

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: P1062978

Luminaire Tested: **GLAN-SA2B-835-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1062978  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA2B-835-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 2xLight Square PACKAGE  
80CRI 3500K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (28) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8627.6 lumens  
Efficiency: N/A  
Efficacy: 118.5 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 72.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

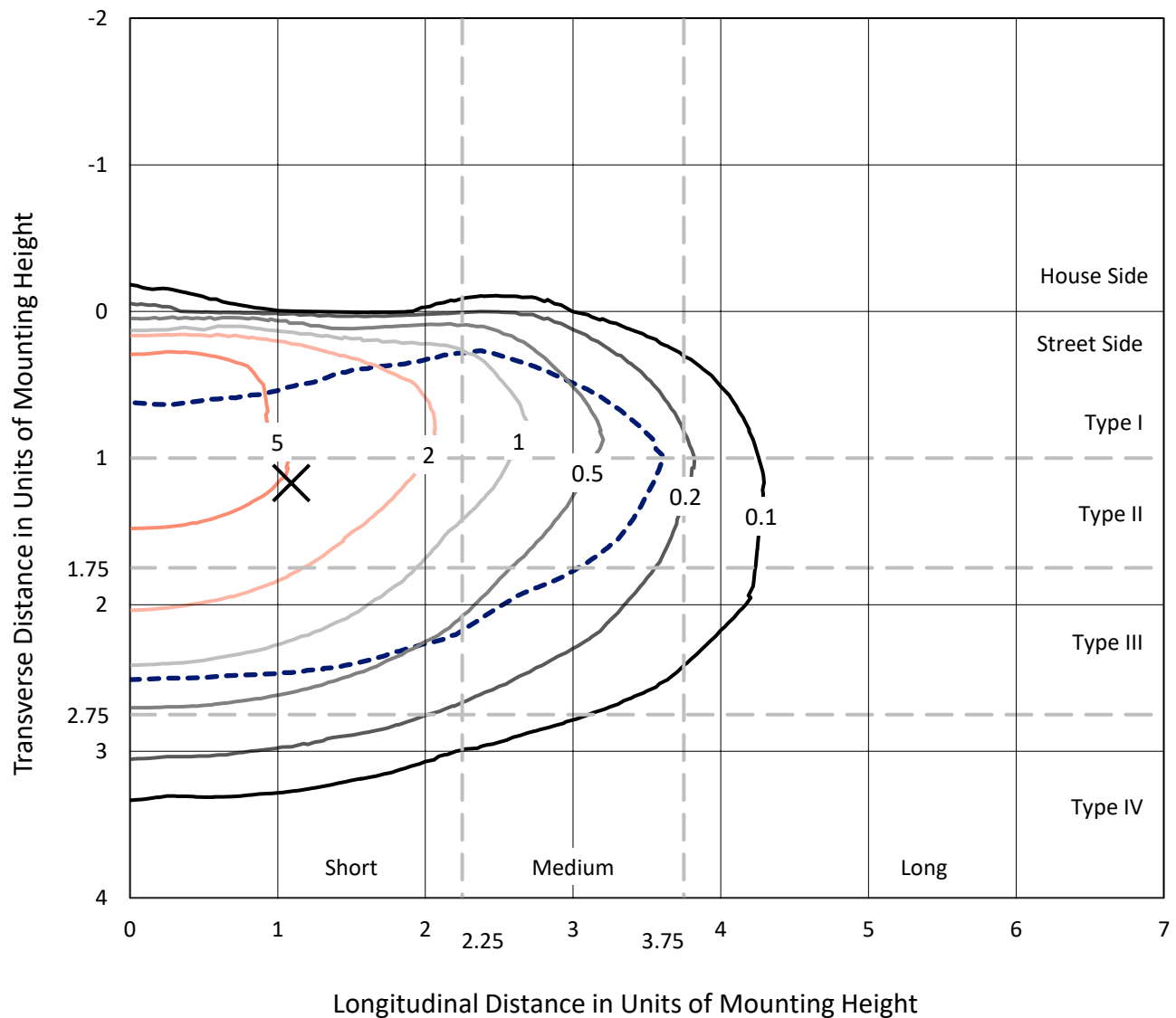


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

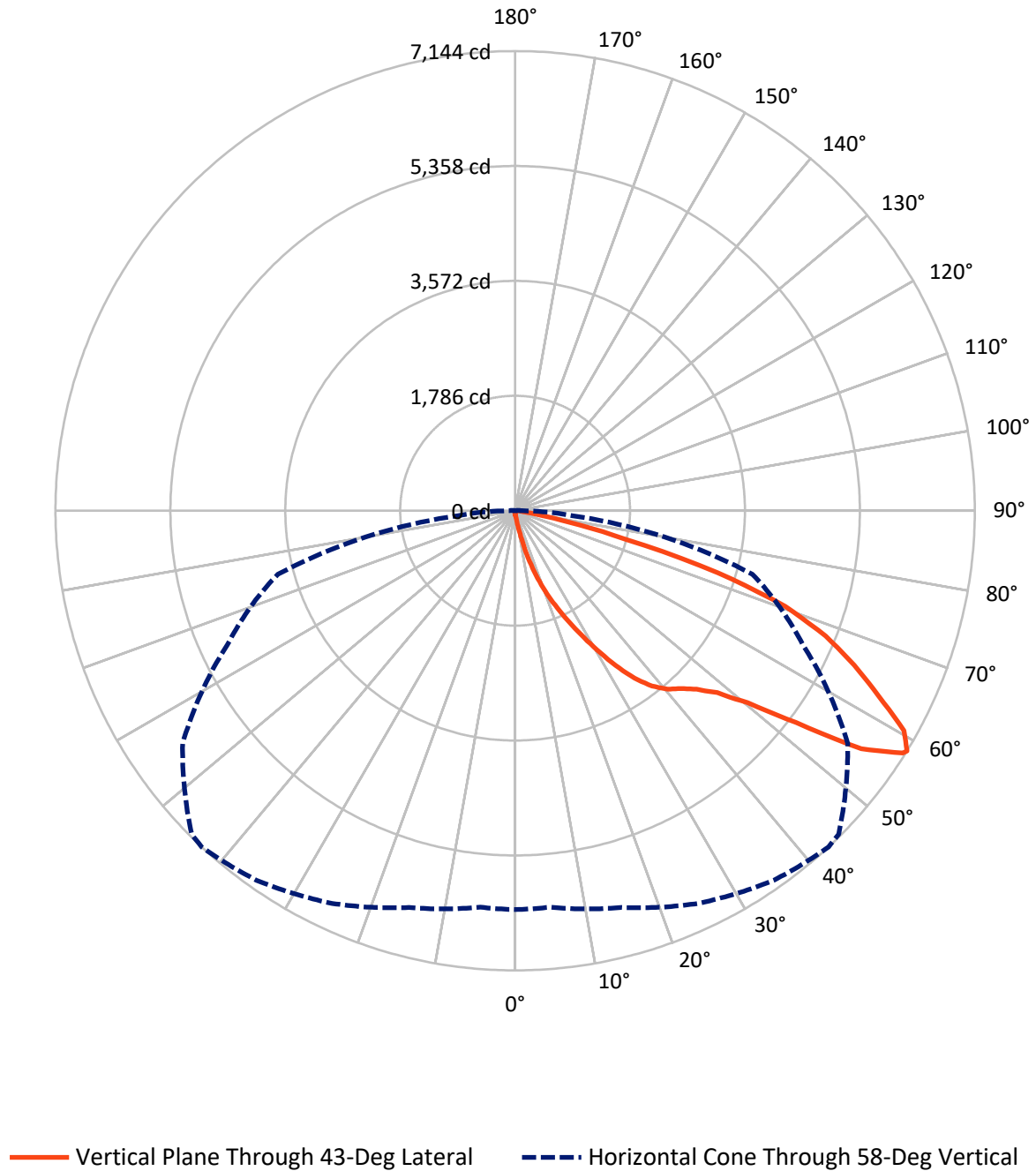


Based on 15 foot mounting height. Maximum calculated value = 9.7 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 31.5     | 0.0    | 31.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 8596.1   | 0.0    | 8596.1 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 8627.6   | 0.0    | 8627.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 8.3    | 0.1       |
| 10°-20°   | 99.2   | 1.1       |
| 20°-30°   | 357.5  | 4.1       |
| 30°-40°   | 817.8  | 9.5       |
| 40°-50°   | 1379.4 | 16.0      |
| 50°-60°   | 2276.3 | 26.4      |
| 60°-70°   | 2544.1 | 29.5      |
| 70°-80°   | 1050.4 | 12.2      |
| 80°-90°   | 94.7   | 1.1       |
| 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°    | 8627.6 | 100.0     |
| 0°-180°   | 8627.6 | 100.0     |



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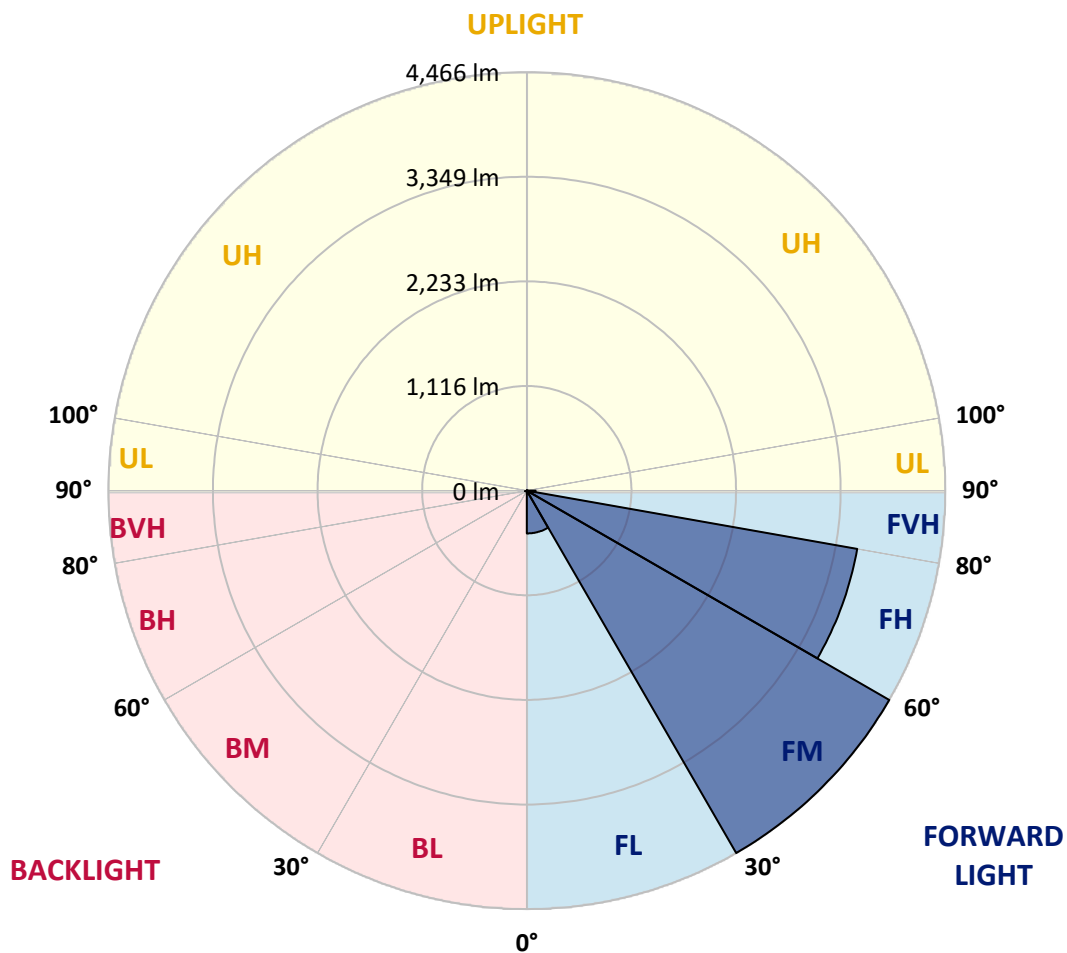
CATALOG NUMBER: GLAN-SA2B-835-U-T3BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 456.7  | 5.3       |                         |      |         |
| FM   | (30°-60°)   | 4466.0 | 51.8      |                         |      |         |
| FH   | (60°-80°)   | 3580.0 | 41.5      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 93.4   | 1.1       |                         |      | G1/100  |
| BL   | (0°-30°)    | 8.2    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 7.6    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 14.4   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.3    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

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

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 43°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 56.4   | 56.4   | 56.4   | 56.4   | 56.4   | 56.4   | 56.4   | 56.4   | 56.4   | 56.4   | 56.4   |
| 2.5°  | 67.7   | 70.0   | 67.7   | 67.7   | 67.7   | 65.4   | 65.4   | 63.2   | 63.2   | 60.9   | 58.7   |
| 5°    | 99.3   | 99.3   | 92.5   | 88.0   | 83.5   | 81.2   | 79.0   | 74.5   | 70.0   | 65.4   | 60.9   |
| 7.5°  | 221.1  | 221.1  | 200.8  | 173.7  | 137.6  | 117.3  | 112.8  | 92.5   | 79.0   | 70.0   | 60.9   |
| 10°   | 528.0  | 528.0  | 482.9  | 408.4  | 315.9  | 234.7  | 209.9  | 133.1  | 94.8   | 74.5   | 63.2   |
| 12.5° | 877.8  | 889.0  | 832.6  | 737.9  | 600.2  | 458.1  | 408.4  | 243.7  | 126.4  | 81.2   | 63.2   |
| 15°   | 1191.4 | 1164.3 | 1148.5 | 1058.3 | 927.4  | 758.2  | 695.0  | 410.7  | 182.8  | 92.5   | 63.2   |
| 17.5° | 1403.5 | 1403.5 | 1381.0 | 1320.0 | 1200.4 | 1051.5 | 999.6  | 663.4  | 295.6  | 106.1  | 65.4   |
| 20°   | 1651.7 | 1651.7 | 1611.1 | 1568.2 | 1462.2 | 1335.8 | 1286.2 | 943.2  | 458.1  | 135.4  | 65.4   |
| 22.5° | 1951.8 | 1956.4 | 1911.2 | 1834.5 | 1733.0 | 1593.1 | 1550.2 | 1202.7 | 663.4  | 180.5  | 67.7   |
| 25°   | 2317.4 | 2321.9 | 2256.5 | 2184.3 | 2028.6 | 1877.4 | 1811.9 | 1500.5 | 913.9  | 252.7  | 67.7   |
| 27.5° | 2721.3 | 2752.9 | 2655.9 | 2531.7 | 2367.0 | 2177.5 | 2127.8 | 1769.1 | 1162.1 | 356.5  | 72.2   |
| 30°   | 3224.5 | 3224.5 | 3095.9 | 2922.1 | 2743.9 | 2509.2 | 2446.0 | 2051.1 | 1426.1 | 494.2  | 76.7   |
| 32.5° | 3657.7 | 3623.9 | 3459.2 | 3276.4 | 3086.8 | 2868.0 | 2800.3 | 2346.7 | 1696.9 | 665.7  | 85.7   |
| 35°   | 3989.4 | 3960.1 | 3757.0 | 3560.7 | 3396.0 | 3195.1 | 3113.9 | 2667.1 | 1983.4 | 859.7  | 99.3   |
| 37.5° | 4273.7 | 4262.5 | 3987.2 | 3741.2 | 3632.9 | 3456.9 | 3384.7 | 2969.5 | 2265.5 | 1069.6 | 115.1  |
| 40°   | 4585.1 | 4549.0 | 4255.7 | 3951.1 | 3788.6 | 3646.4 | 3581.0 | 3213.2 | 2536.3 | 1315.5 | 137.6  |
| 42.5° | 4851.4 | 4808.5 | 4544.5 | 4246.7 | 3969.1 | 3777.3 | 3714.1 | 3418.5 | 2800.3 | 1561.5 | 167.0  |
| 45°   | 5147.0 | 5124.4 | 4858.2 | 4632.5 | 4262.5 | 3955.6 | 3872.1 | 3583.3 | 3041.7 | 1854.8 | 205.3  |
| 47.5° | 5591.5 | 5550.9 | 5302.7 | 5117.7 | 4688.9 | 4226.4 | 4106.8 | 3752.5 | 3274.1 | 2143.6 | 264.0  |
| 50°   | 6108.2 | 6081.2 | 5934.5 | 5787.8 | 5361.4 | 4688.9 | 4546.8 | 3996.2 | 3533.6 | 2486.6 | 340.7  |
| 52.5° | 6530.2 | 6525.7 | 6543.7 | 6546.0 | 6223.3 | 5467.4 | 5255.3 | 4388.8 | 3831.5 | 2825.1 | 449.0  |
| 55°   | 6521.2 | 6541.5 | 6740.1 | 6968.0 | 6992.8 | 6530.2 | 6324.9 | 5050.0 | 4219.6 | 3242.5 | 600.2  |
| 57.5° | 6277.5 | 6261.7 | 6471.5 | 6814.5 | 7056.0 | 7105.6 | 7071.8 | 6076.7 | 4804.0 | 3745.7 | 832.6  |
| 58°   | 6198.5 | 6185.0 | 6383.5 | 6733.3 | 7010.8 | 7144.0 | 7110.1 | 6309.1 | 4934.9 | 3817.9 | 895.8  |
| 60°   | 5911.9 | 5914.2 | 6031.5 | 6349.7 | 6627.2 | 6943.1 | 6974.7 | 6972.5 | 5587.0 | 4300.8 | 1214.0 |
| 62.5° | 5532.8 | 5514.8 | 5623.1 | 5882.6 | 6126.3 | 6338.4 | 6392.6 | 7017.6 | 6541.5 | 4914.6 | 1821.0 |
| 65°   | 5009.3 | 4982.3 | 5097.3 | 5390.7 | 5652.4 | 5790.1 | 5792.3 | 6412.9 | 6990.5 | 5573.5 | 2687.4 |
| 67.5° | 4036.8 | 4014.2 | 4244.4 | 4621.2 | 5025.1 | 5205.7 | 5286.9 | 5564.4 | 6611.4 | 6020.2 | 3183.9 |
| 70°   | 2473.1 | 2520.5 | 2840.9 | 3432.1 | 4122.6 | 4454.3 | 4576.1 | 4661.8 | 5629.9 | 5952.5 | 2662.6 |
| 72.5° | 1141.8 | 1085.4 | 1358.4 | 1771.3 | 2558.8 | 3296.7 | 3423.1 | 3759.3 | 4463.3 | 5167.3 | 1985.7 |
| 75°   | 532.5  | 512.2  | 575.4  | 774.0  | 1159.8 | 1780.3 | 2010.5 | 3001.1 | 3423.1 | 3594.5 | 1432.9 |
| 77.5° | 273.0  | 275.3  | 327.2  | 352.0  | 478.4  | 823.6  | 945.5  | 1974.4 | 2509.2 | 2006.0 | 961.3  |
| 80°   | 119.6  | 124.1  | 126.4  | 137.6  | 194.1  | 318.2  | 358.8  | 916.1  | 1714.9 | 1022.2 | 525.8  |
| 82.5° | 76.7   | 79.0   | 79.0   | 79.0   | 92.5   | 126.4  | 144.4  | 367.8  | 855.2  | 507.7  | 162.5  |
| 85°   | 40.6   | 40.6   | 45.1   | 56.4   | 65.4   | 76.7   | 81.2   | 117.3  | 282.1  | 151.2  | 38.4   |
| 87.5° | 22.6   | 24.8   | 27.1   | 33.8   | 42.9   | 51.9   | 56.4   | 81.2   | 108.3  | 103.8  | 9.0    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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CATALOG NUMBER: GLAN-SA2B-835-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 56.4  | 56.4 | 56.4 | 56.4 | 56.4 | 56.4 | 56.4 | 56.4 | 56.4 | 56.4 | 56.4 |
| 2.5°  | 58.7  | 56.4 | 54.2 | 51.9 | 49.6 | 47.4 | 47.4 | 47.4 | 47.4 | 47.4 | 47.4 |
| 5°    | 56.4  | 54.2 | 51.9 | 47.4 | 42.9 | 40.6 | 38.4 | 36.1 | 36.1 | 36.1 | 36.1 |
| 7.5°  | 56.4  | 54.2 | 47.4 | 42.9 | 38.4 | 33.8 | 29.3 | 29.3 | 29.3 | 29.3 | 29.3 |
| 10°   | 56.4  | 51.9 | 45.1 | 38.4 | 31.6 | 27.1 | 24.8 | 22.6 | 22.6 | 22.6 | 22.6 |
| 12.5° | 56.4  | 49.6 | 42.9 | 33.8 | 27.1 | 22.6 | 20.3 | 18.1 | 18.1 | 18.1 | 18.1 |
| 15°   | 56.4  | 49.6 | 40.6 | 31.6 | 24.8 | 18.1 | 15.8 | 13.5 | 13.5 | 13.5 | 13.5 |
| 17.5° | 54.2  | 47.4 | 38.4 | 27.1 | 20.3 | 13.5 | 11.3 | 9.0  | 9.0  | 11.3 | 11.3 |
| 20°   | 51.9  | 45.1 | 33.8 | 22.6 | 15.8 | 11.3 | 6.8  | 6.8  | 6.8  | 6.8  | 6.8  |
| 22.5° | 51.9  | 45.1 | 31.6 | 20.3 | 13.5 | 6.8  | 4.5  | 4.5  | 4.5  | 4.5  | 6.8  |
| 25°   | 51.9  | 42.9 | 27.1 | 15.8 | 9.0  | 4.5  | 2.3  | 2.3  | 2.3  | 2.3  | 2.3  |
| 27.5° | 51.9  | 42.9 | 24.8 | 13.5 | 6.8  | 4.5  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 30°   | 49.6  | 40.6 | 22.6 | 11.3 | 4.5  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 32.5° | 49.6  | 38.4 | 18.1 | 9.0  | 4.5  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 35°   | 51.9  | 36.1 | 15.8 | 6.8  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 2.3  |
| 37.5° | 54.2  | 33.8 | 13.5 | 4.5  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 56.4  | 31.6 | 13.5 | 4.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 60.9  | 31.6 | 11.3 | 4.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 65.4  | 31.6 | 9.0  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 74.5  | 33.8 | 9.0  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 81.2  | 36.1 | 6.8  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 90.3  | 33.8 | 6.8  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 101.5 | 33.8 | 6.8  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 110.6 | 31.6 | 6.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 58°   | 115.1 | 29.3 | 4.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 137.6 | 27.1 | 4.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 214.4 | 22.6 | 4.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 435.5 | 20.3 | 4.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 812.3 | 18.1 | 4.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 909.4 | 20.3 | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 573.1 | 15.8 | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 302.4 | 15.8 | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 151.2 | 15.8 | 2.3  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 70.0  | 11.3 | 2.3  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 29.3  | 6.8  | 4.5  | 2.3  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 13.5  | 6.8  | 4.5  | 4.5  | 2.3  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 6.8   | 6.8  | 6.8  | 4.5  | 4.5  | 2.3  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 90°   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-10

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-835-U-5WQ

Data in this report applies to families of products including GSS-SB1A-835-U-5WQ

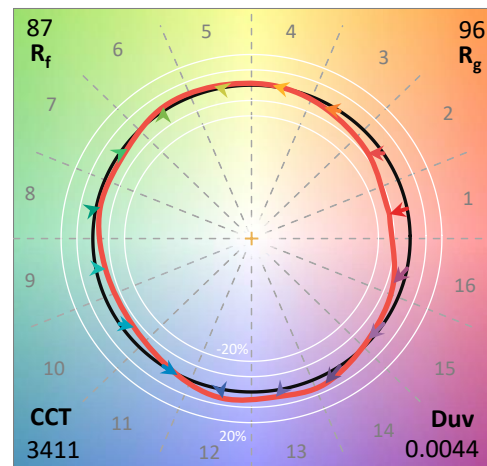
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-10  
 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-835-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI 3500K CCT 26 LEDS

### Spectral Parameters

CCT (K): 3411  
 CIE  $u'$ : 0.2360  
 CIE  $v'$ : 0.5189  
 Duv: 0.0044  
 CIE x: 0.4154  
 CIE y: 0.4059  
 CIE z: 0.1787  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 579  
 Purity: 46.51914  
 R<sub>f</sub>: 86.6  
 R<sub>g</sub>: 95.9

CRI (Ra): 83.5  
 R1: 81.1  
 R2: 88.9  
 R3: 97.2  
 R4: 83.8  
 R5: 81.7  
 R6: 86.9  
 R7: 86.1  
 R8: 62.2  
 R9: 6.3  
 R10: 75.4  
 R11: 84.1  
 R12: 69.7  
 R13: 82.8  
 R14: 98.5  
 R15: 72.6



### Test Conditions

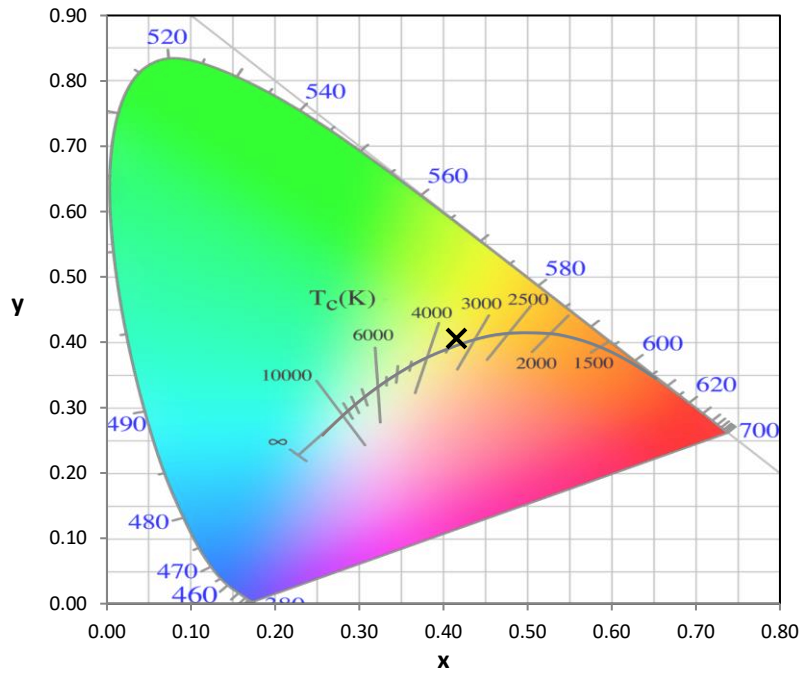
Stabilization Time: 35M  
 Operation Time: 1H 35M  
 Sphere Temperature (°C): 25.2

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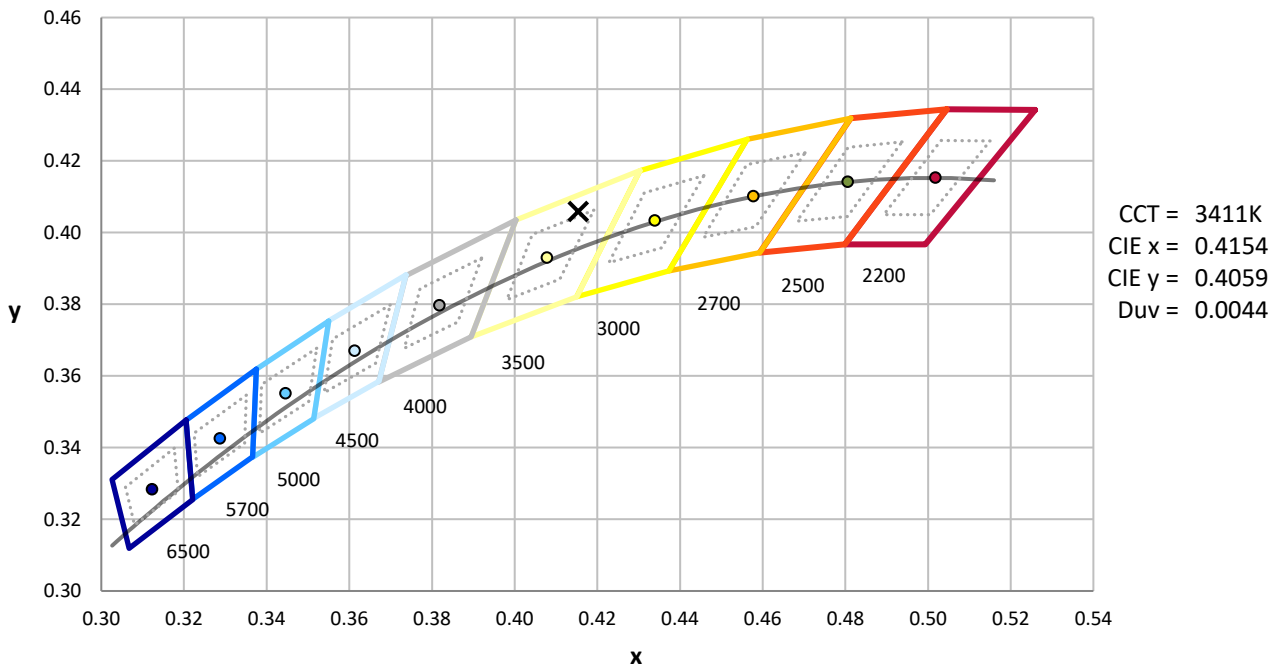
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

REPORT NUMBER: SP1-2407-184-10

**CIE 1931 Chromaticity Diagram**



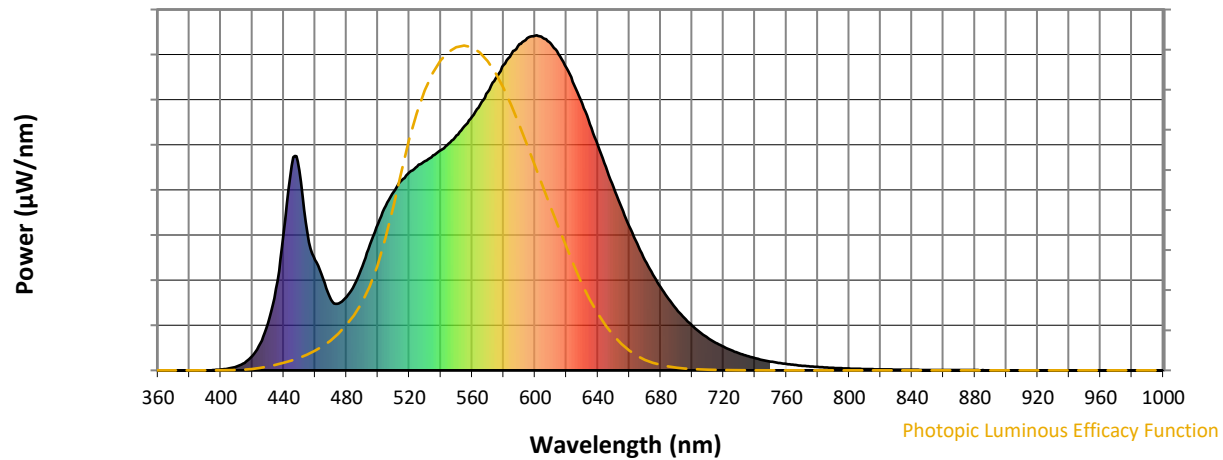
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3500K 7-step quadrangle

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### Photopic Flux vs. Wavelength

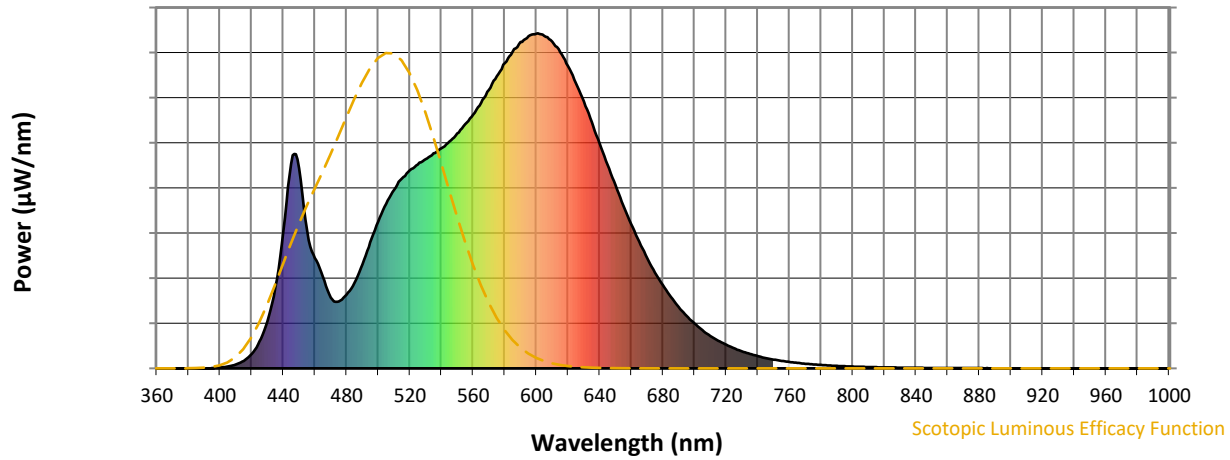


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 311                                  | NR                             | 620               | 903                                  | NR                             | 750               | 26                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 376                                  | NR                             | 625               | 851                                  | NR                             | 755               | 22                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 438                                  | NR                             | 630               | 797                                  | NR                             | 760               | 19                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 491                                  | NR                             | 635               | 735                                  | NR                             | 765               | 16                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 533                                  | NR                             | 640               | 672                                  | NR                             | 770               | 14                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 566                                  | NR                             | 645               | 607                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 592                                  | NR                             | 650               | 546                                  | NR                             | 780               | 10                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 608                                  | NR                             | 655               | 487                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 625                                  | NR                             | 660               | 429                                  | NR                             | 790               | 7                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 642                                  | NR                             | 665               | 378                                  | NR                             | 795               | 6                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 657                                  | NR                             | 670               | 329                                  | NR                             | 800               | 5                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 677                                  | NR                             | 675               | 286                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 43                                   | NR                             | 550               | 701                                  | NR                             | 680               | 248                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 80                                   | NR                             | 555               | 728                                  | NR                             | 685               | 213                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 140                                  | NR                             | 560               | 757                                  | NR                             | 690               | 184                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 243                                  | NR                             | 565               | 793                                  | NR                             | 695               | 156                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 412                                  | NR                             | 570               | 831                                  | NR                             | 700               | 134                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 610                                  | NR                             | 575               | 872                                  | NR                             | 705               | 114                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 597                                  | NR                             | 580               | 911                                  | NR                             | 710               | 97                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 412                                  | NR                             | 585               | 944                                  | NR                             | 715               | 83                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 330                                  | NR                             | 590               | 974                                  | NR                             | 720               | 70                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 274                                  | NR                             | 595               | 992                                  | NR                             | 725               | 60                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 211                                  | NR                             | 600               | 999                                  | NR                             | 730               | 51                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 200                                  | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 220                                  | NR                             | 610               | 975                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 255                                  | NR                             | 615               | 944                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



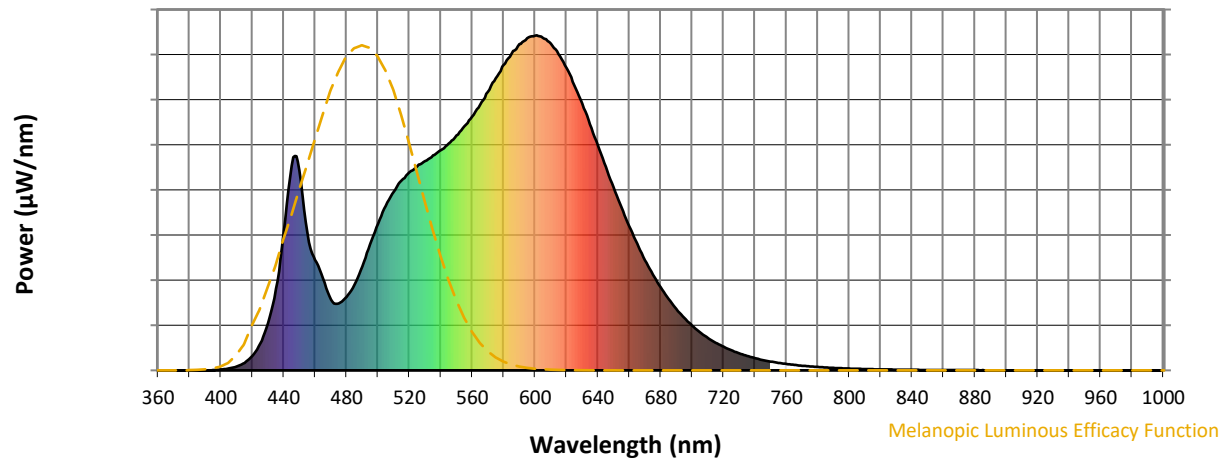
Scotopic Lumens: NR

S/P: 1.48

| 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       | 311                         | NR               | 620       | 903                         | NR               | 750       | 26                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 376                         | NR               | 625       | 851                         | NR               | 755       | 22                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 438                         | NR               | 630       | 797                         | NR               | 760       | 19                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 491                         | NR               | 635       | 735                         | NR               | 765       | 16                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 533                         | NR               | 640       | 672                         | NR               | 770       | 14                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 566                         | NR               | 645       | 607                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 592                         | NR               | 650       | 546                         | NR               | 780       | 10                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 608                         | NR               | 655       | 487                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 625                         | NR               | 660       | 429                         | NR               | 790       | 7                           | NR               | 920       | 0                           | NR               |
| 405       | 6                           | NR               | 535       | 642                         | NR               | 665       | 378                         | NR               | 795       | 6                           | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 657                         | NR               | 670       | 329                         | NR               | 800       | 5                           | NR               | 930       | 0                           | NR               |
| 415       | 22                          | NR               | 545       | 677                         | NR               | 675       | 286                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 43                          | NR               | 550       | 701                         | NR               | 680       | 248                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 80                          | NR               | 555       | 728                         | NR               | 685       | 213                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 140                         | NR               | 560       | 757                         | NR               | 690       | 184                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 243                         | NR               | 565       | 793                         | NR               | 695       | 156                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 412                         | NR               | 570       | 831                         | NR               | 700       | 134                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 610                         | NR               | 575       | 872                         | NR               | 705       | 114                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 597                         | NR               | 580       | 911                         | NR               | 710       | 97                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 412                         | NR               | 585       | 944                         | NR               | 715       | 83                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 330                         | NR               | 590       | 974                         | NR               | 720       | 70                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 274                         | NR               | 595       | 992                         | NR               | 725       | 60                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 211                         | NR               | 600       | 999                         | NR               | 730       | 51                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 200                         | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 220                         | NR               | 610       | 975                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 255                         | NR               | 615       | 944                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.88**

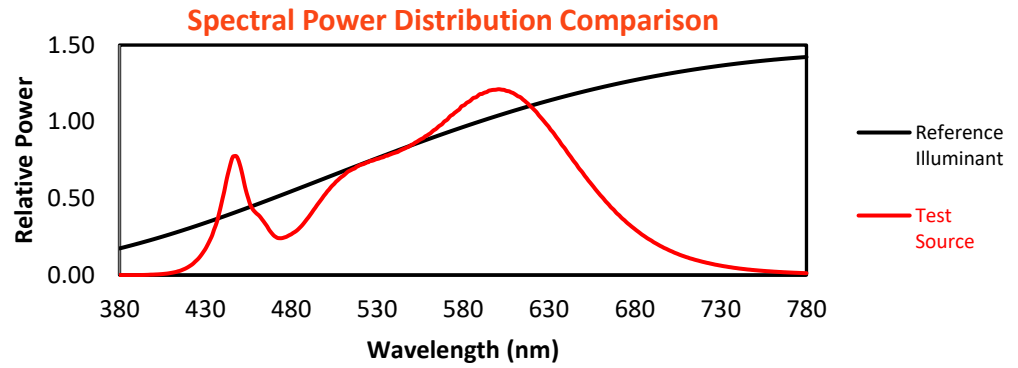
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 311                                  | NR                             | 620               | 903                                  | NR                             | 750               | 26                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 376                                  | NR                             | 625               | 851                                  | NR                             | 755               | 22                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 438                                  | NR                             | 630               | 797                                  | NR                             | 760               | 19                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 491                                  | NR                             | 635               | 735                                  | NR                             | 765               | 16                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 533                                  | NR                             | 640               | 672                                  | NR                             | 770               | 14                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 566                                  | NR                             | 645               | 607                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 592                                  | NR                             | 650               | 546                                  | NR                             | 780               | 10                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 608                                  | NR                             | 655               | 487                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 625                                  | NR                             | 660               | 429                                  | NR                             | 790               | 7                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 642                                  | NR                             | 665               | 378                                  | NR                             | 795               | 6                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 657                                  | NR                             | 670               | 329                                  | NR                             | 800               | 5                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 677                                  | NR                             | 675               | 286                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 43                                   | NR                             | 550               | 701                                  | NR                             | 680               | 248                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 80                                   | NR                             | 555               | 728                                  | NR                             | 685               | 213                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 140                                  | NR                             | 560               | 757                                  | NR                             | 690               | 184                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 243                                  | NR                             | 565               | 793                                  | NR                             | 695               | 156                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 412                                  | NR                             | 570               | 831                                  | NR                             | 700               | 134                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 610                                  | NR                             | 575               | 872                                  | NR                             | 705               | 114                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 597                                  | NR                             | 580               | 911                                  | NR                             | 710               | 97                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 412                                  | NR                             | 585               | 944                                  | NR                             | 715               | 83                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 330                                  | NR                             | 590               | 974                                  | NR                             | 720               | 70                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 274                                  | NR                             | 595               | 992                                  | NR                             | 725               | 60                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 211                                  | NR                             | 600               | 999                                  | NR                             | 730               | 51                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 200                                  | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 220                                  | NR                             | 610               | 975                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 255                                  | NR                             | 615               | 944                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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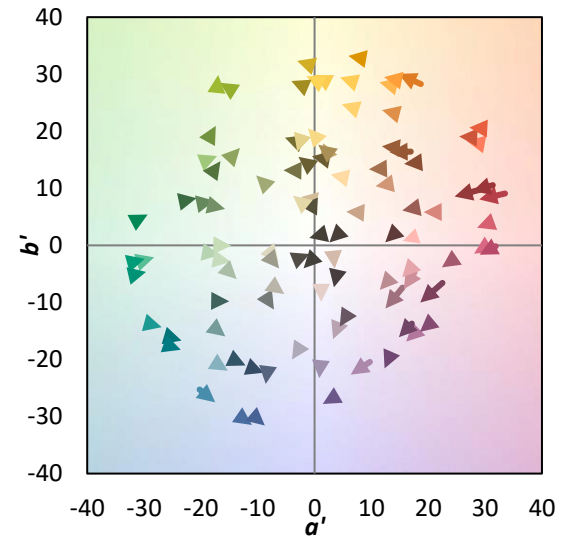
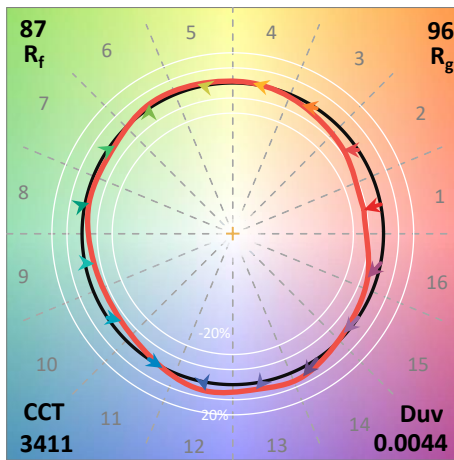
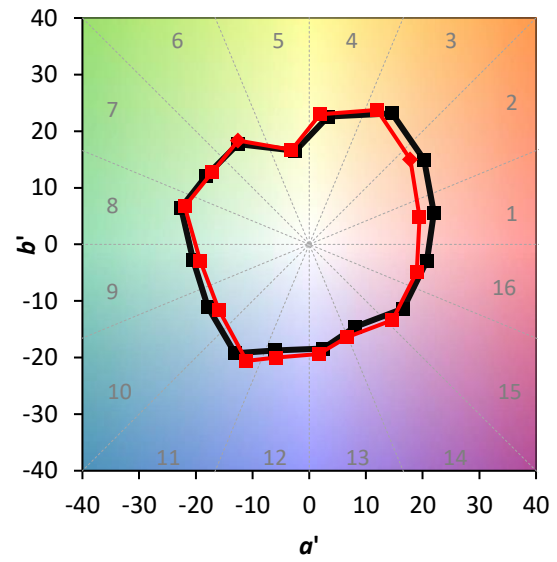
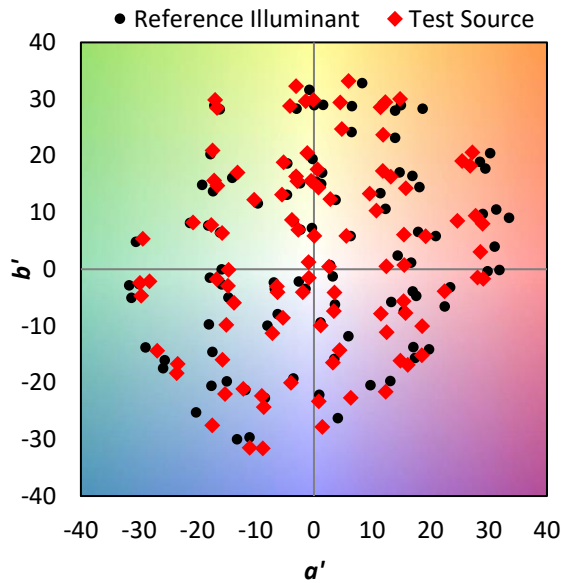
TM-30-18

### Summary

$R_f = 86.6$   
 $R_g = 95.9$   
 $CIE R_a = 83.5$   
 $R_9 = 6.3$



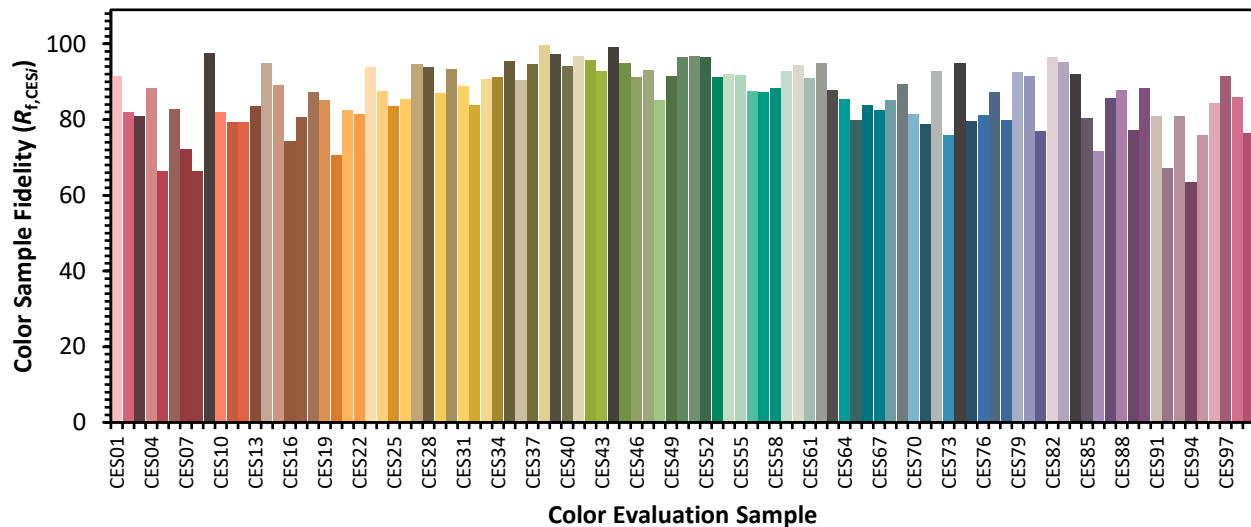
### Color Vector Graphics



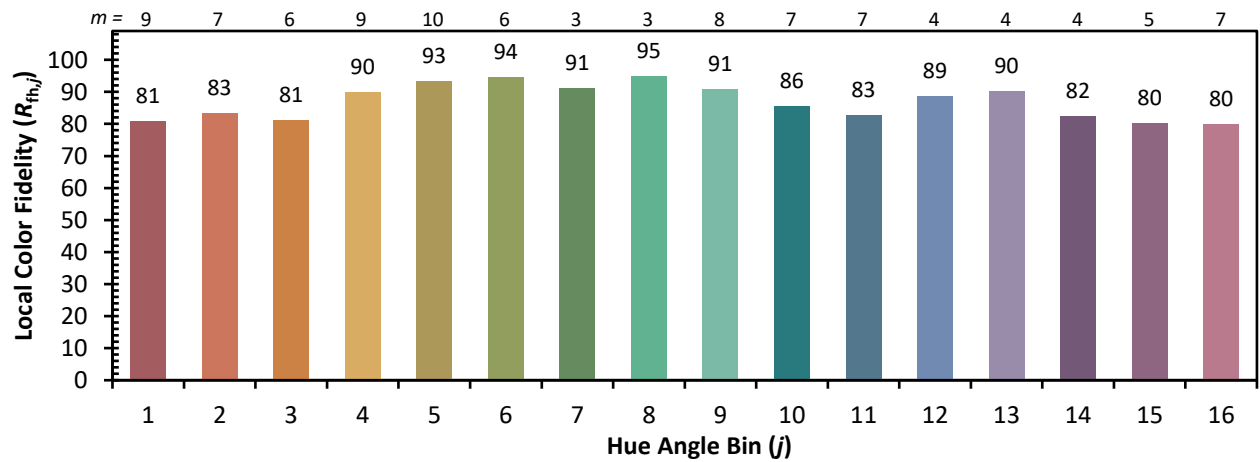
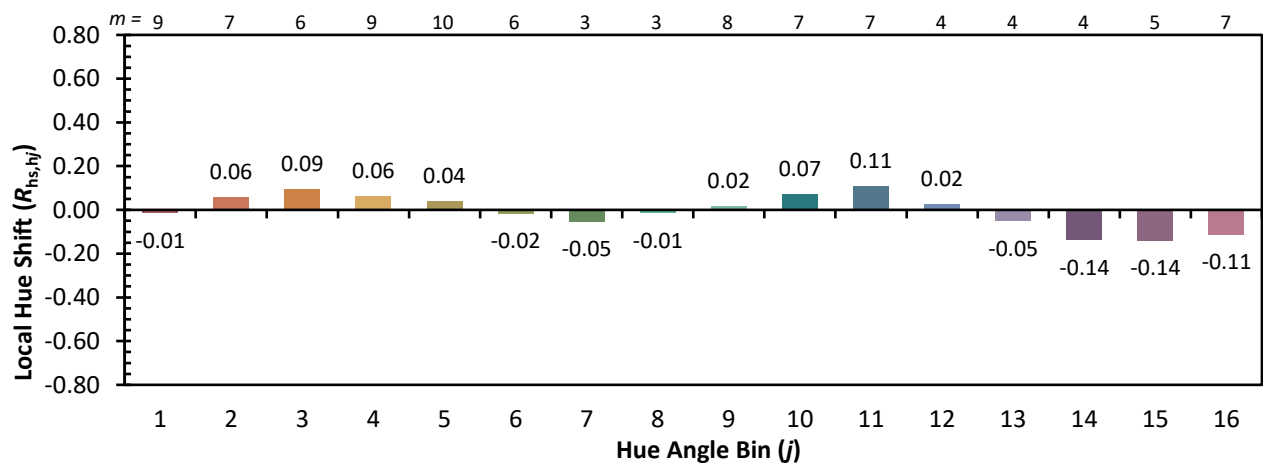
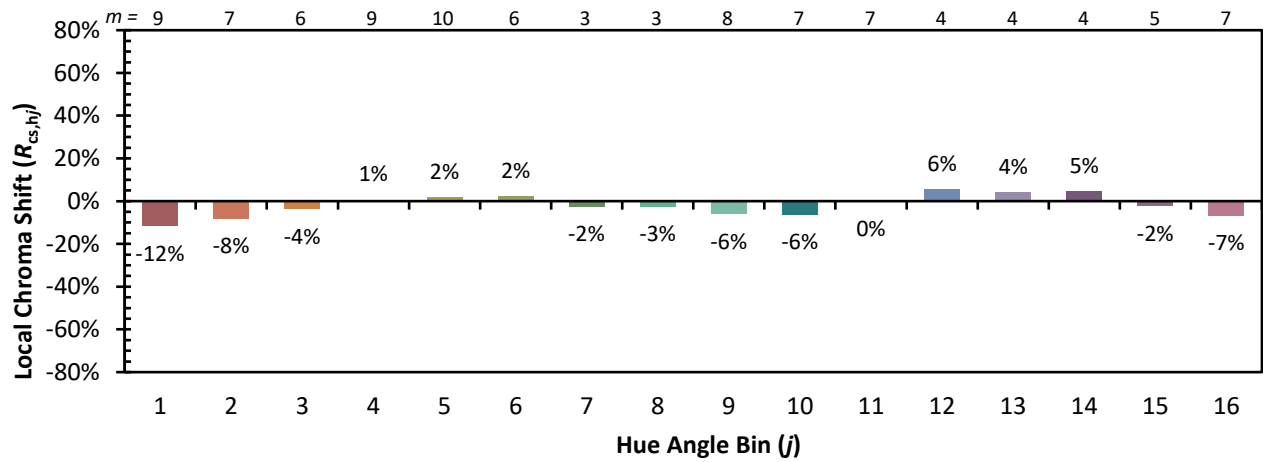


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

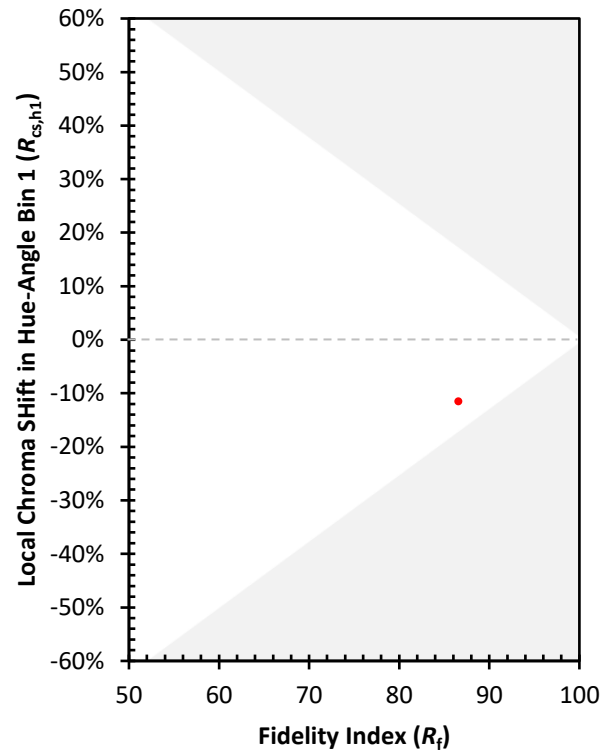
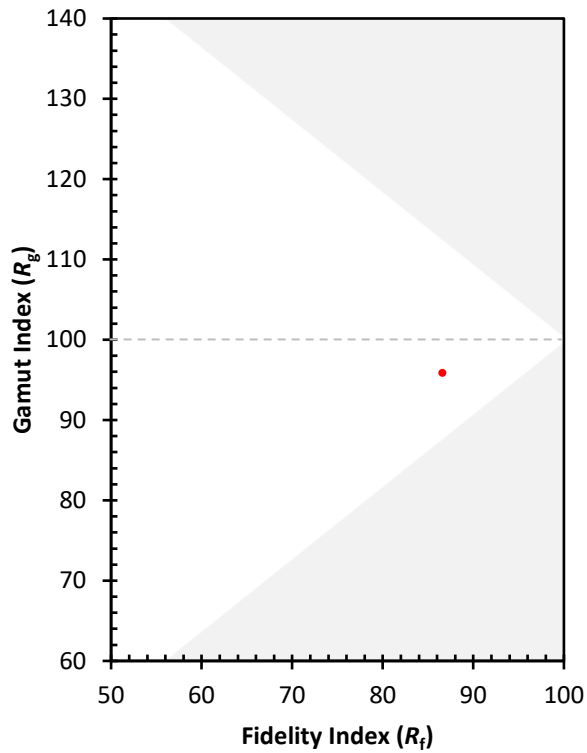
|            |             |            |            |
|------------|-------------|------------|------------|
| CES01 = 86 | CES26 = 85  | CES51 = 97 | CES76 = 81 |
| CES02 = 62 | CES27 = 95  | CES52 = 96 | CES77 = 87 |
| CES03 = 31 | CES28 = 94  | CES53 = 91 | CES78 = 80 |
| CES04 = 70 | CES29 = 87  | CES54 = 92 | CES79 = 93 |
| CES05 = 49 | CES30 = 93  | CES55 = 92 | CES80 = 91 |
| CES06 = 51 | CES31 = 89  | CES56 = 88 | CES81 = 77 |
| CES07 = 41 | CES32 = 84  | CES57 = 87 | CES82 = 96 |
| CES08 = 40 | CES33 = 91  | CES58 = 88 | CES83 = 95 |
| CES09 = 29 | CES34 = 91  | CES59 = 93 | CES84 = 92 |
| CES10 = 75 | CES35 = 95  | CES60 = 94 | CES85 = 80 |
| CES11 = 58 | CES36 = 90  | CES61 = 91 | CES86 = 72 |
| CES12 = 64 | CES37 = 95  | CES62 = 95 | CES87 = 86 |
| CES13 = 43 | CES38 = 100 | CES63 = 88 | CES88 = 88 |
| CES14 = 74 | CES39 = 97  | CES64 = 85 | CES89 = 77 |
| CES15 = 71 | CES40 = 94  | CES65 = 80 | CES90 = 88 |
| CES16 = 47 | CES41 = 97  | CES66 = 84 | CES91 = 81 |
| CES17 = 49 | CES42 = 96  | CES67 = 82 | CES92 = 67 |
| CES18 = 56 | CES43 = 93  | CES68 = 85 | CES93 = 81 |
| CES19 = 72 | CES44 = 99  | CES69 = 89 | CES94 = 63 |
| CES20 = 66 | CES45 = 95  | CES70 = 81 | CES95 = 76 |
| CES21 = 86 | CES46 = 91  | CES71 = 79 | CES96 = 84 |
| CES22 = 78 | CES47 = 93  | CES72 = 93 | CES97 = 92 |
| CES23 = 91 | CES48 = 85  | CES73 = 76 | CES98 = 86 |
| CES24 = 90 | CES49 = 92  | CES74 = 95 | CES99 = 77 |
| CES25 = 72 | CES50 = 96  | CES75 = 80 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)