

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: P322285

Luminaire Tested: **GLEON-SA1C-750-U-T3-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P322285  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-15)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA1C-750-U-T3-HSS  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(1) 70 CRI, 5000K, 1050mA LIGHTSQUARE WITH 16 LEDS AND TYPE III OPTICS  
WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5397 lumens  
Efficiency: N/A  
Efficacy: 91.5 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G2

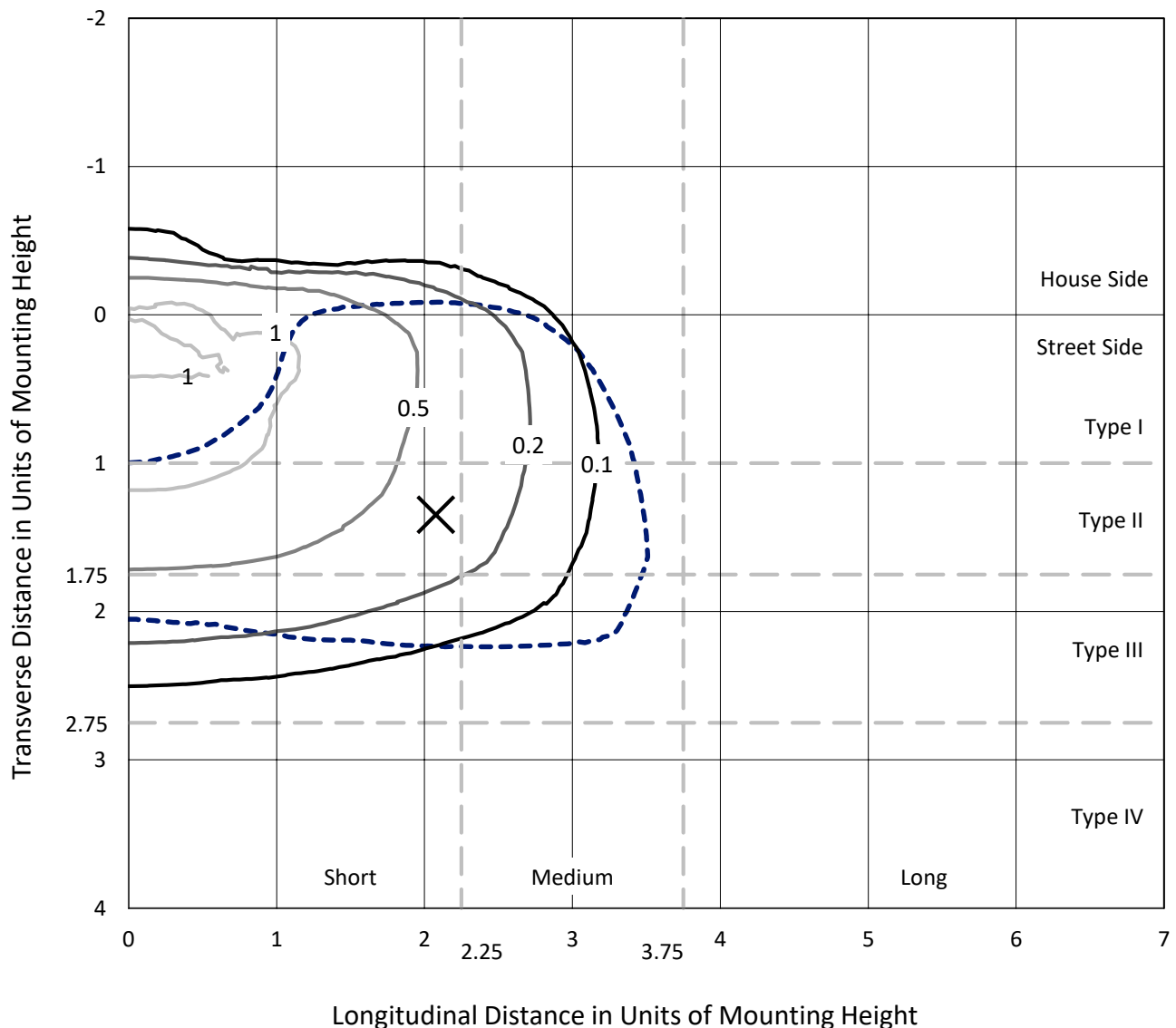
Input Watts (W): 59  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P322285  
 CATALOG NUMBER: GLEON-SA1C-750-U-T3-HSS

## Iso-Footcandle Lines of Horizontal Illumination

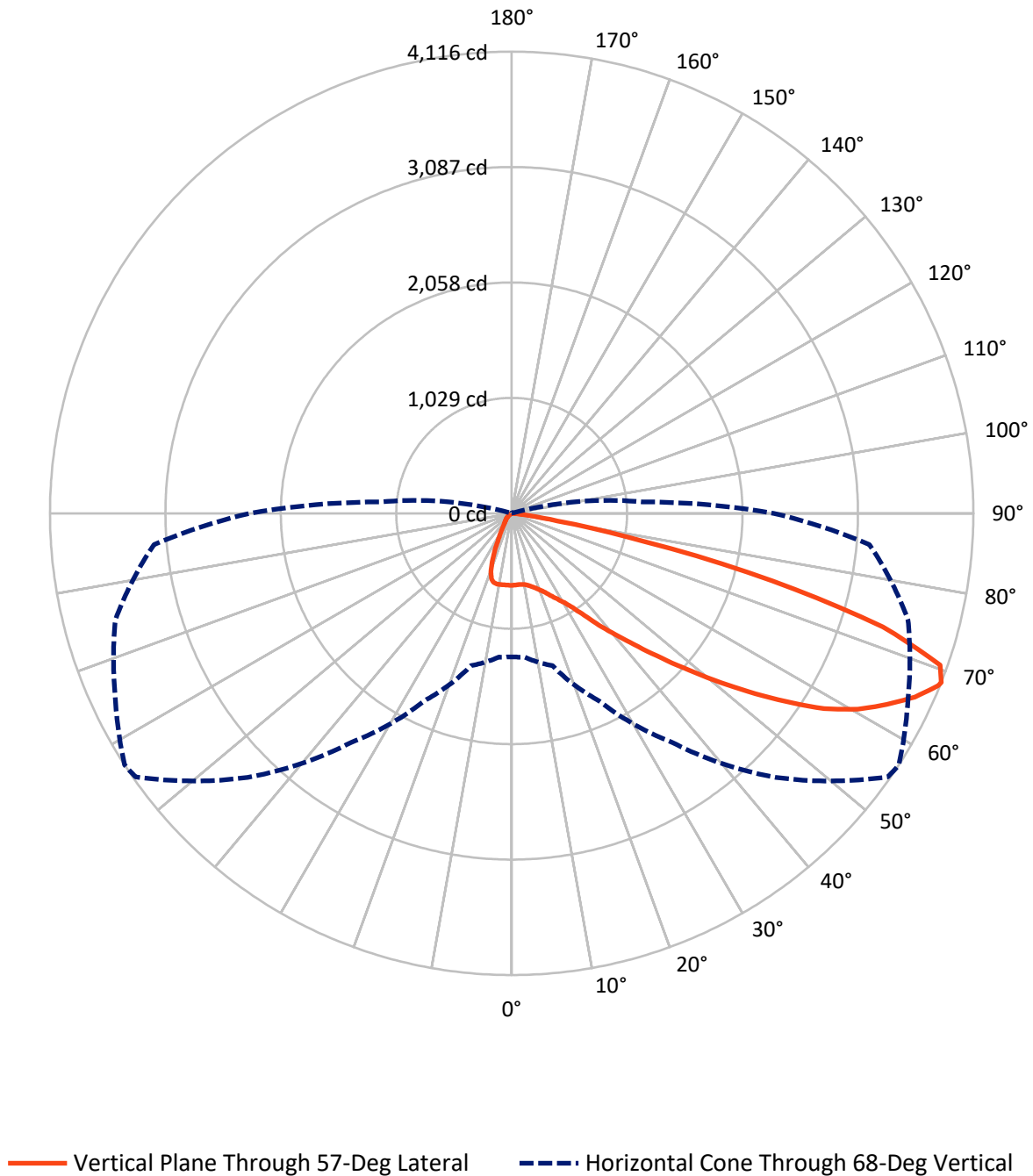
✕ Max cd  
 - - - 1/2 Max cd



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

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CATALOG NUMBER: GLEON-SA1C-750-U-T3-HSS

## Luminous Intensity Polar Plot



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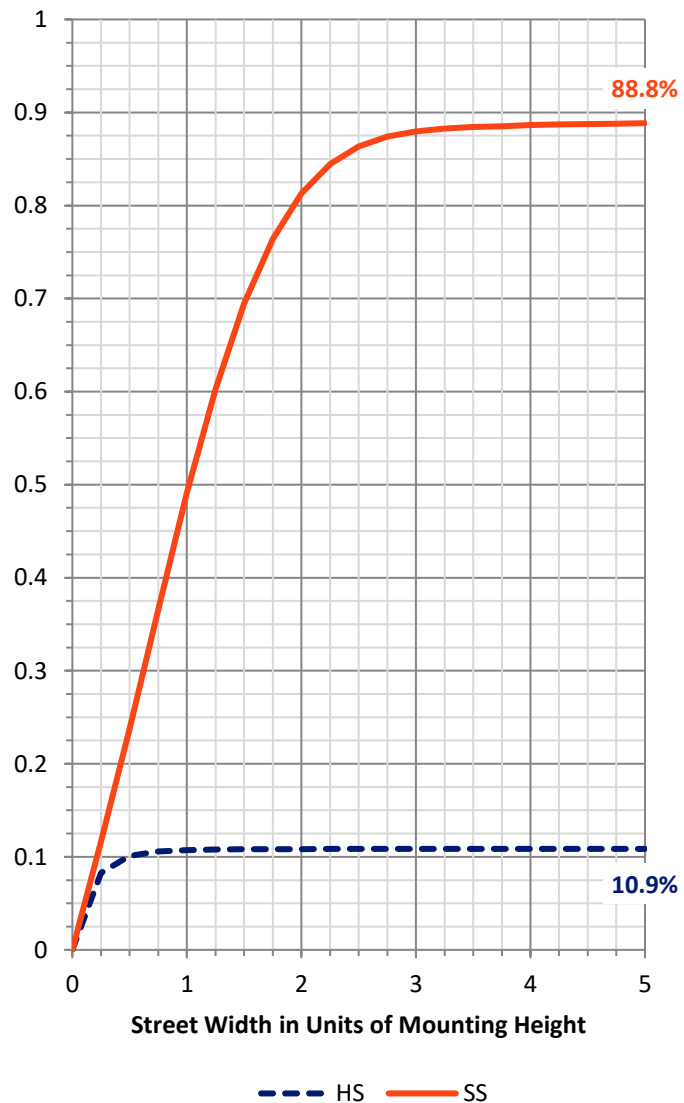
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 591.8    | 0.0    | 591.8  |
|                    | % Fixture | 11.0     | 0.0    | 11.0   |
| <b>Street Side</b> | Lumens    | 4805.2   | 0.0    | 4805.2 |
|                    | % Fixture | 89.0     | 0.0    | 89.0   |
| <b>Total</b>       | Lumens    | 5397.0   | 0.0    | 5397.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 60.0   | 1.1       |
| 10°-20°   | 166.3  | 3.1       |
| 20°-30°   | 286.9  | 5.3       |
| 30°-40°   | 495.2  | 9.2       |
| 40°-50°   | 847.0  | 15.7      |
| 50°-60°   | 1355.1 | 25.1      |
| 60°-70°   | 1565.7 | 29.0      |
| 70°-80°   | 598.3  | 11.1      |
| 80°-90°   | 22.4   | 0.4       |
| 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°    | 5397.0 | 100.0     |
| 0°-180°   | 5397.0 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P322285

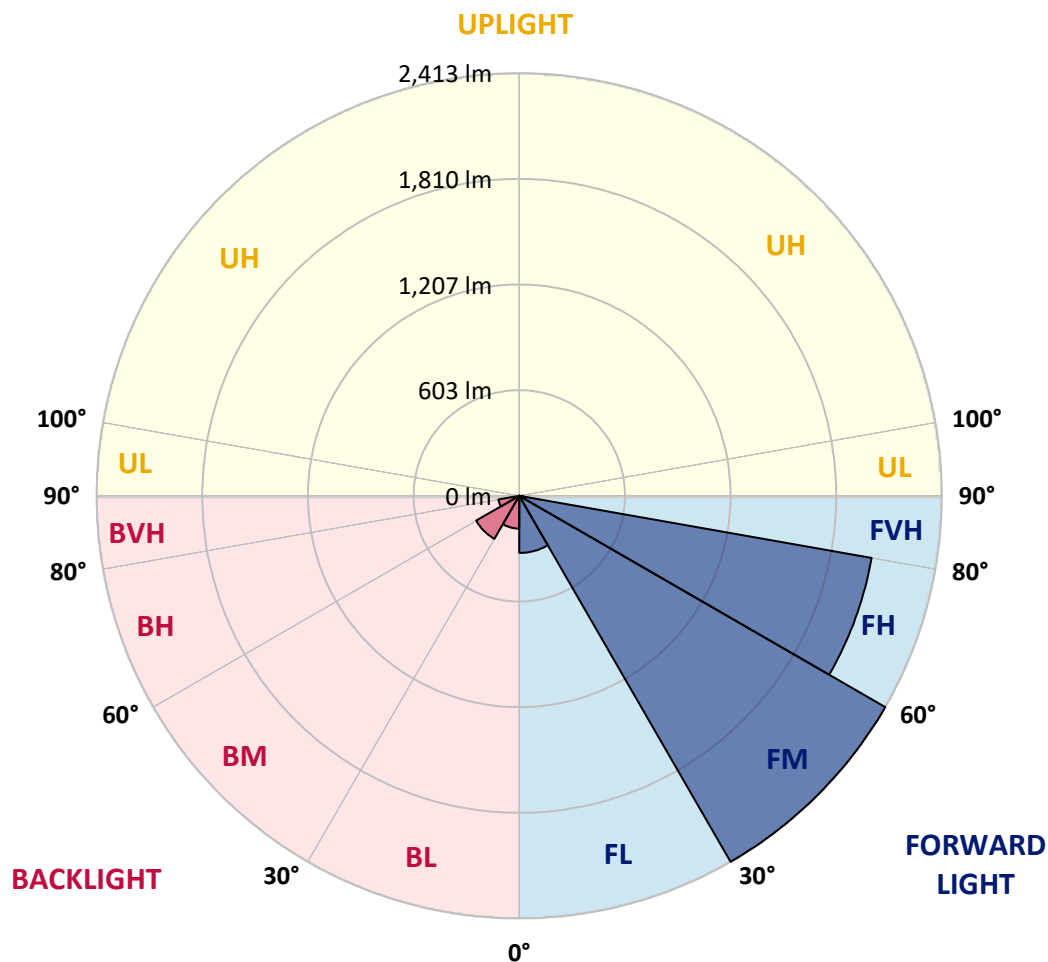
CATALOG NUMBER: GLEON-SA1C-750-U-T3-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 326.2  | 6.0       |                         |      |         |
| FM   | (30°-60°)   | 2413.5 | 44.7      |                         |      |         |
| FH   | (60°-80°)   | 2043.5 | 37.9      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 22.0   | 0.4       |                         |      | G1/100  |
| BL   | (0°-30°)    | 187.0  | 3.5       | B1/500                  |      |         |
| BM   | (30°-60°)   | 283.8  | 5.3       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 120.5  | 2.2       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 0.4    | 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 III Short



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CATALOG NUMBER: GLEON-SA1C-750-U-T3-HSS

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 57°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 641.3  | 641.3  | 641.3  | 641.3  | 641.3  | 641.3  | 641.3  | 641.3  | 641.3  | 641.3  | 641.3  |
| 2.5°  | 626.2  | 629.1  | 631.1  | 632.4  | 633.9  | 637.2  | 638.2  | 639.8  | 640.5  | 640.5  | 642.3  |
| 5°    | 601.5  | 604.6  | 608.9  | 612.5  | 619.6  | 628.8  | 635.4  | 638.0  | 642.6  | 646.7  | 649.0  |
| 7.5°  | 578.5  | 582.1  | 587.2  | 595.6  | 607.9  | 622.7  | 636.5  | 640.0  | 649.0  | 657.6  | 662.0  |
| 10°   | 563.7  | 566.5  | 573.2  | 585.2  | 601.2  | 621.9  | 641.3  | 645.6  | 661.0  | 675.5  | 683.7  |
| 12.5° | 558.6  | 561.2  | 568.1  | 581.6  | 601.5  | 625.7  | 652.5  | 658.9  | 681.4  | 702.6  | 714.0  |
| 15°   | 566.0  | 566.5  | 573.9  | 586.7  | 606.3  | 635.2  | 671.2  | 678.8  | 707.1  | 734.7  | 749.0  |
| 17.5° | 594.6  | 592.3  | 596.1  | 601.8  | 617.3  | 647.7  | 690.8  | 702.3  | 740.1  | 772.5  | 786.0  |
| 20°   | 666.1  | 666.1  | 657.4  | 642.1  | 642.3  | 667.1  | 717.4  | 730.4  | 776.6  | 814.1  | 826.3  |
| 22.5° | 788.3  | 786.0  | 768.6  | 731.1  | 696.7  | 700.5  | 749.8  | 766.6  | 820.5  | 860.5  | 864.6  |
| 25°   | 935.3  | 932.5  | 905.7  | 852.9  | 793.1  | 754.6  | 793.7  | 813.1  | 872.8  | 908.2  | 899.8  |
| 27.5° | 1091.0 | 1088.7 | 1062.1 | 996.5  | 911.6  | 840.9  | 846.0  | 864.3  | 926.1  | 961.1  | 934.3  |
| 30°   | 1241.8 | 1242.5 | 1216.3 | 1148.9 | 1052.7 | 950.9  | 912.3  | 923.0  | 977.9  | 1013.4 | 975.1  |
| 32.5° | 1385.2 | 1386.2 | 1363.5 | 1288.2 | 1198.4 | 1078.7 | 1004.2 | 1001.4 | 1038.1 | 1073.1 | 1029.2 |
| 35°   | 1513.1 | 1515.6 | 1500.0 | 1441.6 | 1346.4 | 1221.1 | 1123.4 | 1116.7 | 1123.6 | 1163.2 | 1112.1 |
| 37.5° | 1636.3 | 1637.8 | 1626.1 | 1576.9 | 1497.2 | 1377.5 | 1273.9 | 1264.5 | 1249.7 | 1280.1 | 1221.6 |
| 40°   | 1771.3 | 1767.5 | 1754.0 | 1709.3 | 1640.9 | 1550.3 | 1435.7 | 1419.4 | 1393.6 | 1420.7 | 1365.6 |
| 42.5° | 1896.9 | 1892.5 | 1894.8 | 1844.3 | 1786.6 | 1727.9 | 1624.3 | 1596.2 | 1581.2 | 1612.3 | 1542.1 |
| 45°   | 2053.8 | 2051.5 | 2059.2 | 2015.3 | 1968.6 | 1926.0 | 1840.5 | 1809.8 | 1803.2 | 1839.7 | 1755.7 |
| 47.5° | 2208.7 | 2214.3 | 2238.1 | 2219.4 | 2200.5 | 2163.0 | 2069.4 | 2055.6 | 2059.7 | 2103.8 | 1981.1 |
| 50°   | 2337.8 | 2344.5 | 2409.6 | 2431.0 | 2458.3 | 2436.3 | 2342.4 | 2334.0 | 2350.1 | 2389.9 | 2223.5 |
| 52.5° | 2431.2 | 2444.8 | 2525.7 | 2624.4 | 2724.0 | 2738.8 | 2645.1 | 2637.4 | 2659.1 | 2665.3 | 2410.8 |
| 55°   | 2496.1 | 2508.1 | 2599.7 | 2780.4 | 2983.0 | 3046.8 | 2988.6 | 2959.0 | 2954.9 | 2894.4 | 2607.8 |
| 57.5° | 2507.5 | 2506.3 | 2638.0 | 2881.2 | 3186.1 | 3350.7 | 3314.0 | 3284.9 | 3201.2 | 3106.2 | 2833.7 |
| 60°   | 2442.7 | 2450.1 | 2603.0 | 2916.1 | 3313.7 | 3580.6 | 3583.5 | 3545.7 | 3415.3 | 3312.2 | 3052.6 |
| 62.5° | 2243.2 | 2273.3 | 2427.7 | 2824.5 | 3312.2 | 3673.3 | 3781.0 | 3752.1 | 3596.2 | 3480.9 | 3274.7 |
| 65°   | 1919.6 | 1930.3 | 2077.5 | 2510.6 | 3088.4 | 3634.5 | 3958.8 | 3948.1 | 3759.3 | 3644.7 | 3388.7 |
| 67.5° | 1401.8 | 1378.6 | 1533.2 | 1977.0 | 2614.7 | 3408.4 | 4086.4 | 4100.0 | 3885.1 | 3678.4 | 3267.3 |
| 68°   | 1279.3 | 1286.2 | 1406.6 | 1845.1 | 2490.7 | 3328.5 | 4094.9 | 4115.5 | 3897.6 | 3656.4 | 3200.9 |
| 70°   | 762.5  | 775.8  | 883.2  | 1270.4 | 1894.8 | 2876.6 | 4004.0 | 4051.2 | 3823.1 | 3430.1 | 2768.6 |
| 72.5° | 194.7  | 210.5  | 312.1  | 568.6  | 1082.3 | 2026.8 | 3380.1 | 3459.9 | 3319.3 | 2782.6 | 1869.1 |
| 75°   | 80.1   | 84.2   | 111.5  | 187.3  | 403.2  | 913.1  | 2227.9 | 2398.8 | 2301.1 | 1665.9 | 844.7  |
| 77.5° | 55.4   | 58.2   | 71.7   | 103.9  | 174.6  | 309.6  | 1092.2 | 1215.8 | 1095.3 | 568.6  | 184.3  |
| 80°   | 39.8   | 42.1   | 51.3   | 69.2   | 100.3  | 110.5  | 356.0  | 411.6  | 326.9  | 124.8  | 45.7   |
| 82.5° | 23.7   | 25.5   | 38.3   | 49.3   | 61.0   | 52.8   | 88.6   | 100.5  | 94.7   | 62.0   | 20.4   |
| 85°   | 11.7   | 13.8   | 25.8   | 35.2   | 32.9   | 22.2   | 27.1   | 30.1   | 37.3   | 37.8   | 11.0   |
| 87.5° | 0.8    | 1.5    | 15.1   | 21.2   | 9.2    | 5.1    | 7.9    | 9.7    | 13.3   | 18.6   | 4.6    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

REPORT NUMBER: P322285

CATALOG NUMBER: GLEON-SA1C-750-U-T3-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 641.3  | 641.3  | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 | 641.3 |
| 2.5°  | 643.1  | 643.3  | 641.6 | 640.8 | 641.3 | 638.2 | 637.0 | 637.5 | 637.5 | 638.2 | 637.0 |
| 5°    | 649.5  | 649.5  | 646.4 | 642.3 | 640.0 | 634.2 | 630.3 | 629.3 | 628.5 | 628.0 | 627.0 |
| 7.5°  | 663.3  | 661.7  | 656.4 | 647.4 | 639.8 | 627.0 | 617.3 | 612.2 | 609.7 | 608.6 | 607.9 |
| 10°   | 685.5  | 682.6  | 673.7 | 657.1 | 639.5 | 616.8 | 595.6 | 580.6 | 568.1 | 563.0 | 559.9 |
| 12.5° | 715.3  | 711.2  | 696.2 | 668.6 | 637.7 | 595.9 | 549.9 | 505.8 | 464.7 | 447.9 | 439.4 |
| 15°   | 749.8  | 743.9  | 720.2 | 678.3 | 627.3 | 548.7 | 448.9 | 371.6 | 314.7 | 293.2 | 284.0 |
| 17.5° | 784.7  | 777.1  | 741.1 | 684.4 | 595.9 | 450.9 | 314.9 | 237.8 | 199.8 | 189.6 | 186.0 |
| 20°   | 819.9  | 808.7  | 759.2 | 679.8 | 524.9 | 325.1 | 207.7 | 173.8 | 162.8 | 159.8 | 158.7 |
| 22.5° | 853.4  | 836.0  | 775.5 | 662.0 | 415.7 | 218.2 | 164.3 | 153.6 | 150.1 | 148.3 | 147.8 |
| 25°   | 882.5  | 858.2  | 789.8 | 606.9 | 294.2 | 164.9 | 148.0 | 144.4 | 139.8 | 136.5 | 136.8 |
| 27.5° | 909.8  | 880.4  | 798.5 | 516.0 | 196.2 | 140.9 | 137.0 | 132.2 | 123.8 | 118.9 | 118.9 |
| 30°   | 942.7  | 910.0  | 804.9 | 397.1 | 144.4 | 124.5 | 121.5 | 114.1 | 102.6 | 96.2  | 96.2  |
| 32.5° | 992.2  | 954.9  | 800.8 | 278.7 | 119.7 | 109.5 | 102.3 | 92.1  | 79.6  | 73.5  | 73.2  |
| 35°   | 1068.0 | 1024.4 | 771.7 | 182.7 | 105.7 | 95.2  | 83.7  | 71.2  | 60.2  | 55.1  | 54.9  |
| 37.5° | 1170.1 | 1117.2 | 706.4 | 130.7 | 94.7  | 81.9  | 68.1  | 54.4  | 46.2  | 42.9  | 42.6  |
| 40°   | 1302.5 | 1225.2 | 613.0 | 105.9 | 84.5  | 69.2  | 52.6  | 42.1  | 36.5  | 33.9  | 34.2  |
| 42.5° | 1461.5 | 1340.8 | 500.9 | 91.4  | 74.5  | 56.9  | 41.1  | 33.2  | 29.6  | 27.8  | 27.3  |
| 45°   | 1638.1 | 1454.9 | 383.6 | 81.4  | 64.6  | 45.9  | 32.2  | 26.3  | 23.5  | 22.5  | 22.5  |
| 47.5° | 1832.3 | 1565.9 | 280.7 | 72.7  | 53.8  | 35.5  | 25.8  | 21.4  | 19.1  | 18.4  | 18.1  |
| 50°   | 2008.6 | 1642.9 | 202.4 | 63.5  | 44.1  | 28.1  | 20.9  | 17.9  | 16.3  | 15.3  | 15.3  |
| 52.5° | 2155.6 | 1667.2 | 149.0 | 53.6  | 35.7  | 22.5  | 17.4  | 15.3  | 13.8  | 13.0  | 13.0  |
| 55°   | 2285.0 | 1657.2 | 110.8 | 44.1  | 28.8  | 18.4  | 14.8  | 13.0  | 11.7  | 11.0  | 11.0  |
| 57.5° | 2409.0 | 1625.1 | 82.7  | 36.0  | 23.2  | 14.8  | 12.5  | 11.0  | 9.7   | 9.2   | 9.2   |
| 60°   | 2510.4 | 1571.5 | 61.5  | 29.1  | 18.6  | 12.0  | 10.5  | 8.9   | 7.9   | 7.1   | 7.1   |
| 62.5° | 2592.5 | 1512.3 | 45.2  | 24.0  | 14.8  | 9.4   | 8.2   | 7.4   | 5.9   | 5.1   | 5.1   |
| 65°   | 2593.0 | 1414.0 | 33.9  | 19.9  | 11.5  | 7.4   | 6.1   | 5.9   | 3.8   | 3.1   | 2.8   |
| 67.5° | 2405.5 | 1219.1 | 26.0  | 17.1  | 8.9   | 5.6   | 4.6   | 4.8   | 2.0   | 1.3   | 1.0   |
| 68°   | 2337.3 | 1169.6 | 24.5  | 16.8  | 8.4   | 5.4   | 4.3   | 4.8   | 1.8   | 1.0   | 0.8   |
| 70°   | 1970.6 | 930.4  | 19.7  | 16.3  | 7.4   | 4.1   | 3.6   | 4.8   | 1.5   | 0.8   | 0.5   |
| 72.5° | 1260.4 | 540.0  | 14.5  | 13.0  | 5.6   | 3.1   | 2.3   | 4.3   | 1.5   | 0.5   | 0.3   |
| 75°   | 536.4  | 167.4  | 10.0  | 9.2   | 3.3   | 2.3   | 1.5   | 2.8   | 1.0   | 0.3   | 0.0   |
| 77.5° | 113.1  | 37.8   | 5.9   | 5.6   | 2.3   | 1.5   | 1.0   | 0.8   | 0.3   | 0.0   | 0.0   |
| 80°   | 29.1   | 11.0   | 3.1   | 2.8   | 1.3   | 0.8   | 0.5   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 9.2    | 4.3    | 1.8   | 1.3   | 0.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 4.6    | 2.6    | 1.0   | 0.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 2.6    | 0.8    | 0.3   | 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   |

LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

### Test Information

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-4-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-750-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):                  | 4884   | CRI (Ra): | 73.5 |      |       |
| CIE u':                   | 0.2101 | R1:       | 70.5 | R9:  | -28.4 |
| CIE v':                   | 0.4904 | R2:       | 77.7 | R10: | 48.6  |
| Duv:                      | 0.0037 | R3:       | 84.6 | R11: | 73.2  |
| CIE x:                    | 0.3493 | R4:       | 74.7 | R12: | 50.7  |
| CIE y:                    | 0.3624 | R5:       | 71.9 | R13: | 71.2  |
| CIE z:                    | 0.2884 | R6:       | 70.7 | R14: | 91.4  |
| Peak Wavelength (nm):     | 444    | R7:       | 81.2 |      |       |
| Dominant Wavelength (nm): | 571    | R8:       | 56.9 |      |       |
| Purity:                   | 13.7   |           |      |      |       |
| Rf:                       | 74.9   |           |      |      |       |
| Rg:                       | 96.3   |           |      |      |       |



### Test Conditions

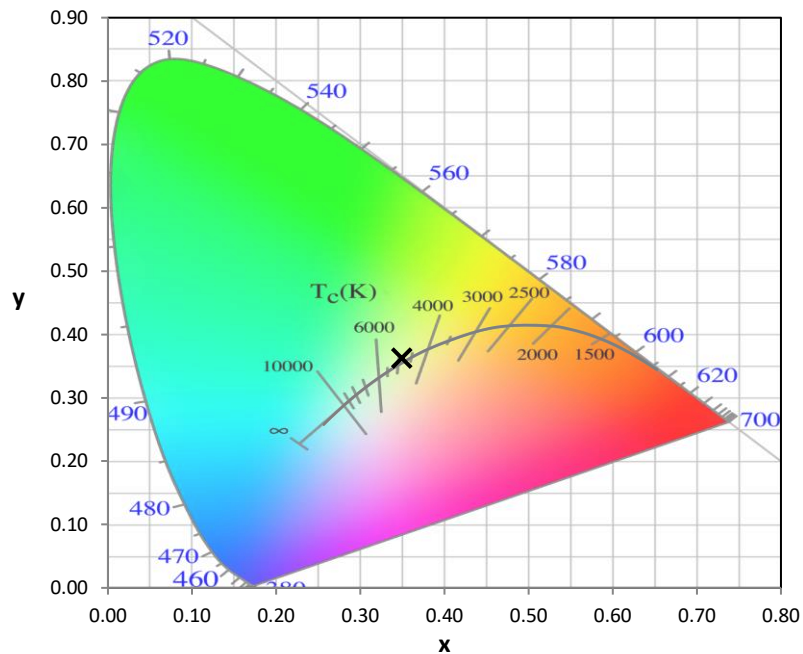
Stabilization Time: 240M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-R4

| 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 5000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**

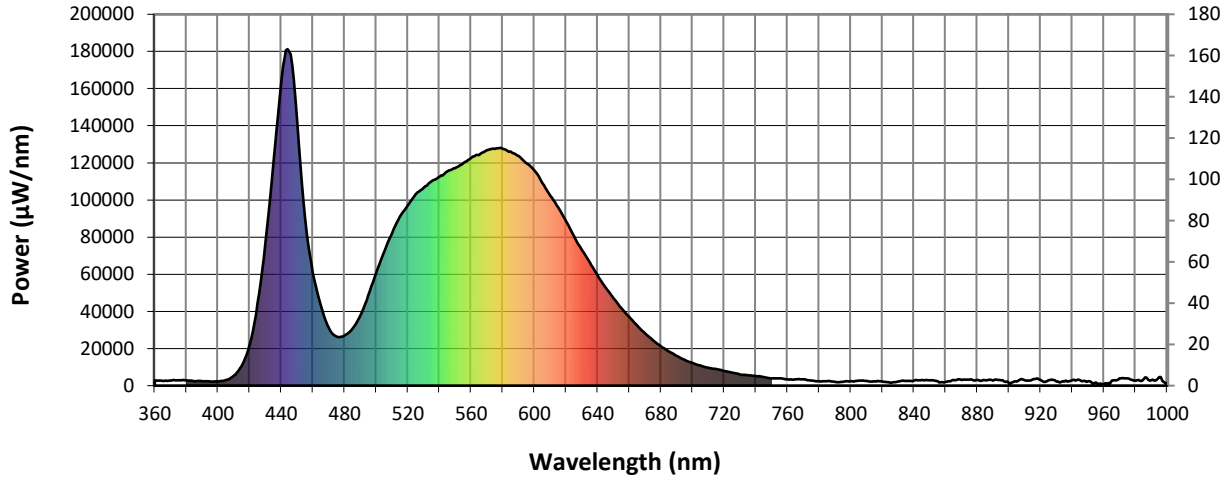


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| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2945             | NR               | 490       | 37941            | NR               | 620       | 88803            | NR               | 750       | 3908             | NR               | 880       | 2997             | NR               |
| 365       | 2596             | NR               | 495       | 48525            | NR               | 625       | 80578            | NR               | 755       | 3988             | NR               | 885       | 2927             | NR               |
| 370       | 2732             | NR               | 500       | 60609            | NR               | 630       | 73127            | NR               | 760       | 3335             | NR               | 890       | 2649             | NR               |
| 375       | 2894             | NR               | 505       | 72036            | NR               | 635       | 66244            | NR               | 765       | 3438             | NR               | 895       | 2828             | NR               |
| 380       | 2822             | NR               | 510       | 82168            | NR               | 640       | 59440            | NR               | 770       | 3427             | NR               | 900       | 1407             | NR               |
| 385       | 2394             | NR               | 515       | 90898            | NR               | 645       | 52864            | NR               | 775       | 2759             | NR               | 905       | 2224             | NR               |
| 390       | 2370             | NR               | 520       | 97142            | NR               | 650       | 47085            | NR               | 780       | 2340             | NR               | 910       | 2905             | NR               |
| 395       | 2267             | NR               | 525       | 103255           | NR               | 655       | 41789            | NR               | 785       | 2412             | NR               | 915       | 3350             | NR               |
| 400       | 2262             | NR               | 530       | 106697           | NR               | 660       | 37064            | NR               | 790       | 1999             | NR               | 920       | 3114             | NR               |
| 405       | 3000             | NR               | 535       | 110081           | NR               | 665       | 32299            | NR               | 795       | 2054             | NR               | 925       | 2834             | NR               |
| 410       | 5324             | NR               | 540       | 112494           | NR               | 670       | 28142            | NR               | 800       | 2331             | NR               | 930       | 2271             | NR               |
| 415       | 10725            | NR               | 545       | 115513           | NR               | 675       | 24505            | NR               | 805       | 2648             | NR               | 935       | 2228             | NR               |
| 420       | 22128            | NR               | 550       | 117203           | NR               | 680       | 21162            | NR               | 810       | 2485             | NR               | 940       | 2833             | NR               |
| 425       | 44095            | NR               | 555       | 119753           | NR               | 685       | 18400            | NR               | 815       | 2409             | NR               | 945       | 2941             | NR               |
| 430       | 77002            | NR               | 560       | 122602           | NR               | 690       | 16065            | NR               | 820       | 2221             | NR               | 950       | 2323             | NR               |
| 435       | 119881           | NR               | 565       | 124314           | NR               | 695       | 13860            | NR               | 825       | 1562             | NR               | 955       | 1667             | NR               |
| 440       | 164454           | NR               | 570       | 126775           | NR               | 700       | 12177            | NR               | 830       | 2249             | NR               | 960       | 749              | NR               |
| 445       | 179997           | NR               | 575       | 127511           | NR               | 705       | 10757            | NR               | 835       | 2573             | NR               | 965       | 2669             | NR               |
| 450       | 142822           | NR               | 580       | 127577           | NR               | 710       | 9601             | NR               | 840       | 2764             | NR               | 970       | 3968             | NR               |
| 455       | 90008            | NR               | 585       | 126153           | NR               | 715       | 8944             | NR               | 845       | 3109             | NR               | 975       | 3886             | NR               |
| 460       | 60557            | NR               | 590       | 123678           | NR               | 720       | 7947             | NR               | 850       | 2963             | NR               | 980       | 2788             | NR               |
| 465       | 43305            | NR               | 595       | 119774           | NR               | 725       | 7062             | NR               | 855       | 2336             | NR               | 985       | 3496             | NR               |
| 470       | 31089            | NR               | 600       | 115733           | NR               | 730       | 6004             | NR               | 860       | 2118             | NR               | 990       | 2913             | NR               |
| 475       | 26278            | NR               | 605       | 109231           | NR               | 735       | 5594             | NR               | 865       | 3144             | NR               | 995       | 4659             | NR               |
| 480       | 27060            | NR               | 610       | 102408           | NR               | 740       | 5165             | NR               | 870       | 3069             | NR               | 1000      | 1308             | NR               |
| 485       | 30698            | NR               | 615       | 96015            | NR               | 745       | 4687             | NR               | 875       | 3311             | NR               |           |                  |                  |

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Scotopic Flux vs. Wavelength



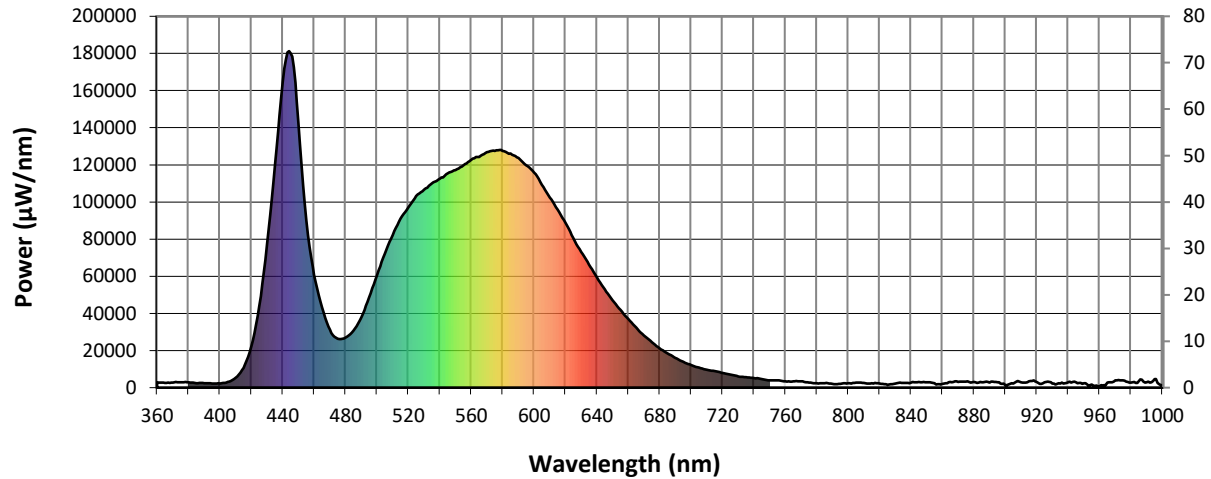
Scotopic Lumens: 13493.5

S/P: 1.77

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2945             | NR               | 490       | 37941            | NR               | 620       | 88803            | NR               | 750       | 3908             | NR               | 880       | 2997             | NR               |
| 365       | 2596             | NR               | 495       | 48525            | NR               | 625       | 80578            | NR               | 755       | 3988             | NR               | 885       | 2927             | NR               |
| 370       | 2732             | NR               | 500       | 60609            | NR               | 630       | 73127            | NR               | 760       | 3335             | NR               | 890       | 2649             | NR               |
| 375       | 2894             | NR               | 505       | 72036            | NR               | 635       | 66244            | NR               | 765       | 3438             | NR               | 895       | 2828             | NR               |
| 380       | 2822             | NR               | 510       | 82168            | NR               | 640       | 59440            | NR               | 770       | 3427             | NR               | 900       | 1407             | NR               |
| 385       | 2394             | NR               | 515       | 90898            | NR               | 645       | 52864            | NR               | 775       | 2759             | NR               | 905       | 2224             | NR               |
| 390       | 2370             | NR               | 520       | 97142            | NR               | 650       | 47085            | NR               | 780       | 2340             | NR               | 910       | 2905             | NR               |
| 395       | 2267             | NR               | 525       | 103255           | NR               | 655       | 41789            | NR               | 785       | 2412             | NR               | 915       | 3350             | NR               |
| 400       | 2262             | NR               | 530       | 106697           | NR               | 660       | 37064            | NR               | 790       | 1999             | NR               | 920       | 3114             | NR               |
| 405       | 3000             | NR               | 535       | 110081           | NR               | 665       | 32299            | NR               | 795       | 2054             | NR               | 925       | 2834             | NR               |
| 410       | 5324             | NR               | 540       | 112494           | NR               | 670       | 28142            | NR               | 800       | 2331             | NR               | 930       | 2271             | NR               |
| 415       | 10725            | NR               | 545       | 115513           | NR               | 675       | 24505            | NR               | 805       | 2648             | NR               | 935       | 2228             | NR               |
| 420       | 22128            | NR               | 550       | 117203           | NR               | 680       | 21162            | NR               | 810       | 2485             | NR               | 940       | 2833             | NR               |
| 425       | 44095            | NR               | 555       | 119753           | NR               | 685       | 18400            | NR               | 815       | 2409             | NR               | 945       | 2941             | NR               |
| 430       | 77002            | NR               | 560       | 122602           | NR               | 690       | 16065            | NR               | 820       | 2221             | NR               | 950       | 2323             | NR               |
| 435       | 119881           | NR               | 565       | 124314           | NR               | 695       | 13860            | NR               | 825       | 1562             | NR               | 955       | 1667             | NR               |
| 440       | 164454           | NR               | 570       | 126775           | NR               | 700       | 12177            | NR               | 830       | 2249             | NR               | 960       | 749              | NR               |
| 445       | 179997           | NR               | 575       | 127511           | NR               | 705       | 10757            | NR               | 835       | 2573             | NR               | 965       | 2669             | NR               |
| 450       | 142822           | NR               | 580       | 127577           | NR               | 710       | 9601             | NR               | 840       | 2764             | NR               | 970       | 3968             | NR               |
| 455       | 90008            | NR               | 585       | 126153           | NR               | 715       | 8944             | NR               | 845       | 3109             | NR               | 975       | 3886             | NR               |
| 460       | 60557            | NR               | 590       | 123678           | NR               | 720       | 7947             | NR               | 850       | 2963             | NR               | 980       | 2788             | NR               |
| 465       | 43305            | NR               | 595       | 119774           | NR               | 725       | 7062             | NR               | 855       | 2336             | NR               | 985       | 3496             | NR               |
| 470       | 31089            | NR               | 600       | 115733           | NR               | 730       | 6004             | NR               | 860       | 2118             | NR               | 990       | 2913             | NR               |
| 475       | 26278            | NR               | 605       | 109231           | NR               | 735       | 5594             | NR               | 865       | 3144             | NR               | 995       | 4659             | NR               |
| 480       | 27060            | NR               | 610       | 102408           | NR               | 740       | 5165             | NR               | 870       | 3069             | NR               | 1000      | 1308             | NR               |
| 485       | 30698            | NR               | 615       | 96015            | NR               | 745       | 4687             | NR               | 875       | 3311             | NR               |           |                  |                  |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5378.9**

**M/P: 0.71**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2945             | NR               | 490       | 37941            | NR               | 620       | 88803            | NR               | 750       | 3908             | NR               | 880       | 2997             | NR               |
| 365       | 2596             | NR               | 495       | 48525            | NR               | 625       | 80578            | NR               | 755       | 3988             | NR               | 885       | 2927             | NR               |
| 370       | 2732             | NR               | 500       | 60609            | NR               | 630       | 73127            | NR               | 760       | 3335             | NR               | 890       | 2649             | NR               |
| 375       | 2894             | NR               | 505       | 72036            | NR               | 635       | 66244            | NR               | 765       | 3438             | NR               | 895       | 2828             | NR               |
| 380       | 2822             | NR               | 510       | 82168            | NR               | 640       | 59440            | NR               | 770       | 3427             | NR               | 900       | 1407             | NR               |
| 385       | 2394             | NR               | 515       | 90898            | NR               | 645       | 52864            | NR               | 775       | 2759             | NR               | 905       | 2224             | NR               |
| 390       | 2370             | NR               | 520       | 97142            | NR               | 650       | 47085            | NR               | 780       | 2340             | NR               | 910       | 2905             | NR               |
| 395       | 2267             | NR               | 525       | 103255           | NR               | 655       | 41789            | NR               | 785       | 2412             | NR               | 915       | 3350             | NR               |
| 400       | 2262             | NR               | 530       | 106697           | NR               | 660       | 37064            | NR               | 790       | 1999             | NR               | 920       | 3114             | NR               |
| 405       | 3000             | NR               | 535       | 110081           | NR               | 665       | 32299            | NR               | 795       | 2054             | NR               | 925       | 2834             | NR               |
| 410       | 5324             | NR               | 540       | 112494           | NR               | 670       | 28142            | NR               | 800       | 2331             | NR               | 930       | 2271             | NR               |
| 415       | 10725            | NR               | 545       | 115513           | NR               | 675       | 24505            | NR               | 805       | 2648             | NR               | 935       | 2228             | NR               |
| 420       | 22128            | NR               | 550       | 117203           | NR               | 680       | 21162            | NR               | 810       | 2485             | NR               | 940       | 2833             | NR               |
| 425       | 44095            | NR               | 555       | 119753           | NR               | 685       | 18400            | NR               | 815       | 2409             | NR               | 945       | 2941             | NR               |
| 430       | 77002            | NR               | 560       | 122602           | NR               | 690       | 16065            | NR               | 820       | 2221             | NR               | 950       | 2323             | NR               |
| 435       | 119881           | NR               | 565       | 124314           | NR               | 695       | 13860            | NR               | 825       | 1562             | NR               | 955       | 1667             | NR               |
| 440       | 164454           | NR               | 570       | 126775           | NR               | 700       | 12177            | NR               | 830       | 2249             | NR               | 960       | 749              | NR               |
| 445       | 179997           | NR               | 575       | 127511           | NR               | 705       | 10757            | NR               | 835       | 2573             | NR               | 965       | 2669             | NR               |
| 450       | 142822           | NR               | 580       | 127577           | NR               | 710       | 9601             | NR               | 840       | 2764             | NR               | 970       | 3968             | NR               |
| 455       | 90008            | NR               | 585       | 126153           | NR               | 715       | 8944             | NR               | 845       | 3109             | NR               | 975       | 3886             | NR               |
| 460       | 60557            | NR               | 590       | 123678           | NR               | 720       | 7947             | NR               | 850       | 2963             | NR               | 980       | 2788             | NR               |
| 465       | 43305            | NR               | 595       | 119774           | NR               | 725       | 7062             | NR               | 855       | 2336             | NR               | 985       | 3496             | NR               |
| 470       | 31089            | NR               | 600       | 115733           | NR               | 730       | 6004             | NR               | 860       | 2118             | NR               | 990       | 2913             | NR               |
| 475       | 26278            | NR               | 605       | 109231           | NR               | 735       | 5594             | NR               | 865       | 3144             | NR               | 995       | 4659             | NR               |
| 480       | 27060            | NR               | 610       | 102408           | NR               | 740       | 5165             | NR               | 870       | 3069             | NR               | 1000      | 1308             | NR               |
| 485       | 30698            | NR               | 615       | 96015            | NR               | 745       | 4687             | NR               | 875       | 3311             | NR               |           |                  |                  |

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**TM-30-18**

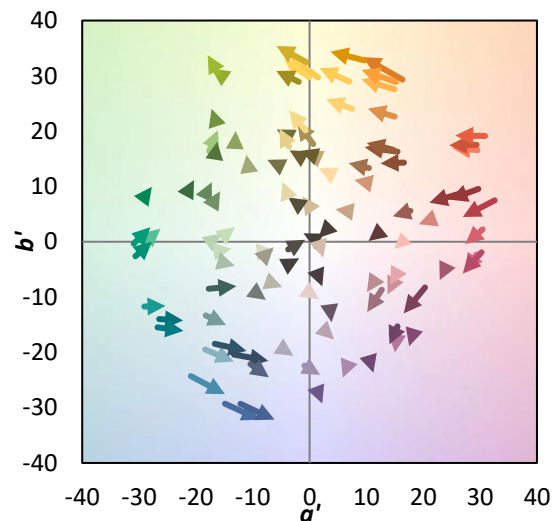
**Summary**

$R_f = 74.9$   
 $R_g = 96.3$   
 CIE  $R_a = 73.5$   
 $R_g = -28.4$

**Spectral Power Distribution Comparison**



**Color Vector Graphics**



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**TM-30-18**

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

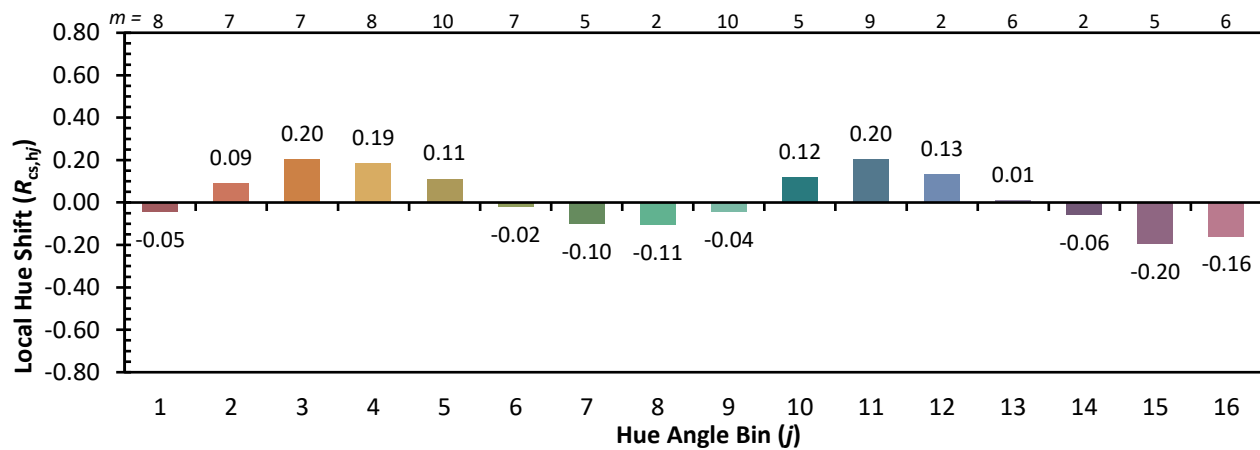
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 |            |



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Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)