THIRTEEN-COLOR PHOTOMETRY OF 1380 BRIGHT STARS

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RESUMEN

Se presentan los datos finales obtenidos de nuestro programa de observación en el sistema fotométrico de 13 colores con ancho de banda intermedia.

Para declinaciones al norte de $-20°$ se observaron prácticamente todas las estrellas más brillantes que la quinta magnitud visual, y para declinaciones al sur de $-20°$, prácticamente todas las estrellas más brillantes que la cuarta magnitud visual. Las observaciones del norte y del sur han sido cuidadosamente comparadas entre sí y creemos que este sistema es muy homogéneo sobre todo el cielo.

La determinación de las longitudes de onda efectivas para cada filtro se discute en detalle y se deriva una nueva calibración absoluta del sistema que se basa en todos los datos disponibles. Por lo tanto este sistema fotométrico debe ser útil para la estandarización tanto de otros sistemas fotométricos como de espectrofotometría de banda angosta.

ABSTRACT

In this paper we publish our final data from our extended program of the observation on our 13-color medium-narrow-band photometric system. We have observed essentially all of the stars brighter than the fifth visual magnitude north of declination $-20°$, and essentially all of the stars brighter than the fourth visual magnitude south of declination $-20°$. The observations have been carefully tied together and we believe that the system is homogeneous to an unusual degree over the entire sky. The effective wavelengths of the filter-bands have been discussed in detail and a new absolute calibration, based upon all of the avalaible data is derived. This photometric system should be useful, therefore, for the standardization of other photometric systems, as well as the narrow-band spectrophotometry.

Key words: PHOTOMETRY, MEDIUM-NARROW-BAND.

I. INTRODUCTION

During much of the past 10 years, we have spent some time —off and on— observing bright stars on our 13-color medium-narrow-band photometric system. Up to the present time, we have observed essentially all of the stars brighter than the fifth visual magnitude which lie in the part of the sky which is easily accessible from an observing site near Tucson, i.e., from the north celestial pole to $-20°$ declination; we have also observed essentially all of the stars brighter than the fourth visual magnitude which lie in the region from $-20°$ declination to the south celestial pole. In addition to these, we have observed many other fainter stars from the Bright Star Catalogue.

Our latest work has been on the southern stars, south of declination $-20°$. Since we have now finished this last part of our observational work on this program, it is appropriate to summarize the work and to publish a final table containing all of the available observational data on our 13-color photometric system, for stars listed in the Catalogue of Bright Stars. Although some of these data and descriptions of the 13-color system have already been published elsewhere (Johnson, Mitchell and Latham 1967; Mitchell and Johnson 1969), we repeat them here so that this publication is complete in itself. Furthermore, many of the data published earlier have been revised and the data published here constitute the final homogeneous definition of the 13-color photometric system. These data are listed in the final table of this paper (Table 7); the star numbers in the first column and the star names are from the Catalogue of Bright Stars (Hoffleit 1964); the remaining columns are explained below.

II. INSTRUMENTATION

At the beginning, we decided to adopt essentially the system of Borgman (1963), plus six additional similar filter bands in the red and infrared. The system plan, compared with that for our UBVRI system (Johnson, Mitchell, Iriarte and Wiśniewski 1966) is shown in Figure 1. The wavelengths of maximum sensitivity and the half-intensity widths are indicated on the figure for the several filter bands.

Almost all of our northern observations (north of declination −20°) were obtained using the 21-inch photometric telescope of the Catalina observing station of the Lunar and Planetary Laboratory o the University of Arizona (unfortunately, this telescope has since been dismantled). A few observations were taken with the 28-inch telescope on the same site. The southern observations (those south of declination −20°), and the observations of northern stars needed to tie the northern and southern data together, were obtained with one of the 16-inch telescopes of the Cerro Tololo Inter-American Observatory in Chile. A few observations were taken with the Lowell 24-inch telescope on this site.

For this work, we separated the filter system into two parts. The first consists of the eight "blue" filter bands, called the 8-C system. The second consists of the five "red" filter bands plus one overlap band (the *58′* filter), called the 6-RC system. This separation was made so as to use the S-4 cathode of the RCA-1P21 and the S-1 cathode of the RCA-7102 photomultipliers with maximum efficiency. The RCA-7102 was used instead of the ITT FW-118 (which we tried first) because of its much greater stability and better linearity. Our primary purpose was the setting up of an accurate photometric system rather than the mere detection of the faintest possible objects. The FW-118 proved to be unsuitable for our purpose.

Two separate photometers, identical except for the filters and the photomultipliers, were constructed for this program. After the northern portion of this program was completed, these photometers were transported to Chile, where they were used to obtain

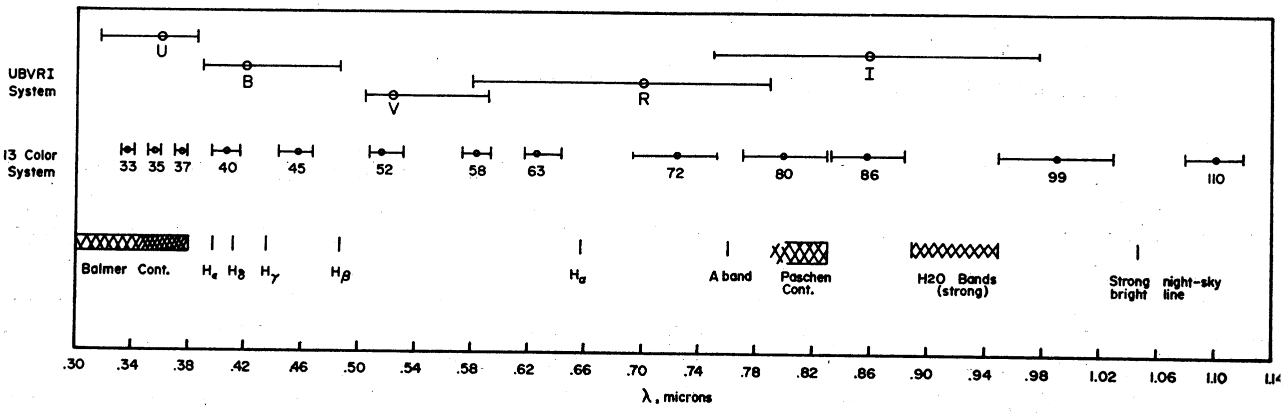

Fig. 1. The 13-color system compared with the UBVRI system and with certain stellar or atmospheric features.

the southern observations. Thus, this whole-sky photometric program is homogeneous to an unusual degree —the same photometers, filters and detectors, were used for both the northern and the sourthern observations. These two photometers are now in use at the Observatorio Astronómico Nacional in San Pedro Mártir, Baja California, where observations on the 13-color system are being made of additional bright stars and other fainter objects of astrophysical interest.

It can be seen from Figure 1 that the filters of the 13-color system are identified by numbers indicating their approximate effective wavelengths, i.e., *33, 35, 37, 40, 45, 52, 58, 63, 72, 80, 86, 99* and *110*. Thus, the *33* filter has an effective wavelength of approximately 0.33 micron (3300 Å), etc. There is an additional filter, *58′*, which is used to tie together the observations with the two photomultipliers on a purely color basis; the colors do not depend upon the differential stabilities of the two photomultipliers since the 8-C and 6-RC systems are tied together by duplicate observations in the *58* filter band. The *52* magnitudes depend only upon the 1P21, which has been demonstrated to be stable and very linear over a much wider range of magnitudes than are reported in this paper (Johnson and Morgan 1953).

The filter-detector response functions are presented in tabular form in Tables 1 and 2; all data have been normalized to 100 percent at the filter-band peaks. Table 3 contains certain derived data for the 13 bands of the system. The effective wave-

TABLE 1

FILTER-DETECTOR RESPONSE FUNCTIONS
PERCENT OF PEAK RESPONSE

33		35		37		40		45		52		58		63	
λ(A)	%	λ(A)	%	λ(A)	%	λ(A)	%	λ(A)	%	λ(A)	%	λ(A)	%	λ(A)	%
3157	0.7	3060	0.1	3204	0.2	3187	0.2	4004	0.1	4704	0.4	5249	0.0	6024	0.1
3254	6.9	3204	2.2	3500	2.4	3404	1.1	4254	1.0	4904	3.2	5604	7.7	6077	4.4
3293	21.5	3404	8.8	3603	6.7	3602	2.7	4354	7.1	5004	15.0	5648	14.6	6111	17.5
3311	33.3	3461	19.0	3672	22.2	3749	5.3	4382	15.9	5028	20.4	5693	26.4	6142	31.5
3317	43.4	3490	28.8	3690	33.3	3805	7.7	4400	23.8	5048	30.0	5717	37.4	6157	43.3
3319	45.7	3504	38.9	3704	44.4	3904	20.5	4413	31.7	5062	39.5	5735	49.4	6170	52.5
3328	58.7	3515	48.6	3708	47.8	3935	33.9	4424	39.7	5077	48.8	5749	57.1	6180	61.2
3337	71.5	3522	59.2	3711	55.6	3956	45.2	4437	47.6	5082	55.5	5755	61.7	6194	69.6
3345	84.5	3533	69.5	3717	66.7	3964	49.7	4443	55.6	5086	58.0	5762	65.5	6201	79.6
3354	96.6	3538	79.7	3726	77.8	3974	56.5	4451	63.5	5095	65.1	5770	75.3	6208	87.5
3358	99.7	3547	89.7	3734	88.9	3988	67.8	4460	71.4	5107	76.1	5783	83.1	6211	89.2
3380	91.4	3565	100.0	3748	97.8	4003	79.1	4472	79.4	5117	84.9	5798	88.8	6223	90.6
3388	79.3	3576	90.5	3750	100.0	4024	90.4	4487	87.3	5130	92.8	5810	97.2	6230	96.3
3396	68.7	3584	80.5	3767	88.9	4070	100.0	4520	95.2	5160	99.8	5827	100.0	6245	98.7
3399	66.9	3586	70.4	3776	77.8	4113	90.4	4571	100.0	5177	99.2	5850	96.3	6252	99.7
3410	54.2	3599	61.0	3782	66.7	4131	79.1	4597	95.2	5226	96.3	5854	95.2	6267	96.7
3422	41.1	3610	51.2	3794	55.6	4146	67.8	4615	87.3	5248	91.7	5884	80.0	6288	96.2
3442	27.7	3612	40.7	3803	44.4	4159	56.5	4630	79.4	5269	81.1	5907	66.5	6310	90.0
3448	22.8	3626	30.8	3818	33.3	4170	45.2	4643	71.4	5284	70.9	5925	54.5	6349	81.5
3491	8.8	3642	21.0	3842	22.2	4185	33.9	4654	63.5	5292	62.5	5940	45.7	6355	77.0
3602	1.2	3704	6.0	3884	11.1	4203	22.6	4669	55.6	5302	54.3	5956	36.4	6443	47.6
3719	0.1	3830	0.1	3904	8.9	4236	11.3	4679	47.6	5316	46.0	5971	29.0	6601	21.2
				4082	0.0	4254	6.9	4694	39.7	5322	37.4	5981	23.4	6691	8.2
						4304	2.0	4708	31.7	5336	30.4	5986	21.8	6840	5.1
						4564	0.0	4730	23.8	5350	22.0	6001	16.6	6987	2.3
								4772	16.0	5375	13.8	6021	10.9	7134	0.8
								4876	7.9	5404	7.3	6048	6.4		
								4999	4.1	5523	1.0	6099	2.3		
								5309	1.6	5704	0.2	6104	1.9		
								5604	0.5			6229	0.2		

TABLE 2

FILTER-DETECTOR RESPONSE FUNCTIONS PERCENT OF PEAK RESPONSE

58'		72		80		86		99		110	
λ(Å)	%	λ(Å)	%	λ(Å)	%	λ(Å)	%	λ(Å)	%	λ(Å)	%
5560	0.2	6650	0.9	7600	1.5	8200	1.4	9200	2.3	10200	5.0
5580	0.3	6700	1.3	7650	2.6	8233	2.3	9250	2.7	10300	10.6
5600	0.4	6750	1.8	7700	9.0	8267	8.0	9300	4.3	10400	16.0
5620	0.5	6800	2.3	7750	32.2	8300	26.6	9350	7.0	10500	23.1
5640	0.7	6850	8.6	7800	67.5	8333	64.5	9400	10.6	10600	36.3
5660	1.4	6900	18.1	7850	87.6	8367	99.7	9450	23.8	10700	52.3
5680	2.6	6950	80.4	7900	88.7	8400	81.7	9500	39.9	10800	72.9
5700	5.5	7000	87.1	7950	92.9	8433	76.7	9550	72.6	10900	88.6
5720	15.0	7050	86.7	8000	100.0	8467	77.2	9600	99.9	11000	100.0
5740	40.1	7100	86.1	8050	98.5	8500	82.4	9650	100.0	11100	96.3
5760	78.4	7150	89.9	8100	85.3	8533	94.3	9700	86.5	11200	78.9
5780	94.2	7200	96.3	8150	77.1	8567	98.8	9750	79.4	11300	66.3
5800	92.6	7250	100.0	8200	74.0	8600	100.0	9800	76.9	11400	48.0
5820	94.0	7300	99.4	8250	32.3	8633	98.9	9850	74.3	11500	36.3
5840	99.5	7350	96.2	8300	15.8	8667	93.1	9900	73.2	11600	28.6
5860	100.0	7400	88.9	8350	3.0	8700	90.7	9950	70.7	11700	21.1
5880	96.0	7450	81.6	8400	1.4	8733	87.3	10000	66.1	11800	17.4
5900	91.2	7500	65.7			8767	79.9	10050	61.5	11900	13.7
5920	90.9	7550	45.4			8800	70.8	10100	53.1	12000	10.0
5940	86.2	7600	21.8			8833	55.5	10150	47.4		
5960	59.4	7650	11.1			8867	32.1	10200	37.1		
5980	26.8	7700	5.0			8900	14.0	10250	29.2		
6000	11.7	7750	2.1			8933	6.3	10300	18.6		
6020	5.0	7800	1.3			8967	3.7	10350	10.8		
6040	2.5					9000	1.8	10400	6.5		
6060	1.3							10450	3.1		
6080	0.7							10500	2.0		
6100	0.2							10550	1.2		
6120	0.2							10600	0.5		
6140	0.0										

lengths and rectangular effective bandpasses are given in the second and third columns, while the absolute calibration of the system (to be described below) is given in the last column.

The observations were made in the manner described by Johnson and Morgan (1953), a procedure which has long been standard in our work. A description of a photometer system similar to those employed in this work was given by Johnson and Mitchell (1962).

A summary of the data reduction procedures also appears there, but a more detailed description will be published in the near future by Mitchell. Most of the observations of "northern" stars were made by Mr. A. S. Latham and Mr. E. Rhoads. Most of the "southern" observations were made by Mr. Fred Forbes and Mitchell (approximately equal numbers each), but a few of the "southern" observations were made by Mr. W. Stonaker. In addition to our own observations, we have republished in Table 7

TABLE 3

ABSOLUTE CALIBRATIONS FOR THE 13 FILTER-BANDS

Filter	λ (Å)	Effective Rectangular Bandpass (%)	Relative Energy of our mean A0 V Star* (mag)
33	3371	3.3	+0.263
35	3536	3.6	+0.302
37	3751	3.4	+0.005
40	4030	5.6	−0.640
45	4571	6.1	−0.381
52	5183	5.0	0.000
58	5827	3.8	+0.670
63	6356	5.1	+0.670
72	7241	8.1	+1.087
80	8000	5.4	+1.436
86	8584	5.6	+1.652
99	9831	5.9	+1.973
110	11084	7.4	+2.384

* The flux density for zero magnitude A0 V (the mean of our six A0 V stars) for filter *52* is 4.30×10^{-12} watt cm^{-2} μ^{-1}.

the southern 8-C observations by Mendoza (1969, 1971*a*, 1971*b* and 1971*c*). Mendoza used a duplicate set of the 8-C filters (manufactured at the same time as the set we used), with different detectors (EMI-6256A and other RCA-1P21), for his observations. There is sufficient overlap between Mendoza's observations and ours so that we were able to establish that his data are exactly on our system (this is the expected result because of the essentially common filters). We have, therefore, included Mendoza's data in Table 7 as if the observations had been made with our photometers. Since these two series of "southern" observations were independently tied to the "northern" system, their agreement is strong evidence of the homogeneity of our photometry over the entire sky.

We have made extensive comparisons of the "northern" data with other series of photometric observations. No significant systematic errors appear to exist in our final data. We do not repeat here these comparisons but, instead, refer the reader to the papers of Mitchell and Johnson (1969) and Johnson, Mitchell and Latham (1967).

Furthermore, we have made comparisons with the southern data of Willstrop (1960, 1969) with the extensive wide-band photometry done at the Royal Observatory at the Cape of Good Hope, South Africa (Cousins and Stoy 1963; Cousins *et al.* 1966). From these comparisons (as well as the comparison with Mendoza's work), we have every reason to believe that the 13-color photometric system is homogeneous and free from significant systematic errors, either in right ascension or declination. In particular, there is no discernible systematic difference between our "northern" and our "southern" observations.

Our observational procedure always includes the taking of a reading of a stable standard light source immediately following every observation of each star; this standard-source reading is then used to calibrate the photometer for this observation. Unfortunately, during one of the southern observing runs the standard light source was not operating correctly and it was therefore not possible to make these gain calibrations. Of course, the colors of the stars were not affected because our reduction procedure works entirely in terms of colors, except for the *52* magnitude (this is true even between the 8-C and the 6-RC observations because of the duplication of the *58* filter in the two photometers). Because we do not trust magnitudes not calibrated by a standard source, we omitted our *52* magnitudes for these few stars and substituted Cape V magnitudes (Cousins and Stoy 1963; Cousins *et al.* 1966) transformed to *52* by the equation

$$52 = V + 0.378(52 - 58) + 0.225(52 - 58)^2 \quad (1)$$

In Table 7, an X immediately to the left of the *52* magnitude designates a *52* magnitude derived in this fashion.

III. THEORY OF FILTER PHOTOMETRY

There are several methods which have been used to define the effective wavelengths of filter bands such as ours. Probably the simplest (and crudest) one is to take the wavelength of the maximum response (peak wavelength) as representative of the filter performance. A more refined method, which takes into account both the wavelength dependences of the filter transmission and of the emission from the star, has often been used. The formula by which this wavelength is calculated is

$$\lambda_e = \int_0^\infty \lambda S(\lambda)\, \phi(\lambda)\, d\lambda \Big/ \int_0^\infty S(\lambda)\, \phi(\lambda)\, d\lambda, \quad (2)$$

where $S(\lambda)$ is the relative spectral energy distribution of the source and $\phi(\lambda)$ is the relative sensitivity of the measuring instrument, including the telescope. Since this wavelength, λ_e, depends upon $S(\lambda)$, the spectral energy distribution of the source star, it is evident that there is a different value of λ_e for each star. This means that, if we were to adopt this definition for the effective wavelengths of our observations, we would have to give not merely a single table of effective wavelengths, but such a table *for each star*. Obviously, it would be much more convenient if a single effective wavelength, independent of the spectrum of the source star, can be specified for each filter band. Fortunately, it is indeed possible to specify such a source-independent effective wavelength.

This is done by defining the effective wavelength of a filter-band as

$$\lambda_0 = \int_0^\infty \lambda\, \phi(\lambda)\, d\lambda \Big/ \int_0^\infty \phi(\lambda)\, d\lambda \quad (3)$$

This expression is Equation (2) with the source spectrum omitted (set to unity for all wavelengths). The appropriateness of this definition has been discussed by Strömgren (1937), Wesselink (1950) and King (1952*a*, 1952*b*). King (1952*b*) also showed how the use of Equation (2) as an effective wavelength definition leads to misinterpretation of the results of broadband photometry.

Filter-magnitudes behave to a first-order approximation like monochromatic magnitudes at wavelength λ_0. In fact, Equation (3) is the result when the second order term of the Taylor's expansion of the ratio of the filtered intensities of two stars is set to zero (King 1952*a*); only third and higher-order terms remain which, as we shall see, are quite small for the narrow filters of the 13-color system.

With this concept, there is no meaningful way to define the effective wavelength of a single star, unless the definition tacitly assumes a second star (or a standard lamp) as the standard. This is not a significant restriction, however, since we want ultimately to calibrate our 13-color measures in terms of a calibrated standard lamp, or other calibrated source. The problem of defining effective wavelengths for the filter bands can be rendered manageable by choosing a single (approximate) effective wavelength, e.g., Equation (3) for each filter band, no matter how broad, and correcting the observed magnitude differences (or intensity ratios) for the errors (the higher-order terms of the Taylor's expansion) introduced by this approximation.

Thus, under this concept, the meaning of the term "effective wavelength" is the following: the effective wavelength of a comparison of two stars (or a star and a standard lamp) by the same instrument is that wavelength at which a monochromatic receiver would measure the same magnitude difference as does the actual instrument. (The term "monochromatic" is not used here in the strict sense, but refers to a smoothed energy distribution over the region of the filter bandpass). It therefore follows that we must choose a type of star (or even a single star) which we adopt as the standard of reference. This is, of course, standard procedure in setting up photometric systems; a particular star, or the mean of several stars, is chosen to have color-indices equal to zero and appropriate zero-point corrections are made to all other star's observations.

When the UBV system was originally defined (Johnson and Morgan 1953), it was decided, for good reasons explained there, to set the zero-points of the color-indices to zero for the unweighted mean values for six bright stars of spectral class A0 V; these six stars are: α Lyr, γ UMa, 109 Vir, α CrB, γ Oph and BS 3314. We have adopted the same definition of the zero-points of the color-indices for the 13-color system, i.e., the means of the 12 color-indices observed for these six stars are zero, by definition. This means that the absolute calibration of the 13-color system which is derived below applies, strictly speaking, solely to stars whose "smoothed monochromatic" spectral energy distributions are the same as the mean A0 V star, represented by the mean values for the six stars listed above. When our absolute calibration is applied to stars or other objects which have spectral energy distributions different from the standard, corrections for the error introduced by our effective wavelength approximation must be applied.

At this point a small digression is in order. It has recently become common practice among photometric observers, especially infrared observers, to use the single star, α Lyr, as the reference standard. Intrinsically, this practice is just as valid as our adoption of the mean values of six A0 V stars as our standard. There is, however, a strong tendency to ignore the fact that the actual colors of α Lyr are *not* identical with those of our mean A0 V star (also, V = +0.04 for α Lyr, *not* 0.00). The zero-points of our several photometric systems, the UBV system (Johnson and Morgan 1953), the UBVRIJKL system (Johnson, Mitchell, Iriarte and Wiśniewski 1966) and the present 13-color system are all set by the mean values for the stars: α Lyr, γ UMa, 109 Vir, α CrB, γ Oph, and BS 3314. Unless the differences between the colors of α Lyr and our mean A0 V star (and the difference of the V-magnitude of α Lyr from zero) are taken into account, significant systematic errors in comparisons with our data may result.

At this point, we introduce a second approximation: we assume that the corrections to be applied to the absolute fluxes obtained by the use of our absolute calibration can be computed from the differences in the *black-body* gradients of the A0 V standard and the other observed objects. For example, we compute the correction to the flux observed through the *52* filter by the following procedure: first, we compute a table of corrections for the *52* filter, as a function of black-body temperature; the correction is zero for a 15 000°K black-body, which has the same gradient in the region of the *52* filter as does the A0 V standard. Second, we compute the temperature of the black-body which has the same gradient between the *52* and *58* filters as does the observed object (the *45* and *52* filters could also be used). It will normally be sufficient for this purpose to use the uncorrected absolute calibration for the two filters, although a correction could be included by a second iteration. Third, the correction to the flux measured by the *52* filter is interpolated from the black1body correction table wich we computed above as the first step in this correction procedure. Therefore:

a) Table 4a contains the correction factors by which the computed fluxes derived through the use of our absolute calibration are to be multiplied. These correction factors are, by definition, unity for an A0 V star whose colors are zero. These correction factors differ from unity by significant amounts only for observations of cool star using the shorterwavelength filters.

b) Table 4b contains the computed black-body color gradients for the several colors, with zero-points made zero at the mean A0 V star. One enters Table 4b to obtain black-body temperatures corresponding to the observed color-indices; then, one enters Table 4a with these temperatures to obtain the corrections to the observed flux densities.

This procedure is quite manageable but, in these days of the ubiquitous computer, it can be made even more convenient. Table 5 contains a FORTRAN IV program, written for the DEC SYSTEM-10 of the University of Arizona, which computes the corrected flux densities directly from the tabulated magnitude and colors. The corrections are computed from parabolic approximations, with precision more than sufficient for this purpose. This program can easily be revised to work with other computers, and magnetic tapes of the data contained in Table 7 can be obtained by communicating with one of the authors. There will be a charge sufficient to cover the costs of producing such tapes.

IV. ABSOLUTE CALIBRATION

We have discussed the absolute calibrations of our photometric systems several times, each time adding new data as it became available. Our last published rediscussion (Mitchell and Johnson 1969) did not, of course, include the more recent calibrations by Oke and Schild (1970) and by Hayes (1970). When the last two publications appeared, we compared them with our 1969 calibrations and found that our results for α Lyr are very similar *in color* to those of Oke and Schild and of Hayes, but that the new calibrations are about 10 percent fainter than our 1969 calibration. This 10 percent difference is nearly independent of color.

It apparently is true that the older absolute stellar calibrations (c.f., Mitchell and Johnson 1969) lead to very nearly the same absolute colors for α Lyr as do the two new ones, but that they also lead to an overall flux density that is about 10 percent higher than that obtained by Oke and Schild and by Hayes.

TABLE 4a

COMPUTED CORRECTION FACTORS, FROM MEASURED FILTER MAGNITUDES TO MONOCHROMATIC MAGNITUDES AT THE FILTER EFFECTIVE WAVELENGHTS

Temp. °K	33	35	37	40	45	52	58	63	72	80	86	99	110
1000	0.786	0.730	0.809	0.726	0.591	0.911	0.953	0.913	0.940	0.979	0.983	0.983	0.983
1500	0.917	0.880	0.928	0.877	0.865	0.971	0.987	0.979	0.987	0.997	0.997	1.000	1.005
2000	0.961	0.939	0.970	0.939	0.951	0.990	0.997	0.996	1.000	1.001	1.001	1.004	1.008
2500	0.980	0.967	0.988	0.968	0.983	0.998	1.001	1.003	1.005	1.003	1.002	1.005	1.008
3000	0.989	0.983	0.996	0.984	0.996	1.001	1.002	1.005	1.006	1.003	1.002	1.005	1.007
4000	0.996	0.995	1.004	0.996	1.006	1.003	1.003	1.006	1.006	1.003	1.002	1.003	1.005
5000	0.999	1.000	1.006	1.000	1.007	1.003	1.003	1.005	1.005	1.002	1.001	1.002	1.003
6000	1.000	1.002	1.007	1.001	1.006	1.003	1.002	1.004	1.004	1.002	1.000	1.001	1.003
8000	1.000	1.002	1.007	1.000	1.005	1.002	1.002	1.003	1.002	1.001	1.000	1.000	1.000
10000	1.000	1.001	1.006	0.998	1.003	1.001	1.001	1.002	1.001	1.000	0.999	0.999	0.999
15000	0.998	0.998	1.005	0.994	0.999	1.000	1.000	1.000	0.999	1.000	0.999	0.998	0.997
20000	0.998	0.997	1.004	0.993	0.998	0.999	1.000	0.999	0.998	0.999	0.998	0.998	0.994
30000	0.997	0.995	1.003	0.991	0.996	0.999	1.000	0.999	0.998	0.999	0.998	0.997	0.994
60000	0.996	0.994	1.002	0.988	0.995	0.998	0.999	0.998	0.997	0.999	0.998	0.997	0.995
100000	0.996	0.993	1.001	0.987	0.994	0.998	0.999	0.998	0.997	0.999	0.997	0.997	0.995

TABLE 4b

COMPUTED BLACK-BODY RELATIVE GRADIENTS

Temp.°K	33-35	35-37	37-40	40-45	45-52	52-58	58-63	63-72	72-80	80-86	86-99	99-110
1000	1.987	1.773	2.021	4.511	3.111	3.002	2.121	2.664	1.809	1.160	1.890	1.562
1500	1.238	0.979	1.004	2.721	2.170	1.925	1.340	1.648	1.161	0.721	1.117	0.959
2000	0.860	0.579	0.498	1.901	1.608	1.381	0.960	1.197	0.829	0.501	0.732	0.661
2500	0.634	0.338	0.197	1.424	1.270	1.052	0.735	0.900	0.628	0.369	0.503	0.484
3000	0.485	0.175	-0.003	1.109	1.005	0.832	0.586	0.702	0.494	0.281	0.352	0.368
4000	0.300	-0.030	-0.249	0.718	0.691	0.559	0.398	0.457	0.327	0.174	0.168	0.229
5000	0.191	-0.154	-0.395	0.485	0.502	0.394	0.293	0.313	0.228	0.112	0.062	0.149
6000	0.119	-0.237	-0.490	0.330	0.376	0.287	0.222	0.219	0.165	0.072	-0.005	0.099
8000	0.031	-0.341	-0.607	0.139	0.221	0.157	0.138	0.108	0.090	0.026	-0.084	0.040
10000	-0.020	-0.402	-0.674	0.029	0.132	0.083	0.091	0.046	0.048	-0.002	-0.127	+0.008
15000	-0.084	-0.480	-0.757	-0.110	0.023	-0.007	0.033	-0.030	0.004	-0.035	-0.180	-0.032
20000	-0.113	-0.515	-0.795	-0.172	-0.028	-0.048	0.007	-0.065	-0.027	-0.047	-0.207	-0.051
30000	-0.139	-0.548	-0.829	-0.230	-0.073	-0.086	-0.017	-0.097	-0.049	-0.061	-0.230	-0.069
60000	-0.162	-0.577	-0.858	-0.281	-0.114	-0.120	-0.039	-0.126	-0.069	-0.074	-0.252	-0.085
100000	-0.170	-0.587	-0.869	-0.299	-0.129	-0.132	-0.047	-0.137	-0.076	-0.078	-0.257	-0.092

We have made several recent attempts to resolve this discrepancy and, during the same time, Hayes and Latham (1975) published a rediscussion of the work of Oke and Schild (1970) and of Hayes (1970). Hayes and Latham ignored all of the older work upon which we based our 1969 calibration because they "judged them to have inferior accuracy or because not enough information was available for us to judge their accuracy". We do not agree with their judgment on this matter, nor do we agree with them that "it will be difficult to improve the calibration of Vega shortward of 10 000 Å using ground- based observations".

We believe that the rediscussion by Hayes and Latham (1975) leaves much to be desired, if only because of their use of "fabricated extinction coefficients" (sic) instead of measured coefficients. In fact, they recognize this weakness in their discussion and emphasize that absolute calibration must rely only upon measured nightly extinction coefficients.

TABLE 5

A FORTRAN IV PROGRAM FOR THE COMPUTATION OF ABSOLUTE FLUX DENSITIES FROM THE 13-COLOR PHOTOMETRY

```
C         PROGRAM MK13FX.F4
          DIMENSION STAR(2), SP(2), C(12), F(13)
          DIMENSION CAL(14), CNAR(13), STMAG(13), FLUX(13)
          CALL IFILE (6,'CAL.DTA')
          CALL IFILE (9,'SLIM.DAT')
          CALL OFILE (10,'FLUX.DAT')
          READ (6,77) CAL
77        FORMAT (13F8.3,1PE10.2)
          TYPE 77, CAL
1         READ (9,177,END=4) IDA, RMRK, CNAR, NR
177       FORMAT (I4,A3,28X,13F7.3,4X,I2)
          IF (IDA) 4,7,2
2         STMAG(6)=CNAR(1)
          DO 10 K=1,5
          STMAG(K)=CNAR(1)+CNAR(K+1)
10        CONTINUE
          DO 20 K=7,13
          STMAG(K)=CNAR(1)-CNAR(K)
20        CONTINUE
          DO 25 K=1,12
          C(K)=STMAG(K)-STMAG(K+1)
25        CONTINUE
          DO 30 K=1,13
          STMAG(K)=STMAG(K)+CAL(K)
          FLUX(K)=CAL(14)/(10**(0.4*STMAG(K)))
30        CONTINUE
          F(1)=0.999+0.011476*C(1)-0.05738*(C(1)**2.)
          F(2)=0.997-0.04776*C(2)-0.09184*(C(2)**2.)
          F37A=1.0-0.026667*C(2)-0.053333*(C(2)**2.)
          F37B=0.992-0.030167*C(3)-0.030167*(C(3)**2.)
          F(3)=(2.0*F37A+F37B)/3.
          F(4)=1.002+0.016265*C(4)-0.024644*(C(4)**2.)
          F(5)=0.992+0.042724*C(5)-0.050862*(C(5)**2.)
          F(6)=0.997+0.012429*C(6)-0.01381*(C(6)**2.)
          F(7)=1.0+0.007833*C(6)-0.007833*(C(6)**2.)
          F(8)=0.996+0.018*C(8)-0.018*(C(8)**2.)
          F(9)=0.997+0.024564*C(9)-0.030704*(C(9)**2.)
          F(10)=1.0+0.013401*C(9)-0.013401*(C(9)**2.)
          F(11)=0.997+0.02029*C(10)-0.02899*(C(10)**2.)
          F(12)=0.997+0.01476*C(11)-0.0123*(C(11)**2.)
          F(13)=0.990+0.0368*C(12)-0.02831*(C(12)**2.)
          DO 40 K=1,13
          FLUX(K)=FLUX(K)*F(K)
40        CONTINUE
          IF (NR) 31,31,32
31        WRITE (10,577) IDA, RMRK, (FLUX(I), I=1,8)
577       FORMAT (I4,A3,2X,8(1PE9.2),35X)
          GO TO 1
32        WRITE (10,677) IDA, RMRK, FLUX
677       FORMAT (I4,A3,2X,13(1PE9.2))
          GO TO 1
7         WRITE (10,777)
777       FORMAT (/)
          GO TO 1
4         CALL EXIT
          END
```

A new effort to obtain an absolute calibration of the 13-color photometric system is now being made by Chavarría and Johnson. We are measuring extinction coefficients carefully in all 13 filter bands, on each night. The calibrations of the standard lamps are based upon calibrations by the National Bureau of Standards.

TABLE 6

THREE ABSOLUTE CALIBRATIONS AT λ5556 Å FOR α LYR

Observer	Flux Density (10^{-12} watt cm^{-2} μ^{-1})
Hayes and Latham (1975)	3.39
Chavarría and Johnson (1975)	3.25
Mitchell and Johnson (1969)	3.75

Table 6 contains the results from three different, independent, absolute calibrations of α Lyr for λ5556 Å, that of Mitchell and Johnson (1969) based upon work earlier than 1969, that of Hayes and Latham (1975) and a new, tentative result from our first observing run in Baja California (Chavarría and Johnson 1975). The third calibration is tentative and subject to revision, but it does agree well (4 percent) with that of Hayes and Latham. Nevertheless, we cannot arbitrarily disregard the older data and we feel that an appropriate value for α Lyr at λ5556 Å might be about $3.45 - 3.50 \times 10^{-12}$ watt cm^{-2} μ^{-1}. In the units of Hayes and Latham, this is $3.45 - 3.50 \times 10^{-9}$ erg cm^{-2} s^{-1} Å^{-1}. This translates to about 4.30×10^{-12} watt cm^{-2} μ^{-1}, for mag (*52*) = 0.00, and this value has been entered in Table 3 as the absolute calibration for magnitude *52*. We have revised slightly our older color calibration in view of the more recent work by Oke and Schild and by Hayes; the revised values are listed in Table 3. We believe that this calibration is the best available today, but we intend to continue our efforts to improve the absolute calibration. The 13 numbers in column 4 of Table 3, plus the absolute calibration for mag *52* are, of course, the 14 numbers called from CAL.DTA by the FORTRAN IV program listed in Table 5.

This work has been supported in part, over the years, by the National Aeronautics and Space Administration. Much of the reduction of the "southern" observations was done by Mitchell at the University of Texas; we are grateful for the financial support supplied by Dr. Harlan Smith during this time. The final work and the preparation of the tables and this paper for publication was done at the University of Arizona; this financial support was provided by the University of Arizona, which made available the time on the DEC SYSTEM-10 and CDC 6400 computers.

Filters which will duplicate the performance of those that we used to define the 13-color photo-

TABLE 7
THIRTEEN COLOR PHOTOMETRY OF BRIGHT STARS

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
3	33 PSC	K1 III		4.879	1.674	1.468	1.578	1.363	0.451	0.523	0.831	1.074	1.304	1.452	1.604	1.762	3	2
15	ALF AND	B9 P (III)		2.061	-0.779	-0.734	-0.478	-0.167	-0.051	-0.014	-0.034	-0.051	-0.064	-0.104	-0.151	-0.161	2	3
21	BET CAS	F2 IV		2.367	0.366	0.277	0.266	0.376	0.169	0.190	0.322	0.434	0.534	0.549	0.592	0.663	8	3
25	EPS PHE	K0 III	X	4.129	1.743	1.437	1.596	1.324	0.491	0.508	0.759	0.987	1.221	1.357	1.497	1.730	2	2
27	22 AND	F2 II		5.120	0.766	0.607	0.334	0.429	0.219	0.242	0.387	0.549	0.676	0.734	0.818	0.943	2	3
33	6 CET	F6 V		5.018	0.207	0.114	0.305	0.541	0.257	0.259	0.428	0.611	0.763	0.789	0.827	0.930	2	1
39	GAM PEG	B2 IV		2.794	-1.428	-1.322	-0.891	-0.312	-0.077	-0.069	-0.110	-0.179	-0.241	-0.316	-0.446	-0.486	10	1
45	CHI PEG	M2 III		5.198	3.527	2.998	2.944	2.317	0.691	0.752	1.269	1.953	2.452	2.653	3.001	3.287	29	18
48 V	7 CET	GM1		4.894	3.757	3.222	3.146	2.504	0.771	0.786	1.311	1.984	2.475	2.689	3.023	3.253	3	1
63	THE AND	A2 V		4.638	0.105	0.083	0.079	0.056	0.020	0.077	0.056	0.066	0.118	0.099	0.126	0.142	2	2
68	SIG AND	A2 V		4.532	0.119	0.105	0.123	0.087	0.038	0.045	0.053	0.069	0.095	0.092	0.113	0.176	2	3
74	IOT CET	K2 III		3.855	2.306	2.068	2.073	1.702	0.541	0.577	0.910	1.193	1.446	1.591	1.773	1.960	3	2
77	ZET TUC	G2 V	X	4.369	0.380	0.239	0.463	0.665	0.316	0.312	0.490	0.720	0.885	0.932	1.040	0.898	2	2
98	BET HYI	G2 IV	X	2.939	0.560	0.411	0.572	0.737	0.342	0.312	0.495	0.725	0.858	0.904	0.973	1.187	2	2
99	ALF PHE	K0 III	X	2.686	1.842	1.515	1.680	1.407	0.525	0.567	0.852	1.155	1.410	1.529	1.739	1.962	2	2
100	KAP PHE	A7 VN	X	3.983	0.302	0.175	0.253	0.177	0.122	0.112	0.130	0.201	0.250	0.230	0.266	0.339	2	3
105	ETA SCL	M5	X	5.192	3.817	3.165	3.043	2.355	0.880	0.712	1.276	2.125	2.762	2.991	3.360	3.765	2	2
125	LAM 1 PHE	A0 V		4.760	0.049	0.023	0.053	0.031	0.020	0.012	0.006						3	0
126	BET 1 TUC	B8 V		4.367	-0.331	-0.304	-0.158	-0.054	0.004	-0.010	-0.024						1	0
127	BET 2 TUC	A2 V		4.611	0.075	0.024	0.156	0.159	0.056	0.109	0.172						1	0
123 D	LAM CAS	B8		4.715	-0.559	-0.514	-0.373	-0.121	-0.029	-0.014	-0.044	-0.003	-0.023	-0.082	-0.142	-0.126	2	3
130	KAP CAS	B1 IA		4.220	-1.043	-0.986	-0.582	0.068	0.142	0.092	0.164	0.219	0.271	0.261	0.218	0.286	2	3
153	ZET CAS	B2 V		3.685	-1.373	-1.246	-0.840	-0.269	-0.064	-0.052	-0.099	-0.149	-0.189	-0.252	-0.393	-0.432	2	3
154	PI AND	B5 V		4.368	-0.946	-0.864	-0.592	-0.180	-0.036	-0.014	-0.046	-0.058	-0.085	-0.139	-0.216	-0.190	2	2
163	EPS AND	G8 IIIP		4.560	1.176	0.932	1.043	1.077	0.432	0.415	0.679	0.938	1.170	1.257	1.411	1.576	2	3
165	DEL AND	K3 III		3.645	2.577	2.313	2.352	1.845	0.537	0.669	1.002	1.323	1.609	1.737	1.949	2.176	2	3
168	ALF CAS	K0 II-III		2.521	2.142	1.925	1.939	1.645	0.556	0.545	0.840	1.115	1.359	1.475	1.654	1.863	2	2
179	XI CAS	B2 V		4.825	-0.985	-0.910	-0.621	-0.174	-0.027	-0.016	-0.018	-0.056	-0.077	-0.104	-0.166	-0.153	2	2
180	MU PHE	G8 III	X	4.822	1.524	1.274	1.436	1.248	0.504	0.479	0.719	1.007	1.201	1.283	1.424	1.657	2	2
188	BET CET	K1 III		2.354	1.772	1.556	1.615	1.388	0.477	0.516	0.799	1.042	1.269	1.395	1.534	1.687	2	2
191	ETA PHE	A0 V		4.376	0.010	0.011	-0.057	-0.015	0.018	0.008	0.002						2	0
193	OMI CAS	B2 V		4.586	-0.778	-0.722	-0.531	-0.102	0.009	0.036	0.042	0.030	0.035	0.017	-0.050	0.033	2	1
194	PHI CET	K0 III		5.038	1.656	1.446	1.539	1.335	0.461	0.497	0.794	1.044	1.280	1.386	1.526	1.688	3	2
215 V.	ZET AND	K1 II		4.437	1.800	1.572	1.669	1.473	0.507	0.583	0.912	1.212	1.464	1.571	1.760	1.953	2	2
219 D	ETA CAS	G0 V		3.587	0.307	0.200	0.428	0.655	0.275	0.297	0.520	0.689	0.847	0.896	0.991	1.137	4	2
224	DEL PSC	K5 III		4.868	3.249	2.816	2.846	2.230	0.624	0.782	1.228	1.652	2.020	2.190	2.466	2.744	2	3
226	NU AND	B5 V		4.535	-0.947	-0.874	-0.580	-0.181	-0.034	-0.045	-0.063	-0.126	-0.150	-0.166	-0.263	-0.242	3	1
236	LAM HYI	M1 III	X	5.480	2.919	2.524	2.615	1.940	0.576	0.753	1.090	1.467	1.735	1.862	2.101	2.411	2	2
244		F8 V		4.931	0.387	0.305	0.464	0.646	0.281	0.273	0.465	0.619	0.774	0.796	0.860	0.981	2	3
248	20 CET	M0 III		5.181	3.430	2.935	2.933	2.327	0.674	0.805	1.263	1.756	2.132	2.300	2.593	2.834	3	3
253	UPS 1 CAS	K2 III		5.126	2.309	2.008	2.083	1.696	0.540	0.604	0.944	1.250	1.520	1.637	1.853	2.083	2	3
264 V	GAM CAS	B0 IV:E		2.270	-1.575	-1.511	-0.905	-0.165	0.022	0.008	0.086	0.129	0.191	0.089	-0.031	0.010	3	3
265	UPS 2 CAS	G8 III-IV		4.852	1.417	1.191	1.298	1.217	0.444	0.463	0.756	1.006	1.240	1.335	1.503	1.674	2	3
269	MU AND	A4 III		3.911	0.261	0.219	0.175	0.151	0.055	0.066	0.130	0.122	0.188	0.171	0.193	0.230	2	1
271	ETA AND	G8 III-IV		4.618	1.425	1.227	1.322	1.216	0.436	0.435	0.726	0.946	1.149	1.239	1.373	1.549	2	3
280	ALF SCL	B8 III P		4.302	-0.884	-0.832	-0.624	-0.195	-0.031	-0.036	-0.053						2	0
285		K2 III		4.537	2.370	2.145	2.184	1.757	0.551	0.589	0.913	1.197	1.465	1.577	1.755	1.991	1	3
294	EPS PSC	K0 III		4.508	1.474	1.240	1.340	1.256	0.471	0.440	0.768	1.042	1.260	1.357	1.507	1.634	2	2
322 D	BET PHE	G8 III	X	3.527	1.335	1.088	1.218	1.132	0.462	0.453	0.656	0.877	1.082	1.181	1.333	1.509	3	6
334	ETA CET	K3 III		3.758	2.154	1.930	1.988	1.608	0.499	0.581	0.903	1.179	1.419	1.539	1.721	1.926	2	3
335 D	PHI AND	B7 V		4.251	-0.556	-0.497	-0.438	-0.105	-0.006	0.013	0.016	-0.008	0.009	0.004	-0.017	0.065	2	2
337	BET AND	M0 III		2.510	3.545	3.006	3.008	2.365	0.685	0.807	1.287	1.873	2.309	2.493	2.801	3.062	2	3
338 V	ZET PHE	B7 V		4.097	-0.759	-0.696	-0.431	-0.133	-0.024	0.006	-0.036						1	0
343	THE CAS	A7 V		4.391	0.302	0.258	0.235	0.220	0.081	0.096	0.144	0.179	0.217	0.230	0.264	0.268	2	3
351	CHI PSC	G8 III		4.900	1.647	1.455	1.523	1.368	0.494	0.485	0.759	1.015	1.236	1.336	1.502	1.705	2	3
352	TAU PSC	K0 III-IV		4.784	1.872	1.698	1.761	1.474	0.492	0.543	0.850	1.100	1.343	1.415	1.599	1.789	2	2
360	PHI PSC	K0 III		4.925	1.677	1.493	1.568	1.410	0.483	0.494	0.766	1.044	1.265	1.366	1.522	1.670	2	3
370	UPS PHE	F8 V		5.095	0.408	0.320	0.523	0.653	0.282	0.304	0.483						1	0
383	UPS PSC	A3 V		4.797	0.202	0.184	0.056	0.030	0.017	0.048	0.044	0.098	0.114	0.127	0.138	0.151	2	3
390	XI AND	K0 III-IV		5.143	1.900	1.698	1.760	1.474	0.485	0.524	0.807	1.074	1.254	1.399	1.574	1.798	2	2
399	PSI CAS	K0 III		5.005	1.761	1.592	1.675	1.422	0.473	0.527	0.815	1.055	1.287	1.394	1.546	1.746	2	3
402	THE CET	K0 III		3.921	1.789	1.596	1.666	1.414	0.481	0.527	0.839	1.058	1.308	1.426	1.592	1.779	2	3
403 V	DEL CAS	A5 V		2.690	0.289	0.252	0.193	0.148	0.059	0.084	0.105	0.172	0.223	0.225	0.244	0.299	3	3
417	OMG AND	F4 IV		4.937	0.181	0.116	0.282	0.493	0.214	0.223	0.377	0.522	0.637	0.650	0.715	0.819	2	2
424 V	ALF UMI	F8 IB		2.120	0.941	0.748	0.617	0.710	0.283	0.318	0.487	0.632	0.808	0.867	0.920	1.025	3	3
429	GAM PHE	K5 II	X	3.885	3.459	2.920	2.977	2.294	0.721	0.841	1.255	1.708	2.106	2.322	2.655	2.935	2	2
434	MU PSC	K4 III		5.232	2.858	2.412	2.485	1.964	0.581	0.721	1.123	1.508	1.839	1.978	2.238	2.490	2	2
437	ETA PSC	G8 III		3.849	1.507	1.323	1.370	1.264	0.456	0.442	0.730	0.956	1.164	1.266	1.406	1.565	2	3
440	DEL PHE	K0 III-IV	X	4.181	1.542	1.253	1.407	1.249	0.480	0.477	0.741	1.015	1.232	1.323	1.488	1.756	2	2
442	CHI CAS	G8 III		4.915	1.557	1.338	1.426	1.296	0.465	0.466	0.755	1.005	1.250	1.341	1.489	1.660	2	3
458	UPS AND	F8 V		4.226	0.300	0.211	0.374	0.596	0.252	0.279	0.444	0.624	0.764	0.795	0.848	0.949	4	3
464	51 AND	K3 III		3.927	2.491	2.250	2.285	1.820	0.534	0.651	1.000	1.324	1.598	1.707	1.895	2.112	3	2
472	ALF ERI	B3 VP	X	0.471	-0.979	-0.953	-0.686	-0.223	-0.012	-0.020	-0.091	-0.122	-0.173	-0.175	-0.252	-0.228	2	2
477	TAU AND	B8 IV		4.970	-0.661	-0.612	-0.505	-0.151	-0.021	0.002	-0.009	-0.035	-0.029	-0.056	-0.103	-0.129	2	3
483		G2 V		5.107	0.419	0.321	0.537	0.712	0.292	0.321	0.519	0.705	0.841	0.906	0.985	1.137	4	3
489	NU PSC	K3 III		4.818	2.819	2.439	2.503	1.961	0.572	0.699	1.101	1.441	1.755	1.912	2.139	2.375	2	2
493	107 PSC	K1 V		5.462	0.954	0.868	1.122	1.016	0.337	0.457	0.719	0.934	1.145	1.239	1.343	1.482	3	3
496 V	PHI PER	B2 PE		4.095	-1.357	-1.303	-0.776	-0.111	0.041	0.009	0.178	0.171	0.264	0.191	0.096	0.206	3	3
509	TAU CET	G8 VP		3.727	0.656	0.518	0.780	0.852	0.332	0.388	0.636	0.830	1.026	1.103	1.195	1.374	2	3
510	OMI PSC	G8 III		4.493	1.500	1.322	1.378	1.252	0.437	0.453	0.729	0.975	1.184	1.293	1.420	1.525	2	3
531	CHI CET	F2 IV		4.719	0.228	0.159	0.263	0.378	0.169	0.187	0.283	0.377	0.495	0.505	0.510	0.585	2	2
539	ZET CET	K2 III		3.986	2.018	1.793	1.847	1.534	0.509	0.530	0.831	1.107	1.340	1.467	1.647	1.861	2	3
542	EPS CAS	B3 IV:P		3.350	-0.972	-0.886	-0.648	-0.207	-0.045	-0.040	-0.054	-0.109	-0.124	-0.152	-0.269	-0.261	2	2
544	ALF TRI	F6 IV		3.548	0.342	0.229	0.342	0.546	0.242	0.266	0.424	0.570	0.706	0.757	0.795	0.899	2	2
545/6	GAM ARI	B9 V/A1P		3.895	-0.239	-0.232	-0.144	-0.048	-0.038	0.021	0.017	-0.011	-0.014	-0.039	-0.047	-0.022	2	2
549	XI PSC	K0 III		4.838	1.481	1.303	1.388	1.236	0.430	0.460	0.716	0.959	1.185	1.284	1.426	1.589	2	2
553	BET ARI	A5 V		2.710	0.211	0.145	0.193	0.159	0.042	0.080	0.104	0.136	0.171	0.164	0.205	0.234	2	2
555	PSI PHE	M4 III	X	4.740	3.689	2.982	2.907	2.235	0.858	0.636	1.246	2.219	2.884	3.164	3.605	3.945	2	2
566	CHI ERI	G5 IV	X	3.907	1.084	0.855	1.087	1.023	0.430	0.453	0.663	0.944	1.120	1.221	1.356	1.453	2	2
569	LAM ARI	F2 IV		4.850	0.296	0.219	0.252	0.333	0.145	0.159	0.242	0.348	0.417	0.436	0.477	0.565	2	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
570	ETA 2 HYI	G8 III	X	4.918	1.427	1.126	1.297	1.185	0.495	0.488	0.745	0.960	1.196	1.276	1.440	1.682	1	2
575	48 CAS	A4 V		4.518	0.208	0.155	0.192	0.203	0.076	0.080	0.130	0.184	0.235	0.249	0.263	0.301	2	4
580	50 CAS	A1 V		3.962	0.088	0.054	0.011	0.011	-0.002	0.032	0.027	0.034	0.044	0.029	0.047	0.083	2	3
585	UPS CET	M1 III	X	4.460	3.550	3.004	3.032	2.311	0.704	0.807	1.240	1.795	2.195	2.390	2.715	3.000	2	2
590	4 PER	B8 V		4.994	-0.440	-0.429	-0.419	-0.118	-0.007	0.002	0.000	0.023	0.027	0.035	-0.034	-0.024	2	3
591	ALF HYI	F0 V	X	2.943	0.484	0.322	0.322	0.354	0.178	0.177	0.218	0.331	0.402	0.423	0.483	0.591	2	2
603/4	GAM AND	K3 II+A		2.417	1.745	1.620	1.733	1.554	0.552	0.615	0.924						2	0
612	UPS FOR	A0 III(V) SI		4.677	-0.873	-0.811	-0.565	-0.207	-0.047	-0.049	-0.080						1	0
617	ALF ARI	K2 III		2.315	2.065	1.802	1.903	1.576	0.506	0.561	0.885	1.181	1.441	1.571	1.754	1.963	63	42
618		A1 IA		5.806	0.535	0.356	0.207	0.585	0.362	0.349	0.594	0.812	1.031	1.165	1.339	1.473	2	2
620	58 AND	A4 V		4.830	0.258	0.210	0.161	0.125	0.048	0.069	0.107	0.133	0.187	0.188	0.207	0.238	2	4
622	BET TRI	A5 III		3.071	0.297	0.248	0.176	0.164	0.062	0.083	0.131	0.174	0.220	0.225	0.248	0.322	2	2
648	19 ARI	M0 III		6.160	3.423	2.965	2.938	2.310	0.659	0.806	1.279	1.808	2.240	2.429	2.730	3.022	2	2
649	XI 1 CET	G8 II		4.581	1.360	1.099	1.171	1.144	0.437	0.417	0.687	0.907	1.118	1.204	1.339	1.513	2	2
664	GAM TRI	A0 V		4.040	0.004	0.000	0.025	0.017	0.002	0.031	0.018	0.024	0.038	0.041	0.053	0.072	2	2
674	PHI ERI	B8 V	X	3.565	-0.609	-0.631	-0.412	-0.160	0.001	0.003	-0.062	-0.094	-0.101	-0.134	-0.190	-0.164	2	2
681 V	OMI CET	M6 E		3.397	3.152	2.103	1.733	1.615	1.118	0.358	1.267	2.929	3.773	4.167	4.673	4.987	1	1
696	10 PER	B2 IA		6.339	-0.675	-0.658	-0.336	0.242	0.234	0.188	0.311	0.393	0.529	0.586	0.609	0.540	2	2
699	65 AND	K4 III		5.161	3.297	2.879	2.931	2.281	0.661	0.795	1.231	1.713	2.075	2.228	2.519	2.811	3	2
707 D	IOT CAS	A5P		4.513	0.109	0.065	0.146	0.151	0.041	0.110	0.143	0.189	0.280	0.254	0.260	0.331	2	3
708	RHO CET	B9 V		4.871	-0.035	-0.030	-0.127	-0.042	0.004	-0.001	0.008	-0.024	-0.018	0.007	-0.001	0.004	2	2
718	XI 2 CET	B9 III		4.284	-0.204	-0.185	-0.139	-0.066	-0.015	-0.006	-0.023	-0.031	-0.040	-0.059	-0.067	-0.067	56	31
740	SIG CET	F5 IV-V		4.830	0.242	0.173	0.297	0.502	0.249	0.237	0.400	0.526	0.656	0.707	0.727	0.880	2	2
749	OME FOR	B9		4.874	-0.182	-0.159	-0.152	-0.051	0.008	-0.030	-0.034						1	0
753		K3 V		6.138	1.369	1.176	1.479	1.210	0.298	0.605	0.908	1.180	1.410	1.512	1.666	1.669	6	18
779	DEL CET	B2 IV		4.059	-1.448	-1.338	-0.912	-0.319	-0.082	-0.085	-0.135	-0.166	-0.238	-0.298	-0.435	-0.450	3	1
788	12 PER	F9 V		5.034	0.429	0.326	0.497	0.661	0.261	0.283	0.459	0.615	0.759	0.796	0.865	1.005	2	2
789		A2 V		4.745	0.081	0.065	0.124	0.088	0.047	0.025	0.037						1	0
794	IOT ERI	K0 III	X	4.354	1.620	1.320	1.475	1.310	0.496	0.498	0.776	1.078	1.306	1.401	1.621	1.819	2	2
799	THE PER	F7 V		4.251	0.230	0.157	0.341	0.559	0.237	0.254	0.434	0.555	0.715	0.736	0.808	0.916	2	3
801	35 ARI	B3 V		4.659	-1.067	-0.954	-0.627	-0.179	-0.035	-0.038	-0.057	-0.111	-0.118	-0.185	-0.246	-0.229	2	2
804 D	GAM CET	A2 V		3.506	0.112	0.083	0.131	0.109	0.029	0.060	0.093	0.114	0.156	0.161	0.184	0.188	2	2
811	PI CET	B7 V		4.245	-0.733	-0.675	-0.498	-0.175	-0.041	-0.012	-0.034	-0.074	-0.109	-0.151	-0.180	-0.384	2	2
813	MU CET	F0 IV		4.353	0.280	0.219	0.273	0.344	0.141	0.187	0.291	0.368	0.446	0.477	0.510	0.589	2	2
818	TAU 1 ERI	F6 V		4.568	0.231	0.187	0.364	0.557	0.245	0.260	0.415	0.568	0.689	0.741	0.756	0.842	2	2
824	39 ARI	K1 III		4.802	1.997	1.798	1.861	1.535	0.510	0.550	0.843	1.132	1.364	1.487	1.660	1.855	2	3
834	ETA PER	K3 IB		4.244	3.317	2.952	2.892	2.393	0.800	0.834	1.294	1.675	2.059	2.238	2.540	2.829	2	3
838	41 ARI	B8 V		3.625	-0.615	-0.562	-0.389	-0.133	-0.037	-0.014	-0.034	-0.075	-0.123	-0.115	-0.166	-0.143	2	2
840	16 PER	F2 III		4.320	0.398	0.306	0.300	0.412	0.194	0.187	0.316	0.397	0.513	0.546	0.587	0.654	2	2
841	BET FOR	G6 III	X	4.688	1.550	1.283	1.403	1.278	0.498	0.473	0.732	0.980	1.211	1.334	1.488	1.739	2	2
843	17 PER	K5 III		4.982	3.432	2.937	2.965	2.320	0.679	0.794	1.258	1.777	2.218	2.381	2.675	2.968	2	2
854	TAU PER	G4 III+A4 V		4.143	1.030	0.904	0.946	0.900	0.358	0.378	0.629	0.810	1.060	1.133	1.251	1.406	2	2
872	UPS HYI	GK4	X	5.150	2.645	2.313	2.472	1.878	0.578	0.731	1.069	1.353	1.649	1.770	1.987	2.225	2	1
874	ETA ERI	K1 III-IV		4.161	1.888	1.664	1.765	1.465	0.486	0.526	0.842	1.102	1.346	1.452	1.628	1.618	2	2
875		A1 V		5.196	0.182	0.154	0.109	0.103	0.041	0.052	0.079	0.117	0.151	0.151	0.165	0.220	26	19
879	PI PER	A2 V		4.703	0.220	0.201	0.075	0.057	0.033	0.048	0.076	0.099	0.134	0.129	0.164	0.203	2	2
882	24 PER	K2 III		5.253	2.344	2.052	2.136	1.720	0.533	0.602	0.956	1.223	1.525	1.640	1.858	2.061	2	3
896	LAM CET	B5 III		4.690	-0.764	-0.699	-0.487	-0.171	-0.042	-0.002	-0.027	-0.036	-0.049	-0.075	-0.136	-0.118	2	2
897/8	THE 1 ERI	A3 V	X	2.941	0.363	0.291	0.186	0.179	0.107	0.082	0.093	0.137	0.152	0.166	0.218	0.298	2	2
911	ALF CET	M2 III		2.951	3.585	3.073	2.965	2.436	0.751	0.766	1.285	1.969	2.462	2.671	3.020	3.307	2	2
915	GAM PER	G8 III:+A3:		3.104	1.003	0.899	0.895	0.832	0.350	0.362	0.587	0.819	1.025	1.107	1.251	1.442	2	2
919	TAU 3 ERI	A4 V	X	4.130	0.263	0.188	0.209	0.202	0.097	0.103	0.131	0.192	0.241	0.205	0.306	0.244	2	2
921 V	RHO PER	M4 IIIA		3.740	3.812	3.082	2.858	2.267	0.926	0.574	1.289	2.407	3.117	3.396	3.882	4.205	2	3
932		A0 V		4.869	0.064	0.058	0.066	0.049	0.024	0.037	0.034	0.049	0.064	0.048	0.064	0.164	3	2
936 V	BET PER	B8 V		2.159	-0.579	-0.542	-0.358	-0.113	-0.036	0.017	0.037	0.057	0.097	0.093	0.082	0.149	1	3
937	IOT PER	G0 V		4.185	0.457	0.357	0.536	0.704	0.286	0.300	0.503	0.670	0.836	0.870	0.945	1.070	12	2
941	KAP PER	K0 III		4.053	1.557	1.401	1.487	1.285	0.424	0.493	0.778	0.993	1.227	1.323	1.481	1.667	2	2
947	OMG PER	K0 III		4.896	1.958	1.746	1.812	1.535	0.508	0.535	0.845	1.128	1.359	1.469	1.645	1.869	2	2
951	DEL ARI	K2 III		4.595	1.737	1.559	1.625	1.398	0.486	0.488	0.775	1.000	1.256	1.361	1.529	1.702	2	2
963	ALF FOR	F8 IV	X	3.969	0.212	0.086	0.333	0.505	0.253	0.274	0.451	0.608	0.718	0.777	0.841	1.038	2	2
972	ZET ARI	A0 IV		4.894	0.005	0.001	-0.043	-0.034	-0.005	0.014	0.005	0.043	0.027	0.031	0.047	0.088	2	2
984	ZET ERI	A7M		4.875	0.233	0.184	0.206	0.269	0.101	0.144	0.214	0.266	0.333	0.354	0.372	0.496	2	2
985		B2 VE		4.841	-1.196	-1.109	-0.736	-0.210	-0.036	-0.026	-0.058	-0.063	-0.096	-0.137	-0.232	-0.222	2	2
991		K2 II		5.201	2.860	2.545	2.577	2.087	0.708	0.723	1.085	1.467	1.777	1.940	2.215	2.503	2	2
996	KAP CET	G5 V		5.008	0.538	0.459	0.680	0.803	0.311	0.358	0.554	0.767	0.928	0.984	1.075	1.221	2	2
999		K4 III		4.906	3.296	2.884	2.891	2.319	0.712	0.809	1.248	1.676	2.028	2.189	2.524	2.818	2	3
1002	32 PER	A3 V		4.991	0.102	0.099	0.123	0.085	0.033	0.035	0.043	0.086	0.122	0.112	0.138	0.131	2	3
1003	TAU 4 ERI	GM3	X	4.030	3.667	2.998	2.902	2.254	0.826	0.635	1.245	2.163	2.781	3.059	3.479	3.825	2	2
1008		G5 V	X	4.454	0.652	0.478	0.744	0.833	0.353	0.394	0.592	0.775	0.972	1.038	1.155	1.311	2	2
1017	ALF PER	F5 IB		1.937	0.989	0.803	0.492	0.555	0.239	0.274	0.429	0.589	0.724	0.788	0.889	1.000	14	2
1030	OMI TAU	G8 III		3.832	1.347	1.113	1.178	1.133	0.440	0.438	0.707	0.892	1.130	1.195	1.353	1.528	2	2
1034		B3 V		5.043	-0.853	-0.785	-0.506	-0.133	0.002	-0.019	-0.042	-0.051	-0.052	-0.100	-0.148	-0.112	2	3
1035 D		B9 IA		4.408	0.040	-0.036	-0.037	0.386	0.282	0.246	0.437	0.586	0.726	0.836	0.930	1.054	2	2
1038	XI TAU	B8 V		3.760	-0.561	-0.513	-0.324	-0.106	-0.016	0.008	-0.002	0.010	-0.006	-0.029	-0.056	-0.067	2	3
1040		A0 IA		4.728	0.297	0.179	0.106	0.496	0.346	0.326	0.552	0.783	0.982	1.157	1.301	1.419	3	3
1044	34 PER	B3 IV		4.669	-0.927	-0.853	-0.561	-0.158	-0.012	-0.026	-0.030	-0.049	-0.062	-0.103	-0.167	-0.217	2	2
1046 D		A1 V		5.134	0.088	0.053	0.081	0.051	0.004	0.036	0.040	0.080	0.078	0.048	0.031	-0.342	2	2
1052	SIG PER	K3 III		4.728	2.828	2.417	2.502	1.995	0.593	0.699	1.088	1.434	1.728	1.888	2.112	2.379	2	3
1066	5 TAU	K0 II-III		4.385	1.961	1.749	1.800	1.566	0.540	0.495	0.788	1.054	1.300	1.405	1.576	1.782	2	3
1070	17 ERI	B8 V		4.727	-0.425	-0.378	-0.345	-0.127	-0.016	-0.020	-0.034	-0.060	-0.075	-0.091	-0.126	-0.078	2	3
1084	EPS ERI	K2 V		3.967	1.054	0.951	1.232	1.097	0.337	0.496	0.765	1.008	1.221	1.301	1.426	1.597	41	17
1087	PSI PER	B5E		4.234	-0.879	-0.842	-0.585	-0.125	0.003	-0.009	0.066	0.036	0.080	0.056	0.002	0.070	2	2
1101	10 TAU	F8 V		4.423	0.384	0.291	0.457	0.665	0.300	0.263	0.456	0.562	0.773	0.840	0.887	1.011	3	2
1106		K0 III	X	4.861	1.606	1.375	1.501	1.325	0.487	0.560	0.824	1.064	1.315	1.430	1.629	1.941	2	3
1122	DEL PER	B5 III		3.033	-0.842	-0.774	-0.596	-0.176	-0.042	-0.020	-0.026	-0.079	-0.093	-0.114	-0.166	-0.194	3	2
1129		A1+G2 III		5.001	0.812	0.717	0.752	0.894	0.410	0.433	0.718	0.954	1.207	1.299	1.488	1.659	2	2
1131	OMI PER	B1 III		3.857	-1.052	-0.989	-0.577	-0.020	0.088	0.029	0.083	0.103	0.145	0.129	0.090	0.090	2	2
1134	DEL FOR	B5 IV		4.950	-0.953	-0.888	-0.611	-0.197	-0.015	-0.065	-0.089						1	0
1135	NU PER	F5 II		3.889	0.727	0.583	0.384	0.478	0.211	0.223	0.390	0.505	0.660	0.705	0.783	0.884	3	2
1136	DEL ERI	K0 IV		3.764	1.259	1.155	1.332	1.157	0.380	0.464	0.753	0.935	1.149	1.238	1.365	1.545	2	4

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
1138		AM		5.424	0.205	0.166	0.132	0.118	0.025	0.054	0.079	0.101	0.101	0.088	0.114	0.131	2	2
1140	16 TAU	B7 IV		5.487	-0.576	-0.524	-0.351	-0.077	-0.013	0.014	-0.003	0.013	0.009	-0.010	0.011	0.044	1	2
1142	17 TAU	B6 III		3.709	-0.665	-0.609	-0.498	-0.160	-0.020	-0.013	-0.030	-0.042	-0.071	-0.046	-0.133	-0.091	3	2
1143		GK2	X	4.901	2.182	1.934	2.097	1.586	0.501	0.613	0.925	1.204	1.452	1.578	1.778	2.032	2	2
1144	18 TAU	B8 V		5.651	-0.605	-0.556	-0.373	-0.112	0.009	0.005	-0.008	-0.043	-0.041	-0.092	-0.098	0.016	2	2
1145	19 TAU	B6 V		4.309	-0.767	-0.713	-0.496	-0.174	-0.038	0.005	-0.011	-0.035	-0.046	-0.079	-0.104	-0.107	3	2
1148	GAM CAM	A3 IV		4.645	0.232	0.199	-0.006	0.037	0.038	0.054	0.084	0.096	0.115	0.136	0.165	0.136	2	3
1149	20 TAU	B7 III		3.888	-0.622	-0.599	-0.467	-0.141	-0.006	0.025	0.032	0.034	0.014	0.018	-0.022	0.008	2	3
1151	21 TAU	B8 V		5.775	-0.402	-0.367	-0.249	-0.070	-0.001	0.015	0.020	-0.026	-0.011	-0.006	-0.012	0.065	2	3
1155 V		M2 IIA		4.909	4.139	3.557	3.368	2.728	0.979	0.831	1.375	2.345	2.963	3.215	3.648	3.970	2	2
1156	23 TAU	B6 IVNN		4.184	-0.661	-0.615	-0.473	-0.080	0.000	0.012	0.053	0.033	0.064	0.045	-0.024	0.035	3	2
1162	PI ERI	GM2		4.868	3.648	3.091	3.102	2.430	0.714	0.787	1.289	1.883	2.347	2.558	2.869	3.160	2	2
1165	ETA TAU	B7 III		2.875	-0.562	-0.521	-0.499	-0.151	-0.011	-0.012	0.006	-0.007	-0.054	-0.019	-0.056	-0.058	5	2
1172		B8 V		5.445	-0.532	-0.494	-0.387	-0.118	-0.009	-0.003	-0.016	-0.044	-0.044	-0.063	-0.087	-0.004	3	3
1175	BET RET	K0 IV	X	4.152	2.026	1.719	1.868	1.515	0.531	0.593	0.880	1.161	1.415	1.564	1.733	2.020	1	2
1178	27 TAU	B8 III		3.638	-0.569	-0.536	-0.465	-0.134	-0.014	0.000	-0.002	-0.002	-0.007	-0.020	-0.078	-0.067	3	3
1180 V	28 TAU	B8PEC		5.007	-0.696	-0.648	-0.462	-0.123	-0.004	-0.007	0.015	-0.020	-0.013	-0.032	-0.086	-0.042	3	3
1183		B9 V		6.214	-0.367	-0.316	-0.249	-0.117	-0.054	-0.004	0.005	-0.042	-0.064	-0.059	-0.081	0.133	1	2
1195		G5 III	X	4.390	1.380	1.121	1.319	1.143	0.446	0.460	0.710	0.898	1.124	1.241	1.358	1.634	2	2
1203	ZET PER	B1 IB		2.927	-1.003	-0.964	-0.569	0.045	0.127	0.083	0.162	0.220	0.280	0.279	0.224	0.281	2	2
1204		B9 V		4.947	-0.304	-0.284	-0.257	-0.109	-0.011	-0.013	-0.018	-0.037	-0.037	-0.048	-0.074	-0.046	2	2
1208	GAM HYI	M0 III	X	3.709	3.510	2.931	2.980	2.306	0.737	0.819	1.308	1.899	2.377	2.591	2.944	3.286	1	2
1211/2	32 ERI	A1 V/G5III		4.649	0.922	0.796	0.865	0.811	0.337	0.346	0.585	0.753	0.956	1.028	1.149	1.307	2	3
1220	EPS PER	B0.5 V		2.877	-1.544	-1.441	-0.938	-0.266	-0.043	-0.048	-0.080	-0.124	-0.163	-0.217	-0.351	-0.372	2	2
1228	XI PER	O7		4.075	-1.321	-1.257	-0.755	-0.075	0.052	0.079	0.124	0.154	0.189	0.174	0.093	0.139	2	2
1231	GAM ERI	M1 III		3.383	3.466	2.947	2.971	2.338	0.668	0.821	1.262	1.836	2.263	2.449	2.741	3.021	2	2
1239 V	LAM TAU	B3 V		3.428	-1.006	-0.914	-0.617	-0.187	-0.051	-0.026	-0.023	-0.075	-0.068	-0.104	-0.161	-0.161	1	1
1247	DEL RET	M2 III	X	5.020	3.641	2.998	2.962	2.346	0.738	0.834	1.301	1.866	2.351	2.535	2.859	3.246	1	2
1251	NU TAU	A1 V		3.877	0.048	0.044	0.041	0.024	0.005	0.020	0.029	0.032	0.043	0.029	0.058	0.107	3	2
1256	37 TAU	K0 III		4.643	2.074	1.791	1.604	1.463	0.475	0.548	0.825	1.099	1.335	1.435	1.610	1.826	2	2
1261	LAM PER	B9 V		4.322	-0.009	-0.013	-0.208	-0.075	-0.010	0.021	0.006	0.018	0.019	0.076	0.084	0.138	2	3
1264	GAM RET	GM5	X	4.877	3.691	3.109	2.911	2.299	0.890	0.706	1.314	2.252	2.913	3.179	3.595	4.007	1	2
1266	IOT RET	GK4	X	5.380	2.942	2.476	2.654	2.026	0.603	0.766	1.139	1.486	1.779	1.946	2.171	2.454	1	2
1273	48 PER	B3 VP		4.084	-0.844	-0.799	-0.520	-0.079	0.036	0.020	0.088	0.051	0.102	0.105	0.037	0.092	3	3
1298	OMI 1 ERI	F2 II-III		4.150	0.392	0.315	0.307	0.388	0.171	0.181	0.300	0.369	0.467	0.498	0.532	0.657	2	3
1302	DEL HOR	DF0		5.013	0.374	0.290	0.220	0.388	0.180	0.188	0.303						1	0
1303	MU PER	G0 IB		4.397	1.479	1.237	1.226	1.201	0.493	0.466	0.762	1.010	1.244	1.347	1.512	1.699	2	2
1306	52 PER	G5 IB+A2		4.923	1.414	1.286	1.325	1.230	0.489	0.488	0.780	1.074	1.301	1.404	1.586	1.758	2	2
1311 D	47 TAU	GG5		5.025	1.141	0.979	1.017	1.016	0.398	0.386	0.644	0.862	1.064	1.150	1.283	1.461	2	3
1318 D	39 ERI	K2 III+G2 V		5.167	2.169	1.935	1.997	1.621	0.511	0.570	0.914	1.190	1.429	1.543	1.726	1.943	2	2
1319	48 TAU	DF2		6.405	0.214	0.130	0.279	0.451	0.181	0.226	0.362	0.488	0.573	0.620	0.664	0.764	1	3
1320	MU TAU	B3 V		4.325	-0.882	-0.799	-0.532	-0.105	-0.002	0.008	0.011	0.019	0.015	-0.015	-0.059	-0.047	1	2
1324	B PER	A2		4.623	0.116	0.112	0.042	0.048	0.037	0.039	0.060	0.111	0.122	0.120	0.143	0.168	2	2
1325	OMI 2 ERI	K1 V		4.645	0.908	0.756	1.036	0.986	0.339	0.454	0.701	0.918	1.140	1.208	1.336	1.474	2	2
1326	ALF HOR	K1 III	X	4.146	1.915	1.597	1.789	1.408	0.501	0.566	0.864	1.083	1.289	1.414	1.570	1.809	1	2
1329	OMG TAU	AM		4.987	0.220	0.168	0.245	0.317	0.122	0.149	0.220	0.291	0.365	0.372	0.364	0.467	2	2
1336	ALF RET	G6 II	X	3.564	1.394	1.120	1.287	1.148	0.454	0.447	0.680	0.859	1.081	1.197	1.326	1.536	2	2
1346	GAM TAU	K0 III		3.868	1.531	1.371	1.445	1.292	0.453	0.460	0.743	0.981	1.200	1.290	1.436	1.601	2	3
1347	41 ERI	B9 V	X	3.565	-0.692	-0.682	-0.428	-0.204	-0.039	0.018	-0.005	-0.027	-0.053	-0.031	-0.097	-0.140	1	3
1350	53 PER	B6 III		4.875	-0.819	-0.746	-0.476	-0.087	0.023	0.026	0.053	0.018	0.034	0.000	-0.041	-0.009	2	3
1351	57 TAU	A9N		5.656	0.302	0.211	0.254	0.339	0.129	0.155	0.258	0.359	0.430	0.433	0.466	0.542	2	4
1356	58 TAU	A9 V		5.338	0.254	0.193	0.230	0.269	0.100	0.139	0.215	0.283	0.334	0.345	0.367	0.413	2	2
1373	DEL TAU	K0 III		3.997	1.584	1.422	1.488	1.308	0.456	0.472	0.749	0.980	1.190	1.278	1.421	1.580	2	2
1376	63 TAU	AM		5.724	0.317	0.244	0.312	0.378	0.127	0.173	0.257	0.329	0.399	0.418	0.442	0.425	1	2
1380	64 TAU	A7 V		4.861	0.265	0.220	0.221	0.205	0.077	0.109	0.156	0.227	0.269	0.264	0.311	0.341	2	2
1385		F4 VN		6.089	0.250	0.178	0.290	0.427	0.188	0.206	0.337	0.463	0.559	0.579	0.670	0.703	1	2
1387	KAP TAU	A7 V		4.288	0.281	0.229	0.202	0.172	0.054	0.105	0.152	0.183	0.233	0.236	0.261	0.302	2	2
1389	68 TAU	A3 III		4.320	0.101	0.074	0.085	0.069	0.014	0.048	0.061	0.070	0.093	0.078	0.103	0.116	2	4
1392	UPS TAU	F0 III-IV		4.384	0.408	0.307	0.237	0.292	0.126	0.179	0.276	0.368	0.434	0.465	0.509	0.599	2	2
1393	43 ERI	M1 III	X	4.379	3.191	2.720	2.242	2.199	0.644	0.765	1.161	1.559	1.917	2.064	2.351	2.625	1	2
1394	71 TAU	F0 V		4.565	0.356	0.265	0.239	0.274	0.119	0.162	0.251	0.316	0.403	0.428	0.472	0.522	2	2
1396	PI TAU	G8 III		4.918	1.571	1.310	1.365	1.278	0.473	0.465	0.738	1.006	1.229	1.337	1.494	1.652	2	2
1408	76 TAU	CF0		5.966	0.254	0.183	0.275	0.384	0.154	0.168	0.286	0.403	0.493	0.483	0.552	0.657	1	3
1409	EPS TAU	K0 III		3.781	1.698	1.520	1.576	1.384	0.467	0.484	0.754	0.994	1.210	1.329	1.461	1.647	2	2
1411	THE 1 TAU	K0 III		4.088	1.482	1.328	1.402	1.266	0.441	0.463	0.722	0.965	1.173	1.268	1.413	1.584	6	4
1412	THE 2 TAU	A7 III		3.474	0.307	0.244	0.198	0.205	0.052	0.094	0.179	0.229	0.271	0.269	0.317	0.350	7	3
1427		A7 V		4.840	0.275	0.216	0.218	0.193	0.069	0.109	0.146	0.191	0.244	0.244	0.284	0.276	2	2
1437	45 ERI	K3 II-III		5.224	2.649	2.328	2.359	1.896	0.605	0.626	0.986	1.312	1.583	1.743	1.963	2.202	2	2
1444	RHO TAU	F0 V		4.765	0.265	0.200	0.230	0.271	0.096	0.113	0.190	0.253	0.312	0.333	0.347	0.404	2	2
1453	UPS 1 ERI	GG6		4.755	1.506	1.286	1.451	1.260	0.444	0.490	0.774						1	0
1454	58 PER	K4 III;A3 V		4.525	1.777	1.627	1.648	1.557	0.637	0.593	0.947	1.252	1.527	1.676	1.916	2.138	2	3
1457	ALF TAU	K5 III		1.333	3.376	2.905	2.926	2.287	0.640	0.806	1.258	1.797	2.208	2.387	2.689	2.953	2	2
1458	88 TAU	AM		4.305	0.231	0.168	0.197	0.204	0.081	0.097	0.158	0.228	0.274	0.286	0.319	0.400	2	2
1463	NU ERI	B2 III		3.902	-1.431	-1.309	-0.863	-0.274	-0.057	-0.068	-0.112	-0.174	-0.215	-0.273	-0.417	-0.392	2	2
1464	UPS 2 ERI	K0 III	X	4.045	1.486	1.212	1.393	1.198	0.463	0.467	0.759	0.934	1.117	1.239	1.385	1.636	1	2
1465	ALF DOR	A0 (SI)	X	3.266	-0.575	-0.591	-0.365	-0.188	-0.017	-0.006	-0.045	-0.035	-0.086	-0.064	-0.137	-0.057	1	3
1473	90 TAU	A5 V		4.329	0.257	0.204	0.190	0.159	0.048	0.082	0.109	0.147	0.182	0.190	0.219	0.258	2	2
1479	SIG 2 TAU	A5 V		4.721	0.274	0.225	0.218	0.190	0.062	0.087	0.111	0.194	0.253	0.256	0.293	0.322	2	2
1481 D	53 ERI	K2 III		4.124	1.810	1.638	1.743	1.461	0.483	0.539	0.855	1.110	1.363	1.484	1.657	1.847	2	1
1492 V	R DOR	GM7	X	5.039	4.063	2.110	1.328	0.757	1.465	0.925	2.415	4.066	5.442	6.046	7.636	8.428	1	2
1496 V	54 ERI	GM4		4.719	3.581	3.028	2.912	2.319	0.795	0.670	1.260	2.118	2.709	2.971	3.342	3.629	2	2
1497	TAU TAU	B3 V		4.261	-0.982	-0.899	-0.548	-0.155	-0.028	-0.052	-0.072	-0.121	-0.138	-0.163	-0.235	-0.251	2	1
1520	MU ERI	B5 IV		3.997	-0.998	-0.919	-0.648	-0.199	-0.048	-0.049	-0.070	-0.103	-0.126	-0.140	-0.236	-0.222	2	2
1542	ALF CAM	O9.5 IA		4.343	-1.300	-1.218	-0.739	-0.063	0.073	0.072	0.119	0.158	0.211	0.199	0.117	0.151	2	2
1543	PI 3 ORI	F6 V		3.303	0.186	0.116	0.298	0.516	0.228	0.237	0.392	0.525	0.650	0.701	0.739	0.837	2	2
1544	PI 2 ORI	A0 V		4.375	0.065	0.046	-0.038	0.004	0.015	0.028	0.034	0.048	0.073	0.074	0.087	0.142	2	2
1547	97 TAU	DA5N		5.153	0.294	0.227	0.242	0.261	0.103	0.121	0.181	0.239	0.304	0.318	0.356	0.509	3	2
1552	PI 4 ORI	B2 III		3.667	-1.332	-1.223	-0.831	-0.253	-0.061	-0.043	-0.070	-0.120	-0.163	-0.204	-0.336	-0.384	2	2
1560	OMG ERI	A9 IV		4.424	0.433	0.330	0.231	0.281	0.114	0.147	0.228	0.329	0.358	0.411	0.441	0.561	2	2
1567 V	PI 5 ORI	B2 III		3.704	-1.332	-1.220	-0.834	-0.251	-0.051	-0.070	-0.090	-0.142	-0.173	-0.228	-0.371	-0.356	2	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
1568 D	7 CAM	A1 V		4.498	0.039	0.030	-0.080	-0.028	0.020	0.001	0.015	0.012	0.023	0.024	0.034	0.045	2	2
1570	PI 1 ORI	A0 V		4.695	0.118	0.108	0.147	0.115	0.037	0.018	0.040	0.070	0.088	0.101	0.120	0.157	2	2
1577	IOT AUR	K3 II		3.097	3.146	2.782	2.793	2.248	0.688	0.730	1.137	1.516	1.842	1.994	2.287	2.528	2	2
1580	OMI 2 ORI	K2 III		4.405	2.101	1.835	1.924	1.599	0.529	0.559	0.889	1.201	1.457	1.582	1.787	2.008	2	2
1592 D	4 AUR	A0 V		4.957	-0.034	-0.027	0.058	0.039	0.013	0.018	0.022	0.056	0.061	0.028	0.079	0.115	2	2
1601	PI 6 ORI	K2 II		4.821	2.779	2.498	2.473	2.018	0.658	0.664	1.038	1.362	1.657	1.810	2.048	2.301	2	2
1603	BET CAM	G0 IB		4.248	1.417	1.144	1.128	1.144	0.468	0.417	0.683	0.925	1.106	1.175	1.318	1.466	2	3
1605 V	EPS AUR	F0 IAP		3.137	1.174	0.870	0.351	0.524	0.330	0.293	0.495	0.668	0.817	1.014	1.118	1.215	7	2
1611	64 ERI	F0 IV		4.856	0.465	0.371	0.250	0.298	0.136	0.147	0.240	0.370	0.433	0.467	0.476	0.532	2	2
1612 V	ZET AUR	K5 II+B		4.133	1.104	1.087	1.278	1.408	0.590	0.713	1.133	1.617	1.967	2.106	2.383	2.646	3	2
1617	PSI ERI	B2 V		4.794	-1.218	-1.114	-0.729	-0.235	-0.047	-0.063	-0.107	-0.126	-0.188	-0.256	-0.382	-0.531	2	2
1621		B9		4.897	-0.256	-0.232	-0.172	-0.069	-0.002	-0.008	-0.024	-0.028	-0.021	-0.051	-0.071	-0.114	2	2
1637	9 AUR	F0 V		5.047	0.173	0.116	0.227	0.372	0.173	0.162	0.292	0.392	0.474	0.507	0.545	0.629	2	2
1638	11 ORI	B9P		4.677	-0.178	-0.195	-0.262	-0.102	-0.041	0.039	0.024	0.032	0.024	0.017	0.017	0.065	2	2
1641	ETA AUR	B3 V		3.148	-1.141	-1.036	-0.686	-0.244	-0.068	-0.041	-0.093	-0.135	-0.167	-0.221	-0.322	-0.344	2	2
1652	GAM CAE	GK3	X	4.886	2.073	1.768	2.022	1.541	0.518	0.645	0.986	1.213	1.484	1.614	1.822	2.086	1	2
1654	EPS LEP	K5 III	X	3.603	3.076	2.644	2.775	2.095	0.601	0.757	1.167	1.507	1.814	1.974	2.259	2.533	2	2
1657	66 ERI	B9		5.096	-0.346	-0.314	-0.207	-0.098	-0.034	0.004	-0.017	-0.005	-0.037	-0.074	-0.096	-0.014	2	1
1666	BET ERI	A3 III		2.841	0.288	0.210	0.188	0.162	0.068	0.052	0.122						2	0
1676	15 ORI	F2 IV		4.886	0.477	0.385	0.308	0.349	0.152	0.200	0.289	0.430	0.521	0.545	0.596	0.702	2	2
1679	LAM ERI	B2 IV		4.242	-1.444	-1.337	-0.897	-0.261	-0.055	-0.053	-0.083	-0.149	-0.208	-0.254	-0.384	-0.379	2	2
1689	MU AUR	AM		4.876	0.212	0.182	0.227	0.247	0.093	0.097	0.159	0.233	0.270	0.285	0.306	0.387	2	2
1696	IOT LEP	B8 V		4.422	-0.693	-0.641	-0.419	-0.130	-0.027	-0.034	-0.055	-0.033	-0.055	-0.086	-0.156	-0.180	2	2
1698 D	RHO ORI	K3 III		4.741	2.135	1.937	1.979	1.669	0.518	0.564	0.875	1.176	1.439	1.559	1.753	1.962	2	2
1702	MU LEP	B9 IIIP		3.267	-0.657	-0.609	-0.449	-0.165	-0.039	-0.035	-0.048	-0.077	-0.059	-0.097	-0.170	-0.170	2	2
1705 D	KAP LEP	B8 V		4.345	-0.595	-0.536	-0.449	-0.147	-0.021	-0.032	-0.035	-0.058	-0.074	-0.073	-0.143	-0.173	2	2
1708	ALF AUR	G8 III:+F		0.243	1.041	0.882	0.955	1.005	0.380	0.391	0.627	0.859	1.036	1.080	1.232	1.420	2	2
1713	BET ORI	B8 IA		0.172	-0.945	-0.903	-0.691	-0.110	0.046	0.021	0.047	0.080	0.073	0.100	0.004	0.000	4	2
1729	LAM AUR	G0 V		4.860	0.477	0.306	0.570	0.729	0.291	0.323	0.523	0.728	0.871	0.907	0.985	1.117	3	2
1735	TAU ORI	B5 III		3.570	-0.793	-0.715	-0.532	-0.172	-0.043	-0.047	-0.059	-0.080	-0.095	-0.123	-0.187	-0.180	2	2
1756	LAM LEP	B0.5 IV		4.248	-1.667	-1.550	-1.015	-0.331	-0.071	-0.098	-0.153	-0.230	-0.296	-0.366	-0.529	-0.537	2	3
1765	22 ORI	B2 IV		4.687	-1.289	-1.181	-0.785	-0.230	-0.042	-0.079	-0.116	-0.186	-0.194	-0.251	-0.354	-0.399	2	1
1770 D	23 ORI	B1 V		4.972	-1.397	-1.295	-0.827	-0.231	-0.036	-0.046	-0.072	-0.145	-0.166	-0.191	-0.307	-0.348	3	2
1781		B5 V		5.655	-1.467	-1.350	-0.869	-0.274	-0.068	-0.087	-0.131	-0.153	-0.234	-0.255	-0.446	-0.466	2	2
1784	29 ORI	G8 III		4.355	1.411	1.209	1.330	1.229	0.449	0.447	0.724	0.995	1.209	1.312	1.458	1.632	2	2
1788 DV	ETA ORI	B0.5 V		3.324	-1.510	-1.406	-0.933	-0.274	-0.048	-0.044	-0.071	-0.108	-0.142	-0.183	-0.328	-0.376	3	2
1789	25 ORI	B1 V:PE		4.934	-1.478	-1.361	-0.915	-0.293	-0.063	-0.062	-0.110	-0.156	-0.179	-0.240	-0.389	-0.418	2	2
1790	GAM ORI	B2 III		1.591	-1.437	-1.334	-0.920	-0.307	-0.078	-0.090	-0.137	-0.206	-0.266	-0.315	-0.455	-0.465	2	2
1791	BET TAU	B7 III		1.651	-0.802	-0.746	-0.559	-0.178	-0.041	-0.047	-0.050	-0.114	-0.124	-0.152	-0.216	-0.221	2	2
1810	114 TAU	B3 V		4.839	-1.269	-1.178	-0.755	-0.223	-0.026	-0.064	-0.099	-0.143	-0.164	-0.207	-0.303	-0.360	2	3
1811 D	PSI ORI	B2 IV		4.543	-1.520	-1.388	-0.908	-0.282	-0.063	-0.077	-0.119	-0.191	-0.243	-0.295	-0.442	-0.506	2	2
1829	BET LEP	G5 III		3.003	1.110	0.853	0.982	1.000	0.393	0.373	0.623	0.834	1.023	1.104	1.228	1.433	8	4
1839 D	32 ORI	B5 IV		4.189	-0.976	-0.884	-0.567	-0.191	-0.057	-0.047	-0.077	-0.133	-0.172	-0.205	-0.274	-0.268	2	2
1843	CHI AUR	B5 IAB		4.789	-0.480	-0.485	-0.260	0.281	0.238	0.121	0.262	0.394	0.516	0.578	0.648	0.698	2	3
1845 V.	119 TAU	M2 IB		4.889	4.492	3.888	3.600	2.944	1.114	0.936	1.606	2.424	3.030	3.325	3.814	4.180	1	1
1852 V	DEL ORI	O9.5 II		2.181	-1.674	-1.557	-1.014	-0.299	-0.058	-0.094	-0.125	-0.206	-0.256	-0.311	-0.480	-0.471	2	2
1855	UPS ORI	B0 V		4.571	-1.727	-1.588	-1.046	-0.341	-0.076	-0.090	-0.152	-0.228	-0.300	-0.361	-0.546	-0.568	87	28
1861		B1 V		5.300	-1.493	-1.383	-0.894	-0.276	-0.061	-0.074	-0.078	-0.081	-0.260	-0.280	-0.358	-0.266	2	2
1862	EPS COL	GK1	X	4.143	2.128	1.740	1.921	1.519	0.543	0.547	0.835	1.065	1.318	1.432	1.618	1.650	1	2
1865	ALF LEP	F0 IB		2.646	0.875	0.687	0.151	0.207	0.097	0.139	0.237	0.306	0.367	0.459	0.496	0.576	2	2
1868 V	VV ORI	B1 V		5.327	-1.452	-1.347	-0.861	-0.263	-0.066	-0.060	-0.064	-0.108	-0.130	-0.225	-0.381	-0.382	2	2
1876	PHI 1 ORI	B0 IV		4.380	-1.503	-1.385	-0.882	-0.221	-0.013	-0.037	-0.060	-0.116	-0.142	-0.173	-0.304	-0.339	2	2
1879/80	LAM ORI	O8		3.381	-1.611	-1.503	-0.972	-0.283	-0.055	-0.028	-0.043	-0.085	-0.119	-0.172	-0.305	-0.294	2	2
1887		B0 V		4.719	-1.658	-1.544	-1.013	-0.332	-0.074	-0.095	-0.166	-0.200	-0.259	-0.318	-0.483	-0.527	2	2
1892 D	42 ORI	B2 III		4.556	-1.512	-1.397	-0.890	-0.270	-0.054	-0.066	-0.097	-0.151	-0.198	-0.248	-0.368	-0.358	2	2
1893-6	THE 1 ORI	B0.5 V(TRAP)		4.627	-1.278	-1.158	-0.706	-0.047	0.096	0.054	0.246	0.269	0.337	0.356	0.593	0.741	14	3
1897	THE 2 ORI	O9.5 VP		5.076	-1.455	-1.335	-0.828	-0.178	-0.002	0.037	0.065	0.083	0.098	0.085	0.022	-0.080	2	2
1899 D	IOT ORI	O9 III		2.758	-1.716	-1.584	-1.039	-0.334	-0.077	-0.080	-0.103	-0.207	-0.262	-0.324	-0.503	-0.477	2	2
1901	45 ORI	GF0		5.334	0.423	0.337	0.242	0.293	0.130	0.147	0.252	0.333	0.406	0.429	0.460	0.592	2	1
1903 V	EPS ORI	B0 IA		1.694	-1.594	-1.485	-0.972	-0.257	-0.028	-0.046	-0.069	-0.113	-0.155	-0.214	-0.342	-0.343	2	2
1907	PHI 2 ORI	G8 IIIP		4.329	1.351	1.114	1.276	1.196	0.451	0.470	0.770	1.018	1.254	1.351	1.488	1.726	2	2
1908		K5 III		6.349	3.506	2.894	2.921	2.299	0.703	0.792	1.262	1.802	2.241	2.418	2.706	2.961	1	1
1910	ZET TAU	B2 IVP		2.955	-1.214	-1.131	-0.849	-0.267	-0.039	-0.058	-0.006	-0.169	-0.203	-0.149	-0.252	-0.168	2	2
1922	BET DOR	F8 IA CEP.		3.940	1.380	1.140	1.090	1.140	0.420	0.410	0.640						1	0
1931 D	SIG ORI	O9.5 V		3.722	-1.628	-1.497	-0.973	-0.293	-0.055	-0.069	-0.113	-0.128	-0.196	-0.239	-0.399	-0.418	2	2
1934	OMG ORI	B3 IIIE		4.568	-1.189	-1.101	-0.737	-0.171	0.007	-0.019	0.004	-0.011	0.024	-0.046	-0.116	-0.085	2	2
1937	49 ORI	A4 IV		4.819	0.226	0.184	0.185	0.169	0.070	0.071	0.111	0.136	0.198	0.174	0.238	0.309	2	1
1946 D	126 TAU	B3 IV		4.839	-1.061	-0.984	-0.647	-0.191	-0.027	-0.029	-0.051	-0.083	-0.103	-0.141	-0.218	-0.259	2	2
1948/9	ZET ORI	O9.5 IB		1.744	-1.662	-1.548	-1.011	-0.294	-0.050	-0.051	-0.080	-0.127	-0.169	-0.263	-0.366	-0.401	2	2
1956	ALF COL	B8 VE	X	2.635	-0.695	-0.686	-0.510	-0.209	-0.010	-0.007	-0.025	-0.056	-0.074	-0.061	-0.135	-0.099	2	2
1963	51 ORI	K0 III		5.211	2.046	1.740	1.860	1.563	0.521	0.583	0.901	1.219	1.490	1.610	1.829	2.029	2	2
1983	GAM LEP	F6 V	X	3.712	0.265	0.144	0.362	0.534	0.244	0.259	0.412	0.567	0.689	0.740	0.813	0.909	1	2
1995	TAU AUR	G8 III		4.760	1.450	1.236	1.354	1.240	0.456	0.447	0.718	0.968	1.165	1.263	1.416	1.584	2	1
1998	ZET LEP	A3 V		3.602	0.138	0.106	0.142	0.117	0.027	0.018	0.037						2	0
2004	KAP ORI	B0.5 IA		2.049	-1.483	-1.365	-0.889	-0.221	-0.020	-0.051	-0.056	-0.091	-0.128	-0.175	-0.318	-0.281	2	1
2010	134 TAU	B9 IV		4.884	-0.286	-0.254	-0.179	-0.082	-0.018	-0.021	-0.043	-0.044	-0.066	-0.079	-0.085	-0.081	2	2
2011	UPS AUR	GM1		5.209	3.621	3.071	3.046	2.413	0.723	0.790	1.290	1.907	2.371	2.553	2.889	3.221	2	2
2012	NU AUR	K0 III		4.262	1.994	1.787	1.860	1.548	0.513	0.519	0.847	1.102	1.344	1.459	1.636	1.874	2	2
2018		M3 III		6.704	3.977	3.392	3.218	2.552	0.864	0.757	1.387	2.310	2.946	3.206	3.645	4.007	2	2
2020	BET PIC	A3 III		3.905	0.183	0.130	0.233	0.200	0.089	0.119	0.138	0.225	0.259	0.291	0.344	0.479	5	2
2029	XI AUR	A2P?		5.005	0.142	0.130	0.090	0.061	0.033	0.029	0.030	0.053	0.058	0.047	0.073	0.129	2	2
2034	136 TAU	B9.5 V		4.599	0.028	0.027	-0.063	-0.034	0.002	0.016	0.021	-0.004	-0.009	-0.002	0.022	0.031	2	2
2035	DEL LEP	G8+ III		4.003	1.485	1.216	1.343	1.251	0.458	0.467	0.762	1.030	1.284	1.402	1.542	1.725	3	3
2040	BET COL	K2 III	X	3.406	2.088	1.805	1.967	1.531	0.497	0.567	0.870	1.097	1.351	1.439	1.653	1.798	2	2
2047	CHI 1 ORI	G0 V		4.538	0.363	0.278	0.504	0.699	0.291	0.306	0.502	0.664	0.832	0.876	0.951	1.085	2	2
2056	LAM COL	B5 V		4.862	-0.932	-0.852	-0.528	-0.182	-0.017	-0.045	-0.087						1	0
2061 V.	ALF ORI	M1-M2 IAB		0.801	4.144	3.502	3.229	2.718	1.020	0.802	1.405	2.208	2.757	3.014	3.412	3.730	1	1
2077	DEL AUR	K0 III		3.967	1.628	1.427	1.541	1.337	0.467	0.480	0.770	0.970	1.205	1.334	1.442	1.678	2	2
2085	ETA LEP	F0 IV		3.816	0.212	0.147	0.241	0.376	0.168	0.157	0.264	0.344	0.457	0.471	0.495	0.586	2	2
2088 V	BET AUR	A2 V		1.927	0.120	0.095	0.079	0.051	0.013	0.016	0.003	0.042	0.056	0.039	0.082	0.085	2	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
2091 V	PI AUR	M3.5 II		4.739	3.782	3.167	2.991	2.403	0.929	0.684	1.332	2.311	2.966	3.225	3.692	4.037	2	2
2095 D	THE AUR	B9.5P V		2.592	-0.290	-0.270	-0.310	-0.126	-0.050	0.019	-0.012						2	0
2113		K2 III		4.854	2.327	1.935	2.019	1.651	0.543	0.614	0.968	1.272	1.580	1.708	1.920	2.164	2	2
2120	ETA COL	K0 III	X	4.247	2.015	1.723	1.869	1.538	0.574	0.568	0.858	1.096	1.340	1.424	1.621	1.895	1	2
2124 D	MU ORI	AM		4.159	0.265	0.225	0.206	0.209	0.082	0.086	0.146	0.211	0.288	0.296	0.347	0.422	3	1
2128	3 MON	B5 IV		4.954	-1.003	-0.906	-0.603	-0.187	-0.037	-0.033	-0.042	-0.146	-0.122	-0.135	-0.186	-0.133	2	2
2135	CHI 2 ORI	B2 IA		4.680	-0.778	-0.773	-0.386	0.232	0.239	0.138	0.263	0.351	0.466	0.520	0.518	0.645	2	2
2148	17 LEP	A0		5.004	0.668	0.437	0.144	0.168	0.151	0.136	0.325	0.683	1.064	1.255	1.560	1.833	2	2
2155	THE LEP	A1 V		4.682	0.088	0.085	0.076	0.058	0.039	0.005	0.019	0.009	0.029	0.040	0.056	0.092	2	2
2159	NU ORI	B3 V		4.399	-1.095	-0.996	-0.648	-0.225	-0.058	-0.045	-0.073	-0.194	-0.214	-0.252	-0.351	-0.372	2	3
2198	69 ORI	B5 V		4.954	-0.977	-0.907	-0.606	-0.204	-0.046	-0.041	-0.055	-0.105	-0.112	-0.156	-0.236	-0.249	2	2
2199	XI ORI	B3 V		4.455	-1.115	-1.019	-0.689	-0.235	-0.056	-0.057	-0.060	-0.133	-0.174	-0.203	-0.296	-0.276	2	2
2209	22 CAM	A0 V		4.758	0.004	-0.005	0.002	0.009	-0.003	0.004	0.006	0.038	0.057	0.041	0.069	0.108	2	2
2216 V	ETA GEM	M3 III		3.603	3.190	2.757	2.714	2.252	0.789	0.688	1.259	2.084	2.713	2.947	3.354	3.662	3	1
2219	KAP AUR	G8 III		4.563	1.629	1.399	1.509	1.325	0.474	0.486	0.795	1.050	1.295	1.404	1.565	1.769	2	2
2227	GAM MON	K3 III		4.295	2.615	2.277	2.327	1.885	0.602	0.624	0.991	1.311	1.585	1.738	1.957	2.212	2	2
2238	2 LYN	A2 V		4.517	0.038	0.025	0.049	0.031	0.011	0.020	0.038	0.006	0.030	0.013	0.037	0.023	2	3
2240	9 GEM	B3 IA		6.379	-0.204	-0.255	-0.068	0.421	0.306	0.260	0.436	0.657	0.841	0.921	1.018	1.094	2	2
2244		B8 V		5.002	-0.375	-0.348	-0.340	-0.124	-0.029	-0.008	-0.015	-0.022	-0.039	-0.042	-0.059	-0.043	2	2
2282	ZET CMA	B2.5IV	X	2.996	-1.181	-1.135	-0.711	-0.293	-0.042	-0.061	-0.131	-0.186	-0.244	-0.279	-0.351	-0.341	2	2
2286	MU GEM	M3 IIIA		3.321	3.747	3.123	3.000	2.388	0.842	0.673	1.268	2.161	2.767	3.010	3.405	3.732	2	2
2294	BET CMA	B1 II-III		1.957	-1.575	-1.449	-0.967	-0.315	-0.071	-0.077	-0.129	-0.196	-0.247	-0.312	-0.478	-0.493	2	2
2296	DEL COL	GG4		3.993	1.196	0.967	1.092	1.080	0.403	0.396	0.647	0.838	1.090	1.179	1.292	1.419	1	1
2298/9	EPS MON	A5 IV /DF4		4.340	0.290	0.206	0.219	0.263	0.117	0.123	0.179	0.249	0.320	0.335	0.354	0.411	2	3
2308 V.	BL ORI			7.055	6.274	5.533	5.505	4.185	1.275	1.260	1.936	2.468	2.967	3.480	3.885	4.318	1	1
2326	ALF CAR	F0 IB-II		-0.696	0.778	0.610	0.117	0.149	0.090	0.139	0.190	0.218	0.274	0.350	0.398	0.475	10	5
2343	NU GEM	B7 IV		4.166	-0.795	-0.723	-0.548	-0.175	-0.045	-0.017	-0.029	-0.075	-0.086	-0.105	-0.178	-0.174	1	2
2344	10 MON	B2 V		5.032	-1.257	-1.151	-0.751	-0.244	-0.044	-0.062	-0.097	-0.183	-0.205	-0.241	-0.370	-0.296	2	2
2356-8	BET MON	B3 VPE		3.720	-1.224	-1.142	-0.759	-0.229	-0.056	-0.056	-0.003	-0.121	-0.113	-0.168	-0.279	-0.279	2	2
2385	13 MON	A0 IB		4.534	-0.082	-0.127	-0.366	-0.023	0.053	0.034	0.087	0.088	0.114	0.158	0.147	0.231	2	2
2392		BA II (KOP)		6.496	1.550	1.446	1.595	1.508	0.532	0.479	0.769	1.007	1.221	1.310	1.446	1.679	2	2
2421	GAM GEM	A0 IV		1.957	0.129	0.121	0.014	0.008	0.006	0.013	0.020	0.036	0.039	0.044	0.066	0.101	2	2
2427	PSI 2 AUR	K3 II-III		5.117	2.356	2.093	2.159	1.749	0.555	0.595	0.924	1.221	1.487	1.610	1.822	2.045	2	3
2429	NU 2 CMA	K1 IV		4.236	1.792	1.655	1.752	1.432	0.456	0.525	0.820	1.053	1.283	1.382	1.535	1.729	2	2
2443	NU 3 CMA	K1 II-III		4.719	2.019	1.794	1.862	1.579	0.531	0.533	0.855	1.124	1.370	1.487	1.664	1.914	2	2
2450		K3 III		5.217	3.123	2.743	2.737	2.183	0.702	0.724	1.136	1.491	1.805	1.967	2.236	2.522	2	3
2451	UPS PUP	B8 III	X	3.168	-0.535	-0.570	-0.527	-0.189	0.007	0.000	-0.021	-0.064	-0.057	-0.054	-0.130	-0.071	2	2
2456 D	15 MON	O7		4.641	-1.700	-1.566	-1.016	-0.319	-0.059	-0.076	-0.116	-0.193	-0.241	-0.310	-0.455	-0.500	2	2
2467		O6		6.396	-1.416	-1.316	-0.798	-0.133	0.023	0.030	0.042	0.091	0.076	0.060	-0.052	-0.038	1	3
2470 D	12 LYN	A2N		4.896	0.093	0.083	0.122	0.102	0.046	0.033	0.058	0.088	0.106	0.112	0.132	0.198	1	2
2473	EPS GEM	G8 IB		3.357	2.689	2.397	2.363	2.016	0.689	0.629	0.960	1.281	1.544	1.675	1.887	2.092	1	2
2478	30 GEM	K1 III		4.813	2.156	1.890	1.960	1.614	0.531	0.568	0.878	1.202	1.449	1.589	1.774	2.010	1	2
2484	XI GEM	F5 IV		3.542	0.305	0.224	0.328	0.496	0.223	0.212	0.395	0.522	0.638	0.673	0.711	0.807	1	2
2491	ALF CMA	A1 V		-1.424	-0.097	-0.090	-0.021	-0.022	-0.021	-0.006	-0.021	-0.010	-0.015	-0.030	-0.046	-0.036	11	9
2506	18 MON	K0 III		4.746	1.975	1.761	1.807	1.537	0.519	0.516	0.819	1.083	1.322	1.425	1.604	1.824	2	2
2527		K4 III		4.958	2.839	2.494	2.567	1.988	0.552	0.729	1.111	1.464	1.779	1.918	2.153	2.394	2	4
2538	KAP CMA	B1.5 IVNE		4.228	-2.093	-2.027	-1.359	-0.710	-0.498	0.463	0.516	0.526	0.563	0.452	0.247	0.336	1	1
2540	THE GEM	A3 III		3.676	0.318	0.265	0.134	0.115	0.049	0.073	0.122	0.154	0.206	0.203	0.257	0.303	2	2
2550	ALF PIC	A5 V		3.341	0.387	0.280	0.233	0.238	0.117	0.142	0.200	0.302	0.353	0.375	0.413	0.464	6	2
2553	TAU PUP	K0 III		3.227	2.248	2.018	2.036	1.691	0.539	0.591	0.902	1.151	1.422	1.547	1.733	1.916	4	1
2560 D	15 LYN	G5 III-IV		4.584	1.138	1.011	1.100	1.076	0.398	0.436	0.683	0.905	1.115	1.187	1.368	1.556	2	1
2564 D	38 GEM	F0 VP		4.750	0.230	0.177	0.258	0.351	0.171	0.187	0.301	0.470	0.552	0.532	0.594	0.693	2	2
2571	15 CMA	B1 IV		4.780	-1.548	-1.412	-0.934	-0.303	-0.051	-0.079	-0.126	-0.158	-0.206	-0.302	-0.470	-0.537	2	4
2574	THE CMA	K3+ III		4.475	3.027	2.579	2.663	2.065	0.608	0.741	1.167	1.546	1.847	2.036	2.278	2.545	2	2
2585	16 LYN	A2 V		4.942	0.085	0.079	0.039	0.007	0.051	0.029	0.029	0.052	0.069	0.063	0.093	0.066	2	2
2590 D.	PI CMA	GF2		4.744	0.250	0.183	0.266	0.405	0.195	0.202	0.336	0.462	0.567	0.576	0.622	0.710	2	1
2596	IOT CMA	B3 II		4.380	-1.055	-0.969	-0.688	-0.127	0.024	-0.005	0.019	0.046	0.036	0.027	-0.039	-0.030	2	2
2618	EPS CMA	B2 II	X	1.471	-1.559	-1.476	-0.940	-0.376	-0.075	-0.072	-0.111	-0.182	-0.210	-0.282	-0.423	-0.377	2	3
2646	SIG CMA	M0 IAB		3.935	3.545	3.148	3.042	2.521	0.814	0.853	1.292	1.864	2.303	2.496	2.832	3.122	1	1
2648	19 MON	B1 V		4.970	-1.487	-1.368	-0.917	-0.277	-0.050	-0.060	-0.079	-0.096	-0.140	-0.221	-0.360	-0.361	2	3
2650 V.	ZET GEM	F7-G3 IB		3.946	1.194	0.942	0.859	0.917	0.372	0.373	0.562	0.782	0.953	1.018	1.126	1.254	1	1
2653	OMI 2 CMA	B3 IA	X	2.993	-1.247	-1.203	-0.809	-0.251	-0.021	-0.042	-0.002	-0.026	-0.041	-0.082	-0.129	-0.108	1	2
2657	GAM CMA	B8 II		4.107	-0.780	-0.726	-0.542	-0.167	-0.030	-0.021	-0.039	-0.057	-0.079	-0.106	-0.164	-0.207	2	2
2693	DEL CMA	F8 IA	X	1.998	1.305	0.970	0.779	0.728	0.296	0.348	0.505	0.662	0.816	0.887	0.988	1.135	2	2
2697	TAU GEM	K2 III		4.705	2.548	2.243	2.264	1.830	0.567	0.605	0.950	1.239	1.508	1.653	1.848	2.081	2	2
2701	20 MON	K0 III		5.165	1.579	1.353	1.469	1.319	0.453	0.484	0.769	1.048	1.285	1.393	1.549	1.774	2	2
2714	DEL MON	A0 IV		4.182	0.133	0.099	-0.091	-0.043	-0.020	0.046	0.061	0.052	0.074	0.102	0.112	0.120	2	2
2735/6	GAM 2 VOL	G8 III+DF4		3.820	1.288	1.140	1.227	1.160	0.420	0.440	0.710	0.964	1.189	1.255	1.425	1.576	4	1
2748		GM5 E		5.438	3.351	2.550	2.163	1.865	1.061	0.697	1.606	2.786	3.692	4.152	7.528	7.828	1	1
2749	OME CMA	B2 IV-VE		3.894	-1.237	-1.175	-0.722	-0.197	-0.030	-0.043	0.012	0.007	0.033	-0.069	-0.192	-0.046	1	1
2751		A3 III-IV		5.030	0.292	0.233	0.056	0.075	0.036	0.056	0.106	0.139	0.174	0.192	0.231	0.192	2	2
2763	LAM GEM	A3 V		3.605	0.209	0.175	0.160	0.125	0.034	0.042	0.078	0.101	0.140	0.142	0.164	0.226	2	2
2773	PI PUP	K5 III	X	3.144	2.341	2.170	2.381	2.128	0.783	0.799	1.257	1.703	2.093	2.304	2.580	2.898	2	2
2777 D	DEL GEM	F0 IV		3.631	0.319	0.260	0.243	0.363	0.164	0.200	0.334						3	0
2781 V	UW CMA	O7 F		4.845	-1.586	-1.469	-0.894	-0.229	-0.042	-0.020	-0.016	-0.027	-0.046	-0.089	-0.204	-0.233	2	2
2782	TAU CMA	O9 IB		4.370	-1.584	-1.465	-0.892	-0.253	-0.038	-0.040	-0.047	-0.075	-0.098	-0.170	-0.284	-0.251	2	1
2803	DEL VOL	F8 II		4.193	1.161	0.936	0.910	0.960	0.368	0.398	0.608	0.815	0.999	1.047	1.151	1.269	2	1
2812		B8		4.953	-0.601	-0.553	-0.417	-0.112	0.003	0.017	0.031	0.019	0.032	0.009	0.001	-0.013	2	3
2818	21 LYN	A1 IV		4.615	0.037	0.019	-0.027	-0.035	0.002	-0.012	0.002	-0.018	-0.004	0.002	0.014	0.018	2	3
2821	IOT GEM	K0 III		4.051	1.634	1.436	1.527	1.332	0.451	0.474	0.783	1.014	1.252	1.364	1.527	1.720	2	2
2827	ETA CMA	B5 IA		2.428	-1.063	-1.006	-0.698	-0.118	0.015	-0.004	0.008	0.022	0.022	0.018	-0.097	-0.077	1	1
2845	BET CMI	B7 V		2.863	-0.480	-0.408	-0.339	-0.132	-0.030	-0.049	-0.052	-0.086	-0.088	-0.082	-0.127	-0.107	3	2
2852	RHO GEM	F0 V		4.263	0.139	0.074	0.195	0.357	0.167	0.169	0.291	0.398	0.506	0.531	0.567	0.648	39	33
2854	GAM CMI	K3 III		4.691	2.791	2.459	2.492	2.049	0.623	0.719	1.118	1.526	1.888	2.027	2.305	2.556	3	2
2864	6 CMI	K2 III		4.861	2.533	2.252	2.230	1.825	0.590	0.604	0.943	1.244	1.528	1.644	1.859	2.096	3	2
2878	SIG PUP	K5 III		3.723	3.130	2.753	2.757	2.182	0.603	0.830	1.251	1.736	2.123	2.284	2.575	2.829	1	1
2890/1	ALF GEM	A1 V+AM		1.599	-0.014	-0.026	0.038	0.033	0.013	0.023	0.035	0.031	0.052	0.035	0.047	0.074	16	2
2905	UPS GEM	M0 III		4.486	3.387	2.924	2.938	2.308	0.647	0.785	1.244	1.745	2.168	2.336	2.629	2.953	3	2
2930	OMI GEM	F3 III		4.991	0.388	0.274	0.321	0.472	0.211	0.210	0.356	0.481	0.612	0.650	0.705	0.740	3	2
2943	ALF CMI	F5 IV-V		0.454	0.257	0.190	0.310	0.481	0.222	0.214	0.362	0.496	0.629	0.649	0.684	0.786	10	7

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE	52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
2946	24 LYN	A3 III	5.006	0.248	0.184	0.083	0.074	0.043	0.046	0.077	0.121	0.167	0.161	0.196	0.317	3	2
2970	ALF MON	K0 III	4.187	1.683	1.508	1.578	1.379	0.484	0.465	0.752	1.000	1.227	1.340	1.483	1.689	3	2
2985 D	KAP GEM	G8 III	3.812	1.414	1.235	1.324	1.216	0.438	0.423	0.709	0.920	1.140	1.223	1.350	1.526	2	2
2990	BET GEM	K0 III	1.388	1.624	1.443	1.524	1.328	0.455	0.480	0.777	1.025	1.252	1.343	1.491	1.698	16	2
2993	1 PUP	GK5	5.061	3.485	2.620	2.951	2.436	0.710	0.816	1.283	1.870	2.301	2.436	2.786	3.062	1	1
2996	3 PUP	A3 II EP	4.048	0.400	0.272	-0.154	0.149	0.144	0.118	0.211	0.314	0.357	0.531	0.541	0.627	1	1
3003	81 GEM	K5 III	5.300	3.107	2.660	2.719	2.100	0.596	0.750	1.183	1.628	2.004	2.148	2.430	2.709	2	2
3017		CK	4.064	3.134	2.872	2.757	2.389	0.825	0.842	1.348	1.890	2.304	2.480	2.827	3.102	1	1
3024	ZET VOL	K0 III	4.235	1.631	1.446	1.536	1.349	0.463	0.409	0.785	1.083	1.327	1.410	1.599	1.803	4	1
3045	XI PUP	G3 IB	3.633	2.290	1.920	1.920	1.734	0.584	0.575	0.875	1.157	1.400	1.477	1.682	1.857	1	2
3064	9 PUP	G1 V	5.321	0.379	0.279	0.512	0.675	0.275	0.309	0.509	0.715	0.883	0.919	1.014	1.149	1	2
3067	PHI GEM	A4 V	5.003	0.224	0.204	0.160	0.121	0.053	0.055	0.088	0.129	0.163	0.167	0.201	0.166	2	3
3080		G5 III	3.954	1.687	1.475	1.566	1.352	0.466	0.475	0.773	1.075	1.311	1.405	1.587	1.792	1	1
3117	CHI CAR	B3 IV P	3.458	-1.115	-1.021	-0.698	-0.230	-0.052	-0.056	-0.099	-0.129	-0.168	-0.206	-0.312	-0.310	58	1
3129 V	V PUP	B1 VP+B2	4.339	-1.559	-1.429	-0.914	-0.267	-0.046	-0.051	-0.079	-0.093	-0.148	-0.186	-0.317	-0.323	3	1
3131		A3 V	4.653	0.218	0.203	0.115	0.089	0.039	0.039	0.067	0.097	0.129	0.122	0.146	0.240	2	2
3141	28 MON	K4 III	5.099	3.139	2.711	2.784	2.161	0.624	0.752	1.178	1.605	1.953	2.115	2.387	2.654	2	2
3145		K2 III	4.729	2.379	2.057	2.134	1.752	0.558	0.625	0.982	1.320	1.602	1.737	1.963	2.223	3	2
3148		A2	5.999	0.119	0.096	0.094	0.047	0.013	0.017	0.011						57	0
3153		M0 II	5.650	3.510	3.130	3.100	2.600	0.860	0.830	1.390						1	0
3159		B3 V	4.800	-1.110	-1.010	-0.670	-0.220	-0.050	-0.060	-0.110						1	0
3165	ZET PUP	O5F	2.243	-1.826	-1.691	-1.083	-0.381	-0.122	-0.051	-0.089	-0.168	-0.221	-0.281	-0.449	-0.456	2	1
3173	27 LYN	A2 V	4.842	0.091	0.065	0.031	0.015	0.005	0.014	-0.031	0.042	0.047	0.048	0.064	0.042	3	3
3185	RHO PUP	F6 IIP	2.881	0.545	0.430	0.433	0.496	0.190	0.232	0.358	0.495	0.583	0.610	0.638	0.720	1	1
3188	ZET MON	G2 IB	4.582	1.528	1.295	1.293	1.259	0.481	0.456	0.711	0.969	1.154	1.251	1.404	1.573	3	2
3192	16 PUP	B5 V	4.394	-1.017	-0.922	-0.639	-0.217	-0.044	-0.037	-0.079	-0.081	-0.159	-0.182	-0.277	-0.321	3	3
3207	GAM VEL	WC7+O7:	1.877	-1.726	-1.582	-1.015	-0.341	-0.265	0.229	-0.033	0.018	-0.062	-0.061	0.043	-0.138	2	1
3211	19 PUP	K0 III	4.963	1.430	1.285	1.367	1.238	0.425	0.463	0.719	0.958	1.164	1.255	1.398	1.567	3	2
3223	EPS VOL	B6 IV	4.350	-0.790	-0.740	-0.500	-0.170	-0.040	0.040	-0.060						1	0
3249	BET CNC	K4 III	3.945	3.116	2.709	2.773	2.179	0.644	0.752	1.169	1.559	1.897	2.059	2.316	2.567	99	54
3275	31 LYN	K5 III	4.693	3.342	2.891	2.928	2.296	0.656	0.806	1.228	1.671	2.051	2.229	2.506	2.822	3	2
3307	EPS CAR	K0 II+B	2.255	0.782	0.881	1.177	1.440	0.629	0.759	1.166	1.568	1.931	2.112	2.417	2.691	4	1
3314		A0 V	3.909	-0.077	-0.057	-0.009	-0.016	-0.010	0.005	-0.001	-0.008	-0.008	0.003	-0.007	0.023	4	2
3318	ALP CHA	F6 IV	4.194	0.222	0.159	0.268	0.450	0.202	0.211	0.367	0.490	0.605	0.631	0.671	0.779	1	1
3323	OMI UMA	G4 II-III	3.588	1.181	0.974	1.062	1.078	0.407	0.395	0.648	0.887	1.092	1.160	1.257	1.403	3	2
3347	BET VOL	K2 III	4.075	2.031	1.807	1.873	1.546	0.484	0.566	0.868	1.209	1.471	1.602	1.784	1.996	4	1
3371		B5 IV	6.370	-0.800	-0.750	-0.530	-0.100	0.030	0.030	0.040						4	0
3403	PI 2 UMA	K2 III	4.932	2.137	1.869	1.959	1.624	0.509	0.581	0.919	1.188	1.455	1.599	1.803	2.001	3	4
3415		B3 VN	5.240	-1.020	-0.960	-0.610	-0.200	-0.040	-0.050	-0.070						4	0
3418	SIG HYA	K2 III	4.739	2.333	2.091	2.115	1.730	0.551	0.578	0.904	1.177	1.439	1.572	1.764	2.003	2	4
3429	EPS CNC	AM	6.374	0.380	0.301	0.259	0.209	0.053	0.087	0.145	0.227	0.252	0.302	0.341	0.587	1	1
3438	BET PYX	G4 III	4.136	1.411	1.202	1.281	1.212	0.457	0.403	0.656	0.923	1.116	1.189	1.338	1.512	1	1
3441	9 HYA	K1 III	5.145	1.753	1.572	1.644	1.407	0.483	0.511	0.813	1.044	1.283	1.415	1.582	1.765	2	2
3445		F2 IA	4.009	1.673	1.338	0.664	0.743	0.401	0.370	0.608	0.904	1.107	1.322	1.492	1.619	1	1
3447	OMI VEL	B3 IV	3.577	-1.065	-0.980	-0.671	-0.235	-0.058	-0.046	-0.088	-0.136	-0.181	-0.219	-0.301	-0.318	4	1
3449	GAM CNC	A1 V	4.713	0.031	0.012	0.053	0.013	0.003	0.030	0.032	0.014	0.021	0.026	0.039	0.011	2	2
3454	ETA HYA	B3 V	4.275	-1.240	-1.138	-0.749	-0.248	-0.056	-0.061	-0.100	-0.167	-0.209	-0.252	-0.373	-0.400	99	24
3457		B1.5 III	4.340	-1.300	-1.220	-0.800	-0.200	-0.020	-0.020	-0.030						1	0
3459	31 MON	G2 IB	4.842	1.140	0.985	1.028	1.040	0.411	0.408	0.645	0.871	1.064	1.124	1.272	1.408	2	2
3461	DEL CNC	K0 III	4.238	1.838	1.648	1.731	1.457	0.479	0.530	0.837	1.079	1.339	1.444	1.606	1.806	2	2
3462		B3 VN	5.550	-1.530	-1.370	-0.900	-0.250	-0.060	0.000	0.040						3	0
3467		B4 IV	4.820	-1.160	-1.030	-0.700	-0.280	-0.100	-0.080	-0.100						4	0
3468	ALF PYX	B1.5III	3.669	-1.407	-1.287	-0.812	-0.233	-0.041	-0.075	-0.106	-0.143	-0.177	-0.247	-0.372	-0.368	1	1
3474/5	IOT CNC	G8 II/A3 V	4.290	1.553	1.366	1.420	1.297	0.465	0.450	0.758	0.921	1.155	1.285	1.415	1.596	2	3
3482 D	EPS HYA	G0 III-IV+DF7	3.574	0.838	0.715	0.805	0.810	0.301	0.354	0.599	0.791	0.971	1.063	1.167	1.318	2	2
3484	12 HYA	G8 III	4.533	1.302	1.089	1.213	1.155	0.435	0.419	0.695	0.919	1.135	1.226	1.343	1.512	2	2
3485	DEL VEL	A0 V	1.950	0.120	0.120	0.120	0.060	0.030	0.040	0.040						3	0
3487		A0 III	3.937	0.412	0.349	-0.158	0.005	0.056	0.018	0.045	0.066	0.082	0.156	0.198	0.200	1	1
3494		B3 IA	5.600	-0.570	-0.510	-0.260	0.260	0.230	0.190	0.340						4	0
3498		B3 VNE	4.500	-1.270	-1.130	-0.780	-0.290	-0.100	-0.080	-0.010						4	0
3539		B6:VN	5.860	-0.960	-0.880	-0.580	-0.230	-0.040	-0.050	-0.070						4	0
3547	ZET HYA	G8 III	3.378	1.593	1.407	1.490	1.319	0.472	0.462	0.749	0.974	1.217	1.321	1.466	1.640	2	2
3569	IOT UMA	A7 V	3.229	0.188	0.152	0.214	0.246	0.082	0.111	0.185	0.258	0.310	0.323	0.340	0.398	2	2
3571		B8 II	3.851	-0.728	-0.669	-0.472	-0.152	-0.030	-0.020	-0.035	-0.063	-0.073	-0.087	-0.166	0.022	4	1
3572	ALF CNC	AM	4.322	0.322	0.284	0.232	0.191	0.069	0.088	0.113	0.059	0.050	0.038	0.074	0.185	2	1
3574		B5 V	4.670	-0.900	-0.810	-0.510	-0.170	-0.040	-0.040	-0.060						1	0
3576	RHO UMA	M3 IIIB	5.153	3.529	2.981	2.861	2.278	0.726	0.697	1.245	1.852	2.472	2.738	3.172	3.569	2	1
3579		F5 V	4.114	0.244	0.188	0.345	0.493	0.208	0.251	0.415	0.525	0.647	0.693	0.734	0.789	2	3
3582		B3 IV	4.910	-1.320	-1.170	-0.800	-0.310	-0.110	-0.100	-0.100						4	0
3594	KAP UMA	B9N	3.607	0.071	0.057	-0.093	-0.040	0.002	0.030	0.046	0.062	0.071	0.089	0.121	0.120	3	2
3612		G8 IB-II	4.803	1.652	1.431	1.476	1.381	0.509	0.465	0.757	1.000	1.218	1.312	1.456	1.637	3	2
3614		K2 III	4.058	2.258	1.995	2.047	1.670	0.553	0.567	1.065	1.167	1.402	1.525	1.719	2.025	1	1
3615	ALF VOL	A5 V	4.050	0.210	0.170	0.240	0.210	0.050	0.070	0.100						1	0
3616 D	SIG 2 UMA	F7 IV-V	4.954	0.259	0.184	0.361	0.550	0.225	0.279	0.459	0.612	0.750	0.747	0.844	0.926	3	2
3619	15 UMA	AM	4.531	0.316	0.265	0.325	0.360	0.127	0.145	0.206	0.308	0.373	0.390	0.407	0.501	2	2
3624	TAU UMA	A7 M	4.768	0.410	0.346	0.384	0.446	0.167	0.188	0.277	0.366	0.456	0.465	0.485	0.506	3	3
3634	LAM VEL	K5 IB	2.633	3.441	3.055	2.946	2.460	0.768	0.821	1.259	1.755	2.149	2.819	2.648	2.917	1	1
3642		B2 IV E	4.640	-1.420	-1.330	-0.880	-0.260	-0.050	-0.080	-0.040						2	0
3659	A CAR	B2 IV-V	3.422	-1.199	-1.081	-0.726	-0.267	-0.043	-0.066	-0.107	-0.172	-0.205	-0.256	-0.375	-0.156	5	1
3662	18 UMA	A5 V	4.873	0.211	0.168	0.213	0.227	0.083	0.100	0.168	0.223	0.296	0.312	0.317	0.375	3	3
3663		B3 III	3.980	-1.240	-1.100	-0.770	-0.250	-0.070	-0.080	-0.130						4	0
3665	THE HYA	B9.5 VP	3.913	-0.245	-0.214	-0.144	-0.076	-0.034	-0.009	-0.011	-0.047	-0.049	-0.074	-0.087	-0.071	2	2
3685	BET CAR	A0 III	1.688	0.201	0.179	0.001	-0.012	0.008	0.004	0.009	0.038	0.056	0.064	0.096	0.101	4	2
3690 D	38 LYN	A2 V	3.859	0.106	0.087	0.091	0.089	0.023	0.039	0.087	0.083	0.130	0.125	0.153	0.186	2	2
3691		B7 IV	5.970	-0.730	-0.680	-0.430	-0.170	-0.030	-0.030	-0.050						4	0
3699	IOT CAR	F0 IB	2.330	0.328	0.216	0.183	0.186	0.111	0.108	0.170	0.296	0.357	0.445	0.510	0.531	4	1
3705	ALF LYN	M0 III	3.576	3.366	2.867	2.911	2.304	0.654	0.805	1.239	1.760	2.154	2.312	2.600	2.877	2	2
3706	26 HYA	G8 III	4.982	1.387	1.190	1.278	1.212	0.442	0.418	0.675	0.937	1.161	1.242	1.385	1.561	2	4
3709	27 HYA	G8 III-IV	5.012	1.368	1.186	1.275	1.192	0.425	0.420	0.683	0.914	1.124	1.209	1.347	1.519	1	2
3717		B7 IV	6.240	-0.830	-0.800	-0.560	-0.190	-0.020	-0.040	-0.060						4	0

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE	52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
3731	KAP LEO	K2 III	4.760	2.290	2.033	2.125	1.708	0.499	0.615	0.949	1.275	1.553	1.699	1.888	2.085	1	2
3734	KAP VEL	B2 IV-V	2.461	-1.236	-1.150	-0.774	-0.258	-0.059	-0.073	-0.127	-0.119	-0.169	-0.204	-0.336	-0.345	6	1
3748	ALF HYA	K3 IIIA	2.384	2.969	2.611	2.688	2.114	0.621	0.719	1.096	1.452	1.775	1.923	2.168	2.378	1	2
3750		G2 V	5.583	0.503	0.387	0.588	0.718	0.304	0.363	0.575	0.774	0.954	1.013	1.090	1.206	1	2
3751		K3 III	4.660	3.065	2.698	2.717	2.188	0.660	0.726	1.112	1.476	1.810	1.956	2.193	2.430	2	3
3757	23 UMA	F0 IV	3.750	0.343	0.245	0.272	0.382	0.160	0.176	0.301	0.418	0.532	0.566	0.599	0.633	2	2
3759	TAU 1 HYA	F6 V	4.715	0.224	0.155	0.333	0.519	0.243	0.230	0.391	0.539	0.656	0.680	0.727	0.787	2	2
3771	24 UMA	G2 IV	4.736	0.896	0.721	0.897	0.954	0.383	0.369	0.623	0.798	1.008	1.077	1.183	1.351	3	2
3773	LAM LEO	K5 III	4.751	3.397	2.931	2.958	2.312	0.652	0.779	1.241	1.709	2.107	2.283	2.567	2.815	2	3
3775	THE UMA	F6 IV	3.306	0.266	0.187	0.327	0.547	0.253	0.232	0.425	0.551	0.691	0.729	0.773	0.871	2	2
3786 D	PSI VEL	F2 IV	3.668	0.270	0.197	0.294	0.460	0.212	0.153	0.289	0.165	0.269	0.292	0.322	0.356	1	1
3800	10 LMI	G8 III	4.764	1.295	1.128	1.216	1.168	0.431	0.426	0.702	0.890	1.092	1.190	1.326	1.519	4	2
3803 V	N VEL	K5 III	3.603	3.280	2.902	2.912	2.301	0.646	0.802	1.227	1.706	2.115	2.291	2.590	2.819	5	1
3809		K0 III	5.038	1.527	1.316	1.420	1.299	0.469	0.475	0.766	0.988	1.218	1.315	1.477	1.694	2	2
3815	11 LMI	G8 IV-V	5.602	0.837	0.775	0.977	0.965	0.342	0.417	0.653	0.852	1.042	1.091	1.198	1.337	2	2
3816 V	R CAR	GM5 E	5.871	3.120	1.426	0.896	0.609	1.166	0.081	1.354	2.713	3.589	4.018	4.623	4.749	1	1
3825		B5 II	4.120	-0.790	-0.730	-0.540	-0.070	0.040	0.030	0.080						1	0
3834		K3 III	5.034	2.654	2.290	2.376	1.899	0.573	0.671	1.067	1.392	1.692	1.838	2.067	2.351	2	2
3845	IOT HYA	K3 III	4.240	2.569	2.249	2.333	1.878	0.587	0.646	1.034	1.341	1.629	1.771	1.994	2.241	2	2
3849	KAP HYA	B5 V	5.048	-0.990	-0.888	-0.585	-0.184	-0.041	-0.045	-0.070	-0.123	-0.165	-0.176	-0.272	-0.319	2	2
3852	OMI LEO	A5 V+F6II-III	3.668	0.556	0.468	0.509	0.611	0.240	0.251	0.417	0.496	0.644	0.692	0.743	0.847	2	2
3856		B9 V	4.570	-0.390	-0.310	-0.150	-0.060	-0.010	-0.020	-0.010						5	0
3860		B5 IV	5.060	-1.010	-0.960	-0.610	-0.230	-0.070	-0.070	-0.070						4	0
3873	EPS LEO	G0 II	3.190	1.105	0.878	0.943	1.006	0.377	0.386	0.627	0.817	1.025	1.098	1.191	1.314	2	2
3875		A0 V	5.530	-0.180	-0.170	-0.120	-0.100	-0.030	-0.010	-0.040						4	0
3881	15 LMI	G1 V	5.246	0.500	0.396	0.586	0.723	0.284	0.304	0.497	0.649	0.810	0.857	0.932	1.020	2	2
3884 V	I CAR	CG2 CEP.	4.475	2.728	2.424	2.382	2.055	0.686	0.745	1.085	1.393	1.669	1.778	1.997	2.163	1	1
3886		B3 V	5.550	-1.240	-1.140	-0.750	-0.230	-0.040	-0.080	-0.130						4	0
3888	UPS UMA	F2 IV	3.852	0.326	0.238	0.220	0.306	0.141	0.162	0.282	0.358	0.462	0.486	0.524	0.535	2	2
3890/1	UPS CAR	A9 II	3.062	0.743	0.658	0.158	0.229	0.139	0.184	0.259	0.446	0.539	0.676	0.765	0.795	4	1
3894 D	PHI UMA	A3 S	4.595	0.168	0.151	0.081	0.036	0.029	0.020	0.042	0.048	0.071	0.065	0.083	0.046	2	2
3903	UPS 1 HYA	G8 III	4.339	1.394	1.222	1.303	1.217	0.443	0.431	0.693	0.930	1.141	1.223	1.345	1.494	2	2
3905	MU LEO	K2 III	4.229	2.416	2.206	2.230	1.751	0.487	0.629	0.961	1.218	1.496	1.621	1.806	2.018	2	2
3925		B4 V	5.620	-0.870	-0.770	-0.390	-0.160	-0.030	-0.060	-0.100						4	0
3940	PHI VEL	B5 IB	3.535	-0.941	-0.862	-0.651	-0.146	-0.027	-0.022	-0.032	-0.010	-0.042	-0.021	-0.125	0.032	4	1
3950	PI LEO	M2 III	5.116	3.611	3.102	3.055	2.399	0.736	0.770	1.263	1.922	2.414	2.621	2.956	3.243	2	2
3970	UPS 2 HYA	B8 V	4.550	-0.436	-0.373	-0.314	-0.130	-0.010	-0.035	-0.052	-0.085	-0.091	-0.106	-0.142	-0.142	3	2
3974	21 LMI	A7 V	4.539	0.200	0.181	0.223	0.245	0.089	0.080	0.130	0.184	0.247	0.236	0.274	0.291	3	2
3975	ETA LEO	A0 IB	3.551	-0.212	-0.248	-0.445	-0.099	0.019	0.049	0.067	0.081	0.098	0.153	0.124	0.097	3	2
3980	31 LEO	K4 III	4.762	3.055	2.659	2.710	2.124	0.609	0.760	1.162	1.544	1.888	2.045	2.294	2.548	3	2
3981	ALF SEX	A0 III	4.479	-0.055	-0.039	-0.138	-0.046	0.015	-0.013	-0.045	-0.042	-0.028	-0.028	-0.044	-0.056	3	2
3982	ALF LEO	B7 V	1.382	-0.615	-0.563	-0.437	-0.162	-0.032	-0.034	-0.058	-0.061	-0.092	-0.106	-0.150	-0.126	3	2
3990		B2 V	4.850	-1.080	-1.010	-0.710	-0.220	-0.010	-0.040	-0.060						4	0
3994	LAM HYA	K0 III	3.847	1.743	1.586	1.627	1.374	0.466	0.485	0.772	0.982	1.199	1.297	1.436	1.625	3	2
4023		A2 V	3.845	0.119	0.108	0.119	0.068	0.019	0.012	0.010	0.062	0.057	0.056	0.058	0.117	1	1
4031	ZET LEO	F0 III	3.536	0.525	0.407	0.276	0.352	0.161	0.179	0.292	0.411	0.517	0.571	0.614	0.681	3	4
4033	LAM UMA	A2 IV	3.443	0.153	0.105	0.069	0.040	0.011	0.005	0.025	0.035	0.058	0.056	0.080	0.066	2	2
4037	OMG CAR	B8 III	3.313	-0.367	-0.350	-0.410	-0.127	-0.016	-0.033	-0.028	-0.027	-0.037	0.000	-0.063	-0.041	4	1
4038		B3	6.100	-1.240	-1.090	-0.710	-0.190	-0.020	-0.030	-0.040						4	0
4039	39 LEO	D F3	5.902	0.256	0.135	0.308	0.568	0.242	0.228	0.409	0.588	0.746	0.828	0.869	0.953	2	2
4050		K5 IB	3.796	3.000	2.738	2.737	2.252	0.716	0.763	1.140	1.526	1.865	2.034	2.305	2.555	4	1
4054	40 LEO	F6 IV	4.903	0.219	0.173	0.341	0.510	0.218	0.226	0.373	0.537	0.669	0.698	0.754	0.802	2	2
4057/8	GAM LEO	K0 IIIP	2.303	1.909	1.625	1.733	1.511	0.520	0.528	0.853	1.198	1.470	1.609	1.805	1.977	3	4
4069	MU UMA	M0 III	3.489	3.303	2.845	2.876	2.314	0.686	0.789	1.261	1.745	2.203	2.418	2.726	2.981	3	2
4072		A0P	4.972	-0.214	-0.209	-0.190	-0.068	-0.012	0.001	-0.006	0.003	0.010	0.018	-0.002	-0.037	3	3
4074		B3 III	4.460	-0.930	-0.860	-0.630	-0.200	-0.040	-0.040	-0.080						1	0
4090	30 LMI	F0 V	4.802	0.367	0.344	0.282	0.299	0.120	0.164	0.237	0.325	0.425	0.450	0.491	0.534	2	4
4092		M0 III	5.995	3.362	2.890	2.877	2.238	0.637	0.771	1.232	1.758	2.166	2.355	2.648	2.923	2	2
4094	MU HYA	K4 III	4.205	3.206	2.795	2.809	2.201	0.625	0.778	1.195	1.601	1.954	2.125	2.378	2.647	2	2
4100 D	BET LMI	G8 III-IV	4.402	1.300	1.161	1.271	1.184	0.430	0.445	0.714	0.927	1.154	1.252	1.395	1.522	2	2
4102		F3 IV-V	4.093	0.176	0.106	0.254	0.402	0.178	0.172	0.286	0.426	0.537	0.556	0.572	0.691	2	1
4112	36 UMA	F8 V	4.947	0.234	0.176	0.388	0.601	0.276	0.277	0.462	0.659	0.804	0.855	0.905	1.058	2	2
4114		F0 II	3.850	0.847	0.705	0.312	0.311	0.146	0.176	0.277	0.418	0.511	0.573	0.651	0.760	2	1
4132		A7 IV	4.766	0.200	0.190	0.219	0.259	0.107	0.106	0.182	0.245	0.312	0.329	0.370	0.384	2	3
4133	RHO LEO	B1 IB	3.813	-1.458	-1.344	-0.906	-0.224	-0.013	-0.037	-0.036	-0.094	-0.118	-0.159	-0.266	-0.302	2	2
4138		A2 V	4.760	0.140	0.120	0.100	0.020	0.010	0.010	0.000						1	0
4140		B4 VNE	3.312	-1.076	-1.006	-0.686	-0.167	-0.027	-0.024	0.020	0.098	0.141	0.076	-0.028	0.050	4	1
4163 V.	U HYA	C7,3	5.627	12.	8.900	7.922	5.309	1.500	1.238	1.882	2.381	2.846	3.338	3.720	4.161	1	3
4166	37 LMI	G3 II:	4.865	1.181	0.971	1.002	1.037	0.394	0.372	0.617	0.823	1.004	1.076	1.193	1.303	2	3
4167 D		F4 IV+A1 V	3.919	0.210	0.165	0.272	0.357	0.150	0.147	0.252	0.402	0.474	0.482	0.493	0.594	1	1
4174 V	GAM CHA	M0 III	4.621	3.434	3.019	2.967	2.325	0.675	0.822	1.274	1.811	2.233	2.376	2.704	2.960	1	1
4199	THE CAR	B0.5V P	2.739	-1.612	-1.512	-0.990	-0.319	-0.066	-0.099	-0.156	-0.185	-0.225	-0.280	-0.472	-0.505	5	1
4204		B5: V	5.780	-0.810	-0.760	-0.480	-0.050	0.040	0.000	0.010						4	0
4205		B5 VN	4.800	-1.160	-1.080	-0.770	-0.190	-0.040	-0.070	-0.110						4	0
4210 V	ETA CAR	PEC	6.116	-0.173	-0.114	0.225	0.877	0.512	0.140	1.197	1.018	1.325	1.594	1.807	2.450	6	1
4216	MU VEL	G5 III	2.925	1.256	1.066	1.202	1.139	0.428	0.435	0.707	0.933	1.145	1.234	1.361	1.513	1	1
4222		B3 IV	4.870	-0.980	-0.920	-0.610	-0.190	-0.040	-0.070	-0.110						4	0
4232	NU HYA	K3 III	3.433	2.348	2.072	2.149	1.725	0.541	0.592	0.953	1.237	1.506	1.633	1.836	2.080	2	2
4234	DEL 2 CHA	B2.5 IV	4.440	-1.190	-1.120	-0.720	-0.240	-0.070	-0.080	-0.130						4	0
4247	46 LMI	K0 III-IV	4.061	1.742	1.540	1.655	1.402	0.475	0.494	0.805	1.053	1.299	1.399	1.570	1.718	3	1
4248	OMG UMA	A1 V	4.694	-0.106	-0.095	-0.086	-0.066	-0.011	-0.009	-0.028	-0.024	-0.022	-0.044	-0.023	-0.081	2	2
4257		K0 III-IV	4.025	1.311	1.149	1.282	1.199	0.424	0.454	0.724	1.003	1.216	1.300	1.445	1.609	4	1
4287	ALF CRT	K0 III	4.359	1.875	1.677	1.745	1.468	0.481	0.524	0.826	1.090	1.324	1.441	1.596	1.805	2	3
4295	BET UMA	A1 V	2.359	0.006	0.015	0.003	-0.016	-0.004	-0.014	-0.015	-0.025	-0.019	-0.033	-0.037	-0.069	2	5
4299	61 LEO	K5 III	5.167	3.548	3.058	3.051	2.402	0.702	0.786	1.264	1.812	2.245	2.440	2.743	3.048	3	2
4300	60 LEO	A1 V	4.444	0.085	0.080	0.128	0.076	0.022	0.010	0.013	0.006	0.027	0.017	0.031	0.031	2	2
4301	ALF UMA	K0 III	2.068	1.783	1.588	1.645	1.429	0.505	0.506	0.809	1.072	1.321	1.434	1.597	1.769	3	2
4310	CHI LEO	F2 III-IV	4.680	0.294	0.227	0.278	0.387	0.171	0.187	0.307	0.408	0.501	0.519	0.539	0.610	4	2
4335	PSI UMA	K1 III	3.312	2.067	1.837	1.920	1.577	0.512	0.550	0.873	1.081	1.394	1.507	1.693	1.871	3	2
4337 V		G0 IA-0	4.280	2.268	1.892	1.760	1.606	0.588	0.646	0.926	1.302	1.540	1.645	1.860	2.018	2	1

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE	52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
4357	DEL LEO	A4 V	2.611	0.238	0.199	0.185	0.153	0.051	0.067	0.099	0.192	0.236	0.222	0.240	0.239	3	3
4359	THE LEO	A2 V	3.351	0.082	0.067	-0.008	-0.021	-0.008	0.014	0.022	0.072	0.068	0.079	0.085	0.077	3	2
4362	72 LEO	M3 III	5.010	3.566	3.053	2.939	2.380	0.822	0.691	1.266	2.069	2.647	2.868	3.250	3.540	3	3
4368	PHI LEO	A7 III-IV	4.515	0.397	0.324	0.208	0.236	0.114	0.120	0.175	0.236	0.313	0.337	0.374	0.444	3	2
4371	75 LEO	M0 IIIB	5.575	3.297	2.836	2.850	2.210	0.626	0.760	1.207	1.729	2.165	2.358	2.620	2.899	1	2
4374/5	XI UMA	G0 V	3.900	0.298	0.202	0.450	0.662	0.287	0.282	0.491	0.693	0.874	0.937	1.002	1.149	2	3
4377	NU UMA	K3 III	3.839	2.753	2.397	2.456	1.996	0.624	0.682	1.072	1.421	1.736	1.884	2.108	2.311	1	3
4380	55 UMA	A2 V	4.819	0.093	0.086	0.158	0.128	0.047	0.043	0.084	0.093	0.137	0.155	0.153	0.174	2	2
4382	DEL CRT	G8 III-IV	3.871	1.913	1.635	1.720	1.479	0.518	0.522	0.863	1.091	1.358	1.480	1.661	1.885	2	2
4386	SIG LEO	B9 V	4.086	-0.233	-0.215	-0.186	-0.087	-0.019	0.005	0.009	-0.029	-0.024	-0.035	-0.034	-0.072	2	2
4390	PI CEN	B5 VN	3.880	-1.080	-0.940	-0.620	-0.220	-0.060	-0.090	-0.140						4	0
4392	56 UMA	G8 II	5.199	1.597	1.396	1.457	1.319	0.471	0.447	0.720	0.940	1.171	1.281	1.420	1.576	3	2
4399 D	IOT LEO	F2 IV	4.040	0.309	0.232	0.338	0.471	0.219	0.211	0.333	0.464	0.587	0.621	0.665	0.767	2	2
4405 D	GAM CRT	A5 V	4.143	0.242	0.198	0.237	0.238	0.087	0.110	0.174	0.216	0.281	0.279	0.318	0.410	2	2
4406		B3 III	5.640	-0.880	-0.840	-0.510	-0.050	0.060	0.040	0.060						4	0
4415		B5 IV	5.290	-0.890	-0.840	-0.590	-0.180	0.000	-0.020	-0.040						4	0
4434	LAM DRA	M0 III	4.271	3.008	3.062	3.066	2.415	0.703	0.804	1.291	1.809	2.277	2.466	2.772	2.989	3	2
4441	OMI 1 CEN	G0 IA	5.510	1.970	1.670	1.350	1.300	0.540	0.570	0.870						4	0
4442		A2 IA	5.300	0.590	0.450	0.130	0.440	0.290	0.280	0.460						3	0
4450	XI HYA	G7 III	3.798	1.444	1.242	1.375	1.238	0.427	0.452	0.735	0.954	1.165	1.264	1.383	1.536	1	1
4456 D	90A B LEO	B3 V	5.914	-1.111	-1.011	-0.643	-0.215	-0.053	-0.062	-0.093	-0.139	-0.170	-0.215	-0.310	-0.362	53	12
4460		B9 V	4.600	-0.340	-0.300	-0.260	-0.120	-0.030	-0.030	-0.040						1	0
4467	LAM CEN	B9 III	3.149	-0.055	-0.054	-0.274	-0.098	-0.002	-0.002	-0.021	0.005	0.010	0.030	0.022	-0.079	4	1
4468	THE CRT	B9 V	4.661	-0.280	-0.246	-0.218	-0.103	-0.018	-0.032	-0.048	-0.073	-0.085	-0.095	-0.110	-0.125	3	2
4471	UPS LEO	G9 III	4.557	1.518	1.304	1.409	1.285	0.456	0.465	0.771	0.984	1.219	1.321	1.465	1.637	3	2
4496	61 UMA	G8 V	5.490	0.608	0.560	0.796	0.861	0.322	0.396	0.627	0.845	1.033	1.086	1.198	1.322	5	3
4514	ZET CRT	G8 III	4.921	1.474	1.306	1.391	1.282	0.454	0.424	0.710	0.918	1.141	1.229	1.354	1.491	2	2
4517	NU VIR	M1 III	4.416	3.430	2.816	2.801	2.240	0.691	0.707	1.163	1.757	2.197	2.398	2.696	2.940	2	2
4518	CHI UMA	K0 III	4.000	2.149	1.863	1.946	1.612	0.537	0.560	0.907	1.197	1.474	1.608	1.793	1.990	2	2
4520	LAM MUS	A7 III	3.691	0.275	0.280	0.226	0.176	0.057	0.069	0.096	0.203	0.243	0.235	0.260	0.299	4	1
4527 D	93 LEO	G5III-IV+A	4.645	0.687	0.585	0.651	0.626	0.253	0.272	0.481	0.680	0.855	0.924	1.030	1.146	3	2
4534	BET LEO	A3 V	2.125	0.131	0.105	0.173	0.142	0.054	0.038	0.075	0.067	0.093	0.092	0.109	0.117	10	48
4537		B3 VNE	4.340	-1.080	-0.970	-0.660	-0.220	-0.060	-0.070	-0.120						4	0
4540	BET VIR	F8 V	3.700	0.409	0.307	0.494	0.650	0.271	0.286	0.469	0.637	0.778	0.820	0.864	0.976	6	4
4549		B4 IV	4.900	-1.010	-0.940	-0.590	-0.230	-0.060	-0.050	-0.090						4	0
4550		G8 VP	6.627	0.557	0.417	0.738	0.873	0.348	0.391	0.656	0.895	1.101	1.186	1.305	1.436	49	40
4554	GAM UMA	A0 V	2.413	0.050	0.042	0.014	0.007	0.004	-0.020	-0.016	-0.025	-0.029	-0.012	-0.017	-0.053	2	5
4573		B3 V	5.550	-1.120	-1.050	-0.590	-0.260	-0.060	-0.080	-0.090						4	0
4583	EPS CHA	B9 VN	4.890	-0.320	-0.310	-0.150	-0.070	-0.020	-0.040	-0.050						1	0
4589	PI VIR	A4 V	4.710	0.330	0.283	0.186	0.128	0.083	0.048	0.091	0.120	0.153	0.169	0.221	0.219	2	2
4599	THE 1 CRU	AM	4.390	0.240	0.180	0.220	0.280	0.140	0.130	0.230						1	0
4603	THE 2 CRU	B2 V	4.710	-1.020	-0.940	-0.500	-0.160	-0.010	-0.040	-0.050						1	0
4608	OMI VIR	G8 III	4.348	1.349	1.153	1.301	1.269	0.466	0.445	0.724	0.962	1.185	1.283	1.421	1.562	3	2
4618		B2 III NE	4.470	-1.230	-1.090	-0.710	-0.240	-0.070	-0.080	-0.130						4	0
4620		A1 V	5.300	0.080	0.110	0.050	-0.010	0.030	0.010	0.030						5	0
4621 V	DEL CEN	B2 IVNE	2.509	-1.413	-1.298	-0.804	-0.194	-0.020	-0.059	-0.007	-0.005	0.028	-0.038	-0.192	-0.121	5	1
4630	EPS CRV	K3 III	3.368	2.641	2.326	2.385	1.919	0.591	0.667	0.999	1.352	1.618	1.756	1.987	2.188	1	1
4638	RHO CEN	B3 V	3.950	-1.080	-1.000	-0.630	-0.230	-0.070	-0.110	-0.170						4	0
4656 V	DEL CRU	B2 IV	2.777	-1.476	-1.376	-0.913	-0.328	-0.090	-0.162	-0.188	-0.148	-0.203	-0.272	-0.445	-0.467	6	1
4660	DEL UMA	A3 V	3.340	0.156	0.133	0.144	0.107	0.033	0.038	0.070	0.051	0.098	0.113	0.112	0.083	3	5
4662	GAM CRV	B8 III	2.584	-0.573	-0.536	-0.429	-0.158	-0.035	-0.019	-0.035	-0.050	-0.069	-0.087	-0.151	-0.152	19	25
4674	BET CHA	B5 VN	4.240	-0.910	-0.880	-0.560	-0.200	-0.050	-0.050	-0.080						1	0
4679	ZET CRU	B2.5 V	4.020	-1.150	-1.090	-0.710	-0.270	-0.060	-0.100	-0.170						4	0
4689	ETA VIR	A2 V	3.904	0.122	0.090	0.060	0.006	0.009	0.038	0.057	0.000	0.016	0.005	0.029	0.086	3	2
4695	16 VIR	K1 III	5.266	2.192	1.873	1.922	1.575	0.519	0.579	0.913	1.194	1.460	1.590	1.801	2.024	3	2
4697	11 COM	G8 III	4.972	1.613	1.364	1.468	1.320	0.481	0.460	0.766	1.010	1.246	1.352	1.522	1.706	3	2
4700	EPS CRU	GK3	3.991	2.789	2.490	2.531	1.992	0.581	0.713	1.083	1.469	1.779	1.926	2.193	2.378	4	1
4707	12 COM	A5+G5 III	4.940	0.646	0.569	0.616	0.569	0.241	0.266	0.453	0.605	0.765	0.829	0.938	1.061	3	2
4716	5 CVN	G7 III	4.960	1.317	1.108	1.174	1.145	0.425	0.409	0.670	0.867	1.072	1.155	1.300	1.454	3	2
4730/1	ALF CRU	B0.5 IV+B1 V	0.733	-1.622	-1.484	-1.004	-0.339	-0.088	-0.101	-0.176	-0.206	-0.268	-0.329	-0.481	-0.530	4	1
4732		B5 VN	4.790	-1.030	-0.980	-0.650	-0.250	-0.050	-0.090	-0.130						4	0
4737	GAM COM	K1 III-IV	4.616	2.065	1.883	1.943	1.579	0.497	0.543	0.836	1.086	1.333	1.432	1.615	1.785	4	2
4743	SIG CEN	B2 V	3.870	-1.310	-1.220	-0.800	-0.290	-0.070	-0.100	-0.170						4	0
4757	DEL CRV	B9.5 V:N	2.955	-0.182	-0.159	-0.118	-0.061	-0.017	-0.019	-0.021	-0.042	-0.060	-0.083	-0.083	-0.103	3	2
4763 V	GAM CRU	M3 II	2.050	3.571	2.996	2.876	2.258	0.796	0.634	1.266	2.200	2.831	3.067	3.509	3.800	2	2
4773	GAM MUS	B5 V	3.843	-1.030	-0.982	-0.636	-0.242	-0.065	-0.072	-0.120	-0.122	-0.164	-0.208	-0.315	-0.326	5	1
4775	ETA CRV	F0 IV	4.380	0.163	0.117	0.263	0.425	0.196	0.192	0.300	0.441	0.537	0.542	0.576	0.667	3	2
4785	BET CVN	G0 V	4.409	0.327	0.248	0.479	0.659	0.288	0.289	0.491	0.649	0.815	0.861	0.923	1.011	5	2
4786	BET CRV	G5 III	2.862	1.294	1.074	1.185	1.149	0.419	0.424	0.668	0.917	1.107	1.180	1.307	1.470	1	1
4787	KAP DRA	B7P	3.850	-0.964	-0.919	-0.605	-0.182	-0.029	-0.035	-0.001	-0.072	-0.047	-0.094	-0.203	-0.232	3	3
4789	23 COM	A0 III	4.791	0.001	0.009	-0.021	-0.019	0.005	0.014	0.002	0.017	0.026	0.045	0.045	0.085	3	2
4798 V	ALF MUS	B2 IV-V	2.654	-1.394	-1.292	-0.844	-0.308	-0.080	-0.104	-0.174	-0.169	-0.242	-0.309	-0.443	-0.465	5	1
4802	TAU CEN	A2 V	3.919	0.092	0.076	0.025	0.020	0.010	0.041	0.073	0.079	0.102	0.099	0.101	0.165	1	1
4813	CHI VIR	K2 III	4.956	2.458	2.236	2.237	1.765	0.535	0.597	0.919	1.196	1.452	1.574	1.766	1.976	3	2
4819	GAM CEN	A0 III	2.220	0.075	0.061	-0.053	-0.031	-0.020	0.012	0.008	0.043	0.034	0.035	0.039	0.076	1	1
4823		B7 IV	4.950	-0.630	-0.550	-0.460	-0.140	0.010	-0.010	-0.010						4	0
4825/6	GAM VIR	F0 V	2.865	0.109	0.080	0.203	0.408	0.177	0.182	0.303						4	0
4828	RHO VIR	A1 V	4.898	0.082	0.087	0.141	0.100	0.035	0.028	0.043	0.066	0.096	0.089	0.119	0.167	3	2
4844	BET MUS	B2 V	3.030	-1.220	-1.167	-0.742	-0.270	-0.070	-0.097	-0.158	-0.128	-0.178	-0.228	-0.370	-0.407	5	1
4845	10 CVN	G0 V	6.081	0.206	0.114	0.383	0.613	0.247	0.270	0.456	0.769	0.933	0.987	1.078	1.107	2	2
4846 V.	Y CVN	C5,4	5.877	12.	11.500	10.160	6.938	2.132	1.121	1.843	2.414	2.917	3.556	3.914	4.345	1	1
4848		B3 V	4.620	-1.060	-1.040	-0.670	-0.240	-0.070	-0.090	-0.200						4	0
4853 V	BET CRU	B0.5 III	1.232	-1.634	-1.487	-0.998	-0.356	-0.080	-0.110	-0.126	-0.190	-0.258	-0.322	-0.488	-0.517	5	2
4883 *	31 COM	G0 III	5.093	0.646	0.501	0.621	0.798	0.371	0.335	0.543	0.726	0.909	0.971	1.058	1.179	3	2
4897	LAM CRU	B4 VN	4.600	-1.010	-0.960	-0.620	-0.230	-0.050	-0.080	-0.160						4	0
4898	MU 1 CRU	B2 IV-V	4.020	-1.290	-1.180	-0.770	-0.280	-0.070	-0.090	-0.160						4	0
4899		B5 VE	5.090	-0.990	-0.970	-0.560	-0.170	-0.010	-0.030	0.020						4	0
4902	PSI VIR	M3 III	5.127	3.009	2.656	2.650	2.249	0.784	0.702	1.274	2.119	2.690	2.916	3.281	3.609	3	2
4905	EPS UMA	A0P	1.792	0.061	0.040	-0.074	-0.044	-0.026	0.017	0.014	0.018	0.023	0.018	0.006	-0.014	3	4
4910	DEL VIR	M3 III-	3.742	3.546	2.937	2.834	2.253	0.762	0.645	1.219	2.100	2.705	2.935	3.316	3.609	3	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE	52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
4914	ALF 1 CVN	F0 V/AP	5.680	0.072	0.027	0.189	0.335	0.150	0.154	0.272	0.400	0.386	0.540	0.574	0.551	3	1
4915	ALF 2 CVN	B9.5 P:	2.948	-0.572	-0.545	-0.386	-0.149	-0.077	0.015	-0.015	-0.070	-0.124	-0.107	-0.171	-0.220	1	1
4920	36 COM	M1 III	5.193	3.460	2.968	2.992	2.335	0.657	0.787	1.254	1.814	2.252	2.432	2.730	2.995	3	2
4923	DEL MUS	K2 III	3.953	2.275	1.947	2.014	1.626	0.497	0.595	0.902	1.279	1.537	1.636	1.808	2.021	4	1
4931 D	78 UMA	F2 V	5.008	0.219	0.159	0.284	0.423	0.195	0.188	0.308	0.437	0.548	0.573	0.602	0.641	3	6
4932	EPS VIR	G9 II-III	3.080	1.427	1.255	1.331	1.209	0.434	0.440	0.706	0.937	1.148	1.232	1.354	1.511	3	3
4933	XI 1 CEN	A0 V	4.860	-0.020	-0.080	0.040	0.050	0.020	0.020	0.020						5	0
4940		B5 V	4.670	-1.000	-0.920	-0.590	-0.230	-0.050	-0.060	-0.120						4	0
4942	XI 2 CEN	B1.5 V	4.250	-1.300	-1.230	-0.720	-0.290	-0.060	-0.060	-0.140						5	0
4954	41 COM	K5 III	5.225	3.267	2.834	2.858	2.227	0.622	0.787	1.224	1.683	2.038	2.213	2.469	2.700	3	2
4963 D	THE VIR	A1 V	4.407	0.032	0.037	-0.052	-0.026	0.012	0.024	0.050	0.048	0.046	0.055	0.061	0.075	3	2
4975		B8 V	4.500	-0.720	-0.680	-0.400	-0.140	-0.030	-0.050	-0.060						1	0
4983	BET COM	G0 V	4.365	0.332	0.277	0.490	0.664	0.291	0.303	0.473	0.642	0.795	0.837	0.892	0.996	4	6
4993	ETA MUS	B8 V	4.760	-0.670	-0.620	-0.360	-0.140	-0.040	-0.080	-0.080						1	0
5017	20 CVN	F0 II-IIIP	4.788	0.480	0.415	0.352	0.373	0.137	0.190	0.255	0.352	0.417	0.436	0.477	0.533	3	6
5019	61 VIR	G6 V	4.925	0.664	0.568	0.795	0.850	0.326	0.365	0.581	0.837	0.991	1.041	1.128	1.262	7	9
5020	GAM HYA	G8 III	3.208	1.338	1.136	1.258	1.164	0.404	0.454	0.702	0.959	1.162	1.234	1.370	1.547	1	1
5026		B5 III	5.490	-0.760	-0.710	-0.430	-0.190	-0.050	-0.040	-0.090						4	0
5028	IOT CEN	A2 V	2.767	0.039	0.035	0.079	0.046	0.006	0.035	0.025	0.091	0.093	0.077	0.072	0.103	1	1
5035		B3 V	4.490	-1.030	-0.960	-0.600	-0.220	-0.050	-0.080	-0.150						5	0
5054/5	ZET UMA	A2 V	2.072	0.046	0.038	0.075	0.037	0.004	0.026	0.034	0.034	0.053	0.050	0.048	0.020	3	3
5056 V	ALF VIR	B1 V	0.952	-1.559	-1.438	-0.937	-0.319	-0.094	-0.063	-0.113	-0.180	-0.234	-0.296	-0.454	-0.511	9	5
5062	80 UMA	A5 V	4.033	0.182	0.156	0.189	0.198	0.068	0.075	0.139	0.183	0.234	0.217	0.253	0.267	3	4
5068	69 VIR	K1 III	5.010	1.953	1.805	1.819	1.522	0.495	0.500	0.795	1.038	1.238	1.311	1.504	1.723	3	2
5072	70 VIR	G5 V	5.172	0.666	0.559	0.776	0.886	0.349	0.352	0.577	0.788	0.963	1.029	1.106	1.227	3	2
5080 V	R HYA	GM7 E	8.920	3.340	2.330	1.290	0.957	1.578	0.977	2.706	4.311	5.982	6.567	8.485	9.191	2	3
5089 D		G8 III	4.182	2.110	1.864	1.896	1.655	0.572	0.541	0.832	1.147	1.392	1.507	1.693	1.897	1	1
5095	74 VIR	M2+ III	5.122	3.684	3.143	3.057	2.433	0.758	0.745	1.268	1.935	2.463	2.682	3.012	3.291	3	2
5105	78 VIR	A2 P	4.938	-0.039	-0.082	0.006	0.006	-0.015	0.079	0.079	0.039	0.052	0.031	0.045	0.048	3	3
5107	ZET VIR	A3 VN	3.380	0.151	0.125	0.176	0.131	0.064	0.067	0.102	0.023	0.087	0.104	0.124	0.182	3	2
5110		F2 IV	5.068	0.329	0.234	0.297	0.426	0.205	0.196	0.367	0.473	0.614	0.662	0.735	0.800	3	3
5112	24 CVN	A4 V	4.692	0.285	0.231	0.182	0.161	0.076	0.058	0.111	0.130	0.169	0.161	0.166	0.141	3	2
5127 D	25 CVN	A7 III	4.810	0.298	0.223	0.200	0.258	0.122	0.122	0.222	0.253	0.318	0.339	0.343	0.366	3	2
5132	EPS CEN	B1 III	2.283	-1.545	-1.364	-0.924	-0.322	-0.076	-0.087	-0.169	-0.185	-0.241	-0.297	-0.478	-0.539	5	1
5154	83 UMA	M2 III	5.057	3.615	3.088	3.063	2.433	0.769	0.754	1.276	1.944	2.436	2.631	2.961	3.171	3	3
5185	TAU BOO	F7 V	4.603	0.282	0.199	0.378	0.557	0.239	0.244	0.405	0.509	0.658	0.662	0.717	0.815	3	2
5190	UPS CEN	B2 IV	3.342	-1.463	-1.329	-0.857	-0.301	-0.073	-0.081	-0.145	-0.216	-0.268	-0.334	-0.475	-0.499	10	1
5191	ETA UMA	B3 V	1.829	-1.121	-1.020	-0.650	-0.220	-0.052	-0.081	-0.126	-0.177	-0.205	-0.253	-0.364	-0.449	3	3
5193 V	MU CEN	B2 IV-V E	3.429	-1.421	-1.327	-0.825	-0.243	-0.038	-0.049	-0.028	-0.150	-0.189	-0.256	-0.379	-0.442	6	1
5200	UPS BOO	K5+ III	4.459	3.314	2.856	2.882	2.254	0.621	0.783	1.218	1.692	2.090	2.260	2.536	2.782	3	3
5206		B4 III	5.670	-1.220	-1.080	-0.680	-0.220	-0.030	-0.050	-0.080						5	0
5217		B5 V	5.960	-0.660	-0.570	-0.360	-0.020	0.060	0.040	0.070						5	0
5219		GM2	5.134	3.788	3.182	3.072	2.447	0.821	0.696	1.271	2.093	2.676	2.910	3.264	3.575	3	3
5221	4 CEN	B4 IV	4.670	-0.850	-0.740	-0.480	-0.160	-0.020	-0.030	-0.060						5	0
5226	10 DRA	GM3	4.940	3.603	3.001	2.900	2.293	0.793	0.646	1.243	2.131	2.749	2.998	3.382	3.650	3	3
5231	ZET CEN	B2.5 IV	2.516	-1.514	-1.393	-0.866	-0.308	-0.076	-0.078	-0.139	-0.207	-0.267	-0.337	-0.484	-0.462	1	1
5235	ETA BOO	G0 IV	2.807	0.549	0.480	0.577	0.703	0.272	0.301	0.492	0.627	0.786	0.823	0.867	0.982	9	3
5248	PHI CEN	B2 IV	3.730	-1.330	-1.180	-0.750	-0.260	-0.050	-0.070	-0.120						5	0
5249	UPS 1 CEN	B2 IV-V	3.790	-1.280	-1.140	-0.720	-0.260	-0.050	-0.070	-0.120						5	0
5264	TAU VIR	A3 III	4.233	0.323	0.248	0.155	0.103	0.064	0.052	0.109	0.140	0.167	0.181	0.229	0.228	3	2
5267	BET CEN	B1 III	0.584	-1.607	-1.466	-0.965	-0.307	-0.093	-0.083	-0.125	-0.194	-0.247	-0.307	-0.482	-0.510	2	2
5285	CHI CEN	B2 V	4.290	-1.280	-1.090	-0.660	-0.240	-0.040	-0.080	-0.110						5	0
5287	PI HYA	K2 III	3.516	1.971	1.707	1.823	1.506	0.479	0.558	0.850	1.165	1.413	1.526	1.706	1.892	1	1
5288	THE CEN	K0 III-IV	2.806	1.649	1.420	1.554	1.337	0.470	0.470	0.775	1.024	1.263	1.364	1.521	1.688	1	1
5291	ALF DRA	A0 III	3.651	-0.108	-0.106	-0.168	-0.092	-0.019	-0.004	0.001	-0.063	-0.070	-0.061	-0.076	-0.104	3	3
5292		B5 IV	6.340	-0.780	-0.670	-0.370	-0.020	0.050	0.060	0.110						5	0
5299		M4-4.5 III	5.529	3.632	2.895	2.631	2.071	0.925	0.508	1.272	2.531	3.301	3.652	4.210	4.523	3	4
5304	12 BOO	F8 IV	4.908	0.352	0.260	0.403	0.613	0.282	0.252	0.437	0.548	0.713	0.741	0.815	0.914	3	2
5313	CU VIR	B9P (SI)	5.005	-0.747	-0.674	-0.442	-0.164	-0.048	-0.022	-0.042	-0.080	-0.094	-0.123	-0.190	-0.185	5	3
5315	KAP VIR	K3 III	4.536	2.662	2.280	2.373	1.886	0.583	0.660	1.045	1.395	1.710	1.841	2.086	2.331	3	2
5316		B3 VE	4.930	-0.980	-0.940	-0.640	-0.110	0.060	0.000	0.090						4	0
5328/9	KAP BOO	F2 V/A7 IV	4.434	0.269	0.216	0.226	0.237	0.099	0.119	0.185	0.269	0.320	0.335	0.314	0.357	2	2
5336	EPS APS	B3 V	5.120	-0.970	-0.890	-0.570	-0.170	-0.030	-0.040	-0.040						4	0
5338	IOT VIR	F7 III-IV	4.195	0.319	0.230	0.391	0.588	0.277	0.253	0.419	0.602	0.730	0.793	0.838	0.926	3	2
5340	ALF BOO	K2 IIIP	0.243	2.403	2.023	2.091	1.702	0.557	0.614	0.978	1.321	1.615	1.749	1.978	2.169	5	12
5350	IOT BOO	A7 V	4.803	0.195	0.162	0.239	0.251	0.096	0.108	0.165	0.270	0.326	0.333	0.320	0.283	3	2
5351	LAM BOO	A0P	4.182	0.104	0.102	0.135	0.111	0.041	0.015	0.050	0.114	0.124	0.135	0.151	0.164	3	2
5354	IOT LUP	B2.5 IV	3.514	-1.215	-1.120	-0.711	-0.235	-0.057	-0.069	-0.109	-0.153	-0.205	-0.241	-0.401	-0.445	1	1
5359	LAM VIR	A8M	4.542	0.224	0.181	0.198	0.159	0.056	0.061	0.090	0.072	0.120	0.116	0.137	0.221	3	2
5361	A BOO	K0 III	5.047	1.738	1.540	1.636	1.412	0.476	0.487	0.783	0.979	1.221	1.309	1.489	1.706	3	2
5370	20 BOO	K3 III	5.163	2.368	2.155	2.202	1.729	0.511	0.616	0.947	1.210	1.483	1.601	1.822	1.999	3	2
5378		B7 III P	4.480	-1.280	-1.190	-0.770	-0.260	-0.050	-0.040	-0.080						3	0
5384		DG3	6.392	0.389	0.295	0.551	0.732	0.314	0.305	0.511	0.711	0.889	0.939	1.003	1.111	2	2
5395	TAU 1 LUP	B2 IV	4.600	-1.300	-1.200	-0.800	-0.240	-0.040	-0.040	-0.060						3	0
5396	TAU 2 LUP	DF7	4.490	0.590	0.410	0.400	0.420	0.210	0.220	0.380						1	0
5404	THE BOO	F7 V	4.166	0.263	0.178	0.369	0.572	0.252	0.258	0.424	0.530	0.666	0.710	0.745	0.835	3	2
5409	PHI VIR	G2 III	4.970	0.645	0.529	0.672	0.808	0.342	0.343	0.558	0.754	0.926	0.984	1.065	1.169	3	2
5412		B6 IV+A1?	5.570	-0.470	-0.430	-0.320	-0.140	-0.040	0.000	-0.010						3	0
5429	RHO BOO	K3 III	3.928	2.541	2.267	2.330	1.822	0.556	0.650	1.014	1.322	1.603	1.738	1.950	2.141	3	2
5430	5 UMI	K4 III	4.613	2.961	2.602	2.666	2.085	0.617	0.714	1.111	1.426	1.758	1.910	2.143	2.341	3	2
5435	GAM BOO	A7 III	3.099	0.317	0.277	0.245	0.226	0.096	0.087	0.151	0.166	0.229	0.248	0.301	0.312	3	2
5440	ETA CEN	B1.5 VN	2.339	-1.360	-1.259	-0.830	-0.286	-0.061	-0.060	-0.090	-0.161	-0.219	-0.272	-0.417	-0.473	4	1
5447	SIG BOO	F2 V	4.569	0.042	0.001	0.173	0.383	0.192	0.195	0.343	0.441	0.560	0.600	0.599	0.662	3	2
5459/60	ALF CEN	G2 V+DK1	-0.074	0.709	0.732	0.860	0.825	0.301	0.395	0.597	0.814	0.985	1.019	1.097	1.237	2	2
5463	ALF CIR	F0 VP	3.254	0.243	0.209	0.249	0.285	0.092	0.130	0.191	0.294	0.352	0.358	0.388	0.446	2	1
5469	ALF LUP	B1.5 III	2.353	-1.470	-1.346	-0.902	-0.306	-0.075	-0.070	-0.110	-0.151	-0.219	-0.261	-0.411	-0.407	4	1
5470	ALF APS	K5 III	4.232	2.899	2.615	2.605	2.079	0.609	0.701	1.077	1.422	1.717	1.882	2.130	2.350	1	1
5471		B3 V	4.013	-1.206	-1.112	-0.713	-0.252	-0.062	-0.056	-0.114	-0.126	-0.174	-0.232	-0.359	-0.285	4	1
5475/6	PI BOO	B9 IIIP/AM	4.539	-0.520	-0.479	-0.315	-0.078	-0.029	0.033	0.060	-0.018	-0.003	-0.027	-0.042	0.009	3	2
5477/8	ZET BOO	A2 III	3.802	0.107	0.110	0.101	0.068	0.023	0.025	0.044	-0.009	0.008	-0.008	0.025	0.056	2	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE	52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
5487	MU VIR	F3 IV	3.959	0.166	0.102	0.235	0.421	0.207	0.218	0.334	0.493	0.602	0.644	0.665	0.722	2	2
5490 V	34 BOO	GM3	5.172	3.655	3.101	3.024	2.453	0.808	0.731	1.290	2.084	2.646	2.869	3.230	3.481	6	1
5502	OMI BOO	K0 III	4.823	1.479	1.301	1.384	1.268	0.453	0.449	0.722	0.953	1.168	1.268	1.392	1.520	3	3
5505/6	EPS BOO	K1: III:+A	2.622	1.424	1.320	1.365	1.222	0.456	0.482	0.755	1.006	1.245	1.349	1.509	1.641	3	2
5511	109 VIR	A0 V	3.723	-0.027	-0.028	-0.061	-0.010	0.008	0.009	0.022	0.002	0.000	-0.005	-0.033	0.011	3	3
5528	OMI LUP	B5 IV	4.410	-1.080	-1.010	-0.650	-0.240	-0.070	-0.030	-0.060						3	0
5531	ALF 2 LIB	AM	2.794	0.244	0.192	0.205	0.183	0.064	0.072	0.104	0.158	0.189	0.188	0.216	0.252	2	2
5543		B6 V	5.050	-1.160	-1.090	-0.690	-0.240	-0.040	-0.050	-0.090						3	0
5544 D	XI BOO	G8 V	4.747	0.662	0.569	0.839	0.906	0.318	0.418	0.677	0.888	1.084	1.149	1.247	1.375	3	2
5551	THE CIR	B3 VNE	5.530	-0.990	-0.920	-0.630	-0.140	0.000	-0.010	0.080						3	0
5563	BET UMI	K4 III	2.479	3.088	2.676	2.756	2.156	0.626	0.739	1.150	1.525	1.873	2.018	2.269	2.460	3	2
5570	16 LIB	F0 IV	4.550	0.237	0.173	0.232	0.348	0.160	0.168	0.285	0.367	0.453	0.463	0.491	0.575	3	2
5571	BET LUP	B2 III	2.713	-1.453	-1.363	-0.905	-0.345	-0.074	-0.074	-0.122	-0.171	-0.233	-0.285	-0.445	-0.459	4	1
5576	KAP CEN	B2 IV	3.160	-1.343	-1.244	-0.813	-0.289	-0.078	-0.072	-0.121	-0.164	-0.229	-0.277	-0.426	-0.451	4	1
5586 V	DEL LIB	A0	4.941	-0.136	-0.133	-0.123	-0.025	0.018	0.030	0.056	0.082	0.106	0.093	0.359	0.023	3	2
5589 V.	RR UMI	M5 III	4.982	3.628	2.872	2.657	2.076	0.941	0.499	1.272	2.470	3.251	3.547	4.096	4.407	1	1
5595		B3 V	5.480	-1.040	-0.920	-0.590	-0.190	-0.030	-0.050	-0.070						3	0
5600	OMG BOO	K4 III	5.221	3.183	2.806	2.829	2.224	0.629	0.785	1.210	1.663	2.027	2.175	2.438	2.663	2	2
5601	110 VIR	K0 III	4.589	1.699	1.463	1.571	1.387	0.492	0.489	0.790	1.038	1.302	1.412	1.583	1.738	2	2
5602	BET BOO	G8 III	3.725	1.492	1.302	1.329	1.244	0.454	0.433	0.715	0.930	1.162	1.258	1.388	1.503	2	2
5603	SIG LIB	M4 III	3.681	3.775	3.185	3.022	2.390	0.798	0.730	1.310	2.177	2.744	2.998	3.399	3.670	1	1
5616	PSI BOO	K2 III	4.821	2.415	2.113	2.176	1.773	0.559	0.615	0.977	1.223	1.509	1.640	1.850	2.079	2	2
5625		B7:V:NN	6.060	-0.820	-0.740	-0.490	-0.200	-0.050	-0.030	-0.040						3	0
5626	LAM LUP	B3 V	4.110	-1.190	-1.120	-0.720	-0.250	-0.060	-0.050	-0.090						3	0
5634	45 BOO	F5 V	5.012	0.158	0.105	0.282	0.497	0.227	0.223	0.388	0.525	0.642	0.682	0.708	0.733	2	2
5649	ZET LUP	G8 III	3.616	1.340	1.122	1.259	1.164	0.406	0.449	0.707	0.943	1.150	1.247	1.376	1.562	1	1
5651		B3 IV	4.850	-1.220	-1.120	-0.730	-0.250	-0.060	-0.060	-0.090						3	0
5652	IOT LIB	B9 IV(SI)	4.564	-0.590	-0.556	-0.387	-0.126	-0.027	0.008	-0.007	-0.024	-0.048	-0.056	-0.110	-0.130	2	3
5671	GAM TRA	A0 V	2.938	0.136	0.105	-0.102	-0.024	0.044	0.048	0.056	0.096	0.100	0.117	0.132	0.160	1	1
5681	DEL BOO	G8 III	3.725	1.429	1.213	1.336	1.222	0.466	0.438	0.727	0.974	1.224	1.329	1.476	1.618	2	2
5685	BET LIB	B8 V	2.605	-0.570	-0.524	-0.463	-0.163	-0.034	-0.026	-0.044	-0.069	-0.086	-0.091	-0.148	-0.163	99	69
5695	DEL LUP	B1.5 IV	3.237	-1.485	-1.361	-0.914	-0.313	-0.098	-0.075	-0.122	-0.159	-0.229	-0.283	-0.439	-0.455	4	1
5705	PHI 1 LUP	K5 III	3.993	3.212	2.848	2.817	2.210	0.640	0.794	1.244	1.711	2.073	2.230	2.504	2.762	1	1
5708 D	EPS LUP	B2 IV-V	3.366	-1.286	-1.180	-0.762	-0.264	-0.064	-0.075	-0.115	-0.200	-0.238	-0.293	-0.432	-0.458	4	1
5712	PHI 2 LUP	B4 V	4.590	-1.110	-1.020	-0.660	-0.240	-0.060	-0.050	-0.080						3	0
5733	MU BOO	F0 IV	4.391	0.261	0.192	0.255	0.349	0.151	0.164	0.273	0.362	0.434	0.456	0.492	0.510	2	2
5735	GAM UMI	A3 II-III	3.065	0.407	0.335	-0.062	0.026	0.043	0.051	0.102	0.138	0.177	0.227	0.268	0.200	3	3
5736		B5 V	5.470	-0.960	-0.880	-0.550	-0.220	-0.040	-0.030	-0.070						3	0
5744	IOT DRA	K2 III	3.613	2.191	1.970	2.004	1.617	0.501	0.594	0.912	1.177	1.430	1.549	1.722	1.688	2	2
5747	BET CRB	F0 P	3.738	0.289	0.226	0.327	0.358	0.118	0.145	0.208	0.181	0.227	0.218	0.241	0.326	2	2
5763	NU 1 BOO	K5 III	5.480	3.399	2.876	2.912	2.350	0.717	0.796	1.250	1.747	2.156	2.327	2.633	2.864	1	2
5764	ZET LIB	B2 VNN	5.512	-1.248	-1.134	-0.738	-0.208	-0.038	-0.040	-0.046	-0.118	-0.173	-0.192	-0.302	-0.381	4	2
5774 D	NU 2 BOO	A2N	5.024	0.315	0.247	0.113	0.083	0.039	0.056	0.082	0.118	0.155	0.164	0.217	0.219	1	2
5776	GAM LUP	B2 IV	2.796	-1.406	-1.290	-0.855	-0.298	-0.066	-0.083	-0.113	-0.156	-0.225	-0.278	-0.420	-0.403	4	1
5777	37 LIB	K1 IV	4.864	1.617	1.414	1.561	1.331	0.447	0.494	0.790	1.004	1.216	1.321	1.485	1.720	2	2
5778	THE CRB	B7NN	4.144	-0.887	-0.826	-0.552	-0.182	-0.027	-0.041	-0.066	-0.135	-0.169	-0.205	-0.248	-0.227	2	2
5780		B7 IV:	5.145	-0.804	-0.730	-0.469	-0.134	-0.026	-0.020	-0.046	-0.056	-0.077	-0.126	-0.166	-0.200	4	2
5781		B3 IVP	4.566	-1.201	-1.101	-0.701	-0.245	-0.058	-0.066	-0.109	-0.193	-0.241	-0.290	-0.421	-0.450	4	1
5787	GAM LIB	G8 III-IV	4.140	1.528	1.300	1.441	1.303	0.469	0.469	0.772	1.025	1.255	1.365	1.523	1.718	2	2
5788/9	DEL SER	F0 IV	3.840	0.302	0.246	0.250	0.286	0.111	0.135	0.211	0.244	0.296	0.323	0.358	0.449	2	2
5793 V	ALF CRB	A0 V	2.223	-0.060	-0.046	-0.058	-0.041	-0.014	0.000	-0.010	-0.011	-0.012	-0.016	-0.008	-0.026	3	2
5794	UPS LIB	K5 III	3.923	2.752	2.403	2.472	1.931	0.578	0.703	1.072	1.428	1.741	1.884	2.125	2.353	1	1
5801		B8 V	6.220	-0.730	-0.720	-0.440	-0.070	0.020	0.010	0.020						2	0
5812	TAU LIB	B2.5 V	3.620	-1.200	-1.114	-0.710	-0.241	-0.050	-0.075	-0.133	-0.153	-0.201	-0.236	-0.362	-0.412	4	1
5825		F5 IV-V	4.733	0.122	0.089	0.239	0.433	0.198	0.202	0.342						1	0
5838	KAP LIB	K5 III	5.186	3.399	2.945	2.949	2.306	0.660	0.800	1.289	1.790	2.199	2.378	2.689	2.976	2	2
5839	PSI 2 LUP	B5 V	4.740	-0.980	-0.900	-0.560	-0.200	-0.050	-0.030	-0.060						4	0
5842 D	IOT SER	A1 V	4.546	0.098	0.092	0.108	0.060	0.020	0.034	0.043	0.052	0.063	0.060	0.071	0.098	2	2
5849 D	GAM CRB	A0 IV	3.840	-0.033	-0.032	-0.011	-0.002	0.000	0.026	0.020	-0.016	-0.012	-0.033	-0.022	-0.017	2	2
5854	ALF SER	K2 III	2.930	2.210	2.013	2.054	1.639	0.501	0.572	0.879	1.142	1.392	1.510	1.691	1.873	99	66
5859		A0 V	5.580	0.092	0.057	0.038	0.017	0.014	0.018	0.042	0.006	0.017	0.025	0.043	0.014	2	2
5867	BET SER	A2 IV	3.696	0.192	0.171	0.101	0.084	0.024	0.044	0.065	0.031	0.059	0.067	0.104	0.124	3	2
5868	LAM SER	G0 V	4.551	0.423	0.322	0.536	0.686	0.292	0.299	0.506	0.619	0.783	0.831	0.900	1.009	3	3
5869		B8 V	5.920	-0.440	-0.360	-0.220	-0.110	-0.020	0.030	0.070						2	0
5879	KAP SER	M1 III	4.521	3.535	3.017	3.014	2.389	0.702	0.801	1.289	1.851	2.296	2.493	2.817	3.055	4	2
5881	MU SER	A0 V	3.561	-0.185	-0.164	-0.132	-0.056	-0.007	-0.001	0.007	-0.035	-0.032	-0.035	-0.058	-0.081	2	2
5883	CHI LUP	A0 III-IV	4.010	-0.250	-0.200	-0.150	-0.070	-0.020	-0.020	-0.030						3	0
5885	1 SCO	B1.5 VN	4.640	-1.090	-1.000	-0.540	-0.100	-0.010	0.010	0.000						2	0
5889	DEL CRB	G5 III-IV	4.820	0.900	0.724	0.889	0.965	0.380	0.390	0.627	0.807	1.005	1.073	1.182	1.313	2	2
5892	EPS SER	AM	3.760	0.202	0.154	0.216	0.195	0.042	0.081	0.123	0.100	0.135	0.135	0.164	0.186	2	2
5897	BET TRA	F2 IV	2.889	0.220	0.154	0.219	0.317	0.143	0.147	0.238	0.366	0.451	0.476	0.490	0.638	1	1
5899	RHO SER	K5 III	5.167	3.310	2.875	2.916	2.268	0.644	0.790	1.224	1.689	2.075	2.245	2.534	2.739	2	2
5901	KAP CRB	K0 III-IV	5.010	1.634	1.420	1.538	1.323	0.436	0.507	0.786	1.026	1.263	1.366	1.510	1.649	2	2
5902	LAM LIB	B3 V	5.035	-0.915	-0.843	-0.488	-0.073	-0.001	0.030	0.045	0.040	0.054	0.040	0.007	0.002	3	2
5903	ZET UMI	A3 V	4.268	0.228	0.172	0.027	0.031	0.042	0.002	0.035	0.073	0.107	0.113	0.131	0.136	3	2
5904 D	2 SCO	B2.5 VN	4.570	-1.040	-0.950	-0.580	-0.120	0.010	-0.020	-0.050						3	0
5906		B6 V	5.360	-0.670	-0.640	-0.360	-0.040	0.030	0.020	0.020						2	0
5907		B2 VNN	5.370	-0.970	-0.890	-0.540	-0.080	0.030	0.000	0.000						2	0
5908	THE LIB	K0 III-IV	4.367	1.632	1.403	1.517	1.333	0.481	0.494	0.793	1.050	1.272	1.379	1.537	1.720	2	3
5910		B7 V	6.120	-0.750	-0.670	-0.440	-0.100	0.000	-0.050	-0.070						1	0
5912		B7 IV:	5.860	-0.960	-0.910	-0.550	-0.130	-0.020	0.010	-0.010						2	0
5914	CHI HER	F9 V	4.718	0.282	0.182	0.404	0.631	0.295	0.288	0.483	0.654	0.813	0.859	0.931	1.048	2	3
5915 D	47 LIB	B5 V:	5.943	-0.828	-0.765	-0.439	-0.054	0.019	0.026	0.035	0.096	0.077	0.079	0.039	0.177	3	3
5928	RHO SCO	B2 IV -V	3.792	-1.332	-1.221	-0.786	-0.254	-0.046	-0.104	-0.138	-0.183	-0.245	-0.291	-0.431	-0.516	3	1
5933	GAM SER	F6 V	3.965	0.192	0.112	0.295	0.519	0.231	0.259	0.432	0.593	0.729	0.769	0.803	0.857	2	3
5934		B3 V	5.840	-0.730	-0.640	-0.340	0.010	0.050	0.000	0.030						2	0
5941 V	48 LIB	B PE	4.946	-0.394	-0.289	-0.496	-0.119	0.024	-0.032	0.014	-0.053	-0.044	-0.003	-0.038	-0.053	1	3
5942		B3: V	5.510	-1.050	-0.920	-0.600	-0.140	-0.010	-0.020	-0.030						2	0
5944	PI SCO	B1 V+B2	2.880	-1.457	-1.346	-0.852	-0.247	-0.049	-0.072	-0.106	-0.116	-0.164	-0.221	-0.373	-0.399	3	1
5947	EPS CRB	K3 III	4.458	2.317	2.027	2.112	1.710	0.543	0.597	0.947	1.248	1.519	1.650	1.860	2.040	31	39

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
5948	ETA LUP	B2.5 IV		3.409	-1.439	-1.312	-0.854	-0.294	-0.067	-0.076	-0.119	-0.230	-0.280	-0.327	-0.494	-0.473	3	1
5953	DEL SCO	B0.5 IV		2.306	-1.446	-1.336	-0.828	-0.197	-0.010	-0.030	-0.044	-0.027	-0.064	-0.097	-0.218	-0.232	3	2
5960		F0 IV		5.048	0.230	0.181	0.233	0.309	0.132	0.138	0.221	0.331	0.399	0.425	0.442	0.449	2	3
5967		B6 IV		4.950	-1.020	-0.900	-0.580	-0.190	-0.040	-0.020	-0.040						2	0
5971	IOT CRB	A0 II-IIIP		4.975	-0.334	-0.290	-0.247	-0.091	-0.014	-0.008	-0.028	-0.038	-0.029	-0.044	-0.077	-0.136	2	2
5972	PI SER	A3 V		4.847	0.131	0.114	0.134	0.088	0.027	0.039	0.053	0.049	0.072	0.061	0.083	0.068	2	3
5977/8	XI SCO	F5 IV		4.227	0.294	0.231	0.329	0.525	0.237	0.230	0.358	0.508	0.638	0.659	0.607	0.829	2	2
5982	UPS HER	B9P		4.713	-0.537	-0.508	-0.397	-0.152	-0.024	-0.017	-0.039	-0.084	-0.098	-0.114	-0.165	-0.201	2	3
5984/5	BET SCO	B0.5 V		2.523	-1.303	-1.198	-0.750	-0.143	0.018	-0.021	-0.011	-0.064	-0.070	-0.107	-0.197	-0.201	2	2
5986	THE DRA	F8 IV-V		4.131	0.398	0.303	0.439	0.604	0.260	0.262	0.436	0.566	0.713	0.755	0.809	0.857	2	2
5987	THE LUP	B2.5 VN		4.300	-1.210	-1.090	-0.740	-0.260	-0.060	-0.040	-0.070						2	0
5988		B9: III		5.880	-0.940	-0.850	-0.530	-0.140	-0.020	-0.020	-0.020						2	0
5993	OMG 1 SCO	B1 V		3.960	-1.248	-1.160	-0.695	-0.107	0.034	0.000	0.010	-0.005	-0.007	-0.031	-0.107	-0.070	3	2
5997	OMG 2 SCO	GG2		4.496	1.184	0.970	1.050	1.055	0.413	0.389	0.637	0.820	1.027	1.098	1.223	1.377	2	2
5998		B7 IV:		6.290	-0.800	-0.720	-0.450	-0.090	0.010	-0.020	-0.030						1	0
6003		B9 V		5.850	-0.490	-0.440	-0.230	0.000	0.040	0.000	0.020						2	0
6018	TAU CRB	K0 III		4.972	1.619	1.443	1.545	1.334	0.443	0.499	0.803	1.031	1.257	1.345	1.510	1.691	2	3
6023	PHI HER	B9P		4.249	-0.417	-0.392	-0.284	-0.097	-0.018	-0.011	-0.012	-0.023	-0.026	-0.041	-0.065	-0.135	2	3
6027 D	NU SCO	B2 V		4.010	-0.979	-0.916	-0.528	-0.021	0.059	0.057	0.101	0.135	0.171	0.179	0.175	0.210	3	3
6028	13 SCO	B2 V		4.530	-1.230	-1.120	-0.720	-0.210	-0.030	-0.080	-0.100						2	0
6030	DEL TRA	G2 II		4.066	1.825	1.577	1.619	1.502	0.530	0.486	0.788	1.042	1.265	1.396	1.559	1.733	1	1
6031	PSI SCO	A2 V		4.958	0.170	0.150	0.157	0.095	0.030	0.061	0.080	0.137	0.142	0.153	0.152	0.262	2	2
6042		B7 IV		6.410	-0.690	-0.620	-0.350	0.000	0.040	0.040	0.100						2	0
6054		B8 IV		6.070	-0.570	-0.510	-0.290	0.010	0.050	0.040	0.080						2	0
6056	DEL OPH	M0.5 III		3.142	3.499	2.992	2.993	2.353	0.693	0.782	1.243	1.868	2.313	2.515	2.823	3.055	2	2
6066		B9.5: V		6.610	-0.260	-0.240	-0.120	-0.010	0.030	0.030	0.050						1	0
6075	EPS OPH	G9 III		3.463	1.494	1.289	1.384	1.258	0.455	0.456	0.739	0.992	1.221	1.329	1.474	1.641	2	2
6081	OMI SCO	A5 II		4.750	1.950	1.710	0.990	0.850	0.460	0.460	0.830						2	0
6083		B6 IV		5.420	-0.680	-0.590	-0.410	-0.100	0.010	0.010	0.030						2	0
6084 V	SIG SCO	B1 III		2.928	-0.987	-0.916	-0.468	0.086	0.116	0.104	0.210	0.295	0.365	0.388	0.385	0.439	1	1
6092	TAU HER	B5 IV		3.895	-0.973	-0.890	-0.597	-0.209	-0.053	-0.047	-0.073	-0.135	-0.162	-0.203	-0.286	-0.322	31	35
6093	SIG SER	F0 V		4.909	0.216	0.192	0.255	0.376	0.169	0.192	0.313	0.419	0.507	0.535	0.567	0.632	2	2
6095	GAM HER	A9 III		3.835	0.472	0.404	0.320	0.301	0.118	0.161	0.250	0.373	0.453	0.477	0.551	0.557	2	3
6102	GAM APS	K0 IV		4.095	1.348	1.130	1.256	1.144	0.393	0.450	0.714	0.960	1.162	1.253	1.386	1.539	1	1
6103	XI CRB	K0 III		5.085	1.576	1.405	1.459	1.279	0.436	0.468	0.734	0.977	1.188	1.281	1.427	1.573	2	3
6104	PSI OPH	K0 III		4.729	1.591	1.409	1.526	1.335	0.465	0.485	0.771	0.929	1.146	1.252	1.404	1.664	2	1
6117	OMG HER	A1P		4.626	-0.027	-0.046	-0.049	-0.033	-0.021	0.039	0.059	0.033	0.083	0.121	0.046	-0.038	2	2
6118 V	CHI OPH	B2 VE		4.588	-0.951	-0.961	-0.429	0.161	0.193	0.150	0.370	0.422	0.586	0.560	0.542	0.622	4	1
6129	UPS OPH	AM		4.672	0.189	0.148	0.218	0.211	0.076	0.101	0.141	0.207	0.255	0.259	0.277	0.341	2	2
6132	ETA DRA	G8 III		2.948	1.385	1.165	1.265	1.170	0.430	0.424	0.705	0.855	1.085	1.198	1.350	1.436	3	2
6134 V	ALF SCO	M1-M2 IAB		1.461	2.529	2.456	2.543	2.407	0.933	0.894	1.468	2.259	2.808	3.059	3.535	3.852	1	3
6141	22 SCO	B2 V		4.770	-1.200	-1.080	-0.690	-0.190	-0.020	-0.030	-0.050						2	0
6143		B2 III		4.330	-1.340	-1.230	-0.800	-0.240	-0.060	-0.030	-0.050						2	0
6146 V.	G HER	M6-III		5.304	3.787	2.702	2.179	1.570	1.185	0.477	1.536	3.125	4.098	4.487	5.381	5.726	1	1
6147	PHI OPH	G8 III		4.466	1.420	1.257	1.321	1.207	0.435	0.418	0.682	0.831	1.025	1.117	1.244	1.450	2	2
6148	BET HER	G8 III		2.996	1.388	1.217	1.303	1.212	0.449	0.417	0.684	0.882	1.089	1.190	1.340	1.467	2	2
6149 D	LAM OPH	A1 V		3.821	0.030	0.021	0.040	0.029	0.011	0.027	0.041	0.052	0.060	0.061	0.072	0.062	2	2
6159	29 HER	K4 III		5.252	3.216	2.761	2.809	2.175	0.612	0.778	1.214	1.640	2.011	2.180	2.459	2.708	3	2
6161	15 DRA	B9 IV		4.964	-0.147	-0.133	-0.199	-0.090	-0.023	-0.003	-0.015	-0.059	-0.049	-0.054	-0.040	-0.135	3	2
6165	TAU SCO	B0 V		2.792	-1.630	-1.524	-0.962	-0.333	-0.032	-0.064	-0.133	-0.236	-0.302	-0.344	-0.498	-0.501	3	2
6168	SIG HER	B9 V		4.225	-0.061	-0.068	-0.158	-0.045	0.010	0.008	0.014	0.000	0.003	0.007	0.005	-0.067	2	2
6174		B3 IV		5.900	-0.950	-0.850	-0.520	-0.090	0.010	0.030	0.050						2	0
6175	ZET OPH	O9.5 V		2.587	-1.247	-1.177	-0.698	-0.060	0.063	0.029	0.080	0.060	0.087	0.061	-0.020	-0.026	4	2
6212 D	ZET HER	G0 IV		2.941	0.549	0.449	0.630	0.761	0.287	0.343	0.545	0.703	0.862	0.924	1.000	1.090	4	3
6217	ALF TRA	K4 III		2.287	2.864	2.546	2.543	2.093	0.648	0.698	1.058	1.416	1.713	1.857	2.098	2.353	1	2
6220	ETA HER	G7 III-IV		3.725	1.268	1.096	1.222	1.151	0.426	0.418	0.702	0.907	1.116	1.210	1.351	1.482	2	2
6229	ETA ARA	K5 III		4.199	3.393	2.953	2.920	2.296	0.644	0.828	1.247	1.811	2.203	2.364	2.650	2.673	1	1
6237		F2 V		4.997	0.162	0.099	0.222	0.407	0.202	0.196	0.338	0.440	0.548	0.585	0.623	0.609	2	2
6241	EPS SCO	K2 III-IV	X	2.582	2.146	1.846	1.991	1.545	0.513	0.576	0.862	1.083	1.346	1.465	1.666	1.885	1	2
6243	20 OPH	F5 IV-V		4.781	0.371	0.276	0.377	0.552	0.234	0.243	0.410	0.544	0.657	0.694	0.761	0.881	2	2
6245		O8F		5.345	-1.240	-1.175	-0.652	0.006	0.045	0.124	0.206	0.279	0.320	0.329	0.294	0.360	1	1
6247 V	MU 1 SCO	B1.5 IV		3.006	-1.438	-1.323	-0.836	-0.295	-0.090	-0.030	-0.065	-0.090	-0.159	-0.207	-0.338	-0.338	1	1
6252	MU 2 SCO	B2 IV		3.564	-1.424	-1.283	-0.820	-0.260	-0.065	-0.040	-0.066	-0.150	-0.214	-0.290	-0.415	-0.510	3	1
6254	52 HER	A2P		4.875	0.094	0.064	0.121	0.103	0.015	0.062	0.093	0.065	0.085	0.081	0.083	0.088	2	3
6271	ZET SCO	K5 III		4.025	2.832	2.546	2.572	2.004	0.549	0.747	1.102	1.508	1.812	1.948	2.177	2.420	1	1
6281	IOT OPH	B8 IV		4.374	-0.564	-0.512	-0.368	-0.149	-0.027	-0.025	-0.045	-0.067	-0.094	-0.115	-0.145	-0.228	2	2
6285	ZET ARA	K5 III		3.557	3.389	3.019	2.960	2.398	0.707	0.825	1.253	1.698	2.061	2.223	2.549	2.785	1	1
6299	KAP OPH	K2 III		3.494	2.101	1.913	1.970	1.588	0.496	0.564	0.882	1.167	1.400	1.520	1.688	1.842	6	1
6315	19 DRA	F6 V		5.015	0.176	0.099	0.317	0.549	0.255	0.257	0.433	0.462	0.697	0.708	0.796	0.844	2	1
6320		B5 V		5.780	-0.930	-0.790	-0.500	-0.150	-0.030	0.040	0.050						1	0
6322 V	EPS UMI	G5 III		4.413	1.219	1.029	1.133	1.135	0.440	0.414	0.686	0.902	1.110	1.201	1.325	1.441	2	2
6324	EPS HER	B9.5 V		3.938	-0.210	-0.181	-0.111	-0.044	-0.012	0.014	0.016	0.010	0.007	-0.009	-0.021	-0.025	2	3
6337		M3 III		5.398	3.589	3.040	2.970	2.345	0.740	0.732	1.282	2.102	2.658	2.875	3.251	3.527	3	2
6355	60 HER	A3 IV		4.940	0.188	0.163	0.198	0.153	0.049	0.067	0.110	0.117	0.155	0.150	0.177	0.167	2	2
6378 D	ETA OPH	A2.5 V		2.466	0.182	0.169	0.129	0.071	0.051	0.042	0.061	0.051	0.070	0.063	0.070	0.091	2	2
6380	ETA SCO	F0 IVN	X	3.438	0.463	0.290	0.355	0.435	0.227	0.230	0.334	0.477	0.573	0.612	0.663	0.750	1	4
6396	ZET DRA	B6 III		3.179	-0.702	-0.666	-0.519	-0.180	-0.050	-0.021	-0.026	-0.067	-0.079	-0.097	-0.154	-0.199	2	2
6406/7.	ALF HER	M5 II+G5 III		3.383	2.646	2.167	1.951	1.548	0.987	0.484	1.398	2.796	3.695	4.067	4.807	5.194	1	1
6410	DEL HER	A3 IV		3.165	0.149	0.109	0.098	0.079	0.035	0.068	0.093	0.135	0.162	0.164	0.199	0.158	2	1
6415 D	41 OPH	K2 III		5.036	2.043	1.845	1.907	1.566	0.496	0.577	0.882	1.169	1.403	1.524	1.706	1.872	2	2
6418	PI HER	K3 II		3.539	2.968	2.609	2.631	2.090	0.625	0.710	1.100	1.424	1.730	1.882	2.123	2.343	2	3
6422		B6 IV E		6.520	-0.450	-0.350	-0.270	0.080	0.110	0.220	0.240						2	0
6431 V.	68 HER			4.969	-1.143	-1.050	-0.683	-0.214	-0.045	-0.076	-0.090	-0.180	-0.211	-0.259	-0.360	-0.368	1	2
6436	69 HER	A2 V		4.600	0.032	0.046	0.027	0.026	0.009	0.032	0.043	0.051	0.050	0.053	0.063	0.059	2	2
6446	NU SER	A1 V		4.348	0.084	0.095	0.050	0.018	0.019	0.027	0.025	0.039	0.049	-0.002	0.038	0.057	2	2
6453	THE OPH	B2 IV		3.234	-1.364	-1.279	-0.814	-0.286	-0.038	-0.056	-0.140	-0.173	-0.213	-0.227	-0.423	-0.392	7	2
6461	BET ARA	K3 IB		3.206	3.274	2.953	2.878	2.146	0.694	0.718	1.085	1.427	1.717	1.863	2.128	2.343	1	1
6462	GAM ARA	B1 IB		3.321	-1.479	-1.388	-0.873	-0.230	-0.020	-0.028	-0.043	-0.083	-0.106	-0.150	-0.299	-0.314	1	1
6484/5	RHO HER	A0P /A0 IV		4.178	-0.007	-0.029	-0.117	-0.056	-0.005	0.014	0.028	0.024	0.032	0.027	0.037	0.030	2	3
6493		F3 V		4.601	0.195	0.122	0.250	0.419	0.215	0.188	0.327	0.426	0.507	0.559	0.595	0.717	2	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
6498	SIG OPH	K3 II		4.724	2.980	2.660	2.646	2.168	0.708	0.725	1.137	1.495	1.812	1.985	2.253	2.477	2	2
6500	DEL ARA	B7 VN		3.844	-0.760	-0.746	-0.634	-0.386	-0.273	0.217	0.199	0.167	0.147	0.145	0.085	0.093	1	1
6508	UPS SCO	B2 IV		2.674	-1.372	-1.296	-0.806	-0.312	-0.060	-0.062	-0.123	-0.214	-0.264	-0.318	-0.461	-0.536	7	2
6510	ALF ARA	B2 VN E		2.858	-1.305	-1.256	-0.736	-0.213	-0.047	0.002	0.084	0.095	0.145	0.053	-0.097	0.007	1	1
6526	LAM HER	K4 III		4.797	2.965	2.606	2.659	2.093	0.617	0.712	1.110	1.455	1.758	1.908	2.157	2.377	2	2
6527	LAM SCO	B1.5 IV	X	1.599	-1.405	-1.346	-0.848	-0.320	-0.047	-0.078	-0.134	-0.235	-0.289	-0.350	-0.491	-0.497	2	2
6536	BET DRA	G2 II		3.029	1.403	1.186	1.220	1.228	0.474	0.455	0.734	0.931	1.170	1.241	1.386	1.521	2	3
6553	THE SCO	F0 IB		1.961	0.721	0.562	0.335	0.415	0.164	0.262	0.401	0.483	0.586	0.654	0.719	0.817	1	1
6554	NU 1 DRA	AM		4.965	0.199	0.155	0.223	0.288	0.126	0.124	0.219	0.286	0.350	0.379	0.413	0.389	2	2
6555	NU 2 DRA	AM		4.946	0.263	0.218	0.286	0.353	0.140	0.139	0.234	0.300	0.371	0.396	0.415	0.447	2	2
6556	ALF OPH	A5 III		2.129	0.278	0.225	0.203	0.188	0.071	0.081	0.130	0.163	0.209	0.225	0.264	0.276	2	3
6561	XI SER	F0 IV		3.605	0.338	0.273	0.262	0.310	0.114	0.153	0.220	0.335	0.397	0.414	0.446	0.475	2	2
6567	MU OPH	B8 V		4.656	-0.179	-0.171	-0.172	0.082	0.098	0.087	0.162	0.188	0.246	0.286	0.341	0.395	2	2
6580	KAP SCO	B1.5 III	X	2.385	-1.422	-1.359	-0.877	-0.323	-0.060	-0.063	-0.134	-0.250	-0.291	-0.341	-0.482	-0.482	2	2
6581	OMI SER	A2 V		4.266	0.203	0.187	0.149	0.094	0.044	0.038	0.064	0.104	0.115	0.108	0.125	0.159	2	2
6582	ETA PAV	K1 III		3.864	2.190	1.917	1.989	1.666	0.546	0.561	0.875	1.148	1.388	1.518	1.703	1.871	1	1
6588	IOT HER	B3 V		3.792	-1.173	-1.066	-0.723	-0.247	-0.055	-0.066	-0.092	-0.156	-0.189	-0.225	-0.328	-0.392	2	3
6596	OMG DRA	F5 V		4.890	0.187	0.126	0.301	0.493	0.229	0.227	0.378	0.538	0.649	0.668	0.719	0.761	2	3
6603	BET OPH	K2 III		3.061	2.192	1.999	2.045	1.632	0.500	0.573	0.896	1.148	1.397	1.512	1.693	1.871	90	54
6615	IOT 1 SCO	F2 IA	X	3.135	1.450	1.064	0.542	0.540	0.307	0.263	0.416	0.568	0.694	0.877	0.986	1.101	2	2
6621		B3 IV		6.330	-0.610	-0.540	-0.320	0.070	0.110	0.110	0.200						3	0
6623	MU HER	G5 IV		3.611	0.819	0.726	0.898	0.902	0.329	0.362	0.590	0.759	0.947	0.997	1.089	1.195	2	2
6629	GAM OPH	A0 V		3.751	0.062	0.055	0.072	0.046	0.013	0.007	0.016	0.034	0.041	0.035	0.053	0.045	74	48
6630		K1 III		3.494	2.179	1.885	2.011	1.626	0.502	0.610	0.938	1.233	1.475	1.616	1.807	2.010	1	1
6636	PSI DRA	F5 IV-V		4.693	0.205	0.147	0.283	0.467	0.208	0.242	0.390	0.483	0.570	0.645	0.751	0.803	2	2
6685	89 HER	F2 IA		5.545	1.089	0.801	0.267	0.387	0.215	0.176	0.321	0.393	0.491	0.607	0.583	0.583	2	2
6688	XI DRA	K2 III		4.045	2.175	1.962	2.025	1.614	0.499	0.585	0.914	1.180	1.464	1.568	1.772	1.951	2	2
6695	THE HER	K1 II		4.180	2.632	2.369	2.355	1.949	0.636	0.617	0.958	1.219	1.486	1.620	1.834	2.015	2	2
6698	NU OPH	G9 III		3.553	1.689	1.507	1.558	1.340	0.457	0.457	0.745	0.951	1.163	1.251	1.403	1.571	2	2
6703	XI HER	G9 III		3.944	1.410	1.246	1.325	1.209	0.431	0.445	0.724	0.952	1.165	1.256	1.383	1.509	2	2
6705	GAM DRA	K5 III		2.662	3.275	2.838	2.885	2.255	0.639	0.778	1.218	1.675	2.057	2.221	2.506	2.725	2	3
6707 *	NU HER	F2 II		4.519	0.548	0.447	0.288	0.395	0.190	0.206	0.368	0.504	0.632	0.681	0.750	0.826	2	2
6710	ZET SER	F3 V		4.719	0.209	0.122	0.253	0.426	0.195	0.208	0.353	0.449	0.546	0.558	0.593	0.673	2	1
6712	66 OPH	B2 VE		4.597	-1.224	-1.154	-0.672	-0.102	0.021	0.034	0.128	0.146	0.217	0.138	0.041	0.100	2	2
6713	93 HER	K0 II-III		4.950	2.306	2.059	2.072	1.738	0.591	0.570	0.902	1.198	1.461	1.587	1.783	1.967	2	2
6714	67 OPH	B5 IB		4.000	-0.861	-0.814	-0.564	-0.042	0.073	0.051	0.094	0.086	0.097	0.112	0.057	0.094	2	2
6723	68 OPH	A1 V		4.479	0.048	0.045	-0.015	0.014	0.022	0.048	0.070	0.080	0.078	0.091	0.115	0.146	2	2
6743	THE ARA	B2 IB	X	3.668	-1.283	-1.243	-0.757	-0.212	0.021	0.012	-0.017	-0.010	-0.023	-0.072	-0.211	-0.141	2	2
6746	GAM SGR	K0 III	X	3.228	1.150	3.566	1.599	1.346	0.500	0.488	0.818	0.998	1.215	1.311	1.473	1.627	1	2
6752 D	70 OPH	K0 V		4.266	0.988	0.897	1.142	1.069	0.349	0.478	0.753	1.001	1.216	1.301	1.428	1.593	3	2
6770	71 OPH	G8 III-IV		4.862	1.501	1.332	1.409	1.269	0.469	0.433	0.703	0.906	1.114	1.212	1.339	1.516	2	2
6771	72 OPH	A4 V		3.782	0.187	0.157	0.182	0.149	0.041	0.076	0.120	0.161	0.194	0.198	0.225	0.195	2	3
6779	OMI HER	B9.5 III		3.821	-0.010	0.011	-0.150	-0.046	0.009	-0.014	-0.006	0.009	0.021	0.029	0.042	0.040	2	4
6787	102 HER	B2 V		4.353	-1.315	-1.194	-0.809	-0.246	-0.039	-0.061	-0.093	-0.103	-0.150	-0.228	-0.301	-0.384	2	1
6789	DEL UMI	A1 V		4.393	0.089	0.074	0.036	0.011	0.008	0.025	0.016	0.066	0.082	0.078	0.077	0.005	2	2
6812	MU SGR	B8 IA		3.936	-0.487	-0.527	0.182	0.182	0.172	0.147	0.275	0.371	0.460	0.538	0.562	0.664	1	1
6832	ETA SGR	M3 II	X	3.450	3.534	2.846	2.805	2.236	0.780	0.652	1.247	2.043	2.614	2.868	3.266	3.601	2	2
6859	DEL SGR	K2 III	X	3.052	2.854	2.441	2.557	1.995	0.653	0.669	0.997	1.328	1.606	1.767	2.009	2.242	2	2
6866	74 OPH	G8 III		5.055	1.327	1.121	1.234	1.180	0.436	0.406	0.669	0.876	1.094	1.160	1.309	1.475	2	2
6868	106 HER	M0 III		5.357	3.534	3.049	3.019	2.393	0.692	0.806	1.291	1.885	2.336	2.527	2.857	3.087	2	2
6869	ETA SER	K0 III-IV		3.470	1.322	1.120	1.286	1.199	0.423	0.464	0.752	1.005	1.231	1.314	1.475	1.623	3	3
6872	KAP LYR	K2 III		4.632	2.166	1.960	1.996	1.636	0.513	0.552	0.880	1.155	1.404	1.522	1.702	1.863	2	2
6875		B3 VN		5.270	-1.150	-1.060	-0.700	-0.240	-0.060	-0.060	-0.080						2	0
6879	EPS SGR	A0 V	X	1.853	0.099	0.003	-0.190	-0.086	0.023	0.014	-0.017	0.000	0.023	0.034	0.053	0.063	3	2
6884	ZET SCT	K0 III		4.875	1.438	1.250	1.355	1.225	0.447	0.451	0.710	0.985	1.195	1.276	1.420	1.543	2	3
6895	109 HER	K2 III		4.147	2.113	1.877	1.976	1.596	0.510	0.591	0.920	1.227	1.484	1.599	1.790	1.967	2	2
6896 D	21 SGR	K2 II		5.139	1.973	1.812	1.836	1.643	0.649	0.676	1.086	1.437	1.839	2.037	2.300	2.633	2	2
6897	ALF TEL	B3 IV		3.536	-1.183	-1.087	-0.692	-0.246	-0.082	-0.032	-0.055	-0.113	-0.162	-0.205	-0.333	-0.374	1	1
6905	ZET TEL	GK0	X	4.363	1.666	1.364	1.558	1.258	0.400	0.488	0.804	1.038	1.316	1.411	1.565	1.812	1	2
6913	LAM SGR	K2 III	X	3.035	1.834	1.571	1.800	1.453	0.540	0.467	0.766	0.988	1.224	1.343	1.519	1.721	1	2
6918 VD	59 SER	G0 III+A6 V		5.331	0.597	0.558	0.572	0.529	0.246	0.287	0.473	0.646	0.833	0.914	1.069	1.191	4	1
6920 D	PHI DRA	A0P		4.237	-0.566	-0.535	-0.337	-0.113	-0.037	-0.019	-0.012	-0.084	-0.098	-0.119	-0.164	-0.252	2	2
6923 D	39 DRA	A1 V		5.012	0.109	0.096	0.119	0.091	0.042	0.045	0.077	0.033	0.105	0.121	0.141	-0.022	2	1
6927	CHI DRA	F7 V		3.691	0.169	0.083	0.300	0.551	0.261	0.252	0.453	0.609	0.762	0.818	0.884	0.945	2	3
6930	GAM SCT	A3 V		4.709	0.264	0.204	0.057	0.044	0.035	0.054	0.086	0.133	0.136	0.153	0.173	0.192	2	2
6934	DEL 1 TEL	B6 IV		5.020	-0.740	-0.640	-0.460	-0.170	-0.040	-0.010	-0.020						2	0
6938	DEL 2 TEL	B5 IV		5.180	-1.110	-0.860	-0.600	-0.200	-0.040	-0.030	-0.030						2	0
6945	42 DRA	K2 III		5.113	2.155	1.814	1.932	1.596	0.530	0.562	0.920	1.232	1.497	1.640	1.827	2.040	2	2
6947 V	U SGR	CF5 CEP.		6.844	1.925	1.577	1.332	1.319	0.582	0.518	0.888						2	0
6973	ALF SCT	K3 III		4.211	2.659	2.355	2.419	1.895	0.561	0.686	1.049	1.385	1.648	1.792	2.022	2.218	2	2
6978	45 DRA	F7 IB		4.925	1.091	0.875	0.667	0.745	0.307	0.312	0.504	0.676	0.828	0.879	0.968	1.044	2	4
6982	ZET PAV	K2 III	X	4.272	2.032	1.732	1.938	1.557	0.535	0.521	0.850	1.161	1.434	1.543	1.733	1.957	1	2
7001	ALF LYR	A0 V		0.039	0.052	0.035	0.043	0.013	0.001	0.001	-0.011	0.008	0.010	-0.004	0.011	0.000	4	36
7020 V	DEL SCT	F3 III-IV		4.801	0.427	0.348	0.329	0.428	0.172	0.193	0.308	0.444	0.525	0.540	0.605	0.646	2	2
7029		B2.5V		4.910	-1.240	-1.120	-0.720	-0.230	-0.050	-0.060	-0.040						2	0
7039	PHI SGR	B8 IB	X	3.150	-0.562	-0.556	-0.409	-0.145	-0.013	-0.022	-0.040	-0.095	-0.121	-0.115	-0.153	-0.212	2	2
7056	ZET LYR	AM		4.405	0.348	0.294	0.252	0.235	0.071	0.105	0.178	0.197	0.247	0.251	0.309	0.276	3	2
7061	110 HER	F6 V		4.302	0.246	0.152	0.316	0.518	0.237	0.221	0.384	0.505	0.615	0.655	0.679	0.830	2	3
7063	BET SCT	G5 II		4.478	1.720	1.539	1.550	1.423	0.546	0.527	0.840	1.177	1.402	1.521	1.720	1.871	2	2
7064		K3 III		5.148	2.216	1.958	2.043	1.651	0.517	0.593	0.929	1.255	1.520	1.632	1.834	1.996	2	3
7066 V.	R SCT	G0EIA-K0PIB		5.489	2.564	2.222	2.041	1.738	0.694	0.660	1.068	1.460	1.644	1.815	2.026	2.218	1	1
7069	111 HER	A3 V		4.371	0.156	0.131	0.206	0.183	0.043	0.049	0.091	0.110	0.143	0.134	0.150	0.145	2	2
7074	LAM PAV	B2 II-III		4.310	-1.410	-1.260	-0.850	-0.240	-0.030	-0.030	-0.050						2	0
7106 V	BET LYR	BPE		3.399	-0.891	-0.865	-0.607	-0.078	0.036	0.050	0.131	0.120	0.162	0.171	0.149	0.228	1	4
7121	SIG SGR	B3 IV	X	2.001	-1.191	-1.124	-0.711	-0.246	-0.037	-0.074	-0.145	-0.229	-0.273	-0.325	-0.422	-0.509	3	2
7125	OMI DRA	K0 II-III		4.972	2.077	1.764	1.859	1.607	0.553	0.571	0.939	1.212	1.474	1.563	1.764	2.011	2	2
7129		B9 III:		5.390	-1.190	-1.050	-0.690	-0.230	-0.080	-0.010	-0.030						2	0
7133 D	113 HER	G4 III+A6 V		4.796	1.084	0.980	1.030	0.954	0.392	0.401	0.675	0.877	1.065	1.157	1.307	1.434	2	2
7137		G8 III		5.133	1.259	1.087	1.185	1.147	0.426	0.419	0.703	0.922	1.130	1.219	1.357	1.460	2	2
7139 V	DEL 2 LYR	M4 II		4.561	3.301	2.715	2.580	2.134	0.912	0.613	1.305	2.430	3.202	3.506	4.042	4.404	1	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
7141/2	THE SER	A5 V		4.673	0.205	0.176	0.182	0.179	0.056	0.095	0.148	0.213	0.244	0.238	0.264	0.294	2	2
7150	XI 2 SGE	K1 III		3.776	2.151	1.880	1.957	1.650	0.558	0.564	0.883	1.165	1.407	1.528	1.721	1.910	1	1
7157 V	R LYR	M5 III		4.391	3.662	2.822	2.482	1.886	1.045	0.482	1.362	2.753	3.596	3.940	4.615	4.975	1	2
7176	EPS AQL	K2 III		4.313	1.934	1.725	1.776	1.460	0.473	0.512	0.834	1.052	1.260	1.379	1.545	1.723	2	3
7178	GAM LYR	B9 III		3.242	0.018	-0.040	-0.272	-0.078	0.006	0.006	0.037	-0.013	-0.018	0.012	0.007	0.018	6	2
7180	UPS DRA	K2 III		5.102	2.078	1.836	1.910	1.580	0.524	0.542	0.879	1.128	1.379	1.497	1.657	1.850	2	2
7193	12 AQL	K1 III		4.295	1.894	1.674	1.772	1.477	0.498	0.526	0.854	1.067	1.309	1.423	1.587	1.601	2	2
7194	ZET SGR	A2 IV	X	2.612	0.210	0.132	0.155	0.094	0.045	0.061	0.045	0.056	0.064	0.058	0.092	0.194	1	2
7217	OMI SGR	GG8		4.016	1.645	1.416	1.522	1.329	0.440	0.518	0.808	1.074	1.284	1.377	1.524	1.733	1	1
7234	TAU SGR	K1 III	X	3.607	2.195	1.881	2.079	1.584	0.532	0.584	0.905	1.163	1.417	1.549	1.755	1.974	2	2
7235	ZET AQL	A0 V:NN		2.981	0.016	0.037	0.006	0.007	0.008	-0.007	0.008	0.022	0.028	0.020	0.037	0.026	2	3
7236	LAM AQL	B9: V:N		3.419	-0.448	-0.397	-0.294	-0.124	-0.025	-0.041	-0.047	-0.085	-0.092	-0.117	-0.162	-0.198	3	2
7254	ALF CRA	A2 V	X	4.119	0.172	0.091	0.154	0.029	0.041	0.030	0.021	-0.004	0.016	0.019	0.020	0.060	2	2
7257		B5 V		5.930	-0.780	-0.690	-0.470	-0.140	-0.010	0.000	0.000						2	0
7259	BET CRA	GG3	X	4.368	2.175	1.848	1.974	1.631	0.614	0.522	0.835	1.110	1.375	1.480	1.654	1.668	2	2
7264	PI SGR	F2 II-III	X	2.973	0.761	0.592	0.371	0.413	0.238	0.219	0.306	0.441	0.538	0.591	0.669	0.744	2	2
7298	ETA LYR	B2 IV		4.386	-1.076	-0.990	-0.720	-0.226	-0.041	-0.034	-0.070	-0.098	-0.134	-0.179	-0.285	-0.322	2	2
7306	1 VUL	B3 IV		4.747	-0.865	-0.799	-0.531	-0.134	-0.001	-0.010	-0.012	-0.014	0.003	-0.029	-0.134	-0.139	2	2
7310	DEL DRA	G9 III		3.329	1.584	1.361	1.448	1.293	0.452	0.480	0.760	0.987	1.232	1.321	1.466	1.617	2	2
7314	THE LYR	K0 II		4.629	2.308	2.082	2.098	1.767	0.606	0.570	0.903	1.191	1.468	1.586	1.790	1.963	2	3
7316		B4 IV		5.640	-0.950	-0.860	-0.590	-0.190	-0.030	-0.030	-0.040						2	0
7328	KAP CYG	K0 III		3.994	1.485	1.305	1.379	1.246	0.446	0.438	0.725	0.951	1.158	1.246	1.376	1.542	2	2
7340	RHO 1 SGR	F0 IV		3.972	0.313	0.260	0.234	0.265	0.093	0.127	0.180	0.273	0.339	0.376	0.397	0.452	2	2
7342	UPS SGR	A PE		4.664	-0.650	-0.830	-0.582	-0.022	0.019	0.207	0.318	0.437	0.487	0.564	0.512	0.587	2	2
7352	TAU DRA	K3 III		4.780	2.541	2.296	2.314	1.813	0.522	0.629	0.967	1.242	1.520	1.650	1.839	1.978	2	1
7355		B5 IV		6.010	-1.120	-1.020	-0.660	-0.170	-0.020	-0.010	-0.010						2	0
7358	3 VUL	B6 III		5.168	-0.890	-0.818	-0.513	-0.190	-0.048	-0.041	-0.072	-0.109	-0.134	-0.183	-0.214	-0.237	2	2
7371	PI DRA	A2 IV		4.614	0.140	0.111	0.080	0.034	0.000	0.027	0.033	-0.019	0.031	0.041	0.069	0.054	2	2
7372	2 CYG	B3 IV		4.980	-1.149	-1.057	-0.673	-0.192	-0.030	-0.028	-0.054	-0.041	-0.061	-0.088	-0.205	-0.128	2	2
7377	DEL AQL	F0 IV		3.430	0.223	0.160	0.224	0.346	0.158	0.158	0.263	0.362	0.447	0.475	0.499	0.565	2	2
7387	NU AQL	F2 IB		4.821	1.476	1.227	0.624	0.604	0.317	0.339	0.514	0.788	0.960	1.099	1.275	1.386	2	2
7405	ALF VUL	M0+ III		4.863	3.319	2.817	2.798	2.198	0.632	0.749	1.216	1.790	2.226	2.398	2.716	2.981	2	3
7417	BET CYG	K3 II:		3.399	1.273	1.244	1.405	1.376	0.514	0.612	0.949	1.262	1.552	1.675	1.905	2.110	2	2
7420	IOT CYG	A5 V		3.827	0.280	0.240	0.162	0.163	0.078	0.064	0.141	0.167	0.217	0.210	0.280	0.295	2	2
7426	8 CYG	B3 IV		4.740	-1.052	-0.951	-0.666	-0.226	-0.044	-0.051	-0.052	-0.126	-0.154	-0.182	-0.302	-0.219	2	3
7429	MU AQL	K3 III		4.779	2.173	1.949	2.034	1.602	0.470	0.614	0.957	1.198	1.443	1.566	1.733	1.970	2	2
7437	9 VUL	B7 V		5.017	-0.686	-0.640	-0.483	-0.171	-0.032	0.004	0.003	-0.067	-0.079	-0.066	-0.125	-0.131	2	2
7446	KAP AQL	B0.5 III		4.988	-1.295	-1.206	-0.753	-0.102	0.063	0.055	0.079	0.102	0.111	0.087	-0.006	-0.004	2	2
7447	IOT AQL	B5 III		4.359	-0.731	-0.669	-0.472	-0.146	-0.017	0.004	0.004	-0.034	-0.041	-0.048	-0.107	-0.122	2	2
7462	SIG DRA	K0 V		4.896	0.784	0.686	0.981	0.965	0.326	0.412	0.682	0.916	1.105	1.181	1.265	1.393	2	2
7469	THE SIG	F4 V		4.588	0.144	0.091	0.240	0.444	0.204	0.199	0.346	0.457	0.557	0.601	0.631	0.715	3	2
7478	PHI CYG	G8 III-IV		4.930	1.522	1.367	1.442	1.273	0.434	0.465	0.756	0.956	1.193	1.302	1.454	1.611	2	3
7479	ALF SGE	G0 II		4.580	1.037	0.828	0.890	0.968	0.374	0.362	0.623	0.793	0.985	1.053	1.155	1.283	2	2
7488	BET SGE	G8 II		4.641	1.750	1.569	1.582	1.405	0.498	0.475	0.778	0.991	1.215	1.314	1.469	1.633	2	2
7503	16 A CYG	G2 V		6.145	0.516	0.423	0.639	0.754	0.308	0.337	0.567	0.719	0.889	0.944	1.010	1.120	4	2
7504	16 B CYG	G5 V		6.396	0.539	0.437	0.682	0.768	0.306	0.341	0.559	0.736	0.905	0.948	1.034	1.144	5	4
7525	GAM AQL	K3 II		3.126	3.081	2.716	2.755	2.208	0.687	0.739	1.139	1.508	1.835	2.000	2.257	2.487	2	2
7527		B5 V		6.290	-0.980	-0.870	-0.600	-0.220	-0.060	-0.030	-0.030						2	0
7528	DEL SIG	B9.5 III		2.893	-0.114	-0.078	-0.140	-0.071	0.006	-0.005	0.007	0.006	0.004	0.002	0.006	-0.009	2	4
7536	DEL SGE	M2 II:+B:		4.211	2.068	1.940	1.955	1.739	0.729	0.659	1.214	2.040	2.618	2.855	3.237	3.522	2	3
7546 D	ZET SGE	A3 V		5.069	0.167	0.152	0.110	0.096	0.047	0.064	0.095	0.146	0.179	0.201	0.227	0.236	2	3
7557	ALF AQL	A7 IV,V		0.799	0.235	0.183	0.202	0.255	0.098	0.120	0.182	0.236	0.304	0.328	0.339	0.364	3	2
7564 V.	CHI CYG	M6 PE		8.708	4.300	2.380	1.132	1.294	1.828	0.601	2.428	4.684	6.235	6.810	8.200	8.645	1	1
7565	12 VUL	B3 V		4.960	-1.110	-1.003	-0.662	-0.242	-0.054	-0.043	-0.075	-0.062	-0.007	-0.084	-0.202	-0.291	2	2
7570 V.	ETA AQL	G2 IB		4.056	1.432	1.190	1.055	1.094	0.446	0.474	0.736	0.905	1.098	1.177	1.349	1.530	1	1
7574	9 SGE	O8F		6.281	-1.340	-1.253	-0.755	-0.073	0.078	0.056	0.111	0.157	0.182	0.203	0.118	0.029	2	2
7581	IOT SGR	K0 III	X	4.396	1.862	1.496	1.680	1.392	0.537	0.544	0.821	1.151	1.348	1.381	1.624	1.950	2	2
7582 D	EPS DRA	G8 III		4.078	1.178	0.982	1.115	1.096	0.432	0.419	0.714	0.888	1.112	1.204	1.332	1.505	2	2
7589		O9.5 III		5.653	-1.454	-1.347	-0.837	-0.170	0.026	-0.003	0.019	-0.010	-0.016	-0.046	-0.149	-0.222	2	2
7590	EPS PAV	A0 V		3.950	-0.027	-0.028	-0.061	-0.010	0.008	0.009	0.022	0.002	0.000	-0.005	-0.033	0.011	3	3
7592	13 VUL	B9.5 III		4.544	-0.200	-0.203	-0.208	-0.062	-0.013	0.023	-0.006	0.079	0.096	0.106	0.120	0.128	2	2
7595	XI AQL	K0 III		4.975	1.740	1.518	1.605	1.368	0.469	0.506	0.820	1.046	1.264	1.377	1.541	1.740	2	2
7597	OME SGR	DG5	X	4.878	0.873	0.664	0.883	0.921	0.400	0.385	0.598	0.747	0.950	1.026	1.132	1.183	2	2
7602	BET AQL	G8 IV		3.955	0.997	0.853	1.069	1.025	0.366	0.436	0.725	0.892	1.099	1.188	1.326	1.479	2	2
7613	22 CYG	B6 III		4.950	-0.831	-0.759	-0.556	-0.161	-0.016	-0.017	-0.018	-0.042	-0.040	-0.065	-0.131	-0.145	2	2
7615	ETA CYG	K0 III		4.157	1.661	1.474	1.561	1.340	0.459	0.495	0.797	1.025	1.261	1.339	1.506	1.680	2	1
7619 D	PSI CYG	A3 IV		5.000	0.238	0.206	0.167	0.158	0.073	0.097	0.163	0.208	0.201	0.176	0.146	0.118	2	2
7635	GAM SGE	K5+ III		3.981	3.389	2.960	2.968	2.336	0.655	0.826	1.277	1.753	2.156	2.320	2.627	2.884	2	2
7650	62 SGR	M4 III	X	4.911	3.689	3.038	2.910	2.221	0.889	0.621	1.285	2.273	2.948	3.222	3.668	4.051	2	2
7652		GK5	X	5.173	2.993	2.543	2.694	1.991	0.606	0.742	1.109	1.483	1.778	1.904	2.150	2.432	2	2
7653	15 VUL	AM		4.739	0.391	0.307	0.223	0.202	0.071	0.112	0.182	0.209	0.254	0.281	0.318	0.351	2	4
7665	DEL PAV	G8 V	X	3.751	0.917	0.766	0.987	0.949	0.362	0.408	0.598	0.765	0.921	0.994	1.088	1.252	2	2
7673	XI TEL	M2 III	X	5.361	3.351	3.009	3.026	2.306	0.734	0.782	1.225	1.808	2.258	2.412	2.729	3.045	3	2
7678		B1.5 IA		5.729	-0.329	-0.361	-0.034	0.487	0.357	0.293	0.509	0.707	0.866	0.967	1.092	1.247	2	2
7685	RHO DRA	K3 III		4.865	2.681	2.388	2.412	1.907	0.570	0.650	1.003	1.292	1.573	1.733	1.953	2.120	2	2
7708	28 CYG	B3 V		5.001	-1.260	-1.168	-0.798	-0.270	-0.079	-0.016	-0.034	-0.036	-0.035	-0.099	-0.206	-0.232	2	2
7710	THE AQL	B9.5 III		3.183	-0.201	-0.224	-0.207	-0.098	-0.010	-0.019	-0.034	-0.044	-0.047	-0.057	-0.023	-0.082	2	2
7724	RHO AQL	A2 V		4.982	0.107	0.079	0.135	0.094	0.029	0.033	0.054	0.058	0.074	0.076	0.109	0.071	2	2
7730	30 CYG	A3 III		4.888	0.433	0.360	0.083	0.092	0.048	0.080	0.121	0.115	0.184	0.206	0.261	0.285	2	2
7735 V	31 CYG	K2 II+B3 V		4.154	1.083	1.109	1.376	1.503	0.607	0.683	1.075	1.419	1.748	1.930	2.199	2.423	2	1
7736	29 CYG	A2 III		5.010	0.132	0.105	0.129	0.154	0.084	0.085	0.173	0.209	0.274	0.272	0.292	0.338	2	2
7739		B3 V		4.794	-1.202	-1.093	-0.727	-0.223	-0.037	-0.063	-0.084	-0.216	-0.213	-0.255	-0.380	-0.348	2	2
7740	33 CYG	A3 IV,V		4.356	0.233	0.185	0.125	0.126	0.061	0.077	0.133	0.165	0.237	0.239	0.273	0.276	2	2
7744	23 VUL	K3 III		4.865	2.085	1.889	1.974	1.716	0.546	0.670	1.050	1.403	1.654	1.805	2.040	2.242	2	2
7747	ALF 1 CAP	G3 IB		4.499	1.699	1.459	1.460	1.368	0.518	0.511	0.815	1.022	1.279	1.339	1.527	1.722	2	2
7750 D	KAP CEP	B9 III		4.387	-0.151	-0.144	-0.192	-0.068	0.002	-0.010	-0.010	-0.042	-0.030	-0.047	-0.055	-0.043	2	3
7751 V	OMI 2 CYG	K3 IB-II+B		4.446	2.030	1.922	2.075	1.970	0.715	0.796	1.270	1.720	2.131	2.310	2.626	2.670	2	3
7754	ALF 2 CAP	G9 III		3.822	1.379	1.220	1.302	1.197	0.426	0.458	0.743	0.955	1.164	1.251	1.394	1.540	2	2
7763 V	P CYG	B1 EP		4.956	-0.617	-0.630	-0.236	0.345	0.283	0.297	0.530	0.566	0.684	0.743	0.859	1.107	2	2
7767 D		O8		5.899	-1.088	-1.037	-0.582	0.016	0.108	0.096	0.173	0.216	0.269	0.257	0.195	0.209	2	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
7773	NU CAP	B9 V		4.764	-0.174	-0.162	-0.144	-0.080	-0.020	0.004	-0.007	-0.013	-0.021	-0.030	-0.051	-0.038	2	1
7776	BET CAP	GK0:+LATE B		3.294	0.735	0.701	0.823	0.895	0.374	0.422	0.681	0.905	1.105	1.198	1.354	1.561	2	2
7790	ALF PAV	B2.5V		1.926	-1.170	-1.095	-0.726	-0.256	-0.010	-0.032	-0.093	-0.183	-0.224	-0.277	-0.379	-0.362	5	2
7796	GAM CYG	F8 IB		2.392	1.295	1.027	0.781	0.842	0.334	0.339	0.529	0.654	0.818	0.885	1.000	1.097	4	2
7806	39 CYG	K3 III		4.787	2.682	2.365	2.451	1.932	0.588	0.687	1.071	1.420	1.715	1.645	2.102	2.286	2	2
7822 D	RHO CAP	F2 IV		4.844	0.247	0.187	0.273	0.424	0.201	0.193	0.328	0.442	0.526	0.591	0.606	0.696	2	2
7834	41 CYG	F5 II		4.098	0.816	0.646	0.412	0.484	0.205	0.205	0.353	0.476	0.595	0.642	0.725	0.786	2	3
7844	OMG 1 CYG	B2 V		4.931	-1.017	-0.936	-0.658	-0.151	-0.013	-0.006	-0.007	-0.044	-0.055	-0.041	-0.138	-0.183	2	2
7847	44 CYG	F5 IAB		6.477	1.861	1.577	1.157	1.073	0.517	0.570	0.903	1.193	1.467	1.647	1.937	2.132	2	4
7850	THE CEP	AM		4.249	0.365	0.302	0.260	0.252	0.091	0.080	0.146	0.197	0.231	0.250	0.258	0.287	2	2
7852	EPS DEL	B6 III		4.017	-0.834	-0.747	-0.538	-0.192	-0.045	-0.039	-0.054	-0.086	-0.118	-0.143	-0.209	-0.235	2	5
7866	47 CYG	K2 IB+B		5.059	1.621	1.646	1.903	1.965	0.797	0.810	1.291	1.830	2.230	2.440	2.777	3.039	2	2
7869	ALF IND	K0 III	X	3.345	1.616	1.369	1.505	1.317	0.500	0.476	0.738	0.972	1.192	1.300	1.468	1.678	2	2
7882 D	BET DEL	F5 IV		3.729	0.398	0.308	0.374	0.536	0.229	0.225	0.366						2	0
7884	71 AQL	G8 III		4.523	1.439	1.260	1.337	1.232	0.442	0.419	0.682	1.000	1.193	1.285	1.415	1.593	2	2
7891	29 VUL	B9.5 V		4.802	-0.185	-0.152	-0.122	-0.055	-0.017	-0.005	-0.028	-0.011	-0.023	-0.025	-0.040	-0.039	2	1
7906	ALF DEL	B9 V		3.764	-0.341	-0.297	-0.266	-0.095	-0.026	-0.015	-0.028	-0.024	-0.035	-0.041	-0.059	-0.064	2	56
7913	BET PAV	A7 III	X	3.461	0.437	0.312	0.244	0.206	0.134	0.117	0.112	0.183	0.231	0.263	0.313	0.462	2	2
7924	ALF CYG	A2 IA		1.309	-0.015	-0.136	-0.379	0.035	0.102	0.063	0.118	0.185	0.218	0.317	0.284	0.289	8	2
7928	DEL DEL	A7P III		4.464	0.292	0.229	0.225	0.300	0.127	0.170	0.264	0.448	0.520	0.561	0.570	0.635	2	2
7936	PSI CAP	F5 V	X	4.234	0.223	0.107	0.291	0.459	0.212	0.243	0.356	0.500	0.633	0.629	0.689	0.942	3	2
7939	30 VUL	K2 III		5.203	2.187	1.917	1.993	1.613	0.524	0.570	0.900	1.186	1.446	1.564	1.766	1.957	2	2
7942	52 CYG	K0 III		4.448	1.739	1.529	1.622	1.410	0.473	0.483	0.785	1.054	1.277	1.382	1.558	1.705	2	3
7947/8	GAM DEL	F8IV-V/K2IV		4.079	1.042	0.915	1.041	1.023	0.366	0.441	0.702	0.822	1.025	1.203	1.368	1.506	2	1
7949	EPS CYG	K0 III		2.703	1.643	1.435	1.527	1.342	0.465	0.481	0.782	1.034	1.265	1.352	1.549	1.719	3	3
7950	EPS AQR	A1 V		3.791	0.096	0.093	-0.026	-0.016	-0.004	0.014	0.024	0.044	0.054	0.057	0.072	0.033	2	2
7951	3 AQR	M3 III		4.867	3.734	3.150	3.026	2.405	0.815	0.699	1.293	2.159	2.729	2.981	3.358	3.693	2	2
7952	ZET IND	GK5	X	5.162	2.373	1.922	2.021	1.588	0.575	0.554	0.898	1.372	1.734	1.884	2.174	2.478	1	2
7955		F8 IV-V		4.628	0.427	0.334	0.487	0.641	0.267	0.272	0.441	0.624	0.778	0.847	0.860	0.980	2	2
7957	ETA CEP	K0 IV		3.643	1.263	1.078	1.259	1.161	0.416	0.448	0.718	1.022	1.227	1.341	1.439	1.640	2	1
7963 D	LAM CYG	B5 V		4.477	-0.827	-0.752	-0.543	-0.161	-0.032	-0.030	-0.057	-0.080	-0.100	-0.136	-0.193	-0.200	2	2
7977	55 CYG	B3 IA		4.933	-0.399	-0.417	-0.191	0.339	0.269	0.227	0.387	0.540	0.678	0.748	0.817	0.918	2	2
7980	OME CAP	K5 III	X	4.594	2.990	2.493	2.539	2.393	0.764	0.840	1.273	1.774	2.208	2.385	2.700	2.977	2	2
7986	BET IND	K0 III	X	3.961	2.390	2.011	2.169	1.739	0.634	0.606	0.873	1.162	1.402	1.533	1.746	1.990	2	2
7990	MU AQR	A8M		4.838	0.355	0.301	0.325	0.408	0.170	0.183	0.269	0.394	0.472	0.506	0.508	0.559	2	2
7995	31 VUL	G8 III		4.754	1.085	0.919	1.031	1.045	0.396	0.382	0.625	0.855	1.053	1.129	1.246	1.408	2	3
8001	57 CYG	B5 V		4.765	-0.967	-0.883	-0.580	-0.182	-0.033	-0.038	-0.078	-0.108	-0.149	-0.198	-0.262	-0.259	2	2
8020		B8 IA		5.795	-0.077	-0.157	-0.047	0.451	0.316	0.234	0.437	0.650	0.780	0.895	0.983	1.037	2	1
8028	NU CYG	A0 V		3.971	0.092	0.076	-0.112	-0.015	0.017	0.008	0.045	0.066	0.075	0.082	0.106	0.106	2	2
8047 V	59 CYG	B1 IV:E		4.595	-1.364	-1.296	-0.769	-0.096	0.048	0.017	0.105	0.212	0.233	0.162	0.035	0.117	1	1
8060	ETA CAP	A4S		4.888	0.204	0.168	0.197	0.179	0.069	0.102	0.128	0.223	0.265	0.276	0.309	0.375	2	2
8075	THE CAP	A0 V		4.115	-0.017	-0.020	0.003	-0.001	0.003	0.007	0.017	0.008	0.007	0.005	0.000	0.012	2	2
8079	XI CYG	K5 IB		4.135	3.135	2.804	2.770	2.332	0.758	0.804	1.236	1.733	2.122	2.297	2.598	2.912	2	2
8080	24 CAP	M1 III	X	4.969	3.627	3.046	3.038	2.367	0.741	0.846	1.273	1.849	2.276	2.458	2.785	3.084	2	2
8085	61 A CYG	K5V		5.698	1.736	1.513	1.864	1.486	0.301	0.820	1.182	1.636	1.880	1.979	2.172	2.359	2	2
8086	61 B CYG	K7 V		6.540	2.027	1.776	2.061	1.707	0.407	0.888	1.337	1.804	2.240	2.374	2.597	2.941	2	1
8089	63 CYG	K4 IB-IIA		4.960	3.292	2.910	2.886	2.356	0.719	0.760	1.209	1.611	1.963	2.132	2.401	2.673	2	2
8093	NU AQR	G8 III		4.728	1.410	1.232	1.342	1.225	0.439	0.429	0.712	0.953	1.158	1.275	1.405	1.562	2	2
8097	GAM EQU	F0P		4.789	0.238	0.206	0.284	0.344	0.115	0.125	0.216	0.274	0.327	0.352	0.384	0.413	2	2
8115	ZET CYG	G8 II		3.447	1.510	1.373	1.444	1.335	0.479	0.442	0.708	0.914	1.123	1.229	1.372	1.512	5	2
8123 D	DEL EQU	F7 V		4.597	0.232	0.160	0.351	0.560	0.258	0.253	0.438	0.522	0.685	0.737	0.789	0.906	2	2
8130 D	TAU CYG	F0 IV		3.842	0.286	0.207	0.306	0.463	0.229	0.196	0.335	0.474	0.575	0.624	0.666	0.740	2	2
8131	ALF EQU	G0 III+A5 V		4.020	0.690	0.611	0.653	0.607	0.240	0.256	0.460	0.614	0.766	0.819	0.934	1.075	2	2
8143 *	SIG CYG	B9 IAB		4.236	-0.446	-0.435	-0.429	0.037	0.101	0.080	0.167	0.168	0.215	0.289	0.279	0.322	1	2
8146	UPS CYG	B2 VE		4.374	-1.293	-1.213	-0.736	-0.177	-0.010	-0.019	0.030	0.044	0.096	0.019	-0.101	-0.093	2	2
8162	ALF CEP	A7 IV,V		2.501	0.302	0.246	0.244	0.272	0.110	0.108	0.181	0.242	0.291	0.329	0.356	0.384	3	1
8167	IOT CAP	G8 III		4.490	1.236	1.053	1.168	1.120	0.424	0.422	0.688	0.892	1.106	1.175	1.313	1.454	2	2
8173	1 PEG	K1 III		4.349	1.926	1.727	1.805	1.490	0.494	0.528	0.833	1.118	1.363	1.461	1.633	1.802	2	1
8181	GAM PAV	F8 V	X	4.346	0.164	-0.003	0.290	0.488	0.293	0.288	0.428	0.623	0.810	0.819	0.879	1.036	2	2
8204	ZET CAP	G4 IBP	X	3.965	1.352	1.163	1.332	1.343	0.514	0.468	0.677	0.905	1.088	1.163	1.287	1.460	2	3
8225	2 PEG	M1 III		4.951	3.491	3.020	2.982	2.353	0.691	0.791	1.267	1.832	2.311	2.490	2.819	3.066	2	2
8232	BET AQR	G0 IB		3.094	1.322	1.063	1.022	1.058	0.397	0.402	0.636	0.851	1.024	1.095	1.217	1.333	2	2
8238 DV	BET CEP	B2 III		3.186	-1.562	-1.431	-0.961	-0.316	-0.084	-0.097	-0.139	-0.292	-0.341	-0.416	-0.538	-0.558	2	2
8252	RHO CYG	G8 III		4.196	1.224	1.046	1.167	1.125	0.419	0.416	0.690	0.997	1.202	1.286	1.414	1.593	2	2
8254	UPS OCT	K0 III	X	4.018	1.710	1.436	1.621	1.307	0.468	0.530	0.766	1.021	1.144	1.393	1.531	1.755	2	2
8255	72 CYG	K0 III		5.143	1.859	1.673	1.737	1.449	0.468	0.548	0.852	1.115	1.337	1.447	1.632	1.817	2	2
8260	EPS CAP	B3 V:P		4.633	-1.014	-0.949	-0.800	-0.262	-0.046	-0.058	-0.048	-0.103	-0.135	-0.128	-0.223	-0.226	2	2
8264	XI AQR	A7 V		4.749	0.320	0.258	0.215	0.212	0.081	0.086	0.151	0.212	0.250	0.273	0.299	0.331	2	1
8262 V.	W CYG	GM4E		5.733	3.735	2.766	2.291	1.780	1.207	0.532	1.592	3.321	4.344	4.750	5.633	6.061	1	1
8278	GAM CAP	A8M		3.764	0.482	0.418	0.361	0.407	0.133	0.160	0.247	0.318	0.410	0.397	0.459	0.561	2	1
8279	9 CEP	B2 IB		4.839	-0.558	-0.566	-0.286	0.243	0.228	0.169	0.293	0.426	0.489	0.528	0.530	0.609	2	2
8288	KAP CAP	G8 III		4.924	1.284	1.038	1.152	1.118	0.433	0.402	0.687	0.914	1.136	1.227	1.344	1.495	2	2
8297 V.				6.888	12.	7.600	7.134	5.263	1.513	1.305	2.043	2.637	3.152	3.697	4.124	4.529	1	1
8301	PI 1 CYG	B3 V		4.688	-1.025	-0.954	-0.659	-0.168	-0.021	-0.051	-0.051	-0.110	-0.130	-0.187	-0.272	-0.302	2	2
8305	IOT PSA	A0 (SI)	X	4.349	-0.141	-0.196	-0.103	-0.064	0.028	0.028	-0.028	-0.068	-0.022	-0.070	-0.052	-0.098	2	2
8308	EPS PEG	K2 IB		2.794	3.103	2.715	2.687	2.238	0.735	0.738	1.125	1.455	1.775	1.919	2.183	2.429	2	2
8309/10	MU CYG	F6 V		4.571	0.170	0.088	0.277	0.523	0.222	0.239	0.407	0.576	0.687	0.720	0.780	0.885	2	3
8313	9 PEG	G5 IB		4.556	1.924	1.693	1.722	1.547	0.541	0.517	0.819	1.102	1.352	1.460	1.649	1.796	2	2
8315 D	KAP PEG	F5 IV		4.222	0.198	0.117	0.250	0.435	0.209	0.234	0.380	0.543	0.658	0.687	0.739	0.827	2	2
8316 V.	MU CEP	M2 IA		4.635	4.892	4.418	4.043	3.329	1.351	1.037	1.846	2.896	3.586	3.952	4.572	4.951	7	2
8317	11 CEP	K0 III		4.803	2.020	1.824	1.877	1.538	0.486	0.526	0.829	1.084	1.319	1.423	1.586	1.771	3	1
8322 V	DEL CAP	A6M		2.949	0.256	0.215	0.282	0.359	0.162	0.168	0.277	0.366	0.445	0.467	0.491	0.536	2	2
8327		O9 II		6.004	-0.719	-0.722	-0.319	0.274	0.229	0.170	0.292	0.398	0.535	0.559	0.538	0.535	2	2
8334	NU CEP	A2 IA		4.435	0.808	0.586	0.201	0.483	0.339	0.277	0.475	0.672	0.837	0.999	1.102	1.234	2	2
8335	PI 2 CYG	B3 III		4.224	-1.121	-1.045	-0.724	-0.180	-0.024	-0.022	-0.041	-0.088	-0.096	-0.134	-0.236	-0.221	2	2
8353	GAM GRU	B8 II	X	3.005	-0.551	-0.546	-0.411	-0.156	0.005	-0.008	-0.058	-0.073	-0.099	-0.126	-0.150	-0.075	3	7
8368	DEL IND	F0 IV		4.478	0.361	0.274	0.260	0.309	0.144	0.165	0.248						1	0
8383 V.	VV CEP	M2EP IA+B9		5.419	1.176	1.094	1.548	2.005	0.941	0.866	1.572	2.381	3.009	3.305	3.779	4.141	1	2
8387	EPS IND	K5 V	X	5.069	1.577	1.377	1.716	1.328	0.337	0.708	1.001	1.319	1.558	1.688	1.875	2.005	2	2
8402	OMI AQR	B8 V		4.719	-0.694	-0.630	-0.508	-0.156	-0.023	-0.011	0.001	-0.046	-0.040	-0.043	-0.102	-0.065	2	2

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-11C	NB	NR
8411	LAM GRU	K2 III		4.817	2.892	2.541	2.601	2.056	0.581	0.699	1.073						1	0
8413	NU PEG	K4 III		5.270	3.105	2.742	2.766	2.136	0.579	0.766	1.167	1.545	1.882	2.028	2.277	2.526	2	2
8414	ALF AQR	G2 IB		3.179	1.590	1.333	1.300	1.289	0.481	0.450	0.708	0.889	1.158	1.229	1.371	1.517	2	2
8417 D	XI CEP	AM		4.332	0.298	0.244	0.324	0.433	0.182	0.194	0.289	0.411	0.508	0.531	0.563	0.619	2	2
8418	IOT AQR	B8 V		4.259	-0.550	-0.489	-0.305	-0.099	-0.019	-0.045	-0.044	-0.080	-0.092	-0.120	-0.164	-0.134	2	2
8425	ALF GRU	B7 IV	X	1.736	-0.770	-0.757	-0.506	-0.211	-0.015	-0.003	-0.064	-0.088	-0.109	-0.145	-0.208	-C.198	2	2
8430	IOT PEG	F5 V		3.858	0.180	0.123	0.307	0.505	0.227	0.219	0.367	0.543	0.665	0.703	0.745	0.850	3	2
8431	MU PSA	A2 V		4.480	0.157	0.136	0.072	0.064	0.068	0.007	0.007						1	0
8450	THE PEG	A2 V		3.546	0.169	0.136	0.138	0.105	0.041	0.025	0.036	0.069	0.084	0.089	0.121	0.181	2	2
8454	PI PEG	F5 II-III		4.384	0.634	0.489	0.417	0.550	0.261	0.233	0.386	0.507	0.649	0.686	0.766	0.914	2	2
8465	ZET CEP	K1 IB		3.741	3.100	2.759	2.724	2.271	0.768	0.731	1.132	1.459	1.779	1.938	2.197	2.440	2	2
8468	24 CEP	G8 III		5.026	1.382	1.184	1.238	1.182	0.434	0.421	0.699	0.943	1.148	1.228	1.346	1.518	2	2
8469	LAM CEP	O6F		5.137	-0.911	-0.877	-0.470	0.153	0.191	0.146	0.250	0.375	C.465	0.462	0.435	0.566	2	2
8485		K3 III		4.853	2.589	2.358	2.370	1.938	0.625	0.705	1.087	1.440	1.755	1.893	2.156	2.413	2	2
8486	MU 1 GRU	GG4	X	4.988	1.147	0.890	1.030	0.959	0.418	0.420	0.624	0.752	0.942	1.015	1.179	1.108	2	2
8494	EPS CEP	FO IV		4.243	0.269	0.207	0.250	0.328	0.152	0.149	0.228	0.360	0.442	0.451	0.477	0.554	2	2
8498	1 LAC	K3 II-III		4.478	2.937	2.627	2.637	2.118	0.655	0.701	1.066	1.400	1.708	1.867	2.107	2.354	2	2
8499	THE AQR	G8 III-IV		4.402	1.577	1.392	1.472	1.297	0.439	0.468	0.739	0.976	1.191	1.259	1.427	1.585	2	2
8502	ALF TUC	K3 III	X	3.249	2.810	2.382	2.537	1.971	0.637	0.737	1.073	1.403	1.709	1.859	2.123	2.405	2	2
8518	GAM AQR	B9 III		3.859	-0.180	-0.171	-0.149	-0.082	-0.028	0.007	-0.017	-0.021	-0.021	-0.028	-0.034	-C.035	2	1
8520	31 PEG	B2 V		5.006	-1.264	-1.169	-0.780	-0.228	-0.037	-0.040	-0.068	-0.063	-0.072	-0.128	-0.249	-0.266	2	2
8521 V	PI 1 GRU	S4,7	X	6.981	4.055	3.751	3.592	3.072	1.348	0.683	1.649	3.092	4.155	4.671	5.404	5.961	4	2
8522	32 PEG	B8 III		4.828	-0.264	-0.247	-0.266	-0.029	0.005	0.035	0.046	0.050	0.064	0.062	0.069	0.069	2	2
8523	2 LAC	B6 IV		4.541	-0.868	-0.786	-0.551	-0.166	-0.037	-0.035	-0.049	-0.086	-0.091	-0.113	-0.188	-0.199	2	2
8538	BET LAC	G9 III		4.660	1.582	1.350	1.464	1.311	0.459	0.484	0.783	1.061	1.297	1.396	1.575	1.752	2	3
8539	PI AQR	B1 NNEK		4.630	-1.416	-1.344	-0.801	-0.110	0.042	0.034	0.150	0.188	0.278	0.205	0.108	C.195	2	3
8541	4 LAC	B9 IAB		4.626	-0.384	-0.395	-0.409	0.027	0.088	0.089	0.142	0.177	0.224	0.275	0.263	0.301	2	2
8551	35 PEG	KO III-IV		5.059	1.741	1.505	1.640	1.399	0.478	0.523	0.842	1.124	1.360	1.494	1.665	1.848	3	2
8556	DEL 1 GRU	GG5	X	4.211	1.714	1.436	1.561	1.388	0.534	0.495	0.733	0.955	1.201	1.286	1.422	1.734	2	2
8558/9	ZET AQR	F2 IV		3.770	0.286	0.185	0.276	0.472	0.213	0.215	0.373	0.516	C.641	0.671	0.712	0.796	2	4
8560	DEL 2 GRU	GM6	X	4.421	3.786	3.090	2.933	2.268	0.888	0.607	1.237	2.173	2.846	3.089	3.542	3.973	2	2
8571 V.	DEL CEP	F5 IB-G1IB		4.450	1.388	1.149	1.096	1.097	0.427	0.400	0.664	0.856	1.052	1.120	1.255	1.355	1	1
8572 D	5 LAC	MO IAB+B		4.805	2.214	2.119	2.288	2.200	0.853	0.823	1.355	1.952	2.423	2.647	3.012	3.296	2	2
8573	SIG AQR	AO IV		4.882	-0.082	-0.050	-0.061	-0.027	0.001	-0.001	-0.005	-0.009	-0.037	-0.041	-0.064	-0.061	2	2
8576	BET PSA	AO IV		4.286	0.036	0.032	0.041	0.008	0.008	0.014	-0.011						1	0
8579	6 LAC	B2 IV		4.480	-1.151	-1.065	-0.716	-0.158	0.003	-0.019	-0.030	-0.036	-C.063	-0.095	-0.174	-0.179	2	2
8582	UPS TUC	GM4	X	5.148	3.843	3.089	3.026	2.263	0.868	0.662	1.288	2.342	3.012	3.285	3.728	4.126	1	2
8585	ALF LAC	A2 V		3.750	-0.028	-0.034	0.007	0.019	-0.003	-0.003	0.015	-0.014	-C.011	-0.023	-0.015	0.005	2	3
8597	ETA AQR	B8 V		4.026	-0.448	-0.397	-0.320	-0.123	-0.037	-0.019	-0.041	-0.040	-C.052	-0.080	-0.123	-0.127	2	2
8613	9 LAC	A7 IV		4.667	0.336	0.272	0.236	0.272	0.129	0.112	0.198	0.287	0.368	0.390	0.415	0.406	2	2
8622	10 LAC	O9 V		4.846	-1.662	-1.540	-1.000	-0.293	-0.047	-0.066	-0.102	-0.173	-0.209	-0.271	-0.422	-0.458	99	40
8628	EPS PSA	B7 V		4.179	-0.556	-0.507	-0.487	-0.145	0.003	-0.031	-0.063						1	0
8632	11 LAC	K3 III		4.815	2.541	2.206	2.279	1.835	0.579	0.644	1.007	1.367	1.640	1.786	2.018	2.215	2	1
8634	ZET PEG	B8 V		3.410	-0.460	-0.398	-0.356	-0.155	-0.041	-0.017	-0.029	-0.061	-0.065	-0.070	-0.112	-0.123	2	3
8636	BET GRU	M3 II	X	2.413	3.608	2.875	2.783	2.154	0.935	0.595	1.254	2.359	3.061	3.374	3.889	4.248	2	3
8641	OMI PEG	A1 V		4.806	0.007	-0.005	-0.048	-0.020	0.002	0.009	-0.012	-0.008	-0.004	-0.025	0.001	-0.005	2	3
8644	RHO GRU	GG8	X	5.103	1.660	1.341	1.562	1.294	0.494	0.514	0.772	1.017	1.257	1.355	1.474	1.715	1	2
8649	66 AQR	K4 III		5.022	2.774	2.415	2.492	1.961	0.597	0.688	1.064	1.444	1.735	1.914	2.127	2.356	2	3
8650	ETA PEG	G8 II:+F?		3.130	1.225	1.052	1.114	1.068	0.401	0.402	0.650	0.873	1.087	1.178	1.320	1.471	2	2
8655	ETA GRU	GK2	X	5.152	2.227	1.736	1.917	1.520	0.561	0.593	0.906	1.247	1.522	1.649	1.864	2.166	1	2
8665	XI PEG	F7 V		4.307	0.238	0.151	0.317	0.552	0.253	0.266	0.427	0.600	0.751	0.800	0.861	0.967	2	2
8667	LAM PEG	G8 II-III		4.192	1.782	1.586	1.630	1.439	0.493	0.491	0.770	1.024	1.246	1.349	1.515	1.704	2	3
8675	EPS GRU	A2 V	X	3.510	0.320	0.205	0.122	0.072	0.063	0.080	0.059	0.111	0.127	0.206	0.229	0.246	2	2
8679	TAU AQR	MO III		4.440	3.438	2.964	2.968	2.341	0.667	0.782	1.229	1.769	2.180	2.373	2.666	2.922	2	2
8684	MU PEG	G8 III		3.728	1.387	1.197	1.301	1.210	0.446	0.432	0.689	0.981	1.181	1.268	1.398	1.533	2	4
8694	IOT CEP	K1 III		3.737	1.753	1.557	1.640	1.405	0.477	0.506	0.782	1.050	1.290	1.384	1.546	1.724	2	3
8695	GAM PSA	AO V		4.474	-0.151	-0.152	-0.170	-0.051	0.017	-0.006	-0.041						1	0
8698	LAM AQR	M2 III		4.140	3.278	2.846	2.839	2.361	0.774	0.775	1.288	2.039	2.548	2.773	3.125	3.430	2	2
8702		K3 III		5.058	2.400	2.109	2.186	1.753	0.541	0.616	0.980	1.314	1.584	1.734	1.930	2.128	2	2
8709	DEL AQR	A3 V		3.281	0.226	0.189	0.107	0.073	0.026	0.044	0.049	0.094	0.108	0.121	0.136	0.134	2	4
8717	RHO PEG	A1 V		4.891	0.005	0.017	-0.028	-0.008	0.003	0.017	0.001	0.034	0.033	0.024	0.043	0.083	2	3
8720	DEL PSA	GG8	X	4.436	1.495	1.201	1.398	1.190	0.473	0.469	0.732	0.910	1.183	1.253	1.449	1.681	2	2
8728	ALF PSA	A3 V	X	1.172	0.189	0.121	0.181	0.108	0.054	0.049	0.034	0.075	0.070	0.056	0.116	0.096	3	2
8729	51 PEG	DGO		5.612	0.601	0.510	0.699	0.796	0.309	0.332	0.545	0.722	C.846	0.923	0.987	1.126	3	2
8747	ZET GRU	G5 III	X	4.336	1.550	1.228	1.427	1.237	0.473	0.470	0.732	1.025	1.254	1.353	1.528	1.793	2	2
8748		K4 III		5.042	3.018	2.641	2.699	2.093	0.595	0.719	1.115	1.475	1.811	1.965	2.178	2.414	2	3
8752 V.		GO IA		5.399	2.728	2.346	2.179	2.003	0.808	0.808	1.225	1.689	2.046	2.262	2.605	2.828	1	3
8762	OMI AND	B6P		3.637	-0.881	-0.806	-0.641	-0.179	-0.022	-0.008	-0.026	-0.014	-C.028	-0.024	-0.085	-0.093	1	4
8773	BET PSC	B5PE		4.505	-0.827	-0.769	-0.511	-0.162	-0.026	-0.025	-0.055	-0.013	-0.006	-0.009	-0.104	-0.116	2	3
8775 V	BET PEG	M2 II-III		2.849	3.905	3.244	3.113	2.472	0.846	0.699	1.296	2.162	2.766	2.969	3.363	3.677	2	4
8780	3 AND	KO III		4.894	1.725	1.536	1.615	1.398	0.484	0.501	0.808	1.098	1.324	1.440	1.611	1.791	2	3
8781	ALF PEG	B9.5 III		2.502	-0.017	-0.021	-0.125	-0.054	0.001	0.000	-0.018	0.007	-0.012	-0.018	-0.018	-0.007	3	4
8787	THE GRU	F6 IV		4.390	0.464	0.400	0.429	0.513	0.203	0.241	0.346						1	0
8789	86 AQR	GG9		4.676	1.235	1.090	1.223	1.168	0.446	0.427	0.697						1	0
8795	55 PEG	M2 III		4.973	3.464	2.986	2.968	2.340	0.665	0.792	1.276	1.877	2.314	2.503	2.807	3.062	2	3
8796	56 PEG	KO IBP		5.089	2.209	1.942	2.016	1.823	0.627	0.632	1.014	1.353	1.630	1.769	1.999	2.208	2	3
8797	1 CAS	BO.5 IV		4.821	-1.283	-1.190	-0.767	-0.116	0.067	0.008	0.023	0.046	0.030	-0.003	-0.094	-0.019	2	3
8808 D		B3 V		6.272	-0.906	-0.821	-0.488	-0.068	0.032	0.013	0.025	-0.003	-0.013	-0.042	-0.085	-0.142	2	2
8812	88 AQR	KO III	X	3.949	2.332	1.960	2.121	1.666	0.572	0.604	0.891	1.158	1.430	1.558	1.783	2.002	2	2
8817	89 AQR	SGG2+A2		4.861	0.967	0.863	0.838	0.790	0.336	0.341	0.554						1	0
8819 D	PI CEP	G2 III		4.598	1.017	0.892	0.995	0.983	0.368	0.402	0.646	0.836	1.042	1.118	1.238	1.384	3	3
8820	IOT GRU	KO III	X	4.141	1.745	1.485	1.619	1.362	0.482	0.494	0.754	0.963	1.179	1.272	1.419	1.621	2	2
8830	7 AND	FO V		4.597	0.216	0.149	0.212	0.340	0.149	0.153	0.253	0.356	0.450	0.472	0.499	0.557	1	3
8832		K3 V		5.872	1.443	1.311	1.586	1.280	0.318	0.618	0.928	1.175	1.420	1.498	1.665	1.839	68	24
8834	PHI AQR	M2 III		4.636	3.416	2.927	2.909	2.300	0.667	0.765	1.261	1.894	2.379	2.583	2.903	3.160	2	4
8841	PSI 1 AQR	KO III		4.514	1.897	1.716	1.783	1.484	0.488	0.544	0.840	1.104	1.363	1.473	1.642	1.804	2	3
8848	GAM TUC	FO III	X	4.084	0.292	0.151	0.274	0.421	0.231	C.223	0.341	0.432	0.566	0.587	0.641	0.804	2	2
8852	GAM PSC	G7 III		3.913	1.352	1.081	1.191	1.165	0.442	0.427	0.710	0.969	1.202	1.306	1.457	1.600	2	3
8858	PSI 2 AQR	B5 V		4.396	-0.955	-0.866	-0.614	-0.200	-0.047	-0.030	-0.074	-0.101	-0.127	-0.165	-0.260	-C.276	2	3
8860	8 AND	GM2		5.231	3.741	3.185	3.105	2.465	0.785	0.743	1.310	2.058	2.588	2.799	3.170	3.468	3	1

TABLE 7 (CONTINUED)

B.S.	NAME	SP. TYPE		52	33-52	35-52	37-52	40-52	45-52	52-58	52-63	52-72	52-80	52-86	52-99	52-110	NB	NR
8863	GAM SCL	G8 III	X	4.691	2.013	1.709	1.878	1.498	0.524	0.559	0.837	1.088	1.306	1.452	1.649	1.805	2	2
8872 D	OMI CEP	K0 III		4.948	1.104	0.943	1.072	1.056	0.397	0.410	0.676	0.892	1.071	1.154	1.298	1.472	2	2
8880	TAU PEG	A5 IV		4.606	0.236	0.186	0.159	0.169	0.075	0.083	0.134	0.186	0.273	0.282	0.325	0.369	2	3
8892	98 AQR	K0 III		4.219	1.868	1.579	1.710	1.442	0.512	0.531	0.838	1.125	1.388	1.505	1.684	1.873	8	6
8905	UPS PEG	F8 IV		4.557	0.516	0.390	0.494	0.677	0.290	0.293	0.499	0.689	0.838	0.876	0.962	1.039	2	2
8906	99 AQR	K5 III		4.810	3.183	2.777	2.809	2.205	0.638	0.764	1.195	1.607	1.952	2.116	2.367	2.597	7	3
8911	KAP PSC	A2P		4.968	-0.069	-0.112	-0.004	0.039	-0.016	0.070	0.072	0.076	0.074	0.048	0.044	0.014	2	3
8916	THE PSC	K1 III		4.554	1.857	1.664	1.730	1.451	0.483	0.531	0.838	1.057	1.317	1.414	1.585	1.763	2	2
8923	70 PEG	G8 III		4.768	1.463	1.290	1.367	1.240	0.443	0.459	0.732	0.950	1.165	1.257	1.402	1.569	2	2
8926 V	AR CAS	B3 V		4.871	-1.069	-0.969	-0.639	-0.183	-0.028	-0.021	-0.039	-0.056	-0.076	-0.116	-0.200	-0.195	2	3
8939	101 AQR	A1		4.705	0.108	0.087	-0.034	0.024	0.054	0.016	0.034						1	0
8961 V	LAM AND	G8 III-IV		3.995	1.433	1.194	1.329	1.233	0.445	0.514	0.832	1.155	1.371	1.476	1.658	1.876	2	3
8965	IOT AND	B8 V		4.288	-0.488	-0.450	-0.405	-0.122	-0.014	-0.037	-0.033	-0.075	-0.082	-0.091	-0.076	-0.133	2	2
8969	IOT PSC	F7 V		4.228	0.288	0.197	0.356	0.580	0.256	0.252	0.438	0.564	0.709	0.750	0.790	0.909	9	2
8974	GAM CEP	K1 IV		3.480	1.700	1.533	1.650	1.360	0.431	0.505	0.812	1.036	1.287	1.395	1.533	1.726	2	2
8976	KAP AND	B8 V		4.136	-0.407	-0.368	-0.256	-0.119	-0.039	-0.012	-0.037	-0.070	-0.068	-0.090	-0.116	-0.065	2	3
8982	104 AQR	G0 IB		4.981	1.179	0.943	0.952	1.006	0.379	0.388	0.626	0.845	1.044	1.103	1.211	1.368	2	4
8984	LAM PSC	A7 V		4.547	0.222	0.180	0.205	0.224	0.083	0.106	0.165	0.221	0.263	0.269	0.277	0.342	2	2
8988	OMG 2 AQR	B9.5 V		4.456	-0.256	-0.214	-0.115	-0.047	0.003	-0.019	-0.038	-0.063	-0.084	-0.084	-0.097	-0.085	2	2
8997 D	78 PEG	K0 III		5.134	1.374	1.194	1.292	1.201	0.433	0.447	0.718	0.963	1.187	1.281	1.429	1.607	2	3
9016	DEL SCL	A0 V		4.570	-0.038	-0.022	-0.024	0.007	0.037	-0.003	-0.031						1	0
9045 V	RHO CAS	G0 IAP		4.811	2.311	1.814	1.537	1.407	0.641	0.572	0.865	1.177	1.435	1.638	1.850	2.028	2	4
9064	PSI PEG	M3 III		5.024	3.197	2.775	2.712	2.262	0.785	0.700	1.272	2.133	2.721	2.960	3.358	3.668	2	2
9071 D	SIG CAS	B1 V		4.894	-1.248	-1.159	-0.731	-0.148	0.014	0.002	-0.013	-0.053	-0.061	-0.085	-0.196	-0.192	2	3
9072	OMG PSC	F4 IV		4.134	0.318	0.217	0.277	0.441	0.200	0.233	0.377	0.515	0.624	0.654	0.695	0.784	2	3
9076	EPS TUC	B9 IV		4.481	-0.342	-0.340	-0.358	-0.116	-0.005	0.003	-0.018						1	0
9084	THE OCT	K2 III	X	5.141	2.552	2.121	2.292	1.719	0.550	0.683	0.998	1.316	1.592	1.730	1.910	2.183	4	2
9089	30 PSC	M3 IV		4.805	3.697	3.067	2.927	2.330	0.643	0.650	1.259	2.220	2.837	3.093	3.522	3.867	2	3
9091	ZET SCL	B5 V		5.005	-0.895	-0.830	-0.566	-0.175	-0.009	-0.049	-0.081						1	0
9098	2 CET	B9 IV		4.523	-0.133	-0.117	-0.195	-0.059	0.016	-0.018	-0.009	-0.038	-0.054	-0.029	-0.049	-0.014	3	2

NOTES TO TABLE 7

215	ζ And	*58* filters differ by more than 0.10 Mag.
681	o Cet	39831.6 matched to 39151.6
1239	λ Tau	39873.6 matched to 39440.8
1845	CE Tau	39831.8 matched to 39499.7
2061	α Ori	39797.9 matched to 38787.7
2308	BL Ori	39773.9 matched to 39501.8
2590	π CMa	*58* filters differ by more than 0.10 Mag. May be variable.
2650	ζ Gem	39804.9 matched to 38789.8
4163	U Hya	*58* filters differ by more than 0.10 Mag.
4846	Y Cvn	39867.9 matched to 39176.9
4915	α^2 Cvn	39930.7 matched to 38894.7
5056	α Vir	39930.8 matched to 39176.9
5589	RR UMi	39910.9 matched to 39257.8
6146	g Her	39969.8 matched to 38929.7
6406	α Her	39973.7 matched to 39227.9
6431	μ Her	*58* filters differ by more than 0.10 Mag.
7066	R Sct	39974.9 matched to 38917.8
7564	χ Cyg	40004.9 matched to 40006.9 (unpublished data)
4163		*33-52* = 12. is lower limit. 33 was not measurable.
4846		*33-52* = 12. is lower limit. 33 was not measurable.
8297		*33-52* = 12. is lower limit. 33 was not measurable.
7570	η Aql	39976.9 matched to 38871.9
8262	W Cyg	*58* filters differ by more than 0.10 Mag.
8297	V460 Cyg	400022.8 matched to 39407.6
8316	μ Cep	*58* filters differ by more than 0.10 Mag.
8383	VV Cep	*58* filters differ by more than 0.10 Mag.
8571	δ Cep	39278.8 matched to 39459.6
8752	HD 217476	*58* filters differ by more than 0.10 Mag.

metric system can be obtained from Infrared Industries, Thin Films Division, P.O. Box 557, Waltham, Mass., U.S.A. 02154. Mr. Perry, of Infrared Industries has on file the specifications necessary to produce satisfactory duplicates of our filters.

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