Selected Tables of Atomic Spectra

A Atomic Energy Levels - Second Edition

B Multiplet Tables

O V

Data Dervied from the Analyses of Optical Spectra

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Abstract

The present publication is the ninth section of a series being prepared in response to the need for a current revision of two sets of the author's tables containing data on atomic spectra as derived from analyses of optical spectra. As in the previous Sections, Part A contains the atomic energy levels and Part B the multiplet tables. Section 9 includes these data for O V. The form of the presentation is described in detail in the text to Section I.

Key words: Atomic energy levels, O V; atomic spectra, O V; multiplet table, O V; oxygen spectra, O V; spectrum O V; wavelengths, O V.

Foreword

The National Standard Reference Data System provides access to the quantitative data of physical science, critically evaluated and compiled for convenience and readily accessible through a variety of distribution channels. The System was established in 1963 by action of the President's Office of Science and Technology and the Federal Council for Science and Technology, and responsibility to administer it was assigned to the National Bureau of Standards.

NSRDS receives advice and planning assistance from a Review Committee of the National Research Council of the National Academy of Sciences-National Academy of Engineering. A number of Advisory Panels, each concerned with a single technical area, meet regularly to examine major portions of the program, assign relative priorities, and identify specific key problems in need of further attention. For selected specific topics, the Advisory Panels sponsor subpanels which make detailed studies of users' needs, the present state of knowledge, and existing data resources as a basis for recommending one or more data compilation activities. This assembly of advisory services contributes greatly to the guidance of NSRDS activities.

The System now includes a complex of data centers and other activities in academic institutions and other laboratories. Components of the NSRDS produce compilations of critically evaluated data, reviews of the state of quantitative knowledge in specialized areas, and computations of useful functions derived from standard reference data. The centers and projects also establish criteria for evaluation and compilation of data and recommend improvements in experimental techniques. They are normally associated with research in the relevant field.

The technical scope of NSRDS is indicated by the categories of projects active or being planned: nuclear properties, atomic and molecular properties, solid state properties, thermodynamic and transport properties, chemical kinetics, and colloid and surface properties.

Reliable data on the properties of matter and materials are a major foundation of scientific and technical progress. Such important activities as basic scientific research, industrial quality control, development of new materials for building and other technologies, measuring and correcting environmental pollution depend on quality reference data. In NSRDS, the Bureau's responsibility to support American science, industry, and commerce is vitally fulfilled.

E. Ambler.

ERNEST AMBLER, *Director*

Preface

The present publication is the ninth section of a series that is being prepared in response to the increasing demand for a current revision of two sets of tables containing data on atomic spectra as derived from analyses of optical spectra.

The first set, Atomic Energy Levels, NBS Circular 467, consists of three volumes published, respectively, in 1949, 1952 and 1958. This Circular has been reprinted as NSRDS-NBS 35, Volumes I, II and III.

The second set consists of two Multiplet Tables; one published in 1945 by the Princeton University Observatory, containing multiplets having wavelengths longer than 3000 Å; the other, An Ultraviolet Multiplet Table, NBS Circular 488, appearing in five Sections, the first in 1950, the second in 1952, and the others in 1962. The Princeton Multiplet Table was reprinted in 1972 as NSRDS-NBS 40.

The present series includes both sets of data, the energy levels and multiplet tables, as Parts A and B, respectively, for selected spectra contained in Volume I of "Atomic Energy Levels." The sections are being published at irregular intervals as revised analyses become available. A flexible paging permits the arrangement of the various sections by atomic number, regardless of the order in which the separate spectra are published. Section 1 includes three spectra of silicon, Z=14: Si II, Si III, Si IV. Section 2 contains similar data for Si I. Section 3 covers all spectra of carbon, Z=6: C I, C II, C III, C IV, C V, C VI. Section 4 includes the last four spectra of nitrogen, Z=7; N IV, N V, N VI, N VII. Section 5 completes the spectra of nitrogen, N I, N II, N III. Section 6 contains the spectra of hydrogen, Z=1: H I, D, T. Section 7 contains the first spectrum of oxygen, Z=8: O I, and Section 8 the last three spectra of oxygen, Z=8: O VI, O VII, O VIII. The present Section, 9, contains O V. The form of presentation of the data is described in detail in the text of Section 1. All sections are arranged identically, and the same conversion factor, cm^{-1} to eV, 0.000123981 is used throughout.

The manuscript has been prepared by Charlotte E. Moore, who published the earlier tables. She appreciates the cordial cooperation of numerous atomic spectroscopists. She is particularly indebted to B. Edlén in Lund, Sweden, W. C. Martin and R. Zalubas in the Spectroscopy Section of this Bureau, and to D. R. Lide and his staff for their cordial collaboration in publishing this material.

Washington, D.C., July 1979

Contents

Part A–Atomic Energy Levels

Part B–Multiplet Tables

Errata

NSRDS–NBS 3, Section 8

Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, O VI, O VII, O VIII

O VI

Part A. An obvious duplication of configuration assignments for two pairs of levels above the ionization limit have been called to the writer's attention by W. C. Martin and V. Kaufman: the pair 4537620 and 4541330 cm^{-1} and the pair 4582950 and 4591370 cm^{-1}. From a study of the data reported in the literature, it appears reasonable to conclude that the lower pair of levels represents different observations of the same line from which the level has been derived. The level 4541330 cm^{-1} should be rejected.

In the upper pair, the level 4582950 cm^{-1} should be designated $2p''$ $^2P°$ because of its reasonable agreement with an estimated value. The level 4591370 cm^{-1} should be rejected.

Part B. As a result of these corrections, the Multiplets UV 2.10 and UV 2.12 should be rejected and UV 2.11 should have the designation $2s$ ^2S–$2p''$ $^2P°$.

O VII

Part A. W. C. Martin has also noted an evident misprint in O VII, namely; the levels 10593340 and 10593340 + x cm^{-1} should doubtless have the configuration $2s$ $3p$.

Part B. The designations of Multiplets 17 and 31 should be corrected accordingly.

June 5, 1979

NSRDS-NBS 3, SECTION 9

OXYGEN Z=8

Part A

OXYGEN

O v

Be I sequence: 4 electrons

$Z=8$

Ground State $1s^2\ 2s^2\ {}^1S_0$

$2s^2\ {}^1S_0$ 918657±4cm^{-1}; 108.855 Å

I P 113.896 eV

The detailed analysis published in 1968 by K. Bockasten and K. B. Johansson is presented here. These authors have recalculated all of the energy levels from measurements of 126 lines between 340 Å and 7700 Å as observed with a theta-pinch discharge as source, combined with 31 lines observed by B. Edlén in the range 172 Å – 287 Å. They have connected the singlet and triplet terms by observation and derived the value of x in "Atomic Energy Levels" as -182.4cm^{-1}.

The intercombination line $2s^2\ {}^1S$–$2s2p\ {}^3P^\circ_1$, which is of special interest in the interpretation of XUV stellar spectra, has recently been remeasured by C. M. Brown at 1218.344±0.010 Å. The value of $2p\ {}^3P^\circ_1$ from this observation is 82078.62cm^{-1}, resulting in a correction of +3.3cm^{-1} to all triplet terms. This adjustment has been made in the present list and is in accord with B. Edlén's current study of the Be I isoelectronic sequence.

The ionization limit listed above has been determined "by applying the polarization formula to the hydrogen-like levels and by using the theoretically predicted value of the dipole polarizability."

Wavelengths calculated to four places are listed for 66 lines in the region 124 Å – 286 Å "suitable as reference lines." In general, the four-place calculated wavelengths are quoted in the Multiplet Table in preference to the observed values.

In 1975 Edlén extended the 1968 paper by observations from 194 Å to 114 Å. From this list of classified lines the writer has added the following energy levels, with the wavelengths on which they are based:

Desig.	Level(cm^{-1})	Wavelength (Å)	Desig.	Level (cm^{-1})	Wavelength (Å)
$4s'\ {}^3P^\circ_2$	818668?	165.349	$8d\ {}^3D_{1,2}$	875162	126.082
$4p'\ {}^3P_0$	834835?	132.845	$5p'\ {}^3P_0$	900858	122.133
$4d'\ {}^3F^\circ_2$	836985?	165.218	$5p'\ {}^3P_1$	901023	122.088
$4p'\ {}^1S_0$	839441?	146.920	$5d'\ {}^3D^\circ_1$	904027	144.809
$4d'\ {}^3D^\circ_1$	841102	159.327	$5d'\ {}^3D^\circ_2$	904183	144.809
$7d\ {}^3D_{1,2}$	861778	128.246			

The level 838375 has been designated as $6p\ {}^3P^\circ_{0,1,2}$ instead of $6p\ {}^3P^\circ_2$ on the basis of the resolved triplet at 160 Å.

Brackets in the Table of Energy Levels denote calculated values.

The authors of the 1968 paper have noted an error in "Atomic Energy Levels," p. 57: the level listed there as 902592 cm^{-1} should have read 902692 cm^{-1}.

References

B. Edlén, Nova Acta Reg. Soc. Sci. Upsala [IV] **9,** No. 6, 49, 64–72 (1934). I P, T, C L, G D

C. E. Moore, Atomic Energy Levels, **I,** Circ. Natl. Bur. Std. 467, 57 (1949). I P, T

K. Bockasten and K. B. Johansson, Ark. Fys. **38,** No. 31, 563-584 (1968). I P, T, C L, G D

B. Edlén, Physica Scripta **11,** 366-370 (1975). C L

C. M. Brown, Unpublished (May 1979). W L

B. Edlén, Physica Scripta **20,** 129–137 (1979). T, C L

O v

Config.	Desig.	J	Level	Interval
$2s^{2}$	$2s^{2}\ {}^{1}S$	0	0	
$2s(^{2}S)2p$	$2p\ {}^{3}P^{o}$	0	*81942.5*	136.1
		1	*82078.6*	306.7
		2	*82385.3*	
$2s(^{2}S)2p$	$2p\ {}^{1}P^{o}$	1	*158797.7*	
$2p^{2}$	$2p^{2}\ {}^{3}P$	0	213462.5	155.7
		1	213618.2	268.8
		2	213887.0	
$2p^{2}$	$2p^{2}\ {}^{1}D$	2	231721.4	
$2p^{2}$	$2p^{2}\ {}^{1}S$	0	287910.3	
$2s(^{2}S)3s$	$3s\ {}^{3}S$	1	546972.7	
$2s(^{2}S)3s$	$3s\ {}^{1}S$	0	561276.4	
$2s(^{2}S)3p$	$3p\ {}^{1}P^{o}$	1	*580824.9*	
$2s(^{2}S)3p$	$3p\ {}^{3}P^{o}$	0	*582806.4*	36.7
		1	*582843.1*	77.2
		2	*582920.3*	
$2s(^{2}S)3d$	$3d\ {}^{3}D$	1	600748.9	10.0
		2	600758.9	20.3
		3	600779.2	
$2s(^{2}S)3d$	$3d\ {}^{1}D$	2	612615.6	
$2p(^{2}P^{o})3s$	$3s'\ {}^{3}P^{o}$	0	*652918.0*	162.1
		1	*653080.1*	343.2
		2	*653423.3*	
$2p(^{2}P^{o})3s$	$3s'\ {}^{1}P^{o}$	1	*664485.9*	
$2p(^{2}P^{o})3p$	$3p'\ {}^{1}P$	1	672693.8	
$2p(^{2}P^{o})3p$	$3p'\ {}^{3}D$	1	677150.7	197.8
		2	677348.5	316.5
		3	677665.0	
$2p(^{2}P^{o})3p$	$3p'\ {}^{3}S$	1	683942.9	
$2p(^{2}P^{o})3p$	$3p'\ {}^{3}P$	0	689403.5	114.2
		1	689517.7	190.8
		2	689708.5	
$2p(^{2}P^{o})3d$	$3d'\ {}^{3}F^{o}$	2	*692626.0*	183.4
		3	*692809.4*	235.4
		4	*693044.8*	
$2p(^{2}P^{o})3d$	$3d'\ {}^{1}D^{o}$	2	*694643.8*	
$2p(^{2}P^{o})3p$	$3p'\ {}^{1}D$	2	697170.2	
$2p(^{2}P^{o})3d$	$3d'\ {}^{3}D^{o}$	1	*704182*	60
		2	*704242*	106
		3	*704348*	
$2p(^{2}P^{o})3p$	$3p'\ {}^{1}S$	0	707635.5	
$2p(^{2}P^{o})3d$	$3d'\ {}^{3}P^{o}$	2	*707981.2*	−143.9
		1	*708125.1*	−80
		0	*708205*	
$2p(^{2}P^{o})3d$	$3d'\ {}^{1}F^{o}$	3	*712963.5*	
$2p(^{2}P^{o})3d$	$3d'\ {}^{1}P^{o}$	1	*719274.9*	

O v

Config.	Desig.	J	Level	Interval
$2s(S)4s$	$4s\ {}^{3}S$	1	722480.0	
$2s(^{2}S)4s$	$4s\ {}^{1}S$	0	731670.5	
$2s(^{2}S)4p$	$4p\ {}^{3}P^{o}$	0	*735911.6*	10.4
		1	*735922.0*	27.1
		2	*735949.1*	
$2s(^{2}S)4p$	$4p\ {}^{1}P^{o}$	1	*737880.8*	
$2s(^{2}S)4d$	$4d\ {}^{3}D$	1	742239.4	4.7
		2	742244.1	4.5
		3	742248.6	
$2s(^{2}S)4d$	$4d\ {}^{1}D$	2	746274.9	
$2s(^{2}S)4f$	$4f\ {}^{3}F^{o}$	2, 3, 4	*747550.5*	
$2s(^{2}S)4f$	$4f\ {}^{1}F^{o}$	3	*749840.5*	
$2s(^{2}S)5s$	$5s\ {}^{3}S$	1	796071	
$2s(^{2}S)5p$	$5p\ {}^{1}P^{o}$	1	*802466*	
$2s(^{2}S)5p$	$5p\ {}^{3}P^{o}$	0		
		1	*802862*	16
		2	*802878*	
$2s(^{2}S)5d$	$5d\ {}^{3}D$	1	[806446.4]	[2.0]
		2	[806448.4]	[3.0]
		3	806451.4	
$2s(^{2}S)5d$	$5d\ {}^{1}D$	2	808352.3	
$2s(^{2}S)5g$	$5g\ {}^{3}G$	3,4	808388.2	3.7
		5	808391.9	
$2s(^{2}S)5g$	$5g\ {}^{1}G$	4	808388.6	
$2s(^{2}S)5f$	$5f\ {}^{3}F^{o}$	2	*808613.0*	0.9
		3	*808613.9*	2.2
		4	*808616.1*	
$2s(^{2}S)5f$	$5f\ {}^{1}F^{o}$	3	*808916.8*	
$2p(^{2}P^{o})4s$	$4s'\ {}^{3}P^{o}$	0		
		1		
		2	*818668*	
$2p(^{2}P^{o})4s$	$4s'\ {}^{1}P^{o}$	1	*824282*	
$2p(^{2}P^{o})4p$	$4p'\ {}^{1}P$	1	829597	
$2p(^{2}P^{o})4p$	$4p'\ {}^{3}D$	1	830867	162
		2	831029	305
		3	831334	
$2p(^{2}P^{o})4p$	$4p'\ {}^{3}S$	1	832072	
$2p(^{2}P^{o})4p$	$4p'\ {}^{3}P$	0	834835	137
		1	834972	170
		2	835142	
$2p(^{2}P^{o})4d$	$4d'\ {}^{3}F^{o}$	2	*836985*	
		3		
		4		
$2p(^{2}P^{o})4d$	$4d'\ {}^{1}D^{o}$	2	*837833*	
$2p(^{2}P^{o})4p$	$4p'\ {}^{1}D$	2	837855	

O V—Continued

Config.	Desig.	J	Level	Interval
$2s(^2S)6p$	$6p\ ^3P^{\circ}$	0, 1, 2	*838375*	
$2p(^2P^{\circ})4p$	$4p'\ ^1S$	0	839441	
$2s(^2S)6p$	$6p\ ^1P^{\circ}$	1	*839616*	
$2s(^2S)6g$	$6g\ ^3G$	3 4 5	840126.7 840169.4 840291.5	42.7 122.1
$2s(^2S)6g$	$6g\ ^1G$	4	840385.2	
$2s(^2S)6f$	$6f\ ^1F^{\circ}$	3	*840821.5*	
$2s(^2S)6d$	$6d\ ^3D$	1, 2, 3	841036	
$2p(^2P^{\circ})4d$	$4d'\ ^3D^{\circ}$	1 2 3	*841102* *841195* *841318*	93 123
$2s(^2S)6d$	$6d\ ^1D$	2	842087	
$2s(^2S)6h$	$6h\ ^3H^{\circ}$ $6h\ ^1H^{\circ}$	4, 5, 6 5	*842376.5*	
$2s(^2S)6f$	$6f\ ^3F^{\circ}$	2 3 4	*842707.3* *842723.3* *842742.3*	16.0 19.0
$2p(^2P^{\circ})4d$	$4d'\ ^3P^{\circ}$	2 1 0	*843111* *843218* *843270*	−107 −52
$2p(^2P^{\circ})4f$	$4f'\ ^3G$	3 4 5	845481.6 845546.7 845706.7	65.1 160.0
$2p(^2P^{\circ})4f$	$4f'\ ^1G$	4	845942.6	
$2p(^2P^{\circ})4d$	$4d'\ ^1F^{\circ}$	3	*847136*	
$2p(^2P^{\circ})4d$	$4d'\ ^1P^{\circ}$	1	*847460*	
$2s(^2S)7p$	$7p\ ^1P^{\circ}$	1	*860874*	
$2s(^2S)7d$	$7d\ ^3D$	1, 2 3	861778 861796	18
$2s(^2S)7d$	$7d\ ^1D$	2	862419	
$2s(^2S)7h$	$7h\ ^3H^{\circ}$ $7h\ ^1H^{\circ}$	4, 5, 6 5	*862609.5*	
$2s(^2S)7i$	$7i\ ^3I$ $7i\ ^1I$	5, 6, 7 6	862653.7	
$2s(^2S)7g$	$7g\ ^3G$	3 4 5	862793.1 862796.8 862799.3	3.7 2.5
$2s(^2S)7g$	$7g\ ^1G$	4	862800.7	

O V—Continued

Config.	Desig.	J	Level	Interval
$2s(^2S)8p$	$8p\ ^1P^{\circ}$	1	*874447*	
$2s(^2S)8d$	$8d\ ^3D$	1, 2 3	875162 875186	24
$2s(^2S)8i$	$8i\ ^3I$ $8i\ ^1I$	5, 6, 7 6	875777.7	
$2s(^2S)8k$	$8k\ ^3K^{\circ}$ $8k\ ^1K^{\circ}$	6, 7, 8 7	*875789.1*	
$2p(^2P^{\circ})5p$	$5p'\ ^1P$	1	898580	
$2p(^2P^{\circ})5p$	$5p'\ ^3D$	1 2 3	 899492	
$2p(^2P^{\circ})5p$	$5p'\ ^3P$	0 1 2	900858 901023 901165	165 142
$2p(^2P^{\circ})5p$	$5p'\ ^1D$	2	902442	
$2p(^2P^{\circ}(5d$	$5d'\ ^1D^{\circ}$	2	*902691*	
$2p(^2P^{\circ})5d$	$5d'\ ^3D^{\circ}$	1 2 3	*904027* *904183* *904318*	156 135
$2p(^2P^{\circ})5d$	$5d'\ ^3P^{\circ}$	2 1 0	*904810*	
$2p(^2P^{\circ})5d$	$5d'\ ^1F^{\circ}$	3	*906403*	
O VI ($^2S_{0\frac{1}{2}}$)	**Limit**	...	918657±4	
$2p(^2P^{\circ})6p$	$6p'\ ^1P$	1	935093	
$2p(^2P^{\circ})6p$	$6p'\ ^3D$	1 2 3	 935766	
$2p(^2P^{\circ})6p$	$6p'\ ^3P$	0 1 2	 936626	
$2p(^2P^{\circ})6p$	$6p'\ ^1D$	2	937341	
$2p(^2P^{\circ})7p$	$7p'\ ^3D$	1 2 3	 957314	
$2p(^2P^{\circ})7p$	$7p'\ ^3P$	0 1 2	 957850	
$2p(^2P^{\circ})7d$	$7d'\ ^3D^{\circ}$	1 2 3	 *959016*	
....	......	...	....	
O VI ($^2P^{\circ}_{0\frac{1}{2}}$)	**Limit**	...	1015031	
O VI ($^2P^{\circ}_{1\frac{1}{2}}$)	**Limit**	...	1015561	

May 1979.

O v Observed Terms

Config. $1s^2+$	Observed Terms
$2s^2$	$2s^2$ ^1S
$2s(^2S)2p$	$2p$ $^3P^\circ$ $2p$ $^1P^\circ$
$2p^2$	$2p^2$ ^3P $2p^2$ ^1S $2p^2$ ^1D

	$ns(n\geq3)$	$np(n\geq3)$			$nd(n\geq3)$			$nf(n\geq4)$
$2s(^2S)nl$	3–5s ^3S 3,4s ^1S		3–6p $^3P^\circ$ 3–8p $^1P^\circ$			3–8d ^3D 3–7d ^1D		4–6f $^3F^\circ$ 4–6f $^1F^\circ$
$2p(^2P^\circ)nl'$	3,4s' $^3P^\circ$ 3,4s' $^1P^\circ$	3,4p' ^3S 3,4p' ^1S	3–7p' ^3P 3–6p' ^1P	3–7p' ^3D 3–6p' ^1D	3–5d' $^3P^\circ$ 3,4d' $^1P^\circ$	3–5,7d' $^3D^\circ$ 3–5d' $^1D^\circ$	3,4d' $^3F^\circ$ 3–5d' $^1F^\circ$	4f' ^3G 4f' ^1G

	$ng(n\geq5)$	$nh(n\geq6)$	$ni(n\geq7)$	$nk(n\geq8)$
$2s(^2S)nl$	5–7g ^3G 5–7g ^1G	6,7h $^3H^\circ$ $^1H^\circ$	7,8 i ^3I ^1I	8k $^3K^\circ$ $^1K^\circ$

OXYGEN

O v (Z=8)

I P 113.896 Limit 918657 cm^{-1} 108.855Å

Anal A List A May 1979

REFERENCES

A K. Bockasten and K. B. Johansson, Ark. Fys. **38**, No. 31, 563–584 (1968). I P, T, C L, I; W L 124 Å - 7610 Å

B C. M. Brown, Unpublished material (May 1979). W L 1218.344 ± 0.010 Å.

C B. Edlén, Physica Scripta **11**, 366–370 (1975). C L, I; W L 114 Å–194 Å

D B. Edlén, Nova Acta Reg. Soc. Sci. Upsala [IV] **9**, No. 6, 49, 64–72 (1934). I P, T, C L, I, G D; W L 122 Å - 4554 Å

E B. Edlén, Zeit. Astroph. **7**, 378–390 (1933). W L 3702–6830Å; Lines observed in spectra of hot stars.

P Predicted Lines:
Four-place calculated wavelengths "suitable as reference lines," 124 Å –170 Å are quoted from Ref. A, Table 6, p. 579. Observed intensities are entered for these lines.
Four-place calculated wavelengths are quoted from Ref. C, 124 Å–194 Å. Observed intensities are entered for these lines.
Two-place wavelengths calculated from the energy levels (Part A) for lines listed in Ref. E as observed in spectra of hot stars and for missing lines in some multiplets.

New Multiplet Numbers not inserted between older ones start with UV 17 and 18.

m Masked

‡ Raie Ultime

* Blend

* and § Blend of O v and O IV

* and §§ Blend of O v and O III

* and † Blend of O v and O II

O v

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Vac						
1218.344	B	1	0.00	10.18	0–1	$2s^2\ ^1S–2p\ ^3P^o$ UV 0.01
629.730‡	A	25	0.00	19.69	0–1	$2s^2\ ^1S–2p\ ^1P^o$ UV 1
172.1689	P	13	0.00	72.01	0–1	$2s^2\ ^1S–3p\ ^1P^o$ UV 2
139.0289	P	7	0.00	89.18	0–1	$2s^2\ ^1S–3d'\ ^1P^o$ UV 2.01
135.5232	P	7	0.00	91.48	0–1	$2s^2\ ^1S–4p\ ^1P^o$ UV 2.02
124.6159	P	6	0.00	99.49	0–1	$2s^2\ ^1S–5p\ ^1P^o$ UV 2.03
119.102	C	4	0.00	104.10	0–1	$2s^2\ ^1S–6p\ ^1P^o$ UV 2.04
118.000	C	1	0.00	105.07	0–1	$2s^2\ ^1S–4d'\ ^1P^o$ UV 2.05
116.161	C	2	0.00	106.73	0–1	$2s^2\ ^1S–7p\ ^1P^o$ UV 2.06
114.358	C	1	0.00	108.41	0–1	$2s^2\ ^1S–8p\ ^1P^o$ UV 2.07
760.445	A	22	10.21	26.52	2–2	$2p\ ^3P^o–2p^2\ ^3P$ UV 3
760.228	A	19	10.18	26.48	1–1	
762.003	A	21	10.21	26.48	2–1	
761.128	A	20	10.18	26.47	1–0	
758.678	A	21	10.18	26.52	1–2	
759.441	A	20	10.16	26.48	0–1	
669.628	A	5	10.21	28.73	2–2	$2p\ ^3P^o–2p^2\ ^1D$ UV 3.01
668.225	A	1	10.18	28.73	1–2	
215.245	A	9	10.21	67.81	2–1	$2p\ ^3P^o–3s\ ^3S$ UV 4
215.103	A	8	10.18	67.81	1–1	
215.040	A	7	10.16	67.81	0–1	
192.9035	P	14*	10.21	74.49	2–3	$2p\ ^3P^o–3d\ ^3D$ UV 5
192.7970	P	13*	10.18	74.48	1–2	
192.7501	P	12	10.16	74.48	0–1	
192.9111	P	14*	10.21	74.48	2–2	
192.8007	P	13*	10.18	74.48	1–1	
167.9883	P	8*	10.21	84.02	2–3	$2p\ ^3P^o–3p'\ ^3D$ UV 6
167.9910	P	8*	10.18	83.98	1–2	
168.0084	P	5	10.16	83.95	0–1	
168.0776	P	4	10.21	83.98	2–2	
168.0469	P	4	10.18	83.95	1–1	
168.1335	P	1	10.21	83.95	2–1	
166.2351	P	6	10.21	84.80	2–1	$2p\ ^3P^o–3p'\ ^3S$ UV 6.01
166.1504	P	5	10.18	84.80	1–1	
166.1128	P	4	10.16	84.80	0–1	

O v

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Vac						
164.6570	P	7*	10.21	85.51	2–2	$2p\ ^3P^o–3p'\ ^3P$ UV 6.02
164.6256	P	4	10.18	85.49	1–1	
164.7087	P	6	10.21	85.49	2–1	
164.6565	P	7*	10.18	85.47	1–0	
164.5739	P	6	10.18	85.51	1–2	
164.5887	P	5	10.16	85.49	0–1	
156.2269	P	4	10.21	89.57	2–1	$2p\ ^3P^o–4s\ ^3S$ UV 6.03
156.1521	P	3	10.18	89.57	1–1	
156.1189	P	2	10.16	89.57	0–1	
151.5465	P	8*	10.21	92.02	2–3	$2p\ ^3P^o–4d\ ^3D$ UV 6.04
151.4772	P	7*	10.18	92.02	1–2	
151.4470	P	6	10.16	92.02	0–1	
151.5476	P	8*	10.21	92.02	2–2	
151.4782	P	7*	10.18	92.02	1–1	
140.115	C	2	10.21	98.70	2–1	$2p\ ^3P^o–5s\ ^3S$ UV6.05
140.052	C	1	10.18	98.70	1–1	
140.030	C	0	10.16	98.70	0–1	
138.1089	P	6*	10.21	99.98	2–3	$2p\ ^3P^o–5d\ ^3D$ UV 6.06
138.0510	P	5*	10.18	99.98	1–2	
138.0255	P	4	10.16	99.98	0–1	
138.1095	P	6*	10.21	99.98	2–2	
138.0514	P	5*	10.18	99.98	1–1	
133.5204	P	5d*	10.21	103.07	2–3	$2p\ ^3P^o–4p'\ ^3D$ UV 6.07
133.5201	P	5d*	10.18	103.03	1–2	
133.5247	P	5d*	10.16	103.01	0–1	
133.5748	P	1	10.21	103.03	2–2	
133.5490	P	1	10.18	103.01	1–1	
133.389	C	3	10.21	103.16	2–1	$2p\ ^3P^o–4p'\ ^3S$ UV 6.08
133.335	C	2	10.18	103.16	1–1	
133.316	C	1	10.16	103.16	0–1	
*132.845	C	4	10.21	103.54	2–2	$2p\ ^3P^o–4p'\ ^3P$ UV 6.09
132.875	C	2	10.21	103.52	2–1	
*132.845	C	4	10.18	103.50	1–0	
*132.797	C	3	10.18	103.54	1–2	
*132.797	C	3	10.16	103.52	0–1	
*131.812	C	4	10.21	104.27	2–3	$2p\ ^3P^o–6d\ ^3D$ UV 6.10
*131.758	C	3	10.18	104.27	1–2	
131.738	C	2	10.16	104.27	0–1	
*131.812	C	4	10.21	104.27	2–2	
*131.758	C	3	10.18	104.27	1–1	
128.302	C	3d	10.21	106.85	2–3	$2p\ ^3P^o–7d\ ^3D$ UV 6.11
*128.246	C	2d	10.18	106.84	1–2	
*128.246	C	2d	10.16	106.84	0–1	
126.135	C	2d	10.21	108.51	2–3	$2p\ ^3P^o–8d\ ^3D$ UV 6.12
*126.082	C	1d	10.18	108.50	1–2	
*126.082	C	1d	10.16	108.50	0–1	
122.383	C	4	10.21	111.52	2–3	$2p\ ^3P^o–5p'\ ^3D$ UV 6.13

O v—Continued

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Vac						
122.133	C	3	10.21	111.73	2-2	2p $^3P^o$-5p′ ^3P UV 6.14
122.088	C	1	10.18	111.71	1-1	
117.181	C	2	10.21	116.02	2-3	2p $^3P^o$-6p′ ^3D UV 6.15
117.063	C	2	10.21	116.12	2-2	2p $^3P^o$-6p′ ^3P UV 6.16
114.295	C	1	10.21	118.69	2-3	2p $^3P^o$-7p′ ^3D UV 6.17
114.225	C	1	10.21	118.76	2-2	2p $^3P^o$-7p′ ^3P UV 6.18
1371.292	A	20	19.69	28.73	1-2	2p $^1P^o$-2p^2 ^1D UV 7
774.518	A	18	19.69	35.70	1-0	2p $^1P^o$-2p^2 ^1S UV 8
248.459	A	6	19.69	69.59	1-1	2p $^1P^o$-3s ^1S UV 9
220.352	A	13	19.69	75.95	1-2	2p $^1P^o$-3d ^1D UV 10
194.5919	P	9	19.69	83.40	1-1	2p $^1P^o$-3p′ ^1P UV 11
185.7450	P	10	19.69	86.44	1-2	2p $^1P^o$-3p′ ^1D UV 12
182.2032	P	3	19.69	87.73	1-0	2p $^1P^o$-3p′ ^1S UV 12.01
174.5588	P	3	19.69	90.71	1-0	2p $^1P^o$-4s ^1S UV 12.02
170.2194	P	7	19.69	92.52	1-2	2p $^1P^o$-4d ^1D UV 12.03
153.9516	P	5	19.69	100.22	1-2	2p $^1P^o$-5d ^1D UV 12.04
149.076	C	4	19.69	102.85	1-1	2p $^1P^o$-4p′ ^1P UV 12.05
147.263	C	5	19.69	103.88	1-2	2p $^1P^o$-4p′ ^1D UV 12.06
146.920	C	0	19.69	104.07	1-0	2p $^1P^o$-4p′ ^1S? UV 12.07
146.347	C	3	19.69	104.40	1-2	2p $^1P^o$-6d ^1D UV 12.08
142.122	C	1	19.69	106.92	1-2	2p $^1P^o$-7d ^1D UV 12.09
135.175	C	1	19.69	111.41	1-1	2p $^1P^o$-5p′ ^1P UV 12.10

O v—Continued

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Vac						
134.473	C	2	19.69	111.89	1-2	2p $^1P^o$-5p′ ^1D UV 12.11
128.817	C	0	19.69	115.93	1-1	2p $^1P^o$-6p′ ^1P UV 12.12
128.445	C	1	19.69	116.21	1-2	2p $^1P^o$-6p′ ^1D UV 12.13
270.982	D	0	26.53	72.27	2-2	2p^2 ^3P-3p $^3P^o$ UV 12.14
227.511	A	7	26.52	81.01	2-2	2p^2 ^3P-3s′ $^3P^o$ UV 12.15
227.549	A	5	26.48	80.97	1-1	
227.689	A	5	26.52	80.97	2-1	
227.634	A	5	26.48	80.95	1-0	
227.372	A	5	26.48	81.01	1-2	
227.469	A	5	26.47	80.97	0-1	
203.890	D	8	26.52	87.33	2-3	2p^2 ^3P-3d′ $^3D^o$ UV 13
203.821	D	7	26.48	87.31	1-2	
203.783	D	6	26.47	87.31	0-1	
203.935	D	6	26.52	87.31	2-2	
203.851	D	6-	26.48	87.31	1-1	
202.393	A	7	26.52	87.78	2-2	2p^2 ^3P-3d′ $^3P^o$ UV 14
202.224	A	5	26.48	87.79	1-1	
202.334	A	5	26.52	87.79	2-1	
202.191	D	5	26.48	87.80	1-0	
202.283	A	5	26.48	87.78	1-2	
202.161	A	5	26.46	87.79	0-1	
191.5481	P	2*	26.52	91.24	2-2	2p^2 ^3P-4p $^3P^o$ UV 14.01
191.4595	P	1*	26.48	91.24	1-1	
191.5580	P	2*	26.52	91.24	2-1	
191.4633	P	1*	26.48	91.24	1-0	
191.4495	P	1*	26.48	91.24	1-2	
191.4024	P	0	26.47	91.24	0-1	
169.782	P		26.52	99.54	2-2	2p^2 ^3P-5p $^3P^o$ UV 14.02
169.709	P		26.48	99.54	1-1	
165.349	C	1	26.52	101.50	2-2	2p^2 ^3P-4s′ $^3P^o$? UV 14.03
*160.1312	P	1	26.52	103.94	2-	2p^2 ^3P-6p $^3P^o$ UV 14.04
*160.059	C	1	26.48	103.94	1-	
160.023	C	0	26.47	103.94	0-1	
159.380	C	6	26.52	104.31	2-3	2p^2 ^3P-4d′ $^3D^o$ UV 14.05
159.343	C	5	26.48	104.29	2-3	
159.327	C	4	26.47	104.28	0-1	
159.411	C	3	26.52	104.29	2-2	
158.926	C	4	26.52	104.53	2-2	2p^2 ^3P-4d′ $^3P^o$ UV 14.06
*158.818	C	3	26.48	104.54	1-1	
158.899	C	2	26.52	104.54	2-1	
*158.818	C	3	26.48	104.55	1-0	
158.858	C	1	26.48	104.53	1-2	
158.792	C	2	26.47	104.54	0-1	
144.837	C	4d	26.52	112.12	2-3	2p^2 ^3P-5d′ $^3D^o$ UV 14.07
*144.809	C	4d	26.48	112.10	1-2	
*144.809	C	4d	26.47	112.08	0-1	

O v—Continued

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Vac						
144.734	C	16d	26.52	112.18		$2p^2\ ^3P-5d'\ ^3P^o$ UV 14.08
134.205	C	1d	26.52	118.90	2-2	$2p^2\ ^3P-7d'\ ^3D^o$ UV 14.09
286.448	A	6	28.73	72.01	2-1	$2p^2\ ^1D-3p\ ^1P^o$ UV 14.10
*231.070§	D	7*	28.73	82.38	2-1	$2p^2\ ^1D-3s'\ ^1P^o$ UV 14.11
216.018	A	9	28.73	86.12	2-2	$2p^2\ ^1D-3d'\ ^1D^o$ UV 15
207.794	A	10	28.73	88.39	2-3	$2p^2\ ^1D-3d'\ ^1F^o$ UV 16
205.105	A	2	28.73	89.18	2-1	$2p^2\ ^1D-3d'\ ^1P^o$ UV 17
193.0058	P	6	28.73	92.97	2-3	$2p^2\ ^1D-4f\ ^1F^o$ UV 18
173.252	P		28.73	100.29	2-3	$2p^2\ ^1D-5f\ ^1F^o$ UV 19
168.759	C	2	28.73	102.20	2-1	$2p^2\ ^1D-4s'\ ^1P^o$ UV 20
165.218	C	0	28.73	103.77	2-2	$2p^2\ ^1D-4d'\ ^3F^o$? UV 21
164.986	C	4	28.73	103.88	2-2	$2p^2\ ^1D-4d'\ ^1D^o$ UV 22
164.1766	P	4	28.73	104.25	2-3	$2p^2\ ^1D-6f\ ^1F^o$ UV 23
162.492	C	6	28.73	105.03	2-3	$2p^2\ ^1D-4d'\ ^1F^o$ UV 24
149.038	C	1	28.73	111.92	2-2	$2p^2\ ^1D-5d'\ ^1D^o$ UV 25
341.391	D	0	35.70	72.01	0-1	$2p^2\ ^1S-3p\ ^1P^o$ UV 26
265.550	D	4	35.70	82.38	0-1	$2p^2\ ^1S-3s'\ ^1P^o$ UV 27
231.823	A	7	35.70	89.19	0-1	$2p^2\ ^1S-3d'\ ^1P^o$ UV 28
222.235	A	3	35.70	91.48	0-1	$2p^2\ ^1S-4p\ ^1P^o$ UV 29
186.442	C	0	35.70	102.20	0-1	$2p^2\ ^1S-4s'\ ^1P^o$ UV 30
178.715	C	4	35.70	105.07	0-1	$2p^2\ ^1S-4d'\ ^1P^o$ UV 31
Air						
2781.01	A	25	67.81	72.27	1-2	$3s\ ^3S-3p\ ^3P^o$ UV 32
2786.99	A	24	67.81	72.26	1-1	
2789.85	A	22	67.81	72.26	1-0	

O v—Continued

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Vac						
529.202	A	6w	67.81	91.24	1-	$3s\ ^3S-4p\ ^3P^o$ UV 33
390.755	A	3	67.81	99.54	1-	$3s\ ^3S-5p\ ^3P^o$ UV 34
343.168	A	1	67.81	103.94	1-2	$3s\ ^3S-6p\ ^3P^o$ UV 35
Air						
5114.07	A	7	69.59	72.01	0-1	$3s\ ^1S-3p\ ^1P^o$ 1
Vac						
566.232	A	2	69.59	91.48	0-1	$3s\ ^1S-4p\ ^1P^o$ UV 36
414.612	A	1	69.59	99.49	0-1	$3s\ ^1S-5p\ ^1P^o$ UV 37
Air						
3144.66	A	10	72.01	75.95	1-2	$3p\ ^1P^o-3d\ ^1D$ 2
Vac						
788.577	A	1h	72.01	87.73	1-0	$3p\ ^1P^o-3p'\ ^1S$ UV 38
662.928	A	1h	72.01	90.71	1-0	$3p\ ^1P^o-4s\ ^1S$ UV 39
604.416	A	7	72.01	92.52	1-2	$3p\ ^1P^o-4d\ ^1D$ UV 40
439.517	A	3	72.01	100.22	1-2	$3p\ ^1P^o-5d\ ^1D$ UV 41
382.757	A	0	72.01	104.40	1-2	$3p\ ^1P^o-6d\ ^1D$ UV 42
Air						
5597.91	A	9	72.27	74.49	2-3	$3p\ ^3P^o-3d\ ^3D$ 3
5580.12	A	7	72.26	74.48	1-2	
5571.84	A	5	72.26	74.48	0-1	
5604.28	A	5	72.27	74.48	2-2	
5583.23	A	5	72.26	74.48	1-1	
5607.41	P		72.27	74.48	2-1	
Vac						
1055.451	A	5	72.27	84.02	2-3	$3p\ ^3P^o-3p'\ ^3D$ UV 43
1058.149	A	3	72.26	83.98	1-2	
1059.930	A	2	72.26	83.95	0-1	
1058.998	A	2	72.27	83.98	2-2	
1060.380	A	2	72.26	83.95	1-1	
716.553	A	5	72.27	89.57	2-1	$3p\ ^3P^o-4s\ ^3S$ UV 44
716.137	A	3	72.26	89.57	1-1	
m715.955	P	O IV	72.26	89.57	0-1	
627.636	A	5	72.27	92.02	2-3	$3p\ ^3P^o-4d\ ^3D$ UV 45
627.351	A	4	72.26	92.02	1-2	
627.225	A	2	72.26	92.02	0-1	
469.150	A	1	72.27	98.70	2-1	$3p\ ^3P^o-5s\ ^3S$ UV 46
447.356	A	4	72.27	99.98	2-3,2	$3p\ ^3P^o-5d\ ^3D$ UV 47
447.226	A	3h	72.26	99.98	1-2,1	

O v—Continued

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Vac						
739.838	A	1*h*	74.48	91.24		3*d* ^{3}D –4*p* ^{3}P° UV 48
681.272	A	12	74.48	92.68		3*d* ^{3}D –4*f* ^{3}F° UV 49
481.136	A	6	74.48	100.25		3*d* ^{3}D–5*f* ^{3}F° UV 50
413.296	A	4	74.48	104.48		3*d* ^{3}D –6*f* ^{3}F° UV 51
728.733	A	8	75.95	92.97	2–3	3*d* ^{1}D –4*f* ^{1}F° UV 52
509.415	A	3	75.95	100.29	2–3	3*d* ^{1}D –5*f* ^{1}F° UV 53
438.197	A	0	75.95	104.25	2–3	3*d* ^{1}D –6*f* ^{1}F° UV 54
Air						
4123.99	A	8	81.01	84.02	2–3	3*s*′ ^{3}P°–3*p*′^{3}D 4
*m*4119.42	P	O II	80.97	83.98	1–2	
*m*4125.49	P	O III	80.95	83.95	0–1	
4178.45	A	4	81.01	83.98	2–2	
*m*4153.26	P	O II	80.97	83.95	1–1	
4213.35	P		81.01	83.95	2–1	
3275.63	A	1	81.01	84.80	2–1	3*s*′ ^{3}P°–3*p*′^{3}S 5
3239.21	P		80.97	84.80	1–1	
3222.29	P		80.95	84.80	0–1	
2755.11	A	8	81.01	85.51	2–2	3*s*′ ^{3}P°–3*p*′^{3}P UV 55
2743.58	A	3	80.97	85.49	1–1	
2769.76	A	4	81.01	85.49	2–1	
2752.24	A	4	80.97	85.47	1–0	
2729.34	A	4	80.97	85.51	1–2	
2731.45	A	3	80.95	85.49	0–1	
Vac						
562.080	A	3	81.01	103.07	2–3	3*s*′ ^{3}P°–4*p*′^{3}D UV 56
561.959	A	2	80.96	103.02	1,0–2,1	
Air						
3058.68	D	0	82.38	86.44	1–2	3*s*′ ^{1}P°–3*p*′^{1}D 6
4554.53	A	3	83.40	86.12	1–2	3*p*′ ^{1}P–3*d*′ ^{1}D° 7
6500.24	A	9	84.02	85.92	3–4	3*p*′ ^{3}D –3*d*′^{3}F° 7.01
6466.13	A	8	83.98	85.90	2–3	
6460.11	A	7	83.95	85.87	1–2	
6601.28	A	2*h*	84.02	85.90	3–3	
6543.78	A	3	83.98	85.87	2–2	
3746.60	P		84.02	87.33	3–3	3*p*′ ^{3}D –3*d*′^{3}D° 8
3717.27	P		83.98	87.31	2–2	
3698.32	P		83.95	87.31	1–1	
3761.54	P		84.02	87.31	3–2	
3725.58	P		83.98	87.31	2–1	
3702.68	P		83.98	87.33	2–3	
3690.13	P		83.95	87.31	1–2	

O v—Continued

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Air						
3297.62	P		84.02	87.78	3–2	3*p*′ ^{3}D –3*d*′^{3}P° 9
3248.28	P		83.98	87.79	2–1	
3219.21	P		83.95	87.80	1–0	
3263.54	P		83.98	87.78	2–2	
3227.54	P		83.95	87.79	1–1	
3242.61	P		83.95	87.78	1–2	
4924.88	P		84.80	87.31	1–2	3*p*′ ^{3}S –3*d*′^{3}D° 10
4939.48	P		84.80	87.31	1–1	
4158.84	A	2	84.80	87.78	1–2	3*p*′ ^{3}S –3*d*′^{3}P° 11
4134.06	A	1	84.80	87.79	1–1	
4120.44	P		84.80	87.80	1–0	
6828.81	P		85.51	87.33	2–3	3*p*′ ^{3}P –3*d*′^{3}D° 12
6789.48	P		85.49	87.31	1–2	
6764.58	P		85.47	87.31	0–1	
6878.62	P		85.51	87.31	2–2	
6817.26	P		85.49	87.31	1–1	
6907.13	P		85.51	87.31	2–1	
5471.12	P		85.51	87.78	2–2	3*p*′ ^{3}P –3*d*′^{3}P° 13
5372.71	P		85.49	87.79	1–1	
5428.38	P		85.51	87.79	2–1	
5349.65	P		85.49	87.80	1–0	
5414.59	P		85.49	87.78	1–2	
5339.94	P		85.47	87.79	0–1	
Vac						
679.136	A	4	85.92	104.18	4–5	3*d*′ ^{3}F°–6*g* ^{3}G UV 57
678.612	A	3	85.90	104.17	3–4	
677.968	A	2	85.87	104.16	2–3	
655.039	A	5	85.92	104.85	4–5	3*d*′ ^{3}F°–4*f*′^{3}G UV 58
*654.712§	A	3	85.90	104.83	3–4	
654.207	A	2	85.87	104.82	2–3	
Air						
6330.05	A	3	86.44	88.39	2–3	3*p*′ ^{1}D –3*d*′^{1}F° 14
4522.66	P		86.44	89.18	2–1	3*p*′ ^{1}D –3*d*′^{1}P° 15
Vac						
784.795	A	2	88.39	104.19	3–4	3*d*′ ^{1}F°–6*g* ^{1}G UV 59
*752.019§	A	1	88.39	104.88	3–4	3*d*′ ^{1}F°–4*f*′^{1}G UV 60
Air						
3702.65	P		89.18	92.52	1–2	3*d*′ ^{1}P°–4*d* ^{1}D 16
7422.4	A	5	89.57	91.24	1–2	4*s* ^{3}S –4*p* ^{3}P° 17
7437.3	A	4	89.57	91.24	1–1	
7443.1	A	1*h*	89.57	91.24	1–0	
Vac						
1243.801	A	1	89.57	99.54	1–2	4*s* ^{3}S –5*p* ^{3}P° UV 61

O v—Continued

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Vac						
1418.393	A	3	91.24	99.98	2–3	4p ^{3}P°–5d ^{3}D UV 62
1417.908	A	2	91.24	99.98	1–2	
1417.653	A	1	91.24	99.98	0–1	
1419.009	A	2	91.48	100.22	1–2	4p ^{1}P°–5d ^{1}D UV 63
1506.717	A	10w	92.02	100.25		4d ^{3}D –5f ^{3}F° UV 64
1596.375	A	7	92.52	100.29	2–3	4d ^{1}D –5f ^{1}F° UV 65
1643.678	A	14w	92.68	100.22		4f ^{3}F°–5g ^{3}G UV 66
1707.996	A	10	92.97	100.22	3–4	4f ^{1}F°–5g ^{1}G UV 67
Air						
2619.88	A	2	99.54	104.27	2–3	5p ^{3}P°–6d ^{3}D UV 68
2618.81	A	1	99.54	104.27	1–2	
*2754.7	A	3	99.98	104.48	3–4	5d ^{3}D –6f ^{3}F° UV 69
2755.91	A	2	99.98	104.48	2–3	
2756.98	A	2	99.98	104.48	1–2	
3078.95	A	2	100.22	104.25	2–3	5d ^{1}D –6f ^{1}F° 18
*2941.65	A	11+	100.23	104.44	5–6	5g ^{3}G –6h ^{3}H° UV 70
2941.33	A	11	100.22	104.44	4,3–5,4	
Vac						
*1844.495	A	2wh	100.23	106.95	5–6	5g ^{3}G –7h ^{3}H° UV 71
Air						
*2941.65	A	11+	100.22	104.44	4–5	5g ^{1}G –6h ^{1}H° UV 72
Vac						
*1844.495	A	2wh	100.22	106.95	4–5	5g ^{1}G –7h ^{1}H° UV 73
Air						
3156.11	A	7	100.25	104.18	4–5	5f ^{3}F°–6g ^{3}G 19
3168.10	A	6	100.25	104.17	3–4	
3172.31	A	5	100.25	104.16	2–3	

O v—Continued

I A	Ref.	Int.	E P Low	E P High	J	Multiplet No.
Air						
*2695.44§§	A	6	100.25	104.85	4–5	5f ^{3}F°–4f′ ^{3}G UV 74
2706.83	A	4	100.25	104.83	3–4	
2711.53	A	4	100.25	104.82	2–3	
Vac						
1845.631	A	1wh	100.25	106.97		5f ^{3}F°–7g ^{3}G UV 75
Air						
3176.87	A	6	100.29	104.19	3–4	5f ^{1}F°–6g ^{1}G 20
2700.04	A	4	100.29	104.88	3–4	5f ^{1}F°–4f′ ^{1}G UV 76
4479.45	A	5	104.18	106.95	5–6	6g ^{3}G –7h ^{3}H° 21
*4454.97†	A	4	104.17	106.95	4–5	
*4446.92†	A	4	104.16	106.95	3–4	
4498.82	A	5	104.19	106.95	4–5	6g ^{1}G –7h ^{1}H° 22
4628.87	P		104.25	106.92	2–3	6f ^{1}F°–7d ^{1}D 23
4548.48	A	2	104.25	106.97	3–4	6f ^{1}F°–7g ^{1}G 24
4930.27	A	12w	104.44	106.95		6h ^{3,1}H°–7i ^{3,1}I 25
2993.0	A	2w	104.44	108.58		6h ^{3,1}H°–8i ^{3,1}I UV 77
4984.41	A	2	104.48	106.97	4–5	5f ^{3}F°–7g ^{3}G 26
4980.30	A	2	104.48	106.97	3–4	
4977.25	A	2	104.48	106.97	2–3	
5914.54	A	4h	104.85	106.95	5–6	4f′ ^{3}G –7h ^{3}H° 27
5859.07	A	3h	104.83	106.95	4–5	
5836.79	A	3h	104.82	106.95	3–4	
5999.50	A	3h	104.88	106.95	4–5	4f′ ^{1}G –7h ^{1}H° 28
7592.0	A	6W	106.95	108.58		7h ^{3,1}H°–8i ^{3,1}I 29
7610.9	A	8W	106.95	108.58		7i ^{3,1}I–8k ^{3,1}K° 30

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