

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: P1063335

Luminaire Tested: **GLAN-SA1C-727-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063335  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA1C-727-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 1xLight Square PACKAGE  
70CRI 2700K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (14) 2700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5158.7 lumens  
Efficiency: N/A  
Efficacy: 102.8 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G1

Input Watts (W): 50.2  
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

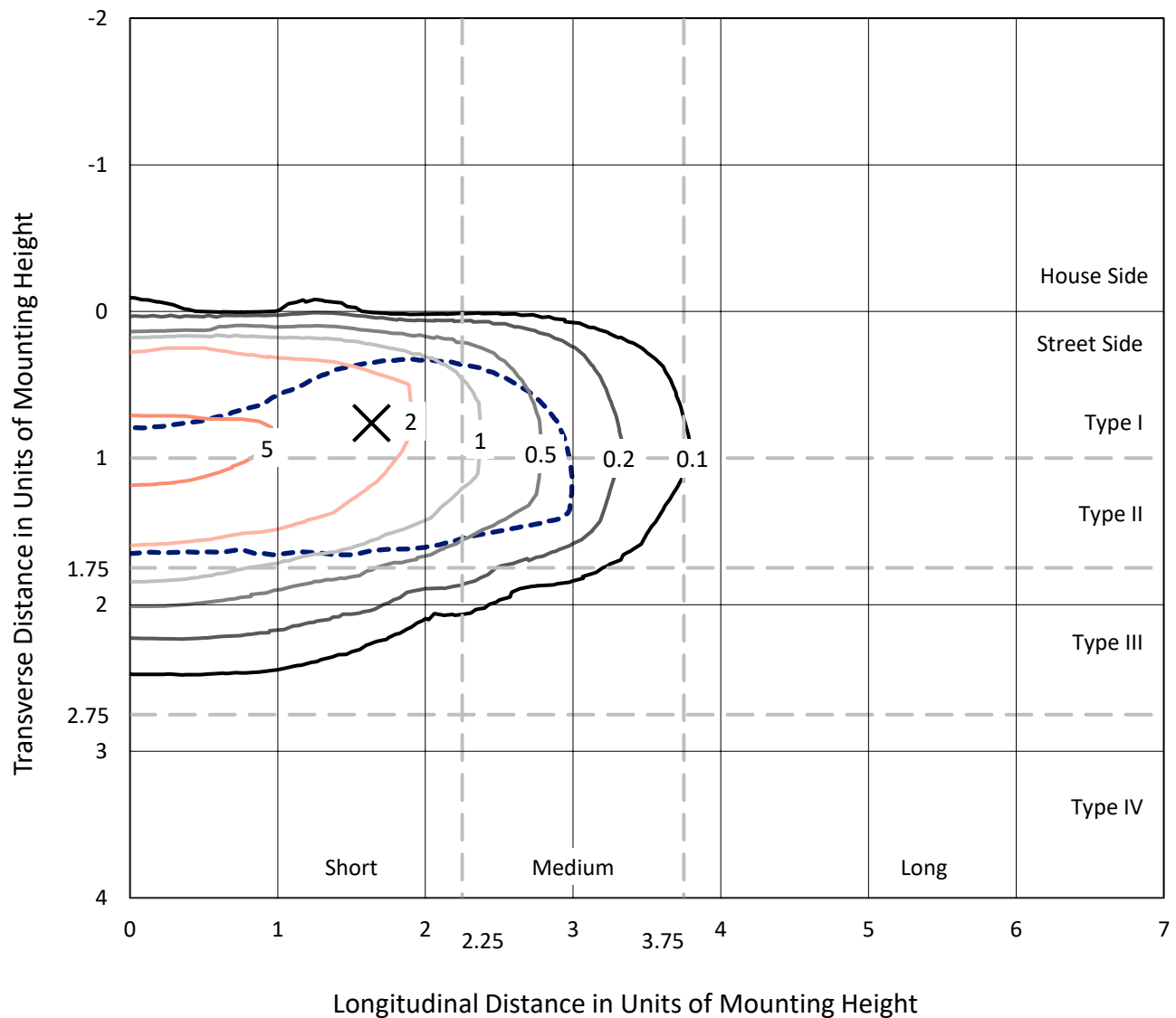


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

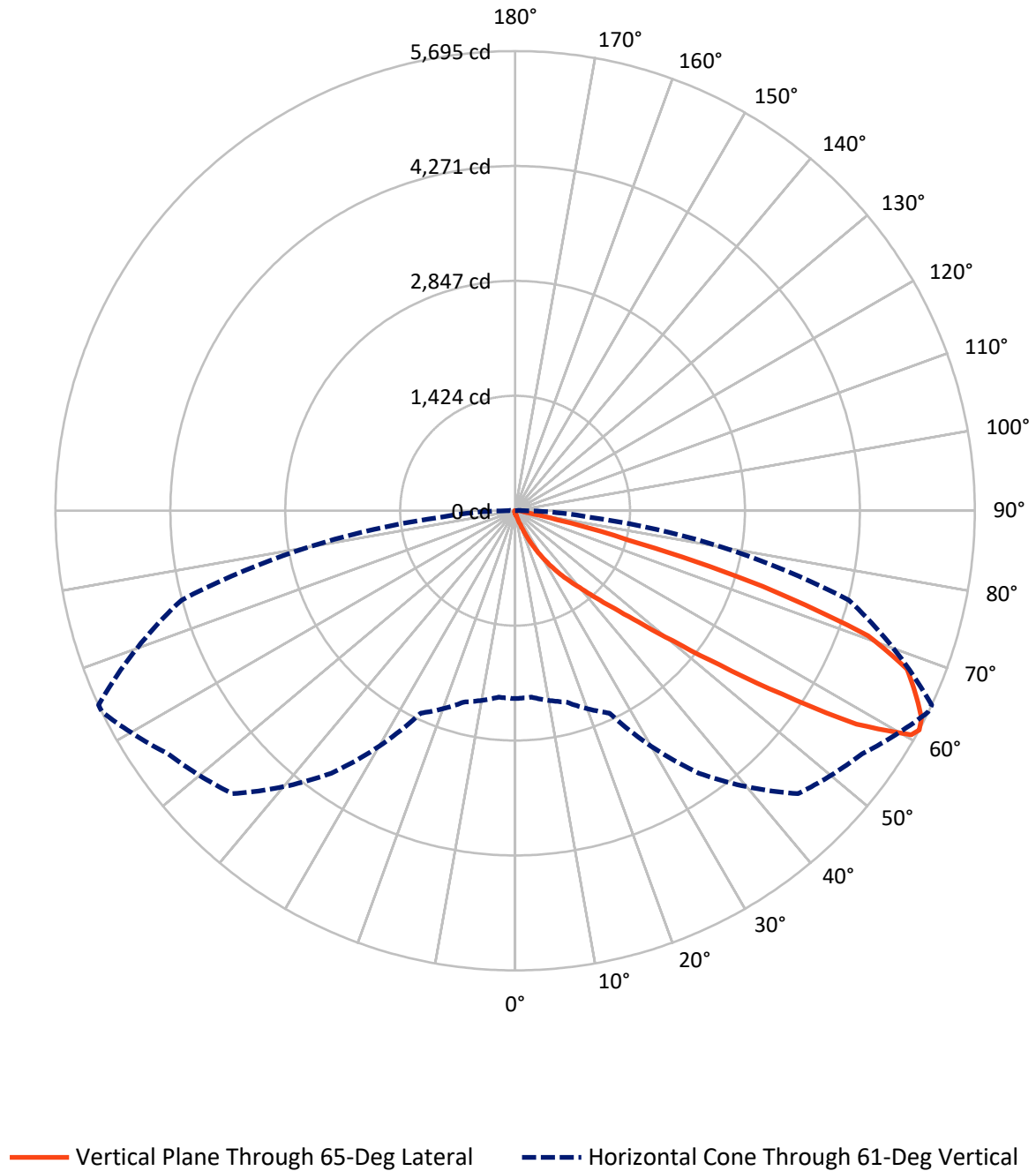


Based on 15 foot mounting height. Maximum calculated value = 6.8 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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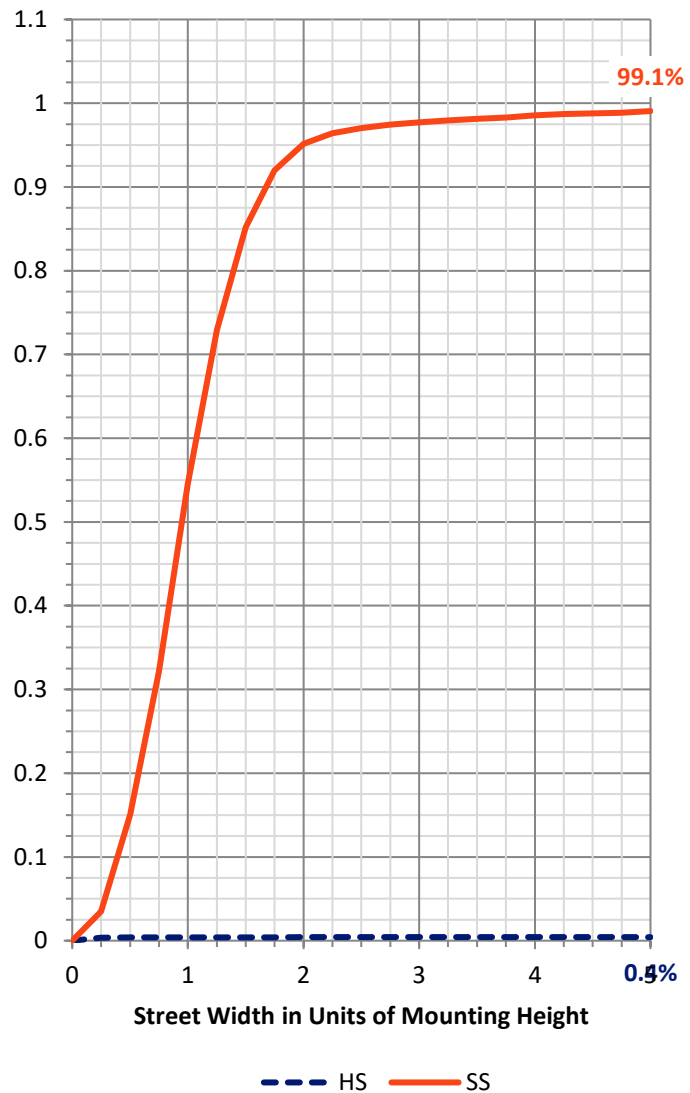
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 22.0     | 0.0    | 22.0   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 5136.6   | 0.0    | 5136.6 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 5158.7   | 0.0    | 5158.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 4.0    | 0.1       |
| 10°-20°   | 42.4   | 0.8       |
| 20°-30°   | 152.2  | 3.0       |
| 30°-40°   | 405.3  | 7.9       |
| 40°-50°   | 1064.8 | 20.6      |
| 50°-60°   | 1649.5 | 32.0      |
| 60°-70°   | 1383.1 | 26.8      |
| 70°-80°   | 407.0  | 7.9       |
| 80°-90°   | 50.2   | 1.0       |
| 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°    | 5158.7 | 100.0     |
| 0°-180°   | 5158.7 | 100.0     |



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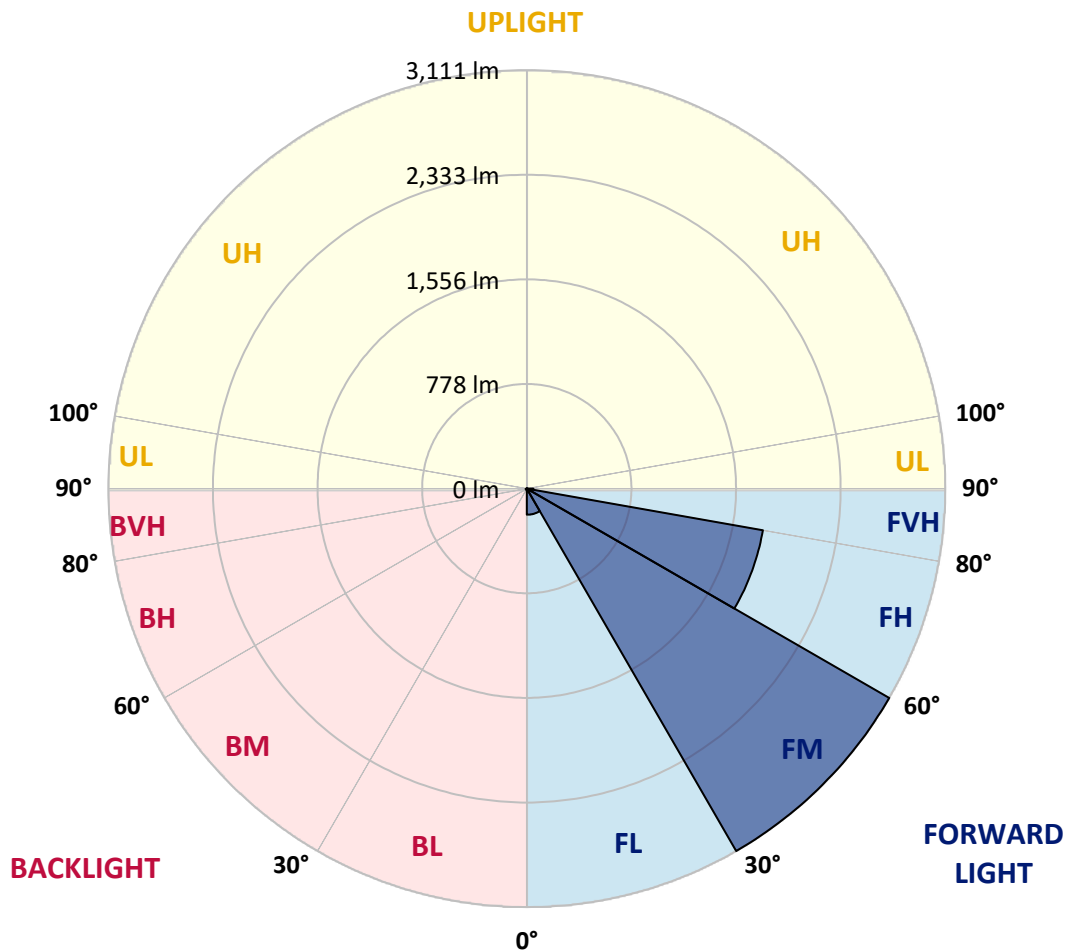
CATALOG NUMBER: GLAN-SA1C-727-U-T2BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 193.7  | 3.8       |                         |      |         |
| FM   | (30°-60°)   | 3111.3 | 60.3      |                         |      |         |
| FH   | (60°-80°)   | 1782.4 | 34.6      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 49.3   | 1.0       |                         |      | G1/100  |
| BL   | (0°-30°)    | 4.9    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 8.4    | 0.2       | B0/220                  |      |         |
| BH   | (60°-80°)   | 7.8    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 0.9    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G1**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 64°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 31.6   | 31.6   | 31.6   | 31.6   | 31.6   | 31.6   | 31.6   | 31.6   | 31.6   | 31.6   | 31.6   |
| 2.5°  | 38.3   | 38.7   | 38.0   | 36.6   | 35.5   | 35.5   | 35.1   | 34.1   | 34.1   | 33.0   | 32.3   |
| 5°    | 53.6   | 52.9   | 51.5   | 48.6   | 46.1   | 43.6   | 41.2   | 38.7   | 38.3   | 35.1   | 33.0   |
| 7.5°  | 87.7   | 88.4   | 83.7   | 74.9   | 67.4   | 57.8   | 49.0   | 43.6   | 42.9   | 37.6   | 33.4   |
| 10°   | 192.3  | 187.0  | 176.4  | 141.9  | 116.7  | 88.0   | 65.3   | 50.7   | 50.0   | 40.5   | 34.1   |
| 12.5° | 350.6  | 346.3  | 326.8  | 291.3  | 226.4  | 157.6  | 95.5   | 62.8   | 60.7   | 42.9   | 34.4   |
| 15°   | 505.3  | 498.6  | 487.9  | 452.1  | 376.2  | 282.5  | 156.1  | 85.9   | 80.2   | 46.5   | 34.1   |
| 17.5° | 604.0  | 605.0  | 595.5  | 580.2  | 531.2  | 418.0  | 269.7  | 128.1  | 117.1  | 52.9   | 33.4   |
| 20°   | 690.2  | 687.7  | 693.0  | 684.9  | 650.5  | 568.1  | 392.5  | 203.0  | 184.2  | 63.2   | 33.7   |
| 22.5° | 789.6  | 795.6  | 799.5  | 797.7  | 759.8  | 689.5  | 531.9  | 303.8  | 280.0  | 82.0   | 34.8   |
| 25°   | 922.6  | 921.9  | 922.3  | 917.7  | 880.8  | 802.7  | 671.8  | 429.0  | 404.9  | 112.5  | 37.3   |
| 27.5° | 1062.1 | 1066.4 | 1068.1 | 1051.5 | 1003.2 | 926.5  | 801.3  | 566.0  | 537.6  | 161.5  | 40.5   |
| 30°   | 1252.7 | 1249.1 | 1240.9 | 1206.9 | 1148.3 | 1053.2 | 929.0  | 709.7  | 679.9  | 230.0  | 45.4   |
| 32.5° | 1509.6 | 1505.7 | 1464.5 | 1389.3 | 1301.6 | 1185.2 | 1057.5 | 853.8  | 817.6  | 315.5  | 52.2   |
| 35°   | 1932.9 | 1939.0 | 1837.8 | 1643.0 | 1485.8 | 1343.9 | 1199.8 | 997.2  | 965.2  | 420.9  | 61.4   |
| 37.5° | 2581.3 | 2548.3 | 2410.9 | 2066.7 | 1728.2 | 1541.9 | 1335.7 | 1141.9 | 1114.3 | 550.7  | 73.5   |
| 40°   | 3211.1 | 3178.5 | 3138.7 | 2812.6 | 2149.4 | 1760.1 | 1525.9 | 1311.9 | 1276.1 | 697.3  | 91.2   |
| 42.5° | 3873.3 | 3855.2 | 3853.4 | 3607.5 | 2918.0 | 2103.3 | 1754.8 | 1511.0 | 1480.5 | 858.1  | 120.3  |
| 45°   | 4342.4 | 4324.3 | 4362.3 | 4405.2 | 3964.9 | 2838.5 | 2153.3 | 1769.7 | 1725.3 | 1053.2 | 166.8  |
| 47.5° | 4405.6 | 4406.3 | 4507.8 | 4642.3 | 4742.7 | 3975.9 | 2684.2 | 2112.5 | 2058.5 | 1332.5 | 244.9  |
| 50°   | 4195.5 | 4203.7 | 4365.1 | 4605.7 | 4876.1 | 4930.1 | 3620.3 | 2610.0 | 2530.2 | 1663.6 | 355.6  |
| 52.5° | 3795.6 | 3804.8 | 4029.8 | 4425.5 | 4753.4 | 5159.3 | 4722.5 | 3260.8 | 3168.9 | 2076.6 | 511.7  |
| 55°   | 3435.4 | 3441.1 | 3699.1 | 4199.1 | 4605.4 | 5034.8 | 5376.9 | 4129.9 | 4009.2 | 2584.8 | 665.7  |
| 57.5° | 3078.8 | 3065.6 | 3233.5 | 3805.9 | 4580.2 | 4881.8 | 5473.4 | 5120.3 | 4987.2 | 3140.2 | 785.7  |
| 60°   | 2601.8 | 2579.8 | 2714.7 | 3078.8 | 4248.8 | 4982.3 | 5292.8 | 5668.2 | 5638.0 | 3913.4 | 878.3  |
| 61°   | 2327.5 | 2318.3 | 2453.9 | 2766.1 | 3969.8 | 4956.7 | 5249.5 | 5691.3 | 5694.5 | 4279.3 | 919.8  |
| 62.5° | 1662.2 | 1688.4 | 1895.7 | 2301.6 | 3325.0 | 4791.0 | 5255.1 | 5619.9 | 5651.5 | 4765.4 | 1027.3 |
| 65°   | 738.8  | 781.0  | 942.2  | 1272.5 | 1933.6 | 3985.4 | 5204.7 | 5463.4 | 5447.8 | 4898.9 | 1397.8 |
| 67.5° | 438.3  | 444.6  | 524.8  | 721.1  | 1024.1 | 2143.7 | 4593.0 | 5256.6 | 5235.6 | 4264.7 | 1739.2 |
| 70°   | 345.3  | 348.5  | 374.0  | 452.4  | 594.4  | 821.1  | 2621.4 | 4547.9 | 4639.1 | 3458.1 | 1702.6 |
| 72.5° | 327.5  | 326.8  | 330.4  | 344.2  | 374.4  | 407.4  | 1014.9 | 3023.1 | 3208.7 | 2490.4 | 1427.6 |
| 75°   | 323.3  | 321.9  | 318.3  | 313.0  | 271.1  | 239.9  | 314.4  | 1337.1 | 1444.6 | 1701.6 | 1074.9 |
| 77.5° | 313.7  | 314.1  | 314.8  | 300.2  | 232.4  | 169.6  | 152.2  | 429.0  | 527.7  | 1079.8 | 764.0  |
| 80°   | 212.2  | 215.4  | 220.7  | 215.0  | 209.0  | 122.8  | 107.5  | 152.6  | 154.7  | 606.1  | 504.6  |
| 82.5° | 107.5  | 107.5  | 105.0  | 93.7   | 80.9   | 79.8   | 85.5   | 110.7  | 112.1  | 306.6  | 237.4  |
| 85°   | 64.9   | 68.5   | 69.9   | 63.5   | 58.2   | 53.6   | 65.3   | 88.0   | 91.2   | 118.9  | 55.4   |
| 87.5° | 14.5   | 14.9   | 16.3   | 21.6   | 31.6   | 42.9   | 60.7   | 80.6   | 82.0   | 76.3   | 6.7    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



REPORT NUMBER: P1063335

CATALOG NUMBER: GLAN-SA1C-727-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 31.6  | 31.6 | 31.6 | 31.6 | 31.6 | 31.6 | 31.6 | 31.6 | 31.6 | 31.6 | 31.6 |
| 2.5°  | 31.9  | 31.2 | 30.9 | 29.8 | 28.7 | 27.7 | 27.0 | 26.6 | 27.0 | 27.3 | 27.3 |
| 5°    | 31.6  | 30.5 | 28.7 | 27.0 | 25.6 | 24.1 | 22.7 | 22.4 | 22.4 | 22.7 | 22.7 |
| 7.5°  | 31.6  | 29.8 | 27.3 | 25.2 | 23.1 | 20.9 | 19.9 | 19.2 | 19.5 | 19.5 | 19.5 |
| 10°   | 31.6  | 29.5 | 26.3 | 23.1 | 20.6 | 18.1 | 16.3 | 15.6 | 15.6 | 15.6 | 15.6 |
| 12.5° | 31.2  | 29.1 | 25.2 | 21.3 | 17.7 | 14.9 | 12.8 | 11.7 | 12.1 | 12.1 | 12.1 |
| 15°   | 30.5  | 28.0 | 23.8 | 18.1 | 14.2 | 11.4 | 9.2  | 8.2  | 8.5  | 9.2  | 9.6  |
| 17.5° | 29.5  | 27.0 | 21.3 | 15.3 | 11.4 | 8.5  | 6.4  | 5.7  | 6.0  | 7.1  | 7.1  |
| 20°   | 29.1  | 25.9 | 18.8 | 12.4 | 8.5  | 6.0  | 4.3  | 3.5  | 3.9  | 5.3  | 5.7  |
| 22.5° | 29.1  | 25.2 | 17.0 | 10.3 | 6.4  | 3.9  | 2.5  | 1.4  | 1.4  | 2.5  | 2.5  |
| 25°   | 29.5  | 24.8 | 15.6 | 8.5  | 4.6  | 2.8  | 1.4  | 0.7  | 1.4  | 3.9  | 4.6  |
| 27.5° | 30.2  | 24.5 | 14.9 | 7.1  | 3.5  | 2.5  | 1.1  | 2.5  | 4.3  | 4.3  | 4.3  |
| 30°   | 30.9  | 23.8 | 13.8 | 6.0  | 3.2  | 1.8  | 1.8  | 3.5  | 3.5  | 4.3  | 4.6  |
| 32.5° | 31.9  | 23.4 | 13.1 | 5.3  | 2.5  | 1.4  | 2.5  | 2.1  | 2.1  | 2.5  | 2.8  |
| 35°   | 34.1  | 23.8 | 12.4 | 5.3  | 2.5  | 1.8  | 2.1  | 1.1  | 0.7  | 0.7  | 0.7  |
| 37.5° | 36.9  | 24.1 | 11.4 | 4.6  | 2.1  | 2.1  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 41.5  | 25.2 | 10.6 | 4.3  | 1.8  | 1.8  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 49.3  | 27.3 | 10.3 | 3.9  | 1.8  | 1.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 64.9  | 32.3 | 9.6  | 3.5  | 1.8  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 93.3  | 44.0 | 9.2  | 2.8  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 136.3 | 59.6 | 8.9  | 2.5  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 173.9 | 62.8 | 6.0  | 2.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 178.1 | 43.3 | 4.6  | 1.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 141.9 | 28.0 | 3.9  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 107.5 | 21.3 | 3.5  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 61°   | 103.3 | 19.2 | 3.5  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 113.9 | 16.7 | 3.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 185.2 | 13.8 | 2.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 321.9 | 12.1 | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 406.7 | 11.4 | 2.1  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 354.5 | 10.3 | 2.1  | 0.7  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 213.3 | 8.9  | 2.1  | 1.4  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 111.8 | 6.7  | 2.1  | 1.8  | 1.1  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 54.3  | 6.0  | 2.5  | 1.8  | 1.4  | 0.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 21.3  | 5.0  | 2.8  | 2.5  | 1.8  | 1.1  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 9.6   | 4.3  | 3.2  | 2.8  | 2.5  | 1.4  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 5.0   | 3.9  | 3.5  | 3.2  | 2.5  | 1.8  | 0.7  | 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: SP1-2407-184-3

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-727-U-5WQ

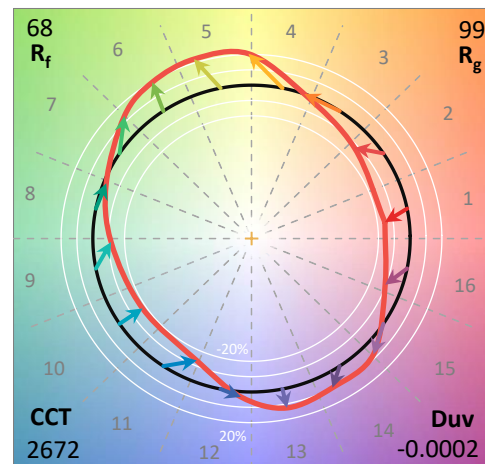
Data in this report applies to families of products including GSS-SB1A-727-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-3  
 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-727-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2672     | CRI (Ra): | 71.1 |      |       |
| CIE u':                   | 0.2638   | R1:       | 68.3 | R9:  | -27.8 |
| CIE v':                   | 0.5276   | R2:       | 79.8 | R10: | 54.4  |
| Duv:                      | -0.0002  | R3:       | 91.2 | R11: | 65.8  |
| CIE x:                    | 0.4619   | R4:       | 69.4 | R12: | 45.6  |
| CIE y:                    | 0.4106   | R5:       | 66.5 | R13: | 69.8  |
| CIE z:                    | 0.1275   | R6:       | 72.6 | R14: | 94.5  |
| Peak Wavelength (nm):     | 601      | R7:       | 77.0 | R15: | 60.1  |
| Dominant Wavelength (nm): | 584      | R8:       | 44.1 |      |       |
| Purity:                   | 61.88407 |           |      |      |       |
| Rf:                       | 67.9     |           |      |      |       |
| Rg:                       | 98.6     |           |      |      |       |



### Test Conditions

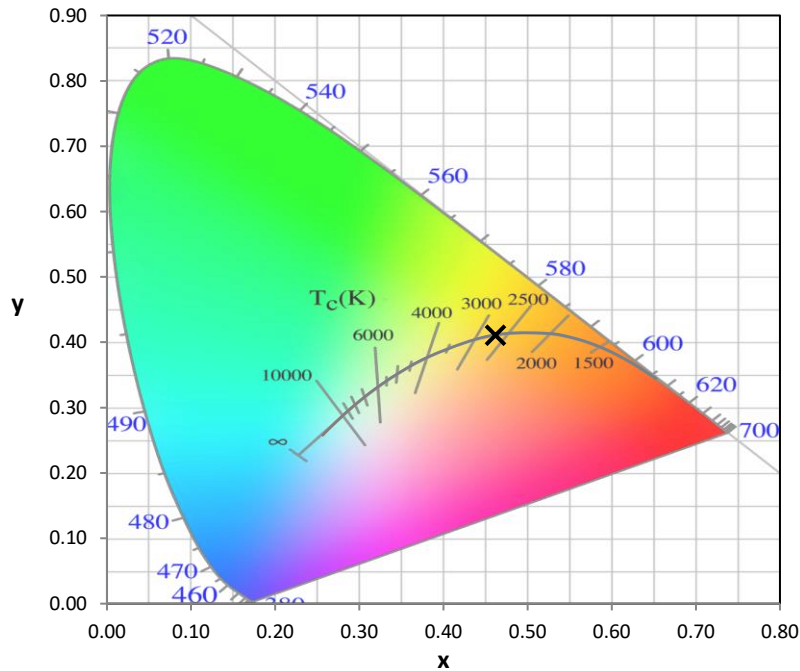
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-3

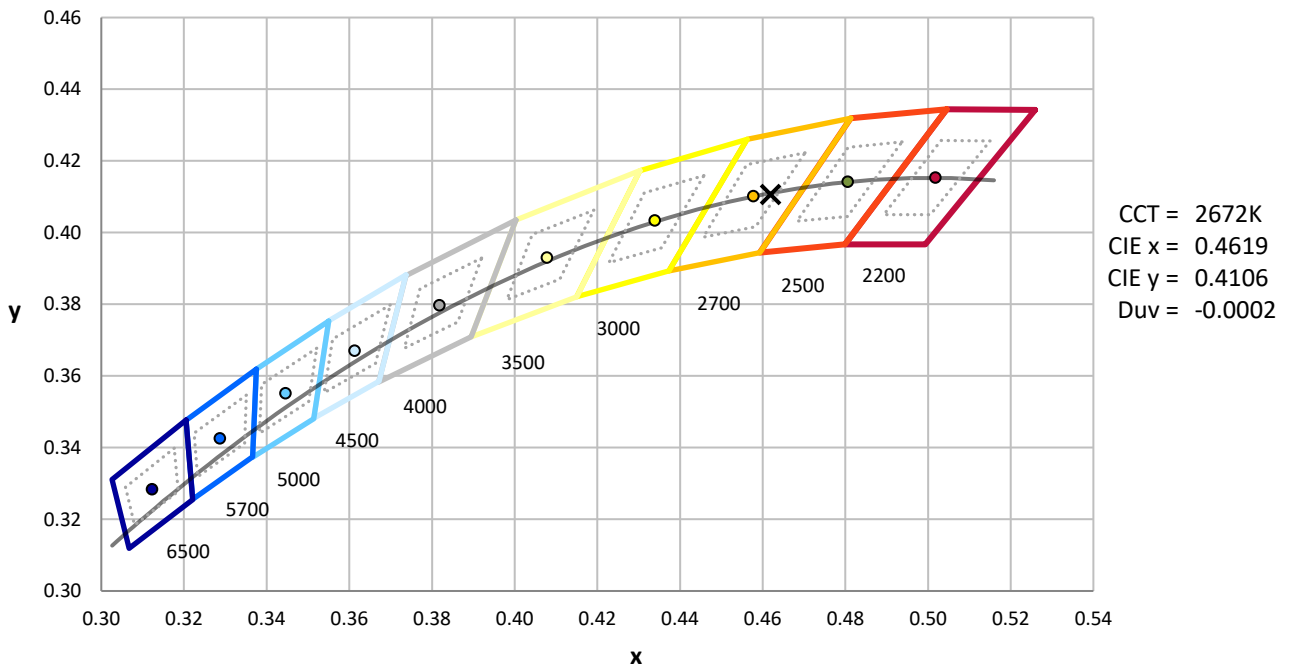
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



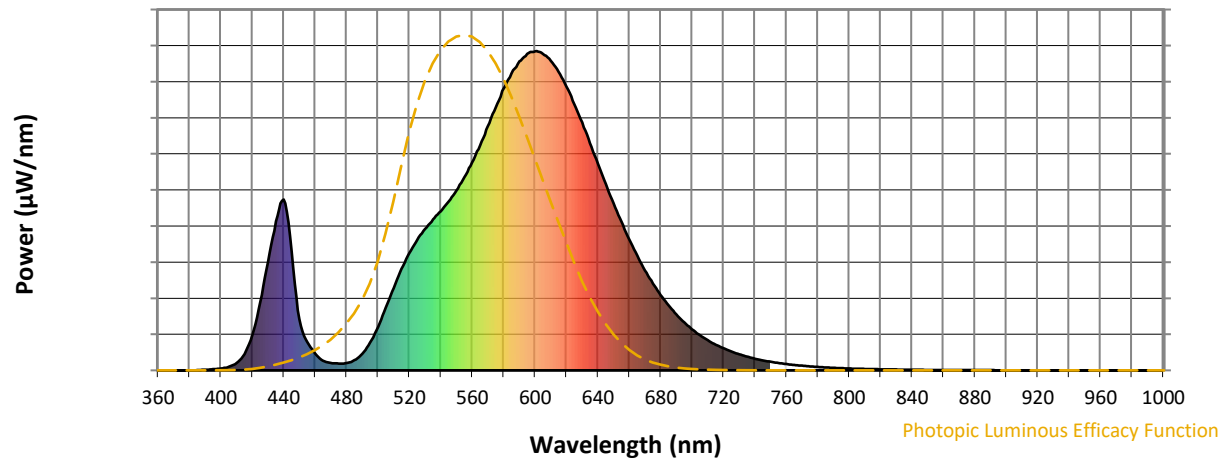
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

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### Photopic Flux vs. Wavelength

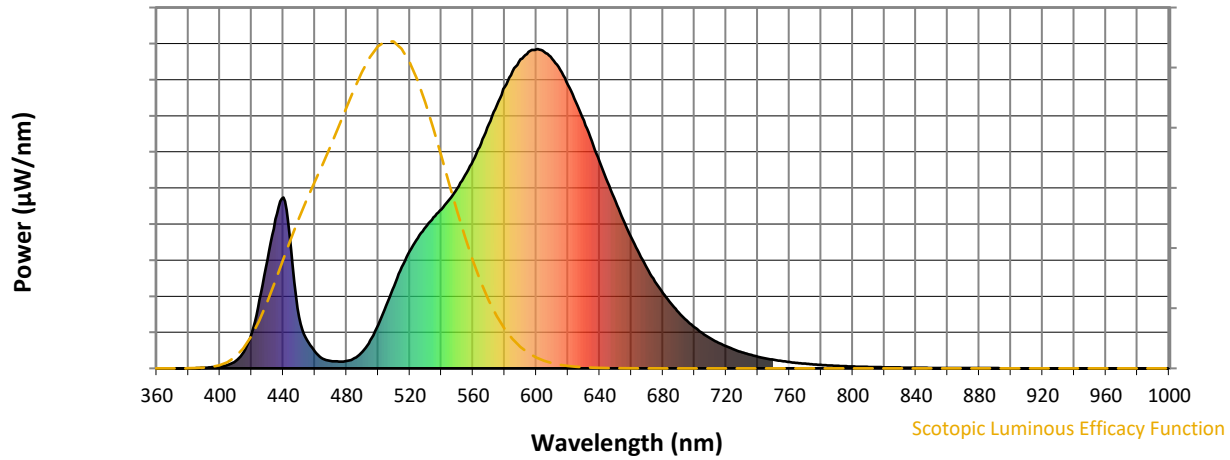


### Photopic Lumens: NR

| $\lambda$<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               | 52                                   | NR                             | 620               | 888                                  | NR                             | 750               | 27                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 87                                   | NR                             | 625               | 834                                  | NR                             | 755               | 23                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 135                                  | NR                             | 630               | 776                                  | NR                             | 760               | 20                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 196                                  | NR                             | 635               | 712                                  | NR                             | 765               | 17                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 258                                  | NR                             | 640               | 648                                  | NR                             | 770               | 15                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 1                                    | NR                             | 515               | 317                                  | NR                             | 645               | 583                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 2                                    | NR                             | 520               | 368                                  | NR                             | 650               | 523                                  | NR                             | 780               | 11                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 408                                  | NR                             | 655               | 465                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 443                                  | NR                             | 660               | 410                                  | NR                             | 790               | 8                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 11                                   | NR                             | 535               | 473                                  | NR                             | 665               | 360                                  | NR                             | 795               | 7                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 23                                   | NR                             | 540               | 498                                  | NR                             | 670               | 313                                  | NR                             | 800               | 6                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 51                                   | NR                             | 545               | 530                                  | NR                             | 675               | 272                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 111                                  | NR                             | 550               | 563                                  | NR                             | 680               | 236                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 214                                  | NR                             | 555               | 605                                  | NR                             | 685               | 203                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 339                                  | NR                             | 560               | 651                                  | NR                             | 690               | 175                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 467                                  | NR                             | 565               | 705                                  | NR                             | 695               | 150                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 535                                  | NR                             | 570               | 765                                  | NR                             | 700               | 128                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 372                                  | NR                             | 575               | 824                                  | NR                             | 705               | 110                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 160                                  | NR                             | 580               | 882                                  | NR                             | 710               | 94                                   | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 89                                   | NR                             | 585               | 930                                  | NR                             | 715               | 80                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 53                                   | NR                             | 590               | 968                                  | NR                             | 720               | 69                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 31                                   | NR                             | 595               | 991                                  | NR                             | 725               | 59                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 23                                   | NR                             | 600               | 999                                  | NR                             | 730               | 50                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 21                                   | NR                             | 605               | 992                                  | NR                             | 735               | 43                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 23                                   | NR                             | 610               | 969                                  | NR                             | 740               | 36                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 32                                   | NR                             | 615               | 935                                  | NR                             | 745               | 31                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



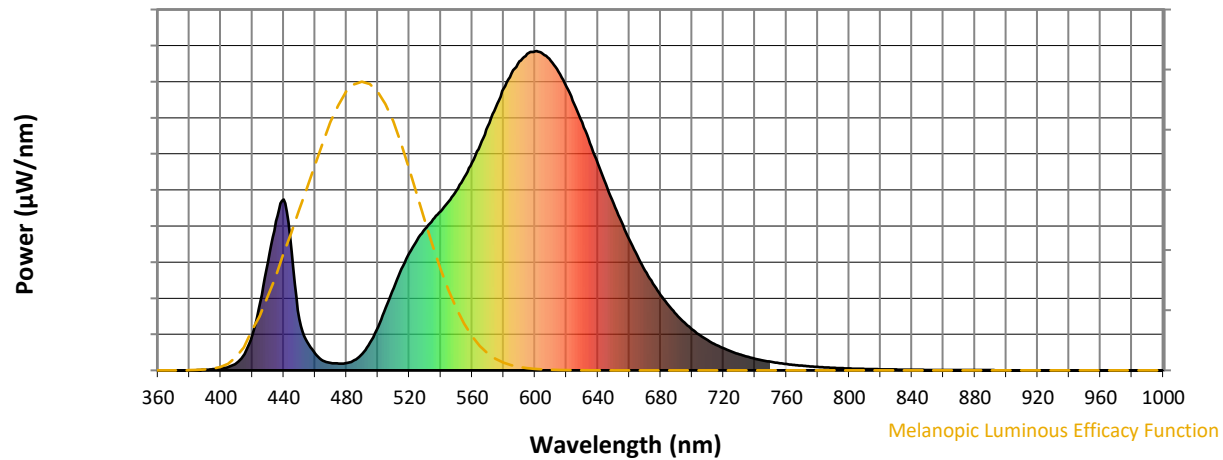
Scotopic Lumens: NR

S/P: 1.02

| 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       | 52                          | NR               | 620       | 888                         | NR               | 750       | 27                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 87                          | NR               | 625       | 834                         | NR               | 755       | 23                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 135                         | NR               | 630       | 776                         | NR               | 760       | 20                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 196                         | NR               | 635       | 712                         | NR               | 765       | 17                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 258                         | NR               | 640       | 648                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 1                           | NR               | 515       | 317                         | NR               | 645       | 583                         | NR               | 775       | 12                          | NR               | 905       | 0                           | NR               |
| 390       | 2                           | NR               | 520       | 368                         | NR               | 650       | 523                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 408                         | NR               | 655       | 465                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 443                         | NR               | 660       | 410                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 11                          | NR               | 535       | 473                         | NR               | 665       | 360                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 23                          | NR               | 540       | 498                         | NR               | 670       | 313                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 51                          | NR               | 545       | 530                         | NR               | 675       | 272                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 111                         | NR               | 550       | 563                         | NR               | 680       | 236                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 214                         | NR               | 555       | 605                         | NR               | 685       | 203                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 339                         | NR               | 560       | 651                         | NR               | 690       | 175                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 467                         | NR               | 565       | 705                         | NR               | 695       | 150                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 535                         | NR               | 570       | 765                         | NR               | 700       | 128                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 372                         | NR               | 575       | 824                         | NR               | 705       | 110                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 160                         | NR               | 580       | 882                         | NR               | 710       | 94                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 89                          | NR               | 585       | 930                         | NR               | 715       | 80                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 53                          | NR               | 590       | 968                         | NR               | 720       | 69                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 31                          | NR               | 595       | 991                         | NR               | 725       | 59                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 23                          | NR               | 600       | 999                         | NR               | 730       | 50                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 21                          | NR               | 605       | 992                         | NR               | 735       | 43                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 23                          | NR               | 610       | 969                         | NR               | 740       | 36                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 32                          | NR               | 615       | 935                         | NR               | 745       | 31                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.71

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 52                       | NR            | 620    | 888                      | NR            | 750    | 27                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 87                       | NR            | 625    | 834                      | NR            | 755    | 23                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 135                      | NR            | 630    | 776                      | NR            | 760    | 20                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 196                      | NR            | 635    | 712                      | NR            | 765    | 17                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 258                      | NR            | 640    | 648                      | NR            | 770    | 15                       | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 317                      | NR            | 645    | 583                      | NR            | 775    | 12                       | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 368                      | NR            | 650    | 523                      | NR            | 780    | 11                       | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 408                      | NR            | 655    | 465                      | NR            | 785    | 9                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 443                      | NR            | 660    | 410                      | NR            | 790    | 8                        | NR            | 920    | 0                        | NR            |
| 405    | 11                       | NR            | 535    | 473                      | NR            | 665    | 360                      | NR            | 795    | 7                        | NR            | 925    | 0                        | NR            |
| 410    | 23                       | NR            | 540    | 498                      | NR            | 670    | 313                      | NR            | 800    | 6                        | NR            | 930    | 0                        | NR            |
| 415    | 51                       | NR            | 545    | 530                      | NR            | 675    | 272                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 111                      | NR            | 550    | 563                      | NR            | 680    | 236                      | NR            | 810    | 4                        | NR            | 940    | 0                        | NR            |
| 425    | 214                      | NR            | 555    | 605                      | NR            | 685    | 203                      | NR            | 815    | 4                        | NR            | 945    | 0                        | NR            |
| 430    | 339                      | NR            | 560    | 651                      | NR            | 690    | 175                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 467                      | NR            | 565    | 705                      | NR            | 695    | 150                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 535                      | NR            | 570    | 765                      | NR            | 700    | 128                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 372                      | NR            | 575    | 824                      | NR            | 705    | 110                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 160                      | NR            | 580    | 882                      | NR            | 710    | 94                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 89                       | NR            | 585    | 930                      | NR            | 715    | 80                       | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 53                       | NR            | 590    | 968                      | NR            | 720    | 69                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 31                       | NR            | 595    | 991                      | NR            | 725    | 59                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 23                       | NR            | 600    | 999                      | NR            | 730    | 50                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 21                       | NR            | 605    | 992                      | NR            | 735    | 43                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 23                       | NR            | 610    | 969                      | NR            | 740    | 36                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 32                       | NR            | 615    | 935                      | NR            | 745    | 31                       | NR            | 875    | 1                        | NR            |        |                          |               |

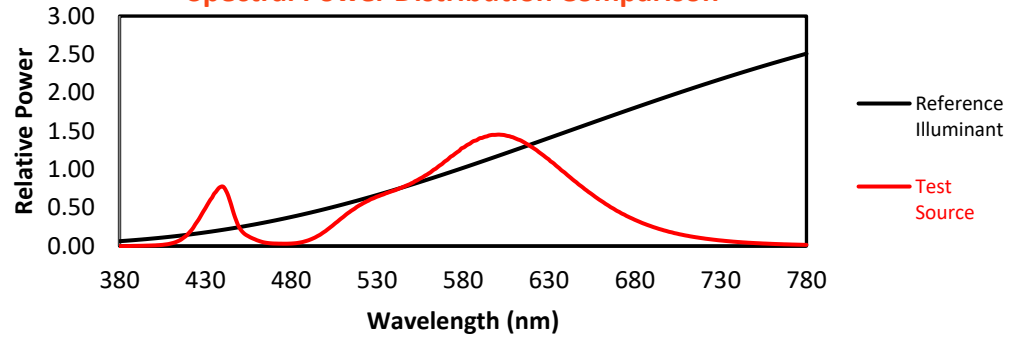
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TM-30-18

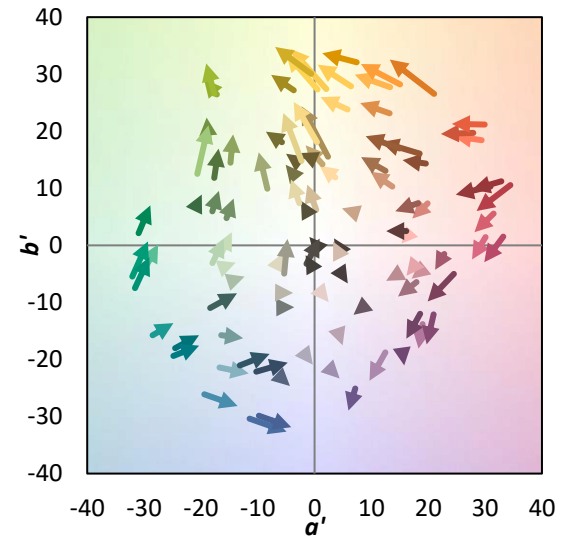
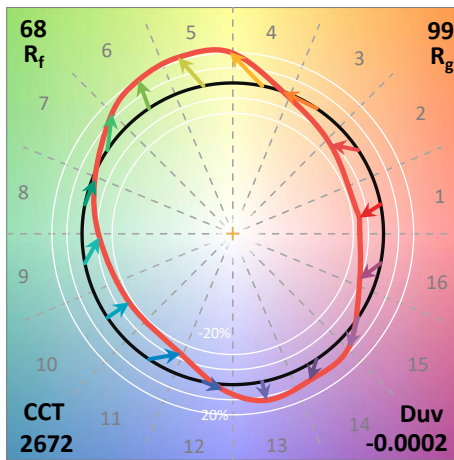
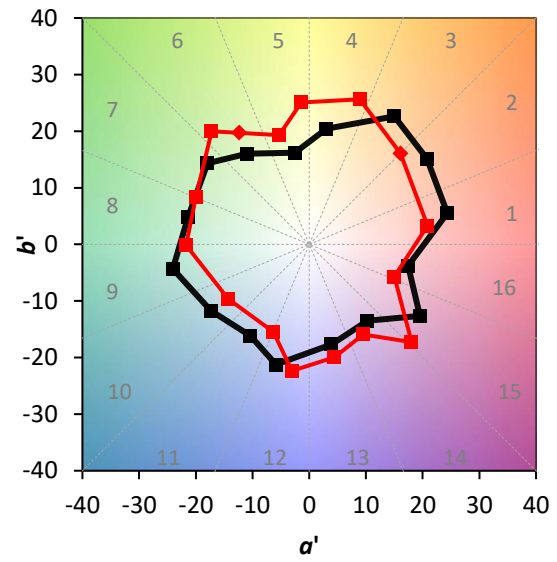
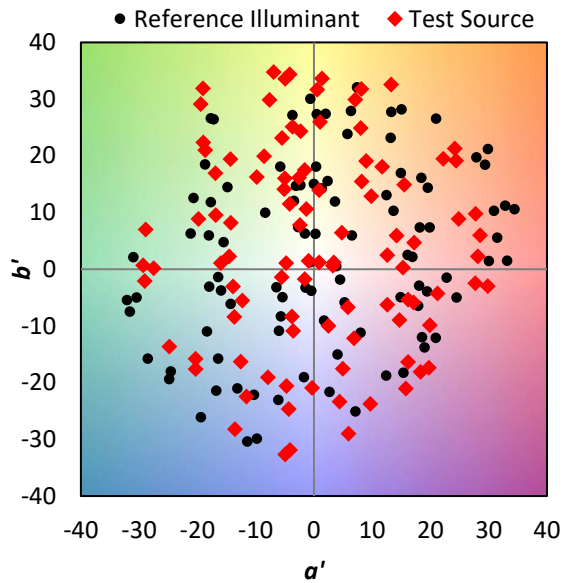
### Summary

$R_f = 67.9$   
 $R_g = 98.6$   
 $CIE\ R_a = 71.1$   
 $R_g = -27.8$

### Spectral Power Distribution Comparison



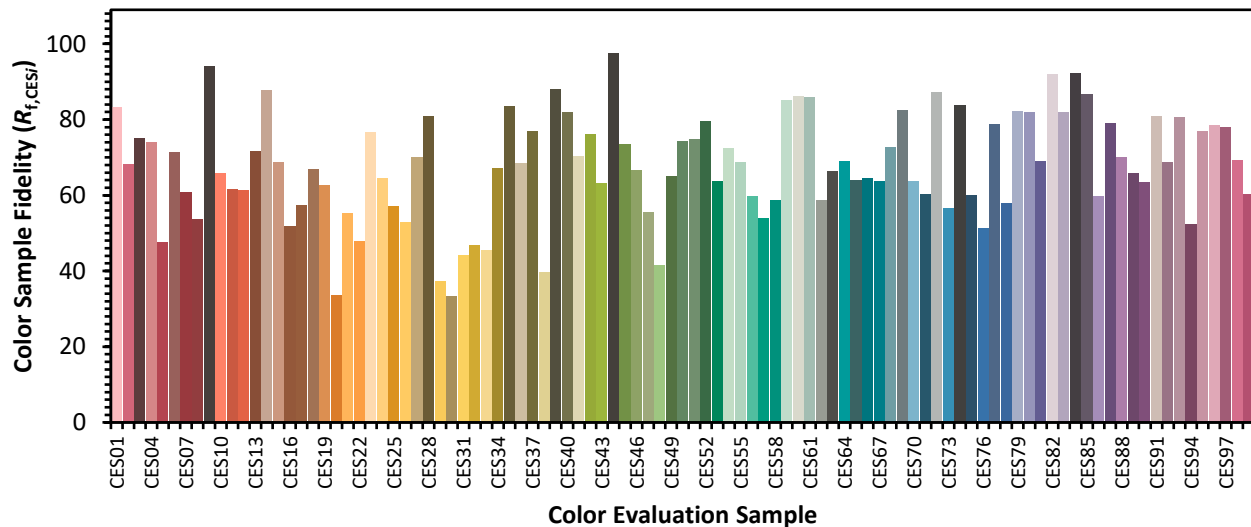
### Color Vector Graphics



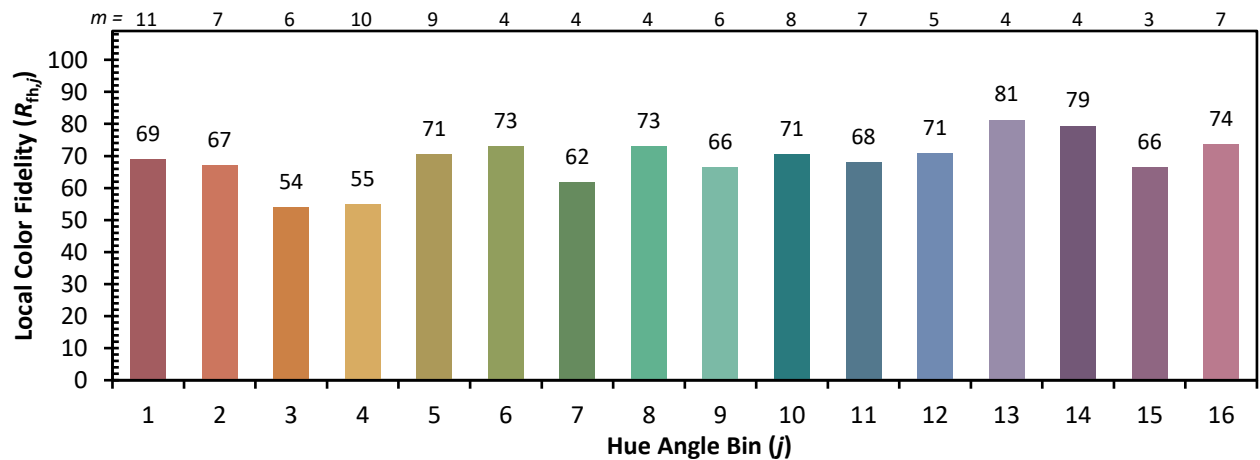
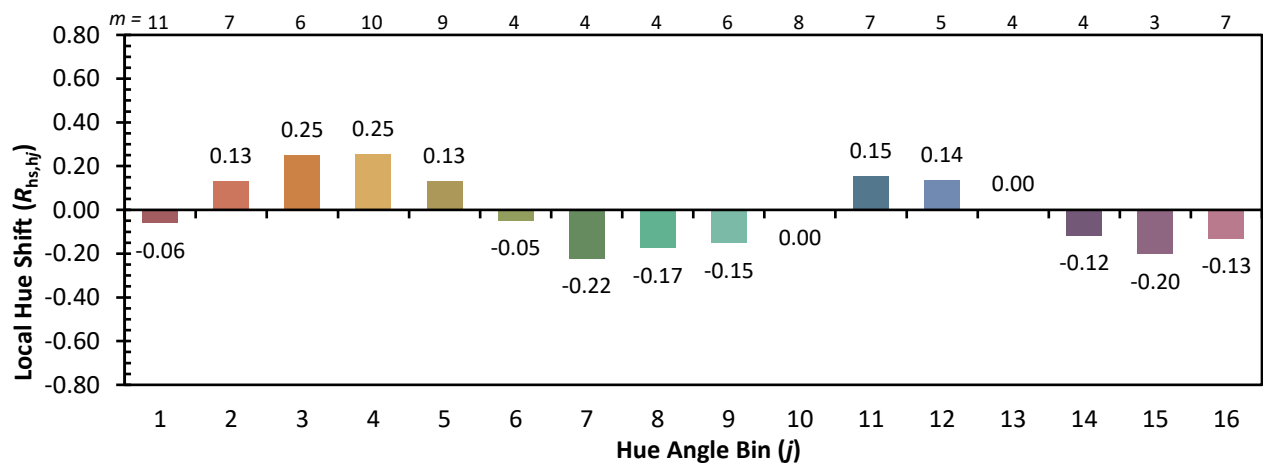
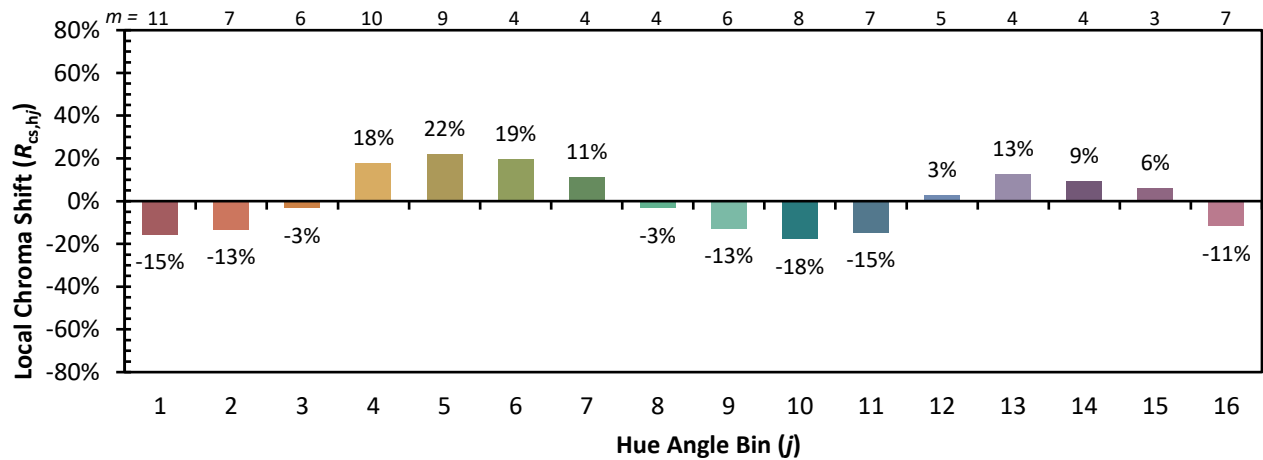


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

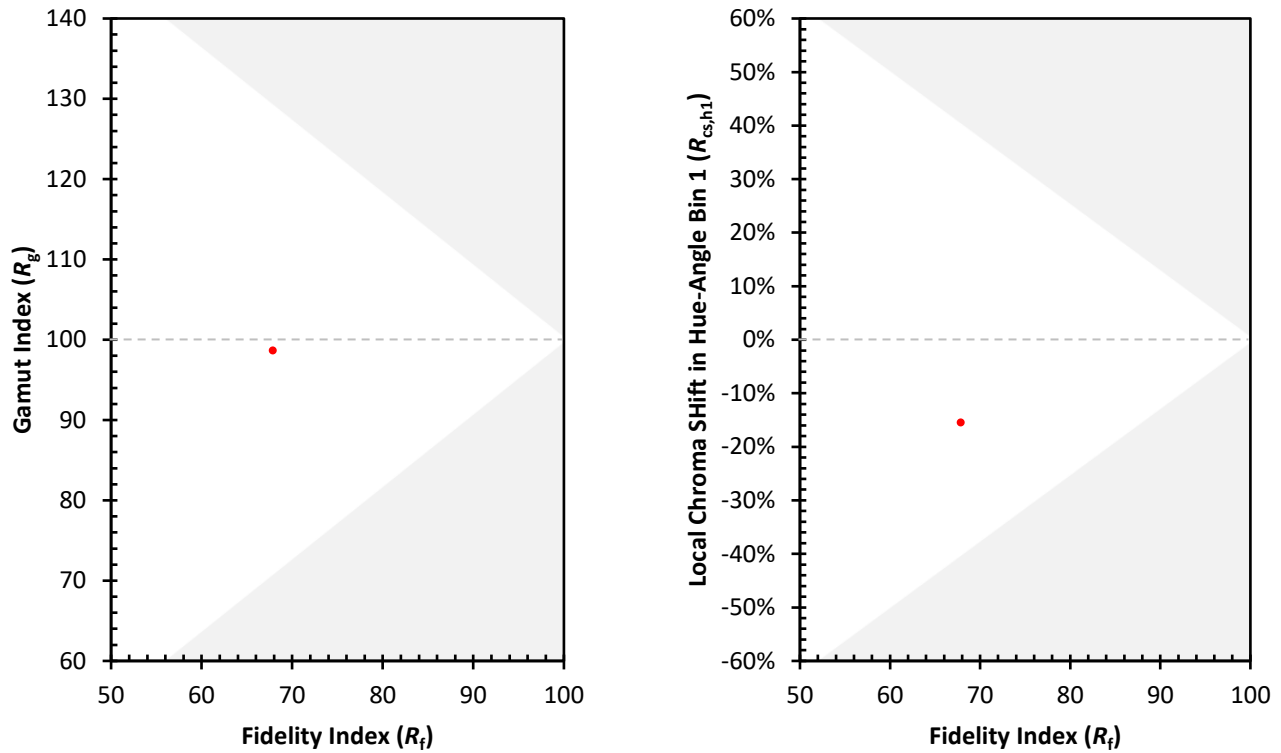
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 53 | CES51 = 75 | CES76 = 51 |
| CES02 = 63 | CES27 = 70 | CES52 = 80 | CES77 = 79 |
| CES03 = 31 | CES28 = 81 | CES53 = 64 | CES78 = 58 |
| CES04 = 71 | CES29 = 37 | CES54 = 73 | CES79 = 82 |
| CES05 = 50 | CES30 = 33 | CES55 = 69 | CES80 = 82 |
| CES06 = 52 | CES31 = 44 | CES56 = 60 | CES81 = 69 |
| CES07 = 42 | CES32 = 47 | CES57 = 54 | CES82 = 92 |
| CES08 = 41 | CES33 = 45 | CES58 = 59 | CES83 = 82 |
| CES09 = 29 | CES34 = 67 | CES59 = 85 | CES84 = 92 |
| CES10 = 77 | CES35 = 84 | CES60 = 86 | CES85 = 87 |
| CES11 = 60 | CES36 = 68 | CES61 = 86 | CES86 = 60 |
| CES12 = 66 | CES37 = 77 | CES62 = 59 | CES87 = 79 |
| CES13 = 44 | CES38 = 40 | CES63 = 66 | CES88 = 70 |
| CES14 = 74 | CES39 = 88 | CES64 = 69 | CES89 = 66 |
| CES15 = 72 | CES40 = 82 | CES65 = 64 | CES90 = 64 |
| CES16 = 48 | CES41 = 70 | CES66 = 65 | CES91 = 81 |
| CES17 = 51 | CES42 = 76 | CES67 = 64 | CES92 = 69 |
| CES18 = 57 | CES43 = 63 | CES68 = 73 | CES93 = 81 |
| CES19 = 73 | CES44 = 97 | CES69 = 83 | CES94 = 53 |
| CES20 = 67 | CES45 = 74 | CES70 = 64 | CES95 = 77 |
| CES21 = 88 | CES46 = 67 | CES71 = 60 | CES96 = 79 |
| CES22 = 80 | CES47 = 55 | CES72 = 87 | CES97 = 78 |
| CES23 = 92 | CES48 = 42 | CES73 = 57 | CES98 = 69 |
| CES24 = 92 | CES49 = 65 | CES74 = 84 | CES99 = 60 |
| CES25 = 73 | CES50 = 74 | CES75 = 60 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)