

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: P1062909

Luminaire Tested: **GLAN-SA3A-827-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1062909  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA3A-827-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 3xLight Square PACKAGE  
80CRI 2700K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (42) 2700K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9895.7 lumens  
Efficiency: N/A  
Efficacy: 121.6 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): 81.4  
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

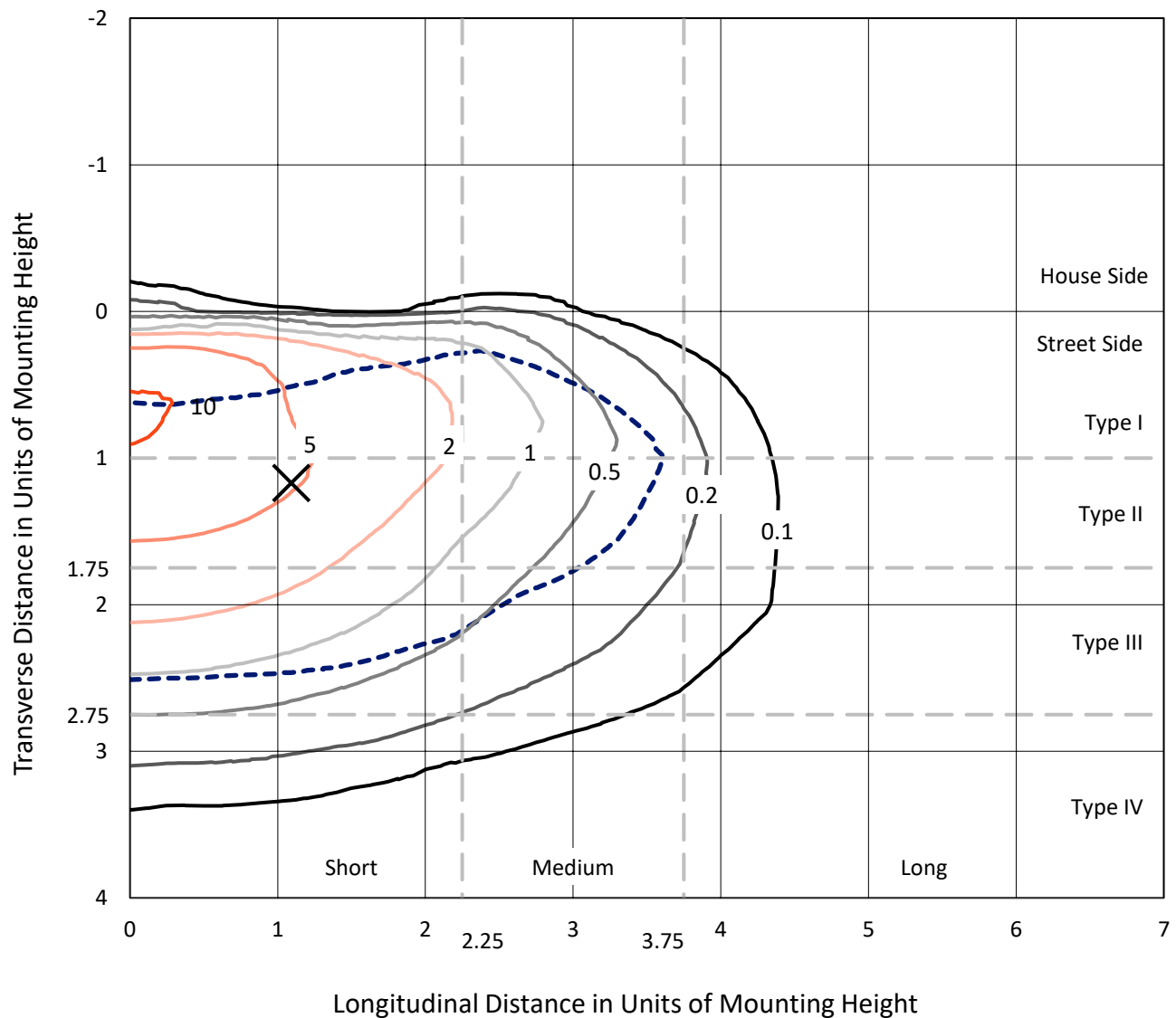


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

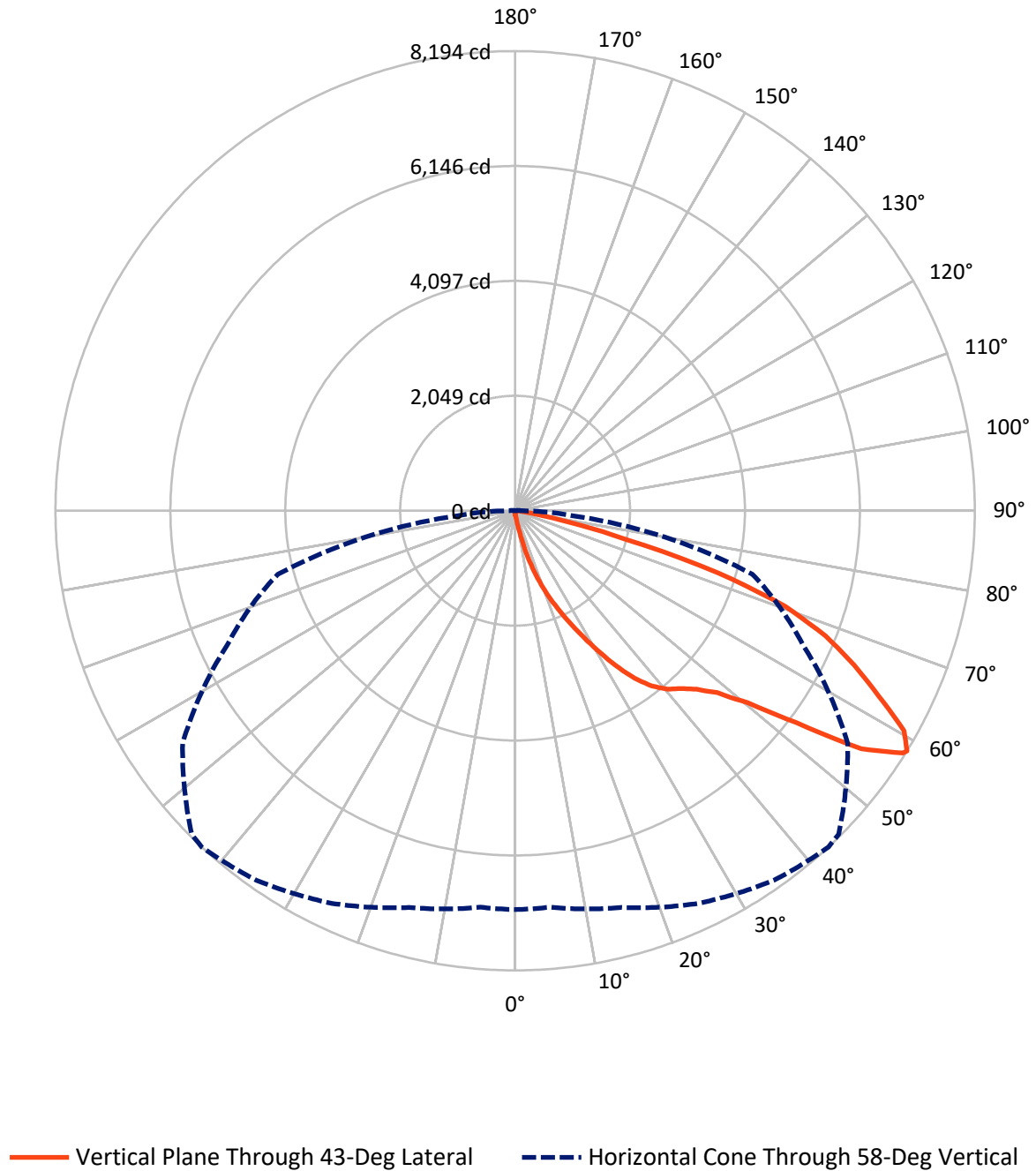


Based on 15 foot mounting height. Maximum calculated value = 11.1 fc  
 Type III - Short - N/A

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CATALOG NUMBER: GLAN-SA3A-827-U-T3BC

## Luminous Intensity Polar Plot



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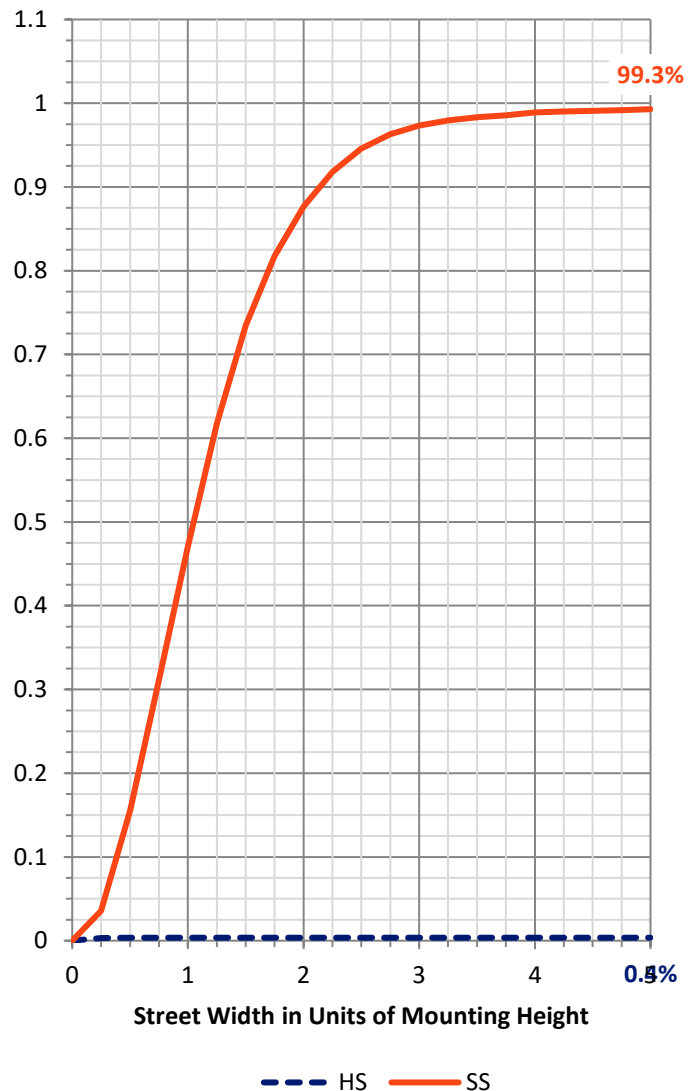
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 36.1     | 0.0    | 36.1   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 9859.6   | 0.0    | 9859.6 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 9895.7   | 0.0    | 9895.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 9.5    | 0.1       |
| 10°-20°   | 113.7  | 1.1       |
| 20°-30°   | 410.0  | 4.1       |
| 30°-40°   | 938.0  | 9.5       |
| 40°-50°   | 1582.1 | 16.0      |
| 50°-60°   | 2610.9 | 26.4      |
| 60°-70°   | 2918.0 | 29.5      |
| 70°-80°   | 1204.8 | 12.2      |
| 80°-90°   | 108.6  | 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°    | 9895.7 | 100.0     |
| 0°-180°   | 9895.7 | 100.0     |



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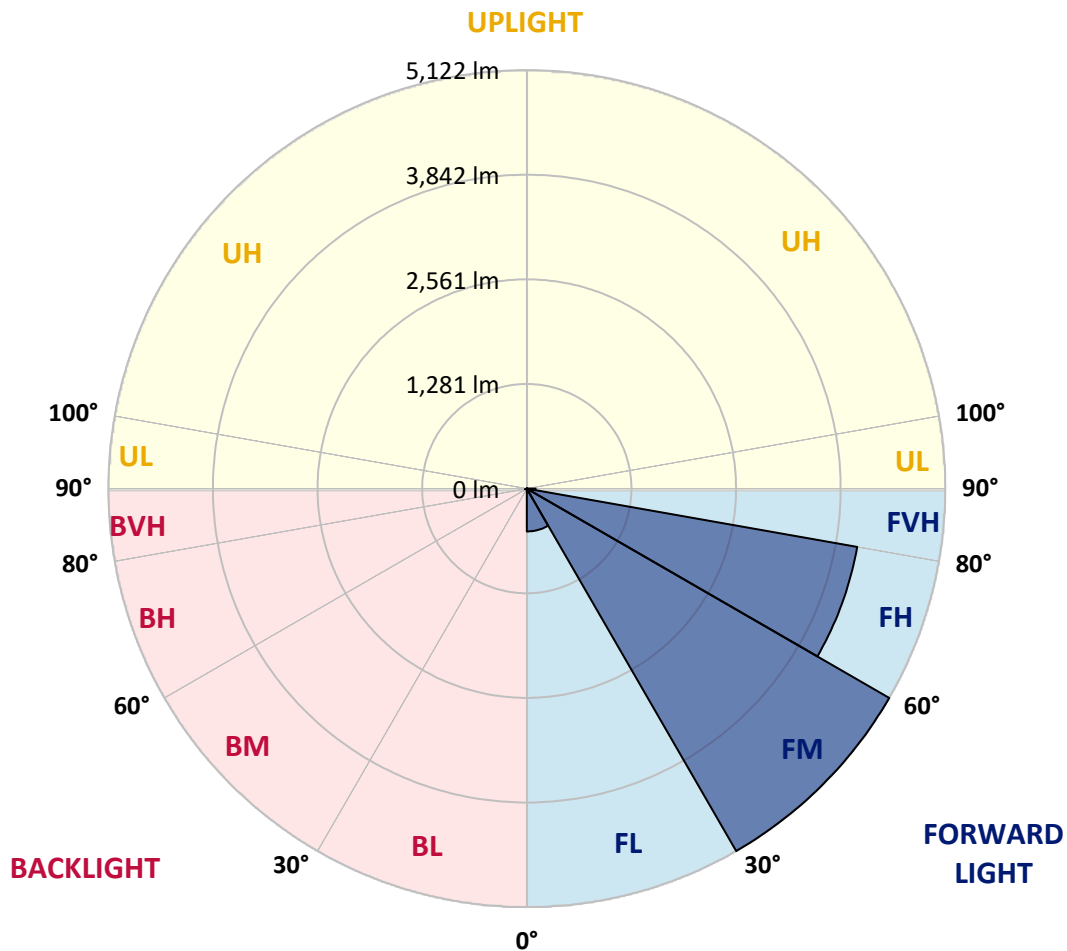
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 523.8  | 5.3       |                         |      |         |
| FM   | (30°-60°)   | 5122.4 | 51.8      |                         |      |         |
| FH   | (60°-80°)   | 4106.3 | 41.5      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 107.1  | 1.1       |                         |      | G2/225  |
| BL   | (0°-30°)    | 9.4    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 8.7    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 16.6   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.5    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

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

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 43°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 64.7   | 64.7   | 64.7   | 64.7   | 64.7   | 64.7   | 64.7   | 64.7   | 64.7   | 64.7   | 64.7   |
| 2.5°  | 77.6   | 80.2   | 77.6   | 77.6   | 77.6   | 75.1   | 75.1   | 72.5   | 72.5   | 69.9   | 67.3   |
| 5°    | 113.9  | 113.9  | 106.1  | 100.9  | 95.8   | 93.2   | 90.6   | 85.4   | 80.2   | 75.1   | 69.9   |
| 7.5°  | 253.6  | 253.6  | 230.3  | 199.3  | 157.9  | 134.6  | 129.4  | 106.1  | 90.6   | 80.2   | 69.9   |
| 10°   | 605.6  | 605.6  | 553.9  | 468.5  | 362.3  | 269.2  | 240.7  | 152.7  | 108.7  | 85.4   | 72.5   |
| 12.5° | 1006.8 | 1019.7 | 955.0  | 846.3  | 688.4  | 525.4  | 468.5  | 279.5  | 144.9  | 93.2   | 72.5   |
| 15°   | 1366.5 | 1335.5 | 1317.4 | 1213.8 | 1063.7 | 869.6  | 797.1  | 471.0  | 209.6  | 106.1  | 72.5   |
| 17.5° | 1609.8 | 1609.8 | 1583.9 | 1514.1 | 1376.9 | 1206.1 | 1146.5 | 760.9  | 339.0  | 121.6  | 75.1   |
| 20°   | 1894.5 | 1894.5 | 1847.9 | 1798.8 | 1677.1 | 1532.2 | 1475.2 | 1081.8 | 525.4  | 155.3  | 75.1   |
| 22.5° | 2238.7 | 2243.9 | 2192.2 | 2104.2 | 1987.7 | 1827.2 | 1778.0 | 1379.5 | 760.9  | 207.1  | 77.6   |
| 25°   | 2658.0 | 2663.2 | 2588.1 | 2505.3 | 2326.7 | 2153.3 | 2078.3 | 1721.1 | 1048.2 | 289.9  | 77.6   |
| 27.5° | 3121.3 | 3157.5 | 3046.2 | 2903.9 | 2715.0 | 2497.6 | 2440.6 | 2029.1 | 1332.9 | 408.9  | 82.8   |
| 30°   | 3698.4 | 3698.4 | 3550.9 | 3351.6 | 3147.2 | 2878.0 | 2805.5 | 2352.6 | 1635.7 | 566.8  | 88.0   |
| 32.5° | 4195.4 | 4156.5 | 3967.6 | 3758.0 | 3540.6 | 3289.5 | 3211.9 | 2691.7 | 1946.3 | 763.5  | 98.3   |
| 35°   | 4575.8 | 4542.2 | 4309.2 | 4084.1 | 3895.1 | 3664.8 | 3571.6 | 3059.2 | 2275.0 | 986.1  | 113.9  |
| 37.5° | 4901.9 | 4889.0 | 4573.2 | 4291.1 | 4166.9 | 3965.0 | 3882.2 | 3406.0 | 2598.5 | 1226.8 | 132.0  |
| 40°   | 5259.1 | 5217.7 | 4881.2 | 4531.8 | 4345.5 | 4182.4 | 4107.4 | 3685.5 | 2909.1 | 1508.9 | 157.9  |
| 42.5° | 5564.5 | 5515.3 | 5212.5 | 4870.9 | 4552.5 | 4332.5 | 4260.1 | 3921.0 | 3211.9 | 1791.0 | 191.5  |
| 45°   | 5903.5 | 5877.7 | 5572.3 | 5313.4 | 4889.0 | 4537.0 | 4441.2 | 4110.0 | 3488.8 | 2127.4 | 235.5  |
| 47.5° | 6413.4 | 6366.8 | 6082.1 | 5869.9 | 5378.1 | 4847.6 | 4710.4 | 4304.1 | 3755.4 | 2458.7 | 302.8  |
| 50°   | 7006.1 | 6975.0 | 6806.8 | 6638.6 | 6149.4 | 5378.1 | 5215.1 | 4583.6 | 4053.0 | 2852.1 | 390.8  |
| 52.5° | 7490.1 | 7484.9 | 7505.6 | 7508.2 | 7138.1 | 6271.1 | 6027.8 | 5033.9 | 4394.7 | 3240.3 | 515.0  |
| 55°   | 7479.7 | 7503.0 | 7730.8 | 7992.2 | 8020.6 | 7490.1 | 7254.5 | 5792.3 | 4839.8 | 3719.2 | 688.4  |
| 57.5° | 7200.2 | 7182.1 | 7422.8 | 7816.2 | 8093.1 | 8150.0 | 8111.2 | 6969.9 | 5510.1 | 4296.3 | 955.0  |
| 58°   | 7109.6 | 7094.1 | 7321.8 | 7723.0 | 8041.3 | 8194.0 | 8155.2 | 7236.4 | 5660.3 | 4379.1 | 1027.5 |
| 60°   | 6780.9 | 6783.5 | 6918.1 | 7283.0 | 7601.4 | 7963.7 | 7999.9 | 7997.3 | 6408.2 | 4933.0 | 1392.4 |
| 62.5° | 6346.1 | 6325.4 | 6449.6 | 6747.3 | 7026.8 | 7270.1 | 7332.2 | 8049.1 | 7503.0 | 5637.0 | 2088.6 |
| 65°   | 5745.7 | 5714.6 | 5846.6 | 6183.1 | 6483.3 | 6641.2 | 6643.7 | 7355.5 | 8018.0 | 6392.7 | 3082.5 |
| 67.5° | 4630.2 | 4604.3 | 4868.3 | 5300.5 | 5763.8 | 5970.8 | 6064.0 | 6382.3 | 7583.2 | 6905.1 | 3651.9 |
| 70°   | 2836.6 | 2890.9 | 3258.5 | 3936.6 | 4728.5 | 5109.0 | 5248.7 | 5347.1 | 6457.4 | 6827.5 | 3054.0 |
| 72.5° | 1309.6 | 1244.9 | 1558.1 | 2031.7 | 2934.9 | 3781.3 | 3926.2 | 4311.8 | 5119.3 | 5926.8 | 2277.6 |
| 75°   | 610.8  | 587.5  | 660.0  | 887.7  | 1330.3 | 2042.0 | 2306.0 | 3442.2 | 3926.2 | 4122.9 | 1643.5 |
| 77.5° | 313.2  | 315.8  | 375.3  | 403.7  | 548.7  | 944.7  | 1084.4 | 2264.6 | 2878.0 | 2300.9 | 1102.5 |
| 80°   | 137.2  | 142.3  | 144.9  | 157.9  | 222.6  | 364.9  | 411.5  | 1050.8 | 1967.0 | 1172.4 | 603.0  |
| 82.5° | 88.0   | 90.6   | 90.6   | 90.6   | 106.1  | 144.9  | 165.6  | 421.9  | 980.9  | 582.3  | 186.3  |
| 85°   | 46.6   | 46.6   | 51.8   | 64.7   | 75.1   | 88.0   | 93.2   | 134.6  | 323.5  | 173.4  | 44.0   |
| 87.5° | 25.9   | 28.5   | 31.1   | 38.8   | 49.2   | 59.5   | 64.7   | 93.2   | 124.2  | 119.1  | 10.4   |
| 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-SA3A-827-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 64.7   | 64.7 | 64.7 | 64.7 | 64.7 | 64.7 | 64.7 | 64.7 | 64.7 | 64.7 | 64.7 |
| 2.5°  | 67.3   | 64.7 | 62.1 | 59.5 | 56.9 | 54.4 | 54.4 | 54.4 | 54.4 | 54.4 | 54.4 |
| 5°    | 64.7   | 62.1 | 59.5 | 54.4 | 49.2 | 46.6 | 44.0 | 41.4 | 41.4 | 41.4 | 41.4 |
| 7.5°  | 64.7   | 62.1 | 54.4 | 49.2 | 44.0 | 38.8 | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 |
| 10°   | 64.7   | 59.5 | 51.8 | 44.0 | 36.2 | 31.1 | 28.5 | 25.9 | 25.9 | 25.9 | 25.9 |
| 12.5° | 64.7   | 56.9 | 49.2 | 38.8 | 31.1 | 25.9 | 23.3 | 20.7 | 20.7 | 20.7 | 20.7 |
| 15°   | 64.7   | 56.9 | 46.6 | 36.2 | 28.5 | 20.7 | 18.1 | 15.5 | 15.5 | 15.5 | 15.5 |
| 17.5° | 62.1   | 54.4 | 44.0 | 31.1 | 23.3 | 15.5 | 12.9 | 10.4 | 10.4 | 12.9 | 12.9 |
| 20°   | 59.5   | 51.8 | 38.8 | 25.9 | 18.1 | 12.9 | 7.8  | 7.8  | 7.8  | 7.8  | 7.8  |
| 22.5° | 59.5   | 51.8 | 36.2 | 23.3 | 15.5 | 7.8  | 5.2  | 5.2  | 5.2  | 5.2  | 7.8  |
| 25°   | 59.5   | 49.2 | 31.1 | 18.1 | 10.4 | 5.2  | 2.6  | 2.6  | 2.6  | 2.6  | 2.6  |
| 27.5° | 59.5   | 49.2 | 28.5 | 15.5 | 7.8  | 5.2  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  |
| 30°   | 56.9   | 46.6 | 25.9 | 12.9 | 5.2  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 32.5° | 56.9   | 44.0 | 20.7 | 10.4 | 5.2  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 35°   | 59.5   | 41.4 | 18.1 | 7.8  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 2.6  |
| 37.5° | 62.1   | 38.8 | 15.5 | 5.2  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 64.7   | 36.2 | 15.5 | 5.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 69.9   | 36.2 | 12.9 | 5.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 75.1   | 36.2 | 10.4 | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 85.4   | 38.8 | 10.4 | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 93.2   | 41.4 | 7.8  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 103.5  | 38.8 | 7.8  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 116.5  | 38.8 | 7.8  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 126.8  | 36.2 | 7.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 58°   | 132.0  | 33.6 | 5.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 157.9  | 31.1 | 5.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 245.9  | 25.9 | 5.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 499.5  | 23.3 | 5.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 931.7  | 20.7 | 5.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 1043.0 | 23.3 | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 657.4  | 18.1 | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 346.8  | 18.1 | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 173.4  | 18.1 | 2.6  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 80.2   | 12.9 | 2.6  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 33.6   | 7.8  | 5.2  | 2.6  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 15.5   | 7.8  | 5.2  | 5.2  | 2.6  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 7.8    | 7.8  | 7.8  | 5.2  | 5.2  | 2.6  | 2.6  | 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: SP1-2407-184-8

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

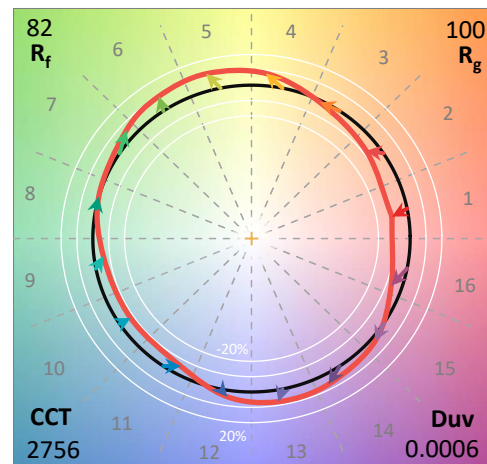
### Test Information

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

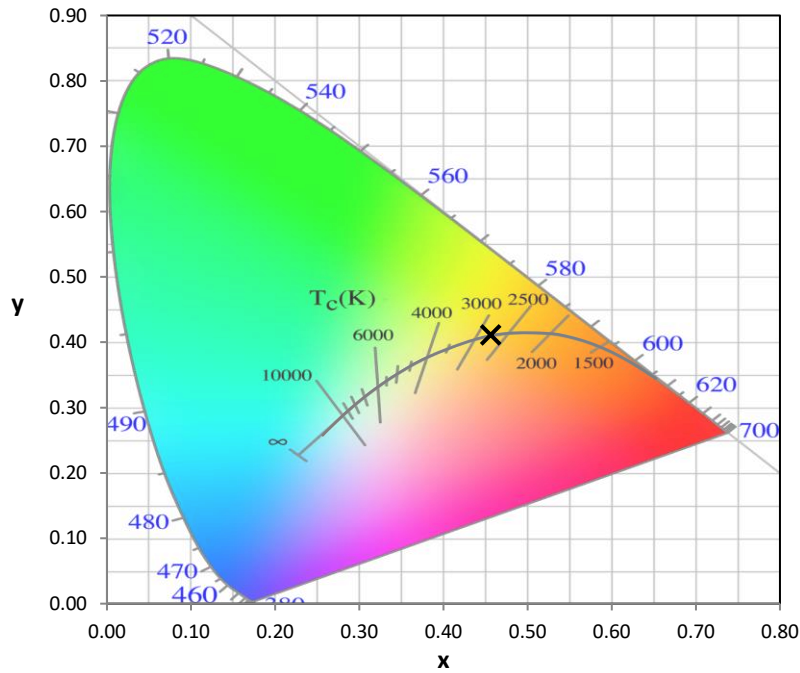
Stabilization Time: 29M  
 Operation Time: 1H 29M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-8

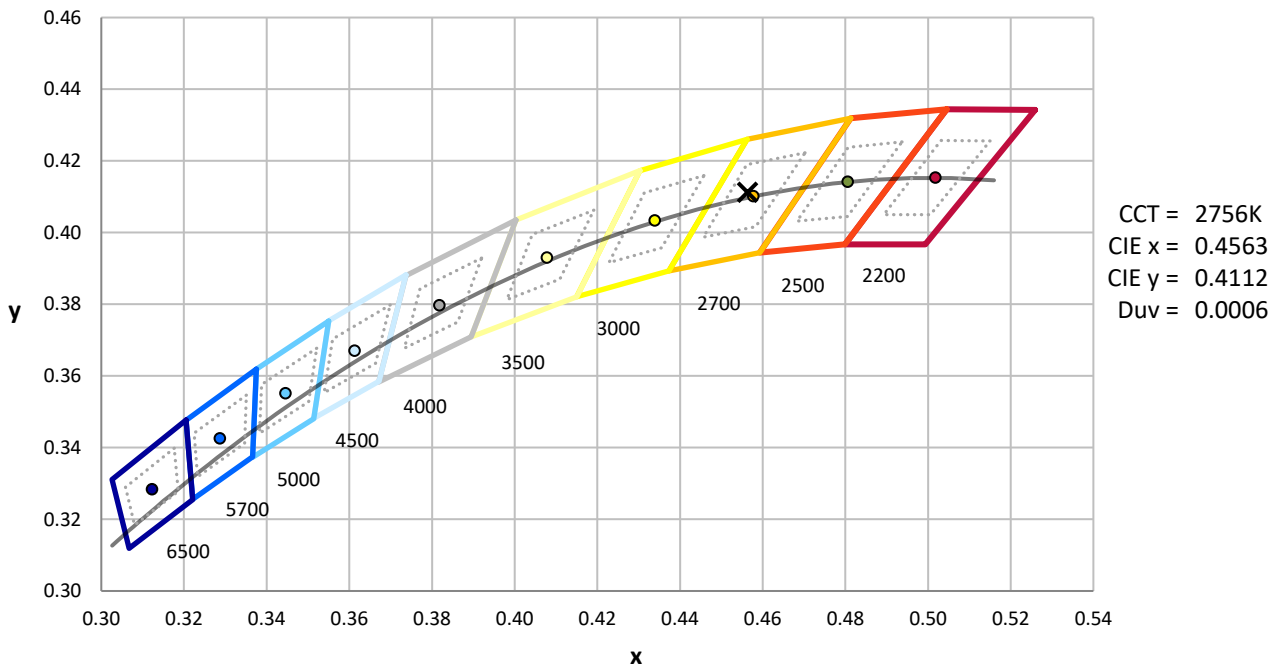
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



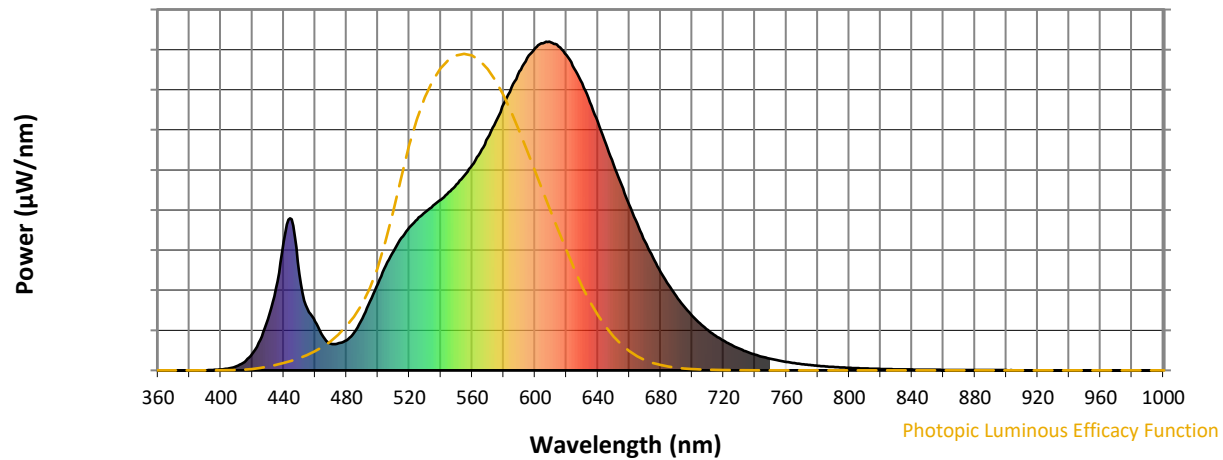
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

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### Photopic Flux vs. Wavelength

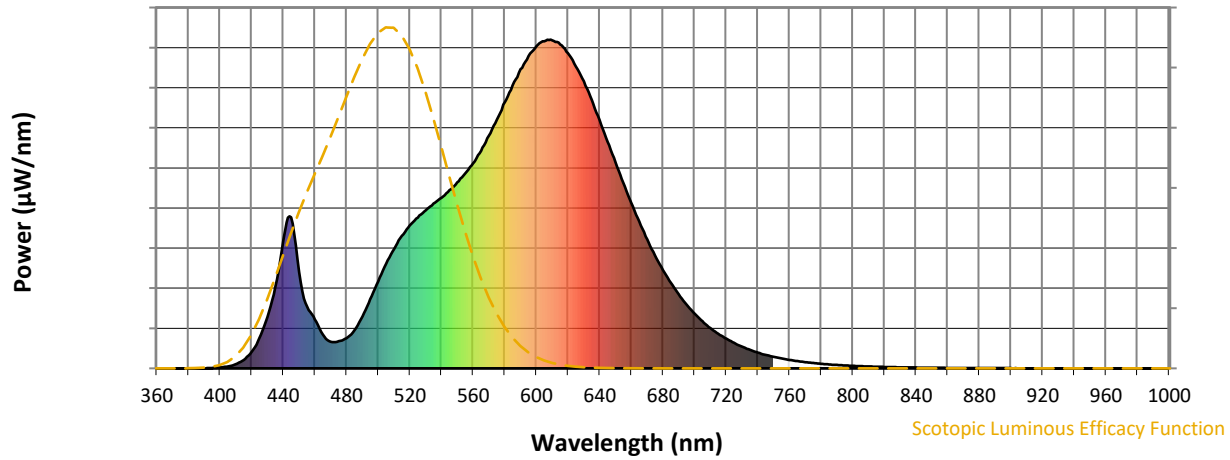


### Photopic Lumens: NR

| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 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



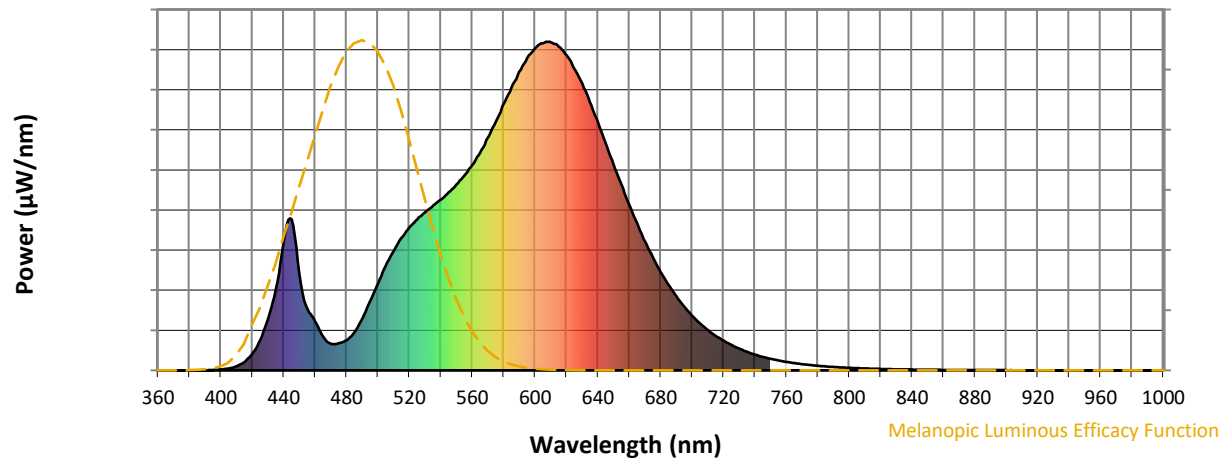
Scotopic Lumens: NR

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**

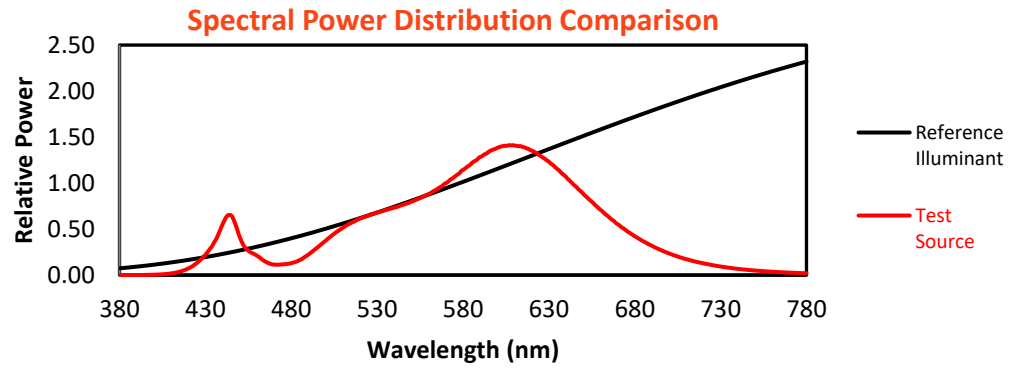
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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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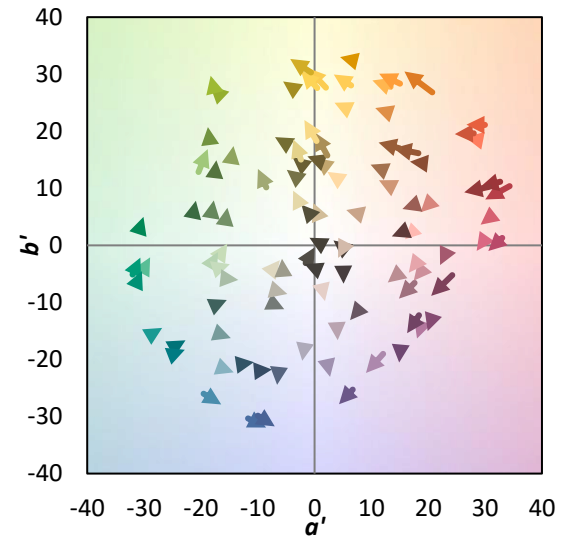
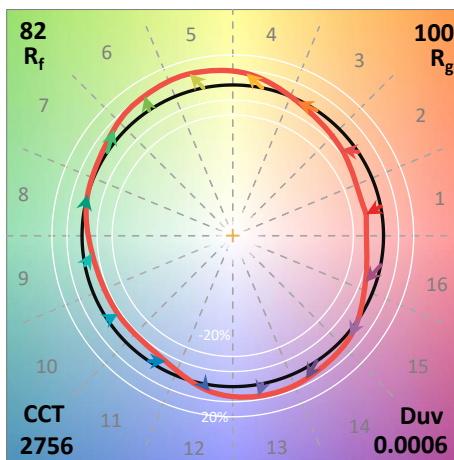
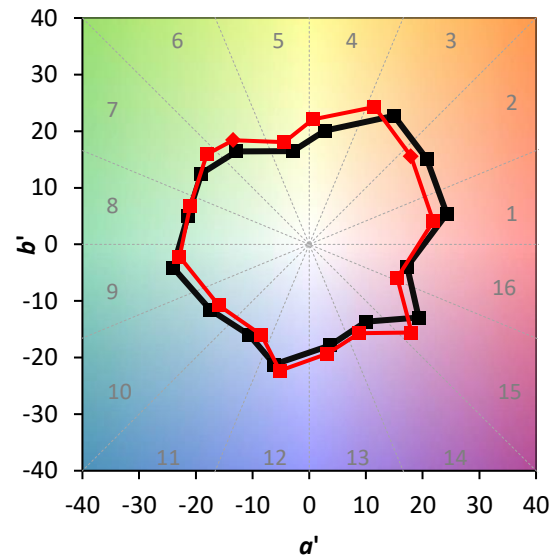
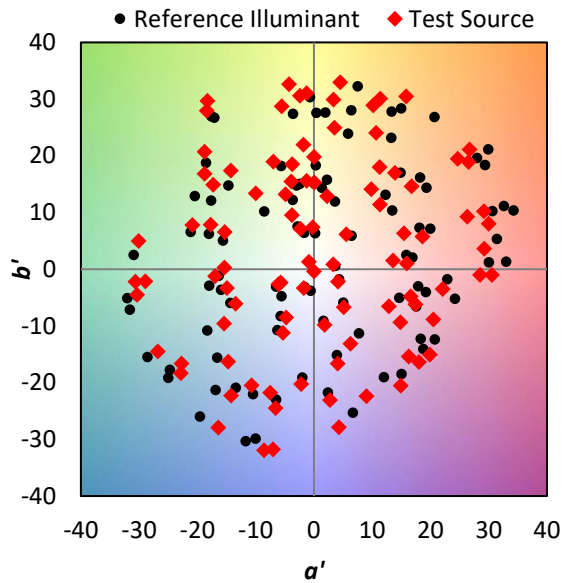
TM-30-18

### Summary

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



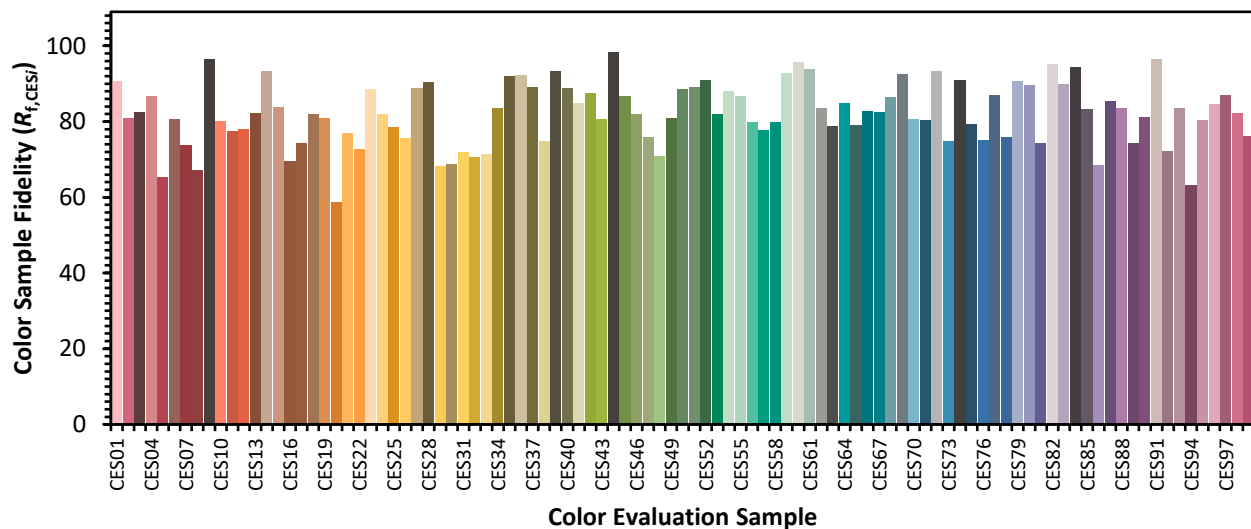
### Color Vector Graphics



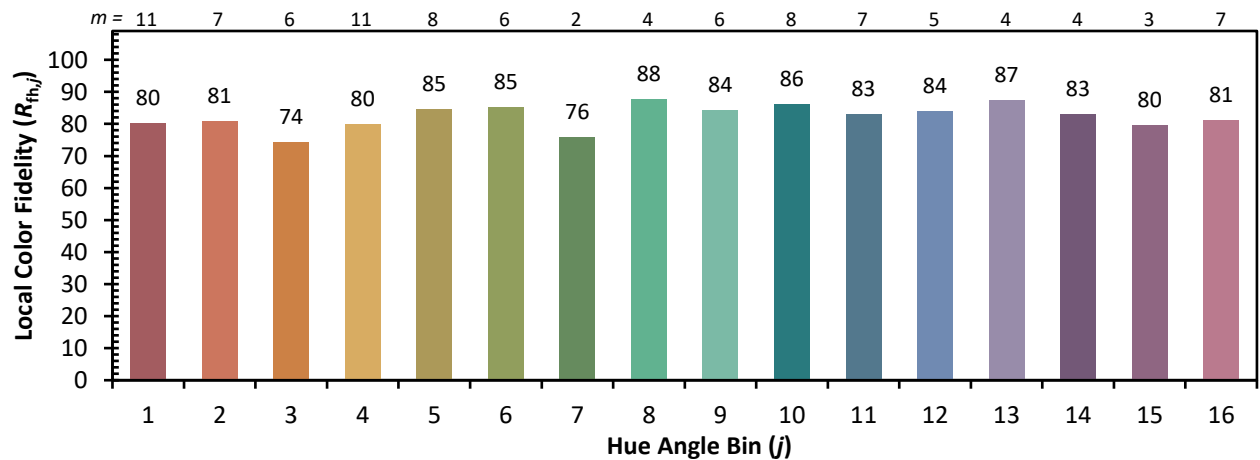
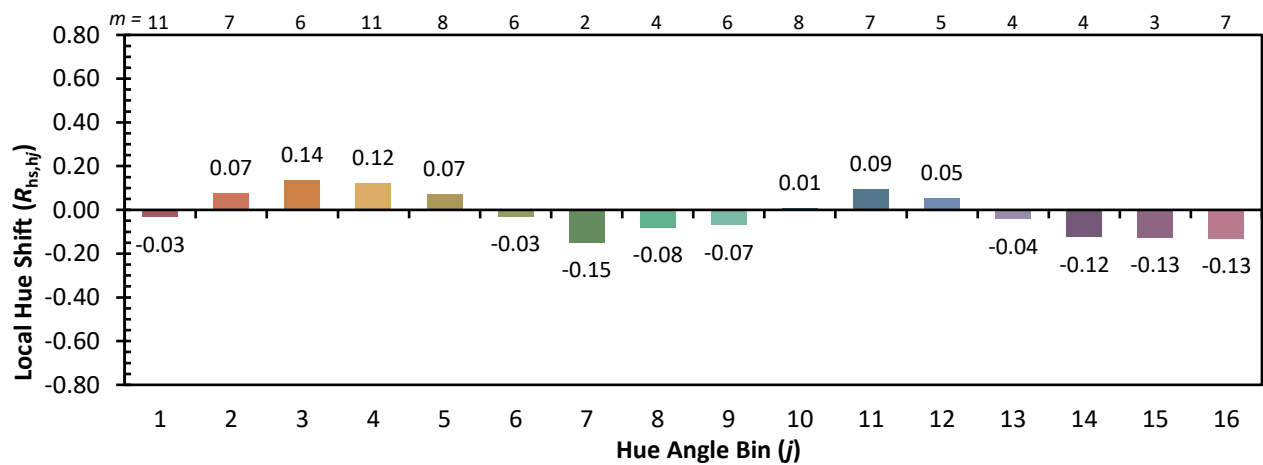
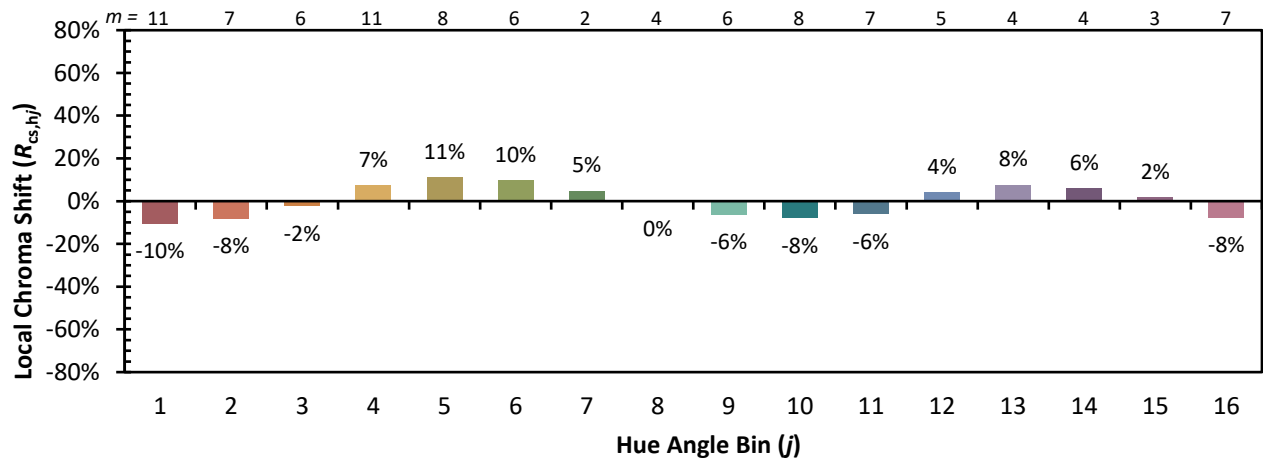


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

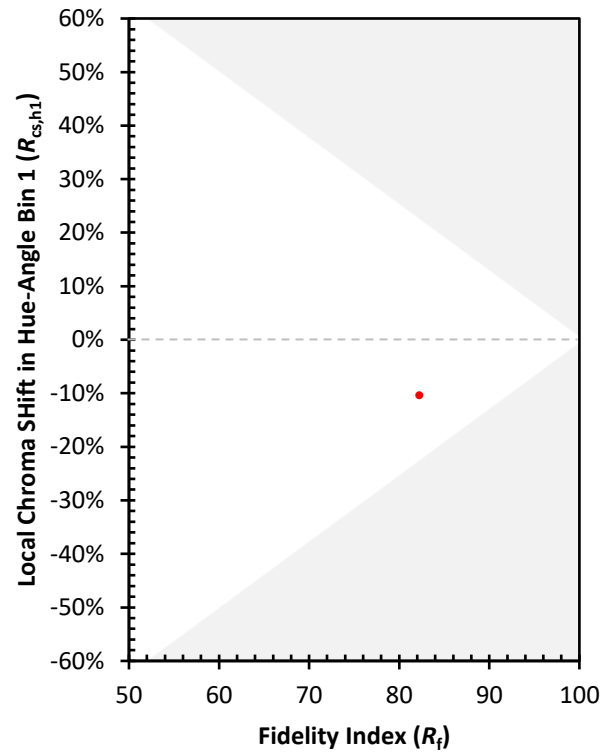
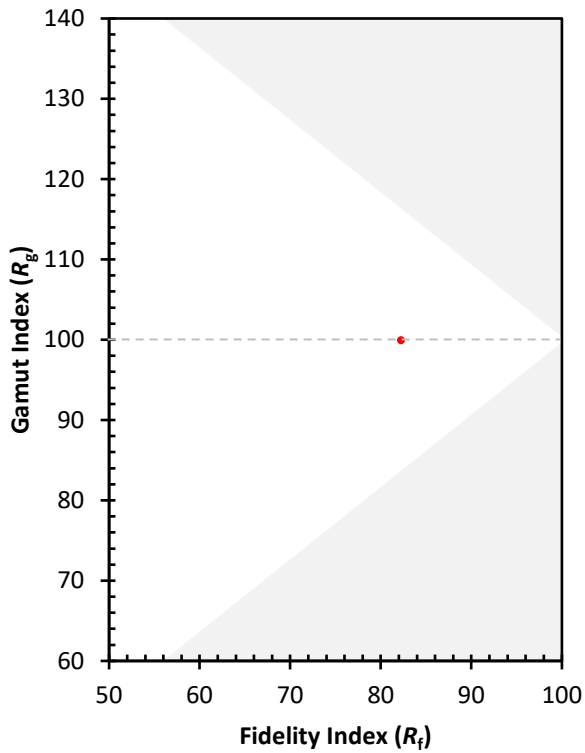
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 76 | CES51 = 89 | CES76 = 75 |
| CES02 = 63 | CES27 = 89 | CES52 = 91 | CES77 = 87 |
| CES03 = 31 | CES28 = 90 | CES53 = 82 | CES78 = 76 |
| CES04 = 71 | CES29 = 68 | CES54 = 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)