

Selected Tables of Atomic Spectra

A Atomic Energy Levels - Second Edition

B Multiplet Tables

N I, N II, N III

Data Derived from the Analyses of Optical Spectra

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Abstract

The present publication is the fifth Section of a series being prepared in response to the persistent need for a current revision of two sets of 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. The first three spectra of nitrogen, N I, N II and N III are included. The form of presentation is described in detail in the text of Section I.

Key words: Atomic energy levels, N I, N II, N III; Multiplet tables, N I, N II, N III; Nitrogen spectra, N I, N II, N III; Spectra, N I, N II, N III; Wavelengths, nitrogen spectra N I, N II, N III.

Foreword

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

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

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

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

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

RICHARD W. ROBERTS, *Director*

Preface

The present publication is the fifth 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 system permits the arrangement of the various Sections by atomic number, regardless of the order in which the separate spectra are published. Section 1 includes three spectra of silicon, $Z=14$: Si II, Si III, Si IV. Section 2 contains similar data for Si I. Section 3 covers all spectra of carbon, $Z=6$: C I, C II, C III, C IV, C V, C VI. Section 4 includes the last four spectra of nitrogen, $Z=7$: N IV, N V, N VI, N VII. The present 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. 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 has published the earlier tables. She appreciates the cordial cooperation of numerous atomic spectroscopists. She is particularly indebted to colleagues in Sweden, B. Edlén, K. B. S. Eriksson, K. Bockasten and R. Hallin, for their helpful guidance and for providing valuable data on analyses in advance of publication. Similarly, D. J. Michels has generously furnished his unpublished thesis material including short-wave observations. W. C. Martin and his associates in the Spectroscopy Section have given helpful advice regarding the text and tables. To all the writer extends grateful thanks.

Washington, D.C. July, 1974.

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NSRDS-NBS 3, SECTION 5

NITROGEN Z = 7

A N_I Atomic Energy Levels

B N_I Multiplet Table

Atomic Energy Levels

Part A

NITROGEN

N I

7 electrons

$Z=7$

Ground state $1s^2 2s^2 2p^3 \ ^4S_{1/2}^{\circ}$

$2p^3 \ ^4S_{1/2}^{\circ}$ **117225.7 \pm 0.3** cm^{-1} ; 853.055 Å (Vac)

I P 14.534eV

Most of the revised and extended analysis is from the work of K. B. S. Eriksson and J. E. Petterson, who kindly furnished their final manuscripts in advance of publication. Additional levels are quoted from the 1966 and 1961 papers from Lund.

A further revision and extension of the analysis based on observations by M. S. Manalis and new measurements in the vacuum ultraviolet region, have been provided by K. B. S. Eriksson (1974). He reports 74 new energy levels together with 147 newly classified lines between 3781 Å and 9022 Å and 56 between 864 Å and 1172 Å.

Eriksson points out that the total orbital angular momentum tends to be a good quantum number for the nf - and ng - configurations. Consequently, the listed designations for the pairs include the respective letters D,F,G and F,G,H for these configurations.

The sextet terms from the $2s 2p^3(^5S^{\circ})nl$ configuration are not connected with the other terms, as indicated in the table by "+ x". The np -series of quartet terms from this limit have been observed in absorption by Carroll and his associates from $n=3$ to 14. The lines occur in the region 612 Å to 694 Å as combinations with the ground term. All of the lines are broadened as a result of auto-ionization. The term with $n=9$ is entered in brackets because the N I line coincides with a line of Ne I.

The levels from the $2s^2 2p^2 (^3P)6f$ configuration are based on infrared observations by J. W. McConkey and his associates.

The classified lines extend from 864 Å to 18751 Å. They include two lists of calculated wavelengths: one of 78 lines published by V. Kaufman and J. F. Ward, and a more recent compilation by K. B. S. Eriksson of 147 lines, in the range 885 Å to 1745 Å. These lists are in excellent agreement.

Both B. Edlén and G. Herzberg have provided earlier, more limited lists of N I lines that are suitable for use as standards.

The limit is from the 1971 paper by K. B. S. Eriksson and J. E. Petterson. The value of 117356.46 ± 0.12 for $2s^2 2p^2 \ ^3P_2$ was determined from the levels $nd \ ^4F_{4_1}$ ($n=3-6$) and $nfG[5]_{3/2}^{\circ}$ ($n=4-6$) by a Ritz formula, with $R=109733.01$. The quoted limit was then derived "from the known structure of the N II ground configuration."

J. W. McConkey and J. A. Kernahan used the nf -levels to obtain ionization limits for the ground term of N II. Their value $117225.35 \text{ cm}^{-1}$ differs very little from the limit quoted above.

Brackets indicate predicted values of energy levels.

ATOMIC ENERGY LEVELS

Ni—Continued

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Ni					Ni				
Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
2s ² 2p ³	2p ³ 4S°	1½	0.000		2s ² 2p ² (3P) 4s	4s 2P	0½	104144.820	76.810
		1½					1½	104221.630	
2s ² 2p ³	2p ³ 2D°	2½	19224.464	– 8.713	2s ² 2p ² (3P) 3d	3d 2P	1½	104615.470	–38.560
		1½	19233.177				0½	104654.030	
2s ² 2p ³	2p ³ 2P°	0½	28838.920	0.386	2s ² 2p ² (3P) 3d	3d 4F	1½	104664.130	18.930
		1½	28839.306				2½	104683.060	
2s ² 2p ² (3P) 3s	3s 4P	0½	83284.070	33.760	2s ² 2p ² (3P) 3d	3d 4F	3½	104716.950	33.890
		1½	83317.830				4½	104765.77	
		2½	83364.620				4½	104765.77	
2s ² 2p ² (3P) 3s	3s 2P	0½	86137.350	83.160	2s ² 2p ² (3P) 3d	3d 2F	2½	104810.360	70.990
		1½	86220.510				3½	104801.350	
2s 2p ⁴	2p ⁴ 4P	2½	88107.260	–43.910	2s ² 2p ² (3P) 3d	3d 4P	2½	104825.110	–34.62
		1½	88151.170				1½	104859.73	
		0½	88170.570				0½	104886.10	
2s ² 2p ² (3P) 3p	3p 2S°	0½	93581.550	–19.400	2s ² 2p ² (3P) 3d	3d 4D	0½	104984.37	11.90
		1½					1½	104996.27	
		2½					2½	105008.55	
2s ² 2p ² (3P) 3p	3p 4D°	0½	94770.880	22.610	2s ² 2p ² (3P) 3d	3d 2D	1½	105119.880	23.830
		1½	94793.490				2½	105143.710	
		2½	94830.890				3½	105017.600	
2s ² 2p ² (3P) 3p	3p 4P°	0½	95475.310	18.380	2s ² 2p ² (3P) 4p	4p 2S°	0½	106477.800	19.606
		1½	95493.690				1½	106778.337	
		2½	95532.150				2½	106814.459	
2s ² 2p ² (3P) 3p	3p 4S°	1½	96750.840	38.460	2s ² 2p ² (3P) 4p	4p 4D°	0½	106758.731	36.122
		2½					1½	106778.337	
		3½					2½	106814.459	
2s ² 2p ² (3P) 3p	3p 2D°	1½	96787.680	76.370	2s ² 2p ² (3P) 4p	4p 4P°	0½	106868.635	54.176
		2½	96864.050				0½	106980.480	
2s ² 2p ² (3P) 3p	3p 2P°	0½	97770.180	35.660	2s ² 2p ² (3P) 4p	4p 4P°	1½	106996.032	15.552
		1½	97805.840				2½	107037.069	
		2½					2½	107037.069	
2s ² 2p ² (1D) 3s	3s' 2D	2½	99663.427	–0.485	2s ² 2p ² (3P) 4p	4p 2D°	1½	107182.788	70.318
		1½	99663.912				2½	107253.106	
2s ² 2p ² (3P) 4s	4s 4P	0½	103622.51	44.65	2s ² 2p ² (3P) 4p	4p 4S°	1½	107445.622	39.814
		1½	103667.16				0½	107588.469	
		2½	103735.48				1½	107628.283	

ATOMIC ENERGY LEVELS

Ni-Continued

Ni-Continued

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval		
$2p^2(^3P)5s$	$5s\ ^4P$	$0\frac{1}{2}$	109812.233	44.287 70.141	$2s^2 2p^2(^1D)3p$	$3p'\ ^2D^\circ$	$1\frac{1}{2}$	110521.050	23.800		
		$1\frac{1}{2}$	109856.520				$2\frac{1}{2}$	110544.850			
		$2\frac{1}{2}$	109926.661								
$2p^2(^3P)5s$	$5s\ ^2P$	$0\frac{1}{2}$	110035.720	68.114	$2s^2 2p^2(^1D)3p$	$3p'\ ^2F^\circ$	$2\frac{1}{2}$	110710.739	4.413		
		$1\frac{1}{2}$	110103.834				$3\frac{1}{2}$	110715.152			
$2p^2(^3P)4d$	$4d\ ^4F$	$1\frac{1}{2}$	110194.654	17.742 34.892 55.945	$2s^2 2p^2(^3P)5p$	$5p\ ^2S^\circ$	$0\frac{1}{2}$	111060.905	21.591 38.858 56.857		
		$2\frac{1}{2}$	110212.396				$2s^2 2p^2(^3P)5p$	$5p\ ^4D^\circ$		$0\frac{1}{2}$	111143.567
		$3\frac{1}{2}$	110247.288							$1\frac{1}{2}$	111165.158
		$4\frac{1}{2}$	110303.233							$2\frac{1}{2}$	111204.016
$2p^2(^3P)4d$	$4d\ ^2P$	$1\frac{1}{2}$	110220.107	25.076	$2s^2 2p^2(^3P)5p$	$5p\ ^2P^\circ$	$0\frac{1}{2}$	111198.848	14.423		
		$0\frac{1}{2}$	110245.183				$1\frac{1}{2}$	111213.271			
$2p^2(^3P)4d$	$4d\ ^2F$	$2\frac{1}{2}$	110286.305	76.157	$2s^2 2p^2(^3P)5p$	$5p\ ^4P^\circ$	$0\frac{1}{2}$	111271.596	14.048		
		$3\frac{1}{2}$	110362.462				$1\frac{1}{2}$	111285.644			
$2p^2(^3P)4d$	$4d\ ^4P$	$2\frac{1}{2}$	110299.974	-22.747 -27.293	$2s^2 2p^2(^3P)5p$	$5p\ ^4S^\circ$	$1\frac{1}{2}$	111501.368	41.154		
		$1\frac{1}{2}$	110322.721				$2s^2 2p^2(^3P)5p$	$5p\ ^2D^\circ$		$1\frac{1}{2}$	111853.061
		$0\frac{1}{2}$	110350.014							$2\frac{1}{2}$	111905.609
$2p^2(^3P_0)4f$	$4f\ D[3]^\circ$	$2\frac{1}{2}$	110349.09	0.08	$2s^2 2p^2(^1D)3p$	$3p'\ ^2P^\circ$	$0\frac{1}{2}$	112294.007	25.798		
		$3\frac{1}{2}$	110349.17				$1\frac{1}{2}$	112319.805			
$(^3P_1)$	$D[2]^\circ$	$1\frac{1}{2}$	110404.50	0.05	$2s^2 2p^2(^3P)6s$	$6s\ ^4P$	$0\frac{1}{2}$	112565.470	44.142		
		$2\frac{1}{2}$	110404.55				$1\frac{1}{2}$	112609.612			
$(^3P_2)$	$D[1]^\circ$	$0\frac{1}{2}, 1\frac{1}{2}$	110459.79	0.07	$2s^2 2p^2(^3P)6s$	$6s\ ^2P$	$2\frac{1}{2}$	112681.389	71.777		
							$0\frac{1}{2}$	112691.96			
$2p^2(^3P_1)4f$	$4f\ G[3]^\circ$	$2\frac{1}{2}$	110385.29	-0.09	$2s^2 2p^2(^3P)5d$	$5d\ ^4F$	$1\frac{1}{2}$	112759.966	0.359		
		$3\frac{1}{2}$	110385.36				$2\frac{1}{2}$	112760.325			
$(^3P_1)$	$G[4]^\circ$	$4\frac{1}{2}$	110402.09	-0.15	$2s^2 2p^2(^3P)5d$	$5d\ ^4P$	$3\frac{1}{2}$	112797.725	37.400		
		$3\frac{1}{2}$	110402.18				$4\frac{1}{2}$	112861.348			
$(^3P_2)$	$C[5]^\circ$	$5\frac{1}{2}$	110473.09	-0.15	$2s^2 2p^2(^3P)5d$	$5d\ ^2P$	$1\frac{1}{2}$	112801.031	-6.536		
		$4\frac{1}{2}$	110473.24				$0\frac{1}{2}$	112807.567			
$2p^2(^3P)4d$	$4d\ ^4D$	$0\frac{1}{2}$	110385.795	9.668 5.893 1.864	$2s^2 2p^2(^3P)5d$	$5d\ ^2F$	$2\frac{1}{2}$	112812.518	78.720		
		$1\frac{1}{2}$	110395.463				$3\frac{1}{2}$	112891.238			
		$2\frac{1}{2}$	110401.356				$2s^2 2p^2(^3P)5d$	$5d\ ^4P$		$2\frac{1}{2}$	112824.459
		$3\frac{1}{2}$	110403.220							$1\frac{1}{2}$	112838.02
$2p^2(^3P)4d$	$4d\ ^2D$	$1\frac{1}{2}$	110447.032	23.212	$2s^2 2p^2(^3P)5d$	$5d\ ^4P$	$0\frac{1}{2}$	112870.27	-13.56 -32.25		
		$2\frac{1}{2}$	110470.244								
$2p^2(^3P_2)4f$	$4f\ F[2]^\circ$	$1\frac{1}{2}$	110485.96	0.08	$2s^2 2p^2(^3P_0)5f$	$5f\ D[3]^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	[112826.94]	0.4		
		$2\frac{1}{2}$	110486.04				$(^3P_1)$	$D[2]^\circ$		$1\frac{1}{2}$	112880.1
$(^3P_2)$	$4f\ F[3]^\circ$	$3\frac{1}{2}$	110498.42	-0.01	$(^3P_2)$	$D[1]^\circ$			$0\frac{1}{2}, 1\frac{1}{2}$	[112946.62]	
		$2\frac{1}{2}$	110498.43								
$(^3P_2)$	$4f\ F[4]^\circ$	$4\frac{1}{2}$	110501.68	-0.15							
		$3\frac{1}{2}$	110501.83								

ATOMIC ENERGY LEVELS

Ni-Continued

Ni-Continued

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval		
$2s^2 2p^2(^3P_1)5f$	5f G[3]°	$2\frac{1}{2}$	112868.73		$2s^2 2p^2(^3P)6d$	6d 2F	$2\frac{1}{2}$	114182.7	79.4		
		$3\frac{1}{2}$					114262.1				
$(^3P_1)$	5f G[4]°	$4\frac{1}{2}$	112877.91	-0.01	$2s^2 2p^2(^3P)6d$	6d 4P	$2\frac{1}{2}$	114191.6	-8.4		
		$3\frac{1}{2}$	112877.92				$1\frac{1}{2}$	114200.0			
$(^3P_2)$	5f G[5]°	$5\frac{1}{2}$	112953.43	-0.10	$2s^2 2p^2(^3P_1)6f$	6f G[3]°	$2\frac{1}{2}, 3\frac{1}{2}$	114216.70			
		$4\frac{1}{2}$	112953.53				$4\frac{1}{2}, 3\frac{1}{2}$	114222.08			
$2s^2 2p^2(^3P)5d$	5d 4D	$0\frac{1}{2}$	112904.5	4.6	$(^3P_1)$	G[4]°	$4\frac{1}{2}, 3\frac{1}{2}$	114222.08			
		$1\frac{1}{2}$	112909.076				G[5]°	$5\frac{1}{2}, 4\frac{1}{2}$		114300.110	
		$2\frac{1}{2}$	112910.630					0.449		114271.8	
		$3\frac{1}{2}$	112911.079								114272.6
$2s^2 2p^2(^3P)5d$	5d 2D	$1\frac{1}{2}$	112927.055	18.754	$2s^2 2p^2(^3P)6d$	6d 4D	$0\frac{1}{2}$	114271.8	0.8		
		$2\frac{1}{2}$	112945.809				$1\frac{1}{2}$	114272.6			
							$2\frac{1}{2}$	114274.0			
$2s^2 2p^2(^3P_2)5f$	5f F[2]°	$1\frac{1}{2}, 2\frac{1}{2}$	[112957.77]		$2s^2 2p^2(^3P)6d$	6d 2D	$1\frac{1}{2}$	114277.0	16.5		
		$2\frac{1}{2}$	112965.36				$2\frac{1}{2}$	114293.5			
$(^3P_2)$	5f F[3]°	$3\frac{1}{2}$	112967.09	-0.11	$2s^2 2p^2(^3P_2)6f$	6f F[2]°	$1\frac{1}{2}, 2\frac{1}{2}$	114302.02			
		$2\frac{1}{2}$					112967.20	F[3]°		$3\frac{1}{2}, 2\frac{1}{2}$	114306.69
$2s^2 2p^2(^3P)6p$	6p $^4D^\circ$	$0\frac{1}{2}$	113307.5	63.0	$(^3P_2)$	F[4]°	$4\frac{1}{2}, 3\frac{1}{2}$	114307.79			
		$1\frac{1}{2}$					113370.5	7p $^4D^\circ$		$0\frac{1}{2}$	114545.6
		$2\frac{1}{2}$								$1\frac{1}{2}$	
		$3\frac{1}{2}$								$2\frac{1}{2}$	
$2s^2 2p^2(^3P)6p$	6p $^4P^\circ$	$0\frac{1}{2}$	113349.8	52.6	$2s^2 2p^2(^3P)7p$	7p $^4D^\circ$	$2\frac{1}{2}$	114545.6			
		$1\frac{1}{2}$					113402.4			$3\frac{1}{2}$	
		$2\frac{1}{2}$									
$2s^2 2p^2(^3P)7s$	7s 4P	$0\frac{1}{2}$	114026.654	44.499	$2s^2 2p^2(^3P)8s$	8s 4P	$0\frac{1}{2}$	114894.0	45.1		
		$1\frac{1}{2}$	114071.153				$1\frac{1}{2}$	114939.1			
		$2\frac{1}{2}$	114146.525				$2\frac{1}{2}$	115021.3		82.2	
$2s^2 2p^2(^3P)7s$	7s 2P	$0\frac{1}{2}$	114112.1	94.0	$2s^2 2p^2(^3P)7d$	7d 4F	$1\frac{1}{2}$	114952.5	6.5		
		$1\frac{1}{2}$	114206.1				$2\frac{1}{2}$	114959.0			
							$3\frac{1}{2}$	115003.6		44.6	
$2s^2 2p^2(^3P)6d$	6d 4F	$1\frac{1}{2}$	114124.2	8.5	$2s^2 2p^2(^3P)8s$	8s 2P	$0\frac{1}{2}$	114963.1	70.3		
		$2\frac{1}{2}$	114132.7				$1\frac{1}{2}$	115033.4			
		$3\frac{1}{2}$	114175.736				114992.8				
		$4\frac{1}{2}$	114245.309					115009.9			
$2s^2 2p^2(^3P)6d$	6d 2P	$1\frac{1}{2}$	114170.4	-13.1	$2s^2 2p^2(^3P)7d$	7d 2P	$1\frac{1}{2}$	114992.8	-17.1		
		$0\frac{1}{2}$	114183.5				$0\frac{1}{2}$	115009.9			
$2s^2 2p^2(^3P_0)6f$	6f D[3]°	$2\frac{1}{2}, 3\frac{1}{2}$	114171.98		$2s^2 2p^2(^3P)7d$	7d 2F	$2\frac{1}{2}$	115003.0	83.9		
							$3\frac{1}{2}$	115086.9			
$(^3P_1)$	D[2]°	$1\frac{1}{2}, 2\frac{1}{2}$	114223.88		$2s^2 2p^2(^3P)7d$	7d 4P	$2\frac{1}{2}$	115011.0	-7.7		
							$1\frac{1}{2}$	115018.7			
$(^3P_2)$	D[1]°	$0\frac{1}{2}, 1\frac{1}{2}$	[114296.19]				$0\frac{1}{2}$				

ATOMIC ENERGY LEVELS

Ni-Continued

Ni-Continued

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval										
$2p^2(^3P)7d$	$7d \ ^4D$	$0\frac{1}{2}$	115093.3	1.2	$2s^2 2p^2(^1D)3d$	$3d' \ ^2D$	$2\frac{1}{2}$	120150.1	-5.7										
		$1\frac{1}{2}$	115094.5				$1\frac{1}{2}$	120155.8											
		$2\frac{1}{2}$	115094.6	-0.2		$2s^2 2p^2(^1D)3d$	$3d' \ ^2P$	$1\frac{1}{2}$		120309.6									
		$3\frac{1}{2}$	115094.4					$0\frac{1}{2}$		120311.2									
$2p^2(^3P)7d$	$7d \ ^2D$	$1\frac{1}{2}$	115100.0	6.2	$2s^2 2p^2(^1D)3d$	$3d' \ ^2S$	$0\frac{1}{2}$	120566.0	-1.6										
		$2\frac{1}{2}$	115106.2				$2\frac{1}{2}$	121200.5											
$2p^2(^3P)9s$	$9s \ ^4P$	$0\frac{1}{2}$	115449.5	46.0	$2s \ 2p^4$	$2p^4 \ ^2D$	$2\frac{1}{2}$	121200.5											
		$1\frac{1}{2}$	115495.5				$1\frac{1}{2}$												
		$2\frac{1}{2}$	115576.6				81.1												
$2p^2(^3P)8d$	$8d \ ^4F$	$1\frac{1}{2}$	115495.5	42.3	$2s^2 2p^2(^1D)4p$	$4p' \ ^2F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	122246.4											
		$2\frac{1}{2}$					115537.8			$2s^2 2p^2(^1D)4f$	$4f' \ H[5]^\circ$	$5\frac{1}{2}, 4\frac{1}{2}$	125688.07						
		$3\frac{1}{2}$										115613.3		$2s \ 2p^3(^6S^\circ)3s$	$3s''' \ ^6S^\circ$	$2\frac{1}{2}$	[131000.00 + x]		
		$4\frac{1}{2}$														115535.4		$2s \ 2p^3(^6S^\circ)3p$	$3p''' \ ^6P$
$0\frac{1}{2}$	115538.4	$2s \ 2p^3(^6S^\circ)3p$	$3p''' \ ^4P$	$2\frac{1}{2}$	142081.91 + x														
$1\frac{1}{2}$				115620.6		$2s \ 2p^3(^6S^\circ)4p$	$4p''' \ ^4P$	$3\frac{1}{2}$	142084.13 + x										
$2\frac{1}{2}$								115624.5		$2s \ 2p^3(^6S^\circ)4p$	$4p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$	144360						
$1\frac{1}{2}$												115626.9		$2s \ 2p^3(^6S^\circ)5p$	$5p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$	154439		
$2\frac{1}{2}$	115626.9	$2s \ 2p^3(^6S^\circ)5p$	$5p''' \ ^4P$		$0\frac{1}{2}-2\frac{1}{2}$											158322			
$3\frac{1}{2}$				115627.7	$2s \ 2p^3(^6S^\circ)6p$	$6p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$		160241										
$2p^2(^3P)8d$							$8d \ ^2D$	$1\frac{1}{2}$		115633.5	$2s \ 2p^3(^6S^\circ)7p$		$7p''' \ ^4P$					$0\frac{1}{2}-2\frac{1}{2}$	161330
								$2\frac{1}{2}$				115829.3		$2s \ 2p^3(^6S^\circ)8p$	$8p''' \ ^4P$		$0\frac{1}{2}-2\frac{1}{2}$	162005	
$2p^2(^3P)10s$	$10s \ ^4P$	$0\frac{1}{2}$	115876.5				47.2	$2s \ 2p^3(^6S^\circ)9p$		$9p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$		[162436]						
		$1\frac{1}{2}$		115955.2	$2s \ 2p^3(^6S^\circ)10p$	$10p''' \ ^4P$			$0\frac{1}{2}-2\frac{1}{2}$		162770								
		$2\frac{1}{2}$							116278.558			$2s \ 2p^3(^6S^\circ)11p$		$11p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$	162999			
$2p^2(^1S)3s$	$3s'' \ ^2S$	$0\frac{1}{2}$	117225.7 ± 0.3				48.7	$2s \ 2p^3(^6S^\circ)12p$		$12p''' \ ^4P$			$0\frac{1}{2}-2\frac{1}{2}$		163163				
		...		117274.4	$2s \ 2p^3(^6S^\circ)13p$	$13p''' \ ^4P$					$0\frac{1}{2}-2\frac{1}{2}$		163298						
		$2p^2(^3P)$							Limit		0	117356.46 ± 0.12		82.1		$2s \ 2p^3(^6S^\circ)14p$	$14p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$	163399
											1							119210.0	
2	119812.9		$2s \ 2p^3(^6S^\circ)14p$				$14p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$											
$2p^2(^1D)4s$		$4s' \ ^2D$		$1\frac{1}{2}, 2\frac{1}{2}$	119210.0	-0.087		$2s \ 2p^3(^6S^\circ)14p$	$14p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$									
				$2\frac{1}{2}$						120149.238	$2s \ 2p^3(^6S^\circ)14p$	$14p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$						
$2p^2(^1D)3d$	$3d' \ ^2F$	$2\frac{1}{2}$	119812.9	-0.087	$2s \ 2p^3(^6S^\circ)14p$	$14p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$												
		$3\frac{1}{2}$					120149.325	$2s \ 2p^3(^6S^\circ)14p$	$14p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$									
$2p^2(^1D)3d$	$3d' \ ^2G$	$4\frac{1}{2}$	120149.238	-0.087	$2s \ 2p^3(^6S^\circ)14p$	$14p''' \ ^4P$				$0\frac{1}{2}-2\frac{1}{2}$									
		$3\frac{1}{2}$					120149.325	$2s \ 2p^3(^6S^\circ)14p$	$14p''' \ ^4P$	$0\frac{1}{2}-2\frac{1}{2}$									

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ATOMIC ENERGY LEVELS

Ni Observed Terms

Configuration $1s^2+$	Observed Terms	
$2s^2 2p^3$	{ $2p^3 \ ^4S^\circ$	$2p^3 \ ^2P^\circ$ $2p^3 \ ^2D^\circ$
$2s \ 2p^4$	{ $2p^4 \ ^4P$	$2p^4 \ ^2D$
	$ns (n \geq 3)$	$np (n \geq 3)$
$2s^2 2p^2 ({}^3P)nl$	{ $3-10s \ ^4P$ $3-8s \ ^2P$	$3-5p \ ^4S^\circ$ $3-6p \ ^4P^\circ$ $3-7p \ ^4D^\circ$ $3-5p \ ^2S^\circ$ $3-5p \ ^2P^\circ$ $3-5p \ ^2D^\circ$
$2s^2 2p^2 ({}^1D)nl'$	$3,4s' \ ^2D$	$3p' \ ^2P^\circ$ $3p' \ ^2D^\circ$ $3,4p' \ ^2F^\circ$
$2s^2 2p^2 ({}^1S)nl''$	$3s'' \ ^2S$	
$2s \ 2p^3 ({}^5S^\circ)nl'''$	{ $3s''' \ ^6S^\circ$	$3p''' \ ^6P$ $3-14p''' \ ^4P$
	$nd (n \geq 3)$	$nf (n \geq 4)$
$2s^2 2p^2 ({}^3P)nl$	{ $3-7d \ ^4P$ $3-8d \ ^4D$ $3-8d \ ^4F$ $3-8d \ ^2P$ $3-8d \ ^2D$ $3-8d \ ^2F$	$4-6f \ D[3]^\circ$ $4-6f \ F[2]^\circ$ $4-6f \ G[3]^\circ$ $[2]^\circ$ $[3]^\circ$ $[4]^\circ$ $[1]^\circ$ $[4]^\circ$ $[5]^\circ$
$2s^2 2p^2 ({}^1D)nl'$	$3d' \ ^2S$ $3d' \ ^2P$ $3d' \ ^2D$ $3d' \ ^2F$ $3d' \ ^2G$	$4f' \ H[5]^\circ$

Multiplet Table

Part B

NITROGEN

N_I (Z = 7)

I P 14.534 Limit **117225.7 ± 0.3** 853.055 Å (Vac)

Anal A List A September 1974

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In column 3 parentheses indicate that the estimated intensities are from a different reference and on a different scale than the entries without parentheses.

MULTIPLY TABLE

N I - Continued

Intensities given with predicted wavelengths indicate that the line has been observed but that the calculated wavelength may be preferable to the observed value. A few intensities from the 1929 1939 and 1940 papers are quoted in parentheses for some predicted lines.

New Multiplet Numbers not inserted between older ones, start with UV 14 and 25.

* Blend

‡ Raie ultime

m Masked

N I							N I						
I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
5200.257	P	(64)	0.00	2.38	1½-2½	2p³ 4S°- 2p³ ²D°	951.0791	P	(12)	0.00	13.04	1½-2½	2p³ 4S°- 3d ²D
5197.902	P	(100)	0.00	2.38	1½-1½	1F	951.2947	P	(3)	0.00	13.03	1½-1½	UV 3.07
3466.4970	E	(100)	0.00	3.58	1½-1½	2p³ 4S°- 2p³ ²P°	909.6974	P	15	0.00	13.63	1½-2½	2p³ 4S°- 5s 4P
3466.5434	E	(20)	0.00	3.58	1½-0½	2F	910.2782	P	14	0.00	13.62	1½-1½	UV 3.08
							910.6454	P	10	0.00	13.61	1½-0½	
Vac													
1199.5496‡	P	32	0.00	10.34	1½-2½	2p³ 4S°- 3s 4P	908.2332	P	(3)	0.00	13.65	1½-1½	2p³ 4S°- 5s ²P
1200.2233	P	31	0.00	10.33	1½-1½	UV 1	908.7958	P	(1)	0.00	13.64	1½-0½	UV 3.09
1200.7098	P	30	0.00	10.33	1½-0½								
1159.814	B	4	0.00	10.69	1½-1½	2p³ 4S°- 3s ²P	907.3390	P	7	0.00	13.66	1½-2½	2p³ 4S°- 4d 4F
1160.932	B	2	0.00	10.68	1½-0½	UV 1.01	907.485	P		0.00	13.66	1½-1½	UV 3.10
1134.9803	P	32	0.00	10.92	1½-2½	2p³ 4S°- 2p⁴ 4P	907.275	P	m	0.00	13.67	1½-1½	2p³ 4S°- 4d ²P
1134.4149	P	31	0.00	10.93	1½-1½	UV 2	907.069	P	(2)	0.00	13.67	1½-0½	UV 3.11
1134.1653	P	30	0.00	10.93	1½-0½								
1003.377	P		0.00	12.36	1½-2½	2p³ 4S°- 3s ²D							
1003.372	P		0.00	12.36	1½-1½	UV 2.01	906.6185	P	12	0.00	13.68	1½-2½	2p³ 4S°- 4d 4P
963.9903	P	18	0.00	12.86	1½-2½	2p³ 4S°- 4s 4P	906.4316	P	13	0.00	13.68	1½-1½	UV 3.13
964.6256	P	17	0.00	12.85	1½-1½	UV 3	906.2074	P	11	0.00	13.68	1½-0½	
965.0413	P	13	0.00	12.85	1½-0½								
959.4936	P	(8)	0.00	12.92	1½-1½	2p³ 4S°- 4s ²P	905.7860	P	11	0.00	13.69	1½-2½	2p³ 4S°- 4d 4D
960.201	P		0.00	12.91	1½-0½	UV 3.01	905.8343	P	12	0.00	13.69	1½-1½	UV 3.14
							905.9137	P	11	0.00	13.69	1½-0½	
955.8814	P	(10)	0.00	12.97	1½-1½	2p³ 4S°- 3d ²P	905.2211	P	6	0.00	13.70	1½-2½	2p³ 4S°- 4d ²D
955.5292	P	(3)	0.00	12.98	1½-0½	UV 3.02	905.411	P	(2)	0.00	13.69	1½-1½	UV 3.15
955.2643	P	(4)	0.00	12.98	1½-2½	2p³ 4S°- 3d 4F	887.4580	P	11	0.00	13.97	1½-2½	2p³ 4S°- 6s 4P
955.437	P	(2)	0.00	12.98	1½-1½	UV 3.03	888.0237	P	10	0.00	13.96	1½-1½	UV 3.16
							888.3719	P	8	0.00	13.96	1½-0½	
954.1042	P	12	0.00	12.99	1½-2½	2p³ 4S°- 3d ²F	887.0205	P	4	0.00	13.98	1½-1½	2p³ 4S°- 6s ²P
							887.375	P	(4)	0.00	13.97	1½-0½	UV 3.17
953.9699	P	18	0.00	13.00	1½-2½	2p³ 4S°- 3d 4P	886.8367	P	6	0.00	13.98	1½-2½	2p³ 4S°- 5d 4F
953.6549	P	16	0.00	13.00	1½-1½	UV 3.05	886.840	P		0.00	13.98	1½-1½	UV 3.18
953.4152	P	15	0.00	13.00	1½-0½								
952.3034	P	12	0.00	13.02	1½-2½	2p³ 4S°- 3d 4D	886.517	P		0.00	13.99	1½-1½	2p³ 4S°- 5d ²P
952.4148	P	11	0.00	13.02	1½-1½	UV 3.06	886.465	P		0.00	13.99	1½-0½	UV 3.19
952.5227	P	9	0.00	13.02	1½-0½		886.4265	P	8	0.00	13.99	1½-2½	2p³ 4S°- 5d ²F
													UV 3.20

MULTIPLIET TABLE

N I—Continued

N I—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						
886.3326	P	8	0.00	13.99	1½-2½	2p³ ⁴S°- 5d ⁴P	631.624	K	(78)	0.00	19.63		2p³ ⁴S°- 5p''''⁴P
886.226	A	9	0.00	13.99	1½-1½	UV 3.21							UV 3.40
885.973	A	6	0.00	13.99	1½-0½		624.059	K	(40)	0.00	19.87		2p³ ⁴S°- 6p''''⁴P
885.6562	P	15*	0.00	14.00	1½-2½	2p³ ⁴S°- 5d ⁴D							UV 3.41
885.6684	P		0.00	14.00	1½-1½	UV 3.22	619.847	K	(36)	0.00	20.00		2p³ ⁴S°- 7p''''⁴P
885.71	P		0.00	14.00	1½-0½								UV 3.42
885.3804	P	5	0.00	14.00	1½-2½	2p³ ⁴S°- 5d ²D	617.265	K	(26)	0.00	20.09		2p³ ⁴S°- 8p''''⁴P
885.527	P		0.00	14.00	1½-1½	UV 3.23							UV 3.43
876.066	B	7	0.00	14.15	1½-2½	2p³ ⁴S°- 7s ⁴P	m615.627	K	(Ne 1)	0.00	20.14		2p³ ⁴S°- 9p''''⁴P
876.645	B	6	0.00	14.14	1½-1½	UV 3.24							UV 3.44
876.987	B	5	0.00	14.14	1½-0½								
875.598	B	2	0.00	14.16	1½-1½	2p³ ⁴S°- 7s ²P	614.364	K	(21)	0.00	20.18		2p³ ⁴S°- 10p''''⁴P
876.331	P		0.00	14.15	1½-0½	UV 3.25							UV 3.45
876.172	B	6	0.00	14.15	1½-2½	2p³ ⁴S°- 6d ⁴F	613.500	K	(19)	0.00	20.21		2p³ ⁴S°- 11p''''⁴P
876.238	P		0.00	14.15	1½-1½	UV 3.26							UV 3.46
875.791	B	6	0.00	14.16	1½-2½	2p³ ⁴S°- 6d ²F	612.883	K	(16)	0.00	20.23		2p³ ⁴S°- 12p''''⁴P
						UV 3.27							UV 3.47
875.721	B	6	0.00	14.16	1½-2½	2p³ ⁴S°- 6d ⁴P	612.378	K		0.00	20.25		2p³ ⁴S°- 13p''''⁴P
875.656	B	6	0.00	14.16	1½-1½	UV 3.28							UV 3.48
875.277	P		0.00	14.16	1½-0½								
875.100	B	10	0.00	14.17	1½-	2p³ ⁴S°- 6d ⁴D	611.998	K		0.00	20.26		2p³ ⁴S°- 14p''''⁴P
						UV 3.29							UV 3.49
874.934	B	4	0.00	14.17	1½-2½	2p³ ⁴S°- 6d ²D							
875.067	P		0.00	14.17	1½-1½	UV 3.30							
*869.413	B	4	0.00	14.26	1½-2½	2p³ ⁴S°- 8s ⁴P	Air						
870.029	B	5	0.00	14.25	1½-1½	UV 3.31	10397.74	P	(100)	2.38	3.58	2½-1½	2p³ ²D°- 2p³ ²P°
870.367	P		0.00	14.24	1½-0½		10407.59	P	(44)	2.38	3.58	1½-0½	3F
							10407.17	P	(46)	2.38	3.58	1½-1½	
							10398.16	P	(29)	2.38	3.58	2½-0½	
869.878	B	4	0.00	14.25	1½-2½	2p³ ⁴S°- 7d ⁴F							
869.925	P		0.00	14.25	1½-1½	UV 3.32							
869.546	B	6	0.00	14.26	1½-2½	2p³ ⁴S°- 7d ²F	Vac						
						UV 3.33	1559.086	P		2.38	10.34	2½-2½	2p³ ²D°- 3s ⁴P
							1560.436	P		2.38	10.33	1½-1½	UV 3.50
							1560.224	P		2.38	10.33	2½-1½	
869.482	P		0.00	14.26	1½-2½	2p³ ⁴S°- 7d ⁴P	1561.258	P		2.38	10.33	1½-0½	
*869.413	B	4	0.00	14.26	1½-1½	UV 3.34	1559.298	P		2.38	10.34	1½-2½	
868.860	B	8	0.00	14.27	1½-	2p³ ⁴S°- 7d ⁴D	1492.6254	P	42	2.38	10.69	2½-1½	2p³ ²D°- 3s ²P
						UV 3.35	1494.6751	P	40	2.38	10.68	1½-0½	UV 4
							1492.8195	P	35	2.38	10.69	1½-1½	
864.868	B	5	0.00	14.34	1½-	2p³ ⁴S°- 8d ⁴D	1451.741	P		2.38	10.92	2½-2½	2p³ ²D°- 2p⁴ ⁴P
						UV 3.36	1451.000	P		2.38	10.93	1½-1½	UV 4.01
860.004	P		0.00	14.42	1½-0½	2p³ ⁴S°- 3s'' ²S	1450.816	P		2.38	10.93	2½-1½	
						UV 3.37	1450.592	P		2.38	10.93	1½-0½	
							1451.925	P		2.38	10.92	1½-2½	
692.70	K	(350)	0.00	17.90		2p³ ⁴S°- 3p''''⁴P	1243.1786	P	30*	2.38	12.36	2½-2½	2p³ ²D°- 3s' ²D
						UV 3.38	1243.3058	P	28*	2.38	12.36	1½-1½	UV 5
647.503	K	(140)	0.00	19.15		2p³ ⁴S°- 4p''''⁴P	1243.1711	P	30*	2.38	12.36	2½-1½	
						UV 3.39	1243.3133	P	28*	2.38	12.36	1½-2½	

MULTIPLIET TABLE

N I—Continued

N I—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						
1183.278	P		2.38	12.86	2½-2½	2p³²D°- 4s ⁴P	1097.2372	P	21	2.38	13.68	2½-3½	2p³²D°- 4d ²F
1184.357	P		2.38	12.85	1½-1½	UV 5.01	1098.2599	P	17	2.38	13.67	1½-2½	UV 7.05
1184.235	P		2.38	12.85	2½-1½		1098.155	P		2.38	13.67	2½-2½	
1184.984	P		2.38	12.85	1½-0½								
1183.400	P		2.38	12.86	1½-2½								
1176.5098	P	24	2.38	12.92	2½-1½	2p³²D°- 4s ²P	1097.9900	P	8	2.38	13.68	2½-2½	2p³²D°- 4d ⁴P
1177.6948	P	22	2.38	12.91	1½-0½	UV 5.02	1097.821	P		2.38	13.68	1½-1½	UV 7.06
1176.6304	P	16	2.38	12.92	1½-1½		1097.716	P		2.38	13.68	2½-1½	
							1097.492	P		2.38	13.68	1½-0½	
							1098.0951	P	17	2.38	13.68	1½-2½	
1171.0835	P	12	2.38	12.97	2½-1½	2p³²D°- 3d ²P	1096.7467	P	13	2.38	13.69	2½-3½	2p³²D°- 4d ⁴D
1170.6743	P	6	2.38	12.98	1½-0½	UV 5.03	1096.874	P		2.38	13.69	1½-2½	UV 7.07
1171.203	P		2.38	12.97	1½-1½		1096.769	P		2.38	13.69	2½-2½	
							1096.945	P		2.38	13.69	1½-1½	
1169.6934	P	14	2.38	12.98	2½-3½	2p³²D°- 3d ⁴F							
1170.2766	P	13	2.38	12.98	1½-2½	UV 5.04	1095.9411	P	13	2.38	13.70	2½-2½	2p³²D°- 4d ²D
1170.1573	P	5	2.38	12.98	2½-2½		1096.3247	P	11	2.38	13.69	1½-1½	UV 7.08
1170.536	P		2.38	12.98	1½-1½		1096.220	P		2.38	13.69	2½-1½	
*1170.432	B	7	2.38	12.98	2½-1½		1096.046	P		2.38	13.70	1½-2½	
1167.4485	P	26	2.38	13.00	2½-3½	2p³²D°- 3d ²F	1070.012	P		2.38	13.97	2½-2½	2p³²D°- 6s ⁴P
1168.5358	P	22	2.38	12.99	1½-2½	UV 6	1070.935	I	0n	2.38	13.96	1½-1½	UV 7.09
1168.4168	P	12	2.38	12.99	2½-2½		1070.834	P		2.38	13.96	2½-1½	
							1071.441	P		2.38	13.96	1½-0½	
1168.2155	P	11	2.38	13.00	2½-2½	2p³²D°- 3d ⁴P	1070.111	P		2.38	13.97	1½-2½	
1167.862	P		2.38	13.00	1½-1½	UV 6.01							
1167.743	P		2.38	13.00	2½-1½		1069.3758	P	7	2.38	13.98	2½-1½	2p³²D°- 6s ²P
1167.502	P		2.38	13.00	1½-0½		1069.990	P	11	2.38	13.97	1½-0½	UV 7.10
1168.3344	P	16	2.38	13.00	1½-2½		1069.4754	P	6	2.38	13.98	1½-1½	
1165.5944	P	12	2.38	13.02	2½-3½	2p³²D°- 3d ⁴D	1068.6814	P	11*	2.38	13.98	2½-3½	2p³²D°- 5d ⁴F
1165.8358	P	(60)	2.38	13.02	1½-2½	UV 6.02	1069.2083	P	9	2.38	13.98	1½-2½	UV 7.11
1165.717	P		2.38	13.02	2½-2½		1069.109	P		2.38	13.98	2½-2½	
1166.003	P		2.38	13.02	1½-1½		1069.212	P	2	2.38	13.98	1½-1½	
							1069.1128	P	8	2.38	13.98	2½-1½	
1163.8836	P	18	2.38	13.04	2½-2½	2p³²D°- 3d ²D							
1164.3246	P	16	2.38	13.03	1½-1½	UV 7	1068.6436	P	12*	2.38	13.99	2½-1½	2p³²D°- 5d ²P
1164.2065	P	12	2.38	13.03	2½-1½		1068.6685	P	11*	2.38	13.99	1½-0½	UV 7.12
1164.0016	P	(2)	2.38	13.04	1½-2½		1068.743	P		2.38	13.99	1½-1½	
1102.509	P		2.38	13.63	2½-2½	2p³²D°- 5s ⁴P	1067.6144	P	15	2.38	14.00	2½-3½	2p³²D°- 5d ²F
1103.468	P		2.38	13.62	1½-1½	UV 7.01	1068.6119	P	12*	2.38	13.99	1½-2½	UV 7.13
1103.362	P		2.38	13.62	2½-1½		1068.512	P	3	2.38	13.99	2½-2½	
1104.008	P		2.38	13.61	1½-0½								
1100.3597	P	16	2.38	13.65	2½-1½	2p³²D°- 5s ²P	1068.376	P		2.38	13.99	2½-2½	2p³²D°- 5d ⁴P
1101.2907	P	15	2.38	13.64	1½-0½	UV 7.02	1068.321	P		2.38	13.99	1½-1½	UV 7.14
1100.4652	P	10	2.38	13.65	1½-1½		1068.221	P		2.38	13.99	2½-1½	
							1067.953	P		2.38	13.99	1½-0½	
							1068.4756	P	13	2.38	13.99	1½-2½	
1098.6255	P	12	2.38	13.67	2½-3½	2p³²D°- 4d ⁴F							
1099.1521	P	13	2.38	13.66	1½-2½	UV 7.03	1067.3883	P	10	2.38	14.00	2½-3½	2p³²D°- 5d ⁴D
1099.0468	P	8	2.38	13.66	2½-2½		1067.493	P		2.38	14.00	1½-2½	UV 7.15
1099.366	P		2.38	13.66	1½-1½		1067.399	I	0	2.38	14.00	2½-2½	
1099.2612	P	8	2.38	13.66	2½-1½								
1098.9537	P	9	2.38	13.67	2½-1½	2p³²D°- 4d ²P	1066.9928	P	10	2.38	14.00	2½-2½	2p³²D°- 5d ²D
1098.7561	P	6	2.38	13.67	1½-0½	UV 7.04	1067.3056	P	8	2.38	14.00	1½-1½	UV 7.16
1099.059	P		2.38	13.67	1½-1½		1067.206	P		2.38	14.00	2½-1½	
							1067.092	P		2.38	14.00	1½-2½	

MULTIPLIET TABLE

N1 - Continued

N1 - 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						
1053.496	P		2.38	14.15	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ D ^o - 7s ⁴ P	1742.7309	P	44*	3.58	10.69	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ P ^o - 3s ² P
1054.430	P		2.38	14.14	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 7.17	1745.2485	P	42*	3.58	10.68	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 9
1054.333	P		2.38	14.14	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		1745.2603	P	42*	3.58	10.68	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	
							1742.7192	P	44*	3.58	10.69	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	
1052.834	B	8	2.38	14.16	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ D ^o - 7s ² P							
1053.988	B	12	2.38	14.15	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 7.18	1687.252	P		3.58	10.92	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 2p ⁴ ⁴ P
1052.932	P		2.38	14.16	1 $\frac{1}{2}$ -1 $\frac{1}{2}$		1685.992	P		3.58	10.93	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 9.01
							1685.441	P		3.58	10.93	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	
1053.184	B	8	2.38	14.16	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	2p ³ D ^o - 6d ⁴ F							
1053.744	R	7	2.38	14.15	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.19	1411.9483	P	30*	3.58	12.36	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 3s' ² D
1053.656	B	7	2.38	14.15	2 $\frac{1}{2}$ -2 $\frac{1}{2}$		1411.9310	P	30*	3.58	12.36	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 10
1053.744	B	7	2.38	14.15	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		1411.9387	P	30*	3.58	12.36	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	
1053.231	P		2.38	14.15	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ D ^o - 6d ² P	1335.182	P		3.58	12.86	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 4s ⁴ P
1053.184	B	8	2.38	14.16	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 7.20	1336.394	P		3.58	12.85	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 10.01
1052.215	B	9	2.38	14.17	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	2p ³ D ^o - 6d ² F	1326.5709	P	17*	3.58	12.92	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ P ^o - 4s ² P
1053.184	B	8	2.38	14.16	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.21	1327.9172	P	17*	3.58	12.91	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 11
							1327.9240	P	17*	3.58	12.91	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	
1052.909	B	6	2.38	14.16	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ D ^o - 6d ⁴ P	1326.5641	P	17*	3.58	12.92	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	
1053.088	B	11	2.38	14.16	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.22							
1052.082	B	9	2.38	14.17	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	2p ³ D ^o - 6d ⁴ D	1319.6762	P	28*	3.58	12.97	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ P ^o - 3d ² P
1052.180	P		2.38	14.17	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.23	1318.9983	P	24*	3.58	12.98	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 12
							1319.0050	P	24*	3.58	12.98	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	
							1319.6695	P	28*	3.58	12.97	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	
1051.868	B	7	2.38	14.17	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ D ^o - 6d ² D	1318.500	P		3.58	12.98	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 3d ⁴ F
1051.956	B	5	2.38	14.17	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.24	1318.8224	P	(10)*	3.58	12.98	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 12.01
1044.069	P		2.38	14.26	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	2p ³ D ^o - 7d ⁴ F	1318.8293	P	12	3.58	12.98	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	
1044.633	B	8	2.38	14.25	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.25							
1044.633	B	8	2.38	14.25	2 $\frac{1}{2}$ 11								
1043.739	B	6	2.38	14.26	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ D ^o - 8s ² P	1316.2908	F	12	3.58	12.99	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 3d ² F
1044.633	B	8	2.38	14.25	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 7.26	1316.035	P		3.58	13.00	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 3d ⁴ P
1043.845	B	6	2.38	14.26	1 $\frac{1}{2}$ -1 $\frac{1}{2}$		1315.429	P		3.58	13.00	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 12.03
1044.188	B	7	2.38	14.26	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ D ^o - 7d ² P	1312.866	P	(3)	3.58	13.02	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 3d ⁴ D
1044.095	P	m	2.38	14.26	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 7.27	1313.071	P		3.58	13.02	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 12.04
1043.166	B	8	2.38	14.27	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	2p ³ D ^o - 7d ² F	1310.5403	P	27	3.58	13.04	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 3d ² D
1044.171	P		2.38	14.26	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.28	1310.9431	P	25*	3.58	13.03	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 13
1043.991	B	6	2.38	14.26	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ D ^o - 7d ⁴ P	1310.9498	P	25*	3.58	13.03	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	
1044.087	B	8	2.38	14.26	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.29							
1043.080	B	8	2.38	14.27	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	2p ³ D ^o - 7d ⁴ D	1233.238	P	(2)	3.58	13.63	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 5s ⁴ P
1043.166	B	8	2.38	14.27	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 7.30	1234.300	P		3.58	13.62	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 14
1037.382	B	5	2.38	14.33	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	2p ³ D ^o - 8d ² F	1230.5492	P	7*	3.58	13.65	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ P ^o - 5s ² P
1038.366	P	m	2.38	14.32	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	UV 7.31	1231.5756	P	12*	3.58	13.64	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 15
1030.446	P		2.38	14.42	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	2p ³ D ^o - 3s'' ² S	1231.5815	P	12*	3.58	13.64	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	
							1230.5434	P	7*	3.58	13.65	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	
1000.183	B	6	2.38	14.78		2p ³ D ^o - 4s' ² D	1228.907	P		3.58	13.66	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 4d ⁴ F
						UV 7.33	1229.1755	P	14	3.58	13.66	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 16
834.011	P		3.58	10.34	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	2p ³ P ^o - 3s ⁴ P	1228.7911	P	20*	3.58	13.67	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	2p ³ P ^o - 4d ² P
835.573	P		3.58	10.33	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	UV 8	1228.4067	P	18*	3.58	13.67	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	UV 17
826.739	I	2	3.58	10.33	1 $\frac{1}{2}$ -0 $\frac{1}{2}$		1228.4125	P	18*	3.58	13.67	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	
							1228.7852	P	20*	3.58	13.67	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	

MULTIPLLET TABLE

N I—Continued

N I—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						
1227.7923	P	8	3.58	13.67	1½-2½	2p³²P°- 4d ²F UV 18	1160.171	B	1	3.58	14.26	-1½	2p³²P°- 8s ²P
							1161.118	B	2	3.58	14.25	-0½	UV 36
1227.586	P		3.58	13.68	1½-2½	2p³²P°- 4d ⁴P	1160.713	B	2	3.58	14.26	-1½	2p³²P°- 7d ²P
1227.2436	P	7	3.58	13.68	1½-1½	UV 19	1160.476	B	1	3.58	14.26	-0½	UV 37
1226.833	P		3.58	13.68	1½-0½								
1226.060	P		3.58	13.69	1½-2½	2p³²P°- 4d ⁴D	1159.349	P		3.58	14.27	1½-2½	2p³²P°- 7d ⁴D
1226.143	P		3.58	13.69	0½-1½	UV 20	1159.344	B	3	3.58	14.27	0½-1½	UV 38
1225.0257	P	21	3.58	13.70	1½-2½	2p³²P°- 4d ²D	1159.193	B	4	3.58	14.27	1½-2½	2p³²P°- 7d ²D
1225.3684	P	20*	3.58	13.69	0½-1½	UV 21	1159.273	B	1	3.58	14.27	-1½	UV 39
1225.3742	P	20*	3.58	13.69	1½-1½								
1192.718	P	(2)	3.58	13.97	1½-2½	2p³²P°- 6s ⁴P	1153.453	B	2	3.58	14.32	-1½	2p³²P°- 8d ²P
1193.735	P		3.58	13.96	0½-1½	UV 22							UV 40
1191.9284	P	8*	3.58	13.98	1½-1½	2p³²P°- 6s ²P	1143.6511	P	16*	3.58	14.42	1½-0½	2p³²P°- 3s' ²S
1192.563	P	4*	3.58	13.97	0½-0½	UV 23	1143.6461	P	16*	3.58	14.42	0½-0½	UV 41
1192.568	P	4*	3.58	13.97	1½-0½								
1191.9229	P	8*	3.58	13.98	0½-1½		1106.547	B	6	3.58	14.78		2p³²P°- 4s' ²D
													UV 42
1191.597	P		3.58	13.98	1½-2½	2p³²P°- 5d ⁴F							
1191.6017	P	2	3.58	13.98	1½-1½	UV 24	Air						
1191.0189	P	12*	3.58	13.99	1½-1½	2p³²P°- 5d ²P	9740.385	P		10.33	11.60	1½-0½	3s ⁴P - 3p ²S°
1190.9207	P	8*	3.58	13.99	0½-0½	UV 25	9708.452	P		10.33	11.60	0½-0½	0.01
1190.9262	P	8*	3.58	13.99	1½-0½								
1191.0134	P	12*	3.58	13.99	0½-1½		8680.283	D	17	10.34	11.76	2½-3½	3s ⁴P - 3p ⁴D°
1190.8560	P	6	3.58	13.99	1½-2½	2p³²P°- 5d ²F	8683.401	D	16	10.33	11.76	1½-2½	1
						UV 26	8606.149	D	14	10.33	11.75	0½-1½	
1190.6866	P	2	3.58	13.99	1½-2½	2p³²P°- 5d ⁴P	8718.826	D	14	10.34	11.76	2½-2½	
1190.494	A	6	3.58	13.99	1½-1½	UV 27	8711.704	D	15	10.33	11.75	1½-1½	
1190.032	P	5	3.58	13.99	0½-0½		8703.248	D	14	10.33	11.75	0½-0½	
							8747.357	D	9	10.34	11.75	2½-1½	
1189.466	P		3.58	14.00	1½-2½	2p³²P°- 5d ⁴D	8728.894	D	10	10.33	11.75	1½-0½	
1189.483	P		3.58	14.00	0½-1½	UV 28							
1188.9687	P	14	3.58	14.00	1½-2½	2p³²P°- 5d ²D	8216.345	D	15	10.34	11.84	2½-2½	3s ⁴P - 3p ⁴P°
1189.2284	P	14*	3.58	14.00	0½-1½	UV 29	8210.715	D	11	10.33	11.84	1½-1½	2
1189.2339	P	14*	3.58	14.00	1½-1½		8200.363	D	10	10.33	11.84	0½-0½	
							8242.393	D	13	10.34	11.84	2½-1½	
1172.234	P		3.58	14.15	1½-2½	2p³²P°- 7s ⁴P	8223.140	D	13	10.33	11.84	1½-0½	
1173.265	P		3.58	14.14	0½-1½	UV 30	8184.867	D	13	10.33	11.84	1½-2½	
1171.418	B	6	3.58	14.16	-1½	2p³²P°- 7s ²P	8188.023	D	13	10.33	11.84	0½-1½	
						UV 31							
1171.904	B	5	3.58	14.15	-1½	2p³²P°- 6d ²P	7468.307	A	33	10.34	12.00	2½-1½	3s ⁴P - 3p ⁴S°
1171.722	B	4	3.58	14.16	-0½	UV 32	7442.293	A	31	10.33	12.00	1½-1½	3
							7423.639	A	29	10.33	12.00	0½-1½	
1171.502	B	3	3.58	14.16	1½-1½	2p³²P°- 6d ⁴P	7405.680	P		10.34	12.01	2½-2½	3s ⁴P - 3p ²D°
1170.815	B	2	3.58	14.16	0½-0½	UV 33	7421.944	P		10.33	12.00	1½-1½	3.01
							7447.815	P		10.34	12.00	2½-1½	
1170.485	P		3.58	14.17	1½-2½	2p³²P°- 6d ⁴D	7380.100	P		10.33	12.01	1½-2½	
1170.499	B	3	3.58	14.17	0½-1½	UV 34	7403.388	P		10.33	12.00	0½-1½	
1170.220	B	6	3.58	14.17	1½-2½	2p³²P°- 6d ²D	6922.713	P		10.34	12.13	2½-1½	3s ⁴P - 3p ²P°
*1170.432	B	7	3.58	14.17	-1½	UV 35	6917.382	P		10.33	12.12	1½-0½	3.02
							6900.356	P		10.33	12.13	1½-1½	
							6901.260	P		10.33	12.12	0½-0½	
							6884.314	P		10.33	12.13	0½-1½	

MULTIPLIET TABLE

N I—Continued

N I—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						
53.398	A	9	10.34	13.25	2½-3½	3s 4P - 4p 4D°	9493.774	P		10.69	12.00	1½-0½	3s 2P - 3p 4S°
54.733	A	10	10.33	13.24	1½-2½	4	9419.387	P		10.68	12.00	0½-0½	6.07
55.158	A	9	10.33	13.24	0½-1½								
63.222	P		10.34	13.24	2½-2½		9392.789	D	15	10.69	12.01	1½-2½	3s 2P - 3p 2D°
61.283	P		10.33	13.24	1½-1½		9386.805	D	14	10.68	12.00	0½-1½	7
58.714	P	3.5	10.33	13.24	0½-0½		9460.676	D	10	10.69	12.00	1½-1½	
69.799	P		10.34	13.24	2½-1½								
64.847	P		10.33	13.24	1½-0½								
23.128	A	12	10.34	13.27	2½-3½	3s 4P - 4p 4P°	8629.238	D	16	10.69	12.13	1½-1½	3s 2P - 3p 2P°
22.101	A	10	10.33	13.27	1½-2½	5	8594.005	D	15	10.68	12.12	0½-0½	8
18.860	P	3.0	10.33	13.26	0½-0½		8655.887	A	14	10.69	12.12	1½-0½	
30.465	A	8	10.34	13.27	2½-1½		8567.735	D	14	10.68	12.13	0½-1½	
24.880	A	10	10.33	13.26	1½-0½								
14.804	A	9	10.33	13.27	1½-2½		4935.121	A	16	10.69	13.20	1½-0½	3s 2P - 4p 2S°
16.096	A	9	10.33	13.27	0½-1½		4914.937	A	14	10.68	13.20	0½-0½	9
84.938	P		10.34	13.30	2½-2½	3s 4P - 4p 2D°							
89.064	P		10.33	13.29	1½-1½	5.01	4753.196	A	8	10.69	13.30	1½-2½	3s 2P - 4p 2D°
97.293	P		10.34	13.29	2½-1½		4750.295	A	6	10.68	13.29	0½-1½	9.01
76.757	P		10.33	13.30	1½-2½		4769.140	P		10.69	13.29	1½-1½	
83.146	P		10.33	13.29	0½-1½								
51.480	A	13	10.34	13.32	2½-1½	3s 4P - 4p 4S°	4669.894	A	12	10.69	13.34	1½-1½	3s 2P - 4p 2P°
43.431	A	11	10.33	13.32	1½-1½	6	4660.455	A	10	10.68	13.34	0½-0½	9.02
37.640	A	10	10.33	13.32	0½-1½		4678.598	A	8	10.69	13.34	1½-0½	
							4651.821	A	7	10.68	13.34	0½-1½	
83.688	P		10.34	13.79	2½-3½	3s 4P - 5p 4D°							
84.982	P		10.33	13.79	1½-2½	6.01	4109.949	A	15	10.69	13.71	1½-2½	3s 2P - 3p' 2D°
85.637	P		10.33	13.78	0½-1½		4099.944	A	13	10.68	13.70	0½-1½	10
91.007	P		10.34	13.79	2½-2½		4113.975	A	8	10.69	13.70	1½-1½	
89.984	P		10.33	13.78	1½-1½								
88.416	P		10.33	13.78	0½-0½								
75.239	P		10.34	13.80	2½-2½	3s 4P - 5p 4P°	4024.565	A	8	10.69	13.77	1½-0½	3s 2P - 5p 2S°
74.518	P		10.33	13.80	1½-1½	6.02	4011.133	A	7	10.68	13.77	0½-0½	10.01
72.000	P		10.33	13.80	0½-0½								
80.509	P		10.34	13.80	2½-1½		4000.025	A	7	10.69	13.79	1½-1½	3s 2P - 5p 2P°
76.315	P		10.33	13.80	1½-0½		3989.050	A	10*	10.68	13.79	0½-0½	10.02
69.266	P		10.33	13.80	1½-2½		4002.331	A	4	10.69	13.79	1½-0½	
70.208	P		10.33	13.80	0½-1½		3986.762	P	1.6	10.68	13.79	0½-1½	
53.056	P		10.34	13.82	2½-1½	3s 4P - 5p 4S°	3892.204	A	13	10.69	13.87	1½-2½	3s 2P - 5p 2D°
47.157	P		10.33	13.82	1½-1½	6.03	3887.571	A	12	10.68	13.87	0½-1½	10.03
42.913	P		10.33	13.82	0½-1½		3900.175	A	9*	10.69	13.87	1½-1½	
81.33	C	1200	10.69	11.60	1½-0½	3s 2P - 3p 2S°	3830.433	A	13	10.69	13.93	1½-1½	3s 2P - 3p' 2P°
29.61	C	670	10.68	11.60	0½-0½	6.04	3822.034	A	11	10.68	13.92	0½-0½	11
							3834.229	A	11*	10.69	13.92	1½-0½	
							3818.264	A	9	10.68	13.93	0½-1½	
10.71	P		10.69	11.76	1½-2½	3s 2P - 3p 4D°							
49.33	P		10.68	11.75	0½-1½	6.05							
61.36	P		10.69	11.75	1½-1½								
79.58	P		10.68	11.75	0½-0½		14757.07	C	300	10.92	11.76	2½-3½	2p44P - 3p 4D°
92.20	P		10.69	11.75	1½-0½		14966.60	C	180	10.93	11.76	1½-2½	11.01
							15094.96	C	75	10.93	11.75	0½-1½	
36.31	P		10.69	11.84	1½-2½	3s 2P - 3p 4P°	14868.87	C	100	10.92	11.76	2½-2½	
85.01	P		10.68	11.84	0½-1½	6.06	15050.88	C	80	10.93	11.75	1½-1½	
80.83	P		10.69	11.84	1½-1½		15146.66	C	75	10.93	11.75	0½-0½	
06.04	P		10.68	11.84	0½-0½		14952.07	C	15	10.92	11.75	2½-1½	
02.25	P		10.69	11.84	1½-0½		15102.29	C	26	10.93	11.75	1½-0½	

MULTIPLY TABLE

N I - Continued

N I - 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						
13464.53	C	185	10.92	11.84	2½-2½	2p ⁴ P - 3p 4P°	4044.31	H	4.5	10.92	13.99	2½-3½	2p ⁴ P - 5f D [3]°
13615.56	C	35	10.93	11.84	1½-1½	11.02	4035.51	H	1.2	10.92	14.00	2½-2½	14.07 [2]°
13686.03	C	14	10.93	11.84	0½-0½		4045.89	H	12.2*	10.93	13.99	0½-1½	
13534.64	C	60	10.92	11.84	2½-1½		4035.06	H	3.1	10.93	14.00	0½-	[1]°
13649.74	C	58	10.93	11.84	1½-0½								
13544.61	C	65	10.93	11.84	1½-2½		4037.48	H	7.0	10.92	13.99	2½-3½	2p ⁴ P - 5f G [3]°
13651.63	C	60	10.93	11.84	0½-1½								14.08
11566.114	D	4	10.92	12.00	2½-1½	2p ⁴ P - 3p 4S°	4030.02	H	3.4	10.93	14.00	1½-2½	2p ⁴ P - 5f F [2]°
11625.173	D	3	10.93	12.00	1½-1½	12							14.09
11651.45	D	2	10.93	12.00	0½-1½								
5328.616	A	12	10.92	13.25	2½-3½	2p ⁴ P - 4p 4D°	3957.20	H	4.9	10.92	14.06	2½-3½	2p ⁴ P - 6p 4D°
5356.623	A	10	10.93	13.24	1½-2½	13	3974.03	H	4.2	10.93	14.05	1½-2½	14.10
5372.611	A	8	10.93	13.24	0½-1½								
5344.038	A	6*	10.92	13.24	2½-2½		3952.21	H	4.5	10.92	14.06	2½-2½	2p ⁴ P - 6p 4P°
5367.006	A	9	10.93	13.24	1½-1½		3960.45	H	2.6	10.92	14.05	2½-1½	14.11
5378.273	A	9	10.93	13.24	0½-0½								
5374.388	P		10.92	13.24	2½-1½		3822.82	H	2.8	10.93	14.17	1½-2½	2p ⁴ P - 6f F [2]°
5372.666	P	m	10.93	13.24	1½-0½								14.12
5281.205	A	15	10.92	13.27	2½-2½	2p ⁴ P - 4p 4P°	3781.32	H	6	10.92	14.20	2½-3½	2p ⁴ P - 7p 4D°
5305.011	A	8	10.93	13.27	1½-1½	14							14.13
5314.865	A	7	10.93	13.26	0½-0½								
5292.678	A	13	10.92	13.27	2½-1½		9395.85	P		11.60	12.92	0½-1½	3p 2S° - 4s 2P
5309.395	A	12	10.93	13.26	1½-0½		9464.23	D	1	11.60	12.91	0½-0½	14.14
5293.481	A	10	10.93	13.27	1½-2½								
5310.476	A	10	10.93	13.27	0½-1½		9060.472	D	10	11.60	12.97	0½-1½	3p 2S° - 3d 2P
5169.629	A	11	10.92	13.32	2½-1½	2p ⁴ P - 4p 4S°	9028.918	D	9	11.60	12.98	0½-0½	15
5181.396	A	10	10.93	13.32	1½-1½	14.01							
5186.607	A	9	10.93	13.32	0½-1½		9020.68	D	2	11.60	12.98	0½-1½	3p 2S° - 3d 4F
4494.81	H	4.9	10.92	13.68	2½-3½	2p ⁴ P - 4f D [3]°	6050.757	P		11.60	13.65	0½-1½	3p 2S° - 5s 2P
4503.66	P		10.93	13.68	1½-2½	14.02	6075.802	A	9	11.60	13.64	0½-0½	15.02
4492.51	H	4.4	10.93	13.69	1½-2½								
4485.29	H	2.8	10.93	13.69	0½-	[1]°	6017.674	A	11	11.60	13.66	0½-1½	3p 2S° - 4d 4F
4476.36	H	0.8	10.93	13.70	1½-2½	2p ⁴ P - 4f F [2]°							15.03
4317.766	A	6	10.92	13.79	2½-3½	2p ⁴ P - 5p 4D°	6008.472	A	16	11.60	13.67	0½-1½	3p 2S° - 4d 2P
4336.640	A	6	10.93	13.79	1½-2½	14.04	5999.430	A	14	11.60	13.67	0½-0½	16
4347.627	P		10.93	13.78	0½-1½		5218.98	H	4.9	11.60	13.98	0½-1½	3p 2S° - 6s 2P
4328.395	P		10.92	13.79	2½-2½		5231.29	P		11.60	13.97	0½-0½	16.01
4343.962	A	2	10.93	13.78	1½-1½								
4351.713	A	1	10.93	13.78	0½-0½		5201.608	A	8	11.60	13.99	0½-1½	3p 2S° - 5d 2P
4335.690	P		10.92	13.78	2½-1½		5199.837	A	5	11.60	13.99	0½-0½	16.02
4348.042	P		10.93	13.78	1½-0½								
4305.508	A	5	10.92	13.80	2½-2½	2p ⁴ P - 5p 4P°	4847.38	H	14.9	11.60	14.16	0½-1½	3p 2S° - 7s 2P
4321.334	A	0	10.93	13.80	1½-1½	14.05	4869.10	H	3.4	11.60	14.15	0½-0½	16.03
4327.595	P		10.93	13.80	0½-0½								
4313.155	A	4	10.92	13.80	2½-1½		4855.56	H	1.3	11.60	14.15	0½-1½	3p 2S° - 6d 2P
4323.964	A	5	10.93	13.80	1½-0½		4852.55	H	4.9	11.60	14.16	0½-0½	16.04
4313.663	A	2	10.93	13.80	1½-2½								
4324.965	P		10.93	13.80	0½-1½		4677.82	H	2.3	11.60	14.25	0½-1½	3p 2S° - 7d 4F
4273.377	A	1	10.92	13.82	2½-1½	2p ⁴ P - 5p 4S°	4660.31	P		11.60	14.26	0½-1½	3p 2S° - 8s 2P
4281.415	A	3	10.93	13.82	1½-1½	14.06	4675.44	H	2.2	11.60	14.25	0½-0½	16.06
4284.973	A	2	10.93	13.82	0½-1½								

MULTIPLIET TABLE

N 1 - Continued

N 1 - 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						
291.679	D	5	11.76	12.86	3 $\frac{1}{2}$ -2 $\frac{1}{2}$	3p ⁴ D°- 4s ⁴ P 17	6482.699	A	21	11.76	13.68	3 $\frac{1}{2}$ -4 $\frac{1}{2}$	3p ⁴ D°- 4d ⁴ F 21
313.900	D	4	11.76	12.85	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		6484.800	A	20	11.76	13.67	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	
323.184	D	3	11.75	12.85	1 $\frac{1}{2}$ -0 $\frac{1}{2}$		6483.751	A	19	11.75	13.66	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	
227.076	D	3	11.76	12.86	2 $\frac{1}{2}$ -2 $\frac{1}{2}$		6481.707	A	18	11.75	13.66	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	
266.210	D	3	11.75	12.85	1 $\frac{1}{2}$ -1 $\frac{1}{2}$		6506.308	A	15	11.76	13.67	3 $\frac{1}{2}$ -3 $\frac{1}{2}$	
294.242	D	2	11.75	12.85	0 $\frac{1}{2}$ -0 $\frac{1}{2}$		6499.543	A	16*	11.76	13.66	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	
180.142	D	1	11.75	12.86	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		6491.221	A	14	11.75	13.66	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	
37.556	D	2	11.75	12.85	0 $\frac{1}{2}$ -1 $\frac{1}{2}$		6521.110	P		11.76	13.66	3 $\frac{1}{2}$ -2 $\frac{1}{2}$	
						6507.024	P		11.76	13.66	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		
114.644	D	13	11.76	12.99	3 $\frac{1}{2}$ -4 $\frac{1}{2}$	3p ⁴ D°- 3d ⁴ F 18	6457.897	A	15	11.76	13.68	3 $\frac{1}{2}$ -3 $\frac{1}{2}$	3p ⁴ D°- 4d ⁴ F 21.01
112.483	D	12	11.76	12.98	2 $\frac{1}{2}$ -3 $\frac{1}{2}$		6468.437	A	19	11.76	13.67	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	
108.893	D	11	11.75	12.98	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		6489.821	A	8	11.76	13.67	3 $\frac{1}{2}$ -2 $\frac{1}{2}$	
105.130	D	10	11.75	12.98	0 $\frac{1}{2}$ -1 $\frac{1}{2}$		6436.714	A	13	11.76	13.68	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	
64.845	D	7	11.76	12.98	3 $\frac{1}{2}$ -3 $\frac{1}{2}$		6452.822	P	(1)	11.75	13.67	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	
47.255	D	8	11.76	12.98	2 $\frac{1}{2}$ -2 $\frac{1}{2}$		6484.067	A	7	11.76	13.68	3 $\frac{1}{2}$ -2 $\frac{1}{2}$	
28.280	D	7	11.75	12.98	1 $\frac{1}{2}$ -1 $\frac{1}{2}$		6453.232	P		11.76	13.68	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	
99.98	D	2	11.76	12.98	3 $\frac{1}{2}$ -2 $\frac{1}{2}$		6426.395	P		11.75	13.68	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	
66.79	D	3	11.76	12.98	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	6462.716	A	11	11.76	13.68	2 $\frac{1}{2}$ -2 $\frac{1}{2}$		
97.750	D	4	11.76	13.00	3 $\frac{1}{2}$ -3 $\frac{1}{2}$	3p ⁴ D°- 3d ⁴ F 18.01	6437.682	A	15*	11.75	13.68	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	3p ⁴ D°- 4d ⁴ P 21.02
17.822	D	5	11.76	12.99	2 $\frac{1}{2}$ -2 $\frac{1}{2}$		6417.066	A	11	11.75	13.68	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	
69.356	P		11.76	12.99	3 $\frac{1}{2}$ -2 $\frac{1}{2}$		6447.132	A	12	11.75	13.68	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	
47.066	D	4	11.76	13.00	2 $\frac{1}{2}$ -3 $\frac{1}{2}$		6428.320	A	16*	11.75	13.68	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	
80.424	D	3	11.75	12.99	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		6440.937	A	17	11.76	13.69	3 $\frac{1}{2}$ -3 $\frac{1}{2}$	
54.259	D	4	11.76	13.00	3 $\frac{1}{2}$ -2 $\frac{1}{2}$		6420.643	A	16	11.76	13.69	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	
68.510	P		11.76	13.00	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	6407.676	A	12	11.75	13.69	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	3p ⁴ D°- 4d ⁴ D 21.03	
05.54	D	0	11.75	13.00	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	6402.364	P		11.75	13.69	0 $\frac{1}{2}$ -0 $\frac{1}{2}$		
03.055	D	5	11.76	13.00	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	6441.708	A	13	11.76	13.69	3 $\frac{1}{2}$ -2 $\frac{1}{2}$		
31.474	D	5	11.75	13.00	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	6423.025	A	16*	11.76	13.69	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		
33.369	D	3	11.75	13.00	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	6411.646	A	15	11.75	13.69	1 $\frac{1}{2}$ -0 $\frac{1}{2}$		
55.736	D	3	11.75	13.00	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	6419.866	A	9	11.76	13.69	2 $\frac{1}{2}$ -3 $\frac{1}{2}$		
09.220	D	2	11.75	13.00	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	6405.273	A	8*	11.75	13.69	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		
53.330	D	9	11.76	13.02	3 $\frac{1}{2}$ -3 $\frac{1}{2}$	3p ⁴ D°- 3d ⁴ D 19	6398.402	P		11.75	13.69		0 $\frac{1}{2}$ -1 $\frac{1}{2}$
22.748	D	7	11.76	13.02	2 $\frac{1}{2}$ -2 $\frac{1}{2}$		6413.244	P		11.76	13.70		3 $\frac{1}{2}$ -2 $\frac{1}{2}$
38.564	D	5	11.75	13.02	1 $\frac{1}{2}$ -1 $\frac{1}{2}$		6401.861	P		11.76	13.69		2 $\frac{1}{2}$ -1 $\frac{1}{2}$
38.286	D	4	11.75	13.02	0 $\frac{1}{2}$ -0 $\frac{1}{2}$		6392.359	P		11.76	13.70	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	
72.145	D	6	11.76	13.02	3 $\frac{1}{2}$ -2 $\frac{1}{2}$		6386.565	P		11.75	13.69	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	
44.621	D	6	11.76	13.02	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		6377.109	P		11.75	13.70	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	
0.003	D	5	11.75	13.02	1 $\frac{1}{2}$ -0 $\frac{1}{2}$		5616.557	A	10	11.76	13.97	3 $\frac{1}{2}$ -2 $\frac{1}{2}$	
4.000	D	4	11.76	13.02	2 $\frac{1}{2}$ -3 $\frac{1}{2}$		5623.140	A	10	11.76	13.96	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	
46.770	D	4	11.75	13.02	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		5625.274	A	5	11.75	13.96	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	
6.885	D	4	11.75	13.02	0 $\frac{1}{2}$ -1 $\frac{1}{2}$		5600.528	A	5	11.76	13.97	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	
12.12	P		11.76	13.04	3 $\frac{1}{2}$ -2 $\frac{1}{2}$	3p ⁴ D°- 3d ² D 19.01	5611.336	A	6	11.75	13.96	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	3p ⁴ D°- 6s ⁴ P 24
16.46	P		11.76	13.03	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		5618.126	A	6	11.75	13.96	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	
4.01	D	1	11.76	13.04	2 $\frac{1}{2}$ -2 $\frac{1}{2}$		5588.820	P		11.75	13.97	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	
11.27	P		11.75	13.03	1 $\frac{1}{2}$ -1 $\frac{1}{2}$		5604.224	A	6	11.75	13.96	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	
8.98	P		11.75	13.04	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		5583.148	P		11.76	13.98	2 $\frac{1}{2}$ -1 $\frac{1}{2}$	
4.964	A	17	11.76	13.63	3 $\frac{1}{2}$ -2 $\frac{1}{2}$	3p ⁴ D°- 5s ⁴ P 20	5585.519	P		11.75	13.97	1 $\frac{1}{2}$ -0 $\frac{1}{2}$	3p ⁴ D°- 6s ² P 25
3.462	A	17	11.76	13.62	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		5571.511	P		11.75	13.98	1 $\frac{1}{2}$ -1 $\frac{1}{2}$	
6.506	A	16	11.75	13.61	1 $\frac{1}{2}$ -0 $\frac{1}{2}$		5578.472	P		11.75	13.97	0 $\frac{1}{2}$ -0 $\frac{1}{2}$	
2.539	A	15	11.76	13.63	2 $\frac{1}{2}$ -2 $\frac{1}{2}$		5564.499	A	5	11.75	13.98	0 $\frac{1}{2}$ -1 $\frac{1}{2}$	
6.935	A	15	11.75	13.62	1 $\frac{1}{2}$ -1 $\frac{1}{2}$								
6.499	A	15	11.75	13.61	0 $\frac{1}{2}$ -0 $\frac{1}{2}$								
6.176	P		11.75	13.63	1 $\frac{1}{2}$ -2 $\frac{1}{2}$								
6.984	A	11	11.75	13.62	0 $\frac{1}{2}$ -1 $\frac{1}{2}$								

MULTIPLIET TABLE

N I—Continued

N I—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						
5560.337	A	10	11.76	13.99	3½-4½	3p 4D°- 5d 4F	5163.77	H	1.6	11.76	14.16	2½-2½	3p 4D°- 6d 4P
*5564.265	A	10	11.76	13.98	2½-3½	26	*5151.33	H	4.3	11.75	14.16	1½-1½	35
*5564.265	A	10	11.75	13.98	1½-2½		*5132.41	P	1.4	11.75	14.16	0½-0½	
5557.383	A	6	11.75	13.98	0½-1½		5153.76	H	1.3	11.75	14.16	1½-2½	
5580.079	A	0	11.76	13.98	3½-3½								
5575.872	P		11.76	13.98	2½-2½		*5155.26	H	5.3	11.76	14.17	3½-3½	3p 4D°- 6d 4D
5564.370	A	0	11.75	13.98	1½-1½		5141.78	P		11.76	14.17	2½-2½	36
5591.757	P		11.76	13.98	3½-2½		5132.28	P		11.75	14.17	1½-1½	
							5126.54	P		11.75	14.17	0½-0½	
5551.106	A	5	11.76	14.00	3½-3½	3p 4D°- 5d 2F	*5155.26	H	5.3	11.76	14.17	3½-2½	
5559.687	A	5	11.76	13.99	2½-2½	27	*5132.49	P	1.4	11.75	14.17	1½-0½	
5575.480	A	2	11.76	13.99	3½-2½								
5535.455	A	4	11.76	14.00	2½-3½		4963.98	H	20.6	11.76	14.26	3½-2½	3p 4D°- 8s 4P
5548.148	P	4.9	11.75	13.99	1½-2½		4971.51	H	10.5	11.76	14.25	2½-1½	37
							4973.37	H	4.6	11.75	14.24	1½-0½	
5571.769	P	2.3	11.76	13.99	3½-2½	3p 4D°- 5d 4P	4951.48	H	6.7	11.76	14.26	2½ 2½	
5551.814	P		11.76	13.99	2½-1½	28	4962.29	H	4.6	11.75	14.25	1½-1½	
5530.423	P		11.75	13.99	1½-0½		*4968.31	H	3.3	11.75	14.24	0½-0½	
5555.991	A	1	11.76	13.99	2½-2½		4942.31	P		11.75	14.26	1½-2½	
5540.307	P	4.9	11.75	13.99	1½-1½		4956.92	P		11.75	14.25	0½-1½	
5523.514	P	2.0	11.75	13.99	0½-0½								
5544.480	A	2	11.75	13.99	1½-2½		4950.23	H	14.0	11.76	14.27	3½-4½	3p 4D°- 7d 4F
5533.373	P	0.9	11.75	13.99	0½-1½		4955.74	H	10.3	11.76	14.26	2½-3½	38
							4957.42	H	3.9	11.75	14.25	1½-2½	
5545.000	A	6	11.76	14.00	3½-3½	3p 4D°- 5d 4D	4953.42	H	4.8	11.75	14.25	0½-1½	
5529.520	A	4	11.76	14.00	2½-2½	29	*4968.31	H	3.3	11.76	14.26	3½-3½	
5518.576	P		11.75	14.00	1½-1½		4966.79	P		11.76	14.25	2½-2½	
5545.132	A	5	11.76	14.00	3½-2½		4959.18	P		11.75	14.25	1½-1½	
5529.989	A	3	11.76	14.00	2½-1½								
5519.97	P	1.5	11.75	14.00	1½-0½		4949.13	H	1.0	11.75	14.26	1½-1½	3p 4D°- 7d 2P
5529.380	P		11.76	14.00	2½-3½		4943.61	H	2.0	11.75	14.26	0½-1½	39
5548.729	P		11.75	14.00	1½-2½								
5542.252	P		11.75	14.00	0½-1½		4947.74	H	2.4	11.76	14.27	3½-3½	3p 4D°- 7d 2F
							4946.53	H	2.9	11.75	14.26	1½-2½	40
5189.397	A	4	11.76	14.15	3½-2½	3p 4D°- 7s 4P	4966.41	H	2.0	11.76	14.26	3½-2½	3p 4D°- 7d 4P
5195.992	A	4	11.76	14.14	2½-1½	30	4942.89	H	2.1	11.75	14.26	1½-1½	41
5197.902	A	1	11.75	14.14	1½-0½		4937.43	P	0.8	11.75	14.26	0½-1½	
5175.712	P		11.76	14.15	2½-2½								
5185.914	A	1	11.75	14.14	1½-1½		4945.90	H	2.0	11.76	14.27	3½-3½	3p 4D°- 7d 4D
5191.806	A	1	11.75	14.14	0½-0½		4933.55	H	2.5	11.76	14.27	2½-2½	42
5165.710	P		11.75	14.15	1½-2½		4924.49	P		11.75	14.27	1½-1½	
5179.825	A	0	11.75	14.14	0½-1½								
5149.62	H	1.6	11.75	14.16	1½-1½	3p 4D°- 7s 2P	4830.69	H	4.6	11.76	14.33	3½-2½	3p 4D°- 9s 4P
						31	*4837.93	H	3.7	11.76	14.32	2½-1½	43
5162.920	A	4	11.76	14.16	3½-4½	3p 4D°- 6d 4F	*4839.85	H	2.4	11.75	14.31	1½-0½	
5167.896	A	2	11.76	14.16	2½-3½	32	*4819.10	H	2.6	11.76	14.33	2½-2½	
5169.40	P	(1)	11.76	14.16	1½-2½		*4829.10	H	4.0	11.75	14.32	1½-1½	
5165.77	H	8.5	11.75	14.15	0½-1½		4834.60	H	2.0	11.75	14.31	0½-0½	
*5153.05	H	2.6	11.75	14.15	0½-1½	3p 4D°- 6d 2P	4822.22	H	5.3	11.76	14.33	3½-4½	3p 4D°- 8d 4F
						33	4828.06	H	5.2	11.76	14.32	2½-3½	44
5158.49	H	5.2	11.76	14.17	3½-3½	3p 4D°- 6d 2F	*4829.10	H	4.0	11.75	14.32	1½-2½	
5165.90	H	8.0	11.76	14.16	2½-2½	34	*4839.85	H	2.4	11.76	14.32	3½-3½	3p 4D°- 8d 2F
5155.87	H	3.9	11.75	14.16	1½-2½		*4837.93	H	3.7	11.76	14.32	2½-2½	45
							4820.69	H	0.8	11.76	14.33	3½-3½	
							4827.86	H	1.4	11.76	14.32	2½-2½	
							*4819.10	H	2.6	11.75	14.32	1½-2½	

MULTIPLY TABLE

N I—Continued

N I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 4732.6 4747.4	H H	1.1 0.9	11.76 11.75	14.38 14.36	2½-2½ 0½-0½	3p 4D°-10s 4P 46	Air 6945.181 6960.507 6973.075 6979.187 6982.029 6926.669 6951.599	A A A A A A A	10 7 6 9 8 10 8	11.84 11.84 11.84 11.84 11.84 11.84 11.84	13.63 13.62 13.61 13.62 13.61 13.63 13.62	2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3p 4P°- 5s 4P 55
12186.82 12231.32 12270.80 *12288.97 12298.55 12129.97 12203.93	C C C C C C C	480 75* 20* 260 120 170 150	11.84 11.84 11.84 11.84 11.84 11.84 11.84	12.86 12.85 12.85 12.85 12.85 12.86 12.85	2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3p 4D°- 4s 4P 47	6793.841 6792.196 6791.908 6810.002 6800.375 6818.236	A A A A A P	8 7 3 3 4	11.84 11.84 11.84 11.84 11.84 11.84	13.67 13.66 13.66 13.66 13.66 13.66	2½-3½ 1½-2½ 0½-1½ 2½-2½ 1½-1½ 2½-1½	3p 4P°- 4d 4F 56
11505.02 11556.02 11454.32 11531.52 11430.25	P P P P P		11.84 11.84 11.84 11.84 11.84	12.92 12.91 12.92 12.91 12.92	2½-1½ 1½-0½ 1½-1½ 0½-0½ 0½-1½	3p 4P°- 4s 2P 48	6741.090 6758.267 6775.882	A A P	12 12	11.84 11.84 11.84	13.68 13.67 13.67	2½-3½ 1½-2½ 2½-2½	3p 4P°- 4d 2F 57
11006.18 10913.64 10959.77 10891.78 10937.73	P P P P P		11.84 11.84 11.84 11.84 11.84	12.97 12.98 12.97 12.98 12.97	2½-1½ 1½-0½ 1½-1½ 0½-0½ 0½-1½	3p 4P°- 3d 2P 49	6769.594 6741.663 6720.970 6759.198 6729.283 6752.028 6733.322	A A A P P A A	10* 11 13	11.84 11.84 11.84 11.84 11.84 11.84 11.84	13.68 13.68 13.68 13.68 13.68 13.68 13.68	2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3p 4P°- 4d 4P 58
10884.60 10879.19 10879.81	D D P	2 1	11.84 11.84 11.84	12.98 12.98 12.98	2½-3½ 1½-2½ 0½-1½	3p 4P°- 3d 4F 50	6722.618 6706.108 6700.494	A A P	15 13	11.84 11.84 11.84	13.69 13.69 13.69	2½-3½ 1½-2½ 0½ 1½	3p 4P°- 4d 4D 59
10693.167 10730.510 10774.993	D D D	3 4 3	11.84 11.84 11.84	13.00 12.99 12.99	2½-3½ 1½-2½ 2½-2½	3p 4P°- 3d 2F 51	6723.452 6708.762 6704.840 6726.120 6713.113	A A A A A	12 13 7 11 11	11.84 11.84 11.84 11.84 11.84	13.69 13.69 13.69 13.69 13.69	2½-2½ 2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½	
10757.888 10673.946 10623.177 10717.954 10643.981 10713.550 10653.034	D P D D D D D	7 5 6 6 8 8	11.84 11.84 11.84 11.84 11.84 11.84 11.84	13.00 13.00 13.00 13.00 13.00 13.00 13.00	2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3p 4P°- 3d 4P 52	5829.535 5840.887 5849.699 5854.040 5855.997 5816.486 5834.622	A A P A P A A	18* 11* 17* (1)	11.84 11.84 11.84 11.84 11.84 11.84 11.84	13.97 13.96 13.96 13.96 13.96 13.97 13.96	2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3p 4P°- 6s 4P 60
10539.573 10507.004 10500.271 10549.638 10520.583 10513.399 10563.328 10533.775	D D D D D D D D	10 8 6 8 8 7 5 5	11.84 11.84 11.84 11.84 11.84 11.84 11.84 11.84	13.02 13.02 13.02 13.02 13.02 13.02 13.02 13.02	2½-3½ 1½-2½ 0½-1½ 2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½	3p 4P°- 3d 4D 53	5790.27 5789.91	P P	4.1	11.84 11.84	13.98 13.98	2½-3½ 1½-2½	3p 4P°- 5d 4F 61
10401.29 10385.48 10427.14 10359.83 10365.69	P P P P P		11.84 11.84 11.84 11.84 11.84	13.04 13.03 13.03 13.04 13.03	2½-2½ 1½-1½ 2½-1½ 1½-2½ 0½-1½	3p 4P°- 3d 2D 54	5781.315 5763.974 5747.198 5768.49 5757.87	P P P P P	29.3* 7 29.3* 4.4 8.8	11.84 11.84 11.84 11.84 11.84	14.00 14.00 14.00 13.99 13.99	2½-3½ 1½-2½ 0½-1½ 1½-2½ 0½-1½	3p 4P°- 5d 4D 62 63

MULTIPLIET TABLE

N 1-Continued

N 1-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						
5370.697	A	4	11.84	14.15	2½-2½	3p 4P°- 7s 4P	4895.05	P	1.9	11.84	14.38	2½-2½	3p 4P°-10s 4P
5381.370	P	2.0	11.84	14.14	1½-1½	64	4914.0	H	0.6	11.84	14.37	2½-1½	78
5488.946	P		11.84	14.14	0½-0½		4916.08	H	1.5	11.84	14.36	1½-0½	
5392.534	P		11.84	14.14	2½-1½								
5394.292	P	6.3	11.84	14.14	1½-0½								
5359.590	A	1*	11.84	14.15	1½-2½								
5376.049	A	3	11.84	14.14	0½-1½		14313.21	C	80	12.00	12.86	1½-2½	3p 4S°- 4s 4P
							14454.62	C	29	12.00	12.85	1½-1½	79
							14548.55	C	20	12.00	12.85	1½-0½	
5361.96	H	4.2	11.84	14.16	2½-3½	3p 4P°- 6d 4F							
5363.67	H	10.1	11.84	14.15	1½-2½	65							
5374.89	H	2.8	11.84	14.15	2½-2½		12404.27	C	98	12.00	12.99	1½-2½	3p 4S°- 3d 4F
													80
5343.73	H	2.1	11.84	14.16	0½-0½	3p 4P°- 6d 2P	12381.65	C	375	12.00	13.00	1½-2½	3p 4S°- 3d 4P
							12328.76	C	350	12.00	13.00	1½-1½	81
							*12288.97	C	260	12.00	13.00	1½-0½	
5346.96	H	2.3	11.84	14.16	1½-2½	3p 4P°- 6d 4P							
5339.50	H	3.7	11.84	14.16	0½-1½	67							
*5334.38	H	8.0	11.84	14.17	2½-3½	3p 4P°- 6d 4D	12106.59	C	45	12.00	13.02	1½-2½	3p 4S°- 3d 4D
5323.25	P		11.84	14.17	1½-2½	68	12124.60	C	35	12.00	13.02	1½-1½	82
5318.43	P		11.84	14.17	0½-1½		12142.16	C	12	12.00	13.02	1½-0½	
*5334.38	H	8.0	11.84	14.17	2½-2½		7587.571	D		12.00	13.63	1½-2½	3p 4S°- 5s 4P
5324.00	H	4.3	11.84	14.17	1½-1½		7628.174	A	4	12.00	13.62	1½-1½	83
							7654.048	A	3	12.00	13.61	1½-0½	
5129.64	P		11.84	14.26	2½-2½	3p 4P°- 8s 4P							
5141.16	H	2.0	11.84	14.25	1½-1½	69	7378.513	P		12.00	13.68	1½-2½	3p 4S°- 4d 4P
*5151.33	H	4.3	11.84	14.25	2½-1½		7366.150	A	12	12.00	13.68	1½-1½	84
*5153.05	H	2.6	11.84	14.24	1½-0½		7351.363	P		12.00	13.68	1½-0½	
5136.31	H	4.1	11.84	14.25	0½-1½								
5134.39	H	6.1	11.84	14.26	2½-3½	3p 4P°- 7d 4F	7323.714	A	9	12.00	13.69	1½-2½	3p 4S°- 4d 4D
5135.79	H	3.1	11.84	14.25	1½-2½	70	7326.868	A	13	12.00	13.69	1½-1½	85
5146.07	P	2.3	11.84	14.25	2½-2½		7332.073	A	14	12.00	13.69	1½-0½	
							6275.514	A	10*	12.00	13.97	1½-2½	3p 4S°- 6s 4P
5117.88	H	1.6	11.84	14.26	0½-0½	3p 4P°- 7d 2P	6303.915	P	(0)	12.00	13.96	1½-1½	86
							6321.511	P	(00)	12.00	13.96	1½-0½	
5120.21	P	1.6	11.84	14.26	1½-1½	3p 4P°- 7d 4P	6219.654	P		12.00	13.99	1½-2½	3p 4S°- 5d 4P
5115.44	H	2.3	11.84	14.26	0½-1½	72	6214.411	P		12.00	13.99	1½-1½	87
							6201.977	P		12.00	13.99	1½-0½	
5110.52	H	4.5	11.84	14.27	2½-3½	3p 4P°- 7d 4D	6186.495	P		12.00	14.00	1½-2½	3p 4S°- 5d 4D
*5100.45	H	8.8	11.84	14.27	1½-2½	73	6187.083	P		12.00	14.00	1½-1½	88
*5100.45	H	8.8	11.84	14.27	1½-1½		6188.84	P	1.2	12.00	14.00	1½-0½	
5100.69	H	4.4	11.84	14.27	1½-0½								
4987.47	H	3.9	11.84	14.33	2½-2½	3p 4P°- 9s 4P	5746.958	P	12.9	12.00	14.15	1½-2½	3p 4S°- 7s 4P
5007.77	P	1.4	11.84	14.32	2½-1½	74	5771.961	A	5	12.00	14.14	1½-1½	89
5009.68	P	1.5	11.84	14.31	1½-0½		5786.835	P		12.00	14.14	1½-0½	
4997.18	P	1.6	11.84	14.32	2½-3½	3p 4P°- 8d 4F	5496.75	H	2.7	12.00	14.25	1½-1½	3p 4S°- 8s 4P
4998.16	P		11.84	14.32	1½-2½	75							90
*4987.47	H	3.9	11.84	14.32	1½-2½	3p 4P°- 8d 2F	5472.40	H	4.5	12.00	14.26	1½-1½	3p 4S°- 7d 4P
													91
4974.82	H	2.7	11.84	14.34	2½-3½	3p 4P°- 8d 4D	13587.73	C	200	12.01	12.92	2½-1½	3p 2D°- 4s 2P
*4965.54	H	1.0	11.84	14.34	1½-2½	77	13588.55	C	115	12.00	12.91	1½-0½	92
*4965.54	H	1.0	11.84	14.34	1½-1½		13448.12	C	21	12.00	12.92	1½-1½	

MULTIPLIET TABLE

N I - Continued

N I - 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						
12897.32	C	51	12.01	12.97	2½-1½	3p ²D°- 3d ²P	6216.511	A	9	12.01	14.00	2½-2½	3p ²D°- 5d ²D
12708.89	C	30	12.00	12.98	1½-0½	93	6194.313	A	8	12.00	14.00	1½-1½	109
12771.51	C	15	12.00	12.97	1½-1½								
12730.68	C	35	12.01	12.98	2½-3½	3p ²D°- 3d ⁴F	5764.75	P	17.1	12.01	14.16	2½-1½	3p ²D°- 7s ²P
12662.16	C	27	12.00	12.98	1½-2½	94						110	
12469.62	C	1350	12.01	13.00	2½-3½	3p ²D°- 3d ²F	5747.18	P	12.9*	12.00	14.16	1½-2½	3p ²D°- 6d ²F
12461.25	C	680	12.00	12.99	1½-2½	95						111	
12581.00	C	27	12.01	12.99	2½-2½		5744.25	P	1.7	12.00	14.16	1½-2½	3p ²D°- 6d ⁴P
*12557.66	C	14	12.01	13.00	2½-2½	3p ²D°- 3d ⁴P						112	
*12384.83	C	12	12.00	13.00	1½-1½	96	5502.23	P		12.01	14.26	2½-1½	3p ²D°- 8s ²P
12438.40	C	195	12.00	13.00	1½-2½		5500.42	H	6.0	12.00	14.25	1½-0½	113
12261.28	C	27*	12.01	13.02	2½-3½	3p ²D°- 3d ⁴D	5486.08	P	0.8*	12.01	14.27	2½-3½	3p ²D°- 7d ²F
12160.84	P		12.00	13.02	1½-2½	97	5488.37	P		12.00	14.26	1½-2½	114
12074.51	C	230	12.01	13.04	2½-2½	3p ²D°- 3d ²D	5485.96	P	0.8*	12.00	14.26	1½-2½	3p ²D°- 7d ⁴P
11998.36	C	110	12.00	13.03	1½-1½	98						115	
12109.30	C	25*	12.01	13.03	2½-1½								
11964.13	P		12.00	13.04	1½-2½		5326.34	H	2.7	12.01	14.34	2½-2½	3p ²D°- 8d ²D
7653.330	P		12.01	13.63	2½-2½	3p ²D°- 5s ⁴P						116	
7649.683	P		12.00	13.62	1½-1½	99	*4474.16	J	4	12.01	14.78	2½-	3p ²D°- 4s' ²D
7608.796	A	15	12.00	13.63	1½-2½		4458.59	P	2	12.00	14.78	1½-	117
7550.915	A	14	12.01	13.65	2½-1½	3p ²D°- 5s ²P	4356.3	J	4	12.01	14.85	2½-3½	3p ²D°- 3d' ²F
7546.209	A	13	12.00	13.64	1½-0½	100						118	
7406.239	A	18	12.01	13.68	2½-3½	3p ²D°- 4d ²F	4277.5	B	1	12.00	14.90	1½-2½	3p ²D°- 3d' ²D
7406.122	A	14	12.00	13.67	1½-2½	101						119	
7440.684	P		12.01	13.68	2½-3½	3p ²D°- 4d ⁴P	4264.1	B	2	12.01	14.92	2½-1½	3p ²D°- 3d' ²P
7386.196	P		12.00	13.68	1½-1½	102	4249.5	B	1	12.00	14.92	1½-0½	120
7398.641	A	16	12.00	13.68	1½-2½		4107.9	J	7	12.01	15.03	2½-2½	3p ²D°- 2p' ²D
7347.571	A	14	12.01	13.70	2½-2½	3p ²D°- 4d ²D						121	
7318.975	P		12.00	13.69	1½-1½	103							
6298.30	P	6.6	12.01	13.98	2½-1½	3p ²D°- 6s ²P	15582.27	C	200	12.13	12.92	1½-1½	3p ²P°- 4s ²P
6285.88	P	13.8	12.00	13.97	1½-0½	104	15682.86	C	54	12.12	12.91	0½-0½	122
6258.97	P	1.6*	12.00	13.98	1½-2½	3p ²D°- 5d ⁴F	15571.10	C	22	12.13	12.91	1½-0½	
6259.11	P	1.6*	12.00	13.98	1½-1½	105	15496.13	C	34	12.12	12.92	0½-1½	
6289.18	P	7.2	12.01	13.98	2½-1½								
6272.976	A	13	12.01	13.99	2½-1½	3p ²D°- 5d ²P	14681.04	C	55	12.13	12.97	1½-1½	3p ²P°- 3d ²P
6240.515	P		12.00	13.99	1½-0½	106	14522.81	C	36	12.12	12.98	0½-0½	123
6243.06	P	3.5	12.00	13.99	1½-1½		14598.42	C	17	12.13	12.98	1½-0½	
6237.675	A	10	12.01	14.00	2½-3½	3p ²D°- 5d ²F	14604.64	C	27	12.12	12.97	0½-1½	
6238.587	P		12.00	13.99	1½-2½	107							
6233.94	P	4.6	12.00	13.99	1½-2½	3p ²D°- 5d ⁴P	13624.18	C	350	12.13	13.04	1½-2½	3p ²P°- 3d ²D
						108	13602.27	C	190	12.12	13.03	0½-1½	124
							13668.60	C	65	12.13	13.03	1½-1½	

MULTIPLIET TABLE

N I—Continued

N I—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						
8129.170	D	3	12.13	13.65	1½-1½	3p ²P°- 5s ²P	4426.9	J	2	12.36	15.16		3s' ²D - 4p' ²F°
8150.66	D	1	12.12	13.64	0½-0½	125							141
8174.50	D	1	12.13	13.64	1½-0½								
8105.631	D	2	12.12	13.65	0½-1½								
7893.974	A	10	12.13	13.70	1½-2½	3p ²P°- 4d ²D	17436.22	C	24	12.97	13.68	1½-2½	3d ²P - 4f D [3]°
7886.224	A	9	12.12	13.69	0½-1½	126	17269.17	C	11	12.97	13.69	1½-	142 [2]°
							17385.13	C	12	12.98	13.69	0½-1½	
6715.81	P	2.6	12.13	13.97	1½-0½	3p ²P°- 6s ²P	17219.55	C	10	12.98	13.69	0½-	[1]°
						127							
6667.06	H	10.0	12.13	13.99	1½-1½	3p ²P°- 5d ²P	17326.86	C	16	12.97	13.69	1½-2½	3d ²P - 4f G [3]°
6648.25	P	9.7	12.12	13.99	0½-0½	128							143
6603.204	A	7	12.13	14.00	1½-2½	3p ²P°- 5d ²D	10461.2	G	4	12.97	14.16	1½-2½	3d ²P - 6f D [3]°
6595.844	P	5.8	12.12	14.00	0½-1½	129							144
6095.76	P	4.4	12.13	14.16	1½-1½	3p ²P°- 7s ²P	10412.4	G	2	12.97	14.16	1½-2½	3d ²P - 6f G [3]°
6117.55	P	2.4	12.12	14.15	0½-0½	130							145
5411.885	A	8	12.13	14.42	1½-0½	3p ²P°- 3s' ²S							
5401.456	A	5	12.12	14.42	0½-0½	131	17643.98	C	42	12.98	13.68	2½-	3d ⁴F - 4f D [3]°
4671.0	J	5	12.13	14.78	1½-	3p ²P°- 4s' ²D							146
4663.37	J	2	12.12	14.78	0½-1½	132							
*4474.16	J	4	12.13	14.90	1½-2½	3p ²P°- 3d' ²D	17516.58	C	125s	12.99	13.70	4½-	3d ⁴F - 4f G [5]°
4466.31	J	1	12.12	14.90	0½-1½	133	17367.55	C	23	12.98	13.70	3½-4½	147
							17584.86	C	100l	12.98	13.69	3½-	[4]°
4442.3	B	3	12.13	14.92	1½-	3p ²P°- 3d' ²P	17480.41	C	27	12.98	13.69	2½-3½	
4435.3	B	2	12.12	14.92	0½-	134	17636.83	C	8	12.98	13.69	3½-	[3]°
4392.42	J	3	12.13	14.95	1½-0½	3p ²P°- 3d' ²S	17531.99	C	18	12.98	13.69	2½-	
4385.53	J	2	12.12	14.95	0½-0½	135	17474.16	C	32	12.98	13.69	1½-2½	
							17429.23	C	16s	12.99	13.70	4½-	3d ⁴F - 4f F [4]°
							17282.04	C	4	12.98	13.70	3½-	148
							17291.81	C	6	12.98	13.70	3½-	[3]°
9187.449	D	9	12.36	13.71	2½-2½	3s' ²D - 3p' ²D°	12210.17	C	12*	12.99	14.00	4½-5½	3d ⁴F - 5f G [5]°
9208.001	D	8	12.36	13.70	1½-1½	136	12250.11	C	11*	12.98	13.99	3½-4½	[4]°
9207.59	D	3	12.36	13.70	2½-1½								
9187.84	D	3	12.36	13.71	1½-2½		10535.8	G	3	12.98	14.16	2½-3½	3d ⁴F - 6f D [3]°
													150
9045.878	D	13	12.36	13.73	2½-3½	3s' ²D - 3p' ²F°	10485.530	A	8	12.99	14.17	4½-5½	3d ⁴F - 6f G [5]°
9049.890	D	12	12.36	13.73	1½-2½	137	10517.7	G	4	12.98	14.16	3½-4½	151
9049.47	D	5	12.36	13.73	2½-2½		10480.4	G	4	12.98	14.16	2½-3½	[4]°
							10465.6	G	3	12.98	14.16	1½-2½	[3]°
8655.758	A	14	12.36	13.79	2½-1½	3s' ²D - 5p ²P°							
8666.935	A	12	12.36	13.79	1½-0½	138	10477.1	G	3	12.99	14.17	4½-4½	3d ⁴F - 6f F [4]°
8656.112	A	8	12.36	13.79	1½-1½								152
8166.235	D	8	12.36	13.87	2½-2½	3s' ²D - 5p ²D°							
8201.766	D	7	12.36	13.87	1½-1½	139							
8201.43	D	2	12.36	13.87	2½-1½		*18049.56	C	33l	12.99	13.68	2½-	3d ²F - 4f D [3]°
8166.51	D	2	12.36	13.87	1½-2½								153
7898.985	D	8	12.36	13.93	2½-1½	3s' ²D - 3p' ²P°	*17878.26	C	100	13.00	13.70	3½-4½	3d ²F - 4f G [5]°
7915.419	D	77	12.36	13.92	1½-0½	140	18108.61	C	12	13.00	13.69	3½-	154
7899.27	D	3	12.36	13.93	1½-1½		*17878.26	C	100	12.99	13.69	2½-3½	[4]°

MULTIPLIET TABLE

N I - Continued

N I - Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.		
			Low	High						Low	High				
Air 17787.27	C	8s	13.00	13.70	3 $\frac{1}{2}$ -	3d ² F - 4f 155	F [4] ^o	Air 18229.66	C	60	13.02	13.70	3 $\frac{1}{2}$ -	3d ⁴ D - 4f 167	F [4] ^o
12471	C	6	12.99	13.99	2 $\frac{1}{2}$ -	3d ² F - 5f 156	D [3] ^o	18199.13	C	8	13.02	13.70	2 $\frac{1}{2}$ -3 $\frac{1}{2}$		[3] ^o
*12384.83	C	12	13.00	14.00	3 $\frac{1}{2}$ -4 $\frac{1}{2}$	3d ² F - 5f 157	G [5] ^o	18240.54	C	13	13.02	13.70	3 $\frac{1}{2}$ -		[2] ^o
12391.9	C	5	12.99	13.99	2 $\frac{1}{2}$ -3 $\frac{1}{2}$		[4] ^o	*18210.56	C	32l	13.02	13.70	2 $\frac{1}{2}$ -		
10678.9	G	4	12.99	14.16	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	3d ² F - 6f 158	D [3] ^o	18169.74	C	13	13.02	13.70	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		
10614.2	G	5	13.00	14.17	3 $\frac{1}{2}$ -4 $\frac{1}{2}$	3d ² F - 6f 159	G [5] ^o	18251.58	C	11	13.02	13.70	2 $\frac{1}{2}$ -		[2] ^o
10702.9	G	1	13.00	14.16	3 $\frac{1}{2}$ -4 $\frac{1}{2}$		[4] ^o	*18210.56	C	32l	13.02	13.70	1 $\frac{1}{2}$ -		
18097.71	C	10	13.00	13.68	2 $\frac{1}{2}$ -	3d ⁴ P - 4f 160	D [3] ^o	18171.60	C	13	13.02	13.70	0 $\frac{1}{2}$ -1 $\frac{1}{2}$		
17918.06	C	7	13.00	13.69	2 $\frac{1}{2}$ -		[2] ^o	12575.99	C	8	13.02	14.01	3 $\frac{1}{2}$ -4 $\frac{1}{2}$	3d ⁴ D - 5f 168	F [4] ^o
18029.95	C	30	13.00	13.69	1 $\frac{1}{2}$ -			12578.8	C	3	13.05	14.01	3 $\frac{1}{2}$ -3 $\frac{1}{2}$		[3] ^o
18116.27	C	6	13.00	13.69	0 $\frac{1}{2}$ -1 $\frac{1}{2}$		[1] ^o	12564.4	C	4*	13.02	14.01	2 $\frac{1}{2}$ -3 $\frac{1}{2}$		[2] ^o
17852.09	C	10	13.00	13.69	1 $\frac{1}{2}$ -			*12557.66	C	14s	13.02	14.00	1 $\frac{1}{2}$ -		[2] ^o
17936.55	C	17	13.00	13.69	0 $\frac{1}{2}$ -			10761.1	G	4	13.02	14.17	3 $\frac{1}{2}$ -4 $\frac{1}{2}$	3d ⁴ D - 6f 169	F [4] ^o
17925.70	C	8	13.00	13.69	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	3d ⁴ P - 4f 161	G [4] ^o	10751.9	G	3	13.02	14.17	2 $\frac{1}{2}$ -3 $\frac{1}{2}$		[3] ^o
17979.89	C	51	13.00	13.69	2 $\frac{1}{2}$ -		[3] ^o	10743.1	G	2	13.02	14.17	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		[2] ^o
12464.2	C	5*	13.00	14.00	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	3d ⁴ P - 5f 162	D [2] ^o	18658.16	C	32	13.04	13.70	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	3d ² D - 4f 170	F [4] ^o
12428.81	C	6	13.00	13.99	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	3d ⁴ P - 5f 163	G [3] ^o	18670.00	C	4	13.04	13.70	2 $\frac{1}{2}$ -		[3] ^o
10676.1	G	3	13.00	14.16	1 $\frac{1}{2}$ -2 $\frac{1}{2}$	3d ⁴ P - 6f 164	D [2] ^o	18587.24	C	13	13.03	13.70	1 $\frac{1}{2}$ -2 $\frac{1}{2}$		[2] ^o
18751.01	C	2	13.02	13.68	3 $\frac{1}{2}$ -	3d ⁴ D - 4f 165	D [3] ^o	18630.19	C	13	13.03	13.70	1 $\frac{1}{2}$ -		
18566.75	C	4	13.02	13.69	3 $\frac{1}{2}$ -	3d ⁴ D - 4f 166	G [4] ^o	12778.5	C	5*	13.04	14.01	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	3d ² D - 5f 171	F [4] ^o
								10596.958	D	6	13.73	14.90	3 $\frac{1}{2}$ -4 $\frac{1}{2}$	3p' ² F ^o - 3d' ² G	
								10591.905	D	5	13.73	14.90	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	172	
								*18049.56	C	33l	14.90	15.58		3d' ² G - 4f' H [5] ^o	173
								9019.432	D	4	[16.24	17.62]	2 $\frac{1}{2}$ -3 $\frac{1}{2}$	3s''' ⁶ S ^o - 3p''' ⁶ P	
								9021.236	D	3	[16.24	17.62]	2 $\frac{1}{2}$ -2 $\frac{1}{2}$	174	
								9022.183	D	3	[16.24	17.62]	2 $\frac{1}{2}$ -1 $\frac{1}{2}$		

NSRDS-NBS 3, SECTION 5

NITROGEN $Z=7$

A N II Atomic Energy Levels

B N II Multiplet Table

Atomic Energy Levels

Part A

NITROGEN

N II

C I sequence; 6 electrons

Z = 7

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

$2p^2 \ ^3P_0$ **238750.50 ± 1.3** cm⁻¹; 418.847 Å (Vac)

I P 29.601 eV

The terms are from the revised and complete analysis of K.B.S. Eriksson, who has reobserved the spectrum from 2077 Å to 10547 Å and measured some 450 lines. He has added approximately 200 classified lines and 55 new levels to the earlier work. In the vacuum region improved wavelengths from older spectrograms are given for 15 lines.

Observed intersystem combinations connect the terms of different multiplicities, and the consistent system of term values provides accurate recalculated wavelengths in the region short of 2000 Å.

An evident misprint occurs in the published value of the term $5s \ ^1P_1^o$. The observed combinations indicate a correction of -0.61 cm⁻¹, which has been introduced in the table. The level $5d \ ^3D_2^o$ has, also, been added on the basis of one observed combination.

The table of observed *g*-values is taken from Volume I of "Atomic Energy Levels," since no later Zeeman data are available.

The ionization limit is well determined from selected members of the *nf* series ($n=4$ to 7).

REFERENCES

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N II					N II				
Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$2s^2 2p^3$	$2p^2 \ ^3P$	0	0.0	48.7 82.1	$2s \ 2p^3$	$2p^2 \ ^3P^o$	2	109217.6	1.0 -6.9
		1	48.7				1	109216.6	
		2	130.8				0	109223.5	
$2s^2 2p^2$	$2p^2 \ ^1D$	2	15316.2		$2s \ 2p^3$	$2p^3 \ ^1D^o$	2	144187.94	
$2s^2 2p^2$	$2p^2 \ ^1S$	0	32688.8		$2s^2 2p \ (^2P^o)3s$	$3s \ ^3P^o$	0	148908.59	31.58 136.35
							1	148940.17	
$2s \ 2p^3$	$2p^3 \ ^5S^o$	2	46784.6				2	149076.52	
$2s \ 2p^3$	$2p^3 \ ^3D^o$	3	92237.2	-13.1 -1.5	$2s^2 2p \ (^2P^o)3s$	$3s \ ^1P^o$	1	149187.80	
		2	92250.3						
		1	92251.8				$2s \ 2p^3$	$2p^3 \ ^3S^o$	1

ATOMIC ENERGY LEVELS

N II—Continued

N II—Continued

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
$2s^2 2p (^2P^\circ)3p$	$3p ^1P$	1	164610.76		$2s^2 2p (^2P^\circ)4d$	$4d ^3F^\circ$	2	209673.65	
$2s^2 2p (^2P^\circ)3p$	$3p ^3D$	1	166521.69	60.76			3	209737.97	64.32
		2	166582.45	96.19			4	209823.91	85.94
		3	166678.64		$2s^2 2p (^2P^\circ)4d$	$4d ^1D^\circ$	2	209925.76	
$2s 2p^3$	$2p^3 ^1P^\circ$	1	166765.66		$2s^2 2p (^2P^\circ)4d$	$4d ^3D^\circ$	1	210239.83	
$2s^2 2p (^2P^\circ)3p$	$3p ^3S$	1	168892.21				2	210266.04	26.21
							3	210301.68	35.64
$2s^2 2p (^2P^\circ)3p$	$3p ^3P$	0	170572.61	35.28	$2s^2 2p (^2P^\circ)4d$	$4d ^3P^\circ$	2	210705.26	
		1	170607.89	58.34			1	210751.43	-46.17
		2	170666.23				0	210776.45	-25.02
$2s^2 2p (^2P^\circ)3p$	$3p ^1D$	2	174212.03		$2s^2 2p (^2P^\circ_{o1/2})4f$	$4f [2\frac{1}{2}]$	3	211030.07	
$2s^2 2p (^2P^\circ)3p$	$3p ^1S$	0	170273.30				2	211032.93	-2.86
$2s^2 2p (^2P^\circ)3d$	$3d ^3F^\circ$	2	186511.58	59.40	"	$4f [3\frac{1}{2}]$	3	211056.26	
		3	186570.98	81.51			4	211060.24	3.98
		4	186652.49		$2s^2 2p (^2P^\circ)4d$	$4d ^1F^\circ$	3	211103.63	
$2s^2 2p (^2P^\circ)3d$	$3d ^1D^\circ$	2	187091.37		$2s^2 2p (^2P^\circ_{11/2})4f$	$4f' [3\frac{1}{2}]$	3	211287.23	
$2s^2 2p (^2P^\circ)3d$	$3d ^3D^\circ$	1	187437.56	24.00			4	211294.85	7.62
		2	187461.56	30.34	"	$4f' [4\frac{1}{2}]$	5	211389.95	
		3	187491.90				4	211402.03	-12.08
$2s^2 2 (^2P^\circ)3d$	$3d ^3P^\circ$	2	188857.37	-51.80	"	$4f' [2\frac{1}{2}]$	3	211410.47	
		1	188909.17	-28.07			2	211415.16	-4.69
		0	188937.24		"	$4f' [1\frac{1}{2}]$	1	211486.58	
$2s^2 2p (^2P^\circ)3d$	$3d ^1F^\circ$	3	189335.16				2	211490.30	3.72
$2s^2 2p (^2P^\circ)3d$	$3d ^1P^\circ$	1	190120.24		$2s^2 2p (^2P^\circ)4d$	$4d ^1P^\circ$	1	211336.16	
$2s^2 2p (^2P^\circ)4s$	$4s ^3P^\circ$	0	196540.23	51.84	$2s 2p^2(^4P)3s$	$3s' ^3P$	0	211749.35	30.10
		1	196592.07	119.47			1	211779.45	48.22
		2	196711.54		$2s^2 2p (^2P^\circ)5s$	$5s ^3P^\circ$	2	211827.67	
$2s^2 2p (^2P^\circ)4s$	$4s ^1P^\circ$	1	197858.69				0	214211.96	45.73
$2s^2 2p (^2P^\circ)4p$	$4p ^1P$	1	202170.63				1	214257.69	126.44
							2	214384.13	
$2s^2 2p (^2P^\circ)4p$	$4p ^3D$	1	202714.12	51.14	$2s^2 2p (^2P^\circ)5s$	$5s ^1P^\circ$	1	214829.18	
		2	202765.26	96.10	$2s^2 2p (^2P^\circ)5d$	$5d ^1D^\circ$	2	220495.36	
		3	202861.36		$2s^2 2p (^2P^\circ)5d$	$5d ^3D^\circ$	1	220674	
$2s^2 2p (^2P^\circ)4p$	$4p ^3P$	0	203162.48	26.55			2	220716	42
		1	203189.03	69.95	$2s^2 2p (^2P^\circ_{o1/2})5f$	$5f [2\frac{1}{2}]$	3	221054.50	
		2	203258.98				2	221057.01	-2.51
$2s^2 2p (^2P^\circ)4p$	$4p ^3S$	1	203537.66		"	$5f [3\frac{1}{2}]$	3	221069.22	
$2s^2 2p (^2P^\circ)4p$	$4p ^1D$	2	205350.18				4	221073.35	4.13
$2s 2p^2(^4P)3s$	$3s' ^3P$	1	205597.97	56.25	$2s^2 2p (^2P^\circ)5d$	$5d ^1F^\circ$	3	221141.61	
		2	205654.22	70.59	$2s^2 2p (^2P^\circ_{o1/2})5g$	$5g [3\frac{1}{2}]^\circ$	3	221163.71	
		3	205724.81				4	221163.71	0.00
$2s^2 2p (^2P^\circ)4p$	$4p ^1S$	0	206910.24		"	$5g [4\frac{1}{2}]^\circ$	4	221167.38	
							5	221167.57	0.19

N II—Continued

N II—Continued

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
$^2 2p (^2P_{1/2})5f$	5f' [3½]	3	221226.65	5.27	$2s^2 2p (^2P_{0/2})7f$	7f [3½]	3	229748.9	0.8
		4	221231.92				4	229749.7	
"	5f' [4½]	5	221301.10	-10.01	$2s 2p^2(^4P)3p$	$3p' ^5S^{\circ}$	2	229838.96	
		4	221311.11						
"	5f' [2½]	3	221292.31	-3.93	$2s^2 2p (^2P_{1/2})7f$	7f' [3½]	3	229907.5	
		2	221296.24				4		
"	5f' [1½]	1	221351.63	2.84	"	7f' [4½]	5	229938.1	-5.0
		2	221354.47				4	229943.1	
$^2 2p (^2P^{\circ})5d$	5d $^1P^{\circ}$	1	221246.17		$2s 2p^2(^4P)3p$	$3p' ^3P^{\circ}$	0		
							1		
							2	230831.74?	
$^2 2p (^2P_{1/2})5g$	5g' [4½]°	4	221322.76	0.10	N III ($^2P_{3/2}^{\circ}$)	Limit	238750.50 ± 1.3	
		5	221322.86				N III ($^2P_{1/2}^{\circ}$)	Limit
"	5g' [5½]°	5	221363.98	0.02	$2s 2p^2(^4P)3d$	$3d' ^5F$	1	242969.16	17.60
		6	221364.00				2	242986.76	
"	5g' [3½]°	3	221342.81	0.19			3	243012.77	26.01
		4	221343.00				4	243046.56	33.79
"	5g' [2½]°	2, 3	[221380.3]				5	243086.94	40.38
$^2 2p (^2P^{\circ})6s$	6s $^3P^{\circ}$	0		134.23	$2s 2p^2(^4P)3d$	$3d' ^5P$	3	244353.31	-38.57
		1	222744.16				2	244391.88	-26.64
		2	222878.39				1	244418.52	
$s 2p^2(^4P)3p$	$3p' ^3S^{\circ}$	1	223069.02		$2s 2p^2(^4P)3d$	$3d' ^5D$	0	244935.74	4.15
							1	244939.89	7.88
							2	244947.77	11.18
$s 2p (^2P^{\circ})6s$	6s $^1P^{\circ}$	1	223101.82				3	244958.95	14.36
							4	244973.31	
$s 2p^2(^4P)3p$	$3p' ^5D^{\circ}$	0	223643.30	15.25	$2s 2p^2(^4P)4f$	$4f' ^5G^{\circ}$	2		
		1	223658.55				3		
		2	223688.45				4	268378.35	37.50
		3	223731.59				5	268415.85	
		4	223785.51				6	268463.26	
$s 2p^2(^4P)3p$	$3p' ^5P^{\circ}$	1	225603.50	23.97	$2s 2p^2(^4P)4f$	$4f' ^5D^{\circ}$	0		
		2	225627.47				1		
		3	225671.22				2		
$s^2 2p (^2P_{0/2})6f$	6f [2½]	3	226482.68	-1.96			3		
		2	226484.64				4	268415.27?	
"	6f [3½]	3	226488.79	3.30	$2s 2p^2(^4P)4f$	$4f' ^5F^{\circ}$	1		
		4	226492.09				2		
$s^2 2p (^2P_{1/2})6f$	6f' [3½]	3	226640.22	3.03			3	268716.02	8.89
		4	226643.25				4	268724.91	8.81
"	6f' [4½]	5	226688.9	-7.3	$2s 2p^2(^4P)5f$	$5f' ^5G^{\circ}$	2		
		4	226696.2				3		
"	6f' [2½]	3	226675.99	-2.4			4	278333.5?	33.8
		2	226678.4				5	278367.3	
"	6f' [1½]	1	226718.6	2.2	N III ($^4P_{0/2}$)	Limit	295942.5	
		2	226720.8				($^4P_{1/2}$)	Limit
$s 2p^2(^4P)3p$	$3p' ^3D^{\circ}$	1	228694.30	37.51	($^4P_{3/2}$)	Limit	296083.6	
		2	228731.81						
		3	228791.83						

January 1971.

ATOMIC ENERGY LEVELS

N II Observed g -Values

Desig.	J	Obs. g	Desig.	J	Obs. g	Desig.	J	Obs. g
$3s\ ^3P^\circ$	1	1.455	$3p\ ^3S$	1	2.015	$3d\ ^1D^\circ$	2	0.986
	2	1.502		$3p\ ^3P$	1		1.530	$3d\ ^3D^\circ$
$3s\ ^1P^\circ$	1	1.051	2		1.497	2	1.114	
			3			3	3.329	
$3p\ ^1P$	1	1.005	$3p\ ^1D$	2	1.002	$3d\ ^3P^\circ$	2	1.504
$3p\ ^3D$	1	0.494	$3d\ ^3F^\circ$	3	1.079		1	1.487
	2	1.166		4	1.250			
	3	1.330				$3d\ ^1P^\circ$	1	1.026

N II Observed Terms

Configuration $1s^2 +$	Observed Terms					
$2s^2\ 2p^2$	$\left\{ \begin{array}{lll} 2p^2\ ^1S & 2p^2\ ^3P & 2p^2\ ^1D \end{array} \right.$					
$2s\ 2p^3$	$\left\{ \begin{array}{lll} 2p^3\ ^5S^\circ & 2p^3\ ^3P^\circ & 2p^3\ ^3D^\circ \\ 2p^3\ ^3S^\circ & 2p^3\ ^1P^\circ & 2p^3\ ^1D^\circ \end{array} \right.$					
	$ns\ (n \geq 3)$			$np\ (n \geq 3)$		
$2s^2\ 2p\ (^2P^\circ)nl$	$\left\{ \begin{array}{ll} 3-6s\ ^3P^\circ & 3-6s\ ^1P^\circ \end{array} \right.$			$\begin{array}{lll} 3-4p\ ^3S & 3-4p\ ^3P & 3-4p\ ^3D \\ 3-4p\ ^1S & 3-4p\ ^1P & 3-4p\ ^1D \end{array}$		
$2s\ 2p^2(^4P)nl'$	$\left\{ \begin{array}{ll} 3s'\ ^5P & 3s'\ ^3P \end{array} \right.$			$\begin{array}{lll} 3p'\ ^5S^\circ & 3p'\ ^5P^\circ & 3p'\ ^5D^\circ \\ 3p'\ ^3S^\circ & 3p'\ ^3P^\circ & 3p'\ ^3D^\circ \end{array}$		
	$nd\ (n \geq 3)$			$nf\ (n \geq 4)$		
$2s^2\ 2p\ (^2P^\circ)nl'$	$\left\{ \begin{array}{lll} 3-4d\ ^3P^\circ & 3-5d\ ^3D^\circ & 3-4d\ ^3F^\circ \\ 3-5d\ ^1P^\circ & 3-5d\ ^1D^\circ & 3-5d\ ^1F^\circ \end{array} \right.$					
$2s\ 2p^2(^4P)nl'$	$\begin{array}{lll} 3d'\ ^5P & 3d'\ ^5D & 3d'\ ^5F \end{array}$			$\begin{array}{lll} 4f'\ ^3D^\circ & 4f'\ ^5F^\circ & 4, 5f'\ ^5G^\circ \end{array}$		
	Observed Pairs					
	$nf\ (n \geq 4)$			$ng\ (g \geq 5)$		
$2s^2\ 2p\ (^2P^\circ_{01/2})nl$	$\begin{array}{ll} 4-6f\ [2\frac{1}{2}] & 4-7f\ [3\frac{1}{2}] \end{array}$			$\begin{array}{ll} 5g\ [3\frac{1}{2}]^\circ & 5g\ [4\frac{1}{2}]^\circ \end{array}$		
$2s^2\ 2p\ (^2P^\circ_{11/2})nl'$	$\begin{array}{ll} 4-7f'[3\frac{1}{2}] & 4-7f'[4\frac{1}{2}] \\ 4-6f'[2\frac{1}{2}] & 4-6f'[1\frac{1}{2}] \end{array}$			$\begin{array}{ll} 5g'[4\frac{1}{2}]^\circ & 5g'[5\frac{1}{2}]^\circ \\ 5g'[3\frac{1}{2}]^\circ & 5g'[2\frac{1}{2}]^\circ \dagger \end{array}$		

† Calculated value entered in the table for $5g'[2\frac{1}{2}]^\circ$.

Multiplet Table

Part B

NITROGEN

N II (Z=7)

I P 29.601 eV Limit $238750.50 \pm 1.3 \text{ cm}^{-1}$ 418.847 Å (Vac)

Anal A List A January 1971

REFERENCES

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- B. Edlén, *Nova Acta Reg. Soc. Sci. Uppsala [IV]* **9**, No. 6, 109-120 (1934). I P, T, C L, G D (Singlets). (I)
- A K. B. S. Eriksson, *Ark. Fys. (Stockholm)* **13**, No. 25, 303-329 (1958). I P, T, C L, I: W L 453 Å to 10547 Å
- P Predicted Wavelength: See B. Edlén, *Reports on Progress in Physics* **26**, 206-207 (1963). (I): W L 529 Å to 1085 Å and Ref. A (I): W L 453 Å to 1991 Å

New Multiplet Numbers, not inserted between older ones, start with UV 24 and 72

*Blend

‡Raie Ultime.

N II

N II

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
6583.45	P		0.02	1.90	2-2	$2p^2\ ^3P - 2p^2\ ^1D$	916.701	P	(100)	0.02	13.54	2-2	$2p^2\ ^3P - 2p^3\ ^3P^{\circ}$
6548.05	P		0.01	1.90	1-2	1F	916.020	P	(20)	0.01	13.54	1-1	UV 2
6527.23	P		0.00	1.90	0-2		916.710	P	(40)	0.02	13.54	2-1	
							915.962	P	(30)	0.01	13.54	1-0	
3070.55	P		0.02	4.05	2-0	$2p^2\ ^3P - 2p^2\ ^1S$	916.012	P	(40)	0.01	13.54	1-2	
3062.83	P		0.01	4.05	1-0	2F	915.612	P	(30)	0.00	13.54	0-1	
2142.775	A	6	0.02	5.80	2-2	$2p^2\ ^3P - 2p^3\ ^5S^{\circ}$							
2139.007	A	4	0.01	5.80	1-2	UV 0.01	694.169	P		0.02	17.88	2-2	$2p^2\ ^3P - 2p^3\ ^1D^{\circ}$
							693.774	P		0.01	17.88	1-2	UV 2.01
Vac													
1085.701‡	P	(150)	0.02	11.44	2-3	$2p^2\ ^3P - 2p^3\ ^3D^{\circ}$	671.386	P	(15)	0.02	18.48	2-2	$2p^2\ ^3P - 3s\ ^3P^{\circ}$
1084.580	P	(80)	0.01	11.44	1-2	UV 1	671.630	P	(3)	0.01	18.47	1-1	UV 3
1083.990	P	(40)	0.00	11.44	0-1		672.001	P	(5)	0.02	18.47	2-1	
1085.546	P	(30)	0.02	11.44	2-2		671.773	P	(5)	0.01	18.46	1-0	
1084.562	P	(30)	0.01	11.44	1-1		671.016	P	(5)	0.01	18.48	1-2	
1085.529	P	(2)	0.02	11.44	2-1		671.411	P	(4)	0.00	18.47	0-1	

MULTIPLIET TABLE

N II—Continued

N II—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						
670.884	P	(1)	0.02	18.50	2-1	$2p^2\ ^3P - 3s\ ^1P^\circ$	473.473	P		0.02	26.20	2-1	$2p^2\ ^3P - 4d\ ^1P^\circ$
670.515	P	(1+)	0.01	18.50	1-1	UV 3.01	473.289	P		0.01	26.20	1-1	UV 6.07
670.296	P	(2+)	0.00	18.50	0-1		473.180	P		0.00	26.20	0-1	
645.178	P	(30)	0.02	19.23	2-1	$2p^2\ ^3P - 2p^3\ ^3S^\circ$	466.519	P		0.02	26.58	2-2	$2p^2\ ^3P - 5s\ ^3P^\circ$
644.837	P	(20)	0.01	19.23	1-1	UV 4	466.834	P		0.01	26.56	1-1	UV 6.08
644.634	P	(10)	0.00	19.23	0-1		467.013	P		0.02	26.56	2-1	
							467.021	P		0.01	26.56	1-0	
600.115	P		0.02	20.68	2-1	$2p^2\ ^3P - 2p^3\ ^1P^\circ$	466.558	P		0.01	26.58	1-2	
599.819	P		0.01	20.68	1-1	UV 4.01	466.728	P		0.00	26.56	0-1	
599.644	P		0.00	20.68	0-1								
534.872	P		0.02	23.20	2-2	$2p^2\ ^3P - 3d\ ^1D^\circ$	465.770	P		0.02	26.63	2-1	$2p^2\ ^3P - 5s\ ^1P^\circ$
534.637	P		0.01	23.20	1-2	UV 4.02	465.592	P		0.01	26.63	1-1	UV 6.09
							465.486	P		0.00	26.63	0-1	
533.729	P	(8)	0.02	23.25	2-3	$2p^2\ ^3P - 3d\ ^3D^\circ$	453.793	P		0.02	27.34	2-2	$2p^2\ ^3P - 5d\ ^1D^\circ$
533.581	P	(5)	0.01	23.24	1-2	UV 5	453.624	P		0.01	27.34	1-2	UV 6.10
533.511	P	(3)	0.00	23.24	0-1								
533.815	P	(3)	0.02	23.24	2-2		453.340	C	(1)	0.02	27.36	2-3	$2p^2\ ^3P - 5d\ ^3D^\circ$
533.650	P	(3)	0.01	23.24	1-1		453.257	C	(0+)	0.01	27.36	1-2	UV 6.11
533.884	P		0.02	23.24	2-1								
529.867	P	(5)	0.02	23.41	2-2	$2p^2\ ^3P - 3d\ ^3P^\circ$							
529.491	P	(1)	0.01	23.42	1-1	UV 6							
529.722	P	(2)	0.02	23.42	2-1		Air						
529.413	P	(2)	0.01	23.42	1-0		5754.59	P		1.90	4.05	2-0	$2p^2\ ^1D - 2p^3\ ^1S$ 3F
529.637	P	(2)	0.01	23.41	1-2								
529.355	P	(2)	0.00	23.42	0-1		3176.87	P		1.90	5.80	2-2	$2p^2\ ^1D - 2p^3\ ^5S^\circ$ 0.01
526.345	P		0.02	23.57	2-1	$2p^2\ ^3P - 3d\ ^1P^\circ$							
526.118	P		0.01	23.57	1-1	UV 6.01							
525.983	P		0.00	23.57	0-1		Vac						
508.697	P	(2)*	0.02	24.39	2-2	$2p^2\ ^3P - 4s\ ^3P^\circ$	1300.035	P		1.90	11.44	2-3	$2p^2\ ^1D - 2p^3\ ^3D^\circ$
508.794	P		0.01	24.37	1-1	UV 6.02	1299.814	P		1.90	11.44	2-2	UV 6.12
509.006	P	(0+)	0.02	24.37	2-1		1299.788	P		1.90	11.44	2-1	
508.928	P	(0)	0.01	24.37	1-0		1064.947	P		1.90	13.54	2-2	$2p^2\ ^1D - 2p^3\ ^3P^\circ$
508.484	P	(0+)	0.01	24.39	1-2		1064.958	P		1.90	13.54	2-1	UV 6.13
508.668	P	(2)*	0.00	24.37	0-1								
505.746	P		0.02	24.53	2-1	$2p^2\ ^3P - 4s\ ^1P^\circ$	775.965	P	(100)	1.90	17.88	2-2	$2p^2\ ^1D - 2p^3\ ^1D^\circ$ UV 7
505.536	P		0.01	24.53	1-1	UV 6.03							
505.411	P		0.00	24.53	0-1		747.606	P		1.90	18.48	2-2	$2p^2\ ^1D - 3s\ ^3P^\circ$
476.656	P		0.02	26.03	2-2	$2p^2\ ^3P - 4d\ ^1D^\circ$	748.369	P	(10)	1.90	18.47	2-1	UV 7.01
476.469	P		0.01	26.03	1-2	UV 6.04	746.984	P	(15)	1.90	18.50	2-1	$2p^2\ ^1D - 3s\ ^1P^\circ$ UV 8
475.803	P	(3)	0.02	26.07	2-3	$2p^2\ ^3P - 4d\ ^3D^\circ$							
475.698	P	(2)	0.01	26.07	1-2	UV 6.05	715.254	P		1.90	19.23	2-1	$2p^2\ ^1D - 2p^3\ ^3S^\circ$ UV 8.01
475.647	P	(1)	0.00	26.07	0-1								
475.884	P	(1-)	0.02	26.07	2-2		660.286	P	(25)	1.90	20.68	2-1	$2p^2\ ^1D - 2p^3\ ^1P^\circ$ UV 9
475.757	P		0.01	26.07	1-1								
475.943	P		0.02	26.07	2-1								
474.891	P	(2)	0.02	26.12	2-2	$2p^2\ ^3P - 4d\ ^3P^\circ$	582.156	P	(3)	1.90	23.20	2-2	$2p^2\ ^1D - 3d\ ^1D^\circ$ UV 10
474.602	P	(0-)	0.01	26.13	1-1	UV 6.06							
474.787	P	(0+)	0.02	26.13	2-1								
474.546	P	(0)	0.01	26.13	1-0		580.802	P		1.90	23.25	2-3	$2p^2\ ^1D - 3d\ ^3D^\circ$
474.706	P	(0+)	0.01	26.12	1-2		580.904	P		1.90	23.24	2-2	UV 10.01
474.493	P	(0)	0.00	26.13	0-1		580.985	P		1.90	23.24	2-1	

MULTIPLLET TABLE

N II—Continued

N II—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						
576.232	P		1.90	23.41	2-2	$2p^2\ ^1D\ -3d\ ^3P^\circ$	858.376	P	(1)	4.05	18.50	0-1	$2p^2\ ^1S\ -3s\ ^1P^\circ$
576.060	P		1.90	23.42	2-1	UV 10.02							UV 11.18
574.650	C	(5)	1.90	23.47	2-3	$2p^2\ ^1D\ -3d\ ^1F^\circ$	816.740	P		4.05	19.23	0-1	$2p^2\ ^1S\ -2p^3\ ^3S^\circ$
						UV 11							UV 11.19
572.069	P		1.90	23.57	2-1	$2p^2\ ^1D\ -3d\ ^1P^\circ$	745.841	P	(5)	4.05	20.68	0-1	$2p^2\ ^1S\ -2p^3\ ^1P^\circ$
						UV 11.01							UV 12
551.282	P		1.90	24.39	2-2	$2p^2\ ^1D\ -4s\ ^3P^\circ$	640.121	P		4.05	23.42	0-1	$2p^2\ ^1S\ -3d\ ^3P^\circ$
551.645	P		1.90	24.37	2-1	UV 11.02							UV 12.01
547.818	P	(0)	1.90	24.53	2-1	$2p^2\ ^1D\ -4s\ ^1P^\circ$	635.197	P	(3)	4.05	23.57	0-1	$2p^2\ ^1S\ -3d\ ^1P^\circ$
						UV 11.03							UV 13
514.346	P		1.90	26.00	2-3	$2p^2\ ^1D\ -4d\ ^3F^\circ$	610.116	P		4.05	24.37	0-1	$2p^2\ ^1S\ -4s\ ^3P^\circ$
514.516	P		1.90	26.00	2-2	UV 11.04							UV 13.01
513.849	P	(2)	1.90	26.03	2-2	$2p^2\ ^1D\ -4d\ ^1D^\circ$	605.437	P		4.05	24.53	0-1	$2p^2\ ^1S\ -4s\ ^1P^\circ$
						UV 11.05							UV 13.02
512.859	P		1.90	26.07	2-3	$2p^2\ ^1D\ -4d\ ^3D^\circ$	561.600	P		4.05	26.13	0-1	$2p^2\ ^1S\ -4d\ ^3P^\circ$
512.952	P		1.90	26.07	2-2	UV 11.06							UV 13.03
513.021	P		1.90	26.07	2-1		559.762	P	(0)	4.05	26.20	0-1	$2p^2\ ^1S\ -4d\ ^1P^\circ$
													UV 13.04
511.799	P		1.90	26.12	2-2	$2p^2\ ^1D\ -4d\ ^3P^\circ$	549.027	P		4.05	26.63	0-1	$2p^2\ ^1S\ -5s\ ^1P^\circ$
511.678	P		1.90	26.13	2-1	UV 11.07							UV 13.05
510.758	P	(3)	1.90	26.17	2-3	$2p^2\ ^1D\ -4d\ ^1F^\circ$	530.343	P		4.05	27.43	0-1	$2p^2\ ^1S\ -5d\ ^1P^\circ$
						UV 11.08							UV 13.06
510.152	P		1.90	26.20	2-1	$2p^2\ ^1D\ -4d\ ^1P^\circ$							
						UV 11.09							
502.341	P		1.90	26.58	2-2	$2p^2\ ^1D\ -5s\ ^3P^\circ$	818.950	P		5.80	20.94	2-1	$2p^3\ ^5S^\circ\ -3p\ ^3S$
502.660	P		1.90	26.56	2-1	UV 11.10							UV 13.07
501.220	P		1.90	26.63	2-1	$2p^2\ ^1D\ -5s\ ^1P^\circ$	807.222	P		5.80	21.16	2-2	$2p^3\ ^5S^\circ\ -3p\ ^3P$
						UV 11.11	807.603	P		5.80	21.15	2-1	UV 13.08
487.379	P		1.90	27.34	2-2	$2p^2\ ^1D\ -5d\ ^1D^\circ$	639.082	P		5.80	25.20	2-2	$2p^3\ ^5S^\circ\ -4p\ ^3P$
						UV 11.12	639.368	P		5.80	25.19	2-1	UV 13.09
485.849	P	(0)	1.90	27.42	2-3	$2p^2\ ^1D\ -5d\ ^1F^\circ$	637.946	P		5.80	25.23	2-1	$2p^3\ ^5S^\circ\ -4p\ ^3S$
						UV 11.13							UV 13.10
485.602	P		1.90	27.43	2-1	$2p^2\ ^1D\ -5d\ ^1P^\circ$	629.167	P		5.80	25.51	2-3	$2p^3\ ^5S^\circ\ -3s\ ^5P$
						UV 11.14	629.447	P		5.80	25.50	2-2	UV 13.11
							629.670	P		5.80	25.49	2-1	
1678.895	P		4.05	11.44	1-0	$2p^2\ ^1S\ -2p^3\ ^3D^\circ$	605.902	P		5.80	26.26	2-2	$2p^3\ ^5S^\circ\ -3s\ ^3P$
						UV 11.15	606.080	P		5.80	26.26	2-1	UV 13.12
1306.715	P		4.05	13.54	0-1	$2p^2\ ^1S\ -2p^3\ ^3P^\circ$	506.153	P		5.80	30.30	2-3	$2p^3\ ^5S^\circ\ -3d\ ^5P$
						UV 11.16	506.054	P		5.80	30.30	2-2	UV 13.13
							505.986	P		5.80	30.30	2-1	
860.205	P	(0)	4.05	18.47	0-1	$2p^2\ ^1S\ -3s\ ^3P^\circ$							
						UV 11.17							

MULTIPLY TABLE

N II--Continued

N II--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							
1381.970	P		11.44	20.41	2-1	$2p^3\ ^3D^{\circ}-3p\ ^1P$	1740.310	P	(4)	13.54	20.66	2-3	$2p^3\ ^3P^{\circ}-3p\ ^3D$
1383.911	P		11.44	20.41	1-1	UV 13.14	1743.197	P	(3)*	13.54	20.65	1-2	UV 13.25
							1745.256	P		13.54	20.65	0-1	
1343.338	B	(2)	11.44	20.66	3-3	$2p^3\ ^3D^{\circ}-3p\ ^3D$	1743.228	P	(3)*	13.54	20.65	2-2	
1345.313	P	(1)*	11.44	20.65	2-2	UV 13.15	1745.046	P		13.54	20.65	1-1	
1346.441	P	(0)*	11.44	20.65	1-1		1745.076	P		13.54	20.65	2-1	
1345.076	P		11.44	20.65	3-2								
1346.413	P	(0)*	11.44	20.65	2-1		1675.755	P	(4)*	13.54	20.94	2-1	$2p^3\ ^3P^{\circ}-3p\ ^3S$
1343.574	P		11.44	20.66	2-3		1675.726	P	(4)*	13.54	20.94	1-1	UV 13.26
1345.340	P	(1)*	11.44	20.65	1-2		1675.920	P	(1)	13.54	20.94	0-1	
1304.769	P		11.44	20.94	2-1	$2p^3\ ^3D^{\circ}-3p\ ^3S$	1627.376	P	(1)*	13.54	21.16	2-2	$2p^3\ ^3P^{\circ}-3p\ ^3P$
1304.795	P		11.44	20.94	1-1	UV 13.16	1628.896	P	(1)*	13.54	21.15	1-1	UV 13.27
							1628.922	P	(1)*	13.54	21.15	2-1	
1275.038	B	(4)	11.44	21.16	3-2	$2p^3\ ^3D^{\circ}-3p\ ^3P$	1629.832	P	(0)	13.54	21.15	1-0	
1276.201	P	(3)*	11.44	21.15	2-1	UV 13.17	1627.349	P	(1)*	13.54	21.16	1-2	
1276.800	B	(2)	11.44	21.15	1-0		1629.079	P	(1)*	13.54	21.15	0-1	
1275.251	P	(1)*	11.44	21.16	2-2								
1276.225	P	(3)*	11.44	21.15	1-1		1538.593	P		13.54	21.60	2-2	$2p^3\ ^3P^{\circ}-3p\ ^1D$
1275.275	P	(1)*	11.44	21.16	1-2		1538.570	P		13.54	21.60	1-2	UV 13.28
1219.887	P		11.44	21.60	3-2	$2p^3\ ^3D^{\circ}-3p\ ^1D$	1448.084	P		13.54	22.10	1-0	$2p^3\ ^3P^{\circ}-3p\ ^1S$
1220.082	P		11.44	21.60	2-2	UV 13.18							UV 13.29
1220.104	P		11.44	21.60	1-2								
1162.490	P		11.44	22.10	1-0	$2p^3\ ^3D^{\circ}-3p\ ^1S$	1067.877	P		13.54	25.15	2-3	$2p^3\ ^3P^{\circ}-4p\ ^3D$
						UV 13.19	1068.962	P		13.54	25.14	1-2	UV 13.30
							1069.626	P		13.54	25.13	0-1	
903.962	P		11.44	25.15	3-3	$2p^3\ ^3D^{\circ}-4p\ ^3D$	1068.974	P		13.54	25.14	2-2	
904.855	P		11.44	25.14	2-2	UV 13.20	1069.547	P		13.54	25.13	1-1	
905.286	P		11.44	25.13	1-1		1069.559	P		13.54	25.13	2-1	
904.748	P		11.44	25.14	3-2								
905.274	P		11.44	25.13	2-1		1063.362	P		13.54	25.20	2-2	$2p^3\ ^3P^{\circ}-4p\ ^3P$
904.069	P		11.44	25.15	2-3		1064.142	P		13.54	25.19	1-1	UV 13.31
904.867	P		11.44	25.14	1-2		1064.153	P		13.54	25.19	2-1	
							1064.443	P		13.54	25.19	1-0	
900.724	P		11.44	25.20	3-2	$2p^3\ ^3D^{\circ}-4p\ ^3P$	1063.350	P		13.54	25.20	1-2	
901.398	P		11.44	25.19	2-1	UV 13.21	1064.220	P		13.54	25.19	0-1	
901.626	P		11.44	25.19	1-0								
900.830	P		11.44	25.20	2-2		1036.192	P		13.54	25.51	2-3	$2p^3\ ^3P^{\circ}-3s\ ^3P$
901.411	P		11.44	25.19	1-1		1036.940	P		13.54	25.50	1-2	UV 13.32
900.843	P		11.44	25.20	1-2		1037.619	P		13.54	25.49	0-1	
							1036.950	P		13.54	25.50	2-2	
881.153	P		11.44	25.51	3-3	$2p^3\ ^3D^{\circ}-3s\ ^3P$	1037.545	P		13.54	25.49	1-1	
881.804	P		11.44	25.50	2-2	UV 13.22	1037.556	P		13.54	25.49	2-1	
882.253	P		11.44	25.49	1-1								
							974.563	P		13.54	26.26	2-2	$2p^3\ ^3P^{\circ}-3s\ ^3P$
836.187	P	(3)	11.44	26.26	3-2	$2p^3\ ^3D^{\circ}-3s\ ^3P$	975.012	P		13.54	26.26	1-1	UV 13.33
836.616	P	(3)*	11.44	26.26	2-1	UV 13.23							
836.837	P	(1)	11.44	26.25	1-0								
836.279	P	(0)*	11.44	26.26	2-2		Air						
836.627	P	(3)*	11.44	26.26	1-1		4895.111	A	8	17.88	20.41	2-1	$2p^3\ ^1D^{\circ}-3p\ ^1P$
836.289	P	(0)*	11.44	26.26	1-2								1
1805.277	P		13.54	20.41	2-1	$2p^3\ ^3P^{\circ}-3p\ ^1P$	4445.035	P		17.88	20.66	2-3	$2p^3\ ^1D^{\circ}-3p\ ^3D$
1805.244	P		13.54	20.41	1-1	UV 13.24	4464.127	P		17.88	20.65	2-2	1.01
1805.469	P		13.54	20.41	0-1		4476.272	P		17.88	20.65	2-1	
							4046.740	P		17.88	20.94	2-1	$2p^3\ ^1D^{\circ}-3p\ ^3S$
													1.02

MULTIPLIET TABLE

N II—Continued

N II—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						
3775.606	P		17.88	21.16	2-2	$2p^3\ ^1D^{\circ}-3p\ ^3P$	1836.172	P		18.48	25.23	2-1	$3s\ ^3P^{\circ}-4p\ ^3S$
3783.944	P		17.88	21.15	2-1	1.03	1831.586	P		18.47	25.23	1-1	UV 13.39
							1830.527	P		18.46	25.23	0-1	
3329.704	A	5	17.88	21.60	2-2	$2p^3\ ^1D^{\circ}-3p\ ^1D$	1777.030	P		18.48	25.46	2-2	$3s\ ^3P^{\circ}-4p\ ^1D$
						1.04	1772.735	P		18.47	25.46	1-2	UV 13.40
Vac							1765.278	P		18.48	25.51	2-3	$3s\ ^3P^{\circ}-3s'\ ^5P$
1724.653	P		17.88	25.07	2-1	$2p^3\ ^1D^{\circ}-4p\ ^1P$	1763.232	P		18.47	25.50	1-2	UV 13.41
						UV 13.34	1763.999	P		18.46	25.49	0-1	
1634.996	P		17.88	25.46	2-2	$2p^3\ ^1D^{\circ}-4p\ ^1D$	1725.028	P		18.47	25.65	1-0	$3s\ ^3P^{\circ}-4p\ ^1S$
						UV 13.35							UV 13.42
							1593.596	P		18.48	26.26	2-2	$3s\ ^3P^{\circ}-3s'\ ^3P$
							1591.361	P		18.47	26.26	1-1	UV 13.43
Air							1594.822	P		18.48	26.26	2-1	
6435.614	P		18.48	20.41	2-1	$3s\ ^3P^{\circ}-3p\ ^1P$	1592.124	P		18.47	26.25	1-0	
6379.615	A	9	18.47	20.41	1-1	2	1590.141	P		18.47	26.26	1-2	
6366.786	P		18.46	20.41	0-1		1590.562	P		18.46	26.26	0-1	
5679.562	A	14	18.48	20.66	2-3	$3s\ ^3P^{\circ}-3p\ ^3D$							
5666.627	A	12	18.47	20.65	1-2	3							
5676.019	A	11	18.46	20.65	0-1		Air						
5710.766	A	10	18.48	20.65	2-2		6482.053	A	13	18.50	20.41	1-1	$3s\ ^1P^{\circ}-3p\ ^1P$
5686.213	A	10	18.47	20.65	1-1								8
5730.65	A	5	18.48	20.65	2-1								
5045.100	A	11	18.48	20.94	2-1	$3s\ ^3P^{\circ}-3p\ ^3S$	5747.296	A	8	18.50	20.65	1-2	$3s\ ^1P^{\circ}-3p\ ^3D$
5010.620	A	10	18.47	20.94	1-1	4	5767.440	A	7	18.50	20.65	1-1	9
5002.703	A	9	18.46	20.94	0-1		5073.590	A	5	18.50	20.94	1-1	$3s\ ^1P^{\circ}-3p\ ^3S$
													10
4630.543	A	14	18.48	21.16	2-2	$3s\ ^3P^{\circ}-3p\ ^3P$							
4613.866	A	9	18.47	21.15	1-1	5	4654.532	A	5	18.50	21.16	1-2	$3s\ ^1P^{\circ}-3p\ ^3P$
4643.085	A	11	18.48	21.15	2-1		4667.206	A	5	18.50	21.15	1-1	11
4621.394	A	10	18.47	21.15	1-0		4674.909	A	5	18.50	21.15	1-0	
4601.480	A	11	18.47	21.16	1-2								
4607.157	A	10	18.46	21.15	0-1		3994.998	A	15	18.50	21.60	1-2	$3s\ ^1P^{\circ}-3p\ ^1D$
													12
3977.310	P		18.48	21.60	2-2	$3s\ ^3P^{\circ}-3p\ ^1D$							
3955.851	A	10	18.47	21.60	1-2	6	3437.147	A	9	18.50	22.10	1-0	$3s\ ^1P^{\circ}-3p\ ^1S$
3408.127	A	5	18.47	22.10	1-0	$3s\ ^3P^{\circ}-3p\ ^1S$							13
						7							
Vac							Vac						
1883.448	P		18.48	25.07	2-1	$3s\ ^3P^{\circ}-4p\ ^1P$	1887.404	P	(4)	18.50	25.07	1-1	$3s\ ^1P^{\circ}-4p\ ^1P$
1878.624	P		18.47	25.07	1-1	UV 13.36	1866.457	P		18.50	25.14	1-2	$3s\ ^1P^{\circ}-4p\ ^3D$
1877.510	P		18.46	25.07	0-1		1868.240	P	(0)	18.50	25.13	1-1	UV 14.01
1859.260	P		18.48	25.15	2-3	$3s\ ^3P^{\circ}-4p\ ^3D$	1849.414	P	(1)	18.50	25.20	1-2	$3s\ ^1P^{\circ}-4p\ ^3P$
1857.870	P		18.47	25.14	1-2	UV 13.37	1851.810	P		18.50	25.19	1-1	UV 14.02
1858.545	P		18.46	25.13	0-1		1852.721	P		18.50	25.19	1-0	
1862.588	P		18.48	25.14	2-2								
1859.636	P		18.47	25.13	1-1		1839.931	P		18.50	25.23	1-1	$3s\ ^1P^{\circ}-4p\ ^3S$
1864.364	P		18.48	25.13	2-1								UV 14.03
1845.616	P		18.48	25.20	2-2	$3s\ ^3P^{\circ}-4p\ ^3P$	1780.551	P		18.50	25.46	1-2	$3s\ ^1P^{\circ}-4p\ ^1D$
1843.357	P		18.47	25.19	1-1	UV 13.38							UV 14.04
1848.002	P		18.48	25.19	2-1								
1844.259	P		18.47	25.19	1-0		1732.428	P		18.50	25.65	1-0	$3s\ ^1P^{\circ}-4p\ ^1S$
1840.983	P		18.47	25.20	1-2								UV 14.05
1842.284	P		18.46	25.19	0-1								

MULTIPLY TABLE

N II-Continued

N II-Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 10541.15	P		19.23	20.41	1-1	$2p^3\ ^3S^{\circ}-3p\ ^1P$ 13.01	Air 2206.088	A	6	20.41	26.03	1-2	$3p\ ^1P-4d\ ^1D^{\circ}$ UV 15
8726.87	P		19.23	20.65	1-2	$2p^3\ ^3S^{\circ}-3p\ ^3D$ 13.02	2189.643	P		20.41	26.07	1-2	$3p\ ^1P-4d\ ^3D^{\circ}$ UV 15.01
8773.40	P		19.23	20.65	1-1		2190.900	P		20.41	26.07	1-1	
7262.55	P		19.23	20.94	1-1	$2p^3\ ^3S^{\circ}-3p\ ^3S$ 13.03	2168.778	P		20.41	26.12	1-2	$3p\ ^1P-4d\ ^3P^{\circ}$ UV 15.02
6433.45	A	1	19.23	21.16	1-2	$2p^3\ ^3S^{\circ}-3p\ ^3P$ 13.04	2166.605	P		20.41	26.13	1-1	
6457.69	A	0	19.23	21.15	1-1		2165.431	P		20.41	26.13	1-0	
6472.43	P		19.23	21.15	1-0		2139.489	P		20.41	26.20	1-1	
4319.063	P		19.23	22.10	1-0	$2p^3\ ^3S^{\circ}-3p\ ^1S$ 13.05	Vac 1991.301	P		20.41	26.63	1-1	$3p\ ^1P-5s\ ^1P^{\circ}$ UV 15.04
2125.003	P		19.23	25.07	1-1	$2p^3\ ^3S^{\circ}-4p\ ^1P$ UV 14.06	1789.402	P		20.41	27.34	1-2	$3p\ ^1P-5d\ ^1D^{\circ}$ UV 15.05
2076.944	A	4	19.23	25.20	1-2	$2p^3\ ^3S^{\circ}-4p\ ^3P$ UV 14.07	1765.680	P		20.41	27.43	1-1	$3p\ ^1P-5d\ ^1P^{\circ}$ UV 15.06
2079.968	A	3	19.23	25.19	1-1		1460.045	P		20.41	27.66	1-1	
2081.120	P		19.23	25.19	1-0								
2064.990	P		19.23	25.23	1-1	$2p^3\ ^3S^{\circ}-4p\ ^3S$ UV 14.08							$3p\ ^1P-6s\ ^1P^{\circ}$ UV 15.07
Vac 1931.117	P		19.23	25.65	1-0	$2p^3\ ^3S^{\circ}-4p\ ^1S$ UV 14.09							
1773.639	P		19.23	26.26	1-2	$2p^3\ ^3S^{\circ}-3s'\ ^3P$ UV 14.10	Air *5005.149	A	14	20.66	23.14	3-4	$3p\ ^3D-3d\ ^3F^{\circ}$ 19
1765.140	P		19.23	26.26	1-1		5001.477	A	12	20.65	23.13	2-3	
1766.079	P		19.23	26.25	1-0		5001.136	A	11	20.65	23.12	1-2	
							5025.662	A	9	20.66	23.13	3-3	
Air 4564.764	A	3	20.41	23.12	1-2	$3p\ ^1P-3d\ ^3F^{\circ}$ 14	5016.387	A	9	20.65	23.12	2-2	
							5040.72	A	3	20.66	23.12	3-2	
4447.033	A	12	20.41	23.20	1-2	$3p\ ^1P-3d\ ^1D^{\circ}$ 15	4897.536	P		20.66	23.20	3-2	$3p\ ^3D-3d\ ^1D^{\circ}$ 19.01
							4874.566	P		20.65	23.20	2-2	
4374.98	A	2	20.41	23.24	1-2	$3p\ ^1P-3d\ ^3D^{\circ}$ 16	4860.170	A	4	20.65	23.20	1-2	$3p\ ^3D-3d\ ^3D^{\circ}$ 20
4379.59	P		20.41	23.24	1-1		4803.289	A	10	20.66	23.25	3-3	
							4788.131	A	8	20.65	23.24	2-2	
4123.13	P		20.41	23.41	1-2	$3p\ ^1P-3d\ ^3P^{\circ}$ 16.01	4779.722	A	7	20.65	23.24	1-1	
4114.86	A	0	20.41	23.42	1-1		4810.306	A	4	20.66	23.24	3-2	
4109.59	P		20.41	23.42	1-0		4793.650	A	4	20.65	23.24	2-1	
							4781.190	A	4	20.65	23.25	2-3	
							4774.241	A	4	20.65	23.24	1-2	
3918.999	A	9	20.41	23.57	1-1	$3p\ ^1P-3d\ ^1P^{\circ}$ 17	4507.557	A	6	20.66	23.41	3-2	$3p\ ^3D-3d\ ^3P^{\circ}$ 21
							4477.691	A	4	20.65	23.42	2-1	
							4459.933	A	3	20.65	23.42	1-0	
3114.286	P		20.41	24.39	1-2	$3p\ ^1P-4s\ ^3P^{\circ}$ 17.01	4488.12	A	2	20.65	23.41	2-2	
3125.920	P		20.41	24.37	1-1		4465.527	A	2	20.65	23.42	1-1	
3130.996	P		20.41	24.37	1-0		4475.886	P		20.65	23.41	1-2	
3006.830	A	7	20.41	24.53	1-1	$3p\ ^1P-4s\ ^1P^{\circ}$ 18	4412.501	P		20.66	23.47	3-3	$3p\ ^3D-3d\ ^1F^{\circ}$ 21.01
							4393.847	P		20.65	23.47	2-3	
2218.41	A	0	20.41	26.00	1-2	$3p\ ^1P-4d\ ^3F^{\circ}$ UV 14.11	4247.31	A	1	20.65	23.57	2-1	$3p\ ^3D-3d\ ^1P^{\circ}$ 21.02
							4236.356	P		20.65	23.57	1-1	

MULTIPLIET TABLE

N II—Continued

N II—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						
3328.730	A	7	20.66	24.39	3-2	3p ³ D -4s ³ P° 22	2776.989	P		20.68	25.14	1-2	2p ³ 1P°-4p ³ D UV 17.01
3331.310	A	6	20.65	24.37	2-1		2780.940	P		20.68	25.13	1-1	
3330.314	A	5	20.65	24.37	1-0		2739.417	P		20.68	25.20	1-2	2p ³ 1P°-4p ³ P UV 17.02
3318.098	A	5	20.65	24.39	2-2		2744.678	P		20.68	25.19	1-1	
3324.573	A	5	20.65	24.37	1-1		2746.681	P		20.68	25.19	1-0	
3311.418	P		20.65	24.39	1-2								
3196.391	P		20.65	24.53	2-1	3p ³ D -4s ¹ P° 22.01	2718.655	P		20.68	25.23	1-1	2p ³ 1P°-4p ³ S UV 17.03
3190.194	P		20.65	24.53	1-1								
2317.046	A	8	20.66	26.01	3-4	3p ³ D -4d ³ F° UV 16	2590.938	A	5	20.68	25.46	1-2	2p ³ 1P°-4p ¹ D UV 18
2316.493	A	7	20.65	26.00	2-3								
2316.690	A	6	20.65	26.00	1-2		*2490.281	A	4	20.68	25.65	1-0	2p ³ 1P°-4p ¹ S UV 18.01
2321.650	A	4	20.66	26.00	3-3								
2319.941	A	4	20.65	26.00	2-2								
2325.16	A	0	20.66	26.00	3-2								
2311.582	P		20.66	26.00	3-2	3p ³ D -4d ¹ D° UV 16.01	2238.974	A	4	20.68	26.21	1-2	2p ³ 1P°-4f' [² _g] UV 18.02 [¹ _g]
2306.451	P		20.65	26.00	2-2			2235.208	A	4	20.68	26.22	
2303.21	A	1	20.65	26.03	1-2		2235.396	P		20.68	26.22	1-1	
2291.652	A	4	20.66	26.07	3-3	3p ³ D -4d ³ D° UV 16.02	2218.474	P		20.68	26.26	1-2	2p ³ 1P°-3s' ³ P UV 18.03
2288.444	A	5	20.65	26.07	2-2			2220.850	P		20.68	26.26	
2286.689	A	6	20.65	26.07	1-1		2223.36	P		20.68	26.25	1-0	
2293.534	P		20.66	26.07	3-2								
2289.84	A	0	20.65	26.07	2-1								
2286.618	P		20.65	26.07	2-3								
2285.305	P		20.65	26.07	1-2								
2270.651	P		20.66	25.20	3-2	3p ³ D -4d ³ P° UV 16.03	5493.22	A	1	20.94	23.20	1-2	3p ³ S -3d ¹ D° 22.04
2263.332	P		20.65	25.19	2-1								
2258.945	P		20.65	25.19	1-0		5383.71	A	2	20.94	23.24	1-2	3p ³ S -3d ³ D° 23
2265.701	P		20.65	25.20	2-2		5390.68	A	1	20.94	23.24	1-1	
2260.223	P		20.65	25.19	1-1		5007.325	A	11	20.94	23.41	1-2	3p ³ S -3d ³ P° 24
2262.585	P		20.65	25.20	1-2		*4994.363	A	10	20.94	23.42	1-1	
2250.283	P		20.66	26.17	3-3	3p ³ D -4d ¹ F° UV 16.04	4987.367	A	8	20.94	23.42	1-0	
2245.426	P		20.65	26.17	2-3								
233.758	P		20.65	26.20	2-1	3p ³ D -4d ¹ P° UV 16.05	4709.435	P		20.94	23.57	1-1	3p ³ S -3d ¹ P° 25
230.729	P		20.65	26.20	1-1								
095.532	A	6	20.66	26.58	3-2	3p ³ D -5s ³ P° UV 16.06	3593.597	A	5	20.94	24.39	1-2	3p ³ S -4s ³ P° 26
096.856	A	5	20.65	26.56	2-1			3609.097	A	4	20.94	24.37	
096.192	A	4	20.65	26.56	1-0		3615.858	A	2	20.94	24.37	1-0	
091.316	A	3	20.65	26.58	2-2		3451.277	P		20.94	24.53	1-1	3p ³ S -4s ¹ P° 26.01
094.183	A	3	20.65	26.56	1-1								
088.657	P		20.65	26.58	1-2								
225.69	P		20.68	21.60	1-2	2p ³ 1P°-3p ¹ D 22.02	2436.291	P		20.94	26.03	1-2	3p ³ S -4d ¹ D° UV 18.04
187.430	A	5	20.68	22.10	1-0			2416.253	P		20.94	26.07	
23.635	A	5	20.68	25.07	1-1		2417.784	P		20.94	26.07	1-1	3p ³ S -4d ³ D° UV 18.05
							2390.866	A	4	20.94	26.12	1-2	
							2388.230	A	3	20.94	26.13	1-1	3p ³ S -4d ³ P° UV 18.06
							2386.78	A	1	20.94	26.13	1-0	
							2355.328	P		20.94	26.20	1-1	3p ³ S -4d ¹ P° UV 18.07

MULTIPLY TABLE

N II-Continued

N II-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						
2197.506	A	4	20.94	26.58	1-2	3p ³ S -5s ³ P°	2458.075	P		21.16	26.20	2-1	3p ³ P -4d ¹ P°
2203.633	A	3	20.94	26.56	1-1	UV 18.08	2458.554	P		21.15	26.20	1-1	UV 20.01
2205.855	P		20.94	26.56	1-0		2452.430	P		21.15	26.20	0-1	
							*2286.609	A	6	21.16	26.50	2-2	3p ³ P -5s ³ P°
							2290.259	A	3	21.15	26.56	1-1	UV 20.02
6285.70	A	2	21.16	23.13	2-3	3p ³ P -3d ³ F°	2293.318	A	4	21.16	26.56	2-1	
6286.11	P		21.15	23.12	1-2	26.02	2292.652	A	3	21.15	26.56	1-0	
6309.255	P		21.16	23.12	2-2		2283.652	A	4	21.15	26.58	1-2	
							*2288.444	A	5	21.15	26.56	0-1	
6086.54	P		21.16	23.20	2-2	3p ³ P -3d ¹ D°							
6065.00	A	3	21.15	23.20	1-2	27							
5941.653	A	12	21.16	23.25	2-3	3p ³ P -3d ³ D°							
5931.779	A	11	21.15	23.24	1-2	28							
5927.811	A	9	21.15	23.24	0-1								
5952.388	A	8	21.16	23.24	2-2		8089.08	P		21.60	23.13	2-3	3p ¹ D -3d ³ F°
5940.240	A	8	21.15	23.24	1-1		8128.14	P		21.60	23.12	2-2	30.02
5960.901	A	4	21.16	23.24	2-1								
5495.666	A	10	21.16	23.41	2-2	3p ³ P -3d ³ P°	7762.237	A	10	21.60	23.20	2-2	3p ¹ D -3d ¹ D°
5462.592	A	7	21.15	23.42	1-1	29							30.03
5480.062	A	7	21.16	23.42	2-1		7528.122	P		21.60	23.25	2-3	3p ¹ D -3d ³ D°
5454.221	A	7	21.15	23.42	1-0		7545.360	P		21.60	23.24	2-2	30.04
5478.096	A	7	21.15	23.41	1-2		7559.053	P		21.60	23.24	2-1	
5452.083	A	7	21.15	23.42	0-1								
5138.897	P		21.16	23.57	2-1	3p ³ P -3d ¹ P°	6826.227	P		21.60	23.41	2-2	3p ¹ D -3d ³ P°
5123.532	P		21.15	23.57	1-1	29.01	6802.168	P		21.60	23.42	2-1	30.05
5114.284	P		21.15	23.57	0-1		6610.565	A	13	21.60	23.47	2-3	3p ¹ D -3d ¹ F°
													31
3838.374	A	8	21.16	24.39	2-2	3p ³ P -4s ³ P°	6284.322	A	6	21.60	23.57	2-1	3p ¹ D -3d ¹ P°
3847.409	A	5	21.15	24.37	1-1	30							32
3856.057	A	6	21.16	24.37	2-1								
3855.100	A	5	21.15	24.37	1-0								
3829.793	A	6	21.15	24.39	1-2		4443.294	P		21.60	24.39	2-2	3p ¹ D -4s ³ P°
3842.183	A	5	21.15	24.37	0-1		4467.014	P		21.60	24.37	2-1	32.01
3676.442	P		21.16	24.53	2-1	3p ³ P -4s ¹ P°	4227.743	A	8	21.60	24.53	2-1	3p ¹ D -4s ¹ P°
3668.572	P		21.15	24.53	1-1	30.01							33
3663.829	P		21.15	24.53	0-1								
2558.62	A	0	21.16	26.00	2-3	3p ³ P -4d ³ F°	2814.016	P		21.60	26.00	2-3	3p ¹ D -4d ³ F°
2559.02	P		21.15	26.00	1-2	UV 18.09	2819.120	P		21.60	26.00	2-2	UV 20.03
2562.85	P		21.16	26.00	2-2		2799.216	A	5	21.60	26.03	2-2	3p ¹ D -4d ¹ D°
													UV 21
2546.388	P		21.16	26.03	2-2	3p ³ P -4d ¹ D°	2770.060	P		21.60	26.07	2-3	3p ¹ D -4d ³ D°
2542.609	P		21.15	26.03	1-2	UV 18.10	2772.898	P		21.60	26.07	2-2	UV 21.01
							2774.815	P		21.60	26.07	2-1	
2522.227	A	7	21.16	26.07	2-3	3p ³ P -4d ³ D°	2739.424	P		21.60	26.12	2-2	3p ¹ D -4d ³ P°
2520.791	A	6	21.15	26.07	1-2	UV 19	2735.962	P		21.60	26.13	2-1	UV 21.02
2520.222	A	5	21.15	26.07	0-1								
2524.488	A	4	21.16	26.07	2-2		2709.837	A	6	21.60	26.17	2-3	3p ¹ D -4d ¹ F°
2522.458	A	4	21.15	26.07	1-1								UV 22
2526.17	A	0	21.16	26.07	2-1								
2496.83	A	5	21.16	26.12	2-2	3p ³ P -4d ³ P°	2692.867	P		21.60	26.20	2-1	3p ¹ D -4d ¹ P°
*2490.281	A	4	21.15	26.13	1-1	UV 20							UV 22.01
2493.940	A	3	21.16	26.13	2-1		2461.270	A	6	21.60	26.63	2-1	3p ¹ D -5s ¹ P°
2488.746	A	3	21.15	26.13	1-0								UV 23
2493.16	A	2	21.15	26.12	1-2								
2488.120	A	2	21.15	26.13	0-1								

MULTIPLIET TABLE

N II—Continued

N II—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						
2159.927	A	3	21.60	27.34	2-2	3p ¹ D -5d ¹ D° UV 24	4100.973	P		23.14	26.16	4-3	3d ³ F°-4f [2‡]
							4086.828	P		23.13	26.16	3-2	38
2130.179	A	5	21.60	27.42	2-3	3p ¹ D -5d ¹ F° UV 25	4087.303	A	3	23.13	26.16	3-3	
							4076.908	A	3	23.12	26.16	2-2	
2125.444	P		21.60	27.43	2-1	3p ¹ D -5d ¹ P° UV 26	4077.404	P		23.12	26.16	2-3	[3‡]
							4095.904	A	4	23.14	26.17	4-4	
2044.761	P		21.60	27.66	2-1	3p ¹ D -6s ¹ P° UV 27	4082.89	A	1	23.13	26.17	3-3	
							4096.58	A	0	23.14	26.17	4-3	
							4082.270	A	5	23.13	26.17	3-4	
							4073.042	A	6	23.12	26.17	2-3	
							4056.90	A	4	23.14	26.20	4-4	3d ³ F°-4f' [3‡]
10909.06	P		22.10	23.24	0-1	3p ¹ S -3d ³ D° 33.01	4044.777	A	4	23.13	26.20	3-3	39
							4058.162	P		23.14	26.20	4-3	
9399.64	P		22.10	23.42	0-1	3p ¹ S -3d ³ P° 33.02	4043.529	A	9	23.13	26.20	3-4	
							4035.080	A	9	23.12	26.20	2-3	
8438.742	A	11	22.10	23.57	0-1	3p ¹ S -3d ¹ P° 33.03	4041.311	A	11	23.14	26.21	4-5	[4‡]
							4026.075	A	7	23.13	26.21	3-4	
5457.389	P		22.10	24.37	0-1	3p ¹ S -4s ³ P° 33.04	4039.345	A	2	23.14	26.21	4-4	
							4037.96	A	1	23.14	26.21	4-3	3d ³ F°-4f' [2‡]
5104.437	A	5	22.10	24.53	0-1	3p ¹ S -4s ¹ P° 34	4023.950	P		23.13	26.21	3-2	39.01
							4024.710	P		23.13	26.21	3-3	
3127.373	P		22.10	26.07	0-1	3p ¹ S -4d ³ D° 34.01	4011.817	P		23.13	26.22	3-2	[1‡]
							4002.872	P		23.12	26.22	2-1	
3078.108	P		22.10	26.13	0-1	3p ¹ S -4d ³ P° 34.02	4002.276	P		23.12	26.22	2-2	
3023.668	A	4	22.10	26.20	0-1	3p ¹ S -4d ¹ P° 35	2905.956	P		23.14	27.41	4-3	3d ³ F°-5f [2‡]
							2898.875	P		23.13	27.41	3-2	UV 31
2734.702	A	2h	22.10	26.63	0-1	3p ¹ S -5s ¹ P° UV 28	2899.086	A	1	23.13	27.41	3-3	
							2893.889	A	1	23.12	27.41	2-2	
2326.340	A	3	22.10	27.43	0-1	3p ¹ S -5d ¹ P° UV 29	2889.918	P		23.12	27.41	2-3	
							2904.357	A	1	23.14	27.41	4-4	[3‡]
2230.034	P		22.10	27.66	0-1	3p ¹ S -6s ¹ P° UV 30	2897.849	P		23.13	27.41	3-3	
							2904.713	P		23.14	27.41	4-3	
384.31	A	2	23.12	25.07	2-1	3d ³ F°-4p ¹ P 35.01	2897.503	A	4	23.13	27.41	3-4	
							2892.868	A	4	23.12	27.41	2-3	
1167.755	A	8	23.14	25.15	4-3	3d ³ F°-5f' [3‡] UV 32	2891.046	A	3	23.14	27.43	4-4	
1173.313	A	7	23.13	25.14	3-2		2884.685	A	2	23.13	27.43	3-3	
1170.166	A	6	23.12	25.13	2-1		2891.486	P		23.14	27.43	4-3	
1136.894	A	4	23.13	25.15	3-3		2884.246	A	4	23.13	27.43	3-4	
1150.755	A	4	23.12	25.14	2-2		2879.751	A	4	23.12	27.43	2-3	
114.598	P		23.12	25.15	2-3		2885.273	A	6	23.14	27.44	4-5	[4‡]
							2877.681	A	4	23.13	27.44	3-4	
323.560	P		23.13	25.46	3-2	3d ³ F°-4p ¹ D 36.01	2884.439	P		23.14	27.44	4-4	
306.774	P		23.12	25.46	2-2		2509.902	P		23.14	28.08	4-3	3d ³ F°-6f [2‡]
							2504.653	P		23.13	28.08	3-2	UV 33
							2504.776	P		23.13	28.08	3-3	
							2500.931	P		23.12	28.08	2-2	
							2501.554	P		23.12	28.08	2-3	
							2509.310	P		23.14	28.08	4-4	[3‡]
							2504.993	P		23.13	28.08	3-3	
							2509.518	P		23.14	28.08	4-3	
							2504.188	A	4h	23.13	28.08	3-4	
							2500.672	A	4h	23.12	28.08	2-3	

MULTIPLIET TABLE

N II—Continued

N II—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						
2499.825	A	2h	23.14	28.10	4-4	3d ³ F°-6f' [3½]	2923.050	A	1	23.20	27.44	2-3	3d ¹ D°-5f' [2½]
2494.92	A	0h	23.13	28.10	3-3	UV 34	2922.76	A	1*	23.20	27.44	2-2	UV 39
2494.71	A	3h	23.13	28.10	3-4		2917.734	A	1	23.20	27.44	2-2	[1½]
2491.21	A	3h	23.12	28.10	2-3		2917.979	P		23.20	27.44	2-1	
2496.97	A	4h	23.14	28.11	4-5	[4½]							
2491.46	A	3h	23.13	28.11	3-4		2537.873	A	3h	23.20	28.08	2-3	3d ¹ D°-6f' [2½]
2496.52	P		23.14	28.11	4-4		2537.742	P		23.20	28.08	2-2	UV 40
							2537.49	A	0h	23.20	28.08	2-3	[3½]
2319.62	P		23.14	28.48	4-4	3d ³ F°-7f' [3½]							
2315.29	P		23.13	28.48	3-3	UV 35							
2315.25	A	0h	23.13	28.48	3-4		2527.762	A	2h	23.20	28.10	2-3	3d ¹ D°-6f' [3½]
2312.13	A	0h	23.12	28.48	2-3								UV 41
2311.161	P		23.14	28.50	4-4	3d ³ F°-7f' [3½]	2525.48	A	0h	23.20	28.10	2-3	3d ¹ D°-6f' [2½]
2306.814	P		23.13	28.50	3-4	UV 36	2525.32	P		23.20	28.10	2-2	UV 42
2309.53	A	1h	23.14	28.51	4-5	[4½]	2522.62	P		23.20	28.11	2-2	[1½]
2304.92	P		23.13	28.51	3-4		2522.76	P		23.20	28.11	2-1	
2309.26	P		23.14	28.51	4-4								
6629.795	A	7	23.20	25.07	2-1	3d ¹ D°-4p ¹ P 41	6504.608	A	6	23.25	25.15	3-3	3d ³ D°-4p ³ D 45
6339.406	P		23.20	25.15	2-3	3d ¹ D°-4p ³ D	6532.550	A	5	23.24	25.14	2-2	
6378.274	P		23.20	25.14	2-2	41.01	6544.162	A	4	23.24	25.13	1-1	
6399.16	A	2	23.20	25.13	2-1		6545.530	A	3	23.25	25.14	3-2	
6183.495	P		23.20	25.20	2-2	3d ¹ D°-4p ³ P	6554.47	A	3	23.24	25.13	2-1	
6210.365	P		23.20	25.19	2-1	41.02	6491.79	A	2	23.24	25.15	2-3	
							6522.39	A	2	23.24	25.14	1-2	
5475.29	A	4	23.20	25.46	2-2	3d ¹ D°-4p ¹ D 41.03	6340.569	A	7	23.25	25.20	3-2	3d ³ D°-4p ³ P 46
							6356.545	A	6	23.24	25.19	2-1	
4176.161	A	8	23.20	26.16	2-3	3d ¹ D°-4f [2½]	6357.569	A	5	23.24	25.19	1-0	
4175.660	P		23.20	26.16	2-2	43	6328.39	A	5	23.24	25.20	2-2	
4171.607	A	6	23.20	26.17	2-3	[3½]	6346.86	A	5	23.24	25.19	1-1	
							6318.80	A	1	23.24	25.20	1-2	
4131.782	A	4	23.20	26.20	2-3	3d ¹ D°-4f' [3½] 43.01	6218.67	A	0	23.24	25.23	2-1	3d ³ D°-4p ³ S 46.01
							6209.424	P		23.24	25.23	1-1	
4110.83	A	2	23.20	26.21	2-3	3d ¹ D°-4f' [2½]	4247.20	A	1	23.25	26.16	3-3	3d ³ D°-4f [2½]
4110.04	A	3	23.20	26.21	2-2	44	4241.240	A	3	23.24	26.16	2-2	48
m4097.384	P	N III	23.20	26.22	2-2	[1½]	4246.707	P		23.25	26.16	3-2	
4098.009	P		23.20	26.22	2-1		*4241.784	A	10	23.24	26.16	2-3	
4041.500	P		23.20	26.26	2-2	3d ¹ D°-3s' ³ P	4236.91	A	8	23.24	26.16	1-2	
4049.394	P		23.20	26.26	2-1	44.01	*4241.784	A	10	23.25	26.17	3-4	[3½]
							4237.05	A	7	23.24	26.17	2-3	
2943.495	A	4	23.20	27.41	2-3	3d ¹ D°-5f [2½]	4242.489	A	3	23.25	26.17	3-3	
2943.291	P		23.20	27.41	2-2	UV 37							
2942.17	A	3*	23.20	27.41	2-3	[3½]	4199.980	A	5	23.25	26.20	3-4	3d ³ D°-4f' [3½]
							4195.974	A	3	23.24	26.20	2-3	49
2928.655	A	3	23.20	27.43	2-3	3d ¹ D°-5f' [3½] UV 38	4201.35	A	1	23.25	26.20	3-3	
							4181.10	A	2	23.25	26.21	3-4	[4½]

MULTIPLLET TABLE

N II—Continued

N II—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						
4179.674	A	5	23.25	26.21	3-3	3d ³ D°-4f' [2½] 50	2356.90	A	0h	23.25	28.50	3-4	3d ³ D°-7f' [3½] UV 49
4173.572	A	3	23.24	26.21	2-2								
4178.86	A	0	23.25	26.21	3-2								
4174.379	P		23.24	26.21	2-3								
4169.38	A	1	23.24	26.21	1-2		7138.87	A	4	23.41	25.15	2-3	3d ³ P°-4p ³ D 52
4165.77	P		23.25	26.22	3-2	[1½]	7215.06	A	3	23.42	25.14	1-2	
4161.14	A	1	23.24	26.22	2-1		7256.53	A	2	23.42	25.13	0-1	
4160.50	A	2	23.24	26.22	2-2		7188.20	A	2	23.41	25.14	2-2	
4157.01	A	3	23.24	26.22	1-1		7241.78	P		23.42	25.13	1-1	
4156.39	A	1	23.24	26.22	1-2		7214.71	P		23.41	25.13	2-1	
4108.018	P		23.25	26.26	3-2	3d ³ D°-3s' ³ P 50.01	6941.752	A	5	23.41	25.20	2-2	3d ³ P°-4p ³ P 53
4111.039	P		23.24	26.26	2-1		7000.94	P		23.42	25.19	1-1	
4112.070	P		23.24	26.25	1-0		6975.64	A	4	23.41	25.19	2-1	
4102.903	P		23.24	26.26	2-2		7013.98	A	2	23.42	25.19	1-0	
4106.986	P		23.24	26.26	1-1		6966.81	A	3	23.42	25.20	1-2	
4098.866	P		23.24	26.26	1-2		7014.73	A	2	23.42	25.19	0-1	
2978.638	P		23.25	27.41	3-3	3d ³ D°-5f [2½] UV 43	6809.989	A	7	23.41	25.23	2-1	3d ³ P°-4p ³ S 54
2975.725	P		23.24	27.41	2-2		6834.094	A	6	23.42	25.23	1-1	
2978.415	P		23.25	27.41	3-2		6847.237	A	4	23.42	25.23	0-1	
2975.947	P		23.24	27.41	2-3								
2973.601	A	3	23.24	27.41	1-2		4508.77	A	2	23.41	26.16	2-3	3d ³ P°-4f [2½] 54.01
2976.971	A	4	23.25	27.41	3-4	[3½]	4518.780	P		23.42	26.16	1-2	
2974.65	A	2*	23.24	27.41	2-3								
2977.33	P		23.25	27.41	3-3								
2962.953	A	4	23.25	27.43	3-4	3d ³ D°-5f' [3½] UV 44	4432.735	A	8	23.41	26.21	2-3	3d ³ P°-4f' [2½] 55
2960.774	P		23.24	27.43	2-3		4442.018	A	6	23.42	26.21	1-2	
2963.437	P		23.25	27.43	3-3		4431.816	A	3	23.41	26.21	2-2	
2956.036	P		23.25	27.44	3-4	[4½]	4417.07	A	4	23.41	26.22	2-2	[1½]
							4427.964	A	4	23.42	26.22	1-1	
							4417.82	A	1	23.41	26.22	2-1	
							4427.236	A	5	23.42	26.22	1-2	
							4433.475	A	5	23.42	26.22	0-1	
2957.680	P		23.25	27.44	3-3	3d ³ D°-5f' [2½] UV 45	3082.191	A	4	23.41	27.44	2-3	3d ³ P°-5f' [2½] 55.01
2954.684	P		23.24	27.44	2-2		3086.78	A	2p	23.42	27.44	1-2	
2957.336	P		23.25	27.44	3-2		3076.304	P		23.41	27.44	2-2	[1½]
2955.027	P		23.24	27.44	2-3		3081.485	A	2	23.42	27.44	1-1	
2952.590	P		23.24	27.44	1-2		3076.573	P		23.41	27.44	2-1	
2952.250	P		23.25	27.44	3-2	[1½]	3081.222	A	2	23.42	27.44	1-2	
2949.855	P		23.24	27.44	2-1		3084.155	A	2	23.42	27.44	0-1	
2949.608	P		23.24	27.44	2-2								
2947.767	P		23.24	27.44	1-1		2643.413	A	2h	23.41	28.10	2-3	3d ³ P°-6f' [2½] UV 50
2947.520	P		23.24	27.44	1-2		2646.87	A	0h	23.42	28.10	1-2	[1½]
							2643.93	A	1h	23.42	28.11	1-2	
							2646.02	A	0h	23.42	28.11	0-1	
2563.940	P		23.25	28.08	3-3	3d ³ D°-6f [2½] UV 46							
2561.818	P		23.24	28.08	2-2								
2563.812	P		23.25	28.08	3-2								
2561.943	A	2h	23.24	28.08	2-3								
2560.243	A	3h	23.24	28.08	1-2								
2563.319	A	3h	23.25	28.08	3-4	[3½]							
2561.545	A	1h	23.24	28.08	2-3		6242.412	A	7	23.47	25.46	3-2	3d ¹ F°-4p ¹ D 57
2563.539	P		23.25	28.08	3-3								
2553.422	A	4h	23.25	28.10	3-4	3d ³ D°-6f' [3½] UV 47	4608.085	A	3	23.47	26.16	3-3	3d ¹ F°-4f [2½] 57.01 [3½]
2551.64	A	2h	23.24	28.10	2-3		4602.53	A	3	23.47	26.17	3-3	
2553.622	P		23.25	28.10	3-3								
2549.98	P		23.25	28.11	3-4	[4½]	4552.527	A	7	23.47	26.20	3-4	3d ¹ F°-4f' [3½] 58 [4½]
							4530.410	A	9	23.47	26.21	3-4	
2365.70	P		23.25	28.48	3-4	3d ³ D°-7f [3½] UV 48	3150.276	P		23.47	27.41	3-3	3d ¹ F°-5f [3½] 58.01
2364.04	A	0h	23.24	28.48	2-3								

MULTIPLIET TABLE

N II—Continued

N II—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 3126.40	A	3*	23.47	27.44	3-4	3d ¹ F° -5f' [4½] 58.02	Air 23185.10	P		24.53	25.07	1-1	4s ¹ P° -4p ¹ P 61.06
2690.49	A	1h	23.47	28.08	3-4	3d ¹ F° -6f [3½]	13344.83	P		24.53	25.46	1-2	4s ¹ P° -4p ¹ D 61.07
2690.728	P		23.47	28.08	3-3	UV 51							
2679.60	A	1h	23.47	28.10	3-4	3d ¹ F° -6f' [3½]	12891.16	P		25.07	26.03	1-2	4p ¹ P -4d ¹ D° 61.08
2675.78	A	2h	23.47	28.11	3-4	UV 52 [4½]							
2461.83	A	0h	23.47	28.51	3-4	3d ¹ F° -7f' [4½] UV 53	10907.46	P		25.07	26.20	1-1	4p ¹ P -4d ¹ P° 61.09
8296.205	A	4	23.57	25.07	1-1	3d ¹ P° -4p ¹ P 58.03	7897.62	A	4	25.07	26.63	1-1	4p ¹ P -5s ¹ P° 61.10
6564.20	A	3	23.57	25.46	1-2	3d ¹ P° 4p ¹ D 58.04	5455.590	P		25.07	27.34	1-2	4p ¹ P -5d ¹ D° 61.11
5954.276	A	5	23.57	25.65	1-0	3d ¹ P° -4p ¹ S 58.05	5240.857	P		25.07	27.43	1-1	4p ¹ P -5d ¹ P° 61.12
4694.637	A	6	23.57	26.21	1-2	3d ¹ P° -4f' [2½]	4776.224	P		25.07	26.63	1-1	4p ¹ P -6s ¹ P° 61.13
4678.14	A	6	23.57	26.22	1-2	61 [1½]							
3206.709	A	2	23.57	27.44	1-2	3d ¹ P° -5f' [2½]	14358.63	P		25.15	26.01	3-4	4p ³ D -4d ³ F° 61.14
3200.685	A	2	23.57	27.44	1-2	61.01 [1½]	14337.71	P		25.14	26.00	2-3	
*2734.702	A	2h	23.57	28.10	1-2	3d ¹ P° -6f' [2½]	14364.86	P		25.13	26.00	1-2	
2731.37	A	1h	23.57	28.11	1-2	UV 54 [1½]							
16256.20	P		24.39	25.15	2-3	4s ³ P° -4p ³ D 61.02	8676.076	A	7	25.15	26.58	3-2	4p ³ D -5s ³ P° 61.15
16194.66	P		24.37	25.14	1-2		8699.002	A	5	25.14	26.56	2-1	
16192.82	P		24.37	25.13	0-1		8694.900	A	4	25.13	26.56	1-0	
16514.26	P		24.39	25.14	2-2		8604.32	A	3	25.14	26.58	2-2	
16329.94	P		24.37	25.13	1-1		8660.52	A	3	25.13	26.56	1-1	
16654.95	P		24.39	25.13	2-1		8566.62	P		25.13	26.58	1-2	
15268.97	P		24.39	25.20	2-2	4s ³ P° -4p ³ P 61.03	*4994.363	A	10	25.15	27.63	3-2	4p ³ D -6s ³ P° 61.16
15154.36	P		24.37	25.19	1-1		5003.88	A	0	25.14	27.62	2-1	
6801.31	A	1	24.39	26.21	2-3	4s ³ P° -4f' [2½] 61.04	14195.22	P		25.20	26.07	2-3	4p ³ P -4d ³ D° 61.17
6613.622	A	5	24.39	26.26	2-2	4s ³ P° -3s' ³ P 61.05	14126.40	P		25.19	26.07	1-2	
6582.596	P		24.37	26.26	1-1		14125.72	P		25.19	26.07	0-1	
6634.789	A	3	24.39	26.26	2-1		8986.15	A	4	25.20	26.58	2-2	4p ³ P -5s ³ P° 61.18
6595.666	A	3	24.37	26.25	1-0		9032.04	A	1	25.19	26.56	1-1	
6561.78	A	3*	24.37	26.26	1-2		9089.45	A	1	25.20	26.56	2-1	
6560.203	A	3	24.37	26.26	0-1		9069.51	A	1	25.19	26.56	1-0	
							8930.04	A	1	25.19	26.58	1-2	
							9010.39	A	1	25.19	26.56	0-1	
							5095.58	A	1	25.20	27.63	2-2	4p ³ P -6s ³ P° 61.19
							5112.323	P		25.19	27.62	1-1	

MULTIPLIET TABLE

N II-Continued

N II-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						
5046.51	A	2	25.20	27.66	2-1	4p ³ P -3p' ³ S°	5012.029	A	6	25.51	27.98	3-3	3s' ³ P -3p' ³ P°
5028.81	A	1	25.19	27.66	1-1	61.20	*5005.149	A	14	25.50	27.97	2-2	64
5022.06	A	0	25.19	27.66	0-1		4997.227	A	4	25.49	27.97	1-1	
							5023.048	A	5	25.51	27.97	3-2	
							5011.30	A	5	25.50	27.97	2-1	
							*4994.363	A	10	25.50	27.98	2-3	
							4991.240	A	5	25.49	27.97	1-2	
13947.86	P		25.23	26.12	1-2	4p ³ S -4d ³ P°							
13858.59	P		25.23	26.13	1-1	61.21							
13810.69	P		25.23	26.13	1-0		4145.776	A	6	25.51	28.50	3-2	3s' ³ P -3p' ³ S°
							4133.672	A	5	25.50	28.50	2-2	65
							4124.078	A	4	25.49	28.50	1-2	
9217.10	A	2	25.23	26.58	1-2	4p ³ S -5s ³ P°							
9325.84	A	0	25.23	26.56	1-1	61.22							
9365.73	P		25.23	26.56	1-0								
5168.99	A	1	25.23	27.63	1-2	4p ³ S -6s ³ P°	8886.89	P		26.01	27.41	4-4	4d ³ F° -5f [3½]
5205.11	A	0	25.23	27.62	1-1	61.23	8822.73	P		26.00	27.41	3-3	65.01
							8819.56	A	2h	26.00	27.41	3-4	
5118.54	P		25.23	27.66	1-1	4p ³ S -3p' ³ S°	8772.95	A	3h	26.00	27.41	2-3	
						61.24							
							8763.39	A	1h	26.01	27.43	4-4	4d ³ F° -5f' [3½]
							8697.79	A	3h	26.00	27.43	3-4	65.02
							8653.38	A	3h	26.00	27.43	2-3	
							8710.54	A	6h	26.01	27.44	4-5	[4½]
21849.20	P		25.46	26.03	2-2	4p ¹ D -4d ¹ D°	8638.31	A	3h	26.00	27.44	3-4	
						61.25							
16701.14	P		25.46	26.20	2-1	4p ¹ D -4d ¹ P°							
						61.26							
10546.76	A	4	25.46	26.63	2-1	4p ¹ D -5s ¹ P°	8983.28	A	3h	26.03	27.41	2-3	4d ¹ D° -5f [2½]
						61.27	8971.36	A	1h	26.03	27.41	2-3	65.03 [3½]
6600.94	P		25.46	27.34	2-2	4p ¹ D -5d ¹ D°	8846.46	A	1h	26.03	27.43	2-3	4d ¹ D° -5f' [3½]
						61.28							65.04
6330.80	P		25.46	27.42	2-3	4p ¹ D -5d ¹ F°							
						61.29							
6289.15	P		25.46	27.43	2-1	4p ¹ D -5d ¹ P°	9266.61	A	1h	26.07	27.41	2-3	4d ³ D° -5f [2½]
						61.30	9242.02	A	2h	26.07	27.41	1-2	65.05
							9281.06	A	3h	26.07	27.41	3-4	[3½]
							9253.98	A	1h	26.07	27.41	2-3	
5631.72	A	1h	25.46	27.66	2-1	4p ¹ D -6s ¹ P°	9146.40	A	2h	26.07	27.43	3-4	4d ³ D° -5f' [3½]
						61.31	9121.00	A	1h	26.07	27.43	2-3	65.06
							9096.17	A	1h	26.07	27.44	3-3	4d ³ D° -5f' [2½]
							9063.78	A	0h	26.07	27.44	2-2	65.07
							9092.93	A	0	26.07	27.44	3-2	
*5535.363	A	8	25.51	27.75	3-4	3s' ³ P -3p' ³ D°							
5530.244	A	7	25.50	27.74	2-3	63							
5526.239	A	5	25.49	27.73	1-2		9442.82	A	3h	26.12	27.44	2-3	4d ³ P° -5f' [2½]
5551.922	A	5	25.51	27.74	3-3		9480.73	A	1h	26.13	27.44	1-2	65.08
5543.471	A	5	25.50	27.73	2-2		9439.40	A	1h	26.12	27.44	2-2	
*5535.363	A	8	25.49	27.73	1-1		9431.20	A	1h	26.13	27.44	1-1	[1½]
5565.25	A	3	25.51	27.73	3-2		9453.50	A	1h	26.13	27.44	0-1	
5552.67	A	4	25.50	27.73	2-1								
5540.059	A	4	25.49	27.73	1-0								

MULTIPLLET TABLE

N II—Continued

N II—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 9865.41 9868.21	A A	6h 5h	26.16 26.16	27.42 27.42	3- 2-3	4f [2½]-5g [3½]° 65.09	Air 5260.57	A	2	26.26	28.62	2-2	3s' ³P -3p' ³P°? 65.20
m9693.91 9696.77 m9694.09	P A P	N 1 1h N 1	26.16 26.16 26.16	27.44 27.44 27.44	3-4 2-3 3-3	4f [2½]-5g' [3½]° 65.10	5179.52 5175.891 5173.386 5172.346 5172.970 5190.380 *5184.964 5180.352 5177.060 5199.48 5191.97 *5184.964	A A A A A A A A A A A A	7 6 5 4 3 4 4 4 1 2 4	27.75 27.74 27.73 27.73 27.73 27.75 27.74 27.73 27.73 27.75 27.74 27.73	30.14 30.13 30.13 30.13 30.12 30.13 30.13 30.12 30.13 30.13 30.12	4-5 3-4 2-3 1-2 0-1 4-4 3-3 2-2 1-1 4-3 3-2 2-1	3p' ⁵D° -3d' ⁵F 66
*9891.09 *9891.09 9887.39 *9891.09	A A A A	7h 7h 6h 7h	26.17 26.17 26.17 26.17	27.42 27.42 27.42 27.42	3- 4-5 3-4 4-4	4f [3½]-5g [3½]° 65.11 [4½]°	4718.38 4709.59 4702.51 4697.64 4721.57 4712.07 4704.24 4698.55 4706.40 4700.04 4695.89	A A A P A A A A A A A	4 2 2 2 2 2 2 1 2 2 2	27.75 27.74 27.73 27.73 27.75 27.74 27.73 27.73 27.74 27.73 27.73	30.37 30.37 30.37 30.37 30.37 30.37 30.37 30.37 30.37 30.37 30.37	4-4 3-3 2-2 1-1 4-3 3-2 2-1 1-0 3-4 2-3 1-2	3p' ⁵D° -3d' ⁵D 68
*9741.43 9737.75 *9741.43	A A A	4h 4h 4h	26.17 26.17 26.17	27.44 27.44 27.44	4-5 3-4 4-4	4f [3½]-5g' [4½]° 65.12	9794.01	A	3h	26.17	27.44	3-4	4d ¹F° -5f' [4½] 65.14
*9722.36 *9718.66 *9722.36 *9718.66	A A A A	1h 1h 1h 1h	26.17 26.17 26.17 26.17	27.44 27.44 27.44 27.44	4-4 3-3 4-3 3-4	4f [3½]-5g [3½]° 65.13	10126.27 10118.49 *10126.27	A A A	5h 4h 5h	26.20 26.20 26.20	27.42 27.42 27.42	4-5 3-4 4-4	4f' [3½]-5g [4½]° 65.15
9969.34 9961.86 *10023.27 10035.45 *10023.27	A A A A A	7h 6h 8h 7h 8h	26.20 26.20 26.21 26.21 26.21	27.44 27.44 27.44 27.44 27.44	4-5 3-4 5-6 4-5 5-5	4f' [3½]-5g' [4½]° 65.16 [4½] [5½]°	5351.220 5327.76 5313.419 5340.213 5320.203 5338.732 5320.953	A A A A A A A	4 1 2 3 3 4 4	27.98 27.97 27.97 27.98 27.97 27.97 27.97	30.30 30.30 30.30 30.30 30.30 30.30 30.30	3-3 2-2 1-1 3-2 2-1 2-3 1-2	3p' ⁵P° -3d' ⁵P 69
*10065.15 10070.12 *10065.15 m10108.5 m10104.7	A A A P P	7h 6h 7h N 1 N 1	26.21 26.21 26.21 26.22 26.22	27.44 27.44 27.44 27.45 27.45	3-4 2-3 3-3 2-3 1-2	4f' [2½]-5g' [3½] 65.17 [1½] [2½]	5179.35 5171.45 5168.056 5183.200 5174.463 5170.168 5186.200 5176.563 5171.30	A A A A A A A A A	7 4 4 4 4 4 2 2 2	27.98 27.97 27.97 27.98 27.97 27.97 27.98 27.97 27.97	30.37 30.37 30.37 30.37 30.37 30.37 30.37 30.37 30.37	3-4 2-3 1-2 3-3 2-2 1-1 3-2 2-1 1-0	3p' ⁵P° -3d' ⁵D 70
8893.32 8855.40 8831.75	A A P	1p* 0 0	26.26 26.26 26.25	27.66 27.66 27.66	2-1 1-1 0-1	3s' ³P -3p' ³S° 65.18	6178.20 6160.81 6138.68 6165.06	P P A P	0	28.37 28.36 28.37 28.36	30.37 30.37 30.37 30.37	3-4 2-3 3-3 2-2	3p' ³D° -3d' ³D 70.01
5893.15 5897.25 5899.83	A A A	3 2 1	26.26 26.26 26.25	28.37 28.36 28.35	2-3 1-2 0-1	3s' ³P -3p' ³D° 65.19							

MULTIPLY TABLE

N II—Continued

N II—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							
6887.834	A	5	28.50	30.30	2-3	3p' ⁵ S° -3d' ⁵ P 71	4154.77	A	2	30.30	33.28	3-4	3d' ⁵ P -4f' ⁵ D° 73	
6869.580	A	4	28.50	30.30	2-2									
6857.030	A	3	28.50	30.30	2-1									
3939.57	A	4	30.14	33.28	5-6	3d' ⁵ F -4f' ⁵ G° 72	4207.50	A	3	30.37	33.32	4-5	3d' ⁵ D -4f' ⁵ F° 74	
3940.66	A	2	30.13	33.28	4-5		4206.51	A	2	30.37	33.32	3-4		
3941.23	A	1	30.13	33.27	3-4		4206.11	A	1	30.37	33.32	2-3		
							4209.09	A	0	30.37	33.32	4-4		
2829.358	A	1	30.14	34.52	5-6	3d' ⁵ F -5f' ⁵ G° UV 55				Unclassified Lines of N II				
*2830.36	A	0h	30.13	34.51	4-5									
*2830.36	A	0h	30.13	34.51	3-4?									
							2330.855	A	2					
						2189.78	A	2h						

NSRDS-NBS 3, SECTION 5

NITROGEN $Z = 7$

A N III Atomic Energy Levels

B N III Multiplet Table

Atomic Energy Levels

Part A

NITROGEN

N III

BI sequence: 5 electrons

$Z = 7$

Ground state $1s^2 2s^2 2p^2 P_{0/2}^{\circ}$

$2p^2 P_{0/2}^{\circ}$ **382703.8** cm^{-1} , 261.299 Å(vac)

IP 47.448eV

The early analysis has been extended by D. J. Michels who has observed N III in the short-wave region from 208 Å to 482 Å.

K. B. S. Eriksson reported the present interval of the ground term. B. Edlén and his associates observed the intersystem combination in Multiplet UV 0.01 and derived a correction of -5.0 cm^{-1} to the quartet terms. This has been adopted by D. J. Michels and is included here.

The analysis has been further improved and extended by the observations of R. Hallin and his associates in the range 763 Å to 8424 Å. A revised list of term values and multiplets based on this material has been kindly furnished by K. Bockasten especially for inclusion here. He and G. Arrhén have also provided a preliminary manuscript in which "a check of the relative positions of the $4f'$ levels has been obtained from formulas for the sp^l -configuration".

The limit (1S) has been determined from the ng -terms ($n=5, 6, 7$) and nh -terms ($n=6, 7$), by means of the polarization formula, by using the method of least squares, according to K. Bockasten.

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ATOMIC ENERGY LEVELS

N III

N III

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval			
$2s^2(1S)2p$	$2p \ ^2P^\circ$	$0\frac{1}{2}$	0.0	174.4	$2s \ 2p(^3P^\circ)3p$	$3p' \ ^2D$	$1\frac{1}{2}$	320978.2	88.6			
		$1\frac{1}{2}$	174.4				$2\frac{1}{2}$	321066.8				
$2s \ 2p^2$	$2p^2 \ ^4P$	$0\frac{1}{2}$	57187.1	59.7	$2s \ 2p(^3P^\circ)3p$	$3p' \ ^2S$	$0\frac{1}{2}$	327058.0				
		$1\frac{1}{2}$	57246.8	81.1			$2s \ 2p(^3P^\circ)3d$	$3d' \ ^4F^\circ$		$1\frac{1}{2}$	330232.1	34.4
		$2\frac{1}{2}$	57327.9							$2\frac{1}{2}$	330266.5	52.0
$2s \ 2p^2$	$2p^2 \ ^2D$	$2\frac{1}{2}$	101023.9	-6.7	$2s \ 2p(^3P^\circ)3d$	$3d' \ ^4F^\circ$	$3\frac{1}{2}$	330318.5	71.4			
		$1\frac{1}{2}$	101030.6				$4\frac{1}{2}$	330389.9				
$2s \ 2p^2$	$2p^2 \ ^2S$	$0\frac{1}{2}$	131004.3		$2s \ 2p(^3P^\circ)3d$	$3d' \ ^4D^\circ$	$0\frac{1}{2}$	332791.3	13.1			
$2s \ 2p^2$	$2p^2 \ ^2P$	$0\frac{1}{2}$	145875.7	110.1	$2s \ 2p(^3P^\circ)3d$	$3d' \ ^4D^\circ$	$1\frac{1}{2}$	332804.4	21.6			
		$1\frac{1}{2}$	145985.8				$2\frac{1}{2}$	332826.0	28.0			
$2p^3$	$2p^3 \ ^4S^\circ$	$1\frac{1}{2}$	186797.1		$2s^2(1S)5s$	$5s \ ^2S$	$0\frac{1}{2}$	333712.0				
$2p^3$	$2p^3 \ ^2D^\circ$	$2\frac{1}{2}$	203074.6	-14.3	$2s \ 2p(^3P^\circ)3d$	$3d' \ ^2D^\circ$	$1\frac{1}{2}$	334540.2	28.1			
		$1\frac{1}{2}$	203088.9				$2\frac{1}{2}$	334568.3				
$2s^2(1S)3s$	$3s \ ^2S$	$0\frac{1}{2}$	221302.2		$2s \ 2p(^3P^\circ)3d$	$3d' \ ^4P^\circ$	$2\frac{1}{2}$	336206.9	-54.7			
$2p^3$	$2p^3 \ ^2P^\circ$	$0\frac{1}{2}$	230404.3	4.3			$2s \ 2p(^3P^\circ)3d$	$3d' \ ^4P^\circ$	$1\frac{1}{2}$	336261.6	-35.0	
		$1\frac{1}{2}$	230408.6		$0\frac{1}{2}$	336296.6						
$2s^2(1S)3p$	$3p \ ^2P^\circ$	$0\frac{1}{2}$	245665.4	35.9	$2s^2(1S)5p$	$5p \ ^2P^\circ$	$0\frac{1}{2}$	338153.9	8.2			
		$1\frac{1}{2}$	245701.3				$1\frac{1}{2}$	338162.1				
$2s^2(1S)3d$	$3d \ ^2D$	$1\frac{1}{2}$	267238.4	5.6	$2s \ 2p(^3P^\circ)3d$	$3d' \ ^2F^\circ$	$2\frac{1}{2}$	339744.6	110.9			
		$2\frac{1}{2}$	267244.0				$3\frac{1}{2}$	339855.5				
$2s \ 2p(^3P^\circ)3s$	$3s' \ ^4P^\circ$	$0\frac{1}{2}$	287529.4	62.1	$2s^2(1S)5d$	$5d \ ^2D$	$1\frac{1}{2}$	341947.7	1.1			
		$1\frac{1}{2}$	287591.5				$2\frac{1}{2}$	341948.8				
		$2\frac{1}{2}$	287706.9				115.4	$2s \ 2p(^3P^\circ)3d$		$3d' \ ^2P^\circ$	$1\frac{1}{2}$	342691.5
$2\frac{1}{2}$	287706.9	$0\frac{1}{2}$	342762.5									
$2s \ 2p(^3P^\circ)3s$	$3s' \ ^2P^\circ$	$0\frac{1}{2}$	297151.2	113.2	$2s^2(1S)5f$	$5f \ ^2F^\circ$	$2\frac{1}{2}$	342749.2	0.9			
		$1\frac{1}{2}$	297264.4				$3\frac{1}{2}$	342750.1				
$2s^2(1S)4s$	$4s \ ^2S$	$0\frac{1}{2}$	301082.6		$2s^2(1S)5g$	$5g \ ^2G$	$3\frac{1}{2}, 4\frac{1}{2}$	343117.1				
$2s \ 2p(^3P^\circ)3p$	$3p' \ ^2P$	$0\frac{1}{2}$	309131.2	54.0	$2s^2(1S)6s$	$6s \ ^2S$	$0\frac{1}{2}$	349824.8				
		$1\frac{1}{2}$	309185.2				$2s \ 2p(^1P^\circ)3s$	$3s'' \ ^2P^\circ$		$0\frac{1}{2}$	353440.6	1.9
$2s \ 2p(^3P^\circ)3p$	$3p' \ ^4D$	$0\frac{1}{2}$	309656.2	35.6	$2s^2(1S)6d$	$6d \ ^2D$			$1\frac{1}{2}, 2\frac{1}{2}$	354530.5		
		$1\frac{1}{2}$	309691.8				61.7					
		$2\frac{1}{2}$	309753.5				96.3					
		$3\frac{1}{2}$	309849.8									
$2s^2(1S)4p$	$4p \ ^2P^\circ$	$0\frac{1}{2}$	311690.3	24.9	$2s^2(1S)6f$	$6f \ ^2F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	354954.1				
		$1\frac{1}{2}$	311715.2				$2s^2(1S)6g$	$6g \ ^2G$		$3\frac{1}{2}, 4\frac{1}{2}$	355216.3	
$2s \ 2p(^3P^\circ)3p$	$3p' \ ^4S$	$1\frac{1}{2}$	314217.3		$2s^2(1S)6h$	$6h \ ^2H^\circ$			$4\frac{1}{2}, 5\frac{1}{2}$	355254.9		
$2s \ 2p(^3P^\circ)3p$	$3p' \ ^4P$	$0\frac{1}{2}$	317293.6	42.6	$2s^2(1S)7s$	$7s \ ^2S$	$0\frac{1}{2}$	359148.1				
		$1\frac{1}{2}$	317336.2				59.0	$2s^2(1S)7d$		$7d \ ^2D$	$1\frac{1}{2}, 2\frac{1}{2}$	362066
		$2\frac{1}{2}$	317395.2									
$2s^2(1S)4d$	$4d \ ^2D$	$1\frac{1}{2}$	317747.7	31.8	$2s^2(1S)7f$	$7f \ ^2F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	362320.9				
		$2\frac{1}{2}$	317779.5				$2s^2(1S)7g$	$7g \ ^2G$		$3\frac{1}{2}, 4\frac{1}{2}$	362511.5	
$2s^2(1S)4f$	$4f \ ^2F^\circ$	$2\frac{1}{2}$	320287.2	1.1	$2s^2(1S)7h$	$7h \ ^2H^\circ$			$4\frac{1}{2}, 5\frac{1}{2}$	362537.2		
		$3\frac{1}{2}$	320288.3									

ATOMIC ENERGY LEVELS

N III—Continued

N III—Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$s^2(1S)8s$	$8s \ ^2S$	$0\frac{1}{2}$	364994.2		$2s \ 2p(^3P^{\circ})4d$	$4d' \ ^4D^{\circ}$	$0\frac{1}{2}$		
$s^2(1S)8d$	$8d \ ^2D$	$1\frac{1}{2}, 2\frac{1}{2}$	366940				$1\frac{1}{2}$	385291	
$s \ 2p(^3P^{\circ})4s$	$4s' \ ^4P^{\circ}$	$0\frac{1}{2}$	368514.4	63.9			$2\frac{1}{2}$	385318	27
		$1\frac{1}{2}$	368578.3	118.0	$2s \ 2p(^3P^{\circ})4d$	$4d' \ ^4P^{\circ}$	$3\frac{1}{2}$	385347	29
		$2\frac{1}{2}$	368696.3				$2\frac{1}{2}$	386237.7	-54.1
$s^2(1S)9s$	$9s \ ^2S$	$0\frac{1}{2}$	368893.8				$1\frac{1}{2}$	386291.8	-32.5
$s^2(1S)9d$	$9d \ ^2D$	$1\frac{1}{2}, 2\frac{1}{2}$	370269		$2s \ 2p(^3P^{\circ})4f$	$4f' \ ^2F$	$0\frac{1}{2}$	386324.3	
$s \ 2p(^3P^{\circ})4p$	$4p' \ ^2S$	$0\frac{1}{2}$	370365				$2\frac{1}{2}$	386953.4	23.6
$s^2(1S)10s$	$10s \ ^2S$	$0\frac{1}{2}$	371646.9		$2s \ 2p(^3P^{\circ})4f$	$4f' \ ^4F$	$3\frac{1}{2}$	386977.0	
$s^2(1S)10d$	$10d \ ^2D$	$1\frac{1}{2}, 2\frac{1}{2}$	372651				$1\frac{1}{2}$	386971.6	11.2
$s \ 2p(^1P^{\circ})3p$	$3p'' \ ^2D$	$1\frac{1}{2}$	373346.1	29.6			$2\frac{1}{2}$	386982.8	18.1
		$2\frac{1}{2}$	373375.7		$2s \ 2p(^3P^{\circ})4d$	$4d' \ ^2F^{\circ}$	$3\frac{1}{2}$	387000.9	12.2
$s^2(1S)11s$	$11s \ ^2S$	$0\frac{1}{2}$	373605.6				$4\frac{1}{2}$	387013.1	
$s^2(1S)11d$	$11d \ ^2D$	$1\frac{1}{2}, 2\frac{1}{2}$	374427		$2s \ 2p(^3P^{\circ})4f$	$4f' \ ^4G$	$2\frac{1}{2}$	387715.6	101.6
$s \ 2p(^3P^{\circ})4p$	$4p' \ ^2P$	$0\frac{1}{2}$	374746.4	58.4			$3\frac{1}{2}$	387817.2	
		$1\frac{1}{2}$	374804.8		$2s \ 2p(^3P^{\circ})4f$	$4f' \ ^2G$	$4\frac{1}{2}$	388041.1	28.8
$s^2(1S)12s$	$12s \ ^2S$	$0\frac{1}{2}$	375075.6				$5\frac{1}{2}$	388069.9	53.9
$s^2(1S)12d$	$12d \ ^2D$	$1\frac{1}{2}, 2\frac{1}{2}$	375754		$2s \ 2p(^3P^{\circ})4f$	$4f' \ ^2G$	$4\frac{1}{2}$	388123.8	73.0
$s^2(1S)13s$	$13s \ ^2S$	$0\frac{1}{2}$	376145.4				$3\frac{1}{2}$	388178.2	101.2
$s \ 2p(^3P^{\circ})4p$	$4p' \ ^4D$	$0\frac{1}{2}$	376750.4	45.3	$2s \ 2p(^3P^{\circ})4f$	$4f' \ ^4D$	$3\frac{1}{2}$	388272.8	-36.5
		$1\frac{1}{2}$	376795.7	61.1			$2\frac{1}{2}$	388309.3	-47.5
		$2\frac{1}{2}$	376856.8	88.4	$2s \ 2p(^3P^{\circ})4f$	$4f' \ ^4D$	$1\frac{1}{2}$	388356.8	-29.0
		$3\frac{1}{2}$	376945.2				$0\frac{1}{2}$	388385.8	
$s^2(1S)14s$	$14s \ ^2S$	$0\frac{1}{2}$	377050.9		$2s \ 2p(^3P^{\circ})4d$	$4d' \ ^2P^{\circ}$	$1\frac{1}{2}$	389082.0	-70.0
$s \ 2p(^1P^{\circ})3p$	$3p'' \ ^2P$	$0\frac{1}{2}$	377577.9	33.4			$0\frac{1}{2}$	389152.0	
		$1\frac{1}{2}$	377611.3		$2s \ 2p(^1P^{\circ})3d$	$3d'' \ ^2F^{\circ}$	$2\frac{1}{2}, 3\frac{1}{2}$	394969	
$2p(^3P^{\circ})4p$	$4p' \ ^4S$	$1\frac{1}{2}$	378432.8		$2s \ 2p(^1P^{\circ})3d$	$3d'' \ ^2D^{\circ}$	$1\frac{1}{2}$	396574.9	9.9
$2p(^3P^{\circ})4p$	$4p' \ ^4P$	$0\frac{1}{2}$	379300.1	44.7			$2\frac{1}{2}$	396584.8	
		$1\frac{1}{2}$	379344.8	52.8	$2p^2(^3P)3s$	$3s''' \ ^4P$	$0\frac{1}{2}$	400566.2	66.7
		$2\frac{1}{2}$	379397.6				$1\frac{1}{2}$	400632.9	99.3
$2p(^3P^{\circ})4p$	$4p' \ ^2D$	$1\frac{1}{2}$	381411.5	103.3			$2\frac{1}{2}$	400732.2	
		$2\frac{1}{2}$	381514.8		$2s \ 2p(^3P^{\circ})5s$	$5s' \ ^4P^{\circ}$	$0\frac{1}{2}$	400862.5	71.7
$IV \ 2s^2 \ ^1S$	Limit	0	382703.8				$1\frac{1}{2}$	400934.2	119.3
$2p(^3P^{\circ})4d$	$4d' \ ^4F^{\circ}$	$1\frac{1}{2}$			$2s \ 2p(^3P^{\circ})5p$	$5p' \ ^2P$	$0\frac{1}{2}$	402624.6	81.0
		$2\frac{1}{2}$	384011	49			$1\frac{1}{2}$	402705.6	
		$3\frac{1}{2}$	384060	74	$2s \ 2p(^3P^{\circ})5p$	$5p' \ ^2D$	$1\frac{1}{2}$	406163.9	103.6
		$4\frac{1}{2}$	384134				$2\frac{1}{2}$	406267.5	
$2p(^3P^{\circ})4d$	$4d' \ ^2D^{\circ}$	$1\frac{1}{2}, 2\frac{1}{2}$	385126		$2s \ 2p(^3P^{\circ})5p$	$5p' \ ^2S$	$0\frac{1}{2}$	408128	

ATOMIC ENERGY LEVELS

N III—Continued

N III—Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
2s 2p(³ P°)5d	5d' ⁴ D°	0½ 1½ 2½ 3½	408956.7 408978.2 409024.8	21.5 46.6	2s 2p(³ P°)7d	7d' ⁴ P°	2½ to 0½	429486.3	
2s 2p(³ P°)5d	5d' ⁴ P°	2½ 1½ 0½	409391.3 409445.8 409486.2	54.5 40.4	2s 2p(³ P°)7d	7d' ² F°	2½ 3½	429759.4 429859.8	100.4
2p²(³ P)3d	3d''' ⁴ P	2½ 1½ 0½	409738.4 409820.4 409869.7	-82.0 -49.3	2s 2p(³ P°)7d	7d' ² P°	1½ 0½	429978.6 430040.3	-61.7
2s 2p(³ P°)5d	5d' ² F°	2½ 3½	410377.1		2p²(³ P)3p	3p''' ⁴ S°	1½	430025.9	
2s 2p(³ P°)5d	5d' ² P°	1½ 0½	410859.1 410927.0	-67.9	2s 2p(³ P°)8p	8p' ² P	0½ 1½	433296.2 433335.6	39.4
2p²(³ P)3p	3p''' ² D°	2½ 1½	415678.0 415679.7	-1.7	2s 2p(³ P°)8p	8p' ² D	1½ 2½	433668.3 433777.0	108.7
2s 2p(³ P°)6s	6s' ⁴ P°	0½ 1½ 2½	417090.9 417204.8	113.9	2s 2p(³ P°)8d	8d' ⁴ D°	0½ to 3½	434301.2	
2p²(³ P)3p	3p''' ⁴ D°	0½ 1½ 2½ 3½	419700.3 419737.6 419800.7 419871.7	37.3 63.1 71.0	2s 2p(³ P°)8d	8d' ⁴ P°	2½ to 0½	434356.6	
2s 2p(³ P°)6p	6p' ² P	0½ 1½	420106.1 420178.4	72.3	2s 2p(³ P°)8d	8d' ² F°	2½ 3½	434472.6	
2s 2p(³ P°)6p	6p' ² D	1½ 2½	420995.9 421111.9	116.0	2s 2p(³ P°)8d	8d' ² P°	1½ 0½	434671.5 434731.5	60.0
2s 2p(³ P°)6d	6d' ⁴ D°	0½ to 3½	421794.2		2s 2p(³ P°)9p	9p' ² D	1½ 2½	437135.5 437256.5	121.0
2s 2p(³ P°)6d	6d' ⁴ P°	2½ 1½ 0½	421794.2 421843.2 421867.2	-49.0 -24.0	2s 2p(³ P°)9d	9d' ⁴ D°	0½ to 3½	437680.7	
2s 2p(³ P°)6d	6d' ² F°	2½ 3½	422458.1 422560.0	101.9	2s 2p(³ P°)9d	9d' ⁴ P°	2½ to 0½	437748.7	
2s 2p(³ P°)6d	6d' ² P°	1½ 0½	422774.0 422837.6	-63.6	2s 2p(³ P°)9d	9d' ² P°	1½ 0½	437901.6 437951.6	-50.0
2p²(³ P)3p	3p''' ⁴ P°	0½ 1½ 2½	422876.0 422926.8	50.8	2s 2p(³ P°)10p	10p' ² D	1½ 2½	439601.0 439706.0	105.0
2s 2p(³ P°)7s	7s' ⁴ P°	0½ 1½ 2½	426761.3 426859.6	98.3	2s 2p(³ P°)10d	10d' ⁴ D°	0½ to 3½	440056.4	
2s 2p(³ P°)7p	7p' ² P	0½ 1½	428045.5 428080.8	35.3	2s 2p(¹ P°)4p	4p'' ² D	1½ 2½	440854.9 440877.9	23.0
2s 2p(³ P°)7p	7p' ² D	1½ 2½	428573.9 428682.3	108.4	2p²(³ P)3p	3p''' ² S°	0½	441026.6	
2s 2p(³ P°)7d	7d' ⁴ D°	0½ to 3½	429412.9		2s 2p(³ P°)11p	11p' ² D	1½ 2½	441637	
					2s 2p(³ P°)11d	11d' ⁴ D°	0½ to 3½	441810.5	
					2s 2p(¹ P°)4p	4p'' ² P	0½, 1½	442414	
					2s 2p(³ P°)12p	12p' ² D	1½ 2½	442972	
					2s 2p(³ P°)12d	12d' ⁴ D°	0½ to 3½	443147.0	
					2s 2p(³ P°)13p	13p' ² D	1½ 2½	444023	
					2s 2p(³ P°)13d	13d' ⁴ D°	0½ to 3½	444176.9	

ATOMIC ENERGY LEVELS

N III—Continued

N III—Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$1s\ 2p(^3P^{\circ})14p$	$14p'\ ^2D$	$1\frac{1}{2}$ $2\frac{1}{2}$	444870		$2p^2(^3P)4p$	$4p'''\ ^4P^{\circ}$	$0\frac{1}{2}$ to $2\frac{1}{2}$	486781.8	
$1s\ 2p(^3P^{\circ})14d$	$14d'\ ^4D^{\circ}$	$0\frac{1}{2}$ to $3\frac{1}{2}$	444995.7		$2p^2(^3P)4p$	$4p'''\ ^4S^{\circ}$	$1\frac{1}{2}$	489219.0	
$1s\ 2p(^3P^{\circ})15d$	$15d'\ ^4D^{\circ}$	$0\frac{1}{2}$ to $3\frac{1}{2}$	445674.7		$2p^2(^3P)5p$	$5p'''\ ^4D^{\circ}$	$0\frac{1}{2}$ to $3\frac{1}{2}$	513599	
$1s\ 2p(^1P^{\circ})4d$	$4d''\ ^2F^{\circ}$	$2\frac{1}{2}, 3\frac{1}{2}$	[448126]		$2p^2(^3P)5p$	$5p'''\ ^4P^{\circ}$	$0\frac{1}{2}$ to $2\frac{1}{2}$	514055.6	
$1s\ 2p(^1P^{\circ})4d$	$4d''\ ^2D^{\circ}$	$1\frac{1}{2}, 2\frac{1}{2}$	448775		$2p^2(^3P)5p$	$5p'''\ ^4S^{\circ}$	$1\frac{1}{2}$	515170.1	
$\sqrt{IV}\ 2s\ 2p\ ^3P^{\circ}$	<i>Limit</i>	0 1 2	449913.0 449976.1 450120.1	63.1 144.0	$2p^2(^3P)6p$	$6p'''\ ^4P^{\circ}$	$0\frac{1}{2}$ to $2\frac{1}{2}$	528228.9	
$1s\ 2p(^1P^{\circ})5p$	$5p''\ ^2D$	$1\frac{1}{2}, 2\frac{1}{2}$	468683		$2p^2(^3P)6p$	$6p'''\ ^4S^{\circ}$	$1\frac{1}{2}$	528832.8	
$2s\ 2p(^1P^{\circ})5p$	$5p''\ ^2P$	$0\frac{1}{2}, 1\frac{1}{2}$	469297		$2p^2(^3P)7p$	$7p'''\ ^4D^{\circ}$	$0\frac{1}{2}$ to $3\frac{1}{2}$	536416	
$2p^2(^3P)4p$	$4p'''\ ^4D^{\circ}$	$0\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$	485597.4 485668.9 485790.1	71.5 121.2	$2p^2(^3P)7p$	$7p'''\ ^4P^{\circ}$	$0\frac{1}{2}$ to $2\frac{1}{2}$	536553.8	
					$2p^2(^3P)7p$	$7p'''\ ^4S^{\circ}$	$1\frac{1}{2}$	536921.5	

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ATOMIC ENERGY LEVELS

N III Observed Terms

Config. $1s^2 +$	Observed Terms		
$2s 2p^2$	$\left\{ \begin{array}{lll} 2p^2 \ ^2S & 2p^2 \ ^4P & 2p^2 \ ^2D \end{array} \right.$		
$2p^3$	$\left\{ \begin{array}{lll} 2p^3 \ ^4S^\circ & 2p^3 \ ^2P^\circ & 2p^3 \ ^2D^\circ \end{array} \right.$		
	$ns (n \geq 3)$	$np (n \geq 2)$	$nd (n \geq 3)$
$2s^2(^1S)nl$	$3-14s \ ^2S$	$2-5p \ ^2P^\circ$	$3-12d \ ^2D$
$2s 2p(^3P^\circ)nl'$	$\left\{ \begin{array}{l} 3-7s' \ ^4P^\circ \\ 3s' \ ^2P^\circ \end{array} \right.$	$\begin{array}{lll} 3-4p' \ ^4S & 3-4p' \ ^4P & 3-4p' \ ^4D \\ 3-5p' \ ^2S & 3-8p' \ ^2P & 3-14p' \ ^2D \end{array}$	$\begin{array}{lll} 3-9d' \ ^4P^\circ & 3-15d' \ ^4D^\circ & 3-4d' \ ^4F^\circ \\ 3-9d' \ ^2P^\circ & 3-4d' \ ^2D^\circ & 3-8d' \ ^2F^\circ \end{array}$
$2s 2p(^1P^\circ)nl''$	$3s'' \ ^2P^\circ$	$3-5p'' \ ^2P \quad 3-5p'' \ ^2D$	$3-4d'' \ ^2D^\circ \quad 3-4d'' \ ^2F^\circ$
$2p^2(^3P)nl'''$	$\left\{ \begin{array}{l} 3s''' \ ^4P \end{array} \right.$	$\begin{array}{lll} 3-7p''' \ ^4S^\circ & 3-7p''' \ ^4P^\circ & 3-7p''' \ ^4D^\circ \\ 3p''' \ ^2S^\circ & & 3p''' \ ^2D^\circ \end{array}$	$3d''' \ ^4P$
	$nf (n \geq 4)$	$ng (n \geq 5)$	$nh (n \geq 6)$
$2s^2(^1S)nl$	$4-7f \ ^2F^\circ$	$5-7g \ ^2G$	$6-7h \ ^2H^\circ$
$2s 2p(^3P^\circ)nl'$	$\left\{ \begin{array}{lll} 4f' \ ^4D & 4f' \ ^4F & 4f' \ ^4G \\ 4f' \ ^2D & 4f' \ ^2F & 4f' \ ^2G \end{array} \right.$		

Multiplet Table

Part B

NITROGEN

N III (Z = 7)

I P 47.448 eV Limit **382703.8** cm⁻¹ 261.299 Å (Vac)

Anal A List A July 1974

REFERENCES

- A D. J. Michels, J. Opt. Soc. Am. **64**, No. 9, 1164-1174 (1974). T, C L, G D, I; W L 208 Å to 482 Å.
- B R. Hallin, R. Sjödin and K. Bockasten, Unpublished material, June 1974. T, C L, I; W L 763 Å to 8424 Å.
- C B. Edlén, Nova Acta Reg. Soc. Sci. Uppsala [IV] **9**, No. 6, 78 to 90 (1934). I P, T, C L, G D; (I); W L 264 Å to 4641 Å.
- D B. Edlén, H. P. Palenius, K. Bockasten, R. Hallin, and J. Bromander, Solar Physics **9**, No. 2, 432 to 438 (1969). C L, (I); W L 1746 Å to 1753 Å.
- E B. Edlén, Zeit. Phys. **98**, Nos. 9, 10, 561 to 568 (1936). T, C L, (I); W L 1906 Å to 2192 Å.
- F L. J. Freeman, Proc. Roy. Soc. (London) A **121**, 318 to 343 (1928). I P, T, C L, (I); W L 374 Å to 6487 Å. See Ref. B, D.
- P Predicted Wavelength.
I. S. Bowen (1927). See Ref. E, C L, W L.

In column 3 parentheses indicate that the estimated intensities are on a different scale than those without parentheses. For wavelengths shorter than 482 Å the intensity estimate reported by Michels for the leading line of a multiplet is entered for the entire multiplet and indicated as a blend, for unresolved groups.

New Multiplet Numbers, not inserted between older ones, start with UV 31 and 18.

*Blend

*and § Blend with N IV

m masked

N III							N III						
I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
749.674	D	1	0.02	7.11	1½-2½	2p ²P°- 2p² ⁴P	764.359	B	15	0.02	16.24	1½-0½	2p ²P°- 2p² ²S
746.82	P		0.00	7.10	0½-1½	UV 0.01	763.336	B	14	0.00	16.24	0½-0½	UV 2
752.16	P		0.02	7.10	1½-1½								
748.61	D	(3)	0.00	7.09	0½-0½								
753.986	D	0	0.02	7.09	1½-0½								
991.579	C	20	0.02	12.53	1½-2½	2p ²P°- 2p² ²D	685.816	C	(16)	0.02	18.10	1½-1½	2p ²P°- 2p² ²P
989.790	C	19	0.00	12.53	0½-1½	UV 1	685.513	C	(15)	0.00	18.09	0½-0½	UV 3
991.514	C	17	0.02	12.53	1½-1½		686.335	C	(14)	0.02	18.09	1½-0½	
							684.996	C	(14)	0.00	18.10	0½-1½	

MULTIPLIET TABLE

N III—Continued

N 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						
452.226†	C	900*	0.02	27.44	1½-0½	2p ²P°- 3s ²S UV 4	268.473	A	600n*	0.02	46.20	1½-	2p ²P°-10d ²D UV 7.15
451.869	C		0.00	27.44	0½-0½		0.00	46.20		0½-1½			
374.441	C	900*	0.02	33.13	1½-	2p ²P°- 3d ²D UV 5	267.952	C	500*	0.02	46.29	1½-2½	2p ²P°- 3p' ²D UV 7.16
374.204	C		0.00	33.13	0½-1½		0.00	46.29		0½-1½			
						267.966	A	0.02		46.29	1½-1½		
332.333	A	650*	0.02	37.33	1½-0½	2p ²P°- 4s ²S UV 5.01	267.787	A	300*	0.02	46.32	1½-0½	2p ²P°-11s ²S UV 7.17
332.140	A		0.00	37.33	0½-0½		0.00	46.32		0½-0½			
323.615	C	500*	0.02	38.33	1½-1½	2p ²P°- 3p' ²P UV 6	267.199	A	500n	0.02	46.42	1½-	2p ²P°-11d ²D UV 7.18
323.488	C		0.00	38.33	0½-0½		0.00	46.42		0½-1½			
323.671	C		0.02	38.33	1½-0½								
323.431	C		0.00	38.33	0½-1½								
314.850	C	800*	0.02	39.40	1½-2½	2p ²P°- 4d ²D UV 7	266.930	A	400*	0.02	46.47	1½-1½	2p ²P°- 4p' ²P UV 7.19
314.715	C		0.00	39.39	0½-1½		0.00	46.46		0½-0½			
314.877	C		0.02	39.39	1½-1½		0.02	46.46		1½-0½			
						266.805	A	350*	0.00	46.47	0½-1½		
									0.02	46.47	0½-1½		
311.636	A	500*	0.02	39.81	1½-2½	2p ²P°- 3p' ²D UV 7.01	266.737	A	250*	0.02	46.50	1½-0½	2p ²P°-12s ²S UV 7.20
311.550	A		0.00	39.80	0½-1½		0.00	46.50		0½-0½			
311.721	A		0.02	39.80	1½-1½								
305.920	A	500*	0.02	40.55	1½-0½	2p ²P°- 3p' ²S UV 7.02	266.255	A	500n	0.02	46.59	1½-	2p ²P°-12d ²D UV 7.21
305.761	A		0.00	40.55	0½-0½		0.00	46.59		0½-1½			
299.818	A	500*	0.02	41.37	1½-0½	2p ²P°- 5s ²S UV 7.03	265.978	A	200*	0.02	46.64	1½-0½	2p ²P°-13s ²S UV 7.22
299.661	A		0.00	41.37	0½-0½		0.00	46.64		0½-0½			
292.595	C	750*	0.02	42.40	1½-2½	2p ²P°- 5d ²D UV 7.04	265.339	A	200*	0.02	46.75	1½-0½	2p ²P°-14s ²S UV 7.23
292.447	C		0.00	42.40	0½-1½		0.00	46.75		0½-0½			
286.000	A	450*	0.02	43.37	1½-0½	2p ²P°- 6s ²S UV 7.05	264.945	A	400*	0.02	46.82	1½-1½	2p ²P°- 3p' ²P UV 7.24
285.855	A		0.00	43.37	0½-0½		0.00	46.81		0½-0½			
282.209	A	700*	0.02	43.96	1½-	2p ²P°- 6d ²D UV 7.06	264.966	A		0.02	46.81	1½-0½	
282.070	A		0.00	43.96	0½-1½		0.00	46.82		0½-1½			
278.572	A	400*	0.02	44.53	1½-0½	2p ²P°- 7s ²S UV 7.07	262.233	A	800*	0.02	47.30	1½-2½	2p ²P°- 4p' ²D UV 7.25
278.436	A		0.00	44.53	0½-0½		0.00	47.29		0½-1½			
						262.304	P	0.02		47.29	1½-1½		
276.326	A	700*	0.02	44.89	1½-	2p ²P°- 7d ²D UV 7.08	248.428	A	350*	0.02	49.93	1½-1½	2p ²P°- 5p' ²P UV 7.26
276.193	A		0.00	44.89	0½-1½		0.00	49.92		0½-0½			
						248.478	A	0.02		49.92	1½-0½		
						248.320	A	0.00		49.93	0½-1½		
274.108	A	400*	0.02	45.25	1½-0½	2p ²P°- 8s ²S UV 7.09	246.249	A	650*	0.02	50.37	1½-2½	2p ²P°- 5p' ²D UV 7.27
273.977	A		0.00	45.25	0½-0½		0.00	50.36		0½-1½			
272.654	A	650d*	0.02	45.49	1½-	2p ²P°- 8d ²D UV 7.10	246.206	A		0.00	50.36	0½-1½	
272.523	A		0.00	45.49	0½-1½		0.02	50.36		1½-1½			
271.209	A	350*	0.02	45.74	1½-0½	2p ²P°- 9s ²S UV 7.11	245.115	A	400n*	0.02	50.60	1½-0½	2p ²P°- 5p' ²S UV 7.28
271.077	A		0.00	45.74	0½-0½		0.00	50.60		0½-0½			
270.201	A	650n*	0.02	45.91	1½-	2p ²P°- 9d ²D UV 7.12	238.093	A	350*	0.02	52.09	1½-1½	2p ²P°- 6p' ²P UV 7.29
270.073	A		0.00	45.91	0½-1½		0.00	52.09		0½-0½			
270.131	P	400*	0.02	45.92	1½-0½	2p ²P°- 4p' ²S UV 7.13	238.134	A		0.02	52.09	1½-0½	
270.004	A		0.00	45.92	0½-0½		0.00	52.09		0½-1½			
269.199	A	300*	0.02	46.08	1½-0½	2p ²P°-10s ²S UV 7.14	237.565	A	450*	0.02	52.21	1½-2½	2p ²P°- 6p' ²D UV 7.30
269.072	A		0.00	46.08	0½-0½		0.00	52.20		0½-1½			
						237.624	A	0.02	52.20	1½-1½?			

N III-Continued

N 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															
233.696	A	300*	0.02	53.07	1½-1½	2p ²P°- 7p' ²P UV 7.31	Vac			7.10	16.24	1½-0½	2p² ⁴P - 2p² ²S UV 7.46 F		
233.620	A		0.00	53.07	0½-0½		1355.794	P		7.09	16.24	0½-0½			
233.716	A		0.02	53.07	1½-0½		1127.931	P		7.11	18.10	2½-1½	2p² ⁴P - 2p² ²P UV 7.47 F		
233.599	A		0.00	53.07	0½-1½		1128.300	P		7.10	18.09	1½-0½			
233.368	A	400*	0.02	53.15	1½-2½	2p ²P°- 7p' ²D UV 7.32	1126.900	P		7.10	18.10	1½-1½	2p² ⁴P - 2p³ ⁴S° UV 8		
233.332	A		0.00	53.14	0½-1½		1127.541	P		7.09	18.09	0½-0½			
233.424	A		0.02	53.14	1½-1½		1126.143	P		7.09	18.10	0½-1½			
230.861	A	250*	0.02	33.73	1½-1½	2p ²P°- 8p' ²P UV 7.33	772.385	C	12	7.11	23.16	2½-1½	2p² ⁴P - 3s' ⁴P° UV 9		
230.789	A		0.00	33.72	0½-0½		771.901	C	11	7.10	23.16	1½-1½			
230.879	A		0.02	33.72	1½-0½		771.544	C	10	7.09	23.16	0½-1½			
230.765	A		0.00	33.73	0½-1½		434.066	C	650*	7.11	35.67	2½-2½			
230.626	A	300*	0.02	53.78	1½-2½	2p ²P°- 8p' ²D UV 7.34	*434.129	C		7.10	35.66	1½-1½			
230.591	A		0.00	53.77	0½-1½		*434.129	C		7.09	35.65	0½-0½			
230.681	A		0.02	53.77	1½-1½		434.280	C		7.11	35.66	2½-1½			
228.790	A	250*	0.02	54.21	1½-2½	2p ²P°- 9p' ²D UV 7.35	434.246	C		7.10	35.65	1½-0½	2p² ⁴P - 3d' ⁴D° UV 10		
228.762	A		0.00	54.20	0½-1½		433.911	C	7.10	35.67	1½-2½				
228.844	A		0.02	54.20	1½-1½		434.014	C	7.09	35.66	0½-1½				
227.515	A	250*	0.02	54.52	1½-2½	2p ²P°-10p' ²D UV 7.36	362.949	A	700	7.11	41.27	2½-3½	2p² ⁴P - 3d' ⁴P° UV 11		
227.479	A		0.00	54.50	0½-1½		362.876	A		7.10	41.26	1½-2½			
227.569	P		0.02	54.50	1½-1½		362.831	A		7.09	41.26	0½-1½			
226.910	A	400*	0.02	54.66	1½-2½	2p ²P°- 4p'' ²D UV 7.37	362.982	A		7.11	41.26	2½-2½			
226.832	A		0.00	54.66	0½-1½		362.902	A		7.10	41.26	1½-1½			
226.520	A	50d	0.02	54.75	1½-2½	2p ²P°-11p' ²D UV 7.38	363.004	A	7.11	41.26	2½-1½				
226.122	A	300*	0.02	54.85	1½-	2p ²P°- 4p'' ²P UV 7.39	358.578	C	600*	7.11	41.68	2½-2½	2p² ⁴P - 3d' ⁴P° UV 11		
226.030	A		0.00	54.85	0½-		358.401	C		7.10	41.69	1½-1½			
225.837	A	300n	0.02	54.92	1½-2½	2p ²P°-12p' ²D UV 7.40	358.278	C		7.09	41.69	0½-0½			
225.302	A	70n	0.02	55.05	1½-2½	2p ²P°-13p' ²D UV 7.41	358.509	C		7.11	41.69	2½-1½			
224.873	A	50n	0.02	55.16	1½-2½	2p ²P°-14p' ²D UV 7.42	358.356	C		7.10	41.69	1½-0½			
213.447	A	100n	0.02	58.11	1½-	2p ²P°- 5p'' ²D UV 7.43	358.469	C	500*	7.10	41.68	1½-2½	2p² ⁴P - 4s' ⁴P° UV 11.01		
213.364	A	50n	0.00	58.11	0½-1½		358.327	C		7.09	41.69	0½-1½			
213.164	A	200n*	0.02	58.18	1½-	2p ²P°- 5p'' ²P UV 7.44	321.162	A		500*	7.11	45.71		2½-2½	2p² ⁴P - 4d' ⁴D° UV 11.02
213.086	A		0.00	58.18	0½-		*321.198	A			7.10	45.70		1½-1½	
Air						*321.198	A	7.09			45.69	0½-0½			
2287.83	P		7.11	12.53	2½-2½	2p² ⁴P - 2p² ²D UV 7.45 F	321.278	A	7.11		45.70	2½-1½			
2283.25	P		7.10	12.53	1½-1½		321.261	P	7.10		45.69	1½-0½			
2287.48	P		7.11	12.53	2½-1½		321.079	A	7.10	45.71	1½-2½				
2283.59	P		7.10	12.53	1½-2½		321.135	A	7.09	45.70	0½-1½				
2280.14	P		7.09	12.53	0½-1½		*304.877	A	450*	7.11	47.78	2½-3½	2p² ⁴P - 4d' ⁴P° UV 11.03		
						304.812	A	7.10		47.77	1½-2½				
						304.786	A	7.09		47.77	0½-1½				
						*304.877	A	7.11		47.77	2½-2½				
						304.837	P	7.10		47.77	1½-1½				
						304.921	A	7.11	47.77	2½-1½					
						304.035	A	450*	7.11	47.89	2½-2½	2p² ⁴P - 4d' ⁴P° UV 11.03			
						303.910	A		7.10	47.89	1½-1½				
						303.825	A		7.09	47.90	0½-0½				
						303.985	A		7.11	47.89	2½-1½				
						303.880	A		7.10	47.90	1½-0½				
						303.960	A	7.10	47.89	1½-2½					
						303.856	A	7.09	47.89	0½-1½					

MULTIPLIET TABLE

N III-Continued

N 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							
290.930	A	400*	7.11	49.72	2½-2½	2p² 4P - 5s' 4P° UV 11.04	265.271	A	500n	7.11	53.85		2p² 4P - 8d' 4D° UV 11.16	
*290.965	A		7.10	49.71	1½-1½									
*290.965	A		7.09	49.70	0½-0½									
291.031	A		7.11	49.71	2½-1½			265.232	A	500n	7.11	53.85		2p² 4P - 8d' 4P° UV 11.17
291.023	A		7.10	49.70	1½-0½									
290.865	A		7.10	49.72	1½-2½									
290.916	A	7.09	49.71	0½-1½		262.914	A	500n	7.11	54.26		2p² 4P - 9d' 4D° UV 11.18		
284.336	A	400*	7.11	50.71	2½-3½	2p² 4P - 5d' 4D° UV 11.05	262.867	A	400n	7.11	54.27		2p² 4P - 9d' 4P° UV 11.19	
284.308	A		7.10	50.71	1½-2½									
284.277	A		7.09	50.70	0½-1½									
284.365	A		7.11	50.71	2½-2½									
284.040	A	400*	7.11	50.76	2½-2½	2p² 4P - 5d' 4P° UV 11.06	261.282	A	800n	7.11	54.56		2p² 4P - 10d' 4D° UV 11.20	
283.937	A		7.10	50.76	1½-1½									
283.863	A		7.09	50.77	0½-0½									
283.996	A		7.11	50.76	2½-1½			260.090	A	800n	7.11	54.78		2p² 4P - 11d' 4D° UV 11.21
283.898	A		7.10	50.77	1½-0½									
283.977	A		7.10	50.76	1½-2½			259.189	A	700n	7.11	54.94		2p² 4P - 12d' 4D° UV 11.22
277.873	A	300*	7.11	51.73	2½-2½	2p² 4P - 6s' 4P° UV 11.07	258.499	A	650n	7.11	55.07		2p² 4P - 13d' 4D° UV 11.23	
277.901	A		7.10	51.71	1½-1½									
277.961	A		7.11	51.71	2½-1½									
277.813	A		7.10	51.73	1½-2½			257.953	A	500n	7.11	55.17		2p² 4P - 14d' 4D° UV 11.24
275.829	A	400*	7.11	52.06	2½-3½	2p² 4P - 3p''' 4D° UV 11.08	257.502	A	300n	7.11	55.26		2p² 4P - 15d' 4D° UV 11.25	
275.883	A		7.11	52.05	2½-2½									
275.871	A		7.10	52.04	1½-1½									
275.852	A		7.09	52.03	0½-0½									
275.931	A		7.11	52.04	2½-1½									
274.374	A	400	7.11	52.29		2p² 4P - 6d' 4D° UV 11.09	233.393	A	350*	7.11	60.23	2½-3½	2p² 4P - 4p''' 4D° UV 11.26	
274.374	A	400	7.11	52.29	2½-2½	2p² 4P - 6d' 4P° UV 11.10	*233.459	A		7.11	60.21	2½-2½		
274.276	A		7.10	52.30	1½-1½			*233.459		A	7.10	60.20	1½-1½	
274.213	P		7.09	52.30	0½-0½			233.498		A	7.11	60.20	2½-1½	
274.337	P		7.11	52.30	2½-1½									
274.258	A		7.10	52.30	1½-0½			232.854	A	300n	7.11	60.35		2p² 4P - 4p''' 4P° UV 11.27
274.316	A	7.10	52.29	1½-2½										
273.524	A	450*	7.11	52.43	2½-2½	2p² 4P - 3p''' 4P° UV 11.11	231.540	A	200*	7.11	60.65	2½-1½	2p² 4P - 4p''' 4S° UV 11.28	
273.503	A		7.10	52.43	1½-1½			231.497		A	7.10	60.65	1½-1½	
273.562	A		7.11	52.43	2½-1½			231.465		A	7.09	60.65	0½-1½	
273.462	A		7.10	52.43	1½-2½			219.168	A	250*	7.11	63.68		2p² 4P - 5p''' 4D° UV 11.29
270.613	A	150	7.11	52.92	2½-2½	2p² 4P - 7s' 4P° UV 11.12	218.949	A	100n	7.11	63.73		2p² 4P - 5p''' 4P° UV 11.30	
270.685	A	50	7.11	52.91	2½-1½									
270.554	A	50	7.10	52.92	1½-2½									
268.756	A	400	7.11	53.24		2p² 4P - 7d' 4D° UV 11.13	218.416	A	100*	7.11	63.87	2½-1½	2p² 4P - 5p''' 4S° UV 11.31	
						218.378	A	7.10		63.87	1½-1½			
						218.340	A	7.09		63.87	0½-1½			
268.703	A	500	7.11	53.25		2p² 4P - 7d' 4P° UV 11.14	212.465	A	100l	7.11	65.46		2p² 4P - 6p''' 4D° UV 11.32	
268.314	A	400*	7.11	53.32	2½-1½	2p² 4P - 3p''' 4S° UV 11.15	212.359	A	50n	7.11	65.49		2p² 4P - 6p''' 4P° UV 11.33	
268.255	A		7.10	53.32	1½-1½									
268.212	A		7.09	53.32	0½-1½									

MULTIPLIET TABLE

N III-Continued

N 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						
212.087	A	80*	7.11	65.57	2½-1½	2p² ⁴P - 6p''' ⁴S° UV 11.34	311.007	A	350n*	12.53	52.39	2½-3½	2p² ²D - 6d' ²F° UV 16.09
212.049	A		7.10	65.57	1½-1½		311.113	A		12.53	52.38	1½-2½	
212.019	A		7.09	65.57	0½-1½								
208.730	A	50l	7.11	66.51		2p² ⁴P - 7p''' ⁴D° UV 11.35	310.803	A	100*	12.53	52.42	2½-1½	2p² ²D - 6d' ²P° UV 16.10
						310.746	A	12.53		52.42	1½-0½		
208.670	A	50n	7.11	66.52		2p² ⁴P - 7p''' ⁴P° UV 11.36	304.103	A	300*	12.53	53.29	2½-3½	2p² ²D - 7d' ²F° UV 16.11
						304.203	A	12.53		53.28	1½-2½		
208.510§	A	30n	7.11	66.57		2p² ⁴P - 7p''' ⁴S° UV 11.37	299.903	A	200	12.53	53.87	1½-2½	2p² ²D - 8d' ²F° UV 16.12
							287.56	A	300n	12.53	55.64		2p² ²D - 4d' ²D° UV 16.13
979.919	C	17	12.53	25.18	2½-2½	2p² ²D - 2p³ ²D° UV 12							
979.842	C	16	12.53	25.18	1½-1½								
772.891	C	9	12.53	28.57	2½-1½	2p² ²D - 2p³ ²P° UV 13	1006.021	B	5	16.24	28.57	0½-	2p² ²S - 2p³ ²P° UV 17
772.975	C	8	12.53	28.57	1½-0½								
691.187	C	(2)	12.53	30.46	2½-1½	2p² ²D - 3p ²P° UV 13.01	871.870	B	3	16.24	30.46	0½-1½	2p² ²S - 3p ²P° UV 17.01
691.388	C	(1)	12.53	30.46	1½-0½		872.143	B	2	16.24	30.46	0½-0½	
509.586	C	(5)	12.53	36.86	2½-1½	2p² ²D - 3s' ²P° UV 14	601.468	C	(1)	16.24	36.86	0½-1½	2p² ²S - 3s' ²P° UV 17.02
509.897	C	(4)	12.53	36.84	1½-0½		601.878	C	(0)	16.24	36.84	0½-0½	
456.077	A	600	12.53	39.71	2½-3½	2p² ²D - 4f ²F° UV 14.01	472.399	A	550*	16.24	42.49	0½-1½	2p² ²S - 3d' ²P° UV 18
						472.239	A	16.24		42.50	0½-0½		
428.180	C	600*	12.53	41.48	2½-2½	2p² ²D - 3d' ²D° UV 15	449.559	A	450	16.24	43.82	0½-	2p² ²S - 3s'' ²P° UV 18.01
428.244	C		12.53	41.48	1½-1½								
418.712	A	650*	12.53	42.14	2½-3½	2p² ²D - 3d' ²F° UV 16	387.483	A	500*	16.24	48.24	0½-1½	2p² ²S - 4d' ²P° UV 18.02
418.919	A		12.53	42.12	1½-2½		387.375	P		16.24	48.25	0½-0½	
413.797	C	450*	12.53	42.49	2½-1½	2p² ²D - 3d' ²P° UV 16.01	357.324	A	450*	16.24	50.94	0½-1½	2p² ²S - 5d' ²P° UV 18.03
413.681	C		12.53	42.50	1½-0½		357.238	A		16.24	50.95	0½-0½	
396.186	A	450	12.53	43.82		2p² ²D - 3s'' ²P° UV 16.02	342.741	A	300*	16.24	52.42	0½-1½	2p² ²S - 6d' ²P° UV 18.04
						342.665	A	16.24		52.42	0½-0½		
351.979	C	500*	12.53	47.75		2p² ²D - 4d' ²D° UV 16.03	334.476	A	250*	16.24	53.31	0½-1½	2p² ²S - 7d' ²P° UV 18.05
						334.407	A	16.24		53.32	0½-0½		
348.683	A	800*	12.53	48.08	2½-3½	2p² ²D - 4d' ²P° UV 16.04	329.307	A	100n*	16.24	53.89	0½-1½	2p² ²S - 8d' ²P° UV 18.06
348.816	A		12.53	48.07	1½-2½		329.242	A		16.24	53.90	0½-0½	
347.148	A	200*	12.53	48.24	2½-1½	2p² ²D - 4d' ²P° UV 16.05	325.841	A	50n*	16.24	54.29	0½-1½	2p² ²S - 9d' ²P° UV 18.07
347.072	A		12.53	48.25	1½-0½		325.788	A		16.24	54.30	0½-0½	
340.20	A	500n	12.53	48.97		2p² ²D - 3d'' ²F° UV 16.06	1751.657	B	16	18.10	25.18	1½-2½	2p² ²P - 2p³ ²D° UV 19
							1747.848	B	15	18.09	25.18	0½-1½	
							1751.218	B	12	18.10	25.18	1½-1½	
38.349	A	500	12.53	49.17		2p² ²D - 3d' ²D° UV 16.07	1184.550	B	15	18.10	28.57	1½-	2p² ²P - 2p³ ²P° UV 20
							1183.031	B	14	18.09	28.57	0½-	
23.263	A	600n	12.53	50.88	1½-2½	2p² ²D - 5d' ²F° UV 16.08	530.268	C	(3)	18.10	41.48	1½-2½	2p² ²P - 3d' ²D° UV 20.01
							530.037	C	(2)	18.09	41.48	0½-1½	

MULTIPLIET TABLE

N III-Continued

N 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 482.030 481.778	A A	500*	18.10 18.09	43.82 43.82	1½-1½ 0½-0½	2p² ²P - 3s' ²P° UV 20.02	Vac 1805.669 1804.486	B B	9 8	30.46 30.46	37.33 37.33	1½-0½ 0½-0½	3p ²P°- 4s ²S UV 22
411.361 411.056 411.243 411.173	A A A A	400*	18.10 18.09 18.10 18.09	48.24 48.25 48.25 48.24	1½-1½ 0½-0½ 1½-0½ 0½-1½	2p² ²P - 4d' ²P° UV 20.03	1575.21 1575.65 1576.54 1574.32	B B B B	5 4 3 3	30.46 30.46 30.46 30.46	38.33 38.33 38.33 38.33	1½-1½ 0½-0½ 1½-0½ 0½-1½	3p ²P°- 3p' ²P UV 22.01
399.045 398.885 399.084	C C C	600*	18.10 18.09 18.10	49.17 49.17 49.17	1½-2½ 0½-1½ 1½-1½	2p² ²P - 3d' ²D° UV 20.04	*1387.371 *1387.371 1387.995	B B B	8 8 4	30.46 30.46 30.46	39.40 39.39 39.39	1½-2½ 0½-1½ 1½-1½	3p ²P°- 4d ²D UV 22.02
377.540 377.286 377.444 377.380	A A A A	250*	18.10 18.09 18.10 18.09	50.94 50.95 50.95 50.94	1½-1½ 0½-0½ 1½-0½ 0½-1½	2p² ²P - 5d' ²P° UV 20.05	Air 2247.95 2248.93 2247.65	B B F	(6) (5) (2)	33.13 33.13 33.13	38.65 38.64 38.65	2½-1½ 1½-0½ 1½-1½	3d ²D - 4p ²P° UV 23
370.794 370.640	A A	350*	18.10 18.09	51.54 51.54	1½-2½ 0½-1½	2p² ²P - 3p''' ²D° UV 20.06	Vac 1885.215 1885.058	B B	13 12	33.13 33.13	39.71 39.71	2½-3½ 1½-2½	3d ²D - 4f ²F° UV 24
361.288 361.061 361.205 361.143	A A A A	200*	18.10 18.09 18.10 18.09	52.42 52.42 52.42 52.42	1½-1½ 0½-0½ 1½-0½ 0½-1½	2p² ²P - 6d' ²P° UV 20.07	Air 4514.86 *4510.91 *4510.91 4534.58 4523.58 4518.15 4547.30 m4530.86	B B B B B B B P	7 6 6 4 5 4 1 N II	35.67 35.66 35.65 35.67 35.66 35.65 35.67 35.66	38.42 38.40 38.40 38.40 38.40 38.39 38.40 38.39	2½-3½ 1½-2½ 0½-1½ 2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½	3s' ⁴P°- 3p' ⁴D 3
352.114 351.909	A P	20	18.10 18.09	53.31 53.32	1½-1½ 0½-0½	2p² ²P - 7d' ²P° UV 20.08	Air 3771.05 3754.67 3745.92	B B B	7 6 4	35.67 35.66 35.65	38.96 38.96 38.96	2½-1½ 1½-1½ 0½-1½	3s' ⁴P°- 3p' ⁴S 4
338.937 338.808	A A	300n*	18.10 18.09	54.68 54.68	1½-0½ 0½-0½	2p² ²P - 3p''' ²S° UV 20.09	3367.34 3360.95 3358.79 3374.06 3365.81 3354.27 3353.96	B B B B B B B	7 3 2 5 4 4 4	35.67 35.66 35.65 35.67 35.66 35.66 35.65	39.35 39.34 39.34 39.34 39.34 39.35 39.34	2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3s' ⁴P°- 3p' ⁴P 5
330.26	A	300n	18.10	55.64		2p² ²P - 4d' ²D° UV 20.10							
467.432 467.649 467.795	A A A	500*	23.16 23.16 23.16	49.68 49.67 49.66	1½-2½ 1½-1½ 1½-0½	2p² ⁴S - 3s''' ⁴P UV 20.11							
448.549 448.384 448.285	A A A	450*	23.16 23.16 23.16	50.80 50.81 50.82	1½-2½ 1½-1½ 1½-0½	2p² ⁴S° - 3d''' ⁴P UV 20.12							
Air 4097.33 4103.43	B B	10 9	27.44 27.44	30.46 30.46	0½-1½ 0½-0½	3s ²S - 3p ²P° I							
2714.01 2714.07 2714.35	B B B	4* 0	28.57 28.57 28.57	33.13 33.13 33.13	1½-2½ 0½-1½ 1½-1½	2p² ²P°- 3d ²D UV 21	8386.48 8344.86 8424.55 8307.55	B B B B	3 2 0 0	36.86 36.84 36.86 36.84	38.33 38.33 38.33 38.33	1½-1½ 0½-0½ 1½-0½ 0½-1½	3s' ²P°- 3p' ²P 5.01
4640.64 4634.14 4641.85	B B B	7 6 4	30.46 30.46 30.46	33.13 33.13 33.13	1½-2½ 0½-1½ 1½-1½	3p ²P°- 3d ²D 2	4200.10 4195.76 4215.77	B B B	8 7 4	36.86 36.84 36.86	39.81 39.80 39.80	1½-2½ 0½-1½ 1½-1½	3s' ²P°- 3p' ²D 6

MULTIPLY TABLE

N III-Continued

N 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 3355.49 3342.71	B B	4 3	36.86 36.84	40.55 40.55	1½-0½ 0½-0½	3s' ²P° - 3p' ²S 7	Vac 1324.361	B	6	38.42	47.78	3½-3½	3p' ⁴D - 4d' ⁴D° UV 25.03
2237.21 2231.65	C C	(0d) (0)	36.86 36.84	42.40 42.40	1½-2½ 0½-1½	3s' ²P° - 5d ²D UV 24.01	Air 4544.85 4539.71	B B	2 1	38.65 38.64	41.37 41.37	1½-0½ 0½-0½	4p ²P° - 5s ²S 12
2696.11 2696.71	B B	3 2	37.33 37.33	41.93 41.92	0½-1½ 0½-0½	4s ²S - 5p ²P° UV 24.02	3306.63 3304.03	B B	5 4	38.65 38.64	42.40 42.40	1½-2½ 1½-0½	4p ²P° - 5d ²D 12.01
3938.52 3934.43 3942.95	B B B	6 5 1	38.33 38.33 38.33	41.48 41.48 41.48	1½-2½ 0½-1½ 1½-1½	3p' ²P - 3d' ²D° 8	4546.32 m4535.05 4527.87	B P B	3 N III 1	38.96 38.96 38.96	41.68 41.69 41.69	1½-2½ 1½-1½ 1½-0½	3p' ⁴S - 3d' ⁴P° 13
2983.64 2972.56 2977.29 2978.83	P B B B	O III 3 2 2	38.33 38.33 38.33 38.33	42.49 42.50 42.50 42.49	1½-1½ 0½-0½ 1½-0½ 0½-1½	3p' ²P - 3d' ²P° UV 25	Vac 1835.568 1839.541 1841.718	B B B	3 3 2	38.96 38.96 38.96	45.71 45.70 45.69	1½-2½ 1½-1½ 1½-0½	3p' ⁴S - 4s' ⁴P° UV 25.04
4867.15 4861.27 4858.82 4858.82 4884.13 4873.57 4867.15 4896.63 4881.81	B P B B B B B B B	8 Hβ 6 6 4 4 8 1 1	38.42 38.40 38.40 38.39 38.42 38.40 38.40 38.42 38.40 38.40	40.96 40.95 40.95 40.94 40.95 40.95 40.94 40.95 40.94 40.94	3½-4½ 2½-3½ 1½-2½ 0½-1½ 3½-3½ 2½-2½ 1½-1½ 3½-2½ 2½-1½ 2½-1½	3p' ⁴D - 3d' ⁴F° 9	Air 6467.02 6454.11 6445.22 6478.72 6463.13 6450.91 6487.81 6468.45	B B B B B B B B	7 6 5 5 5 5 1 1	39.35 39.34 39.34 39.35 39.34 39.34 39.35 39.34 39.34	41.27 41.26 41.26 41.26 41.26 41.26 41.26 41.26 41.26	2½-3½ 1½-2½ 0½-1½ 2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-0½	3p' ⁴P - 3d' ⁴D° 14
4345.68 4332.91 4325.44 4321.32 4351.22 4336.94 4327.80 4327.80 4321.32 4318.77	B B B B B B B B B B	7 7 4 4 5 4 4 4 4 3	38.42 38.40 38.40 38.39 38.42 38.40 38.40 38.40 38.40 38.39	41.27 41.26 41.26 41.26 41.26 41.26 41.26 41.27 41.26 41.26	3½-3½ 2½-2½ 1½-1½ 0½-0½ 3½-2½ 2½-1½ 1½-0½ 2½-3½ 1½-2½ 0½-1½	3p' ⁴D - 3d' ⁴D° 10	5314.35 5282.44 5260.83 5298.95 5272.68 5297.76 5270.58	B B B B B B B	6 4 5 5 5 5 5	39.35 39.34 39.34 39.35 39.34 39.34 39.34	41.68 41.69 41.69 41.69 41.69 41.68 41.69	2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3p' ⁴P - 3d' ⁴P° 15
3792.92 3771.36 3762.40 3752.80	B P B B	3 N III 1 0	38.42 38.40 38.40 38.39	41.68 41.69 41.69 41.69	3½-2½ 2½-1½ 1½-1½ 0½-0½	3p' ⁴D - 3d' ⁴P° 11	Vac 1949.285 1951.521 1952.330 1953.784 *1953.96 1947.049 1949.909	B B B B P B B	6 3 2 3 B III 4 4	39.35 39.34 39.34 39.35 39.34 39.34 39.34	45.71 45.70 45.69 45.70 45.69 45.71 45.70	2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3p' ⁴P - 4s' ⁴P° UV 25.05
Vac 1699.317 *1699.975 *1699.975 1696.569 1698.172 *1699.008 1694.761 *1697.168	B B B B B P B P	6 5 5 2 2 3 0 P	38.42 38.40 38.40 38.40 38.40 38.39 38.40 38.39	45.71 45.70 45.69 45.71 45.70 45.69 45.71 45.70	3½-2½ 2½-1½ 1½ 0½ 2½-2½ 1½-1½ 0½-0½ 1½-2½ 0½-1½	3p' ⁴D - 4s' ⁴P° UV 25.01	1471.69 1471.02 1470.68	F F F	5 4 1	39.35 39.34 39.34	47.78 47.77 47.77	2½-3½ 1½-2½ 0½-1½	3p' ⁴P - 4d' ⁴D° UV 25.06
1346.27 *1345.69 *1345.69 1347.56	F F F F	(4) (4) (4) 0	38.42 38.40 38.40 38.42	47.63 47.62 47.61 47.62	3½-4½ 2½-3½ 1½-2½ 3½-3½	3p' ⁴D - 4d' ⁴F° UV 25.02	Air 4904.80 4899.08	B B	3 2	39.40 39.39	41.93 41.92	2½-1½ 1½-0½	4d ²D - 5p ²P° 16

MULTIPLIET TABLE

N III—Continued

N 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 4003.58 3998.63	B B	9 8	39.40 39.39	42.49 42.49	2½-3½ 1½-2½	4d ²D - 5f ²F° 17	Vac 1727.426 1728.318 1725.315 1726.776	B B B B	5 1 1 1	40.96 40.95 40.95 40.95	48.14 48.13 48.14 48.13	4½-4½ 3½-3½ 3½-4½ 2½-3½	3d' ⁴F° - 4f' ²G UV 26.04
2689.20 2686.91	B B	6 5	39.40 39.39	44.01 44.01	2½- 1½-2½	4d ²D - 6f ²F° UV 25.07	Air 2267.33 2270.43 2272.42 2274.12 *2271.79 2273.51 2265.87 2269.30 *2271.79	B F F F F F F F	(3) (2) (0) (0) (0) (1) (0) (0) (0)	41.27 41.26 41.26 41.26 41.27 41.26 41.26 41.26 41.26	46.73 46.72 46.72 46.71 46.72 46.72 46.73 46.72 46.72	3½-3½ 2½-2½ 1½-1½ 0½-0½ 3½-2½ 2½-1½ 2½-3½ 1½-2½ 0½-1½	3d' ⁴D° - 4p' ⁴D UV 26.05
4379.11	B	11	39.71	42.54		4f ²F° - 5g ²C 18							
2862.18	B	10n	39.71	44.04		4f ²F° - 6g ²C UV 26							
7404.64 7371.54	B B	1 0	39.81 39.80	41.48 41.48	2½-2½ 1½-1½	3p' ²D - 3d' ²D° 19	*2147.922 *2149.010 2150.040 2146.570 *2147.922 2149.465	B B B B B B	4 3 2 1 4 1	41.27 41.26 41.26 41.26 41.26 41.26	47.04 47.03 47.03 47.04 47.03 47.03	3½-2½ 2½-1½ 1½-0½ 2½-2½ 1½-1½ 0½-0½	3d' ⁴D° - 4p' ⁴P UV 26.06
5847.83 5820.67	B B	5 4	39.81 39.80	41.93 41.92	2½-1½ 1½-0½	3p' ²D - 5p ²P° 20							
5320.82 5327.18 5352.35	B B B	9 8 4	39.81 39.80 39.81	42.14 42.12 42.12	2½-3½ 1½-2½ 2½ 2½	3p' ²D - 3d' ²F° 21							
6394.72 6365.75	B B	5 4	40.55 40.55	42.49 42.50	0½-1½ 0½-0½	3p' ²S - 3d' ²P° 22	*1846.694 *1846.694 *1846.415 1845.865 *1845.715 *1845.715 *1846.694 *1846.415 1846.142	B B B B B B B B B	5 5 8 7 7 7 5 8 3	41.26 41.26 41.27 41.26 41.26 41.26 41.27 41.26 41.26	47.98 47.97 47.98 47.98 47.98 47.98 47.98 47.98 47.98	2½-3½ 1½-2½ 3½-4½ 2½-3½ 1½-2½ 0½-1½ 3½-3½ 2½-2½ 1½-1½	3d' ⁴D° - 4f' ²F UV 26.07 3d' ⁴D° - 4f' ⁴F UV 26.08
2147.306 2148.108 2148.493 *2149.010 2144.034 2145.86 2146.961	B B B B B B B	6 5 5 3 1 3 1	40.96 40.95 40.95 40.94 40.95 40.95 40.94	46.73 46.72 46.72 46.71 46.73 46.72 46.72	4½-3½ 3½-2½ 2½-1½ 1½-0½ 3½-3½ 2½-2½ 1½-1½	3d' ⁴F° - 4p' ⁴D UV 26.01	m1804.44 1802.365 *1800.131 1798.733 1803.255 1800.789 1799.180 1803.525 1801.639 1799.660 *1800.131 1797.277	P B B B B B B B B B B B	N III 4 3 1 1 2 1 1 1 1 3 0	41.27 41.26 41.26 41.26 41.27 41.26 41.26 41.26 41.26 41.26 41.26 41.26	48.14 48.14 48.15 48.15 48.14 48.15 48.15 48.14 48.14 48.15 48.15 48.16	3½-3½ 2½-2½ 1½-1½ 0½-0½ 3½-2½ 2½-1½ 1½-0½ 2½-3½ 1½-2½ 0½-1½ 2½-2½ 1½-1½	3d' ⁴D° - 4f' ⁴D UV 26.09 3d' ⁴D° - 4f' ²D UV 26.10
Vac 1766.059 1764.218 *1763.16 1762.426 1764.79 m1763.51 *1763.84 1762.592 *1762.09	B B P B B P P B P	3 1 2*O III 1 1 N II 5*Al II 1 3*Al II	40.96 40.95 40.95 40.94 40.95 40.95 40.95 40.95 40.94	47.98 47.98 47.98 47.98 47.98 47.98 47.98 47.98 47.98	4½-4½ 3½-3½ 2½-2½ 1½-1½ 3½-2½ 2½-1½ 3½-4½ 2½-3½ 1½-2½	3d' ⁴F° - 4f' ⁴F UV 26.02	Air 2484.54 2486.43 2482.85 Vac *1907.991 *1907.991 1908.936	B B F B B B	4 3 0 9 9 3	41.48 41.48 41.48 41.48 41.48 41.48 41.48	46.47 46.46 46.47 47.98 47.97 47.97	2½-1½ 1½-0½ 1½-1½ 2½-3½ 1½-2½ 2½-2½	3d' ²D° - 4p' ²P UV 26.11 3d' ²D° - 4f' ²F UV 27
*1729.945 *1729.945 *1729.945 *1729.945 1732.089 1731.561 1730.863	B B B B B B B	10 2 2 2	40.96 40.95 40.95 40.94 40.96 40.95 40.95	48.13 48.12 48.11 48.11 48.12 48.11 48.11	4½-5½ 3½-4½ 2½-3½ 1½-2½ 4½-4½ 3½-3½ 2½-2½	3d' ⁴F° - 4f' ⁴G UV 26.03							

MULTIPLLET TABLE

N III-Continued

N 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 07.209 06.847	B B	6 4	41.48 41.48	47.98 47.98	2½-3½ 1½-2½	3d' ²D°- 4f' ⁴F UV 27.01	Air 6107.52 6104.69	B B	1n 0n	41.93 41.92	43.96 43.96	1½- 0½-1½	5p ²P°- 6d ²D 23
60.733	B	1	41.48	48.14	2½-2½	3d' ²D°- 4f' ⁴D UV 27.02							
858.48 855.232	P B	3*N II 1	41.48 41.48	48.15 48.16	2½-2½ 1½-1½	3d' ²D°- 4f' ²D UV 27.03	2121.501 2117.593	B B	6 6	42.14 42.12	47.98 47.97	3½-3½ 2½-2½	3d' ²F°- 4f' ²F UV 29.02
							2120.464	B	4	42.14	47.98	3½-3½	3d' ²F°- 4f' ⁴F UV 29.03
							2071.088 *2068.681	B B	6 7	42.14 42.12	48.12 48.11	3½-4½ 2½-3½	3d' ²F°- 4f' ⁴G UV 29.04
Air 2453.89 2462.56 2468.36 2459.26 2466.24 2471.24 2463.04	B F F F F F F	(4) (1) (0) (0) (1) (00) (00)	41.68 41.69 41.69 41.68 41.69 41.69 41.68	46.73 46.72 46.72 46.72 46.72 46.71 46.72	2½-3½ 1½-2½ 0½-1½ 2½-2½ 1½-1½ 0½-0½ 2½-1½	3d' ⁴P°- 4p' ⁴D UV 28	2064.423 2064.007 *2068.681	B B B	10 9 7	42.14 42.12 42.14	48.14 48.13 48.13	3½-4½ 2½-3½ 3½-3½	3d' ²F°- 4f' ²G UV 30
2367.53 2370.53 2372.52	B B B	3 2 1	41.68 41.69 41.69	46.92 46.72 46.92	2½-1½ 1½-1½ 0½-1½	3d' ⁴P°- 4p' ⁴S UV 28.01	7686.83 4907.20	B B	3n 2n	42.40 42.40	44.01 44.92		5d ²D - 6f ²F° 24 5d ²D - 7f ²F° 25
2314.56 2320.33 2317.35 2322.81 2317.35 2322.23	F F F F F F	(1) (00) (0) (1) (0) (0)	41.68 41.69 41.68 41.69 41.69 41.69	47.04 47.03 47.03 47.03 47.04 47.03	2½-2½ 1½-1½ 2½-1½ 1½-0½ 1½-2½ 0½-1½	3d' ⁴P°- 4p' ⁴P UV 28.02	2191.436 2192.593	B B	5 2	42.49 42.50	48.14 48.15	1½-2½ 0½-1½	3d' ²P°- 4f' ⁴D UV 31
Vac 1920.654 1921.299 1920.838 1919.288 1919.547 1919.768 1917.572 1918.53	B B B B B B B B	11 9 8 6 8 8 0 2*	41.68 41.69 41.69 41.68 41.69 41.69 41.68 41.69	48.14 48.14 48.15 48.14 48.15 48.15 48.15 48.15	2½-3½ 1½-2½ 0½-1½ 2½-2½ 1½-1½ 0½-0½ 2½-1½ 1½-0½	3d' ⁴P°- 4f' ⁴D UV 29	8019.09	B	4n	42.49	44.04		5f ²F° - 6g ²G 26
1916.849 1916.53 1918.87	B B B	1 1 4*	41.68 41.69 41.69	48.15 48.16 48.15	2½-2½ 1½-1½ 1½-2½	3d' ⁴P°- 4f' ²D UV 29.01	5085.85 8236.46	B B	3n 5n	42.49 42.54	44.94 44.04		5f ²F° - 7g ²G 27 5g ²G - 6h ²H° 28
							5147.88	B	3n	42.54	44.95		5g ²G - 7h ²H° 29