

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: STREETWORKS

Report Number: P1064290

Luminaire Tested: **GLAN-SA6B-850-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064290  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA6B-850-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 6xLight Square PACKAGE  
80CRI 5000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (84) 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 24655.4 lumens  
Efficiency: N/A  
Efficacy: 115.3 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 213.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



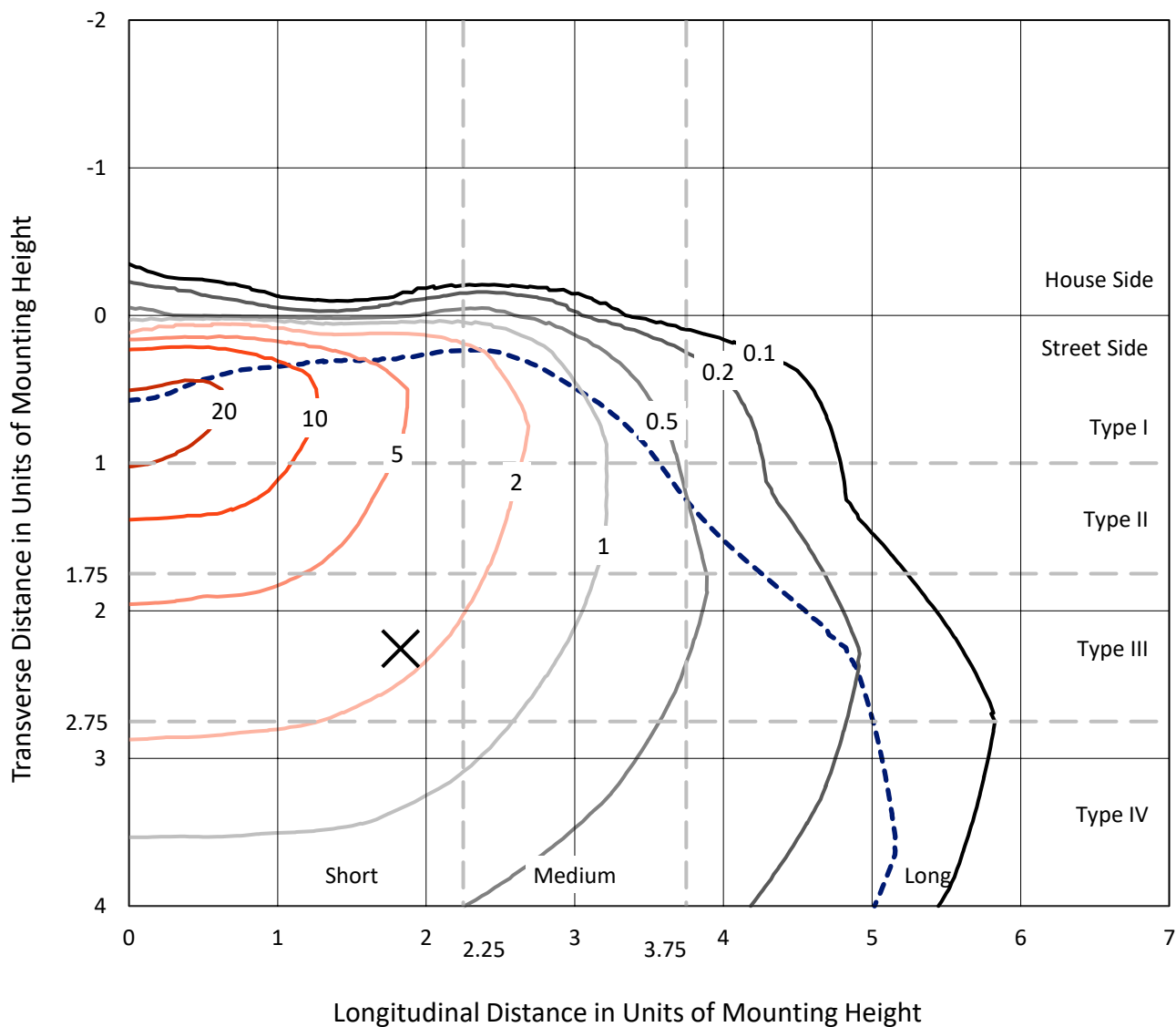
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CATALOG NUMBER: GLAN-SA6B-850-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

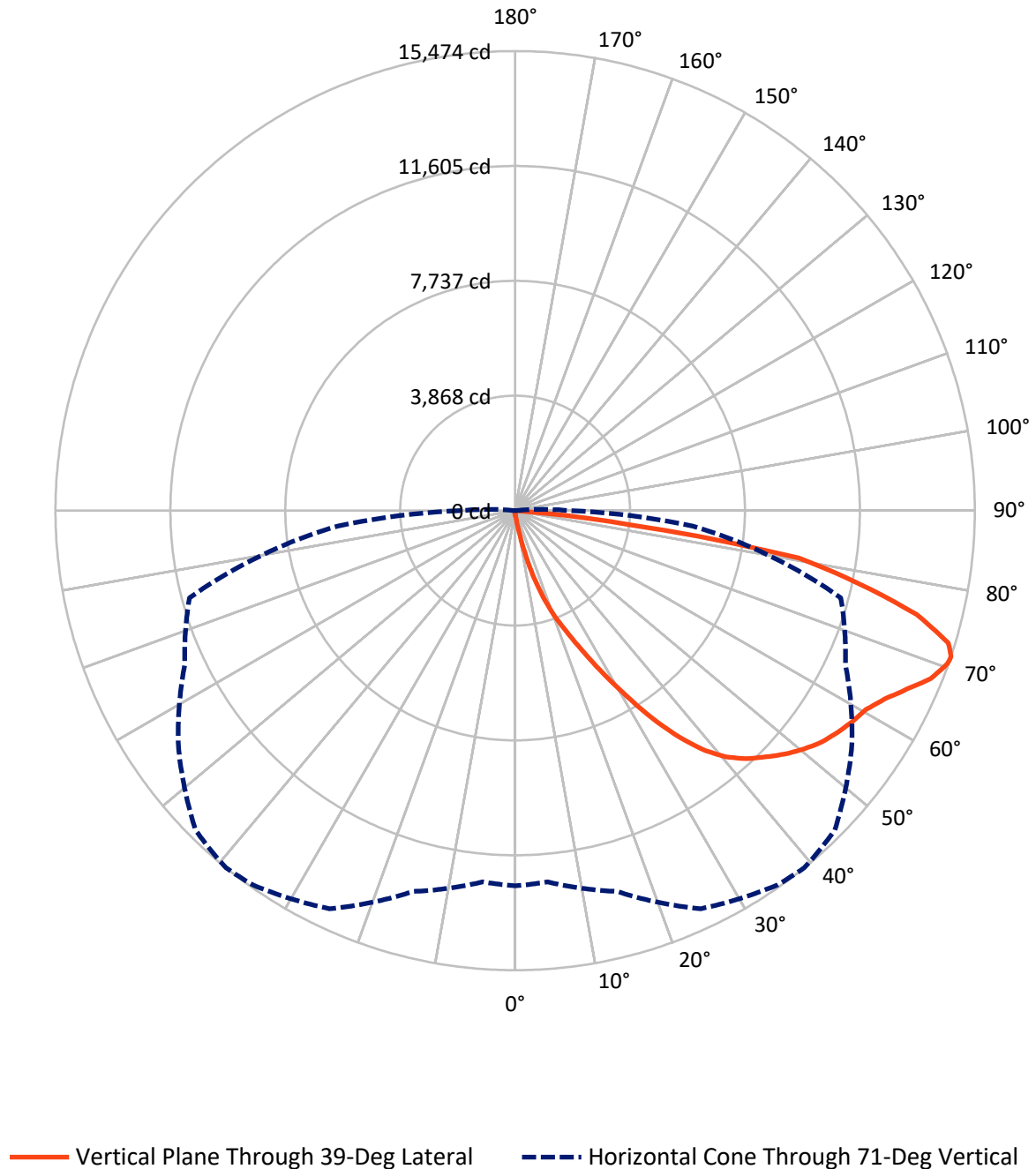


Based on 15 foot mounting height. Maximum calculated value = 25.4 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GLAN-SA6B-850-U-T4BC

## Luminous Intensity Polar Plot



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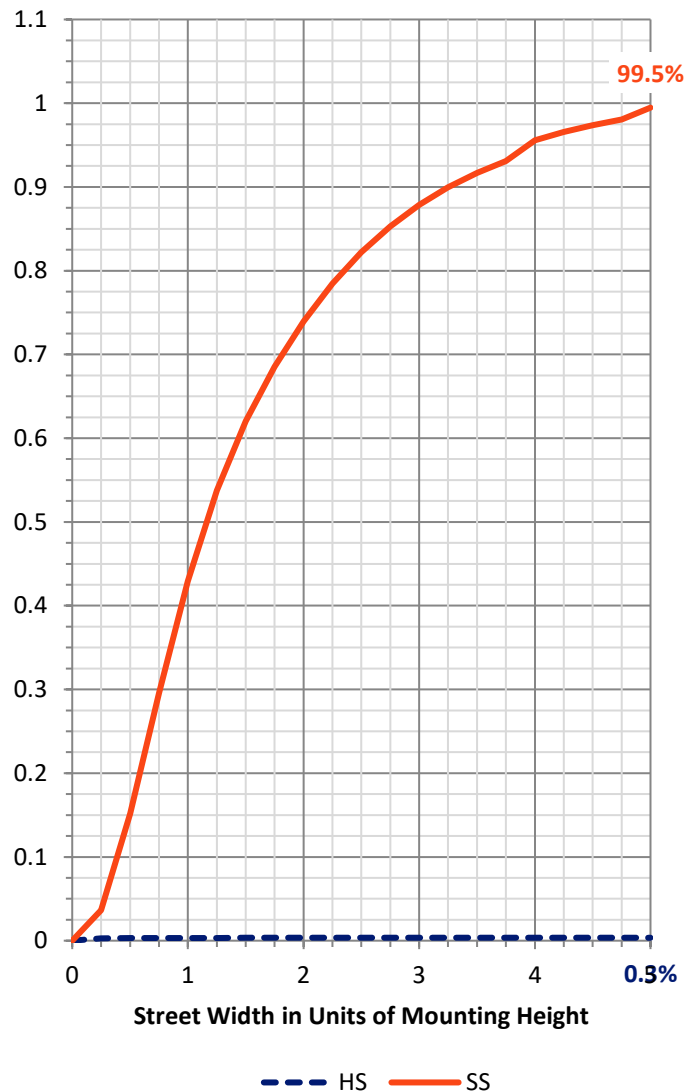
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 87.6     | 0.0    | 87.6    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 24567.8  | 0.0    | 24567.8 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 24655.4  | 0.0    | 24655.4 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 20.6    | 0.1       |
| 10°-20°   | 263.5   | 1.1       |
| 20°-30°   | 938.4   | 3.8       |
| 30°-40°   | 2261.7  | 9.2       |
| 40°-50°   | 3785.2  | 15.4      |
| 50°-60°   | 4861.6  | 19.7      |
| 60°-70°   | 6152.4  | 25.0      |
| 70°-80°   | 5485.1  | 22.2      |
| 80°-90°   | 886.6   | 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°    | 24655.4 | 100.0     |
| 0°-180°   | 24655.4 | 100.0     |



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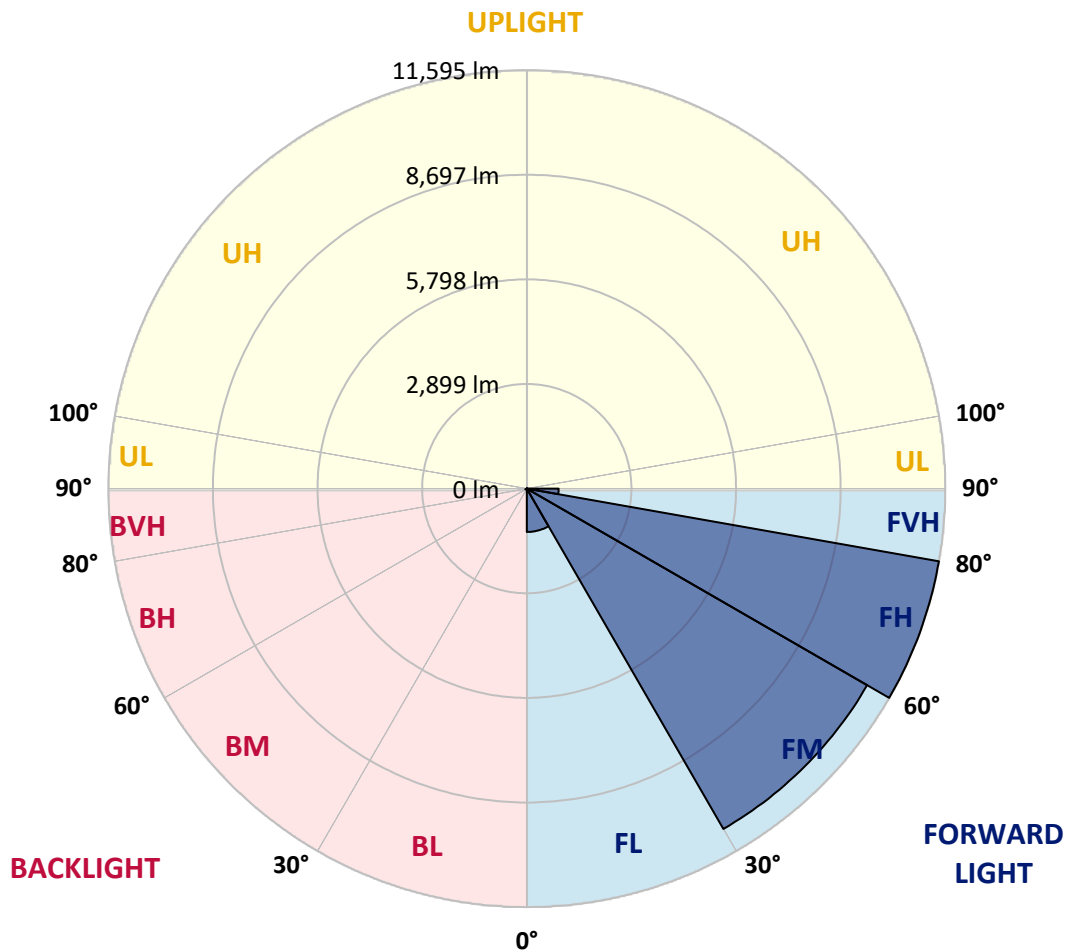
CATALOG NUMBER: GLAN-SA6B-850-U-T4BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1201.4  | 4.9       |                         |      |          |
| FM   | (30°-60°)   | 10888.3 | 44.2      |                         |      |          |
| FH   | (60°-80°)   | 11595.5 | 47.0      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 882.6   | 3.6       |                         |      | G5       |
| BL   | (0°-30°)    | 21.2    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 20.3    | 0.1       | B0/220                  |      |          |
| BH   | (60°-80°)   | 42.1    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 4.0     | 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-G5**

Type IV Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 39°     | 45°     | 55°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 135.2   | 135.2   | 135.2   | 135.2   | 135.2   | 135.2   | 135.2   | 135.2   | 135.2   | 135.2   | 135.2  |
| 2.5°  | 155.2   | 155.2   | 155.2   | 150.2   | 150.2   | 148.5   | 146.9   | 146.9   | 143.5   | 141.9   | 138.5  |
| 5°    | 235.3   | 230.3   | 218.6   | 212.0   | 198.6   | 190.3   | 181.9   | 170.2   | 158.6   | 150.2   | 140.2  |
| 7.5°  | 532.4   | 544.1   | 505.7   | 433.9   | 360.5   | 328.8   | 275.4   | 222.0   | 183.6   | 158.6   | 141.9  |
| 10°   | 1356.9  | 1350.3  | 1220.1  | 1076.5  | 831.2   | 732.7   | 574.1   | 362.2   | 237.0   | 173.6   | 143.5  |
| 12.5° | 2308.3  | 2301.6  | 2148.1  | 1952.8  | 1629.0  | 1423.7  | 1123.3  | 676.0   | 340.5   | 196.9   | 143.5  |
| 15°   | 3107.7  | 3081.0  | 3032.6  | 2839.0  | 2460.2  | 2288.3  | 1891.0  | 1195.0  | 550.8   | 237.0   | 146.9  |
| 17.5° | 3636.8  | 3613.5  | 3568.4  | 3498.3  | 3258.0  | 3054.3  | 2735.6  | 1877.7  | 891.3   | 307.1   | 153.6  |
| 20°   | 4122.5  | 4105.8  | 4069.1  | 4055.8  | 3900.5  | 3792.1  | 3528.3  | 2662.1  | 1388.6  | 417.3   | 163.6  |
| 22.5° | 4790.1  | 4755.1  | 4770.1  | 4690.0  | 4538.1  | 4407.9  | 4246.0  | 3483.3  | 1996.2  | 600.9   | 181.9  |
| 25°   | 5608.0  | 5591.3  | 5549.6  | 5492.8  | 5282.5  | 5169.0  | 4920.3  | 4257.7  | 2675.5  | 841.2   | 202.0  |
| 27.5° | 6596.0  | 6577.7  | 6567.7  | 6437.5  | 6195.5  | 6072.0  | 5724.8  | 4988.8  | 3439.9  | 1178.3  | 228.7  |
| 30°   | 7734.3  | 7742.7  | 7677.6  | 7510.7  | 7228.6  | 7055.0  | 6697.9  | 5754.8  | 4222.7  | 1573.9  | 257.0  |
| 32.5° | 8912.7  | 8896.0  | 8795.8  | 8598.9  | 8346.9  | 8185.0  | 7731.0  | 6594.4  | 5043.8  | 2096.3  | 290.4  |
| 35°   | 10182.8 | 10151.1 | 9887.4  | 9662.1  | 9446.8  | 9243.1  | 8829.2  | 7569.1  | 5865.0  | 2682.1  | 335.5  |
| 37.5° | 11464.6 | 11316.1 | 10787.0 | 10501.6 | 10353.0 | 10186.1 | 9800.6  | 8608.9  | 6681.2  | 3336.4  | 390.6  |
| 40°   | 12432.7 | 12317.5 | 11689.9 | 11164.2 | 11045.7 | 10903.8 | 10616.8 | 9506.8  | 7549.1  | 4039.1  | 457.3  |
| 42.5° | 12968.4 | 12905.0 | 12340.9 | 11821.8 | 11543.1 | 11417.9 | 11172.5 | 10291.3 | 8406.9  | 4815.2  | 554.1  |
| 45°   | 13197.1 | 13098.6 | 12721.4 | 12479.4 | 12035.4 | 11828.5 | 11536.4 | 10883.8 | 9303.2  | 5696.4  | 689.3  |
| 47.5° | 13127.0 | 13070.2 | 12799.9 | 12888.3 | 12566.2 | 12244.1 | 11815.1 | 11337.8 | 10069.3 | 6707.9  | 874.6  |
| 50°   | 12686.4 | 12638.0 | 12554.5 | 13033.5 | 12993.5 | 12612.9 | 12175.6 | 11696.6 | 10695.2 | 7751.0  | 1161.7 |
| 52.5° | 11848.5 | 11828.5 | 12042.1 | 12920.0 | 13235.5 | 12938.4 | 12522.8 | 12013.7 | 11279.4 | 8840.9  | 1572.2 |
| 55°   | 10768.6 | 10850.4 | 11461.3 | 12743.1 | 13359.0 | 13178.7 | 12829.9 | 12310.8 | 11748.4 | 9815.6  | 2178.1 |
| 57.5° | 10324.7 | 10346.4 | 11109.1 | 12617.9 | 13414.1 | 13390.7 | 13128.7 | 12594.6 | 12179.0 | 10595.1 | 3102.7 |
| 60°   | 10843.7 | 10810.4 | 11212.6 | 12713.1 | 13524.2 | 13581.0 | 13394.0 | 12858.3 | 12552.8 | 11264.3 | 4334.5 |
| 62.5° | 11781.7 | 11763.4 | 11891.9 | 13118.6 | 13846.3 | 13961.5 | 13762.9 | 13048.5 | 12883.3 | 11705.0 | 5739.8 |
| 65°   | 12619.6 | 12581.2 | 12819.9 | 13838.0 | 14412.1 | 14493.9 | 14320.3 | 13374.0 | 13028.5 | 12025.4 | 7060.0 |
| 67.5° | 12981.8 | 12973.4 | 13357.3 | 14522.3 | 15006.3 | 15094.8 | 14942.9 | 13823.0 | 12995.1 | 12127.2 | 7642.5 |
| 70°   | 12816.5 | 12784.8 | 13399.0 | 14812.7 | 15341.8 | 15441.9 | 15295.1 | 13989.9 | 12633.0 | 11805.1 | 6779.6 |
| 71°   | 12634.6 | 12549.5 | 13273.9 | 14792.7 | 15388.5 | 15473.7 | 15216.6 | 13838.0 | 12269.1 | 11347.8 | 5996.9 |
| 72.5° | 12070.5 | 12085.5 | 12930.0 | 14584.1 | 15276.7 | 15251.7 | 14772.7 | 13293.9 | 11830.1 | 10309.6 | 4816.8 |
| 75°   | 10681.8 | 10770.3 | 11816.8 | 13707.8 | 14278.6 | 13959.8 | 13227.1 | 12254.1 | 10948.9 | 7392.2  | 3344.8 |
| 77.5° | 8729.1  | 8860.9  | 10010.9 | 12022.1 | 11860.2 | 11828.5 | 11798.4 | 10797.0 | 9350.0  | 3970.6  | 2326.6 |
| 80°   | 4167.6  | 4453.0  | 6038.6  | 8582.2  | 9323.2  | 9682.1  | 9456.8  | 8700.7  | 7230.3  | 1891.0  | 1390.3 |
| 82.5° | 272.1   | 268.7   | 380.5   | 721.0   | 3039.3  | 3928.9  | 6242.2  | 6218.8  | 5040.5  | 921.3   | 567.5  |
| 85°   | 128.5   | 131.9   | 145.2   | 165.2   | 191.9   | 210.3   | 290.4   | 1702.4  | 2411.8  | 439.0   | 123.5  |
| 87.5° | 75.1    | 76.8    | 90.1    | 115.2   | 150.2   | 166.9   | 198.6   | 255.4   | 313.8   | 242.0   | 26.7   |
| 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: P1064290

CATALOG NUMBER: GLAN-SA6B-850-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 135.2  | 135.2 | 135.2 | 135.2 | 135.2 | 135.2 | 135.2 | 135.2 | 135.2 | 135.2 | 135.2 |
| 2.5°  | 136.9  | 135.2 | 130.2 | 125.2 | 120.2 | 116.8 | 115.2 | 116.8 | 116.8 | 118.5 | 118.5 |
| 5°    | 136.9  | 131.9 | 123.5 | 113.5 | 106.8 | 100.1 | 96.8  | 95.1  | 96.8  | 96.8  | 96.8  |
| 7.5°  | 135.2  | 126.8 | 115.2 | 103.5 | 95.1  | 86.8  | 83.5  | 81.8  | 81.8  | 83.5  | 83.5  |
| 10°   | 131.9  | 123.5 | 108.5 | 95.1  | 85.1  | 75.1  | 70.1  | 65.1  | 65.1  | 65.1  | 66.8  |
| 12.5° | 130.2  | 118.5 | 100.1 | 86.8  | 73.4  | 61.8  | 51.7  | 46.7  | 48.4  | 48.4  | 48.4  |
| 15°   | 126.8  | 113.5 | 95.1  | 78.4  | 61.8  | 46.7  | 38.4  | 33.4  | 35.0  | 36.7  | 35.0  |
| 17.5° | 126.8  | 111.8 | 88.5  | 68.4  | 48.4  | 35.0  | 28.4  | 25.0  | 25.0  | 26.7  | 26.7  |
| 20°   | 126.8  | 108.5 | 83.5  | 58.4  | 36.7  | 26.7  | 20.0  | 18.4  | 18.4  | 21.7  | 23.4  |
| 22.5° | 130.2  | 108.5 | 76.8  | 48.4  | 30.0  | 20.0  | 15.0  | 13.4  | 15.0  | 18.4  | 20.0  |
| 25°   | 135.2  | 106.8 | 70.1  | 43.4  | 25.0  | 15.0  | 11.7  | 8.3   | 10.0  | 13.4  | 15.0  |
| 27.5° | 140.2  | 105.1 | 63.4  | 38.4  | 20.0  | 11.7  | 8.3   | 6.7   | 5.0   | 6.7   | 6.7   |
| 30°   | 145.2  | 105.1 | 56.7  | 31.7  | 16.7  | 8.3   | 5.0   | 3.3   | 1.7   | 0.0   | 0.0   |
| 32.5° | 148.5  | 101.8 | 51.7  | 25.0  | 13.4  | 6.7   | 3.3   | 1.7   | 0.0   | 0.0   | 0.0   |
| 35°   | 151.9  | 98.5  | 45.1  | 20.0  | 10.0  | 5.0   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 37.5° | 155.2  | 93.5  | 38.4  | 16.7  | 8.3   | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 158.6  | 86.8  | 31.7  | 15.0  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 161.9  | 81.8  | 26.7  | 11.7  | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 170.2  | 78.4  | 21.7  | 10.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 185.3  | 75.1  | 20.0  | 6.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 207.0  | 71.8  | 18.4  | 5.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 237.0  | 70.1  | 16.7  | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 290.4  | 68.4  | 15.0  | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 382.2  | 66.8  | 15.0  | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 585.8  | 63.4  | 15.0  | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 1046.5 | 61.8  | 13.4  | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1824.3 | 63.4  | 13.4  | 3.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2615.4 | 66.8  | 11.7  | 5.0   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2238.2 | 58.4  | 11.7  | 6.7   | 3.3   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 71°   | 1824.3 | 51.7  | 11.7  | 6.7   | 3.3   | 1.7   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1173.3 | 40.1  | 10.0  | 6.7   | 3.3   | 3.3   | 1.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 495.7  | 33.4  | 10.0  | 6.7   | 5.0   | 3.3   | 3.3   | 1.7   | 0.0   | 0.0   | 0.0   |
| 77.5° | 212.0  | 25.0  | 10.0  | 8.3   | 6.7   | 5.0   | 5.0   | 3.3   | 1.7   | 0.0   | 0.0   |
| 80°   | 80.1   | 20.0  | 11.7  | 10.0  | 8.3   | 8.3   | 6.7   | 3.3   | 1.7   | 0.0   | 0.0   |
| 82.5° | 36.7   | 16.7  | 11.7  | 10.0  | 10.0  | 8.3   | 6.7   | 5.0   | 3.3   | 0.0   | 0.0   |
| 85°   | 23.4   | 15.0  | 11.7  | 10.0  | 10.0  | 8.3   | 8.3   | 5.0   | 3.3   | 0.0   | 0.0   |
| 87.5° | 18.4   | 15.0  | 11.7  | 11.7  | 10.0  | 10.0  | 6.7   | 5.0   | 1.7   | 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: SP1-2407-184-12

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-850-U-5WQ

Data in this report applies to families of products including GSS-SB1A-850-U-5WQ

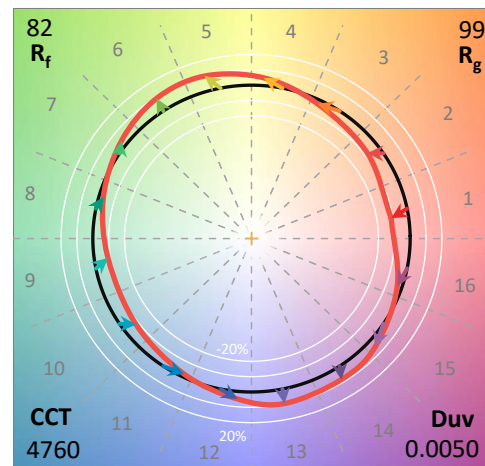
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-12  
 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-850-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 4760  
 CIE  $u'$ : 0.2107  
 CIE  $v'$ : 0.4939  
 Duv: 0.0050  
 CIE x: 0.3537  
 CIE y: 0.3685  
 CIE z: 0.2779  
 Peak Wavelength (nm): 443  
 Dominant Wavelength (nm): 571  
 Purity: 16.69598  
 R<sub>f</sub>: 82  
 R<sub>g</sub>: 99.4

CRI (Ra): 81.1  
 R1: 79.8  
 R2: 83.5  
 R3: 87.9  
 R4: 83.1  
 R5: 80.5  
 R6: 79.1  
 R7: 86.1  
 R8: 69.0  
 R9: 8.7  
 R10: 62.4  
 R11: 83.8  
 R12: 63.0  
 R13: 79.9  
 R14: 93.3  
 R15: 72.7



### Test Conditions

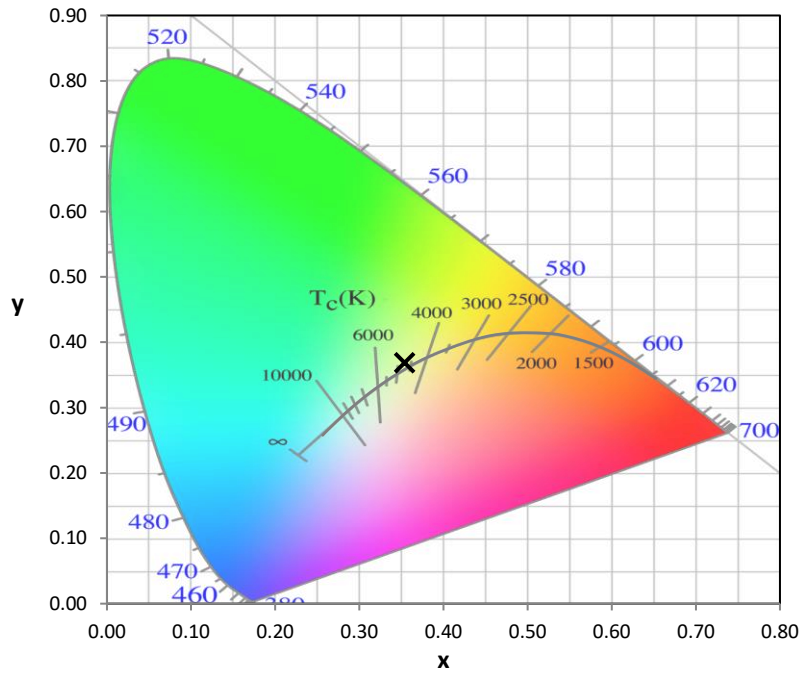
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-12

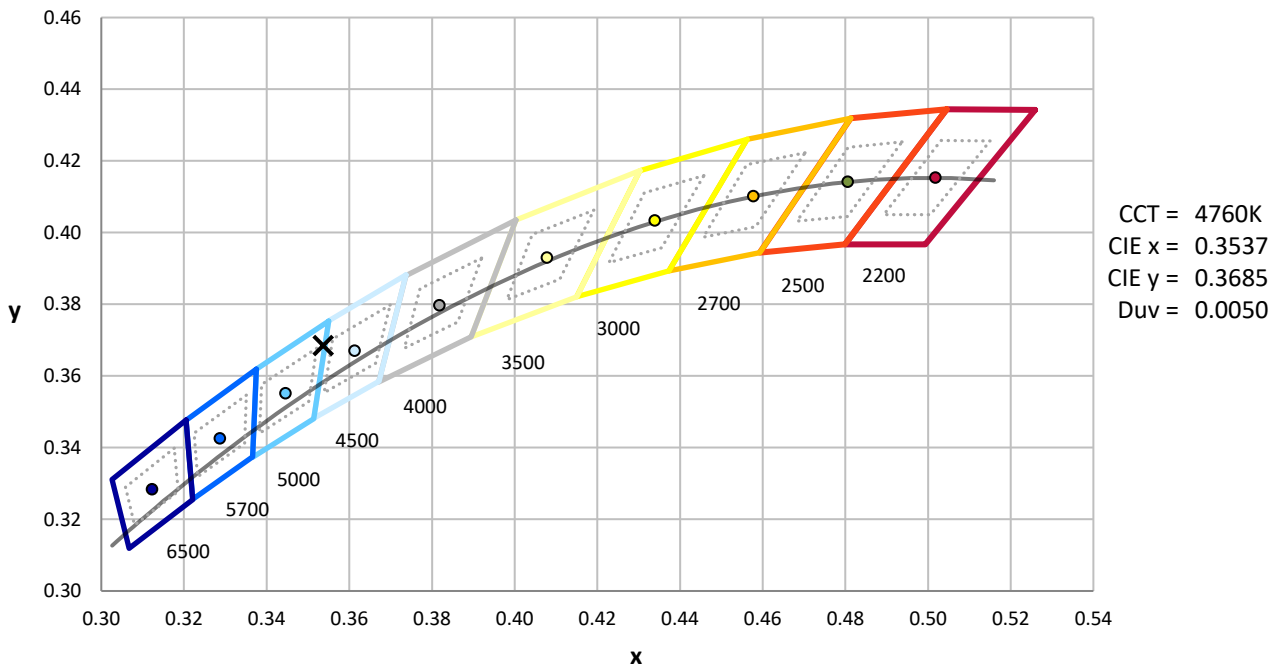
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



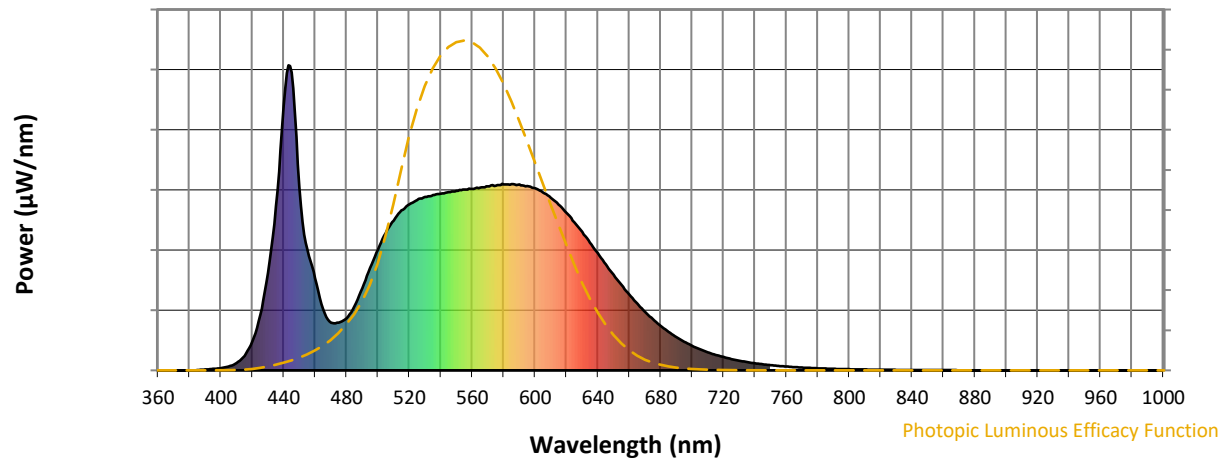
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 7-step quadrangle

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### Photopic Flux vs. Wavelength

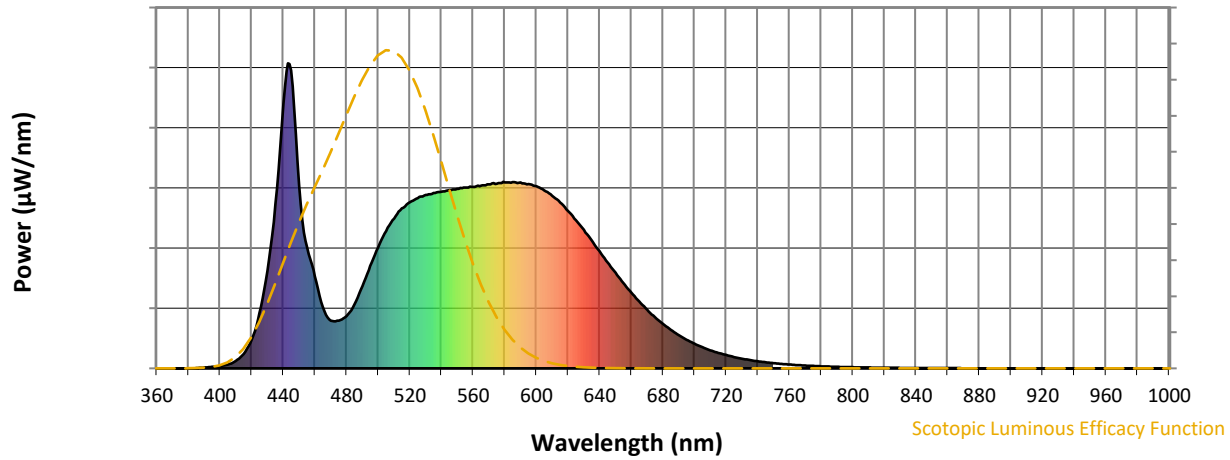


### Photopic Lumens: NR

| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 270                      | NR            | 620    | 517                      | NR            | 750    | 17                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 335                      | NR            | 625    | 486                      | NR            | 755    | 15                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 397                      | NR            | 630    | 454                      | NR            | 760    | 12                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 451                      | NR            | 635    | 419                      | NR            | 765    | 11                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 492                      | NR            | 640    | 384                      | NR            | 770    | 9                        | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 524                      | NR            | 645    | 347                      | NR            | 775    | 8                        | NR            | 905    | 0                        | NR            |
| 390    | 3                        | NR            | 520    | 545                      | NR            | 650    | 313                      | NR            | 780    | 7                        | NR            | 910    | 0                        | NR            |
| 395    | 5                        | NR            | 525    | 558                      | NR            | 655    | 280                      | NR            | 785    | 6                        | NR            | 915    | 0                        | NR            |
| 400    | 7                        | NR            | 530    | 568                      | NR            | 660    | 248                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 13                       | NR            | 535    | 575                      | NR            | 665    | 219                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 24                       | NR            | 540    | 579                      | NR            | 670    | 192                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 47                       | NR            | 545    | 585                      | NR            | 675    | 167                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 95                       | NR            | 550    | 588                      | NR            | 680    | 146                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 181                      | NR            | 555    | 593                      | NR            | 685    | 126                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 319                      | NR            | 560    | 595                      | NR            | 690    | 109                      | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 539                      | NR            | 565    | 600                      | NR            | 695    | 94                       | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 868                      | NR            | 570    | 603                      | NR            | 700    | 80                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 977                      | NR            | 575    | 606                      | NR            | 705    | 69                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 601                      | NR            | 580    | 609                      | NR            | 710    | 59                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 397                      | NR            | 585    | 611                      | NR            | 715    | 51                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 302                      | NR            | 590    | 610                      | NR            | 720    | 44                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 201                      | NR            | 595    | 604                      | NR            | 725    | 37                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 157                      | NR            | 600    | 596                      | NR            | 730    | 32                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 157                      | NR            | 605    | 583                      | NR            | 735    | 27                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 171                      | NR            | 610    | 566                      | NR            | 740    | 23                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 210                      | NR            | 615    | 543                      | NR            | 745    | 20                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



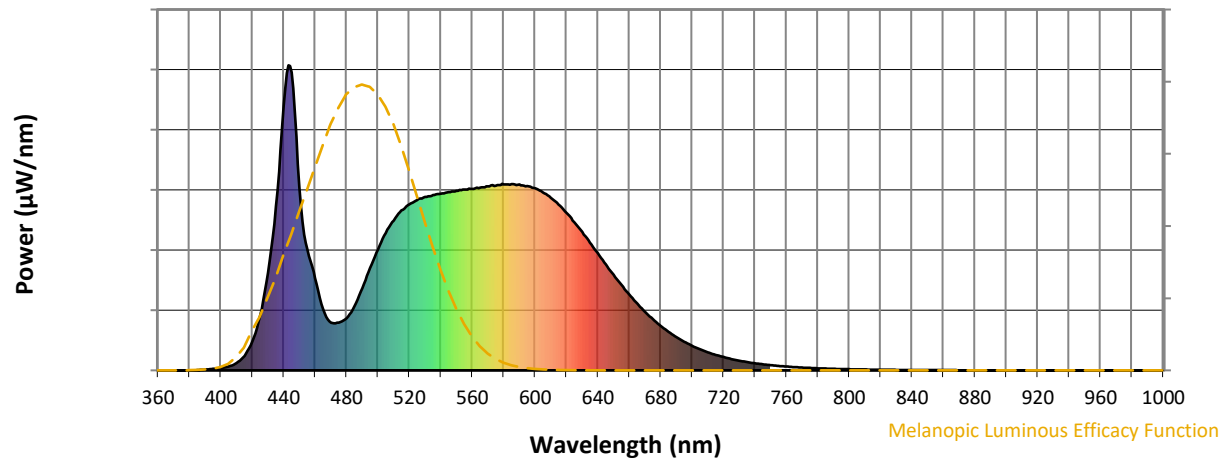
Scotopic Lumens: NR

S/P: 1.83

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 270                         | NR               | 620       | 517                         | NR               | 750       | 17                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 335                         | NR               | 625       | 486                         | NR               | 755       | 15                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 397                         | NR               | 630       | 454                         | NR               | 760       | 12                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 451                         | NR               | 635       | 419                         | NR               | 765       | 11                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 492                         | NR               | 640       | 384                         | NR               | 770       | 9                           | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 524                         | NR               | 645       | 347                         | NR               | 775       | 8                           | NR               | 905       | 0                           | NR               |
| 390       | 3                           | NR               | 520       | 545                         | NR               | 650       | 313                         | NR               | 780       | 7                           | NR               | 910       | 0                           | NR               |
| 395       | 5                           | NR               | 525       | 558                         | NR               | 655       | 280                         | NR               | 785       | 6                           | NR               | 915       | 0                           | NR               |
| 400       | 7                           | NR               | 530       | 568                         | NR               | 660       | 248                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 13                          | NR               | 535       | 575                         | NR               | 665       | 219                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 24                          | NR               | 540       | 579                         | NR               | 670       | 192                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 47                          | NR               | 545       | 585                         | NR               | 675       | 167                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 95                          | NR               | 550       | 588                         | NR               | 680       | 146                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 181                         | NR               | 555       | 593                         | NR               | 685       | 126                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 319                         | NR               | 560       | 595                         | NR               | 690       | 109                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 539                         | NR               | 565       | 600                         | NR               | 695       | 94                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 868                         | NR               | 570       | 603                         | NR               | 700       | 80                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 977                         | NR               | 575       | 606                         | NR               | 705       | 69                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 601                         | NR               | 580       | 609                         | NR               | 710       | 59                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 397                         | NR               | 585       | 611                         | NR               | 715       | 51                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 302                         | NR               | 590       | 610                         | NR               | 720       | 44                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 201                         | NR               | 595       | 604                         | NR               | 725       | 37                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 157                         | NR               | 600       | 596                         | NR               | 730       | 32                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 157                         | NR               | 605       | 583                         | NR               | 735       | 27                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 171                         | NR               | 610       | 566                         | NR               | 740       | 23                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 210                         | NR               | 615       | 543                         | NR               | 745       | 20                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.74

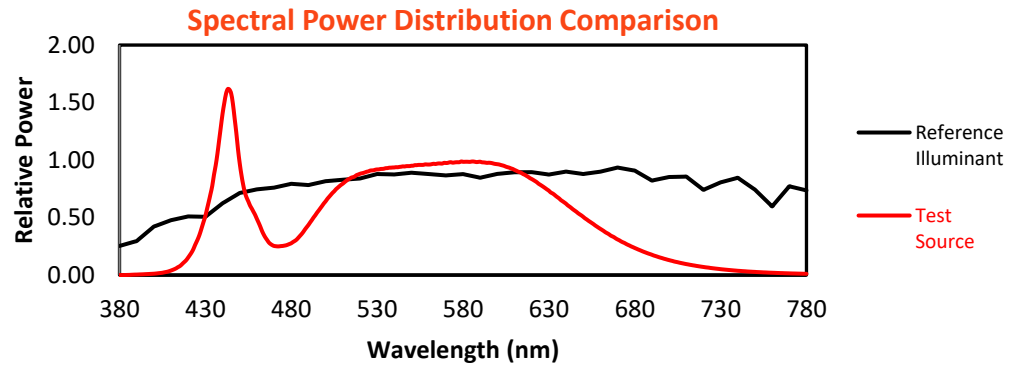
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 270                                  | NR                             | 620               | 517                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 335                                  | NR                             | 625               | 486                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 397                                  | NR                             | 630               | 454                                  | NR                             | 760               | 12                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 451                                  | NR                             | 635               | 419                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 492                                  | NR                             | 640               | 384                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 1                                    | NR                             | 515               | 524                                  | NR                             | 645               | 347                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 3                                    | NR                             | 520               | 545                                  | NR                             | 650               | 313                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 5                                    | NR                             | 525               | 558                                  | NR                             | 655               | 280                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 7                                    | NR                             | 530               | 568                                  | NR                             | 660               | 248                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 13                                   | NR                             | 535               | 575                                  | NR                             | 665               | 219                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 24                                   | NR                             | 540               | 579                                  | NR                             | 670               | 192                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 47                                   | NR                             | 545               | 585                                  | NR                             | 675               | 167                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 95                                   | NR                             | 550               | 588                                  | NR                             | 680               | 146                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 181                                  | NR                             | 555               | 593                                  | NR                             | 685               | 126                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 319                                  | NR                             | 560               | 595                                  | NR                             | 690               | 109                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 539                                  | NR                             | 565               | 600                                  | NR                             | 695               | 94                                   | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 868                                  | NR                             | 570               | 603                                  | NR                             | 700               | 80                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 977                                  | NR                             | 575               | 606                                  | NR                             | 705               | 69                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 601                                  | NR                             | 580               | 609                                  | NR                             | 710               | 59                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 397                                  | NR                             | 585               | 611                                  | NR                             | 715               | 51                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 302                                  | NR                             | 590               | 610                                  | NR                             | 720               | 44                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 201                                  | NR                             | 595               | 604                                  | NR                             | 725               | 37                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 157                                  | NR                             | 600               | 596                                  | NR                             | 730               | 32                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 157                                  | NR                             | 605               | 583                                  | NR                             | 735               | 27                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 171                                  | NR                             | 610               | 566                                  | NR                             | 740               | 23                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 210                                  | NR                             | 615               | 543                                  | NR                             | 745               | 20                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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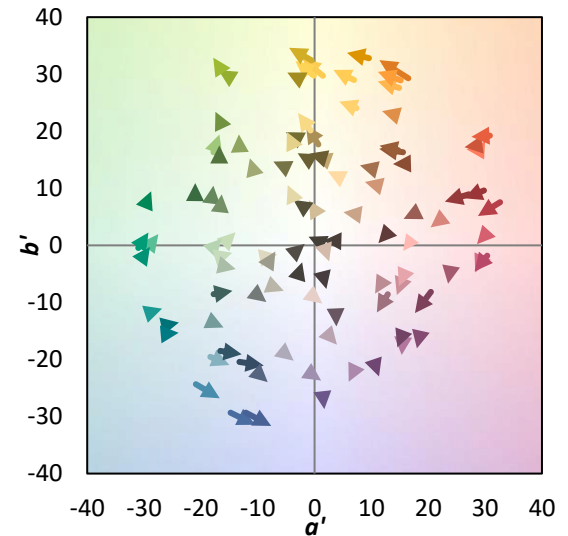
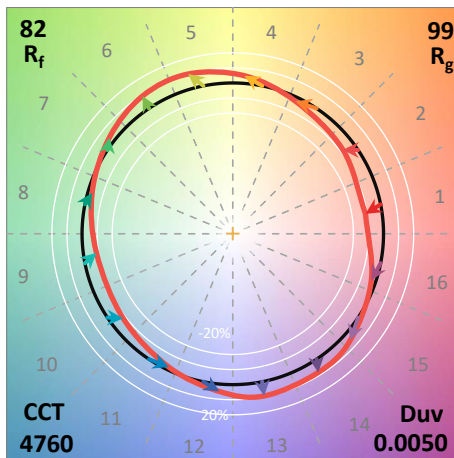
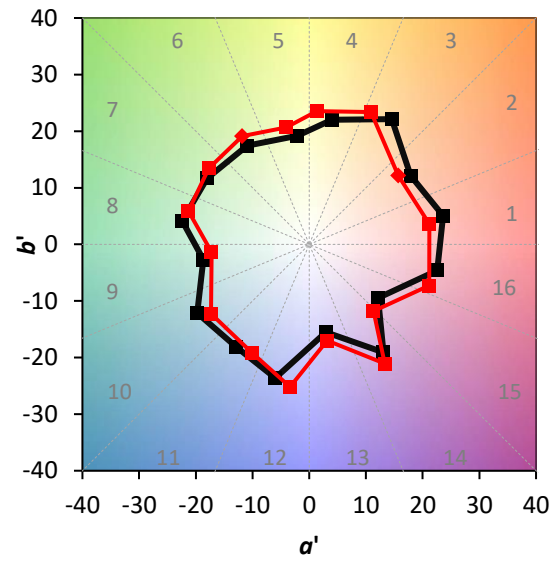
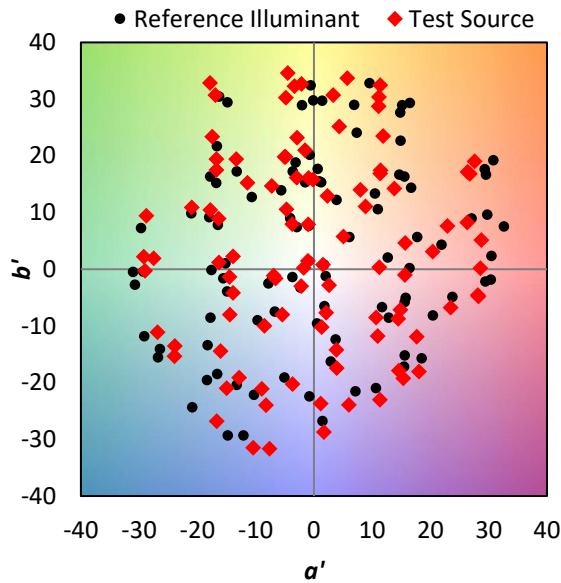
TM-30-18

### Summary

$R_f = 82$   
 $R_g = 99.4$   
 $CIE R_a = 81.1$   
 $R_9 = 8.7$



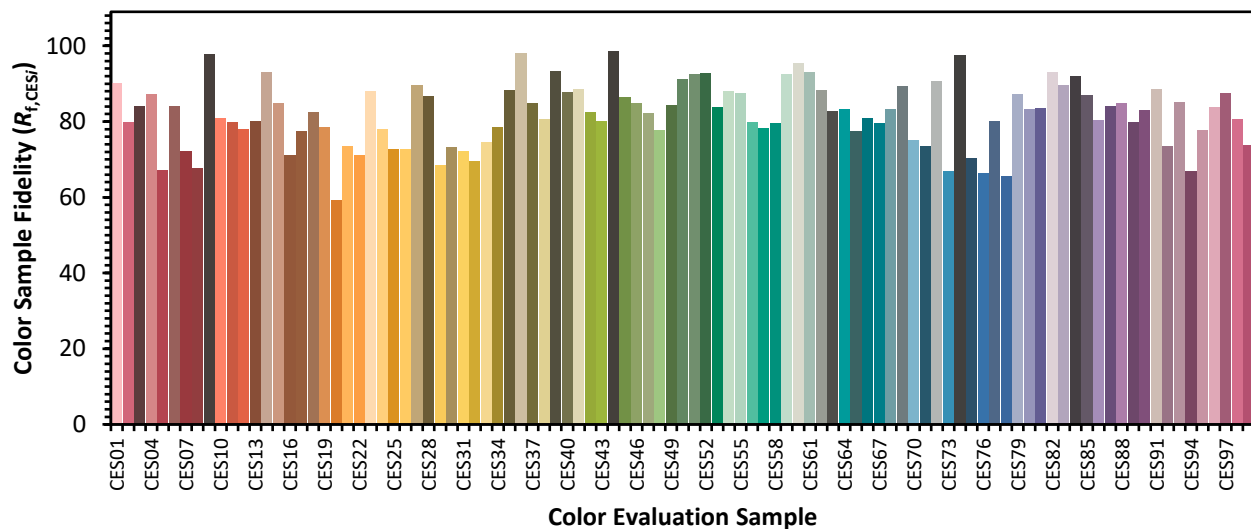
### Color Vector Graphics



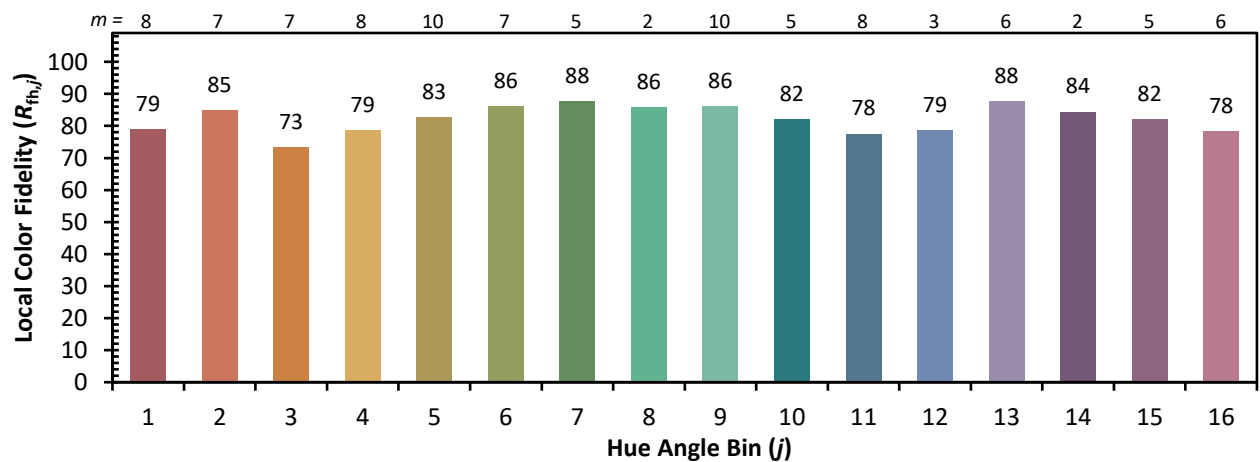
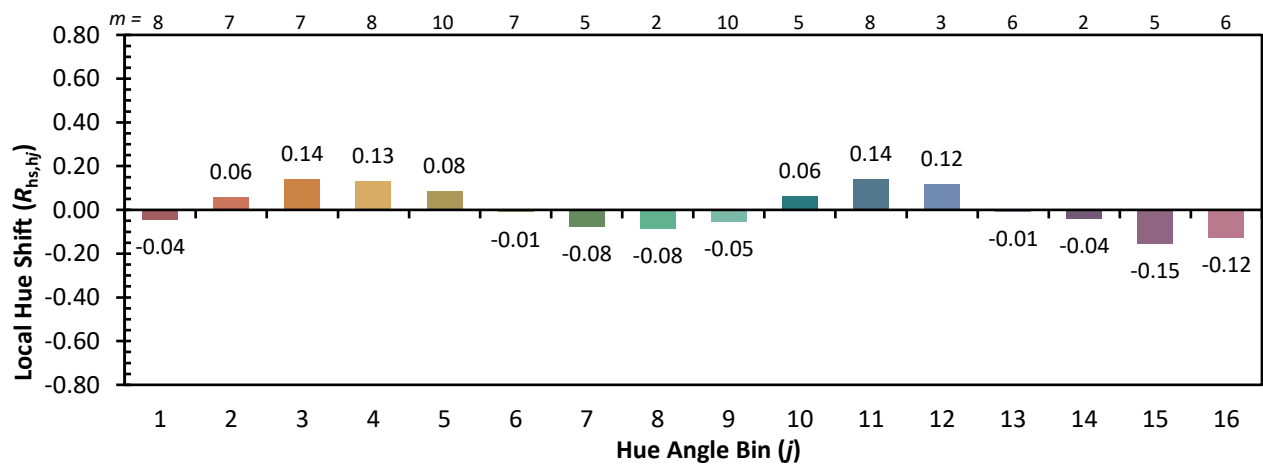
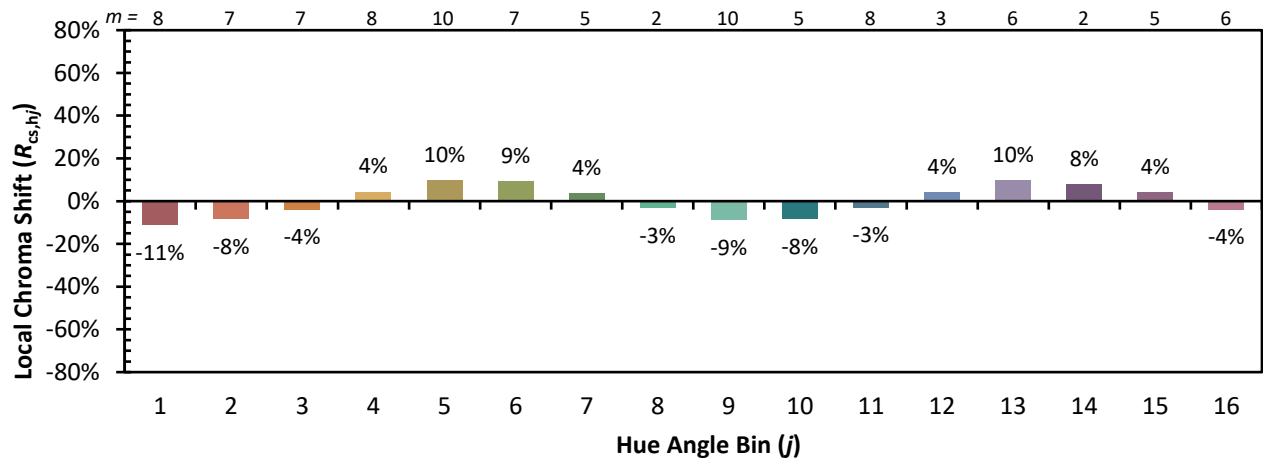


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

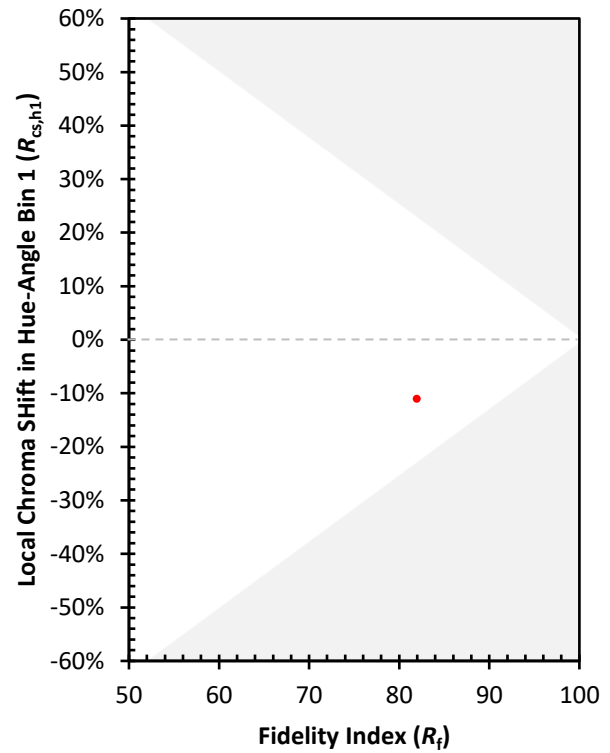
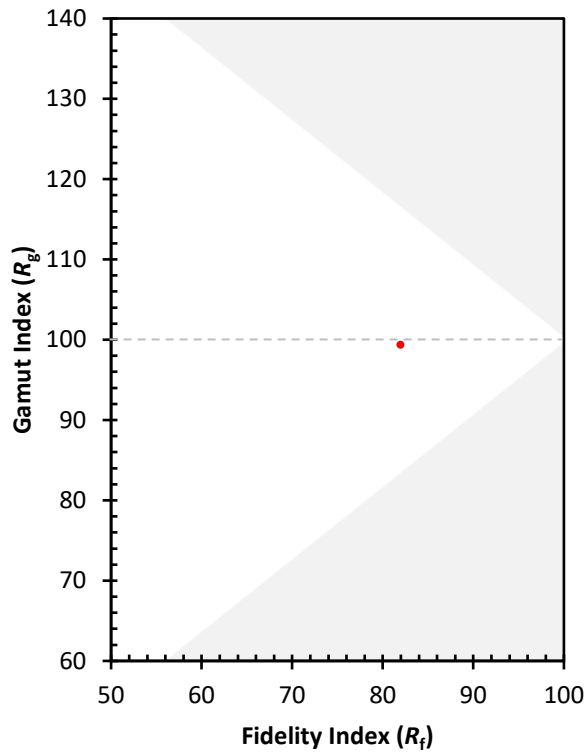
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 73 | CES51 = 92 | CES76 = 66 |
| CES02 = 60 | CES27 = 90 | CES52 = 93 | CES77 = 80 |
| CES03 = 30 | CES28 = 87 | CES53 = 84 | CES78 = 65 |
| CES04 = 69 | CES29 = 69 | CES54 = 88 | CES79 = 87 |
| CES05 = 47 | CES30 = 73 | CES55 = 88 | CES80 = 83 |
| CES06 = 50 | CES31 = 72 | CES56 = 80 | CES81 = 84 |
| CES07 = 40 | CES32 = 69 | CES57 = 78 | CES82 = 93 |
| CES08 = 39 | CES33 = 75 | CES58 = 80 | CES83 = 90 |
| CES09 = 29 | CES34 = 78 | CES59 = 93 | CES84 = 92 |
| CES10 = 73 | CES35 = 88 | CES60 = 95 | CES85 = 87 |
| CES11 = 56 | CES36 = 98 | CES61 = 93 | CES86 = 80 |
| CES12 = 62 | CES37 = 85 | CES62 = 88 | CES87 = 84 |
| CES13 = 42 | CES38 = 81 | CES63 = 83 | CES88 = 85 |
| CES14 = 74 | CES39 = 93 | CES64 = 83 | CES89 = 80 |
| CES15 = 71 | CES40 = 88 | CES65 = 77 | CES90 = 83 |
| CES16 = 46 | CES41 = 89 | CES66 = 81 | CES91 = 89 |
| CES17 = 48 | CES42 = 82 | CES67 = 80 | CES92 = 73 |
| CES18 = 55 | CES43 = 80 | CES68 = 83 | CES93 = 85 |
| CES19 = 70 | CES44 = 99 | CES69 = 89 | CES94 = 67 |
| CES20 = 64 | CES45 = 87 | CES70 = 75 | CES95 = 78 |
| CES21 = 85 | CES46 = 85 | CES71 = 73 | CES96 = 84 |
| CES22 = 77 | CES47 = 82 | CES72 = 91 | CES97 = 87 |
| CES23 = 91 | CES48 = 78 | CES73 = 67 | CES98 = 81 |
| CES24 = 90 | CES49 = 84 | CES74 = 98 | CES99 = 74 |
| CES25 = 71 | CES50 = 91 | CES75 = 70 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)