

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: P1047702

Luminaire Tested: **GALN-SA2B-727-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047702  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA2B-727-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 2xLight Square PACKAGE  
70CRI 2700K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (28) 2700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8301.4 lumens  
Efficiency: N/A  
Efficacy: 114.0 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 72.8  
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

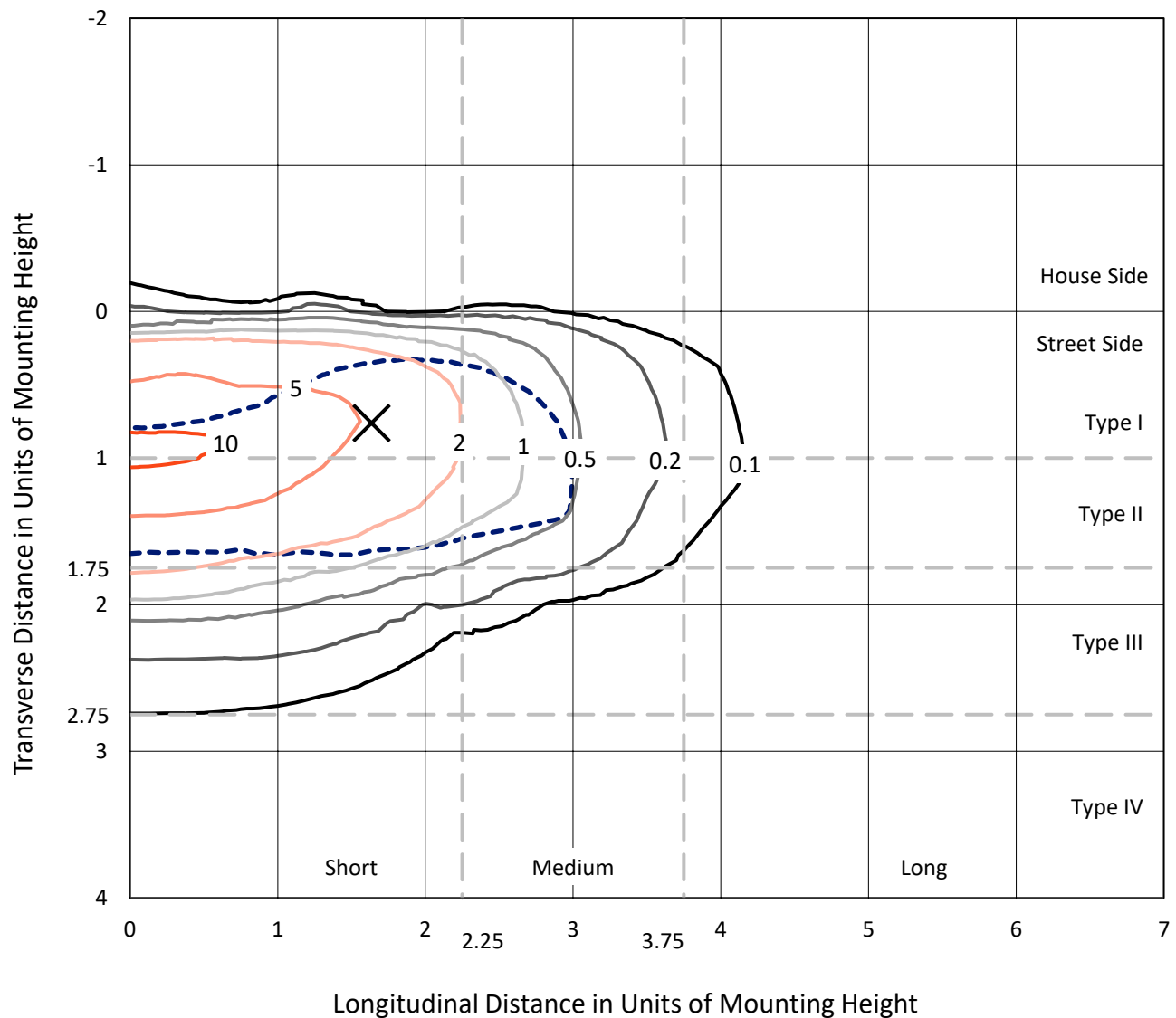


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

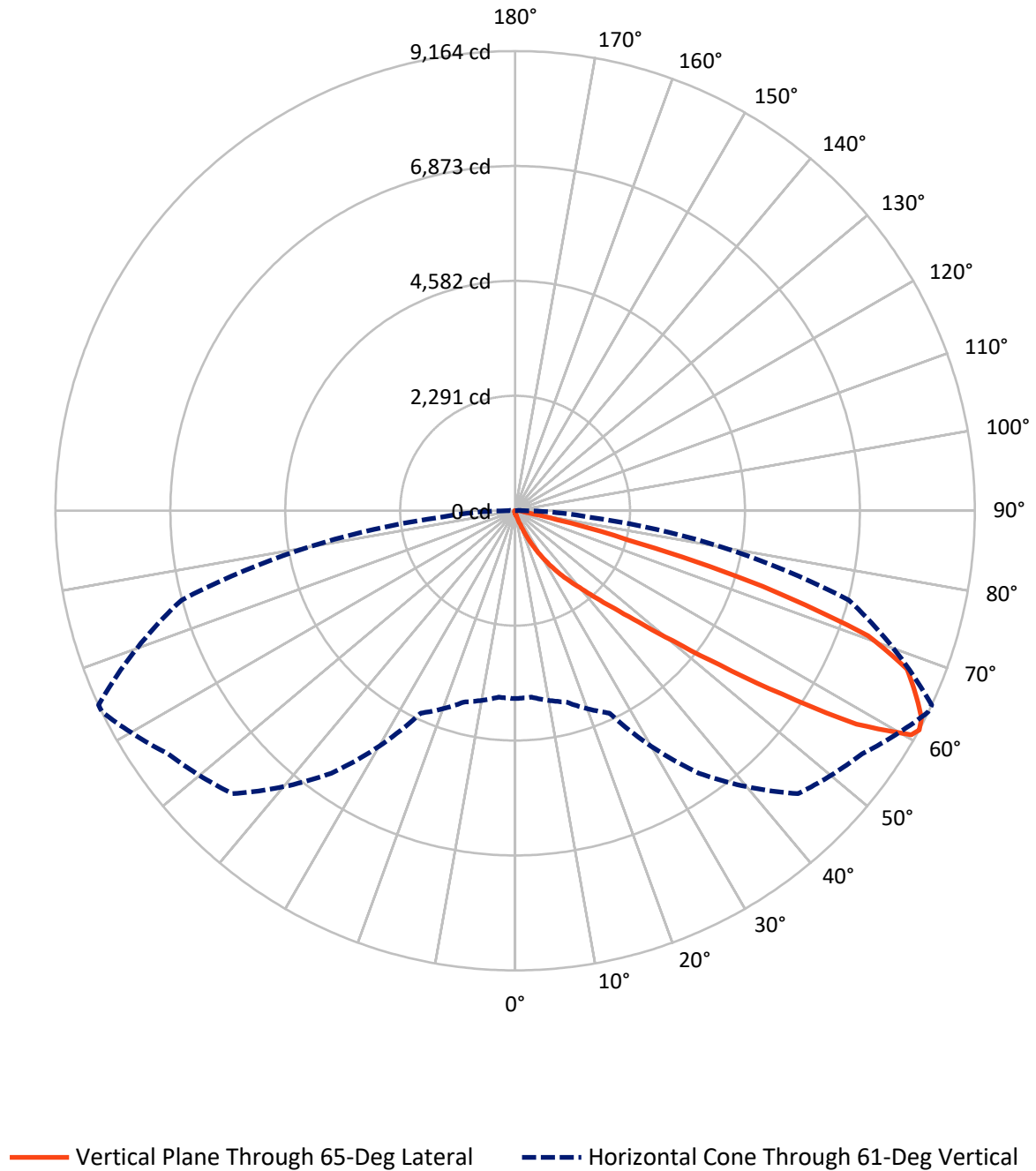


Based on 15 foot mounting height. Maximum calculated value = 11 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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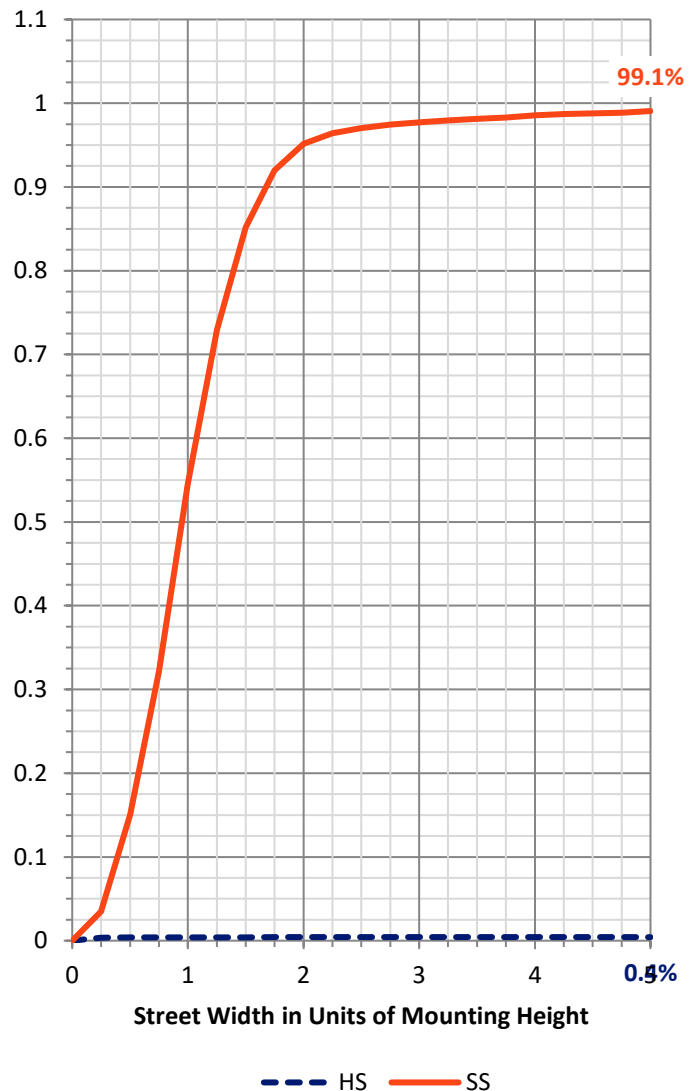
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 35.4     | 0.0    | 35.4   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 8266.0   | 0.0    | 8266.0 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 8301.4   | 0.0    | 8301.4 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 6.5    | 0.1       |
| 10°-20°   | 68.3   | 0.8       |
| 20°-30°   | 245.0  | 3.0       |
| 30°-40°   | 652.3  | 7.9       |
| 40°-50°   | 1713.5 | 20.6      |
| 50°-60°   | 2654.5 | 32.0      |
| 60°-70°   | 2225.7 | 26.8      |
| 70°-80°   | 655.0  | 7.9       |
| 80°-90°   | 80.8   | 1.0       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 8301.4 | 100.0     |
| 0°-180°   | 8301.4 | 100.0     |



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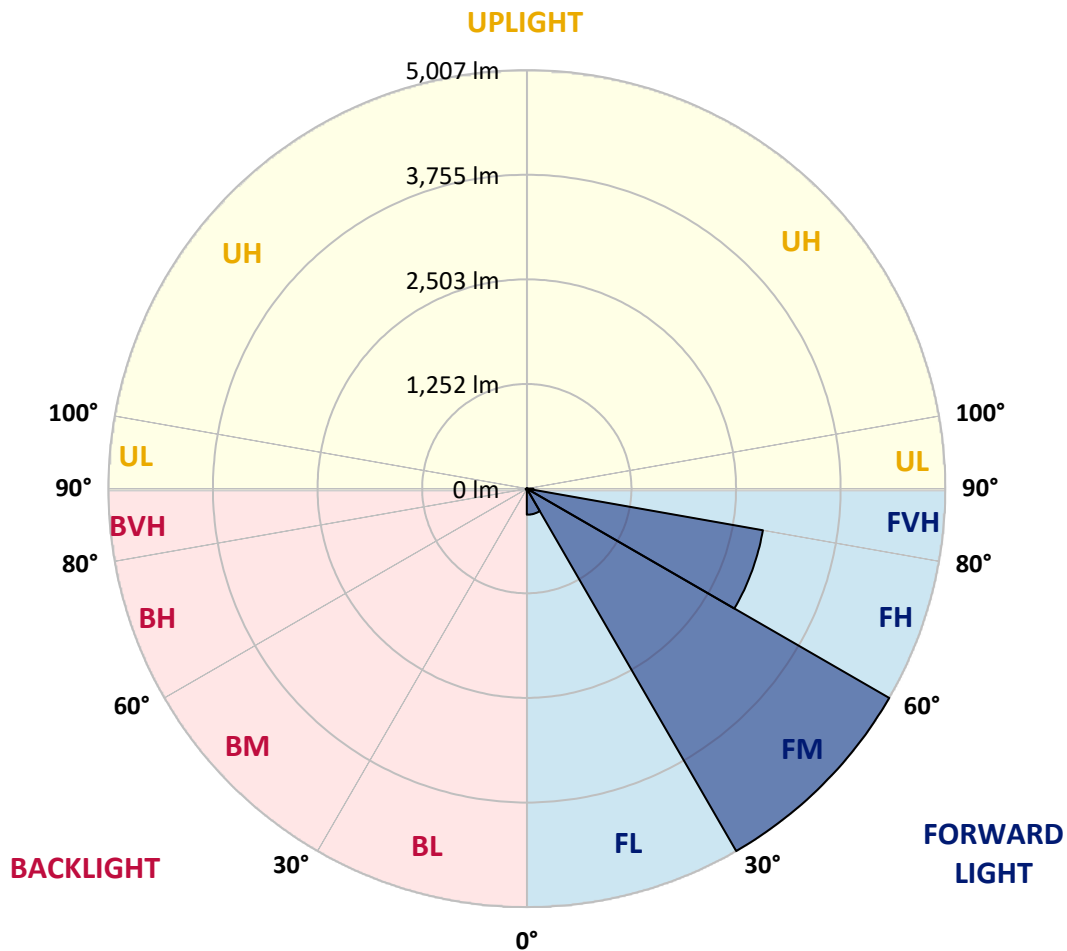
CATALOG NUMBER: GALN-SA2B-727-U-T2BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 311.8  | 3.8       |                         |      |         |
| FM   | (30°-60°)   | 5006.7 | 60.3      |                         |      |         |
| FH   | (60°-80°)   | 2868.2 | 34.6      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 79.3   | 1.0       |                         |      | G1/100  |
| BL   | (0°-30°)    | 8.0    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 13.5   | 0.2       | B0/220                  |      |         |
| BH   | (60°-80°)   | 12.5   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.5    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

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

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 64°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 50.8   | 50.8   | 50.8   | 50.8   | 50.8   | 50.8   | 50.8   | 50.8   | 50.8   | 50.8   | 50.8   |
| 2.5°  | 61.7   | 62.2   | 61.1   | 58.8   | 57.1   | 57.1   | 56.5   | 54.8   | 54.8   | 53.1   | 52.0   |
| 5°    | 86.2   | 85.1   | 82.8   | 78.2   | 74.2   | 70.2   | 66.2   | 62.2   | 61.7   | 56.5   | 53.1   |
| 7.5°  | 141.0  | 142.2  | 134.8  | 120.5  | 108.5  | 93.1   | 78.8   | 70.2   | 69.1   | 60.5   | 53.7   |
| 10°   | 309.5  | 300.9  | 283.8  | 228.4  | 187.9  | 141.6  | 105.1  | 81.7   | 80.5   | 65.1   | 54.8   |
| 12.5° | 564.2  | 557.3  | 525.9  | 468.8  | 364.3  | 253.5  | 153.6  | 101.1  | 97.6   | 69.1   | 55.4   |
| 15°   | 813.2  | 802.3  | 785.2  | 727.5  | 605.3  | 454.6  | 251.3  | 138.2  | 129.1  | 74.8   | 54.8   |
| 17.5° | 971.9  | 973.6  | 958.2  | 933.7  | 854.9  | 672.7  | 434.0  | 206.1  | 188.4  | 85.1   | 53.7   |
| 20°   | 1110.7 | 1106.7 | 1115.3 | 1102.1 | 1046.7 | 914.3  | 631.6  | 326.6  | 296.4  | 101.6  | 54.2   |
| 22.5° | 1270.6 | 1280.3 | 1286.6 | 1283.7 | 1222.6 | 1109.5 | 856.0  | 488.8  | 450.6  | 131.9  | 56.0   |
| 25°   | 1484.7 | 1483.6 | 1484.2 | 1476.7 | 1417.3 | 1291.7 | 1081.0 | 690.4  | 651.6  | 181.0  | 60.0   |
| 27.5° | 1709.2 | 1716.0 | 1718.9 | 1692.0 | 1614.4 | 1491.0 | 1289.4 | 910.8  | 865.1  | 259.8  | 65.1   |
| 30°   | 2015.8 | 2010.1 | 1997.0 | 1942.1 | 1847.9 | 1694.9 | 1495.0 | 1142.1 | 1094.1 | 370.0  | 73.1   |
| 32.5° | 2429.2 | 2423.0 | 2356.7 | 2235.7 | 2094.6 | 1907.3 | 1701.7 | 1373.9 | 1315.7 | 507.7  | 83.9   |
| 35°   | 3110.5 | 3120.2 | 2957.5 | 2644.0 | 2391.0 | 2162.6 | 1930.7 | 1604.6 | 1553.3 | 677.3  | 98.8   |
| 37.5° | 4153.8 | 4100.7 | 3879.7 | 3325.8 | 2781.0 | 2481.2 | 2149.4 | 1837.6 | 1793.1 | 886.3  | 118.2  |
| 40°   | 5167.4 | 5114.9 | 5050.9 | 4526.1 | 3458.8 | 2832.4 | 2455.5 | 2111.2 | 2053.5 | 1122.1 | 146.8  |
| 42.5° | 6233.0 | 6203.9 | 6201.0 | 5805.3 | 4695.7 | 3384.6 | 2823.8 | 2431.5 | 2382.4 | 1380.8 | 193.6  |
| 45°   | 6987.9 | 6958.8 | 7019.9 | 7089.0 | 6380.3 | 4567.8 | 3465.1 | 2847.8 | 2776.4 | 1694.9 | 268.4  |
| 47.5° | 7089.6 | 7090.7 | 7254.0 | 7470.5 | 7632.1 | 6398.0 | 4319.4 | 3399.5 | 3312.7 | 2144.3 | 394.0  |
| 50°   | 6751.5 | 6764.7 | 7024.5 | 7411.7 | 7846.8 | 7933.6 | 5825.8 | 4200.1 | 4071.6 | 2677.1 | 572.2  |
| 52.5° | 6107.9 | 6122.8 | 6484.8 | 7121.6 | 7649.2 | 8302.5 | 7599.5 | 5247.4 | 5099.5 | 3341.8 | 823.5  |
| 55°   | 5528.3 | 5537.5 | 5952.6 | 6757.2 | 7411.1 | 8102.1 | 8652.5 | 6645.9 | 6451.7 | 4159.5 | 1071.3 |
| 57.5° | 4954.4 | 4933.3 | 5203.4 | 6124.5 | 7370.5 | 7855.9 | 8807.9 | 8239.7 | 8025.5 | 5053.2 | 1264.3 |
| 60°   | 4186.9 | 4151.5 | 4368.5 | 4954.4 | 6837.2 | 8017.5 | 8517.2 | 9121.4 | 9072.8 | 6297.5 | 1413.3 |
| 61°   | 3745.5 | 3730.7 | 3948.8 | 4451.3 | 6388.3 | 7976.4 | 8447.5 | 9158.5 | 9163.6 | 6886.3 | 1480.2 |
| 62.5° | 2674.8 | 2717.1 | 3050.5 | 3703.8 | 5350.7 | 7709.7 | 8456.7 | 9043.7 | 9094.5 | 7668.6 | 1653.2 |
| 65°   | 1188.9 | 1256.9 | 1516.1 | 2047.8 | 3111.7 | 6413.5 | 8375.6 | 8791.9 | 8766.8 | 7883.3 | 2249.4 |
| 67.5° | 705.2  | 715.5  | 844.6  | 1160.4 | 1648.0 | 3449.7 | 7391.1 | 8459.0 | 8425.3 | 6862.9 | 2798.7 |
| 70°   | 555.6  | 560.8  | 601.9  | 728.1  | 956.5  | 1321.4 | 4218.3 | 7318.6 | 7465.3 | 5564.9 | 2739.9 |
| 72.5° | 527.1  | 525.9  | 531.6  | 553.9  | 602.5  | 655.6  | 1633.2 | 4864.8 | 5163.4 | 4007.6 | 2297.3 |
| 75°   | 520.2  | 517.9  | 512.2  | 503.7  | 436.3  | 386.0  | 506.0  | 2151.7 | 2324.7 | 2738.2 | 1729.7 |
| 77.5° | 504.8  | 505.4  | 506.5  | 483.1  | 374.0  | 273.0  | 245.0  | 690.4  | 849.2  | 1737.7 | 1229.5 |
| 80°   | 341.5  | 346.6  | 355.2  | 346.1  | 336.3  | 197.6  | 173.0  | 245.6  | 249.0  | 975.4  | 812.0  |
| 82.5° | 173.0  | 173.0  | 169.0  | 150.8  | 130.2  | 128.5  | 137.6  | 178.2  | 180.5  | 493.4  | 382.0  |
| 85°   | 104.5  | 110.2  | 112.5  | 102.2  | 93.7   | 86.2   | 105.1  | 141.6  | 146.8  | 191.3  | 89.1   |
| 87.5° | 23.4   | 24.0   | 26.3   | 34.8   | 50.8   | 69.1   | 97.6   | 129.6  | 131.9  | 122.8  | 10.8   |
| 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: P1047702

CATALOG NUMBER: GALN-SA2B-727-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°   | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|------|------|------|------|------|------|------|------|------|
| 0°    | 50.8  | 50.8  | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 |
| 2.5°  | 51.4  | 50.3  | 49.7 | 48.0 | 46.3 | 44.5 | 43.4 | 42.8 | 43.4 | 44.0 | 44.0 |
| 5°    | 50.8  | 49.1  | 46.3 | 43.4 | 41.1 | 38.8 | 36.5 | 36.0 | 36.0 | 36.5 | 36.5 |
| 7.5°  | 50.8  | 48.0  | 44.0 | 40.5 | 37.1 | 33.7 | 32.0 | 30.8 | 31.4 | 31.4 | 31.4 |
| 10°   | 50.8  | 47.4  | 42.3 | 37.1 | 33.1 | 29.1 | 26.3 | 25.1 | 25.1 | 25.1 | 25.1 |
| 12.5° | 50.3  | 46.8  | 40.5 | 34.3 | 28.6 | 24.0 | 20.6 | 18.8 | 19.4 | 19.4 | 19.4 |
| 15°   | 49.1  | 45.1  | 38.3 | 29.1 | 22.8 | 18.3 | 14.8 | 13.1 | 13.7 | 14.8 | 15.4 |
| 17.5° | 47.4  | 43.4  | 34.3 | 24.6 | 18.3 | 13.7 | 10.3 | 9.1  | 9.7  | 11.4 | 11.4 |
| 20°   | 46.8  | 41.7  | 30.3 | 20.0 | 13.7 | 9.7  | 6.9  | 5.7  | 6.3  | 8.6  | 9.1  |
| 22.5° | 46.8  | 40.5  | 27.4 | 16.6 | 10.3 | 6.3  | 4.0  | 2.3  | 2.3  | 4.0  | 4.0  |
| 25°   | 47.4  | 40.0  | 25.1 | 13.7 | 7.4  | 4.6  | 2.3  | 1.1  | 2.3  | 6.3  | 7.4  |
| 27.5° | 48.5  | 39.4  | 24.0 | 11.4 | 5.7  | 4.0  | 1.7  | 4.0  | 6.9  | 6.9  | 6.9  |
| 30°   | 49.7  | 38.3  | 22.3 | 9.7  | 5.1  | 2.9  | 2.9  | 5.7  | 5.7  | 6.9  | 7.4  |
| 32.5° | 51.4  | 37.7  | 21.1 | 8.6  | 4.0  | 2.3  | 4.0  | 3.4  | 3.4  | 4.0  | 4.6  |
| 35°   | 54.8  | 38.3  | 20.0 | 8.6  | 4.0  | 2.9  | 3.4  | 1.7  | 1.1  | 1.1  | 1.1  |
| 37.5° | 59.4  | 38.8  | 18.3 | 7.4  | 3.4  | 3.4  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 66.8  | 40.5  | 17.1 | 6.9  | 2.9  | 2.9  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 79.4  | 44.0  | 16.6 | 6.3  | 2.9  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 104.5 | 52.0  | 15.4 | 5.7  | 2.9  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 150.2 | 70.8  | 14.8 | 4.6  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 219.3 | 95.9  | 14.3 | 4.0  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 279.8 | 101.1 | 9.7  | 3.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 286.7 | 69.7  | 7.4  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 228.4 | 45.1  | 6.3  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 173.0 | 34.3  | 5.7  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 61°   | 166.2 | 30.8  | 5.7  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 183.3 | 26.8  | 5.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 298.1 | 22.3  | 4.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 517.9 | 19.4  | 4.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 654.4 | 18.3  | 3.4  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 570.5 | 16.6  | 3.4  | 1.1  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 343.2 | 14.3  | 3.4  | 2.3  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 179.9 | 10.8  | 3.4  | 2.9  | 1.7  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 87.4  | 9.7   | 4.0  | 2.9  | 2.3  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 34.3  | 8.0   | 4.6  | 4.0  | 2.9  | 1.7  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 15.4  | 6.9   | 5.1  | 4.6  | 4.0  | 2.3  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 8.0   | 6.3   | 5.7  | 5.1  | 4.0  | 2.9  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  |
| 90°   | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-3

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-727-U-5WQ

Data in this report applies to families of products including GSS-SB1A-727-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-3  
 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-727-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2672     | CRI (Ra): | 71.1 |      |       |
| CIE u':                   | 0.2638   | R1:       | 68.3 | R9:  | -27.8 |
| CIE v':                   | 0.5276   | R2:       | 79.8 | R10: | 54.4  |
| Duv:                      | -0.0002  | R3:       | 91.2 | R11: | 65.8  |
| CIE x:                    | 0.4619   | R4:       | 69.4 | R12: | 45.6  |
| CIE y:                    | 0.4106   | R5:       | 66.5 | R13: | 69.8  |
| CIE z:                    | 0.1275   | R6:       | 72.6 | R14: | 94.5  |
| Peak Wavelength (nm):     | 601      | R7:       | 77.0 | R15: | 60.1  |
| Dominant Wavelength (nm): | 584      | R8:       | 44.1 |      |       |
| Purity:                   | 61.88407 |           |      |      |       |
| Rf:                       | 67.9     |           |      |      |       |
| Rg:                       | 98.6     |           |      |      |       |



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-3

| 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: SP1-2407-184-3

### 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               | 52                                   | NR                             | 620               | 888                                  | NR                             | 750               | 27                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 87                                   | NR                             | 625               | 834                                  | NR                             | 755               | 23                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 135                                  | NR                             | 630               | 776                                  | NR                             | 760               | 20                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 196                                  | NR                             | 635               | 712                                  | NR                             | 765               | 17                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 258                                  | NR                             | 640               | 648                                  | NR                             | 770               | 15                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 1                                    | NR                             | 515               | 317                                  | NR                             | 645               | 583                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 2                                    | NR                             | 520               | 368                                  | NR                             | 650               | 523                                  | NR                             | 780               | 11                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 408                                  | NR                             | 655               | 465                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 443                                  | NR                             | 660               | 410                                  | NR                             | 790               | 8                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 11                                   | NR                             | 535               | 473                                  | NR                             | 665               | 360                                  | NR                             | 795               | 7                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 23                                   | NR                             | 540               | 498                                  | NR                             | 670               | 313                                  | NR                             | 800               | 6                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 51                                   | NR                             | 545               | 530                                  | NR                             | 675               | 272                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 111                                  | NR                             | 550               | 563                                  | NR                             | 680               | 236                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 214                                  | NR                             | 555               | 605                                  | NR                             | 685               | 203                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 339                                  | NR                             | 560               | 651                                  | NR                             | 690               | 175                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 467                                  | NR                             | 565               | 705                                  | NR                             | 695               | 150                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 535                                  | NR                             | 570               | 765                                  | NR                             | 700               | 128                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 372                                  | NR                             | 575               | 824                                  | NR                             | 705               | 110                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 160                                  | NR                             | 580               | 882                                  | NR                             | 710               | 94                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 89                                   | NR                             | 585               | 930                                  | NR                             | 715               | 80                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 53                                   | NR                             | 590               | 968                                  | NR                             | 720               | 69                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 31                                   | NR                             | 595               | 991                                  | NR                             | 725               | 59                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 23                                   | NR                             | 600               | 999                                  | NR                             | 730               | 50                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 21                                   | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 23                                   | NR                             | 610               | 969                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 32                                   | NR                             | 615               | 935                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.02

| $\lambda$<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               | 52                                   | NR                           | 620               | 888                                  | NR                           | 750               | 27                                   | NR                           | 880               | 1                                    | NR                           |
| 365               | 0                                    | NR                           | 495               | 87                                   | NR                           | 625               | 834                                  | NR                           | 755               | 23                                   | NR                           | 885               | 1                                    | NR                           |
| 370               | 0                                    | NR                           | 500               | 135                                  | NR                           | 630               | 776                                  | NR                           | 760               | 20                                   | NR                           | 890               | 1                                    | NR                           |
| 375               | 0                                    | NR                           | 505               | 196                                  | NR                           | 635               | 712                                  | NR                           | 765               | 17                                   | NR                           | 895               | 0                                    | NR                           |
| 380               | 0                                    | NR                           | 510               | 258                                  | NR                           | 640               | 648                                  | NR                           | 770               | 15                                   | NR                           | 900               | 0                                    | NR                           |
| 385               | 1                                    | NR                           | 515               | 317                                  | NR                           | 645               | 583                                  | NR                           | 775               | 12                                   | NR                           | 905               | 0                                    | NR                           |
| 390               | 2                                    | NR                           | 520               | 368                                  | NR                           | 650               | 523                                  | NR                           | 780               | 11                                   | NR                           | 910               | 0                                    | NR                           |
| 395               | 4                                    | NR                           | 525               | 408                                  | NR                           | 655               | 465                                  | NR                           | 785               | 9                                    | NR                           | 915               | 0                                    | NR                           |
| 400               | 6                                    | NR                           | 530               | 443                                  | NR                           | 660               | 410                                  | NR                           | 790               | 8                                    | NR                           | 920               | 0                                    | NR                           |
| 405               | 11                                   | NR                           | 535               | 473                                  | NR                           | 665               | 360                                  | NR                           | 795               | 7                                    | NR                           | 925               | 0                                    | NR                           |
| 410               | 23                                   | NR                           | 540               | 498                                  | NR                           | 670               | 313                                  | NR                           | 800               | 6                                    | NR                           | 930               | 0                                    | NR                           |
| 415               | 51                                   | NR                           | 545               | 530                                  | NR                           | 675               | 272                                  | NR                           | 805               | 5                                    | NR                           | 935               | 0                                    | NR                           |
| 420               | 111                                  | NR                           | 550               | 563                                  | NR                           | 680               | 236                                  | NR                           | 810               | 4                                    | NR                           | 940               | 0                                    | NR                           |
| 425               | 214                                  | NR                           | 555               | 605                                  | NR                           | 685               | 203                                  | NR                           | 815               | 4                                    | NR                           | 945               | 0                                    | NR                           |
| 430               | 339                                  | NR                           | 560               | 651                                  | NR                           | 690               | 175                                  | NR                           | 820               | 3                                    | NR                           | 950               | 0                                    | NR                           |
| 435               | 467                                  | NR                           | 565               | 705                                  | NR                           | 695               | 150                                  | NR                           | 825               | 3                                    | NR                           | 955               | 0                                    | NR                           |
| 440               | 535                                  | NR                           | 570               | 765                                  | NR                           | 700               | 128                                  | NR                           | 830               | 3                                    | NR                           | 960               | 0                                    | NR                           |
| 445               | 372                                  | NR                           | 575               | 824                                  | NR                           | 705               | 110                                  | NR                           | 835               | 2                                    | NR                           | 965               | 0                                    | NR                           |
| 450               | 160                                  | NR                           | 580               | 882                                  | NR                           | 710               | 94                                   | NR                           | 840               | 2                                    | NR                           | 970               | 0                                    | NR                           |
| 455               | 89                                   | NR                           | 585               | 930                                  | NR                           | 715               | 80                                   | NR                           | 845               | 2                                    | NR                           | 975               | 0                                    | NR                           |
| 460               | 53                                   | NR                           | 590               | 968                                  | NR                           | 720               | 69                                   | NR                           | 850               | 1                                    | NR                           | 980               | 0                                    | NR                           |
| 465               | 31                                   | NR                           | 595               | 991                                  | NR                           | 725               | 59                                   | NR                           | 855               | 1                                    | NR                           | 985               | 0                                    | NR                           |
| 470               | 23                                   | NR                           | 600               | 999                                  | NR                           | 730               | 50                                   | NR                           | 860               | 1                                    | NR                           | 990               | 0                                    | NR                           |
| 475               | 21                                   | NR                           | 605               | 992                                  | NR                           | 735               | 43                                   | NR                           | 865               | 1                                    | NR                           | 995               | 0                                    | NR                           |
| 480               | 23                                   | NR                           | 610               | 969                                  | NR                           | 740               | 36                                   | NR                           | 870               | 1                                    | NR                           | 1000              | 0                                    | NR                           |
| 485               | 32                                   | NR                           | 615               | 935                                  | NR                           | 745               | 31                                   | NR                           | 875               | 1                                    | NR                           |                   |                                      |                              |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.71

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 52                          | NR               | 620       | 888                         | NR               | 750       | 27                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 87                          | NR               | 625       | 834                         | NR               | 755       | 23                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 135                         | NR               | 630       | 776                         | NR               | 760       | 20                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 196                         | NR               | 635       | 712                         | NR               | 765       | 17                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 258                         | NR               | 640       | 648                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 317                         | NR               | 645       | 583                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 368                         | NR               | 650       | 523                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 408                         | NR               | 655       | 465                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 443                         | NR               | 660       | 410                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 11                          | NR               | 535       | 473                         | NR               | 665       | 360                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 23                          | NR               | 540       | 498                         | NR               | 670       | 313                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 51                          | NR               | 545       | 530                         | NR               | 675       | 272                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 111                         | NR               | 550       | 563                         | NR               | 680       | 236                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 214                         | NR               | 555       | 605                         | NR               | 685       | 203                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 339                         | NR               | 560       | 651                         | NR               | 690       | 175                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 467                         | NR               | 565       | 705                         | NR               | 695       | 150                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 535                         | NR               | 570       | 765                         | NR               | 700       | 128                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 372                         | NR               | 575       | 824                         | NR               | 705       | 110                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 160                         | NR               | 580       | 882                         | NR               | 710       | 94                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 89                          | NR               | 585       | 930                         | NR               | 715       | 80                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 53                          | NR               | 590       | 968                         | NR               | 720       | 69                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 31                          | NR               | 595       | 991                         | NR               | 725       | 59                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 999                         | NR               | 730       | 50                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 21                          | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 23                          | NR               | 610       | 969                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 32                          | NR               | 615       | 935                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

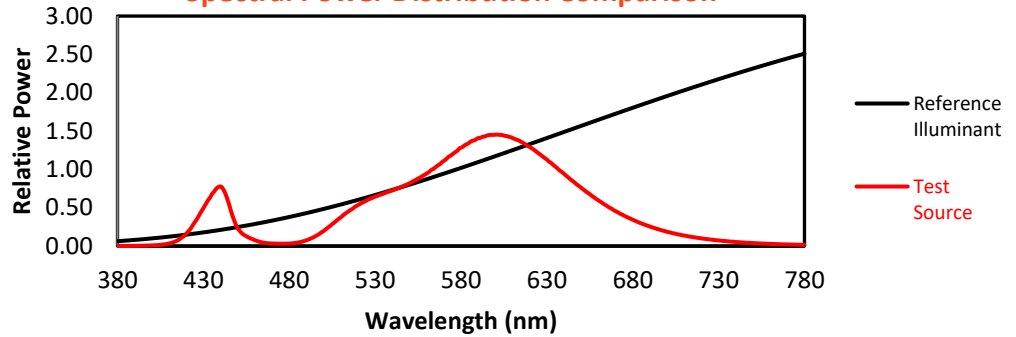
REPORT NUMBER: SP1-2407-184-3

TM-30-18

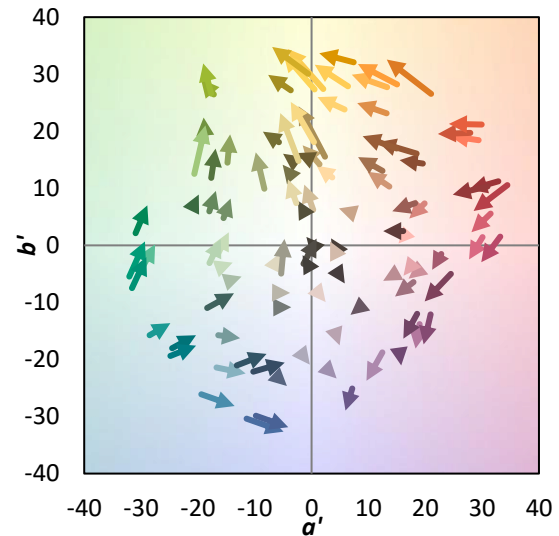
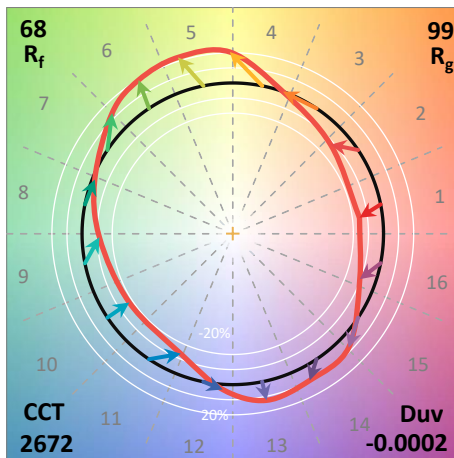
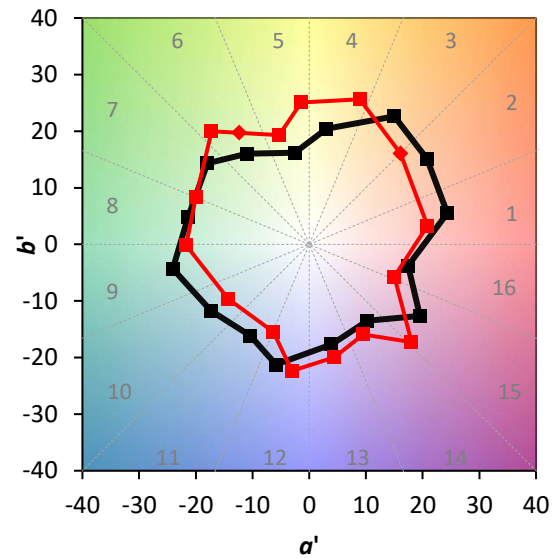
### Summary

$R_f = 67.9$   
 $R_g = 98.6$   
 $CIE R_a = 71.1$   
 $R_g = -27.8$

### Spectral Power Distribution Comparison

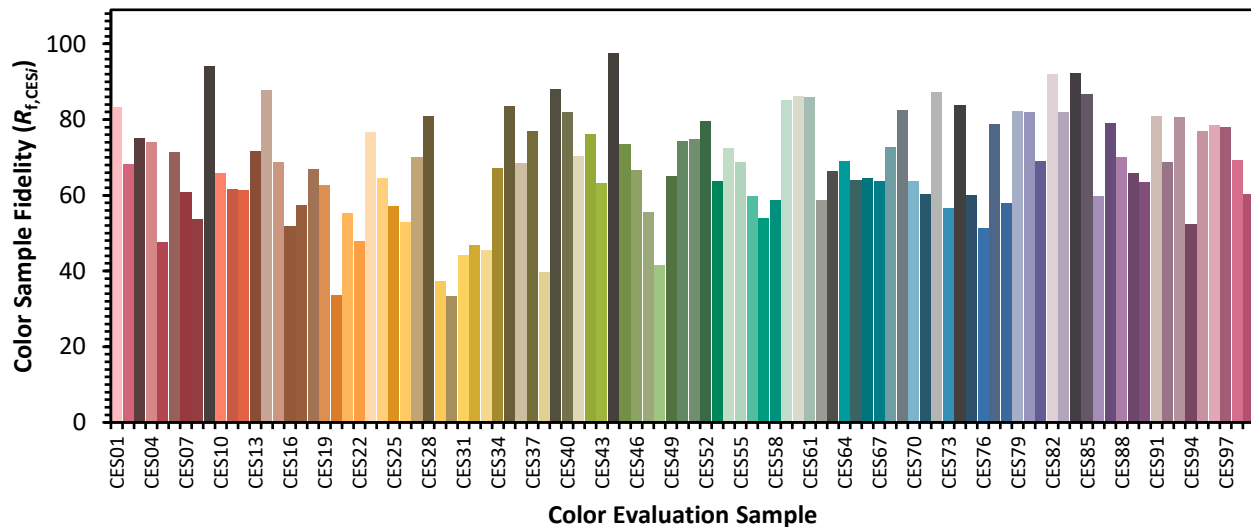


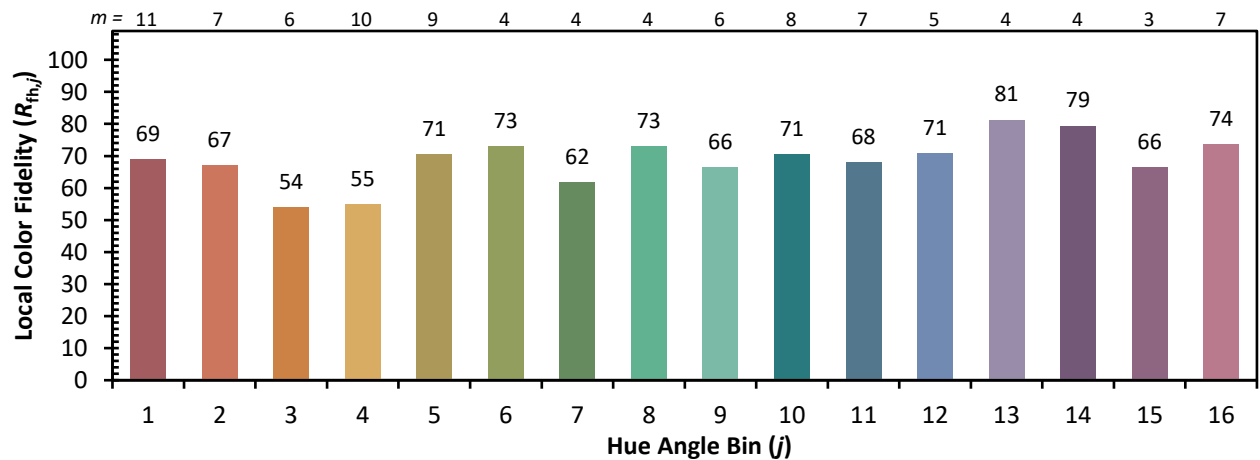
### Color Vector Graphics



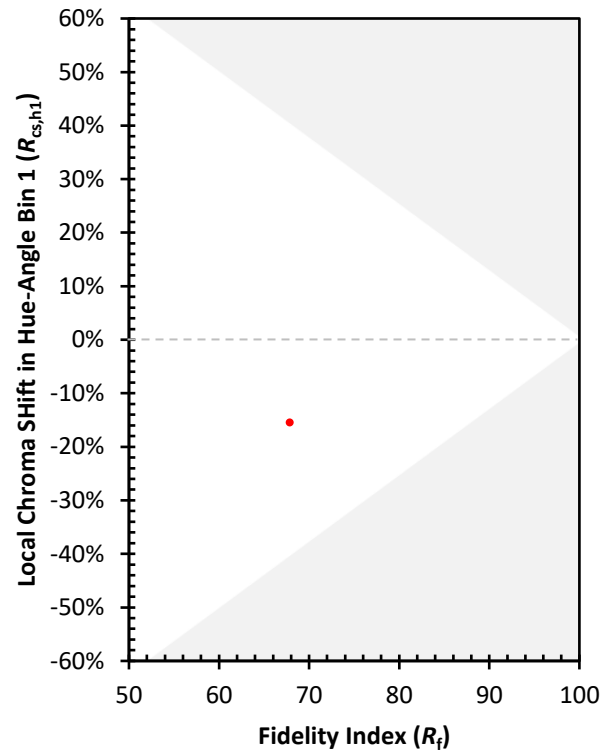
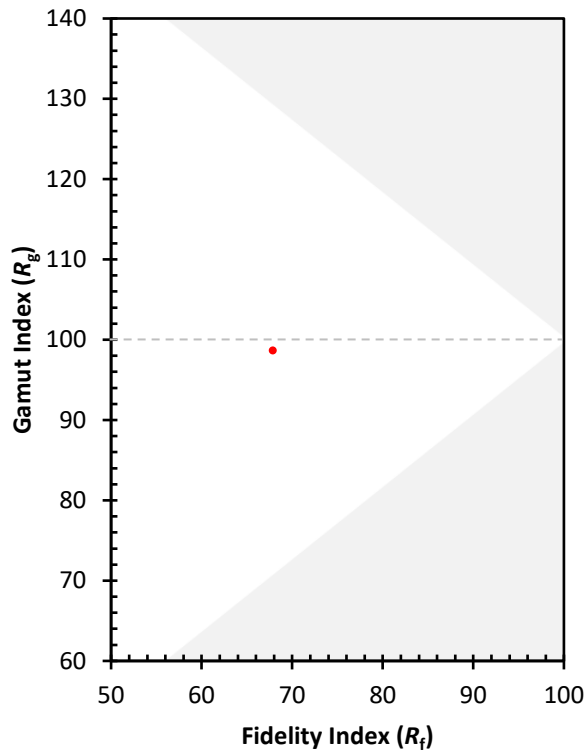
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 53 | CES51 = 75 | CES76 = 51 |
| CES02 = 63 | CES27 = 70 | CES52 = 80 | CES77 = 79 |
| CES03 = 31 | CES28 = 81 | CES53 = 64 | CES78 = 58 |
| CES04 = 71 | CES29 = 37 | CES54 = 73 | CES79 = 82 |
| CES05 = 50 | CES30 = 33 | CES55 = 69 | CES80 = 82 |
| CES06 = 52 | CES31 = 44 | CES56 = 60 | CES81 = 69 |
| CES07 = 42 | CES32 = 47 | CES57 = 54 | CES82 = 92 |
| CES08 = 41 | CES33 = 45 | CES58 = 59 | CES83 = 82 |
| CES09 = 29 | CES34 = 67 | CES59 = 85 | CES84 = 92 |
| CES10 = 77 | CES35 = 84 | CES60 = 86 | CES85 = 87 |
| CES11 = 60 | CES36 = 68 | CES61 = 86 | CES86 = 60 |
| CES12 = 66 | CES37 = 77 | CES62 = 59 | CES87 = 79 |
| CES13 = 44 | CES38 = 40 | CES63 = 66 | CES88 = 70 |
| CES14 = 74 | CES39 = 88 | CES64 = 69 | CES89 = 66 |
| CES15 = 72 | CES40 = 82 | CES65 = 64 | CES90 = 64 |
| CES16 = 48 | CES41 = 70 | CES66 = 65 | CES91 = 81 |
| CES17 = 51 | CES42 = 76 | CES67 = 64 | CES92 = 69 |
| CES18 = 57 | CES43 = 63 | CES68 = 73 | CES93 = 81 |
| CES19 = 73 | CES44 = 97 | CES69 = 83 | CES94 = 53 |
| CES20 = 67 | CES45 = 74 | CES70 = 64 | CES95 = 77 |
| CES21 = 88 | CES46 = 67 | CES71 = 60 | CES96 = 79 |
| CES22 = 80 | CES47 = 55 | CES72 = 87 | CES97 = 78 |
| CES23 = 92 | CES48 = 42 | CES73 = 57 | CES98 = 69 |
| CES24 = 92 | CES49 = 65 | CES74 = 84 | CES99 = 60 |
| CES25 = 73 | CES50 = 74 | CES75 = 60 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)