DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
George K. Burgess, Director

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By J. F. Skogland

MISCELLANEOUS PUBLICATION OF THE BUREAU OF STANDARDS, No. 86

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BY

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I. INTRODUCTION

The tables of this publication are in form for direct use in computations involving radiated energy and luminosity of a radiator within the range of color temperatures corresponding to that of tungsten lamps employed in experimental work (2,000° to 3,120° K.). This is a limited temperature range, far smaller than that covered by curves of energy distribution such as Frehafer and Snow have presented in a previous publication.[1] It is because of this limited range that values at closer temperature intervals could be tabulated. This interval is here 20° K. for the energy tables; that of the Frehafer and Snow tables is 200° K. within the range 2,000° to 3,200° K. Between the values tabulated at 20° intervals in the present publication (Table 1) direct linear interpolation yields precise values at other included temperatures. These and the other tables give all of the data in compact form without requiring reference to curves.

Table 2 presents for the first time luminosity values relative to the maximum at each temperature in steps of 80° K. throughout the temperature range.

At similar intervals Table 3 gives luminosity values so adjusted that the area of each complete curve within the wave length limits 0.40 to 0.76 μ (the practical visible range) is unity. It was found practicable to simplify somewhat the method of Buckley and Brookes,[2] who derived unit areas and tabulated results at a few temperatures. These modified values of luminosity are designated "luminosity factors" because they are used as multipliers of values of spectral transmission at the corresponding wave lengths to obtain elements of light transmission. The integral light transmission is

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[1] Tables and Graphs for Facilitating Computations of Spectral Energy Distribution by Planck's Formula; Bureau of Standards Misc. Pub. No. 56; 1925. Temperature range, 1,000° to 28,000° K.; C_2=14,350 μ deg.

[2] The Illuminating Engineer (London), 18, p. 239, 1925.

obtained by summation of these elements without further computation. This procedure evaluates the equation

$$T=\frac{\Sigma J_\lambda V_\lambda t_\lambda \cdot \Delta\lambda}{\Sigma J_\lambda V_\lambda \cdot \Delta\lambda}$$

with denominator unity, approximating with more than requisite precision the general equation

$$T=\frac{\int J_\lambda V_\lambda t_\lambda \cdot d\lambda}{\int J_\lambda V_\lambda \cdot d\lambda}$$

Omitting the symbol of summation, the denominator is a luminosity element of the radiation of the source and the numerator a corresponding element of the transmitted light.

II. CONSTANTS USED IN THE COMPUTATIONS

The value assigned to constant C_2 of the Planck radiation equation (14,330 μ deg.), which was used directly in computing the values of Table 1, expressed relative to the energy at wave length 0.59 μ, corresponds to that of the International Critical Tables (vol. 1, p. 18). The value there given is 1.433 cm deg. The values of relative visibility chosen for computations of relative luminosity and the derived luminosity factors are those tabulated on page 67 of the minutes of the 1924 meeting of the International Commission on Illumination.[3] These constants are, therefore, those at present having practically the authority of international agreement. It is true, however, that some laboratories employ other values of C_2. To embody individually all of these values is obviously impracticable, but Table 4 is given for use in making adjustments of the values in Tables 1 and 3 to conform to any value of C_2 between 14,300 and 14,360, or by which an appraisal of the effect of such modification may be easily made.

Although the relative energy at wave lengths from 0.32 to 0.39 μ has no significance in computations of luminosity, it was felt that the corresponding energy values might be useful in some other problems. For this reason Table 1 includes those wave lengths.

III. SUPPLEMENTARY DATA

The constant of Wien's displacement law, which changes with C_2, has been precisely determined as 2886.3 μ deg. for $C_2=14{,}330$.

Under Table 2 the wave lengths corresponding to maximum luminosity are given. Under Table 3 the centroid axes are specified and also the maximum value of the factors.

[3] Recueil des Travaux et Compte Rendu des Seances, Commission Internationale de L'Éclairage, Geneva, 1924, Cambridge 1926. See also Trans. I. E. S., 20, p. 629; July 1925; for the adoption of these values of visibility by the Illuminating Engineering Society. The experimental basis for these values is given in detail in B. S. Sci. Paper No. 475, Visibility of Radiant Energy, by K. S. Gibson and E. P. T. Tyndall.

IV. EFFECT OF CHANGING C_2 AND VISIBILITY DATA

In determinations of light transmission or reflection the effect of changing C_2 within the limits given in Section II above is not very pronounced, the change in transmission generally being less than the uncertainty inherent in direct measurements such as are practicable on the flicker photometer and usually less precisely made on equal brightness or contrast instruments if the color difference is large. The choice of different visibility values, however, may produce a marked effect, because of corresponding changes in luminosity, particularly for a restricted range of spectral transmission. For example, use of the Coblentz-Emerson[4] visibility data obtained on the flicker photometer to obtain the transmission of a medium red filter opaque below $\lambda = 0.60\ \mu$ resulted in a value of light transmission about 6 per cent higher than that derived from the data of this publication. This result, however, probably does not conform to the true status of flicker photometer results, because the conditions of observation adopted by Coblentz and Emerson were not the ones prescribed as standard for that photometer.

V. ACCURACY OF TABULATED VALUES

Although some parts of the energy table were interpolated, an extra decimal was usually carried to preserve an accuracy equivalent to that of the directly computed values. These interpolations were made systematically by halves within the range of negligible fourth differences, employing Bessel's coefficients (0 for third difference) except near the ends of the table, where binomial coefficients were used for the lower values only. Near the upper limits outside of the range of mean differences required for Bessel's factors it was found simplest to compute most of the values directly. A difference of one in the final decimal may sometimes occur in case the computed value falls near the half in the next decimal, but it was not deemed advisable, as these are not, strictly speaking, mathematical tables, to investigate these values to decide on the final decimal. In general, therefore, the values of Table 1 are correct to the final decimal, with an occasional difference of one in that place.

The values in Tables 2 and 3 were individually computed, and any lack of perfect smoothness there must be attributed to the rounding of visibility values as they appear in the tables referred to in footnote 3, page 2.

By maintaining throughout a degree of accuracy somewhat higher than may be necessary at the present time these tables should possess the quality of permanence in application as a whole or in part to such problems as may arise even under possible future refinements of measurement.

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[4] Relative Sensibility of the Eye to Light of Different Colors; B. S. Sci. Paper No. 303; 1917.

TABLES OF SPECTRAL ENERGY DISTRIBUTION AND LUMINOSITY FOR USE IN COMPUTING LIGHT TRANSMISSIONS AND RELATIVE BRIGHTNESSES FROM SPECTROPHOTOMETRIC DATA

TABLE 1.—*Relative* J_λ, *based on* J *at* $\lambda = 0.59\ \mu = 590\ m\mu$

At 0.59 μ actual values of $\frac{J_\lambda}{C_1}$ are given. In these computations the Planck radiation equation was employed. This equation is

$$J_\lambda = \frac{C_1 \lambda^{-5}}{e^{\frac{C_2}{\lambda\vartheta}} - 1}$$

in which J_λ is the intensity of the energy at wave length λ,

λ is the wave-length in microns (μ),

e is the Naperian base, 2.71828 ......

θ is the black-body temperature in °K.

$C_2 = 14{,}330\ \mu$ deg.

($C_1 = 3.703 \times 10^{-5}$ erg. sec. per sq. cm, not used in computing relative values.)

Constants C_1 and C_2 are those of the International Critical Tables.

EXAMPLE.—At color temperature 2,296° K. and $\lambda = 0.65\ \mu$, the energy radiated relative to that at 0.59 μ is 1.6473−0.8 (.0140)=1.6361.

TABLE 1.—*Relative J_λ, based on J at $\lambda=0.59\ \mu=590\ m\mu$*—Continued

λ in μ	2,000° K.	Dif.	2,020° K.	Dif.	2,040° K.	Dif.	2,060° K.	Dif.	2,080° K.	Dif.	2,100° K.
0.32	0.00075	9	0.00084	8	0.00092	10	0.00102	10	0.00112	11	0.00123
.33	.00128	13	.00141	14	.00155	14	169	16	185	17	202
.34	209	19	228	21	249	22	271	23	294	25	319
.35	328	29	357	30	387	32	419	34	453	35	488
.36	505	40	545	42	587	46	633	47	680	51	731
.37	75	6	81	6	87	6	93	7	.0100	7	.0107
.38	.0110	7	.0117	8	.0125	8	.0133	9	142	9	151
.39	156	10	166	11	177	11	188	11	199	12	211
.40	218	13	231	13	244	14	258	14	272	15	287
.41	299	16	315	17	332	17	349	17	366	19	385
.42	402	20	422	20	442	21	463	21	484	23	507
.43	530	25	555	25	580	25	605	26	631	27	658
.44	690	29	719	30	749	30	779	30	809	32	841
.45	886	34	920	34	954	35	989	35	.1024	36	.1060
.46	.1122	38	.1160	40	.1200	40	.1240	40	.1280	41	.1321
.47	.1403	44	.1447	44	.1491	45	.1536	45	.1581	46	.1627
.48	.1735	48	.1783	49	.1832	49	.1881	50	.1931	50	.1981
.49	.2123	52	.2175	51	.2228	53	.2281	54	.2335	54	.2389
.50	.2571	56	.2627	56	.2683	56	.2739	57	.2796	56	.2852
.51	.3084	58	.3142	59	.3201	58	.3259	59	.3318	59	.3377
.52	.3667	60	.3727	60	.3787	59	.3846	59	.3905	59	.3964
.53	.4323	59	.4382	59	.4441	59	.4500	58	.4558	58	.4616
.54	.5058	56	.5114	56	.5170	56	.5226	55	.5281	55	.5336
.55	.5873	51	.5924	51	.5975	51	6026	50	.6076	49	.6125
.56	.6773	45	.6818	43	.6861	43	.6904	41	.6945	41	.6986
.57	.7760	33	.7793	32	.7825	32	.7857	31	.7888	31	.7919
.58	.8835	18	.8853	18	.8871	18	.8889	17	.8906	17	.8923
.59	.00007441		.00008392		.00009442		.00010599		.00011871		.00013268
.60	1.1256	22	1.1234	22	1.1212	22	1.1190	21	1.1169	21	1.1148
.61	1.2605	50	1.2555	48	1.2507	48	1.2459	46	1.2413	45	1.2368
.62	1.4044	81	1.3963	79	1.3884	77	1.3807	76	1.3731	74	1.3657
.63	1.5575	118	1.5457	115	1.5342	113	1.5229	109	1.5120	106	1.5014
.64	1.7195	160	1,7035	155	1,6880	153	1.6727	148	1.6579	144	1.6435
.65	1.8903	208	1.8695	201	1.8494	196	1.8298	191	1.8107	185	1.7922
.66	2.0698	262	2.0436	253	2.0183	246	1.9937	238	1.9699	231	1.9468
.67	2.2576	321	2.2255	310	2.1945	301	2.1644	292	2.1352	283	2.1069
.68	2.4534	386	2.4148	373	2.3775	362	2.3413	349	2.3064	337	2.2727
.69	2.6570	457	2.6113	442	2.5671	427	2.5244	413	2.4831	397	2.4434
.70	2.8679	536	2.8143	515	2.7628	498	2.7130	480	2.6650	461	2.6189
.71	3.086	62	3.024	596	2.9644	574	2.9070	553	2.8517	531	2.7986
.72	3.310	71	3.239	68	3.171	65	3.106	63	3.043	607	2.9823
.73	3.541	80	3.461	78	3.383	74	3.309	71	3.238	69	3.169
.74	3.777	90	3.687	87	3.600	84	3.516	80	3.436	76	3.360
.75	4.019	101	3.918	97	3.821	93	3.728	90	3.638	85	3.553
.76	4.265	113	4.152	108	4.044	103	3.941	99	3.842	94	3.748

TABLE 1.—*Relative* J_λ, *based on J at* $\lambda=0.59\ \mu=590\ m\mu$—Continued

λ in μ	2,100° K.	Dif.	2,120° K.	Dif.	2,140° K.	Dif.	2,160° K.	Dif.	2,180° K.	Dif.	2,200° K.
0.32	0.00123	12	0.00135	13	0.00148	14	0.00162	15	0.00177	15	0.00192
.33	202	18	220	19	239	20	259	22	281	23	304
.34	319	27	346	28	374	30	404	32	436	33	469
.35	488	37	526	40	566	42	608	45	653	47	700
.36	731	52	783	56	839	58	897	60	957	63	.0102
.37	.0107	7	.0114	7	.0121	8	.0129	8	.0137	8	145
.38	151	10	161	10	171	10	181	11	192	11	203
.39	211	12	223	12	235	13	248	14	262	14	276
.40	287	15	302	16	318	16	334	17	351	18	369
.41	385	19	404	19	423	20	443	21	464	21	485
.42	507	23	530	23	553	24	577	25	602	26	628
.43	658	27	685	28	713	28	741	29	770	30	800
.44	841	32	873	32	905	33	938	34	972	34	.1006
.45	.1060	37	.1097	37	.1134	38	.1172	38	.1210	39	.1249
.46	.1321	42	.1363	42	.1405	42	.1447	43	.1490	43	.1533
.47	.1627	46	.1673	46	.1719	47	.1766	47	.1813	48	.1861
.48	.1981	50	.2031	50	.2083	50	.2133	51	.2184	51	.2235
.49	.2389	54	.2443	54	.2497	54	.2551	54	.2605	55	.2660
.50	.2852	56	.2909	57	.2966	57	.3023	57	.3080	56	.3136
.51	.3377	58	.3435	58	.3493	59	.3552	58	.3610	58	.3667
.52	.3964	59	.4023	58	.4081	58	.4139	58	.4197	57	.4254
.53	.4616	57	.4673	57	.4730	57	.4787	56	.4843	56	.4899
.54	.5336	54	.5390	54	.5444	53	.5497	53	.5550	52	.5602
.55	.6125	49	.6174	49	.6223	48	.6271	47	.6318	47	.6365
.56	.6986	41	.7027	41	.7068	40	.7108	39	.7147	39	.7186
.57	.7919	30	.7949	30	.7979	29	.8008	29	.8037	29	.8066
.58	.8923	17	.8940	17	.8957	16	.8973	17	.8990	16	.9006
.59	.00013268		.00014797		.00016469		.00018294		.00020282		.00022444
.60	1.1148	20	1.1128	20	1.1108	19	1.1089	19	1.1070	19	1.1051
.61	1.2368	44	1.2324	43	1.2281	42	1.2239	42	1.2197	40	1.2157
.62	1.3657	72	1.3585	70	1.3515	69	1.3446	67	1.3379	65	1.3314
.63	1.5014	104	1.4910	101	1.4809	99	1.4710	96	1.4614	94	1.4520
.64	1.6435	139	1.6296	136	1.6160	132	1.6028	129	1.5899	126	1.5773
.65	1.7922	180	1.7742	175	1.7567	170	1.7397	165	1.7232	161	1.7071
.66	1.9468	225	1.9243	218	1.9025	211	1.8814	205	1.8609	199	1.8410
.67	2.1069	272	2.0797	264	2.0533	256	2.0277	247	2.0028	242	1.9786
.68	2.2727	326	2.2401	315	2.2086	305	2.1781	296	2.1485	286	2.1199
.69	2.4434	383	2.4051	370	2.3681	357	2.3324	347	2.2977	336	2.2641
.79	2.6189	445	2.5744	429	2.5315	415	2.4900	402	2.4498	388	2.4110
.71	2.7986	511	2.7475	492	2.6983	475	2.6508	458	2.6050	442	2.5608
.72	2.9823	582	2.9241	559	2.8682	539	2.8143	521	2.7622	502	2.7120
.73	3.169	65	3.104	63	3.041	609	2.9801	585	2.9216	564	2.8652
.74	3.360	74	3.286	70	3.216	68	3.148	65	3.083	63	3.020
.75	3.553	82	3.471	78	3.393	75	3.318	73	3.246	70	3.176
.76	3.748	90	3.658	87	3.571	83	3.488	80	3.408	76	3.332

TABLE 1.—*Relative J_λ, based on J at $\lambda=0.59\ \mu=590\ m\mu$*—Continued

λ in μ	2,200 °K.	Dif.	2,220 °K.	Dif.	2,240 °K.	Dif.	2,260 °K.	Dif.	2,280 °K.	Dif.	2,300 °K.
0.32	0.00192	17	0.00209	18	0.00227	19	0.00246	20	0.00266	22	0.00288
.33	304	25	329	27	356	28	384	30	414	31	445
.34	469	35	504	38	542	40	582	42	624	44	668
.35	700	50	750	52	802	56	858	58	916	61	977
.36	.0102	7	.0109	7	.0116	7	.0123	8	.0131	8	.0139
.37	145	9	154	9	163	10	173	10	183	10	193
.38	203	11	214	12	226	12	238	13	251	13	264
.39	276	14	290	15	305	15	320	16	336	16	352
.40	369	18	387	18	405	19	424	19	443	20	463
.41	485	22	507	22	529	23	552	23	575	24	599
.42	628	26	654	26	680	27	707	27	734	28	762
.43	800	30	830	31	861	31	892	32	924	32	956
.44	.1006	35	.1041	35	.1076	36	.1112	36	.1148	37	.1185
.45	.1249	39	.1288	40	.1328	40	.1368	41	.1409	41	.1450
.46	.1533	44	.1577	44	.1621	44	.1665	45	.1710	45	.1755
.47	.1861	48	.1909	48	.1957	48	.2005	49	.2054	49	.2103
.48	.2235	51	.2286	52	.2338	52	.2390	52	.2442	52	.2494
.49	.2660	54	.2714	55	.2769	55	.2824	55	.2879	55	.2934
.50	.3136	57	.3193	57	.3249	57	.3306	57	.3363	57	.3420
.51	.3667	58	.3725	57	.3782	58	.3840	57	.3897	57	.3954
.52	.4254	57	.4311	57	.4368	57	.4425	57	.4482	56	.4538
.53	.4899	56	.4955	55	.5010	55	.5065	54	.5119	54	.5173
.54	.5602	52	.5654	51	.5705	51	.5756	50	.5806	50	.5856
.55	.6365	46	.6411	45	.6456	45	.6501	45	.6546	44	.6590
.56	.7186	38	.7224	38	.7262	38	.7300	37	.7337	36	.7373
.57	.8066	28	.8094	28	.8122	28	.8150	27	.8177	27	.8204
.58	.9006	16	.9022	15	.9037	15	.9052	14	.9066	14	.9080
.59	.00022444		.00024792		.00027336		.00030089		.00033063		.00036272
.60	1.1051	18	1.1033	18	1.1015	18	1.0997	17	1.0980	17	1.0963
.61	1.2157	39	1.2108	39	1.2079	38	1.2041	37	1.2004	36	1.1968
.62	1.3314	63	1.3251	62	1.3189	61	1.3128	60	1.3068	59	1.3009
.63	1.4520	91	1.4429	89	1.4340	87	1.4253	85	1.4168	83	1.4085
.64	1.5773	122	1.5651	119	1.5532	116	1.5416	113	1.5303	110	1.5193
.65	1.7071	156	1.6915	152	1.6763	147	1.6616	143	1.6473	140	1.6333
.66	1.8410	193	1.8217	188	1.8029	182	1.7847	177	1.7670	172	1.7498
.67	1.9786	234	1.9552	226	1.9326	219	1.9107	213	1.8894	208	1.8686
.68	2.1199	277	2.0921	269	2.0652	261	2.0391	251	2.0140	245	1.9895
.69	2.2641	325	2.2316	314	2.2002	303	2.1699	294	2.1405	285	2.1120
.70	2.4110	375	2.3735	362	2.3373	349	2.3024	337	2.2687	326	2.2361
.71	2.5608	427	2.5181	412	2.4769	399	2.4370	385	2.3985	372	2.3613
.72	2.7120	484	2.6636	467	2.6169	448	2.5721	432	2.5289	417	2.4872
.73	2.8652	543	2.8109	522	2.7587	502	2.7085	485	2.6602	466	2.6136
.74	3.020	607	2.9593	581	2.9012	557	2.8455	536	2.7919	516	2.7403
.75	3.176	67	3.109	64	3.045	614	2.9836	594	2.9242	572	2.8670
.76	3.332	74	3.258	70	3.188	68	3.120	65	3.055	619	2.9931

TABLE 1.—*Relative J_λ, based on J at $\lambda = 0.59\ \mu = 590\ m\mu$*—Continued

λ in μ	2,300 °K.	Dif.	2,320 °K.	Dif.	2,340 °K.	Dif.	2,360 °K.	Dif.	2,380 °K.	Dif.	2,400 °K.
0.32	0.00288	23	0.00311	23	0.00336	25	0.00361	27	0.00388	29	0.00417
.33	445	33	478	35	513	37	550	39	589	40	629
.34	668	46	714	49	763	51	814	53	867	56	923
.35	977	63	.0104	6	.0110	7	.0117	7	.0124	8	.0132
.36	.0139	8	147	9	156	9	165	9	174	10	184
.37	193	11	204	11	215	12	227	12	239	12	251
.38	264	13	277	14	291	15	306	15	321	15	336
.39	352	17	369	17	386	18	404	19	423	19	442
.40	463	20	483	21	504	22	526	22	548	23	571
.41	599	24	623	25	648	26	674	26	700	26	726
.42	762	28	790	29	819	30	849	30	879	31	910
.43	956	33	989	34	.1023	34	.1057	34	.1091	35	.1126
.44	.1185	37	.1222	38	.1260	38	.1298	39	.1337	39	.1376
.45	.1450	42	.1492	42	.1534	43	.1577	43	.1620	43	.1663
.46	.1755	46	.1801	46	.1847	47	.1894	47	.1941	47	.1988
.47	.2103	50	.2153	49	.2202	50	.2252	50	.2302	51	.2353
.48	.2494	53	.2547	53	.2600	53	.2653	53	.2706	54	.2760
.49	.2934	55	.2989	55	.3044	55	.3099	55	.3154	55	.3209
.50	.3420	56	.3476	57	.3533	56	.3589	56	.3645	56	.3701
.51	.3954	57	.4011	57	.4068	56	.4124	56	.4180	56	.4236
.52	.4538	56	.4594	56	.4650	55	.4705	55	.4760	55	.4815
.53	.5173	54	.5227	53	.5280	52	.5332	52	.5384	52	.5436
.54	.5856	50	.5906	49	.5955	49	.6004	48	.6052	48	.6100
.55	.6590	44	.6634	43	.6677	43	.6720	43	.6763	42	.6805
.56	.7373	36	.7409	36	.7445	35	.7480	35	.7515	34	.7549
.57	.8204	27	.8231	26	.8257	25	.8282	25	.8307	24	.8331
.58	.9080	14	.9094	14	.9108	14	.9122	13	.9135	13	9148
.59	.00036272		.00039729		.00043448		.00047443		.00051730		.00056321
.60	1.0963	16	1.0947	15	1.0932	16	1.0916	15	1.0901	16	1.0885
.61	1.1968	36	1.1932	36	1.1896	34	1.1862	33	1.1829	33	1.1796
.62	1.3009	58	1.2951	56	1.2895	55	1.2840	53	1.2787	53	1.2734
.63	1.4085	81	1.4004	79	1.3925	78	1.3847	76	1.3771	74	1.3697
.64	1.5193	107	1.5086	105	1.4981	103	1.4878	100	1.4778	98	1.4680
.65	1.6333	137	1.6196	134	1.6062	130	1.5932	127	1.5805	124	1.5681
.66	1.7498	168	1.7330	164	1.7166	160	1.7006	156	1.6850	151	1.6699
.67	1.8686	202	1.8484	197	1.8287	190	1.8097	186	1.7911	181	1.7730
.68	1.9895	238	1.9657	231	1.9426	225	1.9201	219	1.8982	212	1.8770
.69	2.1120	276	2.0844	268	2.0576	261	2.0315	253	2.0062	245	1.9817
.70	2.2361	317	2.2044	307	2.1737	298	2.1439	289	2.1150	281	2.0869
.71	2.3613	360	2.3253	349	2.2904	338	2.2566	327	2.2239	317	2.1922
.72	2.4872	404	2.4468	392	2.4076	380	2.3696	368	2.3328	356	2.2972
.73	2.6136	450	2.5686	437	2.5249	423	2.4826	409	2.4417	396	2.4021
.74	2.7403	499	2.6904	483	2.6421	467	2.5954	451	2.5503	435	2.5068
.75	2.8670	551	2.8119	532	2.7587	512	2.7075	494	2.6581	477	2.6104
.76	2.9931	600	2.9331	582	2.8749	561	2.8188	541	2.7647	521	2.7126

TABLE 1.—*Relative* J_λ, *based on J at* $\lambda=0.59\ \mu=590\ m\mu$—Continued

λ in μ	2,400° K.	Dif.	2,420° K.	Dif.	2,440° K.	Dif.	2,460° K.	Dif.	2,480° K.	Dif.	2,500° K.
0.32	0.00417	30	0.00447	31	0.00479	34	0.00513	36	0.00549	38	0.00587
.33	629	43	672	45	717	47	764	50	814	52	866
.34	923	56	979	61	.0104	6	.0110	7	.0117	7	.0124
.35	.0132	8	.0140	8	148	8	156	9	165	9	174
.36	184	10	194	11	205	11	216	11	227	12	239
.37	251	13	264	13	277	14	291	14	305	15	320
.38	336	16	352	16	368	17	385	17	402	18	420
.39	442	19	461	20	481	20	501	21	522	22	544
.40	571	23	594	24	618	24	642	24	666	25	691
.41	726	27	753	28	781	28	809	29	838	29	867
.42	910	32	942	32	974	32	.1006	33	.1039	34	.1073
.43	.1126	36	.1162	36	.1198	37	.1235	37	.1272	38	.1310
.44	.1376	40	.1416	40	.1456	41	.1497	41	.1538	42	.1580
.45	.1663	44	.1707	44	.1751	45	.1796	45	.1841	45	.1886
.46	.1988	47	.2035	48	.2083	48	.2131	49	.2180	48	.2228
.47	.2353	51	.2404	51	.2455	51	.2506	52	.2558	51	.2609
.48	.2760	53	.2813	54	.2867	53	.2920	54	.2974	54	.3028
.49	.3209	55	.3264	55	.3319	55	.3374	56	.3430	56	.3486
.50	.3701	56	.3757	56	.3813	56	.3869	56	.3925	56	.3981
.51	.4236	56	.4292	56	.4348	56	.4404	55	.4459	56	.4515
.52	.4815	55	.4870	54	.4924	54	.4978	53	.5031	54	.5085
.53	.5436	52	.5488	51	.5539	51	.5590	51	.5641	50	.5691
.54	.6100	47	.6147	47	.6194	47	.6241	46	.6287	46	.6333
.55	.6805	41	.6846	41	.6887	41	.6928	40	.6968	40	.7008
.56	.7549	34	.7583	34	.7617	33	.7650	32	.7682	32	.7714
.57	.8331	24	.8355	24	.8379	24	.8403	23	.8426	23	.8449
.58	.9148	13	.9161	13	.9174	13	.9187	13	.9200	13	.9213
.59	.00056321		.00061235		.00066485		.00072090		.00078065		.00084428
.60	1.0885	15	1.0870	16	1.0854	15	1.0839	15	1.0824	14	1.0810
.61	1.1796	32	1.1764	32	1.1732	31	1.1701	31	1.1670	30	1.1640
.62	1.2734	52	1.2682	50	1.2632	49	1.2583	49	1.2534	48	1.2486
.63	1.3697	73	1.3624	71	1.3553	69	1.3484	68	1.3416	67	1.3349
.64	1.4680	96	1.4584	93	1.4491	90	1.4401	90	1.4311	88	1.4223
.65	1.5681	121	1.5560	117	1.5443	114	1.5329	112	1.5217	110	1.5107
.66	1.6699	147	1.6552	144	1.6408	140	1.6268	136	1.6132	134	1.5998
.67	1.7730	177	1.7553	171	1.7382	167	1.7215	162	1.7053	158	1.6895
.68	1.8770	206	1.8564	201	1.8363	196	1.8167	190	1.7977	185	1.7792
.69	1.9817	238	1.9579	232	1.9347	226	1.9121	219	1.8902	213	1.8689
.70	2.0869	273	2.0596	264	2.0332	257	2.0075	249	1.9826	242	1.9584
.71	2.1922	308	2.1614	298	2.1316	289	2.1027	281	2.0746	272	2.0474
.72	2.2972	344	2.2628	332	2.2296	322	2.1974	313	2.1661	304	2.1357
.73	2.4021	381	2.3640	369	2.3271	357	2.2914	346	2.2568	336	2.2232
.74	2.5068	421	2.4647	407	2.4240	394	2.3846	382	2.3464	369	2.3095
.75	2.6104	461	2.5643	446	2.5197	431	2.4766	416	2.4350	403	2.3947
.76	2.7126	502	2.6624	483	2.6141	467	2.5674	451	2.5223	437	2.4786

TABLE 1.—*Relative* J_λ, *based on* J *at* $\lambda=0.59\ \mu=590\ m\mu$—Continued

λ in μ	2,500° K.	Dif.	2,520° K.	Dif.	2,540° K.	Dif.	2,560° K.	Dif.	2,580° K.	Dif.	2,600° K.
0.32	0.00587	39	0.00626	42	0.00668	43	0.00711	46	0.00757	47	0.00804
.33	866	54	920	57	977	63	.0104	6	.0110	6	.0116
.34	.0124	7	.0131	8	.0139	8	147	8	155	9	164
.35	174	9	183	10	193	10	203	11	214	11	225
.36	239	12	251	12	263	13	276	13	289	14	303
.37	320	15	335	15	350	16	366	16	382	17	399
.38	420	19	439	19	458	19	477	20	497	20	517
.39	544	22	566	22	588	23	611	24	635	24	659
.40	691	26	717	26	743	27	770	28	798	28	826
.41	867	30	897	30	927	31	958	32	990	32	.1022
.42	.1073	34	.1107	34	.1141	35	.1176	36	.1212	36	.1248
.43	.1310	38	.1348	38	.1386	39	.1425	40	.1465	40	.1505
.44	.1580	42	.1622	42	.1664	43	.1707	43	.1750	44	.1794
.45	.1886	46	.1932	46	.1978	47	.2025	47	.2072	47	.2119
.46	.2228	49	.2277	50	.2327	50	.2377	50	.2427	50	.2477
.47	.2609	52	.2661	52	.2713	52	.2765	52	.2817	53	.2870
.48	.3028	54	.3082	54	.3136	54	.3190	54	.3244	54	.3298
.49	.3486	55	.3541	55	.3596	55	.3651	55	.3706	55	.3761
.50	.3981	55	.4036	56	.4092	55	.4147	55	.4202	55	.4257
.51	.4515	55	.4570	54	.4624	54	.4678	54	.4732	54	.4786
.52	.5085	53	.5138	53	.5191	52	.5243	52	.5295	52	.5347
.53	.5691	50	.5741	50	.5791	49	.5840	49	.5889	48	.5937
.54	.6333	45	.6378	45	.6423	45	.6468	44	.6512	44	.6556
.55	.7008	39	.7047	39	.7086	39	.7125	38	.7163	38	.7201
.56	.7714	32	.7746	32	.7778	31	.7809	31	.7840	31	.7871
.57	.8449	23	.8472	23	.8495	22	.8517	22	.8539	22	.8561
.58	.9213	12	.9225	12	.9237	12	.9249	12	.9261	11	.9272
.59	.00084428		.00091195		.00098386		.00106018		.00114110		.00122681
.60	1.0810	14	1.0796	14	1.0782	13	1.0769	13	1.0756	13	1.0743
.61	1.1640	29	1.1611	29	1.1582	28	1.1554	28	1.1526	28	1.1498
.62	1.2486	46	1.2440	45	1.2395	45	1.2350	44	1.2306	43	1.2263
.63	1.3349	65	1.3284	64	1.3220	62	1.3158	61	1.3097	60	1.3037
.64	1.4223	85	1.4138	83	1.4055	82	1.3973	80	1.3893	78	1.3815
.65	1.5107	107	1.5000	104	1.4896	102	1.4794	100	1.4694	98	1.4596
.66	1.5998	130	1.5868	127	1.5741	124	1.5617	121	1.5496	118	1.5378
.67	1.6895	155	1.6740	151	1.6589	147	1.6442	144	1.6298	141	1.6157
.68	1.7792	181	1.7611	176	1.7435	171	1.7264	167	1.7097	163	1.6934
.69	1.8689	207	1.8482	203	1.8279	197	1.8082	192	1.7890	186	1.7704
.70	1.9584	236	1.9348	229	1.9119	223	1.8896	217	1.8679	211	1.8468
.71	2.0474	265	2.0209	257	1.9952	250	1.9702	243	1.9459	236	1.9223
.72	2.1357	295	2.1062	286	2.0776	278	2.0498	270	2.0228	263	1.9965
.73	2.2232	326	2.1906	316	2.1590	307	2.1283	298	2.0985	289	2.0696
.74	2.3095	358	2.2737	346	2.2391	336	2.2055	326	2.1729	316	2.1413
.75	2.3947	390	2.3557	378	2.3179	366	2.2813	355	2.2458	343	2.2115
.76	2.4786	424	2.4362	410	2.3952	396	2.3556	384	2.3172	371	2.2801

TABLE 1.—*Relative* J_λ, *based on J at* $\lambda=0.59\ \mu=590\ m\mu$—Continued

λ in μ	2,600° K.	Dif.	2,620° K.	Dif.	2,640° K.	Dif.	2,660° K.	Dif.	2,680° K.	Dif.	2,700° K.
0.32	0.00804	50	0.00854	52	0.00906	55	0.00961	59	0.0102	6	0.0108
.33	.0116	7	.0123	7	.0130	7	.0137	8	145	8	153
.34	164	9	173	9	182	9	191	10	201	10	211
35	225	11	236	12	248	12	260	12	272	13	285
.36	303	14	317	14	331	15	346	16	362	16	378
.37	399	17	416	18	434	18	452	19	471	19	490
.38	517	21	538	21	559	22	581	22	603	23	626
.39	659	24	683	25	708	26	734	26	760	26	786
.40	826	28	854	29	883	30	913	30	943	30	973
.41	.1022	32	.1054	33	.1087	34	.1121	34	.1155	34	.1189
.42	.1248	36	.1284	37	.1321	38	.1359	38	.1397	38	.1435
.43	.1505	40	.1545	41	.1586	41	.1627	42	.1669	42	.1711
.44	.1794	44	.1838	45	.1883	45	.1928	45	.1973	46	.2019
.45	.2119	47	.2166	48	.2214	48	.2262	48	.2310	49	.2359
.46	.2477	50	.2527	51	.2578	51	.2629	51	.2680	51	.2731
.47	.2870	53	.2923	53	.2976	53	.3029	53	.3082	53	.3135
.48	.3298	54	.3352	55	.3407	54	.3461	55	.3516	54	.3570
.49	.3761	55	.3816	55	.3871	55	.3926	55	.3981	55	.4036
.50	.4257	55	.4312	55	.4367	55	.4422	55	.4477	54	.4531
.51	.4786	54	.4840	54	.4894	54	.4948	53	.5001	53	.5054
.52	.5347	51	.5398	51	.5449	51	.5500	51	.5551	51	.5602
.53	.5937	48	.5985	48	.6033	47	.6080	47	.6127	47	.6174
.54	.6556	43	.6599	43	.6642	43	.6685	42	.6697	42	.6739
.55	.7201	37	.7238	37	.7275	37	.7312	36	.7348	36	.7384
.56	.7871	30	.7901	29	.7930	29	.7959	29	.7988	29	.8017
.57	.8561	22	.8583	21	.8604	21	.8625	21	.8646	20	.8666
.58	.9272	11	.9283	11	.9294	11	.9305	11	.9316	11	.9327
.59	.00122681		.00131750		.00141336		.00151459		.00163142		.00173402
.60	1.0743	13	1.0730	12	1.0718	13	1.0705	12	1.0693	12	1.0681
.61	1.1498	27	1.1471	26	1.1445	26	1.1419	25	1.1394	25	1.1369
.62	1.2263	42	1.2221	41	1.2180	41	1.2139	40	1.2099	39	1.2060
.63	1.3037	59	1.2978	58	1.2920	57	1.2863	55	1.2808	55	1.2753
.64	1.3815	77	1.3738	75	1.3663	72	1.3591	71	1.3520	71	1.3449
.65	1.4596	96	1.4500	93	1.4407	91	1.4316	90	1.4226	88	1.4138
.66	1.5378	116	1.5262	113	1.5149	111	1.5038	108	1.4930	106	1.4824
.67	1.6157	137	1.6020	133	1.5887	130	1.5757	129	1.5628	124	1.5504
.68	1.6934	159	1.6775	155	1.6620	151	1.6469	148	1.6321	144	1.6177
.69	1.7704	181	1.7523	177	1.7346	173	1.7173	168	1.7005	164	1.6841
.70	1.8468	205	1.8263	200	1.8063	194	1.7869	191	1.7678	185	1.7493
.71	1.9223	230	1.8993	224	1.8769	218	1.8551	213	1.8338	207	1.8131
.72	1.9965	256	1.9709	248	1.9461	240	1.9221	235	1.8986	229	1.8757
.73	2.0696	281	2.0415	272	2.0143	265	1.9878	257	1.9621	251	1.9370
.74	2.1413	307	2.1106	297	2.0809	289	2.0520	281	2.0239	273	1.9966
.75	2.2115	333	2.1782	323	2.1459	314	2.1145	304	2.0841	296	2.0545
.76	2.2801	360	2.2441	349	2.2092	339	2.1753	329	2.1424	319	2.1105

TABLE 1.—*Relative* J_λ, *based on J at* $\lambda=0.59\ \mu=590\ m\mu$—Continued

λ in μ	2,700° K.	Dif.	2,720° K.	Dif.	2,740° K.	Dif.	2,760° K.	Dif.	2,780° K.	Dif.	2,800° K
0.32	0.0108	6	0.0114	6	0.0127	7	0.0127	7	0.0134	7	0.0141
.33	153	8	161	8	169	9	178	9	187	10	197
.34	211	11	222	11	233	11	244	11	255	12	267
.35	285	13	298	14	312	14	326	14	340	15	355
.36	378	16	394	17	411	17	428	17	445	18	463
.37	490	20	510	20	530	20	550	21	571	22	593
.38	626	23	649	24	673	24	697	25	722	25	747
.39	786	27	813	28	841	28	869	29	898	29	927
.40	973	31	.1004	32	.1036	32	.1068	33	.1101	33	.1134
.41	.1189	35	.1224	36	.1260	36	.1296	36	.1332	37	.1369
.42	.1435	39	.1474	39	.1513	40	.1553	40	.1593	41	.1634
.43	.1711	43	.1754	43	.1797	43	.1840	44	.1884	44	.1928
.44	.2019	46	.2065	46	.2111	47	.2158	47	.2205	47	.2252
.45	.2359	49	.2408	49	.2457	50	.2507	50	.2557	50	.2607
.46	.2731	52	.2783	51	.2834	52	.2886	52	.2938	53	.2991
.47	.3135	54	.3189	53	.3242	54	.3296	53	.3349	54	.3403
.48	.3570	55	.3625	54	.3679	55	.3734	54	.3788	55	.3843
.49	.4036	55	.4091	55	.4146	55	.4201	54	.4255	54	.4309
.50	.4531	54	.4585	54	.4639	54	.4693	54	.4747	53	.4800
.51	.5054	52	.5106	53	.5159	52	.5211	52	.5263	51	.5314
.52	.5602	50	.5652	50	.5702	49	.5751	49	.5800	49	.5849
.53	.6174	46	.6220	46	.6266	46	.6312	46	.6358	45	.6403
.54	.6739	41	.6810	41	.6851	41	.6892	41	.6933	40	.6973
.55	.7384	35	.7419	35	.7454	35	.7489	35	.7524	34	.7558
.56	.8017	28	.8045	28	.8073	28	.8101	28	.8129	27	.8156
.57	.8666	20	.8686	20	.8706	20	.8726	19	.8745	19	.8764
.58	.9327	11	.9338	11	.9349	11	.9360	10	.9370	9	.9379
.59	.00173402		.00185260		.00197739		.00210860		.00224642		.00239110
.60	1.0681	11	1.0670	12	1.0658	12	1.0646	11	1.0635	11	1.0624
.61	1.1369	25	1.1344	24	1.1320	24	1.1296	23	1.1273	23	1.1250
.62	1.2060	38	1.2022	38	1.1984	37	1.1947	36	1.1911	36	1.1875
.63	1.2753	53	1.2700	52	1.2648	51	1.2597	51	1.2546	49	1.2497
.64	1.3449	71	1.3378	69	1.3309	67	1.3242	65	1.3177	63	1.3114
.65	1.4138	86	1.4052	84	1.3968	83	1.3885	81	1.3804	79	1.3725
.66	1.4824	104	1.4720	101	1.4619	99	1.4520	97	1.4423	94	1.4329
.67	1.5504	122	1.5382	119	1.5263	116	1.5147	114	1.5033	111	1.4922
.68	1.6177	141	1.6036	136	1.5898	134	1.5764	131	1.5633	128	1.5505
.69	1.6841	161	1.6680	156	1.6524	153	1.6371	149	1.6222	146	1.6076
.70	1.7493	181	1.7312	176	1.7136	172	1.6964	168	1.6796	163	1.6633
.71	1.8131	201	1.7930	196	1.7734	191	1.7543	186	1.7357	181	1.7176
.72	1.8757	222	1.8535	216	1.8319	211	1.8108	205	1.7903	199	1.7704
.73	1.9370	244	1.9126	237	1.8889	231	1.8658	224	1.8434	218	1.8216
.74	1.9966	265	1.9701	259	1.9442	251	1.9191	244	1.8947	237	1.8710
.75	2.0545	287	2.0258	279	1.9979	271	1.9708	264	1.9444	256	1.9188
.76	2.1105	309	2.0796	300	2.0496	292	2.0204	283	1.9921	274	1.9647

TABLE 1.—*Relative J_λ, based on J at $\lambda=0.59\ \mu=590\ m\mu$*—Continued

λ in μ	2,800 °K.	Dif.	2,820 °K.	Dif.	2,840 °K.	Dif.	2,860 °K.	Dif.	2,880 °K.	Dif.	2,900 °K.
0.32	0.0141	7	0.0148	8	0.0156	8	0.0164	9	0.0173	9	0.0182
.33	197	10	207	10	217	10	227	11	238	11	249
.34	267	12	279	13	292	13	305	14	319	14	333
.35	355	15	370	16	386	16	402	17	419	17	436
.36	463	19	482	19	501	19	520	20	540	21	561
.37	593	22	615	23	638	23	651	24	685	24	709
.38	747	26	773	27	800	27	827	27	854	28	882
.39	927	30	957	30	987	31	.1018	31	.1049	32	.1081
.40	.1134	34	.1168	34	.1202	34	.1236	35	.1271	35	.1306
.41	.1369	38	.1407	38	.1445	38	.1483	39	.1522	39	.1551
.42	.1634	41	.1675	42	.1717	42	.1759	42	.1801	43	.1844
.43	.1928	44	.1972	45	.2017	45	.2062	46	.2108	46	.2154
.44	.2252	48	.2300	48	.2348	48	.2396	49	.2445	49	.2494
.45	.2607	50	.2657	51	.2708	51	.2759	51	.2810	51	.2861
.46	.2991	52	.3043	52	.3095	53	.3148	53	.3201	53	.3254
.47	.3403	54	.3457	54	.3511	54	.3565	54	.3619	54	.3673
.48	.3843	55	.3898	54	.3952	55	.4007	54	.4061	55	.4116
.59	.4309	54	.4363	55	.4418	54	.4472	54	.4526	55	.4581
.50	.4800	54	.4854	53	.4907	53	.4960	53	.5013	53	.5066
.51	.5314	52	.5366	51	.5417	51	.5468	50	.5518	51	.5569
.52	.5849	49	.5898	48	.5946	48	.5994	48	.6042	48	.6090
.53	.6403	45	.6448	44	.6492	44	.6536	44	.6580	44	.6624
.54	.6973	40	.7013	40	.7053	40	.7093	39	.7132	38	.7170
.55	.7558	34	.7592	34	.7626	34	.7660	33	.7693	33	.7726
56	.8156	27	.8183	27	.8210	27	.8237	26	.8263	26	.8289
.57	.8764	19	.8783	19	.8802	19	.8821	18	.8839	18	.8857
.58	.9379	10	.9389	10	.9399	10	.9409	9	.9418	10	.9428
.59	.00239110		.00254285		.00270189		.00286844		.00304273		.00322499
.60	1.0624	11	1.0613	11	1.0602	10	1.0592	10	1.0582	11	1.0571
.61	1.1250	23	1.1227	22	1.1205	22	1.1183	21	1.1162	21	1.1141
.62	1.1875	35	1.1840	35	1.1805	35	1.1770	33	1.1737	33	1.1704
.63	1.2497	49	1.2448	48	1.2400	48	1.2352	46	1.2306	45	1.2261
.64	1.3114	63	1.3051	61	1.2990	60	1.2930	60	1.2870	58	1.2812
.65	1.3725	77	1.3640	76	1.3572	75	1.3497	73	1.3424	72	1.3352
.66	1.4329	93	1.4236	91	1.4145	90	1.4055	87	1.3968	86	1.3882
.67	1.4922	109	1.4813	106	1.4707	104	1.4603	103	1.4500	100	1.4400
.68	1.5505	125	1.5380	123	1.5257	120	1.5137	117	1.5020	115	1.4905
.69	1.6076	142	1.5934	139	1.5795	136	1.5659	133	1.5526	130	1.5396
.70	1.6633	159	1.6474	156	1.6318	152	1.6166	149	1.6017	145	1.5872
.71	1.7176	177	1.6999	172	1.6827	169	1.6658	165	1.6493	161	1.6332
.72	1.7704	195	1.7509	190	1.7319	185	1.7134	181	1.6953	177	1.6776
.73	1.8216	213	1.8003	207	1.7796	202	1.7594	198	1.7396	192	1.7204
.74	1.8710	231	1.8479	225	1.8254	219	1.8035	213	1.7822	208	1.7614
.75	1.9188	249	1.8939	243	1.8696	236	1.8460	230	1.8230	224	1.8006
.76	1.9647	267	1.9380	260	1.9120	254	1.8866	246	1.8620	240	1.8380

TABLE 1.—*Relative* J_λ, *based on* J *at* $\lambda=0.59\ \mu=590\ m\mu$—Continued

λ in μ	2,900° K.	Dif.	2,920° K.	Dif.	2,940° K.	Dif.	2,960° K.	Dif.	2,980° K.	Dif.	3,000° K.
0.32	0.0182	9	0.0191	9	0.0200	10	0.0210	10	0.0220	10	0.0230
.33	249	11	260	12	272	12	284	13	297	13	310
.34	333	14	347	15	362	15	377	16	393	16	409
.35	436	17	454	18	472	18	490	19	509	19	528
.36	561	21	582	21	603	22	625	22	647	23	670
.37	709	25	734	25	759	25	784	26	810	26	836
.38	882	28	910	29	939	29	968	30	998	31	.1029
.39	.1081	32	.1113	33	.1146	33	.1179	34	.1213	34	.1247
.40	.1306	36	.1342	37	.1379	37	.1416	38	.1454	38	.1492
.41	.1551	40	.1601	41	.1642	40	.1682	41	.1723	42	.1765
.42	.1844	43	.1887	44	.1931	44	.1975	44	.2019	45	.2064
.43	.2154	47	.2201	47	.2248	48	.2296	47	.2343	48	.2391
.44	.2494	49	.2543	50	.2593	50	.2643	50	.2693	50	.2743
.45	.2861	51	.2912	52	.2964	52	.3016	52	.3068	52	.3120
.46	.3254	53	.3307	53	.3360	54	.3414	53	.3467	53	.3520
.47	.3673	54	.3727	54	.3781	55	.3836	54	.3890	54	.3944
.48	.4116	54	.4170	55	.4225	54	.4279	55	.4334	54	.4388
.49	.4581	54	.4635	54	.4689	53	.4742	54	.4796	53	.4849
.50	.5066	52	.5118	52	.5170	52	.5222	52	.5274	52	.5326
.51	.5569	51	.5620	50	.5670	49	.5719	50	.5769	49	.5818
.52	.6090	47	.6137	47	.6184	46	.6230	46	.6276	46	.6322
.53	.6624	43	.6667	43	.6710	42	.6752	42	.6794	42	.6836
.54	.7170	38	.7208	37	.7245	37	.7282	37	.7319	37	.7356
.55	.7726	32	.7758	32	.7790	31	.7821	31	.7852	31	.7883
.56	.8289	25	.8314	25	.8339	25	.8364	25	.8389	24	.8413
.57	.8857	18	.8875	17	.8892	17	.8909	17	.8926	17	.8943
.58	.9428	9	.9437	9	.9446	9	.9455	9	.9464	9	.9473
.59	.00322489		.00341544		.00361432		.00382189		.00403832		.00426387
.60	1.0571	10	1.0561	10	1.0551	9	1.0542	10	1.0532	9	1.0523
.61	1.1141	21	1.1120	21	1.1099	20	1.1079	20	1.1059	20	1.1039
.62	1.1704	32	1.1672	32	1.1640	31	1.1609	30	1.1579	30	1.1549
.63	1.2269	44	1.2217	43	1.2174	42	1.2132	42	1.2090	42	1.2048
.64	1.2812	57	1.2755	56	1.2699	55	1.2644	54	1.2590	53	1.2537
.65	1.3352	70	1.3282	69	1.3213	67	1.3146	67	1.3079	65	1.3014
.66	1.3882	83	1.3799	83	1.3716	80	1.3636	80	1.3556	77	1.3479
.67	1.4400	98	1.4302	96	1.4206	94	1.4112	92	1.4020	91	1.3929
.68	1.4905	112	1.4793	110	1.4683	101	1.4575	106	1.4469	103	1.4366
.69	1.5396	127	1.5269	124	1.5145	122	1.5023	119	1.4904	116	1.4788
.70	1.5872	142	1.5730	138	1.5592	136	1.5456	133	1.5323	130	1.5193
.71	1.6332	157	1.6175	153	1.6022	150	1.5872	147	1.5725	143	1.5582
.72	1.6776	172	1.6604	168	1.6436	164	1.6272	160	1.6112	157	1.5955
.73	1.7204	188	1.7016	183	1.6833	178	1.6655	174	1.6481	170	1.6311
.74	1.7614	203	1.7411	198	1.7213	193	1.7020	188	1.6832	184	1.6648
.75	1.8006	218	1.7788	213	1.7575	207	1.7368	202	1.7166	197	1.6969
.76	1.8380	233	1.8147	227	1.7920	221	1.7699	216	1.7483	211	1.7272

TABLE 1.—*Relative* $J\lambda$, *based on* J *at* $\lambda=0.59\ \mu=590\ m\mu$—Continued

λ in μ	3,000° K.	Dif.	3,020° K.	Dif.	3,040° K.	Dif.	3,060° K.	Dif.	3,080° K.	Dif.	3,100° K.	Dif.	3,120° K.
0.32	0.0230	11	0.0241	11	0.0252	11	0.0263	12	0.0275	12	0.0287	12	0.0299
.33	310	13	323	14	337	14	351	15	366	15	381	15	396
.34	409	16	425	17	442	17	459	18	477	18	495	19	514
.35	528	20	548	20	568	21	589	21	610	22	632	22	654
.36	670	23	693	24	717	24	741	24	765	26	791	27	818
.37	836	27	863	28	891	28	919	29	948	29	977	30	.1007
.38	.1029	31	.1060	31	.1091	32	.1123	32	.1155	33	.1188	33	.1221
.39	.1247	35	.1282	35	.1317	36	.1353	36	.1389	36	.1425	37	.1462
.40	.1492	38	.1530	39	.1569	39	.1608	40	.1648	40	.1688	41	.1729
.41	.1765	42	.1807	42	.1849	43	.1892	43	.1935	44	.1979	44	.2023
.42	.2064	45	.2109	46	.2155	46	.2201	46	.2247	47	.2294	47	.2341
.43	.2391	48	.2439	48	.2487	49	.2536	49	.2585	49	.2634	50	.2681
.44	.2743	50	.2793	51	.2844	51	.2895	51	.2946	52	.2998	52	.3050
.45	.3120	52	.3172	53	.3225	52	.3277	53	.3330	53	.3383	54	.3437
.46	.3520	54	.3574	54	.3628	54	.3682	54	.3736	54	.3790	54	.3844
.47	.3944	54	.3998	55	.4053	54	.4107	54	.4161	54	.4215	55	.4270
.48	.4388	54	.4442	54	.4496	54	.4550	54	.4604	54	.4658	53	.4711
.49	.4849	53	.4902	53	.4955	53	.5008	53	.5061	53	.5114	52	.5166
.50	.5326	52	.5378	51	.5429	51	.5480	51	.5531	51	.5582	51	.5633
.51	.5818	49	.5867	49	.5916	49	.5965	48	.6013	48	.6061	48	.6109
.52	.6322	46	.6368	45	.6413	45	.6458	45	.6503	45	.6548	44	.6592
.53	.6836	41	.6877	41	.6918	41	.6959	41	.7000	40	.7040	40	.7080
.54	.7356	37	.7393	36	.7429	36	.7465	36	.7501	35	.7536	35	.7571
.55	.7883	31	.7914	30	.7944	30	.7974	30	.8004	29	.8033	29	.8062
.56	.8413	24	.8437	23	.8460	24	.8484	24	.8508	23	.8531	23	.8554
.57	.8943	17	.8960	16	.8976	17	.8993	16	.9009	16	.9025	16	.9041
.58	.9473	9	.9482	8	.9490	9	.9499	8	.9507	9	.9516	8	.9524
.59	.00426387		.00449880		.00474333		.00499770		.00526213		.00553689		.00582220
.60	1.0523	10	1.0513	9	1.0504	10	1.0494	9	1.0485	9	1.0476	8	1.0468
.61	1.1039	19	1.1020	19	1.1001	19	1.0982	19	1.0963	18	1.0945	18	1.0927
.62	1.1549	30	1.1519	30	1.1489	29	1.1460	29	1.1431	28	1.1403	28	1.1375
.63	1.2048	42	1.2006	40	1.1966	39	1.1927	39	1.1888	38	1.1850	38	1.1812
.64	1.2537	52	1.2485	52	1.2433	51	1.2382	49	1.2333	49	1.2284	48	1.2236
.65	1.3014	64	1.2950	63	1.2887	62	1.2825	61	1.2764	60	1.2704	58	1.2646
.66	1.3479	77	1.3402	74	1.3328	74	1.3254	72	1.3182	71	1.3111	69	1.3042
.67	1.3929	88	1.3841	87	1.3754	85	1.3669	84	1.3585	82	1.3503	80	1.3423
.68	1.4366	101	1.4265	99	1.4166	98	1.4068	95	1.3973	93	1.3880	92	1.3788
.69	1.4788	114	1.4674	112	1.4562	110	1.4452	107	1.4345	105	1.4240	103	1.4137
.70	1.5193	127	1.5066	124	1.4942	122	1.4820	119	1.4701	117	1.4584	114	1.4470
.71	1.5582	140	1.5442	137	1.5305	134	1.5171	131	1.5040	128	1.4912	125	1.4787
.72	1.5955	153	1.5802	150	1.5652	146	1.5506	143	1.5363	140	1.5223	137	1.5086
.73	1.6311	166	1.6145	163	1.5982	159	1.5823	155	1.5668	151	1.5517	148	1.5369
.74	1.6648	179	1.6469	175	1.6294	171	1.6123	167	1.5956	163	1.5793	158	1.5635
.75	1.6969	192	1.6777	187	1.6590	183	1.6407	178	1.6229	174	1.6055	171	1.5884
.76	1.7272	205	1.7067	199	1.6868	195	1.6673	191	1.6482	185	1.6297	180	1.6117

TABLE 2.—*Luminosity relative to maximum value at each temperature*

EXAMPLE.—At color temperature 2,680°K. and $\lambda=0.55$ μ, the luminosity relative to that at 0.5720 μ is $0.8824+0.5\ (.0099)=0.8874$.

λ in μ	2,000° K.	Dif.	2,080° K.	Dif.	2,160° K.	Dif.	2,240° K.	Dif.	2,320° K.	Dif.	2,400° K.
0.40	0.000012	2	0.000014	3	0.000017	3	0.000020	4	0.000024	4	0.000028
.41	47	10	57	11	68	13	81	14	95	15	.000110
.42	.000209	41	.000250	46	.000296	49	.000345	53	.000398	57	455
.43	799	146	945	157	.001102	167	.001269	177	.001446	187	.001633
.44	.002062	339	.002401	362	.002763	385	3145	397	3542	415	3957
.45	4374	649	5023	682	5705	709	6414	733	7147	754	7901
.46	8747	1165	9912	1208	.01112	124	.01236	127	.01363	129	.01492
.47	.01660	197	.01857	201	2058	204	2262	207	2469	208	2677
.48	3135	330	3465	332	3797	334	4131	333	4464	332	4796
.49	5739	530	6269	527	6796	523	7319	517	7836	508	8344
.50	.1079	87	.1166	85	.1251	83	.1334	82	.1416	79	.1495
.51	.2016	138	.2154	134	.2288	130	.2418	126	.2544	121	.2665
.52	.3383	194	.3577	187	.3764	178	.3942	170	.4112	162	.4274
.53	.4843	227	.5070	215	.5285	203	.5488	191	.5679	180	.5859
54	.6270	231	.6501	215	.6716	200	.6916	186	.7102	173	.7275
.55	.7595	206	.7801	189	.7990	173	.8163	158	.8321	144	.8465
.56	.8758	159	.8917	141	.9058	125	.9183	110	.9293	97	.9390
.57	.9600	90	.9690	75	.9765	62	.9827	50	.9877	40	.9917
.58	.9988	11	.9999	0	.9999	10	.9989	17	.9972	22	.9950
.59	.9838	69	.9769	73	.9696	76	.9620	78	.9542	78	.9464
.60	.9231	136	.9095	133	.8962	129	.8833	126	.8707	122	.8585
.61	.8239	181	.8058	173	.7885	164	.7721	155	.7566	148	.7418
.62	.6954	203	.6751	189	.6562	177	.6385	165	.6220	154	.6066
.63	.5363	192	.5171	178	.4993	164	.4829	151	.4678	141	.4537
.64	.3910	166	.3744	151	.3593	138	.3455	127	.3328	116	.3212
.65	.2629	129	.2500	115	.2385	104	.2281	96	.2185	87	.2098
.66	.1641	90	.1551	81	.1470	73	.1397	65	.1332	59	.1273
.67	.09388	570	.08818	506	.08312	449	.07863	402	.07461	364	.07097
.68	5420	360	5060	317	4743	281	4462	249	4213	223	3990
.69	2832	205	2627	188	2449	157	2292	138	2154	123	2031
.70	1528	117	1411	103	1308	90	1218	79	1139	70	1069
.71	.008421	692	.007729	598	.007131	522	.006609	455	.006154	401	.005753
.72	4517	394	4123	338	3785	293	3492	254	3238	224	3014
.73	2392	219	2173	188	1985	162	1823	140	1683	122	1561
.74	1227	118	1109	101	1008	86	.000922	74	.000848	64	.000784
.75	.000626	62	.000564	54	.000510	45	465	39	426	34	392
.76	333	35	298	30	268	25	243	21	222	19	203
Sum	10.4645	-----	10.4811	-----	10.4966	-----	10.5108	-----	10.5236	-----	10.5351
Max. at μ=	0.5818	-----	0.5806	-----	0.5794	-----	0.5782	-----	0.5770	-----	0.5758

TABLE 2.—*Luminosity relative to maximum value at each temperature*—Continued

λ in μ	2,400° K.	Dif.	2,480° K.	Dif.	2,560° K.	Dif.	2,640° K.	Dif.	2,720° K.	Dif.	2,800° K.
0. 40	0. 000028	5	0. 000033	5	0. 000038	5	0. 000043	5	0. 000048	6	0. 000054
. 41	. 000110	15	. 000125	16	. 000141	17	. 000158	19	. 000177	20	. 000197
. 42	455	60	515	63	578	66	644	68	712	71	783
. 43	. 001633	196	. 001829	204	. 002033	210	. 002243	216	. 002459	222	. 002681
. 44	3957	429	4386	442	4828	452	5280	460	5740	468	6208
. 45	7901	771	8672	783	9455	795	. 010125	81	. 01106	81	. 01187
. 46	. 01492	132	. 01622	132	. 01754	132	1886	132	. 02018	132	2150
. 47	2677	208	2885	208	3093	208	3301	206	3507	205	3712
. 48	4796	329	5125	326	5451	322	5773	317	6090	312	6402
. 49	8344	499	8843	491	9334	481	9815	475	. 1029	45	. 1074
. 50	. 1495	77	. 1572	75	. 1647	73	. 1720	71	. 1791	68	. 1859
. 51	. 2665	116	. 2781	112	. 2893	107	. 3000	104	. 3104	100	. 3204
. 52	. 4274	154	. 4428	147	. 4575	141	. 4716	134	. 4850	127	. 4977
. 53	. 5859	169	. 6028	159	. 6187	151	. 6338	142	. 6480	134	. 6614
. 54	. 7275	161	. 7436	150	. 7586	138	. 7724	128	. 7852	120	. 7972
. 55	. 8465	131	. 8596	119	. 8715	109	. 8824	99	. 8923	91	. 9014
. 56	. 9390	86	. 9476	75	. 9551	66	. 9617	58	. 9675	51	. 9726
. 57	. 9917	29	. 9946	22	. 9968	16	. 9984	10	. 9994	5	. 9999
. 58	. 9950	27	. 9923	32	. 9891	35	. 9856	37	. 9819	39	. 9780
. 59	. 9464	79	. 9385	79	. 9306	79	. 9227	78	. 9149	76	. 9073
. 60	. 8585	118	. 8467	114	. 8353	109	. 8244	106	. 8138	103	. 8035
. 61	. 7418	141	. 7277	133	. 7144	127	. 7017	120	. 6897	115	. 6782
. 62	. 6066	145	. 5921	136	. 5785	128	. 5657	121	. 5536	114	. 5422
. 63	. 4537	130	. 4407	121	. 4286	112	. 4174	106	. 4068	99	. 3969
. 64	. 3212	107	. 3105	99	. 3006	92	. 2914	85	. 2829	78	. 2751
. 65	. 2098	80	. 2018	72	. 1946	66	. 1880	62	. 1818	57	. 1761
. 66	. 1273	53	. 1220	49	. 1171	45	. 1126	41	. 1085	37	. 1048
. 67	. 07097	329	. 06768	299	. 06469	272	. 06197	248	. 05949	226	. 05723
. 68	3990	201	3789	182	3607	164	. 03443	149	3294	135	3159
. 69	2031	109	1922	99	1823	90	1733	80	1653	73	1580
. 70	1069	61	1008	555	. 009525	498	. 009027	448	. 008579	405	. 008174
. 71	. 005753	353	. 005400	315	5085	281	4804	253	4551	228	4323
. 72	3014	195	2819	173	2646	154	2492	139	2353	125	2228
. 73	1561	107	1454	95	1359	83	1276	74	1202	67	1135
. 74	. 000784	56	. 000728	50	. 000678	44	. 000634	39	. 000595	34	. 000561
. 75	392	30	362	26	336	23	313	20	293	17	276
. 76	203	16	187	13	174	12	162	11	151	10	141
Sum	10. 5351		10. 5447		10. 5532		10. 5606		10. 5667		10. 5719
Max. at μ=	0. 5758		0. 5747		0. 5736		0. 5725		0. 5715		0. 5705

TABLE 2.—*Luminosity relative to maximum value at each temperature*—Continued

λ in μ	2,800° K.	Def.	2,880° K.	Def.	2,960° K.	Def.	3,040° K.	Def.	3,120° K.	Equal energy (=visibility)
0.40	0.000054	6	0.000060	7	0.000067	7	0.000074	6	0.000080	0.0004
.41	.000197	20	.000217	21	.000238	22	.000260	22	.000282	.0012
.42	783	73	856	75	931	77	.001008	78	.001086	40
.43	.002681	227	.002908	231	.003139	235	3374	237	3611	.0116
.44	6208	476	6684	481	7165	483	7648	488	8136	.023
.45	.01187	82	.01269	82	.01351	83	.01434	81	.01515	38
.46	2150	132	.02282	132	2414	132	2546	129	2675	60
.47	3712	263	3915	200	4115	197	4312	196	4508	91
.48	6402	308	6710	303	7013	294	7307	288	7595	.139
.49	.1074	45	.1119	44	.1163	43	.1206	41	.1247	.208
.50	.1859	66	.1925	64	.1989	62	.2051	59	.2110	.323
.51	.3204	96	.3300	92	.3392	88	.3480	84	.3564	.503
.52	.4977	121	.5098	116	.5214	110	.5324	105	.5429	.710
.53	.6614	127	.6741	120	.6861	112	.6973	106	.7079	.862
.54	.7972	113	.8085	106	.8191	96	.8287	90	.8377	.954
.55	.9014	84	.9098	76	.9174	68	.9242	63	.9305	.995
.56	.9726	45	.9771	39	.9810	33	.9843	28	.9871	.995
.57	.9999	1	1.0000	2	.9998	5	.9993	9	.9984	.952
.58	.9780	41	.9739	42	.9697	42	.9655	45	.9610	.870
.59	.9073	75	.8998	74	.8924	72	.8852	71	.8781	.757
.60	.8035	98	.7937	95	.7842	92	.7750	88	.7662	.631
.61	.6782	108	.6674	104	.6570	100	.6470	95	.6375	.503
.62	.5422	107	.5315	101	.5214	96	.5118	91	.5027	.381
.63	.3969	92	.3877	87	.3790	82	.3708	77	.3631	.265
.64	.2751	73	.2678	69	.2609	65	.2544	60	.2484	.175
.65	.1761	53	.1708	49	.1659	47	.1612	43	.1569	.107
.66	.1048	35	.1013	324	.09806	299	.09507	279	.09228	.061
.67	.05723	209	.05514	193	5321	175	5146	164	4982	32
.68	3159	124	3035	114	2921	105	2816	97	2719	17
.69	1580	67	1513	61	1452	56	1396	52	1344	.0082
.70	.008174	369	.007805	335	.007470	307	.007163	281	.006882	41
.71	4323	206	4117	187	3930	172	3758	156	3602	21
.72	2228	112	2116	101	2015	94	1921	84	1837	10_5
.73	1135	60	1075	54	1021	49	.000972	45	.000927	$.0005_2$
.74	.000561	31	.000530	28	.000502	26	476	22	454	2_5
.75	276	16	260	14	246	13	233	13	220	1_2
.76	141	9	132	7	125	7	118	6	112	$.0000_6$
Sum	10.5719		10.5767		10.5805		10.5824		10.5834	10.6856
Max. at μ=	.5705		.5696		.5687		.5678		.5669	.555

TABLE 3.—*Luminosity factors*

These factors are exactly proportional to the corresponding values of Table 2, but here they are so adjusted that the area of each complete curve of luminosity factors at a given temperature between the wave-length limits 0.40 to 0.76 μ is equal to unity. Consequently, to obtain the light transmission of a glass screen or colored solution, multiply the spectral transmission at each wave length by the corresponding tabulated or interpolated factor, obtaining in each case an element of light transmission for the wave-length interval $\lambda-0.005$ μ to $\lambda+0.005$ μ. The integral light transmission of the screen or solution is then obtained as the sum of these elements without further computation.

The same procedure is followed in the case of spectral reflection.

λ in μ	2,000° K.	Dif.	2,080° K.	Dif.	2,160° K.	Dif.	2,240° K.	Dif.	2,320° K.	Dif.	2,400° K.
0.40	0.0000011		0.0000013		0.0000016		0.0000019		0.0000023		0.0000027
1	45		54		65		77		90		.000010
2	.000020		.000024		.000028		.000033		.000038		43
3	76		90		.00010		.00012		.00014		.00015
4	.00020	3	.00023	3	26	4	30	4	34	4	38
5	42	6	48	6	54	7	61	7	68	7	75
6	84	11	95	11	.00106	12	.00118	12	.00130	12	.00142
7	.00159	18	.00177	19	196	19	215	20	235	19	254
8	300	31	331	31	362	31	393	31	424	31	455
9	548	50	598	49	647	49	696	49	745	47	792
.50	.01301	81	.01112	80	.01192	77	.01269	76	.01345	74	.01419
1	1926	129	2055	125	2180	121	2301	118	2417	112	2529
2	3233	180	3413	173	3586	164	3750	157	3907	150	4057
3	4628	209	4837	198	5035	186	5221	175	5396	165	5561
4	5992	211	6203	195	6398	182	6580	169	6749	156	6905
5	7257	186	7443	169	7612	154	7766	141	7907	128	8035
6	8370	138	8508	122	8630	107	8737	94	8831	83	8914
7	9174	71	9245	58	9303	47	9350	35	9385	28	9413
8	9545	5	9540	14	9526	22	9504	28	9476	31	9445
9	9401	80	9321	84	9237	84	9153	86	9067	84	8983
.60	8821	143	8678	140	8538	134	8404	130	8274	125	8149
1	7873	185	7688	176	7512	166	7346	156	7190	149	7041
2	6645	204	6441	189	6252	177	6075	165	5910	152	5758
3	5125	191	4934	177	4757	163	4594	149	4445	138	4307
4	3737	165	3572	149	3423	136	3287	125	3162	113	3049
5	2512	127	2385	113	2272	102	2170	94	2076	85	1991
6	1568	88	1480	80	1400	71	1329	63	1266	58	1208
7	.00897	56	.00841	49	.00792	44	.00748	39	.00709	35	.00674
8	518	35	483	31	452	28	424	24	400	21	379
9	271	20	251	18	233	15	218	13	205	12	193
.70	146	11	135	10	125	9	116	8	108	6	102
1	.00080	6	.00074	6	.00068	5	.00063	5	.00058	3	.00055
2	43		39		36		33		31		29
3	23		21		19		17		16		15
4	12		11		10		.000088		.000081		.000074
5	.000060		.000054		.000049		44		40		37
6	32		29		26		23		21		19
Max. value	.09556		.09541		.09527		.09514		.09502		.09491
Max. at μ=	.5818		.5806		.5794		.5782		.5770		.5758
Centroid on μ=	.5830		.5818		.5806		.5794		.5782		.5770

TABLE 3.—*Luminosity factors*—Continued

λ in μ	2,400° K.	Dif.	2,480° K.	Dif.	2,560° K.	Dif.	2,640° K.	Dif.	2,720° K.	Dif.	2,800° K
0.40	0.0000027		0.0000031		0.0000036		0.0000041		0.0000046		0.0000051
.41	.000010		.000012		.000013		.000015		.000017		.000019
.42	43		49		55		61		67		74
.43	.00015		.00017		.00019		.00021		.00023		.00025
.44	38	4	42	4	46	4	50	4	54	5	59
.45	75	7	82	8	90	7	97	8	.00105	7	.00112
.46	.00142	12	.00154	12	.00166	12	.00178	13	191	12	203
.47	254	20	274	19	293	20	313	19	332	19	351
.48	455	31	486	31	517	30	547	29	576	30	606
.49	792	47	839	45	884	45	929	44	973	43	.01016
.50	.01419	73	.01491	69	.01560	69	.01629	65	.01694	64	1758
.51	2529	108	2637	104	2741	100	2841	96	2937	93	3030
.52	4057	143	4200	136	4336	130	4466	124	4590	118	4708
.53	5561	156	5717	147	5864	138	6002	132	6134	123	6257
.54	6905	146	7051	136	7187	127	7314	117	7431	110	7541
.55	8035	116	8151	107	8258	97	8355	90	8445	81	8526
.56	8914	73	8987	64	9051	56	9107	49	9156	44	9200
.57	9413	19	9432	14	9446	8	9454	4	9458	0	9458
.58	9445	35	9410	37	9373	40	9333	41	9292	41	9251
.59	8983	83	8900	82	8818	81	8737	78	8659	77	8582
.60	8149	120	8029	114	7915	111	7806	106	7700	100	7600
.61	7041	140	6901	133	6768	123	6645	118	6527	111	6416
.62	5758	143	5615	133	5482	125	5357	118	5239	109	5130
.63	4307	128	4179	117	4062	110	3952	102	3850	95	3755
.64	3049	104	2945	96	2849	89	2760	82	2678	76	2602
.65	1991	77	1914	70	1844	64	1780	60	1720	55	1665
.66	1208	51	1157	47	1110	43	1067	40	1027	36	.00991
.67	.00674	32	.00642	29	.00613	26	.00587	24	.00563	22	541
.68	379	20	359	17	342	16	326	14	312	13	299
.69	193	11	182	9	173	9	164	7	157	7	150
.70	102	6	.00096	6	.00090	5	.00085	4	.00081	4	.00077
.71	.00055	4	51	3	48	3	45	2	43	2	41
.72	29		27		25		24		22		21
.73	15		14		13		12		11		11
.74	.000074		.000069		.000064		.000060		.000056		.000053
.75	37		34		32		30		28		26
.76	19		18		17		15		14		13
Max. value	.09491		.09483		.09476		.09469		.09464		.09460
Max. at μ=	.5758		.5747		.5736		.5725		.5715		.5705
Centroid on μ=	.5770		.5761		.5748		.5737		.5727		.5717

TABLE 3.—*Luminosity factors*—Continued

λ in μ	2,800° K.	Dif.	2,880° K.	Dif.	2,960° K.	Dif.	3,040° K.	Dif.	3,120° K.	Equal energy
0.40	0.0000051	------	0.0000057	------	0.0000063	------	0.0000070	------	0.0000076	0.000037
.41	.000019	------	.000021	------	.000023	------	.000025	------	.000027	.000112
.42	74	------	81	------	88	------	95	------	.000102	374
.43	.00025	------	.00027	------	.00030	------	.00032	------	34	.00109
.44	59	4	63	5	68	4	72	5	77	215
.45	.00112	8	.00120	8	.00128	7	.00135	8	.00143	356
.46	203	13	216	12	228	13	241	12	253	562
.47	351	19	370	19	389	18	407	19	426	852
.48	606	28	634	29	663	27	690	28	718	.01301
.49	.01016	42	.01058	41	.01099	40	.01139	39	.01178	1947
.50	1758	61	1819	61	1880	58	1938	56	1994	3023
.51	3030	90	3120	86	3206	82	3288	80	3368	4707
.52	4708	113	4821	107	4928	103	5031	98	5129	6644
.53	6257	117	6374	111	6485	104	6589	100	6689	8067
.54	7541	100	7646	95	7741	90	7831	84	7915	8928
.55	8526	76	8602	69	8671	63	8734	58	8792	9311
.56	9200	40	9240	33	9273	29	9302	25	9327	9311
.57	9458	2	9456	7	9449	6	9443	10	9433	8909
.58	9251	43	9208	43	9165	42	9123	43	9080	8142
.59	8582	75	8507	73	8434	69	8365	68	8297	7085
.60	7600	96	7504	93	7411	87	7324	85	7239	5905
.61	6416	107	6309	100	6209	95	6114	90	6024	4707
.62	5130	105	5025	97	4928	92	4836	86	4750	3566
.63	3755	90	3665	83	3582	78	3504	73	3431	2480
.64	2602	71	2531	65	2466	62	2404	57	2347	1638
.65	1665	51	1614	46	1568	44	1524	41	1483	1001
.66	.00991	34	.00957	30	.00927	29	.00898	26	.00872	.00571
.67	541	20	521	18	503	17	486	15	471	299
.68	299	12	287	11	276	10	266	9	257	159
.69	150	7	143	6	137	5	132	5	127	.00077
.70	.00077	3	.00074	3	.00071	3	.00068	3	.00065	384
.71	41	2	39	2	37	2	35	1	34	196
.72	21	------	20	------	19	------	18	------	17	.000098
.73	11	------	10	------	10	------	.000092	------	.000088	49
.74	.000053	------	.000050	------	.000047	------	45	------	43	23
.75	26	------	25	------	23	------	22	------	21	11
.76	13	------	12	------	12	------	11	------	11	.0000056
Max. value	.09460	------	.09456	------	.09452	------	.09450	------	.09449	.09358
Max. at μ=	.5705	------	.5696	------	.5687	------	.5678	------	.5669	.5550
Centroid on μ=	.5717	------	.5708	------	.5699	------	.5690	------	.5681	.5563

TABLE 4.—*Percentage change in computed J_λ for a change of ±30 in constant C_2 of the Planck radiation equation*

[Supplementary constants (line A) to obtain corresponding changes in the luminosity factors of Table 3]

EXAMPLE.—At color temperature 2,300° K, the value tabulated below for 0.44 μ is 0.75 per cent, corresponding to a change of 30 in C_2. For a change of 20 in C_2 the change in $J_{0.44}$ is ⅔ of 0.75=0.50 per cent; for a change of 15 in C_2, ½ of 0.75=0.38 per cent, etc.

Algebraic sign of tabulated values:

Change in C_2—	Tabulated values To line A: Above X	Tabulated values To line A: Below X	In line A
Increase	−	+	+
Decrease	+	−	−

λ in μ	Color temperature				
	2,000° K.	2,300° K.	2,600° K.	2,900° K.	3,200° K.
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*
0.32	2.05	1.86	1.67	1.48	1.29
3	1.93	1.74	1.56	1.39	1.21
4	1.82	1.63	1.46	1.30	1.14
.35	1.71	1.52	1.36	1.21	1.07
6	1.60	1.42	1.26	1.13	1.01
7	1.50	1.32	1.17	1.05	.95
.38	1.40	1.23	1.09	.98	.89
9	1.30	1.14	1.01	.91	.83
.40	1.21	1.05	.93	.84	.77
.41	1.12	.97	.86	.77	.71
2	1.04	.89	.79	.71	.66
3	.95	.82	.72	.65	.60
.44	.87	.75	.66	.60	.55
5	.79	.69	.60	.55	.50
6	.72	.63	.54	.50	.46
.47	.65	.56	.49	.45	.41
8	.58	.50	.44	.40	.37
9	.52	.45	.39	.36	.33
.50	.46	.40	.35	.32	.29
1	.40	.35	.31	.28	.25
2	.34	.30	.26	.24	.21
.53	.28	.25	.22	.20	.18
4	.23	.21	.18	.16	.15
5	.18	.16	.14	.12	.11
.56	.13	.12	.11	.09	.08
7	.08	.08	.07	.06	.05
8	.04	.04	.04	.03	.03
.59					X
.60	.04	.03	.03	.03	.03
1	.08	.07	.06	.05	.05
.62	.12	.10	.09	.08	.07
3	.16	.14	.12	.11	.10
4	.20	.17	.15	.13	.12
.65	.23	.20	.18	.16	.15
6	.27	.23	.20	.18	.17
7	.30	.26	.23	.21	.19
.68	.33	.29	.26	.23	.21
9	.36	.32	.29	.26	.23
.70	.39	.34	.31	.28	.25
.71	.42	.37	.33	.30	.27
2	.45	.39	.35	.32	.29
3	.48	.42	.37	.34	.31
.74	.51	.44	.39	.36	.33
5	.54	.47	.41	.37	.35
6	.57	.49	.43	.39	.36
A, all λ	.04	.06	.07	.07	.07

In line A are given constants for adjustment of the percentage values above in Table 2 to obtain the percentage change in the luminosity factors of Table 3. Each of these constants applies to all values given above it in the table; that is, one constant for each temperature. Combine the given constant by algebraic addition with the individual values at each wave length.

Example.—Color temp. 2,600° K; $\lambda=0.52\ \mu$; C_2 changed from 14330 to 14310. At 0.52 μ, 2,600° K., 0.26 per cent is tabulated. Its sign is +, as it is above line X and C_2 is decreased. The corresponding constant in line A is −0.07, the minus sign corresponding to a decrease in C_2. For a change of −30 in C_2, the percentage change for Table 3 is 0.26−0.07=0.19 per cent. For the assigned change of −20 in C_2, the required adjustment to the value in Table 3 is ⅔ of 0.19=0.13 per cent. At $\lambda=.71\ \mu$, the adjustment would be ⅔(−0.33−0.07)= −0.27 per cent, etc.

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