	[50]	Rs
2460.493	Hf II	20	50	–
2460.47	Eu	2 h	–	–
2460.453	Fe II	1	15 h	–
2460.440	Cr	–	6	–
2460.422	Ru	–	5	–
2460.402	Cb	–	200 W	–
2460.394	W	–	8	–
2460.328	U	5	2	–
2460.31	Ag II	–	80 wh	–
2460.31	Fe	7	–	–
2460.24	Yb	3	15	–
2460.240	Re	25	–	–
2460.206	Co	20	–	–
2460.19	In II	–	[5 wh]	Ps
2460.166	Ru	–	5	–
2460.162	W	12	5	–
2460.10	Yt I	8	–	–
2460.079	In I	10 wh	–	Ps
2460.00	Dy	2	–	–
2459.97	A II	–	[5]	Rt
2459.923	B II	–	2	–
2459.878	W II	–	15	–
2459.86	Cl II	–	[10]	Ks
2459.842	Zr I	5	–	–
2459.82	Al II	–	[30]	Sy
2459.761	Mo	1	30	–
2459.75	Cl	–	[6]	An
2459.702	Pd	–	2 h	–
2459.698	Mn	5	–	–
2459.64	Lu	3	8	Me
2459.607	W II	5	8	–
2459.579	Ta	10	–	–
2459.564	Cb	1	5	–
2459.49	Co	1	30	–
2459.46	Hf II	1	3	Me
2459.46	Br	–	[2]	Bl
2459.45	O	–	[8]	Mh
2459.429	Ru	–	4	–
2459.362	V	–	20	–
2459.329	Na	–	[5]	Fr
2459.315	Ni II	–	2	–
2459.295	W	18	10	–
2459.292	Zr	3	–	–
2459.239	V	–	4	–
2459.23	Cs	–	[2]	Bs
2459.172	Fe	6	–	–
2459.17	Rh	1	10 wh	–
2459.168	Ru	5	3 wh	–
2459.097	Fe II	1	3	–
2459.007	Th	8	3	–
2459.0	bh C	5	–	L
2458.972	Ir I	4	–	–
2458.964	Fe	–	10	Do
2458.92	W	–	12	–
2458.904	Rh	50	300	–
2458.88	Al II	–	[2]	Sy
2458.85	Hg	–	[10]	Dj
2458.782	Fe II	7	60	–
2458.74	Ho	–	10 h	Ex
2458.714	Mo	10	5	–
2458.687	Mn	–	80 h	–
2458.683	Ta	40	–	–
2458.621	Ru	60	2	–
2458.58	Tm	8	5	Me
2458.566	W	1	15	–
2458.317	Cb	–	5 wh	–
2458.288	V	1	70	–
2458.15	La II	–	2 wh	–
2458.12	Au	–	5	–
2458.090	W	–	8	–
2458.087	Cb	2	50	–
2458.05	Al II	–	[8]	Sy
2458.025	Ti I	5	–	–
2457.995	Ru	8	2 h	–
2457.87	Cd I	2	[1]	Fl
2457.826	Ti I	5	–	–
2457.803	V	–	7	Me
2457.80	Zn I	4 r	–	Fl
2457.766	Mo	10	60	–
2457.764	Pd II	2	8	–
2457.71	Os	2	10	–
2457.68	Cu	–	2 W	–
2457.6	Rn	–	[12]	Wo
2457.595	Fe	70	30	I
2457.56	Lu	–	5 h	Me
2457.450	V	–	35	–
2457.436	Zr II	20	20	–
2457.404	Mo	15	–	–
2457.27	I	–	[20]	Bl
2457.260	Pd II	2	10	–
2457.245	Cb	–	15 wh	–
2457.227	Ir I	10	3	–
2457.20	Al II	–	[3]	Sy
2457.181	Ru	10	12	–
2457.18	W	–	12	–
2457.166	U	3	4 h	–
2457.030	Ir I	12	2	–
2457.02	Pd	–	[3]	Bx
2456.996	Cb	1	200	–
2456.949	Ru	10	–	–
2456.90	Te	–	[5]	Bl
2456.877	W	–	6	–
2456.86	Th	4	2	–
2456.819	Fe II	–	20	–
2456.769	Ir	2	–	–
2456.675	Cb	1 w	5 w	–
2456.641	Fe II	–	15	–
2456.568	Ru	60	50	–
2456.54	Zr I	3	–	–
2456.531	W	15	5	–
2456.53	As I	100 r	8	Me
2456.462	Os	12 s	3	–
2456.45	Tl I	5 R	–	Fl
2456.438	Ru	60	50	–
2456.292	Th	6	4	–
2456.268	Pd	–	2	–
2456.237	Co I	20 w	7	–
2456.229	W	8	–	–
2456.180	Rh	5	150	–
2456.079	W II	–	7	–
2456.07	Kr	–	[6]	Me
2456.00	Yb	–	3 h	Me
2455.915	Na I	2 R	–	Fl
2455.901	Fe II	–	25 h	–
2455 889	Ru	5	1	–
2455.88	La II	–	10	–
2455.868	Ir I	10	2	–
2455.856	W II	–	12	–
2455.851	Re	8	–	–
2455 80	Cs	–	[8]	Bs
2455.705	Rh	15	200 W	–
2455.682	In	–	3	–
2455.680	U	10	2	–
2455.609	Ir I	35	5	–
2455.60	Lu	–	4	Me
2455.56	Fe	15 h	–	–
2455.54	Te	–	[5]	Bl
2455.533	Cb	1	3 h	–
2455 530	Ru	80	100 r	–
2455.526	Ni II	–	40	–
2455.501	W	12	9	–
2455.453	Mo	–	8 h	–
2455.426	U	12	–	–
2455.370	W	5	–	–
2455.31	Kr II	–	[2]	Me
2455.252	Sn	12	12	–
2455.22	Al II	–	[8]	Sy
2455.21	Ho	–	10 h	Ex
2455.16	Hf II	3	3	–
2455.15	Dy	3	–	–
2455.140	Pt	–	3	–
2455.04	Kr II	–	[2]	Me
2455.00	Mo	15	–	–
2454.971	W	15	10	–
2454.969	Zr	2	–	–
2454.95	Eu	5	–	–
2454.923	Ru	60	5	–
2454.85	Pr	–	12	–
2454.763	Pd II	–	15 h	–
2454.76	Yb	–	10 Wh	–
2454.713	W	15	10	–
2454.585	Zr II	–	2	–
2454.584	Ir I	3	1	–
2454.576	Fe II	–	80	–
2454.484	P II	–	[2]	Ri
2454.482	Ta	60	–	–
2454.468	Cr	–	8	–
2454.46	I	–	[20]	Bl
2454.42	Ho	–	10 h	Ex
2454.378	Cb	–	3	–
2454.367	U	10	4	–
2454.36	Ce	–	12	a
2454.27	A	–	[10]	Rt
2454 266	Mo	5	–	–
2454 236	Zr II	2 h	3	–
2454.235	Ru	2	5 h	–
2454 22	Ag II	–	[2 h]	Bx
2454.212	Ta	50	–	–
2454.163	Fe II	–	7	–
2454.120	Ir I	4	1	–
2454.088	Mo	8 h	–	–
2454.063	Cr	–	2	–
2453.987	Ni I	40 W	8	–
2453.979	Hf II	5	8	–
2453.975	Fe II	–	3 h	–
2453 946	Cb	2	20	–
2453.939	Ru	10	25	–
2453.895	Os	12	3	–
2453.89	Be II	–	[6]	Ps
2453.859	Cb	2	10	–
2453.855	In II	–	[18 h]	Ps
2453.82	U	2	2	–
2453.80	Mo	–	3	–
2453.796	Fe II	1	10	–
2453.79	Tl I	5 R	–	Fl
2453.722	W	–	12	–
2453.659	Mn	–	15 wh	–
2453.53	Hg II	–	2	Nu
2453.474	Fe	20	3	I
2453.474	Pd II	–	3	–
2453.373	Cb	4	2	–
2453.351	V	2	40	–
2453.338	Hf II	12	25	–
2453.333	Mo	10	6	–
2453.328	Ag II	–	125 h	–
2453.259	Ta	2	–	–
2453.228	In II	–	[30]	Ps
2453.175	Mn	–	40 wh	–
2453.133	Mo	2	20	–
2453.100	Re	15	–	–
2453.089	Cb	8	2	–
2452.928	W	–	12	–
2452.918	Fe II	–	6	–
2452.86	Pr	–	8	–
2452.807	Ir I	35	2	–
2452.776	V	–	2	–
2452.758	Pd II	–	2 h	–
2452.74	La II	–	8	–
2452.70	Tl	–	100	Sd
2452 69	Ho	–	20	Ex
2452.59	Al II	–	[2]	Sy
2452.590	Fe	7	1	–
2452.576	W	–	2	–
2452.53	Te	–	[10]	Bl
2452.526	Mn	3 h	100 wh	–
2452.47	Hf	–	15	Me
2452.467	Cb	–	2	–
2452.433	Pd	–	10	–
2452.405	W	–	3	–
2452.30	Hf II	10	8	–
2452.30	Cl II	–	[10]	Ks
2452.258	Ir	–	2 d	–
2452.22	Mo	–	10	–
2452.136	Si I	20	20	Fl
2452.111	Al	2 h	–	–
2452.04	U	2 h	–	–
2451.998	W	12	15	–
2451.986	Zr	4	–	–
2451.94	Tl II	–	30	Ml
2451.874	Cb	3	100	–
2451.726	Os	12 s	8	–
2451.72	Tl II	–	10	Ml
2451.48	U	4	–	–
2451.477	W II	15	20	–
2451.388	Fe	5	–	–
2451.342	W	12	–	–
2451.318	Ru	3	12	–
2451.29	Se	–	[5]	Bl
2451.25	K	–	[5]	Ml
2451.214	Fe II	–	15	–
2451.19	Tm	8	6	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2451.103	Fe II	1	4	–
2451.049	Ru	3	8	–
2451.043	Pd	–	10 h	–
2451.032	W	–	9	–
2450.986	Ni	100 h	30	–
2450.97	Ho	–	10	Ex
2450.970	Pt I	400	10	–
2450.958	Pd	–	25 wh	–
2450.920	Ta	2	–	–
2450.892	Re	30	–	–
2450.81	Th	5	3	–
2450.739	V	–	20	–
2450.738	Os	25	8	–
2450.621	V	–	10	–
2450.584	Ru	10	–	–
2450.56	Rh	10 d	5 d	–
2450.52	Se	–	[5]	Bl
2450.494	W	3	–	–
2450.466	Ni I	20	–	–
2450.443	U	1	4	–
2450.440	Ti II	10	100	–
2450.440	Pt II	25	50	–
2450.438	Fe	15	–	–
2450.433	Cb	2 w	8 w	–
2450.384	W II	–	10	–
2450.378	Cr	–	3	–
2450.36	I	–	[20]	Bl
2450.250	Cb	1	5	–
2450.237	V	–	20	–
2450.202	Fe II	1	15	–
2450.071	Ga	10	10	m
2450.065	Cb	1	3	–
2450.065	Hf II	–	2	–
2450.039	Pd	–	15 h	–
2450.004	Co	40	200	–
2450.0	Po	–	[10]	Ka
2449.965	Cr	–	10	–
2449.960	Fe II	1	30	–
2449.858	Ru	20	–	–
2449.849	Zr II	50	20	–
2449.821	Ta	–	2 wh	–
2449.816	Ir I	2	–	–
2449.79	Sn II	–	25	Me
2449.786	Ru	4	20 h	–
2449.747	Mn	–	10	–
2449.736	Fe II	1	2	–
2449.72	Zn I	10	–	Fl
2449.713	Re	40	–	–
2449.70	Si	–	[5]	Sy
2449.692	W II	2 h	15	–
2449.652	Cr	–	10	–
2449.573	Mg II	20	–	Fl
2449 49	Ti I	5 R	–	Fl
2449.444	Ta	4 h	4 h	–
2449.44	Hf II	15	20	–
2449.393	Na I	2 R	–	Fl
2449.309	Zr	3	–	–
2449.272	Fe II	–	1	–
2449.187	Fe II	–	4	–
2449.184	W	–	3	–
2449.163	Co II	12	30	–
2449.14	In	–	2	Sq
2449.038	Rh	35	5	–
2449.024	Ir I	5	1	–
2448.95	Ho	–	10 h	Ex
2448.94	Sn II	–	5 W	–
2448.931	U	8	2	–
2448.862	Ru	12	6	–
2448.835	Rh I	35	5	–
2448.732	Fe II	–	2	–
2448.73	Eu	–	2 w	–
2448.65	W	–	12	–
2448.498	Ru	5	–	–
2448.48	I	–	[20]	Bl
2448.47	V	–	6 h	–
2448.389	W	15	5	–
2448.388	Fe	3	–	–
2448.385	Zr I	6	–	–
2448.280	Rh	2	100	–
2448.261	Cb	1	20 W	–
2448.229	Ir I	10	1	–
2448.217	W	–	15	–
2448.217	Cu II	1 h	2 h	–
2448.19	Pr	–	6	–
2448.164	Pd II	–	100	–
2448.057	Bi I	50	8	Om
2447.992	W	1	10	–
2447.970	Cb	2	30	–
2447.947	Ti II	–	5	–
2447.938	Ta	2	–	–
2447.929	Ag II	30	200 wh	–
2447.92	Te	–	[5]	Bl
2447.909	Pd I	200 r	100	–
2447.90	In II	–	[80]	Ps
2447.85	Rh	4	200 w	–
2447.835	U	–	8	–
2447.81	I	–	[30]	Bl
2447.763	Ir I	10	1	–
2447.76	Co	4	100 R	–
2447.747	Fe II	–	80	–
2447.708	Fe I	70	100	S
2447.608	V	–	70	Me
2447.53	Se	–	[5]	Bl
2447.488	Ir I	2	1	–
2447.451	Ru	30	–	–
2447.441	Fe	5	–	–
2447.39	Tm	5	2	Me
2447.374	W	8	–	–
2447.320	Fe II	1	15	–
2447.254	Hf II	25	50	–
2447.252	W	1	10	–
2447.23	Ca	–	4	Ad
2447 23	Yb	–	2 d	–
2447.200	Fe II	1	30	–
2447.174	Ta	12	2 h	–
2446 988	Re	100 W	–	–
2446.927	Cr	–	4	–
2446.905	Hg I	10	15	–
2446 89	Te	–	[50]	Bl
2446.836	Ir	2	1	–
2446.788	W	4	–	–
2446.78	Pr	–	8	–
2446.714	Pd II	–	50	–
2446.703	V	1	50	m
2446.66	Rh	–	25 wh	–
2446.593	Ru	3	3	–
2446.49	U	–	8 h	–
2446.465	Fe II	3	40	–
2446.452	Mn	–	20 wh	–
2446.44	Kr II	–	[8]	Me
2446.440	Cb	–	10	–
2446.386	W II	10	30	–
2446.37	Er	15	2	–
2446.32	Ag II	–	25 wh	–
2446.188	Pb	150 w	15	–
2446.182	Pd II	–	100	–
2446.15	Au II	–	5	Ex
2446.133	Cb	5	–	–
2446.129	Ti I	10	5	–
2446.104	Fe II	3	35	–
2446.10	B	–	[6]	Sy
2446.085	Cb	–	10 h	–
2446.04	Eu	1	6 w	–
2446.035	W	–	10	–
2446.023	Os	12	8	–
2446.02	In II	–	[5]	Lg
2446.020	Co	2	40	–
2446.0	K	–	[20]	Ml
2445.917	W	5	–	–
2445.880	Os	8	15	–
2445.830	Cb	–	100	–
2445.782	Fe II	2	15	–
2445.748	Zr	5 h	–	–
2445.65	As	–	3	Ro
2445.643	Rh I	25	2	–
2445.579	Ru	10	–	–
2445.57	La	–	10 h	–
2445.558	Fe II	15	40	–
2445.55	O II	–	[300]	Fl
2445.53	Au II	–	5	–
2445.52	Pr	–	40	–
2445.515	Sb	75	30	–
2445.46	Er	–	5	–
2445.46	Tm	10	15	Me
2445.454	W	4	3	–
2445.341	Ir I	10	4	–
2445.34	Cl II	–	[20]	Ks
2445.336	V	–	4	–
2445 246	W	5 d	3	–
2445 226	V I	2	–	–
2445.211	Fe I	7	1	–
2445.119	Rh	2 h	8	–
2445.11	B	–	6	Sy
2445.107	V	–	3	Me
2445.1	Pb II	–	[2]	Ea
2445.092	Ir I	4	3	–
2445 072	Cb	10	2	–
2445.01	Sn	–	[50]	Ar
2444.973	V	2	60	–
2444.936	W	–	15	–
2444.852	Cb	–	3 h	–
2444.80	U	3	2	–
2444.742	Rh	4	25	–
2444.74	Fe	3	–	–
2444.735	Mo	1	8	–
2444.668	Ta	50	200	–
2444.512	Fe II	25	60	–
2444.481	Cb	2	15	–
2444.469	Th	5	3	–
2444.437	Cu	–	20	–
2444.39	Eu	–	5 w	–
2444.375	Pd	–	5 h	–
2444.270	Rh I	100 w	3	–
2444.26	O II	–	[30]	Fl
2444.209	Ag II	–	80 w	–
2444.206	Fe	9	–	–
2444.206	Pd II	–	15 h	–
2444 203	Mo	10 h	–	–
2444.195	Na I	2 r	–	Fl
2444.151	Dy	2	–	–
2444.126	Ta	20	4	–
2444.12	I	–	[60]	Bl
2444.12	Cl II	–	[7]	Ks
2444.1	Rn	–	[12]	Pe
2444.058	Rh	2	100	–
2444.056	W	18	9	–
2444 047	U	4	4	–
2444.030	Ru	12	–	–
2443.936	Ta	60	–	–
2443.92	Tl I	5 R	–	Fl
2443 870	Fe I	40	4	I
2443.838	Pb	100 w	15	–
2443.781	Co II	8	20	–
2443 76	Se	–	[10 h]	Bl
2443.715	Cd II	–	4	–
2443.711	Rh	4	100	–
2443 615	W	15	8	–
2443 614	Pd	–	3 h	Dn
2443.529	Cb	5	2	–
2443.45	Pd II	–	[5]	Bx
2443.442	Mo	4	20	–
2443 378	Si I	15	15	Fl
2443.332	W	10	2	–
2443.320	Cu II	1	10 h	–
2443.287	Fe	3	–	–
2443 225	Ru	3	1	–
2443 2	Cs	–	[2]	Bs
2443.188	Mo	2	20	–
2443.172	W	5	4	–
2443.166	Fe	7	–	–
2443.16	La II	–	2 h	–
2443 099	Pt II	–	3	–
2442.972	W	12	2	–
2442.895	U	5	4	–
2442.80	La	–	3	Me
2442.78	Xe	–	[7 h]	Hu
2442.76	Ho	–	20	Ex
2442.727	Rh	1	10	–
2442.70	Ti II	–	6	–
2442.677	Cb	1	50 w	–
2442.66	Co	2	20	–
2442.656	Cu II	2	3 h	–
2442.63	In II	–	[30]	Ps
2442.626	Pt II	20	40	–
2442 567	Fe	70	10	I
2442.52	Re	25	–	–
2442.46	In II	–	[18]	Ps
2442.393	Ta	10	–	–
2442.34	Au	–	5 h	–
2442.16	Tl I	5 R	–	Fl
2442.142	Cb	3	80	–
2442.1	Rn	–	[20]	Pe
2442.07	Se I	–	[15]	Rd
2442.01	Pd	–	[2]	Bx
2441.991	Zr II	5	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2441.894	V I	12	12	–
2441.89	U	–	4	–
2441.859	Cb	3 w	25 w	–
2441.852	Ta	2	5	–
2441.822	Ni I	18	6	–
2441.743	Ru	6	–	–
2441.72	Co	–	15	–
2441.67	O II	–	[5]	Mh
2441.667	Ni I	18	4	–
2441.644	Mo	10 R	–	Pu
2441.637	Cu I	200	100	IBu
2441.60	W	2	10	–
2441.546	Fe II	1	5	–
2441.50	Se	–	[10]	Bl
2441.48	Re	40	–	–
2441.440	Ru	4	–	–
2441.38	W	–	10 d	–
2441.353	V I	5	5	–
2441.30	Zr	8	–	–
2441.289	Th	–	10	–
2441.16	Mn	–	15 wh	–
2441.050	Co	20	7	–
2441.03	Hg I	4	[1]	Di
2441.02	Hf	1	5 hl	–
2441.010	Cu	2 h	–	–
2440.985	Ti I	35	–	–
2440.973	Cb	1	5	–
2440.969	Ir I	2 h	–	–
2440.969	Ru	12	–	–
2440.962	Ta	2	–	–
2440.9	K	–	[5]	Ml
2440.89	P	–	[5]	Gu
2440.863	Fe	3	–	–
2440.815	Os	3	15	–
2440.70	Tm	9	3	Me
2440.6	K	–	[2]	Sg
2440.57	Yb	–	3 h	Me
2440.454	Mn	–	8	–
2440.434	W II	2	15	–
2440.432	U	1 h	2	–
2440.425	Fe II	1	40	–
2440.38	Cl	–	[6]	An
2440.340	Zr	5	–	–
2440.277	Mo	4	20	–
2440.21	Ti II	5	35	–
2440.21	Zn	–	[3]	Vs
2440.183	Ir	–	5	–
2440.12	Co	4 w	1 wh	–
2440.107	Fe	25	8	–
2440.07	A II	–	[2]	Rt
2440.060	Mo	1	8	–
2440.057	Pt I	800 w	100 wh	–
2440.046	Na I	2 r	–	Fl
2440.04	Se	–	[5]	Bl
2440.014	Pd	–	2 h	–
2439.911	Ta	4	–	–
2439.907	W	–	6	–
2439 907	Cu I	6	–	–
2439.85	Ce	–	20	a
2439.842	W II	–	6 d	–
2439.8	Cs	–	[2]	Bs
2439.774	V	–	4 h	Me
2439.744	Fe	20	12	–
2439.709	Ru	3	5	–
2439.68	Yb	–	2	–
2439.503	Co	8 h	–	–
2439.503	Zr	4	–	–
2439.50	Tl I	5 R	–	Fl
2439.466	W	–	10	–
2439.42	Zn	–	[25]	Vs
2439.33	Ho	–	20	Ex
2439.300	Fe II	15	100	–
2439.29	Yb	–	2	–
2439.204	W	4	–	–
2439.104	V I	15 r	15	–
2439.046	Co I	20 R	20	–
2438.967	W	3	–	–
2438.88	Ga II	–	[8]	Sy
2438.86	Dy	2	–	Ed
2438.86	Se	–	[5]	Bl
2438.843	W	–	5	–
2438.80	Te	–	[25]	Bl
2438.786	Rh	2	100	–
2438.782	Si I	30	20	Fl
2438.78	A	–	[2]	Rt
2438.75	In	–	3	Sq
2438.641	Ta	40	4	–
2438.64	Pr	–	25	–
2438.57	Mo	1	10	–
2438.556	W	–	3	–
2438.475	Cr	–	35	–
2438.473	Re	25	–	–
2438.411	Co I	2	3 h	–
2438.39	La II	–	10	–
2438.353	W	–	6	–
2438.343	Mo	1	15 W	–
2438.310	Ti I	10	–	–
2438.28	I II	–	[5]	Mu
2438.222	Mn	1	15 wh	–
2438.181	Fe I	30	4	I
2438.044	V	–	15 h	–
2437.999	La II	–	20	–
2437.961	W	6	–	–
2437.930	Pd II	–	15 wh	–
2437.914	Mn	–	25 wh	–
2437.888	Ni II	40 w	200	–
2437.797	Pd II	–	15 h	–
2437.791	Ag II	60	500 wh	Fn
2437.76	Pd	–	3 h	–
2437.74	Cl	–	[3]	Jv
2437.736	Mo	10	80 W	–
2437.721	Cb	–	5 wh	Me
2437.669	U	4	4 h	–
2437.666	Fe II	1	3 h	–
2437.61	I	–	[20]	Bl
2437.56	Th	5	4	–
2437.484	W	–	9	–
2437.424	Mn	–	40 wh	–
2437.415	Cb	4	100	–
2437.339	W	–	6	–
2437.267	Fe II	1	1	–
2437.23	As I	25	2	Me
2437.166	Cb	5	1	–
2437.154	Fe II	2	2	–
2437.13	La II	–	10 w	–
2437.1	Cs	–	[2]	Bs
2437.1	bh B	250	–	L
2437.08	Pr	–	4	–
2437.07	Ho	–	10	Ex
2437.070	Ta	20	–	–
2436.979	Co II	2	20	–
2436 95	B	–	2	Sy
2436 93	Dy	3	–	–
2436.923	Ru	25	–	–
2436.884	Sn	–	2	–
2436 835	W	6	–	–
2436.76	Eu	–	2 wh	–
2436.689	Pt I	300	20	–
2436.672	Ni	30 l	20	–
2436.657	Co	50 R	25	–
2436.63	Te	–	[25]	Bl
2436.626	Fe II	4	25 h	–
2436.623	W	12	9	–
2436 6	K	–	[20]	Ml
2436.57	Ag II	–	20 wh	–
2436.512	Ta	10 h	40	–
2436.499	Pd	–	25 wh	–
2436.442	Co	1	5	–
2436.424	Ir I	3	–	–
2436.42	La II	–	15 W	–
2436 39	Ge I	2	1	–
2436.348	Pd II	–	2 h	–
2436.344	Fe	25	–	–
2436.330	Cb	5	3	–
2436.29	Ir	–	3	–
2436.258	W	8	2	–
2436.221	Fe II	–	10	–
2436.20	I	–	[20]	Bl
2436.12	Dy	4	–	–
2436.061	Re	25	–	–
2436.06	O II	–	[20 h]	Mh
2436.03	Hg	–	[2]	Dj
2436.00	As	–	4	Ro
2435.963	Mo	10	50 h	–
2435.962	W	30	10	–
2435.952	Cb	3	50	–
2435.855	Fe	2 h	2	–
2435.830	Co	10	1	–
2435.81	Bi	5 h	–	To
2435.809	Fe II	–	3	–
2435.72	Br	–	[3]	Bl
2435.57	Nd	–	5	–
2435 521	V I	35 r	35	–
2435.520	Zn II	–	10	–
2435.509	Ru	6	2	–
2435.47	Xe II	–	[4]	Hu
2435.43	Au	–	5 h	–
2435.426	W	–	12	–
2435.376	Cb	1	3	–
2435.322	Pd II	–	50	–
2435.19	Eu	–	2 w	–
2435.159	Si I	150	80	Fl
2435 149	Zr	25	–	–
2435 140	Ir I	8	1	–
2435 138	Mn	1	8	–
2435.092	Co	20 w	2 h	IBu
2435.071	Cb	1	10 w	–
2435.07	Ag II	–	[2]	Bx
2435.007	W II	3	30	–
2435.0	bh C	30	–	L
2434 962	Cb	3	1	–
2434 95	B	–	20	Sy
2434.944	Fe II	6	20	–
2434.943	V	–	3	–
2434 882	Ru	50	–	–
2434.75	Tm	5	2	Me
2434.741	Ta	2	–	–
2434 74	Hf II	8	15	–
2434 73	Te	–	[15]	Bl
2434.728	Fe	6	30	–
2434.673	W	3	–	–
2434 665	Cb	–	3	–
2434.645	Fe II	1	5 h	–
2434.574	Zr II	12	8	–
2434 459	W	1	9	–
2434.458	Pt II	20	40	–
2434.415	Ni I	40 w	–	–
2434 41	Pr	–	6	–
2434 35	Te	–	[10]	Bl
2434 30	Cd II	–	[2]	Tk
2434.28	Tl II	–	[5]	El
2434 257	W	10	12	–
2434 245	Fe II	3	10 h	–
2434 205	Mn	12	–	–
2434.189	Mo	–	3 h	–
2434.105	Ti I	10	1	–
2434.10	Se	–	[10]	Bl
2434.10	Cl II	–	[50]	Ks
2434.070	Mn	10	–	–
2434.014	Ir	2	1	–
2433 984	W	12	10	–
2433.96	Mo	–	25 d	–
2433.908	Fe	2	–	–
2433.9	In	–	2	Cx
2433.890	Hf II	–	2 h	–
2433.867	Ru	–	8	–
2433.82	Te	–	[10]	Bl
2433.795	Cb	3	100	–
2433.786	U	8	4	–
2433.772	Ru	2	2	–
2433.76	As	–	8	Ro
2433.743	W	7	3	–
2433.686	Cb	5	3	–
2433.61	Yb	–	3 h	–
2433.587	Ta	10	20	–
2433.57	Ag	–	4 h	–
2433.567	Ni II	–	80	–
2433.566	Hf II	15	50	–
2433.557	Cb	–	4 wh	–
2433.54	Au	–	5 h	–
2433.538	W	–	3	–
2433.53	O II	–	[250]	Mh
2433.496	Fe II	2	15	–
2433.495	Pt II	1	10 h	Sh
2433.477	Sn II	5	5	–
2433.451	W	9	–	–
2433.446	Bi	30	–	–
2433.444	Cd II	–	8	–
2433.291	Re	30	–	–
2433.245	Zr	–	2 wh	–
2433.224	Cr	–	10	–
2433.223	Ti I	35	–	–
2433.158	Ta	2	–	–
2433 146	W	2	10	–
2433.104	Pd II	–	50	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2433.00	Ho	–	20	Ex
2432.981	V	1	25	–
2432.95	Au	–	5 h	–
2432.927	Ru	60	–	–
2432 868	Fe	5	40	–
2432 832	Cb	–	3 w	–
2432.761	W	1	9	–
2432.74	Kr	–	[8]	Me
2432.730	In II	–	[25]	Ps
2432.72	Xe II	–	[6]	Hu
2432.701	Ta	300 r	400	–
2432.693	Re	15	–	–
2432.6	Cs	–	[8]	Bs
2432.579	Ir I	5	1 h	–
2432.52	Co	–	80	–
2432.48	Zn II	–	[2]	Vs
2432.355	Ir I	5	–	–
2432.322	Cb	2 w	40 w	–
2432.29	B II	–	35	Sy
2432.267	Fe II	25	70	–
2432.262	Zr II	–	2	–
2432.250	Ru	10	1	–
2432.23	Si	–	[5]	Sy
2432.214	Co I	40 R	–	–
2432.173	Re	100 W	–	–
2432.018	V I	10	10	–
2431.963	Fe	3	–	–
2431.952	V I	10	10	–
2431.938	Ir I	50	50	–
2431.847	Rh	3	10	–
2431.794	Ti I	4	–	–
2431.78	Te I	10	[15]	Bl
2431.777	Pd II	–	15	–
2431.741	Th	2	30	–
2431.74	Pr	–	5 h	–
2431.712	W	2	10	–
2431.676	Cb	1 w	40 w	–
2431.658	Ta	10	–	–
2431.607	Os	40	4	–
2431 602	U	2	2	–
2431.572	V I	6	6	–
2431.570	Ni II	–	20	–
2431.534	Re	50	–	–
2431.520	Mn	12	1	–
2431.46	Pd II	–	[25]	Bx
2431.45	Te	–	[10]	Bl
2431.40	La	–	6 h	Me
2431 375	W II	1	10	–
2431 30	Fe	6	1	–
2431 26	Pr	–	5	–
2431 241	Ir I	25	5	–
2431.193	Os	40	4	–
2431.16	Th	4	2	–
2431.084	W	10	3	–
2431.03	Ho	–	20	Ex
2431.024	Fe	20	3 h	I
2430.986	In I	10 R	–	Ps
2430.929	Ru	–	3 wh	–
2430.929	Pd II	–	30 h	–
2430.92	I	–	[20]	Bl
2430.839	Fe	–	2	–
2430.82	B	–	2	Sy
2430.813	Rh	2	20	–
2430.79	Zn I	8	–	Fl
2430.770	W	–	10	–
2430.617	W	4	–	–
2430.538	Pd II	–	25	–
2430.454	Bi I	30	6	Om
2430.438	W	10	2	–
2430.429	Mo	20	4	–
2430.396	Mn	12	1	–
2430.352	Ag	–	3	–
2430.323	Ru	6	10	–
2430.311	Cb	1	3 h	–
2430.274	Mo	–	15	–
2430.26	Lu	3	15	Me
2430.252	Pd II	–	10	–
2430.186	Fe II	2	2	–
2430.175	Co	10	–	–
2430.16	Cl II	–	[30]	Ks
2430.078	Pd II	–	10	–
2430.072	Fe II	15	70	–
2430.06	A II	–	[5]	Rt
2430.04	Cl	–	[15]	An
2430.04	V	–	70	Me
2429.972	W II	2	9	–
2429.864	In I	20 R	–	Ps
2429.843	W	10	5 h	–
2429.813	Fe I	6	–	–
2429.734	Ir I	2	1	–
2429.71	Ta	20 l	40	–
2429.66	Ta	2	5	–
2429.653	Re	25	–	–
2429.635	Ag II	–	150 wh	–
2429.596	Ru	60	–	–
2429.516	Rh I	4	4	–
2429.515	W II	1	10	–
2429.50	Re	30	–	–
2429.497	Sb	–	3	–
2429.495	Fe II	–	2	–
2429.495	Sn	200 R	250 R	–
2429.41	Mo	4	25	–
2429.392	W	–	10	–
2429.385	Fe II	–	15	–
2429.357	Pt II	4	10	–
2429.349	Ta	10	–	–
2429.234	Mn	15	–	–
2429 228	Co I	25	3	–
2429.19	Zr	3	–	–
2429 109	Ru	3	3	–
2429.105	Rh	–	10	–
2429.096	Ni I	15	1	–
2429.096	Pt I	100	–	–
2429.08	Mo	–	5 h	–
2429.036	Fe II	1	8	–
2428.990	Ta	2	–	–
2428.989	Hf II	12	20	–
2428.911	Cu II	1 h	5 h	–
2428.882	Cb	–	12 wh	–
2428.86	Zn II	–	[10]	Vs
2428.795	Fe II	1	15	–
2428.78	Mo	–	20 h	–
2428.773	W	–	10	–
2428.718	Ru	12	3	–
2428.644	Pb	10 h	8	Kl
2428.603	Cb	1	15	–
2428.596	W	3	–	–
2428.596	Co	10	1	–
2428.48	Ta	–	20 w	–
2428.476	U	5	2	–
2428.43	Tm	5	2	Me
2428.422	Mn	12	–	–
2428.38	In	–	3	Sq
2428.361	Fe II	3	15	–
2428.360	Ir I	2	–	–
2428.359	Ti I	8	–	–
2428.35	Kr	–	[20]	Me
2428.293	Co II	10	20	–
2428.286	Fe II	1	10	–
2428 279	V I	30 r	20	–
2428.228	Ti I	15	–	–
2428.203	Pt I	100	20	–
2428.20	Fe	9	–	–
2428.196	Ag II	1	40 wh	–
2428.18	Mo	–	15	–
2428.173	W	5	12	–
2428.095	Sr I	10 h	–	ISn
2428.035	Pt I	100	10	–
2428.02	Cl II	–	[10]	Ks
2427.99	Th	3	25	–
2427 978	Mn	–	50 wh	–
2427.963	Ir	5	–	–
2427.95	Au I	400 R	100	–
2427.900	Os	8	40	–
2427.813	W II	1	7	–
2427.79	Cl II	–	[20]	Ks
2427.753	Mn	–	50 wh	–
2427.745	V I	6	6	–
2427.741	Ru	2	12	–
2427.70	Al II	–	[15]	Sy
2427.65	Cs	–	[20]	Bs
2427.642	Ta	150	1	–
2427.622	U	12	2	–
2427.613	Ir I	25	2	–
2427.539	Cb	5	2 h	–
2427.490	W II	10 d	12	–
2427.454	U	12	2	–
2427.410	Mn	–	50 wh	–
2427.339	Rh	2	50	–
2427.327	V	–	35	–
2427 295	Mo	2	20	–
2427.287	W	10	1	–
2427.21	Lu	–	3	Me
2427.205	In II	–	[40 h]	Ps
2427.197	Fe II	–	5	–
2427.086	Ir I	2	–	–
2427.082	Ru	1	6	–
2427.076	Cd II	–	3	–
2427.068	W	–	2	–
2427.001	Co	12	1	–
2426.974	Mo	–	2	–
2426.956	Cb	2	–	–
2426.882	Ir I	2	–	–
2426.87	Hf	–	3	–
2426.868	Pd II	–	50	–
2426.812	Os	15	3	–
2426.791	Cb	–	40	–
2426.776	Ir I	2	–	–
2426.735	Pd	–	3	–
2426.707	Ru	12	5	–
2426.636	Cb	3	2	–
2426.63	Zn I	8	–	Fl
2426.593	Ta	2	–	–
2426.532	Ir	3	1	–
2426.514	W	1	20	–
2426.465	Rh	3	2	–
2426.41	Cs	–	[8]	Bs
2426 39	Te	–	[100]	Bl
2426 385	Cd II	–	5	–
2426.381	Zr II	2	4	–
2426.38	Nd	–	5	–
2426.37	Mo	3	5	–
2426.36	Kr II	–	[10]	Me
2426.352	Sb	75	25	–
2426 310	Ir	2	4	–
2426 309	Fe	4	–	–
2426 240	Cb	1	4	–
2426 218	W	–	2	–
2426 16	Tm	40	20	Me
2426 130	Cb	–	3 h	–
2426 128	V I	4	4	–
2426 12	Co	–	20	Ex
2426.08	Pd	–	[30]	Bx
2426.074	W	7	–	–
2425 99	Se	–	[15]	Bl
2425 980	W	7 d	7	–
2425 975	Hf II	15	25	–
2425.964	In II	–	[25 h]	Ps
2425 930	Fe II	–	10	–
2425 906	Ta	10 h	25 d	–
2425 834	In II	–	[18]	Ps
2425.798	Pd II	–	15	–
2425 77	Ir	–	2	–
2425 73	Mo	–	15 h	–
2425 684	Fe II	1	40	–
2425.68	Li I	30 w	–	Fl
2425 661	Ir I	15	–	–
2425.61	Al II	–	[2]	Sy
2425.594	Co I	8	1	–
2425.55	O II	–	[25]	Mh
2425 403	U	5	2	–
2425.361	Fe II	–	20	–
2425 15	Cs	–	[20]	Bs
2425.114	Cb	1	3	–
2425.10	Mo	–	5	–
2425.05	Xe	–	[20 h]	Hu
2425.02	Pd II	–	[3]	Bx
2425.0	bh C	20	–	L
2424.990	Ir I	15	2	–
2424.971	U	3	2	–
2424.970	Os	50	8	–
2424.932	W	–	8	–
2424.930	Co I	250 R	–	–
2424.900	Zr I	3	–	–
2424.886	Ir I	10	–	–
2424.869	Pt II	50	100	–
2424 770	W	6	–	–
2424.717	Os	3	1	–
2424.70	A II	–	[2]	Rt
2424.662	Gd	2	–	–
2424.660	Ir	10	8 h	–
2424.585	Fe II	1	20	–
2424.584	W	–	8 h	–
2424.565	Os	20	3	–
2424.529	Ru	2	6	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2424.524	La	–	2 h	–
2424.480	Pd II	–	100	–
2424.436	Cu II	4	200	IBu
2424.408	U	3	2	–
2424.39	Se	–	[5]	Bl
2424.390	Fe II	2	4	–
2424.34	P	–	[4]	Gu
2424.29	Ga	–	5	Kl
2424.260	Mn	10	–	–
2424.258	Mo	–	15	–
2424.245	Ti I	30	1	–
2424.216	W	20	7	–
2424.154	Mn	–	3	–
2424.143	Fe II	25	70	–
2424.028	Ni I	20	–	–
2424.024	Os	8	10	–
2424.01	Cl II	–	[10]	Ks
2424.003	Hf II	–	4 h	–
2424.002	Cb	4	1	–
2424.00	A	–	[2]	Rt
2423.995	Mo	6	40	–
2423.941	W	–	15	–
2423.748	Zr	9	–	–
2423.72	Ti	–	5 h	–
2423.716	Mo	2	10	–
2423.703	U	15	4	–
2423.675	Th	6	5	–
2423.656	Ni I	20	5	–
2423.621	Co II	12	20	–
2423.569	Sr II	5	5	ISn
2423.540	Ru	2	3 wh	–
2423.485	Ta	10 h	8	–
2423.40	I	–	[20]	Bl
2423 390	Pd II	–	2 h	–
2423.375	V I	15	15	–
2423.326	Ni I	25	4	–
2423.278	W	–	15	–
2423.23	Se	–	[5]	Bl
2423.21	I	–	[20]	Bl
2423.210	Fe II	2	40	–
2423.13	Ga	–	3	–
2423.094	Fe I	5	–	–
2423 092	Ru	8	–	–
2423.076	Rh	–	15	–
2423.071	Os	25	80	–
2423.038	V	–	10	–
2422.941	Fe II	–	2	–
2422.94	Xe	–	[5]	Hu
2422.925	Ru	60	8	–
2422.9	Cs	–	[2]	Bs
2422.83	Yb	1	2	–
2422.82	Tb	–	10	Ex
2422 815	Ta	2	–	–
2422 75	Dy	3	–	–
2422.73	A	–	[2]	Rt
2422.679	Fe II	3	70	–
2422.659	W	7	–	–
2422.642	Pd II	–	2 h	–
2422.637	U	1	10	–
2422.63	Ga	–	4	m
2422.592	Ag II	–	10 wh	–
2422.571	Ru	50	1 h	–
2422.564	Co	30 w	3	–
2422.53	Er	–	3	Ex
2422.527	W	2	12	–
2422.394	Pd II	–	20 h	–
2422.32	I	–	[20]	Bl
2422.285	W II	2	12	–
2422.185	Yt II	20	30	–
2422.180	Ir	2	–	–
2422.179	Mo	2	60	–
2422.177	Ru	12	8 wh	–
2422.14	Sb	50	20	–
2422.14	Rh	1	2	–
2422.085	Ta	2	–	–
2422.048	Pd II	–	15 h	–
2421.980	V I	35 r	35	–
2421.909	Cb	–	80	–
2421.901	U	2	12	–
2421.848	Ta	8	40	–
2421.762	Re	50	–	–
2421.693	Sn	150 R	200 R	–
2421.688	Co I	8	–	–
2421.670	W	–	10	–
2421.650	Mo	–	25	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2421.64	Tm	15	6	Me
2421.61	La II	–	5 h	Me
2421.53	Eu	3 w	–	–
2421.42	Lu	–	4	Me
2421.4	Cs	–	[2]	Bs
2421 39	Re	25	–	–
2421.36	Yb	4	15	–
2421.356	W	–	3	–
2421.305	Ti I	25	1	–
2421.27	Xe	–	[10 h]	Hu
2421.227	Ni I	20 s	4	–
2421 214	Ir I	2	–	–
2421.062	V I	25 r	25	–
2421.032	Ta	20	–	–
2421.010	W II	7	12	–
2420.979	Rh	30	100	–
2420 820	Ru	60	2	–
2420.817	Pt II	4	10	–
2420.76	Hf II	1	2	Me
2420.726	Co	8	80	–
2420.717	Mo	15	3	–
2420.60	In	–	2	Sq
2420.529	Mo	15	1	–
2420.520	U	2	2	–
2420.495	W	2	15	–
2420.49	A II	–	[10]	Rt
2420.405	Mn	12	–	–
2420.383	Fe I	2	–	–
2420.28	Er	5	2	–
2420.251	Ru	–	4	–
2420.221	V	3	2	–
2420.200	W	10	–	–
2420.177	Rh	4	4	–
2420 176	Mo	1	40	–
2420.144	Cb	4	1	–
2420.14	Te I	10	[2]	Bl
2420.122	V I	20 r	20	–
2420.119	Ru	2	8	–
2420.115	Mn	12	–	–
2420.067	Ag II	–	100 hw	–
2420.06	Cs	–	2	–
2420.01	La	–	5 h	–
2420.005	W	–	7	–
2419.966	Cb	3	–	–
2419.950	Rh	1	2	–
2419.876	Fe I, II	2	3	–
2419.846	W	–	3	–
2419.832	Co I	6	–	–
2419.812	Mn	–	5	–
2419.803	Cb	4	–	–
2419 80	Si	–	[2]	Sy
2419.79	Er	–	5	–
2419.78	Fe	3	–	–
2419.715	Ta	2	–	–
2419.573	U	10	4	–
2419.49	Sn	–	[40]	Mc
2419.49	Cd II	–	[25]	Tk
2419.468	Cb	1	10	–
2419 41	Fe	3	–	–
2419.41	I	–	[20 l]	Bl
2419.410	Pd II	–	2 h	–
2419.409	Zr II	30	10	–
2419.37	Tm	6	3	Me
2419.345	W	2	20	–
2419.34	Au II	–	5 h	–
2419.336	Co I	10 d	–	–
2419.313	Ni I	20 r	4	–
2419 21	Lu	8	40	Me
2419.195	In II	–	[25]	Ps
2419.16	I	–	[60]	Bl
2419.121	Co	20 w	1	–
2419.070	W	–	4	–
2419.064	In II	–	[25]	Ps
2419.058	Fe I	2	–	–
2419.008	Mo	3	40	–
2418.97	Pr	–	20	–
2418.932	In II	–	[10]	Ps
2418.908	Ru	4	8	–
2418.772	Ta	15	6	–
2418.739	V I	3	2	–
2418.727	Pd II	–	50	–
2418.70	Cd II	–	20	–
2418.699	Ga	3	5	Uh
2418.692	Cb	5	500	–
2418.6	Rb	–	[5]	Dr

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2418.56	Pd	–	[3]	Bx
2418.553	Ir I	2	–	–
2418.529	Os	15	3	–
2418.46	O II	–	[40]	Mh
2418.440	Fe II	1	10 h	–
2418.41	Kr	–	[4]	Me
2418.377	U	6	6 h	–
2418.359	Ti I	20	–	–
2418.26	Cd II	–	5	–
2418.252	W	–	15	–
2418 106	Ir I	30	5	–
2418.058	Pt I	300	50	–
2417.986	Os	20 s	3	–
2417 958	Mo	5	30	–
2417.929	Mn	–	8	–
2417.903	Ir	–	5	–
2417.866	Fe II	10	100	–
2417.856	Ta	20 W	40	–
2417.827	W	–	6	–
2417 736	Pt II	–	10	–
2417.699	Ta	10	–	–
2417.693	Hf II	25	40	–
2417 666	In	–	2	–
2417.654	Co II	20 w	20	–
2417 61	La II	–	3 h	Me
2417.604	W	–	15	–
2417.537	V	–	30	–
2417.51	Ti	–	4	–
2417.490	Fe I	6	–	–
2417.373	Mo	–	10	–
2417.366	Ge	10	12	–
2417 351	V I	25 r	20 h	–
2417.329	Co	25	–	–
2417 326	Cb	2	15	–
2417.29	Yt II	4	8 h	Ed
2417 23	Hf	–	3 h	Me
2417.16	Hg	–	[2]	Dj
2417.157	Cb	–	5 h	–
2417.09	Pd	–	[3]	Bx
2417 049	Co	10	–	–
2416.999	W	–	5 wh	–
2416 993	Cb	8	200	–
2416 946	Ru	6	12	–
2416 896	Co II	8	20	–
2416.892	Ta	100	150	–
2416 88	Zr II	–	2 w	–
2416 751	V I	40 r	40 h	–
2416 714	Fe II	–	5	–
2416.70	Tl I	5 l	–	Fl
2416.684	Pd II	–	25 wh	–
2416.63	Br	–	[2]	Bl
2416.61	Au II	–	5 h	–
2416.572	Mo	15	1	–
2416.54	Si	–	[2]	Sy
2416.490	Ru	10	2 h	–
2416.46	U	2	2	–
2416.457	Fe II	1	40 h	–
2416.420	W	–	2 h	–
2416.411	Cr	–	5	–
2416 351	Mn	–	15	–
2416.349	Pd	–	2	–
2416.257	Re	2	–	–
2416.25	Hg	–	[2]	Dj
2416.245	Cb	2	3 h	–
2416.240	Ir	2	1 h	–
2416.232	W	9	1	–
2416.213	Co	1	15	–
2416.18	Mo	–	2	–
2416.170	Cb	5	25	–
2416.138	Ni II	40	250 h	–
2416.051	W	–	10	–
2416.02	Tm	6	5	Me
2415.99	Co	10 r	20	–
2415.959	Hf II	5	5	–
2415.951	Cb	2 w	15 w	–
2415.92	Lu	–	5	Me
2415.911	Zr	5	–	–
2415.862	Ir I	15	–	–
2415.841	Rh	100	200	–
2415.80	A	–	[2 h]	Rt
2415.718	Ru	4	10	–
2415.68	Zr	3	–	–
2415.679	W	15	9	–
2415.614	Pd II	–	30	–
2415.59	Te	–	[50]	Bl

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2415.488	In II	–	[5]	Ps
2415.48	Zn I	5	–	Fl
2415.381	W	–	9	–
2415.333	V I	25	25 h	–
2415.326	Mo	20	6	–
2415.316	In II	–	[10]	Ps
2415.306	Pd	–	5 h	–
2415.299	Co I	40 R	18	–
2415.134	V	–	4 h	–
2415.13	O II	–	[15]	Fl
2415.063	Fe II	1	50	–
2415.06	B	–	2	Sy
2415.0	Cs	–	[2]	Bs
2414.95	Pd II	–	[2 h]	Bx
2414.89	Kr II	–	[10]	Me
2414.871	Cb	–	5 wh	–
2414.860	Cu II	–	2	–
2414.825	Ru	25	12	–
2414.807	W	–	25	–
2414.80	Bi	–	6	Rk
2414.77	Cs	–	2	–
2414.735	Cu	5 h	–	–
2414.732	Pd II	–	150	–
2414.600	Zr I	10	–	–
2414.56	U	8	2	–
2414.517	Os	25	3 d	–
2414.485	Cb	–	100	–
2414.459	Co I	40 R	15	–
2414.416	Ir I	2	1 h	–
2414.39	Rh	2	4	–
2414.39	Er	1 h	2 h	–
2414.325	Ta	4 d	–	–
2414.26	A II	–	[5]	Rt
2414.247	Mo	2	15	–
2414.211	Cb	3	–	–
2414.20	Cu II	1 h	2 h	–
2414.143	U	2	12	–
2414.131	W II	–	4	–
2414.13	Hg II	–	[25 h]	Ps
2414.080	Fe II	–	4	–
2414.063	Co II	8	30	–
2414.040	W	12	2	–
2413.939	Cb	–	300	–
2413.921	Ru	–	2	–
2413.92	Yt II	1	3 h	–
2413.91	Pd II	–	[3]	Bx
2413.81	Kr	–	[10 h]	Me
2413.778	W	9	3	–
2413.580	Co	15	2	–
2413.517	Se I	–	[125]	Rd
2413.503	Zr	8	–	–
2413.49	Th	5	20	–
2413.45	Be II	–	[25]	Ps
2413.405	Th	5	–	–
2413.4	Rn	–	[3]	Wo
2413.390	Pd II	–	40	–
2413.384	Ru	–	4	–
2413.33	Hf II	5	8	Me
2413.310	Ir I	25	–	–
2413.309	Fe II	60	100 h	I
2413.191	Co I	15	–	–
2413.184	Ag II	50	300 h	–
2413.097	Ir	–	5 h	–
2413.049	Ni II	–	50	–
2413.045	Pt I	60	10	–
2413.031	V I	20	20 h	–
2413.010	Mo	15	30 h	–
2412.895	Co	6	1	–
2412.83	In II	–	[2]	Ps
2412.809	Ir	–	5 h	–
2412.804	Cb	–	40 h	–
2412.76	Mo	2	20 h	–
2412.760	W	1	10	–
2412.757	Co I	12 r	–	–
2412.740	Mn	–	15	–
2412.711	Ta	5	–	–
2412.687	V I	25	20 h	–
2412.687	U	4	15	–
2412.645	Cb	2	–	–
2412.643	Ni I	20	8	–
2412.52	I	–	[30]	Bl
2412.50	A	–	[2]	Rt
2412.48	Cl II	–	[10]	Ks
2412.464	Cb	5	100	–
2412.442	Ir	–	4	–
2412.342	W	–	5	–
2412.326	Cu	–	3	–
2412.273	Cb	–	5 wh	–
2412.273	Ni II	–	8	–
2412.10	Eu	–	2	–
2412.06	Te	–	[10]	Bl
2411.98	Cs	–	2	–
2411.95	I	–	[12]	Bl
2411.94	Rh	2	50	Ex
2411.93	Zr	6 w	–	–
2411.815	Mo	2	30	–
2411.810	W II	2	15	–
2411.756	Pd II	–	25 h	–
2411.735	Pb	75	15	Hz
2411.622	Co I	250 R	50	–
2411.60	O II	–	[20]	Mh
2411.60	Se	–	[10]	Bl
2411.59	Ag II	–	[20]	Bx
2411.583	Ti I	10	–	–
2411.545	W II	–	12	–
2411.496	Ru	2	10	–
2411.471	W	10 d	–	–
2411.38	Te	–	[50]	Bl
2411.371	Ti I	7	–	–
2411.350	Ag II	25	150 h	–
2411.32	Th	5	3	–
2411.284	W II	3	3 h	–
2411.266	Mo	1	30	–
2411.233	Cb	–	3 h	–
2411.168	W	–	10	–
2411.066	Fe II	35	70 h	I
2410.97	A II	–	[5]	Rt
2410.916	Mo	–	10	–
2410.9	Rn	–	[20]	Pe
2410.892	Ru	30	–	–
2410.889	W	–	2	–
2410.88	Te	–	[5]	Bl
2410.846	In II	–	[18]	Ps
2410.752	Ni II	–	6	–
2410.731	Ir I	8	1	–
2410.72	Xe II	–	[4]	Hu
2410.688	Rh	2	50	–
2410 629	W	7	–	–
2410.57	Mn II	–	6	Cz
2410.517	Fe II	50	70 h	I
2410.514	Pd	–	2	–
2410.513	Co	40 w	–	–
2410.469	Ir I	2	–	–
2410.442	W	–	20	–
2410.4	K	–	[10]	Ml
2410.37	Re	20	–	–
2410.332	Pt II	–	50	–
2410.297	U	–	12	–
2410.275	Cb	4 w	25 w	–
2410.186	Pd II	–	25 wh	–
2410.167	Ir I	15	–	–
2410.156	Ru	–	12	–
2410.139	Hf II	25	50	–
2410.10	La	–	5 hl	Me
2410.09	Mo	–	60 h	–
2410.090	Ag	–	5	–
2410.083	Cb	1	5 h	–
2410.051	W	–	5	–
2410.01	Dy	5	–	–
2409.84	Pr	–	8	–
2409.826	W	–	5	–
2409.74	Xe	–	[20]	Hu
2409.722	V	2	1	–
2409.706	Fe II	–	6	–
2409.676	Ru	–	5 h	–
2409.665	Co I	8	–	–
2409.62	Bi	8 Wh	–	–
2409.486	W	–	15	–
2409.376	Fe II	–	2	–
2409.371	Ir I	15	1	–
2409.36	Se	–	[10]	Bl
2409.25	Nd	5	–	–
2409.229	W	–	15	–
2409.126	Co I	20	–	–
2409.08	Zn	–	[5]	Vs
2409.06	Kr II	–	[5]	Me
2409.031	W	10	2	–
2409.02	Ag II	–	10 h	m
2409.02	Tm	20	15	Me
2408.893	Mo	–	15	–
2408.846	Mn	–	10	–
2408.757	In II	–	[25]	Ps
2408.750	Co II	25 w	25	–
2408.747	Cr I	40	1	–
2408.736	Pd II	–	100	–
2408.722	Rh	2	30	–
2408.67	Mo	–	10	–
2408.670	W	–	4	–
2408.668	Ru	12	–	–
2408.667	Os	40	8	–
2408.653	Fe II	–	5 h	–
2408.622	Cr I	150 r	2 r	–
2408.565	In II	–	[18]	Ps
2408.52	Kr	–	[5 h]	Me
2408.447	Ru	4	10	–
2408.429	V	2	20	–
2408.415	Co	1	10	–
2408.390	Mo	10	–	–
2408.36	Ir	–	15 h	–
2408.320	Mo	1	15	–
2408.299	Ru	12	–	–
2408.281	W	3	15	–
2408.256	Ta	15	12	–
2408.23	Tm	5	1	Me
2408.20	Pr	–	8	–
2408.20	Br	–	[3]	Bl
2408.150	Sn	30	30	–
2408.13	Zn I	5	–	Ps
2408.045	Fe I	10	–	–
2408.0	bh C	30	–	L
2407.98	I	–	[60]	Bl
2407.949	Fe II	–	20	–
2407.94	Er	–	3	Ex
2407.922	Ru	60	50	–
2407.900	V I	15	10	–
2407.89	Zr	5	–	–
2407.884	Rh I	60	5	–
2407.81	La	–	5 hl	–
2407.785	W	1	15	–
2407.687	Cb	3	15	–
2407.668	Co II	1	15	–
2407.592	V	–	2	–
2407.590	Ir I	10	1	–
2407.58	Fe	7	–	–
2407.57	I	–	[12]	Bl
2407.567	Ta	20	–	–
2407.54	Te	–	[5]	Bl
2407.49	O II	–	[25]	Fl
2407.35	Hg II	–	[25 h]	Ps
2407.284	W	–	12	–
2407.254	Co I	100	2	–
2407.229	Fe	20	2	–
2407.173	V	–	15 wh	–
2407.135	Mo	3	40	–
2407.10	Cl II	–	[5]	Ks
2407.05	Cl	–	[2]	An
2406.993	Fe II	1	5	–
2406.989	V	–	5	Me
2406.939	Cb	5 w	1	–
2406.9	Cs	–	[2]	Bs
2406.882	Ni II	–	20	–
2406.82	Zr II	1	3	–
2406.748	V I	40	2	–
2406.745	W	3	–	–
2406.743	Pd II	1	150	–
2406.665	Cu I	150	50	–
2406.658	Fe II	50	1 wh	I
2406.63	Tm	2	60	Me
2406.59	Se	–	[15]	Bl
2406.549	Ta	60	–	–
2406.472	In II	–	[25 h]	Ps
2406.442	Hf II	12	25	–
2406.435	U	10	10	–
2406.41	O II	–	[20]	Fl
2406.395	Ni II	–	8	–
2406.34	Pd II	–	[60]	Bx
2406.267	Co I	25	1	–
2406.259	Zr	1	2	–
2406.175	W	10	2	–
2406.071	Pd II	–	4	–
2406.06	Yb	1	3 d	–
2406.027	Ir I	3	1 h	–
2406.007	Ru	1	6	–
2405.993	W	–	8	–
2405.960	Os	10	2	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2405.92	Xe II	–	[2 h]	Hu
2405.865	Ir	2	–	–
2405.858	Mo	25	15	–
2405.850	Cb	5 w	50 w	–
2405.80	Zr	–	3	–
2405.743	U	–	4 h	–
2405.733	V I	5	–	Me
2405.728	Pt II	–	100 wh	–
2405.688	W	15	8	–
2405.602	Re	80	–	–
2405.60	Pr	–	30	–
2405.519	Zr I	12	1	–
2405.494	Cu	–	8	–
2405.490	V	2	–	–
2405.425	Hf II	25	50	–
2405.340	Cb	5 w	50 w	–
2405.291	Ru	–	3	–
2405.27	A	–	[2]	Rt
2405.256	W	10	15	–
2405.230	V I	4	1	–
2405.221	Rh	1	50	–
2405.19	Mo	3	4 h	–
2405.182	Ru	12	2	–
2405.169	Ni II	–	80	–
2405.13	Au	–	5	–
2405.078	Os	8	20	–
2405 059	W	–	2	–
2405.054	Re	100	–	–
2405 00	Ag II	–	8 h	–
2404.886	Cb	5	50	–
2404.882	Co I	10	–	–
2404.882	Fe II	50	100 wh	–
2404 87	air	–	3	Sq
2404.81	Au I	20	4	–
2404.657	Mo	5	30	–
2404.643	La II	–	6	–
2404.61	Er	–	3	–
2404 562	Hf II	8	10	–
2404.547	V	4	–	–
2404.54	Co	1	20	–
2404.430	Fe II	25	40	I
2404.40	A II	–	[10]	Rt
2404.33	Br	–	[4]	Bl
2404 278	Cb	2	5 h	Me
2404.243	W	10	15	–
2404.217	Ta	10	–	–
2404.211	Cb	1	10	–
2404 178	V	1	90	–
2404.174	Th	6	5	–
2404.172	Co II	30 w	50	–
2404.09	Hg	–	[10 d]	Dj
2404.07	Yb	–	2 h	–
2404.03	I	–	[12]	Bl
2403.984	Ta	10	–	–
2403 853	Os	25	3	–
2403.752	Er	–	3	–
2403.69	Lu	–	4 h	Me
2403 677	Ta	4	8	–
2403.66	Te	–	[30]	Bl
2403.643	Co	15	12	–
2403.610	Mo	25	25	–
2403.60	Hf II	2	5	Me
2403 57	Tl	–	[5]	El
2403 536	Ru	6	–	–
2403.471	Rh	1	10	–
2403.470	W	–	10	–
2403.429	Zr I	10	–	–
2403.423	U	–	30	–
2403.418	Mo	6	25	–
2403.40	Yb	–	2	–
2403.362	V I	4 h	–	Me
2403.35	Er	–	6 w	–
2403.343	Co I	15	–	–
2403.335	Cu II	100	300	IBu
2403 28	La II	–	7	–
2403.250	V	1	35	–
2403.223	W	3	12	–
2403.176	Ru	8	–	–
2403.089	Pt I	400	50	–
2403.072	W II	2 h	10	–
2403.029	Ir	2	1	–
2403.024	V I	2	–	–
2403.00	Te	–	[100]	Bl
2402.933	Zr	5	–	–
2402.82	Zn I	2	–	Fl
2402.736	W	2	3	–
2402.717	Ru	100	150 r	–
2402.71	Au	–	5	–
2402.657	Cb	–	4 h	–
2402.600	Fe II	10	20	–
2402.57	Ag II	–	30 wh	–
2402.559	Co I	15	–	–
2402.441	W	15	20	–
2402 40	C II	–	12	Fl
2402.344	Cb	5	1	–
2402.282	Ir I	2	–	–
2402.28	Se	–	[25]	Bl
2402 233	Os	10	1	–
2402.170	Co I	30 r	–	–
2402 133	Ta	10	10	–
2402.065	Co I	10 r	3	–
2402.03	Hf II	–	2 h	–
2402.0	K	–	[10]	Ml
2401.946	Pb	50	40	–
2401.927	Mo	10	40	–
2401.902	V I	15	10	–
2401.902	Ru	2	5	–
2401.874	Pt I	300	30	–
2401.873	Cb	2	–	Me
2401.859	W II	2 h	15	–
2401.841	Ni I	40 r	10	–
2401.84	Cl	–	[3]	Jv
2401.81	Te	–	[10]	Bl
2401.79	Xe II	–	[2]	Hu
2401.774	Ir I	5	1	–
2401.77	C II	–	6	Fl
2401.728	Mn	–	5	–
2401.711	Ta	10	–	–
2401.7	Cs	–	[2]	Bs
2401.64	Au	–	5	–
2401.600	Co I	30	2	–
2401.52	Fe	3	–	–
2401.479	Pd II	–	5 h	–
2401.47	La	–	2 h	–
2401.446	Zr	2	2 h	–
2401.443	U	5 h	–	–
2401.383	Pd	–	25 h	–
2401.294	W	12	3	–
2401.284	U	–	15	–
2401.168	Ir I	1	2	–
2401.130	Pd	–	10	–
2401.127	Os	25	8	–
2401.108	Co	30	2	–
2401.034	Cb	1	3	–
2401.002	Pt I	25	9	–
2400.99	Tm	3	6	Me
2400.97	Pd II	–	[12]	Bx
2400.930	Ru	4	6	–
2400.914	Cb	3	1	–
2400.903	V	1	50 h	–
2400.9	Rn	–	[3]	Pe
2400.884	Bi I	200 R	100	–
2400.87	Pr	–	8 h	–
2400.861	W II	2 h	2 h	–
2400.837	Co I	30	2	–
2400.814	Zr	15	1	–
2400.78	Hf II	15	15	–
2400.78	Pr	–	7	–
2400.71	Nd	–	9	–
2400.708	Rh	–	30	–
2400.63	Ta	4	2	–
2400.62	Zr	1 h	4 h	–
2400.577	Pt II	–	20 h	Sh
2400.561	Co I	30	–	–
2400.52	Hg I	2	3	Cn
2400.505	W	1	10	–
2400.37	Zr	–	3	–
2400.338	Fe II	4	25	–
2400.336	W	–	6	–
2400.331	Pd	–	2	–
2400.275	Fe II	–	3	–
2400.251	Cr	–	2	–
2400.135	W	1	5	–
2400.112	Cu II	5	100	IBu
2400.03	B	–	2	Sy
2399.956	V I	30	2	–
2399.92	Ta	8	8	–
2399.76	Mo	–	4	–
2399.750	Ru	12	–	a
2399.74	Hg I	10	15	Cn
2399.73	U	2	–	–
2399.711	Cb	5	–	–
2399.71	Pr	–	12	–
2399.683	V	–	150	–
2399.67	Re	10	5	a
2399.66	La II	–	20 hl	–
2399.65	Os	20	–	a
2399.6	Rn	–	[3]	Pe
2399.583	Pb	35	12	–
2399.58	W	–	3	–
2399.58	Cr I	40	–	–
2399.575	Ir	15	2 h	–
2399.57	Er	5	–	a
2399.379	Hg I	20 wh	10	Cn
2399.37	Pd	–	3 h	–
2399.33	W	–	8	–
2399.32	Mo	–	10	–
2399.26	A	–	[2]	Rt
2399.239	Fe II	20	30	I
2399.23	Zn I	3	–	Fl
2399.177	In I	10	–	Ps
2399.15	Ta	3	–	–
2399.14	Lu	10	50	Me
2399.06	Cr I	50	2	–
2399.04	W	9	2 h	–
2398.99	Zr II	5	4	–
2398.98	Ta	3	–	–
2398.95	Mo	–	3	–
2398.95	Rh	10	–	–
2398.909	Eu	4	5 h	–
2398.88	Mn	–	7 w	–
2398.87	Er	–	8	–
2398.869	V I	2	–	–
2398.830	Pd	–	15 h	–
2398.76	Xe II	–	[3]	Hu
2398.746	Ir	10	150	–
2398.73	Re	12	–	a
2398.70	La	–	3 h	Me
2398.679	V I	10	–	–
2398.67	W	–	3	–
2398.664	Fe II	–	5 h	Do
2398 63	Ni II	–	2	–
2398.578	Ru	–	4 h	–
2398.559	Ca I	100 R	20	IWg
2398.55	U	2	2	–
2398.55	Co	4	–	–
2398.52	Cr	–	12	–
2398.5	bh B	200	–	L
2398.482	Cb	10	30	–
2398.39	A	–	[2]	Rt
2398.38	Nd	–	12	–
2398.38	In II	–	[25]	Ps
2398.37	Co	2	18	–
2398 32	Ta	–	3 s	–
2398.27	W	3	–	–
2398.268	V I	15	–	–
2398.24	Ta	6	–	–
2398.21	Fe	3	–	–
2398 18	Os	25	3	–
2398 18	Zr	2	1	–
2398.15	Er	–	10	–
2398.15	I	–	[12]	Bl
2398.149	Yt II	2	12 w	–
2398.128	V I	10	–	–
2398.12	W	4	4	–
2398 09	Mo	5	–	–
2398.06	Ta	–	8	–
2398.06	Ir	2	–	–
2398.01	Yb	10	5	–
2397.98	Zr	3	–	–
2397.979	W	8	8	–
2397 97	Mn	–	3 w	–
2397 97	Rh	2	–	–
2397.962	Cb	2 h	4	–
2397.89	Ge	2	1	–
2397.85	Ta	2	–	–
2397.83	Yb	–	3	–
2397.82	Mo	–	8	–
2397.782	V I	30	–	–
2397.77	Cr	5	35	–
2397.74	U	6	2	–
2397.723	W	12	3	–
2397.707	Zr	3	1 h	–
2397.697	Ru	8	8	–
2397.667	Cb	2	2	–

Wave-length	Element	Intensities Arc	Spk., [Dis.]	R
2397.632	V	–	4	–
2397.61	Os	20	3	a
2397.589	Zr II	4	3	–
2397 58	Mo	6	–	–
2397.499	V I	3	–	–
2397.43	W	5	–	–
2397.42	Ta	–	2	–
2397.388	Co II	4	25	–
2397.36	Re	30	8	a
2397.32	U	–	20	–
2397.30	Br	–	[3]	Bl
2397.27	Co	4	–	–
2397.25	Er	7	3	–
2397.237	La II	–	7 hl	–
2397.235	Zr I	12	–	–
2397.22	Ir	3	15	–
2397.21	Hf	–	2 h	–
2397.21	I	–	[12]	Bl
2397.18	Cb	–	2	–
2397.17	Zn II	–	[2]	Vs
2397.091	W II	18	30	–
2397.03	Co	6	–	–
2396.98	V	–	3 wh	–
2396.944	Ru	3	8	–
2396.93	Rh	–	5	–
2396.81	Re	30	7	a
2396.774	Co	90	–	–
2396.77	Os	100	12	–
2396.770	Cb	–	3 h	–
2396.712	Fe II	–	8	–
2396.710	Ru	60	80	–
2396.697	V I	5	–	–
2396.686	Pt II	2	30	–
2396.63	Ni I	12	2	–
2396.58	Co	5	–	–
2396.55	Rh	2	200	–
2396.48	V I	10	5	–
2396.43	Os	–	4	–
2396.40	Pd II	–	[4]	Bx
2396.38	Er	–	30	–
2396.37	Ni I	12	3	–
2396.37	Cr I	30	3	–
2396.32	Zr	2	–	–
2396.31	Cb	–	2 w	–
2396.30	Ta	80	–	–
2396.24	Mo	–	8	–
2396.23	Ir	–	10	–
2396.23	Co	10	–	–
2396.22	W	6	8	–
2396.167	Pt I	25	18	–
2396.12	Nd	–	15	–
2396.11	Pd	–	[5]	Bx
2396.094	Ir I	20	5	–
2396.08	V I	2 wh	–	–
2396.04	Re	10	3	a
2395.98	Mo	–	3	–
2395.89	W	6	–	–
2395.886	Ir I	15	8	–
2395.84	Cb	2 h	8	–
2395.81	Er	–	4	–
2395.79	Cr I	25	2 h	–
2395.71	W II	5	8	–
2395.66	air	–	3	Sq
2395.627	Ag	4	5	–
2395.625	Fe II	50	100 Wh	–
2395.61	Ni	10	4	a
2395.52	Co	–	6	–
2395.466	W	8	–	–
2395.428	V I	5	5	–
2395.416	Co	6	2	–
2395.408	Fe II	6	5 h	–
2395.39	Os	10	10	–
2395.34	Br	–	[25]	Bl
2395.323	Cb	15	2	–
2395.30	W	6	–	–
2395.27	Tl	–	2	Sd
2395.25	Mo	12	–	–
2395.20	Sb	50	15	–
2395.20	I	–	[12]	Bl
2395.10	Mo	–	6	–
2395.10	W	5	12	–
2395.09	Er	–	3	–
2395.089	V I	10	5 h	–
2395.07	B II	–	15	Sy
2395.04	Ta	–	25	–
2394.98	La II	–	4	Me
2394.96	Hf	–	2 h	Me
2394.92	Cs	–	2	–
2394.898	Fe II	3	5	–
2394.841	Ni II	2	7 h	–
2394.778	Ru	4	5	–
2394.74	Mo	18	9	–
2394.675	Cb	–	2 wh	–
2394.62	Tl II	–	3	–
2394.6	bh C	20	–	L
2394.59	W	3	3	–
2394.58	Os	3	5	–
2394.56	Ir	10	–	–
2394.53	Zr	1	2	–
2394.516	Ni II	18	20	–
2394.48	Li I	5 R	–	Fl
2394.45	W	7	5	–
2394.404	Cb	4	–	–
2394.326	Ir	30	–	–
2394.29	Os	45	10	–
2394.272	V I	6	30	–
2394.227	Co	4	–	–
2394.20	Nd	–	20	–
2394.17	W	5	8	–
2394.10	Ge I	2	1	–
2394.06	Pr	–	7	–
2394.059	Cb	5	–	–
2394.051	Na	–	[5]	Fr
2394.02	U	–	5	–
2394 01	Cr	–	50	–
2393.971	Ru	50	–	–
2393.97	Mo	–	4	–
2393.93	Ir	–	25	–
2393.91	Re	18	20 w	a
2393.90	Co II	8	15	–
2393.89	Rh	–	12	–
2393.86	Os	30	5	–
2393.836	Ru	–	12	–
2393.835	Al II	–	[8]	Sy
2393.83	Hf II	80	100	–
2393.825	Zr	9	2 h	–
2393.81	Zn	15 h	–	Vs
2393.794	Pb	2500	1000	–
2393 77	W II	4	4	–
2393.67	Re	20	–	a
2393.660	Ir	5	–	–
2393 6	Cs	–	[2]	Bs
2393.59	Os	10	2 h	a
2393.575	V	–	500	–
2393.52	Au	–	5	–
2393.51	Se	–	[5]	Bl
2393.42	W	10	2 h	–
2393.4	K	–	[10]	Ml
2393.362	Hf II	50	80	–
2393.352	Zr II	8	1	–
2393.34	Os	5	–	a
2393.27	Se	–	[5]	Bl
2393.253	Ru	80	1	–
2393.24	U	2	2	–
2393.234	B II	–	2	–
2393.23	Ta	–	20	–
2393.20	Ca	–	3	Ad
2393.20	Mo	5	10	–
2393.183	Hf II	20	40	–
2393.18	W	–	5	–
2393.179	In II	–	[18]	Ps
2393.12	Re	15	–	a
2393.113	Th	5	2	–
2393.11	Ni I	10	–	–
2393.06	W	4	–	–
2393.037	In II	–	[10]	Ps
2393.03	Ir	3 wh	25	–
2393.01	Er	2 h	8	–
2392.96	Ag II	–	25 h	–
2392.96	Ni I	10	3	–
2392.927	W II	8	15	–
2392.92	I	–	[12 h]	Bl
2392.92	Cs	–	8	–
2392.897	V I	25	–	–
2392.89	Cr I	40	2 h	–
2392.82	Os	5	–	a
2392.78	Kr II	–	[10]	Me
2392.75	Mo	–	6	–
2392.71	Re	10	–	a
2392.71	Ta	–	12	–
2392.693	V	–	2	–
2392.68	Zr II	5	6	–
2392.63	Mo	–	6	–
2392.60	Co	10	15	–
2392.58	Ni II	4	10	–
2392.56	Os	10	–	a
2392.52	W	–	2 h	–
2392.46	Os	2	4	–
2392.44	Br	–	[20]	Bl
2392,424	Ru	80	6	–
2392.42	Rh	–	40	–
2392.38	Re	20	7	a
2392.37	Cr	25	2 h	–
2392.35	I	–	[20]	Bl
2392.33	Mo	2	18	–
2392.33	Xe	–	[3]	Hu
2392.23	Br	–	[10]	Bl
2392.23	Rh	–	15	–
2392.22	Os	12	–	a
2392.22	Ir	–	25	–
2392.19	Te	–	[5]	Bl
2392.19	Lu	30	100	Me
2392.15	Al II	–	[30]	Sy
2392.10	Ni II	10	10	–
2392.03	Pt	–	8	–
2392.03	Co I	2	4	–
2392.03	U	–	2	–
2392.008	Hf	–	3 h	–
2392.00	Eu	5 w	5	–
2391.94	Er	3	2 h	–
2391.910	Cb	–	20	–
2391 89	W	4	–	–
2391.887	Co	7 w	–	–
2391.88	Br	–	[2]	Bl
2391 872	Zr	5	–	–
2391.82	Fe	3	–	–
2391.78	Os	5 l	20	–
2391.76	Pt	6	–	–
2391.760	Ru	–	8	–
2391 745	Zr	15	–	–
2391.72	W	–	6	–
2391.72	Cu	–	20	–
2391.71	Mo	3	18	–
2391.63	Er	–	6	–
2391.59	U	–	2	–
2391 518	Th	–	15 wh	–
2391.474	Fe II	8	20	–
2391.440	Ru	–	4	–
2391 40	Mn	–	7 w	–
2391 369	Co	9	–	–
2391.35	Al II	–	[3]	Sy
2391 35	Pd	–	[8]	Bx
2391.30	Re	20	7	a
2391.30	W	–	5	–
2391.263	V I	25	3 w	–
2391 25	Ir	–	25	–
2391.178	Ir	50	–	–
2391.176	Ru	6	3	–
2391.12	Os	12	–	a
2391 055	Ir	2	–	–
2391.047	Zr	2	–	–
2390 97	U	4	–	–
2390.95	Os	30	3	a
2390 94	A	–	[10]	Rt
2390.90	N II	–	[8]	Fl
2390.89	W II	4	10	–
2390 868	V I	4	–	Me
2390.84	Pd II	–	12 h	–
2390.801	Ir	5	–	–
2390.800	Pt II	–	10	–
2390.78	Zn II	–	25	–
2390.78	Mo	–	25	–
2390.778	V I	25 l	3	–
2390.755	Al II	–	[8]	Sy
2390.745	Cb	–	2 w	–
2390.73	Yb	10	20	–
2390.69	Ta	–	4 h	–
2390.62	Rh	10	50 w	–
2390.617	Ir	40	6	–
2390 540	Ag II	–	80 h	–
2390.50	Kr II	–	[4]	Me
2390.466	V	–	25 w	–
2390.46	Ir	–	20	–
2390.44	Re	18	7	a
2390.43	Mo	–	8	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2390.430	Ru	5	4	–
2390.420	Co	4	–	–
2390.367	W II	10	20	–
2390.223	Fe II	–	6 h	–
2390.21	Ta	–	4 l	–
2390.16	Hg	–	[5]	Ps
2390.15	Er	7	3	–
2390.149	Zr	2	1	–
2390.14	Pt	3	–	–
2390.13	Pd	2	4 h	–
2390.120	Ru	10	3	–
2390.11	U	2	–	–
2390.11	Os	2	–	–
2390.10	Mo	10	20	–
2390.075	Cb	2 h	–	–
2390.064	Pt II	–	15	–
2390.04	Zn II	–	[5]	Vs
2389.982	Co I	8	–	–
2389.971	Fe I	15	–	I
2389.92	Nd	–	20	–
2389.86	Pd II	–	2	–
2389.84	Rh	–	10	–
2389.84	La	–	3 hl	Me
2389.80	W	–	8	–
2389.79	Te	–	[25]	Bl
2389.79	Er	–	3	–
2389.76	Cr	–	25	–
2389.699	V	5	100	–
2389.69	Br	–	[70]	Bl
2389.60	Ta	3	12	–
2389.59	Mn	–	7 w	–
2389.56	Tm	–	6 h	Me
2389.543	In I	50 R	–	Ps
2389.540	Co I	12	20	–
2389.533	Pt	25	18	–
2389.53	Zr II	2	6	–
2389.470	Ge I	2	1	–
2389.46	Cr I	25	–	–
2389.405	Zr	2	4	–
2389.402	Fe	2	2	–
2389.38	Se	–	[10]	Bl
2389.28	Re	5	–	a
2389.27	Rh	–	12	–
2389.26	W	4	2	–
2389.258	Ru	4	–	a
2389.209	Zr	25	–	–
2389.20	Mo	20	18	–
2389.149	V	–	2	–
2389.13	Re	30	7	a
2389.11	Ta	6	12	–
2389.11	A	–	[5]	Rt
2389.08	Os	15	3	–
2389.08	Al II	–	[3]	Sy
2389.08	Mn	–	6 wh	–
2389.072	W	12	3	–
2388.96	Mo	–	10	–
2388.95	Tm	8	3	Me
2388.94	Br	–	[15]	Bl
2388.92	V I	25	2	–
2388 919	Ni	10	18	–
2388.916	Ir	–	3 wh	–
2388.915	Co II	10	35	IBu
2388.87	Os	6	–	a
2388.80	W	–	5	–
2388.774	Pb	40	18	–
2388.63	Br	–	[5]	Bl
2388.627	Fe II	25	30	I
2388.55	W	–	8	–
2388.42	U	2	3	–
2388.41	Yb	1	3	–
2388.410	Ir	10	2 h	–
2388.39	Au II	–	3	Ex
2388.387	Fe II	–	2	–
2388.376	Co	3	–	–
2388.37	Ta	2	25	–
2388.30	Zn I	2	–	Fl
2388.289	Pd II	2	40	–
2388.267	Cb	5	25 w	–
2388.260	V II	–	4	Me
2388.25	Al II	–	[2]	Sy
2388.24	N II	–	[3]	Fl
2388.210	Zr	2 h	2 h	–
2388.202	Fe II	–	3	–
2388.189	Ru	20	8	–
2388.177	Co I	5	–	–
2388.143	Th	4	2	–
2388.10	Au II	–	2	–
2388.081	V I	25	–	–
2388.05	Mo	–	3	–
2388.02	Rh	4	–	a
2388.009	Zr I	6	–	–
2387.99	Os	12	5	a
2387.96	A II	–	[40]	Rt
2387.900	Ru	60	3	–
2387.86	Ir	–	30	–
2387.84	W	–	3	–
2387.82	Rh	–	9	a
2387.81	Mo	–	6	–
2387.762	Ni II	6	30	–
2387.75	Xe II	–	[3]	Hu
2387.75	Au I	30	10	–
2387.75	Re	15	–	a
2387.71	W	–	2 h	–
2387.58	Pd	–	5 h	–
2387.56	Er	–	2 h	–
2387.55	Ta	–	2	–
2387.54	Ni I	15	2	–
2387 54	W	–	2 h	–
2387.524	Cb	10	25 wh	–
2387.48	Re	20	6	a
2387.477	V I	3	–	–
2387.462	Co I	10	10	–
2387.427	Fe II	2	8	–
2387 37	Eu	4	3	–
2387.36	Dy	8	–	–
2387.358	Pt	4	10 h	–
2387.29	Os	40	15	–
2387 29	W	–	6	–
2387.279	Fe	6	–	–
2387.22	U	–	5	–
2387.183	Zr II	15	10	–
2387.18	Cl	–	[3]	An
2387.18	Mo	12	–	–
2387.16	Er	8	3	–
2387.088	Cb	2	8	–
2387.06	Ta	20	50	–
2387.026	Na	–	[5]	Fr
2387.02	Mn	2 h	35	–
2386.96	Mo	–	35	–
2386.956	V I	25	10	–
2386.892	Ir	50 l	15	–
2386 816	Ag	–	8	–
2386.808	Pt I	25	5	–
2386.78	Cr I	20	–	–
2386.75	Os	10	–	a
2386.75	Zn II	–	[2]	Vs
2386.74	Br	–	[25]	Bl
2386.727	Co	4	15	–
2386.678	Ru	8	1	–
2386.64₁	Cl	–	[4]	An
2386.58	Er	5	4	–
2386.58	Ni I	20	5	–
2386.58	Ir	25	20	–
2386.51	Br	–	[3]	Bl
2386.509	Co I	3	–	–
2386.506	Pt II	2	25	–
2386.45	W	–	8	–
2386.413	V I	20	–	–
2386.404	Cb	5	–	–
2386 40	Rh	6	2	–
2386.396	Fe II	2	5	–
2386.363	Co II	10	25	–
2386 36	W	3	–	–
2386 33	Ag II	–	25 h	–
2386 24	Mo	–	8	–
2386.24	Pd II	–	5 wh	–
2386.216	Ru	2	1	–
2386.19	Cr I	20	–	–
2386.17	W	8	–	–
2386.153	Ir	15	–	–
2386.14	Xe	–	[3]	Hu
2386.14	Rh	80	8	–
2386.05	Mo	–	18	–
2386.04	Os	2	20	–
2385.95	Fe I	4	–	–
2385.863	Ir	20	3	–
2385.816	V	–	100	–
2385 816	Co	9	–	–
2385.79	W	–	5	–
2385 78	Hf II	–	3	Me
2385.76	Te I	600	[300]	Bl
2385.74	Cr I	25	–	–
2385.73	Ta	8	–	–
2385.618	V	–	10 h	–
2385.6	Rb	–	[2]	Dr
2385.60	Rh	–	10	–
2385.579	Fe	2	–	–
2385.55	U	3	2	–
2385.50	Re	12	–	a
2385.49	W II	3	9	–
2385.49	Os	15	2	a
2385.44	Rh	3	25	–
2385.42	He II	–	[30]	Ps
2385.35	Ta	2	–	–
2385.28	U	2	–	–
2385.28	Mn	2	4	–
2385.26	W	4	12	–
2385.244	Cb	–	6	–
2385.23	Yt	12	1	–
2385.18	Hf	–	4 h	Me
2385 17	Pd	–	15 h	–
2385.10	U	–	3	–
2385 07	Cu II	–	10 h	–
2385.01	Ni	10	2	–
2385.007	Fe II	8	15	–
2385.006	Yb	1	5	–
2385 01	Pd II	–	50 wh	–
2385 00	A	–	[40]	Rt
2384.996	V	–	6 h	Me
2384.860	Co I	10 R	4	–
2384.85	Nd	–	10	–
2384.847	Cb	2	4	–
2384.84	Cu II	–	15	–
2384.84	Ni	8	3 h	–
2384.827	Zr	4	1	–
2384.817	W	12	12	–
2384.81	Ir	4	80	–
2384.65	Rh	25	–	–
2384.65	Mo	–	12	–
2384.64	V I	2	1	–
2384.62	Os	30	5	–
2384.557	In II	–	[5]	Ps
2384.54	Sn II	–	[15]	Mc
2384.519	Ti I	6	–	–
2384.46	Pt II	–	15 h	–
2384.42	Hg	–	[5]	Dl
2384.386	Fe	20	5	I
2384.38	Ni I	15	4	–
2384.28	Ta	6	18	–
2384.28	La	–	3 h	Me
2384.276	V I	15	–	–
2384.223	Cb	–	3 w	–
2384.166	Zr	25	1 h	–
2384.15	Au	–	5 h	–
2384.10	Co	–	2	–
2384.09	Er	–	4	–
2384 05	Mn	40	3	–
2384.04	W	–	5	–
2384 03	I	–	[30]	Bl
2383.97	Re	10	3	a
2383.963	Ru	12	–	–
2383.95	Zn II	–	[2]	Vs
2383.87	Mo	–	20	–
2383.84	Er	–	4	–
2383.836	Cb	2 h	1 h	–
2383.789	Ir	15	3 h	–
2383.72	Ta	6	25	–
2383.67	Tm	15	4	Me
2383.641	Pt I	30	20	–
2383.63	Sb	75	20	Wt
2383.59	Rh	–	25	–
2383.54	W	2 h	4	–
2383.52	Mo	12	–	–
2383.50	A II	–	[40]	Rt
2383.48	Re	25	5	a
2383.46	Co II	15	30	–
2383.450	Ir	2	–	–
2383.442	Ru	–	12	–
2383.44	U	–	3	–
2383.436	V	2	4 h	–
2383.40	Pd II	–	50 wh	–
2383.40	Rh	50	10	–
2383.36	Mo	–	10	–
2383.33	Cr I	20	–	–
2383.25	Te I	500	300	Bl

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2383.241	Fe II	8	12	–
2383.24	Pd II	–	2	–
2383.21	Os	15	–	a
2383.21	Ag II	–	25	–
2383.20	W	–	3	–
2383.168	Ir	10	5	–
2383.055	Fe II	6	2	–
2383.05	Mo	–	4	–
2383.001	V	8	80	–
2382.986	W	15	3	–
2382.93	U	–	2	–
2382.893	Fe II	–	4	–
2382.89	Rh	50	5	–
2382.85	Dy	2	–	–
2382.82	Nd	–	10	–
2382.756	Pd II	2	2 h	–
2382.741	Ru	1	4	–
2382.673	In II	–	[18]	Ps
2382.67	W	3	12	–
2382.64	Rh	–	30	–
2382.593	In II	–	[40]	Ps
2382.57	Pd	–	40 h	–
2382.467	V	–	100 w	–
2382.46	Os	30	5	a
2382.41	Au II	–	5	–
2382.39	Mo	–	12	–
2382.36	Zr	1 h	2	–
2382.355	Fe II	3	–	–
2382.34	W II	3	10	–
2382.335	Co	2	4	–
2382.25	Pd	–	2 h	–
2382.246	Cb	2	–	–
2382.22	Zn I	4	–	Fl
2382.06	Hg	–	[8]	Ps
2382.039	Fe II	40 r	100 R	–
2382.0	bh C	30	–	L
2381.993	Ru	50	150	–
2381.97	Dy	8	–	–
2381.83	Fe I	3	–	–
2381.82	Ir	8	50	–
2381.79	W	–	10	–
2381.79	I	–	[20]	Bl
2381.78	Pd II	–	[2]	Bx
2381.752	Co	4	12	–
2381.72	Er	–	5	–
2381.69	Lu	–	30 h	Me
2381.622	Ir	30	2 h	–
2381.57	W	8	–	–
2381.557	Zr	4	2	–
2381.52	Ta	8	40	–
2381.52	Th	–	10	Ex
2381.48	Cr	3	25	–
2381.47	Mo	–	12	–
2381.41	Er	–	3	–
2381.36	Pt	–	12	–
2381.33	W II	3	10	–
2381.30	Rb	–	[100]	Fa
2381.251	Co I	4	–	–
2381.18	A	–	[2]	Rt
2381.18	As I	75	4	Me
2381.14	Re	40	7	a
2381.13	Ta	15	40	–
2381.128	Cb	–	5	–
2381.10	W	3	7	–
2381.024	Pd	25	9	–
2381.00	Hf II	20	40	Me
2380.99	I	–	[12]	Bl
2380.918	V	6	50	–
2380.90	Re	12	5	a
2380.82	Ni	2 h	–	–
2380.82	Os	30	20	a
2380.81	Ti I	5	4	–
2380.79	Ni I	10	2	–
2380.759	Fe II	12	15	I
2380.744	Sn	10	10	–
2380.73	W	–	8	–
2380.695	Co I	4	–	–
2380.65	Se	–	[5]	Bl
2380.57	Lu	–	2	Me
2380.558	Zr	15	–	–
2380.485	Co I	20 d	10	–
2380.44	Rb	–	[125]	Fa
2380.41	Mo	12	–	–
2380.39	Yb	2	9	–
2380.34	Tl	20	60	Sd
2380.33	W	3	5	–
2380.302	Hf II	30	60	–
2380.262	V I	4	–	–
2380.24	Re	15	5	a
2380.2	Cs	–	[2]	Bs
2380.18	Ta	2	–	–
2380.178	V I	3	–	Me
2380.17	W	3	3	–
2380.16	Ce	–	50	–
2380.143	Cb	–	10 wh	–
2380.00	Mo	–	12	–
2380.00	Ta	6	–	–
2379.990	Hg I	10	10	Cn
2379.97	Re	7	7	a
2379.95	Cr	8	–	–
2379.88	A	–	[2]	Rt
2379.845	Ru	10	15	–
2379.84	Os	25	8	–
2379.79	Re	15	8	a
2379.73	Bi	3	–	To
2379.72	Ni I	15	2	–
2379.69	Tl I	100 R	200 R	–
2379.65	Eu	2	–	–
2379.64	Os	15	5	–
2379.638	Pd	–	15 h	–
2379.57	Ru	–	10	Ex
2379.56	W	–	8	–
2379.54	Cs	–	[2]	Bs
2379.5	K	–	[18]	Sg
2379.50	Pd II	–	2 h	–
2379.42	La	–	60	–
2379 39	Os	40	9	–
2379.379	Ir	25	8	–
2379.358	Co I	4	–	–
2379.275	Fe II	12	15	I
2379.154	Co I	4	–	–
2379.150	V	4	20	–
2379.14	Ge I	3	4	–
2379.112	Cb	–	4 h	–
2379.11	Re	5	12	a
2379.04	W	2 h	–	–
2378.996	In I	10	–	Ps
2378.98	Pr	–	10 s	–
2378.980	Fe II	2	2	–
2378.937	Cb	2 h	–	–
2378.93	Rh I	8	–	–
2378.908	Co	5	–	–
2378.85	Er	–	6	–
2378.81	Hf II	–	2 h	Me
2378.74	Os	25	5	a
2378.721	Pd	–	9 h	–
2378.65	Mo	6	3	–
2378.622	Co II	25	50 w	–
2378.60	W II	5	12	–
2378.60	U	–	8	–
2378.59	Ca	–	2	Ad
2378.54	Os	25	5 w	a
2378.527	Fe II	–	3	–
2378 52	Ta I	2	–	–
2378.42	Re	4	–	a
2378.408	Al I	40	20	Gn
2378.33	Hg	20	20	–
2378.31	Ta	5	18	–
2378.297	Ir	2	–	–
2378.263	V	2 h	–	–
2378.243	Zr I	10	–	–
2378.16	U	–	35	–
2378.147	Ti I	10	–	–
2378.141	In I	15	–	Ps
2378.14	Os	30	5	a
2378.12	W II	4	8	–
2378.09	Pr	–	10	–
2378.063	Pt	–	10	–
2378.06	Nd	–	2	–
2378.04	Xe	–	[2]	Hu
2377.993	Hf	–	7	–
2377.99	I	–	[30]	Bl
2377.983	Ir	30	15	–
2377.977	Cb	3	10	–
2377.958	Pt	10	4	–
2377.938	Ir	4	–	–
2377.92	W	4	–	–
2377.916	Pd II	–	30	–
2377.87	Fe	2	–	–
2377.87	U	2	15	–
2377.85	Mo	–	5	–
2377.85	Rb	–	[5]	Fa
2377 832	Th	10	8	–
2377.83	Er	6	2 h	–
2377.81	Rh	–	50	–
2377.67	Pr	–	7	–
2377.63	Cd II	–	15	–
2377.61	Os	50	15	–
2377.53	Ga II	–	[3]	Sy
2377.521	Fe	1	5 h	–
2377.52	Ce	–	8 W	–
2377.51	U	–	2	–
2377.39	W	3	5	–
2377.38	Re	20	6	a
2377.275	Pt II	15	25	–
2377.275	Ir I	25	5 w	–
2377.23	Fe	5	–	–
2377.215	Co I	12	2	–
2377.2	A	–	[2]	Rt
2377.18	W	–	7	–
2377.180	In II	–	[2]	Ps
2377.17	Ta	2	15 l	–
2377.14	Er	–	6	–
2377.12	Re	9	2 h	a
2377.12	Mo	–	30	–
2377.11	Ce	–	10 W	–
2377 10	Ra II	–	[8]	Rs
2377.086	V I	2	2	–
2377.06	Ir	–	8	–
2377.03	W	8	–	–
2377.03	Os	50	30	–
2376.970	Co I	6	–	–
2376.839	Cd II	–	5	–
2376.73	Mn	–	20	–
2376.71	Pd II	2	2	–
2376.66	In II	–	[10]	Ps
2376.562	W	8	2 h	–
2376.55	U	3	4	–
2376.53	V	–	2 wh	–
2376.51	Os	10	4 w	a
2376.446	Co	4	–	–
2376.435	Fe II	3	50 h	–
2376.400	Cb	8	60	–
2376 39	W	4	–	–
2376 38	Cu II	3	30	–
2376 3	A	–	[2]	Rt
2376 29	Os	25	5	a
2376.27	Cu	–	25	–
2376 24	Au I	25	3	–
2376 15	Os	2	10	–
2376.12	Pr	–	8	–
2376.12	U	2	2	–
2376 069	W	10	3	–
2376.03	Ni I	15	5	–
2376.02	Os	5	–	a
2376 01	Zn I	3	–	Fl
2375.96	Re	7	–	a
2375.96	In II	–	[10]	Ps
2375.91	Ta	4	2 h	–
2375.85	Tm	–	15	Me
2375 84	Ir	–	10	–
2375 835	Th	5	3	–
2375.83	U	2	2	–
2375 83	Re	18	7	a
2375 82	Cs	–	[2]	Bs
2375 74	W	4	10	–
2375.73	O II	–	[15]	Fl
2375.631	Ru	50	80	–
2375 58	Ir	12	–	–
2375.57	Rh	5	2 h	a
2375 52	Kr II	–	[20]	Me
2375 5	Rn	–	[7]	Pe
2375.46	Eu	3	20	–
2375.45	Os	10	–	a
2375.44	Mo	–	2	–
2375 421	Ni II	10	30	–
2375 39	W	–	2 h	–
2375.31	Tm	–	15	Me
2375.271	Ru	80	5	–
2375.192	Fe II	–	15	I
2375.18	Co II	9	20	–
2375.090	Ir	10	20	–
2375.075	Th	8	4	–
2375.07	Re	25	7	a
2375 06	Os	10	25	–

Wavelength	Element	Intensities Arc	Spk., [Dis.]	R
2375.06	Ag	300 wh	300 wh	–
2375.03	W	–	12	–
2374.97	Pd II	–	[3]	Bx
2374.94	Te	–	[30]	Bl
2374.873	Fe	2	–	–
2374.87	Mo	–	8	–
2374.84	Rh	–	10	–
2374.777	Ru	–	4	–
2374.758	W	10	–	–
2374.749	Co	3	–	–
2374.72	Ta	2	12 h	–
2374.652	Ru	–	3	–
2374.649	V	–	2	–
2374.60	Ti I	3	–	–
2374.517	Fe I	6	–	I
2374.51	Os	25	–	a
2374.460	W	12	12	–
2374.456	Co I	4	–	–
2374.422	Zr I	20	10 h	–
2374.36	Zn I	3	–	Fl
2374.33	Os	25	3	a
2374.30	Mn	–	30	–
2374.26	W	–	2 h	–
2374.17	Eu	3	6	–
2374.163	Cb	–	5	–
2374.162	Pd II	–	3	–
2374.144	W	12	2 h	–
2374.07	U	2	–	–
2374.02	Hg I	10 h	–	Di
2373.960	Cb	2 w	5 w	–
2373.952	Ru	–	4	–
2373.94	Ta	–	35	–
2373.93	Mo	–	5	–
2373.92	Pd II	–	2 h	–
2373.89	Yb	2	8	–
2373.862	Co I	9	–	–
2373.846	Th	3	3	–
2373.83	Dy	2	–	–
2373.82	Er	10	–	a
2373.73	Cr I	60	–	–
2373.730	Fe II	6	15	–
2373.70	Ag II	–	2 h	–
2373.68	Kr II	–	[4]	Me
2373.624	Fe I	2	–	–
2373.623	Sb	75	25	–
2373.62	Os	4	5	–
2373.52	Re	7	15	a
2373.43	W	4	4	–
2373.4	Cs	–	[2]	Bs
2373.385	Co	20	2	–
2373.37	Mn II	4	50	–
2373.362	Al I	200 R	100 R	–
2373.32	Pt	–	10	–
2373.29	Re	7	3	a
2373.25	Pr	–	8	–
2373.22	Rb	–	[70]	Fa
2373.172	Ir	5	10 wh	–
2373.17	Nd	–	7	–
2373.14	Au II	–	5	–
2373.132	Al I	100 R	30	Gn
2373.12	Os	–	10	–
2373.108	Ba I	12	2 w	–
2373.09	Co	4	6	–
2373.075	Cb	5	–	–
2373.06	Yb	1	5	Me
2373.060	V	–	200	–
2373.04	In II	–	[10 h]	Ps
2372.98	Pd	–	10	–
2372.96	Mo	–	30	–
2372.94	U	2	–	–
2372.930	Zr II	15	8	–
2372.91	Os	25	3	a
2372.91	Eu	2	–	–
2372.90	In II	–	[8 h]	Ps
2372.89	Cr	40	3	–
2372.86	Te	–	[10]	Bl
2372.831	Co I	15	2	–
2372.80	Ta	3	30	–
2372.79	W	5	–	–
2372.774	Ir I	100	40	–
2372.725	Cb	2	50	–
2372.71	Se	–	[25]	Bl
2372.65	Os	20	5 w	–
2372.627	Fe II	10	–	–
2372.583	V	–	15	–
2372.58	W	3	12	–
2372.57	Zr I	8	1	–
2372.51	Co	–	2 w	–
2372.37	Ce	–	50	–
2372.33	Zr	7	1	–
2372.33	Hf II	3	4	Me
2372.27	Mo	25	6	–
2372.25	Ti I	3	–	–
2372.23	I	–	[12]	Bl
2372.230	Cb	–	8 w	–
2372.175	V	–	100	–
2372.154	Pd II	5	50	–
2372.13	Pr	–	6	–
2372.117	Mn	12	–	–
2372.084	Al I	18	10	Gn
2372 07	Mo	5	–	–
2372.06	Er	–	3 h	–
2372.03	Tb	–	10	Ex
2371.95	Ti I	10	–	–
2371.94	U	–	2	–
2371.93	Hf	–	3 h	Me
2371.92	W	–	10	–
2371.915	Ru	2	9	–
2371.860	Co I	6	12	–
2371.85	Os	–	4	–
2371.85	W	8	–	–
2371.74	A	–	[20]	Rt
2371.689	Zr	5	–	–
2371.66	Rh	3	–	a
2371.617	Pt II	–	20	–
2371.60	Au II	–	5	–
2371.60	Co	–	3	–
2371.58	Ta	10	10	–
2371.54	Mo	–	8	–
2371.53	U	–	3	–
2371.52	Re	30	7	a
2371.51	Pd	–	2 h	–
2371.48	Rh	3	25 wh	–
2371.440	Co	15	–	–
2371.428	Fe I	8	–	I
2371.428	Hf II	6	8	–
2371.427	Th	–	12	–
2371.42	Pr	–	15	–
2371.38	Zr	3	1 h	Ks
2371 325	Ga	3	5	Uh
2371.31	Er	–	2 h	–
2371.26	Mo	–	15	–
2371.21	W	–	5	–
2371.18	Os	50	15	–
2371.152	Zr	2	2 h	–
2371.07	V	–	500	–
2371.07	Rh	3	40	–
2371.06	Ta	–	18	–
2371.05	W	–	5	–
2370.96	Rb	–	[2]	Fa
2370.885	Cu II	–	5 h	IBu
2370.881	W	10	2	–
2370.88	U	–	4	–
2370.78	Re	12	30	a
2370.77	As I	50 r	3	Me
2370.76	Ta	5	25	–
2370.74	Co	–	8	–
2370.732	Cb	–	4 wh	Me
2370.70	Os	25	10	–
2370.67	Ir	–	6	–
2370.60	W II	2	18	–
2370.58	Rh	10	–	–
2370.53	Os	15	–	a
2370 509	Co	10	–	–
2370.5	air	–	3	–
2370.496	Fe II	8	6	I
2370.49	La II	–	2	–
2370.428	Zr	3	–	–
2370.39	Mo	3	8	–
2370 39	Cr I	40	3	–
2370.372	Ir I	15	5 w	–
2370.35	Ta	–	5	–
2370.27	Dy	2	–	–
2370.25	K	–	[30]	Ml
2370.23	Mo	2 h	10	–
2370.226	Al	5	5	Gn
2370.173	Ru	60	–	–
2370.15	Zr	2	4 h	–
2370.13	U	2	–	–
2370.104	Yb	–	3 h	–
2370.04	W	5	25	–
2370.018	Ru	4	5	–
2369.98	Nd	–	10	–
2369.97	Mo	–	10	–
2369.97	A	–	[2]	Rt
2369.96	B	–	20	Sy
2369.960	Fe II	3	15 h	–
2369.952	Cb	5	25	–
2369.927	Co I	9	–	–
2369.92	Te	–	[50]	Bl
2369.887	Cu II	20	30	IBu
2369.883	Ag	–	2	–
2369.74	W	3	7	–
2369.73	Ra II	–	[50]	Rs
2369.676	Co I	15	5	–
2369 67	As I	40 r	20	Me
2369.62	Xe	–	[4]	Hu
2369.58	Rh I	10	20 wh	–
2369 564	Ir	5	–	–
2369.445	Fe I	8	1	–
2369.44	Yb	1	10	Me
2369.36	Au	–	4	–
2369.33	W	–	2 h	–
2369 32	Ta	–	12	–
2369 309	Al	10	4	–
2369 29	Re	30	7	a
2369.28	Ti I	4	–	–
2369.28	A II	–	[2]	Rt
2369.24	Os	50	12	–
2369.22	Ni II	1	20	–
2369 22	Ir	–	30	–
2369.18	La	2	2	Me
2369.174	Bi	5	–	–
2369 08	Lu	–	5	Me
2369 07	Pd II	–	[4]	Bx
2369 06	U	2	4	–
2368 98	Zr	1	2 h	–
2368.97	W	–	15	–
2368.96	Th	–	5	–
2368.95	Mo	–	15	–
2368.945	Cb	–	5	–
2368.94	Kr II	–	[3]	Me
2368.90	Re	12	7	a
2368.87	Rh	6	–	–
2368.866	Cb	4	–	–
2368.80	Pr	–	15	–
2368 68	Xe II	–	[3]	Hu
2368.595	Fe II	15	25	I
2368.551	Bi II	2	10	–
2368.54	Pd II	–	[4]	Bx
2368.54	Re	7	40	a
2368.49	Cr I	30	2	–
2368.473	Bi II	2	12	–
2368.47	Hf II	–	4 h	Me
2368.46	Ta	2	–	Ks
2368.409	Ir	8	–	–
2368.40	U	3	–	–
2368.387	Bi II	2	15	–
2368.35	W	4	10	–
2368 34	Rh	50	2	–
2368 33	Ir	–	12	–
2368.276	Pt I	35	25	–
2368.253	Bi II	3	20	Om
2368.226	Sn II	3	8	–
2368.22	Lu	–	2	Me
2368.21	Ta	–	4 h	–
2368.195	Bi II	1	12	–
2368.17	Cu	2	15	–
2368.14	Nd	–	10	–
2368.14	Re	6	6	a
2368.13	U	2	3	–
2368.114	Al	4	1	–
2368.051	Th	5	3	–
2368.04	Ir	25	125	–
2367.97	Ti	–	2 w	–
2367.960	Pd	10	60	–
2367.95	Au	–	5 h	–
2367.94	Pd II	–	2	–
2367.933	Cd II	–	2	–
2367.93	Os	2	3	–
2367.90	Re	9	–	a
2367.88	Cr I	20	–	–
2367.80	Ce	–	10	–
2367.775	Ru	4	–	–
2367.72	Zn I	2	–	Fl

Wave-length	Element	Intensities Arc	Spk., [Dis.]	R
2367.71	Ta	–	3	–
2367.69	Re	30	8	a
2367.683	Ir	4	–	–
2367.68	Er	6	4	–
2367.680	W	10	2 h	–
2367.66	Os	5	–	a
2367.655	V	–	80	–
2367.618	Hf II	2	3	–
2367.616	Al	2	[10]	–
2367.59	Pd II	–	[2 h]	Bx
2367.58	Yb	–	10 h	Me
2367.52	Rb	–	[40]	Fa
2367.51	Cu	–	4 h	–
2367.4	air	–	4	–
2367.39	U	2	3	–
2367.389	Ni II	8	15	–
2367.36	W	2 h	4	–
2367.360	Cb	–	3	–
2367.35	Os	50	80	–
2367.33	Zr I	6	–	Ks
2367.24	Ta	2	25	–
2367.222	Ru	6	10	–
2367.20	Co	–	9	–
2367.195	Cd II	–	10	–
2367.12	U	–	3	–
2367.10	Mn	6	–	–
2367.10	Tm	8	3	Me
2367.09	Rh	5	30	–
2367.062	Al I	150R	50 R	–
2367.047	Pd II	9	12	–
2367.02	Re	6	4	a
2367.00	Te	–	[10]	Bl
2366.984	Th	3	5	–
2366.96	Mo	2 h	20	–
2366.952	W	12	3	–
2366.91	Mn	–	40	–
2366.893	V	–	4	–
2366.88	Rh	3	50	–
2366.85	Cr I	60	60	–
2366.78	Yb	3	12	Me
2366.78	A	–	[10]	Rt
2366.67	W II	–	4	–
2366.63	Rb	–	[2]	Fa
2366.595	Fe II	10	20	I
2366.57	Os	8	–	a
2366.54	Ni II	–	10	–
2366.470	Pt II	–	15 h	–
2366.38	Mo	6	20	–
2366 34	Cr I	15	3	–
2366.31	V	–	3	–
2366.292	Pd II	–	15	–
2366.28	Os	14	2	a
2366.218	Cb	–	8	–
2366 217	Zr II	2	2 h	–
2366.19	Cd II	–	[3]	Tk
2366.182	W	12	2 h	–
2366.15	Cr I	10	3	–
2366.12	Os	12	2	a
2366.09	Mo	7	10	–
2366.06	Ir	–	8	–
2366.054	Co I	5	–	–
2365.99	Rh	3	–	a
2365.98	Hf II	8	10	Me
2365.97	Rb	–	[80]	Fa
2365.97	Cr I	25	8	–
2365.957	Cb	2	–	–
2365.95	Tm	6	4	Me
2365.86	Os	15	2 w	a
2365.851	Fe	6 h	–	–
2365.85	Mo	–	8	–
2365.848	W	12	4	–
2365.8	K	–	[5]	Ml
2365.771	Fe	3	5	Do
2365.764	Ir I	15	3	–
2365.740	Cb	–	5	–
2365.7	bh C	20	–	L
2365.69	Re	15	4	a
2365.67	Ag II	–	20 h	–
2365.66	Ni I	10	2	–
2365.65	Tl	–	10	Sd
2365.630	V	–	4	–
2365.624	Cb	–	20 w	–
2365.614	Pd	–	4 h	–
2365.55	Pr	–	10	–
2365.52	Kr II	–	[3]	Me
2365.50	La II	2	3	–
2365.49	Al II	–	[6]	Sy
2365.48	Pd II	–	15 h	–
2365.47	Er	–	8	–
2365.45	Yb	–	15	Me
2365.448	W	12	5	–
2365.39	Cd II	–	10	–
2365.36	Pt	–	8	–
2365.32	Re	20	7	a
2365.299	Cb	–	2	–
2365.29	Ir	–	5	–
2365.238	Pt II	–	8	–
2365.216	Cb	5	20 l	–
2365.19	U	–	5	–
2365.15	O II	–	[10]	Fl
2365.15	Cr	10	3	–
2365.08	Rb	–	[70]	Fa
2365.07	Os	15	1	a
2365.067	Co I	18 d	4	–
2364.97	Tl	–	2	–
2364.95	Zr II	1	2	–
2364.95	W	8	–	–
2364.89	Au	–	15 h	–
2364.85	Os	15	30	a
2364.827	Cs	–	2	–
2364.826	Fe II	15	30	I
2364.81	Pd II	–	10 h	–
2364.72	In II	–	[10]	Ps
2364.71	Cr I	20	8	–
2364.71	Os	9	–	a
2364.66	Rh	10	25	–
2364.640	Ir	10	2	–
2364.61	Pd	–	[7]	Bx
2364.59	Zr II	–	2	–
2364.58	Pt	–	8 h	–
2364.56	Au I, II	20	8	–
2364.51	Os	5	–	a
2364.5	bh B	50	–	L
2364.486	Ir	8	–	–
2364.378	V	2	2	–
2364.37	Mo	8	–	–
2364.325	Cb	5 h	–	Me
2364.28	Rb	–	[150]	Fa
2364.27	U	–	3	–
2364.251	Co	3	–	–
2364.24	Ta	10	40	–
2364.227	Ru	–	5	–
2364.22	W	5	15	–
2364.14	Cu II	–	10	–
2364.14	A	–	[40]	Rt
2364.14	Rh	–	25	–
2364.06	Pd	–	2 h-	–
2364.001	Ag II	–	100 Wh	–
2363 996	Ir	10	2	–
2363.98	Ga	–	2	–
2363.95	Cu	8	2 h	–
2363.94	Fe	10 w	–	–
2363.94	Er	7	2 h	–
2363 93	Pd	5	6	–
2363.92	U	6	2	–
2363.90	Os	25	10 w	–
2363.89	W	4	12	–
2363.88	B II	–	15	Sy
2363.87	Nd	–	18	–
2363.86	Pt	–	15	–
2363.842	Zr II	5	3	–
2363.82	Re	15	2 h	a
2363.82	Si	–	[5]	Sy
2363.787	Co II	25	50	–
2363.69	Mo	–	10	–
2363.635	Fe II	2	2	–
2363.594	Cb	2	2	–
2363.540	Pd II	–	25 w	–
2363.53	Os	10	2	a
2363.523	Zr I	25	–	–
2363.51	B	–	2	–
2363.48	Yb	–	4 h	Me
2363.46	W II	5	8	–
2363.43	U	–	4	–
2363 35	Se	–	[5]	Bl
2363.33	Os	25	15 w	–
2363.31	Gd	1	4	–
2363 26	W	–	2 h	–
2363.21	Cu I	10	7	–
2363.09	Th	–	15	–
2363.062	W	15	5	–
2363.052	Zr	3	4	–
2363.05	As I	5	–	Me
2363.05	Rh	8	4 wh	–
2363.042	Ir	50	25	–
2362.98	Mo	–	8	–
2362.95	Pd	–	[8]	Bx
2362.90	Re	20	7	a
2362.89	Yb	10	20	–
2362.772	Co	2	–	–
2362.77	Os	50	12	–
2362.77	Pd	7	–	–
2362.76	U	3	2	–
2362.74	Kr II	–	[6]	Me
2362.70	Tl	–	2 w	–
2362.634	V	2	25	–
2362.62	Dy	3	–	–
2362.60	Xe II	–	[2]	Hu
2362.58	Re	20	7	a
2362 57	Ce	–	10	–
2362.51	W	–	8	–
2362.486	Cb	–	20	–
2362.42	Mo	–	6	–
2362.41	Os	25	8	–
2362.35	U	2	5	–
2362 342	Hf	–	2	–
2362.34	Rb	–	[10]	Fa
2362 333	Co I	8	–	–
2362.322	Pd II	5	35	–
2362.24	Ir	–	4	–
2362.23	Cr I	25	2 h	–
2362.21	Th	3	1	–
2362.21	Nd	–	4	–
2362.21	Os	10	2	a
2362.179	Ag II	–	80 w	–
2362.10	W	–	5	–
2362.08	Tl I	10 s	–	Fl
2362.06	Ni I	15	10	–
2362.049	Cb	–	25 w	–
2362.019	Fe II	8	15	I
2361.97	Gd	–	3	Ex
2361.92	Rh	30	7	–
2361.92	U	–	2	–
2361.82	Yt I	8	–	–
2361.76	Mn	2 h	30	–
2361.749	Zr II	3	6	–
2361.724	Fe II	–	4	–
2361.67	Ir	3	25	–
2361.66	Os	15	–	–
2361.64	Te	–	[5]	Bl
2361.62	W	6	3	–
2361.57	Cu	–	8	–
2361.53	Co II	10	15	–
2361.484	Pd	9	10	–
2361.48	Re	4	6	a
2361.46	U	3	2 h	–
2361.45	Rh	3 w	7	–
2361.43	Cu	12	–	–
2361.42	As	–	2	Ro
2361 31	Pd II	–	25 h	–
2361.25	Mo	–	3	–
2361.23	Cu II	2	[3]	–
2361.23	Tm	1	60	Me
2361.19	W II	6	8	–
2361.17	Rh	10	3	–
2361.14	Co	–	9	–
2361.14	U	–	2	–
2361.123	Pd II	–	5	–
2361.09	Yb	2	6	Me
2361.09	Ta	10	–	–
2361.052	Cb	–	3 wh	–
2360.96	Zn I	2	–	Fl
2360.95	Pd II	–	2 h	–
2360.95	Ga	–	3	–
2360.93	Re	6	5	a
2360.797	Pd	–	4	–
2360.77	U	–	2	–
2360.730	Ir	40	25	–
2360.724	Ru	8	2	–
2360.684	Ir	4	–	–
2360.643	Cd	2 h	–	–
2360.63	Ni I	10	3	–
2360.555	Ru	30	–	–
2360.53	Pd	12	–	–
2360.509	Co	4	15	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2360.495	Sb	20	5	–
2360.44	Os	10	–	a
2360.433	W	15	5	–
2360.422	Zr	3	1	–
2360.42	Xe	–	[2]	Hu
2360.343	V	5	5 w	–
2360.34	Sn II	–	[10]	Mc
2360.304	Cb	2	7	–
2360.293	Fe II	10	8	I
2360.13	I	–	[12]	Bl
2360.12	W	–	2 h	–
2360.097	Ru	20	–	–
2360.09	Mn	–	7	–
2360.07	A II	–	[40]	Rt
2359.997	Fe II	10	8	I
2359 79	Ta	–	30	–
2359.73	Mo	–	40	–
2359.589	Fe II	–	3	–
2359.58	Pb	–	3	–
2359.578	Ir	10	–	–
2359.57	Rh	–	50	–
2359.53	Te	–	[5]	Bl
2359.51	W	–	3	–
2359.49	Cu	5	–	–
2359.47	Ga	–	2	–
2359.47	Re	8	–	a
2359.46	Mn	3	8	–
2359.45	U	2	2	–
2359.45	Ta	–	5 h	–
2359.38	Lu	–	2	Me
2359.372	Ir	2	25	–
2359.34	Mo	–	5	–
2359.33	Er	–	3	–
2359.23	Os	8	–	a
2359.21	Ge	2	–	–
2359.21	W	–	4	–
2359.18	Rh	15	100	–
2359.16	Ta	–	15	–
2359.105	Ru	–	12	–
2359.104	Fe II	15	20	I
2359.08	Zr	–	4 h	Ks
2359.08	Co	–	2	–
2359.04	Ir	–	3 h	–
2358.94	Hg	–	[5 d]	Dj
2358.87	U	–	2	–
2358.858	Ag II	–	100 Wh	–
2358.85	Ni I	15	3	–
2358.84	Ga	–	3	–
2358.81	W	10	20	–
2358.791	Ru	20	15	–
2358.79	Rh	–	10 w	–
2358.776	Pt II	–	5	–
2358.754	Ir	–	25	–
2358.745	V	–	300	–
2358.72	Yt	10	2 h	–
2358.71	Er	5	5	–
2358.70	K II	–	[50]	Bn
2358.698	In I	5 wh	–	Ps
2358 68	Os	6	30	–
2358.671	Co I	10	–	–
2358.59	Re	9	–	a
2358.57	Nd	–	10	–
2358.53	Cu	12	–	–
2358.51	Er	12	–	–
2358.50	Os	4 w	–	a
2358.48	Hg	2	–	Di
2358.47	Rh I	10	3 h	–
2358.45	Mn	8	25	–
2358.23	Te	–	[10]	Bl
2358.176	Co I	20	30	–
2358.165	Ir	25	2	–
2358.08	Re	8	–	a
2358.07	Nd	–	3	–
2358.072	W	10	–	–
2358.05	Rb	–	[5]	Fa
2358.02	La	2	3 h	Me
2358.02	Si	–	[5]	Sy
2357.97	U	2	–	–
2357.954	Ir	8	50	–
2357.93	W	–	3	–
2357.920	Ag II	15	100 h	–
2357.914	Ru	60	100	–
2357.9	Cs	–	[2]	Bs
2357.886	Sn	6	4	–
2357.82	Ti		6	–
2357.797	V	2 h	60	–
2357.75	S	–	[8]	Bl
2357.73	Mo	8	–	–
2357.65	W	5	–	–
2357.64	Os	15	4	a
2357.64	Mn	2	10	–
2357.630	Pd II	3	40	–
2357.61	Re	5	–	a
2357.60	A	–	[60]	Rt
2357.59	U	–	6	–
2357.577	Pt	20	10	–
2357.57	Mo	–	12	–
2357.56	Nd	–	2	–
2357.541	V	–	20	–
2357.502	Co	10	–	–
2357.46	W	–	5	–
2357.445	Cb	–	6 w	–
2357.436	Zr II	8	20	–
2357.432	Pd	2	15	–
2357.43	Rh	2	50 wh	–
2357.40	Dy	7	–	–
2357.33	Mo	–	4	–
2357 31	Ti	–	3	–
2357.31	Ir	–	30	–
2357.30	Ta	10	–	a
2357.28	Lu	–	4	Me
2357.27	W	–	5	–
2357.25	Os	25	5	–
2357.20	Si	–	[5]	Sy
2357.16	Mo	–	7	–
2357.104	Pt I	30	20	–
2357.06	Re	12	3	a
2357.04	Tm	3	80	Me
2357.03	B	–	6	Sy
2357.008	Fe II	–	10	–
2356.99	Pb II	–	4	–
2356.98	Rb	–	[40]	Fa
2356.92	Dy	8	–	–
2356 92	Os	15	10 w	–
2356 9	bh C	12	–	L
2356.90	Ta	2 h	2	–
2356.88	In II	–	[10]	Ps
2356.87	Ni I	10	3	–
2356.86	U	–	5	–
2356.81	Mn	7	10	–
2356 81	Cu	6	–	–
2356.80	W	4	–	–
2356.78	Co	–	2	–
2356.72	Xe	–	[5 h]	Hu
2356.651	Cu II	5	25	–
2356.63	Ni	10	–	–
2356.615	Ir	10	–	–
2356.60	Te	–	[5]	Bl
2356.552	Ir	40	5	–
2356.51'	Re	30	7	a
2356 48	Ta	–	10	–
2356 46	W	–	3	–
2356 41	Ni II	4	18	–
2356 35	Si	–	[10]	Sy
2356.33	Pt	20	9	–
2356 316	Ir	15	6	–
2356 301	Cb	3 h	10	–
2356.30	Rh	–	35	–
2356.268	Co I	10	–	–
2356.25	Zr	2	–	–
2356.23	Tm	–	10	Me
2356.2	Tl	–	10	Cx
2356.05	Os	10	2	a
2356 05	Ta	3	25	–
2356.031	Ir	4	–	–
2356 031	Cb	2	10	–
2356.02	Mo	–	4	–
2355.96	Ir	–	35	–
2355.96	W	–	3	–
2355.915	Fe I	–	2	–
2355.91	Cu	4	–	–
2355.906	Th	2	5	–
2355.900	Zr I	30	1	–
2355.89	Re	12	–	a
2355.81	La	2	5 h	Me
2355.79	W	–	3	–
2355.728	Pd	2	25 h	–
2355.69	Br	–	[15]	Bl
2355.685	Cb	2	4	–
2355.67	Tm	–	7	Me
2355 65	Ta	3	18	–
2355.64	Os	5	–	a
2355.627	Ru	–	5	–
2355.620	Co I	7	8	–
2355.55	Er	–	4	–
2355.546	Cb	–	15 l	–
2355.52	Ir	10	50	–
2355.51	Au	–	5	–
2355.510	Pd II	6	25 Wh	–
2355.45	Re	6	20	a
2355.448	V I	–	5	–
2355.42	Mo	5	25	–
2355.39	Yt	8	–	–
2355.33	Pd II	–	5 h	–
2355.328	Fe I, II	3	–	–
2355 32	W	–	5	–
2355.284	Os	15	25	–
2355 28	Mo	–	10	–
2355.251	Th	4	2	–
2355 25	B	–	6	–
2355 230	V	4	4	–
2355.223	Fe II	–	3	–
2355 22	Mo	10	–	–
2355.155	Cu II	–	25	IBu
2355.14	Ti II	1	4	–
2355 12	U	2	2	–
2355.08	Te	–	[5]	Bl
2355 06	Ni I	10	2	–
2355.06	Re	10	–	a
2355 05	Co	2	–	–
2355 01	Mo	–	10	–
2355.004	Ir	20	–	–
2354.949	Cb	–	2 w	–
2354 90	Te	–	[5]	Bl
2354.889	Fe II	10	10	I
2354.845	Sn	150 R	150 R	m
2354.797	Pd II	–	25	–
2354 79	A II	–	[5]	Rt
2354 76	U	2	3	–
2354 611	W	12	5	–
2354.50	Zr	2	2 h	–
2354.467	Bi	15 h	5	–
2354.466	Fe II	5	15	–
2354.46	Mo	10	–	–
2354.42	Cs	–	[2]	Bs
2354.41	Co	5	–	–
2354.35	I	–	[20]	Bl
2354.35	Se	–	[25]	Bl
2354.32	Cr I	12	2 h	–
2354.319	Sr I	5 R	–	ISn
2354.220	Pd	–	18	–
2354.216	Hg	–	20	St
2354 185	Yt I	12	2	–
2354 18	Er	15	2 h	–
2354.179	Co	2	–	–
2354.16	Mo	–	12	–
2354.14	A	–	[20]	Rt
2354 14	Tm	–	6	Me
2354.10	Ta	–	3 h	–
2354.100	Ru	4	1	–
2354.07	Ti	3	12	–
2354 064	Zr	3	–	–
2354.04	Cu	10	–	–
2354.038	Cb	4	12	–
2354.0	Gd	2	–	Ds
2353.99	Ir	–	5	–
2353.96	Cu II	–	[2]	Sh
2353.86	Ta	4	20	–
2353.82	Cb	4	–	–
2353.81	W	3	–	–
2353.783	Cb	5 w	2	–
2353.77	Pr	–	15	–
2353.77	Nd	–	20	–
2353.73	Co	2	–	–
2353.72	Mo	–	20	–
2353.708	Ni	8	–	–
2353.69	W	2 h	5	–
2353.68	Kr	–	[50]	Me
2353 640	Ir	10	5	–
2353.595	Ru	6	–	–
2353.507	Cb	4	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2353.454	W	–	4	–
2353.45	Ag II	–	2	Ex
2353.42	A	–	[10]	Rt
2353.42	Co II	10	35	–
2353.40	La	–	2	Me
2353.38	Ni	5	6	–
2353.36	W	3	5	–
2353.30	Cu	7	–	–
2353.21	Re	7	–	a
2353.207	Zr II	1	2 h	–
2353.19	Si	–	[2]	Sy
2353.117	Ir	4	50 w	–
2353 10	Tm	–	40	Me
2353.10	Rb	–	[40]	Fa
2353.025	Hf	5	–	–
2352.99	Pd	4	7	–
2352.99	Os	30 l	8	–
2352.97	Ta	2	35	–
2352.96	W	8	8	–
2352.951	Ru	6	8	–
2352.933	Mn	12	6	–
2352.86	Kr II	–	[2]	Me
2352.854	Co I	15 d	4	–
2352.838	Cb	10 w	20	–
2352.78	W	–	5	–
2352.73	A	–	[5]	Rt
2352.65	Au II	25	–	–
2352.625	Ir	15	2	–
2352.61	Mo	15	2 h	–
2352.60	Nd	–	4	–
2352.60	Dy	4	–	–
2352.56	Rb	–	[2]	Fa
2352.54	Pr	–	6	–
2352.48	Hg I	12 h	15 h	Cn
2352.47	Rh I	20	20 w	–
2352.44	W	–	2 h	–
2352.44	Fe	–	8 h	–
2352.342	Cb	5	20	–
2352.21	Co	–	4	–
2352.201	Sb	12	4	–
2352.177	V	5	200	–
2352.17	Os	–	4 w	–
2352.17	Nd	–	4	–
2352.124	Cb	3	–	–
2352.10	Re	30	5	a
2352.08	Dy	3	–	–
2352.04	W	–	2 h	–
2351.99	Ir	5 h	10 wh	–
2351.978	Co I	4	–	–
2351.97	Os	1	5	–
2351.92	Tm	–	10	Me
2351.911	Cs	–	2	–
2351.87	U	–	20	–
2351.857	Pd II	–	30	–
2351.848	Co	–	7	–
2351.78	W	5	–	–
2351.72	Th	–	5	–
2351.72	Os	25	4	a
2351.671	Cb	2 h	–	–
2351.656	Zr II	1	8	–
2351.64	Rh	–	5	–
2351.634	Cb	–	2 h	–
2351.58	Au II	–	5	–
2351.56	Xe	–	[2 h]	Hu
2351.55	Os	25	6 W	a
2351.537	V	–	50	–
2351.53	Tm	–	18	Me
2351 50	Rb	–	[5]	Fa
2351.466	W	–	8	–
2351.45	In	–	3	–
2351.408	Pt	–	12	–
2351.406	Ir	12	–	–
2351.391	Co I	10	–	–
2351.338	Pd II	10	60	–
2351.334	Ru	60	4	–
2351.28	Mo	10	–	–
2351.26	V	2	50	–
2351.22	Te	–	[25]	Bl
2351.215	Hf II	100	150	–
2351.191	Fe II	2	7	–
2351.18	Xe	–	[2 h]	Hu
2351.17	Co	–	10	–
2351.05	W II	–	5	–
2350.96	Cu	3	–	–
2350.92	Zr II	3 h	2	–
2350.86	W	–	2 h	–
2350.85	Ni II	–	5	–
2350.835	Be I	12	–	–
2350.765	In II	–	[5]	Ps
2350.735	In II	–	[10]	Ps
2350.712	Cb	2 h	–	–
2350.70	Pd	6	25 h	–
2350.685	Be I	25	2	–
2350.66	Ti II	2	10	–
2350.63	Re	18	7	a
2350.61	Ir	–	25	–
2350.594	Co I	6	–	–
2350.577	Ru	3	6	–
2350.536	W	12	–	–
2350.53	Eu	3	6	–
2350.53	Mo	–	5	–
2350.50	A	–	[20]	Rt
2350.488	Cb	1	4	Me
2350.48	Re	18	7	a
2350.467	Ni	10	–	–
2350.45	Hg	–	[2]	Dj
2350.43	Lu	–	3	Me
2350.399	Fe I	3	–	–
2350.37	W	–	12	–
2350.35	Rh	–	50	–
2350.30	Cd	–	[10]	Es
2350.280	Co I	12	2	–
2350.23	Os	30	50	–
2350 2	K	–	[10]	Sg
2350.20	Zr	2	2 h	–
2350.20	Al	–	[8]	Sy
2350.15	Ce	–	50	–
2350 12	Te	–	[25]	Bl
2350.11	Mo	–	12	–
2350.07	Pr	–	18	–
2350.054	Ir	15	5 wh	–
2350.05	Ni	–	3 h	–
2350.04	Os	12	–	a
2350 028	Cb	2	–	–
2349.94	Ti	3	12	–
2349.89	Mo	–	25	–
2349.857	Cd	2	–	–
2349.853	Sb	8	1 h	–
2349 85	U	2 h	8	–
2349.85	Cu	5	–	–
2349.84	As I	250 R	18	Me
2349.82	W	6	10	–
2349.81	Os	40	6 l	–
2349.806	V	3 w	150	–
2349.80	Rb	–	[80]	Fa
2349.78	Mo	10 w	–	–
2349.70	Yt	8	–	–
2349.68	Rh	3	125	–
2349.662	Ir	5	–	–
2349 63	Dy	3	–	–
2349.61	Re	12	9	a
2349.60	U	–	15	–
2349.59	Zr	10	1	–
2349.54	Si	–	[2]	Sy
2349.48	Os	–	4 w	–
2349.421	Cb	–	2 h	–
2349.40	Re	12	7	a
2349 39	Yb	1	8	Me
2349.38	Pd	–	[2]	Bx
2349 336	Ru	60	4	–
2349.32	W	8	12	–
2349.32	Hf II	–	2 h	–
2349 309	Ir	5	10 wh	–
2349 30	Nd	–	15	–
2349.29	Se	–	[5]	Bl
2349.26	Er	3	–	–
2349.22	Mn	3	15	–
2349.213	Cb	–	15	–
2349.16	Co	–	2	–
2349.10	Bi I	10	–	To
2349.04	Tm	–	7	Me
2349.02	Pd	–	15	–
2348.98	Mo	–	7	–
2348 91	U	2	2	–
2348.89	Tm	–	8	Me
2348.86	La II	2 h	2	Me
2348.84	Mo	3	9	–
2348.83	Mn	3	15	–
2348.82	Cu II	15 d	20	–
2348.80	Re	9	–	a
2348.748	Cb	3 w	–	–
2348.74	Te	–	[5]	Bl
2348.74	Ni I	10	1	–
2348.660	Cb	–	5 wh	–
2348.61	Os	3	–	a
2348.610	Be I	2000 R	50	–
2348.60	Lu	–	2	Me
2348.59	Ta	–	12 s	–
2348.586	Zr	15	1	–
2348.58	Mo	–	9	–
2348.56	I	–	[12]	Bl
2348.56	W	2 h	–	–
2348.548	Pt II	3	20	–
2348.46	Co	–	2 W	–
2348.46	Nd	–	20	–
2348.327	Ru	50	–	a
2348.303	Fe II	5	20	–
2348.301	Ir	20	–	–
2348.3	K	–	[20]	Ml
2348.30	V	–	25	–
2348.151	W	8	–	–
2348.099	Fe II	5	20	–
2347.99	Ti II	–	20	–
2347.967	W	10	10	–
2347.909	Bi	5	–	–
2347.90	Cr	2	–	–
2347.90	Rh	–	15	–
2347.90	Cu	4	–	–
2347.85	Rh	8	–	a
2347.826	Co	–	8	–
2347.82	Ga	–	2	–
2347.79	Mo	–	20	–
2347.76	Pd II	–	[25]	Bx
2347.69	Rh	–	10 wh	–
2347.660	Co I	4	–	–
2347.65	Cd	2	–	Hr
2347.64	Re	3	10	a
2347.64	W II	–	3	–
2347.577	Ba	30	40	Sz
2347.54	Al II	–	[12]	Sy
2347.527	Pd	18	18	–
2347.52	Ni I	12	2	–
2347.47	Tm	–	15	Me
2347.46	Mo	–	8	–
2347.444	Hf II	80	125	–
2347.44	Ti II	2	5	–
2347.39	Co II	10	25	–
2347 38	Os	30	5	–
2347.306	Pd II	3	25 w	–
2347.30	Zn II	–	[2]	Vs
2347 246	Ir	4	2 h	–
2347.17	Pd II	–	[10]	Bx
2347.160	Pt	18	12	–
2347 151	V	–	150	–
2347.121	Co	–	4	–
2347.11	Au II	–	5	–
2347.11	Zr II	12	2	–
2347.042	V I	15	20	–
2347.01	U	2	2	–
2346.98	Ta	–	20 h	–
2346.949	Cb	–	2 h	–
2346.879	V	–	25	–
2346.87	W	–	3	–
2346 80	Zn II	–	[3]	Vs
2346 80	Si	–	[5]	Sy
2346.79	Re	8	–	a
2346.77	Rh	2	30	–
2346.74	Co	2	–	–
2346.722	Pt	8	3	–
2346.72	Pr	–	10	–
2346.69	W	5	–	–
2346.686	Cb	3	–	–
2346.65	Mo	–	8	–
2346.63	W	–	7	–
2346.63	Ni I	10	3	–
2346.625	Cd	2	–	–
2346.62	Re	15	4	a
2346.60	Co	3	18	–
2346.561	In I	5	–	Ps
2346.529	Cb	3	10 w	–
2346.49	Os	10	1	a
2346.463	Pd II	2	25	–
2346.44	Rh	2	100	–
2346.42	Ta	3	2 h	–
2346 409	Ru	2	8	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2346.35	Ti	2	3	–
2346.349	Ru	5	8	a
2346.343	V	–	125	–
2346.32	I	–	[30]	Bl
2346.31	W	4	–	–
2346.293	Fe II	1	2	–
2346.21	Os	8	4 w	a
2346.162	Co I	7	2	–
2346.16	U	–	12	–
2346.14	Ir	3	8	–
2346.13	Cu	2	25	–
2346.090	Ni	7	–	–
2346.02	Ta	–	18	–
2346.00	W	7	–	–
2345.92	Zr II	4	1	–
2345.92	Al II	–	[6]	Sy
2345.91	Bi	12	5 wh	To
2345.903	In I	8	–	Ps
2345.75	Os	25	5 w	–
2345.69	W	–	12	–
2345.64	Re	15	7	a
2345.60	Tm	–	20	Me
2345.58	Os	6	–	a
2345.55	Hg II	10	30	Nu
2345.54	Ni I	18 r	–	–
2345.540	Mn	3	–	–
2345.52	Pd II	–	[8]	Bx
2345.51	Cd	10 h	–	Hr
2345.50	Co	6	7	–
2345.47	Al II	–	[2]	Sy
2345.444	Ni II	18 r	6	–
2345.431	Hg I	3	5	Cn
2345.41	Hf II	4	5	Me
2345.41	Rh	10	3 h	a
2345 35	Rb	–	[100]	Fa
2345 346	Cb	2	5	–
2345.34	Os	5	–	a
2345.340	Fe II	–	20	–
2345 33	Cr	8	60	–
2345.33	V	–	3	–
2345.30	Re	15	6	a
2345.26	Ni II	–	10	–
2345 16	Os	4	–	a
2345.10	Er	2 h	–	–
2345.070	Fe	20 h	–	–
2344.937	Pd II	–	20	–
2344.91	W	10	–	–
2344.90	Os	4	–	–
2344.89	Rh	–	20	–
2344.84	W	–	8	–
2344.83	Re	25	18	a
2344 816	Ru	–	3 Wh	–
2344.74	Os	15	3	a
2344.74	Pd II	2	–	–
2344.73	Mo	–	12	a
2344.69	Al II	–	[3]	Sy
2344.667	Yb	5	20	–
2344.653	Mo	3	12	–
2344.641	Cb	2	–	–
2344.64	Co	2	8	–
2344.58	U	3	2	–
2344.56	Cr	–	15	–
2344.534	Ru	5	1	a
2344.513	Cb	2	–	–
2344.49	Nd	–	8	–
2344.47	Xe II	–	[6]	Hu
2344.38	Kr II	–	[10]	Me
2344.36	I	–	[30]	Bl
2344.31	Os	20	–	a
2344.28	Au II	–	5	–
2344.280	Fe II	6	20	I
2344.260	Co II	15	15	–
2344.22	A	–	[4]	Rt
2344.21	Re	9	–	a
2344.14	Cb	–	4	–
2344.080	Ru	8	–	a
2344.03	As I	25	–	Me
2344.03	Re	5	–	a
2343.959	Fe II	5	10	–
2343.95	Ni II	–	4	–
2343.89	Os	20	–	–
2343.88	Ir I	2	–	Ab
2343.83	Te	–	[10]	Bl
2343.830	V	–	5	–
2343.81	Re	5	5	a
2343.746	Ag II	–	3 h	–
2343.744	W	5	–	–
2343.74	Os	15	–	a
2343.72	Mo	–	6	–
2343.68	Cb	–	3 h	–
2343.659	Ir	3	–	Ab
2343.64	Ta	–	25	–
2343.63	Cu	4	–	–
2343.606	Ir I	20	8	–
2343.57	U	5	–	a
2343.51	Ag	4	5	–
2343.492	Fe II	10	50	–
2343.49	Ni II	2	15	–
2343.456	Zr	4	–	–
2343.40	Br	–	[5]	Bl
2343.390	Pt I	25	–	–
2343.324	Hf II	60	80	–
2343.32	Re	–	6	a
2343.273	Cb	2	3	–
2343.27	Ga	–	6	–
2343.236	Pt II	–	10	–
2343.176	Ir I	40	10	–
2343.13	W	8	3	–
2343.13	Mo	–	12	–
2343.109	V	–	250	–
2343 07	Lu	2	15	Me
2343.04	Ca	–	2	Ad
2343.02	Rh	–	10 w	–
2342.973	Ir I	5	1	–
2342.87	U	–	3	–
2342 846	Ru	60	40	–
2342.843	Cb	–	3	–
2342.793	Co I	2	–	–
2342 78	Os	15	6	–
2342.777	Pt II	–	10	–
2342 75	Re	15	3	a
2342.72	Ru	60	10	a
2342.72	W	–	3	–
2342 697	Ir I	15	–	–
2342 654	Os	2 h	–	–
2342.63	Mo	–	7	–
2342.52	Ta	–	25	–
2342.499	Ir I	15	5	–
2342.48	Os	20	2	a
2342.47	Rh	3	–	–
2342.47	W	8	2 h	–
2342.46	Pd	5	3	–
2342.460	Ru	2	10 h	–
2342.418	Co	2	–	–
2342.4	Ga	–	3	Wb
2342.38	I	–	[150]	Bl
2342.37	Rh	3	25	a
2342.35	U	2	–	–
2342.34	Zr	3	2 h	–
2342.30	Ti	4	18	–
2342.30	K II	–	[10]	Bn
2342.27	Mo	–	7	–
2342.252	Fe II	–	3	–
2342.18	Xe	–	[2 h]	Hu
2342.136	V	4	125	–
2342.12	W	3	–	–
2342.06	Re	5	5	a
2342.05	Tm	–	15	Me
2342.01	Ru	10	–	a
2341.963	Fe II	–	2	–
2341.93	Pd	–	2	–
2341.92	W II	–	5	–
2341.92	Os	30 l	5	a
2341.898	Ag	–	4	–
2341.89	Rb	–	[40]	Fa
2341.85	La II	–	4	Me
2341.84	Er	10	–	–
2341.81	W	8	6	–
2341.788	Co	4	–	–
2341.73	Tm	1	20	Me
2341.697	Ir	–	20	–
2341.64	Au II	–	5	–
2341.61	Ta	2	35	–
2341.59	Mo	9	60	–
2341.55	Ga	–	2	–
2341.54	Hg	–	[10]	Dj
2341.526	Ir	–	5	–
2341.525	Pt II	–	4 h	–
2341.42	Mo	10	–	–
2341.38	Cu	2	–	I
2341.374	W II	12	12	–
2341.37	U	–	8	–
2341.326	Zr I	5	–	–
2341.25	Mn	2 h	–	–
2341.22	Ti	4	15	–
2341.19	Lu	–	3	Me
2341.18	Ni II	3	20	–
2341.17	Tm	5	3	Me
2341.13	Pd	–	3	–
2341.12	Sn	–	5	Ar
2341.12	Co	–	20	–
2341.07	W	–	5	–
2341.061	Ru	3	8	–
2340.993	Pt II	–	8 h	Sh
2340.992	Co I	5	–	–
2340.94	Ta	3	30	–
2340.932	Fe II	–	2	–
2340.93	Tm	5	5	Me
2340 87	Zr I	25	–	–
2340.86	U	2	2	–
2340.812	Yt II	2	10 h	–
2340.75	Yb	–	3 h	Me
2340.691	Ru	60	4	–
2340.69	Os	30 l	20	–
2340.65	Th	–	10	–
2340.64	W	–	4	–
2340.62	Eu	5	–	–
2340.59	Mn	–	30	–
2340.55	Hg I	3	2	Dj
2340.501	Ru	–	5	–
2340.49	Cr	–	10	–
2340.486	V I	50	3	–
2340.47	Cs	–	[2]	Bs
2340.47	Nd	–	7	–
2340.47	Mo	30	50	–
2340 449	Fe II	–	2	–
2340.44	Os	10	–	a
2340.40	Ir	–	5	–
2340.39	Yb	2	8 h	Me
2340.39	Hf	–	8 h	Me
2340.35	U	–	5	–
2340.31	Re	3 h	10	a
2340 276	Cb	4	–	–
2340.269	Ir	4	–	–
2340.26	Pd II	–	[3]	Bx
2340.26	Fe	3 h	–	–
2340.19	Se	–	[10]	Bl
2340.19	Au II	–	10	–
2340.186	In I	10	–	Ps
2340.178	Pt I	25	18	–
2340.154	Cb	2 h	–	–
2340.15	K	–	[10]	Ml
2340.047	Al	2	1	–
2340.042	Ir	10	35	–
2340.04	Cu	6	–	–
2340.040	Cb	8	30	–
2340.039	Pd II	9	5	–
2340.02	Ta	2	35	–
2339.925	Ru	1	5	–
2339.90	W II	–	8	–
2339.81	Os	5	20	–
2339.80	A	–	[10]	Rt
2339.76	Pr	–	15	–
2339.74	Cu II	2	3 wh	–
2339.72	W II	2 h	5	–
2339.684	V I	25	–	–
2339.64	Pd	10	2	–
2339.59	Cb	–	3 w	–
2339.58	Fe	10 wh	–	–
2339.552	Co I	5	–	–
2339.52	Pt	–	15	–
2339.49	Ru	20	–	a
2339.418	Fe II	–	8	–
2339.385	Zr	1	2 h	–
2339.37	Hg	–	[8]	Ps
2339.36	Mo	–	8	–
2339.33	W	2 h	–	–
2339.31	O II	–	[7]	Mh
2339.31	Ir	–	30	–
2339.26	Pd	–	3	–
2339.22	Os	7	–	a
2339.18	Mo	–	2	–
2339.179	Pt II	–	15 wh	–
2339.178	Ag II	–	4	–
2339.16	W II	3	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2339.053	Co I	4	10	–
2339.02	Gd	–	3	Ex
2338.97	Si	–	[5]	Sy
2338.95	Mo	–	10	–
2338.92	U	–	10 h	–
2338.740	Cb	3	–	–
2338.717	Co	–	5	–
2338.68	Rh	3	5	a
2338.671	Ru	2	3	–
2338.671	Co I	10 d	–	–
2338.67	Ge	2	1	–
2338.67	Cu	8	–	–
2338.65	Ta	–	15	–
2338.63	Os	30 l	6	a
2338.596	Ga	2	–	Uh
2338.49	Ni I	4	–	–
2338.48	U	–	4	–
2338.476	W	10	–	–
2338.47	Re	30	6	a
2338.47	Mo	–	7	–
2338.41	Cb	2 h	–	–
2338.36	Tm	2	50	Me
2338.3	bh C	20	–	L
2338.29	Er	3	6	a
2338.283	Ga	3	4	–
2338.28	Ta	6	30 l	–
2338.25	Hf II	–	10 h	–
2338.14	W	3	–	–
2338.10	Pd II	–	[2]	Bx
2338.093	Cb	–	8 w	–
2338.05	Pt	–	10	–
2338.01	Os	20	–	a
2338.005	Fe II	15	35	I
2337.956	V	–	18	Me
2337.95	Yb	2	40	Me
2337.936	Co	3 w	9	–
2337.90	Br	–	[25]	Bl
2337.82	Ni I	4 d	3	–
2337.816	Ru	2	6	–
2337.79	A	–	[60]	Rt
2337.78	Zr II	1	8	–
2337.78	Os	10	–	a
2337.77	Ti	–	2	–
2337.77	Pd II	–	25	–
2337.756	Cb	3	–	–
2337.743	W II	8	20	–
2337.74	Cr	3	12	–
2337.72	Mo	12	3	–
2337.71	Ce	–	5 W	–
2337.71	Nd	–	8	–
2337.64	Os	12	4	a
2337.59	Hf	–	3 h	–
2337.54	Cd	5 h	–	Hu
2337.535	Ir I	10	2	–
2337.526	Fe	–	2 h	–
2337.52	Pr	–	15	–
2337.514	Bi	5	–	–
2337.51	Rh	4	–	a
2337.5	Rn	–	[7]	Pe
2337.49	Ni I	8 d	5	–
2337.474	Mn	2	–	–
2337.42	Mo	6	12	–
2337.39	Cu	2	–	–
2337.33	Hf II	30	30	–
2337.324	V	–	80	–
2337.26	Ga	–	2	–
2337.17	W	8	–	–
2337.13	V	–	100	–
2337.12	Re	9	–	a
2337.09	Ni I	10	4	–
2337.05	Lu	–	3	Me
2337.05	Rb	–	[125]	Fa
2337.04	Mo	–	8	–
2336.99	Co	–	10	–
2336.94	U	–	2	–
2336.92	Br	–	[5]	Bl
2336.861	Fe II	–	20 h	–
2336.855	Ru	–	10 h	–
2336.84	Rh	1	125	–
2336.807	Co	2	–	–
2336.80	Os	50	80	–
2336.74	Re	12	2	a
2336.70	W	6	10	–
2336.68	Ni II	–	30	–
2336.65	Mo	–	9	–
2336.600	Pd II	3	30	–
2336.586	Ni II	–	150	–
2336.57	W	–	2 h	–
2336.50	Os	15	3 l	a
2336.492	Co	2	–	–
2336.48	Re	3	10	a
2336.42	Mo	–	9	–
2336.42	U	–	2 h	–
2336.413	Cb	3	4 w	–
2336.411	Pd II	2	30	–
2336.377	Ru	–	3	–
2336.37	Nd	–	4	–
2336 35	W	–	2 h	–
2336 25	S	–	[25]	Bl
2336.241	Co II	6	15	–
2336.23	Pr	–	10	–
2336 22	Ni	–	2	–
2336 20	Cu II	3	20	–
2336.19	Mo	–	10	–
2336.19	Os	5	8	–
2336.15	Te	–	[15]	Bl
2336.13	Re	25	10	a
2336.105	V	2	50	–
2336.05	Hg	–	[2 w]	Dj
2335.992	Co I	10 d	3	–
2335 984	Ru	2	15	–
2335.93	W	–	6	–
2335.842	U	2	2 h	–
2335.840	Ru	1	8	–
2335.80	Mo	–	10	–
2335.75	Re	40	9	a
2335.75	Ta	2	20	–
2335.74	Ru	12	–	a
2335 63	Zr	–	2 h	Ks
2335.617	Cb	2 h	15	–
2335.57	Pd	–	[5]	Bx
2335.56	W	–	3	–
2335.52	I II	–	[15 d]	Mu
2335.492	V	3	50	–
2335.49	Th	–	3	–
2335.45	I II	–	[60]	Bl
2335.43	Pd	–	[3]	Bx
2335.42	Xe II	–	[2]	Hu
2335.42	Rb	–	[5]	Fa
2335.419	Yb	3	15 h	–
2335.38	Mo	–	5	–
2335 337	V	2	3	–
2335.314	Cb	3 h	10 w	–
2335.285	Ir I	5	–	–
2335.28	Rh	–	15	–
2335.269	Ba II	60 R	100 R	–
2335.250	Hf II	–	2	–
2335.20	W II	6	8	–
2335.190	Pt II	8	25	Sh
2335.107	Co I	15	–	–
2335.03	Re	10	–	a
2335.00	Tm	–	8	Me
2334.958	Ir	–	25	–
2334.94	Mn	–	25	–
2334.92	Mo	–	20	–
2334.91	Te	–	[5]	Bl
2334 88	Co	–	4	–
2334.88	Ta	3	18	–
2334.81	Cb	3	25 w	–
2334.808	Sn	100 R	100 R	–
2334.80	Mo	–	10	–
2334.77	Rh	25 l	500	–
2334.67	Zr	6	–	–
2334.580	Ni II	8	20	–
2334.57	In II	–	[50 h]	Ps
2334.53	Ti	4	9	–
2334.528	Fe	3	–	–
2334.505	Ir I	25	5	–
2334.49	Re	9	–	a
2334.48	Si	–	[2]	Sy
2334.446	V I	25	40 s	–
2334.39	Cr	5	10	–
2334.38	Mo	–	3	–
2334.36	Re	20	8	a
2334.33	Ti	–	5	–
2334.330	Ir I	10	2	–
2334.30	W	4	–	–
2334.25	Os	–	2 w	–
2334.213	V	–	250	–
2334.13	I	–	[30]	Bl
2334.13	Ca	–	2	Ad
2334.13	Ta	2	20	–
2334.128	Co I	5	12	–
2334.066	Pd II	–	4	–
2334.06	W II	5	2 h	–
2334.06	Au II	–	5 h	–
2334.05	Mo	–	3	–
2333.962	Co	3	–	–
2333.907	Ru	12	20	–
2333.85	Ta	–	10	–
2333 839	Ir I	40	10	–
2333.795	Bi I	12	–	Om
2333.77	Hf II	–	4 h	–
2333.768	W II	8	9	–
2333.69	Rh	–	3	–
2333.658	Cb	3	–	–
2333.63	Mo	–	4	–
2333.603	V	–	50	–
2333.565	Ru	5	20	–
2333.50	Os	10	2	a
2333.48	Cr	–	25	–
2333.45	Nd	–	3	–
2333.38	Rb	–	[80]	Fa
2333.33	Re	15	4	a
2333.32	V I	10	–	–
2333 31	Rh I	8	125	–
2333.298	Ir I	25	8	–
2333.26	Pd	3	–	–
2333.26	Mn	2	25	–
2333.14	W	7	5	–
2333.07	Co I	6	–	–
2333.04	Re	15	3	a
2333.03	Rb	–	[2]	Fa
2333.0	bh C	5	–	L
2332.98	Cd II	–	[2]	Tk
2332.97	Nd	–	20	–
2332.968	Hf II	40	50	–
2332 883	Cb	–	2 h	–
2332.81	Se I	–	[30]	Rd
2332.81	Pd	–	[2]	Bx
2332.796	Fe II	15	40	I
2332.755	In I	3	–	Ps
2332.68	Mo	7	18	–
2332.64	Os	10	–	a
2332.578	Yt I	10	2 h	–
2332.544	Pd II	–	25 w	–
2332.54	U	–	2	–
2332.50	W	5	–	–
2332.45	S	–	[15]	Bl
2332.44	Hf II	7	10	Me
2332.426	Pb	60	30	–
2332.42	Cs	–	[8]	Bs
2332.32	Te	–	[15]	Bl
2332 277	Ru	–	12 h	–
2332.274	Ag	–	3	–
2332.26	Mo	3	–	–
2332.239	Ir	4	30	–
2332.19	Ta	10	15	–
2332.17	Hf II	2	–	–
2332.14	Mn	–	25	–
2332.14	Os	30	4 w	a
2332.12	Mo	8	80	–
2332.095	Co	10	–	–
2332.028	Fe	–	4 h	–
2332.02	W	–	6	–
2331.98	Ta	10	20	–
2331.92	W	8	5	–
2331.85	U	2	2	–
2331.791	Pt II	–	4	–
2331.79	Tm	2	25	Me
2331.780	Ru	12	15 h	–
2331.771	V	–	300	–
2331.74	Re	25	–	a
2331.70	Ni I	10 h	2	–
2331.695	Co	2	–	–
2331.64	Yt	7	–	–
2331.63	I II	–	[5 d]	Mu
2331.59	W	–	3	–
2331.57	Zr	–	100 w	Ks
2331.54	I II	–	[40]	Bl
2331.45	A	–	[60]	Rt
2331.45	Os	2	4	–
2331.43	Ru	20	–	a
2331.413	Pd II	–	40	–
2331.40	Re	20	2 h	a

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2331.370	Ag II	18	150 wh	–
2331.306	Fe II	10	6	I
2331.303	W	15	–	–
2331.29	Rb	–	[5]	Fa
2331.29	V	–	50	–
2331.17	Re	35	10	a
2331.16	Mo	–	7	–
2331.136	Ba	–	3 h	–
2331.055	Ru	–	12	–
2330.968	Pt I	25	10	–
2330.93	Mo	10	30	–
2330.91	Os	2 h	4	–
2330.90	W	–	3	–
2330.79	Ta	–	60	–
2330.768	Ir	3	–	–
2330.730	Zr	8	–	–
2330.67	W	–	3	–
2330.56	Re	5	–	a
2330.50	Ir	–	30	–
2330.46	Mo	18	2 h	–
2330.46	Re	6	–	a
2330.46	V	8	300	–
2330.36	Zr II	20	15	–
2330.350	Co II	10	18	–
2330.22	Os	–	8	–
2330.22	U	–	6	–
2330.20	Re	10	12	a
2330.186	Cb	–	8 w	–
2330.153	Ru	5	1 h	–
2330.145	V	–	4	–
2330.11	Cd II	–	[2]	Tk
2330.05	Cr	–	9	–
2330.04	Rb	–	[5]	Fa
2330.04	Mo	–	15	–
2330.04	Pd II	–	8 h	–
2329.964	Ni I	12 R	10	–
2329.94	Mn	2 h	–	–
2329.88	W	2	3	–
2329.82	Ir	5 wh	8	–
2329.79	Pd	4	–	–
2329.71	Os	10	2	a
2329.69	Mo	3	25	–
2329.68	W II	3	9	–
2329.630	Fe I	5	–	–
2329.58	Mg II	12	–	Fl
2329.56	Os	3	10	a
2329.523	V I	15	–	–
2329.46	U	–	6	–
2329.415	Ir	5	50	–
2329.40	Gd	–	3	Ex
2329.357	Fe	–	6	–
2329 33	Er	–	6	–
2329 29	U	2	–	–
2329.29	W	4	–	–
2329.29	Os	12	6 w	–
2329.29	Tm	1	30	Me
2329.282	Cd	50	60	–
2329.24	Ta	–	3	–
2329.12	Te	–	[50]	Bl
2329.095	Co I	6	10	–
2329.09	Hf II	2	2 h	Me
2329.08	Sb	15	3 h	–
2329.016	Ru	6	12	–
2328.98	Ir	3	15	–
2328.934	V	–	100	–
2328.89	U	2	10	–
2328.855	Co	10	–	–
2328.85	Mn	–	30	–
2328.76	Ta	–	3	–
2328.753	La	2	2	–
2328.72	W	–	2 h	–
2328.714	Ir I	5	–	–
2328.69	Re	25	7	a
2328.67	Mn	–	25	–
2328.67	B II	–	2	En
2328.65	Mo	–	3	–
2328.64	Rh I	20 l	–	–
2328.58	Pr	–	12	–
2328.56	Pd II	–	10 h	Bx
2328.543	Ir I	15	1 h	–
2328.52	U	–	4	–
2328.48	Tm	1	25	Me
2328.40	I	–	[30 l]	Bl
2328.327	Ru	–	2	–
2328.312	W II	10	12	–
2328.305	Co	6	–	–
2328.29	U	–	2 h	–
2328.248	Ir	10	2 h	Ab
2328.222	Cb	3	–	Me
2328.20	Al II	–	[2]	Sy
2328.19	Bi	15	–	To
2328.17	Os	3	–	a
2328.154	Ru	–	2	–
2328.11	Mo	–	10	–
2328.043	Er	2 h	–	–
2328.026	Cb	2	3	–
2328.00	In II	–	[18]	Ps
2327.981	Ir	25	5 h	–
2327.973	V I	8	–	–
2327.97	O II	–	[5]	Mh
2327.954	Fe II	–	6 h	–
2327.9	K	–	[5]	Sg
2327.90	In II	–	[10]	Ps
2327.90	Os	25	3	a
2327.90	Ge I	3	5	–
2327.88	U	–	10 h	–
2327.79	Mo	–	10	–
2327 68	Co	–	10	–
2327.68	Rh	2	15	–
2327.535	Co I	5	–	–
2327.532	Ru	10	–	a
2327.522	Cb	–	3	–
2327.51	Pd I	5	2 h	–
2327.45	Te	–	[25]	Bl
2327.394	Fe II	10	25	I
2327.36	Er	–	150	a
2327.35	Pd	–	[8]	Bx
2327.30	Hg I	–	[2]	Dj
2327.29	I	–	[20]	Bl
2327.28	Re	7	40	a
2327.256	Ir	1 h	30	Ab
2327.24	Tm	–	8	Me
2327.13	Re	5	–	a
2327.129	Cb	2	5	–
2327.03	Cl	–	[6]	Bl
2326.946	Ir	5	–	Ab
2326.922	Th	6	4	–
2326.91	Yb	2	6 h	Me
2326.71	W	10	–	–
2326.69	Mo	3	18	–
2326.562	W	10	3	–
2326 498	Al II	–	[8]	Sy
2326.48	Co II	20	30	–
2326.47	Rh I	25	3 h	–
2326.45	U	–	20	–
2326.448	Ni II	4	15	–
2326.41	Ru	6	–	a
2326.352	Fe II	–	8	–
2326 331	Pt II	–	15	Sh
2326.29	Rh	–	25 w	–
2326.243	Ru	20	–	–
2326.221	Cb	5	15	Me
2326.22	Te	–	[5]	Bl
2326.19	Tm	–	15	Me
2326.136	Co II	15	20	–
2326.11	Pd II	–	[7]	Bx
2326.101	Pt	30	8	–
2326.086	W II	10	15	–
2326.05	Mo	3	–	–
2326.050	Ir	6	50	–
2326.020	V	–	12	–
2325.956	Ru	30	–	a
2325.95	O II	–	[5]	Mh
2325.92	Mn	–	12	–
2325.91	Re	5	–	a
2325.869	V I	30	–	–
2325.84	Pr	–	6	–
2325.82	Ir	4	–	–
2325.81	Mo	15	5	–
2325.81	Mn	9	–	–
2325.80	Co	6	3	–
2325.79	Ni I	30 R	9	–
2325.77	W	3	2 h	–
2325.75	La II	2	20 hl	Me
2325.71	Au II	–	5	–
2325.68	Cu	2	–	–
2325.67	U	–	3	–
2325.65	Os	6	15	–
2325.615	Co I	50 w	–	–
2325.574	Fe II	–	5	–
2325.549	Co I	12	2	–
2325.54	Mo	–	25	–
2325.516	Ru	–	2 h	–
2325.511	Cb	1	5	–
2325.497	Al II	–	[15]	Sy
2325.46	U	–	10	–
2325.427	Al II	–	[2]	Sy
2325 35	Si	–	[5]	Sy
2325.321	Ir	5	–	–
2325 32	Se	–	[5]	Bl
2325.31	Dy	4	–	Ed
2325 299	Fe II	–	5	–
2325.26	Au	–	5 h	–
2325.12	V	–	100	–
2325.08	Re	20	4	a
2325 07	Ti	–	3	–
2325 054	Ag II	4	25 wh	–
2325.02	Os	15	4	a
2324.941	Ir	10	–	–
2324 924	In I	3	1	Ps
2324.89	Cr	–	50	–
2324 89	Hf II	40	80	Me
2324.89	Os	4	–	a
2324 86	Rh	–	25	–
2324.85	Mo	3	25	–
2324.80	U	2	20	–
2324 753	Zr II	20	8	–
2324 748	V I	50	–	–
2324.74	W II	2	7	–
2324 705	Ir	5	80	–
2324 70	Th	–	15	–
2324.70	I	–	[12]	Bl
2324.677	Ag II	15	100 wh	–
2324.67	Au	–	5	–
2324.64	Ni I	15	2	–
2324 584	Cb	2	–	–
2324.52	Sr II	3	–	Sd
2324.51	Rh	1	8	–
2324.50	Hf II	20	40	–
2324.48	Zr II	10	4	–
2324.476	Fe	–	5 wh	–
2324.407	In I	5	–	Ps
2324.406	Cb	–	3 h	–
2324.40	A	–	[5]	Rt
2324.37	Ce	–	12 W	–
2324.352	V I	5	–	–
2324.33	K	–	[10]	Ml
2324.32	Co II	20	50	–
2324 24	Os	30	10	–
2324.237	Cb	15	10	–
2324.200	Al II	–	[25]	Sy
2324.194	W	2 h	4 wh	–
2324.180	V I	5	–	–
2324.11	Ir	–	35	–
2324.063	Cb	2	10	–
2324.03	U	–	3 h	–
2323.98	Os	30	20	–
2323.93	Ta	–	20	–
2323.92	Cu II	2	[1]	–
2323.90	Mo	–	30	–
2323.89	Nd	–	10	–
2323.85	Gd	–	3	Ex
2323.830	V	–	300	–
2323.74	Rb	–	[40]	Fa
2323.73	Tm	–	10 h	Me
2323.64	Er	3	–	–
2323.63	Ir	–	50 l	–
2323.578	Ba	–	2 h	–
2323.515	Cb	–	10	–
2323.449	P II	–	[2]	Ri
2323.44	Re	3	30	a
2323.400	In II	–	[10]	Ps
2323.39	Nd	–	8	–
2323.38	U	2	–	–
2323.30	Pt	2	–	–
2323.25	Hf II	40	60	–
2323.20	Hg I	10 h	5 h	Dj
2323.17	Yb	1	2	Me
2323.144	Co I	15 d	5	–
2323.03	Rh	–	15 wh	–
2323.03	W II	5	12 w	–
2323.02	B II	–	2	En
2323.01	Cu II	–	4 h	–
2322.99	Re	6	15	a
2322.982	Cb	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2322.95	Mo	–	6	–
2322.949	Fe	–	10 wh	Do
2322.91	Ca	–	3	Ad
2322.851	Ru	1	6	–
2322.79	Pd II	–	[3]	Bx
2322.78	La	2	3 h	Me
2322.73	Ir	–	10	–
2322.72	W	–	4	–
2322.681	Co	3	–	–
2322.68	Ni	12	3	–
2322.58	Rh	50	10	–
2322.576	Pd	–	25	–
2322.56	Cd II	–	[5]	Tk
2322.53	Hg II	–	[2]	Nu
2322.51	Re	25	5	a
2322.48	Mo	–	20	–
2322.47	Hf II	60	60	Me
2322.422	Ru	5	–	a
2322.355	Sr II	8	5	ISn
2322.326	Fe II	–	5	Do
2322.31	Ir	–	30	–
2322.28	Au	–	6	–
2322.247	Co I	4	–	–
2322.22	Te	–	[5]	Bl
2322.21	Pt	–	4	–
2322.15	O II	–	[7 h]	Mh
2322.11	A	–	[5]	Rt
2322.102	V I	3	–	–
2322.012	Ru	60	2	a
2322.01	Co	–	5	–
2321.989	Cb	8	20	–
2321.96	Ni I	5 d	4	–
2321.96	Co	3	–	–
2321.94	Cd	–	[20]	Bl
2321.896	Pd II	–	25	–
2321.89	Zr	–	4	–
2321.86	Rh	–	80	–
2321.83	In	–	2	Sd
2321.73	Ir	–	5	–
2321.73	Re	8	12	a
2321.73	Rh I	20	2	–
2321.66	Os	15 w	3 w	a
2321.634	W	12	3	–
2321.62	N II	–	[3]	Fm
2321.585	Ru	2	8	–
2321.580	Ir	12	–	–
2321.567	Al	5	7	Gn
2321.546	Ag II	–	25 w	–
2321.451	Ir	10 s	8	–
2321.43	Re	15	5	a
2321.38	Co	10	8 w	–
2321.38	Ni I	20 R	10	–
2321.371	Ir	2	–	–
2321.35	W	–	2 h	–
2321.28	Re	10	–	a
2321.24	W	5	–	–
2321.19	Os	3	10 w	–
2321.15	Cd II	–	100 h	m
2321.14	Hf II	50	60	Me
2321.08	Rh	5	–	a
2321.065	V	3	–	–
2321.05	Mo	5	4	–
2321.04	W	–	10	–
2321.007	Gd	2	1	–
2320.98	Mn	2 h	–	–
2320.95	Os	5	–	a
2320.911	Co I	4	–	–
2320.83	W	–	3	–
2320.828	Yb	20	5	–
2320.80	Zr	6	–	–
2320.74	Br	–	[2]	Bl
2320.72	Mo	12	–	–
2320.701	Ru	50	–	–
2320.67	Hg	–	[2]	Dj
2320.656	Cb	2	3	–
2320.56	Pd II	–	5 h	Bx
2320.45	Mn	–	60	–
2320.43	Pr	–	6	–
2320.356	Fe I	25	5	I
2320.246	Ag II	15	150 wh	–
2320.238	Cb	4	5	–
2320.230	Ru	20	–	a
2320.20	I	–	[20]	Bl
2320.18	Os	25	12	–
2320.18	W	–	4	–
2320.153	V I	15	2	–
2320.09	Te	–	[10]	Bl
2320.08	Cr	10	30	–
2320.03	Ni I	30 R	5 l	–
2319.90	N II	–	[3]	Fm
2319.888	Pt II	4	25	–
2319.87	Rh	10	3	–
2319.86	Co	–	5	–
2319.855	Cb	3	2	–
2319.841	V	–	9	–
2319.771	Fe	1	1 h	Do
2319.76	W	–	4	–
2319.756	Ni II	–	10	–
2319.73	Dy	3	–	–
2319.70	Xe II	–	[5]	Hu
2319.68	O II	–	[15]	Mh
2319.657	Ru	3	1	–
2319.598	Cb	4	10	–
2319.561	Cu I	20	–	IBu
2319.525	Th	–	12	–
2319.49	Pd	2	25 w	–
2319.441	La II	1	20	–
2319.42	Pr	–	12	–
2319.38	Cr	10	20	–
2319.313	Ir	25	8	–
2319.27	Co	–	5	–
2319.25	Pd	15	–	–
2319.22	Re	30	–	a
2319.207	Ru	5	6 h	–
2319.159	Co I	4	–	–
2319.15	K	–	[30]	Ml
2319.10	Rh I	25	10	–
2319.07	Cr	–	2	–
2319.07	Ta	2	30 l	–
2319.05	Al	5	8	Sy
2318.999	V	–	150	–
2318.94	W	10	4	–
2318.92	Mn	–	30	–
2318.83	Pr	–	10	–
2318.77	Ni I	10	2	–
2318.76	Ga	–	3 h	–
2318.757	Ru	10	–	a
2318.69	Ce	–	40	–
2318.58	W	8	–	–
2318.541	Fe II	–	8	-
2318.535	Ru	8	4	–
2318.53	Mo	12	–	–
2318.499	Ag	–	5	–
2318.49	Hf II	8	10	Me
2318.48	Ni II	1	20	–
2318.47	U	–	25	–
2318.432	Cb	3 wh	–	Me
2318.42	Co II	2	10	–
2318.36	Rh	5	5	–
2318.347	Fe II	–	4	–
2318.33	Au	–	5 h	–
2318.320	Ir	3	–	Ab
2318.294	Pt	25	9	–
2318.18	U	2	3	–
2318.179	Cb	–	15 wh	–
2318.17	Pr	–	5	–
2318.17	Fe	10 w	–	–
2318.136	Ir	12	–	–
2318 070	V	–	250	–
2318.06	Pd II	3	10 h	–
2318.05	Se	–	[5]	Bl
2317.98	Na	3	–	–
2317.96	Pd II	–	[5]	Bx
2317.908	Pt	–	5	Sh
2317.900	Ir	12	–	Ab
2317.89	Mo	–	15	–
2317.89	Re	2 h	15	a
2317.889	Fe	8	–	–
2317.82	La II	1	20 hl	–
2317.802	Ru	–	4	–
2317.783	Cb	2	3	–
2317.77	A II	–	[2]	Rt
2317.68	Rh	5 h	–	a
2317.63	Os	3 h	–	a
2317.568	V	–	30	–
2317.55	W	2 h	2 h	–
2317.523	Co	5	–	–
2317.48	Al	2	3	Sy
2317.46	Cd	–	3	–
2317.442	Ir	2	25	–
2317.43	Br	8	–	To
2317.39	W	2	2	–
2317.377	Fe II	–	10 h	Do
2317.37	Pd	2	–	–
2317.37	A	–	[10]	Rt
2317.37	Ce	–	15	–
2317.27	Re	6	–	a
2317.27	Br	–	[15]	Bl
2317.248	Zr II	20	10	–
2317.24	Cb	–	12	–
2317.228	Sn	100 R	100 R	–
2317.18	Zn	–	[3]	Bl
2317.162	Ni I	30 R	12	–
2317.16	U	–	4	–
2317.14	Mn	5	–	–
2317.14	Ta	2 h	–	–
2317.055	Co	2	20	–
2317.033	Ag II	15	100	–
2317.01	N II	–	[15]	Fl
2316.929	Cb	2 h	10	–
2316.90	Ga	–	2 h	–
2316.862	Co I	5	–	–
2316.80	Xe II	–	[6]	Hu
2316.79	O II	–	[7 h]	Mh
2316.751	V I	20	–	Me
2316.735	Co I	5	–	–
2316.71	W	–	2 h	–
2316.69	Nd	–	3	–
2316.66	N II	–	[3]	Fl
2316.59	Rh	10	–	a
2316.54	Re	30	5	a
2316.51	Cd	–	[2]	Tk
2316.49	Hf	10	20	Me
2316.47	Pd	12	–	–
2316.46	N II	–	[8]	Fl
2316.45	Mo	–	12	–
2316.41	Nd	–	4	–
2316.38	Os	10	1	a
2316 32	Kr	–	[10]	Me
2316.31	A	–	[100]	Rt
2316.27	Ca	–	2	Ad
2316.26	W	–	2 h	–
2316.20	Zr	4	–	–
2316.17	Mo	–	8	–
2316.162	Co	10 w	–	–
2316.12	Os	5	–	a
2316.12	O II	–	[10 h]	Mh
2316.037	Ni II	15	25 w	–
2315.98	Tl I	60 R	–	–
2315.97	Re	30	10	a
2315.898	Ru	–	3	–
2315.883	Sb	20	9	–
2315.88	U	–	10	–
2315.873	Pd II	2	25	–
2315.85	Au	–	7	–
2315.760	Co	3	5	–
2315.68	Mn	–	25	–
2315.66	Rh	7	–	a
2315.65	Pd	–	[5]	Bx
2315.635	V I	25	–	–
2315.62	Mo	3	15	–
2315.58	Zr I	3	–	–
2315.58	Os	10	–	a
2315.52	Kr II	–	[8]	Me
2315.495	Pt	25	8	–
2315.46	Ta	6	35	–
2315.45	Os	8	20	–
2315.378	Ir	30	–	–
2315.30	Ag II	–	2	–
2315.28	Re	9	–	a
2315.22	K	–	[20]	Ml
2315.215	Yb	5	10	–
2315.179	Cb	5	5 w	–
2315.16	Os	10	25	–
2315.146	Ir	2	40	Ab
2315.09	In I	2	–	Ps
2315.020	W II	12	12	–
2315.00	V	–	2 h	–
2314.99	A	–	[40]	Rt
2314.98	Co II	25	30	–
2314.90	Ir	10	40	–
2314.88	I	–	[12]	Bl
2314.88	Ti	–	2 w	–
2314.854	Cb	6	20	–
2314.848	Fe	–	5 wh	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2314.84	Os	20	2	a
2314.82	Nd	–	4	–
2314.777	Ru	–	3	–
2314.74	Cr	8	50	–
2314.725	P II	–	[6]	Ri
2314.697	V I	8	–	–
2314.651	Co	–	4	–
2314.64	Au	–	15	–
2314.63	W	2	7	–
2314.63	Cr	–	8	–
2314.56	Rb	–	[10]	Fa
2314.48	Yb	4	50	–
2314.46	Pd II	3	2 h	–
2314.43	Er	3	40	a
2314.42	Mo	–	20	–
2314.41	Os	8	1	a
2314.39	Hg	–	5 h	Dj
2314.356	Cb	3	–	–
2314.27	Ti I	5	–	–
2314.24	Kr	–	[6]	Me
2314.20	Ge	3	3	–
2314.19	Pr	–	10	–
2314.187	V	–	100	–
2314.18	W	10	3	–
2314.111	Ir	2	40	–
2314.054	Co II	25	35	–
2314.022	Ru	–	3	–
2314.002	Al	3	3	–
2313.985	Ta	2 h	4 h	–
2313.982	Ni I	10 R	9	–
2313.98	Lu	3	15 hl	Me
2313.962	Fe II	2	6	Do
2313.94	Mn	3	20	–
2313 935	V	–	3 h	–
2313.88	Rh	5	20	–
2313 88	Mo	–	10	–
2313.83	U	–	2	–
2313.82	Rb	–	[5]	Fa
2313.80	Bi I	2	–	To
2313.80	Pd	–	[4]	Bx
2313.77	Al II	–	[3]	Sy
2313.75	Os	15	30	–
2313.74	A	–	[60]	Rt
2313.70	Xe II	–	[5]	Hu
2313.655	Ni	10 R	7	–
2313.64	Co II	7	9	–
2313.53	Al	–	[2]	Sy
2313.525	Cb	3	10	–
2313.49	Cd	–	[30]	Bl
2313.374	Ru	6	10	–
2313.36	Re	20	8	a
2313.32	Cb	–	30 w	–
2313.300	Fe II	–	6	–
2313.268	In II	–	[25]	Ps
2313.188	W	8	–	–
2313.156	In II	–	[18]	Ps
2313.102	Fe I	25	3	I
2313.05	O II	–	[7 h]	Mh
2313 037	Pt II	3	20	–
2313.03	Lu	–	5	Me
2312.98	Re	15	3	a
2312.916	Ni II	–	18	–
2312.91	W	–	5	–
2312.84	Cd II	1	200	–
2312.82	Re	15	5	a
2312.72	Zn	10	–	Hz
2312.71	Tm	–	10	Me
2312.69	Mn	–	40	–
2312.65	Rh	2	100	–
2312.60	Ta	5	30	–
2312.56	U	2	12	–
2312.56	Yb	1	2	Me
2312.559	Ru	3	–	a
2312.55	Co II	3	12	–
2312.523	V I	5	–	–
2312.51	Ir	5	2	–
2312.47	Al I	2	[2]	Sy
2312.45	Rb	–	[100]	Fa
2312.418	V I	5	–	–
2312.41	Ag II	25 wh	50 w	–
2312.38	Cu	3	2	–
2312.36	W	2 h	–	–
2312.34	Ni I	30 W	6	–
2312.32	Rh	10	–	a
2312.32	Au II	–	5	–
2312.31	Mn	12	–	–
2312.29	Pd II	–	[6]	Bx
2312.24	Ni II	–	10	–
2312.225	Al II	–	[2]	Sy
2312.22	Mo	–	7	–
2312.11	Os	5	3 W	a
2312.08	Ca	–	3	Ad
2312.034	Fe II	–	15	–
2312.03	Re	18	–	a
2312.0	bh C	30	–	L
2312.00	Kr II	–	[6]	Me
2312.00	Ru	–	3 h	–
2311.85	W	–	3	–
2311.81	Te	–	[5]	Bl
2311.679	Cb	2	–	–
2311.66	Rh	–	9 wh	–
2311.65	W	–	3	–
2311.604	Co II	15	50	–
2311.60	N	–	[3]	Fl
2311.47	Pr	–	5	–
2311.47	Rh	–	15	–
2311.469	Sb I	150 R	50	–
2311.456	V I	15	–	–
2311.455	Cb	2	15	–
2311.358	Co I	10	–	–
2311.346	V	–	150	–
2311 288	Fe	–	35	Do
2311.224	Fe II	–	20	Do
2311.207	Ir	3	–	Ab
2311.195	Ru	–	2 h	–
2311.18	Ta	–	15	–
2311.17	Tm	–	20	Me
2311.07	Rh	8	–	–
2310.965	Ni I	50 R	10 s	–
2310.962	Co I	12	–	–
2310.96	Mn	25	–	–
2310.958	V	2	–	Me
2310.958	Pt II	15	25	–
2310.95	Au	–	3	–
2310.83	Co	–	4	–
2310.82	W	4	6	–
2310.82	Nd	–	5	–
2310.67	Yb	2	–	Me
2310.67	U	–	10	–
2310.66	Lu	–	2 h	Me
2310.61	N	–	[3]	Fl
2310.57	Pd II	–	[10]	Bx
2310.533	Ir	2	15	Ab
2310.53	Rh	–	25	–
2310.459	Zr	12	–	–
2310.36	U	–	10	–
2310.318	Cb	2	8	–
2310.25	bh C	12	–	L
2310.25	W	–	5	–
2310.21	Se	–	[10]	Bl
2310.185	V I	10	–	–
2310.16	Re	15	–	a
2310.16	Os	10	6	–
2310.097	Fe	–	5	Do
2310.04	Cr	–	6	–
2310.024	Ni	8	–	–
2309.94	Cb	–	15 w	–
2309.85	Mo	–	35	–
2309.842	V	–	125	–
2309.84	W	3	7	–
2309.823	Rh I	25	10	–
2309.81	Os	–	5	–
2309.75	In I	2	–	Ps
2309.743	U	4	2	–
2309.73	Bi	18 wh	–	To
2309.656	Ir	10	–	–
2309.644	Ag	150 h	200 h	–
2309.61	Cu II	–	18	–
2309.57	Ir	–	5 h	–
2309.522	Ru	–	3	–
2309.52	Pd	–	6	–
2309.486	Ni	12	–	–
2309.45	Mo	–	20	–
2309.43	Au	–	12	–
2309.40	Os	40	3	a
2309.32	In I	3	–	Ps
2309.26	Yb	–	20	Me
2309.234	Cb	10 l	30 l	–
2309.16	A	–	[40]	Rt
2309.155	Ru	5	8	–
2309.070	V	–	3	–
2309.036	W	12	2 h	–
2309.020	Co I	10 R	9	–
2308.997	Fe I	20	5	I
2308.934	Ir	20	5	Ab
2308.93	Cl	–	[3]	Bl
2308.90	N	–	[35]	Fl
2308.88	Ti I	4	–	–
2308.832	V	–	2 w	–
2308.801	Cb	1 h	2 w	–
2308.765	Fe	–	15	–
2308.73	U	–	2	–
2308.626	Ru	–	3	–
2308.62	Re	9	9	a
2308.604	Pd II	–	30	–
2308.57	I	–	[20]	Bl
2308.55	N	–	[35]	Fl
2308.519	Ni II	–	18	–
2308.49	Yb	–	2 h	Me
2308.46	Ta	2	8	–
2308.44	Os	12	–	a
2308.42	Rb	–	[5]	Fa
2308.35	U	–	6	–
2308.31	Os	20	6	–
2308.288	V I	10	–	–
2308.21	Au	–	3	–
2308.21	Si	–	[2]	Sy
2308.18	Mn	–	25	–
2308.171	Ni	10	–	–
2308.16	Ta	–	5	–
2308.09	Zr	–	5	–
2308 040	Pt I	30	18	–
2307.98	Mo	5	20 l	–
2307.93	W II	–	5	–
2307.857	Co II	25	50 w	–
2307.79	Pr	–	10	–
2307.785	Ni II	2	15	–
2307.78	Cd II	–	[3]	Tk
2307.75	I II	–	[2 d]	Mu
2307.66	W	2 h	5	–
2307.61	Os	5	5 l	–
2307.50	Pd II	–	50	–
2307.49	Co	–	6	–
2307.44	Re	9	–	a
2307.41	Yb	1	6 h	Me
2307.4	Sr I	3	[3]	Sd
2307.354	Ni I	10	2	–
2307.314	Fe	–	25	–
2307.28	Xe II	–	[3]	Hu
2307.27	Rb	–	[20]	Fa
2307.208	Cr	10	20	–
2307.11	Gd	–	2	–
2307.10	Nd	–	5	–
2307.010	Co	–	7	–
2306.99	Pd	–	[2]	Bx
2306.97	Mo	8	25	–
2306.95	Rh	–	15	–
2306.92	W II	4	12	–
2306.919	Ru	20	–	–
2306.91	U	–	25	–
2306.879	In I	25	30	–
2306.87	Ta	–	6	–
2306.87	Os	12	2	a
2306.84	Cr	2 h	10	–
2306.79	Rh	2	4	–
2306.78	Co	–	5	–
2306.77	Ir	–	30	–
2306.75	Pd	3	2	–
2306.63	Re	15	–	a
2306.609	Cd	20	30	–
2306.60	W	12	–	–
2306.58	K	–	[10]	Ml
2306.56	Re	20	8	a
2306.506	Mo	–	18	–
2306.50	Sb	35	30	–
2306.48	Os	5 w	–	a
2306.40	Ni	10	4	–
2306.380	Fe	10	3	–
2306.30	Os	10	2	a
2306.22	He II	–	[20]	Ps
2306.171	Fe I	10	–	–
2306.118	In II	–	[10]	Ps
2306.10	Co	–	4 w	–
2306.062	In II	–	[10]	Ps
2306.06	Mo	4	–	a

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2306.046	Os	6	30	–
2305.994	In II	–	[18]	Ps
2305.95	Rh	–	100 wh	–
2305.936	W	–	4	–
2305.87	Mo	–	9	–
2305.84	Os	3	6	–
2305.76	Re	15	2 h	a
2305.71	Pd	–	5	–
2305.67	Ti I	15	2	–
2305.658	Mo	5	18	–
2305.645	U	–	12	–
2305.637	Pt	10	6	–
2305.626	Ru	1	20	–
2305.57	Re	15	–	a
2305.518	Ru	10	20	a
2305.466	Ir I	30	5 l	–
2305.432	Cb	–	2 h	–
2305.34	Hf II	6	8	Me
2305.33	Yb	8	100	Me
2305.25	Mo	–	8	–
2305.244	Ni II	2	20	–
2305.223	W	–	3	–
2305.18	Co I	15	2	–
2305.10	Pr	–	10	–
2305.06	Rh	2	10	a
2305.053	W	7	5	–
2304.997	Mn	40	60	–
2304.968	Bi	2 h	–	–
2304.95	Al	5	–	–
2304.86	Pd II	3	3	–
2304.83	Os	–	10	–
2304.827	Ru	12	6	–
2304.81	Au II	–	30	–
2304.8	Rb	–	[5]	Dr
2304.785	V	–	2 w	Me
2304.77	Cb	–	20 w	–
2304.729	Fe I	10	20	–
2304.722	Ru	4	3	–
2304.69	Os	10	–	a
2304.57	Cl	–	[3]	Bl
2304.5	A	–	[2]	Rt
2304.50	Hf	3	3 h	Me
2304.46	Cd	–	[3]	Bl
2304.45	Re	6	–	a
2304.403	U	–	4	–
2304.38	Os	40	–	a
2304.362	Cb	–	4 wh	–
2304.35	Pd	–	[7]	Bx
2304.349	V	3	–	Me
2304.29	Te	–	[10 h]	Bl
2304.27	Rb	–	[20]	Fa
2304.26	Pt	–	9	–
2304.251	Mo	7	50	–
2304.235	Ba II	60 R	80 R	–
2304.215	Ir I	100	–	–
2304.185	Co I	10	6	–
2304.14	Rb	–	[125]	Fa
2304.0	K	–	[2]	Ml
2304.0	A	–	[2]	Rt
2303.974	Co I	12	2	–
2303.93	U	–	8	–
2303.857	Ni II	–	15	–
2303.833	Fe	–	2	–
2303.826	W II	10	15	–
2303.82	Pr	–	9	–
2303.71	Re	10	2 h	a
2303.69	Os	12	3	a
2303.65	U	–	3	–
2303.582	Ir	8	–	–
2303.578	Fe I	10	3	I
2303.51	Os	10	4	a
2303.510	Co I	9	–	–
2303.491	Ta	6	18	–
2303.47	Pd	4	–	–
2303.468	Rh	–	20	–
2303.422	Fe	10	–	I
2303.389	Ir I	20	1	–
2303.351	Fe II	–	15	–
2303.30	Yb	–	2 d	Me
2303.278	W	4	12	–
2303.242	V	–	6	–
2303.21	Hf II	4	4 h	Me
2303.200	Pt I	25	8	–
2303.153	Cb	2	2	–
2303.141	Zr	100	–	–
2303.116	Cu I	30	20	IBu
2303.108	W	10	3	–
2303.076	Ir	–	3 h	Ab
2303.02	Si I	10	6	Fl
2302.997	Ni I, II	10 s	35	–
2302.928	Ta	8	35 l	–
2302.85	V I	–	3 w	–
2302.842	Mo	–	20	–
2302.83	O II	–	[25]	Mh
2302.806	Ru	–	8	–
2302.728	Ti I	20	2	–
2302.7	bh C	5	–	L
2302.698	Cb	8	8	–
2302.69	U	–	3	–
2302.67	Kr II	–	[3]	Me
2302.67	W	8	–	–
2302.62	Os	20	2	a
2302.541	Ru	80	3	–
2302.49	In I	2	–	Ps
2302.472	Ni II	2	20	–
2302.42	Pt	–	20 w	–
2302.409	Ir I	15	–	–
2302.319	Pd II	–	15	–
2302.31	W	2	3	–
2302.256	V	2 h	3	–
2302.235	Ta	6	30	–
2302.233	Ru	8	–	a
2302.14	Pd	–	[3]	Bx
2302.130	Mo	–	8	–
2302.12	C	–	15 w	–
2302.11	Hf II	5	6	Me
2302.09	Hg I	15 h	15	Cn
2302.085	Cb	15	30	–
2302.012	Pd II	–	60	–
2301.944	Rh	–	25	–
2301.89	U	–	2	–
2301.88	Os	25	4	a
2301.88	W	–	3	–
2301.868	Mn	–	4 wh	–
2301.823	Re	–	40	–
2301.73	Kr II	–	[6]	Me
2301.681	Fe I	15	–	I
2301.675	Ir	–	25 wh	–
2301.65	W	8	10	–
2301.62	Pr	–	2 h	–
2301.61	Zr	–	3 h	Ks
2301.57	Ni	10	–	–
2301.51	U	–	2	–
2301.466	Ta	2	35	–
2301.424	Fe II	–	4	–
2301.40	Co II	10	25	–
2301.34	Re	10	–	a
2301.29	W II	–	4	–
2301.22	Th	–	30	–
2301.18	Cd	–	[3]	Bl
2301.173	Fe	10	–	–
2301.16	Nd	–	5	–
2301.16	Mo	–	3	–
2301.14	Os	15	3	a
2301.03	Au II	–	3	–
2301.019	Ni II	–	3	–
2301.0	Rb	–	[2]	Dr
2300.914	Rh	2	30	–
2300.908	Ir	8	10	–
2300.9	K	–	[10]	Ml
2300.89	U	–	4 h	–
2300.87	Cu	8	–	–
2300.86	Os	–	20	–
2300.784	Cb	10	15	–
2300.78	Co	5	15	–
2300.778	Ni I	20 r	4	–
2300.75	U	–	6	–
2300.68	Ce	–	10 W	–
2300 64	Ir	–	5	–
2300.59	Fe	8	–	–
2300.576	W	–	5	–
2300.52	Cr	–	15	–
2300.515	Cb	–	2	–
2300.499	Ir I	30	25	–
2300.48	Co	–	2	–
2300.41	Zr	1 h	2 h	–
2300.39	Pt	–	2	–
2300.38	Kr II	–	[6]	Me
2300.367	Ru	50	–	a
2300.36	O II	–	[70]	Mh
2300.342	Ir I	3	–	–
2300.339	Cb	4	10	–
2300.29	Rh	–	10	–
2300.19	A II	–	[10]	Rt
2300.14	Rb	–	[40]	Fa
2300.139	Fe I	15	3	I
2300.088	Ni II	3	20	–
2300.078	W II	–	4	–
2300.07	A	–	[2]	Rt
2299.98	Xe II	–	[3]	Hu
2299.874	Mo	–	10	–
2299.86	Si	–	[5]	Sy
2299.850	Ti I	12	2	–
2299.82	Os	2	10	–
2299.81	Nd	–	10	–
2299.807	W	–	10	–
2299.78	Re	20	8 wh	a
2299.755	Co	4	30	–
2299.67	Ir	–	10	a
2299.646	Ni II	3	15	–
2299.598	Pd II	–	15	–
2299.543	V I	2	–	–
2299.526	Ir	25	3	–
2299.515	Pt II	–	3 wh	Sh
2299.455	Fe I	8	–	–
2299.44	Cu II	–	15	–
2299.432	Pd II	–	25	–
2299.42	Co II	–	25	Me
2299.36	Xe II	–	[2]	Hu
2299.337	V	2	–	–
2299.29	Ru	50	–	a
2299.27	Mo	–	5	–
2299.221	Cb	–	5	–
2299.218	Fe I	15	4	I
2299.168	U	–	2	–
2299.12	Os	15	–	a
2299.02	W	4	3	a
2298.95	Tl	30	150	Sd
2298.95	Mn	20 s	40	–
2298.93	Ta	–	18	–
2298.86	Rb	–	[20]	Fa
2298.86	Mo	–	2	–
2298.84	Cu	3 w	–	a
2298.781	Pt	15	4	–
2298.78	Hf II	6	8	Me
2298.74	W	8	–	–
2298.738	Co II	–	12	–
2298.697	In I	2	–	Ps
2298 662	Fe	8	2	–
2298.66	Yb	1	4	–
2298.659	Ru	4	8	–
2298.656	W	–	8	–
2298.655	Cb	–	2 h	–
2298.61	Re	–	7	a
2298.499	Ni II	–	10	–
2298.47	Os	12	2	a
2298.380	Cb	2 h	4	–
2298.379	Mo	3	10	–
2298.375	Co I	15	2	–
2298.370	U	–	6	–
2298.361	Pt	12	3	–
2298.36	Re	9	–	a
2298.34	Hf II	25	50	Me
2298.340	W	3	–	–
2298.33	In I	2	–	Ps
2298.325	P II	–	[6]	Ri
2298.28	W	10	12	–
2298.275	Ni II	12	15	–
2298.258	Rh	–	150	–
2298.252	Ir	3	30	Ab
2298.231	Fe II	5	25	–
2298.22	Mo	–	12	–
2298.17	Fe I	5	–	–
2298 17	A	–	[40]	Rt
2298.16	Tl II	–	20	Ml
2298.160	Zr	10	–	–
2298.159	Ir I	12	–	–
2298.15	Os	5	5	–
2298.135	Pt	–	12	–
2298.12	Re	7	30	a
2298.10	Ta	–	15	–
2298.08	Tl II	–	40	Ml
2298.06	Au II	–	3	–
2298.048	Ir I	10	–	–
2297.974	Ru	2	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2297.94	W	–	8	–
2297.88	Yb	2	4	Me
2297.88	Tl II	–	35	Ml
2297.869	Ga	2	3	Uh
2297.856	Cb	–	5 w	–
2297.850	V	–	100	–
2297.786	Fe I	35 R	6	I
2297.78	La	2 h	150	–
2297.77	Pr	–	100	–
2297.718	U	–	2	–
2297.64	Mo	–	7	–
2297.615	Cb	3	5	–
2297.58	Bi	2 h	–	To
2297.559	Ir	5	–	–
2297.491	Ni II	10	15	–
2297.41	Lu	15	100	Me
2297.38	W	4	3	–
2297.36	Co	–	8	–
2297.31	Pt	–	8 w	–
2297.188	Cr	10	50	–
2297.138	Ir	2	20	–
2297.138	Ni II	15	18	–
2297.09	In	–	10	Sq
2297.02	U	–	4	–
2296.97	W II	3	6	–
2296.925	Fe I	15	2	I
2296.86	Ta	–	25	–
2296.85	Pb	–	3	–
2296.79	K II	–	[5]	Bn
2296.710	Co I	18	2	–
2296.666	Fe II	5	–	–
2296.650	Ru	–	5	–
2296.553	Ni II	10	20	–
2296.549	Mo	–	25	–
2296.52	Xe	–	[15]	Hu
2296.513	Pd II	20	60	–
2296.51	Au	–	3	–
2296.313	V	–	9	–
2296.25	U	–	2	–
2296.24	Re	15	2 h	a
2296.23	Hg II	–	10	Nu
2296.21	Tm	2	30	Me
2296.209	Ir I	25	–	–
2296.17	Fe	2	5 wh	–
2296.170	Ru	–	5	–
2296.13	Hf II	5	6 h	Me
2296.108	Fe	–	2	Do
2296.051	Co I	18	2	–
2296.043	Ag II	–	20 Wh	–
2296.00	Sb	–	3 h	–
2296.000	Ir I	15	3	–
2295.99	W	3	9	–
2295.979	Cb	2	2	–
2295.92	Co	–	8	–
2295.866	U	–	3	–
2295.864	Pt II	–	15	Sh
2295.83	Cd	–	[2]	Bl
2295.787	W	4	8	–
2295.77	Pd	–	10	–
2295.738	Pt	20	2	–
2295.676	Cb	15	30	–
2295.57	Cr	–	10	–
2295.56	Ir	–	4	–
2295.56	Os	–	8	–
2295.51	Pd II	–	[12]	Bx
2295 507	W	–	3	–
2295.504	V	15	15	Me
2295.480	Zr II	40	8	–
2295.46	Nd	–	5	–
2295.416	V I	2	2	–
2295.32	Cd II	–	[3]	Tk
2295.308	Mo	–	8	–
2295.305	U	2	–	–
2295.230	Co I	15	3	–
2295.18	Ta	5	12 l	–
2295.15	Au	–	3	–
2295.119	Rh	5	50	–
2295.084	Ir I	40	5	–
2295.06	Re	–	10	a
2295.040	Fe	2	–	–
2294 992	V	5	100	Me
2294.99	Rb	–	[5]	Fa
2294.982	Cb	2	8	–
2294.960	Mo	–	50	–
2294.85	U	–	3	–
2294.85	W	5	10	–
2294.706	Cb	–	2 wh	–
2294.686	Pr	–	10	–
2294.656	Rh	–	30	–
2294.612	Fe II	15	5	–
2294.58	Cl	–	[3]	Jv
2294.57	Xe II	–	[8]	Hu
2294.565	Pt II	–	2	–
2294.544	W II	20	20	–
2294.49	Rh	10	–	–
2294.406	Fe I	15	2	I
2294.364	Cu II	3	25	IBu
2294.30	Rh	3	5	a
2294.28	Cd	–	[2]	Tk
2294.217	Ti I	6	–	–
2294.202	Ga	2	3	Uh
2294.140	Pt II	–	3 wh	Sh
2294.119	Rh	1	50	–
2294.11	Re	8	–	a
2294.06	Ru	30	1	a
2294.045	Zr II	50	10	–
2294.03	Tm	5	2	Me
2294.01	Pd II	–	10 h	–
2294.006	Co I	10	–	–
2293.98	Au	–	2 h	–
2293.922	Cb	2	15	–
2293.87	Pt	2	–	–
2293.850	Bi	2 h	–	–
2293.846	Fe	10	6	I
2293.842	Cu I	40 wh	10	IBu
2293.78	Lu	–	2	Me
2293.765	Fe II	–	10	Do
2293.758	Ti I	6	–	–
2293.70	Pd II	–	10	–
2293.68	I	–	[20]	Bl
2293.64	Re	9	10	a
2293.621	U	–	10	–
2293.59	Pd II	–	25 h	–
2293.54	Os	20	25	–
2293.467	Pt II	–	7	–
2293.46	Sb	25	10	–
2293.41	Br	–	[2]	Bl
2293.40	N II	–	[8]	Fl
2293.39	Co II	10	15 l	–
2293.381	W	–	6	–
2293 357	Pd II	–	25	–
2293.33	O II	–	[50]	Mh
2293.29	Rh	10	–	–
2293.279	Ir I	8	–	–
2293.271	Cb	2	–	–
2293.27	A	–	[20]	Rt
2293.26	Os	10	–	a
2293.243	V I	2	–	Me
2293.24	I	–	[12]	Bl
2293.148	Cb	–	2	–
2293.134	Fe II	–	2	–
2293.116	Ni I	10	3	–
2293.05	Ru	10	–	a
2293.02	Ir	3 w	–	a
2292.99	Co II	10	30	–
2292.983	Mo	–	3	–
2292.98	Pd	2	–	–
2292.97	Tl II	–	[20]	El
2292.855	V	–	250	–
2292.81	Yb	1	3	Me
2292.8	In	–	2	Cx
2292.77	Hf II	3	3 h	Me
2292.770	Fe II	–	4	Do
2292.72	N II	–	[3]	Fl
2292.69	Nd	–	8	–
2292.681	Cu II	–	5	IBu
2292.64	I	–	[12]	Bl
2292.589	V	–	25	–
2292.544	Ta	–	20	–
2292.523	Fe I	15	2	I
2292.44	I	–	[40]	Bl
2292.40	Xe II	–	[10]	Hu
2292.395	Pt I	400	100	–
2292.393	W	–	3	–
2292.34	Hf	2	2 h	Me
2292.337	Ru	20	–	–
2292.324	Cb	–	2	–
2292.32	La II	–	3	Me
2292.27	Yb	–	3 h	Me
2292.21	Os	15	5 w	–
2292.2	Rb	–	[2]	Dr
2292.13	Ta	4	8	–
2292.07	Se	–	[10]	Bl
2292.02	Cd	–	[4]	Tk
2291.93	Os	4	–	a
2291.92	Hg	–	5 h	Dj
2291.86	Ti II	–	3	–
2291.78	Ir	–	5	–
2291.77	Rh	5	–	a
2291.76	Rb	–	[80]	Fa
2291.72	Pt	–	20 w	–
2291.67	N II	–	[8]	Fl
2291.655	Ir	10	–	–
2291.65	Th	–	10	–
2291.645	Cb	–	5	–
2291.642	U	–	8	–
2291.64	Hf II	30	40	–
2291.63	Yb	–	3 h	Me
2291.624	Fe I	10	2	–
2291.533	V I	5	–	–
2291.52	Au II	–	15	–
2291.455	Co I	12	5 w	–
2291.44	Pd	–	18	–
2291.384	Cb	2	2	–
2291.368	W	–	4	–
2291.33	Re	20	5	a
2291.177	Ru I	60	1	–
2291.120	Fe I	15	–	I
2291.113	Zr II	80	15	–
2291.03	Si I	8	–	Ks
2290.998	Cu II	–	25	Sh
2290.99	Ag	–	3	–
2290.946	W	5	–	–
2290.88	O II	–	[25]	Mh
2290.87	Mo	3	18	–
2290.86	Cd II	–	[4]	Tk
2290.84	Xe II	–	[3]	Hu
2290.81	Re	10	6	a
2290.80	Ir	3	50	–
2290.768	Fe I	6	–	–
2290.68	Cr	–	12	–
2290.67	U	2	2	–
2290.560	W II	2	9	–
2290.55	Tm	–	5	Me
2290.545	Fe I	15	–	–
2290.544	V	–	50 wh	–
2290.544	Co I	10	–	–
2290.450	Ir	3	–	–
2290.38	Cb	–	25 w	–
2290.36	Rh	8	–	a
2290.33	Co	–	5	–
2290.32	Mo	–	18	–
2290.31	N II	–	[3]	Fl
2290.29	Mo	8	–	a
2290.263	V I	2 h	2	Me
2290.26	Pr	–	8	–
2290.13	Os	10	–	a
2290.065	Fe I	10	–	–
2290.06	Mo	–	18	–
2290.03	Rh	25	500	–
2290.01	Ta	3	–	–
2289.98	W	–	3	–
2289.98	Bi	2	–	To
2289.976	Ni I	20 r	20	–
2289.97	Mn	–	3	–
2289.89	Mo	5	15	–
2289.837	Cb	2	–	–
2289.78	A	–	[20]	Rt
2289.61	Si I	10	–	Ks
2289.58	Rh	–	15	–
2289.502	Co	9	–	–
2289.41	Ca	–	3	Ad
2289.393	Ir	5	40	–
2289.39	W	2 h	4	–
2289.32	U	–	2	–
2289.27	Pt I	25	12	–
2289.26	Cr	–	8	–
2289.219	V	–	30	–
2289.16	Ta	8	25	–
2289.12	Mo	4	20	–
2289.06	Co	–	2	–
2289.031	Fe I	25	–	–
2288.986	Sb	20	10	–
2288.93	Yb	1	6	Me
2288.920	Ir	2	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2288.90	Te	–	[5]	Bl
2288.866	Cb	2	5	–
2288.786	Co I	15	–	–
2288.74	Cd	–	20	–
2288.72	I II	–	[2]	Mu
2288.68	W	6	4	–
2288.678	Fe	–	3	Do
2288.63	Au	–	3	–
2288.63	Hf II	5	6	Me
2288.628	V	–	80	–
2288.614	Zr II	2	2	–
2288.59	Pd	–	4	–
2288.58	U	2	2	–
2288.57	Rh	25	10	–
2288.56	Co	–	2	–
2288.524	W	–	7	–
2288.47	N II	–	[15]	Fl
2288.42	Mn	6	3	a
2288.4	A	–	[2]	Rt
2288.39	Ni I	12	2	–
2288.30	U	–	2	–
2288.25	Rh	–	40	–
2288.25	Au II	–	2 h	Ex
2288.192	Pt II	15	30	–
2288.16	Cl	–	[4]	Bl
2288.15	Pr	–	7	–
2288.139	Sb	5	–	–
2288.12	As I	250 R	5	Me
2288.095	V	3 h	15	–
2288.09	Ir	–	5 w	–
2288.018	Cd I	1500 R	300 R	Hz
2287.927	V	–	15	–
2287.89	I	–	[12]	Bl
2287.878	Ir	20	5	–
2287.85	Ce	–	10	–
2287.84	Ta	5	–	a
2287.84	Te	–	[5]	Bl
2287.809	Co	12 d	4	–
2287.8	A	–	[60]	Rt
2287.80	U	–	2	–
2287.79	Kr II	–	[30]	Me
2287.68	Ru	60	1	a
2287.67	W	10	–	–
2287.65	Ni II	2	20	–
2287.630	Fe I	5	–	I
2287.55	Pd	–	[10]	Bx
2287.525	Ru	3	–	–
2287.499	Pt II	–	25 w	Sh
2287.492	P II	–	[18]	Rt
2287.47	W	–	3	–
2287.323	Ni I	5	–	–
2287.25	Cr	–	2 h	–
2287.248	Fe I	20	6	I
2287.19	A	–	[20]	Rt
2287.19	W	–	3	–
2287.084	Ni II	100	500	–
2287.06	Si	–	[10]	Sy
2286.97	Rb	–	[5 d]	Fa
2286.888	Cb	2	3 h	–
2286.80	Ni	2 h	–	–
2286.78	Pd II	–	[8]	Bx
2286.77	U	2	–	–
2286.750	Cb	–	4	–
2286.733	Cu II	–	25	–
2286.73	N II	–	[25]	Fl
2286.71	Te	–	[30]	Bl
2286.7	bh C	30	–	L
2286.680	Sn	60	40	–
2286.62	Re	4	25	a
2286.61	Pr	–	6	–
2286.59	Ta	–	6	–
2286.586	V I	4	–	–
2286.572	Pt II	–	10 w	Sh
2286.517	Os	30	10	–
2286.50	W	–	3	–
2286.46	Ag	–	12	–
2286.428	Fe	2	–	–
2286.42	Mo	2 h	9	–
2286.352	Cb	–	4 w	–
2286.29	W	2	5	–
2286.221	Ir	12	–	–
2286.190	Pt II	–	3 w	Sh
2286.18	Ti II	2	6	–
2286.156	Co II	40	300 l	–
2286.152	Fe	–	2	–
2286.113	Va II	–	2 w	Sz
2285.95	Tl	–	2	Ed
2285.94	Xe II	–	[4]	Hu
2285.90	W	4	–	–
2285.86	Nd	–	3	–
2285.81	Co	–	2	–
2285.80	Yb	3	8 h	Me
2285.74	Ir	–	10 w	–
2285.73	W	–	3	–
2285.69	Al II	–	[2]	Sy
2285.68	O	–	[7]	Mh
2285.673	Cb	–	2 w	Me
2285.66	U	–	10	–
2285.65	Pt	–	8 w	–
2285.52	Al II	–	[8]	Sy
2285.465	Ir I	8	–	–
2285.455	V	–	100	–
2285.43	Hf II	6	6 h	Me
2285.412	Co I	12	–	–
2285.380	Ru	80	1	–
2285.31	Re	25	7	a
2285.3	N II	–	[15]	Fl
2285 25	Ta	6	18	–
2285.24	Xe	–	[3]	Hu
2285.228	Zr	100	–	–
2285.221	Cb	8	15	–
2285.19	Ga	–	3	Kl
2285.17	W	10	3	–
2285 17	Al II	–	[15]	Sy
2285.14	U	–	2	–
2285.14	Mo	–	18	–
2285.114	P II	–	[20]	Rt
2285 08	Nd	–	3	–
2285.02	Ta	3	12	–
2285.011	Rh	–	30	–
2284.984	V I	2 h	4	–
2284.92	Os	20	–	–
2284.91	A	–	[5]	Rt
2284.90	W	3	–	–
2284.90	I II	–	[4]	Bl
2284.90	Os	20	5	a
2284.89	O II	–	[10]	Mh
2284.846	Co I	30	–	–
2284.83	U	–	4	–
2284.80	Tm	20	10	Me
2284.76	Os	12	–	a
2284.748	V	–	3	Me
2284 68	Cr	18	–	a
2284.67	Cd	–	[2]	Bl
2284 64	Pr	–	10	–
2284 62	W	–	8	–
2284.605	Ir	20	5 h	–
2284.60	Hf II	20	30	Me
2284.53	Cr	2 h	10	–
2284.497	V I	8	2 h	–
2284.44	W	4	5	–
2284.43	Mo	6	30	–
2284.381	Co I	8	–	–
2284.348	Cb	–	15 w	–
2284.32	K	–	[5]	Ml
2284.085	Fe I	25	20	I
2284.08	Rh	–	200	–
2284 02	A	–	[10]	Rt
2283 99	W	–	5	–
2283.98	Yb	–	8 h	Me
2283.766	V	–	7	–
2283.75	In I	2	–	Ps
2283.72	U	–	15	–
2283.70	N II	–	[8]	Fl
2283.67	Os	50	15	–
2283.653	Fe I	10	–	I
2283.519	Co II	10	15	–
2283.42	O II	–	[7]	Mh
2283.41	Er	3	5	a
2283.38	Yb	8	10	Me
2283.38	W	–	3	–
2283.377	Cb	2	–	Me
2283.376	V I	5	5 w	–
2283.34	U	–	10 h	–
2283.32	Au II	–	15	–
2283.305	Fe I	8	–	–
2283.28	Mo	–	10	–
2283.27	W	10	5	–
2283.19	Ta	2	15 l	–
2283.17	Zr	–	2	–
2283.17	Os	–	30	–
2283.15	Xe	–	[4]	Dj
2283.09	Pd	–	[3]	Bx
2283.082	Fe I	8	–	–
2283.07	Kr	–	[30]	Me
2283.04	Os	10	–	a
2283 005	Cb	10	25 l	–
2282.99	Yb	5	50	–
2282.977	Pd II	–	15 d	–
2282.90	Au	–	6	–
2282.89	Mo	–	20	–
2282.88	Rh	–	7	–
2282.863	Fe I	8	–	–
2282.857	V	–	4	–
2282.83	Os	25	5	a
2282.78	U	–	25	–
2282.73	Nd	–	8	–
2282.64	A II	–	[20]	Rt
2282.62	Ag	–	4	–
2282.52	Cd II	–	[3]	Tk
2282.50	W	6	4	–
2282.496	Ir	8	–	–
2282.45	Pd II	–	15 h	–
2282.366	Co	–	5	–
2282.27	Ag	–	3	–
2282.26	Os	100	125	–
2282.236	Sn	10	15	m
2282.21	Mo	–	5	–
2282.21	Re	–	4	a
2282.20	W II	4	12	–
2282.19	Ta	6	15	–
2282.171	Ir I	3	–	Ab
2282.100	Pd II	–	35	–
2282.05	A	–	[40]	Rt
2281.999	Sr II	8	5	lSn
2281.99	Fe	6 w	–	–
2281.907	Ir I	25	3	–
2281.88	Co	3	25	–
2281.84	U	–	3 h	–
2281.825	Cb	2	10	–
2281.81	Hf	5	6 h	Me
2281.710	Ru	12	15	–
2281.67	W	–	4	–
2281.66	Re	30	7	a
2281.642	In II	–	[20]	Ps
2281.609	V	2	30	–
2281 609	Ru	4	15	–
2281.56	Th	–	8	–
2281.52	Ta	2	15	–
2281.506	Cb	–	25	–
2281.47	Zr	–	2 h	–
2281.44	Mo	–	3	–
2281.37	Pd II	–	[4 d]	Bx
2281.37	Mn	–	15	a
2281.345	Bi	10	–	Om
2281.34	Co	5	–	–
2281.31	Ta	2	12	–
2281.31	Re	10	–	a
2281.27	Pt	4	20 w	–
2281.237	V	–	30	–
2281 2	A	–	[20]	Rt
2281.131	Cb	2	8	–
2281.04	W	4	5	–
2281.021	Ir	2	50	–
.2281.003	P II	–	[20]	Rt
2280.958	Co II	4	5	–
2280.94	La II	2	4 h	Me
2280.93	Os	10	–	a
2280.85	Pb II	–	2 h	–
2280 83	W	4	4	–
2280.827	Pd II	15	35	–
2280.82	Mo	–	30 l	–
2280.757	Ba	–	2 w	Sz
2280.632	W	6	6	–
2280.6	A	–	[60]	Rt
2280.574	Ir	30	20 wh	Ab
2280.51	Ta	3	10	–
2280.5	Rn	–	[3]	Pe
2280.48	Pt	20	9	–
2280.46	Co	–	6 w	–
2280.445	Cb	5	8	–
2280.44	Th	5	2	–
2280.43	Pd	–	[25]	Bx
2280.346	Zr II	2	4	–
2280.336	V	–	25	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2280.32	W	–	8	–
2280.220	Fe I	15	–	–
2280.15	Co	2	–	–
2280.14	U	–	4	–
2280.05	K	–	[10]	Ml
2279.999	Ir	20	4	–
2279.982	Ag II	10	125 h	–
2279.97	U	2	2	–
2279.97	W	–	4	–
2279.96	Ti I	5 w	2	–
2279.924	Fe I	15	40	I
2279.85	Os	20	6	a
2279.763	V	–	10	–
2279.622	Ir	3 wh	2 wh	–
2279.60	Re	3	12	a
2279.58	Mo	4	10	–
2279.569	Ru	100	10	–
2279.53	Ni	20	–	–
2279.490	Co I	15	–	–
2279.41	Au	–	3 h	–
2279.388	Cb	–	20 w	–
2279.377	V	–	10	–
2279.27	Se	–	[10]	Bl
2279.20	W	–	3	–
2279.152	V I	3	–	Me
2279.11	Os	100	25	a
2279.04	Mo	–	7	–
2279.02	Co	–	3	–
2278.973	V	–	25	–
2278.91	W	–	5	–
2278.773	Ni II	12	25	–
2278.763	Pt II	–	15	–
2278.76	Re	20	7	a
2278.70	W	–	5	–
2278.63	U	–	3	–
2278.57	Re	15	–	a
2278.49	Ir	–	25	–
2278.46	Co	–	8	–
2278.441	Cu II	–	20	–
2278.44	Os	25	–	a
2278.3	In I	15	–	Uh
2278 30	Si I	7	–	Ks
2278.298	Co I	9	–	–
2278.196	In I	5	–	Ps
2278.19	Ru	80	–	a
2278.11	W	8	8	–
2278.093	V	–	2 w	–
2278.05	Mn	–	20	a
2277.98	U	–	2	–
2277.96	W	2 h	8	–
2277.873	Ir	10	15	–
2277.85	Rh	–	15	–
2277.76	Ni	10	–	–
2277.672	Fe I	25	–	–
2277.64	Au II	–	10	–
2277.58	W	20	10	–
2277.49	Cr	–	12	–
2277.485	Ir	10	–	–
2277.43	W	–	3	–
2277.423	Cb	3	–	–
2277.405	Ag II	–	25 wh	–
2277.33	Au	–	8	–
2277.28	Ni II	5	25	–
2277.21	Rh	–	25	–
2277.16	Hf II	150	150	Me
2277.153	Zr	10	–	–
2277.096	Fe I	15	–	I
2277.02	U	–	2	–
2276.96	Rh	20	150	–
2276.94	Mo	–	7	–
2276.94	Lu	8	20	Me
2276.91	Co	–	2	–
2276.883	V I	3	–	–
2276.86	Pt	25	10	–
2276.80	W	–	4	–
2276.80	U	2	2	–
2276.70	Ti I	15	2	–
2276.693	Zr	5	4 h	–
2276.667	V I	2	–	–
2276.65	Re	40	3	a
2276.578	Bi I	100 R	40	Om
2276.532	Co	20 r	5	–
2276.49	Zn	–	[3]	Bl
2276.48	W	–	4	–
2276.445	Ni II	–	9	–
2276.43	Os	30	5	a
2312.57	Cd	25	–	Hz
2276.42	Cr	–	15	–
2276.417	Ru	3	3	–
2276.41	Pt	25	12	–
2276.28	U	–	3	–
2276.253	Cu II	10	30	IBu
2276.214	Cb	2	–	–
2276.21	Rh	–	50	–
2276.21	Mo	–	20	–
2276.170	Cb	2	3	–
2276.132	Ru	4	1	–
2276.07	Yb	2	–	Me
2276.05	U	–	20	–
2276.024	Fe I	20	10	I
2276.020	Pd	–	30 h	–
2275.94	W	–	3	–
2275.876	Co I	9	–	–
2275 871	V	–	2	–
2275.689	Ni II	2	15	–
2275.66	Ir	–	25	–
2275.64	Mo	–	15	–
2275.63	W	6	3	–
2275 60	Ta	2	25	–
2275.595	Fe I	8	–	–
2275.50	W	–	5	–
2275.48	Cr	–	8	–
2275.48	Sr I	2	[3]	Fl
2275.471	Ca I	40	5	IWg
2275.47	Mo	–	15	–
2275.41	Co	–	7	–
2275 39	Zr II	–	2 h	Ks
2275.30	Er	7	2	a
2275 26	Ag II	–	50 wh	–
2275.25	Re	300 r	300 r	a
2275.229	V	–	15	–
2275 219	Cb	–	20	–
2275.187	Fe	10	–	–
2275.12	U	–	2	–
2275.00	Mo	3	35	–
2274.989	Ru	6	5	–
2274.97	Xe	–	[2 h]	Dj
2274.870	Cu II	–	3 h	IBu
2274.84	Pt	25	10	–
2274 811	Pd II	–	9 w	–
2274.80	Zn	–	[3]	Bl
2274.763	Cb	3	–	–
2274.73	Ni II	–	15	–
2274.68	U	–	2	–
2274.66	Ni I	12	–	–
2274.65	Re	10	7	a
2274.64	Hf II	15	20	Me
2274.633	Co I	8	–	–
2274.490	Co	9	2	–
2274.47	U	–	2	–
2274.454	Pd II	–	20	–
2274.40	W	7	–	–
2274.38	Pt I	30	20	–
2274.38	Ta	–	5	–
2274.35	Mo	–	5	–
2274.28	Os	–	25	–
2274.201	Cb	2	80	–
2274.2	bh C	12	–	L
2274.196	Ag	–	2	–
2274.131	Cb	12	300	–
2274.088	Fe I	15	15	I
2274.07	Pt	10	–	–
2273.92	Cb	–	8	–
2273.88	Cs II	–	[20]	Rf
2273.86	Pr	–	10	–
2273.81	Ni	8 W	4 h	–
2273.76	W	10	–	–
2273.71	Ta	3	30	–
2273.67	Co	–	6 w	–
2273.624	V	–	6	–
2273.565	Cb	15	25	–
2273.36	U	–	15	–
2273.36	Cr	–	20	–
2273.31	Pd II	–	30	–
2273.28	Ti I	10	2	–
2273.26	Mo	–	100	–
2273.25	Ag	–	3	–
2273.24	Kr	–	[8]	Me
2273.21	Pr	–	10	–
2273.18	Sc	–	10	Ex
2273.15	Hf II	40	60	Me
2273.120	Cb	–	3	Me
2273.092	Ir	5	4	Ab
2273.020	V	–	10	–
2273.00	W	10	5	–
2272.91	Co	–	2 h	–
2272.816	Fe I	20	–	–
2272.723	Cb	5 r	10	–
2272.680	U	8	2 h	–
2272.672	Mo	–	5	–
2272.66	Re	3	20	a
2272.61	Fe	3	–	–
2272.606	Ti I	9	2	–
2272.6	A	–	[2]	Rt
2272.593	Ta	12	30	–
2272.538	Os	4 w	50	–
2272.51	Ir	–	30	–
2272.51	W	–	6	–
2272.41	Se	–	[10]	Bl
2272.38	Cd II	–	[2]	Tk
2272.37	Ti	2	–	–
2272.37	Mo	–	8	–
2272.32	U	–	2	–
2272.252	Co II	4	8	–
2272.2	bh C	20	–	L
2272.12	W	3	–	–
2272.089	Ru	100	3	–
2272.067	Fe I	15	3	I
2272.048	V I	3	–	–
2271.97	Lu	–	2	Me
2271.97	Te	–	[25]	Bl
2271.950	Ni I	10	3	–
2271.85	Ta	12	30	–
2271.846	V	–	2	–
2271.812	U	–	4	–
2271.783	Mo	–	5 h	–
2271.780	Fe I	35	–	I
2271.718	Pt II	–	20 w	Sh
2271.64	Re	10	4	a
2271.63	Cd	–	[2]	Bl
2271.39	Ir	–	40	–
2271.37	Xe	–	[3]	Dj
2271.36	As I	25	1	Me
2271.33	Re	25	6	a
2271.21	Co	–	5 w	–
2271.185	V	–	3	–
2271.14	Hf II	2	2 h	Me
2271.13	Yb	8	–	–
2271.117	W II	3	7	–
2271.03	Ta	–	4	–
2270.9	K	–	[30]	Ml
2270.860	Fe I	10	–	I
2270.68	Hf II	6	7	Me
2270.68	Mo	–	9	–
2270.61	Os	25	10	a
2270.61	Lu	–	4 h	Me
2270.348	Fe II	2	4	m
2270.345	Rh	–	20	–
2270.332	Mo	–	5	–
2270.239	W II	12	20	–
2270.213	Ni II	100	400	–
2270.209	Pd	–	40 wh	–
2270.179	Cb	6	20 l	–
2270.17	Os	60	15	a
2270.11	Pd II	–	[40]	Bx
2270.08	Sb	25	15	–
2270.019	Ir I	20	3	–
2269.98	Co	–	3	–
2269.92	Hg I	–	[10]	Dj
2269.869	Mn	2 h	70	–
2269.86	Hf	8	8 h	Me
2269.860	Cb	3	15	–
2269.82	Cd	–	3	–
2269.792	W	3	3	–
2269.79	Re	3 h	10	a
2269.690	Mo	12	30	–
2269.68	Os	15	–	a
2269.647	Cb	2	–	–
2269.598	Ir	12	3	Ab
2269.56	Ta	3	18	–
2269.54	Os	3	15	–
2269.535	Cb	4	2	Me
2269.449	W	–	3	–
2269.42	Mo	3	9	–
2269.392	Zr	30	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2269.212	Al I	15 R	–	Gn
2269.21	Ta	3	12	–
2269.202	Cb	1	3 w	Me
2269.128	Ti II	4	40	–
2269.097	Fe I	12	–	–
2269.093	Al I	60 R	25	Gn
2269.085	W	–	3	–
2268.910	Sn	100 R	100 R	m
2268.898	Ir I	25	30	Ab
2268.847	Fe II	–	10	–
2268.84	W	–	2 h	–
2268.84	Pt	25	20	–
2268.748	Ti I	7	–	–
2268.746	Co I	12	–	–
2268.72	Xe II	–	[3]	Hu
2268.64	Yb	–	3 h	Me
2268.562	Fe II	–	8	–
2268.530	U	–	2	–
2268.523	Cb	8	15	–
2268.47	Hf	2	2 h	Me
2268.47	Mo	–	20	–
2268.40	Ir	20	–	–
2268.361	V	–	40	Me
2268.28	Yb	1	4	Me
2268.28	Os	40	10 l	a
2268.168	Co I	15	2	–
2268.15	Cr	9	–	a
2268.139	Fe II	–	12	–
2268.132	Ru	10	1	–
2268.13	Yt II	2 h	2 h	–
2268.09	W	–	2	–
2268.04	Rb	–	[20]	Fa
2267.91	Hf	3	3 h	Me
2267.910	Ti I	7	–	–
2267.71	Ir	–	5	–
2267.66	Cs II	–	[20]	Rf
2267.612	V	–	2	Me
2267.600	W	–	10	–
2267.588	Fe II	2	35	–
2267.58	Hf	3	3 h	Me
2267.556	Ni I	10	–	–
2267.51	Ta	–	4 h	–
2267.47	Cd	20	30	–
2267.466	Fe I	15	–	–
2267.36	Hf II	3	3 h	Me
2267.29	W	–	4	–
2267.26	Ta	–	4 h	–
2267.240	Pt	5	20	–
2267.19	Ca	–	2	Ad
2267.190	Sn	15	10	–
2267.12	Mo	–	8	–
2267.101	Co I	12	–	–
2267.078	Fe I	8	2	–
2266.97	U	–	6	–
2266.95	Pd II	3	20	–
2266.946	B II	–	2 w	–
2266.929	Ir I	5	–	–
2266.899	Fe I	15	–	–
2266.84	Ga	–	3	–
2266.83	Hf II	60	80	Me
2266.80	Xe II	–	[3]	Hu
2266.80	Co	–	5	–
2266.726	Cb	3	10	–
2266.70	As I	12	–	Me
2266.699	Fe II	–	5	Do
2266.67	Cr	10	–	a
2266.634	Ir	2	–	Ab
2266.58	Mn	–	10	a
2266.57	Os	20	4	a
2266.53	Co	–	35	–
2266.52	Hf II	30	40	Me
2266.52	Ta	10	–	a
2266.44	Pd II	–	3 h	–
2266.417	Pt	–	20	–
2266.41	W	–	3	–
2266.352	Ni I	20	2	–
2266.331	Ir I	25	10	–
2266.324	B II	–	2 w	–
2266.26	W II	7	7	–
2266.249	Fe II	–	8	–
2266.22	Mo	–	18	–
2266.130	W II	8	8	–
2266.09	Re	25	2 h	a
2266.04	Sn	3	8	–
2266.00	Zn II	–	[250]	Vs
2265.994	Fe II	4	10	–
2265.99	Au II	–	3 h	–
2265.98	Sn	–	[40]	Ar
2265.98	W	3	–	–
2265.94	Xe II	–	[3]	Hu
2265.88	Ag II	–	2 h	–
2265.81	Cd II	–	30	–
2265.75	Pd II	–	3 h	–
2265.742	Co II	3	5	–
2265.72	Se	–	[5]	Bl
2265.69	I	–	[30 l]	Bl
2265.671	Cb	5	20 w	–
2265.666	W	8	7	–
2265.65	Yb	3	50	Me
2265.62	Xe II	–	[3]	Hu
2265.592	Cb	–	50 Wh	Me
2265.59	Fe I	4	–	–
2265.58	La II	–	3	–
2265.55	Te I	–	[10]	Bl
2265.52	Mo	–	8	–
2265.51	Zn II	–	[10]	Vs
2265.458	Cu	–	15	–
2265.454	Ir I	12	3	–
2265.39	Os	5	–	–
2265.354	Ni II	–	5	–
2265.353	Cu II	–	5	–
2265.350	W II	5	10	–
2265.17	Mo	–	2	–
2265.163	Ir	5	50	–
2265.06	In	–	6	–
2265.050	Fe I	10	–	I
2265.04	K	–	[30]	Ml
2265.02	Te	–	[10]	Bl
2265.017	Cd II	25 d	300	Hz
2264.95	Mo	–	4	–
2264.92	Cr	–	10	–
2264.89	Ce	–	20	–
2264.874	Co	15	–	–
2264.742	Mo	–	18	–
2264.68	Pd II	–	[3]	Bx
2264.63	Lu	–	2	Me
2264.607	Ir I	30	15	–
2264.591	Fe II	–	20	–
2264.553	Cb	2	8	–
2264.457	Ni II	150	400	–
2264.418	Co	10	2	–
2264.389	Fe I	35	5	I
2264.35	Mo	4	10	–
2264.30	U	5	2 h	–
2264.282	Pd II	–	25	–
2264.20	Xe II	–	[3]	Hu
2264.20	Mo	–	5	–
2264.182	W II	3	12	–
2264.172	Ir I	12	3	–
2264.15	Co	–	2	–
2264.140	Rh	50	25	–
2264.08	Nd	–	15	–
2264.074	Cb	2	3 h	Me
2264.022	Ti	15	–	–
2264.00	Rb	–	[10]	Fa
2263.987	Pt II	–	20 w	Sh
2263.985	W	–	7	–
2263.98	Lu	–	3	Me
2263.97	Re	12	2 h	a
2263.970	Ir	4	10	Ab
2263.91	Os	–	15	–
2263.85	Yb	–	2	Me
2263.82	I	–	[12]	Bl
2263.804	Ir I	10	–	Ab
2263.780	Cu II	–	25	Sh
2263.76	Re	–	8	a
2263.75	Mo	–	4	–
2263.731	Al I	4 h	1 h	Gn
2263.72	Au II	–	3 h	–
2263.64	Hg	–	[10]	Ps
2263.63	Pd II	–	[2]	Bx
2263.62	Rb	–	[2]	Fa
2263.612	V II	–	3	Me
2263.55	Co	–	5 w	–
2263.535	W	7	25	–
2263.499	Ru	10	1	–
2263.474	Fe I	6	–	–
2263.453	Al I	60 R	25	Gn
2263.43	Rh	5	200	–
2263.367	Os	6	15	–
2263.36	Hf II	2	2 h	Me
2263.323	Pt II	–	25	Sh
2263.309	Cb	2	3 w	–
2263.305	V	5	–	Me
2263.27	W	3	–	–
2263.26	U	–	3	–
2263.228	Fe II	–	30	–
2263.220	Cb	1	5	–
2263.212	Cu II	–	10	Sh
2263.16	Yb	–	3 h	Me
2263.079	Cu I	30	10	IBu
2262.98	Se	–	[5]	Bl
2262.95	Xe II	–	[2]	Hu
2262.900	Ni II	–	4	–
2262.900	Pt II	–	5 h	Sh
2262.79	U	–	2 h	–
2262.73	Au	–	8	–
2262.680	Fe II	6	12	–
2262.662	Pt II	4	25	Sh
2262.598	Co I	10	–	–
2262.538	Sb	40	25	–
2262.484	Pd II	–	30	–
2262.43	Ir	–	6	–
2262.405	V	–	5	–
2262.4	bh C	12	–	L
2262.36	U	–	2	–
2262.32	W	–	8	–
2262.32	Os	25	7	a
2262.30	Pd	–	[15]	Bx
2262.30	Ta	12	20 l	–
2262.29	Cb	–	4	–
2262 29	Br	–	[2]	Lc
2262 29	Cd	3	–	Fl
2262.261	Fe II	–	4	Do
2262.25	Yb	2	30	Me
2262.233	Hg II	–	[100]	Ps
2262.141	Pd II	–	25	–
2262.131	Cb	3	5	–
2262.1	K	–	[10]	Sg
2261.976	Mo	5 h	15	–
2261.940	W	–	6	–
2261.850	V	–	5 w	–
2261.8	A II	–	[10]	Rt
2261.75	Rh	2	100	–
2261.73	Os	25 l	50 l	–
2261.727	Cb	2	2	–
2261.7	K	–	[2]	Sg
2261.67	Cr	8	15	a
2261.66	Te	–	[15]	Bl
2261.621	Ta	6	12	–
2261.61	Ti II	–	8	–
2261.55	Co	–	8	–
2261.54	Hf	3	3 h	Me
2261.530	Cb	2	3	–
2261.51	Nd	–	2	–
2261.47	U	2	2	–
2261.424	Ni I	12	3	–
2261.418	Ta	12	15	–
2261.34	Au II	–	3	–
2261.3	In	–	5	–
2261.29	Pd	–	[20]	Bx
2261.29	Co	–	2	–
2261.195	Gd	25	3	–
2261.188	Ti II	5	35	–
2261.12	Yb	–	3	Me
2261.085	V	5	15	–
2260.854	Cb	3	–	–
2260.853	Fe II	12	12	–
2260.83	V	–	4	–
2260.79	Lu	–	2	Me
2260.751	Mo	–	5	–
2260.65	Ir	3	40	–
2260.6	K	–	[30]	Sg
2260.600	Fe	10	–	–
2260.58	W	–	5	–
2260.56	Ta	–	20 l	–
2260.54	Nd	–	10	–
2260.53	Pd	–	25	–
2260.528	Cu I	25	6	IBu
2260.52	Mo	–	5	–
2260.51	Re	10	25	a
2260.497	Pt II	–	25	–
2260.45	Pd II	–	[18]	Bx
2260.40	Lu	–	4	Me
2260.36	Au	–	5	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2260.35	Os	5	–	a
2260.32	K	–	[30]	Ml
2260.260	Hg II	–	[200]	Ps
2260.25	Hf	2	2 h	Me
2260.25	Ta	2	3	–
2260.228	Fe II	–	5	Do
2260.13	Pd II	–	25	–
2260.11	Os	25	50	–
2260.080	Ru	4	–	–
2260.079	Fe II	9	15	I
2260.07	W	15	3	–
2260.01	Co	2	25	–
2259.991	In I	10 R	1	Ps
2259.690	W II	–	5	–
2259.66	O II	–	[5]	Mh
2259.64	U	–	8	–
2259.63	Os	10	2	a
2259.589	Fe II	–	20	Do
2259.571	Ni I	300 w	–	–
2259.57	Si I	3	–	Fl
2259.555	W	12	7	–
2259.55	Ta	4	12	–
2259.511	Fe I	25	–	I
2259.45	Pt	–	10 w	–
2259.32	Pd II	–	[5]	Bx
2259.279	Fe I	6	–	–
2259.27	Ir	–	35	–
2259.224	Ga	2	2	–
2259.22	Xe II	–	[2]	Hu
2259.068	W II	3	10	–
2259.04	Te I	–	[10]	Bl
2259.03	Pd II	–	[3]	Bx
2259.01	Re	10	–	a
2258.975	Os	3	25	–
2258.856	Ir I	30	10	–
2258.813	V	25	30	–
2258.77	Hg I	5	3	Dj
2258.717	Pt II	–	18	Sh
2258.71	Ta	–	25	–
2258.68	Hf II	15	20	Me
2258.59	Co	–	2	–
2258.55	Pd	–	5	–
2258.508	Ir I	15	50	–
2258.372	Fe II	–	2	Do
2258.36	W	–	3	–
2258.332	Os	12	35	–
2258.328	Co	9	–	–
2258.250	Rh	–	25	–
2258.22	Mo	–	5	–
2258.19	Nd	–	2	–
2258.146	Ni I	15	2	–
2258.128	W	10	8	–
2258.06	Mo	–	4	–
2258.02	U	–	3	–
2257.999	Al I	8	–	Gn
2257.89	Ni	–	12	–
2257.89	Hf II	10	15	Me
2257.881	Cb	15	–	–
2257.880	Zr	2	3 h	–
2257.86	Co	–	3 W	–
2257.81	Cr	–	10	–
2257.8	K	–	[2]	Ml
2257.741	W	–	6	–
2257.705	Mo	–	8	–
2257.67	Fe	3	–	–
2257.587	Co	10	–	–
2257.537	Cb	3	10	–
2257.50	Pb	4	–	–
2257.50	Ir	2	50	–
2257.48	Cr	–	4	–
2257.40	Ca I	2	–	Sd
2257.375	Ag II	–	5	–
2257.26	Nd	–	15	–
2257.238	Rh	–	25	–
2257.19	Mo	–	12	–
2257.13	Pt	12	6 w	–
2257.100	W	–	10	–
2257.01	Yb	4	40	Me
2256.99	Ir	–	5 h	–
2256.983	Mo	–	12	–
2256.982	V I	25	15	–
2256.93	Mn	3	12	a
2256.897	Fe II	–	15 h	Do
2256.850	W	10	12	–
2256.849	Ir I	6	–	–
2256.76	La II	2 h	30	–
2256.752	Ir I	2	–	–
2256.74	Co	–	35	–
2256.67	Cr	–	5	–
2256.573	Co I	10	–	–
2256.56	Xe II	–	[3]	Hu
2256.51	Ta	6	18	a
2256.433	Fe II	–	10	–
2256.43	Ir	–	10	–
2256.26	Hf II	1	2	Me
2256.227	Ir	5	–	Ab
2256.22	Re	40	7	a
2256.21	W II	6	4	–
2256.146	Ni II	–	10	–
2256.11	Cd	–	[2]	Bl
2256.104	Pt II	–	20	Sh
2256.070	Cb	2	–	–
2256.05	Cr	–	50	–
2256.018	W	–	10	–
2256.00	Ge I	2	1	–
2255.980	Fe II	1	3	–
2255.91	Au II	–	5	–
2255.878	Ni I	10	–	–
2255.860	Fe I	20	–	I
2255.847	Os	125	2	–
2255.810	Ir I	25	10	–
2255.788	In II	–	[10]	Ps
2255.77	Ta	3 l	20	–
2255.77	Cd	–	[2]	Bl
2255.763	Fe II	–	20	–
2255.75	Re	30	7	a
2255.72	W II	2 h	–	–
2255.694	Rh	–	15	–
2255.65	Co	–	4	–
2255.64	Cl	–	[4]	Bl
2255.625	Ir I	10	–	Ab
2255.594	Ir I	10	–	–
2255.593	Cb	8	20	–
2255.521	Ru	80	3	–
2255.52	W	3	–	–
2255.48	Te I	–	[10]	Bl
2255.418	Rh	–	20	–
2255.41	Os	12	–	a
2255.29	Ga	–	3	–
2255.29	K II	–	[10]	Ml
2255.27	I	–	[30]	Lc
2255.260	Rh	–	10	–
2255.172	Cb	–	2	–
2255.15	Hf II	40	60	Me
2255.150	Fe II	–	12	–
2255.103	W	–	6	–
2255.101	Ir I	25	10	–
2255.08	Cu	1	30	–
2255.034	Ga	2	–	Uh
2254.987	W	–	10	–
2254.971	Cu II	3	10	–
2254.949	Cb	5	10	–
2254.94	Cs II	–	[20]	Rf
2254.91	Ir	–	10	–
2254.897	Fe II	–	3 h	–
2254.89	Se	–	[10]	Bl
2254.86	Ta	3	10	–
2254.832	Co I	–	10	–
2254.82	Re	30	6	a
2254.80	Ni I	10	3	–
2254.732	Ba II	10	10	Sz
2254.70	Mo	–	8	–
2254.69	Os	12	3 l	a
2254.57	W	10	4	–
2254.557	Cb	10	2	–
2254.52	U	–	4	–
2254.47	Ir	2 h	10	–
2254.45	Os	–	10	–
2254.448	Pd II	–	9	–
2254.390	Fe II	–	2	–
2254.26	Pd I	25	8	–
2254.24	Rb	–	[70]	Fa
2254.22	Re	18	10	a
2254.20	Zr II	–	2 h	Ks
2254.078	Fe II	–	10 h	Do
2254.07	Rh	3	25	–
2254.05	Re	15	–	a
2254.008	Hf II	60	80	–
2253.95	Pb	40	5	–
2253.91	W	–	10	–
2253.87	Mg II	8	–	Fl
2253.86	Ni II	100	300	–
2253.802	Cb	3	–	Me
2253.776	Co	10	–	–
2253.74	Pd	–	[2]	Bx
2253.66	Ni II	–	10	–
2253.655	Pd	2	25	–
2253.64	Ru	50	–	a
2253.59	Zn II	–	[3]	Vs
2253.55	Ni I	10	–	–
2253.51	W	–	3	–
2253.50	Co	–	12	–
2253.50	Nd	–	25	–
2253.487	Ir	10	3	–
2253.46	Au II	–	5	–
2253.457	Ag II	–	50 wh	–
2253.375	Ir	4	–	Ab
2253.34	Sr I	3	[3]	Fl
2253.31	Cb	2 h	–	–
2253.28	Ta	2	12	–
2253.272	Zr	15	–	–
2253.25	Ti II	1	12	–
2253.23	Ir	–	25	–
2253.18	Mo	–	25	–
2253.16	Cl	–	[30]	Ks
2253.130	Pt II	–	25	–
2253.124	Fe II	12	30	I
2253.06	Zn II	–	[10]	Vs
2253.040	Ir I	10	2	–
2253.02	W	–	3	–
2253.0	K	–	[5]	Ml
2253.00	Os	10	–	–
2252.950	V	–	8	–
2252.90	O II	–	[10]	Fl
2252.886	Ni	1	5 h	–
2252.88	Mo	–	5	a
2252.87	A	–	[2]	Rt
2252.82	Co	–	2 w	–
2252.80	Ta	–	15	–
2252.780	Hg II	–	[50]	Ps
2252.74	O II	–	[10]	Mh
2252.731	Co I	10	–	–
2252.71	He II	–	[10]	Ps
2252.681	V I	3	–	Me
2252.68	Os	10	–	a
2252.65	Ca	–	2	Ad
2252.620	Cb	–	4	–
2252.618	Pd II	–	10 h	–
2252.59	Nd	–	9	a
2252.56	Re	10	2 h	a
2252.45	U	–	8	–
2252.406	Mo	–	20	–
2252.38	Zr	–	2 h	Ks
2252.38	Co	–	3 w	–
2252.36	W	10	–	–
2252.298	Ir	5	–	–
2252.28	W	–	3	–
2252.26	A II	–	[5]	Rt
2252.22	Os	–	4	–
2252.206	Cb	5	35	–
2252.15	Os	10	–	a
2252.03	Mo	–	5	–
2252.03	Pd II	–	30	–
2251.93	W	–	10	–
2251.926	Pt II	–	15 w	–
2251.88	Cu II	1	2 h	–
2251.872	Fe I	12	70	–
2251.85	Hf II	8	9	Me
2251.842	Co I	8	–	–
2251.60	Re	2 h	25	a
2251.559	Fe II	4	4	–
2251.555	V	–	8	–
2251.521	Pt II	3	30	–
2251.52	Cr	–	20	–
2251.50	Pd II	7	35	–
2251.50	Cl	–	[40]	Ks
2251.48	Rb	–	[2]	Fa
2251.48	Ni I	10	3	–
2251.42	W II	8	10	–
2251.33	Mo	–	30	–
2251.29	Re	15	–	a
2251.223	Ir	2	–	–
2251.15	Sn	25	50	–
2251.13	W II	10	10	–
2251.120	V	–	2	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2251.116	Co	–	8	–
2251.09	U	–	3	–
2250.96	Cl	–	[20]	Ks
2250.930	Fe II	5	20	–
2250.92	K	–	[30]	Ml
2250.87	Nd	–	15	–
2250.86	Os	4	–	–
2250.82	Rh	–	5 w	–
2250.776	Fe I	10	–	–
2250.76	Ta	12	25 l	–
2250.748	Zr	35	–	–
2250.73	W	10	12	–
2250.73	Rb	–	[5]	Fa
2250.682	V I	12	[30]	–
2250.631	Pt II	8	20	–
2250.510	Co	10	2	–
2250.493	V	–	3	–
2250.465	Cb	5	15	–
2250.46	Zr II	–	2	–
2250.45	W	–	3	–
2250.39	Co	–	3	–
2250.33	Re	3	7	a
2250.32	Kr	–	[8]	Me
2250.303	Cb	10	2	–
2250.3	A II	–	[20]	Rt
2250.25	Mo	–	20	–
2250.24	Ag	–	3	–
2250.169	Fe II	5	15	–
2250.07	Ti II	2	20	–
2250.03	I	–	[100]	Lc
2250.004	Cb	2	5 w	–
2250.00	O II	–	[2]	Fl
2249.93	Mo	18	18	–
2249.90	Pt	25	8	–
2249.88	Nd	–	6	–
2249.86	Xe II	–	[2]	Hu
2249.84	W	10	–	a
2249.82	Hf	5	5 h	Me
2249.79	Ta	12	25 l	–
2249.77	Cr	3	20	a
2249.62	In II	–	[25]	Ps
2249.53	Cb	–	20 w	–
2249.53	Lu	–	2 h	Me
2249.51	Os	5	–	a
2249.51	Pd II	–	8	–
2249.50	W	10	–	a
2249.46	Re	20	–	a
2249.43	Ru	8	–	a
2249.406	Ir I	4	10	–
2249.39	W II	2 h	3 h	–
2249.382	Bi I	15	–	–
2249.33	Mo	4	18	–
2249.31	U	–	3	–
2249.30	Pt	25	12	–
2249.175	Fe II	10	50	I
2249.074	V	–	10	–
2249.07	Mo	–	20	–
2249.07	Au II	–	8 h	–
2249.06	Cu II	–	25	–
2249.01	Rb	–	[2]	Fa
2248.988	Co I	5	–	–
2248.857	Fe I	35	–	I
2248.84	Cb	–	5	Me
2248.82	U	–	4	–
2248.750	W II	20	25	–
2248.74	Rh	20	3	–
2248.74	Au	–	7	–
2248.740	Ag II	15	150 wh	–
2248.72	Nd	–	4	–
2248.7	Hf	–	2	Md
2248.66	Co II	2	5	–
2248.58	Re	12	–	a
2248.56	Cr	3	20	–
2248.49	Os	6	2	a
2248.48	Ta	4	20	–
2248.33	Cr	3	20	–
2248.275	Cb	–	10	–
2248.26	W II	12	15	–
2248.18	Co	–	3 w	–
2248.05	Zr I	40	–	–
2248.03	Pd	–	8	–
2248.03	U	–	25	–
2248.0	A	–	[20]	Rt
2247.993	Cb	10	–	–
2247.92	Cr	–	12	–
2247.869	Co I	4	–	–
2247.70	Cr	–	8	–
2247.70	Hg	–	[5 h]	Dj
2247.692	Fe II	–	50	Do
2247.68	Os	40	6	a
2247.67	W	3	12	–
2247.66	Ir	1	20	–
2247.593	Pt II	–	10 w	Sh
2247.516	V I	5	–	–
2247.51	Re	4	7	a
2247.5	bh C	12	–	L
2247.46	Fe	3 w	–	–
2247.40	Pd II	–	[3]	Bx
2247.32	W	–	4	–
2247.23	Ni II	2	12	–
2247.11	Mo	–	15	–
2247.08	U	–	8	–
2247.04	Ge	2	–	–
2247.01	Pd II	–	8	–
2246.995	Cu II	30	500	IBu
2246.99	Sb	–	4	Sp
2246.98	Cb	–	2	–
2246.98	W	–	5	–
2246.95	Mo	–	20	–
2246.929	Cd II	–	2	–
2246.907	Fe II	–	20	–
2246.90	Ir	10	100	–
2246.888	Pb	30 R	100 R	–
2246.80	Cd	–	[2 d]	Bl
2246.77	Bi	8	–	To
2246.761	Cb	–	10	–
2246.68	Au II	–	18	–
2246.63	W II	6	12	–
2246.505	Pt II	2	10	Sh
2246.495	Cb	–	4	–
2246.47	Nd	–	12	–
2246.47	Re	25	5	a
2246.43	Au	–	15	–
2246.423	Cb	3 h	–	–
2246.418	Bi	–	2	Om
2246.412	Ag II	25	300 hs	–
2246.38	Rh	–	50	–
2246.36	W	4	6	–
2246.333	V	–	2	–
2246.32	K	–	[5]	Ml
2246.23	U	–	4	–
2246.175	Cb	10	–	–
2246.15	Co	–	3 w	–
2246.13	Ag II	1	4 h	–
2246.07	Rh	–	15	a
2246.053	Sn II	100 R	100 R	–
2246.05	Mo	–	15	–
2245.97	A	–	[5]	Rt
2245.766	V I	10	–	–
2245.76	Ir	10	150	–
2245.654	Fe I	12	–	–
2245.613	Ba II	12	12	Sz
2245.600	Co I	10	–	–
2245.518	Pt II	25	30	–
2245.505	Fe II	–	50	Do
2245.502	Ir	4	–	–
2245.464	Co I	5	–	–
2245.44	Au	–	10	–
2245.43	Re	12	5	a
2245.39	Kr	–	[10]	Me
2245.25	Os	20	–	a
2245.21	W II	10	20	–
2245.14	Re	15	2 h	a
2245.127	Co II	15	35	–
2245.12	Pd II	–	5 h	–
2245.08	Ni	1	4	–
2244.97	Pt I	25	10	–
2244.932	Ir	10	2 h	–
2244.93	Cb	–	2	–
2244.93	U	2	–	–
2244.90	Ni	1	8	–
2244.8	A	–	[2]	Rt
2244.76	W	–	3	–
2244.68	Ti I	10	–	–
2244.611	Fe II	–	3	–
2244.53	Ni I	40	–	–
2244.48	Ni I	15	3	–
2244.45	Co	2	2	–
2244.44	W II	–	3	–
2244.388	Fe II	–	10	–
2244.29	Cb	–	8	–
2244.265	Cu I	25	9	IBu
2244.25	Yb	–	8 h	Me
2244.23	Ir	–	10	–
2244.23	Hf	4	4 h	Me
2244.21	Al II	–	[2]	Sy
2244.20	Ag	2 h	2 h	–
2244.184	Cb	–	3 w	Me
2244.16	W	2 h	10	–
2244.12	Re	15	4	a
2244.12	Cr	–	20	–
2244.10	U	–	2	–
2244.00	Xe	–	[3]	Dj
2243.94	Os	8	20	–
2243.91	Fe I	3	–	–
2243.90	Pd	3	20	–
2243.90	Co	–	4 w	–
2243.861	Ta	3	25	–
2243.818	Mo	–	10	–
2243.80	Cd	–	[2]	Bl
2243.742	V I	5	–	Me
2243.67	Mn	–	5	a
2243.66	Tl	–	2	Sd
2243.65	U	–	2	–
2243.62	Cr	–	30	–
2243.587	Fe II	–	2	–
2243.541	Pd	–	20	–
2243 54	Os	10	–	a
2243.50	W	–	10	–
2243.465	V	–	2	–
2243.44	Ag II	–	15 h	Bx
2243.4	K II	–	[5]	Sg
2243.37	U	–	2	–
2243.32	Os	2	10	a
2243.311	Sn	–	8 w	Ar
2243.31	Cr	–	25	–
2243.29	Re	15	7	a
2243 267	V	3	–	–
2243.257	Co I	10	–	–
2243.220	Ru	20	1	–
2243.21	Ni I	3	–	–
2243.189	P I	–	[2]	Ri
2243.18	Hf II	15	20	Me
2243.17	Pd	–	[2]	Bx
2243 150	Fe	–	10 h	–
2243.10	Cu II	–	[6]	Sh
2243.060	Yt	25	35 w	–
2243.05	Al II	–	[30]	Sy
2242 962	Cb	4	–	–
2242.96	W	3	8	–
2242.90	Co	–	4 w	–
2242.88	Ni I	3 h	–	–
2242.76	Ni	–	8 h	–
2242.75	Ta	4	–	–
2242.71	Au	–	30	–
2242 71	W	–	8	–
2242 68	Ir	50	300	–
2242.68	U	–	2	–
2242.614	V	5	–	Me
2242.613	Cu II	25	50 h	IBu
2242.610	Pb	15	15	–
2242.579	Cb	5	50 hl	Me
2242.54	Pd	–	[7]	Bx
2242.492	P I	–	[2]	Ri
2242.47	Ge I	2	–	–
2242.43	Cd	–	[2]	Bl
2242.41	Re	25	10	a
2242.351	Ir	8	–	–
2242.338	Fe II	–	3	–
2242.33	Ce	–	60	–
2242.288	Cb	5	3	–
2242.24	Ir	–	15	–
2242.21	Mo	–	25	–
2242.17	Pr	–	10	a
2242.15	Ni II	–	4	–
2242.14	Cu II	–	[6]	Sh
2242.10	Os	30	5	a
2242.06	W	12	10	–
2242.05	Rh	25	25	–
2241.86	Xe II	–	[4 h]	Hu
2241.842	V I	25	–	–
2241.84	Cr	–	30	–
2241.840	Fe	6	2	–
2241.807	Ag II	–	10 h	–
2241.75	Nd	–	12	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2241.664	In I	3	–	Ps
2241.66	Ni	–	8 h	–
2241.654	Co I	9	–	–
2241.63	Mo	–	4	–
2241.62	Os	25	2 w	a
2241.535	V	–	200	–
2241.51	Pd II	–	[4]	Bx
2241.36	Cr	–	15	–
2241.34	Ag	–	10	–
2241 28	W	10	2 h	a
2241.27	Co	–	4 w	–
2241.213	V I	5	–	Me
2241.21	Pt	12	–	–
2241.17	Mo	–	4	–
2241.12	Se	–	[5]	Bl
2241.1	Hf	–	2	Md
2241.10	In I	10 R	–	–
2241.08	W	10	15	–
2241.07	Ru	60	–	a
2241.017	Cb	–	6	–
2240.99	Cd	–	[2]	Bl
2240.96	Ir	5	3 h	a
2240.89	Kr	–	[2]	Me
2240.89	K	–	[40]	Ml
2240.85	W	4	5	–
2240.76	Pd I	4	–	Me
2240.734	Co	6	–	–
2240.646	Cb	10	15	–
2240.64	Ir	–	15	–
2240.627	Fe	20	3 h	IMe
2240.622	V	–	100	–
2240.58	Mo	–	4	–
2240.58	Pd II	3	–	–
2240.45	Cd	–	[3]	Bl
2240.423	Ir	20	30	–
2240.388	Ag II	–	20 h	–
2240.339	Fe II	2	3	–
2240.32	Cb	–	10	–
2240.31	Pt I	10	8	–
2240.302	V I	3	–	Me
2240.28	Au II	–	5	–
2240.14	Nd	–	10	–
2240.14	Os	8	–	a
2240.14	I	–	[20]	Lc
2240.13	Co	–	2	–
2240.13	U	–	4	–
2240.09	Yb	5	25	Me
2240.09	Re	20	5	a
2240.00	Rh	–	50	–
2239.86	U	–	2	–
2239.86	Cd	80	30	m
2239.86	Hf II	5	6	Me
2239.85	Ru	8	–	a
2239.80	Co	–	4	–
2239.78	W	–	18	–
2239.72	Os	20	2	a
2239.67	Zr	–	2 wh	–
2239.643	Fe	–	4	–
2239.48	Ta	20	35 l	–
2239.39	Mo	3	18	–
2239.28	W	3	5	–
2239.186	Zr	10	–	–
2239.12	Os	5	–	a
2239.01	Ta	6	15	–
2238.96	Re	10	–	a
2238.91	N II	–	[8]	Fl
2238.88	Mo	–	2 h	–
2238.818	Ir I	30	5	–
2238.81	I	–	[20]	Lc
2238.74	Ti I	15	–	–
2238.68	Ir	–	12	–
2238.64	Re	40	4 h	a
2238.629	Fe	–	10	Do
2238.6	bh C	12	–	L
2238.59	Tl	–	2	Sd
2238.57	Cd	–	3	–
2238.56	W	6	6	–
2238.516	Cb	8	–	–
2238.47	Nd	–	10	–
2238.454	Cu I	40	–	IBu
2238.41	Mo	–	15	–
2238.41	Ag	–	10	–
2238.39	Ti	–	4 w	–
2238.33	Ru	50	–	a
2238.288	Ir	–	80	–
2238.259	Fe I	5	–	–
2238.21	Ti	5	–	–
2238.2	A II	–	[60]	Rt
2238.19	Rh	8	–	a
2238.02	U	–	3	–
2237.897	Fe	–	12	–
2237.85	Tl I	60 R	3	–
2237.84	Bi	2	–	To
2237.814	Fe	2	–	–
2237.80	Ti	–	3	–
2237.721	Pd II	–	20	–
2237.71	Rh	–	100	–
2237.58	Cr	–	40	–
2237.56	Pt	2	–	–
2237.496	Cb	10	20 l	–
2237.49	Au II	–	10	–
2237.48	Yb	–	3	Me
2237.44	U	–	15	–
2237.43	Ir	2	–	–
2237.426	Pb	50 w	30 w	–
2237.37	Nd	–	7	–
2237.3	Sr I	3	[3]	Sd
2237.30	Cb	–	2 h	–
2237.29	Ta	2	12	–
2237.227	V I	20	2	–
2237.15	Kr	–	[4]	Me
2237.130	Co	10	–	–
2237.10	Rh	–	10	–
2237.09	Ir	–	100	–
2237.06	W II	10	15	–
2237.04	Mo	3	10 w	–
2237.038	Ir	2	–	–
2237.001	Ir	10	–	–
2236.96	Cb	–	2 h	–
2236 84	Pd II	3	8	–
2236.83	Gd	–	5	Ex
2236.796	Co I	15	4	–
2236 76	S	–	[15]	Bl
2236.75	Rh	2	8	–
2236.725	Cb	5	10	–
2236.685	Fe II	–	3	–
2236.619	Pd	–	7	–
2236.58	U	–	3	–
2236.43	Kr	–	[2]	Me
2236.42	Cb	–	2	–
2236.38	Rh	–	15	–
2236.38	Pd	10	–	–
2236 34	Hf	4	4 h	Me
2236.32	Cd	–	5	–
2236.313	Fe	10	–	–
2236.28	Ta	4	15	–
2236.278	Cu I	30	–	IBu
2236.22	Cb	4	–	–
2236.17	Lu	–	150 h	Me
2236.103	Ga	2	5	Uh
2236.08	Ni II	–	4	–
2235.94	Ta	–	2 h	–
2235.93	Cr	–	50	–
2235.89	Os	10	3	a
2235.87	W II	2 h	3	–
2235.84	Ru	12	–	a
2235.79	Re	2 h	30	a
2235.79	U	–	3	–
2235.77	A II	–	[40]	Rt
2235.750	Ir	25	2 h	–
2235.734	P I	10	[1]	Ri
2235.67	Ta	–	5	a
2235.66	Mo	–	15	–
2235.65	Os	15	5	a
2235 63	W II	10	10	–
2235.53	Xe	–	[2]	Dj
2235.520	Fe II	–	8	–
2235.46	Re	15	7	a
2235.45	Pt I	6	–	–
2235.41	Hf II	3	20 h	Me
2235.37	W	–	12	–
2235.301	Pt II	5	25	–
2235.30	Rh	2	25	–
2235.289	Ir	25	4	–
2235.236	Pd	–	8	–
2235.18	N II	–	[3]	Fl
2235.11	Co	–	5	–
2235.09	Zr II	–	4	–
2235.05	Pd	–	[3]	Bx
2234.99	P I	6	–	Ks
2234.915	Pt I	25	15	–
2234.86	Ir	–	10	–
2234.86	Fe	2	–	–
2234.85	W	–	4	–
2234.714	Co I	12	–	–
2234.673	V I	6	–	–
2234.616	W	10	5	–
2234.61	Os	35	9	a
2234.500	Mo	–	8	–
2234.43	Zr II	2	1	–
2234.429	Fe	4	–	–
2234.38	Ir	5	80	–
2234.37	Rb	–	[2]	Fa
2234.34	Kr	–	[2]	Me
2234.256	W	–	10	–
2234.25	Pd	–	[15]	Bx
2234.154	Ir I	20	–	–
2234.06	Hg II	–	3	Nu
2233.96	Cd	–	[2]	Bl
2233.94	U	–	2	–
2233.914	Fe II	–	35	–
2233.90	Re	20	6	a
2233.88	Ta	–	12	–
2233.803	Ti I	15	2	–
2233.80	Cr	–	20	–
2233.754	Co I	10	–	–
2233.75	Nd	–	5	–
2233.70	Au	–	5	–
2233.56	Cb	–	4	–
2233.46	Zr II	1 h	4	–
2233.370	Ir I	9	100	Ab
2233.172	Cb	3	–	–
2233.110	Pt II	–	8 w	Sh
2233.099	Co	9	–	–
2233.02	W	–	4	–
2233.02	Re	2	5	a
2232.98	Rh	–	25	–
2232.912	V	–	500	–
2232.877	Co	4	–	–
2232.84	Xe	–	[2]	Dj
2232.82	Os	10	1	a
2232.75	Mo	10	10	a
2232.63	Pd	–	[4]	Bx
2232.56	W	–	6	–
2232.547	Cb	10	1	–
2232.471	Ir I	25	–	Ab
2232.468	Co I	8	15 w	–
2232.44	U	–	4	–
2232.434	Mo	4	12	–
2232.31	Re	6	25	a
2232.27	W II	6	2 h	–
2232 252	V I	6	–	Me
2232.248	Ir	30	50	Ab
2232.179	Ir I	5	–	Ab
2232.12	Mo	–	10	–
2232.08	Ru	12	–	a
2232.078	Fe II	2	12	–
2232.066	Co II	6	18	–
2231.956	W	–	7	–
2231.892	Zr II	1	2	–
2231.81	Cr	–	18	–
2231.749	Co I	6	–	–
2231.72	Sn	30	60	–
2231.69	Rh	3	2 w	a
2231.67	K	–	[5]	Ml
2231.662	Mn	–	70	–
2231.657	Ir I	25	5	–
2231.59	Pd II	10	60	–
2231.571	Cu II	–	15	Sh
2231.57	Tm	8	5	Me
2231.55	Yb	–	2	Me
2231.483	Mo	–	7	–
2231.434	Cb	3	–	–
2231.418	V	15	–	–
2231.41	Hf II	3	3 h	Me
2231.36	Te	–	[5]	Bl
2231.317	Pd II	–	10	–
2231.31	Au II	–	20	–
2231.24	W	–	10	–
2231.22	Cl	–	[4]	Jv
2231.211	Fe I	8	–	I
2231.16	Os	12	50	–
2231.08	Mo	–	15	–
2231.080	W	3	6	–
2230.99	Ir	–	25	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2230.954	Ni I	10	1	–
2230.948	Cu II	–	15	Sh
2230.945	Ti II	7	40	–
2230.927	Zr	15	–	–
2230.89	Re	10	–	a
2230.853	Cb	–	4 wh	–
2230.804	Ru	8	2	–
2230.79	Xe II	–	[3]	Hu
2230.75	Pd	–	[2]	Bx
2230.74	La II	2 h	7	Me
2230.699	In I	5 R	–	Ps
2230.65	Rh	–	25	a
2230.64	Re	5	–	a
2230.62	U	–	4	–
2230.608	Bi I	100 R	30 R	–
2230.56	Mo	–	10	–
2230.53	Ta	10	–	a
2230.52	Co	–	10 W	–
2230.473	Ti I	5	–	–
2230.441	Ir	20	20 l	Ab
2230.43	Pd II	–	[4]	Bx
2230.42	W	–	6	–
2230.40	Cu II	–	[10]	Sh
2230.372	V I	8	20	–
2230.37	Pr	–	40	–
2230.37	Cd	2	–	–
2230.31	Ru	30	–	a
2230.25	Os	20	–	a
2230.221	Ti I	20	–	–
2230.084	Cu I, II	30 r	20	IBu
2230.08	Mo	4	25	–
2230.04	Hg	–	5 h	Dj
2229.988	V	3	10	–
2229.97	Mn	–	60	–
2229.97	I	–	[400]	Lc
2229.86	Hg II	–	3	Nu
2229.858	Ni II	–	6 h	–
2229.850	Cu II	–	4 h	Sh
2229.8	In	2	–	Uh
2229.780	Ir I	20	5 l	–
2229.76	Pd II	–	[4]	Bx
2229.739	V I	12	80	–
2229.732	Co I	10	2	–
2229.73	Ti	10	–	–
2229.720	Cb	30	20	–
2229.66	Cb	12	–	–
2229.626	W II	10	20	–
2229.59	Zn	–	[2]	Vs
2229.53	Ir	–	6	–
2229.523	Ag II	–	25 wh	–
2229.5	A II	–	[2]	Rt
2229.43	U	2	2	–
2229.31	Pt	–	25	–
2229.28	I	–	[20]	Bl
2229.254	Ti II	2	10	–
2229.220	Pd II	–	35	–
2229.218	Pt II	3	25	–
2229.11	Os	5	3	a
2229.11	Sn	–	5	–
2229.07	Fe	6	–	–
2229.03	Au II	–	50	–
2228.94	Cs II	–	[15]	Rf
2228.92	W	–	8	–
2228.863	Cu II	9	40	IBu
2228.86	Si	–	[5]	Sy
2228.835	V I	10	6	Me
2228.83	Ti II	3	10	–
2228.806	Co I	12	–	–
2228.78	Hf II	7	8	Me
2228 70	W II	5	2 w	Ln
2228.671	Ir	10	2	Ab
2228.66	As I	10	1	Me
2228.53	Os	25	5	a
2228.498	Pt II	–	15	–
2228.45	Hf	4	4 h	Me
2228.41	Nd	–	12	–
2228.41	Mn	3	8	a
2228.40	Pd II	–	[5]	Bx
2228.334	Co I	4	–	–
2228.299	V	–	100	–
2228.28	U	–	2	–
2228.251	Bi I	100 R	50	Om
2228.25	Cr	8	5	a
2228.18	Hf II	6	8	Me
2228.168	Fe I	10	6	I
2228 11	W	10	1	–
2228 09	Ce	–	25	–
2228.04	Re	12	–	a
2228.028	Cb	8 w	1	–
2227.98	W	10	–	a
2227 98	Os	30	30	a
2227 92	Kr II	–	[30]	Me
2227 87	Ce	–	20	–
2227.868	Co I	10	–	–
2227 84	Ta	12	35 l	–
2227.775	Cu I	40 r	25 r	IBu
2227 70	Yb	–	3	Me
2227.70	A	–	[60]	Rt
2227.697	Cb	5	3	–
2227.657	Co I	12	4	–
2227.64	Ru	30	–	a
2227.616	Fe II	–	2	–
2227.51	Pt	2	4	–
2227.50	In	–	2	Wb
2227.44	Mn	–	10	–
2227.407	Fe II	–	2	Do
2227.39	V	5	–	–
2227.39	Mo	12	–	a
2227 331	W	4	7	–
2227.31	Se	–	[5]	Bl
2227.274	Cb	4	–	–
2227.23	Ta	–	12	a
2227.21	U	–	3	–
2227.180	Fe II	–	8	–
2227.157	Ti II	4	35	–
2226.93	Mo	–	7	–
2226.927	Cb	5	–	–
2226.92	Re	30	–	a
2226 864	Cu II	–	30	–
2226.83	Os	25	15	–
2226.793	W	4	10	–
2226.786	Ti I	10	–	–
2226.78	Mo	–	7	–
2226.70	Cr	–	30	–
2226.572	W	5	4	–
2226.532	Rh	50	–	–
2226.525	Ta	–	25	–
2226.45	Re	60	12	a
2226 34	W II	3	7	–
2226.332	Ni II	12	15	–
2226.23	Os	20	5	a
2226.15	Rb	–	[5 d]	Fa
2226.11	Ag II	–	20 h	–
2226.07	Te	–	[15]	Bl
2226 07	Mo	–	10	–
2226.06	Re	–	12	a
2226.0	K	–	[5]	Ml
2226.00	Xe	–	[2]	Dj
2225.9	Sr I	8	–	Sd
2225.893	W II	10	18	–
2225 848	Co	5	–	–
2225.82	Ni	–	8	–
2225.787	V	4	–	Me
2225 697	Cu I	150	20	IBu
2225 66	Re	8	–	a
2225.550	Cb	3	2 w	–
2225.54	W	8	2	a
2225 48	Nd	–	9	–
2225 44	Os	25	5	a
2225.427	V I	15	2	–
2225.35	Hf II	6	7	Me
2225.350	Co I	12	2	–
2225 342	Ni I	5	–	–
2225 339	Cb	8	–	–
2225.29	Pd	15	5	–
2225 27	I	–	[30]	Lc
2225.27	Os	8	20	–
2225.226	W	2	4	–
2225.20	Cd	–	[10]	Bl
2225.18	Kr	–	[2]	Me
2225.15	Sb	–	[10]	Lg
2225.124	Ti	18	–	–
2225.10	Ce	–	100	–
2225.096	Cb	–	5 wh	Me
2225.029	V I	5	–	Me
2224.97	Rh	–	30	–
2224.965	Zr	8	–	–
2224.94	Sb	30	25	–
2224.87	Co	–	5	–
2224.867	Ni II	15	25	–
2224.83	Yb	–	2	Me
2224.82	Hg	–	10 h	Cn
2224.80	Ir	–	25	–
2224.779	Cu II	–	25	–
2224.76	A	–	[40]	Rt
2224.710	Hg II	–	[30]	Ps
2224.675	W	–	6	–
2224.668	Cb	5	30 hl	–
2224.66	Mo	–	8	–
2224.60	Xe	–	[2]	Dj
2224.57	Os	12	3	a
2224.52	Pt	10	–	–
2224.512	Ni II	–	8	–
2224.464	Fe II	1	12	Do
2224.45	Yb	20	40	Me
2224.44	Re	6	5	a
2224.41	W	–	4	–
2224.39	Cd	–	3	–
2224.358	Ni II	6	9	–
2224.29	Hf II	10	10 wh	Me
2224.21	Re	10	3	a
2224.205	Bi	8	–	–
2224.177	Pt II	–	10	Sh
2224.14	Pd	–	[2]	Bx
2224.09	W	–	6	–
2224.09	Co	–	10	–
2224.03	Hg II	–	5	Nu
2224.02	Gd	–	3	Ex
2224.02	Lu	–	6 h	Me
2223.96	Tm	6	5	Me
2223.92	Mo	12	3	a
2223.85	Os	30	10	a
2223 84	Re	7	–	a
2223.726	Pd II	–	30	–
2223.678	Cb	10	–	–
2223.653	Ir I	6	3	Ab
2223 57	Cd	–	[2]	Bl
2223.57	Pd	–	[2]	Bx
2223.486	Fe II	–	25	–
2223 481	Pt II	–	10	Sh
2223.36	Hf II	4	5	Me
2223.35	P I	6	–	Ks
2223.31	Zr	1 h	2 h	–
2223.31	Ta	–	15 l	–
2223.3	Ra II	–	[8]	Rs
2223.25	Pr	–	25	–
2223 193	Mo	–	18	–
2223 188	Ti I	15	–	–
2223 18	Re	12	2 h	a
2223.099	Ir I	10	4	–
2223.08	Os	10	–	a
2223.079	Pd II	–	12	–
2223 026	V I	10	–	–
2222.969	Ir	2	–	Ab
2222 96	Co	–	9	–
2222.944	Ni II	15	25 w	–
2222.93	A	–	[60]	Rt
2222.838	V I	6	–	–
2222.78	W	–	3	–
2222.78	Xe	–	[4]	Dj
2222 77	Mo	–	7	–
2222.77	Re	10	3	a
2222.763	Fe	5	5 h	–
2222 73	Ge	2	–	Gt
2222.697	V	–	100	Me
2222 67	Cd	–	[3]	Bl
2222.61	Pt I	25	15	–
2222.590	W	2 h	7	–
2222.56	Au	–	15	–
2222.53	Os	10	1	a
2222.49	Re	7	2 h	a
2222.450	Fe II	–	10	–
2222 37	Os	8	–	a
2222 33	Ni	–	4 w	–
2222 30	U	–	10	–
2222.29	Pd	–	30	–
2222 25	Co	–	4	–
2222 22	Ta	–	6	a
2222.216	Pt	3	15	–
2222.08	Sb	25	15	Sp
2222.08	Cd II	–	[2]	Tk
2222.07	W	3	10	–
2222.04	Ce	–	100	–
2221.99	V	–	10	a
2221.969	Rh	–	25	–

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2221.94	A	–	[40]	Rt
2221.940	Ni I	10	–	–
2221.86	Kr	–	[4]	Me
2221.85	Ni	–	5	–
2221.85	W	12	–	–
2221.83	Fe	12	–	–
2221.8	bh C	30	–	L
2221 71	Cb	–	2 w	–
2221.67	Mo	3	–	–
2221.58	K	–	[30]	MI
2221.54	Co	–	3	–
2221.53	W	2 h	4	–
2221.52	U	–	2	–
2221.474	Cb	2	–	Me
2221.47	Yb	–	2 h	Me
2221.451	Ti	15	–	–
2221.42	Cb	–	4	–
2221.42	Rh	–	25	–
2221.41	W	–	3	–
2221.36	Os	15	2	a
2221.28	Co	–	3	–
2221.159	Fe II	–	25	–
2221.11	Ni	–	15 h	–
2221.09	Th	–	8	–
2221.07	Ir	2	100	–
2220.99	Os	15	2	a
2220.97	Mo	5	25	–
2220.942	W II	8	18	–
2220.91	Fe I	3	–	–
2220.86	Sn	–	5	–
2220.80	Sb	30	20	Sp
2220.76	Au II	–	10	–
2220.739	Rh	2	20	–
2220.69	Ta	–	12 h	–
2220.662	Zr I	10	–	–
2220.64	I	–	[12]	Lc
2220.60	Re	15	2 h	a
2220.54	Mn	–	40 w	a
2220 53	Au	–	7	–
2220.48	Hf	7	8 h	Me
2220.450	V I	3	–	Me
2220.400	Ni II	10	25	–
2220.374	Fe II	2	35	–
2220.373	Ir I	50	10	–
2220.37	Ge I	3	–	–
2220.31	B II	–	6	En
2220.281	Cb	–	3 w	–
2220 25	Mo	12	–	a
2220.22	Zr	2 h	3 h	Ks
2220.209	V	8	35	–
2220 20	Pd	–	[5]	Bx
2220 193	Rh	20	1	–
2220.184	Cb	10	2	Me
2220 182	Ir	8	2 h	Ab
2220 09	Co II	10	18	–
2220 01	W	–	4	–
2219.893	Fe II	2	20	Do
2219.82	Os	6	4	a
2219.82	Mo	–	4	
2219.77	Re	–	15	a
2219 748	Ti I	4	2	–
2219 72	W II	15	4	–
2219 712	Fe II	·	2	Do
2219.70	Ag II	–	15 h	–
2219.652	V I	2	–	Me
2219.62	Cr	–	12	–
2219.53	Ni	–	8 h	–
2219.41	Ta	6	12	–
2219 400	V	–	2	–
2219.35	W	–	5	–
2219.336	Cb	3	4	–
2219.29	Re	15	4	a
2219.28	U	15	2	–
2219.22	Au	–	3 h	–
2219 21	Ir	2	20	–
2219.169	Cb	3	2	–
2219.154	Co I	9	4	–
2219.00	Re	15	7	a
2218.917	Si I	3	–	Fl
2218.87	A	–	[60]	Rt
2218.813	Co	10	–	–
2218.739	Ir I	8	2	Ab
2218.71	Re	15	7	a
2218.70	O II	–	[5]	Mh
2218.62	Cu	2 r	15	–
2218.527	Ru	4	–	–
2218 504	Cu II	–	[25]	Sh
2218.46	Os	10	–	a
2218.428	V	–	125	–
2218 379	Ti I	4	–	–
2218.37	Hf II	10	15	Me
2218.33	W	10	5	–
2218.30	Os	5	20	–
2218.26	Re	8	–	a
2218.248	V I	15	–	–
2218.158	Pd II	–	40	–
2218.11	Pr	–	18	a
2218 100	Cu II	25	40	IBu
2218.08	Pb	50	40	–
2218.080	Si I	10	15	Fl
2218.053	Zr	5	–	–
2218.039	Ga	2	–	Uh
2217.993	V	–	3 wh	–
2217.94	W	–	2 h	–
2217.876	Mo	–	6	–
2217.87	Ag II	–	4 h	–
2217.862	Cb	5	–	–
2217.82	Ta	8	40	–
2217.80	Co	–	3 w	–
2217.768	Ni I	10	1	–
2217.762	W	6	6	–
2217.74	Fe I	3	–	–
2217.739	Ir	10	20	Ab
2217.66	Hf II	2	2 h	Me
2217.58	Fe	3	–	–
2217.537	Pd II	2	25	–
2217.51	U	–	5 h	–
2217.413	V	–	150	–
2217.340	Pt I	25	18	–
2217.324	Pd II	–	25	–
2217.32	Lu	–	3 h	Me
2217.28	Co II	4	10 l	–
2217.23	Cb	2 wh	20 w	–
2217 23	Os	20	3	a
2217.23	K	–	[10]	MI
2217.20	Re	15	–	a
2217.17	Mo	–	5	–
2217 12	Rb	–	[100]	Fa
2217.056	Fe II	–	10	–
2217 05	Ir	–	5	–
2216 86	Al	5	–	Hr
2216 685	Si I	40	40	Fl
2216 61	Mo	4	12	–
2216.61	Te	10	–	Kh
2216 577	Ba	2 h	–	Sz
2216 52	Os	5	5	a
2216 48	Pd I, II	3 w	–	Sh
2216.480	Co	4	25	–
2216.473	Ni II	20	40 wh	–
2216 43	W	8	12	–
2216 31	Hg	–	[2]	Dj
2216 3	In	–	2	–
2216.26	V I	3	–	–
2216.19	Re	3	18	a
2216.11	La	2	25	–
2216 1	bh C	20	–	L
2216 10	U	–	2 h	–
2216 034	V	2	100	–
2216 031	Ir I	25	5	–
2216.009	W II	10	15	–
2215.786	V	–	9	Me
2215 76	Au	–	15	–
2215.741	Ir I	8	–	Ab
2215.654	Cu I	30	–	IBu
2215.60	Ta	10	25	a
2215.59	Xe	–	[2]	Dj
2215.55	Re	12	4	a
2215 53	Cb	4	–	–
2215 52	Mo	–	3	–
2215.383	Pt II	–	9	Sh
2215 38	U	–	3 h	–
2215 37	Os	20	5	a
2215 342	W	6	15 w	–
2215.29	Cb	2	4	–
2215.27	Pr	–	18	–
2215 21	Mn	–	6	–
2215.2	A	–	[2]	Rt
2215.100	Cu II	–	15	Sh
2214.92	Sn	–	3	–
2214.80	W	10	20	–
2214 79	Co II	9	12	–
2214.76	Os	5	30	–
2214.69	He II	–	[5]	Ps
2214.64	Yb	1	8	Me
2214.639	Ba II	2	6	Sz
2214.63	Zr I	3	–	Ks
2214.59	Zr II	–	2	Ks
2214.581	Cu I	50 r	5 h	IBu
2214.41	Xe	–	[3]	Dj
2214.407	Fe II	–	4	–
2214.34	Ta	3	12	–
2214 31	W	4	–	a
2214.305	Ir I	10	2	–
2214.28	Pt	–	20	–
2214 27	Mo	2	25	–
2214.27	Re	100 W	100 W	a
2214.16	Os	25	10	a
2214.160	Zr	20	–	–
2214.121	Bi I	7 h	1	–
2214.038	Pd II	–	40	–
2214.033	Cb	8 w	–	–
2214.016	V	–	100	Me
2214.01	Mo	–	4	–
2213.96	Kr II	–	[5]	Me
2213.93	Pt	6	–	–
2213.86	Co	4	4	–
2213 849	Ni	5	–	–
2213 82	Mn	60 r	10	a
2213.819	Co	7	–	–
2213.77	Ir	–	25	–
2213.70	Cr	–	30	–
2213 70	Cd	–	2	–
2213.692	V I	6	–	Me
2213 654	Fe I	2	35	–
2213.65	Re	2 h	12	a
2213.56	Os	10	5 wh	a
2213 44	Mo	–	3	–
2213.34	Os	–	15	a
2213.193	Ni II	2	12	–
2213.19	W	–	4	–
2213.18	Au II	–	12	–
2213 18	Co	–	10	–
2213.1	K	–	[20]	MI
2213.0	A	–	[60]	Rt
2212 931	Cb	–	4 w	–
2212.832	Cu	–	20	–
2212 83	Re	10	9	a
2212 81	Pd	–	10	–
2212.80	Rh	15	10	–
2212.741	Cu II	–	[10]	Sh
2212.47	Zr II	2	1	–
2212.45	Hf II	25	30	Me
2212.44	Pd	2 h	–	–
2212.42	Ta	8	35 l	–
2212 354	Co I	9	–	–
2212 32	Ir	–	50	–
2212 29	Kr	–	[6]	Me
2212 22	Os	10	–	a
2212 22	A	–	[20]	Rt
2212.17	W	10	–	–
2212.15	Ni I	12	2 h	–
2212.14	Pd II	5	50	–
2212 11	Re	9	–	a
2212.11	Os	–	6	a
2211.96	Os	40	5	a
2211.87	Yb	–	2	Me
2211.86	Hf II	5	6	Me
2211.83	Cr II	3	18	–
2211.753	Ga	2	–	Uh
2211.750	Si I	12	12	Fl
2211.735	Zr	8	–	–
2211.71	Kr II	–	[5]	Me
2211.64	Os	5	–	a
2211.59	Re	9	3	a
2211.51	Os	5	4 w	a
2211.510	Pt II	–	3 w	Sh
2211.46	Cb	12	2	–
2211.430	Co II	9	18	–
2211.364	V I	2	2 h	–
2211.290	Ni I	12	–	–
2211.267	Cb	–	3	–
2211.25	Ir	2 wh	4	–
2211.234	Fe I	6	–	IMe
2211.21	Re	12	7	a
2211 21	Ag	–	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2211.15	Cd	–	[2]	Tk
2211.137	In I	3	–	Ps
2211.101	Fe II	–	12	–
2211.10	Ni II	–	8	–
2211.07	Co	–	5	–
2211.03	W	–	5	–
2211.02	Ni I	8	12	–
2211.00	Mo	–	15	–
2210.923	Cb	5	10	–
2210.912	Si I	30	30	Fl
2210.896	Zr	15	–	–
2210.89	Rh	15	2	a
2210.88	Mn	8	8	a
2210.88	Mo	4	–	–
2210.87	Zn II	–	50	–
2210.82	Hf II	2	2 h	Me
2210.686	Fe I	8	–	IMe
2210.66	Au II	–	4	–
2210.627	Cb	2	–	–
2210.57	Pd	–	[2]	Bx
2210.537	Cb	4	10	–
2210.53	Os	15	1	a
2210.53	K II	–	[20]	Ml
2210.47	Zn II	–	[2]	Vs
2210.46	Tl	–	2	Sd
2210.442	Cb	3	–	–
2210.39	Ni II	12	18 w	–
2210.37	Cd II	–	[10]	Tk
2210.32	Ag II	–	[5]	Bx
2210.31	Cb	–	2	Me
2210.305	V	–	20	Me
2210.26	Tl	–	2	–
2210.259	Cu II	20	40	IBu
2210.22	W	–	3	–
2210.19	Ta	–	12	–
2210.046	Al I	12 R	15	Gn
2210.033	V	–	15	–
2210.03	Ta	10	12	a
2209.97	V	5 wh	8	–
2209.9	bh C	2	–	L
2209.85	Mo	2	7	–
2209.848	Pt II	–	15	Sh
2209.81	Re	15	7	a
2209.795	Cu II	–	10	Sh
2209.70	Cd	–	3 h	–
2209.66	Sn II	25 w	60 r	–
2209.64	Mn	7	2 h	a
2209.56	Mo	2	15	–
2209.51	Co	–	10	–
2209.50	Os	5	10	a
2209.45	Te	–	[5]	Lc
2209.219	V	–	50	–
2209.074	Ru	10	–	–
2209.07	Mo	–	4	–
2209.06	W	6	2 h	–
2209.05	Co	–	2	–
2209.02	Ta	–	18	a
2208.99	Ni	5	–	–
2208.96	Ir	2	50	–
2208.934	V	–	40	–
2208.9	A	–	[10]	Rt
2208.83	Te I	200	[2]	Bl
2208.81	Fe	6 w	–	–
2208.77	Pt	5	2	–
2208.72	Ir	–	40	–
2208.71	Cr	–	20	–
2208.67	Ni I	3	–	–
2208.606	Ca II	20	50	Cw
2208.60	Nd	–	20	–
2208.53	Sb	25	20	Sp
2208.522	Co I	12	–	–
2208.496	Ag II	–	25 wh	–
2208.46	Os	12	2	a
2208.27	Xe	–	[3]	Dj
2208.27	Os	10	15	–
2208.18	Mo	–	10	–
2208.088	Ir	40	3 wh	Ab
2208.010	Fe	5	–	–
2207.99	W	6	10	–
2207.980	Si I	18	15	Fl
2207.959	Zr	10	–	–
2207.92	Co II	–	30	–
2207.87	Co I	9	–	–
2207.87	Se	–	[10]	Bl
2207.80	Sb	4 h	3 h	–
2207.74	Ni I	4	–	–
2207.71	Re	20	4	a
2207.697	Co I	10	–	–
2207.64	Lu	–	2 h	Me
2207.63	V	–	35	–
2207.58	Tl	–	2	Sd
2207.570	Pt II	–	2	Sh
2207.48	Os	15	4	a
2207.47	Pd II	4	35	–
2207.44	Ni	–	3 h	–
2207.39	W	3	–	–
2207.35	Mo	–	10	–
2207.317	Ru	2	1	–
2207.177	Cb	3	10	–
2207.17	Te	50	–	Kh
2207.14	Ta	10	10 s	–
2207.068	Fe I	6	–	IMe
2207.00	Tl I	30 R	3	–
2206.96	Zr	–	2 h	–
2206.94	W	3	10	–
2206.88	Re	2 h	30	a
2206.84	Mo	–	18	–
2206.82	Lu	–	5 h	Me
2206.78	Re	4	2 h	a
2206.730	Pt II	–	20	–
2206.70	Ni II	20	30 h	–
2206.64	Rh	10	10	a
2206.632	Cb	–	5	–
2206.59	Hf	2	2 h	Me
2206.589	W II	10	15	–
2206.572	Fe II	–	6	–
2206.53	Ta	2	15	a
2206.450	Mo	3	18	–
2206.44	V	–	8	–
2206.35	Rh	–	80	–
2206.32	Pd	–	[4]	Bx
2206.31	Zr II	–	3 h	–
2206.27	Os	25	50	–
2206.19	Co II	4	–	–
2206.16	Re	3	12	a
2206.11	Hf II	10	10 h	Me
2206.10	N II	–	[15]	Fl
2206.08	W	6	10	–
2206.06	Rh	10	5	–
2206 06	Mo	–	7	–
2206.010	Cb	–	25 w	–
2205.97	As I	8	–	Me
2205.95	Ag II	–	50 wh	m
2205.93	U	–	5	–
2205 91	Ga	–	3	Kl
2205.89	Au II	–	10	–
2205.874	Co I	6	8	–
2205.74	Os	20	50	–
2205.71	V	–	2	–
2205.68	Ir	25	5	–
2205.53	Co II	–	15	–
2205.50	Pr	–	15	–
2205.49	W	–	6	–
2205.43	Re	4	8	a
2205.41	Pd II	–	[25]	Bx
2205.28	In II	–	[25]	Ps
2205.17	Os	15	–	a
2205.16	As I	5	–	Me
2205.122	Ir I	10	–	Ab
2205.07	Co II	–	15	–
2205.02	Rh	–	100	–
2204.961	Ir	5	300	–
2204.935	V I	3	–	–
2204.87	Mo	–	10	–
2204.85	Os	2	40	–
2204.80	Pd	–	[2]	Bx
2204.796	Co I	18	2	–
2204.627	Al	10 R	10	Gn
2204.613	Cb	5	–	–
2204.60	Lu	–	2 h	Me
2204.57	Re	15 wl	–	a
2204.55	Pd	–	[4]	Bx
2204.495	V	–	40	–
2204.48	W II	12	30	–
2204.40	Ag II	–	10 h	–
2204.18	Cd II	–	[2]	Tk
2204.12	I	–	[20]	Lc
2204.10	Ta	3	15	a
2204.08	Fe	2	–	–
2204.02	W	3	10	–
2203.91	Cr	–	5	–
2203.91	Os	25	5	a
2203.882	Pt II	–	20	–
2203.85	Hf II	3	3	Me
2203.79	W II	3	10	–
2203.75	Os	5	–	a
2203.72	N II	–	[3]	Fl
2203.68	Ir	–	25	–
2203.662	Ag II	–	20 h	–
2203.66	Sb	4	2	–
2203.660	V I	2	–	–
2203.630	Cb	15	40	–
2203.56	Nd	–	30	–
2203.55	Rh	15	50 w	a
2203.52	Ni	–	8 h	–
2203.505	Pb II	50 w	5000 R	–
2203.478	Pd II	–	25	–
2203.463	Fe	4	–	–
2203.43	Co II	–	3	–
2203.22	A	–	[2]	Rt
2203.18	Ce	–	20	a
2203.168	Cb	4	5	–
2203.13	Nd	–	10	–
2203.12	Bi	20 h	–	Om
2203.07	Yb	–	2	Me
2202.99	Hf II	3	3 h	Me
2202.98	Re	20	10	a
2202.957	Co II	3	30	–
2202.83	Bi	12	8	–
2202.77	A II	–	[2]	Rt
2202.724	V I	10	–	Me
2202.71	Rh	–	12	a
2202.68	Mg II	5	–	Fl
2202.582	Pt II	–	12 w	–
2202.50	V	–	60	–
2202.49	Os	25	5	a
2202.355	Pd II	–	40	–
2202.25	Cl	–	[12]	An
2202.240	In I	2	–	Ps
2202.22	Pt I	25	8	–
2202.10	Ag II	–	50 wh	–
2202.05	Xe	–	[2]	Dj
2202.03	Re	7	–	a
2202.007	Cb	3	5	Me
2202 011	Pt II	2	20	–
2201.97	W	2 h	10	–
2201.93	Os	25	3	a
2201.89	Rh	–	9	a
2201.75	Rh	2	4	a
2201.70	Re	7	7	a
2201.67	V	–	50	–
2201.67	Hf II	3	3	Me
2201.649	Zr I	6	–	–
2201.56	Ni I	7 h	–	–
2201 51	Cd	–	[2]	Tk
2201.41	Ni II	10	30	–
2201.408	Fe	–	2	Do
2201.40	Sb	40	25	m
2201.370	Cb	–	8	–
2201.35	Au	–	30	–
2201.35	Ti II	–	2	–
2201.289	Pt II	–	6	Sh
2201.235	Co I	4	–	–
2201.19	Yb	–	3	Me
2201.16	Ta	6	25	–
2201.117	Fe I	10	–	IMe
2201.08	Al	5 R	–	Hr
2201.02	Rh	–	30	–
2201.01	Pt	20	9	–
2200.96	Mo	3	15	–
2200.92	W	–	8	–
2200.89	K	–	[5]	Ml
2200.80	Os	10	12	a
2200.722	Fe I	35	8	I
2200.720	Ca I	20	–	–
2200.70	Ni I	10	2	–
2200.693	Co	80	–	–
2200.60	Mo	–	3	–
2200.57	Cu II	–	10	–
2200.46	Ta	3	2 h	a
2200.420	Co II	5	15	–
2200.39	Fe I	50 R	100	–
2200.31	Lu	–	6	Me
2200.28	Ru	8	–	a
2200.27	W	–	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2200.25	Mo	2 h	7	–
2200.174	V I	5	–	Me
2200.09	Pd	–	[2]	Bx
2199.961	Cb	4	15	–
2199.96	Rh	–	50	–
2199.84	Hf	4	4 h	Me
2199.81	Cd	–	[2]	Bl
2199.752	Cu I	20 R	5 h	IBu
2199.75	Fe	4	–	–
2199.740	Co	20	–	m
2199.70	Pt	15	18	–
2199.67	Ta	25	25	–
2199.594	Cb	3	4	–
2199.583	Cu I	50 R	20	IBu
2199.573	Fe	10	–	–
2199.57	Hf II	8	8 h	Me
2199.569	Al	5	–	Gn
2199.440	V	–	4	–
2199.43	Os	15	5	a
2199.40	Hf II	7	8	Me
2199.40	W	–	3	–
2199.34	Sn	30	60 R	–
2199.27	Ti	–	2	–
2199.17	Kr	–	[2]	Me
2199.15	W II	3	2	–
2199.05	Cb	–	3	–
2198.94	Re	40	10	a
2198.854	Ir	50	15	Ab
2198.80	S	–	[8]	Lc
2198.764	Co I	2	–	–
2198.701	Ge	10 R	2 h	–
2198.67	W II	6	12	–
2198.64	Re	8	2 h	a
2198.58	U	2	5	a
2198.525	V	–	12	–
2198.37	W	10	3	–
2198.34	As I	3	–	Me
2198.31	Cb	–	3 w	–
2198.300	Co II	3	10	–
2198.29	Rb	–	[5]	Fa
2198.240	Pd II	–	40	–
2198.16	Os	10	5	a
2198.14	Yb	–	20 h	Me
2198 14	Mo	2	20	–
2198 02	W II	3	3	–
2198.01	Rb	–	[5]	Fa
2198 00	V	–	40	–
2197.90	Lu	–	2	Me
2197.893	Pt II	–	25	–
2197.85	W	–	4	–
2197.83	Xe	–	[3]	Dj
2197 8	Ra II	–	[4]	Rs
2197.791	Ca II	20	40	Cw
2197.633	Co	5	–	–
2197.58	N II	–	[8]	Fl
2197.56	A	–	[10]	Rt
2197.509	W II	3	5	–
2197.50	Ir	5	100	–
2197.47	Mo	5	30	–
2197.46	Re	12	7	a
2197.41	Pd	–	20	–
2197.407	In I	2	1	Ps
2197.35	Ni I	20	–	–
2197.26	Mo	3	10	–
2197.25	Kr	–	[2]	Me
2197.230	Fe I	2	–	–
2197.14	Pd II	–	7	–
2197.08	W	8	3	a
2196.98	Lu	–	4	Me
2196.97	Mo	–	5	–
2196.916	Pt I	15	3	–
2196.904	Co	3	–	–
2196.9	bh C	30	–	L
2196.84	Cb	2	–	–
2196.78	W	3	6	–
2196.7	K	–	[10]	Sg
2196.56	V I	2	–	Me
2196.54	Lu	–	2	Me
2196.49	Os	8	–	a
2196.462	Co I	15	4	–
2196.44	Ir	5	50	–
2196.40	V I	5	2 wh	Me
2196.40	Cb	–	20	–
2196.30	V I	3	–	–
2196.29	Pd II	–	3	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2196.29	Ta	–	6	–
2196.07	Te	5	–	Kh
2196.039	Fe I	80 R	30	I
2196.03	Ta	25 l	35	–
2195.835	Pt	–	15	–
2195.83	La II	2 h	4	–
2195.82	Cb	3	–	–
2195.82	W	2 h	10	–
2195.78	Cb	–	8	–
2195.77	Cu II	–	30	–
2195.744	Ir I	25	–	Ab
2195.73	Ru	12	–	a
2195.72	Cb	–	2	–
2195.70	O II	–	[5]	Fl
2195.69	V	–	10	–
2195.67	In II	–	[2]	Ps
2195.665	Ga	2	3	Uh
2195.653	Cb	–	5 w	–
2195.62	Rh	1	10	a
2195.54	Lu	30	100	Me
2195.51	Pd I	10	–	–
2195.502	Al II	–	[2]	Sy
2195.48	Hg	–	[2]	Dj
2195.43	O II	–	[5]	Mh
2195.35	Cd	–	15	–
2195.28	Re	2 h	18	a
2195.25	Mo	–	7	–
2195.22	Rh	1 w	5	a
2195.10	V	–	2	Me
2195.0	bh C	20	–	L
2194.95	W	–	6	–
2194.95	Mo	–	8	–
2194.93	Cr	8	–	a
2194.85	Mn	–	12	a
2194.84	V	–	8	–
2194.80	Lu	–	7	Me
2194.79	U	2	15	–
2194.64	V I	5	–	–
2194.63	Cd	5	100 h	–
2194.612	Co	6	–	–
2194.56	Pd II	–	3 h	Sh
2194.52	W	10	15	–
2194.49	Sn	30 R	60	–
2194.42	Ru	12	–	a
2194.39	Os	40	100	–
2194.27	Ir	–	40	–
2194.251	Al II	–	[3]	Sy
2194.24	Pr	–	10	–
2194.11	Os	10	–	a
2193.91	Pd II	–	10	–
2193.89	Nd	–	25	–
2193.88	Ta	15	40	–
2193.86	Re	6	–	a
2193.83	V I	3	5	–
2193.803	Cb	5	2	–
2193.60	Co II	4	30	–
2193.564	Fe	2	–	–
2193.54	Re	6	7	a
2193.53	W II	–	8 wh	–
2193.47	Pd	–	[4]	Bx
2193.46	V	4	–	–
2193.411	Fe	8	–	–
2193.40	Yb	–	4 d	Me
2193.32	Os	9	2	a
2193.26	Pd II	–	15	–
2193.20	Ta	6	18	–
2193.18	Nd	–	20	–
2193.12	S	–	[15]	Lc
2193.08	Yb	–	2	Me
2193.03	W	10	12	–
2193.009	Cb	5	–	–
2192.91	V	–	10 w	–
2192.863	Zr I	3	–	–
2192.858	Ru	3	–	–
2192.842	Pt II	–	12	–
2192.82	Fe	5	–	–
2192.76	Zr	–	2	–
2192.607	Al II	–	[6]	Sy
2192.50	Pt	6	4	–
2192.49	Co II	2	25	–
2192.45	Re	12	–	a
2192.417	Cb	2	3	–
2192.40	W	3	3	–
2192.359	Ni II	–	8 h	–
2192 260	Cu II	25	500 h	IBu

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2192.22	Ir	–	25 w	–
2192.22	Si	–	[10]	Sy
2192.12	Ni	–	6 h	–
2192.099	W	–	6	–
2191.92	Pd II	–	[3]	Bx
2191.91	Kr	–	[2]	Me
2191.86	Ag	–	10	–
2191.838	Fe I	100 R	12	–
2191.79	Hf II	10	15	Me
2191.66	V I	3	–	–
2191.64	Ir	30	5	–
2191.62	Cr	2 h	15	–
2191.56	Ni I	2	–	–
2191.49	Re	30	2 h	a
2191.45	Mo	–	5	–
2191.44	O II	–	[5]	Mh
2191.39	S	–	[15]	Lc
2191.39	Mn	25	10	a
2191.37	C	–	6	Fl
2191.37	Lu	6	60	Me
2191 351	Ir I	12	5	–
2191 35	W	–	8	–
2191.27	Hf	5	5 h	Me
2191.24	Er	–	200 W	a
2191.202	Fe I	10	2	I
2191.19	Ni I	15	–	–
2191.10	V I	4	4	–
2190.969	Ni II	–	10	–
2190 96	Sb II	–	5	Sp
2190.95	W	–	3	–
2190.92	Rh	–	30	–
2190.835	In I	2	–	Ps
2190 786	W	–	2	–
2190 772	Fe	20	2	–
2190.77	Lu	–	4	Me
2190.77	Pt	8	–	–
2190.74	Hg II	–	[15]	Dj
2190.665	Co II	2	18	–
2190.66	O II	–	[5]	Fl
2190.63	Cd	–	[3]	Tk
2190.59	Ta	10	–	a
2190.57	Ni	–	8 h	–
2190.55	Re	25	5	a
2190.55	Pd II	–	[4]	Bx
2190.50	Cu II	–	2 h	–
2190.47	V	–	8	–
2190.45	Pd II	–	[7]	Bx
2190.43	Mo	–	10	–
2190.42	O II	–	[10]	Mh
2190.38	Ir	–	150	–
2190.315	Pt II	7	35	Sh
2190.23	Mo	3	6	a
2190.23	Ni I	20	3	–
2190.226	Co	3	–	–
2190.22	V	2	15	–
2190.22	Hf II	30	30	Me
2190.17	Pt I	20	–	–
2190.14	Ti II	2	15	–
2190.14	Lu	–	6	Me
2190.006	Mo	3	10	–
2190.0	K II	–	[40]	Ml
2189.94	V I	5	–	–
2189.89	Re	15	4	a
2189.88	Pr	–	5	a
2189.85	W	6	12	–
2189.74	Mo	–	4	–
2189.63	V I	–	2	–
2189.621	Cu II	12	40	IBu
2189.62	Si	–	[5]	Sy
2189.586	Bi I	25 h	5 h	Om
2189.54	Os	10	–	a
2189.51	W II	8	8	–
2189.42	Mo	4	30	–
2189.42	Yb	–	8	Me
2189.38	Fe I	4	–	–
2189.36	Cu II	–	2	Sh
2189.353	W II	5	5	–
2189.350	Co I	3	–	–
2189.29	S	–	[15]	Lc
2189.2	bh C	5	–	L
2189.20	O II	–	[5]	Mh
2189.197	W	4	4	–
2189.18	Fe	6	–	–
2189.032	Fe II	1	20	–
2189.00	Co II	3	10	–

Wavelength	Element	Intensities Arc	Spk.,[Dis]	R
2188.98	Au II	–	15	–
2188.97	Os	50	–	a
2188.95	Mo	4	15	–
2188.942	Cb	5	–	–
2188.88	Ni	–	4	–
2188.87	Hf	5	6 h	Me
2188.84	Cd	–	[2]	Bl
2188.754	Ru	3	1	–
2188.642	W	–	2	–
2188.64	Mo	–	7	–
2188.58	Re	7	–	a
2188.55	Cd II	–	[50]	Tk
2188.51	Re	7	–	a
2188.48	Ta	3	35	–
2188.367	W	–	5	–
2188.345	Pt	3	2	–
2188.25	Yb	–	5	Me
2188.23	Re	–	10	a
2188.16	Tm	5	4	Me
2188.141	Cb	–	8 w	–
2188.06	Os	12	5	a
2188.05	V I	3	3 wh	–
2188.049	Ni II	4	25	–
2188.03	Mo	–	18	–
2188.02	Re	12	–	a
2188.02	S	–	[15]	Lc
2187.95	V I	2	–	–
2187.876	Fe II	–	7	–
2187.87	La II	3	40	–
2187.85	Pb	50	3	–
2187.83	W II	–	3	–
2187.80	Cd	–	5	m
2187.76	Re	15	7	a
2187.75	As I	3	–	Me
2187.688	Fe II	–	12	–
2187.630	W	–	5	–
2187.62	Mo	–	8	–
2187.600	Ni I	4	–	–
2187.580	Rh	–	50 l	–
2187.51	Ti II	1	15	–
2187.45	Nd	–	15	–
2187.436	Fe II	–	8	–
2187.427	Ir I	20	20 w	Ab
2187.40	In I	2	1	Ps
2187.38	V I	3	–	–
2187.34	A	–	[20]	Rt
2187.284	Co	5	–	–
2187.26	Pr	–	7	a
2187.22	Te	5	–	Kh
2187.21	Ni	2	–	–
2187.191	Fe I	50 R	10	I
2187.04	Co II	2	7	–
2187.033	Cb	–	4	–
2186.99	Rh	–	25	a
2186.95	Cd	–	[5]	Tk
2186.94	Ni I	8	–	–
2186.93	V	–	10	–
2186.93	K	–	[40]	Ml
2186.920	Bi II	–	30	–
2186.890	Fe I	6	12	I
2186.786	Co	12	5	–
2186.768	Ag II	10	100	–
2186.733	W II	8	15	–
2186.62	He II	–	[2]	Ps
2186.485	Fe	50 R	80	–
2186.443	Ge	2	–	–
2186.36	Nd	–	3	–
2186.241	Fe I	5	–	–
2186.030	Co	3	–	–
2185.96	V	–	40	–
2185.93	Tm	2	20	Me
2185.872	Cb	1	5	Me
2185.757	W	3	12	–
2185.71	Er	30	–	a
2185.69	Yb	60	100	Me
2185.54	Au II	–	10	–
2185.52	Kr	–	[4]	Me
2185.498	Ni II	4	30	–
2185.42	Lu	–	2	Me
2185.413	W	–	10	–
2185.398	Cb	2	3 l	Me
2185.38	V	4	50	–
2185.21	Fe	3	–	–
2185.19	Re	10	3	a
2184.95	W	–	3 wh	–
2184.95	Hf II	6	6 h	Me
2184.950	Co I	10	–	–
2184.89	Mo	–	12	–
2184.89	V	–	3	–
2184.88	Mn	8	30	a
2184.80	Lu	–	6	Me
2184.795	Zr II	2	4 h	–
2184.78	Yb	–	2	Me
2184.68	Os	25	15	a
2184.66	Ir	–	15	–
2184.62	Nd	–	20	–
2184.606	Ni II	15	20 h	–
2184.55	Re	6	10	a
2184.53	V I	2	–	Me
2184.46	Fe	4	–	–
2184.39	V	–	3 h	–
2184.35	Mo	2	20	–
2184.34	Pd	–	[2]	Bx
2184.314	Co	8	–	–
2184.31	Hf II	6	8	Me
2184.235	W	12	8	–
2184.18	V	–	2	–
2184.179	W	4	6	–
2184.14	Os	25	6	a
2184.140	Pt II	–	3	Sh
2184.113	Au II	–	10	–
2183.979	Fe	20	–	IMe
2183.94	Os	10	5	a
2183.904	Ni I	10	–	–
2183.90	Tm	–	10	Me
2183.835	Fe	–	12	–
2183.790	W	–	7	–
2183.74	Re	25	–	a
2183.7	A	–	[20]	Rt
2183.69	Os	20	6	a
2183.61	Yb	–	3 h	Me
2183.60	Mo	–	7	–
2183.47	Fe	6	–	–
2183.378	Ni	10	2 h	–
2183.315	W	3	10	–
2183.3	A II	–	[40]	Rt
2183.29	Yb	–	7	Me
2183.27	I	–	[30]	Lc
2183.15	Hg	–	[2]	Dj
2183.08	V	–	3	–
2182.999	Ir	15	–	Ab
2182.97	Tm	–	15	Me
2182.94	As I	10	1	Me
2182.90	Cu II	–	8	–
2182.83	Ir	–	25	–
2182.80	Zr II	–	4 w	–
2182.78	V	–	3 w	–
2182.77	Pt I	20	12	–
2182.74	A II	–	[5 h]	Rt
2182.71	Ta	18	20 l	–
2182.64	O II	–	[15]	m
2182.64	Cd II	–	[3]	Tk
2182.587	Co I	15	–	–
2182.55	Yb	–	3 h	Me
2182.535	Mo	–	15	–
2182.4	K	–	[2]	Ml
2182.400	In I	2	1	Ps
2182.381	Co	2	–	–
2182.38	Fe	–	5 h	–
2182.37	Ni I	15	3	–
2182.349	Ir	15	15	Ab
2182 344	Pd II	–	30	–
2182.22	V I	30	5	–
2182.2	Rb	–	[5]	Fa
2182.096	W	–	6	–
2182.01	Rh	–	25	a
2182.00	Co	–	10	–
2181.98	Mo	–	6	–
2181.98	V I	5	–	–
2181.94	Hf	3	3 h	Me
2181.88	W	–	5	–
2181.85	Yb	–	2	Me
2181.81	Re	5	30	a
2181.72	Cu I	50 r	15	–
2181.719	Co II	80	8	–
2181.66	Pb II	6	–	–
2181.51	Yb	–	2	Me
2181.50	Os	25	5	a
2181.48	Zr	2	–	–
2181.41	Cu II	–	[4]	Sh
2181.39	Cd	–	[2]	Bl
2181.37	Mo	2 wh	20	–
2181.14	Fe I	2	–	–
2181.121	Co I	12	2	–
2181.04	Re	10	4 wh	a
2180.945	W	–	8	–
2180.87	Hg	–	[2]	Dj
2180.866	Fe I	8	–	IMe
2180.86	Pd II	–	5	–
2180.79	Lu	–	5	Me
2180.75	Cu II	3	[10]	–
2180.688	W II	10	4	–
2180.67	Pd II	–	7	–
2180.67	Ce	–	100	–
2180.667	Cb	–	10 w	–
2180.6	Rb	–	[2]	Fa
2180.60	Co II	–	6	–
2180.59	Ir	3	–	–
2180.49	Pt I	25	12	–
2180.475	W	5	10	–
2180.470	Ni II	4	40	–
2180.311	Pt	150	15	–
2180.26	Fe	2	–	–
2180.25	Mo	–	15	–
2180.24	Yb	–	7 h	Me
2180.22	Hf	2	2 h	Me
2180.065	Co I	10	–	–
2180.03	Mo	–	8	–
2179.992	Ni II	–	12	–
2179.90	In I	2 R	–	Ps
2179.631	W II	8	8	–
2179.60	Cs II	–	[15]	Rf
2179.54	Ta	6	20 l	a
2179.464	Ni II	4	8	–
2179.40	Pd II	–	9	–
2179.399	Cu II	12	35	lBu
2179.37	Si	–	[5]	Sy
2179.36	Mo	–	18	–
2179.350	Ni II	2	10	–
2179.257	Sb	35	40	–
2179.25	A II	–	[40]	Rt
2179.11	Re	15	4	a
2178.98	Ir	10	50	–
2178.96	Fe	8	–	–
2178.952	Co	25	–	–
2178.95	Rh	12	30	a
2178.944	Cu I	30 r	12	lBu
2178.90	Hf II	60	80	Me
2178.86	Zr	2	2	Ks
2178.812	W	–	10	–
2178.80	Yb	–	8 h	Me
2178.79	Re	–	12	a
2178.77	S	–	[8]	Lc
2178.72	W	–	12	–
2178.68	Os	5	–	a
2178.59	Re	12	3	a
2178.33	Nd	–	9	–
2178.27	Pd I, II	15	3	–
2178.227	Cb	3	–	–
2178.22	W II	–	2 h	–
2178.171	Ir I	25	5	–
2178.17	Os	8	–	a
2178.13	Te	10	–	Kh
2178.090	Fe I	100 R	20	–
2178.08	Cb	5	–	–
2178.03	Ta	15 s	35 s	a
2178.02	Lu	–	8	Me
2177.92	K	–	[10]	Ml
2177.87	Re	3	15	a
2177.86	Mo	–	4	–
2177.8	Ca I	2	–	Sd
2177.79	Kr	–	[2 h]	Me
2177.7	Hf	–	2	Md
2177.7	In	2	–	Uh
2177.61	Cs II	–	[2]	Rf
2177.59	Re	4 wh	12	a
2177.547	W II	4	12	–
2177.51	Mo	–	7	–
2177.50	Yb	–	5	Me
2177.360	Ni II	3	20	–
2177.3	Ra II	–	[12]	Rs
2177.30	Si I	8 W	–	Ks
2177.25	Cb	1	2 W	–
2177.24	V I	5	10	–
2177.210	Bi I	15	–	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2177.13	Rh	3	25 l	a
2177.12	W II	3	3 wh	–
2177.10	Os	10	4	a
2177.088	Ni II	3	20	–
2177.04	A	–	[20]	Rt
2177.037	Fe II	–	8	–
2177.02	V I	20	4	–
2176.968	Co	2	–	–
2176.93	Lu	–	4	Me
2176.9	Ga	–	6	Kl
2176.90	Pd II	–	25	–
2176.88	Cd II	–	[3]	Tk
2176.874	W	4	10	–
2176.872	Pt II	3	25	Sh
2176.837	Fe I	8	–	IMe
2176.762	Cb	8	30	–
2176.67	Os	15	3	a
2176.618	Bi I	20	4	Om
2176.516	Fe	–	8	–
2176.494	Co	4	–	–
2176.47	Nd	–	15	–
2176.46	Pt I	10	2	–
2176.419	W	2	12	–
2176.40	Fe	2	–	–
2176.33	Au I	15	–	Ml
2176.26	As I	8	–	Me
2176.23	Re	40	8	a
2176 22	Xe	–	[2]	Dj
2176.03	Fe	3	–	–
2175.890	Sb I	300	40	–
2175.843	Cb	5	25	–
2175.835	V	2	5	–
2175.83	Re	25	5	a
2175.82	Zr II	–	3 w	–
2175.579	Pb	40 w	–	–
2175.56	Mn	–	40	a
2175.551	Cb	5	–	–
2175.51	W II	6	3	–
2175.447	Fe I	8	25	Do
2175.40	Mo	–	5	–
2175.40	Hg	–	[2]	Dj
2175.38	Yb	–	3 h	Me
2175.36	Hf II	25	30	Me
2175.36	Re	10	3	a
2175.360	W	–	8	–
2175.245	Ir I	30	4	–
2175.156	Ni II	15	25	–
2175.12	K	–	[10]	Ml
2175.069	Be I	25	3	Ps
2175.014	Ir	–	50	–
2174.968	Cu II	3	40	Sh
2174.942	Be I	10	–	Ps
2174.93	Co II	–	2	–
2174.862	Fe II	–	8	–
2174.822	W	–	8	–
2174.77	Xe	–	[2]	Dj
2174.686	Fe	–	3	–
2174.67	Pt I	30	30	–
2174.669	Ni II	12	30	–
2174.66	Pd	4	–	–
2174.605	Co I	30 r	12	–
2174.54	Co II	15	25	–
2174.472	Ni I	10	–	–
2174.47	W	–	6	–
2174.28	Yb	4	10	Me
2174.24	Os	10	–	a
2174.14	C II	–	2	Fl
2174.14	Fe	4	–	–
2174.08	Mo	–	8	–
2174.03	Co	–	10	–
2174.028	Al I	8 R	10	Gn
2173.86	C II	–	6	Fl
2173.845	Co I	10	–	–
2173.83	Os	10	5 wh	a
2173.822	W II	3	9	–
2173.71	Fe	2	2	–
2173.606	Zr	4	–	–
2173.547	Ni I	15	–	–
2173.543	W II	10	15	–
2173.49	Os	10	12	a
2173.44	Hf II	15	20	Me
2173.4	bh C	30	–	L
2173.34	Co II	2	18	–
2173.34	Yb	2	5	Me
2173.211	Fe I	8	2	I
2173.173	Co	10	–	–
2173.15	V I	15	5	–
2173.04	Ta	2	4	a
2172.975	Fe II	3	10	–
2172.96	Hf II	5	5 h	Me
2172.93	I	–	[12]	Lc
2172.917	Mo	5	20	–
2172 911	Pd I	12	4	–
2172.89	W	–	8 w	–
2172.89	Co II	–	3	–
2172.84	Os	15	20	a
2172.77	Xe	–	[2]	Dj
2172.75	V	4	–	–
2172.581	Fe I	4	–	IMe
2172.58	Yb	–	2	Me
2172.51	Cu	–	5	–
2172.46	Mo	–	8	–
2172.388	Pt	2	25	Sh
2172.383	Pd II	–	20	–
2172.31	Os	5	20	a
2172 21	Ir	30	20	–
2172.195	W	–	8	–
2172.175	Co I	4	–	–
2172.143	Fe I	3	–	–
2172.13	Yb	–	3	Me
2172 07	Ta	4	12 l	a
2172.0	Rb	–	[2]	Fa
2171.9	Ga	2	–	Uh
2171.89	Hf II	6	6 h	Me
2171.846	V	–	12	–
2171.77	Rh	3	–	a
2171.768	W	3	8	–
2171.76	Cu I	30	–	–
2171.698	Ag II	–	10	–
2171.65	Os	20	5	a
2171.539	W	–	6	–
2171.41	A II	–	[60]	Rt
2171.292	Fe I	10	3	Bu
2171.09	Mo	–	3	–
2171.07	Hg II	–	2	Nu
2171.03	K	–	[5]	Ml
2171.0	In	2	–	Uh
2170.862	Ag II	–	30 h	–
2170 84	Re	6	12	a
2170.83	Kr	–	[2]	Me
2170.8	A II	–	[2]	Rt
2170.76	V I	25	2	–
2170.72	Pt	9	4	–
2170.69	Cb	4	4	–
2170.57	Mo	–	20	–
2170.565	Co I	10	–	–
2170.54	Fe	10	–	–
2170.48	S	–	[8]	Lc
2170.38	V	–	4	–
2170.37	Re	25	5	a
2170.23	Sb	2	8	Sp
2170.22	Hf II	20	30	Me
2170.07	V II	–	2 wh	–
2170.06	Ni	–	4	–
2170.046	Ir	10	3	Ab
2170.00	Er	8	–	a
2169.994	Pb I	1000 R	1000 R	Hz
2169 946	Fe	8	–	–
2169.941	W II	10	12	–
2169.9	Ra II	–	[125]	Rs
2169.895	Cb	–	5	–
2169 846	V	3	–	–
2169.81	Os	5	1	a
2169.77	Yb	–	5	Me
2169.76	Ir	–	3	–
2169.69	U	2	6	a
2169.61	Ni	–	2 h	–
2169.59	I	–	[100]	Lc
2169.57	Re	–	8	a
2169.563	Pt II	–	12	–
2169.55	V	–	3 h	–
2169.53	Cu I	30	–	–
2169.53	Os	10	–	a
2169.51	Mo	–	12	–
2169.48	W	15	5	a
2169.48	Pr	–	2 h	–
2169.42	Ir	2	50	–
2169.26	Pt	8	3	–
2169.10	Yb	–	7	Me
2169.100	Ni II	20	20	–
2168.805	Al I	8 R	12	Gn
2168.78	Re	10	–	a
2168.75	Mo	–	12	–
2168.75	Rh	4	3 w	a
2168.711	Co I	18	2	–
2168.61	Tl I	30 R	–	Fl
2168.591	W	2 h	8	–
2168.44	Re	12	15	a
2168.38	Fe	8	3	–
2168.298	W	10	8	–
2168.293	Mo	–	12	–
2168 09	V II	–	4	–
2168.09	Yb	–	3	Me
2168.05	Fe	8	–	–
2167.96	Re	40	12	a
2167 879	Fe II	–	10	–
2167.78	Zr	–	2	Ks
2167.75	Os	50	10	a
2167.74	Si I	7	–	Ks
2167.687	W	–	4	–
2167.68	V II	–	4	–
2167.65	Mo	–	12 l	–
2167.400	Fe	3	6	–
2167.322	Rh	–	80	–
2167 238	Cb	4	20	–
2167.19	W II	3	8	–
2167 122	Mo	–	10	–
2167 09	Os	10	2	a
2166.90	Os	20	10	a
2166.88	Te	100	–	Kh
2166.87	Cu II	–	2	–
2166.773	Fe I	100 R	35	–
2166.764	Co I	5	–	–
2166.63	Pt I	25	15	–
2166.506	Ag II	5	100 w	–
2166.5	Hf	–	2	Md
2166.48	Ir	–	3	–
2166.47	Os	10	2	a
2166.36	Pd	–	[3]	Bx
2166.319	W II	10	30	–
2166 31	Os	8	2	a
2166 28	Mg II	2	–	Fl
2166.27	S	–	[8]	Lc
2166.24	Hg	–	[2]	Dj
2166.22	Fe	4	–	–
2166.21	As	–	8	Ro
2166.18	V	–	10	–
2166.156	Ni I	10	–	–
2166.05	Os	20	2 wh	a
2166.048	Ag II	–	8	–
2165.96	Sr II	25 R	15	–
2165.949	Pt II	2	25	Sh
2165.860	Fe	20 h	1 h	I
2165.80	Mo	–	18	–
2165.559	Ni II	20	40 R	–
2165.54	Co	2	10	a
2165.53	Yb	–	3	Me
2165.52	As I	50 r	3	Me
2165.46	Re	3	18	a
2165.458	Pd II	–	15	Ml
2165.32	O	–	[10]	Mh
2165.29	Pd II	3	15	–
2165.27	W	–	7	–
2165.24	Zr II	–	3 w	Ks
2165.19	Os	40	5	a
2165.19	Yb	–	8 h	Me
2165.18	Pd II	–	25	–
2165.17	Pt I	1000 R	25	–
2165.17	Mo	–	25	–
2165.09	Cu I	60 R	25	–
2165.01	Ta	8	20	a
2164.90	V	3	–	–
2164.85	Os	25	50	–
2164.812	W	–	8	–
2164.8	Hf	–	2	Md
2164.6	Rb	–	[5]	Fa
2164.547	Fe I	2 h	2 h	IMe
2164.49	Os	25	3	a
2164.43	W	–	5	–
2164.39	Fe	8	–	–
2164.38	Kr	–	[4 h]	Me
2164.33	Lu	–	15	Me
2164.325	Fe II	2	12	Do
2164.288	Pt	20	4	–
2164.27	Cb	–	2 w	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2164.17	A	–	[100]	Rt
2164.160	Se I	–	[100]	Rd
2164.098	Bi	20	2	Om
2163.895	W	12	25	–
2163.87	Yb	–	10	Me
2163.860	Fe I	8	1	IMe
2163.78	Si I	10 w	–	Ks
2163.70	Ir	–	10	–
2163.68	V	–	5 h	–
2163.66	La	3	20 hl	Me
2163.644	Mo	–	10	–
2163.60	C	–	30	Fl
2163.574	Co I	12	3	–
2163.366	Fe	12	–	I
2163.314	Ir	20	10	–
2163.31	K	–	[2]	Ml
2163.178	Rh	–	50	–
2163.10	Re	20	2 h	a
2163.072	Cb	3	5	–
2163.034	Co I	15	–	–
2162.94	Cd II	–	[3]	Tk
2162.92	Ir	–	30	–
2162.88	O	–	[25]	Mh
2162.88	Ir	25	1	–
2162.83	Re	10 w	3 h	a
2162.74	A	–	[60 h]	Rt
2162.69	Ti II	4	20	–
2162.6	bh C	30	–	L
2162.49	Cr	18	–	–
2162.48	Hf II	15	15	Me
2162.362	W	–	7	–
2162.28	Os	10	1	a
2162.271	Pd II	3	40	–
2162.24	Fe	10 h	–	–
2162.196	Co I	6	–	–
2162.022	Fe I, II	5	25	–
2161.94	Ag	–	15	–
2161.93	Cl	–	[10]	Jv
2161.61	Hf II	10	10 h	Me
2161.60	Yb	100	250	Me
2161.577	Fe I	6	–	IMe
2161.53	Cb	4	–	–
2161.50	V	–	4	–
2161.38	Ir	15	25	–
2161.36	La II	2 h	4	Me
2161.314	Cu II	–	40	Sh
2161.275	Be II	–	[2]	Ps
2161.224	Ni II	10	30	–
2161.158	Fe II	–	12	–
2161.05	Mo	–	25 l	–
2161.03	Ni I	15	1	–
2161.02	Ir	15	3	–
2161.00	Os	50	1	a
2160.91	W	–	30	–
2160.74	Ir	10	50	–
2160.5	Be	–	2	Md
2160.48	W	–	9	–
2160.44	Re	12	7	a
2160.272	Cb	5	50	–
2160.27	Yb	–	10 h	Me
2160.24	Fe	2	–	–
2160.233	Zr	5	–	–
2160.02	Ir	10	10 w	a
2159.98	Os	60	5	a
2159.95	W II	6	10	–
2159.94	Zr	1	2 w	–
2159.91	Lu	–	2	Me
2159.893	Fe I	12	2	–
2159.88	Yb	–	3 h	Me
2159.79	Te I	100	–	Ml
2159.650	Fe I	8	3	–
2159.526	Ti II	3	10	–
2159.52	Os	60	–	a
2159.52	Pb	15	–	–
2159.48	W	–	8	–
2159.420	Fe I	3	–	–
2159.381	Ir	2	–	Ab
2159.26	Sb	15	10	Wt
2159.20	Re	5	3	a
2159.19	Zr	–	3	Ks
2159.15	Fe	4	–	–
2159.085	Ti II	4	20	–
2159.02	Kr	–	[2 h]	Me
2159.0	A II	–	[60 h]	Rt
2158.97	Sb	20	10	Wt
2158.95	Ag II	–	4 h	–
2158.920	Fe I	6	–	–
2158.79	Yb	–	4	Me
2158.76	Re	12	–	a
2158.739	Ni II	10	20	–
2158.61	U	–	20	a
2158.542	Co I	10	–	–
2158.53	Os	50	25	a
2158.48	Fe I	12	8	–
2158.41	Cu II	–	3	–
2158.4	In	–	2	–
2158.40	Ir	5	10	–
2158.312	Ni I	15 r	4	–
2158.29	Ti II	3	10	–
2158.194	Rh	–	20	–
2158.18	Co II	–	2	–
2158.133	Cb	5	10	–
2158.12	Hf	15	15 h	Me
2158.05	Ir	50	50	–
2158.04	Lu	–	2	Me
2158.04	Os	3	25	a
2157.96	Zr	1	2 w	–
2157.87	Yb	–	3 h	Me
2157.84	Os	30	4	a
2157.83	Ni I	12	2	–
2157.792	Fe I	10	4	I
2157.51	Cb	–	2	–
2157.425	W	–	8	–
2157.278	Pt II	–	12	–
2157.27	Cb	–	5	–
2157.08	Os	25	3	a
2157.06	Zn	–	[2]	Vs
2157.06	V	–	2 w	–
2157.02	Mo	–	9	–
2157.0	In	–	2	–
2156.949	Bi	75 R	–	Om
2156.94	Co II	4	10	–
2156.88	Os	4	20	a
2156.80	Ti II	2	10	–
2156.79	Yb	–	2	Me
2156.73	Lu	–	4	Me
2156 730	Cb	8	20	–
2156.71	Re	30	8	a
2156.69	Co II	–	3	–
2156.688	W	–	6	–
2156.51	Yb	–	3	Me
2156 51	Ta	3	8	a
2156 47	Fe	20	–	–
2156.44	Hf II	25	25	Me
2156.42	W	5	25	–
2156.31	Os	50	3	a
2156.27	Tm	–	5	Me
2156.26	Cb	–	4 w	–
2155.99	Ir	4	5	–
2155 92	Lu	–	3	Me
2155 91	Pd	–	[2]	Bx
2155.81	Fe	5	–	–
2155.81	Ir	25	10	–
2155 79	Os	40	2	a
2155 70	Cd II	–	[30]	Tk
2155 64	Fe	8	–	–
2155 623	Cb	5	25	–
2155.59	Ti II	3	15	–
2155 51	Yb	–	40	Me
2155 3	K	–	[20]	Ml
2155 30	Re	3	5	a
2155 26	W II	–	2	–
2155.242	Fe I	3	–	–
2155.18	Yb	–	7	Me
2155.14	Cb	–	2 w	–
2155.08	Ta	12	18	a
2155.020	Fe I	4	–	–
2154.83	Os	10	–	a
2154.81	In	–	2	Sd
2154.73	Cb	3	–	–
2154.72	Hg	–	[2]	Dj
2154.70	Ti II	3	60	–
2154.66	Hf II	4	4 h	Me
2154.59	Nd	–	3	–
2154.59	Os	25	10	a
2154.59	Ir	–	30	–
2154.458	Fe	15	–	IMe
2154.36	Lu	–	7	Me
2154.25	Re	10	–	a
2154.21	Ta	6	15	a
2154.203	Cb	5	12	–
2154.188	Fe I	3	–	IMe
2154.18	Ir	15	5	–
2154.16	Yb	–	80 h	Me
2154.081	P I	15	[25]	Ri
2154.074	Co I	10	–	–
2154.02	Mo	–	6	–
2154.02	Ir	10	2	a
2153.97	Cr	–	2 h	–
2153.94	U	2	6	a
2153.886	W	5	12	–
2153.65	Cb	–	2	–
2153.63	Os	10	1	a
2153.559	W	10	12	–
2153.55	Pt I	25	8	–
2153.547	Cb	3	1	–
2153.532	Bi	40 wh	–	Om
2153.38	Pt	5	–	–
2153.36	Mo	–	10	–
2153.32	Re	15	2	a
2153.30	Cb	–	3 w	–
2153.13	W II	–	8 w	–
2153.004	Fe I	10	1	IMe
2152.950	P I	12	[25]	Ri
2152.914	Bi	50 R	–	Om
2152.89	Zr II	–	3 w	–
2152.84	Sr II	15	15	–
2152.75	Pd II	–	30	–
2152.68	Ir	50	200	–
2152 67	Pt	2	–	–
2152.6	A II	–	[60 h]	Rt
2152.551	W	–	5	–
2152.55	Cb	–	2 w	–
2152.5	Sn	30	–	Ml
2152.50	Mo	–	12	–
2152.32	Yb	3	10 h	Me
2152 24	Fe	8	–	–
2152.22	Ni I	10	1	–
2152.22	Sn II	–	[100]	Mc
2152.148	Co I	10	–	–
2152.140	W	3	20	–
2152.08	Pt I	20	10	–
2152 06	Cb	–	5	–
2152 01	Tl I	5 R	–	Fl
2151.922	Ni I	10	–	–
2151 897	Fe	5	–	–
2151.818	V II	–	50	–
2151.801	Cu II	–	30	Sh
2151.77	Re	7	–	a
2151.76	Fe	–	5 h	–
2151.70	Fe	20	–	–
2151.62	Ir	2 w	80	–
2151.48	Sn II	–	10	–
2151 39	Ta	10	12	a
2151 20	Yb	–	2 h	Me
2151.099	Fe I	8	10	IMe
2151.06	Cd	–	[3]	Tk
2151.056	V II	–	40	–
2151.05	Zr II	–	5	–
2151.02	Pd	10	–	–
2151 01	Ta	5	–	a
2150.85	Re	–	12	a
2150.84	Sn	–	5	–
2150.840	V II	–	40	–
2150.78	Ca I	10	–	Cw
2150.648	Pt	15	8	–
2150 625	Fe II	–	15	–
2150.62	Ta	12	25	a
2150.6	bh C	30	–	L
2150.59	Al I	5	–	Gn
2150.54	Ir	20	4 h	–
2150.45	Yb	–	3	Me
2150.43	Si I	5	–	Ks
2150.42	Os	5	15	a
2150.30	Hf	10	10 h	Me
2150.231	Pt II	3	25	–
2150.182	Fe I	8	2 h	IMe
2150.13	Os	10	2	a
2150.07	Hf II	5	5	Me
2149.97	Os	15	10	a
2149.86	Hf	6	6 h	Me
2149.81	Os	10	2	a
2149.77	Mo	–	9	–
2149.703	Pt II	–	20	–
2149.63	Re	2 h	7	a

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2149.62	Fe	2	–	–
2149.535	Cb	10	20	–
2149.43	Yb	–	3	Me
2149.42	K	–	[10]	Ml
2149.392	V II	–	7	–
2149.31	Sn II	–	[3]	Mc
2149.21	Ag	–	8	–
2149.20	Os	–	10	a
2149.17	Fe	10	–	–
2149.15	Zr	4	–	–
2149.147	W	3	10	–
2149.13	Pd	–	30	–
2149.108	P I	15	[25]	Ri
2149.03	Cb	–	2	–
2148.974	Cu II	15	25	IBu
2148.97	Ir	10	–	a
2148.96	Cd	–	[2]	Tk
2148.92	Yb	–	10	Me
2148.850	W	–	8	–
2148.74	Sn I	50 R	20	–
2148.720	Cb	5	–	–
2148.708	Co I	6	–	–
2148.646	Cb	8	15	–
2148.62	Os	3	15	a
2148.50	Fe	5	–	–
2148.49	Yb	–	4	Me
2148.420	V II	5	35	–
2148.394	Fe I	3	–	–
2148.28	Pd II	–	25	–
2148.27	Os	7	–	a
2148.22	Ir	25	50	–
2148.15	A	–	[5]	Rt
2148.15	Zn II	–	[50]	Vs
2148.07	Yb	–	8	Me
2148.07	Mn	–	10	a
2148.04	Te	–	[15]	Lc
2148.003	Hg II	–	[60]	Ps
2147.99	V	–	3	–
2147.99	Re	10	–	a
2147.984	W	–	4	–
2147.97	Tm	5	3	Me
2147.96	Pd	–	18	–
2147.91	Si I	3	–	Ks
2147.803	Ni I	15	8	–
2147.80	Mo	–	10	a
2147.787	Fe	8	–	IMe
2147.76	Cd	–	[2]	Tk
2147.74	Ir	2	10	a
2147.66	Mo	–	5	–
2147.60	V	3 wh	–	–
2147.59	Lu	–	2 h	Me
2147.52	Re	9	2 h	a
2147.51	Mo	–	7	a
2147.50	Yb	–	3 h	Me
2147.46	As	–	12	Ro
2147.46	V II	2	100	–
2147.39	Co II	–	2	–
2147.39	Pt	6	–	–
2147.36	Os	5	8 d	a
2147.27	Os	2	8 d	a
2147.194	Cb	10	20	–
2147.19	Te I	–	[150]	Ml
2147.19	Se	–	[12]	Rd
2147.04	Fe	8	–	–
2146.98	Cu II	–	15	–
2146.97	Co II	–	10	–
2146.90	W	–	8	–
2146.87	Ta	10	40	a
2146.75	Cs II	–	[15]	Rf
2146.71	Fe	2	–	–
2146.70	Pd II	–	8	–
2146.62	V I	3	–	–
2146.46	Yb	–	3	Me
2146.368	Cb	–	15 w	–
2146.361	W	–	4	–
2146.264	Co I	12	6	–
2146.167	W	4	8	–
2146.14	Cb	–	3 wh	Me
2146.04	Fe	1	10	–
2145.991	V II	5	40	–
2145.92	Re	6	15	a
2145.81	Ta	–	12 h	a
2145.80	Ag II	–	5 h	–
2145.777	W	–	12	–
2145.71	Re	6	8	a
2145.61	Ag II	8	150	–
2145.50	Cu II	–	12	–
2145.45	Co	12	–	–
2145.45	Mo	–	12	–
2145.44	Re	–	12	a
2145.41	Ta	–	18	a
2145 39	W	–	3	–
2145 39	Al I	5	–	Gn
2145.26	Os	10	–	a
2145.188	Fe I	12	2	IMe
2145.18	Ni I	8	10	–
2145.08	Kr II	–	[10]	Me
2145.04	Sb	20	20	Wt
2145.04	Cd	–	[20]	Bl
2145.026	Pt	12	4	–
2144.80	Cb	1 wh	4	–
2144.80	Mn	–	10	a
2144.74	Yb	–	30	Me
2144.73	Cu II	1 h	3	–
2144.73	Hf II	3	3 h	Me
2144.67	Hg	–	[5]	Dj
2144.58	Ir	–	15	a
2144.5	K	–	[18]	Sq
2144.50	W	8	10	–
2144.492	Cb	4	2	–
2144.45	Fe	25	–	–
2144.41	Bi	–	5	Om
2144.382	Cd II	50	200 R	Hz
2144.28	Ir	10	3	–
2144.25	Pd	2	25	–
2144.231	Pt I, II	35	100	–
2144.20	Cb	–	10 w	–
2144.17	Hf II	6	6 h	Me
2144.11	Re	3	12	a
2144.10	As I	50 r	–	Me
2144.090	W	10	10	–
2144 07	Mo	–	20	–
2144 07	Ir	–	5	–
2144.01	Zr II	–	3 w	Ks
2143.97	Rh	–	25	a
2143.90	Fe	8	–	–
2143.86	Yb	–	4	Me
2143 84	Lu	–	3	Me
2143.713	V II	3	4	–
2143.679	Co I	3	–	–
2143.65	Ta	2	5	a
2143.61	Ti	5	–	–
2143 54	Te	–	[25]	Lc
2143.48	Re	7	2	a
2143.46	Bi II	–	12	Ml
2143.42	Yb	–	5	Me
2143.40	Bi II	–	12	Ml
2143 35	Bi II	–	8	Ml
2143.25	Mo	2 h	15	–
2143.23	Os	12	3	a
2143.21	Cb	4	6	–
2143.20	Ir	–	8	a
2143.16	Ta	–	30	a
2143.047	V II	10	50	–
2143.00	Re	10	4	a
2142.91	Cb	1 h	6	–
2142.89	Pr	–	30	–
2142.82	Ir	3	1	–
2142.81	La	2 h	18 hl	Me
2142.78	Re	10	15	a
2142.75	Te I	600	–	Ml
2142.74	V II	–	3	–
2142.73	Os	4	3	a
2142.57	Pd	3	–	a
2142.53	Ta	8 h	20 s	a
2142.511	W	3	8	–
2142.499	Pt II	2	12	Sh
2142.44	Mo	–	10	–
2142.43	V II	–	4	–
2142.38	Os	4	–	a
2142.28	Rh	3	3	a
2142.25	Ir	20	10	–
2142.22	Mo	–	12	–
2142.18	Yb	–	4	Me
2142.13	Pd I	15	–	–
2142.13	Os	–	5 s	a
2142.02	Cb	2	6	–
2141.980	V II	10	80	–
2141.84	Hf II	20	20	Me
2141.78	Re	10	4	a
2141.76	Sb	30	30	Wt
2141.715	Fe I	8	–	IMe
2141.70	V	–	3	–
2141.67	Yb	–	5	Me
2141.65	Ir	1 h	4	a
2141.50	Ta	3	35	a
2141.471	Fe	10	–	–
2141.43	Zr	1 h	2	–
2141.37	Mo	–	6	–
2141.30	Pd II	–	5 h	–
2141.26	Os	4	–	a
2141.166	Pt II	–	15	–
2141.13	Hg	–	[5 h]	Dj
2141.11	Ir	5 w	–	a
2141.10	Os	8	–	a
2141.08	Fe I	2	8	–
2141.0	K	–	[2]	Ml
2141.00	Yb	–	10	Me
2140.95	Re	12	–	a
2140.88	Ru	12	–	a
2140.70	Re	–	8	a
2140.69	Pd	2 h	3	–
2140.67	Cu I	4	–	–
2140.53	Ir	3	10	a
2140.49	K	–	[2]	Ml
2140.46	Ta	–	4	a
2140.41	Yb	–	2	Me
2140.39	Cb	5	10	–
2140.26	Pd II	–	30	–
2140.13	Ta	12	30	a
2140.09	Ni	2	–	–
2140.087	V II	10	80	–
2140.08	Sn	–	2	Ar
2140.08	Ir	5	–	a
2140.06	W	–	8	–
2140.03	Rh	–	5	a
2140.01	A	–	[10]	Rt
2139.98	Tl	–	10	Sd
2139.97	Os	3	–	a
2139.96	Yb	–	25	Me
2139.93	Fe I	4	–	–
2139.821	V II	5	25	–
2139.78	Ir	–	15	a
2139.76	Sb	30	30	Wt
2139.76	Rh	–	5	a
2139.695	Fe I	8	8	IMe
2139.64	W II	12	–	–
2139.56	Ir	4	–	a
2139.48	Re	–	3	a
2139.44	Mo	2	12	–
2139.43	Rh	–	100	a
2139.30	W	–	5 wh	–
2139.29	Tl	–	3	–
2139.25	Yb	–	2	Me
2139.25	Ti II	1	2	–
2139.24	Hf II	30	40	Me
2139.22	Ir	4	–	a
2139.2	A	–	[5]	Rt
2139.19	Lu	–	6	Me
2139.17	Os	–	9	a
2139.16	W II	6	12	–
2139.15	Re	18	–	a
2139.15	Cr	–	18	a
2139.06	Ni II	–	3	–
2139.06	Re	–	20	a
2138.971	Co I	15	–	–
2138.88	Cb	2	8	–
2138.75	Os	3	1	a
2138.66	Rh	–	25	a
2138.61	Os	8	–	a
2138.589	Fe I	8	–	IMe
2138.58	Ni II	10	15	–
2138.57	Ir	15	–	a
2138.56	Zn I	800 R	500	Hz
2138.552	Cb	2	–	Me
2138.53	As	2	–	Ro
2138.507	Cu I	25 wh	–	–
2138.40	Os	3	4	a
2138.32	Yb	–	10	Me
2138.25	Hg	–	[5]	Dj
2138.16	V II	8	50	–
2138.15	W II	10	25	–
2138.05	Ni II	–	5	–
2138 01	Fe	2	3	–
2137.94	Os	8	–	a

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2137.93	C II	–	6	Fl
2137.780	Co I	15	2	–
2137.77	Re	–	8	a
2137.71	Yb	–	15	Me
2137.684	Zr II	10	6	–
2137.652	W II	3	3	–
2137.62	Rh	–	5	a
2137.56	K	–	[30]	Ml
2137.56	Re	7	–	a
2137.545	Cb	5	40	–
2137.52	Yb	–	9	Me
2137.5	bh C	20	–	L
2137.45	C II	–	2	Fl
2137.35	Rh	–	5	a
2137.31	V II	10	80	–
2137.24	Pd II	–	40	–
2137.22	Hf II	6	6	Me
2137.2	A	–	[40]	Rt
2137.19	Ta	2	10 l	a
2137.15	W	4	12	a
2137.11	Os	100	30	a
2137.11	Sb	12	8	Wt
2137.054	Cb	5	30	–
2137.02	Ir	8	–	a
2136.81	Os	6	–	a
2136.73	Re	–	8	a
2136.70	Tm	–	5	Me
2136.69	Os	20	1 h	a
2136.66	Pr	–	30	a
2136.49	Co II	–	2	–
2136.46	Zn	–	[10]	Bl
2136.37	Ta	12	10	a
2136.33	Yb	–	2	Me
2136.31	Rh	2	20 s	a
2136.199	P I	15	[25]	Ri
2136.19	Fe	2	–	–
2136.17	Zr I	5	–	–
2136.06	Mo	–	8	–
2135.976	Cu II	25	500 w	lBu
2135.957	Fe	10	5	lMe
2135.90	Si	–	[5]	Sy
2135.798	Co	4	–	–
2135.75	Re	–	6	a
2135.72	Ti II	1	3	–
2135.646	Pd II	–	25	–
2135.59	Co I	3	–	–
2135.466	P I	12	[20]	Ri
2135.46	Ta	–	6	a
2135.335	Ni I	10	–	–
2135.22	Yb	–	20 h	Me
2135.22	Ta	–	6	a
2135.18	Lu	–	5	Me
2135.15	Pt	12	9	–
2135.14	Ir	5	1 h	a
2135.10	Fe	2	–	–
2135.08	Re	10	–	a
2135.078	Pd II	–	25	–
2135.038	W	–	20	–
2134.99	Mo	–	7	–
2134.98	Yb	–	3 h	Me
2134.950	Cb	2	18	–
2134.928	Ni I	12	2	–
2134.86	Pd II	–	12	–
2134.84	Ti II	–	3	–
2134.80	Ta	2	2 h	a
2134.709	Cb	12	18	–
2134.70	Al I	5	–	Gn
2134.68	Ir	4	–	a
2134.67	W	–	2 h	–
2134.66	Os	10	2	a
2134.62	Pt	12	3	–
2134.53	Hf II	15	20	Me
2134.492	Cb	6	12	–
2134.42	Rh	5	–	a
2134.38	Os	–	8	a
2134.355	Cu II	30	40	lBu
2134.308	Bi I	100 R	5 h	Om
2134.28	Ni II	2	10	–
2134.25	Cu	3 h	–	–
2134.12	V II	30	125	–
2134.061	W	4	12	–
2133.85	Kr II	–	[2]	Me
2133.83	Re	2 h	12	a
2133.81	As I	18	–	Me
2133.72	Ir	4	18	a
2133.66	Yb	–	4 h	Me
2133.66	Ti II	–	2	–
2133.626	Bi I	100 W	40	–
2133.58	Os	3	5	a
2133.46	Co II	2	4	–
2133.42	Re	10	–	a
2133.37	Mo	2 h	15	–
2133.37	Ir	4	3 h	a
2133.36	Hf	4	4 h	Me
2133.34	Yb	–	3	Me
2133.32	Ti II	–	2	–
2133.31	Os	3	2	a
2133.31	Fe	4	–	–
2133.30	Pd II	3	2	–
2133.282	Zr II	5	6	–
2133.17	Yb	–	3	Me
2133.15	Re	3	7	a
2133.06	Mo	–	15	–
2133.05	V	–	50	–
2132.95	Ir	5	2	–
2132.91	V	3 w	–	–
2132.88	Ta	2	25 s	a
2132.83	Cb	–	12	–
2132.81	W	–	6	a
2132.8	K	–	[10]	Ml
2132.767	Co	10	3	–
2132.67	Os	10	3	a
2132.56	Ir	3	80	–
2132.49	Os	2	10	a
2132.46	Pt I	5	–	–
2132.33	Rh	3	4 w	a
2132.31	Lu	–	5	Me
2132.29	Ir	4 w	–	a
2132.28	Hf II	9	10	Me
2132.27	W	–	10	–
2132.26	Os	10	2	a
2132.20	Ti II	–	2	–
2132.015	Fe I	12	3	lMe
2131.99	O II	–	[25]	Mh
2131.87	Mo	–	12	–
2131.84	V II	–	25	–
2131.79	Ta	12	35	a
2131.76	O II	–	[25]	Mh
2131.71	Yb	–	2 h	Me
2131.66	Lu	–	6	Me
2131.66	Ir	–	50	–
2131.48	Os	4	25	a
2131.39	Er	7	2 h	a
2131.38	W	–	4	–
2131.37	Yb	10	20	Me
2131.33	Ir	5	5	a
2131.31	Mn	2	2	a
2131.266	Ni II	8	20 h	–
2131.23	Cu II	–	2	Sh
2131.180	Cb	12	40	–
2131.13	U	2	2	a
2131.07	Pt	3	–	–
2131.052	Co I	3	–	–
2131.04	Ni II	–	10	–
2131.04	Ir	5	2 w	a
2131.0	Ra II	–	[18]	Rs
2131.0	A	–	[2]	Rt
2131.00	Ta	8	–	a
2130.962	Fe	20	–	lMe
2130.761	Cu I	25	3	–
2130.75	K	–	[20]	Ml
2130.689	Pt II	4	30	Sh
2130.677	Pd I	6	–	–
2130.65	Pr	–	8	–
2130.61	W	–	10	–
2130.58	Os	10	2	a
2130.55	Kr	–	[2]	Me
2130.54	Re	25	7	a
2130.48	Ta	5	8	a
2130.45	Ir	5	80	–
2130.43	Kr	–	[2]	Me
2130.43	V II	–	5	–
2130.42	Fe	5	–	–
2130.40	Tm	–	10 h	Me
2130.276	Co I	8	–	–
2130.26	Rh	4	5	a
2130.25	Cb	–	8	–
2130.18	Re	7	–	a
2130.16	Ti II	–	3	–
2130.09	Hf	8	8 h	Me
2130.09	Ir	4	–	a
2129.95	V	–	2 w	–
2129.95	Ni I	15	3	–
2129.93	Zr	–	2	Ks
2129.86	Mn	3	10	a
2129.85	Ir	10	5 wh	a
2129.70	Cb	1	4	–
2129.64	Yb	–	4 h	Me
2129.64	Re	2	12	a
2129.508	Co I	5	–	–
2129.48	Au I	6	–	–
2129.48	Os	3	3	a
2129.469	V II	5	35	–
2129.46	Ir	4	10	a
2129.44	Al I	5	–	Gn
2129.33	Tl I	5 R	–	Fl
2129.28	Rh	3	35	a
2129.22	Ta	10	15	a
2129.14	Ni II	–	4	–
2129.12	Cd II	–	[10]	Tk
2129.12	Ag II	–	10	–
2129.10	Hf II	60	100	Me
2129.02	Cb	1	3	–
2128.92	Os	5	–	a
2128.9	K	–	[20]	Ml
2128.82	Yb	–	2	Me
2128.80	Re	12	4	a
2128.78	Os	8	10 l	a
2128.67	Re	7	–	a
2128.63	Mo	–	15	–
2128.62	Ir	2	5	a
2128.61	Pt I	30	25	–
2128.6	bh C	5	–	L
2128.57	Ni II	5	30	–
2128.41	Ni I	15	–	–
2128.39	Lu	–	5	Me
2128.28	Os	–	5	a
2128.241	V II	2	10	Me
2128.23	Cb	–	2	–
2128.14	Cb	–	3	–
2128.07	Er	–	250 w	a
2127.97	Os	5	50	a
2127.95	W	2	4 wh	–
2127.94	Ir	20	15	–
2127.91	Ni	15	–	–
2127.87	Fe	5	–	–
2127.77	Ni II	–	20	–
2127.71	Re	4	–	a
2127.56	Ta	8	–	a
2127.52	Ir	15	–	–
2127.50	Hf	5	5 h	Me
2127.46	Sb	25	15	Wt
2127.43	Lu	–	4	Me
2127.43	W	2 h	12	–
2127.417	Pt II	2	25	–
2127.37	V II	–	5	–
2127.26	Mo	3	15	–
2127.26	Ir	5	8	a
2127.25	K	–	[20]	Ml
2127.147	Co I	10	–	–
2127.13	Cd	–	[2]	Tk
2127.03	Tm	–	8 h	Me
2126.935	V II	3	10	–
2126.85	Re	30	7 wh	a
2126.81	S	–	[15]	Lc
2126.81	Ir	25	200	–
2126.80	Ni II	2	25 w	–
2126.78	Ta	2	5	a
2126.73	Re	8	–	a
2126.72	Yb	40	200	Me
2126.67	Ta	2	10	a
2126.652	Pd II	–	20	–
2126.644	Au I	6	–	–
2126.61	Hf	7	8 h	Me
2126.583	V	–	15 w	–
2126.543	Cb	15	50	–
2126.535	Zr	–	2	–
2126.47	Re	10	2 h	a
2126.37	Be I	10	–	Ps
2126.34	Ta	–	8	a
2126.24	Ir	4	–	a
2126.199	Co I	5	–	–
2126.09	Ti	5	–	–
2126.06	Rh	2	5	a
2126.028	Cu II	15	35	lBu

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2125.97	Ir	5	–	a
2125.949	Co	5	–	–
2125.91	Mo	2 h	30	–
2125.90	Ni II	4	25	–
2125.86	Co II	–	2	–
2125.83	V	4	–	–
2125.8	Be	–	10	Md
2125.66	Cd II	–	[3]	Tk
2125.62	Ni I	15	2	–
2125.56	Kr	–	[2]	Me
2125.52	Ag II	–	25 wh	–
2125.44	Ir	25	10	a
2125.40	S	–	[15]	Lc
2125.37	Rh	–	30	a
2125.34	Au	–	30	–
2125.34	Os	25	4	a
2125.322	Co I	5	–	–
2125.24	Cu II	–	4	–
2125.21	Re	2 h	10	a
2125.206	Cb	15	40	–
2125.15	Ir	4	6	a
2125.148	Zr	3	2 wl	–
2125.116	Co	10	–	–
2125.11	Ni II	4	25	–
2125.098	Cu II	–	20	Sh
2125.04	Ce	–	10 w	a
2125.01	Fe	30	–	–
2124.82	Os	5	–	a
2124.82	Mo	2 h	15	–
2124.818	Pd	2 h	9	–
2124.81	Ni I	25	3	–
2124.75	Ge	3	–	–
2124.73	Ru	4	–	a
2124.67	Xe	–	[3]	Dj
2124.64	Lu	–	2	Me
2124.60	W	–	8	–
2124.59	Hf II	50	80	Me
2124.53	Re	2 h	30	a
2124.39	Ru	4	–	a
2124.39	Os	25	5	a
2124.34	Cb	2	8	–
2124.33	Pd II	–	4 h	Bx
2124.150	Si I	200 R	50	Fl
2124 13	Rh	40	10	a
2124.11	Ni	30	–	–
2124.11	V	6	5	–
2124.10	Cu I	2	–	–
2124.10	Mo	6	20	–
2124.09	S	–	[25]	Lc
2124.08	Ta	2	6	a
2124.04	Zn II	–	[2]	Vs
2123.99	Rh	5	25	a
2123.92	Ir	4	–	a
2123.84	Os	40	25 w	a
2123.82	Ge I	2	–	–
2123.77	Si	–	[2]	Sy
2123.76	Pd	3	–	–
2123.68	Hf II	40	40	Me
2123.67	Ru	4	–	a
2123.669	Pd	–	25	–
2123.64	Ir	2	2	–
2123.60	V II	2	8	–
2123.54	Ti	6	–	–
2123.50	Zn II	–	[3]	Vs
2123.48	Kr	–	[3]	Me
2123.34	Os	10	–	a
2123.325	V II	5	30	–
2123.32	S	–	[15]	Lc
2123.30	Mo	–	25	–
2123.30	Yb	–	15	Me
2123.21	Ir	10	–	a
2123.17	Re	7	–	a
2123.15	Os	5	8	a
2123.13	Rh	3	10	a
2122.99	Si I	10	–	Ks
2122.966	Cu II	15	50	IBu
2122.95	I	–	[20]	Lc
2122.94	Hf II	15	15 h	Me
2122.83	Os	12	3	a
2122.81	Yb	–	3	Me
2122.76	Lu	–	6 h	Me
2122.74	Cb	–	15 s	–
2122.636	Pd	3	–	–
2122.6	A	–	[5]	Rt
2122.56	Pt	15	10	–
2122.38	Hg	–	[2]	Dj
2122.35	Pr	–	30	a
2122.25	Ni I	10	–	–
2122.13	V II	–	4	–
2122.12	Re	2 h	25	a
2122.02	Os	5	–	a
2122.0	K	–	[20]	MI
2121.94	Fe	6	–	–
2121.94	Ti	5	–	–
2121.88	Mo	–	12	–
2121.88	Ir	12	4	a
2121.75	Te	–	[10]	Lc
2121.68	Ir	4	5	a
2121.67	Rh	5 w	–	a
2121.66	Cb	–	12	–
2121.62	Re	3 h	–	a
2121.59	W	–	8	–
2121.54	Yb	–	15	Me
2121.54	V II	–	3	–
2121.41	Zn II	–	[2]	Vs
2121.391	Co I	3	–	–
2121.39	Ni I	20	8	–
2121.25	Ir	–	5	a
2121.22	Si I	7	–	Ks
2121.16	Re	8	3	a
2120.97	W	–	8	–
2120.91	Ag II	–	15	–
2120.90	Ta	8	25	a
2120.88	Pd	–	9	–
2120.87	Ir	8	–	a
2120.705	Co I	10	2	–
2120.70	Ni	3	3 h	–
2120.60	Re	5	–	a
2120.52	Cb	2	8	–
2120.45	Ag II	5	80	–
2120.42	Cd	–	[2]	Bl
2120.35	W II	2 h	3	–
2120.26	Ta	4	–	a
2120.119	Zr II	2	4	–
2120.06	Rh	3	25	a
2120.01	Cb	2	3	–
2120.01	Os	25	4	a
2119.92	Ta	8	35	a
2119.904	Co I	10	–	–
2119.9	Hf	–	2	Md
2119.90	Ru	2	–	a
2119.88	Pt	15	10	–
2119.80	Ru	2	–	a
2119.79	Os	125	30	a
2119.76	Rh	5 w	–	a
2119.74	Zr	2 h	2	–
2119.69	Mo	2	18	–
2119.63	Cb	3	1	Me
2119.590	Pd	–	9	–
2119.561	V II	–	8	–
2119.54	Ir	5	15	a
2119.52	U	2	2	a
2119.44	Ta	2	3	a
2119.34	Ir	–	8	a
2119.31	Os	15	4	a
2119.3	Hf	–	2	Md
2119.25	Yb	–	30 h	Me
2119.192	Co	5	–	–
2119.17	Rh	4	15	a
2119.15	V	–	25 w	–
2119.142	Zr	10	–	–
2119.12	Ir	4	–	a
2119.09	Cb	–	8 w	–
2118.99	Ta	6	–	a
2118.873	Cb	10	20	–
2118.87	W II	10	20	–
2118.83	Kr II	–	[12]	Me
2118.83	V	–	15	–
2118.82	Os	15	10	a
2118.77	Re	4	18	a
2118.76	Ir	4	2	–
2118.68	Ca I	5	–	Sd
2118.56	Ni I	10	–	–
2118.52	Sb	15	25	Sp
2118.52	Ir	–	20	a
2118.505	Co	6	–	–
2118.50	Rh	2 w	200	a
2118.43	V II	–	15	–
2118.38	Cu II	–	4	Sh
2118.35	W II	–	2 h	–
2118.34	Ta	6	18	a
2118.20	Re	8	–	a
2118.14	Ir	2	3	a
2118.12	Zn	–	[2]	Vs
2118.069	Pd I	10	–	–
2118.03	W	3	12	–
2118.00	Xe	–	[2]	Dj
2117.96	Os	80	20	a
2117.95	Hf II	5	5 h	Me
2117.95	Co II	2	5	–
2117.89	Ta	2	4	a
2117.83	Mo	–	15	–
2117.83	Yb	–	4 h	Me
2117.82	Re	7	–	a
2117.805	Pd II	–	15	–
2117.75	Ru	4	–	a
2117.72	Ir	10	50	a
2117.66	Os	40	10	a
2117.66	Rh	3 w	9	a
2117.62	Nd	–	25	a
2117.56	Cr	–	50	a
2117.49	Os	3	–	a
2117.474	V II	3	10	–
2117.46	Te	–	[10]	Lc
2117.42	Ru	8	–	a
2117.300	Cu II	2	20	Sh
2117.28	Sb	8	6	Wt
2117.272	V	–	10	–
2117.25	Mn	3	7	a
2117.14	Lu	–	4	Me
2117.079	Pd	2	–	–
2117 03	Ti	5	–	–
2117.03	Os	10	8	a
2116.95	Ru	3	–	a
2116.94	W II	8	15	–
2116.888	Pd II	–	15	–
2116.87	Rh	3 w	50	a
2116.842	Co I	10	2	–
2116.80	Hf	4	–	Me
2116.78	Mo	4	20	–
2116.769	V	–	3	–
2116.66	Ir	10	–	a
2116.65	Yb	50	250	Me
2116.638	W	5	6	–
2116.62	Rh	4 w	3	a
2116.47	Rh	–	35	a
2116.390	Cb	5	15	–
2116.36	Hg	–	[2]	Dj
2116.34	Os	–	30	a
2116.30	W	4	10	–
2116.16	Re	6	–	a
2115.97	Ir	–	10	a
2115.84	Yb	–	2	Me
2115.77	Re	4	–	a
2115.61	Hf	4	–	Me
2115.578	Pt II	5	10	–
2115.56	Re	2 h	10	a
2115.55	Pd	2	–	–
2115.46	Yb	–	4 h	Me
2115.43	Mo	2 h	10	–
2115.338	Co I	12	–	–
2115.21	Ru	3	–	a
2115.168	Fe I	8	–	IMe
2115.11	Mo	4	18	–
2115.02	Hf II	20	20	Me
2115.02	Pb	30 R	8 w	–
2115.00	Ir	–	8	a
2114.97	Os	5	–	a
2114.87	Rh	–	45	a
2114.78	Cb	2	2	–
2114.62	Hf II	2	–	Me
2114.60	Fe	8	1	–
2114.59	Si I	4 w	–	Ks
2114.41	Co II	4	2	–
2114.41	Ni I	18	2 h	–
2114.31	V II	–	5	–
2114.30	Mo	3	12	–
2114.22	Pt	6	3	–
2114.2	Hf	–	2	Md
2114.2	K	–	[10]	MI
2114.09	Ir	8	7	a
2114.04	V II	–	15	–
2114.00	Os	3	2	a
2113.95	Se II	–	[4]	Mz
2113.91	Re	12	2	a

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2113.90	Sn	25 r	5 r	–
2113.83	Ir	–	8	a
2113.83	Ag II	20	150 wh	–
2113.70	Rh	–	70	a
2113.68	Ta	10	30	a
2113.64	Mo	–	4	–
2113.59	Os	20	4	a
2113.536	Co	12	2	–
2113.51	Ni II	3	45	–
2113.45	Os	3	–	a
2113.36	Mo	–	5	–
2113.36	Hg	–	[2 h]	Dj
2113.29	Ni II	2	3	–
2113.2	bh C	5	–	L
2113.09	Fe	4	–	–
2113.085	Cb	10	20 l	–
2113.01	As I	50	5	Me
2112.966	Fe I	8	2	IMe
2112.85	W	–	8	–
2112.83	Ta	5	18	a
2112.763	Ca II	10	25	Cw
2112.70	Rh	3	80	a
2112.68	Ir	20	10	a
2112.67	W	–	3	–
2112.58	Os	5	4	a
2112.45	Ir	4	15	a
2112.41	Ni II	–	5	–
2112.32	Cb	–	8	–
2112.28	Re	6	40	a
2112.17	Cd	–	[10]	Bl
2112.090	Cu I, II	15	40	IBu
2112.08	Pb	–	15	–
2111.96	Ir	2	40	–
2111.90	Re	8	20	a
2111.79	Ta	8	20	a
2111.74	Pb	20 w	8 w	–
2111.72	Ni II	25	9	–
2111.69	Rh	–	150	a
2111.46	Co II	–	15	–
2111.416	Co I	10	–	–
2111.40	Os	10	2 h	a
2111.35	Pr	–	10	a
2111.34	Ir	5	2 h	a
2111.30	Cu II	–	[6]	Sh
2111.21	Cb	–	5	–
2111.21	Ta	5	12	a
2111.18	Mo	3	25	–
2111.14	W	3	2 h	a
2111.04	V	–	4	–
2111.02	Ru	2	–	a
2110.98	Cb	–	3	–
2110.98	Ir	2	5 r	a
2110.95	Os	–	5	a
2110.91	Re	20	–	a
2110.80	Au	–	60	–
2110.80	Pd	2	3	a
2110.79	Nd	–	2 h	–
2110.74	Os	15	2	a
2110.68	Ir	12	10	a
2110.64	Xe	–	[3 h]	Dj
2110.61	V II	–	2	–
2110.60	Yb	–	3	Me
2110.57	Mo	–	7	–
2110.53	Zr	8	–	–
2110.50	V	–	2	–
2110.49	I	–	[20]	Lc
2110.42	Hf II	15	15	Me
2110.37	Lu	–	4	Me
2110.355	Pt II	–	20	Sh
2110.34	W	10	25	–
2110.31	Cu II	–	[4]	Sh
2110.263	Bi I	250 R	50	Om
2110.26	Re	7 wh	–	a
2110.26	Yb	–	5 h	Me
2110.233	Fe I	8	–	IMe
2110.22	Lu	–	7	Me
2110.07	Cb	3	5	–
2110.05	K	–	[10]	Ml
2109.95	V	–	5	–
2109.94	Mo	4	20	–
2109.89	Re	4	–	a
2109.83	Te	–	[30]	Lc
2109.81	Kr II	–	[5]	Me
2109.78	Cu	2	–	–
2109.776	Ni I	10	–	–
2109.66	Pt I	15	10	–
2109.65	Zr II	5	10	–
2109.60	Yb	–	100 h	Me
2109.58	Mn	40 R	12	a
2109.49	Pt	15	10	–
2109.424	Cb	15	50	–
2109.42	Zr	2 h	–	–
2109.38	Ir	3 h	50	a
2109.27	V II	–	2	–
2109.25	Os	3	10	a
2109.25	Re	50	8	a
2109.206	Co	5	–	–
2109.14	Lu	–	5	Me
2109.11	Fe I	–	10	–
2109.08	Rh	–	30	a
2108.99	Ni II	–	18	–
2108.980	Co	15	–	–
2108.955	Fe I	10	2	IMe
2108.80	Ir	3	–	a
2108.73	Mo	2 h	12	–
2108.62	Ir	15	–	a
2108.55	Zr	6	–	–
2108.50	Hf	15	10 h	Me
2108.48	Re	8	2 h	a
2108.44	Os	5	–	a
2108.35	Cb	2	2 h	–
2108.202	Fe I	5	4	Bu
2108.20	Yb	–	5	Me
2108.10	Pd I	9	–	–
2108.02	Mo	3	30	–
2107.96	Ni II	2	45	–
2107.93	Rh	–	30	a
2107.91	Ru	4	–	a
2107.84	Lu	–	4	Me
2107.68	Pd II	–	9	–
2107.68	I	–	[20]	Lc
2107.651	Pt II	–	8	Sh
2107.63	Te	100	–	Kh
2107.6	Ra II	–	[12]	Rs
2107.60	Ir	3	–	a
2107.52	Os	15	3	a
2107.5	bh C	5	–	L
2107.48	Re	30	8	a
2107.47	Hf II	60	60	Me
2107.41	V II	–	4 wh	–
2107.33	Ru	2	–	a
2107.30	Os	8	3	a
2107.265	Cb	10	25	–
2107.22	Ir	–	15	a
2107.20	Te	100	–	Kh
2107.194	Ni I	12	–	–
2107.13	O	–	[25]	Mh
2107.13	Fe	8 h	–	a
2107.10	Tm	–	15	Me
2107.01	Os	2	–	a
2106.96	Re	6 wh	2 h	a
2106.93	W	2 h	7	a
2106.92	Ir	20	10 l	a
2106.798	Co	25	2	–
2106.76	I	–	[20]	Lc
2106.69	Ir	4	–	a
2106.68	W	–	10	–
2106.55	Re	3	30	a
2106.46	Yb	–	2	Me
2106.4	Hf	–	2	Md
2106.39	Cu II	–	2	–
2106.35	Ir	20	20 w	a
2106.32	V	3	–	–
2106.179	W	10	20	–
2106.15	Re	5	–	a
2106.08	Ir	–	15	a
2106.07	O	–	[25]	Mh
2106.04	Mn	40 r	–	–
2105.93	Rh	–	15	a
2105.87	Pd I	18	4	–
2105.836	Ni I	12	3	–
2105.83	Zr I	4	–	–
2105.80	Ge	3	–	–
2105.765	W	6	20	–
2105.64	Ta	–	8	a
2105.53	Ru	2	–	a
2105.49	Co II	–	2	–
2105.45	K	–	[2]	Ml
2105.34	Co II	–	3	–
2105.25	Cd	–	[2]	Bl
2105.20	I II	–	[2]	Mu
2105.112	Cu I	15	–	IBu
2105.069	Pt II	2	25	–
2105.02	Mo	5	25	–
2105.0	Hf	–	4	Md
2104.89	Rh	–	100	a
2104.88	Ta	6	6	a
2104.782	Cu II	8	25	IBu
2104.730	Co	25	2	–
2104.66	Ir	–	20	a
2104.56	V	4	–	–
2104.41	Os	6	–	a
2104.40	Lu	–	40	Me
2104.36	Ti II	–	3	–
2104.33	Ir	2	15	a
2104.29	Mo	4	30	–
2104.13	Re	20	6	a
2104.09	U	2	2	a
2103.93	Ta	5	4	a
2103.87	Ir	–	50	a
2103.761	Pt II	2	25	–
2103.67	V II	2	25	–
2103.66	Pd II	–	18	–
2103.59	Cb	10	15	–
2103.58	Ir	10	3	a
2103.52	V II	–	8	–
2103.48	Pt	10	–	–
2103 38	Ni II	–	25	–
2103.33	Pt I	25	25	–
2103.31	Zr	4	–	Ks
2103.28	Si	5 w	–	Ks
2103.239	Ca II	10	25	Cw
2103.178	W	3	12	–
2103.17	Zr	–	4	Ks
2103.10	Rh	25	25	a
2103.04	Ti	2	2	a
2102.991	W	–	4	–
2102.91	Os	5	25	a
2102.902	Fe I	4	–	–
2102.9	Hf	–	6	Md
2102.85	Ir	5	–	a
2102.81	Ni II	–	10	–
2102.72	Yb	20	200	Me
2102.69	Re	4	2 h	a
2102.63	Os	5	–	a
2102.45	Ir	15	6	a
2102.45	Rh	–	50	a
2102.43	Pd II	–	20	–
2102.349	Fe I	15	3	IMe
2102.21	Zn II	–	5	Sd
2102.21	V	3	–	–
2102.10	Yb	–	3 h	Me
2101.99	W II	6	6	–
2101.96	Rh	–	40	a
2101.92	Ru	5	–	a
2101.87	V II	–	5	–
2101.86	Ir	20	5	a
2101.85	Ta	3	40	a
2101.77	Zr I	5	–	–
2101.75	Re	15	6	a
2101.74	Te	–	[10]	Lc
2101.69	Mo	4	20	–
2101.67	Pt	20	–	–
2101.63	Ir	3	–	a
2101.585	Pt II	–	30	–
2101.38	Os	25	3 w	a
2101 35	Rh	–	30	a
2101.32	Ti	–	2	–
2101.29	O II	–	[15]	Mh
2101.19	Mo	–	10	–
2101.18	Os	4	–	a
2101.16	V II	3	40	–
2101.10	Cd	–	[5]	Bl
2101.05	K	–	[2]	Ml
2100.96	Ir	2 h	50	a
2100.84	Mo	6	25	–
2100.84	Hg	–	[2 h]	Dj
2100.795	Fe I	15	2	IMe
2100.78	V I	3	–	–
2100.76	Rh	50	–	a
2100.69	O II	–	[2]	Mh
2100.68	Ru	8	–	a
2100.67	W	10	25	–
2100.63	Os	15	6	a
2100.52	Rh	2	100	a

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2100.51	V I	10	–	–
2100.41	Cu	–	3 wh	–
2100.40	Lu	–	2	Me
2100.36	Rh	–	30	a
2100.34	Ta	10	15	a
2100.20	Ni II	–	4	–
2100.20	Ir	20	20	a
2100.12	Re	8	–	a
2100.0	K	–	[10]	Ml
2099.97	Ir	15	4	a
2099.92	Os	10	3	a
2099.86	Zn II	–	5	Sd
2099.68	Al II	–	[40]	Sy
2099.62	Ir	–	40	a
2099.54	Lu	–	10 h	Me
2099.51	Os	10	2	a
2099.37	Ir	5 w	3	a
2099.35	Co I	10	–	–
2099.32	U	2	2	a
2099.30	Zr	2 h	1	Ks
2099.30	Ta	3	30	a
2099.25	Os	4	–	a
2099.13	V II	2	25	–
2099.10	Tm	–	10	Me
2098.99	Rh	15	300	a
2098.96	Mn	10	–	a
2098.942	Co I	12	3	–
2098.91	Hf II	2	–	Me
2098.87	W	10	–	a
2098.82	Ru	8	–	a
2098.74	Pt	12	3	–
2098.726	W	–	5 w	–
2098.65	Re	5 wh	12	a
2098.65	S	–	[50]	Lc
2098.62	Pd II	–	18	–
2098.61	Nd	–	15	a
2098.60	W	10	20	a
2098.59	V II	–	2 w	–
2098.49	V	6 l	–	–
2098.47	Sb	30	30	Wt
2098.46	Ru	8	–	a
2098.44	Re	4	–	a
2098.41	Cu II	–	35	–
2098.4	Tl	2 R	–	Fl
2098.40	Yb	–	50 h	Me
2098.25	W	10	20	–
2098.16	Yb	–	3	Me
2098.14	S	–	[300]	Lc
2098.00	V II	–	2	–
2097.96	Ta	8	15	a
2097.83	Rh	3 h	200	a
2097.65	K	–	[10]	Ml
2097.65	Zn	–	[2]	Vs
2097.64	Re	12	–	a
2097.63	Bi	2 h	–	To
2097.60	Os	25	8 w	a
2097.58	N II	–	[8]	Fl
2097.55	Ir	5	–	a
2097.55	I	–	[20]	Lc
2097.54	Mn	18	30	–
2097.54	Rh	3 h	3 h	a
2097.511	Co	20	–	–
2097.49	Ca I	3	–	Sd
2097.440	Pt II	9	30	–
2097.41	Yb	–	2	Me
2097.33	V I	10	–	–
2097.30	Ir	–	25	a
2097.27	Pt	10	–	–
2097.24	Ru	5	–	a
2097.16	Re	40	10	a
2097.12	Co II	–	4	–
2097.10	Ir	4	50	a
2097.096	Ni II	4	35	–
2097.02	Zr	–	4	Ks
2097.02	V II	–	8	–
2096.87	Re	3 h	3 h	a
2096.84	Yb	–	30 h	Me
2096.79	N II	–	[15]	Fl
2096.70	Ir	–	4	–
2096.63	Cd II	–	[100]	Tk
2096.57	Os	10	1	a
2096.53	Xe	–	[2]	Dj
2096.35	V	5	15 w	–
2096.28	Os	12	15	a
2096.24	Kr II	–	[15]	Me
2096.22	Rh	2	25	a
2096.20	Ir	1	80	a
2096.18	Hf II	100	150	Me
2096.16	N II	–	[8]	Fl
2096.16	V	6	1	–
2096.05	Rh	–	80	a
2095.94	V II	–	10	–
2095.80	Zr II	7	10	–
2095.77	Co	15	2	–
2095.75	V	8	2	–
2095.73	Ni I	25	2	–
2095.66	Ta	3	12	a
2095.62	Re	18	2 h	a
2095.594	W	3	12	–
2095.51	Pd II	–	12	–
2095.47	N II	–	[50]	Fl
2095.34	V II	–	10	–
2095.33	Re	7	–	a
2095 28	Mo	4	25	–
2095 2	Al II	–	[40]	Sy
2095.123	Ni I	15	2	–
2095.10	As	3	3 h	Wt
2095.04	V II	–	6	–
2095 04	Ir	–	15	a
2095.04	W	2 h	5	a
2094.85	Ir	3	–	a
2094.82	Yb	–	10 h	Me
2094 8	Al II	–	[50]	Sy
2094.77	Cu II	–	8 h	Sh
2094.749	W II	10	18	–
2094.70	Pt	–	4	–
2094.662	V	10 w	1	Me
2094.56	I	–	[20]	Lc
2094.53	Re	6	–	a
2094 33	Hf II	3	2	Me
2094.3	Al II	–	[50]	Sy
2094.24	Co II	–	3	–
2094.23	Ge	8 R	–	–
2094.20	Si I	2	–	Ks
2094.18	Ir	8	15	a
2094.12	N II	–	[8]	Fl
2094.08	Pt	2	–	–
2094.05	Ir	–	3	–
2093.97	Ir	–	9	a
2093 800	W	8	15	–
2093.64	Cl	–	[10]	Jv
2093 606	Cu II	2	20	Sh
2093.56	Ni II	6	20	–
2093 41	V	–	2	–
2093.40	Co	15	–	–
2093.39	Mn	30 r	18	–
2093 37	Kr II	–	[3]	Me
2093 3	K	–	[5]	Ml
2093 28	Cb	–	8	–
2093 22	Hf II	7	–	Me
2093 18	Yb	–	6 h	Me
2093.11	Mo	6	25	–
2093.08	Cb	–	5	–
2092.86	Zr I	4	–	–
2092.86	O II	–	[3]	Mh
2092 80	Co	–	5	a
2092.77	Ir	15	5	a
2092.64	Rh	10	25	a
2092 63	Ir	20	20	–
2092.62	Pd I	12	–	–
2092.54	W	10	3	a
2092.50	Mo	6	20	–
2092.495	V	10	5	Me
2092.49	Re	18	50	a
2092.48	Mn	15	–	–
2092.44	V I	10	–	Me
2092.38	Pd II	–	25	–
2092 35	V I	5	–	–
2092.31	Yb	–	30 h	Me
2092.26	Re	18	–	a
2092.14	Lu	–	6	Me
2092.13	Mn	30 r	20	–
2092.12	Os	3	–	a
2092.077	W	–	25	–
2092.01	Pd II	–	30	–
2091.98	Nd	–	12	a
2091.90	Os	1	10	a
2091.86	Ir	10	20 s	–
2091.84	V II	–	3	–
2091.75	Re	8	–	a
2091.74	Zr	3	2	–
2091.71	Ni I	9	–	–
2091.59	Ir	8	1	a
2091.57	Hg	–	[5 h]	Dj
2091.50	Re	4 h	15	a
2091.44	Ir	–	12	a
2091.44	Sn	–	3	Ar
2091.40	Cl	–	[8]	An
2091.37	Cb	–	5 h	–
2091.34	Os	4	2 h	a
2091.34	Ga II	–	[40]	Sy
2091.33	Ta	8	20	a
2091.307	V I	10 w	5 w	–
2091.29	Pd	2	3	–
2091.28	Yb	–	20 h	Me
2091.21	Mo	3	15	–
2091.20	N II	–	[15]	Fl
2091.07	Rh	–	100	a
2091 05	Co II	2	6	–
2091.03	Ta	2	5	a
2090.90	V	4	–	–
2090.83	Hf II	40	40	Me
2090.80	Ir	–	30	–
2090.75	Pr	–	18	a
2090.71	Os	12	–	a
2090.66	V I	5 w	2 w	–
2090.61	Ta	4	20	a
2090.60	Ru	4	–	a
2090.52	Ir	8	6	a
2090.5	Ga	–	5	Wb
2090.47	Co	–	2	a
2090.389	Ni I	15	–	–
2090.33	V	–	15	–
2090.32	Ir	–	25	–
2090.31	Re	30	10	a
2090.183	W	3	12	–
2090.135	Pd II	–	20	–
2090.10	Ni II	3	25	–
2090.0	bh C	30	–	L
2089.99	Pd I	6	–	–
2089.96	Er	8	–	a
2089.95	Hf II	30	30	Me
2089.94	V I	4 wh	–	–
2089.93	Ir	–	5	–
2089.90	S	–	[300]	Lc
2089.8	K	–	[40]	Ml
2089.79	As I	5	1	Me
2089.60	Nd	–	9	a
2089.59	B I	150	20	Sy
2089.59	Pd II	2	25	–
2089.56	Zr	4	–	–
2089.52	Mo	3	18	–
2089.48	Rh	–	80	a
2089 38	Hf	3	–	Me
2089.21	Os	20	4	a
2089.16	Cr	–	15	–
2089.143	W	10	20	–
2089.07	Ni I	15 r	15 h	–
2089.048	Pt II	–	15	Sh
2089.03	Os	20	4	a
2088.98	Ni I	30 d	–	–
2088.96	Nd	–	12	a
2088.93	B I	100	15	Sy
2088.93	Pt	10	1	–
2088.89	Zr	2	–	Ks
2088.86	Ru	2	–	a
2088.82	Ir	50	50	–
2088.77	Hf II	50	50	Me
2088.712	Pt II	2	25	Sh
2088.67	Ta	8	30	a
2088.66	Re	4 wh	7	a
2088.56	V	15 w	1	–
2088.52	Cl	–	[8]	An
2088.52	Cd	–	10	–
2088.51	Ir	1 h	20	a
2088.49	Pd I	6	–	–
2088.43	Pb	30 R	40 W	–
2088.39	Cd	–	[2]	Bl
2088.38	Ru	5	–	a
2088.31	Os	4	–	a
2088.29	Pt	12	4	–
2088.28	Mo	3	10	–
2088.192	W	12	30	–
2088.16	Kr II	–	[20]	Me
2088.05	Yb	–	15 h	Me

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2087.94	Pd I	15	5	–
2087.92	Cu II	–	30	–
2087.89	Re	8	–	a
2087.84	Os	20	4	a
2087.74	Cu	2	–	–
2087.736	Ni	2	6 h	–
2087.66	Re	2	18	a
2087.66	Hf	4	–	Me
2087.61	V	3	5	–
2087.60	I	–	[20]	Lc
2087.58	Pb	12	–	–
2087.50	Lu	–	5	Me
2087.48	Rh	30	25	a
2087.47	W	4	12	a
2087.37	Yb	–	3 h	Me
2087.31	Be	2	–	–
2087.27	Ta	4	20	a
2087.19	Re	6	–	a
2087.09	Cb	–	2	–
2087.03	Re	9	–	a
2087.0	Al II	–	[40]	Sy
2087.00	Cl	–	[10]	An
2086.92	Ir	3	20	a
2086.866	Pt	3	20	–
2086.80	Hf II	8	4	Me
2086.80	Ir	9	3	a
2086.78	Mo	2 h	10	a
2086.73	Kr II	–	[5]	Me
2086 62	Os	5	–	a
2086.60	W II	4	4	–
2086.58	Ir	–	20	a
2086.57	V	4 w	–	–
2086.49	Pd II	–	25	–
2086.45	Lu	–	4	Me
2086.32	V I	6	2 wh	–
2086.29	Hf	12	–	Me
2086.23	Os	2	5	a
2086.06	Ir	4	1	a
2086.06	Lu	–	2	Me
2086.0	Sb	–	[8]	Lg
2086.00	Ge I	4	–	–
2085.92	Ta	3	25	a
2085.80	Re	7	25	a
2085.74	Ir	30	20	a
2085.69	Lu	–	5	Me
2085.62	Re	30	7	a
2085.58	Rh	–	100	a
2085.57	S	–	[8]	Lc
2085.550	Ni I	6	–	–
2085.53	Zn II	–	[20]	Vs
2085.50	Er	6	–	a
2085.418	Pt II	–	15	Sh
2085.348	Ni I	15	2	–
2085.303	Cu II	2	25	–
2085.29	As I	12	3	Me
2085.22	Cu I	–	7 h	–
2085.2	K	–	[20]	Ml
2085.18	Rh	–	35	a
2085.15	Nd	–	20	a
2085.09	W	3	9	a
2084.89	W	2 h	8	a
2084.86	Ni II	–	25	–
2084.76	Ru	3	–	a
2084.59	Pt I	25	30	–
2084.55	Re	9	3 h	a
2084.51	Os	8	1	–
2084.49	Ir	–	80	a
2084.48	W	2 h	8	a
2084.47	Si I	20	–	Ks
2084.45	Hf	2	–	Me
2084.38	Ir	5	–	a
2084.32	Cu II	–	4	–
2084.27	W	2 h	10	a
2084.22	Ir	–	12	a
2084.12	Ni	8	–	–
2084.0	Be	2	–	Md
2083.94	Re	10	3	a
2083.85	Ir	15	5 h	a
2083.80	Hf II	40	30	Me
2083.77	Ru	5	–	a
2083.75	Ni II	–	10	–
2083.70	W II	3	9	–
2083.65	Yb	–	2	Me
2083.643	Ni II	2	10	–
2083.58	Os	15	2	a
2083.43	Ir	–	25	–
2083.38	Re	7	9	a
2083.35	Ce	–	25	a
2083.34	Pt	18	9	–
2083.22	Ir	25	10	a
2083.20	Os	15	2	a
2083.15	Zn	–	[2]	Vs
2083.03	Ta	–	5	–
2082.93	Rh	–	8 d	a
2082.92	Cu II	–	6	–
2082.89	Cb	6	25	a
2082.856	Ni I	25	2	–
2082.80	Hf II	15	8	Me
2082.79	Ir	1	12	a
2082.73	Ca I	2	–	Sd
2082.68	Co	3	25	–
2082.60	Kr	–	[2]	Me
2082.54	Os	20	5	a
2082.51	Pt I	15	7	–
2082.51	V I	25 w	–	–
2082.34	Rh	2	9	a
2082.27	Pd I	18	2	–
2082 26	Re	7	20 w	a
2082.22	Ir	6	5 h	a
2082.1	K	–	[10]	Ml
2082.04	Ta	4	–	a
2082 01	Si I	15	–	Ks
2081.88	Te	–	[5]	Lc
2081.83	Ir	2	9	a
2081.72	Os	3	–	a
2081.67	V	4	3	–
2081.52	Rh	–	30	a
2081.5	Al II	–	[8]	Sy
2081 46	Os	20	10	a
2081.42	Pd II	–	25	–
2081 39	W	8	–	a
2081.29	I	–	[40]	Lc
2081.12	Pd I	20	–	–
2081.11	V	–	5 wh	–
2081 08	Se	–	[15]	Rd
2081.03	Te I	400	–	Ml
2080.97	Zr	–	4	–
2080.95	Ir	8	15	–
2080.94	Er	8	–	a
2080.91	Cu	4 h	–	–
2080.849	Ni II	3	35	–
2080.74	V	–	2 wh	–
2080.64	Ir	2	60	–
2080.28	Os	4	2	a
2080.24	Rh	1	30	a
2080.06	Cu II	–	8 h	–
2080.05	Cb	3	15	a
2079.97	Os	40	10	a
2079.85	Ta	4	6	a
2079.82	Zn II	–	[2]	Vs
2079.762	Pt II	1	15	–
2079.72	Hf	6	–	Me
2079.71	Ir	–	40	–
2079.66	W	2	6	a
2079.66	Rh	5	–	a
2079.64	Nd	–	15	a
2079.63	Sb	10	–	Wt
2079.496	Pt II	–	15	–
2079.46	Cu I	15 h	–	–
2079.41	As I	2	1	Ro
2079.37	Rh	3 h	25	a
2079.33	Ir	15	5	a
2079.32	Pd	2	–	–
2079.31	Ta	2	12 h	a
2079.31	Cr	–	2 h	–
2079.26	In II	–	15	Lg
2079.21	Os	10	1	a
2079.11	Hf II	3 d	–	Me
2079 106	W	12	30	–
2078.99	Os	5	20	a
2078.96	V	–	4	–
2078.88	Ir	–	25	a
2078.76	Ni II	1	12	–
2078.68	Re	8	–	a
2078.652	Cu II	1	40	–
2078.53	Nd	–	10	a
2078.49	Os	10	1	a
2078.37	Ir	–	25	a
2078 35	W	6	25	–
2078.21	Ta	8	–	a
2078.12	Yb	–	10 h	Me
2078.09	Os	25	10	a
2077.97	Rh	–	15	a
2077.95	Pd I	10	–	–
2077.9	K	–	[80]	Ml
2077.8	Bi II	–	5	Ml
2077.80	V	–	20	–
2077.67	Ir	–	12	a
2077.55	V	–	10	–
2077.435	Pt II	10	20	Sh
2077.33	Os	15	3	a
2077.30	Re	25	8	a
2077.18	Rh	2	6	a
2077.18	Ni	2	–	–
2077.14	Zn	–	[10]	Vs
2076.95	Os	25	12	a
2076.85	V	5	25 w	–
2076.83	Rh	–	100	a
2076.76	Ir	2	40	–
2076.70	Hf	3	–	Me
2076.61	Ir	5	–	a
2076.49	V	–	2	–
2076.47	Pd	4	–	–
2076.43	Ru	4	–	a
2076.42	Ir	2	5	a
2076.32	Ta	12	30	a
2076.29	Zr	–	2	Ks
2076.22	Rh	–	10	a
2076.21	Pt	5	4	–
2076.19	Ni II	–	4	–
2076.10	Os	4	–	a
2076.07	Ir	–	20	a
2076.043	Ni I	10	–	–
2076 04	Hf	4	–	Me
2075.96	W	5	10	a
2075 90	Ir	8	3	a
2075 85	Os	5	–	a
2075.69	Re	7	12	a
2075.65	Os	6	–	a
2075.607	Ag II	–	10 wh	–
2075.59	I	–	[12]	Lc
2075.59	W	10	20	–
2075.45	W	3	4	a
2075.43	Ir	–	25	–
2075 386	Pt II	5	25	–
2075.22	Re	4	2	a
2075.14	O II	–	[15]	Mh
2075 05	Ir	6	15	a
2074.95	Os	15	5	a
2074 90	Zr	–	2	Ks
2074.88	Re	3	6	a
2074.87	V	–	15	–
2074.793	Se I	–	[100]	Rd
2074.74	Te	30	–	Kh
2074.72	Re	10	4	a
2074.63	W II	8	8	–
2074.59	Ir	10	4	a
2074.58	Ni	2	–	–
2074.5	As	–	20	Lg
2074.33	Ir	8	–	a
2074 29	Mo	4	15	a
2074.15	Ir	4	–	a
2074.12	Ni II	–	15	–
2074.10	Os	3	–	a
2074.03	Zr	–	5	Ks
2074.0	Pb	–	20	Lg
2074.00	Cd	–	[5]	Bl
2073.94	Re	7	3	a
2073.94	Cr	–	3	–
2073.92	Os	10	–	a
2073.84	Os	–	10	a
2073.8	Al II	–	[15]	Sy
2073.8	Ga	–	3 h	Wb
2073.75	Rh	1	30	a
2073.70	Yb	–	8 h	Me
2073.70	Ir	4 wh	–	a
2073.58	Pt	10	9	–
2073.42	V	–	5 wh	–
2073.39	Sb	5	[6]	Lg
2073.30	Re	7	7	a
2073.27	Co I	10	2	–
2073.2	Bi	10	–	Rk
2073.04	Ca I	2	–	Sd
2073.02	Ta	3	12	a
2072.96	Ir	20	10	a

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2072.89	Mn	9	6	a
2072.85	Rh	–	20	a
2072.83	S	–	[8]	Lc
2072.62	Re	6	10	a
2072.50	Cd	–	[2]	Bl
2072.43	V	–	10	–
2072.36	Rh	2	2	a
2072.29	Ir	4	2	a
2072.238	Ni I	10	–	–
2072.23	O II	–	[30]	Fl
2072.03	Pd II	–	25	–
2071.95	Lu	–	2	Me
2071.94	Ir	15	8	a
2071.94	Rh	3	25	a
2071.88	Pr	–	2	–
2071.81	Ir	6	4	a
2071.78	W	10	5	a
2071.76	Rh	–	20	a
2071.553	Pt II	–	20	–
2071.39	Rh	–	12	a
2071.28	Os	4	10	a
2071.21	W II	10	25	–
2071.1	Hf	–	6	Md
2071.08	Mo	6	20	a
2070.93	Pt I	18	20	–
2070.9	Te	150	–	Ml
2070.81	W	5	–	a
2070.78	V	–	5	–
2070.67	Os	15	35	a
2070.66	Lu	–	3 h	Me
2070.6	air	–	5	–
2070.6	Ra II	–	[4]	Rs
2070.51	Ir	6	60	–
2070.42	Os	12	2	a
2070.36	Pt	2	–	Lv
2070.21	Ir	2 w	5	a
2070.02	W	4	4	a
2070.0	K	–	[5]	Ml
2069.96	Ta	2	10	a
2069.93	Sn	–	2	m
2069.92	Cu II	–	[2]	Sh
2069.83	As I	18	3	Me
2069.83	Ag I	10	3	–
2069.75	Os	5	2	a
2069.70	Bi	2	–	To
2069.61	Os	25	4	a
2069.499	Ni I	20	2	–
2069.48	Ir	–	10	a
2069.44	Re	5	10	a
2069.24	I	–	[20]	Lc
2069.12	Ta	3	15	a
2069.07	Ir	10	8	a
2069.023	Ni	15	4	–
2068.99	Bi II	2	10	Rk
2068.99	Co I	10	3	–
2068.84	Hf	20	4 h	Me
2068.8	bh C	30	–	L
2068.80	V	–	25	–
2068.80	Pd I	12	–	–
2068.76	Hf II	3	–	Me
2068.73	Ir	3 w	2 h	a
2068.67	Pd	–	8	–
2068.65	Ge	5 r	200 R	–
2068.65	Er	5	–	a
2068.629	Pt II	5	15	–
2068.606	Ni I	10	–	–
2068.58	Hf	5	–	Me
2068.53	V	–	8	–
2068.38	Os	10	10	a
2068.38	Sb I	300 R	3	Wt
2068.35	Ni	2	–	–
2068.32	Rh	8	–	a
2068.3	Tl	–	2 d	Cx
2068.30	Re	4 wh	–	a
2068.25	Ir	10	2	a
2068.160	Pt II	2	25	–
2068.14	Rh	–	15	a
2068.09	Zr II	–	2	Ks
2067.94	Te	–	[15]	Lc
2067.93	S	–	[8]	Lc
2067.90	Re	8	–	a
2067.87	W	2 wh	10	a
2067.87	Ir	5	4 d	a
2067.71	Os	10	4	a
2067.63	Ge	2	–	Gt
2067.60	Re	5	5	a
2067.6	Hf	–	2	Md
2067.5	Sb	–	[25]	Lg
2067.50	Pt I	20	25	–
2067.40	Ta	6	12	a
2067.21	Os	10	40	a
2067.2	K	–	[2]	Ml
2067.17	Ir	–	30	a
2067.16	As I	12	1	Me
2067.16	V	–	3 wh	–
2067.15	Xe	–	[2]	Dj
2067.11	Os	3	–	a
2067.08	Zr II	–	3	Ks
2066.98	Ir	4	–	a
2066.92	Pt	15	7	–
2066.90	Re	7	5	a
2066.83	V	–	4 wh	–
2066.8	Tl	–	30	Cx
2066.78	Rh	–	12	a
2066.65	Hg	–	[2]	Dj
2066.49	Te	–	[30]	Lc
2066.48	S	–	[8]	Lc
2066.47	V	–	3 wh	–
2066.410	Ni II	2	25	–
2066.4	Tl	–	2 d	Cx
2066.35	Os	2	–	a
2066.32	Cu II	–	20	–
2066.21	Ir	–	40	a
2066.20	Hf	2	–	Me
2066.04	Cu	2 h	–	–
2066 00	Ir	4	–	a
2065 91	Ag II	4	80	–
2065.80	Os	5	2 w	a
2065.79	Ir	–	80	–
2065.75	V II	–	25	–
2065.71	Cb	5	20	a
2065.70	Rh	–	25	a
2065.59	Ir	3	12	a
2065 57	W II	10	20	–
2065.55	Hf II	2	4	Me
2065.53	Co II	10	35	–
2065.48	Si	2	–	Fl
2065.42	Cr II	50	150	Ct
2065.42	Lu	–	30 h	Me
2065.41	As I	20	3	Me
2065.35	Zr II	–	2	Ks
2065 23	Rh	5	–	a
2065 20	Ge	4 R	50	–
2065.18	Ir	3 w	–	a
2065.09	W	10	3	a
2065.09	Ir	–	25	a
2064 86	Co	4	–	a
2064.79	Bi	50	4 h	To
2064.78	Hf II	15	4	Me
2064.77	Ca I	2	–	Sd
2064.77	Ir	–	15	a
2064.77	Ta	3	12	a
2064.76	Re	7	–	a
2064 75	V	–	2	–
2064.55	Ir	5	5	a
2064.43	Hf	2	–	Me
2064.38	Ir	4	–	a
2064.37	Zr	–	2	Ks
2064 366	Ni I	15	2	–
2064.3	Ga	–	2 h	Wb
2064.24	Os	4	–	a
2064.21	Cb	2	30	a
2064.17	Rh	3	100	a
2064.07	Pr	–	12	a
2063.99	N II	–	[15]	Fm
2063.96	Mo	5	–	a
2063.92	Re	6	6	a
2063.89	Zr II	–	3	Ks
2063.89	Ir	–	25	a
2063.79	Re	4	–	a
2063.76	Co II	12	35	–
2063.67	W	–	3	–
2063.61	Zn II	2	20	Sd
2063.59	Ir	5	15	a
2063.55	Os	25	2 w	a
2063.50	N II	–	[15]	Fm
2063.44	Sb	30	12	Wt
2063.39	Ni I	20	2	–
2063.37	Ir	12	4	a
2063.23	Hf II	3	–	Me
2063.20	Os	5	–	a
2063.13	V	–	5	–
2063.11	W	10	–	a
2063.03	Ir	–	80	a
2062.788	Se I	–	[800]	Rd
2062.78	Pt I	20	20	–
2062.77	W	5	–	a
2062.56	Pd II	–	10	–
2062.54	Ir	2 h	2	–
2062.5	Tl	–	2 d	Cx
2062.49	Cu II	–	25	–
2062.38	I	–	[900]	Lc
2062.341	Ni I	15	2	–
2062.34	Cr	–	20	–
2062.28	Ir	2	5	a
2062.16	Os	12	3	a
2062.15	Ta	4	–	a
2062.05	W	–	8	a
2062.05	K	–	[5]	Ml
2062.04	Rh	–	20	a
2062.0	In	–	12	Wb
2061.99	Ir	4	2	–
2061.99	V	–	2	–
2061.94	Ta	8	30 l	a
2061.92	Sb	8	–	Wt
2061.91	Zn II	100	100	Ps
2061.91	Pd	–	12	–
2061.9	Ga	–	3 h	Wb
2061.86	Ir	2	5 wh	a
2061.85	Zr II	–	4	Ks
2061.74	Pb	8 r	40	–
2061.715	Pt II	–	5	Sh
2061.70	Bi I	300 R	100	To
2061.69	Os	20	6	a
2061.630	Pt II	–	25	–
2061.49	Cr II	100	200	Ct
2061.47	Ir	10	4	a
2061.45	Cb	2	12	a
2061.39	Hf	4	2	Me
2061.35	Zr	–	3	Ks
2061.18	Si I	8	–	Ks
2061.17	Ag I	25	10 h	–
2061.03	Te	5	–	Kh
2061.0	Tl	–	2 d	Cx
2060.98	Ta	2d	6	a
2060.90	Ir	5	2	a
2060.75	Pt II	15	12	–
2060.73	Ni I	5	–	–
2060.64	Ir	20	15	a
2060.49	Hf II	7	–	Me
2060.40	Os	10	–	a
2060.27	Cb	–	25	–
2060.189	Ni I	10	2	–
2060.09	Ir	4	2 h	a
2060.08	Os	10	–	a
2059.895	Ni I	15 r	7	–
2059.894	Pt II	–	25	Sh
2059.84	Ru	2	–	a
2059.79	Os	4	–	a
2059.70	Ir	10	15	a
2059.68	Pt I	15	5	–
2059.65	Os	10	4	a
2059.63	Pb	500 wR	–	–
2059.50	Os	3	–	a
2059.48	Rh	–	20	a
2059.16	Rh	–	50	a
2059.08	Ta	6	25 l	a
2058.973	Pt II	–	20	Sh
2058.93	Ir	4 w	–	a
2058.85	Ta	4	4	a
2058.81	Co II	10	40	–
2058.78	Os	10	3	a
2058.69	Os	10	4	a
2058.59	Ge I	2	–	Gt
2058.59	Ta	5	8	a
2058.49	Hg	–	[10]	Dj
2058.38	Pt	9	8	–
2058.35	V II	–	15	–
2058.298	W II	8	8	–
2058.28	Er	6	–	a
2058.15	Rh	3	15	a
2058.13	Si I	15	–	Ks
2058.05	Ir	–	10	a
2057.96	Zr II	2	2	Ks
2057.93	Ir	10	4	a

Wave-length	Ele-ment	Intensities Arc	Spk.,[Dis.]	R
2057.85	Rh	–	6	a
2057.83	Ni II	6	10 s	–
2057.797	W	2 h	10	–
2057.78	Ir	8	2	a
2057.76	Pd I	3	–	Sh
2057.71	Rh	–	12	a
2057.68	Bi I	40	4 h	To
2057.63	Ir	2	15	a
2057.60	Ta	2	12	a
2057.51	Zn II	–	[20]	Vs
2057.48	Os	6	–	a
2057.42	Pd	5	–	–
2057.39	Hf II	3	–	Me
2057.37	Ni II	2	20	–
2057.36	V II	–	8	–
2057.23	Ge	3 r	–	–
2057.23	Ir	6	50	a
2057.20	V II	–	4	–
2057.18	Rh	–	15	a
2057.14	Re	3	2 h	a
2057.05	Cb	4	35	a
2057.04	Rh	–	9	a
2057.01	Ir	3 w	4	–
2057.003	Pt II	8	30	Sh
2056.87	V	–	4	–
2056.73	Ir	3	–	a
2056.53	V	–	5 wh	–
2056.52	Ir	4 w	–	a
2056.52	Be I	100	–	Ps
2056.40	Ir	2	–	a
2056.33	Re	8	2 h	a
2056.17	Ir	–	20	a
2056.06	Re	2	7	a
2056.057	Pt II	–	12	Sh
2056.02	W II	5	10	–
2056.0	Be	–	6	Md
2055.72	Ir	15	25	a
2055.56	V II	–	2 w	–
2055.53	Os	5	20	a
2055.52	Cr II	100	300	Ct
2055.49	Ta	3	–	a
2055.49	Pd	–	12	–
2055.461	Ni I	10	2	–
2055.44	Ir	10	4	a
2055.42	Zr	–	2	Ks
2055.40	Os	3	5	a
2055.31	Rh	2	40	a
2055.30	Hf	4	–	Me
2055.27	Re	4	10	a
2054.99	Rh	3	3	a
2054.966	Cu II	15	35	–
2054.9	K	–	[18]	Ml
2054.86	Hf	2	–	Me
2054.85	Os	10	2	a
2054.85	Si	3	–	Fl
2054.84	V	10	15	–
2054.77	Ir	2	30	a
2054.678	W II	9	20	–
2054.61	Hg	–	[20]	Dj
2054.60	Os	3	–	a
2054.53	Ti II	4	15	–
2054.47	I	–	[20]	Lc
2054.45	Ge	4	–	–
2054.43	Pd	–	30	–
2054.41	Cu II	3 r	20 r	–
2054.37	Rh	3	25	a
2054.36	I	–	[20]	Lc
2054.36	Se I	–	[8]	Rd
2054.32	Ni II	–	25	–
2054.3	Hf	–	6	Md
2054.30	Cu II	–	8 wh	–
2054.26	Re	6	–	a
2054.07	Co	10	–	a
2054.04	Sb	30	5	Wt
2053.90	Ni I	7	1	–
2053.87	Ir	2	25	a
2053.84	Os	6	5	a
2053.72	Ir	4	–	a
2053.7	Hf	–	2	Md
2053.65	Xe	–	[7]	Dj
2053.61	Rh	–	35	a
2053.52	Bi	2 h	–	To
2053.32	Pb I	–	12	–
2053.290	Ni II	3	25	–
2053.2	Sr	–	[3]	Sd
2053.20	Rh	2	30	a
2053.13	W II	8	8	–
2053.1	K	–	[2]	Ml
2053.1	Sb	1	[8]	Lg
2052.929	Hg II	–	[100]	Ps
2052.87	Pr	–	12	a
2052.84	Rh	–	10	a
2052.78	Os	3	5	a
2052.70	Xe	–	[2]	Dj
2052.57	Rh	–	20	a
2052.53	O	–	[15]	Mh
2052.428	Ni I	6	–	–
2052.40	Os	10	2	a
2052.38	V	–	3	–
2052.22	Ir	12	9	a
2052.15	W	–	8	–
2052.06	Ni I	12 d	6	–
2051.89	W	2	1	–
2051.78	V	–	10 h	–
2051.7	Hf	–	2	Md
2051.29	V	–	2 h	–
2051.25	Rh	2	100	a
2051.21	Zr II	–	3	Ks
2051.16	Ir	10	50	–
2050.827	Ni I	15	2	–
2050.74	Co II	–	4	–
2050.72	Ir	5	1	a
2050.61	Os	3 h	2 h	a
2050.58	W	–	3	–
2050.49	Ir	5	–	a
2050.43	Se I	–	[12]	Rd
2050.40	W	2 h	10	a
2050.22	Ir	–	25	–
2050.06	Ti	5	–	a
2049.97	Rh	2	3	a
2049.95	Os	6	2	a
2049.87	Cb	2	40	–
2049.83	Pt I	10	9	–
2049.8	K	–	[5]	Ml
2049.69	Bi	25	20	To
2049.63	W	8	9	–
2049.6	Hf	–	4	Md
2049.56	Ir	2	30	–
2049.51	Ta	2	4	a
2049.46	Sb	15	15	Wt
2049.45	I	–	[150]	Lc
2049.42	Os	15	5	a
2049.39	Ru	2	–	a
2049.373	Pt I	20	25 r	–
2049.36	Mo	4 wh	–	a
2049.35	V	–	2 h	–
2049.17	Co II	3	10	–
2049.168	Pt II	–	25	–
2049.15	Pb I	8 s	–	–
2049.11	V	–	2 h	–
2049.11	Re	30 r	7	a
2049.02	W	6	7	a
2048.95	Rh	–	5	a
2048.82	Ir	3	–	a
2048.80	Os	6	25	a
2048.73	V	–	3	–
2048.65	Rh	–	200	a
2048.62	Os	5	–	a
2048.55	Ir	–	10	a
2048.39	Al II	–	[3]	Sy
2048.31	Rh	5	–	a
2048.30	Ni	2	–	–
2048.28	Os	25	5	a
2048.04	Rh	–	9	a
2048.04	W II	7	12	–
2048.02	Os	4	–	a
2047.96	Ir	3	10	a
2047.77	Os	5	–	a
2047.74	Ir	3	–	a
2047.73	Ta	2	5	a
2047.65	Cu II	–	10 r	Sh
2047.59	As I	25	3	Me
2047.57	Ir	5	1 h	a
2047.5	bh C	30	–	L
2047.50	Cb	2	2	a
2047.41	Ta	6	18	a
2047.333	Ni I	12	7	–
2047.22	Ir	6	4 h	a
2047.09	W	5	12	a
2046.96	Re	3	2	a
2046.93	Cr	–	2 h	–
2046.81	Os	5	5	a
2046.68	Ir	3	2 h	a
2046.48	Sb	3	2	Wt
2046.28	Os	3	10	a
2046.22	Cd	–	[3]	Tk
2046.19	Rh	–	20	a
2046.19	Ta	5	10	a
2046.18	Ir	–	3	–
2045.97	V	5	12	–
2045.88	Ir	5	15	a
2045.86	Rh	2	2	a
2045.78	Re	7	–	a
2045.7	K	–	[2]	Ml
2045.68	Rh	–	20	a
2045.62	Pd II	–	100	–
2045.59	Mo	7	–	a
2045.58	Pd	–	25	–
2045.56	W	–	3	–
2045.48	Ir	10	8	a
2045.47	Mo	2	12	a
2045.41	O	–	[25]	Mh
2045.37	Ta	3	2	a
2045.36	Os	50	20	a
2045.33	Rh	–	25	a
2045.31	Ir	10	3	a
2045.2	Hf	–	2	Md
2044.99	Xe	–	[2 h]	Dj
2044.93	Fe	1 h	5	a
2044.89	Os	12	3	a
2044.83	Ir	4	75	–
2044.76	Os	5	–	a
2044.65	Ta	5	10	a
2044.56	Sb	5	5	Wt
2044.41	Cb	2	4	a
2044.39	Ni	2	–	–
2044.36	Os	3	5	a
2044.22	Cb	3	18	a
2044.22	Te	–	[5]	Lc
2044.19	Ir	10	100	–
2044.12	Cb	3	4	a
2044.07	Rh	2 h	10	a
2044.03	Ir	18	–	a
2043.8	Hg	–	[10]	Dj
2043.80	Pd II	2	15	–
2043.787	Cu II	15	35	–
2043.76	Ge	4 r	70 h	–
2043.73	W	3	5	a
2043.68	Os	8	–	a
2043.55	W	6	12	a
2043.52	Cb	2	25	a
2043.50	Os	10	–	a
2043.40	Xe	–	[2]	Dj
2043.36	Mo	4	2 h	a
2043.23	Ti II	1	3	–
2043.21	Ir	10	2	a
2043.18	Os	4	–	a
2043.16	Cb	3	25	a
2043.14	Ta	4	18	a
2043.13	V	4	–	–
2043.1	K	–	[2]	Ml
2043.10	Cr	8	–	a
2043.00	Co	8	–	a
2043.00	Os	3	15	a
2042.98	Pd	5	–	–
2042.96	Ir	4	10	a
2042.75	Os	5	–	a
2042.67	Re	3	10	a
2042.61	Ta	3	8	a
2042.46	Rh	–	15	a
2042.45	Xe	–	[2 h]	Dj
2042.44	Os	6	2	a
2042.32	Rh	2	30	a
2042.18	Hg	–	[10]	Dj
2042.13	Ir	12	–	a
2042.05	I	–	[20]	Lc
2041.96	Bi	100	15	To
2041.86	Cr	–	12	–
2041.72	Rh	–	25	a
2041.69	Ge	5 r	150 r	–
2041.69	Ir	2	50	–
2041.570	Pt II	2	30	–
2041.46	Ti II	4	12	–
2041.45	Pt	10	–	–
2041.45	Mo	2	30	a

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2041.2	Sn	10	–	Ml
2041.17	Ir	2	10	a
2041.139	Ni I	10	–	–
2041.04	Rh	–	40	a
2041.03	Re	4	–	a
2041.02	V	8	–	–
2040.9	As	–	3	Lg
2040.9	Ga	–	3 h	Wb
2040.865	W	5	12	–
2040.84	Re	6	7	a
2040.76	Ir	6	20	a
2040.68	Os	10	4	a
2040.62	Ta	2	8	a
2040.48	Ir	2	5 w	a
2040.44	Cd II	–	[3]	Tk
2040.35	Xe	–	[2]	Dj
2040 33	Pt	15	15	–
2040.2	Ga	–	5 h	Wb
2040.19	Rh	2	100	a
2040.18	Pd	8 d	–	–
2040.11	Zr	2 h	1 h	Ks
2040.00	Zn II	–	[250]	Vs
2039.93	Al II	–	[15]	Sy
2039.91	Re	3	9	a
2039.851	Se I	–	[1000]	Rd
2039.83	Pd I	4	–	–
2039.80	W	–	10	–
2039.79	Te	300	–	Kh
2039.79	Ir	8	40	a
2039.70	Pt	12	20	–
2039.67	Rh	–	25	a
2039.60	Sb	15	15	Wt
2039.57	Pt	5	–	a
2039.5	Sn	–	200	Lg
2039.43	Ir	25	12	a
2039.38	W	4	3	a
2039.35	Rh	–	30	a
2039.31	Cr	25 h	–	–
2039.31	V	–	15	–
2039.24	Xe	–	[3]	Dj
2039.23	Re	18	–	a
2039.14	Ir	5	5	a
2039.11	W	4	7	–
2039.08	Hf	6	2	Me
2039.073	V	–	2 h	–
2039.01	Re	18	–	a
2039.0	Ga	–	5 h	Wb
2038.99	Ir	1	25	a
2038.93	Pd	–	20	–
2038.872	V	10 w	2 h	Me
2038.75	Ni I	2 h	3	–
2038.72	Os	15	5	a
2038.678	Co	–	9	–
2038.60	Ir	–	20	a
2038.490	V	4	12	Me
2038.44	Mo	20	–	a
2038.31	Xe	–	[2]	Dj
2038.16	Os	4	–	a
2038.11	Ir	–	30	a
2038.06	Ta	3	12	a
2038.01	Mo	2	20	a
2038.00	Cr	–	3	–
2037.98	Re	4	–	a
2037.98	I II	–	[2]	Mu
2037.94	Cb	3	25	a
2037.906	W	4	12	–
2037.87	U	3	2	a
2037.85	V	–	12	–
2037.85	Rh	4	–	a
2037.68	Mo	2	20	a
2037.62	Os	2	5 w	a
2037.62	Hg	–	[3]	Dj
2037.60	Rh	–	50	a
2037.584	W	3	18	–
2037.51	V	–	6	–
2037.33	Ir	3	8 d	a
2037.32	Hf II	2	2	Me
2037.17	Re	8	7	a
2037.117	Cu II	12	30	–
2037.05	Rh	–	30	a
2036.97	Cu II	–	[4]	Sh
2036.9	K	–	[40]	Ml
2036.84	Ir	2	2 h	a
2036.79	Cd II	–	[30]	Tk
2036.70	Rh	–	80	a
2036 59	Co II	8	30	–
2036.51	Sb	8	4	Wt
2036.49	Os	9	3	a
2036.463	Pt II	15	40	–
2036.27	Rh	–	25	a
2036.26	Re	3	6	a
2036.24	Hf II	3	–	Me
2036.21	Mo	3	–	a
2036.21	Sb	–	[2]	Lg
2036.13	Ir	2	9	a
2036.11	Xe	–	[2]	Dj
2036.02	Re	4 wh	–	a
2036.00	Ir	2 h	8	a
2035.93	Os	15	4	a
2035.89	W II	8	20	–
2035.843	Cu II	12	30	–
2035.78	Pt	15	15	–
2035.58	Ir	10	4	a
2035.57	Mo	3	–	a
2035.52	Re	4	6	a
2035.4	Hf	–	2	Md
2035.39	Ir	6	3 w	a
2035.35	Ni II	–	10	–
2035.08	Ni I	10 h	–	–
2035.07	V	–	12	–
2035.03	W	6	12	–
2035.02	N	–	[5]	Fm
2035.0	bh C	12	–	L
2034.86	I	–	[100]	Lc
2034.85	Ni I	6 h	2	–
2034.8	Sn	–	5	Lg
2034.80	Ir	10	2 h	a
2034.63	Rh	–	20	a
2034.60	Ir	3 wd	–	a
2034.44	Os	30	5	a
2034.397	Ni I	15	2	–
2034 29	Os	5	3 w	a
2034 09	Rh	1	10	a
2034.066	V	10	2	–
2034.01	Ir	–	30	a
2033.96	W	2	6	–
2033.931	Ag II	–	25	–
2033.81	Re	8	5	a
2033 59	Rh	4	20	a
2033.57	Ir	20	7 d	a
2033 56	Cb	2	4	a
2033.538	Ni 1	8	–	–
2033.53	Os	10	25	a
2033.50	V	–	2	–
2033.489	P I	15	[20]	Ri
2033 45	Ni II	–	5	–
2033.34	Rh	–	8	a
2033.30	Be I	10	–	Ps
2033.231	W	–	7	–
2038.03	Cd	–	[20]	Tk
2032 95	Re	10	–	a
2032.93	Ir	3 w	4	a
2032.73	Os	12	3	a
2032.728	Co	2	18	–
2032.66	Ir	4 w	–	a
2032 64	Re	2 h	8	a
2032 6	Be	–	2	Md
2032.51	Rh	2	3	a
2032.51	Os	5	1	a
2032 46	Cb	–	25 w	–
2032.447	P I	12	[15]	Ri
2032.41	Pt	20	25	–
2032.39	Os	5	3	a
2032 39	Ta	2	10	a
2032 30	Ni II	2	25	–
2032.28	V I	5	–	–
2032.12	Ir	8 d	10	a
2032.05	Mo	2 h	12	a
2032.02	Pd	–	30	–
2031.97	Re	5	10	a
2031.948	Co	–	9	–
2031.93	Ta	4	–	a
2031.92	Xe	–	[3]	Dj
2031.8	bh C	2	–	L
2031.67	Re	5	–	a
2031.52	Rh	1 h	5	a
2031.50	Ir	4	25	a
2031.452	W	6	5	–
2031.446	Pt II	–	20	–
2031.4	As	–	75	Lg
2031.4	Hf	–	2	Md
2031.37	V	–	4 h	–
2031.26	Ir	1	5 w	a
2031 05	Re	5	3	a
2031.023	Cu II	2	35	Sh
2030.92	Re	8	4	a
2030.88	Rh	–	20	a
2030.73	Zr II	1	6	Ks
2030.68	Ir	2 h	5	a
2030.63	Pt	15	25	–
2030.30	Ir	3	10	a
2030.19	Os	6	–	a
2030.18	Rh	1	4	a
2029.983	W II	10	30	–
2029.94	Cu II	3	15 wh	–
2029.91	Zr	2	2	–
2029.90	Rh	3 h	35	a
2029.88	Hf II	5	4	Me
2029.88	Ir	8 w	–	a
2029.83	Ni	5	–	–
2029.74	Ir	–	5 d	a
2029.70	Zn II	–	[2]	Vs
2029.64	Ir	–	5 d	a
2029.46	Hg	–	[8]	Dj
2029.32	Cb	10	50	a
2029.3	Hf	–	2	Md
2029.27	Sb	1	12	Wt
2029.251	Ni I	10	–	–
2029.20	Ir	4	8	a
2029.19	Ni II	–	25	–
2029.18	Os	5	1	a
2029.118	W	3	12	–
2029.03	Rh	1	10	a
2028.90	Cr	–	2 h	–
2028.87	As I	2	–	Me
2028.87	V	–	2	–
2028.87	Ta	6	–	a
2028.86	Cd II	–	[5]	Tk
2028.65	Ir	5	50	–
2028.58	Pt I	10	8	–
2028.47	Rh	1	25	a
2028.451	V	6	–	Me
2028.38	Rh	1 h	4	a
2028.31	Pt	12	5	–
2028.23	Os	20	5	a
2028.18	Hf II	25	15	Me
2028.14	Mo	2 h	10	a
2027.95	Re	6	–	a
2027 92	Ir	2	25	a
2027.90	W	3	3	a
2027.8	K	–	[2]	Ml
2027.80	Rh	2	25	a
2027.78	Ir	12	5	a
2027.617	V	5	2 wh	–
2027.45	Os	10	2	a
2027.305	W	6	10	–
2027.3	Sb	–	[4]	Lg
2027.26	Ir	2	10	a
2027.24	Pt	3	3	–
2027.18	Cu II	–	15	–
2027.16	Xe	–	[4]	Dj
2027.027	W	5	12	–
2027.02	Co II	15	50	–
2026.971	Hg II	–	[100]	Ps
2026.92	Ta	2	–	–
2026.75	Mo	–	12	a
2026.69	Pd	–	25	–
2026.63	Ni I	10	5 h	–
2026.61	Zr II	–	3	Ks
2026.54	Os	5	1	a
2026.51	Se	–	[4]	Ro
2026.36	Ni	8	–	–
2026.2	bh C	25	–	L
2026.2	Tl	–	2 d	Cx
2026.19	Zn II	–	[2]	Vs
2026.17	Rh	1 h	3	a
2026.16	Os	5	–	a
2026.10	Ir	4 w	–	a
2026 08	W II	7	25	–
2025.96	Ir	–	25	a
2025.9	Hf	–	4	Md
2025.86	Pt	10	3	–
2025.82	Mg I	8 h	–	Ps
2025.81	Ni	6	–	–
2025.75	Co II	10 l	30	–

Wavelength	Element	Intensities Arc	Spk.,[Dis.]	R
2025.69	Os	6	–	a
2025.53	U	2	3	a
2025.51	Zn II	200	200	Ps
2025.49	Ir	4	10	a
2025.475	Cu II	8	30	–
2025.44	In	–	12	Wb
2025.38	Ni I	10 r	7	–
2025.33	Zr II	1	4	Ks
2025.33	Er	5	–	a
2025.31	Cb	10	30	a
2025.159	Pt II	2	10	Sh
2025.15	Rh	2	40	a
2025.15	Cu	2	–	–
2025.13	Se	–	[4]	Ro
2025.12	Os	6	2	a
2024.93	Rh	3	25	a
2024.66	Zn II	–	[25]	Vs
2024.63	Pt	8	1	–
2024.546	P I	12	[12]	Ri
2024.49	Os	10	2	a
2024.47	Ir	3	25	–
2024.43	Co	3	–	a
2024.33	Cu I	50 r	6	–
2024.20	Te	5	–	Kh
2024.07	Ir	8	1 h	a
2024.06	Sb	–	[5]	Lg
2024.02	Ta	2	12	a
2023.99	Bi	50	–	To
2023.97	Ir	40	–	a
2023.86	Sb	8	1	Wt
2023.82	Re	4	–	a
2023.80	I	–	[100]	Lc
2023.74	Rh	–	70	a
2023.72	Os	10	2	a
2023.66	Re	10	50	a
2023.56	V II	–	40	–
2023.53	Pt	8	2	a
2023.48	Ir	3 w	1	a
2023.471	P I	15	[12]	Ri
2023.36	Hf	2	–	Me
2023.24	Ir	3	1	a
2023.14	Re	7 wh	6	a
2023.09	Os	5	–	a
2022.83	Ir	4	50	–
2022.82	I	–	[12]	Lc
2022.80	Al II	–	[8]	Sy
2022.76	Os	15	6	a
2022.64	V	–	8 wh	–
2022.37	Rh	3	4	a
2022.35	W	2 h	12	–
2022.35	Ir	15	4	a
2022.34	Co II	18	75	–
2022.24	Cu II	–	10	–
2022.20	Ir	–	12	–
2022.19	Hg	–	[30]	Dj
2022.16	Os	5	–	a
2022.14	Cr	–	3	–
2022.07	Pb	5	12	–
2022.048	W	4	15	–
2022.0	Hf	–	2	Md
2021.83	V II	–	2 h	–
2021.80	Se I	–	[8]	Rd
2021.72	Ta	5	–	a
2021.61	Os	1	2	a
2021.6	Ga	–	3 h	Wb
2021.51	Ir	–	50	a
2021.46	Ir	1	3	a
2021.45	Rh	–	8	a
2021.44	W II	–	6	–
2021.38	Au I	8	–	Ml
2021.38	V	–	4 w	–
2021.28	Os	8	–	a
2021.28	Ni I	5	–	–
2021.21	Bi I	40 wh	15	To
2021.18	Rh	–	10	a
2021.11	Re	4	–	a
2021.04	Xe	–	[4]	Dj
2020.97	Ni II	–	30	–
2020.92	Pt	2 h	–	–
2020.90	Hg	–	[2]	Dj
2020.85	V	–	6	–
2020.82	Ir	1	25	a
2020.73	Ta	2	6	a
2020.6	Tl	–	2 d	Cx
2020.56	V II	–	3	–
2020.52	Fe	2	100	a
2020.5	Bi	2	–	Rk
2020.44	O II	–	[5]	Fl
2020.41	Ta	2	3	a
2020.33	Cd	–	[2]	Bl
2020.30	Mo	20	50 r	a
2020.27	O	–	[5]	Fl
2020.26	Os	25	10	a
2020.13	W	8	2 h	a
2020.11	V	–	2	–
2020.07	Hf	3	4	Me
2020.04	Os	10	2	a
2019.87	Os	3	2	a
2019.80	Cb	4	15	a
2019.79	Pd I	12	4	–
2019.78	Ir	–	30	a
2019.67	Re	6	–	a
2019.6	K	–	[2]	Ml
2019.6	Ga	–	5 h	Wb
2019.57	W	2 h	8	a
2019.54	Ta	4	18	a
2019.54	Pd I	15	10	–
2019.49	V II	–	3	–
2019.40	Os	5	2	a
2019.30	Re	3 h	12	a
2019.13	Ir	–	10 d	a
2019.08	Os	2	5	a
2019.06	Ir	–	10 d	a
2019.05	Ge	2 R	–	–
2019.04	Ni II	2	30	–
2018.87	V	–	2 h	–
2018.67	Cb	2	15	a
2018.55	Re	3	12	a
2018.45	Rh	–	20	a
2018.329	Pt II	5 w	25	–
2018.18	Rh	5	4	a
2018.14	Os	20	5	a
2018.00	Os	5	3 w	a
2017.99	Ir	2 h	40	–
2017.88	Re	40	6	a
2017.79	Ir	3 w	–	a
2017.77	Rh	–	10	a
2017.61	Cu II	4	2	–
2017.57	Ir	5 w	–	a
2017.45	Rh	–	80	a
2017.41	Ir	–	50	a
2017.34	Os	2	–	a
2017.34	Pd	2 h	–	–
2017.32	V II	–	2	–
2017.32	Ir	2 h	3	–
2017.28	Cb	3	25	a
2017.26	Co	4	–	a
2017.13	Hg	–	[2]	Dj
2017.13	Os	2	7	a
2017.07	Fe	2	10	a
2016.912	Co	2	–	–
2016.91	Al II	–	[80]	Sy
2016.891	Pt II	–	20	Sh
2016.883	Cu II	2	20	–
2016.71	Pt	8	8	–
2016.62	Os	3	15	a
2016.60	O II	–	[5]	Fl
2016.59	Re	10	6 wh	a
2016.54	V II	–	25	–
2016.52	Zr	–	3	Ks
2016.40	W	4	20	a
2016.35	Ni I	5	–	–
2016.19	Re	9	–	a
2016.05	Cb	5	15	a
2015.99	Co	4	–	a
2015.98	Os	6	2	a
2015.90	Ag II	–	25	–
2015.90	Ir	10	5	a
2015.86	Zr II	–	2	Ks
2015.86	I	–	[12]	Lc
2015.78	Os	8	5	a
2015.78	W	6	20	a
2015.77	V II	–	4	–
2015.575	Cu II	–	50	–
2015.55	V	–	5	–
2015.51	Re	3	–	a
2015.48	Ir	2	10	a
2015.47	W	6	10	a
2015.36	Os	5	2	a
2015.30	Ir	–	25 w	a
2015.20	Rh	2	25	a
2015.16	Ir	6	–	a
2015.11	Mo	12	40	a
2015.10	V II	4	5	–
2014.927	Pt II	5	30	–
2014.75	Ir	2	4	a
2014.69	Re	7	–	a
2014.69	Sb	4	[5]	Wt
2014.66	Ta	2	6	a
2014.58	Co	20 w	–	a
2014.45	Rh	–	12	a
2014.43	W	5	12	a
2014.43	Pb I	3	–	–
2014.38	Ir	3	9 w	a
2014.36	Re	2 h	7	a
2014.232	W	6	12	–
2014.228	Ni I	15 r	10	–
2014.20	Pd	–	30	–
2014.19	V II	2	50	–
2014.18	Ba II	–	[4]	Rs
2013.98	Pt	3	20	a
2013.96	Pd I	7	–	–
2013.86	Co	–	10	–
2013.83	Ir	3	5	a
2013.81	Pd	–	30	–
2013.79	Xe	–	[2]	Dj
2013.74	Rh	–	100	a
2013.65	Ta	2	4	a
2013.48	Re	4	2	a
2013.42	Os	5	2	a
2013.40	Rh	–	5	a
2013.38	Hf II	2	2	Me
2013.32	As I	25 r	8	Me
2013.24	Ir	10	9	a
2013.09	Os	5	3 w	a
2013.07	W	5	7	a
2012.96	Cu II	–	20	Sh
2012.85	V	–	8	–
2012.78	Hf II	10	4	Me
2012.77	As I	10	–	Me
2012.76	Re	9	2 h	a
2012.75	Ra II	–	[8]	Rs
2012.72	Rh	–	25	a
2012.71	Ir	5 wh	3	–
2012.66	Zr II	2 h	2 h	Ks
2012.65	V II	–	4	–
2012.62	Zn	–	[250]	Vs
2012.6	Sb	–	2	Lg
2012.58	Pt	9	6	a
2012.46	Os	4	–	a
2012.45	Cr	–	8	–
2012.40	Ir	2 h	4	a
2012.3	bh C	30	–	L
2012.30	Tl II	–	2	–
2012.17	Ir	–	15	a
2012.12	Mn	–	30	a
2012.03	Zr	–	2	Ks
2012.00	Au I	15	18	–
2011.99	Cb	4	25	a
2011.96	Ir	5	4	a
2011.56	V	3	–	a
2011.50	Co	15	50	–
2011.39	Bi	2 h	–	To
2011.39	W	–	6	–
2011.31	Ge I	2 R	–	Gt
2011.3	Hf	–	2	Md
2011.26	Ir	2 h	15	a
2011.16	Cr	8	12	a
2011.07	Re	3	5	a
2011.07	Co	5	–	a
2011.04	Ir	4	8	a
2011.04	Pt	6	–	a
2010.97	Si I	8	–	Ks
2010.91	Ir	5	–	a
2010.74	W	3	2 h	a
2010.7	K	–	[5]	Ml
2010.65	Ir	15	15	a
2010.5	Hf	–	2	Md
2010.47	Rh	–	25	a
2010.23	W II	6	12	–
2010.15	Os	10	4	a
2010.10	Co	8	–	a
2010.04	As I	10	–	Me
2010.01	V	–	3 w	–
2010.00	Cb	5	25	a

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2009.979	W	8	12	–
2009.92	Re	3	15	a
2009.91	Ir	3 w	–	a
2009.77	V	–	2	–
2009.76	Ir	3 w	20	–
2009.65	Os	4	20	a
2009.36	Ir	–	25	–
2009.35	Os	3	–	a
2009.34	V	–	2 wh	–
2009.32	Zn	–	[2]	Vs
2009.18	As I	50 r	8	Me
2009.01	Ir	4 w	–	a
2008.91	W	6	–	a
2008.75	Cb	–	2	–
2008.64	W	4	–	a
2008.55	Hg	–	[10]	Dj
2008.45	Cb	4	20	a
2008.43	Si I	3	–	Ks
2008.29	Ir	–	15	a
2008.28	Co	5	5	–
2008.21	Pd II	–	25	–
2008.10	Re	9	5	a
2008.073	W	12	25	–
2008.06	Cd II	–	[10]	Tk
2008.0	Hf	–	4	Md
2007.97	Os	5	4	a
2007.90	Re	2 h	5	a
2007.7	Ga	–	4 h	Wb
2007.676	Ni I	9	3	–
2007.65	V II	–	10	–
2007.55	Pt	–	7	a
2007.36	Pt	9	–	a
2007.18	Ir	4	15	a
2006.996	Ni I	15	3	–
2006.97	Pd	20	8	–
2006.92	W	5	–	a
2006.87	V	2	40	–
2006.8	K	–	[5]	MI
2006.73	Ta	8	–	a
2006.717	W	5	12	–
2006.62	Ta	5	–	a
2006.5	bh C	15	–	L
2006.44	Ir	12	2	a
2006.4	Ra II	–	[4]	Rs
2006.16	Os	5	–	a

Wave-length	Element	Intensities Arc	Spk.,[Dis.]	R
2006.09	W	2	4	a
2005.87	V	–	6	–
2005.87	Os	4	8	a
2005.86	Ir	3	35	–
2005.85	Rh	–	8	a
2005.61	Rh	–	10	a
2005.57	Ir	4	7	a
2005.37	Rh	–	10	a
2005.24	Ir	5	–	a
2005.21	V II	–	2	–
2005.12	Rh	–	25	a
2005.03	Cb	5	25	a
2004.96	Cr	12	–	a
2004.9	Tl	–	2 d	Cx
2004.85	Ir	6	7	a
2004.84	Re	10	–	a
2004.78	Os	10	–	a
2004.78	V II	–	50	–
2004.77	Sb	8	–	Wt
2004.76	Cb	4	20	–
2004.69	Re	4	20	a
2004.65	Cd	–	[10]	Bl
2004.57	Hg	–	[8]	Dj
2004.53	Ta	2	6	a
2004.52	Ir	–	25	a
2004.43	Re	5	–	a
2004.35	Ir	5	–	a
2004.335	Pt II	–	25	–
2004.29	Ni II	–	30	–
2004.13	Pt I	12	5	–
2004.08	Ir	4	15	a
2003.92	Os	5	3	a
2003.91	Ta	2	6	a
2003.82	Mn	50 r	25	a
2003.80	Pd	–	40	–
2003.73	Os	5	10	a
2003.56	Ir	2	25	a
2003.56	Re	18	6	a
2003.53	Rh	–	10	a
2003.51	Os	5	3	a
2003.39	Rh	–	7	a
2003.34	As I	300 R	10 h	Me
2003.146	Pt II	5	15	Sh
2002.86	S	–	[10]	Lc
2002.72	Te	50	[5]	Kh

Wave-length	Element	Intensities Arc	Spk:,[Dis.]	R
2002.56	W II	–	2	Ln
2002.54	As I	20 r	–	Me
2002.27	Cu	–	3	Sh
2002.09	Cb	–	2	–
2002.0	Te I	50	–	MI
2002.0	Hf	–	6	Md
2001.95	Mn	2	18	a
2001.92	Ir	10	25	a
2001.91	Hg	–	[10]	Dj
2001.90	Zr II	–	2	Ks
2001.89	Os	15	2 w	a
2001.82	Ta	5	10	a
2001.817	Ni I	15	3	–
2001.80	Rh	2	5	a
2001.77	Er	5	–	a
2001.706	W II	6	12	–
2001.66	V	–	9	–
2001.59	Bi	2 h	–	To
2001.59	Te	600	–	Kh
2001.49	Re	5	9	a
2001.49	Pd	–	40	–
2001.45	Os	10	3	a
2001.45	V II	–	12	–
2001.43	Rh	–	25	a
2001.30	S	–	[8]	Lc
2001.28	Cd	–	[3]	Tk
2001.26	Os	3	–	a
2001.23	Ir	–	10	a
2001.15	V	–	10	–
2001.09	Os	3	3	a
2000.78	Co II	4	12	–
2000.78	V II	–	5	Me
2000.76	Rh	1	9	a
2000.73	Hg	–	[2]	Dj
2000.73	Pd I	2	10	–
2000.70	Ir	4	2 h	a
2000.684	Ag II	–	30	–
2000.56	Rh	–	10	a
2000.49	Re	2 h	7	a
2000.46	Ni	10	2	–
2000.348	Cu II	6	7	Sh
2000.21	Mo	2	12	a
2000.2	Te I	30	–	MI
2000.14	V	–	10	Me
2000.04	Mo	10	–	a

Symbols Used in Wavelength Tables

(For author symbols in remarks column, see page xxiv)

a new lines (not in literature), element assignments tentative

bh band head

d double line

h hazy, diffuse, nebulous

I interferometer measurement, mean value, unless with author symbol

IS international primary standard

l shaded or displaced to longer wavelengths (asymmetrical)

L literature value, for band heads

m mean value

r narrow self-reversal

R wide self-reversal

s shaded or displaced to shorter wavelengths (asymmetrical)

S international secondary standard

w wide or complex

W very wide or complex

— (in R column) M.I.T. measurement

[ ] discharge-tube intensity

I Line classified as emitted by normal atom

II Line classified as emitted by singly ionized atom