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Selected Tables of Atomic Spectra

Atomic Energy Levels and Multiplet Tables

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Selected Tables of Atomic Spectra

A Atomic Energy Levels-Second Edition

B Multiplet Tables

C I, C II, C III, C IV, C V, C VI

Data Derived From the Analyses of Optical Spectra

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Washington, D.C. 20234

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Abstract

The present publication is the third 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 first two Sections, Part A contains the atomic energy levels and Part B the multiplet tables. All six spectra of carbon, C I through C VI are included. The form of presentation is described in detail in the text to Section 1, and need not be repeated here.

Key words: Atomic energy levels, carbon spectra; Atomic spectra of carbon; Carbon spectra; Multiplet tables, carbon spectra; Spectra, carbon; Wavelengths, carbon spectra.

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Foreword

The National Standard Reference Data System provides effective 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, with responsibility to administer it assigned to the National Bureau of Standards.

The System now comprises a complex of data centers and other activities, carried on in academic institutions and other laboratories both in and out of government. The independent operational status of existing critical data projects is maintained and encouraged. Data centers that are components of the NSRDS produce compilations of critically evaluated data, critical reviews of the state of quantitative knowledge in specialized areas, and computations of useful functions derived from standard reference data. In addition, the centers and projects establish criteria for evaluation and compilation of data and make recommendations on needed improvements in experimental techniques. They are normally closely associated with active research in the relevant field.

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

The NSRDS receives advice and planning assistance from the National Research Council of the National Academy of Sciences-National Academy of Engineering. An overall Review Committee considers the program as a whole and makes recommendations on policy, long-term planning, and international collaboration. 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 NSRDS-NBS series of publications is intended primarily to include evaluated reference data and critical reviews of long-term interest to the scientific and technical community.

LEWIS M BRANSCOMB, *Director*

Preface

The present publication is the third 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, and a fourth on rare-earth spectra, still in course of preparation.

The second set consists of two Multiplet Tables; one published in 1945 by the Princeton University Observatory, containing spectral lines in the region of wavelengths longer than 3000 Å; the other *An Ultra-Violet Multiplet Table*, NBS Circular 488, appearing in five Sections, the first in 1950, the second in 1952, and the others in 1962.

Both the atomic energy levels and the multiplet table are being included in the same publication, as parts A and B, respectively. The Sections are being prepared at irregular intervals for those spectra whose analyses are essentially complete. A flexible paging system permits the arrangement of the various Sections by atomic number regardless of the order in which the spectra are published in this series. Section 1 includes three spectra of silicon, $Z = 14$: Si II, Si III, Si IV. Section 2 contains similar data for Si I. All six spectra of carbon are included in the present Section. Details regarding the form of presentation are described fully in the text of Section 1. All Sections are arranged identically and the same conversion factor from cm^{-1} to eV, 0.000123981 is used throughout.

The manuscript has been prepared by Charlotte E. Moore of the Office of Standard Reference Data, who has also prepared the earlier tables. She appreciates the cordial cooperation of the many atomic spectroscopists whose work is quoted here. She has benefitted greatly from the helpful advice of B. Edlén in Lund, and is most grateful to him and B. Löfstrand for extending the analysis of C V especially for inclusion here. The users are also indebted to Barbara N. Somerville for her careful work in typing the press copy of these difficult tables.

Washington, D.C., June 4, 1970.

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NSRDS-NBS 3, SECTION 3

CARBON, $Z = 6$

A C I Atomic Energy Levels

B C I Multiplet Table

Part A

CARBON

C I

6 electrons

 $Z = 6$ Ground state $1s^2 2s^2 2p^2 {}^3P_0$ $2p^2 {}^3P_0$ **90820.42** $\pm$ **0.1** cm^{-1} 1101.074 Å (Vac)

I P 11.260 eV

The terms are from the Monograph by L. Johansson. He has revised and greatly extended the analysis from observations of some 450 lines in the range from 2478 Å to 25843 Å. He and Litzén have classified 75 lines in the lead sulphide region, which they have used to extend the identifications of C I in the solar spectrum.

Short of 2000 Å Johansson lists calculated wavelengths to 945 Å. Herzberg has measured a group of 6 lines near 1300 Å that provide auxiliary standards in the near vacuum ultraviolet region. Kaufman and Ward have extended the list of auxiliary standards by observing 18 lines between 1459 Å and 1930 Å. By combining these two sets of observations they derive term values that differ from those of Johansson as follows:

$$2p^2 {}^3P_{2,1} \quad + 0.02 \text{ cm}^{-1}$$

$$3s {}^3P^\circ, 2p^3 {}^3D^\circ, 2p^3 {}^3P^\circ \quad + 0.01 \text{ cm}^{-1}$$

They give the following values for the lowest levels:

$2p^2 {}^3P_0$	0.00
3P_1	16.42
3P_2	43.42
$2p^2 {}^1D_2$	10192.66
$2p^2 {}^1S_0$	21648.02

These observations thus confirm Johansson's level values "to well within his stated uncertainties." The differences are so small that there is no reason to recalculate the wavelengths for C I.

The limit is well determined from the long $np {}^3D_3$ series.

Pair-coupling notation is given in the table for the levels of the nf -configuration ($n = 4$ to 8).

Extrapolated level values are entered in brackets. The entries for $2p^3 {}^1D^\circ$ and $2p^3 {}^1P^\circ$ are Edlén's 1934 paper.

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Atomic Energy Levels

C I

C I

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval		
$2s^2\,2p^2$	$2p^2\,^3P$	0	0.00	16.40 27.00	$2s^2\,2p(^2P^\circ)4p$	$4p\,^3D$	1	80782.51	18.76 33.34		
		1	16.40				2	80801.27			
		2	43.40				3	80834.61			
$2s^2\,2p^2$	$2p^2\,^1D$	2	10192.63		$2s^2\,2p(^2P^\circ)4p$	$4p\,^3S$	1	81105.03			
$2s^2\,2p^2$	$2p^2\,^1S$	0	21648.01		$2s^2\,2p(^2P^\circ)4p$	$4p\,^3P$	0	81311.01	14.75 18.23		
							1	81325.76			
$2s\,2p^3$	$2p^3\,^5S^\circ$	2	33735.20				2	81343.99			
$2s^2\,2p(^2P^\circ)3s$	$3s\,^3P^\circ$	0	60333.43	19.20 40.51	$2s^2\,2p(^2P^\circ)4p$	$4p\,^1D$	2	81769.79			
		1	60352.63				$2s^2\,2p(^2P^\circ)4p$	$4p\,^1S$		0	82251.71
		2	60393.14								
$2s^2\,2p(^2P^\circ)3s$	$3s\,^1P^\circ$	1	61981.82		$2s^2\,2p(^2P^\circ)4d$	$4d\,^1D^\circ$	2	83497.62			
$2s\,2p^3$	$2p^3\,^3D^\circ$	3	64086.92	−4.03 1.10	$2s^2\,2p(^2P^\circ)5s$	$5s\,^3P^\circ$	0	83740.06	12.35 38.63		
		2	64090.95				1	83752.41			
		1	64089.85				2	83791.04			
$2s^2\,2p(^2P^\circ)3p$	$3p\,^1P$	1	68856.33		$2s^2\,2p(^2P^\circ)4d$	$4d\,^3F^\circ$	2	83747.39	13.87 37.31		
							3	83761.26			
					4	83798.57					
$2s^2\,2p(^2P^\circ)3p$	$3p\,^3D$	1	69689.48	21.18 33.37	$2s^2\,2p(^2P^\circ)4d$	$4d\,^3D^\circ$	1	83820.13	17.95 10.75		
		2	69710.66				2	83838.08			
		3	69744.03				3	83848.83			
$2s^2\,2p(^2P^\circ)3p$	$3p\,^3S$	1	70743.95								
$2s^2\,2p(^2P^\circ)3p$	$3p\,^3P$	0	71352.51	12.39 20.48	$2s^2\,2p(^2P^\circ)5s$	$5s\,^1P^\circ$	1	83877.31			
		1	71364.90				$2s^2\,2p(^2P^\circ_{01/2})4f$	$4f\,[2\frac{1}{2}]$		3	83919.65
		2	71385.38		2	83919.76					
$2s^2\,2p(^2P^\circ)3p$	$3p\,^1D$	2	72610.72		"	$4f\,[3\frac{1}{2}]$	3	83926.20			
							4	83926.37			
$2s^2\,2p(^2P^\circ)3p$	$3p\,^1S$	0	73975.91		$2s^2\,2p(^2P^\circ)4d$	$4d\,^1F^\circ$	3	83947.43			
$2s\,2p^3$	$2p^3\,^3P^\circ$	2	75255.27	1.30 −2.15	$2s^2\,2p(^2P^\circ_{11/2})4f$	$4f'\,[3\frac{1}{2}]$	3	83986.22			
		1	75253.97				4	83986.45			
		0	75256.12								
$2s^2\,2p(^2P^\circ)3d$	$3d\,^1D^\circ$	2	77679.82		"	$4f'\,[4\frac{1}{2}]$	5	84015.86			
							4	84016.25			
$2s^2\,2p(^2P^\circ)4s$	$4s\,^3P^\circ$	0	78104.98	11.76 31.35	"	$4f'\,[2\frac{1}{2}]$	3	84013.25			
		1	78116.74				2	84013.40			
		2	78148.09								
$2s^2\,2p(^2P^\circ)3d$	$3d\,^3F^\circ$	2	78199.07	16.44 34.43		$4f'\,[1\frac{1}{2}]$	1	84036.29			
		3	78215.51				2	84036.40			
		4	78249.94		$2s^2\,2p(^2P^\circ)4d$	$4d\,^1P^\circ$	1	84032.15			
$2s^2\,2p(^2P^\circ)3d$	$3d\,^3D^\circ$	1	78293.49	14.14 10.62	$2s^2\,2p(^2P^\circ)4d$	$4d\,^3P^\circ$	2	84103.40	−12.99 −5.13		
		2	78307.63				1	84116.09			
		3	78318.25				0	84121.22			
$2s^2\,2p(^2P^\circ)4s$	$4s\,^1P^\circ$	1	78340.28		$2s^2\,2p(^2P^\circ)5p$	$5p\,^1P$	1	84851.53			
$2s^2\,2p(^2P^\circ)3d$	$3d\,^1F^\circ$	3	78529.62		$2s^2\,2p(^2P^\circ)5p$	$5p\,^3D$	1	84935.34	15.02 34.61		
							2	84950.36			
							3	84984.97			
$2s^2\,2p(^2P^\circ)3d$	$3d\,^1P^\circ$	1	78731.27		$2s^2\,2p(^2P^\circ)5p$	$5p\,^3P$	0	85169.61	19.34 14.69		
$2s^2\,2p(^2P^\circ)3d$	$3d\,^3P^\circ$	2	79310.85	−7.93 −4.38			1	85188.95			
		1	79318.78				2	85203.64			
		0	79323.16	$2s^2\,2p(^2P^\circ)5p$	$5p\,^1D$	2	85399.81				
$2s^2\,2p(^2P^\circ)4p$	$4p\,^1P$	1	80562.85		$2s^2\,2p(^2P^\circ)5p$	$5p\,^1S$	0	85625.18			

C I — Continued

Config.	Desig.	<i>J</i>	Level	Interval
$2s^2 2p(^2P^{\circ})5d$	$5d\ ^1D^{\circ}$	2	86185.20	
$2s^2 2p(^2P^{\circ})5d$	$5d\ ^3F^{\circ}$	2	86317.64	9.52 42.31
		3	86327.16	
		4	86369.47	
$2s^2 2p(^2P^{\circ})6s$	$6s\ ^3P^{\circ}$	0	86321.94	9.69 37.97
		1	86331.63	
		2	86369.60	
$2s^2 2p(^2P^{\circ})5d$	$5d\ ^3D^{\circ}$	1	86362.52	26.86 8.42
		2	86389.38	
		3	86397.80	
$2s^2 2p(^2P^{\circ}_{01/2})5f$	$5f\ [2\frac{1}{2}]$	3	86411.98	
		2	86412.05	
"	$5f\ [3\frac{1}{2}]$	3	86414.49	
		4	86414.69	
$2s^2 2p(^2P^{\circ})6s$	$6s\ ^1P^{\circ}$	1	86416.55	
$2s^2 2p(^2P^{\circ})5d$	$5d\ ^1F^{\circ}$	3	86449.19	
$2s^2 2p(^2P^{\circ}_{11/2})5f$	$5f'\ [3\frac{1}{2}]$	3	86469.51	
		4	86469.66	
"	$5f'\ [2\frac{1}{2}]$	3	86482.66	
		2	86482.78	
"	$5f'\ [1\frac{1}{2}]$	1	86498.55	
		2	86498.64	
$2s^2 2p(^2P^{\circ})5d$	$5d\ ^1P^{\circ}$	1	86491.41	
$2s^2 2p(^2P^{\circ})5d$	$5d\ ^3P^{\circ}$	2	86506.70	-12.77 -3.69
		1	86519.47	
		0	86523.16	
$2s^2 2p(^2P^{\circ})6p$	$6p\ ^1P$	1	86912.86	
$2s^2 2p(^2P^{\circ})6p$	$6p\ ^3D$	1	86956.16	9.29 36.81
		2	86965.45	
		3	87002.26	
$2s^2 2p(^2P^{\circ})6p$	$6p\ ^3P$	0	87077.36	25.76 10.09
		1	87103.12	
		2	87113.21	
$2s^2 2p(^2P^{\circ})6p$	$6p\ ^1D$	2	87218.26	
$2s^2 2p(^2P^{\circ})6p$	$6p\ ^1S$	0	87341.04	
$2s^2 2p(^2P^{\circ})6d$	$6d\ ^1D^{\circ}$	2	87633.75	
$2s^2 2p(^2P^{\circ})6d$	$6d\ ^3F^{\circ}$	2	87708.21	5.17 47.23
		3	87713.38	
		4	87760.61	
$2s^2 2p(^2P^{\circ})7s$	$7s\ ^3P^{\circ}$	0	87711.37	7.19 35.17
		1	87718.56	
		2	87753.73	
$2s^2 2p(^2P^{\circ})6d$	$6d\ ^3D^{\circ}$	1	[87735.3]	4.08
		2	87773.09	
		3	87777.17	
$2s^2 2p(^2P^{\circ}_{01/2})6f$	$6f\ [2\frac{1}{2}]$	3	87762.12	
		2	87762.22	
"	$6f\ [3\frac{1}{2}]$	4	87763.10	
		3	87763.24	

C I — Continued

Config.	Desig.	<i>J</i>	Level	Interval
$2s^2 2p(^2P^{\circ})7s$	$7s\ ^1P^{\circ}$	1	87789.63	
$2s^2 2p(^2P^{\circ})6d$	$6d\ ^1F^{\circ}$	3	87806.93	
$2s^2 2p(^2P^{\circ}_{11/2})6f$	$6f'\ [3\frac{1}{2}]$	3	87819.90	
		4	87820.00	
"	$6f'\ [2\frac{1}{2}]$	3	87826.94	
		2	87827.02	
"	$6f'\ [1\frac{1}{2}]$	1,2	87837.74	
$2s^2 2p(^2P^{\circ})6d$	$6d\ ^1P^{\circ}$	1	87830.17	
$2s^2 2p(^2P^{\circ})6d$	$6d\ ^3P^{\circ}$	2	87832.54	-11.37
		1	87843.91	
		0	[87846.9]	
$2s^2 2p(^2P^{\circ})7p$	$7p\ ^1P$	1	88061.28	
$2s^2 2p(^2P^{\circ})7p$	$7p\ ^3D$	1	88092.01	4.02 39.78
		2	88096.03	
		3	88135.81	
$2s^2 2p(^2P^{\circ})7p$	$7p\ ^3P$	0	88159.87	32.43 5.92
		1	88192.30	
		2	88198.22	
$2s^2 2p(^2P^{\circ})7p$	$7p\ ^1D$	2	88260.37	
$2s^2 2p(^2P^{\circ})7p$	$7p\ ^1S$	0	88333.98	
$2s^2 2p(^2P^{\circ})7d$	$7d\ ^1D^{\circ}$	2	88498.62	
$2s^2 2p(^2P^{\circ})7d$	$7d\ ^3F^{\circ}$	2	[88541.4]	[3.5] [51.6]
		3	[88544.9]	
		4	[88596.5]	
$2s^2 2p(^2P^{\circ})8s$	$8s\ ^3P^{\circ}$	0	88543.76	5.30 35.20
		1	88549.06	
		2	88584.26	
$2s^2 2p(^2P^{\circ})7d$	$7d\ ^3D^{\circ}$	1	[88558.6]	
		2	88604.75	
		3	[88606.8]	
$2s^2 2p(^2P^{\circ}_{01/2})7f$	$7f\ [2\frac{1}{2}]$	2	88574.85	
		3	88574.87	
"	$7f\ [3\frac{1}{2}]$	3		
		4	88575.31	
$2s^2 2p(^2P^{\circ})8s$	$8s\ ^1P^{\circ}$	1	88615.01	
$2s^2 2p(^2P^{\circ})7d$	$7d\ ^1F^{\circ}$	3	88625.00	
$2s^2 2p(^2P^{\circ}_{11/2})7f$	$7f'\ [3\frac{1}{2}]$	3	88633.98	
		4	88634.07	
"	$7f'\ [2\frac{1}{2}]$	3	88638.30	
		2		
"	$7f'\ [1\frac{1}{2}]$	2	88645.33	
		1		
$2s^2 2p(^2P^{\circ})7d$	$7d\ ^3P^{\circ}$	2	[88636.8]	[-9.8] [-2.5]
		1	[88646.6]	
		0	[88649.1]	
$2s^2 2p(^2P^{\circ})7d$	$7d\ ^1P^{\circ}$	1	88639.02	
$2s^2 2p(^2P^{\circ})8p$	$8p\ ^1P$	1	88766.98	

Atomic Energy Levels

C I — Continued

C I — Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$2s^2 2p(^2P^\circ)8p$	$8p\ ^3D$	1 2 3	88790.85 [88794.3] 88836.12		$2s^2 2p(^2P^\circ)10s$	$10s\ ^3P^\circ$	0 1 2	89451.82	
$2s^2 2p(^2P^\circ)8p$	$8p\ ^3P$	0 1 2	88873.95		$2s^2 2p(^2P^\circ)9d$	$9d\ ^3D^\circ$	1 2 3	89510.43 [89510.9]	
$2s^2 2p(^2P^\circ)8p$	$8p\ ^1D$	2	88913.56		$2s^2 2p(^2P^\circ)9d$	$9d\ ^1F^\circ$	3	89519.13	
$2s^2 2p(^2P^\circ)8p$	$8p\ ^1S$	0	88960.64		$2s^2 2p(^2P^\circ)9d$	$9d\ ^3P^\circ$	2 1 0	[89522.4]	
$2s^2 2p(^2P^\circ)8d$	$8d\ ^1D^\circ$	2	89054.16		$2s^2 2p(^2P^\circ)9d$	$9d\ ^1P^\circ$	1	89525.54	
$2s^2 2p(^2P^\circ)8d$	$8d\ ^3F^\circ$	2 3 4	[89079.9] [89082.1] [89136.9]	[2.2] [54.8]	$2s^2 2p(^2P^\circ)10p$	$10p\ ^1P$	1	89555.53	
$2s^2 2p(^2P^\circ)9s$	$9s\ ^3P^\circ$	0 1 2	89081.62 89085.41	3.79	$2s^2 2p(^2P^\circ)10p$	$10p\ ^3D$	1 2 3	89621.06	
$2s^2 2p(^2P^\circ)8d$	$8d\ ^3D^\circ$	1 2 3	[89091.1] 89142.66 [89143.9]		$2s^2 2p(^2P^\circ)10p$	$10p\ ^1S$	0	89678.11	
$2s^2 2p(^2P^\circ_{01/2})8f$	$8f\ [2\frac{1}{2}]$	2 3	89101.76 89101.79		$2s^2 2p(^2P^\circ)10d$	$10d\ ^3F^\circ$	2 3 4	[89710.5]	
"	$8f\ [3\frac{1}{2}]$	3 4	89101.82		$2s^2 2p(^2P^\circ)10d$	$10d\ ^3D^\circ$	1 2 3	89772.87 [89773.2]	
$2s^2 2p(^2P^\circ)9s$	$9s\ ^1P^\circ$	1	89149.35		$2s^2 2p(^2P^\circ)10d$	$10d\ ^1F^\circ$	3	[89778.9]	
$2s^2 2p(^2P^\circ)8d$	$8d\ ^1F^\circ$	3	89155.70		$2s^2 2p(^2P^\circ)11p$	$11p\ ^1P$	1	89789.21	
$2s^2 2p(^2P^\circ)8f$	$8f'\ [3\frac{1}{2}]$	3 4	89162.10		$2s^2 2p(^2P^\circ)11d$	$11d\ ^3D^\circ$	1 2 3	89966.66 [89966.8]	
$2s^2 2p(^2P^\circ)8d$	$8d\ ^3P^\circ$	2 1 0	[89162.2] [89170.0] [89171.5]	[−7.8] [−1.5]	$2s^2 2p(^2P^\circ)11d$	$11d\ ^1F^\circ$	3	[89971.3]	
$2s^2 2p(^2P^\circ)8d$	$8d\ ^1P^\circ$	1	89164.74		$C\ II(^2P^\circ_{01/2})$	Limit		90820.42 ± 0.1	
$2s^2 2p(^2P^\circ)9p$	$9p\ ^1P$	1	89232.41		$C\ II(^2P^\circ_{11/2})$	Limit		90883.84	
$2s^2 2p(^2P^\circ)9p$	$9p\ ^3D$	1 2 3	89299.10		$2s\ 2p^3$	$2p^3\ ^1D^\circ$	2	[97878]	
$2s^2 2p(^2P^\circ)9p$	$9p\ ^1D$	2	89350.10		$2s\ 2p^2(^4P)3s$	$3s'\ ^5P$	1 2 3	103541.8 103562.5 103587.3	20.7 24.8
$2s^2 2p(^2P^\circ)9p$	$9p\ ^1S$	0	89381.61		$2s\ 2p^3$	$2p^3\ ^3S^\circ$	1	105798.7	
$2s^2 2p(^2P^\circ)9d$	$9d\ ^1D^\circ$	2	89431.48		$2s\ 2p^3$	$2p^3\ ^1P^\circ$	1	[119878]	
$2s^2 2p(^2P^\circ)9d$	$9d\ ^3F^\circ$	2 3 4	[89447.4] [89448.4]	[1.0]					

January 1970.

Atomic Energy Levels

C1 Observed Terms

Configuration 1s ² +	Observed Terms					
2s ² 2p ²	$\left\{ \begin{array}{ccc} 2p^2\ ^1S & 2p^2\ ^3P & 2p^2\ ^1D \end{array} \right.$					
2s 2p ³	$\left\{ \begin{array}{ccc} 2p^3\ ^5S^\circ & 2p^3\ ^3P^\circ & 2p^3\ ^3D^\circ \\ 2p^3\ ^3S^\circ & [2p^3\ ^1P^\circ] & [2p^3\ ^1D^\circ] \end{array} \right.$					
	ns (n ≥ 3)			np (n ≥ 3)		
2s ² 2p (2P°)nl	$\left\{ \begin{array}{c} 3-10s\ ^3P^\circ \\ 3-9s\ ^1P^\circ \end{array} \right.$			3-4p ³ S 3-10p ¹ S	3-8p ³ P 3-11p ¹ P	3-10p ³ D 3-9p ¹ D
2s 2p ² (4P)nl'	3s' ⁵ P					
	nd (n ≥ 3)					
2s ² 2p (2P°)nl	$\left\{ \begin{array}{ccc} 3-6d\ ^3P^{\circ\uparrow} & 3-11d\ ^3D^\circ & 3-6d\ ^3F^{\circ\uparrow} \\ 3-9d\ ^1P^\circ & 3-9d\ ^1D^\circ & 3-9d\ ^1F^{\circ\uparrow} \end{array} \right.$					
2s ² 2p (2P° _{1/2})nl	Observed Pairs					
	nf (n ≥ 4)					
	$\left\{ \begin{array}{c} 4-8f\ [2\frac{1}{2}] \\ 4-8f\ [3\frac{1}{2}] \end{array} \right.$					
	4-8f' [3½] 4f' [4½] 4-7f' [2½] 4-7f' [1½]					
	2s ² 2p (2P° _{1/2})nl'					

† Calculated values entered in the Table for: $7-9d \ ^3P^\circ$, $7-10d \ ^3F^\circ$, $10, 11d \ ^1F^\circ$.

Multiplet Table

Part B

CARBON

C I ($Z=6$)

I P 11.260 eV Limit $90820.42 \pm 0.1 \text{ cm}^{-1}$ 1101.074 Å (Vac)

Anal A List A January 1970

REFERENCES

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- A L. Johansson, *Ark. Fys. (Stockholm)* **31**, No. 15, 201 to 235 (1966). I P, T, C L, G D, I; W L 945 Å to 1993 Å; 2478 Å to 11330 Å. See A, also, for quoted Wavelengths.
- B L. Johansson and U. Litzén, *Ark. Fys. (Stockholm)* **29**, No. 13, 175 to 179 (1965). C L, I; W L 11619 Å to 25842 Å
- C G. Herzberg, *Proc. Roy. Soc. (London)* [A] **248**, 309 to 332 (1958). C L; W L 1328 Å to 1329 Å
- D V. Kaufman and J. F. Ward, *J. Opt. Soc. Am.* **56**, No. 11, 1591 to 1597 (1966). T, C L, (I); W L 1459 Å to 1930 Å
- P Predicted Wavelength; See B. Edlén, *Reports on Progress in Physics* **26**, 181 to 212 (1963). (I), W L; and Ref. A (I) W L

New Multiplet Numbers, not inserted between older ones, start with 33 and UV 66

*Blend

‡*Raie Ultime.*

C I

C I

I A	Ref	Int	E P		<i>J</i>	Multiplet No.	I A	Ref	Int	E P		<i>J</i>	Multiplet No.
			Low	High						Low	High		
Air							Vac						
9850.264	P		0.01	1.26	2-2	$2p^2\ ^3P - 2p^2\ ^1D$							
9824.129	P		0.00	1.26	1-2	1F	1434.707	P		0.01	8.65	2-3	$2p^2\ ^3P - 3p\ ^3D$
9808.321	P		0.00	1.26	0-2		1434.838	P		0.00	8.64	1-2	UV 3.01F
							1434.937	P		0.00	8.64	0-1	
4627.346	P		0.01	2.68	2-0	$2p^2\ ^3P - 2p^2\ ^1S$							
4621.570	P		0.00	2.68	1-0	2F	1401.699	P		0.01	8.85	2-2	$2p^2\ ^3P - 3p\ ^3P$
2967.214	A	1	0.01	4.18	2-2	$2p^2\ ^3P - 2p^3\ ^5S^\circ$	1401.571	P		0.00	8.85	1-1	UV 3.02F
2964.840	A	0	0.00	4.18	1-2	UV 1							
Vac							1329.5777	C	(12)*	0.01	9.33	2-2	$2p^2\ ^3P - 2p^3\ ^3P^\circ$
1657.0078‡	D	(30)	0.01	7.49	2-2	$2p^2\ ^3P - 3s\ ^3P^\circ$	1329.1233	C	(9)*	0.00	9.33	1-1	UV 4
1657.3797	D	(12)	0.00	7.48	1-1	UV 2	1329.6001	C	(12)*	0.01	9.33	2-1	
1658.1222	D	(15)	0.01	7.48	2-1		1329.0861	C	(9)*	0.00	9.33	1-0	
1657.9070	D	(12)	0.00	7.48	1-0		1329.0999	C	(9)*	0.00	9.33	1-2	
1656.2665	D	(15)	0.00	7.49	1-2		1328.8332	C	(3)	0.00	9.33	0-1	
1656.9282	D	(12)	0.00	7.48	0-1								
1614.5068	P		0.01	7.68	2-1	$2p^2\ ^3P - 3s\ ^1P^\circ$	1288.0553	P		0.01	9.63	2-2	$2p^2\ ^3P - 3d\ ^1D^\circ$
1613.8033	P		0.00	7.68	1-1	UV 2.01	1287.6075	P		0.00	9.63	1-2	UV 4.01
1613.3763	P		0.00	7.68	0-1								
1561.4382	D	(40)	0.01	7.95	2-3	$2p^2\ ^3P - 2p^3\ ^3D^\circ$	1280.3328	P	(20)	0.01	9.69	2-2	$2p^2\ ^3P - 4s\ ^3P^\circ$
1560.6832	D	(40)*	0.00	7.95	1-2	UV 3	1280.4042	P	(2)	0.00	9.68	1-1	UV 5
1560.3095	D	(15)	0.00	7.95	0-1		1280.8470	P	(8)	0.01	9.68	2-1	
1561.3407	D	(10)	0.01	7.95	2-2		1280.5970	P	(6)	0.00	9.68	1-0	
1560.7079	D	(40)*	0.00	7.95	1-1		1279.8904	P	(8)	0.00	9.69	1-2	
1561.3668	P	(3)	0.01	7.95	2-1		1280.1353	P	(6)	0.00	9.68	0-1	

Multiplet Table

C I - Continued

C 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						
1279.2286	P	(4)	0.01	9.70	2-3	$2p^2\ ^3P - 3d\ ^3F^\circ$	1189.6307	P	(20)	0.01	10.43	2-2	$2p^2\ ^3P - 4d\ ^3P^\circ$
1279.0558	P	(3)	0.00	9.70	1-2	UV 6	1190.0650	P	(6)	0.00	10.43	1-1	UV 14
1279.4977	P	(2)	0.01	9.70	2-2		1189.4469	P	(15)	0.01	10.43	2-1	
							1188.9925	P	(15)	0.00	10.43	1-0	
1277.5496	P	(30)*	0.01	9.71	2-3	$2p^2\ ^3P - 3d\ ^3D^\circ$	1189.2487	P	(8)	0.00	10.43	1-2	
1277.2823	P	(25)*	0.00	9.71	1-2	UV 7	1188.8332	P	(6)	0.00	10.43	0-1	
1277.2454	P	(25)*	0.00	9.71	0-1								
1277.7229	P	(8)	0.01	9.71	2-2		1160.8766	P		0.01	10.69	2-2	$2p^2\ ^3P - 5d\ ^1D^\circ$
1277.5130	P	(30)*	0.00	9.71	1-1		1160.5129	P		0.00	10.69	1-2	UV 14.01
1277.9538	P	(2)	0.01	9.71	2-1								
							1158.9666	P	(4)	0.01	10.70	2-3	$2p^2\ ^3P - 5d\ ^3F^\circ$
1277.1901	P	(2)	0.01	9.71	2-1	$2p^2\ ^3P - 4s\ ^1P^\circ$	1158.7319	P	(2)	0.00	10.70	1-2	UV 15
1276.7498	P	(4)	0.00	9.71	1-1	UV 7.01	1159.0945	P		0.01	10.70	2-2	
1276.4825	P	(2)	0.00	9.71	0-1								
							1158.3969	P	(2)	0.01	10.71	2-2	$2p^2\ ^3P - 6s\ ^3P^\circ$
1274.1090	P	(1)	0.01	9.74	2-3	$2p^2\ ^3P - 3d\ ^1F^\circ$	1158.5441	P	(0)*	0.00	10.70	1-1	UV 15.01
						UV 8	1158.9066	P	(1)	0.01	10.70	2-1	
							1158.6742	P	(2)	0.00	10.70	1-0	
1270.8439	P		0.01	9.76	2-1	$2p^2\ ^3P - 3d\ ^1P^\circ$	1158.0347	P	(15)*	0.00	10.71	1-2	
1270.4080	P		0.00	9.76	1-1	UV 8.01	1158.3240	P	(2)	0.00	10.70	0-1	
1270.1434	P		0.00	9.76	0-1								
							1158.0186	P	(15)*	0.01	10.71	2-3	$2p^2\ ^3P - 5d\ ^3D^\circ$
1261.5519	P	(10)	0.01	9.83	2-2	$2p^2\ ^3P - 3d\ ^3P^\circ$	1157.7695	P	(7)*	0.00	10.71	1-2	UV 16
1260.9962	P	(3)	0.00	9.83	1-1	UV 9	1157.9097	P	(15)*	0.00	10.71	0-1	
1261.4257	P	(5)	0.01	9.83	2-1		1158.1315	P	(8)*	0.01	10.71	2-2	
1260.9266	P	(4)	0.00	9.83	1-0		1158.1296	P	(8)*	0.00	10.71	1-1	
1261.1223	P	(5)	0.00	9.83	1-2		1158.4919	P	(0)*	0.01	10.71	2-1	
1260.7355	P	(5)	0.00	9.83	0-1								
							1157.7672	P	(7)*	0.01	10.71	2-1	$2p^2\ ^3P - 6s\ ^1P^\circ$
1198.2618	P		0.01	10.35	2-2	$2p^2\ ^3P - 4d\ ^1D^\circ$	1157.4054	P	(3)	0.00	10.71	1-1	UV 17
1197.8742	P	(0.5)	0.00	10.35	1-2	UV 9.01	1157.1857	P	(0)	0.00	10.71	0-1	
1194.0635	P	(10)	0.01	10.39	2-2	$2p^2\ ^3P - 5s\ ^3P^\circ$	1157.3299	P	(1)	0.01	10.72	2-3	$2p^2\ ^3P - 5d\ ^1F^\circ$
1194.2293	P	(4)	0.00	10.38	1-1	UV 9.02							UV 18
1194.6145	P	(8)	0.01	10.38	2-1								
1194.4055	P	(6)	0.00	10.38	1-0		1156.7646	P	(0)	0.01	10.72	2-1	$2p^2\ ^3P - 5d\ ^1P^\circ$
1193.6787	P	(15)*	0.00	10.39	1-2		1156.4035	P	(2)*	0.00	10.72	1-1	UV 18.01
1193.9955	P	(4)	0.00	10.38	0-1		1156.1842	P	(0)*	0.00	10.72	0-1	
1194.4882	P	(10)	0.01	10.38	2-3	$2p^2\ ^3P - 4d\ ^3F^\circ$	1156.5601	P	(4)	0.01	10.73	2-2	$2p^2\ ^3P - 5d\ ^3P^\circ$
1194.3009	P	(4)	0.00	10.38	1-2	UV 10	1156.0283	P	(3)*	0.00	10.73	1-1	UV 19
1194.6862	P		0.01	10.38	2-2		1156.3893	P	(2)*	0.01	10.73	2-1	
							1155.9790	P	(3)*	0.00	10.73	1-0	
1193.2401	P	(30)*	0.01	10.40	2-3	$2p^2\ ^3P - 4d\ ^3D^\circ$	1156.1990	P	(0)*	0.00	10.73	1-2	
1193.0088	P	(30)*	0.00	10.39	1-2	UV 11	1155.8092	P	(1)	0.00	10.73	0-1	
1193.0308	P	(30)*	0.00	10.39	0-1								
1193.3932	P	(10)	0.01	10.39	2-2		1141.6783	P	(0)	0.01	10.86	2-2	$2p^2\ ^3P - 6d\ ^1D^\circ$
1193.2643	P	(30)*	0.00	10.39	1-1		1141.3265	P	(0)?	0.00	10.86	1-2	UV 20
1193.6489	P	(15)*	0.01	10.39	2-1								
							1140.6413	P	(3)	0.01	10.87	2-3	$2p^2\ ^3P - 6d\ ^3F^\circ$
1192.8347	P	(2)	0.01	10.40	2-1	$2p^2\ ^3P - 5s\ ^1P^\circ$	1140.3573	P	(2)*	0.00	10.87	1-2	UV 21
1192.4507	P	(4)	0.00	10.40	1-1	UV 12	1140.7086	P		0.01	10.87	2-2	
1192.2175	P	(2)	0.00	10.40	0-1								
1191.838	P	(4)	0.01	10.41	2-3	$2p^2\ ^3P - 4d\ ^1F^\circ$	1140.1166	P	(1)*	0.01	10.88	2-2	$2p^2\ ^3P - 7s\ ^3P^\circ$
						UV 13	1140.2228	P	(0)	0.00	10.88	1-1	UV 21.01
							1140.5739	P	(0)	0.01	10.88	2-1	
1190.6357	P		0.01	10.42	2-1	$2p^2\ ^3P - 4d\ ^1P^\circ$	1140.3163	P	(2)*	0.00	10.87	1-0	
1190.2530	P	(1)	0.00	10.42	1-1	UV 13.01	1139.7657	P	(3)	0.00	10.88	1-2	
1190.0207	P	(1)	0.00	10.42	0-1		1140.0096	P	(1)*	0.00	10.88	0-1	

Multiplet Table

C1 - Continued

C1 - 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						
1139.8120	P	(4)*	0.01	10.88	2-3	$2p^2\ ^3P - 6d\ ^3D^\circ$	1122.0038	P		0.00	11.05	1-2	$2p^2\ ^3P - 8d\ ^3D^\circ$
1139.5143	P	(0)	0.00	10.88	1-2	UV 22	1122.3438	P	(2)	0.01	11.05	2-2	UV 27
1139.8650	P	(4)*	0.01	10.88	2-2								
1139.6501	P	(0)	0.01	10.88	2-1	$2p^2\ ^3P - 7s\ ^1P^\circ$	1122.2595	P	(1)	0.01	11.05	2-1	$2p^2\ ^3P - 9s\ ^1P^\circ$
1139.2995	P	(0)	0.00	10.88	1-1	UV 22.01	1121.9196	P		0.00	11.05	1-1	UV 27.01
1139.0867	P	(2)*	0.00	10.88	0-1		1121.7132	P		0.00	11.05	0-1	
1139.4255	P	(1)	0.01	10.89	2-3	$2p^2\ ^3P - 6d\ ^1F^\circ$	1122.1795	P	(1)	0.01	11.05	2-3	$2p^2\ ^3P - 8d\ ^1F^\circ$
						UV 22.02							UV 27.02
1139.1238	P	(2)*	0.01	10.89	2-1	$2p^2\ ^3P - 6d\ ^1P^\circ$	1122.0657	P		0.01	11.05	2-1	$2p^2\ ^3P - 8d\ ^1P^\circ$
1138.7736	P		0.00	10.89	1-1	UV 22.03	1127.7259	P		0.00	11.05	1-1	UV 27.03
1138.5609	P	(1)*	0.00	10.89	0-1		1121.5196	P		0.00	11.05	0-1	
1139.0931	P	(2)*	0.01	10.89	2-2	$2p^2\ ^3P - 6d\ ^3P^\circ$	1118.1252	P		0.00	11.09	1-1	$2p^2\ ^3P - 10s\ ^3P^\circ$
1138.5954	P	(1)*	0.00	10.89	1-1	UV 23	1118.4629	P		0.01	11.09	2-1	27.04
1138.9455	P	(1)	0.01	10.89	2-1		1117.9202	P		0.00	11.09	1-2	
1138.7428	P		0.00	10.89	1-2		1117.3930	P		0.00	11.10	1-2	$2p^2\ ^3P - 9d\ ^3D^\circ$
1138.3828	P	(0)	0.00	10.89	0-1		1117.7302	P	(1)	0.01	11.10	2-2	UV 29
1130.5155	P		0.01	10.97	2-2	$2p^2\ ^3P - 7d\ ^1D^\circ$	1114.1258	P		0.00	11.13	1-2	$2p^2\ ^3P - 10d\ ^3D^\circ$
1130.1706	P		0.00	10.97	1-2	UV 23.01	1114.4611	P	(2)*	0.01	11.13	2-2	UV 30
1129.924	P	(1)*	0.01	10.98	2-3	$2p^2\ ^3P - 7d\ ^3F^\circ?$	1111.7255	P		0.00	11.15	1-2	$2p^2\ ^3P - 11d\ ^3D^\circ$
1129.624	P	(1)*	0.00	10.98	1-2	UV 24	1112.0593	P	(0.5)	0.01	11.15	2-2	UV 30.01
1129.4221	P	(0)	0.01	10.98	2-2	$2p^2\ ^3P - 8s\ ^3P^\circ$	945.579	P		0.01	13.12	2-1	$2p^2\ ^3P - 2p^3\ ^3S^\circ$
1129.5267	P		0.00	10.98	1-1	UV 24.01	945.338	P		0.00	13.12	1-1	UV 31
1129.8712	P	(1)	0.01	10.98	2-1		945.191	P		0.00	13.12	0-1	
1129.5943	P	(1)	0.00	10.98	1-0								
1129.0777	P	(2)*	0.00	10.98	1-2								
1129.3175	P		0.00	10.98	0-1								
1128.8166	P		0.00	10.99	1-2	$2p^2\ ^3P - 7d\ ^3D^\circ$	Air						
1129.1607	P	(4)	0.01	10.99	2-2	UV 25	8727.126	P		1.26	2.68	2-0	$2p^2\ ^1D - 2p^2\ ^1S$
1129.0299	P	(2)*	0.01	10.99	2-1	$2p^2\ ^3P - 8s\ ^1P^\circ$							3F
1128.6859	P	(0)	0.00	10.99	1-1	UV 25.01	4246.429	P		1.26	4.18	2-2	$2p^2\ ^1D - 2p^3\ ^5S^\circ$
1128.4770	P		0.00	10.99	0-1								0.01
1128.9026	P	(0)	0.01	10.99	2-3	$2p^2\ ^3P - 7d\ ^1F^\circ$	Vac						
						UV 25.02	1992.012	P		1.26	7.49	2-2	$2p^2\ ^1D - 3s\ ^3P^\circ$
1128.752	P	(2)*	0.01	10.99	2-2	$2p^2\ ^3P - 7d\ ^3P^\circ?$	1993.620	P	(2)	1.26	7.48	2-1	UV 32
1128.284	P	(1)*	0.00	10.99	1-1	UV 26	1930.9054	D	(100)	1.26	7.68	2-1	$2p^2\ ^1D - 3s\ ^1P^\circ$
1128.627	P		0.01	10.99	2-1								UV 33
1128.252	P	(1)*	0.00	10.99	1-0		1855.484	P		1.26	7.95	2-3	$2p^2\ ^1D - 2p^3\ ^3D^\circ$
1128.408	P		0.00	10.99	1-2		1855.345	P		1.26	7.95	2-2	UV 33.01
1128.075	P		0.00	10.99	0-1		1855.383	P		1.26	7.95	2-1	
1128.7240	P	(2)	0.01	10.99	2-1	$2p^2\ ^3P - 7d\ ^1P^\circ$	1704.632	P		1.26	8.54	2-1	$2p^2\ ^1D - 3p\ ^1P$
1128.3801	P		0.00	10.99	1-1	UV 26.01							UV 33.02F
1128.1713	P		0.00	10.99	0-1		1602.100	P		1.26	9.00	2-2	$2p^2\ ^1D - 3p\ ^1D$
1123.4597	P		0.01	11.04	2-2	$2p^2\ ^3P - 8d\ ^1D^\circ$							UV 33.03F
1123.1190	P	(0)*	0.00	11.04	1-2	UV 26.02							
1122.7250	P	(1)*	0.00	11.04	1-1	$2p^2\ ^3P - 9s\ ^3P^\circ$	1536.980	P		1.26	9.33	2-2	$2p^2\ ^1D - 2p^3\ ^3P^\circ$
1123.0654	P	(0)*	0.01	11.04	2-1	UV 26.03	1537.011	P		1.26	9.33	2-1	UV 33.04
1122.7727	P	(1)*	0.00	11.04	1-0		1481.7635	D	(15)	1.26	9.63	2-2	$2p^2\ ^1D - 3d\ ^1D^\circ$
1122.5183	P		0.00	11.04	0-1								UV 34

Multiplet Table

C I — Continued

C 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						
1471.5521	P		1.26	9.69	2-2	$2p^2\ ^1D - 4s\ ^3P^o$	1311.3626	P	(10)	1.26	10.72	2-3	$2p^2\ ^1D - 5d\ ^1F^o$
1472.2313	P	(2)	1.26	9.68	2-1	UV 34.01							UV 48
1470.0936	P	(3)	1.26	9.70	2-3	$2p^2\ ^1D - 3d\ ^3F^o$							
1470.4490	P		1.26	9.70	2-2	UV 35	1310.6369	P	(2)	1.26	10.72	2-1	$2p^2\ ^1D - 5d\ ^1P^o$
													UV 49
1467.8765	P	(1)	1.26	9.71	2-3	$2p^2\ ^1D - 3d\ ^3D^o$							
1468.1054	P		1.26	9.71	2-2	UV 35.01	1310.3744	P		1.26	10.73	2-2	$2p^2\ ^1D - 5d\ ^3P^o$
1468.4102	P	(3)	1.26	9.71	2-1		1310.1551	P		1.26	10.73	2-1	UV 49.01
1467.4020	P	(12)	1.26	9.71	2-1	$2p^2\ ^1D - 4s\ ^1P^o$	1291.3036	P	(1)	1.26	10.86	2-2	$2p^2\ ^1D - 6d\ ^1D^o$
						UV 36							UV 50
1463.3360	D	(20)	1.26	9.74	2-3	$2p^2\ ^1D - 3d\ ^1F^o$	1289.9772	P	(3)	1.26	10.87	2-3	$2p^2\ ^1D - 6d\ ^3F^o$
						UV 37	1290.0632	P		1.26	10.87	2-2	UV 51
1459.0317	D	(10)	1.26	9.76	2-1	$2p^2\ ^1D - 3d\ ^1P^o$	1289.3061	P		1.26	10.88	2-2	$2p^2\ ^1D - 7s\ ^3P^o$
						UV 38	1289.8910	P	(0)	1.26	10.88	2-1	UV 51.01
1446.7965	P		1.26	9.83	2-2	$2p^2\ ^1D - 3d\ ^3P^o$	1288.9166	P	(1)	1.26	10.88	2-3	$2p^2\ ^1D - 6d\ ^3D^o$
1446.6305	P		1.26	9.83	2-1	UV 38.01	1288.9844	P		1.26	10.88	2-2	UV 51.02
1364.1636	P	(12)	1.26	10.35	2-2	$2p^2\ ^1D - 4d\ ^1D^o$	1288.7096	P	(1)	1.26	10.88	2-1	$2p^2\ ^1D - 7s\ ^1P^o$
						UV 39							UV 52
1358.7250	P		1.26	10.39	2-2	$2p^2\ ^1D - 5s\ ^3P^o$	1288.4224	P	(5)	1.26	10.89	2-3	$2p^2\ ^1D - 6d\ ^1F^o$
1359.4385	P	(1)	1.26	10.38	2-1	UV 39.01							UV 53
1359.2750	P	(4)	1.26	10.38	2-3	$2p^2\ ^1D - 4d\ ^3F^o$	1288.0367	P	(2)	1.26	10.89	2-1	$2p^2\ ^1D - 6d\ ^1P^o$
1359.5313	P		1.26	10.38	2-2	UV 40							UV 54
1357.6590	P	(2)	1.26	10.40	2-3	$2p^2\ ^1D - 4d\ ^3D^o$	1287.9974	P		1.26	10.89	2-2	$2p^2\ ^1D - 6d\ ^3P^o$
1357.8571	P		1.26	10.39	2-2	UV 40.01	1287.8088	P		1.26	10.89	2-1	UV 54.01
1358.1882	P		1.26	10.39	2-1								
1357.1342	P	(6)	1.26	10.40	2-1	$2p^2\ ^1D - 5s\ ^1P^o$	1277.0415	P		1.26	10.97	2-2	$2p^2\ ^1D - 7d\ ^1D^o$
						UV 41							UV 54.02
1355.844	A	(15)	1.26	10.41	2-3	$2p^2\ ^1D - 4d\ ^1F^o$	1275.6464	P		1.26	10.98	2-2	$2p^2\ ^1D - 8s\ ^3P^o$
						UV 42	1276.2195	P		1.26	10.98	2-1	UV 54.03
1354.2883	P	(10)	1.26	10.42	2-1	$2p^2\ ^1D - 4d\ ^1P^o$	1275.3130	P		1.26	10.99	2-2	$2p^2\ ^1D - 7d\ ^3D^o$
						UV 43							UV 54.04
1352.9883	P		1.26	10.43	2-2	$2p^2\ ^1D - 4d\ ^3P^o$	1275.1462	P		1.26	10.99	2-1	$2p^2\ ^1D - 8s\ ^1P^o$
1352.7505	P		1.26	10.43	2-1	UV 43.01							UV 54.05
1315.9181	P	(2)	1.26	10.69	2-2	$2p^2\ ^1D - 5d\ ^1D^o$	1274.9838	P	(3)	1.26	10.99	2-3	$2p^2\ ^1D - 7d\ ^1F^o$
						UV 44							UV 55
1313.4645	P	(3)	1.26	10.70	2-3	$2p^2\ ^1D - 5d\ ^3F^o$	1274.7559	P	(0)	1.26	10.99	2-1	$2p^2\ ^1D - 7d\ ^1P^o$
1313.6287	P		1.26	10.70	2-2	UV 45							UV 56
1312.7327	P		1.26	10.71	2-2	$2p^2\ ^1D - 6s\ ^3P^o$	1268.0454	P		1.26	11.04	2-2	$2p^2\ ^1D - 8d\ ^1D^o$
1313.3874	P	(1)	1.26	10.70	2-1	UV 45.01							UV 56.01
1312.2469	P	(1)	1.26	10.71	2-3	$2p^2\ ^1D - 5d\ ^3D^o$	1267.596	P	(1)	1.26	11.04	2-3	$2p^2\ ^1D - 8d\ ^3F^o?$
1312.3919	P		1.26	10.71	2-2	UV 46							UV 57
1312.8547	P		1.26	10.71	2-1		1267.5431	P		1.26	11.04	2-1	$2p^2\ ^1D - 9s\ ^3P^o$
1311.9241	P	(2)	1.26	10.71	2-1	$2p^2\ ^1D - 6s\ ^1P^o$							UV 57.01
						UV 47							

Multiplet Table

C1 — Continued

C1 — Continued

I A	Ref	Int	E P		J	Multiplet No.	I A	Ref	Int	E P		J	Multiplet No.
			Low	High						Low	High		
Vac 1266.6240	P		1.26	11.05	2-2	$2p^2\ ^1D - 8d\ ^3D^\circ$ UV 57.02	Vac 1733.981	P		2.68	9.83	0-1	$2p^2\ ^1S - 3d\ ^3P^\circ$ UV 62.01
1266.5166	P		1.26	11.05	2-1	$2p^2\ ^1D - 9s\ ^1P^\circ$ UV 57.03	1610.1919	P		2.68	10.38	0-1	$2p^2\ ^1S - 5s\ ^3P^\circ$ UV 62.02
1266.4188	P	(2)	1.26	11.05	2-3	$2p^2\ ^1D - 8d\ ^1F^\circ$ UV 58	1608.4380	P	(3)	2.68	10.39	0-1	$2p^2\ ^1S - 4d\ ^3D^\circ$ UV 62.03
1266.2698	P	(0)	1.26	11.05	2-1	$2p^2\ ^1D - 8d\ ^1P^\circ$ UV 58.01	1606.9601	P	(2)	2.68	10.40	0-1	$2p^2\ ^1S - 5s\ ^1P^\circ$ UV 62.04
1262.0072	P		1.26	11.09	2-2	$2p^2\ ^1D - 9d\ ^1D^\circ$ UV 58.02	1602.9715	D	(6)	2.68	10.42	0-1	$2p^2\ ^1S - 4d\ ^1P^\circ$ UV 63
1261.6833	P		1.26	11.09	2-1	$2p^2\ ^1D - 10s\ ^3P^\circ$ UV 58.03	1600.8176	P		2.68	10.43	0-1	$2p^2\ ^1S - 4d\ ^3P^\circ$ UV 63.01
1260.7510	P		1.26	11.10	2-2	$2p^2\ ^1D - 9d\ ^3D^\circ$ UV 58.04	1545.9864	P		2.68	10.70	0-1	$2p^2\ ^1S - 6s\ ^3P^\circ$ UV 63.02
1260.6128	P	(2)	1.26	11.10	2-3	$2p^2\ ^1D - 9d\ ^1F^\circ$ UV 59	1545.2485	P	(2)	2.68	10.71	0-1	$2p^2\ ^1S - 5d\ ^3D^\circ$ UV 63.03
1260.5109	P		1.26	11.10	2-1	$2p^2\ ^1D - 9d\ ^1P^\circ$ UV 59.01	1543.9595	P	(3)	2.68	10.71	0-1	$2p^2\ ^1S - 6s\ ^1P^\circ$ UV 63.04
1256.5933	P		1.26	11.13	2-2	$2p^2\ ^1D - 10d\ ^3D^\circ$ UV 59.02	1542.1766	D	(8)	2.68	10.72	0-1	$2p^2\ ^1S - 5d\ ^1P^\circ$ UV 64
1045.958	P		1.26	13.12	2-1	$2p^2\ ^1D - 2p^3\ ^3S^\circ$ UV 59.03	1541.5099	P	(2)	2.68	10.73	0-1	$2p^2\ ^1S - 5d\ ^3P^\circ$ UV 64.01
							1513.5336	P		2.68	10.88	0-1	$2p^2\ ^1S - 7s\ ^3P^\circ$ UV 64.02
Air 2582.901	A		2.68	7.48	0-1	$2p^2\ ^1S - 3s\ ^3P^\circ$ UV 60	1511.9073	P	(1)	2.68	10.88	0-1	$2p^2\ ^1S - 7s\ ^1P^\circ$ UV 64.03
2478.561	A	16	2.68	7.68	0-1	$2p^2\ ^1S - 3s\ ^1P^\circ$ UV 61	1510.9812	P	(4)	2.68	10.89	0-1	$2p^2\ ^1S - 6d\ ^1P^\circ$ UV 64.04
2355.445	P		2.68	7.95	0-1	$2p^2\ ^1S - 2p^3\ ^3D^\circ$ UV 61.01	1510.6676	P	(1)	2.68	10.89	0-1	$2p^2\ ^1S - 6d\ ^3P^\circ$ UV 64.05
2117.601	P		2.68	8.54	0-1	$2p^2\ ^1S - 3p\ ^1P$ UV 61.02F	1494.7448	P		2.68	10.98	0-1	$2p^2\ ^1S - 8s\ ^3P^\circ$ UV 64.06
Vac 1865.464	P		2.68	9.33	0-1	$2p^2\ ^1S - 2p^3\ ^3P^\circ$ UV 61.03	1493.2728	P	(0)	2.68	10.99	0-1	$2p^2\ ^1S - 8s\ ^1P^\circ$ UV 64.07
1770.892	P		2.68	9.68	0-1	$2p^2\ ^1S - 4s\ ^3P^\circ$ UV 61.04	1492.7376	P	(2)	2.68	10.99	0-1	$2p^2\ ^1S - 7d\ ^1P^\circ$ UV 64.08
1765.366	P	(3)	2.68	9.71	0-1	$2p^2\ ^1S - 3d\ ^3D^\circ$ UV 61.05	1482.8567	P		2.68	11.04	0-1	$2p^2\ ^1S - 9s\ ^3P^\circ$ UV 64.09
1763.909	P	(8)	2.68	9.71	0-1	$2p^2\ ^1S - 4s\ ^1P^\circ$ UV 61.06	1481.4521	P		2.68	11.05	0-1	$2p^2\ ^1S - 9s\ ^1P^\circ$ UV 64.10
1751.8277	D	(50)	2.68	9.76	0-1	$2p^2\ ^1S - 3d\ ^1P^\circ$ UV 62	1481.1144	P		2.68	11.05	0-1	$2p^2\ ^1S - 8d\ ^1P^\circ$ UV 64.11
							1474.8434	P		2.68	11.09	0-1	$2p^2\ ^1S - 10s\ ^3P^\circ$ UV 64.12

B6 1-5

Multiplet Table

C I - Continued

C 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 1473.2416	P		2.68	11.10	0-1	$2p^2\ ^1S - 9d\ ^1P^\circ$ UV 64.13	Air 4065.246	A	4	7.49	10.54	2-3	$3s\ ^3P^\circ - 5p\ ^3D$ 7
1188.3414	P		2.68	13.12	0-1	$2p^2\ ^1S - 2p^3\ ^3S^\circ$ UV 64.14	4064.271	A	3	7.48	10.53	1-2	
							4063.577	A	2	7.48	10.53	0-1	
							4070.970	A	2	7.49	10.53	2-2	
							4066.752	A	2	7.48	10.53	1-1	
							4073.464	P		7.49	10.53	2-1	
Air 2776.277	P		4.18	8.65	2-3	$2p^3\ ^5S^\circ - 3p\ ^3D$ UV 64.15	4029.413	A	4	7.49	10.56	2-2	$3s\ ^3P^\circ - 5p\ ^3P$ 7.01
2778.853	P		4.18	8.64	2-2		4025.221	A	1	7.48	10.56	1-1	
2780.490	P		4.18	8.64	2-1		4031.795	A	3	7.49	10.56	2-1	
2701.263	P		4.18	8.77	2-1	$2p^3\ ^5S^\circ - 3p\ ^3S$ UV 64.16	4028.355	A	2	7.48	10.56	1-0	
2655.240	P		4.18	8.85	2-1	$2p^3\ ^5S^\circ - 3p\ ^3P$ UV 64.17	4022.841	A	3	7.48	10.56	1-2	
2656.685	P		4.18	8.85	2-1		4022.115	A	2	7.48	10.56	0-1	
Vac 1431.597	A	(2)	4.18	12.84	2-3	$2p^3\ ^5S^\circ - 3s'\ ^5P$ UV 65	3997.803	P		7.49	10.59	2-2	$3s\ ^3P^\circ - 5p\ ^1D$ 7.02
1432.105	A		4.18	12.84	2-2		3991.337	P		7.48	10.59	1-2	
1432.530	A		4.18	12.84	2-1		3769.708	P		7.49	10.78	2-1	$3s\ ^3P^\circ - 6p\ ^1P$ 7.03
							3763.956	A	0	7.48	10.78	1-1	
Air 10691.250	A	10	7.49	8.65	2-3	$3s\ ^3P^\circ - 3p\ ^3D$ 1	3757.048	A	3	7.49	10.79	2-3	$3s\ ^3P^\circ - 6p\ ^3D$ 7.04
10683.082	A	8	7.48	8.64	1-2		3756.522	A	2	7.48	10.78	1-2	
10685.345	A	6	7.48	8.64	0-1		3755.121	A	1	7.48	10.78	0-1	
10729.533	A	6	7.49	8.64	2-2		3762.251	A	2	7.49	10.78	2-2	
10707.333	A	6	7.48	8.64	1-1		3757.836	A	1	7.48	10.78	1-1	
10753.985	A	2	7.49	8.64	2-1		3763.563	P		7.49	10.78	2-1	
9658.435	A	10	7.49	8.77	2-1	$3s\ ^3P^\circ - 3p\ ^3S$ 2	3741.443	A	2	7.49	10.80	2-2	$3s\ ^3P^\circ - 6p\ ^3P$ 7.05
9620.795	A	9	7.48	8.77	1-1		3737.186	A	0	7.48	10.80	1-1	
9603.032	A	7	7.48	8.77	0-1		3742.851	A	1	7.49	10.80	2-1	
9094.829	A	12	7.49	8.85	2-2	$3s\ ^3P^\circ - 3p\ ^3P$ 3	3740.789	A	0	7.48	10.80	1-0	
9078.278	A	8	7.48	8.85	1-1		3735.776	A	1	7.48	10.80	1-2	
9111.797	A	10	7.49	8.85	2-1		3734.509	A	0	7.48	10.80	0-1	
9088.508	A	9	7.48	8.85	1-0		3613.235	P		7.49	10.92	2-1	$3s\ ^3P^\circ - 7p\ ^1P$ 7.06
9061.432	A	9	7.48	8.85	1-2		3607.940	A	0	7.48	10.92	1-1	
9062.466	A	8	7.48	8.85	0-1		3603.528	A	2	7.49	10.93	2-3	$3s\ ^3P^\circ - 7p\ ^3D$ 7.07
4890.645	A	2	7.49	10.02	2-3	$3s\ ^3P^\circ - 4p\ ^3D$ 3.01	3603.440	A	1	7.48	10.92	1-2	
*4888.912	A	1	7.48	10.02	1-2		3601.465	A	0	7.48	10.92	0-1	
*4888.912	A	1	7.48	10.02	0-1		3608.696	A	1	7.49	10.92	2-2	
4898.629	A	1	7.49	10.02	2-2		3603.952	A	0	7.48	10.92	1-1	
4893.429	A	0	7.48	10.02	1-1		3609.226	P		7.49	10.92	2-1	
4903.148	P		7.49	10.02	2-1		3595.456	A	0	7.49	10.93	2-2	$3s\ ^3P^\circ - 7p\ ^3P$ 7.08
4826.804	A	3	7.49	10.06	2-1	$3s\ ^3P^\circ - 4p\ ^3S$ 5	3590.972	P		7.48	10.93	1-1	
4817.371	A	4	7.48	10.06	1-1		3523.366	P		7.49	11.01	2-1	$3s\ ^3P^\circ - 8p\ ^1P$ 7.09
4812.916	A	2	7.48	10.06	0-1		3518.314	A	0	7.48	11.01	1-1	
4771.747	A	8	7.49	10.09	2-2	$3s\ ^3P^\circ - 4p\ ^3P$ 6	3514.801	A	2	7.49	11.01	2-3	$3s\ ^3P^\circ - 8p\ ^3D$ 7.10
4766.676	A	4	7.48	10.08	1-1		3510.132	P		7.49	11.02	2-2	$3s\ ^3P^\circ - 8p\ ^3P$ 7.11
4775.907	A	6	7.49	10.08	2-1		3458.503	A	1	7.49	11.07	2-3	$3s\ ^3P^\circ - 9p\ ^3D$ 7.12
4770.032	A	5	7.48	10.08	1-0		3420.405	A	0	7.49	11.11	2-3	$3s\ ^3P^\circ - 10p\ ^3D$ 7.13
4762.541	A	5	7.48	10.09	1-2								
4762.314	A	5	7.48	10.08	0-1								
4676.692	P		7.49	10.14	2-2	$3s\ ^3P^\circ - 4p\ ^1D$ 6.01							
4667.846	P		7.48	10.14	1-2								

Multiplet Table

C1 - Continued

C1 - Continued

I A	Ref	Int	E P		J	Multiplet No.	I A	Ref	Int	E P		J	Multiplet No.
			Low	High						Low	High		
Air 14542.50	B	179	7.68	8.54	1-1	$3s\ ^1P^\circ - 3p\ ^1P$ 7.14	Air 3732.349	A	2	7.68	11.01	1-1	$3s\ ^1P^\circ - 8p\ ^1P$ 17.09
10631.36	P		7.68	8.85	1-2	$3s\ ^1P^\circ - 3p\ ^3P$	3729.026	A	1	7.68	11.01	1-1	$3s\ ^1P^\circ - 8p\ ^3D$ 17.10
10654.56	P		7.68	8.85	1-1	8							
10668.65	P		7.68	8.85	1-0								
9405.729	A	16	7.68	9.00	1-2	$3s\ ^1P^\circ - 3p\ ^1D$ 9	3712.035	A	1	7.68	11.02	1-2	$3s\ ^1P^\circ - 8p\ ^1D$ 17.11
8335.149	A	13	7.68	9.17	1-0	$3s\ ^1P^\circ - 3p\ ^1S$ 10	3705.557	A	1	7.68	11.03	1-0	$3s\ ^1P^\circ - 8p\ ^1S$ 17.12
5380.336	A	10	7.68	9.99	1-1	$3s\ ^1P^\circ - 4p\ ^1P$ 11	3668.600	A	1	7.68	11.06	1-1	$3s\ ^1P^\circ - 9p\ ^1P$ 17.13
5312.174	P		7.68	10.02	1-2	$3s\ ^1P^\circ - 4p\ ^3D$	3652.824	A	0	7.68	11.08	1-2	$3s\ ^1P^\circ - 9p\ ^1D$ 17.14
5317.465	A	1	7.68	10.02	1-1	11.01							
5052.167	A	8	7.68	10.14	1-2	$3s\ ^1P^\circ - 4p\ ^1D$ 12	3648.623	A	0	7.68	11.08	1-0	$3s\ ^1P^\circ - 9p\ ^1S$ 17.15
4932.050	A	8	7.68	10.20	1-0	$3s\ ^1P^\circ - 4p\ ^1S$ 13	3625.609	A	0	7.68	11.10	1-1	$3s\ ^1P^\circ - 10p\ ^1P$ 17.16
4371.368	A	6	7.68	10.52	1-1	$3s\ ^1P^\circ - 5p\ ^1P$ 14	3609.562	A	0	7.68	11.12	1-0	$3s\ ^1P^\circ - 10p\ ^1S$ 17.17
4352.558	P		7.68	10.53	1-2	$3s\ ^1P^\circ - 5p\ ^3D$	3595.140	A	0	7.68	11.13	1-1	$3s\ ^1P^\circ - 11p\ ^1P$ 17.18
4355.408	A	1	7.68	10.53	1-1	15							
4269.020	A	6	7.68	10.59	1-2	$3s\ ^1P^\circ - 5p\ ^1D$ 16							
4228.326	A	5	7.68	10.62	1-0	$3s\ ^1P^\circ - 5p\ ^1S$ 17	13697.81	B	6	7.95	8.85	3-2	$2p^3\ ^3D^\circ - 3p\ ^3P$
4009.930	A	4	7.68	10.78	1-1	$3s\ ^1P^\circ - 6p\ ^1P$ 17.01	13743.93	B	3	7.95	8.85	2-1	17.19
4001.490	P		7.68	10.78	1-2	$3s\ ^1P^\circ - 6p\ ^3D$	13765.29	B	1	7.95	8.85	1-0	
4002.976	A	2	7.68	10.78	1-1	17.02	13705.41	B	1	7.95	8.85	2-2	
3961.403	A	3	7.68	10.81	1-2	$3s\ ^1P^\circ - 6p\ ^1D$ 17.03	13741.86	B	1	7.95	8.85	1-1	
3942.223	A	3	7.68	10.83	1-0	$3s\ ^1P^\circ - 6p\ ^1S$ 17.04	13703.28	P		7.95	8.85	1-2	
3833.347	A	3	7.68	10.92	1-1	$3s\ ^1P^\circ - 7p\ ^1P$ 17.05	5969.326	A	4	7.95	10.02	3-3	$2p^3\ ^3D^\circ - 4p\ ^3D$
3828.247	P		7.68	10.92	1-2	$3s\ ^1P^\circ - 7p\ ^3D$	5982.671	A	2	7.95	10.02	2-2	17.20
3828.849	A	2	7.68	10.92	1-1	17.06	5989.014	A	2	7.95	10.02	1-1	
3804.305	A	2	7.68	10.94	1-2	$3s\ ^1P^\circ - 7p\ ^1D$ 17.07	5981.221	A	1	7.95	10.02	3-2	
3793.678	A	2	7.68	10.95	1-0	$3s\ ^1P^\circ - 7p\ ^1S$ 17.08	5989.401	A	1	7.95	10.02	2-1	
							5970.726	A	0	7.95	10.02	2-3	
							5982.275	A	0	7.95	10.02	1-2	
							5793.116	A	7	7.95	10.09	3-2	$2p^3\ ^3D^\circ - 4p\ ^3P$
							5800.594	A	6	7.95	10.08	2-1	18
							5805.192	A	4	7.95	10.08	1-0	
							5794.459	A	3	7.95	10.09	2-2	
							5800.232	A	3	7.95	10.08	1-1	
							5794.104	P		7.95	10.09	1-2	
							5040.752	P		7.95	10.40	3-	$2p^3\ ^3D^\circ - 4f\ [2\frac{1}{2}]$
							5041.796	A	6	7.95	10.40	2-	18.01
							5041.481	A	6	7.95	10.40	1-2	
							5039.069	A	7	7.95	10.41	3-	[3\frac{1}{2}]
							5040.134	A	4	7.95	10.41	2-3	

Multiplet Table

C I — Continued

C 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						
5023.849	A	7	7.95	10.41	3—	$2p^3\ ^3D^\circ - 4f' [3\frac{1}{2}]$	4211.115	A	2	7.95	10.89	3—	$2p^3\ ^3D^\circ - 6f' [2\frac{1}{2}]$
5024.916	A	3	7.95	10.41	2—3	18.02	4211.817	A	2	7.95	10.89	2—	18.13
							4211.613	A	1	7.95	10.89	1—2	
5017.090	A	3	7.95	10.42	3—	$2p^3\ ^3D^\circ - 4f' [2\frac{1}{2}]$	4209.195	P		7.95	10.89	3—2	$[1\frac{1}{2}]$
5018.068	A	2	7.95	10.42	2—	18.03	4209.905	A	0	7.95	10.89	2—	
5017.761	A	1	7.95	10.42	1—2		4209.710	A	0	7.95	10.89	1—	
5011.264	P		7.95	10.42	3—2	$[1\frac{1}{2}]$							
5012.279	A	2	7.95	10.42	2—		4157.024	P		7.95	10.93	3—3	$2p^3\ ^3D^\circ - 7p\ ^3D$
5012.003	A	2	7.95	10.42	1—		4164.611	P		7.95	10.92	2—2	18.14
							4165.118	P		7.95	10.92	1—1	
4783.795	A	1	7.95	10.54	3—3	$2p^3\ ^3D^\circ - 5p\ ^3D$							
4792.649	A	0	7.95	10.53	2—2	18.04	4146.264	A	2	7.95	10.93	3—2	$2p^3\ ^3D^\circ - 7p\ ^3P$
4795.878	A	0	7.95	10.53	1—1		4147.976	A	1	7.95	10.93	2—1	18.15
4791.710	A	0	7.95	10.53	3—2		4153.374	A	0	7.95	10.93	1—0	
4796.082	A	0	7.95	10.53	2—1		4146.971	A	0	7.95	10.93	2—2	
4784.721	P		7.95	10.54	2—3		4147.786	P		7.95	10.93	1—1	
4792.407	P		7.95	10.53	1—2								
4734.262	A	5	7.95	10.56	3—2	$2p^3\ ^3D^\circ - 5p\ ^3P$	4083.161	A	1	7.95	10.98	2—	$2p^3\ ^3D^\circ - 7f [2\frac{1}{2}]$
4738.466	A	3	7.95	10.56	2—1	18.05	4082.981	A	1	7.95	10.98	1—2	18.16
4742.570	A	2	7.95	10.56	1—0		4082.415	A	1	7.95	10.98	3—4	$[3\frac{1}{2}]$
4735.165	A	2	7.95	10.56	2—2								
4738.213	A	1	7.95	10.56	1—1		4072.643	A	3	7.95	10.99	3—	$2p^3\ ^3D^\circ - 7f' [3\frac{1}{2}]$
4734.917	P		7.95	10.56	1—2		4073.327	A	1	7.95	10.99	2—3	18.17
4478.009	P		7.95	10.71	3—	$2p^3\ ^3D^\circ - 5f [2\frac{1}{2}]$	4033.228	A	0	7.95	11.02	3—2	$2p^3\ ^3D^\circ - 8p\ ^3P$
4478.825	A	4	7.95	10.71	2—	18.06							18.18
4478.588	A	4	7.95	10.71	1—2		*3996.488	A	0	7.95	11.05	3—	$2p^3\ ^3D^\circ - 8f [2\frac{1}{2}]$
4477.472	A	4	7.95	10.71	3—	$[3\frac{1}{2}]$	3997.136	A	0	7.95	11.05	2—	18.19
4478.319	A	2	7.95	10.71	2—3		3996.966	A	0	7.95	11.05	1—2	
							*3996.488	A	0	7.95	11.05	3—4	$[3\frac{1}{2}]$
4466.476	A	5	7.95	10.72	3—	$2p^3\ ^3D^\circ - 5f' [3\frac{1}{2}]$							
4467.309	A	2	7.95	10.72	2—3	18.07	3986.879	A	1	7.95	11.05	3—4	$2p^3\ ^3D^\circ - 8f' [3\frac{1}{2}]$
													18.20
4463.886	A	2	7.95	10.72	3—	$2p^3\ ^3D^\circ - 5f' [2\frac{1}{2}]$							
4464.677	A	2	7.95	10.72	2—	18.08							
4464.448	A	1	7.95	10.72	1—2		11330.285	A	6	8.54	9.63	1—2	$3p\ ^1P - 3d\ ^1D^\circ$
4460.699	P		7.95	10.72	3—2	$[1\frac{1}{2}]$							19
4461.500	A	1	7.95	10.72	2—								
4461.300	A	1	7.95	10.72	1—		10759.28	P		8.54	9.69	1—2	$3p\ ^1P - 4s\ ^3P^\circ$
							10795.70	P		8.54	9.68	1—1	19.01
4362.663	P		7.95	10.79	3—3	$2p^3\ ^3D^\circ - 6p\ ^3D$	10809.43	P		8.54	9.68	1—0	
4370.452	P		7.95	10.78	2—2	18.09							
4372.018	P		7.95	10.78	1—1		10577.66	P		8.54	9.71	1—2	$3p\ ^1P - 3d\ ^3D^\circ$
							10593.51	P		8.54	9.71	1—1	19.02
4341.640	A	2	7.95	10.80	3—2	$2p^3\ ^3D^\circ - 6p\ ^3P$							
4344.309	A	1	7.95	10.80	2—1	18.10	10541.226	A	4	8.54	9.71	1—1	$3p\ ^1P - 4s\ ^1P^\circ$
4348.966	A	1	7.95	10.80	1—0								20
4342.396	A	0	7.95	10.80	2—2								
4344.111	A	0	7.95	10.80	1—1		10123.871	A	6	8.54	9.76	1—1	$3p\ ^1P - 3d\ ^1P^\circ$
4342.194	P		7.95	10.80	1—2								20.01
4222.631	P		7.95	10.88	3—	$2p^3\ ^3D^\circ - 6f [2\frac{1}{2}]$	9562.618	P		8.54	9.83	1—2	$3p\ ^1P - 3d\ ^3P^\circ$
4223.360	A	3	7.95	10.88	2—	18.11	9555.370	P		8.54	9.83	1—1	20.02
*4223.159	A	4	7.95	10.88	1—2		9551.372	P		8.54	9.83	1—0	
4222.466	A	3	7.95	10.88	3—	$[3\frac{1}{2}]$							
*4223.159	A	4	7.95	10.88	2—3		6828.117	A	6	8.54	10.35	1—2	$3p\ ^1P - 4d\ ^1D^\circ$
													21
4212.342	A	4	7.95	10.89	3—	$2p^3\ ^3D^\circ - 6f' [3\frac{1}{2}]$							
4213.074	A	2	7.95	10.89	2—3	18.12	6693.963	P		8.54	10.39	1—2	$3p\ ^1P - 5s\ ^3P^\circ$
							6711.291	A	1	8.54	10.38	1—1	21.01
							6716.892	P		8.54	10.38	1—0	

Multiplet Table

C1 – Continued

C1 – 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						
6672.945	P		8.54	10.39	1-2	$3p\ ^1P - 4d\ ^3D^\circ$	4922.688	A	1	8.54	11.05	1-1	$3p\ ^1P - 8d\ ^1P^\circ$
6680.950	P		8.54	10.39	1-1	21.02							22.18
6655.509	A	6	8.54	10.40	1-1	$3p\ ^1P - 5s\ ^1P^\circ$	4858.875	P		8.54	11.09	1-2	$3p\ ^1P - 9d\ ^1D^\circ$
						21.03							22.19
6587.608	A	8	8.54	10.42	1-1	$3p\ ^1P - 4d\ ^1P^\circ$	4836.764	A	0	8.54	11.10	1-1	$3p\ ^1P - 9d\ ^1P^\circ$
						22							22.20
6556.955	P		8.54	10.43	1-2	$3p\ ^1P - 4d\ ^3P^\circ$	18139.80	B	13	8.65	9.33	3-2	$3p\ ^3D - 2p\ ^3P^\circ$
6551.374	P		8.54	10.43	1-1	22.01	18034.86	B	5	8.64	9.33	2-1	22.21
6549.172	P		8.54	10.43	1-0		17959.24	B	3	8.64	9.33	1-0	
5769.117	P		8.54	10.69	1-2	$3p\ ^1P - 5d\ ^1D^\circ$	18030.47	B	2	8.64	9.33	2-2	
						22.02	17966.12	B	2	8.64	9.33	1-1	
							17962.00	P		8.64	9.33	1-2	
5708.372	P		8.54	10.71	1-2	$3p\ ^1P - 6s\ ^3P^\circ$	11895.75	B	30	8.65	9.69	3-2	$3p\ ^3D - 4s\ ^3P^\circ$
5720.779	A	2	8.54	10.70	1-1	22.03	11892.91	B	17	8.64	9.68	2-1	23
5723.949	P		8.54	10.70	1-0		11879.59	B	8	8.64	9.68	1-0	
5701.932	P		8.54	10.71	1-2	$3p\ ^1P - 5d\ ^3D^\circ$	11848.73	B	6	8.64	9.69	2-2	
5710.681	P		8.54	10.71	1-1	22.04	11862.99	B	5	8.64	9.68	1-1	
							11819.04	P		8.64	9.69	1-2	
5693.110	A	3	8.54	10.71	1-1	$3p\ ^1P - 6s\ ^1P^\circ$	11753.32	B	142	8.65	9.79	3-4	$3p\ ^3D - 3d\ ^3F^\circ$
						22.05	11754.76	B	114	8.64	9.70	2-3	24
5668.951	A	7	8.54	10.72	1-1	$3p\ ^1P - 5d\ ^1P^\circ$	11748.22	B	82	8.64	9.70	1-2	
						22.06	11801.08	B	7	8.65	9.70	3-3	
5324.064	P		8.54	10.86	1-2	$3p\ ^1P - 6d\ ^1D^\circ$	11777.54	B	11	8.64	9.70	2-2	
						22.07	11824.03	P		8.65	9.70	3-2	
5290.261	P		8.54	10.88	1-2	$3p\ ^1P - 7s\ ^3P^\circ$	11659.68	B	47	8.65	9.71	3-3	$3p\ ^3D - 3d\ ^3D^\circ$
5300.118	A	1	8.54	10.88	1-1	22.08	11628.83	B	23	8.64	9.71	2-2	25
5302.147	P		8.54	10.87	1-0		11619.29	B	12	8.64	9.71	1-1	
5280.238	A	2	8.54	10.88	1-1	$3p\ ^1P - 7s\ ^1P^\circ$	11674.14	B	7	8.65	9.71	3-2	
						22.09	11647.99	B	5	8.64	9.71	2-1	
							11614.47	P		8.64	9.71	2-3	
							11600.24	P		8.64	9.71	1-2	
5268.956	A	4	8.54	10.89	1-1	$3p\ ^1P - 6d\ ^1P^\circ$	10449.93	P		8.65	9.83	3-2	$3p\ ^3D - 3d\ ^3P^\circ$
						22.10	10405.01	P		8.64	9.83	2-1	25.01
							10377.41	P		8.64	9.83	1-0	
5089.632	A	0	8.54	10.97	1-2	$3p\ ^1P - 7d\ ^1D^\circ$	7116.990	A	8	8.65	10.39	3-2	$3p\ ^3D - 5s\ ^3P^\circ$
						22.11	7119.671	A	7	8.64	10.38	2-1	25.02
5067.543	P		8.54	10.98	1-2	$3p\ ^1P - 8s\ ^3P^\circ$	*7115.186	A	9	8.64	10.38	1-0	
5076.592	A	1	8.54	10.98	1-1	22.12	7100.124	A	5	8.64	10.39	2-2	
5077.968	P		8.54	10.98	1-0		7108.935	A	3	8.64	10.38	1-1	
							7089.46	P		8.64	10.39	1-2	
5059.656	A	0	8.54	10.99	1-1	$3p\ ^1P - 8s\ ^1P^\circ$	7113.180	A	9	8.65	10.39	3-4	$3p\ ^3D - 4d\ ^3F^\circ$
						22.13	*7115.186	A	9	8.64	10.38	2-3	26
							7111.475	A	7	8.64	10.38	1-2	
5053.515	A	2	8.54	10.99	1-1	$3p\ ^1P - 7d\ ^1P^\circ$	7132.112	A	1	8.65	10.38	3-3	
						22.14	7122.196	A	1	8.64	10.38	2-2	
							7139.175	P		8.65	10.38	3-2	
4949.646	P		8.54	11.04	1-2	$3p\ ^1P - 8d\ ^1D^\circ$	7087.827	A	4	8.65	10.40	3-3	$3p\ ^3D - 4d\ ^3D^\circ$
						22.15	7076.479	A	2	8.64	10.39	2-2	26.01
4942.021	A	0	8.54	11.04	1-1	$3p\ ^1P - 9s\ ^3P^\circ$	7074.864	A	1	8.64	10.39	1-1	
4942.926	P		8.54	11.04	1-0	22.16	7093.249	A	3	8.65	10.39	3-2	
							7085.511	A	0	8.64	10.39	2-1	
4926.416	A	0	8.54	11.05	1-1	$3p\ ^1P - 9s\ ^1P^\circ$	7071.102	P		8.64	10.40	2-3	
						22.17	7065.889	P		8.64	10.39	1-2	

Multiplet Table

C1 - Continued

C1 - 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						
7056.871	A	0	8.64	10.40	2-1	$3p\ ^3D - 5s\ ^1P^\circ$	5543.817	A	0	8.65	10.88	3-3	$3p\ ^3D - 6d\ ^3D^\circ$
7046.351	P		8.64	10.40	1-1	26.02	5534.807	A	1	8.64	10.88	2-2	26.15
							*5545.071	A	6	8.65	10.88	3-2	
7038.627	P		8.65	10.41	3-	$3p\ ^3D - 4d\ ^1F^\circ$	5529.781	A	1	8.64	10.88	2-1	$3p\ ^3D - 7s\ ^1P^\circ$
7022.129	P		8.64	10.41	2-3	26.03	5523.282	P		8.64	10.88	1-1	26.16
6962.31	A	0	8.65	10.43	3-2	$3p\ ^3D - 4d\ ^3P^\circ$							
6939.91	P		8.64	10.43	2-1	26.04	5526.833	A	2	8.65	10.89	3-2	$3p\ ^3D - 6d\ ^3P^\circ$
6927.26	P		8.64	10.43	1-0		5513.200	P		8.64	10.89	2-1	26.17
							5516.643	A	0	8.64	10.89	2-2	
6080.609	P		8.65	10.69	3-2	$3p\ ^3D - 5d\ ^1D^\circ$	5506.768	P		8.64	10.89	1-1	
6068.267	A	0	8.64	10.69	2-2	26.05							
6060.501	P		8.64	10.69	1-2		5306.315	A	0	8.65	10.98	3-2	$3p\ ^3D - 8s\ ^3P^\circ$
							5306.837	A	2	8.64	10.98	2-1	26.18
*6013.215	A	10	8.65	10.71	3-4	$3p\ ^3D - 5d\ ^3F^\circ$	5302.352	A	1	8.64	10.98	1-0	
6016.449	A	6	8.64	10.70	2-3	26.06	5296.930	A	0	8.64	10.98	2-2	
6012.236	A	5	8.64	10.70	1-2		5300.845	A	1	8.64	10.98	1-1	
6028.555	P		8.65	10.70	3-3		5290.995	P		8.64	10.98	1-2	
6019.866	A	0	8.64	10.70	2-2								
6032.018	P		8.65	10.70	3-2		5291.224	A	1	8.64	10.99	2-2	$3p\ ^3D - 7d\ ^3D^\circ$
							5300.550	A	3	8.65	10.99	3-2	26.19
*6013.215	A	10	8.65	10.71	3-2	$3p\ ^3D - 6s\ ^3P^\circ$							
6014.845	A	9	8.64	10.70	2-1	26.07	5288.315	A	0	8.64	10.99	2-1	$3p\ ^3D - 8s\ ^1P^\circ$
6010.679	A	7	8.64	10.70	1-0		5282.398	P		8.64	10.99	1-1	26.20
6001.126	A	8	8.64	10.71	2-2								
6007.178	A	6	8.64	10.70	1-1		5159.920	A	1	8.64	11.04	2-1	$3p\ ^3D - 9s\ ^3P^\circ$
5993.501	P		8.64	10.71	1-2		5155.292	A	1	8.64	11.04	1-0	26.21
6002.982	A	4	8.65	10.71	3-3	$3p\ ^3D - 5d\ ^3D^\circ$	5144.717	P		8.64	11.05	2-2	$3p\ ^3D - 8d\ ^3D^\circ$
5994.004	P		8.64	10.71	2-2	26.08	5153.571	A	2	8.65	11.05	3-2	26.22
5996.057	A	2	8.64	10.71	1-1								
6006.028	A	9	8.65	10.71	3-2		5064.147	A	0	8.64	11.09	2-1	$3p\ ^3D - 10s\ ^3P^\circ$
6003.666	A	1	8.64	10.71	2-1								26.23
5990.979	P		8.64	10.71	2-3								
5986.402	P		8.64	10.71	1-2		5049.156	P		8.64	11.10	2-2	$3p\ ^3D - 9d\ ^3D^\circ$
							5057.682	A	0	8.65	11.10	3-2	26.24
5984.260	A	3	8.64	10.71	2-1	$3p\ ^3D - 6s\ ^1P^\circ$	4983.106	P		8.64	11.13	2-2	$3p\ ^3D - 10d\ ^3D^\circ$
5976.678	P		8.64	10.71	1-1	26.09	4991.408	A	0	8.65	11.13	3-2	26.25
5984.517	P		8.65	10.72	3-3	$3p\ ^3D - 5d\ ^1F^\circ$	4935.431	P		8.64	11.15	2-2	$3p\ ^3D - 11d\ ^3D^\circ$
5972.588	A	0	8.64	10.72	2-3	26.10	4949.576	A	0	8.65	11.15	3-2	26.26
5957.559	P		8.64	10.72	2-1	$3p\ ^3D - 5d\ ^1P^\circ$							
5950.040	A	1	8.64	10.72	1-1	26.11	13502.27	B	20	8.77	9.69	1-2	$3p\ ^3S - 4s\ ^3P^\circ$
							13559.66	B	12	8.77	9.68	1-1	26.27
5963.989	A	4	8.65	10.73	3-2	$3p\ ^3D - 5d\ ^3P^\circ$	13581.35	B	5	8.77	9.68	1-0	
5947.607	A	1	8.64	10.73	2-1	26.12							
5938.826	P		8.64	10.73	1-0		13160.65	P		8.77	9.71	1-1	$3p\ ^3S - 4s\ ^1P^\circ$
5952.133	A	2	8.64	10.73	2-2								27
5940.100	A	0	8.64	10.73	1-1								
5944.639	P		8.64	10.73	1-2		12516.42	P		8.77	9.76	1-1	$3p\ ^3S - 3d\ ^1P^\circ$
													28
5548.902	A	1	8.65	10.88	3-4	$3p\ ^3D - 6d\ ^3F^\circ$							
5553.174	A	1	8.64	10.87	2-3	26.13	11669.63	B	24	8.77	9.83	1-2	$3p\ ^3S - 3d\ ^3P^\circ$
5548.239	A	0	8.64	10.87	1-2		11658.85	B	13	8.77	9.83	1-1	29
							11652.91	B	5	8.77	9.83	1-0	
5551.032	A	2	8.65	10.88	3-2	$3p\ ^3D - 7s\ ^3P^\circ$							
5551.589	A	5	8.64	10.88	2-1	26.14	7662.430	A	5	8.77	10.39	1-2	$3p\ ^3S - 5s\ ^3P^\circ$
5547.271	A	3	8.64	10.87	1-0		7685.197	A	4	8.77	10.38	1-1	29.01
5540.756	A	2	8.64	10.88	2-2		7692.495	A	2	8.77	10.38	1-0	
*5545.071	A	6	8.64	10.88	1-1								
5534.259	P		8.64	10.88	1-2		7612.102	P		8.77	10.40	1-1	$3p\ ^3S - 5s\ ^1P^\circ$
													29.02

Multiplet Table

C I - Continued

C 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						
7483.436	A	3	8.77	10.43	1-2	$3p\ ^3S - 4d\ ^3P^\circ$	8058.622	A	8	8.85	10.39	2-2	$3p\ ^3P - 5s\ ^3P^\circ$
7476.178	A	2	8.77	10.43	1-1	29.03	8070.416	A	3	8.85	10.38	1-1	30.01
7473.303	A	1	8.77	10.43	1-0		8083.797	A	5	8.85	10.38	2-1	
6397.979	A	5	8.77	10.71	1-2	$3p\ ^3S - 6s\ ^3P^\circ$	8078.480	A	4	8.85	10.38	1-0	
6413.553	A	3	8.77	10.70	1-1	29.04	8045.333	A	4	8.85	10.39	1-2	
6417.544	A	2	8.77	10.70	1-0		8062.356	A	3	8.85	10.38	0-1	
6389.871	A	2	8.77	10.71	1-2	$3p\ ^3S - 5d\ ^3D^\circ$	8021.262	A	3	8.85	10.40	2-3	$3p\ ^3P - 4d\ ^3D^\circ$
6400.866	P		8.77	10.71	1-1	29.05	8014.998	P		8.85	10.39	1-2	31
6378.791	A	0	8.77	10.71	1-1	$3p\ ^3S - 6s\ ^1P^\circ$	8018.564	A	1	8.85	10.39	0-1	
						29.06	7860.889	A	8	8.85	10.43	2-2	$3p\ ^3P - 4d\ ^3P^\circ$
6342.315	A	2	8.77	10.73	1-2	$3p\ ^3S - 5d\ ^3P^\circ$	7840.270	A	2	8.85	10.43	1-1	32
6337.196	A	1	8.77	10.73	1-1	29.07	7852.862	A	4	8.85	10.43	2-1	
6335.704	A	0	8.77	10.73	1-0		7837.105	A	3	8.85	10.43	1-0	
5877.313	A	2	8.77	10.88	1-2	$3p\ ^3S - 7s\ ^3P^\circ$	7848.246	A	4	8.85	10.43	1-2	
5889.515	A	2	8.77	10.88	1-1	29.08	7832.629	A	3	8.85	10.43	0-1	
5892.000	A	1	8.77	10.87	1-0		6671.840	A	5	8.85	10.71	2-2	$3p\ ^3P - 6s\ ^3P^\circ$
5870.655	A	3	8.77	10.88	1-2	$3p\ ^3S - 6d\ ^3D^\circ$	6679.642	P		8.85	10.70	1-1	33
						29.09	6688.787	A	4	8.85	10.70	2-1	
5864.948	A	0	8.77	10.88	1-1	$3p\ ^3S - 7s\ ^1P^\circ$	6683.954	A	4	8.85	10.70	1-0	
						29.10	6662.733	A	3	8.85	10.71	1-2	
5850.254	A	0	8.77	10.89	1-2	$3p\ ^3S - 6d\ ^3P^\circ$	6674.110	A	4	8.85	10.70	0-1	
5846.346	A	0	8.77	10.89	1-1	29.11	6659.312	P		8.85	10.71	2-3	$3p\ ^3P - 5d\ ^3D^\circ$
5603.733	A	0	8.77	10.98	1-2	$3p\ ^3S - 8s\ ^3P^\circ$	6653.946	A	1	8.85	10.71	1-2	34
5614.809	A	0	8.77	10.98	1-1	29.12	6660.382	P		8.85	10.71	0-1	
5616.490	A	0	8.77	10.98	1-0		6663.044	A	4	8.85	10.71	2-2	
5597.300	A	1	8.77	10.99	1-2	$3p\ ^3S - 7d\ ^3D^\circ$	6665.884	P		8.85	10.71	1-1	
						29.13	6611.354	A	4	8.85	10.73	2-2	$3p\ ^3P - 5d\ ^3P^\circ$
25833.66	B	1	8.85	9.33	2-2	$3p\ ^3P - 2p^3\ ^3P^\circ$	6596.849	A	1	8.85	10.73	1-1	35
25706.03	B	1	8.85	9.33	1-1	29.14	6605.785	A	1	8.85	10.73	2-1	
25842.20	B	1	8.85	9.33	2-1		6595.240	A	1	8.85	10.73	1-0	
25697.56	B	1	8.85	9.33	1-2		6602.416	A	2	8.85	10.73	1-2	
14782.98	B	4	8.85	9.69	2-2	$3p\ ^3P - 4s\ ^3P^\circ$	6591.446	A	1	8.85	10.73	0-1	
14806.73	P		8.85	9.68	1-1	29.15	6107.653	A	1	8.85	10.88	2-2	$3p\ ^3P - 7s\ ^3P^\circ$
14637.03	B	2	8.85	9.70	2-3	$3p\ ^3P - 3d\ ^3F^\circ$	6113.150	A	1	8.85	10.88	1-1	36
14628.36	P		8.85	9.70	1-2	29.16	6120.818	A	2	8.85	10.88	2-1	
14420.12	B	61	8.85	9.71	2-3	$3p\ ^3P - 3d\ ^3D^\circ$	6115.850	A	2	8.85	10.87	1-0	
14399.65	B	38	8.85	9.71	1-2	29.17	6100.028	A	2	8.85	10.88	1-2	
14403.25	B	16	8.85	9.71	0-1		6108.526	A	2	8.85	10.88	0-1	
14442.24	B	13	8.85	9.71	2-2		6098.923	A	1	8.85	10.88	2-3	$3p\ ^3P - 6d\ ^3D^\circ$
14429.03	B	12	8.85	9.71	1-1		6092.837	A	1	8.85	10.88	1-2	37
14471.78	P		8.85	9.71	2-1		6100.459	A	4	8.85	10.88	2-2	
12614.10	B	26	8.85	9.83	2-2	$3p\ ^3P - 3d\ ^3P^\circ$	6094.298	A	0	8.85	10.88	2-1	$3p\ ^3P - 7s\ ^1P^\circ$
12569.04	B	5	8.85	9.83	1-1	30	6086.686	A	0	8.85	10.88	1-1	38
12601.48	B	8	8.85	9.83	2-1		6082.107	P		8.85	10.88	0-1	
12562.12	B	6	8.85	9.83	1-0		6078.395	A	2	8.85	10.89	2-2	$3p\ ^3P - 6d\ ^3P^\circ$
12581.59	B	6	8.85	9.83	1-2		6066.646	P		8.85	10.89	1-1	39
12549.48	B	5	8.85	9.83	0-1		6074.195	P		8.85	10.89	2-1	
							6070.833	A	1	8.85	10.89	1-2	
							6062.089	A	0	8.85	10.89	0-1	
							5812.721	P		8.85	10.98	2-2	$3p\ ^3P - 8s\ ^3P^\circ$
							5817.701	A	0	8.85	10.98	1-1	40
							5824.643	A	1	8.85	10.98	2-1	
							5819.499	A	1	8.85	10.98	1-0	
							*5805.801	A	3	8.85	10.98	1-2	
							5813.510	A	1	8.85	10.98	0-1	

Multiplet Table

C I — Continued

C 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						
5798.895	A	0	8.85	10.99	1-2	$3p\ ^3P - 7d\ ^3D^\circ$	6578.772	A	2	9.00	10.89	2-3	$3p\ ^1D - 6d\ ^1F^\circ$
*5805.801	A	3	8.85	10.99	2-2	41							60
5623.445	P		8.85	11.05	1-2	$3p\ ^3P - 8d\ ^3D^\circ$	6568.708	A	2	9.00	10.89	2-1	$3p\ ^1D - 6d\ ^1P^\circ$
5629.930	A	1	8.85	11.05	2-2	42							61
5509.469	P		8.85	11.10	1-2	$3p\ ^3P - 9d\ ^3D^\circ$	6292.366	A	2	9.00	10.97	2-2	$3p\ ^1D - 7d\ ^1D^\circ$
5515.691	A	0	8.85	11.10	2-2	43							62
2904.95	A	—	8.85	13.12	2-1	$3p\ ^3P - 2p^3\ ^3S^\circ$	6246.597	P		9.00	10.99		$3p\ ^1D - 8s\ ^1P^\circ$
2903.26	A	—	8.85	13.12	1-1	UV 66							63
2902.30	A	—	8.85	13.12	0-1								
19721.99	B	23	9.00	9.63	2-2	$3p\ ^1D - 3d\ ^1D^\circ$	6242.699	A	1	9.00	10.99	2-3	$3p\ ^1D - 7d\ ^1F^\circ$
						44							64
17448.60	B	11	9.00	9.71	2-1	$3p\ ^1D - 4s\ ^1P^\circ$	6237.265	A	1	9.00	10.99	2-1	$3p\ ^1D - 7d\ ^1P^\circ$
						45							65
16890.38	B	50	9.00	9.74	2-3	$3p\ ^1D - 3d\ ^1F^\circ$	6079.771	A	1	9.00	11.04	2-2	$3p\ ^1D - 8d\ ^1D^\circ$
						46							66
16333.94	P		9.00	9.76	2-1	$3p\ ^1D - 3d\ ^1P^\circ$	6044.793	A	0	9.00	11.05	2-1	$3p\ ^1D - 9s\ ^1P^\circ$
						47							67
9182.831	A	4	9.00	10.35	2-2	$3p\ ^1D - 4d\ ^1D^\circ$	6042.457	A	1	9.00	11.05	2-3	$3p\ ^1D - 8d\ ^1F^\circ$
						48							68
8873.390	A	3	9.00	10.40	2-1	$3p\ ^1D - 5s\ ^1P^\circ$	6039.171	A	0	9.00	11.05	2-1	$3p\ ^1D - 8d\ ^1P^\circ$
						49							69
8818.480	P		9.00	10.41	2-3	$3p\ ^1D - 4d\ ^1F^\circ$	5943.389	A	0	9.00	11.09	2-2	$3p\ ^1D - 9d\ ^1D^\circ$
						50							70
8753.079	A	3	9.00	10.42	2-1	$3p\ ^1D - 4d\ ^1P^\circ$	5912.577	A	0	9.00	11.10	2-3	$3p\ ^1D - 9d\ ^1F^\circ$
						51							71
7364.734	A	3	9.00	10.69	2-2	$3p\ ^1D - 5d\ ^1D^\circ$	5910.338	P		9.00	11.10	2-1	$3p\ ^1D - 9d\ ^1P^\circ$
						52							72
7266.032	P		9.00	10.71	2-2	$3p\ ^1D - 6s\ ^3P^\circ$	22906.56	B	7	9.17	9.71	0-1	$3p\ ^1S - 4s\ ^1P^\circ$
7286.110	A	0	9.00	10.70	2-1	53							73
7241.319	A	2	9.00	10.71	2-1	$3p\ ^1D - 6s\ ^1P^\circ$	21023.13	B	8	9.17	9.76	0-1	$3p\ ^1S - 3d\ ^1P^\circ$
						54							74
7224.241	A	1	9.00	10.72	2-3	$3p\ ^1D - 5d\ ^1F^\circ$	10096.81	P		9.17	10.40	0-1	$3p\ ^1S - 5s\ ^1P^\circ$
						55							75
7202.264	A	2	9.00	10.72	2-1	$3p\ ^1D - 5d\ ^1P^\circ$	9941.349	P		9.17	10.42	0-1	$3p\ ^1S - 4d\ ^1P^\circ$
						56							76
6654.609	A	3	9.00	10.86	2-2	$3p\ ^1D - 6d\ ^1D^\circ$	8035.962	P		9.17	10.71	0-1	$3p\ ^1S - 6s\ ^1P^\circ$
						57							77
6601.884	P		9.00	10.88	2-2	$3p\ ^1D - 7s\ ^3P^\circ$	7987.889	A	2	9.17	10.72	0-1	$3p\ ^1S - 5d\ ^1P^\circ$
6617.241	A	0	9.00	10.88	2-1	58							78
6586.273	A	2	9.00	10.88	2-1	$3p\ ^1D - 7s\ ^1P^\circ$	7237.185	P		9.17	10.88	0-1	$3p\ ^1S - 7s\ ^1P^\circ$
						59							79
							7216.029	A	0	9.17	10.89	0-1	$3p\ ^1S - 6d\ ^1P^\circ$
													80

Multiplet Table

C1 - Continued

C1 - Continued

I A	Ref	Int	E P		J	Multiplet No.	I A	Ref	Int	E P		J	Multiplet No.
			Low	High						Low	High		
Air 6829.136	P		9.17	10.99	0-1	$3p^1S - 8s^1P^\circ$ 81	Air 24443.38	P		9.63	10.14	2-2	$3d^1D^\circ - 4p^1D$ 92
6817.954	P		9.17	10.99	0-1	$3p^1S - 7d^1P^\circ$ 82	16021.64	B	3	9.63	10.40	2-	$3d^1D^\circ - 4f$ $[2\frac{1}{2}]$
							16004.81	B	2	9.63	10.41	2-3	93 $[3\frac{1}{2}]$
17918.38	B	4	9.33	10.02	2-3	$2p^3P^\circ - 4p^3D$ 83	12949.84	P		9.63	10.59	2-2	$3d^1D^\circ - 5p^1D$ 94
18021.87	P		9.33	10.02	1-2								
18090.06	P		9.33	10.02	0-1		11448.76	P		9.63	10.71	2-	$3d^1D^\circ - 5f$ $[2\frac{1}{2}]$ 95
8960.75	A	2	9.33	10.71	2-	$2p^3P^\circ - 5f$ $[2\frac{1}{2}]$							
8959.66	P		9.33	10.71	1-2	84							
8904.34	A	2	9.33	10.72	2-	$2p^3P^\circ - 5f'$ $[2\frac{1}{2}]$	17505.64	B	3	9.70	10.41	3-4	$3d^3F^\circ - 4f$ $[3\frac{1}{2}]$
8903.20	A	1	9.33	10.72	1-2	85	17455.97	B	2	9.70	10.41	2-3	96
8891.73	P		9.33	10.72	2-	$[1\frac{1}{2}]$							
8890.67	A	2	9.33	10.72	1-		17323.51	B	2	9.70	10.41	3-4	$3d^3F^\circ - 4f'$ $[3\frac{1}{2}]$
8892.43	P		9.33	10.72	0-1		17274.99	B	3	9.70	10.41	2-3	97
							17338.56	B	10	9.70	10.42	4-5	$[4\frac{1}{2}]$
8510.445	A	1	9.33	10.79	2-3	$2p^3P^\circ - 6p^3D$ 86	17234.48	B	3	9.70	10.42	3-4	
8536.261	A	1	9.33	10.78	1-2								
8544.632	P		9.33	10.78	0-1								
8430.875	A	1	9.33	10.80	2-2	$2p^3P^\circ - 6p^3P$ 87	17814.03	B	3	9.71	10.40	2-	$3d^3D^\circ - 4f$ $[2\frac{1}{2}]$
8437.106	P		9.33	10.80	1-1		17768.94	B	3	9.71	10.40	1-2	98
							17826.33	B	4	9.71	10.41	3-4	$[3\frac{1}{2}]$
							17793.26	P		9.71	10.41	2-3	
7993.420	A	3	9.33	10.88	2-	$2p^3P^\circ - 6f$ $[2\frac{1}{2}]$							
7992.526	A	0	9.33	10.88	1-2	88	17637.38	B	3	9.71	10.41	3-4	$3d^3D^\circ - 4f'$ $[3\frac{1}{2}]$ 99
7952.188	A	3	9.33	10.89	2-	$2p^3P^\circ - 6f'$ $[2\frac{1}{2}]$							
7951.346	A	1	9.33	10.89	1-2	89							
7945.380	P		9.33	10.89	2-	$[1\frac{1}{2}]$	18320.67	B	8	9.74	10.41	3-4	$3d^1F^\circ - 4f'$ $[3\frac{1}{2}]$
7944.602	A	3	9.33	10.89	1-		18221.12	B	8	9.74	10.42	3-4	100 $[4\frac{1}{2}]$
7505.673	A	1	9.33	10.98	2-	$2p^3P^\circ - 7f$ $[2\frac{1}{2}]$							
7504.945	P		9.33	10.98	1-2	90	18926.54	B	3	9.76	10.42	1-2	$3d^1P^\circ - 4f'$ $[2\frac{1}{2}]$
							18844.42	B	2	9.76	10.42	1-2	101 $[1\frac{1}{2}]$
7470.094	A	1	9.33	10.99	2-3	$2p^3P^\circ - 7f'$ $[2\frac{1}{2}]$							
7465.445	A	1	9.33	10.99	1-2	91 $[1\frac{1}{2}]$							
							21259.89	B	8	9.83	10.42	2-3	$3d^3P^\circ - 4f'$ $[2\frac{1}{2}]$
							21295.27	B	1	9.83	10.42	1-2	102
							21191.41	B	4	9.83	10.42	1-	$[1\frac{1}{2}]$
							21211.55	B	2	9.83	10.42	0-1	

NSRDS-NBS 3, SECTION 3

CARBON, $Z = 6$

- A C II Atomic Energy Levels
- B C II Multiplet Table

Atomic Energy Levels

Part A

CARBON

C II

(BI sequence; 5 electrons)

$Z = 6$

Ground state $1s^2 2s^2 2p^2 P^\circ_{01/2}$

$2p^2 P^\circ_{01/2}$ **196664.7** cm^{-1} , 508.480 $\text{\AA}$ 24.383 eV

The analysis is by Glad, who has reobserved the spectrum from 1987 $\text{\AA}$ to 8800 $\text{\AA}$. Five lines have been added between 9200 $\text{\AA}$ and 9900 $\text{\AA}$ from spectrograms taken by Bockasten.

Herzberg has remeasured two groups of C II lines, one at 1760 $\text{\AA}$ and one at 1335 $\text{\AA}$. These five wavelengths provide auxiliary standards in the near vacuum ultraviolet and have been combined with other measurements to give additional calculated standards to shorter wavelengths. They serve, also, to improve the earlier values of the energy levels.

In his 1963 paper Edlén extends the list of calculated wavelengths in the vacuum ultraviolet on the basis of these corrected level-values, which he has generously furnished for inclusion here. The values for the terms $2p^2 P^\circ$ and $2p^2 {}^2D$ have been improved and, in turn, lead to a correction of -0.43 cm^{-1} to be applied to all other values by Glad.

From 438 $\text{\AA}$ to 1760 $\text{\AA}$ the earlier measurements by Edlén have been superseded by calculated wavelengths based on the present list of energy levels.

The levels in the $4f'$ and $5f'$ configurations designated by Glad ${}^4D_{21/2}$ and ${}^2D_{21/2}$ have been interchanged in accordance with a suggestion by Bockasten.

The limit has been determined by Bromander but is derived from Glad's data.

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C II					C II				
Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$2s^2(^1S)2p$	$2p^2P^\circ$	$0\frac{1}{2}$	0.00	63.42	$2p^3$	$2p^3^4S^\circ$	$1\frac{1}{2}$	142027.1	
		$1\frac{1}{2}$	63.42						
$2s\ 2p^2$	$2p^2^4P$	$0\frac{1}{2}$	43003.3	22.0	$2s^2(^1S)3d$	$3d^2D$	$1\frac{1}{2}$	145549.27	1.43
		$1\frac{1}{2}$	43025.3	28.3		$2\frac{1}{2}$	145550.70		
		$2\frac{1}{2}$	43053.6		$2p^3$	$2p^3^2D^\circ$	$2\frac{1}{2}$	150461.58	−5.11
$2s\ 2p^2$	$2p^2^2D$	$2\frac{1}{2}$	74930.10	−2.52			$1\frac{1}{2}$	150466.69	
		$1\frac{1}{2}$	74932.62		$2s^2(^1S)4s$	$4s^2S$	$0\frac{1}{2}$	157234.07	
$2s\ 2p^2$	$2p^2^2S$	$0\frac{1}{2}$	96493.74		$2s^2(^1S)4p$	$4p^2P^\circ$	$0\frac{1}{2}$	162517.89	6.68
$2s\ 2p^2$	$2p^2^2P$	$0\frac{1}{2}$	110624.17	41.39			$1\frac{1}{2}$	162524.57	
		$1\frac{1}{2}$	110665.56		$2s\ 2p(^3P^\circ)3s$	$3s'^4P^\circ$	$0\frac{1}{2}$	166967.13	23.60
$2s^2(^1S)3s$	$3s^2S$	$0\frac{1}{2}$	116537.65				$1\frac{1}{2}$	166990.73	
						$2\frac{1}{2}$	167035.71	44.98	
		$2s^2(^1S)3p$	$3p^2P^\circ$	$0\frac{1}{2}$	131724.37	11.15	$2s^2(^1S)4d$	$4d^2D$	$1\frac{1}{2}$
$1\frac{1}{2}$	131735.52			$2\frac{1}{2}$	168124.45				

Atomic Energy Levels

CII — Continued

CII — Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$2p^3$	$2p^3\ ^2P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	168729.53 168748.30	18.77	C III (1S_0)	Limit		196664.7	
$2s^2(^1S)4f$	$4f\ ^2F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	168978.34		$2s\ 2p(^3P^\circ)3d$	$3d'\ ^2D^\circ$	$1\frac{1}{2}$ $2\frac{1}{2}$	198425.43 198436.31	10.88
$2s^2(^1S)5s$	$5s\ ^2S$	$0\frac{1}{2}$	173347.84		$2s\ 2p(^3P^\circ)3d$	$3d'\ ^4P^\circ$	$2\frac{1}{2}$ $1\frac{1}{2}$ $0\frac{1}{2}$	198844.00 198865.25 198879.01	-21.25 -13.76
$2s^2(^1S)5p$	$5p\ ^2P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	175287.39 175294.75	7.36	$2s\ 2p(^3P^\circ)3d$	$3d'\ ^2F^\circ$	$2\frac{1}{2}$ $3\frac{1}{2}$	199941.41 199983.24	41.83
$2s\ 2p(^3P^\circ)3s$	$3s'\ ^2P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	177774.59 177793.54	18.95	$2s\ 2p(^3P^\circ)3d$	$3d'\ ^2P^\circ$	$1\frac{1}{2}$ $0\frac{1}{2}$	202179.85 202204.52	-24.67
$2s^2(^1S)5d$	$5d\ ^2D$	$1\frac{1}{2}$ $2\frac{1}{2}$	178495.11 178495.71	0.60	$2s\ 2p(^3P^\circ)4s$	$4s'\ ^4P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$	209552.36 209576.46 209622.32	24.10 45.86
$2s^2(^1S)5f$	$5f\ ^2F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	178955.94		$2s\ 2p(^3P^\circ)4p$	$4p'\ ^2P$	$0\frac{1}{2}$ $1\frac{1}{2}$	214404.33 214429.95	25.62
$2s^2(^1S)5g$	$5g\ ^2G$	$3\frac{1}{2}, 4\frac{1}{2}$	179073.05		$2s\ 2p(^3P^\circ)4p$	$4p'\ ^4D$	$0\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$	214759.91 214772.84 214795.27 214829.77	12.93 22.43 34.50
$2s^2(^1S)6s$	$6s\ ^2S$	$0\frac{1}{2}$	181264.24		$2s\ 2p(^3P^\circ)4p$	$4p'\ ^4S$	$1\frac{1}{2}$	215767.77	
$2s\ 2p(^3P^\circ)3p$	$3p'\ ^4D$	$0\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$	181696.66 181711.03 181736.05 181772.41	14.37 25.02 36.36	$2s\ 2p(^3P^\circ)4p$	$4p'\ ^4P$	$0\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$	216362.84 216379.59 216400.57	16.75 20.98
$2s\ 2p(^3P^\circ)3p$	$3p'\ ^2P$	$0\frac{1}{2}$ $1\frac{1}{2}$	182023.86 182043.41	19.55	$2s\ 2p(^3P^\circ)4p$	$4p'\ ^2D$	$1\frac{1}{2}$ $2\frac{1}{2}$	216927 219556.54	
$2s^2(^1S)6p$	$6p\ ^2P^\circ$	$0\frac{1}{2}, 1\frac{1}{2}$	182993.23		$2s\ 2p(^3P^\circ)4d$	$4d'\ ^4F^\circ$	$1\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$ $4\frac{1}{2}$	219570.15 219590.76 219619.88	13.61 20.61 29.12
$2s^2(^1S)6d$	$6d\ ^2D$	$1\frac{1}{2}$ $2\frac{1}{2}$	184074.59 184075.28	0.69	$2s\ 2p(^3P^\circ)4d$	$4d'\ ^4D^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$	220125.51 220130.86 220139.41 220150.49	5.35 8.55 11.08
$2s^2(^1S)6f$	$6f\ ^2F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	184376.06		$2s\ 2p(^3P^\circ)4d$	$4d'\ ^2D^\circ$	$1\frac{1}{2}$ $2\frac{1}{2}$	220601.53 220614.51	12.98
$2s^2(^1S)6g$	$6g\ ^2G$	$3\frac{1}{2}, 4\frac{1}{2}$	184449.27		$2s\ 2p(^3P^\circ)4d$	$4d'\ ^4P^\circ$	$2\frac{1}{2}$ $1\frac{1}{2}$ $0\frac{1}{2}$	220811.69 220832.15 220845.07	-20.46 -12.92
$2s^2(^1S)6h$	$6h\ ^2H^\circ$	$4\frac{1}{2}, 5\frac{1}{2}$	184466.5		$2s\ 2p(^3P^\circ)4f$	$4f'\ ^2F$	$2\frac{1}{2}$ $3\frac{1}{2}$	221088.88 221097.92	9.04
$2s\ 2p(^3P^\circ)3p$	$3p'\ ^4S$	$1\frac{1}{2}$	184690.98		$2s\ 2p(^3P^\circ)4f$	$4f'\ ^4F$	$1\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$ $4\frac{1}{2}$	221093.95 221099.11 221105.73 221109.78	5.16 6.62 4.05
$2s^2(^1S)7s$	$7s\ ^2S$	$0\frac{1}{2}$	185732.93		$2s\ 2p(^3P^\circ)4d$	$4d'\ ^2F^\circ$	$2\frac{1}{2}$ $3\frac{1}{2}$	221460.88 221503.33	42.45
$2s\ 2p(^3P^\circ)3p$	$3p'\ ^4P$	$0\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$	186427.35 186443.69 186466.02	16.34 22.33	$2s\ 2p(^3P^\circ)4f$	$4f'\ ^4G$	$2\frac{1}{2}$ $3\frac{1}{2}$ $4\frac{1}{2}$ $5\frac{1}{2}$	221544.81 221553.99 221575.61 221604.90	9.18 21.62 29.29
$2s^2(^1S)7p$	$7p\ ^2P^\circ$	$0\frac{1}{2}, 1\frac{1}{2}$	186745.9		$2s\ 2p(^3P^\circ)4f$	$4f'\ ^2G$	$3\frac{1}{2}$ $4\frac{1}{2}$	221587.12 221625.72	38.60
$2s^2(^1S)7f$	$7f\ ^2F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	187641.6						
$2s^2(^1S)7g$	$7g\ ^2G$	$3\frac{1}{2}, 4\frac{1}{2}$	187691.4						
$2s^2(^1S)7h$	$7h\ ^2H^\circ$	$4\frac{1}{2}, 5\frac{1}{2}$	187701						
$2s\ 2p(^3P^\circ)3p$	$3p'\ ^2D$	$1\frac{1}{2}$ $2\frac{1}{2}$	188581.25 188615.07	33.82					
$2s^2(^1S)8g$	$8g\ ^2G$	$3\frac{1}{2}, 4\frac{1}{2}$	189794.2						
$2s\ 2p(^3P^\circ)3d$	$3d'\ ^4F^\circ$	$1\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$ $4\frac{1}{2}$	195752.58 195765.85 195785.74 195813.66	13.27 19.89 27.92					
$2s\ 2p(^3P^\circ)3d$	$3d'\ ^4D^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$	196557.87 196563.41 196571.82 196581.96	5.54 8.41 10.14					

Atomic Energy Levels

C II—Continued

Config.	Desig.	<i>J</i>	Level	Interval
$2s\ 2p(^3P^o)4f$	$4f'\ ^4D$	$3\frac{1}{2}$	221698.48	—9.23
		$2\frac{1}{2}$	221707.71	—21.98
		$1\frac{1}{2}$	221729.69	—13.10
		$0\frac{1}{2}$	221742.79	
$2s\ 2p(^3P^o)4f$	$4f'\ ^2D$	$2\frac{1}{2}$	221729.92	—22.34
		$1\frac{1}{2}$	221752.26	
$2s\ 2p(^3P^o)4d$	$4d'\ ^2P^o$	$1\frac{1}{2}$	222258.8	—26.9
		$0\frac{1}{2}$	222285.7	
$2s\ 2p(^3P^o)5s$	$5s'\ ^4P^o$	$0\frac{1}{2}$	225748.0	23.8
		$1\frac{1}{2}$	225771.8	46.0
		$2\frac{1}{2}$	225817.8	
$2s\ 2p(^3P^o)5p$	$5p'\ ^2P$	$0\frac{1}{2}$	227881.21	26.50
		$1\frac{1}{2}$	227907.71	
$2s\ 2p(^3P^o)5p$	$5p'\ ^4D$	$0\frac{1}{2}$	228178.6	13.3
		$1\frac{1}{2}$	228191.9	19.9
		$2\frac{1}{2}$	228211.8	35.2
		$3\frac{1}{2}$	228246.97	
$2s\ 2p(^3P^o)5p$	$5p'\ ^4S$	$1\frac{1}{2}$	228656.84	
$2s\ 2p(^3P^o)5p$	$5p'\ ^4P$	$0\frac{1}{2}$		
		$1\frac{1}{2}$	228947.0	20.5
		$2\frac{1}{2}$	228967.49	
$2s\ 2p(^3P^o)5d$	$5d'\ ^4F^o$	$1\frac{1}{2}$	230419	14
		$2\frac{1}{2}$	230433	25
		$3\frac{1}{2}$	230458	28
		$4\frac{1}{2}$	230485.5	
$2s\ 2p(^3P^o)5d$	$5d'\ ^4D^o$	$0\frac{1}{2}$		
		$1\frac{1}{2}$	230755.1	7.5
		$2\frac{1}{2}$	230762.6	12.3
		$3\frac{1}{2}$	230774.9	
$2s\ 2p(^3P^o)5d$	$5d'\ ^4P^o$	$2\frac{1}{2}$	231052.9	—18.8
		$1\frac{1}{2}$	231071.7	—14.9
		$0\frac{1}{2}$	231086.6	
$2s\ 2p(^3P^o)5f$	$5f'\ ^2F$	$2\frac{1}{2}$	231209.25	7.95
		$3\frac{1}{2}$	231217.20	
$2s\ 2p(^3P^o)5f$	$5f'\ ^4F$	$1\frac{1}{2}$	231213.1	3.5
		$2\frac{1}{2}$	231216.62	8.51
		$3\frac{1}{2}$	231225.13	3.54
		$4\frac{1}{2}$	231228.67	
$2s\ 2p(^3P^o)5f$	$5f'\ ^4G$	$2\frac{1}{2}$	231437.7	13.6
		$3\frac{1}{2}$	231451.3	22.2
		$4\frac{1}{2}$	231473.5	28.8
		$5\frac{1}{2}$	231502.3	
$2s\ 2p(^3P^o)5f$	$5f'\ ^2G$	$3\frac{1}{2}$	231480.7	38.5
		$4\frac{1}{2}$	231519.2	

C II—Continued

Config.	Desig.	<i>J</i>	Level	Interval
$2s\ 2p(^3P^o)5f$	$5f'\ ^4D$	$3\frac{1}{2}$	231523.87	—4.52
		$2\frac{1}{2}$	231528.39	—22.8
		$1\frac{1}{2}$	231551.2	—16
		$0\frac{1}{2}$	231567	
$2s\ 2p(^3P^o)5f$	$5f'\ ^2D$	$2\frac{1}{2}$	231551.2	—19.2
		$1\frac{1}{2}$	231570.4	
$2s\ 2p(^3P^o)6s$	$6s'\ ^4P^o$	$0\frac{1}{2}$	233670.9	22.4
		$1\frac{1}{2}$	233693.3	47.4
		$2\frac{1}{2}$	233740.7	
$2s\ 2p(^3P^o)6p$	$6p'\ ^4D$	$0\frac{1}{2}$	234998	13
		$1\frac{1}{2}$	235011	20
		$2\frac{1}{2}$	235031	36
		$3\frac{1}{2}$	235066.8	
$2s\ 2p(^3P^o)6p$	$6p'\ ^4P$	$0\frac{1}{2}$		
		$1\frac{1}{2}$		
		$2\frac{1}{2}$	235454.2	
$2s\ 2p(^3P^o)6p$	$6d'\ ^4D^o$	$0\frac{1}{2}$		
		$1\frac{1}{2}$		
		$2\frac{1}{2}$		
		$3\frac{1}{2}$	236446	
$2s\ 2p(^3P^o)6d$	$6d'\ ^4P^o$	$0\frac{1}{2}$		
		$1\frac{1}{2}$		
		$2\frac{1}{2}$	236607	
$2s\ 2p(^3P^o)6f$	$6f'\ ^4F$	$1\frac{1}{2}$	236693	5
		$2\frac{1}{2}$	236698	9
		$3\frac{1}{2}$	236707	1
		$4\frac{1}{2}$	236708.1	
$2s\ 2p(^3P^o)6f$	$6f'\ ^2F$	$2\frac{1}{2}$	236693	10
		$3\frac{1}{2}$	236703	
$2s\ 2p(^3P^o)6f$	$6f'\ ^4G$	$2\frac{1}{2}$	236813	10
		$3\frac{1}{2}$	236823.3	19.9
		$4\frac{1}{2}$	236843.2	38.0
		$5\frac{1}{2}$	236881.2	
$2s\ 2p(^3P^o)6f$	$6f'\ ^2G$	$3\frac{1}{2}$	236856.6	33.1
		$4\frac{1}{2}$	236889.7	
$2s\ 2p(^3P^o)6f$	$6f'\ ^4D$	$0\frac{1}{2}$		
		$1\frac{1}{2}$		
		$2\frac{1}{2}$		
		$3\frac{1}{2}$	236877.8	
C III ($^3P_0^o$) ($^3P_1^o$) ($^3P_2^o$)	Limit		249031.7 249055.4 249111.8	

December 1969.

Atomic Energy Levels

C II Observed Terms

Config. $1s^2 +$	Observed Terms		
$2s\ 2p^2$	$\left\{ \begin{array}{lll} 2p^2\ ^2S & 2p^2\ ^4P & 2p^2\ ^2D \end{array} \right.$		
$2p^3$	$\left\{ \begin{array}{lll} 2p^3\ ^4S^\circ & 2p^3\ ^2P^\circ & 2p^3\ ^2D^\circ \end{array} \right.$		
	$ns\ (n \geq 3)$	$np\ (n \geq 2)$	$nd\ (n \geq 3)$
$2s^2\ (^1S)\ nl$	$3-7s\ ^2S$	$2-7p\ ^2P^\circ$	$3-6d\ ^2D$
$2s2p\ (^3P^\circ)\ nl'$	$\left\{ \begin{array}{l} 3-6s'\ ^4P^\circ \\ 3s'\ ^2P^\circ \end{array} \right.$	$\begin{array}{lll} 3-5p'\ ^4S & 3-6p'\ ^4P & 3-6p'\ ^4D \\ 3-5p'\ ^2P & 3-4p'\ ^2D & \end{array}$	$\begin{array}{lll} 3-6d'\ ^4P^\circ & 3-6d'\ ^4D^\circ & 3-5d'\ ^4F^\circ \\ 3, 4d'\ ^2P^\circ & 3, 4d'\ ^2D^\circ & 3, 4d'\ ^2F^\circ \end{array}$
	$nf\ (n \geq 4)$	$ng\ (n \geq 5)$	$nh\ (n \geq 6)$
$2s^2\ (^1S)\ nl$	$4-7f\ ^2F^\circ$	$5-8g\ ^2G$	$6, 7h\ ^2H^\circ$
$2s\ 2p\ (^3P^\circ)\ nl'$	$\left\{ \begin{array}{lll} 4-6f'\ ^4D & 4-6f'\ ^4F & 4-6f'\ ^4G \\ 4, 5f'\ ^2D & 4-6f'\ ^2F & 4-6f'\ ^2G \end{array} \right.$		

Multiplet Table

Part B

CARBON

C II ($Z=6$)

I P 24.383 eV Limit 196664.7 cm⁻¹ 508.480 Å

Anal A List A December 1969

REFERENCES

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 B G. Herzberg, Proc. Roy. Soc. [A] **248**, 309 to 332 (1958). W L 1334 Å to 1760 Å
 C B. Edlén, Nova Acta Reg. Soc. Sci. Uppsala [IV] **9**, No. 6, 74 to 84 (1934). I P, T, C L, G D, (I); W L 425 Å to 7236 Å

New Multiplet Numbers, not inserted between older ones, start with 52 and UV 16.

*Blend

*and § Blend C II and C III

*and §§ Blend C II and C I

C II

C 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						
2325.398	P		0.01	5.34	$1\frac{1}{2}-2\frac{1}{2}$	$2p \ ^2P^\circ-2p^2 \ ^4P$	577.086	P	(2)	0.01	21.49	$1\frac{1}{2}-0\frac{1}{2}$	$2p \ ^2P^\circ-5s \ ^2S$
2323.500	P		0.00	5.33	$0\frac{1}{2}-1\frac{1}{2}$	UV 0.01	576.875	P	(1)	0.00	21.49	$0\frac{1}{2}-0\frac{1}{2}$	UV 6.01
2326.930	P		0.01	5.33	$1\frac{1}{2}-1\frac{1}{2}$								
2324.689	P		0.00	5.33	$0\frac{1}{2}-0\frac{1}{2}$		560.4367	P	(4)	0.01	22.13	$1\frac{1}{2}-2\frac{1}{2}$	$2p \ ^2P^\circ-5d \ ^2D$
2328.122	P		0.01	5.33	$1\frac{1}{2}-0\frac{1}{2}$		560.2394	P	(2)	0.00	22.13	$0\frac{1}{2}-1\frac{1}{2}$	UV 6.02
							560.439	P		0.01	22.13	$1\frac{1}{2}-1\frac{1}{2}$	
Vac													
1335.7077‡	B	(300)	0.01	9.29	$1\frac{1}{2}-2\frac{1}{2}$	$2p \ ^2P^\circ-2p^2 \ ^2D$	551.874	P	(0)	0.01	22.47	$1\frac{1}{2}-0\frac{1}{2}$	$2p \ ^2P^\circ-6s \ ^2S$
1334.5323	B	(150)	0.00	9.29	$0\frac{1}{2}-1\frac{1}{2}$	UV 1	551.681	P		0.00	22.47	$0\frac{1}{2}-0\frac{1}{2}$	UV 6.03
1335.6625	B	(30)	0.01	9.29	$1\frac{1}{2}-1\frac{1}{2}$								
1037.0182	P	(150)	0.01	11.96	$1\frac{1}{2}-0\frac{1}{2}$	$2p \ ^2P^\circ-2p^2 \ ^2S$	549.5110	P	(5)	0.01	22.57	$1\frac{1}{2}-1\frac{1}{2}$	$2p \ ^2P^\circ-3p' \ ^2P$
1036.3367	P	(80)	0.00	11.96	$0\frac{1}{2}-0\frac{1}{2}$	UV 2	549.3785	P	(2)	0.00	22.57	$0\frac{1}{2}-0\frac{1}{2}$	UV 6.04
							549.5700	P	(1)	0.01	22.57	$1\frac{1}{2}-0\frac{1}{2}$	
							549.3195	P	(1)	0.00	22.57	$0\frac{1}{2}-1\frac{1}{2}$	
904.1416	P	(150)	0.01	13.72	$1\frac{1}{2}-1\frac{1}{2}$	$2p \ ^2P^\circ-2p^2 \ ^2P$							
903.9616	P	(60)	0.00	13.72	$0\frac{1}{2}-0\frac{1}{2}$	UV 3	543.443	P	(3d)	0.01	22.82	$1\frac{1}{2}-2\frac{1}{2}$	$2p \ ^2P^\circ-6d \ ^2D$
904.4801	P	(30)	0.01	13.72	$1\frac{1}{2}-0\frac{1}{2}$		543.258	P	(2d)	0.00	22.82	$0\frac{1}{2}-1\frac{1}{2}$	UV 6.05
903.6235	P	(30)	0.00	13.72	$0\frac{1}{2}-1\frac{1}{2}$		543.445	P		0.01	22.82	$1\frac{1}{2}-1\frac{1}{2}$	
858.5590	P	(20)	0.01	14.45	$1\frac{1}{2}-0\frac{1}{2}$	$2p \ ^2P^\circ-3s \ ^2S$	530.359	P	(4d)	0.01	23.38	$1\frac{1}{2}-2\frac{1}{2}$	$2p \ ^2P^\circ-3p' \ ^2D$
858.0918	P	(10)	0.00	14.45	$0\frac{1}{2}-0\frac{1}{2}$	UV 4	530.275	P	(3d)	0.00	23.38	$0\frac{1}{2}-1\frac{1}{2}$	UV 6.06
							530.454	P		0.01	23.38	$1\frac{1}{2}-1\frac{1}{2}$	
687.3453	P	(50)	0.01	18.05	$1\frac{1}{2}-2\frac{1}{2}$	$2p \ ^2P^\circ-3d \ ^2D$							
687.0526	P	(30)	0.00	18.05	$0\frac{1}{2}-1\frac{1}{2}$	UV 5	466.491	P	(2)	0.01	26.59	$1\frac{1}{2}-1\frac{1}{2}$	$2p \ ^2P^\circ-4p' \ ^2P$
687.3521	P	(6)	0.01	18.05	$1\frac{1}{2}-1\frac{1}{2}$		466.408	P	(1)	0.00	26.58	$0\frac{1}{2}-0\frac{1}{2}$	UV 6.07
							466.546	P	(0)	0.01	26.58	$1\frac{1}{2}-0\frac{1}{2}$	
636.2511	P	(2)	0.01	19.49	$1\frac{1}{2}-0\frac{1}{2}$	$2p \ ^2P^\circ-4s \ ^2S$	466.353	P	(0)	0.00	26.59	$0\frac{1}{2}-1\frac{1}{2}$	
635.9945	P	(1)	0.00	19.49	$0\frac{1}{2}-0\frac{1}{2}$	UV 5.01							
595.0219	P	(9)	0.01	20.84	$1\frac{1}{2}-2\frac{1}{2}$	$2p \ ^2P^\circ-4d \ ^2D$	461.12	C	(1d)	0.01	26.89	$1\frac{1}{2}-2\frac{1}{2}$	$2p \ ^2P^\circ-4p \ ^2D$
594.8000	P	(5)	0.00	20.84	$0\frac{1}{2}-1\frac{1}{2}$	UV 6							UV 6.08
595.0245	P	(1)	0.01	20.84	$1\frac{1}{2}-1\frac{1}{2}$								

Multiplet Table

C II — Continued

C 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						
438.896	P	(1d)	0.01	28.26	$1\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2P^\circ-5p'\ ^2P$	532.705	P	(3d)	5.34	28.61	$2\frac{1}{2}-3\frac{1}{2}$	$2p^2\ ^4P-5d'\ ^4D^\circ$
438.825	P		0.00	28.25	$0\frac{1}{2}-0\frac{1}{2}$	UV 6.09	532.659	P		5.33	28.61	$1\frac{1}{2}-2\frac{1}{2}$	UV 9.06
							532.618	P		5.33	28.61	$0\frac{1}{2}-1\frac{1}{2}$	
1010.371	P	(10+)	5.34	17.61	$2\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^4P-2p^3\ ^4S^\circ$	531.917	C	(1d)	5.34	28.65	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^4P-5d'\ ^4P^\circ$
1010.083	P	(10)	5.33	17.61	$1\frac{1}{2}-1\frac{1}{2}$	UV 7	531.784	P		5.33	28.65	$1\frac{1}{2}-1\frac{1}{2}$	UV 9.07
1009.858	P	(9)	5.33	17.61	$0\frac{1}{2}-1\frac{1}{2}$		531.679	P		5.33	28.65	$0\frac{1}{2}-0\frac{1}{2}$	
806.568	P	(7)*	5.34	20.71	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^4P-3s'\ ^4P^\circ$	531.864	P	(0d)	5.34	28.65	$2\frac{1}{2}-1\frac{1}{2}$	
806.676	P	(4)	5.33	20.70	$1\frac{1}{2}-1\frac{1}{2}$	UV 8	531.742	P		5.33	28.65	$1\frac{1}{2}-0\frac{1}{2}$	
806.686	P		5.33	20.70	$0\frac{1}{2}-0\frac{1}{2}$		531.837	P		5.33	28.65	$1\frac{1}{2}-2\frac{1}{2}$	
806.860	P	(6)	5.34	20.70	$2\frac{1}{2}-1\frac{1}{2}$		531.721	P		5.33	28.65	$0\frac{1}{2}-1\frac{1}{2}$	
806.830	P		5.33	20.70	$1\frac{1}{2}-0\frac{1}{2}$								
806.384	C	(5)	5.33	20.71	$1\frac{1}{2}-2\frac{1}{2}$		517.069	C	(1d)	5.34	29.31	$2\frac{1}{2}-3\frac{1}{2}$	$2p^2\ ^4P-6d'\ ^4D^\circ$
806.533	P	(7)*	5.33	20.70	$0\frac{1}{2}-1\frac{1}{2}$								UV 9.08
651.345	P	(8)	5.34	24.37	$2\frac{1}{2}-3\frac{1}{2}$	$2p^2\ ^4P-3d'\ ^4D^\circ$	516.652	C	(0d)	5.34	29.33	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^4P-6d'\ ^4P^\circ$
651.269	P	(7)*	5.33	24.37	$1\frac{1}{2}-2\frac{1}{2}$	UV 9							UV 9.09
651.211	P	(7-)*	5.33	24.37	$0\frac{1}{2}-1\frac{1}{2}$								
651.389	P		5.34	24.37	$2\frac{1}{2}-2\frac{1}{2}$		1760.3954	B	(6)	9.29	16.33	$2\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2D-3p\ ^2P^\circ$
651.304	P	(7)*	5.33	24.37	$1\frac{1}{2}-1\frac{1}{2}$		1760.8191	B	(3)	9.29	16.33	$1\frac{1}{2}-0\frac{1}{2}$	UV 10
651.234	P	(7-)*	5.33	24.37	$0\frac{1}{2}-0\frac{1}{2}$		1760.473	P	(1)	9.29	16.33	$1\frac{1}{2}-1\frac{1}{2}$	
651.424	P		5.34	24.37	$2\frac{1}{2}-1\frac{1}{2}$								
651.327	P		5.33	24.37	$1\frac{1}{2}-0\frac{1}{2}$		1323.9513	P	(9)	9.29	18.65	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^2D-2p^3\ ^2D^\circ$
641.888	P	(6+)	5.34	24.65	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^4P-3d'\ ^4P^\circ$	1323.9059	P	(6)	9.29	18.66	$1\frac{1}{2}-1\frac{1}{2}$	UV 11
641.684	P		5.33	24.66	$1\frac{1}{2}-1\frac{1}{2}$	UV 9.01	1323.8617	P	(1)	9.29	18.66	$2\frac{1}{2}-1\frac{1}{2}$	
641.537	P		5.33	24.66	$0\frac{1}{2}-0\frac{1}{2}$		1323.9955	P	(1)	9.29	18.65	$1\frac{1}{2}-2\frac{1}{2}$	
641.800	P	(6)*	5.34	24.66	$2\frac{1}{2}-1\frac{1}{2}$								
641.627	P	(6)*	5.33	24.66	$1\frac{1}{2}-0\frac{1}{2}$		1141.625	P	(3)	9.29	20.15	$2\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2D-4p\ ^2P^\circ$
641.771	P	(6)*	5.33	24.65	$1\frac{1}{2}-2\frac{1}{2}$		1141.744	P	(2)	9.29	20.15	$1\frac{1}{2}-0\frac{1}{2}$	UV 11.01
641.593	P	(6)*	5.33	24.66	$0\frac{1}{2}-1\frac{1}{2}$		1141.657	P		9.29	20.15	$1\frac{1}{2}-1\frac{1}{2}$	
600.353	P	(3)	5.34	25.99	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^4P-4s'\ ^4P^\circ$	1065.8913	P	(7)	9.29	20.92	$2\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2D-2p^3\ ^2P^\circ$
600.416	P		5.33	25.98	$1\frac{1}{2}-1\frac{1}{2}$	UV 9.02	1066.1332	P	(5)	9.29	20.92	$1\frac{1}{2}-0\frac{1}{2}$	UV 12
600.424	P		5.33	25.98	$0\frac{1}{2}-0\frac{1}{2}$		1065.9199	P	(1)	9.29	20.92	$1\frac{1}{2}-1\frac{1}{2}$	
600.518	P	(2)*	5.34	25.98	$2\frac{1}{2}-1\frac{1}{2}$		1063.284	P	(0d)	9.29	20.95	$2\frac{1}{2}-$	$2p^2\ ^2D-4f\ ^2F^\circ$
600.503	P		5.33	25.98	$1\frac{1}{2}-0\frac{1}{2}$		1063.313	P		9.29	20.95	$1\frac{1}{2}-2\frac{1}{2}$	UV 12.01
600.251	P	(1)	5.33	25.99	$1\frac{1}{2}-2\frac{1}{2}$								
600.337	P		5.33	25.98	$0\frac{1}{2}-1\frac{1}{2}$		996.367	P		9.29	21.73	$2\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2D-5p\ ^2P^\circ$
564.663	P	(5w)	5.34	27.29	$2\frac{1}{2}-3\frac{1}{2}$	$2p^2\ ^4P-4d'\ ^4D^\circ$	996.465	P		9.29	21.73	$1\frac{1}{2}-0\frac{1}{2}$	UV 12.02
564.608	P		5.33	27.29	$1\frac{1}{2}-2\frac{1}{2}$	UV 9.03							
564.565	P		5.33	27.29	$0\frac{1}{2}-1\frac{1}{2}$		972.163	P		9.29	22.04	$2\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2D-3s'\ ^2P^\circ$
564.698	P		5.34	27.29	$2\frac{1}{2}-2\frac{1}{2}$		972.366	P		9.29	22.04	$1\frac{1}{2}-0\frac{1}{2}$	UV 12.03
564.635	P		5.33	27.29	$1\frac{1}{2}-1\frac{1}{2}$								
564.582	P		5.33	27.29	$0\frac{1}{2}-0\frac{1}{2}$		961.300	P		9.29	22.19	$2\frac{1}{2}-$	$2p^2\ ^2D-5f\ ^2F^\circ$
562.562	P	(3+)	5.34	27.38	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^4P-4d'\ ^4P^\circ$	961.323	P		9.29	22.19	$1\frac{1}{2}-2\frac{1}{2}$	UV 12.04
562.408	P		5.33	27.38	$1\frac{1}{2}-1\frac{1}{2}$	UV 9.04	809.676	P	(4)	9.29	24.60	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^2D-3d'\ ^2D^\circ$
562.298	P		5.33	27.38	$0\frac{1}{2}-0\frac{1}{2}$		809.764	P	(3+)*	9.29	24.60	$1\frac{1}{2}-1\frac{1}{2}$	UV 12.05
562.497	P	(3)*	5.34	27.38	$2\frac{1}{2}-1\frac{1}{2}$		809.747	P		9.29	24.60	$2\frac{1}{2}-1\frac{1}{2}$	
562.367	P	(3)*	5.33	27.38	$1\frac{1}{2}-0\frac{1}{2}$		809.692	P		9.29	24.60	$1\frac{1}{2}-2\frac{1}{2}$	
562.473	P	(3)*	5.33	27.38	$1\frac{1}{2}-2\frac{1}{2}$								
562.338	P	(3)*	5.33	27.38	$0\frac{1}{2}-1\frac{1}{2}$		799.660	P	(5-)	9.29	24.79	$2\frac{1}{2}-3\frac{1}{2}$	$2p^2\ ^2D-3d'\ ^2F^\circ$
547.153	P	(0+)	5.34	28.00	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^4P-5s'\ ^4P^\circ$	799.944	P	(4)	9.29	24.79	$1\frac{1}{2}-2\frac{1}{2}$	UV 12.06
547.206	P		5.33	27.99	$1\frac{1}{2}-1\frac{1}{2}$	UV 9.05	799.928	P		9.29	24.79	$2\frac{1}{2}-2\frac{1}{2}$	
547.211	P		5.33	27.99	$0\frac{1}{2}-0\frac{1}{2}$		785.856	P		9.29	25.07	$2\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2D-3d'\ ^2P^\circ$
547.291	P	(0)	5.34	27.99	$2\frac{1}{2}-1\frac{1}{2}$		785.719	P		9.29	25.07	$1\frac{1}{2}-0\frac{1}{2}$	UV 12.07
547.277	P		5.33	27.99	$1\frac{1}{2}-0\frac{1}{2}$								
547.068	P		5.33	28.00	$1\frac{1}{2}-2\frac{1}{2}$								
547.140	P		5.33	27.99	$0\frac{1}{2}-1\frac{1}{2}$		686.415	P	(2d)*	9.29	27.35	$2\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^2D-4d'\ ^2D^\circ$
							686.488	P		9.29	27.35	$1\frac{1}{2}-1\frac{1}{2}$	UV 12.08

C II — Continued

I A	Ref	Int	E P		J	Multiplet No.
			Low	High		
Vac 682.253 682.462	P P		9.29 9.29	27.46 27.46	$2\frac{1}{2}-3\frac{1}{2}$ $1\frac{1}{2}-2\frac{1}{2}$	$2p^2\ ^2D-4d'\ ^2F^\circ$ UV 12.09
Air 2836.710 2837.603	A A	20 18	11.96 11.96	16.33 16.33	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$2p^2\ ^2S-3p\ ^2P^\circ$ UV 13
Vac 1514.444 1514.597	P P		11.96 11.96	20.15 20.15	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$2p^2\ ^2S-4p\ ^2P^\circ$ UV 13.01
1383.996 1384.355	P P		11.96 11.96	20.92 20.92	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$2p^2\ ^2S-2p^3\ ^2P^\circ$ UV 13.02
1230.015 1230.302	P P		11.96 11.96	22.04 22.04	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$2p^2\ ^2S-3s'\ ^2P^\circ$ UV 13.03
946.198 945.977	P P	(2) (1)	11.96 11.96	25.07 25.07	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$2p^2\ ^2S-3d'\ ^2P^\circ$ UV 13.04
795.134 794.664	C C	(1) (0)	11.96 11.96	27.56 27.56	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$2p^2\ ^2S-4d'\ ^2P^\circ$ UV 13.05
Air 4744.77 4737.97 4747.28 4735.46	A A A A	5 3 2 2	13.72 13.72 13.72 13.72	16.33 16.33 16.33 16.33	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2P-3p\ ^2P^\circ$ 1
2512.065 2509.121 2511.734	A A A	12 10 5	13.72 13.72 13.72	18.65 18.66 18.66	$1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2P-2p^3\ ^2D^\circ$ UV 14
Vac 1928.305 1927.015	P P		13.72 13.72	20.15 20.15	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$2p^2\ ^2P-4p\ ^2P^\circ$ UV 14.01
1721.682 1721.012 1722.238 1720.456	P P P P	(2) (1) (0) (0)	13.72 13.72 13.72 13.72	20.92 20.92 20.92 20.92	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2P-2p^3\ ^2P^\circ$ UV 14.02
1489.692 1489.194	P P		13.72 13.72	22.04 22.04	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$2p^2\ ^2P-3s'\ ^2P^\circ$ UV 14.03
1139.332 1138.936 1139.473	P C P	(3) (2) (0)	13.72 13.72 13.72	24.60 24.60 24.60	$1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2P-3d'\ ^2D^\circ$ UV 14.04
1092.726 1091.937 1092.431 1092.232	P P P P	(2) (1) (0) (0)	13.72 13.72 13.72 13.72	25.07 25.07 25.07 25.07	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$2p^2\ ^2P-3d'\ ^2P^\circ$ UV 14.05
Air 6578.05 6582.88	A A	18 15	14.45 14.45	16.33 16.33	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$3s\ ^2S-3p\ ^2P^\circ$ 2
2173.848 2174.168	A A	5 3	14.45 14.45	20.15 20.15	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$3s\ ^2S-4p\ ^2P^\circ$ UV 14.06

C II — Continued

I A	Ref	Int	E P		J	Multiplet No.
			Low	High		
Vac 1915.318 1916.007	P P		14.45 14.45	20.92 20.92	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$3s\ ^2S-2p^3\ ^2P^\circ$ UV 14.07
1632.496 1633.001	P P		14.45 14.45	22.04 22.04	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$3s\ ^2S-3s'\ ^2P^\circ$ UV 14.08
Air 7236.42 7231.32 7237.17	A A A	20 18 7	16.33 16.33 16.33	18.05 18.05 18.05	$1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$3p\ ^2P^\circ-3d\ ^2D$ 3
3920.693 3918.978	A A	18 15	16.33 16.33	19.49 19.49	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$3p\ ^2P^\circ-4s\ ^2S$ 4
2747.282 2746.488	A A	12/ 10	16.33 16.33	20.84 20.84	$1\frac{1}{2}-$ $0\frac{1}{2}-1\frac{1}{2}$	$3p\ ^2P^\circ-4d\ ^2D$ UV 15
2402.402 2401.761	A A	7/ 5/	16.33 16.33	21.49 21.49	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$3p\ ^2P^\circ-5s\ ^2S$ UV 16
2137.897 2137.417	A A	5h 3h	16.33 16.33	22.13 22.13	$1\frac{1}{2}-$ $0\frac{1}{2}-1\frac{1}{2}$	$3p\ ^2P^\circ-5d\ ^2D$ UV 17
2018.38 2017.94	A A	2/ 1/	16.33 16.33	22.47 22.47	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$3p\ ^2P^\circ-6s\ ^2S$ UV 18
Vac 1987.76 1988.09 1988.51 1987.33	A A A A	3 2 1 1	16.33 16.33 16.33 16.33	22.57 22.57 22.57 22.57	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$3p\ ^2P^\circ-3p'\ ^2P$ UV 19
1758.101 1758.802	P P		16.33 16.33	23.38 23.38	$1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$3p\ ^2P^\circ-3p'\ ^2D$ UV 20
Air 2343.184	P		17.61	22.90	$1\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^4S^\circ-3p'\ ^4S$ UV 21
2249.578 2250.713 2251.539	P P P		17.61 17.61 17.61	23.12 23.12 23.11	$1\frac{1}{2}-2\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$	$2p^3\ ^4S^\circ-3p'\ ^4P$ UV 22
5889.77 5891.59 5889.27	A A A	15 12 6	18.05 18.05 18.05	20.15 20.15 20.15	$2\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$3d\ ^2D-4p\ ^2P^\circ$ 5
4267.258 4267.003	A A	20 18	18.05 18.05	20.95 20.95	$2\frac{1}{2}-3\frac{1}{2}$ $1\frac{1}{2}-2\frac{1}{2}$	$3d\ ^2D-4f\ ^2F^\circ$ 6
3361.051 3361.721 3360.891	A A A	8 6 3	18.05 18.05 18.05	21.73 21.73 21.73	$2\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$3d\ ^2D-5p\ ^2P^\circ$ 7
3100.570 3102.250	A P	2	18.05 18.05	22.04 22.04	$2\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$	$3d\ ^2D-3s'\ ^2P^\circ$ 7.01
2992.618	A	18h	18.05	22.19		$3d\ ^2D-5f\ ^4F^\circ$

Multiplet Table

C II – Continued

C 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 2669.960	A	3l	18.05	22.69	$2\frac{1}{2}-1\frac{1}{2}$	$3d\ ^2D-6p\ ^2P^\circ$ UV 23	Air 5662.47 5648.07 5640.55	A A A	12 10 8	20.71 20.70 20.70	22.90 22.90 22.90	$2\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$3s'\ ^4P^\circ-3p'\ ^4S$ 15
2574.826	A	10hl	18.05	22.86		$3d\ ^2D-6f\ ^2F^\circ$ UV 24	5145.16 5139.17	A A	15 9	20.71 20.70	23.12 23.12	$2\frac{1}{2}-2\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$3s'\ ^4P^\circ-3p'\ ^4P$ 16
2426.70	A	2l	18.05	23.15		$3d\ ^2D-7p\ ^2P^\circ$ UV 25	5137.26 5151.09 5143.49	A A A	7 13 12	20.70 20.71 20.70	23.11 23.12 23.11	$0\frac{1}{2}-0\frac{1}{2}$ $2\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$	
2375.08	A	4hl	18.05	23.26		$3d\ ^2D-7f\ ^2F^\circ$ UV 26	5133.28 5132.94	A A	12 12	20.70 20.70	23.12 23.12	$1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	
3165.467 3167.931 3165.974	A A A	9 8 4	18.65 18.66 18.66	22.57 22.57 22.57	$2\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2D^\circ-3p'\ ^2P$ 9	2091.63 *2091.17 *2091.17 2093.13	A A A A	2 2 2 1	20.71 20.70 20.70 20.71	26.63 26.63 26.63 26.63	$2\frac{1}{2}-3\frac{1}{2}$ $1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$ $2\frac{1}{2}-2\frac{1}{2}$	$3s'\ ^4P^\circ-4p'\ ^4D$ UV 28
2620.20 2622.90	A A	3hl 2hl	18.65 18.66	23.38 23.38	$2\frac{1}{2}-2\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2D^\circ-3p'\ ^2D$ UV 27	13942.61 13955.55	P P		20.84 20.84	21.73 21.73	$2\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$	$4d\ ^2D-5p\ ^2P^\circ$ 16.01
8682.56 8696.71	A A	8 5	19.49 19.49	20.92 20.92	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$4s\ ^2S-2p^3\ ^2P^\circ$ 9.01	9229.81 9229.20	P P		20.84 20.84	22.19 22.19	$2\frac{1}{2}-$ $1\frac{1}{2}-2\frac{1}{2}$	$4d\ ^2D-5f\ ^2F^\circ$ 16.02
5535.35 5537.61	A A	5 3	19.49 19.49	21.73 21.73	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$4s\ ^2S-5p\ ^2P^\circ$ 10	6723.65	A	1h	20.84	22.69	$2\frac{1}{2}-1\frac{1}{2}$	$4d\ ^2D-6p\ ^2P^\circ$ 16.03
4862.57 4867.07	A A	4 2	19.49 19.49	22.04 22.04	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$4s\ ^2S-3s'\ ^2P^\circ$ 10.01	6151.43	A	4hl	20.84	22.86		$4d\ ^2D-6f\ ^2F^\circ$ 16.04
9236.818 9231.120	P P		20.15 20.15	21.49 21.49	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$4p\ ^2P^\circ-5s\ ^2S$ 10.02	5368.58	A	1uh	20.84	23.15		$4d\ ^2D-7p\ ^2P^\circ$ 16.05
6259.59 6257.18	A A	4h 2h	20.15 20.15	22.13 22.13	$1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$4p\ ^2P^\circ-5d\ ^2D$ 10.03	5122.15	A	2Hl	20.84	23.26		$4d\ ^2D-7f\ ^2F^\circ$ 16.06
5334.79 5332.89	A A	6l 4l	20.15 20.15	22.47 22.47	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$4p\ ^2P^\circ-6s\ ^2S$ 11	3137.92 3142.04	A A	1h 0h	20.84 20.84	24.79 24.79	$2\frac{1}{2}-3\frac{1}{2}$ $1\frac{1}{2}-2\frac{1}{2}$	$4d\ ^2D-3d'\ ^2F^\circ$ 16.07
5121.82 5125.20 5126.93 *5120.10	A A A A	5 4 2 3l	20.15 20.15 20.15 20.15	22.57 22.57 22.57 22.57	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$4p\ ^2P^\circ-3p'\ ^2P$ 12	7519.50 *7519.86 7530.60 7508.90	A A A A	7 4l 2 3	20.92 20.92 20.92 20.92	22.57 22.57 22.57 22.57	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2P^\circ-3p'\ ^2P$ 16.08
4638.91 4637.63	A A	2hl 1hl	20.15 20.15	22.82 22.82	$1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$4p\ ^2P^\circ-6d\ ^2D$ 12.01	5032.07 5035.91 5040.74	A A A	7hl 5hl 2hl	20.92 20.92 20.92	23.38 23.38 23.38	$1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2P^\circ-3p'\ ^2D$ 17
4307.59 4306.33	A A	2hl 1hl	20.15 20.15	23.03 23.03	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$4p\ ^2P^\circ-7s\ ^2S$ 12.02	2188.39 2188.72 2189.62 2187.48	A A A A	2 1 1 1	20.92 20.92 20.92 20.92	26.59 26.58 26.58 26.59	$1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2P^\circ-4p'\ ^2P$ UV 29
6783.90 6779.93 6780.61 6800.68 6791.47 6787.22 6812.29 6798.11	A A A A A A A A	10 8 5 7 7 6 3 3	20.71 20.70 20.70 20.71 20.70 20.70 20.71 20.70	22.54 22.53 22.53 22.53 22.53 22.53 22.53 22.53	$2\frac{1}{2}-3\frac{1}{2}$ $1\frac{1}{2}-2\frac{1}{2}$ $0\frac{1}{2}-1\frac{1}{2}$ $2\frac{1}{2}-2\frac{1}{2}$ $1\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$ $2\frac{1}{2}-1\frac{1}{2}$ $1\frac{1}{2}-0\frac{1}{2}$	$3s'\ ^4P^\circ-3p'\ ^4D$ 14	10504.23 10504.89 9903.46 6622.05	P P P A		20.95 20.95 20.95 20.95	22.13 22.13 22.20 22.82	$-3\frac{1}{2}$ $2\frac{1}{2}-1\frac{1}{2}$	$4f\ ^2F^\circ-5d\ ^2D$ 17.01 $4f\ ^2F^\circ-5g\ ^2G$ 17.02 $4f\ ^2F^\circ-6d\ ^2D$ 17.03

Multiplet Table

C II — Continued

C 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						
6461.95	A	5Hl	20.95	22.87		$4f\ ^2F^\circ - 6g\ ^2G$ 17.04	*7119.90	A	12	22.54	24.28	$3\frac{1}{2} - 4\frac{1}{2}$	$3p'\ ^4D - 3d'\ ^4F^\circ$ 20
6454.77	A	1Hs	20.95	22.87		$4f\ ^2F^\circ - 6h\ ^2H^\circ$ 17.05F	7115.63	A	10	22.53	24.27	$2\frac{1}{2} - 3\frac{1}{2}$	
							7113.04	A	7	22.53	24.27	$1\frac{1}{2} - 2\frac{1}{2}$	
5342.40	A	2Hl	20.95	23.27		$4f\ ^2F^\circ - 7g\ ^2G$ 17.06	7112.48	A	6	22.53	24.27	$0\frac{1}{2} - 1\frac{1}{2}$	
							7134.11	A	6	22.54	24.27	$3\frac{1}{2} - 3\frac{1}{2}$	
5339.85	A	1Hs	20.95	23.27		$4f\ ^2F^\circ - 7h\ ^2H^\circ$ 17.07F	7125.73	A	7	22.53	24.27	$2\frac{1}{2} - 2\frac{1}{2}$	
							*7119.90	A	12	22.53	24.27	$1\frac{1}{2} - 1\frac{1}{2}$	
4802.70	A	1H	20.95	23.53		$4f\ ^2F^\circ - 8g\ ^2G$ 17.08	7144.19	A	1	22.54	24.27	$3\frac{1}{2} - 2\frac{1}{2}$	
							7132.45	A	1	22.53	24.27	$2\frac{1}{2} - 1\frac{1}{2}$	
10364.81	P		21.49	22.69	$0\frac{1}{2} - 1\frac{1}{2}$	$5s\ ^2S - 6p\ ^2P^\circ$ 17.09	6750.55	A	8	22.54	24.37	$3\frac{1}{2} - 3\frac{1}{2}$	$3p'\ ^4D - 3d'\ ^4D^\circ$ 21
7461.75	P		21.49	23.15	$0\frac{1}{2} -$	$5s\ ^2S - 7p\ ^2P^\circ$ 17.10	6738.62	A	6	22.53	24.37	$2\frac{1}{2} - 2\frac{1}{2}$	
							6731.07	A	5	22.53	24.37	$1\frac{1}{2} - 1\frac{1}{2}$	
11385.59	P		21.73	22.82	$1\frac{1}{2} - 2\frac{1}{2}$	$5p\ ^2P^\circ - 6d\ ^2D$ 17.11	*6727.19	A	4	22.53	24.37	$0\frac{1}{2} - 0\frac{1}{2}$	
11377.07	P		21.73	22.82	$0\frac{1}{2} - 1\frac{1}{2}$		6755.16	A	3	22.54	24.37	$3\frac{1}{2} - 2\frac{1}{2}$	
9577.59	P		21.73	23.03	$1\frac{1}{2} - 0\frac{1}{2}$	$5p\ ^2P^\circ - 7s\ ^2S$ 17.12	6742.43	A	3	22.53	24.37	$2\frac{1}{2} - 1\frac{1}{2}$	
9570.84	P		21.73	23.03	$0\frac{1}{2} - 0\frac{1}{2}$		6733.58	A	2	22.53	24.37	$1\frac{1}{2} - 0\frac{1}{2}$	
7505.31	A	2hl	21.73	23.38	$1\frac{1}{2} - 2\frac{1}{2}$	$5p\ ^2P^\circ - 3p'\ ^2D$ 17.13	6734.00	A	2	22.53	24.37	$2\frac{1}{2} - 3\frac{1}{2}$	
*7519.86	A	4l	21.73	23.38	$0\frac{1}{2} - 1\frac{1}{2}$		*6727.19	A	4	22.53	24.37	$1\frac{1}{2} - 2\frac{1}{2}$	
2554.478	A	3	21.73	26.59	$1\frac{1}{2} - 1\frac{1}{2}$	$5p\ ^2P^\circ - 4p'\ ^2P$ UV 30	6724.56	A	2	22.53	24.37	$0\frac{1}{2} - 1\frac{1}{2}$	
2555.66	A	1	21.73	26.58	$0\frac{1}{2} - 0\frac{1}{2}$		5856.04	A	5	22.54	24.65	$3\frac{1}{2} - 2\frac{1}{2}$	$3p'\ ^4D - 3d'\ ^4P^\circ$ 22
2556.12	A	0	21.73	26.58	$1\frac{1}{2} - 0\frac{1}{2}$		5836.35	A	4	22.53	24.66	$2\frac{1}{2} - 1\frac{1}{2}$	
9238.30	P		22.04	23.38	$1\frac{1}{2} - 2\frac{1}{2}$	$3s'\ ^2P^\circ - 3p'\ ^2D$ 17.14	*5823.14	A	2	22.53	24.66	$1\frac{1}{2} - 0\frac{1}{2}$	
9251.01	P		22.04	23.38	$0\frac{1}{2} - 1\frac{1}{2}$		5843.61	A	2	22.53	24.65	$2\frac{1}{2} - 2\frac{1}{2}$	
2728.707	A	4	22.04	26.59	$1\frac{1}{2} - 1\frac{1}{2}$	$3s'\ ^2P^\circ - 4p'\ ^2P$ UV 31	5827.85	A	2	22.53	24.66	$1\frac{1}{2} - 1\frac{1}{2}$	
2729.213	A	2	22.04	26.58	$0\frac{1}{2} - 0\frac{1}{2}$		5818.30	A	2	22.53	24.66	$0\frac{1}{2} - 0\frac{1}{2}$	
2730.61	A	1	22.04	26.58	$1\frac{1}{2} - 0\frac{1}{2}$		5835.08	P		22.53	24.65	$1\frac{1}{2} - 2\frac{1}{2}$	
2727.36	A	2w	22.04	26.59	$0\frac{1}{2} - 1\frac{1}{2}$		*5823.14	A	2	22.53	24.66	$0\frac{1}{2} - 1\frac{1}{2}$	
10930.87	P		22.13	23.26	$2\frac{1}{2} -$	$5d\ ^2D - 7f\ ^2F^\circ$ 17.15	3589.657	A	9	22.54	25.99	$3\frac{1}{2} - 2\frac{1}{2}$	$3p'\ ^4D - 4s'\ ^4P^\circ$ 23
10930.15	P		22.13	23.26	$1\frac{1}{2} - 2\frac{1}{2}$		*3590.862	A	8w	22.53	25.98	$2\frac{1}{2} - 1\frac{1}{2}$	
11444.54	P		22.19	23.27		$5f\ ^2F^\circ - 7g\ ^2G$ 17.16	*3590.862	A	8w	22.53	25.98	$1\frac{1}{2} - 0\frac{1}{2}$	
11587.00	P		22.20	23.27		$5g\ ^2G - 7h\ ^2H^\circ$ 17.17	3584.977	A	7	22.53	25.99	$2\frac{1}{2} - 2\frac{1}{2}$	
							3587.657	A	6	22.53	25.98	$1\frac{1}{2} - 1\frac{1}{2}$	
							3588.915	A	5	22.53	25.98	$0\frac{1}{2} - 0\frac{1}{2}$	
							3581.763	A	3	22.53	25.99	$1\frac{1}{2} - 2\frac{1}{2}$	
							3585.809	A	3	22.53	25.98	$0\frac{1}{2} - 1\frac{1}{2}$	
							*2641.425	A	8w	22.54	27.23	$3\frac{1}{2} - 4\frac{1}{2}$	$3p'\ ^4D - 4d'\ ^4F^\circ$ UV 32
							2640.894	A	5	22.53	27.23	$2\frac{1}{2} - 3\frac{1}{2}$	
							*2640.560	A	6	22.53	27.22	$1\frac{1}{2} - 2\frac{1}{2}$	
							*2640.560	A	6	22.53	27.22	$0\frac{1}{2} - 1\frac{1}{2}$	
							2643.427	A	3	22.54	27.23	$3\frac{1}{2} - 3\frac{1}{2}$	
							2642.331	A	3	22.53	27.22	$2\frac{1}{2} - 2\frac{1}{2}$	
							*2641.425	A	8w	22.53	27.22	$1\frac{1}{2} - 1\frac{1}{2}$	
							2644.873	P		22.54	27.22	$3\frac{1}{2} - 2\frac{1}{2}$	
							2643.282	P		22.53	27.22	$2\frac{1}{2} - 1\frac{1}{2}$	
							2604.863	A	4	22.54	27.29	$3\frac{1}{2} - 3\frac{1}{2}$	$3p'\ ^4D - 4d'\ ^4D^\circ$ UV 33
							2603.161	A	3	22.53	27.29	$2\frac{1}{2} - 2\frac{1}{2}$	
							2602.02	A	2	22.53	27.29	$1\frac{1}{2} - 1\frac{1}{2}$	
							*2601.42	A	2	22.53	27.29	$0\frac{1}{2} - 0\frac{1}{2}$	
							2605.62	A	1	22.54	27.29	$3\frac{1}{2} - 2\frac{1}{2}$	
							2603.72	A	1	22.53	27.29	$2\frac{1}{2} - 1\frac{1}{2}$	
							*2602.39	A	2	22.53	27.29	$1\frac{1}{2} - 0\frac{1}{2}$	
							*2602.39	A	2	22.53	27.29	$2\frac{1}{2} - 3\frac{1}{2}$	
							*2601.42	A	2	22.53	27.29	$1\frac{1}{2} - 2\frac{1}{2}$	
							2601.05	A	1	22.53	27.29	$0\frac{1}{2} - 1\frac{1}{2}$	

Multiplet Table

C II — Continued

C 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						
2269.70	A	2	22.54	28.00	$3\frac{1}{2}-2\frac{1}{2}$	$3p' ^4D - 5s' ^4P^\circ$							
*2270.20	A	2	22.53	27.99	$2\frac{1}{2}-1\frac{1}{2}$	UV 34	4317.260	A	8	23.12	25.99	$2\frac{1}{2}-2\frac{1}{2}$	$3p' ^4P - 4s' ^4P^\circ$
*2270.20	A	2	22.53	27.99	$1\frac{1}{2}-0\frac{1}{2}$		4321.647	A	3	23.12	25.98	$1\frac{1}{2}-1\frac{1}{2}$	28
2267.77	A	0	22.53	28.00	$2\frac{1}{2}-2\frac{1}{2}$		4323.102	A	3	22.11	25.98	$0\frac{1}{2}-0\frac{1}{2}$	
2268.91	A	1	22.53	27.99	$1\frac{1}{2}-1\frac{1}{2}$		4325.827	A	4	23.12	25.98	$2\frac{1}{2}-1\frac{1}{2}$	
2269.36	A	0	22.53	27.99	$0\frac{1}{2}-0\frac{1}{2}$		4326.156	A	5	23.12	25.98	$1\frac{1}{2}-0\frac{1}{2}$	
2266.53	P		22.53	28.00	$1\frac{1}{2}-2\frac{1}{2}$		4313.100	A	6	23.12	25.99	$1\frac{1}{2}-2\frac{1}{2}$	
2268.15	P		22.53	27.99	$0\frac{1}{2}-1\frac{1}{2}$		4318.600	A	5	23.11	25.98	$0\frac{1}{2}-1\frac{1}{2}$	
2052.16	A	2h	22.54	28.58	$3\frac{1}{2}-4\frac{1}{2}$	$3p' ^4D - 5d' ^4F^\circ$	2967.868	A	7	23.12	27.29	$2\frac{1}{2}-3\frac{1}{2}$	$3p' ^4P - 4d' ^4D^\circ$
*2051.79	A	2h	22.53	28.57	$2\frac{1}{2}-3\frac{1}{2}$	UV 35	2966.871	A	5	23.12	27.29	$1\frac{1}{2}-2\frac{1}{2}$	UV 40
*2051.79	A	2h	22.53	28.57	$1\frac{1}{2}-2\frac{1}{2}$		2966.187	A	3	23.11	27.29	$0\frac{1}{2}-1\frac{1}{2}$	
*2051.79	A	2h	22.53	28.27	$0\frac{1}{2}-1\frac{1}{2}$		2968.836	A	2	23.12	27.29	$2\frac{1}{2}-2\frac{1}{2}$	
							2967.629	A	3	23.12	27.29	$1\frac{1}{2}-1\frac{1}{2}$	
							2966.655	A	3	23.11	27.29	$0\frac{1}{2}-0\frac{1}{2}$	
6098.51	A	9	22.57	24.60	$1\frac{1}{2}-2\frac{1}{2}$	$3p' ^2P - 3d' ^2D^\circ$	2969.59	A	0	23.12	27.29	$2\frac{1}{2}-1\frac{1}{2}$	
6095.29	A	7	22.57	24.60	$0\frac{1}{2}-1\frac{1}{2}$	24	2968.094	P		23.12	27.29	$1\frac{1}{2}-0\frac{1}{2}$	
6102.56	A	4	22.57	24.60	$1\frac{1}{2}-1\frac{1}{2}$								
4964.73	A	4	22.57	25.07	$1\frac{1}{2}-1\frac{1}{2}$	$3p' ^2P - 3d' ^2P^\circ$	2910.729	A	3	23.12	27.38	$2\frac{1}{2}-2\frac{1}{2}$	$3p' ^4P - 4d' ^4P^\circ$
4953.85	A	3	22.57	25.07	$0\frac{1}{2}-0\frac{1}{2}$	25	2907.09	A	1	23.12	27.38	$1\frac{1}{2}-1\frac{1}{2}$	UV 41
4958.67	A	1	22.57	25.07	$1\frac{1}{2}-0\frac{1}{2}$		2904.629	P		23.11	27.38	$0\frac{1}{2}-0\frac{1}{2}$	
4959.92	A	1	22.57	25.07	$0\frac{1}{2}-1\frac{1}{2}$		*2908.957	A	2w	23.12	27.38	$2\frac{1}{2}-1\frac{1}{2}$	
							2906.011	A	2	23.12	27.38	$1\frac{1}{2}-0\frac{1}{2}$	
							*2908.957	A	2w	23.12	27.38	$1\frac{1}{2}-2\frac{1}{2}$	
2591.845	A	4	22.57	27.35	$1\frac{1}{2}-2\frac{1}{2}$	$3p' ^2P - 4d' ^2D^\circ$	2905.715	A	2	23.11	27.38	$0\frac{1}{2}-1\frac{1}{2}$	
2591.410	A	2	22.57	27.35	$0\frac{1}{2}-1\frac{1}{2}$	UV 36							
2592.71	A	1	22.57	27.35	$1\frac{1}{2}-1\frac{1}{2}$								
							2540.39	A	3	23.12	28.00	$2\frac{1}{2}-2\frac{1}{2}$	$3p' ^4P - 5s' ^4P^\circ$
							2541.95	P		23.12	27.99	$1\frac{1}{2}-1\frac{1}{2}$	UV 42
							2542.43	P		23.11	27.99	$0\frac{1}{2}-0\frac{1}{2}$	
7063.70	A	8	22.90	24.65	$1\frac{1}{2}-2\frac{1}{2}$	$3p' ^4S - 3d' ^4P^\circ$	*2543.45	A	2	23.12	27.99	$2\frac{1}{2}-1\frac{1}{2}$	
7053.09	A	6	22.90	24.66	$1\frac{1}{2}-1\frac{1}{2}$	26	*2543.45	A	2	23.12	27.99	$1\frac{1}{2}-0\frac{1}{2}$	
7046.26	A	4	22.90	24.66	$1\frac{1}{2}-0\frac{1}{2}$		2538.98	A	2	23.12	28.00	$1\frac{1}{2}-2\frac{1}{2}$	
							2540.88	A	1	23.11	27.99	$0\frac{1}{2}-1\frac{1}{2}$	
4009.884	A	7	22.90	25.99	$1\frac{1}{2}-2\frac{1}{2}$	$3p' ^4S - 4s' ^4P^\circ$							
4017.278	A	5	22.90	25.98	$1\frac{1}{2}-1\frac{1}{2}$	27							
4021.167	A	3	22.90	25.98	$1\frac{1}{2}-0\frac{1}{2}$		*2256.19	A	2h	23.12	28.61	$2\frac{1}{2}-3\frac{1}{2}$	$3p' ^4P - 5d' ^4D^\circ$
							2255.68	A	1h	23.12	28.61	$1\frac{1}{2}-2\frac{1}{2}$	UV 43
							2255.23	A	0h	23.11	28.61	$0\frac{1}{2}-1\frac{1}{2}$	
2767.673	A	3	22.90	27.38	$1\frac{1}{2}-2\frac{1}{2}$	$3p' ^4S - 4d' ^4P^\circ$	2256.79	A	0h	23.12	28.61	$2\frac{1}{2}-2\frac{1}{2}$	
2766.118	A	2	22.90	27.38	$1\frac{1}{2}-1\frac{1}{2}$	UV 37	*2256.19	A	2h	23.12	28.61	$1\frac{1}{2}-1\frac{1}{2}$	
2765.120	A	1	22.90	27.38	$1\frac{1}{2}-0\frac{1}{2}$								
2430.78	A	1	22.90	28.00	$1\frac{1}{2}-2\frac{1}{2}$	$3p' ^4S - 5s' ^4P^\circ$							
2433.49	A	0	22.90	27.99	$1\frac{1}{2}-1\frac{1}{2}$	UV 38	2242.10	A	1h	23.12	28.65	$2\frac{1}{2}-2\frac{1}{2}$	$3p' ^4P - 5d' ^4P^\circ$
2434.90	P		22.90	27.99	$1\frac{1}{2}-0\frac{1}{2}$		*2241.05	A	1h	23.12	28.65	$2\frac{1}{2}-1\frac{1}{2}$	UV 44
							*2241.05	A	1h	23.12	28.65	$1\frac{1}{2}-2\frac{1}{2}$	
2156.28	A	1h	22.90	28.65	$1\frac{1}{2}-2\frac{1}{2}$	$3p' ^4S - 5d' ^4P^\circ$							
2155.39	A	0h	22.90	28.65	$1\frac{1}{2}-1\frac{1}{2}$	UV 39							
2154.70	A	0h	22.90	28.65	$1\frac{1}{2}-0\frac{1}{2}$		2114.72	A	0h	23.12	28.98	$2\frac{1}{2}-2\frac{1}{2}$	$3p' ^4P - 6s' ^4P^\circ$
													UV 45
9882.68	P		23.12	24.37	$2\frac{1}{2}-3\frac{1}{2}$	$3p' ^4P - 3d' ^4D^\circ$							
9870.78	P		23.12	24.37	$1\frac{1}{2}-2\frac{1}{2}$	27.01							
9863.06	P		23.11	24.37	$0\frac{1}{2}-1\frac{1}{2}$		8793.8	A	1H	23.38	24.79	$2\frac{1}{2}-3\frac{1}{2}$	$3p' ^2D - 3d' ^2F^\circ$
							8799.9	A	0H	23.38	24.79	$1\frac{1}{2}-2\frac{1}{2}$	28.01
8076.64	A	8	23.12	24.65	$2\frac{1}{2}-2\frac{1}{2}$	$3p' ^4P - 3d' ^4P^\circ$							
8048.32	A	3	23.12	24.66	$1\frac{1}{2}-1\frac{1}{2}$	27.02							
8028.86	A	2	23.11	24.66	$0\frac{1}{2}-0\frac{1}{2}$		3124.133	A	2hs	23.38	27.35	$2\frac{1}{2}-2\frac{1}{2}$	$3p' ^2D - 4d' ^2D^\circ$
8062.78	A	6	23.12	24.66	$2\frac{1}{2}-1\frac{1}{2}$		3122.086	A	1hs	23.38	27.35	$1\frac{1}{2}-1\frac{1}{2}$	28.02
8039.39	A	6	23.12	24.66	$1\frac{1}{2}-0\frac{1}{2}$								
8062.12	A	5	23.12	24.65	$1\frac{1}{2}-2\frac{1}{2}$		3039.714	A	3h	23.38	27.46	$2\frac{1}{2}-3\frac{1}{2}$	$3p' ^2D - 4d' ^2F^\circ$
8037.76	A	5	23.11	24.66	$0\frac{1}{2}-1\frac{1}{2}$		3040.512	A	2h	23.38	27.46	$1\frac{1}{2}-2\frac{1}{2}$	29

Multiplet Table

C II — Continued

C 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						
5257.24	A	7	24.28	26.63	$4\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4F^\circ - 4p' \ ^4D$	2822.812	A	2	24.28	28.67	$4\frac{1}{2}-4\frac{1}{2}$	$3d' \ ^4F^\circ - 5f' \ ^4F$
5259.06	A	5	24.27	26.63	$3\frac{1}{2}-2\frac{1}{2}$	30	*2820.70	A	1w	24.27	28.67	$3\frac{1}{2}-3\frac{1}{2}$	UV 47
*5259.71	A	5	24.27	26.63	$2\frac{1}{2}-1\frac{1}{2}$		2820.00	A	1	24.27	28.67	$2\frac{1}{2}-2\frac{1}{2}$	
*5259.71	A	5	24.27	26.63	$1\frac{1}{2}-0\frac{1}{2}$		*2819.13	A	1w	24.27	28.67	$1\frac{1}{2}-1\frac{1}{2}$	
5249.51	A	2	24.27	26.63	$3\frac{1}{2}-3\frac{1}{2}$		2823.11	P		24.28	28.67	$4\frac{1}{2}-3\frac{1}{2}$	
*5253.57§	A	4	24.27	26.63	$2\frac{1}{2}-2\frac{1}{2}$		*2821.54	A	1w	24.27	28.67	$3\frac{1}{2}-2\frac{1}{2}$	
5256.09	A	2	24.27	26.63	$1\frac{1}{2}-1\frac{1}{2}$		2820.27	P		24.27	28.67	$2\frac{1}{2}-1\frac{1}{2}$	
5244.05	P		24.27	26.63	$2\frac{1}{2}-3\frac{1}{2}$		2820.60	P		24.27	28.67	$3\frac{1}{2}-4\frac{1}{2}$	
5249.90	P		24.27	26.63	$1\frac{1}{2}-2\frac{1}{2}$		*2819.13	A	1w	24.27	28.67	$2\frac{1}{2}-3\frac{1}{2}$	
							*2819.13	A	1w	25.27	28.67	$1\frac{1}{2}-2\frac{1}{2}$	
3953.95	A	0	24.28	27.41	$4\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4F^\circ - 4f' \ ^2F$							
3949.530	A	4	24.27	27.41	$3\frac{1}{2}-3\frac{1}{2}$	31	*2801.21	A	5w	24.28	28.70	$4\frac{1}{2}-5\frac{1}{2}$	$3d' \ ^4F^\circ - 5f' \ ^4G$
*3947.715	A	6l	24.27	27.41	$2\frac{1}{2}-2\frac{1}{2}$		*2801.21	A	5w	24.27	28.70	$3\frac{1}{2}-4\frac{1}{2}$	UV 48
3946.429	A	1	24.27	27.41	$2\frac{1}{2}-3\frac{1}{2}$		*2801.43	A	3w	24.27	28.70	$2\frac{1}{2}-3\frac{1}{2}$	
							*2801.43	A	3w	24.27	28.69	$1\frac{1}{2}-2\frac{1}{2}$	
3952.058	A	9	24.28	27.41	$4\frac{1}{2}-4\frac{1}{2}$	$3d' \ ^4F^\circ - 4f' \ ^4F$	2803.45	A	0h	24.28	28.70	$4\frac{1}{2}-4\frac{1}{2}$	
3948.333	A	6	24.27	27.41	$3\frac{1}{2}-3\frac{1}{2}$	32	2802.95	A	0h	24.27	28.70	$3\frac{1}{2}-3\frac{1}{2}$	
3946.278	A	5	24.27	27.41	$2\frac{1}{2}-2\frac{1}{2}$		2802.39	A	0h	24.27	28.69	$2\frac{1}{2}-2\frac{1}{2}$	
3945.003	A	5	24.27	27.41	$1\frac{1}{2}-1\frac{1}{2}$		2805.20	P		24.28	28.70	$4\frac{1}{2}-3\frac{1}{2}$	
3952.679	A	1	24.28	27.41	$4\frac{1}{2}-3\frac{1}{2}$		2804.07	P		24.27	28.69	$3\frac{1}{2}-2\frac{1}{2}$	
3949.373	A	1	24.27	27.41	$3\frac{1}{2}-2\frac{1}{2}$								
3947.079	A	2	24.27	27.41	$2\frac{1}{2}-1\frac{1}{2}$		2797.70	A	1h	24.27	28.70	$3\frac{1}{2}-4\frac{1}{2}$	$3d' \ ^4F^\circ - 5f' \ ^2G$
*3947.715	A	6l	24.27	27.41	$3\frac{1}{2}-4\frac{1}{2}$		2799.15	A	1h	24.27	28.70	$2\frac{1}{2}-3\frac{1}{2}$	UV 49
3945.197	A	4	24.27	27.41	$2\frac{1}{2}-3\frac{1}{2}$								
3944.193	A	3	24.27	27.41	$1\frac{1}{2}-2\frac{1}{2}$		2546.81	A	2h	24.28	29.14	$4\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4F^\circ - 6p' \ ^4D$
							*2547.35	A	1h	24.27	29.14	$3\frac{1}{2}-2\frac{1}{2}$	UV 50
3876.187	A	12	24.28	27.47	$4\frac{1}{2}-5\frac{1}{2}$	$3d' \ ^4F^\circ - 4f' \ ^4G$	*2547.35	A	1h	24.27	29.14	$2\frac{1}{2}-1\frac{1}{2}$	
3876.408	A	12	24.27	27.47	$3\frac{1}{2}-4\frac{1}{2}$	33	*2547.35	A	1h	24.27	29.14	$1\frac{1}{2}-0\frac{1}{2}$	
3876.664	A	12	24.27	27.47	$2\frac{1}{2}-3\frac{1}{2}$								
3876.055	A	9	24.27	27.47	$1\frac{1}{2}-2\frac{1}{2}$		2434.24	A	2wh	24.28	29.37	$4\frac{1}{2}-5\frac{1}{2}$	$3d' \ ^4F^\circ - 6f' \ ^4G$
3880.588	A	7	24.28	27.47	$4\frac{1}{2}-4\frac{1}{2}$		*2434.81	A	1wh	24.27	29.36	$3\frac{1}{2}-4\frac{1}{2}$	UV 51
3879.640	A	7	24.27	27.47	$3\frac{1}{2}-3\frac{1}{2}$		*2434.81	A	1wh	24.27	29.36	$2\frac{1}{2}-3\frac{1}{2}$	
3878.028	A	7	24.27	27.47	$2\frac{1}{2}-2\frac{1}{2}$		*2434.81	A	1wh	24.27	29.36	$1\frac{1}{2}-2\frac{1}{2}$	
3883.824	A	1	24.28	27.47	$4\frac{1}{2}-3\frac{1}{2}$								
3881.028	P		24.27	27.47	$3\frac{1}{2}-2\frac{1}{2}$		2434.12	A	0wh	24.27	29.37	$3\frac{1}{2}-4\frac{1}{2}$	$3d' \ ^4F^\circ - 6f' \ ^2G$
							2432.90	A	0wh	24.27	29.37	$2\frac{1}{2}-3\frac{1}{2}$	UV 52
3873.067	A	0h	24.28	27.48	$4\frac{1}{2}-4\frac{1}{2}$	$3d' \ ^4F^\circ - 4f' \ ^2G$							
3874.666	A	2h	24.27	27.47	$3\frac{1}{2}-3\frac{1}{2}$	33.01							
3878.861	P		24.28	27.47	$4\frac{1}{2}-3\frac{1}{2}$		5478.59	A	4	24.37	26.63	$3\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4D^\circ - 4p' \ ^4D$
3868.874	A	6h	24.27	27.48	$3\frac{1}{2}-4\frac{1}{2}$		5485.90	A	2	24.37	26.63	$2\frac{1}{2}-2\frac{1}{2}$	34
3871.669	A	7h	24.27	27.47	$2\frac{1}{2}-3\frac{1}{2}$		5490.16	A	1	24.37	26.63	$1\frac{1}{2}-1\frac{1}{2}$	
							5492.36	P		24.37	26.63	$0\frac{1}{2}-0\frac{1}{2}$	
3862.181	A	2	24.28	27.49	$4\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4F^\circ - 4f' \ ^4D$	5488.95	A	1	24.37	26.63	$3\frac{1}{2}-2\frac{1}{2}$	
3856.62	A	0h	24.27	27.49	$3\frac{1}{2}-2\frac{1}{2}$	33.02	5492.67	P		24.37	26.63	$2\frac{1}{2}-1\frac{1}{2}$	
3850.419	P		24.27	27.49	$2\frac{1}{2}-1\frac{1}{2}$		5494.04	P		24.37	26.63	$1\frac{1}{2}-0\frac{1}{2}$	
3846.512	P		24.27	27.49	$1\frac{1}{2}-0\frac{1}{2}$		5475.54	P		24.37	26.63	$2\frac{1}{2}-3\frac{1}{2}$	
							5483.35	A	1	24.37	26.63	$1\frac{1}{2}-2\frac{1}{2}$	
3853.34	P		24.27	27.49	$3\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^4F^\circ - 4f' \ ^2D$	5488.47	P		24.37	26.63	$0\frac{1}{2}-1\frac{1}{2}$	
3847.07	P		24.27	27.49	$2\frac{1}{2}-1\frac{1}{2}$	33.03							
3082.381	A	2h	24.28	28.30	$4\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4P^\circ - 5p' \ ^4D$	5044.35	A	5	24.37	26.83	$3\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^4D^\circ - 4p' \ ^4P$
*3083.052	A	2wh	24.27	28.29	$3\frac{1}{2}-2\frac{1}{2}$	33.04	5047.11	A	3	24.37	26.83	$2\frac{1}{2}-1\frac{1}{2}$	35
*3083.052	A	2wh	24.27	28.29	$2\frac{1}{2}-1\frac{1}{2}$		5049.24	A	2	24.37	26.82	$1\frac{1}{2}-0\frac{1}{2}$	
*3083.052	A	2wh	24.27	28.29	$1\frac{1}{2}-0\frac{1}{2}$		*5041.76§§	A	2	24.37	26.83	$2\frac{1}{2}-2\frac{1}{2}$	
							5044.98	A	1	24.37	26.83	$1\frac{1}{2}-1\frac{1}{2}$	
*2821.54	A	1w	24.27	28.67	$3\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4F^\circ - 5f' \ ^2F$	4077.778	A	4	24.37	27.41	$3\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4D^\circ - 4f' \ ^2F$
*2820.70	A	1w	24.27	28.67	$2\frac{1}{2}-2\frac{1}{2}$	UV 46	*4077.625	A	2	24.37	27.41	$2\frac{1}{2}-2\frac{1}{2}$	35.01
							4076.142	A	5	24.37	27.41	$2\frac{1}{2}-3\frac{1}{2}$	
							4076.251	A	3	24.37	27.41	$1\frac{1}{2}-2\frac{1}{2}$	

Multiplet Table

C II — Continued

C 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						
*4075.851	A	12l	24.37	27.41	$3\frac{1}{2}-4\frac{1}{2}$	$3d' \ ^4D^\circ-4f' \ ^4F$	4411.506	A	7	24.60	27.41	$2\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^2D^\circ-4f' \ ^2F$
4074.845	A	8	24.37	27.41	$2\frac{1}{2}-3\frac{1}{2}$	36	4411.163	A	6	24.60	27.41	$1\frac{1}{2}-2\frac{1}{2}$	39
*4074.518	A	10	24.37	27.41	$1\frac{1}{2}-2\frac{1}{2}$		4413.255	A	1	24.60	27.41	$2\frac{1}{2}-2\frac{1}{2}$	
*4074.518	A	10	24.37	27.41	$0\frac{1}{2}-1\frac{1}{2}$								
4076.526	A	4	24.37	27.41	$3\frac{1}{2}-3\frac{1}{2}$		4409.979	A	5	24.60	27.41	$2\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^2D^\circ-4f' \ ^4F$
*4075.851	A	12l	24.37	27.41	$2\frac{1}{2}-2\frac{1}{2}$		4409.161	A	2	24.60	27.41	$1\frac{1}{2}-2\frac{1}{2}$	40
4075.395	A	4	24.37	27.41	$1\frac{1}{2}-1\frac{1}{2}$								
*4077.625	A	2	24.37	27.41	$3\frac{1}{2}-2\frac{1}{2}$		4297.616	P		24.60	27.49	$2\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^2D^\circ-4f' \ ^4D$
4076.83	A	0	24.37	27.41	$2\frac{1}{2}-1\frac{1}{2}$		4293.904	P		24.60	27.49	$1\frac{1}{2}-2\frac{1}{2}$	41
							4295.920	A	4h	24.60	27.49	$2\frac{1}{2}-2\frac{1}{2}$	
3980.323	A	8	24.37	27.49	$3\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4D^\circ-4f' \ ^4D$	*4289.876	A	2h	24.60	27.49	$1\frac{1}{2}-1\frac{1}{2}$	
3977.269	A	5h	24.37	27.49	$2\frac{1}{2}-2\frac{1}{2}$	37	*4291.819	A	3h	24.60	27.49	$2\frac{1}{2}-1\frac{1}{2}$	
*3972.439	A	6h	24.37	27.49	$1\frac{1}{2}-1\frac{1}{2}$								
3969.520	A	3	24.37	27.49	$0\frac{1}{2}-0\frac{1}{2}$		*4291.819	A	3h	24.60	27.49	$2\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^2D^\circ-4f' \ ^2D$
*3978.759	A	4h	24.37	27.49	$3\frac{1}{2}-2\frac{1}{2}$		4285.704	A	3h	24.60	27.49	$1\frac{1}{2}-1\frac{1}{2}$	42
*3973.760	A	7h	24.37	27.49	$2\frac{1}{2}-1\frac{1}{2}$		*4289.876	A	2h	24.60	27.49	$1\frac{1}{2}-2\frac{1}{2}$	
*3970.386	A	4s	24.37	27.49	$1\frac{1}{2}-0\frac{1}{2}$								
*3978.759	A	4h	24.37	27.49	$2\frac{1}{2}-3\frac{1}{2}$		3392.146	A	2h	24.60	28.26	$2\frac{1}{2}-1\frac{1}{2}$	$3d' \ ^2D^\circ-5p' \ ^2P$
3975.953	A	1h	24.37	27.49	$1\frac{1}{2}-2\frac{1}{2}$		3393.946	A	1h	24.60	28.25	$1\frac{1}{2}-0\frac{1}{2}$	42.01
3971.574	A	2	24.37	27.49	$0\frac{1}{2}-1\frac{1}{2}$								
							3049.671	A	3	24.60	28.67	$2\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^2D^\circ-5f' \ ^2F$
3975.341	A	2h	24.37	27.49	$3\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^4D^\circ-4f' \ ^2D$	3049.398	A	3	24.60	28.67	$1\frac{1}{2}-2\frac{1}{2}$	43
*3970.386	A	4s	24.37	27.49	$2\frac{1}{2}-1\frac{1}{2}$	38							
*3973.760	A	7h	24.37	27.49	$2\frac{1}{2}-2\frac{1}{2}$		3048.933	A	2	24.60	28.67	$2\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^2D^\circ-5f' \ ^4F$
3968.92	A	0h	24.37	27.49	$1\frac{1}{2}-1\frac{1}{2}$		3048.69	A	0	24.60	28.67	$1\frac{1}{2}-2\frac{1}{2}$	43.01
*3972.439	A	6h	24.37	27.49	$1\frac{1}{2}-2\frac{1}{2}$								
							*2612.45	A	2WH	24.60	29.35	$2\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^2D^\circ-6f' \ ^2F$
3157.13	A	0h	24.37	28.30	$3\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4D^\circ-5p' \ ^4D$	*2612.45	A	2WH	24.60	29.35	$1\frac{1}{2}-2\frac{1}{2}$	43.02
3159.64	P		24.37	28.29	$2\frac{1}{2}-2\frac{1}{2}$	38.01							
3160.79	P		24.37	28.29	$1\frac{1}{2}-1\frac{1}{2}$								
3161.57	P		24.37	28.29	$0\frac{1}{2}-0\frac{1}{2}$								
							6253.84	A	2	24.65	26.63	$2\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4P^\circ-4p' \ ^4D$
3086.903	A	1h	24.37	28.39	$3\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^4D^\circ-5p' \ ^4P$	6275.79	A	1	24.66	26.63	$1\frac{1}{2}-2\frac{1}{2}$	43.03
3087.90	A	0h	24.37	28.39	$2\frac{1}{2}-1\frac{1}{2}$	38.02	6290.01	A	1	24.66	26.63	$0\frac{1}{2}-1\frac{1}{2}$	
							6267.36	P		24.65	26.63	$2\frac{1}{2}-2\frac{1}{2}$	
*2885.469	A	6w	24.37	28.67	$3\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4D^\circ-5f' \ ^2F$	6284.56	A	0	24.66	26.63	$1\frac{1}{2}-1\frac{1}{2}$	
*2885.469	A	6w	24.37	28.67	$1\frac{1}{2}-2\frac{1}{2}$	UV 53	6295.20	A	0	24.66	26.63	$0\frac{1}{2}-0\frac{1}{2}$	
*2885.469	A	6w	24.37	28.67	$3\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4D^\circ-5f' \ ^4F$	5907.21	A	6	24.65	26.75	$2\frac{1}{2}-1\frac{1}{2}$	$3d' \ ^4P^\circ-4p' \ ^4S$
*2884.808	A	4w	24.37	28.67	$2\frac{1}{2}-2\frac{1}{2}$	UV 54	5914.64	A	4	24.66	26.75	$1\frac{1}{2}-1\frac{1}{2}$	44
*2884.808	A	4w	24.37	28.67	$1\frac{1}{2}-2\frac{1}{2}$		5919.45	A	3	24.66	26.75	$0\frac{1}{2}-1\frac{1}{2}$	
*2884.808	A	4w	24.37	28.67	$0\frac{1}{2}-1\frac{1}{2}$								
							5694.30	A	2	24.65	26.83	$2\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^4P^\circ-4p' \ ^4P$
2861.060	A	2h	24.37	28.70	$3\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4D^\circ-5f' \ ^4D$	5708.03	A	0	24.66	26.83	$1\frac{1}{2}-1\frac{1}{2}$	44.01
2859.85	P		24.37	28.71	$2\frac{1}{2}-2\frac{1}{2}$	UV 55	*5701.16	A	2w	24.65	26.83	$2\frac{1}{2}-1\frac{1}{2}$	
2857.30	P		24.37	28.71	$1\frac{1}{2}-1\frac{1}{2}$		5713.56	A	0	24.66	26.82	$1\frac{1}{2}-0\frac{1}{2}$	
2855.57	P		24.37	28.71	$0\frac{1}{2}-0\frac{1}{2}$		*5701.16	A	2w	24.66	26.83	$1\frac{1}{2}-2\frac{1}{2}$	
							5712.51	A	1	24.66	26.83	$0\frac{1}{2}-1\frac{1}{2}$	
2858.00	A	1h	24.37	28.71	$2\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^4D^\circ-5f' \ ^2D$							
						UV 56	4374.272	A	9	24.65	27.49	$2\frac{1}{2}-3\frac{1}{2}$	$3d' \ ^4P^\circ-4f' \ ^4D$
							4376.562	A	5h	24.66	27.49	$1\frac{1}{2}-2\frac{1}{2}$	45
2571.76	A	1h	24.37	29.19	$3\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^4D^\circ-6p' \ ^4P$	4375.009	A	4	24.66	27.49	$0\frac{1}{2}-1\frac{1}{2}$	
						UV 57	*4372.487	A	7	24.65	27.49	$2\frac{1}{2}-2\frac{1}{2}$	
							*4372.350	A	6	24.66	27.49	$1\frac{1}{2}-1\frac{1}{2}$	
2491.37	A	2wh	24.37	29.35	$3\frac{1}{2}-4\frac{1}{2}$	$3d' \ ^4D^\circ-6f' \ ^4F$	*4372.487	A	7	24.66	27.49	$0\frac{1}{2}-0\frac{1}{2}$	
*2490.87	A	2wh	24.37	29.35	$2\frac{1}{2}-3\frac{1}{2}$	UV 58	*4368.263	A	4	24.65	27.49	$2\frac{1}{2}-1\frac{1}{2}$	
*2490.87	A	2wh	24.37	29.35	$1\frac{1}{2}-2\frac{1}{2}$		4369.857	A	2	24.66	27.49	$1\frac{1}{2}-0\frac{1}{2}$	
*2490.87	A	2wh	24.37	29.35	$0\frac{1}{2}-1\frac{1}{2}$								
							*4368.263	A	4	24.65	27.49	$2\frac{1}{2}-2\frac{1}{2}$	$3d' \ ^4P^\circ-4f' \ ^2D$
							4368.047	A	1h	24.66	27.49	$1\frac{1}{2}-1\frac{1}{2}$	46
6250.74	A	4	24.60	26.59	$2\frac{1}{2}-1\frac{1}{2}$	$3d' \ ^2D^\circ-4p' \ ^2P$	*4372.350	A	6	24.66	27.49	$1\frac{1}{2}-2\frac{1}{2}$	
6256.54	A	2	24.60	26.58	$1\frac{1}{2}-0\frac{1}{2}$	38.03	4370.661	A	1h	24.66	27.49	$0\frac{1}{2}-1\frac{1}{2}$	
6246.57	A	1*	24.60	26.59	$1\frac{1}{2}-1\frac{1}{2}$								

Multiplet Table

C II — Continued

C 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						
3400.041	P		24.65	28.30	$2\frac{1}{2}-3\frac{1}{2}$	$3d' ^4P^{\circ}-5p' ^4D$	*5113.69	A	4h	25.07	27.49	$1\frac{1}{2}-2\frac{1}{2}$	$3d' ^2P^{\circ}-4f' ^2D$
3406.58	P		24.66	28.29	$1\frac{1}{2}-2\frac{1}{2}$	46.01	5114.26	A	4h	25.07	27.49	$0\frac{1}{2}-1\frac{1}{2}$	51
3410.49	P		24.66	28.29	$0\frac{1}{2}-1\frac{1}{2}$		5107.91	A	1hp	25.07	27.49	$1\frac{1}{2}-1\frac{1}{2}$	
3353.302	A	2h	24.65	28.35	$2\frac{1}{2}-1\frac{1}{2}$	$3d' ^4P^{\circ}-5p' ^4S$	3406.361	A	2H	25.07	28.71	$1\frac{1}{2}-2\frac{1}{2}$	$3d' ^2P^{\circ}-5f' ^4D$
3355.690	A	1h	24.66	28.35	$1\frac{1}{2}-1\frac{1}{2}$	46.02							52
3357.19	A	0h	24.66	28.35	$0\frac{1}{2}-1\frac{1}{2}$								
3059.091	A	3h	24.65	28.70	$2\frac{1}{2}-3\frac{1}{2}$	$3d' ^4P^{\circ}-5f' ^4D$	3403.66	A	1H	25.07	28.71	$1\frac{1}{2}-2\frac{1}{2}$	$3d' ^2P^{\circ}-5f' ^2D$
3060.64	A	1h	24.66	28.71	$1\frac{1}{2}-2\frac{1}{2}$	47	3404.33	A	1H	25.07	28.71	$0\frac{1}{2}-1\frac{1}{2}$	53
3059.83	A	0h	24.66	28.71	$0\frac{1}{2}-1\frac{1}{2}$		3401.53	A	0H	25.07	28.71	$1\frac{1}{2}-1\frac{1}{2}$	
3058.68	P		24.65	28.71	$2\frac{1}{2}-2\frac{1}{2}$								
*3058.45	A	2wh	24.66	28.71	$1\frac{1}{2}-1\frac{1}{2}$								
*3058.45	A	2wh	24.66	28.71	$0\frac{1}{2}-0\frac{1}{2}$								
*3056.85	A	1WH	24.65	28.71	$2\frac{1}{2}-1\frac{1}{2}$		5367.67	A	1h	25.99	28.30	$2\frac{1}{2}-3\frac{1}{2}$	$4s' ^4P^{\circ}-5p' ^4D$
							5364.67	P		25.98	28.29	$1\frac{1}{2}-2\frac{1}{2}$	54
*3056.85	A	1WH	24.65	28.71	$2\frac{1}{2}-2\frac{1}{2}$	$3d' ^4P^{\circ}-5f' ^2D$							
*3058.45	A	2wh	24.66	28.71	$1\frac{1}{2}-2\frac{1}{2}$	47.01							
*3056.85	A	1WH	24.66	28.71	$0\frac{1}{2}-1\frac{1}{2}$		6385.72	A	1h	26.63	28.58	$3\frac{1}{2}-4\frac{1}{2}$	$4p' ^4D-5d' ^4F^{\circ}$
2628.46	A	1H	24.65	29.37	$2\frac{1}{2}-3\frac{1}{2}$	$3d' ^4P^{\circ}-6f' ^4D$	6383.12	P		26.63	28.57	$2\frac{1}{2}-3\frac{1}{2}$	55
						UV 59							
4734.60	A	2hp	24.79	27.41	$3\frac{1}{2}-3\frac{1}{2}$	$3d' ^2F^{\circ}-4f' ^2F$	5286.47	A	1h	26.63	28.98	$3\frac{1}{2}-2\frac{1}{2}$	$4p' ^4D-6s' ^4P^{\circ}$
4727.41	A	2h	24.79	27.41	$2\frac{1}{2}-2\frac{1}{2}$	48	*5290.09	A	0h	26.63	28.97	$2\frac{1}{2}-1\frac{1}{2}$	56
							*5290.09	A	0h	26.63	28.97	$1\frac{1}{2}-0\frac{1}{2}$	
4629.98	A	2h	24.79	27.47	$3\frac{1}{2}-4\frac{1}{2}$	$3d' ^2F^{\circ}-4f' ^4G$							
4625.56	A	3h	24.79	27.47	$2\frac{1}{2}-3\frac{1}{2}$	49	*8413.42	A	2h	27.23	28.70	$4\frac{1}{2}-5\frac{1}{2}$	$4d' ^4F^{\circ}-5f' ^4G$
4619.23	A	8h	24.79	27.48	$3\frac{1}{2}-4\frac{1}{2}$	$3d' ^2F^{\circ}-4f' ^2G$	*8413.42	A	2h	27.23	28.70	$3\frac{1}{2}-4\frac{1}{2}$	57
4618.40	A	6h	24.79	27.47	$2\frac{1}{2}-3\frac{1}{2}$	50	*8414.49	A	1h	27.22	28.70	$2\frac{1}{2}-3\frac{1}{2}$	
4627.44	A	1h	24.79	27.47	$3\frac{1}{2}-3\frac{1}{2}$		*8414.49	A	1h	27.22	28.69	$1\frac{1}{2}-2\frac{1}{2}$	
3174.58	A	0H	24.79	28.70	$3\frac{1}{2}-4\frac{1}{2}$	$3d' ^2F^{\circ}-5f' ^4G$	5791.77	A	1H	27.23	29.37	$4\frac{1}{2}-5\frac{1}{2}$	$4d' ^4F^{\circ}-6f' ^4G$
3172.62	A	1H	24.79	28.70	$2\frac{1}{2}-3\frac{1}{2}$	50.01							58
3170.03	A	2H	24.79	28.70	$3\frac{1}{2}-4\frac{1}{2}$	$3d' ^2F^{\circ}-5f' ^2G$							
3169.66	A	1H	24.79	28.70	$2\frac{1}{2}-3\frac{1}{2}$	50.02	6037.96	A	0h	27.29	29.35	$3\frac{1}{2}-4\frac{1}{2}$	$4d' ^4D^{\circ}-6f' ^4F$
2712.32	A	0H	24.79	29.36	$3\frac{1}{2}-4\frac{1}{2}$	$3d' ^2F^{\circ}-6f' ^4G$	6034.42	P		27.29	29.35	$2\frac{1}{2}-3\frac{1}{2}$	59
2710.59	A	1H	24.79	29.36	$2\frac{1}{2}-3\frac{1}{2}$	UV 60							
*2708.4	A	1H	24.79	29.37	$3\frac{1}{2}-4\frac{1}{2}$	$3d' ^2F^{\circ}-6f' ^2G$							
*2708.4	A	1H	24.79	29.37	$2\frac{1}{2}-3\frac{1}{2}$	UV 61							
5119.45	A	4h	25.07	27.49	$1\frac{1}{2}-2\frac{1}{2}$	$3d' ^2P^{\circ}-4f' ^4D$	Air						
*5120.10	A	3h	25.07	27.49	$0\frac{1}{2}-1\frac{1}{2}$	50.03	2570.57	A	2wh				
*5113.69	A	4h	25.07	27.49	$1\frac{1}{2}-1\frac{1}{2}$		Vac						
5116.75	A	2h	25.07	27.49	$0\frac{1}{2}-0\frac{1}{2}$		533.935	C	(1d)				
							437.102	C	(1d)				
							425.326	C	(0w)				
Unclassified Lines of C II													

NSRDS-NBS 3, SECTION 3

CARBON, $Z=6$

A	C III	Atomic Energy Levels
B	C III	Multiplet Table

Part A

CARBON

C III

Be I sequence; 4 electrons

 $Z = 6$ Ground state $1s^2 2s^2 {}^1S_0$ $2s^2 {}^1S_0$ **386241.0** $\pm$ 2, 258.906 Å (Vac.)

I P 47.887 eV

The analysis is from Bockasten, who has remeasured the spectrum in the region from 1900 Å to 9950 Å. He has added 121 new lines and 21 new levels to the earlier results by Edlén. All terms have been recalculated on the basis of the new observations. The ionization limit has been well determined by fitting a Ritz formula to the terms of the $ng {}^3G$ series ($n = 5, 6, 7$). These authors have furnished the revised value of the limit quoted here; it is from unpublished work by A. Olme.

Two classifications are transitions between levels that are not connected with the rest of the term system. For this reason the uncertainty "x" is indicated in the Table for the terms $4d' {}^3F^\circ$ and $5f' {}^3G$, and "y" for $4f' {}^3G$ and $5g' {}^3H^\circ$. In both cases the uncertainty is probably less than 50 cm^{-1} .

REFERENCES

B. Edlén, Nova Acta Reg. Soc. Sci. Uppsala [IV] **9**, No. 6, 49 to 62 (1934). I P, T, C L, G DK. Bockasten, Ark. Fys. (Stockholm) **9**, No. 30, 457 to 481 (1955). I P, T, C L

B. Edlén, Private communication (1970). I P

C III

C III

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
$2s^2$	$2s^2 {}^1S$	0	0.0		$2p({}^2P^\circ)3s$	$3s' {}^1P^\circ$	1	310006.32	
$2s({}^2S)2p$	$2p {}^3P^\circ$	0	52367.06	23.69	$2s({}^2S)4s$	$4s {}^1S$	0	311721.51	
		1	52390.75	56.36	$2s({}^2S)4p$	$4p {}^3P^\circ$	0	317794.26	2.25
		2	52447.11				1	317796.51	4.79
$2s({}^2S)2p$	$2p {}^1P^\circ$	1	102352.04				2	317801.30	
$2p^2$	$2p^2 {}^3P$	0	137425.70	28.70	$2p({}^2P^\circ)3p$	$3p' {}^1P$	1	319720.35	
		1	137454.40	47.61	$2s({}^2S)4d$	$4d {}^3D$	1	321411.31	15.43
		2	137502.01				2	321426.74	23.31
$2p^2$	$2p^2 {}^1D$	2	145876.13				3	321450.05	
$2p^2$	$2p^2 {}^1S$	0	182519.88		$2s({}^2S)4f$	$4f {}^3F^\circ$	2	322003.68	5.90
$2s({}^2S)3s$	$3s {}^3S$	1	238213.00				3	322009.58	8.39
$2s({}^2S)3s$	$3s {}^1S$	0	247170.26				4	322017.97	
$2s({}^2S)3p$	$3p {}^1P^\circ$	1	258931.29		$2s({}^2S)4p$	$4p {}^1P^\circ$	1	322404.20	
$2s({}^2S)3p$	$3p {}^3P^\circ$	0	259705.55	5.67	$2s({}^2S)4f$	$4f {}^1F^\circ$	3	322702.02	
		1	259711.22	13.08	$2p({}^2P^\circ)3p$	$3p' {}^3D$	1	323076.88	24.48
		2	259724.30				2	323101.36	38.97
$2s({}^2S)3d$	$3d {}^3D$	1	270010.83	1.10			3	323140.33	
		2	270011.93	2.81	$2s({}^2S)4d$	$4d {}^1D$	2	324212.49	
		3	270014.74		$2p({}^2P^\circ)3p$	$3p' {}^3S$	1	327278.27	
$2s({}^2S)3d$	$3d {}^1D$	2	276482.86		$2p({}^2P^\circ)3p$	$3p' {}^3P$	0	329685.38	21.09
$2p({}^2P^\circ)3s$	$3s' {}^3P^\circ$	0	308216.58	32.33			1	329706.47	37.10
		1	308248.91	68.38			2	329743.57	
		2	308317.29		$2p({}^2P^\circ)3d$	$3d' {}^1D^\circ$	2	332691.28	
$2s({}^2S)3s$	$4s {}^3S$	1	309457.17		$2p({}^2P^\circ)3p$	$3p' {}^1D$	2	333118.21	

Atomic Energy Levels

C III—Continued

C III—Continued

Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$2p(^2P^{\circ})3d$	$3d' ^3F^{\circ}$	2 3 4	333387.01 333411.55 333447.24	24.54 35.69	$2s(^2S)7s$	$7s ^3S$	1	363613	
$2p(^2P^{\circ})3d$	$3d' ^3D^{\circ}$	1 2 3	337655.98 337668.89 337688.04	12.91 19.15	$2s(^2S)7p$	$7p ^1P^{\circ}$	1	364896	
$2s(^2S)5s$	$5s ^1S$	0	338514.33		$2s(^2S)7d$	$7d ^3D$	1, 2, 3	365638	
$2s(^2S)5s$	$5s ^3S$	1	339934.72		$2s(^2S)7g$	$7g ^3G$	3, 4, 5	365998.4	
$2p(^2P^{\circ})3d$	$3d' ^3P^{\circ}$	2 1 0	340101.84 340127.53 340141.83	—25.69 —14.30	$2s(^2S)7d$	$7d ^1D$	2	366028	
$2p(^2P^{\circ})3d$	$3d' ^1F^{\circ}$	3	341370.94		$2s(^2S)7f$	$7f ^3F^{\circ}$	2 3 4	366069.0?	
$2s(^2S)5p$	$5p ^1P^{\circ}$	1	343258.03		$2s(^2S)8p$	$8p ^1P^{\circ}$	1	369926	
$2s(^2S)5p$	$5p ^3P^{\circ}$	2 1 0	344232.98 344236.29 344238.68	—3.31 —2.39	$2s(^2S)8d$	$8d ^3D$	1, 2, 3	370499	
$2p(^2P^{\circ})3p$	$3p' ^1S$	0	345095.43		$2s(^2S)9d$	$9d ^3D$	1, 2, 3	373828	
$2s(^2S)5d$	$5d ^3D$	1 2 3	345496.57 345496.72 345497.15	0.15 0.43	$2p(^2P^{\circ})4s$	$4s' ^3P^{\circ}$	0 1 2	376403.6	
$2s(^2S)5g$	$5g ^3G$	3, 4 5	346579.21 346579.49	0.28	$2p(^2P^{\circ})4p$	$4p' ^1P$	1	381105.4	
$2s(^2S)5g$	$5g ^1G$	4	346579.31		$2p(^2P^{\circ})4p$	$4p' ^3D$	1 2 3	381971 382010	39
$2s(^2S)5d$	$5d ^1D$	2	346658.34		$2p(^2P^{\circ})4p$	$4p' ^3P$	0 1 2	384365 384405.4	40
$2p(^2P^{\circ})3d$	$3d' ^1P^{\circ}$	1	346712.73		$2p(^2P^{\circ})4p$	$4p' ^1D$	2	385638.1	
$2s(^2S)5f$	$5f ^3F^{\circ}$	2 3 4	347151.89 347153.26 347155.41	1.37 2.15	$2p(^2P^{\circ})4d$	$4d' ^1D^{\circ}$	2	385817.2	
$2s(^2S)5f$	$5f ^1F^{\circ}$	3	348859.99		$2p(^2P^{\circ})4d$	$4d' ^3F^{\circ}$	2 3 4	385826 + x	
$2s(^2S)6s$	$6s ^3S$	1	354858.03		$C\text{ IV}(^2S_{0\frac{1}{2}})$	Limit		386241.0 ± 2	
$2s(^2S)6p$	$6p ^3P^{\circ}$	0 1 2	357049.38 357050.17 357051.23	0.79 1.06	$2p(^2P^{\circ})4d$	$4d' ^3D^{\circ}$	1 2 3	387697	
$2s(^2S)6p$	$6p ^1P^{\circ}$	1	357109.68		$2p(^2P^{\circ})4f$	$4f' ^3G$	3 4 5	388125 + y	
$2s(^2S)6d$	$6d ^3D$	1 2 3	358097.78		$2p(^2P^{\circ})4f$	$4f' ^3F$	2 3 4	388214.4	
$2s(^2S)6g$	$6g ^1G$	4	358692.18		$2p(^2P^{\circ})4d$	$4d' ^3P^{\circ}$	0 1 2	388493	
$2s(^2S)6g$	$6g ^3G$	3, 4 5	358692.2 358692.4	0.2	$2p(^2P^{\circ})4d$	$4d' ^1F^{\circ}$	3	388773	
$2s(^2S)6d$	$6d ^1D$	2	358732.93		$2p(^2P^{\circ})4f$	$4f' ^3D$	1 2 3	389668.3	
$2s(^2S)6h$	$6h ^3H^{\circ}$	4, 5, 6	358776.3		$2p(^2P^{\circ})5p$	$5p' ^1P$	1	407431	
$2s(^2S)6h$	$6h ^1H^{\circ}$	5	358776.3		$2p(^2P^{\circ})5p$	$5p' ^3D$	1 2 3	407826	
$2s(^2S)6f$	$6f ^3F^{\circ}$	2 3 4	358850.02 358850.32 358850.74	0.30 0.42					
$2s(^2S)6f$	$6f ^1F^{\circ}$	3	359121.95						

Atomic Energy Levels

C III — Continued

C III — Continued

Config.	Desig.	<i>J</i>	Level	Interval					
$2p(^2P^{\circ})5p$	$5p' ^3P$	0			$2p(^2P^{\circ})5g$	$5g' ^3F^{\circ}$	2		
		1					3		
		2	408925				4	411433.1	
$2p(^2P^{\circ})5p$	$5p' ^1D$	2	409506		$2p(^2P^{\circ})6p$	$6p' ^3D$	1		
$2p(^2P^{\circ})5d$	$5d' ^1D^{\circ}$	2	409683				2		
$2p(^2P^{\circ})5d$	$5d' ^3D^{\circ}$				$2p(^2P^{\circ})6p$	$6p' ^3P$	3	421432	
		1					0		
		2					1		
$2p(^2P^{\circ})5f$	$5f' ^3G$	3			$2p(^2P^{\circ})6d$	$6d' ^3D^{\circ}$	2	422019	
		4					1		
		5	410819 + <i>x</i>				2		
$2p(^2P^{\circ})5f$	$5f' ^3F$				$2p(^2P^{\circ})6d$	$6d' ^3P^{\circ}$	3	422932	
		2					1		
		3					2		
$2p(^2P^{\circ})5d$	$5d' ^3P^{\circ}$	4	410863		$2p(^2P^{\circ})6g$	$6g' ^3G^{\circ}$	0	423109	
		1					1		
		2	410892				2		
$2p(^2P^{\circ})5g$	$5g' ^3H^{\circ}$				$2p(^2P^{\circ})7p$	$7p' ^3D$	3	423253.3	
		4					4		
		5					5		
$2p(^2P^{\circ})5g$	$5g' ^3G^{\circ}$	6	411060 + <i>y</i>		$2p(^2P^{\circ})7p$	$7p' ^3P$	1	429397	
		3					2		
		4					3		
$2p(^2P^{\circ})5g$	$5g' ^3G^{\circ}$	5	411104.4		$2p(^2P^{\circ})7p$	$7p' ^3P$	0	429764	
		3					1		
		4					2		

January 1970.

Atomic Energy Levels

C III OBSERVED TERMS

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

Multiplet Table

Part B

CARBON

C III ($Z=6$)

I P 47.887 eV Limit $386241.0 \pm 2 \text{ cm}^{-1}$ 258.906 Å (Vac)

Anal A List A January 1970

REFERENCES

- B. Edlén, Private communication (1970). I P
- A K. Bockasten, Ark. Fys. (Stockholm) **9**, No. 30, 457 to 481 (1955). I P, T, C L, I; W L 291 Å to 574 Å; 1174 Å to 1247 Å; 1920 Å to 9950 Å
- B B. Edlén, Nova Acta Reg. Soc. Sci. Uppsala [IV] **9**, No. 6, 49 to 62 (1934). I P, T, C L, G D, (I); W L 265 Å to 5827 Å
- P Predicted Wavelength: See B. Edlén, Reports on Progress in Physics **26**, 181 to 212 (1963). (I); W L 291 Å to 538 Å

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

*Blend

*and § Blend of C III and C II

*and §§ Blend of C III and C IV

C III

C III

I A	Ref	Int	E P		J	Multiplet No.	I A	Ref	Int	E P		J	Multiplet No.
			Low	High						Low	High		
Vac 1908.734	P		0.00	6.50	0-1	$2s^2 1S - 2p^3 P^\circ$ UV 0.01	Vac 290.498	P		0.00	42.68	0-1	$2s^2 1S - 5p^3 P^\circ$ UV 3.04
977.026‡	B	(18)	0.00	12.69	0-1	$2s^2 1S - 2p^1 P^\circ$ UV 1	288.423	P		0.00	42.99	0-1	$2s^2 1S - 3d^1 P^\circ$ UV 3.05
386.2028	P	(14)	0.00	32.10	0-1	$2s^2 1S - 3p^1 P^\circ$ UV 2	280.073	P		0.00	44.27	0-1	$2s^2 1S - 6p^3 P^\circ$ UV 3.06
385.043	P		0.00	32.20	0-1	$2s^2 1S - 3p^3 P^\circ$ UV 2.01	280.043	B	(3)	0.00	44.27	0-1	$2s^2 1S - 6p^1 P^\circ$ UV 3.07
324.413	P		0.00	38.22	0-1	$2s^2 1S - 3s^1 P^\circ$ UV 2.02	274.051	B	(2d)	0.00	45.24	0-1	$2s^2 1S - 7p^1 P^\circ$ UV 3.08
322.5741	P	(8)	0.00	38.43	0-1	$2s^2 1S - 3s^1 P^\circ$ UV 2.03	270.324	B	(0+d)	0.00	45.86	0-1	$2s^2 1S - 8p^1 P^\circ$ UV 3.09
314.667	P		0.00	39.40	0-1	$2s^2 1S - 4p^3 P^\circ$ UV 2.04							
310.1697	P	(5)	0.00	39.97	0-1	$2s^2 1S - 4p^1 P^\circ$ UV 3	1175.711	A	5	6.50	17.05	2-2	$2p^3 P^\circ - 2p^2 3P$ UV 4
							1175.590	A	2	6.50	17.04	1-1	
							1176.370	A	3	6.50	17.04	2-1	
							1175.987	A	3	6.50	17.04	1-0	
296.159	P		0.00	41.86	0-1	$2s^2 1S - 3d^1 D^\circ$ UV 3.01	1174.933	A	3	6.50	17.05	1-2	
							1175.263	A	3	6.49	17.04	0-1	
294.007	P		0.00	42.17	0-1	$2s^2 1S - 3d^1 P^\circ$ UV 3.02	1070.331	P		6.50	18.09	2-2	$2p^3 P^\circ - 2p^2 1D$ UV 4.01
							1069.686	P		6.50	18.09	1-2	
291.3261	P	(2)	0.00	42.56	0-1	$2s^2 1S - 5p^1 P^\circ$ UV 3.03	768.467	P		6.50	22.63	1-0	$2p^3 P^\circ - 2p^2 1S$ UV 4.02

Multiplet Table

C III — Continued							C 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						
538.3120	P	(100)	6.50	29.53	2-1	$2p\ ^3P^{\circ}-3s\ ^3S$	341.641	P		6.50	42.79	1-0	$2p\ ^3P^{\circ}-3p'\ ^1S$
538.1487	P	(60)	6.50	29.53	1-1	UV 5							UV 7.09
538.0801	P	(20)	6.49	29.53	0-1								
513.401	P		6.50	30.64	1-0	$2p\ ^3P^{\circ}-3s\ ^1S$	341.242	B	(7)	6.50	42.84	2-	$2p\ ^3P^{\circ}-5d\ ^3D$
						UV 5.01	341.179	B	(6)	6.50	42.84	1-	UV 7.10
							341.143	B	(5-)	6.49	42.84	0-	
459.633	B	(15)	6.50	33.48	2-	$2p\ ^3P^{\circ}-3d\ ^3D$	339.892	P		6.50	42.98	2-2	$2p\ ^3P^{\circ}-5d\ ^1D$
459.521	B	(14)	6.50	33.48	1-	UV 6	339.827	P		6.50	42.98	1-2	UV 7.11
459.462	B	(13-)	6.49	33.48	0-1								
446.357	P		6.50	34.28	2-2	$2p\ ^3P^{\circ}-3d\ ^1D$	330.687	B	(1+)	6.50	44.00	2-1	$2p\ ^3P^{\circ}-6s\ ^3S$
446.245	P		6.50	34.28	1-2	UV 6.01	*330.637	B	(1)	6.50	44.00	1-1	UV 7.12
							*330.637	B	(1)	6.50	44.00	0-1	
389.0898	P	(5)	6.50	38.37	2-1	$2p\ ^3P^{\circ}-4s\ ^3S$	327.176	B	(4+d)	6.50	44.40	2-3	$2p\ ^3P^{\circ}-6d\ ^3D$
389.0045	P	(3)	6.50	38.37	1-1	UV 6.02	327.112	B	(4d)	6.50	44.40		UV 7.13
388.9687	P	(1)	6.49	38.37	0-1								
385.608	P		6.50	38.65	1-0	$2p\ ^3P^{\circ}-4s\ ^1S$	326.492	P		6.50	44.48	2-2	$2p\ ^3P^{\circ}-6d\ ^1D$
						UV 6.03	326.432	P		6.50	44.48	1-2	UV 7.14
374.149	P		6.50	39.64	2-1	$2p\ ^3P^{\circ}-3p'\ ^1P$	321.372	B	(0d)	6.50	45.08	-1	$2p\ ^3P^{\circ}-7s\ ^3S$
374.070	P		6.50	39.64	1-1	UV 6.04							UV 7.15
374.037	P		6.49	39.64	0-1								
371.747	B	(10+)	6.50	39.85	2-3	$2p\ ^3P^{\circ}-4d\ ^3D$	319.266	B	(3d)	6.50	45.33		$2p\ ^3P^{\circ}-7d\ ^3D$
*371.694	B	(10)	6.50	39.85	1-2	UV 7							UV 7.16
*371.694	B	(10)	6.50	39.85	0-1		318.897	P		6.50	45.38	2-2	$2p\ ^3P^{\circ}-7d\ ^1D$
371.784	B	(8)	6.50	39.85	2-2								UV 7.17
370.951	B	(0d)	6.50	39.92		$2p\ ^3P^{\circ}-4f\ ^3F^{\circ}?$	314.395	B	(1d)	6.50	45.93		$2p\ ^3P^{\circ}-8d\ ^3D$
						UV 7.01F							UV 7.18
*369.415	B	(5)	6.50	40.06	2-3	$2p\ ^3P^{\circ}-3p'\ ^3D$	311.157	B	(0d)	6.50	46.35		$2p\ ^3P^{\circ}-9d\ ^3D$
*369.415	B	(5)	6.50	40.06	1-2	UV 7.02							UV 7.19
*369.415	B	(5)	6.49	40.06	0-1		*303.432	B	(4d)	6.50	47.36	2-3	$2p\ ^3P^{\circ}-4p'\ ^3D$
369.472	B	(2)	6.50	40.06	2-2		*303.432	B	(4d)	6.50	47.36	1-2	UV 7.20
							303.468	B	(1)	6.50	47.36	2-2	
367.964	P		6.50	40.20	2-2	$2p\ ^3P^{\circ}-4d\ ^1D$	*301.243	B	(3)	6.50	47.66	2-2	$2p\ ^3P^{\circ}-4p'\ ^3P$
367.888	P		6.50	40.20	1-2	UV 7.03	*301.243	B	(3)	6.50	47.65	1-1	UV 7.21
363.8598	P	(6)	6.50	40.58	2-1	$2p\ ^3P^{\circ}-3p'\ ^3S$	301.279	B	(1)	6.50	47.65	2-1	
363.7852	P	(5)	6.50	40.58	1-1	UV 7.04	301.206	B	(2)	6.50	47.66	1-2	
363.7538	P	(4)	6.49	40.58	0-1								
*360.623	B	(7)	6.50	40.88	2-2	$2p\ ^3P^{\circ}-3p'\ ^3P$	281.390	B	(2)	6.50	50.56	2-3	$2p\ ^3P^{\circ}-5p'\ ^3D$
*360.623	B	(7)	6.50	40.88	1-1	UV 7.05							UV 7.22
360.675	B	(5)	6.50	40.88	2-1		280.522	B	(2d)	6.50	50.70	2-2	$2p\ ^3P^{\circ}-5p'\ ^3P$
*360.623	B	(7)	6.50	40.88	1-0								UV 7.23
*360.557	B	(6)	6.50	40.88	1-2		271.014	B	(1d)	6.50	52.25	2-3	$2p\ ^3P^{\circ}-6p'\ ^3D$
*360.557	B	(6)	6.49	40.87	0-1								UV 7.24
356.289	P		6.50	41.30	2-2	$2p\ ^3P^{\circ}-3p'\ ^1D$	270.583	B	(1d)	6.50	52.32	2-2	$2p\ ^3P^{\circ}-6p'\ ^3P$
356.217	P		6.50	41.30	1-2	UV 7.06							UV 7.25
349.499	P		6.50	41.97	1-0	$2p\ ^3P^{\circ}-5s\ ^1S$	265.287	B	(0d)	6.50	53.24	2-3	$2p\ ^3P^{\circ}-7p'\ ^3D$
						UV 7.07							UV 7.26
347.854	B	(3)	6.50	42.15	2-1	$2p\ ^3P^{\circ}-5s\ ^3S$	265.029	B	(0d)	6.50	53.28	2-2	$2p\ ^3P^{\circ}-7p'\ ^3P$
*347.777	B	(3-)	6.50	42.15	1-1	UV 7.08							UV 7.27
*347.777	B	(3-)	6.50	42.15	0-1								

Multiplet Table

C III — Continued

C 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 2844.117	A	2	12.69	17.05	1-2	$2p\ ^1P^\circ - 2p^2\ ^3P$ UV 7.28	Vac *585.417	B	(8)	17.05	38.23	2-2	$2p^2\ ^3P - 3s'\ ^3P^\circ$ UV 11.15
2296.870	A	16	12.69	18.09	1-2	$2p\ ^1P^\circ - 2p^2\ ^1D$ UV 8	585.496	B	(5+)	17.04	38.22	1-1	
							585.666	B	(6)	17.05	38.22	2-1	
							585.608	B	(6-)	17.04	38.21	1-0	
							585.261	B	(6)	17.04	38.23	1-2	
							*585.417	B	(8b)	17.04	38.22	0-1	
Vac 1247.383	A	3	12.69	22.63	1-0	$2p\ ^1P^\circ - 2p^2\ ^1S$ UV 9	554.655	B	(2)	17.05	39.40	2-2	$2p^2\ ^3P - 4p\ ^3P^\circ$ UV 11.16
							554.502	P		17.04	39.40	1-1	
690.526	B	(7)	12.69	30.64	1-0	$2p\ ^1P^\circ - 3s\ ^1S$ UV 10	499.530	B	(9)	17.05	41.87	2-3	$2p^2\ ^3P - 3d'\ ^3D^\circ$ UV 11.17
							499.462	B	(8)	17.04	41.86	1-2	
							499.425	B	(7)	17.04	41.86	0-1	
574.2809	P	(60)	12.69	34.28	1-2	$2p\ ^1P^\circ - 3d\ ^1D$ UV 11	499.583	B	(7-)	17.05	41.86	2-2	
							493.587	B	(7)	17.05	42.17	2-3	$2p^2\ ^3P - 3d'\ ^3P^\circ$ UV 11.18
477.6246	P	(3)	12.69	38.65	1-0	$2p\ ^1P^\circ - 4s\ ^1S$ UV 11.01	493.396	B	(5-)	17.04	42.17	1-1	
							493.519	B	(5+)	17.05	42.17	2-1	
							493.364	B	(5)	17.04	42.17	1-0	
460.0487	P	(8)	12.69	39.64	1-1	$2p\ ^1P^\circ - 3p'\ ^1P$ UV 11.02	493.464	B	(5+)	17.04	42.17	1-2	
							493.341	B	(5)	17.04	42.17	0-1	
460.7338	P	(12)	12.69	40.20	1-2	$2p\ ^1P^\circ - 4d\ ^1D$ UV 11.03	483.733	B	(5)	17.05	42.68	2-	$2p^2\ ^3P - 5p\ ^3P^\circ$ UV 11.19
							483.618	B	(4)	17.04	42.68	1-	
							483.567	B	(3-)	17.04	42.68	0-1	
433.3391	P	(8)	12.69	41.30	1-2	$2p\ ^1P^\circ - 3p'\ ^1D$ UV 11.04'	455.479	P		17.05	44.27	2-2	$2p^2\ ^3P - 6p\ ^3P^\circ$ UV 11.20
							455.382	P		17.04	44.27	1-1	
433.438	P		12.69	41.97	1-0	$2p\ ^1P^\circ - 5s\ ^1S$ UV 11.05							
411.9577	P	(3)	12.69	42.79	1-0	$2p\ ^1P^\circ - 3p'\ ^1S$ UV 11.06	418.609	B	(2d)	17.05	46.67	2-2	$2p^2\ ^3P - 4s'\ ^3P^\circ$ UV 11.21
							399.688	B	(6+d)	17.05	48.07	2-3	$2p^2\ ^3P - 4d'\ ^3D^\circ$ UV 11.22
409.325	B	(6)	12.69	42.98	1-2	$2p\ ^1P^\circ - 5d\ ^1D$ UV 11.07	399.637	B	(6d)	17.04	48.07		
							398.42	B	(2w)	17.05	48.17	2-2	$2p^2\ ^3P - 4d'\ ^3D^\circ$ UV 11.23
390.055	B	(3)	12.69	44.48	1-2	$2p\ ^1P^\circ - 6d\ ^1D$ UV 11.08							
379.254	B	(0d)	12.69	45.38	1-2	$2p\ ^1P^\circ - 7d\ ^1D$ UV 11.09	366.169	B	(4d)	17.05	50.90	2-3	$2p^2\ ^3P - 5d'\ ^3D^\circ$ UV 11.24
358.740	B	(4s)	12.69	47.25	1-1	$2p\ ^1P^\circ - 4p'\ ^1P$ UV 11.10	365.778	B	(1d)	17.05	50.94	2-2	$2p^2\ ^3P - 5d'\ ^3P^\circ$ UV 11.25
353.000	B	(3d)	12.69	47.81	1-2	$2p\ ^1P^\circ - 4p'\ ^1D$ UV 11.11	350.330	B	(2w)	17.05	52.44	2-3	$2p^2\ ^3P - 6d'\ ^3D^\circ$ UV 11.26
327.784	B	(1s)	12.69	50.51	1-1	$2p\ ^1P^\circ - 5p'\ ^1P$ UV 11.12	350.132	B	(0d)	17.05	52.46	2-2	$2p^2\ ^3P - 6d'\ ^3P^\circ$ UV 11.27
325.570	B	(1d)	12.69	50.77	1-2	$2p\ ^1P^\circ - 5p'\ ^1P$ UV 11.13	884.516	B	(8)	18.09	32.10	2-1	$2p^2\ ^1D - 3p\ ^1P^\circ$ UV 11.28
							609.275	B	(6)	18.09	38.43	2-1	$2p^2\ ^1D - 3s'\ ^1P^\circ$ UV 11.29
818.181	P		17.05	32.20	2-2	$2p^2\ ^3P - 3p\ ^3P^\circ$	566.490	B	(4)	18.09	39.97	2-1	$2p^2\ ^1D - 4p\ ^1P^\circ$ UV 11.30
817.950	P		17.04	32.20	1-1	UV 11.14	565.5280	P	(5)	18.09	40.01	2-3	$2p^2\ ^1D - 4f\ ^1F^\circ$ UV 11.31

Multiplet Table

C III — Continued							C 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 535.2885	P	(20)	18.09	41.25	2—2	$2p^2\ ^1D - 3d'\ ^1D^\circ$ UV 11.32	Air 4647.42	A	14	29.53	32.20	1—2	$3s\ ^3S - 3p\ ^3P^\circ$
							4650.25	A	13	29.53	32.20	1—1	1
							4651.47	A	11	29.53	32.20	1—0	
511.5225	P	(20)	18.09	42.32	2—3	$2p^2\ ^1D - 3d'\ ^1D^\circ$ UV 11.33	Vac 1426.45	B	(4)	29.53	38.23	1—2	$3s\ ^3S - 3s'\ ^3P^\circ$
506.658	B	(0)	18.09	42.56	2—1	$2p^2\ ^1D - 5p\ ^1P^\circ$ UV 11.34	1427.85	B	(3)	29.53	38.22	1—1	UV 11.52
							1428.53	B	(2)	29.53	38.21	1—0	
497.910	B	(1s)	18.09	42.99	2—1	$2p^2\ ^1D - 3d'\ ^1P^\circ$ UV 11.35	1256.52	B	(1d)	29.53	39.40	1—	$3s\ ^3S - 4p\ ^3P^\circ$ UV 11.53
492.6500	P	(5)	18.09	43.25	2—3	$2p^2\ ^1D - 5f\ ^1F^\circ$ UV 11.36	1005.471	P		29.53	41.86	1—2	$3s\ ^3S - 3d'\ ^3D^\circ$
							1005.601	P		29.53	41.86	1—1	UV 11.54
473.410	P		18.09	44.27	2—1	$2p^2\ ^1D - 6p\ ^1P^\circ$ UV 11.37	981.462	P		29.53	42.17	1—2	$3s\ ^3S - 3d'\ ^3P^\circ$
							981.214	P		29.53	42.17	1—1	UV 11.55
							981.077	P		29.53	42.17	1—0	
468.931	B	(0)	18.09	44.52	2—3	$2p^2\ ^1D - 6f\ ^1F^\circ$ UV 11.38	943.218	P		29.53	42.68	1—2	$3s\ ^3S - 5p\ ^3P^\circ$
							943.189	P		29.53	42.68	1—1	UV 11.56
456.58	P		18.09	45.24	2—1	$2p^2\ ^1D - 7p\ ^1P^\circ$ UV 11.39	943.168	P		29.53	42.68	1—0	
446.329	P		18.09	45.86	2—1	$2p^2\ ^1D - 8p\ ^1P^\circ$ UV 11.40	841.480	P		29.53	44.27	1—2	$3s\ ^3S - 6p\ ^3P^\circ$
							841.488	P		29.53	44.27	1—1	UV 11.57
							841.493	P		29.53	44.27	1—0	
416.769	B	(5)	18.09	47.83	2—2	$2p^2\ ^1D - 4d'\ ^1D^\circ$ UV 11.41							
411.697	B	(0)	18.09	48.20	2—3	$2p^2\ ^1D - 4d'\ ^1F^\circ$ UV 11.42	Air 8500.32	A	10	30.64	32.10	0—1	$3s\ ^1S - 3p\ ^1P^\circ$ 1.01
379.065	B	(1)	18.09	50.79	2—2	$2p^2\ ^1D - 5d'\ ^1D^\circ$ UV 11.43	Vac 1591.48	B	(2)	30.64	38.43	0—1	$3s\ ^1S - 3s'\ ^1P^\circ$ UV 11.58
1308.73	B	(2)	22.63	32.10	0—1	$2p^2\ ^1S - 3p\ ^1P^\circ$ UV 11.44	1329.187	P		30.64	39.97	0—1	$3s\ ^1S - 4p\ ^1P^\circ$ UV 11.59
784.393	B	(3)	22.63	38.43	0—1	$2p^2\ ^1S - 3s'\ ^1P^\circ$ UV 11.45	1040.715	P		30.64	42.56	0—1	$3s\ ^1S - 5p\ ^1P^\circ$ UV 11.60
714.879	B	(1)	22.63	39.97	0—1	$2p^2\ ^1S - 4p\ ^1P^\circ$ UV 11.46	1004.596	P		30.64	42.99	0—1	$3s\ ^1S - 3d'\ ^1P^\circ$ UV 11.61
622.144	B	(2)	22.63	42.56	0—1	$2p^2\ ^1S - 5p\ ^1P^\circ$ UV 11.47	909.592	P		30.64	44.27	0—1	$3s\ ^1S - 6p\ ^1P^\circ$ UV 11.62
609.025	B	(4)	22.63	42.99	0—1	$2p^2\ ^1S - 3d'\ ^1P^\circ$ UV 11.48							
572.771	P		22.63	44.27	0—1	$2p^2\ ^1S - 6p\ ^1P^\circ$ UV 11.49	Air 5695.92	A	12	32.10	34.28	1—2	$3p\ ^1P^\circ - 3d\ ^1D$ 2
548.318	P		22.63	45.24	0—1	$2p^2\ ^1S - 7p\ ^1P^\circ$ UV 11.50	Vac 1894.49	B	(0)	32.10	38.65	1—0	$3p\ ^1P^\circ - 4s\ ^1S$ UV 11.63
533.601	P		22.63	45.86	0—1	$2p^2\ ^1S - 8p\ ^1P^\circ$ UV 11.51	1645.06	B	(1)	32.10	39.64	1—1	$3p\ ^1P^\circ - 3p'\ ^1P$ UV 11.64
							1531.85	B	(2)	32.10	40.20	1—2	$3p\ ^1P^\circ - 4d\ ^1D$ UV 11.65

Multiplet Table

C III — Continued

C 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 1347.947	P		32.10	41.30	1-2	$3p\ ^1P^\circ-3p'\ ^1D$ UV 11.66	Air 2091.974 2092.060 2092.111 2091.851 2092.012 2091.802	P P P P P P	6	33.48 33.48 33.48 33.48 33.48 33.48	39.40 39.40 39.40 39.40 39.40 39.40	3-2 2-1 1-0 2-2 1-1 1-2	$3d\ ^3D-4p\ ^3P^\circ$ UV 12.01
1256.549	P		32.10	41.97	1-0	$3p\ ^1P^\circ-5s\ ^1S$ UV 11.67							
1160.576	P		32.10	42.79	1-0	$3p\ ^1P^\circ-3p'\ ^1S$ UV 11.68							
1139.899	P		32.10	42.98	1-2	$3p\ ^1P^\circ-5d\ ^1D$ UV 11.69	Vac 1922.93 1923.14 1923.31 1923.268 1923.382 1923.486	A A A P P P	5 4 2	33.48 33.48 33.48 33.48 33.48 33.48	39.92 39.92 39.92 39.92 39.92 39.92	3-4 2-3 1-2 3-3 2-2 3-2	$3d\ ^3D-4f\ ^3F^\circ$ UV 12.02
1001.988	P		32.10	44.48	1-2	$3p\ ^1P^\circ-6d\ ^1D$ UV 11.70							
							1576.49 1577.32 1577.89	B B B	(3) (2+) (3)	33.48 33.48 33.48	41.34 41.34 41.33	3-4 2-3 1-2	$3d\ ^3D-3d'\ ^3F^\circ$ UV 12.03
Air 9715.11 9705.39 9701.12 9717.73 9706.44 9718.79	A A A A A P	5 3 2 2 2	32.20 32.20 32.20 32.20 32.20 32.20	33.48 33.48 33.48 33.48 33.48 33.48	2-3 1-2 0-1 2-2 1-1 2-1	$3p\ ^3P^\circ-3d\ ^3D$ 2.01	1477.68 1478.05 1478.30	B B B	(3) (2) (1)	33.48 33.48 33.48	41.87 41.86 41.86	3-3 2-2 1-1	$3d\ ^3D-3d'\ ^3D^\circ$ UV 12.04
2010.094 2009.570 2009.327	A A A	5 4 2	32.20 32.20 32.20	38.37 38.37 38.37	2-1 1-1 0-1	$3p\ ^3P^\circ-4s\ ^3S$ UV 11.71	1426.78 1426.16 1425.903	B B P	(1) (0)	33.48 33.48 33.48	42.17 42.17 42.17	3-2 2-1 1-0	$3d\ ^3D-3d'\ ^3P^\circ$ UV 12.05
Vac 1620.05 1620.33 1620.59 *1620.68 *1620.68	B B B B B	(3) (2) (0) (1) (1)	32.20 32.20 32.20 32.20 32.20	39.85 39.85 39.85 39.85 39.85	2-3 1-2 0-1 2-2 1-1	$3p\ ^3P^\circ-4d\ ^3D$ UV 11.72	1347.378 1347.267 1347.203	P P P		33.48 33.48 33.48	42.68 42.68 42.68	3-2 2-1 1-0	$3d\ ^3D-5p\ ^3P^\circ$ UV 12.06
1576.888 1577.532 1578.001	P P P		32.20 32.20 32.20	40.06 40.06 40.06	2-3 1-2 0-1	$3p\ ^3P^\circ-3p'\ ^3D$ UV 11.73	1296.30	B	(2d)	33.48	43.04		$3d\ ^3D-5f\ ^3F^\circ$ UV 12.07
1480.298 1480.011 1479.887	P P P		32.20 32.20 32.20	40.58 40.58 40.58	2-1 1-1 0-1	$3p\ ^3P^\circ-3p'\ ^3S$ UV 11.74	2982.106 2176.963	A A	8 4	34.28 34.28	38.43 39.97	2-1 2-1	$3d\ ^1D-3s'\ ^1P^\circ$ UV 13 $3d\ ^1D-4p\ ^1P^\circ$ UV 14
1428.17 1428.66 1428.95 1429.08	B B B B	(2+) (0) (1) (0)	32.20 32.20 32.20 32.20	40.88 40.88 40.88 40.87	2-2 1-1 2-1 1-0	$3p\ ^3P^\circ-3p'\ ^3P$ UV 11.75	2162.944	A	9	34.28	40.01	2-3	$3d\ ^1D-4f\ ^1F^\circ$ UV 15
1165.87 1165.71	B B	(1d) (0d)	32.20 32.20	42.84 42.84	2-3 1-2	$3p\ ^3P^\circ-5d\ ^3D$ UV 11.76	Vac 1779.12	B	(0)	34.28	41.25	2-2	$3d\ ^1D-3d'\ ^1D^\circ$ UV 16
1016.534	P		32.20	44.40	2-3	$3p\ ^3P^\circ-6d\ ^3D$ UV 11.77	1541.115	P		34.28	42.32	2-3	$3d\ ^1D-3d'\ ^1F^\circ$ UV 17
							1497.563	P		34.28	42.56	2-1	$3d\ ^1D-5p\ ^1P^\circ$ UV 18
							1423.896	P		34.28	42.99	2-1	$3d\ ^1D-3d'\ ^1P^\circ$ UV 19
Air 2610.020 2614.478 2616.627 2609.83 2614.414 2609.746	A A A A P P	6 5 4 1	33.48 33.48 33.48 33.48 33.48 33.48	38.23 38.22 38.21 38.23 38.22 38.23	3-2 2-1 1-0 2-2 1-1 1-2	$3d\ ^3D-3s'\ ^3P^\circ$ UV 12	1381.652	P		34.28	43.25	2-3	$3d\ ^1D-5f\ ^1F^\circ$ UV 20

Multiplet Table

C III — Continued							C III — Continued						
I A	Ref	Int	E P		<i>J</i>	Multiplet No.	I A	Ref	Int	E P		<i>J</i>	Multiplet No.
			Low	High						Low	High		
Air							Air						
*7612.65	A	7	38.23	39.85	2—3	3s' ³ P°—4d ³ D	2727.555	P		38.43	42.98	1—2	3s' ¹ P°—5d ¹ D
7586.40	A	4	38.22	39.85	1—2	2.02							UV 25
7576.68	A	2	38.21	39.85	0—1								
7625.94	A	2	28.23	39.85	2—2								
7595.29	A	2	38.22	39.85	1—1								
7634.972	P		38.23	39.85	2—1		9358.37	A	1	38.65	39.97	0—1	4s ¹ S —4p ¹ P°
													7.02
6744.38	A	7	38.23	40.06	2—3	3s' ³ P°—3p' ³ D							
6731.04	A	6	38.22	40.06	1—2	3	3170.016	A	4 <i>h</i>	38.65	42.56	0—1	4s ¹ S —5p ¹ P°
*6727.39§	A	6	38.21	40.06	0—1								8
7625.17	A	4	38.23	40.06	2—2								
*6742.24§	A	5	38.22	40.06	1—1		2857.013	A	1	38.65	42.99	0—1	4s ¹ S —3d' ¹ P°
6773.37	A	1	38.23	40.06	2—1								UV 26
5272.53	A	6	38.23	40.58	2—1	3s' ³ P°—3p' ³ S	2202.54	A	1	38.65	44.27	0—1	4s ¹ S —6p ¹ P°
5253.58	A	5	38.22	40.58	1—1	4							UV 27
5244.67	A	3	38.21	40.58	0—1								
4665.86	A	8	38.23	40.88	2—2	3s' ³ P°—3p' ³ P							
4659.06	A	5	38.22	40.88	1—1	5							
4673.95	A	6	38.23	40.88	2—1		4516.77	A	6 <i>l</i>	39.40	42.15	2—1	4p ³ P°—5s ³ S
4663.64	A	6	38.22	40.87	1—0		4515.78	A	5 <i>l</i>	39.40	42.15	1—1	9
4651.01	A	5	38.22	40.88	1—2		4515.33	A	3 <i>l</i>	39.40	42.15	0—1	
4652.06	A	5	38.21	40.88	0—1								
							*3609.625	A	6	39.40	42.84	2—3	4p ³ P°—5d ³ D
							*3609.063	A	5	39.40	42.84	1—2	10
							3608.81	A	3	39.40	42.84	0—1	
3161.92	A	2	38.23	42.15	2—1	3s' ³ P°—5s ³ S	*3609.625	A	6	39.40	42.84	2—2	
3155.09	A	1	38.22	42.15	1—1	5.01	*3609.063	A	5	39.40	42.84	1—1	
3151.85	A	0	38.21	42.15	0—1								
2688.830	P		38.23	42.84	2—3	3s' ³ P°—5d ³ D	*2697.75§§	A	7	39.40	44.00	2—1	4p ³ P°—6s ³ S
						UV 21	2697.42	A	3	39.40	44.00	1—1	UV 28
							2480.861	A	4 <i>h</i>	39.40	44.40	2—3	4p ³ P°—6d ³ D
11981.20	P		38.37	39.40	1—2	4s ³ S —4p ³ P°	2480.502	A	4 <i>h</i>	39.40	44.40		UV 29
11988.08	P		38.37	39.40	1—1	5.02							
11991.31	P		38.37	39.40	1—0								
3543.614	P		38.37	41.86	1—2	4s ³ S —3d' ³ D°	7707.43	A	6	39.64	41.25	1—2	3p' ¹ P —3d' ¹ D°
3545.236	P		38.37	41.86	1—1	5.03							10.01
3262.272	A	3	38.37	42.17	1—2	4s ³ S —3d' ³ P°	4247.308	A	4	39.64	42.56	1—1	3p' ¹ P —5p ¹ P°
3259.541	A	2	38.37	42.17	1—1	6							11
3258.00	A	1	38.37	42.17	1—0								
							3703.71	A	4 <i>h</i> _s	39.64	42.99	1—1	3p' ¹ P —3d' ¹ P°
													12
2874.722	A	3	38.37	42.68	1—2	4s ³ S —5p ³ P°							
2874.43	A	2	38.37	42.68	1—1	UV 22	2673.765	P		39.64	44.27	1—1	3p' ¹ P —6p ¹ P°
2874.24	A	0	38.37	42.68	1—0								UV 30
2100.46	A	0	38.37	44.27	1—2	4s ³ S —6p ³ P°							
						UV 23							
							8332.99	A	7	39.85	41.34	3—4	4d ³ D —3d' ³ F°
							8341.59	A	6	39.85	41.34	2—3	12.01
							8347.94	A	5	39.85	41.33	1—2	
7037.25	A	7 <i>h</i>	38.43	40.20	1—2	3s' ¹ P°—4d ¹ D	8357.86	A	2	39.85	41.34	3—3	
						6.01	8358.72	A	2	39.85	41.33	2—2	
							8375.040	P		39.85	41.33	3—2	
4325.560	A	8	38.43	41.30	1—2	3s' ¹ P°—3p' ¹ D	6156.68	A	3	39.85	41.87	3—3	4d ³ D —3d' ³ D°
						7	6155.09	A	2	39.85	41.86	2—2	13
							6154.13	A	1	39.85	41.86	1—1	
3506.783	P		38.43	41.97	1—0	3s' ¹ P°—5s ¹ S	6163.96	A	0	39.85	41.86	3—2	
						7.01	6159.97	A	0	39.85	41.86	2—1	
							6147.81	A	0	39.85	41.87	2—3	
2849.050	A	5	38.43	42.79	1—0	3s' ¹ P°—3p' ¹ S	6149.23	A	0	39.85	41.86	1—2	
						UV 24							

Multiplet Table

C III — Continued

C III — Continued

I A	Ref	Int	E P		J	Multiplet No.	I A	Ref	Int	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Air						
5359.95	A	2	39.85	42.17	3-2	$4d\ ^3D-3d'\ ^3P^\circ$ 13.01	4186.900	A	9h	40.01	42.97	3-4	$4f\ ^1F^\circ-5g\ ^1G$ 18
5345.84	A	1p	39.85	42.17	2-1								
5337.42	A	0	39.85	42.17	1-0								
5353.12	A	0p	39.85	42.17	2-2		4173.089	A	2	40.01	42.98	3-2	
5341.46	A	0	39.85	42.17	1-1								
5348.816	P		39.85	42.17	1-2		2777.714	A	5hl	40.01	44.47	3-4	$4f\ ^1F^\circ-6g\ ^1G$ UV 35
4388.016	A	4	39.85	42.68	3-2	$4d\ ^3D-5p\ ^3P^\circ$ 14							
4382.898	A	3	39.85	42.68	2-1								
4379.481	A	2	39.85	42.68	1-0								
4383.544	A	2	39.85	42.68	2-2								
4379.952	A	2	39.85	42.68	1-1		9699.570	P		40.06	41.34	3-4	$3p'\ ^3D-3d'\ ^3F^\circ$ 18.02
4380.570	P		39.85	42.68	1-2		9696.483	P		40.06	41.34	2-3	
							9696.540	P		40.06	41.33	1-2	
3889.144	A	6	39.85	43.04	3-4	$4d\ ^3D-5f\ ^3F^\circ$ 15	6872.05	A	4	40.06	41.87	3-3	$3p'\ ^3D-3d'\ ^3D^\circ$ 19
3885.941	A	5	39.85	43.04	2-3		6862.71	A	3	40.06	41.86	2-2	
3883.816	A	4	39.85	43.04	1-2		6857.27	A	2	40.06	41.86	1-1	
3889.475	A	1	39.85	43.04	3-3		6881.09	A	1	40.06	41.86	3-2	
3886.145	P		39.85	43.04	2-2		6868.80	A	1	40.06	41.86	2-1	
3889.670	P		39.85	43.04	3-2		6853.70	A	1	40.06	41.87	2-3	
2808.07	A	1	39.85	44.27	3-2	$4d\ ^3D-6p\ ^3P^\circ$ UV 31	6851.20	A	1	40.06	41.86	1-2	
2806.31	A	1	39.85	44.27	2-1								
*2805.13	A	0	39.85	44.27	1-0		5894.07	A	3	40.06	42.17	3-2	$3p'\ ^3D-3d'\ ^3P^\circ$ 20
2806.231	P		39.85	44.27	2-2		5871.69	A	2	40.06	42.17	2-1	
*2805.13	A	0	39.85	44.27	1-1		5858.35	A	1	40.06	42.17	1-0	
2672.959	A	5hs	39.85	44.49	3-4	$4d\ ^3D-6f\ ^3F^\circ$ UV 32	5880.54	A	1	40.06	42.17	2-2	
2671.318	A	4hs	39.85	44.49	2-3		5863.24	A	1	40.06	42.17	1-1	
2670.240	A	3hs	39.85	44.49	1-2		5872.101	P		40.06	42.17	1-2	
							4739.66	A	2	40.06	42.68	3-2	$3p'\ ^3D-5p\ ^3P^\circ$ 20.01
							4730.16	A	1	40.06	42.68	2-1	
							4724.33	A	1p	40.06	42.68	1-0	
4257.894	A	2	39.92	42.84	4-3	$4f\ ^3F^\circ-5d\ ^3D$ 15.01	4162.86	A	7	40.06	43.04	3-4	$3p'\ ^3D-5f\ ^3F^\circ$ 21
4256.455	A	1	39.92	42.84	3-2		4156.49	A	6	40.06	43.04	2-3	
4255.42	A	1	39.92	42.84	2-1		4152.512	A	5	40.06	43.04	1-2	
4070.261	A	9	39.92	42.97	4-5		4163.26	A	2	40.06	43.04	3-3	
4068.912	A	9	39.92	42.97	3-4		4156.76	A	2	40.06	43.04	2-2	
4067.940	A	8	39.92	42.97	2-3		4163.487	P		40.06	43.04	3-2	
2725.90	A	7l	39.92	44.47	4-5	$4f\ ^3F^\circ-6g\ ^3G$ UV 33	2799.47	A	4wh	40.06	44.49	3-4	$3p'\ ^3D-6f\ ^3F^\circ$ UV 36
2725.30	A	7l	39.92	44.47	3-4		2796.46	A	3wh	40.06	44.49	2-3	
2724.85	A	6l	39.92	44.47	2-3		2794.56	A	2wh	40.06	44.49	1-2	
9331.014	P		39.97	41.30	1-2	$4p\ ^1P^\circ-3p'\ ^1D$ 16.01	11790.91	P		40.20	41.25	2-2	$4d\ ^1D-3d'\ ^1D^\circ$ 21.01
6205.56	A	5	39.97	41.97	1-0		5826.42	A	7	40.20	42.32	2-3	
4121.843	A	5l	39.97	42.98	1-2		5249.11	A	4l	40.20	42.56	2-1	
							4443.08	A	2?	40.20	42.99	2-1	
2751.828	A	3hl	39.97	44.48	1-2	$4p\ ^1P^\circ-6d\ ^1D$ UV 34	4056.062	A	7	40.20	43.25	2-3	$4d\ ^1D-5f\ ^1F^\circ$ 21
9597.807	P		40.01	41.30	3-2	$4f\ ^1F^\circ-3p'\ ^1D$ 17.01	3038.91	A	1	40.20	44.27	2-1	$4d\ ^1D-6p\ ^1P^\circ$ 25

Multiplet Table

C III — Continued							C 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 2863.712	A	4s	40.20	44.52	2—3	4d ¹ D —6f ¹ F° UV 37	Air 6774.93	A	0	42.17	44.00	2—1	3d' ³ P°—6s ³ S 36
							2016.84	A	1WH	42.17	48.31	2—3	3d' ³ P°—4f' ³ D UV 42
							2015.7	A	0WH	42.17	48.31		
7796.00	A	4	40.58	42.17	1—2	3p' ³ S —3d' ³ P°							
7780.42	A	3	40.58	42.17	1—1	26							
7771.760	P		40.58	42.17	1—0								
							5771.66	A	2hl	42.32	44.47	3—4	3d' ¹ F°—6g ¹ G 37
12583.93	P		40.88	41.87	2—3	3p' ³ P —3d' ³ D°							
12555.56	P		40.88	41.86	1—2	27							
12542.68	P		40.87	41.86	0—1		6460.33	A	0w	42.56	44.48	1—2	5p ¹ P°—6d ¹ D 38
9651.475	P		40.88	42.17	2—2	3p' ³ P —3d' ³ P°							
9593.322	P		40.88	42.17	1—1	28							
6899.64	A	1	40.88	42.68	2—2	3p' ³ P —5p ³ P°	7210.52	A	2WH	42.68	44.40	2—3	5p ³ P°—6d ³ D 39
6880.500	P		40.88	42.68	1—1	29	7212.29	A	1WH	42.68	44.40	1—	
2142.49	A	1	40.88	46.67	2—2	3p' ³ P —4s' ³ P°							
2145.58	A	0w	40.88	46.67		UV 38							
							8652.6	A	1WH	42.84	44.27	3—2	5d ³ D —6p ³ P° 40
9859.405	P		41.30	42.56	2—1	3p' ¹ D —5p ¹ P°	7486.52	A	3hs	42.84	44.49		5d ³ D —6f ³ F° 41
						30							
7353.96	A	0	41.30	42.99	2—1	3p' ¹ D —3d' ¹ P°	4859.6	A	0w	42.84	45.39	3—4	5d ³ D —7f ³ F°? 42
						31							
6350.76	A	2h	41.30	43.25	2—3	3p' ¹ D —5f ¹ F°							
						32							
4166.95	A	1	41.30	44.27	2—1	3p' ¹ D —6p ¹ P°	8196.48	A	10hs	42.97	44.48		5g ^{3,1} G—6h ^{3,1} H° 43
						33							
							8021.14	A	1Hs	42.98	44.52	2—3	5d ¹ D —6f ¹ F° 44
8296.51	A	1+h	41.34	42.84	4—3	3d' ³ F°—5d ³ D							
8272.26	A	1h	41.34	42.84	3—2	34							
8255.62	A	1—h	41.33	42.84	2—1								
*7612.65	A	7	41.34	42.97	4—5	3d' ³ F°—5g ³ G	8665.22	A	3WH	43.04	44.47	4—5	5f ³ F°—6g ³ G 45
7592.28	A	5l	41.34	42.97	3—4	35	8663.65	A	2WH	43.04	44.47	3—4	
7578.16	A	4l	41.33	42.97	2—3		5305.10	A	2Hl	43.04	45.38		5f ³ F°—7g ³ G 46
2255.51	P		41.87	47.36	3—3	3d' ³ D°—4p' ³ D							
2256.54	P		41.86	47.36	2—2	UV 39							
2139.86	A	1	41.87	47.66	3—2	3d' ³ D°—4p' ³ P	3999.92	B	(0+d)	47+	50+	4—5	4d' ³ F°—5f' ³ G 47
2140.92	A	1w	41.86	47.65	2—1	UV 40	4001.56	B	(0d)	47+	50+		
Vac 1979.16	A	2	41.87	48.13	3—4	3d' ³ D°—4f' ³ F	4315.44	A	3wh	48.07	50.94	3—4	4d' ³ D°—5f' ³ F 48
1979.62	A	1	41.87	48.13		UV 41							

C III — Continued

I A	Ref	Int	E P		J	Multiplet No.
			Low	High		
Air 4358.90	A	2 <i>W</i> H	48+	50+	5—6	4 <i>f'</i> ³ G — 5 <i>g'</i> ³ H° 49
*4367.50§ 4361.87	A A	3 <i>h</i> 4 <i>wh</i>	48.13 48.13	50.97 50.97	4—5	4 <i>f'</i> ³ F — 5 <i>g'</i> ³ G° 50

C III — Continued

I A	Ref	Int	E P		J	Multiplet No.
			Low	High		
Air 2853.13 2854.13	A A	0+ <i>wh</i> 0 <i>wh</i>	48.13 48.13	52.48 52.48	4—5	4 <i>f'</i> ³ F — 6 <i>g'</i> ³ G° UV 43
4593.3 4587.6	A A	1 <i>W</i> H 0 <i>W</i> H	48.31 48.31	51.01 51.01	3—4	4 <i>f'</i> ³ D — 5 <i>g'</i> ³ F° 51

NSRDS-NBS 3, SECTION 3

CARBON, $Z = 6$

A C IV Atomic Energy Levels

B C IV Multiplet Table

Part A

CARBON

C IV

(Li I sequence; 3 electrons)

 $Z = 6$ Ground state $1s^2 2s^2 S_{01/2}$ $2s^2 S_{01/2}$ $520178.4 \pm 1.5 \text{ cm}^{-1}$, 192.242 Å (Vac)

I P 64.492 eV

The analysis is by Bockasten, who has observed and remeasured the spectrum from 1900 Å to 9950 Å, with the sliding spark as source, and remeasured the resonance doublet. The new measurements combined with Edlén's wavelengths for ten lines in the region 380 Å to 1250 Å have been used to recalculate the term system. The author has, also, made a detailed study of the Stark effect.

The term system "as obtained from the observations" is quoted in the table except for $7p^2 P^\circ$ and $7g^2 G$. The theoretical or "unperturbed" term values calculated for hydrogenic terms and from an extended Ritz formula are quoted for higher series members; these are entered in brackets.

In his 1934 Monograph, Edlén's list of classified lines includes the additional terms of the $np^2 P^\circ$ series, $n = 10$ and 11 , and $10d^2 D$. These have been included from his observations. The higher terms have been derived from the calculated wavelengths in the 1969 reference. The unresolved $2P^\circ$ term, 64520 cm^{-1} , has been used to calculate the $nd^2 D$ terms ($n = 11$ to 14).

The limit is well determined from the unperturbed terms of the $ns^2 S$ series ($n = 2, 3, 4, 6$). The value as corrected by Ölme is quoted.

In 1939 Edlén and Tyrén reported observations of series in the region from 60 Å to 15 Å in the vacuum spark spectra of the elements B to F. They interpreted the lines as transitions from doubly-excited states, indicating "the existence of discrete energy levels lying above the ionization limits by amounts up to five times the ionization potential of the same spectrum." In a private communication Edlén has reported that eleven lines were measured by Tyrén between 40.3 Å and 41.5 Å, near the C V resonance line. These authors conclude that the lines "must for the main part be of the type

$$1s^2 nl - 1s nl 2p (n \geq 2) \text{ in C IV.}^{33}$$

On the basis of a theoretical study Wu has attempted to classify some of these satellite lines.

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Atomic Energy Levels

C IV					C IV				
Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
$1s^2 2s$	$2s^2 S$	$0\frac{1}{2}$	0.0		$1s^2 7f$	$7f^2 F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	[484343.5]	
$1s^2 2p$	$2p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	64484.0 64591.7	107.7	$7g$	$7g^2 G$	$3\frac{1}{2}, 4\frac{1}{2}$	[484345.42]	
					$7h$	$7h^2 H^\circ$	$4\frac{1}{2}, 5\frac{1}{2}$	[484345.84]	
					$7i$	$7i^2 I$	$5\frac{1}{2}, 6\frac{1}{2}$	[484345.96]	
$1s^2 3s$	$3s^2 S$	$0\frac{1}{2}$	302849.0		$1s^2 8s$	$8s^2 S$	$0\frac{1}{2}$	[491650.8]	
$1s^2 3p$	$3p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	320050.1 320081.7	31.6	$1s^2 8p$	$8p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	[492477.7] [492479.3]	[1.6]
$1s^2 3d$	$3d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	324879.8 324890.3	10.5	$1s^2 8d$	$8d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	[492728.5]	
$1s^2 4s$	$4s^2 S$	$0\frac{1}{2}$	401348.1		$1s^2 8f$	$8f^2 F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	[492742.2]	
$1s^2 4p$	$4p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	408311.1 408324.2	13.1	$8g$	$8g^2 G$	$3\frac{1}{2}, 4\frac{1}{2}$	[492743.49]	
					$8h$	$8h^2 H^\circ$	$4\frac{1}{2}, 5\frac{1}{2}$	[492743.78]	
$1s^2 4d$	$4d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	410336.1 410340.1	4.0	$8i$	$8i^2 I$	$5\frac{1}{2}, 6\frac{1}{2}$	[492743.86]	
$1s^2 4f$	$4f^2 F^\circ$	$2\frac{1}{2}$ $3\frac{1}{2}$	410434.2		$1s^2 9s$	$9s^2 S$	$0\frac{1}{2}$	[497736.7]	
$1s^2 5s$	$5s^2 S$	$0\frac{1}{2}$	445368.5		$1s^2 9p$	$9p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	[498314.6] [498315.7]	[1.1]
$1s^2 5p$	$5p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	448855.8 448862.9	7.1	$1s^2 9d$	$9d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	[498490.6]	
$1s^2 5d$	$5d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	449888.2 449889.9	1.7	$1s^2 9f$	$9f^2 F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	[498500.3]	
$1s^2 5f$	$5f^2 F^\circ$	$2\frac{1}{2}$ $3\frac{1}{2}$	449939.8		$9g$	$9g^2 G$	$3\frac{1}{2}, 4\frac{1}{2}$	[498501.17]	
$1s^2 5g$	$5g^2 G$	$3\frac{1}{2}$ $4\frac{1}{2}$	449948.4		$9h$	$9h^2 H^\circ$	$4\frac{1}{2}, 5\frac{1}{2}$	[498501.37]	
$1s^2 6s$	$6s^2 S$	$0\frac{1}{2}$	468784.0		$9i$	$9i^2 I$	$5\frac{1}{2}, 6\frac{1}{2}$	[498501.44]	
$1s^2 6p$	$6p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	470775.0 470778.9	3.9	$1s^2 10p$	$10p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	502412	
$1s^2 6d$	$6d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	471370.3 471371.5	1.2	$1s^2 10d$	$10d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	502598	
$1s^2 6f$	$6f^2 F^\circ$	$2\frac{1}{2}, 3\frac{1}{2}$	[471403.2]		$1s^2 11p$	$11p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	505510	
$6g$	$6g^2 G$	$3\frac{1}{2}, 4\frac{1}{2}$	[471406.16]		$1s^2 11d$	$11d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	[505696]	
$6h$	$6h^2 H^\circ$	$4\frac{1}{2}, 5\frac{1}{2}$	[471406.80]		$1s^2 12p$	$12p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	[507906]	
$1s^2 7s$	$7s^2 S$	$0\frac{1}{2}$	482706.0		$1s^2 12d$	$12d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	[508018]	
$1s^2 7p$	$7p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	[483948.4] [483950.8]	[2.4]	$1s^2 13p$	$13p^2 P^\circ$	$0\frac{1}{2}$ $1\frac{1}{2}$	[509728]	
$1s^2 7d$	$7d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	484320.6		$1s^2 13d$	$13d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	[509821]	
					$1s^2 14d$	$14d^2 D$	$1\frac{1}{2}$ $2\frac{1}{2}$	[511254]	
					C v ($1S_0$)	Limit		520178.4 $\pm$ 1.5	

December 1969.

Multiplet Table

Part B

CARBON

C IV ($Z = 6$)

I P 64.492 eV Limit $520178.4 \pm 1.5 \text{ cm}^{-1}$ 192.242 Å (Vac)

Anal A List A December 1969

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- A K. Bockasten, *Ark. Fys. (Stockholm)* **10**, No. 40, 567 to 582 (1960). I P, T, C L, I; W L 384 Å to 7726 Å
- B B. Edlén, *Nova Acta Reg. Soc. Sci. Uppsala [IV]* **9**, No. 6, 40 to 44 (1934). I P, T, C L, G D, I; W L 197 Å to 5812 Å
- C K. Bockasten, R. Hallin and T. P. Hughes, *Proc. Phys. Soc. (London)* **81**, No. 521, 522 to 530 (1963). C L; W L 1548 Å to 1550 Å
- D V. M. Perevertun and S. M. Mukhtarov, *Optics and Spectr.* **26**, No. 1, 50-51 (1969). C L, (I); W L 196 Å to 239 Å
- P Predicted wavelength
- New Multiplet Numbers, not inserted between older ones, start with UV 16.

*Blend *and § Blend of C III and C IV

C IV							C IV						
I A	Ref	Int	EP		J	Multiplet No.	I A	Ref	Int	EP		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
1548.202‡	C	20	0.00	8.01	$0\frac{1}{2}-1\frac{1}{2}$	$2s\ ^2S - 2p\ ^2P^\circ$	199.04	B		0.00	62.29	$0\frac{1}{2}-$	$2s\ ^2S - 10p\ ^2P^\circ$
1550.774	C	19	0.00	7.99	$0\frac{1}{2}-0\frac{1}{2}$	UV 1							UV 5.04
312.418	B	15	0.00	39.68	$0\frac{1}{2}-1\frac{1}{2}$	$2s\ ^2S - 3p\ ^2P^\circ$	197.82	B	(2)	0.00	62.67	$0\frac{1}{2}-$	$2s\ ^2S - 11p\ ^2P^\circ$
312.455	B	14	0.00	39.68	$0\frac{1}{2}-0\frac{1}{2}$	UV 2							UV 5.05
307.806	B	1	0.00	40.28	$0\frac{1}{2}-1\frac{1}{2}$	$2s\ ^2S - 3d\ ^2D$	196.96	D	(1)	0.00	62.97	$0\frac{1}{2}-$	$2s\ ^2S - 12p\ ^2P^\circ$
						UV 2.01 F							UV 5.06
244.907	B	10	0.00	50.62	$0\frac{1}{2}-$	$2s\ ^2S - 4p\ ^2P^\circ$	196.27	D	(1)	0.00	63.20	$0\frac{1}{2}-$	$2s\ ^2S - 13p\ ^2P^\circ$
						UV 3							UV 5.07
222.791	B	7	0.00	55.65	$0\frac{1}{2}-$	$2s\ ^2S - 5p\ ^2P^\circ$	419.714	B	14	8.01	37.55	$1\frac{1}{2}-0\frac{1}{2}$	$2p\ ^2P^\circ - 3s\ ^2S$
						UV 4	419.525	B	13	7.99	37.55	$0\frac{1}{2}-0\frac{1}{2}$	UV 6
212.421	B	5	0.00	58.37	$0\frac{1}{2}-$	$2s\ ^2S - 6p\ ^2P^\circ$	384.178	B	17	8.01	40.28	$1\frac{1}{2}-2\frac{1}{2}$	$2p\ ^2P^\circ - 3d\ ^2D$
						UV 5	384.032	B	16	7.99	40.28	$0\frac{1}{2}-1\frac{1}{2}$	UV 7
							384.19	P		8.01	40.28	$1\frac{1}{2}-1\frac{1}{2}$	
206.641	B	3d	0.00	60.00	$0\frac{1}{2}-$	$2s\ ^2S - 7p\ ^2P^\circ$	296.951	B	7	8.01	49.76	$1\frac{1}{2}-0\frac{1}{2}$	$2p\ ^2P^\circ - 4s\ ^2S$
						UV 5.01	296.857	B	6	7.99	49.76	$0\frac{1}{2}-0\frac{1}{2}$	UV 8
203.057	B	1d	0.00	61.06	$0\frac{1}{2}-$	$2s\ ^2S - 8p\ ^2P^\circ$	289.230	B	10	8.01	50.87	$1\frac{1}{2}-2\frac{1}{2}$	$2p\ ^2P^\circ - 4d\ ^2D$
						UV 5.02	289.143	B	9	7.99	50.87	$0\frac{1}{2}-1\frac{1}{2}$	UV 9
200.68	B	odd	0.00	61.78	$0\frac{1}{2}-$	$2s\ ^2S - 9p\ ^2P^\circ$	262.624	B	4	8.01	55.22	$1\frac{1}{2}-0\frac{1}{2}$	$2p\ ^2P^\circ - 5s\ ^2S$
						UV 5.03	262.550	B	3	7.99	55.22	$0\frac{1}{2}-0\frac{1}{2}$	UV 9.01

Multiplet Table

C IV – Continued

C IV – Continued

I A	Ref	Int	EP		<i>J</i>	Multiplet No.	I A	Ref	Int	EP		<i>J</i>	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
259.542	B	7	8.01	55.78	$1\frac{1}{2}-2\frac{1}{2}$	$2p^2P^\circ - 5d^2D$	770.379	B	0 <i>d</i>	39.68	55.78	$1\frac{1}{2}-2\frac{1}{2}$	$3p^2P^\circ - 5d^2D$
259.471	B	6	7.99	55.78	$0\frac{1}{2}-1\frac{1}{2}$	UV 10	770.19	P		39.68	55.78	$0\frac{1}{2}-1\frac{1}{2}$	UV 11.17
247.415	B	1	8.01	58.12	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 6s^2S$							
247.357	B	0	7.99	58.12	$0\frac{1}{2}-0\frac{1}{2}$	UV 10.01							
245.830	B	5 <i>d</i>	8.01	58.44	$1\frac{1}{2}-2\frac{1}{2}$	$2p^2P^\circ - 6d^2D$	1198.58	B	1 <i>d</i>	40.28	50.62		$3d^2D - 4p^2P^\circ$
245.775	B	4 <i>d</i>	7.99	58.44	$0\frac{1}{2}-1\frac{1}{2}$	UV 11							UV 11.18
239.196	B	0	8.01	59.85	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 7s^2S$	1168.990	B	4	40.28	50.89	$2\frac{1}{2}-3\frac{1}{2}$	$3d^2D - 4f^2F^\circ$
239.11	P		7.99	59.85	$0\frac{1}{2}-0\frac{1}{2}$	UV 11.01	1168.873	B	3 +	40.28	50.89	$1\frac{1}{2}-2\frac{1}{2}$	UV 11.19
238.250	B	3 <i>d</i>	8.01	60.05	$1\frac{1}{2}-2\frac{1}{2}$	$2p^2P^\circ - 7d^2D$							
238.200	B	2 <i>d</i>	7.99	60.05	$0\frac{1}{2}-1\frac{1}{2}$	UV 11.02							
234.19	D	(2)	8.01	60.96	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 8s^2S$	Air	A	2	49.76	55.65	$0\frac{1}{2}-1\frac{1}{2}$	$4s^2S - 5p^2P^\circ$
						UV 11.03	2103.94	A	1	49.76	55.65	$0\frac{1}{2}-0\frac{1}{2}$	UV 11.20
233.53	B	2 <i>dd</i>	8.00	61.09		$2p^2P^\circ - 8d^2D$							
						UV 11.04							
230.9	D	1	8.01	61.71	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 9s^2S$	2698.67	A	4	50.62	55.22	$1\frac{1}{2}-0\frac{1}{2}$	$4p^2P^\circ - 5s^2S$
						UV 11.05	*2697.75§	A	4	50.62	55.22	$0\frac{1}{2}-0\frac{1}{2}$	UV 12
230.43	B	1 <i>dd</i>	8.00	61.80		$2p^2P^\circ - 9d^2D$	2405.10	A	6 <i>l</i>	50.62	55.78	$1\frac{1}{2}-2\frac{1}{2}$	$4p^2P^\circ - 5d^2D$
						UV 11.06	2404.44	A	5	50.62	55.78	$0\frac{1}{2}-1\frac{1}{2}$	UV 12.01
228.27	B	0 <i>dd</i>	8.00	62.31		$2p^2P^\circ - 10d^2D$	2405.20	P		50.62	55.78	$1\frac{1}{2}-1\frac{1}{2}$	
						UV 11.07							
226.72	D	(3)	8.00	62.70		$2p^2P^\circ - 11d^2D$							
						UV 11.08	2595.089	A	4	50.87	55.65	$2\frac{1}{2}-1\frac{1}{2}$	$4d^2D - 5p^2P^\circ$
225.49	D	(2)	8.00	62.98		$2p^2P^\circ - 12d^2D$	2595.295	A	3	50.87	55.65	$1\frac{1}{2}-0\frac{1}{2}$	UV 13
						UV 11.09	2527.7	A	1 <i>h</i>	50.87	55.78		$4d^2D - 5d^2D$
224.5	D	(1)	8.00	63.21		$2p^2P^\circ - 13d^2D$							UV 13.01F
						UV 11.10	2524.41	A	9 <i>l</i>	50.87	55.78		$4d^2D - 5f^2F^\circ$
223.9	D	(1)	8.00	63.39		$2p^2P^\circ - 14d^2D$							UV 14
						UV 11.11	2523.7	A	4 <i>hs</i>	50.87	55.79		$4d^2D - 5g^2G$
													UV 14.01F
Air													
5801.33	A	10	37.55	39.68	$0\frac{1}{2}-1\frac{1}{2}$	$3s^2S - 3p^2P^\circ$							
5811.98	A	9	37.55	39.68	$0\frac{1}{2}-0\frac{1}{2}$	1							
Vac													
948.098	B	1	37.55	50.62	$0\frac{1}{2}-1\frac{1}{2}$	$3s^2S - 4p^2P^\circ$	2533.77	A	2 <i>l</i>	50.89	55.78		$4f^2F^\circ - 5d^2D$
948.214	B	0	37.55	50.62	$0\frac{1}{2}-0\frac{1}{2}$	UV 11.12							UV 14.02
684.87	P		37.55	55.65	$0\frac{1}{2}-1\frac{1}{2}$	$3s^2S - 5p^2P^\circ$	2530.6	A	6 <i>hl</i>	50.89	55.78		$4f^2F^\circ - 5f^2F^\circ$
684.90	P		37.55	55.65	$0\frac{1}{2}-0\frac{1}{2}$	UV 11.13							UV 14.03F
							2529.98	A	11 <i>s</i>	50.89	55.79		$4f^2F^\circ - 5g^2G$
													UV 15
1230.511	B	3	39.68	49.76	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 4s^2S$							
1230.046	B	2	39.68	49.76	$0\frac{1}{2}-0\frac{1}{2}$	UV 11.14							
1107.933	B	2	39.68	50.87	$1\frac{1}{2}-2\frac{1}{2}$	$3p^2P^\circ - 4d^2D$	3934.29	A	2	55.22	58.37	$0\frac{1}{2}-1\frac{1}{2}$	$5s^2S - 6p^2P^\circ$
1107.600	B	1	39.68	50.87	$0\frac{1}{2}-1\frac{1}{2}$	UV 11.15	3934.89	A	1	55.22	58.37	$0\frac{1}{2}-0\frac{1}{2}$	2
798.17	P		39.68	55.22	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 5s^2S$							
797.97	P		39.68	55.22	$0\frac{1}{2}-0\frac{1}{2}$	UV 11.16							

Multiplet Table

C IV—Continued

C IV—Continued

IA	Ref	Int	E P		<i>J</i>	Multiplet No.	IA	Ref	Int	E P		<i>J</i>	Multiplet No.
			Low	High						Low	High		
Air							Air						
5018.39	A	2	55.65	58.12	$1\frac{1}{2}-0\frac{1}{2}$	$5p\ ^2P^\circ - 6s\ ^2S$	2901.60	A	2 <i>uh</i>	55.78	60.05		$5d\ ^2D - 7f\ ^2F^\circ$
5016.58	A	1	55.65	58.12	$0\frac{1}{2}-0\frac{1}{2}$	3							UV 19
4441.49	A	3/	55.65	58.44	$1\frac{1}{2}-2\frac{1}{2}$	$5p\ ^2P^\circ - 6d\ ^2D$							
4440.34	A	2/	55.65	58.44	$0\frac{1}{2}-1\frac{1}{2}$	4	4658.30	A	9 <i>W</i>	55.79	58.45		$5g\ ^2G - 6h\ ^2H^\circ$ etc.
2953.95	A	1	55.65	59.85	$1\frac{1}{2}-0\frac{1}{2}$	$5p\ ^2P^\circ - 7s\ ^2S$							8
2953.4	A	0	55.65	59.85	$0\frac{1}{2}-0\frac{1}{2}$	UV 16	2906.29	A	5 <i>W</i>	55.79	60.05		$5g\ ^2G - 7h\ ^2H^\circ$ etc.
2819.24	A	1/	55.65	60.05		$5p\ ^2P^\circ - 7d\ ^2D$							UV 20
						UV 17	2335.9	A	2 <i>W</i>	55.79	61.09		$5g\ ^2G - 8h\ ^2H^\circ$ etc.
													UV 21
4785.88	A	1	55.78	58.37	$2\frac{1}{2}-1\frac{1}{2}$	$5d\ ^2D - 6p\ ^2P^\circ$							
4786.7 ?	A	0	55.78	58.37	$1\frac{1}{2}-0\frac{1}{2}$	5	7726.2	A	6 <i>W</i>	58.45	60.05		$6h\ ^2H^\circ - 7i\ ^2I$ etc.
m4646.99	P	C III	55.78	58.45	$2\frac{1}{2}-$	$5d\ ^2D - 6f\ ^2F^\circ$							8.01
m4646.62	P	C III	55.78	58.45	$1\frac{1}{2}-$	6	4685.4	A	1 <i>W</i>	58.45	61.09		$6h\ ^2H^\circ - 8i\ ^2I$ etc.
2935.12	A	1	55.78	60.00		$5d\ ^2D - 7p\ ^2P^\circ$							8.02
						UV 18	3689.6	A	2 <i>W</i>	58.45	61.80		$6h\ ^2H^\circ - 9i\ ^2I$ etc.
													8.03

NSRDS-NBS 3, SECTION 3

CARBON, $Z = 6$

A C v Atomic Energy Levels

B C v Multiplet Table

Part A

CARBON

C v

He I sequence; 2 electrons

 $Z = 6$ Ground state $1s^2\ ^1S_0$ $1s^2\ ^1S_0$ **3162395 $\pm$ 30** cm^{-1} , 31.622 $\text{\AA}$ (Vac)IP 392.007 $\pm$ 0.004 eV

The earlier analysis has been revised and extended by B. Edlén and B. Löfstrand especially for inclusion here. The terms are based on "new measurements in the region below 300 $\text{\AA}$ and some previous observations at longer wavelengths." In deriving the term values the theoretical values of $2p\ ^1P^\circ$ and of the difference $2s\ ^3S - 2s\ ^1S$ have been adopted in order to fix the terms with $n = 2$. For $n > 2$ the terms "follows directly from the observations."

The limit has been determined by adopting the theoretical ionization energy of $2p\ ^1P^\circ$ as given by Accad et al. The five-term series $ns\ ^3S$, $np\ ^3,^1P^\circ$ and $nd\ ^3,^1D$, are represented by two-parameter Ritz formulae. The authors have applied the polarization formula to the hydrogen-like terms in C v and predicted the wavelengths of several hydrogen-like transitions.

All predicted terms are entered in brackets in the table.

A number of C v lines can be identified in spectra obtained from beam foil observations and laser-produced plasma, by means of wavelengths predicted from the present term values. Edlén and Löfstrand report 12 such lines in their 1970 paper.

In 1939 Edlén and Tyrén observed a group of carbon lines near 34 $\text{\AA}$ analogous to those of He I interpreted as transitions of the type $1s\ 2s - 2p\ 2s$ and $1s\ 2p - 2p\ 2p$, giving rise to energy states "extremely high above the ionization limit." Feldman and Cohen have measured seven such lines in a low-inductance vacuum spark spectrum, classified them as due to the above transitions and in addition, $1s\ 3s - 2p\ 3s$. The high levels involved lie in the range from 5300000 cm^{-1} to 5800000 cm^{-1} . Both the observed positions and intensities of these lines agree well with the theoretical interpretation.

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Atomic Energy Levels

C v					C v				
Config.	Desig.	<i>J</i>	Level	Interval	Config.	Desig.	<i>J</i>	Level	Interval
1s ²	1s ² ¹ S	0	0		1s 6p	6p ³ P°	0, 1, 2	[3085435]	
1s 2s	2s ³ S	1	2411262		1s 6d	6d ³ D	1, 2, 3	[3086138]	
1s 2s	2s ¹ S	0	2455024		1s 6f	6f ³ F°	2, 3, 4	[3086186.0]	
1s 2p	2p ³ P°	0 1 2	2455161 2455148 2455284	- 13 136	1s 6f	6f ¹ F°	3		
					1s 6d	6d ¹ D	2	[3086189]	
1s 2p	2p ¹ P°	1	2483371		1s 6g	6g ³ G	3, 4, 5	[3086189.6]	
1s 3s	3s ³ S	1	2839562		1s 6g	6g ¹ G	4		
1s 3s	3s ¹ S	0	[2851180]		1s 6h	6h ³ H°	4, 5, 6	[3086190.8]	
1s 3p	3p ³ P°	0, 1, 2	2851418		1s 6h	6h ¹ H°	5		
1s 3d	3d ³ D	1, 2 3	2857305 2857315	10	1s 6p	6p ¹ P°	1	3086439	
1s 3d	3d ¹ D	2	2857529		1s 7s	7s ³ S	1	[3105066]	
1s 3p	3p ¹ P°	1	2859375		1s 7p	7p ³ P°	0, 1, 2	[3105933]	
1s 4s	4s ³ S	1	[2983541]		1s 7d	7d ³ D	1, 2, 3	[3106374]	
1s 4p	4p ³ P°	0, 1, 2	2988359		1s 7d	7d ¹ D	2	[3106407]	
1s 4d	4d ³ D	1, 2, 3	2990776		1s 7g	7g ³ G	3, 4, 5	[3106407.4]	
1s 4d	4d ¹ D	2	2990923		1s 7g	7g ¹ G	4		
1s 4f	4f ³ F°	2, 3, 4	[2990923.4]		1s 7h	7h ³ H°	4, 5, 6	[3106408.2]	
1s 4f	4f ¹ F°	3			1s 7h	7h ¹ H°	5		
1s 4p	4p ¹ P°	1	2991710		1s 7i	7i ³ I	5, 6, 7	[3106408.6]	
1s 5s	5s ³ S	1	[3048927]		1s 7i	7i ¹ I	6		
1s 5p	5p ³ P°	0, 1, 2	3051332		1s 7p	7p ¹ P°	1	[3106541]	
1s 5d	5d ³ D	1, 2, 3	3052589		1s 8s	8s ³ S	1	[3118635]	
1s 5f	5f ³ F°	2, 3, 4	[3052653.3]		1s 8p	8p ³ P°	0, 1, 2	[3119212]	
1s 5f	5f ¹ F°	3			1s 8d	8d ³ D	1, 2, 3	[3119507]	
1s 5d	5d ¹ D	2	[3052656]		1s 8d	8d ¹ D	2	[3119530]	
1s 5g	5g ³ G	3, 4, 5	[3052659.4]		1s 8p	8p ¹ P°	1	[3119619]	
1s 5g	5g ¹ G	4							
1s 5p	5p ¹ P°	1	3053044						
1s 6s	6s ³ S	1	[3084048]		C VI(² S _{01/2})	Limit		3162395 ± 30	

June 1, 1970.

Part B

CARBON

C v ($Z=6$)I P 392.077 ± 0.004 eV Limit 3162395 ± 30 cm⁻¹ $31.622 \text{ \AA}$ (Vac)

Anal A List A June 1970

REFERENCES

- A B. Edlén and B. Löfstrand, J. Phys. B (Proc. Phys. Soc. London) [2] **3**, No. 10, 1380 to 1388 (1970). I P, T, C L; W L $32 \text{ \AA}$ to $40 \text{ \AA}$; $156 \text{ \AA}$ to $267 \text{ \AA}$; $2270 \text{ \AA}$ to $3526 \text{ \AA}$. See A, also, for quoted wavelengths.
- B F. Tyrén, Zeit. Phys. **98**, 768 to 774 (1936). C L
- P Predicted wavelength
- B. C. Boland, F. E. Irons and R. W. P. McWhirter, J. Phys. B (Proc. Phys. Soc. London) [2] **1**, No. 6, 1180 to 1191 (1968). Laser-produced plasma source. C L; W L $718 \text{ \AA}$ to $765 \text{ \AA}$, $2982 \text{ \AA}$, $3526 \text{ \AA}$, $4944.7 \text{ \AA}$
- G. S. Bakken, A. C. Conrad and J. A. Jordan, Jr., J. Phys. B (Proc. Phys. Soc. London) [2] **2**, No. 12, 1378 to 1380 (1969). Beam foil observations. W L $4943.2 \text{ \AA}$, $4944.3 \text{ \AA}$, (I)
- U. Feldman and L. Cohen, Astroph. J. **158**, No. 3, Part 2, L169 to L170 (1969). C L; W L, 7 lines, $33.8 \text{ \AA}$ to $34.7 \text{ \AA}$
- R. Girardeau, G. Beauchemin and R. Drouin, private communication (1970). See A. Beam foil observations. W L, 5 lines, $672 \text{ \AA}$ to $760 \text{ \AA}$

*Blend

*and § Blend of C IV and C v

C v

C v

I A	Ref	Int	E P		J	Multiplet No.	I A	Ref	Int	E P		J	Multiplet No.
			Low	High						Low	High		
Vac 40.7306	A	3	0.00	304.39	0-1	$1s^2 \text{ } ^1S - 2p \text{ } ^3P^\circ_1$	Vac 32.188	B		0.00	385.15	0-1	$1s^2 \text{ } ^1S - 7p \text{ } ^1P^\circ_{10}$
40.2680‡	A	10	0.00	307.89	0-1	$1s^2 \text{ } ^1S - 2p \text{ } ^1P^\circ_2$	32.064	B		0.00	386.77	0-1	$1s^2 \text{ } ^1S - 8p \text{ } ^1P^\circ_{11}$
35.070	P		0.00	353.52	0-1	$1s^2 \text{ } ^1S - 3p \text{ } ^3P^\circ_3$							
34.9728	A	5	0.00	354.51	0-1	$1s^2 \text{ } ^1S - 3p \text{ } ^1P^\circ_4$	Air 2270.91	A	3	298.95	304.41	1-2	$2s \text{ } ^3S - 2p \text{ } ^3P^\circ_{12}$
							2277.92	A	2	298.95	304.39	1-1	
							2277.25	A	1	298.95	304.39	1-0	
33.463	P		0.00	370.50	0-1	$1s^2 \text{ } ^1S - 4p \text{ } ^3P^\circ_5$	Vac 227.192	A	5	298.95	353.52	1-	$2s \text{ } ^3S - 3p \text{ } ^3P^\circ_{13}$
33.4257	A	3	0.00	370.92	0-1	$1s^2 \text{ } ^1S - 4p \text{ } ^1P^\circ_6$							
							173.281	A	2	298.95	370.50	1-	$2s \text{ } ^3S - 4p \text{ } ^3P^\circ_{14}$
32.773	P		0.00	378.31	0-1	$1s^2 \text{ } ^1S - 5p \text{ } ^3P^\circ_7$							
							156.233	A	1	298.95	378.31	1-	$2s \text{ } ^3S - 5p \text{ } ^3P^\circ_{15}$
32.7542	A	2	0.00	378.52	0-1	$1s^2 \text{ } ^1S - 5p \text{ } ^1P^\circ_8$							
32.3998	A	1	0.00	382.66	0-1	$1s^2 \text{ } ^1S - 6p \text{ } ^1P^\circ_9$	Air 3526.7	A		304.38	307.89	0-1	$2s \text{ } ^1S - 2p \text{ } ^1P^\circ_{16}$

Multiplet Table

C v—Continued

I A	Ref	Int	E P		J	Multiplet No.
			Low	High		
Vac *247.31§	A		304.38	354.51	0—1	$2s \ ^1S - 3p \ ^1P^\circ$ 17
186.329	P		304.38	370.92	0—1	$2s \ ^1S - 4p \ ^1P^\circ$ 18
167.218	P		304.38	378.52	0—1	$2s \ ^1S - 5p \ ^1P^\circ$ 19
158.374	P		304.38	382.66	0—1	$2s \ ^1S - 6p \ ^1P^\circ$ 20
260.229	A	1	304.41	352.05	2—1	$2p \ ^3P^\circ - 3s \ ^3S$ 21
*260.136	A	1—	304.39	352.05	1—1	
*260.136	A	1—	304.39	352.05	0—1	
248.738	A	6	304.41	354.25	2—3	$2p \ ^3P^\circ - 3d \ ^3D$ 22
*248.661	A	6	304.39	354.25	1—	
*248.661	A	6	304.39	354.25	0—1	
186.745	A	3	304.41	370.80	2—	$2p \ ^3P^\circ - 4d \ ^3D$ 23
*186.697	A	3	304.39	370.80	1—	
*186.697	A	3	304.39	370.80	0—1	
167.402	A	1	304.40	378.46		$2p \ ^3P^\circ - 5d \ ^3D$ 24
267.267	A	3	307.89	354.28	1—2	$2p \ ^1P^\circ - 3d \ ^1D$ 25
197.024	A	1	307.89	370.82	1—2	$2p \ ^1P^\circ - 4d \ ^1D$ 26
Air 8432.2	P		352.05	353.52		$3s \ ^3S - 3p \ ^3P^\circ$ 27
Vac 672.06	P		352.05	370.50	1—	$3s \ ^3S - 4p \ ^3P^\circ$ 28
472.21	P		352.05	378.31	1—	$3s \ ^3S - 5p \ ^3P^\circ$ 29
756.87	P		353.52	369.90	—1	$3p \ ^3P^\circ - 4s \ ^3S$ 30

C v—Continued

I A	Ref	Int	E P		J	Multiplet No.
			Low	High		
Vac 717.58	P		353.52	370.80		$3p \ ^3P^\circ - 4d \ ^3D$ 31
506.31	P		353.52	378.01	—1	$3p \ ^3P^\circ - 5s \ ^3S$ 32
497.09	P		353.52	378.46		$3p \ ^3P^\circ - 5d \ ^3D$ 33
763.07	P		354.25	370.50		$3d \ ^3D - 4p \ ^3P^\circ$ 34
748.43	P		354.25	370.82		$3d \ ^3D - 4f \ ^3F^\circ$ 35
749.66	P		354.28	370.82	2—3	$3d \ ^1D - 4f \ ^1F^\circ$ 36
760.18	P		354.51	370.82	1—2	$3p \ ^1P^\circ - 4d \ ^1D$ 37
1619.80	P		370.82	378.47		$4f \ ^3,1F^\circ - 5g \ ^3,1G$ 38
Air 2980.97	P		378.47	382.63		$5f \ ^3,1F^\circ - 6g \ ^3,1G$ 39
2981.41	P		378.47	382.63		$5g \ ^3,1G - 6h \ ^3,1H^\circ$ 40
4943.88	P	(1)	382.63	385.14		$6f \ ^3,1F^\circ - 7g \ ^3,1G$ 41
4944.56	P	(1)	382.63	385.14		$6g \ ^3,1G - 7h \ ^3,1H^\circ$ 42
4944.76	P		382.63	385.14		$6h \ ^3,1H^\circ - 7i \ ^3,1I$ 43

NSRDS-NBS 3, SECTION 3

CARBON, $Z = 6$

A C VI Atomic Energy Levels

B C VI Multiplet Table

Part A

CARBON

C VI

(H I sequence; 1 electron)

 $Z=6$ Ground state $1s^2S_{01/2}$ $1s^2S_{01/2}$ 3952061.3 cm^{-1} , 25.303 Å (Vac)

IP 489.981 eV

In 1938 Tyrén reported several members of the Lyman Series as observed, in the region 25 Å to 35 Å.

The terms listed below have been calculated by J. D. Garcia and J. E. Mack as part of their extensive calculations of H-like spectra to Ca XX. Their values refer to the isotope ^{12}C for which they used the value $R = 109732.29205$.

Edlén has also calculated centre-of-gravity wavelengths of the Lyman lines $1s - np$, $n = 2$ to 7, for the natural isotope mixture, but the difference is negligible in the case of C VI.

REFERENCES

F. Tyrén, Zeit. Phys. **109**, 722 to 727 (1938); **98**, 771 to 772 (1936). C L

J. D. Garcia and J. E. Mack, J. Opt. Soc. Am. **55**, No. 6, 654 to 685 (1965). IP, T, C L

B. Edlén, Ark. Fys. (Stockholm) **31**, No. 35, 509 to 510 (1966). C L

C VI

C VI

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
1s	$1s^2S$	$0\frac{1}{2}$	0.0		6p	$6p^2P^\circ$	$0\frac{1}{2}$	3842298.2	
2p	$2p^2P^\circ$	$0\frac{1}{2}$	2963877.9		6s	$6s^2S$	$0\frac{1}{2}$	3842299.2	1.0
2s	$2s^2S$	$0\frac{1}{2}$	2963904.0	26.1	6p, 6d	$6d^2D$	$1\frac{1}{2}$	3842315.8	16.6
2p	$2p^2P^\circ$	$1\frac{1}{2}$	2964352.8	448.8	6d, 6f	$6d^2D$	$2\frac{1}{2}$	3842321.6	5.8
3p	$3p^2P^\circ$	$0\frac{1}{2}$	3512921.4		6f, 6g	$6f^2F^\circ$	$3\frac{1}{2}$	3842324.6	3.0
3s	$3s^2S$	$0\frac{1}{2}$	3512929.2	7.8	6g, 6h	$6g^2G$	$4\frac{1}{2}$	3842326.3	1.7
3d	$3d^2D$	$1\frac{1}{2}$	3513061.9	32.7	6h	$6h^2H^\circ$	$5\frac{1}{2}$	3842327.5	1.2
3p	$3p^2P^\circ$	$1\frac{1}{2}$	3513062.1	0.2	7p	$7p^2P^\circ$	$0\frac{1}{2}$	3871421.9	
3d	$3d^2D$	$2\frac{1}{2}$	3513108.7	46.6	7s	$7s^2S$	$0\frac{1}{2}$	3871422.5	0.6
4p	$4p^2P^\circ$	$0\frac{1}{2}$	3705067.3		7p, 7d	$7d^2D$	$1\frac{1}{2}$	3871432.9	10.4
4s	$4s^2S$	$0\frac{1}{2}$	3705070.6	3.3	7d, 7f	$7d^2D$	$2\frac{1}{2}$	3871436.6	3.7
4d	$4d^2D$	$1\frac{1}{2}$	3705126.6	56.0	7f, 7g	$7f^2F^\circ$	$3\frac{1}{2}$	3871438.4	1.8
4p	$4p^2P^\circ$	$1\frac{1}{2}$	3705126.7	0.1	7g, 7h	$7g^2G$	$4\frac{1}{2}$	3871439.5	1.1
4d, 4f	$4d^2D$	$2\frac{1}{2}$	3705146.3	19.6	7h, 7i	$7i^2I$	$5\frac{1}{2}$	3871440.3	0.8
4f	$4f^2F^\circ$	$3\frac{1}{2}$	3705156.2	9.9	7i	$7i^2I$	$6\frac{1}{2}$	3871440.8	0.5
5p	$5p^2P^\circ$	$0\frac{1}{2}$	3793995.2		8p	$8p^2P^\circ$	$0\frac{1}{2}$	3890323.4	
5s	$5s^2S$	$0\frac{1}{2}$	3793996.9	1.7	8s	$8s^2S$	$0\frac{1}{2}$	3890323.8	0.4
5d	$5d^2D$	$1\frac{1}{2}$	3794025.5	28.6	8p, 8d	$8d^2D$	$1\frac{1}{2}$	3890330.8	7.0
5p	$5p^2P^\circ$	$1\frac{1}{2}$	3794025.6	0.1	8d, 8f	$8d^2D$	$2\frac{1}{2}$	3890333.3	2.5
5d, 5f	$5d^2D$	$2\frac{1}{2}$	3794035.6	10.0	8f, 8g	$8f^2F^\circ$	$3\frac{1}{2}$	3890334.5	1.2
5f, 5g	$5g^2G$	$3\frac{1}{2}$	3794040.7	5.1	8g, 8h	$8g^2G$	$4\frac{1}{2}$	3890335.3	0.8
5g	$5g^2G$	$4\frac{1}{2}$	3794043.7	3.0	8h, 8i	$8i^2I$	$5\frac{1}{2}$	3890335.7	0.4
					8i, 8k	$8i^2I$	$6\frac{1}{2}$	3890336.1	0.4
					8k	$8k^2K^\circ$	$7\frac{1}{2}$	3890336.4	0.3

Atomic Energy Levels

C VI – Continued

C VI – Continued

Config.	Desig.	J	Level	Interval	Config.	Desig.	J	Level	Interval
9p	9p $^2P^\circ$	$0\frac{1}{2}$	3903281.8		13p	13p $^2P^\circ$	$0\frac{1}{2}$	3928683.1	
9s	9s 2S	$0\frac{1}{2}$	3903282.1	0.3	13s	13s 2S	$0\frac{1}{2}$	3928683.2	0.1
9p, 9d	9d 2D 9p $^2P^\circ$	$1\frac{1}{2}$	3903287.0	4.9	etc.		$12\frac{1}{2}$	to 86.2	3.0
9d, 9f	9d 2D 9f $^2F^\circ$	$2\frac{1}{2}$	3903288.7	1.7					
9f, 9g	9g 2G 9f $^2F^\circ$	$3\frac{1}{2}$	3903289.6	0.9	14p	14p $^2P^\circ$	$0\frac{1}{2}$	3931903.7	
9g, 9h	9g 2G 9h $^2H^\circ$	$4\frac{1}{2}$	3903290.1	0.5	14s	14s 2S	$0\frac{1}{2}$	3931903.8	0.1
9h, 9i	9i 2I 9h $^2H^\circ$	$5\frac{1}{2}$	3903290.5	0.4	etc.		$13\frac{1}{2}$	to 06.3	2.5
9i, 9k	9i 2I 9k $^2K^\circ$	$6\frac{1}{2}$	3903290.7	0.2					
9k, 9l	9l 2L 9k $^2K^\circ$	$7\frac{1}{2}$	3903290.9	0.2	15p	15p $^2P^\circ$	$0\frac{1}{2}$	3934501.9	
9l	9l 2L	$8\frac{1}{2}$	3903291.0	0.1	15s	15s 2S	$0\frac{1}{2}$	3934502.0	0.1
					etc.		$14\frac{1}{2}$	to 04.0	2.0
10p	10p $^2P^\circ$	$0\frac{1}{2}$	3912550.6						
10s	10s 2S	$0\frac{1}{2}$	3912550.8	0.2	16s, 16p	16s 2S 16p $^2P^\circ$	$0\frac{1}{2}$	3936628.4	
10p, 10d	10d 2D 10p $^2P^\circ$	$1\frac{1}{2}$	3912554.4	3.6	etc.		$15\frac{1}{2}$	to 30.1	1.7
10d, 10f	10d 2D 10f $^2F^\circ$	$2\frac{1}{2}$	3912555.7	1.3					
10f, 10g	10g 2G 10f $^2F^\circ$	$3\frac{1}{2}$	3912556.3	0.6	17s, 17p	17s 2S 17p $^2P^\circ$	$0\frac{1}{2}$	3938390.7	
10g, 10h	10g 2G 10h $^2H^\circ$	$4\frac{1}{2}$	3912556.7	0.4	etc.		$16\frac{1}{2}$	to 92.1	1.4
10h, 10i	10i 2I 10h $^2H^\circ$	$5\frac{1}{2}$	3912556.9	0.2					
10i, 10k	10i 2I 10k $^2K^\circ$	$6\frac{1}{2}$	3912557.1	0.2	18p	18p $^2P^\circ$	$0\frac{1}{2}$	3939867.5	
10k, 10l	10l 2L 10k $^2K^\circ$	$7\frac{1}{2}$	3912557.2	0.1	18s	18s 2S	$0\frac{1}{2}$	3939867.6	0.1
10l, 10m	10l 2L 10m $^2M^\circ$	$8\frac{1}{2}$	3912557.3	0.2	etc.		$17\frac{1}{2}$	to 68.7	1.1
10m	10m $^2M^\circ$	$9\frac{1}{2}$	3912557.4	0.1					
					19p	19p $^2P^\circ$	$0\frac{1}{2}$	3941117.3	
11p	11p $^2P^\circ$	$0\frac{1}{2}$	3919408.3		19s	19s 2S	$0\frac{1}{2}$	3941117.4	0.1
11s	11s 2S	$0\frac{1}{2}$	3919408.5	0.2	etc.		$18\frac{1}{2}$	to 18.4	1.0
etc.		$10\frac{1}{2}$	to 13.5	5.0					
					20s, 20p	20s 2S 20p $^2P^\circ$	$0\frac{1}{2}$	3942184.4	
12p	12p $^2P^\circ$	$0\frac{1}{2}$	3924624.1		etc.		$19\frac{1}{2}$	to 85.3	0.9
12s	12s 2S	$0\frac{1}{2}$	3924624.2	0.1					
etc.		$11\frac{1}{2}$	to 28.1	3.9					
						$\infty = \text{Limit}$		3952061.3	

November 1967.

Part B

CARBON

C VI ($Z=6$)IP 489.981 eV Limit 3952061.3 cm^{-1} 25.303 Å (Vac)

Anal A List B November 1967

REFERENCES

- A J. D. Garcia and J. E. Mack, J. Opt. Soc. Am. **55**, No. 6, 654 to 685 (1965). I P, T, C L; W L 25 Å to 24643 Å (All wavelengths are from theoretical calculations of H-like spectra. For unresolved groups the wavelength has been derived from "the wave number of the statistically weighted mean of all components.")

B. Edlén, Ark. Fys. (Stockholm) **31**, 509 to 510 (1966). C L

C VI

C VI

I A	Ref	Int	E P		J	Multiplet No.	I A	Ref	Int	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
33.7342†	A		0.00	367.52	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 2p\ ^2P^\circ$	25.3911	A		0.00	488.29	$0\frac{1}{2}-$	$1s\ ^2S - 17p\ ^2P^\circ$
33.7396	A		0.00	367.46	$0\frac{1}{2}-0\frac{1}{2}$	1							16
28.4652	A		0.00	435.55	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 3p\ ^2P^\circ$	25.3816	A		0.00	488.47	$0\frac{1}{2}-$	$1s\ ^2S - 18p\ ^2P^\circ$
28.4663	A		0.00	435.54	$0\frac{1}{2}-0\frac{1}{2}$	2							17
26.9896	A		0.00	459.37	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 4p\ ^2P^\circ$	25.3735	A		0.00	488.62	$0\frac{1}{2}-$	$1s\ ^2S - 19p\ ^2P^\circ$
26.9901	A		0.00	459.36	$0\frac{1}{2}-0\frac{1}{2}$	3							18
26.3572	A		0.00	470.39	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 5p\ ^2P^\circ$	25.3666	A		0.00	488.76	$0\frac{1}{2}-$	$1s\ ^2S - 20p\ ^2P^\circ$
26.3574	A		0.00	470.38	$0\frac{1}{2}-0\frac{1}{2}$	4							19
26.0260	A		0.00	476.37	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 6p\ ^2P^\circ$							
26.0261	A		0.00	476.37	$0\frac{1}{2}-0\frac{1}{2}$	5							
25.8302	A		0.00	479.98	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 7p\ ^2P^\circ$	182.290	A		367.52	435.54	$1\frac{1}{2}-0\frac{1}{2}$	$2p\ ^2P^\circ - 3s\ ^2S$
25.8303	A		0.00	479.98	$0\frac{1}{2}-0\frac{1}{2}$	6	182.132	A		367.46	435.54	$0\frac{1}{2}-0\frac{1}{2}$	20
25.7048	A		0.00	482.33	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 8p\ ^2P^\circ$	182.230	A		367.52	435.56	$1\frac{1}{2}-2\frac{1}{2}$	$2p\ ^2P^\circ - 3d\ ^2D$
25.7048	A		0.00	482.33	$0\frac{1}{2}-0\frac{1}{2}$	7	182.088	A		367.46	435.55	$0\frac{1}{2}-1\frac{1}{2}$	21
							182.246	A		367.52	435.55	$1\frac{1}{2}-1\frac{1}{2}$	
25.6194	A		0.00	483.93	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 9p\ ^2P^\circ$	135.004	A		367.52	459.36	$1\frac{1}{2}-0\frac{1}{2}$	$2p\ ^2P^\circ - 4s\ ^2S$
25.6195	A		0.00	483.93	$0\frac{1}{2}-0\frac{1}{2}$	8	134.918	A		367.46	459.36	$0\frac{1}{2}-0\frac{1}{2}$	22
25.5587	A		0.00	485.08	$0\frac{1}{2}-1\frac{1}{2}$	$1s\ ^2S - 10p\ ^2P^\circ$							
25.5588	A		0.00	485.08	$0\frac{1}{2}-0\frac{1}{2}$	9							
25.5140	A		0.00	485.93	$0\frac{1}{2}-$	$1s\ ^2S - 11p\ ^2P^\circ$	134.953	A		367.50	459.37		$2p\ ^2P^\circ - 4d\ ^2D$ etc. 23 etc.
						10							
25.4801	A		0.00	486.58	$0\frac{1}{2}-$	$1s\ ^2S - 12p\ ^2P^\circ$	120.534	A		367.52	470.38	$1\frac{1}{2}-0\frac{1}{2}$	$2p\ ^2P^\circ - 5s\ ^2S$
						11	120.465	A		367.46	470.38	$0\frac{1}{2}-0\frac{1}{2}$	24
25.4538	A		0.00	487.08	$0\frac{1}{2}-$	$1s\ ^2S - 13p\ ^2P^\circ$	120.496	A		367.50	470.39		$2p\ ^2P^\circ - 5d\ ^2D$ etc. 25 etc.
						12							
25.4330	A		0.00	487.48	$0\frac{1}{2}-$	$1s\ ^2S - 14p\ ^2P^\circ$	113.902	A		367.52	476.37	$1\frac{1}{2}-0\frac{1}{2}$	$2p\ ^2P^\circ - 6s\ ^2S$
						13	113.841	A		367.46	476.37	$0\frac{1}{2}-0\frac{1}{2}$	26
25.4162	A		0.00	487.80	$0\frac{1}{2}-$	$1s\ ^2S - 15p\ ^2P^\circ$	113.870	A		367.50	476.37		$2p\ ^2P^\circ - 6d\ ^2D$ etc. 27 etc.
						14							
25.4024	A		0.00	488.07	$0\frac{1}{2}-$	$1s\ ^2S - 16p\ ^2P^\circ$	110.245	A		367.52	479.98	$1\frac{1}{2}-0\frac{1}{2}$	$2p\ ^2P^\circ - 7s\ ^2S$
						15	110.187	A		367.46	479.98	$0\frac{1}{2}-0\frac{1}{2}$	28

Multiplet Tables

C VI—Continued

CVI—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						
110.216	A		367.50	479.98		$2p^2P^\circ - 7d^2D$ etc. 29 etc.	520.810	A		435.55	459.36	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 4s^2S$
							520.429	A		435.54	459.36	$0\frac{1}{2}-0\frac{1}{2}$	49
107.995	A		367.52	482.33	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 8s^2S$	355.954	A		435.55	470.38	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 5s^2S$
107.939	A		367.46	482.33	$0\frac{1}{2}-0\frac{1}{2}$	30	355.776	A		435.54	470.38	$0\frac{1}{2}-0\frac{1}{2}$	50
107.967	A		367.50	482.33		$2p^2P^\circ - 8d^2D$ etc. 31 etc.	303.732	A		435.55	476.37	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 6s^2S$
							303.603	A		435.54	476.37	$0\frac{1}{2}-0\frac{1}{2}$	51
106.504	A		367.52	483.93	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 9s^2S$	279.049	A		435.55	479.98	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 7s^2S$
106.450	A		367.46	483.93	$0\frac{1}{2}-0\frac{1}{2}$	32	278.939	A		435.54	479.98	$0\frac{1}{2}-0\frac{1}{2}$	52
106.477	A		367.50	483.93		$2p^2P^\circ - 9d^2D$ etc. 33 etc.	265.068	A		435.55	482.33	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 8s^2S$
							264.969	A		435.54	482.33	$0\frac{1}{2}-0\frac{1}{2}$	53
105.463	A		367.52	485.08	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 10s^2S$	256.266	A		435.55	483.93	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 9s^2S$
105.410	A		367.46	485.08	$0\frac{1}{2}-0\frac{1}{2}$	34	256.173	A		435.54	483.93	$0\frac{1}{2}-0\frac{1}{2}$	54
105.437	A		367.50	485.08		$2p^2P^\circ - 10d^2D$ etc. 35 etc.	250.320	A		435.55	485.08	$1\frac{1}{2}-0\frac{1}{2}$	$3p^2P^\circ - 10s^2S$
							250.232	A		435.54	485.08	$0\frac{1}{2}-0\frac{1}{2}$	55
104.706	A		367.52	485.93	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 11s^2S$							
104.654	A		367.46	485.93	$0\frac{1}{2}-0\frac{1}{2}$	36	520.298	A		435.54	459.37	$0\frac{1}{2}-1\frac{1}{2}$	$3s^2S - 4p^2P^\circ$
							520.459	A		435.54	459.36	$0\frac{1}{2}-0\frac{1}{2}$	56
104.680	A		367.50	485.93		$2p^2P^\circ - 11d^2D$ etc. 37 etc.	355.750	A		435.54	470.39	$0\frac{1}{2}-1\frac{1}{2}$	$3s^2S - 5p^2P^\circ$
							355.788	A		435.54	470.38	$0\frac{1}{2}-0\frac{1}{2}$	57
104.137	A		367.52	486.58	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 12s^2S$							
104.086	A		367.46	486.58	$0\frac{1}{2}-0\frac{1}{2}$	38	520.606	A		435.56	459.37		$3d^2D - 4f^2F^\circ$ etc. 58 etc.
104.112	A		367.50	486.58		$2p^2P^\circ - 12d^2D$ etc. 39 etc.							
							355.895	A		435.56	470.39		$3d^2D - 5f^2F^\circ$ etc. 59 etc.
103.699	A		367.52	487.08	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 13s^2S$							
103.648	A		367.46	487.08	$0\frac{1}{2}-0\frac{1}{2}$	40	303.699	A		435.56	476.38		$3d^2D - 6f^2F^\circ$ etc. 60 etc.
103.674	A		367.50	487.08		$2p^2P^\circ - 13d^2D$ etc. 41 etc.	279.025	A		435.56	479.98		$3d^2D - 7f^2F^\circ$ etc. 61 etc.
103.354	A		367.52	487.48	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 14s^2S$							
103.303	A		367.46	487.48	$0\frac{1}{2}-0\frac{1}{2}$	42	265.049	A		435.56	482.33		$3d^2D - 8f^2F^\circ$ etc. 62 etc.
103.329	A		367.50	487.48		$2p^2P^\circ - 14d^2D$ etc. 43 etc.	256.249	A		435.56	483.93		$3d^2D - 9f^2F^\circ$ etc. 63 etc.
103.077	A		367.52	487.80	$1\frac{1}{2}-0\frac{1}{2}$	$2p^2P^\circ - 15s^2S$							
103.026	A		367.46	487.80	$0\frac{1}{2}-0\frac{1}{2}$	44	250.304	A		435.56	458.08		$3d^2D - 10f^2F^\circ$ etc. 64 etc.
103.052	A		367.50	487.80		$2p^2P^\circ - 15d^2D$ etc. 45 etc.							
							1125.237	A		459.37	470.38	$1\frac{1}{2}-0\frac{1}{2}$	$4p^2P^\circ - 5s^2S$
							1124.485	A		459.36	470.38	$0\frac{1}{2}-0\frac{1}{2}$	65
182.097	A		367.47	435.55	$0\frac{1}{2}-1\frac{1}{2}$	$2s^2S - 3p^2P^\circ$	729.009	A		459.37	476.37	$1\frac{1}{2}-0\frac{1}{2}$	$4p^2P^\circ - 6s^2S$
182.144	A		367.47	435.54	$0\frac{1}{2}-0\frac{1}{2}$	46	728.694	A		459.36	476.37	$0\frac{1}{2}-0\frac{1}{2}$	66
134.912	A		367.47	459.37	$0\frac{1}{2}-1\frac{1}{2}$	$2s^2S - 4p^2P^\circ$	601.338	A		459.37	479.98	$1\frac{1}{2}-0\frac{1}{2}$	$4p^2P^\circ - 7s^2S$
134.923	A		367.47	459.36	$0\frac{1}{2}-0\frac{1}{2}$	47	601.123	A		459.36	479.98	$0\frac{1}{2}-0\frac{1}{2}$	67
120.464	A		367.47	470.39	$0\frac{1}{2}-1\frac{1}{2}$	$2s^2S - 5p^2P^\circ$	539.965	A		459.37	482.33	$1\frac{1}{2}-0\frac{1}{2}$	$4p^2P^\circ - 8s^2S$
120.469	A		367.47	470.38	$0\frac{1}{2}-0\frac{1}{2}$	48	539.792	A		459.36	482.33	$0\frac{1}{2}-0\frac{1}{2}$	68
							504.654	A		459.37	483.93	$1\frac{1}{2}-0\frac{1}{2}$	$4p^2P^\circ - 9s^2S$
							504.503	A		459.36	483.93	$0\frac{1}{2}-0\frac{1}{2}$	69

C VI—Continued

C VI—Continued

I A	Ref	Int	E P		J	Multiplet No.	I A	Ref	Int	E P		J	Multiplet No.
			Low	High						Low	High		
Vac 482.104 481.966	A A		459.37 459.36	485.08 485.08	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$4p^2P^\circ-10s^2S$ 70	Vac 915.277 915.023	A A		470.39 470.38	483.93 483.93	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$5p^2P^\circ-9s^2S$ 81
1124.164 1124.548	A A		459.36 459.36	470.39 470.38	$0\frac{1}{2}-1\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$4s^2S-5p^2P^\circ$ 71	843.702 843.486	A A		470.39 470.38	485.08 485.08	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$5p^2P^\circ-10s^2S$ 82
1124.879	A		459.37	470.39		$4d^2D-5f^2F^\circ$ etc. 72 etc.	Air 2070.252	A		470.39	476.38		$5d^2D-6f^2F^\circ$ etc. 83 etc.
728.934	A		459.37	476.38		$4d^2D-6f^2F^\circ$ etc. 73 etc.	Vac 1291.935	A		470.39	479.98		$5d^2D-7f^2F^\circ$ etc. 84 etc.
601.311	A		459.37	479.98		$4d^2D-7f^2F^\circ$ etc. 74 etc.	1038.417	A		470.39	482.33		$5d^2D-8f^2F^\circ$ etc. 85 etc.
539.954	A		459.37	482.33		$4d^2D-8f^2F^\circ$ etc. 75 etc.	915.280	A		470.39	483.93		$5d^2D-9f^2F^\circ$ etc. 86 etc.
504.650	A		459.37	483.93		$4d^2D-9f^2F^\circ$ etc. 76 etc.	843.715	A		470.39	485.08		$5d^2D-10f^2F^\circ$ etc. 87 etc.
482.103	A		459.37	485.08		$4d^2D-10f^2F^\circ$ etc. 77 etc.	Air 3434.651 3432.575	A A		476.37 476.37	479.98 479.98	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$6p^2P^\circ-7s^2S$ 88
Air 2070.865 2069.561	A A		470.39 470.38	476.37 476.37	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$5p^2P^\circ-6s^2S$ 78	2082.323 2081.560	A A		476.37 476.37	482.33 482.33	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$6p^2P^\circ-8s^2S$ 89
Vac 1292.041 1291.534	A A		470.39 470.38	479.98 479.98	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$5p^2P^\circ-7s^2S$ 79	Vac 1640.250 1639.777	A A		476.37 476.37	483.93 483.93	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$6p^2P^\circ-9s^2S$ 90
1038.441 1038.113	A A		470.39 470.38	482.33 482.33	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$5p^2P^\circ-8s^2S$ 80	1423.792 1423.435	A A		476.37 476.37	485.08 485.08	$1\frac{1}{2}-0\frac{1}{2}$ $0\frac{1}{2}-0\frac{1}{2}$	$6p^2P^\circ-10s^2S$ 91

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