

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: P1047626

Luminaire Tested: **GALN-SA1B-740-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047626  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA1B-740-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 1xLight Square PACKAGE  
70CRI 4000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (14) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4548.7 lumens  
Efficiency: N/A  
Efficacy: 117.5 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G1

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



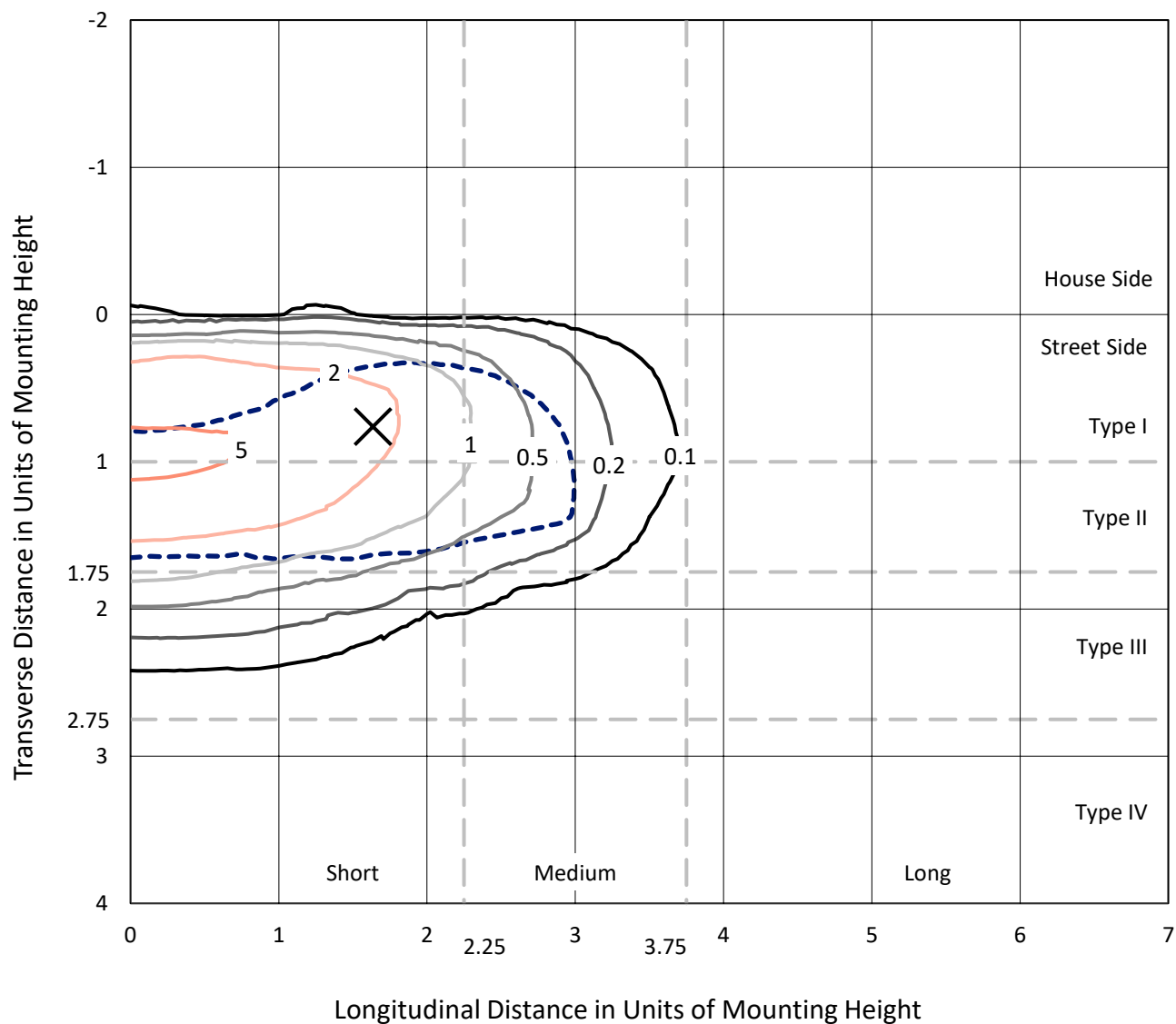
REPORT NUMBER: P1047626

CATALOG NUMBER: GALN-SA1B-740-U-T2BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

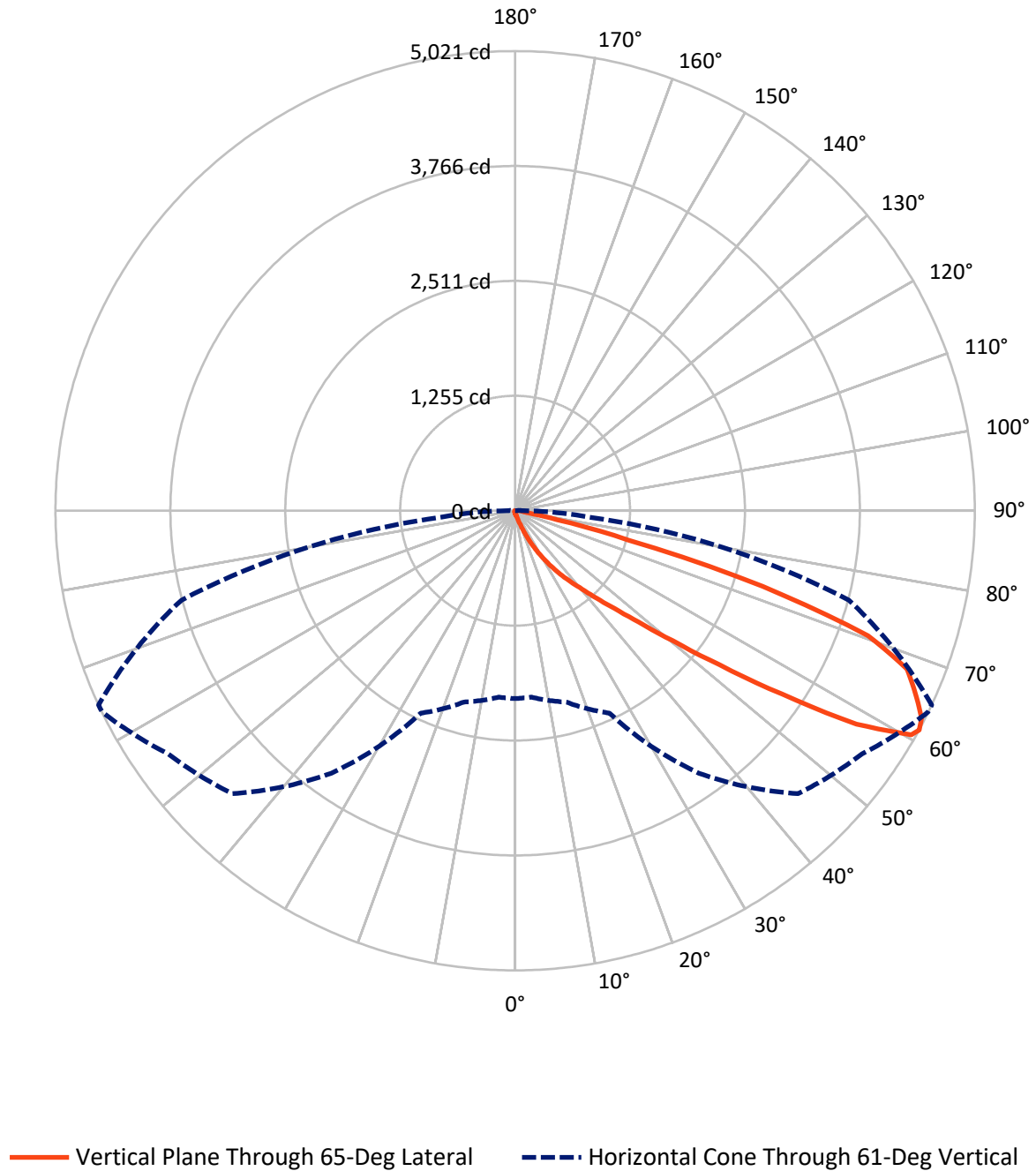


Based on 15 foot mounting height. Maximum calculated value = 6 fc  
 Type II - Short - N/A

REPORT NUMBER: P1047626

CATALOG NUMBER: GALN-SA1B-740-U-T2BC

## Luminous Intensity Polar Plot



REPORT NUMBER: P1047626

CATALOG NUMBER: GALN-SA1B-740-U-T2BC

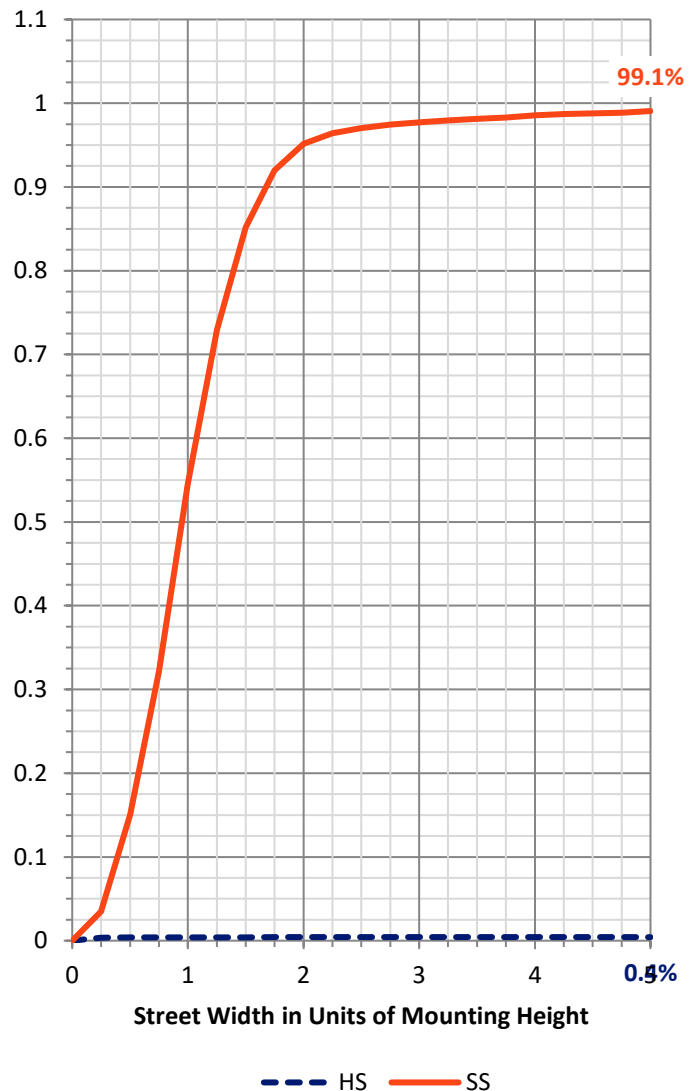
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 19.4     | 0.0    | 19.4   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 4529.3   | 0.0    | 4529.3 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 4548.7   | 0.0    | 4548.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 3.5    | 0.1       |
| 10°-20°   | 37.4   | 0.8       |
| 20°-30°   | 134.2  | 3.0       |
| 30°-40°   | 357.4  | 7.9       |
| 40°-50°   | 938.9  | 20.6      |
| 50°-60°   | 1454.5 | 32.0      |
| 60°-70°   | 1219.6 | 26.8      |
| 70°-80°   | 358.9  | 7.9       |
| 80°-90°   | 44.3   | 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°    | 4548.7 | 100.0     |
| 0°-180°   | 4548.7 | 100.0     |



REPORT NUMBER: P1047626

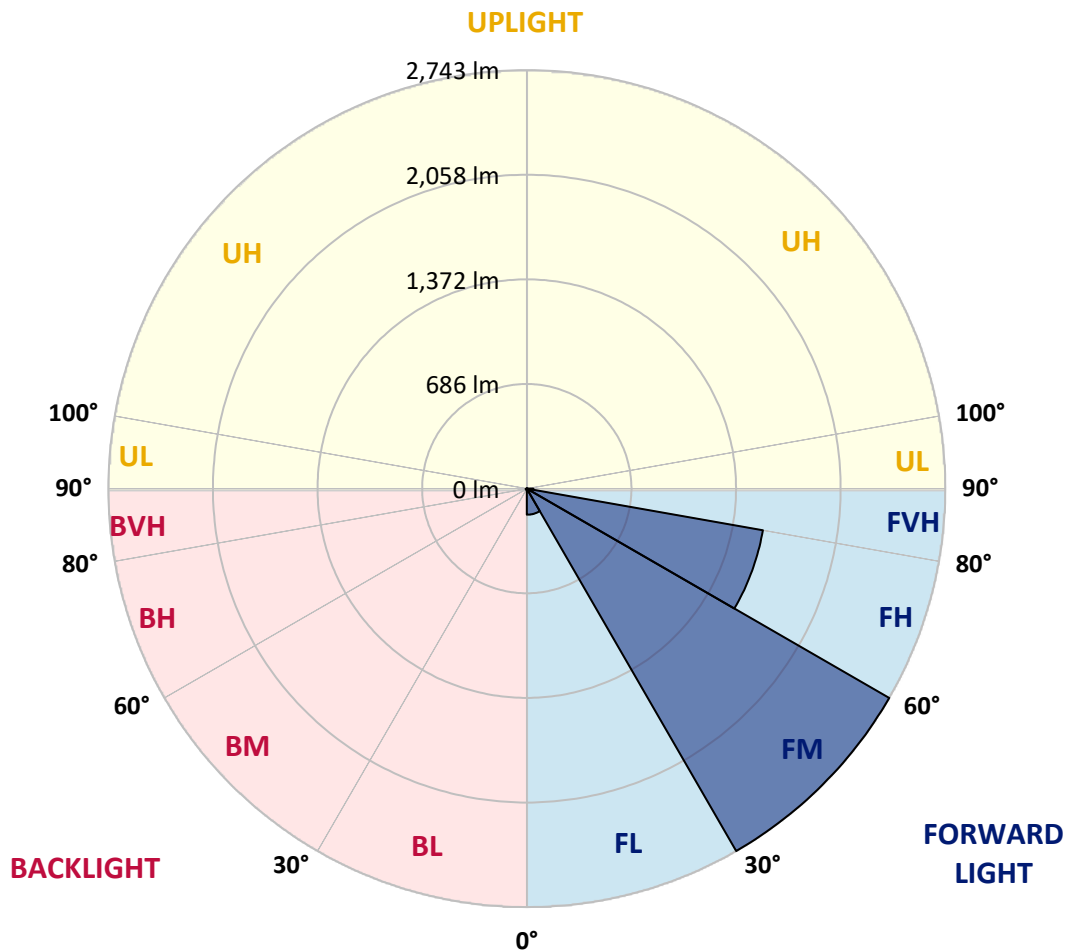
CATALOG NUMBER: GALN-SA1B-740-U-T2BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 170.8  | 3.8       |                         |      |         |
| FM   | (30°-60°)   | 2743.4 | 60.3      |                         |      |         |
| FH   | (60°-80°)   | 1571.6 | 34.6      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 43.4   | 1.0       |                         |      | G1/100  |
| BL   | (0°-30°)    | 4.4    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 7.4    | 0.2       | B0/220                  |      |         |
| BH   | (60°-80°)   | 6.8    | 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-G1**

Type II Short



REPORT NUMBER: P1047626

CATALOG NUMBER: GALN-SA1B-740-U-T2BC

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 64°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 27.8   | 27.8   | 27.8   | 27.8   | 27.8   | 27.8   | 27.8   | 27.8   | 27.8   | 27.8   | 27.8   |
| 2.5°  | 33.8   | 34.1   | 33.5   | 32.2   | 31.3   | 31.3   | 31.0   | 30.0   | 30.0   | 29.1   | 28.5   |
| 5°    | 47.2   | 46.6   | 45.4   | 42.9   | 40.7   | 38.5   | 36.3   | 34.1   | 33.8   | 31.0   | 29.1   |
| 7.5°  | 77.3   | 77.9   | 73.8   | 66.0   | 59.5   | 51.0   | 43.2   | 38.5   | 37.9   | 33.2   | 29.4   |
| 10°   | 169.6  | 164.9  | 155.5  | 125.2  | 102.9  | 77.6   | 57.6   | 44.7   | 44.1   | 35.7   | 30.0   |
| 12.5° | 309.1  | 305.4  | 288.2  | 256.9  | 199.6  | 138.9  | 84.2   | 55.4   | 53.5   | 37.9   | 30.4   |
| 15°   | 445.6  | 439.6  | 430.2  | 398.6  | 331.7  | 249.1  | 137.7  | 75.7   | 70.7   | 41.0   | 30.0   |
| 17.5° | 532.6  | 533.5  | 525.0  | 511.6  | 468.4  | 368.6  | 237.8  | 113.0  | 103.3  | 46.6   | 29.4   |
| 20°   | 608.6  | 606.4  | 611.1  | 603.9  | 573.5  | 501.0  | 346.1  | 179.0  | 162.4  | 55.7   | 29.7   |
| 22.5° | 696.2  | 701.5  | 705.0  | 703.4  | 669.9  | 608.0  | 469.0  | 267.8  | 246.9  | 72.3   | 30.7   |
| 25°   | 813.5  | 812.9  | 813.2  | 809.2  | 776.6  | 707.8  | 592.3  | 378.3  | 357.0  | 99.2   | 32.9   |
| 27.5° | 936.5  | 940.3  | 941.8  | 927.1  | 884.6  | 817.0  | 706.5  | 499.1  | 474.0  | 142.4  | 35.7   |
| 30°   | 1104.5 | 1101.4 | 1094.2 | 1064.2 | 1012.5 | 928.7  | 819.2  | 625.8  | 599.5  | 202.8  | 40.1   |
| 32.5° | 1331.1 | 1327.6 | 1291.3 | 1225.0 | 1147.7 | 1045.1 | 932.4  | 752.8  | 720.9  | 278.2  | 46.0   |
| 35°   | 1704.4 | 1709.7 | 1620.5 | 1448.7 | 1310.1 | 1185.0 | 1057.9 | 879.3  | 851.1  | 371.1  | 54.1   |
| 37.5° | 2276.0 | 2246.9 | 2125.9 | 1822.3 | 1523.8 | 1359.6 | 1177.8 | 1006.9 | 982.5  | 485.6  | 64.8   |
| 40°   | 2831.4 | 2802.7 | 2767.6 | 2480.1 | 1895.2 | 1552.0 | 1345.5 | 1156.8 | 1125.2 | 614.9  | 80.4   |
| 42.5° | 3415.3 | 3399.4 | 3397.8 | 3181.0 | 2573.0 | 1854.6 | 1547.3 | 1332.3 | 1305.4 | 756.6  | 106.1  |
| 45°   | 3829.0 | 3813.0 | 3846.5 | 3884.4 | 3496.0 | 2502.9 | 1898.7 | 1560.4 | 1521.3 | 928.7  | 147.1  |
| 47.5° | 3884.7 | 3885.3 | 3974.8 | 4093.4 | 4181.9 | 3505.7 | 2366.8 | 1862.7 | 1815.1 | 1174.9 | 215.9  |
| 50°   | 3699.4 | 3706.6 | 3849.0 | 4061.1 | 4299.6 | 4347.1 | 3192.2 | 2301.4 | 2231.0 | 1466.9 | 313.5  |
| 52.5° | 3346.8 | 3354.9 | 3553.3 | 3902.2 | 4191.3 | 4549.3 | 4164.1 | 2875.3 | 2794.2 | 1831.1 | 451.2  |
| 55°   | 3029.2 | 3034.2 | 3261.7 | 3702.6 | 4060.8 | 4439.4 | 4741.1 | 3641.5 | 3535.2 | 2279.2 | 587.0  |
| 57.5° | 2714.7 | 2703.2 | 2851.2 | 3355.9 | 4038.6 | 4304.6 | 4826.2 | 4514.9 | 4397.5 | 2768.9 | 692.8  |
| 60°   | 2294.2 | 2274.8 | 2393.7 | 2714.7 | 3746.4 | 4393.1 | 4666.9 | 4998.0 | 4971.4 | 3450.7 | 774.4  |
| 61°   | 2052.3 | 2044.2 | 2163.7 | 2439.1 | 3500.4 | 4370.6 | 4628.8 | 5018.3 | 5021.1 | 3773.3 | 811.0  |
| 62.5° | 1465.6 | 1488.8 | 1671.5 | 2029.5 | 2931.9 | 4224.5 | 4633.8 | 4955.4 | 4983.3 | 4202.0 | 905.8  |
| 65°   | 651.5  | 688.7  | 830.8  | 1122.1 | 1705.0 | 3514.2 | 4589.3 | 4817.4 | 4803.7 | 4319.6 | 1232.5 |
| 67.5° | 386.4  | 392.1  | 462.8  | 635.8  | 903.0  | 1890.2 | 4049.9 | 4635.0 | 4616.5 | 3760.4 | 1533.5 |
| 70°   | 304.5  | 307.3  | 329.8  | 398.9  | 524.1  | 724.1  | 2311.4 | 4010.1 | 4090.6 | 3049.2 | 1501.3 |
| 72.5° | 288.8  | 288.2  | 291.3  | 303.5  | 330.1  | 359.2  | 894.9  | 2665.6 | 2829.3 | 2195.9 | 1258.8 |
| 75°   | 285.1  | 283.8  | 280.7  | 276.0  | 239.1  | 211.5  | 277.2  | 1179.0 | 1273.8 | 1500.4 | 947.8  |
| 77.5° | 276.6  | 276.9  | 277.5  | 264.7  | 205.0  | 149.6  | 134.2  | 378.3  | 465.3  | 952.2  | 673.7  |
| 80°   | 187.1  | 189.9  | 194.6  | 189.6  | 184.3  | 108.3  | 94.8   | 134.5  | 136.4  | 534.4  | 444.9  |
| 82.5° | 94.8   | 94.8   | 92.6   | 82.6   | 71.3   | 70.4   | 75.4   | 97.6   | 98.9   | 270.3  | 209.3  |
| 85°   | 57.3   | 60.4   | 61.6   | 56.0   | 51.3   | 47.2   | 57.6   | 77.6   | 80.4   | 104.8  | 48.8   |
| 87.5° | 12.8   | 13.1   | 14.4   | 19.1   | 27.8   | 37.9   | 53.5   | 71.0   | 72.3   | 67.3   | 5.9    |
| 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: P1047626

CATALOG NUMBER: GALN-SA1B-740-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 27.8  | 27.8 | 27.8 | 27.8 | 27.8 | 27.8 | 27.8 | 27.8 | 27.8 | 27.8 | 27.8 |
| 2.5°  | 28.2  | 27.5 | 27.2 | 26.3 | 25.3 | 24.4 | 23.8 | 23.5 | 23.8 | 24.1 | 24.1 |
| 5°    | 27.8  | 26.9 | 25.3 | 23.8 | 22.5 | 21.3 | 20.0 | 19.7 | 19.7 | 20.0 | 20.0 |
| 7.5°  | 27.8  | 26.3 | 24.1 | 22.2 | 20.3 | 18.5 | 17.5 | 16.9 | 17.2 | 17.2 | 17.2 |
| 10°   | 27.8  | 26.0 | 23.2 | 20.3 | 18.1 | 16.0 | 14.4 | 13.8 | 13.8 | 13.8 | 13.8 |
| 12.5° | 27.5  | 25.7 | 22.2 | 18.8 | 15.6 | 13.1 | 11.3 | 10.3 | 10.6 | 10.6 | 10.6 |
| 15°   | 26.9  | 24.7 | 21.0 | 16.0 | 12.5 | 10.0 | 8.1  | 7.2  | 7.5  | 8.1  | 8.4  |
| 17.5° | 26.0  | 23.8 | 18.8 | 13.5 | 10.0 | 7.5  | 5.6  | 5.0  | 5.3  | 6.3  | 6.3  |
| 20°   | 25.7  | 22.8 | 16.6 | 11.0 | 7.5  | 5.3  | 3.8  | 3.1  | 3.4  | 4.7  | 5.0  |
| 22.5° | 25.7  | 22.2 | 15.0 | 9.1  | 5.6  | 3.4  | 2.2  | 1.3  | 1.3  | 2.2  | 2.2  |
| 25°   | 26.0  | 21.9 | 13.8 | 7.5  | 4.1  | 2.5  | 1.3  | 0.6  | 1.3  | 3.4  | 4.1  |
| 27.5° | 26.6  | 21.6 | 13.1 | 6.3  | 3.1  | 2.2  | 0.9  | 2.2  | 3.8  | 3.8  | 3.8  |
| 30°   | 27.2  | 21.0 | 12.2 | 5.3  | 2.8  | 1.6  | 1.6  | 3.1  | 3.1  | 3.8  | 4.1  |
| 32.5° | 28.2  | 20.7 | 11.6 | 4.7  | 2.2  | 1.3  | 2.2  | 1.9  | 1.9  | 2.2  | 2.5  |
| 35°   | 30.0  | 21.0 | 11.0 | 4.7  | 2.2  | 1.6  | 1.9  | 0.9  | 0.6  | 0.6  | 0.6  |
| 37.5° | 32.5  | 21.3 | 10.0 | 4.1  | 1.9  | 1.9  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 36.6  | 22.2 | 9.4  | 3.8  | 1.6  | 1.6  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 43.5  | 24.1 | 9.1  | 3.4  | 1.6  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 57.3  | 28.5 | 8.4  | 3.1  | 1.6  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 82.3  | 38.8 | 8.1  | 2.5  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 120.2 | 52.6 | 7.8  | 2.2  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 153.3 | 55.4 | 5.3  | 1.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 157.1 | 38.2 | 4.1  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 125.2 | 24.7 | 3.4  | 0.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 94.8  | 18.8 | 3.1  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 61°   | 91.1  | 16.9 | 3.1  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 100.4 | 14.7 | 2.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 163.3 | 12.2 | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 283.8 | 10.6 | 2.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 358.6 | 10.0 | 1.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 312.6 | 9.1  | 1.9  | 0.6  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 188.1 | 7.8  | 1.9  | 1.3  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 98.6  | 5.9  | 1.9  | 1.6  | 0.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 47.9  | 5.3  | 2.2  | 1.6  | 1.3  | 0.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 18.8  | 4.4  | 2.5  | 2.2  | 1.6  | 0.9  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 8.4   | 3.8  | 2.8  | 2.5  | 2.2  | 1.3  | 0.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 4.4   | 3.4  | 3.1  | 2.8  | 2.2  | 1.6  | 0.6  | 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: SP1-2407-184-1

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-740-U-5WQ

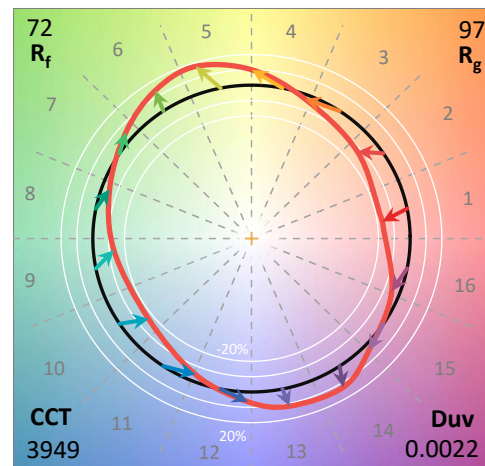
Data in this report applies to families of products including GSS-SB1A-740-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-1  
 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-740-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 4000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 3949     | CRI (Ra): | 70.7 |      |       |
| CIE u':                   | 0.2248   | R1:       | 68.0 | R9:  | -36.7 |
| CIE v':                   | 0.5053   | R2:       | 76.0 | R10: | 45.1  |
| Duv:                      | 0.0022   | R3:       | 84.3 | R11: | 70.7  |
| CIE x:                    | 0.3844   | R4:       | 72.0 | R12: | 47.1  |
| CIE y:                    | 0.3840   | R5:       | 68.6 | R13: | 68.5  |
| CIE z:                    | 0.2316   | R6:       | 68.3 | R14: | 91.1  |
| Peak Wavelength (nm):     | 440      | R7:       | 77.9 | R15: | 58.7  |
| Dominant Wavelength (nm): | 578      | R8:       | 50.3 |      |       |
| Purity:                   | 30.60026 |           |      |      |       |
| Rf:                       | 71.8     |           |      |      |       |
| Rg:                       | 96.5     |           |      |      |       |



### Test Conditions

Stabilization Time: 34M  
 Operation Time: 1H 34M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-1

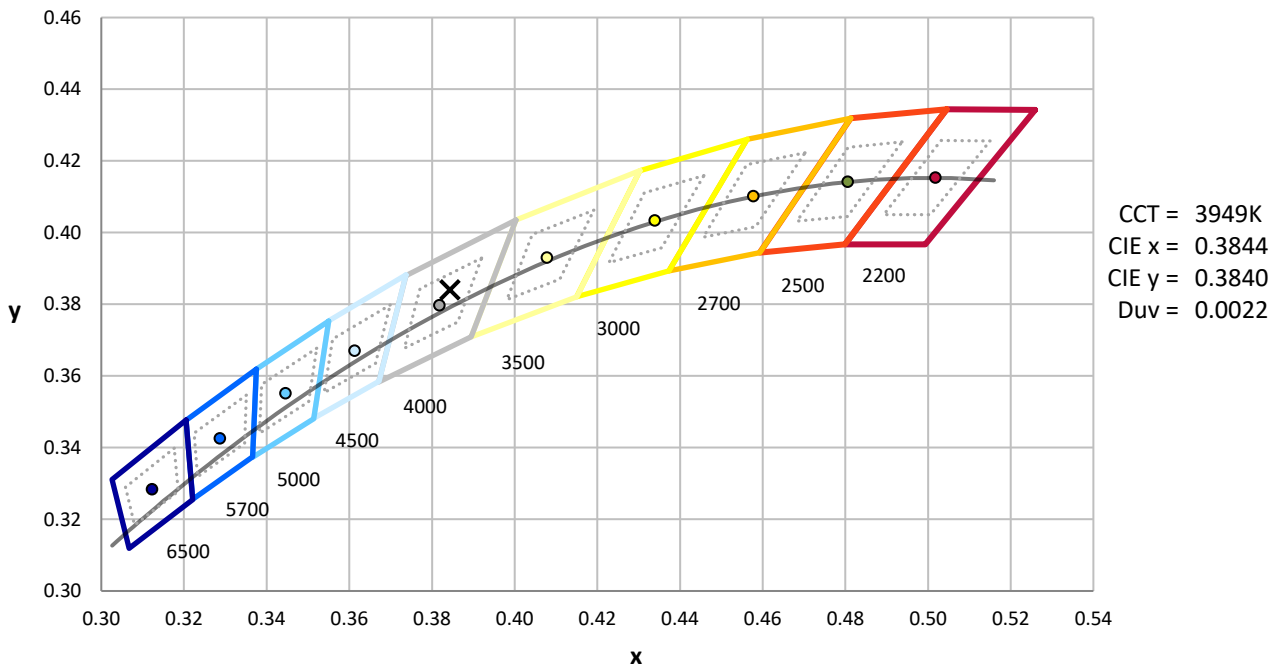
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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: SP1-2407-184-1

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-1

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 139                           | NR                             | 620               | 607                           | NR                             | 750               | 15                            | NR                             | 880               | 0                             | NR                             |
| 365               | 0                             | NR                             | 495               | 198                           | NR                             | 625               | 554                           | NR                             | 755               | 13                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 267                           | NR                             | 630               | 504                           | NR                             | 760               | 11                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 343                           | NR                             | 635               | 452                           | NR                             | 765               | 10                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 410                           | NR                             | 640               | 403                           | NR                             | 770               | 8                             | NR                             | 900               | 0                             | NR                             |
| 385               | 2                             | NR                             | 515               | 470                           | NR                             | 645               | 357                           | NR                             | 775               | 7                             | NR                             | 905               | 0                             | NR                             |
| 390               | 4                             | NR                             | 520               | 516                           | NR                             | 650               | 314                           | NR                             | 780               | 6                             | NR                             | 910               | 0                             | NR                             |
| 395               | 7                             | NR                             | 525               | 550                           | NR                             | 655               | 275                           | NR                             | 785               | 5                             | NR                             | 915               | 0                             | NR                             |
| 400               | 10                            | NR                             | 530               | 578                           | NR                             | 660               | 240                           | NR                             | 790               | 5                             | NR                             | 920               | 0                             | NR                             |
| 405               | 17                            | NR                             | 535               | 601                           | NR                             | 665               | 208                           | NR                             | 795               | 4                             | NR                             | 925               | 0                             | NR                             |
| 410               | 35                            | NR                             | 540               | 620                           | NR                             | 670               | 179                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 70                            | NR                             | 545               | 641                           | NR                             | 675               | 155                           | NR                             | 805               | 3                             | NR                             | 935               | 0                             | NR                             |
| 420               | 147                           | NR                             | 550               | 664                           | NR                             | 680               | 133                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 285                           | NR                             | 555               | 689                           | NR                             | 685               | 114                           | NR                             | 815               | 2                             | NR                             | 945               | 0                             | NR                             |
| 430               | 487                           | NR                             | 560               | 715                           | NR                             | 690               | 98                            | NR                             | 820               | 2                             | NR                             | 950               | 0                             | NR                             |
| 435               | 787                           | NR                             | 565               | 743                           | NR                             | 695               | 84                            | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 1000                          | NR                             | 570               | 771                           | NR                             | 700               | 72                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 783                           | NR                             | 575               | 794                           | NR                             | 705               | 61                            | NR                             | 835               | 1                             | NR                             | 965               | 0                             | NR                             |
| 450               | 417                           | NR                             | 580               | 811                           | NR                             | 710               | 52                            | NR                             | 840               | 1                             | NR                             | 970               | 0                             | NR                             |
| 455               | 261                           | NR                             | 585               | 817                           | NR                             | 715               | 45                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 167                           | NR                             | 590               | 815                           | NR                             | 720               | 39                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 104                           | NR                             | 595               | 801                           | NR                             | 725               | 33                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 79                            | NR                             | 600               | 777                           | NR                             | 730               | 28                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 73                            | NR                             | 605               | 744                           | NR                             | 735               | 24                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 76                            | NR                             | 610               | 704                           | NR                             | 740               | 21                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 98                            | NR                             | 615               | 657                           | NR                             | 745               | 18                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

REPORT NUMBER: SP1-2407-184-1

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.47

| 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       | 139                         | NR               | 620       | 607                         | NR               | 750       | 15                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 198                         | NR               | 625       | 554                         | NR               | 755       | 13                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 267                         | NR               | 630       | 504                         | NR               | 760       | 11                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 343                         | NR               | 635       | 452                         | NR               | 765       | 10                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 410                         | NR               | 640       | 403                         | NR               | 770       | 8                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 470                         | NR               | 645       | 357                         | NR               | 775       | 7                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 516                         | NR               | 650       | 314                         | NR               | 780       | 6                           | NR               | 910       | 0                           | NR               |
| 395       | 7                           | NR               | 525       | 550                         | NR               | 655       | 275                         | NR               | 785       | 5                           | NR               | 915       | 0                           | NR               |
| 400       | 10                          | NR               | 530       | 578                         | NR               | 660       | 240                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 17                          | NR               | 535       | 601                         | NR               | 665       | 208                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 35                          | NR               | 540       | 620                         | NR               | 670       | 179                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 70                          | NR               | 545       | 641                         | NR               | 675       | 155                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 147                         | NR               | 550       | 664                         | NR               | 680       | 133                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 285                         | NR               | 555       | 689                         | NR               | 685       | 114                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 487                         | NR               | 560       | 715                         | NR               | 690       | 98                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 787                         | NR               | 565       | 743                         | NR               | 695       | 84                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 1000                        | NR               | 570       | 771                         | NR               | 700       | 72                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 783                         | NR               | 575       | 794                         | NR               | 705       | 61                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 417                         | NR               | 580       | 811                         | NR               | 710       | 52                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 261                         | NR               | 585       | 817                         | NR               | 715       | 45                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 167                         | NR               | 590       | 815                         | NR               | 720       | 39                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 104                         | NR               | 595       | 801                         | NR               | 725       | 33                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 79                          | NR               | 600       | 777                         | NR               | 730       | 28                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 73                          | NR               | 605       | 744                         | NR               | 735       | 24                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 704                         | NR               | 740       | 21                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 98                          | NR               | 615       | 657                         | NR               | 745       | 18                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-1

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.78

| 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       | 139                         | NR               | 620       | 607                         | NR               | 750       | 15                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 198                         | NR               | 625       | 554                         | NR               | 755       | 13                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 267                         | NR               | 630       | 504                         | NR               | 760       | 11                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 343                         | NR               | 635       | 452                         | NR               | 765       | 10                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 410                         | NR               | 640       | 403                         | NR               | 770       | 8                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 470                         | NR               | 645       | 357                         | NR               | 775       | 7                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 516                         | NR               | 650       | 314                         | NR               | 780       | 6                           | NR               | 910       | 0                           | NR               |
| 395       | 7                           | NR               | 525       | 550                         | NR               | 655       | 275                         | NR               | 785       | 5                           | NR               | 915       | 0                           | NR               |
| 400       | 10                          | NR               | 530       | 578                         | NR               | 660       | 240                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 17                          | NR               | 535       | 601                         | NR               | 665       | 208                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 35                          | NR               | 540       | 620                         | NR               | 670       | 179                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 70                          | NR               | 545       | 641                         | NR               | 675       | 155                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 147                         | NR               | 550       | 664                         | NR               | 680       | 133                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 285                         | NR               | 555       | 689                         | NR               | 685       | 114                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 487                         | NR               | 560       | 715                         | NR               | 690       | 98                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 787                         | NR               | 565       | 743                         | NR               | 695       | 84                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 1000                        | NR               | 570       | 771                         | NR               | 700       | 72                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 783                         | NR               | 575       | 794                         | NR               | 705       | 61                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 417                         | NR               | 580       | 811                         | NR               | 710       | 52                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 261                         | NR               | 585       | 817                         | NR               | 715       | 45                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 167                         | NR               | 590       | 815                         | NR               | 720       | 39                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 104                         | NR               | 595       | 801                         | NR               | 725       | 33                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 79                          | NR               | 600       | 777                         | NR               | 730       | 28                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 73                          | NR               | 605       | 744                         | NR               | 735       | 24                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 704                         | NR               | 740       | 21                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 98                          | NR               | 615       | 657                         | NR               | 745       | 18                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-1

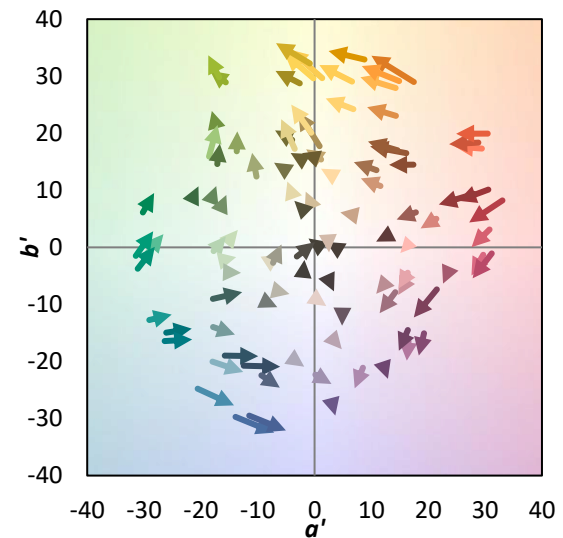
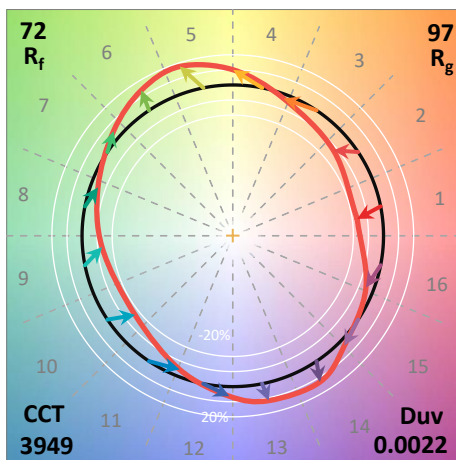
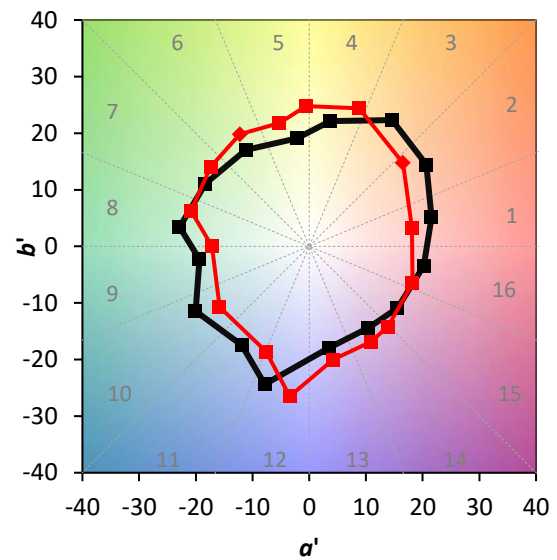
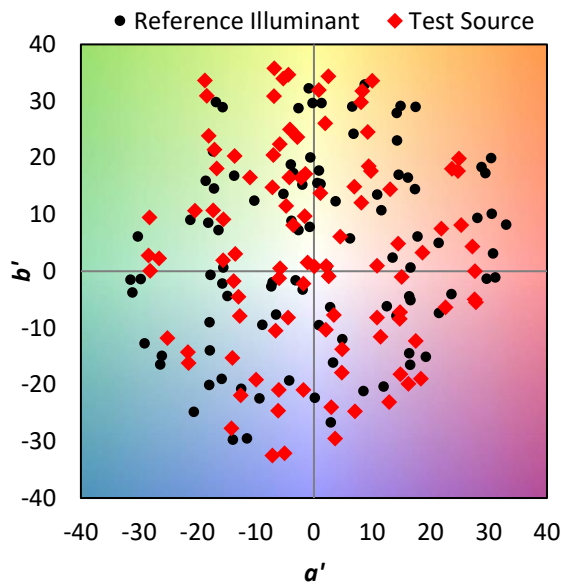
TM-30-18

### Summary

$R_f = 71.8$   
 $R_g = 96.5$   
 $CIE R_a = 70.7$   
 $R_g = -36.7$



### Color Vector Graphics

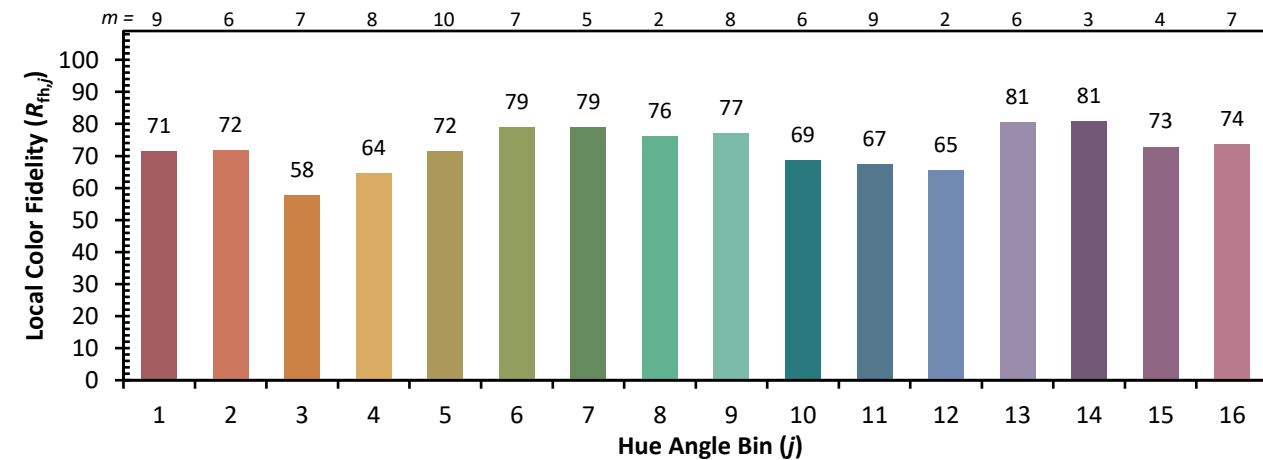
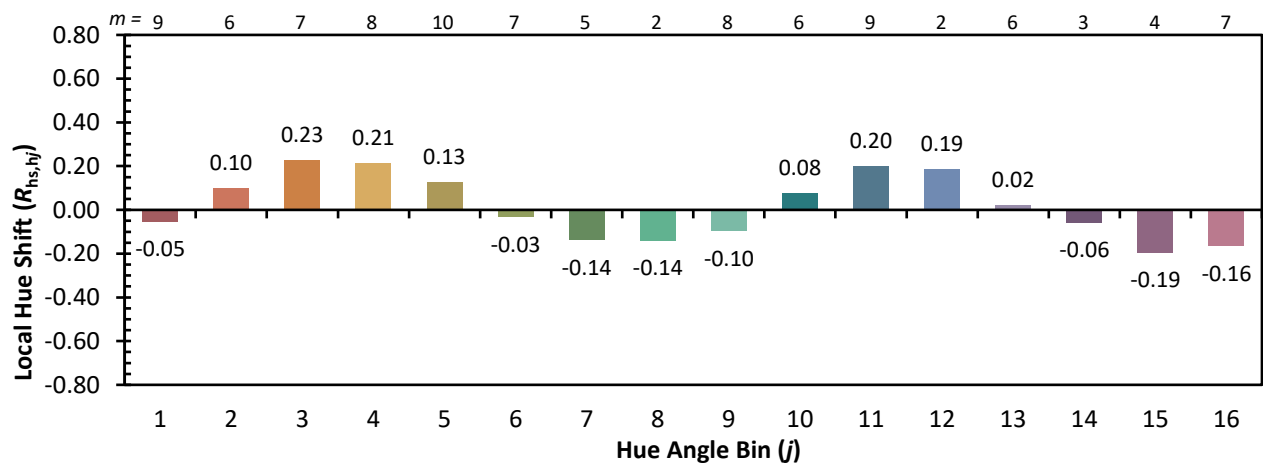


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

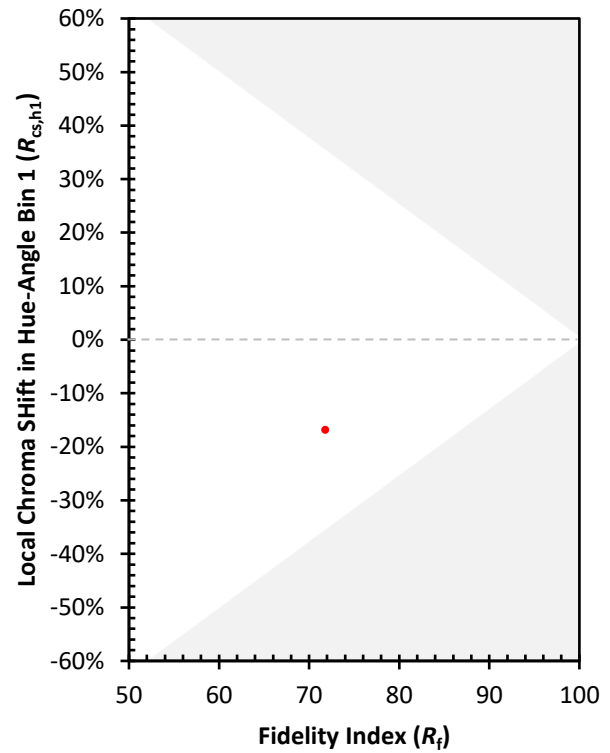
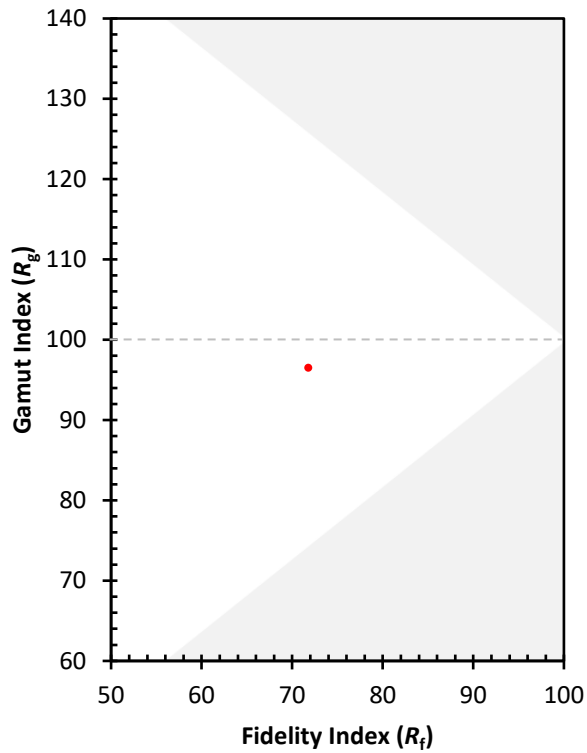
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 56 | CES51 = 86 | CES76 = 48 |
| CES02 = 61 | CES27 = 79 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 80 | CES53 = 73 | CES78 = 52 |
| CES04 = 70 | CES29 = 49 | CES54 = 79 | CES79 = 79 |
| CES05 = 47 | CES30 = 53 | CES55 = 77 | CES80 = 77 |
| CES06 = 50 | CES31 = 55 | CES56 = 67 | CES81 = 75 |
| CES07 = 40 | CES32 = 53 | CES57 = 64 | CES82 = 90 |
| CES08 = 39 | CES33 = 59 | CES58 = 67 | CES83 = 84 |
| CES09 = 29 | CES34 = 67 | CES59 = 87 | CES84 = 89 |
| CES10 = 74 | CES35 = 82 | CES60 = 91 | CES85 = 86 |
| CES11 = 57 | CES36 = 86 | CES61 = 87 | CES86 = 71 |
| CES12 = 63 | CES37 = 76 | CES62 = 76 | CES87 = 78 |
| CES13 = 42 | CES38 = 62 | CES63 = 73 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 71 | CES89 = 72 |
| CES15 = 71 | CES40 = 84 | CES65 = 64 | CES90 = 72 |
| CES16 = 46 | CES41 = 81 | CES66 = 67 | CES91 = 97 |
| CES17 = 49 | CES42 = 76 | CES67 = 65 | CES92 = 66 |
| CES18 = 56 | CES43 = 71 | CES68 = 72 | CES93 = 81 |
| CES19 = 72 | CES44 = 98 | CES69 = 82 | CES94 = 55 |
| CES20 = 65 | CES45 = 80 | CES70 = 61 | CES95 = 73 |
| CES21 = 86 | CES46 = 76 | CES71 = 59 | CES96 = 78 |
| CES22 = 78 | CES47 = 71 | CES72 = 86 | CES97 = 83 |
| CES23 = 92 | CES48 = 61 | CES73 = 52 | CES98 = 72 |
| CES24 = 91 | CES49 = 76 | CES74 = 93 | CES99 = 60 |
| CES25 = 72 | CES50 = 84 | CES75 = 56 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)