

## CCD photometry of galactic open star clusters - V. King 7

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**Abstract.** CCD observations of the open cluster King 7 and two nearby fields have been made in the UBVRI passbands down to  $V \sim 20.0$  mag. From the colour-colour diagram the reddening is estimated to be 1.25 mag. Comparison of the observational colour-magnitude diagrams (CMDs) with the convective core overshoot models (Bertelli et al. 1994) produces a good fit for a metallicity  $Z = 0.008$  and age of 0.6-0.8 Gyr. An apparent distance modulus ( $m-M$ ) of 15.6 has been estimated for King 7 which puts it at a distance of  $2.2 \pm 0.34$  kpc from us.

*Key words* : open cluster - photometry

### 1. Introduction

Recently a number of groups have accurately determined the age for intermediate age and old open clusters (see e.g. Kaluzny 1990, 1994, Janes & Phelps 1990; Twarog et al. 1993; Phelps et al. 1994; Carraro & Chiosi 1994) in order to set a lower limit to the age of the galactic disk. The understanding of their properties (e.g : age, metallicity) is mandatory for many studies, such as the history of star formation in the galactic disk. We therefore started observations of galactic star clusters in 1990 using 104 cm Sampurnanand telescope and CCD as detector. Continuing the series of papers on photometric study of open clusters, we are presenting here photometric data of open cluster King 7 (C0355 + 514 =  $149^{\circ}.76$ ,  $b = 1^{\circ}.04$ ), not studied so far. The UBVRI CCD photometric observations of stars in the field of King 7 have been used to determine the fundamental parameters such as interstellar extinction, age and distance of the cluster. To obtain these parameters we use colour-colour and colour-magnitude diagrams of the star cluster. These parameters of star clusters are mandatory to analyse the large scale properties of the galactic disk and to test the theories of stellar and galactic evolution (Janes & Adler 1982; Pandey et al. 1988).

## 2. Observations and reductions

The UBVRI photometric observations have been carried out using the photometric CCD system at  $f/13$  Cassegrain focus of the 104 cm Sampurnanand reflector of the Uttar Pradesh State Observatory (UPSO), Naini Tal during October - November 1993. The CCD system consists of a cryogenically cooled Tektronix chip having  $24 \mu$  square  $1024 \times 1024$  pixels. The chip is front illuminated and metachrome coated for enhanced UV response. In order to improve the S/N ratio, the observations are taken in binning mode of  $2 \times 2$  pixels. In this set up, each pixel corresponds to  $0.7''$  and the entire chip covers a field of  $6.0' \times 6.0'$ .

One field centred on the cluster King 7 was observed (Fig. 1). Multiple exposures were taken with exposure time ranging from 5 sec to 2000 sec depending upon the presence of bright stars and filter used. The frames taken in the same filter were coadded in order to improve S/N ratio for fainter stars. In this process we achieve a total integration time of 100 min in U, 45 min in B, 30 min in V and 15 min in R and I filters. Details of observations have been given in table 1. Two field regions located towards north ( $\alpha_{1950} = 3^{\text{h}}55^{\text{m}}33^{\text{s}}$ ,  $\delta_{1950} = 52^{\circ} 9'.1$ ) and south ( $\alpha_{1950} = 3^{\text{h}}55^{\text{m}}33^{\text{s}}$ ,  $\delta_{1950} = 51^{\circ} 9'.1$ ) of the cluster region (Figs 2a,b) were also observed to estimate field star contamination in the cluster region. We have sandwiched the exposures of each surrounding field in each filter with exposure of cluster region in the same filter. One of the stars in the cluster region was taken as a comparison star. The observations were carried out within two hours of meridian so that air mass change within a given sandwich was only marginal.

The comparison star was standardised using Landolt (1983) stars. A number of bias and twilight flat - field frames were also taken on several nights during the observing runs. The observations have been reduced using the computing facilities available at the UPSO. Clean images have been obtained using the ESO MIDAS software package. The photometric reductions were made using DAOPHOT profile fitting software (Stetson 1987). The stellar point spread function (PSF) was evaluated from several uncontaminated stars present in each frame. However, for standard stars and bright stars in the fields, only aperture photometry was obtained.

For each frame differential magnitude and colours were obtained using the observed magnitude of the comparison star. These differential magnitude were then standardised using the transformation equations for the CCD system.

$$\begin{aligned} \Delta(U-B) &= 0.919 \times \Delta(u-b) \\ &\pm 0.007 \\ \Delta(B-V) &= 1.116 \times \Delta(b-v) \\ &\pm 0.008 \\ \Delta(V-R) &= 0.994 \times \Delta(v-r) \\ &\pm 0.007 \\ \Delta(R-I) &= 0.967 \times \Delta(r-i) \\ &\pm 0.008 \end{aligned}$$

The standard deviations about the standard magnitude and colours for star used in transforming to the standard system are 0.022 in V, 0.054 in (U-B), 0.009 in (B-V), 0.008 in

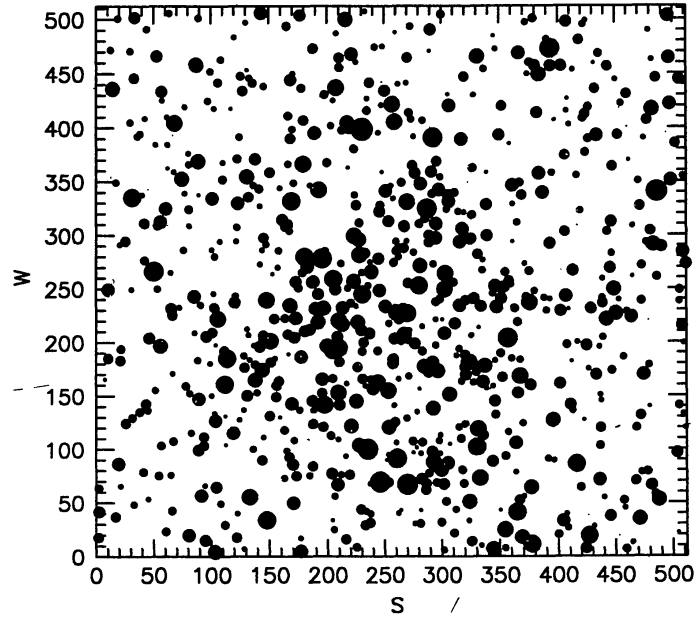


Figure 1. Identification map for the cluster King 7.

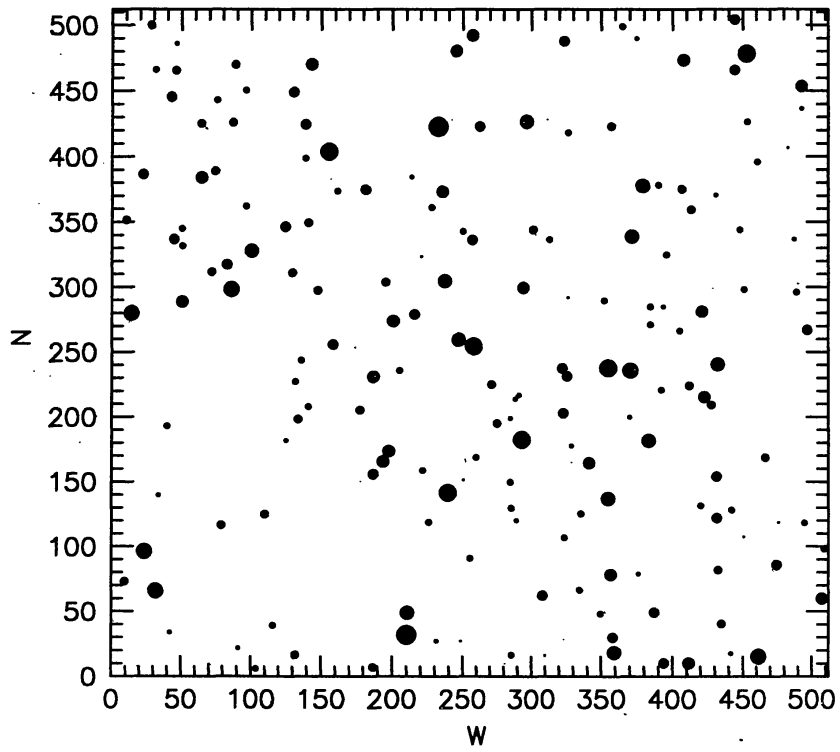


Figure 2a. Identification map for the field (North) region.

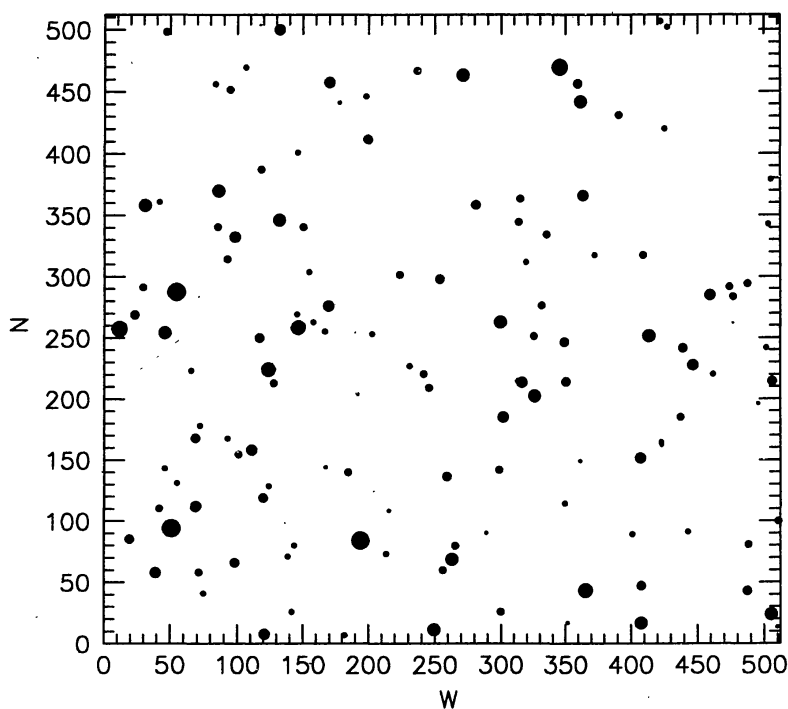


Figure 2b. Identification map for the field (South) region.

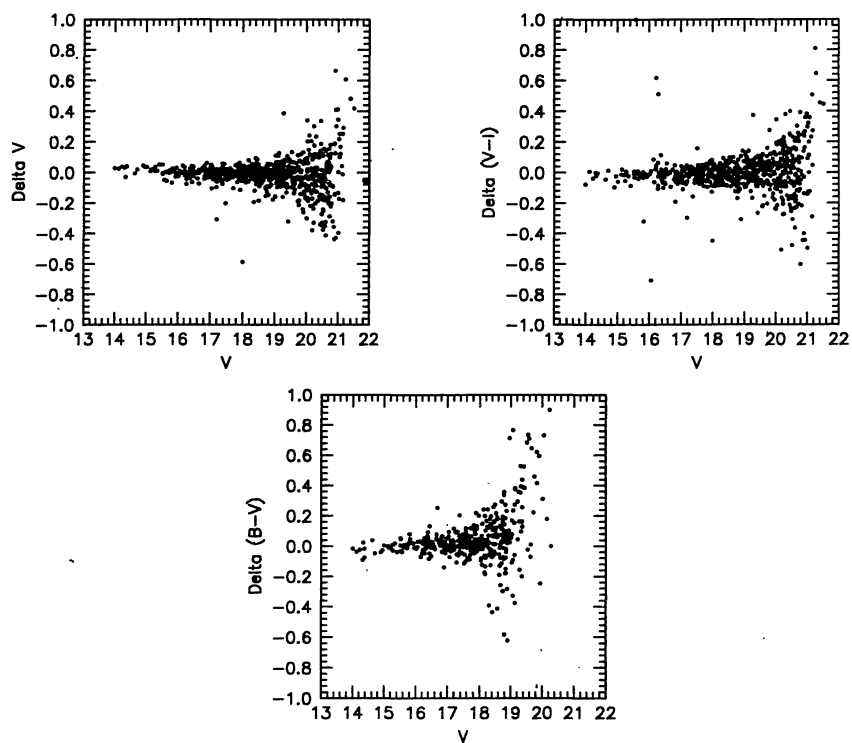


Figure 3. Comparison of present photometry with the photometry of Phelps et al. (1994).

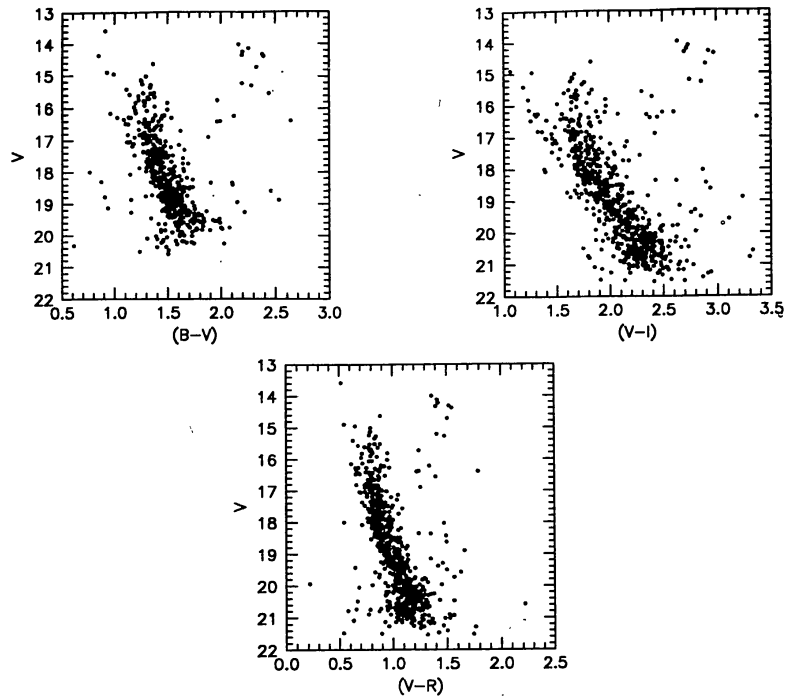


Figure 4. The CMDs for the stellar content of King 7.

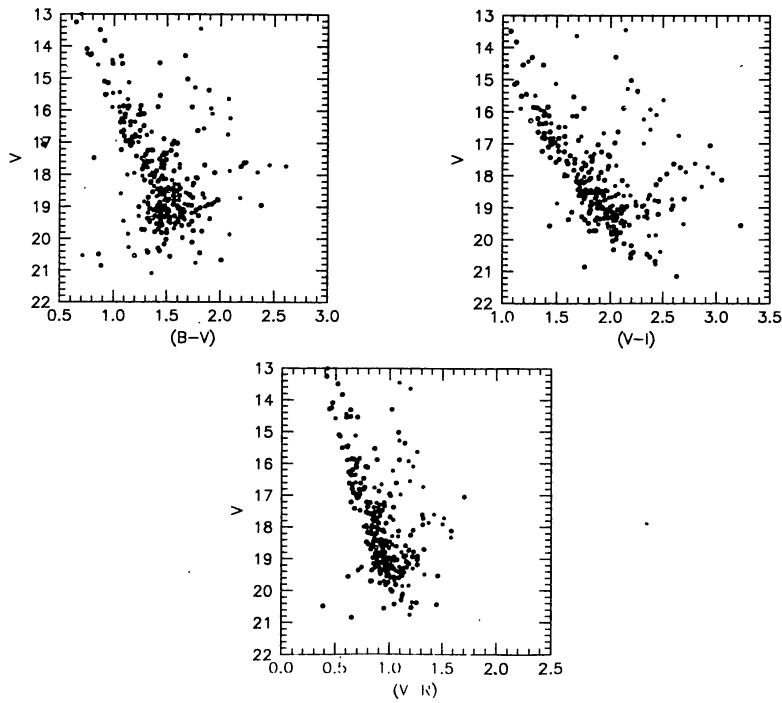


Figure 5. The CMDs. for two nearby fields towards north (open circles) and south (filled circles) directions at 30' away from the cluster King 7.

(V-R) and 0.016 in (V-I). the probable errors in zero points are 0.019 in V, 0.03 in (U-B), 0.009 in (B-V), 0.017 in (V-R) and 0.015 in (V-I).

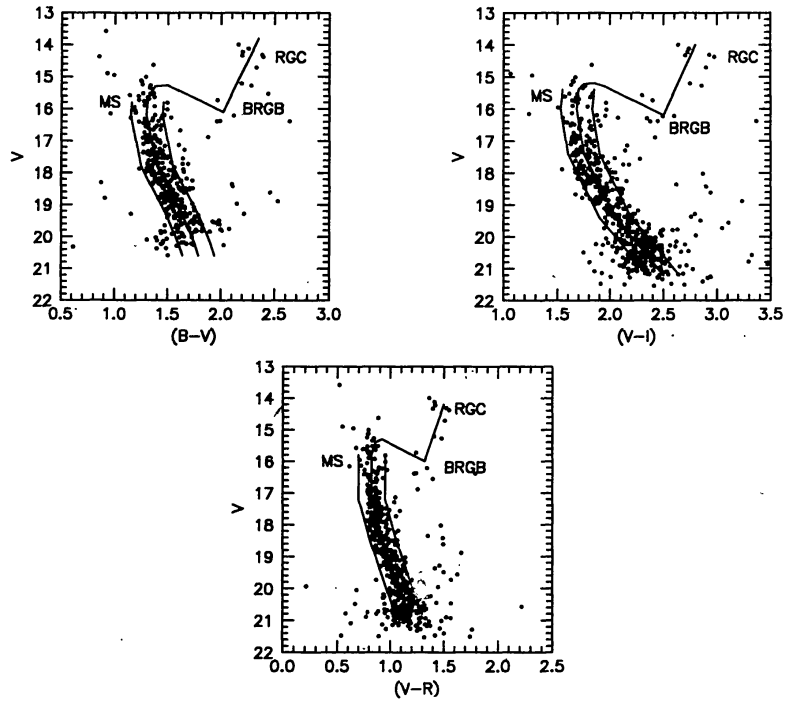
The ADDSTAR routine of DAOPHOT has been used to test the degree of completeness with increasing magnitude, which also allows an estimate of photometric errors. Briefly the method consists of adding randomly artificial stars of known magnitudes and positions into the original frame. Then we have re-reduced the new frame using the same procedure used for the original frame. The ratio of the number of stars recovered to added stars in each magnitude interval gives the completeness factor as function of the magnitude. Further more the residual between input and output magnitude give an estimate of the photometric errors. The results obtained using the above procedure in the deepest frame, are given in table 4. Since the cluster field is not severely crowded, table 4 shows that our sample is complete upto  $V = 19$  and the error for this magnitude range is 0.08.

The X and Y coordinates as well as photometric data of the stars measured in the cluster King 7 and field regions have been given in tables 2 and 3 respectively.

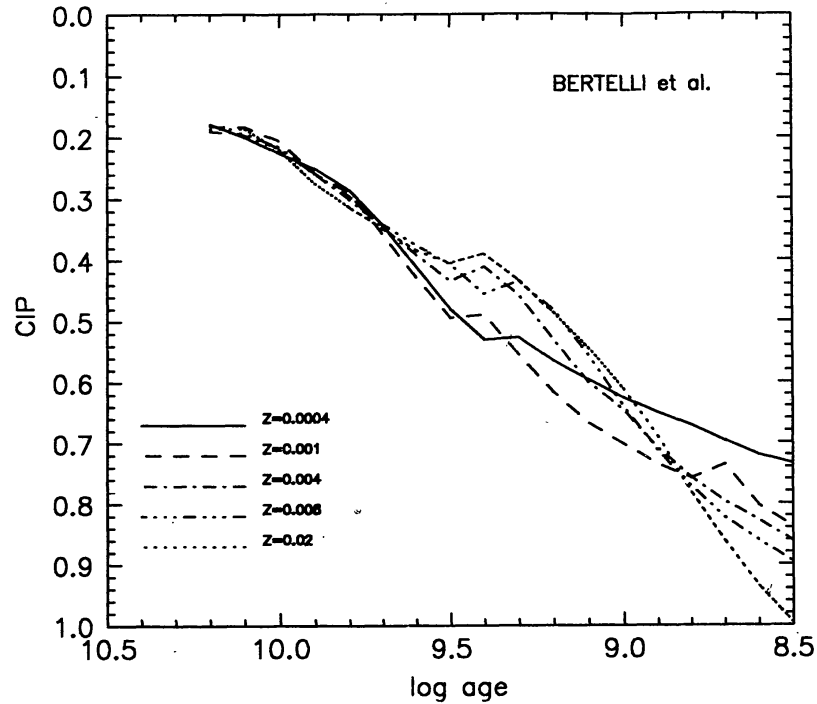
Phelps et al. (1994) have reported HR diagrams for uncalibrated BVI magnitudes. They have excluded King 7 from the list of old open clusters. We have compared our photometry with theirs. The difference  $\Delta$  (in the sense : our data - Phelps et al. data) as a function of V magnitude is shown in Fig. 3. The instrumental magnitudes and colours of Phelps et al. were converted into standard magnitudes and colours using our data. The results of the comparison are given in table 5. In general the two sets of observations are in good agreement. However,  $\Delta(B - V)$  for the range  $19 < V < 20$  indicates that either of the data suffers from the nonlinearity of photometry.

### 3. Colour-magnitude diagrams (CMDs)

The CMDs for the stars in the cluster region are shown in Fig. 4. The CMDs for field regions are shown in Fig. 5. Although the contamination due to field stars is significant, still the main properties of the cluster population can be seen in the CMDs of the cluster. A broad but well defined main sequence (MS) having blue turn off (BTO) at  $V \sim 15.5$ ,  $(B-V) \sim 1.25$ ,  $(V-I) \sim 1.7$ ,  $(V-R) \sim 0.8$  can be easily identified in the CMDs. The broadness of the MS could be due to photometric errors, presence of binary stars, a possible variable reddening and field star contamination etc. A clump of red giants appears near  $V = 14.6$ ,  $(B-V) \sim 2.2$ ,  $(V-I) \sim 2.8$ ,  $(V-R) \sim 1.45$ . A comparison of the CMDs of the cluster regions and nearby region indicates that the sample of red giants is not contaminated by the field stars. In order to minimize contamination due to field stars, we statistically removed them using the following procedure. For each star in the V, (V-I) CMD of the field region, the nearest star in the cluster region within  $V \pm 0.25$ ,  $(V-I) \pm 0.1$  of the field star, was removed. The resulting CMDs are shown in Fig. 6. We have made an eye estimate of other properties of the HR diagrams. These estimates are also shown in fig. 6. The base of the red giant branch (BRGB) is estimated at  $(B-V) \sim 2.0$ ,  $(V-I) \sim 2.5$ , and  $(V-R) \sim 1.3$ . In order to estimate the contamination due to field stars, we have counted probable MS stars in the (B-V) CMDs of cluster region and surrounding regions. The width of the MS is taken to be  $\sim 0.25$  mag. The statistics is given in table 6. Table 6 indicates that star counts upto  $V \sim 19.0$  mag ( $M_v \sim 3.4$ ,  $M_{\text{mass}} \sim 1M_{\odot}$ ) increase with magnitudes. There



**Figure 6.** The field star corrected CMDs various properties of the CMDs are indicated. MS stands for main sequence, BRGB for base of the red giant branch, and RGC for red giant clump.



**Figure 7.** The variation of colour-index parameter (CIP) with age. The data have been taken from Bertelli et.al. (1994).



is decreasing trend after  $V \sim 19.0$ . A comparison of the stars in the cluster region and nearby regions indicates that the decrease in the luminosity function after  $M_V \sim 3.4$  ( $\text{Mass} \sim 1 M_{\odot}$ ) may be a real phenomena. However, a larger sample of intermediate age star clusters is needed to check this phenomena.

The morphology of the CMDs of star clusters of different ages are being used to estimate the age of the clusters. This method bypasses a priori knowledge of cluster metallicity and reddening. The morphological age estimates for various clusters have been obtained by Carraro & Chiosi (1994) and Phelps et al. (1994).

We have used a colour index parameter (CIP) which is difference in (B-V) colour index of the BRGB and the BTO. This parameter slightly depends on metallicity but still can be used to estimate the age of intermediate age clusters. The variation of CIP with age has been shown in Fig. 7. The data have been taken from Bertelli et al. (1994). The CIP for the cluster King 7 is estimated to be  $\sim 0.8$  which indicates an age of  $\sim 5 \times 10^8$  yr for the cluster. The age of the cluster using the morphological indices  $\delta V$  (Phelps et al. 1994)  $\approx 0.4$  and  $\Delta V$  (Carraro et al.)  $\approx 0.65$  has also been estimated. These indices indicate an age of 0.6 - 1.0 Gyr for the cluster. However, we have to keep in mind that estimation of age from the morphological features of the cluster is just a first approximation.

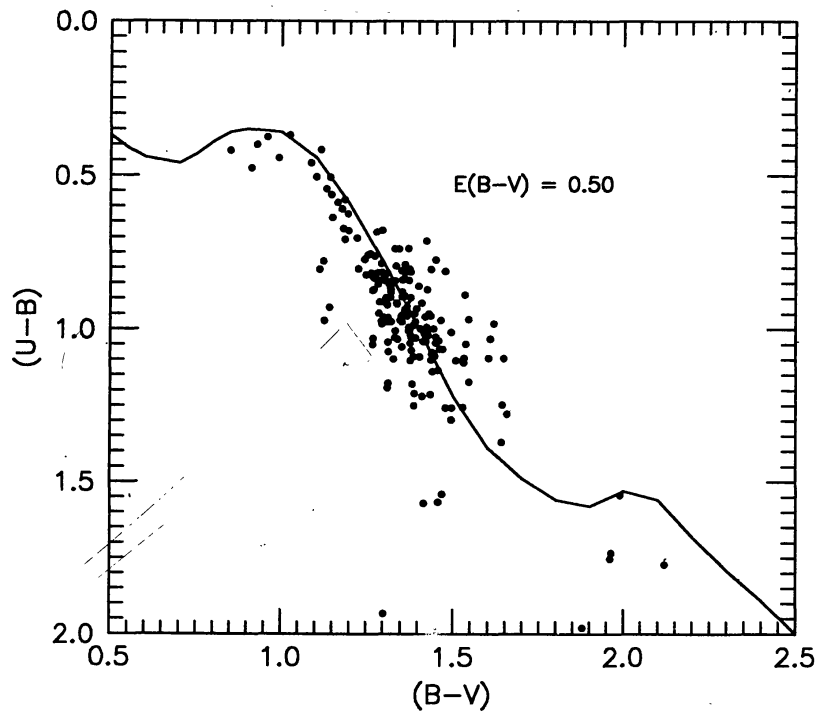
#### 4. (U-B), (B-V) diagram

The colour - colour diagram is shown in figure 8a. The reddening can be estimated from the diagram. Since the cluster field has significant amount of contamination due to field stars, the distribution of stars in colour - colour diagram will be a combination of field stars, and cluster stars. Using the ZAMS given by Schimdt - Kaler (1982) and a slope  $E(U-B) / E(B-V) = 0.72$  (Johnson & Morgan 1953) we find a good fit for a value of  $E(B-V) = 0.5$ . This reddening may be applicable for the field stars but this value of reddening is impossible for the cluster region because of following reasons.

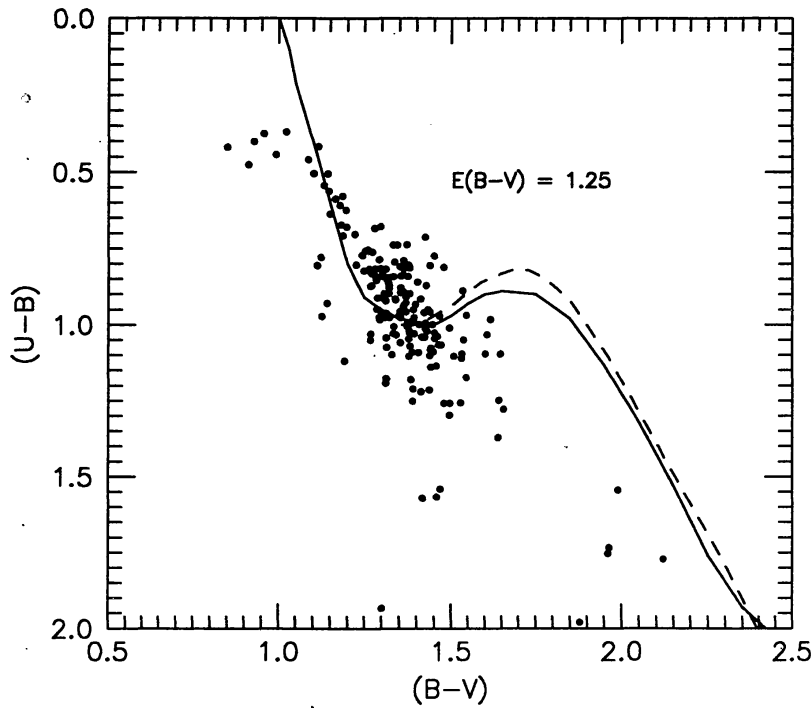
- (1) The MS has a blue turn-off colour (BTO)  $(B-V) \sim 1.25$ . If we adopt a reddening  $E(B-V) = 0.5$  for the cluster BTO has  $(B-V)_0 = 0.75$ . This value of  $(B-V)_0$  is contradictory for a cluster having an age  $\sim 5 \times 10^8$  yr, estimated from the cluster morphology.
- (2) The turn-off colour for a cluster having age  $\sim 5 \times 10^8$  yrs should be  $(B-V)_0 \sim 0.0$ . Since morphology of the CMD of the cluster indicates turn-off at  $(B-V) \sim 1.25$ , expected reddening for the cluster region is  $E(B-V) \sim 1.25$ .

On the basis of the above discussions we tried to find out another solution for reddening  $E(B-V)$ . We have reddened the ZAMS by  $E(B-V) = 1.25$  in Fig. 8b. The probable cluster members (having  $1.2 \leq B - V \leq 1.5$ ) are located at the expected position in (U-B), (B-V) diagram. The scatter could be a combination of various factors e.g. presence of binary stars, photometric errors, internal reddening, metallicity etc. The ZAMS for the metallicity  $[Fe/H] = -0.5$  given by Cameron (1985) is also shown in Fig. 8b. We adopt a reddening of  $E(B-V) = 1.25$  for further discussions.





**Figure 8a.** The colour - colour diagram for the stars in the cluster region. The ZAMS given by Schmidt-Kaler (1982) has been adjusted for  $E(B-V) = 0.5$  mag.



**Figure 8b.** Same as figure 8a, the ZAMS has been adjusted for  $E(B-V) = 1.25$  mag. The dashed curve shows ZAMS given by Cameron (1985) for  $[Fe/H] = -0.5$ .

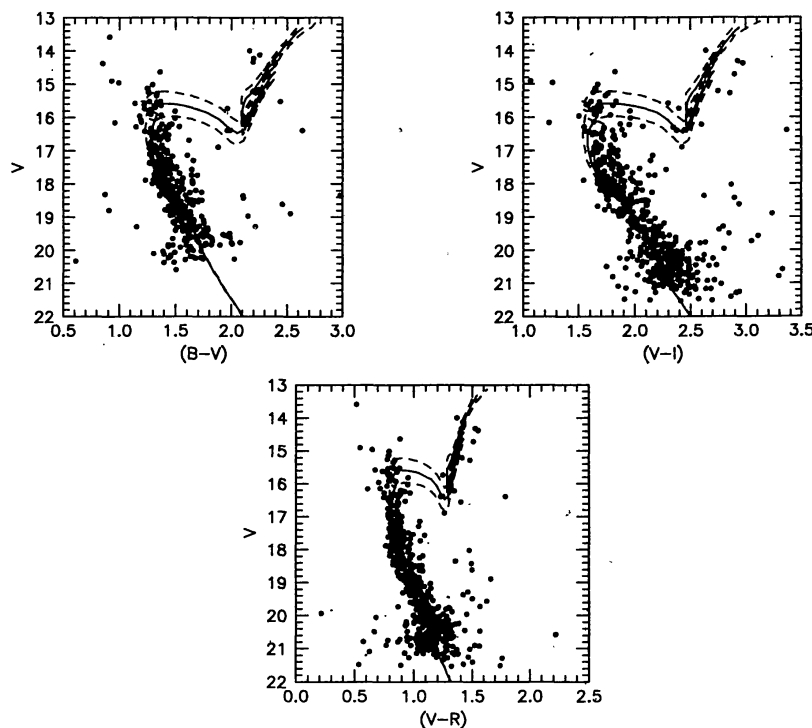


Figure 9. The comparison of theoretical isochrones of Bertelli et. al. (1994) with the CMDs of King 7.

### 5. Age and distance modulus of King 7

Age of an open cluster is obtained by fitting theoretical isochrones to the CMDs. This requires, however, a knowledge of cluster metallicity and reddening. Distance modulus can be determined simultaneously with age. The major problem in determining the age and distance modulus by comparing the theoretical isochrones with the observed CMDs, is the absence of data about the metal abundance  $[\text{Fe}/\text{H}]$ . Therefore, we have used isochrones of different metallicity and tried to find out which provides the best global fit. Theoretical isochrones with convective overshoot given by Bertelli et al. (1994) have been compared and a fit is obtained for  $Z = 0.008$ , age  $\sim 6 \times 10^8$  yr (fig. 9). We have used the relation  $E(V-I) = 1.25 \times E(B-V)$  (Dean et al. 1978) and  $E(V-R) = 0.6 \times E(B-V)$ . The apparent distance modulus ( $m-M$ ) comes out to be 15.6, which corresponds to a distance of  $2.20 \pm 0.34$  kpc. The uncertainty in distance determination is estimated from the errors in  $R$ ,  $E(B-V)$  and the errors in fitting the ZAMS.

### 6. Conclusions

- (1) We present CCD photometry for the cluster King 7. Overall morphology of the CMDs of the cluster indicates that cluster is of intermediate age.

- (2) The reddening for the cluster is estimated to be  $E(B-V) \sim 1.25$ . From mapping of interstellar extinction done by Neckel & Klare (1980) and by Pandey & Mahra (1987) a value of  $E(B-V) \sim 1.1$  has been estimated at a distance of  $\sim 2.2$  kpc towards the direction of the cluster.
- (3) Comparison of the observed CMDs with the convective core overshoot models (Bertelli et al. 1994) produce a good fit for a metallicity  $Z = 0.008$  and age 0.6 - 0.8 Gyr.
- (4) Visual fitting of the ZAMS to the cluster CMDs gives a distance of  $2.20 \pm 0.34$  kpc to the cluster.

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**Table 1.** Details of observation

Date	Field	Filter	Exp.(sec)
15 Oct-93	Cluster Region	B	3 × 900
"	"	V	3 × 600
"	"	R	3 × 300
"	"	I	3 × 300
16 Oct-93	"	U	2 × 2000
"	"		2 × 1000
22 Oct-93	"	U	2 × 1800
"	"	B	3 × 600
"	"	V	2 × 300
"	"	R	4 × 10
"	"	I	4 × 10
17 Nov-93	Nearby (North)	B	3 × 600
"	"	V	2 × 600
"	"		2 × 120
"	"	R	2 × 300
"	"		2 × 30
"	"	I	2 × 300
"	"		2 × 30
17 Nov-93	Nearby (South)	B	3 × 600
"	"	V	2 × 600
"	"	R	2 × 300
"	"		2 × 60
"	"	I	2 × 300
"	"		2 × 60

**Table 2. Magnitude and colours of the stars in the field of King 7**

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
1	2.09	17.67	18.799	*	*	*	*	*	*	0.172	*	*
2	2.23	63.57	19.222	*	*	*	*	*	*	0.265	*	*
3	2.47	41.59	18.038	*	*	*	*	*	*	0.110	0.309	*
4	7.58	165.58	21.012	*	*	2.639	1.527	*	*	0.092	0.032	0.038
5	10.41	185.03	18.403	*	1.604	1.907	0.914	*	0.048	0.014	0.015	0.009
6	10.51	249.17	17.374	*	1.418	1.900	0.932	*	0.013	0.010	0.006	0.006
7	12.71	471.88	20.332	*	*	2.312	1.215	*	*	0.042	0.016	0.022
8	14.21	435.99	16.654	*	1.227	1.611	0.769	*	0.008	0.015	0.014	0.013
9	16.86	36.91	18.752	*	1.420	1.891	0.948	*	0.026	0.016	0.008	0.008
10	17.34	349.10	20.258	*	*	2.366	1.236	*	*	0.041	0.022	0.027
11	18.92	500.77	20.235	*	*	*	*	*	*	0.103	*	*
12	19.52	86.41	17.380	*	1.479	1.899	0.925	*	0.013	0.009	0.006	0.006
13	20.55	291.27	20.743	*	*	2.314	1.232	*	*	0.104	0.026	0.026
14	21.16	183.06	18.906	*	1.591	1.871	0.880	*	0.035	0.020	0.011	0.011
15	21.19	65.58	20.483	*	*	2.495	1.308	*	*	0.038	0.019	0.016
16	21.66	193.80	19.596	*	*	*	*	*	*	0.177	*	*
17	25.40	294.42	18.885	*	2.531	3.234	1.663	*	0.060	0.016	0.009	0.006
18	25.82	124.27	18.357	*	1.517	1.950	0.953	*	0.020	0.009	0.006	0.007
19	29.89	470.78	20.171	*	1.574	2.203	1.141	*	0.080	0.035	0.014	0.015
20	29.90	404.96	20.186	*	*	2.025	0.957	*	*	0.041	0.016	0.016
21	30.89	249.40	20.553	*	*	*	*	*	*	0.200	*	*
22	31.54	129.38	19.187	*	1.458	2.102	1.080	*	0.034	0.021	0.009	0.010
23	31.54	335.22	15.525	*	2.441	*	*	*	0.010	0.006	*	*
24	32.87	48.40	19.958	*	*	2.483	1.246	*	*	0.030	0.017	0.018
25	32.98	445.89	18.738	*	1.421	1.780	0.854	*	0.022	0.012	0.010	0.012
26	33.69	501.81	17.987	*	1.382	1.673	0.771	*	0.025	0.020	0.017	0.023
27	36.25	392.04	19.885	*	1.437	2.466	1.324	*	0.098	0.052	0.086	0.060
28	37.87	134.87	19.488	*	1.984	2.847	1.500	*	0.074	0.020	0.009	0.007
29	38.38	394.29	20.232	*	*	*	*	*	*	0.137	*	*
30	40.02	337.62	20.785	*	*	3.296	0.578	*	*	0.059	0.276	0.065
31	40.92	78.80	19.427	*	*	1.848	0.646	*	*	0.122	0.011	0.013
32	42.06	311.18	18.502	*	1.621	2.118	1.025	*	0.022	0.012	0.007	0.009
33	42.10	276.59	19.609	*	1.989	2.365	1.104	*	0.082	0.029	0.010	0.009
34	42.47	408.68	20.615	*	*	2.124	0.968	*	*	0.044	0.030	0.027
35	43.23	142.58	18.484	*	1.707	2.107	1.068	*	0.027	0.009	0.008	0.007
36	44.02	491.04	20.262	*	2.026	2.389	1.234	*	0.154	0.076	0.070	0.073
37	44.83	136.37	20.269	*	*	2.295	1.230	*	*	0.044	0.051	0.054
38	45.13	53.63	20.711	*	*	2.400	1.243	*	*	0.049	0.021	0.018
39	45.96	204.06	18.001	*	0.761	1.380	0.543	*	0.158	0.160	0.101	0.037
40	50.19	266.43	14.376	0.419	0.850	*	*	0.008	0.004	0.044	*	*
41	51.28	155.30	19.964	*	*	2.153	1.014	*	*	0.044	0.015	0.013
42	51.71	384.54	20.485	*	*	1.747	0.668	*	*	0.151	0.029	0.026
43	52.72	466.15	18.165	*	1.556	1.799	0.868	*	0.018	0.011	0.011	0.017
44	53.20	308.92	19.438	*	*	2.461	1.208	*	*	0.028	0.016	0.016
45	53.27	249.90	20.147	*	1.457	2.345	1.265	*	0.084	0.036	0.013	0.010
46	54.18	75.32	19.146	*	1.653	2.125	1.053	*	0.039	0.020	0.007	0.009
47	55.86	196.69	16.830	0.738	1.345	1.733	0.836	0.035	0.012	0.006	0.005	0.005
48	55.97	312.58	17.469	1.173	1.545	2.036	1.000	0.058	0.034	0.032	0.032	0.024

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
49	56.52	103.41	19.436	*	1.644	2.213	1.114	*	0.055	0.024	0.011	0.008
50	56.83	433.48	17.871	1.933	1.301	1.665	0.766	0.213	0.012	0.010	0.007	0.008
51	57.23	425.37	20.511	*	1.237	2.081	0.965	*	0.078	0.047	0.019	0.020
52	60.52	324.97	17.136	1.095	1.602	2.160	1.049	0.038	0.011	0.009	0.014	0.011
53	60.60	23.23	19.329	*	1.570	2.166	1.087	*	0.036	0.017	0.009	0.010
54	61.59	409.80	20.438	*	*	*	*	*	*	0.144	*	*
55	62.03	362.52	21.260	*	*	2.005	1.191	*	*	0.102	0.042	0.054
56	62.10	384.43	20.467	*	1.507	2.308	1.240	*	0.107	0.052	0.012	0.019
57	63.59	505.61	19.847	*	*	2.068	1.020	*	*	0.027	0.014	0.019
58	64.72	76.01	20.283	*	1.585	2.366	1.169	*	0.093	0.046	0.014	0.015
59	64.79	265.17	20.459	*	*	*	*	*	*	0.274	*	*
60	65.25	231.43	18.132	1.032	1.607	1.995	0.941	0.095	0.020	0.009	0.005	0.005
61	65.86	42.63	19.564	*	*	3.108	1.628	*	*	0.020	0.013	0.011
62	66.12	225.34	18.694	*	1.546	1.908	0.892	*	0.031	0.012	0.007	0.008
63	66.55	170.86	20.406	*	*	2.163	1.162	*	*	0.048	0.027	0.031
64	67.07	107.52	19.624	*	1.740	2.090	1.053	*	0.069	0.022	0.012	0.011
65	67.46	359.08	20.811	*	*	*	*	*	*	0.129	*	*
66	68.23	404.38	15.820	0.624	1.196	1.228	0.716	0.014	0.004	0.009	0.010	0.009
67	72.43	232.72	20.808	*	*	2.328	1.085	*	*	0.050	0.032	0.034
68	74.53	352.51	16.810	0.772	1.244	1.617	0.765	0.023	0.006	0.006	0.007	0.005
69	76.04	286.16	19.829	*	1.820	2.338	1.133	*	0.081	0.029	0.012	0.012
70	77.10	339.07	20.744	*	*	2.282	1.038	*	*	0.056	0.039	0.040
71	77.15	419.30	20.693	*	*	2.160	1.013	*	*	0.046	0.023	0.021
72	78.14	159.11	19.599	*	1.566	1.993	1.092	*	0.057	0.020	0.010	0.013
73	80.15	376.16	20.867	*	*	2.136	1.035	*	*	0.067	0.029	0.042
74	80.61	366.02	20.228	*	1.676	2.275	1.085	*	0.082	0.042	0.017	0.020
75	80.66	19.74	17.205	1.256	1.528	2.001	0.985	0.058	0.008	0.008	0.006	0.006
76	80.81	324.13	19.364	*	1.816	2.330	1.132	*	0.037	0.024	0.009	0.007
77	81.00	308.74	20.710	*	*	*	*	*	*	0.130	*	*
78	81.25	152.28	20.192	*	1.651	2.376	1.238	*	0.101	0.031	0.015	0.015
79	82.80	115.33	19.807	*	2.008	2.478	1.270	*	0.068	0.032	0.046	0.039
80	85.39	242.83	17.288	1.278	1.655	2.141	1.039	0.061	0.011	0.007	0.007	0.006
81	85.66	208.82	20.564	*	*	2.495	1.295	*	*	0.046	0.017	0.023
82	87.16	458.07	16.824	*	1.232	1.606	0.740	*	0.018	0.014	0.018	0.012
83	88.44	183.21	20.277	*	*	2.322	1.101	*	*	0.047	0.017	0.016
84	88.82	369.05	16.470	0.504	1.102	1.401	0.695	0.013	0.006	0.008	0.006	0.006
85	89.10	99.27	17.849	1.082	1.440	1.824	0.890	0.058	0.011	0.008	0.006	0.007
86	89.18	501.15	20.012	*	*	2.046	0.953	*	*	0.044	0.019	0.016
87	89.25	147.10	17.601	0.960	1.421	1.721	0.812	0.045	0.011	0.009	0.005	0.006
88	89.34	337.76	21.039	*	*	2.309	1.189	*	*	0.083	0.031	0.025
89	91.04	234.86	19.768	*	1.999	2.497	1.201	*	0.096	0.026	0.010	0.009
90	91.44	56.72	17.016	0.811	1.478	1.916	0.943	0.026	0.010	0.009	0.012	0.009
91	93.63	111.59	18.735	*	1.350	1.595	0.913	*	0.059	0.012	0.012	0.006
92	93.72	103.41	18.463	*	1.508	1.901	0.927	*	0.018	0.010	0.006	0.007
93	94.48	65.89	20.760	*	*	2.522	1.273	*	*	0.064	0.024	0.015
94	94.93	14.90	17.729	1.371	1.639	2.124	1.054	0.094	0.014	0.009	0.007	0.006
95	95.83	205.50	17.975	*	1.651	2.020	0.963	*	0.018	0.011	0.006	0.005
96	97.32	424.77	19.736	*	*	*	*	*	*	0.150	*	*

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
97	99.21	180.19	20.354	*	*	2.232	1.131	*	*	0.042	0.017	0.017
98	99.36	451.95	20.027	*	1.389	2.380	1.275	*	0.083	0.043	0.021	0.021
99	100.28	150.21	20.894	*	*	2.246	1.179	*	*	0.084	0.058	0.058
100	100.58	286.39	20.449	*	*	2.734	1.433	*	*	0.030	0.014	0.012
101	101.04	209.18	18.706	*	1.538	1.958	0.948	*	0.064	0.012	0.008	0.009
102	101.21	334.42	17.661	1.046	1.377	1.779	0.847	0.064	0.014	0.005	0.005	0.006
103	102.25	245.46	20.443	*	*	2.545	1.308	*	*	0.046	0.016	0.012
104	102.80	417.87	20.936	*	*	2.126	1.051	*	*	0.069	0.031	0.042
105	102.94	232.22	18.499	*	1.667	2.060	1.002	*	0.022	0.011	0.006	0.012
106	103.05	133.45	20.534	*	*	2.206	1.129	*	*	0.043	0.023	0.029
107	103.23	280.07	20.170	*	*	2.376	1.217	*	*	0.039	0.011	0.014
108	103.28	4.17	16.817	0.778	1.123	1.319	0.660	0.016	0.014	0.042	0.054	*
109	103.76	126.60	17.254	1.041	1.423	1.789	0.857	0.033	0.009	0.006	0.006	0.006
110	104.11	197.45	21.091	*	*	2.536	1.180	*	*	0.070	0.034	0.021
111	104.34	64.54	18.080	0.562	1.146	1.389	0.714	0.038	0.012	0.010	0.007	0.008
112	105.81	221.85	16.290	0.805	1.438	2.344	0.883	0.014	0.006	0.005	0.008	0.010
113	106.05	441.77	19.563	*	1.841	2.094	1.057	*	0.059	0.055	0.014	0.017
114	107.75	294.16	20.455	*	*	2.485	1.204	*	*	0.039	0.021	0.015
115	108.25	49.21	19.933	-0.556	0.376	0.550	0.215	0.033	0.020	0.030	0.027	0.058
116	108.78	462.77	20.257	*	1.744	1.931	0.940	*	0.162	0.046	0.042	0.057
117	110.25	351.96	19.441	*	1.542	2.013	0.995	*	0.053	0.022	0.009	0.013
118	110.28	367.79	20.647	*	*	2.119	0.945	*	*	0.059	0.027	0.024
119	111.61	191.88	18.531	*	1.591	1.995	0.797	*	0.027	0.011	0.035	0.031
120	111.96	160.76	15.573	0.929	1.141	2.300	0.677	0.008	0.003	0.004	0.004	0.008
121	111.99	29.43	19.275	*	1.569	2.177	1.093	*	0.046	0.017	0.009	0.010
122	112.32	131.05	21.169	*	*	2.370	1.169	*	*	0.072	0.032	0.027
123	112.85	104.29	21.146	*	*	2.330	1.081	*	*	0.091	0.037	0.028
124	114.03	184.84	15.519	0.957	1.368	1.834	0.883	0.012	0.005	0.003	0.006	0.006
125	117.36	417.61	21.278	*	*	2.444	1.286	*	*	0.090	0.032	0.029
126	119.20	115.30	17.276	0.976	1.392	1.833	0.878	0.032	0.007	0.006	0.005	0.005
127	120.23	483.51	20.484	*	*	2.058	0.945	*	*	0.052	0.027	0.036
128	120.59	237.29	17.922	1.049	1.537	2.044	1.001	0.088	0.013	0.008	0.008	0.006
129	121.21	243.24	19.786	*	1.769	2.260	1.151	*	0.073	0.025	0.015	0.013
130	121.78	294.48	20.602	*	*	2.215	1.190	*	*	0.067	0.022	0.028
131	122.06	17.58	18.580	*	1.582	1.949	1.029	*	0.044	0.014	0.007	0.010
132	122.44	307.50	20.021	*	1.726	2.422	1.218	*	0.101	0.043	0.014	0.012
133	122.64	40.17	20.709	*	*	2.466	1.205	*	*	0.056	0.025	0.024
134	122.81	371.34	19.401	*	1.749	2.011	0.985	*	0.053	0.018	0.011	0.010
135	123.36	329.87	17.629	0.962	1.313	1.686	0.809	0.052	0.008	0.006	0.005	0.006
136	124.53	127.74	20.808	*	*	2.259	1.056	*	*	0.065	0.034	0.024
137	124.78	391.50	20.293	*	*	2.611	1.326	*	*	0.039	0.016	0.009
138	125.59	447.67	19.464	*	1.341	2.061	0.923	*	0.048	0.020	0.037	0.024
139	127.31	434.00	18.745	*	1.547	1.821	0.895	*	0.032	0.012	0.009	0.009
140	128.12	136.93	20.443	*	*	2.196	1.124	*	*	0.039	0.021	0.021
141	128.43	187.42	20.056	*	*	2.221	1.117	*	*	0.034	0.014	0.013
142	128.52	6.94	20.654	*	*	*	*	*	*	0.109	0.092	*
143	128.93	176.44	18.745	*	1.560	1.938	0.927	*	0.028	0.014	0.008	0.009
144	130.20	497.05	20.365	*	*	2.345	1.174	*	*	0.049	0.025	0.025



Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
145	130.98	354.67	16.378	1.544	1.990	2.445	1.242	0.048	0.022	0.023	0.005	*
146	131.04	212.46	20.896	*	*	2.387	1.123	*	*	0.055	0.023	0.023
147	131.07	453.35	21.252	*	*	2.941	1.466	*	*	0.102	0.038	0.032
148	131.07	150.20	18.071	*	1.503	1.906	0.956	*	0.017	0.008	0.007	0.005
149	132.34	206.80	20.580	*	*	2.388	1.205	*	*	0.053	0.024	0.015
150	132.63	335.67	18.955	*	1.533	2.031	1.037	*	0.029	0.017	0.010	0.007
151	133.09	445.82	20.132	*	*	2.423	1.152	*	*	0.038	0.026	0.019
152	133.23	55.47	16.197	0.813	1.379	1.873	0.891	0.013	0.017	0.004	0.007	0.007
153	133.26	183.60	20.612	*	*	2.210	1.069	*	*	0.064	0.026	0.023
154	135.96	441.27	19.321	*	1.748	1.901	1.058	*	0.053	0.021	0.016	0.021
155	136.42	100.24	20.027	*	*	2.299	1.152	*	*	0.034	0.013	0.012
156	136.89	346.50	20.112	*	1.399	2.133	1.050	*	0.086	0.038	0.026	0.030
157	137.03	197.03	20.414	*	*	2.236	1.184	*	*	0.039	0.016	0.021
158	138.20	164.77	16.653	0.955	1.364	1.721	0.831	0.023	0.015	0.004	0.004	0.005
159	138.21	179.08	19.078	*	1.578	1.974	0.947	*	0.035	0.015	0.009	0.010
160	138.22	370.96	18.022	*	1.364	1.753	0.862	*	0.020	0.017	0.019	0.007
161	139.54	152.93	19.724	*	*	3.050	1.568	*	*	0.031	0.011	0.006
162	141.59	343.34	19.223	*	1.515	1.946	0.983	*	0.042	0.016	0.010	0.010
163	141.99	196.04	17.949	1.021	1.429	1.761	0.852	0.064	0.015	0.008	0.006	0.008
164	142.34	272.86	20.558	*	*	2.343	1.150	*	*	0.041	0.022	0.019
165	142.38	327.23	20.483	*	*	2.393	1.242	*	*	0.049	0.021	0.019
166	142.54	202.46	21.513	*	*	2.696	1.745	*	*	0.182	0.028	0.053
167	143.30	505.85	17.572	*	1.358	1.685	0.806	*	0.019	0.012	0.008	0.010
168	144.08	174.02	16.335	0.459	1.086	1.304	0.658	0.010	0.005	0.005	0.005	0.005
169	144.13	286.01	20.586	*	*	2.399	1.270	*	*	0.056	0.019	0.018
170	144.16	89.82	18.629	*	1.652	2.110	1.048	*	0.024	0.012	0.007	0.005
171	145.07	206.39	18.888	*	*	*	*	*	*	0.185	*	*
172	145.25	111.22	20.362	*	1.486	2.329	1.241	*	0.109	0.041	0.017	0.015
173	145.41	297.45	18.797	*	1.517	1.953	0.947	*	0.042	0.021	0.020	0.019
174	145.54	438.24	20.170	*	*	2.287	1.047	*	*	0.028	0.026	0.021
175	147.36	291.54	20.005	*	1.653	2.326	1.155	*	0.110	0.032	0.018	0.016
176	147.89	33.85	15.521	1.050	1.268	1.612	0.833	0.010	0.005	0.004	0.005	0.006
177	147.99	239.45	16.271	1.095	1.532	2.074	0.969	0.021	0.007	0.005	0.009	0.009
178	150.46	131.20	18.485	*	*	*	*	*	*	0.124	*	*
179	150.73	358.50	18.780	*	1.426	1.828	0.882	*	0.027	0.010	0.008	0.008
180	151.15	201.25	15.902	0.683	1.280	1.642	0.794	0.009	0.006	0.004	0.006	0.008
181	151.53	181.27	18.963	*	1.490	1.934	0.946	*	0.029	0.015	0.011	0.011
182	153.02	263.72	21.170	*	*	2.639	1.377	*	*	0.084	0.028	0.023
183	154.35	221.88	18.709	*	1.629	1.978	0.948	*	0.029	0.019	0.037	0.031
184	155.08	184.71	20.356	*	*	2.483	1.225	*	*	0.068	0.062	0.075
185	155.77	148.93	18.837	*	1.631	1.956	0.933	*	0.045	0.013	0.011	0.013
186	156.38	159.45	18.693	*	1.588	1.958	0.940	*	0.033	0.017	0.020	0.022
187	157.54	269.74	20.656	*	*	2.257	1.121	*	*	0.047	0.020	0.027
188	158.21	285.50	19.891	*	1.630	2.251	1.137	*	0.064	0.034	0.015	0.013
189	158.42	163.46	18.952	*	1.564	1.891	0.961	*	0.034	0.017	0.010	0.017
190	159.28	129.94	21.035	*	*	2.479	1.365	*	*	0.083	0.032	0.025
191	159.39	344.00	20.839	*	*	2.142	1.073	*	*	0.065	0.020	0.025
192	161.66	314.31	18.323	*	1.338	1.804	0.854	*	0.173	0.018	0.007	0.008

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
193	162.80	72.96	19.936	*	1.638	2.169	1.055	*	0.083	0.032	0.013	0.014
194	163.04	117.82	19.139	*	0.936	1.990	1.010	*	0.149	0.019	0.009	0.012
195	163.48	222.31	19.365	*	1.538	2.054	0.986	*	0.039	0.021	0.013	0.012
196	163.65	307.37	19.573	*	1.804	1.896	0.833	*	0.049	0.022	*	*
197	165.15	98.33	20.256	*	*	2.410	1.212	*	*	0.045	0.014	0.018
198	165.31	493.75	19.471	*	1.835	2.054	1.033	*	0.063	0.021	0.011	0.017
199	166.09	207.23	18.885	*	1.525	1.906	0.919	*	0.027	0.013	0.008	0.009
200	166.23	310.14	18.644	*	1.523	2.103	1.074	*	0.024	0.012	0.027	0.023
201	166.47	366.29	20.242	*	*	2.268	1.100	*	*	0.067	0.050	0.051
202	166.65	410.85	19.577	*	1.596	2.143	1.075	*	0.049	0.022	0.010	0.009
203	166.66	188.82	21.081	*	*	2.344	1.271	*	*	0.084	0.027	0.037
204	167.31	92.63	18.571	*	1.501	1.983	0.984	*	0.024	0.013	0.006	0.008
205	167.35	303.86	20.121	*	*	2.401	1.168	*	*	0.054	0.036	0.026
206	167.99	234.29	16.533	0.933	1.396	1.815	0.865	0.019	0.006	0.005	0.006	0.005
207	168.46	444.08	17.811	0.957	1.437	1.854	0.871	0.067	0.013	0.014	0.014	0.010
208	168.55	389.78	18.446	*	1.384	1.812	0.870	*	0.019	0.009	0.010	0.010
209	169.25	142.64	17.337	0.956	1.352	1.729	0.840	0.035	0.010	0.007	0.011	0.008
210	169.35	331.85	15.126	0.823	1.248	1.645	0.793	0.005	0.004	0.003	0.007	0.006
211	170.17	398.42	19.973	*	1.611	2.037	0.807	*	0.069	0.026	0.037	0.023
212	170.31	85.77	18.147	0.737	1.372	1.761	0.911	0.055	0.019	0.008	0.007	0.007
213	170.34	449.84	20.647	*	*	2.309	1.184	*	*	0.037	0.044	0.027
214	170.49	49.75	17.484	1.103	1.508	1.930	0.954	0.060	0.013	0.005	0.008	0.007
215	171.17	348.72	20.188	*	*	1.980	0.937	*	*	0.043	0.017	0.022
216	171.38	108.28	20.331	*	*	2.222	1.208	*	*	0.049	0.015	0.013
217	171.58	204.35	17.912	1.076	1.441	1.818	0.865	0.057	0.014	0.008	0.006	0.006
218	172.68	222.40	17.325	0.851	1.315	1.716	0.816	0.033	0.008	0.005	0.005	0.005
219	172.82	256.35	17.913	*	1.513	1.985	0.952	*	0.014	0.009	0.005	0.006
220	173.02	74.99	18.493	*	1.608	1.945	1.018	*	0.048	0.042	0.063	0.059
221	175.06	250.81	19.273	*	1.639	2.216	1.119	*	0.052	0.015	0.010	0.009
222	175.99	136.59	20.035	*	*	2.203	1.101	*	*	0.038	0.013	0.021
223	176.69	503.85	17.731	*	1.691	2.178	1.053	*	0.022	0.012	0.011	0.010
224	176.74	16.98	20.674	*	*	2.560	1.304	*	*	0.056	0.018	0.020
225	176.93	4.95	17.561	1.248	1.641	2.279	1.089	0.070	0.016	0.013	0.038	*
226	177.33	186.30	17.377	0.994	1.425	1.803	0.873	0.045	0.014	0.007	0.005	0.008
227	177.71	436.52	19.440	*	1.514	2.082	1.027	*	0.046	0.024	0.010	0.012
228	178.55	265.08	19.130	*	1.506	1.952	0.978	*	0.037	0.015	0.011	0.010
229	179.18	366.37	16.061	1.119	1.192	0.912	0.779	0.035	0.005	0.005	0.009	0.009
230	179.57	406.82	18.436	*	1.428	1.862	0.896	*	0.034	0.011	0.007	0.011
231	180.37	279.85	15.637	0.994	1.373	1.809	0.861	0.013	0.006	0.006	0.006	0.007
232	180.47	210.44	18.173	0.894	1.354	1.722	0.834	0.067	0.014	0.007	0.008	0.006
233	182.77	270.45	17.403	1.040	1.415	1.851	0.884	0.031	0.012	0.007	0.007	0.007
234	184.38	75.31	20.163	*	*	2.045	1.040	*	*	0.039	0.017	0.020
235	184.73	211.74	18.172	*	1.436	1.691	0.809	*	0.014	0.009	0.006	0.006
236	185.06	346.41	20.736	*	*	2.399	1.177	*	*	0.059	0.029	0.018
237	186.82	145.24	18.330	*	1.431	1.850	0.882	*	0.017	0.014	0.020	0.022
238	187.30	84.03	18.790	*	1.426	1.910	0.952	*	0.020	0.014	0.009	0.008
239	187.51	123.53	18.398	*	1.429	1.783	0.875	*	0.019	0.011	0.008	0.006
240	187.62	256.13	17.068	0.871	1.427	1.823	0.867	0.031	0.008	0.004	0.006	0.005

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
241	187.85	472.99	18.924	*	1.477	1.861	0.920	*	0.026	0.013	0.009	0.012
242	188.09	136.51	20.190	*	1.454	2.381	1.003	*	0.084	0.034	0.043	0.026
243	189.13	394.91	17.186	0.587	1.165	1.496	0.760	0.021	0.031	0.007	0.005	0.007
244	189.65	231.25	17.018	0.738	1.333	1.670	0.800	0.025	0.008	0.005	0.005	0.005
245	191.76	218.87	16.683	0.982	1.617	*	*	0.073	0.103	0.132	0.063	0.007
246	192.03	244.81	18.278	*	1.490	1.862	0.886	*	0.018	0.011	0.007	0.007
247	192.83	342.11	16.275	0.636	1.150	1.549	0.755	0.010	0.006	0.005	0.009	0.011
248	195.14	152.37	18.513	*	1.494	1.903	0.891	*	0.016	0.011	0.012	0.008
249	195.37	278.13	14.335	2.184	2.195	2.702	1.400	0.018	0.004	0.047	0.005	0.006
250	195.50	165.33	17.267	0.976	1.353	1.680	0.813	0.035	0.007	0.007	0.006	0.005
251	196.32	120.75	18.478	*	1.643	1.972	0.980	*	0.020	0.017	0.006	0.007
252	196.60	231.93	16.651	0.950	1.432	1.825	0.866	0.025	0.018	0.021	0.029	0.028
253	197.21	141.53	15.648	0.817	1.311	1.671	0.776	0.011	0.014	0.015	0.005	0.009
254	197.51	430.58	19.590	*	1.646	2.255	1.087	*	0.063	0.025	0.012	0.013
255	197.87	284.52	19.558	*	1.710	*	*	*	0.055	0.029	*	*
256	199.61	196.41	16.869	0.948	1.286	1.641	0.796	0.023	0.007	0.006	0.006	0.004
257	199.62	367.45	19.055	*	1.498	1.948	0.964	*	0.031	0.017	0.008	0.009
258	202.91	112.64	19.008	*	1.533	2.057	1.060	*	0.033	0.035	0.038	0.031
259	203.31	401.84	19.817	*	1.773	2.301	1.170	*	0.065	0.032	0.019	0.012
260	203.68	77.23	18.190	*	1.442	1.765	0.850	*	0.017	0.021	0.008	0.007
261	203.81	191.18	16.556	0.786	1.293	1.707	1.398	0.019	0.008	0.005	0.177	0.017
262	204.18	33.71	21.088	*	*	2.527	1.195	*	*	0.071	0.029	0.025
263	204.72	166.09	19.498	*	1.611	2.101	1.014	*	0.050	0.019	0.010	0.010
264	205.04	425.24	20.686	*	*	2.444	0.973	*	*	0.063	0.059	0.022
265	205.24	258.87	15.272	0.915	1.338	1.764	0.844	0.009	0.006	0.005	0.005	0.007
266	205.67	24.91	19.955	*	*	2.800	1.450	*	*	0.039	0.012	0.011
267	206.15	56.18	20.261	*	*	2.562	1.353	*	*	0.043	0.018	0.014
268	206.91	249.12	18.146	1.103	1.378	1.793	0.889	0.089	0.015	0.010	0.011	0.008
269	207.57	437.05	16.215	1.772	2.120	2.600	1.342	0.059	0.009	0.006	0.008	0.008
270	207.90	487.12	20.339	*	*	2.067	1.227	*	*	0.038	0.022	0.026
271	208.50	204.91	18.042	1.211	1.389	1.777	0.854	0.077	0.014	0.008	0.014	0.009
272	208.56	66.80	17.482	1.005	1.372	1.733	0.845	0.031	0.011	0.007	0.006	0.005
273	209.24	152.70	16.225	1.026	1.451	2.493	0.922	0.019	0.005	0.004	0.007	0.010
274	209.37	109.08	20.830	*	*	2.221	1.169	*	*	0.059	0.023	0.035
275	209.68	220.11	15.693	0.845	1.320	1.701	0.799	0.007	0.004	0.005	0.005	0.008
276	209.82	194.59	15.144	0.758	1.253	1.652	0.789	0.008	0.003	0.004	0.004	0.005
277	210.22	181.48	18.394	*	1.477	1.902	0.918	*	0.020	0.013	0.015	0.016
278	210.31	141.47	17.690	1.220	1.412	1.817	0.890	0.066	0.012	0.007	0.009	0.006
279	210.38	455.53	19.115	*	1.624	2.143	1.087	*	0.042	0.016	0.010	0.011
280	210.46	464.54	18.755	*	1.454	1.869	0.924	*	0.019	0.015	0.007	0.009
281	211.56	76.11	20.314	*	*	2.291	1.156	*	*	0.043	0.016	0.015
282	211.78	273.47	20.333	*	*	*	*	*	*	0.191	*	*
283	212.73	216.54	16.948	0.873	1.321	*	*	0.030	0.009	0.008	*	*
284	212.88	397.67	19.197	*	*	*	*	*	*	0.131	*	*
285	213.17	231.98	17.200	0.804	1.376	1.733	0.858	0.026	0.043	0.007	0.007	0.005
286	215.84	15.89	18.633	*	1.537	1.958	0.967	*	0.028	0.010	0.007	0.010
287	215.84	93.44	20.615	*	*	2.283	1.195	*	*	0.056	0.026	0.022
288	215.96	499.89	16.442	*	1.323	1.535	0.681	*	0.008	0.053	0.007	0.008

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
289	216.68	161.34	20.746	*	*	2.027	0.787	*	*	0.167	0.033	0.037
290	217.39	404.61	16.368	0.839	1.355	1.888	0.865	0.016	0.006	0.005	0.005	0.149
291	217.74	250.37	20.187	*	1.632	2.153	1.101	*	0.081	0.040	0.017	0.019
292	217.97	362.89	21.198	*	*	2.462	1.255	*	*	0.083	0.023	0.033
293	218.78	399.53	18.088	*	1.478	1.907	*	*	0.016	0.015	0.010	*
294	219.00	76.15	18.900	*	1.466	1.871	0.935	*	0.023	0.019	0.008	0.011
295	220.46	236.37	19.362	*	1.697	2.007	0.954	*	0.065	0.024	0.011	0.015
296	220.56	121.66	16.987	0.824	1.302	1.640	0.793	0.021	0.008	0.007	0.006	0.005
297	221.29	467.95	17.644	*	1.334	1.664	0.791	*	0.008	0.007	0.007	0.008
298	223.01	256.91	16.961	0.842	1.304	1.655	0.785	0.022	0.010	0.006	0.005	0.006
299	223.19	380.49	19.502	*	*	*	*	*	*	0.166	*	*
300	223.22	299.27	15.732	0.803	1.226	1.635	0.790	0.009	0.007	0.003	0.007	0.007
301	223.81	337.56	20.230	*	*	2.319	1.120	*	*	0.036	0.018	0.017
302	224.91	233.80	20.357	*	*	2.105	1.072	*	*	0.049	0.038	0.024
303	225.06	144.83	16.934	1.029	1.393	1.806	0.875	0.033	0.007	0.005	0.005	0.004
304	225.14	460.68	20.893	*	*	2.091	0.773	*	*	0.073	0.040	0.035
305	225.23	8.45	19.433	*	1.623	2.168	1.140	*	0.046	0.020	0.012	0.036
306	225.27	327.94	18.884	*	1.553	2.095	1.062	*	0.030	0.012	0.007	0.007
307	226.33	176.65	18.416	*	1.522	1.969	0.960	*	0.017	0.014	0.014	0.013
308	226.41	218.61	16.777	0.817	1.264	1.578	0.753	0.015	0.008	0.007	0.008	0.008
309	227.41	295.80	16.745	0.816	1.281	1.654	0.784	0.017	0.009	0.006	0.006	*
310	227.59	103.78	16.605	0.879	1.321	1.705	0.809	0.021	0.008	0.007	0.010	0.015
311	228.01	311.45	19.599	*	*	2.091	1.061	*	*	0.024	0.011	0.010
312	228.05	281.58	16.055	0.833	1.302	1.687	0.806	0.016	0.010	0.008	0.008	0.012
313	229.10	43.81	18.489	*	1.734	2.081	1.043	*	0.024	0.021	0.008	0.007
314	229.54	211.19	18.178	1.214	1.436	1.697	0.803	0.134	0.013	0.010	0.009	0.012
315	230.24	265.08	20.051	*	*	1.961	0.683	*	*	0.038	0.020	0.028
316	230.41	191.30	19.420	*	1.752	2.049	1.084	*	0.059	0.028	0.026	0.024
317	230.53	398.54	13.581	0.476	0.912	0.993	0.517	0.006	0.005	0.007	0.005	0.011
318	230.65	244.61	15.613	0.703	1.223	1.569	0.740	0.009	0.006	0.007	0.007	0.007
319	230.76	165.64	18.352	*	2.105	2.623	1.353	*	0.032	0.009	0.006	0.005
320	231.61	199.63	18.436	*	1.513	1.860	0.901	*	0.018	0.009	0.011	0.008
321	232.88	507.43	20.530	*	*	2.227	1.157	*	*	0.053	0.024	0.019
322	233.03	29.09	18.343	*	1.903	2.429	1.241	*	0.052	0.043	0.032	0.031
323	233.16	283.03	18.832	*	1.470	*	*	*	0.026	0.021	0.010	*
324	233.29	159.07	20.625	*	*	2.232	1.051	*	*	0.049	0.029	0.027
325	233.67	42.02	19.834	*	*	2.040	1.088	*	*	0.044	0.012	0.015
326	234.66	415.85	19.305	*	1.511	2.010	1.006	*	0.050	0.019	0.010	0.011
327	234.72	426.97	20.545	*	*	2.168	1.150	*	*	0.054	0.029	0.032
328	235.26	100.02	14.122	2.495	2.255	2.739	1.414	0.019	0.006	0.002	0.003	0.005
329	235.60	252.76	19.730	*	*	1.945	0.869	*	*	0.062	0.028	0.047
330	236.77	208.16	18.086	*	1.554	1.862	0.894	*	0.018	0.010	0.007	0.008
331	236.83	441.61	18.736	*	1.490	1.945	0.964	*	0.024	0.015	0.007	0.007
332	237.09	67.83	20.429	*	*	*	*	*	*	0.133	0.087	*
333	237.29	31.23	18.366	*	1.505	1.902	0.935	*	0.031	0.028	0.046	0.054
334	237.43	274.71	20.763	*	*	2.244	1.024	*	*	0.053	0.044	0.041
335	237.60	39.70	19.828	*	1.436	2.202	1.164	*	0.079	0.027	0.011	0.011
336	238.47	165.00	19.248	*	*	*	*	*	*	0.021	0.015	*

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
337	238.53	265.80	16.835	0.921	1.311	1.686	0.799	0.026	0.044	0.008	0.006	0.006
338	239.71	156.54	17.538	0.999	1.445	1.861	0.881	0.043	0.010	0.008	0.007	0.013
339	241.77	474.46	19.783	*	*	2.586	1.304	*	*	0.028	0.014	0.012
340	244.12	191.80	19.539	*	1.783	2.087	1.062	*	0.057	0.018	0.013	0.015
341	244.24	162.28	16.020	1.010	1.495	1.964	0.951	0.016	0.010	0.013	0.008	0.009
342	244.88	278.04	18.191	*	1.470	1.834	0.882	*	0.016	0.009	0.006	0.008
343	244.89	395.23	20.467	*	*	2.665	1.566	*	*	0.119	0.020	0.014
344	245.88	248.24	17.110	*	*	*	*	*	*	0.165	*	*
345	245.92	322.06	17.913	0.968	1.545	1.909	0.927	0.073	0.023	0.020	0.026	0.018
346	245.95	69.38	14.314	2.819	2.382	2.927	1.524	0.030	0.006	0.003	0.002	0.006
347	246.49	327.96	19.220	*	1.692	1.982	0.975	*	0.047	0.020	0.015	0.016
348	247.51	420.89	20.837	*	*	2.513	1.191	*	*	0.068	0.028	0.028
349	248.00	358.79	21.204	*	*	*	*	*	*	0.076	0.064	*
350	248.67	475.06	20.719	*	*	2.150	1.046	*	*	0.056	0.024	0.024
351	250.31	434.24	17.875	*	1.430	1.880	0.907	*	0.014	0.008	0.006	0.007
352	250.98	233.32	17.187	1.001	1.376	1.719	0.808	0.066	0.029	0.032	0.030	0.029
353	251.20	341.32	17.078	0.912	1.302	1.666	0.811	0.032	0.021	0.028	0.033	0.025
354	252.22	90.02	21.151	*	*	*	*	*	*	0.108	*	*
355	253.31	154.69	16.216	1.088	1.448	1.955	0.904	0.025	0.008	0.009	0.007	0.011
356	253.33	69.16	18.529	*	1.701	*	*	*	0.030	0.055	0.095	*
357	253.64	94.93	20.797	*	*	*	*	*	*	0.089	0.103	*
358	253.86	120.53	16.485	0.863	1.319	1.658	0.800	0.019	0.008	0.005	0.005	0.005
359	253.91	312.99	18.298	*	1.427	1.874	0.907	*	0.018	0.011	0.006	0.006
360	253.95	217.58	19.906	*	*	1.864	0.928	*	*	0.050	0.055	0.049
361	255.81	346.02	20.517	*	*	2.385	1.195	*	*	0.051	0.018	0.017
362	256.95	421.61	15.810	0.853	1.284	1.689	0.811	0.012	0.005	0.004	0.008	0.007
363	257.63	180.14	18.159	*	1.461	1.886	*	*	0.019	0.010	0.008	*
364	257.64	183.79	17.980	*	1.557	2.049	0.960	*	0.018	0.009	0.005	0.042
365	257.92	334.15	20.600	*	*	2.288	1.123	*	*	0.060	0.039	0.039
366	258.15	274.40	19.259	*	1.661	1.979	0.941	*	0.041	0.022	0.007	0.013
367	258.45	140.93	20.826	*	*	2.293	1.095	*	*	0.061	0.026	0.024
368	258.77	203.23	18.263	*	1.525	1.834	0.897	*	0.016	0.012	0.008	0.008
369	259.08	405.33	16.323	0.840	1.282	1.726	0.837	0.017	0.005	0.004	0.004	0.006
370	259.10	125.05	18.801	*	1.574	1.808	0.875	*	0.026	0.017	0.008	0.011
371	259.72	487.94	21.042	*	*	2.222	1.128	*	*	0.074	0.034	0.029
372	260.17	294.07	20.305	*	*	2.223	1.082	*	*	0.035	0.020	0.014
373	260.39	227.72	16.298	0.836	1.360	1.727	0.834	0.013	0.008	0.009	0.011	0.008
374	260.40	105.92	20.496	*	*	2.248	1.175	*	*	0.039	0.018	0.025
375	260.41	285.20	19.521	*	1.923	1.969	*	*	0.057	0.029	*	*
376	261.06	91.23	14.710	2.779	2.329	2.896	1.507	0.042	0.008	0.003	0.003	0.006
377	262.07	440.30	20.567	*	*	2.179	1.028	*	*	0.064	0.023	0.021
378	262.20	40.19	20.689	*	*	2.457	1.319	*	*	0.066	0.056	0.048
379	262.41	279.74	19.837	*	*	2.220	1.076	*	*	0.026	0.013	0.018
380	262.61	165.50	20.531	*	*	1.917	1.102	*	*	0.052	0.032	0.052
381	262.62	287.89	19.026	*	1.585	2.182	1.139	*	0.028	0.020	0.053	0.039
382	262.74	221.14	18.936	*	1.634	2.099	1.012	*	0.072	0.080	0.081	0.092
383	264.21	42.90	21.044	*	*	*	*	*	*	0.065	*	*
384	264.65	201.17	19.326	*	1.786	2.164	1.062	*	0.049	0.022	0.012	0.012



Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
385	265.09	349.07	19.248	*	1.862	2.304	1.130	*	0.055	0.015	0.008	0.007
386	266.61	231.63	18.536	*	1.477	*	*	*	0.088	0.083	*	*
387	266.98	287.75	18.506	*	1.425	1.696	0.879	*	0.019	0.014	0.008	0.007
388	267.40	207.19	16.992	1.014	1.425	1.851	0.900	0.028	0.009	0.007	0.009	0.007
389	267.56	308.11	17.845	*	1.466	1.795	0.857	*	0.015	0.008	0.006	0.008
390	269.20	441.30	20.995	*	*	2.172	1.034	*	*	0.073	0.026	0.038
391	269.57	128.70	19.722	*	1.829	2.133	1.065	*	0.073	0.021	0.012	0.013
392	269.65	294.44	20.724	*	*	2.222	1.083	*	*	0.058	0.022	0.025
393	269.87	226.85	15.345	0.842	1.333	1.742	0.831	0.008	0.004	0.005	0.005	0.008
394	269.91	66.97	13.996	2.160	2.164	2.639	1.364	0.012	0.004	0.003	0.003	0.005
395	269.95	330.89	15.764	0.761	1.274	1.666	0.808	0.009	0.007	0.007	0.006	0.007
396	270.33	464.54	18.666	*	1.440	1.669	0.865	*	0.019	0.011	0.013	0.012
397	270.54	202.10	19.383	*	1.788	2.209	1.122	*	0.060	0.027	0.025	0.024
398	270.69	255.03	18.479	*	1.454	1.763	0.855	*	0.022	0.023	0.014	0.010
399	271.41	168.01	20.279	*	*	2.417	1.295	*	*	0.046	0.015	0.012
400	271.62	413.61	19.078	*	1.627	2.025	0.976	*	0.038	0.015	0.011	0.008
401	271.76	210.96	20.644	*	*	2.269	1.187	*	*	0.037	0.027	0.029
402	272.84	493.41	19.938	*	*	2.112	1.098	*	*	0.034	0.016	0.014
403	273.54	407.77	19.700	*	1.578	2.159	1.026	*	0.067	0.021	0.010	0.009
404	274.68	364.74	18.527	*	1.548	2.021	0.995	*	0.025	0.012	0.007	0.007
405	274.92	107.30	19.282	*	1.646	2.037	1.015	*	0.047	0.033	0.035	0.034
406	275.24	96.85	21.288	*	*	2.912	1.763	*	*	0.247	0.080	0.073
407	275.57	283.76	20.069	*	*	2.091	1.012	*	*	0.028	0.017	0.017
408	275.75	391.67	20.687	*	*	2.389	1.183	*	*	0.072	0.025	0.022
409	276.40	30.56	20.679	*	*	*	*	*	*	0.067	0.027	*
410	276.76	198.57	17.692	1.045	1.451	1.879	0.900	0.054	0.011	0.008	0.005	0.006
411	276.85	357.77	18.242	1.258	1.479	1.901	0.911	0.120	0.019	0.008	0.006	0.007
412	278.20	101.38	21.460	*	*	*	*	*	*	0.217	0.104	*
413	278.46	134.84	20.456	*	*	2.339	1.231	*	*	0.039	0.016	0.017
414	280.35	252.76	15.534	0.794	1.336	1.687	0.785	0.009	0.006	0.005	0.005	0.006
415	280.69	156.26	21.057	*	*	2.352	1.180	*	*	0.084	0.036	0.022
416	280.77	310.40	19.368	*	1.575	2.074	0.968	*	0.043	0.020	0.010	0.009
417	281.26	271.41	16.451	0.832	1.271	1.640	0.785	0.018	0.006	0.006	0.005	0.005
418	281.38	30.57	19.281	*	2.218	2.795	1.461	*	0.064	0.016	0.009	0.009
419	281.74	43.01	21.326	*	*	2.489	1.255	*	*	0.119	0.029	0.023
420	281.82	347.79	17.100	1.030	1.269	1.625	0.812	0.032	0.008	0.006	0.006	0.005
421	281.92	96.04	20.925	*	*	2.653	1.564	*	*	0.180	0.086	0.123
422	282.45	72.23	17.671	0.678	1.297	1.515	0.783	0.041	0.010	0.007	0.005	0.007
423	283.16	214.58	20.676	*	*	2.401	1.281	*	*	0.053	0.020	0.029
424	283.27	191.39	19.501	*	*	2.244	1.105	*	*	0.067	0.081	0.084
425	283.29	106.33	19.008	*	1.490	1.786	0.918	*	0.030	0.014	0.011	0.023
426	283.68	406.54	19.732	*	1.600	2.364	1.206	*	0.053	0.021	0.012	0.014
427	284.98	177.26	16.384	0.915	1.411	1.803	0.875	0.018	0.005	0.005	0.005	0.005
428	285.86	315.21	19.069	*	1.513	2.077	1.041	*	0.042	0.042	0.038	0.037
429	286.19	61.99	18.866	*	1.514	1.851	0.890	*	0.028	0.011	0.008	0.009
430	286.51	67.88	18.848	*	1.473	1.863	0.915	*	0.026	0.013	0.010	0.009
431	287.59	324.74	14.954	0.443	0.992	1.265	0.649	0.007	0.009	0.005	0.006	0.007
432	288.60	171.25	18.486	*	1.490	1.900	0.927	*	0.019	0.012	0.008	0.009

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
433	288.80	77.58	19.274	*	1.644	2.022	0.994	*	0.045	0.016	0.016	0.018
434	288.88	299.98	18.800	*	1.535	1.937	0.945	*	0.024	0.014	0.010	0.008
435	289.13	293.23	18.768	*	1.293	1.687	0.860	*	0.020	0.012	0.008	0.008
436	289.74	470.73	21.177	*	*	2.548	1.345	*	*	0.078	0.029	0.030
437	290.43	490.43	17.971	*	1.348	1.692	0.810	*	0.013	0.010	0.012	0.011
438	291.17	358.94	17.908	1.139	1.441	1.878	0.899	0.090	0.015	0.007	0.007	0.005
439	291.89	97.56	17.825	*	1.563	1.964	0.971	*	0.022	0.019	0.021	0.019
440	291.95	338.38	19.271	*	1.633	2.030	0.985	*	0.040	0.016	0.009	0.011
441	292.14	180.91	17.111	0.608	1.178	1.485	0.761	0.018	0.009	0.005	0.005	0.006
442	292.50	138.14	16.915	0.908	1.369	1.699	0.831	0.027	0.014	0.012	0.011	0.009
443	292.92	272.91	20.158	*	*	2.120	1.092	*	*	0.031	0.016	0.025
444	292.92	390.73	14.630	0.891	1.361	1.824	0.885	0.007	0.005	0.003	0.006	0.006
445	293.25	87.94	16.269	0.543	1.132	1.320	0.682	0.014	0.027	0.028	0.024	0.029
446	294.73	221.12	20.516	*	*	2.392	1.210	*	*	0.061	0.026	0.025
447	294.86	197.07	19.937	*	*	2.316	1.136	*	*	0.026	0.013	0.012
448	294.90	297.29	17.409	0.897	1.307	1.695	0.815	0.028	0.009	0.005	0.006	0.007
449	295.07	237.58	19.494	*	1.730	2.170	1.105	*	0.061	0.025	0.010	0.013
450	295.46	310.66	17.043	1.074	1.314	1.667	0.810	0.031	0.024	0.028	0.034	0.029
451	295.60	68.80	19.643	*	1.413	1.898	0.874	*	0.089	0.043	0.064	0.059
452	295.83	368.74	18.895	*	1.439	1.709	0.903	*	0.031	0.013	0.008	0.010
453	296.77	173.10	16.586	1.020	1.378	1.808	0.874	0.019	0.007	0.006	0.006	0.005
454	297.80	342.33	17.531	0.999	1.407	1.795	0.866	0.046	0.011	0.017	0.005	0.005
455	297.85	107.80	20.209	*	*	2.196	1.088	*	*	0.039	0.018	0.016
456	298.54	240.09	19.304	*	1.581	1.984	0.909	*	0.045	0.018	0.020	0.021
457	298.68	96.04	20.767	*	*	2.332	1.117	*	*	0.063	0.023	0.024
458	298.96	354.20	19.907	*	1.541	2.255	1.139	*	0.067	0.039	0.013	0.016
459	298.97	113.24	20.585	*	*	2.170	1.057	*	*	0.051	0.024	0.018
460	299.42	80.86	16.419	0.911	1.288	1.591	0.781	0.014	0.021	0.008	0.008	0.005
461	299.75	31.87	19.046	*	1.615	1.879	0.924	*	0.028	0.011	0.010	0.010
462	299.86	504.56	19.601	*	*	*	*	*	*	0.234	*	*
463	300.62	221.17	21.268	*	*	2.185	0.961	*	*	0.106	0.045	0.038
464	301.66	67.42	17.704	0.976	1.310	1.710	0.821	0.059	0.070	0.019	0.019	0.016
465	301.88	6.04	20.282	-0.406	0.417	*	*	0.057	0.036	0.057	*	*
466	302.50	208.21	17.367	0.950	1.390	1.804	0.871	0.038	0.008	0.007	0.006	0.006
467	302.67	249.39	15.954	0.672	1.182	1.504	0.708	0.008	0.004	0.006	0.009	0.008
468	303.23	264.28	16.132	0.679	1.198	1.636	0.720	0.012	0.006	0.005	0.006	0.009
469	303.78	51.20	19.369	*	1.756	2.135	1.074	*	0.052	0.020	0.010	0.009
470	304.56	323.99	20.225	*	*	2.149	1.000	*	*	0.045	0.019	0.020
471	305.55	87.18	17.574	1.192	1.311	1.611	0.770	0.053	0.010	0.006	0.007	0.008
472	305.67	430.69	21.478	*	*	1.909	0.538	*	*	0.092	0.067	0.058
473	306.16	337.02	18.040	*	1.526	2.033	0.988	*	0.020	0.007	0.006	0.006
474	306.40	331.41	17.285	0.815	1.362	1.793	0.863	0.036	0.011	0.007	0.005	0.005
475	306.73	151.22	16.524	1.101	1.438	1.910	0.929	0.022	0.008	0.006	0.006	0.006
476	306.75	420.34	17.413	0.971	1.348	1.774	0.854	0.044	0.012	0.006	0.006	0.007
477	307.15	104.92	21.086	*	*	1.853	0.629	*	*	0.097	0.033	0.042
478	310.34	255.96	19.585	*	*	2.029	1.047	*	*	0.020	0.020	0.027
479	310.70	21.69	19.016	*	1.600	1.995	0.957	*	0.048	0.051	0.044	0.044
480	311.41	339.59	19.306	*	1.512	2.068	1.008	*	0.036	0.022	0.016	0.016



Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
481	311.48	217.42	18.232	1.180	1.383	1.738	0.834	0.089	0.014	0.012	0.006	0.008
482	312.08	43.76	19.727	*	1.698	2.109	1.065	*	0.059	0.025	0.016	0.014
483	312.89	187.45	20.529	*	*	2.292	1.136	*	*	0.064	0.055	0.070
484	314.68	321.92	19.839	*	1.896	2.343	1.161	*	0.069	0.028	0.010	0.013
485	314.95	120.60	20.096	*	*	2.310	1.149	*	*	0.035	0.016	0.011
486	315.20	193.77	20.313	*	*	2.398	1.199	*	*	0.038	0.017	0.013
487	315.68	234.28	17.457	1.006	1.334	1.672	0.806	0.047	0.009	0.007	0.005	0.005
488	315.75	293.73	17.610	0.976	1.322	1.670	0.786	0.047	0.009	0.006	0.005	0.006
489	316.83	109.93	19.632	*	1.824	2.109	0.994	*	0.052	0.022	0.013	0.009
490	317.30	163.46	19.761	*	2.079	2.633	1.295	*	0.083	0.031	0.010	0.008
491	317.38	389.24	17.503	1.027	1.380	1.802	0.879	0.043	0.011	0.007	0.006	0.006
492	317.80	80.67	19.251	*	1.485	1.779	0.887	*	0.037	0.014	0.011	0.011
493	318.08	305.89	17.350	0.871	1.271	1.665	0.793	0.029	0.055	0.007	0.005	0.006
494	319.03	67.92	19.139	*	1.550	2.017	1.008	*	0.029	0.013	0.008	0.012
495	319.45	446.97	18.967	*	2.151	1.861	0.944	*	0.134	0.013	0.009	0.012
496	319.58	321.30	20.401	*	*	*	*	*	*	0.213	*	*
497	319.79	123.20	19.757	*	1.706	2.169	1.129	*	0.083	0.029	0.012	0.013
498	319.85	176.64	18.702	*	1.532	1.926	0.946	*	0.022	0.012	0.028	*
499	320.33	187.94	18.880	*	1.155	1.627	0.926	*	0.036	0.015	0.011	0.082
500	320.78	239.04	18.666	*	1.498	1.934	0.953	*	0.024	0.011	0.008	0.008
501	321.03	169.62	17.745	1.091	1.405	1.849	0.911	0.063	0.015	0.014	0.020	0.021
502	323.51	33.46	20.953	*	*	2.255	1.092	*	*	0.069	0.032	0.039
503	323.71	181.26	15.809	1.297	1.495	1.960	0.953	0.032	0.005	0.007	0.007	0.009
504	323.83	51.23	16.683	1.098	1.329	1.482	0.802	0.017	0.007	0.005	0.005	0.006
505	324.96	296.58	18.309	*	0.874	*	*	*	0.128	0.062	0.071	0.186
506	325.66	206.36	20.806	*	*	2.491	1.147	*	*	0.082	0.029	0.021
507	325.80	14.11	18.667	*	1.442	1.773	0.865	*	0.020	0.014	0.009	0.009
508	326.36	318.86	19.177	*	1.753	2.262	1.142	*	0.037	0.017	0.020	0.011
509	326.78	362.50	19.125	*	1.490	1.978	0.971	*	0.036	0.012	0.015	0.010
510	327.71	162.49	20.187	*	*	2.150	1.055	*	*	0.034	0.021	0.017
511	327.72	430.10	20.943	*	*	2.309	1.138	*	*	0.055	0.026	0.028
512	327.90	240.76	17.979	0.983	1.295	1.669	0.814	0.061	0.023	0.009	0.006	0.006
513	329.97	172.03	19.012	*	1.534	1.968	0.939	*	0.025	0.015	0.009	0.021
514	330.52	102.28	15.210	2.078	2.194	2.749	1.410	0.040	0.006	0.004	0.004	0.007
515	331.03	465.66	16.409	*	1.227	1.568	0.750	*	0.006	0.006	0.007	0.007
516	331.21	282.02	18.577	*	1.526	1.899	0.904	*	0.020	0.010	0.007	0.006
517	331.43	119.03	15.923	0.841	1.374	1.785	0.852	0.017	0.011	0.014	0.008	0.011
518	331.91	213.72	21.497	*	*	2.135	0.894	*	*	0.118	0.058	0.047
519	332.79	73.33	16.279	0.369	1.023	1.290	0.652	0.009	0.007	0.004	0.009	0.010
520	333.89	233.56	17.782	1.028	1.333	1.709	0.819	0.058	0.013	0.010	0.006	0.004
521	334.05	10.28	20.407	*	*	2.066	1.041	*	*	0.041	0.017	0.028
522	335.07	267.19	20.218	*	1.723	2.182	1.072	*	0.121	0.036	0.017	0.015
523	335.53	276.77	20.659	*	*	2.335	1.201	0.189	*	0.043	0.026	0.015
524	335.72	162.90	17.163	1.066	1.471	1.849	0.896	0.041	0.010	0.008	0.004	0.005
525	335.81	113.01	18.702	*	1.511	1.907	0.867	*	0.020	0.012	0.008	*
526	336.36	454.21	19.672	*	1.685	2.108	1.053	*	0.059	0.027	0.015	0.019
527	337.22	177.85	16.830	0.897	1.379	1.783	0.860	0.025	0.010	0.008	0.005	0.005
528	338.51	157.21	20.526	*	*	2.482	1.321	*	*	0.049	0.020	0.024

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529	338.77	328.40	18.044	1.038	1.460	1.836	0.878	0.079	0.018	0.009	0.005	0.006
530	338.77	358.40	21.164	*	*	2.686	1.243	*	*	0.090	0.036	0.033
531	339.11	299.48	18.156	*	1.552	2.016	0.988	*	0.016	0.009	0.005	0.007
532	343.98	88.85	18.067	*	1.355	1.786	0.858	*	0.016	0.006	0.006	0.006
533	344.14	245.60	20.227	*	*	2.244	1.118	*	*	0.041	0.021	0.016
534	344.23	7.10	16.825	1.177	1.313	1.359	0.772	0.032	0.008	0.005	0.010	0.016
535	344.51	158.87	20.485	*	*	2.372	1.180	*	*	0.049	0.019	0.020
536	344.98	484.74	21.129	*	*	2.173	0.926	*	*	0.092	0.040	0.029
537	345.79	145.07	18.217	*	1.536	1.831	0.972	*	0.020	0.010	0.006	0.006
538	346.08	182.89	20.751	*	*	2.478	1.276	*	*	0.068	0.026	0.024
539	346.31	252.36	17.198	1.135	1.457	1.458	0.878	0.073	0.078	0.097	0.085	0.006
540	346.48	132.26	19.115	*	1.662	2.125	1.052	*	0.047	0.017	0.007	0.008
541	346.52	472.57	20.669	*	*	2.195	1.096	*	*	0.043	0.022	0.025
542	347.42	232.93	17.371	0.873	1.268	1.652	0.805	0.035	0.067	0.008	0.010	0.065
543	349.75	393.01	17.770	1.043	1.313	1.752	0.853	0.051	0.018	0.011	0.005	0.007
544	350.36	43.26	21.058	*	*	2.206	1.053	*	*	0.084	0.033	0.030
545	350.94	189.68	19.368	*	1.680	2.079	1.039	*	0.068	0.018	0.009	0.009
546	351.60	240.81	18.313	*	1.363	1.787	0.874	*	0.015	0.010	0.007	0.007
547	351.84	419.90	18.757	*	1.682	2.174	1.087	*	0.032	0.019	0.024	0.020
548	352.47	167.14	18.792	*	0.908	2.073	1.006	*	0.105	0.012	0.008	0.007
549	353.90	251.51	17.842	0.918	1.339	1.743	0.833	0.070	0.016	0.008	0.005	0.006
550	354.35	24.94	15.728	1.734	1.964	2.396	1.244	0.032	0.007	0.004	0.005	0.007
551	354.65	7.83	20.232	*	1.438	1.865	0.936	*	0.092	0.045	0.037	0.087
552	354.82	265.51	19.146	*	1.479	1.960	0.959	*	0.034	0.020	0.011	0.009
553	355.16	93.70	19.142	*	*	2.652	1.353	*	*	0.018	0.009	0.008
554	357.00	203.86	14.376	2.738	2.393	2.974	1.550	0.025	0.004	0.003	0.005	0.005
555	357.41	116.18	19.839	*	1.758	2.197	1.120	*	0.079	0.080	0.016	0.016
556	358.25	257.18	18.942	*	1.454	2.078	1.032	*	0.042	0.015	0.009	0.008
557	358.76	385.12	21.057	*	*	2.406	1.281	*	*	0.093	0.022	0.027
558	359.79	254.03	19.804	*	*	2.156	1.065	*	*	0.026	0.020	0.013
559	360.42	184.81	20.328	*	*	2.466	1.265	*	*	0.036	0.016	0.018
560	361.14	346.30	17.470	0.707	1.187	1.452	0.739	0.033	0.009	0.006	0.006	0.006
561	361.17	293.89	21.014	*	*	2.776	1.480	*	*	0.086	0.020	0.017
562	361.42	328.83	20.380	*	*	*	*	*	*	0.174	*	*
563	363.05	231.61	19.032	*	1.540	1.988	0.967	*	0.039	0.013	0.013	0.013
564	363.70	78.70	20.946	*	*	2.472	1.270	*	*	0.064	0.023	0.021
565	363.91	106.07	17.624	1.251	1.388	1.724	0.840	0.065	0.012	0.006	0.007	0.006
566	364.61	41.43	15.246	0.754	1.261	1.630	0.781	0.009	0.003	0.005	0.005	0.007
567	365.24	311.72	20.061	*	1.492	2.300	1.119	*	0.090	0.034	0.028	0.028
568	365.30	218.67	19.586	*	1.804	2.163	1.064	*	0.075	0.020	0.014	0.012
569	365.49	152.70	18.245	*	1.733	2.156	1.049	*	0.024	0.009	0.006	0.006
570	366.64	468.79	17.058	*	1.130	1.398	0.704	*	0.008	0.006	0.009	0.011
571	366.82	52.75	18.968	*	1.732	2.065	1.053	*	0.028	0.016	0.010	0.012
572	367.18	348.76	19.633	*	1.624	2.082	1.004	*	0.045	0.023	0.011	0.010
573	367.56	168.30	16.196	0.971	1.466	*	*	0.019	0.014	0.012	0.009	0.018
574	367.57	183.59	20.188	*	*	2.286	1.184	*	*	0.050	0.039	0.031
575	369.02	18.08	16.912	0.825	1.266	1.635	0.787	0.026	0.008	0.006	0.007	0.005
576	369.13	337.13	18.835	*	1.538	2.071	1.014	*	0.026	0.013	0.008	0.008

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
577	369.80	124.33	19.997	*	*	2.324	1.161	*	*	0.030	0.014	0.011
578	370.54	56.05	20.736	*	*	1.793	0.656	*	*	0.138	0.032	0.033
579	371.44	273.29	20.868	*	*	2.394	1.172	*	*	0.064	0.020	0.024
580	372.13	497.15	20.299	*	*	2.022	0.931	*	*	0.038	0.022	0.021
581	372.73	242.15	19.371	*	*	2.758	1.418	*	*	0.022	0.011	0.013
582	373.70	449.46	20.481	*	*	2.289	1.047	*	*	0.053	0.022	0.019
583	375.33	266.34	19.355	*	1.561	2.025	0.984	*	0.047	0.020	0.010	0.010
584	375.64	237.04	16.153	0.375	0.958	1.236	0.612	0.009	0.006	0.005	0.008	0.012
585	375.95	460.07	19.234	*	1.609	2.017	0.941	*	0.052	0.020	0.012	0.012
586	376.49	160.13	18.154	*	1.570	2.022	0.984	*	0.020	0.008	0.007	0.007
587	376.65	64.54	16.852	0.896	1.320	1.702	0.817	0.023	0.007	0.005	0.006	0.005
588	377.27	11.65	15.008	0.815	1.295	1.669	0.794	0.008	0.005	0.004	0.004	0.006
589	378.75	500.61	19.112	*	1.503	1.945	0.962	*	0.026	0.012	0.012	0.012
590	379.85	247.78	19.990	*	*	2.054	0.997	*	*	0.027	0.018	0.020
591	380.18	457.20	17.879	*	1.233	1.543	0.778	*	0.007	0.007	0.008	0.010
592	382.07	413.61	18.176	1.070	1.381	1.722	0.866	0.075	0.014	0.010	0.007	0.006
593	383.55	449.00	16.436	*	1.313	1.712	0.813	*	0.007	0.006	0.007	0.007
594	383.68	357.36	17.535	1.258	1.496	2.043	0.991	0.066	0.013	0.008	0.010	0.007
595	386.89	339.49	17.113	0.942	1.361	1.774	0.842	0.024	0.011	0.006	0.005	0.005
596	388.27	241.23	20.095	*	*	2.206	1.060	*	*	0.031	0.017	0.013
597	390.02	229.41	19.979	*	*	2.162	1.103	*	*	0.026	0.014	0.016
598	390.50	481.47	20.157	*	*	2.352	1.260	*	*	0.046	0.021	0.022
599	391.57	91.30	20.321	*	0.612	2.352	1.180	*	0.169	0.037	0.017	0.017
600	393.00	292.20	17.855	0.961	1.352	1.724	0.837	0.053	0.016	0.007	0.006	0.007
601	393.23	240.19	20.371	*	1.398	2.322	1.273	*	0.085	0.043	0.020	0.014
602	393.58	472.96	14.900	0.400	0.928	1.066	0.546	*	0.004	0.007	0.008	0.006
603	393.73	456.78	18.173	*	1.419	1.791	0.868	*	0.020	0.008	0.009	0.008
604	394.78	357.85	20.266	*	*	2.456	1.190	*	*	0.032	0.017	0.016
605	395.52	127.37	16.867	*	*	*	*	*	*	0.249	*	*
606	396.69	89.90	20.365	*	*	2.394	1.227	*	*	0.042	0.020	0.017
607	397.14	406.91	21.404	*	*	2.864	1.504	*	*	0.149	0.052	0.031
608	400.27	20.46	19.202	*	1.559	1.971	0.997	*	0.033	0.019	0.016	0.019
609	401.87	161.38	18.259	*	1.627	2.007	0.971	*	0.018	0.010	0.006	0.005
610	402.22	229.22	17.964	0.927	1.368	1.765	0.855	0.072	0.014	0.008	0.006	0.005
611	402.88	456.97	18.245	*	1.418	1.778	0.864	*	0.017	0.009	0.009	0.010
612	404.29	33.31	17.036	0.505	1.143	1.455	0.742	0.022	0.015	0.007	0.012	0.010
613	405.89	374.22	18.847	*	1.609	1.984	0.967	*	0.031	0.011	0.008	0.007
614	405.90	303.07	18.844	*	1.603	2.115	1.044	*	0.027	0.015	0.008	0.007
615	406.98	242.99	17.519	1.090	1.387	1.798	0.890	0.049	0.023	0.023	0.035	0.030
616	407.27	497.66	18.071	*	1.379	1.700	0.807	*	0.016	0.010	0.011	0.009
617	407.34	39.73	20.644	*	*	2.481	1.337	*	*	0.061	0.020	0.021
618	407.45	415.45	20.795	*	*	1.804	0.870	*	*	0.066	0.039	0.069
619	407.61	197.67	19.041	*	1.526	1.972	0.966	*	0.032	0.014	0.010	0.007
620	408.11	426.56	21.081	*	*	2.254	1.081	*	*	0.065	0.028	0.026
621	408.42	26.69	20.094	*	1.306	2.267	1.186	*	0.067	0.027	0.015	0.015
622	409.10	230.83	21.010	*	*	2.314	1.161	*	*	0.071	0.028	0.024
623	409.68	402.67	20.433	*	*	2.412	1.202	*	*	0.073	0.016	0.028
624	410.67	141.76	17.671	0.888	1.534	1.893	0.929	0.052	0.014	0.007	0.008	0.006

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
625	411.80	182.27	21.534	*	*	2.411	1.320	*	*	0.124	0.048	0.043
626	412.65	136.17	19.815	*	*	2.084	1.022	*	*	0.032	0.015	0.027
627	412.79	453.29	20.770	*	*	2.169	1.087	*	*	0.059	0.027	0.026
628	413.02	266.86	17.667	1.110	1.531	1.981	0.968	0.058	0.012	0.008	0.006	0.005
629	415.96	86.36	15.277	2.412	2.283	2.857	1.480	0.055	0.010	0.005	0.004	0.005
630	416.19	355.59	19.839	*	1.593	2.149	1.044	*	0.055	0.030	0.016	0.012
631	416.83	200.20	20.735	*	*	2.410	1.145	*	*	0.063	0.025	0.020
632	418.37	480.89	18.441	*	1.601	1.870	0.980	*	0.019	0.008	0.009	0.009
633	419.47	322.72	20.105	*	*	2.112	1.036	*	*	0.034	0.015	0.020
634	419.57	64.44	19.542	*	1.932	2.308	1.159	*	0.093	0.023	0.011	0.013
635	421.76	408.50	19.234	*	1.446	1.842	0.927	*	0.059	0.023	0.011	0.010
636	421.94	495.08	20.140	*	*	2.621	1.291	*	*	0.032	0.023	0.028
637	422.57	127.48	21.154	*	*	2.543	1.371	*	*	0.078	0.034	0.038
638	423.58	412.27	18.623	*	*	2.105	1.071	*	*	0.010	0.008	0.008
639	423.68	376.76	19.304	*	1.608	2.086	1.003	*	0.044	0.016	0.011	0.010
640	423.99	7.67	17.974	1.033	1.341	1.697	0.842	0.054	0.015	0.010	0.020	0.021
641	424.07	498.70	20.708	*	*	*	*	*	*	0.060	0.035	*
642	424.76	196.95	18.124	*	1.465	1.820	0.869	*	0.018	0.009	0.007	0.006
643	426.48	389.38	19.182	*	1.488	1.999	0.940	*	0.026	0.015	0.009	0.007
644	426.52	418.73	19.595	*	1.746	1.962	0.971	*	0.056	0.019	0.014	0.014
645	426.67	175.11	20.576	*	0.332	3.326	2.218	*	0.047	0.152	0.011	0.010
646	426.93	19.34	15.412	0.805	1.112	1.183	0.628	0.010	0.005	0.005	0.006	0.009
647	428.73	231.33	18.186	*	1.679	2.067	1.076	*	0.020	0.007	0.006	0.005
648	431.18	28.04	20.720	*	*	2.448	0.887	*	*	0.055	0.089	0.023
649	431.52	459.51	21.130	*	*	2.495	1.328	*	*	0.082	0.053	0.032
650	432.29	435.65	18.349	0.789	1.362	1.750	0.844	0.071	0.018	0.010	0.011	0.009
651	433.43	169.62	18.332	*	1.589	1.968	0.956	*	0.018	0.012	0.008	0.008
652	434.04	392.71	17.613	0.878	1.354	1.728	0.819	0.038	0.009	0.008	0.006	0.006
653	435.79	468.21	19.397	*	1.499	1.953	0.973	*	0.053	0.020	0.012	0.013
654	436.05	71.62	17.015	0.860	1.402	1.774	0.865	0.024	0.011	0.006	0.005	0.005
655	436.22	195.62	20.953	*	*	2.333	1.117	*	*	0.070	0.030	0.027
656	436.87	103.47	19.082	*	1.748	1.984	0.968	*	0.068	0.019	0.012	0.010
657	436.88	150.89	20.481	*	*	2.287	1.255	*	*	0.055	0.029	0.017
658	437.30	120.20	18.456	*	1.603	1.937	0.947	*	0.031	0.014	0.007	0.007
659	437.76	145.57	20.471	*	*	2.401	1.240	*	*	0.057	0.018	0.015
660	438.74	241.31	19.920	*	*	2.053	1.099	*	*	0.033	0.015	0.018
661	438.93	259.26	20.901	*	*	2.717	1.523	*	*	0.085	0.021	0.020
662	439.19	236.39	18.611	*	2.459	2.939	1.498	*	0.053	0.028	0.007	0.004
663	439.33	204.48	20.037	*	*	2.312	1.185	*	*	0.033	0.014	0.012
664	440.12	55.05	20.911	*	*	2.564	1.290	*	*	0.078	0.036	0.041
665	442.30	221.40	16.480	0.972	1.126	1.251	0.654	0.024	0.015	0.005	0.005	0.004
666	442.82	303.23	19.360	*	1.611	2.053	1.009	*	0.047	0.022	0.017	0.018
667	443.35	456.44	18.745	*	1.627	2.208	1.137	*	0.033	0.012	0.008	0.008
668	445.61	37.71	17.734	0.936	1.362	1.706	0.824	0.045	0.012	0.014	0.016	0.007
669	445.66	269.32	18.314	*	1.412	1.814	0.889	*	0.026	0.011	0.008	0.005
670	446.71	312.69	17.841	1.058	1.353	1.696	0.812	0.073	0.017	0.009	0.005	0.005
671	446.86	282.91	19.842	*	1.475	2.184	1.129	*	0.078	0.027	0.011	0.012
672	447.17	173.62	19.274	*	1.710	2.172	1.055	*	0.031	0.017	0.010	0.009

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
673	447.46	363.96	18.421	*	2.109	2.897	1.493	*	0.024	0.012	0.006	0.006
674	449.02	249.62	16.825	0.961	1.299	1.674	0.810	0.025	0.009	0.005	0.004	0.004
675	450.27	444.36	20.901	*	*	2.308	1.067	*	*	0.069	0.027	0.027
676	450.63	226.91	16.886	1.980	1.879	2.422	1.257	0.099	0.038	0.005	0.005	*
677	452.39	393.25	18.825	*	1.608	2.355	1.124	*	0.028	0.014	0.010	0.007
678	453.41	239.73	20.586	*	1.503	2.292	1.080	*	0.105	0.048	0.023	0.030
679	455.26	422.32	20.072	*	*	2.052	1.027	*	*	0.025	0.019	0.023
680	457.45	186.26	19.989	*	*	2.240	1.100	*	*	0.027	0.013	0.012
681	457.53	52.30	19.645	*	1.475	2.091	1.058	*	0.063	0.034	0.013	0.010
682	458.34	45.45	20.624	*	*	2.411	1.293	*	*	0.055	0.022	0.018
683	459.59	6.82	19.089	*	*	*	*	*	*	0.121	*	*
684	460.14	430.96	18.774	*	1.409	1.733	0.887	*	0.026	0.009	0.011	0.017
685	460.24	228.64	20.305	*	*	2.482	1.273	*	*	0.037	0.017	0.017
686	461.87	369.99	21.020	*	*	*	*	*	*	0.097	*	*
687	464.19	223.63	17.439	1.065	1.463	1.863	0.913	0.043	0.015	0.013	0.012	0.006
688	465.26	13.05	20.581	*	*	2.233	1.084	*	*	0.049	0.033	0.027
689	465.37	261.64	21.469	*	*	2.573	1.422	*	*	0.113	0.040	0.048
690	465.57	308.79	20.540	*	*	*	*	*	*	0.166	*	*
691	467.74	70.87	18.656	*	1.457	1.771	0.864	*	0.018	0.010	0.008	0.009
692	468.66	120.24	19.560	*	1.958	2.209	1.096	*	0.077	0.029	0.015	0.014
693	470.37	350.51	20.050	*	*	2.348	1.150	*	*	0.035	0.012	0.010
694	471.18	35.22	16.897	0.578	1.186	1.449	0.742	0.019	0.009	0.006	0.007	0.005
695	471.79	327.13	18.649	*	1.567	1.934	0.949	*	0.027	0.011	0.009	0.010
696	472.28	131.71	18.569	*	1.627	1.985	0.984	*	0.025	0.013	0.009	0.009
697	472.98	78.68	20.260	*	*	2.481	1.353	*	*	0.045	0.020	0.020
698	473.21	238.63	19.529	*	1.762	2.197	1.095	*	0.057	0.024	0.011	0.015
699	473.23	271.64	19.634	*	1.585	2.088	1.042	*	0.044	0.028	0.015	0.012
700	474.85	169.94	17.533	1.541	1.469	1.888	0.915	0.098	0.012	0.007	0.005	0.007
701	475.13	390.28	20.904	*	*	2.116	0.977	*	*	0.070	0.029	0.030
702	477.11	293.24	20.172	*	*	*	*	*	*	0.046	*	*
703	477.88	406.95	18.449	1.567	1.458	1.752	0.829	0.290	0.018	0.010	0.014	0.011
704	477.97	79.29	19.281	*	1.155	2.231	0.981	*	0.181	0.081	0.052	0.063
705	479.20	489.62	20.777	*	*	2.270	1.251	*	*	0.071	0.022	0.033
706	479.57	178.62	20.022	*	1.609	2.368	1.145	*	0.079	0.032	0.014	0.016
707	479.81	140.04	21.017	*	*	2.302	1.188	*	*	0.085	0.027	0.031
708	480.70	304.11	18.344	*	1.420	1.752	0.832	*	0.013	0.010	0.009	0.008
709	481.43	66.48	17.896	1.096	1.646	1.888	0.952	0.098	0.020	0.012	0.006	0.007
710	482.10	462.71	20.767	*	*	2.381	0.949	*	*	0.088	0.107	0.072
711	482.15	417.10	16.389	1.753	1.961	2.376	1.224	0.054	0.009	0.006	0.008	*
712	483.07	291.15	16.385	*	2.638	3.368	1.789	*	0.010	0.004	*	*
713	484.74	58.13	19.419	*	1.564	2.079	1.068	*	0.048	0.025	0.011	0.012
714	485.35	445.83	18.813	*	1.502	1.856	0.882	*	0.033	0.015	0.012	0.011
715	486.33	260.88	19.659	*	*	*	*	*	*	0.122	*	*
716	486.46	340.57	14.227	2.152	2.200	2.723	1.422	0.016	0.005	0.060	0.005	0.006
717	487.58	53.04	16.511	0.974	1.293	1.623	0.793	0.020	0.008	0.005	0.004	0.005
718	490.06	289.14	17.667	0.988	1.386	1.861	0.883	0.041	0.011	0.009	0.015	0.028
719	495.92	503.20	17.036	*	1.303	1.626	0.793	*	0.011	0.008	0.013	0.011
720	496.87	464.29	17.430	*	1.457	1.641	0.876	*	0.012	0.009	0.011	0.010

Star ID	X	Y	V	(U-B)	(B-V)	(V-I)	(V-R)	Sig U	Sig B	Sig V	Sig R	Sig I
721	497.55	421.87	17.314	0.774	1.451	1.809	0.890	0.041	0.013	0.015	0.016	0.014
722	498.38	351.14	17.044	0.416	1.115	1.390	0.690	0.016	0.011	0.008	0.011	0.013
723	502.30	385.32	18.406	*	1.441	1.763	0.852	*	0.017	0.009	0.008	0.010
724	503.64	96.64	17.833	0.809	1.352	1.733	0.873	0.041	0.017	0.007	0.007	0.007
725	504.47	22.04	21.141	*	*	1.923	1.025	*	*	0.089	0.050	0.056
726	505.28	140.74	19.065	*	1.658	2.014	1.017	*	0.039	0.016	0.013	0.012
727	505.46	444.67	18.279	*	1.439	1.752	0.847	*	0.019	0.012	0.011	0.011
728	505.64	238.03	19.687	*	1.690	2.182	1.120	*	0.057	0.022	0.012	0.011
729	505.95	248.61	19.224	*	*	*	*	*	*	0.177	*	*
730	507.92	215.30	18.013	1.571	1.417	1.738	0.833	0.200	0.018	0.011	0.006	0.006
731	508.69	284.47	17.371	0.712	1.425	1.531	0.716	0.030	0.036	0.036	0.008	0.007
732	508.94	354.67	19.893	*	1.729	2.302	1.157	*	0.069	0.025	0.015	0.016
733	508.95	133.05	20.936	*	*	2.423	1.331	*	*	0.093	0.034	0.044
734	509.35	199.10	20.758	*	*	*	*	*	*	0.141	*	*
735	510.98	120.07	20.843	*	*	2.292	1.041	*	*	0.081	0.033	0.021
736	511.54	273.05	18.021	*	*	2.869	1.474	*	*	0.012	0.007	0.006
737	512.42	72.99	20.630	*	*	*	*	*	*	0.160	0.172	*
738	512.68	344.41	20.242	*	*	2.702	1.380	*	*	0.177	0.031	0.024



Table 3a . CCD BVRI Magnitude and colours of the stars in the north nearby region of KING 7

Star ID	X	Y	V	B-V	V-R	V-I
1	103.68	5.99	18.946	2.381	1.219	2.156
2	186.87	7.00	18.123	3.077	1.585	3.049
3	70.63	9.43	20.484	0.864	0.388	*
4	394.06	10.24	17.651	1.452	0.908	1.769
5	411.72	10.30	16.366	1.062	0.646	1.340
6	461.37	15.27	14.541	1.078	0.701	1.377
7	309.75	16.24	20.450	1.810	1.449	2.350
8	285.64	16.52	19.197	1.628	1.265	2.456
9	131.72	16.59	17.883	1.400	0.896	1.798
10	441.46	17.66	20.114	1.739	1.127	2.130
11	359.08	18.27	15.888	1.736	1.090	2.125
12	90.93	21.78	20.177	1.477	1.120	2.199
13	231.09	27.13	19.710	1.264	0.834	1.864
14	248.61	27.15	20.849	0.889	0.652	1.760
15	358.00	29.94	17.571	1.296	0.803	1.493
16	210.07	31.91	13.249	0.645	0.416	0.806
17	41.95	33.88	19.532	1.404	1.122	2.181
18	115.62	39.25	19.134	1.519	0.974	2.017
19	434.66	40.44	18.183	1.422	0.804	1.714
20	349.30	48.21	18.704	1.325	0.826	1.754
21	210.39	48.89	15.887	1.413	0.880	1.750
22	387.03	49.24	17.477	0.817	0.933	1.667
23	507.29	59.82	16.351	1.157	0.641	1.397
24	307.75	62.18	17.423	1.213	0.675	1.439
25	31.73	65.86	15.021	1.692	1.082	2.195
26	334.32	66.46	19.101	1.376	0.885	1.806
27	9.33	73.11	18.136	1.692	1.085	2.111
28	356.64	78.34	16.630	1.092	0.627	1.328
29	376.02	78.92	20.030	1.494	1.027	2.020
30	432.26	81.87	18.513	1.592	0.937	1.833
31	474.59	85.81	17.368	1.299	0.797	1.624
32	255.38	90.86	19.046	1.405	1.035	2.065
33	23.46	96.27	15.142	0.945	0.544	1.111
34	508.95	97.98	19.155	1.664	1.182	2.103
36	323.47	106.77	19.364	1.319	0.836	1.762
37	450.61	107.44	20.435	1.323	1.046	2.197
38	78.61	116.60	18.065	1.379	0.890	1.814
39	494.64	118.17	19.377	1.903	0.909	2.049
40	475.91	118.66	21.145	0.365	*	2.632



Star ID	X	Y	V	B-V	V-R	V-I
41	225.37	118.72	18.809	1.506	0.957	1.881
42	288.96	120.11	19.724	1.291	0.828	1.804
43	431.23	121.97	17.020	1.596	1.010	1.882
44	109.79	124.92	18.448	1.412	0.967	1.867
45	335.22	125.31	19.282	1.797	1.163	2.264
46	441.95	128.18	19.234	1.504	1.024	2.059
47	285.37	129.64	18.930	1.888	1.266	2.597
48	420.11	131.37	18.929	1.560	0.885	1.813
49	354.72	136.98	15.359	1.893	1.144	2.256
50	33.79	139.72	19.708	1.419	0.824	1.844
51	239.22	141.63	14.248	0.787	0.461	0.998
52	284.69	149.70	18.711	1.744	1.327	2.702
53	250.50	151.51	20.541	1.198	1.207	2.379
54	431.18	154.00	17.091	1.159	0.701	1.422
55	186.88	155.87	17.226	1.358	0.789	1.517
56	221.19	158.76	19.045	1.619	1.071	2.126
57	341.11	164.49	16.203	1.106	0.655	1.325
58	193.60	165.57	16.931	1.148	0.667	1.442
59	466.24	168.57	18.444	1.427	0.852	1.768
60	259.60	168.77	19.133	1.409	0.917	1.639
61	197.52	173.64	16.475	1.282	0.760	1.519
62	328.45	177.64	19.822	1.451	1.060	2.011
63	382.97	181.67	15.532	1.434	0.858	1.655
64	124.97	181.80	19.605	1.434	1.090	1.984
65	292.89	182.51	14.275	0.779	0.443	0.986
66	39.78	192.97	19.421	1.443	1.090	2.109
67	275.07	195.08	18.126	1.469	0.942	1.945
68	133.65	198.34	18.425	1.625	0.890	1.883
69	284.81	199.02	19.767	1.829	0.911	2.095
70	369.75	199.85	20.307	1.418	1.112	2.029
71	322.80	202.84	17.617	1.460	0.840	1.602
72	177.58	205.34	18.613	1.474	0.929	1.936
73	140.90	207.99	18.863	1.432	0.882	1.834
74	427.54	209.17	18.595	1.448	0.832	1.738
75	288.24	213.92	19.585	1.455	1.041	2.028
76	422.56	215.25	16.819	1.188	0.760	1.519
77	392.11	220.74	19.292	1.571	1.010	2.010
78	411.96	224.13	18.650	1.618	0.938	1.867
79	270.92	225.00	18.478	1.524	0.973	1.928
80	131.58	227.31	18.808	1.570	0.879	1.894

Star ID	X	Y	V	B-V	V-R	V-I
81	186.91	231.02	16.622	1.246	0.732	1.437
82	325.32	231.40	17.482	1.264	0.728	1.523
83	370.17	235.80	14.540	0.989	0.602	1.189
84	204.97	235.81	19.374	1.327	0.987	2.048
85	321.97	237.42	17.538	1.283	0.785	1.592
86	354.66	237.81	13.825	0.913	0.562	1.128
87	431.92	240.58	15.869	1.139	0.667	1.315
88	135.80	243.80	19.308	1.426	0.959	1.979
89	257.85	254.50	14.083	0.746	0.471	0.993
90	158.39	255.86	17.002	1.176	0.691	1.454
91	246.99	259.60	15.507	0.921	0.564	1.175
92	405.26	266.43	19.475	1.606	0.915	1.794
93	496.76	266.91	17.240	1.321	0.818	1.569
94	384.29	271.21	18.971	1.480	0.848	1.908
95	200.67	273.91	16.799	1.098	0.654	1.370
96	215.40	278.99	17.735	2.193	1.319	2.665
97	13.85	279.98	14.519	1.429	0.637	0.947
98	420.85	281.20	16.965	1.565	1.001	2.039
99	384.26	284.95	18.789	1.980	1.229	2.458
100	393.54	284.97	19.752	1.750	0.989	2.012
101	50.42	288.84	16.269	1.076	0.622	1.258
102	351.96	289.70	19.164	1.505	0.877	1.954
103	326.07	292.04	20.563	1.530	0.950	2.193
104	489.00	296.02	19.311	1.626	1.131	2.058
105	147.36	297.53	18.657	1.561	0.873	1.761
106	450.86	298.14	19.008	1.431	0.946	1.920
107	85.64	298.39	15.096	0.912	0.531	1.133
108	293.89	299.54	16.881	1.470	0.898	1.700
109	195.28	303.81	17.885	1.566	0.968	1.911
110	236.75	304.80	16.129	1.243	0.794	1.681
111	129.36	311.05	18.169	1.290	0.798	1.681
112	71.51	311.86	17.931	1.948	1.315	2.538
113	82.60	317.40	17.620	2.221	1.311	2.604
114	220.23	323.55	20.390	1.433	1.256	2.217
115	395.82	324.85	19.045	1.477	0.954	1.964
116	100.22	328.01	16.122	1.107	0.692	1.426
117	50.71	331.73	19.268	1.643	0.743	1.733
118	256.84	336.32	17.060	1.156	0.713	1.512
119	312.74	336.50	19.101	1.777	1.162	2.349
120	487.45	336.74	19.824	1.500	0.967	2.059

Star ID	X	Y	V	B-V	V-R	V-I
121	44.55	336.90	17.536	1.493	0.864	1.826
122	371.32	338.86	15.860	1.090	0.648	1.285
123	250.07	342.85	19.458	1.737	1.114	2.100
124	447.79	344.08	19.377	1.527	0.927	1.859
125	301.08	344.09	18.608	1.434	0.844	1.705
126	50.39	345.08	19.033	1.810	1.264	2.584
127	124.38	346.50	17.339	1.493	0.953	1.978
128	140.79	349.47	18.110	1.783	1.225	2.473
129	10.08	351.60	18.221	1.348	0.834	1.706
130	413.15	359.59	18.206	1.414	0.875	1.752
131	227.39	361.20	19.346	1.656	0.975	1.902
132	96.09	362.25	18.957	1.732	1.043	2.108
133	430.51	370.59	19.546	1.451	1.458	3.228
134	235.07	373.39	16.620	1.789	1.063	2.069
135	161.31	373.75	19.059	1.340	0.984	1.813
136	181.35	374.91	17.599	1.329	0.825	1.665
137	406.62	375.23	18.431	1.442	0.867	1.698
138	378.89	377.69	15.850	1.253	0.719	1.417
139	390.01	378.25	18.978	1.597	0.878	1.924
140	64.37	384.12	16.666	1.072	0.652	1.384
141	213.41	384.51	19.974	1.648	1.014	2.053
142	22.37	386.60	17.248	1.538	0.950	1.915
143	74.10	389.05	18.474	1.431	0.787	1.724
144	460.70	395.94	19.003	1.238	0.950	1.879
145	138.77	398.82	19.363	1.366	0.711	1.608
146	155.35	403.86	14.291	1.669	1.020	2.046
147	482.93	406.68	20.673	2.010	*	2.429
148	326.09	418.26	19.317	1.482	1.040	1.941
149	232.07	422.90	13.489	0.869	0.520	1.077
150	262.20	423.05	17.224	1.071	0.644	1.367
151	356.87	423.17	18.430	1.558	0.930	1.768
152	138.66	424.68	17.385	1.586	1.037	1.990
153	64.04	425.36	18.535	1.365	0.802	1.779
154	86.65	426.14	18.269	1.751	1.201	2.437
155	453.33	426.49	18.949	1.702	1.137	2.305
156	296.27	426.81	16.102	1.282	0.781	1.383
157	492.68	436.55	19.590	1.640	1.011	1.986
158	75.56	443.28	18.916	1.923	1.155	2.243
159	42.69	445.62	17.512	1.431	0.899	1.828
160	130.45	449.22	17.818	1.269	0.862	1.659

Star ID	X	Y	V	B-V	V-R	V-I
161	96.09	450.61	18.980	1.413	0.997	1.998
162	492.86	453.57	16.948	1.114	0.724	1.481
163	45.91	465.74	18.600	1.836	1.153	2.376
164	444.24	465.99	17.051	1.549	1.705	2.941
165	31.31	466.32	19.154	1.444	0.852	1.803
166	88.48	470.13	18.538	1.463	0.922	1.924
167	143.10	470.35	16.823	1.174	0.716	1.392
168	407.87	473.63	16.759	1.200	0.769	1.573
169	452.71	478.36	14.307	1.067	0.638	1.272
170	245.15	480.53	16.196	-0.315	*	*
171	46.18	486.24	19.561	1.710	0.619	1.435
172	323.16	487.88	17.696	1.854	1.007	1.982
173	374.61	489.93	19.788	1.386	*	*
174	256.92	492.28	16.172	0.197	*	*
175	364.60	498.98	19.055	1.608	*	*
176	28.10	500.23	17.984	1.371	*	*
177	444.37	504.33	17.706	1.282	*	*

Table 3b . CCD BVRI Magnitude and colours of the stars in the south nearby region of KING 7

Star ID	X	Y	V	B-V	V-R	V-I
1	181.87	6.78	18.860	1.946	*	1.503
2	120.73	7.69	16.236	2.092	1.030	2.317
3	249.49	11.27	15.892	1.050	0.614	1.331
4	509.65	13.47	19.924	0.492	*	*
5	407.71	16.70	15.899	0.985	0.605	1.167
6	351.56	16.99	19.686	1.566	1.047	2.056
7	505.16	23.85	15.655	1.130	*	*
8	299.76	25.89	18.308	1.609	1.080	2.042
9	141.64	25.92	18.727	2.186	1.334	2.587
10	74.71	40.91	18.953	1.409	0.963	1.907
11	487.40	43.02	17.675	1.619	1.005	2.053
12	365.55	43.33	15.286	1.762	1.089	2.162
13	407.84	47.16	17.742	1.308	0.850	1.734
14	39.17	57.89	16.467	1.155	0.763	1.575
15	71.43	58.13	18.014	1.336	0.790	1.569
16	256.27	59.88	18.526	1.473	0.908	1.810
17	98.13	65.90	17.603	1.286	0.841	1.666
18	263.06	68.75	16.051	1.057	0.687	1.394
19	138.65	70.97	18.720	1.851	1.188	2.358
20	213.56	73.14	19.116	1.460	0.966	1.955
21	265.56	79.81	18.548	1.568	0.847	1.875
22	143.51	80.06	19.321	1.527	1.002	2.018
23	488.36	80.87	17.944	1.358	0.836	1.697
24	194.04	84.08	13.002	0.693	0.422	0.841
25	19.45	85.23	17.773	1.315	0.839	1.726
26	401.13	89.32	19.442	1.094	1.142	2.139
27	288.98	90.40	19.568	1.578	0.972	2.127
28	443.09	91.40	18.870	1.321	0.916	1.904
29	51.07	94.07	13.453	1.811	1.088	2.141
30	510.68	99.93	18.585	1.069	*	*
31	215.63	108.44	19.713	1.499	0.951	2.040
32	41.99	110.31	18.334	1.745	1.582	2.862
33	69.05	111.97	16.817	1.206	0.747	1.465
34	349.33	114.29	18.936	1.323	0.930	1.876
35	119.60	118.87	17.789	1.617	1.035	1.975
36	124.00	128.61	19.290	1.236	0.863	1.732
37	55.01	131.02	18.676	1.403	0.996	1.985
38	259.12	136.44	17.315	1.470	0.908	1.846
39	184.46	139.95	18.257	1.344	0.860	1.711
40	298.44	141.78	18.608	1.710	1.065	2.189

Star ID	X	Y	V	B-V	V-R	V-I
41	46.09	143.14	18.763	1.971	1.180	2.422
42	167.27	144.07	19.504	1.582	1.333	2.694
43	361.37	149.04	19.871	2.088	1.122	2.370
44	407.16	151.48	16.606	1.092	0.684	1.435
45	100.91	154.55	17.946	1.192	0.783	1.574
46	110.96	158.18	16.987	1.230	0.727	1.582
47	92.72	167.66	19.193	1.322	0.976	1.967
48	68.79	167.84	17.807	1.473	0.847	1.732
49	72.13	178.02	19.196	1.733	0.955	1.965
50	437.30	185.10	18.088	1.771	0.942	1.888
51	301.56	185.12	16.668	1.352	0.922	1.935
52	495.53	196.09	20.273	1.144	*	*
53	325.71	202.35	15.435	1.053	0.616	1.216
54	191.68	203.82	19.511	1.533	0.998	1.886
55	245.68	209.12	18.468	1.614	1.005	1.970
56	127.82	212.98	18.389	1.513	0.920	1.869
57	315.89	213.51	16.372	1.097	0.677	1.372
58	350.25	214.01	17.252	1.367	0.877	1.775
59	505.88	214.43	17.693	2.457	*	*
60	461.78	220.30	19.268	1.386	1.092	2.323
61	241.53	220.38	18.172	1.548	0.954	1.771
62	65.57	223.25	18.917	1.666	1.129	2.323
63	123.67	224.00	14.576	0.851	0.497	1.038
64	230.97	226.94	18.695	1.567	0.937	1.853
65	446.70	227.79	16.358	1.197	0.682	1.446
66	439.08	241.51	17.723	2.608	1.514	2.918
67	501.59	241.80	18.973	1.736	*	*
68	349.01	246.46	17.547	1.442	0.914	1.821
69	116.96	249.89	17.397	1.471	0.890	1.832
70	325.24	251.35	18.096	1.442	0.908	1.802
71	413.64	251.59	16.137	1.225	0.790	1.642
72	202.90	253.07	18.743	1.491	0.943	1.954
73	46.10	254.23	16.099	1.925	1.223	2.437
74	166.77	255.15	19.290	1.463	0.907	1.873
75	11.56	257.28	14.439	0.983	0.598	1.236
76	146.45	258.33	15.129	1.139	0.682	1.490
77	476.52	262.22	20.768	1.771	1.195	2.430
78	157.82	262.63	19.487	1.339	0.975	1.970
79	299.22	262.85	15.496	0.931	0.610	1.300
80	23.16	268.81	17.777	1.440	0.879	1.822

Star ID	X	Y	V	B-V	V-R	V-I
81	145.48	269.18	18.839	1.286	0.863	1.735
82	169.35	276.00	16.744	2.069	1.317	2.650
83	331.07	276.32	18.026	1.454	0.881	1.756
84	476.72	283.65	18.436	1.548	0.925	1.955
85	459.35	284.94	16.986	1.570	1.101	2.318
86	54.56	287.45	13.639	-0.055	1.195	1.682
87	29.50	291.31	17.998	1.129	0.762	1.598
88	473.91	291.66	18.136	1.492	0.827	1.729
89	487.61	294.26	17.918	2.347	1.500	2.968
90	253.72	298.02	17.611	2.240	1.422	2.800
91	223.55	301.51	18.658	1.717	0.940	2.011
92	154.66	303.69	19.403	1.667	0.965	2.026
93	318.91	311.80	19.075	1.656	1.050	2.089
94	92.42	314.38	17.876	2.087	1.371	2.715
95	372.31	317.40	19.070	1.508	0.995	1.983
96	409.17	317.49	18.296	1.572	1.026	2.161
97	98.20	332.41	16.961	1.119	0.676	1.464
98	334.93	334.04	18.437	1.488	0.898	1.816
99	150.28	340.42	18.355	1.377	0.858	1.714
100	85.24	340.56	18.519	1.511	0.912	1.900
101	503.17	342.75	19.473	1.515	*	*
102	313.29	344.52	18.559	1.677	1.025	2.074
103	131.99	346.15	15.933	1.913	1.179	2.380
104	31.11	358.13	15.634	2.075	1.261	2.504
105	280.95	358.29	17.575	1.360	0.840	1.748
106	41.97	361.02	18.799	1.476	0.919	1.817
107	314.56	363.43	18.597	1.698	0.979	2.049
108	363.37	365.88	16.557	1.845	1.193	2.381
109	99.62	368.87	20.376	1.312	1.216	2.476
110	85.90	369.93	15.980	1.244	0.700	1.381
111	505.11	379.01	18.990	1.859	*	*
112	118.25	387.26	18.035	1.269	0.832	1.683
113	146.11	400.95	19.182	1.763	1.189	2.352
114	199.53	411.39	17.687	1.476	0.863	1.769
115	425.13	420.12	19.317	1.413	1.222	2.355
116	390.56	431.14	18.618	1.721	1.055	2.125
117	177.71	441.25	19.856	1.138	1.183	2.433
118	361.26	441.93	15.951	1.130	0.695	1.352
119	198.09	446.21	19.390	1.601	1.060	2.109
120	94.40	451.77	18.012	1.384	0.865	1.887



Star ID	X	Y	V	B-V	V-R	V-I
121	83.39	456.28	18.926	1.440	0.909	2.017
122	359.13	456.54	17.389	1.453	0.852	1.812
123	170.12	457.59	16.827	1.242	0.757	1.436
124	271.15	463.27	15.462	0.990	0.600	1.221
125	41.94	465.58	21.095	1.357	*	*
126	236.67	466.84	18.133	1.475	0.933	1.800
127	106.39	469.68	18.763	1.522	0.942	1.937
128	345.19	469.99	14.235	0.750	0.465	0.941
129	47.11	498.23	18.627	1.474	1.066	2.044
130	132.36	500.15	16.767	1.309	0.857	1.726
131	427.26	502.21	18.800	1.611	1.112	2.240
132	117.43	503.86	20.528	0.715	*	*
133	422.17	506.93	19.174	1.435	1.010	2.044

Table 4 : Errors and completeness factor ( $\wedge$ )

Magnitude interval	Completeness factor ( $\wedge$ )	$\sigma_v$
14.0 < V $\leq$ 15.0	100	0.009
15.0 < V $\leq$ 16.0	100	0.014
16.0 < V $\leq$ 17.0	100	0.029
17.0 < V $\leq$ 18.0	100	0.042
18.0 < V $\leq$ 19.0	100	0.077
19.0 < V $\leq$ 20.0	99	0.072
20.0 < V $\leq$ 21.0	90	0.111

**Table 5** : Comparison of present photometry with the photometry of Phelps et.al. (1994).

Magnitude Range	$\Delta V$		$\Delta(B-V)$		$\Delta(V-I)$	
	Mean $\pm \sigma$	N	Mean $\pm \sigma$	N	Mean $\pm \sigma$	N
$V \leq 16$	$0.0093 \pm 0.028$	38	$-0.0049 \pm 0.035$	38	$-0.0219 \pm 0.024$	34
$16 < V \leq 17$	$-0.0038 \pm 0.027$	63	$0.0125 \pm 0.055$	63	$-0.018 \pm 0.049$	57
$17 < V \leq 18$	$-0.0122 \pm 0.050$	99	$0.0244 \pm 0.064$	99	$-0.0144 \pm 0.054$	99
$18 < V \leq 19$	$-0.0211 \pm 0.071$	138	$0.0258 \pm 0.175$	128	$-0.0176 \pm 0.070$	138
$19 < V \leq 20$	$-0.0210 \pm 0.090$	140	$0.2360 \pm 0.296$	46	$0.0039 \pm 0.092$	140

**Table 6** : Distribution of stars in the main sequence of (B-V) CMDs.

V Magnitude interval	No. of stars		
	Cluster region	Nearby north region	Nearby south region
16.0 - 16.5	13	3	2
16.5 - 17.0	26	4	5
17.0 - 17.5	26	6	1
17.5 - 18.0	39	9	9
18.0 - 18.5	51	11	14
18.5 - 19.0	53	13	10
19.0 - 19.5	47	12	6
19.5 - 20.0	27	5	2
20.0 - 20.5	6	2	-