

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: P1047829

Luminaire Tested: **GALN-SA7A-750-U-T2BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1047829  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA7A-750-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 7xLight Square PACKAGE  
70CRI 5000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (98) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 24956.6 lumens  
Efficiency: N/A  
Efficacy: 129.2 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 193.1  
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

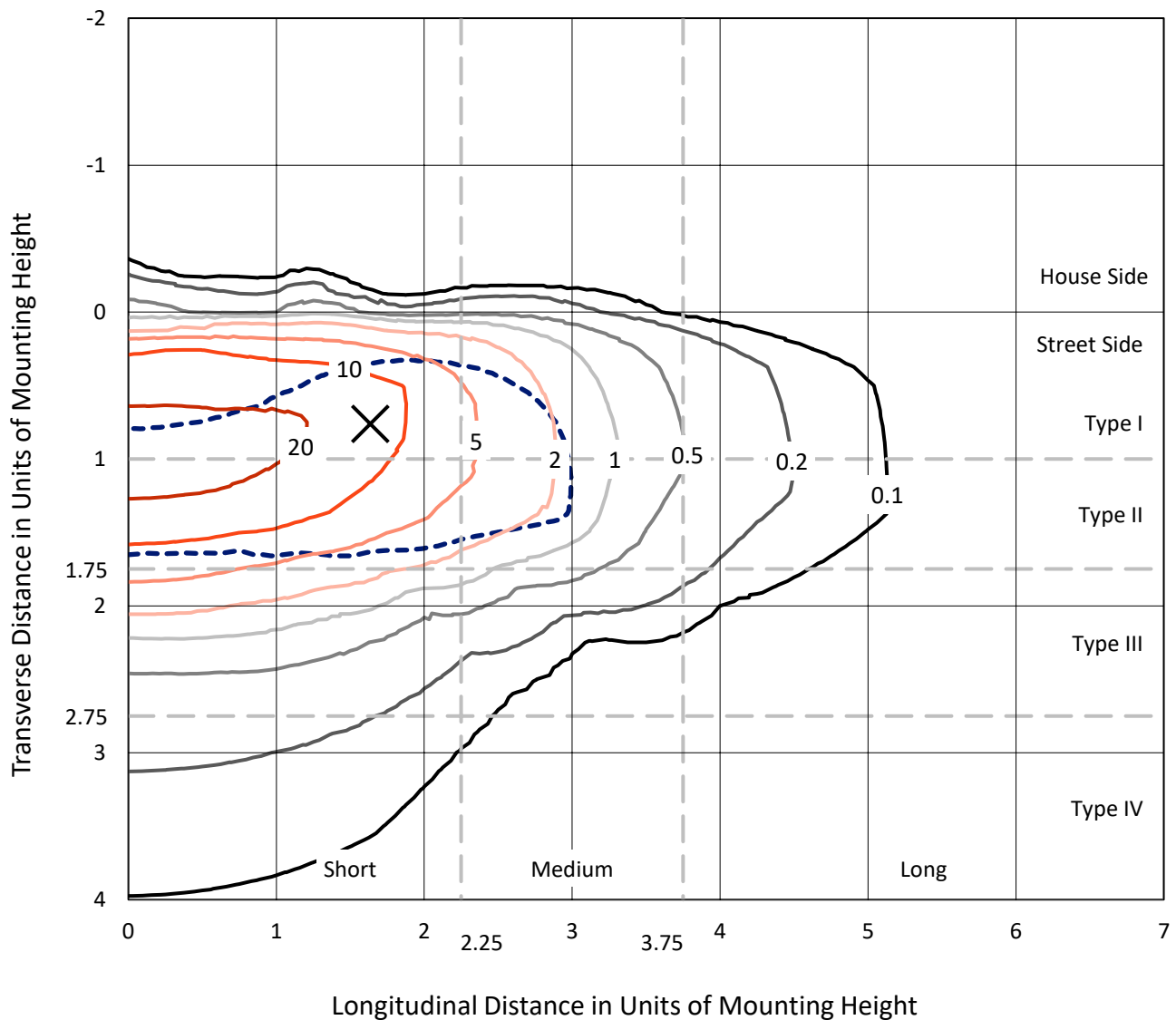


REPORT NUMBER: P1047829

CATALOG NUMBER: GALN-SA7A-750-U-T2BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

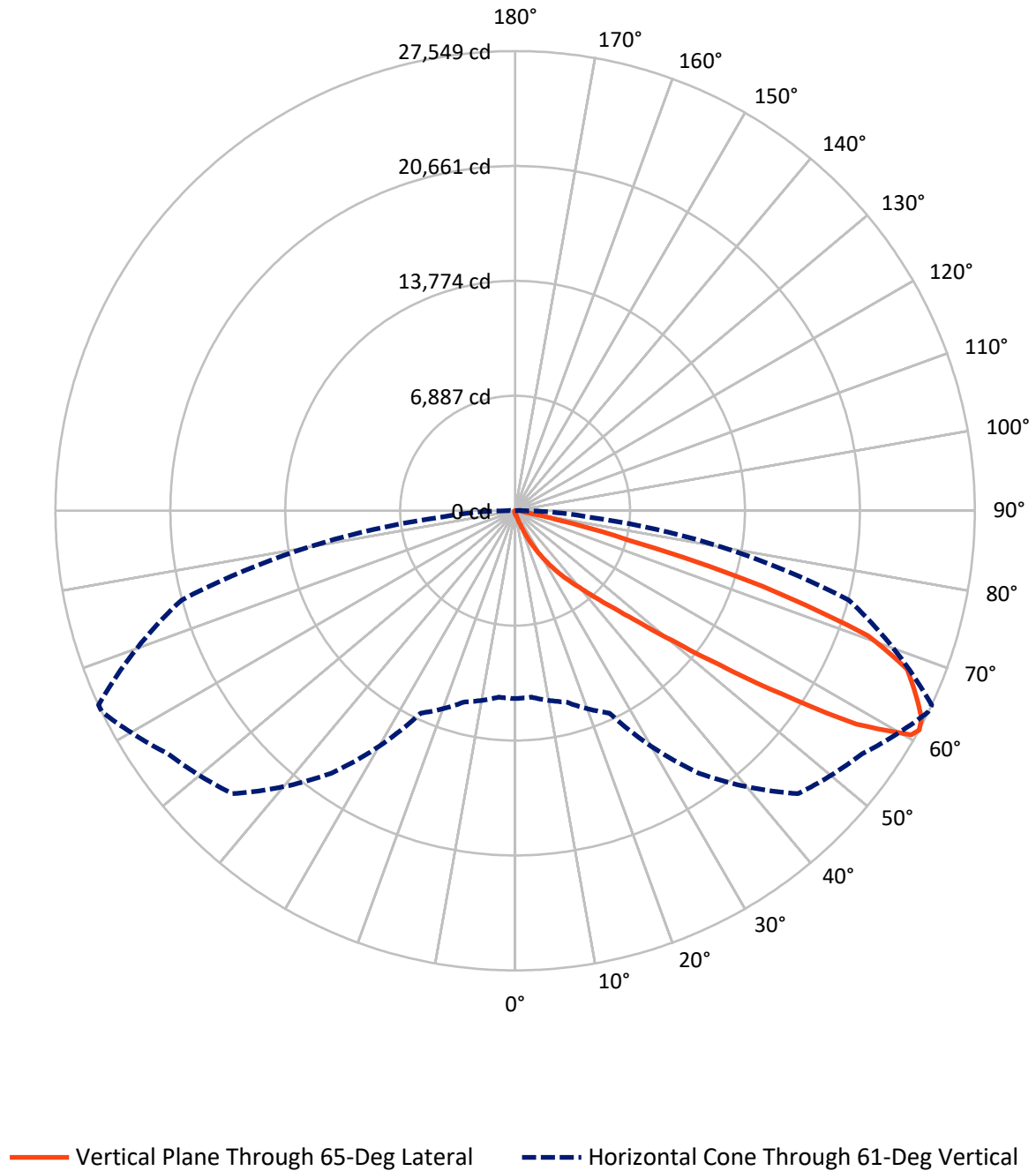


Based on 15 foot mounting height. Maximum calculated value = 33 fc  
 Type II - Short - N/A

REPORT NUMBER: P1047829

CATALOG NUMBER: GALN-SA7A-750-U-T2BC

## Luminous Intensity Polar Plot



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CATALOG NUMBER: GALN-SA7A-750-U-T2BC

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 106.5    | 0.0    | 106.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 24850.1  | 0.0    | 24850.1 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 24956.6  | 0.0    | 24956.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 19.4    | 0.1       |
| 10°-20°   | 205.2   | 0.8       |
| 20°-30°   | 736.5   | 3.0       |
| 30°-40°   | 1960.9  | 7.9       |
| 40°-50°   | 5151.2  | 20.6      |
| 50°-60°   | 7980.2  | 32.0      |
| 60°-70°   | 6691.2  | 26.8      |
| 70°-80°   | 1969.1  | 7.9       |
| 80°-90°   | 242.9   | 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°    | 24956.6 | 100.0     |
| 0°-180°   | 24956.6 | 100.0     |



REPORT NUMBER: P1047829

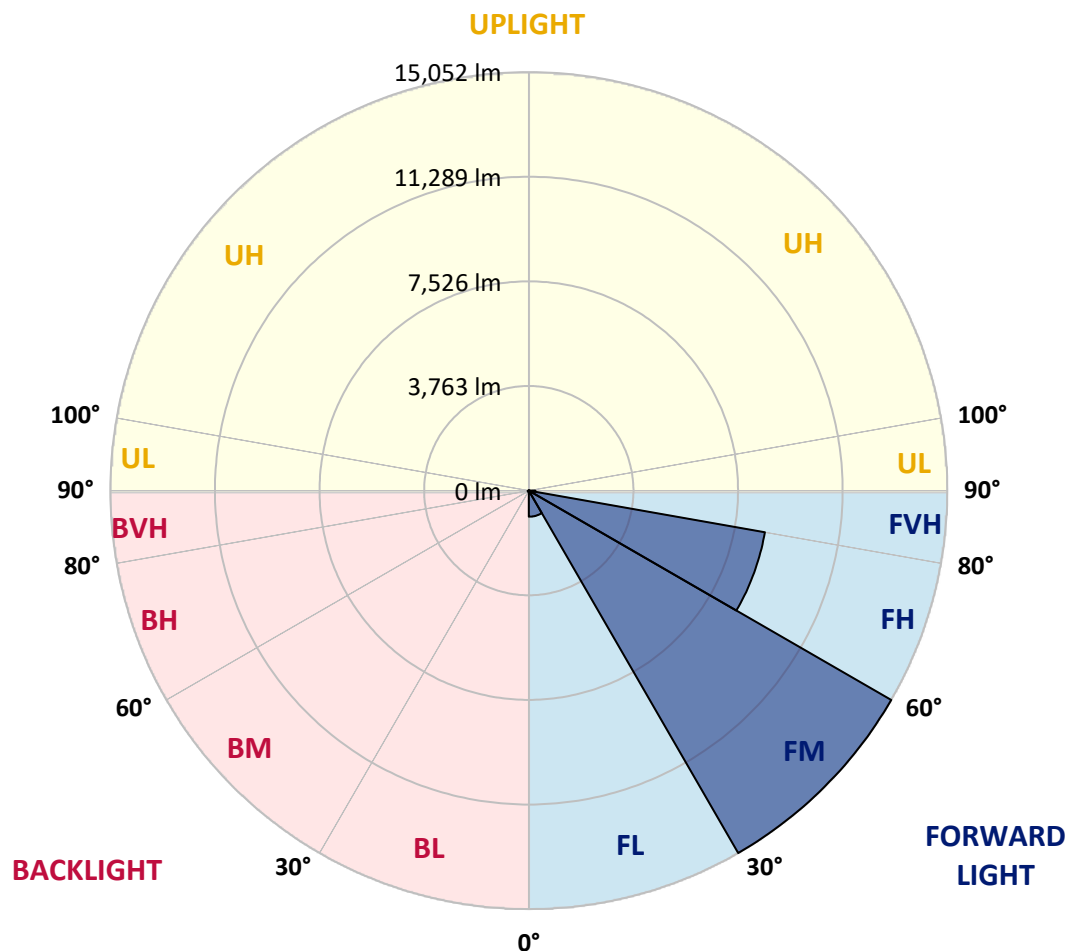
CATALOG NUMBER: GALN-SA7A-750-U-T2BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 937.3   | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 15051.7 | 60.3      |                         |      |          |
| FH   | (60°-80°)   | 8622.8  | 34.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 238.4   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 23.9    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 40.5    | 0.2       | B0/220                  |      |          |
| BH   | (60°-80°)   | 37.6    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 4.5     | 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-G4**

Type II Short



REPORT NUMBER: P1047829

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 152.8   | 152.8   | 152.8   | 152.8   | 152.8   | 152.8   | 152.8   | 152.8   | 152.8   | 152.8   | 152.8  |
| 2.5°  | 185.4   | 187.1   | 183.7   | 176.8   | 171.7   | 171.7   | 170.0   | 164.8   | 164.8   | 159.7   | 156.2  |
| 5°    | 259.2   | 255.8   | 248.9   | 235.2   | 223.2   | 211.2   | 199.1   | 187.1   | 185.4   | 170.0   | 159.7  |
| 7.5°  | 424.0   | 427.5   | 405.2   | 362.2   | 326.2   | 279.8   | 236.9   | 211.2   | 207.7   | 182.0   | 161.4  |
| 10°   | 930.5   | 904.7   | 853.2   | 686.7   | 564.8   | 425.8   | 315.9   | 245.5   | 242.1   | 195.7   | 164.8  |
| 12.5° | 1696.1  | 1675.5  | 1581.1  | 1409.4  | 1095.3  | 762.2   | 461.8   | 303.9   | 293.6   | 207.7   | 166.5  |
| 15°   | 2444.6  | 2412.0  | 2360.5  | 2187.1  | 1819.8  | 1366.5  | 755.4   | 415.5   | 388.0   | 224.9   | 164.8  |
| 17.5° | 2921.9  | 2927.1  | 2880.7  | 2806.9  | 2570.0  | 2022.3  | 1304.7  | 619.7   | 566.5   | 255.8   | 161.4  |
| 20°   | 3339.1  | 3327.1  | 3352.8  | 3313.3  | 3146.8  | 2748.5  | 1898.7  | 982.0   | 891.0   | 305.6   | 163.1  |
| 22.5° | 3819.8  | 3848.9  | 3867.8  | 3859.2  | 3675.6  | 3335.6  | 2573.4  | 1469.5  | 1354.5  | 396.6   | 168.2  |
| 25°   | 4463.5  | 4460.1  | 4461.8  | 4439.5  | 4261.0  | 3883.3  | 3249.8  | 2075.5  | 1958.8  | 544.2   | 180.3  |
| 27.5° | 5138.2  | 5158.8  | 5167.4  | 5086.7  | 4853.2  | 4482.4  | 3876.4  | 2738.2  | 2600.9  | 781.1   | 195.7  |
| 30°   | 6060.1  | 6043.0  | 6003.5  | 5838.7  | 5555.4  | 5095.3  | 4494.4  | 3433.5  | 3289.3  | 1112.5  | 219.7  |
| 32.5° | 7303.0  | 7284.2  | 7085.0  | 6721.1  | 6297.0  | 5733.9  | 5115.9  | 4130.5  | 3955.4  | 1526.2  | 252.4  |
| 35°   | 9351.1  | 9380.3  | 8891.0  | 7948.5  | 7188.0  | 6501.3  | 5804.3  | 4824.1  | 4669.6  | 2036.1  | 297.0  |
| 37.5° | 12487.6 | 12328.0 | 11663.6 | 9998.3  | 8360.6  | 7459.3  | 6461.8  | 5524.5  | 5390.6  | 2664.4  | 355.4  |
| 40°   | 15534.8 | 15376.9 | 15184.6 | 13606.9 | 10398.3 | 8515.1  | 7382.0  | 6346.8  | 6173.4  | 3373.4  | 441.2  |
| 42.5° | 18738.3 | 18650.7 | 18642.2 | 17452.5 | 14116.8 | 10175.2 | 8489.3  | 7309.9  | 7162.3  | 4151.1  | 582.0  |
| 45°   | 21007.8 | 20920.3 | 21104.0 | 21311.7 | 19181.2 | 13732.3 | 10417.2 | 8561.4  | 8346.8  | 5095.3  | 806.9  |
| 47.5° | 21313.4 | 21316.9 | 21807.8 | 22458.5 | 22944.3 | 19234.4 | 12985.5 | 10219.8 | 9958.9  | 6446.4  | 1184.6 |
| 50°   | 20297.1 | 20336.6 | 21117.7 | 22281.7 | 23589.8 | 23850.8 | 17514.3 | 12626.7 | 12240.4 | 8048.1  | 1720.2 |
| 52.5° | 18362.3 | 18407.0 | 19495.4 | 21409.6 | 22995.8 | 24959.8 | 22846.5 | 15775.2 | 15330.6 | 10046.4 | 2475.6 |
| 55°   | 16619.8 | 16647.3 | 17895.4 | 20314.3 | 22280.0 | 24357.2 | 26012.2 | 19979.5 | 19395.8 | 12504.8 | 3220.6 |
| 57.5° | 14894.5 | 14831.0 | 15643.0 | 18412.1 | 22158.1 | 23617.3 | 26479.1 | 24771.0 | 24127.2 | 15191.5 | 3800.9 |
| 60°   | 12587.2 | 12480.8 | 13133.1 | 14894.5 | 20554.6 | 24103.1 | 25605.3 | 27421.6 | 27275.7 | 18932.3 | 4249.0 |
| 61°   | 11260.1 | 11215.5 | 11871.3 | 13382.0 | 19205.3 | 23979.5 | 25395.8 | 27533.2 | 27548.6 | 20702.3 | 4449.8 |
| 62.5° | 8041.2  | 8168.3  | 9170.9  | 11134.8 | 16085.9 | 23177.8 | 25423.3 | 27188.1 | 27340.9 | 23054.2 | 4970.0 |
| 65°   | 3574.3  | 3778.6  | 4558.0  | 6156.3  | 9354.6  | 19280.8 | 25179.5 | 26431.0 | 26355.5 | 23699.7 | 6762.3 |
| 67.5° | 2120.2  | 2151.1  | 2539.1  | 3488.4  | 4954.5  | 10370.9 | 22219.9 | 25430.2 | 25328.9 | 20631.9 | 8413.8 |
| 70°   | 1670.4  | 1685.8  | 1809.5  | 2188.9  | 2875.6  | 3972.6  | 12681.6 | 22001.8 | 22443.0 | 16729.7 | 8237.0 |
| 72.5° | 1584.6  | 1581.1  | 1598.3  | 1665.2  | 1811.2  | 1970.8  | 4909.9  | 14625.0 | 15522.8 | 12048.1 | 6906.5 |
| 75°   | 1564.0  | 1557.1  | 1539.9  | 1514.2  | 1311.6  | 1160.5  | 1521.0  | 6468.7  | 6988.9  | 8231.8  | 5200.0 |
| 77.5° | 1517.6  | 1519.3  | 1522.8  | 1452.4  | 1124.5  | 820.6   | 736.5   | 2075.5  | 2552.8  | 5224.1  | 3696.2 |
| 80°   | 1026.6  | 1042.1  | 1067.8  | 1040.3  | 1011.2  | 594.0   | 520.2   | 738.2   | 748.5   | 2932.2  | 2441.2 |
| 82.5° | 520.2   | 520.2   | 508.2   | 453.2   | 391.4   | 386.3   | 413.7   | 535.6   | 542.5   | 1483.3  | 1148.5 |
| 85°   | 314.2   | 331.3   | 338.2   | 307.3   | 281.5   | 259.2   | 315.9   | 425.8   | 441.2   | 575.1   | 267.8  |
| 87.5° | 70.4    | 72.1    | 79.0    | 104.7   | 152.8   | 207.7   | 293.6   | 389.7   | 396.6   | 369.1   | 32.6   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0    |



REPORT NUMBER: P1047829

CATALOG NUMBER: GALN-SA7A-750-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 152.8  | 152.8 | 152.8 | 152.8 | 152.8 | 152.8 | 152.8 | 152.8 | 152.8 | 152.8 | 152.8 |
| 2.5°  | 154.5  | 151.1 | 149.4 | 144.2 | 139.1 | 133.9 | 130.5 | 128.8 | 130.5 | 132.2 | 132.2 |
| 5°    | 152.8  | 147.6 | 139.1 | 130.5 | 123.6 | 116.7 | 109.9 | 108.2 | 108.2 | 109.9 | 109.9 |
| 7.5°  | 152.8  | 144.2 | 132.2 | 121.9 | 111.6 | 101.3 | 96.1  | 92.7  | 94.4  | 94.4  | 94.4  |
| 10°   | 152.8  | 142.5 | 127.0 | 111.6 | 99.6  | 87.6  | 79.0  | 75.5  | 75.5  | 75.5  | 75.5  |
| 12.5° | 151.1  | 140.8 | 121.9 | 103.0 | 85.8  | 72.1  | 61.8  | 56.7  | 58.4  | 58.4  | 58.4  |
| 15°   | 147.6  | 135.6 | 115.0 | 87.6  | 68.7  | 54.9  | 44.6  | 39.5  | 41.2  | 44.6  | 46.4  |
| 17.5° | 142.5  | 130.5 | 103.0 | 73.8  | 54.9  | 41.2  | 30.9  | 27.5  | 29.2  | 34.3  | 34.3  |
| 20°   | 140.8  | 125.3 | 91.0  | 60.1  | 41.2  | 29.2  | 20.6  | 17.2  | 18.9  | 25.8  | 27.5  |
| 22.5° | 140.8  | 121.9 | 82.4  | 49.8  | 30.9  | 18.9  | 12.0  | 6.9   | 6.9   | 12.0  | 12.0  |
| 25°   | 142.5  | 120.2 | 75.5  | 41.2  | 22.3  | 13.7  | 6.9   | 3.4   | 6.9   | 18.9  | 22.3  |
| 27.5° | 145.9  | 118.5 | 72.1  | 34.3  | 17.2  | 12.0  | 5.2   | 12.0  | 20.6  | 20.6  | 20.6  |
| 30°   | 149.4  | 115.0 | 67.0  | 29.2  | 15.5  | 8.6   | 8.6   | 17.2  | 17.2  | 20.6  | 22.3  |
| 32.5° | 154.5  | 113.3 | 63.5  | 25.8  | 12.0  | 6.9   | 12.0  | 10.3  | 10.3  | 12.0  | 13.7  |
| 35°   | 164.8  | 115.0 | 60.1  | 25.8  | 12.0  | 8.6   | 10.3  | 5.2   | 3.4   | 3.4   | 3.4   |
| 37.5° | 178.5  | 116.7 | 54.9  | 22.3  | 10.3  | 10.3  | 5.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 200.9  | 121.9 | 51.5  | 20.6  | 8.6   | 8.6   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 238.6  | 132.2 | 49.8  | 18.9  | 8.6   | 6.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 314.2  | 156.2 | 46.4  | 17.2  | 8.6   | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 451.5  | 212.9 | 44.6  | 13.7  | 5.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 659.2  | 288.4 | 42.9  | 12.0  | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 841.2  | 303.9 | 29.2  | 10.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 861.8  | 209.4 | 22.3  | 6.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 686.7  | 135.6 | 18.9  | 5.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 520.2  | 103.0 | 17.2  | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 499.6  | 92.7  | 17.2  | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 551.1  | 80.7  | 15.5  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 896.1  | 67.0  | 13.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1557.1 | 58.4  | 12.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 1967.4 | 54.9  | 10.3  | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1715.0 | 49.8  | 10.3  | 3.4   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1031.8 | 42.9  | 10.3  | 6.9   | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 540.8  | 32.6  | 10.3  | 8.6   | 5.2   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 262.7  | 29.2  | 12.0  | 8.6   | 6.9   | 3.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 103.0  | 24.0  | 13.7  | 12.0  | 8.6   | 5.2   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 46.4   | 20.6  | 15.5  | 13.7  | 12.0  | 6.9   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 24.0   | 18.9  | 17.2  | 15.5  | 12.0  | 8.6   | 3.4   | 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: SP1-2407-184-6

Test Date: 10/10/2024

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

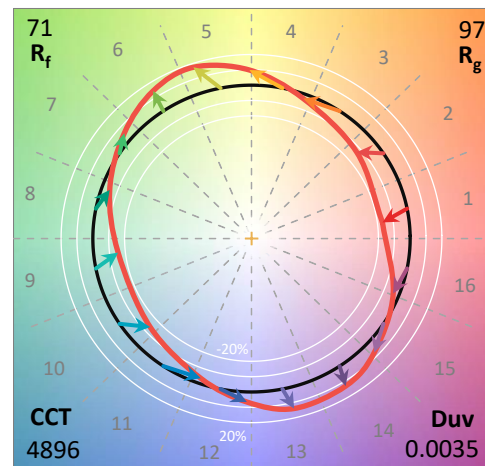
Data in this report applies to families of products including GSS-SB1A-750-U-5WQ

### Test Information

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

### Spectral Parameters

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



### Test Conditions

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

REPORT NUMBER: SP1-2407-184-6

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

REPORT NUMBER: SP1-2407-184-6

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-6

### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

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

REPORT NUMBER: SP1-2407-184-6

### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.7

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

REPORT NUMBER: SP1-2407-184-6

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.37

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

REPORT NUMBER: SP1-2407-184-6

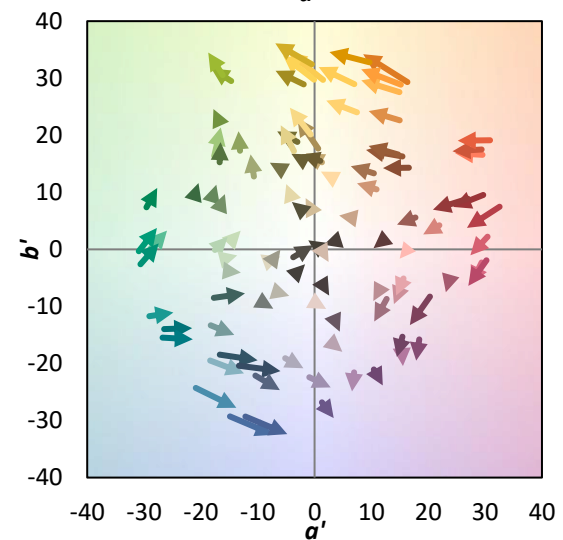
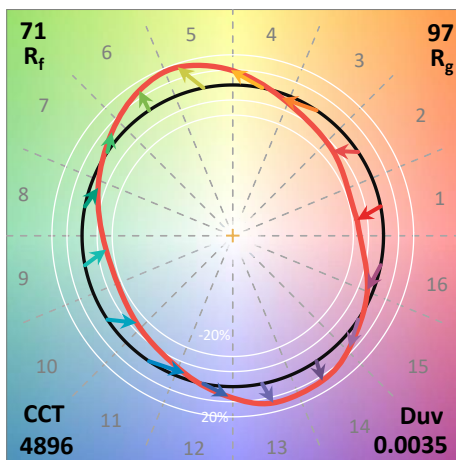
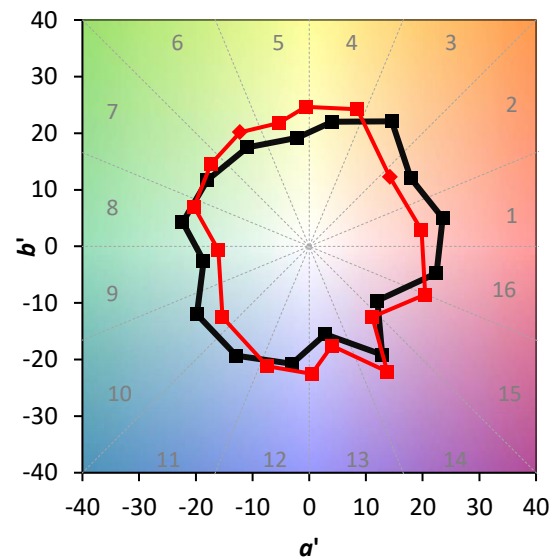
TM-30-18

### Summary

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

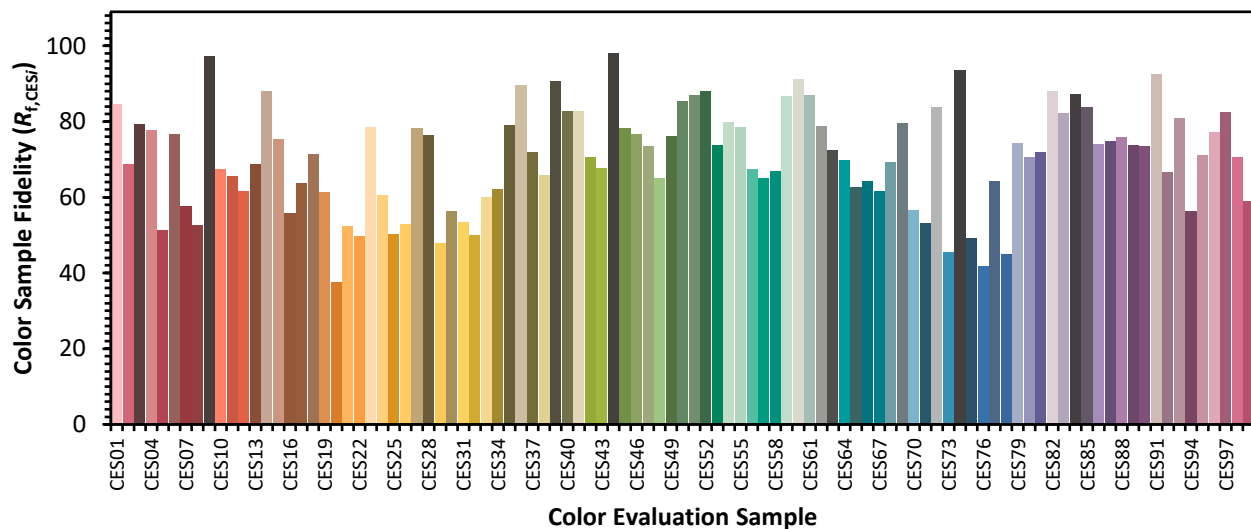


### Color Vector Graphics

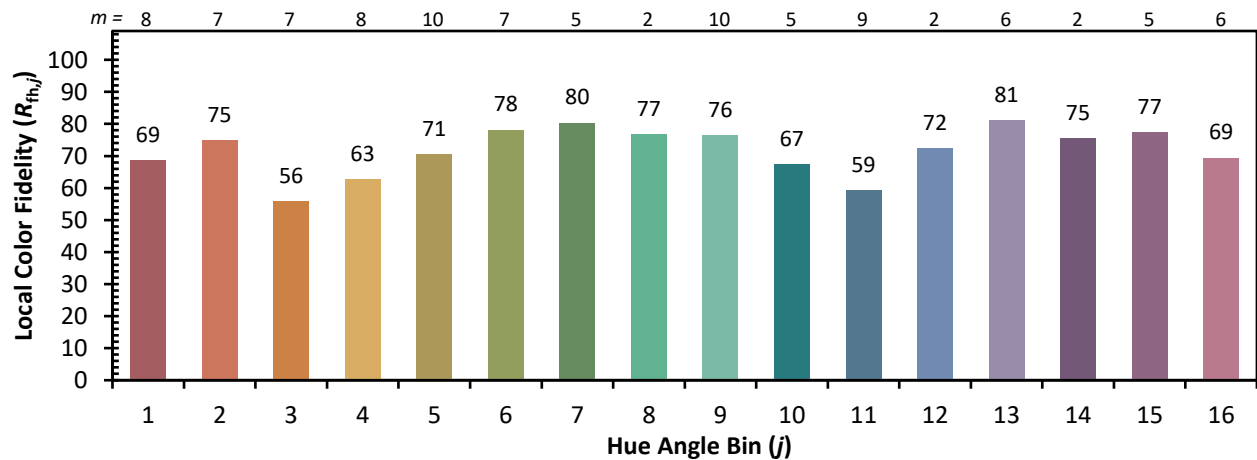
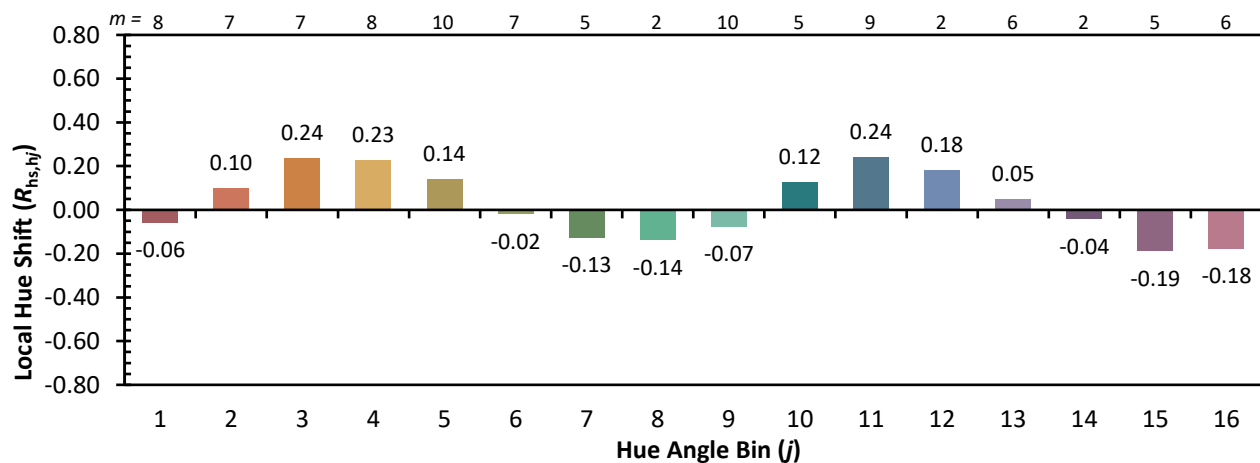
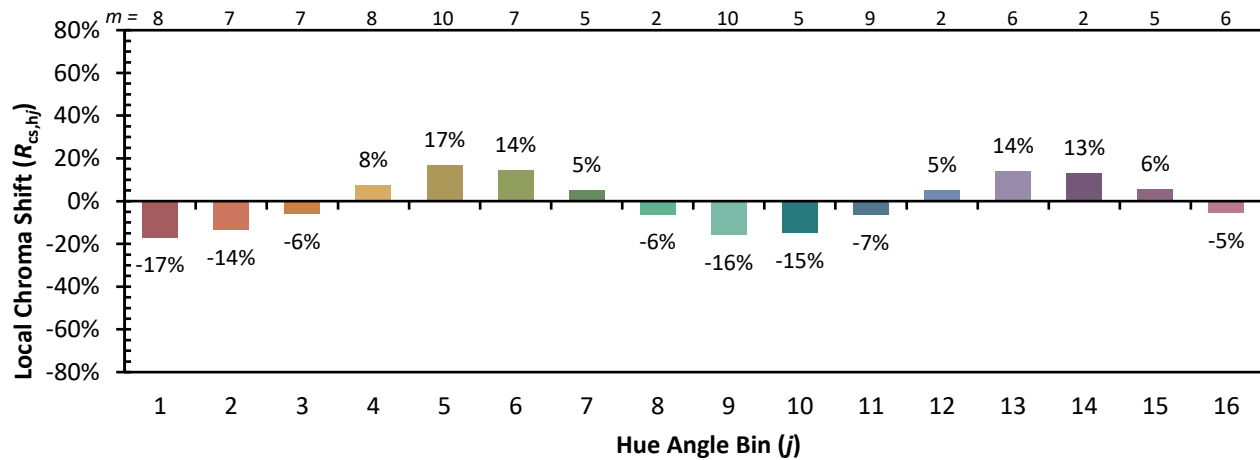


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

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



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)