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Selected Tables of Atomic Spectra

Atomic Energy Levels and Multiplet Table

O III

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Provides the national system of physical and chemical measurement; coordinates the system with measurement systems of other nations and furnishes essential services leading to accurate and uniform physical and chemical measurement throughout the Nation's scientific community, industry, and commerce; provides advisory and research services to other Government agencies; conducts physical and chemical research; develops, produces, and distributes Standard Reference Materials; and provides calibration services. The Laboratory consists of the following centers:

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Selected Tables of Atomic Spectra

A Atomic Energy Levels - Second Edition

B Multiplet Table

O III

Data Derived from the Analyses of Optical Spectra

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Abstract

The present publication is the eleventh 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 11 includes these data for O III. The form of the presentation is described in detail in the text to Section I.

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

Foreword

The National Standard Reference Data System was established in 1963 for the purpose of promoting the critical evaluation and dissemination of numerical data of the physical sciences. The program is coordinated by the Office of Standard Reference Data of the National Bureau of Standards but involves the efforts of many groups in universities, government laboratories, and private industry. The primary aim of the program is to provide compilations of critically evaluated physical- and chemical-property data needed by the scientific and engineering community. Activities carried out under the program emphasize the evaluation of published data by scientists who are expert in the research areas involved.

The present volume is another contribution to a series of NSRDS publications of critically evaluated atomic data. We are pleased to make these data available to the scientific and technical community.

DAVID R. LIDE, JR., *Director*
Standard Reference Data
National Bureau of Standards

Preface

The present publication is the eleventh 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 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, Section 8 the last three spectra of oxygen, $Z = 8$: O VI, O VII, O VIII. Sections 9 and 10 contain, respectively, O V and O IV. The present Section contains O III. 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 S.-G. Pettersson 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. She extends special thanks to Betty Burris for her expert help in preparing the manuscript for publication.

Washington, DC , February, 1984

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NSRDS-NBS 3, SECTION 11

OXYGEN $Z = 8$

A O III Atomic Energy Levels

B O III Multiplet Table

Atomic Energy Levels

Part A

OXYGEN O III

C I sequence; 6 electrons

$Z = 8$

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

$2p^2 3P_0$ **443084.7 \pm 2 cm⁻¹**; 225.690 Å 54.934 eV

The tables are based on the splendid analysis by S.-G. Pettersson who kindly furnished a manuscript in advance of publication. The spectrum has been observed from a theta-pinch discharge as light source. About 750 lines, of which 450 are new, have been measured between 500 and 8500 Å. All energy levels have been derived from observed wavelengths > 500 Å. On the basis of new measurements, Pettersson has calculated wavelengths for 147 lines between 228 and 500 Å that are suitable as reference lines. The ionization limit quoted above has been determined by applying the polarization formula to the hydrogen-like levels.

The 1982 paper by B. Edlén gives "Accurate values of the energy intervals in the ground configurations $1s^2 2s^2 2p^k$ ($k = 1-5$)—derived from all available experimental data".

D. A. Church and C. H. Liu have made quantum-beat measurements of Landé g -values and compared them with other experimental g -values as follows:

	Church and Liu	Lott et al ($\pm 3\%$)
$3p$ 3D_2	1.141 ± 0.02	1.17
$3p$ 3D_3	1.355 ± 0.02	1.33
$3d$ $^3F_3^\circ$	1.059 ± 0.015	1.08
$3d$ $^3F_4^\circ$	1.239 ± 0.015	1.24

The papers published in 1969, 1971, and 1972 deal with lifetimes of excited electronic states based on beam-foil observations. The 1964 reference reports that "asymmetric autoionized lines have been observed for the first time in an atomic emission spectrum", O III.

A new Multiplet Table of O III has been prepared by the writer from the classified lines given by S.-G. Pettersson. Some additional lines have been taken from the early Monograph by B. Edlén. In preparing this Multiplet Table the writer has added predicted wavelengths for a number of multiplets that are incompletely observed or not known. These entries are noted with "P" as the reference source. They are derived from the Table of Atomic Energy Levels. The calculated wavelengths that are suitable as reference lines, Table IV in S.-G. Pettersson's publication, are treated as observed lines, Reference A.

The 1979 and 1980 references report interesting observations of the forbidden transitions of the O III ground-term intervals in far infrared spectra of various celestial sources such as the H II regions, the Orion nebula, etc.

The term $4p'$ $^3P^\circ$, calculated from a line reported by Tilford and Wilkinson at λ 225.200, designated as $2p^2 3P - 4p' 3P^\circ$, is 444050 cm⁻¹.

The peculiar array of Multiplet Numbers results from the retention of the early Multiplet Numbers for O III in the 1945 and 1950 Multiplet Tables by the writer.

Atomic Energy Levels

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Atomic Energy Levels

O III

O III

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
2s ² 2p ²	2p ² 3P	0	0.000	113.178 113.178 112.996	2s ² 2p(2P°)3d	3d ⁻¹ P°	1	332778.94	124.73 161.05
		1	113.178				1	338577.25	
		2	306.174				2	338701.98	
2s ² 2p ²	2p ² 1D	2	20273.27	-28.2 -4.8	2s ² 2p(4P)3s	3s' 5P	3	338863.03	99.96 173.93
2s ² 2p ²	2p ² 1S	0	43185.74				0	343306.3	
2s 2p ³	2p ³ 5S°	2	60324.79				0	350024.49	
2s 2p ³	2p ³ 3D°	3	120025.2	-28.2	2s ² 2p(4P)3s	3s' 3P	1	350124.45	108.68 272.03
		2	120053.4	-4.8			2	350298.38	
		1	120058.2	-0.8 -11.7	2s ² 2p(2P°)4s	4s ⁻³ P°	0	356736.30	34.87 68.45
2s 2p ³	2p ³ 3P°	2	142381.0				1	356844.98	
		1	142381.8				2	357117.01	
		0	142393.5				1	358668.90	100.28 127.21
2s 2p ³	2p ³ 1D°	2	187054.0	-118.40 256.89	2s ² 2p(4P)3p	3p' 3S°	1	363263.38	127.21
2s 2p ³	2p ³ 3S°	1	197087.7				0	365527.08	
2s 2p ³	2p ³ 1P°	1	210461.8				1	365561.95	
2s ² 2p(2P°)3s	3s ⁻³ P°	0	267258.71	-217.7 -94.5	2s ² 2p(2P°)4p	4p ⁻¹ P	1	365726.76	107.31 206.86
		1	267377.11				1	366488.45	
		2	267634.00				2	366595.76	
2s ² 2p(2P°)3s	3s ⁻¹ P°	1	273081.33	136.37 220.21	2s ² 2p(2P°)4p	4p ⁻³ D	1	366802.62	57.28 101.07
		2	283759.7				1	367953.90	
		0	283977.4				2	368538.65	
2s ² 2p(2P°)3p	3p ⁻¹ P	1	290958.25	82.03 130.59	2s ² 2p(4P)3p	3p' 5P°	1	368595.93	89.14 108.17
2s ² 2p(2P°)3p	3p ⁻³ D	1	293866.49				2	368697.00	
		2	294002.86				0	370329.18	
		3	294223.07				1	370418.32	
2s ² 2p(2P°)3p	3p ⁻³ S	1	297558.66	-195.92 178.23	2s ² 2p(4P)4p	4p ⁻³ P	2	370526.49	91.88 131.62
2s ² 2p(2P°)3p	2p ⁴ 1D	2	298294.0				2	370902.22	
		0	300239.93				1	374571.64	
		1	300311.96				2	374663.52	
2s ² 2p(2P°)3p	3p ⁻³ P	2	300442.55				3	374795.14	
		2	306586.08	49.05 73.87	2s ² 2p(4P)3p	3p' 5S°	2	376079.92	-12.16 -17.32
		0	313802.77				2	377385.58	
2s ² 2p(2P°)3d	3d ⁻³ F°	2	324464.88	-114.09 -61.25	2s ² 2p(2P°)4d	4d ⁻³ F°	2	377562.31	176.73 186.26
		3	324660.80				3	377748.57	
		4	324839.03				2	377686.83	
2s ² 2p(2P°)3d	3d ⁻¹ D°	2	324735.65	49.05 73.87	2s ² 2p(4P)3p	3p' 3P°	2	378405.68	65.88 63.72
		1	327229.25				1	378417.84	
		2	327278.30				0	378435.16	
2s ² 2p(2P°)3d	3d ⁻³ D°	3	327352.17		2s ² 2p(2P°)4d	4d ⁻³ D°	1	379227.15	-13.47
		2	329469.80				2	379293.03	
		1	329583.89				3	379356.75	
2s ² 2p(2P°)3d	3d ⁻³ P°	0	329645.14		2s ² 2p(2P°)4f	4f F[2 ^{1/2}]	3	380612.78	-13.47
		3	331821.44				2	380626.25	

Atomic Energy Levels

O III—Continued

O III—Continued

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
$2s^2 2p(^2P^{\circ})4f$	$4f \quad F[3^{1/2}]$	3	380671.86		$2s^2 2p(^2P^{\circ})5d$	$5d \quad ^3D^{\circ}$	1		
		4	380687.86	16.00			2	402411.5	
$2s^2 2p(^2P^{\circ})4d$	$4d \quad ^3P^{\circ}$	2	380706.51		$2s^2 2p(^2P^{\circ})5f$	$5f \quad F[2^{1/2}]$	3	402533.3	121.8
		1	380717.92	-11.41			2	403190.70	
		0	380737.00	-19.08			2	403208.48	-17.78
$2s^2 2p(^2P^{\circ})4d$	$4d \quad ^1F^{\circ}$	3	380782.17		$2s^2 2p(^2P^{\circ})5f$	$5f \quad F[3^{1/2}]$	3	403223.27	
$2s^2 2p(^2P^{\circ})4d$	$4d \quad ^1P^{\circ}$	1	381089.27		$2s^2 2p(^2P^{\circ})5d$	$5d \quad ^1F^{\circ}$	3	403380.0	22.15
$2s^2 2p(^2P^{\circ})4f$	$4f \quad G[3^{1/2}]$	3	381179.84		$2s^2 2p(^2P^{\circ})5g$	$5g \quad G[3^{1/2}]^{\circ}$	3,4	403505.4	
		4	381213.65	33.81	$2s^2 2p(^2P^{\circ})5g$	$5g \quad G[4^{1/2}]^{\circ}$	4,5	403514.6	
$2s^2 2p(^2P^{\circ})4f$	$4f \quad G[4^{1/2}]$	5	381406.72		$2s^2 2p(^2P^{\circ})5d$	$5d \quad ^1P^{\circ}$	1	403533.7	
		4	381475.33	-68.61	$2s^2 2p(^2P^{\circ})5f$	$5f \quad G[3^{1/2}]$	3	403562.80	
$2s^2 2p(^2P^{\circ})4f$	$4f \quad D[2^{1/2}]$	3	381457.51		$2s^2 2p(^2P^{\circ})5f$		4	403588.92	26.12
		2	381480.26	-22.75					
$2s^2 2p(^2P^{\circ})4f$	$4f \quad D[1^{1/2}]$	1	381626.33		$2s^2 2p(^2P^{\circ})5f$	$5f \quad G[4^{1/2}]$	5	403722.85	
		2	381647.19	20.86			4	403784.03	-61.18
$2s^2 2p(^2P^{\circ})5s$	$5s \quad ^3P^{\circ}$	0	391830.76		$2s^2 2p(^2P^{\circ})5f$	$5f \quad D[2^{1/2}]$	3	403716.60	
		1	391917.80	87.04			2	403727.62	-11.02
		2	392209.53	291.73	$2s^2 2p(^2P^{\circ})5f$	$5f \quad D[1^{1/2}]$	1	403841.23	
$2s^2 2p(^2P^{\circ})5s$	$5s \quad ^1P^{\circ}$	1	392781.47				2	403853.65	12.42
$2s \ 2p^2(^2D)3s$	$3s'' \ ^3D$	1	394079.4		$2s^2 2p(^2P^{\circ})5g$	$5g \quad H[4^{1/2}]^{\circ}$	4,5	403858.1	
		2	394127.3	47.9	$2s^2 2p(^2P^{\circ})5g$	$5g \quad H[5^{1/2}]^{\circ}$	5,6	403950.3	
		3	394197.9	70.6	$2s^2 2p(^2P^{\circ})5g$	$5g \quad F[3^{1/2}]^{\circ}$	3,4	403902.8	
$2s \ 2p^2(^4P)3d$	$3d' \ ^5F$	1	394528.20		$2s^2 2p(^2P^{\circ})5g$	$5g \quad F[2^{1/2}]^{\circ}$	2,3	403986.3	
		2	394567.05	38.85	$2s^2 2p(^2P^{\circ})5g$	$3d' \ ^3D$	1	405801.50	28.88
		3	394624.68	57.63			2	405830.38	
		4	394700.27	75.59			3	405879.97	49.59
		5	394793.28	93.01					
$2s \ 2p^2(^4P)3d$	$3d' \ ^5D$	0	398145.63		$2s^2 2p(^2P^{\circ})6s$	$6s \quad ^3P^{\circ}$	0	409052.6	
		1	398144.29	-1.34			1	409125.7	73.1
		2	398139.92	-4.37			2	409434.1	308.4
		3	398150.40	10.48	$2s^2 2p(^2P^{\circ})6s$	$6s \quad ^1P^{\circ}$	1	409766.5	
		4	398231.48	81.08	$2s^2 2p(^2P^{\circ})6d$	$6d \quad ^1D^{\circ}$	2	414676	
$2s \ 2p^2(^4P)3d$	$3d' \ ^5P$	3	398487.08		$2s^2 2p(^2P^{\circ})6d$	$6d \quad ^3D^{\circ}$	1,2,3	415180	
		2	398557.17	-70.09	$2s^2 2p(^2P^{\circ})6f$	$6f \quad F[3^{1/2}]$	3	415420.1	
		1	398595.65	-38.48			4	415448.3	28.2
$2s \ 2p^2(^4P)3d$	$3d' \ ^3P$	2	400351.56		$2s^2 2p(^2P^{\circ})6f$	$6f \quad F[2^{1/2}]$	3	415430.5	
		1	400460.99	-109.43			2	415433.0	-2.5
		0	400514.89	-53.90	$2s^2 2p(^2P^{\circ})6f$	$6g \quad G[3^{1/2}]^{\circ}$	3,4	415608.8	
$2s \ 2p^2(^4P)3d$	$3d' \ ^3F$	2	401375.09		$2s^2 2p(^2P^{\circ})6g$	$6g \quad G[4^{1/2}]^{\circ}$	4,5	415612.9	
		3	401476.29	101.20					
		4	401605.52	129.23	$2s^2 2p(^2P^{\circ})6h$	$6h \quad H[4^{1/2}]$	4,5	415640.2	
$2s^2 2p(^2P^{\circ})5d$	$5d \quad ^3F^{\circ}$	2	401519.8		$2s^2 2p(^2P^{\circ})6h$	$6h \quad H[5^{1/2}]$	5,6	415641.1	
		3	401725.6	205.8					
		4	401893.2	167.6	$2s^2 2p(^2P^{\circ})6h$	$6f \quad G[3^{1/2}]$	3	415777.8	
$2s^2 2p(^2P^{\circ})5d$	$5d \quad ^1D^{\circ}$	2	401791.7		$2s^2 2p(^2P^{\circ})6f$		4	415792.8	15.0

Atomic Energy Levels

O III—Continued
O III—Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$2s^2 2p(2P^{\circ})6f$	$6f\ G[4^{1/2}]$	5	415863.8		$2s 2p^2(4P)4d$	$4d' 5P$	3	450177.71	
		4	415911.1	-47.3			2	450250.84	-73.13
							1	450304.93	-54.09
$2s^2 2p(2P^{\circ})6f$	$6f\ D[2^{1/2}]$	3	415853.6		$2s 2p^2(4P)4f$	$4f' 5D^{\circ}$	4	452187.83	
		2					3	452281.60	-93.77
$2s^2 2p(2P^{\circ})6g$	$6g\ H[4^{1/2}]^{\circ}$	4,5	415967.7				2	452354.07	-72.47
$2s^2 2p(2P^{\circ})6g$	$6g\ H[5^{1/2}]^{\circ}$	5,6	416025.0				1	452324?	30
$2s^2 2p(2P^{\circ})6g$	$6g\ F[3^{1/2}]^{\circ}$	3,4	415991.3		$2s 2p^2(4P)4f$	$4f' 3D^{\circ}$	0	452409.10	-85
$2s^2 2p(2P^{\circ})6g$	$6g\ F[2^{1/2}]^{\circ}$	2,3	416042.8				3	452194.87	
$2s^2 2p(2P^{\circ})6h$	$6h\ I[5^{1/2}]$	5,6	416009.0				2	452285.01	-90.14
$2s^2 2p(2P^{\circ})6h$	$6h\ I[6^{1/2}]$	6,7	416040.6		$2s 2p^2(4P)4f$	$4f' 5G^{\circ}$	1	452399.07	-114.06
$2s^2 2p(2P^{\circ})6h$	$6h\ G[4^{1/2}]$	4,5	416019.5				2	452401.37	
$2s^2 2p(2P^{\circ})6h$	$6h\ G[3^{1/2}]$	3,4	416050.5				3	452426.57	25.20
$2s^2 2p(2P^{\circ})7d$	$7d\ 1F^{\circ}$	3	422979		$2s 2p^2(4P)4f$	$4f' 3G^{\circ}$	4	452482.64	56.07
$2s 2p^2(2D)3p$	$3p'' 1F^{\circ}$	3	425000				5	452563.49	80.85
$2s 2p^2(2D)3p$	$3p'' 1D^{\circ}$	2	426340				6	452668.54	105.05
$2s 2p^2(4P)4s$	$4s' 5P$	1	428500.87		$2s 2p^2(2D)3d$	$3d'' 3F$	3,4	452502.02	
		2	428627.20	126.33	$2s 2p^2(4P)4f$	$4f' 5F^{\circ}$	1	452599.50	97.48
		3	428791.89	164.69			2	452720.17	120.67
$2s 2p^2(2D)3p$	$3p'' 1P^{\circ}$	1	430027				3	453190.69	
$2s 2p^2(4P)4p$	$4p' 3S^{\circ}$	1	437012.5				2	453202.81	12.12
$2s 2p^2(4P)4p$	$4p' 5D^{\circ}$	0					3	453220.72	17.91
		1	438252.9		$2s 2p^2(4P)4f$	$4f' 3F^{\circ}$	4	453241.46	20.74
		2	438314.4	61.5			5	453260.71	19.25
		3	438409.1	94.7			2	453266.13	
		4	438530.8	121.7	$2s 2p^2(2D)3d$	$3d'' 3D$	1,2,3	453296.04	29.91
$2s 2p^2(4P)4p$	$4p' 5P^{\circ}$	1	439290.6		$2s 2p^2(2D)3d$	$3d'' 3P$	0,1,2	453323.49	27.45
		2	439342.3	51.7	$2s 2p^2(4P)5d$	$5d' 5P$	3	457574	
		3	439440.8	98.5			2	473762	
$2s 2p^2(4P)4p$	$4p' 3D^{\circ}$	1					1		
		2					2	474801.8	
		3	442718		$2s 2p^2(4P)5f$	$5f' 5G^{\circ}$	3	474819.2	17.4
$O\ IV\ (^2P_{01/2}^{\circ})$	Limit	...	443084.7				4	474886.9	67.7
$(^2P_{11/2}^{\circ})$	Limit	...	443470.6				5	474962.4	75.5
$2s 2p^2(4P)4d$	$4d' 5F$	1					6	475080.7	118.3
		2	448328.33		$2s 2p^2(4P)5f$	$5f' 3G^{\circ}$	3	474899.3	
		3	448387.88	59.55			4	474990.1	90.8
		4	448466.53	78.65			5	475085.6	95.5
		5	448562.33	95.80	$2s 2p^2(4P)5f$	$5f' 5F$		[475300]	
$2s 2p^2(4P)4d$	$4d' 5D$	0							
		1	449593.25						
		2	449599.07	5.82					
		3	449623.65	24.58					
		4	449689.97	66.32					

Atomic Energy Levels

O III—Continued

O III—Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
O IV ($^4P_{0\frac{1}{2}}$)	Limit		514524.5		O IV ($^2D_{2\frac{1}{2}}$)	Limit		570021.0	
($^4P_{1\frac{1}{2}}$)	Limit		514654.8	130.3	($^2D_{1\frac{1}{2}}$)	Limit		570034.9	-13.9
($^4P_{2\frac{1}{2}}$)	Limit		514840.2	185.4					

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Atomic Energy Levels

O III Observed Terms

Config. $1s^2 +$	Observed Terms		
$2s^2 2p^2$	$2p^2 \ ^3P$	$2p^2 \ ^1D$	
$2s \ 2p^3$	$2p^2 \ ^1S$ $\left\{ \begin{array}{l} 2p^3 \ ^5S^\circ \\ 2p^3 \ ^3S^\circ \end{array} \right.$ $2p^3 \ ^3P^\circ$ $2p^3 \ ^1P^\circ$	$2p^3 \ ^3D^\circ$ $2p^3 \ ^1D^\circ$	
$2p^4$	$2p^4 \ ^1S$	$2p^4 \ ^3P$	$2p^4 \ ^1D$
	$ns(n \geq 3)$		$np(n \geq 3)$
$2s^2 2p(^2P^\circ)nl$	$\left\{ \begin{array}{l} 3-6s \ ^3P^\circ \\ 3-6s \ ^1P^\circ \end{array} \right.$	$3-4p \ ^3S$ $3p \ ^1S$	$3-4p \ ^3P$ $3-4p \ ^1P$
$2s \ 2p^2(^4P)nl'$	$\left\{ \begin{array}{l} 3-4s' \ ^5P \\ 3s' \ ^3P \end{array} \right.$	$3p' \ ^5S^\circ$ $3-4p' \ ^3S^\circ$	$3-4p' \ ^5P^\circ$ $3-4p' \ ^3P^\circ$
$2s \ 2p^2(^2D)nl''$	$3s'' \ ^3D$	$3p'' \ ^1P^\circ$	$3p'' \ ^1D^\circ$
	$nd(n \geq 3)$		$nf(n \geq 4)$
$2s^2 2p(^2P^\circ)nl$	$\left\{ \begin{array}{l} 3-4d \ ^3P^\circ \\ 3-5d \ ^1P^\circ \end{array} \right.$ $3-6d \ ^3D^\circ$ $3-6d \ ^1D^\circ$	$3-5d \ ^3F^\circ$ $3-5,7d \ ^1F^\circ$	See below
$2s \ 2p^2(^4P)nl'$	$\left\{ \begin{array}{l} 3-5d' \ ^5P \\ 3d' \ ^3P \end{array} \right.$ $3-4d' \ ^5D$ $3d' \ ^3D$	$3-4d' \ ^5F$ $3d' \ ^3F$	$4f' \ ^5D^\circ$ $4f' \ ^3D^\circ$
$2s \ 2p^2(^2P)nl''$	$3d'' \ ^3P$	$3d'' \ ^3D$	$3d'' \ ^3F$
		$nf(n \geq 4)$	$ng(n \geq 5)$
$2s^2 2p(^2P_{01/2})nl$		$4-6f \ F[2^{1/2}]$ [$3^{1/2}$]	$5-6g \ G[3^{1/2}]^\circ$ [$4^{1/2}$] [$5^{1/2}$]
$2s^2 2p(^2P_{11/2})nl$		$4-6f \ G[3^{1/2}]$ [$4^{1/2}$]	$5-6g \ H[4^{1/2}]^\circ$ [$5^{1/2}$] [$6^{1/2}$]
		$4-6f \ D[2^{1/2}]$	$5-6g \ F[3^{1/2}]^\circ$ [$2^{1/2}$] [$3^{1/2}$]

Multiplet Table

Part B

OXYGEN

O III (Z = 8)

IP 54.934 eV Limit $443084.7 \pm 2 \text{ cm}^{-1}$ 225.690 Å

Anal A List A February 1984

References

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J. W. V. Storey, D. M. Watson, and C. H. Townes, *Astroph. J.* **233**, 109-118 (1979). [O III] 88μ. Far Infrared Spectrometer.

A. F. M. Moorwood, P. Salinari, I. Furniss, R. E. Jennings, and K. J. King, *Astron. Astroph.* **90**, 304-310 (1980). [O III] W L 52μ and 88μ. Balloon Borne Michelson Interferometer.

P Predicted Wavelength derived from terms in Part A.

New Multiplet Numbers, not inserted between older ones, start with UV 24 and 36. In the 1945 Princeton Multiplet Table No. 6 has been replaced by UV 18; Nos. 7, 29, 32 have been rejected; Nos. 36 and 37 have different Multiplet Designations.

* Blend

† Multiplet incomplete

* and § Blend of O III and O II

* and ‡ Blend of O III and O IV

* and §§ Blend of O III and B II

* and ¶ Blend of O III and Si III

Multiplet Table

O III**O III**

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
88.332 μ	P		0.00	0.01	0-1	$2p^2 \ 3P - 2p^2 \ 3P$	305.767	A	(10)	0.04	40.59	2-3	$2p^2 \ 3P - 3d \ 3D^\circ$
51.801 μ	P		0.01	0.04	1-2	0.01 F	305.656	B	(9)	0.01	40.58	1-2	UV 5
32.652 μ	P		0.00	0.04	0-2		305.596	B	(8)	0.00	40.57	0-1	
5006.842	P		0.04	2.51	2-2	$2p^2 \ 3P - 2p^2 \ 1D$	305.836	B	(8-)	0.04	40.58	2-2	
4958.911	P		0.01	2.51	1-2	IF	305.702	A	(8-)	0.01	40.57	1-1	
4931.227	P		0.00	2.51	0-2		305.882	A	(4)	0.04	40.57	2-1	
2331.398	P		0.04	5.35	2-0	$2p^2 \ 3P - 2p^2 \ 1S$	303.800	A	(9)	0.04	40.85	2-2	$2p^2 \ 3P - 3d \ 3P^\circ$
2320.951	P		0.01	5.35	1-0	UV 1F	303.517	A	(7-)	0.01	40.86	1-1	UV 6
Vac							303.695	A	(7+)	0.04	40.86	2-1	
303.461	A	9	0.04	7.48	2-2	$2p^2 \ 3P - 2p^3 \ 5S^\circ$	303.622	A	(7+)	0.01	40.85	1-2	
1666.153	A	8	0.01	7.48	1-2	UV 0.01	303.413	A	(7)	0.00	40.86	0-1	
835.292	B	14	0.04	14.88	2-3	$2p^2 \ 3P - 2p^3 \ 3D^\circ$	300.777	P		0.04	41.26	2-1	$2p^2 \ 3P - 3d \ 1P^\circ$
833.742	B	13	0.01	14.88	1-2	UV 1	300.602	P		0.01	41.26	1-1	UV 6.01
832.927	B	12	0.00	14.88	0-1		300.500	P		0.00	41.26	0-1	
835.096	B	(14)	0.04	14.88	2-2		280.2606	A	(3)	0.04	44.28	2-2	$2p^2 \ 3P - 4s \ 3P^\circ$
833.715	P		0.01	14.88	1-1		280.3227	A	(1-)	0.01	44.24	1-1	UV 6.02
835.059	P		0.04	14.88	2-1		280.4744	A	(1+)	0.04	44.24	2-1	
*703.855	A	11	0.04	17.65	2-2	$2p^2 \ 3P - 2p^3 \ 3P^\circ$	280.4081	A	(1)	0.01	44.23	1-0	
*702.899	B	11	0.01	17.65	1-1	UV 2	280.1091	A	(1+)	0.01	44.28	1-2	
*703.855	A	11	0.04	17.65	2-1		280.2337	A	(1)	0.00	44.24	0-1	
702.832	A	11	0.01	17.65	1-0		275.5146	A	(4)	0.04	45.04	2-1	$2p^2 \ 3P - 3p' \ 3S^\circ$
*702.899	B	11	0.01	17.65	1-2		275.3682	A	(3)	0.01	45.04	1-1	UV 6.03
702.335	A	11	0.00	17.65	0-1		275.2824	A	(2)	0.00	45.04	0-1	
535.474	A	5	0.04	23.19	2-2	$2p^2 \ 3P - 2p^3 \ 1D^\circ$	273.653	P		0.04	45.34	2-3	$2p^2 \ 3P - 3p' \ 5D^\circ$
534.929	P		0.01	23.19	1-2	UV 2.01	273.585	P		0.01	45.33	1-2	UV 6.04
508.182	B	7	0.04	24.44	2-1	$2p^2 \ 3P - 2p^3 \ 3S^\circ$	273.551	P		0.00	45.32	0-1	
507.683	B	7	0.01	24.44	1-1	UV 3	273.729	P		0.04	45.33	2-2	
507.391	B	7	0.00	24.44	0-1		273.636	P		0.01	45.32	1-1	
475.837	P		0.04	26.09	2-1	$2p^2 \ 3P - 2p^3 \ 1P^\circ$	273.781	P		0.04	45.32	2-1	
475.401	P		0.01	26.09	1-1	UV 3.01	273.662	P		0.01	45.32	1-0	
475.146	P		0.00	26.09	0-1		271.451	P		0.04	45.71	2-3	$2p^2 \ 3P - 3p' \ 5P^\circ$
374.073	A	(10)	0.04	33.18	2-2	$2p^2 \ 3P - 3s \ 3P^\circ$	271.383	P		0.01	45.70	1-2	UV 6.05
374.162	A	(8-)	0.01	33.15	1-1	UV 4	271.342	P		0.00	45.69	0-1	
374.432	A	(8+)	0.04	33.15	2-1		271.525	P		0.04	45.70	2-2	
374.328	A	(8)	0.01	33.14	1-0		271.425	P		0.01	45.69	1-1	
373.803	A	(8+)	0.01	33.18	1-2		271.568	P		0.04	45.69	2-1	
374.004	A	(8)	0.00	33.15	0-1		267.0306	A	(7)	0.04	46.47	2-3	$2p^2 \ 3P - 3p' \ 3D^\circ$
366.602	P		0.04	33.86	2-1	$2p^2 \ 3P - 3s \ 1P^\circ$	266.9868	A	(7)	0.01	46.45	1-2	UV 6.06
366.343	P		0.01	33.86	1-1	UV 4.01	266.9716	A	(6)	0.00	46.44	0-1	
366.191	P		0.00	33.86	0-1		267.1245	A	(4)	0.04	46.45	2-2	
308.305	A	(2)	0.04	40.25	2-3	$2p^2 \ 3P - 3d \ 3F^\circ$	267.190	P		0.04	46.44	2-1	
308.307	P		0.01	40.23	1-2	UV 4.02	266.118	P		0.04	46.63	2-2	$2p^2 \ 3P - 3p' \ 5S^\circ$
308.491	P		0.04	40.23	2-2		265.981	P		0.01	46.63	1-2	UV 6.07
308.233	P		0.04	40.26	2-2	$2p^2 \ 3P - 3d \ 1D^\circ$	264.984	P		0.04	46.83	2-2	$2p^2 \ 3P - 4d \ 1D^\circ$
308.050	A	(1)	0.01	40.26	1-2	UV 4.03	264.849	P		0.01	46.83	1-2	UV 6.08

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac													
264.4807	A	(6)*	0.04	46.92	2-2	$2p^2 \ ^3P - 3p' \ ^3P^\circ$	565.565	P		2.51	24.44	2-1	$2p^2 \ ^1D - 2p^3 \ ^3S^\circ$
264.3372	A	(5d)*	0.01	46.92	1-1	UV 6.09	525.795	B	8	2.51	26.09	2-1	$UV \ 7.01$
264.4722	A	(6)*	0.04	46.92	2-1								
264.3251	A	(5d)*	0.01	46.92	1-0								
264.3457	A	(5d)*	0.01	46.92	1-2								
264.2582	A	(4)	0.00	46.92	0-1		404.268	P		2.51	33.18	2-2	$2p^2 \ ^1D - 3s \ ^3P^\circ$
263.8171	A	(5)	0.04	47.03	2-3	$2p^2 \ ^3P - 4d \ ^3D^\circ$	404.688	P		2.51	33.15	2-1	$UV \ 8.01$
263.7271	A	(4)	0.01	47.03	1-2	UV 6.10	395.557	A	(12)	2.51	33.86	2-1	$2p^2 \ ^1D - 3s \ ^1P^\circ$
263.6942	A	(3)	0.00	47.02	0-1								$UV \ 9$
263.8614	A	(3-)	0.04	47.03	2-2		328.529	P		2.51	40.25	2-3	$2p^2 \ ^1D - 3d \ ^3F^\circ$
263.7729	A	(3-)	0.01	47.02	1-1		328.740	A	(9)	2.51	40.23	2-2	$UV \ 9.01$
263.9073	A	(0)	0.04	47.02	2-1		328.448	A	(10)	2.51	40.26	2-2	$2p^2 \ ^1D - 3d \ ^1D^\circ$
262.8810	A	(1)	0.04	47.20	2-2	$2p^2 \ ^3P - 4d \ ^3P^\circ$	325.649	P		2.51	40.59	2-3	$2p^2 \ ^1D - 3d \ ^3D^\circ$
262.7398	A	(0)*	0.01	47.20	1-1	UV 6.11	325.728	P		2.51	40.58	2-2	$UV \ 10.01$
262.8731	A		0.04	47.20	2-1		325.780	P		2.51	40.57	2-1	
262.7266	A	(0)*	0.01	47.20	1-0		323.419	P		2.51	40.85	2-2	$2p^2 \ ^1D - 3d \ ^3P^\circ$
262.7477	A	(0)*	0.01	47.20	1-2		323.300	P		2.51	40.86	2-1	$UV \ 10.02$
262.6617	A		0.00	47.20	0-1		320.973	A	(12)	2.51	41.14	2-3	$2p^2 \ ^1D - 3d \ ^1F^\circ$
255.1650	A	(1)	0.04	48.63	2-2	$2p^2 \ ^3P - 5s \ ^3P^\circ$	319.994	A	(3)	2.51	41.26	2-1	$UV \ 11$
255.2293	A		0.01	48.59	1-1	UV 6.12	325.728	P		2.51	41.26	2-1	$2p^2 \ ^1D - 3d \ ^1P^\circ$
255.3551	A		0.04	48.59	2-1		319.994	A	(3)	2.51	41.26	2-1	$UV \ 11.01$
255.2860	A	(0)	0.01	48.58	1-0		295.5121	A	(3)	2.51	44.47	2-1	$2p^2 \ ^1D - 4s \ ^1P^\circ$
255.0394	A	(0)	0.01	48.63	1-2		279.885	P		2.51	46.81	2-3	$UV \ 11.02$
255.1555	A		0.00	48.59	0-1		280.0240	A	(2)	2.51	46.79	2-2	$2p^2 \ ^1D - 4d \ ^3F^\circ$
248.6158	A	(2)	0.04	49.91	2-3	$2p^2 \ ^3P - 5d \ ^3D^\circ$	279.7879	A	(3)	2.51	46.83	2-2	$UV \ 11.03$
248.5718	A	(1+)	0.01	49.89	1-2	UV 6.13	277.3857	A	(7)	2.51	47.21	2-3	$2p^2 \ ^1D - 4d \ ^1F^\circ$
248.691	P		0.04	49.89	2-2		277.150	P		2.51	47.25	2-1	$UV \ 11.04$
241.037	B	(2d)	0.04	51.47	2-3	$2p^2 \ ^3P - 6d \ ^3D^\circ$	268.4505	A	(1d)	2.51	48.70	2-1	$2p^2 \ ^1D - 4d \ ^3F^\circ$
240.925	P	(2-d)*	0.01	51.47	1-	UV 6.14	262.156	P		2.51	49.81	2-3	$UV \ 12.02$
240.859	P	(2-d)*	0.00	51.47	0-1		262.2974	A	(0)	2.51	49.78	2-2	$2p^2 \ ^1D - 5d \ ^3F^\circ$
228.9869	A	(0)	0.04	54.18	2-1	$2p^2 \ ^3P - 4p' \ ^3S^\circ$	262.1105	A	(2)	2.51	49.81	2-2	$UV \ 12.03$
228.8857	A	(0-)	0.01	54.18	1-1	UV 6.15	261.0239	A	(4d)	2.51	50.01	2-3	$2p^2 \ ^1D - 4d \ ^1F^\circ$
228.826	P		0.00	54.18	0-1		256.744	P		2.51	50.80	2-1	$UV \ 12.04$
226.038	B	(1dd)	0.04	54.89		$2p^2 \ ^3P - 4p' \ ^3D^\circ$	253.548	B	(0)	2.51	51.41	2-2	$UV \ 12.05$
Air			—	—	—								
4363.210	P		2.51	5.35	2-0	$2p^2 \ ^1D - 2p^2 \ ^1S$							
Vac													
1002.490	A	10	2.51	14.88	2-3	$2p^2 \ ^1D - 2p^3 \ ^3D^\circ$							
1002.199	A	7	2.51	14.88	2-2	UV 6.17							
1002.155	P		2.51	14.88	2-1								
818.951	A	7	2.51	17.65	2-2	$2p^2 \ ^1D - 2p^3 \ ^3P^\circ$							
818.944	P		2.51	17.65	2-1	UV 6.18							
599.598	B	9	2.51	23.19	2-2	$2p^2 \ ^1D - 2p^3 \ ^1D^\circ$							

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
248.320	B	(1d)	2.51	52.44	2-3	$2p^2 \ ^1D - 7d \ ^1F^\circ$ UV 12.08	296.0107	A	(4)	7.48	49.36	2-3	$2p^3 \ ^5S^\circ - 3d' \ ^5D$ UV 15.10
247.080	B	(1)	2.51	52.69	2-3	$2p^2 \ ^1D - 3p'' \ ^1F^\circ$ UV 12.09	296.016	P		7.48	49.36	2-2	
246.265	B	(3)	2.51	52.86	2-2	$2p^2 \ ^1D - 3p'' \ ^1D^\circ$ UV 12.10	295.7160	A	(6+)	7.48	49.40	2-3	$2p^3 \ ^5S^\circ - 3d' \ ^5P$ UV 15.11
244.049	B	(2d)	2.51	53.32	2-1	$2p^2 \ ^1D - 3p'' \ ^1P^\circ$ UV 12.11	294.094	P		7.48	49.64	2-2	$2p^3 \ ^5S^\circ - 3d' \ ^3P$ UV 15.12
		—	—	—			294.000	P		7.48	49.65	2-1	
							271.3947	A	(1)	7.48	53.16	2-3	$2p^3 \ ^5S^\circ - 4s' \ ^5P$ UV 15.13
1008.105	P		5.35	17.65	0-1	$2p^2 \ ^1S - 2p^3 \ ^3P^\circ$ UV 12.12	271.5160	A	(1-)	7.48	53.14	2-2	
							271.6092	A	(0)	7.48	53.13	2-1	
649.764	P		5.35	24.44	0-1	$2p^2 \ ^1S - 2p^3 \ ^3S^\circ$ UV 12.13	256.5070	A	(3+)	7.48	55.81	2-3	$2p^3 \ ^5S^\circ - 4d' \ ^5P$ UV 15.14
							256.4589	A	(3)	7.48	55.82	2-2	
							256.4233	A	(2)	7.48	55.83	2-1	
597.818	B	9	5.35	26.09	0-1	$2p^2 \ ^1S - 2p^3 \ ^1P^\circ$ UV 13	241.875	B	(1)	7.48	58.74	2-3	$2p^3 \ ^5S^\circ - 5d' \ ^5P$ UV 15.15
446.047	P		5.35	33.15	0-1	$2p^2 \ ^1S - 3s \ ^3P^\circ$ UV 13.01			—	—	—		
434.980	A	(10)	5.35	33.86	0-1	$2p^2 \ ^1S - 3s \ ^1P^\circ$ UV 14	610.742	A	8+	14.88	35.18	3-2	$2p^3 \ ^3D^\circ - 2p^4 \ ^3P$ UV 16
							610.043	A	8	14.88	35.21	2-1	
349.164	P		5.35	40.86	0-1	$2p^2 \ ^1S - 3d \ ^3P^\circ$ UV 14.01	609.706	A	8	14.88	35.22	1-0	
							610.849	A	8	14.88	35.18	2-2	
345.312	A	(10)	5.35	41.26	0-1	$2p^2 \ ^1S - 3d \ ^1P^\circ$ UV 15	610.057	P		14.88	35.21	1-1	
							610.868	P		14.88	35.18	1-2	
316.974	A	(3)	5.35	44.47	0-1	$2p^2 \ ^1S - 4s \ ^1P^\circ$ UV 15.01	585.121	P		14.88	36.07	2-1	$2p^3 \ ^3D^\circ - 3p \ ^1P$ UV 16.01
							585.137	P		14.88	36.07	1-1	
295.9425	A	(3)	5.35	47.25	0-1	$2p^2 \ ^1S - 4d \ ^1P^\circ$ UV 15.02	574.065	A	6	14.88	36.48	3-3	$2p^3 \ ^3D^\circ - 3p \ ^3D$ UV 16.02
							574.872	A	6	14.88	36.45	2-2	
286.0447	A	(0)	5.35	48.70	0-1	$2p^2 \ ^1S - 5s \ ^1P^\circ$ UV 15.03	575.340	A	6	14.88	36.43	1-1	
							574.786	P		14.88	36.45	3-2	
277.5096	A	(1)	5.35	50.03	0-1	$2p^2 \ ^1S - 5d \ ^1P^\circ$ UV 15.04	575.331	P		14.88	36.43	2-1	
							574.153	P		14.88	36.48	2-3	
		—	—	—			574.895	P		14.88	36.45	1-2	
447.558	P		7.48	35.18	2-2	$2p^3 \ ^5S^\circ - 2p^4 \ ^3P$	560.951	P		14.88	36.98	3-2	$2p^3 \ ^3D^\circ - 2p^4 \ ^1D$ UV 16.03
447.122	P		7.48	35.21	2-1	UV 15.05	561.039	P		14.88	36.98	2-2	
421.525	P		7.48	36.89	2-1	$2p^3 \ ^5S^\circ - 3p \ ^3S$ UV 15.06	561.055	P		14.88	36.98	1-2	
416.462	P		7.48	37.25	2-2	$2p^3 \ ^5S^\circ - 3p \ ^3P$	554.273	A	6	14.88	37.25	3-2	$2p^3 \ ^3D^\circ - 3p \ ^3P$ UV 16.04
416.689	P		7.48	37.23	2-1	UV 15.07	554.755	A	6	14.88	37.23	2-1	
359.017	A	(8)	7.48	42.01	2-3	$2p^3 \ ^5S^\circ - 3s' \ ^5P$	555.026	P		14.88	37.22	1-0	
359.225	A	(8-)	7.48	41.99	2-2	UV 15.08	554.357	P		14.88	37.25	2-2	
359.386	A	(7)	7.48	41.98	2-1		554.773	P		14.88	37.23	1-1	
344.859	P		7.48	43.43	2-2	$2p^3 \ ^5S^\circ - 3s' \ ^3P$	554.372	P		14.88	37.25	1-2	
345.066	P		7.48	43.41	2-1	UV 15.09	536.018	P		14.88	38.01	3-2	$2p^3 \ ^3D^\circ - 3p \ ^1D$ UV 16.05
							536.099	P		14.88	38.01	2-2	
							536.113	P		14.88	38.01	1-2	
							456.959	P		14.88	42.01	3-3	$2p^3 \ ^3D^\circ - 3s' \ ^5P^\dagger$ UV 16.06
							457.355	P		14.88	41.99	2-2	
							457.626	P		14.88	41.98	1-1	

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
434.267	A	(4)*	14.88	43.43	3-2	$2p^{3,3}D^o - 3s' \ ^3P$	707.318	A	9	17.65	35.18	2-2	$2p^{3,3}P^o - 2p^{4,3}P$
434.648	A	(3)*	14.88	43.41	2-1	UV 16.07	706.236	A	9	17.65	35.21	1-1	UV 16.17
434.846	A	(2)	14.88	43.40	1-0		706.233	P		17.65	35.21	2-1	
434.320	A	(4)*	14.88	43.43	2-2		705.767	A	7	17.65	35.22	1-0	
434.657	A	(3)*	14.88	43.41	1-1		707.324	P		17.65	35.18	1-2	
434.329	P		14.88	43.43	1-2		706.299	A	7	17.65	35.21	0-1	
405.223	P		14.88	45.48	3-3	$2p^{3,3}D^o - 4p \ ^3D^\dagger$	673.051	P		17.65	36.07	2-1	$2p^{3,3}P^o - 3p \ ^1P$
405.610	P		14.88	45.45	2-2	UV 16.08	673.054	P		17.65	36.07	1-1	UV 16.18
405.794	P		14.88	45.44	1-1		673.107	P		17.65	36.07	0-1	
399.200	P		14.88	45.94	3-2	$2p^{3,3}D^o - 4p \ ^3P^\dagger$	658.578	A	7+	17.65	36.48	2-3	$2p^{3,3}P^o - 3p \ ^3D$
399.417	P		14.88	45.92	2-1	UV 16.09	*659.541	A	7+	17.65	36.45	1-2	UV 16.19
399.567	P		14.88	45.91	1-0		660.172	A	7+	17.65	36.43	0-1	
364.734	A	(3)	14.88	48.87	3-3	$2p^{3,3}D^o - 3s'' \ ^3D$	*659.541	A	7+	17.65	36.45	2-2	
364.865	A	(2)	14.88	48.86	2-2	UV 16.10	660.133	P		17.65	36.43	1-1	
364.935	A	(1)	14.88	48.86	1-1		660.129	P		17.65	36.43	2-1	
364.827	A		14.88	48.86	3-2		*644.426	A	8	17.65	36.89	2-1	$2p^{3,3}P^o - 3p \ ^3S$
364.929	A		14.88	48.86	2-1		m644.426	P	O III	17.65	36.89	1-1	UV 16.20
364.771	A		14.88	48.87	2-3	.	644.475	P		17.65	36.89	0-1	
364.871	A		14.88	48.86	1-2		641.383	P		17.65	36.98	2-2	$2p^{3,3}P^o - 2p^{4,1}D$
356.727	A	(2)	14.88	49.64	3-2	$2p^{3,3}D^o - 3d' \ ^3P$	641.387	P		17.65	36.98	1-2	UV 16.21
356.624	A	(1)	14.88	49.65	2-1	UV 16.11	*632.661	A	6	17.65	37.25	2-2	$2p^{3,3}P^o - 3p \ ^3P$
356.561	A	(0)	14.88	49.66	1-0		*633.207	A	5	17.65	37.23	1-1	UV 16.22
356.763	A	(0)	14.88	49.64	2-2		*633.207	A	5	17.65	37.23	2-1	
356.630	A		14.88	49.65	1-1		633.513	A	4	17.65	37.22	1-0	
356.769	P		14.88	49.64	1-2		*632.661	A	6	17.65	37.25	1-2	
355.138	A	(6)	14.88	49.79	3-4	$2p^{3,3}D^o - 3d' \ ^3F$	*633.207	A	5	17.65	37.23	0-1	
355.337	A	(5+)	14.88	49.78	2-3	UV 16.12	608.995	P		17.65	38.01	2-2	$2p^{3,3}P^o - 3p \ ^1D$
355.471	A	(5)	14.88	49.76	1-2		608.998	P		17.65	38.01	1-2	UV 16.23
355.301	A	(3-)	14.88	49.78	3-3		480.960	A	(4)*	17.65	43.43	2-2	$2p^{3,3}P^o - 3s' \ ^3P$
355.465	A		14.88	49.76	2-2		481.365	A	(3)*	17.65	43.41	1-1	UV 16.24
355.429	P		14.88	49.76	3-2		481.363	A	(3)*	17.65	43.41	2-1	
349.828	A	(3)	14.88	50.32	3-3	$2p^{3,3}D^o - 3d' \ ^3D$	*481.596\$	A	(4)	17.65	43.40	1-0	
349.923	A	(2)	14.88	50.32	2-2	UV 16.13	480.962	A	(4)*	17.65	43.43	1-2	
349.964	A	(1)	14.88	50.31	1-1		481.392	A	(2)	17.65	43.41	0-1	
349.889	A		14.88	50.32	3-2		445.590	P		17.65	45.48	2-3	$2p^{3,3}P^o - 4p \ ^3D^\dagger$
349.959	A		14.88	50.31	2-1		446.003	P		17.65	45.45	1-2	UV 16.25
349.862	A		14.88	50.32	2-3		446.239	P		17.65	45.44	0-1	
349.929	A		14.88	50.32	1-2		397.114	A	(2)	17.65	48.87	2-3	$2p^{3,3}P^o - 3s'' \ ^3D$
300.455	B	(3dd)	14.88	56.15		$2p^{3,3}D^o - 3d'' \ ^3F$	397.227	A	(1)	17.65	48.86	1-2	UV 16.26
299.275	B	(2dd)	14.88	56.31		$2p^{3,3}D^o - 3d'' \ ^3D$	397.321	A	(0)	17.65	48.86	0-1	
296.270	B	(1dd)	14.88	56.73		$2p^{3,3}D^o - 3d'' \ ^3P$	397.225	A		17.65	48.86	2-2	
		—	—	—		UV 16.16	397.302	A		17.65	48.86	1-1	
		—	—	—			397.301	P		17.65	48.86	2-1	
		—	—	—			390.977	P		17.65	49.36	2-3	$2p^{3,3}P^o - 3d' \ ^5D^\dagger$
		—	—	—			390.994	P		17.65	49.36	1-2	UV 16.27
		—	—	—			391.006	P		17.65	49.36	0-1	

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
387.641	A	(4)*	17.65	49.64	2-2	$2p^3 \ ^3P^o - 3d' \ ^3P$ UV 16.28	1242.291	A	12	26.09	36.07	1-1	$2p^3 \ ^1P^o - 3p \ ^1P$ UV 17.08
387.478	A	(3)*	17.65	49.65	1-1								
387.477	A	(3)*	17.65	49.65	2-1		1138.541	A	15	26.09	36.98	1-2	$2p^3 \ ^1P^o - 2p^4 \ ^1D$ UV 17.09
387.397	A	(2)	17.65	49.66	1-0								
387.642	A	(4)*	17.65	49.64	1-2		1040.324	A	12	26.09	38.01	1-2	$2p^3 \ ^1P^o - 3p \ ^1D$ UV 17.10
387.495	A	(3)*	17.65	49.65	0-1								
379.508	A	(4)	17.65	50.32	2-3	$2p^3 \ ^3P^o - 3d' \ ^3D$ UV 16.29							
379.581	A	(3)*	17.65	50.32	1-2		967.666	A	10+	26.09	38.91	1-0	$2p^3 \ ^1P^o - 3p \ ^1S$ UV 17.11
379.639	A	(2)*	17.65	50.31	0-1								
379.580	A	(3)*	17.65	50.32	2-2		752.757	A	10	26.09	42.56	1-0	$2p^3 \ ^1P^o - 2p^4 \ ^1S$ UV 17.12
379.622	A	(2)*	17.65	50.31	1-1								
379.621	P		17.65	50.31	2-1								
320.720	B	(2dd)	17.65	56.31		$2p^3 \ ^3P^o - 3d'' \ ^3D$ UV 16.30	Air						
317.265	B	(1dd)	17.65	56.73		$2p^3 \ ^3P^o - 3d'' \ ^3P$ UV 16.31	4286.178	P		33.18	36.07	2-1	$3s \ ^3P^o - 3p \ ^1P$ 1
		—	—	—			4239.54	A	5?*	33.15	36.07	1-1	
		—	—	—			4218.303	P		33.14	36.07	0-1	
		—	—	—			3759.87	A	11+d?	33.18	36.48	2-3	$3s \ ^3P^o - 3p \ ^3D$ 2
		—	—	—			3754.694	A	11	33.15	36.45	1-2	
1034.065	P		23.19	35.18	2-2	$2p^3 \ ^1D^o - 2p^4 \ ^3P$ UV 16.32	3757.237	A	10	33.14	36.43	0-1	
1031.743	P		23.19	35.21	2-1		3791.274	A	9+	33.18	36.45	2-2	
962.425	A	11	23.19	36.07	2-1	$2p^3 \ ^1D^o - 3p \ ^1P$ UV 16.33	3774.016	A	8+	33.15	36.43	1-1	
933.105	P		23.19	36.48	2-3	$2p^3 \ ^1D^o - 3p \ ^3D$	3340.762	A	9+	33.18	36.89	2-1	$3s \ ^3P^o - 3p \ ^3S$ 3
935.026	P		23.19	36.45	2-2	UV 16.34	3312.317	A	10	33.15	36.89	1-1	
936.220	P		23.19	36.43	2-1		3299.395	A	8	33.14	36.89	0-1	
898.957	B	13	23.19	36.98	2-2	$2p^3 \ ^1D^o - 2p^4 \ ^1D$ UV 17	3047.117	A	11+	33.18	37.25	2-2	$3s \ ^3P^o - 3p \ ^3P$ 4
836.599	A	8+	23.19	38.01	2-2	$2p^3 \ ^1D^o - 3p \ ^1D$ UV 17.01	3035.419	A	10	33.15	37.23	1-1	
543.927	P		23.19	45.98	2-2	$2p^3 \ ^1D^o - 4p \ ^1D$ UV 17.02	3059.297	A	10	33.18	37.23	2-1	
		—	—	—			3043.020	A	10	33.15	37.22	1-0	
		—	—	—			3023.451	A	10	33.15	37.25	1-2	
		—	—	—			*3024.540	A	10	33.14	37.23	0-1	
		—	—	—			Vac						
1153.775	A	15	24.44	35.18	1-2	$2p^3 \ ^3S^o - 2p^4 \ ^3P$ UV 17.03	1209.709	A	12	33.18	43.43	2-2	$3s \ ^3P^o - 3s' \ ^3P$ UV 17.13
1150.884	A	15	24.44	35.21	1-1		1208.498	A	10	33.15	43.41	1-1	
1149.634	A	13+	24.44	35.22	1-0		1212.258	A	11	33.18	43.41	2-1	
995.312	P		24.44	36.89	1-1	$2p^3 \ ^3S^o - 3p \ ^3S$ UV 17.04	1209.948	A	11	33.15	43.40	1-0	
967.52	A	6?*	24.44	37.25	1-2	$2p^3 \ ^3S^o - 3p \ ^3P$	1205.965	A	9	33.15	43.43	1-2	
968.763	A	5	24.44	37.23	1-1	UV 17.05	1206.757	A	9	33.14	43.41	0-1	
969.535	P		24.44	37.22	1-0		1008.379	A	10+	33.18	45.48	2-3	$3s \ ^3P^o - 4p \ ^3D$ UV 17.14
576.572	P		24.44	45.94	1-2	$2p^3 \ ^3S^o - 4p \ ^3P$	1007.89	A	10*	33.15	45.45	1-2	
576.932	P		24.44	45.92	1-1	UV 17.06	1007.80	A	10+*	33.14	45.44	0-1	
577.229	P		24.44	45.91	1-0		1010.483	A	9	33.18	45.45	2-2	
491.971	A	(1)	24.44	49.64	1-2	$2p^3 \ ^3S^o - 3d' \ ^3P$	1008.959	A	8	33.15	45.44	1-1	
491.707	A	(0)	24.44	49.65	1-1	UV 17.07	1011.580	A	5	33.18	45.44	2-1	$3s \ ^3P^o - 4p \ ^3S$ UV 17.15
491.576	P		24.44	49.66	1-0		996.812	A	8	33.18	45.62	2-1	
		—	—	—			994.262	A	7	33.15	45.62	1-1	
		—	—	—			993.096	P		33.14	45.62	0-1	

Multiplet Table

O III—Continued

O III—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.	
			Low	High						Low	High			
Vac							Vac							
971.883	A	8	33.18	45.94	2-2	3s 3P° - 4p 3P	*1056.546	A	8	35.18	46.92	2-2	2p⁴ 3P - 3p' 3P°	
970.489	A	7	33.15	45.92	1-1	UV 17.16	1058.88	A	7*	35.21	46.92	1-1	UV 19.09	
972.911	P		33.18	45.92	2-1		*1058.668	A	7	35.18	46.92	2-1		
971.326	P		33.15	45.91	1-0		*1058.668	A	7	35.21	46.92	1-0		
969.483	A	7	33.15	45.94	1-2		1058.99	A	7*	35.21	46.92	1-2		
790.115	P		33.18	48.87	2-3	3s 3P° - 3s" 3D	1059.925	A	7	35.22	46.92	0-1		
788.959	A	7	33.15	48.86	1-2	UV 17.17	1046.057	P		35.18	47.03	2-3	2p⁴ 3P - 4d 3D°†	
788.514	A	6	33.14	48.86	0-1		1049.146	P		35.21	47.03	1-2	UV 19.10	
790.597	A	6w	33.18	48.86	2-2		1050.914	P		35.22	47.02	0-1		
789.255	A	6	33.15	48.86	1-1		1031.492	A	8	35.18	47.20	2-2	2p⁴ 3P - 4d 3P°	
		—	—	—			1033.68	A	6*	35.21	47.20	1-1	UV 19.11	
Air							1031.32	A	8*	35.18	47.20	2-1		
5592.24	A	8	33.86	36.07	1-1	3s 1P° - 3p 1P	1033.489	P		35.21	47.20	1-0		
						5	1033.808	A	7	35.21	47.20	1-2		
2983.815	A	13	33.86	38.01	1-2	3s 1P° - 3p 1D	1034.684	A	5	35.22	47.20	0-1		
						UV 18			—	—	—			
2454.991	A	12	33.86	38.91	1-0	3s 1P° - 3p 1S		Air						
						UV 19	2959.718	A	11	36.07	40.26	1-2	3p 1P - 3d 1D°	
Vac							2752.47	B	(0)	36.07	40.58	1-2	3p 1P - 3d 3D°	
1423.996	A	6	33.86	42.56	1-0	3s 1P° - 2p⁴ 1S	2756.179	A	2	36.07	40.57	1-1	UV 19.13	
						UV 19.01	2588.23	B	(0)	36.07	40.86	1-1	3p 1P - 3d 3P°	
1079.387	A	11	33.86	45.34	1-1	3s 1P° - 4p 1P		UV 19.02					UV 19.14	
							2390.426	A	8	36.07	41.26	1-1	3p 1P - 3d 1P°	
1070.577	A	7	33.86	45.44	1-1	3s 1P° - 4p 3D		UV 19.03					UV 19.15	
1022.278	A	8	33.86	45.98	1-2	3s 1P° - 4p 1D		Vac						
						UV 19.04	1476.871	A	11	36.07	44.47	1-1	3p 1P - 4s 1P°	
Air								1153.017	A	11	36.07	46.83	1-2	UV 19.16
2308.70	B	(1d)	35.21	40.58	1-2	2p⁴ 3P - 3d 3D°		UV 19.05					UV 19.17	
							1109.496	A	9	36.07	47.25	1-1	3p 1P - 4d 1P°	
2187.016	P	(1)	35.18	40.85	2-2	2p⁴ 3P - 3d 3P°?		UV 19.06					UV 19.18	
2181.570	P	(1)	35.18	40.86	2-1		982.097	A	7	36.07	48.70	1-1	3p 1P - 5s 1P°	
Vac													UV 19.19	
1257.806	A	8	35.18	45.04	2-1	2p⁴ 3P - 3p' 3S°								
1261.249	A	8	35.21	45.04	1-1	UV 19.07	841.692	A	5	36.07	50.80	1-1	3p 1P - 6s 1P°	
1262.763	A	7	35.22	45.04	0-1					—	—		UV 19.20	
1098.48	A	10w	35.18	46.47	2-3	2p⁴ 3P - 3p' 3D°		Air						
1102.708	A	9	35.21	46.45	1-2	UV 19.08		3265.321	A	11+	36.48	40.27	3-4	3p 3D - 3d 3F°
1104.976	A	8	35.22	46.44	0-1			3260.848	A	11	36.45	40.25	2-3	8
1100.063	A	8	35.18	46.45	2-2			3267.198	A	10	36.43	40.23	1-2	
1103.828	A	7	35.21	46.44	1-1			3284.459	A	8+	36.48	40.25	3-3	
1101.177	A	P	35.18	46.44	2-1			3281.852	A	8	36.45	40.23	2-2	
								3305.708	A	4	36.48	40.23	3-2	
								3252.907	A	7	36.45	40.06	2-2	3p 3D - 3d 1D°
								3238.530	A	9	36.43	40.26	1-2	9

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
3017.632	A	9	36.48	40.59	3-3	3p 3D-3d 3D°	1174.624	A	10	36.48	47.03	3-3	3p 3D-4d 3D°
3004.349	A	9	36.45	40.58	2-2	10	1172.463	A	9	36.45	47.03	2-2	UV 19.28
2996.505	A	8	36.43	40.57	1-1		1171.493	A	9	36.43	47.02	1-1	
*3024.540	A	10	36.48	40.58	3-2		m1175.503	P	C III	36.48	47.03	3-2	
3008.807	A	7	36.45	40.57	2-1		1173.391	A	7	36.45	47.02	2-1	
2997.700	A	6	36.45	40.59	2-3		1171.593	P		36.45	47.03	2-3	
2992.093	A	7	36.43	40.58	1-2		1170.597	A	7	36.43	47.03	1-2	
2836.28‡	A	8	36.48	40.85	3-2	3p 3D-3d 3P°	1020.56	A	8	36.48	48.63	3-2	3p 3D-5s 3P°
2809.659	A	5	36.45	40.86	2-1	UV 19.21	1021.298	A	8	36.45	48.59	2-1	UV 19.29
2794.139	P		36.43	40.87	1-0		1020.76	A	7+*	36.43	48.58	1-0	
2818.663	A	3+	36.45	40.85	2-2		1018.265	A	6	36.45	48.63	2-2	
2798.902	A	3+	36.43	40.86	1-1		1019.874	A	6	36.43	48.59	1-1	
2807.900	P		36.43	40.85	1-2		1016.849	P		36.43	48.63	1-2	
2578.138	P		36.45	41.26	2-1	3p 3D-3d 1P°	867.972	A	6	36.48	50.76	3-2	3p 3D-6s 3P°
2569.11	B	(1)	36.45	41.26	1-1	UV 19.22	868.628	A	7	36.45	50.72	2-1	UV 19.30
Vac							868.157	A	5	36.43	50.71	1-0	
1589.973	A	12	36.48	44.28	3-2	3p 3D-4s 3P°							
1591.285	A	11	36.45	44.24	2-1	UV 19.23	Air						
1590.582	A	10	36.43	44.23	1-0		3363.822	A	5	36.89	40.58	1-2	3p 3S-3d 3D°
1584.423	A	10	36.45	44.28	2-2		3369.365	A	4	36.89	40.57	1-1	11
1587.840	A	10	36.43	44.24	1-1		3132.794	A	10	36.89	40.85	1-2	3p 3S-3d 3P°
1581.009	A	7	36.43	44.28	1-2		3121.638	A	8	36.89	40.86	1-1	12
1241.134	A	8	36.48	46.47	3-3	3p 3D-3p' 3D°	3115.676	A	8	36.89	40.87	1-0	
1239.763	A	8-	36.45	46.45	2-2	UV 19.24	Vac						
1239.058	A	8-	36.43	46.44	1-1		1679.021	A	10	36.89	44.28	1-2	3p 3S-4s 3P°
1243.156	P		36.48	46.45	3-2		1686.720	A	9+	36.89	44.24	1-1	UV 19.31
1241.176	P		36.45	46.44	2-1		1688.834	A	8	36.89	44.23	1-0	
1237.721	A	8-	36.45	46.47	2-3		1236.900	A	11	36.89	46.92	1-2	3p 3S-3p' 3P°
1237.669	P		36.43	46.45	1-2		1236.725	A	9	36.89	46.92	1-1	UV 19.32
1197.234	A	14	36.48	46.83	3-4	3p 3D-4d 3F°	1236.460	A	8	36.89	46.92	1-0	
1196.747	A	13	36.45	46.81	2-3	UV 19.25	1202.667	A	10-	36.89	47.20	1-2	3p 3S-4d 3P°
1197.335	A	13	36.43	46.79	1-2		1202.520	A	9	36.89	47.20	1-1	UV 19.33
1199.921	A	10	36.48	46.81	3-3		1202.238	A	9	36.89	47.20	1-0	
1199.285	A	11	36.45	46.79	2-2		*1056.546	A	8	36.89	48.63	1-2	3p 3S-5s 3P°
1202.465	P		36.48	46.79	3-2		1059.791	A	6	36.89	48.59	1-1	UV 19.34
1198.125	P		36.48	46.83	3-2	3p 3D-4d 1D°	1060.748	A	6	36.89	48.58	1-0	
1194.980	A	7+	36.45	46.83	2-2	UV 19.26							
1193.027	A	11-	36.43	46.83	1-2								
1187.883	A	8	36.48	46.92	3-2	3p 3D-3p' 3P°	Air						
m1184.624	P	N III	36.45	46.92	2-1	UV 19.27	3780.838	P		36.98	40.26	2-2	2p⁴ 1D-3d 1D°
1182.470	A	6	36.43	46.92	1-0								12.01
1184.790	A	7	36.45	46.92	2-2		*3440.345	A	8	36.98	40.59	2-3	2p⁴ 1D-3d 3D°
1182.720	A	6+	36.43	46.92	1-1		3449.155	P		36.98	40.58	2-2	13
1182.883	P	6+	36.43	46.92	1-2		3455.002	P		36.98	40.57	2-1	

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 2981.761	P	—	36.98	41.14	2-3	2p ⁴ 1D-3d 1F° UV 19.35	Vac 917.502 919.016 920.104 919.624	A A A P	6 5 5 —	37.25 37.23 37.25 37.23	50.76 50.72 50.72 50.71	2-2 1-1 2-1 1-0	3p 3P-6s 3P° UV 19.42
3715.077	A	10+	37.25	40.59	2-3	3p 3P-3d 3D° 14	916.404	P	—	37.23	50.76	1-2	
3707.25	A	10d?	37.23	40.58	1-2		918.309	P	—	37.22	50.72	0-1	
3702.753	A	9	37.22	40.57	0-1					—	—		
3725.312	A	8	37.25	40.58	2-2					—	—		
3714.030	A	8	37.23	40.57	1-1					—	—		
3732.122	A	6	37.25	40.57	2-1					—	—		
3444.060	A	9	37.25	40.85	2-2	3p 3P-3d 3P° 15	5508.25	A	5	38.01	40.26	2-2	3p 1D-3d 1D° 16
3415.264	A	7	37.23	40.86	1-1		3961.573	A	10	38.01	41.14	2-3	3p 1D-3d 1F° 17
3430.566	A	7+	37.25	40.86	2-1					—	—		
3408.119	A	7+	37.23	40.87	1-0					—	—		
3428.620	A	7	37.23	40.85	1-2					—	—		
*3405.71†	A	7	37.22	40.86	0-1					—	—		
Vac													
1764.464	A	11+	37.25	44.28	2-2	3p 3P-4s 3P° UV 19.36	Vac 1920.017	A	11+	38.01	44.47	2-1	3p 1D-4s 1P° UV 19.43
1768.880	A	10	37.23	44.24	1-1		1406.457	A	9	38.01	46.83	2-2	3p 1D-4d 1D° UV 19.44
1772.978	A	10	37.25	44.24	2-1					—	—		
1772.284	A	10	37.23	44.23	1-0					—	—		
1760.398	A	11	37.23	44.28	1-2		*1347.780	A	10	38.01	47.21	2-3	3p 1D-4d 1F° UV 19.45
1766.313	A	10	37.22	44.24	0-1					—	—		
1591.827	A	8	37.25	45.04	2-1	3p 3P-3p' 3S° UV 19.37	1160.153	A	10	38.01	48.70	2-1	3p 1D-5s 1P° UV 19.46
1588.528	A	8	37.23	45.04	1-1					—	—		
1586.462	A	7	37.22	45.04	0-1		1050.344	A	7	38.01	49.81	2-2	3p 1D-5d 1D° UV 19.47
*1344.954	A	13	37.25	46.47	2-3	3p 3P-3p' 3D° UV 19.38				—	—		
*1344.954	A	13	37.23	46.45	1-2		1033.128	A	8	38.01	50.01	2-3	3p 1D-5d 1F° UV 19.48
1345.130	A	11	37.22	46.44	0-1					—	—		
1347.327	A	10	37.25	46.45	2-2					—	—		
1346.64	A	11	37.23	46.44	1-1					—	—		
1349.000	A	8-	37.25	46.44	2-1					—	—		
1282.656	A	11+	37.25	46.92	2-2	3p 3P-3p' 3P° UV 19.39	Air 5268.304	A	6	38.91	41.26	0-1	3p 1S-3d 1P° 19
1280.320	A	10	37.23	46.92	1-1					—	—		
1282.468	A	10	37.25	46.92	2-1		2228.161	A	1	38.91	44.47	0-1	3p 1S-4s 1P° UV 19.49
1280.032	A	10	37.23	46.92	1-0					—	—		
1280.510	A	10	37.23	46.92	1-2					—	—		
1278.971	A	10	37.22	46.92	0-1		Vac 1486.19	A	8*	38.91	47.25	0-1	3p 1S-4d 1P° UV 19.50
1267.188	A	12	37.25	47.03	2-3	3p 3P-4d 3D° UV 19.40				—	—		
1266.125	A	11	37.23	47.03	1-2		1114.443	A	8	38.91	50.03	0-1	3p 1S-5d 1P° UV 19.51
1265.876	A	10-	37.22	47.02	0-1					—	—		
1268.222	A	11	37.25	47.03	2-2					—	—		
1267.183	P		37.23	47.02	1-1					—	—		
1269.284	P		37.25	47.02	2-1					—	—		
1089.729	A	9	37.25	48.63	2-2	3p 3P-5s 3P° UV 19.41	Air 2422.808	A	5	40.23	45.34	2-1	3d 3F°-4p 1P UV 19.52
1091.643	A	7+	37.23	48.59	1-1					—	—		
1093.210	A	8	37.25	48.59	2-1					—	—		
1092.685	A	8	37.23	48.58	1-0					—	—		
1088.179	A	8	37.23	48.63	1-2					—	—		
1090.667	A	8	37.22	48.59	0-1					—	—		

Multiplet Table

O III—Continued

O III—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	E P		J	Multiplet No.	
			Low	High					Low	High			
Air													
2382.252	A	7	40.27	45.48	4-3	$3d\ ^3F^o - 4p\ ^3D$	1269.825	A	8	40.27	50.04	4-4	$3d\ ^3F^o - 5f\ G[3\frac{1}{2}]$
2383.917	A	6	40.25	45.45	3-2	UV 19.53	1267.390	A	9	40.25	50.03	3-3	UV 19.59
2378.873	A	5	40.23	45.44	2-1		*1270.229	A	10	40.27	50.03	4-3	
2372.219	A	2	40.25	45.48	3-3		1266.966	A	10	40.25	50.04	3-4	
2372.827	A	2	40.23	45.45	2-2		1264.245	A	10-	40.23	50.03	2-3	
2361.959	P		40.23	45.48	2-3		1267.687	A	12	40.27	50.05	4-5	[4½]
2152.762	P	(1)	40.23	45.98	2-2	$3d\ ^3F^o - 4p\ ^1D$	1263.855	A	10	40.25	50.06	3-4	
						UV 19.54	1266.705	P		40.27	50.06	4-4	
Vac							1267.788	P		40.27	50.05	4-3	$3d\ ^3F^o - 5f\ D[2\frac{1}{2}]^+$
1792.927	A	6	40.27	47.19	4-3	$3d\ ^3F^o - 4f\ F[2\frac{1}{2}]$	1264.753	P		40.25	50.05	3-2	UV 19.60
1786.817	P		40.25	47.19	3-2	UV 19.55	1264.929	P		40.25	50.05	3-3	
1787.247	A	9+	40.25	47.19	3-3		1261.627	P		40.23	50.05	2-2	
1780.580	A	10	40.23	47.19	2-2		1261.810	A	3	40.23	50.05	2-3	
1781.007	A	11	40.23	47.19	2-3		1099.44	A	8w	40.27	51.55	4-4	$3d\ ^3F^o - 6f\ G[3\frac{1}{2}]$
1790.544	A	10	40.27	47.20	4-4		1097.50	A	8w	40.25	51.55	3-3	UV 19.61
1785.362	A	8	40.25	47.20	3-3		1099.65	A	8w	40.27	51.55	4-3	
1791.048	A	7	40.27	47.20	4-3		1095.14	P		40.23	51.55	2-3	
1784.849	A	11	40.25	47.20	3-4		1098.58	A	10w	40.27	51.56	4-5	[4½]
1779.150	A	12	40.23	47.20	2-3		1095.93	A	6*	40.25	51.57	3-4	
1773.846	A	10+	40.27	47.26	4-4	$3d\ ^3F^o - 4f\ G[3\frac{1}{2}]$	1098.03	P		40.27	51.57	4-4	
1769.309	A	10	40.25	47.26	3-3	UV 19.56							
1774.912	A	6+	40.27	47.26	4-3								
1768.253	A	13	40.25	47.26	3-4		2438.785	A	5	40.26	45.34	2-1	$3d\ ^1D^o - 4p\ ^1P$
1763.204	A	12	40.23	47.26	2-3								UV 19.62
1767.792	A	14	40.27	47.29	4-5		2376.437	P		40.26	45.48	2-3	$3d\ ^1D^o - 4p\ ^3D$
1760.113	A	11+	40.25	47.30	3-4		2388.20	B	(1)	40.26	45.45	2-2	UV 19.63
1765.647	A	8	40.27	47.30	4-4		2394.304	A	5	40.26	45.44	2-1	
1766.208	P		40.27	47.29	4-3	$3d\ ^3F^o - 4f\ D[2\frac{1}{2}]$	2165.32	B	(3)	40.26	45.98	2-2	$3d\ ^1D^o - 4p\ ^1D?$
1759.960	P		40.25	47.30	3-2	UV 19.57							UV 19.64
1760.665	P		40.25	47.29	3-3								
1753.909	A	7	40.23	47.30	2-2								
1754.620	A	6	40.23	47.29	2-3		1789.649	A	12	40.26	47.19	2-3	$3d\ ^1D^o - 4f\ F[2\frac{1}{2}]$
1754.805	P		40.25	47.32	3-2		1789.201	A	8	40.26	47.19	2-2	UV 19.65
1749.417	A	6	40.23	47.31	2-1		1787.758	A	9+	40.26	47.20	2-3	[3½]
1748.793	A	8	40.25	47.32	2-2		1771.664	A	12	40.26	47.26	2-3	$3d\ ^1D^o - 4f\ G[3\frac{1}{2}]$
1276.297	P		40.27	49.99	4-3	$3d\ ^3F^o - 5f\ F[2\frac{1}{2}]$							UV 19.66
1273.112	P		40.25	49.99	3-2	UV 19.58							
1273.407	A	8	40.25	49.99	3-3		1752.989	P		40.26	47.29	2-3	$3d\ ^1D^o - 4f\ D[2\frac{1}{2}]$
1269.957	A	6	40.23	49.99	2-2		1762.274	A	9	40.26	47.30	2-2	UV 19.67
*1270.229	A	10	40.23	49.99	2-3		1757.109	A	9	40.26	47.32	2-2	[1½]
1275.410	A	5	40.27	49.99	4-4		1757.757	P		40.26	47.31	2-1	
1272.872	P		40.25	49.99	3-3		1274.614	A	10-	40.26	49.99	2-3	$3d\ ^1D^o - 5f\ F[2\frac{1}{2}]$
1275.767	P		40.27	49.99	4-3		1274.326	P		40.26	49.99	2-2	UV 19.68
1272.517	A	10	40.25	49.99	3-4		1274.090	A	5	40.26	49.99	2-3	[3½]
1269.712	A	11	40.23	49.99	2-3		1268.590	A	11	40.26	50.03	2-3	$3d\ ^1D^o - 5f\ G[3\frac{1}{2}]$
													UV 19.69

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 2596.79	B	(00)	40.57	45.34	1-1	$3d\ ^3D^o - 4p\ ^1P$ UV 19.70	1309.512	A	9	40.59	50.05	3-3	$3d\ ^3D^o - 5f\ D[2\frac{1}{2}]$ UV 19.78
2534.086	A	5	40.59	45.48	3-3	$3d\ ^3D^o - 4p\ ^3D$ UV 19.71	1309.321	P	8	40.59	50.05	3-2	
2542.655	A	4	40.58	45.45	2-2		1308.245	P		40.58	50.05	2-3	
2546.414	A	3	40.57	45.44	1-1		*1307.213	A	8	40.57	50.05	1-2	
2547.419	A	1	40.59	45.45	3-2		*1307.213	A	8	40.59	50.07	3-2	[1½]
2549.586	A	2	40.58	45.44	2-1		1306.115	P		40.58	50.07	2-1	
2529.325	A	2	40.58	45.48	2-3		1305.903	P		40.58	50.07	2-2	
2539.507	A	2	40.57	45.45	1-2		1305.279	P		40.57	50.07	1-1	
2315.496	A	2	40.59	45.94	3-2	$3d\ ^3D^o - 4p\ ^3P^\pm$ UV 19.72	1305.067	P		40.57	50.07	1-2	
2317.365	A	2	40.58	45.92	2-1		1135.17	A	8-w	40.59	51.51	3-4	$3d\ ^3D^o - 6f\ F[3\frac{1}{2}]^\pm$ UV 19.79[2½]
2311.564	A	1	40.58	45.94	2-2		1134.44	A	8-w	40.58	51.51	2-3	
2314.709	A	1	40.57	45.92	1-1		1133.76	A	8-w	40.57	51.51	1-2	
Vac													
1877.562	A	8	40.59	47.19	3-3	$3d\ ^3D^o - 4f\ F[2\frac{1}{2}]$ UV 19.73	Air						
1874.480	A	10	40.58	47.19	2-2		2677.822	A	3	40.85	45.48	2-3	$3d\ ^3P^o - 4p\ ^3D^\pm$ UV 19.80
*1874.961	A	13	40.58	47.19	2-3		*2701.08	A	3w	40.86	45.45	1-2	
1872.78	A	12*	40.57	47.19	1-2		2713.360	A	2	40.87	45.44	0-1	
*1874.961	A	13	40.59	47.20	3-4	[3½]	3792.721	A	1	40.85	45.45	2-2	
1872.91	A	12*	40.58	47.20	2-3		2597.667	A	9	40.85	45.62	2-1	$3d\ ^3P^o - 4p\ ^3S$ UV 20
1875.459	A	10	40.59	47.20	3-3		2605.419	A	9	40.86	45.62	1-1	
1856.613	A	10	40.59	47.26	3-4	$3d\ ^3D^o - 4f\ G[3\frac{1}{2}]^\pm$ UV 19.74	2609.584	A	4	40.87	45.62	0-1	
1855.235	A	9	40.58	47.26	2-3		2434.941	A	3	40.85	45.94	2-2	$3d\ ^3P^o - 4p\ ^3P^\pm$ UV 20.01
1857.783	A	8-	40.59	47.26	3-3		2448.172	P		40.86	45.92	1-1	
1848.245	A	10+	40.59	47.29	3-3	$3d\ ^3D^o - 4f\ D[2\frac{1}{2}]$ UV 19.75	2447.328	P		40.85	45.92	2-1	
1844.957	A	9	40.48	47.30	2-2		2441.668	A	3	40.86	45.94	1-2	
1847.462	A	8	40.59	47.30	3-2		Vac						
1845.726	P		40.58	47.29	2-3		1955.307	A	8	40.85	47.19	2-3	$3d\ ^3P^o - 4f\ F[2\frac{1}{2}]^\pm$ UV 20.02
1843.288	A	6	40.57	47.30	1-2		1959.12	A	7+*	40.86	47.19	1-2	
1841.782	A	7	40.59	47.32	3-2	[1½]	1954.783	A	3	40.85	47.19	2-2	
1839.995	A	7	40.58	47.31	2-1		1923.531	A	12+	40.85	47.29	2-3	$3d\ ^3P^o - 4f\ D[2\frac{1}{2}]$ UV 20.03
1839.289	A	8	40.58	47.32	2-2		1926.919	A	11	40.86	47.30	1-2	
1838.336	A	9	40.57	47.31	1-1		1922.689	A	9	40.85	47.30	2-2	
1837.626	A	8-	40.57	47.32	1-2		1916.540	A	9	40.85	47.32	2-2	[1½]
1318.591	P		40.59	49.99	3-3	$3d\ ^3D^o - 5f\ F[2\frac{1}{2}]$ UV 19.76	1921.513	A	10+	40.86	47.31	1-1	
1317.000	A	7	40.58	49.99	2-2		1917.308	A	8	40.85	47.31	2-1	
1318.282	P		40.59	49.99	3-2		1920.741	A	10+	40.86	47.32	1-2	
1317.304	A	9	40.58	49.99	2-3		1923.772	A	11	40.87	47.31	0-1	
1316.151	A	10	40.57	49.99	1-2		1356.460	A	7	40.85	49.99	2-3	$3d\ ^3P^o - 5f\ F[2\frac{1}{2}]$ UV 20.04
1317.642	A	10+	40.59	49.99	3-4	[3½]	1358.231	A	6	40.86	49.99	1-2	
1316.743	A	10	40.58	49.99	2-3		1356.140	P		40.85	49.99	2-2	
1318.030	A	7	40.59	49.99	3-3								
1311.698	A	10	40.59	50.04	3-4	$3d\ ^3D^o - 5f\ G[3\frac{1}{2}]^\pm$ UV 19.77							
1310.878	A	9	40.58	50.03	2-3								
1312.19	A	5wd?	40.59	50.03	3-3								

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Air						
1346.85	A	10*	40.85	50.05	2-3	3d 3P°-5f D[2½]	3703.362	A	10	42.01	45.36	3-4	3s' 5P-3p' 5D°
1348.735	A	8	40.86	50.05	1-2	UV 20.05	3698.729	A	9	41.99	45.34	2-3	21
*1346.64	A	11	40.85	50.05	2-2		3695.360	A	8	41.98	45.33	1-2	
1344.389	A	8	40.85	50.07	2-2	[1½]	3720.887	A	8	42.01	45.34	3-3	
*1346.64	A	11	40.86	50.07	1-1		3712.515	A	6	41.99	45.33	2-2	
1344.602	P		40.85	50.07	2-1		3704.766	A	8	41.98	45.32	1-1	
1346.448	A	10	40.86	50.07	1-2		3734.837	A	6	42.01	45.33	3-2	
*1347.780	A	10	40.87	50.07	0-1		3721.941	A	7	41.99	45.32	2-1	
1157.62	A	9-w	40.85	51.56	2-3	3d 3P°-6f D[2½]	3709.540	A	7	41.98	45.32	1-0	
		—	—	—		UV 20.06	3350.933	A	9	42.01	45.71	3-3	3s' 5P-3p' 5P°
Air							3344.187	A	6	41.99	45.70	2-2	22
2558.031	A	10	41.14	45.98	3-2	3d 1F°-4p 1D	3336.660	A	7	41.98	45.69	1-1	
						UV 21	3362.296	A	8	42.01	45.70	3-2	
2048.899	A	10	41.14	47.19	3-3	3d 1F°-4f F[2½]	3350.617	A	8	41.99	45.69	2-1	
2048.322	P		41.14	47.19	3-2	UV 21.01	*3330.313	A	8	41.98	45.70	1-2	
*2045.682	A	11+	41.14	47.20	3-4	[3½]	2686.149	A	9	42.01	46.63	3-2	3s' 5P-3p' 5S°
2046.424	A	9	41.14	47.20	3-3		2674.578	A	8	41.99	46.63	2-2	UV 22
2023.958	A	11	41.14	47.26	3-4	3d 1F°-4f G[3½]	2665.681	A	7+	41.98	46.63	1-2	
2025.354	A	7	41.14	47.26	3-3	UV 21.02	Vac						
2013.296	A	12	41.14	47.30	3-4	[4½]	1003.325	A	7+	42.01	54.37	3-4	3s' 5P-4p' 5D°†
Vac							1002.931	A	7	41.99	54.35	2-3	UV 22.01
*1401.15‡	A	7	41.14	49.99	3-3	3d 1F°-5f F[2½]	1002.635	P		41.98	54.34	1-2	
1400.814	P		41.14	49.99	3-2	UV 21.03	1004.553	A	6	42.01	54.35	3-3	
1400.087	A	6	41.14	49.99	3-4	[3½]	1003.891	A	6	41.99	54.34	2-2	
1400.524	P		41.14	49.99	3-3		1003.254	P		41.98	54.34	1-1	
1393.389	A	7	41.14	50.04	3-4	3d 1F°-5f G[3½]			—	—	—		
1393.896	P		41.14	50.03	3-3	UV 21.04	Air						
1389.608	A	9-	41.14	50.06	3-4	[4½]	4081.040	A	8	43.43	46.47	2-3	3s' 3P-3p' 3D°
1189.203	A	9-	41.14	51.57	3-4	3d 1F°-6f G[4½]	*4074.028	A	7	43.41	46.45	1-2	23
		—	—	—		UV 21.05	m4072.643	P	O II	43.40	46.44	0-1	
Air							*4103.823	A	3	43.43	46.45	2-2	
3034.216	A	6	41.26	45.34	1-1	3d 1P°-4p 1P	4089.295	P		43.41	46.44	1-1	
						20	4118.597	P		43.43	46.44	2-1	
2622.300	A	3	41.26	45.98	1-2	3d 1P°-4p 1D	3556.814	A	6	43.43	46.92	2-2	3s' 3P-3p' 3P°
						UV 21.06	3533.393	A	4	43.41	46.92	1-1	24
2089.336	A	8	41.26	47.19	1-2	3d 1P°-4f F[2½]	3555.240	P		43.43	46.92	2-1	
						UV 21.07	3531.219	A	4	43.41	46.92	1-0	
2052.685	A	11	41.26	47.30	1-2	3d 1P°-4f D[2½]	3534.923	A	3	43.41	46.92	1-2	
*2045.682	A	11+	41.26	47.32	1-2	UV 21.08[1½]	3520.950	A	3	43.40	46.92	0-1	
2046.536	P		41.26	47.31	1-1		*3440.345	A	8	43.43	47.03	2-3	3s' 3P-4d 3D°
Vac							3427.356	A	7+	43.41	47.03	1-2	24.01
1419.78	A	6+*	41.26	49.99	1-2	3d 1P°-5f F[2½]	3423.346	A	6	43.40	47.02	0-1	
						UV 21.09	3447.924	P		43.43	47.03	2-2	
1409.475	A	7	41.26	50.05	1-2	3d 1P°-5f D[2½]†	3435.101	A	6	43.41	47.02	1-1	
1406.974	A	7	41.26	50.07	1-2	UV 21.10[1½]	3455.776	P		43.43	47.02	2-1	

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
3287.647	P		43.43	47.20	2-2	3s' 3P - 4d 3P°	1588.935	A	10	45.36	53.16	4-3	3p' 5D° - 4s' 5P°
3267.724	A	3	43.41	47.20	1-1	24.02	1589.964	P		45.34	53.14	3-2	UV 24
3286.391	A	6	43.43	47.20	2-1		1590.572	P		45.33	53.13	2-1	
3265.692	P		43.41	47.20	1-0		1585.74	A	6us	45.34	53.16	3-3	
3268.942	A	6	43.41	47.20	1-2		1587.366	A	8	45.33	53.14	2-2	
3257.102	A	6	43.40	47.20	0-1		1588.85	A	8*	45.32	53.13	1-1	
		—	—	—			1209.125	A	11	45.36	55.61	4-5	3p' 5D° - 4d' 5F°
7455.35	A	5	44.28	45.94	2-2	4s 3P° - 4p 3P	1208.680	A	10	45.34	55.60	3-4	UV 25
7365.23	A	3ul	44.24	45.92	1-1	24.03	1208.350	A	9	45.33	55.59	2-3	
7515.99	A	3	44.28	45.92	2-1		1208.220	A	9	45.32	55.58	1-2	
7414.05	A	3w	44.24	45.91	1-0		1210.513	A	9	45.36	55.60	4-4	
7307.04	A	3+	44.24	45.94	1-2		1209.816	P		45.33	55.59	3-3	
7306.850	P		44.23	45.92	0-1		1209.220	P		45.33	55.58	2-2	
2696.009	A	4	44.28	48.87	2-3	4s 3P° - 3s" 3D	m1192.861	P	O III	45.36	55.75	4-4	3p' 5D° - 4d' 5D
2681.421	A	3	44.24	48.86	1-2	UV 22.02	1191.995	A	7+	45.34	55.74	3-3	UV 26
2677.072	A	2	44.23	48.86	0-1		1190.950	A	7	45.33	55.74	2-2	
*2701.08	A	3w	44.28	48.86	2-2		1190.057	A	6	45.32	55.74	1-1	
2684.895	A	2	44.24	48.86	1-1		1193.805	P		45.36	55.74	4-3	
2704.651	P		44.28	48.86	2-1		1192.316	A	6	45.34	55.74	3-2	
		—	—	—			*1191.112	A	7+	45.33	55.74	2-1	
		—	—	—			*1191.112	A	7+	45.34	55.75	3-4	
8172.1	A	7	44.47	45.98	1-2	4s 1P° - 4p 1D	*1190.587¶	A	6	45.33	55.74	2-3	
		—	—	—	24.04		1189.910	A	6	45.32	55.74	1-2	
		—	—	—			1189.539	P		45.32	55.74	0-1	
2695.475	A	6	45.04	49.64	1-2	3p' 3S° - 3d' 3P							
2687.547	A	5	45.04	49.65	1-1	UV 23	Air						
2683.658	A	3	45.04	49.66	1-0		8358.8	A	6	45.34	46.83	1-2	4p 1P - 4d 1D°
		—	—	—									26.01
*3455.06\$	A	9d?	45.36	48.95	4-5	3p' 5D° - 3d' 5F	6507.56	A	4	45.34	47.25	1-1	4p 1P - 4d 1P°
3450.924	A	8	45.34	48.94	3-4	25							26.02
*3447.96\$	A	8	45.33	48.93	2-3		2771.853	A	2	45.34	49.81	1-2	4p 1P - 5d 1D°
3446.684	A	8	45.32	48.92	1-2								UV 27
3447.151	A	7	45.32	48.91	0-1								
3466.114	A	7	45.36	48.94	4-4		7963.46	A	7w	45.58	47.03	3-3	4p 3D - 4d 3D°
*3459.95\$	A	7	45.34	48.93	3-3		7873.66	A	3	45.45	47.03	2-2	26.03
*3455.06\$	A	9d?	45.33	48.92	2-2		7848.03	A	3	45.44	47.02	1-1	
*3451.30\$\$	A	6	45.32	48.91	1-1		8004.1	A	2w	45.48	47.03	3-2	
*3475.25\$	A	3	45.36	48.93	4-3		7914.73	A	2w	45.45	47.02	2-1	
3466.849	A	4+	45.34	48.92	3-2		3934.808	A	7	45.48	48.63	3-2	4p 3D - 5s 3P°
3459.482	A	3	45.33	48.91	2-1		3948.02	A	6ul	45.45	48.59	2-1	26.04
3088.047	A	7+	45.36	49.37	4-4	3p' 5D° - 3d' 5D	m3944.854	P	O II	45.44	48.58	1-0	
3083.641	A	6	45.34	49.36	3-3	26	3903.034	A	5	45.45	48.63	2-2	
3075.145	A	5	45.33	49.36	2-2		3931.323	A	5	45.44	48.59	1-1	
3068.256	P		45.32	49.36	1-1		3886.760	P		45.44	48.63	1-2	
3095.813	A	5	45.36	49.36	4-3		3802.146	A	3	45.44	48.70	1-1	4p 3D - 5s 1P°
3084.636	A	5	45.34	49.36	3-2								26.05
3074.714	A	5	45.33	49.36	2-1								
3068.13	A	5ul	45.32	49.36	1-0								
3075.957	A	5	45.34	49.37	3-4								
3074.166	A	5	45.33	49.36	2-3								
3068.672	A	5	45.32	49.36	1-2								
3064.975	A	4	45.32	49.36	0-1								

Multiplet Table

O III—Continued

O III—Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
2848.931	A	4+	45.48	49.83	3-4	4p $^3D - 5d$ $^3F^{\circ\dagger}$	1227.276	A	9-	45.71	55.81	3-3	$3p' ^5P^{\circ} - 4d' ^5P$
2845.745	A	3d	45.45	49.81	2-3	UV 28	1224.693	A	7	45.70	55.82	2-2	UV 32
2853.745	A	3	45.44	49.78	1-2		1222.998	A	7-	45.69	55.83	1-1	
2797.86	A	1w	45.48	49.91	3-3	4p $^3D - 5d$ $^3D^{\circ\dagger}$	1226.176	A	8	45.71	55.82	3-2	
2791.25	P		45.45	49.89	2-2	UV 29	*1223.891	A	8	45.70	55.83	2-1	
			—	—	—		1225.781	A	7	45.70	55.81	2-3	
			—	—	—		*1223.891	A	8	45.69	55.82	1-2	
7839.28	A	6	45.62	47.20	1-2	4p $^3S - 4d$ $^3P^{\circ}$				—	—	—	
7832.48	A	4	45.62	47.20	1-1	26.06		Air					
7820.69	A	3w	45.62	47.20	1-0		3213.427	A	5	45.94	49.91	2-3	$4p ^3P - 5d$ $^3D^{\circ\dagger}$
m4121.592	P	O II	45.62	48.63	1-2	4p $^3S - 5s$ $^3P^{\circ}$	3214.763	A	4	45.92	49.89	1-2	28.01
4171.788	A	3+	45.62	48.59	1-1	26.07	3135.362	P		45.94	49.89	2-2	
4186.926	A	3	45.62	48.58	1-0					—	—	—	
			—	—	—		4569.28	A	5ul	45.98	48.70	2-1	$4p ^1D - 5s$ $^1P^{\circ}$
3384.900	A	8	45.71	49.37	3-4	3p' $^5P^{\circ} - 3d' ^5D$							28.02
3382.601	A	8	45.70	49.36	2-3	27	3236.416	A	4	45.98	49.81	2-2	$4p ^1D - 5d$ $^1D^{\circ}$
3377.264	P		45.79	49.36	1-2								28.03
3394.220	A	6	45.71	49.36	3-3		3078.127	A	4	45.98	50.01	2-3	$4p ^1D - 5d$ $^1F^{\circ}$
3383.799	A	7	45.70	49.36	2-2								28.04
3376.71	A	7d?	45.69	49.36	1-1								
3395.425	A	3	45.71	49.36	3-2		3728.838	A	8	46.47	49.79	3-4	$3p' ^3D^{\circ} - 3d' ^3F$
3383.211	P		45.70	49.36	2-1		3728.499	A	8	46.45	49.78	2-3	30
3376.610	P		45.69	49.36	1-0		3729.787	A	7	46.44	49.76	1-2	
3355.854	A	7+	45.71	49.40	3-3	3p' $^5P^{\circ} - 3d' ^5P$	3746.906	A	5	46.47	49.78	3-3	
*3336.660	A	7	45.70	49.41	2-2	28	3742.648	A	5	46.45	49.76	2-2	
3326.058	A	4d?	45.69	49.42	1-1		3761.166	P		46.47	49.76	3-2	
*3348.02‡	A	7	45.71	49.41	3-2								
3332.413	A	7	45.70	49.42	2-1		3504.39	A	2+w	46.45	49.99	2-3	$3p' ^3D^{\circ} - 5f$ $F[2\frac{1}{2}]^{\dagger}$
3344.523	A	5	45.70	49.40	2-3		3491.011	A	4	46.44	49.99	1-2	30.01
*3330.313	A	8	45.69	49.41	1-2		3513.895	A	4+	46.47	49.99	3-4	[3 $\frac{1}{2}$]
Vac							3500.419	A	4	46.45	49.99	2-3	
m1664.035	P	O II	45.71	53.16	3-3	3p' $^5P^{\circ} - 4s' ^5P$							
1655.799	P		45.70	53.14	2-2	UV 30	3216.074	A	4	46.47	50.32	3-3	$3p' ^3D^{\circ} - 3d' ^3D$
1667.717	P		45.69	53.13	1-1		3207.619	A	6	46.45	50.32	2-2	31
1668.614	A	6	45.71	53.14	3-2		3201.108	A	5	46.44	50.31	1-1	
1669.311	P		45.70	53.13	2-1		3221.201	A	4	46.47	50.32	3-2	
1661.239	A	6	45.70	53.16	2-3		*3210.55‡	A	5	46.45	50.31	2-1	
1664.211	P		45.69	53.14	1-2		3202.496	A	4	46.45	50.32	2-3	
1234.675	A	10	45.71	55.75	3-4	3p' $^5P^{\circ} - 4d' ^5D$	3198.200	A	4	46.44	50.32	1-2	
1234.147	A	10	45.70	55.74	2-3	UV 31							
1233.630	A	9	45.69	55.74	1-2		4529.69	P	(00)	46.63	49.36	2-3	$3p' ^5S^{\circ} - 3d' ^5D$
1235.685	A	8	45.71	55.74	3-3		4461.615	A	5	46.63	49.40	2-3	31.01
1234.504	A	9+	45.70	55.74	2-2		4447.694	A	3	46.63	49.41	2-2	$3p' ^5S^{\circ} - 3d' ^5P$
1233.710	A	9	45.69	55.74	1-1		4440.081	A	4+	46.63	49.42	2-1	33
1236.062	P		45.71	55.74	3-2								
1234.609	P		45.70	55.74	2-1		Vac						
							1897.150	A	8+	46.63	53.16	2-3	$3p' ^5S^{\circ} - 4s' ^5P$
							1903.063	A	8	46.63	53.14	2-2	UV 33
							1907.629	A	7	46.63	53.13	2-1	

Multiplet Table

O III—Continued

O III—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.	
			Low	High						Low	High			
Air							Air							
3900.860	A	4	46.81	49.99	3-3	4d 3F° -5f F[2½]†	m4366.993	P	O II	47.19	50.03	3-	4f F[2½] -5g G[3½]°	
3871.410	A	4	46.79	49.99	2-2	33.01	4369.644	A	6	47.19	50.03	2-	39 [4½]	
3920.941	A	2	46.83	49.99	4-4	[3½]	4365.08	A	4+d?	47.19	50.03	3-		
3892.625	A	6+d	46.81	49.99	3-4		4376.540	A	7	47.20	50.03	3-	[3½]	
*3868.718\$	A	5	46.83	50.04	4-4	4d 3F° -5f G[3½]†	4379.575	A	7	47.20	50.03	4-		
3841.206	A	7-	46.81	50.04	3-4	33.02	4314.640	A	5	47.20	50.07	4-	4f F[3½] -5g H[4½]°	
3845.009	A	5	46.81	50.03	3-3		4311.699	A	5	47.20	50.07	3-	40	
3818.97	A	5ul	46.79	50.03	2-3		*4306.00\$	A	3	47.20	50.08	4-	4f F[3½] -5g F[3½]°+	
3848.871	A	7+	46.83	50.05	4-5	[4½]							41	
2627.727	A	2	46.83	51.55	4-4	4d 3F° -6f G[3½]†	2856.607	A	4	47.19	51.53	3-	4f F[2½] -6g G[3½]°	
2615.961	A	2w	46.81	51.55	3-3	UV 34		2857.745	A	4	47.19	51.53	3-	UV 36
2622.839	A	4	46.83	51.56	4-5	[4½]	2861.135	A	4	47.20	51.53	3-	[3½] [4½]	
2606.866	A	2	46.81	51.57	3-4		2862.430	A	4	47.20	51.53	4-		
	—	—	—	—			2833.689	A	2+	47.20	51.57	4-	4f F[3½] -6g H[4½]°	
3820.548	A	2	46.83	50.07	2-2	4d 1D° -5f D[1½]†	2832.383	A	2	47.20	51.57	3-	UV 37	
	—	—	—	—	33.03		2825.69	A	1w	47.19	51.58	3-	4f F[2½] -6g F[3½]°+	
4555.404	A	4	46.92	49.64	2-2	3p' 3P° -3d' 3P†	2826.80	A	1w	47.19	51.58	2-3	UV 38	
4535.285	P		46.92	49.65	1-1	34	2821.636	A	1-	47.19	51.58	3	[2½]	
4532.785	P		46.92	49.65	2-1		2831.772	A	2	47.20	51.58	4-	[3½] 6g F[3½]	
4524.218	A	2	46.92	49.66	1-0									
4557.896	A	5	46.92	49.64	1-2		4321.046	A	3	47.20	50.07	1-2	4d 3P° -5f D[1½]†	
*3949.55\$	A	6ul	46.92	50.05	2-3	3p' 3P° -5f D[2½]†							42	
*3949.55\$	A	6ul	46.92	50.05	1-2	34.01		3971.325	A	6	47.20	50.32	2-3	4d 3P° -3d' 3D
3930.325	A	4	46.92	50.07	1-2	[1½]	3980.910	A	4	47.20	50.32	1-2	43	
m3934.953	P	O III	46.92	50.07	0-1		3988.580	A	4	47.20	50.31	0-1		
3638.732	A	6	46.92	50.32	2-3	3p' 3P° -3d' 3D	3979.123	A	5	47.20	50.32	2-2		
3646.972	A	6	46.92	50.32	1-2	35	3985.545	P		47.20	50.31	1-1		
3653.085	A	5	46.92	50.31	0-1		3983.732	P		47.20	50.31	2-1		
3645.328	A	5	46.92	50.32	2-2									
3650.793	A	5	46.92	50.31	1-1									
3649.152	P	(00)	46.92	50.31	2-1		4383.345	A	4d?	47.21	50.04	3-4	4d 1F° -5f G[3½]†	
	—	—	—	—									44	
4183.247	A	5	47.03	49.99	2-3	4d 3D° -5f F[2½]†	4484.702	A	3	47.26	50.03	4-	4f G[3½] -5g G[3½]°+	
4180.238	A	3	47.03	49.99	2-2	36	4476.108	A	5	47.26	50.03	3-	45 [4½]	
m4168.735	P	O II	47.02	49.99	1-2		4482.832	A	5	47.26	50.03	4-		
4184.893	A	4	47.03	49.99	3-4	[3½]	4408.291	A	7	47.26	50.07	3-	4f G[3½] -5g H[4½]°	
4177.601	A	5	47.03	49.99	2-3		4434.598	A	9	47.29	50.08	5-	[4½] [5½]	
4125.509	A	5	47.03	50.04	3-4	4d 3D° -5f G[3½]†	4448.144	A	9	47.30	50.08	4-	46	
*4103.823	A	3	47.03	50.05	3-3	4d 3D° -5f D[2½]†	4399.609	A	4+	47.26	50.08	3-	4f G[3½] -5g F[3½]°+	
4091.376	A	3	47.03	50.05	2-2	38							47	
2769.914	A	2+	47.03	51.51	3-4	4d 3D° -6f F[3½]†								
2766.394	A	2+	47.03	51.51	2-3	UV 35 [2½]								
2761.17	A	2+w	47.02	51.51	1-2									
	—	—	—	—										

Multiplet Table

O III-Continued

O III-Continued

IA	Ref.	Int.	E P		J	Multiplet No.	IA	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
2873.687	A	3	47.26	51.57	3-	4f G[3½] -6g H[4½]°†	1245.525	A	9	48.95	58.90	5-6	3d' 5F -5f' 5G°†
2876.489	A	4	47.26	51.57	4-	UV 39	1245.918	A	9+	48.94	58.89	4-5	UV 46
*2892.33§	A	3	47.29	51.57	5-	[4½]	1246.080	A	3	48.92	58.87	2-3	
2887.801	A	8	47.29	51.58	5-	[5½]	1245.740	A	6	48.91	58.87	1-2	
2893.542	A	4	47.30	51.58	4-		1247.090	A	3	48.94	58.88	4-4	
		—	—	—			1244.820	A	3	48.92	58.88	2-3	3d' 5F -5f' 3G°†
4534.312	A	5	47.29	50.03	3-	4f D[2½] -5g G[3½]°†			—	—	—	UV 47	
4538.990	A	4+	47.30	50.03	2-	48		Air					
4454.028	A	7	47.29	50.08	3-	4f D[2½] -5g F[3½]°†	2480.721	A	1	49.37	54.37	4-4	3d' 5D -4p' 5D°†
4458.545	A	6	47.30	50.08	2-	49	2483.18	P	(0)	49.36	54.35	3-3	UV 48
4437.537	A	4	47.29	50.09	3-	[2½]°	2488.39	P		49.36	54.34	2-2	
4442.022	A	4	47.30	50.09	2-		2488.20	P		49.37	54.35	4-3	
4471.019	A	5+	47.31	50.09	1-		2489.04	P	(00)n	49.36	54.34	3-2	
4475.166	A	6	47.32	50.09	2-	[1½]	2475.70	P	(00)	49.36	54.37	3-4	
		—	—	—			2425.891	A	2	49.37	54.48	4-3	3d' 5D -4p' 5P°†
*2894.81§	A	3	47.29	51.58	3-	4f D[2½] -6g F[3½]°†	2426.932	A	2	49.36	54.47	3-2	UV 49
2896.750	A	3	47.30	51.58	2-3	UV 40	2421.14	P	(00n)	49.36	54.47	3-3	
		—	—	—			2426.307	A	1	49.36	54.47	2-2	
2285.664	A	1	48.95	54.37	5-4	3d' 5F -4p' 5D°†	Vac						
2287.197	A	1	48.94	54.35	4-3	UV 41	1853.347	A	8	49.37	56.06	4-4	3d' 5D -4f' 5D°†
							*1844.741	A	6	49.36	56.08	2-2	UV 50
Vac							1850.138	A	7	49.37	56.07	4-3	
1727.854	A	11	48.95	56.12	5-6	3d' 5F -4f' 5G°†	1842.815	A	6+	49.36	56.09	1-0	
*1728.298	A	11	48.94	56.11	4-5	UV 42	1850.575	A	9	49.36	56.06	3-4	
*1728.298	A	11	48.93	56.10	3-4		1847.000	A	8	49.36	56.07	2-3	
*1728.298	A	11	48.92	56.09	2-3		*1844.741	A	6	49.36	56.08	1-2	
1730.993	A	8	48.95	56.11	5-5		1817.231	A	10	49.37	56.20	4-5	3d' 5D -4f' 5F°†
1730.631	A	8	48.94	56.10	4-4		1815.178	A	10	49.36	56.19	3-4	UV 51
1730.053	A	8	48.93	56.09	3-3		1815.511	A	9	49.36	56.19	2-3	
1729.077	A	8	48.92	56.09	2-2		1816.257	A	9	49.36	56.19	1-2	
							1816.680	A	9	49.36	56.19	0-1	
							1817.844	A	9-	49.37	56.19	4-4	
1723.542	A	8	48.94	56.13	4-5	3d' 5F -4f' 3G°†	1815.852	A	9	49.36	56.19	3-3	
1724.877	A	8	48.93	56.11	3-4	UV 43	1816.110	A	9	49.36	56.19	2-2	
1726.061	A	8+	48.92	56.10	2-3		1297 to 1295	A	{ 8vw	49.37	58.93	.	3d' 5D -5f' 5F°
1710.341	A	8+	48.95	56.20	5-5	3d' 5F -4f' 5F°†							UV 52
1708.200	A	8	48.94	56.19	4-4	UV 44							
1706.600	A	7+	48.93	56.19	3-3								
1705.445	A	5	48.92	56.19	2-2		Air						
1704.679	A	7	48.91	56.19	1-1		2441.046	A	3	49.40	54.48	3-3	3d' 5P -4p' 5P°†
1710.925	A	7	48.95	56.19	5-4		2451.09	B	(0n)	49.41	54.47	2-2	UV 53
1708.799	A	7	48.94	56.19	4-3		2446.92	B	(00)	49.40	54.47	3-2	
1704.320	A	4	48.91	56.19	1-2								
1705.785	A	5	48.94	56.20	4-4	3d' 5F -4f' 3F°†							
						UV 45							

Multiplet Table

O III-Continued

O III-Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
1862.169	A	9+	49.40	56.06	3-4	3d' 5P -4f' 5D°†	1956.392	A	10	49.79	56.13	4-5	3d' 3F -4f' 3G°
1861.346	A	9	49.41	56.07	2-3	UV 54	1956.065	A	10	49.78	56.11	3-4	UV 60
1860.183	A	8	49.42	56.08	1-2		1955.913	A	10	49.76	56.10	2-3	
1858.933	A	7	49.40	56.07	3-3		1961.022	A	7	49.79	56.11	4-4	
1858.834	A	7	49.41	56.08	2-2		1959.815	A	7	49.78	56.10	3-3	
1861.23	A	8*	49.42	56.08	1-1		1964.772	P		49.79	56.10	4-3	
1826.335	A	8	49.40	56.19	3-4	3d' 5P -4f' 5F°†	1933.554	A	7	49.79	56.20	4-4	3d' 3F -4f' 3F°†
1831.247	A	6	49.42	56.19	1-2	UV 55	1930.902	A	4	49.78	56.20	3-2	UV 61
1827.031	A	7	49.40	56.19	3-3		1363.449	A	5	49.78	58.87	3-3	3d' 3F -5f' 5G°†
		—	—	—						—	—		UV 62
Air													
2726.89	A	3	49.64	54.18	2-1	3d' 3P -4p' 3S°	1360.914	A	8	49.79	58.90	4-5	3d' 3F -5f' 3G°†
2735.07	A	2w	49.65	54.18	1-1	UV 56	1360.289	A	8	49.78	58.89	3-4	UV 63
2739.06	A	2w	49.66	54.18	0-1		1360.085	A	7	49.76	58.88	2-3	
Vac							1364.394	A	3	49.79	58.88	4-3	
1928.889	A	9	49.64	56.06	2-3	3d' 3P -4f' 3D°†	Air		—	—	—		
1929.618	A	8	49.65	56.07	1-2	UV 57	8062.5	A	4vw	49.99	51.53	2-	5f F[2½] -5g G[3½]°
1927.372	A	8	49.66	56.09	0-1		8051.5	A	3vw	49.99	51.53	3-	50
1925.532	A	8	49.64	56.07	2-2		8084.2	A	4wd?	49.99	51.53	4-	[3½]
1925.367	A	7	49.65	56.09	1-1		8070.2	A	4vw	49.99	51.53	3-	[4½]
Air		—	—	—					—	—	—		
2431.69	B	(0d)	49.79	54.89	4-3	3d' 3F -4p' 3D°	*2107.16	A	10w	50.32	56.20	3-4	3d' 3D -4f' 3F°
						UV 58	*2106.14	A	10w	50.32	56.20	2-3	UV 64
Vac							*2106.14	A	10w	50.31	56.20	1-2	
1962.413	A	8	49.79	56.11	4-5	3d' 3F -4f' 5G°†	2108.301	A	6	50.32	56.20	3-3	
1960.540	A	8	49.78	56.10	3-4	UV 59	*2107.16	A	10w	50.32	56.20	2-2	
1958.800	A	8	49.78	56.09	3-3		2109.474	A	4	50.32	56.20	3-2	
*1959.815	A	7	49.76	56.09	2-2								

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<p>12. KEY WORDS (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)</p> <p>atomic energy levels, O III; atomic spectra, O III; multiplet table, O III; oxygen spectra, O III; spectrum, O III; wavelengths, O III.</p>				
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