

UBVRI photometry of the FK5 Extension Catalogue Stars^{*,**}

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Abstract. *UBVRI* photometry in the Kron-Cousins system for 272 stars of the Extension Catalogue of the Fifth Fundamental Star Catalogue (FK5 stars) in the declination zone $+7^\circ$ to -90° is presented.

Key words: catalogues — techniques: photometric

1. Introduction

An improvement of the existing astrophysical data of Fundamental Stars is desirable in order to detect and evaluate astrometric effects which might introduce systematic errors to the Fundamental Catalogue (Jahreiss 1981).

To take into account one of such effects, the magnitude equation, it is necessary to obtain precise and homogeneous photometric data. Up to 1991, no photometric data in the *UBV* system was available for 354 Stars, South of the Equator, to be included in the Extension of the FK5 Catalogue (Jahreiss 1991).

The *UBVRI* photometry, in the Kron-Cousins system, 272 stars belonging to the FK5 Extension Catalogue in the declination zone $+7^\circ$ to -90° is given.

2. Observations and reductions

The observations were made from September 7, 1992, through September 9, 1995, using the ESO 0.50 m telescope at the European Southern Observatory, La Silla, Chile. A single channel photometer with the R 943-02 photomultiplier, *Hamamatsu*, and the ESO *UBVRI* filters have been used.

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* Tables 1-2 are also available in electronic form at the CDS via anonymous ftp to cdsarc.u-strasbg.fr (130.79.128.5) or via <http://cdsweb.u-strasbg.fr/Abstract.html>

** Based on observations made at the European Southern Observatory, La Silla, Chile.

A total of 73 nights were granted in 6 observing runs, and of these, 43 nights were totally or partially photometric. Both the observing and the reduction methods are described by Moreno & Carrasco (1986).

The program stars observations were always done as close to the meridian as possible. For the brightest objects, an annular diaphragm fixed at the entrance pupil of the telescope was used to prevent saturation of the detector.

In order to have an homogeneous set of photometric data together with all the FK5 Stars of the declination zone ranging from $+7^\circ$ to -90° , 31 stars taken from the E-regions (Graham 1982) were used as standard stars. To determine the transformation to the standard system, 3 or 4 stars were observed hourly.

The mean number of observations for the program stars is 7.6, with a minimum of 3 observations per star. About 30% of the observed stars correspond to standard stars in every night of observation. Depending on the period of the year, this is a total of 15 to 25 standard stars a night.

The reductions of the observations were done using the computing facilities at La Silla with the Snopy General Purpose Photometric Reduction Program. Zero-point corrections, extinction determinations, color transformations and the final colors and the magnitudes were determined for each night separately.

3. Results

The results of the *UBVRI* photometry for the standard stars are given in Table 2. This table includes: the star number in the E-regions; the HD or CPD number; the *V* magnitude; the $(B - V)$, $(U - V)$, $(V - R)$ and $(R - I)$ color indices; e , the root mean square error of the averages published (unit magnitude: 0.001); n , the number of observations for each star; and Sp, the spectral types (Graham 1982).

The standard stars observed with an annular diaphragm fixed at the entrance pupil of the telescope were

treated separately, and are listed also in Table 2 with an asterisk after the star number.

Table 2 gives similar information for the program stars. An asterisk after the star number means that the observations were made with a diaphragm, and a *v* mean a variable star.

The results of the observations of the FK5 Extension stars N° 4173, 4409, 5355, 5400, 5410, 5593, 5671, 5886 and 6056 show that they are variable stars; the published

results correspond to the mean values obtained from the observations.

References

- Graham J., 1982, PASP 94, 244
 Jahreiss H., 1981, Bull. Info. Centre de Données Stellaires 20, 13
 Jahreiss H., 1991 (private communication)
 Moreno H., Carrasco G., 1986, A&AS 65, 33

Table 1. *UBVRI* photometry of the standard stars

	HD/CPD	<i>V</i>	<i>e</i>	<i>B - V</i>	<i>e</i>	<i>U - B</i>	<i>e</i>	<i>V - R</i>	<i>e</i>	<i>R - I</i>	<i>e</i>	<i>n</i>	Sp
E1-20Q	8501	9.852	2	0.738	2	0.260	4	0.406	1	0.379	1	55	G8I V/V
E1-20Q*	8501	9.838	4	0.744	5	0.266	8	0.396	5	0.374	5	12	G8I V/V
E1-35R	8362	9.471	2	1.425	2	1.678	7	0.769	1	0.730	2	59	K3 (III)
E1-35R*	8362	9.474	7	1.426	2	1.679	8	0.772	3	0.735	3	14	K3 (III)
E1-44S	-45°155	10.876	7	0.629	2	0.151	2	0.352	2	0.327	2	14	
E2-18N	25842	8.475	2	0.722	1	0.231	4	0.413	1	0.383	1	26	G5 V
E2-2C	25843	7.637	2	0.174	1	0.126	1	0.087	1	0.088	1	29	A/m
E2-4F	25653	8.192	1	0.130	1	0.150	2	0.063	1	0.078	1	32	A3 IV/V
HD-49798	49798	8.272	1	-0.287	1	-1.164	2	-0.127	1	-0.144	1	18	O5/7 p
E2-36P		8.032	6	1.592	3	1.947	7	0.900	3	1.011	3	3	
E3-19I	48464	8.987	1	0.254	1	0.053	2	0.143	1	0.137	1	12	F0 V
E3-26N	48730	9.543	0	0.458	1	0.085	9	0.272	4	0.257	2	3	F3/5 IV
E4-108	-44°3663	9.764	2	1.913	2	2.157	8	1.029	1	0.936	2	4	
E4-33O	81610	8.842	2	0.979	2	0.723	5	0.522	1	0.476	1	8	G8/K0 III
E4-7K	81414	9.410	2	0.075	2	0.084	3	0.032	1	0.043	1	7	A1 IV
E5-32P	104720	9.233	5	1.504	5	1.883	9	0.806	2	0.745	3	3	K4/5 II
E5-34M	103729	8.531	4	1.525	2	1.836	4	0.822	4	0.750	4	10	K3/4 III
E5-41A	105313	7.306	4	0.018	2	-0.047	4	0.011	2	0.022	1	12	B9 V
E5-8O	-44°5820	9.987	5	0.350	4	0.168	6	0.207	3	0.192	2	4	
E6-16P	129660	9.384	4	0.271	1	0.162	5	0.162	2	0.169	1	10	A7 V
E6-8M	129688	9.218	3	0.042	1	0.042	4	0.011	2	0.021	2	20	A0/1 V
E6-98	129474	8.834	2	1.619	4	1.955	4	0.880	3	0.855	4	22	K4 (III)
E6-98*	129474	8.788	9	1.613	9	1.957	8	0.875	6	0.867	3	4	K4 (III)
E7-11M	157870	8.648	5	0.316	6	0.195	4	0.176	5	0.168	2	3	A3 II(m)
E7-16H	157477	8.090	5	0.244	1	0.203	3	0.140	1	0.150	1	45	A5 V
E7-16H*	157477	8.101	4	0.240	2	0.193	7	0.136	4	0.154	6	5	A5 V
E7-32K	157487	7.635	6	1.244	1	1.125	4	0.628	1	0.565	1	44	G8III(CN)
E7-32K*	157487	7.638	4	1.241	2	1.119	3	0.620	3	0.568	9	5	G8III(CN)
E7-7S	157697	9.990	7	0.055	2	-0.228	5	0.065	3	0.096	3	19	B9II/III
E8-18P	189933	9.314	2	0.441	1	-0.051	4	0.269	1	0.275	1	40	F3/ 5 V
E8-18P*	189933	9.307	8	0.443	6	-0.044	8	0.261	4	0.269	6	8	F3/4 V
E8-40O	190480	8.089	4	1.413	1	1.602	4	0.755	1	0.677	1	64	K3/4 III
E8-40O*	190480	8.095	9	1.416	5	1.626	8	0.748	6	0.674	4	12	K3/4 III
E8-61	191849	7.971	5	1.428	2	1.162	6	0.910	1	0.925	1	41	M1/2 V
E8-39S		9.512	8	1.116	1	1.015	6	0.574	2	0.512	1	14	
E9-27R	215105	9.499	3	1.218	2	1.164	3	0.646	1	0.582	2	75	K2 III
E9-27R*	215105	9.492	5	1.224	5	1.171	7	0.645	3	0.585	3	6	K2 III
E9-28V	-45°10328	10.373	4	1.041	2	0.811	7	0.537	5	0.495	4	29	
E9-38S	215756	9.531	6	1.387	2	1.591	4	0.743	1	0.685	1	76	K3 III
E9-38S*	215756	9.528	6	1.396	7	1.609	7	0.754	8	0.692	7	7	K3 III

Table 1. *UBVRI* photometry of the program stars

FK5	BD	<i>V</i>	<i>e</i>	<i>B - V</i>	<i>e</i>	<i>U - B</i>	<i>e</i>	<i>V - R</i>	<i>e</i>	<i>R - I</i>	<i>e</i>	<i>n</i>	Sp
4001	-65 4190	8.351	06	0.387	03	0.003	08	0.233	02	0.229	04	11	F5
4008	-3516055	8.403	04	0.541	02	0.064	01	0.309	02	0.294	02	7	G0
4010	- 4 6019	7.578	06	1.067	06	0.843	07	0.545	03	0.500	03	11	K0
4013	-55 2	8.778	04	1.226	02	1.341	02	0.625	02	0.519	01	10	K0
4022*	-80 3	7.256	05	0.908	07	0.586	07	0.475	04	0.445	02	5	G5
4030	-50 47	8.879	05	0.416	01	-0.058	04	0.254	02	0.260	02	9	F5
4035	-15 52	9.077	04	0.809	03	0.398	04	0.442	02	0.416	03	11	G5
4042*	-52 38	7.566	06	1.047	05	0.841	06	0.535	03	0.485	03	8	G5
4052	-55 118	9.053	05	0.369	03	-0.036	07	0.222	02	0.216	02	10	F2
4056	-85 7	8.133	09	1.231	05	1.270	05	0.628	05	0.557	06	5	K5
4064	-71 26	8.153	05	0.433	03	-0.041	05	0.256	03	0.244	05	12	F5
4070	-61 37	7.949	08	0.315	02	0.061	03	0.184	03	0.187	02	6	A3
4073	-41 215	8.881	05	0.648	02	0.130	05	0.369	02	0.353	02	6	G0
4086	-77 37	7.424	06	1.083	02	0.971	09	0.562	01	0.504	03	6	G5
4090	-51 237	7.498	03	1.414	02	1.637	09	0.737	02	0.654	01	6	K2
4092	-67 65	8.739	09	0.877	02	0.531	06	0.457	03	0.423	03	6	G5
4110	-37 467	8.211	03	0.458	01	-0.027	05	0.271	01	0.269	01	6	F8
4113	-87 23	7.964	07	1.609	03	1.992	05	0.892	02	0.883	01	16	K5
4134*	-23 520	7.086	03	1.237	07	1.230	08	0.604	04	0.531	03	7	K0
4144	-42 554	9.354	03	0.467	01	0.011	07	0.275	02	0.267	01	7	F8
4145	+ 3 218	7.861	02	1.122	02	1.007	06	0.580	01	0.521	03	12	K0
4146	-49 447	6.829	06	0.940	02	0.581	07	0.490	01	0.462	01	7	G5
4147	-56 323	9.251	09	1.122	02	1.084	07	0.571	02	0.502	02	7	K0
4148	-67 107	7.651	06	1.491	02	1.824	05	0.788	02	0.724	02	7	K0
4152*	- 9 324	6.976	02	1.120	02	1.115	03	0.563	03	0.494	03	7	G5
4153*	-20 318	7.163	02	1.435	03	1.591	05	0.769	02	0.694	02	5	K0
4160	-47 538	9.341	08	0.739	03	0.217	05	0.432	02	0.418	02	7	F8
4173*v	-85 24	6.997	12	1.629	15	1.744	25	0.920	04	1.063	10	11	K2
4185	-60 176	9.055	10	1.087	03	1.048	05	0.577	03	0.501	02	6	K0
4194	-57 403	7.887	08	1.202	04	1.237	05	0.614	01	0.534	03	7	K0
4200	-73 145	8.451	08	0.951	03	0.622	06	0.488	01	0.452	03	6	G5
4203	-66 133	8.373	07	1.026	04	0.858	08	0.541	03	0.495	01	6	K0
4206	-51 552	7.891	04	1.004	01	0.762	08	0.516	02	0.477	01	7	G5
4210	-43 696	7.596	08	1.065	02	0.937	09	0.546	02	0.480	02	7	G5
4215*	-83 44	7.876	08	1.131	04	0.994	06	0.591	04	0.549	03	6	K0
4222	-57 434	8.721	05	1.047	03	0.926	04	0.553	02	0.492	02	6	G5
4228	-76 201	7.122	05	1.136	02	0.989	16	0.586	03	0.549	01	6	K0
4230	-40 628	8.007	03	1.019	02	0.804	07	0.533	02	0.490	01	7	G5
4239*	-85 33	7.273	09	1.085	03	0.970	07	0.558	05	0.509	02	7	K0
4241*	-80 54	7.678	09	1.033	04	0.779	08	0.540	04	0.521	06	8	G5
4246	-26 958	7.573	02	1.184	02	1.164	02	0.600	02	0.530	01	6	K0
4247	-35 920	7.312	02	1.427	03	1.708	21	0.744	02	0.659	02	8	K0
4256	-40 724	8.668	03	0.968	03	0.651	08	0.503	00	0.468	01	7	G5
4258*	-74 232	6.958	09	1.633	09	1.960	09	0.885	03	0.923	07	6	K5
4265	-51 686	8.357	03	0.400	02	-0.047	09	0.245	02	0.246	01	7	F0
4266	-61 235	8.035	07	1.163	02	1.101	10	0.606	03	0.540	01	7	K0
4277	- 8 564	9.403	02	1.053	01	0.824	04	0.551	01	0.506	02	6	K0
4278	-70 201	7.735	06	1.349	04	1.450	07	0.730	04	0.689	02	6	K0
4297	-34 174	8.786	07	0.518	03	-0.031	09	0.303	03	0.291	02	7	F8
4298	+ 3 447	8.872	04	0.216	03	0.056	04	0.126	03	0.140	02	6	A0
4299	-61 250	8.701	08	1.007	02	0.753	02	0.530	02	0.496	01	9	K0
4301	-38 1090	8.349	03	0.906	03	0.545	07	0.480	02	0.445	01	7	G5
4303	-24 1569	8.539	02	0.306	01	0.049	02	0.183	02	0.170	03	6	A5
4304*	-66 185	7.319	03	0.165	02	0.114	03	0.068	03	0.083	02	6	A2
4307*	-59 268	7.645	06	1.251	07	1.299	08	0.662	04	0.589	03	8	K2

Table 2. continued

4308*	-21	619	7.134	02	1.110	02	1.049	05	0.566	01	0.492	01	6	G5
4309	-46	1026	8.170	04	0.818	03	0.401	05	0.445	03	0.421	04	6	G5
4311	-4	586	7.216	02	1.031	01	0.851	03	0.543	02	0.491	02	6	G5
4313	-10	679	9.294	01	0.216	02	0.117	03	0.124	02	0.135	02	6	A2
4320*	-79	109	6.859	03	0.996	04	0.856	06	0.509	02	0.451	02	6	K0
4326	-72	253	8.712	04	0.985	03	0.755	05	0.512	03	0.476	03	6	K0
4330	-39	1123	9.313	02	0.420	02	-0.075	05	0.257	03	0.250	03	6	F5
4331*	-17	707	6.860	04	0.917	04	0.617	06	0.473	01	0.432	02	8	K0
4332	-58	306	8.694	03	0.178	02	0.134	04	0.103	01	0.117	02	10	A2
4341	-43	1157	8.239	08	1.573	03	1.690	07	1.055	03	1.574	06	10	M0
4360*	-66	240	7.647	07	1.560	03	1.904	09	0.949	03	1.254	05	7	M1
4361	-51	966	8.016	04	0.938	02	0.637	03	0.490	02	0.450	02	10	G5
4364*	-48	1174	6.928	03	1.217	04	1.353	08	0.605	01	0.531	03	8	K0
4366	-29	1555	9.345	03	0.376	03	0.026	06	0.226	02	0.227	03	11	F2
4369	-7	737	8.462	04	0.895	03	0.521	04	0.489	02	0.453	02	11	K0
4373	-58	346	7.940	04	1.328	02	1.547	04	0.686	02	0.600	02	10	K2
4376	-42	1393	8.825	02	0.949	03	0.615	04	0.498	01	0.468	01	9	G5
4388	-39	1400	8.749	01	1.152	03	1.136	09	0.584	02	0.510	02	9	G5
4394	-63	314	8.493	03	0.804	03	0.293	05	0.448	02	0.430	03	9	G5
4400	+3	595	8.774	04	0.290	02	0.143	05	0.158	02	0.175	02	10	B9
4404	-69	273	8.036	04	1.028	02	0.746	04	0.551	02	0.520	03	9	K0
4405	-74	290	9.494	04	0.648	03	0.182	06	0.359	02	0.343	04	9	G0
4409v	-41	1445	8.440	03	1.284	03	1.322	12	0.689	02	0.616	02	9	K2
4414*	-83	94	7.176	03	1.097	04	1.009	06	0.583	03	0.546	02	5	G5
4416*	-18	883	7.555	01	1.120	01	1.060	02	0.576	03	0.515	03	5	K0
4420	-1	700	8.929	03	0.250	02	0.077	05	0.146	02	0.150	02	11	A2
4435	-57	698	7.452	04	1.506	02	1.939	04	0.801	01	0.738	03	5	K2
4440	-64	371	8.556	02	1.002	02	0.761	04	0.520	02	0.472	02	5	G5
4458*	-42	1716	7.727	09	1.674	05	1.996	08	0.993	02	1.273	05	4	M0
4470	-26	2029	8.039	03	0.629	02	0.201	03	0.339	05	0.306	03	5	G5
4475	-17	1047	8.582	02	0.097	01	0.103	04	0.041	02	0.043	01	5	A0
4477	-53	817	7.508	02	1.017	02	0.838	04	0.520	02	0.462	01	5	G5
4487	-64	439	7.857	02	0.988	03	0.714	04	0.516	01	0.475	02	5	G5
4493*	-73	296	6.865	07	1.480	03	1.765	05	0.790	03	0.715	06	4	K0
4496	-49	1701	7.825	02	1.174	02	1.173	04	0.592	03	0.520	01	5	K0
4504	-8	1167	7.775	01	0.406	01	0.047	03	0.246	01	0.243	01	5	F2
4518	-56	909	7.776	02	1.085	02	1.072	04	0.561	03	0.494	02	5	K0
4519	-44	2190	8.010	05	1.556	04	2.019	09	0.834	03	0.809	02	4	K2
4524	-11	1269	8.720	02	0.046	02	-0.013	06	0.036	02	0.047	02	5	A0
4532	-46	2024	7.564	07	0.239	08	0.097	05	0.142	03	0.134	04	4	A3
4538	-26	2558	6.845	06	0.188	07	0.122	08	0.098	02	0.100	04	4	A3
4545	-35	2631	6.763	04	1.317	04	1.470	09	0.688	03	0.594	06	5	K0
4546	-39	2312	8.346	01	1.107	01	1.001	06	0.581	02	0.522	01	5	K0
4550	-53	999	7.064	01	0.976	02	0.708	01	0.497	02	0.454	02	5	K0
4554	-81	176	8.318	02	0.048	04	-0.010	05	0.015	03	0.037	05	5	A0
4557	-23	3436	7.461	02	0.142	01	0.132	03	0.067	01	0.071	01	4	A0
4561	-65	555	8.366	01	1.012	02	0.873	03	0.511	01	0.456	02	5	K0
4570	-72	469	7.774	03	0.060	01	0.026	04	0.026	02	0.049	03	5	A0
4571	-48	2242	8.476	02	1.297	01	1.500	05	0.669	02	0.588	01	5	K5
4576	+2	1200	7.292	01	0.998	02	0.777	03	0.512	01	0.466	01	5	K0
4589	-80	185	8.936	04	0.463	02	0.078	07	0.284	02	0.297	05	4	F0
4594	-73	389	7.939	02	0.268	03	0.062	04	0.157	04	0.162	04	4	A5
4597	+0	1489	8.101	03	0.053	03	-0.260	05	0.048	02	0.063	01	5	A0
4613*	-61	711	6.952	09	1.422	09	1.771	09	0.763	09	0.674	05	3	K0
4617	-58	776	8.560	02	0.951	03	0.568	02	0.511	01	0.491	02	5	G5

Table 2. continued

4619	− 9 1645	8.352	02	0.911	02	0.543	05	0.485	03	0.455	01	5	G5
4642*	−66 655	7.298	04	0.942	02	0.684	05	0.484	01	0.440	02	5	K0
4644*	−75 426	7.672	01	1.398	02	1.668	02	0.752	03	0.676	04	4	K2
4646*	−79 243	7.834	02	0.179	02	0.093	02	0.115	02	0.159	04	5	A0
4652	+ 4 1627	7.555	02	1.003	02	0.694	03	0.524	02	0.493	01	5	G5
4655	− 9 1953	7.746	04	1.599	02	2.073	05	0.865	03	0.840	04	5	K5
4657	−41 2961	8.127	02	1.291	02	1.436	05	0.659	02	0.577	02	5	K0
4658*	−37 3466	6.995	02	1.092	02	1.075	03	0.543	01	0.460	01	5	K0
4664	+ 1 1781	8.708	04	0.027	03	0.054	03	0.017	02	0.032	02	4	A0
4665	− 4 1927	8.664	08	0.124	02	0.127	02	0.088	04	0.109	02	4	A2
4668*	−70 648	7.752	02	1.200	04	1.291	07	0.630	02	0.555	03	4	K0
4671*	−46 3179	7.643	01	1.004	02	0.721	07	0.523	01	0.479	01	5	K0
4682	−21 2032	7.972	03	1.045	01	0.853	05	0.560	01	0.509	02	4	G5
4685	−43 3414	7.956	01	1.364	02	1.410	06	0.707	02	0.625	02	5	K2
4691	+ 5 1747	8.948	02	1.287	02	1.452	06	0.659	02	0.573	01	4	K2
4693	−85 137	8.174	03	0.296	03	0.025	07	0.186	03	0.179	03	4	A2
4698	−62 878	8.034	04	1.140	03	1.124	02	0.582	03	0.510	02	5	K2
4708	−39 3724	9.179	03	0.994	02	0.727	04	0.524	01	0.484	00	4	K0
4709	− 0 1849	8.677	01	0.948	02	0.695	07	0.483	01	0.443	02	4	K0
4718	−28 5217	9.298	03	−0.065	03	−0.293	03	−0.017	02	−0.028	05	5	A0
4729	−81 250	8.036	01	1.475	04	1.626	03	0.793	01	0.756	02	4	K5
4738	−51 2880	7.987	02	−0.027	01	−0.081	04	−0.017	01	−0.015	01	5	A0
4739	−59 1000	8.017	02	1.611	02	1.970	10	0.905	03	0.996	02	5	K5
5154	−45 8190	8.406	09	0.928	03	0.579	06	0.495	05	0.470	02	4	K0
5158	− 3 3406	8.296	06	0.518	07	0.062	04	0.295	05	0.276	05	5	G0
5162	−82 561	8.088	07	0.610	03	0.033	04	0.351	03	0.360	02	3	G0
5169	−40 7777	7.822	08	1.029	02	0.817	07	0.522	05	0.491	04	4	G5
5175	− 0 2678	8.632	07	1.038	06	0.923	06	0.556	04	0.503	04	5	K0
5176*	−19 3664	7.595	04	0.129	04	0.120	09	0.055	01	0.072	01	3	A0
5191	−56 5788	7.731	06	0.194	05	0.152	09	0.116	05	0.144	03	3	A0
5210	−41 8048	8.582	05	1.260	03	1.187	09	0.657	03	0.615	02	6	K0
5219	−39 8482	8.681	09	1.260	03	0.930	05	0.553	02	0.491	02	6	K0
5235	+ 3 2836	7.639	08	1.274	07	1.423	09	0.688	03	0.584	03	3	K0
5238	−43 8700	7.948	07	0.920	04	0.590	05	0.485	02	0.456	02	7	K0
5240	+ 0 3118	7.908	06	0.929	08	0.567	04	0.491	05	0.474	04	3	G5
5242	−64 2667	9.109	05	0.149	02	−0.275	05	0.114	01	0.134	02	5	B8
5246	−86 306	8.527	06	1.148	08	1.018	05	0.599	05	0.572	04	4	K0
5284	−10 3920	8.371	03	0.866	01	0.482	05	0.479	03	0.455	03	4	G5
5288	−40 8767	9.460	02	0.266	02	0.199	02	0.145	02	0.152	06	4	F0
5292	+ 8 2883	8.428	08	1.521	07	1.924	08	0.827	06	0.801	07	6	K0
5297	−42 9514	7.613	07	0.967	03	0.723	05	0.508	06	0.438	05	8	G5
5301	−45 9327	8.090	05	0.956	07	0.695	06	0.508	03	0.459	05	9	K0
5319	−21 3985	8.608	04	0.376	04	0.148	05	0.226	05	0.241	05	9	A5
5330	−40 9156	8.343	06	1.367	03	1.497	05	0.710	03	0.629	04	9	K0
5335	+ 6 2971	8.487	06	1.072	07	0.924	08	0.565	03	0.511	05	9	K2
5337*	−47 9634	6.837	07	1.526	02	1.860	05	0.810	03	0.767	05	4	K0
5345	−58 5825	9.108	05	1.260	02	1.112	07	0.637	04	0.599	06	3	K0
5350	−3111774	9.354	06	1.234	03	0.893	09	0.692	03	0.645	05	9	K0
5351	−14 4140	9.064	04	1.213	03	1.136	05	0.638	03	0.574	03	10	K2
5355v	−71 1773	8.065	25	1.688	08	1.817	16	1.042	06	1.427	13	9	M1
5359	− 7 3999	7.506	07	1.253	04	1.278	07	0.658	03	0.599	04	3	K0
5368	−4610064	8.203	04	1.080	04	0.787	07	0.596	03	0.529	04	8	G5
5372	−69 2368	8.486	09	1.269	05	1.324	07	0.676	04	0.593	07	9	K0
5377*	−56 6795	7.102	03	1.125	08	0.946	08	0.589	04	0.554	08	3	K0
5390*	− 5 4143	7.294	06	1.017	07	0.713	04	0.534	08	0.512	05	4	K0

Table 2. continued

5400v	−3610434	8.949	04	1.674	03	1.963	24	0.902	03	0.829	04	7	K2
5404	−79 867	7.675	06	0.068	06	−0.213	07	0.045	05	0.073	06	5	A0
5410v	−10 4216	8.675	08	1.117	08	0.841	16	0.607	03	0.563	07	9	K0
5417	− 2 4094	8.200	05	1.479	06	1.644	06	0.801	08	0.686	04	13	K2
5438*	− 6 4400	6.893	07	1.144	08	0.843	04	0.614	09	0.609	07	3	G5
5443	−75 1294	8.000	07	0.700	04	0.227	06	0.391	02	0.371	03	8	G5
5445	−5110099	8.995	02	0.970	05	0.661	07	0.519	03	0.480	02	13	G5
5451*	−4510649	7.481	08	1.667	04	1.903	06	0.857	08	0.808	09	3	K5
5465	−60 6566	8.631	04	1.039	06	0.779	07	0.555	03	0.510	04	13	K0
5466	−18 4295	8.747	02	0.769	03	0.347	04	0.427	01	0.387	02	13	G5
5470	−11 4175	8.399	05	1.890	04	2.236	08	1.097	02	1.204	03	14	K5
5487	−2312931	8.647	02	1.219	02	0.937	05	0.693	02	0.663	02	13	K0
5493*	−55 7736	7.497	04	1.118	05	1.005	04	0.584	05	0.530	04	4	K0
5496	−4211711	8.706	05	0.264	03	0.162	04	0.156	01	0.200	03	11	A0
5497	−3811392	7.424	07	1.064	02	0.732	08	0.566	01	0.531	04	4	K0
5500*	−84 531	8.064	09	1.680	08	1.735	08	1.128	06	1.622	08	6	M1
5506*	−60 6695	7.433	06	1.172	09	1.277	07	0.613	06	0.525	05	3	K2
5509	−4411455	8.717	09	0.398	04	0.135	04	0.239	03	0.234	04	12	F0
5520	−4711338	8.020	08	1.778	03	2.134	08	1.013	04	1.135	06	10	K5
5522	−63 4075	7.850	08	1.170	06	1.109	08	0.617	05	0.557	07	8	K2
5527	−22 4318	9.127	05	0.442	03	0.149	05	0.262	03	0.261	04	11	F0
5529	−4111489	8.982	05	1.373	02	1.334	04	0.735	03	0.668	04	12	K5
5531	−3511504	8.014	06	0.243	05	0.173	06	0.142	02	0.150	03	11	A0
5540*	−70 2380	7.230	06	1.042	08	0.906	09	0.560	04	0.509	03	4	K0
5553	−62 5657	8.395	07	1.420	07	1.612	09	0.778	04	0.707	06	13	K0
5555	− 7 4485	9.302	05	0.571	04	0.277	08	0.339	04	0.321	05	13	F0
5560*	−4112019	7.559	07	1.686	03	1.942	09	0.876	06	0.812	02	3	K5
5562	−57 8728	8.048	05	1.381	03	1.491	09	0.738	04	0.660	05	11	K2
5570	−21 4760	8.676	03	1.198	01	0.779	08	0.694	03	0.679	03	13	G5
5574	−4412188	7.819	04	1.014	04	0.789	08	0.523	03	0.471	04	9	K0
5575	−87 266	7.996	09	1.579	06	1.882	05	0.879	06	0.835	04	9	K5
5576*	−67 3404	7.758	07	0.978	04	0.741	08	0.511	03	0.463	02	5	K0
5577*	− 1 3419	7.909	08	2.026	05	2.132	06	1.326	03	1.712	06	8	M0
5582	−64 3711	8.261	09	1.550	05	1.925	09	0.845	04	0.807	08	14	K5
5589*	−53 8888	7.593	07	0.186	05	0.179	05	0.105	04	0.108	05	11	A2
5593v	−80 840	8.992	13	0.620	08	0.058	08	0.382	07	0.449	08	17	G5
5595	− 1 3448	9.099	06	0.478	03	0.267	04	0.281	03	0.311	05	16	A3
5604	−58 7349	7.980	09	1.179	04	1.013	06	0.623	03	0.582	03	18	G5
5606*	−4112544	7.002	07	1.303	06	1.302	06	0.695	04	0.637	02	9	K0
5609	+ 2 3550	8.896	09	0.182	06	−0.279	06	0.123	03	0.159	05	17	A0
5620	−2712824	8.747	07	1.198	06	0.891	06	0.645	06	0.597	06	15	K0
5628*	−3512700	6.944	08	1.164	06	1.094	07	0.604	02	0.549	02	11	K0
5633*	−55 8734	7.631	07	1.679	07	2.052	06	0.937	04	0.985	03	15	K5
5647	−67 3592	8.624	03	0.990	03	0.735	06	0.526	02	0.490	03	10	K0
5655	−62 5969	8.932	04	0.875	03	0.604	04	0.494	03	0.434	02	10	G5
5657	+ 0 4033	8.855	07	0.098	03	0.042	05	0.050	03	0.071	03	11	A0
5666*	−4712605	6.863	07	0.476	02	0.001	02	0.275	01	0.279	02	4	A0
5671v	−85 484	8.115	31	1.682	04	1.943	08	1.051	04	1.408	11	8	M2
5686	−22 4992	8.619	04	1.044	03	0.810	04	0.560	03	0.510	03	20	K0
5692*	−77 1347	7.548	07	0.229	02	0.139	07	0.127	06	0.149	07	8	A3
5696	−5112014	7.956	04	1.006	02	0.740	09	0.528	01	0.497	02	9	K0
5709	−80 904	9.064	07	0.585	03	0.139	05	0.320	02	0.310	05	9	K0
5711	−60 7294	8.264	08	0.091	04	0.101	04	0.042	02	0.068	03	9	A2
5713	−3513506	8.650	04	0.690	02	0.212	05	0.388	03	0.356	03	8	G0
5715	−84 599	7.770	05	0.715	05	0.283	09	0.383	04	0.375	02	5	G5

Table 2. continued

5727	-64 3998	7.459	07	1.680	06	2.044	09	0.920	04	0.919	03	11	K2
5734	-55 9154	7.357	07	1.530	02	1.867	07	0.834	02	0.798	02	6	K2
5736	-77 1370	7.619	08	1.399	06	1.427	05	0.775	03	0.719	02	5	K0
5763	-58 7692	7.486	06	1.092	02	0.958	04	0.567	03	0.518	02	6	K0
5766	-4613343	7.947	07	1.498	05	1.620	08	0.839	02	0.861	03	6	K0
5770	-79 1052	8.064	09	0.238	09	0.068	07	0.126	06	0.167	04	6	A2
5779	-88 169	8.490	08	0.561	04	0.069	09	0.320	03	0.324	03	13	G0
5785	-68 3362	8.274	07	1.543	03	1.861	09	0.869	02	0.964	04	7	K5
5809	-53 9889	7.817	06	1.459	02	1.776	09	0.785	02	0.709	02	6	K2
5815	-70 2795	7.785	07	0.974	03	0.639	08	0.499	03	0.475	04	6	K0
5821*	-4513978	6.976	09	0.077	01	0.113	05	0.032	04	0.059	03	6	A0
5840*	-63 4619	7.243	07	1.149	03	1.036	06	0.605	03	0.560	01	7	K0
5872*	-4813825	6.862	09	1.627	07	1.887	06	0.924	04	1.070	02	6	M0
5873*	-55 9540	7.186	08	1.399	09	1.649	07	0.729	05	0.640	02	5	K0
5876*	-83 709	7.653	05	1.258	04	1.243	09	0.671	02	0.608	05	7	K0
5886*v	-86 390	7.302	11	1.736	08	2.062	51	1.019	04	1.196	07	8	K5
5894*	-4414505	6.940	07	1.053	03	0.877	08	0.540	03	0.480	02	7	G5
5901	-62 6237	9.083	08	1.199	04	1.260	08	0.613	02	0.527	03	9	K5
5905*	-4713854	6.893	06	1.091	06	1.018	07	0.563	03	0.496	03	6	K0
5912	-4114602	9.111	04	0.939	03	0.588	04	0.493	01	0.461	02	9	G5
5915*	-5013446	7.619	03	0.710	02	0.269	04	0.383	02	0.351	01	13	G5
5918*	-55 9670	7.076	07	1.622	05	1.878	09	0.926	06	1.096	03	12	M0
5931	-71 2642	7.786	05	0.968	03	0.717	01	0.497	02	0.455	02	9	K0
5932	-57 9976	7.873	04	1.013	03	0.855	05	0.509	01	0.446	01	9	K0
5951	-4913717	8.071	05	0.221	01	0.093	04	0.116	02	0.126	02	10	A3
5961	-87 317	8.314	09	0.238	04	0.115	06	0.129	03	0.181	02	8	A0
5989	-5113321	8.882	04	1.199	02	1.138	07	0.631	01	0.576	02	8	K0
5990*	-5410096	7.419	06	0.226	03	0.028	02	0.133	03	0.159	01	6	A0
5996	-72 2701	8.695	06	1.193	05	1.202	09	0.601	03	0.538	04	7	K0
6001*	+ 4 4896	6.798	08	1.597	09	1.894	06	0.868	08	0.829	05	8	K2
6004	-3217229	8.688	03	1.427	04	1.745	08	0.752	02	0.677	02	9	K2
6014	-59 7834	7.401	04	1.557	05	1.933	07	0.846	02	0.842	01	7	K2
6016	-10 6002	8.808	02	1.318	02	1.429	03	0.680	02	0.603	01	21	K2
6019	+ 1 4657	8.870	04	0.554	04	-0.007	09	0.311	04	0.304	05	22	F5
6022	-63 4828	7.563	07	0.907	06	0.568	06	0.468	03	0.441	04	7	G5
6024	-80 1057	8.203	07	1.078	06	0.935	07	0.560	05	0.531	05	13	K2
6025	-4714392	7.508	08	1.106	05	1.089	07	0.565	04	0.482	04	7	K0
6026	-3815273	8.888	04	1.072	03	0.989	06	0.555	03	0.496	02	18	K0
6028*	-4115082	6.710	06	1.021	07	0.747	09	0.531	03	0.490	02	14	K0
6030	-15 6305	8.010	04	1.280	01	1.238	03	0.679	04	0.632	03	22	K0
6033	-74 2049	8.052	07	1.023	03	0.777	07	0.530	04	0.501	04	10	K0
6038*	-5013851	7.318	09	0.305	01	0.050	03	0.173	02	0.170	02	6	A3
6051*	-55 9968	7.799	09	0.113	02	0.126	03	0.038	01	0.052	02	6	A2
6055	-3316455	8.797	02	0.330	02	0.175	03	1.174	01	0.165	01	20	A3
6056v	-88 201	8.334	34	1.751	17	2.005	38	1.061	07	1.337	05	10	K5
6059	-81 1028	8.888	09	1.310	03	1.335	06	0.700	04	0.651	04	10	K2
6080	-3615924	8.048	04	1.257	03	0.930	07	0.680	02	0.641	02	10	G5
6082	-64 4354	7.350	08	1.473	02	1.756	09	0.813	02	0.791	02	6	K0
6084	-60 7667	8.519	06	0.806	02	0.423	08	0.438	04	0.388	03	9	G5
6085*	-3515843	7.067	04	1.095	06	0.925	09	0.554	04	0.479	07	8	K0
6100	-71 2770	7.375	06	0.830	05	0.358	09	0.444	02	0.430	04	10	G5
6119	- 2 6059	7.581	06	1.637	06	1.975	09	0.873	09	0.889	06	9	K5