

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



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

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P1048418

Luminaire Tested: **GALN-SA1B-750-U-T4BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048418  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA1B-750-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 1xLight Square PACKAGE  
70CRI 5000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (14) 5000K CCT, 70 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4644 lumens  
Efficiency: N/A  
Efficacy: 120.0 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 38.7  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

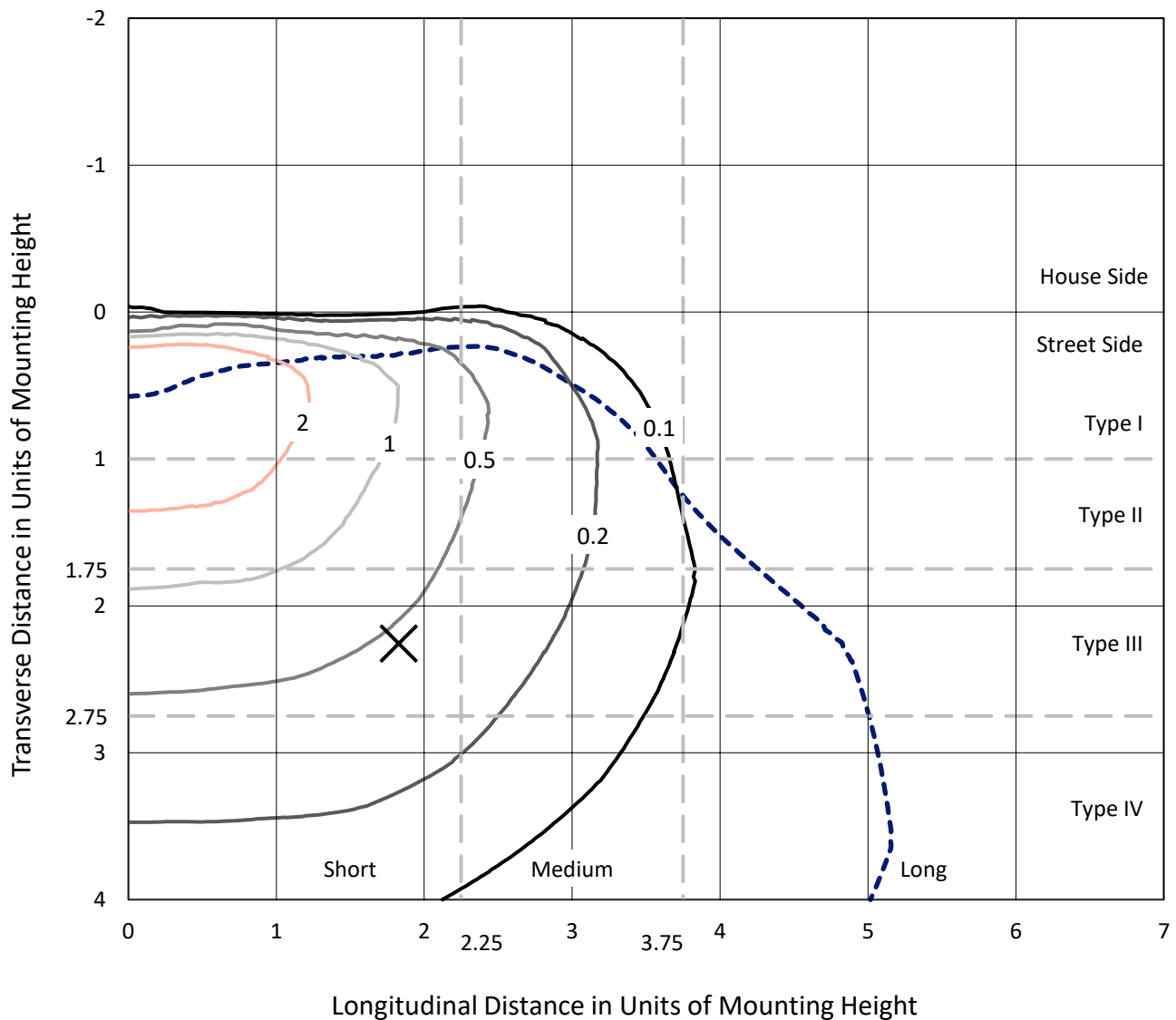


REPORT NUMBER: P1048418

CATALOG NUMBER: GALN-SA1B-750-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

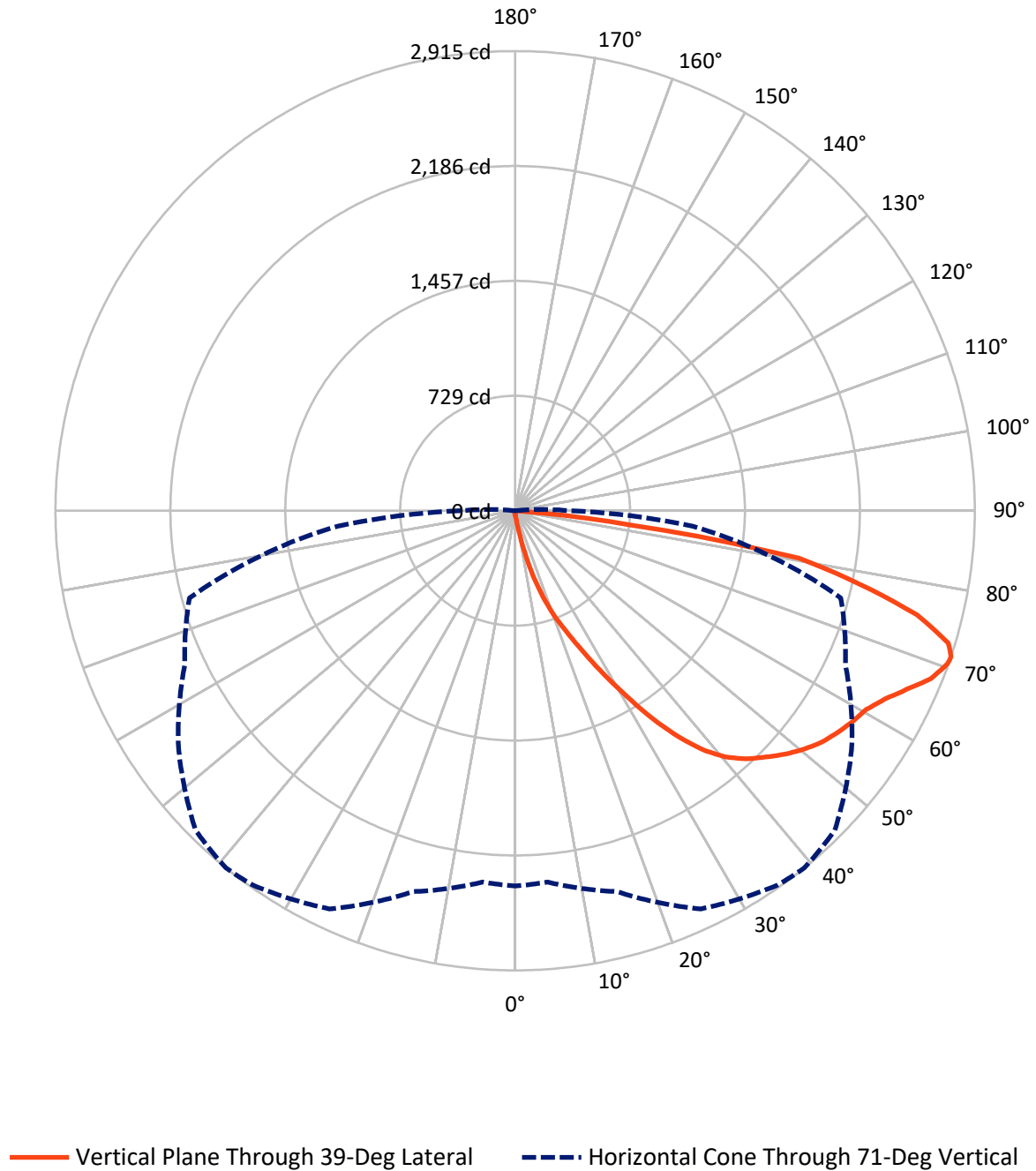


Based on 15 foot mounting height. Maximum calculated value = 4.8 fc  
 Type IV - Short - N/A

REPORT NUMBER: P1048418

CATALOG NUMBER: GALN-SA1B-750-U-T4BC

## Luminous Intensity Polar Plot



REPORT NUMBER: P1048418

CATALOG NUMBER: GALN-SA1B-750-U-T4BC

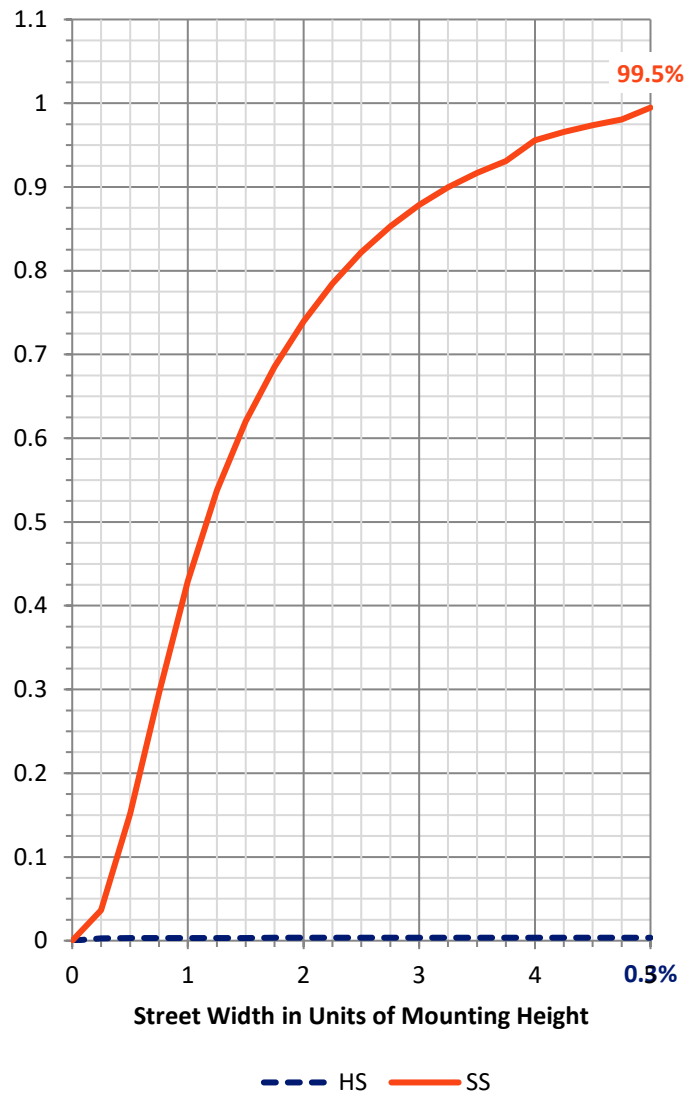
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 16.5     | 0.0    | 16.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 4627.6   | 0.0    | 4627.6 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 4644.0   | 0.0    | 4644.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 3.9    | 0.1       |
| 10°-20°   | 49.6   | 1.1       |
| 20°-30°   | 176.8  | 3.8       |
| 30°-40°   | 426.0  | 9.2       |
| 40°-50°   | 713.0  | 15.4      |
| 50°-60°   | 915.7  | 19.7      |
| 60°-70°   | 1158.9 | 25.0      |
| 70°-80°   | 1033.2 | 22.2      |
| 80°-90°   | 167.0  | 3.6       |
| 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°    | 4644.0 | 100.0     |
| 0°-180°   | 4644.0 | 100.0     |



REPORT NUMBER: P1048418

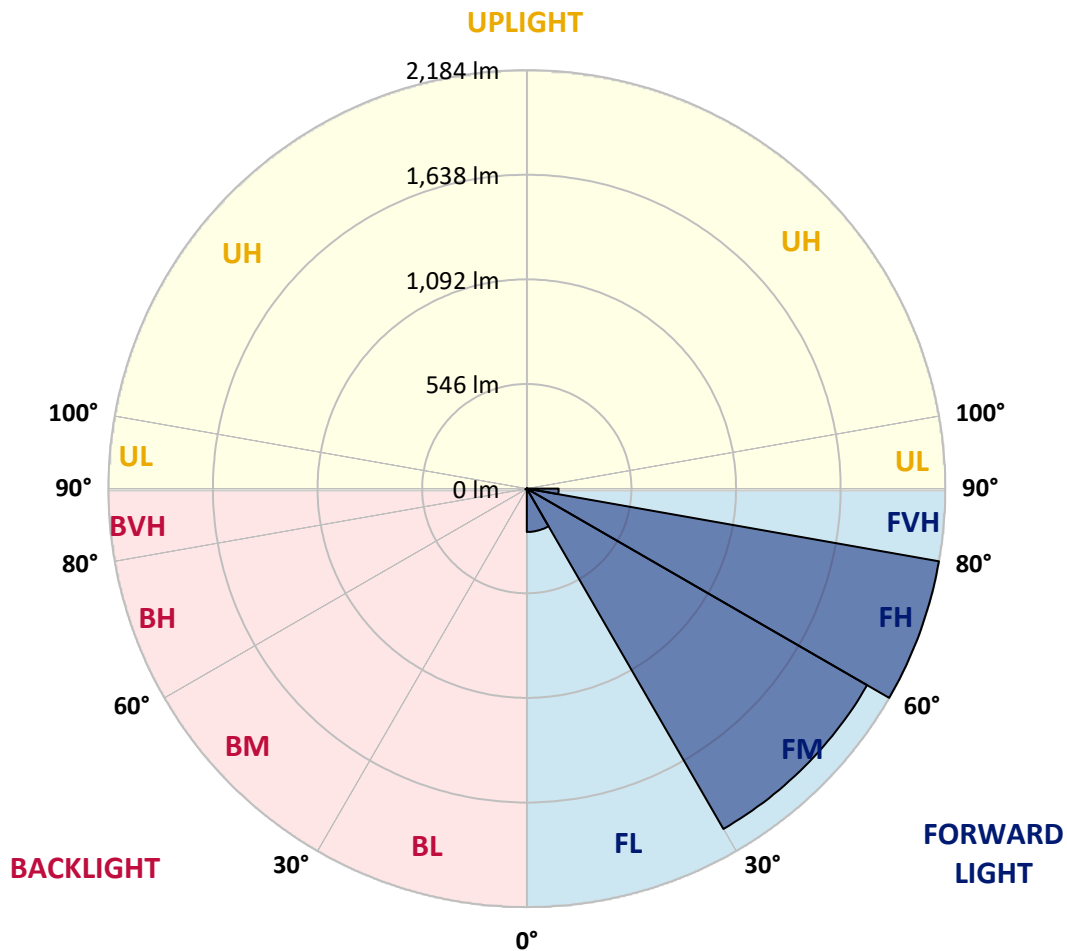
CATALOG NUMBER: GALN-SA1B-750-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 226.3  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 2050.9 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 2184.1 | 47.0      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 166.3  | 3.6       |                         |      | G2/225  |
| BL   | (0°-30°)    | 4.0    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 3.8    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 7.9    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 0.8    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G2**

Type IV Short



REPORT NUMBER: P1048418

CATALOG NUMBER: GALN-SA1B-750-U-T4BC

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 25.5   | 25.5   | 25.5   | 25.5   | 25.5   | 25.5   | 25.5   | 25.5   | 25.5   | 25.5   | 25.5   |
| 2.5°  | 29.2   | 29.2   | 29.2   | 28.3   | 28.3   | 28.0   | 27.7   | 27.7   | 27.0   | 26.7   | 26.1   |
| 5°    | 44.3   | 43.4   | 41.2   | 39.9   | 37.4   | 35.8   | 34.3   | 32.1   | 29.9   | 28.3   | 26.4   |
| 7.5°  | 100.3  | 102.5  | 95.3   | 81.7   | 67.9   | 61.9   | 51.9   | 41.8   | 34.6   | 29.9   | 26.7   |
| 10°   | 255.6  | 254.3  | 229.8  | 202.8  | 156.6  | 138.0  | 108.1  | 68.2   | 44.6   | 32.7   | 27.0   |
| 12.5° | 434.8  | 433.5  | 404.6  | 367.8  | 306.8  | 268.2  | 211.6  | 127.3  | 64.1   | 37.1   | 27.0   |
| 15°   | 585.4  | 580.3  | 571.2  | 534.8  | 463.4  | 431.0  | 356.2  | 225.1  | 103.7  | 44.6   | 27.7   |
| 17.5° | 685.0  | 680.6  | 672.1  | 658.9  | 613.7  | 575.3  | 515.3  | 353.7  | 167.9  | 57.8   | 28.9   |
| 20°   | 776.5  | 773.4  | 766.5  | 763.9  | 734.7  | 714.3  | 664.6  | 501.4  | 261.6  | 78.6   | 30.8   |
| 22.5° | 902.3  | 895.7  | 898.5  | 883.4  | 854.8  | 830.3  | 799.8  | 656.1  | 376.0  | 113.2  | 34.3   |
| 25°   | 1056.3 | 1053.2 | 1045.3 | 1034.6 | 995.0  | 973.6  | 926.8  | 802.0  | 503.9  | 158.4  | 38.0   |
| 27.5° | 1242.4 | 1239.0 | 1237.1 | 1212.6 | 1167.0 | 1143.7 | 1078.3 | 939.7  | 647.9  | 222.0  | 43.1   |
| 30°   | 1456.8 | 1458.4 | 1446.1 | 1414.7 | 1361.6 | 1328.9 | 1261.6 | 1084.0 | 795.4  | 296.5  | 48.4   |
| 32.5° | 1678.8 | 1675.6 | 1656.8 | 1619.7 | 1572.2 | 1541.7 | 1456.2 | 1242.1 | 950.0  | 394.9  | 54.7   |
| 35°   | 1918.0 | 1912.0 | 1862.4 | 1819.9 | 1779.4 | 1741.0 | 1663.1 | 1425.7 | 1104.7 | 505.2  | 63.2   |
| 37.5° | 2159.5 | 2131.5 | 2031.8 | 1978.1 | 1950.1 | 1918.6 | 1846.0 | 1621.6 | 1258.5 | 628.4  | 73.6   |
| 40°   | 2341.8 | 2320.1 | 2201.9 | 2102.9 | 2080.6 | 2053.8 | 1999.8 | 1790.7 | 1421.9 | 760.8  | 86.1   |
| 42.5° | 2442.7 | 2430.8 | 2324.5 | 2226.7 | 2174.2 | 2150.7 | 2104.4 | 1938.5 | 1583.5 | 907.0  | 104.4  |
| 45°   | 2485.8 | 2467.2 | 2396.2 | 2350.6 | 2267.0 | 2228.0 | 2173.0 | 2050.1 | 1752.3 | 1073.0 | 129.8  |
| 47.5° | 2472.6 | 2461.9 | 2411.0 | 2427.6 | 2366.9 | 2306.3 | 2225.5 | 2135.6 | 1896.6 | 1263.5 | 164.7  |
| 50°   | 2389.6 | 2380.5 | 2364.7 | 2455.0 | 2447.4 | 2375.8 | 2293.4 | 2203.2 | 2014.5 | 1460.0 | 218.8  |
| 52.5° | 2231.8 | 2228.0 | 2268.2 | 2433.6 | 2493.0 | 2437.1 | 2358.8 | 2262.9 | 2124.6 | 1665.3 | 296.1  |
| 55°   | 2028.4 | 2043.8 | 2158.8 | 2400.3 | 2516.3 | 2482.3 | 2416.6 | 2318.8 | 2212.9 | 1848.9 | 410.3  |
| 57.5° | 1944.7 | 1948.8 | 2092.5 | 2376.7 | 2526.7 | 2522.3 | 2472.9 | 2372.3 | 2294.0 | 1995.7 | 584.4  |
| 60°   | 2042.5 | 2036.2 | 2112.0 | 2394.6 | 2547.4 | 2558.1 | 2522.9 | 2422.0 | 2364.4 | 2121.7 | 816.4  |
| 62.5° | 2219.2 | 2215.7 | 2239.9 | 2471.0 | 2608.1 | 2629.8 | 2592.4 | 2457.8 | 2426.7 | 2204.7 | 1081.1 |
| 65°   | 2377.0 | 2369.8 | 2414.7 | 2606.5 | 2714.6 | 2730.1 | 2697.4 | 2519.1 | 2454.0 | 2265.1 | 1329.8 |
| 67.5° | 2445.2 | 2443.7 | 2516.0 | 2735.4 | 2826.6 | 2843.2 | 2814.6 | 2603.7 | 2447.7 | 2284.3 | 1439.5 |
| 70°   | 2414.1 | 2408.1 | 2523.8 | 2790.1 | 2889.8 | 2908.6 | 2881.0 | 2635.1 | 2379.5 | 2223.6 | 1277.0 |
| 71°   | 2379.8 | 2363.8 | 2500.2 | 2786.3 | 2898.6 | 2914.6 | 2866.2 | 2606.5 | 2311.0 | 2137.5 | 1129.6 |
| 72.5° | 2273.6 | 2276.4 | 2435.5 | 2747.0 | 2877.5 | 2872.8 | 2782.6 | 2504.0 | 2228.3 | 1941.9 | 907.3  |
| 75°   | 2012.0 | 2028.7 | 2225.8 | 2582.0 | 2689.5 | 2629.5 | 2491.4 | 2308.2 | 2062.3 | 1392.4 | 630.0  |
| 77.5° | 1644.2 | 1669.0 | 1885.6 | 2264.5 | 2234.0 | 2228.0 | 2222.3 | 2033.7 | 1761.1 | 747.9  | 438.2  |
| 80°   | 785.0  | 838.8  | 1137.4 | 1616.5 | 1756.1 | 1823.7 | 1781.3 | 1638.8 | 1361.9 | 356.2  | 261.9  |
| 82.5° | 51.2   | 50.6   | 71.7   | 135.8  | 572.5  | 740.0  | 1175.8 | 1171.4 | 949.4  | 173.5  | 106.9  |
| 85°   | 24.2   | 24.8   | 27.4   | 31.1   | 36.2   | 39.6   | 54.7   | 320.7  | 454.3  | 82.7   | 23.3   |
| 87.5° | 14.1   | 14.5   | 17.0   | 21.7   | 28.3   | 31.4   | 37.4   | 48.1   | 59.1   | 45.6   | 5.0    |
| 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: P1048418

CATALOG NUMBER: GALN-SA1B-750-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 25.5  | 25.5 | 25.5 | 25.5 | 25.5 | 25.5 | 25.5 | 25.5 | 25.5 | 25.5 | 25.5 |
| 2.5°  | 25.8  | 25.5 | 24.5 | 23.6 | 22.6 | 22.0 | 21.7 | 22.0 | 22.0 | 22.3 | 22.3 |
| 5°    | 25.8  | 24.8 | 23.3 | 21.4 | 20.1 | 18.9 | 18.2 | 17.9 | 18.2 | 18.2 | 18.2 |
| 7.5°  | 25.5  | 23.9 | 21.7 | 19.5 | 17.9 | 16.3 | 15.7 | 15.4 | 15.4 | 15.7 | 15.7 |
| 10°   | 24.8  | 23.3 | 20.4 | 17.9 | 16.0 | 14.1 | 13.2 | 12.3 | 12.3 | 12.3 | 12.6 |
| 12.5° | 24.5  | 22.3 | 18.9 | 16.3 | 13.8 | 11.6 | 9.7  | 8.8  | 9.1  | 9.1  | 9.1  |
| 15°   | 23.9  | 21.4 | 17.9 | 14.8 | 11.6 | 8.8  | 7.2  | 6.3  | 6.6  | 6.9  | 6.6  |
| 17.5° | 23.9  | 21.1 | 16.7 | 12.9 | 9.1  | 6.6  | 5.3  | 4.7  | 4.7  | 5.0  | 5.0  |
| 20°   | 23.9  | 20.4 | 15.7 | 11.0 | 6.9  | 5.0  | 3.8  | 3.5  | 3.5  | 4.1  | 4.4  |
| 22.5° | 24.5  | 20.4 | 14.5 | 9.1  | 5.7  | 3.8  | 2.8  | 2.5  | 2.8  | 3.5  | 3.8  |
| 25°   | 25.5  | 20.1 | 13.2 | 8.2  | 4.7  | 2.8  | 2.2  | 1.6  | 1.9  | 2.5  | 2.8  |
| 27.5° | 26.4  | 19.8 | 11.9 | 7.2  | 3.8  | 2.2  | 1.6  | 1.3  | 0.9  | 1.3  | 1.3  |
| 30°   | 27.4  | 19.8 | 10.7 | 6.0  | 3.1  | 1.6  | 0.9  | 0.6  | 0.3  | 0.0  | 0.0  |
| 32.5° | 28.0  | 19.2 | 9.7  | 4.7  | 2.5  | 1.3  | 0.6  | 0.3  | 0.0  | 0.0  | 0.0  |
| 35°   | 28.6  | 18.5 | 8.5  | 3.8  | 1.9  | 0.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 29.2  | 17.6 | 7.2  | 3.1  | 1.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 29.9  | 16.3 | 6.0  | 2.8  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 30.5  | 15.4 | 5.0  | 2.2  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 32.1  | 14.8 | 4.1  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 34.9  | 14.1 | 3.8  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 39.0  | 13.5 | 3.5  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 44.6  | 13.2 | 3.1  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 54.7  | 12.9 | 2.8  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 72.0  | 12.6 | 2.8  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 110.3 | 11.9 | 2.8  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 197.1 | 11.6 | 2.5  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 343.6 | 11.9 | 2.5  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 492.6 | 12.6 | 2.2  | 0.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 421.6 | 11.0 | 2.2  | 1.3  | 0.6  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 343.6 | 9.7  | 2.2  | 1.3  | 0.6  | 0.3  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 221.0 | 7.5  | 1.9  | 1.3  | 0.6  | 0.6  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 93.4  | 6.3  | 1.9  | 1.3  | 0.9  | 0.6  | 0.6  | 0.3  | 0.0  | 0.0  | 0.0  |
| 77.5° | 39.9  | 4.7  | 1.9  | 1.6  | 1.3  | 0.9  | 0.9  | 0.6  | 0.3  | 0.0  | 0.0  |
| 80°   | 15.1  | 3.8  | 2.2  | 1.9  | 1.6  | 1.6  | 1.3  | 0.6  | 0.3  | 0.0  | 0.0  |
| 82.5° | 6.9   | 3.1  | 2.2  | 1.9  | 1.9  | 1.6  | 1.3  | 0.9  | 0.6  | 0.0  | 0.0  |
| 85°   | 4.4   | 2.8  | 2.2  | 1.9  | 1.9  | 1.6  | 1.6  | 0.9  | 0.6  | 0.0  | 0.0  |
| 87.5° | 3.5   | 2.8  | 2.2  | 2.2  | 1.9  | 1.9  | 1.3  | 0.9  | 0.3  | 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-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-6

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-750-U-5WQ

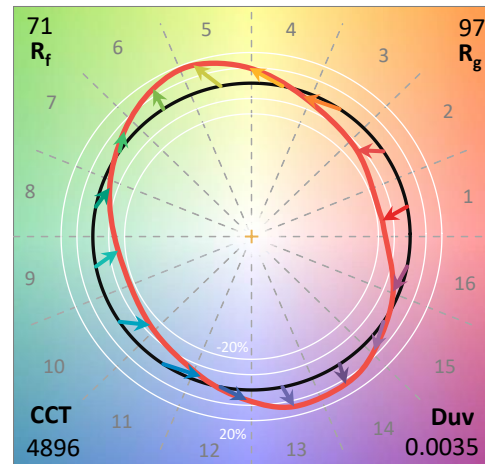
Data in this report applies to families of products including GSS-SB1A-750-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-6  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-750-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 4896     | CRI (Ra): | 70.2 |      |       |
| CIE u':                   | 0.2101   | R1:       | 68.1 | R9:  | -35.1 |
| CIE v':                   | 0.4901   | R2:       | 73.9 | R10: | 39.3  |
| Duv:                      | 0.0035   | R3:       | 79.4 | R11: | 71.1  |
| CIE x:                    | 0.3489   | R4:       | 72.1 | R12: | 43.8  |
| CIE y:                    | 0.3618   | R5:       | 69.2 | R13: | 68.1  |
| CIE z:                    | 0.2893   | R6:       | 65.7 | R14: | 88.4  |
| Peak Wavelength (nm):     | 443      | R7:       | 78.1 | R15: | 59.7  |
| Dominant Wavelength (nm): | 570      | R8:       | 55.3 |      |       |
| Purity:                   | 13.25435 |           |      |      |       |
| Rf:                       | 70.7     |           |      |      |       |
| Rg:                       | 96.8     |           |      |      |       |



### Test Conditions

Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-6

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

REPORT NUMBER: SP1-2407-184-6

**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

REPORT NUMBER: SP1-2407-184-6

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 118                                  | NR                             | 620               | 401                                  | NR                             | 750               | 12                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 168                                  | NR                             | 625               | 365                                  | NR                             | 755               | 10                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 230                                  | NR                             | 630               | 331                                  | NR                             | 760               | 9                                    | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 299                                  | NR                             | 635               | 298                                  | NR                             | 765               | 8                                    | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 362                                  | NR                             | 640               | 266                                  | NR                             | 770               | 6                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 2                                    | NR                             | 515               | 418                                  | NR                             | 645               | 236                                  | NR                             | 775               | 6                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 4                                    | NR                             | 520               | 461                                  | NR                             | 650               | 209                                  | NR                             | 780               | 5                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 6                                    | NR                             | 525               | 491                                  | NR                             | 655               | 184                                  | NR                             | 785               | 4                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 9                                    | NR                             | 530               | 514                                  | NR                             | 660               | 160                                  | NR                             | 790               | 4                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 14                                   | NR                             | 535               | 530                                  | NR                             | 665               | 140                                  | NR                             | 795               | 3                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 27                                   | NR                             | 540               | 539                                  | NR                             | 670               | 122                                  | NR                             | 800               | 3                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 55                                   | NR                             | 545               | 549                                  | NR                             | 675               | 106                                  | NR                             | 805               | 2                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 115                                  | NR                             | 550               | 557                                  | NR                             | 680               | 92                                   | NR                             | 810               | 2                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 226                                  | NR                             | 555               | 565                                  | NR                             | 685               | 79                                   | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 395                                  | NR                             | 560               | 572                                  | NR                             | 690               | 68                                   | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 648                                  | NR                             | 565               | 580                                  | NR                             | 695               | 59                                   | NR                             | 825               | 1                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 937                                  | NR                             | 570               | 586                                  | NR                             | 700               | 51                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 953                                  | NR                             | 575               | 588                                  | NR                             | 705               | 44                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 591                                  | NR                             | 580               | 588                                  | NR                             | 710               | 38                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 334                                  | NR                             | 585               | 580                                  | NR                             | 715               | 32                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 221                                  | NR                             | 590               | 568                                  | NR                             | 720               | 28                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 140                                  | NR                             | 595               | 550                                  | NR                             | 725               | 24                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 93                                   | NR                             | 600               | 527                                  | NR                             | 730               | 21                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 79                                   | NR                             | 605               | 499                                  | NR                             | 735               | 18                                   | NR                             | 865               | 0                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 76                                   | NR                             | 610               | 469                                  | NR                             | 740               | 15                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 87                                   | NR                             | 615               | 435                                  | NR                             | 745               | 13                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-184-6

### Scotopic Flux vs. Wavelength



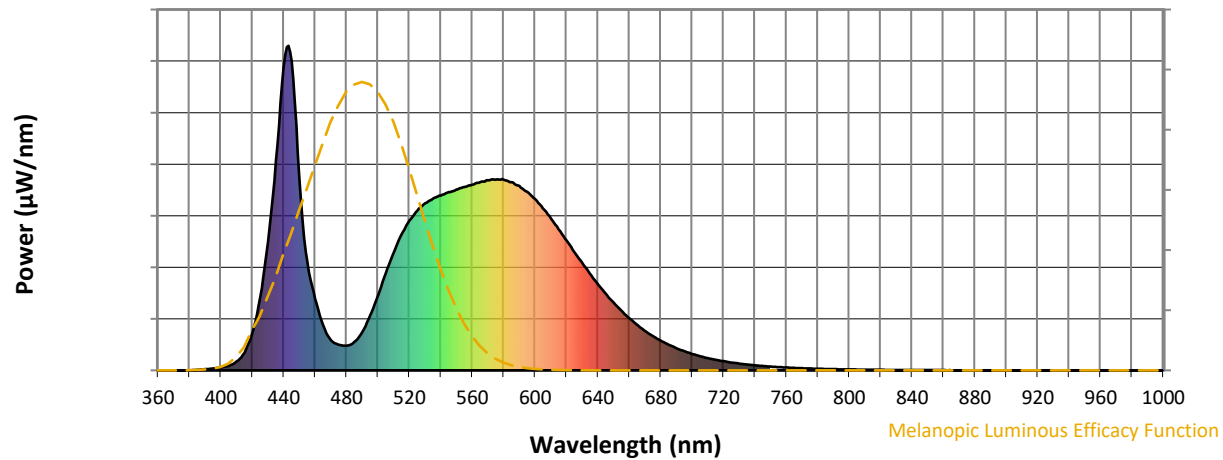
Scotopic Lumens: NR

S/P: 1.7

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(Φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 118                         | NR               | 620       | 401                         | NR               | 750       | 12                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 168                         | NR               | 625       | 365                         | NR               | 755       | 10                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 331                         | NR               | 760       | 9                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 299                         | NR               | 635       | 298                         | NR               | 765       | 8                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 362                         | NR               | 640       | 266                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 418                         | NR               | 645       | 236                         | NR               | 775       | 6                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 461                         | NR               | 650       | 209                         | NR               | 780       | 5                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 491                         | NR               | 655       | 184                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 514                         | NR               | 660       | 160                         | NR               | 790       | 4                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 530                         | NR               | 665       | 140                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 27                          | NR               | 540       | 539                         | NR               | 670       | 122                         | NR               | 800       | 3                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 549                         | NR               | 675       | 106                         | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 115                         | NR               | 550       | 557                         | NR               | 680       | 92                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 226                         | NR               | 555       | 565                         | NR               | 685       | 79                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 395                         | NR               | 560       | 572                         | NR               | 690       | 68                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 648                         | NR               | 565       | 580                         | NR               | 695       | 59                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 937                         | NR               | 570       | 586                         | NR               | 700       | 51                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 953                         | NR               | 575       | 588                         | NR               | 705       | 44                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 591                         | NR               | 580       | 588                         | NR               | 710       | 38                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 334                         | NR               | 585       | 580                         | NR               | 715       | 32                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 221                         | NR               | 590       | 568                         | NR               | 720       | 28                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 140                         | NR               | 595       | 550                         | NR               | 725       | 24                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 93                          | NR               | 600       | 527                         | NR               | 730       | 21                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 79                          | NR               | 605       | 499                         | NR               | 735       | 18                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 469                         | NR               | 740       | 15                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 87                          | NR               | 615       | 435                         | NR               | 745       | 13                          | NR               | 875       | 0                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-6

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.37

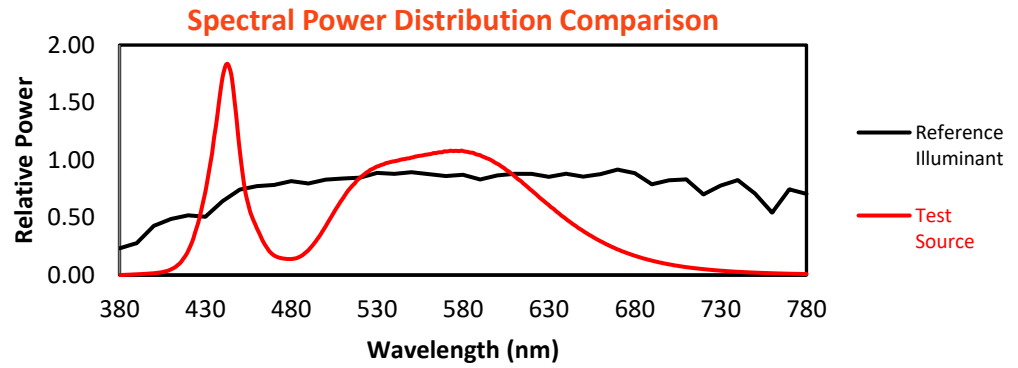
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 118                                  | NR                             | 620               | 401                                  | NR                             | 750               | 12                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 168                                  | NR                             | 625               | 365                                  | NR                             | 755               | 10                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 230                                  | NR                             | 630               | 331                                  | NR                             | 760               | 9                                    | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 299                                  | NR                             | 635               | 298                                  | NR                             | 765               | 8                                    | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 362                                  | NR                             | 640               | 266                                  | NR                             | 770               | 6                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 2                                    | NR                             | 515               | 418                                  | NR                             | 645               | 236                                  | NR                             | 775               | 6                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 4                                    | NR                             | 520               | 461                                  | NR                             | 650               | 209                                  | NR                             | 780               | 5                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 6                                    | NR                             | 525               | 491                                  | NR                             | 655               | 184                                  | NR                             | 785               | 4                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 9                                    | NR                             | 530               | 514                                  | NR                             | 660               | 160                                  | NR                             | 790               | 4                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 14                                   | NR                             | 535               | 530                                  | NR                             | 665               | 140                                  | NR                             | 795               | 3                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 27                                   | NR                             | 540               | 539                                  | NR                             | 670               | 122                                  | NR                             | 800               | 3                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 55                                   | NR                             | 545               | 549                                  | NR                             | 675               | 106                                  | NR                             | 805               | 2                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 115                                  | NR                             | 550               | 557                                  | NR                             | 680               | 92                                   | NR                             | 810               | 2                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 226                                  | NR                             | 555               | 565                                  | NR                             | 685               | 79                                   | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 395                                  | NR                             | 560               | 572                                  | NR                             | 690               | 68                                   | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 648                                  | NR                             | 565               | 580                                  | NR                             | 695               | 59                                   | NR                             | 825               | 1                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 937                                  | NR                             | 570               | 586                                  | NR                             | 700               | 51                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 953                                  | NR                             | 575               | 588                                  | NR                             | 705               | 44                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 591                                  | NR                             | 580               | 588                                  | NR                             | 710               | 38                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 334                                  | NR                             | 585               | 580                                  | NR                             | 715               | 32                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 221                                  | NR                             | 590               | 568                                  | NR                             | 720               | 28                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 140                                  | NR                             | 595               | 550                                  | NR                             | 725               | 24                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 93                                   | NR                             | 600               | 527                                  | NR                             | 730               | 21                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 79                                   | NR                             | 605               | 499                                  | NR                             | 735               | 18                                   | NR                             | 865               | 0                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 76                                   | NR                             | 610               | 469                                  | NR                             | 740               | 15                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 87                                   | NR                             | 615               | 435                                  | NR                             | 745               | 13                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP1-2407-184-6

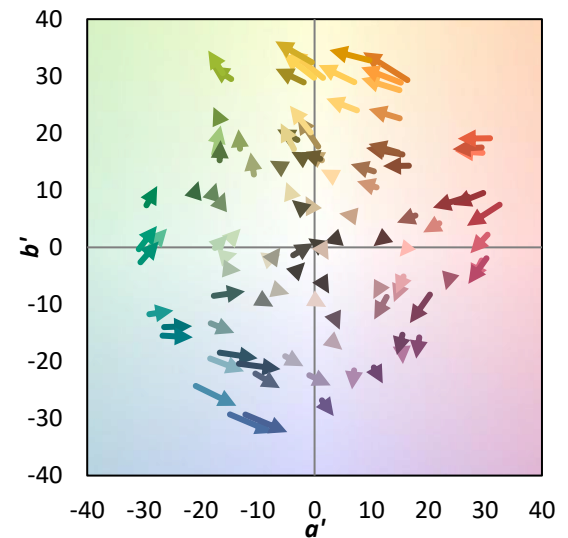
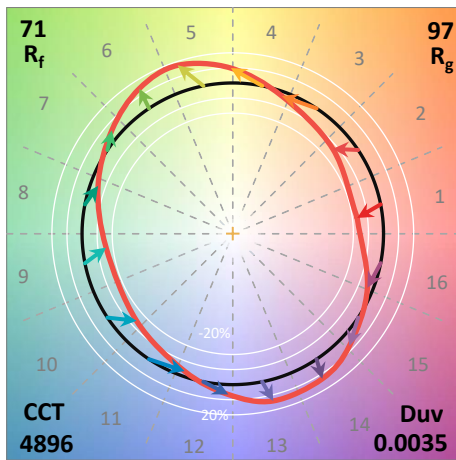
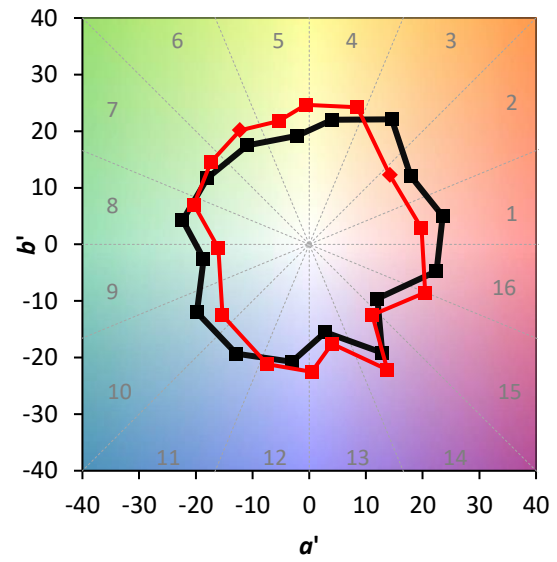
TM-30-18

### Summary

$R_f = 70.7$   
 $R_g = 96.8$   
 CIE  $R_a = 70.2$   
 $R_g = -35.1$



### Color Vector Graphics

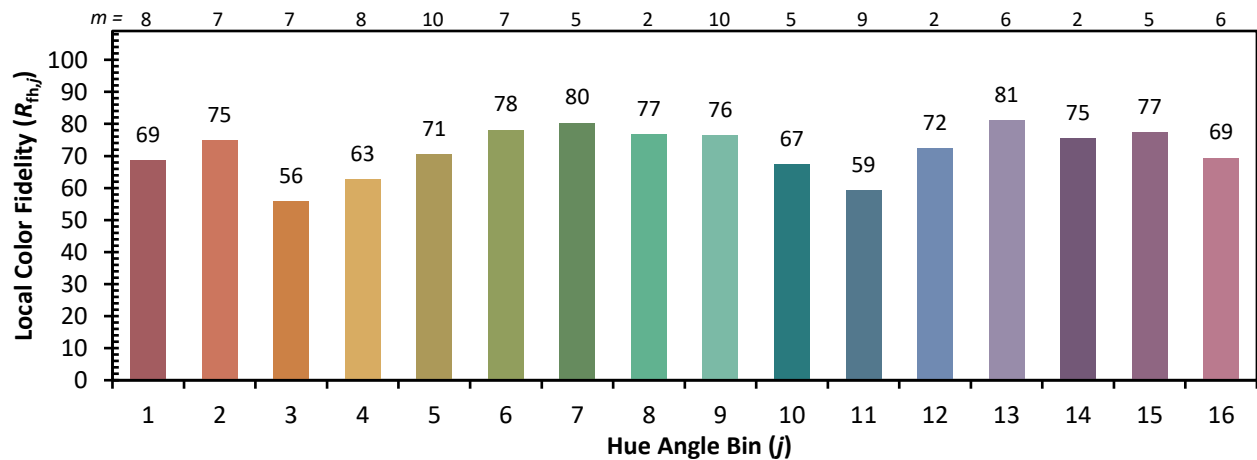
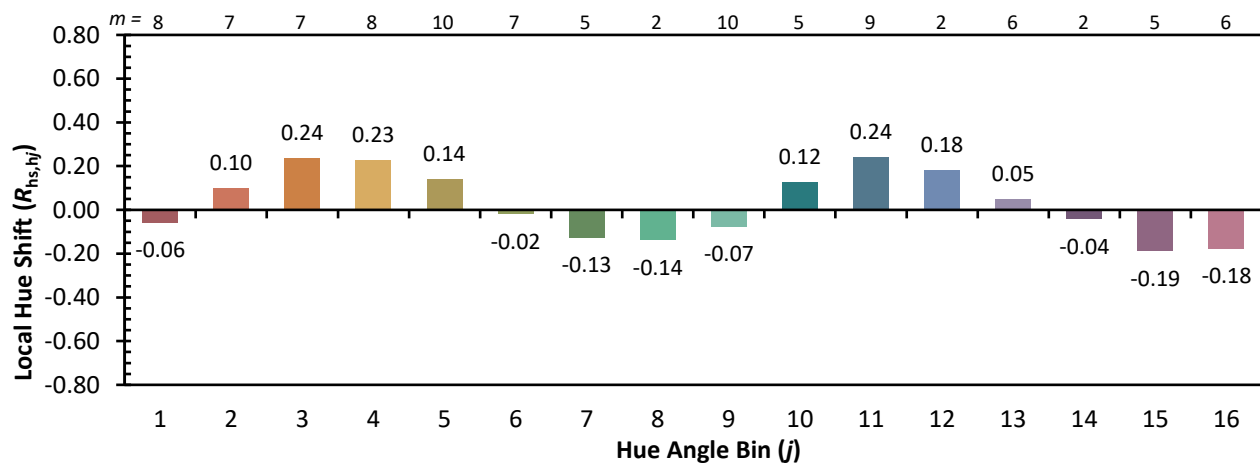
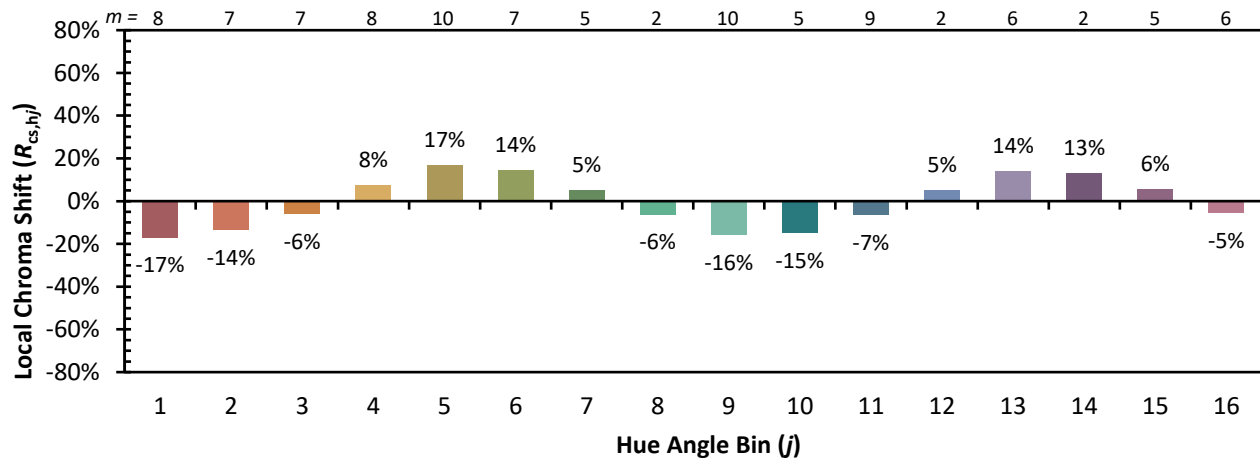


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

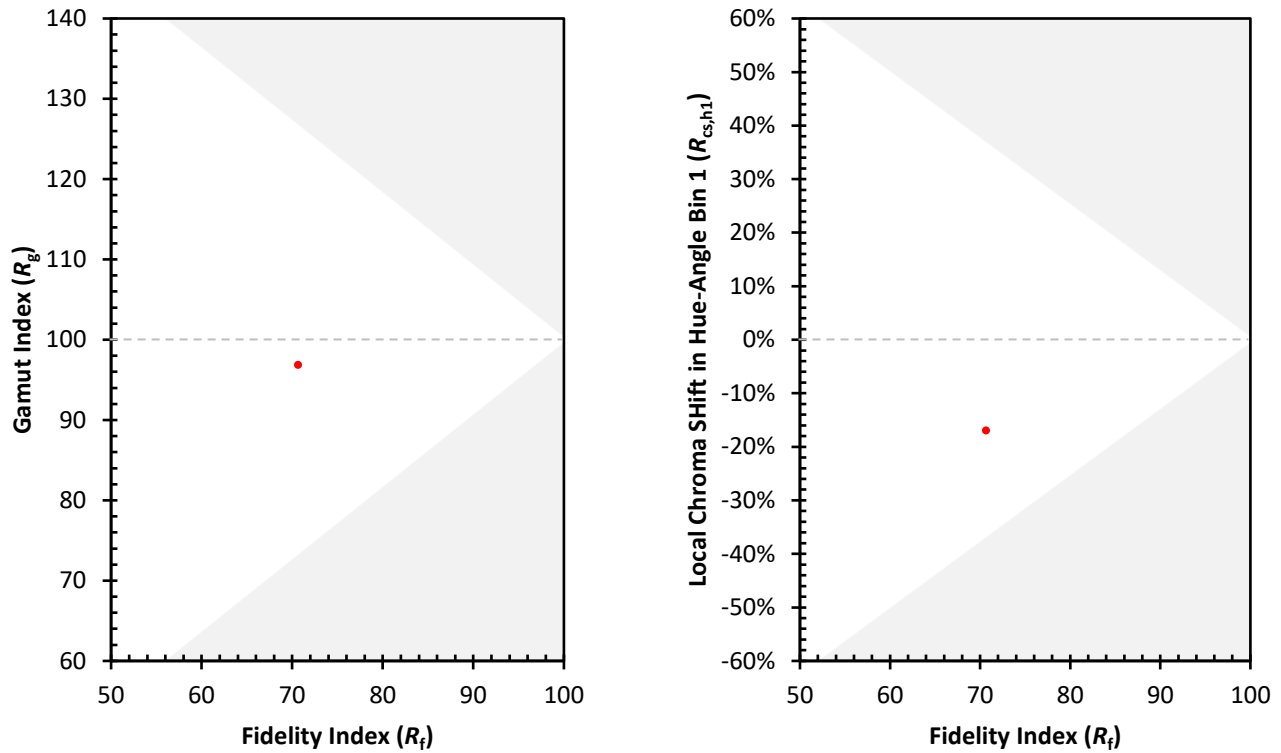
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 53 | CES51 = 87 | CES76 = 42 |
| CES02 = 59 | CES27 = 78 | CES52 = 88 | CES77 = 64 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 45 |
| CES04 = 69 | CES29 = 48 | CES54 = 80 | CES79 = 74 |
| CES05 = 46 | CES30 = 56 | CES55 = 79 | CES80 = 71 |
| CES06 = 50 | CES31 = 54 | CES56 = 68 | CES81 = 72 |
| CES07 = 39 | CES32 = 50 | CES57 = 65 | CES82 = 88 |
| CES08 = 38 | CES33 = 60 | CES58 = 67 | CES83 = 82 |
| CES09 = 29 | CES34 = 62 | CES59 = 87 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 91 | CES85 = 84 |
| CES11 = 56 | CES36 = 90 | CES61 = 87 | CES86 = 74 |
| CES12 = 61 | CES37 = 72 | CES62 = 79 | CES87 = 75 |
| CES13 = 41 | CES38 = 66 | CES63 = 72 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 70 | CES89 = 74 |
| CES15 = 70 | CES40 = 83 | CES65 = 63 | CES90 = 73 |
| CES16 = 46 | CES41 = 83 | CES66 = 64 | CES91 = 92 |
| CES17 = 49 | CES42 = 70 | CES67 = 62 | CES92 = 67 |
| CES18 = 55 | CES43 = 68 | CES68 = 69 | CES93 = 81 |
| CES19 = 71 | CES44 = 98 | CES69 = 80 | CES94 = 56 |
| CES20 = 64 | CES45 = 78 | CES70 = 56 | CES95 = 71 |
| CES21 = 85 | CES46 = 77 | CES71 = 53 | CES96 = 77 |
| CES22 = 77 | CES47 = 73 | CES72 = 84 | CES97 = 82 |
| CES23 = 91 | CES48 = 65 | CES73 = 46 | CES98 = 71 |
| CES24 = 90 | CES49 = 76 | CES74 = 94 | CES99 = 59 |
| CES25 = 71 | CES50 = 85 | CES75 = 49 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)