

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: P386758

Luminaire Tested: **GPC-SA2C-722-U-T2-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P386758  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-13)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GPC-SA2C-722-U-T2-HSS  
Description: GALLEON PEDESTRIAN LUMINAIRE  
(2) 70 CRI, 2200K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7719 lumens  
Efficiency: N/A  
Efficacy: 69.5 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B1 - U0 - G2

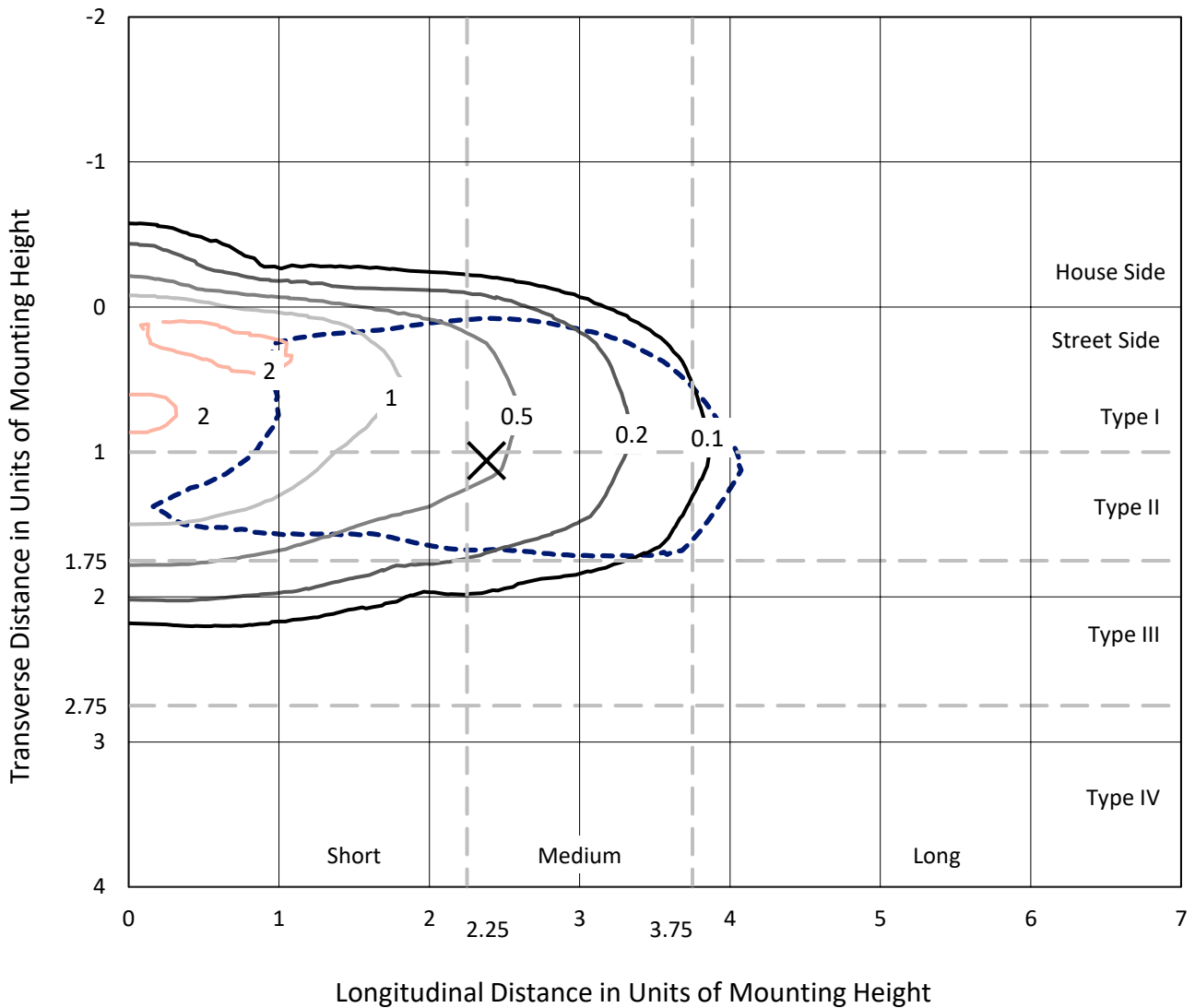
Input Watts (W): 111  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

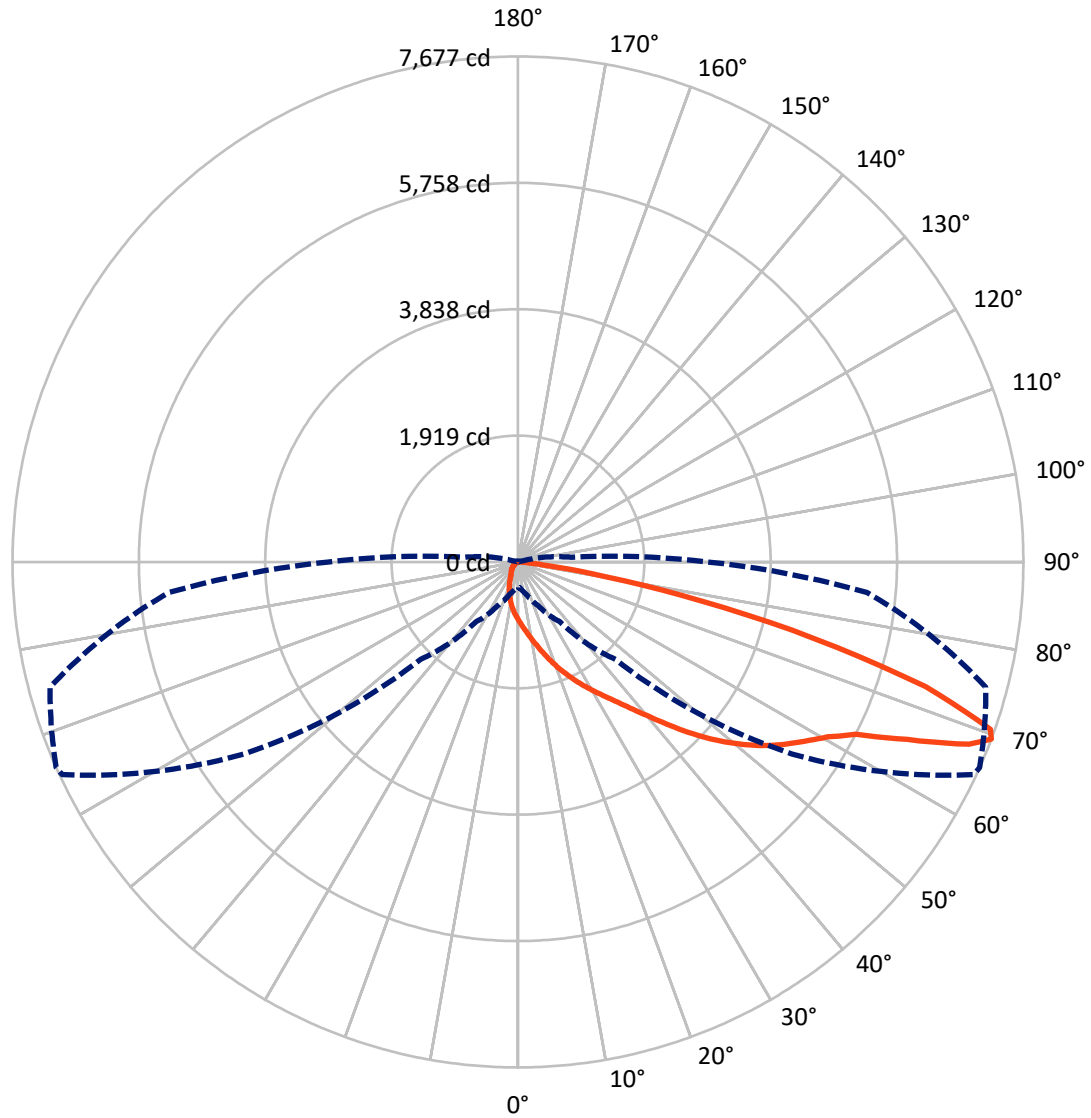
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.3 fc  
 Type II - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 66-Deg Lateral      - - - Horizontal Cone Through 69-Deg Vertical

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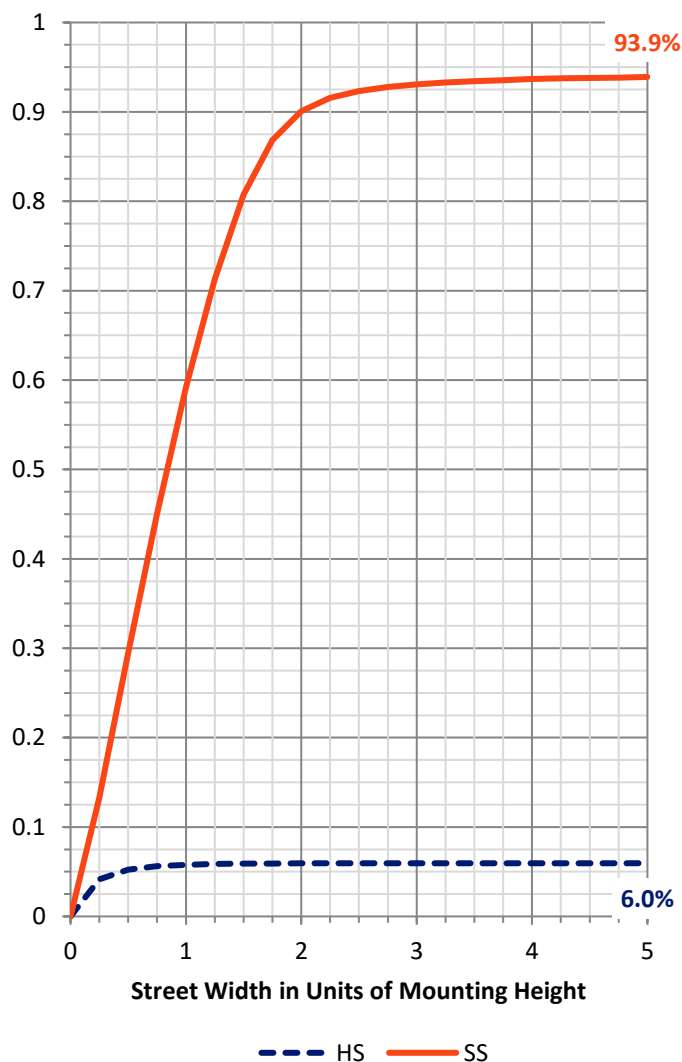
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 463.0    | 0.0    | 463.0  |
|                    | % Fixture | 6.0      | 0.0    | 6.0    |
| <b>Street Side</b> | Lumens    | 7256.0   | 0.0    | 7256.0 |
|                    | % Fixture | 94.0     | 0.0    | 94.0   |
| <b>Total</b>       | Lumens    | 7719.0   | 0.0    | 7719.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 84.9   | 1.1       |
| 10°-20°   | 252.7  | 3.3       |
| 20°-30°   | 440.1  | 5.7       |
| 30°-40°   | 772.1  | 10.0      |
| 40°-50°   | 1292.4 | 16.7      |
| 50°-60°   | 1899.7 | 24.6      |
| 60°-70°   | 1950.5 | 25.3      |
| 70°-80°   | 962.9  | 12.5      |
| 80°-90°   | 63.7   | 0.8       |
| 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°    | 7719.0 | 100.0     |
| 0°-180°   | 7719.0 | 100.0     |

**Coefficient of Utilization**



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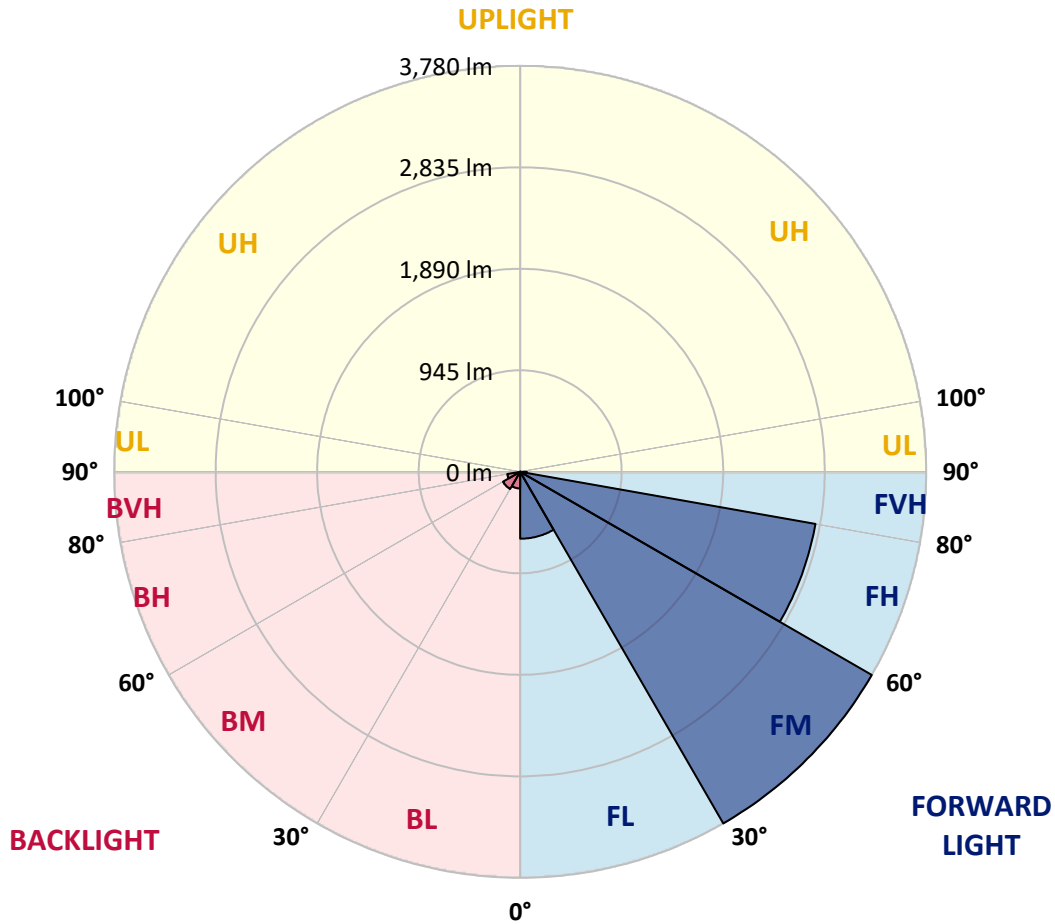
CATALOG NUMBER: GPC-SA2C-722-U-T2-HSS

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

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 622.8  | 8.1       |                         |      |         |
| FM (30°-60°)   | 3779.6 | 49.0      |                         |      |         |
| FH (60°-80°)   | 2791.4 | 36.2      |                         |      | G2/5000 |
| FVH (80°-90°)  | 62.1   | 0.8       |                         |      | G1/100  |
| BL (0°-30°)    | 154.9  | 2.0       | B1/500                  |      |         |
| BM (30°-60°)   | 184.6  | 2.4       | B0/220                  |      |         |
| BH (60°-80°)   | 122.0  | 1.6       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 1.5    | 0.0       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**

Type II Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 66°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 878.4  | 878.4  | 878.4  | 878.4  | 878.4  | 878.4  | 878.4  | 878.4  | 878.4  | 878.4  | 878.4  |
| 2.5°  | 1033.9 | 1029.5 | 1027.7 | 1019.6 | 1005.7 | 995.0  | 974.5  | 950.7  | 946.3  | 923.2  | 894.9  |
| 5°    | 1168.1 | 1164.4 | 1161.9 | 1150.5 | 1136.2 | 1109.4 | 1072.0 | 1027.7 | 1019.2 | 975.2  | 918.8  |
| 7.5°  | 1261.6 | 1268.2 | 1268.2 | 1260.8 | 1242.9 | 1222.7 | 1176.9 | 1116.4 | 1105.8 | 1038.3 | 950.7  |
| 10°   | 1316.2 | 1324.3 | 1330.5 | 1336.7 | 1334.2 | 1326.1 | 1282.8 | 1214.6 | 1201.8 | 1112.4 | 987.7  |
| 12.5° | 1321.3 | 1329.4 | 1347.0 | 1373.0 | 1398.3 | 1416.7 | 1389.5 | 1323.5 | 1308.9 | 1198.1 | 1031.7 |
| 15°   | 1292.7 | 1301.2 | 1328.3 | 1378.9 | 1440.1 | 1493.7 | 1502.5 | 1444.2 | 1429.1 | 1300.4 | 1086.7 |
| 17.5° | 1242.9 | 1248.4 | 1287.2 | 1357.3 | 1453.3 | 1551.6 | 1604.7 | 1573.6 | 1559.6 | 1417.4 | 1147.9 |
| 20°   | 1205.8 | 1209.9 | 1244.0 | 1319.1 | 1445.3 | 1587.9 | 1701.5 | 1711.1 | 1696.4 | 1542.8 | 1214.3 |
| 22.5° | 1269.3 | 1276.6 | 1277.7 | 1313.3 | 1423.3 | 1605.8 | 1786.6 | 1846.4 | 1835.4 | 1675.9 | 1279.5 |
| 25°   | 1442.7 | 1451.1 | 1423.3 | 1401.3 | 1442.0 | 1613.9 | 1859.6 | 1984.9 | 1976.1 | 1819.2 | 1345.2 |
| 27.5° | 1671.8 | 1680.6 | 1644.7 | 1579.1 | 1539.8 | 1644.3 | 1924.4 | 2125.7 | 2125.4 | 1971.0 | 1415.9 |
| 30°   | 1896.9 | 1905.7 | 1869.1 | 1803.5 | 1713.3 | 1730.5 | 1980.5 | 2273.1 | 2275.3 | 2127.6 | 1491.1 |
| 32.5° | 2133.1 | 2144.1 | 2106.3 | 2022.0 | 1927.7 | 1879.3 | 2059.4 | 2421.2 | 2433.7 | 2309.0 | 1575.8 |
| 35°   | 2401.4 | 2402.9 | 2349.7 | 2261.4 | 2152.9 | 2078.4 | 2185.9 | 2587.3 | 2617.0 | 2533.8 | 1683.2 |
| 37.5° | 2664.7 | 2675.3 | 2631.7 | 2492.4 | 2392.6 | 2308.3 | 2373.9 | 2794.8 | 2837.0 | 2808.4 | 1823.6 |
| 40°   | 2859.7 | 2882.1 | 2875.9 | 2725.5 | 2630.9 | 2570.8 | 2607.5 | 3041.6 | 3095.1 | 3128.1 | 2000.7 |
| 42.5° | 2982.2 | 2999.0 | 3027.6 | 2937.1 | 2851.3 | 2861.2 | 2883.2 | 3329.0 | 3395.0 | 3492.5 | 2204.2 |
| 45°   | 3122.6 | 3130.7 | 3154.5 | 3114.5 | 3056.6 | 3156.3 | 3175.8 | 3652.7 | 3722.0 | 3884.5 | 2430.0 |
| 47.5° | 3294.2 | 3313.2 | 3319.8 | 3283.2 | 3256.8 | 3417.4 | 3457.7 | 3947.1 | 4044.3 | 4304.2 | 2669.1 |
| 50°   | 3512.7 | 3517.8 | 3529.2 | 3505.4 | 3479.0 | 3641.7 | 3710.7 | 4256.2 | 4344.6 | 4725.5 | 2904.8 |
| 52.5° | 3726.4 | 3744.8 | 3784.4 | 3769.3 | 3758.7 | 3832.8 | 3936.1 | 4534.9 | 4633.5 | 5076.7 | 3140.2 |
| 55°   | 3788.0 | 3803.8 | 3940.5 | 4034.0 | 4120.6 | 4068.1 | 4151.7 | 4784.5 | 4891.2 | 5390.6 | 3366.8 |
| 57.5° | 3542.0 | 3573.9 | 3810.8 | 4054.2 | 4413.1 | 4434.0 | 4448.0 | 5040.8 | 5136.5 | 5631.1 | 3602.5 |
| 60°   | 2920.2 | 2926.4 | 3315.1 | 3732.7 | 4364.7 | 4753.4 | 4880.6 | 5316.1 | 5396.4 | 5855.1 | 3884.8 |
| 62.5° | 1857.4 | 1920.8 | 2347.2 | 2936.7 | 3852.9 | 4707.2 | 5403.8 | 5732.6 | 5762.0 | 6123.8 | 4289.6 |
| 65°   | 884.7  | 925.7  | 1233.0 | 1814.5 | 2790.8 | 4115.8 | 5764.9 | 6486.1 | 6499.3 | 6656.5 | 4830.4 |
| 67.5° | 489.8  | 509.6  | 655.9  | 976.7  | 1631.5 | 2910.7 | 5619.0 | 7378.4 | 7390.9 | 7200.6 | 5304.8 |
| 69°   | 383.1  | 400.0  | 515.1  | 736.2  | 1106.1 | 2092.0 | 5084.8 | 7639.8 | 7676.9 | 7356.4 | 5321.6 |
| 70°   | 325.2  | 341.7  | 443.6  | 621.8  | 889.4  | 1616.5 | 4526.1 | 7575.0 | 7614.2 | 7341.8 | 5195.9 |
| 72.5° | 199.1  | 208.6  | 295.5  | 437.8  | 596.1  | 813.2  | 2791.2 | 6406.1 | 6472.5 | 6734.6 | 4465.6 |
| 75°   | 134.2  | 139.3  | 184.8  | 302.1  | 426.4  | 418.7  | 1450.0 | 4515.4 | 4659.1 | 5238.8 | 3298.2 |
| 77.5° | 96.1   | 100.8  | 123.9  | 195.4  | 298.8  | 276.4  | 656.6  | 2806.2 | 2837.0 | 3142.0 | 1798.7 |
| 80°   | 54.6   | 59.0   | 87.6   | 116.2  | 202.7  | 184.4  | 261.0  | 1340.4 | 1355.8 | 1347.4 | 600.5  |
| 82.5° | 28.6   | 32.3   | 48.0   | 76.6   | 130.2  | 120.6  | 108.5  | 448.8  | 451.0  | 375.1  | 131.6  |
| 85°   | 5.5    | 6.6    | 23.8   | 52.4   | 67.1   | 52.4   | 44.4   | 105.2  | 107.4  | 95.0   | 32.6   |
| 87.5° | 0.0    | 0.4    | 9.5    | 11.7   | 13.2   | 13.6   | 14.3   | 20.5   | 22.0   | 29.7   | 8.8    |
| 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: GPC-SA2C-722-U-T2-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 878.4  | 878.4 | 878.4 | 878.4 | 878.4 | 878.4 | 878.4 | 878.4 | 878.4 | 878.4 | 878.4 |
| 2.5°  | 882.5  | 869.3 | 844.0 | 814.7 | 791.9 | 769.6 | 752.0 | 733.6 | 727.0 | 723.7 | 723.4 |
| 5°    | 891.3  | 863.4 | 809.9 | 754.9 | 709.8 | 667.3 | 636.8 | 607.9 | 594.3 | 588.1 | 585.5 |
| 7.5°  | 905.9  | 861.2 | 775.1 | 691.1 | 626.2 | 573.0 | 530.9 | 499.4 | 483.6 | 477.0 | 474.4 |
| 10°   | 923.2  | 858.3 | 734.4 | 623.6 | 540.8 | 485.8 | 444.0 | 412.8 | 395.6 | 388.3 | 384.6 |
| 12.5° | 943.3  | 853.1 | 687.4 | 555.4 | 467.8 | 412.8 | 362.2 | 323.7 | 303.9 | 295.5 | 291.5 |
| 15°   | 968.3  | 848.0 | 638.3 | 491.3 | 403.7 | 336.6 | 281.2 | 255.2 | 251.1 | 249.7 | 250.0 |
| 17.5° | 992.8  | 840.0 | 584.8 | 427.9 | 336.2 | 262.9 | 234.6 | 233.2 | 233.9 | 233.9 | 233.9 |
| 20°   | 1014.8 | 821.6 | 526.5 | 373.6 | 272.0 | 221.8 | 215.9 | 213.4 | 211.5 | 210.1 | 208.2 |
| 22.5° | 1032.1 | 797.1 | 470.4 | 319.7 | 222.2 | 203.1 | 193.9 | 185.9 | 179.3 | 174.9 | 172.7 |
| 25°   | 1043.8 | 764.4 | 419.1 | 268.0 | 199.8 | 184.8 | 168.3 | 154.7 | 144.5 | 138.2 | 135.7 |
| 27.5° | 1052.6 | 729.2 | 373.2 | 224.4 | 184.4 | 163.5 | 141.9 | 125.8 | 115.1 | 109.6 | 107.4 |
| 30°   | 1058.8 | 689.3 | 332.9 | 197.2 | 167.2 | 141.2 | 118.1 | 102.3 | 94.6  | 91.7  | 90.2  |
| 32.5° | 1064.7 | 644.9 | 294.8 | 184.4 | 151.1 | 120.6 | 99.0  | 86.9  | 82.1  | 78.5  | 77.4  |
| 35°   | 1079.4 | 603.8 | 258.5 | 170.8 | 134.6 | 103.0 | 85.1  | 76.3  | 71.5  | 69.3  | 68.6  |
| 37.5° | 1114.2 | 573.4 | 223.6 | 156.9 | 118.1 | 89.1  | 74.4  | 68.2  | 63.8  | 61.6  | 60.9  |
| 40°   | 1170.3 | 558.0 | 194.3 | 141.9 | 101.9 | 78.5  | 67.5  | 61.6  | 56.8  | 53.5  | 52.8  |
| 42.5° | 1252.8 | 560.2 | 173.8 | 126.9 | 89.1  | 70.0  | 60.9  | 53.9  | 48.8  | 45.8  | 45.1  |
| 45°   | 1352.9 | 576.3 | 159.5 | 112.2 | 78.5  | 63.4  | 53.5  | 46.2  | 41.4  | 38.9  | 38.1  |
| 47.5° | 1461.4 | 602.4 | 147.8 | 99.0  | 70.0  | 57.2  | 46.2  | 38.5  | 34.5  | 32.3  | 31.9  |
| 50°   | 1575.8 | 627.7 | 135.7 | 86.2  | 62.7  | 51.0  | 38.9  | 31.9  | 28.6  | 26.8  | 26.0  |
| 52.5° | 1691.6 | 657.0 | 124.7 | 74.4  | 56.5  | 43.6  | 32.3  | 26.0  | 23.5  | 22.0  | 21.3  |
| 55°   | 1816.3 | 679.0 | 114.0 | 65.3  | 50.2  | 37.0  | 26.8  | 21.6  | 19.4  | 17.6  | 17.2  |
| 57.5° | 1962.9 | 713.1 | 103.0 | 56.5  | 42.9  | 30.8  | 22.0  | 17.2  | 15.4  | 13.6  | 13.2  |
| 60°   | 2160.9 | 753.1 | 91.3  | 49.9  | 35.2  | 25.3  | 18.0  | 13.9  | 11.7  | 10.3  | 9.9   |
| 62.5° | 2422.0 | 797.4 | 76.6  | 43.6  | 28.6  | 20.5  | 14.3  | 11.0  | 8.4   | 6.6   | 6.6   |
| 65°   | 2753.0 | 869.6 | 62.7  | 36.7  | 23.5  | 16.9  | 11.0  | 8.1   | 4.8   | 2.9   | 2.9   |
| 67.5° | 2946.2 | 882.1 | 50.6  | 30.1  | 19.1  | 14.3  | 9.2   | 5.5   | 1.5   | 0.4   | 0.0   |
| 69°   | 2884.3 | 809.9 | 42.9  | 25.7  | 16.5  | 13.6  | 8.4   | 4.0   | 0.7   | 0.0   | 0.0   |
| 70°   | 2767.7 | 740.6 | 37.8  | 22.7  | 15.0  | 12.8  | 8.1   | 2.9   | 0.7   | 0.0   | 0.0   |
| 72.5° | 2287.0 | 527.2 | 28.6  | 16.9  | 11.0  | 11.4  | 7.3   | 1.8   | 0.7   | 0.0   | 0.0   |
| 75°   | 1666.0 | 320.4 | 20.5  | 11.7  | 7.0   | 8.4   | 5.1   | 0.7   | 0.4   | 0.0   | 0.0   |
| 77.5° | 926.8  | 151.1 | 12.8  | 6.6   | 4.4   | 5.1   | 2.6   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 301.0  | 41.1  | 5.9   | 3.7   | 2.6   | 2.9   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 55.7   | 11.7  | 3.3   | 1.8   | 0.7   | 0.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 12.1   | 4.8   | 1.8   | 0.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 4.0    | 1.5   | 0.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 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  
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**Test Information**

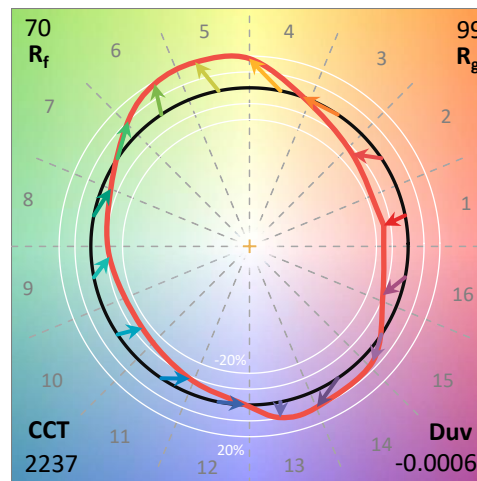
Test Method: LM-79-2008 Report  
 Number: SP1-1908-441-10-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGRAW-EDISON  
 Catalog Number: **SA1C-722-U-5WQ**  
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

\*\*\*THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.\*\*\*TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

**Spectral Parameters**

CCT (K): 2237  
 CIE u': 0.2876  
 CIE v': 0.5346  
 Duv: -0.0006  
 CIE x: 0.5005  
 CIE y: 0.4134  
 CIE z: 0.0860  
 Peak Wavelength (nm): 603  
 Dominant Wavelength (nm): 587  
 Purity: 74.5  
 Rf: 69.8  
 Rg: 99.2

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 |      |       |
| R1:       | 68.9 | R9:  | -17.4 |
| R2:       | 83.0 | R10: | 61.3  |
| R3:       | 95.2 | R11: | 59.8  |
| R4:       | 66.2 | R12: | 50.5  |
| R5:       | 65.9 | R13: | 71.1  |
| R6:       | 76.3 | R14: | 96.9  |
| R7:       | 76.7 |      |       |
| R8:       | 43.8 |      |       |



**Test Conditions**

Stabilization Time: 71M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.7/41%  
 Sphere Temperature (°C): 25.6

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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 2200K 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    | 1768          | NR            | 490    | 5206          | NR            | 620    | 130919        | NR            | 750    | 8553          | NR            | 880    | 2713          | NR            |
| 365    | 1569          | NR            | 495    | 7286          | NR            | 625    | 125335        | NR            | 755    | 7696          | NR            | 885    | 2316          | NR            |
| 370    | 1594          | NR            | 500    | 10654         | NR            | 630    | 118388        | NR            | 760    | 6978          | NR            | 890    | 2539          | NR            |
| 375    | 1744          | NR            | 505    | 15189         | NR            | 635    | 111855        | NR            | 765    | 6377          | NR            | 895    | 1933          | NR            |
| 380    | 1659          | NR            | 510    | 20541         | NR            | 640    | 104062        | NR            | 770    | 5600          | NR            | 900    | 2216          | NR            |
| 385    | 1504          | NR            | 515    | 26492         | NR            | 645    | 96365         | NR            | 775    | 5000          | NR            | 905    | 2067          | NR            |
| 390    | 1541          | NR            | 520    | 32294         | NR            | 650    | 88651         | NR            | 780    | 4709          | NR            | 910    | 1959          | NR            |
| 395    | 1355          | NR            | 525    | 38123         | NR            | 655    | 81152         | NR            | 785    | 4305          | NR            | 915    | 1874          | NR            |
| 400    | 1243          | NR            | 530    | 43232         | NR            | 660    | 73523         | NR            | 790    | 4040          | NR            | 920    | 1484          | NR            |
| 405    | 1417          | NR            | 535    | 48012         | NR            | 665    | 66123         | NR            | 795    | 3642          | NR            | 925    | 1914          | NR            |
| 410    | 2147          | NR            | 540    | 52623         | NR            | 670    | 58677         | NR            | 800    | 3594          | NR            | 930    | 1948          | NR            |
| 415    | 3837          | NR            | 545    | 57516         | NR            | 675    | 52349         | NR            | 805    | 3190          | NR            | 935    | 2079          | NR            |
| 420    | 7159          | NR            | 550    | 62613         | NR            | 680    | 46159         | NR            | 810    | 3241          | NR            | 940    | 2263          | NR            |
| 425    | 12599         | NR            | 555    | 68554         | NR            | 685    | 40525         | NR            | 815    | 2732          | NR            | 945    | 1688          | NR            |
| 430    | 19019         | NR            | 560    | 75325         | NR            | 690    | 35615         | NR            | 820    | 2612          | NR            | 950    | 1560          | NR            |
| 435    | 24875         | NR            | 565    | 82533         | NR            | 695    | 31158         | NR            | 825    | 2966          | NR            | 955    | 2826          | NR            |
| 440    | 29103         | NR            | 570    | 90909         | NR            | 700    | 27409         | NR            | 830    | 2574          | NR            | 960    | 1477          | NR            |
| 445    | 29901         | NR            | 575    | 99621         | NR            | 705    | 24204         | NR            | 835    | 2633          | NR            | 965    | 1568          | NR            |
| 450    | 24862         | NR            | 580    | 108484        | NR            | 710    | 21558         | NR            | 840    | 2526          | NR            | 970    | 2030          | NR            |
| 455    | 15942         | NR            | 585    | 116679        | NR            | 715    | 19222         | NR            | 845    | 2631          | NR            | 975    | 1986          | NR            |
| 460    | 9916          | NR            | 590    | 123752        | NR            | 720    | 17310         | NR            | 850    | 2079          | NR            | 980    | 2540          | NR            |
| 465    | 7051          | NR            | 595    | 129324        | NR            | 725    | 15280         | NR            | 855    | 2309          | NR            | 985    | 1139          | NR            |
| 470    | 5227          | NR            | 600    | 134082        | NR            | 730    | 13282         | NR            | 860    | 2528          | NR            | 990    | 2018          | NR            |
| 475    | 4257          | NR            | 605    | 135698        | NR            | 735    | 11753         | NR            | 865    | 2121          | NR            | 995    | 3445          | NR            |
| 480    | 4052          | NR            | 610    | 135144        | NR            | 740    | 10654         | NR            | 870    | 2751          | NR            | 1000   | 3704          | NR            |
| 485    | 4298          | NR            | 615    | 134180        | NR            | 745    | 9451          | NR            | 875    | 2317          | NR            |        |               |               |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| 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    | 1768          | NR            | 490    | 5206          | NR            | 620    | 130919        | NR            | 750    | 8553          | NR            | 880    | 2713          | NR            |
| 365    | 1569          | NR            | 495    | 7286          | NR            | 625    | 125335        | NR            | 755    | 7696          | NR            | 885    | 2316          | NR            |
| 370    | 1594          | NR            | 500    | 10654         | NR            | 630    | 118388        | NR            | 760    | 6978          | NR            | 890    | 2539          | NR            |
| 375    | 1744          | NR            | 505    | 15189         | NR            | 635    | 111855        | NR            | 765    | 6377          | NR            | 895    | 1933          | NR            |
| 380    | 1659          | NR            | 510    | 20541         | NR            | 640    | 104062        | NR            | 770    | 5600          | NR            | 900    | 2216          | NR            |
| 385    | 1504          | NR            | 515    | 26492         | NR            | 645    | 96365         | NR            | 775    | 5000          | NR            | 905    | 2067          | NR            |
| 390    | 1541          | NR            | 520    | 32294         | NR            | 650    | 88651         | NR            | 780    | 4709          | NR            | 910    | 1959          | NR            |
| 395    | 1355          | NR            | 525    | 38123         | NR            | 655    | 81152         | NR            | 785    | 4305          | NR            | 915    | 1874          | NR            |
| 400    | 1243          | NR            | 530    | 43232         | NR            | 660    | 73523         | NR            | 790    | 4040          | NR            | 920    | 1484          | NR            |
| 405    | 1417          | NR            | 535    | 48012         | NR            | 665    | 66123         | NR            | 795    | 3642          | NR            | 925    | 1914          | NR            |
| 410    | 2147          | NR            | 540    | 52623         | NR            | 670    | 58677         | NR            | 800    | 3594          | NR            | 930    | 1948          | NR            |
| 415    | 3837          | NR            | 545    | 57516         | NR            | 675    | 52349         | NR            | 805    | 3190          | NR            | 935    | 2079          | NR            |
| 420    | 7159          | NR            | 550    | 62613         | NR            | 680    | 46159         | NR            | 810    | 3241          | NR            | 940    | 2263          | NR            |
| 425    | 12599         | NR            | 555    | 68554         | NR            | 685    | 40525         | NR            | 815    | 2732          | NR            | 945    | 1688          | NR            |
| 430    | 19019         | NR            | 560    | 75325         | NR            | 690    | 35615         | NR            | 820    | 2612          | NR            | 950    | 1560          | NR            |
| 435    | 24875         | NR            | 565    | 82533         | NR            | 695    | 31158         | NR            | 825    | 2966          | NR            | 955    | 2826          | NR            |
| 440    | 29103         | NR            | 570    | 90909         | NR            | 700    | 27409         | NR            | 830    | 2574          | NR            | 960    | 1477          | NR            |
| 445    | 29901         | NR            | 575    | 99621         | NR            | 705    | 24204         | NR            | 835    | 2633          | NR            | 965    | 1568          | NR            |
| 450    | 24862         | NR            | 580    | 108484        | NR            | 710    | 21558         | NR            | 840    | 2526          | NR            | 970    | 2030          | NR            |
| 455    | 15942         | NR            | 585    | 116679        | NR            | 715    | 19222         | NR            | 845    | 2631          | NR            | 975    | 1986          | NR            |
| 460    | 9916          | NR            | 590    | 123752        | NR            | 720    | 17310         | NR            | 850    | 2079          | NR            | 980    | 2540          | NR            |
| 465    | 7051          | NR            | 595    | 129324        | NR            | 725    | 15280         | NR            | 855    | 2309          | NR            | 985    | 1139          | NR            |
| 470    | 5227          | NR            | 600    | 134082        | NR            | 730    | 13282         | NR            | 860    | 2528          | NR            | 990    | 2018          | NR            |
| 475    | 4257          | NR            | 605    | 135698        | NR            | 735    | 11753         | NR            | 865    | 2121          | NR            | 995    | 3445          | NR            |
| 480    | 4052          | NR            | 610    | 135144        | NR            | 740    | 10654         | NR            | 870    | 2751          | NR            | 1000   | 3704          | NR            |
| 485    | 4298          | NR            | 615    | 134180        | NR            | 745    | 9451          | NR            | 875    | 2317          | NR            |        |               |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 1470.8 M/P: 0.27**

| 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    | 1768          | NR            | 490    | 5206          | NR            | 620    | 130919        | NR            | 750    | 8553          | NR            | 880    | 2713          | NR            |
| 365    | 1569          | NR            | 495    | 7286          | NR            | 625    | 125335        | NR            | 755    | 7696          | NR            | 885    | 2316          | NR            |
| 370    | 1594          | NR            | 500    | 10654         | NR            | 630    | 118388        | NR            | 760    | 6978          | NR            | 890    | 2539          | NR            |
| 375    | 1744          | NR            | 505    | 15189         | NR            | 635    | 111855        | NR            | 765    | 6377          | NR            | 895    | 1933          | NR            |
| 380    | 1659          | NR            | 510    | 20541         | NR            | 640    | 104062        | NR            | 770    | 5600          | NR            | 900    | 2216          | NR            |
| 385    | 1504          | NR            | 515    | 26492         | NR            | 645    | 96365         | NR            | 775    | 5000          | NR            | 905    | 2067          | NR            |
| 390    | 1541          | NR            | 520    | 32294         | NR            | 650    | 88651         | NR            | 780    | 4709          | NR            | 910    | 1959          | NR            |
| 395    | 1355          | NR            | 525    | 38123         | NR            | 655    | 81152         | NR            | 785    | 4305          | NR            | 915    | 1874          | NR            |
| 400    | 1243          | NR            | 530    | 43232         | NR            | 660    | 73523         | NR            | 790    | 4040          | NR            | 920    | 1484          | NR            |
| 405    | 1417          | NR            | 535    | 48012         | NR            | 665    | 66123         | NR            | 795    | 3642          | NR            | 925    | 1914          | NR            |
| 410    | 2147          | NR            | 540    | 52623         | NR            | 670    | 58677         | NR            | 800    | 3594          | NR            | 930    | 1948          | NR            |
| 415    | 3837          | NR            | 545    | 57516         | NR            | 675    | 52349         | NR            | 805    | 3190          | NR            | 935    | 2079          | NR            |
| 420    | 7159          | NR            | 550    | 62613         | NR            | 680    | 46159         | NR            | 810    | 3241          | NR            | 940    | 2263          | NR            |
| 425    | 12599         | NR            | 555    | 68554         | NR            | 685    | 40525         | NR            | 815    | 2732          | NR            | 945    | 1688          | NR            |
| 430    | 19019         | NR            | 560    | 75325         | NR            | 690    | 35615         | NR            | 820    | 2612          | NR            | 950    | 1560          | NR            |
| 435    | 24875         | NR            | 565    | 82533         | NR            | 695    | 31158         | NR            | 825    | 2966          | NR            | 955    | 2826          | NR            |
| 440    | 29103         | NR            | 570    | 90909         | NR            | 700    | 27409         | NR            | 830    | 2574          | NR            | 960    | 1477          | NR            |
| 445    | 29901         | NR            | 575    | 99621         | NR            | 705    | 24204         | NR            | 835    | 2633          | NR            | 965    | 1568          | NR            |
| 450    | 24862         | NR            | 580    | 108484        | NR            | 710    | 21558         | NR            | 840    | 2526          | NR            | 970    | 2030          | NR            |
| 455    | 15942         | NR            | 585    | 116679        | NR            | 715    | 19222         | NR            | 845    | 2631          | NR            | 975    | 1986          | NR            |
| 460    | 9916          | NR            | 590    | 123752        | NR            | 720    | 17310         | NR            | 850    | 2079          | NR            | 980    | 2540          | NR            |
| 465    | 7051          | NR            | 595    | 129324        | NR            | 725    | 15280         | NR            | 855    | 2309          | NR            | 985    | 1139          | NR            |
| 470    | 5227          | NR            | 600    | 134082        | NR            | 730    | 13282         | NR            | 860    | 2528          | NR            | 990    | 2018          | NR            |
| 475    | 4257          | NR            | 605    | 135698        | NR            | 735    | 11753         | NR            | 865    | 2121          | NR            | 995    | 3445          | NR            |
| 480    | 4052          | NR            | 610    | 135144        | NR            | 740    | 10654         | NR            | 870    | 2751          | NR            | 1000   | 3704          | NR            |
| 485    | 4298          | NR            | 615    | 134180        | NR            | 745    | 9451          | NR            | 875    | 2317          | NR            |        |               |               |

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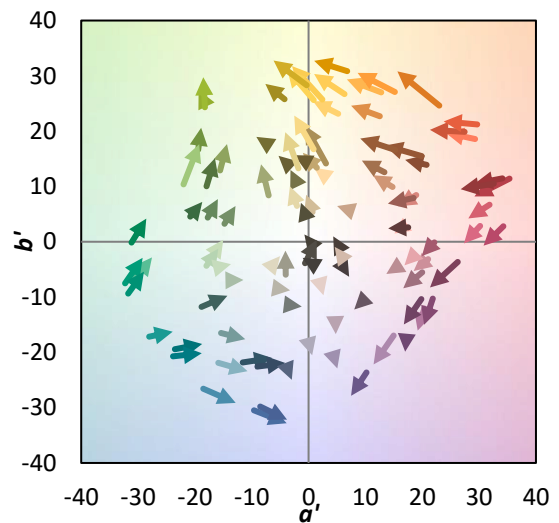
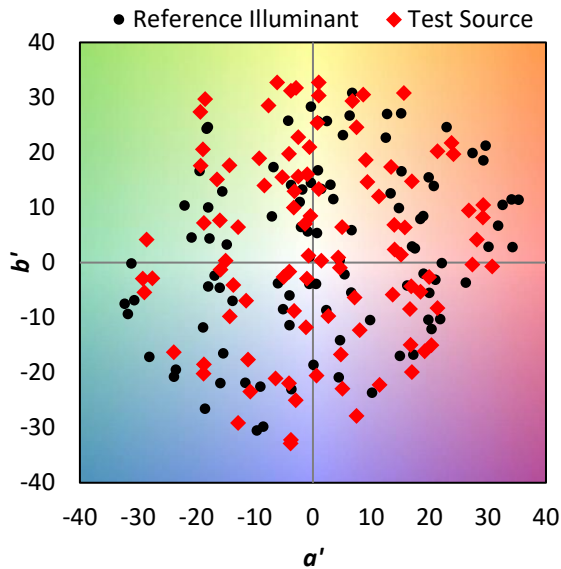
TM-30-18

**Summary**

$R_f = 69.8$   
 $R_g = 99.2$   
 $CIE R_a = 72.0$   
 $R_g = -17.4$



**Color Vector Graphics**



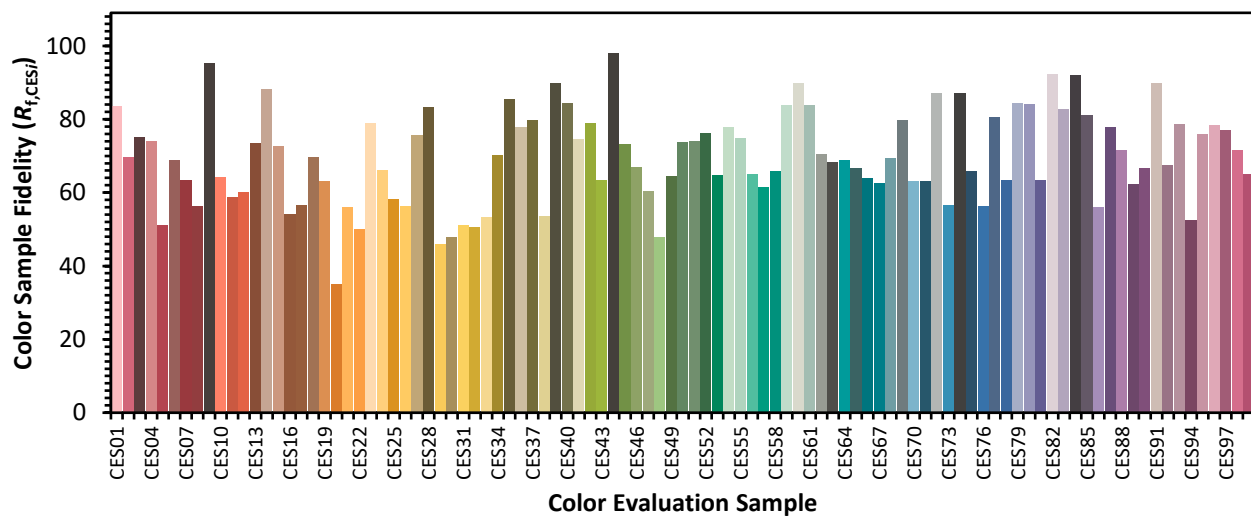


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**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)