Wavelengths and Energy Level Classifications of Magnesium Spectra for All Stages of Ionization (Mg I through Mg XII)

V. Kaufman and W. C. Martin

National Institute of Standards and Technology, Gaithersburg, MD 20899

Received May 22, 1990; revised manuscript received August 14, 1990

Wavelengths and their classifications are compiled for the spectra of magnesium. Selections of data are based on the critical evaluations in the compilation of energy levels by Martin and Zalubas [1980, J. Phys. Chem. Ref. Data **9**, 1–58], with some updating from the more recent literature. All classifications have been verified with predictions made by differencing the energy levels. In addition to the spectra ordered by ionization stage, two finding lists are included, one containing Mg I to Mg III and the other Mg IV to Mg XII.

Key words: atomic energy levels; atomic ions; atomic spectra; atomic wavelengths; atomic wavenumbers; magnesium.

Contents

1. Introduction

The Atomic Energy Levels Data Center of the National Institute of Standards and Technology (NIST) publishes critical compilations of atomic energy levels, which have updated and supplemented the three volumes of *Atomic Energy Levels* by Charlotte Moore [1971]. Martin, Zalubas, and Hagan [1978] compiled energy-levels data for spectra of the rare-earth elements lanthanum to lutetium ($Z = 57-71$). Similar new critical compilations of energy levels data have been published for Na I–XI, Mg I–XII, Al I–XIII, Si I–XIV [Martin and Zalubas, 1981, 1980, 1979, 1983, respectively], P I–XV, and S I–XVI [Martin, Zalubas, and Musgrove, 1985, 1990]. Compilations of the energy levels for all spectra of the iron-period elements potassium through nickel [Sugar and Corliss, 1985] and for Mo I–XLII and Cu I–XXIX [Sugar and Musgrove, 1988, 1990] have also been published.

These new compilations review the literature and provide the best available basis for assembling a complete list of classified spectral lines for each stage of ionization. Recently NIST, in collaboration with the Japan Atomic Energy Research Institute, has compiled wavelengths for high-ionization spectra of iron, nickel, copper, and molybdenum [T. Shirai *et al.*, 1990, 1987a, 1991, 1987b]. A wavelengths compilation including all stages of ionization of scandium (Sc I–XXI) has been published by Kaufman and Sugar [1988].

We have used the magnesium energy-levels compilations by Martin and Zalubas [1980], supplemented by some more recent publications, to compile the lists of classified lines given here. The energy levels were used to predict wavenumbers and wavelengths for comparison with the directly measured values. This method reveals errors in transcribing the various data and provides a convenient way of generating the energy-level classifications of the lines.

The most complete data are given in twelve separate tables, one for each spectrum (ionization stage). No limi-

tation has been imposed on the wavelength range of the classified lines. In addition to the observed lines due to electric-dipole transitions, we have tabulated observed "forbidden" lines from electric-quadrupole and magnetic-dipole transitions. The tables for Mg XI (helium-like) and Mg XII (hydrogen-like) include predicted wavelengths for a number of allowed lines that have not yet been observed. Although these wavelengths were derived from theoretically calculated levels, their estimated accuracy is in most cases greater than the usual experimental accuracy of measurements for such transitions.

At the beginning of the table for each spectrum, we give the isoelectronic sequence, the ground state, and the ionization energy (the divisor 8065.5410 ± 0.0024 cm^{-1}/eV has been used to convert wavenumber values to eV units [Cohen and Taylor, 1987]). A list of references is also given with each table. *Our comments on the data and references are supplementary to the information given by Martin and Zalubas [1980]; this reference is hereafter abbreviated as "MZ80" and is omitted from the reference lists for the individual tables.*

The format of the tables is similar to that adopted by Kelly [1987]. The comments below follow the sequence of the columns in the tables.

Mult. No.

The multiplet numbers are those assigned by Moore [1950, 1959].

Relative Intensity

The numbers are usually visual estimates related in some way to plate blackening. Some authors limit these estimates to a small range (e.g., 1 to 10) while others reach into the 100,000's. Such numbers are useful within a small wavelength range and are meaningful only for comparing lines of a particular spectrum as taken from a particular reference. More meaningful relative intensities obtained with photoelectric or solid-state detectors are given by some authors, especially for observations in the infrared region. We have in some cases adjusted the intensities in particular regions to reduce apparent discrepancies between different observers, etc. Kelly [1987] adjusted the various intensity scales of the original observers to a normalized scale having a maximum intensity of 1000. For some spectra, we give Kelly's adjusted intensities for some or all of the lines below 2000 Å. We use the following symbols to further characterize the lines:

- E2 electric-quadrupole transition
- M1 magnetic-dipole transition
- *bl* blended with another line that may affect the wavelength and intensity
- *m* masked by another line (no wavelength measurement)
- *d* diffuse, wide, hazy, etc.
- *g* transition involving a level of the ground term
- *a* observed in absorption

Wavelength

Vacuum wavelengths are given for the region below 2000 Å and wavelengths in standard air for the region 2000 – 10 000 Å. The data are tabulated in order of increasing wavelengths. Both the observed and calculated wavelengths are given for the classified lines, the calculated values being obtained from the energy-levels differences. A question mark following a calculated wavelength indicates that the energy-levels classification of the line is questionable. We converted vacuum wavelengths or wavenumbers to wavelengths in air using the three-term formula of Peck and Reeder [1972] for the index of refraction of air.

Wavenumber

Vacuum wavenumbers are given instead of wavelengths for lines having wavelengths greater than 10 000 Å (1000 nm). The lines are listed in order of decreasing wavenumber, and both the observed and calculated values are given for classified lines.

Levels

The numerical values of the two levels for the transition. The values of levels obtained from theoretical calculations are enclosed in brackets. A question mark following the upper level indicates that the classification is tentative.

Configurations, Terms and J Values

These data for the two levels are given in successive columns. The configuration and term notations are described fully by Martin *et al.* [1978]. Levels having incomplete theoretical designations are indicated by blank spaces in one or more of the columns. A blank J value may also indicate that the corresponding level value represents two or more unresolved levels. A fully interpreted level lacking an appropriate configuration and/or term designation because of a strongly mixed eigenvector composition is indicated by the symbol "$\langle\psi|$" in the corresponding column(s).

Ref.

The source of the observed wavelength is cited for each line. The letter-numerical symbols indicate references listed at the beginning of the table.

The wavelengths calculated from the differences of the energy levels should in general be more accurate

than the observed values wherever the two values differ *significantly*. The upper energy levels for some transitions were rounded off to fewer significant figures than were given for the quoted observed wavelengths, in order to represent the uncertainties of the data more realistically; any differences between such observed wavelengths and values calculated from the rounded-off energy levels are in general insignificant. In a few cases, needed reevaluations of particular energy levels on the basis of more recent measurements have not yet been carried out; the greater accuracy of the pertinent observed wavelengths is noted in such cases.

Some observed lines are classified as unresolved blends of two or more transitions. We list the calculated wavelength for each of the main components of such a blend or, in some cases, the calculated wavelength of the probable strongest component.

The tables for the individual spectra are followed by two finding lists. Section 3 contains the lines of Mg I through Mg III and Sec. 4 contains the lines of Mg IV through Mg XII. This separation is intended to follow roughly the division of user interests. The finding lists include only wavelengths, intensities, and spectrum symbol.

The wavelengths in the finding lists are observed values unless otherwise indicated: wavelengths calculated from experimental energy levels are followed by the letter "*c*", and calculated wavelengths involving theoretical or series-formula levels are given in brackets. The wavelengths for Mg XI and Mg XII in Sec. 4 comprise theoretically calculated values.

1.1. Acknowledgments

We are grateful to Geraldine Dalton and Arlene Musgrove for their extensive help with the formatting and computer typesetting of the data in this compilation.

1.2. References for the Introduction

Cohen, E. R., and Taylor, B. N. [1987], Rev. Mod. Phys. **59**, 1121–1148.

Kaufman, V., and Sugar, J. [1988], J. Phys. Chem. Ref. Data **17**, 1679–1789.

Kelly, R. L. [1987], J. Phys. Chem. Ref. Data **16**, Suppl. No. 1.

Martin, W. C., and Zalubas, R. [1979], J. Phys. Chem. Ref. Data **8**, 817–864.

Martin, W. C., and Zalubas, R. [1980], J. Phys. Chem. Ref. Data **9**, 1–58.

Martin, W. C., and Zalubas, R. [1981], J. Phys. Chem. Ref. Data **10**, 153–195.

Martin, W. C., and Zalubas, R. [1983], J. Phys. Chem. Ref. Data **12**, 323–380.

Martin, W. C., Zalubas, R., and Hagan, L. [1978], *Atomic Energy Levels—The Rare-Earth Elements*, Natl. Stand. Ref. Data Ser., Natl. Bur. Stand. (U.S.) **60**, 422 pp.

Martin, W. C., Zalubas, R., and Musgrove, A. [1985], J. Phys. Chem. Ref. Data **14**, 751–802.

Martin, W. C., Zalubas, R., and Musgrove, A. [1990], J. Phys. Chem. Ref. Data **19**, 821–880.

Moore, C. E. [1950], U.S. Natl. Bur. Stand., Circ. **488**. Sec. 1.

Moore, C. E. [1959], U.S. Natl. Bur. Stand., Tech. Note **36**.

Moore, C. E. [1971], *Atomic Energy Levels*, Natl. Stand. Ref. Data Ser., Natl. Bur. Stand. (U.S.) **35**, Vol. I, 359 pp.; Vol. II, 259 pp.; Vol. III, 282 pp. (Reprint of NBS Circ. 467 published in 1949 (Vol. I), 1952 (Vol. II), and 1958 (Vol. III).)

Peck, E. R., and Reeder, K. [1972], J. Opt. Soc. Am. **62**, 958.

Shirai, T., Funatake, Y., Mori, K., Sugar, J., Wiese, W. L., and Nakai, Y. [1990], J. Phys. Chem. Ref. Data **19**, 127–275.

Shirai, T., Mori, K., Sugar, J., Wiese, W. L., Nakai, Y., and Ozawa, K. [1987a], At. Data and Nucl. Data Tables **37**, 235–332.

Shirai, T., Nakagaki, T., Nakai, Y., Sugar, J., Ishii, K., and Mori, K. [1991], J. Phys. Chem. Ref. Data **20**, 1–81.

Shirai, T., Nakai, Y., Ozawa, K., Ishii, I, Sugar, J., and Mori, K. [1987b], J. Phys. Chem. Ref. Data **16**, 327–377.

Sugar, J., and Corliss, C. [1985], J. Phys. Chem. Ref. Data **14**, Suppl. No. 2.

Sugar, J., and Musgrove, A. [1990], J. Phys. Chem. Ref. Data **19**, 527–616.

2. Tables of Wavelengths and Energy Level Classifications

Mg I

Ground state $1s^2 2s^2 2p^6 3s^2\ ^1S_0$

Ionization energy 61 671.05 ± 0.03 cm^{-1} (7.646238 ± 0.000005 eV)

The wavelengths and classifications are from a number of observers, most of the data having been described by MZ80. The calculated four-place wavelengths given for the lines between 1668 and 1828 Å were obtained from Risberg's $3snp\ ^1P^\circ_1$ levels ($n = 5-9$) [R1]; the estimated errors are in the range 0.0010 to 0.0005 Å.

Biémont and Brault [B3] observed the infrared spectrum from 9000 to 1800 cm^{-1} using a hollow-cathode discharge and Fourier-transform spectroscopic techniques. Emission lines observed in infrared solar spectra [B5, M2] have been classified as arising from high-l Mg I levels [C3, C2]. Glenar *et al.* [G2] classified several additional solar infrared absorption lines as Mg I transitions.

Biémont and Brault [B3] and Chang [C2] give new energy levels and refined values for several previously known levels. We have retained Risberg's value for the $3s7f\ ^3F^\circ,^1F^\circ$ position and have adopted slightly different values for the $3s6d\ ^3D_3$ and $^3D_2$ levels than those given by Chang. Biémont and Brault did not reevaluate all of the upper levels for transitions observed by them; their three-place observed wavenumbers are thus probably more accurate than some of the two-place values calculated from the levels of MZ80.

Lemoine *et al.* [L2] have recently used a diode-laser spectrometer to measure 23 lines in the range 1126 to 743 cm^{-1} with standard-deviation errors mainly between 0.0002 and 0.001 cm^{-1}. These measurements fix the separations between various $3snl$ levels in the range $n = 5$ to 9 with high accuracy, but the corresponding level reevaluations have in most cases not been carried out. The four-place observed wavenumbers of Lemoine *et al.* are thus more accurate than the calculated values.

High-accuracy determinations of the $3s3p\ ^3P^\circ$ fine-structure intervals have been reported for the three isotopes ^{24}Mg, ^{25}Mg, and ^{26}Mg during the past several years [B4, G3, I1, G4]. The experimental wavenumber for the $^3P^\circ_1 - {}^3P^\circ_2$ magnetic-dipole transition given here is accurate to about 0.0001 cm^{-1} as determined for ^{24}Mg [I1]. We obtained the tabulated "observed" value for the $^3P^\circ_0 - {}^3P^\circ_1$ interval by weighting the determinations for the three isotopes [G3] according to the natural abundances; the separate determinations have higher accuracies than indicated here [G3, G4]. This new experimental $^3P^\circ_0 - {}^3P^\circ_1$ separation is 0.0025 cm^{-1} less than the previous value of 20.059 cm^{-1} [MZ80]. We have not revised the $3s3p\ ^3P^\circ$ levels for this compilation, the discrepancy being insignificant for most of the spectrum.

We redetermined the ionization energy by fitting the $3s5g - 8g$, $3s6h - 8h$, and $3s7i$ levels to a single core-polarization formula with the dipole and quadrupole polarizabilities and the ionization energy as parameters. We obtained an ionization energy of 61 671.053 cm^{-1}, with a standard deviation of 0.003 cm^{-1}, in agreement with the value 61 671.056 cm^{-1} obtained by Chang [C2] using a somewhat different core-polarization treatment of the data. These values are consistent with Risberg's previous value of 61 671.02 cm^{-1} [R1] within the uncertainties. We adopt the value 61 671.05 ± 0.03 cm^{-1}, the error being mainly an estimate of the uncertainty of the connection between the system of high-l levels and the ground level.

References

B1 Brown, C. M., Naber, R. H., Tilford, S. G., and Ginter, M. L. [1973], App. Opt. **12**, 1858–1864.
B2 Baig, M. A., and Connerade, J. P. [1978], Proc. R. Soc. (London), A **364**, 353–366.
B3 Biémont, E., and Brault, J. W. [1986], Phys. Scr. **34**, 751–758.
B4 Bava, E., De Marchi, A., Godone, A., Rovera, G. D., and Giusfredi, G. [1983], Opt. Commun. **47**, 193–195.
B5 Brault, J., and Noyes, R. [1983], Astrophys. J. **269**, L61–L66.
C1 Codling, K. [1961], Proc. Phys. Soc. (London) **77**, 797–800.
C2 Chang, E. S. [1987], Phys. Scr. **35**, 792–797.
C3 Chang, E. S., and Noyes, R. [1983], Astrophys. J. **275**, L11–L13.
E1 Esteva, J. M., and Mehlman, G. [1974], Astrophys. J. **193**, 747–753.
E2 Ederer, D. L., Lucatorto, T. B., and Mehlman, G. [1979], J. Opt. Soc. Am. **69**, 520–524.
E3 Ewart, P. [1977], Phys. Lett. A **61**, 383–384.
E4 Esteva, J. M., Mehlman-Balloffet, G. and Romand, J. [1972], J. Quant. Spectrosc. Radiat. Transfer **12**, 1291–1303.
G1 Goorvitch, D., Mehlman-Balloffet, G., and Valero, F. P. J. [1970], J. Opt. Soc. Am. **60**, 1458–1461.
G2 Glenar, D. A., Reuter, D. C., Deming, D., and Chang, E. S. [1988], Astrophys. J. **335**, L35–L38.
G3 Godone, A., Bava, E., and Giusfredi, G. [1984], Z. Phys. A **318**, 131–134.
G4 Godone, A., Bava, E., and Novero, C. [1987], Metrologia **24**, 133–138.
I1 Inguscio, M., Leopold, K., Murray, J. M., and Evenson, K. M. [1985], J. Opt. Soc. Am. B **2**, 1566–1569.
L2 Lemoine, B., Petitprez, D., Destombes, J. L., and Chang, E. S. [1990], J. Phys. B **23**, 2217–2225.
M1 Meissner, K. W. [1938], Ann. Phys. (Leipzig) [5] **31**, 505–517.
M2 Murcray, F. J., Goldman, A., Murcray, F. H., Bradford, C. M., Murcray, D. G., Coffey, M. T., and Mankin, W. G. [1981], Astrophys. J. **247**, L97–L99.
N1 Newsom, G. H. [1971], Astrophys. J. **166**, 243–247
R1 Risberg, G. [1965], Ark. Fys. **28**, 381–395.
S1 Swensson, J. W., and Risberg, G. [1966], Ark. Fys. **31**, 237–254.

Mg I

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	g,a	180.6	180.6	0.000 –	553 710	$3s^2 - 2p^5(^2P^o)3p^2(^1S)\ (^2P^o_{1/2})4s$?	$^1S -$	0 – 1	E2
	g,a	181.0	181.0	0.000 –	552 490	$3s^2 - 2p^5(^2P^o)3p^2(^1S)\ (^2P^o_{3/2})4s$?	$^1S -$	0 – 1	E2
	g,a	182.06	182.06	0.000 –	549 270	$3s^2 - 2p^5(^2P^o)3s3d(^3D)\ (^2P^o_{1/2})5d$?	$^1S -$	0 – 1	E2
	g,a	182.7	182.7	0.000 –	547 350	$3s^2 - 2p^5(^2P^o)3p^2(^3P)\ (^2P^o)3d$?	$^1S -$	0 – 1	E2
	g,a	183.03	183.03	0.000 –	546 360	$3s^2 - 2p^5(^2P^o)3s3d(^3D)\ (^2P^o_{1/2})4d$?	$^1S -$	0 – 1	E2
	g,a	183.15	183.15	0.000 –	546 060	$3s^2 - 2p^5(^2P^o)3s3d(^3D)\ (^2P^o_{3/2})4d$?	$^1S -$	0 – 1	E2
	g,a	183.53	183.53	0.000 –	544 870	$3s^2 - 2p^5(^2P^o)3s3d(^3D)\ (^2P^o_{3/2})4d$?	$^1S -$	0 – 1	E2
	g,a	185.95	185.95	0.000 –	537 780	$3s^2 - 2p^5(^2P^o)3s3d^2$?	$^1S -$	0 – 1	E2
	g,a	187.4	187.4	0.000 –	533 600	$3s^2 - 2p^5(^2P^o)3p^2(^3P)\ (^2P^o)4s$?	$^1S -$	0 – 1	E2
	g,a	187.68	187.68	0.000 –	532 820	$3s^2 -$	$^1S -$	0 – 1	E2
	g,a	188.75	188.75	0.000 –	529 800	$3s^2 -$	$^1S -$	0 – 1	E2
	g,a	189.93	189.93	0.000 –	526 510	$3s^2 -$	$^1S -$	0 – 1	E2
	g,a	194.07	194.07	0.000 –	515 280	$3s^2 - 2p^5(^2P^o)3s3p(^1P^o)\ (^2S_{1/2})5p$?	$^1S -$	0 – 1	E2
	g,a	194.66	194.66	0.000 –	513 720	$3s^2 - 2p^5(^2P^o)3p^2(^1D)\ (^2P^o_{3/2})4s$?	$^1S -$	0 – 1	E2
	g,a	196.8	196.8	0.000 –	508 130	$3s^2 - 2p^5(^2P^o)3s3p(^1P^o)\ (^2S_{1/2})4p$?	$^1S -$	0 – 1	E2
	g,a	198.05	198.05	0.000 –	504 920	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2S_{1/2})9p$?	$^1S -$	0 – 1	E2
	g,a	198.26	198.26	0.000 –	504 390	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2S_{1/2})8p$?	$^1S -$	0 – 1	E2
	g,a	198.63	198.63	0.000 –	503 450	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2S_{1/2})7p$?	$^1S -$	0 – 1	E2
	g,a	199.26	199.26	0.000 –	501 860	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2S_{1/2})6p$?	$^1S -$	0 – 1	E2
	g,a	200.43	200.43	0.000 –	498 930	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2S_{1/2})5p$?	$^1S -$	0 – 1	E2
	g,a	201.88	201.88	0.000 –	495 340	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2P_{3/2})5p$?	$^1S -$	0 – 1	E2
	g,a	202.42	202.42	0.000 –	494 020	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)4p$?	$^1S -$	0 – 1	E2
	g,a	202.75	202.75	0.000 –	493 220	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2S_{1/2})4p$?	$^1S -$	0 – 1	E2
	g,a	203.29	203.29	0.000 –	491 910	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2S_{1/2})4p$?	$^1S -$	0 – 1	E2
	g,a	204.34	204.34	0.000 –	489 380	$3s^2 - 2p^5(^2P^o)3s3p(^3P^o)\ (^2P_{3/2})4p$?	$^1S -$	0 – 1	E2
	g,a	210.00	210.00	0.000 –	476 190	$3s^2 - 2p^5(^2P^o)3s3p^2(^2P)$	$^1S - {}^1P^o$	0 – 1	E2
	g,a	213.52	213.52	0.000 –	468 340	$3s^2 - 2p^5(^2P^o)3s3p^2(^2S)$	$^1S - {}^1P^o$	0 – 1	E2
	g,a	215.311	215.299	0.000 –	464 470	$3s^2 - 2p^5(^2P^o_{1/2})3s^28d$?	$^1S - {}^2[^3/_2]^o$?	0 – 1	N1
	g,a	215.447	215.448	0.000 –	464 150	$3s^2 - 2p^5(^2P^o_{1/2})3s^29s_{1/2}$?	$^1S - (^1/_2,^1/_2)^o$?	0 – 1	N1
	g,a	216.202	216.202	0.000 –	462 530	$3s^2 - 2p^5(^2P^o_{1/2})3s^26d$	$^1S - {}^2[^3/_2]^o$	0 – 1	N1
	g,a	216.357	216.371	0.000 –	462 170	$3s^2 - 2p^5(^2P^o_{1/2})3s^27s_{1/2}$	$^1S - (^1/_2,^1/_2)^o$	0 – 1	N1
	g,a	216.688	216.694	0.000 –	461 480	$3s^2 - 2p^5(^2P^o_{3/2})3s^27d$	$^1S - {}^2[^3/_2]^o$	0 – 1	N1
	g,a	217.208	217.212	0.000 –	460 380	$3s^2 - 2p^5(^2P^o_{3/2})3s^26d$	$^1S - {}^2[^3/_2]^o$	0 – 1	N1
						$3s^2 - 2p^5(^2P^o_{1/2})3s^25d$	$^1S - {}^2[^3/_2]^o$	0 – 1	
	g,a	217.37	217.368	0.000 –	460 050	$3s^2 - 2p^5(^2P^o_{1/2})3s^26s_{1/2}$	$^1S - (^1/_2,^1/_2)^o$	0 – 1	E1
	g,a	218.222	218.221	0.000 –	458 250	$3s^2 - 2p^5(^2P^o_{3/2})3s^25d$	$^1S - {}^2[^3/_2]^o$	0 – 1	N1
						$3s^2 - 2p^5(^2P^o_{3/2})3s^25d$	$^1S - {}^2[^1/_2]^o$	0 – 1	
	g,a	218.37	218.369	0.000 –	457 940	$3s^2 - 2p^5(^2P^o_{3/2})3s^26s_{1/2}$	$^1S - (^3/_2,^1/_2)^o$	0 – 1	E2
	g,a	219.041	219.039	0.000 –	456 540	$3s^2 - 2p^5(^2P^o_{1/2})3s^24d$	$^1S - {}^2[^3/_2]^o$	0 – 1	N1
	g,a	219.266	219.269	0.000 –	456 060	$3s^2 - 2p^5(^2P^o_{1/2})3s^25s_{1/2}$	$^1S - (^1/_2,^1/_2)^o$	0 – 1	N1
	g,a	220.056	220.056	0.000 –	454 430	$3s^2 - 2p^5(^2P^o_{3/2})3s^24d$	$^1S - {}^2[^3/_2]^o$?	0 – 1	N1
	g,a	220.298	220.308	0.000 –	453 910	$3s^2 - 2p^5(^2P^o_{3/2})3s^25s_{1/2}$	$^1S - (^3/_2,^1/_2)^o$	0 – 1	N1
	g,a	222.044	222.040	0.000 –	450 370	$3s^2 - 2p^5(^2P^o_{1/2})3s^23d$	$^1S - {}^2[^3/_2]^o$	0 – 1	N1
	g,a	222.685	222.682	0.000 –	449 070	$3s^2 - 2p^5(^2P^o)3s3p^2(^2D)$	$^1S - {}^1P^o$	0 – 1	N1
	g,a	223.429	223.429	0.000 –	447 570	$3s^2 - 2p^5(^2P^o_{3/2})3s^23d$	$^1S - {}^2[^3/_2]^o$	0 – 1	N1
						$3s^2 - 2p^5(^2P^o_{3/2})3s^23d$	$^1S - {}^2[^1/_2]^o$	0 – 1	
	g,a	225.162	225.159	0.000 –	444 130	$3s^2 - 2p^5(^2P^o_{1/2})3s^24s_{1/2}$	$^1S - (^1/_2,^1/_2)^o$	0 – 1	N1
	g,a	225.589	225.581	0.000 –	443 300	$3s^2 - 2p^5(^2P^o)3s3p^2(^4P)$	$^1S - {}^3P^o$	0 – 1	N1
	g,a	226.246	226.244	0.000 –	442 000	$3s^2 - 2p^5(^2P^o_{3/2})3s^24s_{1/2}$	$^1S - (^3/_2,^1/_2)^o$	0 – 1	N1
	g,a	782.94	782.96	0.000 –	127 720	$3s^2 - 4s4p$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	794.10	794.09	0.000 –	125 930	$3s^2 - 4s6p$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	813.38	813.40	0.000 –	122 940	$3s^2 - 4s5p$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	874.46	874.43	0.000 –	114 360	$3s^2 - 4s4p$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1036.96	1036.96	0.000 –	96 436	$3s^2 - 3p12s$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1037.92	1037.93	0.000 –	96 346	$3s^2 - 3p10d$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1039.50	1039.50	0.000 –	96 200	$3s^2 - 3p11s$	$^1S - {}^1P^o$	0 – 1	B2

Mg I — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	g,a	1040.70	1040.70	0.000 –	96 089	$3s^2 - 3p9d$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1042.81	1042.81	0.000 –	95 895	$3s^2 - 3p10s$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1044.54	1044.54	0.000 –	95 736	$3s^2 - 3p8d$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1047.77	1047.78	0.000 –	95 440	$3s^2 - 3p9s$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1048.74	1048.75	0.000 –	95 352	$3s^2 - 3p9s$	$^1S - {}^3P^o$	0 – 1	B2
	g,a	1050.17	1050.17	0.000 –	95 223	$3s^2 - 3p7d$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1055.18	1055.19	0.000 –	94 770	$3s^2 - 3p8s$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1056.53	1056.52	0.000 –	94 650	$3s^2 - 3p8s$	$^1S - {}^3P^o$	0 – 1	B2
	g,a	1059.10	1059.10	0.000 –	94 420	$3s^2 - 3p6d$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1067.44	1067.46	0.000 –	93 680	$3s^2 - 3p7s$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1069.11	1069.06	0.000 –	93 540	$3s^2 - 3p7s$	$^1S - {}^3P^o$	0 – 1	B2
	g,a	1073.51	1073.51	0.000 –	93 152	$3s^2 - 3p5d$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1088.90	1088.85	0.000 –	91 840	$3s^2 - 3p6s$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1091.51	1091.46	0.000 –	91 620	$3s^2 - 3p6s$	$^1S - {}^3P^o$	0 – 1	B2
	g,a	1101.60	1101.60	0.000 –	90 777	$3s^2 - 3p4d$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1135.58	1135.59	0.000 –	88 060	$3s^2 - 3p5s$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1141.85	1141.81	0.000 –	87 580	$3s^2 - 3p5s$	$^1S - {}^3P^o$	0 – 1	B2
	g,a	1163.80	1163.81	0.000 –	85 925	$3s^2 - 3p3d$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1271.34	1271.29	0.000 –	78 660	$3s^2 - 3p4s$	$^1S - {}^1P^o$	0 – 1	B2
	g,a	1299.75	1299.71	0.000 –	76 940	$3s^2 - 3p4s$	$^1S - {}^3P^o$	0 – 1	B2
	g,a	1622.363	1622.363	0.000 –	61 638.48	$3s^2 - 3s59p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.395	1622.395	0.000 –	61 637.27	$3s^2 - 3s58p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.423	1622.423	0.000 –	61 636.20	$3s^2 - 3s57p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.458	1622.458	0.000 –	61 634.87	$3s^2 - 3s56p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.496	1622.496	0.000 –	61 633.43	$3s^2 - 3s55p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.534	1622.534	0.000 –	61 631.99	$3s^2 - 3s54p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.571	1622.571	0.000 –	61 630.60	$3s^2 - 3s53p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.614	1622.614	0.000 –	61 628.94	$3s^2 - 3s52p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.661	1622.661	0.000 –	61 627.17	$3s^2 - 3s51p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.706	1622.706	0.000 –	61 625.45	$3s^2 - 3s50p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.758	1622.758	0.000 –	61 623.49	$3s^2 - 3s49p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.812	1622.812	0.000 –	61 621.43	$3s^2 - 3s48p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.870	1622.870	0.000 –	61 619.23	$3s^2 - 3s47p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.932	1622.932	0.000 –	61 616.88	$3s^2 - 3s46p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1622.997	1622.997	0.000 –	61 614.40	$3s^2 - 3s45p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.069	1623.069	0.000 –	61 611.67	$3s^2 - 3s44p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.143	1623.143	0.000 –	61 608.86	$3s^2 - 3s43p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.225	1623.225	0.000 –	61 605.74	$3s^2 - 3s42p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.312	1623.312	0.000 –	61 602.44	$3s^2 - 3s41p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.406	1623.406	0.000 –	61 598.87	$3s^2 - 3s40p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.508	1623.508	0.000 –	61 595.02	$3s^2 - 3s39p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.619	1623.619	0.000 –	61 590.82	$3s^2 - 3s38p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.737	1623.737	0.000 –	61 586.33	$3s^2 - 3s37p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1623.868	1623.869	0.000 –	61 581.34	$3s^2 - 3s36p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1624.010	1624.010	0.000 –	61 575.99	$3s^2 - 3s35p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1624.165	1624.165	0.000 –	61 570.11	$3s^2 - 3s34p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1624.334	1624.334	0.000 –	61 563.68	$3s^2 - 3s33p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1624.520	1624.520	0.000 –	61 556.63	$3s^2 - 3s32p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1624.727	1624.727	0.000 –	61 548.81	$3s^2 - 3s31p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1624.953	1624.953	0.000 –	61 540.26	$3s^2 - 3s30p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1625.204	1625.204	0.000 –	61 530.73	$3s^2 - 3s29p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1625.485	1625.484	0.000 –	61 520.12	$3s^2 - 3s28p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1625.798	1625.798	0.000 –	61 508.24	$3s^2 - 3s27p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1626.151	1626.151	0.000 –	61 494.90	$3s^2 - 3s26p$	$^1S - {}^1P^o$	0 – 1	B1
	a,E2	1626.36	1626.36	0.000 –	61 487	$3s^2 - 3s25d$	$^1S - {}^1D$	0 – 2	C1

Mg I – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	g,a	1626.549	1626.549	0.000 –	61 479.87	$3s^2 - 3s25p$	$^1S - {}^1P^o$	0 – 1	B1
	a,E2	1626.79	1626.78	0.000 –	61 471	$3s^2 - 3s24d$	$^1S - {}^1D$	0 – 2	C1
	g,a	1627.000	1627.000	0.000 –	61 462.82	$3s^2 - 3s24p$	$^1S - {}^1P^o$	0 – 1	B1
	a,E2	1627.27	1627.29	0.000 –	61 452	$3s^2 - 3s23d$	$^1S - {}^1D$	0 – 2	C1
	g,a	1627.514	1627.514	0.000 –	61 443.41	$3s^2 - 3s23p$	$^1S - {}^1P^o$	0 – 1	B1
	a,E2	1627.82	1627.82	0.000 –	61 432	$3s^2 - 3s22d$	$^1S - {}^1D$	0 – 2	C1
	g,a	1628.104	1628.104	0.000 –	61 421.14	$3s^2 - 3s22p$	$^1S - {}^1P^o$	0 – 1	B1
	a,E2	1628.46	1628.48	0.000 –	61 407	$3s^2 - 3s21d$	$^1S - {}^1D$	0 – 2	C1
	g,a	1628.786	1628.786	0.000 –	61 395.43	$3s^2 - 3s21p$	$^1S - {}^1P^o$	0 – 1	B1
	a,E2	1629.21	1629.22	0.000 –	61 379.2	$3s^2 - 3s20d$	$^1S - {}^1D$	0 – 2	C1
	g,a	1629.579	1629.579	0.000 –	61 365.55	$3s^2 - 3s20p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1630.509	1630.509	0.000 –	61 330.55	$3s^2 - 3s19p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1631.609	1631.609	0.000 –	61 289.19	$3s^2 - 3s18p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1632.924	1632.924	0.000 –	61 239.83	$3s^2 - 3s17p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1634.515	1634.515	0.000 –	61 180.24	$3s^2 - 3s16p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1636.465	1636.465	0.000 –	61 107.34	$3s^2 - 3s15p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1638.890	1638.889	0.000 –	61 016.93	$3s^2 - 3s14p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1641.957	1641.957	0.000 –	60 902.93	$3s^2 - 3s13p$	$^1S - {}^1P^o$	0 – 1	B1
	g,a	1645.924	1645.924	0.000 –	60 756.13	$3s^2 - 3s12p$	$^1S - {}^1P^o$	0 – 1	B1,G1
	g,a	1651.164	1651.164	0.000 –	60 563.35	$3s^2 - 3s11p$	$^1S - {}^1P^o$	0 – 1	B1,G1
	g,a	1658.312	1658.312	0.000 –	60 302.30	$3s^2 - 3s10p$	$^1S - {}^1P^o$	0 – 1	B1,G1
	g,a	1668.429	1668.4288	0.000 –	59 936.63	$3s^2 - 3s9p$	$^1S - {}^1P^o$	0 – 1	B1,G1
	g,a	1683.412	1683.4116	0.000 –	59 403.18	$3s^2 - 3s8p$	$^1S - {}^1P^o$	0 – 1	B1,G1
	g,a	1707.061	1707.0606	0.000 –	58 580.23	$3s^2 - 3s7p$	$^1S - {}^1P^o$	0 – 1	B1,G1
	g,a	1747.794	1747.7937	0.000 –	57 214.992	$3s^2 - 3s6p$	$^1S - {}^1P^o$	0 – 1	B1,G1
	g,a	1827.934	1827.9351	0.000 –	54 706.536	$3s^2 - 3s5p$	$^1S - {}^1P^o$	0 – 1	G1
		Air Wavelength (Å)							
UV2	9g	2025.824	2025.8242	0.000 –	49 346.729	$3s^2 - 3s4p$	$^1S - {}^1P^o$	0 – 1	R1
	4	2553.25	2553.256	21 850.405 –	61 004.33	$3s3p - 3s13d$	$^3P^o - {}^3D$	0 – 1	S1
	1d	2554.58	2554.565	21 870.464 –	61 004.33	$3s3p - 3s13d$	$^3P^o - {}^3D$	1 – 2	S1
	0	2557.226	2557.226	21 911.178 –	61 004.33	$3s3p - 3s13d$	$^3P^o - {}^3D$	2 – 3	R1
	0	2560.941	2560.942	21 850.405 –	60 886.83	$3s3p - 3s12d$	$^3P^o - {}^3D$	0 – 1	R1
	1	2562.259	2562.259	21 870.464 –	60 886.83	$3s3p - 3s12d$	$^3P^o - {}^3D$	1 – 2	R1
	1	2564.937	2564.936	21 911.178 –	60 886.83	$3s3p - 3s12d$	$^3P^o - {}^3D$	2 – 3	R1
	0	2570.908	2570.917	21 850.405 –	60 735.38	$3s3p - 3s11d$	$^3P^o - {}^3D$	0 – 1	R1
	1	2572.248	2572.244	21 870.464 –	60 735.38	$3s3p - 3s11d$	$^3P^o - {}^3D$	1 – 2	R1
	2	2574.945	2574.942	21 911.178 –	60 735.38	$3s3p - 3s11d$	$^3P^o - {}^3D$	2 – 3	R1
	0	2577.888	2577.877	21 870.464 –	60 650.46	$3s3p - 3s12s$	$^3P^o - {}^3S$	1 – 1	R1
	1	2580.587	2580.587	21 911.178 –	60 650.46	$3s3p - 3s12s$	$^3P^o - {}^3S$	2 – 1	R1
	1	2584.216	2584.212	21 850.405 –	60 535.34	$3s3p - 3s10d$	$^3P^o - {}^3D$	0 – 1	R1
	2	2585.558	2585.553	21 870.464 –	60 535.34	$3s3p - 3s10d$	$^3P^o - {}^3D$	1 – 2	R1
	3	2588.285	2588.279	21 911.178 –	60 535.34	$3s3p - 3s10d$	$^3P^o - {}^3D$	2 – 3	R1
	0	2591.891	2591.882	21 850.405 –	60 420.87	$3s3p - 3s11s$	$^3P^o - {}^3S$	0 – 1	R1
	1	2593.231	2593.231	21 870.464 –	60 420.87	$3s3p - 3s11s$	$^3P^o - {}^3S$	1 – 1	R1
	2	2595.973	2595.973	21 911.178 –	60 420.87	$3s3p - 3s11s$	$^3P^o - {}^3S$	2 – 1	R1
	2	2602.495	2602.4956	21 850.405 –	60 263.583	$3s3p - 3s9d$	$^3P^o - {}^3D$	0 – 1	R1
	4	2603.854	2603.8554	21 870.464 –	60 263.583	$3s3p - 3s9d$	$^3P^o - {}^3D$	1 – 2	R1
	5	2606.621	2606.6198	21 911.178 –	60 263.583	$3s3p - 3s9d$	$^3P^o - {}^3D$	2 – 3	R1
UV14	1	2613.357	2613.353	21 850.405 –	60 104.00	$3s3p - 3s10s$	$^3P^o - {}^3S$	0 – 1	R1
UV14	2	2614.726	2614.724	21 870.464 –	60 104.00	$3s3p - 3s10s$	$^3P^o - {}^3S$	1 – 1	R1
UV14	3	2617.513	2617.512	21 911.178 –	60 104.00	$3s3p - 3s10s$	$^3P^o - {}^3S$	2 – 1	R1

Mg I — Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
UV13	3	2628.664	2628.6644	21 850.405 –	59 881.196	$3s3p - 3s8d$	$^3P^o - {}^3D$	0 – 1	R1
UV13	6	2630.053	2630.0527	21 870.464 –	59 881.181	$3s3p - 3s8d$	$^3P^o - {}^3D$	1 – 2	R1
UV13	8	2632.873	2632.8739	21 911.178 –	59 881.168	$3s3p - 3s8d$	$^3P^o - {}^3D$	2 – 3	R1
UV12	2	2644.801	2644.803	21 850.405 –	59 649.15	$3s3p - 3s9s$	$^3P^o - {}^3S$	0 – 1	R1
UV12	3	2646.206	2646.207	21 870.464 –	59 649.15	$3s3p - 3s9s$	$^3P^o - {}^3S$	1 – 1	R1
UV12	4	2649.062	2649.062	21 911.178 –	59 649.15	$3s3p - 3s9s$	$^3P^o - {}^3S$	2 – 1	R1
UV11	6	2668.124	2668.1232	21 850.405 –	59 318.793	$3s3p - 3s7d$	$^3P^o - {}^3D$	0 – 1	R1
UV11	8	2669.553	2669.5537	21 870.464 –	59 318.775	$3s3p - 3s7d$	$^3P^o - {}^3D$	1 – 2	R1
UV11	10	2672.460	2672.4602	21 911.178 –	59 318.764	$3s3p - 3s7d$	$^3P^o - {}^3D$	2 – 3	R1
UV10	3	2693.723	2693.7225	21 850.405 –	58 962.739	$3s3p - 3s8s$	$^3P^o - {}^3S$	0 – 1	R1
UV10	5	2695.181	2695.1793	21 870.464 –	58 962.739	$3s3p - 3s8s$	$^3P^o - {}^3S$	1 – 1	R1
UV10	6	2698.145	2698.1410	21 911.178 –	58 962.739	$3s3p - 3s8s$	$^3P^o - {}^3S$	2 – 1	R1
UV9	8	2731.993	2731.9937	21 850.405 –	58 442.878	$3s3p - 3s6d$	$^3P^o - {}^3D$	0 – 1	R1
UV9	10	2733.493	2733.4947	21 870.464 –	58 442.845	$3s3p - 3s6d$	$^3P^o - {}^3D$	1 – 2	R1
UV9	12	2736.542	2736.5420	21 911.178 –	58 442.835	$3s3p - 3s6d$	$^3P^o - {}^3D$	2 – 3	R1
UV8	5	2765.222	2765.2221	21 870.464 –	58 023.246	$3s3p - 3s6d$	$^3P^o - {}^1D$	1 – 2	R1
UV8	7	2768.339	2768.3398	21 911.178 –	58 023.246	$3s3p - 3s6d$	$^3P^o - {}^1D$	2 – 2	R1
UV6	18	2776.690	2776.690	21 870.464 –	57 873.94	$3s3p - 3p^2$	$^3P^o - {}^3P$	1 – 2	R1
UV6	18	2778.270	2778.271	21 850.405 –	57 833.40	$3s3p - 3p^2$	$^3P^o - {}^3P$	0 – 1	R1
UV6	20	2779.831	2779.820	21 870.464 –	57 833.40	$3s3p - 3p^2$	$^3P^o - {}^3P$	1 – 1	R1
UV6			2779.834	21 911.178 –	57 873.94	$3s3p - 3p^2$	$^3P^o - {}^3P$	2 – 2	
UV7	8	2781.288	2781.282	21 911.178 –	57 855.214	$3s3p - 3s7s$	$^3P^o - {}^3S$	2 – 1	R1
UV6	18	2781.416	2781.416	21 870.464 –	57 812.77	$3s3p - 3p^2$	$^3P^o - {}^3P$	1 – 0	R1
UV6	18	2782.972	2782.971	21 911.178 –	57 833.40	$3s3p - 3p^2$	$^3P^o - {}^3P$	2 – 1	R1
	3	2809.761	2809.756	47 957.045 –	83 536.84	$3s3d - 3p3d$	$^3D - {}^3D^o$	3 – 3	R1
	2*bl*	2811.112	2811.048	47 957.027 –	83 520.47	$3s3d - 3p3d$	$^3D - {}^3D^o$	2 – 2	R1
	1	2811.781	2811.780	47 957.058 –	83 511.25	$3s3d - 3p3d$	$^3D - {}^3D^o$	1 – 1	R1
UV5	12	2846.716	2846.7167	21 850.405 –	56 968.271	$3s3p - 3s5d$	$^3P^o - {}^3D$	0 – 1	R1
UV5	14	2848.342	2848.3456	21 870.464 –	56 968.248	$3s3p - 3s5d$	$^3P^o - {}^3D$	1 – 2	R1
UV5	16	2851.660	2851.6562	21 911.178 –	56 968.218	$3s3p - 3s5d$	$^3P^o - {}^3D$	2 – 3	R1
UV1	50*g*	2852.127	2852.1261	0.000 –	35 051.264	$3s^2 - 3s3p$	$^1S - {}^1P^o$	0 – 1	R1
UV4	2	2902.923	2902.9255	21 870.464 –	56 308.381	$3s3p - 3s5d$	$^3P^o - {}^1D$	1 – 2	R1
UV4	4	2906.360	2906.3617	21 911.178 –	56 308.381	$3s3p - 3s5d$	$^3P^o - {}^1D$	2 – 2	R1
UV15	3*d*	2915.453	2915.453	46 403.065 –	80 693.01	$3s3d - 3p3d$	$^1D - {}^1D^o$	2 – 2	R1
UV3	10	2936.739	2936.741	21 850.405 –	55 891.80	$3s3p - 3s6s$	$^3P^o - {}^3S$	0 – 1	R1
UV3	12	2938.473	2938.473	21 870.464 –	55 891.80	$3s3p - 3s6s$	$^3P^o - {}^3S$	1 – 1	R1
UV3	13	2941.995	2941.994	21 911.178 –	55 891.80	$3s3p - 3s6s$	$^3P^o - {}^3S$	2 – 1	R1
5	20	3091.065	3091.0640	21 850.405 –	54 192.335	$3s3p - 3s4d$	$^3P^o - {}^3D$	0 – 1	R1
5	22	3092.984	3092.9863	21 870.464 –	54 192.294	$3s3p - 3s4d$	$^3P^o - {}^3D$	1 – 2	R1
5	24	3096.890	3096.8911	21 911.178 –	54 192.256	$3s3p - 3s4d$	$^3P^o - {}^3D$	2 – 3	R1
	2	3197.625	3197.6246	21 870.464 –	53 134.642	$3s3p - 3s4d$	$^3P^o - {}^1D$	1 – 2	R1
	3	3201.796	3201.7943	21 911.178 –	53 134.642	$3s3p - 3s4d$	$^3P^o - {}^1D$	2 – 2	R1
4	17	3329.919	3329.9194	21 850.405 –	51 872.526	$3s3p - 3s5s$	$^3P^o - {}^3S$	0 – 1	R1
4	19	3332.146	3332.1458	21 870.464 –	51 872.526	$3s3p - 3s5s$	$^3P^o - {}^3S$	1 – 1	R1
4	20	3336.674	3336.6740	21 911.178 –	51 872.526	$3s3p - 3s5s$	$^3P^o - {}^3S$	2 – 1	R1
	a	3786.8	3786.7	35 051.264 –	61 452	$3s3p - 3s23d$	$^1P^o - {}^1D$	1 – 2	E3
	a	3789.7	3789.6	35 051.264 –	61 432	$3s3p - 3s22d$	$^1P^o - {}^1D$	1 – 2	E3
	a	3793.3	3793.2	35 051.264 –	61 407	$3s3p - 3s21d$	$^1P^o - {}^1D$	1 – 2	E3
	a	3797.22	3797.17	35 051.264 –	61 379.2	$3s3p - 3s20d$	$^1P^o - {}^1D$	1 – 2	E3
	a	3801.87	3801.86	35 051.264 –	61 346.7	$3s3p - 3s19d$	$^1P^o - {}^1D$	1 – 2	E3
	a	3807.41	3807.41	35 051.264 –	61 308.4	$3s3p - 3s18d$	$^1P^o - {}^1D$	1 – 2	E3
	a	3814.02	3814.02	35 051.264 –	61 262.9	$3s3p - 3s17d$	$^1P^o - {}^1D$	1 – 2	E3
	a	3822.00	3822.00	35 051.264 –	61 208.2	$3s3p - 3s16d$	$^1P^o - {}^1D$	1 – 2	E3
3	36	3829.3549	3829.3547	21 850.405 –	47 957.058	$3s3p - 3s3d$	$^3P^o - {}^3D$	0 – 1	M1
	a	3831.68	3831.68	35 051.264 –	61 142.1	$3s3p - 3s15d$	$^1P^o - {}^1D$	1 – 2	E3
3		3832.2996	3832.2993	21 870.464 –	47 957.058	$3s3p - 3s3d$	$^3P^o - {}^3D$	1 – 1	M1

Mg I — Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
3	38	3832.3037	3832.3039	21 870.464 –	47 957.027	$3s3p - 3s3d$	$^3P^o - {}^3D$	1 – 2	M1
3	40	3838.2918	3838.2919	21 911.178 –	47 957.045	$3s3p - 3s3d$	$^3P^o - {}^3D$	2 – 3	M1
3		3838.2943	3838.2946	21 911.178 –	47 957.027	$3s3p - 3s3d$	$^3P^o - {}^3D$	2 – 2	M1
	a	3843.70	3843.70	35 051.264 –	61 060.5	$3s3p - 3s14d$	$^1P^o - {}^1D$	1 – 2	E3
	1E2	3848.914	3848.9197	21 870.464 –	47 844.414	$3s3p - 3s4p$	$^3P^o - {}^3P^o$	1 – 1	R1
	2E2	3853.960	3853.9596	21 911.178 –	47 851.162	$3s3p - 3s4p$	$^3P^o - {}^3P^o$	2 – 2	R1
	1E2	3854.965	3854.9624	21 911.178 –	47 844.414	$3s3p - 3s4p$	$^3P^o - {}^3P^o$	2 – 1	R1
21	2	3858.860	3858.860	35 051.264 –	60 958.31	$3s3p - 3s13d$	$^1P^o - {}^1D$	1 – 2	R1
20	3	3878.306	3878.306	35 051.264 –	60 828.41	$3s3p - 3s12d$	$^1P^o - {}^1D$	1 – 2	R1
47	2*d*	3891.906	3891.906	57 833.40 –	83 520.47	$3p^2 - 3p3d$	$^3P - {}^3D^o$	1 – 2	R1
47	2*d*	3893.304	3893.304	57 833.40 –	83 511.25	$3p^2 - 3p3d$	$^3P - {}^3D^o$	1 – 1	R1
47	3*d*	3895.572	3895.572	57 873.94 –	83 536.84	$3p^2 - 3p3d$	$^3P - {}^3D^o$	2 – 3	R1
19	4	3903.859	3903.859	35 051.264 –	60 659.69	$3s3p - 3s11d$	$^1P^o - {}^1D$	1 – 2	R1
18	6	3938.400	3938.400	35 051.264 –	60 435.099	$3s3p - 3s10d$	$^1P^o - {}^1D$	1 – 2	M1
	1	3984.212	3984.213	35 051.264 –	60 143.23	$3s3p - 3s10s$	$^1P^o - {}^1S$	1 – 0	R1
17	8	3986.7533	3986.7533	35 051.264 –	60 127.239	$3s3p - 3s9d$	$^1P^o - {}^1D$	1 – 2	M1
	2	4054.689	4054.688	35 051.264 –	59 707.11	$3s3p - 3s9s$	$^1P^o - {}^1S$	1 – 0	R1
16	10	4057.5052	4057.5052	35 051.264 –	59 689.991	$3s3p - 3s8d$	$^1P^o - {}^1D$	1 – 2	M1
	3	4075.059	4075.058	21 870.464 –	46 403.065	$3s3p - 3s3d$	$^3P^o - {}^1D$	1 – 2	R1
	2	4081.833	4081.832	21 911.178 –	46 403.065	$3s3p - 3s3d$	$^3P^o - {}^1D$	2 – 2	R1
	4	4165.101	4165.101	35 051.264 –	59 053.52	$3s3p - 3s8s$	$^1P^o - {}^1S$	1 – 0	R1
15	15	4167.2712	4167.2713	35 051.264 –	59 041.019	$3s3p - 3s7d$	$^1P^o - {}^1D$	1 – 2	M1
14	20	4351.9056	4351.9057	35 051.264 –	58 023.246	$3s3p - 3s6d$	$^1P^o - {}^1D$	1 – 2	M1
13	6	4354.529	4354.529	35 051.264 –	58 009.41	$3s3p - 3s7s$	$^1P^o - {}^1S$	1 – 0	R1
12	6	4380.375	4380.376	35 051.264 –	57 873.94	$3s3p - 3p^2$	$^1P^o - {}^3P$	1 – 2	R1
1	28*g*	4571.0956	4571.0956	0.000 –	21 870.464	$3s^2 - 3s3p$	$^1S - {}^3P^o$	0 – 1	M1
	3	4621.299	4621.301	21 870.464 –	43 503.333	$3s3p - 3s4s$	$^3P^o - {}^1S$	1 – 0	R1
11	30	4702.9909	4702.9908	35 051.264 –	56 308.381	$3s3p - 3s5d$	$^1P^o - {}^1D$	1 – 2	M1
10	10	4730.0285	4730.0286	35 051.264 –	56 186.873	$3s3p - 3s6s$	$^1P^o - {}^1S$	1 – 0	M1
2	42	5167.3216	5167.3213	21 850.405 –	41 197.403	$3s3p - 3s4s$	$^3P^o - {}^3S$	0 – 1	M1
2	44	5172.6843	5172.6844	21 870.464 –	41 197.403	$3s3p - 3s4s$	$^3P^o - {}^3S$	1 – 1	M1
2	45	5183.6042	5183.6043	21 911.178 –	41 197.403	$3s3p - 3s4s$	$^3P^o - {}^3S$	2 – 1	M1
	1*d*	5345.977	5345.976	41 197.403 –	59 897.86	$3s4s - 3s9p$	$^3S - {}^3P^o$	1 –	R1
	2*d*	5509.597	5509.597	41 197.403 –	59 342.51	$3s4s - 3s8p$	$^3S - {}^3P^o$	1 –	R1
9	40	5528.4047	5528.4047	35 051.264 –	53 134.642	$3s3p - 3s4d$	$^1P^o - {}^1D$	1 – 2	M1
8	30	5711.0880	5711.0880	35 051.264 –	52 556.206	$3s3p - 3s5s$	$^1P^o - {}^1S$	1 – 0	M1
24	5	5785.312	5785.313	41 197.403 –	58 477.760	$3s4s - 3s7p$	$^3S - {}^3P^o$	1 – 2	R1
24	4	5785.560	5785.561	41 197.403 –	58 477.020	$3s4s - 3s7p$	$^3S - {}^3P^o$	1 – 1	R1
23	10	6318.716	6318.717	41 197.403 –	57 019.025	$3s4s - 3s6p$	$^3S - {}^3P^o$	1 – 2	R1
23	9	6319.236	6319.237	41 197.403 –	57 017.724	$3s4s - 3s6p$	$^3S - {}^3P^o$	1 – 1	R1
23	7	6319.493	6319.495	41 197.403 –	57 017.078	$3s4s - 3s6p$	$^3S - {}^3P^o$	1 – 0	R1
	2	6630.894	6630.893	43 503.333 –	58 580.23	$3s4s - 3s7p$	$^1S - {}^1P^o$	0 – 1	R1
34	4	6894.898	6894.918	46 403.065 –	60 902.50	$3s3d - 3s12f$	$^1D - {}^1F^o$	2 – 3	R1
33	6	6965.404	6965.410	46 403.065 –	60 755.764	$3s3d - 3s11f$	$^1D - {}^1F^o$	2 – 3	R1
32	8	7060.409	7060.414	46 403.065 –	60 562.637	$3s3d - 3s10f$	$^1D - {}^1F^o$	2 – 3	R1
31	10	7193.172	7193.185	46 403.065 –	60 301.283	$3s3d - 3s9f$	$^1D - {}^1F^o$	2 – 3	R1
	10	7291.060	7291.055	43 503.333 –	57 214.992	$3s4s - 3s6p$	$^1S - {}^1P^o$	0 – 1	R1
30	5	7387.004	7387.001	46 403.065 –	59 936.63	$3s3d - 3s9p$	$^1D - {}^1P^o$	2 – 1	R1
	12	7387.685	7387.689	46 403.065 –	59 935.370	$3s3d - 3s8f$	$^1D - {}^1F^o$	2 – 3	R1
22	20	7657.603	7657.603	41 197.403 –	54 252.726	$3s4s - 3s5p$	$^3S - {}^3P^o$	1 – 2	R1

Mg I — Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
22	19	7659.152	7659.152	41 197.403 –	54 250.086	$3s4s - 3s5p$	$^3S - ^3P^o$	1 – 1	R1
22	17	7659.902	7659.901	41 197.403 –	54 248.809	$3s4s - 3s5p$	$^3S - ^3P^o$	1 – 0	R1
	8	7690.165	7690.123	46 403.065 –	59 403.18	$3s3d - 3s8p$	$^1D - ^1P^o$	2 – 1	R1
29	15	7691.550	7691.553	46 403.065 –	59 400.763	$3s3d - 3s7f$	$^1D - ^1F^o$	2 – 3	R1
44	1	7722.614	7722.583	47 957.027 –	60 902.50	$3s3d - 3s12f$	$^3D - ^3F^o$	2 – 3	R1
44			7722.594	47 957.045 –	60 902.50	$3s3d - 3s12f$	$^3D - ^3F^o$	3 – 4	
44			7722.601	47 957.058 –	60 902.50	$3s3d - 3s12f$	$^3D - ^3F^o$	1 – 2	
	1	7746.343	7746.345	35 051.264 –	47 957.027	$3s3p - 3s3d$	$^1P^o - ^3D$	1 – 2	R1
	1	7759.297	7759.298	47 851.162 –	60 735.38	$3s4p - 3s11d$	$^3P^o - ^3D$	2 – 3	R1
43	3	7811.135	7811.122	47 957.027 –	60 755.764	$3s3d - 3s11f$	$^3D - ^3F^o$	2 – 3	R1
43			7811.133	47 957.045 –	60 755.764	$3s3d - 3s11f$	$^3D - ^3F^o$	3 – 4	
43			7811.141	47 957.058 –	60 755.764	$3s3d - 3s11f$	$^3D - ^3F^o$	1 – 2	
	2	7881.667	7881.669	47 851.162 –	60 535.34	$3s4p - 3s10d$	$^3P^o - ^3D$	2 – 3	R1
42	7	7930.806	7930.794	47 957.027 –	60 562.637	$3s3d - 3s10f$	$^3D - ^3F^o$	2 – 3	R1
42			7930.806	47 957.045 –	60 562.637	$3s3d - 3s10f$	$^3D - ^3F^o$	3 – 4	
42			7930.813	47 957.058 –	60 562.637	$3s3d - 3s10f$	$^3D - ^3F^o$	1 – 2	
	2	7947.07	7947.10	47 841.119 –	60 420.87	$3s4p - 3s11s$	$^3P^o - ^3S$	0 – 1	S1
	3	7953.39	7953.45	47 851.162 –	60 420.87	$3s4p - 3s11s$	$^3P^o - ^3S$	2 – 1	S1
	3*bl*	8047.73	8047.720	47 841.119 –	60 263.583	$3s4p - 3s9d$	$^3P^o - ^3D$	0 – 1	R1
	5	8049.854	8049.855	47 844.414 –	60 263.583	$3s4p - 3s9d$	$^3P^o - ^3D$	1 – 2	R1
	7	8054.232	8054.231	47 851.162 –	60 263.583	$3s4p - 3s9d$	$^3P^o - ^3D$	2 – 3	R1
41	10	8098.724	8098.707	47 957.027 –	60 301.283	$3s3d - 3s9f$	$^3D - ^3F^o$	2 – 3	R1
41			8098.719	47 957.045 –	60 301.283	$3s3d - 3s9f$	$^3D - ^3F^o$	3 – 4	
41			8098.727	47 957.058 –	60 301.283	$3s3d - 3s9f$	$^3D - ^3F^o$	1 – 2	
	1	8154.644	8154.640	47 844.414 –	60 104.00	$3s4p - 3s10s$	$^3P^o - ^3S$	1 – 1	R1
	2	8159.132	8159.131	47 851.162 –	60 104.00	$3s4p - 3s10s$	$^3P^o - ^3S$	2 – 1	R1
	10	8209.839	8209.835	46 403.065 –	58 580.23	$3s3d - 3s7p$	$^1D - ^1P^o$	2 – 1	R1
28	20	8213.034	8213.041	46 403.065 –	58 575.477	$3s3d - 3s6f$	$^1D - ^1F^o$	2 – 3	R1
	7	8303.313	8303.313	47 841.119 –	59 881.196	$3s4p - 3s8d$	$^3P^o - ^3D$	0 – 1	R1
	9	8305.596	8305.596	47 844.414 –	59 881.181	$3s4p - 3s8d$	$^3P^o - ^3D$	1 – 2	R1
	10	8310.264	8310.264	47 851.162 –	59 881.168	$3s4p - 3s8d$	$^3P^o - ^3D$	2 – 3	R1
40	15	8346.120	8346.106	47 957.027 –	59 935.370	$3s3d - 3s8f$	$^3D - ^3F^o$	2 – 3	R1
40			8346.119	47 957.045 –	59 935.370	$3s3d - 3s8f$	$^3D - ^3F^o$	3 – 4	
40			8346.128	47 957.058 –	59 935.370	$3s3d - 3s8f$	$^3D - ^3F^o$	1 – 2	
	2	8466.483	8466.486	47 841.119 –	59 649.15	$3s4p - 3s9s$	$^3P^o - ^3S$	0 – 1	R1
	5	8468.845	8468.850	47 844.414 –	59 649.15	$3s4p - 3s9s$	$^3P^o - ^3S$	1 – 1	R1
	7	8473.694	8473.693	47 851.162 –	59 649.15	$3s4p - 3s9s$	$^3P^o - ^3S$	2 – 1	R1
	3*d*	8609.71	8609.73	49 346.729 –	60 958.31	$3s4p - 3s13d$	$^1P^o - ^1D$	1 – 2	S1
	5	8707.14	8707.14	49 346.729 –	60 828.41	$3s4p - 3s12d$	$^1P^o - ^1D$	1 – 2	S1
	10	8710.175	8710.175	47 841.119 –	59 318.793	$3s4p - 3s7d$	$^3P^o - ^3D$	0 – 1	R1
	12	8712.689	8712.690	47 844.414 –	59 318.775	$3s4p - 3s7d$	$^3P^o - ^3D$	1 – 2	R1
	13	8717.825	8717.825	47 851.162 –	59 318.764	$3s4p - 3s7d$	$^3P^o - ^3D$	2 – 3	R1
39	17	8736.021	8736.006	47 957.027 –	59 400.763	$3s3d - 3s7f$	$^3D - ^3F^o$	2 – 3	R1
39			8736.020	47 957.045 –	59 400.763	$3s3d - 3s7f$	$^3D - ^3F^o$	3 – 4	
39			8736.030	47 957.058 –	59 400.763	$3s3d - 3s7f$	$^3D - ^3F^o$	1 – 2	
7	50	8806.757	8806.757	35 051.264 –	46 403.065	$3s3p - 3s3d$	$^1P^o - ^1D$	1 – 2	R1
	5*d*	8837.05	8836.99	49 346.729 –	60 659.69	$3s4p - 3s11d$	$^1P^o - ^1D$	1 – 2	S1
25	20	8923.569	8923.569	43 503.333 –	54 706.536	$3s4s - 3s5p$	$^1S - ^1P^o$	0 – 1	R1
	7	8989.026	8989.028	47 841.119 –	58 962.739	$3s4p - 3s8s$	$^3P^o - ^3S$	0 – 1	R1
	9	8991.692	8991.692	47 844.414 –	58 962.739	$3s4p - 3s8s$	$^3P^o - ^3S$	1 – 1	R1
	10	8997.156	8997.153	47 851.162 –	58 962.739	$3s4p - 3s8s$	$^3P^o - ^3S$	2 – 1	R1
	6	9016.01	9015.98	49 346.729 –	60 435.099	$3s4p - 3s10d$	$^1P^o - ^1D$	1 – 2	S1
	12	9246.499	9246.508	46 403.065 –	57 214.992	$3s3d - 3s6p$	$^1D - ^1P^o$	2 – 1	R1
27	30	9255.778	9255.778	46 403.065 –	57 204.163	$3s3d - 3s5f$	$^1D - ^1F^o$	2 – 3	R1
	8	9259.74	9259.72	49 346.729 –	60 143.23	$3s4p - 3s10s$	$^1P^o - ^1S$	1 – 0	S1

Mg I – Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Air Wavelength (Å) Calculated	Levels (cm^{-1}) Lower	Levels (cm^{-1}) Upper	Configurations	Terms	J Values	Ref.
	9	9273.44	9273.454	49 346.729 –	60 127.239	$3s4p - 3s9d$	$^1P^o - {}^1D$	1 – 2	S1
38	25	9414.964	9414.943	47 957.027 –	58 575.527	$3s3d - 3s6f$	$^3D - {}^3F^o$	2 – 3	R1
38			9414.959	47 957.045 –	58 575.527	$3s3d - 3s6f$	$^3D - {}^3F^o$	3 – 4	
38			9414.971	47 957.058 –	58 575.527	$3s3d - 3s6f$	$^3D - {}^3F^o$	1 – 2	
	17	9429.814	9429.810	47 841.119 –	58 442.878	$3s4p - 3s6d$	$^3P^o - {}^3D$	0 – 1	R1
	19	9432.764	9432.771	47 844.414 –	58 442.845	$3s4p - 3s6d$	$^3P^o - {}^3D$	1 – 2	R1
	20	9438.783	9438.790	47 851.162 –	58 442.835	$3s4p - 3s6d$	$^3P^o - {}^3D$	2 – 3	R1
	8	9502.454	9502.451	47 957.045 –	58 477.760	$3s3d - 3s7p$	$^3D - {}^3P^o$	3 – 2	R1
	7	9503.108	9503.103	47 957.027 –	58 477.020	$3s3d - 3s7p$	$^3D - {}^3P^o$	2 – 1	R1
	5	9503.433	9503.430	47 957.058 –	58 476.689	$3s3d - 3s7p$	$^3D - {}^3P^o$	1 – 0	R1
	28	9649.53	9649.508	49 346.729 –	59 707.11	$3s4p - 3s9s$	$^1P^o - {}^1S$	1 – 0	S1
	15	9665.54	9665.479	49 346.729 –	59 689.991	$3s4p - 3s8d$	$^1P^o - {}^1D$	1 – 2	S1
36	15	9983.20	9983.188	47 841.119 –	57 855.214	$3s4p - 3s7s$	$^3P^o - {}^3S$	0 – 1	R1
36	17	9986.475	9986.474	47 844.414 –	57 855.214	$3s4p - 3s7s$	$^3P^o - {}^3S$	1 – 1	R1
36	18	9993.209	9993.210	47 851.162 –	57 855.214	$3s4p - 3s7s$	$^3P^o - {}^3S$	2 – 1	R1
		Wavenumber (cm^{-1})							
	5	9706.75	9706.79	49 346.729 –	59 053.52	$3s4p - 3s8s$	$^1P^o - {}^1S$	1 – 0	S1
	12	9694.284	9694.290	49 346.729 –	59 041.019	$3s4p - 3s7d$	$^1P^o - {}^1D$	1 – 2	S1
37	35	9247.233	9247.240	47 957.027 –	57 204.267	$3s3d - 3s5f$	$^3D - {}^3F^o$	2 – 3	R1
35	25	9127.152	9127.152	47 841.119 –	56 968.271	$3s4p - 3s5d$	$^3P^o - {}^3D$	0 – 1	R1
35	27	9123.834	9123.834	47 844.414 –	56 968.248	$3s4p - 3s5d$	$^3P^o - {}^3D$	1 – 2	R1
35	28	9117.056	9117.056	47 851.162 –	56 968.218	$3s4p - 3s5d$	$^3P^o - {}^3D$	2 – 3	R1
	15	9061.973	9061.980	47 957.045 –	57 019.025	$3s3d - 3s6p$	$^3D - {}^3P^o$	3 – 2	R1
	14	9060.693	9060.697	47 957.027 –	57 017.724	$3s3d - 3s6p$	$^3D - {}^3P^o$	2 – 1	R1
	4	9060.00	9060.020	47 957.058 –	57 017.078	$3s3d - 3s6p$	$^3D - {}^3P^o$	1 – 0	S1
	3	8676.493	8676.517	49 346.729 –	58 023.246	$3s4p - 3s6d$	$^1P^o - {}^1D$	1 – 2	B3
	4	8662.635	8662.68	49 346.729 –	58 009.41	$3s4p - 3s7s$	$^1P^o - {}^1S$	1 – 0	B3
6	2650	8452.079	8452.069	35 051.264 –	43 503.333	$3s3p - 3s4s$	$^1P^o - {}^1S$	1 – 0	B3
	120	8303.498	8303.471	46 403.065 –	54 706.536	$3s3d - 3s5p$	$^1D - {}^1P^o$	2 – 1	B3
	60	8273.639	8273.636	46 403.065 –	54 676.701	$3s3d - 3s4f$	$^1D - {}^3F^o$	2 – 3	B3
26	5750	8273.382	8273.373	46 403.065 –	54 676.438	$3s3d - 3s4f$	$^1D - {}^1F^o$	2 – 3	B3
	15	8050.665	8050.68	47 841.119 –	55 891.80	$3s4p - 3s6s$	$^3P^o - {}^3S$	0 – 1	B3
	50	8047.365	8047.39	47 844.414 –	55 891.80	$3s4p - 3s6s$	$^3P^o - {}^3S$	1 – 1	B3
	85	8040.619	8040.64	47 851.162 –	55 891.80	$3s4p - 3s6s$	$^3P^o - {}^3S$	2 – 1	B3
	1	7166.61	7166.641	53 134.642 –	60 301.283	$3s4d - 3s9f$	$^1D - {}^1F^o$	2 – 3	B3
	13	6961.632	6961.652	49 346.729 –	56 308.381	$3s4p - 3s5d$	$^1P^o - {}^1D$	1 – 2	B3
	290	6840.126	6840.144	49 346.729 –	56 186.873	$3s4p - 3s6s$	$^1P^o - {}^1S$	1 – 0	B3
	1	6800.738	6800.728	53 134.642 –	59 935.370	$3s4d - 3s8f$	$^1D - {}^1F^o$	2 – 3	B3
	10500	6719.710	6719.710	47 957.045 –	54 676.755	$3s3d - 3s4f$	$^3D - {}^3F^o$	3 – 4	B3
	7250	6719.674	6719.674	47 957.027 –	54 676.701	$3s3d - 3s4f$	$^3D - {}^3F^o$	2 – 3	B3
	4250	6719.596	6719.596	47 957.058 –	54 676.654	$3s3d - 3s4f$	$^3D - {}^3F^o$	1 – 2	B3
	520	6719.417	6719.411	47 957.027 –	54 676.438	$3s3d - 3s4f$	$^3D - {}^1F^o$	2 – 3	B3
	38900	6653.757	6653.759	41 197.403 –	47 851.162	$3s4s - 3s4p$	$^3S - {}^3P^o$	1 – 2	B3
	22400	6647.011	6647.011	41 197.403 –	47 844.414	$3s4s - 3s4p$	$^3S - {}^3P^o$	1 – 1	B3
	7250	6643.712	6643.716	41 197.403 –	47 841.119	$3s4s - 3s4p$	$^3S - {}^3P^o$	1 – 0	B3
	3	6605.263	6605.234	51 872.526 –	58 477.760	$3s5s - 3s7p$	$^3S - {}^3P^o$	1 – 2	B3
	2	6604.512	6604.494	51 872.526 –	58 477.020	$3s5s - 3s7p$	$^3S - {}^3P^o$	1 – 1	B3
	1	6604.153	6604.163	51 872.526 –	58 476.689	$3s5s - 3s7p$	$^3S - {}^3P^o$	1 – 0	B3
	50	6370.401	6370.381	54 192.256 –	60 562.637	$3s4d - 3s10f$	$^3D - {}^3F^o$	3 – 4	S1
	12900	6351.220	6351.216	47 841.119 –	54 192.335	$3s4p - 3s4d$	$^3P^o - {}^3D$	0 – 1	B3
	3250	6347.880	6347.880	47 844.414 –	54 192.294	$3s4p - 3s4d$	$^3P^o - {}^3D$	1 – 2	B3

Mg I — Continued

Mult. No.	Rel. Int.	Wavenumber (cm^{-1}) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	5750	6341.095	6341.094	47 851.162 –	54 192.256	$3s4p - 3s4d$	$^3P^o - {}^3D$	2 – 3	B3
	140	6295.682	6295.681	47 957.045 –	54 252.726	$3s3d - 3s5p$	$^3D - {}^3P^o$	3 – 2	B3
	70	6293.057	6293.059	47 957.027 –	54 250.086	$3s3d - 3s5p$	$^3D - {}^3P^o$	2 – 1	B3
	30	6291.737	6291.751	47 957.058 –	54 248.809	$3s3d - 3s5p$	$^3D - {}^3P^o$	1 – 0	B3
	45	6282.521	6282.61	54 252.726 –	60 535.34	$3s5p - 3s10d$	$^3P^o - {}^3D$	2 – 3	S1
	2	6268.517	6268.54	53 134.642 –	59 403.18	$3s4d - 3s8p$	$^1D - {}^1P^o$	2 – 1	B3
	5	6266.13	6266.126	53 134.642 –	59 400.768	$3s4d - 3s7f$	$^1D - {}^1F^o$	2 – 3	B3
	4	6024.054	6024.02	52 556.206 –	58 580.23	$3s5s - 3s7p$	$^1S - {}^1P^o$	0 – 1	B3
	1	6014.773	6014.774	54 248.809 –	60 263.583	$3s5p - 3s9d$	$^3P^o - {}^3D$	0 – 1	S1
	4	6013.438	6013.497	54 250.086 –	60 263.583	$3s5p - 3s9d$	$^3P^o - {}^3D$	1 – 2	S1
	7	6010.781	6010.857	54 252.726 –	60 263.583	$3s5p - 3s9d$	$^3P^o - {}^3D$	2 – 3	S1
	100000	5843.407	5843.396	43 503.333 –	49 346.729	$3s4s - 3s4p$	$^1S - {}^1P^o$	0 – 1	B3
	2	5743.070	5743.035	54 192.335 –	59 935.370	$3s4d - 3s8f$	$^3D - {}^3F^o$	1 – 2	B3
			5743.076	54 192.294 –	59 935.370	$3s4d - 3s8f$	$^3D - {}^3F^o$	2 – 3	
			5743.114	54 192.256 –	59 935.370	$3s4d - 3s8f$	$^3D - {}^3F^o$	3 – 4	
	1	5631.08	5631.095	54 250.086 –	59 881.181	$3s5p - 3s8d$	$^3P^o - {}^3D$	1 – 2	B3
	1	5628.44	5628.442	54 252.726 –	59 881.168	$3s5p - 3s8d$	$^3P^o - {}^3D$	2 – 3	B3
	6	5445.621	5445.59	53 134.642 –	58 580.23	$3s4d - 3s7p$	$^1D - {}^1P^o$	2 – 1	B3
	5	5440.885	5440.885	53 134.642 –	58 575.527	$3s4d - 3s6f$	$^1D - {}^3F^o$	2 –	B3
	1	5440.830	5440.835	53 134.642 –	58 575.477	$3s4d - 3s6f$	$^1D - {}^1F^o$	2 – 3	B3
	1	5274.43	5274.43	54 676.438 –	59 950.87	$3s4f - 3s8g$	$^1F^o - {}^1G$	3 – 4	B3
	2	5274.17	5274.12	54 676.755 –	59 950.87	$3s4f - 3s8g$	$^3F^o - {}^3G$	4 – 5	B3
	9	5208.507	5208.507	54 192.256 –	59 400.763	$3s4d - 3s7f$	$^3D - {}^3F^o$	3 – 4	B3
	7	5208.443	5208.469	54 192.294 –	59 400.763	$3s4d - 3s7f$	$^3D - {}^3F^o$	2 – 3	B3
	5	5208.408	5208.428	54 192.335 –	59 400.763	$3s4d - 3s7f$	$^3D - {}^3F^o$	1 – 2	B3
	35	5146.530	5146.499	51 872.526 –	57 019.025	$3s5s - 3s6p$	$^3S - {}^3P^o$	1 – 2	B3
	20	5145.215	5145.198	51 872.526 –	57 017.724	$3s5s - 3s6p$	$^3S - {}^3P^o$	1 – 1	B3
	7	5144.573	5144.552	51 872.526 –	57 017.078	$3s5s - 3s6p$	$^3S - {}^3P^o$	1 – 0	B3
	1	5069.997	5069.984	54 248.809 –	59 318.793	$3s5p - 3s7d$	$^3P^o - {}^3D$	0 – 1	B3
	3	5068.699	5068.689	54 250.086 –	59 318.775	$3s5p - 3s7d$	$^3P^o - {}^3D$	1 – 2	B3
	5	5066.047	5066.038	54 252.726 –	59 318.764	$3s5p - 3s7d$	$^3P^o - {}^3D$	2 – 3	B3
	5	4747.097	4747.099	54 676.438 –	59 423.537	$3s4f - 3s7g$	$^1F^o - {}^1G$	3 – 4	B3
	6	4746.88	4746.883	54 676.654 –	59 423.537	$3s4f - 3s7g$	$^3F^o - {}^3G$	2 – 3	B3
	6	4746.841	4746.836	54 676.701 –	59 423.537	$3s4f - 3s7g$	$^3F^o - {}^3G$	3 – 4	B3
	6	4746.796	4746.782	54 676.755 –	59 423.537	$3s4f - 3s7g$	$^3F^o - {}^3G$	4 – 5	B3
	40*d*	4713.884	4713.930	54 248.809 –	58 962.739	$3s5p - 3s8s$	$^3P^o - {}^3S$	0 – 1	S1
	1	4712.643	4712.653	54 250.086 –	58 962.739	$3s5p - 3s8s$	$^3P^o - {}^3S$	1 – 1	B3
	2	4710.002	4710.013	54 252.726 –	58 962.739	$3s5p - 3s8s$	$^3P^o - {}^3S$	2 – 1	B3
	45	4658.807	4658.786	52 556.206 –	57 214.992	$3s5s - 3s6p$	$^1S - {}^1P^o$	0 – 1	B3
	45	4383.279	4383.271	54 192.256 –	58 575.527	$3s4d - 3s6f$	$^3D - {}^3F^o$	3 – 4	B3
	30	4383.225	4383.233	54 192.294 –	58 575.527	$3s4d - 3s6f$	$^3D - {}^3F^o$	2 – 3	B3
			4383.221	54 192.256 –	58 575.477	$3s4d - 3s6f$	$^3D - {}^1F^o$	3 – 3	
	25	4383.179	4383.192	54 192.335 –	58 575.527	$3s4d - 3s6f$	$^3D - {}^3F^o$	1 – 2	B3
			4383.183	54 192.294 –	58 575.477	$3s4d - 3s6f$	$^3D - {}^1F^o$	2 – 3	
	2	4364.582	4364.581	54 676.438 –	59 041.019	$3s4f - 3s7d$	$^1F^o - {}^1D$	3 – 2	B3
	3	4346.954	4346.984	54 706.536 –	59 053.520	$3s5p - 3s8s$	$^1P^o - {}^1S$	1 – 0	B3
	1	4285.508	4285.504	54 192.256 –	58 477.760	$3s4d - 3s7p$	$^3D - {}^3P^o$	3 – 2	B3
	5	4194.071	4194.069	54 248.809 –	58 442.878	$3s5p - 3s6d$	$^3P^o - {}^3D$	0 – 1	B3
	12	4192.75	4192.759	54 250.086 –	58 442.845	$3s5p - 3s6d$	$^3P^o - {}^3D$	1 – 2	B3
	25	4190.109	4190.109	54 252.726 –	58 442.835	$3s5p - 3s6d$	$^3P^o - {}^3D$	2 – 3	B3
	40	4080.374	4080.350	53 134.642 –	57 214.992	$3s4d - 3s6p$	$^1D - {}^1P^o$	2 – 1	B3
	8	4069.629	4069.625	53 134.642 –	57 204.267	$3s4d - 3s5f$	$^1D - {}^3F^o$	2 – 3	B3
	150	4069.507	4069.521	53 134.642 –	57 204.163	$3s4d - 3s5f$	$^1D - {}^1F^o$	2 – 3	B3
	450	4031.386	4031.407	47 841.119 –	51 872.526	$3s4p - 3s5s$	$^3P^o - {}^3S$	0 – 1	B3
	1380	4028.086	4028.112	47 844.414 –	51 872.526	$3s4p - 3s5s$	$^3P^o - {}^3S$	1 – 1	B3

Mg I — Continued

Mult. No.	Rel. Int.	Wavenumber (cm^{-1}) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	2250	4021.341	4021.364	47 851.162 –	51 872.526	$3s4p - 3s5s$	$^3P^o - {}^3S$	2 – 1	B3
	40	3934.361	3934.357	54 676.438 –	58 610.795	$3s4f - 3s6g$	$^1F^o - {}^1G$	3 – 4	B3
	25	3934.147	3934.141	54 676.654 –	58 610.795	$3s4f - 3s6g$	$^3F^o - {}^3G$	2 – 3	B3
	25	3934.108	3934.094	54 676.701 –	58 610.795	$3s4f - 3s6g$	$^3F^o - {}^3G$	3 – 4	B3
	35	3934.052	3934.040	54 676.755 –	58 610.795	$3s4f - 3s6g$	$^3F^o - {}^3G$	4 – 5	B3
	8300	3787.878	3787.913	49 346.729 –	53 134.642	$3s4p - 3s4d$	$^1P^o - {}^1D$	1 – 2	B3
	1	3766.076	3766.075	54 676.755 –	58 442.830	$3s4f - 3s6d$	$^3F^o - {}^3D$	4 – 3	B3
	10	3606.40	3606.405	54 248.809 –	57 855.214	$3s5p - 3s7s$	$^3P^o - {}^3S$	0 – 1	B3
	25	3605.11	3605.128	54 250.086 –	57 855.214	$3s5p - 3s7s$	$^3P^o - {}^3S$	1 – 1	B3
	40	3602.466	3602.488	54 252.726 –	57 855.214	$3s5p - 3s7s$	$^3P^o - {}^3S$	2 – 1	B3
	20	3346.802	3346.808	54 676.438 –	58 023.246	$3s4f - 3s6d$	$^1F^o - {}^1D$	3 – 2	B3
	12	3316.70	3316.710	54 706.536 –	58 023.246	$3s5p - 3s6d$	$^1P^o - {}^1D$	1 – 2	B3
	20	3302.816	3302.87	54 706.536 –	58 009.41	$3s5p - 3s7s$	$^1P^o - {}^1S$	1 – 0	B3
	90	3209.447	3209.477	49 346.729 –	52 556.206	$3s4p - 3s5s$	$^1P^o - {}^1S$	1 – 0	B3
	17	3012.049	3012.049	54 192.256 –	57 204.305	$3s4d - 3s5f$	$^3D - {}^3F^o$	3 – 4	B3
	11	3011.973	3011.973	54 192.294 –	57 204.267	$3s4d - 3s5f$	$^3D - {}^3F^o$	2 – 3	B3
	8	3011.893	3011.893	54 192.335 –	57 204.228	$3s4d - 3s5f$	$^3D - {}^3F^o$	1 – 2	B3
	2	3011.857	3011.869	54 192.294 –	57 204.163	$3s4d - 3s5f$	$^3D - {}^1F^o$	2 – 3	B3
	275	2943.701	2943.664	46 403.065 –	49 346.729	$3s3d - 3s4p$	$^1D - {}^1P^o$	2 – 1	B3
	40	2826.79	2826.769	54 192.256 –	57 019.025	$3s4d - 3s6p$	$^3D - {}^3P^o$	3 – 2	B3
	25	2825.47	2825.430	54 192.294 –	57 017.724	$3s4d - 3s6p$	$^3D - {}^3P^o$	2 – 1	B3
	125	2719.43	2719.462	54 248.809 –	56 968.271	$3s5p - 3s5d$	$^3P^o - {}^3D$	0 – 1	B3
	320	2718.119	2718.162	54 250.086 –	56 968.248	$3s5p - 3s5d$	$^3P^o - {}^3D$	1 – 2	B3
	630	2715.448	2715.492	54 252.726 –	56 968.218	$3s5p - 3s5d$	$^3P^o - {}^3D$	2 – 3	B3
	4000	2586.328	2586.322	54 676.438 –	57 262.760	$3s4f - 3s5g$	$^1F^o - {}^1G$	3 – 4	B3
	4800	2586.11	2586.106	54 676.654 –	57 262.760	$3s4f - 3s5g$	$^3F^o - {}^3G$	2 – 3	B3
	5000	2586.068	2586.059	54 676.701 –	57 262.760	$3s4f - 3s5g$	$^3F^o - {}^3G$	3 – 3	B3
	5000	2586.021	2586.005	54 676.755 –	57 262.760	$3s4f - 3s5g$	$^3F^o - {}^3G$	4 – 3	B3
	5000	2380.236	2380.200	51 872.526 –	54 252.726	$3s5s - 3s5p$	$^3S - {}^3P^o$	1 – 2	B3
	3150	2377.595	2377.560	51 872.526 –	54 250.086	$3s5s - 3s5p$	$^3S - {}^3P^o$	1 – 1	B3
	1000	2376.305	2376.283	51 872.526 –	54 248.809	$3s5s - 3s5p$	$^3S - {}^3P^o$	1 – 0	B3
	50	2291.50	2291.463	54 676.755 –	56 968.218	$3s4f - 3s5d$	$^3F^o - {}^3D$	4 – 3	B3
			2291.547	54 676.701 –	56 968.248	$3s4f - 3s5d$	$^3F^o - {}^3D$	3 – 2	
	20	2271.86	2271.85	56 308.381 –	58 580.23	$3s5d - 3s7p$	$^1D - {}^1P^o$	2 – 1	B3
	10000	2150.353	2150.330	52 556.206 –	54 706.536	$3s5s - 3s5p$	$^1S - {}^1P^o$	0 – 1	B3
	10	1356.182	1356.182	57 262.760 –	58 618.942	$3s5g - 3s6h$	G – H°		M2,C3
		1127.248	1127.225	55 891.800 –	57 019.025	$3s6s - 3s6p$	$^3S - {}^3P^o$	1 – 2	G2
		1125.9325	1125.924	55 891.800 –	57 017.724	$3s6s - 3s6p$	$^3S - {}^3P^o$	1 – 1	L2
		1125.2913	1125.278	55 891.800 –	57 017.078	$3s6s - 3s6p$	$^3S - {}^3P^o$	1 – 0	L2
	15	957.9333	957.928	58 442.835 –	59 400.763	$3s6d - 3s7f$	$^3D - {}^3F^o$	3 – 4	L2
	9	957.8846	957.918	58 442.845 –	59 400.763	$3s6d - 3s7f$	$^3D - {}^3F^o$	2 – 3	L2
	7	957.8629	957.885	58 442.878 –	59 400.763	$3s6d - 3s7f$	$^3D - {}^3F^o$	1 – 2	L2
	51	911.5704	911.554	59 400.763 –	60 312.317	$3s7f - 3s9g$	$^3F^o - G$	3 –	L2
	57	911.5381						4 –	L2
		906.6225	906.611	56 308.381 –	57 214.992	$3s5d - 3s6p$	$^1D - {}^1P^o$	2 – 1	L2
		895.875	895.847	56 308.381 –	57 204.228	$3s5d - 3s5f$	$^1D - {}^3F^o$	2 – 2	G2
			895.886	56 308.381 –	57 204.267	$3s5d - 3s5f$	$^1D - {}^3F^o$	2 – 3	
		895.7553	895.782	56 308.381 –	57 204.163	$3s5d - 3s5f$	$^1D - {}^1F^o$	2 – 3	L2
		891.3646	891.365	59 423.537 –	60 314.902	$3s7g - 3s9h$	G – H°		L2
		886.8717	886.869	59 428.853 –	60 315.722	$3s7h - 3s9i$	H° – I		L2
		885.5292	885.524	59 430.517 –	60 316.041	$3s7i - 3s9k$	I – K°		L2
	40	848.0698	848.060	58 575.477 –	59 423.537	$3s6f - 3s7g$	$^1F^o - {}^1G$	3 – 4	L2
	30	848.0610	848.010	58 575.527 –	59 423.537	$3s6f - 3s7g$	$^3F^o - {}^3G$	2 –	L2
	50	848.0241						3 –	L2
	65	848.0109						4 –	L2

Mg I — Continued

Mult. No.	Rel. Int.	Wavenumber (cm^{-1}) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
		841.785	841.755	58 477.020 –	59 318.775	$3s7p - 3s7d$	$^3P^o - {}^3D$	1 – 2	L2,B5
	4	841.021	841.033	58 477.760 –	59 318.793	$3s7p - 3s7d$	$^3P^o - {}^3D$	2 – 1	B5,C2
			841.015	58 477.760 –	59 318.775	$3s7p - 3s7d$	$^3P^o - {}^3D$	2 – 2	
			841.004	58 477.760 –	59 318.764	$3s7p - 3s7d$	$^3P^o - {}^3D$	2 – 3	
		838.14	838.136	57 017.078 –	57 855.214	$3s6p - 3s7s$	$^3P^o - {}^3S$	0 – 1	G2
		837.5004	837.490	57 017.724 –	57 855.214	$3s6p - 3s7s$	$^3P^o - {}^3S$	1 – 1	L2
		836.1855	836.189	57 019.025 –	57 855.214	$3s6p - 3s7s$	$^3P^o - {}^3S$	2 – 1	L2
		819.1055	819.083	57 204.163 –	58 023.246	$3s5f - 3s6d$	$^1F^o - {}^1D$	3 – 2	L2
	36	818.058	818.058	58 610.795 –	59 428.853	$3s6g - 3s7h$	G – H°		B5,C3
	55	811.575	811.575	58 618.942 –	59 430.517	$3s6h - 3s7i$	H° – I		B5,C3
	2	794.380	794.42	57 214.992 –	58 009.41	$3s6p - 3s7s$	$^1P^o - {}^1S$	1 – 0	B5,C2
	20	743.3187	743.266	58 575.527 –	59 318.793	$3s6f - 3s7d$	$^3F^o - {}^3D$	2 – 1	L2
	15	743.2698	743.248	58 575.527 –	59 318.775	$3s6f - 3s7d$	$^3F^o - {}^3D$	3 – 2	L2
	40	743.2442	743.237	58 575.527 –	59 318.764	$3s6f - 3s7d$	$^3F^o - {}^3D$	4 – 3	L2
	10	530.986	530.986	59 423.537 –	59 954.523	$3s7g - 3s8h$	G – H°		B5,C3
	M1	40.7140	40.714	21 870.464 –	21 911.178	$3s3p - 3s3p$	$^3P^o - {}^3P^o$	1 – 2	I1
	M1	20.05646	20.059	21 850.405 –	21 870.464	$3s3p - 3s3p$	$^3P^o - {}^3P^o$	0 – 1	G3

Mg II

Na I isoelectronic sequence

Ground state $1s^2 2s^2 2p^6 3s\ ^2S_{1/2}$

Ionization energy 121 267.64 ± 0.05 cm^{-1} (15.035277 ± 0.000008 eV)

We list four-place calculated wavelengths for the 870 – 1754 Å region, with estimated errors in the range 0.0004 to 0.0015 Å [R2].

Observations and classifications of emission lines from excited-core $2p^5 3s^2$ and $2p^5 3s 3p$ upper levels have been carried out since MZ80 [P1, F1]; these data are given for the 233 – 287 Å region, with our evaluations of the new levels being mainly based on the measurements by Finkenthal *et al.* [F1]. Gaardsted *et al.* [G5] classified 13 lines between 1653 and 2212 Å as arising from transitions between quartet levels of the excited-core configurations $2p^5 3s 3p$, $2p^5 3p^2$, $2p^5 3s 4s$ and $2p^5 3s 3d$. The uncertainties range between 0.05 and 0.25 Å. The position of this quartet system of levels relative to the doublet levels has not been determined. The position of the quartet system used here was obtained by subtracting a theoretically calculated value for the $2p^5(^2P^\circ)3s\,4s\,(^3S)\ ^2P^\circ - ^4P^\circ_{5/2}$ separation from the known $^2P^\circ$ term near 491 500 cm^{-1}. The unknown correction for this estimate is given as "$+x$" with each quartet level value.

Biémont and Brault [B3] have extended observations of Mg II into the infrared region 8880 – 1920 cm^{-1}. We have adopted their classifications and new levels with the exception of their $10p\ ^2P^\circ$ levels; the predicted $10p\ ^2P^\circ$ levels given in MZ80, which were obtained from Risberg's formulas for the very regular $np\ ^2P^\circ$ series [R2], are probably accurate to about 0.1 cm^{-1}.

We derived the above value for the ionization energy by fitting a single core-polarization formula to the ng ($n = 5-11$), nh ($n = 6-9$), and ni ($n = 7-10$) terms. The estimated error is mainly due to the uncertainty of the position of this high-l group of levels with respect to the ground level. The new limit agrees with Risberg's value of 121 267.61 cm^{-1} [R2] within the errors.

References

B3 Biémont, E., and Brault, J. W. [1986], Phys. Scr. **34**, 751 – 758.

E1 Esteva, J. M., and Mehlman, G. [1974], Astrophys. J. **193**, 747 – 753.

E4 Esteva, J. M., Mehlman-Balloffet, G. and Romand, J. [1972], J. Quant. Spectrosc. Radiat. Transfer **12**, 1291 – 1303.

F1 Finkenthal, M., Litman, A., Mandelbaum, P., Stutman, D., and Schwob, J. L. [1988], J. Opt. Soc. Am. B **5**, 1640 – 1644.

G1 Goorvitch, D., Mehlman-Balloffet, G., and Valero, F. P. J. [1970], J. Opt. Soc. Am. **60**, 1458 – 1461.

G5 Gaardsted, J. O., Andersen, T., Sonnek, D., Mannervik, S., and Short, R. T. [1988], Phys. Scr. **38**, 27 – 31.

P1 Pedrotti, K. D., Mendelsohn, A. J., Falcone, R. W., Young, J. F., and Harris, S. E. [1985], J. Opt. Soc. Am. B **2**, 1942 – 1947.

R1 Risberg, G. [1965], Ark. Fys. **28**, 381 – 395.

R2 Risberg, P. [1955], Ark. Fys. **9**, 483 – 494.

Mg II

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	g,a	184.05	184.05	0.00 –	543 210	$3s - 2p^5 3s 7d$?	$^2S -$	$1/2 -$	E1
	g,a	184.31	184.31	0.00 –	542 560	$3s - 2p^5 3s 9d$?	$^2S -$	$1/2 -$	E1
	g,a	184.68	184.68	0.00 –	541 480	$3s - 2p^5 3s 9d$?	$^2S -$	$1/2 -$	E1
	g,a	184.81	184.81	0.00 –	541 100	$3s - 2p^5 3s 8d$?	$^2S -$	$1/2 -$	E1
	g,a	185.26	185.26	0.00 –	539 780	$3s - 2p^5 3s 6d$?	$^2S -$	$1/2 -$	E1
	g,a	185.59	185.59	0.00 –	538 820	$3s - 2p^5 3s 7d$?	$^2S -$	$1/2 -$	E1
	g,a	185.98	185.98	0.00 –	537 690	$3s - 2p^5 3s 7d$?	$^2S -$	$1/2 -$	E1
	g,a	186.47	186.47	0.00 –	536 280	$3s - 2p^5 3s 6d$?	$^2S -$	$1/2 -$	E1
	g,a	186.84	186.84	0.00 –	535 220	$3s - 2p^5 3s 6d$?	$^2S -$	$1/2 -$	E1
	g,a	187.19	187.19	0.00 –	534 220	$3s - 2p^5 3s 6d$?	$^2S -$	$1/2 -$	E1
	g,a	187.38	187.38	0.00 –	533 670	$3s - 2p^5 3s 6d$?	$^2S -$	$1/2 -$	E1
	g,a	188.54	188.54	0.00 –	530 390	$3s - 2p^5 3s 5d$?	$^2S -$	$1/2 -$	E1
	g,a	188.91	188.91	0.00 –	529 350	$3s - 2p^5 3s 5d$?	$^2S -$	$1/2 -$	E1
	g,a	189.01	189.01	0.00 –	529 070	$3s - 2p^5 3s 5d$?	$^2S -$	$1/2 -$	E1
	g,a	189.23	189.23	0.00 –	528 460	$3s - 2p^5 3s 5d$?	$^2S -$	$1/2 -$	E1
	g,a	189.37	189.37	0.00 –	528 070	$3s - 2p^5 3s 5d$?	$^2S -$	$1/2 -$	E1
	g,a	191.30	191.30	0.00 –	522 740	$3s - 2p^5 3s 4d$?	$^2S -$	$1/2 -$	E1
	g,a	191.56	191.56	0.00 –	522 030	$3s - 2p^5 3s 4d$?	$^2S -$	$1/2 -$	E1
	g,a	191.65	191.65	0.00 –	521 780	$3s - 2p^5 3s 5s$?	$^2S -$	$1/2 -$	E1
	g,a	192.40	192.40	0.00 –	519 750	$3s - 2p^5 3s 4d$?	$^2S -$	$1/2 -$	E1
	g,a	192.55	192.55	0.00 –	519 350	$3s - 2p^5 3s 4d$?	$^2S -$	$1/2 -$	E1
	g,a	192.84	192.84	0.00 –	518 560	$3s - 2p^5 3s 5s$?	$^2S -$	$1/2 -$	E1
	g,a	193.09	193.09	0.00 –	517 890	$3s - 2p^5 3s 4d$?	$^2S -$	$1/2 -$	E1
	g,a	193.31	193.31	0.00 –	517 300	$3s - 2p^5 3s 4d$?	$^2S -$	$1/2 -$	E1
	g,a	193.40	193.40	0.00 –	517 060	$3s - 2p^5 3s 5s$?	$^2S -$	$1/2 -$	E1
	g,a	193.64	193.64	0.00 –	516 420	$3s - 2p^5 3s 4d$?	$^2S -$	$1/2 -$	E1
	g,a	197.76	197.71	0.00 –	505 780	$3s - 2p^5(^2P^o)3p^2(^3P)$	$^2S - ^2P^o$	$1/2 - 3/2$	E1
	g,a	199.31	199.31	0.00 –	501 730	$3s - 2p^5(^2P^o)3p^2(^3P)$	$^2S - ^2P^o$	$1/2 - 1/2$	E1
	g,a	202.00	202.00	0.00 –	495 050	$3s - 2p^5(^2P^o)3s4s(^1S)$	$^2S - ^2P^o$	$1/2 - 1/2$	E1
	g,a	202.27	202.27	0.00 –	494 390	$3s - 2p^5(^2P^o)3s4s(^1S)$	$^2S - ^2P^o$	$1/2 - 3/2$	E1
	g,a	202.51	202.51	0.00 –	493 800	$3s - 2p^5(^2P^o)3s3d(^3D)$	$^2S - ^2P^o$	$1/2 - 1/2$	E1
	g,a	202.94	202.94	0.00 –	492 760	$3s - 2p^5(^2P^o)3s3d(^3D)$	$^2S - \langle\psi\vert^o$	$1/2 - 3/2$	E1
	g,a	203.42	203.42	0.00 –	491 590	$3s - 2p^5(^2P^o)3s4s(^3S)$	$^2S - ^2P^o$	$1/2 - 3/2$	E1
	g,a	203.53	203.53	0.00 –	491 330	$3s - 2p^5(^2P^o)3s4s(^3S)$	$^2S - ^2P^o$	$1/2 - 1/2$	E1
	g,a	209.09	209.09	0.00 –	478 260	$3s - 2p^5(^2P^o)3p^2(^1D)$	$^2S - ^2P^o$	$1/2 - 3/2$	E1
	g,a	209.43	209.43	0.00 –	477 490	$3s - 2p^5(^2P^o)3p^2(^1D)$	$^2S - ^2P^o$	$1/2 - 1/2$	E1
	4	233.01	233.01?	35 760.88 –	464 930?	$3p - 2p^5(^2P^o)3s3p(^1P^o)$	$^2P^o - ^2S$	$3/2 - 1/2$	F1
	1	235.8	235.8?	35 760.88 –	459 800?	$3p - 2p^5(^2P^o)3s3p(^1P^o)$	$^2P^o - ^2P$	$3/2 - 3/2$	F1
	7	238.1	238.04	71 490.19 –	491 590	$3d - 2p^5(^2P^o)3s4s(^3S)$	$^2D - ^2P^o$	$5/2 - 3/2$	P1
			238.19	71 491.06 –	491 330	$3d - 2p^5(^2P^o)3s4s(^3S)$	$^2D - ^2P^o$	$3/2 - 1/2$	
	6	246.55	246.51	35 669.31 –	441 330	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^2P$	$1/2 - 3/2$	F1
			246.57	35 760.88 –	441 330	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^2P$	$3/2 - 3/2$	
	2g	247.21	247.21	0.00 –	404 510	$3s - 2p^5 3s^2$	$^2S - ^2P^o$	$1/2 - 1/2$	F1
	1	247.66	247.66	35 760.88 –	439 540	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^2D$	$3/2 - 5/2$	F1
	3g	248.39	248.39	0.00 –	402 590	$3s - 2p^5 3s^2$	$^2S - ^2P^o$	$1/2 - 3/2$	F1
	2	248.88	248.88	35 760.88 –	437 560	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4P$	$3/2 - 5/2$	F1
	1	250.02	250.02	35 669.31 –	435 640	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4D$	$1/2 - 1/2$	F1
	2	250.32	250.30	35 669.31 –	435 190	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4D$	$1/2 - 3/2$	F1
			250.36	35 760.88 –	435 190	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4D$	$3/2 - 3/2$	
	3	250.71	250.71	35 760.88 –	434 630	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4D$	$3/2 - 5/2$	F1
	6	254.32	254.26	35 669.31 –	428 960	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4S$	$1/2 - 3/2$	F1
			254.32	35 760.88 –	428 960	$3p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4S$	$3/2 - 3/2$	
	1	277.2	277.23	80 619.50 –	441 330	$4p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^2P$	$1/2 - 3/2$	P1
			277.25	80 650.02 –	441 330	$4p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^2P$	$3/2 - 3/2$	
	2	287.1	287.08	80 619.50 –	428 960	$4p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4S$	$1/2 - 3/2$	P1
			287.10	80 650.02 –	428 960	$4p - 2p^5(^2P^o)3s3p(^3P^o)$	$^2P^o - ^4S$	$3/2 - 3/2$	

Mg II — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Vac. Wavelength (Å) Calculated	Levels (cm^{-1}) Lower	Levels (cm^{-1}) Upper	Configurations	Terms	J Values	Ref.
	g,a	870.2	870.3317	0.00	114 898.72	$3s - 9p$	$^2S - ^2P^o$	$1/2 - 3/2$	E4
			870.3463	0.00	114 896.79	$3s - 9p$	$^2S - ^2P^o$	$1/2 - 1/2$	
	g,a	884.7	884.6967	0.00	113 033.09	$3s - 8p$	$^2S - ^2P^o$	$1/2 - 3/2$	E4
			884.7189	0.00	113 030.25	$3s - 8p$	$^2S - ^2P^o$	$1/2 - 1/2$	
	g,a	907.4	907.3752	0.00	110 207.99	$3s - 7p$	$^2S - ^2P^o$	$1/2 - 3/2$	E4
			907.4115	0.00	110 203.58	$3s - 7p$	$^2S - ^2P^o$	$1/2 - 1/2$	
	8*g*	946.703	946.7033	0.00	105 629.72	$3s - 6p$	$^2S - ^2P^o$	$1/2 - 3/2$	G1
	9*g*	946.769	946.7694	0.00	105 622.34	$3s - 6p$	$^2S - ^2P^o$	$1/2 - 1/2$	G1
	14*g*	1025.962	1025.9681	0.00	97 468.92	$3s - 5p$	$^2S - ^2P^o$	$1/2 - 3/2$	G1
	12*g*	1026.108	1026.1134	0.00	97 455.12	$3s - 5p$	$^2S - ^2P^o$	$1/2 - 1/2$	G1
	25*g*	1239.936	1239.9253	0.00	80 650.02	$3s - 4p$	$^2S - ^2P^o$	$1/2 - 3/2$	G1
	20*g*	1240.399	1240.3946	0.00	80 619.50	$3s - 4p$	$^2S - ^2P^o$	$1/2 - 1/2$	G1
	6	1248.511	1248.5068	35 669.31	115 764.99	$3p - 10s$	$^2P^o - ^2S$	$1/2 - 1/2$	G1
	8	1249.932	1249.9358	35 760.88	115 764.99	$3p - 10s$	$^2P^o - ^2S$	$3/2 - 1/2$	G1
	8	1271.243	1271.2387	35 669.31	114 332.74	$3p - 8d$	$^2P^o - ^2D$	$1/2 - 3/2$	G1
	9	1271.943	1271.9402	35 669.31	114 289.36	$3p - 9s$	$^2P^o - ^2S$	$1/2 - 1/2$	G1
	8	1272.725	1272.7203	35 760.88	114 332.68	$3p - 8d$	$^2P^o - ^2D$	$3/2 - 5/2$	G1
	11	1273.427	1273.4233	35 760.88	114 289.36	$3p - 9s$	$^2P^o - ^2S$	$3/2 - 1/2$	G1
	11	1306.711	1306.7137	35 669.31	112 197.17	$3p - 7d$	$^2P^o - ^2D$	$1/2 - 3/2$	G1
	12	1307.877	1307.8753	35 669.31	112 129.20	$3p - 8s$	$^2P^o - ^2S$	$1/2 - 1/2$	G1
	12	1308.282	1308.2811	35 760.88	112 197.05	$3p - 7d$	$^2P^o - ^2D$	$3/2 - 5/2$	G1
	14	1309.439	1309.4435	35 760.88	112 129.20	$3p - 8s$	$^2P^o - ^2S$	$3/2 - 1/2$	G1
	14	1365.545	1365.5440	35 669.31	108 900.20	$3p - 6d$	$^2P^o - ^2D$	$1/2 - 3/2$	G1
	15	1367.260	1367.2570	35 760.88	108 900.02	$3p - 6d$	$^2P^o - ^2D$	$3/2 - 5/2$	G1
	15	1367.704	1367.7080	35 669.31	108 784.33	$3p - 7s$	$^2P^o - ^2S$	$1/2 - 1/2$	G1
	18	1369.425	1369.4231	35 760.88	108 784.33	$3p - 7s$	$^2P^o - ^2S$	$3/2 - 1/2$	G1
	20	1476.004	1475.9997	35 669.31	103 420.00	$3p - 5d$	$^2P^o - ^2D$	$1/2 - 3/2$	G1
	25	1478.013	1478.0039	35 760.88	103 419.70	$3p - 5d$	$^2P^o - ^2D$	$3/2 - 5/2$	G1
	20	1480.890	1480.8795	35 669.31	103 196.75	$3p - 6s$	$^2P^o - ^2S$	$1/2 - 1/2$	G1
	30	1482.902	1482.8903	35 760.88	103 196.75	$3p - 6s$	$^2P^o - ^2S$	$3/2 - 1/2$	G1
		1653.43	1653.44	429 200 + *x*	489 680 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,3d(^3D)$	$^4S - ^4P^o$	$3/2 - 5/2$	G5
		1716.73	1716.74	429 200 + *x*	487 450 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,4s(^3S)$	$^4S - ^4P^o$	$3/2 - 5/2$	G5
	40	1734.845	1734.8521	35 669.31	93 311.11	$3p - 4d$	$^2P^o - ^2D$	$1/2 - 3/2$	G1
	50	1737.618	1737.6282	35 760.88	93 310.59	$3p - 4d$	$^2P^o - ^2D$	$3/2 - 5/2$	G1
	40	1750.654	1750.6635	35 669.31	92 790.51	$3p - 5s$	$^2P^o - ^2S$	$1/2 - 1/2$	G1
	50	1753.456	1753.4745	35 760.88	92 790.51	$3p - 5s$	$^2P^o - ^2S$	$3/2 - 1/2$	G1
		1806.78	1806.78	434 333 + *x*	489 680 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,3d(^3D)$	$^4D - ^4P^o$	$7/2 - 5/2$	G5
		1808.56	1808.55	434 333 + *x*	489 626 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,3d(^3D)$	$^4D - ^4F^o$	$7/2 - 9/2$	G5
		1824.50	1824.65	434 875 + *x*	489 680 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,3d(^3D)$	$^4D - ^4P^o$	$5/2 - 5/2$	G5
		1882.63	1882.64	434 333 + *x*	487 450 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,4s(^3S)$	$^4D - ^4P^o$	$7/2 - 5/2$	G5
		1902.22	1902.04	434 875 + *x*	487 450 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,4s(^3S)$	$^4D - ^4P^o$	$5/2 - 5/2$	G5
		1928.09	1928.01	437 813 + *x*	489 680 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,3d(^3D)$	$^4P - ^4P^o$	$5/2 - 5/2$	G5
		1992.98	1992.98	438 411 + *x*	488 587 + *x*	$2p^6(^3P^o)3s\,3p(^3P^o) - 2p^6(^3P^o)3p^2(^3P)$	$^4P - ^4D^o$	$5/2 - 5/2$	G5
		Air Wavelength (Å)							
		2013.91	2013.98	437 813 + *x*	487 450 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3s\,4s(^3S)$	$^4P - ^4P^o$	$5/2 - 5/2$	G5
		2028.32	2028.32	437 813 + *x*	487 099 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3p^2(^3P)$	$^4P - ^4D^o$	$5/2 - 7/2$	G5
		2182.57	2182.53	437 813 + *x*	483 617 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3p^2(^3P)$	$^4P - ^4P^o$	$5/2 - 5/2$	G5
		2211.41	2211.41	438 411 + *x*	483 617 + *x*	$2p^5(^2P^o)3s\,3p(^3P^o) - 2p^5(^2P^o)3p^2(^3P)$	$^4P - ^4P^o$	$3/2 - 5/2$	G5
	3	2329.578	2329.562	71 490.19	114 403.55	$3d - 8f$	$^2D - ^2F^o$	$5/2 - 7/2$	R1
			2329.609	71 491.06	114 403.55	$3d - 8f$	$^2D - ^2F^o$	$3/2 - 5/2$	
UV5	6	2449.590	2449.561	71 490.19	112 301.47	$3d - 7f$	$^2D - ^2F^o$	$5/2 - 7/2$	R1
UV5			2449.613	71 491.06	112 301.47	$3d - 7f$	$^2D - ^2F^o$	$3/2 - 5/2$	

Mg II — Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
UV4	8	2660.755	2660.754	71 490.19 –	109 062.35	3d – 6f	$^2D - ^2F^o$	5/2 – 7/2	R1
UV4	8	2660.817	2660.817	71 491.06 –	109 062.32	3d – 6f	$^2D - ^2F^o$	3/2 – 5/2	R1
UV3	9	2790.776	2790.777	35 669.31 –	71 491.06	3p – 3d	$^2P^o - ^2D$	1/2 – 3/2	R2
UV1	13g	2795.528	2795.528	0.00 –	35 760.88	3s – 3p	$^2S - ^2P^o$	1/2 – 3/2	R2
UV3	10	2797.998	2797.998	35 760.88 –	71 490.19	3p – 3d	$^2P^o - ^2D$	3/2 – 5/2	R2
UV1	12g	2802.704	2802.705	0.00 –	35 669.31	3s – 3p	$^2S - ^2P^o$	1/2 – 1/2	R2
UV2	9	2928.634	2928.633	35 669.31 –	69 804.95	3p – 4s	$^2P^o - ^2S$	1/2 – 1/2	R2
UV2	10	2936.509	2936.510	35 760.88 –	69 804.95	3p – 4s	$^2P^o - ^2S$	3/2 – 1/2	R2
UV7	2	2968.020	2968.020	80 650.02 –	114 332.68	4p – 8d	$^2P^o - ^2D$	3/2 – 5/2	R1
UV6	1	2969.145	2969.148	80 619.50 –	114 289.36	4p – 9s	$^2P^o - ^2S$	1/2 – 1/2	R1
UV6	2	2971.839	2971.842	80 650.02 –	114 289.36	4p – 9s	$^2P^o - ^2S$	3/2 – 1/2	R1
6	9	3104.722	3104.715	71 490.19 –	103 689.92	3d – 5f	$^2D - ^2F^o$	5/2 – 7/2	R2
6	8	3104.809	3104.805	71 491.06 –	103 689.86	3d – 5f	$^2D - ^2F^o$	3/2 – 5/2	R2
14	3	3165.878	3165.879	80 619.50 –	112 197.17	4p – 7d	$^2P^o - ^2D$	1/2 – 3/2	R1
14	6	3168.951	3168.954	80 650.02 –	112 197.05	4p – 7d	$^2P^o - ^2D$	3/2 – 5/2	R2
13	6	3172.706	3172.708	80 619.50 –	112 129.20	4p – 8s	$^2P^o - ^2S$	1/2 – 1/2	R2
13	7	3175.783	3175.784	80 650.02 –	112 129.20	4p – 8s	$^2P^o - ^2S$	3/2 – 1/2	R2
12	7	3534.972	3534.970	80 619.50 –	108 900.20	4p – 6d	$^2P^o - ^2D$	1/2 – 3/2	R2
12	8	3538.813	3538.812	80 650.02 –	108 900.02	4p – 6d	$^2P^o - ^2D$	3/2 – 5/2	R2
11	7	3549.516	3549.513	80 619.50 –	108 784.33	4p – 7s	$^2P^o - ^2S$	1/2 – 1/2	R2
11	8	3553.366	3553.364	80 650.02 –	108 784.33	4p – 7s	$^2P^o - ^2S$	3/2 – 1/2	R2
2	4	3613.781	3613.780	69 804.95 –	97 468.92	4s – 5p	$^2S - ^2P^o$	1/2 – 3/2	R2
2	3	3615.583	3615.583	69 804.95 –	97 455.12	4s – 5p	$^2S - ^2P^o$	1/2 – 1/2	R2
5	8	3848.209	3848.212	71 490.19 –	97 468.92	3d – 5p	$^2D - ^2P^o$	5/2 – 3/2	R2
5	5bl	3848.335	3848.340	71 491.06 –	97 468.92	3d – 5p	$^2D - ^2P^o$	3/2 – 3/2	R1
5	7	3850.385	3850.386	71 491.06 –	97 455.12	3d – 5p	$^2D - ^2P^o$	3/2 – 1/2	R2
28	2	4193.482	4193.470	93 799.63 –	117 639.51	4f – 11g	$^2F^o - ^2G$	5/2 – 7/2	R1
28			4193.492	93 799.75 –	117 639.51	4f – 11g	$^2F^o - ^2G$	7/2 – 9/2	
20	3	4242.445	4242.448	93 310.59 –	116 875.25	4d – 10f	$^2D - ^2F^o$	5/2 – 7/2	R2
20	2	4242.543	4242.542	93 311.11 –	116 875.25	4d – 10f	$^2D - ^2F^o$	3/2 – 5/2	R2
27	4	4331.945	4331.930	93 799.63 –	116 877.54	4f – 10g	$^2F^o - ^2G$	5/2 – 7/2	R1
27			4331.953	93 799.75 –	116 877.54	4f – 10g	$^2F^o - ^2G$	7/2 – 9/2	
10	9	4384.637	4384.637	80 619.50 –	103 420.00	4p – 5d	$^2P^o - ^2D$	1/2 – 3/2	R2
10	10	4390.564	4390.572	80 650.02 –	103 419.70	4p – 5d	$^2P^o - ^2D$	3/2 – 5/2	R2
9	8	4427.994	4427.994	80 619.50 –	103 196.75	4p – 6s	$^2P^o - ^2S$	1/2 – 1/2	R2
9	9	4433.990	4433.988	80 650.02 –	103 196.75	4p – 6s	$^2P^o - ^2S$	3/2 – 1/2	R2
19	5	4436.486	4436.491	93 310.59 –	115 844.60	4d – 9f	$^2D - ^2F^o$	5/2 – 7/2	R2
19	4	4436.598	4436.593	93 311.11 –	115 844.60	4d – 9f	$^2D - ^2F^o$	3/2 – 5/2	R2
4	14	4481.130	4481.126	71 490.19 –	93 799.75	3d – 4f	$^2D - ^2F^o$	5/2 – 7/2	R2
4	13	4481.327	4481.325	71 491.06 –	93 799.63	3d – 4f	$^2D - ^2F^o$	3/2 – 5/2	R2
26	6	4534.291	4534.279	93 799.63 –	115 847.67	4f – 9g	$^2F^o - ^2G$	5/2 – 7/2	R2
26			4534.304	93 799.75 –	115 847.67	4f – 9g	$^2F^o - ^2G$	7/2 – 9/2	
	2	4630.878	4630.878	93 310.59 –	114 898.72	4d – 9p	$^2D - ^2P^o$	5/2 – 3/2	R2
	1	4631.405	4631.404	93 311.11 –	114 896.79	4d – 9p	$^2D - ^2P^o$	3/2 – 1/2	R2
18	6	4739.588	4739.593	93 310.59 –	114 403.55	4d – 8f	$^2D - ^2F^o$	5/2 – 7/2	R2
18	5	4739.712	4739.710	93 311.11 –	114 403.55	4d – 8f	$^2D - ^2F^o$	3/2 – 5/2	R2
25	7	4851.082	4851.070	93 799.63 –	114 407.88	4f – 8g	$^2F^o - ^2G$	5/2 – 7/2	R2
25			4851.099	93 799.75 –	114 407.88	4f – 8g	$^2F^o - ^2G$	7/2 – 9/2	
	2	4868.845	4868.823	93 799.63 –	114 332.74	4f – 8d	$^2F^o - ^2D$	5/2 – 3/2	R2
			4868.866	93 799.75 –	114 332.68	4f – 8d	$^2F^o - ^2D$	7/2 – 5/2	
	4	5068.937	5068.938	93 310.59 –	113 033.09	4d – 8p	$^2D - ^2P^o$	5/2 – 3/2	R2
	3	5069.802	5069.802	93 311.11 –	113 030.25	4d – 8p	$^2D - ^2P^o$	3/2 – 1/2	R2
17	8	5264.215	5264.220	93 310.59 –	112 301.47	4d – 7f	$^2D - ^2F^o$	5/2 – 7/2	R2
17	7	5264.368	5264.365	93 311.11 –	112 301.47	4d – 7f	$^2D - ^2F^o$	3/2 – 5/2	R2
24	9	5401.543	5401.521	93 799.63 –	112 307.79	4f – 7g	$^2F^o - ^2G$	5/2 – 7/2	R2
24			5401.556	93 799.75 –	112 307.79	4f – 7g	$^2F^o - ^2G$	7/2 – 9/2	

Mg II – Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	4	5434.039	5433.999	93 799.63 –	112 197.17	$4f - 7d$	$^2F^o - {}^2D$	$5/2 - 3/2$	R2
			5434.070	93 799.75 –	112 197.05	$4f - 7d$	$^2F^o - {}^2D$	$7/2 - 5/2$	
	1	5451.259	5451.250	97 455.12 –	115 794.44	$5p - 9d$	$^2P^o - {}^2D$	$1/2 - 3/2$	R2
	1	5460.019	5460.018	97 455.12 –	115 764.99	$5p - 10s$	$^2P^o - {}^2S$	$1/2 - 1/2$	R2
	2	5464.136	5464.136	97 468.92 –	115 764.99	$5p - 10s$	$^2P^o - {}^2S$	$3/2 - 1/2$	R2
	7	5916.429	5916.431	93 310.59 –	110 207.99	$4d - 7p$	$^2D - {}^2P^o$	$5/2 - 3/2$	R2
	6	5918.158	5918.158	93 311.11 –	110 203.58	$4d - 7p$	$^2D - {}^2P^o$	$3/2 - 1/2$	R2
	3	5923.366	5923.365	97 455.12 –	114 332.74	$5p - 8d$	$^2P^o - {}^2D$	$1/2 - 3/2$	R2
	4	5928.233	5928.233	97 468.92 –	114 332.68	$5p - 8d$	$^2P^o - {}^2D$	$3/2 - 5/2$	R2
	3	5938.629	5938.629	97 455.12 –	114 289.36	$5p - 9s$	$^2P^o - {}^2S$	$1/2 - 1/2$	R2
	4	5943.499	5943.501	97 468.92 –	114 289.36	$5p - 9s$	$^2P^o - {}^2S$	$3/2 - 1/2$	R2
16	10	6346.737	6346.742	93 310.59 –	109 062.35	$4d - 6f$	$^2D - {}^2F^o$	$5/2 - 7/2$	R2
16	9	6346.962	6346.964	93 311.11 –	109 062.32	$4d - 6f$	$^2D - {}^2F^o$	$3/2 - 5/2$	R2
23	11	6545.973	6545.943	93 799.63 –	109 072.05	$4f - 6g$	$^2F^o - {}^2G$	$5/2 - 7/2$	R2
23			6545.994	93 799.75 –	109 072.05	$4f - 6g$	$^2F^o - {}^2G$	$7/2 - 9/2$	
	5	6620.440	6620.438	93 799.63 –	108 900.20	$4f - 6d$	$^2F^o - {}^2D$	$5/2 - 3/2$	R2
	6	6620.569	6620.570	93 799.75 –	108 900.02	$4f - 6d$	$^2F^o - {}^2D$	$7/2 - 5/2$	R2
	7	6781.451	6781.446	97 455.12 –	112 197.17	$5p - 7d$	$^2P^o - {}^2D$	$1/2 - 3/2$	R2
	8	6787.851	6787.855	97 468.92 –	112 197.05	$5p - 7d$	$^2P^o - {}^2D$	$3/2 - 5/2$	R2
	7	6812.860	6812.857	97 455.12 –	112 129.20	$5p - 8s$	$^2P^o - {}^2S$	$1/2 - 1/2$	R2
	8	6819.270	6819.270	97 468.92 –	112 129.20	$5p - 8s$	$^2P^o - {}^2S$	$3/2 - 1/2$	R2
	2	7166.676	7166.663	103 689.86 –	117 639.51	$5f - 11g$	$^2F^o - {}^2G$	$5/2 - 7/2$	R2
			7166.694	103 689.92 –	117 639.51	$5f - 11g$	$^2F^o - {}^2G$	$7/2 - 9/2$	
	4	7580.764	7580.748	103 689.86 –	116 877.54	$5f - 10g$	$^2F^o - {}^2G$	$5/2 - 7/2$	R2
			7580.782	103 689.92 –	116 877.54	$5f - 10g$	$^2F^o - {}^2G$	$7/2 - 9/2$	
	3	7589.558	7589.553	103 705.66 –	116 878.04	$5g - 10h$	$^2G - {}^2H^o$		R2
	5	7786.500	7786.499	92 790.51 –	105 629.72	$5s - 6p$	$^2S - {}^2P^o$	$1/2 - 3/2$	R2
	4	7790.978	7790.977	92 790.51 –	105 622.34	$5s - 6p$	$^2S - {}^2P^o$	$1/2 - 1/2$	R2
8	12	7877.051	7877.054	80 619.50 –	93 311.11	$4p - 4d$	$^2P^o - {}^2D$	$1/2 - 3/2$	R2
8	13	7896.368	7896.366	80 650.02 –	93 310.59	$4p - 4d$	$^2P^o - {}^2D$	$3/2 - 5/2$	R2
	9	8115.220	8115.225	93 310.59 –	105 629.72	$4d - 6p$	$^2D - {}^2P^o$	$5/2 - 3/2$	R2
	8	8120.434	8120.433	93 311.11 –	105 622.34	$4d - 6p$	$^2D - {}^2P^o$	$3/2 - 1/2$	R2
7	10	8213.989	8213.987	80 619.50 –	92 790.51	$4p - 5s$	$^2P^o - {}^2S$	$1/2 - 1/2$	R2
	7	8222.924	8222.905	103 689.86 –	115 847.67	$5f - 9g$	$^2F^o - {}^2G$	$5/2 - 7/2$	R2
			8222.946	103 689.92 –	115 847.67	$5f - 9g$	$^2F^o - {}^2G$	$7/2 - 9/2$	
	7	8233.194	8233.192	103 705.66 –	115 848.28	$5g - 9h$	$^2G - {}^2H^o$		R2
7	11	8234.639	8234.636	80 650.02 –	92 790.51	$4p - 5s$	$^2P^o - {}^2S$	$3/2 - 1/2$	R2
	10	8734.990	8734.980	97 455.12 –	108 900.20	$5p - 6d$	$^2P^o - {}^2D$	$1/2 - 3/2$	R2
	11	8745.657	8745.663	97 468.92 –	108 900.02	$5p - 6d$	$^2P^o - {}^2D$	$3/2 - 5/2$	R2
	10	8824.323	8824.318	97 455.12 –	108 784.33	$5p - 7s$	$^2P^o - {}^2S$	$1/2 - 1/2$	R2
	11	8835.082	8835.080	97 468.92 –	108 784.33	$5p - 7s$	$^2P^o - {}^2S$	$3/2 - 1/2$	R2
1	14	9218.248	9218.250	69 804.95 –	80 650.02	$4s - 4p$	$^3S - {}^3P^o$	$1/2 - 3/2$	R2
1	13	9244.266	9244.265	69 804.95 –	80 619.50	$4s - 4p$	$^2S - {}^2P^o$	$1/2 - 1/2$	R2
	10	9327.545	9327.522	103 689.86 –	114 407.88	$5f - 8g$	$^2F^o - {}^2G$	$5/2 - 7/2$	R2
			9327.575	103 689.92 –	114 407.88	$5f - 8g$	$^2F^o - {}^2G$	$7/2 - 9/2$	
	10	9340.544	9340.542	103 705.66 –	114 408.74	$5g - 8h$	$^2G - {}^2H^o$		R2
15	12	9631.888	9631.892	93 310.59 –	103 689.92	$4d - 5f$	$^2D - {}^2F^o$	$5/2 - 7/2$	R2
15	11	9632.435	9632.430	93 311.11 –	103 689.86	$4d - 5f$	$^2D - {}^2F^o$	$3/2 - 5/2$	R2
		Wavenumber (cm^{-1})							
	14	9905.966	9906.03	93 799.63 –	103 705.66	$4f - 5g$	$^2F^o - {}^2G$	$5/2 - 7/2$	R2
			9905.91	93 799.75 –	103 705.66	$4f - 5g$	$^2F^o - {}^2G$	$7/2 - 9/2$	

Mg II — Continued

Mult. No.	Rel. Int.	Wavenumber (cm^{-1}) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	5	9620.372	9620.37	93 799.63	103 420.00	$4f-5d$	$^2F^o-{}^2D$	$5/2-3/2$	R2
	6	9619.937	9619.95	93 799.75	103 419.70	$4f-5d$	$^2F^o-{}^2D$	$7/2-5/2$	R2
3	11	9159.841	9159.83	71 490.19	80 650.02	$3d-4p$	$^2D-{}^2P^o$	$5/2-3/2$	R2
3	7	9158.969	9158.96	71 491.06	80 650.02	$3d-4p$	$^2D-{}^2P^o$	$3/2-3/2$	R2
3	10	9128.436	9128.44	71 491.06	80 619.50	$3d-4p$	$^2D-{}^2P^o$	$3/2-1/2$	R2
	70	8881.792	8881.77	103 419.70	112 301.47	$5d-7f$	$^2D-{}^2F^o$	$5/2-7/2$	B3
	50	8881.471	8881.47	103 420.00	112 301.47	$5d-7f$	$^2D-{}^2F^o$	$3/2-5/2$	B3
	4	8710.421	8710.40	105 622.34	114 332.74	$6p-8d$	$^2P^o-{}^2D$	$1/2-3/2$	B3
	6	8702.961	8702.96	105 629.72	114 332.68	$6p-8d$	$^2P^o-{}^2D$	$3/2-5/2$	B3
	3	8667.048	8667.02	105 622.34	114 289.36	$6p-9s$	$^2P^o-{}^2S$	$1/2-1/2$	B3
	5	8659.672	8659.64	105 629.72	114 289.36	$6p-9s$	$^2P^o-{}^2S$	$3/2-1/2$	B3
	300	8617.903	8617.93	103 689.86	112 307.79	$5f-7g$	$^2F^o-{}^2G$	$5/2-7/2$	B3
			8617.87	103 689.92	112 307.79	$5f-7g$	$^2F^o-{}^2G$	$7/2-9/2$	
	420	8603.393	8603.40	103 705.66	112 309.06	$5g-7h$	$^2G-{}^2H^o$		B3
	3	8595.796	8595.81	103 705.66	112 301.47	$5g-7f$	$^2G-{}^2F^o$		B3
	11	8507.335	8507.31	103 689.86	112 197.17	$5f-7d$	$^2F^o-{}^2D$	$5/2-3/2$	B3
	15	8507.158	8507.13	103 689.92	112 197.05	$5f-7d$	$^2F^o-{}^2D$	$7/2-5/2$	B3
	2	7975.218	7975.23	108 900.02	116 875.25	$6d-10f$	$^2D-{}^2F^o$	$5/2-7/2$	B3
	1	7975.052	7975.05	108 900.20	116 875.25	$6d-10f$	$^2D-{}^2F^o$	$3/2-5/2$	B3
	2	7815.10	7815.22	109 062.32	116 877.54	$6f-10g$	$^2F^o-{}^2G$	$5/2-7/2$	B3
			7815.19	109 062.35	116 877.54	$6f-10g$	$^2F^o-{}^2G$	$7/2-9/2$	
	2	7805.95	7805.99	109 072.05	116 878.04	$6g-10h$	$^2G-{}^2H^o$		B3
	1	7804.16	7804.16	109 073.97	116 878.13	$6h-10i$	$^2H^o-{}^2I$		B3
	60	7011.234	7011.24	103 196.75	110 207.99	$6s-7p$	$^2S-{}^2P^o$	$1/2-3/2$	B3
	24	7006.835	7006.83	103 196.75	110 203.58	$6s-7p$	$^2S-{}^2P^o$	$1/2-1/2$	B3
	13	6944.571	6944.58	108 900.02	115 844.60	$6d-9f$	$^2D-{}^2F^o$	$5/2-7/2$	B3
	9	6944.380	6944.40	108 900.20	115 844.60	$6d-9f$	$^2D-{}^2F^o$	$3/2-5/2$	B3
	350	6788.294	6788.29	103 419.70	110 207.99	$5d-7p$	$^2D-{}^2P^o$	$5/2-3/2$	B3
	38	6787.992	6787.99	103 420.00	110 207.99	$5d-7p$	$^2D-{}^2P^o$	$3/2-3/2$	B3
	21	6785.324	6785.32	109 062.35	115 847.67	$6f-9g$	$^2F^o-{}^2G$	$7/2-9/2$	B3
			6785.35	109 062.32	115 847.67	$6f-9g$	$^2F^o-{}^2G$	$5/2-7/2$	
	170	6783.594	6783.58	103 420.00	110 203.58	$5d-7p$	$^2D-{}^2P^o$	$3/2-1/2$	B3
	19	6776.243	6776.23	109 072.05	115 848.28	$6g-9h$	$^2G-{}^2H^o$		B3
	1	6774.538	6774.54	109 073.97	115 848.51	$6h-9i$	$^2H^o-{}^2I$		B3
	1	6732.113	6732.12	109 062.32	115 794.44	$6f-9d$	$^2F^o-{}^2D$	$5/2-3/2$	B3
	2	6732.025	6732.04	109 062.35	115 794.39	$6f-9d$	$^2F^o-{}^2D$	$7/2-5/2$	B3
	1	6634.900	6634.90	110 203.58	116 838.48	$7p-10d$	$^2P^o-{}^2D$	$1/2-3/2$	B3
	2	6630.458	6630.46	110 207.99	116 838.45	$7p-10d$	$^2P^o-{}^2D$	$3/2-5/2$	B3
	260	6574.832	6574.83	105 622.34	112 197.17	$6p-7d$	$^2P^o-{}^2D$	$1/2-3/2$	B3
	50	6567.454	6567.45	105 629.72	112 197.17	$6p-7d$	$^2P^o-{}^2D$	$3/2-3/2$	B3
	470	6567.336	6567.33	105 629.72	112 197.05	$6p-7d$	$^2P^o-{}^2D$	$3/2-5/2$	B3
	310	6506.863	6506.86	105 622.34	112 129.20	$6p-8s$	$^2P^o-{}^2S$	$1/2-1/2$	B3
	650	6499.485	6499.48	105 629.72	112 129.20	$6p-8s$	$^2P^o-{}^2S$	$3/2-1/2$	B3
	5	5998.693	5998.70	108 900.02	114 898.72	$6d-9p$	$^2D-{}^2P^o$	$5/2-3/2$	B3
	3	5996.583	5996.59	108 900.20	114 896.79	$6d-9p$	$^2D-{}^2P^o$	$3/2-1/2$	B3
	3700	5964.849	5964.88	97 455.12	103 420.00	$5p-5d$	$^2P^o-{}^2D$	$1/2-3/2$	B3
	750	5951.054	5951.08	97 468.92	103 420.00	$5p-5d$	$^2P^o-{}^2D$	$3/2-3/2$	B3
	6750	5950.752	5950.78	97 468.92	103 419.70	$5p-5d$	$^2P^o-{}^2D$	$3/2-5/2$	B3
	700	5741.608	5741.63	97 455.12	103 196.75	$5p-6s$	$^2P^o-{}^2S$	$1/2-1/2$	B3
	1380	5727.813	5727.83	97 468.92	103 196.75	$5p-6s$	$^2P^o-{}^2S$	$3/2-1/2$	B3
	5000	5642.671	5642.65	103 419.70	109 062.35	$5d-6f$	$^2D-{}^2F^o$	$5/2-7/2$	B3
			5642.62	103 419.70	109 062.32	$5d-6f$	$^2D-{}^2F^o$	$5/2-5/2$	
	3550	5642.337	5642.32	103 420.00	109 062.32	$5d-6f$	$^2D-{}^2F^o$	$3/2-5/2$	B3
	5	5590.861	5590.86	110 203.58	115 794.44	$7p-9d$	$^2P^o-{}^2D$	$1/2-3/2$	B3
	8	5586.404	5586.40	110 207.99	115 794.39	$7p-9d$	$^2P^o-{}^2D$	$3/2-5/2$	B3
	3	5561.440	5561.41	110 203.58	115 764.99	$7p-10s$	$^2P^o-{}^2S$	$1/2-1/2$	B3
	6	5557.041	5557.00	110 207.99	115 764.99	$7p-10s$	$^2P^o-{}^2S$	$3/2-1/2$	B3

Mg II — Continued

Mult. No.	Rel. Int.	Wavenumber (cm^{-1}) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	65	5503.545	5503.53	108 900.02 –	114 403.55	$6d - 8f$	$^2D - {}^2F^\circ$	$5/2 - 7/2$	B3
	60	5503.345	5503.35	108 900.20 –	114 403.55	$6d - 8f$	$^2D - {}^2F^\circ$	$3/2 - 5/2$	B3
	10000	5382.153	5382.19	103 689.86 –	109 072.05	$5f - 6g$	$^2F^\circ - {}^2G$	$5/2 - 7/2$	B3
			5382.13	103 689.92 –	109 072.05	$5f - 6g$	$^2F^\circ - {}^2G$	$7/2 - 9/2$	
	24500	5368.314	5368.31	103 705.66 –	109 073.97	$5g - 6h$	$^2G - {}^2H^\circ$		B3
	130	5356.671	5356.69	103 705.66 –	109 062.35	$5g - 6f$	$^2G - {}^2F^\circ$	$9/2 - 7/2$	B3
			5356.66	103 705.66 –	109 062.32	$5g - 6f$	$^2G - {}^2F^\circ$	$7/2 - 5/2$	
	140	5345.540	5345.53	109 062.35 –	114 407.88	$6f - 8g$	$^2F^\circ - {}^2G$	$7/2 - 9/2$	B3
			5345.56	109 062.32 –	114 407.88	$6f - 8g$	$^2F^\circ - {}^2G$	$5/2 - 7/2$	
	180	5336.712	5336.69	109 072.05 –	114 408.74	$6g - 8h$	$^2G - {}^2H^\circ$		B3
	210	5335.047	5335.05	109 073.97 –	114 409.02	$6h - 8i$	$^2H^\circ - {}^2I$		B3
	1	5333.903	5333.91	109 073.97 –	114 407.88	$6h - 8g$	$^2H^\circ - {}^2G$		B3
	5	5331.513	5331.50	109 072.05 –	114 403.55	$6g - 8f$	$^2G - {}^2F^\circ$		B3
	8	5270.444	5270.42	109 062.32 –	114 332.74	$6f - 8d$	$^2F^\circ - {}^2D$	$5/2 - 3/2$	B3
	10	5270.331	5270.33	109 062.35 –	114 332.68	$6f - 8d$	$^2F^\circ - {}^2D$	$7/2 - 5/2$	B3
	230	5210.360	5210.34	103 689.86 –	108 900.20	$5f - 6d$	$^2F^\circ - {}^2D$	$5/2 - 3/2$	B3
	32	5210.17	5210.16	103 689.86 –	108 900.02	$5f - 6d$	$^2F^\circ - {}^2D$	$5/2 - 5/2$	B3
	350	5210.118	5210.10	103 689.92 –	108 900.02	$5f - 6d$	$^2F^\circ - {}^2D$	$7/2 - 5/2$	B3
	3150	4678.418	4678.41	92 790.51 –	97 468.92	$5s - 5p$	$^2S - {}^2P^\circ$	$1/2 - 3/2$	B3
	1500	4664.623	4664.61	92 790.51 –	97 455.12	$5s - 5p$	$^2S - {}^2P^\circ$	$1/2 - 1/2$	B3
	3	4576.06	4576.07	112 301.47 –	116 877.54	$7f - 10g$	$^2F^\circ - {}^2G$		B3
	2	4570.18	4570.25	112 307.79 –	116 878.04	$7g - 10h$	$^2G - {}^2H^\circ$		B3
	8	4248.755	4248.76	108 784.33 –	113 033.09	$7s - 8p$	$^2S - {}^2P^\circ$	$1/2 - 3/2$	B3
	4	4245.924	4245.92	108 784.33 –	113 030.25	$7s - 8p$	$^2S - {}^2P^\circ$	$1/2 - 1/2$	B3
	2050	4158.357	4158.33	93 310.59 –	97 468.92	$4d - 5p$	$^2D - {}^2P^\circ$	$5/2 - 3/2$	B3
	210	4157.827	4157.81	93 311.11 –	97 468.92	$4d - 5p$	$^2D - {}^2P^\circ$	$3/2 - 3/2$	B3
	1150	4144.032	4144.01	93 311.11 –	97 455.12	$4d - 5p$	$^2D - {}^2P^\circ$	$3/2 - 1/2$	B3
	35	4133.065	4133.07	108 900.02 –	113 033.09	$6d - 8p$	$^2D - {}^2P^\circ$	$5/2 - 3/2$	B3
	4	4132.882	4132.89	108 900.20 –	113 033.09	$6d - 8p$	$^2D - {}^2P^\circ$	$3/2 - 3/2$	B3
	15	4130.053	4130.05	108 900.20 –	113 030.25	$6d - 8p$	$^2D - {}^2P^\circ$	$3/2 - 1/2$	B3
	18	4129.187	4129.16	110 203.58 –	114 332.74	$7p - 8d$	$^2P^\circ - {}^2D$	$1/2 - 3/2$	B3
	5	4124.788	4124.75	110 207.99 –	114 332.74	$7p - 8d$	$^2P^\circ - {}^2D$	$3/2 - 3/2$	B3
	35	4124.708	4124.69	110 207.99 –	114 332.68	$7p - 8d$	$^2P^\circ - {}^2D$	$3/2 - 5/2$	B3
	13	4085.816	4085.78	110 203.58 –	114 289.36	$7p - 9s$	$^2P^\circ - {}^2S$	$1/2 - 1/2$	B3
	25	4081.418	4081.37	110 207.99 –	114 289.36	$7p - 9s$	$^2P^\circ - {}^2S$	$3/2 - 1/2$	B3
	6	3401.459	3401.45	108 900.02 –	112 301.47	$6d - 7f$	$^2D - {}^2F^\circ$	$5/2 - 7/2$	B3
	4	3401.255	3401.27	108 900.20 –	112 301.47	$6d - 7f$	$^2D - {}^2F^\circ$	$3/2 - 5/2$	B3
	18	3277.856	3277.86	105 622.34 –	108 900.20	$6p - 6d$	$^2P^\circ - {}^2D$	$1/2 - 3/2$	B3
	3	3270.479	3270.48	105 629.72 –	108 900.20	$6p - 6d$	$^2P^\circ - {}^2D$	$3/2 - 3/2$	B3
	30	3270.296	3270.30	105 629.72 –	108 900.02	$6p - 6d$	$^2P^\circ - {}^2D$	$3/2 - 5/2$	B3
	10	3245.449	3245.41	109 062.32 –	112 307.79	$6f - 7g$	$^2F^\circ - {}^2G$	$5/2 - 7/2$	B3
			3245.44	109 062.35 –	112 307.79	$6f - 7g$	$^2F^\circ - {}^2G$	$7/2 - 9/2$	
	20	3237.022	3237.01	109 072.05 –	112 309.06	$6g - 7h$	$^2G - {}^2H^\circ$		B3
	50	3235.482	3235.48	109 073.97 –	112 309.45	$6h - 7i$	$^2H^\circ - {}^2I$		B3
	1	3229.42	3229.42	109 072.05 –	112 301.47	$6g - 7f$	$^2G - {}^2F^\circ$		B3
	1	3161.985	3161.99	105 622.34 –	108 784.33	$6p - 7s$	$^2P^\circ - {}^2S$	$1/2 - 1/2$	B3
	30	3154.607	3154.61	105 629.72 –	108 784.33	$6p - 7s$	$^2P^\circ - {}^2S$	$3/2 - 1/2$	B3
	1	3134.856	3134.85	109 062.32 –	112 197.17	$6f - 7d$	$^2F^\circ - {}^2D$	$5/2 - 3/2$	B3
	2	3134.706	3134.70	109 062.35 –	112 197.05	$6f - 7d$	$^2F^\circ - {}^2D$	$7/2 - 5/2$	B3
	20	2731.89	2731.90	113 033.09 –	115 764.99	$8p - 10s$	$^2P^\circ - {}^2S$	$3/2 - 1/2$	B3
	6300	2432.983	2432.97	103 196.75 –	105 629.72	$6s - 6p$	$^2S - {}^2P^\circ$	$1/2 - 3/2$	B3
	3160	2425.605	2425.59	103 196.75 –	105 622.34	$6s - 6p$	$^2S - {}^2P^\circ$	$1/2 - 1/2$	B3
	3160	2210.045	2210.02	103 419.70 –	105 629.72	$5d - 6p$	$^2D - {}^2P^\circ$	$5/2 - 3/2$	B3
	500	2209.744	2209.72	103 420.00 –	105 629.72	$5d - 6p$	$^2D - {}^2P^\circ$	$3/2 - 3/2$	B3
	2000	2202.366	2202.34	103 420.00 –	105 622.34	$5d - 6p$	$^2D - {}^2P^\circ$	$3/2 - 1/2$	B3

Mg II – Continued

Mult. No.	Rel. Int.	Wavenumber (cm^{-1}) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	400	1993.573	1993.59	110 203.58 –	112 197.17	$7p - 7d$	$^2P^o - {}^2D$	$1/2 - 3/2$	B3
	630	1989.057	1989.06	110 207.99 –	112 197.05	$7p - 7d$	$^2P^o - {}^2D$	$3/2 - 5/2$	B3
	500	1925.614	1925.62	110 203.58 –	112 129.20	$7p - 8s$	$^2P^o - {}^2S$	$1/2 - 1/2$	B3
	1000	1921.216	1921.21	110 207.99 –	112 129.20	$7p - 8s$	$^2P^o - {}^2S$	$3/2 - 1/2$	B3

Mg III

Ne I isoelectronic sequence

Ground state $1s^2 2s^2 2p^6\ ^1S_0$

Ionization energy 646 402 ± 5 cm^{-1} (80.1437 ± 0.0006 eV)

The spectrum between 720 and 7430 Å is from the investigation by Andersson and Johannesson [A1]. Lundström's [L1] measurements in the 158-234 Å region established the connection between the best determined $2s^2 2p^5 nl$ higher levels and the $^1S_0$ ground level within about ±3 cm^{-1}. The four-place calculated wavelengths given for the region 169 – 234 Å should thus have uncertainties of about ±0.0010 to ±0.0020 Å.

References

A1 Andersson, E., and Johannesson, G.-A. [1971], Phys. Scr. **3**, 203 – 210.

E1 Esteva, J. M., and Mehlman, G. [1974], Astrophys. J. **193**, 747 – 753.

K1 Kaufman, V. and Artru, M.-C. [1980], J. Opt Soc. Am. **70**, 1135 – 1139.

L1 Lundström, T. [1973], Phys. Scr. **7**, 62 – 64.

R1 Risberg, G. [1965], Ark Fys. **28**, 381 – 395.

Mg III

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	g	106.30	106.30	0	– 940 700	$2p^6 - 2s2p^6 8p$	$^1S - {}^1P^o$	0 – 1	E1
	g	106.99	106.99	0	– 934 700	$2p^6 - 2s2p^6 7p$	$^1S - {}^1P^o$	0 – 1	E1,K2
	g	108.08	108.08	0	– 925 200	$2p^6 - 2s2p^6 6p$	$^1S - {}^1P^o$	0 – 1	E1
	g	110.14	110.13	0	– 908 000	$2p^6 - 2s2p^6 5p$	$^1S - {}^1P^o$	0 – 1	E1,K2
	g	114.33	114.32	0	– 874 700	$2p^6 - 2s2p^6 4p$	$^1S - {}^1P^o$	0 – 1	E1,K2
	g	126.50	126.50	0	– 790 500	$2p^6 - 2s2p^6 3p$	$^1S - {}^1P^o$	0 – 1	E1
	1*g,d*	157.701	157.701	0	– 634 111	$2p^6 - 2p^5(^2P^o_{3/2})9d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	1*g,d*	157.981	157.981	0	– 632 988	$2p^6 - 2p^5(^2P^o_{1/2})8d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	2*g,d*	158.522	158.522	0	– 630 827	$2p^6 - 2p^5(^2P^o_{3/2})8d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	2*g*	159.198	159.198	0	– 628 149	$2p^6 - 2p^5(^2P^o_{1/2})7d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	4*g*	159.741	159.741	0	– 626 013	$2p^6 - 2p^5(^2P^o_{3/2})7d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	5*g*	161.108	161.108	0	– 620 702	$2p^6 - 2p^5(^2P^o_{1/2})6d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	5*g*	161.655	161.655	0	– 618 601	$2p^6 - 2p^5(^2P^o_{3/2})6d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	2*g*	163.562	163.562	0	– 611 389	$2p^6 - 2p^5(^2P^o_{1/2})6s$	$^1S - {}^2[^1/_2]^o$	0 – 1	L1
	1*g*	164.133	164.133	0	– 609 262	$2p^6 - 2p^5(^2P^o_{3/2})6s$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	8*g*	164.394	164.394	0	– 608 295	$2p^6 - 2p^5(^2P^o_{1/2})5d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	8*g*	164.949	164.949	0	– 606 248	$2p^6 - 2p^5(^2P^o_{3/2})5d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	1*g*	165.192	165.192	0	– 605 356	$2p^6 - 2p^5(^2P^o_{3/2})5d$	$^1S - {}^2[^1/_2]^o$	0 – 1	L1
	7*g*	169.1406	169.1416	0	– 591 220.7	$2p^6 - 2p^5(^2P^o_{1/2})5s$	$^1S - {}^2[^1/_2]^o$	0 – 1	L1
	6*g*	169.7411	169.7427	0	– 589 126.8	$2p^6 - 2p^5(^2P^o_{3/2})5s$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	15*g*	170.8050	170.8041	0	– 585 466.2	$2p^6 - 2p^5(^2P^o_{1/2})4d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	15*g*	171.3946	171.3941	0	– 583 450.5	$2p^6 - 2p^5(^2P^o_{3/2})4d$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
	4*g*	171.8984	171.8997	0	– 581 734.7	$2p^6 - 2p^5(^2P^o_{3/2})4d$	$^1S - {}^2[^1/_2]^o$	0 – 1	L1
	15*g*	182.2415	182.2421	0	– 548 720.7	$2p^6 - 2p^5(^2P^o_{1/2})4s$	$^1S - {}^2[^1/_2]^o$	0 – 1	L1
	12*g*	182.9717	182.9720	0	– 546 531.6	$2p^6 - 2p^5(^2P^o_{3/2})4s$	$^1S - {}^2[^3/_2]^o$	0 – 1	L1
UV4	20*g*	186.5149	186.5143	0	– 536 152.0	$2p^6 - 2p^5 3d$	$^1S - {}^1P^o$	0 – 1	L1
UV3	20*g*	187.1977	187.1966	0	– 534 197.7	$2p^6 - 2p^5 3d$	$^1S - {}^3D^o$	0 – 1	L1
	10*g*	188.5296	188.5296	0	– 530 420.6	$2p^6 - 2p^5 3d$	$^1S - {}^3P^o$	0 – 1	L1
UV2	100*g*	231.7333	231.7336	0	– 431 530.0	$2p^6 - 2p^5 3s$	$^1S - {}^1P^o$	0 – 1	L1
UV1	80*g*	234.2631	234.2644	0	– 426 868.1	$2p^6 - 2p^5 3s$	$^1S - {}^3P^o$	0 – 1	L1
	2	721.592	721.590	431 530.0	– 570 112.8	$2p^5 3s - 2p^5(^2P^o_{1/2})4p$	$^1P^o - {}^2[^1/_2]$	1 – 0	A1
	3	725.347	725.355	426 868.1	– 564 731.6	$2p^5 3s - 2p^5(^2P^o_{1/2})4p$	$^3P^o - {}^2[^1/_2]$	1 – 1	A1
	5	728.337	728.336	425 640.3	– 562 939.5	$2p^5 3s - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[^3/_2]$	2 – 2	A1
	5	732.625	732.623	425 640.3	– 562 136.1	$2p^5 3s - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[^5/_2]$	2 – 2	A1
	8	734.441	734.439	425 640.3	– 561 798.7	$2p^5 3s - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[^5/_2]$	2 – 3	A1

Mg III – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	6	736.563	736.561	426 868.1	– 562 634.2	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^3P^o$ – $^2[^3/_2]$	1 – 1	A1
	7	739.276	739.273	426 868.1	– 562 136.1	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^3P^o$ – $^2[^5/_2]$	1 – 2	A1
	5	741.932	741.938	427 852.1	– 562 634.2	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^3P^o$ – $^2[^3/_2]$	0 – 1	A1
	7	744.342	744.342	425 640.3	– 559 987.1	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^3P^o$ – $^2[^1/_2]$	2 – 1	A1
	4	750.745	750.742	431 530.0	– 564 731.6	$2p^5 3s$ – $2p^5(^2P^o_{1/2})4p$	$^1P^o$ – $^2[^1/_2]$	1 – 1	A1
	7	751.121	751.120	431 530.0	– 564 664.6	$2p^5 3s$ – $2p^5(^2P^o_{1/2})4p$	$^1P^o$ – $^2[^3/_2]$	1 – 2	A1
	7	751.207	751.208	426 868.1	– 559 987.1	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^3P^o$ – $^2[^1/_2]$	1 – 1	A1
	4	753.247	753.240	431 530.0	– 564 289.8	$2p^5 3s$ – $2p^5(^2P^o_{1/2})4p$	$^1P^o$ – $^2[^3/_2]$	1 – 1	A1
	3	756.808	756.802	427 852.1	– 559 987.1	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^3P^o$ – $^2[^1/_2]$	0 – 1	A1
	3	760.981	760.980	431 530.0	– 562 939.5	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^1P^o$ – $^2[^3/_2]$	1 – 2	A1
	4	762.756	762.752	431 530.0	– 562 634.2	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^1P^o$ – $^2[^3/_2]$	1 – 1	A1
	5	765.655	765.661	431 530.0	– 562 136.1	$2p^5 3s$ – $2p^5(^2P^o_{3/2})4p$	$^1P^o$ – $^2[^5/_2]$	1 – 2	A1
	2	821.369	821.367	467 378.5	– 589 126.8	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^3S – $^2[^3/_2]^o$	1 – 1	A1
	3	823.788	823.788	467 378.5	– 588 768.9	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^3S – $^2[^3/_2]^o$	1 – 2	A1
	2	865.935	865.941	475 502.9	– 590 984.2	$2p^5 3p$ – $2p^5(^2P^o_{1/2})5s$	^3D – $^2[^1/_2]^o$	1 – 0	A1
	7	871.720	871.720	474 053.2	– 588 768.9	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^3D – $^2[^3/_2]^o$	3 – 2	A1
	5	873.580	873.578	474 655.0	– 589 126.8	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^3D – $^2[^3/_2]^o$	2 – 1	A1
	3	876.312	876.317	474 655.0	– 588 768.9	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^3D – $^2[^3/_2]^o$	2 – 2	A1
	3	878.847	878.850	477 435.7	– 591 220.7	$2p^5 3p$ – $2p^5(^2P^o_{1/2})5s$	^1D – $^2[^1/_2]^o$	2 – 1	A1
	3	880.107	880.097	475 502.9	– 589 126.8	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^3D – $^2[^3/_2]^o$	1 – 1	A1
	3	886.158	886.162	478 374.5	– 591 220.7	$2p^5 3p$ – $2p^5(^2P^o_{1/2})5s$	^1P – $^2[^1/_2]^o$	1 – 1	A1
	5	889.888	889.881	478 846.1	– 591 220.7	$2p^5 3p$ – $2p^5(^2P^o_{1/2})5s$	^3P – $^2[^1/_2]^o$	2 – 1	A1
	3	894.744	894.737	479 456.0	– 591 220.7	$2p^5 3p$ – $2p^5(^2P^o_{1/2})5s$	^3P – $^2[^1/_2]^o$	1 – 1	A1
	4	895.324	895.326	477 435.7	– 589 126.8	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^1D – $^2[^3/_2]^o$	2 – 1	A1
	2	896.640	896.634	479 456.0	– 590 984.2	$2p^5 3p$ – $2p^5(^2P^o_{1/2})5s$	^3P – $^2[^1/_2]^o$	1 – 0	A1
	4	898.207	898.205	477 435.7	– 588 768.9	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^1D – $^2[^3/_2]^o$	2 – 2	A1
	3	902.923	902.916	478 374.5	– 589 126.8	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^1P – $^2[^3/_2]^o$	1 – 1	A1
	3	909.730	909.729	478 846.1	– 588 768.9	$2p^5 3p$ – $2p^5(^2P^o_{3/2})5s$	^3P – $^2[^3/_2]^o$	2 – 2	A1
	2	1229.389	1229.374	467 378.5	– 548 720.7	$2p^5 3p$ – $2p^5(^2P^o_{1/2})4s$	^3S – $^2[^1/_2]^o$	1 – 1	A1
	2*bl*	1239.827	1239.835	467 378.5	– 548 034.4	$2p^5 3p$ – $2p^5(^2P^o_{1/2})4s$	^3S – $^2[^1/_2]^o$	1 – 0	A1
	3	1263.375	1263.374	467 378.5	– 546 531.6	$2p^5 3p$ – $2p^5(^2P^o_{3/2})4s$	^3S – $^2[^3/_2]^o$	1 – 1	A1
	1	1271.784	1271.781	530 420.6	– 609 050.5	$2p^5 3d$ – $2p^5(^2P^o_{1/2})5f$	$^3P^o$ – $^2[^5/_2]$	1 – 2	A1
	10	1274.831	1274.829	467 378.5	– 545 820.4	$2p^5 3p$ – $2p^5(^2P^o_{3/2})4s$	^3S – $^2[^3/_2]^o$	1 – 2	A1
	1*d*	1280.702	1280.700	530 962.9	– 609 045.2	$2p^5 3d$ – $2p^5(^2P^o_{1/2})5f$	$^3P^o$ – $^2[^5/_2]$	2 – 3	A1
	bl	1306.59	1306.594	530 178.2	– 606 713.1	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3P^o$ – $^2[^3/_2]$	0 – 1	A1
	1*d*	1308.654	1308.659	530 420.6	– 606 834.7	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3P^o$ – $^2[^5/_2]$	1 – 2	A1
	1	1310.271	1310.278	532 725.7	– 609 045.4	$2p^5 3d$ – $2p^5(^2P^o_{1/2})5f$	$^3F^o$ – $^2[^7/_2]$	2 – 3	A1
	3*bl*	1310.633	1310.637	530 420.6	– 606 719.4	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3P^o$ – $^2[^3/_2]$	1 – 2	A1
	1	1310.720	1310.745	530 420.6	– 606 713.1	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3P^o$ – $^2[^3/_2]$	1 – 1	A1
	bl	1314.50	1314.501	532 971.2	– 609 045.7	$2p^5 3d$ – $2p^5(^2P^o_{1/2})5f$	$^1F^o$ – $^2[^7/_2]$	3 – 4	A1
	4	1318.078	1318.082	530 962.9	– 606 830.7	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3P^o$ – $^2[^5/_2]$	2 – 3	A1
	2	1320.022	1320.019	530 962.9	– 606 719.4	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3P^o$ – $^2[^3/_2]$	2 – 2	A1
	2*d*	1327.512	1327.514	531 563.0	– 606 891.8	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3F^o$ – $^2[^7/_2]$	4 – 4	A1
	8*bl*	1329.583	1329.584	531 563.0	– 606 774.5	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3F^o$ – $^2[^9/_2]$	4 – 5	A1
	2*d*	1332.310	1332.303	531 833.1	– 606 891.1	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3F^o$ – $^2[^7/_2]$	3 – 3	A1
	6*bl*	1334.359	1334.360	531 833.1	– 606 775.4	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3F^o$ – $^2[^9/_2]$	3 – 4	A1
	1	1335.951	1335.955	534 197.7	– 609 050.5	$2p^5 3d$ – $2p^5(^2P^o_{1/2})5f$	$^3D^o$ – $^2[^5/_2]$	1 – 2	A1
	bl	1346.46	1346.466	534 776.9	– 609 045.4	$2p^5 3d$ – $2p^5(^2P^o_{1/2})5f$	$^1D^o$ – $^2[^7/_2]$	2 – 3	A1
	3*d*	1348.342	1348.338	532 725.7	– 606 891.1	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3F^o$ – $^2[^7/_2]$	2 – 3	A1
	4*d*	1349.132	1349.125	534 923.6	– 609 045.7	$2p^5 3d$ – $2p^5(^2P^o_{1/2})5f$	$^3D^o$ – $^2[^7/_2]$	3 – 4	A1
	1*d*	1349.365	1349.364	532 725.7	– 606 834.7	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^3F^o$ – $^2[^5/_2]$	2 – 2	A1
	4	1350.156	1350.153	474 655.0	– 548 720.7	$2p^5 3p$ – $2p^5(^2P^o_{1/2})4s$	^3D – $^2[^1/_2]^o$	2 – 1	A1
	bl	1352.80	1352.803	532 971.2	– 606 891.8	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^1F^o$ – $^2[^7/_2]$	3 – 4	A1
	3*d*	1353.804	1353.810	535 179.6	– 609 045.2	$2p^5 3d$ – $2p^5(^2P^o_{1/2})5f$	$^3D^o$ – $^2[^5/_2]$	2 – 3	A1
	1*d*	1353.915	1353.922	532 971.2	– 606 830.7	$2p^5 3d$ – $2p^5(^2P^o_{3/2})5f$	$^1F^o$ – $^2[^5/_2]$	3 – 3	A1

Mg III — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	2*d*	1371.769	1371.770	536 152.0	– 609 050.5	$2p^5 3d - 2p^5(^2P^o_{1/2})5f$	$^1P^o - {}^2[5/2]$	1 – 2	A1
	3*d*	1376.713	1376.709	534 197.7	– 606 834.7	$2p^5 3d - 2p^5(^2P^o_{3/2})5f$	$^3D^o - {}^2[5/2]$	1 – 2	A1
	7	1378.700	1378.711	475 502.9	– 548 034.4	$2p^5 3p - 2p^5(^2P^o_{1/2})4s$	$^3D - {}^2[1/2]^o$	1 – 0	A1
	1	1378.891	1378.898	534 197.7	– 606 719.4	$2p^5 3d - 2p^5(^2P^o_{3/2})5f$	$^3D^o - {}^2[3/2]$	1 – 2	A1
	1*d*	1386.691	1386.689	534 776.9	– 606 891.1	$2p^5 3d - 2p^5(^2P^o_{3/2})5f$	$^1D^o - {}^2[7/2]$	2 – 3	A1
	2	1389.504	1389.503	534 923.6	– 606 891.8	$2p^5 3d - 2p^5(^2P^o_{3/2})5f$	$^3D^o - {}^2[7/2]$	3 – 4	A1
	12	1391.271	1391.273	474 655.0	– 546 531.6	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3D - {}^2[3/2]^o$	2 – 1	A1
	15	1393.391	1393.394	474 053.2	– 545 820.4	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3D - {}^2[3/2]^o$	3 – 2	A1
	2*d*	1395.642	1395.652	535 179.6	– 606 830.7	$2p^5 3d - 2p^5(^2P^o_{3/2})5f$	$^3D^o - {}^2[5/2]$	2 – 3	A1
	bl	1402.82	1402.820	477 435.7	– 548 720.7	$2p^5 3p - 2p^5(^2P^o_{1/2})4s$	$^1D - {}^2[1/2]^o$	2 – 1	A1
	9	1405.170	1405.177	474 655.0	– 545 820.4	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3D - {}^2[3/2]^o$	2 – 2	A1
	7	1407.880	1407.882	475 502.9	– 546 531.6	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3D - {}^2[3/2]^o$	1 – 1	A1
	5	1421.538	1421.541	478 374.5	– 548 720.7	$2p^5 3p - 2p^5(^2P^o_{1/2})4s$	$^1P - {}^2[1/2]^o$	1 – 1	A1
	3	1422.118	1422.121	475 502.9	– 545 820.4	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3D - {}^2[3/2]^o$	1 – 2	A1
	10	1431.136	1431.135	478 846.1	– 548 720.7	$2p^5 3p - 2p^5(^2P^o_{1/2})4s$	$^3P - {}^2[1/2]^o$	2 – 1	A1
	7	1435.550	1435.546	478 374.5	– 548 034.4	$2p^5 3p - 2p^5(^2P^o_{1/2})4s$	$^1P - {}^2[1/2]^o$	1 – 0	A1
	2	1439.770	1439.773	479 265.3	– 548 720.7	$2p^5 3p - 2p^5(^2P^o_{1/2})4s$	$^3P - {}^2[1/2]^o$	0 – 1	A1
	8	1443.738	1443.737	479 456.0	– 548 720.7	$2p^5 3p - 2p^5(^2P^o_{1/2})4s$	$^3P - {}^2[1/2]^o$	1 – 1	A1
	7	1446.254	1446.257	426 868.1	– 496 012.1	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^1S$	1 – 0	A1
	6	1447.260	1447.264	477 435.7	– 546 531.6	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^1D - {}^2[3/2]^o$	2 – 1	A1
	5	1458.172	1458.185	479 456.0	– 548 034.4	$2p^5 3p - 2p^5(^2P^o_{1/2})4s$	$^3P - {}^2[1/2]^o$	1 – 0	A1
	5	1462.305	1462.315	477 435.7	– 545 820.4	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^1D - {}^2[3/2]^o$	2 – 2	A1
	4	1467.188	1467.199	478 374.5	– 546 531.6	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^1P - {}^2[3/2]^o$	1 – 1	A1
	2	1474.898	1474.902	467 378.5	– 535 179.6	$2p^5 3p - 2p^5 3d$	$^3S - {}^3D^o$	1 – 2	A1
	1	1477.416	1477.421	478 846.1	– 546 531.6	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3P - {}^2[3/2]^o$	2 – 1	A1
	bl	1482.67	1482.670	478 374.5	– 545 820.4	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^1P - {}^2[3/2]^o$	1 – 2	A1
	4	1486.624	1486.629	479 265.3	– 546 531.6	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3P - {}^2[3/2]^o$	0 – 1	A1
	4	1493.097	1493.110	478 846.1	– 545 820.4	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3P - {}^2[3/2]^o$	2 – 2	A1
	3*bl*	1506.826	1506.832	479 456.0	– 545 820.4	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^3P - {}^2[3/2]^o$	1 – 2	A1
	bl	1550.82	1550.818	431 530.0	– 496 012.1	$2p^5 3s - 2p^5 3p$	$^1P^o - {}^1S$	1 – 0	A1
	16	1572.712	1572.713	467 378.5	– 530 962.9	$2p^5 3p - 2p^5 3d$	$^3S - {}^3P^o$	1 – 2	A1
	12	1586.237	1586.242	467 378.5	– 530 420.6	$2p^5 3p - 2p^5 3d$	$^3S - {}^3P^o$	1 – 1	A1
	8	1592.360	1592.364	467 378.5	– 530 178.2	$2p^5 3p - 2p^5 3d$	$^3S - {}^3P^o$	1 – 0	A1
	2	1626.093	1626.096	474 655.0	– 536 152.0	$2p^5 3p - 2p^5 3d$	$^3D - {}^1P^o$	2 – 1	A1
	2	1635.946	1635.954	474 053.2	– 535 179.6	$2p^5 3p - 2p^5 3d$	$^3D - {}^3D^o$	3 – 2	A1
	5	1642.826	1642.835	474 053.2	– 534 923.6	$2p^5 3p - 2p^5 3d$	$^3D - {}^3D^o$	3 – 3	A1
	2	1648.822	1648.829	475 502.9	– 536 152.0	$2p^5 3p - 2p^5 3d$	$^3D - {}^1P^o$	1 – 1	A1
	4	1652.218	1652.221	474 655.0	– 535 179.6	$2p^5 3p - 2p^5 3d$	$^3D - {}^3D^o$	2 – 2	A1
	4	1659.244	1659.239	474 655.0	– 534 923.6	$2p^5 3p - 2p^5 3d$	$^3D - {}^3D^o$	2 – 3	A1
	2	1663.287	1663.287	474 655.0	– 534 776.9	$2p^5 3p - 2p^5 3d$	$^3D - {}^1D^o$	2 – 2	A1
	1	1675.710	1675.696	475 502.9	– 535 179.6	$2p^5 3p - 2p^5 3d$	$^3D - {}^3D^o$	1 – 2	A1
	2	1679.470	1679.467	474 655.0	– 534 197.7	$2p^5 3p - 2p^5 3d$	$^3D - {}^3D^o$	2 – 1	A1
	13	1687.091	1687.080	475 502.9	– 534 776.9	$2p^5 3p - 2p^5 3d$	$^3D - {}^1D^o$	1 – 2	A1
	13	1697.282	1697.274	474 053.2	– 532 971.2	$2p^5 3p - 2p^5 3d$	$^3D - {}^1F^o$	3 – 3	A1
	3	1703.108	1703.105	477 435.7	– 536 152.0	$2p^5 3p - 2p^5 3d$	$^1D - {}^1P^o$	2 – 1	A1
	5	1703.731	1703.728	475 502.9	– 534 197.7	$2p^5 3p - 2p^5 3d$	$^3D - {}^3D^o$	1 – 1	A1
	2	1704.368	1704.376	474 053.2	– 532 725.7	$2p^5 3p - 2p^5 3d$	$^3D - {}^3F^o$	3 – 2	A1
	4	1714.783	1714.789	474 655.0	– 532 971.2	$2p^5 3p - 2p^5 3d$	$^3D - {}^1F^o$	2 – 3	A1
	10	1722.041	1722.039	474 655.0	– 532 725.7	$2p^5 3p - 2p^5 3d$	$^3D - {}^3F^o$	2 – 2	A1
	7	1730.733	1730.706	474 053.2	– 531 833.1	$2p^5 3p - 2p^5 3d$	$^3D - {}^3F^o$	3 – 3	A1
	3	1730.778	1730.778	478 374.5	– 536 152.0	$2p^5 3p - 2p^5 3d$	$^1P - {}^1P^o$	1 – 1	A1
	5	1731.786	1731.785	477 435.7	– 535 179.6	$2p^5 3p - 2p^5 3d$	$^1D - {}^3D^o$	2 – 2	A1
	22	1738.835	1738.834	474 053.2	– 531 563.0	$2p^5 3p - 2p^5 3d$	$^3D - {}^3F^o$	3 – 4	A1
	3*bl*	1739.475	1739.496	477 435.7	– 534 923.6	$2p^5 3p - 2p^5 3d$	$^1D - {}^3D^o$	2 – 3	A1
	2	1743.947	1743.947	477 435.7	– 534 776.9	$2p^5 3p - 2p^5 3d$	$^1D - {}^1D^o$	2 – 2	A1

Mg III – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	1	1745.009	1745.021	478 846.1	– 536 152.0	$2p^53p - 2p^53d$	$^3P - {}^1P^o$	2 – 1	A1
	12	1747.561	1747.555	475 502.9	– 532 725.7	$2p^53p - 2p^53d$	$^3D - {}^3F^o$	1 – 2	A1
	18	1748.932	1748.921	474 655.0	– 531 833.1	$2p^53p - 2p^53d$	$^3D - {}^3F^o$	2 – 3	A1
	2	1757.176	1757.170	474 053.2	– 530 962.9	$2p^53p - 2p^53d$	$^3D - {}^3P^o$	3 – 2	A1
	5	1757.888	1757.880	479 265.3	– 536 152.0	$2p^53p - 2p^53d$	$^3P - {}^1P^o$	0 – 1	A1
	bl	1761.740	1761.742	477 435.7	– 534 197.7	$2p^53p - 2p^53d$	$^1D - {}^3D^o$	2 – 1	A1
	6*bl*	1763.805	1763.793	479 456.0	– 536 152.0	$2p^53p - 2p^53d$	$^3P - {}^1P^o$	1 – 1	A1
	15	1772.982	1772.974	478 374.5	– 534 776.9	$2p^53p - 2p^53d$	$^1P - {}^1D^o$	1 – 2	A1
	1	1773.959	1773.962	530 420.6	– 586 791.6	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^3P^o - {}^2[5/2]$	1 – 2	A1
	2	1775.942	1775.950	474 655.0	– 530 962.9	$2p^53p - 2p^53d$	$^3D - {}^3P^o$	2 – 2	A1
	20	1783.253	1783.246	478 846.1	– 534 923.6	$2p^53p - 2p^53d$	$^3P - {}^3D^o$	2 – 3	A1
	4	1787.927	1787.924	478 846.1	– 534 776.9	$2p^53p - 2p^53d$	$^3P - {}^1D^o$	2 – 2	A1
	5	1791.375	1791.370	478 374.5	– 534 197.7	$2p^53p - 2p^53d$	$^1P - {}^3D^o$	1 – 1	A1
	m		1791.402	530 962.9	– 586 785.1	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^3P^o - {}^2[5/2]$	2 – 3	A1
	2	1793.207	1793.220	474 655.0	– 530 420.6	$2p^53p - 2p^53d$	$^3D - {}^3P^o$	2 – 1	A1
	14	1794.582	1794.572	479 456.0	– 535 179.6	$2p^53p - 2p^53d$	$^3P - {}^3D^o$	1 – 2	A1
	15	1800.662	1800.650	477 435.7	– 532 971.2	$2p^53p - 2p^53d$	$^1D - {}^1F^o$	2 – 3	A1
	2	1803.087	1803.101	475 502.9	– 530 962.9	$2p^53p - 2p^53d$	$^3D - {}^3P^o$	1 – 2	A1
	1	1819.954	1819.955	531 833.1	– 586 779.5	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^3F^o - {}^2[7/2]$	3 – 4	A1
	5	1820.421	1820.419	479 265.3	– 534 197.7	$2p^53p - 2p^53d$	$^3P - {}^3D^o$	0 – 1	A1
	1	1820.896	1820.907	475 502.9	– 530 420.6	$2p^53p - 2p^53d$	$^3D - {}^3P^o$	1 – 1	A1
	1	1826.750	1826.761	479 456.0	– 534 197.7	$2p^53p - 2p^53d$	$^3P - {}^3D^o$	1 – 1	A1
	1	1828.974	1828.979	475 502.9	– 530 178.2	$2p^53p - 2p^53d$	$^3D - {}^3P^o$	1 – 0	A1
	4	1838.336	1838.323	477 435.7	– 531 833.1	$2p^53p - 2p^53d$	$^1D - {}^3F^o$	2 – 3	A1
	3	1839.878	1839.886	478 374.5	– 532 725.7	$2p^53p - 2p^53d$	$^1P - {}^3F^o$	1 – 2	A1
	3	1846.121	1846.125	530 178.2	– 584 345.7	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3P^o - {}^2[3/2]$	0 – 1	A1
	3	1846.707	1846.705	530 420.6	– 584 571.1	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3P^o - {}^2[5/2]$	1 – 2	A1
	1	1847.561	1847.572	478 846.1	– 532 971.2	$2p^53p - 2p^53d$	$^3P - {}^1F^o$	2 – 3	A1
	1	1849.591	1849.595	532 725.7	– 586 791.6	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^3F^o - {}^2[5/2]$	2 – 2	A1
	3	1850.060	1850.063	532 725.7	– 586 777.9	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^3F^o - {}^2[7/2]$	2 – 3	A1
	2	1854.139	1854.135	530 420.6	– 584 354.1	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3P^o - {}^2[3/2]$	1 – 2	A1
	bl	1855.99	1855.990	478 846.1	– 532 725.7	$2p^53p - 2p^53d$	$^3P - {}^3F^o$	2 – 2	A1
	13	1858.186	1858.194	425 640.3	– 479 456.0	$2p^53s - 2p^53p$	$^3P^o - {}^3P$	2 – 1	A1
	3	1858.451	1858.449	532 971.2	– 586 779.5	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^1F^o - {}^2[7/2]$	3 – 4	A1
	0.5	1865.388	1865.386	530 962.9	– 584 571.1	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3P^o - {}^2[5/2]$	2 – 2	A1
	4	1865.636	1865.637	530 962.9	– 584 563.9	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3P^o - {}^2[5/2]$	2 – 3	A1
	7	1868.225	1868.209	477 435.7	– 530 962.9	$2p^53p - 2p^53d$	$^1D - {}^3P^o$	2 – 2	A1
	2	1872.956	1872.968	530 962.9	– 584 354.1	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3P^o - {}^2[3/2]$	2 – 2	A1
	0.5	1873.268	1873.263	530 962.9	– 584 345.7	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3P^o - {}^2[3/2]$	2 – 1	A1
	12	1879.492	1879.494	425 640.3	– 478 846.1	$2p^53s - 2p^53p$	$^3P^o - {}^3P$	2 – 2	A1
	3	1882.308	1882.310	531 563.0	– 584 689.2	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3F^o - {}^2[7/2]$	4 – 4	A1
	1	1886.764	1886.760	531 563.0	– 584 563.9	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3F^o - {}^2[5/2]$	4 – 3	A1
	4	1887.308	1887.330	477 435.7	– 530 420.6	$2p^53p - 2p^53d$	$^1D - {}^3P^o$	2 – 1	A1
	7	1890.380	1890.381	531 563.0	– 584 462.4	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3F^o - {}^2[9/2]$	4 – 5	A1
	3	1891.970	1891.976	531 833.1	– 584 687.9	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3F^o - {}^2[7/2]$	3 – 3	A1
	5	1896.304	1896.303	425 640.3	– 478 374.5	$2p^53s - 2p^53p$	$^3P^o - {}^1P$	2 – 1	A1
	3	1897.226	1897.224	496 012.1	– 548 720.7	$2p^53p - 2p^5(^2P^o_{1/2})4s$	$^1S - {}^2[1/2]^o$	0 – 1	A1
	5	1900.043	1900.043	531 833.1	– 584 463.5	$2p^53d - 2p^5(^2P^o_{3/2})4f$	$^3F^o - {}^2[9/2]$	3 – 4	A1
	2	1901.360	1901.361	534 197.7	– 586 791.6	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^3D^o - {}^2[5/2]$	1 – 2	A1
	5	1901.572	1901.578	426 868.1	– 479 456.0	$2p^53s - 2p^53p$	$^3P^o - {}^3P$	1 – 1	A1
			1901.560	478 374.5	– 530 962.9	$2p^53p - 2p^53d$	$^1P - {}^3P^o$	1 – 2	
	10	1908.500	1908.499	426 868.1	– 479 265.3	$2p^53s - 2p^53p$	$^3P^o - {}^3P$	1 – 0	A1
	5	1918.777	1918.767	478 846.1	– 530 962.9	$2p^53p - 2p^53d$	$^3P - {}^3P^o$	2 – 2	A1
	1	1921.374	1921.374	478 374.5	– 530 420.6	$2p^53p - 2p^53d$	$^1P - {}^3P^o$	1 – 1	A1
	1	1922.540	1922.533	534 776.9	– 586 791.6	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^1D^o - {}^2[5/2]$	2 – 2	A1
	0.5	1922.788	1922.774	534 776.9	– 586 785.1	$2p^53d - 2p^5(^2P^o_{1/2})4f$	$^1D^o - {}^2[5/2]$	2 – 3	A1

Mg III – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	5	1923.042	1923.040	534 776.9	– 586 777.9	$2p^5 3d - 2p^5(^2P^o_{1/2})4f$	$^1D^o - {}^2[^7/_2]$	2 – 3	A1
	12	1923.896	1923.891	426 868.1	– 478 846.1	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3P$	1 – 2	A1
	6	1924.479	1924.476	532 725.7	– 584 687.9	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3F^o - {}^2[^7/_2]$	2 – 3	A1
	1	1928.198	1928.213	534 923.6	– 586 785.1	$2p^5 3d - 2p^5(^2P^o_{1/2})4f$	$^3D^o - {}^2[^5/_2]$	3 – 3	A1
	6	1928.424	1928.421	534 923.6	– 586 779.5	$2p^5 3d - 2p^5(^2P^o_{1/2})4f$	$^3D^o - {}^2[^7/_2]$	3 – 4	A1
	2	1928.811	1928.811	532 725.7	– 584 571.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3F^o - {}^2[^5/_2]$	2 – 2	A1
	0.5	1929.080	1929.079	532 725.7	– 584 563.9	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3F^o - {}^2[^5/_2]$	2 – 3	A1
	3	1930.374	1930.364	478 374.5	– 530 178.2	$2p^5 3p - 2p^5 3d$	$^1P - {}^3P^o$	1 – 0	A1
	13	1930.672	1930.673	425 640.3	– 477 435.7	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^1D$	2 – 2	A1
	7	1933.563	1933.563	532 971.2	– 584 689.2	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^1F^o - {}^2[^7/_2]$	3 – 4	A1
	0.5	1937.539	1937.534	535 179.6	– 586 791.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4f$	$^3D^o - {}^2[^5/_2]$	2 – 2	A1
	m		1937.778	535 179.6	– 586 785.1	$2p^5 3d - 2p^5(^2P^o_{1/2})4f$	$^3D^o - {}^2[^5/_2]$	2 – 3	A1
	11	1937.843	1937.838	427 852.1	– 479 456.0	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3P$	0 – 1	A1
	3	1938.249	1938.259	532 971.2	– 584 563.9	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^1F^o - {}^2[^5/_2]$	3 – 3	A1
	3	1938.936	1938.943	478 846.1	– 530 420.6	$2p^5 3p - 2p^5 3d$	$^3P - {}^3P^o$	2 – 1	A1
	4	1941.500	1941.487	479 456.0	– 530 962.9	$2p^5 3p - 2p^5 3d$	$^3P - {}^3P^o$	1 – 2	A1
			1941.506	426 868.1	– 478 374.5	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^1P$	1 – 1	
	2	1942.036	1942.038	532 971.2	– 584 463.5	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^1F^o - {}^2[^9/_2]$	3 – 4	A1
	3	1954.831	1954.832	479 265.3	– 530 420.6	$2p^5 3p - 2p^5 3d$	$^3P - {}^3P^o$	0 – 1	A1
	3	1962.145	1962.146	479 456.0	– 530 420.6	$2p^5 3p - 2p^5 3d$	$^3P - {}^3P^o$	1 – 1	A1
	2	1971.514	1971.523	479 456.0	– 530 178.2	$2p^5 3p - 2p^5 3d$	$^3P - {}^3P^o$	1 – 0	A1
	4	1974.737	1974.739	536 152.0	– 586 791.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4f$	$^1P^o - {}^2[^5/_2]$	1 – 2	A1
	8	1977.554	1977.551	426 868.1	– 477 435.7	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^1D$	1 – 2	A1
	9	1979.327	1979.320	427 852.1	– 478 374.5	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^1P$	0 – 1	A1
	bl	1979.43	1979.434	496 012.1	– 546 531.6	$2p^5 3p - 2p^5(^2P^o_{3/2})4s$	$^1S - {}^2[^3/_2]^o$	0 – 1	A1
	4	1985.173	1985.175	534 197.7	– 584 571.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^5/_2]$	1 – 2	A1
	3	1993.759	1993.764	534 197.7	– 584 354.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^3/_2]$	1 – 2	A1
	2	1994.089	1994.097	534 197.7	– 584 345.7	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^3/_2]$	1 – 1	A1
		Air Wavelength (Å)							
	2	2002.917	2002.918	534 776.9	– 584 687.9	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^1D^o - {}^2[^7/_2]$	2 – 3	A1
	6	2004.860	2004.862	425 640.3	– 475 502.9	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3D$	2 – 1	A1
	1	2007.623	2007.617	534 776.9	– 584 571.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^1D^o - {}^2[^5/_2]$	2 – 2	A1
	0.5	2007.906	2007.907	534 776.9	– 584 563.9	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^1D^o - {}^2[^5/_2]$	2 – 3	A1
	2	2008.771	2008.771	534 923.6	– 584 689.2	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^7/_2]$	3 – 4	A1
	0.5	2013.546	2013.550	534 923.6	– 584 571.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^5/_2]$	3 – 2	A1
	1	2013.838	2013.842	534 923.6	– 584 563.9	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^5/_2]$	3 – 3	A1
	1	2016.752	2016.747	534 776.9	– 584 345.7	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^1D^o - {}^2[^3/_2]$	2 – 1	A1
	0.5	2017.927	2017.924	534 923.6	– 584 463.5	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^9/_2]$	3 – 4	A1
	0.5	2019.217	2019.212	535 179.6	– 584 687.9	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^7/_2]$	2 – 3	A1
	1	2022.404	2022.391	534 923.6	– 584 354.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^3/_2]$	3 – 2	A1
	1	2023.980	2023.988	535 179.6	– 584 571.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^5/_2]$	2 – 2	A1
	2	2024.285	2024.283	535 179.6	– 584 563.9	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^5/_2]$	2 – 3	A1
	2	2032.923	2032.920	535 179.6	– 584 354.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^3/_2]$	2 – 2	A1
	0.5	2033.272	2033.268	535 179.6	– 584 345.7	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^3D^o - {}^2[^3/_2]$	2 – 1	A1
UV6	15	2039.553	2039.549	425 640.3	– 474 655.0	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3D$	2 – 2	A1
UV6	15	2055.491	2055.483	426 868.1	– 475 502.9	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3D$	1 – 1	A1
UV6	25	2064.902	2064.905	425 640.3	– 474 053.2	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3D$	2 – 3	A1
	1	2074.298	2074.298	536 152.0	– 584 345.7	$2p^5 3d - 2p^5(^2P^o_{3/2})4f$	$^1P^o - {}^2[^3/_2]$	1 – 1	A1
	15	2085.891	2085.886	431 530.0	– 479 456.0	$2p^5 3s - 2p^5 3p$	$^1P^o - {}^3P$	1 – 1	A1
UV6	20	2091.963	2091.959	426 868.1	– 474 655.0	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3D$	1 – 2	A1
	2	2094.207	2094.220	431 530.0	– 479 265.3	$2p^5 3s - 2p^5 3p$	$^1P^o - {}^3P$	1 – 0	A1

Mg III – Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
UV6	13	2097.936	2097.935	427 852.1	– 475 502.9	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3D$	0 – 1	A1
	15	2112.773	2112.776	431 530.0	– 478 846.1	$2p^5 3s - 2p^5 3p$	$^1P^o - {}^3P$	1 – 2	A1
	16	2134.054	2134.049	431 530.0	– 478 374.5	$2p^5 3s - 2p^5 3p$	$^1P^o - {}^1P$	1 – 1	A1
	20	2177.694	2177.697	431 530.0	– 477 435.7	$2p^5 3s - 2p^5 3p$	$^1P^o - {}^1D$	1 – 2	A1
	2	2273.414	2273.425	431 530.0	– 475 502.9	$2p^5 3s - 2p^5 3p$	$^1P^o - {}^3D$	1 – 1	A1
	2	2318.125	2318.128	431 530.0	– 474 655.0	$2p^5 3s - 2p^5 3p$	$^1P^o - {}^3D$	1 – 2	A1
UV5	20	2395.149	2395.157	425 640.3	– 467 378.5	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3S$	2 – 1	A1
UV5	15	2467.751	2467.756	426 868.1	– 467 378.5	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3S$	1 – 1	A1
	10	2490.534	2490.535	496 012.1	– 536 152.0	$2p^5 3p - 2p^5 3d$	$^1S - {}^1P^o$	0 – 1	A1
	1	2518.635	2518.629	530 420.6	– 570 112.8	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3P^o - {}^2[1/2]$	1 – 0	A1
UV7	10	2529.190	2529.194	427 852.1	– 467 378.5	$2p^5 3s - 2p^5 3p$	$^3P^o - {}^3S$	0 – 1	A1
	7	2618.011	2618.007	496 012.1	– 534 197.7	$2p^5 3p - 2p^5 3d$	$^1S - {}^3D^o$	0 – 1	A1
	bl	2783.52	2783.523	534 197.7	– 570 112.8	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3D^o - {}^2[1/2]$	1 – 0	A1
	2	2893.221	2893.223	530 178.2	– 564 731.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3P^o - {}^2[1/2]$	0 – 1	A1
	1	2905.419	2905.408	496 012.1	– 530 420.6	$2p^5 3p - 2p^5 3d$	$^1S - {}^3P^o$	0 – 1	A1
	1	2913.657	2913.664	530 420.6	– 564 731.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3P^o - {}^2[1/2]$	1 – 1	A1
	1	2919.351	2919.365	530 420.6	– 564 664.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3P^o - {}^2[3/2]$	1 – 2	A1
	4	2943.707	2943.711	536 152.0	– 570 112.8	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^1P^o - {}^2[1/2]$	1 – 0	A1
	2	2950.773	2950.784	530 420.6	– 564 300.0	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[1/2]$	1 – 0	A1
	2	2960.453	2960.457	530 962.9	– 564 731.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3P^o - {}^2[1/2]$	2 – 1	A1
	4	2966.338	2966.343	530 962.9	– 564 664.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3P^o - {}^2[3/2]$	2 – 2	A1
	1	2999.710	2999.705	530 962.9	– 564 289.8	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3P^o - {}^2[3/2]$	2 – 1	A1
	bl	3074.23	3074.242	530 420.6	– 562 939.5	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[3/2]$	1 – 2	A1
	1	3080.208	3080.200	530 178.2	– 562 634.2	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[3/2]$	0 – 1	A1
	9	3126.380	3126.381	530 962.9	– 562 939.5	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[3/2]$	2 – 2	R1
	8	3154.336	3154.318	532 971.2	– 564 664.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^1F^o - {}^2[3/2]$	3 – 2	A1
	2	3156.506	3156.519	530 962.9	– 562 634.2	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[3/2]$	2 – 1	A1
	2	3167.251	3167.240	532 725.7	– 564 289.8	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3F^o - {}^2[3/2]$	2 – 1	A1
	2	3206.948	3206.957	530 962.9	– 562 136.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[5/2]$	2 – 2	A1
	3	3213.845	3213.844	531 833.1	– 562 939.5	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3F^o - {}^2[3/2]$	3 – 2	A1
	12	3299.050	3299.053	531 833.1	– 562 136.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3F^o - {}^2[5/2]$	3 – 2	R1
	13	3306.392	3306.397	531 563.0	– 561 798.7	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3F^o - {}^2[5/2]$	4 – 3	A1
	8	3321.060	3321.050	534 197.7	– 564 300.0	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3D^o - {}^2[1/2]$	1 – 0	A1
	12	3335.905	3335.900	532 971.2	– 562 939.5	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^1F^o - {}^2[3/2]$	3 – 2	A1
	5	3336.190	3336.201	531 833.1	– 561 798.7	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3F^o - {}^2[5/2]$	3 – 3	A1
	11	3342.577	3342.570	532 725.7	– 562 634.2	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3F^o - {}^2[3/2]$	2 – 1	A1
	2	3344.899	3344.896	534 776.9	– 564 664.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^1D^o - {}^2[3/2]$	2 – 2	A1
	7	3353.729	3353.739	530 178.2	– 559 987.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[1/2]$	0 – 1	A1
	12	3361.412	3361.396	534 923.6	– 564 664.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3D^o - {}^2[3/2]$	3 – 2	A1
	10	3381.236	3381.235	530 420.6	– 559 987.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[1/2]$	1 – 1	A1
	11	3382.901	3382.894	535 179.6	– 564 731.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3D^o - {}^2[1/2]$	2 – 1	A1
	11	3387.368	3387.376	534 776.9	– 564 289.8	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^1D^o - {}^2[3/2]$	2 – 1	A1
	2	3390.577	3390.582	535 179.6	– 564 664.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3D^o - {}^2[3/2]$	2 – 2	A1
	9	3399.188	3399.182	532 725.7	– 562 136.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3F^o - {}^2[5/2]$	2 – 2	A1
	1	3427.794	3427.796	532 971.2	– 562 136.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^1F^o - {}^2[5/2]$	3 – 2	A1
	bl	3430.76	3430.761	559 987.1	– 589 126.8	$2p^5(^2P^o_{3/2})4p - 2p^5(^2P^o_{3/2})5s$	$^2[1/2] - {}^2[3/2]^o$	1 – 1	A1
	1	3434.236	3434.238	535 179.6	– 564 289.8	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^3D^o - {}^2[3/2]$	2 – 1	A1
	1	3438.623	3438.632	532 725.7	– 561 798.7	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3F^o - {}^2[5/2]$	2 – 3	A1
	8	3444.409	3444.414	530 962.9	– 559 987.1	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3P^o - {}^2[1/2]$	2 – 1	R1
	8	3467.912	3467.917	532 971.2	– 561 798.7	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^1F^o - {}^2[5/2]$	3 – 3	A1
	3	3473.424	3473.423	559 987.1	– 588 768.9	$2p^5(^2P^o_{3/2})4p - 2p^5(^2P^o_{3/2})5s$	$^2[1/2] - {}^2[3/2]^o$	1 – 2	A1
	7	3497.994	3497.999	536 152.0	– 564 731.6	$2p^5 3d - 2p^5(^2P^o_{1/2})4p$	$^1P^o - {}^2[1/2]$	1 – 1	A1
	8	3515.602	3515.602	534 197.7	– 562 634.2	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^3D^o - {}^2[3/2]$	1 – 1	R1
	bl	3534.91	3534.908	562 939.5	– 591 220.7	$2p^5(^2P^o_{3/2})4p - 2p^5(^2P^o_{1/2})5s$	$^2[3/2] - {}^2[1/2]^o$	2 – 1	A1
	4	3551.638	3551.636	536 152.0	– 564 300.0	$2p^5 3d - 2p^5(^2P^o_{3/2})4p$	$^1P^o - {}^2[1/2]$	1 – 0	A1

Mg III – Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	4	3552.933	3552.923	536 152.0	– 564 289.8	$2p^5 3d$ – $2p^5(^2P^o_{1/2})4p$	$^1P^o$ – $^2[3/2]$	1 – 1	Al
	4	3568.385	3568.383	534 923.6	– 562 939.5	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^3D^o$ – $^2[3/2]$	3 – 2	Al
	1	3578.273	3578.282	534 197.7	– 562 136.1	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^3D^o$ – $^2[5/2]$	1 – 2	Al
	1	3588.694	3588.699	534 776.9	– 562 634.2	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^1D^o$ – $^2[3/2]$	2 – 1	Al
	4	3601.288	3601.291	535 179.6	– 562 939.5	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^3D^o$ – $^2[3/2]$	2 – 2	Al
	1	3641.320	3641.339	535 179.6	– 562 634.2	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^3D^o$ – $^2[3/2]$	2 – 1	Al
	3	3654.040	3654.037	534 776.9	– 562 136.1	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^1D^o$ – $^2[5/2]$	2 – 2	Al
	4	3703.930	3703.926	562 136.1	– 589 126.8	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[5/2]$ – $^2[3/2]^o$	2 – 1	Al
	10	3706.745	3706.741	561 798.7	– 588 768.9	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[5/2]$ – $^2[3/2]^o$	3 – 2	Al
	1	3708.609	3708.625	535 179.6	– 562 136.1	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^3D^o$ – $^2[5/2]$	2 – 2	Al
	bl	3713.50	3713.557	564 300.0	– 591 220.7	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})5s$	$^2[1/2]$ – $^2[1/2]^o$	0 – 1	Al
	4	3719.838	3719.858	534 923.6	– 561 798.7	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^3D^o$ – $^2[5/2]$	3 – 3	Al
	7	3745.030	3745.040	564 289.8	– 590 984.2	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})5s$	$^2[3/2]$ – $^2[1/2]^o$	1 – 0	Al
	3	3753.714	3753.702	562 136.1	– 588 768.9	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[5/2]$ – $^2[3/2]^o$	2 – 2	Al
	1	3755.606	3755.634	535 179.6	– 561 798.7	$2p^5 3d$ – $2p^5(^2P^o_{3/2})4p$	$^3D^o$ – $^2[5/2]$	2 – 3	Al
	8	3764.539	3764.544	564 664.6	– 591 220.7	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})5s$	$^2[3/2]$ – $^2[1/2]^o$	2 – 1	Al
	3	3773.572	3773.567	562 634.2	– 589 126.8	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[3/2]$ – $^2[3/2]^o$	1 – 1	Al
	bl	3774.06	3774.066	564 731.6	– 591 220.7	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})5s$	$^2[1/2]$ – $^2[1/2]^o$	1 – 1	Al
	1	3808.073	3808.066	564 731.6	– 590 984.2	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})5s$	$^2[1/2]$ – $^2[1/2]^o$	1 – 0	Al
	3*d*	3817.575	3817.562	562 939.5	– 589 126.8	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[3/2]$ – $^2[3/2]^o$	2 – 1	Al
	3*d*	3870.456	3870.460	562 939.5	– 588 768.9	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[3/2]$ – $^2[3/2]^o$	2 – 2	Rl
	2	3975.738	3975.714	581 567.5	– 606 713.1	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[1/2]^o$ – $^2[3/2]$	0 – 1	Al
	2	4001.345	4001.318	581 734.7	– 606 719.4	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[1/2]^o$ – $^2[3/2]$	1 – 2	Al
	1	4002.304	4002.327	581 734.7	– 606 713.1	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[1/2]^o$ – $^2[3/2]$	1 – 1	Al
	2*d*	4026.780	4026.767	564 300.0	– 589 126.8	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[1/2]$ – $^2[3/2]^o$	0 – 1	Al
	5	4038.255	4038.235	582 074.4	– 606 830.7	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[3/2]^o$ – $^2[5/2]$	2 – 3	Al
	3	4039.135	4039.132	559 987.1	– 584 737.9	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[1/2]$ – $^2[3/2]^o$	1 – 2	Al
	1	4056.480	4056.473	582 074.4	– 606 719.4	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[3/2]^o$ – $^2[3/2]$	2 – 2	Al
	7*bl*	4057.350	4057.345	582 134.8	– 606 774.5	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[7/2]^o$ – $^2[9/2]$	4 – 5	Al
	6	4082.939	4082.931	582 290.1	– 606 775.4	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[7/2]^o$ – $^2[9/2]$	3 – 4	Al
	5	4094.375	4094.368	584 628.5	– 609 045.4	$2p^5(^2P^o_{1/2})4d$ – $2p^5(^2P^o_{1/2})5f$	$^2[5/2]^o$ – $^2[7/2]$	2 – 3	Al
	6	4111.992	4111.984	584 733.4	– 609 045.7	$2p^5(^2P^o_{1/2})4d$ – $2p^5(^2P^o_{1/2})5f$	$^2[5/2]^o$ – $^2[7/2]$	3 – 4	Al
	3	4112.835	4112.830	584 737.9	– 609 045.2	$2p^5(^2P^o_{1/2})4d$ – $2p^5(^2P^o_{1/2})5f$	$^2[3/2]^o$ – $^2[5/2]$	2 – 3	Al
	3	4140.688	4140.682	582 747.3	– 606 891.1	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[5/2]^o$ – $^2[7/2]$	2 – 3	Al
	1	4147.487	4147.468	564 664.6	– 588 768.9	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[3/2]$ – $^2[3/2]^o$	2 – 2	Al
	3*bl*	4156.475	4156.469	582 839.7	– 606 891.8	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[5/2]^o$ – $^2[7/2]$	3 – 4	Al
	1	4159.041	4159.029	564 731.6	– 588 768.9	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{3/2})5s$	$^2[1/2]$ – $^2[3/2]^o$	1 – 2	Al
	2	4238.916	4238.915	585 466.2	– 609 050.5	$2p^5(^2P^o_{1/2})4d$ – $2p^5(^2P^o_{1/2})5f$	$^2[3/2]^o$ – $^2[5/2]$	1 – 2	Al
	7	4239.468	4239.473	546 531.6	– 570 112.8	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[3/2]^o$ – $^2[1/2]$	1 – 0	Al
	1	4275.201	4275.189	583 450.5	– 606 834.7	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[3/2]^o$ – $^2[5/2]$	1 – 2	Al
	1	4296.355	4296.373	583 450.5	– 606 719.4	$2p^5(^2P^o_{3/2})4d$ – $2p^5(^2P^o_{3/2})5f$	$^2[3/2]^o$ – $^2[3/2]$	1 – 2	Al
	2	4358.138	4358.125	561 798.7	– 584 737.9	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[5/2]$ – $^2[3/2]^o$	3 – 2	Al
	3	4358.979	4358.980	561 798.7	– 584 733.4	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[5/2]$ – $^2[5/2]^o$	3 – 3	Al
	2	4423.182	4423.184	562 136.1	– 584 737.9	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[5/2]$ – $^2[3/2]^o$	2 – 2	Al
	2	4424.071	4424.065	562 136.1	– 584 733.4	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[5/2]$ – $^2[5/2]^o$	2 – 3	Al
	3*d*	4443.947	4443.948	584 345.7	– 606 841.9	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[3/2]$ – $^2[5/2]^o$	1 – 2	Al
	5*d*	4445.577	4445.608	584 354.1	– 606 841.9	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[3/2]$ – $^2[5/2]^o$	2 –	Al
	2*d*	4452.343	4452.260	584 462.4	– 606 916.6	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[9/2]$ – $^2[9/2]^o$	5 –	Al
			4452.478	584 463.5	– 606 916.6	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[9/2]$ – $^2[9/2]^o$	4 –	
	9*d*	4463.404	4463.312	584 462.4	– 606 861.0	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[9/2]$ – $^2[11/2]^o$	5 –	Al
			4463.531	584 463.5	– 606 861.0	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[9/2]$ – $^2[11/2]^o$	4 – 5	
	6*d*	4476.490	4476.323	586 777.9	– 609 111.4	$2p^5(^2P^o_{1/2})4f$ – $2p^5(^2P^o_{1/2})5g$	$^2[7/2]$ – $^2[9/2]^o$	4 – 5	Al
			4476.443	584 563.9	– 606 896.8	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[5/2]$ – $^2[7/2]^o$	3 – 4	
			4476.643	586 779.5	– 609 111.4	$2p^5(^2P^o_{1/2})4f$ – $2p^5(^2P^o_{1/2})5g$	$^2[7/2]$ – $^2[9/2]^o$	3 – 4	
	4*d*	4477.853	4477.726	586 785.1	– 609 111.6	$2p^5(^2P^o_{1/2})4f$ – $2p^5(^2P^o_{1/2})5g$	$^2[5/2]$ – $^2[7/2]^o$	3 – 4	Al
			4477.886	584 571.1	– 606 896.8	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[5/2]$ – $^2[7/2]^o$	2 – 3	

Mg III – Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	3d	4479.030	4479.030	586 791.6	– 609 111.6	$2p^5(^2P^o_{1/2})4f$ – $2p^5(^2P^o_{1/2})5g$	$^2[^5/_2]$ – $^2[^7/_2]^o$	2 – 3	A1
	7d	4497.566	4497.427	584 687.9	– 606 916.6	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[^7/_2]$ – $^2[^9/_2]^o$	3 – 4	A1
			4497.690	584 689.2	– 606 916.6	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[^7/_2]$ – $^2[^9/_2]^o$	4 –	
	1d	4501.793	4501.437	584 687.9	– 606 896.8	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[^7/_2]$ – $^2[^7/_2]^o$	3 –	A1
			4501.700	584 689.2	– 606 896.8	$2p^5(^2P^o_{3/2})4f$ – $2p^5(^2P^o_{3/2})5g$	$^2[^7/_2]$ – $^2[^7/_2]^o$	4 –	
	1	4522.871	4522.861	562 634.2	– 584 737.9	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^3/_2]$ – $^2[^3/_2]^o$	1 – 2	A1
	9	4526.223	4526.219	559 987.1	– 582 074.4	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^1/_2]$ – $^2[^3/_2]^o$	1 – 2	A1
	4	4586.200	4586.208	562 939.5	– 584 737.9	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^3/_2]$ – $^2[^3/_2]^o$	2 – 2	A1
	9	4596.916	4596.921	559 987.1	– 581 734.7	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^1/_2]$ – $^2[^1/_2]^o$	1 – 1	A1
	7	4632.531	4632.537	559 987.1	– 581 567.5	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^1/_2]$ – $^2[^1/_2]^o$	1 – 0	A1
	8	4673.303	4673.315	548 720.7	– 570 112.8	$2p^5(^2P^o_{1/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^1/_2]^o$ – $^2[^1/_2]$	1 – 0	A1
	2	4690.361	4690.351	562 136.1	– 583 450.5	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^5/_2]$ – $^2[^5/_2]^o$	2 – 1	A1
	5	4720.936	4720.917	564 289.8	– 585 466.2	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^3/_2]$ – $^2[^3/_2]^o$	1 – 1	A1
	5	4723.204	4723.192	564 300.0	– 585 466.2	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^1/_2]$ – $^2[^3/_2]^o$	0 – 1	A1
	7	4802.601	4802.585	562 634.2	– 583 450.5	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^3/_2]$ – $^2[^3/_2]^o$	1 – 1	A1
	6	4821.516	4821.509	564 731.6	– 585 466.2	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^1/_2]$ – $^2[^3/_2]^o$	1 – 1	A1
	6	4850.385	4850.376	562 136.1	– 582 747.3	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^5/_2]$ – $^2[^5/_2]^o$	2 – 2	A1
	4	4878.729	4878.734	561 798.7	– 582 290.1	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^5/_2]$ – $^2[^7/_2]^o$	3 – 3	A1
	1	4889.040	4889.065	564 289.8	– 584 737.9	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^3/_2]$ – $^2[^3/_2]^o$	1 – 2	A1
	7	4915.349	4915.363	564 289.8	– 584 628.5	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^3/_2]$ – $^2[^5/_2]^o$	1 – 2	A1
	10	4916.002	4915.991	561 798.7	– 582 134.8	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^5/_2]$ – $^2[^7/_2]^o$	3 – 4	A1
	9	4960.409	4960.410	562 136.1	– 582 290.1	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^5/_2]$ – $^2[^7/_2]^o$	2 – 3	A1
	7	4970.511	4970.497	562 634.2	– 582 747.3	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^3/_2]$ – $^2[^5/_2]^o$	1 – 2	A1
	8	4981.452	4981.469	564 664.6	– 584 733.4	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^3/_2]$ – $^2[^5/_2]^o$	2 – 3	A1
	6	4997.038	4997.032	564 731.6	– 584 737.9	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^1/_2]$ – $^2[^3/_2]^o$	1 – 2	A1
	3	5007.638	5007.645	564 664.6	– 584 628.5	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^3/_2]$ – $^2[^5/_2]^o$	2 – 2	A1
	7	5023.668	5023.674	562 939.5	– 582 839.7	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^3/_2]$ – $^2[^5/_2]^o$	2 – 3	A1
	4	5220.329	5220.342	564 300.0	– 583 450.5	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^1/_2]$ – $^2[^3/_2]^o$	0 – 1	A1
	6	5224.593	5224.598	562 939.5	– 582 074.4	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^3/_2]$ – $^2[^3/_2]^o$	2 – 2	A1
	3	5286.389	5286.401	545 820.4	– 564 731.6	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^3/_2]^o$ – $^2[^1/_2]$	2 – 1	A1
	3	5305.206	5305.197	545 820.4	– 564 664.6	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^3/_2]^o$ – $^2[^3/_2]$	2 – 2	A1
	1	5513.255	5513.276	546 531.6	– 564 664.6	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^3/_2]^o$ – $^2[^3/_2]$	1 – 2	A1
	4	5626.406	5626.407	546 531.6	– 564 300.0	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^1/_2]$	1 – 0	A1
	1	5734.082	5734.098	564 300.0	– 581 734.7	$2p^5(^2P^o_{3/2})4p$ – $2p^5(^2P^o_{3/2})4d$	$^2[^1/_2]$ – $^2[^1/_2]^o$	0 – 1	A1
	10	5839.820	5839.810	545 820.4	– 562 939.5	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^3/_2]$	2 – 2	R1
	1	5945.873	5945.848	545 820.4	– 562 634.2	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^3/_2]$	2 – 1	A1
	2	5987.370	5987.370	548 034.4	– 564 731.6	$2p^5(^2P^o_{1/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^1/_2]^o$ – $^2[^1/_2]$	0 – 1	A1
	4	6092.912	6092.939	546 531.6	– 562 939.5	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^3/_2]$	1 – 2	A1
	6	6127.392	6127.370	545 820.4	– 562 136.1	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^5/_2]$	2 – 2	A1
	4	6150.082	6150.100	548 034.4	– 564 289.8	$2p^5(^2P^o_{1/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^1/_2]^o$ – $^2[^3/_2]$	0 – 1	A1
	6	6208.440	6208.460	546 531.6	– 562 634.2	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^3/_2]$	1 – 1	R1
	4	6244.024	6244.018	548 720.7	– 564 731.6	$2p^5(^2P^o_{1/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^1/_2]^o$ – $^2[^1/_2]$	1 – 1	A1
	15	6256.750	6256.758	545 820.4	– 561 798.7	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^5/_2]$	2 – 3	R1
	7	6270.250	6270.257	548 720.7	– 564 664.6	$2p^5(^2P^o_{1/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^1/_2]^o$ – $^2[^3/_2]$	1 – 2	A1
	8	6406.619	6406.637	546 531.6	– 562 136.1	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^5/_2]$	1 – 2	R1
	1	6417.036	6417.000	548 720.7	– 564 300.0	$2p^5(^2P^o_{1/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^1/_2]^o$ – $^2[^1/_2]$	1 – 0	A1
	4	6421.224	6421.204	548 720.7	– 564 289.8	$2p^5(^2P^o_{1/2})4s$ – $2p^5(^2P^o_{1/2})4p$	$^2[^1/_2]^o$ – $^2[^3/_2]$	1 – 1	A1
	2	6511.429	6511.416	570 112.8	– 585 466.2	$2p^5(^2P^o_{1/2})4p$ – $2p^5(^2P^o_{1/2})4d$	$^2[^1/_2]$ – $^2[^3/_2]^o$	0 – 1	A1
	3	7056.876	7056.861	545 820.4	– 559 987.1	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^1/_2]$	2 – 1	A1
	3	7429.846	7429.859	546 531.6	– 559 987.1	$2p^5(^2P^o_{3/2})4s$ – $2p^5(^2P^o_{3/2})4p$	$^2[^3/_2]^o$ – $^2[^1/_2]$	1 – 1	A1

Mg IV

F I isoelectronic sequence

Ground state $1s^2 2s^2 2p^5\ ^2P^o_{3/2}$

Ionization energy 881 285 ± 10 cm^{-1} (109.2655 ± 0.0012 eV)

All of the wavelengths are from Johannesson *et al.* [J2] or Johannesson and Lundström [J1]. Artru and Kaufman [A2] also measured 243 lines between 80 and 2100 Å. The wavelengths of the important resonance doublet at 321 and 323 Å are accurate to about ±0.002 Å [A2, J2], and the four-place calculated wavelengths given for the 132 – 184 Å region have uncertainties of ±0.0010 to ±0.0020 Å [J2].

References

A2 Artru, M. -C., and Kaufman, V. [1972], J. Opt. Soc. Am. **62**, 949 – 957.

J1 Johannesson, G. -A., and Lundström, T. [1973], Phys. Scr. **8**, 53 – 56.

J2 Johannesson, G. -A., Lundström, T., and Minnhagen, L. [1972], Phys. Scr. **6**, 129 – 137.

Mg IV

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	4*g*	118.164	118.164	0	– 846 281	$2s^22p^5$ –	$^2P^o$ – ^2D?	3/2 –	J2
	5*g*	118.424	118.424	0	– 844 424	$2s^22p^5$ – $2s^22p^4(^1S)4d$?	$^2P^o$ – ^2D?	3/2 –	J2
	4*g*,*bl*	118.476	118.478	0	– 844 036	$2s^22p^5$ – $2s^22p^4(^1D)5d$?	$^2P^o$ – ^2P?	3/2 – 1/2	J2
	3*g*,*bl*	118.487	118.487	0	– 843 974	$2s^22p^5$ – $2s^22p^4(^1D)5d$?	$^2P^o$ – ^2P?	3/2 – 3/2	J2
	4*g*	118.737	118.737	2 228	– 844 424	$2s^22p^5$ – $2s^22p^4(^1S)4d$?	$^2P^o$ – ^2D?	1/2 – 3/2	J2
	4*g*,*bl*	118.792	118.792	2 228	– 844 036	$2s^22p^5$ – $2s^22p^4(^1D)5d$?	$^2P^o$ – ^2P?	1/2 – 1/2	J2
	5*g*	121.542	121.546	0	– 822 734	$2s^22p^5$ – $2s^22p^4(^1D)5s$	$^2P^o$ – ^2D	3/2 –	J2
	1*g*	121.873	121.876	2 228	– 822 734	$2s^22p^5$ – $2s^22p^4(^1D)5s$	$^2P^o$ – ^2D	1/2 – 3/2	J2
	2*g*	123.169	123.170	0	– 811 888	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ –	3/2 – 3/2	J2
	8*g*	123.266	123.266	0	– 811 254	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ – ^2D	3/2 – 5/2	J2
	6*g*,*bl*	123.367	123.367	0	– 810 590	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ –	3/2 – 3/2?	J2
	2*g*,*bl*	123.377	123.382	0	– 810 492	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ –	3/2 – 1/2?	J2
	4*g*	123.401	123.401	0	– 810 366	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ – ^4F?	3/2 – 5/2	J2
	3*g*	123.417	123.419	0	– 810 249	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ – ^4F?	3/2 – 3/2	J2
	7*g*	123.508	123.509	2 228	– 811 888	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ –	1/2 – 3/2	J2
	5*g*	123.567	123.569	0	– 809 265	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ –	3/2 – 1/2?	J2
	7*g*	123.590	123.590	0	– 809 127	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ – ^2F?	3/2 – 5/2	J2
	0.5*g*	123.613	123.615	0	– 808 965	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ – ^4P	3/2 – 1/2	J2
	2*g*,*bl*	123.708	123.707	2 228	– 810 590	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ –	1/2 – 3/2?	J2
	4*g*,*bl*	123.722	123.722	2 228	– 810 492	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ –	1/2 – 1/2?	J2
	2*g*	123.761	123.759	2 228	– 810 249	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ – ^4F?	1/2 – 3/2	J2
	0.5*g*	123.910	123.910	2 228	– 809 265	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ –	1/2 – 1/2?	J2
	1*g*	123.958	123.956	2 228	– 808 965	$2s^22p^5$ – $2s^22p^4(^3P)5d$	$^2P^o$ – ^4P	1/2 – 1/2	J2
	6*g*	124.417	124.416	0	– 803 754	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2S	3/2 – 1/2	J2
	3*g*,*bl*	124.527	124.525	0	– 803 054	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2D	3/2 – 3/2	J2
	7*g*,*bl*	124.541	124.540	0	– 802 954	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2D	3/2 – 5/2	J2
	5*g*,*bl*	124.640	124.641	0	– 802 306	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2P	3/2 – 1/2	J2
	8*g*,*bl*	124.652	124.650	0	– 802 244	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2P	3/2 – 3/2	J2
	5*g*	124.763	124.762	2 228	– 803 754	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2S	1/2 – 1/2	J2
	6*g*	124.872	124.871	2 228	– 803 054	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2D	1/2 – 3/2	J2
	6*g*,*bl*	124.987	124.988	2 228	– 802 306	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2P	1/2 – 1/2	J2
	5*g*,*bl*	124.999	124.997	2 228	– 802 244	$2s^22p^5$ – $2s^22p^4(^1D)4d$	$^2P^o$ – ^2P	1/2 – 3/2	J2
	5*g*	125.462	125.462	0	– 797 056	$2s^22p^5$ – $2s^22p^4(^1S)4s$	$^2P^o$ – ^2S	3/2 – 1/2	J2
	4*g*	125.813	125.813	2 228	– 797 056	$2s^22p^5$ – $2s^22p^4(^1S)4s$	$^2P^o$ – ^2S	1/2 – 1/2	J2
	1*g*	126.602	126.601	0	– 789 881	$2s^22p^5$ – $2s^22p^4(^3P)5s$	$^2P^o$ – ^2P	3/2 – 1/2	J2

Mg IV — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	4g	126.799	126.802	0	– 788 632	$2s^22p^5 - 2s^22p^4(^3P)5s$	$^2P^o - {}^2P$	$3/2 - 3/2$	J2
	2g	126.960	126.959	2 228	– 789 881	$2s^22p^5 - 2s^22p^4(^3P)5s$	$^2P^o - {}^2P$	$1/2 - 1/2$	J2
	3g	127.013	127.014	0	– 787 315	$2s^22p^5 - 2s^22p^4(^3P)5s$	$^2P^o - {}^4P$	$3/2 - 3/2$	J2
	1g	127.161	127.161	2 228	– 788 632	$2s^22p^5 - 2s^22p^4(^3P)5s$	$^2P^o - {}^2P$	$1/2 - 3/2$	J2
	1g	127.375	127.374	2 228	– 787 315	$2s^22p^5 - 2s^22p^4(^3P)5s$	$^2P^o - {}^4P$	$1/2 - 3/2$	J2
	5g	129.711	129.710	0	– 770 948	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^2P$	$3/2 - 3/2$	J2
	16g	129.857	129.857	0	– 770 075	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^2D$	$3/2 - 5/2$	J2
	11g,bl	129.966	129.968	0	– 769 421	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^2D$	$3/2 - 3/2$	J2
	9g,bl	129.975	129.979	0	– 769 356	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^2P$	$3/2 - 1/2$	J2
	10g	130.086	130.086	2 228	– 770 948	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^2P$	$1/2 - 3/2$	J2
	9g	130.118	130.117	0	– 768 539	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^4P$	$3/2 - 5/2$	J2
	7g	130.246	130.246	0	– 767 780	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^4P$	$3/2 - 3/2$	J2
	9g	130.295	130.295	0	– 767 489	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^4F$	$3/2 - 5/2$	J2
	9g,bl	130.344	130.345	2 228	– 769 421	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^2D$	$1/2 - 3/2$	J2
	9g,bl	130.354	130.356	2 228	– 769 356	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^2P$	$1/2 - 1/2$	J2
	3g	130.537	130.537?	2 228	– 768 294?	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^4F$	$1/2 - 3/2$	J2
	4g	130.624	130.625	2 228	– 767 780	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^4P$	$1/2 - 3/2$	J2
	1g	130.700	130.700?	2 228	– 767 339?	$2s^22p^5 - 2s^22p^4(^3P)4d$	$^2P^o - {}^4P$	$1/2 - 1/2$	J2
	5g	132.123	132.1221	0	– 756 875.8	$2s^22p^5 - 2s^22p^4(^1D)4s$	$^2P^o - {}^2D$	$3/2 - 3/2$	J2
			132.1238	0	– 756 866.1	$2s^22p^5 - 2s^22p^4(^1D)4s$	$^2P^o - {}^2D$	$3/2 - 5/2$	
	3g	132.509	132.5121	2 228	– 756 875.8	$2s^22p^5 - 2s^22p^4(^1D)4s$	$^2P^o - {}^2D$	$1/2 - 3/2$	J2
	20g	132.814	132.8026	0	– 752 997.4	$2s^22p^5 - 2s^22p^4(^1S)3d$	$^2P^o - {}^2D$	$3/2 - 3/2$	J2
			132.8142	0	– 752 931.7	$2s^22p^5 - 2s^22p^4(^1S)3d$	$^2P^o - {}^2D$	$3/2 - 5/2$	
	9g	133.197	133.1967	2 228	– 752 997.4	$2s^22p^5 - 2s^22p^4(^1S)3d$	$^2P^o - {}^2D$	$1/2 - 3/2$	J2
	6g	137.966	137.9660	0	– 724 816.3	$2s^22p^5 - 2s^22p^4(^3P)4s$	$^2P^o - {}^2P$	$3/2 - 1/2$	J2
	10g	138.261	138.2615	0	– 723 267.3	$2s^22p^5 - 2s^22p^4(^3P)4s$	$^2P^o - {}^2P$	$3/2 - 3/2$	J2
	8g	138.392	138.3914	2 228	– 724 816.3	$2s^22p^5 - 2s^22p^4(^3P)4s$	$^2P^o - {}^2P$	$1/2 - 1/2$	J2
	8g	138.689	138.6879	0	– 721 043.6	$2s^22p^5 - 2s^22p^4(^3P)4s$	$^2P^o - {}^4P$	$3/2 - 3/2$	J2
			138.6887	2 228	– 723 267.3	$2s^22p^5 - 2s^22p^4(^3P)4s$	$^2P^o - {}^2P$	$1/2 - 3/2$	
	1g	138.935	138.9304	0	– 719 784.8	$2s^22p^5 - 2s^22p^4(^3P)4s$	$^2P^o - {}^4P$	$3/2 - 5/2$	J2
	1g	139.117	139.1177	2 228	– 721 043.6	$2s^22p^5 - 2s^22p^4(^3P)4s$	$^2P^o - {}^4P$	$1/2 - 3/2$	J2
	7g	139.989	139.9901	0	– 714 336.4	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2F$	$3/2 - 5/2$	J2
	10g	140.119	140.1183	0	– 713 682.5	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2D$	$3/2 - 3/2$	J2
	17g	140.173	140.1717	0	– 713 411.0	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2D$	$3/2 - 5/2$	J2
	10g	140.425	140.4249	0	– 712 124.5	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2S$	$3/2 - 1/2$	J2
	11g	140.474	140.4730	0	– 711 880.5	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2P$	$3/2 - 1/2$	J2
	11g	140.523	140.5219	0	– 711 632.7	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2P$	$3/2 - 3/2$	J2
	11g	140.558	140.5571	2 228	– 713 682.5	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2D$	$1/2 - 3/2$	J2
	11g	140.867	140.8656	2 228	– 712 124.5	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^3P^o - {}^3S$	$1/2 - 1/2$	J2
	8g	140.915	140.9140	2 228	– 711 880.5	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2P$	$1/2 - 1/2$	J2
	11g	140.964	140.9633	2 228	– 711 632.7	$2s^22p^5 - 2s^22p^4(^1D)3d$	$^2P^o - {}^2P$	$1/2 - 3/2$	J2
	11g	146.526	146.5260	0	– 682 472.8	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^2P$	$3/2 - 3/2$	J2
	10g	146.837	146.8379	0	– 681 023.3	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^2P$	$3/2 - 1/2$	J2
	20g	146.954	146.9522	0	– 680 493.2	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^2D$	$3/2 - 5/2$	J2
	11g	147.006	147.0059	2 228	– 682 472.8	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^2P$	$1/2 - 3/2$	J2
	11g	147.052	147.0515	0	– 680 033.7	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^2D$	$3/2 - 3/2$	J2
	11g	147.254	147.2535	0	– 679 100.8	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^4P$	$3/2 - 5/2$	J2
	10g	147.321	147.3198	2 228	– 681 023.3	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^2P$	$1/2 - 1/2$	J2
	18g	147.406	147.3995	0	– 678 428.3	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^4P$	$3/2 - 3/2$	J2
			147.4067	0	– 678 395.1	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^2F$	$3/2 - 5/2$	
	4g	147.497	147.4970	0	– 677 980.0	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^4P$	$3/2 - 1/2$	J2
	17g	147.535	147.5349	2 228	– 680 033.7	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^2D$	$1/2 - 3/2$	J2
	8g	147.629	147.6311	0	– 677 363.9	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^4F$	$3/2 - 3/2$	J2
	11g	147.749	147.7484	0	– 676 826.4	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^4F$	$3/2 - 5/2$	J2
	9g	147.884	147.8852	2 228	– 678 428.3	$2s^22p^5 - 2s^22p^4(^3P)3d$	$^2P^o - {}^4P$	$1/2 - 3/2$	J2

Mg IV – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	1*g*	147.981	147.9833	2 228	– 677 980.0	$2s^22p^5$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^4P	1/2 – 1/2	J2
	10*g*	148.117	148.1183	2 228	– 677 363.9	$2s^22p^5$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^4F	1/2 – 3/2	J2
	1*g*	148.904	148.9049	0	– 671 569.4	$2s^22p^5$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^4D	3/2 – 1/2	J2
	3*g*	148.959	148.9593	0	– 671 324.1	$2s^22p^5$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^4D	3/2 – 3/2	J2
	2*g*	149.025	149.0249	0	– 671 028.8	$2s^22p^5$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^4D	3/2 – 5/2	J2
	2*g*	149.400	149.4006	2 228	– 671 569.4	$2s^22p^5$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^4D	1/2 – 1/2	J2
	1*g*	149.456	149.4554	2 228	– 671 324.1	$2s^22p^5$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^4D	1/2 – 3/2	J2
	14*g*	160.2283	160.2283	0	– 624 109.6	$2s^22p^5$ – $2s^22p^4(^1S)3s$	$^2P^o$ – ^2S	3/2 – 1/2	J2
	11*g*	160.8021	160.8023	2 228	– 624 109.6	$2s^22p^5$ – $2s^22p^4(^1S)3s$	$^2P^o$ – ^2S	1/2 – 1/2	J2
	25*g*	171.6557	171.6507	0	– 582 578.4	$2s^22p^5$ – $2s^22p^4(^1D)3s$	$^2P^o$ – ^2D	3/2 – 3/2	J2
			171.6554	0	– 582 562.4	$2s^22p^5$ – $2s^22p^4(^1D)3s$	$^2P^o$ – ^2D	3/2 – 5/2	
	20*g*	172.3112	172.3097	2 228	– 582 578.4	$2s^22p^5$ – $2s^22p^4(^1D)3s$	$^2P^o$ – ^2D	1/2 – 3/2	J2
	12*g*	180.0694	180.0693	0	– 555 341.9	$2s^22p^5$ – $2s^22p^4(^3P)3s$	$^2P^o$ – ^2P	3/2 – 1/2	J2
	25*g*	180.6153	180.6143	0	– 553 666.1	$2s^22p^5$ – $2s^22p^4(^3P)3s$	$^2P^o$ – ^2P	3/2 – 3/2	J2
	20*g*	180.7941	180.7946	2 228	– 555 341.9	$2s^22p^5$ – $2s^22p^4(^3P)3s$	$^2P^o$ – ^2P	1/2 – 1/2	J2
	14*g*	181.3448	181.3440	2 228	– 553 666.1	$2s^22p^5$ – $2s^22p^4(^3P)3s$	$^2P^o$ – ^2P	1/2 – 3/2	J2
	11*g*	183.4392	183.4399	0	– 545 137.6	$2s^22p^5$ – $2s^22p^4(^3P)3s$	$^2P^o$ – ^4P	3/2 – 3/2	J2
	7*g*	183.9156	183.9157	2 228	– 545 955.4	$2s^22p^5$ – $2s^22p^4(^3P)3s$	$^2P^o$ – ^4P	1/2 – 1/2	J2
			183.9181	0	– 543 720.4	$2s^22p^5$ – $2s^22p^4(^3P)3s$	$^2P^o$ – ^4P	3/2 – 5/2	
	4*g*	184.1909	184.1927	2 228	– 545 137.6	$2s^22p^5$ – $2s^22p^4(^3P)3s$	$^2P^o$ – ^4P	1/2 – 3/2	J2
	2	269.282	269.282	311 532	– 682 889.5	$2s2p^6$ – $2s^22p^4(^1S)3p$	^2S – $^2P^o$	1/2 – 3/2	J2
	5	295.3951	295.395	311 532	– 650 061.6	$2s2p^6$ – $2s^22p^4(^1D)3p$	^2S – $^2P^o$	1/2 – 3/2	J2
	50*g*	320.9943	320.994	0	– 311 532	$2s^22p^5$ – $2s2p^6$	$^2P^o$ – ^2S	3/2 – 1/2	J2,A2
	40*g*	323.3076	323.307	2 228	– 311 532	$2s^22p^5$ – $2s2p^6$	$^2P^o$ – ^2S	1/2 – 1/2	J2,A2
	2	714.962	714.962	670 786.1	– 810 653.7	$2s^22p^4(^3P)3d$ – $2s^22p^4(^3P_2)5f$	^4D – $^2[4]^o$	7/2 – 9/2	J1
	1	716.177	716.177	671 028.8	– 810 659.1	$2s^22p^4(^3P)3d$ – $2s^22p^4(^3P_2)5f$	^4D – $^2[4]^o$	5/2 – 7/2	J1
	3	737.724	737.724	675 370.2	– 810 922.2	$2s^22p^4(^3P)3d$ – $2s^22p^4(^3P_2)5f$	^4F – $^2[5]^o$	9/2 – 11/2	J1
	2	741.578	741.578	676 075.3	– 810 922.9	$2s^22p^4(^3P)3d$ – $2s^22p^4(^3P_2)5f$	^4F – $^2[5]^o$	7/2 – 9/2	J1
	4	800.409	800.409	597 065.7	– 722 001.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4P^o$ – ^4P	3/2 – 1/2	J2
	2	803.072	803.072	596 521.8	– 721 043.6	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4P^o$ – ^4P	5/2 – 3/2	J2
	2	809.975	809.979	597 583.6	– 721 043.6	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4P^o$ – ^4P	1/2 – 3/2	J2
	4	811.276	811.273	596 521.8	– 719 784.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4P^o$ – ^4P	5/2 – 5/2	J2
	3	814.873	814.869	597 065.7	– 719 784.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4P^o$ – ^4P	3/2 – 5/2	J2
	2	840.366	840.364	637 879.7	– 756 875.8	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)4s$	$^2F^o$ – ^2D	5/2 – 3/2	J2
	3	842.087	842.083	638 112.9	– 756 866.1	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)4s$	$^2F^o$ – ^2D	7/2 – 5/2	J2
	2	852.232	852.232	604 662.9	– 722 001.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4D^o$ – ^4P	3/2 – 1/2	J2
	4	854.407	854.405	604 003.1	– 721 043.6	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4D^o$ – ^4P	5/2 – 3/2	J2
	2*bl*	854.936	854.932	605 033.5	– 722 001.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4D^o$ – ^4P	1/2 – 1/2	J2
	4	857.289	857.290	603 138.1	– 719 784.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4D^o$ – ^4P	7/2 – 5/2	J2
	1	861.991	861.994	605 033.5	– 721 043.6	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4D^o$ – ^4P	1/2 – 3/2	J2
	2	863.698	863.694	604 003.1	– 719 784.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4D^o$ – ^4P	5/2 – 5/2	J2
	3	865.722	865.722	609 305.8	– 724 816.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^2D^o$ – ^2P	3/2 – 1/2	J2
	4	866.735	866.734	607 891.7	– 723 267.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^2D^o$ – ^2P	5/2 – 3/2	J2
	1*bl*	868.635	868.644	604 662.9	– 719 784.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4D^o$ – ^4P	3/2 – 5/2	J2
	2	877.486	877.489	609 305.8	– 723 267.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^2D^o$ – ^2P	3/2 – 3/2	J2
	2	890.354	890.355	612 501.6	– 724 816.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^2P^o$ – ^2P	3/2 – 1/2	J2
	2	890.604	890.598	610 983.2	– 723 267.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$\langle\psi|^o$ – ^2P	1/2 – 3/2	J2
	2	891.006	891.008	644 643.4	– 756 875.8	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)4s$	$^2D^o$ – ^2D	3/2 – 3/2	J2
	2	892.218	892.222	644 786.4	– 756 866.1	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)4s$	$^2D^o$ – ^2D	5/2 – 5/2	J2
	2	893.869	893.872	612 943.5	– 724 816.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$\langle\psi|^o$ – ^2P	1/2 – 1/2	J2
	3	902.812	902.807	612 501.6	– 723 267.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^2P^o$ – ^2P	3/2 – 3/2	J2
	1	911.001	911.001	612 232.4	– 722 001.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4S^o$ – ^4P	3/2 – 1/2	J2
	4	919.025	919.023	612 232.4	– 721 043.6	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4S^o$ – ^4P	3/2 – 3/2	J2
	3	929.774	929.779	612 232.4	– 719 784.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)4s$	$^4S^o$ – ^4P	3/2 – 5/2	J2
	2	936.288	936.290	650 061.6	– 756 866.1	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)4s$	$^2P^o$ – ^2D	3/2 – 5/2	J2
	1	945.342	945.341	651 093.9	– 756 875.8	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)4s$	$^2P^o$ – ^2D	1/2 – 3/2	J2

Mg IV – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	3	971.15	971.143	670 786.1 –	773 757.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_0)4f$	$^4D - ^2[3]^\circ$	$^7/_2 - ^5/_2$	J1
	3	973.541	973.537	671 028.8 –	773 747.0	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_0)4f$	$^4D - ^2[3]^\circ$	$^5/_2 - ^7/_2$	J1
	1	976.16	976.156	670 786.1 –	773 228.7	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4D - ^2[3]^\circ$	$^7/_2 - ^7/_2$	J1
	2	976.258	976.243	671 324.1 –	773 757.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_0)4f$	$^4D - ^2[3]^\circ$	$^3/_2 - ^5/_2$	J1
	1	978.472	978.475	671 028.8 –	773 228.7	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4D - ^2[3]^\circ$	$^5/_2 - ^7/_2$	J1
	3	979.001	978.991	670 786.1 –	772 932.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4D - ^2[4]^\circ$	$^7/_2 - ^9/_2$	J1
	2	981.192	981.181	671 324.1 –	773 242.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4D - ^2[3]^\circ$	$^3/_2 - ^5/_2$	J1
			981.194	671 028.8 –	772 945.4	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4D - ^2[4]^\circ$	$^5/_2 - ^7/_2$	
	2	982.012	982.000	671 028.8 –	772 861.8	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4D - ^2[2]^\circ$	$^5/_2 - ^5/_2$	J1
	4	984.855	984.856	671 324.1 –	772 861.8	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4D - ^2[2]^\circ$	$^3/_2 - ^5/_2$	J1
	4	987.370	987.363	671 569.4 –	772 849.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4D - ^2[2]^\circ$	$^1/_2 - ^3/_2$	J1
	1	994.51	994.492	671 028.8 –	771 582.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[1]^\circ$	$^5/_2 - ^3/_2$	J1
	2	997.63	997.636	671 324.1 –	771 561.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[1]^\circ$	$^3/_2 - ^1/_2$	J1
	4	998.660	998.654	671 028.8 –	771 163.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[2]^\circ$	$^5/_2 - ^5/_2$	J1
	1	998.99	998.997	671 028.8 –	771 129.2	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[2]^\circ$	$^5/_2 - ^3/_2$	J1
	4	999.260	999.259	670 786.1 –	770 860.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[4]^\circ$	$^7/_2 - ^7/_2$	J1
	5*bl*	999.514	999.521	670 786.1 –	770 834.0	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[4]^\circ$	$^7/_2 - ^9/_2$	J1
	1	1000.09	1000.083	671 569.4 –	771 561.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[1]^\circ$	$^1/_2 - ^1/_2$	J1
	3	1001.020	1001.014	671 028.8 –	770 927.5	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[3]^\circ$	$^5/_2 - ^7/_2$	J1
	4	1001.177	1001.180	671 028.8 –	770 910.9	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[3]^\circ$	$^5/_2 - ^5/_2$	J1
	5	1001.688	1001.688	671 028.8 –	770 860.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[4]^\circ$	$^5/_2 - ^7/_2$	J1
	4	1001.952	1001.953	671 324.1 –	771 129.2	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[2]^\circ$	$^3/_2 - ^3/_2$	J1
	4	1004.152	1004.149	671 324.1 –	770 910.9	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[3]^\circ$	$^3/_2 - ^5/_2$	J1
	4	1004.422	1004.421	671 569.4 –	771 129.2	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4D - ^2[2]^\circ$	$^1/_2 - ^3/_2$	J1
	4	1008.763	1008.765	612 501.6 –	711 632.7	$2s^22p^4(^3P)3p - 2s^22p^4(^1D)3d$	$^2P^\circ - ^2P$	$^3/_2 - ^3/_2$	J2
	6	1023.189	1023.172	709 068.1 –	806 803.4	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2G - ^2[5]^\circ$	$^9/_2 - ^{11}/_2$	J2
			1023.204	709 071.2 –	806 803.4	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2G - ^2[5]^\circ$	$^7/_2 - ^9/_2$	
	5	1026.406	1026.401	553 666.1 –	651 093.9	$2s^22p^4(^3P)3s - 2s^22p^4(^1D)3p$	$^2P - ^2P^\circ$	$^3/_2 - ^1/_2$	J2
	2*bl*	1029.30	1029.300	676 075.3 –	773 228.7	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4F - ^2[3]^\circ$	$^7/_2 - ^7/_2$	J1
	4	1032.448	1032.452	676 075.3 –	772 932.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4F - ^2[4]^\circ$	$^7/_2 - ^9/_2$	J1
	1	1037.18	1037.176	676 826.4 –	773 242.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4F - ^2[3]^\circ$	$^5/_2 - ^5/_2$	J1
	5	1037.395	1037.393	553 666.1 –	650 061.6	$2s^22p^4(^3P)3s - 2s^22p^4(^1D)3p$	$^2P - ^2P^\circ$	$^3/_2 - ^3/_2$	J2
	5*bl*	1040.36	1040.377	676 826.4 –	772 945.4	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4F - ^2[4]^\circ$	$^5/_2 - ^7/_2$	J1
	6	1041.740	1041.740	675 370.2 –	771 363.4	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[5]^\circ$	$^9/_2 - ^{11}/_2$	J1
	4	1042.993	1042.990	677 363.9 –	773 242.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4F - ^2[3]^\circ$	$^3/_2 - ^5/_2$	J1
	3	1044.096	1044.094	677 451.9 –	773 228.7	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2F - ^2[3]^\circ$	$^7/_2 - ^7/_2$	J1
	5	1044.366	1044.365	555 341.9 –	651 093.9	$2s^22p^4(^3P)3s - 2s^22p^4(^1D)3p$	$^2P - ^2P^\circ$	$^1/_2 - ^1/_2$	J2
	5	1047.338	1047.338	677 451.9 –	772 932.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2F - ^2[4]^\circ$	$^7/_2 - ^9/_2$	J1
	4	1047.522	1047.517	675 370.2 –	770 834.0	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[4]^\circ$	$^9/_2 - ^9/_2$	J1
	4	1048.746	1048.747	678 395.1 –	773 747.0	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_0)4f$	$^2F - ^2[3]^\circ$	$^5/_2 - ^7/_2$	J1
	2	1049.00	1048.995	678 428.3 –	773 757.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_0)4f$	$^4P - ^2[3]^\circ$	$^3/_2 - ^5/_2$	J1
	5	1049.398	1049.403	676 075.3	771 367.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[5]^\circ$	$^7/_2 - ^9/_2$	J1
	4	1049.579	1049.577	711 632.7 –	806 909.2	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2P - ^2[2]^\circ$	$^3/_2 - ^5/_2$	J1
	3	1052.288	1052.288	711 880.5 –	806 911.5	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2P - ^2[2]^\circ$	$^1/_2 - ^3/_2$	J1
	3	1054.074	1054.082	677 980.0 –	772 849.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4P - ^2[2]^\circ$	$^1/_2 - ^3/_2$	J1
	1	1054.27	1054.272	676 075.3 –	770 927.5	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[3]^\circ$	$^7/_2 - ^7/_2$	J1
	4	1054.479	1054.479	678 395.1 –	773 228.7	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2F - ^2[3]^\circ$	$^5/_2 - ^7/_2$	J1
	1	1054.71	1054.699	678 428.3 –	773 242.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4P - ^2[3]^\circ$	$^3/_2 - ^5/_2$	J1
	4	1055.019	1055.019	676 075.3 –	770 860.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[4]^\circ$	$^7/_2 - ^7/_2$	J1
	1	1055.31	1055.312	676 075.3 –	770 834.0	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[4]^\circ$	$^7/_2 - ^9/_2$	J1
	4	1055.752	1055.747	555 341.9 –	650 061.6	$2s^22p^4(^3P)3s - 2s^22p^4(^1D)3p$	$^2P - ^2P^\circ$	$^1/_2 - ^3/_2$	J2
	3	1056.192	1056.192	711 632.7 –	806 312.5	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2P - ^2[1]^\circ$	$^3/_2 - ^3/_2$	J1
	1	1057.64	1057.638	678 395.1 –	772 945.4	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2F - ^2[4]^\circ$	$^5/_2 - ^7/_2$	J1
	1	1058.73	1058.714	678 395.1 –	772 849.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2F - ^2[2]^\circ$	$^5/_2 - ^3/_2$	J1
	4	1058.934	1058.946	678 428.3 –	772 861.8	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4P - ^2[2]^\circ$	$^3/_2 - ^5/_2$	J1

Mg IV — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	1	1059.09	1059.086	678 428.3 –	772 849.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4P - ^2[2]^\circ$	$3/2 - 3/2$	J1
	3	1061.722	1061.706	712 124.5 –	806 312.5	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2S - ^2[1]^\circ$	$1/2 - 3/2$	J1
			1061.738	712 124.5 –	806 309.7	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2S - ^2[1]^\circ$	$1/2 - 1/2$	
	4	1062.382	1062.384	679 100.8 –	773 228.7	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4P - ^2[3]^\circ$	$5/2 - 7/2$	J1
	4	1063.329	1063.321	713 411.0 –	807 456.0	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2D - ^2[3]^\circ$	$5/2 - 7/2$	J1
	3	1063.430	1063.446	676 826.4 –	770 860.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[4]^\circ$	$5/2 - 7/2$	J1
	5	1064.789	1064.785	677 451.9 –	771 367.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2F - ^2[5]^\circ$	$7/2 - 9/2$	J1
	3	1065.597	1065.591	679 100.8 –	772 945.4	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^4P - ^2[4]^\circ$	$5/2 - 7/2$	J1
	3*bl*	1066.13	1066.101	677 363.9 –	771 163.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[2]^\circ$	$3/2 - 5/2$	J1
	3	1066.410	1066.411	713 682.5 –	807 455.0	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2D - ^2[3]^\circ$	$3/2 - 5/2$	J1
	3	1068.351	1068.346	677 980.0 –	771 582.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[1]^\circ$	$1/2 - 3/2$	J1
	4	1068.592	1068.592	677 980.0 –	771 561.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[1]^\circ$	$1/2 - 1/2$	J1
	1	1068.97	1068.981	677 363.9 –	770 910.9	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4F - ^2[3]^\circ$	$3/2 - 5/2$	J1
	3	1069.538	1069.539	713 411.0 –	806 909.2	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2D - ^2[2]^\circ$	$5/2 - 5/2$	J1
	3	1069.797	1069.798	677 451.9 –	770 927.5	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2F - ^2[3]^\circ$	$7/2 - 7/2$	J1
	4	1070.876	1070.869	677 451.9 –	770 834.0	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2F - ^2[4]^\circ$	$7/2 - 9/2$	J1
	4	1072.140	1072.140	714 336.4 –	807 607.8	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2F - ^2[4]^\circ$	$5/2 - 7/2$	J1
	5	1072.302	1072.302	714 352.8 –	807 610.1	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2F - ^2[4]^\circ$	$7/2 - 9/2$	J1
	1	1072.64	1072.628	713 682.5 –	806 911.5	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2D - ^2[2]^\circ$	$3/2 - 3/2$	J1
	3*bl*	1073.48	1073.488	678 428.3 –	771 582.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[1]^\circ$	$3/2 - 3/2$	J1
	3*bl*	1073.52	1073.547	677 980.0 –	771 129.2	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[2]^\circ$	$1/2 - 3/2$	J1
	1	1073.74	1073.736	678 428.3 –	771 561.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[1]^\circ$	$3/2 - 1/2$	J1
	2	1073.899	1073.899	714 336.4 –	807 455.0	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2F - ^2[3]^\circ$	$5/2 - 5/2$	J1
	3*bl*	1074.055	1074.077	714 352.8 –	807 456.0	$2s^22p^4(^1D)3d - 2s^22p^4(^1D_2)4f$	$^2F - ^2[3]^\circ$	$7/2 - 7/2$	J1
	3*bl*	1077.296	1077.260	680 033.7 –	772 861.8	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2D - ^2[2]^\circ$	$3/2 - 5/2$	J1
	3	1077.951	1077.952	678 395.1 –	771 163.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2F - ^2[2]^\circ$	$5/2 - 5/2$	J1
	3	1078.337	1078.336	680 493.2 –	773 228.7	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2D - ^2[3]^\circ$	$5/2 - 7/2$	J1
			1078.338	678 428.3 –	771 163.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[2]^\circ$	$3/2 - 5/2$	
	3*bl*	1078.767	1078.738	678 428.3 –	771 129.2	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[2]^\circ$	$3/2 - 3/2$	J1
	4	1080.710	1080.703	678 395.1 –	770 927.5	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2F - ^2[3]^\circ$	$5/2 - 7/2$	J1
	bl	1080.90	1080.896	678 395.1 –	770 910.9	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2F - ^2[3]^\circ$	$5/2 - 5/2$	J1
	1	1081.30	1081.284	678 428.3 –	770 910.9	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[3]^\circ$	$3/2 - 5/2$	J1
	1	1086.22	1086.215	679 100.8 –	771 163.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[2]^\circ$	$5/2 - 5/2$	J1
	4	1089.013	1089.016	681 023.3 –	772 849.3	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2P - ^2[2]^\circ$	$1/2 - 3/2$	J1
			1089.008	679 100.8 –	770 927.5	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^4P - ^2[3]^\circ$	$5/2 - 7/2$	
	1	1092.317	1092.312	680 033.7 –	771 582.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2D - ^2[1]^\circ$	$3/2 - 3/2$	J1
	4	1095.468	1095.473	682 472.8 –	773 757.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_0)4f$	$^2P - ^2[3]^\circ$	$3/2 - 5/2$	J1
	4	1097.331	1097.335	680 033.7 –	771 163.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2D - ^2[2]^\circ$	$3/2 - 5/2$	J1
	5*bl*	1100.36	1100.386	680 033.7 –	770 910.9	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2D - ^2[3]^\circ$	$3/2 - 5/2$	J1
	4	1101.686	1101.694	682 472.8 –	773 242.1	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_1)4f$	$^2P - ^2[3]^\circ$	$3/2 - 5/2$	J1
	3	1104.240	1104.249	681 023.3 –	771 582.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2P - ^2[1]^\circ$	$1/2 - 3/2$	J1
	3	1105.766	1105.775	680 493.2 –	770 927.5	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2D - ^2[3]^\circ$	$5/2 - 7/2$	J1
	1	1105.976	1105.978	680 493.2 –	770 910.9	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2D - ^2[3]^\circ$	$5/2 - 5/2$	J1
	3	1122.211	1122.211	682 472.8 –	771 582.6	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2P - ^2[1]^\circ$	$3/2 - 3/2$	J1
	1	1130.717	1130.734	682 472.8 –	770 910.9	$2s^22p^4(^3P)3d - 2s^22p^4(^3P_2)4f$	$^2P - ^2[3]^\circ$	$3/2 - 5/2$	J1
	8	1210.967	1210.962	596 521.8 –	679 100.8	$2s^22p^4(^3P)3p - 2s^22p^4(^3P)3d$	$^4P^\circ - ^4P$	$5/2 - 5/2$	J2
	8	1218.992	1218.990	597 065.7 –	679 100.8	$2s^22p^4(^3P)3p - 2s^22p^4(^3P)3d$	$^4P^\circ - ^4P$	$3/2 - 5/2$	J2
	9	1220.900	1220.904	596 521.8 –	678 428.3	$2s^22p^4(^3P)3p - 2s^22p^4(^3P)3d$	$^4P^\circ - ^4P$	$5/2 - 3/2$	J2
	4	1229.066	1229.066	597 065.7 –	678 428.3	$2s^22p^4(^3P)3p - 2s^22p^4(^3P)3d$	$^4P^\circ - ^4P$	$3/2 - 3/2$	J2
	10	1235.873	1235.875	597 065.7 –	677 980.0	$2s^22p^4(^3P)3p - 2s^22p^4(^3P)3d$	$^4P^\circ - ^4P$	$3/2 - 1/2$	J2
	11	1236.936	1236.939	597 583.6 –	678 428.3	$2s^22p^4(^3P)3p - 2s^22p^4(^3P)3d$	$^4P^\circ - ^4P$	$1/2 - 3/2$	J2
	7	1243.840	1243.837	597 583.6 –	677 980.0	$2s^22p^4(^3P)3p - 2s^22p^4(^3P)3d$	$^4P^\circ - ^4P$	$1/2 - 1/2$	J2
	bl	1307.9	1307.930	637 879.7 –	714 336.4	$2s^22p^4(^1D)3p - 2s^22p^4(^1D)3d$	$^2F^\circ - ^2F$	$5/2 - 5/2$	J2
	12	1311.650	1311.649	638 112.9 –	714 352.8	$2s^22p^4(^1D)3p - 2s^22p^4(^1D)3d$	$^2F^\circ - ^2F$	$7/2 - 7/2$	J2
	7	1311.930	1311.931	638 112.9 –	714 336.4	$2s^22p^4(^1D)3p - 2s^22p^4(^1D)3d$	$^2F^\circ - ^2F$	$7/2 - 5/2$	J2

Mg IV — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	7	1331.592	1331.599	604 003.1	679 100.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4P	5/2 – 5/2	J2
	10	1336.850	1336.857	596 521.8	671 324.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4P^o$ – ^4D	5/2 – 3/2	J2
	15	1342.163	1342.156	596 521.8	671 028.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4P^o$ – ^4D	5/2 – 5/2	J2
	8	1345.643	1345.645	603 138.1	677 451.9	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^2F	7/2 – 7/2	J2
	25	1346.543	1346.542	596 521.8	670 786.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4P^o$ – ^4D	5/2 – 7/2	J2
	15*bl*	1346.633	1346.649	597 065.7	671 324.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4P^o$ – ^4D	3/2 – 3/2	J2
	13	1351.620	1351.611	597 583.6	671 569.4	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4P^o$ – ^4D	1/2 – 1/2	J2
	16	1352.020	1352.026	597 065.7	671 028.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4P^o$ – ^4D	3/2 – 5/2	J2
	4	1355.654	1355.649	604 662.9	678 428.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4P	3/2 – 3/2	J2
	13	1356.108	1356.107	597 583.6	671 324.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4P^o$ – ^4D	1/2 – 3/2	J2
	8	1361.493	1361.493	604 003.1	677 451.9	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^2F	5/2 – 7/2	J2
	7	1362.504	1362.494	605 033.5	678 428.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4P	1/2 – 3/2	J2
	1	1366.733	1366.736	609 305.8	682 472.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^2P	3/2 – 3/2	J2
	14*bl*	1371.033	1371.042	603 138.1	676 075.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4F	7/2 – 7/2	J2
	13	1373.187	1373.187	604 003.1	676 826.4	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4F	5/2 – 5/2	J2
	12	1375.497	1375.497	604 662.9	677 363.9	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4F	3/2 – 3/2	J2
	7	1377.373	1377.382	607 891.7	680 493.2	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^2D	5/2 – 5/2	J2
	16	1382.544	1382.545	605 033.5	677 363.9	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4F	1/2 – 3/2	J2
	20	1384.425	1384.426	603 138.1	675 370.2	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4F	7/2 – 9/2	J2
	16	1385.740	1385.742	604 662.9	676 826.4	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4F	3/2 – 5/2	J2
	6	1386.155	1386.155	607 891.7	680 033.7	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^2D	5/2 – 3/2	J2
	17	1387.494	1387.498	604 003.1	676 075.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4F	5/2 – 7/2	J2
	5*bl*	1394.356	1394.360	609 305.8	681 023.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^2P	3/2 – 1/2	J2
	1	1398.795	1398.805	610 983.2	682 472.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$\langle\psi\vert^o$ – ^2P	1/2 – 3/2	J2
	16	1404.663	1404.662	637 879.7	709 071.2	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2F^o$ – ^2G	5/2 – 7/2	J2
	18	1409.339	1409.340	638 112.9	709 068.1	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2F^o$ – ^2G	7/2 – 9/2	J2
	6	1413.868	1413.869	609 305.8	680 033.7	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^2D	3/2 – 3/2	J2
	9	1418.378	1418.371	607 891.7	678 395.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^2F	5/2 – 5/2	J2
	8	1425.597	1425.596	682 851.3	752 997.4	$2s^22p^4(^1S)3p$ – $2s^22p^4(^1S)3d$	$^2P^o$ – ^2D	1/2 – 3/2	J2
	11	1427.710	1427.711	682 889.5	752 931.7	$2s^22p^4(^1S)3p$ – $2s^22p^4(^1S)3d$	$^2P^o$ – ^2D	3/2 – 5/2	J2
	7	1429.166	1429.159	612 501.6	682 472.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^2P	3/2 – 3/2	J2
	10	1432.767	1432.767	609 305.8	679 100.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^4P	3/2 – 5/2	J2
	13	1434.866	1434.864	644 643.4	714 336.4	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o$ – ^2F	3/2 – 5/2	J2
	15*bl*	1437.51	1437.476	644 786.4	714 352.8	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o$ – ^2F	5/2 – 7/2	J2
	17*bl*	1437.61	1437.604	607 891.7	677 451.9	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^2F	5/2 – 7/2	J2
	8*bl*	1437.76	1437.815	644 786.4	714 336.4	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o$ – ^2F	5/2 – 5/2	J2
	15	1438.244	1438.243	612 943.5	682 472.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$\langle\psi\vert^o$ – ^2P	1/2 – 3/2	J2
	14*bl*	1447.395	1447.402	609 305.8	678 395.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^2F	3/2 – 5/2	J2
	8	1448.217	1448.215	610 983.2	680 033.7	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$\langle\psi\vert^o$ – ^2D	1/2 – 3/2	J2
	8	1448.456	1448.455	644 643.4	713 682.5	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o$ – ^2D	3/2 – 3/2	J2
	2	1451.457	1451.461	644 786.4	713 682.5	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o$ – ^2D	5/2 – 3/2	J2
	5	1454.171	1454.173	644 643.4	713 411.0	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o$ – ^2D	3/2 – 5/2	J2
	10	1457.212	1457.203	644 786.4	713 411.0	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o$ – ^2D	5/2 – 5/2	J2
	10*bl*	1459.34	1459.392	612 501.6	681 023.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^2P	3/2 – 1/2	J2
	13*bl*	1459.521	1459.524	582 578.4	651 093.9	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	^2D – $^2P^o$	3/2 – 1/2	J2
	15*bl*	1459.605	1459.598	543 720.4	612 232.4	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	^4P – $^4S^o$	5/2 – 3/2	J2
	11	1466.635	1466.628	607 891.7	676 075.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2D^o$ – ^4F	5/2 – 7/2	J2
	4	1468.868	1468.865	612 943.5	681 023.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$\langle\psi\vert^o$ – ^2P	1/2 – 1/2	J2
	12	1470.777	1470.770	612 501.6	680 493.2	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2P^o$ – ^2D	3/2 – 5/2	J2
	10	1472.963	1472.956	603 138.1	671 028.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4D	7/2 – 5/2	J2
	15	1478.240	1478.240	603 138.1	670 786.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4D	7/2 – 7/2	J2
	16	1481.490	1481.499	582 562.4	650 061.6	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	^2D – $^2P^o$	5/2 – 3/2	J2
	9	1481.840	1481.850	582 578.4	650 061.6	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	^2D – $^2P^o$	3/2 – 3/2	J2
	11	1485.421	1485.421	604 003.1	671 324.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o$ – ^4D	5/2 – 3/2	J2
	1	1487.265	1487.274	644 643.4	711 880.5	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o$ – ^2P	3/2 – 1/2	J2

Mg IV — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	16	1490.433	1490.428	545 137.6 –	612 232.4	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4S^o$	$3/2 - 3/2$	J2
	12	1491.968	1491.965	604 003.1 –	671 028.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o - ^4D$	$5/2 - 5/2$	J2
	9	1494.624	1494.623	604 662.9 –	671 569.4	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o - ^4D$	$3/2 - 1/2$	J2
	14	1495.482	1495.475	612 232.4 –	679 100.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4S^o - ^4P$	$3/2 - 5/2$	J2
	6	1495.985	1495.969	644 786.4 –	711 632.7	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2D^o - ^2P$	$5/2 - 3/2$	J2
	9	1497.388	1497.387	604 003.1 –	670 786.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o - ^4D$	$5/2 - 7/2$	J2
	6	1500.118	1500.123	604 662.9 –	671 324.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o - ^4D$	$3/2 - 3/2$	J2
	9	1501.513	1501.520	612 501.6 –	679 100.8	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2P^o - ^4P$	$3/2 - 5/2$	J2
	10	1502.942	1502.948	605 033.5 –	671 569.4	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o - ^4D$	$1/2 - 1/2$	J2
	8	1508.516	1508.510	605 033.5 –	671 324.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4D^o - ^4D$	$1/2 - 3/2$	J2
	14	1508.821	1508.819	545 955.4 –	612 232.4	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4S^o$	$1/2 - 3/2$	J2
	14	1510.670	1510.668	612 232.4 –	678 428.3	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4S^o - ^4P$	$3/2 - 3/2$	J2
	5	1517.596	1517.600	612 501.6 –	678 395.1	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^2P^o - ^2F$	$3/2 - 5/2$	J2
	14	1520.967	1520.968	612 232.4 –	677 980.0	$2s^22p^4(^3P)3p$ – $2s^22p^4(^3P)3d$	$^4S^o - ^4P$	$3/2 - 1/2$	J2
	7	1578.537	1578.547	650 061.6 –	713 411.0	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2P^o - ^2D$	$3/2 - 5/2$	J2
	4	1597.738	1597.735	651 093.9 –	713 682.5	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2P^o - ^2D$	$1/2 - 3/2$	J2
	16	1607.108	1607.097	582 562.4 –	644 786.4	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	$^2D - ^2D^o$	$5/2 - 5/2$	J2
	10	1607.514	1607.510	582 578.4 –	644 786.4	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	$^2D - ^2D^o$	$3/2 - 5/2$	J2
	7	1610.799	1610.799	582 562.4 –	644 643.4	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	$^2D - ^2D^o$	$5/2 - 3/2$	J2
	15	1611.215	1611.214	582 578.4 –	644 643.4	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	$^2D - ^2D^o$	$3/2 - 3/2$	J2
	5	1617.627	1617.628	650 061.6 –	711 880.5	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2P^o - ^2P$	$3/2 - 1/2$	J2
	6	1624.136	1624.139	650 061.6 –	711 632.7	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2P^o - ^2P$	$9/2 - 9/2$	J2
	4	1638.522	1638.522	651 093.9 –	712 124.5	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2P^o - ^2S$	$1/2 - 1/2$	J2
	9	1640.892	1640.891	543 720.4 –	604 662.9	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4D^o$	$5/2 - 3/2$	J2
	2	1651.837	1651.833	651 093.9 –	711 632.7	$2s^22p^4(^1D)3p$ – $2s^22p^4(^1D)3d$	$^2P^o - ^2P$	$1/2 - 3/2$	J2
	15	1658.851	1658.851	543 720.4 –	604 003.1	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4D^o$	$5/2 - 5/2$	J2
	11	1669.574	1669.563	545 137.6 –	605 033.5	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4D^o$	$3/2 - 1/2$	J2
	18	1679.960	1679.958	545 137.6 –	604 662.9	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4D^o$	$3/2 - 3/2$	J2
	25	1683.003	1683.000	543 720.4 –	603 138.1	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4D^o$	$5/2 - 7/2$	J2
	17	1692.675	1692.675	545 955.4 –	605 033.5	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4D^o$	$1/2 - 1/2$	J2
	20	1698.784	1698.788	545 137.6 –	604 003.1	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4D^o$	$3/2 - 5/2$	J2
	15	1699.654	1699.654	553 666.1 –	612 501.6	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^2P - ^2P^o$	$3/2 - 3/2$	J2
	12	1701.262	1701.262	624 109.6 –	682 889.5	$2s^22p^4(^1S)3s$ – $2s^22p^4(^1S)3p$	$^2S - ^2P^o$	$1/2 - 3/2$	J2
	10	1702.367	1702.368	624 109.6 –	682 851.3	$2s^22p^4(^1S)3s$ – $2s^22p^4(^1S)3p$	$^2S - ^2P^o$	$1/2 - 1/2$	J2
	16	1703.357	1703.360	545 955.4 –	604 662.9	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4D^o$	$1/2 - 3/2$	J2
	13	1736.067	1736.063	555 341.9 –	612 943.5	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^2P - \langle\psi\vert^o$	$1/2 - 1/2$	J2
	14	1744.674	1744.680	553 666.1 –	610 983.2	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^2P - \langle\psi\vert^o$	$3/2 - 1/2$	J2
	12	1749.480	1749.484	555 341.9 –	612 501.6	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^2P - ^2P^o$	$1/2 - 3/2$	J2
	11	1797.271	1797.278	553 666.1 –	609 305.8	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^2P - ^2D^o$	$3/2 - 3/2$	J2
	17	1800.167	1800.164	582 562.4 –	638 112.9	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	$^2D - ^2F^o$	$5/2 - 7/2$	J2
	6*bl*	1807.746	1807.753	582 562.4 –	637 879.7	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	$^2D - ^2F^o$	$5/2 - 5/2$	J2
	16	1808.286	1808.276	582 578.4 –	637 879.7	$2s^22p^4(^1D)3s$ – $2s^22p^4(^1D)3p$	$^2D - ^2F^o$	$3/2 - 5/2$	J2
	16	1844.151	1844.147	553 666.1 –	607 891.7	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^2P - ^2D^o$	$3/2 - 5/2$	J2
	17	1853.086	1853.091	555 341.9 –	609 305.8	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^2P - ^2D^o$	$1/2 - 3/2$	J2
	22	1874.576	1874.579	543 720.4 –	597 065.7	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4P^o$	$5/2 - 3/2$	J2
	25	1893.888	1893.889	543 720.4 –	596 521.8	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4P^o$	$5/2 - 5/2$	J2
	18	1906.723	1906.723	545 137.6 –	597 583.6	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4P^o$	$3/2 - 1/2$	J2
	12	1925.742	1925.740	545 137.6 –	597 065.7	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4P^o$	$3/2 - 3/2$	J2
	10	1936.931	1936.926	545 955.4 –	597 583.6	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4P^o$	$1/2 - 1/2$	J2
	18	1946.117	1946.124	545 137.6 –	596 521.8	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4P^o$	$3/2 - 5/2$	J2
	17	1956.548	1956.553	545 955.4 –	597 065.7	$2s^22p^4(^3P)3s$ – $2s^22p^4(^3P)3p$	$^4P - ^4P^o$	$1/2 - 3/2$	J2

Mg IV — Continued

Mult. No.	Rel. Int.	Air Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	2	2470.243	2470.158	806 309.7 –	846 780.7	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[1]^\circ - {}^2[2]$	$1/2 - 3/2$	J1
			2470.329	806 312.5 –	846 780.7	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[1]^\circ - {}^2[2]$	$3/2 -$	
	9	2491.569	2491.572	770 834.0 –	810 957.2	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[4]^\circ - {}^2[5]$	$9/2 - 11/2$	J1
	8*bl*	2493.108	2493.107	770 860.3 –	810 958.8	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[4]^\circ - {}^2[5]$	$7/2 - 9/2$	J1
	6	2495.794	2495.796	806 803.4 –	846 858.7	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[5]^\circ - {}^2[6]$		J1
	4	2496.214	2496.214	770 910.9 –	810 959.5	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[3]^\circ - {}^2[4]$	$5/2 - 7/2$	J1
	6	2497.171	2497.174	770 927.5 –	810 960.7	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[3]^\circ - {}^2[4]$	$7/2 - 9/2$	J1
	3	2498.255	2498.179	806 909.2 –	846 926.3	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[2]^\circ - {}^2[3]$	$5/2 -$	J1
			2498.322	806 911.5 –	846 926.3	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[2]^\circ - {}^2[3]$	$3/2 - 5/2$	
	4*bl*	2505.028	2505.027	772 849.3 –	812 757.0	$2s^22p^4(^3P_1)4f - 2s^22p^4(^3P_1)5g$	$^2[2]^\circ - {}^2[3]$	$3/2 - 5/2$	J1
	5	2505.757	2505.756	772 861.8 –	812 757.9	$2s^22p^4(^3P_1)4f - 2s^22p^4(^3P_1)5g$	$^2[2]^\circ - {}^2[3]$	$5/2 - 7/2$	J1
	4	2506.289	2506.290	771 129.2 –	811 016.8	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[2]^\circ - {}^2[3]$	$3/2 - 5/2$	J1
	5	2508.367	2508.365	771 163.6 –	811 018.2	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[2]^\circ - {}^2[3]$	$5/2 - 7/2$	J1
	7	2508.802	2508.800	772 932.1 –	812 779.8	$2s^22p^4(^3P_1)4f - 2s^22p^4(^3P_1)5g$	$^2[4]^\circ - {}^2[5]$	$9/2 - 11/2$	J1
	7	2509.713	2509.713	772 945.4 –	812 778.6	$2s^22p^4(^3P_1)4f - 2s^22p^4(^3P_1)5g$	$^2[4]^\circ - {}^2[5]$	$7/2 - 9/2$	J1
	5*bl*	2512.254	2512.255	773 747.0 –	813 539.9	$2s^22p^4(^3P_0)4f - 2s^22p^4(^3P_0)5g$	$^2[3]^\circ - {}^2[4]$	$7/2 - 9/2$	J1
	5	2512.865	2512.867	773 757.6 –	813 540.8	$2s^22p^4(^3P_0)4f - 2s^22p^4(^3P_0)5g$	$^2[3]^\circ - {}^2[4]$	$5/2 - 7/2$	J1
	12*bl*	2518.402	2518.400	771 363.4 –	811 059.2	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[5]^\circ - {}^2[6]$	$11/2 - 13/2$	J1
	9	2518.686	2518.686	771 367.6 –	811 058.9	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[5]^\circ - {}^2[6]$	$9/2 - 11/2$	J1
	7	2522.562	2522.563	773 228.7 –	812 859.0	$2s^22p^4(^3P_1)4f - 2s^22p^4(^3P_1)5g$	$^2[3]^\circ - {}^2[4]$	$7/2 - 9/2$	J1
	6	2523.401	2523.404	773 242.1 –	812 859.2	$2s^22p^4(^3P_1)4f - 2s^22p^4(^3P_1)5g$	$^2[3]^\circ - {}^2[4]$	$5/2 - 7/2$	J1
	3	2525.595	2525.565	807 455.0 –	847 038.2	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[3]^\circ - {}^2[4]$	$5/2 - 7/2$	J1
			2525.629	807 456.0 –	847 038.2	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[3]^\circ - {}^2[4]$	$7/2 -$	
	2*bl*	2528.562	2528.561	771 561.1 –	811 097.4	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[1]^\circ - {}^2[2]$	$1/2 - 3/2$	J1
	3*bl*	2529.714	2529.713	771 582.6 –	811 100.9	$2s^22p^4(^3P_2)4f - 2s^22p^4(^3P_2)5g$	$^2[1]^\circ - {}^2[2]$	$3/2 - 5/2$	J1
	4	2534.785	2534.710	807 607.8 –	847 048.2	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[4]^\circ - {}^2[5]$	$7/2 - 9/2$	J1
			2534.857	807 610.1 –	847 048.2	$2s^22p^4(^1D_2)4f - 2s^22p^4(^1D_2)5g$	$^2[4]^\circ - {}^2[5]$	$9/2 -$	
	4	3292.34	3292.306	582 578.4 –	612 943.5	$2s^22p^4(^1D)3s - 2s^22p^4(^3P)3p$	$^2D - \langle\psi\vert^\circ$	$3/2 - 1/2$	J2
	5	3339.16	3339.142	582 562.4 –	612 501.6	$2s^22p^4(^1D)3s - 2s^22p^4(^3P)3p$	$^2D - {}^2P^\circ$	$5/2 - 3/2$	J2
	3	3519.46	3519.525	582 578.4 –	610 983.2	$2s^22p^4(^1D)3s - 2s^22p^4(^3P)3p$	$^2D - \langle\psi\vert^\circ$	$3/2 - 1/2$	J2
		Wavenumber (cm^{-1})							
	M1	2227.	2228.	0 –	2 228	$2s^22p^5 - 2s^22p^5$	$^2P^\circ - {}^2P^\circ$	$1/2 - 3/2$	R3

Mg v

O I isoelectronic sequence

Ground state $1s^2 2s^2 2p^4\ ^3P_2$

Ionization energy 1 139 420 cm^{-1} (141.27 eV)

All of the wavelengths in the 96 – 153 Å region are from Kaufman and Artru [K1]. The wavelengths for the $2s^2 2p^4 - 2s 2p^5$ lines quoted from Johannesson *et al.* (251 – 355 Å) [J2] were confirmed within ±0.003 Å by Kaufman and Artru [K1]; Johannesson *et al.* estimate the errors of the four-place values to be less than ±0.002 Å.

The observed wavelength given for the magnetic-dipole transition at 1324 Å is an average of two values with an uncertainty of about ±0.01 Å [S2, F2]. The apparent error of 0.13 Å for the calculated wavelength corresponds to quite possible errors of 0.005 Å for the lines in the 250 Å region used in the evaluation of the $2s^2 2p^4\ ^1S_0$ level [K1]. We have not reevaluated the pertinent levels for this compilation.

References

F2 Feldman, U., and Doschek, G. A. [1977], J. Opt. Soc. Am. **67**, 726 – 734.

J2 Johannesson, G. -A., Lundström, T., and Minnhagen, L. [1972], Phys. Scr. **6**, 129 – 137.

K1 Kaufman, V. and Artru, M. -C. [1980], J. Opt Soc. Am. **70**, 1135 – 1139.

R3 Russell, R. W., Sofer, B. T., and Willner, S. P. [1977], Astrophys. J. **217**, L149 – L153.

S2 Sandlin, G. D., Brueckner, G. E., and Tousey, R. [1977], Astrophys. J. **214**, 898 – 904.

Mg v

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	200*g*	95.799	95.798	0.0	– 1 043 860	$2s^2 2p^4 - 2s^2 2p^3(^2P^o)4d?$	$^3P - ^3D^o?$	2 – 3	K1
	100*g*	95.896	95.896	0.0	– 1 042 800	$2s^2 2p^4 - 2s^2 2p^3(^2P^o)4d?$	$^3P - ^3P^o?$	2 – 2	K1
	50*g*	95.914	95.917	0.0	– 1 042 570	$2s^2 2p^4 - 2s^2 2p^3(^2P^o)4d?$	$^3P - ^3P^o?$	2 – 1	K1
	100*g*	95.963	95.962	1 783.1	– 1 043 860	$2s^2 2p^4 - 2s^2 2p^3(^2P^o)4d?$	$^3P - ^3D^o?$	1 – 2	K1
	80*g*	96.029	96.030	2 521.8	– 1 043 860	$2s^2 2p^4 - 2s^2 2p^3(^2P^o)4d?$	$^3P - ^3D^o?$	0 – 1	K1
	100*g,bl*	96.083	96.081	1 783.1	– 1 042 570	$2s^2 2p^4 - 2s^2 2p^3(^2P^o)4d?$	$^3P - ^3P^o?$	1 – 1	K1
	10*g,bl*	96.150	96.149	2 521.8	– 1 042 570	$2s^2 2p^4 - 2s^2 2p^3(^2P^o)4d?$	$^3P - ^3P^o?$	0 – 1	K1
	100*g*	97.391	97.392	0.0	– 1 026 780	$2s^2 2p^4 - 2s^2 2p^3(^4S^o)5d?$	$^3P - ^3D^o?$	2 – 3	K1
	200*g*	97.440							K1
	150*g*	97.562	97.561	1 783.1	– 1 026 780	$2s^2 2p^4 - 2s^2 2p^3(^4S^o)5d?$	$^3P - ^3D^o?$	1 – 2	K1
	20*g*	97.633	97.632	2 521.8	– 1 026 780	$2s^2 2p^4 - 2s^2 2p^3(^4S^o)5d?$	$^3P - ^3D^o?$	0 – 1	K1
	100*g*	98.231	98.232	0.0	– 1 018 000	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^3P - ^3P^o$	2 – 1	K1
	200*g*	98.270	98.269	0.0	– 1 017 620	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^3P - ^3P^o$	2 – 2	K1
	100*g*	98.405	98.404	1 783.1	– 1 018 000	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^3P - ^3P^o$	1 – 1	K1
	150*g*	98.440	98.441	1 783.1	– 1 017 620	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^3P - ^3P^o$	1 – 2	K1
	10*g*	98.476	98.476	2 521.8	– 1 018 000	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^3P - ^3P^o$	0 – 1	K1
	200*g*	98.635	98.635	0.0	– 1 013 839	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^3P - ^3D^o$	2 – 3	K1
	100*g*	98.803	98.803	1 783.1	– 1 013 897	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^3P - ^3D^o$	1 – 2	K1
	50*g*	98.872	98.872	2 521.8	– 1 013 931	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^3P - ^3D^o$	0 – 1	K1
	200	99.066	99.066?	35 926	– 1 045 350?	$2s^2 2p^4 - 2s^2 2p^3(^2P^o)4d$	$^1D - ^1F^o$	2 – 3	K1
	200	99.611							K1
	100	99.787							K1
	200	100.928	100.923	35 926	– 1 026 780	$2s^2 2p^4 - 2s^2 2p^3(^4S^o)5d?$	$^1D - ^3D^o?$	2 –	K1
	300	101.670	101.670	35 926	– 1 019 500	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^1D - ^1F^o$	2 – 3	K1
	300	101.781	101.781	35 926	– 1 018 490	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^1D - ^1D^o$	2 – 2	K1
	200	102.074	102.073	35 926	– 1 015 615	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4d$	$^1D - ^1P^o$	2 – 1	K1
	400*g*	103.902	103.902	0.0	– 962 445	$2s^2 2p^4 - 2s^2 2p^3(^4S^o)4d$	$^3P - ^3D^o$	2 – 3	K1
	300*g*	103.942	103.942	0.0	– 962 075	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4s$	$^3P - ^3D^o$	2 – 3	K1
	200*g*	104.099	104.099	1 783.1	– 962 407	$2s^2 2p^4 - 2s^2 2p^3(^4S^o)4d$	$^3P - ^3D^o$	1 – 2	K1
	150*g*	104.132	104.132	1 783.1	– 962 103	$2s^2 2p^4 - 2s^2 2p^3(^2D^o)4s$	$^3P - ^3D^o$	1 – 2	K1

Mg v – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	100*g*	104.179	104.179	2 521.8	– 962 407	$2s^22p^4$ – $2s^22p^3(^4S^o)4d$	^3P – $^3D^o$	0 – 1	K1
	50*g*	104.211	104.211	2 521.8	– 962 114	$2s^22p^4$ – $2s^22p^3(^2D^o)4s$	^3P – $^3D^o$	0 – 1	K1
	70	104.447	104.447	35 926	– 993 349	$2s^22p^4$ – $2s^22p^3(^2P^o)4s$	^1D – $^1P^o$	2 – 1	K1
	100	107.653	107.653	35 926	– 964 836	$2s^22p^4$ – $2s^22p^3(^2D^o)4s$	^1D – $^1D^o$	2 – 2	K1
	10	109.162	109.162	77 279	– 993 349	$2s^22p^4$ – $2s^22p^3(^2P^o)4s$	^1S – $^1P^o$	0 – 1	K1
	200*g*	109.800	109.800	0.0	– 910 750	$2s^22p^4$ – $2s^22p^3(^4S^o)4s$	^3P – $^3S^o$	2 – 1	K1
	50*g*	110.016	110.015	1 783.1	– 910 750	$2s^22p^4$ – $2s^22p^3(^4S^o)4s$	^3P – $^3S^o$	1 – 1	K1
	10*g,bl*	110.103	110.104	2 521.8	– 910 750	$2s^22p^4$ – $2s^22p^3(^4S^o)4s$	^3P – $^3S^o$	0 – 1	K1
	200*g*	110.810	110.802	0.0	– 902 509	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3D^o$	2 – 2	K1
	400*g*	110.846	110.846	0.0	– 902 152	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3D^o$	2 – 3	K1
	300*g*	111.021	111.022	1 783.1	– 902 509	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3D^o$	1 – 2	K1
	200*g*	111.081	111.081	2 521.8	– 902 766	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3D^o$	0 – 1	K1
	250*g*	111.149	111.149	1 783.1	– 901 474	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^1D^o$	1 – 2	K1
	300*g,bl*	111.189	111.189	0.0	– 899 369	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3P^o$	2 – 2	K1
	250*g*	111.239	111.239	0.0	– 898 962	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3P^o$	2 – 1	K1
	200*g*	111.410	111.410	1 783.1	– 899 369	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3P^o$	1 – 2	K1
	200*g*	111.461	111.460	1 783.1	– 898 962	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3P^o$	1 – 1	K1
	200*g*	111.486	111.486	1 783.1	– 898 757	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3P^o$	1 – 0	K1
	300*g*	111.547	111.552	2 521.8	– 898 962	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^3P – $^3P^o$	0 – 1	K1
	100	113.209	113.202	283 212.3	– 1 166 590	$2s2p^5$ – $2s2p^4(^2D)3d$	$^3P^o$ – ^3D	2 – 2	K1
			113.210	283 212.3	– 1 166 530	$2s2p^5$ – $2s2p^4(^2D)3d$	$^3P^o$ – ^3D	2 – 3	
	20*g*	113.276	113.277	0.0	– 882 791	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^1F^o$	2 – 3	K1
	50	113.409	113.409	284 828.3	– 1 166 590	$2s2p^5$ – $2s2p^4(^2D)3d$	$^3P^o$ – ^3D	1 – 2	K1
	30	113.515	113.515	285 712.0	– 1 166 650	$2s2p^5$ – $2s2p^4(^2D)3d$	$^3P^o$ – ^3D	0 – 1	K1
	400*g*	113.699	113.699	0.0	– 879 515	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3S^o$	2 – 1	K1
	100	113.819	113.821	35 926	– 914 500	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^1D – $^1P^o$	2 – 1	K1
			113.823	283 212.3	– 1 161 770	$2s2p^5$ – $2s2p^4(^4P)4s$	$^3P^o$ – ^3P	2 – 2	
	300*g*	113.930	113.930	1 783.1	– 879 515	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3S^o$	1 – 1	K1
	300*g*	113.988	113.988	0.0	– 877 283	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3P^o$	2 – 1	K1
	100*g*	114.026	114.026	2 521.8	– 879 515	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3S^o$	0 – 1	K1
			114.033	284 828.3	– 1 161 770	$2s2p^5$ – $2s2p^4(^4P)4s$	$^3P^o$ – ^3P	1 – 2	
	400*g*	114.052	114.052	0.0	– 876 795	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3P^o$	2 – 2	K1
	200*g*	114.197	114.197	1 783.1	– 877 463	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3P^o$	1 – 0	K1
	150*g*	114.220	114.220	1 783.1	– 877 283	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3P^o$	1 – 1	K1
	200*g*	114.284	114.284	1 783.1	– 876 795	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3P^o$	1 – 2	K1
	100*g*	114.317	114.317	2 521.8	– 877 283	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3P^o$	0 – 1	K1
	20*g*	114.488	114.488	0.0	– 873 456	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^1P^o$	2 – 1	K1
	10*g,bl*	114.721	114.722	1 783.1	– 873 456	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^1P^o$	1 – 1	K1
	200*g*	114.764	114.764	0.0	– 871 357	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3D^o$	2 – 2	K1
	600*g*	114.782	114.782	0.0	– 871 216	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3D^o$	2 – 3	K1
	300*g*	115.000	114.999	1 783.1	– 871 357	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3D^o$	1 – 2	K1
	300	115.016	115.016	35 926	– 905 370	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^1D – $^1F^o$	2 – 3	K1
	400*g*	115.092	115.092	2 521.8	– 871 390	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^3P – $^3D^o$	0 – 1	K1
	400	115.398	115.396	35 926	– 902 509	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^1D – $^3D^o$	2 – 2	K1
	400	115.536	115.534	35 926	– 901 474	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^1D – $^1D^o$	2 – 2	K1
	700	118.084	118.083	35 926	– 882 791	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^1D – $^1F^o$	2 – 3	K1
	500	118.809	118.809	35 926	– 877 611	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^1D – $^1D^o$	2 – 2	K1
	5	118.857	118.856	35 926	– 877 283	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^1D – $^3P^o$	2 – 1	K1
	10	118.925	118.925	35 926	– 876 795	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^1D – $^3P^o$	2 – 2	K1
	400	119.400	119.399	35 926	– 873 456	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^1D – $^1P^o$	2 – 1	K1
	400	119.445	119.443	77 279	– 914 500	$2s^22p^4$ – $2s^22p^3(^2P^o)3d$	^1S – $^1P^o$	0 – 1	K1
	5	119.697	119.699	35 926	– 871 357	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^1D – $^3D^o$	2 – 2	K1
	1000*g*	121.644	121.645	0.0	– 822 066	$2s^22p^4$ – $2s^22p^3(^4S^o)3d$	^3P – $^3D^o$	2 – 3	K1
	100*g*	121.655	121.656	0.0	– 821 989	$2s^22p^4$ – $2s^22p^3(^4S^o)3d$	^3P – $^3D^o$	2 – 2	K1
	500*g*	121.922	121.921	1 783.1	– 821 989	$2s^22p^4$ – $2s^22p^3(^4S^o)3d$	^3P – $^3D^o$	1 – 2	K1
	400*g*	122.033	122.033	2 521.8	– 821 974	$2s^22p^4$ – $2s^22p^3(^4S^o)3d$	^3P – $^3D^o$	0 – 1	K1
	400*bl*	125.601	125.600	77 279	– 873 456	$2s^22p^4$ – $2s^22p^3(^2D^o)3d$	^1S – $^1P^o$	0 – 1	K1

Mg v – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	400	126.280	126.282	283 212.3	– 1 075 090	$2s2p^5$ – $2s2p^4(^4P)3d$?	$^3P^o$ – ^3D ?	2 – 3	K1
	100*bl*	126.294	126.282	283 212.3	– 1 075 090	$2s2p^5$ – $2s2p^4(^4P)3d$?	$^3P^o$ – ^3D ?	2 – 2	K1
	200	126.546	126.540	284 828.3	– 1 075 090	$2s2p^5$ – $2s2p^4(^4P)3d$?	$^3P^o$ – ^3D ?	1 – 2	K1
	10	126.678	126.682	285 712.0	– 1 075 090	$2s2p^5$ – $2s2p^4(^4P)3d$?	$^3P^o$ – ^3D ?	0 – 1	K1
	1	127.206	127.204	35 926	– 822 066	$2s^22p^4$ – $2s^22p^3(^4S^o)3d$	^1D – $^3D^o$	2 – 3	K1
	500*g*	132.163	132.163	0.0	– 756 641	$2s^22p^4$ – $2s^22p^3(^2P^o)3s$	^3P – $^3P^o$	2 – 2	K1
	300*g*	132.175	132.176	0.0	– 756 566	$2s^22p^4$ – $2s^22p^3(^2P^o)3s$	^3P – $^3P^o$	2 – 1	K1
	200*g*	132.476	132.475	1 783.1	– 756 641	$2s^22p^4$ – $2s^22p^3(^2P^o)3s$	^3P – $^3P^o$	1 – 2	K1
	300*g*	132.492	132.492	1 783.1	– 756 545	$2s^22p^4$ – $2s^22p^3(^2P^o)3s$	^3P – $^3P^o$	1 – 0	K1
	300*g*	132.620	132.618	2 521.8	– 756 566	$2s^22p^4$ – $2s^22p^3(^2P^o)3s$	^3P – $^3P^o$	0 – 1	K1
	200	135.628	135.628	283 212.3	– 1 020 522	$2s2p^5$ – $2s2p^4(^2D)3s$	$^3P^o$ – ^3D	2 – 3	K1
	40*bl*	135.644	135.647	283 212.3	– 1 020 419	$2s2p^5$ – $2s2p^4(^2D)3s$	$^3P^o$ – ^3D	2 – 2	K1
	100	135.947	135.945	284 828.3	– 1 020 419	$2s2p^5$ – $2s2p^4(^2D)3s$	$^3P^o$ – ^3D	1 – 2	K1
	50*bl*	135.961	135.959	284 828.3	– 1 020 345	$2s2p^5$ – $2s2p^4(^2D)3s$	$^3P^o$ – ^3D	1 – 1	K1
	40	136.121	136.122	285 712.0	– 1 020 345	$2s2p^5$ – $2s2p^4(^2D)3s$	$^3P^o$ – ^3D	0 – 1	K1
	600	137.229	137.230	35 926	– 764 628	$2s^22p^4$ – $2s^22p^3(^2P^o)3s$	^1D – $^1P^o$	2 – 1	K1
	800*g*	137.412	137.411	0.0	– 727 742	$2s^22p^4$ – $2s^22p^3(^2D^o)3s$	^3P – $^3D^o$	2 – 3	K1
	700*g*	137.745	137.745	1 783.1	– 727 763	$2s^22p^4$ – $2s^22p^3(^2D^o)3s$	^3P – $^3D^o$	1 – 2	K1
	600*g*	137.882	137.882	2 521.8	– 727 782	$2s^22p^4$ – $2s^22p^3(^2D^o)3s$	^3P – $^3D^o$	0 – 1	K1
	100	138.751	138.751	35 926	– 756 641	$2s^22p^4$ – $2s^22p^3(^2P^o)3s$	^1D – $^3P^o$	2 – 2	K1
	1000	142.935	142.935	35 926	– 735 546	$2s^22p^4$ – $2s^22p^3(^2D^o)3s$	^1D – $^1D^o$	2 – 2	K1
	10	144.547	144.547	35 926	– 727 742	$2s^22p^4$ – $2s^22p^3(^2D^o)3s$	^1D – $^3D^o$	2 – 3	K1
	800	145.488	145.486	77 279	– 764 628	$2s^22p^4$ – $2s^22p^3(^2P^o)3s$	^1S – $^1P^o$	0 – 1	K1
	900*g*	146.084	146.083	0.0	– 684 541	$2s^22p^4$ – $2s^22p^3(^4S^o)3s$	^3P – $^3S^o$	2 – 1	K1
	500*g*	146.465	146.465	1 783.1	– 684 541	$2s^22p^4$ – $2s^22p^3(^4S^o)3s$	^3P – $^3S^o$	1 – 1	K1
	400*g*	146.623	146.623	2 521.8	– 684 541	$2s^22p^4$ – $2s^22p^3(^4S^o)3s$	^3P – $^3S^o$	0 – 1	K1
	150	151.807	151.807	283 212.3	– 941 944	$2s2p^5$ – $2s2p^4(^4P)3s$	$^3P^o$ – ^3P	2 – 1	K1
	100	152.021	152.021	284 828.3	– 942 634	$2s2p^5$ – $2s2p^4(^4P)3s$	$^3P^o$ – ^3P	1 – 0	K1
	300	152.153	152.152	283 212.3	– 940 449	$2s2p^5$ – $2s2p^4(^4P)3s$	$^3P^o$ – ^3P	2 – 2	K1
	50	152.181	152.180	284 828.3	– 941 944	$2s2p^5$ – $2s2p^4(^4P)3s$	$^3P^o$ – ^3P	1 – 1	K1
	100	152.386	152.385	285 712.0	– 941 944	$2s2p^5$ – $2s2p^4(^4P)3s$	$^3P^o$ – ^3P	0 – 1	K1
	100	152.526	152.527	284 828.3	– 940 449	$2s2p^5$ – $2s2p^4(^4P)3s$	$^3P^o$ – ^3P	1 – 2	K1
	400*g*	251.584	251.584	0.0	– 397 482	$2s^22p^4$ – $2s2p^5$	^3P – $^1P^o$	2 – 1	J2,K1
	1*g*	252.709	252.717	1 783.1	– 397 482	$2s^22p^4$ – $2s2p^5$	^3P – $^1P^o$	1 – 1	K1
	10*g*	253.187	253.190	2 521.8	– 397 482	$2s^22p^4$ – $2s2p^5$	^3P – $^1P^o$	0 – 1	K1
	1000	276.582	276.582	35 926	– 397 482	$2s^22p^4$ – $2s2p^5$	^1D – $^1P^o$	2 – 1	J2,K1
	300	312.302	312.302	77 279	– 397 482	$2s^22p^4$ – $2s2p^5$	^1S – $^1P^o$	0 – 1	J2,K1
	600*g*	351.0887	351.0887	0.0	– 284 828.3	$2s^22p^4$ – $2s2p^5$	^3P – $^3P^o$	2 – 1	J2,K1
	500*g*	352.2009	352.2009	1 783.1	– 285 712.0	$2s^22p^4$ – $2s2p^5$	^3P – $^3P^o$	1 – 0	J2,K1
	900*g*	353.0919	353.0920	0.0	– 283 212.3	$2s^22p^4$ – $2s2p^5$	^3P – $^3P^o$	2 – 2	J2,K1
	400*g*	353.3004	353.3005	1 783.1	– 284 828.3	$2s^22p^4$ – $2s2p^5$	^3P – $^3P^o$	1 – 1	J2,K1
	500g	354.2249	354.2249	2 521.8	– 284 828.3	$2s^22p^4$ – $2s2p^5$	^3P – $^3P^o$	0 – 1	J2,K1
	600g	355.3291	355.3292	1 783.1	– 283 212.3	$2s^22p^4$ – $2s2p^5$	^3P – $^3P^o$	1 – 2	J2,K1
	100	376.663	376.665	397 482	– 662 970	$2s2p^5$ – $2p^6$	$^1P^o$ – ^1S	1 – 0	K1
	M1	1324.445	1324.58	1 783.1	– 77 279	$2s^22p^4$ – $2s^22p^4$	^3P – ^1S	1 – 0	S2,F2
		Wavenumber (cm^{-1})							
	M1	1786.	1783.1	0.0	– 1 783.1	$2s^22p^4$ – $2s^22p^4$	^3P – ^3P	2 – 1	R3

Mg VI

N I isoelectronic sequence

Ground state $1s^2 2s^2 2p^3\ {}^4S^o_{3/2}$

Ionization energy 1 506 300 ± 500 cm^{-1} (186.76 ± 0.06 eV)

The errors of the wavelengths from Söderqvist [S3] and from Artru and Kaufman [A3] are expected to be less than 0.01 Å. The observed wavelengths for the forbidden lines near 1190 and 1806 Å are averages from Sandlin *et al.* [S2] and Feldman and Doschek [F2]; the largest difference between the two sets of measurements is 0.03 Å.

We have derived the ionization energy using theoretical calculations and two different types of formulae to fit the isoelectronic-sequence data.

References

A3 Artru, M. -C., and Kaufman, V. [1977], unpublished material.

F2 Feldman, U., and Doschek, G. A. [1977], J. Opt. Soc. Am. 67, 726–734.

S2 Sandlin, G. D., Brueckner, G. E., and Tousey, R. [1977], Astrophys. J. 214, 898–904.

S3 Söderqvist, J. [1946], Ark. Mat. Astron. Fys. 32, 1–33.

Mg VI

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	300*g*	74.319	74.321?	0.0	– 1 345 510?	$2s^22p^3$ – $2s^22p^2(^3P)5d$	$^4S^o$ – ^2F	$^3/_2$ – $^5/_2$	S3
	200*g*	74.574	74.574?	0.0	– 1 340 950?	$2s^22p^3$ – $2s2p^3(^5S^o)4p$	$^4S^o$ – ^4P	$^3/_2$ –	S3
	100	75.248	75.248	55 356	– 1 384 290	$2s^22p^3$ – $2s^22p^2(^1D)5d$?	$^2D^o$ – ^2D	$^5/_2$ – $^5/_2$	S3
	100	75.334	75.334?	55 356	– 1 382 780?	$2s^22p^3$ – $2s^22p^2(^1D)5d$	$^2D^o$ – ^2F	$^5/_2$ – $^7/_2$	S3
	200*g*	75.834	75.834?	0.0	– 1 318 670?	$2s^22p^3$ – $2s^22p^2(^3P)5s$	$^4S^o$ – ^4P	$^3/_2$ – $^5/_2$	S3
	10*g*	75.890	75.890?	0.0	– 1 317 700?	$2s^22p^3$ – $2s^22p^2(^3P)5s$	$^4S^o$ – ^4P	$^3/_2$ – $^3/_2$	S3
	1	76.908	76.908	84 028.4	– 1 384 290	$2s^22p^3$ – $2s^22p^2(^1D)5d$?	$^2P^o$ – ^2D	$^3/_2$ – $^5/_2$	S3
	200	77.405	77.405?	55 356	– 1 347 260?	$2s^22p^3$ – $2s^22p^2(^3P)5d$	$^2D^o$ – ^2F	$^5/_2$ – $^7/_2$	S3
	100	77.511	77.511?	55 372.8	– 1 345 510?	$2s^22p^3$ – $2s^22p^2(^3P)5d$	$^2D^o$ – ^2F	$^3/_2$ – $^5/_2$	S3
	10*g*	77.639	77.621?	0.0	– 1 288 310?	$2s^22p^3$ – $2s^22p^2(^1D)4d$	$^4S^o$ – ^2F	$^3/_2$ – $^5/_2$	S3
	10	78.239	78.238?	55 356	– 1 333 500?	$2s^22p^3$ – $2s^22p^2(^1S)4d$	$^2D^o$ – ^2D	$^5/_2$ – $^5/_2$	S3
	200*g*	79.817	79.817	0.0	– 1 252 870	$2s^22p^3$ – $2s^22p^2(^3P)4d$	$^4S^o$ – ^4P	$^3/_2$ – $^1/_2$	S3
	400*g*	79.830	79.830	0.0	– 1 252 660	$2s^22p^3$ – $2s^22p^2(^3P)4d$	$^4S^o$ – ^4P	$^3/_2$ – $^3/_2$	S3
	400*g*	79.857	79.857	0.0	– 1 252 240	$2s^22p^3$ – $2s^22p^2(^3P)4d$	$^4S^o$ – ^4P	$^3/_2$ – $^5/_2$	S3
	200*g*	80.032	80.032?	0.0	– 1 249 500?	$2s^22p^3$ – $2s^22p^2(^3P)4d$	$^4S^o$ – ^4D	$^3/_2$ – $^1/_2$	S3
	200*g*	80.075	80.075?	0.0	– 1 248 830?	$2s^22p^3$ – $2s^22p^2(^3P)4d$	$^4S^o$ – ^4D	$^3/_2$ – $^5/_2$	S3
	100	80.563	80.571?	55 372.8	– 1 296 520?	$2s^22p^3$ – $2s^22p^2(^1D)4d$	$^2D^o$ – ^2S	$^3/_2$ – $^1/_2$	S3
	10	80.724	80.724?	55 356	– 1 294 150?	$2s^22p^3$ – $2s^22p^2(^1D)4d$	$^2D^o$ – ^2P	$^5/_2$ – $^3/_2$	S3
	200	80.930	80.930	55 356	– 1 290 990	$2s^22p^3$ – $2s^22p^2(^1D)4d$	$^2D^o$ – ^2D	$^5/_2$ – $^5/_2$	S3
	300	81.106	81.106?	55 356	– 1 288 310?	$2s^22p^3$ – $2s^22p^2(^1D)4d$	$^2D^o$ – ^2F	$^5/_2$ – $^7/_2$	S3
	100	82.475	82.475?	84 028.4	– 1 296 520?	$2s^22p^3$ – $2s^22p^2(^1D)4d$	$^2P^o$ – ^2S	$^3/_2$ – $^1/_2$	S3
	100	82.853	82.853	84 028.4	– 1 290 990	$2s^22p^3$ – $2s^22p^2(^1D)4d$	$^2P^o$ – ^2D	$^3/_2$ – $^5/_2$	S3
	400	83.403	83.403?	55 356	– 1 254 350?	$2s^22p^3$ – $2s^22p^2(^3P)4d$	$^2D^o$ – ^2F	$^5/_2$ – $^7/_2$	S3
	300	83.519	83.519?	55 372.8	– 1 252 700?	$2s^22p^3$ – $2s^22p^2(^3P)4d$	$^2D^o$ – ^2F	$^3/_2$ – $^5/_2$	S3
	200*g*	83.560	83.560?	0.0	– 1 196 740?	$2s^22p^3$ – $2s^22p^2(^3P)4s$	$^4S^o$ – ^4P	$^3/_2$ – $^5/_2$	S3
	200	84.745	84.722	55 356	– 1 235 690	$2s^22p^3$ – $2s^22p^2(^1D)4s$	$^2D^o$ – ^2D	$^5/_2$ – $^5/_2$	S3
	10	85.153	85.153?	84 028.4	– 1 258 380?	$2s^22p^3$ – $2s^22p^2(^3P)4d$	$^2P^o$ – ^2D	$^3/_2$ – $^5/_2$	S3
	200	85.577	85.576?	55 372.8	– 1 223 920?	$2s^22p^3$ – $2s2p^3(^3D^o)3p$	$^2D^o$ – ^2F	$^3/_2$ – $^5/_2$	S3
	300	85.622	85.622?	55 356	– 1 223 280?	$2s^22p^3$ – $2s2p^3(^3D^o)3p$	$^2D^o$ – ^2F	$^5/_2$ – $^7/_2$	S3
	200	86.807	86.823	83 920.0	– 1 235 690	$2s^22p^3$ – $2s^22p^2(^1D)4s$	$^2P^o$ – ^2D	$^1/_2$ – $^3/_2$	S3
	10	87.406	87.404	55 356	– 1 199 470	$2s^22p^3$ – $2s^22p^2(^3P)4s$	$^2D^o$ – ^2P	$^5/_2$ – $^3/_2$	S3
	200	88.827	88.825	247 948	– 1 373 760	$2s2p^4$ – $2s2p^3(^5S^o)4d$	^4P – $^4D^o$	$^5/_2$ – $^7/_2$	S3
	200	88.952	88.954	249 584	– 1 373 760	$2s2p^4$ – $2s2p^3(^5S^o)4d$	^4P – $^4D^o$	$^3/_2$ – $^5/_2$	S3
	10	89.021	89.023	250 450	– 1 373 760	$2s2p^4$ – $2s2p^3(^5S^o)4d$	^4P – $^4D^o$	$^1/_2$ – $^3/_2$	S3
	10	89.649	89.651	84 028.4	– 1 199 470	$2s^22p^3$ – $2s^22p^2(^3P)4s$	$^2P^o$ – ^2P	$^3/_2$ – $^3/_2$	S3

Mg VI — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	600*g*	90.897	90.897	0.0	– 1 100 150	$2s^22p^3 - 2s2p^3(^5S^o)3p$	$^4S^o - {}^4P$	$3/2 -$	S3
	100	92.964	92.966?	247 948	– 1 323 610?	$2s2p^4 - 2s2p^3(^5S^o)4s$	$^4P - {}^4S^o$	$5/2 - 3/2$	S3
	100	93.109	93.108?	249 584	– 1 323 610?	$2s2p^4 - 2s2p^3(^5S^o)4s$	$^4P - {}^4S^o$	$3/2 - 3/2$	S3
	300	93.493	93.499	55 356	– 1 124 890	$2s^22p^3 - 2s^22p^2(^1S)3d$	$^2D^o - {}^2D$	$5/2 - 5/2$	S3
	400*g*	95.385	95.385	0.0	– 1 048 380	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^4S^o - {}^4P$	$3/2 - 1/2$	S3
	400*g*	95.421	95.421	0.0	– 1 047 990	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^4S^o - {}^4P$	$3/2 - 3/2$	S3
	500*g*	95.483	95.483	0.0	– 1 047 310	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^4S^o - {}^4P$	$3/2 - 5/2$	S3
	300*g*	95.637	95.637?	0.0	– 1 045 620?	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^4S^o - {}^4D$	$3/2 - 1/2$	S3
	300*g*	95.675	95.675?	0.0	– 1 045 210?	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^4S^o - {}^4D$	$3/2 - 5/2$	S3
	200	95.803	95.803	55 372.8	– 1 099 180	$2s^22p^3 - 2s^22p^2(^1D)3d?$	$^2D^o - {}^2S$	$3/2 - 1/2$	S3
	100	96.085	96.074	84 028.4	– 1 124 890	$2s^22p^3 - 2s^22p^2(^1S)3d$	$^2P^o - {}^2D$	$3/2 - 5/2$	S3
	100	96.159	96.159?	247 948	– 1 287 890?	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4S^o$	$5/2 - 3/2$	S3
	100	96.240	96.238	247 948	– 1 287 040	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4D^o$	$5/2 - 7/2$	S3
	200	96.256	96.256	55 356	– 1 094 250	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2D^o - {}^2P$	$5/2 - 3/2$	S3
	200	96.303	96.303	55 372.8	– 1 093 760	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2D^o - {}^2P$	$3/2 - 1/2$	S3
	100	96.388	96.390	249 584	– 1 287 040	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4D^o$	$3/2 - 5/2$	S3
	10	96.467	96.470	250 450	– 1 287 040	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4D^o$	$1/2 - 3/2$	S3
	200	96.670	96.670	247 948	– 1 282 400	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4P^o$	$5/2 - 3/2$	S3
	200	96.704	96.704	247 948	– 1 282 030	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4P^o$	$5/2 - 5/2$	S3
	100	96.797	96.797	249 584	– 1 282 670	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4P^o$	$3/2 - 1/2$	S3
	100	96.857	96.857	249 584	– 1 282 030	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4P^o$	$3/2 - 5/2$	S3
	10	96.903	96.904	250 450	– 1 282 400	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^4P - {}^4P^o$	$1/2 - 3/2$	S3
	400	96.939	96.940	55 356	– 1 086 920	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2D^o - {}^2D$	$5/2 - 5/2$	S3
	400	96.973	96.975	55 372.8	– 1 086 570	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2D^o - {}^2D$	$3/2 - 3/2$	S3
	500	97.251	97.251	55 372.8	– 1 083 640	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2D^o - {}^2F$	$3/2 - 5/2$	S3
	500	97.278	97.278	55 356	– 1 083 340	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2D^o - {}^2F$	$5/2 - 7/2$	S3
	300	98.508	98.507	84 028.4	– 1 099 180	$2s^22p^3 - 2s^22p^2(^1D)3d?$	$^2P^o - {}^2S$	$3/2 - 1/2$	S3
	400	98.983	98.988	84 028.4	– 1 094 250	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2P^o - {}^2P$	$3/2 - 3/2$	S3
	200	99.025	99.026	83 920.0	– 1 093 760	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2P^o - {}^2P$	$1/2 - 1/2$	S3
	400	99.279	99.279	55 356	– 1 062 620	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2D^o - {}^2D$	$5/2 - 5/2$	S3
	400	99.333	99.337	55 372.8	– 1 062 050	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2D^o - {}^2D$	$3/2 - 3/2$	S3
	300	99.713	99.712	84 028.4	– 1 086 920	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2P^o - {}^2D$	$3/2 - 5/2$	S3
	300	99.738	99.736	83 920.0	– 1 086 570	$2s^22p^3 - 2s^22p^2(^1D)3d$	$^2P^o - {}^2D$	$1/2 - 3/2$	S3
	500	100.702	100.702	55 356	– 1 048 380	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2D^o - {}^2F$	$5/2 - 7/2$	S3
	400	100.904	100.903	55 372.8	– 1 046 420	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2D^o - {}^2F$	$3/2 - 5/2$	S3
	200	101.508	101.491	55 372.8	– 1 040 680	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2D^o - {}^2P$	$3/2 - 1/2$	S3
	300	101.556	101.553	55 356	– 1 040 060	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2D^o - {}^2P$	$5/2 - 3/2$	S3
	500	102.189	102.188	84 028.4	– 1 062 620	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2P^o - {}^2D$	$3/2 - 5/2$	S3
	500	102.239	102.236	83 920.0	– 1 062 050	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2P^o - {}^2D$	$1/2 - 3/2$	S3
	300	104.519	104.531	84 028.4	– 1 040 680	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2P^o - {}^2P$	$1/2 - 1/2$	S3
	500	104.597	104.599	84 028.4	– 1 040 060	$2s^22p^3 - 2s^22p^2(^3P)3d$	$^2P^o - {}^2P$	$3/2 - 3/2$	S3
	200	105.410	105.410?	341 793	– 1 290 470?	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^2D - {}^2F^o$	$3/2 - 5/2$	S3
	300	105.502	105.502?	341 751	– 1 289 600?	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^2D - {}^2F^o$	$5/2 - 7/2$	S3
	100	105.778	105.788	341 751	– 1 287 040	$2s2p^4 - 2s2p^3(^3D^o)3d$	$^2D - {}^4D^o$	$5/2 - 7/2$	S3
	400	107.820	107.822	247 948	– 1 175 400	$2s2p^4 - 2s2p^3(^5S^o)3d$	$^4P - {}^4D^o$	$5/2 - 7/2$	S3
	300	108.015	108.013	249 584	– 1 175 400	$2s2p^4 - 2s2p^3(^5S^o)3d$	$^4P - {}^4D^o$	$3/2 - 5/2$	S3
	200	108.114	108.114	250 450	– 1 175 400	$2s2p^4 - 2s2p^3(^5S^o)3d$	$^4P - {}^4D^o$	$1/2 - 3/2$	S3
	100	108.148	108.148	247 948	– 1 172 610	$2s2p^4 - 2s2p^3(^3P^o)3s$	$^4P - {}^4P^o$	$5/2 - 5/2$	S3
	100	108.338	108.339	249 584	– 1 172 610	$2s2p^4 - 2s2p^3(^3P^o)3s$	$^4P - {}^4P^o$	$3/2 - 3/2$	S3
	10	108.441	108.441	250 450	– 1 172 610	$2s2p^4 - 2s2p^3(^3P^o)3s$	$^4P - {}^4P^o$	$1/2 - 1/2$	S3
	300	111.160	111.173?	83 920.0	– 983 420?	$2s^22p^3 - 2s^22p^2(^1S)3s$	$^2P^o - {}^2S$	$1/2 - 1/2$	S3
	400	111.199	111.180?	84 028.4	– 983 420?	$2s^22p^3 - 2s^22p^2(^1S)3s$	$^2P^o - {}^2S$	$3/2 - 1/2$	S3
	500*g*	111.552	111.552	0.0	– 896 440	$2s^22p^3 - 2s^22p^2(^3P)3s$	$^4S^o - {}^4P$	$3/2 - 5/2$	S3
	400*g*	111.746	111.746	0.0	– 894 890	$2s^22p^3 - 2s^22p^2(^3P)3s$	$^4S^o - {}^4P$	$3/2 - 3/2$	S3
	400*g*	111.864	111.864	0.0	– 893 940	$2s^22p^3 - 2s^22p^2(^3P)3s$	$^4S^o - {}^4P$	$3/2 - 1/2$	S3

Mg VI – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	500	113.189	113.190	55 356	– 938 830	$2s^22p^3 - 2s^22p^2(^1D)3s$	$^2D^o - {}^2D$	$5/2 - 5/2$	S3
			113.192	55 372.8	– 938 830	$2s^22p^3 - 2s^22p^2(^1D)3s$	$^2D^o - {}^2D$	$3/2 - 3/2$	
	10	114.412	114.407	247 948	– 1 122 020	$2s2p^4 - 2s2p^3(^3D^o)3s$	$^4P - {}^4D^o$	$5/2 - 7/2$	S3
	10	114.624	114.622	249 584	– 1 122 020	$2s2p^4 - 2s2p^3(^3D^o)3s$	$^4P - {}^4D^o$	$3/2 - 5/2$	S3
	10	114.725	114.735	250 450	– 1 122 020	$2s2p^4 - 2s2p^3(^3D^o)3s$	$^4P - {}^4D^o$	$1/2 - 3/2$	S3
	500	116.968	116.967	55 356	– 910 300	$2s^22p^3 - 2s^22p^2(^3P)3s$	$^2D^o - {}^2P$	$5/2 - 3/2$	S3
	300	117.226	117.228	55 372.8	– 908 410	$2s^22p^3 - 2s^22p^2(^3P)3s$	$^2D^o - {}^2P$	$3/2 - 1/2$	S3
	100	117.527	117.532	341 751	– 1 192 580	$2s2p^4 - 2s2p^3(^3P^o)3s$	$^2D - {}^2P^o$	$5/2 - 3/2$	S3
	500	121.025	121.026	84 028.4	– 910 300	$2s^22p^3 - 2s^22p^2(^3P)3s$	$^2P^o - {}^2P$	$3/2 - 3/2$	S3
	300	121.290	121.303	84 028.4	– 908 410	$2s^22p^3 - 2s^22p^2(^3P)3s$	$^2P^o - {}^2P$	$3/2 - 1/2$	S3
	100	123.590	123.596	341 751	– 1 150 840	$2s2p^4 - 2s2p^3(^3D^o)3s$	$^2D - {}^2D^o$	$5/2 - 5/2$	S3
	300	125.206	125.205	247 948	– 1 046 640	$2s2p^4 - 2s2p^3(^5S^o)3s$	$^4P - {}^4S^o$	$5/2 - 3/2$	S3
	300	125.459	125.462	249 584	– 1 046 640	$2s2p^4 - 2s2p^3(^5S^o)3s$	$^4P - {}^4S^o$	$3/2 - 3/2$	S3
	400	125.600	125.598	250 450	– 1 046 640	$2s2p^4 - 2s2p^3(^5S^o)3s$	$^4P - {}^4S^o$	$1/2 - 3/2$	S3
	100	126.450	126.461	401 822	– 1 192 580	$2s2p^4 - 2s2p^3(^3P^o)3s$	$^2S - {}^2P^o$	$1/2 - 3/2$	S3
	100	126.488	126.501	401 822	– 1 192 330	$2s2p^4 - 2s2p^3(^3P^o)3s$	$^2S - {}^2P^o$	$1/2 - 1/2$	S3
	200	130.294	130.312	425 190	– 1 192 580	$2s2p^4 - 2s2p^3(^3P^o)3s$	$^2P - {}^2P^o$	$3/2 - 3/2$	S3
	100	130.630	130.643	427 135	– 1 192 580	$2s2p^4 - 2s2p^3(^3P^o)3s$	$^2P - {}^2P^o$	$1/2 - 3/2$	S3
	10	137.814	137.807	425 190	– 1 150 840	$2s2p^4 - 2s2p^3(^3D^o)3s$	$^2P - {}^2D^o$	$3/2 - 5/2$	S3
	650	268.984	268.989	55 372.8	– 427 135	$2s^22p^3 - 2s2p^4$	$^2D^o - {}^2P$	$3/2 - 1/2$	A3
	750	270.390	270.392	55 356	– 425 190	$2s^22p^3 - 2s2p^4$	$^2D^o - {}^2P$	$5/2 - 3/2$	A3
	10	288.646	288.643	55 372.8	– 401 822	$2s^22p^3 - 2s2p^4$	$^2D^o - {}^2S$	$3/2 - 1/2$	A3
	300	291.365	291.362	83 920.0	– 427 135	$2s^22p^3 - 2s2p^4$	$^2P^o - {}^2P$	$1/2 - 1/2$	A3
	200	291.457	291.455	84 028.4	– 427 135	$2s^22p^3 - 2s2p^4$	$^2P^o - {}^2P$	$3/2 - 1/2$	A3
	200	293.021	293.023	83 920.0	– 425 190	$2s^22p^3 - 2s2p^4$	$^2P^o - {}^2P$	$1/2 - 3/2$	A3
	400	293.116	293.116	84 028.4	– 425 190	$2s^22p^3 - 2s2p^4$	$^2P^o - {}^2P$	$3/2 - 3/2$	A3
	300	314.561	314.562	83 920.0	– 401 822	$2s^22p^3 - 2s2p^4$	$^2P^o - {}^2S$	$1/2 - 1/2$	A3
	400	314.669	314.670	84 028.4	– 401 822	$2s^22p^3 - 2s2p^4$	$^2P^o - {}^2S$	$3/2 - 1/2$	A3
	150	319.821	319.816	341 793	– 654 473	$2s2p^4 - 2p^5$	$^2D - {}^2P^o$	$3/2 - 1/2$	A3
	300	322.463	322.460	341 751	– 651 867	$2s2p^4 - 2p^5$	$^2D - {}^2P^o$	$5/2 - 3/2$	A3
	50	322.492	322.504	341 793	– 651 867	$2s2p^4 - 2p^5$	$^2D - {}^2P^o$	$3/2 - 3/2$	A3
	70	349.114	349.137	55 372.8	– 341 793	$2s^22p^3 - 2s2p^4$	$^2D^o - {}^2D$	$3/2 - 3/2$	A3
	100	349.170	349.168	55 356	– 341 751	$2s^22p^3 - 2s2p^4$	$^2D^o - {}^2D$	$5/2 - 5/2$	A3
	200	387.790	387.788	83 920.0	– 341 793	$2s^22p^3 - 2s2p^4$	$^2P^o - {}^2D$	$1/2 - 3/2$	A3
	300	388.016	388.014	84 028.4	– 341 751	$2s^22p^3 - 2s2p^4$	$^2P^o - {}^2D$	$3/2 - 5/2$	A3
	600*g*	399.2819	399.281	0.0	– 250 450	$2s^22p^3 - 2s2p^4$	$^4S^o - {}^4P$	$3/2 - 1/2$	A3
	700*g*	400.6667	400.667	0.0	– 249 584	$2s^22p^3 - 2s2p^4$	$^4S^o - {}^4P$	$3/2 - 3/2$	A3
	800*g*	403.3097	403.310	0.0	– 247 948	$2s^22p^3 - 2s2p^4$	$^4S^o - {}^4P$	$3/2 - 5/2$	A3
	40	436.140	436.142	425 190	– 654 473	$2s2p^4 - 2p^5$	$^2P - {}^2P^o$	$3/2 - 1/2$	A3
	70	439.868	439.874	427 135	– 654 473	$2s2p^4 - 2p^5$	$^2P - {}^2P^o$	$1/2 - 1/2$	A3
	200	441.157	441.156	425 190	– 651 867	$2s2p^4 - 2p^5$	$^2P - {}^2P^o$	$3/2 - 3/2$	A3
	30	444.964	444.974	427 135	– 651 867	$2s2p^4 - 2p^5$	$^2P - {}^2P^o$	$1/2 - 3/2$	A3
	M1	1190.07	1190.07	0.0	– 84 028.4	$2s^22p^3 - 2s^22p^3$	$^4S^o - {}^2P^o$	$3/2 - 3/2$	F2,S2
	M1	1191.63	1191.61	0.0	– 83 920.0	$2s^22p^3 - 2s^22p^3$	$^4S^o - {}^2P^o$	$3/2 - 1/2$	F2,S2
	M1	1805.96	1805.94	0.0	– 55 372.8	$2s^22p^3 - 2s^22p^3$	$^4S^o - {}^2D^o$	$3/2 - 3/2$	F2,S2

Mg VII

C I isoelectronic sequence

Ground state $1s^2 2s^2 2p^2\ ^3P_0$

Ionization energy 1 814 900 ± 500 cm^{-1} (225.02 ± 0.06 eV)

We have derived the ionization energy using theoretical calculations and two different types of formulae to fit the isoelectronic-sequence data.

References

A3 Artru, M. -C., and Kaufman, V. [1977], unpublished material.
F2 Feldman, U., and Doschek, G. A. [1977], J. Opt. Soc. Am. **67**, 726–734.
F3 Fawcett, B.C. [1970], J. Phys. B **3**, 1152–1163.
F4 Fawcett, B.C. [1971], J. Phys. B **4**, 1115–1118.
S2 Sandlin, G. D., Brueckner, G. E., and Tousey, R. [1977], Astrophys. J. **214**, 898–904.
S3 Söderqvist, J. [1946], Ark. Mat. Astron. Fys. **32**, 1–33.

Mg VII

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	10*g*	58.316	58.316?	2 924	– 1 717 720?	$2s^22p^2 - 2s2p^2(^4P)5p$	$^3P - ^3D^o$	2 – 3	S3
	1	59.640	59.640?	118 100+*x*	– 1 794 830+*x*?	$2s2p^3 - 2s2p^2(^4P)6d$	$^5S^o - ^5P$	2 – 3	S3
	10*g*	60.138	60.138?	2 924	– 1 665 770?	$2s^22p^2 - 2s^22p6d$	$^3P - ^3P^o$	2 – 2	S3
	10	62.166	62.166?	118 100+*x*	– 1 726 700+*x*?	$2s2p^3 - 2s2p^2(^4P)5d$	$^5S^o - ^5P$	2 – 3	S3
	10*g*	62.615	62.625?	1 107	– 1 597 920?	$2s^22p^2 - 2s^22p5d$	$^3P - ^3P^o$	1 – 2	S3
	100*g*	62.696	62.696?	2 924	– 1 597 920?	$2s^22p^2 - 2s^22p5d$	$^3P - ^3P^o$	2 – 2	S3
	100*g*	63.396	63.396?	2 924	– 1 580 310?	$2s^22p^2 - 2s2p^3(^4P)4p$	$^3P - ^3D^o$	2 – 3	S3
	200	64.122	64.122?	40 948	– 1 600 470?	$2s^22p^2 - 2s^22p5d$	$^1D - ^1F^o$	2 – 3	S3
	10	66.788	66.788?	232 853	– 1 730 130?	$2s2p^3 - 2s2p^2(^4P)5d$	$^3D^o - ^3F$	3 – 4	S3
	10	67.453	67.453	118 100+*x*	– 1 600 610+*x*	$2s2p^3 - 2s2p^2(^4P)4d$	$^5S^o - ^5P$	2 – 1	S3
	100	67.470	67.470	118 100+*x*	– 1 600 240+*x*	$2s2p^3 - 2s2p^2(^4P)4d$	$^5S^o - ^5P$	2 – 2	S3
	200	67.497	67.497	118 100+*x*	– 1 599 650+*x*	$2s2p^3 - 2s2p^2(^4P)4d$	$^5S^o - ^5P$	2 – 3	S3
	100*g*	67.993	67.980?	1 107	– 1 472 130?	$2s^22p^2 - 2s^22p4d$	$^3P - ^3P^o$	1 – 2	S3
	200*g*	68.064	68.064?	2 924	– 1 472 130?	$2s^22p^2 - 2s^22p4d$	$^3P - ^3P^o$	2 – 2	S3
	200*g*	68.100	68.100?	1 107	– 1 469 540?	$2s^22p^2 - 2s^22p4d$	$^3P - ^3D^o$	1 – 2	S3
	300*g*	68.144	68.144?	2 924	– 1 470 410?	$2s^22p^2 - 2s^22p4d$	$^3P - ^3D^o$	2 – 3	S3
	200	68.352	68.352?	232 853	– 1 695 870?	$2s2p^3 - 2s2p^2(^2D)4d$	$^3D^o - ^3F$	3 – 4	S3
	300	69.615	69.615?	40 948	– 1 477 420?	$2s^22p^2 - 2s^22p4d$	$^1D - ^1F^o$	2 – 3	S3
	10	69.900	69.900?	118 100+*x*	– 1 548 720+*x*?	$2s2p^3 - 2s2p^2(^4P)4s$	$^5S^o - ^5P$	2 – 3	S3
	100	70.193	70.193?	40 948	– 1 465 590?	$2s^22p^2 - 2s^22p4d$	$^1D - ^1D^o$	2 – 2	S3
	100	71.786	71.786?	85 153	– 1 478 180?	$2s^22p^2 - 2s^22p4d$	$^1S - ^1P^o$	0 – 1	S3
	100	72.787	72.787?	232 853	– 1 606 730?	$2s2p^3 - 2s2p^2(^4P)4d$	$^3D^o - ^3F$	3 – 4	S3
	10	72.852	72.852?	232 957	– 1 605 600?	$2s2p^3 - 2s2p^2(^4P)4d$	$^3D^o - ^3F$	2 – 3	S3
	1	72.896	72.896?	233 024	– 1 604 840?	$2s2p^3 - 2s2p^2(^4P)4d$	$^3D^o - ^3F$	1 – 2	S3
	400	75.975	75.975	40 948	– 1 357 170	$2s^22p^2 - 2s2p^2(^2D)3p$	$^1D - ^1D^o$	2 – 2	S3
	300	76.392	76.392	40 948	– 1 349 990	$2s^22p^2 - 2s2p^2(^2D)3p$	$^1D - ^1F^o$	2 – 3	S3
	100*g*	77.033	77.034	1 107	– 1 299 230	$2s^22p^2 - 2s2p^2(^2D)3p$	$^3P - ^3D^o$?	1 – 2	S3
	200*g*	77.144	77.142	2 924	– 1 299 230	$2s^22p^2 - 2s2p^2(^2D)3p$	$^3P - ^3D^o$?	2 – 3	S3
	10*g*	78.376	78.339	0	– 1 276 500	$2s^22p^2 - 2s2p^2(^4P)3p$	$^3P - ^3P^o$?	0 – 1	S3
	10*g*	78.405	78.407	1 107	– 1 276 500	$2s^22p^2 - 2s2p^2(^4P)3p$	$^3P - ^3P^o$?	1 – 2	S3
	200*g*	78.521	78.519	2 924	– 1 276 500	$2s^22p^2 - 2s2p^2(^4P)3p$	$^3P - ^3P^o$?	2 – 2	S3
	500*g*	79.131	79.133	1 107	– 1 264 810	$2s^22p^2 - 2s2p^2(^4P)3p$	$^3P - ^3D^o$?	1 – 2	S3
	500*g*	79.168	79.168?	2 924	– 1 266 060?	$2s^22p^2 - 2s2p^2(^4P)3p$	$^3P - ^3D^o$?	2 – 3	S3
	100*g*	79.248	79.246	2 924	– 1 264 810	$2s^22p^2 - 2s2p^2(^4P)3p$	$^3P - ^3D^o$	2 – 2	S3
	100*g*	81.024	81.024	1 107	– 1 235 310	$2s^22p^2 - 2s2p^2(^4P)3p$	$^3P - ^3S^o$?	1 – 1	S3

Mg VII — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	300*g*	81.133	81.143	2 924	– 1 235 310	$2s^22p^2 - 2s2p^2(^4P)3p$	$^3P - ^3S°$?	2 – 1	S3
	400	82.940	82.940	118 100+*x*	– 1 323 790+*x*	$2s2p^3 - 2s2p^2(^4P)3d$	$^5S° - ^5P$	2 – 1	S3
	400	82.969	82.969	118 100+*x*	– 1 323 370+*x*	$2s2p^3 - 2s2p^2(^4P)3d$	$^5S° - ^5P$	2 – 2	S3
	500	83.015	83.015	118 100+*x*	– 1 322 700+*x*	$2s2p^3 - 2s2p^2(^4P)3d$	$^5S° - ^5P$	2 – 3	S3
	300*g*	83.519	83.511	0	– 1 197 450	$2s^22p^2 - 2s^22p3d$	$^3P - ^3P°$	0 – 1	S3
	200*g*	83.560	83.560	1 107	– 1 197 850	$2s^22p^2 - 2s^22p3d$	$^3P - ^3P°$	1 – 0	S3
	200*g*	83.587	83.588	1 107	– 1 197 450	$2s^22p^2 - 2s^22p3d$	$^3P - ^3P°$	1 – 1	S3
	10*g*	83.635	83.637	1 107	– 1 196 750	$2s^22p^2 - 2s^22p3d$	$^3P - ^3P°$	1 – 2	S3
	300*g*	83.716	83.715	2 924	– 1 197 450	$2s^22p^2 - 2s^22p3d$	$^3P - ^3P°$	2 – 1	S3
	500*g*	83.766	83.764	2 924	– 1 196 750	$2s^22p^2 - 2s^22p3d$	$^3P - ^3P°$	2 – 2	S3
	300*g*	83.910	83.910	0	– 1 191 750	$2s^22p^2 - 2s^22p3d$	$^3P - ^3D°$	0 – 1	S3
	400*g*	83.959	83.959	1 107	– 1 192 170	$2s^22p^2 - 2s^22p3d$	$^3P - ^3D°$	1 – 2	S3
	500*g*	84.025	84.025	2 924	– 1 193 050	$2s^22p^2 - 2s^22p3d$	$^3P - ^3D°$	2 – 3	S3
	300*g*	84.087	84.087	2 924	– 1 192 170	$2s^22p^2 - 2s^22p3d$	$^3P - ^3D°$	2 – 2	S3
	500	84.642	84.643	232 853	– 1 414 290	$2s2p^3 - 2s2p^2(^2D)3d$	$^3D° - ^3F$?	3 – 4	S3
	10	85.091	85.077	542 316	– 1 717 720	$2p^4 - 2s2p^2(^4P)5p$	$^3P - ^3D°$	2 – 3	S3
	10	85.336	85.335	40 948	– 1 212 800	$2s^22p^2 - 2s^22p3d$	$^1D - ^1P°$	2 – 1	S3
	700	85.407	85.407	40 948	– 1 211 810	$2s^22p^2 - 2s^22p3d$	$^1D - ^1F°$	2 – 3	S3
	200	86.032	86.032?	274 904	– 1 437 260?	$2s2p^3 - 2s2p^2(^2D)3d$	$^3P° - ^3S$	2 – 1	S3
			86.032?	274 897	– 1 437 260?	$2s2p^3 - 2s2p^2(^2D)3d$	$^3P° - ^3S$	1 – 1	
			86.035?	274 947	– 1 437 260?	$2s2p^3 - 2s2p^2(^2D)3d$	$^3P° - ^3S$	0 – 1	
	500	87.131	87.131?	274 904	– 1 422 600?	$2s2p^3 - 2s2p^2(^2D)3d$	$^3P° - ^3D$	2 – 3	S3
	400	87.175	87.175?	274 897	– 1 422 020?	$2s2p^3 - 2s2p^2(^2D)3d$	$^3P° - ^3D$	1 – 2	S3
	600	87.722	87.722	40 948	– 1 180 910	$2s^22p^2 - 2s^22p3d$	$^1D - ^1D°$	2 – 2	S3
	400	87.767	87.767	274 904	– 1 414 290	$2s2p^3 - 2s2p^2(^2D)3d$	$^3P° - ^3F$?	2 – 3	S3
	500	87.889	87.889	40 948	– 1 178 750	$2s^22p^2 - 2s^22p3d$	$^1D - ^3F°$	2 – 2	S3
	600	88.680	88.680	85 153	– 1 212 800	$2s^22p^2 - 2s^22p3d$	$^1S - ^1P°$	0 – 1	S3
	200	89.407	89.406	232 853	– 1 351 340	$2s2p^3 - 2s2p^2(^4P)3d$	$^3D° - ^3D$	3 – 3	S3
	200	89.448	89.448	232 957	– 1 350 930	$2s2p^3 - 2s2p^2(^4P)3d$	$^3D° - ^3D$	2 – 2	S3
	10	89.476	89.476	233 024	– 1 350 640	$2s2p^3 - 2s2p^2(^4P)3d$	$^3D° - ^3D$	1 – 1	S3
	400	90.706	90.706	232 853	– 1 335 320	$2s2p^3 - 2s2p^2(^4P)3d$	$^3D° - ^3F$	3 – 4	S3
	300	90.815	90.815	232 957	– 1 334 100	$2s2p^3 - 2s2p^2(^4P)3d$	$^3D° - ^3F$	2 – 3	S3
	600	90.897	90.897?	233 024	– 1 333 170?	$2s2p^3 - 2s2p^2(^4P)3d$	$^3D° - ^3F$	1 – 2	S3
	10	91.460	91.486	232 957	– 1 326 020	$2s2p^3 - 2s2p^2(^4P)3d$	$^3D° - ^3P$	2 – 1	S3
	100	91.573	91.566	232 853	– 1 324 960	$2s2p^3 - 2s2p^2(^4P)3d$	$^3D° - ^3P$	3 – 2	S3
	300	92.256	92.256?	354 401	– 1 438 340?	$2s2p^3 - 2s2p^2(^2D)3d$	$^1D° - ^1F$?	2 – 3	S3
	200	92.898	92.899	274 904	– 1 351 340	$2s2p^3 - 2s2p^2(^4P)3d$	$^3P° - ^3D$	2 – 3	S3
	200	92.934	92.934	274 897	– 1 350 930	$2s2p^3 - 2s2p^2(^4P)3d$	$^3P° - ^3D$	1 – 2	S3
	100	92.964	92.963	274 947	– 1 350 640	$2s2p^3 - 2s2p^2(^4P)3d$	$^3P° - ^3D$	0 – 1	S3
	400	94.043	94.043	118 100+*x*	– 1 181 440+*x*	$2s2p^3 - 2s2p^2(^4P)3s$	$^5S° - ^5P$	2 – 3	S3
	300	94.174	94.174	118 100+*x*	– 1 179 960+*x*	$2s2p^3 - 2s2p^2(^4P)3s$	$^5S° - ^5P$	2 – 2	S3
	400	95.027	95.027?	232 853	– 1 285 190?	$2s2p^3 - 2s2p^2(^2D)3s$	$^3D° - ^3D$	3 – 3	S3
	10	95.089	95.088	274 897	– 1 326 550	$2s2p^3 - 2s2p^2(^4P)3d$	$^3P° - ^3P$	1 – 0	S3
	100	95.139	95.136	274 897	– 1 326 020	$2s2p^3 - 2s2p^2(^4P)3d$	$^3P° - ^3P$	1 – 1	S3
			95.137	274 904	– 1 326 020	$2s2p^3 - 2s2p^2(^4P)3d$	$^3P° - ^3P$	2 – 1	
			95.141	274 947	– 1 326 020	$2s2p^3 - 2s2p^2(^4P)3d$	$^3P° - ^3P$	0 – 1	
	100	95.233	95.233	274 904	– 1 324 960	$2s2p^3 - 2s2p^2(^4P)3d$	$^3P° - ^3P$	2 – 2	S3
	200*g*	95.259	95.258	1 107	– 1 050 890	$2s^22p^2 - 2s^22p3s$	$^3P - ^3P°$	1 – 2	S3
	400*g*	95.385	95.383	0	– 1 048 400	$2s^22p^2 - 2s^22p3s$	$^3P - ^3P°$	0 – 1	S3
	400*g*	95.421	95.423	2 924	– 1 050 890	$2s^22p^2 - 2s^22p3s$	$^3P - ^3P°$	2 – 2	S3
	500*g*	95.483	95.484	1 107	– 1 048 400	$2s^22p^2 - 2s^22p3s$	$^3P - ^3P°$	1 – 1	S3
	100*g*	95.556	95.556	1 107	– 1 047 610	$2s^22p^2 - 2s^22p3s$	$^3P - ^3P°$	1 – 0	S3
	300*g*	95.637	95.650	2 924	– 1 048 400	$2s^22p^2 - 2s^22p3s$	$^3P - ^3P°$	2 – 1	S3
	300	98.032	98.031	40 948	– 1 061 030	$2s^22p^2 - 2s^22p3s$	$^1D - ^1P°$	2 – 1	S3
	400	98.983	98.982	274 904	– 1 285 190	$2s2p^3 - 2s2p^2(^2D)3s$	$^3P° - ^3D$	2 – 3	S3
	100	100.374	100.348	354 401	– 1 350 930	$2s2p^3 - 2s2p^2(^4P)3d$	$^1D° - ^3D$	2 – 2	S3
			100.378	354 401	– 1 350 640	$2s2p^3 - 2s2p^2(^4P)3d$	$^1D° - ^3D$	2 – 1	

Mg VII – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	200	101.956	101.956	232 853	– 1 213 670	$2s2p^3$ – $2s2p^2(^4P)3s$	$^3D^o$ – ^3P	3 – 2	S3
	10	102.053	102.072	354 401	– 1 334 100	$2s2p^3$ – $2s2p^2(^4P)3d$	$^1D^o$ – ^3F	2 – 3	S3
	100	102.138	102.137	232 957	– 1 212 030	$2s2p^3$ – $2s2p^2(^4P)3s$	$^3D^o$ – ^3P	2 – 1	S3
	300	102.471	102.472	85 153	– 1 061 030	$2s^22p^2$ – $2s^22p3s$	^1S – $^1P^o$	0 – 1	S3
	300	102.906	102.921	354 401	– 1 326 020	$2s2p^3$ – $2s2p^2(^4P)3d$	$^1D^o$ – ^3P	2 – 1	S3
	10	103.743	103.745	362 117	– 1 326 020	$2s2p^3$ – $2s2p^2(^4P)3d$	$^3S^o$ – ^3P	1 – 1	S3
	10	103.859	103.859	362 117	– 1 324 960	$2s2p^3$ – $2s2p^2(^4P)3d$	$^3S^o$ – ^3P	1 – 2	S3
	100	105.159	105.164?	354 401	– 1 305 300?	$2s2p^3$ – $2s2p^2(^2D)3s$	$^1D^o$ – ^1D	2 – 2	S3
	200	106.524	106.522	274 897	– 1 213 670	$2s2p^3$ – $2s2p^2(^4P)3s$	$^3P^o$ – ^3P	1 – 2	S3
			106.523	274 904	– 1 213 670	$2s2p^3$ – $2s2p^2(^4P)3s$	$^3P^o$ – ^3P	2 – 2	
	100	106.707	106.708	274 897	– 1 212 030	$2s2p^3$ – $2s2p^2(^4P)3s$	$^3P^o$ – ^3P	1 – 1	S3
			106.709	274 904	– 1 212 030	$2s2p^3$ – $2s2p^2(^4P)3s$	$^3P^o$ – ^3P	2 – 1	
			106.714	274 947	– 1 212 030	$2s2p^3$ – $2s2p^2(^4P)3s$	$^3P^o$ – ^3P	0 – 1	
	10	106.809	106.808?	274 897	– 1 211 160?	$2s2p^3$ – $2s2p^2(^4P)3s$	$^3P^o$ – ^3P	1 – 0	S3
	10	110.121	110.114?	397 153	– 1 305 300?	$2s2p^3$ – $2s2p^2(^2D)3s$	$^1P^o$ – ^1D	1 – 2	S3
	10	111.984	111.984	232 853	– 1 125 840	$2s2p^3$ – $2s^22p3p$	$^3D^o$ – ^3P	3 – 2	S3
	10	112.135	112.110	232 957	– 1 124 940	$2s2p^3$ – $2s^22p3p$	$^3D^o$ – ^3P	2 – 1	S3
	1	112.269	112.269	233 024	– 1 123 740	$2s2p^3$ – $2s^22p3p$	$^3D^o$ – ^3P	1 – 0	S3
	200*g*	276.153	276.154	0	– 362 117	$2s^22p^2$ – $2s2p^3$	^3P – $^3S^o$	0 – 1	A3
	300*g*	277.002	277.001	1 107	– 362 117	$2s^22p^2$ – $2s2p^3$	^3P – $^3S^o$	1 – 1	A3
	400*g*	278.402	278.402	2 924	– 362 117	$2s^22p^2$ – $2s2p^3$	^3P – $^3S^o$	2 – 1	A3
	300	280.737	280.737	40 948	– 397 153	$2s^22p^2$ – $2s2p^3$	^1D – $^1P^o$	2 – 1	A3
	400	319.027	319.027	40 948	– 354 401	$2s^22p^2$ – $2s2p^3$	^1D – $^1D^o$	2 – 2	A3
	40	320.267	320.266	233 024	– 545 264	$2s2p^3$ – $2p^4$	$^3D^o$ – ^3P	1 – 0	A3
	70	320.513	320.513	85 153	– 397 153	$2s^22p^2$ – $2s2p^3$	^1S – $^1P^o$	0 – 1	A3
	100	321.095	321.093	232 957	– 544 393	$2s2p^3$ – $2p^4$	$^3D^o$ – ^3P	2 – 1	A3
	50	321.154	321.162	233 024	– 544 393	$2s2p^3$ – $2p^4$	$^3D^o$ – ^3P	1 – 1	A3
	100	323.140	323.140	232 853	– 542 316	$2s2p^3$ – $2p^4$	$^3D^o$ – ^3P	3 – 2	A3
	100*g*	363.771	363.773	0	– 274 897	$2s^22p^2$ – $2s2p^3$	^3P – $^3P^o$	0 – 1	A3
	60*g*	365.178	365.177	1 107	– 274 947	$2s^22p^2$ – $2s2p^3$	^3P – $^3P^o$	1 – 0	A3
	150*g*	365.228	365.234	1 107	– 274 904	$2s^22p^2$ – $2s2p^3$	^3P – $^3P^o$	1 – 2	A3
	400*g*	367.674	367.674	2 924	– 274 904	$2s^22p^2$ – $2s2p^3$	^3P – $^3P^o$	2 – 2	A3
	100*g*	367.686	367.684	2 924	– 274 897	$2s^22p^2$ – $2s2p^3$	^3P – $^3P^o$	2 – 1	A3
		369.85	369.868	274 897	– 545 264	$2s2p^3$ – $2p^4$	$^3P^o$ – ^3P	1 – 0	F3
		371.08	371.073	274 904	– 544 393	$2s2p^3$ – $2p^4$	$^3P^o$ – ^3P	2 – 1	F3
		373.99	373.955	274 904	– 542 316	$2s2p^3$ – $2p^4$	$^3P^o$ – ^3P	2 – 2	F3
		382.72	382.721	397 153	– 658 440	$2s2p^3$ – $2p^4$	$^1P^o$ – ^1S	1 – 0	F4
	100*g*	429.132	429.140	0	– 233 024	$2s^22p^2$ – $2s2p^3$	^3P – $^3D^o$	0 – 1	A3
	60*g*	431.194	431.188	1 107	– 233 024	$2s^22p^2$ – $2s2p^3$	^3P – $^3D^o$	1 – 1	A3
	200*g*	431.318	431.313	1 107	– 232 957	$2s^22p^2$ – $2s2p^3$	^3P – $^3D^o$	1 – 2	A3
	70*g*	434.715	434.720	2 924	– 232 957	$2s^22p^2$ – $2s2p^3$	^3P – $^3D^o$	2 – 2	A3
	200*g*	434.917	434.917	2 924	– 232 853	$2s^22p^2$ – $2s2p^3$	^3P – $^3D^o$	2 – 3	A3
	100	450.690	450.696	354 401	– 576 280	$2s2p^3$ – $2p^4$	$^1D^o$ – ^1D	2 – 2	A3
	50	546.006	546.009	362 117	– 545 264	$2s2p^3$ – $2p^4$	$^3S^o$ – ^3P	1 – 0	A3
	100	548.620	548.619	362 117	– 544 393	$2s2p^3$ – $2p^4$	$^3S^o$ – ^3P	1 – 1	A3
	50	554.94	554.942	362 117	– 542 316	$2s2p^3$ – $2p^4$	$^3S^o$ – ^3P	1 – 2	A3
	100	558.28	558.263	397 153	– 576 280	$2s2p^3$ – $2p^4$	$^1P^o$ – ^1D	1 – 2	A3
	M1	1189.83	1189.83	1 107	– 85 153	$2s^22p^2$ – $2s^22p^2$	^3P – ^1S	1 – 0	F2,S2

Mg VIII

B I isoelectronic sequence

Ground state $1s^2 2s^2 2p\ ^2P^o_{1/2}$

Ionization energy 2 145 100 ± 300 cm^{-1} (265.96 ± 0.04 eV)

After the levels given in MZ80 were compiled, Edlén published a new estimate for the connection between the quartet and doublet term systems (Edlén, B. [1983], Phys. Scr. **28**, 483–495). The new estimate places the quartet system about 80 cm^{-1} higher than the earlier connection used here, i.e., the best current estimate is $x \approx 80\ cm^{-1}$.

References

A3 Artru, M. -C., and Kaufman, V. [1977], unpublished material.
F3 Fawcett, B.C. [1970], J. Phys. B **3**, 1152–1163.
H1 Hoory, S., Goldsmith, S., Feldman, U., Behring, W., and Cohen, L. [1971], J. Opt. Soc. Am. **61**, 504–508.
M3 Munch, G., Neugebauer, G., McCammon, D. [1967], Astrophys. J. **149**, 681–686.
S4 Söderqvist, J. [1944], Ark. Mat. Astron. Fys. **30**, 1–20.

Mg VIII

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	20g	51.389	51.386	0	– 1 946 060	$2s^2 2p$ – $2s^2 6d$	$^2P^o$ – ^2D	1/2 – 3/2	H1
	40g	51.470	51.473	3 302	– 1 946 060	$2s^2 2p$ – $2s^2 6d$	$^2P^o$ – ^2D	3/2 – 5/2	H1
	10	52.395	52.395?	132 710+x	– 2 041 290+x?	$2s2p^2$ – $2p^2(^3P)4p$	^4P – $^4D^o$	5/2 – 7/2	S4
	40	52.628	52.628?	232 274	– 2 132 420?	$2s2p^2$ – $2s2p(^1P^o)5d$	^2D – $^2D^o$	5/2 – 5/2	H1
			52.628?	232 307	– 2 132 420?	$2s2p^2$ – $2s2p(^1P^o)5d$	^2D – $^2D^o$	3/2 – 3/2	
	80	52.692	52.692?	232 274	– 2 130 100?	$2s2p^2$ – $2s2p(^1P^o)5d$	^2D – $^2F^o$	5/2 – 7/2	H1
			52.693?	232 307	– 2 130 100?	$2s2p^2$ – $2s2p(^1P^o)5d$	^2D – $^2F^o$	3/2 – 5/2	
	20	53.438	53.437	131 030+x	– 2 002 380+x	$2s2p^2$ – $2s2p(^3P^o)5d$	^4P – $^4P^o$	3/2 – 5/2	H1
	10	53.484	53.484?	131 030+x	– 2 000 750+x?	$2s2p^2$ – $2s2p(^3P^o)5d$	^4P – $^4D^o$	3/2 – 5/2	S4
			53.485	132 710+x	– 2 002 380+x	$2s2p^2$ – $2s2p(^3P^o)5d$	^4P – $^4P^o$	5/2 – 5/2	
	100	53.512	53.512	132 710+x	– 2 001 450+x	$2s2p^2$ – $2s2p(^3P^o)5d$	^4P – $^4D^o$	5/2 – 7/2	S4
	10	53.744	53.744?	232 274	– 2 092 940?	$2s2p^2$ – $2s2p(^3P^o)6d$	^2D – $^2F^o$	5/2 – 7/2	H1
	10g	53.812	53.812	0	– 1 858 320	$2s^2 2p$ – $2s^2 5d$	$^2P^o$ – ^2D	1/2 – 3/2	S4
	100g	53.905	53.905	3 302	– 1 858 420	$2s^2 2p$ – $2s^2 5d$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	60g	54.853	54.853?	0	– 1 823 050?	$2s^2 2p$ – $2s2p(^3P^o)4p$	$^2P^o$ – ^2D	1/2 – 3/2	H1
	100g	54.886	54.886?	3 302	– 1 825 260?	$2s^2 2p$ – $2s2p(^3P^o)4p$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	10g	55.222	55.222?	3 302	– 1 814 170?	$2s^2 2p$ – $2s2p(^3P^o)4p$	$^2P^o$ – ^2P	3/2 – 3/2	S4
	10	56.358	56.358?	232 274	– 2 006 650?	$2s2p^2$ – $2s2p(^3P^o)5d$	^2D – $^2F^o$	5/2 – 7/2	S4
	10	56.403	56.403?	232 307	– 2 005 260?	$2s2p^2$ – $2s2p(^3P^o)5d$	^2D – $^2F^o$	3/2 – 5/2	S4
	10	57.590	57.590?	232 274	– 1 968 690?	$2s2p^2$ – $2s2p(^1P^o)4d$	^2D – $^2D^o$	5/2 – 5/2	S4
			57.591?	232 307	– 1 968 690?	$2s2p^2$ – $2s2p(^1P^o)4d$	^2D – $^2D^o$	3/2 – 3/2	
	100	57.736	57.736?	232 274	– 1 964 300?	$2s2p^2$ – $2s2p(^1P^o)4d$	^2D – $^2F^o$	5/2 – 7/2	S4
			57.737?	232 307	– 1 964 300?	$2s2p^2$ – $2s2p(^1P^o)4d$	^2D – $^2F^o$	3/2 – 5/2	
	10	58.537	58.537?	131 030+x	– 1 839 350+x?	$2s2p^2$ – $2s2p(^3P^o)4d$	^4P – $^4P^o$	3/2 – 3/2	S4
	200	58.614	58.614?	131 030+x	– 1 837 110+x?	$2s2p^2$ – $2s2p(^3P^o)4d$	^4P – $^4D^o$	3/2 – 5/2	S4
	300	58.667	58.667	132 710+x	– 1 837 250+x	$2s2p^2$ – $2s2p(^3P^o)4d$	^4P – $^4D^o$	5/2 – 7/2	S4
	200g	59.038	59.038	0	– 1 693 830	$2s^2 2p$ – $2s^2 4d$	$^2P^o$ – ^2D	1/2 – 3/2	S4
	300g	59.153	59.153	3 302	– 1 693 830	$2s^2 2p$ – $2s^2 4d$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	40	60.316	60.321	131 030+x	– 1 788 830+x	$2s2p^2$ – $2s2p(^3P^o)4s$	^4P – $^4P^o$?	3/2 – 5/2	S4
	10	60.384	60.382	132 710+x	– 1 788 830+x	$2s2p^2$ – $2s2p(^3P^o)4s$	^4P – $^4P^o$?	5/2 – 5/2	S4
	10g	60.806	60.806	3 302	– 1 647 880	$2s^2 2p$ – $2s^2 4s$	$^2P^o$ – ^2S	3/2 – 1/2	S4
	200	61.891	61.891?	232 274	– 1 848 020?	$2s2p^2$ – $2s2p(^3P^o)4d$	^2D – $^2F^o$	5/2 – 7/2	S4
	100	61.964	61.964?	232 307	– 1 846 150?	$2s2p^2$ – $2s2p(^3P^o)4d$	^2D – $^2F^o$	3/2 – 5/2	S4
	10	62.291	62.291	232 274	– 1 837 640	$2s2p^2$ – $2s2p(^3P^o)4d$	^2D – $^2D^o$	5/2 – 5/2	S4
			62.292	232 307	– 1 837 640	$2s2p^2$ – $2s2p(^3P^o)4d$	^2D – $^2D^o$	3/2 – 3/2	
	10g	64.246	64.243	0	– 1 556 590	$2s^2 2p$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2S	1/2 – 1/2	S4

Mg VIII — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	100*g*	64.377	64.380	3 302	– 1 556 590	$2s^22p$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2S	3/2 – 1/2	S4
	100*g*	64.488	64.493	0	– 1 550 560	$2s^22p$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2P	1/2 – 3/2	S4
	100*g*	64.518	64.517	0	– 1 549 990	$2s^22p$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2P	1/2 – 1/2	S4
	200*g*	64.635	64.630	3 302	– 1 550 560	$2s^22p$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2P	3/2 – 3/2	S4
	200*g*	64.702	64.702	3 302	– 1 548 850	$2s^22p$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	10	64.811	64.809	131 030+x	– 1 674 020+x	$2s2p^2$ – $2p^2(^3P)3p$	^4P – $^4S^o$?	3/2 – 3/2?	S4
	100	64.878	64.880	132 710+x	– 1 674 020+x	$2s2p^2$ – $2p^2(^3P)3p$	^4P – $^4S^o$?	5/2 – 3/2?	S4
	100	65.735	65.734	131 030+x	– 1 652 310+x	$2s2p^2$ – $2p^2(^3P)3p$	^4P – $^4P^o$?	3/2 – 5/2?	S4
	200	65.806	65.807	132 710+x	– 1 652 310+x	$2s2p^2$ – $2p^2(^3P)3p$	^4P – $^4P^o$?	5/2 – 5/2?	S4
	300	66.069	66.069?	132 710+x	– 1 646 280+x?	$2s2p^2$ – $2p^2(^3P)3p$	^4P – $^4D^o$	5/2 – 7/2	S4
	100*g*	68.450	68.450	0	– 1 460 910	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2S	1/2 – 1/2	S4
	100	68.550	68.550?	232 274	– 1 691 060?	$2s2p^2$ – $2p^2(^1D)3p$	^2D – $^2F^o$	5/2 – 7/2	S4
	10	68.580	68.580?	232 307	– 1 690 460?	$2s2p^2$ – $2p^2(^1D)3p$	^2D – $^2F^o$	3/2 – 5/2	S4
	200*g*	68.606	68.606	3 302	– 1 460 910	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2S	3/2 – 1/2	S4
	400*g*	69.413	69.415	0	– 1 440 610	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2D	1/2 – 3/2	S4
	500*g*	69.467	69.467	3 302	– 1 442 830	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	100*g*	69.577	69.575	3 302	– 1 440 610	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2D	3/2 – 3/2	S4
	100*g*	70.953	70.952	0	– 1 409 400	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2P	1/2 – 3/2	S4
	200*g*	71.007	71.004	0	– 1 408 370	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2P	1/2 – 1/2	S4
	300*g*	71.118	71.119	3 302	– 1 409 400	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2P	3/2 – 3/2	S4
	100*g*	71.168	71.171	3 302	– 1 408 370	$2s^22p$ – $2s2p(^3P^o)3p$	$^2P^o$ – ^2P	3/2 – 1/2	S4
	10	72.546	72.548	232 274	– 1 610 670	$2s2p^2$ – $2s2p(^1P^o)3d$	^2D – $^2P^o$	5/2 – 3/2	S4
	100	72.684	72.678	232 274	– 1 608 210	$2s2p^2$ – $2s2p(^1P^o)3d$	^2D – $^2D^o$	5/2 – 5/2	S4
			72.699	232 307	– 1 607 850	$2s2p^2$ – $2s2p(^1P^o)3d$	^2D – $^2D^o$	3/2 – 3/2	
	400	73.250	73.249?	232 274	– 1 597 480?	$2s2p^2$ – $2s2p(^1P^o)3d$	^2D – $^2F^o$	5/2 – 7/2	S4
	100	73.825	73.826	129 890+x	– 1 484 420+x	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4P^o$	1/2 – 3/2	S4
	200	73.862	73.862	131 030+x	– 1 484 910+x	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4P^o$	3/2 – 1/2	S4
	100	73.890	73.889	131 030+x	– 1 484 420+x	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4P^o$	3/2 – 3/2	S4
	100	73.927	73.928	131 030+x	– 1 483 690+x	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4P^o$	3/2 – 5/2	S4
	200	73.981	73.980	132 710+x	– 1 484 420+x	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4P^o$	5/2 – 3/2	S4
	300	74.021	74.020	132 710+x	– 1 483 690+x	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4P^o$	5/2 – 5/2	S4
	200	74.274	74.274?	129 890+x	– 1 476 260+x?	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4D^o$?	1/2 – 3/2	S4
	300	74.319	74.318?	131 030+x	– 1 476 590+x?	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4D^o$?	3/2 – 5/2	S4
	400	74.366	74.366?	132 710+x	– 1 477 410+x?	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4D^o$?	5/2 – 7/2	S4
	100	74.411	74.411?	132 710+x	– 1 476 590+x?	$2s2p^2$ – $2s2p(^3P^o)3d$	^4P – $^4D^o$?	5/2 – 5/2	S4
	600*g*	74.858	74.858	0	– 1 335 860	$2s^22p$ – $2s^23d$	$^2P^o$ – ^2D	1/2 – 3/2	S4
	700*g*	75.034	75.034	3 302	– 1 336 030	$2s^22p$ – $2s^23d$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	100	76.199	76.197	298 282	– 1 610 670	$2s2p^2$ – $2s2p(^1P^o)3d$	^2S – $^2P^o$	1/2 –	S4
	100	76.714	76.714	413 610+x	– 1 717 150+x	$2p^3$ – $2p^2(^3P)3d$	$^4S^o$ – ^4P	3/2 – 1/2	S4
	200	76.740	76.740	413 610+x	– 1 716 710+x	$2p^3$ – $2p^2(^3P)3d$	$^4S^o$ – ^4P	3/2 – 3/2	S4
	300	76.788	76.788	413 610+x	– 1 715 900+x	$2p^3$ – $2p^2(^3P)3d$	$^4S^o$ – ^4P	3/2 – 5/2	S4
	200	77.405	77.402	318 721	– 1 610 670	$2s2p^2$ – $2s2p(^1P^o)3d$	^2P – $^2P^o$	1/2 – 1/2	S4
	100	77.511	77.523	320 723	– 1 610 670	$2s2p^2$ – $2s2p(^1P^o)3d$	^2P – $^2P^o$	3/2 – 3/2	S4
	500	77.572	77.572	318 721	– 1 607 850	$2s2p^2$ – $2s2p(^1P^o)3d$	^2P – $^2D^o$	1/2 – 3/2	S4
	500	77.671	77.671	320 723	– 1 608 210	$2s2p^2$ – $2s2p(^1P^o)3d$	^2P – $^2D^o$	3/2 – 5/2	S4
	600	77.737	77.737?	465 745	– 1 752 130?	$2p^3$ – $2p^2(^1D)3d$	$^2D^o$ – ^2F	5/2 – 7/2	S4
	600	78.446	78.446	232 274	– 1 507 040	$2s2p^2$ – $2s2p(^3P^o)3d$	^2D – $^2F^o$	5/2 – 7/2	S4
	600	78.574	78.574	232 307	– 1 504 990	$2s2p^2$ – $2s2p(^3P^o)3d$	^2D – $^2F^o$	3/2 – 5/2	S4
	200	79.695	79.701	232 274	– 1 486 970	$2s2p^2$ – $2s2p(^1P^o)3s$	^2D – $^2P^o$	5/2 – 3/2	S4
	400	80.229	80.230	232 274	– 1 478 690	$2s2p^2$ – $2s2p(^3P^o)3d$	^2D – $^2D^o$	5/2 – 5/2	S4
	400	80.255	80.255	232 307	– 1 478 340	$2s2p^2$ – $2s2p(^3P^o)3d$	^2D – $^2D^o$	3/2 – 3/2	S4
	10	80.806	80.806?	465 745	– 1 703 280?	$2p^3$ – $2p^2(^3P)3d$	$^2D^o$ – ^2D	5/2 – 5/2	S4
	100	80.889	80.889?	465 745	– 1 702 010?	$2p^3$ – $2p^2(^3P)3d$	$^2D^o$ – ^2F	5/2 – 7/2	S4
	100	81.304	81.304?	524 841	– 1 754 790?	$2p^3$ – $2p^2(^1D)3d$	$^2P^o$ – ^2P	3/2 – 3/2	S4
	10	81.368	81.368?	524 652	– 1 753 640?	$2p^3$ – $2p^2(^1D)3d$	$^2P^o$ – ^2P	1/2 – 1/2	S4

Mg VIII — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	300	81.732	81.731	131 030+x	– 1 354 550+x	$2s2p^2$ – $2s2p(^3P^o)3s$	^4P – $^4P^o$	3/2 – 5/2	S4
	200	81.790	81.790	129 890+x	– 1 352 530+x	$2s2p^2$ – $2s2p(^3P^o)3s$	^4P – $^4P^o$	1/2 – 3/2	S4
	400	81.844	81.844	132 710+x	– 1 354 550+x	$2s2p^2$ – $2s2p(^3P^o)3s$	^4P – $^4P^o$	5/2 – 5/2	S4
	200	81.943	81.943	131 030+x	– 1 351 390+x	$2s2p^2$ – $2s2p(^3P^o)3s$	^4P – $^4P^o$	3/2 – 1/2	S4
	200	81.979	81.979	132 710+x	– 1 352 530+x	$2s2p^2$ – $2s2p(^3P^o)3s$	^4P – $^4P^o$	5/2 – 3/2	S4
	200	82.238	82.238	298 282	– 1 514 260	$2s2p^2$ – $2s2p(^3P^o)3d$	^2S – $^2P^o$	1/2 – 1/2	S4
	300	82.317	82.317	298 282	– 1 513 100	$2s2p^2$ – $2s2p(^3P^o)3d$	^2S – $^2P^o$	1/2 – 3/2	S4
	200*g*	82.598	82.598	0	– 1 210 690	$2s^22p$ – $2s^23s$	$^2P^o$ – ^2S	1/2 – 1/2	S4
	200	82.709	82.709?	524 841	– 1 733 900?	$2p^3$ – $2p^2(^1D)3d$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	300*g*	82.822	82.823	3 302	– 1 210 690	$2s^22p$ – $2s^23s$	$^2P^o$ – ^2S	3/2 – 1/2	S4
	300	84.087	84.126	298 282	– 1 486 970	$2s2p^2$ – $2s2p(^1P^o)3s$	^2S – $^2P^o$	1/2 –	S4
	10	84.827	84.858?	524 841	– 1 703 280?	$2p^3$ – $2p^2(^3P)3d$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	100	84.919	84.919	413 610+x	– 1 591 200+x	$2p^3$ – $2p^2(^3P)3s$	$^4S^o$ – ^4P	3/2 – 5/2	S4
	10	85.064	85.064	413 610+x	– 1 589 200+x	$2p^3$ – $2p^2(^3P)3s$	$^4S^o$ – ^4P	3/2 – 3/2	S4
	10	85.153	85.153	413 610+x	– 1 587 970+x	$2p^3$ – $2p^2(^3P)3s$	$^4S^o$ – ^4P	3/2 – 1/2	S4
	200	85.248	85.248	465 745	– 1 638 790	$2p^3$ – $2p^2(^1D)3s$	$^2D^o$ – ^2D	5/2 – 5/2	S4
			85.254	465 818	– 1 638 790	$2p^3$ – $2p^2(^1D)3s$	$^2D^o$ – ^2D	3/2 – 3/2	
	300	85.599	85.598	318 721	– 1 486 970	$2s2p^2$ – $2s2p(^1P^o)3s$	^2P – $^2P^o$	1/2 – 1/2	S4
	400	85.749	85.745	320 723	– 1 486 970	$2s2p^2$ – $2s2p(^1P^o)3s$	^2P – $^2P^o$	3/2 – 3/2	S4
	100	86.234	86.235	318 721	– 1 478 340	$2s2p^2$ – $2s2p(^3P^o)3d$	^2P – $^2D^o$	1/2 – 3/2	S4
	100	86.359	86.358	320 723	– 1 478 690	$2s2p^2$ – $2s2p(^3P^o)3d$	^2P – $^2D^o$	3/2 – 5/2	S4
	200	86.847	86.844	232 274	– 1 383 760	$2s2p^2$ – $2s2p(^3P^o)3s$	^2D – $^2P^o$	5/2 – 3/2	S4
	100	87.017	87.021	232 307	– 1 381 450	$2s2p^2$ – $2s2p(^3P^o)3s$	^2D – $^2P^o$	3/2 – 1/2	S4
	100	92.123	92.125	298 282	– 1 383 760	$2s2p^2$ – $2s2p(^3P^o)3s$	^2S – $^2P^o$	1/2 – 3/2	S4
	10	92.324	92.322	298 282	– 1 381 450	$2s2p^2$ – $2s2p(^3P^o)3s$	^2S – $^2P^o$	1/2 – 1/2	S4
	10	93.911	93.893	318 721	– 1 383 760	$2s2p^2$ – $2s2p(^3P^o)3s$	^2P – $^2P^o$	1/2 – 3/2	S4
	400	94.043	94.070	320 723	– 1 383 760	$2s2p^2$ – $2s2p(^3P^o)3s$	^2P – $^2P^o$	3/2 – 3/2	S4
			94.097	318 721	– 1 381 450	$2s2p^2$ – $2s2p(^3P^o)3s$	^2P – $^2P^o$	1/2 – 1/2	
	200	94.276	94.275	320 723	– 1 381 450	$2s2p^2$ – $2s2p(^3P^o)3s$	^2P – $^2P^o$	3/2 – 1/2	S4
	200	97.465	97.493	524 841	– 1 550 560	$2p^3$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2P	3/2 – 3/2	S4
	10	97.525	97.529	524 652	– 1 549 990	$2p^3$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2P	1/2 – 1/2	S4
	100	97.686	97.655	524 841	– 1 548 850	$2p^3$ – $2s2p(^1P^o)3p$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	10*g*	311.795	311.796	0	– 320 723	$2s^22p$ – $2s2p^2$	$^2P^o$ – ^2P	1/2 – 3/2	A3
	100*g*	313.757	313.754	0	– 318 721	$2s^22p$ – $2s2p^2$	$^2P^o$ – ^2P	1/2 – 1/2	A3
	200*g*	315.039	315.039	3 302	– 320 723	$2s^22p$ – $2s2p^2$	$^2P^o$ – ^2P	3/2 – 3/2	A3
	100*g*	317.036	317.039	3 302	– 318 721	$2s^22p$ – $2s2p^2$	$^2P^o$ – ^2P	3/2 – 1/2	A3
	10*g*	335.248	335.253	0	– 298 282	$2s^22p$ – $2s2p^2$	$^2P^o$ – ^2S	1/2 – 1/2	A3
	100*g*	339.009	339.006	3 302	– 298 282	$2s^22p$ – $2s2p^2$	$^2P^o$ – ^2S	3/2 – 1/2	A3
	50	341.794	341.802	232 274	– 524 841	$2s2p^2$ – $2p^3$	^2D – $^2P^o$	5/2 – 3/2	A3
	20	342.068	342.062	232 307	– 524 652	$2s2p^2$ – $2p^3$	^2D – $^2P^o$	3/2 – 1/2	A3
		352.46	352.460	129 890+x	– 413 610+x	$2s2p^2$ – $2p^3$	^4P – $^4S^o$	1/2 – 3/2	F3
	10	353.892	353.882	131 030+x	– 413 610+x	$2s2p^2$ – $2p^3$	^4P – $^4S^o$	3/2 – 3/2	A3
	10	355.995	355.999	132 710+x	– 413 610+x	$2s2p^2$ – $2p^3$	^4P – $^4S^o$	5/2 – 3/2	A3
	5	428.201	428.185	232 274	– 465 818	$2s2p^2$ – $2p^3$	^2D – $^2D^o$	5/2 – 3/2	A3
	10	428.260	428.245	232 307	– 465 818	$2s2p^2$ – $2p^3$	^2D – $^2D^o$	3/2 – 3/2	A3
	20	428.301	428.319	232 274	– 465 745	$2s2p^2$ – $2p^3$	^2D – $^2D^o$	5/2 – 5/2	A3
	30*g*	430.465	430.465	0	– 232 307	$2s^22p$ – $2s2p^2$	$^2P^o$ – ^2D	1/2 – 3/2	A3
	40*g*	436.735	436.735	3 302	– 232 274	$2s^22p$ – $2s2p^2$	$^2P^o$ – ^2D	3/2 – 5/2	A3
		441.30	441.386	298 282	– 524 841	$2s2p^2$ – $2p^3$	^2S – $^2P^o$	1/2 – 3/2	F3
	1	441.74	441.755	298 282	– 524 652	$2s2p^2$ – $2p^3$	^2S – $^2P^o$	1/2 – 1/2	A3
	20*bl*	485.19	485.154	318 721	– 524 841	$2s2p^2$ – $2p^3$	^2P – $^2P^o$	1/2 – 3/2	A3
	200	485.593	485.600	318 721	– 524 652	$2s2p^2$ – $2p^3$	^2P – $^2P^o$	1/2 – 1/2	A3
	200	489.911	489.913	320 723	– 524 841	$2s2p^2$ – $2p^3$	^2P – $^2P^o$	3/2 – 3/2	A3
	3	490.38	490.367	320 723	– 524 652	$2s2p^2$ – $2p^3$	^2P – $^2P^o$	3/2 – 1/2	A3
	50	679.822	679.824	318 721	– 465 818	$2s2p^2$ – $2p^3$	^2P – $^2D^o$	1/2 – 3/2	A3

Mg VIII – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower		Upper	Configurations	Terms	J Values	Ref.
	100	689.601	689.551	320 723	–	465 745	$2s2p^2 - 2p^3$	$^2P - {}^2D^o$	$^3/_2 - {}^5/_2$	A3
		Wavenumber (cm^{-1})								
	M1	3302.2	3302.	0	–	3 302	$2s^22p - 2s^22p$	$^2P^o - {}^2P^o$	$^1/_2 - {}^3/_2$	M3

Mg IX

Be I isoelectronic sequence

Ground state $1s^2 2s^2\ ^1S_0$

Ionization energy 2 646 000 cm^{-1} (328.06 eV)

We have included the six features near 9.4 Å observed by Boiko *et al.* [B6] in emission from laser-produced plasmas. These features arise from K-shell excitation, four of them being classified as blends of two or more transitions. The $1s2p^3\ ^3D^\circ$ and $^1D^\circ$ and $1s2s2p^2\ ^1D$ levels, which were omitted in MZ80, are included as upper levels here for completeness. The four-place calculated wavelengths are theoretical values from [B6], and all upper levels given in brackets were evaluated by using the theoretical wavelengths.

Edlén's [1971] formula for this isoelectronic sequence yields a value of 2 646 050 cm^{-1} for the ionization energy, and we derived a value of 2 645 800 cm^{-1} using a semi-empirical formula for corrections to theoretical isoelectronic energies. A third reasonably consistent value is obtained from the $2pnd\ ^1F^\circ_3$ series ($n = 3-7$), from which we obtain an ionization energy of 2 645 700 cm^{-1} assuming the Mg X $2p\ ^2P^\circ_{3/2}$ level as the limit. The consistency of the different isoelectronic methods in Mg IX and other nearby members of the sequence indicates that our adopted value of 2 646 000 cm^{-1} may be accurate within several hundred cm^{-1}. We note, however, that the $2snd\ ^3D_3$ and $^1D_2$ series ($n = 3-7$) yield limit values about 1300 cm^{-1} lower than our adopted value [MZ80].

References

A4 Artru, M. -C. [1977], unpublished material.

B6 Boiko, V. A., Chugunov, A. Yu., Ivanova, T. G., Faenov, A. Ya., Holin, I. V., Pikuz, S. A., Urnov, A. M., Vainshtein, L. A., and Safronova, U. I. [1978], Mon. Not. R. Astron. Soc. **185**, 305–323.

Edlén, B. [1971], in *Topics in Modern Physics*, W. E. Brittin and H. Odabasi, Editors, pp. 133–145, Colorado Assoc. Univ. Press, Boulder, CO USA.

F3 Fawcett, B. C. [1970], J. Phys. B **3**, 1152–1163.

H2 Hoory, S., Feldman, U., Goldsmith, S., Behring, W., and Cohen, L. [1970], J. Opt. Soc. Am. **60**, 1449–1453.

R4 Ridgeley, A. and Burton, W. M. [1972], Sol. Phys. **27**, 280–285.

S4 Söderqvist, J. [1944], Ark. Mat. Astron. Fys. **30**, 1–20.

Mg IX

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	14	9.367	9.367	405 100 –	11 080 900	$2p^2 - 1s2p^3$	$^1D - {}^1P^\circ$	2 – 1	B6
	43*bl*	9.384	9.3830	0 –	[10 657 600]	$2s^2 - 1s2s^22p$	$^1S - {}^1P^\circ$	0 – 1	B6
			9.3885	369 330 –	[11 020 700]	$2p^2 - 1s2p^3$	$^3P - {}^3P^\circ$	2 – 2	
	49	9.393	9.393	271 687 –	10 917 900	$2s2p - 1s(^2S)2s2p^2(^2P)$	$^1P^\circ - {}^1P$	1 – 1	B6
	86*bl*	9.411	9.4116	144 091 –	[10 769 300]	$2s2p - 1s(^2S)2s2p^2(^4P)$	$^3P^\circ - {}^3P$	2 – 2	B6
			9.4126	140 504 –	[10 764 600]	$2s2p - 1s(^2S)2s2p^2(^2D)$	$^3P^\circ - {}^3D$	0 – 1	
			9.4127	141 631 –	[10 765 600]	$2s2p - 1s(^2S)2s2p^2(^4P)$	$^3P^\circ - {}^3P$	1 – 0	
			9.4141	141 631 –	[10 764 000]	$2s2p - 1s(^2S)2s2p^2(^2D)$	$^3P^\circ - {}^3D$	1 – 2	
	32*bl*	9.430	9.4169	144 091 –	[10 764 000]	$2s2p - 1s(^2S)2s2p^2(^2D)$	$^3P^\circ - {}^3D$	2 – 2	B6
			9.4303	405 100 –	[11 009 200]	$2p^2 - 1s2p^3$	$^1D - {}^1D^\circ$	2 – 2	
			9.4475	365 856 –	[10 950 700]	$2p^2 - 1s2p^3$	$^3P - {}^3D^\circ$	0 – 1	
			9.4477	271 687 –	[10 856 300]	$2s2p - 1s(^2S)2s2p^2(^2D)$	$^1P^\circ - {}^1D$	1 – 2	
			9.4487	367 159 –	[10 950 600]	$2p^2 - 1s2p^3$	$^3P - {}^3D^\circ$	1 – 2	
	25*bl*	9.454	9.451	499 633 –	11 080 900	$2p^2 - 1s2p^3$	$^1S - {}^1P^\circ$	0 – 1	B6
			9.4516	369 330 –	[10 949 500]	$2p^2 - 1s2p^3$	$^3P - {}^3D^\circ$	2 – 3	
	10*g*	40.638	40.638	0 –	2 460 750	$2s^2 - 2s7p$	$^1S - {}^1P^\circ$	0 – 1	H2
	40*g*	41.803	41.803	0 –	2 392 170	$2s^2 - 2s6p$	$^1S - {}^1P^\circ$	0 – 1	H2
	10	43.087	43.091	141 631 –	2 462 300	$2s2p - 2s7d$	$^3P^\circ - {}^3D$	1 – 2	H2
	20	43.138	43.137	144 091 –	2 462 300	$2s2p - 2s7d$	$^3P^\circ - {}^3D$	2 – 3	H2
	50	43.481	43.481	144 091 –	2 443 950	$2s2p - 2p5p$	$^3P^\circ - {}^3P$	2 – 2	H2
	60*g*	43.843	43.843	0 –	2 280 870	$2s^2 - 2s5p$	$^1S - {}^1P^\circ$	0 – 1	H2
	40	44.373	44.372	141 631 –	2 395 290	$2s2p - 2s6d$	$^3P^\circ - {}^3D$	1 – 2	H2
	60	44.420	44.421	144 091 –	2 395 290	$2s2p - 2s6d$	$^3P^\circ - {}^3D$	2 – 3	H2

Mg IX – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	20	44.983	44.983?	405 100 –	2 628 160?	$2p^2 - 2p7d$	$^1D - {}^1F^o$	2 – 3	H2
	40	45.635	45.635	271 687 –	2 462 990	$2s2p - 2s7d$	$^1P^o - {}^1D$	1 – 2	H2
	20	45.980	45.980	271 687 –	2 446 550	$2s2p - 2p5p$	$^1P^o - {}^1D$	1 – 2	H2
	40	46.340	46.340?	405 100 –	2 563 060?	$2p^2 - 2p6d$	$^1D - {}^1F^o$	2 – 3	H2
	160	46.657	46.657	141 631 –	2 284 920	$2s2p - 2s5d$	$^3P^o - {}^3D$	1 – 2	H2
	10	46.711	46.711	144 091 –	2 284 920	$2s2p - 2s5d$	$^3P^o - {}^3D$	2 – 3	S4
	60	47.041	47.041	271 687 –	2 397 490	$2s2p - 2s6d$	$^1P^o - {}^1D$	1 – 2	H2
	10	47.818	47.818	144 091 –	2 235 350	$2s2p - 2p4p$	$^3P^o - {}^3P$	2 – 2	S4
	100	47.947	47.947	144 091 –	2 229 730	$2s2p - 2p4p$	$^3P^o - {}^3D$	2 – 3	S4
	10	48.024	48.024	369 330 –	2 451 620	$2p^2 - 2p5d$	$^3P - {}^3D^o$	2 – 3	S4
	100*g*	48.340	48.340	0 –	2 068 680	$2s^2 - 2s4p$	$^1S - {}^1P^o$	0 – 1	S4
	10	48.794	48.794	405 100 –	2 454 530	$2p^2 - 2p5d$	$^1D - {}^1F^o$	2 – 3	S4
	1	49.586	49.586	271 687 –	2 288 380	$2s2p - 2s5d$	$^1P^o - {}^1D$	1 – 2	S4
	10	50.777	50.777	271 687 –	2 241 080	$2s2p - 2p4p$	$^1P^o - {}^1D$	1 – 2	S4
	10	51.560	51.561	140 504 –	2 079 970	$2s2p - 2s4d$	$^3P^o - {}^3D$	0 – 1	S4
	300	51.591	51.591	141 631 –	2 079 970	$2s2p - 2s4d$	$^3P^o - {}^3D$	1 –	S4
	400	51.654	51.654	144 091 –	2 080 050	$2s2p - 2s4d$	$^3P^o - {}^3D$	2 – 3	S4
	10	53.112	53.112	367 159 –	2 249 970	$2p^2 - 2p4d$	$^3P - {}^3P^o$	1 – 1	S4
	200	53.188	53.188	369 330 –	2 249 450	$2p^2 - 2p4d$	$^3P - {}^3P^o$	2 – 2	S4
	200	53.222	53.222	369 330 –	2 248 250	$2p^2 - 2p4d$	$^3P - {}^3D^o$	2 – 3	S4
	200	54.011	54.011	405 100 –	2 256 570	$2p^2 - 2p4d$	$^1D - {}^1F^o$	2 – 3	S4
	10	54.463	54.463	405 100 –	2 241 210	$2p^2 - 2p4d$	$^1D - {}^1D^o$	2 – 2	S4
	200	55.060	55.060	271 687 –	2 087 890	$2s2p - 2s4d$	$^1P^o - {}^1D$	1 – 2	S4
	10	56.861	56.861	499 633 –	2 258 310	$2p^2 - 2p4d$	$^1S - {}^1P^o$	0 – 1	S4
	200	61.038	61.037	141 631 –	1 779 990	$2s2p - 2p3p$	$^3P^o - {}^3P$	1 – 2	S4
	100	61.088	61.085	141 631 –	1 778 690	$2s2p - 2p3p$	$^3P^o - {}^3P$	1 – 1	S4
	300	61.127	61.128	144 091 –	1 779 990	$2s2p - 2p3p$	$^3P^o - {}^3P$	2 – 2	S4
	200	61.175	61.177	144 091 –	1 778 690	$2s2p - 2p3p$	$^3P^o - {}^3P$	2 – 1	S4
	10	61.359	61.354	140 504 –	1 770 380	$2s2p - 2p3p$	$^3P^o - {}^3S$	0 – 1	S4
	100	61.393	61.397	141 631 –	1 770 380	$2s2p - 2p3p$	$^3P^o - {}^3S$	1 – 1	S4
	200	61.489	61.490	144 091 –	1 770 380	$2s2p - 2p3p$	$^3P^o - {}^3S$	2 – 1	S4
	400	61.924	61.921	140 504 –	1 755 470	$2s2p - 2p3p$	$^3P^o - {}^3D$	0 – 1	S4
			61.924	144 091 –	1 758 970	$2s2p - 2p3p$	$^3P^o - {}^3D$	2 – 3	
			61.926	141 631 –	1 756 470	$2s2p - 2p3p$	$^3P^o - {}^3D$	1 – 2	
	100	61.964	61.964	141 631 –	1 755 470	$2s2p - 2p3p$	$^3P^o - {}^3D$	2 – 1	S4
	10	62.020	62.020	144 091 –	1 756 470	$2s2p - 2p3p$	$^3P^o - {}^3D$	2 – 2	S4
	500*g*	62.751	62.751	0 –	1 593 600	$2s^2 - 2s3p$	$^1S - {}^1P^o$	0 – 1	S4
	400	65.609	65.609	271 687 –	1 795 870	$2s2p - 2p3p$	$^1P^o - {}^1D$	1 – 2	S4
	500	67.090	67.090	140 504 –	1 631 040	$2s2p - 2s3d$	$^3P^o - {}^3D$	0 – 1	S4
	600	67.135	67.135	141 631 –	1 631 170	$2s2p - 2s3d$	$^3P^o - {}^3D$	1 – 2	S4
	700	67.239	67.239	144 091 –	1 631 320	$2s2p - 2s3d$	$^3P^o - {}^3D$	2 – 3	S4
	400	67.731	67.731	271 687 –	1 748 120	$2s2p - 2p3p$	$^1P^o - {}^1P$	1 – 1	S4
	10	68.949	68.949	365 856 –	1 816 210	$2p^2 - 2p3d$	$^3P - {}^3P^o$	0 – 1	S4
	100	68.986	68.986	367 159 –	1 816 730	$2p^2 - 2p3d$	$^3P - {}^3P^o$	1 – 0	S4
	100	69.009	69.011	367 159 –	1 816 210	$2p^2 - 2p3d$	$^3P - {}^3P^o$	1 – 1	S4
	10	69.058	69.058	367 159 –	1 815 220	$2p^2 - 2p3d$	$^3P - {}^3P^o$	1 – 2	S4
	100	69.116	69.114	369 330 –	1 816 210	$2p^2 - 2p3d$	$^3P - {}^3P^o$	2 – 1	S4
	300	69.161	69.162	369 330 –	1 815 220	$2p^2 - 2p3d$	$^3P - {}^3P^o$	2 – 2	S4
	200	69.374	69.374	365 856 –	1 807 320	$2p^2 - 2p3d$	$^3P - {}^3D^o$	0 – 1	S4
	400	69.413	69.411	367 159 –	1 807 860	$2p^2 - 2p3d$	$^3P - {}^3D^o$	1 – 2	S4
	500	69.467	69.467	369 330 –	1 808 860	$2p^2 - 2p3d$	$^3P - {}^3D^o$	2 – 3	S4
	100	69.513	69.515	369 330 –	1 807 860	$2p^2 - 2p3d$	$^3P - {}^3D^o$	2 – 2	S4
	300	69.615	69.616	405 100 –	1 841 560	$2p^2 - 2p3d$	$^1D - {}^1P^o$	2 – 1	S4
	600	69.950	69.950	405 100 –	1 834 690	$2p^2 - 2p3d$	$^1D - {}^1F^o$	2 – 3	S4
	100	71.841	71.842	140 504 –	1 532 450	$2s2p - 2s3s$	$^3P^o - {}^3S$	0 – 1	S4

Mg IX – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	200	71.901	71.900	141 631 –	1 532 450	$2s2p - 2s3s$	$^3P^o - {}^3S$	1 – 1	S4
	300	72.027	72.027	144 091 –	1 532 450	$2s2p - 2s3s$	$^3P^o - {}^3S$	2 – 1	S4
	300	72.226	72.226	405 100 –	1 789 640	$2p^2 - 2p3d$	$^1D - {}^1D^o$	2 – 2	S4
	400	72.312	72.312	271 687 –	1 654 580	$2s2p - 2s3d$	$^1P^o - {}^1D$	1 – 2	S4
	200	74.274	74.253	367 159 –	1 713 900	$2p^2 - 2p3s$	$^3P - {}^3P^o$	1 – 2	S4
	300	74.319	74.328	365 856 –	1 711 250	$2p^2 - 2p3s$	$^3P - {}^3P^o$	0 – 1	S4
	400	74.366	74.373	369 330 –	1 713 900	$2p^2 - 2p3s$	$^3P - {}^3P^o$	2 – 2	S4
	100	74.411	74.400	367 159 –	1 711 250	$2p^2 - 2p3s$	$^3P - {}^3P^o$	1 – 1	S4
	10	74.461	74.461	367 159 –	1 710 140	$2p^2 - 2p3s$	$^3P - {}^3P^o$	1 – 0	S4
	100	74.520	74.520	499 633 –	1 841 560	$2p^2 - 2p3d$	$^1S - {}^1P^o$	0 – 1	S4
			74.520	369 330 –	1 711 250	$2p^2 - 2p3s$	$^3P - {}^3P^o$	2 – 1	
	100	74.738	74.742	405 100 –	1 743 040	$2p^2 - 2p3s$	$^1D - {}^1P^o$	2 – 1	S4
	100	76.459	76.471	499 633 –	1 807 320	$2p^2 - 2p3d$	$^1S - {}^3D^o$	0 – 1	S4
	600	77.737	77.737	271 687 –	1 558 080	$2s2p - 2s3s$	$^1P^o - {}^1S$	1 – 0	S4
	100	80.428	80.424	499 633 –	1 743 040	$2p^2 - 2p3s$	$^1S - {}^1P^o$	0 – 1	S4
	10	91.385	91.410	499 633 –	1 593 600	$2p^2 - 2s3p$	$^1S - {}^1P^o$	0 – 1	S4
	100*g*	368.076	368.071	0 –	271 687	$2s^2 - 2s2p$	$^1S - {}^1P^o$	0 – 1	A4
	1	438.700	438.700	271 687 –	499 633	$2s2p - 2p^2$	$^1P^o - {}^1S$	1 – 0	A4
	6	439.170	439.176	141 631 –	369 330	$2s2p - 2p^2$	$^3P^o - {}^3P$	1 – 2	A4
		441.20	441.20	140 504 –	367 159	$2s2p - 2p^2$	$^3P^o - {}^3P$	0 – 1	F3
	4	443.410	443.404	141 631 –	367 159	$2s2p - 2p^2$	$^3P^o - {}^3P$	1 – 1	A4
	10	443.976	443.973	144 091 –	369 330	$2s2p - 2p^2$	$^3P^o - {}^3P$	2 – 2	A4
	5	445.980	445.981	141 631 –	365 856	$2s2p - 2p^2$	$^3P^o - {}^3P$	1 – 0	A4
	8	448.290	448.294	144 091 –	367 159	$2s2p - 2p^2$	$^3P^o - {}^3P$	2 – 1	A4
	1*g*	706.06	706.06	0 –	141 631	$2s^2 - 2s2p$	$^1S - {}^3P^o$	0 – 1	R4
		749.55	749.55	271 687 –	405 100	$2s2p - 2p^2$	$^1P^o - {}^1D$	1 – 2	F3

Mg x

Li I isoelectronic sequence

Ground state $1s^2 2s\ ^2S_{1/2}$

Ionization energy 2 964 060 ± 250 cm^{-1} (367.50 ± 0.03 eV)

We have reevaluated the $1s^2 4f\ ^2F^o$ levels using improved measurements of the $1s^2 3d - 1s^2 4f$ doublet [F8]; the new $4f\ ^2F^o$ levels also lead to a slightly revised ionization energy, given above. We obtained predicted values for the $1s^2 5f$ levels using the methods outlined by Edlén [1979] and the adopted ionization energy. The calculated wavelengths for the $3d - 5f$ and $3p - 5d$ lines have estimated uncertainties smaller than 0.1 Å.

The separations of the $1s2s2p\ ^4P^o$ and $1s2p^2\ ^4P$ levels are based on the published wavelengths of the corresponding multiplet [T1] and, to some extent, on the somewhat different fine-structure intervals given by Hellman and Träbert [H3]. The absolute values of these *K*-shell excitation quartet terms are much less accurate, being based on the $1s^2 2s\ ^2S_{1/2} - 1s2s2p\ ^4P^o_{1/2,3/2}$ line at 9.3923 Å. We have also reevaluated several of the $1s2s2p$ and $1s2p^2$ doublet levels for this compilation.

References

A5 Aglitskii, E. V., Boiko, V. A., Zakharov, S. M., Pikuz, S. A., and Faenov, A. Ya. [1974], Sov. J. Quantum Electron. **4**, 500 – 513.

B7 Behring, W. E., Cohen, L., Feldman, U., and Doschek, G. A. [1976], Astrophys. J. **203**, 521 – 527.

Edlén, B. [1979], Phys. Scr. **19**, 255 – 266.

F5 Feldman, U., Doschek, G. A. Nagel, D. J., Cowan, R. D., and Whitlock, R. R. [1974], Astrophys. J. **192**, 213 – 220.

F6 Feldman, U., Cohen, L., and Behring, W. E. [1970], J. Opt. Soc. Am. **60**, 891 – 893.

F7 Flemberg, H. [1942], Ark. Mat. Astron. Fys. **28**, 1 – 47. Flemberg's measurements have been adjusted to a new conversion factor for x-units to Å; see Martin, W. C. [1981], Phys. Scr. **24**, 725 – 731.

F8 Fawcett, B. C., and Ridgeley, A. [1981], J. Phys. B **14**, 203 – 208.

H3 Hellman, H., and Träbert, E. [1985], Nucl. Instr. Meth. Phys. Res. **B9**, 611 – 613.

J3 Jaeglé, P., Jamelot, G., Carillon, A., Klisnick, A., Sureau, A., and Guennou, H. [1984], in *Laser Techniques in the Extreme Ultraviolet*, S. E. Harris and T. B. Lucatorto, Eds., Am. Inst. Phys. Conf. Proc. No. 119, Opt. Sci. Eng. No. 5, pp. 468 – 479, Am. Inst. Phys., New York, NY USA.

P2 Peacock, N. J., Hobby, M. G., and Galanti, M. [1973], J. Phys. B **6**, L298 – L304.

S4 Söderqvist, J. [1944], Ark. Mat. Astron. Fys. **30**, 1 – 20.

T1 Träbert, E., Hellman, H., Heckmann, P. H., Bashkin, S., Klein, H. A., and Silver, J. D. [1982], Phys. Lett. **93A**, 76 – 80.

The experimental wavelengths in this paper have been increased by 8 parts in 10^5; see Martin, W.C. [1981], Phys. Scr. **24**, 725 – 731.

Mg x

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	*J* Values	Ref.
	g	7.998	7.997	0 –	12 504 000	$1s^2(^1S)2s - 1s2s(^1S)3p$	$^2S - ^2P^o$	$1/2 -$	F5
	g	8.0520	8.052	0 –	12 419 000	$1s^2(^1S)2s - 1s2s(^3S)3p$	$^2S - ^2P^o$	$1/2 -$	A5
		8.0694	8.066	163 990 –	[12 561 000]	$1s^2(^1S)2p - 1s2p(^3P^o)3p$	$^2P^o - ^2D$	$3/2 - 5/2$	A5
	3	8.092	8.092	160 015 –	12 518 000	$1s^2(^1S)2p - 1s2p(^3P^o)3p$	$^2P^o - ^2P$	$1/2 - 1/2$	F5
			8.094	163 390 –	12 518 000	$1s^2(^1S)2p - 1s2p(^3P^o)3p$	$^2P^o - ^2P$	$3/2 - 3/2$	
	10	9.2216	9.218	160 015 –	11 008 000	$1s^2(^1S)2p - 1s(^2S)2p^2(^1S)$	$^2P^o - ^2S$	$1/2 - 1/2$	A5
			9.222	163 990 –	11 008 000	$1s^2(^1S)2p - 1s(^2S)2p^2(^1S)$	$^2P^o - ^2S$	$3/2 - 1/2$	
	10*bl*	9.2300	9.230	1 726 520 –	[12 561 000]	$1s^2(^1S)3p - 1s2p(^3P^o)3p$	$^2P^o - ^2D$	$1/2 - 3/2$	F7,A5
			9.231	1 727 830 –	[12 561 000]	$1s^2(^1S)3p - 1s2p(^3P^o)3p$	$^2P^o - ^2D$	$3/2 - 5/2$	
			9.234	0 –	[10 829 000]	$1s^2(^1S)2s - 1s(^2S)2s2p(^1P^o)$	$^2S - ^2P^o$	$1/2 -$	
	2	9.266	9.267	1 726 520 –	12 518 000	$1s^2(^1S)3p - 1s2p(^3P^o)3p$	$^2P^o - ^2P$	$1/2 - 1/2$	P2
			9.268	1 727 830 –	12 518 000	$1s^2(^1S)3p - 1s2p(^3P^o)3p$	$^2P^o - ^2P$	$3/2 - 3/2$	
	25*g*	9.2840	9.2840	0 –	10 771 200	$1s^2(^1S)2s - 1s(^2S)2s2p(^3P^o)$	$^2S - ^2P^o$	$1/2 -$	F7,A5
	15*bl*	9.2957	9.294	160 015 –	10 920 000	$1s^2(^1S)2p - 1s(^2S)2p^2(^3P)$	$^2P^o - ^2P$	$1/2 - 1/2$	F7,A5
			9.297	163 990 –	10 920 000	$1s^2(^1S)2p - 1s(^2S)2p^2(^3P)$	$^2P^o - ^2P$	$3/2 - 3/2$	
	30	9.3167	9.316	160 015 –	10 894 000	$1s^2(^1S)2p - 1s(^2S)2p^2(^1D)$	$^2P^o - ^2D$	$1/2 - 3/2$	A5
	50	9.3200	9.320	163 990 –	10 894 000	$1s^2(^1S)2p - 1s(^2S)2p^2(^1D)$	$^2P^o - ^2D$	$3/2 - 5/2$	A5
		9.3845	9.3822	160 015 –	10 818 530	$1s^2(^1S)2p - 1s(^2S)2p^2(^3P)$	$^2P^o - ^4P$	$1/2 - 3/2$	F7
			9.3838	160 015 –	10 816 700	$1s^2(^1S)2p - 1s(^2S)2p^2(^3P)$	$^2P^o - ^4P$	$1/2 - 1/2$	
			9.3839	163 990 –	10 820 500	$1s^2(^1S)2p - 1s(^2S)2p^2(^3P)$	$^2P^o - ^4P$	$3/2 - 5/2$	
			9.3857	163 990 –	10 818 530	$1s^2(^1S)2p - 1s(^2S)2p^2(^3P)$	$^2P^o - ^4P$	$3/2 - 3/2$	

Mg x – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	g	9.3923	9.3920	0 –	10 647 400	$1s^2(^1S)2s$ – $1s(^2S)2s2p(^3P^o)$	^2S – $^4P^o$	1/2 – 3/2	F7
			9.3929	0 –	10 646 380	$1s^2(^1S)2s$ – $1s(^2S)2s2p(^3P^o)$	^2S – $^4P^o$	1/2 – 1/2	
	3*g*	35.366	35.366	0 –	2 827 600	$1s^2(^1S)2s$ – $1s^2(^1S)9p$	^2S – $^2P^o$	1/2 –	F6
	6*g*	35.827	35.827	0 –	2 791 200	$1s^2(^1S)2s$ – $1s^2(^1S)8p$	^2S – $^2P^o$	1/2 –	F6
	35*g*	36.518	36.518	0 –	2 738 400	$1s^2(^1S)2s$ – $1s^2(^1S)7p$	^2S – $^2P^o$	1/2 –	F6
	60*g*	37.644	37.644	0 –	2 656 500	$1s^2(^1S)2s$ – $1s^2(^1S)6p$	^2S – $^2P^o$	1/2 –	F6
	60	38.769	38.766	160 015 –	2 739 600	$1s^2(^1S)2p$ – $1s^2(^1S)7d$	$^2P^o$ – ^2D	1/2 – 3/2	F6
	120	38.823	38.826	163 990 –	2 739 600	$1s^2(^1S)2p$ – $1s^2(^1S)7d$	$^2P^o$ – ^2D	3/2 – 5/2	F6
	250*g*	39.669	39.668	0 –	2 520 900	$1s^2(^1S)2s$ – $1s^2(^1S)5p$	^2S – $^2P^o$	1/2 –	F6
	120	40.022	40.019	160 015 –	2 658 800	$1s^2(^1S)2p$ – $1s^2(^1S)6d$	$^2P^o$ – ^2D	1/2 – 3/2	F6
	200	40.080	40.083	163 990 –	2 658 800	$1s^2(^1S)2p$ – $1s^2(^1S)6d$	$^2P^o$ – ^2D	3/2 – 5/2	F6
	250	42.294	42.294	160 015 –	2 524 400	$1s^2(^1S)2p$ – $1s^2(^1S)5d$	$^2P^o$ – ^2D	1/2 – 3/2	F6
	400	42.363	42.362	163 990 –	2 524 600	$1s^2(^1S)2p$ – $1s^2(^1S)5d$	$^2P^o$ – ^2D	3/2 – 5/2	F6
	6	42.523	42.525	160 015 –	2 511 600	$1s^2(^1S)2p$ – $1s^2(^1S)5s$	$^2P^o$ – ^2S	1/2 – 1/2	F6
	10	42.596	42.597	163 990 –	2 511 600	$1s^2(^1S)2p$ – $1s^2(^1S)5s$	$^2P^o$ – ^2S	3/2 – 1/2	F6
	400*g*	44.050	44.050	0 –	2 270 150	$1s^2(^1S)2s$ – $1s^2(^1S)4p$	^2S – $^2P^o$	1/2 –	S4
	250	47.231	47.229	160 015 –	2 277 380	$1s^2(^1S)2p$ – $1s^2(^1S)4d$	$^2P^o$ – ^2D	1/2 – 3/2	S4
	400	47.310	47.310	163 990 –	2 277 700	$1s^2(^1S)2p$ – $1s^2(^1S)4d$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	700*g*	57.876	57.876	0 –	1 727 830	$1s^2(^1S)2s$ – $1s^2(^1S)3p$	^2S – $^2P^o$	1/2 – 3/2	S4
	700*g*	57.920	57.920	0 –	1 726 520	$1s^2(^1S)2s$ – $1s^2(^1S)3p$	^2S – $^2P^o$	1/2 – 1/2	S4
	400	63.152	63.152	160 015 –	1 743 500	$1s^2(^1S)2p$ – $1s^2(^1S)3d$	$^2P^o$ – ^2D	1/2 – 3/2	S4
	700	63.295	63.295	163 990 –	1 743 890	$1s^2(^1S)2p$ – $1s^2(^1S)3d$	$^2P^o$ – ^2D	3/2 – 5/2	S4
	35	65.672	65.673	160 015 –	1 682 700	$1s^2(^1S)2p$ – $1s^2(^1S)3s$	$^2P^o$ – ^2S	1/2 – 1/2	S4
	60	65.847	65.845	163 990 –	1 682 700	$1s^2(^1S)2p$ – $1s^2(^1S)3s$	$^2P^o$ – ^2S	3/2 – 1/2	S4
		125.5	125.33	1 726 520 –	2 524 400	$3p$ – $5d$	$^2P^o$ – ^2D	1/2 – 3/2	J3
			125.51	1 727 830 –	2 524 600	$3p$ – $5d$	$^2P^o$ – ^2D	3/2 – 5/2	
		127.9	127.96	1 743 500 –	[2 525 020]	$3d$ – $5f$	^2D – $^2F^o$	3/2 – 5/2	J3
			128.01	1 743 890 –	[2 525 060]	$3d$ – $5f$	^2D – $^2F^o$	5/2 – 7/2	
		181.51	181.53	1 726 520 –	2 277 380	$1s^2(^1S)3p$ – $1s^2(^1S)4d$	$^2P^o$ – ^2D	1/2 – 3/2	F8
		181.86	181.86	1 727 830 –	2 277 700	$1s^2(^1S)3p$ – $1s^2(^1S)4d$	$^2P^o$ – ^2D	3/2 – 5/2	F8
		187.07	187.07	1 743 500 –	2 278 060	$1s^2(^1S)3d$ – $1s^2(^1S)4f$	^2D – $^2F^o$	3/2 – 5/2	F8
		187.18	187.18	1 743 890 –	2 278 140	$1s^2(^1S)3d$ – $1s^2(^1S)4f$	^2D – $^2F^o$	5/2 – 7/2	F8
		577.62	577.70	10 647 400 –	10 820 500	$1s(^2S)2s2p(^3P^o)$ – $1s(^2S)2p^2(^3P)$	$^4P^o$ – ^4P	3/2 – 5/2	T1
		580.93	580.89	10 646 380 –	10 818 530	$1s(^2S)2s2p(^3P^o)$ – $1s(^2S)2p^2(^3P)$	$^4P^o$ – ^4P	1/2 – 3/2	T1
		584.35	584.35	10 647 400 –	10 818 530	$1s(^2S)2s2p(^3P^o)$ – $1s(^2S)2p^2(^3P)$	$^4P^o$ – ^4P	3/2 – 3/2	T1
		586.80	586.85	10 650 100 –	10 820 500	$1s(^2S)2s2p(^3P^o)$ – $1s(^2S)2p^2(^3P)$	$^4P^o$ – ^4P	5/2 – 5/2	T1
		587.10	587.13	10 646 380 –	10 816 700	$1s(^2S)2s2p(^3P^o)$ – $1s(^2S)2p^2(^3P)$	$^4P^o$ – ^4P	1/2 – 1/2	T1
		590.70	590.67	10 647 400 –	10 816 700	$1s(^2S)2s2p(^3P^o)$ – $1s(^2S)2p^2(^3P)$	$^4P^o$ – ^4P	3/2 – 1/2	T1
	23*g*	609.794	609.793	0 –	163 990	$1s^2(^1S)2s$ – $1s^2(^1S)2p$	^2S – $^2P^o$	1/2 – 3/2	B7
	12*g*	624.943	624.941	0 –	160 015	$1s^2(^1S)2s$ – $1s^2(^1S)2p$	^2S – $^2P^o$	1/2 – 1/2	B7

Mg XI

He I isoelectronic sequence

Ground state $1s^2\ ^1S_0$

Ionization energy 14 209 908 ± 200 cm^{-1} (1761.805 ± 0.025 eV)

The ionization energy and the $1s2l$ levels are theoretical values (Drake, G. W. F. [1988], Can. J. Phys. **66**, 586–611). All of the other $1snl$ levels are also theoretical values, derived by using calculated term values and Drake's ionization energy (see Martin, W. C., Zalubas, R., and Musgrove, A. [1990], J. Phys. Chem. Ref. Data **19**, pp. 876, 877, for sources of term values, etc.). The calculated wavelengths for all transitions from upper $1snl$ levels have estimated uncertainties in the range from less than unity to at most a few units in the last decimal place; in most cases these calculated wavelengths are expected to be more accurate than the observed values.

We have supplied relative intensities for the $1s^2 - 1snp$ lines, based on an intensity of 1000 for the $1s^2\ ^1S_0 - 1s2p\ ^1P_1^o$ transition. These are meant only as a rough guide and do not correspond to any specific plasma conditions.

The values of the $2s^2$, $2s2p$, and $2p^2$ levels are also based on theoretical calculations [Vainshtein, L. A., and Safronova, U. I. [1978], At. Data Nucl. Data Tables **21**, 49–68], adjusted here to include QED contributions and also for consistency with the $1s2l$ level values adopted here. Transitions of the type $1snl - 2l'nl''$ ($n \geq 2$) from doubly-excited upper configurations in Mg XI give rise to "satellite" features near the Mg XII $1s\ ^2S - 2p\ ^2P^o$ resonance doublet at 8.42 Å. Several such features for $n = 2$ are included here; we have omitted any such transitions involving $n \geq 3$ configurations (see, e.g., Boiko, V. A., *et al.* [1977], Mon. Not. Roy. Astron. Soc. **181**, 107–120; Aglizki, E. V., *et al.* [1978], Sol. Phys. **56**, 375–382).

References

A5 Aglitskii, E. V., Boiko, V. A., Zakharov, S. M., Pikuz, S. A., and Faenov, A. Ya. [1974], Sov. J. Quantum Electron. **4**, 500–513. The experimental wavelengths in this paper have been increased by 8 parts in 10^5; see Martin, W.C. [1981], Phys. Scr. **24**, 725–731.

B8 Boiko, V. A., Faenov, A. Ya., Pikuz, S. A., Skobelev, I. Yu., Vinogradov, A. V., and Yukov, E. A. [1977], J. Phys. B **10**, 3387–3394. The experimental wavelength has been increased by 8 parts in 10^5; see note to [A5], above.

F7 Flemberg, H. [1942], Ark. Mat. Astron. Fys. **28**, 1–17. Flemberg's measurements have been adjusted to a new conversion factor for x-units to Å; see Martin, W. C. [1981], Phys. Scr. **24**, 725–731.

K3 Klein, H. A., Moscatelli, F., Myers, E. G., Pinnington, E. H., Silver, J. D., and Träbert, E. [1985], J. Phys. B **18**, 1483–1493.

M4 Moreno, J. C., Goldsmith, S., Griem, H. R., Cohen, L., and Knauer, J. [1990], J. Opt. Soc. Am. B **7**, 704–707.

P2 Peacock, N. J., Hobby, M. G., and Galanti, M. [1973], J. Phys. B **6**, L298–L304.

T2 Träbert, E., and Heckman, P. H. [1980], Phys. Scr. **21**, 146–150.

W1 Walker, A. B. C., Jr., Rugge, H. R., and Weiss, K. [1974], Astrophys. J. **188**, 423–440.

Mg XI

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	10*g*		7.1037	0	[14 077 192]	$1s^2 - 1s10p$	$^1S - {}^1P^o$	0 – 1	
	15*g*	7.128	7.1194	0	[14 046 070]	$1s^2 - 1s9p$	$^1S - {}^1P^o$	0 – 1	W1
	20*g*	7.156	7.1415	0	[14 002 566]	$1s^2 - 1s8p$	$^1S - {}^1P^o$	0 – 1	W1
	25*g*	7.177	7.1741	0	[13 939 122]	$1s^2 - 1s7p$	$^1S - {}^1P^o$	0 – 1	W1
	35*g*	7.2256	7.2247	0	[13 841 392]	$1s^2 - 1s6p$	$^1S - {}^1P^o$	0 – 1	A5
	50*g*	7.3102	7.3103	0	[13 679 363]	$1s^2 - 1s5p$	$^1S - {}^1P^o$	0 – 1	F7
	2*g*		7.3125	0	[13 675 149]	$1s^2 - 1s5p$	$^1S - {}^3P^o$	0 – 1	
	100*g*	7.4738	7.4731	0	[13 381 265]	$1s^2 - 1s4p$	$^1S - {}^1P^o$	0 – 1	F7
	5*g*		7.4778	0	[13 372 934]	$1s^2 - 1s4p$	$^1S - {}^3P^o$	0 – 1	
	400*g*	7.8509	7.8505	0	[12 738 006]	$1s^2 - 1s3p$	$^1S - {}^1P^o$	0 – 1	F7
	20*g*	7.8612	7.8630	0	[12 717 729]	$1s^2 - 1s3p$	$^1S - {}^3P^o$	0 – 1	B8
		8.4460	8.4458	[10 906 612]	[22 746 800]	$1s2p - 2p^2$	$^1P^o - {}^1S$	1 – 0	A5
		8.4917	8.4959	[10 838 778]	[22 609 200]	$1s2s - 2s2p$	$^1S - {}^1P^o$	0 – 1	A5
		8.5235	8.5207	[10 736 136]	[22 472 200]	$1s2s - 2s2p$	$^3S - {}^3P^o$	1 – 2	A5
			8.5242	[10 736 136]	[22 467 400]	$1s2s - 2s2p$	$^3S - {}^3P^o$	1 – 1	
			8.5258	[10 736 136]	[22 465 200]	$1s2s - 2s2p$	$^3S - {}^3P^o$	1 – 0	

Mg XI — Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
		8.5335	8.5299	[10 832 818] –	[22 556 300]	$1s2p - 2p^2$	$^3P^o - {}^3P$	1 – 2	A5
			8.5323	[10 831 989] –	[22 552 100]	$1s2p - 2p^2$	$^3P^o - {}^3P$	0 – 1	
			8.5325	[10 836 388] –	[22 556 300]	$1s2p - 2p^2$	$^3P^o - {}^3P$	2 – 2	
			8.5329	[10 832 818] –	[22 552 100]	$1s2p - 2p^2$	$^3P^o - {}^3P$	1 – 1	
			8.5347	[10 832 818] –	[22 549 700]	$1s2p - 2p^2$	$^3P^o - {}^3P$	1 – 0	
			8.5355	[10 836 388] –	[22 552 100]	$1s2p - 2p^2$	$^3P^o - {}^3P$	2 – 1	
		8.5494	8.5515	[10 906 612] –	[22 600 500]	$1s2p - 2p^2$	$^1P^o - {}^1D$	1 – 2	A5
		8.574	8.5839	[10 906 612] –	[22 556 300]	$1s2p - 2p^2$	$^1P^o - {}^3P$	1 – 2	A5
		8.5990	8.5995	[10 838 778] –	[22 467 400]	$1s2s - 2s2p$	$^1S - {}^3P^o$	0 – 1	A5
			8.6699	[10 906 612] –	[22 440 800]	$1s2p - 2s^2$	$^1P^o - {}^1S$	1 – 0	
	1000*g*	9.1689	9.1688	0 –	[10 906 612]	$1s^2 - 1s2p$	$^1S - {}^1P^o$	0 – 1	F7
	50*g*	9.2310	9.2312	0 –	[10 832 818]	$1s^2 - 1s2p$	$^1S - {}^3P^o$	0 – 1	F7
	M1	9.316	9.3143	0 –	[10 736 136]	$1s^2 - 1s2s$	$^1S - {}^3S$	0 – 1	P2
			39.256	[10 831 989] –	[13 379 385]	$1s2p - 1s4d$	$^3P^o - {}^3D$	0 – 1	
	3	39.278	39.268	[10 832 818] –	[13 379 400]	$1s2p - 1s4d$	$^3P^o - {}^3D$	1 – 2	M4
	4	39.318	39.321	[10 836 388] –	[13 379 562]	$1s2p \quad 1s4d$	$^3P^o - {}^3D$	2 – 3	M4
			40.433	[10 906 612] –	[13 379 830]	$1s2p - 1s4d$	$^1P^o - {}^1D$	1 – 2	
	25	50.450	50.438	[10 736 136] –	[12 718 786]	$1s2s - 1s3p$	$^3S - {}^3P^o$	1 – 2	M4
			50.464	[10 736 136] –	[12 717 729]	$1s2s - 1s3p$	$^3S - {}^3P^o$	1 – 1	
	15	50.472	50.471	[10 736 136] –	[12 717 465]	$1s2s - 1s3p$	$^3S - {}^3P^o$	1 – 0	M4
			52.598	[10 831 989] –	[12 733 183]	$1s2p - 1s3d$	$^3P^o - {}^3D$	0 – 1	
	50*bl?*	52.625	52.620	[10 832 818] –	[12 733 223]	$1s2p - 1s3d$	$^3P^o - {}^3D$	1 – 2	M4
			52.653	[10 838 778] –	[12 738 006]	$1s2s - 1s3p$	$^1S - {}^1P^o$	0 – 1	
	40	52.721	52.709	[10 836 388] –	[12 733 603]	$1s2p - 1s3d$	$^3P^o - {}^3D$	2 – 3	M4
	40	54.729	54.714	[10 906 612] –	[12 734 298]	$1s2p - 1s3d$	$^1P^o - {}^1D$	1 – 2	M4
			105.76	[12 733 183] –	[13 678 692]	$1s3d - 1s5f$	$^3D - {}^3F^o$	1 – 2	
			105.77	[12 733 223] –	[13 678 692]	$1s3d - 1s5f$	$^3D - {}^3F^o$	2 – 3	
			105.81	[12 733 603] –	[13 678 692]	$1s3d - 1s5f$	$^3D - {}^3F^o$	3 – 4	
			105.89	[12 734 298] –	[13 678 692]	$1s3d - 1s5f$	$^1D - {}^1F^o$	2 – 3	
			146.58	[12 691 170] –	[13 373 378]	$1s3s - 1s4p$	$^3S - {}^3P^o$	1 – 2	
			146.68	[12 691 170] –	[13 372 934]	$1s3s - 1s4p$	$^3S - {}^3P^o$	1 – 1	
			146.70	[12 691 170] –	[13 372 822]	$1s3s - 1s4p$	$^3S - {}^3P^o$	1 – 0	
			150.84	[12 718 304] –	[13 381 265]	$1s3s - 1s4p$	$^1S - {}^1P^o$	0 – 1	
			151.08	[12 717 465] –	[13 379 385]	$1s3p - 1s4d$	$^3P^o - {}^3D$	0 – 1	
			151.13	[12 717 729] –	[13 379 400]	$1s3p - 1s4d$	$^3P^o - {}^3D$	1 – 2	
	6	151.356	151.34	[12 718 786] –	[13 379 562]	$1s3p - 1s4d$	$^3P^o - {}^3D$	2 – 3	M4
	6	154.687	154.63	[12 733 183] –	[13 379 893]	$1s3d - 1s4f$	$^3D - {}^3F^o$	1 – 2	M4
			154.64	[12 733 223] –	[13 379 893]	$1s3d - 1s4f$	$^3D - {}^3F^o$	2 – 3	
	6	154.734	154.73	[12 733 603] –	[13 379 893]	$1s3d - 1s4f$	$^3D - {}^3F^o$	3 – 4	M4
			154.90	[12 734 298] –	[13 379 898]	$1s3d - 1s4f$	$^1D - {}^1F^o$	2 – 3	
			155.81	[12 738 006] –	[13 379 830]	$1s3p - 1s4d$	$^1P^o - {}^1D$	1 – 2	
		334.5	334.62	[13 379 893] –	[13 678 742]	$1s4f - 1s5g$	$F^o - G$		T2
			616.10	[13 678 742] –	[13 841 054]	$1s5g - 1s6h$	$G - H^o$		
		997.38	997.49	[10 736 136] –	[10 836 388]	$1s2s - 1s2p$	$^3S - {}^3P^o$	1 – 2	K3
		1034.31	1034.32	[10 736 136] –	[10 832 818]	$1s2s - 1s2p$	$^3S - {}^3P^o$	1 – 1	K3
		1043.29	1043.26	[10 736 136] –	[10 831 989]	$1s2s - 1s2p$	$^3S - {}^3P^o$	1 – 0	K3
			1474.19	[10 838 778] –	[10 906 612]	$1s2s - 1s2p$	$^1S - {}^1P^o$	0 – 1	

Mg XII

H I isoelectronic sequence

Ground state $1s\ ^2S_{1/2}$

Ionization energy 15 829 955 ± 1 cm^{-1} (1962.6650 ± 0.0006 eV)

The calculated wavelengths are predicted by high-accuracy theoretical energy levels. The ionization energy and the $2s$ and $2p$ levels are from Mohr, and the higher levels are from Erickson's calculations, adjusted to Mohr's value for the ionization energy (Mohr, P. J. [1983], At. Data Nucl. Data Tables **29**, 453–466; Erickson, G. W. [1977], J. Phys. Chem. Ref. Data **6**, 831-869). The levels have been increased by 3.0 parts in 10^7, which corresponds to an adjustment of the effective Rydberg constant from the value for the Mg^{24} isotope, used by Mohr and by Erickson, to the value for Mg with natural isotopic abundances.

The calculated wavelengths have estimated uncertainties in the range from less than unity to a few units in the last decimal place. The observed wavelengths are generally consistent with the predicted values within the relatively larger uncertainties of the available measurements. The best measurements of the $1s-np$ resonance lines, for example, have uncertainties of ±0.0015 Å [A5].

We have supplied relative intensities for the $1s-np$ lines, based on an intensity of 1000 for the $1s\ ^2S_{1/2}-2p\ ^2P^o_{3/2}$ transition. These are meant only as a rough guide and do not correspond to any specific plasma conditions.

References

A5 Aglitskii, E. V., Boiko, V. A., Zakharov, S. M., Pikuz, S. A., and Faenov, A. Ya. [1974], Sov. J. Quantum Electron. **4**, 500–513. The experimental wavelengths in this paper have been increased by 8 parts in 10^5; see Martin, W.C. [1981], Phys. Scr. **24**, 725–731.

M4 Moreno, J. C., Goldsmith, S., Griem, H. R., Cohen, L., and Knauer, J. [1990], J. Opt. Soc. Am. B **7**, 704–707.

Mg XII

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	8g		6.380853	0 –	[15 671 886]	1s – 10p	$^2S - ^2P^o$	$1/2 - 3/2$	
	4g		6.380878	0 –	[15 671 825]	1s – 10p	$^2S - ^2P^o$	$1/2 - 1/2$	
	10g		6.395988	0 –	[15 634 802]	1s – 9p	$^2S - ^2P^o$	$1/2 - 3/2$	
	5g		6.396022	0 –	[15 634 718]	1s – 9p	$^2S - ^2P^o$	$1/2 - 1/2$	
	12g		6.417268	0 –	[15 582 837]	1s – 8p	$^2S - ^2P^o$	$1/2 - 3/2$	
	6g		6.417317	0 –	[15 582 956]	1s – 8p	$^2S - ^2P^o$	$1/2 - 1/2$	
	15g		6.448563	0 –	[15 507 153]	1s – 7p	$^2S - ^2P^o$	$1/2 - 3/2$	
	7g		6.448637	0 –	[15 507 331]	1s – 7p	$^2S - ^2P^o$	$1/2 - 1/2$	
	20g	6.5035	6.497386	0 –	[15 390 806]	1s – 6p	$^2S - ^2P^o$	$1/2 - 3/2$	A5
			6.497505	0 –	[15 390 524]	1s – 6p	$^2S - ^2P^o$	$1/2 - 1/2$	
	30g	6.5765	6.580011	0 –	[15 197 544]	1s – 5p	$^2S - ^2P^o$	$1/2 - 3/2$	A5
			6.580222	0 –	[15 197 056]	1s – 5p	$^2S - ^2P^o$	$1/2 - 1/2$	
	60g	6.7365	6.737749	0 –	[14 841 751]	1s – 4p	$^2S - ^2P^o$	$1/2 - 3/2$	A5
			6.738182	0 –	[14 840 798]	1s – 4p	$^2S - ^2P^o$	$1/2 - 1/2$	
	200g	7.1068	7.105766	0 –	[14 073 078]	1s – 3p	$^2S - ^2P^o$	$1/2 - 3/2$	A5
			7.106907	0 –	[14 070 818]	1s – 3p	$^2S - ^2P^o$	$1/2 - 1/2$	
	1000g	8.4201	8.419199	0 –	[11 877 615.1]	1s – 2p	$^2S - ^2P^o$	$1/2 - 3/2$	A5
	500g	8.4260	8.424608	0 –	[11 869 988.3]	1s – 2p	$^2S - ^2P^o$	$1/2 - 1/2$	A5
			30.05210	[11 869 988.3] –	[15 197 543]	2p – 5d	$^2P^o - ^2D$	$1/2 - 3/2$	
			30.05488	[11 870 297.1] –	[15 197 544]	2s – 5p	$^2S - ^2P^o$	$1/2 - 3/2$	
			30.05929	[11 870 297.1] –	[15 197 056]	2s – 5p	$^2S - ^2P^o$	$1/2 - 1/2$	
			30.11967	[11 877 615.1] –	[15 197 705]	2p – 5d	$^2P^o - ^2D$	$3/2 - 5/2$	
			33.65008	[11 869 988.3] –	[14 841 749]	2p – 4d	$^2P^o - ^2D$	$1/2 - 3/2$	
	1	33.678	33.65356	[11 870 297.1] –	[14 841 751]	2s – 4p	$^2S - ^2P^o$	$1/2 - 3/2$	M4
			33.66436	[11 870 297.1] –	[14 840 798]	2s – 4p	$^2S - ^2P^o$	$1/2 - 1/2$	
	1	33.736	33.73306	[11 877 615.1] –	[14 842 066]	2p – 4d	$^2P^o - ^2D$	$3/2 - 5/2$	M4

Mg XII – Continued

Mult. No.	Rel. Int.	Vac. Wavelength (Å) Observed	Calculated	Levels (cm^{-1}) Lower	Upper	Configurations	Terms	J Values	Ref.
	10	45.392	45.39088	[11 869 988.3] –	[14 073 074]	$2p-3d$	$^2P^o-{}^2D$	$1/2-3/2$	M4
			45.39716	[11 870 297.1] –	[14 073 078]	$2s-3p$	$^2S-{}^2P^o$	$1/2-3/2$	
			45.44379	[11 870 297.1] –	[14 070 818]	$2s-3p$	$^2S-{}^2P^o$	$1/2-1/2$	
	15	45.530	45.53299	[11 877 615.1] –	[14 073 825]	$2p-3d$	$^2P^o-{}^2D$	$3/2-5/2$	M4
			88.7528	[14 070 818] –	[15 197 543]	$3p-5d$	$^2P^o-{}^2D$	$1/2-3/2$	
			88.7600	[14 070 911] –	[15 197 544]	$3s-5p$	$^2S-{}^2P^o$	$1/2-3/2$	
			88.9181	[14 073 074] –	[15 197 705]	$3d-5f$	$^2D-{}^2F^o$	$3/2-5/2$	
			88.9184	[14 073 078] –	[15 197 705]	$3p-5d$	$^2P^o-{}^2D$	$3/2-5/2$	
			88.9711	[14 073 825] –	[15 197 786]	$3d-5f$	$^2D-{}^2F^o$	$5/2-7/2$	
			129.7133	[14 070 818] –	[14 841 749]	$3p-4d$	$^2P^o-{}^2D$	$1/2-3/2$	
			129.7286	[14 070 911] –	[14 841 751]	$3s-4p$	$^2S-{}^2P^o$	$1/2-3/2$	
	4	130.061	130.0405	[14 073 074] –	[14 842 065]	$3d-4f$	$^2D-{}^2F^o$	$3/2-5/2$	M4
			130.0410	[14 073 078] –	[14 842 066]	$3p-4d$	$^2P^o-{}^2D$	$3/2-5/2$	
	6	130.141	130.1409	[14 073 825] –	[14 842 223]	$3d-4f$	$^2D-{}^2F^o$	$5/2-7/2$	M4
			280.934	[14 841 749] –	[15 197 705]	$4d-5f$	$^2D-{}^2F^o$	$3/2-5/2$	
			281.119	[14 842 065] –	[15 197 786]	$4f-5g$	$^2F^o-{}^2G$	$5/2-7/2$	
			281.120	[14 842 066] –	[15 197 786]	$4d-5f$	$^2D-{}^2F^o$	$5/2-7/2$	
			281.206	[14 842 223] –	[15 197 834]	$4f-5g$	$^2F^o-{}^2G$	$7/2-9/2$	

3. Finding List for Mg I through Mg III

Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum
Vacuum			193.31	*g,a*	II	728.337	5	III	1239.936	25*g*	II
			193.40	*g,a*	II	732.625	5	III	1240.399	20*g*	II
106.30	*g*	III	193.64	*g,a*	II	734.441	8	III	1248.511	6	II
106.99	*g*	III	194.07	*g,a*	I	736.563	6	III	1249.932	8	II
108.08	*g*	III	194.66	*g,a*	I	739.276	7	III	1263.375	3	III
110.14	*g*	III	196.8	*g,a*	I	741.932	5	III	1271.243	8	II
114.33	*g*	III	197.76	*g,a*	II	744.342	7	III	1271.34	*g,a*	I
126.50	*g*	III	198.05	*g,a*	I	750.745	4	III	1271.784	1	III
157.701	1*g,d*	III	198.26	*g,a*	I	751.121	7	III	1271.943	9	II
157.981	1*g,d*	III	198.63	*g,a*	I	751.207	7	III	1272.725	8	II
158.522	2*g,d*	III	199.26	*g,a*	I	753.247	4	III	1273.427	11	II
159.198	2*g*	III	199.31	*g,a*	II	756.808	3	III	1274.831	10	III
159.741	4*g*	III	200.43	*g,a*	I	760.981	3	III	1280.702	1*d*	III
161.108	5*g*	III	201.88	*g,a*	I	762.756	4	III	1299.75	*g,a*	I
161.655	5*g*	III	202.00	*g,a*	II	765.655	5	III	1306.59	*bl*	III
163.562	2*g*	III	202.27	*g,a*	II	782.94	*g,a*	I	1306.711	11	II
164.133	1*g*	III	202.42	*g,a*	I	794.10	*g,a*	I	1307.877	12	II
164.394	8*g*	III	202.51	*g,a*	II	813.38	*g,a*	I	1308.282	12	II
164.949	8*g*	III	202.75	*g,a*	I	821.369	2	III	1308.654	1*d*	III
165.192	1*g*	III	202.94	*g,a*	II	823.788	3	III	1309.439	14	II
169.1406	7*g*	III	203.29	*g,a*	I	865.935	2	III	1310.271	1	III
169.7411	6*g*	III	203.42	*g,a*	II	870.2	*g,a*	II	1310.633	3*bl*	III
170.8050	15*g*	III	203.53	*g,a*	II	871.720	7	III	1310.720	1	III
171.3946	15*g*	III	204.34	*g,a*	I	873.580	5	III	1314.50	*bl*	III
171.8984	4*g*	III	209.09	*g,a*	II	874.46	*g,a*	I	1318.078	4	III
180.6	*g,a*	I	209.43	*g,a*	II	876.312	3	III	1320.022	2	III
181.0	*g,a*	I	210.00	*g,a*	I	878.847	3	III	1327.512	2*d*	III
182.06	*g,a*	I	213.52	*g,a*	I	880.107	3	III	1329.583	8*bl*	III
182.2415	15*g*	III	215.311	*g,a*	I	884.7	*g,a*	II	1332.310	2*d*	III
182.7	*g,a*	I	215.447	*g,a*	I	886.158	3	III	1334.359	6*bl*	III
182.9717	12*g*	III	216.202	*g,a*	I	889.888	5	III	1335.951	1	III
183.03	*g,a*	I	216.357	*g,a*	I	894.744	3	III	1346.46	*bl*	III
183.15	*g,a*	I	216.688	*g,a*	I	895.324	4	III	1348.342	3*d*	III
183.53	*g,a*	I	217.208	*g,a*	I	896.640	2	III	1349.132	4*d*	III
184.05	*g,a*	II	217.37	*g,a*	I	898.207	4	III	1349.365	1*d*	III
184.31	*g,a*	II	218.222	*g,a*	I	902.923	3	III	1350.156	4	III
184.68	*g,a*	II	218.37	*g,a*	I	907.4	*g,a*	II	1352.80	*bl*	III
184.81	*g,a*	II	219.041	*g,a*	I	909.730	3	III	1353.804	3*d*	III
185.26	*g,a*	II	219.266	*g,a*	I	946.703	8*g*	II	1353.915	1*d*	III
185.59	*g,a*	II	220.056	*g,a*	I	946.769	9*g*	II	1365.545	14	II
185.95	*g,a*	I	220.298	*g,a*	I	1025.962	14*g*	II	1367.260	15	II
185.98	*g,a*	II	222.044	*g,a*	I	1026.108	12*g*	II	1367.704	15	II
186.47	*g,a*	II	222.685	*g,a*	I	1036.96	*g,a*	I	1369.425	18	II
186.5149	20*g*	III	223.429	*g,a*	I	1037.92	*g,a*	I	1371.769	2*d*	III
186.84	*g,a*	II	225.162	*g,a*	I	1039.50	*g,a*	I	1376.713	3*d*	III
187.19	*g,a*	II	225.589	*g,a*	I	1040.70	*g,a*	I	1378.700	7	III
187.1977	20*g*	III	226.246	*g,a*	I	1042.81	*g,a*	I	1378.891	1	III
187.38	*g,a*	II	231.7333	100*g*	III	1044.54	*g,a*	I	1386.691	1*d*	III
187.4	*g,a*	I	233.01	4	II	1047.77	*g,a*	I	1389.504	2	III
187.68	*g,a*	I	234.2631	80*g*	III	1048.74	*g,a*	I	1391.271	12	III
188.5296	10*g*	III	235.8	1	II	1050.17	*g,a*	I	1393.391	15	III
188.54	*g,a*	II	238.1	7	II	1055.18	*g,a*	I	1395.642	2*d*	III
188.75	*g,a*	I	246.55	6	II	1056.53	*g,a*	I	1402.82	*bl*	III
188.91	*g,a*	II	247.21	2*g*	II	1059.10	*g,a*	I	1405.170	9	III
189.01	*g,a*	II	247.66	1	II	1067.44	*g,a*	I	1407.880	7	III
189.23	*g,a*	II	248.39	3*g*	II	1069.11	*g,a*	I	1421.538	5	III
189.37	*g,a*	II	248.88	2	II	1073.51	*g,a*	I	1422.118	3	III
189.93	*g,a*	I	250.02	1	II	1088.90	*g,a*	I	1431.136	10	III
191.30	*g,a*	II	250.32	2	II	1091.51	*g,a*	I	1435.550	7	III
191.56	*g,a*	II	250.71	3	II	1101.60	*g,a*	I	1439.770	2	III
191.65	*g,a*	II	254.32	6	II	1135.58	*g,a*	I	1443.738	8	III
192.40	*g,a*	II	277.2	1	II	1141.85	*g,a*	I	1446.254	7	III
192.55	*g,a*	II	287.1	2	II	1163.80	*g,a*	I	1447.260	6	III
192.84	*g,a*	II	721.592	2	III	1229.389	2	III	1458.172	5	III
193.09	*g,a*	II	725.347	3	III	1239.827	2*bl*	III	1462.305	5	III

Finding List for Mg I through Mg III — Continued

Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum
1467.188	4	III	1635.946	2	III	1846.121	3	III	2007.906	0.5	III
1474.898	2	III	1636.465	*g,a*	I	1846.707	3	III	2008.771	2	III
1476.004	20	II	1638.890	*g,a*	I	1847.561	1	III	2013.546	0.5	III
1477.416	1	III	1641.957	*g,a*	I	1849.591	1	III	2013.838	1	III
1478.013	25	II	1642.826	5	III	1850.060	3	III	2013.91		II
1480.890	20	II	1645.924	*g,a*	I	1854.139	2	III	2016.752	1	III
1482.67	*bl*	III	1648.822	2	III	1855.99	*bl*	III	2017.927	0.5	III
1482.902	30	II	1651.164	*g,a*	I	1858.186	13	III	2019.217	0.5	III
1486.624	4	III	1652.218	4	III	1858.451	3	III	2022.404	1	III
1493.097	4	III	1653.43		II	1865.388	0.5	III	2023.980	1	III
1506.826	3*bl*	III	1658.312	*g,a*	I	1865.636	4	III	2024.285	2	III
1550.82	*bl*	III	1659.244	4	III	1868.225	7	III	2025.824	9*g*	I
1572.712	16	III	1663.287	2	III	1872.956	2	III	2028.32		II
1586.237	12	III	1668.429	*g,a*	I	1873.268	0.5	III	2032.923	2	III
1592.360	8	III	1675.710	1	III	1879.492	12	III	2033.272	0.5	III
1622.363	*g,a*	I	1679.470	2	III	1882.308	3	III	2039.553	15	III
1622.395	*g,a*	I	1683.412	*g,a*	I	1882.63		II	2055.491	15	III
1622.423	*g,a*	I	1687.091	13	III	1886.764	1	III	2064.902	25	III
1622.458	*g,a*	I	1697.282	13	III	1887.308	4	III	2074.298	1	III
1622.496	*g,a*	I	1703.108	3	III	1890.380	7	III	2085.891	15	III
1622.534	*g,a*	I	1703.731	5	III	1891.970	3	III	2091.963	20	III
1622.571	*g,a*	I	1704.368	2	III	1896.304	5	III	2094.207	2	III
1622.614	*g,a*	I	1707.061	*g,a*	I	1897.226	3	III	2097.936	13	III
1622.661	*g,a*	I	1714.783	4	III	1900.043	5	III	2112.773	15	III
1622.706	*g,a*	I	1716.73		II	1901.360	2	III	2134.054	16	III
1622.758	*g,a*	I	1722.041	10	III	1901.572	5	III	2177.694	20	III
1622.812	*g,a*	I	1730.733	7	III	1902.22		II	2182.57		II
1622.870	*g,a*	I	1730.778	3	III	1908.500	10	III	2211.41		II
1622.932	*g,a*	I	1731.786	5	III	1918.777	5	III	2273.414	2	III
1622.997	*g,a*	I	1734.845	40	II	1921.374	1	III	2318.125	2	III
1623.069	*g,a*	I	1737.618	50	II	1922.540	1	III	2329.578	3	II
1623.143	*g,a*	I	1738.835	22	III	1922.788	0.5	III	2395.149	20	III
1623.225	*g,a*	I	1739.475	3*bl*	III	1923.042	5	III	2449.590	6	II
1623.312	*g,a*	I	1743.947	2	III	1923.896	12	III	2467.751	15	III
1623.406	*g,a*	I	1745.009	1	III	1924.479	6	III	2490.534	10	III
1623.508	*g,a*	I	1747.561	12	III	1928.09		II	2518.635	1	III
1623.619	*g,a*	I	1747.794	*g,a*	I	1928.198	1	III	2529.190	10	III
1623.737	*g,a*	I	1748.932	18	III	1928.424	6	III	2553.25	4	I
1623.868	*g,a*	I	1750.654	40	II	1928.811	2	III	2554.58	1*d*	I
1624.010	*g,a*	I	1753.456	50	II	1929.080	0.5	III	2557.226	0	I
1624.165	*g,a*	I	1757.176	2	III	1930.374	3	III	2560.941	0	I
1624.334	*g,a*	I	1757.888	5	III	1930.672	13	III	2562.259	1	I
1624.520	*g,a*	I	1761.740	*bl*	III	1933.563	7	III	2564.937	1	I
1624.727	*g,a*	I	1763.805	6*bl*	III	1937.539	0.5	III	2570.908	0	I
1624.953	*g,a*	I	1772.982	15	III	1937.778*c*	*m*	III	2572.248	1	I
1625.204	*g,a*	I	1773.959	1	III	1937.843	11	III	2574.945	2	I
1625.485	*g,a*	I	1775.942	2	III	1938.249	3	III	2577.888	0	I
1625.798	*g,a*	I	1783.253	20	III	1938.936	3	III	2580.587	1	I
1626.093	2	III	1787.927	4	III	1941.500	4	III	2584.216	1	I
1626.151	*g,a*	I	1791.375	5	III	1942.036	2	III	2585.558	2	I
1626.36	*a*, E2	I	1791.402*c*	*m*	III	1954.831	3	III	2588.285	3	I
1626.549	*g,a*	I	1793.207	2	III	1962.145	3	III	2591.891	0	I
1626.79	*a*, E2	I	1794.582	14	III	1971.514	2	III	2593.231	1	I
1627.000	*g,a*	I	1800.662	15	III	1974.737	4	III	2595.973	2	I
1627.27	*a*, E2	I	1803.087	2	III	1977.554	8	III	2602.495	2	I
1627.514	*g,a*	I	1806.78		II	1979.327	9	III	2603.854	4	I
1627.82	*a*, E2	I	1808.56		II	1979.43	*bl*	III	2606.621	5	I
1628.104	*g,a*	I	1819.954	1	III	1985.173	4	III	2613.357	1	I
1628.46	*a*, E2	I	1820.421	5	III	1992.98		II	2614.726	2	I
1628.786	*g,a*	I	1820.896	1	III	1993.759	3	III	2617.513	3	I
1629.21	*a*, E2	I	1824.50		II	1994.089	2	III	2618.011	7	III
1629.579	*g,a*	I	1826.750	1	III				2628.664	3	I
1630.509	*g,a*	I	1827.934	*g,a*	I	Air			2630.053	6	I
1631.609	*g,a*	I	1828.974	1	III	2002.917	2	III	2632.873	8	I
1632.924	*g,a*	I	1838.336	4	III	2004.860	6	III	2644.801	2	I
1634.515	*g,a*	I	1839.878	3	III	2007.623	1	III	2646.206	3	I

Finding List for Mg I through Mg III — Continued

Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum
2649.062	4	I	3175.783	7	II	3822.00	*a*	I	4436.598	4	II
2660.755	8	II	3197.625	2	I	3829.3549	36	I	4443.947	3*d*	III
2660.817	8	II	3201.796	3	I	3831.68	*a*	I	4445.577	5*d*	III
2668.124	6	I	3206.948	2	III	3832.2996		I	4452.343	2*d*	III
2669.553	8	I	3213.845	3	III	3832.3037	38	I	4463.404	9*d*	III
2672.460	10	I	3299.050	12	III	3838.2918	40	I	4476.490	6*d*	III
2693.723	3	I	3306.392	13	III	3838.2943		I	4477.853	4*d*	III
2695.181	5	I	3321.060	8	III	3843.70	*a*	I	4479.030	3*d*	III
2698.145	6	I	3329.919	17	I	3848.209	8	II	4481.130	14	II
2731.993	8	I	3332.146	19	I	3848.335	5*bl*	II	4481.327	13	II
2733.493	10	I	3335.905	12	III	3848.914	1E2	I	4497.566	7*d*	III
2736.542	12	I	3336.190	5	III	3850.385	7	II	4501.793	1*d*	III
2765.222	5	I	3336.674	20	I	3853.960	2E2	I	4522.871	1	III
2768.339	7	I	3342.577	11	III	3854.965	1E2	I	4526.223	9	III
2776.690	18	I	3344.899	2	III	3858.860	2	I	4534.291	6	II
2778.270	18	I	3353.729	7	III	3870.456	3*d*	III	4571.0956	28*g*	I
2779.831	20	I	3361.412	12	III	3878.306	3	I	4586.200	4	III
2781.288	8	I	3381.236	10	III	3891.906	2*d*	I	4596.916	9	III
2781.416	18	I	3382.901	11	III	3893.304	2*d*	I	4621.299	3	I
2782.972	18	I	3387.368	11	III	3895.572	3*d*	I	4630.878	2	II
2783.52	*bl*	III	3390.577	2	III	3903.859	4	I	4631.405	1	II
2790.776	9	II	3399.188	9	III	3938.400	6	I	4632.531	7	III
2795.528	13*g*	II	3427.794	1	III	3975.738	2	III	4673.303	8	III
2797.998	10	II	3430.76	*bl*	III	3984.212	1	I	4690.361	2	III
2802.704	12*g*	II	3434.236	1	III	3986.7533	8	I	4702.9909	30	I
2809.761	3	I	3438.623	1	III	4001.345	2	III	4720.936	5	III
2811.112	2*bl*	I	3444.409	8	III	4002.304	1	III	4723.204	5	III
2811.781	1	I	3467.912	8	III	4026.780	2*d*	III	4730.0285	10	I
2846.716	12	I	3473.424	3	III	4038.255	5	III	4739.588	6	II
2848.342	14	I	3497.994	7	III	4039.135	3	III	4739.712	5	II
2851.660	16	I	3515.602	8	III	4054.689	2	I	4802.601	7	III
2852.127	50*g*	I	3534.91	*bl*	III	4056.480	1	III	4821.516	6	III
2893.221	2	III	3534.972	7	II	4057.350	7*bl*	III	4850.385	6	III
2902.923	2	I	3538.813	8	II	4057.5052	10	I	4851.082	7	II
2905.419	1	III	3549.516	7	II	4075.059	3	I	4868.845	2	II
2906.360	4	I	3551.638	4	III	4081.833	2	I	4878.729	4	III
2913.657	1	III	3552.933	4	III	4082.939	6	III	4889.040	1	III
2915.453	3*d*	I	3553.366	8	II	4094.375	5	III	4915.349	7	III
2919.351	1	III	3568.385	4	III	4111.992	6	III	4916.002	10	III
2928.634	9	II	3578.273	1	III	4112.835	3	III	4960.409	9	III
2936.509	10	II	3588.694	1	III	4140.688	3	III	4970.511	7	III
2936.739	10	I	3601.288	4	III	4147.487	1	III	4981.452	8	III
2938.473	12	I	3613.781	4	II	4156.475	3*bl*	III	4997.038	6	III
2941.995	13	I	3615.583	3	II	4159.041	1	III	5007.638	3	III
2943.707	4	III	3641.320	1	III	4165.101	4	I	5023.668	7	III
2950.773	2	III	3654.040	3	III	4167.2712	15	I	5068.937	4	II
2960.453	2	III	3703.930	4	III	4193.482	2	II	5069.802	3	II
2966.338	4	III	3706.745	10	III	4238.916	2	III	5167.3216	42	I
2968.020	2	II	3708.609	1	III	4239.468	7	III	5172.6843	44	I
2969.145	1	II	3713.50	*bl*	III	4242.445	3	II	5183.6042	45	I
2971.839	2	II	3719.838	4	III	4242.543	2	II	5220.329	4	III
2999.710	1	III	3745.030	7	III	4275.201	1	III	5224.593	6	III
3074.23	*bl*	III	3753.714	3	III	4296.355	1	III	5264.215	8	II
3080.208	1	III	3755.606	1	III	4331.945	4	II	5264.368	7	II
3091.065	20	I	3764.539	8	III	4351.9056	20	I	5286.389	3	III
3092.984	22	I	3773.572	3	III	4354.529	6	I	5305.206	3	III
3096.890	24	I	3774.06	*bl*	III	4358.138	2	III	5345.977	1*d*	I
3104.722	9	II	3786.8	*a*	I	4358.979	3	III	5401.543	9	II
3104.809	8	II	3789.7	*a*	I	4380.375	6	I	5434.039	4	II
3126.380	9	III	3793.3	*a*	I	4384.637	9	II	5451.259	1	II
3154.336	8	III	3797.22	*a*	I	4390.564	10	II	5460.019	1	II
3156.506	2	III	3801.87	*a*	I	4423.182	2	III	5464.136	2	II
3165.878	3	II	3807.41	*a*	I	4424.071	2	III	5509.597	2*d*	I
3167.251	2	III	3808.073	1	III	4427.994	8	II	5513.255	1	III
3168.951	6	II	3814.02	*a*	I	4433.990	9	II	5528.4047	40	I
3172.706	6	II	3817.575	3*d*	III	4436.486	5	II	5626.406	4	III

Finding List for Mg I through Mg III – Continued

Wavelength (Å)	Int.	Spectrum	Wavelength (Å)	Int.	Spectrum	Wavenumber (cm^{-1})	Int.	Spectrum	Wavenumber (cm^{-1})	Int.	Spectrum
5711.0880	30	I	7930.806	7	I	9905.966	14	II	6634.900	1	II
5734.082	1	III	7947.07	2	I	9706.75	5	I	6630.458	2	II
5785.312	5	I	7953.39	3	I	9694.284	12	I	6605.263	3	I
5785.560	4	I	8047.73	3*bl*	I	9620.372	5	II	6604.512	2	I
5839.820	10	III	8049.854	5	I	9619.937	6	II	6604.153	1	I
5916.429	7	II	8054.232	7	I	9247.233	35	I	6574.832	260	II
5918.158	6	II	8098.724	10	I	9159.841	11	II	6567.454	50	II
5923.366	3	II	8115.220	9	II	9158.969	7	II	6567.336	470	II
5928.233	4	II	8120.434	8	II	9128.436	10	II	6506.863	310	II
5938.629	3	II	8154.644	1	I	9127.152	25	I	6499.485	650	II
5943.499	4	II	8159.132	2	I	9123.834	27	I	6370.401	50	I
5945.873	1	III	8209.839	10	I	9117.056	28	I	6351.220	12900	I
5987.370	2	III	8213.034	20	I	9061.973	15	I	6347.880	3250	I
6092.912	4	III	8213.989	10	II	9060.693	14	I	6341.095	5750	I
6127.392	6	III	8222.924	7	II	9060.00	4	I	6295.682	140	I
6150.082	4	III	8233.194	7	II	8881.792	70	II	6293.057	70	I
6208.440	6	III	8234.639	1	II	8881.471	50	II	6291.737	30	I
6244.024	4	III	8303.313	7	I	8710.421	4	II	6282.521	45	I
6256.750	15	III	8305.596	9	I	8702.961	6	II	6268.517	2	I
6270.250	7	III	8310.264	10	I	8676.493	3	I	6266.13	5	I
6318.716	10	I	8346.120	15	I	8667.048	3	II	6024.054	4	I
6319.236	9	I	8466.483	2	I	8662.635	4	I	6014.773	1	I
6319.493	7	I	8468.845	5	I	8659.672	5	II	6013.438	4	I
6346.737	10	II	8473.694	7	I	8617.903	300	II	6010.781	7	I
6346.962	9	II	8609.71	3*d*	I	8603.393	420	II	5998.693	5	II
6406.619	8	III	8707.14	5	I	8595.796	3	II	5996.583	3	II
6417.036	1	III	8710.175	10	I	8507.335	11	II	5964.849	3700	II
6421.224	4	III	8712.689	12	I	8507.158	15	II	5951.054	750	II
6511.429	2	III	8717.825	13	I	8452.079	2650	I	5950.752	6750	II
6545.973	11	II	8734.990	10	II	8303.498	120	I	5843.407	100000	I
6620.440	5	II	8736.021	17	I	8273.639	60	I	5743.070	2	I
6620.569	6	II	8745.657	11	II	8273.382	5750	I	5741.608	700	II
6630.834	2	I	8806.757	50	I	8050.665	15	I	5727.813	1380	II
6781.451	7	II	8824.323	10	II	8047.365	50	I	5642.671	5000	II
6787.851	8	II	8835.082	11	II	8040.619	85	I	5642.337	3550	II
6812.860	7	II	8837.05	5*d*	I	7975.218	2	II	5631.08	1	I
6819.270	8	II	8923.569	20	I	7975.052	1	II	5628.44	1	I
6894.898	4	I	8989.026	7	I	7815.10	2	II	5590.861	5	II
6965.404	6	I	8991.692	9	I	7805.95	2	II	5586.404	8	II
7056.876	3	III	8997.156	10	I	7804.16	1	II	5561.440	3	II
7060.409	8	I	9016.01	6	I	7166.61	1	I	5557.041	6	II
7166.676	2	II	9218.248	14	II	7011.234	60	II	5503.545	65	II
7193.172	10	I	9244.266	13	II	7006.835	24	II	5503.345	60	II
7291.060	10	I	9246.499	12	I	6961.632	13	I	5445.621	6	I
7387.004	5	I	9255.778	30	I	6944.571	13	II	5440.885	5	I
7387.685	12	I	9259.74	8	I	6944.380	9	II	5440.830	1	I
7429.846	3	III	9273.44	9	I	6840.126	290	I	5382.153	10000	II
7580.764	4	II	9327.545	10	II	6800.738	1	I	5368.314	24500	II
7589.558	3	II	9340.544	10	II	6788.294	350	II	5356.671	130	II
7657.603	20	I	9414.964	25	I	6787.992	38	II	5345.540	140	II
7659.152	19	I	9429.814	17	I	6785.324	21	II	5336.712	180	II
7659.902	17	I	9432.764	19	I	6783.594	170	II	5335.047	210	II
7690.165	8	I	9438.783	20	I	6776.243	19	II	5333.903	1	II
7691.550	15	I	9502.454	8	I	6774.538	1	II	5331.513	5	II
7722.614	1	I	9503.108	7	I	6732.113	1	II	5274.43	1	I
7746.343	1	I	9503.433	5	I	6732.025	2	II	5274.17	2	I
7759.297	1	I	9631.888	12	II	6719.710	10500	I	5270.444	8	II
7786.500	5	II	9632.435	11	II	6719.674	7250	I	5270.331	10	II
7790.978	4	II	9649.53	28	I	6719.596	4250	I	5210.360	230	II
7811.135	3	I	9665.54	15	I	6719.417	520	I	5210.17	32	II
7877.051	12	II	9983.20	15	I	6653.757	38900	I	5210.118	350	II
7881.667	2	I	9986.475	17	I	6647.011	22400	I	5208.507	9	I
7896.368	13	II	9993.209	18	I	6643.712	7250	I	5208.443	7	I

Finding List for Mg I through Mg III – Continued

Wavenumber (cm^{-1})	Int.	Spectrum	Wavenumber (cm^{-1})	Int.	Spectrum	Wavenumber (cm^{-1})	Int.	Spectrum	Wavenumber (cm^{-1})	Int.	Spectrum
5208.408	5	I	4130.053	15	II	3161.985	1	II	1356.182	10	I
5146.530	35	I	4129.187	18	II	3154.607	30	II	1127.248		I
5145.215	20	I	4124.788	5	II	3134.856	1	II	1125.9325		I
5144.573	7	I	4124.708	35	II	3134.706	2	II	1125.2913		I
5069.997	1	I	4085.816	13	II	3012.049	17	I	957.9333	15	I
5068.699	3	I	4081.418	25	II	3011.973	11	I	957.8846	9	I
5066.047	5	I	4080.374	40	I	3011.893	8	I	957.8629	7	I
4747.097	5	I	4069.629	8	I	3011.857	2	I	911.5704	51	I
4746.88	6	I	4069.507	150	I	2943.701	275	I	911.5381	57	I
4746.841	6	I	4031.386	450	I	2826.79	40	I	906.6225		I
4746.796	6	I	4028.086	1380	I	2825.47	25	I	895.875		I
4713.884	40*d*	I	4021.341	2250	I	2731.89	20	II	895.7553		I
4712.643	1	I	3934.361	40	I	2719.43	125	I	891.3646		I
4710.002	2	I	3934.147	25	I	2718.119	320	I	886.8717		I
4678.418	3150	II	3934.108	25	I	2715.448	630	I	885.5292		I
4664.623	1500	II	3934.052	35	I	2586.328	4000	I	848.0698	40	I
4658.807	45	I	3787.878	8300	I	2586.11	4800	I	848.0610	30	I
4576.06	3	II	3766.076	1	I	2586.068	5000	I	848.0241	50	I
4570.18	2	II	3606.40	10	I	2586.021	5000	I	848.0109	65	I
4383.279	45	I	3605.11	25	I	2432.983	6300	II	841.785		I
4383.225	30	I	3602.466	40	I	2425.605	3160	II	841.021	4	I
4383.179	25	I	3401.459	6	II	2380.236	5000	I	838.14		I
4364.582	2	I	3401.255	4	II	2377.595	3150	I	837.5004		I
4346.954	3	I	3346.802	20	I	2376.305	1000	I	836.1855		I
4285.508	1	I	3316.70	12	I	2291.50	50	I	819.1055		I
4248.755	8	II	3302.816	20	I	2271.86	20	I	818.058	36	I
4245.924	4	II	3277.856	18	II	2210.045	3160	II	811.575	55	I
4194.071	5	I	3270.479	3	II	2209.744	500	II	794.380	2	I
4192.75	12	I	3270.296	30	II	2202.366	2000	II	743.3187	20	I
4190.109	25	I	3245.449	10	II	2150.353	10000	I	743.2698	15	I
4158.357	2050	II	3237.022	20	II	1993.573	400	II	743.2442	40	I
4157.827	210	II	3235.482	50	II	1989.057	630	II	530.986	10	I
4144.032	1150	II	3229.42	1	II	1925.614	500	II	40.7140	M1	I
4133.065	35	II	3209.447	90	I	1921.216	1000	II	20.05646	M1	I
4132.882	4	II									

4. Finding List for Mg IV through Mg XII

Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum
Vacuum			9.411	86*bl*	IX	52.395	10	VIII	64.518	100*g*	VIII
			9.430	32*bl*	IX	[52.598]		XI	64.635	200*g*	VIII
[6.380853]	8*g*	XII	9.454	25*bl*	IX	[52.620]	50*bl?*	XI	64.702	200*g*	VIII
[6.380878]	4*g*	XII	[30.05210]		XII	52.628	40	VIII	64.811	10	VIII
[6.395988]	10*g*	XII	[30.05488]		XII	[52.653]		XI	64.878	100	VIII
[6.396022]	5*g*	XII	[30.05929]		XII	52.692	80	VIII	65.609	400	IX
[6.417268]	12*g*	XII	[30.11967]		XII	[52.709]	40	XI	65.672	35	X
[6.417317]	6*g*	XII	[33.65008]		XII	53.112	10	IX	65.735	100	VIII
[6.448563]	15*g*	XII	[33.65356]	1	XII	53.188	200	IX	65.806	200	VIII
[6.448637]	7*g*	XII	[33.66436]	1	XII	53.222	200	IX	65.847	60	X
[6.497386]	20*g*	XII	[33.73306]	1	XII	53.438	20	VIII	66.069	300	VIII
[6.497505]	10*g*	XII	35.366	3*g*	X	53.484	10	VIII	66.788	10	VII
[6.580011]	30*g*	XII	35.827	6*g*	X	53.512	100	VIII	67.090	500	IX
[6.580222]	15*g*	XII	36.518	35*g*	X	53.744	10	VIII	67.135	600	IX
[6.737749]	60*g*	XII	37.644	60*g*	X	53.812	10*g*	VIII	67.239	700	IX
[6.738182]	30*g*	XII	38.769	60	X	53.905	100*g*	VIII	67.453	10	VII
[7.1037]	10*g*	XI	38.823	120	X	54.011	200	IX	67.470	100	VII
[7.105766]	200*g*	XII	[39.256]		XI	54.463	10	IX	67.497	200	VII
[7.106907]	100*g*	XII	[39.268]	3	XI	[54.714]	40	XI	67.731	400	IX
[7.1194]	15*g*	XI	[39.321]	4	XI	54.853	60*g*	VIII	67.993	100*g*	VII
[7.1415]	20*g*	XI	39.669	250*g*	X	54.886	100*g*	VIII	68.064	200*g*	VII
[7.1741]	25*g*	XI	40.022	120	X	55.060	200	IX	68.100	200*g*	VII
[7.2247]	35*g*	XI	40.080	200	X	55.222	10*g*	VIII	68.144	300*g*	VII
[7.3103]	50*g*	XI	[40.433]		XI	56.358	10	VIII	68.352	200	VII
[7.3125]	2*g*	XI	40.638	10*g*	IX	56.403	10	VIII	68.450	100*g*	VIII
[7.4731]	100*g*	XI	41.803	40*g*	IX	56.861	10	IX	68.550	100	VIII
[7.4778]	5*g*	XI	42.294	250	X	57.590	10	VIII	68.580	10	VIII
[7.8505]	400*g*	XI	42.363	400	X	57.736	100	VIII	68.606	200*g*	VIII
[7.8630]	20*g*	XI	42.523	6	X	57.876	700*g*	X	68.949	10	IX
7.998	*g*	X	42.596	10	X	57.920	700*g*	X	68.986	100	IX
8.0520	*g*	X	43.087	10	IX	58.316	10*g*	VII	69.009	100	IX
8.0694		X	43.138	20	IX	58.537	10	VIII	69.058	10	IX
8.092	3	X	43.481	50	IX	58.614	200	VIII	69.116	100	IX
[8.419199]	1000*g*	XII	43.843	60*g*	IX	58.667	300	VIII	69.161	300	IX
[8.424608]	500*g*	XII	44.050	400*g*	X	59.038	200*g*	VIII	69.374	200	IX
[8.4458]		XI	44.373	40	IX	59.153	300*g*	VIII	69.413	400	IX
[8.4959]		XI	44.420	60	IX	59.640	1	VII	69.413	400*g*	VIII
[8.5207]		XI	44.983	20	IX	60.138	10*g*	VII	69.467	500*g*	VIII
[8.5242]		XI	[45.39088]	10	XII	60.316	40	VIII	69.467	500	IX
[8.5258]		XI	[45.39716]	10	XII	60.384	10	VIII	69.513	100	IX
[8.5299]		XI	[45.44379]		XII	60.806	10*g*	VIII	69.577	100*g*	VIII
[8.5323]		XI	[45.53299]	15	XII	61.038	200	IX	69.615	300	VII
[8.5325]		XI	45.635	40	IX	61.088	100	IX	69.615	300	IX
[8.5329]		XI	45.980	20	IX	61.127	300	IX	69.900	10	VII
[8.5347]		XI	46.340	40	IX	61.175	200	IX	69.950	600	IX
[8.5355]		XI	46.657	160	IX	61.359	10	IX	70.193	100	VII
[8.5515]		XI	46.711	10	IX	61.393	100	IX	70.953	100*g*	VIII
[8.5839]		XI	47.041	60	IX	61.489	200	IX	71.007	200*g*	VIII
[8.5995]		XI	47.231	250	X	61.891	200	VIII	71.118	300*g*	VIII
[8.6699]		XI	47.310	400	X	61.924	400	IX	71.168	100*g*	VIII
[9.1688]	1000*g*	XI	47.818	10	IX	61.964	100	VIII	71.786	100	VII
9.2216	10	X	47.947	100	IX	61.964	100	IX	71.841	100	IX
9.2300	10*bl*	X	48.024	10	IX	62.020	10	IX	71.901	200	IX
[9.2312]	50*g*	XI	48.340	100*g*	IX	62.166	10	VII	72.027	300	IX
9.266	2	X	48.794	10	IX	62.291	10	VIII	72.226	300	IX
9.2840	25*g*	X	49.586	1	IX	62.615	10*g*	VII	72.312	400	IX
9.2957	15*bl*	X	[50.438]	25	XI	62.696	100*g*	VII	72.546	10	VIII
[9.3143]	M1	XI	[50.464]		XI	62.751	500*g*	IX	72.684	100	VIII
9.3167	30	X	[50.471]	15	XI	63.152	400	X	72.787	100	VII
9.3200	50	X	50.777	10	IX	63.295	700	X	72.852	10	VII
9.367	14	IX	51.389	20*g*	VIII	63.396	100*g*	VII	72.896	1	VII
9.384	43*bl*	IX	51.470	40*g*	VIII	64.122	200	VII	73.250	400	VIII
9.3845		X	51.560	10	IX	64.246	10*g*	VIII	73.825	100	VIII
9.3923	*g*	X	51.591	300	IX	64.377	100*g*	VIII	73.862	200	VIII
9.393	49	IX	51.654	400	IX	64.488	100*g*	VIII	73.890	100	VIII

Finding List for Mg IV through Mg XII — Continued

Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum
73.927	100	VIII	81.304	100	VIII	89.407	200	VII	97.525	10	VIII
73.981	200	VIII	81.368	10	VIII	89.448	200	VII	97.562	150*g*	V
74.021	300	VIII	81.732	300	VIII	89.476	10	VII	97.633	20*g*	V
74.274	200	IX	81.790	200	VIII	89.649	10	VI	97.686	100	VIII
74.274	200	VIII	81.844	400	VIII	90.706	400	VII	98.032	300	VII
74.319	300	VIII	81.943	200	VIII	90.815	300	VII	98.231	100*g*	V
74.319	300*g*	VI	81.979	200	VIII	90.897	600*g*	VI	98.270	200*g*	V
74.319	300	IX	82.238	200	VIII	90.897	600	VII	98.405	100*g*	V
74.366	400	VIII	82.317	300	VIII	91.385	10	IX	98.440	150*g*	V
74.366	400	IX	82.475	100	VI	91.460	10	VII	98.476	10*g*	V
74.411	100	IX	82.598	200*g*	VIII	91.573	100	VII	98.508	300	VI
74.411	100	VIII	82.709	200	VIII	92.123	100	VIII	98.635	200*g*	V
74.461	10	IX	82.822	300*g*	VIII	92.256	300	VII	98.803	100*g*	V
74.520	100	IX	82.853	100	VI	92.324	10	VIII	98.872	50*g*	V
74.574	200*g*	VI	82.940	400	VII	92.898	200	VII	98.983	400	VII
74.738	100	IX	82.969	400	VII	92.934	200	VII	98.983	400	VI
74.858	600*g*	VIII	83.015	500	VII	92.964	100	VII	99.025	200	VI
75.034	700*g*	VIII	83.403	400	VI	92.964	100	VI	99.066	200	V
75.248	100	VI	83.519	300*g*	VII	93.109	100	VI	99.279	400	VI
75.334	100	VI	83.519	300	VI	93.493	300	VI	99.333	400	VI
75.834	200*g*	VI	83.560	200*g*	VI	93.911	10	VIII	99.611	200	V
75.890	10*g*	VI	83.560	200*g*	VII	94.043	400	VII	99.713	300	VI
75.975	400	VII	83.587	200*g*	VII	94.043	400	VIII	99.738	300	VI
76.199	100	VIII	83.635	10*g*	VII	94.174	300	VII	99.787	100	V
76.392	300	VII	83.716	300*g*	VII	94.276	200	VIII	100.374	100	VII
76.459	100	IX	83.766	500*g*	VII	95.027	400	VII	100.702	500	VI
76.714	100	VIII	83.910	300*g*	VII	95.089	10	VII	100.904	400	VI
76.740	200	VIII	83.959	400*g*	VII	95.139	100	VII	100.928	200	V
76.788	300	VIII	84.025	500*g*	VII	95.233	100	VII	101.508	200	VI
76.908	1	VI	84.087	300*g*	VII	95.259	200*g*	VII	101.556	300	VI
77.033	100*g*	VII	84.087	300	VIII	95.385	400*g*	VII	101.670	300	V
77.144	200*g*	VII	84.642	500	VII	95.385	400*g*	VI	101.781	300	V
77.405	200	VIII	84.745	200	VI	95.421	400*g*	VI	101.956	200	VII
77.405	200	VI	84.827	10	VIII	95.421	400*g*	VII	102.053	10	VII
77.511	100	VI	84.919	100	VIII	95.483	500*g*	VI	102.074	200	V
77.511	100	VIII	85.064	10	VIII	95.483	500*g*	VII	102.138	100	VII
77.572	500	VIII	85.091	10	VII	95.556	100*g*	VII	102.189	500	VI
77.639	10*g*	VI	85.153	10	VI	95.637	300*g*	VI	102.239	500	VI
77.671	500	VIII	85.153	10	VIII	95.637	300*g*	VII	102.471	300	VII
77.737	600	VIII	85.248	200	VIII	95.675	300*g*	VI	102.906	300	VII
77.737	600	IX	85.336	10	VII	95.799	200*g*	V	103.743	10	VII
78.239	10	VI	85.407	700	VII	95.803	200	VI	103.859	10	VII
78.376	10*g*	VII	85.577	200	VI	95.896	100*g*	V	103.902	400*g*	V
78.405	10*g*	VII	85.599	300	VIII	95.914	50*g*	V	103.942	300*g*	V
78.446	600	VIII	85.622	300	VI	95.963	100*g*	V	104.099	200*g*	V
78.521	200*g*	VII	85.749	400	VIII	96.029	80*g*	V	104.132	150*g*	V
78.574	600	VIII	86.032	200	VII	96.083	100*g,bl*	V	104.179	100*g*	V
79.131	500*g*	VII	86.234	100	VIII	96.085	100	VI	104.211	50*g*	V
79.168	500*g*	VII	86.359	100	VIII	96.150	10*g,bl*	V	104.447	70	V
79.248	100*g*	VII	86.807	200	VI	96.159	100	VI	104.519	300	VI
79.695	200	VIII	86.847	200	VIII	96.240	100	VI	104.597	500	VI
79.817	200*g*	VI	87.017	100	VIII	96.256	200	VI	105.159	100	VII
79.830	400*g*	VI	87.131	500	VII	96.303	200	VI	105.410	200	VI
79.857	400*g*	VI	87.175	400	VII	96.388	100	VI	105.502	300	VI
80.032	200*g*	VI	87.406	10	VI	96.467	10	VI	[105.76]		XI
80.075	200*g*	VI	87.722	600	VII	96.670	200	VI	[105.77]		XI
80.229	400	VIII	87.767	400	VII	96.704	200	VI	105.778	100	VI
80.255	400	VIII	87.889	500	VII	96.797	100	VI	[105.81]		XI
80.428	100	IX	88.680	600	VII	96.857	100	VI	[105.89]		XI
80.563	100	VI	[88.7528]		XII	96.903	10	VI	106.524	200	VII
80.724	10	VI	[88.7600]		XII	96.939	400	VI	106.707	100	VII
80.806	10	VIII	88.827	200	VI	96.973	400	VI	106.809	10	VII
80.889	100	VIII	[88.9181]		XII	97.251	500	VI	107.653	100	V
80.930	200	VI	[88.9184]		XII	97.278	500	VI	107.820	400	VI
81.024	100*g*	VII	88.952	200	VI	97.391	100*g*	V	108.015	300	VI
81.106	300	VI	[88.9711]		XII	97.440	200*g*	V	108.114	200	VI
81.133	300*g*	VII	89.021	10	VI	97.465	200	VIII	108.148	100	VI

Finding List for Mg IV through Mg XII – Continued

Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum
108.338	100	VI	119.400	400	V	130.118	9*g*	IV	147.629	8*g*	IV
108.441	10	VI	119.445	400	V	[130.1409]	6	XII	147.749	11*g*	IV
109.162	10	V	119.697	5	V	130.246	7*g*	IV	147.884	9*g*	IV
109.800	200*g*	V	121.025	500	VI	130.294	200	VI	147.981	1*g*	IV
110.016	50*g*	V	121.290	300	VI	130.295	9*g*	IV	148.117	10*g*	IV
110.103	10*g,bl*	V	121.542	5*g*	IV	130.344	9*g,bl*	IV	148.904	1*g*	IV
110.121	10	VII	121.644	1000*g*	V	130.354	9*g,bl*	IV	148.959	3*g*	IV
110.810	200*g*	V	121.655	100*g*	V	130.537	3*g*	IV	149.025	2*g*	IV
110.846	400*g*	V	121.873	1*g*	IV	130.624	4*g*	IV	149.400	2*g*	IV
111.021	300*g*	V	121.922	500*g*	V	130.630	100	VI	149.456	1*g*	IV
111.081	200*g*	V	122.033	400*g*	V	130.700	1*g*	IV	[150.84]		XI
111.149	250*g*	V	123.169	2*g*	IV	132.123	5*g*	IV	[151.08]		XI
111.160	300	VI	123.266	8*g*	IV	132.163	500*g*	V	[151.13]		XI
111.189	300*g,bl*	V	123.367	6*g,bl*	IV	132.175	300*g*	V	[151.34]	6	XI
111.199	400	VI	123.377	2*g,bl*	IV	132.476	200*g*	V	151.807	150	V
111.239	250*g*	V	123.401	4*g*	IV	132.492	300*g*	V	152.021	100	V
111.410	200*g*	V	123.417	3*g*	IV	132.509	3*g*	IV	152.153	300	V
111.461	200*g*	V	123.508	7*g*	IV	132.620	300*g*	V	152.181	50	V
111.486	200*g*	V	123.567	5*g*	IV	132.814	20*g*	IV	152.386	100	V
111.547	300*g*	V	123.590	7*g*	IV	133.197	9*g*	IV	152.526	100	V
111.552	500*g*	VI	123.590	100	VI	135.628	200	V	[154.63]	6	XI
111.746	400*g*	VI	123.613	0.5*g*	IV	135.644	40*bl*	V	[154.64]	6	XI
111.864	400*g*	VI	123.708	2*g,bl*	IV	135.947	100	V	[154.73]	6	XI
111.984	10	VII	123.722	4*g,bl*	IV	135.961	50*bl*	V	[154.90]		XI
112.135	10	VII	123.761	2*g*	IV	136.121	40	V	[155.81]		XI
112.269	1	VII	123.910	0.5*g*	IV	137.229	600	V	160.2283	14*g*	IV
113.189	500	VI	123.958	1*g*	IV	137.412	800*g*	V	160.8021	11*g*	IV
113.209	100	V	124.417	6*g*	IV	137.745	700*g*	V	171.6557	25*g*	IV
113.276	20*g*	V	124.527	3*g,bl*	IV	137.814	10	VI	172.3112	20*g*	IV
113.409	50	V	124.541	7*g,bl*	IV	137.882	600*g*	V	180.0694	12*g*	IV
113.515	30	V	124.640	5*g,bl*	IV	137.966	6*g*	IV	180.6153	25*g*	IV
113.699	400*g*	V	124.652	8*g,bl*	IV	138.261	10*g*	IV	180.7941	20*g*	IV
113.819	100	V	124.763	5*g*	IV	138.392	8*g*	IV	181.3448	14*g*	IV
113.930	300*g*	V	124.872	6*g*	IV	138.689	8*g*	IV	181.51		X
113.988	300*g*	V	124.987	6*g,bl*	IV	138.751	100	V	181.86		X
114.026	100*g*	V	124.999	5*g,bl*	IV	138.935	1*g*	IV	183.4392	11*g*	IV
114.052	400*g*	V	125.206	300	VI	139.117	1*g*	IV	183.9156	7*g*	IV
114.197	200*g*	V	125.459	300	VI	139.989	7*g*	IV	184.1909	4*g*	IV
114.220	150*g*	V	125.462	5*g*	IV	140.119	10*g*	IV	187.07		X
114.284	200*g*	V	125.5		X	140.173	17*g*	IV	187.18		X
114.317	100*g*	V	125.600	400	VI	140.425	10*g*	IV	251.584	400*g*	V
114.412	10	VI	125.601	400*bl*	V	140.474	11*g*	IV	252.709	1*g*	V
114.488	20*g*	V	125.813	4*g*	IV	140.523	11*g*	IV	253.187	10*g*	V
114.624	10	VI	126.280	400	V	140.558	11*g*	IV	268.984	650	VI
114.721	10*g,bl*	V	126.294	100*bl*	V	140.867	11*g*	IV	269.282	2	IV
114.725	10	VI	126.450	100	VI	140.915	8*g*	IV	270.390	750	VI
114.764	200*g*	V	126.488	100	VI	140.964	11*g*	IV	276.153	200*g*	VII
114.782	600*g*	V	126.546	200	V	142.935	1000	V	276.582	1000	V
115.000	300*g*	V	126.602	1*g*	IV	144.547	10	V	277.002	300*g*	VII
115.016	300	V	126.678	10	V	145.488	800	V	278.402	400*g*	VII
115.092	400*g*	V	126.709	4*g*	IV	146.084	900*g*	V	280.737	300	VII
115.398	400	V	126.960	2*g*	IV	146.465	500*g*	V	[280.934]		XII
115.536	400	V	127.013	3*g*	IV	146.526	11*g*	IV	[281.119]		XII
116.968	500	VI	127.161	1*g*	IV	[146.58]		XI	[281.120]		XII
117.226	300	VI	127.206	1	V	146.623	400*g*	V	[281.206]		XII
117.527	100	VI	127.375	1*g*	IV	[146.68]		XI	288.646	10	VI
118.084	700	V	127.9		X	[146.70]		XI	291.365	300	VI
118.164	4*g*	IV	129.711	5*g*	IV	146.837	10*g*	IV	291.457	200	VI
118.424	5*g*	IV	[129.7133]		XII	146.954	20*g*	IV	293.021	200	VI
118.476	4*g,bl*	IV	[129.7286]		XII	147.006	11*g*	IV	293.116	400	VI
118.487	3*g,bl*	IV	129.857	16*g*	IV	147.052	11*g*	IV	295.3951	5	IV
118.737	4*g*	IV	129.966	11*g,bl*	IV	147.254	11*g*	IV	311.795	10*g*	VIII
118.792	4*g,bl*	IV	129.975	9*g,bl*	IV	147.321	10*g*	IV	312.302	300	V
118.809	500	V	[130.0405]	4	XII	147.406	18*g*	IV	313.757	100*g*	VIII
118.857	5	V	[130.0410]	4	XII	147.497	4*g*	IV	314.561	300	VI
118.925	10	V	130.086	10*g*	IV	147.535	17*g*	IV	314.669	400	VI

Finding List for Mg IV through Mg XII — Continued

Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum
315.039	200*g*	VIII	445.980	5	IX	994.51	1	IV	1073.74	1	IV
317.036	100*g*	VIII	448.290	8	IX	[997.49]		XI	1073.899	2	IV
319.027	400	VII	450.690	100	VII	997.63	2	IV	1074.055	3*bl*	IV
319.821	150	VI	485.19	20*bl*	VIII	998.660	4	IV	1077.296	3*bl*	IV
320.267	40	VII	485.593	200	VIII	998.99	1	IV	1077.951	3	IV
320.513	70	VII	489.911	200	VIII	999.260	4	IV	1078.337	3	IV
320.9943	50*g*	IV	490.38	3	VIII	999.514	5*bl*	IV	1078.767	3*bl*	IV
321.095	100	VII	546.006	50	VII	1000.09	1	IV	1080.710	4	IV
321.154	50	VII	548.620	100	VII	1001.020	3	IV	1080.90	3*bl*	IV
322.463	300	VI	554.94	50	VII	1001.177	4	IV	1081.30	1	IV
322.492	50	VI	558.28	100	VII	1001.688	5	IV	1086.22	1	IV
323.140	100	VII	577.62		X	1001.952	4	IV	1089.013	4	IV
323.3076	40*g*	IV	580.93		X	1004.152	4	IV	1092.317	1	IV
[334.62]		XI	584.35		X	1004.422	4	IV	1095.468	4	IV
335.248	10*g*	VIII	586.80		X	1008.763	4	IV	1097.331	4	IV
339.009	100*g*	VIII	587.10		X	1023.189	6	IV	1100.36	5*bl*	IV
341.794	50	VIII	590.70		X	1026.406	5	IV	1101.686	4	IV
342.068	20	VIII	609.794	23*g*	X	1029.30	2*bl*	IV	1104.240	3	IV
349.114	70	VI	[616.10]		XI	1032.448	4	IV	1105.766	3	IV
349.170	100	VI	624.943	12*g*	X	[1034.32]		XI	1105.976	1	IV
351.0887	600*g*	V	679.822	50	VIII	1037.18	1	IV	1122.211	3	IV
352.2009	500*g*	V	689.601	100	VIII	1037.395	5	IV	1130.717	1	IV
352.46		VIII	706.06	1*g*	IX	1040.36	5*bl*	IV	1189.83	M1	VII
353.0919	900*g*	V	714.962	2	IV	1041.740	6	IV	1190.07	M1	VI
353.3004	400*g*	V	716.177	1	IV	1042.993	4	IV	1191.63	M1	VI
353.892	10	VIII	737.724	3	IV	[1043.26]		XI	1210.967	8	IV
354.2249	500*g*	V	741.578	2	IV	1044.096	3	IV	1218.992	8	IV
355.3291	600*g*	V	749.55		IX	1044.366	5	IV	1220.900	9	IV
355.995	10	VIII	800.409	4	IV	1047.338	5	IV	1229.066	4	IV
363.771	100*g*	VII	803.072	2	IV	1047.522	4	IV	1235.873	10	IV
365.178	60*g*	VII	809.975	2	IV	1048.746	4	IV	1236.936	11	IV
365.228	150*g*	VII	811.276	4	IV	1049.00	2	IV	1243.840	7	IV
367.674	400*g*	VII	814.873	3	IV	1049.398	5	IV	1307.9	*bl*	IV
367.686	100*g*	VII	840.366	2	IV	1049.579	4	IV	1311.650	12	IV
368.076	100*g*	IX	842.087	3	IV	1052.288	3	IV	1311.930	7	IV
369.85		VII	852.232	2	IV	1054.074	3	IV	1324.445	M1	V
371.08		VII	854.407	4	IV	1054.27	1	IV	1331.592	7	IV
373.99		VII	854.936	2*bl*	IV	1054.479	4	IV	1336.850	10	IV
376.663	100	V	857.289	4	IV	1054.71	1	IV	1342.163	15	IV
382.72		VII	861.991	1	IV	1055.019	4	IV	1345.643	8	IV
387.790	200	VI	863.698	2	IV	1055.31	1	IV	1346.543	25	IV
388.016	300	VI	865.722	3	IV	1055.752	4	IV	1346.633	15*bl*	IV
399.2819	600*g*	VI	866.735	4	IV	1056.192	3	IV	1351.620	13	IV
400.6667	700*g*	VI	868.635	1*bl*	IV	1057.64	1	IV	1352.020	16	IV
403.3097	800*g*	VI	877.486	2	IV	1058.73	1	IV	1355.654	4	IV
428.201	5	VIII	890.354	2	IV	1058.934	4	IV	1356.108	13	IV
428.260	10	VIII	890.604	2	IV	1059.09	1	IV	1361.493	8	IV
428.301	20	VIII	891.006	2	IV	1061.722	3	IV	1362.504	7	IV
429.132	100*g*	VII	892.218	2	IV	1062.382	4	IV	1366.733	1	IV
430.465	30*g*	VIII	893.869	2	IV	1063.329	4	IV	1371.033	14*bl*	IV
431.194	60*g*	VII	902.812	3	IV	1063.430	3	IV	1373.187	13	IV
431.318	200*g*	VII	911.001	1	IV	1064.789	5	IV	1375.497	12	IV
434.715	70*g*	VII	919.025	4	IV	1065.597	3	IV	1377.373	7	IV
434.917	200*g*	VII	929.774	3	IV	1066.13	3*bl*	IV	1382.544	16	IV
436.140	40	VI	936.288	2	IV	1066.410	3	IV	1384.425	20	IV
436.735	40*g*	VIII	945.342	1	IV	1068.351	3	IV	1385.740	16	IV
438.700	1	IX	971.15	3	IV	1068.592	4	IV	1386.155	6	IV
439.170	6	IX	973.541	3	IV	1068.97	1	IV	1387.494	17	IV
439.868	70	VI	976.16	1	IV	1069.538	3	IV	1394.356	5*bl*	IV
441.157	200	VI	976.258	2	IV	1069.797	3	IV	1398.795	1	IV
441.20		IX	978.472	1	IV	1070.876	4	IV	1404.663	16	IV
441.30		VIII	979.001	3	IV	1072.140	4	IV	1409.339	18	IV
441.74	1	VIII	981.192	2	IV	1072.302	5	IV	1413.868	6	IV
443.410	4	IX	982.012	2	IV	1072.64	1	IV	1418.378	9	IV
443.976	10	IX	984.855	4	IV	1073.48	3*bl*	IV	1425.597	8	IV
444.964	30	VI	987.370	4	IV	1073.52	3*bl*	IV	1427.710	11	IV

Finding List for Mg IV through Mg XII — Continued

Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum	Wavelength (Å)[a]	Int.	Spectrum
1429.166	7	IV	1495.482	14	IV	1701.262	12	IV	2505.028	4*bl*	IV
1432.767	10	IV	1495.985	6	IV	1702.367	10	IV	2505.757	5	IV
1434.866	13	IV	1497.388	9	IV	1703.357	16	IV	2506.289	4	IV
1437.51	15*bl*	IV	1500.118	6	IV	1736.067	13	IV	2508.367	5	IV
1437.61	17*bl*	IV	1501.513	9	IV	1744.674	14	IV	2508.802	7	IV
1437.76	8*bl*	IV	1502.942	10	IV	1749.480	12	IV	2509.713	7	IV
1438.244	15	IV	1508.516	8	IV	1797.271	11	IV	2512.254	5*bl*	IV
1447.395	14*bl*	IV	1508.821	14	IV	1800.167	17	IV	2512.865	5	IV
1448.217	8	IV	1510.670	14	IV	1805.96	M1	VI	2518.402	12*bl*	IV
1448.456	8	IV	1517.596	5	IV	1807.746	6*bl*	IV	2518.686	9	IV
1451.457	2	IV	1520.967	14	IV	1808.286	16	IV	2522.562	7	IV
1454.171	5	IV	1578.537	7	IV	1844.151	16	IV	2523.401	6	IV
1457.212	10	IV	1597.738	4	IV	1853.086	17	IV	2525.595	3	IV
1459.34	10*bl*	IV	1607.108	16	IV	1874.576	22	IV	2528.562	2*bl*	IV
1459.521	13*bl*	IV	1607.514	10	IV	1893.888	25	IV	2529.714	3*bl*	IV
1459.605	15*bl*	IV	1610.799	7	IV	1906.723	18	IV	2534.785	4	IV
1466.635	11	IV	1611.215	15	IV	1925.742	12	IV	3292.34	4	IV
1468.868	4	IV	1617.627	5	IV	1936.931	10	IV	3339.16	5	IV
1470.777	12	IV	1624.136	6	IV	1946.117	18	IV	3519.46	3	IV
1472.963	10	IV	1638.522	4	IV	1956.548	17	IV			
[1474.19]		XI	1640.892	9	IV	Air			Wavenumber (cm^{-1})	Int.	Spectrum
1478.240	15	IV	1651.837	2	IV						
1481.490	16	IV	1658.851	15	IV	2470.243	2	IV			
1481.840	9	IV	1669.574	11	IV	2491.569	9	IV	3302.2	M1	VIII
1485.421	11	IV	1679.960	18	IV	2493.108	8*bl*	IV	2227.	M1	IV
1487.265	1	IV	1683.003	25	IV	2495.794	6	IV	1786.	M1	V
1490.433	16	IV	1692.675	17	IV	2496.214	4	IV			
1491.968	12	IV	1698.784	20	IV	2497.171	6	IV			
1494.624	9	IV	1699.654	15	IV	2498.255	3	IV			

[a]Wavelengths in brackets are theoretically calculated values.