

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: P385559

Luminaire Tested: **GPC-SA1A-760-U-T3**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P385559  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-14)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GPC-SA1A-760-U-T3  
Description: GALLEON PEDESTRIAN LUMINAIRE  
(1) 70 CRI, 5700K, 615mA LIGHTSQUARE WITH 16 LEDS AND TYPE III OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

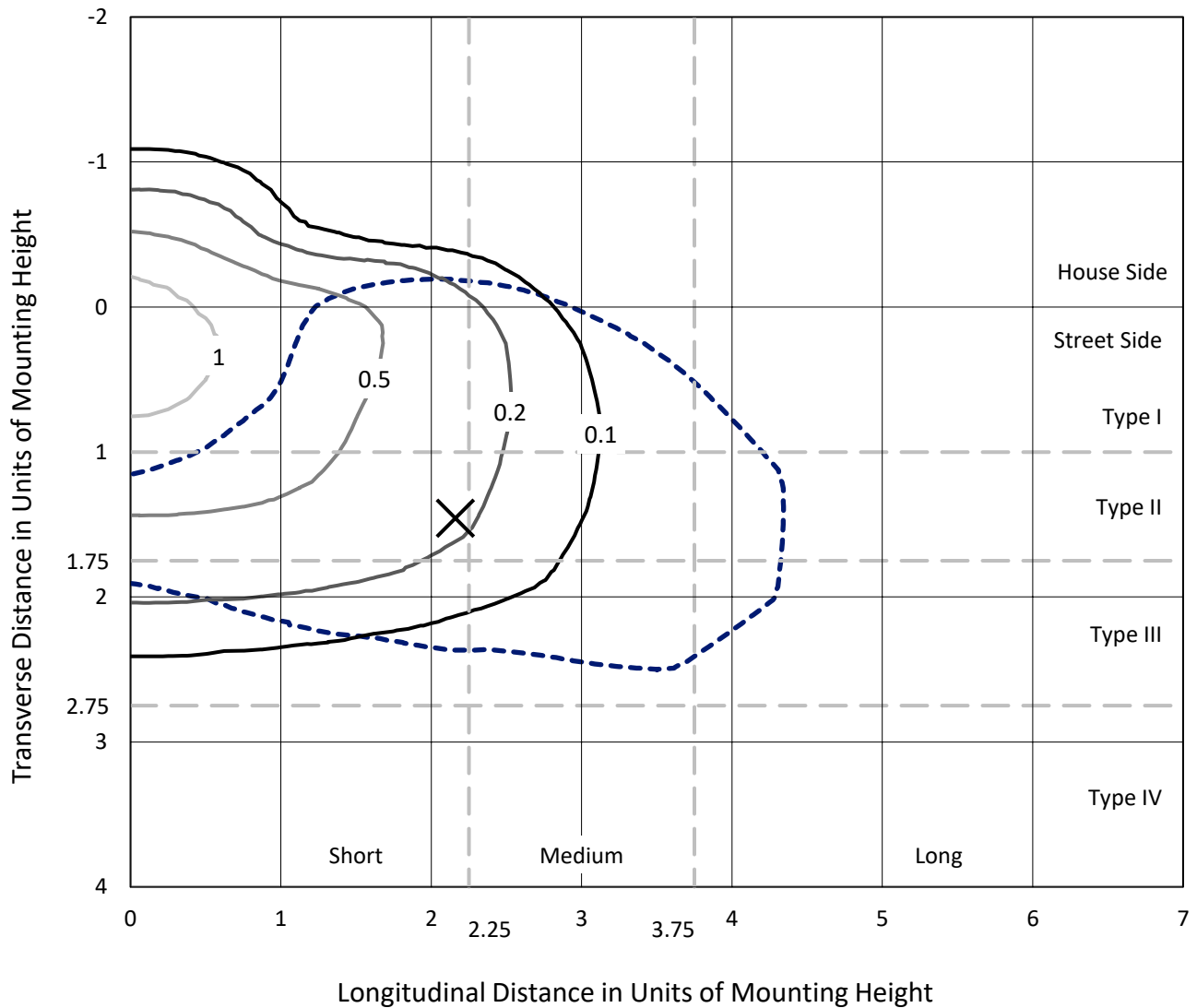
Lumens per Lamp: N/A  
Luminaire Lumens: 4978 lumens  
Efficiency: N/A  
Efficacy: 146.4 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G1  
  
Input Watts (W): 34  
Input Voltage (V): NR  
Input Current (Ain): NR  
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

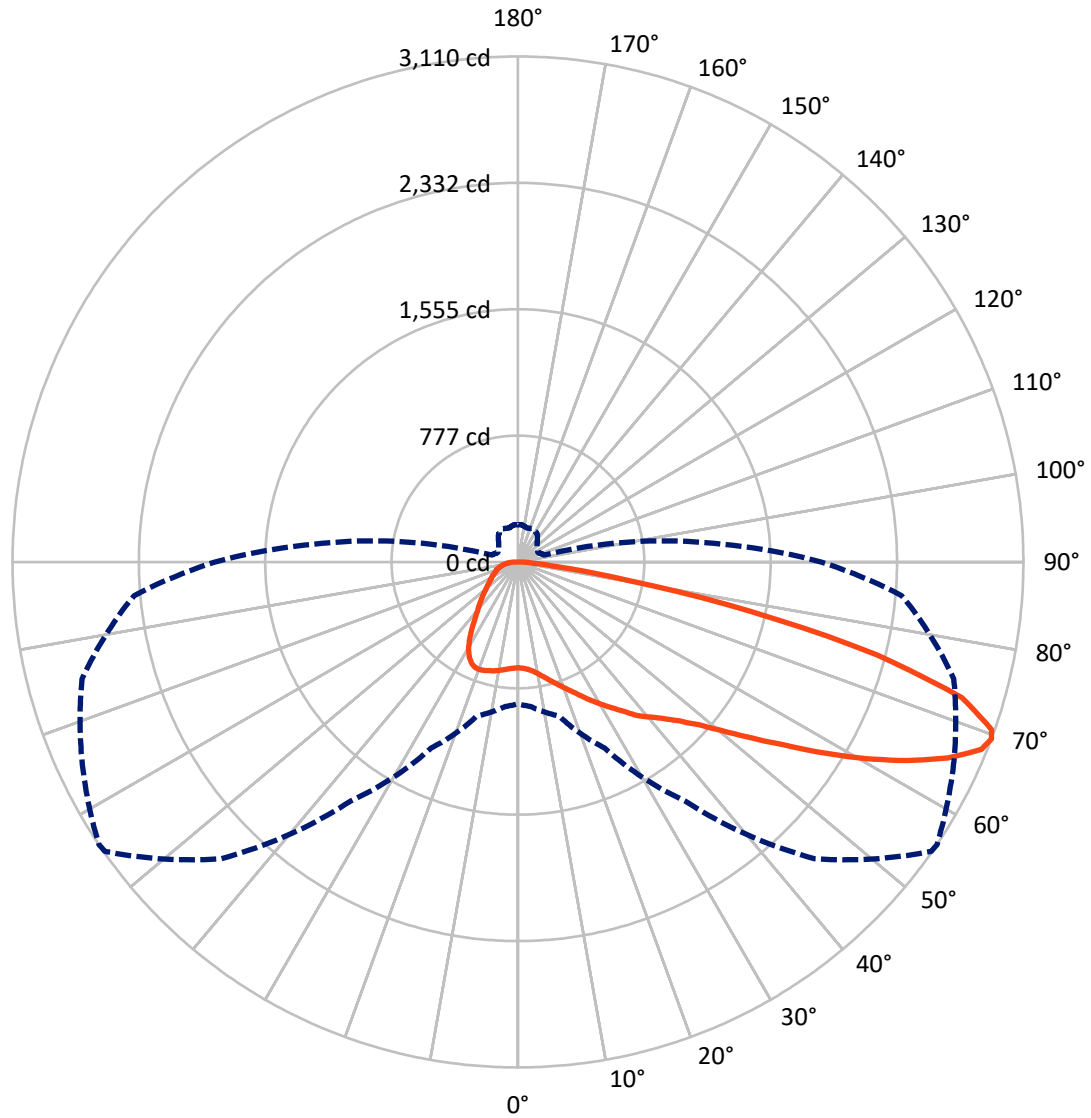
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.1 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 56-Deg Lateral      - - - Horizontal Cone Through 69-Deg Vertical

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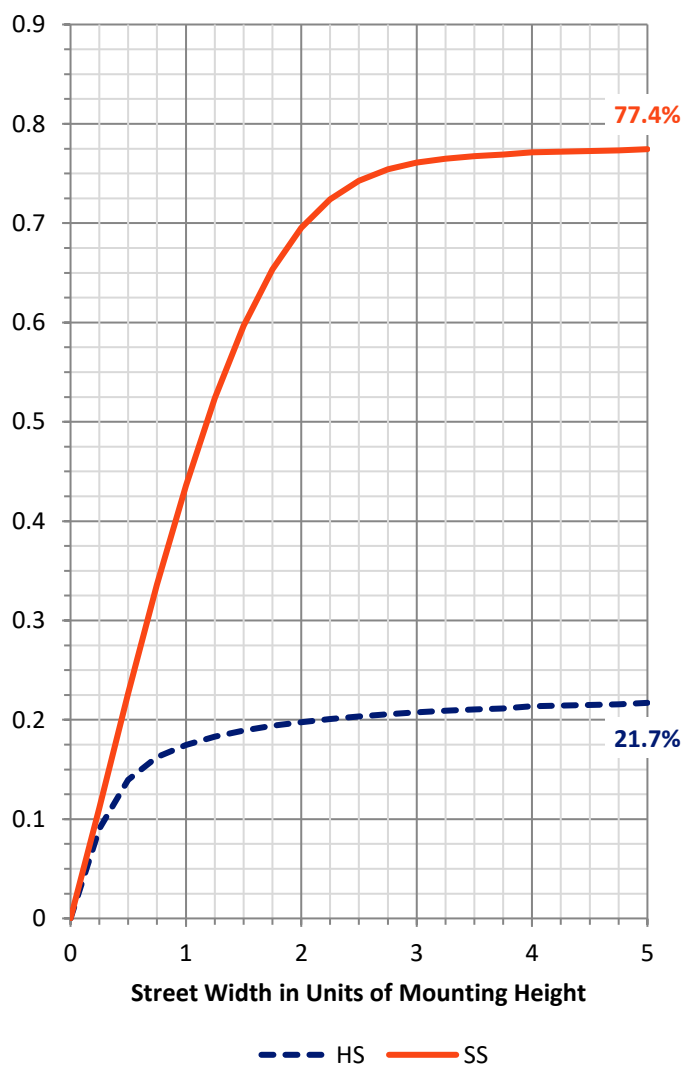
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1108.6   | 0.0    | 1108.6 |
|                    | % Fixture | 22.3     | 0.0    | 22.3   |
| <b>Street Side</b> | Lumens    | 3869.4   | 0.0    | 3869.4 |
|                    | % Fixture | 77.7     | 0.0    | 77.7   |
| <b>Total</b>       | Lumens    | 4978.0   | 0.0    | 4978.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 63.9   | 1.3       |
| 10°-20°   | 205.5  | 4.1       |
| 20°-30°   | 358.8  | 7.2       |
| 30°-40°   | 515.4  | 10.4      |
| 40°-50°   | 713.3  | 14.3      |
| 50°-60°   | 1045.0 | 21.0      |
| 60°-70°   | 1274.1 | 25.6      |
| 70°-80°   | 704.4  | 14.2      |
| 80°-90°   | 97.6   | 2.0       |
| 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°    | 4978.0 | 100.0     |
| 0°-180°   | 4978.0 | 100.0     |

**Coefficient of Utilization**

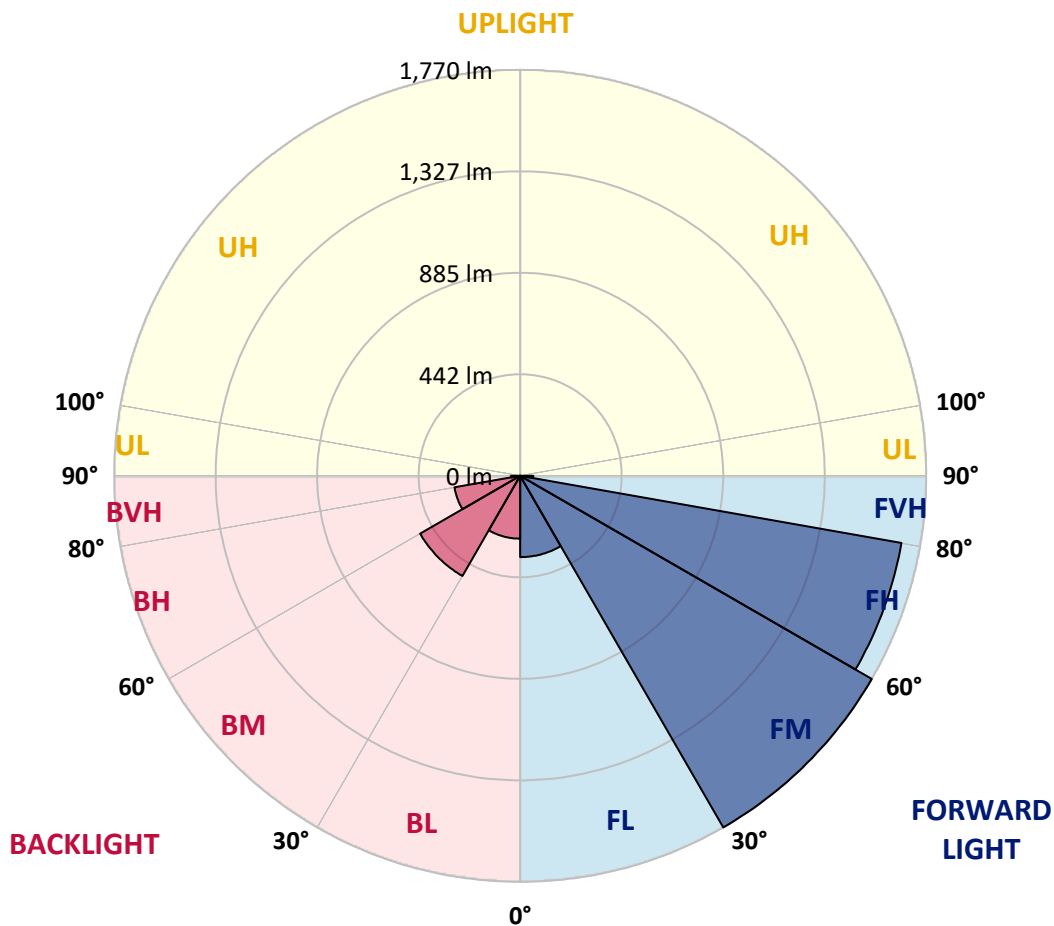


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 354.3  | 7.1       |                         |      |         |
| FM (30°-60°)   | 1769.9 | 35.6      |                         |      |         |
| FH (60°-80°)   | 1687.8 | 33.9      |                         |      | G1/1800 |
| FVH (80°-90°)  | 57.5   | 1.2       |                         |      | G1/100  |
| BL (0°-30°)    | 274.0  | 5.5       | B1/500                  |      |         |
| BM (30°-60°)   | 503.8  | 10.1      | B1/1000                 |      |         |
| BH (60°-80°)   | 290.7  | 5.8       | B1/500                  |      | G1/500  |
| BVH (80°-90°)  | 40.1   | 0.8       |                         |      | 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 Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 56°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 650.8  | 650.8  | 650.8  | 650.8  | 650.8  | 650.8  | 650.8  | 650.8  | 650.8  | 650.8  | 650.8  |
| 2.5°  | 654.9  | 655.6  | 655.1  | 656.5  | 654.9  | 655.9  | 655.1  | 655.1  | 654.6  | 653.0  | 651.3  |
| 5°    | 665.2  | 666.6  | 665.7  | 667.1  | 665.2  | 665.5  | 664.0  | 664.0  | 662.5  | 659.2  | 655.8  |
| 7.5°  | 681.3  | 682.9  | 682.2  | 683.6  | 681.0  | 681.0  | 678.9  | 678.8  | 675.7  | 670.3  | 666.4  |
| 10°   | 700.5  | 702.6  | 701.9  | 704.0  | 701.9  | 702.6  | 700.5  | 700.5  | 696.4  | 688.9  | 683.9  |
| 12.5° | 728.5  | 731.1  | 729.2  | 729.0  | 728.1  | 729.5  | 727.8  | 727.5  | 723.7  | 713.4  | 706.5  |
| 15°   | 765.9  | 768.6  | 764.7  | 764.3  | 759.5  | 759.0  | 759.0  | 758.5  | 756.1  | 743.7  | 732.4  |
| 17.5° | 808.9  | 809.8  | 806.3  | 800.9  | 794.7  | 790.7  | 790.2  | 791.6  | 791.6  | 777.2  | 759.2  |
| 20°   | 851.1  | 852.6  | 849.9  | 843.7  | 835.8  | 830.0  | 825.9  | 828.6  | 828.5  | 811.3  | 785.8  |
| 22.5° | 897.1  | 900.7  | 896.5  | 888.7  | 879.4  | 872.9  | 865.7  | 868.1  | 868.2  | 847.2  | 811.8  |
| 25°   | 956.6  | 953.3  | 950.7  | 939.6  | 926.4  | 919.7  | 913.0  | 915.4  | 914.7  | 885.7  | 838.7  |
| 27.5° | 1009.2 | 1009.9 | 1006.5 | 994.6  | 979.4  | 964.6  | 964.3  | 965.8  | 963.3  | 925.9  | 864.1  |
| 30°   | 1070.4 | 1070.8 | 1066.0 | 1055.3 | 1038.7 | 1019.7 | 1015.2 | 1017.8 | 1012.3 | 963.9  | 890.9  |
| 32.5° | 1131.3 | 1133.0 | 1127.7 | 1114.8 | 1101.5 | 1078.3 | 1069.4 | 1071.1 | 1057.4 | 1002.9 | 918.5  |
| 35°   | 1184.6 | 1187.0 | 1185.3 | 1176.8 | 1162.2 | 1142.3 | 1131.7 | 1130.6 | 1113.6 | 1050.5 | 955.0  |
| 37.5° | 1239.0 | 1241.2 | 1239.3 | 1232.1 | 1226.3 | 1205.2 | 1199.6 | 1199.6 | 1170.1 | 1099.2 | 1001.5 |
| 40°   | 1294.9 | 1298.3 | 1296.1 | 1286.2 | 1281.2 | 1271.6 | 1258.0 | 1254.8 | 1222.9 | 1157.7 | 1077.3 |
| 42.5° | 1346.9 | 1351.3 | 1360.2 | 1354.4 | 1344.3 | 1345.7 | 1318.4 | 1316.7 | 1293.4 | 1244.1 | 1172.5 |
| 45°   | 1420.6 | 1427.1 | 1442.2 | 1437.8 | 1435.7 | 1428.2 | 1395.7 | 1394.2 | 1385.3 | 1360.4 | 1290.6 |
| 47.5° | 1501.0 | 1510.0 | 1537.2 | 1538.1 | 1560.2 | 1546.0 | 1501.9 | 1496.6 | 1498.6 | 1499.7 | 1434.8 |
| 50°   | 1575.1 | 1584.9 | 1629.7 | 1650.7 | 1702.9 | 1706.0 | 1635.5 | 1630.7 | 1638.7 | 1662.4 | 1602.9 |
| 52.5° | 1634.3 | 1646.6 | 1702.5 | 1767.7 | 1857.0 | 1882.4 | 1799.9 | 1796.3 | 1802.3 | 1843.2 | 1792.9 |
| 55°   | 1677.7 | 1691.0 | 1751.9 | 1870.6 | 2013.3 | 2058.0 | 1989.3 | 1985.8 | 1989.6 | 2041.6 | 1999.6 |
| 57.5° | 1687.8 | 1691.0 | 1779.4 | 1939.9 | 2145.1 | 2252.7 | 2220.9 | 2214.1 | 2195.6 | 2240.8 | 2227.6 |
| 60°   | 1640.3 | 1653.3 | 1756.7 | 1964.2 | 2247.2 | 2444.6 | 2463.1 | 2454.5 | 2402.6 | 2439.6 | 2429.0 |
| 62.5° | 1543.9 | 1567.2 | 1672.2 | 1927.2 | 2287.1 | 2601.3 | 2700.6 | 2690.3 | 2600.8 | 2624.8 | 2573.7 |
| 65°   | 1386.5 | 1396.4 | 1506.7 | 1799.4 | 2236.4 | 2701.6 | 2912.4 | 2907.2 | 2794.6 | 2757.0 | 2600.5 |
| 67.5° | 1104.9 | 1123.6 | 1217.2 | 1532.4 | 2028.7 | 2689.8 | 3076.2 | 3075.6 | 2921.1 | 2806.1 | 2505.6 |
| 69°   | 872.9  | 892.3  | 981.4  | 1262.3 | 1795.1 | 2581.6 | 3103.6 | 3109.6 | 2956.8 | 2776.2 | 2370.1 |
| 70°   | 695.9  | 718.4  | 779.6  | 1063.2 | 1587.8 | 2438.9 | 3080.8 | 3091.6 | 2949.9 | 2727.0 | 2245.1 |
| 72.5° | 296.2  | 314.3  | 357.9  | 548.1  | 967.7  | 1821.2 | 2816.9 | 2857.7 | 2791.0 | 2495.8 | 1855.5 |
| 75°   | 129.3  | 135.0  | 154.7  | 223.4  | 429.6  | 991.2  | 2206.7 | 2282.2 | 2386.4 | 2109.7 | 1382.2 |
| 77.5° | 94.7   | 97.1   | 107.9  | 131.2  | 192.8  | 374.4  | 1419.1 | 1463.0 | 1721.1 | 1535.2 | 847.8  |
| 80°   | 73.2   | 74.9   | 83.3   | 96.4   | 125.9  | 151.4  | 647.2  | 684.9  | 967.7  | 788.5  | 353.1  |
| 82.5° | 58.3   | 59.5   | 65.3   | 71.0   | 86.9   | 91.7   | 214.9  | 238.4  | 357.2  | 217.8  | 93.5   |
| 85°   | 54.2   | 55.6   | 57.6   | 51.8   | 55.7   | 53.8   | 92.9   | 97.2   | 107.9  | 85.6   | 39.1   |
| 87.5° | 24.5   | 29.0   | 57.1   | 40.3   | 29.7   | 23.7   | 38.1   | 39.8   | 44.8   | 44.9   | 17.3   |
| 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-SA1A-760-U-T3

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 650.8  | 650.8  | 650.8 | 650.8 | 650.8 | 650.8 | 650.8 | 650.8 | 650.8 | 650.8 | 650.8 |
| 2.5°  | 652.3  | 651.8  | 652.7 | 650.6 | 653.2 | 653.0 | 652.2 | 652.5 | 654.2 | 654.1 | 654.2 |
| 5°    | 656.3  | 655.9  | 657.0 | 655.4 | 658.5 | 659.5 | 659.7 | 661.3 | 663.1 | 663.7 | 663.7 |
| 7.5°  | 666.2  | 666.2  | 666.7 | 664.7 | 666.7 | 666.6 | 665.7 | 667.3 | 669.1 | 669.3 | 669.1 |
| 10°   | 683.4  | 683.6  | 682.7 | 677.4 | 675.7 | 671.0 | 666.7 | 666.9 | 669.3 | 671.2 | 671.7 |
| 12.5° | 705.0  | 704.3  | 700.5 | 690.8 | 683.6 | 674.1 | 669.7 | 669.5 | 671.9 | 673.4 | 673.9 |
| 15°   | 729.7  | 727.8  | 718.0 | 702.1 | 689.4 | 680.1 | 672.9 | 671.2 | 669.8 | 668.1 | 668.3 |
| 17.5° | 753.0  | 748.7  | 732.4 | 710.3 | 696.9 | 684.6 | 670.7 | 659.5 | 651.8 | 647.4 | 646.0 |
| 20°   | 776.7  | 768.3  | 744.8 | 718.0 | 701.0 | 678.6 | 651.8 | 629.2 | 615.1 | 608.6 | 607.4 |
| 22.5° | 798.3  | 784.7  | 756.3 | 726.1 | 697.8 | 658.3 | 616.3 | 583.4 | 563.9 | 555.1 | 555.8 |
| 25°   | 819.4  | 800.5  | 768.3 | 731.7 | 681.3 | 622.7 | 566.9 | 526.5 | 503.8 | 494.1 | 493.7 |
| 27.5° | 837.9  | 816.5  | 781.3 | 727.1 | 650.6 | 571.9 | 508.5 | 469.0 | 450.2 | 441.8 | 440.4 |
| 30°   | 859.2  | 836.5  | 798.6 | 709.4 | 605.7 | 513.3 | 451.4 | 423.6 | 410.2 | 401.8 | 400.3 |
| 32.5° | 885.1  | 863.8  | 812.9 | 677.4 | 548.2 | 452.0 | 406.8 | 387.4 | 375.2 | 365.8 | 364.1 |
| 35°   | 922.8  | 899.8  | 816.5 | 631.4 | 485.1 | 403.7 | 374.0 | 354.1 | 337.7 | 325.5 | 324.3 |
| 37.5° | 970.1  | 944.9  | 808.2 | 571.9 | 423.9 | 372.3 | 346.7 | 322.2 | 300.8 | 283.6 | 280.9 |
| 40°   | 1038.4 | 1000.3 | 785.4 | 503.3 | 378.8 | 348.1 | 320.2 | 292.2 | 265.6 | 245.6 | 241.6 |
| 42.5° | 1120.3 | 1065.3 | 750.4 | 435.1 | 345.7 | 323.6 | 293.8 | 259.1 | 233.7 | 219.5 | 217.4 |
| 45°   | 1224.6 | 1132.9 | 701.9 | 375.4 | 313.1 | 299.1 | 265.3 | 233.4 | 217.6 | 207.2 | 205.4 |
| 47.5° | 1343.6 | 1208.7 | 651.0 | 326.9 | 285.5 | 276.1 | 242.5 | 221.9 | 209.4 | 201.2 | 199.6 |
| 50°   | 1489.9 | 1294.2 | 597.0 | 287.1 | 257.7 | 248.5 | 231.7 | 215.6 | 205.6 | 199.3 | 197.7 |
| 52.5° | 1654.9 | 1390.8 | 558.0 | 255.7 | 234.8 | 228.1 | 226.0 | 212.1 | 204.1 | 199.3 | 197.7 |
| 55°   | 1832.5 | 1489.0 | 516.0 | 229.3 | 214.9 | 216.8 | 222.2 | 212.5 | 207.0 | 201.2 | 198.9 |
| 57.5° | 2010.4 | 1590.6 | 469.2 | 207.0 | 199.1 | 208.4 | 219.7 | 213.2 | 208.5 | 202.9 | 200.8 |
| 60°   | 2151.0 | 1654.9 | 396.7 | 188.3 | 186.6 | 199.1 | 213.5 | 208.0 | 202.0 | 202.2 | 201.8 |
| 62.5° | 2216.7 | 1651.4 | 316.6 | 171.7 | 174.1 | 186.6 | 203.6 | 200.0 | 195.0 | 201.7 | 202.2 |
| 65°   | 2179.8 | 1569.1 | 246.4 | 156.6 | 160.7 | 173.5 | 193.3 | 196.0 | 197.7 | 210.6 | 212.3 |
| 67.5° | 2025.1 | 1408.9 | 190.9 | 143.4 | 148.5 | 164.6 | 194.3 | 213.5 | 215.7 | 229.3 | 229.1 |
| 69°   | 1865.1 | 1258.7 | 165.8 | 136.5 | 142.5 | 166.9 | 207.7 | 224.6 | 216.2 | 230.7 | 228.6 |
| 70°   | 1731.0 | 1139.9 | 152.5 | 131.9 | 139.8 | 170.8 | 216.6 | 224.5 | 213.7 | 226.0 | 222.6 |
| 72.5° | 1333.2 | 820.1  | 129.3 | 123.3 | 130.5 | 163.4 | 219.2 | 219.5 | 207.7 | 210.1 | 204.2 |
| 75°   | 914.4  | 518.2  | 112.8 | 111.6 | 116.4 | 147.3 | 210.9 | 209.7 | 192.1 | 188.6 | 183.8 |
| 77.5° | 504.2  | 263.2  | 95.9  | 100.5 | 103.8 | 130.5 | 191.7 | 190.0 | 175.4 | 168.2 | 166.5 |
| 80°   | 194.5  | 115.2  | 80.9  | 89.3  | 91.4  | 113.0 | 168.1 | 166.5 | 154.3 | 145.1 | 142.5 |
| 82.5° | 73.4   | 60.4   | 66.9  | 77.3  | 76.7  | 93.3  | 142.3 | 141.5 | 129.6 | 116.1 | 112.0 |
| 85°   | 34.0   | 36.2   | 53.0  | 63.8  | 58.8  | 69.1  | 113.9 | 115.4 | 101.0 | 84.9  | 84.9  |
| 87.5° | 14.4   | 20.2   | 37.6  | 48.2  | 39.6  | 46.6  | 83.5  | 79.7  | 73.2  | 50.8  | 47.7  |
| 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: SP1-1908-441-9-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-760-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):                  | 5474   | CRI (Ra): | 71.7 | R9:  | -27.1 |
| CIE u':                   | 0.2052 | R1:       | 70.6 | R10: | 40.8  |
| CIE v':                   | 0.4804 | R2:       | 74.6 | R11: | 74.6  |
| Duv:                      | 0.0025 | R3:       | 78.3 | R12: | 50.4  |
| CIE x:                    | 0.3330 | R4:       | 73.8 | R13: | 70.0  |
| CIE y:                    | 0.3466 | R5:       | 72.4 | R14: | 87.8  |
| CIE z:                    | 0.3204 | R6:       | 67.5 |      |       |
| Peak Wavelength (nm):     | 442    | R7:       | 77.5 |      |       |
| Dominant Wavelength (nm): | 554    | R8:       | 58.9 |      |       |
| Purity:                   | 4.1    |           |      |      |       |
| Rf:                       | 72.1   |           |      |      |       |
| Rg:                       | 97.2   |           |      |      |       |



**Test Conditions**

Stabilization Time: 240M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.6/31%  
 Sphere Temperature (°C): 25.9

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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 5700K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



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| $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 3540                                 | NR                             | 490               | 33363                                | NR                             | 620               | 80193                                | NR                             | 750               | 4663                                 | NR                             | 880               | 4678                                 | NR                             |
| 365               | 2862                                 | NR                             | 495               | 44177                                | NR                             | 625               | 73091                                | NR                             | 755               | 4147                                 | NR                             | 885               | 4128                                 | NR                             |
| 370               | 2865                                 | NR                             | 500               | 57019                                | NR                             | 630               | 66269                                | NR                             | 760               | 4040                                 | NR                             | 890               | 4504                                 | NR                             |
| 375               | 3254                                 | NR                             | 505               | 70030                                | NR                             | 635               | 60012                                | NR                             | 765               | 3474                                 | NR                             | 895               | 4371                                 | NR                             |
| 380               | 3076                                 | NR                             | 510               | 81972                                | NR                             | 640               | 53914                                | NR                             | 770               | 3469                                 | NR                             | 900               | 4082                                 | NR                             |
| 385               | 2904                                 | NR                             | 515               | 92590                                | NR                             | 645               | 48385                                | NR                             | 775               | 3181                                 | NR                             | 905               | 2982                                 | NR                             |
| 390               | 2689                                 | NR                             | 520               | 100305                               | NR                             | 650               | 43219                                | NR                             | 780               | 2969                                 | NR                             | 910               | 4351                                 | NR                             |
| 395               | 2619                                 | NR                             | 525               | 107452                               | NR                             | 655               | 38562                                | NR                             | 785               | 3132                                 | NR                             | 915               | 3365                                 | NR                             |
| 400               | 2679                                 | NR                             | 530               | 111373                               | NR                             | 660               | 34110                                | NR                             | 790               | 2507                                 | NR                             | 920               | 3430                                 | NR                             |
| 405               | 3515                                 | NR                             | 535               | 114505                               | NR                             | 665               | 30085                                | NR                             | 795               | 2968                                 | NR                             | 925               | 4264                                 | NR                             |
| 410               | 6934                                 | NR                             | 540               | 116408                               | NR                             | 670               | 26205                                | NR                             | 800               | 2758                                 | NR                             | 930               | 4095                                 | NR                             |
| 415               | 14943                                | NR                             | 545               | 118700                               | NR                             | 675               | 22906                                | NR                             | 805               | 2872                                 | NR                             | 935               | 5048                                 | NR                             |
| 420               | 31939                                | NR                             | 550               | 119209                               | NR                             | 680               | 20058                                | NR                             | 810               | 3094                                 | NR                             | 940               | 4074                                 | NR                             |
| 425               | 64701                                | NR                             | 555               | 120742                               | NR                             | 685               | 17413                                | NR                             | 815               | 3222                                 | NR                             | 945               | 4949                                 | NR                             |
| 430               | 110939                               | NR                             | 560               | 121594                               | NR                             | 690               | 15447                                | NR                             | 820               | 3238                                 | NR                             | 950               | 4387                                 | NR                             |
| 435               | 164597                               | NR                             | 565               | 121913                               | NR                             | 695               | 13398                                | NR                             | 825               | 3524                                 | NR                             | 955               | 4978                                 | NR                             |
| 440               | 207696                               | NR                             | 570               | 122147                               | NR                             | 700               | 11777                                | NR                             | 830               | 2921                                 | NR                             | 960               | 4706                                 | NR                             |
| 445               | 201830                               | NR                             | 575               | 121605                               | NR                             | 705               | 10412                                | NR                             | 835               | 3595                                 | NR                             | 965               | 5083                                 | NR                             |
| 450               | 145410                               | NR                             | 580               | 120248                               | NR                             | 710               | 9544                                 | NR                             | 840               | 3016                                 | NR                             | 970               | 4522                                 | NR                             |
| 455               | 89594                                | NR                             | 585               | 117717                               | NR                             | 715               | 8940                                 | NR                             | 845               | 4032                                 | NR                             | 975               | 4740                                 | NR                             |
| 460               | 58321                                | NR                             | 590               | 114359                               | NR                             | 720               | 7897                                 | NR                             | 850               | 3579                                 | NR                             | 980               | 6122                                 | NR                             |
| 465               | 39318                                | NR                             | 595               | 109974                               | NR                             | 725               | 7045                                 | NR                             | 855               | 4571                                 | NR                             | 985               | 6450                                 | NR                             |
| 470               | 27693                                | NR                             | 600               | 105269                               | NR                             | 730               | 6483                                 | NR                             | 860               | 4485                                 | NR                             | 990               | 4875                                 | NR                             |
| 475               | 23081                                | NR                             | 605               | 99453                                | NR                             | 735               | 5838                                 | NR                             | 865               | 3978                                 | NR                             | 995               | 4764                                 | NR                             |
| 480               | 23002                                | NR                             | 610               | 92921                                | NR                             | 740               | 5261                                 | NR                             | 870               | 4298                                 | NR                             | 1000              | 3640                                 | NR                             |
| 485               | 26201                                | NR                             | 615               | 86989                                | NR                             | 745               | 4760                                 | NR                             | 875               | 4356                                 | NR                             |                   |                                      |                                |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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    | 3540          | NR            | 490    | 33363         | NR            | 620    | 80193         | NR            | 750    | 4663          | NR            | 880    | 4678          | NR            |
| 365    | 2862          | NR            | 495    | 44177         | NR            | 625    | 73091         | NR            | 755    | 4147          | NR            | 885    | 4128          | NR            |
| 370    | 2865          | NR            | 500    | 57019         | NR            | 630    | 66269         | NR            | 760    | 4040          | NR            | 890    | 4504          | NR            |
| 375    | 3254          | NR            | 505    | 70030         | NR            | 635    | 60012         | NR            | 765    | 3474          | NR            | 895    | 4371          | NR            |
| 380    | 3076          | NR            | 510    | 81972         | NR            | 640    | 53914         | NR            | 770    | 3469          | NR            | 900    | 4082          | NR            |
| 385    | 2904          | NR            | 515    | 92590         | NR            | 645    | 48385         | NR            | 775    | 3181          | NR            | 905    | 2982          | NR            |
| 390    | 2689          | NR            | 520    | 100305        | NR            | 650    | 43219         | NR            | 780    | 2969          | NR            | 910    | 4351          | NR            |
| 395    | 2619          | NR            | 525    | 107452        | NR            | 655    | 38562         | NR            | 785    | 3132          | NR            | 915    | 3365          | NR            |
| 400    | 2679          | NR            | 530    | 111373        | NR            | 660    | 34110         | NR            | 790    | 2507          | NR            | 920    | 3430          | NR            |
| 405    | 3515          | NR            | 535    | 114505        | NR            | 665    | 30085         | NR            | 795    | 2968          | NR            | 925    | 4264          | NR            |
| 410    | 6934          | NR            | 540    | 116408        | NR            | 670    | 26205         | NR            | 800    | 2758          | NR            | 930    | 4095          | NR            |
| 415    | 14943         | NR            | 545    | 118700        | NR            | 675    | 22906         | NR            | 805    | 2872          | NR            | 935    | 5048          | NR            |
| 420    | 31939         | NR            | 550    | 119209        | NR            | 680    | 20058         | NR            | 810    | 3094          | NR            | 940    | 4074          | NR            |
| 425    | 64701         | NR            | 555    | 120742        | NR            | 685    | 17413         | NR            | 815    | 3222          | NR            | 945    | 4949          | NR            |
| 430    | 110939        | NR            | 560    | 121594        | NR            | 690    | 15447         | NR            | 820    | 3238          | NR            | 950    | 4387          | NR            |
| 435    | 164597        | NR            | 565    | 121913        | NR            | 695    | 13398         | NR            | 825    | 3524          | NR            | 955    | 4978          | NR            |
| 440    | 207696        | NR            | 570    | 122147        | NR            | 700    | 11777         | NR            | 830    | 2921          | NR            | 960    | 4706          | NR            |
| 445    | 201830        | NR            | 575    | 121605        | NR            | 705    | 10412         | NR            | 835    | 3595          | NR            | 965    | 5083          | NR            |
| 450    | 145410        | NR            | 580    | 120248        | NR            | 710    | 9544          | NR            | 840    | 3016          | NR            | 970    | 4522          | NR            |
| 455    | 89594         | NR            | 585    | 117717        | NR            | 715    | 8940          | NR            | 845    | 4032          | NR            | 975    | 4740          | NR            |
| 460    | 58321         | NR            | 590    | 114359        | NR            | 720    | 7897          | NR            | 850    | 3579          | NR            | 980    | 6122          | NR            |
| 465    | 39318         | NR            | 595    | 109974        | NR            | 725    | 7045          | NR            | 855    | 4571          | NR            | 985    | 6450          | NR            |
| 470    | 27693         | NR            | 600    | 105269        | NR            | 730    | 6483          | NR            | 860    | 4485          | NR            | 990    | 4875          | NR            |
| 475    | 23081         | NR            | 605    | 99453         | NR            | 735    | 5838          | NR            | 865    | 3978          | NR            | 995    | 4764          | NR            |
| 480    | 23002         | NR            | 610    | 92921         | NR            | 740    | 5261          | NR            | 870    | 4298          | NR            | 1000   | 3640          | NR            |
| 485    | 26201         | NR            | 615    | 86989         | NR            | 745    | 4760          | NR            | 875    | 4356          | NR            |        |               |               |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5527.6 M/P: 0.74**

| 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    | 3540          | NR            | 490    | 33363         | NR            | 620    | 80193         | NR            | 750    | 4663          | NR            | 880    | 4678          | NR            |
| 365    | 2862          | NR            | 495    | 44177         | NR            | 625    | 73091         | NR            | 755    | 4147          | NR            | 885    | 4128          | NR            |
| 370    | 2865          | NR            | 500    | 57019         | NR            | 630    | 66269         | NR            | 760    | 4040          | NR            | 890    | 4504          | NR            |
| 375    | 3254          | NR            | 505    | 70030         | NR            | 635    | 60012         | NR            | 765    | 3474          | NR            | 895    | 4371          | NR            |
| 380    | 3076          | NR            | 510    | 81972         | NR            | 640    | 53914         | NR            | 770    | 3469          | NR            | 900    | 4082          | NR            |
| 385    | 2904          | NR            | 515    | 92590         | NR            | 645    | 48385         | NR            | 775    | 3181          | NR            | 905    | 2982          | NR            |
| 390    | 2689          | NR            | 520    | 100305        | NR            | 650    | 43219         | NR            | 780    | 2969          | NR            | 910    | 4351          | NR            |
| 395    | 2619          | NR            | 525    | 107452        | NR            | 655    | 38562         | NR            | 785    | 3132          | NR            | 915    | 3365          | NR            |
| 400    | 2679          | NR            | 530    | 111373        | NR            | 660    | 34110         | NR            | 790    | 2507          | NR            | 920    | 3430          | NR            |
| 405    | 3515          | NR            | 535    | 114505        | NR            | 665    | 30085         | NR            | 795    | 2968          | NR            | 925    | 4264          | NR            |
| 410    | 6934          | NR            | 540    | 116408        | NR            | 670    | 26205         | NR            | 800    | 2758          | NR            | 930    | 4095          | NR            |
| 415    | 14943         | NR            | 545    | 118700        | NR            | 675    | 22906         | NR            | 805    | 2872          | NR            | 935    | 5048          | NR            |
| 420    | 31939         | NR            | 550    | 119209        | NR            | 680    | 20058         | NR            | 810    | 3094          | NR            | 940    | 4074          | NR            |
| 425    | 64701         | NR            | 555    | 120742        | NR            | 685    | 17413         | NR            | 815    | 3222          | NR            | 945    | 4949          | NR            |
| 430    | 110939        | NR            | 560    | 121594        | NR            | 690    | 15447         | NR            | 820    | 3238          | NR            | 950    | 4387          | NR            |
| 435    | 164597        | NR            | 565    | 121913        | NR            | 695    | 13398         | NR            | 825    | 3524          | NR            | 955    | 4978          | NR            |
| 440    | 207696        | NR            | 570    | 122147        | NR            | 700    | 11777         | NR            | 830    | 2921          | NR            | 960    | 4706          | NR            |
| 445    | 201830        | NR            | 575    | 121605        | NR            | 705    | 10412         | NR            | 835    | 3595          | NR            | 965    | 5083          | NR            |
| 450    | 145410        | NR            | 580    | 120248        | NR            | 710    | 9544          | NR            | 840    | 3016          | NR            | 970    | 4522          | NR            |
| 455    | 89594         | NR            | 585    | 117717        | NR            | 715    | 8940          | NR            | 845    | 4032          | NR            | 975    | 4740          | NR            |
| 460    | 58321         | NR            | 590    | 114359        | NR            | 720    | 7897          | NR            | 850    | 3579          | NR            | 980    | 6122          | NR            |
| 465    | 39318         | NR            | 595    | 109974        | NR            | 725    | 7045          | NR            | 855    | 4571          | NR            | 985    | 6450          | NR            |
| 470    | 27693         | NR            | 600    | 105269        | NR            | 730    | 6483          | NR            | 860    | 4485          | NR            | 990    | 4875          | NR            |
| 475    | 23081         | NR            | 605    | 99453         | NR            | 735    | 5838          | NR            | 865    | 3978          | NR            | 995    | 4764          | NR            |
| 480    | 23002         | NR            | 610    | 92921         | NR            | 740    | 5261          | NR            | 870    | 4298          | NR            | 1000   | 3640          | NR            |
| 485    | 26201         | NR            | 615    | 86989         | NR            | 745    | 4760          | NR            | 875    | 4356          | NR            |        |               |               |

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**Summary**

$R_f = 72.1$   
 $R_g = 97.2$   
 CIE  $R_a = 71.7$   
 $R_g = -27.1$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)