

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: P1048423

Luminaire Tested: **GALN-SA2C-750-U-T4BC**

Issue Date: 07/10/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1048423  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 07/10/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GALN-SA2C-750-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 2xLight Square PACKAGE  
70CRI 5000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (28) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11563.5 lumens  
Efficiency: N/A  
Efficacy: 120.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 96.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

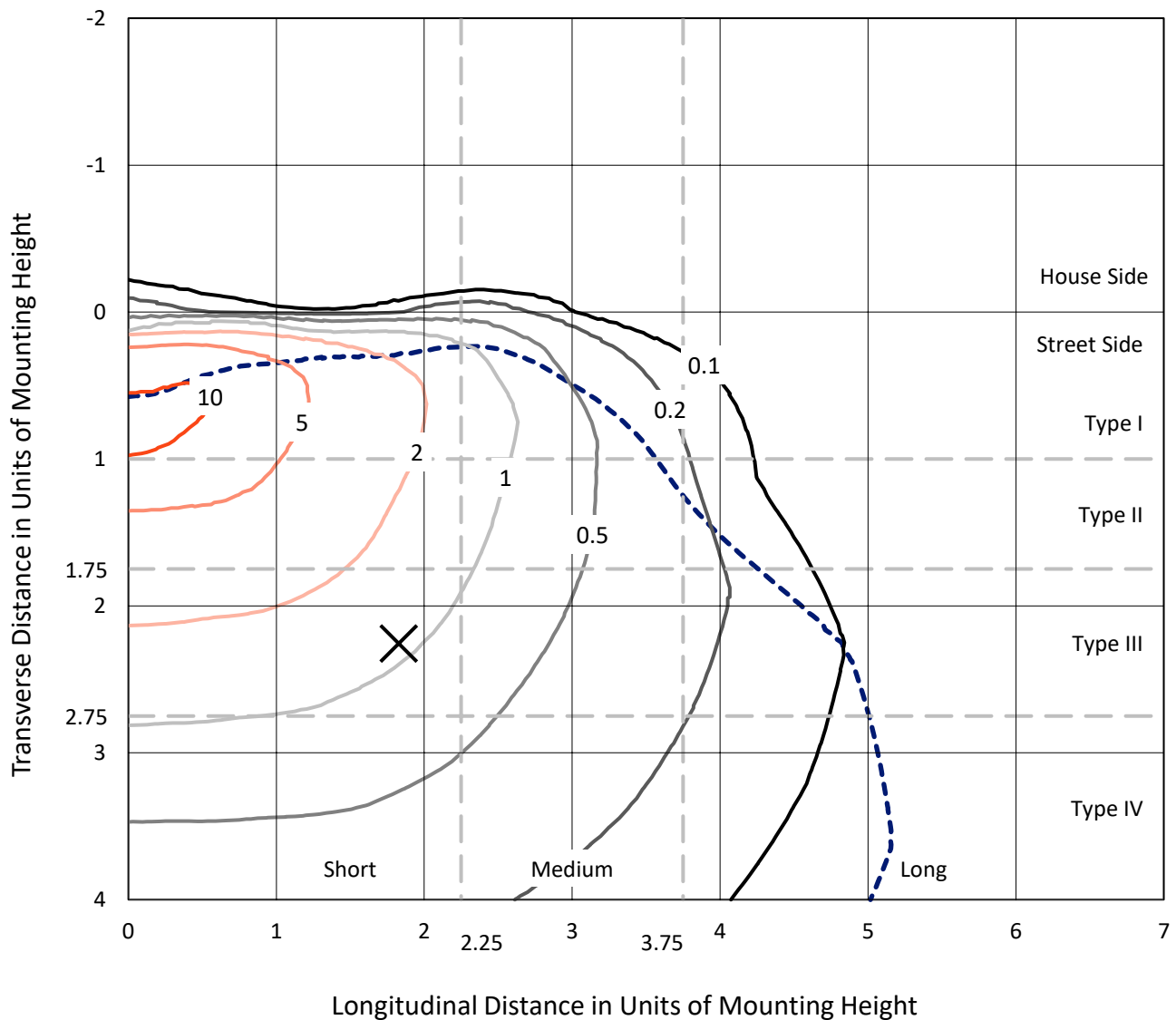


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CATALOG NUMBER: GALN-SA2C-750-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

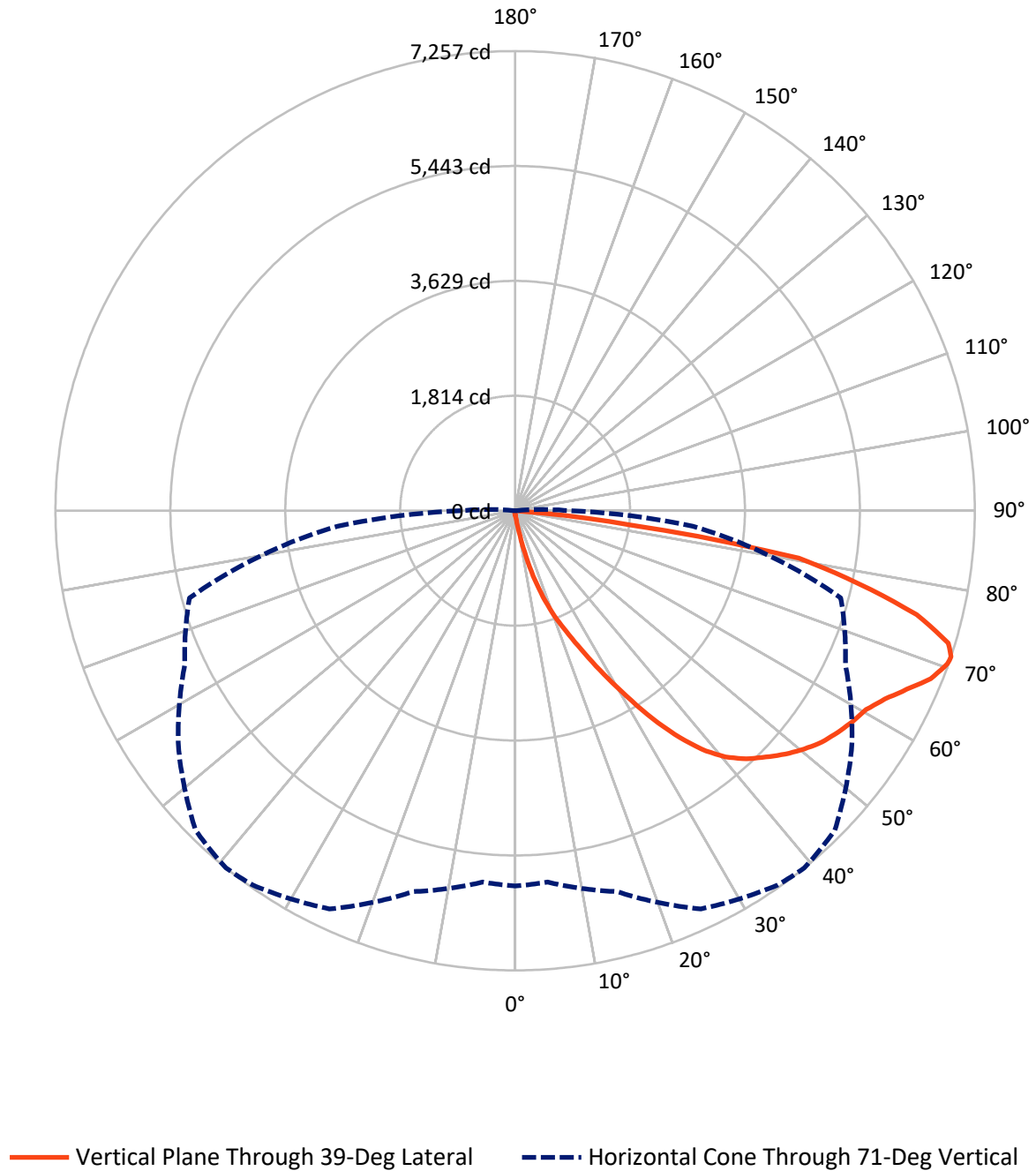


Based on 15 foot mounting height. Maximum calculated value = 11.9 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GALN-SA2C-750-U-T4BC

## Luminous Intensity Polar Plot



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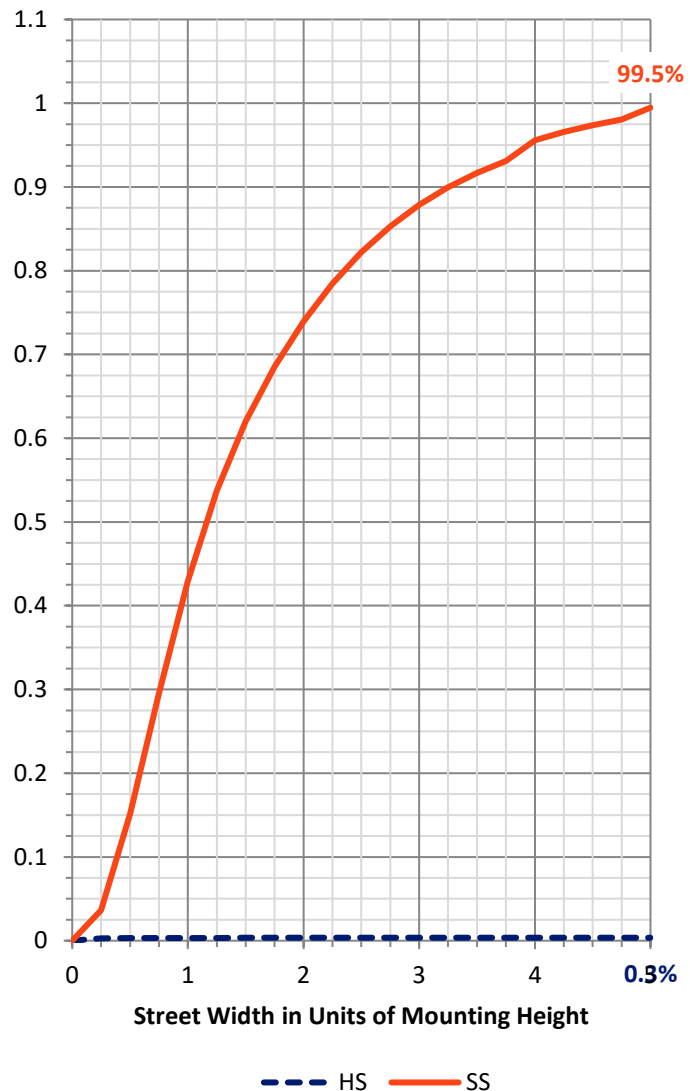
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 41.1     | 0.0    | 41.1    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 11522.4  | 0.0    | 11522.4 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 11563.5  | 0.0    | 11563.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 9.7     | 0.1       |
| 10°-20°   | 123.6   | 1.1       |
| 20°-30°   | 440.1   | 3.8       |
| 30°-40°   | 1060.8  | 9.2       |
| 40°-50°   | 1775.3  | 15.4      |
| 50°-60°   | 2280.1  | 19.7      |
| 60°-70°   | 2885.5  | 25.0      |
| 70°-80°   | 2572.6  | 22.2      |
| 80°-90°   | 415.8   | 3.6       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 11563.5 | 100.0     |
| 0°-180°   | 11563.5 | 100.0     |



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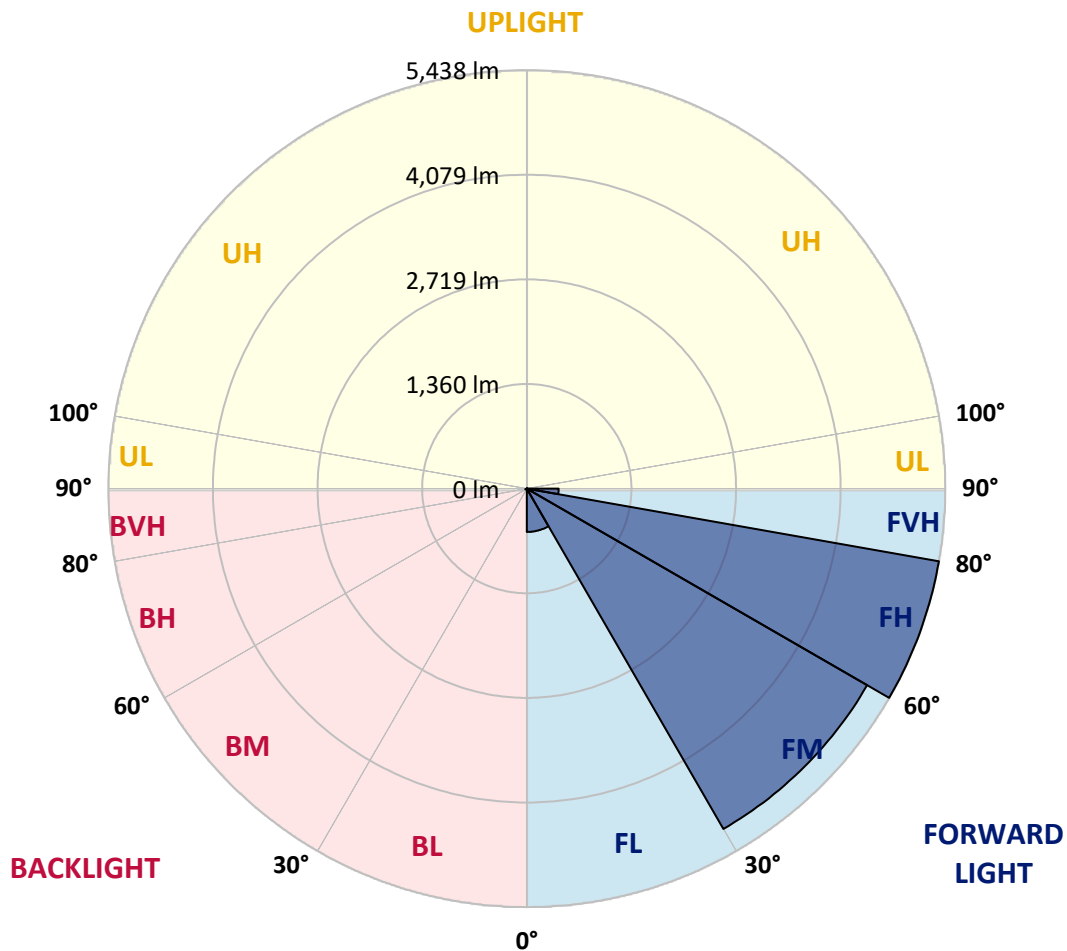
CATALOG NUMBER: GALN-SA2C-750-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 563.5  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 5106.7 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 5438.3 | 47.0      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 414.0  | 3.6       |                         |      | G3/500  |
| BL   | (0°-30°)    | 9.9    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 9.5    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 19.8   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.9    | 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-G3**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 63.4   | 63.4   | 63.4   | 63.4   | 63.4   | 63.4   | 63.4   | 63.4   | 63.4   | 63.4   | 63.4   |
| 2.5°  | 72.8   | 72.8   | 72.8   | 70.5   | 70.5   | 69.7   | 68.9   | 68.9   | 67.3   | 66.5   | 65.0   |
| 5°    | 110.4  | 108.0  | 102.5  | 99.4   | 93.2   | 89.2   | 85.3   | 79.8   | 74.4   | 70.5   | 65.8   |
| 7.5°  | 249.7  | 255.2  | 237.2  | 203.5  | 169.1  | 154.2  | 129.2  | 104.1  | 86.1   | 74.4   | 66.5   |
| 10°   | 636.4  | 633.3  | 572.2  | 504.9  | 389.8  | 343.6  | 269.3  | 169.9  | 111.2  | 81.4   | 67.3   |
| 12.5° | 1082.6 | 1079.5 | 1007.4 | 915.9  | 764.0  | 667.7  | 526.8  | 317.0  | 159.7  | 92.4   | 67.3   |
| 15°   | 1457.5 | 1445.0 | 1422.3 | 1331.5 | 1153.8 | 1073.2 | 886.9  | 560.5  | 258.3  | 111.2  | 68.9   |
| 17.5° | 1705.7 | 1694.7 | 1673.6 | 1640.7 | 1528.0 | 1432.5 | 1283.0 | 880.6  | 418.0  | 144.0  | 72.0   |
| 20°   | 1933.5 | 1925.7 | 1908.4 | 1902.2 | 1829.4 | 1778.5 | 1654.8 | 1248.5 | 651.3  | 195.7  | 76.7   |
| 22.5° | 2246.6 | 2230.2 | 2237.2 | 2199.6 | 2128.4 | 2067.3 | 1991.4 | 1633.7 | 936.2  | 281.8  | 85.3   |
| 25°   | 2630.2 | 2622.3 | 2602.8 | 2576.2 | 2477.5 | 2424.3 | 2307.7 | 1996.9 | 1254.8 | 394.5  | 94.7   |
| 27.5° | 3093.6 | 3085.0 | 3080.3 | 3019.2 | 2905.7 | 2847.8 | 2685.0 | 2339.7 | 1613.3 | 552.6  | 107.2  |
| 30°   | 3627.4 | 3631.3 | 3600.8 | 3522.5 | 3390.2 | 3308.8 | 3141.3 | 2699.0 | 1980.5 | 738.2  | 120.5  |
| 32.5° | 4180.1 | 4172.3 | 4125.3 | 4032.9 | 3914.7 | 3838.8 | 3625.9 | 3092.8 | 2365.6 | 983.2  | 136.2  |
| 35°   | 4775.8 | 4760.9 | 4637.2 | 4531.6 | 4430.6 | 4335.1 | 4140.9 | 3549.9 | 2750.7 | 1257.9 | 157.3  |
| 37.5° | 5377.0 | 5307.3 | 5059.2 | 4925.3 | 4855.6 | 4777.3 | 4596.5 | 4037.6 | 3133.5 | 1564.8 | 183.2  |
| 40°   | 5831.0 | 5777.0 | 5482.6 | 5236.1 | 5180.5 | 5113.9 | 4979.3 | 4458.8 | 3540.5 | 1894.3 | 214.5  |
| 42.5° | 6082.3 | 6052.5 | 5787.9 | 5544.5 | 5413.8 | 5355.0 | 5240.0 | 4826.7 | 3942.9 | 2258.3 | 259.9  |
| 45°   | 6189.5 | 6143.3 | 5966.4 | 5852.9 | 5644.7 | 5547.6 | 5410.6 | 5104.6 | 4363.3 | 2671.7 | 323.3  |
| 47.5° | 6156.6 | 6130.0 | 6003.2 | 6044.7 | 5893.6 | 5742.5 | 5541.3 | 5317.5 | 4722.6 | 3146.0 | 410.2  |
| 50°   | 5950.0 | 5927.3 | 5888.1 | 6112.8 | 6094.0 | 5915.5 | 5710.4 | 5485.8 | 5016.1 | 3635.3 | 544.8  |
| 52.5° | 5557.0 | 5547.6 | 5647.8 | 6059.6 | 6207.5 | 6068.2 | 5873.2 | 5634.5 | 5290.1 | 4146.4 | 737.4  |
| 55°   | 5050.5 | 5088.9 | 5375.4 | 5976.6 | 6265.4 | 6180.9 | 6017.3 | 5773.8 | 5510.0 | 4603.6 | 1021.5 |
| 57.5° | 4842.3 | 4852.5 | 5210.2 | 5917.9 | 6291.3 | 6280.3 | 6157.4 | 5906.9 | 5712.0 | 4969.1 | 1455.2 |
| 60°   | 5085.8 | 5070.1 | 5258.8 | 5962.5 | 6342.9 | 6369.5 | 6281.9 | 6030.6 | 5887.3 | 5283.0 | 2032.9 |
| 62.5° | 5525.7 | 5517.1 | 5577.4 | 6152.7 | 6494.0 | 6548.0 | 6454.9 | 6119.8 | 6042.3 | 5489.7 | 2692.0 |
| 65°   | 5918.7 | 5900.6 | 6012.6 | 6490.1 | 6759.4 | 6797.7 | 6716.3 | 6272.5 | 6110.4 | 5640.0 | 3311.2 |
| 67.5° | 6088.5 | 6084.6 | 6264.6 | 6811.0 | 7038.0 | 7079.5 | 7008.3 | 6483.0 | 6094.8 | 5687.7 | 3584.4 |
| 70°   | 6011.0 | 5996.1 | 6284.2 | 6947.2 | 7195.4 | 7242.3 | 7173.5 | 6561.3 | 5924.9 | 5536.7 | 3179.7 |
| 71°   | 5925.7 | 5885.8 | 6225.5 | 6937.8 | 7217.3 | 7257.2 | 7136.7 | 6490.1 | 5754.3 | 5322.2 | 2812.6 |
| 72.5° | 5661.1 | 5668.2 | 6064.2 | 6840.0 | 7164.8 | 7153.1 | 6928.4 | 6234.9 | 5548.4 | 4835.3 | 2259.1 |
| 75°   | 5009.8 | 5051.3 | 5542.1 | 6429.0 | 6696.7 | 6547.2 | 6203.6 | 5747.2 | 5135.1 | 3467.0 | 1568.7 |
| 77.5° | 4094.0 | 4155.8 | 4695.2 | 5638.4 | 5562.5 | 5547.6 | 5533.5 | 5063.8 | 4385.2 | 1862.2 | 1091.2 |
| 80°   | 1954.6 | 2088.5 | 2832.1 | 4025.1 | 4372.6 | 4540.9 | 4435.3 | 4080.7 | 3391.0 | 886.9  | 652.1  |
| 82.5° | 127.6  | 126.0  | 178.5  | 338.2  | 1425.5 | 1842.7 | 2927.6 | 2916.7 | 2364.0 | 432.1  | 266.1  |
| 85°   | 60.3   | 61.8   | 68.1   | 77.5   | 90.0   | 98.6   | 136.2  | 798.4  | 1131.1 | 205.9  | 57.9   |
| 87.5° | 35.2   | 36.0   | 42.3   | 54.0   | 70.5   | 78.3   | 93.2   | 119.8  | 147.2  | 113.5  | 12.5   |
| 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: P1048423

CATALOG NUMBER: GALN-SA2C-750-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 63.4   | 63.4 | 63.4 | 63.4 | 63.4 | 63.4 | 63.4 | 63.4 | 63.4 | 63.4 | 63.4 |
| 2.5°  | 64.2   | 63.4 | 61.1 | 58.7 | 56.4 | 54.8 | 54.0 | 54.8 | 54.8 | 55.6 | 55.6 |
| 5°    | 64.2   | 61.8 | 57.9 | 53.2 | 50.1 | 47.0 | 45.4 | 44.6 | 45.4 | 45.4 | 45.4 |
| 7.5°  | 63.4   | 59.5 | 54.0 | 48.5 | 44.6 | 40.7 | 39.1 | 38.4 | 38.4 | 39.1 | 39.1 |
| 10°   | 61.8   | 57.9 | 50.9 | 44.6 | 39.9 | 35.2 | 32.9 | 30.5 | 30.5 | 30.5 | 31.3 |
| 12.5° | 61.1   | 55.6 | 47.0 | 40.7 | 34.4 | 29.0 | 24.3 | 21.9 | 22.7 | 22.7 | 22.7 |
| 15°   | 59.5   | 53.2 | 44.6 | 36.8 | 29.0 | 21.9 | 18.0 | 15.7 | 16.4 | 17.2 | 16.4 |
| 17.5° | 59.5   | 52.4 | 41.5 | 32.1 | 22.7 | 16.4 | 13.3 | 11.7 | 11.7 | 12.5 | 12.5 |
| 20°   | 59.5   | 50.9 | 39.1 | 27.4 | 17.2 | 12.5 | 9.4  | 8.6  | 8.6  | 10.2 | 11.0 |
| 22.5° | 61.1   | 50.9 | 36.0 | 22.7 | 14.1 | 9.4  | 7.0  | 6.3  | 7.0  | 8.6  | 9.4  |
| 25°   | 63.4   | 50.1 | 32.9 | 20.4 | 11.7 | 7.0  | 5.5  | 3.9  | 4.7  | 6.3  | 7.0  |
| 27.5° | 65.8   | 49.3 | 29.7 | 18.0 | 9.4  | 5.5  | 3.9  | 3.1  | 2.3  | 3.1  | 3.1  |
| 30°   | 68.1   | 49.3 | 26.6 | 14.9 | 7.8  | 3.9  | 2.3  | 1.6  | 0.8  | 0.0  | 0.0  |
| 32.5° | 69.7   | 47.7 | 24.3 | 11.7 | 6.3  | 3.1  | 1.6  | 0.8  | 0.0  | 0.0  | 0.0  |
| 35°   | 71.2   | 46.2 | 21.1 | 9.4  | 4.7  | 2.3  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 72.8   | 43.8 | 18.0 | 7.8  | 3.9  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 74.4   | 40.7 | 14.9 | 7.0  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 75.9   | 38.4 | 12.5 | 5.5  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 79.8   | 36.8 | 10.2 | 4.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 86.9   | 35.2 | 9.4  | 3.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 97.1   | 33.7 | 8.6  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 111.2  | 32.9 | 7.8  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 136.2  | 32.1 | 7.0  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 179.3  | 31.3 | 7.0  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 274.8  | 29.7 | 7.0  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 490.8  | 29.0 | 6.3  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 855.6  | 29.7 | 6.3  | 1.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 1226.6 | 31.3 | 5.5  | 2.3  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 1049.7 | 27.4 | 5.5  | 3.1  | 1.6  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 855.6  | 24.3 | 5.5  | 3.1  | 1.6  | 0.8  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 550.3  | 18.8 | 4.7  | 3.1  | 1.6  | 1.6  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 232.5  | 15.7 | 4.7  | 3.1  | 2.3  | 1.6  | 1.6  | 0.8  | 0.0  | 0.0  | 0.0  |
| 77.5° | 99.4   | 11.7 | 4.7  | 3.9  | 3.1  | 2.3  | 2.3  | 1.6  | 0.8  | 0.0  | 0.0  |
| 80°   | 37.6   | 9.4  | 5.5  | 4.7  | 3.9  | 3.9  | 3.1  | 1.6  | 0.8  | 0.0  | 0.0  |
| 82.5° | 17.2   | 7.8  | 5.5  | 4.7  | 4.7  | 3.9  | 3.1  | 2.3  | 1.6  | 0.0  | 0.0  |
| 85°   | 11.0   | 7.0  | 5.5  | 4.7  | 4.7  | 3.9  | 3.9  | 2.3  | 1.6  | 0.0  | 0.0  |
| 87.5° | 8.6    | 7.0  | 5.5  | 5.5  | 4.7  | 4.7  | 3.1  | 2.3  | 0.8  | 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

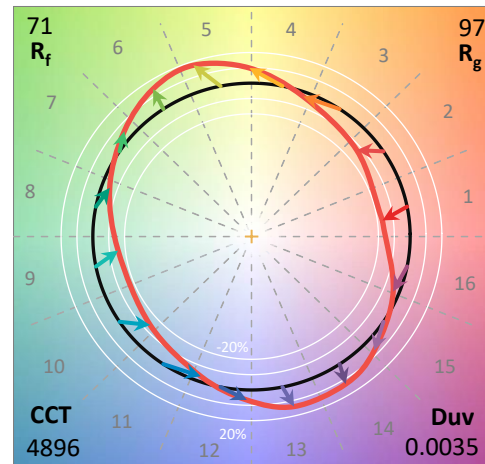
Data in this report applies to families of products including GSS-SB1A-750-U-5WQ

### 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

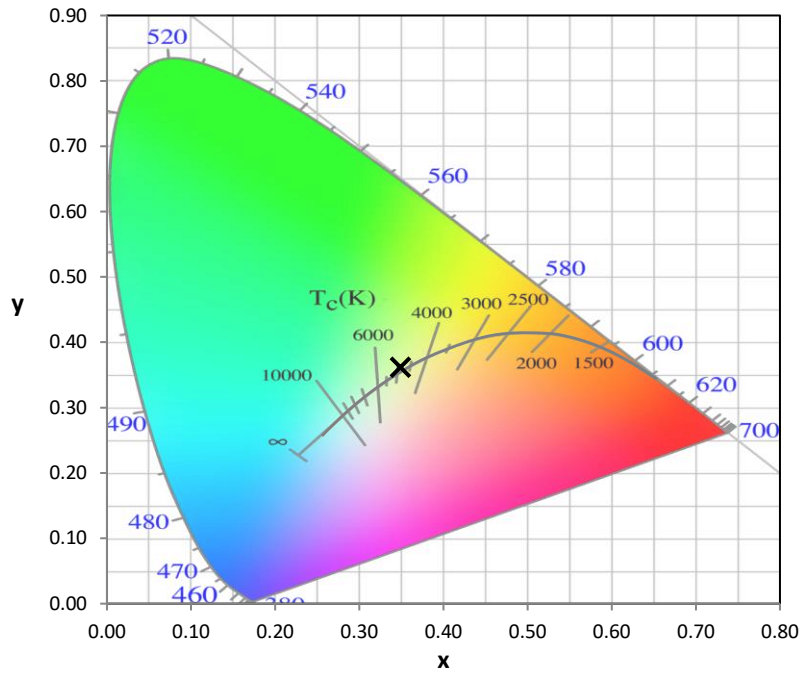
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-6

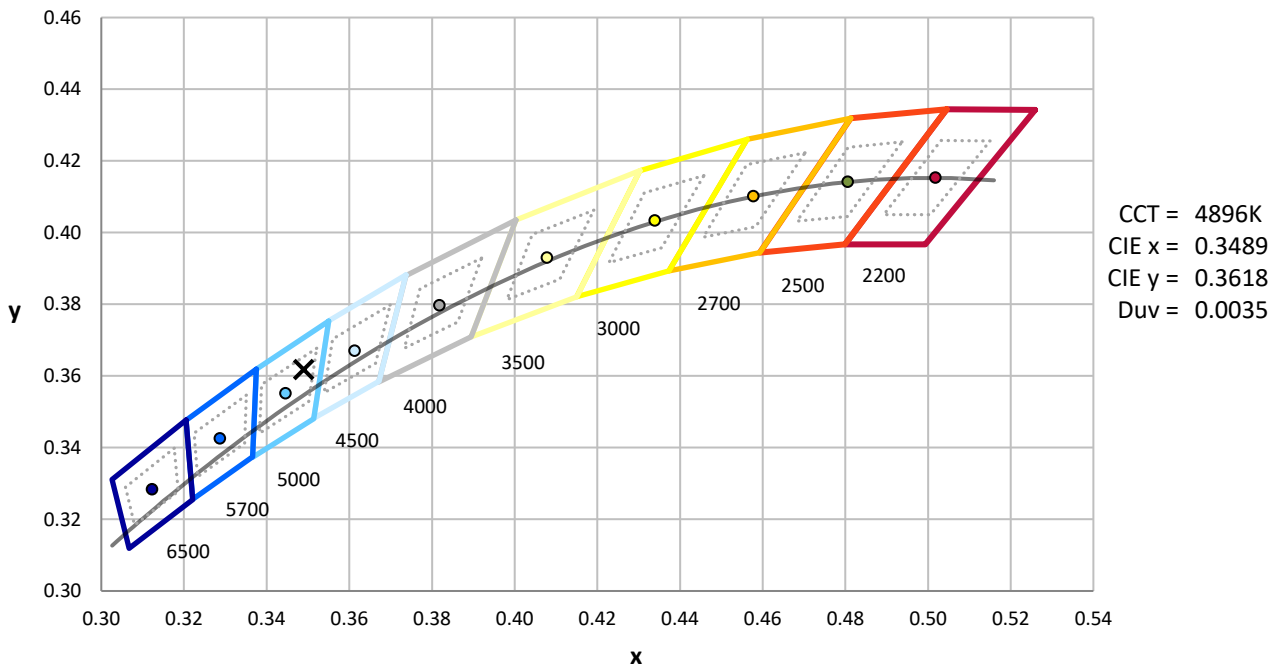
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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           |

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**CIE 1931 Chromaticity Diagram**



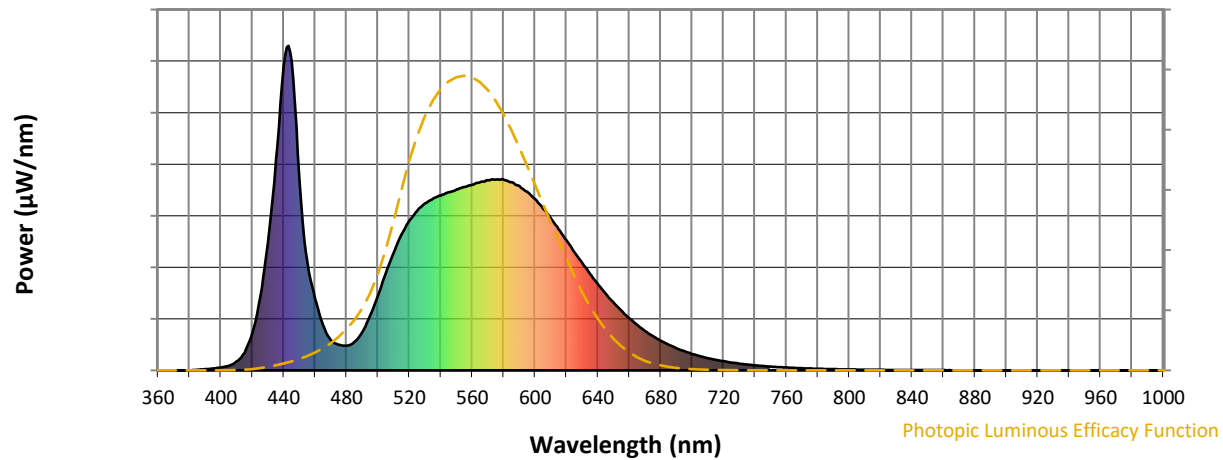
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

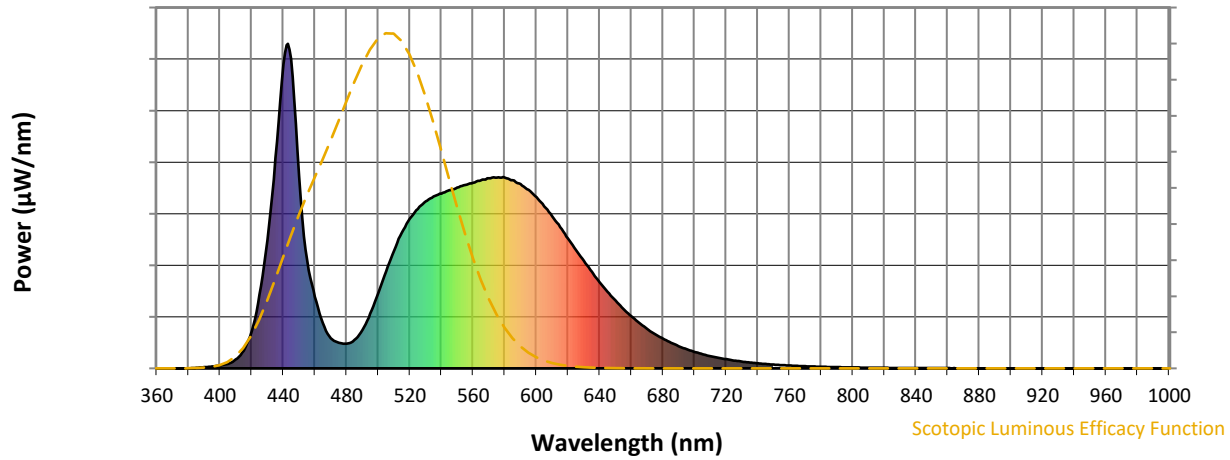


### Photopic Lumens: NR

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

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### Scotopic Flux vs. Wavelength



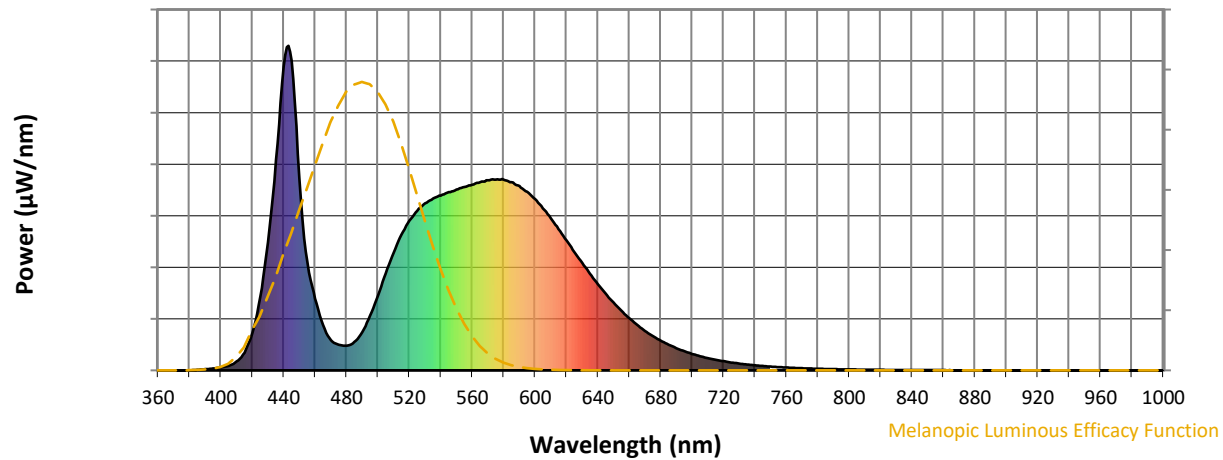
Scotopic Lumens: NR

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            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.37

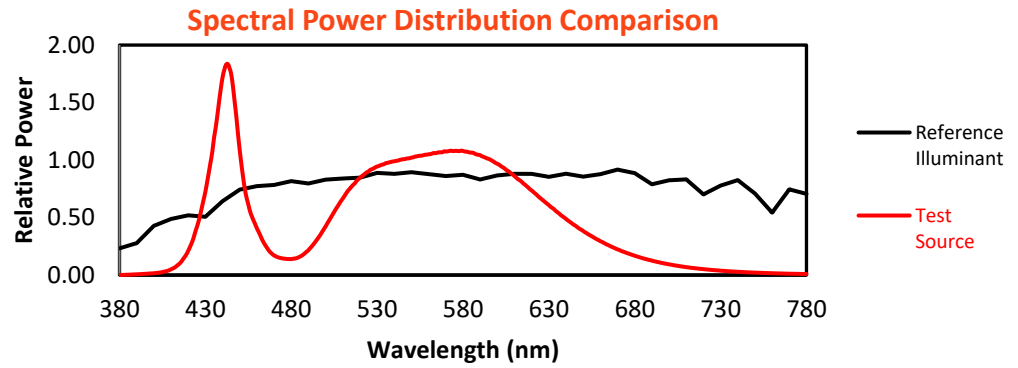
| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm)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

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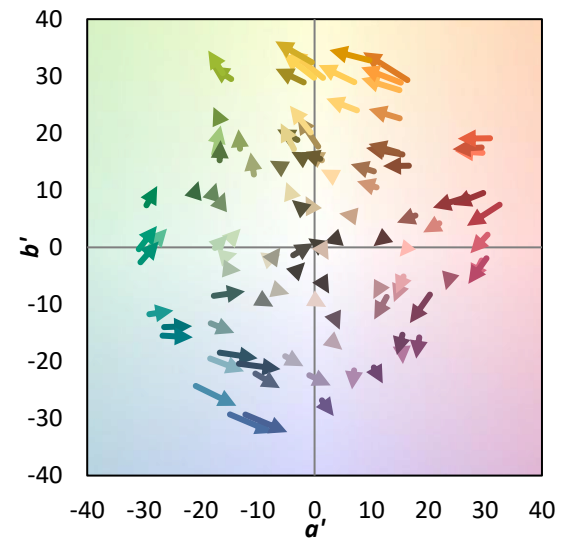
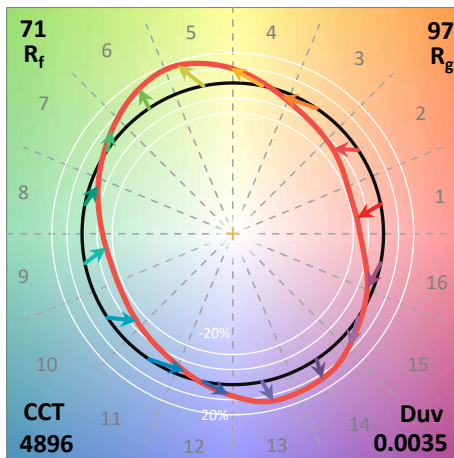
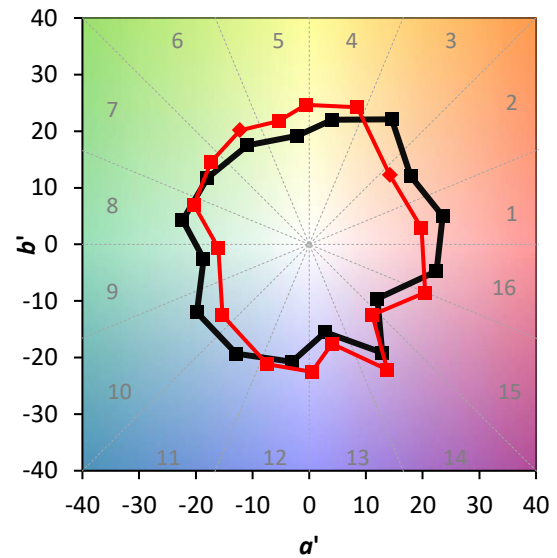
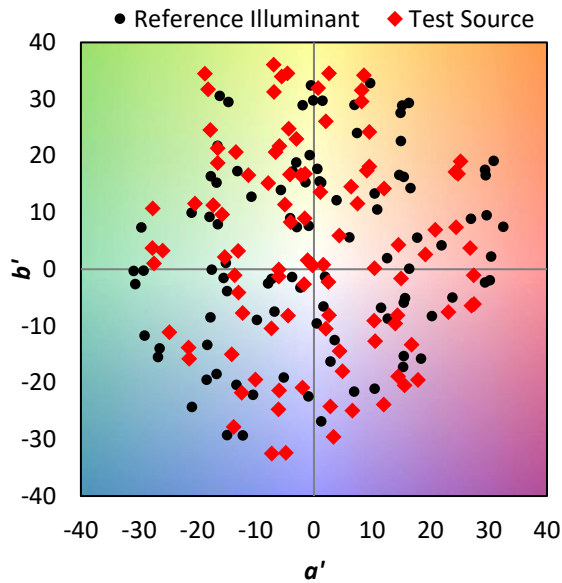
TM-30-18

### Summary

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



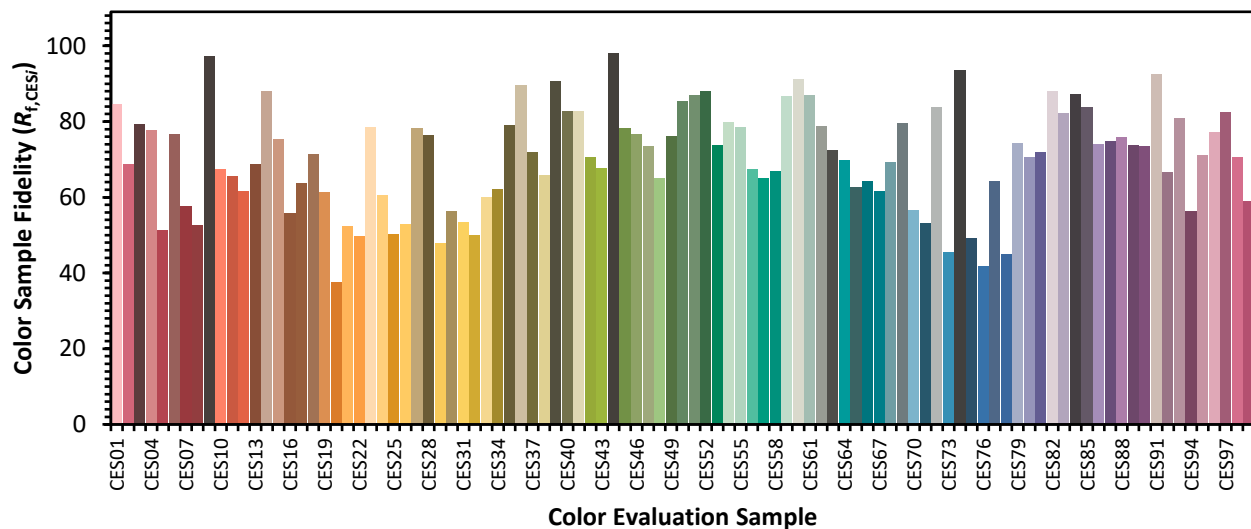
### Color Vector Graphics



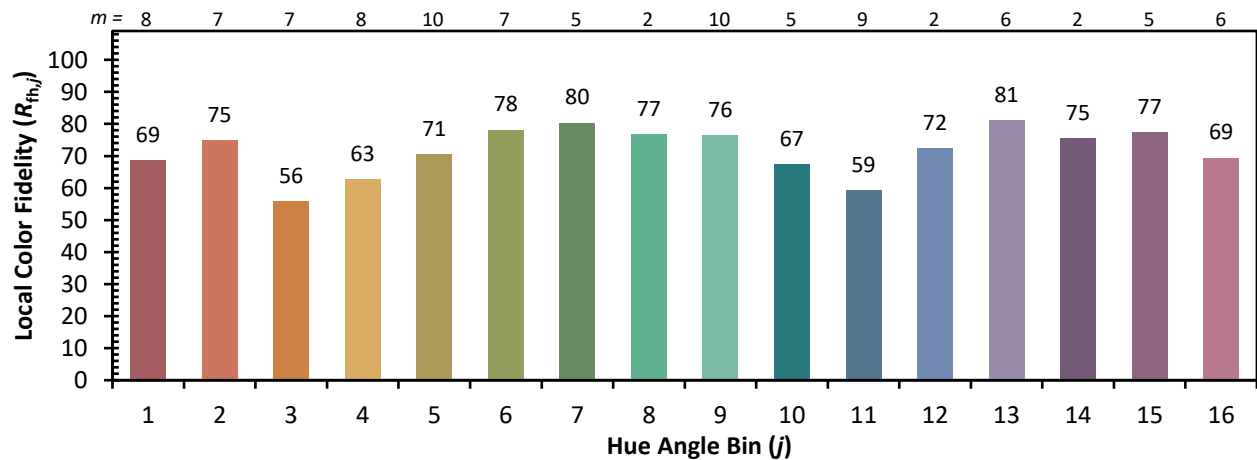
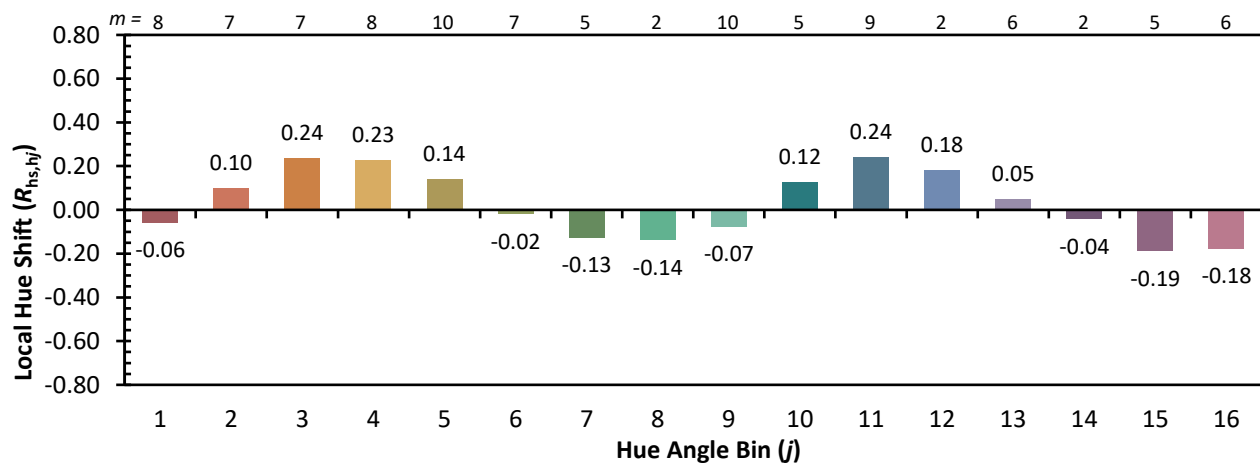
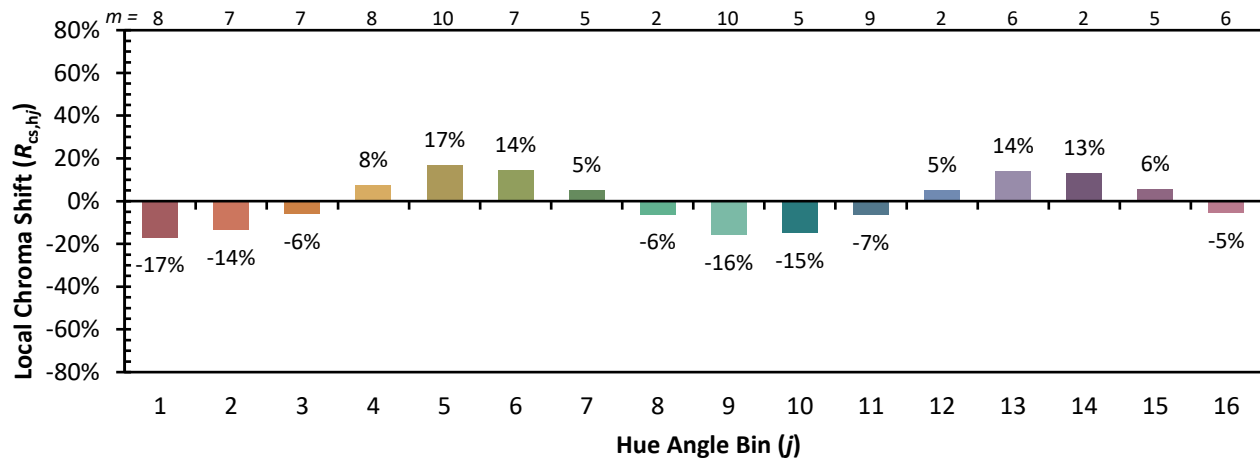


Individual Sample Fidelity Index ( $R_{f,i}$ )

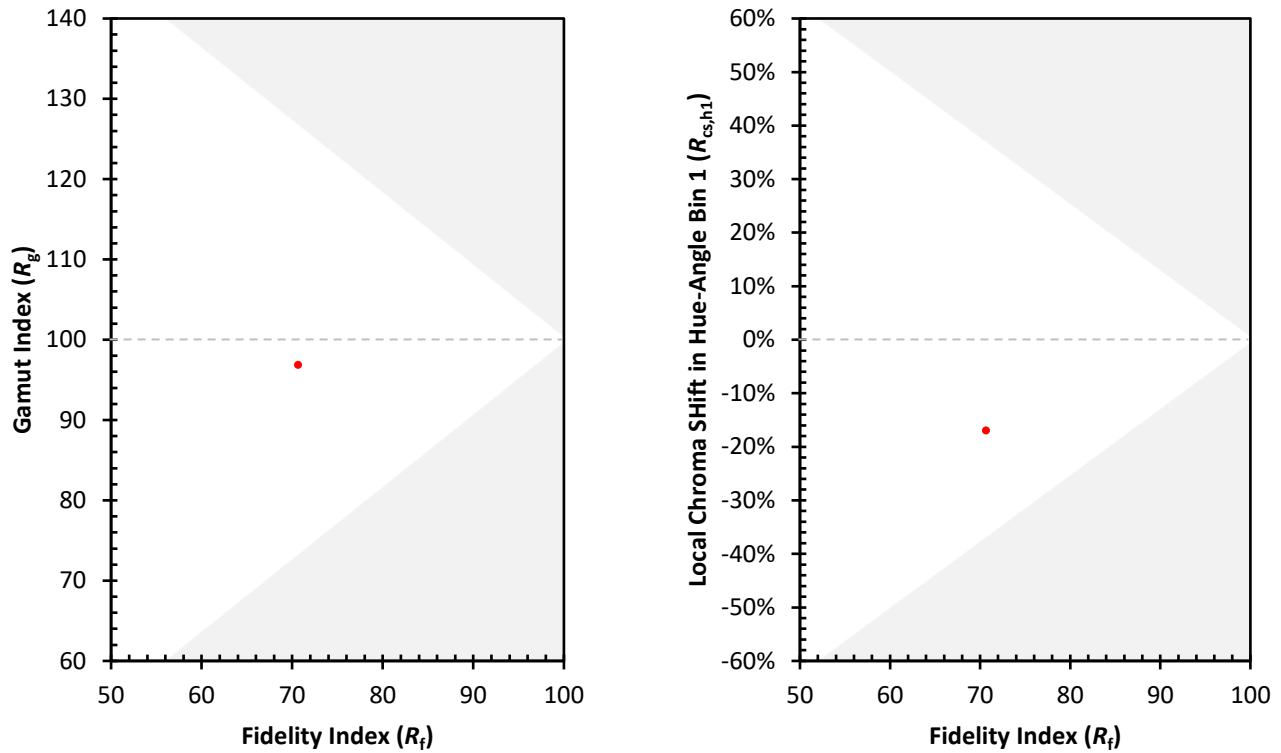
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 53 | CES51 = 87 | CES76 = 42 |
| CES02 = 59 | CES27 = 78 | CES52 = 88 | CES77 = 64 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 45 |
| CES04 = 69 | CES29 = 48 | CES54 = 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)