

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: P1064134

Luminaire Tested: **GLAN-SA3B-827-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064134  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA3B-827-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 3xLight Square PACKAGE  
80CRI 2700K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (42) 2700K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12260.3 lumens  
Efficiency: N/A  
Efficacy: 115.4 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G3

Input Watts (W): 106.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



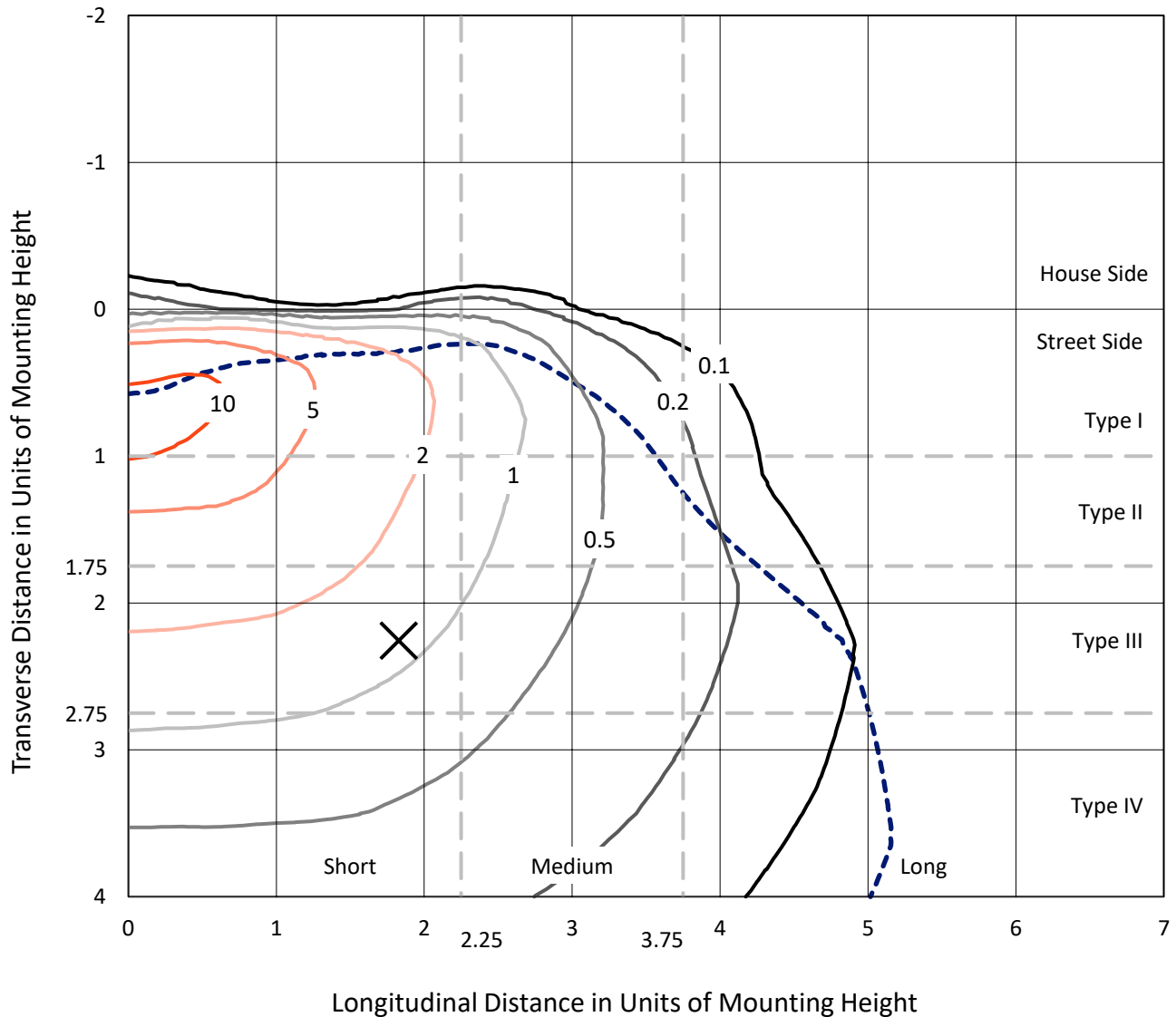
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CATALOG NUMBER: GLAN-SA3B-827-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

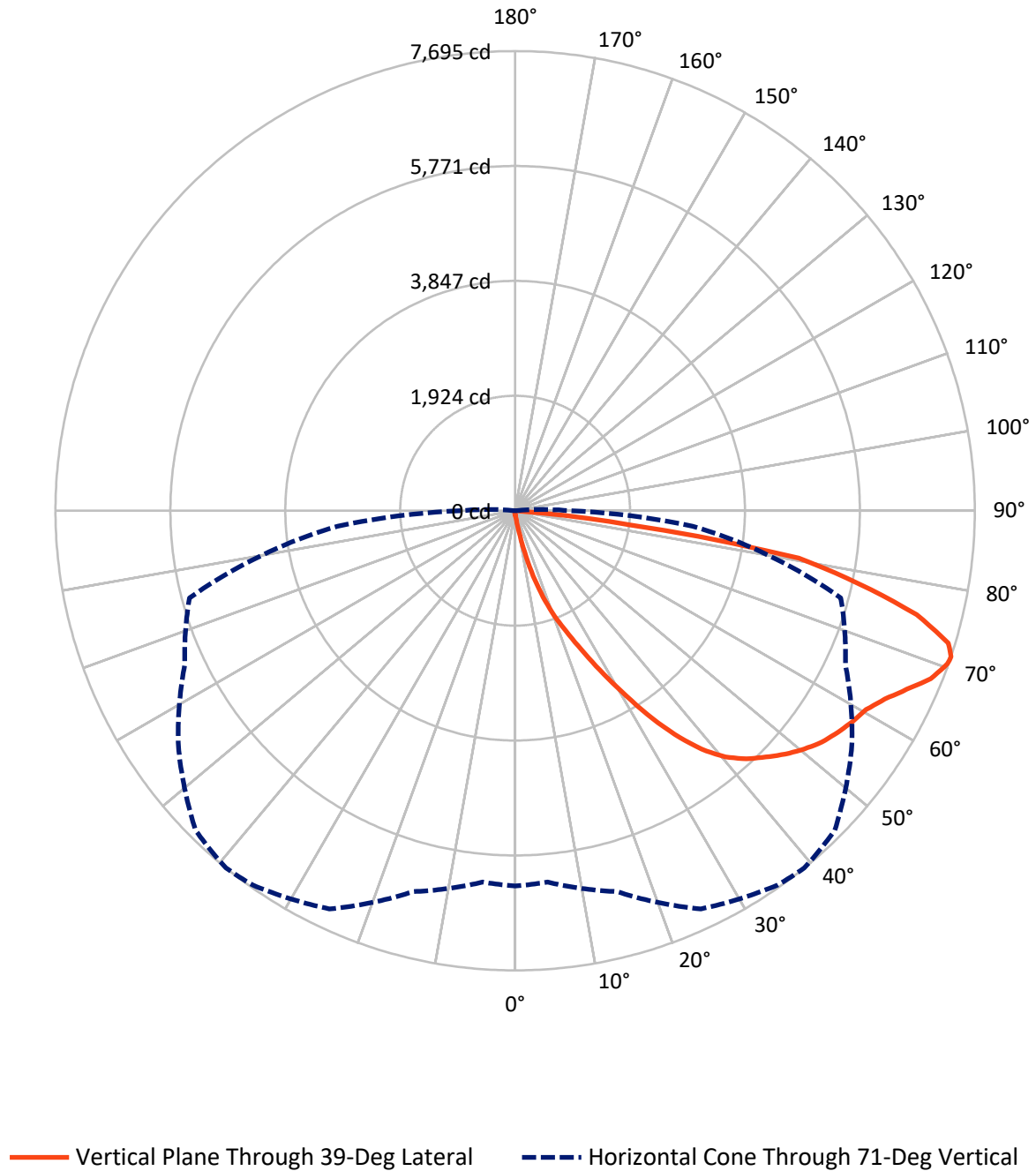


Based on 15 foot mounting height. Maximum calculated value = 12.6 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GLAN-SA3B-827-U-T4BC

## Luminous Intensity Polar Plot



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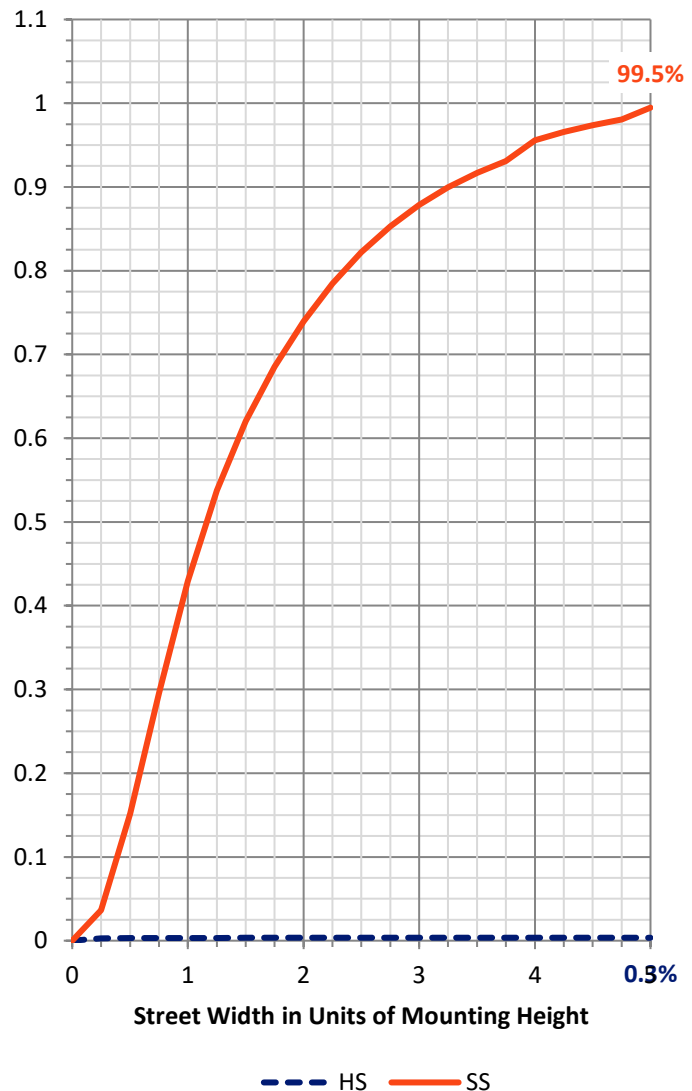
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 43.6     | 0.0    | 43.6    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 12216.7  | 0.0    | 12216.7 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 12260.3  | 0.0    | 12260.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 10.2    | 0.1       |
| 10°-20°   | 131.0   | 1.1       |
| 20°-30°   | 466.7   | 3.8       |
| 30°-40°   | 1124.7  | 9.2       |
| 40°-50°   | 1882.3  | 15.4      |
| 50°-60°   | 2417.5  | 19.7      |
| 60°-70°   | 3059.4  | 25.0      |
| 70°-80°   | 2727.6  | 22.2      |
| 80°-90°   | 440.9   | 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°    | 12260.3 | 100.0     |
| 0°-180°   | 12260.3 | 100.0     |



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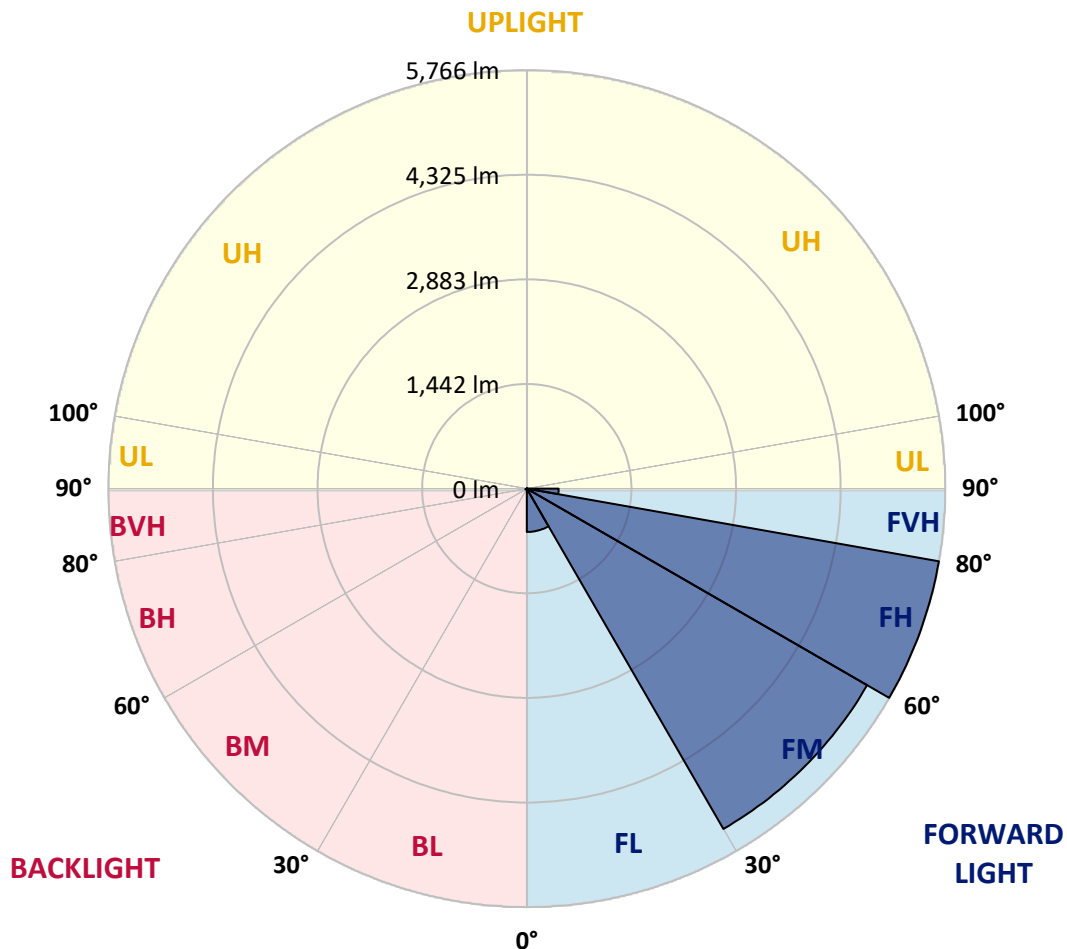
CATALOG NUMBER: GLAN-SA3B-827-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 597.4  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 5414.4 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 5766.0 | 47.0      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 438.9  | 3.6       |                         |      | G3/500  |
| BL   | (0°-30°)    | 10.5   | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 10.1   | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 20.9   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 2.0    | 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-G3**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 67.2   | 67.2   | 67.2   | 67.2   | 67.2   | 67.2   | 67.2   | 67.2   | 67.2   | 67.2   | 67.2   |
| 2.5°  | 77.2   | 77.2   | 77.2   | 74.7   | 74.7   | 73.9   | 73.0   | 73.0   | 71.4   | 70.5   | 68.9   |
| 5°    | 117.0  | 114.5  | 108.7  | 105.4  | 98.8   | 94.6   | 90.5   | 84.7   | 78.8   | 74.7   | 69.7   |
| 7.5°  | 264.8  | 270.6  | 251.5  | 215.8  | 179.3  | 163.5  | 136.9  | 110.4  | 91.3   | 78.8   | 70.5   |
| 10°   | 674.8  | 671.4  | 606.7  | 535.3  | 413.3  | 364.4  | 285.5  | 180.1  | 117.9  | 86.3   | 71.4   |
| 12.5° | 1147.8 | 1144.5 | 1068.2 | 971.0  | 810.0  | 708.0  | 558.6  | 336.1  | 169.3  | 97.9   | 71.4   |
| 15°   | 1545.4 | 1532.1 | 1508.0 | 1411.8 | 1223.4 | 1137.9 | 940.3  | 594.2  | 273.9  | 117.9  | 73.0   |
| 17.5° | 1808.5 | 1796.9 | 1774.4 | 1739.6 | 1620.1 | 1518.8 | 1360.3 | 933.7  | 443.2  | 152.7  | 76.4   |
| 20°   | 2050.0 | 2041.7 | 2023.4 | 2016.8 | 1939.6 | 1885.7 | 1754.5 | 1323.8 | 690.5  | 207.5  | 81.3   |
| 22.5° | 2382.0 | 2364.5 | 2372.0 | 2332.2 | 2256.6 | 2191.9 | 2111.4 | 1732.1 | 992.6  | 298.8  | 90.5   |
| 25°   | 2788.6 | 2780.3 | 2759.6 | 2731.4 | 2626.8 | 2570.4 | 2446.7 | 2117.2 | 1330.4 | 418.3  | 100.4  |
| 27.5° | 3280.0 | 3270.9 | 3265.9 | 3201.1 | 3080.8 | 3019.4 | 2846.7 | 2480.7 | 1710.5 | 585.9  | 113.7  |
| 30°   | 3846.0 | 3850.2 | 3817.8 | 3734.8 | 3594.5 | 3508.2 | 3330.6 | 2861.7 | 2099.8 | 782.6  | 127.8  |
| 32.5° | 4432.0 | 4423.7 | 4373.9 | 4275.9 | 4150.6 | 4070.1 | 3844.4 | 3279.2 | 2508.1 | 1042.4 | 144.4  |
| 35°   | 5063.6 | 5047.8 | 4916.7 | 4804.6 | 4697.5 | 4596.3 | 4390.5 | 3763.8 | 2916.5 | 1333.7 | 166.8  |
| 37.5° | 5701.0 | 5627.1 | 5364.0 | 5222.1 | 5148.2 | 5065.2 | 4873.5 | 4280.9 | 3322.3 | 1659.1 | 194.2  |
| 40°   | 6182.3 | 6125.1 | 5813.0 | 5551.6 | 5492.6 | 5422.1 | 5279.3 | 4727.4 | 3753.9 | 2008.5 | 227.4  |
| 42.5° | 6448.8 | 6417.2 | 6136.7 | 5878.6 | 5740.0 | 5677.7 | 5555.7 | 5117.5 | 4180.5 | 2394.4 | 275.5  |
| 45°   | 6562.5 | 6513.5 | 6325.9 | 6205.6 | 5984.8 | 5881.9 | 5736.7 | 5412.1 | 4626.2 | 2832.6 | 342.8  |
| 47.5° | 6527.6 | 6499.4 | 6364.9 | 6408.9 | 6248.7 | 6088.6 | 5875.3 | 5637.9 | 5007.1 | 3335.6 | 434.9  |
| 50°   | 6308.5 | 6284.4 | 6242.9 | 6481.1 | 6461.2 | 6272.0 | 6054.5 | 5816.3 | 5318.4 | 3854.3 | 577.6  |
| 52.5° | 5891.9 | 5881.9 | 5988.1 | 6424.7 | 6581.5 | 6433.8 | 6227.2 | 5974.0 | 5608.8 | 4396.3 | 781.8  |
| 55°   | 5354.9 | 5395.5 | 5699.3 | 6336.7 | 6643.0 | 6553.3 | 6379.9 | 6121.7 | 5842.1 | 4881.0 | 1083.1 |
| 57.5° | 5134.1 | 5144.9 | 5524.2 | 6274.5 | 6670.3 | 6658.7 | 6528.4 | 6262.8 | 6056.2 | 5268.6 | 1542.9 |
| 60°   | 5392.2 | 5375.6 | 5575.6 | 6321.8 | 6725.1 | 6753.3 | 6660.4 | 6394.0 | 6242.1 | 5601.4 | 2155.4 |
| 62.5° | 5858.7 | 5849.5 | 5913.4 | 6523.4 | 6885.3 | 6942.6 | 6843.8 | 6488.6 | 6406.4 | 5820.5 | 2854.2 |
| 65°   | 6275.3 | 6256.2 | 6374.9 | 6881.2 | 7166.7 | 7207.3 | 7121.0 | 6650.4 | 6478.6 | 5979.8 | 3510.7 |
| 67.5° | 6455.4 | 6451.2 | 6642.1 | 7221.4 | 7462.1 | 7506.1 | 7430.6 | 6873.7 | 6462.0 | 6030.5 | 3800.4 |
| 70°   | 6373.2 | 6357.5 | 6662.9 | 7365.9 | 7628.9 | 7678.7 | 7605.7 | 6956.7 | 6281.9 | 5870.3 | 3371.3 |
| 71°   | 6282.8 | 6240.4 | 6600.6 | 7355.9 | 7652.2 | 7694.5 | 7566.7 | 6881.2 | 6101.0 | 5642.9 | 2982.0 |
| 72.5° | 6002.2 | 6009.7 | 6429.7 | 7252.1 | 7596.6 | 7584.1 | 7345.9 | 6610.6 | 5882.7 | 5126.6 | 2395.3 |
| 75°   | 5311.7 | 5355.7 | 5876.1 | 6816.4 | 7100.3 | 6941.7 | 6577.4 | 6093.5 | 5444.5 | 3675.9 | 1663.2 |
| 77.5° | 4340.7 | 4406.2 | 4978.1 | 5978.2 | 5897.7 | 5881.9 | 5867.0 | 5369.0 | 4649.4 | 1974.5 | 1157.0 |
| 80°   | 2072.4 | 2214.3 | 3002.8 | 4267.6 | 4636.1 | 4814.6 | 4702.5 | 4326.6 | 3595.4 | 940.3  | 691.4  |
| 82.5° | 135.3  | 133.6  | 189.2  | 358.5  | 1511.3 | 1953.7 | 3104.0 | 3092.4 | 2506.5 | 458.1  | 282.2  |
| 85°   | 63.9   | 65.6   | 72.2   | 82.2   | 95.4   | 104.6  | 144.4  | 846.6  | 1199.3 | 218.3  | 61.4   |
| 87.5° | 37.3   | 38.2   | 44.8   | 57.3   | 74.7   | 83.0   | 98.8   | 127.0  | 156.0  | 120.3  | 13.3   |
| 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: P1064134

CATALOG NUMBER: GLAN-SA3B-827-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 67.2   | 67.2 | 67.2 | 67.2 | 67.2 | 67.2 | 67.2 | 67.2 | 67.2 | 67.2 | 67.2 |
| 2.5°  | 68.1   | 67.2 | 64.7 | 62.2 | 59.8 | 58.1 | 57.3 | 58.1 | 58.1 | 58.9 | 58.9 |
| 5°    | 68.1   | 65.6 | 61.4 | 56.4 | 53.1 | 49.8 | 48.1 | 47.3 | 48.1 | 48.1 | 48.1 |
| 7.5°  | 67.2   | 63.1 | 57.3 | 51.5 | 47.3 | 43.2 | 41.5 | 40.7 | 40.7 | 41.5 | 41.5 |
| 10°   | 65.6   | 61.4 | 53.9 | 47.3 | 42.3 | 37.3 | 34.9 | 32.4 | 32.4 | 32.4 | 33.2 |
| 12.5° | 64.7   | 58.9 | 49.8 | 43.2 | 36.5 | 30.7 | 25.7 | 23.2 | 24.1 | 24.1 | 24.1 |
| 15°   | 63.1   | 56.4 | 47.3 | 39.0 | 30.7 | 23.2 | 19.1 | 16.6 | 17.4 | 18.3 | 17.4 |
| 17.5° | 63.1   | 55.6 | 44.0 | 34.0 | 24.1 | 17.4 | 14.1 | 12.4 | 12.4 | 13.3 | 13.3 |
| 20°   | 63.1   | 53.9 | 41.5 | 29.0 | 18.3 | 13.3 | 10.0 | 9.1  | 9.1  | 10.8 | 11.6 |
| 22.5° | 64.7   | 53.9 | 38.2 | 24.1 | 14.9 | 10.0 | 7.5  | 6.6  | 7.5  | 9.1  | 10.0 |
| 25°   | 67.2   | 53.1 | 34.9 | 21.6 | 12.4 | 7.5  | 5.8  | 4.1  | 5.0  | 6.6  | 7.5  |
| 27.5° | 69.7   | 52.3 | 31.5 | 19.1 | 10.0 | 5.8  | 4.1  | 3.3  | 2.5  | 3.3  | 3.3  |
| 30°   | 72.2   | 52.3 | 28.2 | 15.8 | 8.3  | 4.1  | 2.5  | 1.7  | 0.8  | 0.0  | 0.0  |
| 32.5° | 73.9   | 50.6 | 25.7 | 12.4 | 6.6  | 3.3  | 1.7  | 0.8  | 0.0  | 0.0  | 0.0  |
| 35°   | 75.5   | 49.0 | 22.4 | 10.0 | 5.0  | 2.5  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 77.2   | 46.5 | 19.1 | 8.3  | 4.1  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 78.8   | 43.2 | 15.8 | 7.5  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 80.5   | 40.7 | 13.3 | 5.8  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 84.7   | 39.0 | 10.8 | 5.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 92.1   | 37.3 | 10.0 | 3.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 102.9  | 35.7 | 9.1  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 117.9  | 34.9 | 8.3  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 144.4  | 34.0 | 7.5  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 190.1  | 33.2 | 7.5  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 291.3  | 31.5 | 7.5  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 520.4  | 30.7 | 6.6  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 907.1  | 31.5 | 6.6  | 1.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 1300.5 | 33.2 | 5.8  | 2.5  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 1113.0 | 29.0 | 5.8  | 3.3  | 1.7  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 907.1  | 25.7 | 5.8  | 3.3  | 1.7  | 0.8  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 583.5  | 19.9 | 5.0  | 3.3  | 1.7  | 1.7  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 246.5  | 16.6 | 5.0  | 3.3  | 2.5  | 1.7  | 1.7  | 0.8  | 0.0  | 0.0  | 0.0  |
| 77.5° | 105.4  | 12.4 | 5.0  | 4.1  | 3.3  | 2.5  | 2.5  | 1.7  | 0.8  | 0.0  | 0.0  |
| 80°   | 39.8   | 10.0 | 5.8  | 5.0  | 4.1  | 4.1  | 3.3  | 1.7  | 0.8  | 0.0  | 0.0  |
| 82.5° | 18.3   | 8.3  | 5.8  | 5.0  | 5.0  | 4.1  | 3.3  | 2.5  | 1.7  | 0.0  | 0.0  |
| 85°   | 11.6   | 7.5  | 5.8  | 5.0  | 5.0  | 4.1  | 4.1  | 2.5  | 1.7  | 0.0  | 0.0  |
| 87.5° | 9.1    | 7.5  | 5.8  | 5.8  | 5.0  | 5.0  | 3.3  | 2.5  | 0.8  | 0.0  | 0.0  |
| 90°   | 0.0    | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-8

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-827-U-5WQ

Data in this report applies to families of products including GSS-SB1A-827-U-5WQ

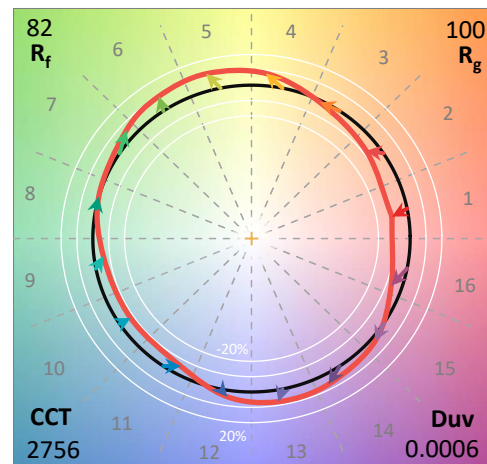
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-8  
 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-827-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2756  
 CIE  $u'$ : 0.2599  
 CIE  $v'$ : 0.5271  
 Duv: 0.0006  
 CIE x: 0.4563  
 CIE y: 0.4112  
 CIE z: 0.1325  
 Peak Wavelength (nm): 609  
 Dominant Wavelength (nm): 583  
 Purity: 60.41121  
 R<sub>f</sub>: 82.2  
 R<sub>g</sub>: 99.9

CRI (Ra): 82.9  
 R1: 81.6  
 R2: 88.8  
 R3: 96.0  
 R4: 83.4  
 R5: 81.4  
 R6: 87.0  
 R7: 84.0  
 R8: 60.8  
 R9: 10.8  
 R10: 74.8  
 R11: 84.3  
 R12: 72.1  
 R13: 82.9  
 R14: 97.3  
 R15: 73.7



### Test Conditions

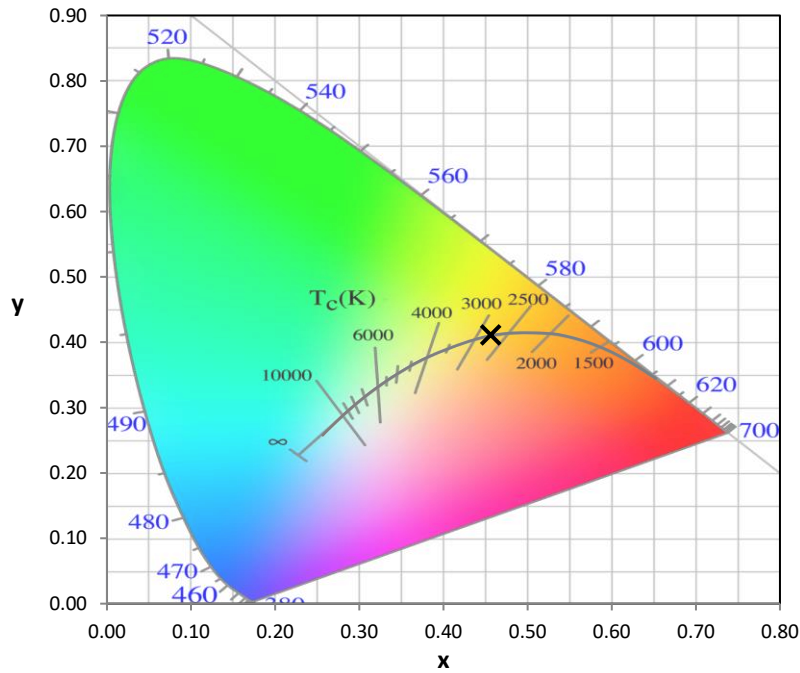
Stabilization Time: 29M  
 Operation Time: 1H 29M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-8

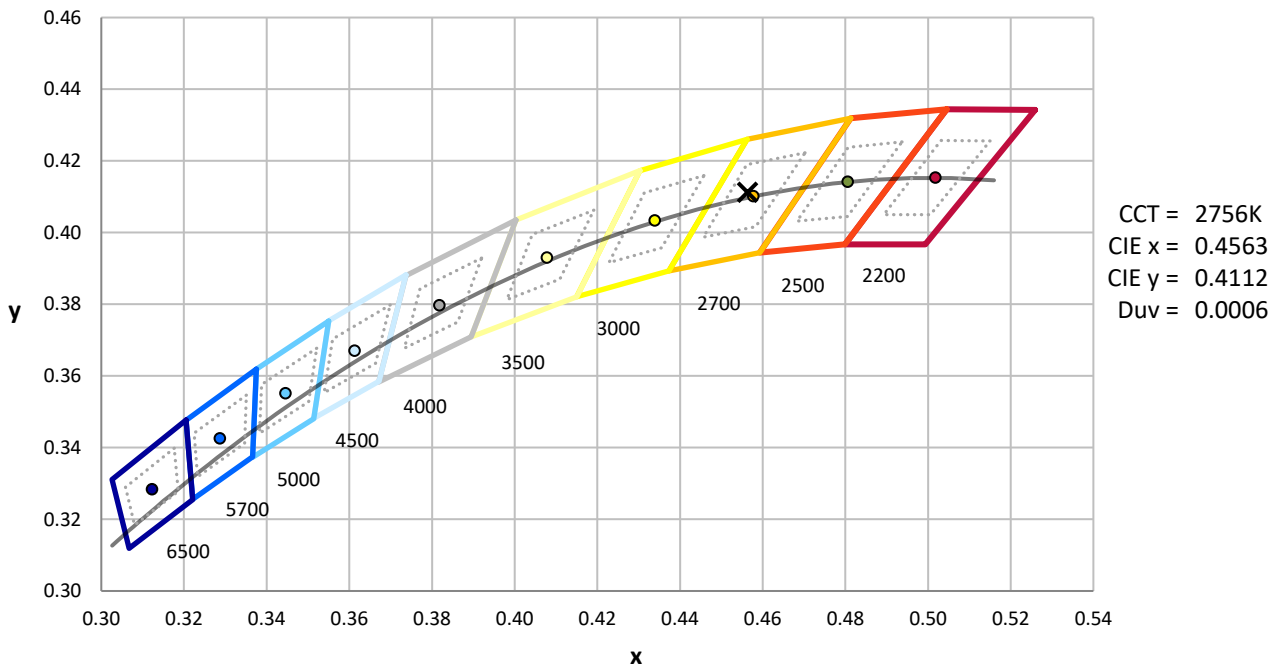
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



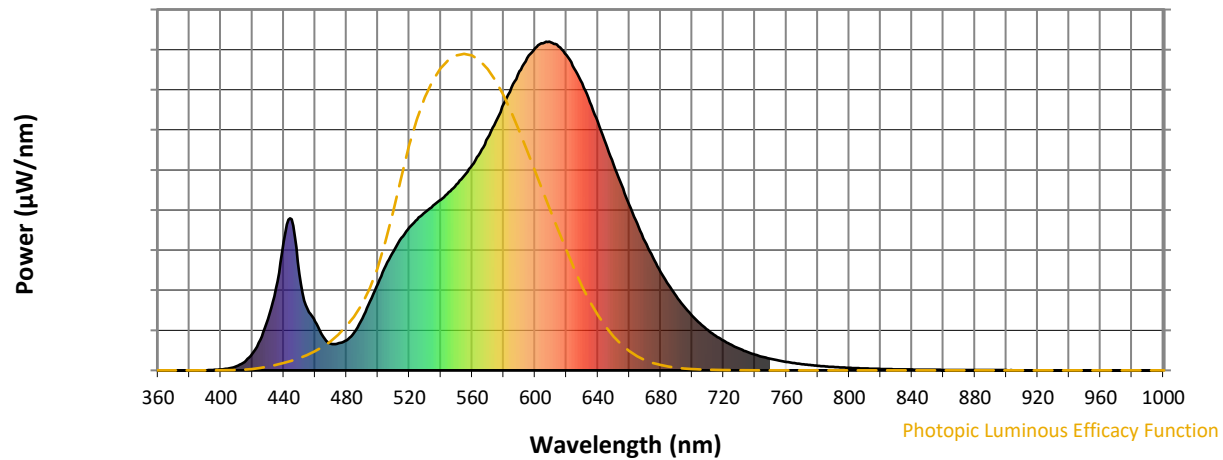
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

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### Photopic Flux vs. Wavelength

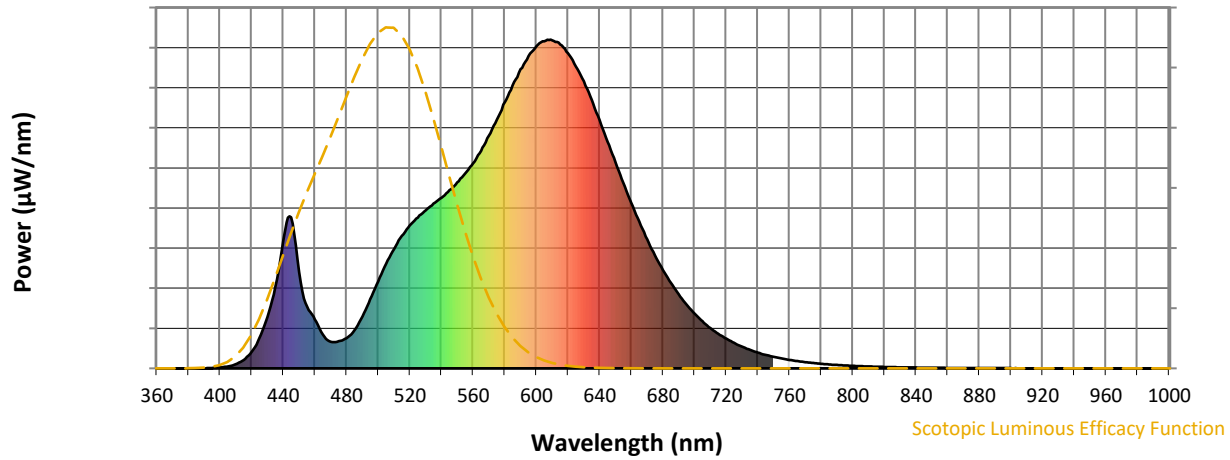


### Photopic Lumens: NR

| 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       | 158                         | NR               | 620       | 959                         | NR               | 750       | 35                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 211                         | NR               | 625       | 918                         | NR               | 755       | 30                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 264                         | NR               | 630       | 873                         | NR               | 760       | 26                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 318                         | NR               | 635       | 816                         | NR               | 765       | 22                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 363                         | NR               | 640       | 755                         | NR               | 770       | 19                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 403                         | NR               | 645       | 689                         | NR               | 775       | 16                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 435                         | NR               | 650       | 626                         | NR               | 780       | 14                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 459                         | NR               | 655       | 564                         | NR               | 785       | 12                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 481                         | NR               | 660       | 503                         | NR               | 790       | 10                          | NR               | 920       | 0                           | NR               |
| 405       | 6                           | NR               | 535       | 501                         | NR               | 665       | 447                         | NR               | 795       | 9                           | NR               | 925       | 0                           | NR               |
| 410       | 13                          | NR               | 540       | 519                         | NR               | 670       | 392                         | NR               | 800       | 8                           | NR               | 930       | 0                           | NR               |
| 415       | 26                          | NR               | 545       | 542                         | NR               | 675       | 343                         | NR               | 805       | 7                           | NR               | 935       | 0                           | NR               |
| 420       | 51                          | NR               | 550       | 565                         | NR               | 680       | 299                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 93                          | NR               | 555       | 593                         | NR               | 685       | 260                         | NR               | 815       | 5                           | NR               | 945       | 0                           | NR               |
| 430       | 156                         | NR               | 560       | 624                         | NR               | 690       | 225                         | NR               | 820       | 4                           | NR               | 950       | 0                           | NR               |
| 435       | 250                         | NR               | 565       | 662                         | NR               | 695       | 194                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 391                         | NR               | 570       | 707                         | NR               | 700       | 166                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 460                         | NR               | 575       | 756                         | NR               | 705       | 143                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 293                         | NR               | 580       | 810                         | NR               | 710       | 122                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 188                         | NR               | 585       | 860                         | NR               | 715       | 105                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 149                         | NR               | 590       | 910                         | NR               | 720       | 90                          | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 103                         | NR               | 595       | 950                         | NR               | 725       | 77                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 80                          | NR               | 600       | 980                         | NR               | 730       | 66                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 82                          | NR               | 605       | 995                         | NR               | 735       | 56                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 92                          | NR               | 610       | 998                         | NR               | 740       | 48                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 116                         | NR               | 615       | 985                         | NR               | 745       | 41                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



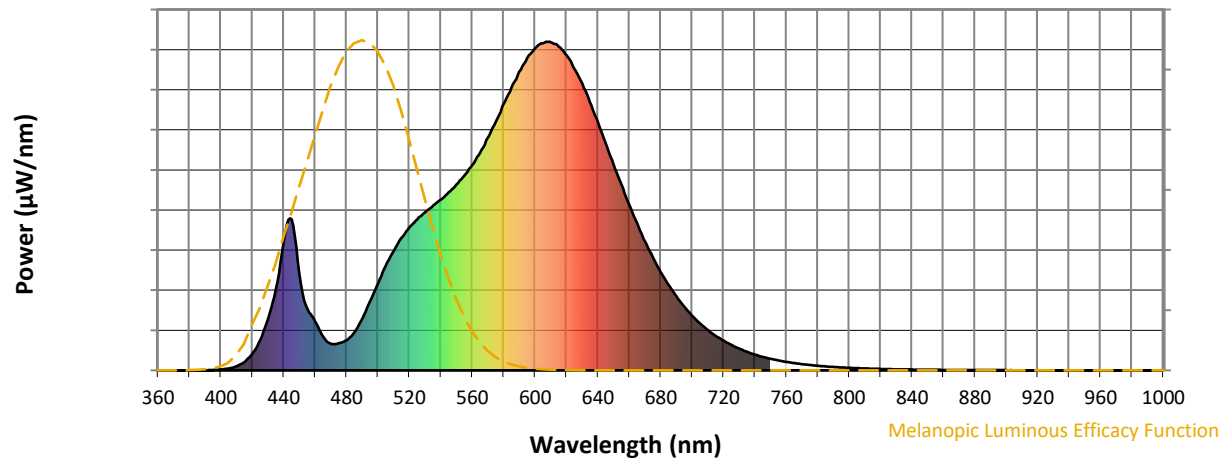
Scotopic Lumens: NR

S/P: 1.2

| 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       | 158                         | NR               | 620       | 959                         | NR               | 750       | 35                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 211                         | NR               | 625       | 918                         | NR               | 755       | 30                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 264                         | NR               | 630       | 873                         | NR               | 760       | 26                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 318                         | NR               | 635       | 816                         | NR               | 765       | 22                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 363                         | NR               | 640       | 755                         | NR               | 770       | 19                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 403                         | NR               | 645       | 689                         | NR               | 775       | 16                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 435                         | NR               | 650       | 626                         | NR               | 780       | 14                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 459                         | NR               | 655       | 564                         | NR               | 785       | 12                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 481                         | NR               | 660       | 503                         | NR               | 790       | 10                          | NR               | 920       | 0                           | NR               |
| 405       | 6                           | NR               | 535       | 501                         | NR               | 665       | 447                         | NR               | 795       | 9                           | NR               | 925       | 0                           | NR               |
| 410       | 13                          | NR               | 540       | 519                         | NR               | 670       | 392                         | NR               | 800       | 8                           | NR               | 930       | 0                           | NR               |
| 415       | 26                          | NR               | 545       | 542                         | NR               | 675       | 343                         | NR               | 805       | 7                           | NR               | 935       | 0                           | NR               |
| 420       | 51                          | NR               | 550       | 565                         | NR               | 680       | 299                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 93                          | NR               | 555       | 593                         | NR               | 685       | 260                         | NR               | 815       | 5                           | NR               | 945       | 0                           | NR               |
| 430       | 156                         | NR               | 560       | 624                         | NR               | 690       | 225                         | NR               | 820       | 4                           | NR               | 950       | 0                           | NR               |
| 435       | 250                         | NR               | 565       | 662                         | NR               | 695       | 194                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 391                         | NR               | 570       | 707                         | NR               | 700       | 166                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 460                         | NR               | 575       | 756                         | NR               | 705       | 143                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 293                         | NR               | 580       | 810                         | NR               | 710       | 122                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 188                         | NR               | 585       | 860                         | NR               | 715       | 105                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 149                         | NR               | 590       | 910                         | NR               | 720       | 90                          | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 103                         | NR               | 595       | 950                         | NR               | 725       | 77                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 80                          | NR               | 600       | 980                         | NR               | 730       | 66                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 82                          | NR               | 605       | 995                         | NR               | 735       | 56                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 92                          | NR               | 610       | 998                         | NR               | 740       | 48                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 116                         | NR               | 615       | 985                         | NR               | 745       | 41                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.16**

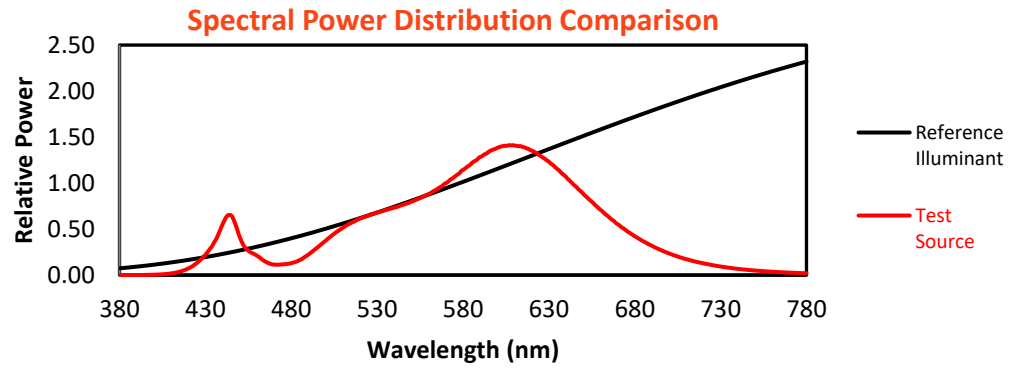
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 158                                  | NR                             | 620               | 959                                  | NR                             | 750               | 35                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 211                                  | NR                             | 625               | 918                                  | NR                             | 755               | 30                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 264                                  | NR                             | 630               | 873                                  | NR                             | 760               | 26                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 318                                  | NR                             | 635               | 816                                  | NR                             | 765               | 22                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 363                                  | NR                             | 640               | 755                                  | NR                             | 770               | 19                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 403                                  | NR                             | 645               | 689                                  | NR                             | 775               | 16                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 435                                  | NR                             | 650               | 626                                  | NR                             | 780               | 14                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 459                                  | NR                             | 655               | 564                                  | NR                             | 785               | 12                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 481                                  | NR                             | 660               | 503                                  | NR                             | 790               | 10                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 501                                  | NR                             | 665               | 447                                  | NR                             | 795               | 9                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 13                                   | NR                             | 540               | 519                                  | NR                             | 670               | 392                                  | NR                             | 800               | 8                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 26                                   | NR                             | 545               | 542                                  | NR                             | 675               | 343                                  | NR                             | 805               | 7                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 51                                   | NR                             | 550               | 565                                  | NR                             | 680               | 299                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 93                                   | NR                             | 555               | 593                                  | NR                             | 685               | 260                                  | NR                             | 815               | 5                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 156                                  | NR                             | 560               | 624                                  | NR                             | 690               | 225                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 250                                  | NR                             | 565               | 662                                  | NR                             | 695               | 194                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 391                                  | NR                             | 570               | 707                                  | NR                             | 700               | 166                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 460                                  | NR                             | 575               | 756                                  | NR                             | 705               | 143                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 293                                  | NR                             | 580               | 810                                  | NR                             | 710               | 122                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 188                                  | NR                             | 585               | 860                                  | NR                             | 715               | 105                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 149                                  | NR                             | 590               | 910                                  | NR                             | 720               | 90                                   | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 103                                  | NR                             | 595               | 950                                  | NR                             | 725               | 77                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 80                                   | NR                             | 600               | 980                                  | NR                             | 730               | 66                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 82                                   | NR                             | 605               | 995                                  | NR                             | 735               | 56                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 92                                   | NR                             | 610               | 998                                  | NR                             | 740               | 48                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 116                                  | NR                             | 615               | 985                                  | NR                             | 745               | 41                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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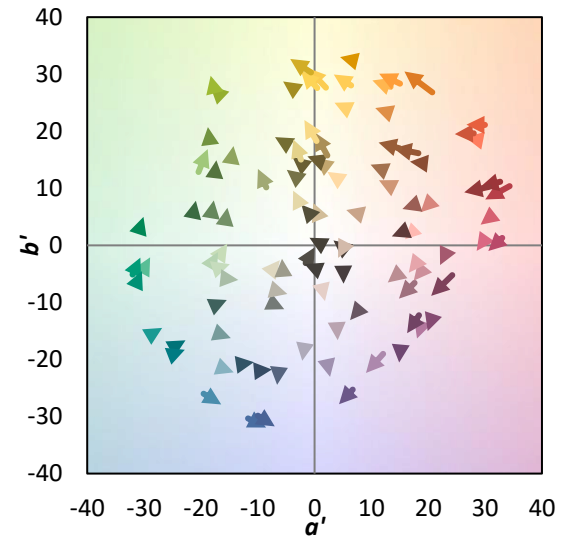
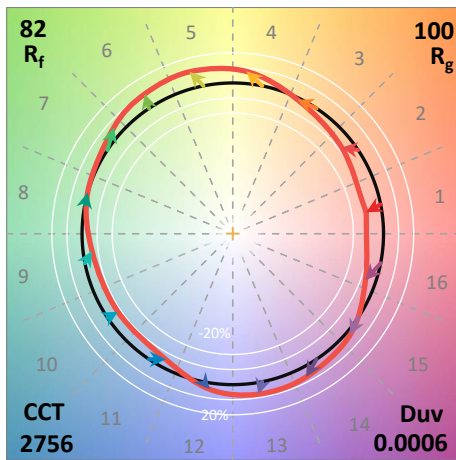
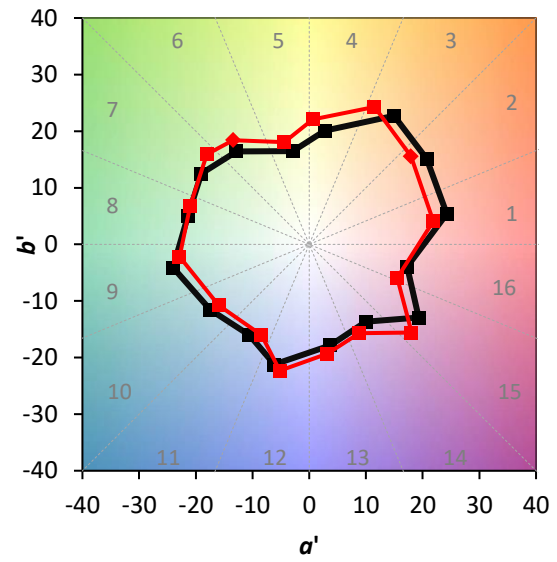
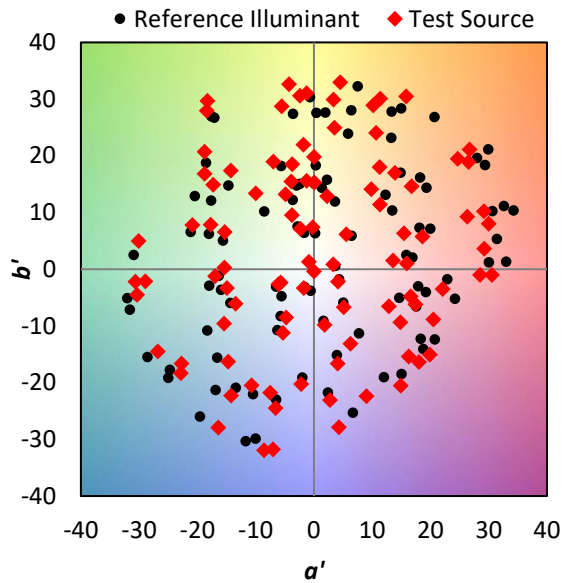
TM-30-18

### Summary

$R_f = 82.2$   
 $R_g = 99.9$   
 $CIE R_a = 82.9$   
 $R_9 = 10.8$



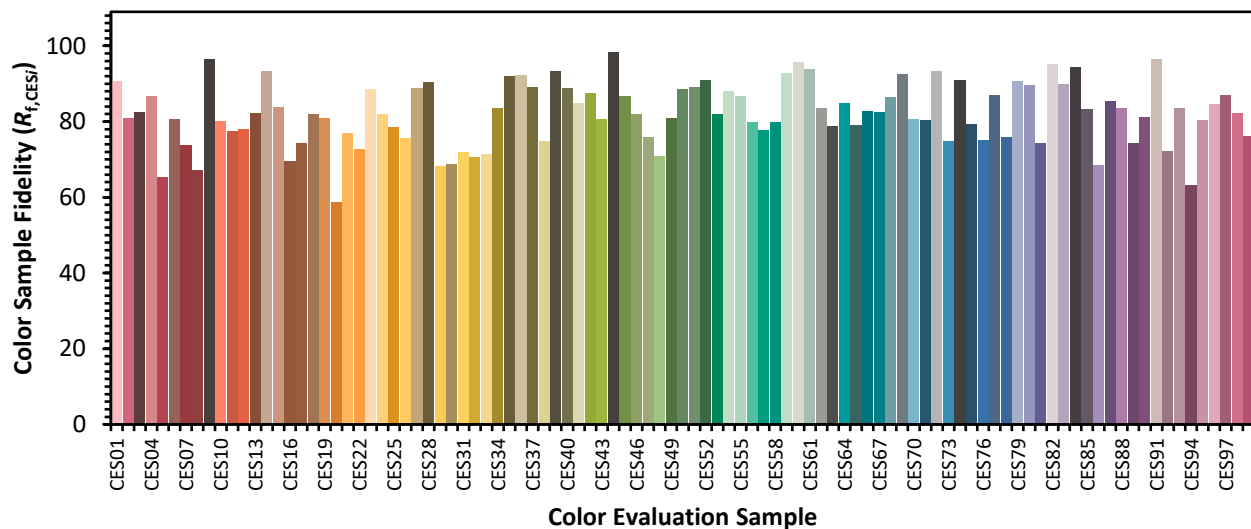
### Color Vector Graphics



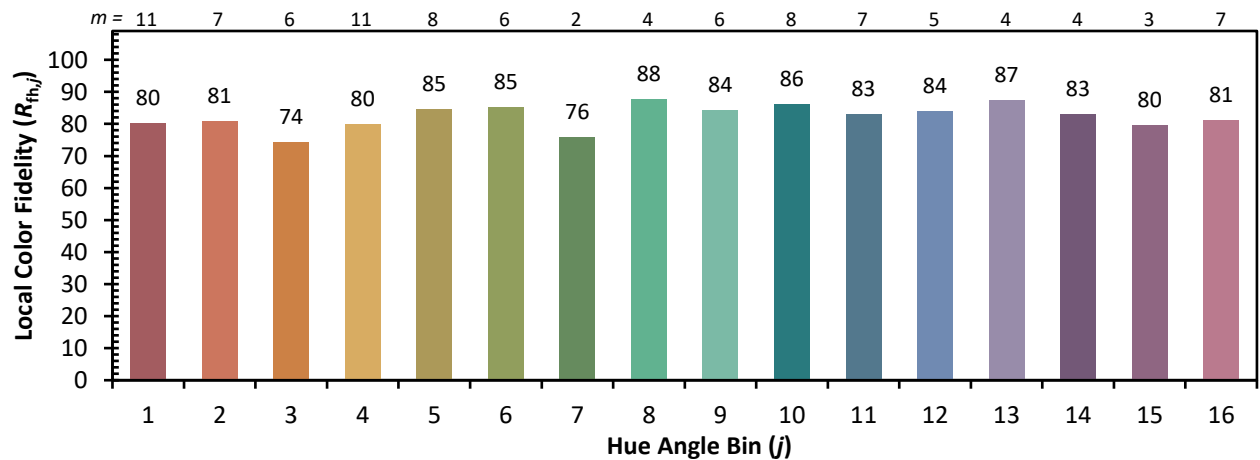
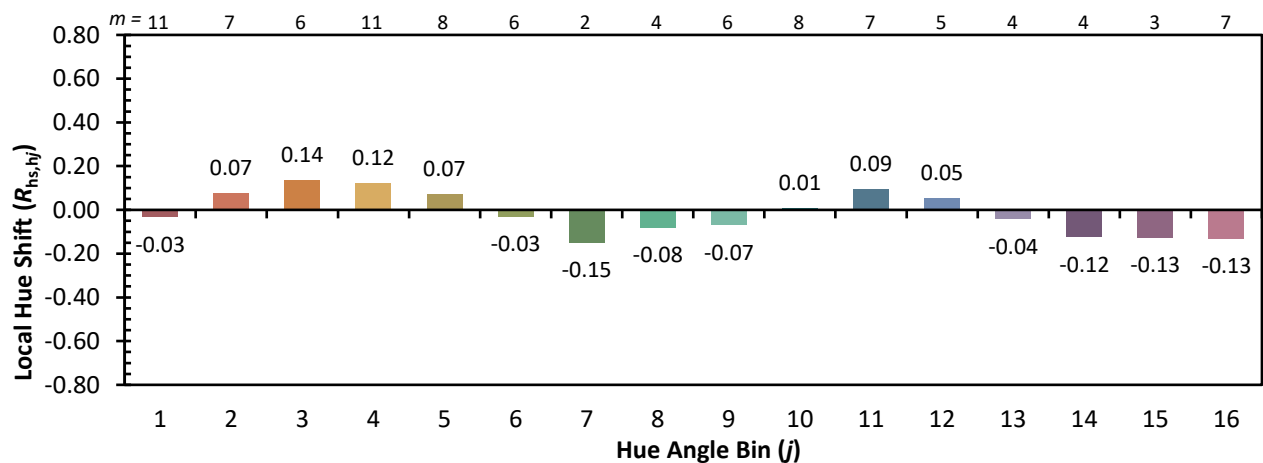
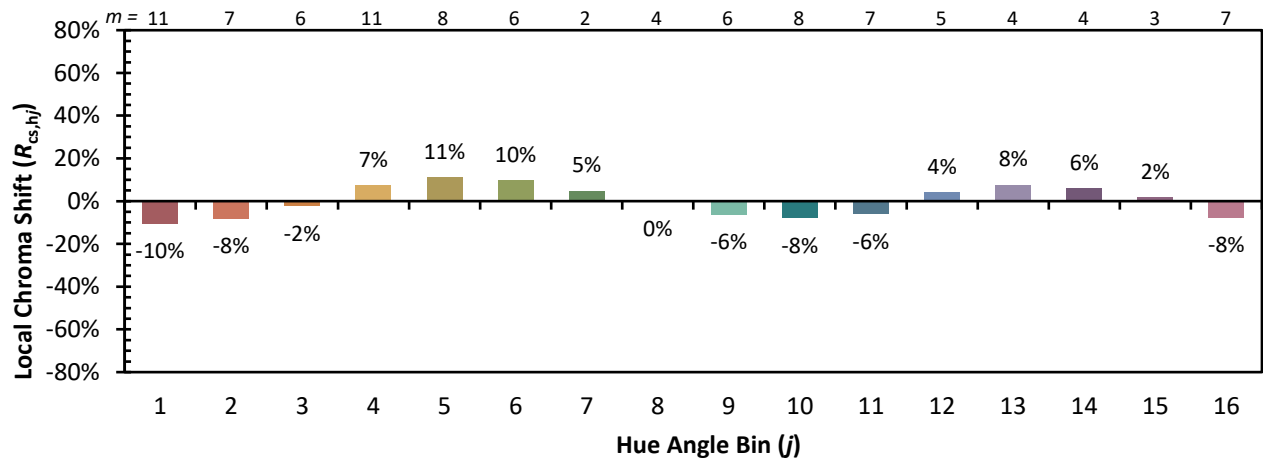


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

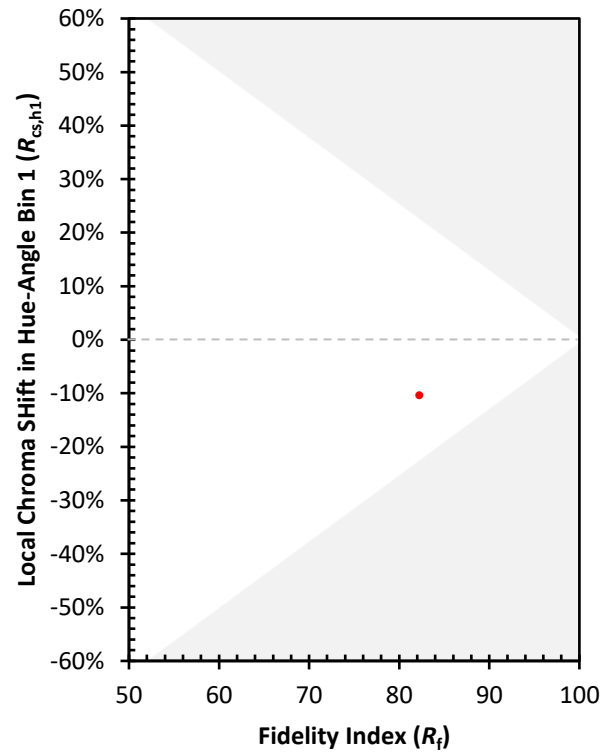
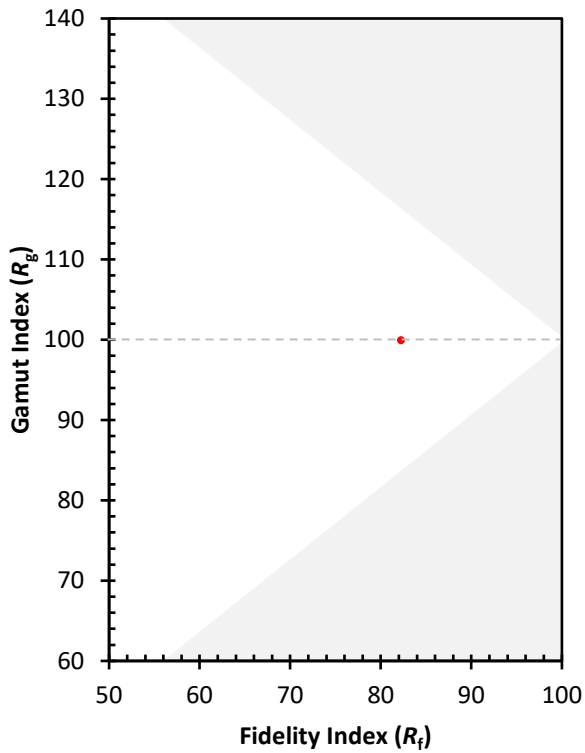
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 76 | CES51 = 89 | CES76 = 75 |
| CES02 = 63 | CES27 = 89 | CES52 = 91 | CES77 = 87 |
| CES03 = 31 | CES28 = 90 | CES53 = 82 | CES78 = 76 |
| CES04 = 71 | CES29 = 68 | CES54 = 88 | CES79 = 91 |
| CES05 = 50 | CES30 = 69 | CES55 = 87 | CES80 = 90 |
| CES06 = 52 | CES31 = 72 | CES56 = 80 | CES81 = 74 |
| CES07 = 43 | CES32 = 71 | CES57 = 78 | CES82 = 95 |
| CES08 = 42 | CES33 = 71 | CES58 = 80 | CES83 = 90 |
| CES09 = 29 | CES34 = 84 | CES59 = 93 | CES84 = 94 |
| CES10 = 77 | CES35 = 92 | CES60 = 96 | CES85 = 83 |
| CES11 = 59 | CES36 = 92 | CES61 = 94 | CES86 = 69 |
| CES12 = 66 | CES37 = 89 | CES62 = 84 | CES87 = 85 |
| CES13 = 44 | CES38 = 75 | CES63 = 79 | CES88 = 84 |
| CES14 = 74 | CES39 = 93 | CES64 = 85 | CES89 = 74 |
| CES15 = 72 | CES40 = 89 | CES65 = 79 | CES90 = 81 |
| CES16 = 48 | CES41 = 85 | CES66 = 83 | CES91 = 96 |
| CES17 = 50 | CES42 = 88 | CES67 = 82 | CES92 = 72 |
| CES18 = 57 | CES43 = 81 | CES68 = 86 | CES93 = 84 |
| CES19 = 73 | CES44 = 98 | CES69 = 92 | CES94 = 63 |
| CES20 = 67 | CES45 = 87 | CES70 = 81 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 81 | CES96 = 85 |
| CES22 = 79 | CES47 = 76 | CES72 = 93 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 75 | CES98 = 82 |
| CES24 = 91 | CES49 = 81 | CES74 = 91 | CES99 = 76 |
| CES25 = 72 | CES50 = 88 | CES75 = 79 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)