DOCUMENTATION FOR THE MACHINE-READABLE
VERSION OF THE THIRTEEN-COLOR PHOTOMETRY
OF 1380 BRIGHT STARS

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SECTION 1 - INTRODUCTION

The Catalogue of Thirteen-Color Photometry of 1380 Bright Stars contains final data on the 13-color medium-narrow-band photometric system, as published by Johnson and Mitchell (1975). Observations of essentially all stars brighter than fifth visual magnitude north of $\delta = -20^\circ$ and brighter than fourth visual magnitude south of $\delta = -20^\circ$ are included.

This document describes the magnetic tape version of the above catalogue. It is intended to enable users to read and process the tape without the common difficulties and uncertainties. It should be distributed along with any unmodified machine-readable version of the catalogue.
SECTION 2 - TAPE CONTENTS

A byte-by-byte description of the contents of the tape catalogue is given in Table 1. A suggested format specification for reading each datum is given in the final column, but can be modified depending upon usage. Although real format specifications are given for magnitude and color-index data in order to indicate the location of decimal points, these data should be read initially with a (character) format specifications or buffered in because the data fields are blank for missing data.

Table 1. Tape Contents. Thirteen-Color Photometry of 1380 Bright Stars

<table>
<thead>
<tr>
<th>Byte(s)</th>
<th>Description</th>
<th>Suggested Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- 7</td>
<td>CDS Strasbourg identification number</td>
<td>X4</td>
</tr>
<tr>
<td>1- 4</td>
<td>Catalogue identification</td>
<td>I4</td>
</tr>
<tr>
<td>5</td>
<td>Catalogue file (A=1, B=2, ...)</td>
<td>A1</td>
</tr>
<tr>
<td>6- 7</td>
<td>Year of machine version</td>
<td>I2</td>
</tr>
<tr>
<td>8</td>
<td>*if remark to table, otherwise blank</td>
<td>A1</td>
</tr>
<tr>
<td>9- 12</td>
<td>Number (BS = HR) in Yale Bright Star Catalogue (Hoffleit 1964)</td>
<td>I4</td>
</tr>
<tr>
<td>13- 15</td>
<td>Miscellaneous information regarding identification or physical characteristics; e.g., /X, XX, -X for additional HR numbers included V, D in bytes 14-15 for variable, double star in byte 15 for uncertainty * 3 stars contain asterisks in byte 14, but meaning is not defined in paper, nor could any common peculiar characteristics be found. The stars are HR4883, 6707, and 8143.</td>
<td>A3</td>
</tr>
<tr>
<td>16</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>17- 32</td>
<td>Spectral type from miscellaneous sources</td>
<td>4A4</td>
</tr>
<tr>
<td>17- 18</td>
<td>Luminosity class for Mt. Wilson types, W in W-R types</td>
<td>4A4</td>
</tr>
<tr>
<td>19- 20</td>
<td>Temperature class and subclass</td>
<td>4A4</td>
</tr>
<tr>
<td>21- 32</td>
<td>Additional spectral-type information</td>
<td>4A4</td>
</tr>
<tr>
<td>33</td>
<td>X if 52 magnitude transformed from Cape V mag., otherwise blank</td>
<td>A1</td>
</tr>
<tr>
<td>34</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>35- 40</td>
<td>52 magnitude (see byte 33 description)</td>
<td>F6.3</td>
</tr>
<tr>
<td>41</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>Byte(s)</td>
<td>Description</td>
<td>Suggested Format</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>42-47</td>
<td>33 - 52 color (blank if no data)</td>
<td>F6.3</td>
</tr>
<tr>
<td>48</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>49-54</td>
<td>35 - 52 color</td>
<td>F6.3</td>
</tr>
<tr>
<td>55</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>56-61</td>
<td>37 - 52 color</td>
<td>F6.3</td>
</tr>
<tr>
<td>62</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>63-68</td>
<td>40 - 52 color</td>
<td>F6.3</td>
</tr>
<tr>
<td>69</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>70-75</td>
<td>45 - 52 color</td>
<td>F6.3</td>
</tr>
<tr>
<td>76</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>77-82</td>
<td>52 - 58 color</td>
<td>F6.3</td>
</tr>
<tr>
<td>83</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>84-89</td>
<td>52 - 63 color</td>
<td>F6.3</td>
</tr>
<tr>
<td>90</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>91-96</td>
<td>52 - 72 color (blank if no data)</td>
<td>F6.3</td>
</tr>
<tr>
<td>97</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>98-103</td>
<td>52 - 80 color (blank if no data)</td>
<td>F6.3</td>
</tr>
<tr>
<td>104</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>105-110</td>
<td>52 - 86 color (blank if no data)</td>
<td>F6.3</td>
</tr>
<tr>
<td>111</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>112-117</td>
<td>52 - 99 color (blank if no data)</td>
<td>F6.3</td>
</tr>
<tr>
<td>118</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>119-124</td>
<td>52 - 110 color (blank if no data)</td>
<td>F6.3</td>
</tr>
<tr>
<td>125</td>
<td>Blank</td>
<td>1X</td>
</tr>
<tr>
<td>Byte(s)</td>
<td>Description</td>
<td>Suggested Format</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>126-127</td>
<td>Number of blue observations (filters 33 to 63)</td>
<td>I2</td>
</tr>
<tr>
<td>128</td>
<td>Blank</td>
<td>1x</td>
</tr>
<tr>
<td>129-130</td>
<td>Number of red observations (filters 72 to 110)</td>
<td>I2</td>
</tr>
</tbody>
</table>
Table 2 contains remarks for records in the catalogue which contain an asterisk (*) in byte 8. The remarks are taken directly from the paper of Johnson and Mitchell (1975).

**Table 2. Remarks to Catalogue Data Records**

<table>
<thead>
<tr>
<th>HR</th>
<th>Name</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>215</td>
<td>ζ And</td>
<td>58 filters differ by &gt;0.10</td>
</tr>
<tr>
<td>681</td>
<td>ζ Cet</td>
<td>39831.6 matched to 39151.6</td>
</tr>
<tr>
<td>1239</td>
<td>λ Tau</td>
<td>39873.6 matched to 39440.8</td>
</tr>
<tr>
<td>1845</td>
<td>CE Tau</td>
<td>39831.8 matched to 39499.7</td>
</tr>
<tr>
<td>2061</td>
<td>α Ori</td>
<td>39797.9 matched to 38787.7</td>
</tr>
<tr>
<td>2308</td>
<td>BL Ori</td>
<td>39773.9 matched to 39501.8</td>
</tr>
<tr>
<td>2590</td>
<td>π CMa</td>
<td>58 filters differ by &gt;0.10. May be variable.</td>
</tr>
<tr>
<td>2650</td>
<td>ζ Gem</td>
<td>39804.9 matched to 38789.8</td>
</tr>
<tr>
<td>4163</td>
<td>U Hya</td>
<td>58 filters differ by &gt;0.10. 33 - 52 = 12. is lower limit. J3 was not measurable.</td>
</tr>
<tr>
<td>4846</td>
<td>γ CVn</td>
<td>39867.9 matched to 39176.9. 33 - 52 = 12. is lower limit. J3 was not measurable.</td>
</tr>
<tr>
<td>4915</td>
<td>α² CVn</td>
<td>39930.7 matched to 38894.7</td>
</tr>
<tr>
<td>5056</td>
<td>α Vir</td>
<td>39930.8 matched to 39176.9</td>
</tr>
<tr>
<td>5589</td>
<td>RR UMi</td>
<td>39910.9 matched to 39257.8</td>
</tr>
<tr>
<td>6146</td>
<td>g Her</td>
<td>39969.8 matched to 38929.7</td>
</tr>
<tr>
<td>6406</td>
<td>α Her</td>
<td>39973.7 matched to 39227.9</td>
</tr>
<tr>
<td>6431</td>
<td>μ Her</td>
<td>58 filters differ by &gt;0.10</td>
</tr>
<tr>
<td>7066</td>
<td>R Sct</td>
<td>39974.9 matched to 38917.8</td>
</tr>
<tr>
<td>7564</td>
<td>χ Cyg</td>
<td>40004.9 matched to 40006.9 (unpublished data)</td>
</tr>
<tr>
<td>7570</td>
<td>η Aql</td>
<td>39976.9 matched to 38871.9</td>
</tr>
<tr>
<td>8262</td>
<td>W Cyg</td>
<td>58 filters differ by &gt;0.10</td>
</tr>
<tr>
<td>8297</td>
<td>V460 Cyg</td>
<td>33 - 52 = 12. is lower limit. J3 was not measurable.</td>
</tr>
<tr>
<td>8316</td>
<td>μ Cep</td>
<td>58 filters differ by &gt;0.10</td>
</tr>
<tr>
<td>8383</td>
<td>VV Cep</td>
<td>58 filters differ by &gt;0.10</td>
</tr>
<tr>
<td>8571</td>
<td>δ Cep</td>
<td>39278.8 matched to 39459.6</td>
</tr>
<tr>
<td>8752</td>
<td>HD 217476</td>
<td>58 filters differ by &gt;0.10</td>
</tr>
</tbody>
</table>

ORIGINAL PAGE IS OF POOR QUALITY
SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 3 is sufficient for a user to read the machine version of the catalogue. Information for the entire catalogue is given in the table, but data which are easily varied from installation to installation, such as blocksize (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, and coding (EBCDIC, ASCII, PCD, etc.) are not included; these parameters should always be supplied if secondary copies of the catalogue are transmitted to other users or installations.

Table 3. Tape Characteristics. Thirteen-Color Photometry of 1380 Bright Stars

| NUMBER OF TRACKS | 9 |
| NUMBER OF FILES | 1 |
| LOGICAL RECORD LENGTH | 130 |
| RECORD FORMAT | FB |
| TOTAL NUMBER OF LOGICAL RECORDS | 1380 |
A magnetic tape version of the Thirteen-Color Photometry of 1380 Bright Stars was received from the Centre de Données Stellaires (CDS), Strasbourg (Identification Number 2052A78). As received, the spectral types had no uniformly coded fields for searching purposes, and no flags were included in the records to indicate remarks. In order to improve the uniformity of the spectral types, the entire catalogue was transferred from tape to disk at the Astronomical Data Center, and modifications were made interactively. The spectral types were modified such that the temperature class and subclass always occur in bytes 19 and 20, respectively. The Wilson luminosity codes (g, d, sg, c, etc.) were shifted to occur uniformly in bytes 17-18, as was the W in each Wolf-Rayet type. Characters which are lower case in standard astronomical notation (e.g., m and p in peculiar and metallic-line A stars, a, b, ab in luminosity classes, e for emission-line stars, etc.) were converted from upper to lower case. These characters should print as normal upper-case characters on conventional upper-case-only printers, but the use of an extended chain printer is suggested if one is available. The asterisks were also added as the remarks flag in byte 8 and the catalogue was transferred back to magnetic tape.

A considerable number of stars had no MK types in the catalogue as received. When available, these types were added from the catalogues of M. Jaschek (1978), Kennedy (1978) and Morgan and Keenan (1973). Additional MK types were found for stars south of -40° in Houk and Cowley (1975) and Houk (1978). Where possible, attempts were made to resolve uncertainties and to correct obvious errors.

The order of the tape records (by HR number) is unchanged from the published catalogue (Johnson and Mitchell 1975), but they do differ slightly in that the star names present in the published catalogue (Table 7) have never been present on the tape.
REFERENCES


Kennedy, P. M. (1978). MK Classification Extension (Mt. Stromlo Obs.)

SECTION 5 - SAMPLE LISTING

The sample listing given on the following pages contains logical data records exactly as they are recorded on the tape. The beginning of each record and bytes within the record are indicated by the column heading index across the top of the page (digits read vertically). Since each logical record is longer than 115 bytes, the remainder of each record (bytes 116-130) is printed in the following row.
<table>
<thead>
<tr>
<th>RECORD</th>
<th>CODE</th>
<th>FIELD</th>
<th>DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2052A78</td>
<td>3</td>
<td>K1 III</td>
</tr>
<tr>
<td>2</td>
<td>2052A78</td>
<td>15</td>
<td>B9 p (III)</td>
</tr>
<tr>
<td>3</td>
<td>2052A78</td>
<td>21</td>
<td>F2 IV</td>
</tr>
<tr>
<td>4</td>
<td>2052A78</td>
<td>25</td>
<td>K0 III</td>
</tr>
<tr>
<td>5</td>
<td>2052A78</td>
<td>27</td>
<td>P2 II</td>
</tr>
<tr>
<td>6</td>
<td>2052A78</td>
<td>33</td>
<td>F6 V</td>
</tr>
<tr>
<td>7</td>
<td>2052A78</td>
<td>39</td>
<td>B2 IV</td>
</tr>
<tr>
<td>8</td>
<td>2052A78</td>
<td>45</td>
<td>R2 III</td>
</tr>
<tr>
<td>9</td>
<td>2052A78</td>
<td>48</td>
<td>B2 III</td>
</tr>
<tr>
<td>10</td>
<td>2052A78</td>
<td>63</td>
<td>A2 V</td>
</tr>
<tr>
<td>11</td>
<td>2052A78</td>
<td>68</td>
<td>A2 V</td>
</tr>
<tr>
<td>12</td>
<td>2052A78</td>
<td>74</td>
<td>K2 III</td>
</tr>
<tr>
<td>13</td>
<td>2052A78</td>
<td>77</td>
<td>G2 V</td>
</tr>
<tr>
<td>14</td>
<td>2052A78</td>
<td>98</td>
<td>G2 IV</td>
</tr>
<tr>
<td>15</td>
<td>2052A78</td>
<td>99</td>
<td>K0 III</td>
</tr>
</tbody>
</table>
# Listing of Records from Tape File

**Tape File Name:** 13-Color 1380 Stars

**Records:** 1366 to 1380

<table>
<thead>
<tr>
<th>Column Heading</th>
<th>Origin Vol Ser</th>
</tr>
</thead>
<tbody>
<tr>
<td>1234567890</td>
<td>WT5001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Record</th>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1365</td>
<td>B</td>
<td>8976</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>-0.065 2 3</td>
</tr>
<tr>
<td>1367</td>
<td>A</td>
<td>8982</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>1.368 2 4</td>
</tr>
<tr>
<td>1368</td>
<td>A</td>
<td>8984</td>
</tr>
<tr>
<td></td>
<td>77</td>
<td>0.342 2 2</td>
</tr>
<tr>
<td>1369</td>
<td>B</td>
<td>8988</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>-0.085 2 2</td>
</tr>
<tr>
<td>1370</td>
<td>K</td>
<td>8997  D</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>1.607 2 3</td>
</tr>
<tr>
<td>1371</td>
<td>A</td>
<td>9016</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1372</td>
<td>B</td>
<td>9045  V</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>2.028 2 4</td>
</tr>
<tr>
<td>1373</td>
<td>B</td>
<td>9064</td>
</tr>
<tr>
<td></td>
<td>58</td>
<td>3.668 2 2</td>
</tr>
<tr>
<td>1374</td>
<td>B</td>
<td>9071  D</td>
</tr>
<tr>
<td></td>
<td>96</td>
<td>-0.192 2 3</td>
</tr>
<tr>
<td>1375</td>
<td>B</td>
<td>9072  F</td>
</tr>
<tr>
<td></td>
<td>95</td>
<td>0.784 2 3</td>
</tr>
<tr>
<td>1376</td>
<td>B</td>
<td>9076  B</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1377</td>
<td>L</td>
<td>9084  K</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>2.183 4 2</td>
</tr>
<tr>
<td>1378</td>
<td>L</td>
<td>9089  N</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>3.067 2 3</td>
</tr>
<tr>
<td>1379</td>
<td>L</td>
<td>9091  M</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1380</td>
<td>L</td>
<td>9098  B</td>
</tr>
<tr>
<td></td>
<td>49</td>
<td>-0.014 3 2</td>
</tr>
</tbody>
</table>