

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: INVUE

Report Number: P822739

Luminaire Tested: **MSA-SA1B-840-U-SLL-HSS**

Issue Date: 04/10/2024

**Test Information**

Test Method: LM-79-08  
Report Number: P822739  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1910-543-25)  
Test Lab: INNOVATION CENTER  
Issue Date: 04/10/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: MSA-SA1B-840-U-SLL-HSS  
Description: MESA POST TOP DECORATIVE LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS  
EACH AND SPILL LIGHT ELIMINATOR LEFT OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

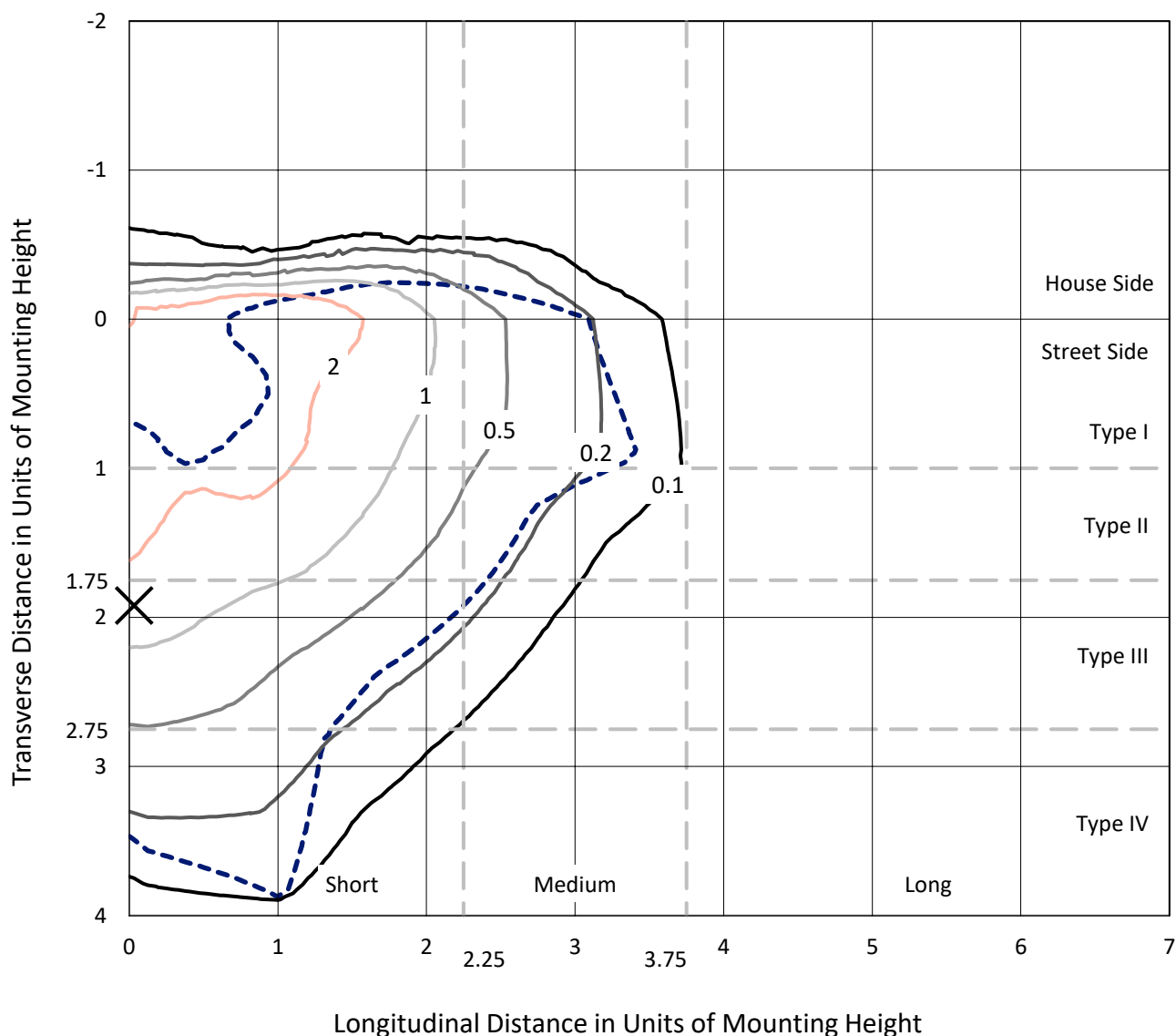
Lumens per Lamp: N/A  
Luminaire Lumens: 3106.3 lumens  
Efficiency: N/A  
Efficacy: 70.6 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G1

Input Watts (W): 44  
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: 25 FT

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## Iso-Footcandle Lines of Horizontal Illumination

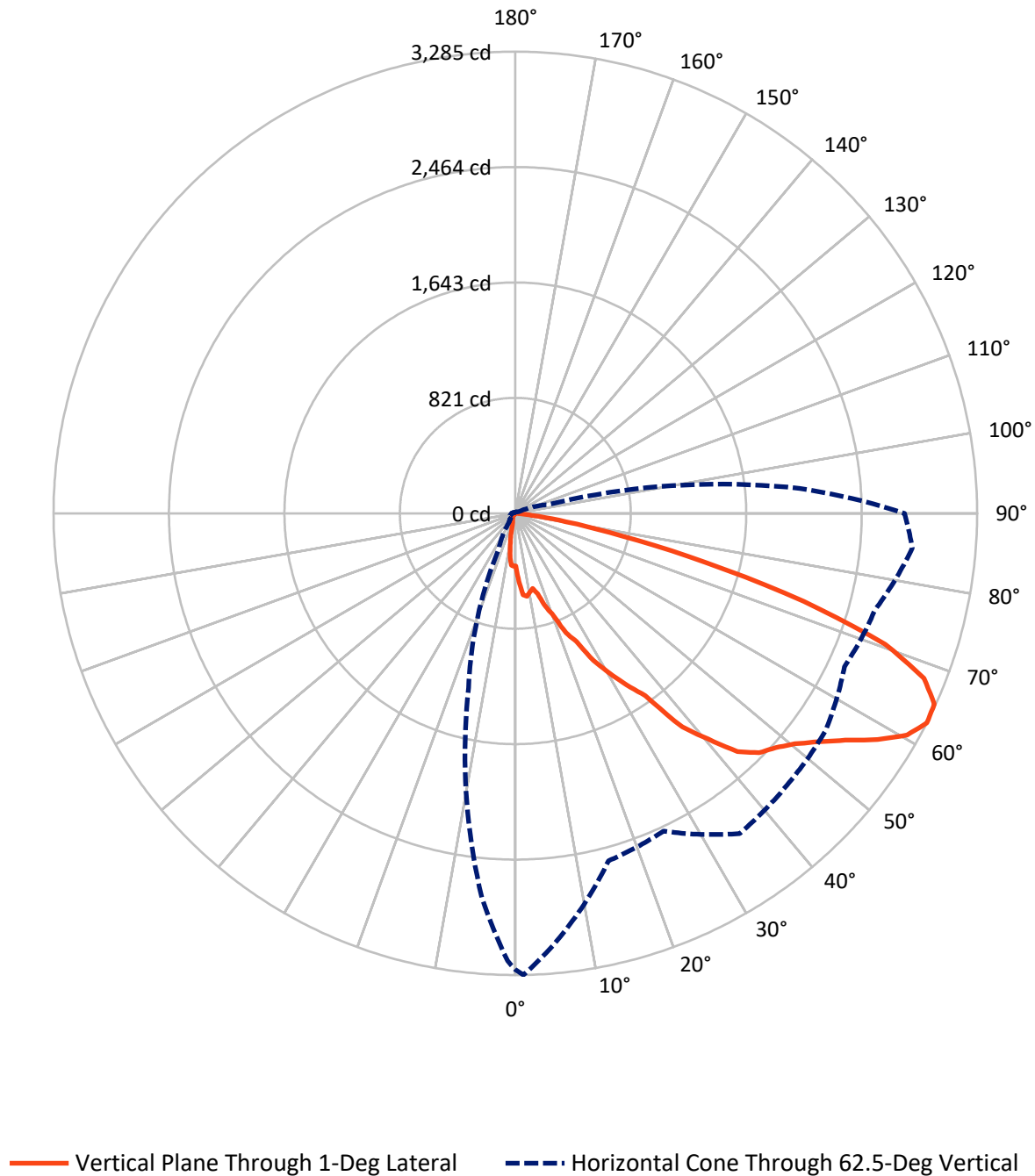
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 4.4 fc  
 Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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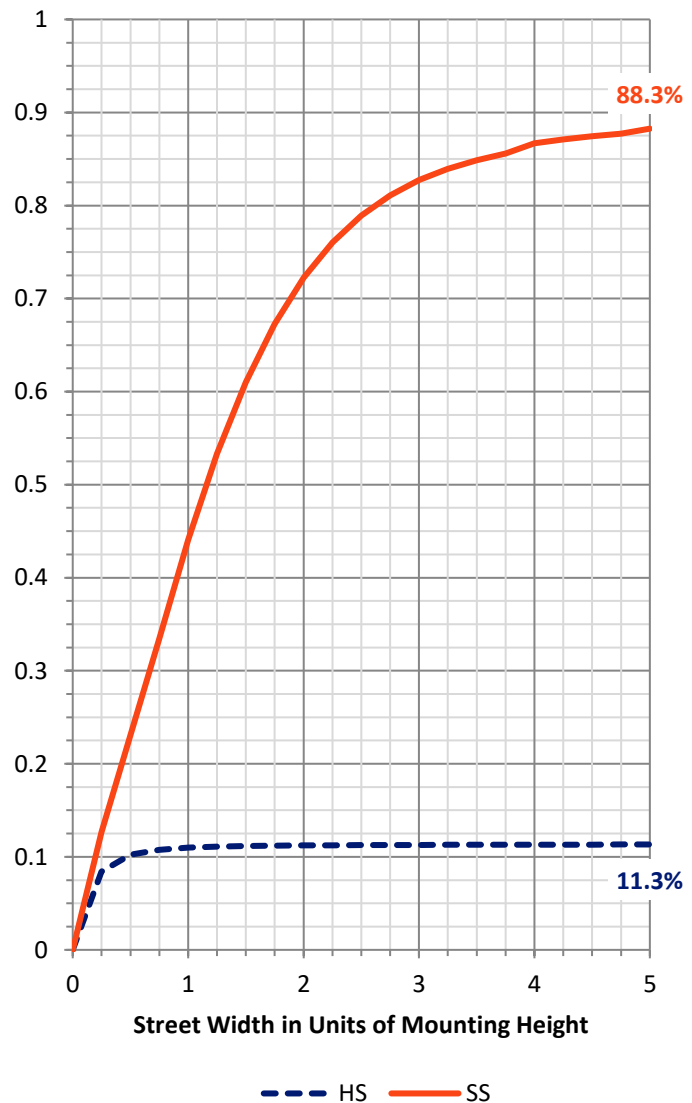
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 355.2    | 0.0    | 355.2  |
|                    | % Fixture | 11.4     | 0.0    | 11.4   |
| <b>Street Side</b> | Lumens    | 2751.1   | 0.0    | 2751.1 |
|                    | % Fixture | 88.6     | 0.0    | 88.6   |
| <b>Total</b>       | Lumens    | 3106.3   | 0.0    | 3106.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 41.8   | 1.3       |
| 10°-20°   | 109.2  | 3.5       |
| 20°-30°   | 176.5  | 5.7       |
| 30°-40°   | 295.7  | 9.5       |
| 40°-50°   | 483.5  | 15.6      |
| 50°-60°   | 715.7  | 23.0      |
| 60°-70°   | 821.7  | 26.5      |
| 70°-80°   | 406.3  | 13.1      |
| 80°-90°   | 55.8   | 1.8       |
| 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°    | 3106.3 | 100.0     |
| 0°-180°   | 3106.3 | 100.0     |



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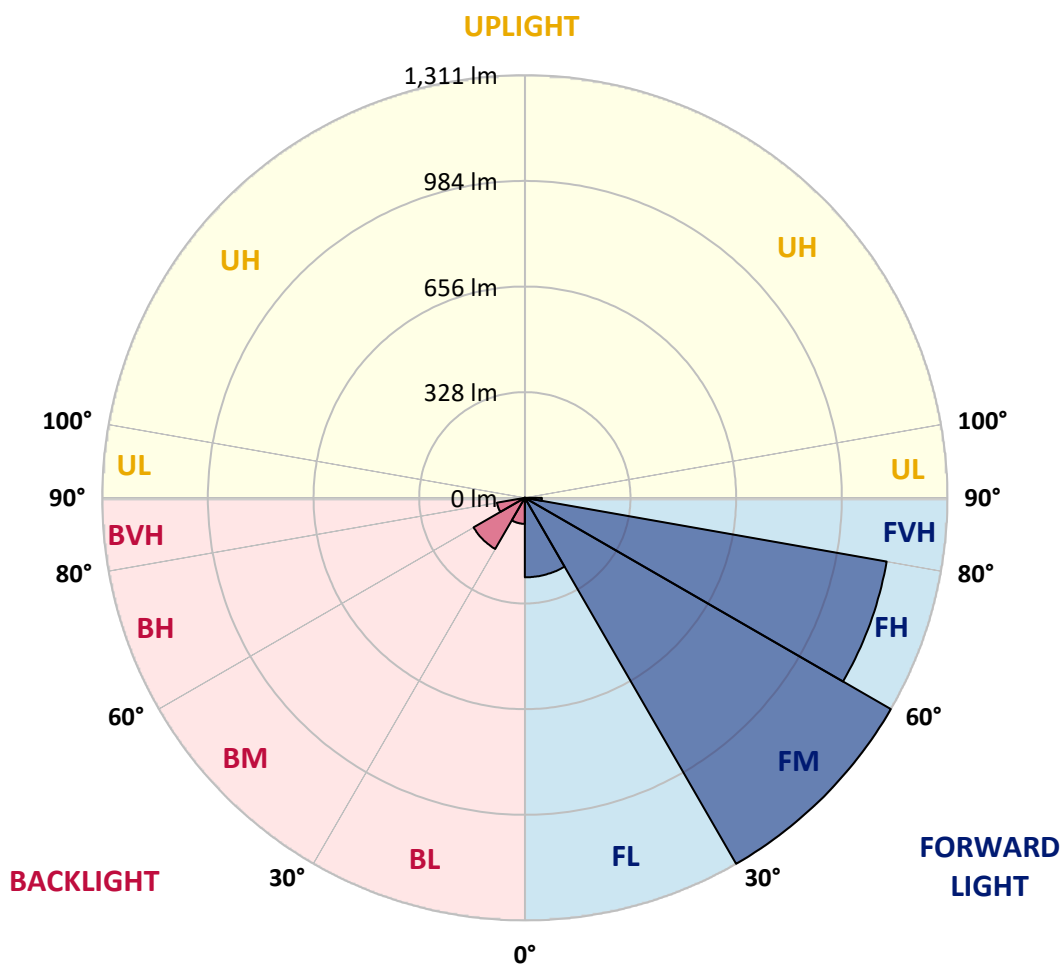
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 246.7  | 7.9       |                         |      |         |
| FM   | (30°-60°)   | 1311.4 | 42.2      |                         |      |         |
| FH   | (60°-80°)   | 1140.2 | 36.7      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 52.7   | 1.7       |                         |      | G1/100  |
| BL   | (0°-30°)    | 80.8   | 2.6       | B0/110                  |      |         |
| BM   | (30°-60°)   | 183.5  | 5.9       | B0/220                  |      |         |
| BH   | (60°-80°)   | 87.8   | 2.8       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 3.1    | 0.1       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G1**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 1°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 374.2  | 374.2  | 374.2  | 374.2  | 374.2  | 374.2  | 374.2  | 374.2  | 374.2  | 374.2  | 374.2  |
| 2.5°  | 482.5  | 484.9  | 474.0  | 472.6  | 447.4  | 478.8  | 479.7  | 483.4  | 460.4  | 415.8  | 478.1  |
| 5°    | 577.4  | 583.8  | 575.4  | 612.4  | 623.1  | 645.9  | 603.9  | 641.5  | 625.5  | 630.0  | 639.0  |
| 7.5°  | 588.7  | 595.3  | 612.8  | 674.7  | 731.9  | 717.6  | 713.0  | 727.1  | 725.9  | 693.2  | 709.5  |
| 10°   | 565.2  | 570.7  | 599.9  | 712.7  | 737.6  | 802.1  | 817.8  | 785.2  | 771.9  | 700.2  | 668.9  |
| 12.5° | 539.5  | 548.8  | 585.9  | 721.2  | 796.0  | 861.2  | 913.0  | 866.6  | 822.6  | 746.3  | 717.6  |
| 15°   | 588.7  | 593.8  | 652.3  | 738.8  | 804.3  | 849.3  | 891.8  | 876.4  | 869.7  | 814.7  | 717.6  |
| 17.5° | 685.2  | 697.3  | 739.6  | 782.2  | 833.9  | 861.0  | 850.9  | 846.1  | 829.0  | 915.2  | 814.6  |
| 20°   | 753.9  | 776.4  | 831.7  | 850.1  | 809.1  | 834.4  | 828.2  | 824.0  | 810.5  | 970.9  | 926.1  |
| 22.5° | 902.6  | 923.3  | 924.3  | 930.9  | 835.4  | 795.0  | 784.7  | 785.9  | 847.0  | 987.6  | 1064.9 |
| 25°   | 1003.9 | 1010.9 | 1066.8 | 1020.1 | 906.8  | 807.0  | 767.9  | 785.4  | 873.4  | 1107.2 | 1195.3 |
| 27.5° | 1169.5 | 1186.3 | 1221.2 | 1063.0 | 949.6  | 799.4  | 737.0  | 800.8  | 942.7  | 1146.8 | 1340.3 |
| 30°   | 1304.6 | 1320.7 | 1376.8 | 1121.5 | 986.8  | 837.1  | 750.3  | 831.7  | 986.0  | 1228.5 | 1470.7 |
| 32.5° | 1414.1 | 1455.8 | 1519.5 | 1212.0 | 985.5  | 880.4  | 818.1  | 821.5  | 1039.0 | 1334.2 | 1599.5 |
| 35°   | 1554.2 | 1592.9 | 1637.7 | 1274.3 | 1049.9 | 894.5  | 838.1  | 922.4  | 1118.0 | 1444.6 | 1773.0 |
| 37.5° | 1869.7 | 1928.4 | 1839.9 | 1431.3 | 1124.9 | 1020.9 | 917.1  | 984.5  | 1200.6 | 1557.3 | 2011.3 |
| 40°   | 2062.4 | 2111.8 | 2026.2 | 1511.5 | 1254.8 | 1084.5 | 1058.0 | 1092.5 | 1281.5 | 1615.6 | 2191.0 |
| 42.5° | 2252.1 | 2317.3 | 2174.4 | 1632.2 | 1378.2 | 1264.4 | 1191.8 | 1219.6 | 1398.6 | 1756.1 | 2393.2 |
| 45°   | 2389.5 | 2429.9 | 2206.4 | 1695.4 | 1547.8 | 1469.4 | 1421.0 | 1379.7 | 1561.8 | 1846.4 | 2523.6 |
| 47.5° | 2458.5 | 2490.7 | 2269.7 | 1715.4 | 1648.7 | 1686.2 | 1792.0 | 1705.5 | 1706.2 | 1911.7 | 2593.9 |
| 50°   | 2554.1 | 2576.6 | 2305.1 | 1739.3 | 1758.2 | 2024.1 | 2077.6 | 1893.3 | 1871.2 | 1977.2 | 2605.4 |
| 52.5° | 2688.4 | 2699.5 | 2373.7 | 1802.3 | 1922.4 | 2288.8 | 2308.0 | 2233.5 | 2036.3 | 2099.0 | 2630.9 |
| 55°   | 2867.0 | 2847.8 | 2496.4 | 1934.7 | 2093.5 | 2482.6 | 2508.4 | 2443.5 | 2243.9 | 2220.6 | 2709.9 |
| 57.5° | 3059.6 | 3037.5 | 2678.2 | 2121.3 | 2279.2 | 2630.8 | 2646.1 | 2651.3 | 2381.8 | 2328.2 | 2844.0 |
| 60°   | 3197.7 | 3201.8 | 2907.1 | 2335.3 | 2394.6 | 2772.5 | 2741.8 | 2695.0 | 2521.0 | 2486.0 | 2909.3 |
| 62.5° | 3246.0 | 3285.1 | 3085.3 | 2559.6 | 2494.1 | 2781.4 | 2733.6 | 2694.1 | 2583.3 | 2648.6 | 2834.5 |
| 65°   | 3206.5 | 3274.9 | 3126.7 | 2756.6 | 2554.2 | 2670.4 | 2620.7 | 2595.4 | 2581.4 | 2715.0 | 2668.8 |
| 67.5° | 3049.7 | 3135.2 | 3008.2 | 2758.4 | 2335.5 | 2273.7 | 2332.5 | 2412.6 | 2366.3 | 2659.9 | 2436.8 |
| 70°   | 2698.4 | 2792.0 | 2732.8 | 2596.6 | 1945.5 | 1788.8 | 1853.7 | 1974.9 | 1942.1 | 2365.8 | 2095.3 |
| 72.5° | 2024.5 | 2144.9 | 2156.5 | 2241.7 | 1544.4 | 1346.4 | 1355.7 | 1352.3 | 1408.8 | 1907.7 | 1635.0 |
| 75°   | 1300.5 | 1394.1 | 1520.7 | 1808.9 | 1173.2 | 982.9  | 893.0  | 871.1  | 976.4  | 1490.6 | 1170.6 |
| 77.5° | 755.0  | 766.1  | 824.5  | 1364.8 | 840.3  | 708.2  | 647.0  | 678.3  | 715.1  | 1040.3 | 775.8  |
| 80°   | 361.1  | 366.8  | 390.9  | 702.2  | 583.8  | 613.0  | 565.8  | 601.0  | 491.0  | 598.0  | 440.2  |
| 82.5° | 114.5  | 115.8  | 119.8  | 345.0  | 362.5  | 406.1  | 260.2  | 348.9  | 303.6  | 361.4  | 293.1  |
| 85°   | 19.1   | 32.5   | 40.2   | 99.6   | 204.6  | 137.0  | 56.5   | 124.5  | 169.4  | 228.0  | 133.1  |
| 87.5° | 0.0    | 0.0    | 0.0    | 1.8    | 16.6   | 7.8    | 1.3    | 7.1    | 26.0   | 50.8   | 6.1    |
| 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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**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 374.2  | 374.2  | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 |
| 2.5°  | 496.1  | 508.4  | 462.3 | 421.1 | 431.5 | 423.2 | 410.7 | 389.3 | 339.7 | 376.1 | 373.7 |
| 5°    | 638.5  | 615.8  | 553.5 | 524.5 | 489.1 | 435.1 | 428.5 | 387.2 | 368.9 | 371.9 | 369.2 |
| 7.5°  | 688.0  | 647.5  | 592.5 | 505.0 | 422.0 | 344.1 | 320.2 | 293.1 | 287.7 | 299.4 | 306.9 |
| 10°   | 649.1  | 606.1  | 557.9 | 449.3 | 385.4 | 329.0 | 270.1 | 232.3 | 211.7 | 209.2 | 211.3 |
| 12.5° | 667.0  | 620.6  | 521.4 | 438.3 | 371.5 | 320.6 | 254.7 | 197.5 | 153.0 | 156.3 | 147.4 |
| 15°   | 679.4  | 626.1  | 512.8 | 415.2 | 343.1 | 274.9 | 195.6 | 138.4 | 101.9 | 91.3  | 84.9  |
| 17.5° | 752.1  | 676.0  | 501.8 | 388.7 | 303.2 | 214.0 | 122.9 | 80.2  | 68.4  | 64.6  | 61.6  |
| 20°   | 845.6  | 737.5  | 501.7 | 360.7 | 244.4 | 133.8 | 76.6  | 58.0  | 55.2  | 57.3  | 55.1  |
| 22.5° | 954.3  | 819.2  | 528.3 | 325.8 | 175.4 | 84.4  | 59.6  | 51.5  | 48.7  | 50.5  | 50.6  |
| 25°   | 1063.7 | 941.9  | 550.1 | 292.8 | 122.1 | 64.7  | 53.1  | 47.4  | 44.2  | 45.8  | 45.0  |
| 27.5° | 1261.2 | 1043.5 | 545.2 | 250.5 | 89.9  | 57.0  | 49.4  | 44.4  | 39.7  | 42.1  | 42.0  |
| 30°   | 1390.4 | 1222.8 | 564.5 | 191.1 | 71.3  | 49.9  | 46.0  | 40.5  | 35.4  | 38.3  | 38.1  |
| 32.5° | 1545.0 | 1299.8 | 585.4 | 146.7 | 59.3  | 47.3  | 41.5  | 36.1  | 33.1  | 34.9  | 34.5  |
| 35°   | 1718.6 | 1452.0 | 547.0 | 122.1 | 51.5  | 42.6  | 36.7  | 32.5  | 29.9  | 30.8  | 30.8  |
| 37.5° | 2025.4 | 1579.3 | 524.0 | 99.5  | 47.9  | 38.6  | 34.3  | 29.3  | 27.7  | 27.7  | 28.7  |
| 40°   | 2199.5 | 1773.6 | 455.3 | 78.8  | 49.0  | 35.6  | 32.0  | 26.9  | 24.8  | 24.6  | 25.5  |
| 42.5° | 2426.1 | 1885.7 | 412.3 | 63.7  | 44.4  | 34.7  | 29.3  | 24.4  | 21.9  | 21.8  | 22.6  |
| 45°   | 2560.5 | 1948.4 | 351.7 | 50.1  | 39.9  | 40.4  | 27.2  | 22.5  | 18.8  | 18.1  | 19.7  |
| 47.5° | 2645.2 | 2031.4 | 317.4 | 39.9  | 34.7  | 40.2  | 26.6  | 19.5  | 15.7  | 14.9  | 16.3  |
| 50°   | 2688.3 | 2072.5 | 310.6 | 34.1  | 30.1  | 35.9  | 30.4  | 16.3  | 13.5  | 12.2  | 13.5  |
| 52.5° | 2733.1 | 2139.2 | 313.2 | 31.5  | 26.6  | 28.8  | 28.8  | 14.0  | 11.9  | 10.4  | 11.4  |
| 55°   | 2823.5 | 2237.8 | 307.7 | 29.9  | 24.4  | 21.9  | 18.6  | 12.4  | 10.8  | 9.2   | 10.1  |
| 57.5° | 2934.7 | 2308.6 | 307.7 | 28.5  | 22.6  | 18.8  | 14.9  | 11.5  | 9.9   | 8.0   | 8.7   |
| 60°   | 2913.6 | 2234.0 | 292.4 | 27.1  | 21.3  | 17.5  | 13.5  | 10.6  | 9.2   | 7.2   | 7.8   |
| 62.5° | 2769.0 | 2031.4 | 236.9 | 25.0  | 20.0  | 16.6  | 12.2  | 10.1  | 8.7   | 6.4   | 6.9   |
| 65°   | 2599.1 | 1816.2 | 164.6 | 22.6  | 18.6  | 15.1  | 11.0  | 9.6   | 8.0   | 5.6   | 6.1   |
| 67.5° | 2394.5 | 1559.6 | 91.3  | 20.3  | 17.2  | 13.1  | 10.1  | 9.4   | 7.7   | 5.1   | 5.5   |
| 70°   | 2039.4 | 1177.5 | 49.0  | 18.6  | 16.1  | 12.0  | 9.6   | 9.4   | 7.7   | 5.0   | 5.1   |
| 72.5° | 1530.9 | 741.5  | 28.7  | 17.0  | 14.7  | 11.2  | 9.0   | 9.6   | 7.4   | 4.8   | 4.8   |
| 75°   | 1041.7 | 450.1  | 20.5  | 14.5  | 13.1  | 9.4   | 8.7   | 9.2   | 7.7   | 4.8   | 4.5   |
| 77.5° | 708.2  | 316.3  | 16.8  | 13.1  | 11.9  | 8.3   | 8.8   | 9.2   | 7.7   | 3.9   | 3.0   |
| 80°   | 442.1  | 163.2  | 12.8  | 10.4  | 10.3  | 7.2   | 8.8   | 8.0   | 5.0   | 0.9   | 0.0   |
| 82.5° | 309.2  | 60.7   | 7.4   | 8.0   | 8.0   | 5.1   | 6.9   | 5.6   | 2.9   | 0.0   | 0.0   |
| 85°   | 129.8  | 10.4   | 4.0   | 5.6   | 5.0   | 3.0   | 5.5   | 4.3   | 1.8   | 0.0   | 0.0   |
| 87.5° | 2.3    | 0.0    | 1.6   | 3.4   | 3.5   | 1.8   | 2.9   | 1.8   | 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   |

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**CANDELA DISTRIBUTION (continued):**

|       | 185°  | 195°  | 205°  | 215°  | 225°  | 235°  | 245°  | 255°  | 265°  | 270°  | 275°  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 |
| 2.5°  | 385.4 | 368.6 | 333.2 | 350.2 | 348.4 | 356.1 | 356.9 | 338.8 | 377.7 | 401.8 | 405.3 |
| 5°    | 369.6 | 358.3 | 356.3 | 346.6 | 344.1 | 358.5 | 350.7 | 350.2 | 368.9 | 396.3 | 396.5 |
| 7.5°  | 307.1 | 298.4 | 302.5 | 291.2 | 261.9 | 263.7 | 266.4 | 277.6 | 293.6 | 311.7 | 318.3 |
| 10°   | 210.8 | 233.3 | 216.9 | 215.4 | 212.4 | 203.0 | 195.6 | 201.5 | 222.3 | 239.0 | 245.1 |
| 12.5° | 150.4 | 154.0 | 164.1 | 160.4 | 165.5 | 157.5 | 154.6 | 172.8 | 193.2 | 210.1 | 222.3 |
| 15°   | 88.0  | 94.0  | 100.0 | 112.8 | 117.9 | 116.3 | 125.5 | 140.7 | 157.2 | 165.0 | 180.0 |
| 17.5° | 62.0  | 62.5  | 63.7  | 77.5  | 86.5  | 90.1  | 95.6  | 107.1 | 113.9 | 117.4 | 123.5 |
| 20°   | 54.2  | 52.6  | 50.5  | 58.3  | 66.8  | 71.1  | 69.5  | 78.6  | 84.1  | 87.6  | 92.1  |
| 22.5° | 49.0  | 46.4  | 45.2  | 47.8  | 54.3  | 58.3  | 58.9  | 64.2  | 72.6  | 75.1  | 76.4  |
| 25°   | 44.2  | 42.5  | 41.6  | 43.1  | 46.6  | 50.3  | 51.0  | 57.9  | 65.3  | 66.3  | 69.2  |
| 27.5° | 41.0  | 37.7  | 38.1  | 39.1  | 40.7  | 45.3  | 46.8  | 50.6  | 61.4  | 62.6  | 63.6  |
| 30°   | 37.7  | 34.1  | 35.2  | 36.3  | 35.6  | 41.2  | 43.4  | 47.8  | 58.3  | 60.2  | 61.2  |
| 32.5° | 34.3  | 31.7  | 31.5  | 32.5  | 33.8  | 36.8  | 41.5  | 46.6  | 56.1  | 58.8  | 61.4  |
| 35°   | 30.6  | 28.5  | 28.8  | 29.0  | 30.6  | 34.5  | 37.8  | 40.5  | 47.1  | 48.5  | 49.4  |
| 37.5° | 28.0  | 26.2  | 25.8  | 27.6  | 29.2  | 32.2  | 33.5  | 34.7  | 43.4  | 46.6  | 46.8  |
| 40°   | 24.8  | 23.7  | 23.7  | 25.0  | 28.5  | 28.2  | 29.8  | 33.6  | 42.0  | 45.3  | 45.7  |
| 42.5° | 22.5  | 21.0  | 21.4  | 22.6  | 25.1  | 23.4  | 26.6  | 32.2  | 41.5  | 44.8  | 44.6  |
| 45°   | 18.9  | 18.6  | 19.3  | 20.3  | 21.4  | 19.8  | 24.8  | 30.8  | 39.7  | 44.1  | 42.8  |
| 47.5° | 15.7  | 15.7  | 16.6  | 17.7  | 17.2  | 17.7  | 22.5  | 28.8  | 38.6  | 42.6  | 41.8  |
| 50°   | 12.9  | 13.1  | 14.0  | 15.7  | 14.1  | 15.6  | 20.2  | 26.9  | 36.8  | 41.2  | 40.5  |
| 52.5° | 11.0  | 11.2  | 11.7  | 12.9  | 12.2  | 14.1  | 18.6  | 25.0  | 35.1  | 38.8  | 38.4  |
| 55°   | 9.6   | 9.9   | 9.9   | 10.6  | 11.0  | 13.3  | 16.8  | 23.0  | 32.4  | 36.5  | 35.7  |
| 57.5° | 8.5   | 8.8   | 8.7   | 9.2   | 9.6   | 11.7  | 15.1  | 20.9  | 29.8  | 33.1  | 32.0  |
| 60°   | 7.7   | 8.0   | 7.8   | 8.5   | 8.3   | 10.1  | 13.1  | 18.6  | 26.9  | 29.6  | 28.7  |
| 62.5° | 6.7   | 7.1   | 7.1   | 7.4   | 7.7   | 8.5   | 11.4  | 16.5  | 24.0  | 26.2  | 25.5  |
| 65°   | 6.1   | 6.4   | 6.6   | 6.4   | 6.7   | 7.2   | 9.6   | 14.9  | 20.9  | 23.0  | 21.9  |
| 67.5° | 5.5   | 5.8   | 6.2   | 5.5   | 5.8   | 6.1   | 8.2   | 13.3  | 18.4  | 20.2  | 19.3  |
| 70°   | 5.3   | 5.5   | 5.5   | 4.8   | 4.6   | 4.8   | 7.1   | 11.4  | 16.1  | 17.9  | 16.6  |
| 72.5° | 5.0   | 5.1   | 5.0   | 3.9   | 3.4   | 3.7   | 6.1   | 9.6   | 13.6  | 15.1  | 14.0  |
| 75°   | 4.6   | 4.8   | 4.6   | 3.2   | 2.1   | 2.7   | 5.0   | 8.3   | 11.7  | 12.4  | 11.9  |
| 77.5° | 3.9   | 4.3   | 4.3   | 2.3   | 0.7   | 1.6   | 3.7   | 6.7   | 9.8   | 9.8   | 9.9   |
| 80°   | 0.3   | 1.1   | 1.8   | 1.3   | 0.0   | 0.2   | 1.3   | 3.5   | 6.2   | 6.1   | 6.6   |
| 82.5° | 0.0   | 0.0   | 0.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 2.1   | 1.6   | 1.8   |
| 85°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 0.0   | 0.0   | 0.0   | 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   |

REPORT NUMBER: P822739

CATALOG NUMBER: MSA-SA1B-840-U-SLL-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 285°  | 295°  | 305°  | 315°  | 325°  | 335°  | 345°   | 355°   | 359°   | 360°   |
|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 0°    | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2 | 374.2  | 374.2  | 374.2  | 374.2  |
| 2.5°  | 397.1 | 391.5 | 398.4 | 419.5 | 411.0 | 412.6 | 406.9  | 441.8  | 481.3  | 482.5  |
| 5°    | 396.8 | 391.9 | 402.2 | 401.3 | 425.5 | 451.9 | 477.4  | 518.7  | 577.0  | 577.4  |
| 7.5°  | 315.3 | 344.6 | 352.3 | 350.0 | 381.1 | 417.4 | 456.7  | 535.7  | 583.6  | 588.7  |
| 10°   | 284.3 | 297.0 | 312.6 | 318.3 | 331.1 | 365.7 | 410.1  | 499.5  | 553.3  | 565.2  |
| 12.5° | 246.4 | 287.1 | 307.9 | 348.0 | 355.4 | 360.4 | 430.5  | 508.2  | 541.0  | 539.5  |
| 15°   | 204.1 | 239.5 | 272.3 | 321.3 | 341.5 | 393.5 | 448.7  | 550.5  | 570.0  | 588.7  |
| 17.5° | 144.5 | 171.2 | 221.4 | 273.0 | 334.5 | 391.2 | 499.0  | 626.1  | 662.9  | 685.2  |
| 20°   | 96.6  | 109.6 | 155.1 | 223.2 | 301.3 | 357.6 | 519.5  | 694.4  | 734.6  | 753.9  |
| 22.5° | 78.5  | 84.6  | 108.1 | 163.6 | 257.4 | 356.0 | 527.8  | 768.9  | 876.9  | 902.6  |
| 25°   | 69.0  | 73.2  | 85.9  | 121.1 | 213.7 | 348.9 | 573.8  | 852.8  | 983.1  | 1003.9 |
| 27.5° | 60.4  | 66.8  | 76.1  | 99.8  | 183.2 | 343.9 | 597.2  | 993.8  | 1149.2 | 1169.5 |
| 30°   | 57.7  | 65.5  | 74.5  | 91.0  | 162.0 | 324.8 | 634.4  | 1120.8 | 1268.2 | 1304.6 |
| 32.5° | 62.3  | 65.0  | 69.4  | 83.3  | 145.5 | 304.7 | 699.7  | 1272.7 | 1366.9 | 1414.1 |
| 35°   | 49.4  | 54.2  | 62.0  | 76.4  | 138.6 | 303.6 | 736.7  | 1370.4 | 1525.0 | 1554.2 |
| 37.5° | 48.4  | 52.7  | 62.8  | 74.5  | 146.9 | 311.7 | 791.6  | 1570.6 | 1810.0 | 1869.7 |
| 40°   | 46.9  | 52.6  | 62.1  | 73.7  | 146.9 | 319.7 | 826.6  | 1730.8 | 2001.7 | 2062.4 |
| 42.5° | 46.4  | 53.6  | 62.0  | 77.4  | 142.3 | 324.1 | 879.6  | 1890.7 | 2204.2 | 2252.1 |
| 45°   | 46.0  | 54.7  | 62.5  | 81.8  | 141.3 | 338.6 | 909.5  | 1968.4 | 2334.4 | 2389.5 |
| 47.5° | 45.2  | 54.7  | 69.7  | 79.1  | 135.4 | 337.2 | 948.3  | 2083.6 | 2412.1 | 2458.5 |
| 50°   | 44.4  | 55.1  | 79.0  | 74.2  | 136.3 | 328.5 | 1000.8 | 2191.7 | 2521.0 | 2554.1 |
| 52.5° | 42.8  | 56.3  | 77.5  | 67.3  | 133.6 | 327.6 | 1079.2 | 2345.6 | 2664.2 | 2688.4 |
| 55°   | 39.3  | 54.7  | 70.1  | 58.8  | 124.3 | 317.5 | 1183.1 | 2545.6 | 2862.8 | 2867.0 |
| 57.5° | 36.1  | 50.8  | 58.6  | 54.0  | 104.1 | 318.8 | 1272.7 | 2729.7 | 3039.9 | 3059.6 |
| 60°   | 33.0  | 52.7  | 45.5  | 50.3  | 86.2  | 296.2 | 1316.1 | 2800.1 | 3168.7 | 3197.7 |
| 62.5° | 29.9  | 48.7  | 38.8  | 46.2  | 76.9  | 275.1 | 1286.0 | 2743.5 | 3185.2 | 3246.0 |
| 65°   | 26.6  | 33.8  | 32.7  | 41.5  | 77.7  | 245.5 | 1185.4 | 2577.6 | 3122.7 | 3206.5 |
| 67.5° | 22.9  | 26.6  | 28.8  | 35.7  | 83.2  | 220.2 | 1013.0 | 2311.4 | 2954.7 | 3049.7 |
| 70°   | 20.0  | 23.9  | 25.1  | 31.4  | 86.5  | 203.6 | 799.4  | 1942.0 | 2610.6 | 2698.4 |
| 72.5° | 16.6  | 22.1  | 22.5  | 27.4  | 83.3  | 187.1 | 569.6  | 1394.1 | 1982.3 | 2024.5 |
| 75°   | 14.4  | 18.4  | 20.3  | 23.0  | 70.1  | 139.7 | 313.8  | 862.9  | 1253.4 | 1300.5 |
| 77.5° | 12.9  | 14.0  | 15.4  | 15.9  | 29.8  | 72.7  | 108.0  | 532.1  | 701.8  | 755.0  |
| 80°   | 9.9   | 11.0  | 10.6  | 11.0  | 16.3  | 25.1  | 41.0   | 249.4  | 331.6  | 361.1  |
| 82.5° | 3.2   | 5.3   | 5.8   | 5.0   | 10.6  | 12.4  | 11.9   | 86.2   | 107.8  | 114.5  |
| 85°   | 0.7   | 1.9   | 0.9   | 0.0   | 3.5   | 6.4   | 0.9    | 13.1   | 25.8   | 19.1   |
| 87.5° | 0.0   | 0.0   | 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    |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-2309-178-2

Test Date: 09/22/2023

Luminaire Tested: GALN-SA2A-840-U-T4W

Data in this report applies to families of products including GALN-SA2A-840-U-T4W.

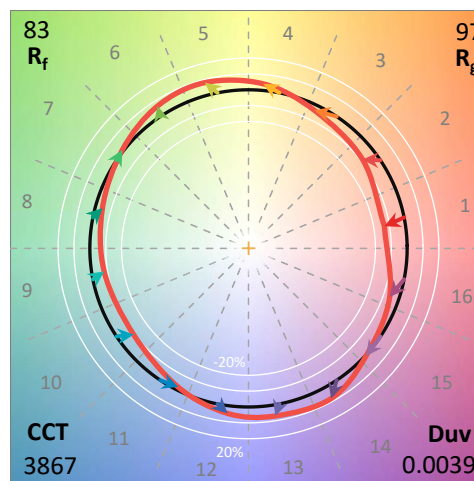
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2309-178-2  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 09/22/2023  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: MCGRAW-EDISON  
 Catalog Number: **GALN-SA2A-840-U-T4W**  
 Description: GALLEON 2 AREA AND ROADWAY LUMINAIRE. (2) 80 CRI, 4000K, 615MA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS

LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS

### Spectral Parameters

|                           |        |           |      |      |      |
|---------------------------|--------|-----------|------|------|------|
| CCT (K):                  | 3867   | CRI (Ra): | 79.8 |      |      |
| CIE u':                   | 0.2254 | R1:       | 76.6 | R9:  | -8.6 |
| CIE v':                   | 0.5090 | R2:       | 84.7 | R10: | 66.3 |
| Duv:                      | 0.0039 | R3:       | 93.7 | R11: | 80.5 |
| CIE x:                    | 0.3895 | R4:       | 80.6 | R12: | 67.3 |
| CIE y:                    | 0.3908 | R5:       | 77.9 | R13: | 77.9 |
| CIE z:                    | 0.2197 | R6:       | 81.2 | R14: | 96.6 |
| Peak Wavelength (nm):     | 593    | R7:       | 84.2 |      |      |
| Dominant Wavelength (nm): | 577    | R8:       | 59.0 |      |      |
| Purity:                   | 34.3   |           |      |      |      |
| Rf:                       | 82.7   |           |      |      |      |
| Rg:                       | 96.5   |           |      |      |      |



### Test Conditions

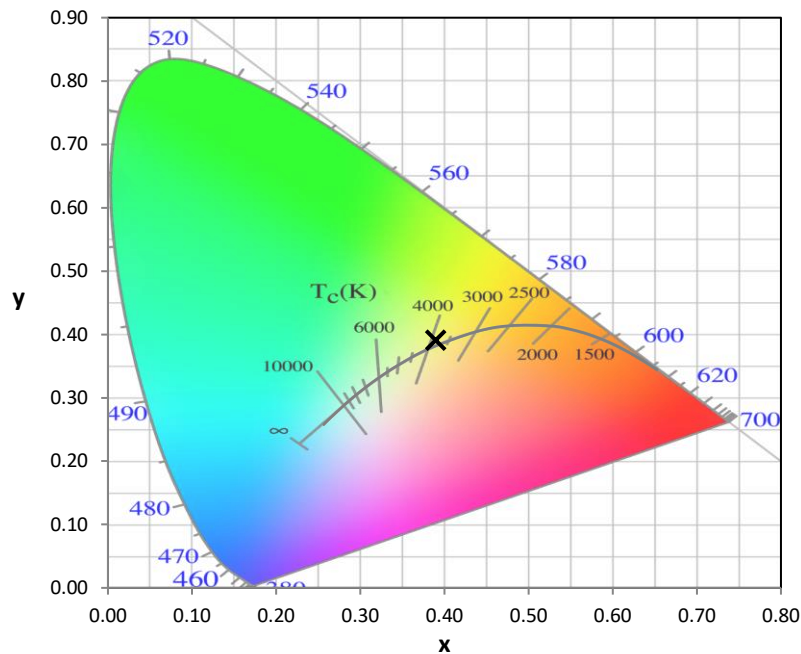
Stabilization Time: 25M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 24.8/46%  
 Sphere Temperature (°C): 24.7

REPORT NUMBER: SP1-2309-178-2

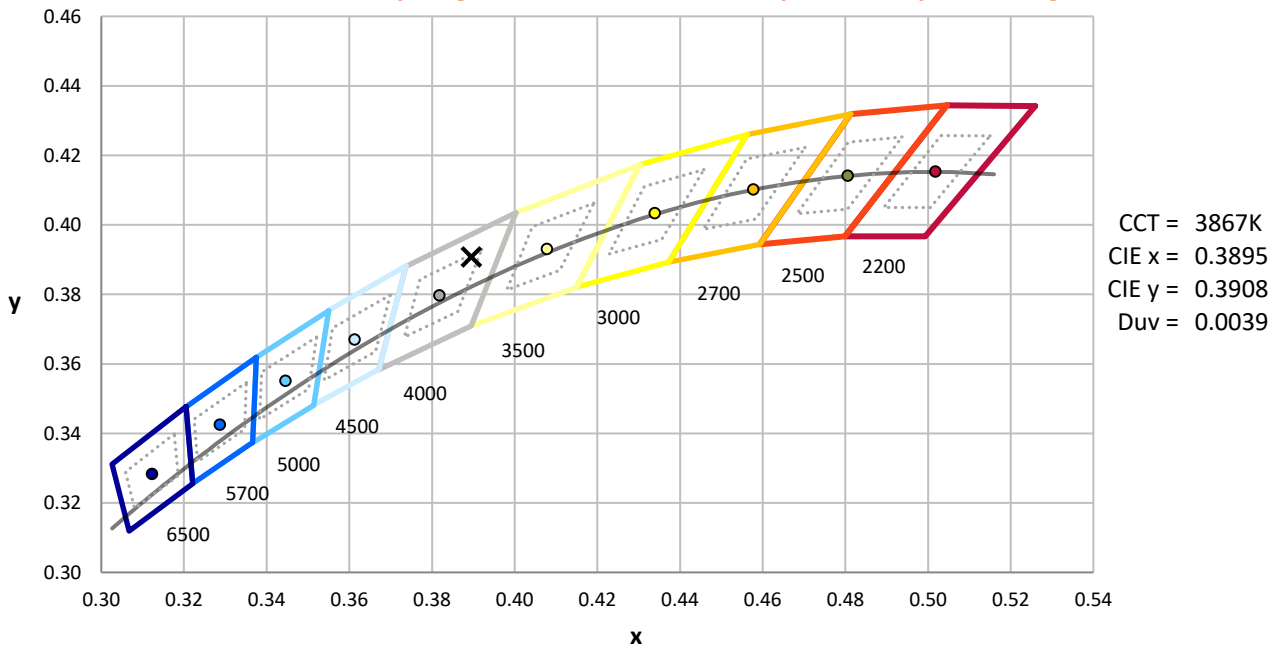
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 8/9/2023         | 2/9/2024             |
| Power Meter                    | XITRON 2801 IN0071    | 11/29/2022       | 11/29/2023           |
| AC Power Source                | CHROMA 61603 IN0063   | 11/28/2022       | 11/28/2023           |
| DC Power Source                | AGILENT E3634A IN0208 | 11/28/2022       | 11/28/2023           |
| Sphere Thermometer             | ONSET IN0085          | 11/28/2022       | 11/28/2023           |
| Room Thermometer               | ONSET IN0046          | 11/28/2022       | 11/28/2023           |

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**CIE 1931 Chromaticity Diagram**



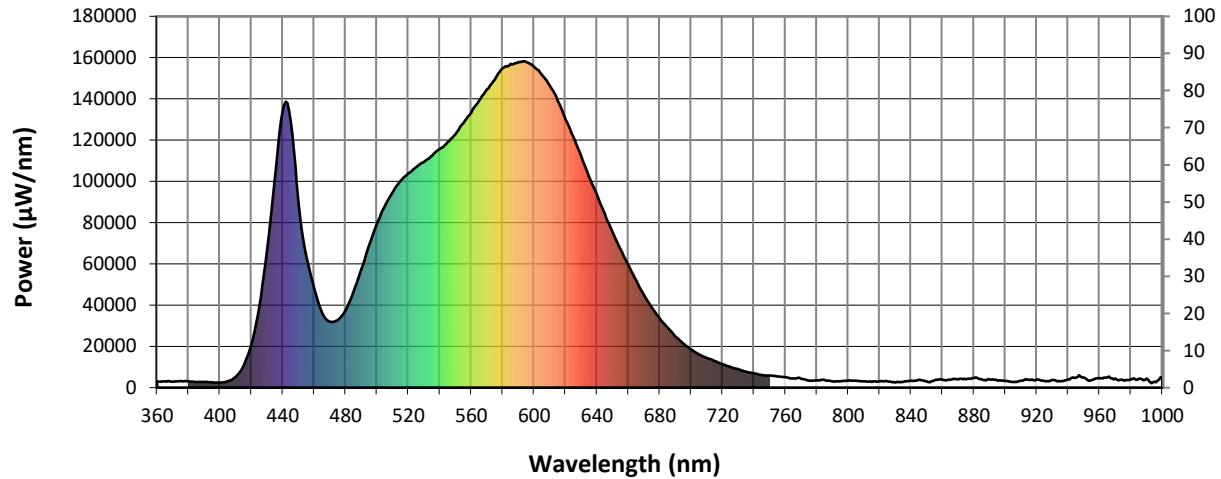
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2309-178-2

**Photopic Flux vs. Wavelength**

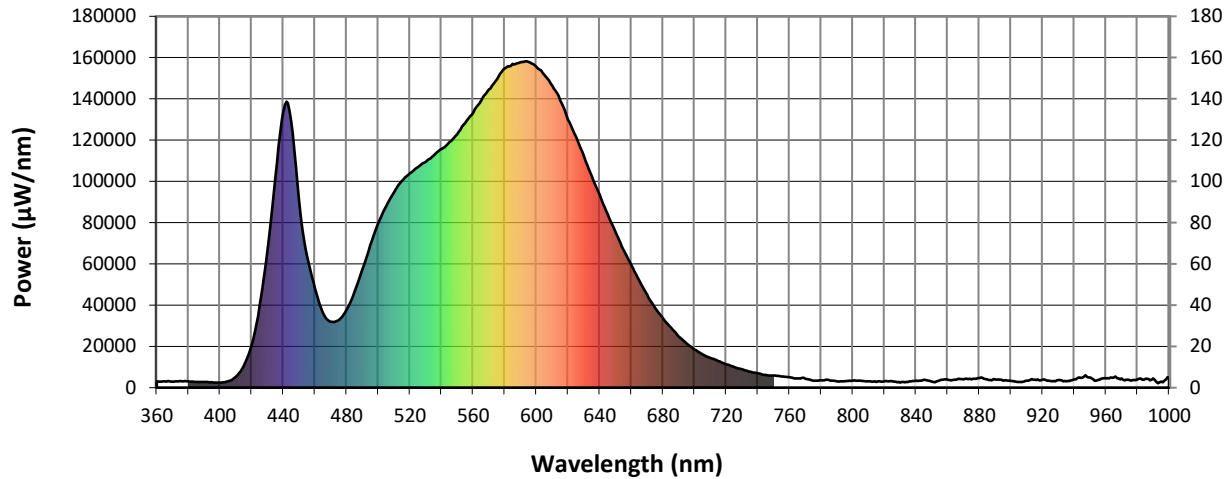


#####

| 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       | 3123             | NR               | 490       | 57459            | NR               | 620       | 129941           | NR               | 750       | 5858             | NR               | 880       | 4622             | NR               |
| 365       | 3041             | NR               | 495       | 69038            | NR               | 625       | 121678           | NR               | 755       | 5395             | NR               | 885       | 3949             | NR               |
| 370       | 2965             | NR               | 500       | 79493            | NR               | 630       | 112252           | NR               | 760       | 5011             | NR               | 890       | 4035             | NR               |
| 375       | 3195             | NR               | 505       | 87950            | NR               | 635       | 102369           | NR               | 765       | 4514             | NR               | 895       | 3391             | NR               |
| 380       | 3028             | NR               | 510       | 94704            | NR               | 640       | 93616            | NR               | 770       | 4375             | NR               | 900       | 3268             | NR               |
| 385       | 2738             | NR               | 515       | 100214           | NR               | 645       | 84211            | NR               | 775       | 3450             | NR               | 905       | 2767             | NR               |
| 390       | 2690             | NR               | 520       | 103961           | NR               | 650       | 75380            | NR               | 780       | 3547             | NR               | 910       | 3391             | NR               |
| 395       | 2604             | NR               | 525       | 106854           | NR               | 655       | 66946            | NR               | 785       | 3648             | NR               | 915       | 3784             | NR               |
| 400       | 2384             | NR               | 530       | 109533           | NR               | 660       | 59483            | NR               | 790       | 3081             | NR               | 920       | 3790             | NR               |
| 405       | 3031             | NR               | 535       | 112417           | NR               | 665       | 51858            | NR               | 795       | 3104             | NR               | 925       | 3175             | NR               |
| 410       | 5239             | NR               | 540       | 115725           | NR               | 670       | 44882            | NR               | 800       | 3444             | NR               | 930       | 3642             | NR               |
| 415       | 10499            | NR               | 545       | 119091           | NR               | 675       | 38742            | NR               | 805       | 3315             | NR               | 935       | 3040             | NR               |
| 420       | 20790            | NR               | 550       | 122884           | NR               | 680       | 33597            | NR               | 810       | 3022             | NR               | 940       | 4039             | NR               |
| 425       | 39276            | NR               | 555       | 128300           | NR               | 685       | 29101            | NR               | 815       | 2832             | NR               | 945       | 4797             | NR               |
| 430       | 66418            | NR               | 560       | 133274           | NR               | 690       | 24855            | NR               | 820       | 3142             | NR               | 950       | 4945             | NR               |
| 435       | 101961           | NR               | 565       | 139112           | NR               | 695       | 21367            | NR               | 825       | 3115             | NR               | 955       | 3757             | NR               |
| 440       | 134023           | NR               | 570       | 144467           | NR               | 700       | 18479            | NR               | 830       | 2520             | NR               | 960       | 4539             | NR               |
| 445       | 129385           | NR               | 575       | 149331           | NR               | 705       | 16131            | NR               | 835       | 2783             | NR               | 965       | 4857             | NR               |
| 450       | 90434            | NR               | 580       | 154784           | NR               | 710       | 14388            | NR               | 840       | 3364             | NR               | 970       | 4463             | NR               |
| 455       | 63521            | NR               | 585       | 156899           | NR               | 715       | 12865            | NR               | 845       | 3807             | NR               | 975       | 3718             | NR               |
| 460       | 48429            | NR               | 590       | 157796           | NR               | 720       | 11277            | NR               | 850       | 2907             | NR               | 980       | 3955             | NR               |
| 465       | 36445            | NR               | 595       | 157849           | NR               | 725       | 10063            | NR               | 855       | 3470             | NR               | 985       | 4314             | NR               |
| 470       | 31953            | NR               | 600       | 155418           | NR               | 730       | 8942             | NR               | 860       | 3820             | NR               | 990       | 4478             | NR               |
| 475       | 32768            | NR               | 605       | 151601           | NR               | 735       | 7722             | NR               | 865       | 3922             | NR               | 995       | 2959             | NR               |
| 480       | 37631            | NR               | 610       | 146416           | NR               | 740       | 6964             | NR               | 870       | 4061             | NR               | 1000      | 4570             | NR               |
| 485       | 46354            | NR               | 615       | 139241           | NR               | 745       | 6117             | NR               | 875       | 3975             | NR               |           |                  |                  |

REPORT NUMBER: SP1-2309-178-2

Scotopic Flux vs. Wavelength



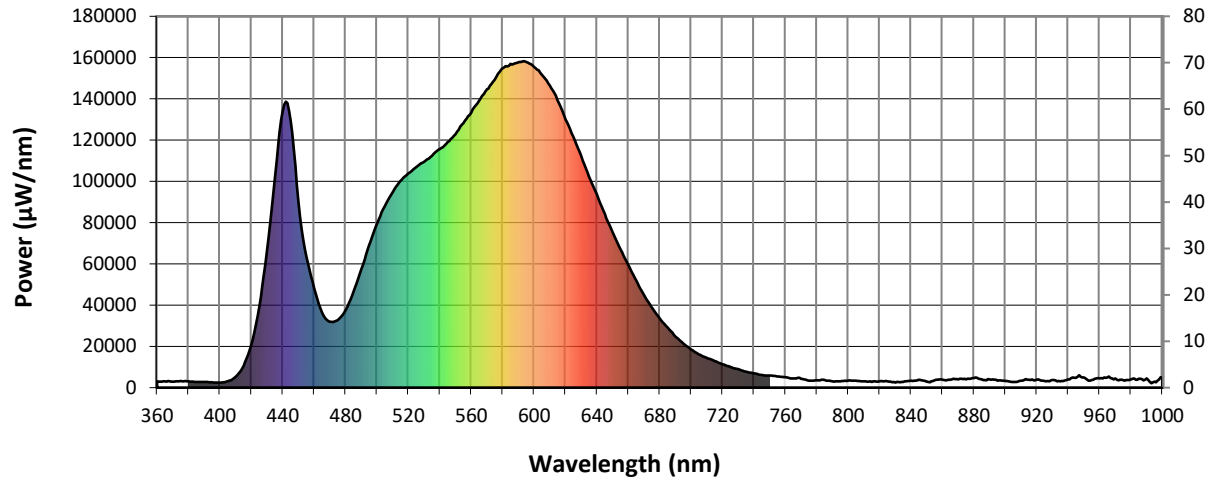
Scotopic Lumens: 14236

S/P: 1.59

| 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       | 3123             | NR               | 490       | 57459            | NR               | 620       | 129941           | NR               | 750       | 5858             | NR               | 880       | 4622             | NR               |
| 365       | 3041             | NR               | 495       | 69038            | NR               | 625       | 121678           | NR               | 755       | 5395             | NR               | 885       | 3949             | NR               |
| 370       | 2965             | NR               | 500       | 79493            | NR               | 630       | 112252           | NR               | 760       | 5011             | NR               | 890       | 4035             | NR               |
| 375       | 3195             | NR               | 505       | 87950            | NR               | 635       | 102369           | NR               | 765       | 4514             | NR               | 895       | 3391             | NR               |
| 380       | 3028             | NR               | 510       | 94704            | NR               | 640       | 93616            | NR               | 770       | 4375             | NR               | 900       | 3268             | NR               |
| 385       | 2738             | NR               | 515       | 100214           | NR               | 645       | 84211            | NR               | 775       | 3450             | NR               | 905       | 2767             | NR               |
| 390       | 2690             | NR               | 520       | 103961           | NR               | 650       | 75380            | NR               | 780       | 3547             | NR               | 910       | 3391             | NR               |
| 395       | 2604             | NR               | 525       | 106854           | NR               | 655       | 66946            | NR               | 785       | 3648             | NR               | 915       | 3784             | NR               |
| 400       | 2384             | NR               | 530       | 109533           | NR               | 660       | 59483            | NR               | 790       | 3081             | NR               | 920       | 3790             | NR               |
| 405       | 3031             | NR               | 535       | 112417           | NR               | 665       | 51858            | NR               | 795       | 3104             | NR               | 925       | 3175             | NR               |
| 410       | 5239             | NR               | 540       | 115725           | NR               | 670       | 44882            | NR               | 800       | 3444             | NR               | 930       | 3642             | NR               |
| 415       | 10499            | NR               | 545       | 119091           | NR               | 675       | 38742            | NR               | 805       | 3315             | NR               | 935       | 3040             | NR               |
| 420       | 20790            | NR               | 550       | 122884           | NR               | 680       | 33597            | NR               | 810       | 3022             | NR               | 940       | 4039             | NR               |
| 425       | 39276            | NR               | 555       | 128300           | NR               | 685       | 29101            | NR               | 815       | 2832             | NR               | 945       | 4797             | NR               |
| 430       | 66418            | NR               | 560       | 133274           | NR               | 690       | 24855            | NR               | 820       | 3142             | NR               | 950       | 4945             | NR               |
| 435       | 101961           | NR               | 565       | 139112           | NR               | 695       | 21367            | NR               | 825       | 3115             | NR               | 955       | 3757             | NR               |
| 440       | 134023           | NR               | 570       | 144467           | NR               | 700       | 18479            | NR               | 830       | 2520             | NR               | 960       | 4539             | NR               |
| 445       | 129385           | NR               | 575       | 149331           | NR               | 705       | 16131            | NR               | 835       | 2783             | NR               | 965       | 4857             | NR               |
| 450       | 90434            | NR               | 580       | 154784           | NR               | 710       | 14388            | NR               | 840       | 3364             | NR               | 970       | 4463             | NR               |
| 455       | 63521            | NR               | 585       | 156899           | NR               | 715       | 12865            | NR               | 845       | 3807             | NR               | 975       | 3718             | NR               |
| 460       | 48429            | NR               | 590       | 157796           | NR               | 720       | 11277            | NR               | 850       | 2907             | NR               | 980       | 3955             | NR               |
| 465       | 36445            | NR               | 595       | 157849           | NR               | 725       | 10063            | NR               | 855       | 3470             | NR               | 985       | 4314             | NR               |
| 470       | 31953            | NR               | 600       | 155418           | NR               | 730       | 8942             | NR               | 860       | 3820             | NR               | 990       | 4478             | NR               |
| 475       | 32768            | NR               | 605       | 151601           | NR               | 735       | 7722             | NR               | 865       | 3922             | NR               | 995       | 2959             | NR               |
| 480       | 37631            | NR               | 610       | 146416           | NR               | 740       | 6964             | NR               | 870       | 4061             | NR               | 1000      | 4570             | NR               |
| 485       | 46354            | NR               | 615       | 139241           | NR               | 745       | 6117             | NR               | 875       | 3975             | NR               |           |                  |                  |

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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5542.6**

**M/P: 0.62**

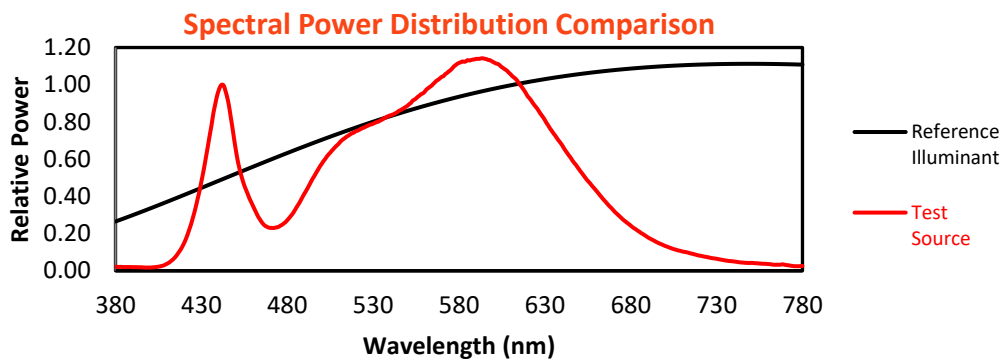
| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 3123             | NR               | 490       | 57459            | NR               | 620       | 129941           | NR               | 750       | 5858             | NR               | 880       | 4622             | NR               |
| 365       | 3041             | NR               | 495       | 69038            | NR               | 625       | 121678           | NR               | 755       | 5395             | NR               | 885       | 3949             | NR               |
| 370       | 2965             | NR               | 500       | 79493            | NR               | 630       | 112252           | NR               | 760       | 5011             | NR               | 890       | 4035             | NR               |
| 375       | 3195             | NR               | 505       | 87950            | NR               | 635       | 102369           | NR               | 765       | 4514             | NR               | 895       | 3391             | NR               |
| 380       | 3028             | NR               | 510       | 94704            | NR               | 640       | 93616            | NR               | 770       | 4375             | NR               | 900       | 3268             | NR               |
| 385       | 2738             | NR               | 515       | 100214           | NR               | 645       | 84211            | NR               | 775       | 3450             | NR               | 905       | 2767             | NR               |
| 390       | 2690             | NR               | 520       | 103961           | NR               | 650       | 75380            | NR               | 780       | 3547             | NR               | 910       | 3391             | NR               |
| 395       | 2604             | NR               | 525       | 106854           | NR               | 655       | 66946            | NR               | 785       | 3648             | NR               | 915       | 3784             | NR               |
| 400       | 2384             | NR               | 530       | 109533           | NR               | 660       | 59483            | NR               | 790       | 3081             | NR               | 920       | 3790             | NR               |
| 405       | 3031             | NR               | 535       | 112417           | NR               | 665       | 51858            | NR               | 795       | 3104             | NR               | 925       | 3175             | NR               |
| 410       | 5239             | NR               | 540       | 115725           | NR               | 670       | 44882            | NR               | 800       | 3444             | NR               | 930       | 3642             | NR               |
| 415       | 10499            | NR               | 545       | 119091           | NR               | 675       | 38742            | NR               | 805       | 3315             | NR               | 935       | 3040             | NR               |
| 420       | 20790            | NR               | 550       | 122884           | NR               | 680       | 33597            | NR               | 810       | 3022             | NR               | 940       | 4039             | NR               |
| 425       | 39276            | NR               | 555       | 128300           | NR               | 685       | 29101            | NR               | 815       | 2832             | NR               | 945       | 4797             | NR               |
| 430       | 66418            | NR               | 560       | 133274           | NR               | 690       | 24855            | NR               | 820       | 3142             | NR               | 950       | 4945             | NR               |
| 435       | 101961           | NR               | 565       | 139112           | NR               | 695       | 21367            | NR               | 825       | 3115             | NR               | 955       | 3757             | NR               |
| 440       | 134023           | NR               | 570       | 144467           | NR               | 700       | 18479            | NR               | 830       | 2520             | NR               | 960       | 4539             | NR               |
| 445       | 129385           | NR               | 575       | 149331           | NR               | 705       | 16131            | NR               | 835       | 2783             | NR               | 965       | 4857             | NR               |
| 450       | 90434            | NR               | 580       | 154784           | NR               | 710       | 14388            | NR               | 840       | 3364             | NR               | 970       | 4463             | NR               |
| 455       | 63521            | NR               | 585       | 156899           | NR               | 715       | 12865            | NR               | 845       | 3807             | NR               | 975       | 3718             | NR               |
| 460       | 48429            | NR               | 590       | 157796           | NR               | 720       | 11277            | NR               | 850       | 2907             | NR               | 980       | 3955             | NR               |
| 465       | 36445            | NR               | 595       | 157849           | NR               | 725       | 10063            | NR               | 855       | 3470             | NR               | 985       | 4314             | NR               |
| 470       | 31953            | NR               | 600       | 155418           | NR               | 730       | 8942             | NR               | 860       | 3820             | NR               | 990       | 4478             | NR               |
| 475       | 32768            | NR               | 605       | 151601           | NR               | 735       | 7722             | NR               | 865       | 3922             | NR               | 995       | 2959             | NR               |
| 480       | 37631            | NR               | 610       | 146416           | NR               | 740       | 6964             | NR               | 870       | 4061             | NR               | 1000      | 4570             | NR               |
| 485       | 46354            | NR               | 615       | 139241           | NR               | 745       | 6117             | NR               | 875       | 3975             | NR               |           |                  |                  |

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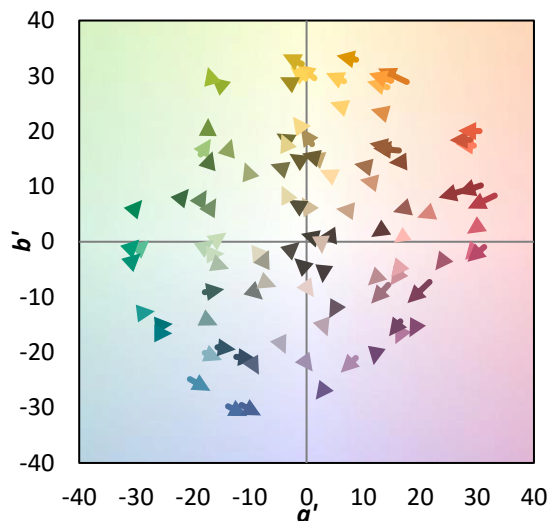
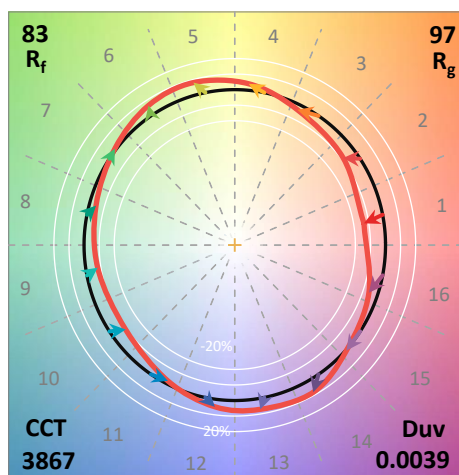
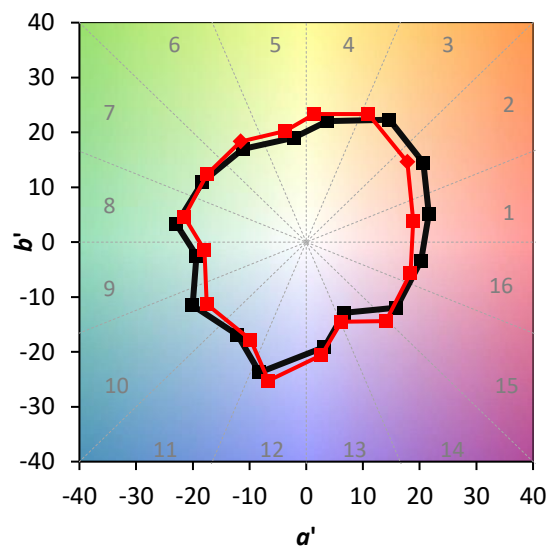
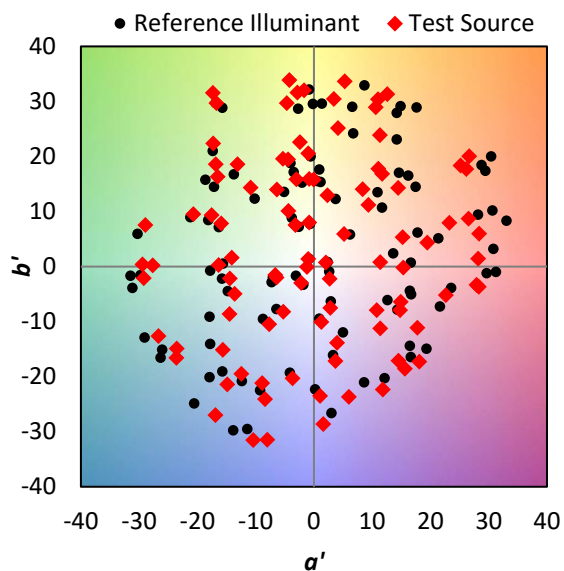
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**Summary**

$R_f = 82.7$   
 $R_g = 96.5$   
 $CIE R_a = 79.8$   
 $R_g = -8.6$



**Color Vector Graphics**

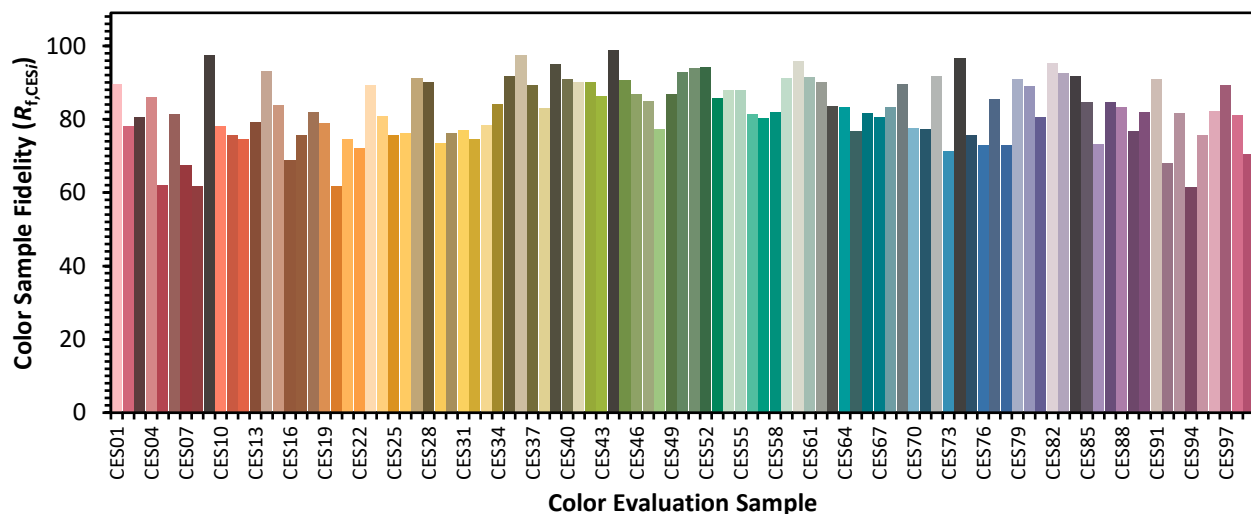


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**Individual Sample Fidelity Index ( $R_{f,i}$ )**

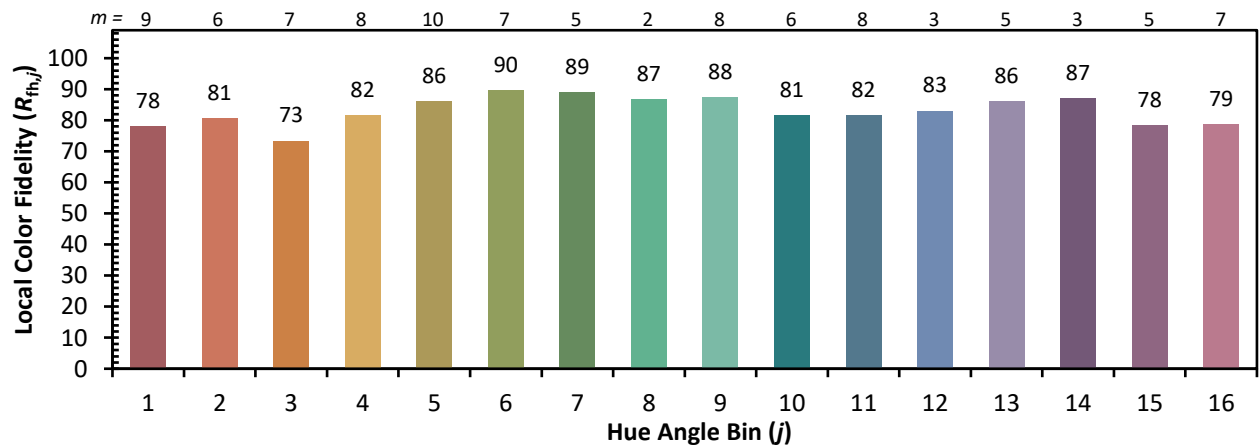
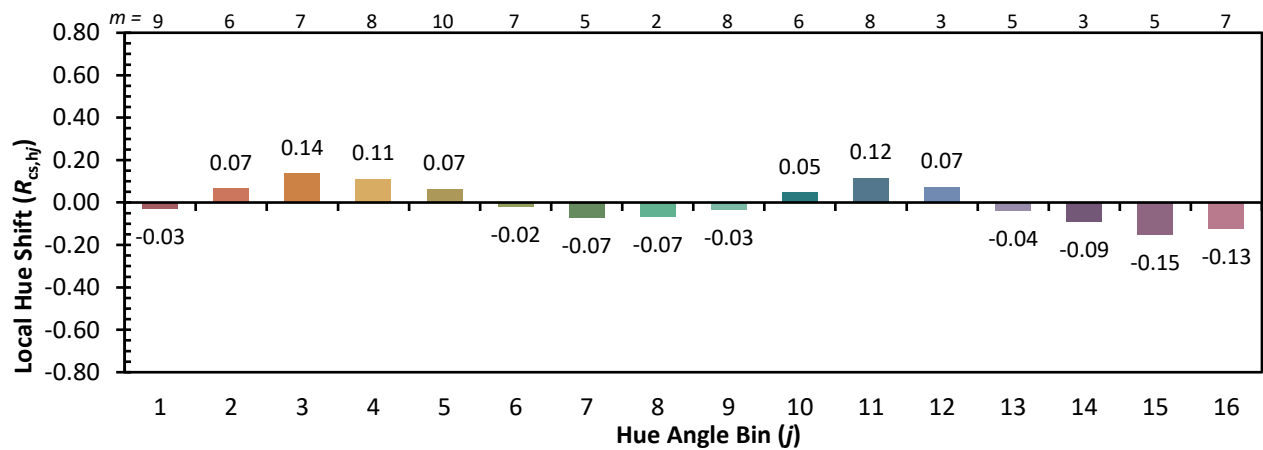
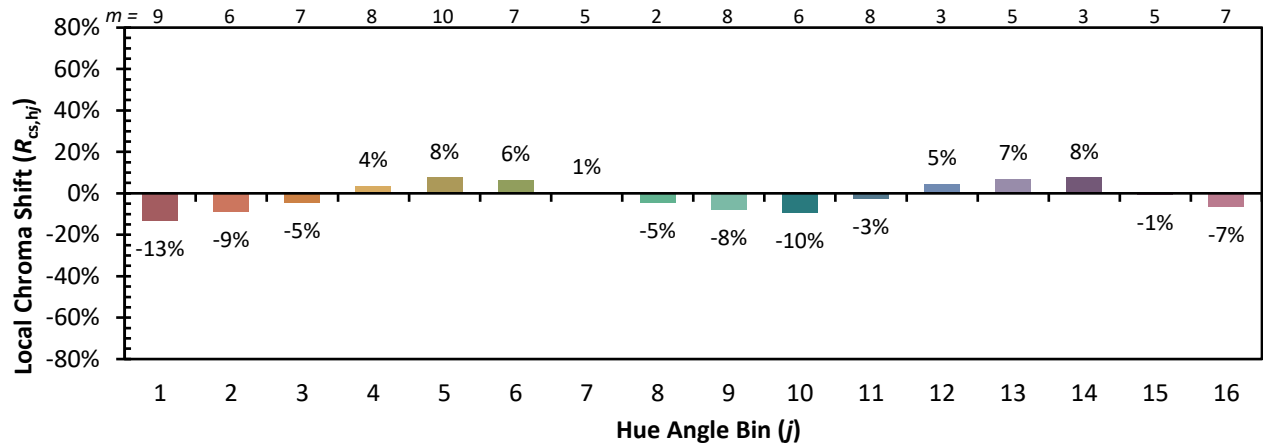
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 76 | CES51 = 94 | CES76 = 73 |
| CES02 = 61 | CES27 = 91 | CES52 = 94 | CES77 = 85 |
| CES03 = 31 | CES28 = 90 | CES53 = 86 | CES78 = 73 |
| CES04 = 69 | CES29 = 73 | CES54 = 88 | CES79 = 91 |
| CES05 = 48 | CES30 = 76 | CES55 = 88 | CES80 = 89 |
| CES06 = 50 | CES31 = 77 | CES56 = 81 | CES81 = 80 |
| CES07 = 40 | CES32 = 74 | CES57 = 80 | CES82 = 95 |
| CES08 = 39 | CES33 = 78 | CES58 = 82 | CES83 = 92 |
| CES09 = 29 | CES34 = 84 | CES59 = 91 | CES84 = 92 |
| CES10 = 74 | CES35 = 92 | CES60 = 96 | CES85 = 85 |
| CES11 = 57 | CES36 = 97 | CES61 = 92 | CES86 = 73 |
| CES12 = 63 | CES37 = 89 | CES62 = 90 | CES87 = 85 |
| CES13 = 42 | CES38 = 83 | CES63 = 83 | CES88 = 83 |
| CES14 = 74 | CES39 = 95 | CES64 = 83 | CES89 = 77 |
| CES15 = 71 | CES40 = 91 | CES65 = 77 | CES90 = 82 |
| CES16 = 47 | CES41 = 90 | CES66 = 82 | CES91 = 91 |
| CES17 = 49 | CES42 = 90 | CES67 = 80 | CES92 = 68 |
| CES18 = 56 | CES43 = 86 | CES68 = 83 | CES93 = 82 |
| CES19 = 71 | CES44 = 99 | CES69 = 90 | CES94 = 61 |
| CES20 = 65 | CES45 = 91 | CES70 = 77 | CES95 = 76 |
| CES21 = 86 | CES46 = 87 | CES71 = 77 | CES96 = 82 |
| CES22 = 78 | CES47 = 85 | CES72 = 92 | CES97 = 89 |
| CES23 = 91 | CES48 = 77 | CES73 = 71 | CES98 = 81 |
| CES24 = 90 | CES49 = 87 | CES74 = 97 | CES99 = 70 |
| CES25 = 71 | CES50 = 93 | CES75 = 76 |            |



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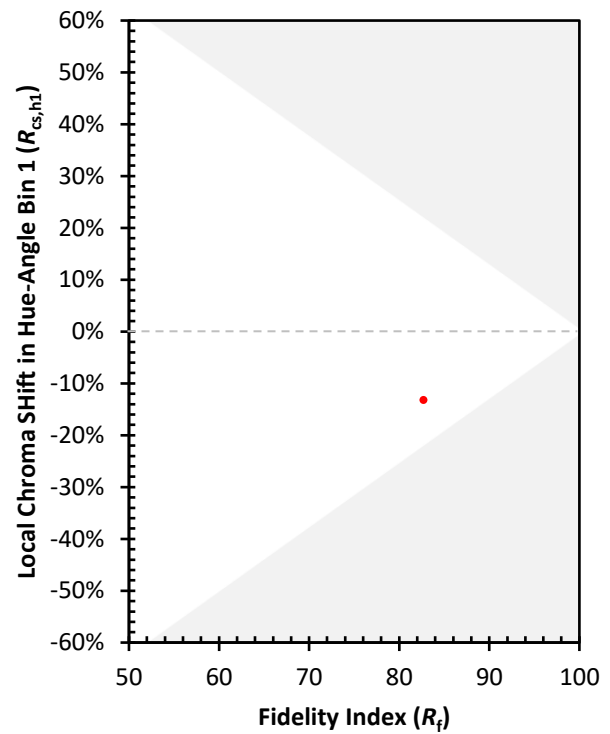
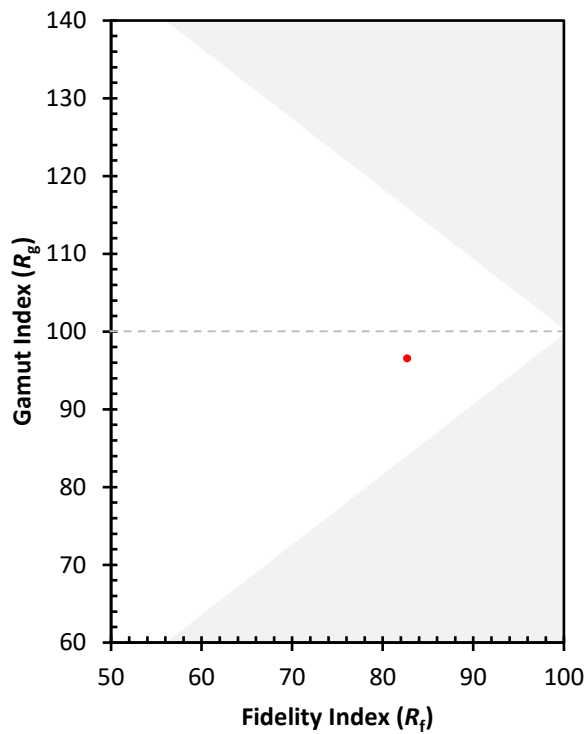
Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)