7i. Atomic Transition Probabilities[1]

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In the following tables, we present *selected* critically evaluated atomic transition probabilities for the 20 lightest elements. For this group of elements many data of moderate or sometimes even high accuracy are available from various experimental and theoretical sources. The material selected here is obtained principally from Hartree-Fock calculations (which partly include the effects of configuration interaction), from the Coulomb approximation, from the nuclear charge expansion method, and, experimentally, from emission measurements with stabilized arcs, from lifetime experiments (with delayed coincidence techniques as well as with the Hanle effect method) and from anomalous dispersion measurements.

1. *Guideposts for the Selection of Data.* The listed data are mostly the same as those chosen by us for two recent *comprehensive* critical data compilations [1,2] which are several times larger than the present table. For the inclusion of data into this much more compact table we have used the following guideposts: Only lines with uncertainties estimated not to exceed 50 percent are included; only the more prominent lines of a spectrum, that is, the lines of at least moderate strength, are listed (even if reliable data are known for weak lines); and normally only those lines are included which have been observed before, i.e., which are listed in multiplet or other spectral line tables [3–6]. However, we have not been too rigid about the last requirement, especially for spectra of higher stages of ionization. These spectra have recently come into prominence, but are as yet rather incompletely represented in present multiplet tables. For these spectra we have thus listed the most prominent lines—when good f-value data are available—even in cases when we had only calculated wavelengths at our disposal. (In order to indicate that the calculated wavelengths are normally much more uncertain than the measured ones, the former are given in square brackets.) We believe that with the greatly expanded scale of research in plasma physics and astrophysics it will be only a short time before many of these lines are observed and may be needed for diagnostic studies.[2]

As stated above, most of the data for this tabulation have been taken from two recent comprehensive compilations published in 1966 (H through Ne [1]) and in 1969 (Na through Ca [2]). But, in addition, we have also evaluated and included the most recent material through early 1970. Especially for the spectra of He, Li, Be, B, C, Ne, and Si we have found quite a bit of newer, more accurate data. In such cases we present the new data, list the individual references and indicate there which particular experimental or theoretical method the author has used.

2. *Definitions, Units, and Conversion Factors.* In the current literature several equivalent expressions for the atomic transition probability have found widespread

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[2] We have usually not listed any data for stages of ionization beyond six. Some material for still higher stages of ionization is found in Wiese et al. [1,2].

acceptance. Not only the transition probability (per second) for spontaneous emission A_{ki} from upper atomic state k to lower state i, but also the (absorption) oscillator strength or f value and the line strength S are widely used. In addition, the log gf is often employed in the astrophysical literature (g is the statistical weight). For the present tables, where we have to restrict ourselves to one quantity to achieve a compact presentation, we have chosen to list A_{ki}. Quantum theory yields for it the expression

$$A_{ki} = \frac{64\pi^4 e^2 \nu_{ik}^3}{3hc^3} \frac{1}{g_k} \left| \langle i \right| \sum_p \mathbf{r} \left| k \rangle \right|^2 \qquad (7i\text{-}1)$$

where the summation in the squared matrix element is over the position vectors $\mathbf{r}$ of all p electrons of the atom, and ν_{ik} is the frequency.

TABLE 7i-1. NUMERICAL CONVERSION FACTORS FOR ALLOWED LINES

The transition probability is listed in units s^{-1}, and the f value is dimensionless. The wavelength λ must be used in angstroms, and g_i and g_k are the statistical weights of the lower and upper states, respectively. (Note that in the tables, with the exception of hydrogen, A_{ki} is given in units $10^8\ s^{-1}$).

	Transition probability	Oscillator strength	Line strength
Transition probability A_{ki} =	—	$\frac{6.670_2 \times 10^{15}}{\lambda^2} \frac{g_i}{g_k} f_{ik}$	$\frac{2.026_1 \times 10^{18}}{g_k \lambda^3} S$
Oscillator strength f_{ik} =	$1.4992 \times 10^{-16}\ \lambda^2 \frac{g_k}{g_i} A_{ki}$	—	$\frac{303.7_5}{g_i \lambda} S$
Line strength S =	$4.935_6 \times 10^{-19}\ g_k \lambda^3 A_{ki}$	$3.292_1 \times 10^{-3}\ g_i \lambda f_{ik}$	—

The f value and the line strength S are numerically related to A_{ki} by the formulas given in Table 7i-1 (see also [2]). The line strength is as usual given in atomic units, which are for allowed (or electric dipole) transitions

$$a_0^2 e^2 = 7.187_3 \times 10^{-59}\ m^2 C^2.$$

The statistical weights, which are listed for all presented lines, are related to the inner or total angular momentum quantum number J by $g = 2J + 1$.

Aside from the quantities listed in Table 7i-1, the transition probability for induced or stimulated emission B_{ki} and the transition probability for absorption B_{ik} may become important in special fields, for example, in laser research. These quantities are numerically related to the transition probability for spontaneous emission by

$$B_{ki} = 6.01\lambda^3 A_{ki} \qquad (7i\text{-}2)$$

and

$$B_{ik} = 6.01\lambda^3 \frac{g_k}{g_i} A_{ki} \qquad (7i\text{-}3)$$

where λ is the wavelength in angstroms.

Occasionally the emission oscillator strength f_{ki} has been employed. This quantity is related to the normally used (absorption) oscillator strength by

$$f_{ki} = -\frac{g_i}{g_k} f_{ik} \qquad (7i\text{-}4)$$

3. *Discussion of Data Tables*. In this compilation we list the transition probabilities of *individual* spectral lines, whenever the nearest known neighboring lines differ by at least a few parts in 10^4 in wavelength.[1] We often present several lines of a multiplet, usually the stronger ones, but omit the weaker ones. In the relatively few cases where the lines of a multiplet are all so closely grouped together that they are difficult or impossible to resolve, we list the *multiplet* value (as well as the *multiplet* statistical weights) instead of the individual line data. These data are marked by a dagger. If just a portion of the lines in a multiplet (or lines from different multiplets) differs in wavelength by less than one part in 10^4, we have omitted these lines, since they would overlap completely under most experimental conditions so that they might be mistaken for a single line.

For hydrogen, we list "average" transition probabilities A^*_{ki}, which are needed for most practical applications. These (calculated) transition probabilities are exact values for the number of digits given. For hydrogen, all states with the same principal quantum number are degenerate, so that only a single line having an "average" transition probability is observed for all possible combinations involving the principal quantum numbers i and k. The only assumption entering into the application of average transition probabilities is that the atomic substates must be occupied according to their statistical weights [1,7], which is the case for any plasma which is not too dilute.

The spectra of hydrogen-like ions are not included in this tabulation, since their transition probabilities may be obtained simply by scaling the hydrogen values A_H according to

$$A_Z = Z^4 A_H \qquad (7i\text{-}5)$$

where Z is the nuclear charge.

For all other tabulated spectra we give accuracy estimates for the transition probabilities and present for purposes of identification all available multiplet numbers as given by Moore [3-5]. The evaluation of the accuracy of the presented material is the most crucial (and normally the most time-consuming) part of a critical data compilation. We have therefore discussed our evaluation procedures extensively in the general introductions to our larger compilations [1,2], from which—as was mentioned before—we have extracted most of the data presented here. Because of limitations of space we have to refer here to these discussions and may also state that we have used in this compilation exactly the same procedures for the evaluation of all newer material.

In addition to the allowed lines, we also list transition probabilities for some prominent forbidden lines because they are of interest in astrophysics and atmospheric physics. We always present *total* transition probabilities, i.e., the sum of the magnetic dipole and electric quadrupole values for a given line (in [1,2], on the other hand, we have listed the separate values).

For a number of *magnetic dipole* lines the line strengths are essentially given by straight numbers. In some of these cases, furthermore, the transition probabilities of the respective *electric quadrupole* lines at the same wavelength are smaller by several orders of magnitude for all the ions covered in this table. The principal reason for this is that the wavelengths are relatively large (detailed estimates are given by Naqvi

[1] In cases where only moderate spectral resolution is achieved, the multiplet tables [3-6] or [1,2] should be checked for the existence of other nearby lines.

as well as Shortley, Aller, Baker, and Menzel [8]). The *total* transition probabilities in such instances, if the wavelength λ is known, may thus simply be obtained from

$$A = 2.697 \times 10^{13} g_k^{-1} \lambda^{-3} S_m \tag{7i-6}$$

where λ is in angstroms, and the magnetic dipole line strength S_m is in atomic units. The S_m values for these lines are tabulated in Table 7i-2.

TABLE 7i-2. LINE STRENGTHS FOR SOME FORBIDDEN TRANSITIONS

Configuration	Line	S, atomic units
$nsnp$*	$^3P_0^\circ - {}^3P_1^\circ$	2.00
	$^3P_1^\circ - {}^3P_2^\circ$	2.50
np	$^2P_{1/2}^\circ - {}^2P_{3/2}^\circ$	1.33
np^2	$^3P_1 - {}^3P_2$	2.50
np^3	$^2D_{3/2}^\circ - {}^2D_{5/2}^\circ$	2.40
	$^2P_{1/2}^\circ - {}^2P_{3/2}^\circ$	1.33
np^4	$^3P_2 - {}^3P_1$	2.50
np^5	$^2P_{3/2}^\circ - {}^2P_{1/2}^\circ$	1.33

* Complete shells, like $1s^2 2s^2$, are omitted. The principal quantum number n has the values $n = 2, 3$.

4. *Availability of Data for Heavier Elements.* For most other elements not included in this table, with the exception of the alkalies and some selected lines for elements of the iron group and the alkaline earths, the accuracy and reliability of atomic transition probabilities—if there are any available at all—are still rather poor and at the present time hardly worth a detailed critical compilation such as this. Thus, until more and especially more accurate material becomes available, we have to refer to the following sources: (1) Bibliography on Atomic Transition Probabilities, *NBS Special Publ.* 320, B. M. Miles and W. L. Wiese, 1970. This is an annotated bibliography which lists literature references ordered by elements and stages of ionization and indicates the various experimental or theoretical methods that have been employed. (2) Experimental Transition Probabilities, *NBS Monograph* 53, by C. Corliss and W. Bozman, 1962. This tabulation lists about 25,000 atomic oscillator strengths, mostly for heavier elements, obtained from arc intensity measurements which are generally of moderate or rather poor quality, as many comparisons with other data have shown. The data of Corliss and Bozman show many large discrepancies with other material, especially for the alkalies and alkaline earths and for lines from higher excited levels of the iron group elements. Thus great caution should be exercised when employing these data. (3) A special critical evaluation of transition probability data is available for the spectra of Ba I and II, *NBS Tech. Note* 474, by B. M. Miles and W. L. Wiese, 1968.

5. *Regularities and Systematic Trends.* Some remarks are in order about the recently detected regularities in atomic oscillator strengths, because these are of great value for evaluating the reliability of existing data as well as for determining additional numerical values by simple interpolation techniques. Three principal regularities have been detected (for detailed discussions see [9–11]), which may be briefly stated in the following way:

DEPENDENCE OF f VALUES ON NUCLEAR CHARGE Z. This dependence may be readily derived from conventional perturbation theory, with the result that f may be represented by a power series in Z^{-1}:

$$f = a_0 + a_1 Z^{-1} + a_2 Z^{-2} + \cdots$$

where the first term a_0 is a hydrogenic f value [9,10] which vanishes for all transitions which do not involve a change in the principal quantum number. Three graphical examples exhibiting this systematic trend for different physical situations are given in Figs. 7i-1 to 7i-3, where the f value is plotted against $1/Z$.

SYSTEMATIC TRENDS OF f VALUES WITHIN SPECTRAL SERIES. Within a spectral series, the dependence of f on the principal quantum number n (or the effective quantum number n^*) is found to be always a smooth one, in an analogous fashion as for hydrogen. For lower values of n the f value is not always monotonically decreasing

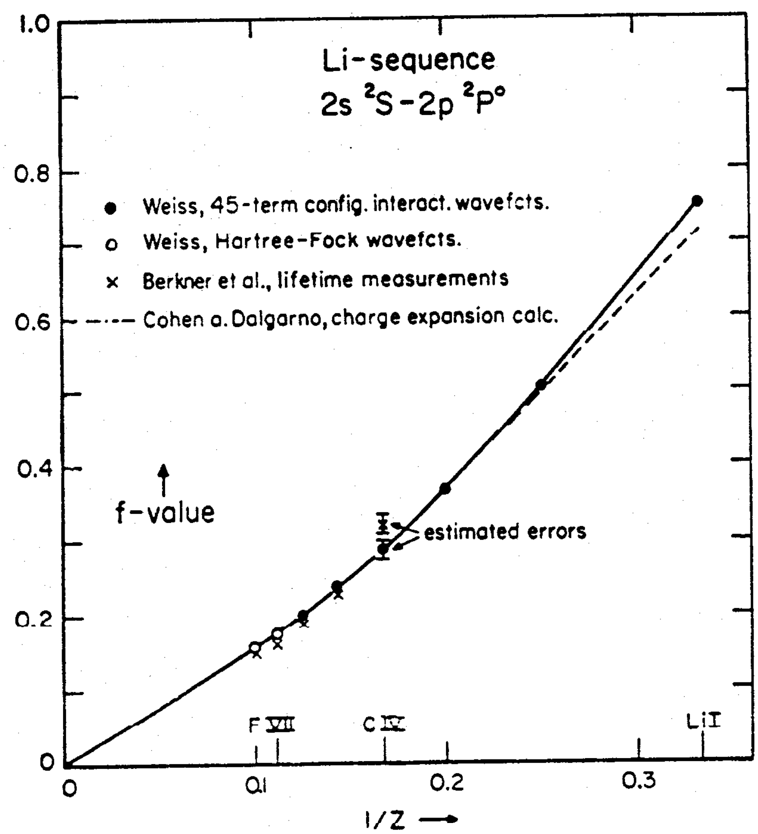

FIG. 7i-1. Oscillator strengths vs. $1/Z$ for the $2s$-$2p$ transition of the lithium isoelectronic sequence. (*From Ref.* [10], *where the quoted authors and methods are discussed in detail.*)

(see Fig. 7i-4), but for higher n the f values gradually tend to obey the hydrogenic dependence $f \sim (n^*)^{-3}$. Two examples for these trends are given in graphical form (Figs. 7i-4 and 5), where $n^{*3}f$ is plotted against n^*.

HOMOLOGOUS ATOMS. The third principal regularity concerns homologous atoms, i.e., atoms with the same outer electron structure. Here we have found that for certain analogous groups of spectral lines the f values remain approximately constant throughout a family of homologous atoms. For example, the principal resonance lines of the alkalies, i.e., $2s$–$2p$ for Li, $3s$–$3p$ for Na, $4s$–$4p$ for K, etc., are all close to unity. This behavior is readily understood on the basis of the Wigner-Kirkwood partial f-sum rule. If it is assumed that most of the strength of a spectral series is concentrated in its leading transition (for example, $3s$–$3p$ has the dominant strength in a $3s$–np series), then it follows that for this dominant transition array the mean f value is approximately given by the value obtained from the partial f-sum rule. Further-

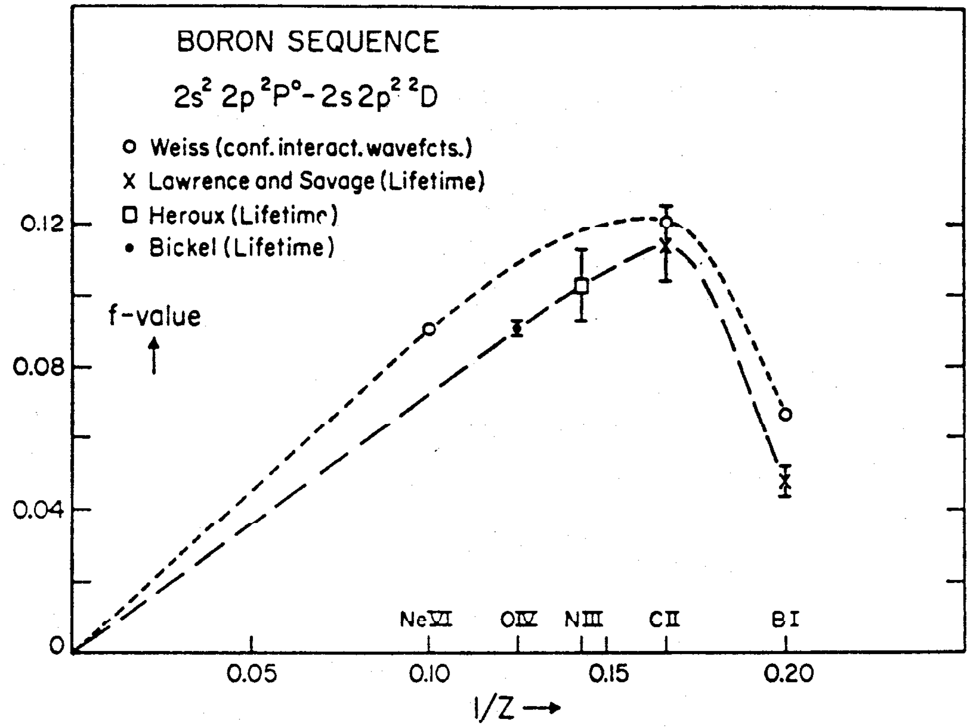

Fig. 7i-2. Oscillator strengths vs. $1/Z$ for the $2s^2\,2p\ ^2p°\text{-}2s2p^2\ ^2D$ transition of the boron isoelectronic sequence. *(From Ref.* [9], *where the quoted authors and methods are discussed in detail.)*

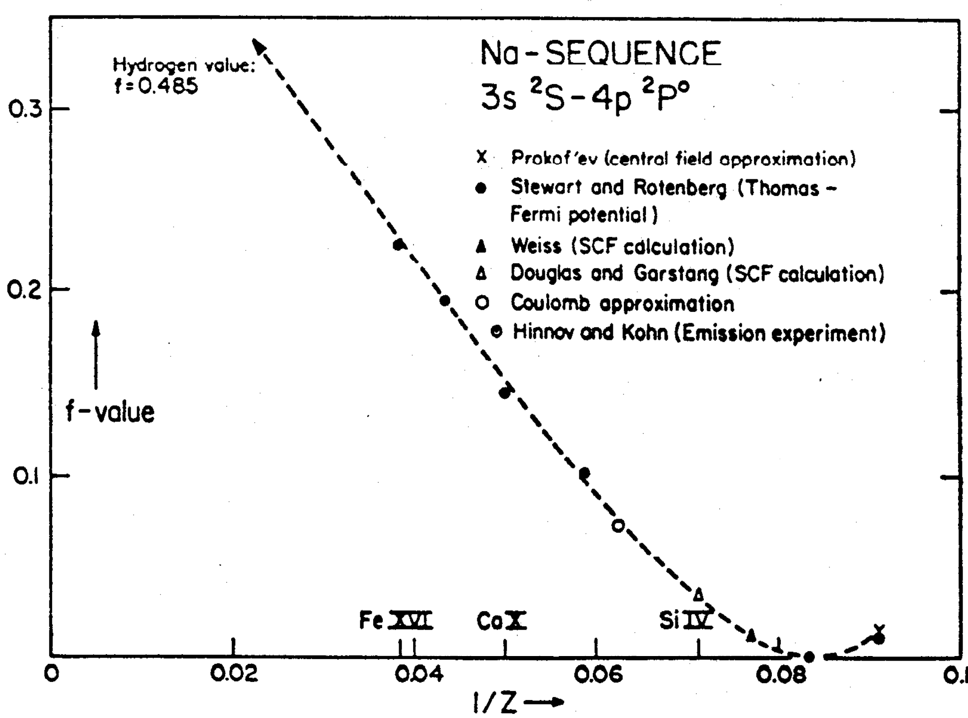

Fig. 7i-3. Oscillator strengths vs. $1/Z$ for the $3s\ ^2S\text{-}4p\ ^2p°$ transition of the sodium isoelectronic sequence. *(From Ref.* [10], *where the quoted authors and methods are discussed in detail.)*

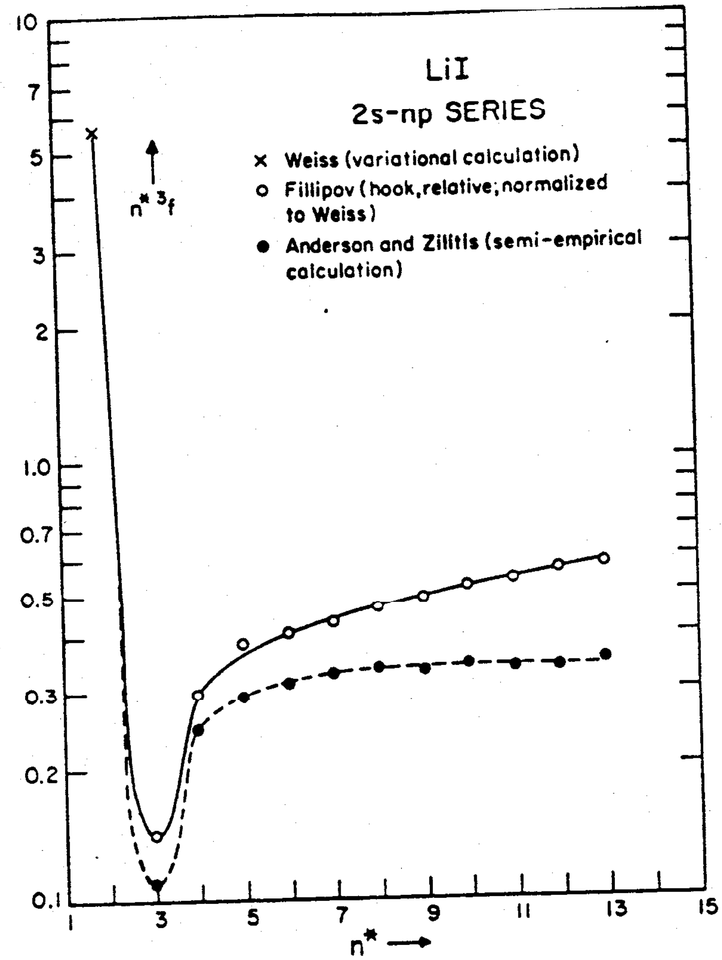

FIG. 7i-4. Oscillator strengths multiplied by n^{*3} vs. effective principal quantum number n^* for the resonance series $2s$-np of Li I. (*From Ref.* [10], *where the quoted authors and methods are discussed in detail.*)

TABLE 7i-3. COMPARISON OF MULTIPLET f VALUES FOR HOMOLOGOUS ATOMS IN SOME DOMINANT s-p TRANSITION ARRAYS*

Transition	f value	Uncertainty, %	f value	Uncertainty, %
$(n+1)s - (n+1)p$	Boron ($n = 2$)		Aluminum ($n = 3$)	
^2S–$^2P^\circ$	1.21	25	1.41	25
$np(n+1)s - np(n+1)p$	Carbon ($n = 2$)		Silicon ($n = 3$)	
$^3P^\circ$–^3D	0.50	50	0.61	50
$^3P^\circ$–^3P	0.31	50	0.39	50
$^3P^\circ$–^3S	0.10	50	0.13	50
$^1P^\circ$–^1D	0.42	50	0.67	50
$^1P^\circ$–^1S	0.11	50	0.12	50
$np^2(n+1)s - np^2(n+1)p$	Nitrogen ($n = 2$)		Phosphorus ($n = 3$)	
^4P–$^4D^\circ$	*0.36*	25	0.57	50
^4P–$^4P^\circ$	*0.23*	25	0.36	50
^4P–$^4S^\circ$	*0.088*	25	0.13	50
^2P–$^2P^\circ$	*0.318*	25	0.39	50
$np^3(n+1)s - np^3(n+1)p$	Oxygen ($n = 2$)		Sulfur ($n = 3$)	
$^5S^\circ$–^5P	*0.922*	10	*1.1*	50
$^3S^\circ$–^3P	*0.898*	10	*1.1*	50

* The data are the adopted "best" values. Data from experimental sources are in italics.

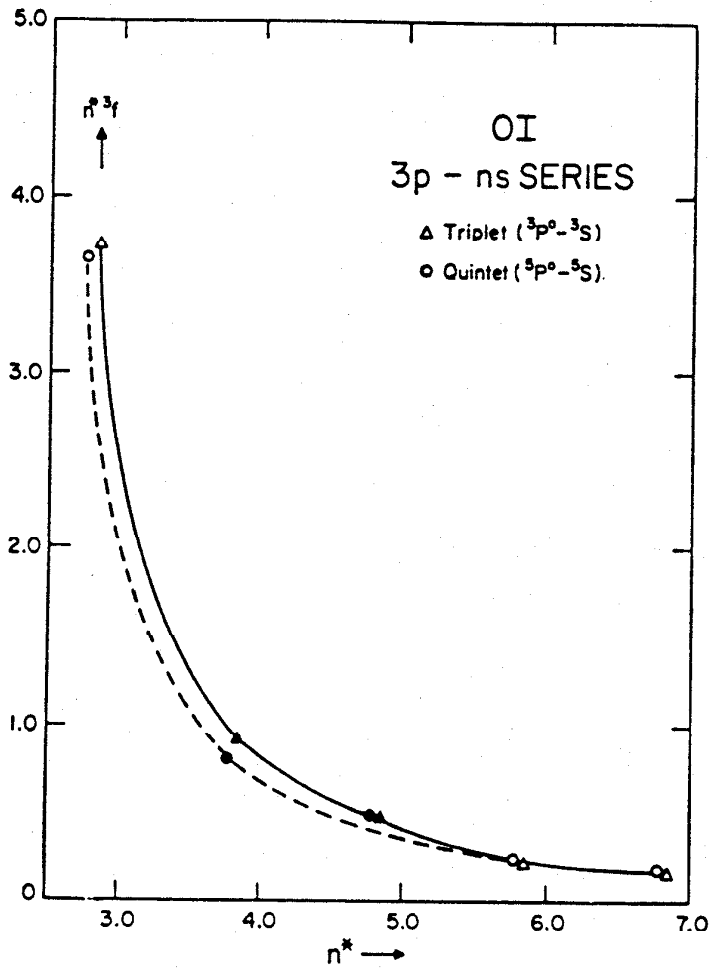

FIG. 7i-5. Oscillator strengths multiplied by n^{*3} vs. effective principal quantum number n^* for the $3p$-ns series of O I. The solid circles and triangles indicate that experimental values are involved in the data. *(From Ref. [10], where the quoted authors and methods are discussed in detail.)*

more, in all homologous atoms the breakdown of the total strength of a transition array into multiplets and individual lines remains the same as long as the coupling scheme remains constant. It follows therefore that for all lines of dominant transition arrays in homologous atoms the f values should stay approximately constant. An example is given in Table 7i-3. More extensive comparisons are found in [10].

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Explanations for Main Data Tables 7i-4 and 7i-5. A dagger (†) before a row of data indicates that *multiplet* values are given, for example, the averaged multiplet wavelength.

WAVELENGTH COLUMN: The wavelengths are given in angstroms. Values in square brackets [ ] are calculated and are likely to be less accurate than observed ones.

MULTIPLET COLUMN: The numbers refer to the multiplet numbers of C. E. Moore, "A Multiplet Table of Astrophysical Interest," revised edition, *Nat. Bur. Standards Tech. Note* 36, 1959; or, if "uv" is added, to C. E. Moore, An Ultraviolet Multiplet Table, *Natl. Bur. Standards Circ.* 488, sec. 1, 1950; or, for Si I, II, III, and IV, to C. E. Moore, "Selected Tables of Atomic Spectra," NSRDS-NBS 3, secs. 1 and 2. (Preceded by "UV," if in the ultraviolet.) All are available from the U.S. Government Printing Office, Washington, D.C. 20402.

STATISTICAL WEIGHTS COLUMN: The statistical weight g_k of level k is related to the inner quantum number J by

$$g_k = 2J_k + 1$$

The J's are listed in C. E. Moore, Atomic Energy Levels, *Natl. Bur. Standards Circ.* 467, vol. III, 1958, U.S. Government Printing Office, Washington, D.C. 20402.

TRANSITION PROBABILITY COLUMN: Normally, the A_{ki}'s are listed in units $10^8\ s^{-1}$. But for hydrogen and the forbidden lines, they are listed in units s^{-1} and the number given in parentheses ( ) indicates the power of ten by which the transition probability values have to be multiplied.

ACCURACY COLUMN: The accuracy ratings are to be understood in the sense of "estimated extent of possible errors." Since it is at present not feasible to give specific numerical error limits for each evaluated f value, the data are assigned to one of several levels of accuracy which differ by about factors of three. Further details are found in [1,2].

SOURCE COLUMN: The numbers refer to the references given below. n indicates normalization to an absolute scale different from the one in the listed reference.

References for Tables 7i-4 and 7i-5

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TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES

Wavelength, Å	Transition	Statistical weights g_i	Statistical weights g_k	Average transition probability A_{ki}*, s^{-1}	Source*
		Hydrogen			
914.039	1–20	2	800	3.928(+3)	1
914.286	1–19	2	722	5.077(+3)	1
914.576	1–18	2	648	6.654(+3)	1
914.919	1–17	2	578	8.858(+3)	1
915.329	1–16	2	512	1.200(+4)	1
915.824	1–15	2	450	1.657(+4)	1
916.429	1–14	2	392	2.341(+4)	1
917.181	1–13	2	338	3.393(+4)	1
918.129	1–12	2	288	5.066(+4)	1
919.352	1–11	2	242	7.834(+4)	1
920.963	1–10	2	200	1.263(+5)	1
923.150	1– 9	2	162	2.143(+5)	1
926.226	1– 8	2	128	3.869(+5)	1
930.748	1– 7	2	98	7.568(+5)	
937.803	1– 6(L_ϵ)	2	72	1.644(+6)	1
949.743	1– 5(L_δ)	2	50	4.125(+6)	1
972.537	1– 4(L_γ)	2	32	1.278(+7)	1
1025.72	1– 3(L_β)	2	18	5.575(+7)	1
1215.67	1– 2(L_α)	2	8	4.699(+8)	1
3682.81	2–20	8	800	2.172(+3)	1

Wavelength, Å	Transition	Statistical weights g_i	Statistical weights g_k	Average transition probability A_{ki}*, s^{-1}	Source*
		Hydrogen (Continued)			
8467.26	3–17	18	578	3.444(+3)	1
8502.49	3–16	18	512	4.680(+3)	1
8545.39	3–15	18	450	6.490(+3)	1
8598.39	3–14	18	392	9.211(+3)	1
8665.02	3–13	18	338	1.343(+4)	1
8750.47	3–12	18	288	2.021(+4)	1
8862.79	3–11	18	242	3.156(+4)	1
9014.91	3–10	18	200	5.156(+4)	1
9229.02	3– 9	18	162	8.905(+4)	1
9545.98	3– 8(P_ϵ)	18	128	1.651(+5)	1
10049.4	3– 7(P_δ)	18	98	3.358(+5)	1
10938.1	3– 6(P_γ)	18	72	7.783(+5)	1
12818.1	3– 5(P_β)	18	50	2.201(+6)	1
16407.2	4–12	32	288	1.620(+4)	1
16806.5	4–11	32	242	2.556(+4)	1
17362.1	4–10	32	200	4.235(+4)	1
18174.1	4– 9	32	162	7.459(+4)	1
18751.0	3– 4(P_α)	18	32	8.986(+6)	1
19445.6	4– 8	32	128	1.424(+5)	1
21655.0	4– 7	32	98	3.041(+5)	1

3686.83	2-19	8	722	2.809(+3)	1	26252.0	4- 6	32	72	7.711(+5)	1
3691.55	2-18	8	648	3.685(+3)	1	27575	5-12	50	288	1.402(+4)	1
3697.15	2-17	8	578	4.910(+3)	1	28722	5-11	50	242	2.246(+4)	1
3703.85	2-16	8	512	6.658(+3)	1	30384	5-10	50	200	3.800(+4)	1
3711.97	2-15	8	450	9.210(+3)	1	32961	5- 9	50	162	6.908(+4)	1
3721.94	2-14	8	392	1.303(+4)	1	37395	5- 8	50	128	1.388(+5)	1
3734.37	2-13	8	338	1.893(+4)	1	40512.0	4- 5	32	50	2.699(+6)	1
3750.15	2-12	8	288	2.834(+4)	1	43753	6-12	72	288	1.288(+4)	1
3770.63	2-11	8	242	4.397(+4)	1	46525	5- 7	50	98	3.253(+5)	1
3797.90	2-10	8	200	7.122(+4)	1	46712	6-11	72	242	2.110(+4)	1
3835.38	2- 9	8	162	1.216(+5)	1	51273	6-10	72	200	3.688(+4)	1
3889.05	2- 8	8	128	2.215(+5)	1	59066	6- 9	72	162	7.065(+4)	1
3970.07	2- 7(H_ϵ)	8	98	4.389(+5)	1	74578	5- 6	50	72	1.025(+6)	1
4101.73	2- 6(H_δ)	8	72	9.732(+5)	1	75005	6- 8	72	128	1.561(+5)	1
4340.46	2- 5(H_γ)	8	50	2.530(+6)	1	123680	6- 7	72	98	4.561(+5)	1
4861.32	2- 4(H_β)	8	32	8.419(+6)	1						
6562.80	2- 3(H_α)	8	18	4.410(+7)	1						
8392.40	3-20	18	800	1.517(+3)	1						
8413.32	3-19	18	722	1.964(+3)	1						
8437.96	3-18	18	648	2.580(+3)	1						

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Helium						
508.643	8 uv	1	3	0.306	10	3
509.998	7 uv	1	3	0.454	10	3
512.098	6 uv	1	3	0.722	10	3
515.617	5 uv	1	3	1.25	10	3
522.213	4 uv	1	3	2.46	3	1
537.030	3 uv	1	3	5.66	1	1
584.334	2 uv	1	3	17.99	1	1
†2763.8	—	3	9	0.0132	10	3
†2829.07	12 uv	3	9	0.0204	10	3
†2945.10	11 uv	3	9	0.0339	10	3
†3187.74	3	3	9	0.0505	10	1
3296.77	9	1	3	0.0102	10	3
3354.55	8	1	3	0.0150	10	3
3447.59	7	1	3	0.0233	10	3
3613.64	6	1	3	0.0393	10	3
†3634.2	28	9	15	0.0273	10	3
†3705.0	25	9	15	0.0415	10	3
†3819.6	22	9	15	0.0671	10	3
†3888.65	2	3	9	0.09478	1	1
3926.53	58	3	5	0.0194	10	3
3964.73	5	1	3	0.0717	3	1
4009.27	55	3	5	0.0296	10	3
†4026.2	18	9	15	0.121	10	3
4120.8	16	9	3	0.0436	10	3
4143.76	53	3	5	0.0488	10	3
Helium (Continued)						
18555.6	—	5	3	0.00277	10	1
†18686	—	15	21	0.139	10	1
18696.9	—	5	7	0.138	10	1
19089.4	—	3	5	0.0713	10	3
†19543	—	15	9	0.00597	10	1
20581.3	—	1	3	0.01976	1	1
†21120	—	9	3	0.0656	10	3
21132.0	—	3	1	0.0459	10	3
[33299]	—	1	3	0.00290	10	3
†[37026]	—	9	15	0.0127	10	3
†[40365]	—	15	21	0.0260	10	1
[40396]	—	5	7	0.0259	10	3
[41216]	—	3	5	0.0153	10	3
†[42947]	—	3	9	0.0108	3	1
[46053]	—	3	1	0.0150	10	3
†[46936]	—	9	3	0.0204	10	3
†[108800]	—	3	9	0.00231	10	3
Lithium						
Li I:						
†2394.36	5 uv	2	6	0.00355	10	1
†2425.41	4 uv	2	6	0.00484	10	1
†2475.06	3 uv	2	6	0.00697	10	1
†2562.31	2 uv	2	6	0.0107	10	1
†2741.19	1 uv	2	6	0.0142	10	1

4168.97	52	3	1	0.0181	10	3
4387.93	51	3	5	0.0899	10	3
4437.55	50	3	1	0.0322	10	3
†4471.5	14	9	15	0.257	10	3
4713.2	12	9	3	0.0934	10	3
4921.93	48	3	5	0.199	10	3
5015.68	4	1	3	0.1338	1	1
5047.74	47	3	1	0.0670	10	3
†5875.7	11	9	15	0.706	3	1
6678.15	46	3	5	0.638	3	1
†7065.3	10	9	3	0.278	3	1
7281.35	45	3	1	0.181	3	1
†9463.57	67	3	9	0.00561	10	3
9603.42	71	1	3	0.00586	10	3
†9702.66	75	9	3	0.00871	10	3
†10311	74	9	15	0.0201	10	3
†10667.6	73	9	3	0.0145	10	3
10830.3	1	3	5	0.1022	1	1
†10912.9	79	15	21	0.0212	10	1
10917.0	84	5	7	0.0212	10	1
11013.1	70	1	3	0.00928	10	3
11045.0	88	3	5	0.0184	10	3
11225.9	87	3	1	0.0113	10	3
†11969.1	72	9	15	0.0349	10	3
†12528	—	3	9	0.00608	10	1
†12785	—	15	21	0.0462	10	1
12790.3	—	5	7	0.0461	10	1
†12846	—	9	3	0.0274	10	3
12968.4	—	3	5	0.0336	10	3
[13411.8]	—	3	1	0.0205	10	3
15083.7	—	1	3	0.0137	10	1
†17002	—	9	15	0.0664	10	3

†3232.63	2	2	6	0.0117	10	1
†3985.5	—	6	2	0.0250	10	1
†4132.6	—	6	10	0.106	10	1
†4273.1	—	6	2	0.0460	10	1
†4602.9	6	6	10	0.236	10	4
†4971.7	5	6	2	0.106	10	4
†6103.6	4	6	10	0.716	10	1
†6707.8	1	2	6	0.372	3	1
†8126.4	3	6	2	0.349	10	1
†10510.6	—	6	10	0.0194	10	1
†11032.1	—	6	2	0.0144	10	1
†12237.7	—	6	10	0.0341	10	1
†12793.3	—	10	14	0.0463	10	1
†13557.8	—	6	2	0.0276	10	1
†17546.1	—	6	10	0.0719	10	4
†18703.1	—	10	14	0.138	10	1
†19274.8	—	10	6	0.00481	10	4
†24464.7	—	6	2	0.0774	10	4
†[25197]	—	6	10	0.00819	10	1
†26877.8	—	2	6	0.0377	10	1
†[28417]	—	6	2	0.00922	10	1
†[38081]	—	6	10	0.0136	10	1
†[41791]	—	10	6	0.00286	10	1
†[54633]	—	6	2	0.0225	10	1
†[68592]	—	2	6	0.00778	10	4
Li II:						
178.015	2 uv	1	3	77.9	3	1
199.282	1 uv	1	3	256	3	1
†[944.72]	—	3	9	1.39	10	5
[1093.2]	—	1	3	1.38	10	5
†1132.1	—	9	15	3.90	10	5

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Lithium (Continued)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
†1166.4	—	9	3	1.07	10	5
†1198.09	—	3	9	2.88	3	1
[1237.4]	—	3	5	3.16	10	5
1253.3	—	3	1	0.784	10	5
1420.89	—	1	3	2.82	3	1
†1493.0	—	9	15	11.2	3	1
†1653.1	—	9	3	2.96	10	5
1681.66	—	3	5	10.1	3	1
1755.33	—	3	1	2.03	10	5
†2674.43	4 uv	3	9	0.192	10	1
[2952.5]	—	1	3	0.202	10	1
†[3029.1]	—	9	15	0.549	10	1
†[3155.4]	—	9	3	0.318	10	1
†[3195.8]	—	15	21	0.739	10	1
[3199.4]	—	5	7	0.736	10	1
[3250.1]	—	3	5	0.528	10	1
[3306.5]	—	3	1	0.252	10	1
†3684.1	2	3	9	0.295	10	5
4156.3	3	1	3	0.351	10	5
†4325.7	5	9	15	1.11	10	5
†[4671.8]	—	15	21	2.21	10	1
[4678.4]	—	5	7	2.21	10	1
[4787.5]	—	3	5	1.17	10	5
†[4840.8]	—	15	9	0.0895	10	5
†4881.3	4	9	3	0.738	10	5

Boron

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
B I:						
†1826.2	3 uv	6	10	2.23	25	6, 10
†2089.3	2 uv	6	10	0.494	25	6, 10, 11
2496.77	1 uv	2	2	0.65	25	6, 7
2497.72	1 uv	4	2	1.30	25	6, 7
8667.2	—	2	2	0.0162	25	1
8668.6	—	4	2	0.0324	25	1
†11661	—	2	6	0.196	25	6
15625	—	2	2	0.051	25	1
15629	—	4	2	0.103	25	1
†16243	—	6	10	0.119	25	6
B II:						
1362.46	1 uv	1	3	11.1	25	10
†1624.0	3 uv	9	9	10.0	25	10
[1842.8]	—	3	1	6.8	50	1
3451.41	1	3	5	0.64	25	7
†4121.95	2	15	21	2.11	25	7
B III:						
†518.25	—	2	6	12.5	10	1
†677.09	—	6	10	56.8	10	1
†758.60	—	6	2	16.3	10	1
†2066.3	—	2	6	1.91	3	1
†4243.60	1	6	10	1.11	10	1
†4487.46	2	10	14	2.10	10	1
†7838.5	—	2	6	0.222	10	1

[5038.7]	—	3	1	0.533	10	5
†5484.8	1	3	9	0.228	3	1
[9562.2]	—	1	3	0.0518	3	1
†[57324]	—	9	15	0.00110	3	1
			Beryllium			
Be I:						
2348.61	1 uv	1	3	5.3	25	6, 7
†2494.6	3 uv	9	15	1.4	50	9
†2650.6	2 uv	9	9	4.29	25	6, 7
†3321.2	1	9	3	1.6	50	7, 8
[3455.2]	—	3	1	2.09	25	1, 7
3515.54	7	3	5	0.13	50	1
3813.40	5	3	5	0.23	50	1
Be II:						
†1036.31	1 uv	2	6	1.66	10	1
†1512.4	4 uv	6	10	11.4	10	1
†1776.2	3 uv	6	2	4.22	10	1
†3130.6	1	2	6	1.15	3	1
†3247.7	5	6	2	0.410	10	1
†3274.64	2	2	6	0.133	10	4
†4360.9	4	6	10	1.12	10	4
†4673.46	6	10	14	2.21	10	1
†5270.7	3	6	2	1.00	10	4
†12094	—	2	6	0.128	10	1
Be III:						
88.314	—	1	3	362	3	1
100.254	—	1	3	1220	3	1
[398.19]	—	1	3	42.8	3	1
†[583.01]	—	3	9	16.5	3	1
†[3721.8]	—	3	9	0.342	3	1
[6141.2]	—	1	3	0.0877	3	1

B IV:						
52.682	—	1	3	1080	3	1
60.313	—	1	3	3720	3	1
†[344.19]	—	3	9	54.6	3	1
[381.13]	—	1	3	51.0	3	1
†2823.4	—	3	9	0.455	3	1
[4499.4]	—	1	3	0.125	3	1
			Carbon			
C I:						
†1261.3	9 uv	9	9	1.2	50	1
†1277.5	7 uv	9	15	1.6	50	1
1279.25	6 uv	5	7	0.11	50	1
†1280.4	5 uv	9	9	0.82	50	1
†1329.3	4 uv	9	9	1.4	50	1
1431.60	65 uv	5	7	1.5	50	1
1432.12	65 uv	5	5	1.4	50	1
1432.54	65 uv	5	3	1.3	50	1
1459.05	38 uv	5	3	0.37	50	1
1463.33	37 uv	5	7	2.1	50	1
1467.45	36 uv	5	3	0.46	50	1
1481.77	34 uv	5	5	0.33	50	1
†1561.0	3 uv	9	15	1.25	25	10
†1657.2	2 uv	9	9	3.20	25	10
1751.9	62 uv	1	3	0.87	50	1
1930.93	33 uv	5	3	3.1	50	10,13
2478.56	61 uv	1	3	0.33	50	10,13
4268.99	16	3	5	0.0032	50	1
4371.33	14	3	3	0.0097	50	1
4932.00	13	3	1	0.046	50	1
5052.12	12	3	5	0.017	50	1
5380.24	11	3	3	0.016	50	1

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights		Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
		g_i	g_k			
Carbon (Continued)						
6587.75	22	3	3	0.024	50	1
8335.19	10	3	1	0.32	50	1
9061.48	3	3	5	0.065	50	1
9062.53	3	1	3	0.083	50	1
9078.32	3	3	3	0.062	50	1
9088.57	3	3	1	0.25	50	1
9094.89	3	5	5	0.19	50	1
9111.85	3	5	3	0.11	50	1
9603.09	2	1	3	0.024	50	1
9620.86	2	3	3	0.074	50	1
9658.49	2	5	3	0.12	50	1
10124	—	3	3	0.171	25	1
10548.0	20	3	3	0.010	50	1
10683.1	1	3	5	0.13	50	1
10685.3	1	1	3	0.10	50	1
10691.2	1	5	7	0.18	50	1
10707.3	1	3	3	0.072	50	1
10729.5	1	5	5	0.043	50	1
11602.9	25	3	5	0.0099	25	1
11609.9	25	3	3	0.0492	25	1
11619.0	25	5	7	0.0073	25	1
11631.6	25	5	5	0.0453	25	1
11638.6	25	5	3	0.0163	25	1

Wavelength, Å	Multiplet no.	Statistical weights		Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
		g_i	g_k			
Carbon (Continued)						
4371.59	45	2	4	0.83	25	1
4372.49	45	4	6	1.40	25	1
4374.28	45	6	8	1.99	25	1
†4411.4	39	10	14	2.11	25	1
5143.49	16	4	2	0.72	25	1
5145.16	16	6	6	0.60	25	1
5151.08	16	6	4	0.385	25	1
5640.50	15	2	4	0.109	25	1
5648.08	15	4	4	0.217	25	1
5662.51	15	6	4	0.325	25	1
†5890.4	5	10	6	0.337	25	1
6578.03	2	2	4	0.361	25	13
6582.85	2	2	2	0.361	25	13
6783.75	14	6	8	0.370	25	1
6787.09	14	2	2	0.307	25	1
6791.30	14	4	4	0.195	25	1
6800.50	14	6	6	0.110	25	1
7231.12	3	2	4	0.362	25	13
C III:						
386.203	2 uv	1	3	25	50	8
†459.57	6 uv	9	15	95	50	9
977.026	1 uv	1	3	16.1	25	15
†1175.7	4 uv	9	9	13	50	1
1247.37	9 uv	3	1	12	50	1

[11653]	29	3	1	0.157	25	1
11656.0	29	3	3	0.158	25	1
11677.0	25	7	5	0.0101	25	1
11747.5	24	3	5	0.202	25	1
[11778]	24	5	5	0.0375	25	1
11801.8	24	7	7	0.0266	25	1
11849.3	23	5	5	0.017	50	1
11863.0	23	3	3	0.029	50	1
11880.4	23	3	1	0.11	50	1
12551.0	30	1	3	0.0352	25	1
12582.3	30	3	5	0.0262	25	1
12602.6	30	5	3	0.0435	25	1
12614.8	30	5	5	0.078	25	1
16890	—	5	7	0.123	25	1
C II:						
†687.25	5 uv	6	10	28.0	25	13
†904.09	3 uv	6	6	41.6	25	13
†1010.2	7 uv	12	4	34.3	25	13
†1036.8	2 uv	6	2	22.2	25	13
†1323.9	11 uv	10	10	5.3	25	13
†1335.3	1 uv	6	10	2.65	25	10, 13
2509.11	14 uv	2	4	0.63	25	13, 14
2511.71	14 uv	4	4	0.126	25	13, 14
2512.03	14 uv	4	6	0.75	25	13, 14
2836.71	13 uv	2	4	0.359	25	13, 14
2837.60	13 uv	2	2	0.359	25	13, 14
†3876.7	33	28	36	2.66	25	1
3918.98	4	2	2	0.62	25	1, 14
3920.68	4	4	2	1.24	25	1, 14
4074.53	36	6	8	1.96	25	1
4076.00	36	8	10	2.28	25	1
†4267.2	6	10	14	2.46	25	1

2296.89	8 uv	3	5	1.20	25	7, 16
3170.16	8	1	3	0.325	25	1
†3609.3	10	9	15	0.95	25	1
3703.52	12	3	3	0.82	25	1
†3887.1	15	15	21	1.81	25	1
4056.06	24	5	7	1.45	25	1
4122.05	17	3	5	1.04	25	1
4325.70	7	3	5	1.08	25	1
4388.24	14	7	5	0.224	25	1
†4516.5	9	9	3	1.66	25	1
4647.40	1	3	5	0.68	25	7
4663.53	5	3	1	0.84	25	1
4665.90	5	5	5	0.63	25	1
4673.91	5	5	3	0.347	25	1
5249.6	23	5	3	0.52	25	1
5253.55	4	3	3	0.194	25	1
5272.56	4	5	3	0.320	25	1
6727.1	3	1	3	0.149	25	1
6730.7	3	3	5	0.201	25	1
6744.2	3	5	7	0.266	25	1
C IV:						
†244.907	3 uv	2	6	22.3	10	4
†259.52	10 uv	6	10	27.6	10	17
289.143	9 uv	2	4	49.5	10	4
296.857	8 uv	2	2	5.27	10	4
296.951	8 uv	4	2	10.5	10	4
312.418	2 uv	2	4	45.7	10	1
312.455	2 uv	2	2	45.5	10	1
384.032	7 uv	2	4	148	10	1
419.525	6 uv	2	2	14.3	10	1
419.714	6 uv	4	2	28.5	10	1

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Carbon (Continued)						
1548.20	1 uv	2	4	2.65	3	1
1550.77	1 uv	2	4	2.63	3	1
†2524.40	14 uv	10	14	6.62	10	17
†2595.14	13 uv	10	6	0.673	10	17
2697.73	12 uv	2	2	1.17	10	17
2698.70	12 uv	4	2	2.33	10	17
†3936	2	2	6	0.330	10	17
5021	3	2	2	0.464	10	17
5023	3	4	2	0.930	10	17
5801.51	1	2	4	0.319	10	1
5812.14	1	2	2	0.316	10	1
C V:						
34.973	—	1	3	2550	3	1
40.270	—	1	3	8870	3	1
†186.72	—	9	15	142	10	5
197.02	—	3	5	124	10	5
†227.22	—	3	9	136	3	1
[247.31]	—	1	3	128	3	1
†248.71	—	9	15	425	3	1
267.26	—	3	5	396	3	1
†2273.9	—	3	9	0.565	3	1
[3540.8]	—	1	3	0.165	3	1

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Nitrogen (Continued)						
6945.22	29	6	6	0.0149	25	1
7442.30	3	4	4	0.106	25	1
7468.31	3	6	4	0.161	25	1
8184.85	2	4	6	0.063	25	1
8188.01	2	2	4	0.092	25	1
8216.32	2	6	6	0.160	25	1
8223.12	2	4	2	0.202	25	1
8242.37	2	6	4	0.102	25	1
8590.01	8	2	2	0.190	25	1
8629.24	8	4	4	0.238	25	1
8680.27	1	6	8	0.191	25	1
8683.40	1	4	6	0.133	25	1
8686.16	1	2	4	0.079	25	1
8703.26	1	2	2	0.171	25	1
8711.71	1	4	4	0.101	25	1
8718.84	1	6	6	0.054	25	1
9028.92	15	2	2	0.255	10	1
9045.88	—	6	8	0.269	10	1
9060.72	15	2	4	0.257	10	1
9386.81	7	2	4	0.183	25	1
9392.79	7	4	6	0.218	25	1
9822.75	19	6	6	0.0542	10	1
9863.33	19	8	8	0.101	10	1
10105.1	18	2	4	0.262	10	1
10108.9	18	4	6	0.281	10	1

Nitrogen

N I:						
1134.17	2 uv	4	2	1.82	25	1*n*, 10
1134.42	2 uv	4	4	1.82	25	1*n*, 10
1134.98	2 uv	4	6	1.60	25	1*n*, 10
†1164.0	7 uv	10	10	0.343	25	1*n*, 10
†1167.9	6 uv	10	14	0.87	25	1*n*, 10
1199.55	1 uv	4	6	4.01	25	1*n*, 10
1200.22	1 uv	4	4	3.86	25	1*n*, 10
1200.71	1 uv	4	2	4.01	25	1*n*, 10
†1243.3	5 uv	10	10	3.35	25	1*n*, 10
†1310.7	13 uv	6	10	0.95	25	1*n*, 10
†1411.94	10 uv	6	10	0.379	25	1*n*, 10
1494.67	4 uv	4	2	3.65	25	1*n*, 10
†1743.6	9 uv	6	6	1.46	25	1*n*, 10
4099.95	10	2	4	0.034	50	1
4109.96	10	4	6	0.040	50	1
4214.73	5	4	6	0.022	50	1
4215.92	5	2	4	0.031	50	1
4230.35	5	6	4	0.033	50	1
4914.90	9	2	2	0.00759	10	1
4935.03	9	4	2	0.0158	10	1
[5197.8]	—	2	2	0.023	50	1
[5201.8]	—	2	4	0.023	50	1
5281.18	14	6	6	0.00282	25	1
5328.70	13	6	8	0.00254	25	1
5401.45	—	2	2	0.00369	25	1
5411.88	—	4	2	0.0075	25	1
6644.96	20	8	6	0.0311	25	1
6646.51	20	2	2	0.0194	25	1
6653.46	20	6	4	0.0244	25	1
6656.51	20	4	2	0.0193	25	1

10112.5	18	6	8	0.321	10	1
10114.6	18	8	10	0.374	10	1
10128.3	18	4	4	0.104	10	1
10147.3	18	6	6	0.0898	10	1
10164.8	18	8	8	0.0523	10	1
10500.3	28	2	4	0.0652	10	1
10507.0	28	4	6	0.132	10	1
10513.4	28	2	2	0.174	10	1
10520.6	28	4	4	0.162	10	1
10539.6	28	6	8	0.242	10	1
10549.6	28	6	6	0.126	10	1
10591.9	—	6	8	0.326	10	1
10644.0	—	4	2	0.107	10	1
10653.0	—	2	4	0.0532	10	1
10713.6	—	4	6	0.0376	10	1
10718.0	—	6	4	0.0564	10	1
10757.9	—	6	6	0.0868	10	1
11291.7	17	8	6	0.117	25	1
11294.2	17	2	2	0.0731	25	1
11313.9	17	6	4	0.0920	25	1
11997.9	37	4	4	0.054	25	1
12074.1	37	6	6	0.055	25	1
12186.9	27	6	6	0.054	25	1
[12330]	34	4	4	0.124	25	1
[12384]	34	4	6	0.123	25	1
12461.2	36	4	6	0.202	25	1
12467.8	36	6	8	0.217	25	1
N II:						
644.825	4 uv	3	3	30.2	25	18
645.167	4 uv	5	3	51	25	18
†671.48	3 uv	9	9	9.9	25	

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
			Nitrogen (Continued)			
†916.34	2 uv	9	9	10.4	25	18
†1085.1	1 uv	9	15	3.56	25	10, 18
1886.82	14 uv	3	3	0.52	50	1
2206.10	15 uv	3	5	0.49	50	1
2461.30	23 uv	5	3	0.353	25	1
2709.82	22 uv	5	7	0.35	50	1
3006.86	18	3	3	0.54	25	1
3328.79	22	7	5	0.93	25	1
3330.30	22	3	1	1.11	25	1
3331.32	22	5	3	0.83	25	1
3437.16	13	3	1	2.40	25	1
3593.60	26	3	5	0.231	25	1
3609.09	26	3	3	0.228	25	1
3829.80	30	3	5	0.175	25	1
3838.39	30	5	5	0.52	25	1
3919.01	17	3	3	1.00	25	1
3995.00	12	3	5	1.58	25	1
4026.08	40	7	9	0.90	25	1
†4040.9	39	21	27	2.64	25	1
4124.08	65	3	5	0.276	25	1
4133.67	65	5	5	0.458	25	1
4145.76	65	7	5	0.64	25	1
4176.16	42	5	7	2.19	25	1
4227.75	33	5	3	1.06	25	1

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
			Nitrogen (Continued)			
5940.25	28	3	3	0.235	25	1
5941.67	28	5	7	0.564	25	1
6167.82	36	9	7	0.333	25	1
6170.16	36	5	3	0.362	25	1
6173.40	36	7	5	0.320	25	1
6242.52	57	7	5	0.341	25	1
6340.57	46	7	5	0.258	25	1
6356.55	46	5	3	0.229	25	1
6357.57	46	3	1	0.304	25	1
6482.07	8	3	3	0.365	25	1
6504.61	45	7	7	0.052	25	1
6532.55	45	5	5	0.0404	25	1
6610.58	31	5	7	0.59	25	1
6629.80	41	5	3	0.283	25	1
6809.99	54	5	3	0.199	25	1
6834.09	54	3	3	0.118	25	1
6941.75	53	5	5	0.065	25	1
N III:						
685.513	3 uv	2	2	39.0	25	18
685.816	3 uv	4	4	48.8	25	18
†990.98	1 uv	6	10	4.20	25	18
1804.3	22 uv	2	2	2.26	25	1
1805.5	22 uv	4	2	4.51	25	1

†4239.4	48	15	21	2.14	25	1
4447.03	15	3	3	1.30	25	1
4530.40	59	7	9	1.69	25	1
4552.54	58	7	9	0.76	25	1
4601.48	5	3	5	0.270	25	1
4607.16	5	1	3	0.340	25	1
4613.87	5	3	3	0.196	25	1
4621.39	5	3	1	0.90	25	1
4630.54	5	5	5	0.84	25	1
4643.09	5	5	3	0.466	25	1
4677.93	62	3	5	1.65	25	1
4779.71	20	3	3	0.269	25	1
4788.13	20	5	5	0.248	25	1
4803.27	20	7	7	0.313	25	1
5104.45	34	1	3	0.189	25	1
5338.66	69	5	7	0.139	25	1
5340.20	69	7	5	0.194	25	1
5351.21	69	7	7	0.275	25	1
5478.13	29	3	5	0.100	25	1
5480.10	29	5	3	0.167	25	1
5495.70	29	5	5	0.208	25	1
5526.26	63	3	5	0.198	25	1
5530.27	63	5	7	0.377	25	1
5543.49	63	5	5	0.327	25	1
5666.64	3	3	5	0.423	25	1
5676.02	3	1	3	0.310	25	1
5679.56	3	5	7	0.56	25	1
5686.21	3	3	3	0.231	25	1
5710.76	3	5	5	0.137	25	1
5927.82	28	1	3	0.315	25	1
5931.79	28	3	5	0.425	25	1

†1885.25	24 uv	10	14	11.9	25	1
†1908.11	27 uv	10	14	11.0	25	1
2063.50	30 uv	6	8	10.9	25	1
2063.99	30 uv	8	10	11.3	25	1
2972.60	25 uv	2	2	0.93	25	1
[2977.3]	25 uv	4	2	0.461	25	1
[2978.8]	25 uv	2	4	0.230	25	1
2983.58	25 uv	4	4	1.14	25	1
3365.79	5	4	2	1.45	25	1
3367.36	5	6	6	1.22	25	1
3374.06	5	6	4	0.78	25	1
3745.83	4	2	4	0.209	25	1
3754.62	4	4	4	0.416	25	1
3771.08	4	6	4	0.61	25	1
3934.41	8	2	4	0.80	25	1
3938.52	8	4	6	0.96	25	1
3942.78	8	4	4	0.160	25	1
4097.31	1	2	4	0.96	25	1
4103.37	1	2	2	0.97	25	1
4195.70	6	2	4	0.84	25	1
4200.62	6	4	6	1.00	25	1
4215.69	6	4	4	0.165	25	1
4348.36	10	8	8	0.198	25	1
4514.89	3	6	8	0.70	25	1
4518.18	3	2	2	0.58	25	1
4523.60	3	4	4	0.372	25	1
4861.33	9	6	8	9.54	25	1
4873.58	9	6	6	0.152	25	1
4884.14	9	8	8	0.089	25	1
6445.05	14	2	4	0.181	25	1
6450.78	14	2	2	0.362	25	1
6453.95	14	4	6	0.304	25	1

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki} 10^8, s^{-1}	Accuracy, %	Source*
Nitrogen (Continued)						
6463.03	14	4	4	0.232	25	1
6466.86	14	6	8	0.432	25	1
6478.69	14	6	6	0.129	25	1
N IV:						
†225.17	6 uv	9	15	92	25	1
247.05	2 uv	1	3	110	50	9
†283.53	5 uv	9	15	264	25	9
335.050	10 uv	3	5	200	25	18
765.140	1 uv	1	3	20.5	25	15
921.982	3 uv	3	5	3.57	25	18
922.507	3 uv	1	3	4.82	25	18
923.045	3 uv	3	3	3.58	25	18
923.211	3 uv	5	5	10.7	25	18
923.669	3 uv	3	1	14.4	25	18
924.274	3 uv	5	3	5.9	25	18
1718.52	7 uv	3	5	3.23	25	19
3463.36	7	5	5	0.94	25	1
3478.69	1	3	5	1.09	25	9, 20
3482.98	1	3	3	1.09	25	9, 20
3484.90	1	3	1	1.07	25	9, 20
3747.66	8	3	5	1.06	25	1
4495	6	3	3	0.189	25	1
4528	6	5	3	0.305	25	1
[4685.4]	11	3	3	0.089	25	1

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki} 10^8, s^{-1}	Accuracy, %	Source*
Nitrogen (Continued)						
[185.09]	—	3	5	825	3	1
1896.82	—	3	5	0.683	3	1
1907.34	—	3	3	0.672	3	1
1907.87	—	3	1	0.671	3	1
[2914.6]	—	1	3	0.206	3	1
Oxygen						
O I:						
1152.16	6 uv	5	5	5.3	25	21
1302.17	2 uv	5	3	3.14	25	21, 22
1304.87	2 uv	3	3	1.94	25	21, 22
1306.04	2 uv	1	3	0.61	25	21, 22
†3947.29	3	5	15	0.00326	25	1
†4368.30	5	3	9	0.0066	25	1
†5330.0	12	15	25	0.0197	25	1
5435.16	11	3	5	0.0061	25	1
5435.76	11	5	5	0.0102	25	1
5436.83	11	7	5	0.0142	25	1
†6046.4	22	9	3	0.0234	25	1
†6157.3	10	15	25	0.0701	10	1
†6259.6	50	21	27	0.063	25	1
6453.64	9	3	5	0.0142	10	1
6454.48	9	5	5	0.0237	10	1
6456.01	9	7	5	0.0331	10	1
6653.78	65	3	1	0.600	10	1

4733	11	5	5	0.081	25	1
4752	11	7	7	0.102	25	1
5236	5	3	5	0.261	25	1
5245	5	5	7	0.345	25	1
5734	9	3	5	0.178	25	1
6383	2	1	3	0.193	25	1
7109.48	4	3	5	0.107	25	9
7123.10	4	5	7	0.142	25	9
N V:						
†162.562	3 uv	2	6	57.2	10	17
†186.13	6 uv	6	10	142	10	17
†209.28	2 uv	2	6	120	10	1
247.563	5 uv	2	4	357	10	1
266.192	4 uv	2	2	30.2	10	1
266.375	4 uv	4	2	60.6	10	1
1238.81	1 uv	2	4	3.38	3	1
1242.80	1 uv	2	2	3.36	3	1
†3161	2	6	2	3.06	10	17
†4335	3	2	6	0.368	10	17
4603.83	1	2	4	0.415	10	1
4619.9	1	2	2	0.411	10	1
†4751	5	6	10	0.958	10	17
†4933	7	10	14	1.62	10	1
†5273	4	6	2	1.40	10	17
N VI:						
24.898	—	1	3	5160	3	1
28.787	—	1	3	18100	3	1
†161.22	—	3	9	285	3	1
[173.34]	—	1	3	269	3	1
†173.92	—	9	15	876	3	1

†7002.1	21	9	15	0.0325	25	1
7156.80	38	5	5	0.473	10	1
†7254.4	20	9	3	0.062	25	1
7471.36	55	5	3	0.0114	10	1
7473.23	55	5	5	0.102	10	1
7476.45	55	5	7	0.408	10	1
7477.21	55	3	3	0.170	10	1
7479.06	55	3	5	0.306	10	1
7480.66	55	1	3	0.226	10	1
7771.96	1	5	7	0.340	10	1
7774.18	1	5	5	0.340	10	1
7775.40	1	5	3	0.340	10	1
7886.31	64	3	5	0.370	10	1
7939.49	35	7	5	0.00165	25	1
7943.15	35	7	7	0.0417	25	1
7950.83	35	5	7	0.331	25	1
7952.18	35	3	5	0.313	25	1
7995.12	19	5	7	0.29	50	1
8227.64	34	5	3	0.0834	10	1
8232.99	34	3	3	0.261	10	1
8235.31	34	3	5	0.0432	10	1
†8446.5	4	3	9	0.280	10	1
8508.63	—	3	3	0.289	25	1
8820.45	37	5	7	0.261	25	1
†9263.9	8	15	25	0.419	25	1
†11287	—	9	15	0.235	25	1
11295.0	7	3	5	0.054	25	1
11297.5	7	5	5	0.091	25	1
11302.2	7	7	5	0.127	25	1
†13164	—	9	3	0.188	25	1

* For references see pp. 7-208 and 7-209.

TABLE 7-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki} 10^8, s^{-1}	Accuracy, %	Source*
Oxygen (Continued)						
O II:						
2733.34	20 uv	2	4	0.37	50	1
2747.46	20 uv	2	2	0.36	50	1
3122.62	14	6	6	0.278	25	1
3129.44	14	4	4	0.493	25	1
3134.32	14	2	2	0.77	25	1
3134.82	14	8	6	1.23	25	1
3138.44	14	6	4	0.96	25	1
3139.77	14	4	2	0.76	25	1
3277.69	23	4	6	0.259	25	1
3287.59	23	6	6	0.60	25	1
3290.13	23	2	4	0.356	25	1
3305.15	23	6	4	0.379	25	1
3306.60	23	4	2	0.70	25	1
3377.20	9	2	2	1.88	25	1
3390.25	9	2	4	1.86	25	1
3470.42	27	4	2	1.24	25	1
3470.81	27	6	4	1.12	25	1
3712.75	3	2	4	0.280	25	1
3727.33	3	4	4	0.59	25	1
3739.92	31	4	6	0.267	25	1
3749.49	3	6	4	0.90	25	1
3762.63	31	4	4	0.269	25	1
3777.60	31	4	2	0.252	25	1

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki} 10^8, s^{-1}	Accuracy, %	Source*
Oxygen (Continued)						
4650.84	1	2	2	0.82	25	1
4661.64	1	4	4	0.52	25	1
4676.23	1	6	6	0.257	25	1
4861.03	57	2	4	0.366	25	1
4871.58	57	4	6	0.435	25	1
[4872.2]	57	4	4	0.073	25	1
4890.93	28	4	2	0.68	25	1
4906.88	28	4	4	0.68	25	1
4924.60	28	4	6	0.67	25	1
4941.12	33	2	4	0.83	25	1
4943.06	33	4	6	1.06	25	1
4955.78	33	4	4	0.256	25	1
5160.02	32	2	2	0.350	25	1
5176.00	32	4	2	0.171	25	1
5190.56	32	2	4	0.137	25	1
5206.73	32	4	4	0.391	25	1
6640.90	4	2	2	0.098	25	1
6721.35	4	4	2	0.189	25	1
6895.29	45	10	8	0.298	25	1
6906.54	45	8	6	0.272	25	1
6908.11	45	4	2	0.332	25	1
6910.75	45	6	4	0.267	25	1

3803.14	34	4	4	0.55	25	1
3919.29	17	4	2	1.40	25	1
3945.05	6	2	4	0.217	25	1
3954.37	6	2	2	0.95	25	1
3973.26	6	4	4	1.27	25	1
3982.72	6	4	2	0.447	25	1
†4060.8	97	14	18	2.20	25	1
4072.16	10	6	8	1.70	25	1
4075.87	10	8	10	1.98	25	1
4078.86	10	4	4	0.55	25	1
4153.86	19	4	6	0.77	25	1
4169.54	19	6	4	0.157	25	1
4169.28	19	6	6	0.220	25	1
4185.46	36	6	8	2.43	25	1
†4253.9	101	18	22	2.63	25	1
†[4272.3]	—	2	6	1.08	25	1
4395.95	26	6	6	0.398	25	1
4414.91	5	4	6	1.15	25	1
4416.98	5	2	4	0.95	25	1
4443.05	35	6	6	0.57	25	1
[4443.7]	35	6	8	0.0212	25	1
[4447.7]	35	8	6	0.0282	25	1
4448.21	35	8	8	0.57	25	1
4452.38	5	4	4	0.154	25	1
4489.48	86	2	4	1.51	25	1
4491.25	86	4	6	1.81	25	1
4590.97	15	6	8	1.11	25	1
4602.11	93	4	6	1.70	25	1
4609.42	93	6	8	1.82	25	1
4638.85	1	2	4	0.422	25	1
4641.81	1	4	6	0.79	25	1
4649.14	1	6	8	1.04	25	1

O III:						
2454.99	19 uv	3	1	4.00	25	1
2558.06	21 uv	7	5	1.16	25	1
2597.69	20 uv	5	3	0.97	25	1
2605.41	20 uv	3	3	0.58	25	1
2695.49	23 uv	3	5	2.09	25	1
2983.78	6	3	5	2.24	25	1
2996.51	10	3	3	0.51	25	1
3004.35	10	5	5	0.472	25	1
3017.63	10	7	7	0.59	25	1
3035.43	4	3	3	0.51	25	1
3043.02	4	3	1	2.03	25	1
3047.13	4	5	5	1.52	25	1
3059.30	4	5	3	0.84	25	1
3083.65	26	7	7	0.311	25	1
3084.63	26	7	5	0.248	25	1
3088.04	26	9	9	0.52	25	1
3115.73	12	3	1	1.39	25	1
3121.71	12	3	3	1.38	25	1
3132.86	12	3	5	1.36	25	1
3200.95	31	3	3	0.499	25	1
3207.12	31	5	5	0.460	25	1
3215.97	31	7	7	0.58	25	1
3260.98	8	5	7	1.84	25	1
3265.46	8	7	9	2.07	25	1
3267.31	8	3	5	1.73	25	1
3382.69	27	5	7	0.97	25	1
[3383.5]	27	5	3	0.363	25	1
3383.85	27	5	5	0.85	25	1
3384.95	27	7	9	1.45	25	1
3394.26	27	7	7	0.480	25	1

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Oxygen (Continued)						
[3395.5]	27	7	5	0.096	25	1
[3520.7]	24	1	3	0.493	25	1
[3530.7]	24	3	1	1.47	25	1
[3532.8]	24	3	3	0.367	25	1
[3534.3]	24	3	5	0.366	25	1
[3555.3]	24	5	3	0.60	25	1
3556.92	24	5	5	1.08	25	1
3638.70	35	5	7	1.40	25	1
3645.20	35	5	5	0.347	25	1
3646.84	35	3	5	1.04	25	1
3650.70	35	3	3	0.58	25	1
3653.00	35	1	3	0.77	25	1
3961.59	17	5	7	1.28	25	1
[4072.3]	23	1	3	0.52	25	1
4073.90	23	3	5	0.71	25	1
4081.10	23	5	7	0.94	25	1
4440.1	33	5	3	0.495	25	1
4447.82	33	5	5	0.492	25	1
4461.56	33	5	7	0.486	25	1
5268.06	19	1	3	0.311	25	1
5500.11	16	5	5	0.112	25	1
5592.37	5	3	3	0.328	25	1

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Oxygen (Continued)						
4783.43	9	4	6	0.213	25	1
4794.22	9	4	4	0.161	25	1
4798.25	9	6	8	0.303	25	1
4813.07	9	6	6	0.090	25	1
5305.3	11	4	4	0.069	25	1
5362.4	11	6	6	0.069	25	1
O V:						
†192.85	5 uv	9	15	600	25	9
220.352	10 uv	3	5	450	25	9
629.732	1 uv	1	3	25.2	25	15
760.445	3 uv	5	5	16	50	1
1371.29	7 uv	3	5	7.4	25	24
3058.68	6	3	5	1.30	25	1
3239	5	3	3	0.342	25	1
3275.67	5	5	3	0.55	25	1
3717	8	5	5	0.109	25	1
3747	8	7	7	0.136	25	1
4135.9	11	3	3	0.261	25	1
4158.76	11	3	5	0.257	25	1
4554.28	7	3	5	0.233	25	1
5114	1	1	3	0.273	25	8
5343	13	1	3	0.304	25	1
5352	13	3	1	0.91	25	1
5376	13	3	3	0.223	25	1

O IV:						
787.710	1 uv	2	4	4.87	25	23
790.103	1 uv	4	4	0.97	25	23
790.203	1 uv	4	6	5.8	25	23
[2494.8]	5	2	2	1.02	25	1
[2511.4]	5	4	2	2.01	25	1
3063.46	1	2	4	1.48	25	1
3071.66	1	2	2	1.47	25	1
3194.75	7	6	6	0.194	25	1
3209.64	7	8	8	0.286	25	1
3348.08	4	2	4	1.03	25	1
3349.11	4	4	6	1.23	25	1
3354.31	8	4	2	0.69	25	1
3362.63	8	4	4	0.69	25	1
3375.50	8	4	6	0.68	25	1
3385.55	3	6	8	1.06	25	1
3390.37	3	2	2	0.88	25	1
3396.83	3	4	4	0.56	25	1
3411.76	2	4	6	1.15	25	1
3489.84	14	4	6	0.99	25	1
3560.42	12	4	6	1.08	25	1
3563.36	12	6	8	1.15	25	1
3729.03	6	6	8	0.69	25	1
3744.73	6	6	6	0.194	25	1
3758.45	6	8	8	0.112	25	1
3995.17	10	6	6	0.215	25	1
†4568	15	14	10	0.124	25	1
[4652.5]	13	2	2	0.301	25	1
[4685.4]	13	2	4	0.295	25	1
4772.57	9	2	4	0.128	25	1
4779.09	9	2	2	0.254	25	1

5417	13	3	5	0.218	25	1
5432	13	5	3	0.361	25	1
5473	13	5	5	0.64	25	1
5573	3	1	3	0.107	25	9
5582	3	3	5	0.145	25	9
5600	3	5	7	0.190	25	9
6329	14	5	7	0.136	25	1
6790	12	3	5	0.057	25	1
6830	12	5	7	0.075	25	1
†7438	17	3	9	0.295	25	8
O VI:						
†129.84	5 uv	6	10	292	10	17
†150.10	2 uv	2	6	259	10	1
172.935	4 uv	2	4	737	10	1
183.937	3 uv	2	2	56.7	10	1
184.117	3 uv	4	2	113	10	1
1031.95	1 uv	2	4	4.09	3	1
1037.63	1 uv	2	2	4.02	3	1
†3068	2	2	6	0.865	10	17
†3314	4	6	10	2.01	10	17
†3426	6	10	14	3.34	10	1
†3509	5	10	6	0.868	10	17
†3622	3	6	2	2.70	10	17
3811.35	1	2	4	0.513	10	1
3834.24	1	2	2	0.503	10	1
O VII:						
18.627	—	1	3	9370	3	1
21.602	—	1	3	33000	3	1
†120.331	—	3	9	533	3	1
[128.25]	—	1	3	504	3	1
†128.46	—	9	15	1620	3	1

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Oxygen (Continued)						
[135.77]	—	3	5	1530	3	1
1623.29	—	3	5	0.805	3	1
1637.96	—	3	3	0.784	3	1
1639.58	—	3	1	0.781	3	1
[2475.4]	—	1	3	0.246	3	1
Fluorine						
F I:						
6239.64	3	6	4	0.29	50	1
6348.50	3	4	4	0.18	50	1
6413.66	3	2	4	0.090	50	1
6773.97	2	6	6	0.14	50	1
6834.26	2	4	4	0.24	50	1
6856.02	2	6	8	0.45	50	1
6870.22	2	2	2	0.38	50	1
6902.46	2	4	6	0.31	50	1
6909.82	2	2	4	0.18	50	1
6966.35	6	4	2	0.16	50	1
7037.45	6	4	4	0.38	50	1
7127.88	6	2	2	0.30	50	1
7202.37	6	2	4	0.072	50	1
7311.02	5	4	2	0.27	50	1
7331.95	1	6	4	0.17	50	1
7398.68	1	6	6	0.25	50	1
7425.64	1	4	2	0.30	50	1
7489.14	5	2	2	0.13	50	1

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Fluorine (Continued)						
3039.75	3	4	6	2.56	25	1
3113.58	1	2	4	0.67	50	1
3115.67	1	4	6	1.1	50	1
3121.52	1	6	8	1.6	50	1
3124.76	1	2	2	1.3	50	1
3134.21	1	4	4	0.84	50	1
3142.78	4	2	4	1.16	25	1
3145.54	1	4	2	0.26	50	1
3146.96	1	6	6	0.47	50	1
3154.39	4	4	6	1.38	25	1
3156.11	4	4	4	0.230	25	1
3174.13	2	4	6	1.7	50	1
3174.73	2	2	4	1.4	50	1
3213.97	2	4	4	0.27	50	1
Neon						
Ne I:						
735.89	2 uv	1	3	6.6	25	1
743.70	1 uv	1	3	0.476	25	1
3454.19	2	3	1	0.085	25	1
3472.57	2	5	7	0.099	25	1
3520.47	7	3	1	0.073	25	1
5433.65	—	3	3	0.0029	50	26n
5852.49	6	3	1	0.706	10	25
5881.90	1	5	3	0.102	10	25

7552.24	1	4	6	0.10	50	1
7573.41	1	2	4	0.14	50	1
7754.70	4	4	6	0.35	50	1
7800.22	4	2	4	0.29	50	1
F II:						
3202.74	8	5	5	1.4	50	1
†3504.0	3	15	25	2.86	25	1
[3535.2]	6	3	1	2.1	50	1
3536.84	6	5	3	1.5	50	1
[3538.6]	6	3	3	0.51	50	1
3541.77	6	7	5	1.7	50	1
[3544.5]	6	5	5	0.31	50	1
†3641.7	11	21	21	0.147	25	1
3847.09	1	5	7	1.3	50	1
3849.90	1	5	5	1.3	50	1
3851.67	1	5	3	1.3	50	1
4024.73	2	3	5	1.2	50	1
4025.01	2	3	1	1.2	50	1
4025.50	2	3	3	1.2	50	1
†4103.4	4	9	15	2.05	25	1
4109.17	5	7	7	1.6	50	1
4116.55	5	5	5	1.2	50	1
[4117.1]	5	5	3	0.45	50	1
[4118.8]	5	3	5	0.27	50	1
4119.22	5	3	3	1.3	50	1
†4246.16	9	25	35	2.47	25	1
4299.18	7	5	7	1.7	50	1
†4446.9	10	15	21	2.35	25	1
F III:						
3034.54	3	6	6	0.184	25	1
3039.25	3	6	8	2.75	25	1

5939.32	—	5	3	0.0021	50	26*n*
5944.83	1	5	5	0.112	10	25
5975.53	1	5	3	0.0349	10	25
6030.00	3	3	3	0.0512	10	25
6046.13	—	3	3	0.0024	50	26*n*
6064.54	—	3	1	0.0026	56	26*n*
6074.34	3	3	1	0.583	10	25
6096.16	3	3	5	0.179	10	25
6118.03	—	5	3	0.0065	50	26*n*
6128.45	3	3	3	0.0070	25	25
6143.06	1	5	5	0.285	10	25
6163.59	5	1	3	0.141	10	25
6217.28	1	5	3	0.0601	10	25
6266.50	5	1	3	0.254	10	25
6293.74	—	3	3	0.0069	50	26*n*
6304.79	3	3	5	0.0424	10	25
6313.69	—	3	1	0.0053	50	26*n*
6328.16	—	5	3	0.037	50	26*n*
6334.43	1	5	5	0.180	10	25
6351.86	—	1	3	0.0037	50	26*n*
6382.99	3	3	3	0.316	10	25
6402.25	1	5	7	0.506	10	25
6421.71	—	3	1	0.0033	50	26*n*
6506.53	3	3	5	0.298	10	25
6532.88	5	1	3	0.106	10	25
6598.95	6	3	3	0.225	10	25
6678.28	6	3	5	0.231	10	25
6717.04	6	3	3	0.217	10	25
6929.47	6	3	5	0.174	10	25
7032.41	1	5	3	0.253	10	25
7173.94	6	3	5	0.0321	10	25
7245.17	3	3	3	0.100	10	25

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Neon (Continued)						
7304.82	—	1	3	0.0030	50	26*n*
7438.90	5	1	3	0.0242	10	25
7488.87	—	3	5	0.349	25	1
8377.61	12	7	9	0.51	25	1
8495.36	18	5	7	0.357	25	1
8654.38	33	5	7	0.445	25	1
Ne II:						
[2858.0]	—	6	6	0.91	50	1
[2870.0]	—	6	6	0.11	50	1
[2873.0]	—	6	4	0.46	50	1
[2910.4]	—	2	4	0.43	50	1
[2925.7]	—	2	2	0.52	50	1
[2955.7]	4	6	4	1.2	50	1
3001.65	4	4	4	0.78	50	1
3034.48	8	6	8	3.1	50	1
3037.73	8	4	4	2.0	50	1
3045.58	8	2	2	2.5	50	1
3047.57	8	4	6	1.8	50	1
3054.69	8	2	4	0.93	50	1
3118.02	16	8	6	0.11	50	1
3169.30	16	6	4	0.17	50	1
3248.15	15	4	4	0.14	50	1
3255.39	23	6	4	0.12	50	1
3263.43	15	2	4	0.36	50	1

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Neon (Continued)						
[4292.4]	57	10	10	0.20	50	1
[4346.9]	57	8	8	0.33	50	1
4379.50	56	8	8	0.20	50	1
4385.00	56	6	6	0.18	50	1
4391.94	57	8	10	2.2	50	1
4397.94	56	10	10	0.24	50	1
4409.30	57	6	8	2.0	50	1
4413.20	57	4	6	2.0	50	1
Ne III:						
2086.96	—	3	3	2.96	25	1
2087.44	—	5	3	0.99	25	1
2088.92	—	3	5	0.59	25	1
2089.43	—	5	5	2.73	25	1
2095.54	—	7	7	3.47	25	
†2413.0	—	9	15	4.87	25	1
2590.04	11 uv	5	7	1.69	25	27
2593.60	11 uv	5	5	1.69	25	27
2595.68	11 uv	5	3	1.69	25	27
2610.03	—	7	9	2.01	25	27
2613.41	—	5	7	1.78	25	27
2615.87	—	3	5	1.68	25	27
†2678.2	12 uv	3	9	2.70	25	27

3297.74	2	6	6	0.53	50	1
3323.75	7	4	4	1.56	25	1*n*, 27
3453.10	21	4	4	0.59	50	1
3456.68	28	2	4	1.0	50	1
3503.61	28	2	2	1.9	50	1
3551.52	24	2	4	0.055	50	1
3557.84	6	2	2	0.51	25	1*n*, 27
3561.23	31	4	6	0.11	50	1
3565.84	34	4	4	0.82	50	1
3568.53	9	6	8	1.14	25	1*n*, 27
3571.26	31	4	4	0.43	50	1
3590.47	32	4	6	0.087	50	1
3594.18	34	4	2	1.3	50	1
3612.35	26	2	4	0.22	50	1
3628.06	41	4	4	0.57	50	1
3632.75	33	4	4	0.090	50	1
3659.93	33	4	6	0.11	50	1
3664.09	1	6	4	0.51	25	1*n*, 27
3679.80	41	4	2	0.36	50	1
3694.22	1	6	6	0.73	25	1*n*, 27
3697.09	41	2	2	0.34	50	1
3701.81	40	4	6	0.25	50	1
3709.64	1	4	2	0.84	25	1*n*, 27
3713.09	5	4	6	1.19	25	1*n*, 27
3766.29	1	4	6	0.245	25	1*n*, 27
3800.02	39	4	4	0.35	50	1
3818.44	39	2	4	0.69	50	1
3829.77	39	4	6	0.88	50	1
4210.76	52	8	8	0.33	50	1
4231.60	52	6	6	0.22	50	1
4290.40	57	10	12	2.5	50	1

Ne IV:						
541.124	1 uv	4	2	15.2	25	23
542.076	1 uv	4	4	15.2	25	23
543.884	1 uv	4	6	15.2	25	23
2018.44	—	4	4	3.7	50	1
2022.19	—	6	6	3.8	50	1
[2174.4]	—	2	4	1.3	50	1
[2176.1]	—	4	6	0.96	50	1
2203.88	—	6	6	2.2	50	1
[2206.4]	—	4	2	2.5	50	1
2220.81	—	6	4	1.4	50	1
2258.02	—	6	8	2.7	50	1
2262.08	—	6	6	2.7	50	1
2264.54	—	6	4	2.7	50	1
2285.79	—	6	8	2.8	50	1
2293.49	—	4	6	2.6	50	1
2350.84	—	2	4	1.0	50	1
2352.52	—	4	6	1.7	50	1
2357.96	—	6	8	2.5	50	1
2372.16	—	4	4	1.3	50	1
2384.95	—	6	6	0.72	50	1
Ne V:						
568.418	1 uv	1	3	6.7	25	23
569.759	1 uv	3	3	4.97	25	23
569.830	1 uv	3	5	8.9	25	23
572.106	1 uv	5	5	2.94	25	23
572.336	1 uv	5	7	11.7	25	23
2227.42	—	5	7	0.13	50	1
2232.41	—	7	9	0.20	50	1
2259.57	—	3	5	1.7	50	1
2263.39	—	1	3	1.2	50	1
2265.71	—	5	7	2.2	50	1

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Neon (Continued)						
2282.61	—	3	3	0.89	50	1
2306.31	—	5	5	0.52	50	1
Ne VI:						
†122.62	—	6	10	1400	50	1
2042.38	—	2	4	2.73	25	1
2055.93	—	2	2	2.68	25	1
[2213.1]	—	2	4	1.54	25	1
Ne VIII:						
†88.11	—	2	6	853	10	1
†98.20	—	6	10	2760	10	1
†103.00	—	6	2	462	10	1
770.409	—	2	4	5.72	10	1
780.324	—	2	2	5.50	10	1
†[2860.1]	—	2	6	0.696	10	1
†[8454.3]	—	6	10	0.0214	10	1
Ne IX:						
[11.558]	—	1	3	24800	3	1
13.44	—	1	3	88700	3	1
†74.4	—	3	9	1460	10	1
[82.010]	—	3	5	4180	3	1
†[1297.5]	—	3	9	0.980	3	1
[1901.5]	—	1	3	0.329	3	1

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Sodium (continued)						
22083.7	—	2	2	0.062	25	2
23348.4	—	2	4	0.056	25	2
[91380]	—	4	2	0.00156	25	2
Na II:						
300.151	4 uv	1	3	30	50	2
301.432	3 uv	1	3	9.5	50	2
372.069	2 uv	1	3	3.1	50	2
Na III:						
1752.65	—	6	6	3.3	50	2
1849.58	—	6	8	7.2	50	2
1856.73	—	4	6	5.1	50	2
1935.54	—	4	6	7.0	50	2
1939.32	—	6	8	7.6	50	2
1951.21	—	6	4	2.7	50	2
1965.04	—	8	10	8.8	50	2
[1976.4]	—	4	6	8.3	50	2
1985.58	—	4	4	1.7	50	2
1995.62	—	6	6	2.0	50	2
[2004.8]	—	2	4	4.6	50	2
[2011.9]	—	6	8	8.4	50	2
[2028.6]	—	8	8	1.7	50	2
[2036.9]	—	2	2	4.4	50	2
[2045.5]	—	6	6	1.1	50	2

Sodium

Na I:						
†2852.8	1 uv	2	6	0.0060	25	2
3302.37	2	2	4	0.0290	25	2
3302.98	2	2	2	0.0293	25	2
4494.18	15	2	4	0.0126	25	2
4664.81	12	2	4	0.0214	25	2
4747.94	11	2	2	0.0059	25	2
4751.82	11	4	2	0.0119	25	2
4978.54	9	2	4	0.0418	25	2
5148.84	8	2	2	0.0110	25	2
5153.40	8	4	2	0.0220	25	2
5682.63	6	2	4	0.109	25	2
5889.95	1	2	4	0.630	3	2
5895.92	1	2	2	0.628	3	2
6154.23	5	2	2	0.0241	25	2
6160.75	5	4	2	0.0482	25	2
8183.26	4	2	4	0.413	25	2
†8650.3	19	2	6	0.00231	25	2
†9465.94	24	10	14	0.0079	25	2
†9961.28	23	10	14	0.0127	25	2
10749.3	18	2	2	0.0074	25	2
†10834.9	22	10	14	0.0224	25	2
11381.5	3	2	2	0.084	25	2
11403.8	3	4	2	0.167	25	2
12311.5	—	2	4	0.0108	25	2
†12679.2	21	10	14	0.0471	25	2
14767.5	—	2	4	0.0217	25	2
16373.9	—	2	2	0.0058	25	2
16388.9	—	4	2	0.0115	25	2
†18465.3	—	10	14	0.140	25	2
22056.4	—	2	4	0.062	25	2

[2067.4]	—	4	4	2.8	50	2
[2107.7]	—	2	2	2.1	50	2
[2151.2]	—	2	4	4.4	50	2
[2174.5]	—	4	6	5.3	50	2
[2180.8]	—	4	6	3.6	50	2
[2194.8]	—	4	4	3.7	50	2
[2222.8]	—	4	2	3.5	50	2
[2230.3]	—	6	8	3.7	50	2
[2232.2]	—	4	4	3.3	50	2
[2246.7]	—	4	6	2.4	50	2
[2278.5]	—	2	2	2.4	50	2
[2310.0]	—	4	2	2.3	50	2
[2367.3]	—	2	2	1.1	50	2
[2459.4]	—	4	6	3.0	50	2
[2468.9]	—	2	4	2.4	50	2
[2497.0]	—	6	6	1.7	50	2
Na IV:						
319.638	—	5	3	170	50	2
360.761	—	1	3	23	50	2
410.371	—	5	5	76	50	2
Na V:						
307.152	—	4	2	270	50	2
360.319	—	2	2	52	50	2
360.367	—	4	2	100	50	2
367.557	—	4	2	120	50	2
†445.14	—	6	10	11	50	2
459.897	—	4	2	31	50	2
461.051	—	4	4	31	50	2
463.263	—	4	6	31	50	2
511.193	—	4	4	68	50	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights		Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
		g_i	g_k			
Magnesium						
Mg I:						
2025.82	2 uv	1	3	1.2	50	2
2736.54	9 uv	5	7	0.207	25	2
2776.69	6 uv	3	5	1.31	25	2
2778.27	6 uv	1	3	1.76	25	2
2781.42	6 uv	3	1	5.3	25	2
2782.97	6 uv	5	3	2.16	25	2
2846.72	5 uv	1	3	0.15	50	2
2938.47	3 uv	3	3	0.052	50	2
2942.00	3 uv	5	3	0.086	50	2
3091.07	5	1	3	0.313	25	2
3329.92	4	1	3	0.034	50	2
3332.15	4	3	3	0.10	50	2
3336.67	4	5	3	0.17	50	2
3829.35	3	1	3	0.940	10	2
4351.91	14	3	5	0.21	50	2
4702.99	11	3	5	0.16	50	2
5167.32	2	1	3	0.116	10	2
5172.68	2	3	3	0.346	10	2
5183.60	2	5	3	0.575	10	2
5528.40	9	3	5	0.14	50	2
†7657.8	22	3	9	0.0148	25	2
8806.76	7	3	5	0.14	50	2
8923.57	25	1	3	0.011	50	2

Wavelength, Å	Multiplet no.	Statistical weights		Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
		g_i	g_k			
Magnesium (Continued)						
Mg III:						
186.510	4 uv	1	3	170	50	2
187.194	3 uv	1	3	100	50	2
231.730	2 uv	1	3	87	50	2
Mg IV:						
[1230.3]	—	6	4	4.1	50	2
[1245.2]	—	6	6	5.9	50	2
[1246.6]	—	2	4	3.4	50	2
[1253.7]	—	4	6	2.6	50	2
[1375.4]	—	4	4	4.5	50	2
1459.52	—	6	4	4.6	50	2
1490.41	—	4	4	2.8	50	2
[1525.2]	—	4	4	6.7	50	2
[1548.1]	—	4	6	6.4	50	2
1658.92	—	6	6	1.8	50	2
1680.02	—	4	4	3.1	50	2
1698.83	—	4	6	3.9	50	2
[1703.4]	—	2	4	2.4	50	2
1874.59	—	6	4	1.8	50	2
1893.87	—	6	6	2.8	50	2
1906.71	—	4	2	3.2	50	2
1946.20	—	4	6	1.1	50	2
1956.58	—	2	4	1.5	50	2

9255.78	27	5	7	0.089	25	2
9414.96	38	15	21	0.022	25	2
†10811.1	37	15	21	0.0452	25	2
10953.3	35	1	3	0.025	50	2
11828.2	6	3	1	0.26	50	2
12083.7	26	5	7	0.170	25	2
†14877.6	—	15	21	0.105	25	2
†15031	—	3	9	0.139	25	2
17108.7	—	1	3	0.094	25	2
Mg II:						
†2660.8	4 uv	10	14	0.38	50	2
2790.77	3 uv	2	4	3.94	10	2
2795.53	1 uv	2	4	2.68	10	2
2802.70	1 uv	2	2	2.66	10	2
2928.63	2 uv	2	2	1.07	25	2
2936.51	2 uv	4	2	2.15	25	2
†3104.8	6	10	14	0.81	25	2
4384.64	10	2	4	0.14	50	2
4427.99	9	2	2	0.107	25	2
4433.99	9	4	2	0.214	25	2
4481.2	4	10	14	2.25	10	2
†5264.3	17	10	14	0.125	25	2
†6346.8	16	10	14	0.216	25	2
7877.05	8	2	4	0.66	25	2
8213.99	7	2	2	0.260	25	2
8234.64	7	4	2	0.52	25	2
9218.25	1	2	4	0.359	25	2
9244.27	1	2	2	0.356	25	2
9632.2	15	10	14	0.413	25	2
10951.8	3	4	2	0.166	25	2

Mg V:						
276.581	—	5	3	200	50	2
312.311	—	1	3	27	50	2
351.089	—	5	3	50	50	2
352.202	—	3	1	120	50	2
353.094	—	5	5	88	50	2
353.300	—	3	3	29	50	2
354.223	—	1	3	40	50	2
355.326	—	3	5	29	50	2

Aluminum

Al I:						
2145.56	—	2	4	0.233	25	2
2168.83	9 uv	2	4	0.306	25	2
2367.05	4 uv	2	4	0.71	25	2
2373.12	4 uv	4	6	0.85	25	2
2373.35	4 uv	4	4	0.14	50	2
2567.98	2 uv	2	4	0.221	25	2
2575.10	2 uv	4	6	0.264	25	2
2652.48	1 uv	2	2	0.133	25	2
2660.39	1 uv	4	2	0.264	25	2
3082.15	3	2	4	0.61	25	2
3944.01	1	2	2	0.493	25	2
3961.52	1	4	2	0.98	25	2
6696.02	5	2	4	0.0169	25	2
6698.67	5	2	2	0.0169	25	2
7835.31	10	4	6	0.057	50	2
8772.87	9	4	6	0.098	50	2
10873.0	12	4	2	0.011	50	2
10891.7	12	4	2	0.022	50	2
11253.2	8	4	6	0.166	25	2
13123.4	4	2	4	0.182	25	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Aluminum (Continued)						
13150.8	4	2	2	0.181	25	2
16719.0	—	2	4	0.085	25	2
16750.6	—	4	6	0.101	25	2
16763.4	—	4	4	0.017	50	2
Al II:						
†1191.0	—	9	15	1.7	50	2
1539.74	10 uv	3	5	8.8	50	2
1670.81	2 uv	1	3	14.6	10	2
1719.46	6 uv	1	3	6.79	10	2
1760.10	5 uv	3	5	3.30	25	2
1761.98	5 uv	1	3	4.38	25	2
1765.81	5 uv	3	1	13.1	25	2
1767.60	5 uv	5	3	5.4	25	2
1855.95	4 uv	1	3	0.832	10	2
1858.05	4 uv	3	3	2.48	10	2
1862.34	4 uv	5	3	4.12	10	2
†1908.7	—	9	9	8.1	50	2
1931.05	—	3	1	10.8	25	2
†1963.0	—	9	15	12	50	2
1989.85	8 uv	3	5	14.7	25	2
†2193.8	—	15	21	3.1	50	2
2816.19	—	3	1	3.83	25	2
†2996.8	14	9	15	0.11	50	2
3088.52	20	3	5	0.15	50	2
†3653.0	12	9	15	0.27	50	2

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Aluminum (Continued)						
3713.10	4	4	2	2.27	25	2
3980.56	12	10	14	0.229	25	2
†4150.1	5	10	14	2.19	25	2
4357.24	9	2	4	0.070	50	2
4512.54	3	2	4	2.15	25	2
4903.71	11	10	14	0.351	25	2
5696.47	2	2	4	0.882	10	2
5722.65	2	2	2	0.870	10	2
Al IV:						
129.729	—	1	3	340	50	2
130.37	—	1	3	630	50	2
160.073	—	1	3	170	50	2
Silicon						
Si I:						
1255.28	UV 41.12	1	3	3.1	50	28
1256.49	UV 41.12	3	3	9.5	50	28
1258.80	UV 41.12	5	3	15	50	28
1637.01	UV 104	5	3	4.9	50	28
1638.28	UV 104	5	5	5.0	50	28
1640.27	UV 104	5	7	5.2	50	28
1675.21	UV 23	5	5	0.45	50	28
1845.52	UV 10	1	3	0.99	50	28

3703.22	18	3	5	0.38	50	2
3733.91	11	3	3	0.13	50	2
3738.00	11	5	3	0.21	50	2
3866.16	17	3	1	0.37	50	2
5593.23	16	3	5	2.3	50	2
5613.19	77	5	7	0.070	50	2
†5859.7	41	15	21	0.24	50	2
†6237.4	10	9	15	1.1	50	2
6335.74	22	5	3	0.14	50	2
6816.69	9	1	3	0.11	50	2
6823.48	9	3	3	0.34	50	2
6837.14	9	5	3	0.57	50	2
6917.93	75	5	7	0.16	50	2
6919.96	15	3	1	0.96	50	2
7042.06	3	3	5	0.59	25	2
7056.60	3	3	3	0.58	25	2
7063.64	3	3	1	0.58	25	2
7449.12	98	3	5	0.12	50	2
7471.41	21	5	7	0.94	50	2
7624.48	91	1	3	0.050	50	2
†8358.2	40	15	21	0.50	50	2
8640.70	4	1	3	0.286	25	2
Al III:						
1379.67	—	2	2	4.51	25	2
1384.14	—	4	2	8.9	25	2
1605.7	—	2	4	12.1	10	2
1854.72	1 uv	2	4	5.67	10	2
1862.78	1 uv	2	2	5.60	10	2
†1935.88	—	10	14	12.2	25	2
3612.35	1	4	2	1.48	25	2
3702.09	4	2	2	1.14	25	2

1847.47	UV 10	3	5	1.4	50	28
1848.15	UV 10	3	3	0.65	50	28
1850.67	UV 10	5	7	1.9	50	28
1852.47	UV 10	5	5	0.42	50	28
1901.34	UV 57	5	7	0.80	50	28
1977.60	UV 7	1	3	0.18	50	28
1979.21	UV 7	3	1	0.51	50	28
1983.23	UV 7	3	5	0.14	50	28
1988.99	UV 7	5	5	0.41	50	28
2054.84	UV 103	5	7	1.3	50	28
2061.19	UV 103	5	5	1.4	50	28
2065.52	UV 103	5	3	1.5	50	28
2124.12	UV 48	5	7	2.4	50	28
2207.98	UV 3	1	3	0.25	50	2, 28
2210.89	UV 3	3	5	0.34	50	2, 28
2211.74	UV 3	3	3	0.19	50	2, 28
2216.67	UV 3	5	7	0.46	50	2, 28
2435.15	UV 45	5	5	0.28	50	28
2506.90	UV 1	3	5	0.415	25	2, 28
2514.32	UV 1	1	3	0.55	25	2, 28
2516.11	UV 1	5	5	1.22	25	2, 28
2519.20	UV 1	3	3	0.415	25	2, 28
2524.11	UV 1	3	1	1.62	25	2, 28
2528.51	UV 1	5	3	0.69	25	2, 28
2881.58	UV 43	5	3	1.75	25	2
3905.52	3	1	3	0.145	25	2
4102.94	2	1	3	0.0016	50	2
4782.99	11.06	5	3	0.018	50	12
4947.61	17.09	3	1	0.041	50	12
5006.06	17.08	3	5	0.025	50	12
5645.61	10	3	5	0.0044	50	12
5665.55	10	1	3	0.011	50	12

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Silicon (Continued)						
5684.48	11	5	3	0.039	50	12
5701.11	10	3	1	0.031	50	12
5708.40	10	5	5	0.025	50	12
5772.15	17	3	1	0.080	50	12
5780.38	9	1	3	0.011	50	12
5793.07	9	3	5	0.014	50	12
5797.86	9	5	7	0.014	50	12
5948.55	16	3	5	0.044	50	12
6721.85	38	3	5	0.034	50	2
6976.52	60	3	5	0.023	50	2
7003.57	60	5	7	0.024	50	2
7005.88	60	7	9	0.027	50	2
7680.27	36	3	5	0.062	50	2
7918.39	57	3	5	0.054	50	2
7932.35	57	5	7	0.054	50	2
7944.00	57	7	9	0.049	50	2
8093.24	34	3	3	0.012	50	12
9413.51	14	3	1	0.29	50	12
10288.9	6	1	3	0.027	50	2
10371.3	6	3	3	0.081	50	2
10585.1	6	5	3	0.19	50	12
10603.4	5	3	5	0.048	50	12
10661.0	5	1	3	0.089	50	12
10689.7	53	3	5	0.12	50	2
10694.3	53	5	7	0.12	50	2

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Silicon (Continued)						
1250.43	UV 13.05	6	6	35	50	28
1251.16	UV 8	6	4	19	50	2
1260.42	UV 4	2	4	25	50	2
1304.37	UV 3	2	2	3.6	50	2
1309.27	UV 3	4	2	7.0	50	2
1526.72	UV 2	2	2	3.73	25	2
1533.45	UV 2	4	2	7.4	25	2
†2072.4	UV 9	10	14	1.0	50	2
2500.93	UV 18	4	6	0.38	50	2
2904.28	UV 17	4	6	0.67	50	2
3203.87	7	2	4	0.39	50	2
3333.14	6	2	2	0.15	50	2
3339.82	6	4	2	0.30	50	2
3856.02	1	6	4	0.25	50	2
3862.60	1	4	2	0.28	50	2
4128.07	3	4	6	1.32	25	2
†4621.5	7.05	10	14	0.16	50	2
5041.03	5	2	4	0.98	50	2
†5466.6	7.03	10	14	0.26	50	2
5957.56	4	2	2	0.42	50	2
5978.93	4	4	2	0.81	50	2
6347.10	2	2	4	0.70	25	2
6371.36	2	2	2	0.69	25	2

10727.4	53	7	9	0.12	50	2
10749.4	5	3	3	0.10	50	12
10786.9	5	3	1	0.24	50	12
10827.1	5	5	5	0.19	50	12
10843.9	31	3	5	0.098	50	12
10869.5	13	3	5	0.24	50	12
10979.3	5	5	3	0.042	50	12
11984.2	4	3	5	0.15	50	12
11991.6	4	1	3	0.11	50	12
12031.5	4	5	7	0.18	50	12
12103.5	4	3	3	0.061	50	12
12270.7	4	5	5	0.033	50	12
15557.8	42.21	5	5	0.013	50	2
15884.4	42.21	3	3	0.020	50	2
15888.4	11.12	3	3	0.082	50	12
15960.0	42.21	7	5	0.070	50	2
16060.0	42.21	3	1	0.083	50	2
16094.8	42.21	5	3	0.060	50	2
Si II:						
989.867	UV 6	2	4	6.7	50	2
1190.42	UV 5	2	4	7.2	50	2
1193.28	UV 5	2	2	29	50	2
1194.50	UV 5	4	4	35	50	2
1197.39	UV 5	4	2	14	50	2
1223.91	UV 8.02	4	2	20	50	28
1224.25	UV 8.02	4	4	11	50	28
1227.60	UV 8.02	6	6	24	50	28
1229.39	UV 8.01	6	8	36	50	28
1246.74	UV 8	2	4	6.3	50	2
1248.43	UV 8	4	4	13	50	2
1250.09	UV 13.05	4	4	38	50	28

6818.45	7.20	2	4	0.11	50	2
7113.45	7.19	2	2	0.051	50	2
7125.84	7.19	4	2	0.098	50	2
7848.80	7.02	4	6	0.39	50	2
Si III:						
883.398	UV 27	5	7	63	50	2
994.787	UV 6	3	3	7.89	10	2
997.389	UV 6	5	3	13.1	10	2
1108.37	UV 5	1	3	16.2	10	2
1140.55	UV 32	1	3	22	50	2
1141.58	UV 32	3	5	30	50	2
1142.28	UV 32	3	3	16	50	2
1144.31	UV 32	5	7	39	50	2
1144.96	UV 32	5	5	9.7	50	2
1155.00	UV 31	1	3	7.5	50	2
1155.96	UV 31	3	1	22	50	2
1156.78	UV 31	3	3	5.2	50	2
1158.10	UV 31	3	5	5.5	50	2
1160.26	UV 31	5	3	9.1	50	2
1161.58	UV 31	5	5	16	50	2
1207.52	UV 22	5	5	19	50	2
1294.54	UV 4	3	5	5.62	10	2
1296.73	UV 4	1	3	7.46	10	2
1301.15	UV 4	3	1	22.2	10	2
1303.32	UV 4	5	3	9.18	10	2
1328.81	UV 48	1	3	27	50	2
1362.37	UV 38	3	1	11	50	2
1417.24	UV 9	3	1	26.0	25	2
1435.78	UV 61	5	7	21	50	2
1588.95	UV 59	5	3	11	50	2
1778.72	UV 35	7	9	4.4	50	2
1842.55	UV 20	5	3	2.61	25	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Silicon (Continued)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
†2449.48	UV 78	15	21	1.2	50	2
2528.47	UV 81	5	7	0.81	50	2
2546.09	UV 56	5	5	0.61	50	2
2559.21	UV 55	5	7	7.7	50	2
3233.95	6	3	3	1.3	50	2
3241.62	6	5	3	2.3	50	2
†3486.91	8.06	15	21	1.8	50	2
3590.47	7	3	5	3.9	50	2
3681.40	10.09	5	3	0.33	50	2
3791.41	5	1	3	2.0	50	2
4338.50	3	1	3	0.147	25	2
4341.40	46	3	1	1.8	50	2
4494.05	15	3	3	0.46	50	2
4552.62	2	3	5	1.26	25	2
4554.00	15	5	3	0.76	50	2
4567.82	2	3	3	1.25	25	2
4574.76	2	3	1	1.25	25	2
4619.66	13	3	5	0.33	50	2
4638.28	13	1	3	0.43	50	2
4665.87	13	3	3	0.32	50	2
4683.02	13	5	5	0.95	50	2

Silicon (Continued)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
2120.18	UV 18	2	2	3.0	25	2
2127.47	UV 18	4	2	6.0	25	2
†2287.04	UV 22	10	14	6.4	25	2
†2675.2	UV 25	14	10	0.280	25	2
†2723.81	UV 32	10	14	1.1	50	2
3149.56	2	2	4	4.02	25	2
3773.15	3	4	2	2.36	25	2
4088.85	1	2	4	1.56	10	2
4116.10	1	2	2	1.54	10	2
†4212.41	5	10	14	1.72	25	2
4314.10	4	2	2	1.08	25	2
4328.18	4	4	2	2.14	25	2
†4403.73	14	10	14	0.41	50	2
6667.56	3.02	2	4	1.14	25	2
†6998.36	12	10	14	0.55	25	2
7068.41	4.01	4	2	1.00	25	2
7630.50	9	2	2	0.440	25	2
7654.56	9	4	2	0.88	25	2
†8240.61	15	14	10	0.126	25	2
8957.25	3.01	2	4	0.421	25	2
9018.16	3.01	2	2	0.413	25	2

4683.80	13	3	1	1.3	50	2
4716.65	8.09	5	7	2.8	50	2
4730.52	13	5	3	0.52	50	2
5473.05	12.08	5	7	0.79	50	2
5490.11	12.08	3	3	0.33	50	2
5539.93	12.08	5	5	0.19	50	2
5696.50	8.17	5	3	0.20	50	2
5704.60	8.17	7	5	0.18	50	2
5716.29	8.17	9	7	0.19	50	2
5739.73	4	1	3	0.47	50	2
6169.84	22	5	7	0.12	50	2
6314.46	10.02	3	1	1.2	50	2
6521.49	17	3	5	0.32	50	2
6831.56	10.07	5	3	0.74	50	2
7612.36	10.01	3	5	1.1	50	2
8262.57	10.06	5	7	0.91	50	2
8265.64	10.06	5	5	0.23	50	2
8269.32	10.06	3	5	0.70	50	2
8341.93	44	3	5	0.26	50	2
9799.91	8.08	5	3	0.39	50	2
Si IV:						
†645.759	UV 15	10	14	7.0	50	2
†749.941	UV 13	10	14	14.5	25	2
815.049	UV 4	2	2	12.3	25	2
818.129	UV 4	4	2	24.4	25	2
†1066.63	UV 11	10	14	39.1	25	2
1122.49	UV 3	2	4	22.2	25	2
1393.76	UV 1	2	4	9.20	10	2
1402.77	UV 1	2	2	9.03	10	2
†1533.22	UV 24	10	14	3.57	25	2
1727.38	UV 10	4	2	5.5	25	2

Phosphorus

P I:						
1774.99	1 uv	4	6	2.17	25	2
1782.87	1 uv	4	4	2.14	25	2
1787.68	1 uv	4	2	2.13	25	2
†1859.2	5 uv	10	10	2.81	25	2
2136.18	4 uv	6	4	2.83	25	2
2149.14	4 uv	4	2	3.18	25	2
2152.94	9 uv	2	4	0.485	25	2
2533.99	8 uv	2	4	0.200	25	2
2535.61	8 uv	4	4	0.95	25	2
2553.25	8 uv	2	2	0.71	25	2
2554.90	8 uv	4	2	0.300	25	2
8046.79	—	8	6	0.023	50	2
8090.08	—	6	4	0.020	50	2
8637.62	—	2	2	0.079	50	2
8741.54	—	2	4	0.091	50	2
9175.85	3	2	4	0.050	50	2
9304.88	3	4	4	0.096	50	2
9525.78	3	6	4	0.14	50	2
9563.45	2	4	6	0.081	50	2
9593.54	2	2	4	0.11	50	2
9750.73	2	4	2	0.22	50	2
9790.08	4	2	4	0.045	50	2
9796.79	2	6	6	0.18	50	2
9903.74	4	2	2	0.18	50	2
9976.65	2	6	4	0.11	50	2
10084.2	4	4	4	0.21	50	2
10204.7	4	4	2	0.083	50	2
10511.4	1	2	4	0.088	50	2
10529.5	1	4	6	0.15	50	2
10581.5	1	6	8	0.21	50	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Phosphorus (Continued)						
10596.9	1	2	2	0.17	50	2
10681.4	1	4	4	0.11	50	2
10813.0	1	6	6	0.060	50	2
P II:						
1301.87	2 uv	1	3	0.53	25	2
1304.47	2 uv	3	1	1.57	25	2
1304.68	2 uv	3	3	0.392	25	2
1305.48	2 uv	3	5	0.392	25	2
1309.87	2 uv	5	3	0.65	25	2
1310.70	2 uv	5	5	1.17	25	2
1535.90	1 uv	3	5	0.096	25	2
1542.29	1 uv	5	7	0.127	25	2
4385.35	—	3	3	0.40	50	2
4402.09	—	1	3	0.73	50	2
4414.28	—	3	5	0.18	50	2
4417.30	—	3	3	0.55	50	2
4420.71	—	3	1	1.6	50	2
4424.07	—	3	1	0.73	50	2
4463.00	—	5	5	0.54	50	2
4467.98	—	1	3	0.25	50	2
4475.26	—	5	7	1.3	50	2
4483.68	—	3	3	0.19	50	2
4499.24	—	5	7	1.4	50	2
4530.81	—	3	5	1.0	50	2
Phosphorus (Continued)						
5583.27	—	5	3	0.19	50	2
5588.34	—	3	5	0.15	50	2
5727.71	—	3	3	0.15	50	2
6024.18	—	3	5	0.51	50	2
6034.04	—	1	3	0.37	50	2
6043.12	—	5	7	0.68	50	2
6055.50	—	5	3	0.69	50	2
6087.82	—	3	3	0.27	50	2
6165.59	—	5	5	0.16	50	2
7735.06	—	1	3	0.11	50	2
7845.63	—	3	3	0.33	50	2
P III:						
3219.32	4	2	4	3.9	50	2
†3280.22	6	10	14	1.8	50	2
3717.63	10	2	4	0.34	50	2
3744.22	10	4	4	0.68	50	2
3802.08	10	6	4	0.97	50	2
3895.03	9	4	6	0.54	50	2
3904.79	9	2	4	0.75	50	2
3951.51	9	4	2	1.4	50	2
3957.64	9	6	6	1.2	50	2
3997.17	9	6	4	0.76	50	2
4057.39	1	4	4	0.10	50	2
4059.27	1	6	4	0.90	50	2

4533.96	—	5	3	0.31	50	2
4554.83	—	3	5	0.96	50	2
4565.27	—	3	1	0.96	50	2
4582.17	—	5	5	0.33	50	2
4588.04	—	5	7	1.7	50	2
4589.86	—	3	5	1.6	50	2
4602.08	—	7	9	1.9	50	2
4626.70	—	5	5	0.30	50	2
4628.77	—	3	3	0.97	50	2
4658.31	—	7	7	0.21	50	2
4864.42	—	5	5	0.11	50	2
4927.20	—	3	3	0.19	50	2
4935.62	—	1	3	0.63	50	2
4943.53	—	7	5	0.63	50	2
4954.39	—	3	1	0.78	50	2
4969.71	—	5	3	0.58	50	2
5040.80	—	5	5	0.40	50	2
5152.23	—	1	3	0.12	50	2
5191.41	—	3	3	0.35	50	2
5253.52	—	3	5	1.0	50	2
5296.13	—	5	3	0.55	50	2
5316.07	—	3	5	0.24	50	2
5344.75	—	1	3	0.32	50	2
5378.20	—	3	5	0.11	50	2
5386.88	—	3	3	0.23	50	2
5409.72	—	3	1	0.93	50	2
5425.91	—	5	5	0.69	50	2
5450.74	—	5	5	0.33	50	2
5483.55	—	1	3	0.15	50	2
5499.73	—	5	3	0.37	50	2
5507.19	—	3	3	0.11	50	2
5541.14	—	3	1	0.45	50	2

4080.04	1	4	2	0.99	50	2
4222.15	3	2	4	1.5	50	2
4246.68	3	2	2	1.4	50	2
†4587.91	7	14	10	0.11	50	2
P IV:						
628.983	4 uv	1	3	5.5	25	2
629.914	4 uv	3	3	16.5	25	2
631.765	4 uv	5	3	27.3	25	2
776.366	—	3	1	24.2	25	2
823.181	3 uv	1	3	26.3	10	2
846.999	—	3	5	48	50	2
849.764	—	5	7	66	50	2
[855.05]	5 uv	3	5	84	50	2
866.84	—	5	5	26	50	2
950.662	1 uv	1	3	39.4	10	2
963.993	—	1	3	29.0	25	2
1025.58	2 uv	3	5	7.7	25	2
1028.13	2 uv	1	3	10.1	25	2
1033.14	2 uv	3	1	29.9	25	2
1035.54	2 uv	5	3	12.4	25	2
†1090.0	—	15	9	18	50	2
1118.59	—	3	1	32.4	25	2
[1847.5]	—	5	7	7.3	50	2
3347.72	1	3	5	2.13	25	2
3364.44	1	3	3	2.09	25	2
3371.10	1	3	1	2.1	50	2
[3719.3]	3	7	5	2.0	50	2
3728.67	3	5	3	1.8	50	2
4249.57	2	1	3	0.84	25	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Phosphorus (Continued)						
P V:						
542.567	—	2	2	25	25	2
544.914	—	4	2	49	25	2
†673.90	—	10	14	97	25	2
865.435	—	2	4	31.0	25	2
[997.53]	—	4	4	1.7	25	2
997.641	—	6	4	15	25	2
1000.36	—	4	2	16	25	2
1117.98	—	2	4	12.0	25	2
1128.00	—	2	2	11.6	25	2
[1379.7]	—	2	2	6.6	25	2
1385.11	—	4	2	13	25	2
[2424.3]	—	2	4	6.4	25	2
[2440.8]	—	4	6	7.4	25	2
[2441.1]	—	4	4	1.2	25	2
3175.16	1	2	4	2.34	25	2
3204.06	1	2	2	2.28	25	2
Sulfur						
S I:						
1295.66	9 uv	5	5	4.8	50	2
1296.17	9 uv	5	3	2.4	50	2
1302.34	9 uv	3	5	1.3	50	2
1302.87	9 uv	3	3	1.1	50	2
1303.11	9 uv	3	1	4.8	50	2

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Sulfur (Continued)						
†8684.2	6	15	25	0.12	50	2
†9036.7	13	9	15	0.029	50	2
9212.91	1	5	7	0.30	50	2
9228.11	1	5	5	0.28	50	2
9237.49	1	5	3	0.28	50	2
10455.5	3	3	5	0.22	50	2
10456.8	3	3	1	0.22	50	2
10459.5	3	3	3	0.22	50	2
S II:						
1124.39	8 uv	2	4	0.84	50	2
1125.00	8 uv	4	4	3.1	50	2
1131.05	8 uv	2	2	2.7	50	2
1131.65	8 uv	4	2	1.1	50	2
1234.14	7 uv	4	4	0.048	50	2
1250.50	1 uv	4	2	0.46	25	2
1253.79	1 uv	4	4	0.42	25	2
1259.53	1 uv	4	6	0.34	25	2
3567.17	56	4	4	0.35	50	2
3616.92	56	6	6	0.36	50	2
3892.32	50	6	6	0.63	50	2
3933.29	55	6	8	2.0	50	2
4032.81	59	4	6	1.2	50	2
4142.29	44	2	4	1.7	50	2
4145.10	44	4	6	1.8	50	2

1303.42	—	5	3	1.9	50	2	4153.10	44	6	8	2.0	50	2
1305.89	9 uv	1	3	1.7	50	2	4162.70	44	8	10	2.3	50	2
†1320.0	8 uv	9	15	0.94	50	2	4165.11	64	6	6	0.74	50	2
1401.54	6 uv	5	3	0.91	50	2	4259.18	66	6	8	1.5	50	2
1409.37	6 uv	3	3	0.50	50	2	4294.43	49	6	8	1.7	50	2
1412.90	6 uv	1	3	0.16	50	2	4463.58	43	8	6	0.53	50	2
†1429.1	5 uv	9	15	3.6	50	2	4483.42	43	6	4	0.31	50	2
1448.25	12 uv	5	3	6.9	50	2	4552.38	40	4	2	1.3	50	2
1474.01	3 uv	5	7	1.6	50	2	4656.74	9	2	4	0.12	50	2
1474.39	3 uv	5	5	0.57	50	2	4716.23	9	4	4	0.23	50	2
1483.04	3 uv	3	5	1.2	50	2	4792.02	46	6	6	0.37	50	2
1483.23	3 uv	3	3	0.75	50	2	4815.52	9	6	4	0.64	50	2
1485.61	4 uv	1	3	0.023	50	2	4824.07	52	6	4	0.76	50	2
1487.15	3 uv	1	3	0.89	50	2	4885.63	15	2	4	0.13	50	2
1666.69	11 uv	5	5	5.8	25	2	4917.15	15	2	2	0.55	50	2
1687.49	—	1	3	0.94	50	2	4924.08	7	4	6	0.22	50	2
1782.26	13 uv	1	3	1.5	50	2	4925.32	7	2	4	0.24	50	2
1807.34	2 uv	5	3	4.1	25	2	4942.47	7	2	2	0.15	50	2
1820.36	2 uv	3	3	2.2	25	2	4991.94	7	4	4	0.15	50	2
1826.26	2 uv	1	3	0.73	25	2	5009.54	7	4	2	0.70	50	2
4694.13	2	5	7	0.0076	50	2	5014.03	15	4	4	0.72	50	2
4695.45	2	5	5	0.0074	50	2	5027.19	1	4	2	0.26	50	2
4696.25	2	5	3	0.0072	50	2	5032.41	7	6	6	0.66	50	2
†5278.7	4	3	9	0.0038	50	2	5047.28	15	4	2	0.32	50	2
6403.58	9	3	5	0.0057	50	2	5103.30	7	6	4	0.50	50	2
6408.13	9	5	5	0.0095	50	2	5142.33	1	2	2	0.19	50	2
6415.50	9	7	5	0.013	50	2	†5208.0	39	10	10	0.79	50	2
†6751.2	8	15	25	0.079	50	2	5320.70	38	6	8	0.84	50	2
7679.60	7	3	5	0.012	50	2	5400.67	61	4	4	0.40	50	2
7686.13	7	5	5	0.020	50	2	5428.64	6	2	4	0.38	50	2
7696.73	7	7	5	0.028	50	2	5432.77	6	4	6	0.61	50	2
†8451.6	14	9	3	0.050	50	2	5453.81	6	6	8	0.78	50	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Sulfur (Continued)						
5473.59	6	2	2	0.74	50	2
5509.67	6	4	4	0.39	50	2
5526.22	11	8	8	0.081	50	2
5536.77	11	4	6	0.066	50	2
5564.94	6	6	6	0.16	50	2
5578.85	11	6	6	0.074	50	2
5606.11	11	10	8	0.30	50	2
5616.63	11	4	4	0.083	50	2
5639.96	14	4	6	0.75	50	2
5646.98	14	2	4	0.68	50	2
5659.95	11	6	4	0.34	50	2
5664.73	11	4	2	0.38	50	2
6305.51	19	8	6	0.18	50	2
6312.68	26	6	4	0.20	50	2
7967.43	12	2	2	0.080	50	2
8314.73	12	4	2	0.16	50	2
S III:						
2460.50	17 uv	5	5	0.45	50	2
2489.59	17 uv	3	3	0.77	50	2
2496.24	17 uv	7	5	2.5	50	2
2499.08	17 uv	3	1	3.1	50	2
2508.15	17 uv	5	3	2.3	50	2
Sulfur (Continued)						
4332.71	4	1	3	0.64	50	2
4340.30	4	3	3	0.48	50	2
4361.53	4	5	5	0.28	50	2
S IV:						
551.17	—	2	2	20.6	25	2
3097.46	1	2	4	2.6	50	2
3117.75	1	2	2	2.5	50	2
S V:						
437.37	4 uv	1	3	11.2	25	2
438.19	4 uv	3	3	33.3	25	2
439.65	4 uv	5	3	55	25	2
658.262	3 uv	1	3	36.2	10	2
786.476	1 uv	1	3	52.5	10	2
849.241	2 uv	3	5	10.7	25	2
852.185	2 uv	1	3	14.1	25	2
857.872	2 uv	3	1	41.4	25	2
860.462	2 uv	5	3	17.1	25	2
S VI:						
†464.654	5 uv	10	14	202	25	2
706.480	3 uv	2	4	41.7	25	2
712.682	3 uv	4	6	48.5	25	2
712.844	3 uv	4	4	8.1	50	2
933.382	1 uv	2	4	16.3	25	2
944.517	1 uv	2	2	15.7	25	2

2636.88	19 uv	3	5	0.45	50	2
2665.40	19 uv	5	5	1.4	50	2
2680.47	19 uv	1	3	0.62	50	2
2691.68	19 uv	3	3	0.46	50	2
2702.76	19 uv	3	1	1.9	50	2
2718.88	16 uv	3	3	1.2	50	2
2721.40	19 uv	5	3	0.77	50	2
2726.82	20 uv	3	5	0.60	50	2
2731.10	16 uv	5	5	1.1	50	2
2741.01	16 uv	5	3	0.39	50	2
2756.89	16 uv	7	7	1.4	50	2
2775.25	16 uv	7	5	0.24	50	2
2785.49	20 uv	3	3	0.61	50	2
2856.02	15 uv	5	7	5.1	50	2
2863.53	15 uv	7	9	5.7	50	2
2872.00	15 uv	3	5	4.7	50	2
2904.31	15 uv	7	7	0.61	50	2
2950.23	18 uv	3	5	3.0	50	2
2964.80	18 uv	5	7	4.0	50	2
2985.98	18 uv	5	5	0.99	50	2
3662.01	6	3	3	0.64	50	2
3717.78	6	5	3	1.0	50	2
3778.90	5	3	5	0.44	50	2
3831.85	5	1	3	0.56	50	2
3837.80	5	3	3	0.42	50	2
3838.32	5	5	5	1.3	50	2
3860.64	5	3	1	1.6	50	2
3899.09	5	5	3	0.67	50	2
4253.59	4	5	7	1.2	50	2
4284.99	4	3	5	0.90	50	2

Chlorine

Cl I:						
1201.36	—	2	4	2.39	25	2
1335.72	2 uv	4	2	1.74	25	2
1347.24	2 uv	4	4	4.19	25	2
1351.66	2 uv	2	2	3.23	25	2
1363.45	2 uv	2	4	0.75	25	2
4323.35	9	4	4	0.011	50	2
4363.30	8	4	6	0.0067	50	2
4369.52	8	2	4	0.0070	50	2
4379.90	7	4	4	0.012	50	2
4438.48	6	6	6	0.014	50	2
4469.37	15	4	2	0.016	50	2
4475.31	7	4	6	0.0043	50	2
4526.20	15	4	4	0.041	25	2
4601.00	15	2	2	0.039	25	2
4661.22	15	2	4	0.010	50	2
4691.53	—	4	2	0.011	50	2
4976.62	—	4	4	0.0035	50	2
5099.80	—	2	2	0.0085	50	2
7256.63	5	6	4	0.19	50	2
7414.10	4	6	4	0.047	50	2
7547.06	5	4	4	0.13	50	2
7717.57	4	4	4	0.030	50	2
7744.94	5	2	4	0.065	50	2
7769.18	—	6	6	0.045	50	2
7821.35	—	6	8	0.095	50	2
7830.76	—	4	4	0.069	50	2
7878.22	3	6	6	0.018	50	2

* For references see pp. 7-208 and 7-209.

TABLE 7-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Chlorine (Continued)						
7899.28	—	4	6	0.058	50	2
7915.09	—	2	2	0.061	50	2
7924.62	4	2	4	0.021	50	2
7935.00	—	6	8	0.046	50	2
7976.95	—	2	4	0.041	50	2
7997.80	3	4	4	0.021	50	2
8085.54	—	4	4	0.38	50	2
8086.67	—	6	6	0.40	50	2
8212.00	2	6	6	0.079	50	2
8333.29	2	4	4	0.16	50	2
8375.95	2	6	8	0.28	50	2
8428.25	2	2	2	0.24	50	2
8550.46	13	4	2	0.019	50	2
8575.25	2	2	4	0.12	50	2
8948.01	1	6	4	0.12	50	2
9073.15	12	4	2	0.19	50	2
9121.10	1	6	6	0.17	50	2
9191.67	1	4	2	0.21	50	2
9584.77	1	4	6	0.066	50	2
9592.20	11	4	6	0.24	50	2
9632.37	12	2	2	0.083	50	2
9702.35	1	2	4	0.091	50	2
9875.95	11	2	4	0.19	50	2
Chlorine (Continued)						
4130.86	60	5	5	0.41	50	2
4132.48	29	5	5	1.6	50	2
4133.66	60	3	3	0.45	50	2
4147.09	60	7	7	0.53	50	2
4208.03	43	5	5	1.1	50	2
4224.92	83	7	5	0.82	50	2
4241.38	24	5	5	0.60	50	2
4253.51	24	7	5	0.84	50	2
4261.22	66	5	3	0.83	50	2
4270.61	66	7	5	0.74	50	2
4276.51	66	9	7	0.76	50	2
4291.76	19	3	1	1.0	50	2
4304.07	19	3	3	0.25	50	2
4307.42	19	5	3	0.76	50	2
4336.26	19	5	5	0.15	50	2
4343.62	19	7	5	0.84	50	2
4399.14	46	3	3	1.3	50	2
4569.42	35	3	3	0.55	50	2
4768.68	40	3	5	0.77	50	2
4778.93	40	3	3	0.43	50	2
4785.44	40	5	5	0.26	50	2
4794.54	1	5	7	1.18	25	2
4810.06	1	5	5	1.13	25	2

Cl II:						
1063.83	1 uv	5	3	0.482	25	2
1071.05	1 uv	5	5	0.85	25	2
1071.76	1 uv	3	3	0.285	25	2
1079.08	1 uv	3	5	0.277	25	2
2546.94	13 uv	3	5	0.58	50	2
2549.85	13 uv	5	7	0.76	50	2
2906.25	14 uv	3	3	0.86	50	2
3022.93	57	3	5	0.60	50	2
3231.75	73	7	5	0.12	50	2
3315.44	37	3	5	1.1	50	2
3329.12	37	5	7	1.5	50	2
3522.14	64	7	7	1.4	50	2
3568.04	78	5	5	1.2	50	2
3618.88	77	5	3	1.2	50	2
3639.19	77	3	3	0.72	50	2
3781.23	72	7	7	0.87	50	2
3798.80	62	5	7	1.6	50	2
3805.24	62	7	9	1.8	50	2
3809.51	62	3	5	1.5	50	2
3850.97	25	5	7	1.8	50	2
3854.75	84	3	5	2.2	50	2
3868.62	84	7	9	2.7	50	2
3883.80	55	3	5	0.33	50	2
3913.92	68	9	9	0.82	50	2
3916.70	68	7	7	0.74	50	2
3917.57	68	5	5	0.78	50	2
3954.21	82	5	5	1.1	50	2
3990.19	76	5	7	0.84	50	2
4020.06	76	3	5	0.62	50	2
4036.53	76	1	3	0.46	50	2
4811.57	74	5	7	0.34	50	2
4857.04	74	3	5	0.25	50	2
4896.77	17	7	9	0.88	50	2
4904.76	17	5	7	0.81	50	2
4907.17	39	3	3	0.32	50	2
4914.32	17	7	7	0.10	50	2
4917.72	17	3	5	0.75	50	2
4922.14	17	5	5	0.14	50	2
5068.10	16	5	7	0.097	50	2
5078.25	16	7	7	0.77	50	2
5098.34	16	3	5	0.13	50	2
5099.30	16	3	3	0.64	50	2
5103.04	16	5	5	0.59	50	2
5104.08	16	5	3	0.21	50	2
5113.36	16	7	5	0.13	50	2
5221.34	3	3	3	0.77	25	2
5392.12	28	5	7	0.89	50	2
5443.42	2	7	5	0.15	50	2
5444.25	2	5	5	0.095	50	2
5444.99	2	3	5	0.024	50	2
5456.27	2	5	3	0.084	50	2
5568.81	80	5	5	0.50	50	2
6094.65	26	5	3	0.53	50	2
Cl III:						
2253.07	15 uv	6	6	0.61	50	2
2268.95	15 uv	4	4	1.1	50	2
2278.34	15 uv	2	2	1.8	50	2
2283.93	15 uv	8	6	2.7	50	2
2298.51	19 uv	4	4	4.2	50	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Chlorine (Continued)						
2340.64	19 uv	6	6	4.2	50	2
2370.37	24 uv	8	6	2.8	50	2
2403.32	17 uv	6	6	1.4	50	2
2416.42	17 uv	2	4	0.88	50	2
2484.27	13 uv	4	4	0.73	50	2
2486.91	21 uv	4	6	0.68	50	2
2504.23	13 uv	6	6	1.0	50	2
2510.92	13 uv	6	4	0.63	50	2
2519.45	13 uv	8	8	1.5	50	2
2531.76	22 uv	2	4	4.4	50	2
2532.48	22 uv	4	6	5.3	50	2
2577.13	18 uv	4	6	4.3	50	2
2580.67	18 uv	6	8	4.7	50	2
2601.16	12 uv	2	4	4.6	50	2
2603.59	12 uv	4	6	5.0	50	2
2609.50	12 uv	6	8	5.7	50	2
2616.97	12 uv	8	10	6.6	50	2
2618.78	12 uv	4	4	1.8	50	2
2624.71	23 uv	6	4	0.44	50	2
2651.19	12 uv	8	8	0.92	50	2
2661.65	16 uv	4	6	3.4	50	2
[2662.3]	16 uv	2	4	2.0	50	2
[2663.2]	16 uv	2	2	4.0	50	2
2665.54	16 uv	6	8	4.8	50	2
2669.6]	16 uv	4	4	2.6	50	2

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Chlorine (Continued)						
[3071.4]	—	1	3	1.3	50	2
[3076.7]	—	5	7	2.3	50	2
[3106.0]	—	3	3	0.92	50	2
[3167.9]	—	5	5	0.52	50	2
Cl V:						
390.148	—	2	2	40.0	25	2
392.433	—	4	2	79	25	2
Argon						
A I:						
866.80	—	1	3	3.13	25	2
876.06	—	1	3	2.70	25	2
1048.22	—	1	3	5.1	25	2
1066.66	—	1	3	1.19	25	2
4044.42	—	3	5	0.00346	25	2
4158.59	—	5	5	0.0145	25	2
4181.88	—	1	3	0.0058	25	2
4198.32	—	3	1	0.0276	25	2
4200.67	—	5	7	0.0103	25	2
4259.36	—	3	1	0.0415	25	2
4266.29	—	3	5	0.00333	25	2
4272.17	—	3	3	0.0084	25	2
4300.10	—	3	5	0.00394	25	2
4333.56	—	3	5	0.0060	25	2
4335.34	—	3	3	0.00387	25	2

2710.37	20 uv	4	6	3.5	50	2
2965.56	11 uv	6	4	2.7	50	2
2991.82	11 uv	4	2	3.0	50	2
3104.46	3	2	4	0.44	50	2
3139.34	3	4	4	0.86	50	2
3191.45	3	6	4	1.2	50	2
3244.44	6	2	4	0.41	50	2
3259.32	6	2	2	1.6	50	2
3283.41	2	4	6	0.68	50	2
3289.80	2	2	4	0.93	50	2
3320.57	6	4	4	1.9	50	2
3336.16	6	4	2	0.76	50	2
3387.60	2	6	4	0.93	50	2
3392.89	11	4	4	1.9	50	2
3393.45	11	6	6	1.9	50	2
3530.03	10	6	8	1.8	50	2
3560.68	10	4	6	1.7	50	2
3602.10	1	6	8	1.7	50	2
3612.85	1	4	6	1.2	50	2
3622.69	1	2	4	0.70	50	2
3656.95	1	2	2	1.4	50	2
3670.28	1	4	4	0.86	50	2
3682.05	1	6	6	0.48	50	2
3720.45	5	4	6	1.7	50	2
3748.81	5	2	4	1.3	50	2
Cl IV:						
1532.19	—	7	5	6.3	50	2
1539.30	—	5	3	5.6	50	2
1617.43	—	5	5	3.5	50	2
[2782.4]	—	5	5	2.3	50	2
[3063.1]	—	3	5	1.7	50	2
4345.17	—	3	3	0.00313	25	2
4510.73	—	3	1	0.0123	25	2
4887.95	—	3	3	0.014	50	2
4894.69	—	3	1	0.019	50	2
5151.39	—	3	1	0.0249	25	2
5162.29	—	3	3	0.0198	25	2
5187.75	—	3	5	0.0138	25	2
5495.87	—	7	9	0.0176	25	2
5558.70	—	3	5	0.0148	25	2
5606.73	—	3	3	0.0229	25	2
5650.70	—	3	1	0.0333	25	2
5882.62	—	3	1	0.0128	25	2
5888.58	—	7	5	0.0134	25	2
5912.09	—	3	3	0.0105	25	2
5928.81	—	5	3	0.011	50	2
5971.60	—	3	1	0.011	50	2
6032.13	—	7	9	0.0246	25	2
6043.22	—	5	7	0.0153	25	2
6105.64	—	3	5	0.0126	25	2
6416.31	—	3	5	0.0121	25	2
6752.84	—	3	5	0.0201	25	2
6871.29	—	3	3	0.0290	25	2
6965.43	—	5	3	0.067	25	2
7030.25	—	7	5	0.0278	25	2
7067.22	—	5	5	0.0395	25	2
7068.73	—	5	3	0.021	50	2
7158.83	—	3	1	0.022	50	2
7206.98	—	5	3	0.0258	25	2
7311.72	—	3	3	0.018	50	2
7316.01	—	3	3	0.010	50	2
7350.78	—	3	1	0.012	50	2
7372.12	—	7	9	0.020	50	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (Continued)

Wavelength, Å	Multiplet no.	Statistical weights		Transition probability A_{ki}, $10^8 s^{-1}$	Accuracy, %	Source*
		g_i	g_k			
Argon (Continued)						
7383.98	—	3	5	0.087	25	2
7435.33	—	5	5	0.0094	50	2
7503.87	—	3	1	0.472	25	2
7514.65	—	3	1	0.430	25	2
7635.11	—	5	5	0.274	25	2
7723.76	—	5	3	0.057	25	2
7724.21	—	1	3	0.127	25	2
7948.18	—	1	3	0.196	25	2
8006.16	—	3	5	0.0468	25	2
8014.79	—	5	5	0.096	25	2
8103.69	—	3	3	0.277	25	2
8115.31	—	5	7	0.366	25	2
8264.52	—	3	3	0.168	25	2
8408.21	—	3	5	0.244	25	2
8424.65	—	3	5	0.233	25	2
8521.44	—	3	3	0.147	25	2
8605.78	—	5	5	0.0108	25	2
8667.94	—	1	3	0.0280	25	2
8761.69	—	3	5	0.0099	50	2
9122.97	—	5	3	0.212	25	2
9194.64	—	3	3	0.0198	25	2
9224.50	—	3	5	0.059	25	2
9291.53	—	3	1	0.0366	25	2

Wavelength, Å	Multiplet no.	Statistical weights		Transition probability A_{ki}, $10^8 s^{-1}$	Accuracy, %	Source*
		g_i	g_k			
Argon (Continued)						
13499.2	—	5	3	0.027	50	2
13504.0	—	5	7	0.12	50	2
13573.6	—	3	1	0.051	50	2
13599.2	—	5	5	0.025	50	2
13622.4	—	3	5	0.082	50	2
13678.5	—	3	5	0.070	50	2
13825.7	—	5	5	0.033	50	2
14093.6	—	1	3	0.048	50	2
14596.3	—	5	12	0.053	50	2
14634.1	—	7	16	0.090	50	2
14786.3	—	5	12	0.0021	50	2
15046.4	—	1	3	0.058	50	2
15172.3	—	1	3	0.015	50	2
15302.3	—	7	16	0.054	50	2
15402.6	—	7	9	0.014	50	2
15899.9	—	3	5	0.077	50	2
15989.3	—	1	3	0.021	50	2
16436.9	—	3	5	0.059	50	2
16549.8	—	3	8	0.016	50	2
16940.4	—	5	5	0.028	50	2
23844.8	—	9	7	0.012	50	2
Ar II:						
718.091	4 uv	4	2	9.5	50	2
723.361	4 uv	4	4	23	50	2

9657.78	—	3	3	0.060	25	2
9784.50	—	3	5	0.0161	25	2
10470.1	—	1	3	0.0117	25	2
10478.0	—	3	3	0.0274	25	2
10506.5	—	5	12	0.0158	25	2
10673.6	—	3	5	0.049	50	2
11393.7	—	3	1	0.0249	25	2
11441.8	—	5	3	0.0156	25	2
11668.7	—	5	5	0.0423	25	2
11719.5	—	5	3	0.0107	25	2
11943.5	—	3	8	0.046	50	2
12112.2	—	7	7	0.035	50	2
12139.8	—	3	3	0.051	50	2
12343.7	—	5	7	0.022	50	2
12356.8	—	5	12	0.0135	25	2
12402.9	—	3	3	0.12	50	2
12439.2	—	3	5	0.055	50	2
12456.1	—	5	3	0.10	50	2
12487.6	—	7	5	0.12	50	2
12702.4	—	3	3	0.080	50	2
12733.6	—	5	5	0.012	50	2
12746.3	—	3	3	0.022	50	2
12802.7	—	5	5	0.064	50	2
12933.3	—	3	1	0.11	50	2
12956.6	—	3	3	0.083	50	2
13008.5	—	5	3	0.10	50	2
13214.7	—	3	1	0.091	50	2
13231.4	—	3	3	0.046	50	2
13273.1	—	5	7	0.17	50	2
13313.4	—	3	5	0.15	50	2
13367.1	—	3	3	0.034	50	2
13406.6	—	9	20	0.065	50	2

725.550	4 uv	2	2	19	50	2
730.929	4 uv	2	4	4.5	50	2
919.782	1 uv	4	2	1.41	25	2
932.053	1 uv	2	2	0.67	25	2
3000.44	69	4	4	1.5	50	2
3028.91	—	2	4	2.3	50	2
3093.40	—	4	6	4.4	50	2
3139.02	47	6	6	1.0	50	2
3161.37	—	2	4	1.8	50	2
3169.67	47	4	6	0.82	50	2
3181.04	47	6	4	0.63	50	2
3194.23	46	6	4	0.24	50	2
3204.32	71	4	4	0.40	50	2
3236.81	83	2	4	0.52	50	2
3243.69	47	4	2	2.0	50	2
3249.80	47	2	4	1.0	50	2
3263.57	46	2	4	0.35	50	2
3273.32	71	4	2	0.37	50	2
3281.70	47	2	2	0.73	50	2
3293.64	83	4	4	1.7	50	2
3307.23	83	2	2	3.4	50	2
3350.93	109	6	6	1.5	50	2
3366.59	83	4	2	0.41	50	2
3376.44	109	8	8	1.5	50	2
3388.53	96	2	4	1.9	50	2
3429.62	107	8	6	0.22	50	2
3432.59	107	6	4	0.32	50	2
3454.10	44	6	4	0.45	50	2
3464.13	70	6	6	0.37	50	2
3476.75	44	6	6	1.34	25	2
3509.78	44	2	2	2.5	50	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
			Argon (Continued)			
3514.39	44	4	6	1.23	50	2
3520.00	56	6	6	0.80	50	2
3535.32	44	2	4	0.82	50	2
3548.52	56	4	4	1.1	50	2
3559.51	70	6	8	3.9	50	2
3561.03	106	8	10	4.0	50	2
3565.03	57	2	4	1.1	50	2
3576.61	56	6	8	2.77	25	2
3581.61	56	2	4	1.8	50	2
3582.36	56	4	6	3.72	25	2
3588.45	56	8	10	3.39	25	2
3600.22	115	4	4	2.2	50	2
3622.14	42	4	2	0.64	50	2
3639.83	116	4	6	1.4	50	2
3650.89	43	2	4	0.12	50	2
3655.28	82	4	6	0.23	50	2
3671.01	115	4	2	0.71	50	2
3678.27	42	6	4	0.25	50	2
3680.06	116	2	4	1.2	50	2
3718.21	131	4	6	2.0	50	2
3724.52	131	6	6	0.34	50	2
3729.31	10	6	4	0.60	50	2

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
			Argon (Continued)			
4266.53	7	6	6	0.156	25	2
4275.16	77	2	4	0.26	50	2
4277.52	32	6	4	1.0	50	2
4337.07	113	2	4	0.34	50	2
4348.06	7	6	8	1.24	25	2
4352.20	1	2	2	0.228	25	2
4362.07	39	4	6	0.057	50	2
4370.75	39	4	4	0.65	25	2
4371.33	1	6	4	0.233	25	2
4375.95	17	4	2	0.200	25	2
4379.67	7	2	2	1.04	25	2
4400.10	1	4	4	0.164	25	2
4400.99	1	8	6	0.322	25	2
4426.01	7	4	6	0.83	25	2
4448.88	127	6	6	0.65	50	2
4481.81	39	6	6	0.494	25	2
4545.05	15	4	4	0.413	10	2
4564.42	85	4	2	0.29	50	2
4579.35	17	2	2	0.82	25	2
4589.90	31	4	6	0.82	25	2
4609.56	31	6	8	0.91	25	2
4657.89	15	4	2	0.81	25	2
4721.59	85	4	4	0.15	50	2

3737.89	131	6	8	2.3	50	2
3763.50	54	8	6	0.14	50	2
3765.27	42	6	6	0.98	50	2
3770.52	42	2	4	0.41	50	2
3780.84	54	8	8	0.94	50	2
3796.60	129	4	6	0.25	50	2
3799.38	54	6	4	0.23	50	2
3803.17	129	6	6	1.5	50	2
3809.46	42	4	6	0.44	50	2
3825.68	128	6	4	0.76	50	2
3826.81	54	6	6	0.15	50	2
3841.52	54	4	2	0.27	50	2
3850.58	10	4	4	0.47	50	2
3868.52	90	4	6	1.9	50	2
3872.14	54	4	4	0.19	50	2
3880.34	54	2	2	0.22	50	2
3925.72	105	6	4	1.4	50	2
3928.63	10	2	4	0.30	50	2
3932.55	90	4	4	1.1	50	2
3946.10	105	8	6	1.4	50	2
3952.73	89	4	4	0.35	50	2
3979.36	90	4	2	1.3	50	2
4013.86	2	8	8	0.107	25	2
4033.82	52	4	2	0.98	50	2
4042.90	33	4	4	1.4	50	2
4072.01	33	6	6	0.57	25	2
4131.73	32	4	2	1.4	50	2
4156.09	52	4	4	0.39	50	2
4218.67	64	4	4	0.36	50	2
4222.64	77	4	2	0.69	50	2
4226.99	113	4	6	0.41	50	2
4228.16	8	4	6	0.130	25	2

4726.86	14	4	4	0.50	25	2
4735.91	6	6	4	0.58	25	2
4764.86	15	2	4	0.575	10	2
4806.02	6	6	6	0.79	25	2
4847.82	6	4	2	0.85	25	2
4865.92	85	4	6	0.15	50	2
4879.86	14	4	6	0.78	25	2
4933.21	6	4	4	0.143	25	2
4965.07	14	2	4	0.347	25	2
5009.33	6	4	6	0.147	25	2
5062.04	6	2	4	0.221	25	2
6638.23	20	6	4	0.129	25	2
6639.74	20	4	2	0.181	25	2
6643.72	20	10	8	0.167	25	2
6684.31	20	8	6	0.113	25	2
Ar III:						
871.099	1 uv	5	3	1.20	25	2
875.534	1 uv	3	1	2.81	25	2
878.728	1 uv	5	5	2.09	25	2
879.622	1 uv	3	3	0.69	25	2
883.179	1 uv	1	3	0.91	25	2
887.404	1 uv	3	5	0.68	25	2
3024.05	4	5	7	2.6	50	2
3054.82	4	3	5	1.9	50	2
3064.77	4	3	3	1.0	50	2
3078.15	4	1	3	1.4	50	2
3285.85	1	5	7	2.0	50	2
3301.88	1	5	5	2.0	50	2
3311.25	1	5	3	2.0	50	2
3336.13	3	7	9	2.0	50	2
3344.72	3	5	7	1.8	50	2

* For references see pp. **7**-208 and **7**-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Argon (Continued)						
3358.49	3	3	5	1.6	50	2
3480.55	2	7	7	1.6	50	2
3499.67	2	3	3	1.3	50	2
3503.58	2	5	5	1.2	50	2
Ar IV:						
850.602	1 uv	4	6	2.67	25	2
2640.34	5 uv	6	6	2.2	50	2
2757.92	6 uv	6	8	2.8	50	2
2776.26	4 uv	2	4	1.1	50	2
2784.47	6 uv	4	6	2.5	50	2
2788.96	4 uv	4	6	1.9	50	2
2809.44	4 uv	6	8	2.6	50	2
Potassium						
K I:						
4044.15	3	2	4	0.0124	25	2
4047.21	3	2	2	0.0124	25	2
[6911.1]	—	2	2	0.0272	25	2
[6938.8]	—	4	2	0.054	25	2
7664.91	1	2	4	0.387	10	2
7698.98	1	2	2	0.382	10	2
[8904.1]	—	4	6	0.020	50	2
Potassium (Continued)						
K III:						
2550.02	8 uv	6	4	2.0	50	2
2635.11	8 uv	4	4	1.2	50	2
2689.90	8 uv	2	4	0.60	50	2
2938.45	7 uv	6	6	0.77	50	2
2986.20	7 uv	4	4	1.3	50	2
2992.24	7 uv	6	8	2.5	50	2
[3023.4]	7 uv	2	2	2.1	50	2
3052.07	7 uv	4	6	1.7	50	2
3056.84	7 uv	2	4	1.0	50	2
[3061.2]	5	4	2	0.88	50	2
3201.95	5	4	4	1.8	50	2
3209.34	5	2	2	1.5	50	2
3278.79	1	6	4	0.86	50	2
3289.06	4	4	6	2.0	50	2
3322.40	1	6	6	1.3	50	2
[3358.5]	1	4	2	1.5	50	2
3364.22	5	2	4	0.32	50	2
3421.83	4	2	4	1.5	50	2
3468.32	1	4	6	0.48	50	2
3513.88	1	2	4	0.65	50	2

9597.76	10	4	6	0.033	50	2
†11022.3	9	10	14	0.066	50	2
11690.2	6	2	4	0.220	25	2
11772.8	6	4	6	0.259	25	2
12432.2	5	2	2	0.079	25	2
12522.1	5	4	2	0.156	25	2
[12526]	—	2	4	0.0045	50	2
[12540]	—	2	2	0.0045	50	2
13377.9	—	6	4	0.0037	50	2
13397.1	—	4	2	0.0041	50	2
15168.4	—	4	6	0.15	50	2
†16963	—	10	14	0.0060	50	2
[17939]	—	2	2	0.0056	50	2
[18000]	—	4	2	0.011	50	2
†18627	—	10	14	0.0088	50	2
†21945	—	10	14	0.014	50	2
[27068]	—	2	4	0.046	50	2
[27185]	—	6	4	0.0025	50	2
[27206]	—	2	2	0.045	50	2
[27226]	—	4	2	0.0029	50	2
†31162	—	10	14	0.020	50	2
[31381]	—	6	4	0.014	50	2
[31591]	—	4	2	0.015	50	2
[36363]	—	2	2	0.016	50	2
[36613]	—	4	2	0.032	50	2
[37072]	—	2	4	0.029	50	2
[37333]	—	4	4	0.0057	50	2
[37348]	—	4	6	0.034	50	2
[62068]	—	6	4	0.0078	50	2
[62436]	—	4	2	0.0083	50	2

Calcium

Ca I:						
2200.73	7 uv	1	3	0.153	25	2
2398.56	5 uv	1	3	0.167	25	2
2994.96	17	1	3	0.367	25	2
2997.31	17	3	5	0.241	25	2
2999.64	17	3	3	0.279	25	2
3000.86	17	3	1	1.58	25	2
3006.86	17	5	5	0.75	25	2
3009.21	17	5	3	0.430	25	2
3150.75	15	5	7	0.086	50	2
†3220.5	13	9	15	0.15	50	2
3344.51	11	1	3	0.151	25	2
3487.60	10	5	3	0.078	50	2
3624.11	9	1	3	0.212	25	2
3870.48	26	3	5	0.072	50	2
3973.71	6	5	3	0.175	25	2
4092.63	25	3	5	0.11	50	2
4108.53	39	5	7	0.90	50	2
4226.73	2	1	3	2.18	10	2
4283.01	5	3	5	0.434	25	2
4289.36	5	1	3	0.60	25	2
4298.99	5	3	3	0.466	25	2
4302.53	5	5	5	1.36	25	2
4307.74	5	3	1	1.99	25	2
4318.65	5	5	3	0.74	25	2
4355.08	37	5	7	0.19	50	2
4425.44	4	1	3	0.468	25	2
4434.96	4	3	5	0.63	25	2
4435.69	4	3	3	0.356	25	2
4454.78	4	5	7	0.86	25	2
4455.89	4	5	5	0.208	25	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-4. TRANSITION PROBABILITIES FOR ALLOWED LINES (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Calcium (Continued)						
4526.94	36	5	3	0.41	50	2
4578.55	23	3	5	0.176	25	2
4685.27	51	3	5	0.080	50	2
4878.13	35	5	7	0.188	25	2
5041.62	34	5	3	0.33	50	2
5188.85	49	3	5	0.40	50	2
5261.71	22	3	3	0.15	50	2
5262.24	22	3	1	0.60	50	2
5264.24	22	5	5	0.091	50	2
5265.56	22	5	3	0.44	50	2
5270.27	22	7	5	0.50	50	2
5581.97	21	5	7	0.060	50	2
5588.76	21	7	7	0.49	50	2
5590.12	21	3	5	0.083	50	2
5594.47	21	5	5	0.38	50	2
5598.49	21	3	3	0.43	50	2
5601.29	21	7	5	0.086	50	2
5602.85	21	5	3	0.14	50	2
5857.45	47	3	5	0.66	50	2
6102.72	3	1	3	0.077	25	2

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, $10^8\ s^{-1}$	Accuracy, %	Source*
Calcium (Continued)						
6122.22	3	3	3	0.231	25	2
6163.76	20	3	3	0.056	50	2
6166.44	20	3	1	0.22	50	2
6439.07	18	7	9	0.53	50	2
6449.81	19	5	5	0.090	50	2
6462.57	18	5	7	0.47	50	2
6471.66	18	7	7	0.059	50	2
6493.78	18	3	5	0.44	50	2
6499.65	18	5	5	0.081	50	2
Ca II:						
[1329.8]	—	4	6	0.459	25	2
[1368.4]	—	4	6	0.66	25	2
1433.1	7 uv	4	6	1.01	25	2
1553.5	6 uv	4	6	1.59	25	2
1807.74	11 uv	2	4	0.412	25	2
[1814.6]	11 uv	4	4	0.081	25	2
1815.04	11 uv	4	6	0.486	25	2
1838.08	4 uv	4	6	2.44	25	2
1843.6	10 uv	2	2	0.155	25	2
1851.10	10 uv	4	2	0.308	25	2

* For references see pp. **7**-208 and **7**-209.

Table 7i-4. Transition Probabilities for Allowed Lines (*Continued*)

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, 10^8 s^{-1}	Accuracy, %	Source*
Calcium (Continued)						
2103.24	9 uv	2	4	0.93	25	2
2112.76	9 uv	4	6	1.10	25	2
2113.19	9 uv	4	4	0.182	25	2
2131.43	3 uv	6	4	0.018	50	2
2132.25	3 uv	4	2	0.020	50	2
2197.79	8 uv	2	2	0.313	25	2
2208.61	8 uv	4	2	0.62	25	2
3158.87	4	2	4	3.05	25	2
3179.33	4	4	6	3.59	25	2
3181.28	4	4	4	0.60	25	2
3706.03	3	2	2	0.84	25	2
3736.90	3	4	2	1.65	25	2
3933.66	1	2	4	1.50	25	2
3968.47	1	2	2	1.46	25	2
4097.12	17	2	4	0.099	50	2
4109.83	17	4	6	0.12	50	2
4110.33	17	4	4	0.019	50	2
Calcium (Continued)						
5001.49	15	2	4	0.20	50	2
5019.98	15	4	6	0.23	50	2
5285.34	14	2	2	0.078	50	2
5307.30	14	4	2	0.15	50	2
8203.2	13	2	4	0.51	25	2
8250.2	13	4	6	0.61	25	2
8256.1	13	4	4	0.10	25	2
8498.02	2	4	4	0.0111	25	2
8542.09	2	6	4	0.099	25	2
8662.14	2	4	2	0.106	25	2
9856.7	12	2	2	0.19	50	2
9933.3	12	4	2	0.38	50	2
11836.4	5	2	4	0.23	50	2
11947.0	5	2	2	0.23	50	2

* For references see pp. 7-208 and 7-209.

TABLE 7i-5. TRANSITION PROBABILITIES FOR FORBIDDEN LINES

Wavelength, Å	Multiplet no.	Statistical weights g_i	Statistical weights g_k	Transition probability A_{ki}, s^{-1}	Accuracy, %	Source*
Hydrogen						
1420.4 MHz†	—	1	3	2.87(−15)	3	1
Carbon						
C I:						
4621.5	2F	3	1	2.60(−3)	25	1
4627.3	2F	5	1	1.9 (−5)	50	1
8727.4	3F	5	1	5.0 (−1)	25	1
9823.4	1F	3	5	7.8 (−5)	25	1
9849.5	1F	5	5	2.31(−4)	25	1
C III:						
[2000.0]	—	1	3	1.42(−3)	25	1
Nitrogen						
N I:						
5198.5	1F	4	4	1.63(−5)	25	1
5200.7	1F	4	6	6.9 (−6)	25	1
N II:						
3063.0	2F	3	1	3.40(−2)	25	1
3070.8	2F	5	1	1.6 (−4)	50	1
5754.8	3F	5	1	1.08	25	1
6548.1	1F	3	5	1.03(−3)	25	1
6583.6	1F	5	5	3.04(−3)	25	1
N IV:						
[1573.4]	—	1	3	1.18(−2)	25	1
Oxygen						
O I:						
[2958.4]	2F	5	1	3.7 (−4)	50	1
2972.3	2F	3	1	6.7 (−2)	25	1
5577.35	3F	5	1	1.34	25	1
6300.23	1F	5	5	5.12(−3)	25	1
6363.88	1F	3	5	1.64(−3)	25	1
Neon (continued)						
3342.9	2F	5	1	2.80	25	1
3868.74	1F	5	5	1.70(−1)	25	1
3967.51	1F	3	5	5.2 (−2)	25	1
Ne IV:						
[1608.8]	—	4	4	1.33	25	1
[1609.0]	—	4	2	5.3 (−1)	25	1
[2438.6]	—	4	4	5.6 (−3)	25	1
[2441.3]	—	4	6	5.9 (−4)	50	1
4714.25	1F	6	4	4.01(−1)	25	1
4715.61	1F	6	2	1.10(−1)	25	1
4724.15	1F	4	4	4.37(−1)	25	1
4725.62	1F	4	2	3.89(−1)	25	1
Ne V:						
[1575.2]	—	3	1	4.20	25	1
[1592.7]	—	5	1	6.8 (−3)	50	1
2972	2F	5	1	2.60	25	1
3345.9	1F	3	5	1.38(−1)	25	1
3425.8	1F	5	5	3.82(−1)	25	1
Sodium						
Na III:						
[73294]	—	4	2	4.56(−2)	3	2
Na IV:						
[1497.5]	—	5	1	1.2 (−2)	50	2
[1522.7]	—	3	1	7.6	25	2
[2803.3]	—	5	1	3.5	25	2
3319.3	1F	5	5	5.6 (−1)	25	2
3445.9	1F	3	5	1.67(−1)	25	2
[90391]	—	5	3	3.04(−2)	10	2
Na V:						
[1379.4]	—	4	4	4.3	25	2
[1380.2]	—	4	2	1.7	25	2

O II:						
3726.16	1F	4	4	1.70(−4)	25	1
3728.91	1F	4	6	4.84(−5)	25	1
7318.6	2F	6	2	6.1 (−2)	25	1
7319.4	2F	6	4	1.15(−1)	25	1
7329.9	2F	4	2	1.00(−1)	25	1
7330.7	2F	4	4	6.1 (−2)	25	1
O III:						
[2321.1]	—	3	1	2.30(−1)	25	1
[2331.6]	—	5	1	7.1 (−4)	50	1
4363.21	2F	5	1	1.60	25	1
4958.91	1F	3	5	7.1 (−3)	25	1
5006.84	1F	5	5	2.10(−2)	25	1
O V:						
[1304.2]	—	1	3	6.4 (−2)	25	1
Fluorine						
F II:						
[2225.5]	—	5	1	1.6 (−3)	50	1
[2246.6]	—	3	1	4.90(−1)	25	1
4157.5	2F	5	1	2.10	25	1
4789.5	1F	5	5	3.82(−2)	25	1
4869.3	1F	3	5	1.21(−2)	25	1
F III:						
[2930.0]	—	4	4	1.42(−3)	25	1
[2933.1]	—	4	6	1.31(−4)	50	1
F IV:						
[1875.5]	—	3	1	1.10	25	1
[1889.3]	—	5	1	2.3 (−3)	50	1
3532.2	2F	5	1	2.10	25	1
3996.3	1F	3	5	3.42(−2)	25	1
4059.3	1F	5	5	9.8 (−2)	25	1
Neon						
Ne III:						
[1793.8]	—	5	1	5.1 (−3)	50	1
[1814.8]	—	3	1	2.20	25	1
[2100.4	—	4	4	1.26(−2)	25	2
[2101.5]	—	4	6	1.2 (−3)	50	2
4011.2	1F	6	4	9.0 (−1)	25	2
4015.3	1F	4	4	1.30	25	2
4017.5	1F	6	2	1.3 (−1)	50	2
4021.6	1F	4	2	9.3 (−1)	25	2
Magnesium						
Mg I:						
3848.91	—	3	3	1.8 (+1)	50	2
3853.96	—	5	5	2.5 (+1)	50	2
3854.97	—	5	3	5.3 (+1)	50	2
Mg IV:						
[44911]	—	4	2	1.98(−1)	3	2
Mg V:						
[1286.8]	—	5	1	2.7 (−2)	50	2
[1317.0]	—	3	1	2.3 (+1)	25	2
[2416.8]	—	5	1	4.2	25	2
[2750.4]	—	5	5	1.90	25	2
[2892.0]	—	3	5	5.5 (−1)	25	2
[56164]	—	5	3	1.27(−1)	10	2
Aluminum						
Al II:						
[4451.6]	—	1	3	2.88(−3)	25	2
Al V:						
[29062	—	4	2	7.31(−1)	3	2
Silicon						
Si I:						
6526.78	1F	3	1	3.55(−2)	25	2
6589.61	1F	5	1	1.1 (−3)	50	2
10991.4	2F	5	1	8.0 (−1)	50	2
16068.3	0.01F	3	5	9.7 (−4)	25	2
16454.5	0.01F	5	5	2.74(−3)	25	2

* For references see pp. 7-208 and 7-209.

† For this line the frequency in megahertz is listed.

TABLE 7i-5. TRANSITION PROBABILITIES FOR FORBIDDEN LINES (*Continued*)

Wavelength Å	Multiplet no.	Statistical weights g_i	g_k	Transition probability A_{ki}, s^{-1}	Accuracy, %	Source*
		Silicon (continued)				
Si III:						
[3314.7]	—	1	3	1.82(−2)	25	2
		Phosphorus				
P I:						
5332.4	2F	4	4	1.08(−1)	25	2
5339.7	2F	4	2	4.26(−2)	25	2
8787.6	1F	4	6	2.0 (−4)	50	2
8799.1	1F	4	4	2.97(−4)	25	2
[13533]	—	4	4	7.5 (−2)	25	2
[13562]	—	6	4	1.13(−1)	25	2
[13580]	—	4	2	1.01(−1)	25	2
[13609]	—	6	2	5.3 (−2)	25	2
P II:						
4669.5	2F	3	1	2.20(−1)	25	2
4736.6	2F	5	1	6.3 (−3)	50	2
7869.5	3F	5	1	2.0	50	2
11483.2	1F	3	5	6.3 (−3)	25	2
11898.2	1F	5	5	1.70(−2)	25	2
P IV:						
[2681.7]	—	1	3	7.8 (−2)	25	2
		Sulfur				
S I:						
4506.9	2F	5	1	7.3 (−3)	50	2
4589.26	2F	3	1	3.5 (−1)	25	2
7725.04	3F	5	1	1.78	25	2
10819.8	1F	5	5	2.77(−2)	25	2
11305.8	1F	3	5	8.0 (−3)	25	2
S II:						
4068.60	1F	4	4	3.41(−1)	25	2
4076.35	1F	4	2	1.34(−1)	25	2

Wavelength Å	Multiplet no.	Statistical weights g_i	g_k	Transition probability A_{ki}, s^{-1}	Accuracy, %	Source*
		Chlorine (continued)				
Cl IV:						
3118.3	2F	3	1	2.61	25	2
3203.3	2F	5	1	3.8 (−2)	50	2
5323.29	3F	5	1	3.2	50	2
7530.54	1F	3	5	8.0 (−2)	25	2
8045.63	1F	5	5	1.97(−1)	25	2
Cl V:						
[67000]	—	2	4	2.98(−2)	3	2
		Argon				
Ar II:						
[69842]	—	4	2	5.26(−2)	3	2
Ar III:						
3005.1	2F	5	1	4.3 (−2)	50	2
3109.0	2F	3	1	4.02	25	2
5191.82	3F	5	1	3.10	25	2
7135.80	1F	5	5	3.35(−2)	25	2
7751.06	1F	3	5	8.3 (−2)	25	2
[89896]	—	5	3	3.08(−2)	10	2
Ar IV:						
[2853.6]	—	4	4	2.55	25	2
[2868.2]	—	4	2	9.7 (−1)	25	2
4711.33	1F	4	6	9.6 (−3)	50	2
4740.20	1F	4	4	7.7 (−2)	25	2
7170.62	2F	4	4	9.1 (−1)	25	2
7237.26	2F	6	4	6.7 (−1)	25	2
7262.76	2F	4	2	6.8 (−1)	25	2
7332.0	2F	6	2	1.22(−1)	25	2
Ar V:						
[2691.1]	—	3	1	6.8	25	2
[2786.1]	—	5	1	8.1 (−2)	50	2
4625.54	2F	5	1	3.8	50	2

6716.42	2*F*	4	6	4.7 (−4)	50	2
6730.78	2*F*	4	4	4.3 (−4)	50	2
10284.3	3*F*	4	4	1.75(−1)	25	2
10317.7	3*F*	6	4	2.14(−1)	25	2
10336.0	3*F*	4	2	1.98(−1)	25	2
10369.7	3*F*	6	2	8.7 (−2)	25	2
S III:						
3721.8	2*F*	3	1	8.5 (−1)	25	2
3796.7	2*F*	5	1	1.6 (−2)	50	2
6312.1	3*F*	5	1	2.54	25	2
9069.4	1*F*	3	5	2.49(−2)	25	2
9532.1	1*F*	5	5	6.4 (−2)	25	2
S V:						
[2268.0]	—	1	3	2.36(−1)	25	2
Chlorine						
Cl II:						
3583.2	2*F*	5	1	1.8 (−2)	50	2
3675.0	2*F*	3	1	1.34	25	2
6152.9	3*F*	5	1	2.29	25	2
8579.5	1*F*	5	5	1.04(−1)	25	2
9125.8	1*F*	3	5	2.94(−2)	25	2
Cl III:						
3342.7	2*F*	4	4	9.6 (−1)	25	2
3353.4	2*F*	4	2	3.74(−1)	25	2
5517.66	1*F*	4	6	1.0 (−3)	50	2
5537.6	1*F*	4	4	7.1 (−3)	25	2
8433.7	3*F*	4	4	3.90(−1)	25	2
8481.6	3*F*	6	4	3.64(−1)	25	2
8501.8	3*F*	4	2	3.51(−1)	25	2
8550.5	3*F*	6	2	1.08(−1)	25	2
6435.10	1*F*	3	5	2.23(−1)	25	2
7005.67	1*F*	5	5	5.2 (−1)	25	2
[78905]	—	3	5	2.73(−2)	10	2
Potassium						
K III:						
[46240]	—	4	2	1.81(−1)	3	2
K IV:						
[2593.5]	—	5	1	8.6 (−2)	50	2
[2711.2]	—	3	1	1.04(+1)	25	2
4510.9	2*F*	5	1	3.9	25	2
6101.83	1*F*	5	5	8.3 (−1)	25	2
6794.8	1*F*	3	5	2.01(−1)	25	2
[59757]	—	5	3	1.05(−1)	10	2
K V:						
[2495.3]	—	4	4	6.5	25	2
[2515.3]	—	4	2	2.40	25	2
4122.63	1*F*	4	6	6.9 (−3)	50	2
4163.30	1*F*	4	4	1.11(−1)	25	2
6223.4	2*F*	4	4	2.26	25	2
6316.6	2*F*	6	4	1.46	25	2
6349.5	2*F*	4	2	1.50	25	2
6446.5	2*F*	6	2	1.9 (−1)	25	2
Calcium						
Ca IV:						
[32090]	—	4	2	5.43(−1)	3	2
Ca V:						
[2280.0]	—	5	1	1.6 (−1)	50	2
[2412.3]	—	3	1	2.4 (+1)	25	2
3996.3	2*F*	5	1	4.6	25	2
5309.18	1*F*	5	5	1.94	25	2
6086.92	1*F*	3	5	4.31(−1)	25	2
[41551]	—	5	3	3.11(−1)	10	2

* For references see pp. 7-208 and 7-209.

† For this line the frequency in megahertz is listed.