

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P437489

Luminaire Tested: **ISC-SA1D-730-U-T3**

Issue Date: 12/9/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P437489  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-8)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/9/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: ISC-SA1D-730-U-T3  
Description: IMPACT ELITE LED CYLINDER LUMINAIRE  
(1) 70 CRI, 3000K, 800mA LIGHTSQUARE WITH 16 LEDS AND TYPE III OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

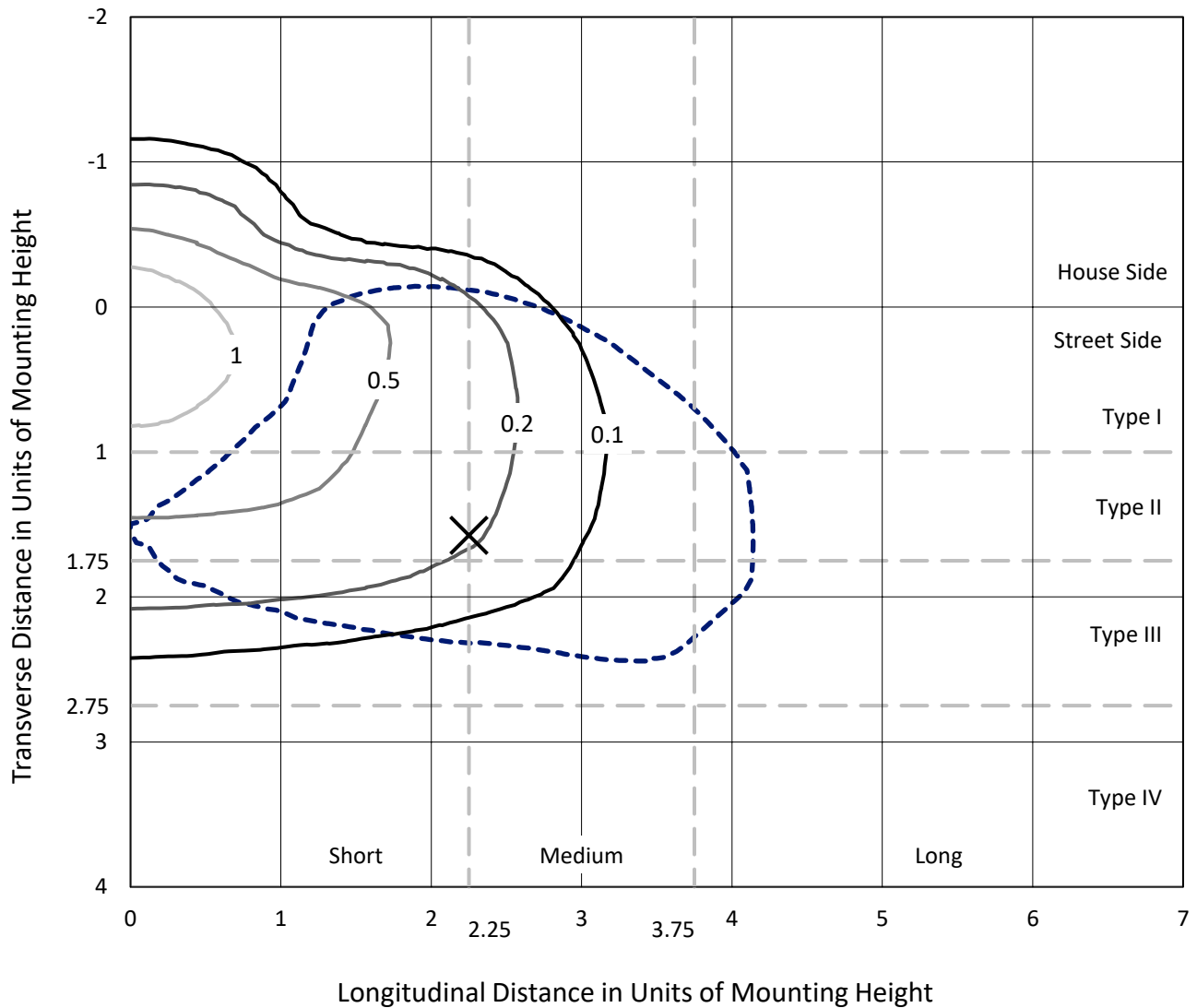
Lumens per Lamp: N/A  
Luminaire Lumens: 5217 lumens  
Efficiency: N/A  
Efficacy: 115.4 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B1 - U0 - G1  
  
Input Watts (W): 45.2  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

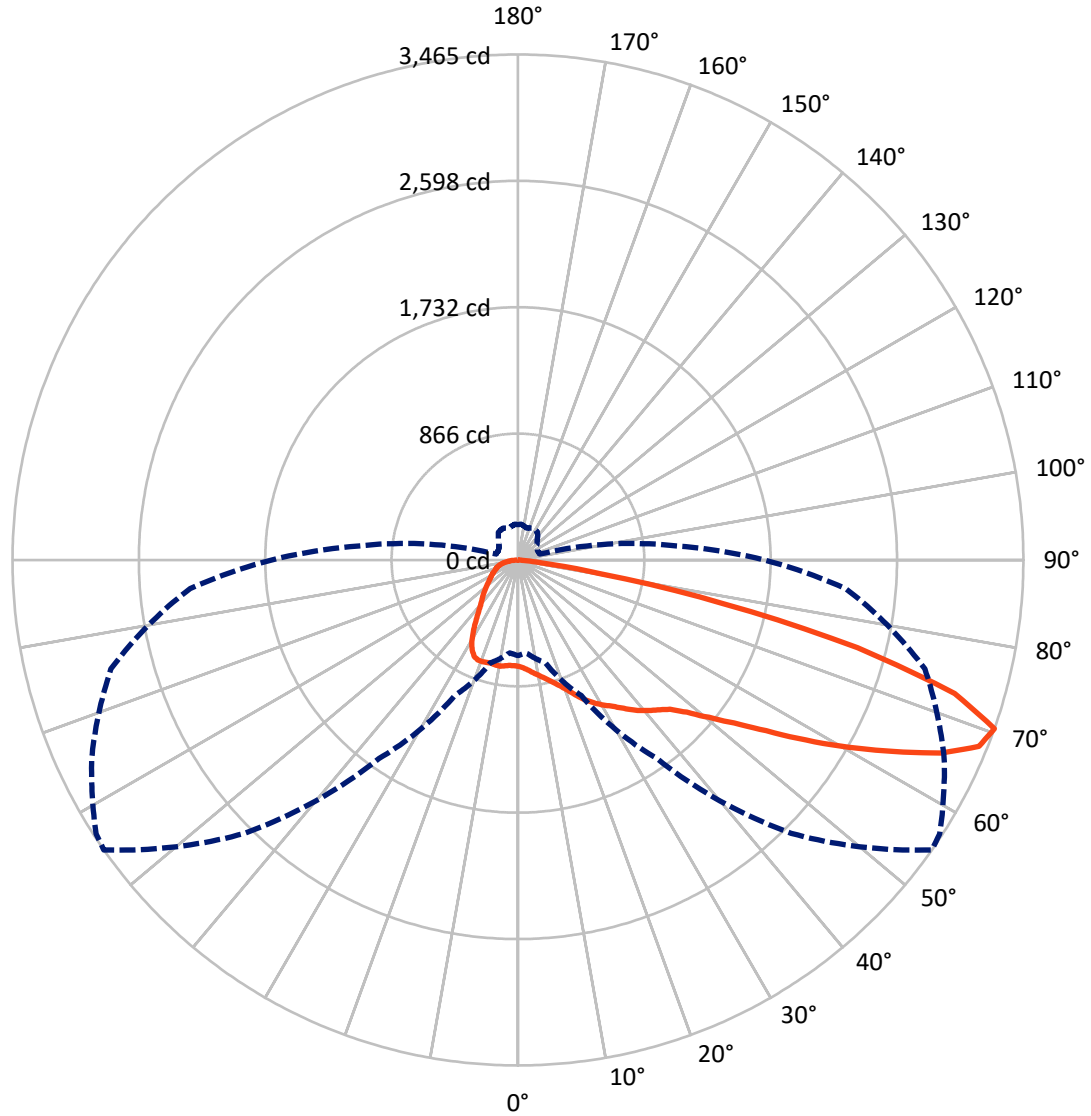
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.3 fc  
 Type III - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 55-Deg Lateral      - - - Horizontal Cone Through 70-Deg Vertical

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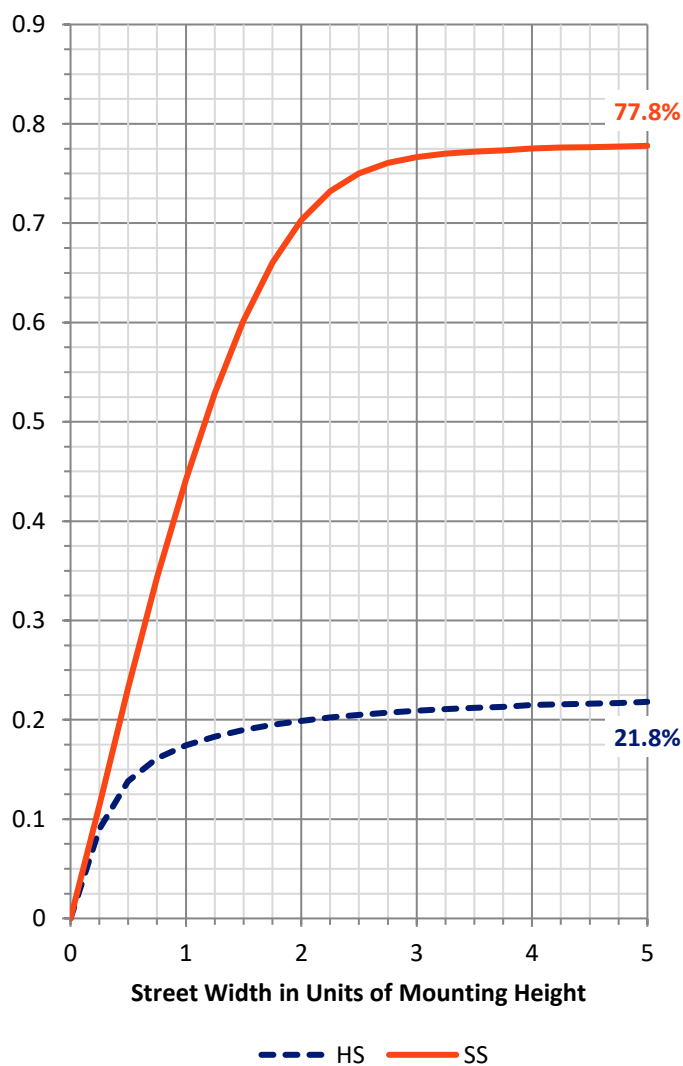
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1153.9   | 0.0    | 1153.9 |
|                    | % Fixture | 22.1     | 0.0    | 22.1   |
| <b>Street Side</b> | Lumens    | 4063.1   | 0.0    | 4063.1 |
|                    | % Fixture | 77.9     | 0.0    | 77.9   |
| <b>Total</b>       | Lumens    | 5217.0   | 0.0    | 5217.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 71.8   | 1.4       |
| 10°-20°   | 228.4  | 4.4       |
| 20°-30°   | 397.2  | 7.6       |
| 30°-40°   | 559.9  | 10.7      |
| 40°-50°   | 742.0  | 14.2      |
| 50°-60°   | 1081.0 | 20.7      |
| 60°-70°   | 1349.0 | 25.9      |
| 70°-80°   | 718.5  | 13.8      |
| 80°-90°   | 69.2   | 1.3       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 5217.0 | 100.0     |
| 0°-180°   | 5217.0 | 100.0     |

**Coefficient of Utilization**

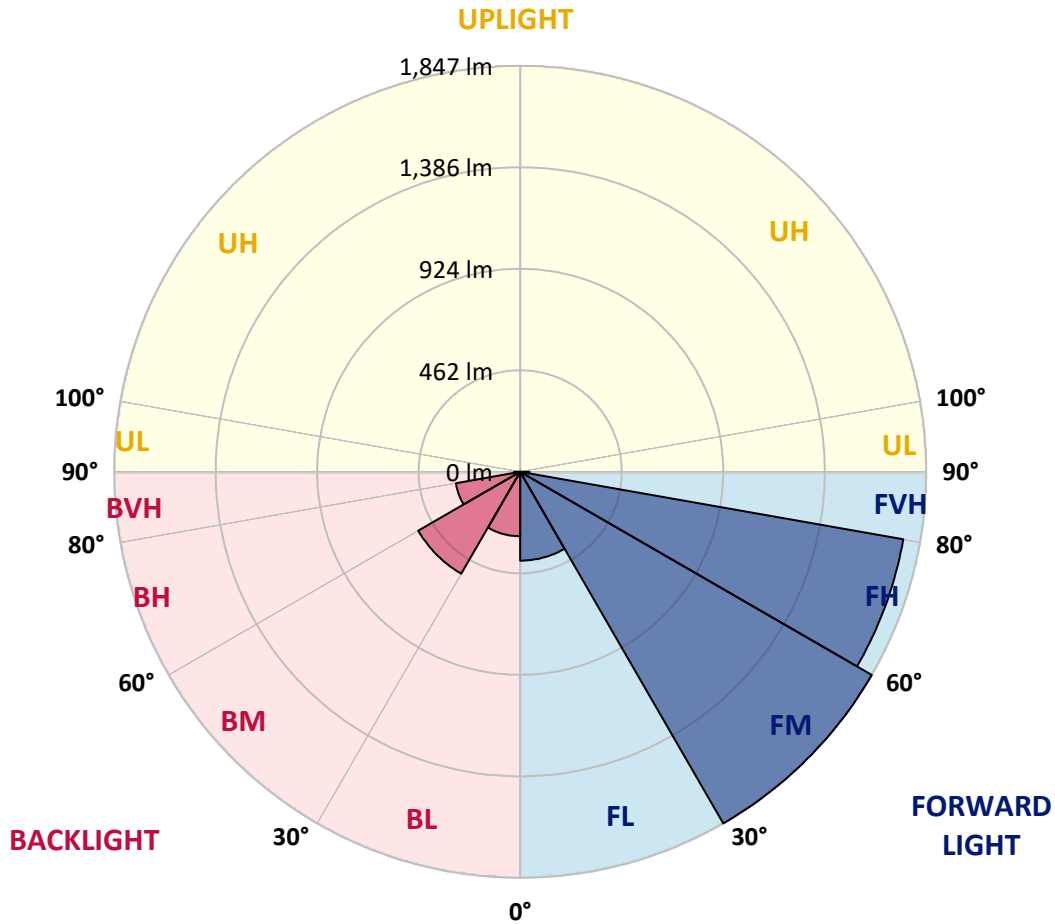


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 404.1  | 7.7       |                         |      |         |
| FM (30°-60°)   | 1847.5 | 35.4      |                         |      |         |
| FH (60°-80°)   | 1770.1 | 33.9      |                         |      | G1/1800 |
| FVH (80°-90°)  | 41.3   | 0.8       |                         |      | G1/100  |
| BL (0°-30°)    | 293.2  | 5.6       | B1/500                  |      |         |
| BM (30°-60°)   | 535.4  | 10.3      | B1/1000                 |      |         |
| BH (60°-80°)   | 297.4  | 5.7       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 27.9   | 0.5       |                         |      | G1/100  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G1**  
 Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 57°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 728.6  | 728.6  | 728.6  | 728.6  | 728.6  | 728.6  | 728.6  | 728.6  | 728.6  | 728.6  | 728.6  |
| 2.5°  | 753.0  | 751.1  | 751.1  | 749.2  | 747.4  | 745.5  | 741.7  | 738.0  | 738.0  | 734.2  | 734.2  |
| 5°    | 771.8  | 768.0  | 769.9  | 768.0  | 768.0  | 764.3  | 758.6  | 758.6  | 756.7  | 747.4  | 739.8  |
| 7.5°  | 790.5  | 788.7  | 788.7  | 790.5  | 788.7  | 784.9  | 783.0  | 781.2  | 773.6  | 762.4  | 751.1  |
| 10°   | 816.8  | 816.8  | 816.8  | 815.0  | 815.0  | 811.2  | 805.6  | 805.6  | 796.2  | 783.0  | 769.9  |
| 12.5° | 856.3  | 854.4  | 852.5  | 852.5  | 846.9  | 839.4  | 833.7  | 833.7  | 828.1  | 807.4  | 790.5  |
| 15°   | 901.3  | 895.7  | 891.9  | 891.9  | 884.4  | 871.3  | 865.7  | 867.5  | 861.9  | 837.5  | 813.1  |
| 17.5° | 946.4  | 946.4  | 942.6  | 933.3  | 923.9  | 914.5  | 901.3  | 905.1  | 899.5  | 875.0  | 843.1  |
| 20°   | 987.7  | 984.0  | 984.0  | 978.3  | 965.2  | 953.9  | 946.4  | 944.5  | 940.8  | 914.5  | 876.9  |
| 22.5° | 1032.8 | 1030.9 | 1025.3 | 1021.5 | 1012.1 | 1006.5 | 1002.7 | 1002.7 | 987.7  | 952.0  | 903.2  |
| 25°   | 1087.2 | 1085.4 | 1085.4 | 1070.3 | 1062.8 | 1053.4 | 1059.1 | 1053.4 | 1045.9 | 993.3  | 931.4  |
| 27.5° | 1141.7 | 1141.7 | 1139.8 | 1132.3 | 1111.6 | 1106.0 | 1109.8 | 1106.0 | 1104.1 | 1032.8 | 957.7  |
| 30°   | 1199.9 | 1198.0 | 1192.4 | 1190.5 | 1169.9 | 1154.8 | 1153.0 | 1145.4 | 1145.4 | 1068.5 | 976.4  |
| 32.5° | 1248.7 | 1246.8 | 1250.6 | 1243.1 | 1229.9 | 1209.3 | 1196.1 | 1196.1 | 1183.0 | 1104.1 | 999.0  |
| 35°   | 1293.8 | 1297.5 | 1297.5 | 1293.8 | 1282.5 | 1261.9 | 1248.7 | 1252.5 | 1233.7 | 1136.1 | 1027.1 |
| 37.5° | 1344.5 | 1340.7 | 1335.1 | 1331.3 | 1316.3 | 1306.9 | 1306.9 | 1310.7 | 1282.5 | 1169.9 | 1064.7 |
| 40°   | 1355.7 | 1365.1 | 1378.3 | 1363.3 | 1355.7 | 1353.9 | 1357.6 | 1348.2 | 1320.1 | 1222.4 | 1128.5 |
| 42.5° | 1378.3 | 1385.8 | 1410.2 | 1404.6 | 1398.9 | 1404.6 | 1404.6 | 1391.4 | 1378.3 | 1293.8 | 1214.9 |
| 45°   | 1434.6 | 1447.8 | 1466.5 | 1468.4 | 1466.5 | 1475.9 | 1459.0 | 1457.1 | 1455.3 | 1397.1 | 1331.3 |
| 47.5° | 1496.6 | 1511.6 | 1554.8 | 1549.2 | 1569.8 | 1588.6 | 1558.5 | 1556.7 | 1562.3 | 1534.1 | 1479.7 |
| 50°   | 1569.8 | 1584.8 | 1639.3 | 1659.9 | 1716.3 | 1750.1 | 1695.6 | 1671.2 | 1710.6 | 1708.8 | 1667.5 |
| 52.5° | 1654.3 | 1673.1 | 1710.6 | 1782.0 | 1877.8 | 1913.4 | 1855.2 | 1834.6 | 1881.5 | 1904.1 | 1866.5 |
| 55°   | 1712.5 | 1727.5 | 1785.8 | 1896.5 | 2052.4 | 2099.3 | 2065.5 | 2046.8 | 2097.5 | 2116.2 | 2076.8 |
| 57.5° | 1733.2 | 1736.9 | 1823.3 | 1997.9 | 2213.9 | 2334.1 | 2328.4 | 2315.3 | 2294.6 | 2341.6 | 2330.3 |
| 60°   | 1697.5 | 1718.2 | 1828.9 | 2043.0 | 2358.5 | 2585.7 | 2606.3 | 2576.3 | 2550.0 | 2561.3 | 2523.7 |
| 62.5° | 1650.6 | 1667.5 | 1783.9 | 2048.6 | 2456.1 | 2812.9 | 2889.9 | 2856.1 | 2790.4 | 2760.3 | 2672.1 |
| 65°   | 1485.3 | 1485.3 | 1599.9 | 1934.1 | 2439.2 | 2998.8 | 3188.5 | 3130.2 | 3010.1 | 2903.0 | 2666.4 |
| 67.5° | 1136.1 | 1130.4 | 1241.2 | 1588.6 | 2200.7 | 3017.6 | 3408.2 | 3378.1 | 3184.7 | 2957.5 | 2561.3 |
| 70°   | 655.3  | 638.4  | 730.5  | 1025.3 | 1661.8 | 2649.5 | 3464.5 | 3447.6 | 3224.1 | 2888.0 | 2255.2 |
| 72.5° | 227.2  | 242.2  | 302.3  | 435.6  | 914.5  | 1907.8 | 3130.2 | 3165.9 | 3036.4 | 2623.2 | 1812.0 |
| 75°   | 118.3  | 118.3  | 139.0  | 189.7  | 386.8  | 984.0  | 2405.4 | 2516.2 | 2544.4 | 2195.1 | 1293.8 |
| 77.5° | 86.4   | 88.3   | 99.5   | 122.1  | 184.0  | 377.4  | 1444.0 | 1549.2 | 1761.3 | 1511.6 | 747.4  |
| 80°   | 58.2   | 60.1   | 71.4   | 80.7   | 112.7  | 146.5  | 576.5  | 632.8  | 873.2  | 676.0  | 289.2  |
| 82.5° | 43.2   | 45.1   | 45.1   | 46.9   | 62.0   | 67.6   | 152.1  | 187.8  | 300.4  | 200.9  | 103.3  |
| 85°   | 9.4    | 9.4    | 18.8   | 18.8   | 18.8   | 18.8   | 33.8   | 37.6   | 56.3   | 60.1   | 33.8   |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 1.9    | 1.9    | 3.8    | 3.8    | 3.8    | 5.6    | 5.6    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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 CATALOG NUMBER: ISC-SA1D-730-U-T3

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 728.6  | 728.6  | 728.6 | 728.6 | 728.6 | 728.6 | 728.6 | 728.6 | 728.6 | 728.6 | 728.6 |
| 2.5°  | 732.3  | 730.5  | 728.6 | 726.7 | 724.8 | 722.9 | 721.1 | 722.9 | 722.9 | 726.7 | 728.6 |
| 5°    | 738.0  | 732.3  | 730.5 | 726.7 | 724.8 | 724.8 | 724.8 | 726.7 | 728.6 | 730.5 | 732.3 |
| 7.5°  | 747.4  | 745.5  | 739.8 | 732.3 | 730.5 | 730.5 | 726.7 | 726.7 | 726.7 | 730.5 | 730.5 |
| 10°   | 764.3  | 758.6  | 751.1 | 743.6 | 738.0 | 726.7 | 717.3 | 709.8 | 713.6 | 719.2 | 719.2 |
| 12.5° | 783.0  | 773.6  | 764.3 | 751.1 | 736.1 | 717.3 | 707.9 | 709.8 | 709.8 | 715.4 | 717.3 |
| 15°   | 807.4  | 799.9  | 779.3 | 756.7 | 730.5 | 715.4 | 711.7 | 707.9 | 707.9 | 711.7 | 715.4 |
| 17.5° | 833.7  | 820.6  | 794.3 | 760.5 | 734.2 | 717.3 | 709.8 | 694.8 | 687.3 | 685.4 | 689.1 |
| 20°   | 858.1  | 843.1  | 807.4 | 764.3 | 738.0 | 715.4 | 689.1 | 664.7 | 646.0 | 642.2 | 638.4 |
| 22.5° | 878.8  | 860.0  | 816.8 | 771.8 | 738.0 | 696.7 | 651.6 | 615.9 | 589.6 | 582.1 | 585.9 |
| 25°   | 901.3  | 873.2  | 828.1 | 779.3 | 724.8 | 659.1 | 597.1 | 553.9 | 527.7 | 516.4 | 516.4 |
| 27.5° | 920.1  | 891.9  | 839.4 | 773.6 | 691.0 | 608.4 | 537.0 | 493.9 | 473.2 | 461.9 | 460.1 |
| 30°   | 937.0  | 907.0  | 861.9 | 756.7 | 642.2 | 538.9 | 477.0 | 446.9 | 433.8 | 420.6 | 422.5 |
| 32.5° | 959.5  | 933.3  | 878.8 | 721.1 | 576.5 | 475.1 | 428.1 | 413.1 | 400.0 | 390.6 | 394.3 |
| 35°   | 991.5  | 976.4  | 884.4 | 676.0 | 508.9 | 430.0 | 398.1 | 381.2 | 369.9 | 356.8 | 356.8 |
| 37.5° | 1036.5 | 1023.4 | 865.7 | 608.4 | 448.8 | 396.2 | 373.7 | 351.1 | 332.4 | 317.3 | 313.6 |
| 40°   | 1091.0 | 1072.2 | 833.7 | 533.3 | 401.8 | 373.7 | 353.0 | 324.9 | 298.6 | 277.9 | 274.2 |
| 42.5° | 1177.4 | 1122.9 | 786.8 | 456.3 | 368.0 | 354.9 | 326.7 | 291.1 | 264.8 | 249.7 | 246.0 |
| 45°   | 1269.4 | 1181.1 | 719.2 | 390.6 | 341.8 | 332.4 | 300.4 | 264.8 | 246.0 | 234.7 | 232.8 |
| 47.5° | 1385.8 | 1245.0 | 655.3 | 341.8 | 311.7 | 309.8 | 272.3 | 249.7 | 234.7 | 227.2 | 225.3 |
| 50°   | 1539.8 | 1325.7 | 591.5 | 304.2 | 285.4 | 279.8 | 259.1 | 240.4 | 229.1 | 223.5 | 221.6 |
| 52.5° | 1718.2 | 1419.6 | 540.8 | 276.0 | 261.0 | 257.3 | 251.6 | 236.6 | 229.1 | 223.5 | 221.6 |
| 55°   | 1887.2 | 1517.2 | 486.3 | 249.7 | 240.4 | 244.1 | 247.9 | 236.6 | 231.0 | 227.2 | 223.5 |
| 57.5° | 2073.1 | 1599.9 | 424.4 | 229.1 | 223.5 | 232.8 | 244.1 | 238.5 | 234.7 | 229.1 | 227.2 |
| 60°   | 2187.6 | 1658.1 | 341.8 | 210.3 | 210.3 | 223.5 | 238.5 | 234.7 | 227.2 | 227.2 | 227.2 |
| 62.5° | 2238.3 | 1648.7 | 270.4 | 191.5 | 195.3 | 212.2 | 229.1 | 225.3 | 219.7 | 229.1 | 229.1 |
| 65°   | 2172.6 | 1541.6 | 219.7 | 174.6 | 180.3 | 197.2 | 219.7 | 219.7 | 219.7 | 234.7 | 234.7 |
| 67.5° | 2001.7 | 1380.2 | 180.3 | 159.6 | 165.2 | 185.9 | 219.7 | 232.8 | 231.0 | 247.9 | 247.9 |
| 70°   | 1690.0 | 1094.7 | 155.9 | 148.3 | 155.9 | 185.9 | 232.8 | 240.4 | 227.2 | 246.0 | 242.2 |
| 72.5° | 1288.2 | 764.3  | 139.0 | 137.1 | 146.5 | 180.3 | 234.7 | 231.0 | 214.1 | 219.7 | 214.1 |
| 75°   | 846.9  | 463.8  | 122.1 | 125.8 | 129.6 | 159.6 | 223.5 | 215.9 | 195.3 | 191.5 | 187.8 |
| 77.5° | 465.7  | 232.8  | 107.0 | 112.7 | 112.7 | 135.2 | 202.8 | 185.9 | 169.0 | 159.6 | 155.9 |
| 80°   | 185.9  | 118.3  | 93.9  | 99.5  | 92.0  | 108.9 | 152.1 | 144.6 | 129.6 | 122.1 | 118.3 |
| 82.5° | 84.5   | 65.7   | 78.9  | 82.6  | 69.5  | 80.7  | 112.7 | 108.9 | 97.6  | 84.5  | 80.7  |
| 85°   | 31.9   | 37.6   | 60.1  | 56.3  | 48.8  | 46.9  | 63.8  | 58.2  | 46.9  | 37.6  | 37.6  |
| 87.5° | 3.8    | 7.5    | 15.0  | 20.7  | 11.3  | 7.5   | 3.8   | 1.9   | 1.9   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



**Test Information**

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-2-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGRAW-EDISON  
 Catalog Number: **SA1C-730-U-5WQ**  
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

\*\*\*THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.\*\*\*TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

**Spectral Parameters**

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 2993   | CRI (Ra): | 71.8 | R9:  | -38.3 |
| CIE u':                   | 0.2508 | R1:       | 67.5 | R10: | 62.5  |
| CIE v':                   | 0.5215 | R2:       | 82.9 | R11: | 63.7  |
| Duv:                      | 0.0000 | R3:       | 94.7 | R12: | 57.8  |
| CIE x:                    | 0.4374 | R4:       | 67.7 | R13: | 70.4  |
| CIE y:                    | 0.4043 | R5:       | 67.9 | R14: | 97.3  |
| CIE z:                    | 0.1583 | R6:       | 77.6 |      |       |
| Peak Wavelength (nm):     | 593    | R7:       | 76.0 |      |       |
| Dominant Wavelength (nm): | 582    | R8:       | 40.5 |      |       |
| Purity:                   | 53     |           |      |      |       |
| Rf:                       | 75.7   |           |      |      |       |
| Rg:                       | 93.9   |           |      |      |       |



**Test Conditions**

Stabilization Time: 53M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/28/2019        | 12/28/2019           |
| Power Meter                    | IN0071                | 12/5/2018        | 12/5/2019            |
| AC Power Source                | IN0063                | 12/5/2018        | 12/5/2019            |
| DC Power Source                | IN0208                | 12/5/2018        | 12/5/2019            |
| Sphere Thermometer             | IN0085                | 12/5/2018        | 12/5/2019            |
| Room Thermometer               | IN0046                | 12/5/2018        | 12/5/2019            |

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2397          | NR            | 490    | 24908         | NR            | 620    | 118784        | NR            | 750    | 5037          | NR            | 880    | 2677          | NR            |
| 365    | 2084          | NR            | 495    | 30998         | NR            | 625    | 108951        | NR            | 755    | 4413          | NR            | 885    | 2940          | NR            |
| 370    | 2143          | NR            | 500    | 37103         | NR            | 630    | 99573         | NR            | 760    | 4189          | NR            | 890    | 3116          | NR            |
| 375    | 2413          | NR            | 505    | 42987         | NR            | 635    | 90444         | NR            | 765    | 3677          | NR            | 895    | 3345          | NR            |
| 380    | 2172          | NR            | 510    | 48702         | NR            | 640    | 80749         | NR            | 770    | 3366          | NR            | 900    | 2312          | NR            |
| 385    | 1997          | NR            | 515    | 53741         | NR            | 645    | 71664         | NR            | 775    | 3211          | NR            | 905    | 2829          | NR            |
| 390    | 1830          | NR            | 520    | 57283         | NR            | 650    | 63936         | NR            | 780    | 2682          | NR            | 910    | 2783          | NR            |
| 395    | 1861          | NR            | 525    | 61876         | NR            | 655    | 56611         | NR            | 785    | 2804          | NR            | 915    | 2662          | NR            |
| 400    | 1717          | NR            | 530    | 65398         | NR            | 660    | 49763         | NR            | 790    | 2581          | NR            | 920    | 3047          | NR            |
| 405    | 1761          | NR            | 535    | 69597         | NR            | 665    | 42891         | NR            | 795    | 2711          | NR            | 925    | 2256          | NR            |
| 410    | 2680          | NR            | 540    | 74214         | NR            | 670    | 36939         | NR            | 800    | 2609          | NR            | 930    | 2976          | NR            |
| 415    | 4374          | NR            | 545    | 79911         | NR            | 675    | 31946         | NR            | 805    | 2581          | NR            | 935    | 3503          | NR            |
| 420    | 8071          | NR            | 550    | 86153         | NR            | 680    | 27385         | NR            | 810    | 2404          | NR            | 940    | 4226          | NR            |
| 425    | 15169         | NR            | 555    | 93952         | NR            | 685    | 23504         | NR            | 815    | 2556          | NR            | 945    | 2930          | NR            |
| 430    | 26038         | NR            | 560    | 102904        | NR            | 690    | 20210         | NR            | 820    | 2742          | NR            | 950    | 2115          | NR            |
| 435    | 41316         | NR            | 565    | 112009        | NR            | 695    | 17459         | NR            | 825    | 2014          | NR            | 955    | 2634          | NR            |
| 440    | 59674         | NR            | 570    | 121662        | NR            | 700    | 15207         | NR            | 830    | 2488          | NR            | 960    | 4200          | NR            |
| 445    | 72751         | NR            | 575    | 130476        | NR            | 705    | 13322         | NR            | 835    | 2625          | NR            | 965    | 1982          | NR            |
| 450    | 65091         | NR            | 580    | 137926        | NR            | 710    | 11676         | NR            | 840    | 2754          | NR            | 970    | 3613          | NR            |
| 455    | 44894         | NR            | 585    | 143406        | NR            | 715    | 10626         | NR            | 845    | 2708          | NR            | 975    | 4034          | NR            |
| 460    | 32712         | NR            | 590    | 147039        | NR            | 720    | 9416          | NR            | 850    | 2608          | NR            | 980    | 3922          | NR            |
| 465    | 25296         | NR            | 595    | 147365        | NR            | 725    | 8333          | NR            | 855    | 2605          | NR            | 985    | 1909          | NR            |
| 470    | 19318         | NR            | 600    | 145800        | NR            | 730    | 7134          | NR            | 860    | 1765          | NR            | 990    | 3617          | NR            |
| 475    | 17265         | NR            | 605    | 141363        | NR            | 735    | 6437          | NR            | 865    | 2581          | NR            | 995    | 4767          | NR            |
| 480    | 18260         | NR            | 610    | 134199        | NR            | 740    | 5834          | NR            | 870    | 3016          | NR            | 1000   | 2528          | NR            |
| 485    | 20845         | NR            | 615    | 127683        | NR            | 745    | 5500          | NR            | 875    | 3952          | NR            |        |               |               |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2397          | NR            | 490    | 24908         | NR            | 620    | 118784        | NR            | 750    | 5037          | NR            | 880    | 2677          | NR            |
| 365    | 2084          | NR            | 495    | 30998         | NR            | 625    | 108951        | NR            | 755    | 4413          | NR            | 885    | 2940          | NR            |
| 370    | 2143          | NR            | 500    | 37103         | NR            | 630    | 99573         | NR            | 760    | 4189          | NR            | 890    | 3116          | NR            |
| 375    | 2413          | NR            | 505    | 42987         | NR            | 635    | 90444         | NR            | 765    | 3677          | NR            | 895    | 3345          | NR            |
| 380    | 2172          | NR            | 510    | 48702         | NR            | 640    | 80749         | NR            | 770    | 3366          | NR            | 900    | 2312          | NR            |
| 385    | 1997          | NR            | 515    | 53741         | NR            | 645    | 71664         | NR            | 775    | 3211          | NR            | 905    | 2829          | NR            |
| 390    | 1830          | NR            | 520    | 57283         | NR            | 650    | 63936         | NR            | 780    | 2682          | NR            | 910    | 2783          | NR            |
| 395    | 1861          | NR            | 525    | 61876         | NR            | 655    | 56611         | NR            | 785    | 2804          | NR            | 915    | 2662          | NR            |
| 400    | 1717          | NR            | 530    | 65398         | NR            | 660    | 49763         | NR            | 790    | 2581          | NR            | 920    | 3047          | NR            |
| 405    | 1761          | NR            | 535    | 69597         | NR            | 665    | 42891         | NR            | 795    | 2711          | NR            | 925    | 2256          | NR            |
| 410    | 2680          | NR            | 540    | 74214         | NR            | 670    | 36939         | NR            | 800    | 2609          | NR            | 930    | 2976          | NR            |
| 415    | 4374          | NR            | 545    | 79911         | NR            | 675    | 31946         | NR            | 805    | 2581          | NR            | 935    | 3503          | NR            |
| 420    | 8071          | NR            | 550    | 86153         | NR            | 680    | 27385         | NR            | 810    | 2404          | NR            | 940    | 4226          | NR            |
| 425    | 15169         | NR            | 555    | 93952         | NR            | 685    | 23504         | NR            | 815    | 2556          | NR            | 945    | 2930          | NR            |
| 430    | 26038         | NR            | 560    | 102904        | NR            | 690    | 20210         | NR            | 820    | 2742          | NR            | 950    | 2115          | NR            |
| 435    | 41316         | NR            | 565    | 112009        | NR            | 695    | 17459         | NR            | 825    | 2014          | NR            | 955    | 2634          | NR            |
| 440    | 59674         | NR            | 570    | 121662        | NR            | 700    | 15207         | NR            | 830    | 2488          | NR            | 960    | 4200          | NR            |
| 445    | 72751         | NR            | 575    | 130476        | NR            | 705    | 13322         | NR            | 835    | 2625          | NR            | 965    | 1982          | NR            |
| 450    | 65091         | NR            | 580    | 137926        | NR            | 710    | 11676         | NR            | 840    | 2754          | NR            | 970    | 3613          | NR            |
| 455    | 44894         | NR            | 585    | 143406        | NR            | 715    | 10626         | NR            | 845    | 2708          | NR            | 975    | 4034          | NR            |
| 460    | 32712         | NR            | 590    | 147039        | NR            | 720    | 9416          | NR            | 850    | 2608          | NR            | 980    | 3922          | NR            |
| 465    | 25296         | NR            | 595    | 147365        | NR            | 725    | 8333          | NR            | 855    | 2605          | NR            | 985    | 1909          | NR            |
| 470    | 19318         | NR            | 600    | 145800        | NR            | 730    | 7134          | NR            | 860    | 1765          | NR            | 990    | 3617          | NR            |
| 475    | 17265         | NR            | 605    | 141363        | NR            | 735    | 6437          | NR            | 865    | 2581          | NR            | 995    | 4767          | NR            |
| 480    | 18260         | NR            | 610    | 134199        | NR            | 740    | 5834          | NR            | 870    | 3016          | NR            | 1000   | 2528          | NR            |
| 485    | 20845         | NR            | 615    | 127683        | NR            | 745    | 5500          | NR            | 875    | 3952          | NR            |        |               |               |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2397          | NR            | 490    | 24908         | NR            | 620    | 118784        | NR            | 750    | 5037          | NR            | 880    | 2677          | NR            |
| 365    | 2084          | NR            | 495    | 30998         | NR            | 625    | 108951        | NR            | 755    | 4413          | NR            | 885    | 2940          | NR            |
| 370    | 2143          | NR            | 500    | 37103         | NR            | 630    | 99573         | NR            | 760    | 4189          | NR            | 890    | 3116          | NR            |
| 375    | 2413          | NR            | 505    | 42987         | NR            | 635    | 90444         | NR            | 765    | 3677          | NR            | 895    | 3345          | NR            |
| 380    | 2172          | NR            | 510    | 48702         | NR            | 640    | 80749         | NR            | 770    | 3366          | NR            | 900    | 2312          | NR            |
| 385    | 1997          | NR            | 515    | 53741         | NR            | 645    | 71664         | NR            | 775    | 3211          | NR            | 905    | 2829          | NR            |
| 390    | 1830          | NR            | 520    | 57283         | NR            | 650    | 63936         | NR            | 780    | 2682          | NR            | 910    | 2783          | NR            |
| 395    | 1861          | NR            | 525    | 61876         | NR            | 655    | 56611         | NR            | 785    | 2804          | NR            | 915    | 2662          | NR            |
| 400    | 1717          | NR            | 530    | 65398         | NR            | 660    | 49763         | NR            | 790    | 2581          | NR            | 920    | 3047          | NR            |
| 405    | 1761          | NR            | 535    | 69597         | NR            | 665    | 42891         | NR            | 795    | 2711          | NR            | 925    | 2256          | NR            |
| 410    | 2680          | NR            | 540    | 74214         | NR            | 670    | 36939         | NR            | 800    | 2609          | NR            | 930    | 2976          | NR            |
| 415    | 4374          | NR            | 545    | 79911         | NR            | 675    | 31946         | NR            | 805    | 2581          | NR            | 935    | 3503          | NR            |
| 420    | 8071          | NR            | 550    | 86153         | NR            | 680    | 27385         | NR            | 810    | 2404          | NR            | 940    | 4226          | NR            |
| 425    | 15169         | NR            | 555    | 93952         | NR            | 685    | 23504         | NR            | 815    | 2556          | NR            | 945    | 2930          | NR            |
| 430    | 26038         | NR            | 560    | 102904        | NR            | 690    | 20210         | NR            | 820    | 2742          | NR            | 950    | 2115          | NR            |
| 435    | 41316         | NR            | 565    | 112009        | NR            | 695    | 17459         | NR            | 825    | 2014          | NR            | 955    | 2634          | NR            |
| 440    | 59674         | NR            | 570    | 121662        | NR            | 700    | 15207         | NR            | 830    | 2488          | NR            | 960    | 4200          | NR            |
| 445    | 72751         | NR            | 575    | 130476        | NR            | 705    | 13322         | NR            | 835    | 2625          | NR            | 965    | 1982          | NR            |
| 450    | 65091         | NR            | 580    | 137926        | NR            | 710    | 11676         | NR            | 840    | 2754          | NR            | 970    | 3613          | NR            |
| 455    | 44894         | NR            | 585    | 143406        | NR            | 715    | 10626         | NR            | 845    | 2708          | NR            | 975    | 4034          | NR            |
| 460    | 32712         | NR            | 590    | 147039        | NR            | 720    | 9416          | NR            | 850    | 2608          | NR            | 980    | 3922          | NR            |
| 465    | 25296         | NR            | 595    | 147365        | NR            | 725    | 8333          | NR            | 855    | 2605          | NR            | 985    | 1909          | NR            |
| 470    | 19318         | NR            | 600    | 145800        | NR            | 730    | 7134          | NR            | 860    | 1765          | NR            | 990    | 3617          | NR            |
| 475    | 17265         | NR            | 605    | 141363        | NR            | 735    | 6437          | NR            | 865    | 2581          | NR            | 995    | 4767          | NR            |
| 480    | 18260         | NR            | 610    | 134199        | NR            | 740    | 5834          | NR            | 870    | 3016          | NR            | 1000   | 2528          | NR            |
| 485    | 20845         | NR            | 615    | 127683        | NR            | 745    | 5500          | NR            | 875    | 3952          | NR            |        |               |               |

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**Summary**

$R_f = 75.7$   
 $R_g = 93.9$   
 CIE  $R_a = 71.8$   
 $R_9 = -38.3$



**Color Vector Graphics**





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**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)