

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 $1s^2 2s^2 2p^2 \ ^3P_0$ $2p^2 \ ^3P_0$ $443084.7 \pm 2 \text{ cm}^{-1}$; 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
$3d \ ^3F_3^o$	1.059 ± 0.015	1.08
$3d \ ^3F_4^o$	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 $4p' \ ^3P^o$, calculated from a line reported by Tilford and Wilkinson at λ 225.200, designated as $2p^2 \ ^3P - 4p' \ ^3P^o$, 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.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval		
$s^2 2p^2$	$2p^2 \ ^3P$	0	0.000		$2s^2 2p(2P^{\circ})3d$	$3d \ ^1P^{\circ}$	1	332778.94			
		1	113.178	113.178			$2s \ 2p^2(4P)3s$	$3s' \ ^5P$	1	338577.25	
		2	306.174	112.996					2	338701.98	124.73
							3	338863.03	161.05		
$s^2 2p^2$	$2p^2 \ ^1D$	2	20273.27		$2p^4$	$2p^4 \ ^1S$	0	343306.3			
$s^2 2p^2$	$2p^2 \ ^1S$	0	43185.74				$2s \ 2p^2(4P)3s$	$3s' \ ^3P$	0	350024.49	
$s \ 2p^3$	$2p^3 \ ^5S^{\circ}$	2	60324.79						1	350124.45	99.96
$s \ 2p^3$	$2p^3 \ ^3D^{\circ}$	3	120025.2	-28.2	2	350298.38			173.93		
		2	120053.4	-4.8	$2s^2 2p(2P^{\circ})4s$	$4s \ ^3P^{\circ}$	0	356736.30			
		1	120058.2				1	356844.98	108.68		
$s \ 2p^3$	$2p^3 \ ^3P^{\circ}$	2	142381.0	-0.8			2	357117.01	272.03		
		1	142381.8	-11.7	$2s^2 2p(2P^{\circ})4s$	$4s \ ^1P^{\circ}$	1	358668.90			
		0	142393.5				$2s \ 2p^2(4P)3p$	$3p' \ ^3S^{\circ}$	1	363263.38	
$s \ 2p^3$	$2p^3 \ ^1D^{\circ}$	2	187054.0						0	365527.08	
$s \ 2p^3$	$2p^3 \ ^3S^{\circ}$	1	197087.7		1	365561.95			34.87		
$s \ 2p^3$	$2p^3 \ ^1P^{\circ}$	1	210461.8		$2s \ 2p^2(4P)3p$	$3p' \ ^5D^{\circ}$	2	365630.40	68.45		
$s^2 2p(2P^{\circ})3s$	$3s \ ^3P^{\circ}$	0	267258.71	118.40			3	365730.68	100.28		
		1	267377.11	256.89			4	365857.89	127.21		
		2	267634.00		$2s^2 2p(2P^{\circ})4p$	$4p \ ^1P$	1	365726.76			
$s^2 2p(2P^{\circ})3s$	$3s \ ^1P^{\circ}$	1	273081.33				$2s^2 2p(2P^{\circ})4p$	$4p \ ^3D$	1	366488.45	
p^4	$2p^4 \ ^3P$	2	283759.7	-217.7					2	366595.76	107.31
		1	283977.4	-94.5	3	366802.62			206.86		
		0	284071.9		$2s^2 2p(2P^{\circ})4p$	$4p \ ^3S$	1	367953.90			
$s^2 2p(2P^{\circ})3p$	$3p \ ^1P$	1	290958.25				$2s \ 2p^2(4P)3p$	$3p' \ ^5P^{\circ}$	1	368538.65	57.28
$s^2 2p(2P^{\circ})3p$	$3p \ ^3D$	1	293866.49	136.37					2	368595.93	101.07
		2	294002.86	220.21	3	368697.00					
		3	294223.07		$2s^2 2p(2P^{\circ})4p$	$4p \ ^3P$	0	370329.18	89.14		
$s^2 2p(2P^{\circ})3p$	$3p \ ^3S$	1	297558.66				1	370418.32	108.17		
p^4	$2p^4 \ ^1D$	2	298294.0				2	370526.49			
$s^2 2p(2P^{\circ})3p$	$3p \ ^3P$	0	300239.93	82.03	$2s^2 2p(2P^{\circ})4p$	$4p \ ^1D$	2	370902.22			
		1	300311.96	130.59			$2s \ 2p^2(4P)3p$	$3p' \ ^3D^{\circ}$	1	374571.64	91.88
		2	300442.55						2	374663.52	131.62
$s^2 2p(2P^{\circ})3p$	$3p \ ^1D$	2	306586.08		3	374795.14					
$s^2 2p(2P^{\circ})3p$	$3p \ ^1S$	0	313802.77		$2s \ 2p^2(4P)3p$	$3p' \ ^5S^{\circ}$	2	376079.92			
$s^2 2p(2P^{\circ})3d$	$3d \ ^3F^{\circ}$	2	324464.88	195.92			$2s^2 2p(2P^{\circ})4d$	$4d \ ^3F^{\circ}$	2	377385.58	176.73
		3	324660.80	178.23					3	377562.31	186.26
		4	324839.03		4	377748.57					
$s^2 2p(2P^{\circ})3d$	$3d \ ^1D^{\circ}$	2	324735.65		$2s^2 2p(2P^{\circ})4d$	$4d \ ^1D^{\circ}$	2	377686.83			
$s^2 2p(2P^{\circ})3d$	$3d \ ^3D^{\circ}$	1	327229.25	49.05			$2s \ 2p^2(4P)3p$	$3p' \ ^3P^{\circ}$	2	378405.68	-12.16
		2	327278.30	73.87					1	378417.84	-17.32
		3	327352.17		0	378435.16					
$s^2 2p(2P^{\circ})3d$	$3d \ ^3P^{\circ}$	2	329469.80	-114.09	$2s^2 2p(2P^{\circ})4d$	$4d \ ^3D^{\circ}$	1	379227.15	65.88		
		1	329583.89	-61.25			2	379293.03	63.72		
		0	329645.14				3	379356.75			
$s^2 2p(2P^{\circ})3d$	$3d \ ^1F^{\circ}$	3	331821.44		$2s^2 2p(2P^{\circ})4f$	$4f \ F[2^{1/2}]$	3	380612.78	-13.47		
							2	380626.25			

Atomic Energy Levels

O III—Continued

O III—Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$2s^2 2p(^2P^\circ)4f$	4 <i>f</i> F[3 ¹ / ₂]	3	380671.86	16.00	$2s^2 2p(^2P^\circ)5d$	5 <i>d</i> ³ D°	1		121.8
		4	380687.86				2	402411.5	
$2s^2 2p(^2P^\circ)4d$	4 <i>d</i> ³ P°	2	380706.51	-11.41 -19.08	$2s^2 2p(^2P^\circ)5f$	5 <i>f</i> F[2 ¹ / ₂]	3	403190.70	-17.78
		1	380717.92				2	403208.48	
		0	380737.00				3	403223.27	
							4	403245.42	
$2s^2 2p(^2P^\circ)4d$	4 <i>d</i> ¹ F°	3	380782.17		$2s^2 2p(^2P^\circ)5f$	5 <i>f</i> F[3 ¹ / ₂]	3	403380.0	22.15
$2s^2 2p(^2P^\circ)4d$	4 <i>d</i> ¹ P°	1	381089.27		$2s^2 2p(^2P^\circ)5d$	5 <i>d</i> ¹ F°	3	403380.0	
$2s^2 2p(^2P^\circ)4f$	4 <i>f</i> G[3 ¹ / ₂]	3	381179.84	33.81	$2s^2 2p(^2P^\circ)5g$	5 <i>g</i> G[3 ¹ / ₂]°	3,4	403505.4	
		4	381213.65		$2s^2 2p(^2P^\circ)5g$	5 <i>g</i> G[4 ¹ / ₂]°	4,5	403514.6	
$2s^2 2p(^2P^\circ)4f$	4 <i>f</i> G[4 ¹ / ₂]	5	381406.72	-68.61	$2s^2 2p(^2P^\circ)5d$	5 <i>d</i> ¹ P°	1	403533.7	
		4	381475.33		$2s^2 2p(^2P^\circ)5f$	5 <i>f</i> G[3 ¹ / ₂]	3	403562.80	26.12
$2s^2 2p(^2P^\circ)4f$	4 <i>f</i> D[2 ¹ / ₂]	3	381457.51	-22.75	$2s^2 2p(^2P^\circ)5f$	5 <i>f</i> G[4 ¹ / ₂]	4	403588.92	
		2	381480.26				5	403722.85	
$2s^2 2p(^2P^\circ)4f$	4 <i>f</i> D[1 ¹ / ₂]	1	381626.33	20.86	$2s^2 2p(^2P^\circ)5f$	5 <i>f</i> D[2 ¹ / ₂]	4	403784.03	-61.18
		2	381647.19				3	403716.60	
$2s^2 2p(^2P^\circ)5s$	5 <i>s</i> ³ P°	0	391830.76	87.04 291.73	$2s^2 2p(^2P^\circ)5f$	5 <i>f</i> D[1 ¹ / ₂]	2	403727.62	-11.02
		1	391917.80				1	403841.23	
		2	392209.53				2	403853.65	
$2s^2 2p(^2P^\circ)5s$	5 <i>s</i> ¹ P°	1	392781.47		$2s^2 2p(^2P^\circ)5g$	5 <i>g</i> H[4 ¹ / ₂]°	4,5	403858.1	
$2s 2p^2(^2D)3s$	3 <i>s</i> " ³ D	1	394079.4	47.9 70.6	$2s^2 2p(^2P^\circ)5g$	5 <i>g</i> H[5 ¹ / ₂]°	5,6	403950.3	
		2	394127.3		$2s^2 2p(^2P^\circ)5g$	5 <i>g</i> F[3 ¹ / ₂]°	3,4	403902.8	
		3	394197.9		$2s^2 2p(^2P^\circ)5g$	5 <i>g</i> F[2 ¹ / ₂]°	2,3	403986.3	
$2s 2p^2(^4P)3d$	3 <i>d</i> ' ⁵ F	1	394528.20	38.85 57.63 75.59 93.01	$2s^2 2p(^2P^\circ)3d$	3 <i>d</i> ' ³ D	1	405801.50	28.88 49.59
		2	394567.05				2	405830.38	
		3	394624.68				3	405879.97	
		4	394700.27						
		5	394793.28						
$2s 2p^2(^4P)3d$	3 <i>d</i> ' ⁵ D	0	398145.63	-1.34 -4.37 10.48 81.08	$2s^2 2p(^2P^\circ)6s$	6 <i>s</i> ³ P°	0	409052.6	73.1 308.4
		1	398144.29				1	409125.7	
		2	398139.92				2	409434.1	
		3	398150.40						
		4	398231.48						
$2s 2p^2(^4P)3d$	3 <i>d</i> ' ⁵ P	3	398487.08	-70.09 -38.48	$2s^2 2p(^2P^\circ)6s$	6 <i>s</i> ¹ P°	1	409766.5	
		2	398557.17		$2s^2 2p(^2P^\circ)6d$	6 <i>d</i> ¹ D°	2	414676	
		1	398595.65		$2s^2 2p(^2P^\circ)6d$	6 <i>d</i> ³ D°	1,2,3	415180	
$2s 2p^2(^4P)3d$	3 <i>d</i> ' ³ P	2	400351.56	-109.43 -53.90	$2s^2 2p(^2P^\circ)6f$	6 <i>f</i> F[3 ¹ / ₂]	3	415420.1	28.2
		1	400460.99		4	415448.3			
		0	400514.89		$2s^2 2p(^2P^\circ)6f$	6 <i>f</i> F[2 ¹ / ₂]	3	415430.5	
$2s 2p^2(^4P)3d$	3 <i>d</i> ' ³ F	2	401375.09	101.20 129.23	$2s^2 2p(^2P^\circ)6g$	6 <i>g</i> G[3 ¹ / ₂]°	2	415433.0	
		3	401476.29				3,4	415608.8	
		4	401605.52				4,5	415612.9	
$2s^2 2p(^2P^\circ)5d$	5 <i>d</i> ³ F°	2	401519.8	205.8 167.6	$2s^2 2p(^2P^\circ)6h$	6 <i>h</i> H[4 ¹ / ₂]	4,5	415640.2	
		3	401725.6		$2s^2 2p(^2P^\circ)6h$	6 <i>h</i> H[5 ¹ / ₂]	5,6	415641.1	
		4	401893.2		$2s^2 2p(^2P^\circ)6f$	6 <i>f</i> G[3 ¹ / ₂]	3	415777.8	15.0
$2s^2 2p(^2P^\circ)5d$	5 <i>d</i> ¹ D°	2	401791.7		$2s^2 2p(^2P^\circ)6f$	6 <i>f</i> G[3 ¹ / ₂]	4	415792.8	

Atomic Energy Levels

O III—Continued

O III—Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$1s^2 2p(2P^{\circ})6f$	$6f$ G[4 $\frac{1}{2}$]	5	415863.8	-47.3	$2s 2p^2(4P)4d$	$4d'$ 5P	3	450177.71	-73.13
		4	415911.1				2	450250.84	-54.09
$1s^2 2p(2P^{\circ})6f$	$6f$ D[2 $\frac{1}{2}$]	3	415853.6		$2s 2p^2(4P)4f$	$4f'$ $^5D^{\circ}$	1	450304.93	
		2					4	452187.83	-93.77
$1s^2 2p(2P^{\circ})6g$	$6g$ H[4 $\frac{1}{2}$] $^{\circ}$	4,5	415967.7				3	452281.60	-72.47
$1s^2 2p(2P^{\circ})6g$	$6g$ H[5 $\frac{1}{2}$] $^{\circ}$	5,6	416025.0				2	452354.07	30
$1s^2 2p(2P^{\circ})6g$	$6g$ F[3 $\frac{1}{2}$] $^{\circ}$	3,4	415991.3				1	452324?	-85
$1s^2 2p(2P^{\circ})6g$	$6g$ F[2 $\frac{1}{2}$] $^{\circ}$	2,3	416042.8		$2s 2p^2(4P)4f$	$4f'$ $^3D^{\circ}$	3	452194.87	-90.14
$1s^2 2p(2P^{\circ})6h$	$6h$ I[5 $\frac{1}{2}$]	5,6	416009.0				2	452285.01	-114.06
$1s^2 2p(2P^{\circ})6h$	$6h$ I[6 $\frac{1}{2}$]	6,7	416040.6		$2s 2p^2(4P)4f$	$4f'$ $^5G^{\circ}$	2	452401.37	25.20
$1s^2 2p(2P^{\circ})6h$	$6h$ G[4 $\frac{1}{2}$]	4,5	416019.5				3	452426.57	56.07
$1s^2 2p(2P^{\circ})6h$	$6h$ G[3 $\frac{1}{2}$]	3,4	416050.5				4	452482.64	80.85
$1s^2 2p(2P^{\circ})7d$	$7d$ $^1F^{\circ}$	3	422979				5	452563.49	105.05
$2s 2p^2(2D)3p$	$3p''$ $^1F^{\circ}$	3	425000		$2s 2p^2(4P)4f$	$4f'$ $^3G^{\circ}$	3	452502.02	97.48
$2s 2p^2(2D)3p$	$3p''$ $^1D^{\circ}$	2	426340				4	452599.50	120.67
$2s 2p^2(4P)4s$	$4s'$ 5P	1	428500.87	126.33	$2s 2p^2(2D)3d$	$3d''$ 3F	2,3,4	452870	
		2	428627.20	164.69	$2s 2p^2(4P)4f$	$4f'$ $^5F^{\circ}$	1	453190.69	12.12
		3	428791.89				2	453202.81	17.91
$2s 2p^2(2D)3p$	$3p''$ $^1P^{\circ}$	1	430027				3	453220.72	20.74
$2s 2p^2(4P)4p$	$4p'$ $^3S^{\circ}$	1	437012.5				4	453241.46	19.25
$2s 2p^2(4P)4p$	$4p'$ $^5D^{\circ}$	0			$2s 2p^2(4P)4f$	$4f'$ $^3F^{\circ}$	2	453266.13	29.91
		1	438252.9	61.5			3	453296.04	27.45
		2	438314.4	94.7			4	453323.49	
		3	438409.1	121.7	$2s 2p^2(2D)3d$	$3d''$ 3D	1,2,3	454181	
		4	438530.8		$2s 2p^2(2D)3d$	$3d''$ 3P	0,1,2	457574	
$2s 2p^2(4P)4p$	$4p'$ $^5P^{\circ}$	1	439290.6	51.7	$2s 2p^2(4P)5d$	$5d'$ 5P	3	473762	
		2	439342.3	98.5			2		
		3	439440.8				1		
$2s 2p^2(4P)4p$	$4p'$ $^3D^{\circ}$	1			$2s 2p^2(4P)5f$	$5f'$ $^5G^{\circ}$	2	474801.8	17.4
		2					3	474819.2	67.7
		3	442718				4	474886.9	75.5
$O\text{ IV }(^2P^{\circ}_{0\frac{1}{2}})$	Limit	...	443084.7				5	474962.4	118.3
$(^2P^{\circ}_{1\frac{1}{2}})$	Limit	...	443470.6				6	475080.7	
$2s 2p^2(4P)4d$	$4d'$ 5F	1			$2s 2p^2(4P)5f$	$5f'$ $^3G^{\circ}$	3	474899.3	90.8
		2	448328.33	59.55			4	474990.1	95.5
		3	448387.88	78.65			5	475085.6	
		4	448466.53	95.80	$2s 2p^2(4P)5f$	$5f'$ 5F		[475300]	
		5	448562.33						
$2s 2p^2(4P)4d$	$4d'$ 5D	0							
		1	449593.25	5.82					
		2	449599.07	24.58					
		3	449623.65	66.32					
		4	449689.97						

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 (⁴ P _{0½})	Limit		514524.5		O IV (² D _{2½})	Limit		570021.0	
(⁴ P _{1½})	Limit		514654.8	130.3	(² D _{1½})	Limit		570034.9	-13.9
(⁴ P _{2½})	Limit		514840.2	185.4					

February 19:

Atomic Energy Levels

O III Observed Terms

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

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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- B B. Edlén, *Nova Acta Reg. Soc. Sci. Uppsala* [IV] **9**, No. 6, 121-134 (1934). IP, T, C L, G D, (I). See B, also, for quoted Wavelengths and Intensities.
- J. W. V. Storey, D. M. Watson, and C. H. Townes, *Astroph. J.* **233**, 109-118 (1979). [O III] 88 μ . 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 52 μ and 88 μ . 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						
I A	Ref.	Int.	E P		J	Multiplet No.	I A	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	
1666.153	A	9	0.04	7.48	2-2	$2p^2 \ ^3P-2p^3 \ ^5S^\circ$	303.461	A	(7)	0.01	40.87	1-0	
1660.807	A	8	0.01	7.48	1-2	UV 0.01	303.622	A	(7+)	0.01	40.85	1-2	
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	$2p^2 \ ^3P-3d \ ^3F^\circ$	267.0523	A	(3)	0.01	46.44	1-1	
308.307	P		0.01	40.23	1-2	UV 4.02	267.190	P		0.04	46.44	2-1	
308.491	P		0.04	40.23	2-2		266.118	P		0.04	46.63	2-2	$2p^2 \ ^3P-3p' \ ^5S^\circ$
308.233	P		0.04	40.26	2-2	$2p^2 \ ^3P-3d \ ^1D^\circ$	265.981	P		0.01	46.63	1-2	UV 6.07
308.050	A	(1)	0.01	40.26	1-2	UV 4.03	264.984	P		0.04	46.83	2-2	$2p^2 \ ^3P-4d \ ^1D^\circ$
							264.849	P		0.01	46.83	1-2	UV 6.08

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														
264.4807	A	(6)*	0.04	46.92	2-2	$2p^2 \ ^3P-3p' \ ^3P^\circ$ UV 6.09	565.565	P		2.51	24.44	2-1	$2p^2 \ ^1D-2p^3 \ ^3S^\circ$ UV 7.01	
264.3372	A	(5d)*	0.01	46.92	1-1									
264.4722	A	(6)*	0.04	46.92	2-1			525.795	B	8	2.51	26.09	2-1	$2p^2 \ ^1D-2p^3 \ ^1P^\circ$ UV 8
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	$2p^2 \ ^1D-3s \ ^3P^\circ$ UV 8.01	
263.8171	A	(5)	0.04	47.03	2 3	$2p^2 \ ^3P \ 4d \ ^3D^\circ$ UV 6.10	404.688	P		2.51	33.15	2-1	$2p^2 \ ^1D-3s \ ^1P^\circ$ UV 9	
263.7271	A	(4)	0.01	47.03	1-2			395.557	A	(12)	2.51	33.86	2-1	$2p^2 \ ^1D-3d \ ^3F^\circ$ UV 9.01
263.6942	A	(3)	0.00	47.02	0-1									
263.8614	A	(3-)	0.04	47.03	2-2			328.529	P		2.51	40.25	2-3	$2p^2 \ ^1D-3d \ ^3F^\circ$ UV 9.01
263.7729	A	(3-)	0.01	47.02	1-1			328.740	A	(9)	2.51	40.23	2-2	$2p^2 \ ^1D-3d \ ^1D^\circ$ UV 10
263.9073	A	(0)	0.04	47.02	2-1		328.448	A	(10)	2.51	40.26	2-2	$2p^2 \ ^1D-3d \ ^3D^\circ$ UV 10.01	
262.8810	A	(1)	0.04	47.20	2-2	$2p^2 \ ^3P-4d \ ^3P^\circ$ UV 6.11	325.649	P		2.51	40.59	2-3	$2p^2 \ ^1D-3d \ ^3D^\circ$ UV 10.01	
262.7398	A	(0)*	0.01	47.20	1-1			325.728	P		2.51	40.58	2-2	$2p^2 \ ^1D-3d \ ^3P^\circ$ UV 10.02
262.8731	A		0.04	47.20	2-1			325.780	P		2.51	40.57	2-1	$2p^2 \ ^1D-3d \ ^3P^\circ$ UV 10.02
262.7266	A	(0)*	0.01	47.20	1-0			323.419	P		2.51	40.85	2-2	$2p^2 \ ^1D-3d \ ^1F^\circ$ UV 11
262.7477	A	(0)*	0.01	47.20	1-2			323.300	P		2.51	40.86	2-1	$2p^2 \ ^1D-3d \ ^1F^\circ$ UV 11.01
262.6617	A		0.00	47.20	0-1		320.973	A	(12)	2.51	41.14	2-3	$2p^2 \ ^1D-3d \ ^1P^\circ$ UV 11.01	
255.1650	A	(1)	0.04	48.63	2-2	$2p^2 \ ^3P-5s \ ^3P^\circ$ UV 6.12	319.994	A	(3)	2.51	41.26	2-1	$2p^2 \ ^1D-4s \ ^1P^\circ$ UV 11.02	
255.2293	A		0.01	48.59	1-1			295.5121	A	(3)	2.51	44.47	2-1	$2p^2 \ ^1D-4d \ ^3F^\circ$ UV 11.03
255.3551	A		0.04	48.59	2-1			279.885	P		2.51	46.81	2-3	$2p^2 \ ^1D-4d \ ^1D^\circ$ UV 11.04
255.2860	A	(0)	0.01	48.58	1-0			280.0240	A	(2)	2.51	46.79	2-2	$2p^2 \ ^1D-4d \ ^1P^\circ$ UV 12
255.0394	A	(0)	0.01	48.63	1-2			279.7879	A	(3)	2.51	46.83	2-2	$2p^2 \ ^1D-4d \ ^1P^\circ$ UV 12.01
255.1555	A		0.00	48.59	0-1		277.150	P		2.51	47.25	2-1	$2p^2 \ ^1D-5s \ ^1P^\circ$ UV 12.02	
248.6158	A	(2)	0.04	49.91	2-3	$2p^2 \ ^3P-5d \ ^3D^\circ+$ UV 6.13	268.4505	A	(1d)	2.51	48.70	2-1	$2p^2 \ ^1D-5d \ ^3F^\circ$ UV 12.03	
248.5718	A	(1+)	0.01	49.89	1-2			262.156	P		2.51	49.81	2-3	$2p^2 \ ^1D-5d \ ^1D^\circ$ UV 12.04
248.691	P		0.04	49.89	2-2			262.2974	A	(0)	2.51	49.78	2-2	$2p^2 \ ^1D-5d \ ^1F^\circ$ UV 12.05
241.037	B	(2d)	0.04	51.47	2-3	$2p^2 \ ^3P-6d \ ^3D^\circ$ UV 6.14	261.0239	A	(4d)	2.51	50.01	2-3	$2p^2 \ ^1D-6s \ ^1P^\circ$ UV 12.06	
240.925	P	(2-d)*	0.01	51.47	1-			256.744	P		2.51	50.80	2-1	$2p^2 \ ^1D-6d \ ^1D^\circ$ UV 12.07
240.859	P	(2-d)*	0.00	51.47	0-1			253.548	B	(0)	2.51	51.41	2-2	
228.9869	A	(0)	0.04	54.18	2-1	$2p^2 \ ^3P-4p' \ ^3S^\circ$ UV 6.15								
228.8857	A	(0-)	0.01	54.18	1-1									
228.826	P		0.00	54.18	0-1									
226.038	B	(1dd)	0.04	54.89		$2p^2 \ ^3P-4p' \ ^3D^\circ$ UV 6.16								
Air														
4363.210	P		2.51	5.35	2-0		$2p^2 \ ^1D-2p^2 \ ^1S$ 2F							
Vac														
1002.490	A	10	2.51	14.88	2-3	$2p^2 \ ^1D-2p^3 \ ^3D^\circ$ UV 6.17	262.1105	A	(2)	2.51	49.81	2-2	$2p^2 \ ^1D-5d \ ^1P^\circ$ UV 12.05	
1002.199	A	7	2.51	14.88	2-2									
1002.155	P		2.51	14.88	2-1									
818.951	A	7	2.51	17.65	2-2	$2p^2 \ ^1D-2p^3 \ ^3P^\circ$ UV 6.18								
818.944	P		2.51	17.65	2-1									
599.598	B	9	2.51	23.19	2-2	$2p^2 \ ^1D-2p^3 \ ^1D^\circ$ UV 7								

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							
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	$2p^3 \ ^5S^\circ-3d' \ ^5D$
							296.020	P		7.48	49.36	2-2	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	2-1	
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	$2p^3 \ ^5S^\circ-3d' \ ^5P$
							295.6547	A	(6)	7.48	49.41	2-2	UV 15.11
							295.6211	A	(5)	7.48	49.42	2-1	
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	$2p^3 \ ^5S^\circ-3d' \ ^3P$
							294.000	P		7.48	49.65	2-1	UV 15.12
							271.3947	A	(1)	7.48	53.16	2-3	$2p^3 \ ^5S^\circ-4s' \ ^5P$
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	UV 15.13
							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	$2p^3 \ ^5S^\circ-4d' \ ^5P$
							256.4589	A	(3)	7.48	55.82	2-2	UV 15.14
							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	$2p^3 \ ^3D^\circ-2p^4 \ ^3P$
							610.043	A	8	14.88	35.21	2-1	UV 16
							609.706	A	8	14.88	35.22	1-0	
349.164	P		5.35	40.86	0-1	$2p^2 \ ^1S-3d \ ^3P^\circ$ UV 14.01	610.849	A	8	14.88	35.18	2-2	
							610.057	P		14.88	35.21	1-1	
							610.868	P		14.88	35.18	1-2	
345.312	A	(10)	5.35	41.26	0-1	$2p^2 \ ^1S-3d \ ^1P^\circ$ UV 15	585.121	P		14.88	36.07	2-1	$2p^3 \ ^3D^\circ-3p \ ^1P$
							585.137	P		14.88	36.07	1-1	UV 16.01
316.974	A	(3)	5.35	44.47	0-1	$2p^2 \ ^1S-4s \ ^1P^\circ$ UV 15.01	574.065	A	6	14.88	36.48	3-3	$2p^3 \ ^3D^\circ-3p \ ^3D$
							574.872	A	6	14.88	36.45	2-2	UV 16.02
295.9425	A	(3)	5.35	47.25	0-1	$2p^2 \ ^1S-4d \ ^1P^\circ$ UV 15.02	575.340	A	6	14.88	36.43	1-1	
							574.786	P		14.88	36.45	3-2	
							575.331	P		14.88	36.43	2-1	
286.0447	A	(0)	5.35	48.70	0-1	$2p^2 \ ^1S-5s \ ^1P^\circ$ UV 15.03	574.153	P		14.88	36.48	2-3	
							574.895	P		14.88	36.45	1-2	
277.5096	A	(1)	5.35	50.03	0-1	$2p^2 \ ^1S-5d \ ^1P^\circ$ UV 15.04	560.951	P		14.88	36.98	3-2	$2p^3 \ ^3D^\circ-2p^4 \ ^1D$
							561.039	P		14.88	36.98	2-2	UV 16.03
							561.055	P		14.88	36.98	1-2	
447.558	P		7.48	35.18	2-2	$2p^3 \ ^5S^\circ-2p^4 \ ^3P$	554.273	A	6	14.88	37.25	3-2	$2p^3 \ ^3D^\circ-3p \ ^3P$
447.122	P		7.48	35.21	2-1	UV 15.05	554.755	A	6	14.88	37.23	2-1	UV 16.04
421.525	P		7.48	36.89	2-1	$2p^3 \ ^5S^\circ-3p \ ^3S$ UV 15.06	555.026	P		14.88	37.22	1-0	
							554.357	P		14.88	37.25	2-2	
							554.773	P		14.88	37.23	1-1	
416.462	P		7.48	37.25	2-2	$2p^3 \ ^5S^\circ-3p \ ^3P$	554.372	P		14.88	37.25	1-2	
416.689	P		7.48	37.23	2-1	UV 15.07							
359.017	A	(8)	7.48	42.01	2-3	$2p^3 \ ^5S^\circ-3s' \ ^5P$	536.018	P		14.88	38.01	3-2	$2p^3 \ ^3D^\circ-3p \ ^1D$
359.225	A	(8-)	7.48	41.99	2-2	UV 15.08	536.099	P		14.88	38.01	2-2	UV 16.05
359.386	A	(7)	7.48	41.98	2-1		536.113	P		14.88	38.01	1-2	
344.859	P		7.48	43.43	2-2	$2p^3 \ ^5S^\circ-3s' \ ^3P$	456.959	P		14.88	42.01	3-3	$2p^3 \ ^3D^\circ-3s' \ ^5P^\dagger$
345.066	P		7.48	43.41	2-1	UV 15.09	457.355	P		14.88	41.99	2-2	UV 16.06
							457.626	P		14.88	41.98	1-1	

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						
434.267	A	(4)*	14.88	43.43	3-2	$2p^3 3D^{\circ} - 3s' \ ^3P$	707.318	A	9	17.65	35.18	2-2	$2p^3 \ ^3P^{\circ} - 2p^4 \ ^3P$
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	$2p^3 3D^{\circ} - 4p \ ^3D^{\dagger}$	673.051	P		17.65	36.07	2-1	$2p^3 \ ^3P^{\circ} - 3p \ ^1P$
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	$2p^3 3D^{\circ} - 4p \ ^3P^{\dagger}$	658.578	A	7+	17.65	36.48	2-3	$2p^3 \ ^3P^{\circ} - 3p \ ^3D$
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	$2p^3 3D^{\circ} - 3s'' \ ^3D$	*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	$2p^3 \ ^3P^{\circ} - 3p \ ^3S$
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	$2p^3 \ ^3P^{\circ} - 2p^4 \ ^1D$
356.727	A	(2)	14.88	49.64	3-2	$2p^3 3D^{\circ} - 3d' \ ^3P$	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							
356.561	A	(0)	14.88	49.66	1-0		*632.661	A	6	17.65	37.25	2-2	$2p^3 \ ^3P^{\circ} - 3p \ ^3P$
356.763	A	(0)	14.88	49.64	2-2		*633.207	A	5	17.65	37.23	1-1	UV 16.22
356.630	A		14.88	49.65	1-1		*633.207	A	5	17.65	37.23	2-1	
356.769	P		14.88	49.64	1-2		633.513	A	4	17.65	37.22	1-0	
355.138	A	(6)	14.88	49.79	3-4	$2p^3 3D^{\circ} - 3d' \ ^3F$	*632.661	A	6	17.65	37.25	1-2	
355.337	A	(5+)	14.88	49.78	2-3	UV 16.12	*633.207	A	5	17.65	37.23	0-1	
355.471	A	(5)	14.88	49.76	1-2		608.995	P		17.65	38.01	2-2	$2p^3 \ ^3P^{\circ} - 3p \ ^1D$
355.301	A	(3-)	14.88	49.78	3-3		608.998	P		17.65	38.01	1-2	UV 16.23
355.465	A		14.88	49.76	2-2		480.960	A	(4)*	17.65	43.43	2-2	$2p^3 \ ^3P^{\circ} - 3s' \ ^3P$
355.429	P		14.88	49.76	3-2		481.365	A	(3)*	17.65	43.41	1-1	UV 16.24
349.828	A	(3)	14.88	50.32	3-3	$2p^3 3D^{\circ} - 3d' \ ^3D$	481.363	A	(3)*	17.65	43.41	2-1	
349.923	A	(2)	14.88	50.32	2-2	UV 16.13	*481.596§	A	(4)	17.65	43.40	1-0	
349.964	A	(1)	14.88	50.31	1-1		480.962	A	(4)*	17.65	43.43	1-2	
349.889	A		14.88	50.32	3-2		481.392	A	(2)	17.65	43.41	0-1	
349.959	A		14.88	50.31	2-1		445.590	P		17.65	45.48	2-3	$2p^3 \ ^3P^{\circ} - 4p \ ^3D^{\dagger}$
349.862	A		14.88	50.32	2-3		446.003	P		17.65	45.45	1-2	UV 16.25
349.929	A		14.88	50.32	1-2		446.239	P		17.65	45.44	0-1	
300.455	B	(3dd)	14.88	56.15		$2p^3 3D^{\circ} - 3d'' \ ^3F$	397.114	A	(2)	17.65	48.87	2-3	$2p^3 \ ^3P^{\circ} - 3s'' \ ^3D$
						UV 16.14	397.227	A	(1)	17.65	48.86	1-2	UV 16.26
299.275	B	(2dd)	14.88	56.31		$2p^3 3D^{\circ} - 3d'' \ ^3D$	397.321	A	(0)	17.65	48.86	0-1	
						UV 16.15	397.225	A		17.65	48.86	2-2	
296.270	B	(1dd)	14.88	56.73		$2p^3 3D^{\circ} - 3d'' \ ^3P$	397.302	A		17.65	48.86	1-1	
						UV 16.16	397.301	P		17.65	48.86	2-1	
							390.977	P		17.65	49.36	2-3	$2p^3 \ ^3P^{\circ} - 3d' \ ^5D^{\dagger}$
							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

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
387.641	A	(4)*	17.65	49.64	2-2	$2p^3\ ^3P^{\circ}-3d'\ ^3P$	1242.291	A	12	26.09	36.07	1-1	$2p^3\ ^1P^{\circ}-3p\ ^1P$
387.478	A	(3)*	17.65	49.65	1-1	UV 16.28							UV 17.08
387.477	A	(3)*	17.65	49.65	2-1		1138.541	A	15	26.09	36.98	1-2	$2p^3\ ^1P^{\circ}-2p^4\ ^1D$
387.397	A	(2)	17.65	49.66	1-0								UV 17.09
387.642	A	(4)*	17.65	49.64	1-2								
387.495	A	(3)*	17.65	49.65	0-1		1040.324	A	12	26.09	38.01	1-2	$2p^3\ ^1P^{\circ}-3p\ ^1D$
													UV 17.10
379.508	A	(4)	17.65	50.32	2-3	$2p^3\ ^3P^{\circ}-3d'\ ^3D$							
379.581	A	(3)*	17.65	50.32	1-2	UV 16.29	967.666	A	10+	26.09	38.91	1-0	$2p^3\ ^1P^{\circ}-3p\ ^1S$
379.639	A	(2)*	17.65	50.31	0-1								UV 17.11
379.580	A	(3)*	17.65	50.32	2-2								
379.622	A	(2)*	17.65	50.31	1-1		752.757	A	10	26.09	42.56	1-0	$2p^3\ ^1P^{\circ}-2p^4\ ^1S$
379.621	P		17.65	50.31	2-1								UV 17.12
320.720	B	(2dd)	17.65	56.31		$2p^3\ ^3P^{\circ}-3d''\ ^3D$	Air						
						UV 16.30	4286.178	P		33.18	36.07	2-1	$3s\ ^3P^{\circ}-3p\ ^1P$
317.265	B	(1dd)	17.65	56.73		$2p^3\ ^3P^{\circ}-3d''\ ^3P$	4239.54	A	5?*	33.15	36.07	1-1	1
						UV 16.31	4218.303	P		33.14	36.07	0-1	
							3759.87	A	11+d?	33.18	36.48	2-3	$3s\ ^3P^{\circ}-3p\ ^3D$
1034.065	P		23.19	35.18	2-2	$2p^3\ ^1D^{\circ}-2p^4\ ^3P$	3754.694	A	11	33.15	36.45	1-2	2
1031.743	P		23.19	35.21	2-1	UV 16.32	3757.237	A	10	33.14	36.43	0-1	
962.425	A	11	23.19	36.07	2-1	$2p^3\ ^1D^{\circ}-3p\ ^1P$	3791.274	A	9+	33.18	36.45	2-2	
						UV 16.33	3774.016	A	8+	33.15	36.43	1-1	
933.105	P		23.19	36.48	2-3	$2p^3\ ^1D^{\circ}-3p\ ^3D$	3810.989	A	6	33.18	36.43	2-1	
935.026	P		23.19	36.45	2-2	UV 16.34	3340.762	A	9+	33.18	36.89	2-1	$3s\ ^3P^{\circ}-3p\ ^3S$
936.220	P		23.19	36.43	2-1		3312.317	A	10	33.15	36.89	1-1	3
898.957	B	13	23.19	36.98	2-2	$2p^3\ ^1D^{\circ}-2p^4\ ^1D$	3299.395	A	8	33.14	36.89	0-1	
						UV 17	3047.117	A	11+	33.18	37.25	2-2	$3s\ ^3P^{\circ}-3p\ ^3P$
836.599	A	8+	23.19	38.01	2-2	$2p^3\ ^1D^{\circ}-3p\ ^1D$	3035.419	A	10	33.15	37.23	1-1	4
						UV 17.01	3069.297	A	10	33.18	37.23	2-1	
543.927	P		23.19	45.98	2-2	$2p^3\ ^1D^{\circ}-4p\ ^1D$	3043.020	A	10	33.15	37.22	1-0	
						UV 17.02	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	$2p^3\ ^3S^{\circ}-2p^4\ ^3P$	1209.709	A	12	33.18	43.43	2-2	$3s\ ^3P^{\circ}-3s'\ ^3P$
1150.884	A	15	24.44	35.21	1-1	UV 17.03	1208.498	A	10	33.15	43.41	1-1	UV 17.13
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	$2p^3\ ^3S^{\circ}-3p\ ^3S$	1209.948	A	11	33.15	43.40	1-0	
						UV 17.04	1205.965	A	9	33.15	43.43	1-2	
967.52	A	6?*	24.44	37.25	1-2	$2p^3\ ^3S^{\circ}-3p\ ^3P$	1206.757	A	9	33.14	43.41	0-1	
968.763	A	5	24.44	37.23	1-1	UV 17.05	1008.379	A	10+	33.18	45.48	2-3	$3s\ ^3P^{\circ}-4p\ ^3D$
969.535	P		24.44	37.22	1-0		1007.89	A	10*	33.15	45.45	1-2	UV 17.14
							1007.80	A	10+*	33.14	45.44	0-1	
576.572	P		24.44	45.94	1-2	$2p^3\ ^3S^{\circ}-4p\ ^3P$	1010.483	A	9	33.18	45.45	2-2	
576.932	P		24.44	45.92	1-1	UV 17.06	1008.959	A	8	33.15	45.44	1-1	
577.229	P		24.44	45.91	1-0		1011.580	A	5	33.18	45.44	2-1	
491.971	A	(1)	24.44	49.64	1-2	$2p^3\ ^3S^{\circ}-3d'\ ^3P$	996.812	A	8	33.18	45.62	2-1	$3s\ ^3P^{\circ}-4p\ ^3S$
491.707	A	(0)	24.44	49.65	1-1	UV 17.07	994.262	A	7	33.15	45.62	1-1	UV 17.15
491.576	P		24.44	49.66	1-0		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	$3s \ ^3P^{\circ}-4p \ ^3P$	*1056.546	A	8	35.18	46.92	2-2	$2p^4 \ ^3P-3p' \ ^3P^{\circ}$
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	$3s \ ^3P^{\circ}-3s'' \ ^3D$	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	$2p^4 \ ^3P-4d \ ^3D^{\circ}\dagger$
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	$2p^4 \ ^3P-4d \ ^3P^{\circ}$
							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	$3s \ ^1P^{\circ}-3p \ ^1P$	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	$3s \ ^1P^{\circ}-3p \ ^1D$	1034.684	A	5	35.22	47.20	0-1	
						UV 18							
2454.991	A	12	33.86	38.91	1-0	$3s \ ^1P^{\circ}-3p \ ^1S$	Air						
						UV 19	2959.718	A	11	36.07	40.26	1-2	$3p \ ^1P-3d \ ^1D^{\circ}$
Vac							2752.47	B	(0)	36.07	40.58	1-2	$3p \ ^1P-3d \ ^3D^{\circ}$
1423.996	A	6	33.86	42.56	1-0	$3s \ ^1P^{\circ}-2p^4 \ ^1S$	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	$3p \ ^1P-3d \ ^3P^{\circ}$
1079.387	A	11	33.86	45.34	1-1	$3s \ ^1P^{\circ}-4p \ ^1P$							UV 19.14
						UV 19.02	2390.426	A	8	36.07	41.26	1-1	$3p \ ^1P-3d \ ^1P^{\circ}$
1070.577	A	7	33.86	45.44	1-1	$3s \ ^1P^{\circ}-4p \ ^3D$							UV 19.15
						UV 19.03	Vac						
1022.278	A	8	33.86	45.98	1-2	$3s \ ^1P^{\circ}-4p \ ^1D$	1476.871	A	11	36.07	44.47	1-1	$3p \ ^1P-4s \ ^1P^{\circ}$
						UV 19.04	1153.017	A	11	36.07	46.83	1-2	$3p \ ^1P-4d \ ^1D^{\circ}$
Air													UV 19.16
2308.70	B	(1d)	35.21	40.58	1-2	$2p^4 \ ^3P-3d \ ^3D^{\circ}$	1109.496	A	9	36.07	47.25	1-1	$3p \ ^1P-4d \ ^1P^{\circ}$
						UV 19.05	982.097	A	7	36.07	48.70	1-1	$3p \ ^1P-5s \ ^1P^{\circ}$
2187.016	P	(1)	35.18	40.85	2-2	$2p^4 \ ^3P-3d \ ^3P^{\circ}?$							UV 19.18
2181.570	P	(1)	35.18	40.86	2-1	UV 19.06	841.692	A	5	36.07	50.80	1-1	$3p \ ^1P-6s \ ^1P^{\circ}$
Vac													UV 19.20
1257.806	A	8	35.18	45.04	2-1	$2p^4 \ ^3P-3p' \ ^3S^{\circ}$							
1261.249	A	8	35.21	45.04	1-1	UV 19.07	Air						
1262.763	A	7	35.22	45.04	0-1		3265.321	A	11+	36.48	40.27	3-4	$3p \ ^3D-3d \ ^3F^{\circ}$
1098.48	A	10w	35.18	46.47	2-3	$2p^4 \ ^3P-3p' \ ^3D^{\circ}$	3260.848	A	11	36.45	40.25	2-3	8
1102.708	A	9	35.21	46.45	1-2	UV 19.08	3267.198	A	10	36.43	40.23	1-2	
1104.976	A	8	35.22	46.44	0-1		3284.459	A	8+	36.48	40.25	3-3	
1100.063	A	8	35.18	46.45	2-2		3281.852	A	8	36.45	40.23	2-2	
1103.828	A	7	35.21	46.44	1-1		3305.708	A	4	36.48	40.23	3-2	
1101.177	A	P	35.18	46.44	2-1		3252.907	A	7	36.45	40.06	2-2	$3p \ ^3D-3d \ ^1D^{\circ}$
							3238.530	A	9	36.43	40.26	1-2	9

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							Vac						
3017.632	A	9	36.48	40.59	3-3	3p ³ D-3d ³ D°	1174.624	A	10	36.48	47.03	3-3	3p ³ D-4d ³ D°
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 ³ D-3d ³ P°	1020.56	A	8	36.48	48.63	3-2	3p ³ D-5s ³ P°
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 ³ D-3d ¹ P°	867.972	A	6	36.48	50.76	3-2	3p ³ D-6s ³ P°+
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
							868.157	A	5	36.43	50.71	1-0	
Vac													
1589.973	A	12	36.48	44.28	3-2	3p ³ D-4s ³ P°							
1591.285	A	11	36.45	44.24	2-1	UV 19.23							
1590.582	A	10	36.43	44.23	1-0		Air						
1584.423	A	10	36.45	44.28	2-2		3363.822	A	5	36.89	40.58	1-2	3p ³ S-3d ³ D°
1587.840	A	10	36.43	44.24	1-1		3369.365	A	4	36.89	40.57	1-1	11
1581.009	A	7	36.43	44.28	1-2		3132.794	A	10	36.89	40.85	1-2	3p ³ S-3d ³ P°
1241.134	A	8	36.48	46.47	3-3	3p ³ D-3p' ³ D°	3121.638	A	8	36.89	40.86	1-1	12
1239.763	A	8-	36.45	46.45	2-2	UV 19.24	3115.676	A	8	36.89	40.87	1-0	
1239.058	A	8-	36.43	46.44	1-1		Vac						
1243.156	P		36.48	46.45	3-2		1679.021	A	10	36.89	44.28	1-2	3p ³ S-4s ³ P°
1241.176	P		36.45	46.44	2-1		1686.720	A	9+	36.89	44.24	1-1	UV 19.31
1237.721	A	8-	36.45	46.47	2-3		1688.834	A	8	36.89	44.23	1-0	
1237.669	P		36.43	46.45	1-2		1236.900	A	11	36.89	46.92	1-2	3p ³ S-3p' ³ P°
1197.234	A	14	36.48	46.83	3-4	3p ³ D-4d ³ F°	1236.725	A	9	36.89	46.92	1-1	UV 19.32
1196.747	A	13	36.45	46.81	2-3	UV 19.25	1236.460	A	8	36.89	46.92	1-0	
1197.335	A	13	36.43	46.79	1-2		1202.667	A	10-	36.89	47.20	1-2	3p ³ S-4d ³ P°
1199.921	A	10	36.48	46.81	3-3		1202.520	A	9	36.89	47.20	1-1	UV 19.33
1199.285	A	11	36.45	46.79	2-2		1202.238	A	9	36.89	47.20	1-0	
1202.465	P		36.48	46.79	3-2		*1056.546	A	8	36.89	48.63	1-2	3p ³ S-5s ³ P°
1198.125	P		36.48	46.83	3-2	3p ³ D-4d ¹ D°	1059.791	A	6	36.89	48.59	1-1	UV 19.34
1194.980	A	7+	36.45	46.83	2-2	UV 19.26	1060.748	A	6	36.89	48.58	1 0	
1193.027	A	11-	36.43	46.83	1-2								
1187.883	A	8	36.48	46.92	3-2	3p ³ D-3p' ³ P°	Air						
m1184.624	P	N III	36.45	46.92	2-1	UV 19.27	3780.838	P		36.98	40.26	2-2	2p ⁴ ¹ D-3d ¹ D°
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	2p ⁴ ¹ D-3d ³ D°
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

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
2981.761	P		36.98	41.14	2-3	$2p^4 \ ^1D-3d \ ^1F^\circ$ UV 19.35	917.502	A	6	37.25	50.76	2-2	$3p \ ^3P-6s \ ^3P^\circ$ UV 19.42
							919.016	A	5	37.23	50.72	1-1	
							920.104	A	5	37.25	50.72	2-1	
							919.624	A	5	37.23	50.71	1-0	
3715.077	A	10+	37.25	40.59	2-3	$3p \ ^3P-3d \ ^3D^\circ$	916.404	P		37.23	50.76	1-2	
3707.25	A	10d?	37.23	40.58	1-2	14	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		Air						
3732.122	A	6	37.25	40.57	2-1		5508.25	A	5	38.01	40.26	2-2	$3p \ ^1D-3d \ ^1D^\circ$ 16
3444.060	A	9	37.25	40.85	2-2	$3p \ ^3P-3d \ ^3P^\circ$							
3415.264	A	7	37.23	40.86	1-1	15	3961.573	A	10	38.01	41.14	2-3	$3p \ ^1D-3d \ ^1F^\circ$ 17
3430.566	A	7+	37.25	40.86	2-1								
3408.119	A	7+	37.23	40.87	1-0		3816.77	A	6ul	38.01	41.26	2-1	$3p \ ^1D-3d \ ^1P^\circ$ 18
3428.620	A	7	37.23	40.85	1-2								
3405.71 [†]	A	7	37.22	40.86	0-1		Vac						
Vac							1920.017	A	11+	38.01	44.47	2-1	$3p \ ^1D-4s \ ^1P^\circ$ UV 19.43
1764.464	A	11+	37.25	44.28	2-2	$3p \ ^3P-4s \ ^3P^\circ$							
1768.880	A	10	37.23	44.24	1-1	UV 19.36	1406.457	A	9	38.01	46.83	2-2	$3p \ ^1D-4d \ ^1D^\circ$ UV 19.44
1772.978	A	10	37.25	44.24	2-1								
1772.284	A	10	37.23	44.23	1-0		*1347.780	A	10	38.01	47.21	2-3	$3p \ ^1D-4d \ ^1F^\circ$ UV 19.45
1760.398	A	11	37.23	44.28	1-2								
1766.313	A	10	37.22	44.24	0-1		1160.153	A	10	38.01	48.70	2-1	$3p \ ^1D-5s \ ^1P^\circ$ UV 19.46
1591.827	A	8	37.25	45.04	2-1	$3p \ ^3P-3p' \ ^3S^\circ$							
1588.528	A	8	37.23	45.04	1-1	UV 19.37	1050.344	A	7	38.01	49.81	2-2	$3p \ ^1D-5d \ ^1D^\circ$ UV 19.47
1586.462	A	7	37.22	45.04	0-1								
1344.954	A	13	37.25	46.47	2-3	$3p \ ^3P-3p' \ ^3D^\circ$	1033.128	A	8	38.01	50.01	2-3	$3p \ ^1D-5d \ ^1F^\circ$ UV 19.48
1344.954	A	13	37.23	46.45	1-2	UV 19.38							
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		Air						
1282.656	A	11+	37.25	46.92	2-2	$3p \ ^3P-3p' \ ^3P^\circ$	5268.304	A	6	38.91	41.26	0-1	$3p \ ^1S-3d \ ^1P^\circ$ 19
1280.320	A	10	37.23	46.92	1 1	UV 19.39							
1282.468	A	10	37.25	46.92	2-1		2228.161	A	1	38.91	44.47	0-1	$3p \ ^1S-4s \ ^1P^\circ$ UV 19.49
1280.032	A	10	37.23	46.92	1-0								
1280.510	A	10	37.23	46.92	1-2		Vac						
1278.971	A	10	37.22	46.92	0-1		1486.19	A	8*	38.91	47.25	0-1	$3p \ ^1S-4d \ ^1P^\circ$ UV 19.50
1267.188	A	12	37.25	47.03	2-3	$3p \ ^3P-4d \ ^3D^\circ$							
1266.125	A	11	37.23	47.03	1-2	UV 19.40	1114.443	A	8	38.91	50.03	0-1	$3p \ ^1S-5d \ ^1P^\circ$ 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		Air						
1089.729	A	9	37.25	48.63	2-2	$3p \ ^3P-5s \ ^3P^\circ$	2422.808	A	5	40.23	45.34	2-1	$3d \ ^3F^\circ-4p \ ^1P$ UV 19.52
1091.643	A	7+	37.23	48.59	1-1	UV 19.41							
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.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
2382.252	A	7	40.27	45.48	4-3	3d ³ F°-4p ³ D UV 19.53	1269.825	A	8	40.27	50.04	4-4	3d ³ F°-5f G[3 ₂] UV 19.59
2383.917	A	6	40.25	45.45	3-2		1267.390	A	9	40.25	50.03	3-3	
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	[4 ₂]
2152.762	P	(1)	40.23	45.98	2-2	3d ³ F°-4p ¹ D UV 19.54	1263.855	A	10	40.25	50.06	3-4	
							1266.705	P		40.27	50.06	4-4	
Vac							1267.788	P		40.27	50.05	4-3	3d ³ F°-5f D[2 ₂] UV 19.60
1792.927	A	6	40.27	47.19	4-3	3d ³ F°-4f F[2 ₂] UV 19.55	1264.753	P		40.25	50.05	3-2	
1786.817	P		40.25	47.19	3-2			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 ³ F°-6f G[3 ₂] UV 19.61
1790.544	A	10	40.27	47.20	4-4	[3 ₂]	1097.50	A	8w	40.25	51.55	3-3	
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	[4 ₂]
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 ³ F°-4f G[3 ₂] UV 19.56	1098.03	P		40.27	51.57	4-4	
1769.309	A	10	40.25	47.26	3-3		Air						
1774.912	A	6+	40.27	47.26	4-3		2438.785	A	5	40.26	45.34	2-1	3d ¹ D°-4p ¹ P UV 19.62
1768.253	A	13	40.25	47.26	3-4								
1763.204	A	12	40.23	47.26	2-3		2376.437	P		40.26	45.48	2-3	3d ¹ D°-4p ³ D UV 19.63
1767.792	A	14	40.27	47.29	4-5	[4 ₂]	2388.20	B	(1)	40.26	45.45	2-2	
1760.113	A	11+	40.25	47.30	3-4		2394.304	A	5	40.26	45.44	2-1	
1765.647	A	8	40.27	47.30	4-4		2165.32	B	(3)	40.26	45.98	2-2	3d ¹ D°-4p ¹ D? UV 19.64
1766.208	P		40.27	47.29	4-3	3d ³ F°-4f D[2 ₂] UV 19.57							
1759.960	P		40.25	47.30	3-2		Vac						
1760.665	P		40.25	47.29	3-3		1789.649	A	12	40.26	47.19	2-3	3d ¹ D°-4f F[2 ₂] UV 19.65
1753.909	Δ	7	40.23	47.30	2-2		1789.201	A	8	40.26	47.19	2-2	
1754.620	A	6	40.23	47.29	2-3		1787.758	A	9+	40.26	47.20	2-3	[3 ₂]
1754.805	P		40.25	47.32	3-2	[1 ₂]	1771.664	A	12	40.26	47.26	2-3	3d ¹ D°-4f G[3 ₂] UV 19.66
1749.417	A	6	40.23	47.31	2-1								
1748.793	A	8	40.25	47.32	2-2		1752.989	P		40.26	47.29	2-3	3d ¹ D°-4f D[2 ₂] UV 19.67
1276.297	P		40.27	49.99	4-3	3d ³ F°-5f F[2 ₂] UV 19.58	1762.274	A	9	40.26	47.30	2-2	
1273.112	P		40.25	49.99	3-2		1757.109	A	9	40.26	47.32	2-2	[1 ₂]
1273.407	A	8	40.25	49.99	3-3		1757.757	P		40.26	47.31	2-1	
1269.957	A	6	40.23	49.99	2-2		1274.614	A	10-	40.26	49.99	2-3	3d ¹ D°-5f F[2 ₂] UV 19.68
*1270.229	A	10	40.23	49.99	2-3		1274.326	P		40.26	49.99	2-2	
1275.410	A	5	40.27	49.99	4-4	[3 ₂]	1274.090	A	5	40.26	49.99	2-3	[3 ₂]
1272.872	P		40.25	49.99	3-3								
1275.767	P		40.27	49.99	4-3		1268.590	A	11	40.26	50.03	2-3	3d ¹ D°-5f G[3 ₂] UV 19.69
1272.517	A	10	40.25	49.99	3-4								
1269.712	A	11	40.23	49.99	2-3								

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							Vac						
596.79	B	(00)	40.57	45.34	1-1	$3d\ ^3D^\circ-4p\ ^1P$ UV 19.70	1309.512	A	9	40.59	50.05	3-3	$3d\ ^3D^\circ-5f\ D[2\frac{1}{2}]$ UV 19.78
							1308.062	A	8	40.58	50.05	2-2	
534.086	A	5	40.59	45.48	3-3	$3d\ ^3D^\circ-4p\ ^3D$	1309.321	P		40.59	50.05	3-2	
542.655	A	4	40.58	45.45	2-2	UV 19.71	1308.245	P		40.58	50.05	2-3	
546.414	A	3	40.57	45.44	1-1		*1307.213	A	8	40.57	50.05	1-2	
547.419	A	1	40.59	45.45	3-2		*1307.213	A	8	40.59	50.07	3-2	[1 $\frac{1}{2}$]
549.586	A	2	40.58	45.44	2-1		1306.115	P		40.58	50.07	2-1	
529.325	A	2	40.58	45.48	2-3		1305.903	P		40.58	50.07	2-2	
539.507	A	2	40.57	45.45	1-2		1305.279	P		40.57	50.07	1-1	
							1305.067	P		40.57	50.07	1-2	
315.496	A	2	40.59	45.94	3-2	$3d\ ^3D^\circ-4p\ ^3P^\dagger$	1135.17	A	8-w	40.59	51.51	3-4	$3d\ ^3D^\circ-6f\ F[3\frac{1}{2}]^\dagger$
317.365	A	2	40.58	45.92	2-1	UV 19.72	1134.44	A	8-w	40.58	51.51	2-3	UV 19.79[2 $\frac{1}{2}$]
311.564	A	1	40.58	45.94	2-2		1133.76	A	8-w	40.57	51.51	1-2	
314.709	A	1	40.57	45.92	1-1								
Vac							Air						
877.562	A	8	40.59	47.19	3-3	$3d\ ^3D^\circ-4f\ F[2\frac{1}{2}]$	2677.822	A	3	40.85	45.48	2-3	$3d\ ^3P^\circ-4p\ ^3D^\dagger$
874.480	A	10	40.58	47.19	2-2	UV 19.73	*2701.08	A	3w	40.86	45.45	1-2	UV 19.80
874.961	A	13	40.58	47.19	2-3		2713.360	A	2	40.87	45.44	0-1	
872.78	A	12*	40.57	47.19	1-2		3792.721	A	1	40.85	45.45	2-2	
874.961	A	13	40.59	47.20	3-4	[3 $\frac{1}{2}$]							
872.91	A	12*	40.58	47.20	2-3		2597.667	A	9	40.85	45.62	2-1	$3d\ ^3P^\circ-4p\ ^3S$
875.459	A	10	40.59	47.20	3-3		2605.419	A	9	40.86	45.62	1-1	UV 20
							2609.584	A	4	40.87	45.62	0-1	
856.613	A	10	40.59	47.26	3-4	$3d\ ^3D^\circ-4f\ G[3\frac{1}{2}]^\dagger$	2434.941	A	3	40.85	45.94	2-2	$3d\ ^3P^\circ-4p\ ^3P^\dagger$
855.235	A	9	40.58	47.26	2-3	UV 19.74	2448.172	P		40.86	45.92	1-1	UV 20.01
857.783	A	8-	40.59	47.26	3-3		2447.328	P		40.85	45.92	2-1	
							2441.668	A	3	40.86	45.94	1-2	
848.245	A	10+	40.59	47.29	3-3	$3d\ ^3D^\circ-4f\ D[2\frac{1}{2}]$	Vac						
844.957	A	9	40.48	47.30	2-2	UV 19.75	1955.307	A	8	40.85	47.19	2-3	$3d\ ^3P^\circ-4f\ F[2\frac{1}{2}]^\dagger$
847.462	A	8	40.59	47.30	3-2		1959.12	A	7+*	40.86	47.19	1-2	UV 20.02
845.726	P		40.58	47.29	2-3		1954.783	A	3	40.85	47.19	2-2	
843.288	A	6	40.57	47.30	1-2								
841.782	A	7	40.59	47.32	3-2	[1 $\frac{1}{2}$]	1923.531	A	12+	40.85	47.29	2-3	$3d\ ^3P^\circ-4f\ D[2\frac{1}{2}]$
339.995	A	7	40.58	47.31	2-1		1926.919	A	11	40.86	47.30	1-2	UV 20.03
339.289	A	8	40.58	47.32	2-2		1922.689	A	9	40.85	47.30	2-2	
338.336	A	9	40.57	47.31	1-1		1916.540	A	9	40.85	47.32	2-2	[1 $\frac{1}{2}$]
337.626	A	8-	40.57	47.32	1-2		1921.513	A	10+	40.86	47.31	1-1	
							1917.308	A	8	40.85	47.31	2-1	
318.591	P		40.59	49.99	3-3	$3d\ ^3D^\circ-5f\ F[2\frac{1}{2}]$	1920.741	A	10+	40.86	47.32	1-2	
317.000	A	7	40.58	49.99	2-2	UV 19.76	1923.772	A	11	40.87	47.31	0-1	
318.282	P		40.59	49.99	3-2								
317.304	A	9	40.58	49.99	2-3		1356.460	A	7	40.85	49.99	2-3	$3d\ ^3P^\circ-5f\ F[2\frac{1}{2}]$
316.151	A	10	40.57	49.99	1-2		1358.231	A	6	40.86	49.99	1-2	UV 20.04
317.642	A	10+	40.59	49.99	3-4	[3 $\frac{1}{2}$]	1356.140	P		40.85	49.99	2-2	
316.743	A	10	40.58	49.99	2-3								
318.030	A	7	40.59	49.99	3-3								
311.698	A	10	40.59	50.04	3-4	$3d\ ^3D^\circ-5f\ G[3\frac{1}{2}]^\dagger$							
310.878	A	9	40.58	50.03	2-3	UV 19.77							
312.19	A	5wd?	40.59	50.03	3-3								

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							Air						
1346.85	A	10*	40.85	50.05	2-3	3d ³ P°-5f D[2½]	3703.362	A	10	42.01	45.36	3-4	3s' ⁵ P-3p' ⁵ D°
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		3720.887	A	8	42.01	45.34	3-3	
*1346.64	A	11	40.86	50.07	1-1	[1½]	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 ³ P°-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' ⁵ P-3p' ⁵ P°
Air							3344.187	A	6	41.99	45.70	2-2	22
2558.031	A	10	41.14	45.98	3-2	3d ¹ F°-4p ¹ D	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 ¹ F°-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	3312.912	A	8	41.99	45.71	2-3	
*2045.682	A	11+	41.14	47.20	3-4	[3½]	*3330.313	A	8	41.98	45.70	1-2	
2046.424	A	9	41.14	47.20	3-3		2686.149	A	9	42.01	46.63	3-2	3s' ⁵ P-3p' ⁵ S°
2023.958	A	11	41.14	47.26	3-4	3d ¹ F°-4f G[3½]	2674.578	A	8	41.99	46.63	2-2	UV 22
2025.354	A	7	41.14	47.26	3-3	UV 21.02	2665.681	A	7+	41.98	46.63	1-2	
2013.296	A	12	41.14	47.30	3-4	[4½]							
Vac							Vac						
*1401.15†	A	7	41.14	49.99	3-3	3d ¹ F°-5f F[2½]	1003.325	A	7+	42.01	54.37	3-4	3s' ⁵ P-4p' ⁵ D°
1400.814	P		41.14	49.99	3-2	UV 21.03	1002.931	A	7	41.99	54.35	2-3	UV 22.01
1400.087	A	6	41.14	49.99	3-4	[3½]	1002.635	P		41.98	54.34	1-2	
1400.524	P		41.14	49.99	3-3		1004.553	A	6	42.01	54.35	3-3	
1393.389	A	7	41.14	50.04	3-4	3d ¹ F°-5f G[3½]	1003.891	A	6	41.99	54.34	2-2	
1393.896	P		41.14	50.03	3-3	UV 21.04	1003.254	P		41.98	54.34	1-1	
1389.608	A	9-	41.14	50.06	3-4	[4½]							
1189.203	A	9-	41.14	51.57	3-4	3d ¹ F°-6f G[4½]	Air						
						UV 21.05	4081.040	A	8	43.43	46.47	2-3	3s' ³ P-3p' ³ D°
Air							*4074.02§	A	7	43.41	46.45	1-2	23
3034.216	A	6	41.26	45.34	1-1	3d ¹ P°-4p ¹ P	m4072.643	P	O II	43.40	46.44	0-1	
						20	*4103.823	A	3	43.43	46.45	2-2	
2622.300	A	3	41.26	45.98	1-2	3d ¹ P°-4p ¹ D	4089.295	P		43.41	46.44	1-1	
						UV 21.06	4118.597	P		43.43	46.44	2-1	
2089.336	A	8	41.26	47.19	1-2	3d ¹ P°-4f F[2½]	3556.814	A	6	43.43	46.92	2-2	3s' ³ P-3p' ³ P°
						UV 21.07	3533.393	A	4	43.41	46.92	1-1	24
2052.685	A	11	41.26	47.30	1-2	3d ¹ P°-4f D[2½]	3555.240	P		43.43	46.92	2-1	
*2045.682	A	11+	41.26	47.32	1-2	UV 21.08[1½]	3531.219	A	4	43.41	46.92	1-0	
2046.536	P		41.26	47.31	1-1		3534.923	A	3	43.41	46.92	1-2	
Vac							3520.950	A	3	43.40	46.92	0-1	
1419.78	A	6+*	41.26	49.99	1-2	3d ¹ P°-5f F[2½]	*3440.345	A	8	43.43	47.03	2-3	3s' ³ P-4d ³ D°
						UV 21.09	3427.356	A	7+	43.41	47.03	1-2	24.01
1409.475	A	7	41.26	50.05	1-2	3d ¹ P°-5f D[2½]†	3423.346	A	6	43.40	47.02	0-1	
1406.974	A	7	41.26	50.07	1-2	UV 21.10[1½]	3447.924	P		43.43	47.03	2-2	
							3435.101	A	6	43.41	47.02	1-1	
							3455.776	P		43.43	47.02	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							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°-4d' 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								
3084.636	A	5	45.34	49.36	3-2		3802.146	A	3	45.44	48.70	1-1	4p 3D-5s 1P°†
3074.714	A	5	45.33	49.36	2-1								26.05
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

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
2848.931	A	4+	45.48	49.83	3-4	4p ³ D-5d ³ F ^o †	1227.276	A	9-	45.71	55.81	3-3	3p' ⁵ P°-4d' ⁵ P
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 ³ D-5d ³ D ^o †	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 ³ S-4d ³ P°							
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 ³ P-5d ³ D ^o †
m4121.592	P	O II	45.62	48.63	1-2	4p ³ S-5s ³ P°	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					
4186.926	A	3	45.62	48.58	1-0								
							4569.28	A	5ul	45.98	48.70	2-1	4p ¹ D-5s ¹ P°
3384.900	A	8	45.71	49.37	3-4	3p' ⁵ P°-3d' ⁵ D							28.02
3382.601	A	8	45.70	49.36	2-3	27	3236.416	A	4	45.98	49.81	2-2	4p ¹ D-5d ¹ D°
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 ¹ D-5d ¹ F°
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								
3383.211	P		45.70	49.36	2-1		3728.838	A	8	46.47	49.79	3-4	3p' ³ D°-3d' ³ F
3376.610	P		45.69	49.36	1-0		3728.499	A	8	46.45	49.78	2-3	30
3355.854	A	7+	45.71	49.40	3-3	3p' ⁵ P°-3d' ⁵ P	3729.787	A	7	46.44	49.76	1-2	
*3336.660	A	7	45.70	49.41	2-2	28	3746.906	A	5	46.47	49.78	3-3	
3326.058	A	4d?	45.69	49.42	1-1		3742.648	A	5	46.45	49.76	2-2	
*3348.02‡	A	7	45.71	49.41	3-2		3761.166	P		46.47	49.76	3-2	
3332.413	A	7	45.70	49.42	2-1		3504.39	A	2+w	46.45	49.99	2-3	3p' ³ D°-5f F[2½]†
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	[3½]
							3500.419	A	4	46.45	49.99	2-3	
Vac													
m1664.035	P	O II	45.71	53.16	3-3	3p' ⁵ P°-4s' ⁵ P	3216.074	A	4	46.47	50.32	3-3	3p' ³ D°-3d' ³ D
1655.799	P		45.70	53.14	2-2	UV 30	3207.619	A	6	46.45	50.32	2-2	31
1667.717	P		45.69	53.13	1-1		3201.108	A	5	46.44	50.31	1-1	
1668.614	A	6	45.71	53.14	3-2		3221.201	A	4	46.47	50.32	3-2	
1669.311	P		45.70	53.13	2-1		*3210.55‡	A	5	46.45	50.31	2-1	
1661.239	A	6	45.70	53.16	2-3		3202.496	A	4	46.45	50.32	2-3	
1664.211	P		45.69	53.14	1-2		3198.200	A	4	46.44	50.32	1-2	
1234.675	A	10	45.71	55.75	3-4	3p' ⁵ P°-4d' ⁵ D							
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' ⁵ S°-3d' ⁵ D
1235.685	A	8	45.71	55.74	3-3								31.01
1234.504	A	9+	45.70	55.74	2-2		4461.615	A	5	46.63	49.40	2-3	3p' ⁵ S°-3d' ⁵ P
1233.710	A	9	45.69	55.74	1-1		4447.694	A	3	46.63	49.41	2-2	33
1236.062	P		45.71	55.74	3-2		4440.081	A	4+	46.63	49.42	2-1	
1234.609	P		45.70	55.74	2-1								
							Vac						
							1897.150	A	8+	46.63	53.16	2-3	3p' ⁵ S°-4s' ⁵ P
							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	$4d\ ^3F^\circ-5f\ F[2\frac{1}{2}]^\dagger$	m4366.993	P	O II	47.19	50.03	3-	$4f\ F[2\frac{1}{2}]-5g\ G[3\frac{1}{2}]^\circ$
3871.410	A	4	46.79	49.99	2-2	33.01	4369.644	A	6	47.19	50.03	2-	39
3920.941	A	2	46.83	49.99	4-4	$[3\frac{1}{2}]$	4365.08	A	4+d?	47.19	50.03	3-	$[4\frac{1}{2}]$
3892.625	A	6+d	46.81	49.99	3-4		4376.540	A	7	47.20	50.03	3-	$[3\frac{1}{2}]$
*3868.718§	A	5	46.83	50.04	4-4	$4d\ ^3F^\circ-5f\ G[3\frac{1}{2}]^\dagger$	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-	$4f\ F[3\frac{1}{2}]-5g\ H[4\frac{1}{2}]^\circ$
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-	$4f\ F[3\frac{1}{2}]-5g\ F[3\frac{1}{2}]^\circ\dagger$
3848.871	A	7+	46.83	50.05	4-5	$[4\frac{1}{2}]$						41	
2627.727	A	2	46.83	51.55	4-4	$4d\ ^3F^\circ-6f\ G[3\frac{1}{2}]^\dagger$	2856.607	A	4	47.19	51.53	3-	$4f\ F[2\frac{1}{2}]-6g\ G[3\frac{1}{2}]^\circ$
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	$[4\frac{1}{2}]$	2861.135	A	4	47.20	51.53	3-	$[3\frac{1}{2}]$ $[4\frac{1}{2}]$
2606.866	A	2	46.81	51.57	3-4		2862.430	A	4	47.20	51.53	4-	
3820.548	A	2	46.83	50.07	2-2	$4d\ ^1D^\circ-5f\ D[1\frac{1}{2}]^\dagger$	2833.689	A	2+	47.20	51.57	4-	$4f\ F[3\frac{1}{2}]-6g\ H[4\frac{1}{2}]^\circ$
						33.03	2832.383	A	2	47.20	51.57	3-	UV 37
4555.404	A	4	46.92	49.64	2-2	$3p'\ ^3P^\circ-3d'\ ^3P^\dagger$	2825.69	A	1w	47.19	51.58	3-	$4f\ F[2\frac{1}{2}]-6g\ F[3\frac{1}{2}]^\circ\dagger$
4535.285	P		46.92	49.65	1-1	34	2826.80	A	1w	47.19	51.58	2-3	UV 38
4532.785	P		46.92	49.65	2-1		2821.636	A	1-	47.19	51.58	3	$[2\frac{1}{2}]$
4524.218	A	2	46.92	49.66	1-0		2831.772	A	2	47.20	51.58	4-	$[3\frac{1}{2}]$ 6g $F[3\frac{1}{2}]$
4557.896	A	5	46.92	49.64	1-2		4321.046	A	3	47.20	50.07	1-2	$4d\ ^3P^\circ-5f\ D[1\frac{1}{2}]^\dagger$
*3949.55§	A	6ul	46.92	50.05	2-3	$3p'\ ^3P^\circ-5f\ D[2\frac{1}{2}]^\dagger$						42	
*3949.55§	A	6ul	46.92	50.05	1-2	34.01	3971.325	A	6	47.20	50.32	2-3	$4d\ ^3P^\circ-3d'\ ^3D$
3930.325	A	4	46.92	50.07	1-2	$[1\frac{1}{2}]$	3980.910	A	4	47.20	50.32	1-2	43
3934.953	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	$3p'\ ^3P^\circ-3d'\ ^3D$	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	$4d\ ^1F^\circ-5f\ G[3\frac{1}{2}]^\dagger$
													44
4183.247	A	5	47.03	49.99	2-3	$4d\ ^3D^\circ-5f\ F[2\frac{1}{2}]^\dagger$	4484.702	A	3	47.26	50.03	4-	$4f\ G[3\frac{1}{2}]-5g\ G[3\frac{1}{2}]^\circ\dagger$
4180.238	A	3	47.03	49.99	2-2	36	4476.108	A	5	47.26	50.03	3-	45 $[4\frac{1}{2}]$
4168.735	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	$[3\frac{1}{2}]$	4408.291	A	7	47.26	50.07	3-	$4f\ G[3\frac{1}{2}]-5g\ H[4\frac{1}{2}]^\circ$
4177.601	A	5	47.03	49.99	2-3		4434.598	A	9	47.29	50.08	5-	$[4\frac{1}{2}]$ $[5\frac{1}{2}]$
4125.509	A	5	47.03	50.04	3-4	$4d\ ^3D^\circ-5f\ G[3\frac{1}{2}]^\dagger$	4448.144	A	9	47.30	50.08	4-	46
						37							
4103.823	A	3	47.03	50.05	3-3	$4d\ ^3D^\circ-5f\ D[2\frac{1}{2}]^\dagger$	4399.609	A	4+	47.26	50.08	3-	$4f\ G[3\frac{1}{2}]-5g\ F[3\frac{1}{2}]^\circ\dagger$
4091.376	A	3	47.03	50.05	2-2	38							47
2769.914	A	2+	47.03	51.51	3-4	$4d\ ^3D^\circ-6f\ F[3\frac{1}{2}]^\dagger$							
2766.394	A	2+	47.03	51.51	2-3	UV 35							$[2\frac{1}{2}]$
2761.17	A	2+w	47.02	51.51	1-2								

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							Vac						
2873.687	A	3	47.26	51.57	3-	4f G[3 $\frac{1}{2}$]-6g H[4 $\frac{1}{2}$] ^{o†}	1245.525	A	9	48.95	58.90	5-6	3d' ⁵ F-5f' ⁵ G ^{o†}
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-	[4 $\frac{1}{2}$]	1246.080	A	3	48.92	58.87	2-3	
2887.801	A	8	47.29	51.58	5-	[5 $\frac{1}{2}$]	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' ⁵ F-5f' ³ G ^{o†}
4534.312	A	5	47.29	50.03	3-	4f D[2 $\frac{1}{2}$]-5g G[3 $\frac{1}{2}$] ^{o†}							UV 47
4538.990	A	4+	47.30	50.03	2-	48	Air						
4454.028	A	7	47.29	50.08	3-	4f D[2 $\frac{1}{2}$]-5g F[3 $\frac{1}{2}$] ^{o†}	2480.721	A	1	49.37	54.37	4-4	3d' ⁵ D-4p' ⁵ D ^{o†}
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-	[2 $\frac{1}{2}$] ^o	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-	[1 $\frac{1}{2}$]	2475.70	P	(00)	49.36	54.37	3-4	
							2425.891	A	2	49.37	54.48	4-3	3d' ⁵ D-4p' ⁵ P ^{o†}
*2894.81§	A	3	47.29	51.58	3-	4f D[2 $\frac{1}{2}$]-6g F[3 $\frac{1}{2}$] ^{o†}	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	
							Vac						
2285.664	A	1	48.95	54.37	5-4	3d' ⁵ F-4p' ⁵ D ^{o†}	1853.347	A	8	49.37	56.06	4-4	3d' ⁵ D-4f' ⁵ D ^{o†}
2287.197	A	1	48.94	54.35	4-3	UV 41	*1844.741	A	6	49.36	56.08	2-2	UV 50
							1850.138	A	7	49.37	56.07	4-3	
							1842.815	A	6+	49.36	56.09	1-0	
							1850.575	A	9	49.36	56.06	3-4	
							1847.000	A	8	49.36	56.07	2-3	
							*1844.741	A	6	49.36	56.08	1-2	
							1817.231	A	10	49.37	56.20	4-5	3d' ⁵ D-4f' ⁵ F ^{o†}
							1815.178	A	10	49.36	56.19	3-4	UV 51
							1815.511	A	9	49.36	56.19	2-3	
							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	
							1815.852	A	9	49.36	56.19	3-3	
							1816.110	A	9	49.36	56.19	2-2	
							1297 to	A	} 8vw	49.37	58.93		3d' ⁵ D-5f' ⁵ F ^o
							1295	A					UV 52
							Air						
							2441.046	A	3	49.40	54.48	3-3	3d' ⁵ P-4p' ⁵ P ^{o†}
							2451.09	B	(0n)	49.41	54.47	2-2	UV 53
							2446.92	B	(00)	49.40	54.47	3-2	
1705.785	A	5	48.94	56.20	4-4	3d' ⁵ F-4f' ³ F ^{o†}							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' ⁵ P-4f' ⁵ D ^o † UV 54	1956.392	A	10	49.79	56.13	4-5	3d' ³ F-4f' ³ G ^o UV 60
1861.346	A	9	49.41	56.07	2-3		1956.065	A	10	49.78	56.11	3-4	
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' ⁵ P-4f' ⁵ F ^o † UV 55	1933.554	A	7	49.79	56.20	4-4	3d' ³ F-4f' ³ F ^o † UV 61
1831.247	A	6	49.42	56.19	1-2		1930.902	A	4	49.78	56.20	3-2	
1827.031	A	7	49.40	56.19	3-3		1363.449	A	5	49.78	58.87	3-3	
Air						3d' ³ P-4p' ³ S ^o UV 56	1360.914	A	8	49.79	58.90	4-5	3d' ³ F-5f' ³ G ^o † UV 63
2726.89	A	3	49.64	54.18	2-1		1360.289	A	8	49.78	58.89	3-4	
2735.07	A	2w	49.65	54.18	1-1		1360.085	A	7	49.76	58.88	2-3	
2739.06	A	2w	49.66	54.18	0-1		1364.394	A	3	49.79	58.88	4-3	
Vac						3d' ³ P-4f' ³ D ^o † UV 57	Air						
1928.889	A	9	49.64	56.06	2-3		8062.5	A	4vw	49.99	51.53	2-	5f F[2½]-5g G[3½] ^o 50 [3½] [4½]
1929.618	A	8	49.65	56.07	1-2		8051.5	A	3vw	49.99	51.53	3-	
1927.372	A	8	49.66	56.09	0-1		8084.2	A	4wd?	49.99	51.53	4-	
1925.532	A	8	49.64	56.07	2-2		8070.2	A	4vw	49.99	51.53	3-	
1925.367	A	7	49.65	56.09	1-1								
Air						3d' ³ F-4p' ³ D ^o UV 58	*2107.16	A	10w	50.32	56.20	3-4	3d' ³ D-4f' ³ F ^o UV 64
2431.69	B	(0d)	49.79	54.89	4-3		*2106.14	A	10w	50.32	56.20	2-3	
							*2106.14	A	10w	50.31	56.20	1-2	
							2108.301	A	6	50.32	56.20	3-3	
							*2107.16	A	10w	50.32	56.20	2-2	
							2109.474	A	4	50.32	56.20	3-2	
Vac						3d' ³ F-4f' ⁵ G ^o † UV 59							
1962.413	A	8	49.79	56.11	4-5								
1960.540	A	8	49.78	56.10	3-4								
1958.800	A	8	49.78	56.09	3-3								
1959.815	A	7	49.76	56.09	2-2								