

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: P1063227

Luminaire Tested: **GLAN-SA1C-950-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063227  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA1C-950-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 1xLight Square PACKAGE  
90CRI 5000K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (14) 5000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4717.7 lumens  
Efficiency: N/A  
Efficacy: 94.0 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G2

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

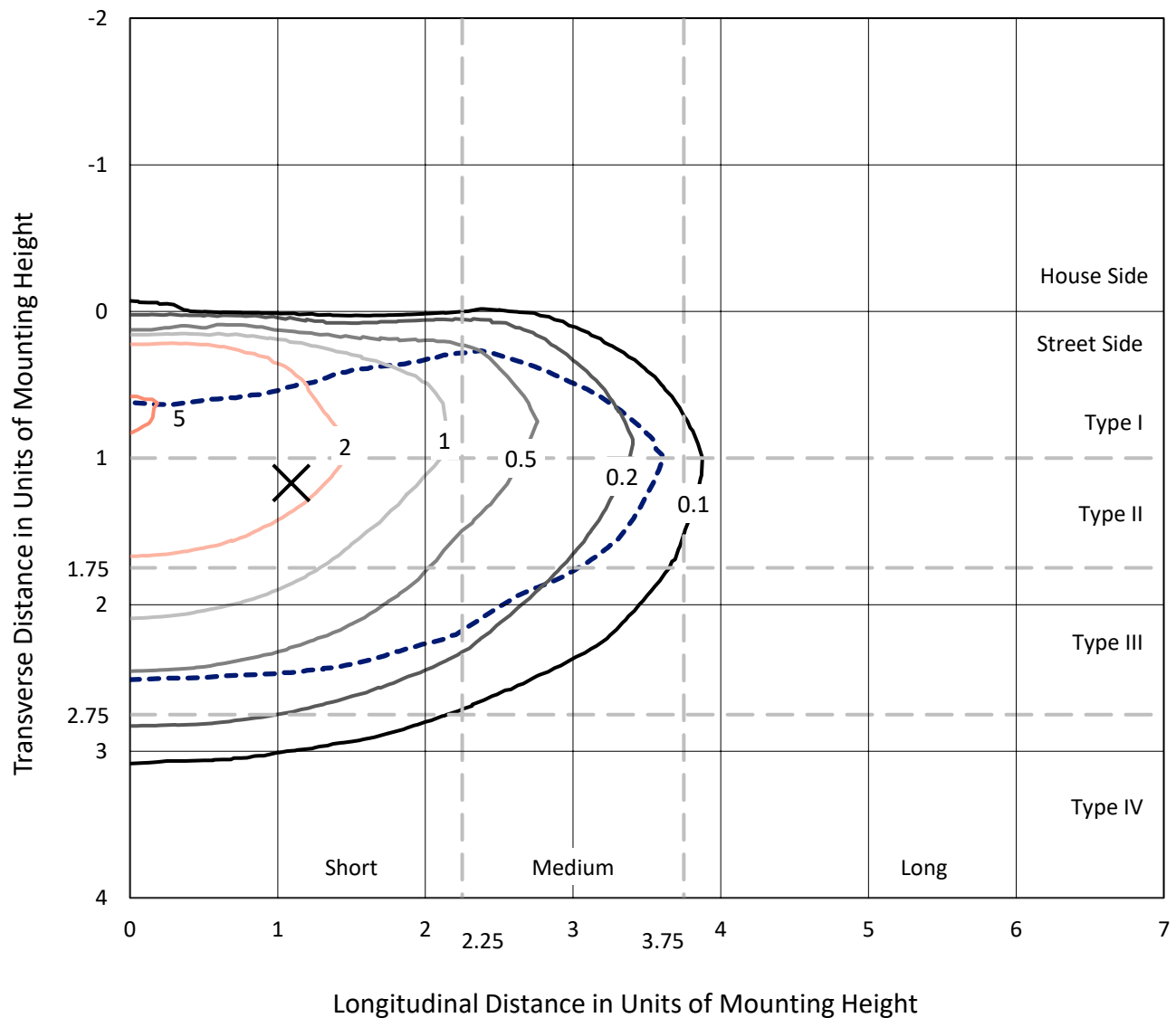


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CATALOG NUMBER: GLAN-SA1C-950-U-T3BC

## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

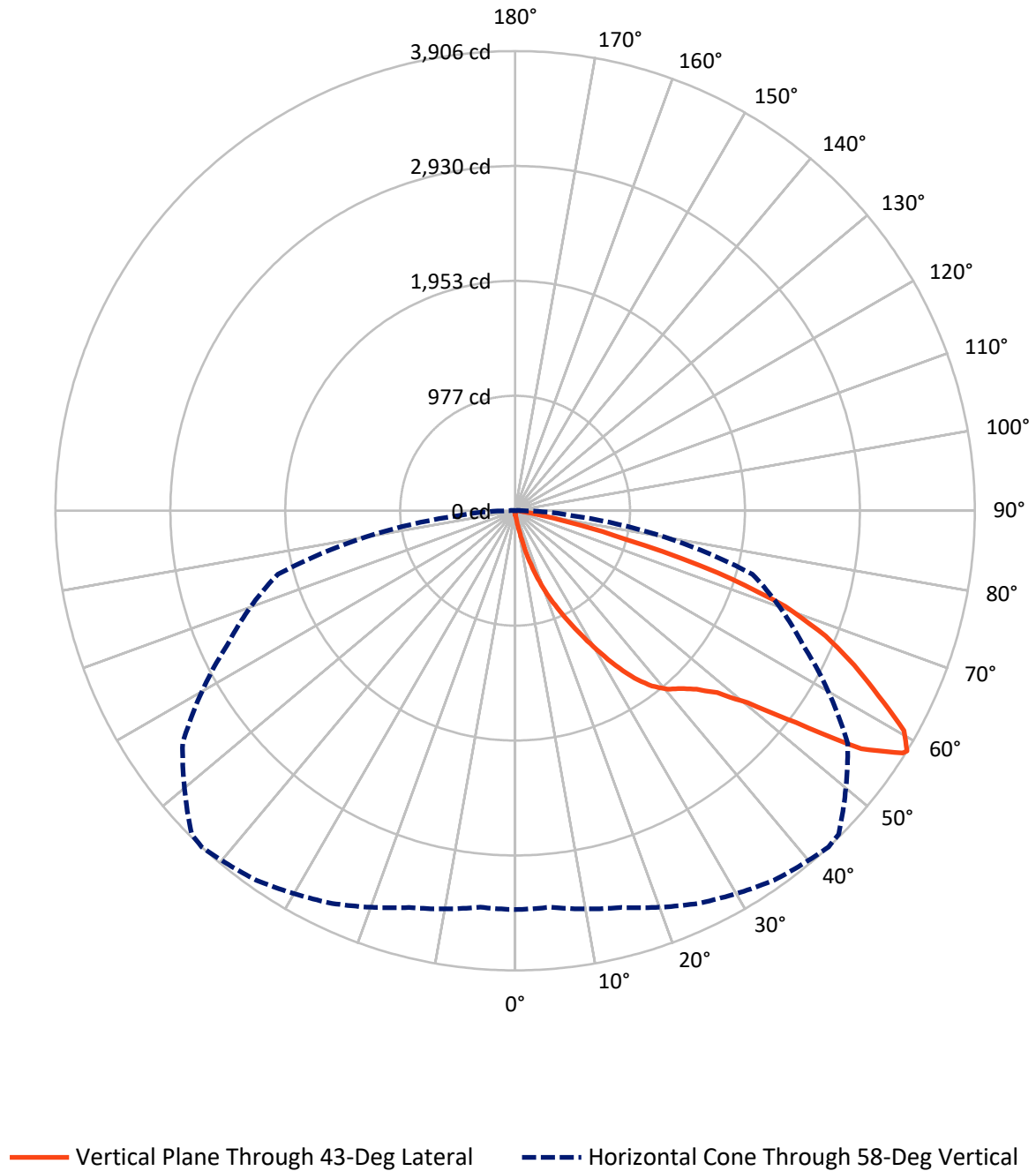


Based on 15 foot mounting height. Maximum calculated value = 5.3 fc  
 Type III - Short - N/A

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CATALOG NUMBER: GLAN-SA1C-950-U-T3BC

## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 17.2     | 0.0    | 17.2   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 4700.5   | 0.0    | 4700.5 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 4717.7   | 0.0    | 4717.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 4.5    | 0.1       |
| 10°-20°   | 54.2   | 1.1       |
| 20°-30°   | 195.5  | 4.1       |
| 30°-40°   | 447.2  | 9.5       |
| 40°-50°   | 754.3  | 16.0      |
| 50°-60°   | 1244.7 | 26.4      |
| 60°-70°   | 1391.1 | 29.5      |
| 70°-80°   | 574.4  | 12.2      |
| 80°-90°   | 51.8   | 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°    | 4717.7 | 100.0     |
| 0°-180°   | 4717.7 | 100.0     |



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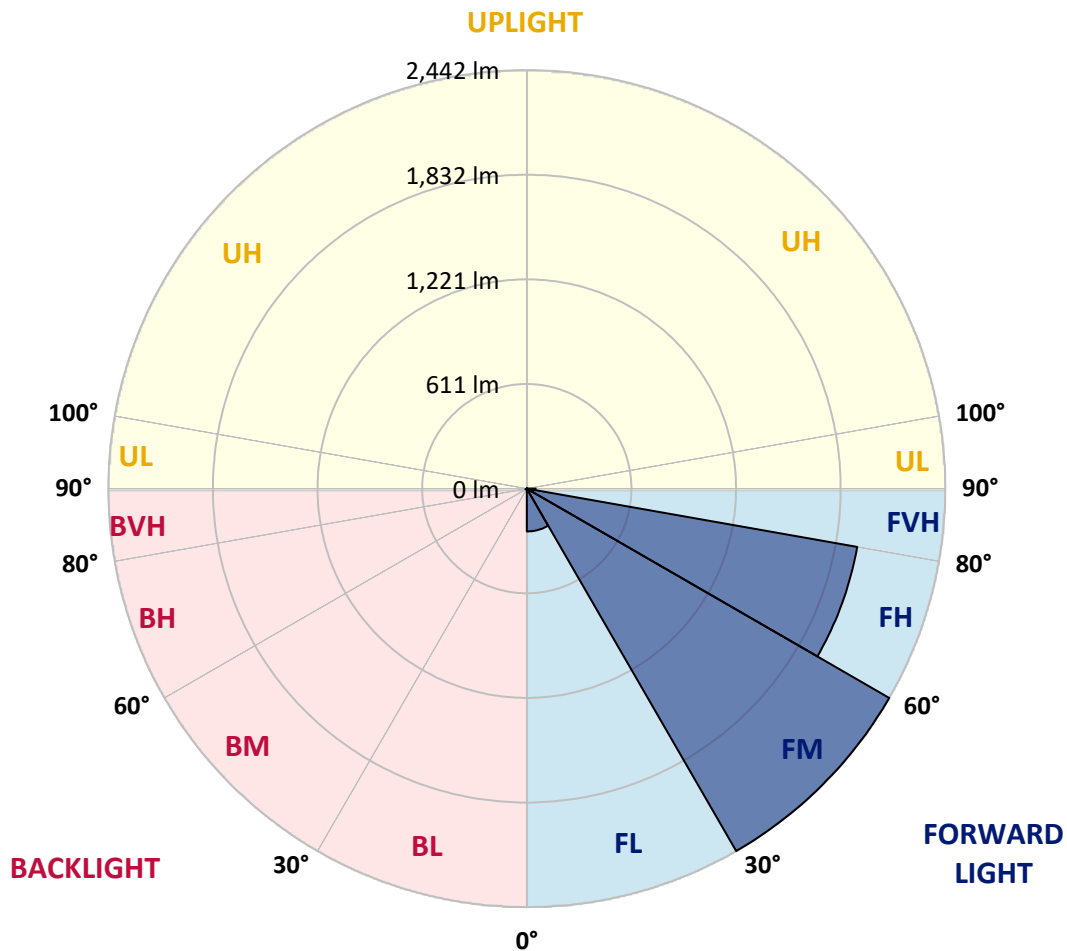
CATALOG NUMBER: GLAN-SA1C-950-U-T3BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 249.7  | 5.3       |                         |      |         |
| FM   | (30°-60°)   | 2442.1 | 51.8      |                         |      |         |
| FH   | (60°-80°)   | 1957.6 | 41.5      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 51.1   | 1.1       |                         |      | G1/100  |
| BL   | (0°-30°)    | 4.5    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 4.1    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 7.9    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 0.7    | 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°    | 30.8   | 30.8   | 30.8   | 30.8   | 30.8   | 30.8   | 30.8   | 30.8   | 30.8   | 30.8   | 30.8   |
| 2.5°  | 37.0   | 38.3   | 37.0   | 37.0   | 37.0   | 35.8   | 35.8   | 34.5   | 34.5   | 33.3   | 32.1   |
| 5°    | 54.3   | 54.3   | 50.6   | 48.1   | 45.7   | 44.4   | 43.2   | 40.7   | 38.3   | 35.8   | 33.3   |
| 7.5°  | 120.9  | 120.9  | 109.8  | 95.0   | 75.3   | 64.2   | 61.7   | 50.6   | 43.2   | 38.3   | 33.3   |
| 10°   | 288.7  | 288.7  | 264.0  | 223.3  | 172.7  | 128.3  | 114.8  | 72.8   | 51.8   | 40.7   | 34.5   |
| 12.5° | 480.0  | 486.1  | 455.3  | 403.5  | 328.2  | 250.5  | 223.3  | 133.3  | 69.1   | 44.4   | 34.5   |
| 15°   | 651.5  | 636.7  | 628.0  | 578.7  | 507.1  | 414.6  | 380.0  | 224.6  | 99.9   | 50.6   | 34.5   |
| 17.5° | 767.5  | 767.5  | 755.1  | 721.8  | 656.4  | 575.0  | 546.6  | 362.8  | 161.6  | 58.0   | 35.8   |
| 20°   | 903.2  | 903.2  | 881.0  | 857.5  | 799.6  | 730.5  | 703.3  | 515.8  | 250.5  | 74.0   | 35.8   |
| 22.5° | 1067.3 | 1069.8 | 1045.1 | 1003.1 | 947.6  | 871.1  | 847.7  | 657.7  | 362.8  | 98.7   | 37.0   |
| 25°   | 1267.2 | 1269.7 | 1233.9 | 1194.4 | 1109.3 | 1026.6 | 990.8  | 820.5  | 499.7  | 138.2  | 37.0   |
| 27.5° | 1488.1 | 1505.3 | 1452.3 | 1384.4 | 1294.3 | 1190.7 | 1163.5 | 967.4  | 635.4  | 195.0  | 39.5   |
| 30°   | 1763.2 | 1763.2 | 1692.9 | 1597.9 | 1500.4 | 1372.1 | 1337.5 | 1121.6 | 779.8  | 270.2  | 42.0   |
| 32.5° | 2000.1 | 1981.6 | 1891.5 | 1791.6 | 1687.9 | 1568.3 | 1531.2 | 1283.2 | 927.9  | 364.0  | 46.9   |
| 35°   | 2181.5 | 2165.4 | 2054.4 | 1947.1 | 1857.0 | 1747.2 | 1702.7 | 1458.4 | 1084.6 | 470.1  | 54.3   |
| 37.5° | 2337.0 | 2330.8 | 2180.3 | 2045.8 | 1986.5 | 1890.3 | 1850.8 | 1623.8 | 1238.8 | 584.9  | 62.9   |
| 40°   | 2507.2 | 2487.5 | 2327.1 | 2160.5 | 2071.7 | 1993.9 | 1958.2 | 1757.0 | 1386.9 | 719.3  | 75.3   |
| 42.5° | 2652.8 | 2629.4 | 2485.0 | 2322.2 | 2170.4 | 2065.5 | 2031.0 | 1869.3 | 1531.2 | 853.8  | 91.3   |
| 45°   | 2814.5 | 2802.1 | 2656.5 | 2533.1 | 2330.8 | 2163.0 | 2117.3 | 1959.4 | 1663.3 | 1014.2 | 112.3  |
| 47.5° | 3057.5 | 3035.3 | 2899.6 | 2798.4 | 2564.0 | 2311.0 | 2245.7 | 2051.9 | 1790.4 | 1172.2 | 144.4  |
| 50°   | 3340.1 | 3325.3 | 3245.1 | 3164.9 | 2931.7 | 2564.0 | 2486.3 | 2185.2 | 1932.2 | 1359.7 | 186.3  |
| 52.5° | 3570.8 | 3568.4 | 3578.2 | 3579.5 | 3403.0 | 2989.7 | 2873.7 | 2399.9 | 2095.1 | 1544.8 | 245.5  |
| 55°   | 3565.9 | 3577.0 | 3685.6 | 3810.2 | 3823.8 | 3570.8 | 3458.5 | 2761.4 | 2307.3 | 1773.1 | 328.2  |
| 57.5° | 3432.6 | 3424.0 | 3538.8 | 3726.3 | 3858.3 | 3885.5 | 3867.0 | 3322.8 | 2626.9 | 2048.2 | 455.3  |
| 58°   | 3389.5 | 3382.0 | 3490.6 | 3681.9 | 3833.6 | 3906.4 | 3887.9 | 3449.9 | 2698.5 | 2087.7 | 489.8  |
| 60°   | 3232.8 | 3234.0 | 3298.1 | 3472.1 | 3623.9 | 3796.6 | 3813.9 | 3812.7 | 3055.1 | 2351.8 | 663.8  |
| 62.5° | 3025.5 | 3015.6 | 3074.8 | 3216.7 | 3350.0 | 3466.0 | 3495.6 | 3837.3 | 3577.0 | 2687.4 | 995.7  |
| 65°   | 2739.2 | 2724.4 | 2787.3 | 2947.7 | 3090.9 | 3166.1 | 3167.4 | 3506.7 | 3822.5 | 3047.7 | 1469.5 |
| 67.5° | 2207.4 | 2195.1 | 2320.9 | 2527.0 | 2747.8 | 2846.5 | 2891.0 | 3042.7 | 3615.3 | 3292.0 | 1741.0 |
| 70°   | 1352.3 | 1378.2 | 1553.4 | 1876.7 | 2254.3 | 2435.7 | 2502.3 | 2549.2 | 3078.5 | 3255.0 | 1456.0 |
| 72.5° | 624.3  | 593.5  | 742.8  | 968.6  | 1399.2 | 1802.7 | 1871.8 | 2055.6 | 2440.6 | 2825.6 | 1085.8 |
| 75°   | 291.2  | 280.1  | 314.6  | 423.2  | 634.2  | 973.5  | 1099.4 | 1641.1 | 1871.8 | 1965.6 | 783.5  |
| 77.5° | 149.3  | 150.5  | 178.9  | 192.5  | 261.6  | 450.4  | 517.0  | 1079.6 | 1372.1 | 1096.9 | 525.6  |
| 80°   | 65.4   | 67.9   | 69.1   | 75.3   | 106.1  | 174.0  | 196.2  | 501.0  | 937.7  | 558.9  | 287.5  |
| 82.5° | 42.0   | 43.2   | 43.2   | 43.2   | 50.6   | 69.1   | 79.0   | 201.1  | 467.6  | 277.6  | 88.8   |
| 85°   | 22.2   | 22.2   | 24.7   | 30.8   | 35.8   | 42.0   | 44.4   | 64.2   | 154.2  | 82.7   | 21.0   |
| 87.5° | 12.3   | 13.6   | 14.8   | 18.5   | 23.4   | 28.4   | 30.8   | 44.4   | 59.2   | 56.8   | 4.9    |
| 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: P1063227

CATALOG NUMBER: GLAN-SA1C-950-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 30.8  | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 | 30.8 |
| 2.5°  | 32.1  | 30.8 | 29.6 | 28.4 | 27.1 | 25.9 | 25.9 | 25.9 | 25.9 | 25.9 | 25.9 |
| 5°    | 30.8  | 29.6 | 28.4 | 25.9 | 23.4 | 22.2 | 21.0 | 19.7 | 19.7 | 19.7 | 19.7 |
| 7.5°  | 30.8  | 29.6 | 25.9 | 23.4 | 21.0 | 18.5 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 |
| 10°   | 30.8  | 28.4 | 24.7 | 21.0 | 17.3 | 14.8 | 13.6 | 12.3 | 12.3 | 12.3 | 12.3 |
| 12.5° | 30.8  | 27.1 | 23.4 | 18.5 | 14.8 | 12.3 | 11.1 | 9.9  | 9.9  | 9.9  | 9.9  |
| 15°   | 30.8  | 27.1 | 22.2 | 17.3 | 13.6 | 9.9  | 8.6  | 7.4  | 7.4  | 7.4  | 7.4  |
| 17.5° | 29.6  | 25.9 | 21.0 | 14.8 | 11.1 | 7.4  | 6.2  | 4.9  | 4.9  | 6.2  | 6.2  |
| 20°   | 28.4  | 24.7 | 18.5 | 12.3 | 8.6  | 6.2  | 3.7  | 3.7  | 3.7  | 3.7  | 3.7  |
| 22.5° | 28.4  | 24.7 | 17.3 | 11.1 | 7.4  | 3.7  | 2.5  | 2.5  | 2.5  | 2.5  | 3.7  |
| 25°   | 28.4  | 23.4 | 14.8 | 8.6  | 4.9  | 2.5  | 1.2  | 1.2  | 1.2  | 1.2  | 1.2  |
| 27.5° | 28.4  | 23.4 | 13.6 | 7.4  | 3.7  | 2.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  |
| 30°   | 27.1  | 22.2 | 12.3 | 6.2  | 2.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 32.5° | 27.1  | 21.0 | 9.9  | 4.9  | 2.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 35°   | 28.4  | 19.7 | 8.6  | 3.7  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 1.2  |
| 37.5° | 29.6  | 18.5 | 7.4  | 2.5  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 30.8  | 17.3 | 7.4  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 33.3  | 17.3 | 6.2  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 35.8  | 17.3 | 4.9  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 40.7  | 18.5 | 4.9  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 44.4  | 19.7 | 3.7  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 49.4  | 18.5 | 3.7  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 55.5  | 18.5 | 3.7  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 60.5  | 17.3 | 3.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 58°   | 62.9  | 16.0 | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 75.3  | 14.8 | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 117.2 | 12.3 | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 238.1 | 11.1 | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 444.2 | 9.9  | 2.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 497.3 | 11.1 | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 313.4 | 8.6  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 165.3 | 8.6  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 82.7  | 8.6  | 1.2  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 38.3  | 6.2  | 1.2  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 16.0  | 3.7  | 2.5  | 1.2  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 7.4   | 3.7  | 2.5  | 2.5  | 1.2  | 1.2  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 3.7   | 3.7  | 3.7  | 2.5  | 2.5  | 1.2  | 1.2  | 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: SP1-2407-184-17

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-950-U-5WQ

Data in this report applies to families of products including GSS-SB1A-950-U-5WQ

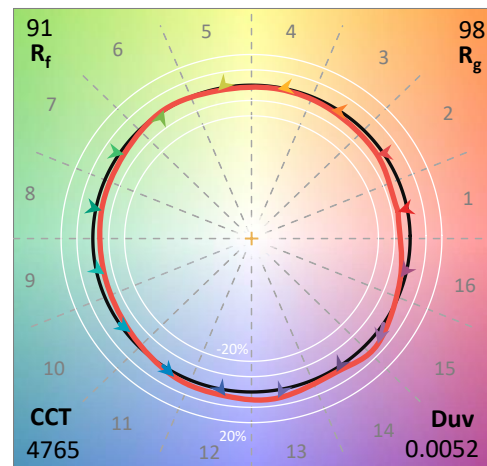
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-17  
 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-950-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 4765  
 CIE  $u'$ : 0.2105  
 CIE  $v'$ : 0.4941  
 Duv: 0.0052  
 CIE x: 0.3536  
 CIE y: 0.3689  
 CIE z: 0.2775  
 Peak Wavelength (nm): 449  
 Dominant Wavelength (nm): 571  
 Purity: 16.80041  
 R<sub>f</sub>: 90.7  
 R<sub>g</sub>: 98

CRI (Ra): 90.8  
 R1: 89.8  
 R2: 93.1  
 R3: 95.3  
 R4: 90.3  
 R5: 89.0  
 R6: 89.7  
 R7: 94.9  
 R8: 84.0  
 R9: 54.9  
 R10: 83.0  
 R11: 89.6  
 R12: 68.0  
 R13: 90.6  
 R14: 97.3  
 R15: 86.2



### Test Conditions

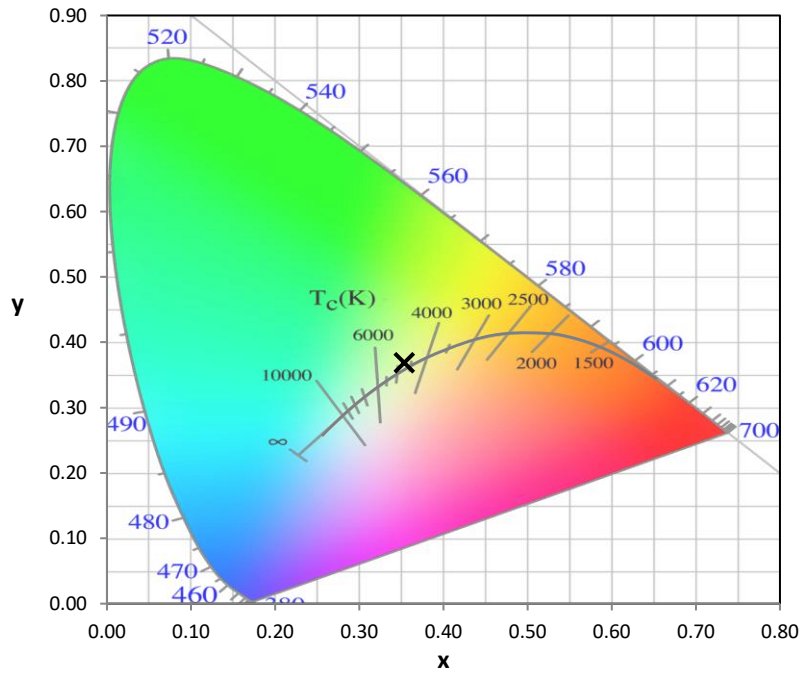
Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-17

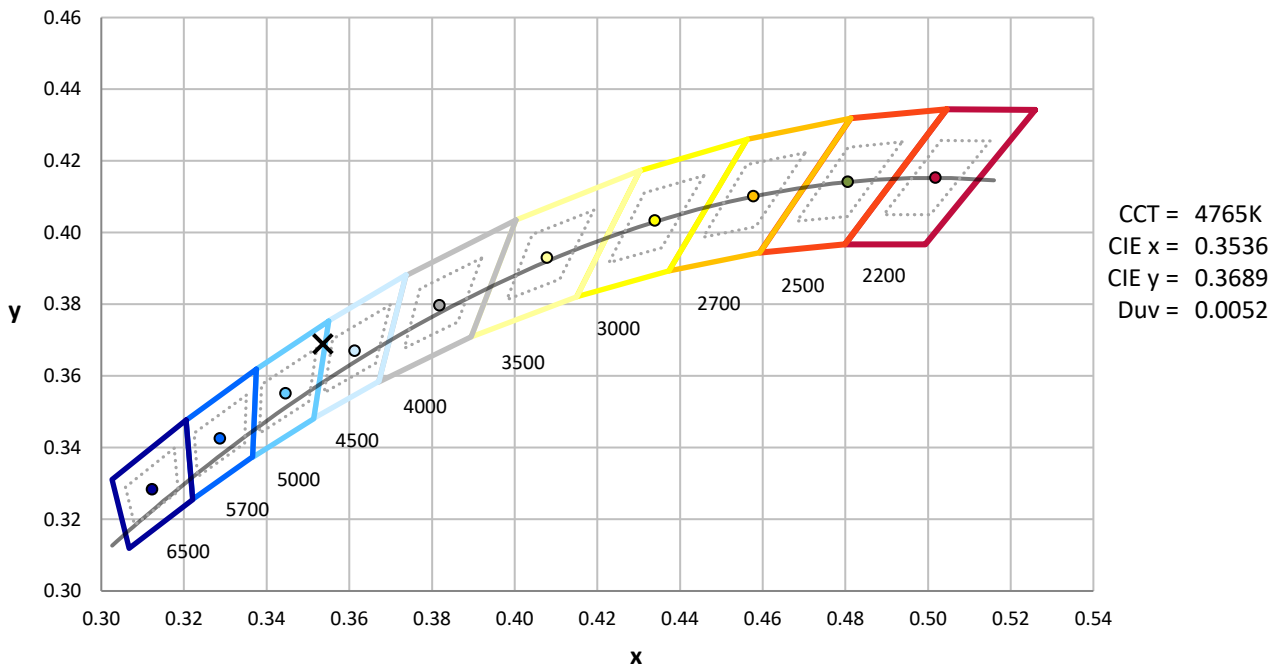
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

REPORT NUMBER: SP1-2407-184-17

**CIE 1931 Chromaticity Diagram**



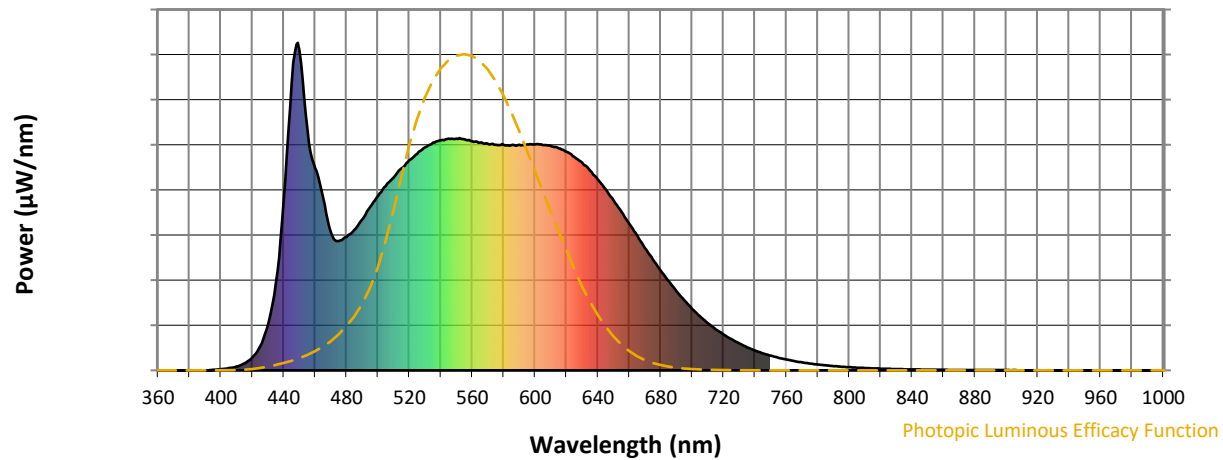
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 7-step quadrangle

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### Photopic Flux vs. Wavelength

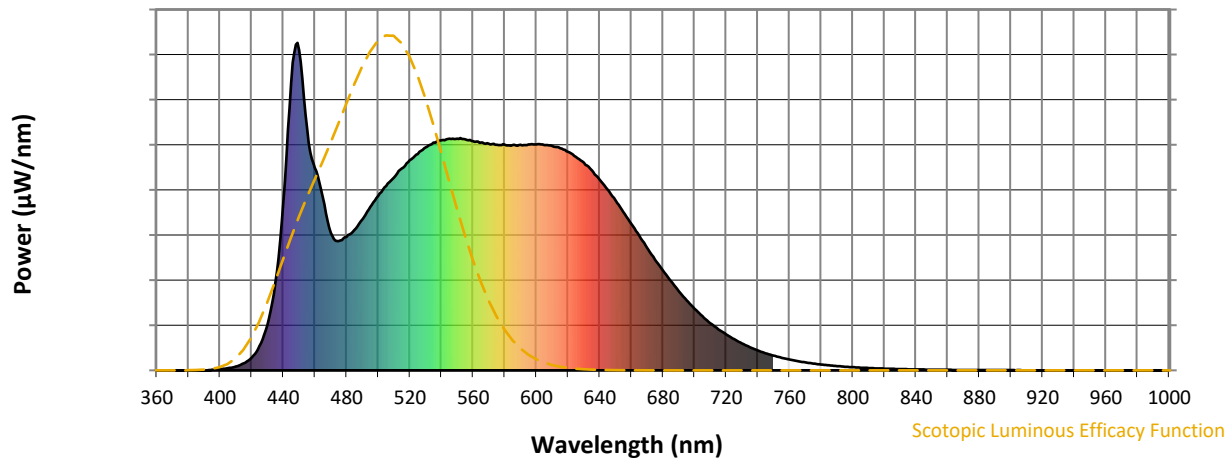


### Photopic Lumens: NR

| λ (nm) | Power W <sup>^</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    | 462                      | NR            | 620    | 668                      | NR            | 750    | 45                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 498                      | NR            | 625    | 652                      | NR            | 755    | 39                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 533                      | NR            | 630    | 634                      | NR            | 760    | 33                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 562                      | NR            | 635    | 610                      | NR            | 765    | 28                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 590                      | NR            | 640    | 583                      | NR            | 770    | 24                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 617                      | NR            | 645    | 552                      | NR            | 775    | 21                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 642                      | NR            | 650    | 519                      | NR            | 780    | 18                       | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 661                      | NR            | 655    | 484                      | NR            | 785    | 15                       | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 681                      | NR            | 660    | 448                      | NR            | 790    | 13                       | NR            | 920    | 0                        | NR            |
| 405    | 7                        | NR            | 535    | 695                      | NR            | 665    | 411                      | NR            | 795    | 11                       | NR            | 925    | 0                        | NR            |
| 410    | 12                       | NR            | 540    | 702                      | NR            | 670    | 373                      | NR            | 800    | 10                       | NR            | 930    | 0                        | NR            |
| 415    | 21                       | NR            | 545    | 708                      | NR            | 675    | 338                      | NR            | 805    | 8                        | NR            | 935    | 0                        | NR            |
| 420    | 39                       | NR            | 550    | 707                      | NR            | 680    | 305                      | NR            | 810    | 7                        | NR            | 940    | 0                        | NR            |
| 425    | 74                       | NR            | 555    | 706                      | NR            | 685    | 272                      | NR            | 815    | 6                        | NR            | 945    | 0                        | NR            |
| 430    | 139                      | NR            | 560    | 700                      | NR            | 690    | 243                      | NR            | 820    | 5                        | NR            | 950    | 0                        | NR            |
| 435    | 270                      | NR            | 565    | 696                      | NR            | 695    | 214                      | NR            | 825    | 5                        | NR            | 955    | 0                        | NR            |
| 440    | 517                      | NR            | 570    | 692                      | NR            | 700    | 188                      | NR            | 830    | 4                        | NR            | 960    | 0                        | NR            |
| 445    | 877                      | NR            | 575    | 689                      | NR            | 705    | 165                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 978                      | NR            | 580    | 688                      | NR            | 710    | 144                      | NR            | 840    | 3                        | NR            | 970    | 0                        | NR            |
| 455    | 738                      | NR            | 585    | 688                      | NR            | 715    | 125                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 618                      | NR            | 590    | 689                      | NR            | 720    | 110                      | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 529                      | NR            | 595    | 690                      | NR            | 725    | 95                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 420                      | NR            | 600    | 690                      | NR            | 730    | 82                       | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 395                      | NR            | 605    | 688                      | NR            | 735    | 71                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 408                      | NR            | 610    | 685                      | NR            | 740    | 61                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 429                      | NR            | 615    | 678                      | NR            | 745    | 52                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



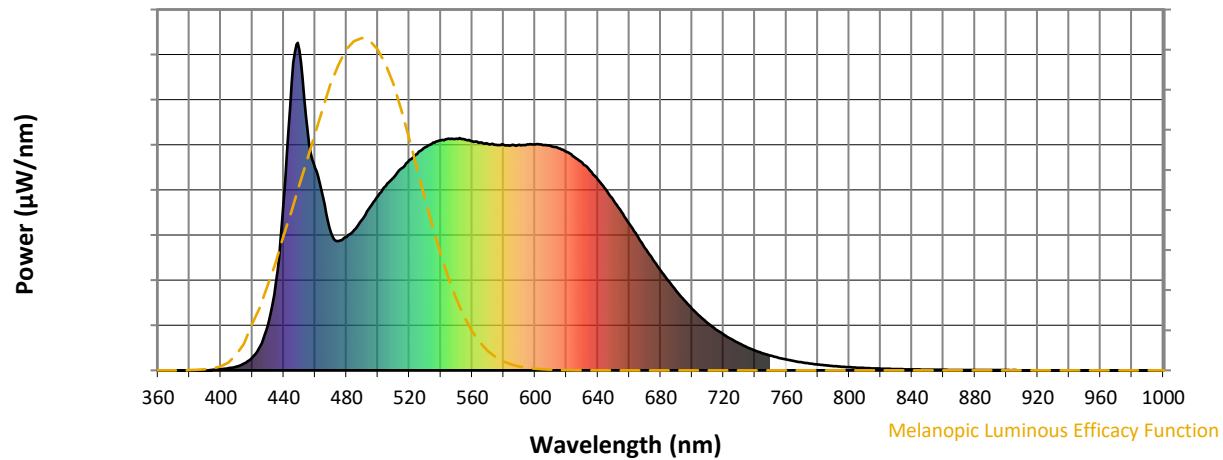
Scotopic Lumens: NR

S/P: 1.99

| 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       | 462                         | NR               | 620       | 668                         | NR               | 750       | 45                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 498                         | NR               | 625       | 652                         | NR               | 755       | 39                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 533                         | NR               | 630       | 634                         | NR               | 760       | 33                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 562                         | NR               | 635       | 610                         | NR               | 765       | 28                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 590                         | NR               | 640       | 583                         | NR               | 770       | 24                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 617                         | NR               | 645       | 552                         | NR               | 775       | 21                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 642                         | NR               | 650       | 519                         | NR               | 780       | 18                          | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 661                         | NR               | 655       | 484                         | NR               | 785       | 15                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 681                         | NR               | 660       | 448                         | NR               | 790       | 13                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 695                         | NR               | 665       | 411                         | NR               | 795       | 11                          | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 702                         | NR               | 670       | 373                         | NR               | 800       | 10                          | NR               | 930       | 0                           | NR               |
| 415       | 21                          | NR               | 545       | 708                         | NR               | 675       | 338                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 39                          | NR               | 550       | 707                         | NR               | 680       | 305                         | NR               | 810       | 7                           | NR               | 940       | 0                           | NR               |
| 425       | 74                          | NR               | 555       | 706                         | NR               | 685       | 272                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 139                         | NR               | 560       | 700                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 270                         | NR               | 565       | 696                         | NR               | 695       | 214                         | NR               | 825       | 5                           | NR               | 955       | 0                           | NR               |
| 440       | 517                         | NR               | 570       | 692                         | NR               | 700       | 188                         | NR               | 830       | 4                           | NR               | 960       | 0                           | NR               |
| 445       | 877                         | NR               | 575       | 689                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 978                         | NR               | 580       | 688                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 738                         | NR               | 585       | 688                         | NR               | 715       | 125                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 618                         | NR               | 590       | 689                         | NR               | 720       | 110                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 529                         | NR               | 595       | 690                         | NR               | 725       | 95                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 420                         | NR               | 600       | 690                         | NR               | 730       | 82                          | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 395                         | NR               | 605       | 688                         | NR               | 735       | 71                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 408                         | NR               | 610       | 685                         | NR               | 740       | 61                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 429                         | NR               | 615       | 678                         | NR               | 745       | 52                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.22

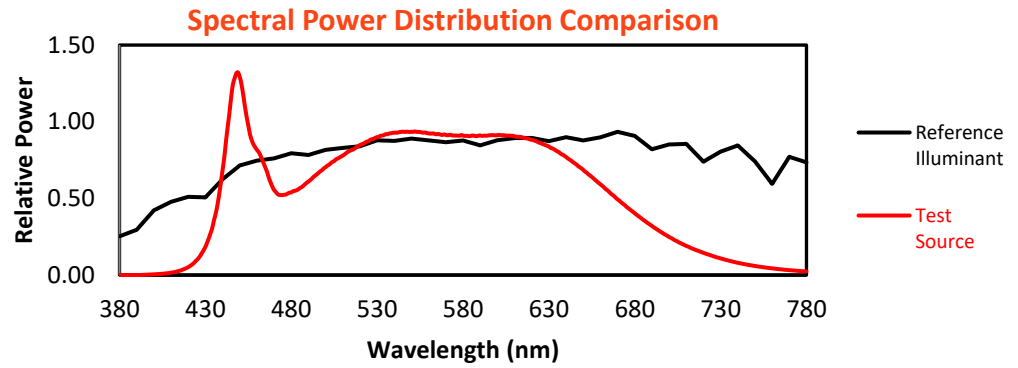
| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 462                         | NR               | 620       | 668                         | NR               | 750       | 45                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 498                         | NR               | 625       | 652                         | NR               | 755       | 39                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 533                         | NR               | 630       | 634                         | NR               | 760       | 33                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 562                         | NR               | 635       | 610                         | NR               | 765       | 28                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 590                         | NR               | 640       | 583                         | NR               | 770       | 24                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 617                         | NR               | 645       | 552                         | NR               | 775       | 21                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 642                         | NR               | 650       | 519                         | NR               | 780       | 18                          | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 661                         | NR               | 655       | 484                         | NR               | 785       | 15                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 681                         | NR               | 660       | 448                         | NR               | 790       | 13                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 695                         | NR               | 665       | 411                         | NR               | 795       | 11                          | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 702                         | NR               | 670       | 373                         | NR               | 800       | 10                          | NR               | 930       | 0                           | NR               |
| 415       | 21                          | NR               | 545       | 708                         | NR               | 675       | 338                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 39                          | NR               | 550       | 707                         | NR               | 680       | 305                         | NR               | 810       | 7                           | NR               | 940       | 0                           | NR               |
| 425       | 74                          | NR               | 555       | 706                         | NR               | 685       | 272                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 139                         | NR               | 560       | 700                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 270                         | NR               | 565       | 696                         | NR               | 695       | 214                         | NR               | 825       | 5                           | NR               | 955       | 0                           | NR               |
| 440       | 517                         | NR               | 570       | 692                         | NR               | 700       | 188                         | NR               | 830       | 4                           | NR               | 960       | 0                           | NR               |
| 445       | 877                         | NR               | 575       | 689                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 978                         | NR               | 580       | 688                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 738                         | NR               | 585       | 688                         | NR               | 715       | 125                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 618                         | NR               | 590       | 689                         | NR               | 720       | 110                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 529                         | NR               | 595       | 690                         | NR               | 725       | 95                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 420                         | NR               | 600       | 690                         | NR               | 730       | 82                          | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 395                         | NR               | 605       | 688                         | NR               | 735       | 71                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 408                         | NR               | 610       | 685                         | NR               | 740       | 61                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 429                         | NR               | 615       | 678                         | NR               | 745       | 52                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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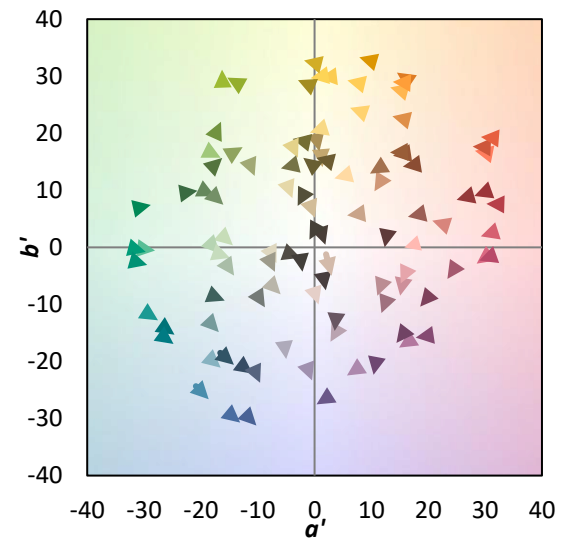
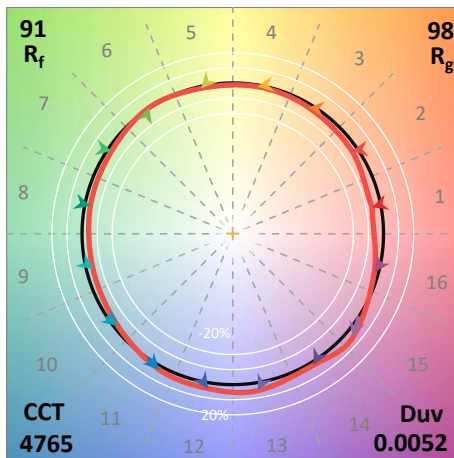
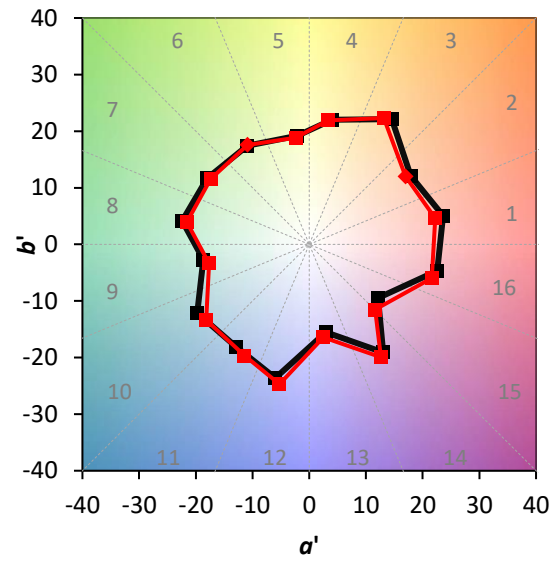
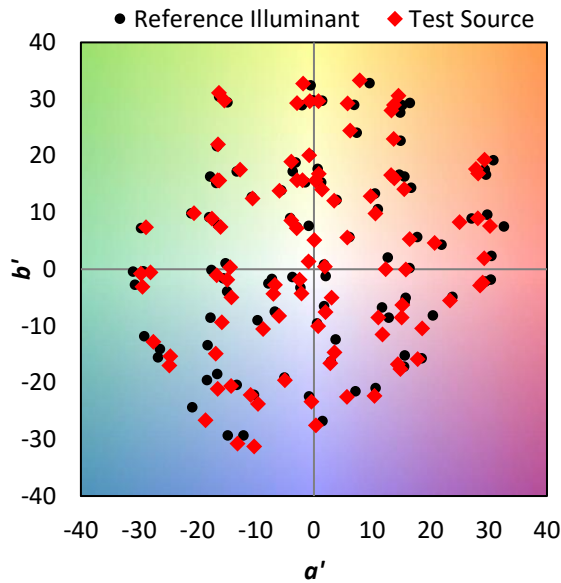
TM-30-18

### Summary

$R_f = 90.7$   
 $R_g = 98$   
 CIE  $R_a = 90.8$   
 $R_9 = 54.9$



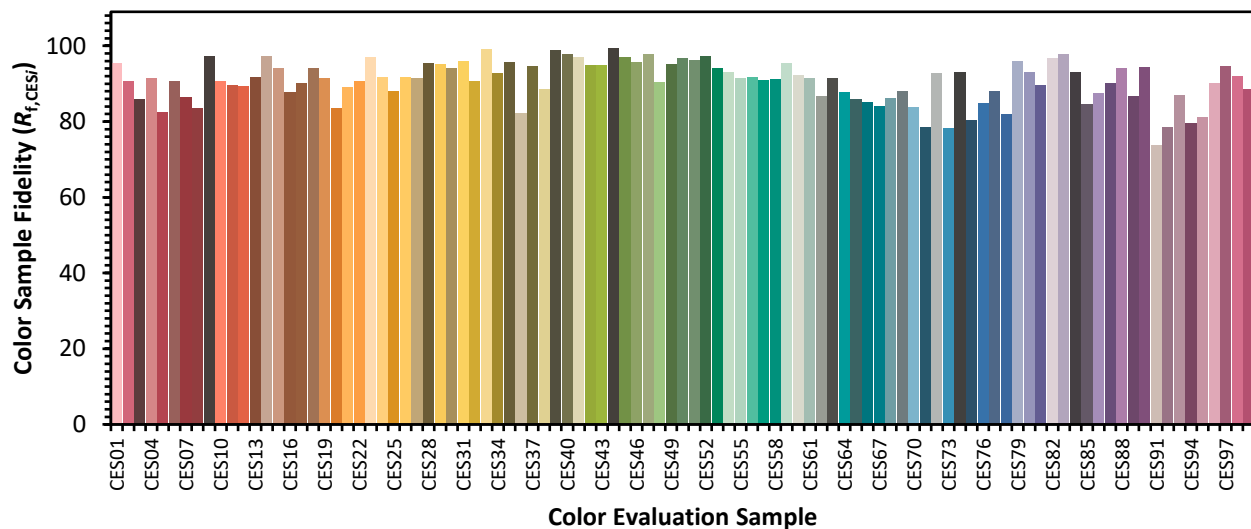
### Color Vector Graphics



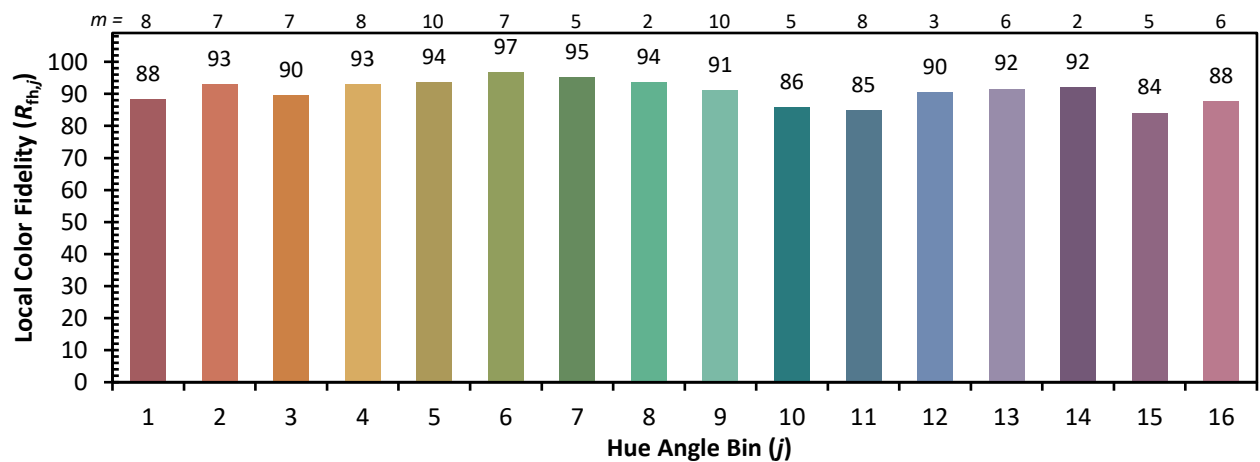
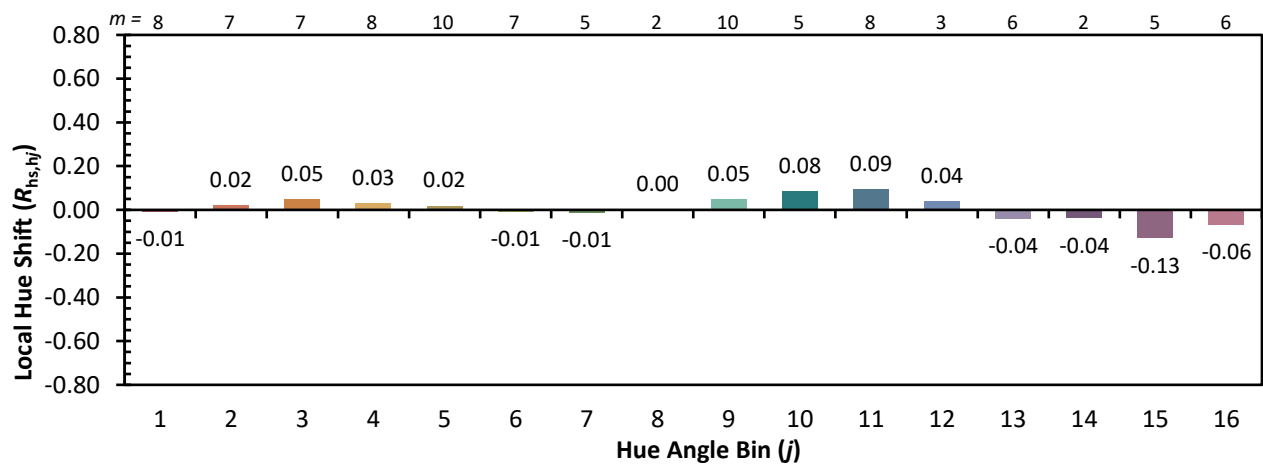
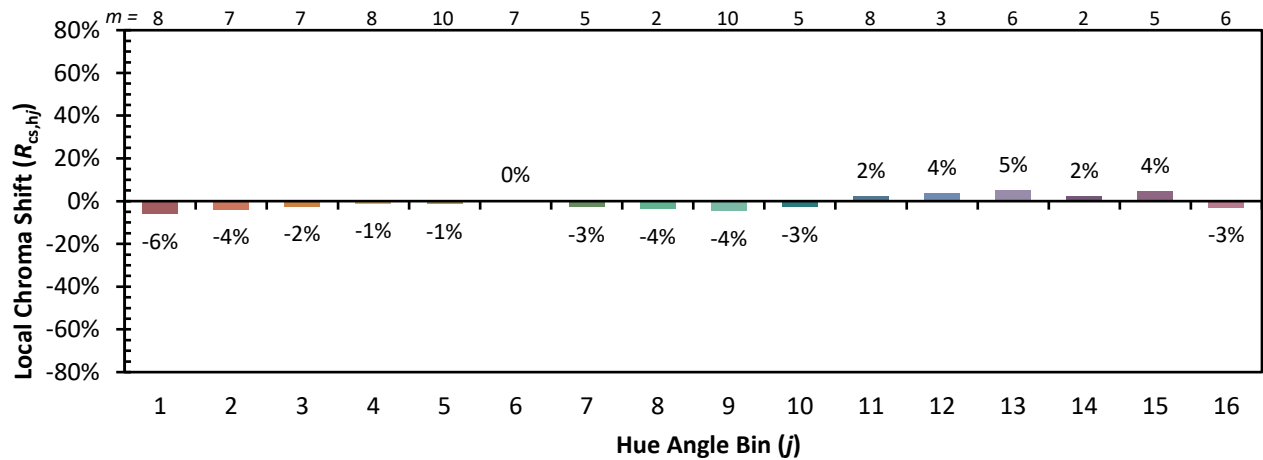


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

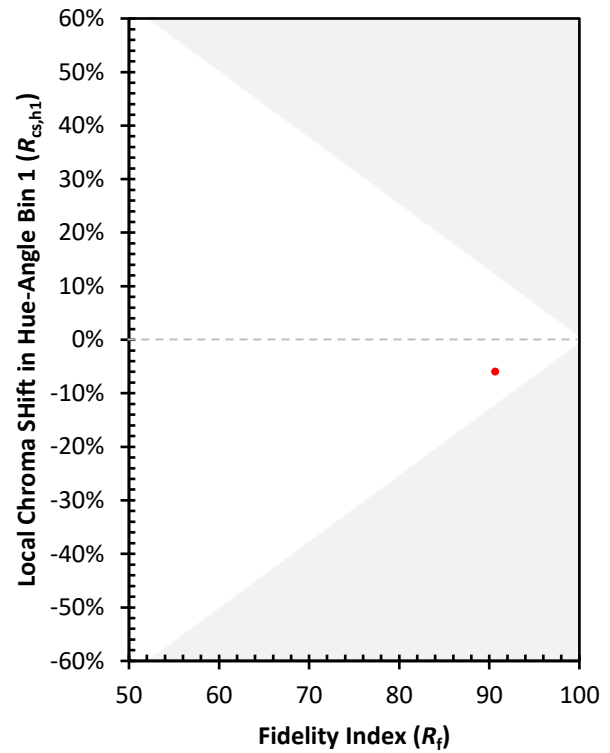
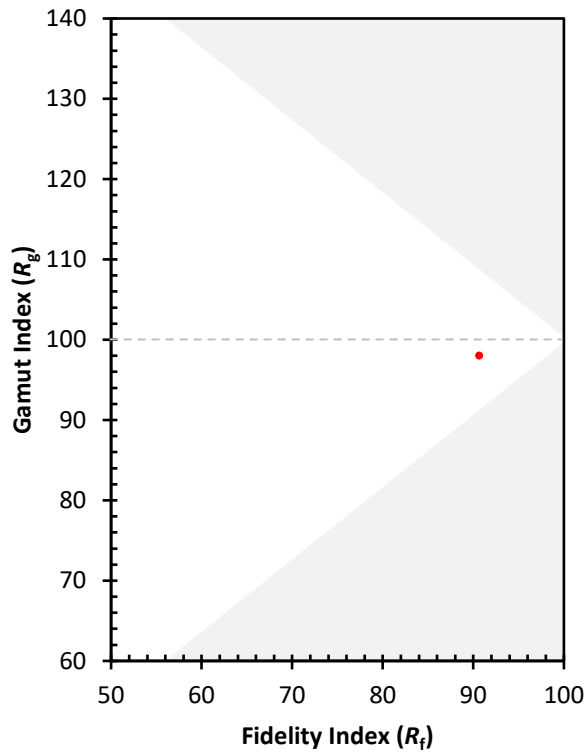
|            |             |            |            |
|------------|-------------|------------|------------|
| CES01 = 85 | CES26 = 92  | CES51 = 96 | CES76 = 85 |
| CES02 = 60 | CES27 = 92  | CES52 = 97 | CES77 = 88 |
| CES03 = 31 | CES28 = 95  | CES53 = 94 | CES78 = 82 |
| CES04 = 69 | CES29 = 95  | CES54 = 93 | CES79 = 96 |
| CES05 = 48 | CES30 = 94  | CES55 = 92 | CES80 = 93 |
| CES06 = 50 | CES31 = 96  | CES56 = 92 | CES81 = 89 |
| CES07 = 41 | CES32 = 91  | CES57 = 91 | CES82 = 97 |
| CES08 = 40 | CES33 = 99  | CES58 = 91 | CES83 = 98 |
| CES09 = 29 | CES34 = 93  | CES59 = 95 | CES84 = 93 |
| CES10 = 73 | CES35 = 96  | CES60 = 92 | CES85 = 85 |
| CES11 = 56 | CES36 = 82  | CES61 = 92 | CES86 = 88 |
| CES12 = 62 | CES37 = 95  | CES62 = 87 | CES87 = 90 |
| CES13 = 42 | CES38 = 89  | CES63 = 91 | CES88 = 94 |
| CES14 = 74 | CES39 = 99  | CES64 = 88 | CES89 = 87 |
| CES15 = 71 | CES40 = 98  | CES65 = 86 | CES90 = 94 |
| CES16 = 46 | CES41 = 97  | CES66 = 85 | CES91 = 74 |
| CES17 = 48 | CES42 = 95  | CES67 = 84 | CES92 = 78 |
| CES18 = 56 | CES43 = 95  | CES68 = 86 | CES93 = 87 |
| CES19 = 70 | CES44 = 100 | CES69 = 88 | CES94 = 80 |
| CES20 = 65 | CES45 = 97  | CES70 = 84 | CES95 = 81 |
| CES21 = 85 | CES46 = 96  | CES71 = 79 | CES96 = 90 |
| CES22 = 77 | CES47 = 98  | CES72 = 93 | CES97 = 95 |
| CES23 = 91 | CES48 = 90  | CES73 = 78 | CES98 = 92 |
| CES24 = 90 | CES49 = 95  | CES74 = 93 | CES99 = 88 |
| CES25 = 70 | CES50 = 97  | CES75 = 80 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)