

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: P1064065

Luminaire Tested: **GLAN-SA4A-750-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1064065  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA4A-750-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 4xLight Square PACKAGE  
70CRI 5000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (56) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14841.5 lumens  
Efficiency: N/A  
Efficacy: 138.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 107.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

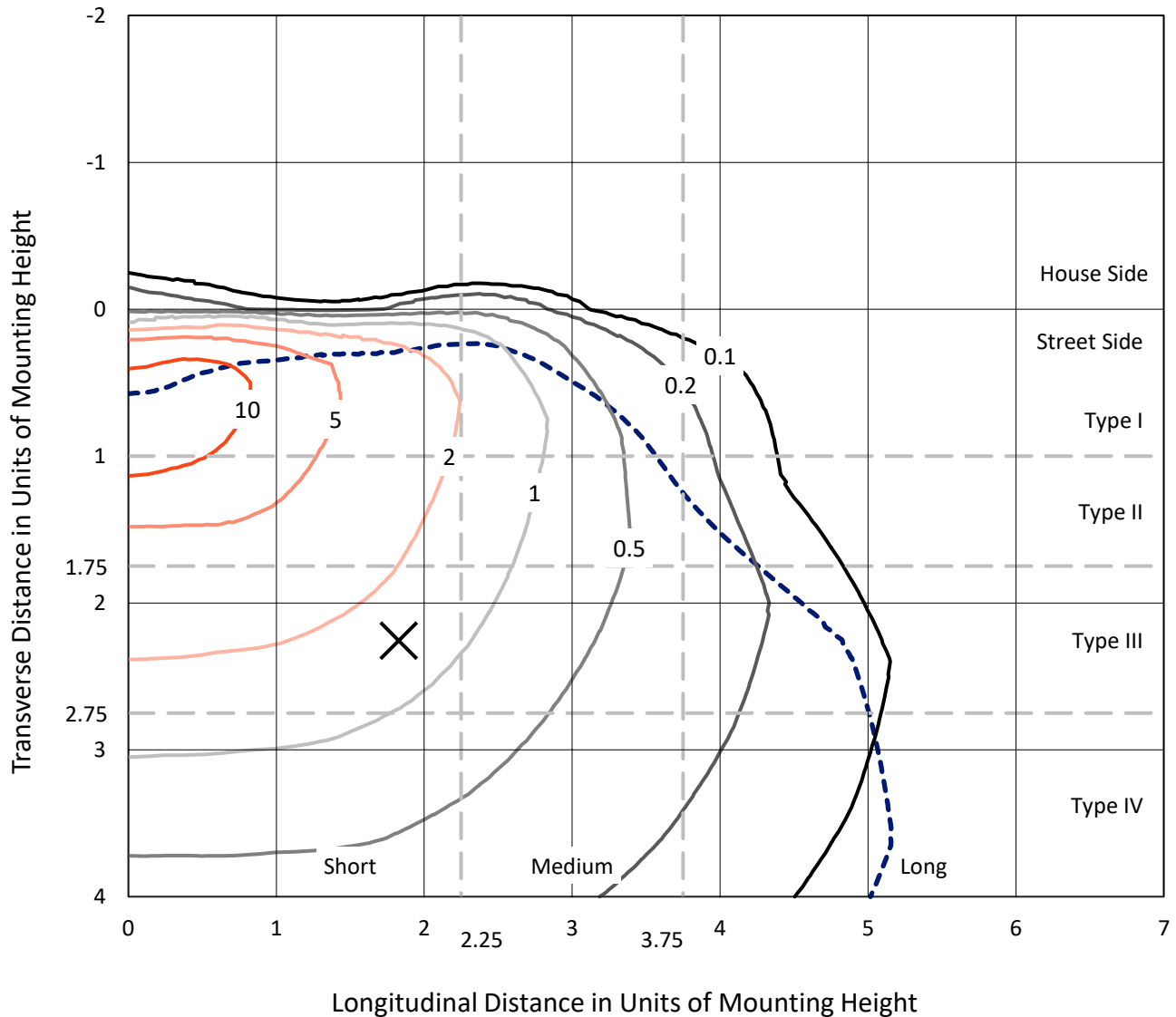


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CATALOG NUMBER: GLAN-SA4A-750-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
- - - 1/2 Max cd

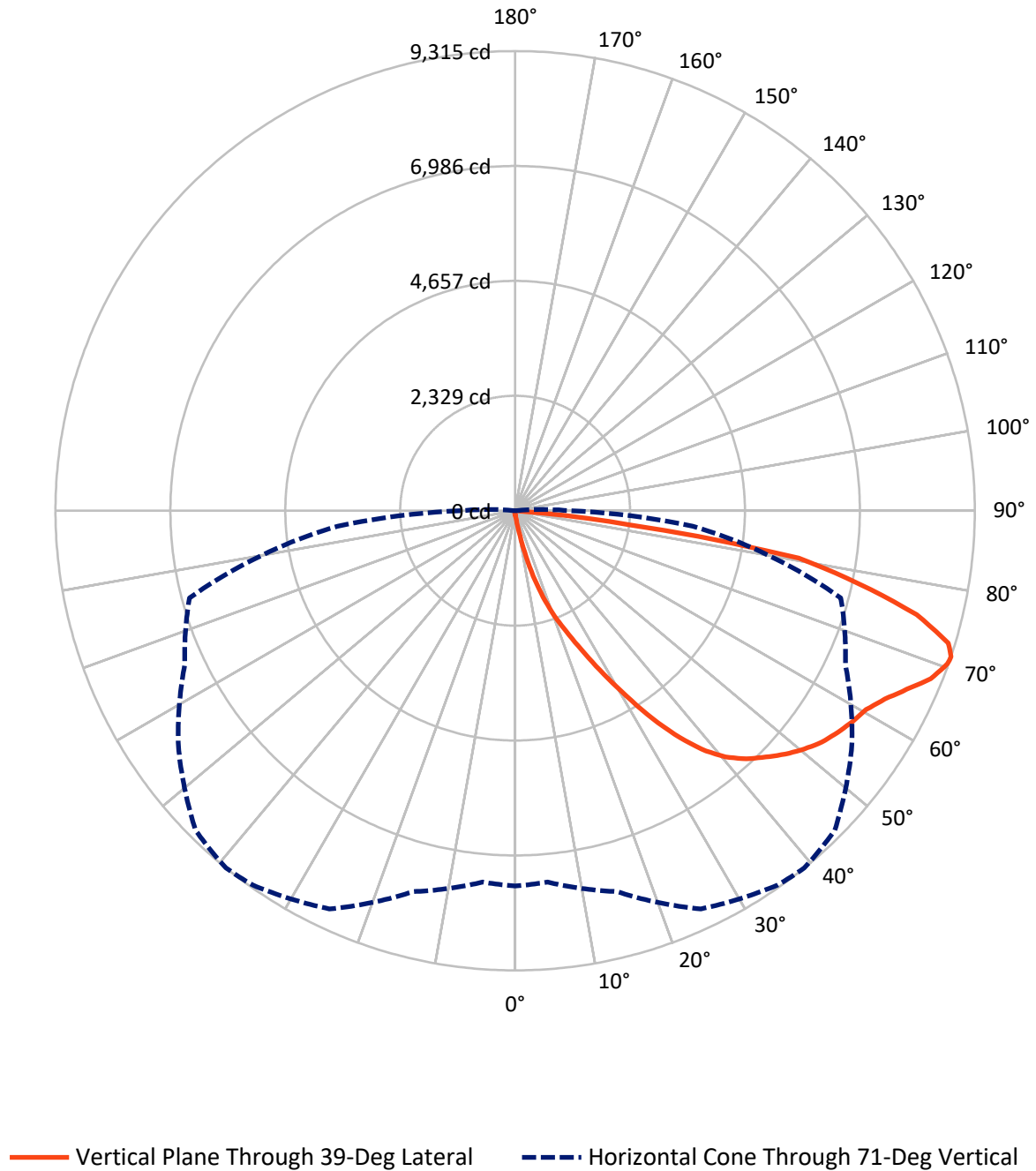


Based on 15 foot mounting height. Maximum calculated value = 15.3 fc  
Type IV - Short - N/A

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CATALOG NUMBER: GLAN-SA4A-750-U-T4BC

## Luminous Intensity Polar Plot



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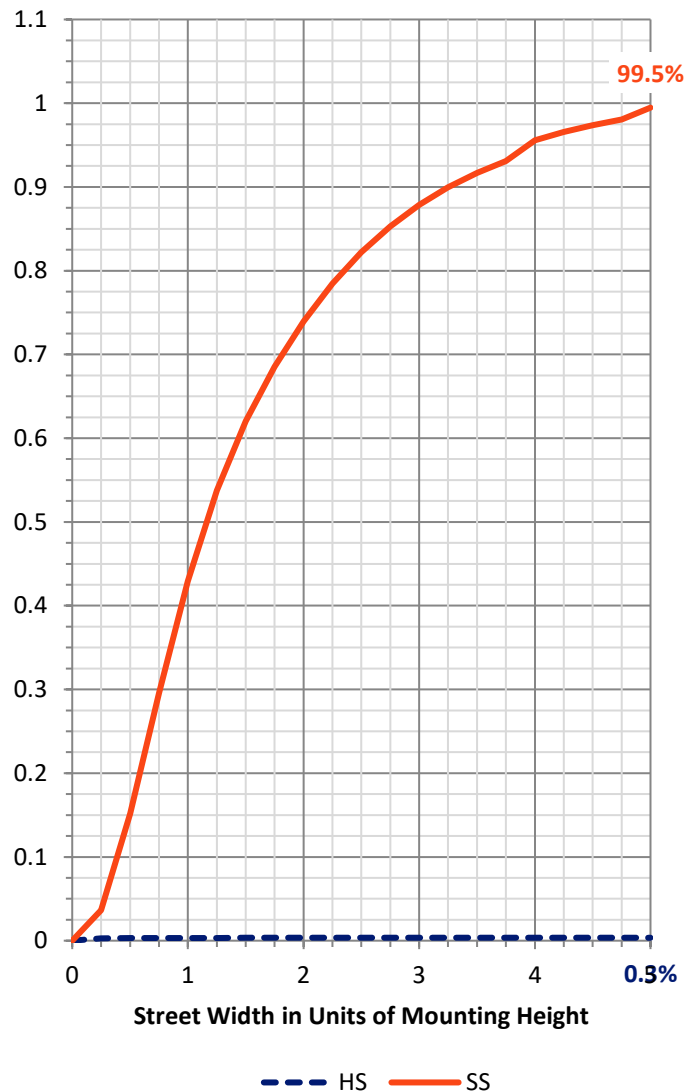
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 52.7     | 0.0    | 52.7    |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 14788.8  | 0.0    | 14788.8 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 14841.5  | 0.0    | 14841.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 12.4    | 0.1       |
| 10°-20°   | 158.6   | 1.1       |
| 20°-30°   | 564.9   | 3.8       |
| 30°-40°   | 1361.5  | 9.2       |
| 40°-50°   | 2278.5  | 15.4      |
| 50°-60°   | 2926.5  | 19.7      |
| 60°-70°   | 3703.5  | 25.0      |
| 70°-80°   | 3301.8  | 22.2      |
| 80°-90°   | 533.7   | 3.6       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 14841.5 | 100.0     |
| 0°-180°   | 14841.5 | 100.0     |



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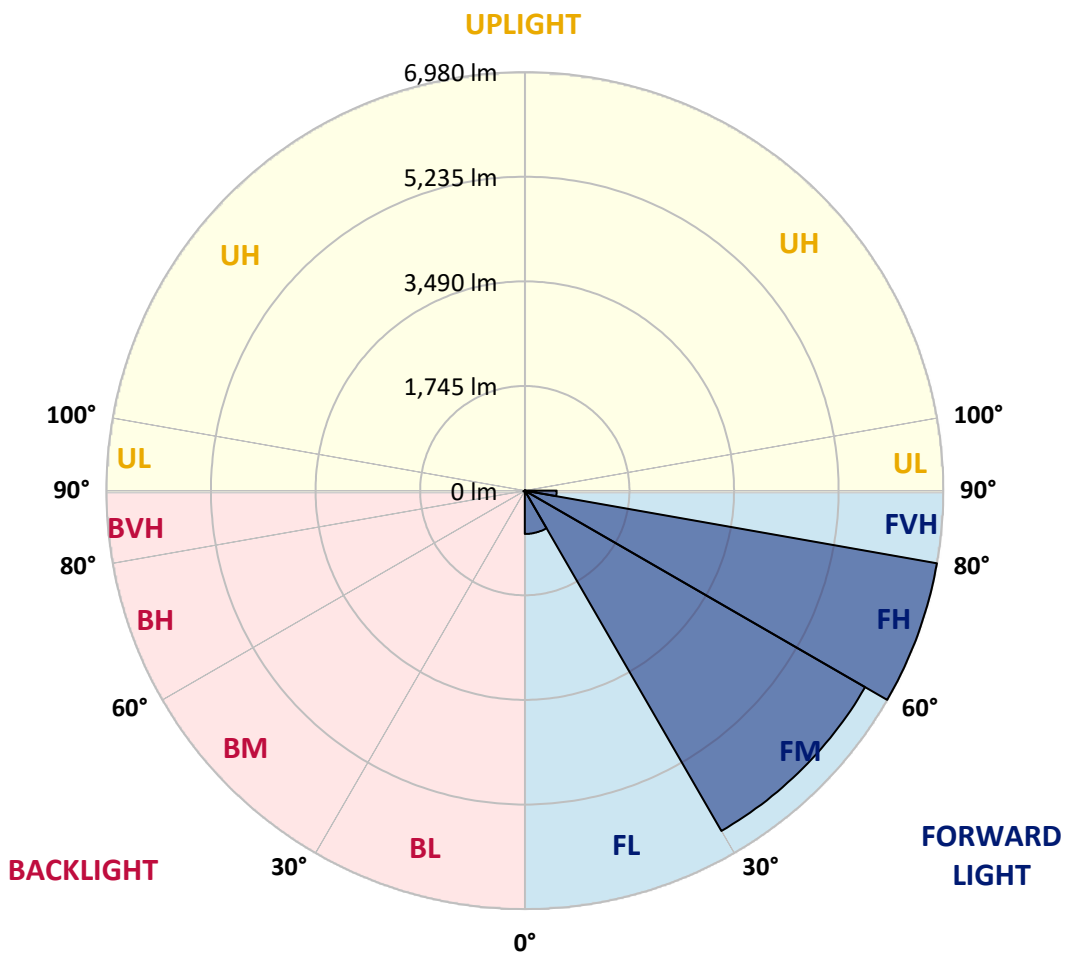
CATALOG NUMBER: GLAN-SA4A-750-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 723.2  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 6554.3 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 6980.0 | 47.0      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 531.3  | 3.6       |                         |      | G4/750  |
| BL   | (0°-30°)    | 12.8   | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 12.2   | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 25.4   | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 2.4    | 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-G4**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 81.4   | 81.4   | 81.4   | 81.4   | 81.4   | 81.4   | 81.4   | 81.4   | 81.4   | 81.4   | 81.4   |
| 2.5°  | 93.4   | 93.4   | 93.4   | 90.4   | 90.4   | 89.4   | 88.4   | 88.4   | 86.4   | 85.4   | 83.4   |
| 5°    | 141.7  | 138.6  | 131.6  | 127.6  | 119.6  | 114.5  | 109.5  | 102.5  | 95.4   | 90.4   | 84.4   |
| 7.5°  | 320.5  | 327.5  | 304.4  | 261.2  | 217.0  | 197.9  | 165.8  | 133.6  | 110.5  | 95.4   | 85.4   |
| 10°   | 816.8  | 812.8  | 734.4  | 648.0  | 500.3  | 441.1  | 345.6  | 218.0  | 142.7  | 104.5  | 86.4   |
| 12.5° | 1389.5 | 1385.5 | 1293.0 | 1175.5 | 980.6  | 857.0  | 676.2  | 406.9  | 205.0  | 118.6  | 86.4   |
| 15°   | 1870.7 | 1854.7 | 1825.5 | 1709.0 | 1480.9 | 1377.4 | 1138.3 | 719.4  | 331.5  | 142.7  | 88.4   |
| 17.5° | 2189.2 | 2175.2 | 2148.0 | 2105.8 | 1961.2 | 1838.6 | 1646.7 | 1130.3 | 536.5  | 184.9  | 92.4   |
| 20°   | 2481.6 | 2471.5 | 2449.4 | 2441.4 | 2348.0 | 2282.7 | 2123.9 | 1602.5 | 835.9  | 251.2  | 98.5   |
| 22.5° | 2883.5 | 2862.4 | 2871.4 | 2823.2 | 2731.8 | 2653.4 | 2555.9 | 2096.8 | 1201.6 | 361.7  | 109.5  |
| 25°   | 3375.8 | 3365.7 | 3340.6 | 3306.4 | 3179.9 | 3111.5 | 2961.8 | 2563.0 | 1610.5 | 506.4  | 121.6  |
| 27.5° | 3970.5 | 3959.5 | 3953.5 | 3875.1 | 3729.4 | 3655.1 | 3446.1 | 3003.0 | 2070.7 | 709.3  | 137.6  |
| 30°   | 4655.7 | 4660.8 | 4621.6 | 4521.1 | 4351.3 | 4246.8 | 4031.8 | 3464.2 | 2541.9 | 947.4  | 154.7  |
| 32.5° | 5365.1 | 5355.0 | 5294.7 | 5176.2 | 5024.5 | 4927.0 | 4653.7 | 3969.5 | 3036.2 | 1261.9 | 174.8  |
| 35°   | 6129.6 | 6110.5 | 5951.8 | 5816.2 | 5686.6 | 5564.0 | 5314.8 | 4556.3 | 3530.5 | 1614.5 | 201.9  |
| 37.5° | 6901.2 | 6811.8 | 6493.3 | 6321.5 | 6232.1 | 6131.6 | 5899.6 | 5182.2 | 4021.8 | 2008.4 | 235.1  |
| 40°   | 7484.0 | 7414.6 | 7036.9 | 6720.4 | 6649.1 | 6563.7 | 6390.8 | 5722.7 | 4544.2 | 2431.4 | 275.3  |
| 42.5° | 7806.5 | 7768.3 | 7428.7 | 7116.2 | 6948.5 | 6873.1 | 6725.4 | 6194.9 | 5060.6 | 2898.5 | 333.6  |
| 45°   | 7944.1 | 7884.8 | 7657.8 | 7512.1 | 7244.8 | 7120.3 | 6944.4 | 6551.6 | 5600.2 | 3429.0 | 414.9  |
| 47.5° | 7901.9 | 7867.7 | 7705.0 | 7758.2 | 7564.3 | 7370.4 | 7112.2 | 6824.9 | 6061.3 | 4037.9 | 526.5  |
| 50°   | 7636.7 | 7607.5 | 7557.3 | 7845.6 | 7821.5 | 7592.5 | 7329.2 | 7040.9 | 6438.1 | 4665.8 | 699.3  |
| 52.5° | 7132.3 | 7120.3 | 7248.9 | 7777.3 | 7967.2 | 7788.4 | 7538.2 | 7231.8 | 6789.7 | 5321.9 | 946.4  |
| 55°   | 6482.3 | 6531.5 | 6899.2 | 7670.8 | 8041.6 | 7933.1 | 7723.1 | 7410.6 | 7072.0 | 5908.6 | 1311.1 |
| 57.5° | 6215.0 | 6228.1 | 6687.2 | 7595.5 | 8074.7 | 8060.6 | 7902.9 | 7581.4 | 7331.2 | 6377.8 | 1867.7 |
| 60°   | 6527.5 | 6507.4 | 6749.5 | 7652.7 | 8141.0 | 8175.2 | 8062.7 | 7740.2 | 7556.3 | 6780.7 | 2609.2 |
| 62.5° | 7092.1 | 7081.1 | 7158.4 | 7896.9 | 8334.9 | 8404.3 | 8284.7 | 7854.7 | 7755.2 | 7045.9 | 3455.1 |
| 65°   | 7596.5 | 7573.4 | 7717.0 | 8329.9 | 8675.5 | 8724.8 | 8620.3 | 8050.6 | 7842.6 | 7238.8 | 4249.8 |
| 67.5° | 7814.5 | 7809.5 | 8040.6 | 8741.8 | 9033.2 | 9086.4 | 8995.0 | 8320.9 | 7822.5 | 7300.1 | 4600.5 |
| 70°   | 7715.0 | 7695.9 | 8065.7 | 8916.6 | 9235.1 | 9295.4 | 9207.0 | 8421.3 | 7604.5 | 7106.2 | 4081.1 |
| 71°   | 7605.5 | 7554.3 | 7990.3 | 8904.6 | 9263.3 | 9314.5 | 9159.8 | 8329.9 | 7385.5 | 6830.9 | 3609.9 |
| 72.5° | 7265.9 | 7275.0 | 7783.4 | 8779.0 | 9196.0 | 9180.9 | 8892.5 | 8002.4 | 7121.3 | 6206.0 | 2899.5 |
| 75°   | 6430.0 | 6483.3 | 7113.2 | 8251.5 | 8595.1 | 8403.2 | 7962.2 | 7376.5 | 6590.8 | 4449.8 | 2013.4 |
| 77.5° | 5254.5 | 5333.9 | 6026.1 | 7236.8 | 7139.3 | 7120.3 | 7102.2 | 6499.4 | 5628.3 | 2390.2 | 1400.5 |
| 80°   | 2508.7 | 2680.5 | 3635.0 | 5166.1 | 5612.2 | 5828.2 | 5692.6 | 5237.5 | 4352.3 | 1138.3 | 836.9  |
| 82.5° | 163.8  | 161.8  | 229.1  | 434.0  | 1829.5 | 2365.0 | 3757.6 | 3743.5 | 3034.2 | 554.6  | 341.6  |
| 85°   | 77.4   | 79.4   | 87.4   | 99.5   | 115.5  | 126.6  | 174.8  | 1024.8 | 1451.8 | 264.2  | 74.3   |
| 87.5° | 45.2   | 46.2   | 54.3   | 69.3   | 90.4   | 100.5  | 119.6  | 153.7  | 188.9  | 145.7  | 16.1   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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CATALOG NUMBER: GLAN-SA4A-750-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 81.4   | 81.4 | 81.4 | 81.4 | 81.4 | 81.4 | 81.4 | 81.4 | 81.4 | 81.4 | 81.4 |
| 2.5°  | 82.4   | 81.4 | 78.4 | 75.4 | 72.3 | 70.3 | 69.3 | 70.3 | 70.3 | 71.3 | 71.3 |
| 5°    | 82.4   | 79.4 | 74.3 | 68.3 | 64.3 | 60.3 | 58.3 | 57.3 | 58.3 | 58.3 | 58.3 |
| 7.5°  | 81.4   | 76.4 | 69.3 | 62.3 | 57.3 | 52.2 | 50.2 | 49.2 | 49.2 | 50.2 | 50.2 |
| 10°   | 79.4   | 74.3 | 65.3 | 57.3 | 51.2 | 45.2 | 42.2 | 39.2 | 39.2 | 39.2 | 40.2 |
| 12.5° | 78.4   | 71.3 | 60.3 | 52.2 | 44.2 | 37.2 | 31.1 | 28.1 | 29.1 | 29.1 | 29.1 |
| 15°   | 76.4   | 68.3 | 57.3 | 47.2 | 37.2 | 28.1 | 23.1 | 20.1 | 21.1 | 22.1 | 21.1 |
| 17.5° | 76.4   | 67.3 | 53.2 | 41.2 | 29.1 | 21.1 | 17.1 | 15.1 | 15.1 | 16.1 | 16.1 |
| 20°   | 76.4   | 65.3 | 50.2 | 35.2 | 22.1 | 16.1 | 12.1 | 11.1 | 11.1 | 13.1 | 14.1 |
| 22.5° | 78.4   | 65.3 | 46.2 | 29.1 | 18.1 | 12.1 | 9.0  | 8.0  | 9.0  | 11.1 | 12.1 |
| 25°   | 81.4   | 64.3 | 42.2 | 26.1 | 15.1 | 9.0  | 7.0  | 5.0  | 6.0  | 8.0  | 9.0  |
| 27.5° | 84.4   | 63.3 | 38.2 | 23.1 | 12.1 | 7.0  | 5.0  | 4.0  | 3.0  | 4.0  | 4.0  |
| 30°   | 87.4   | 63.3 | 34.2 | 19.1 | 10.0 | 5.0  | 3.0  | 2.0  | 1.0  | 0.0  | 0.0  |
| 32.5° | 89.4   | 61.3 | 31.1 | 15.1 | 8.0  | 4.0  | 2.0  | 1.0  | 0.0  | 0.0  | 0.0  |
| 35°   | 91.4   | 59.3 | 27.1 | 12.1 | 6.0  | 3.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 93.4   | 56.3 | 23.1 | 10.0 | 5.0  | 2.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 95.4   | 52.2 | 19.1 | 9.0  | 3.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 97.5   | 49.2 | 16.1 | 7.0  | 2.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 102.5  | 47.2 | 13.1 | 6.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 111.5  | 45.2 | 12.1 | 4.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 124.6  | 43.2 | 11.1 | 3.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 142.7  | 42.2 | 10.0 | 2.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 174.8  | 41.2 | 9.0  | 2.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 230.1  | 40.2 | 9.0  | 2.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 352.6  | 38.2 | 9.0  | 2.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 629.9  | 37.2 | 8.0  | 2.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 1098.1 | 38.2 | 8.0  | 2.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 1574.4 | 40.2 | 7.0  | 3.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 1347.3 | 35.2 | 7.0  | 4.0  | 2.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 1098.1 | 31.1 | 7.0  | 4.0  | 2.0  | 1.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 706.3  | 24.1 | 6.0  | 4.0  | 2.0  | 2.0  | 1.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 298.4  | 20.1 | 6.0  | 4.0  | 3.0  | 2.0  | 2.0  | 1.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 127.6  | 15.1 | 6.0  | 5.0  | 4.0  | 3.0  | 3.0  | 2.0  | 1.0  | 0.0  | 0.0  |
| 80°   | 48.2   | 12.1 | 7.0  | 6.0  | 5.0  | 5.0  | 4.0  | 2.0  | 1.0  | 0.0  | 0.0  |
| 82.5° | 22.1   | 10.0 | 7.0  | 6.0  | 6.0  | 5.0  | 4.0  | 3.0  | 2.0  | 0.0  | 0.0  |
| 85°   | 14.1   | 9.0  | 7.0  | 6.0  | 6.0  | 5.0  | 5.0  | 3.0  | 2.0  | 0.0  | 0.0  |
| 87.5° | 11.1   | 9.0  | 7.0  | 7.0  | 6.0  | 6.0  | 4.0  | 3.0  | 1.0  | 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: SP1-2407-184-6

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-750-U-5WQ

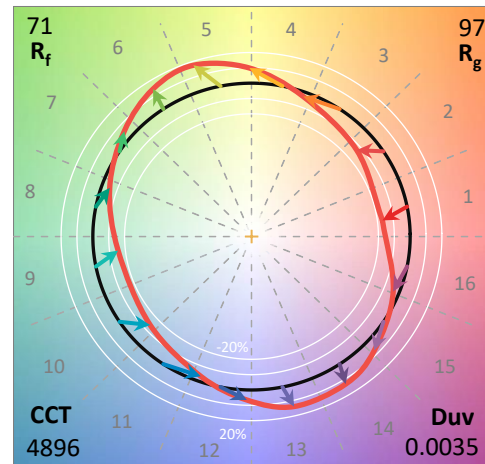
Data in this report applies to families of products including GSS-SB1A-750-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-6  
 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-750-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 4896     | CRI (Ra): | 70.2 |      |       |
| CIE u':                   | 0.2101   | R1:       | 68.1 | R9:  | -35.1 |
| CIE v':                   | 0.4901   | R2:       | 73.9 | R10: | 39.3  |
| Duv:                      | 0.0035   | R3:       | 79.4 | R11: | 71.1  |
| CIE x:                    | 0.3489   | R4:       | 72.1 | R12: | 43.8  |
| CIE y:                    | 0.3618   | R5:       | 69.2 | R13: | 68.1  |
| CIE z:                    | 0.2893   | R6:       | 65.7 | R14: | 88.4  |
| Peak Wavelength (nm):     | 443      | R7:       | 78.1 | R15: | 59.7  |
| Dominant Wavelength (nm): | 570      | R8:       | 55.3 |      |       |
| Purity:                   | 13.25435 |           |      |      |       |
| Rf:                       | 70.7     |           |      |      |       |
| Rg:                       | 96.8     |           |      |      |       |



### Test Conditions

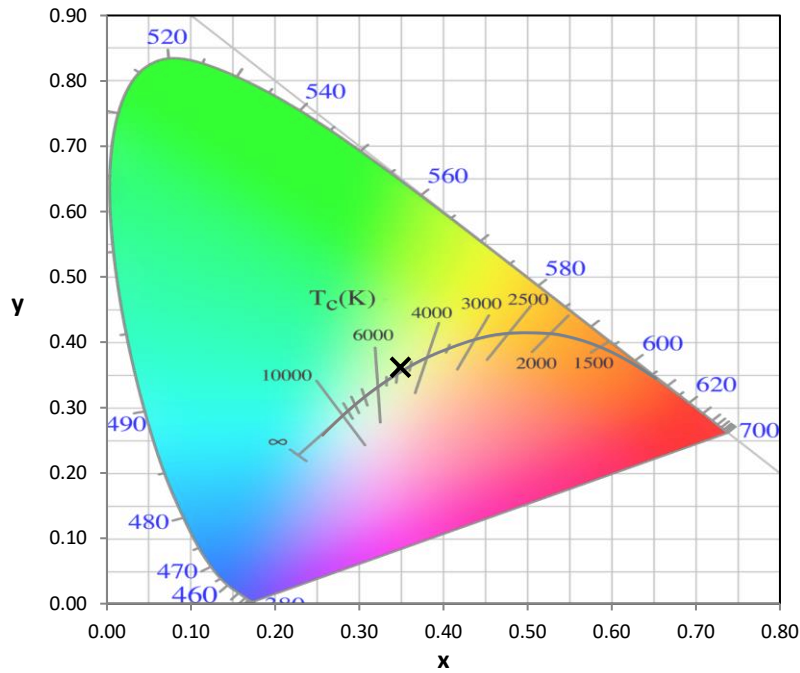
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-6

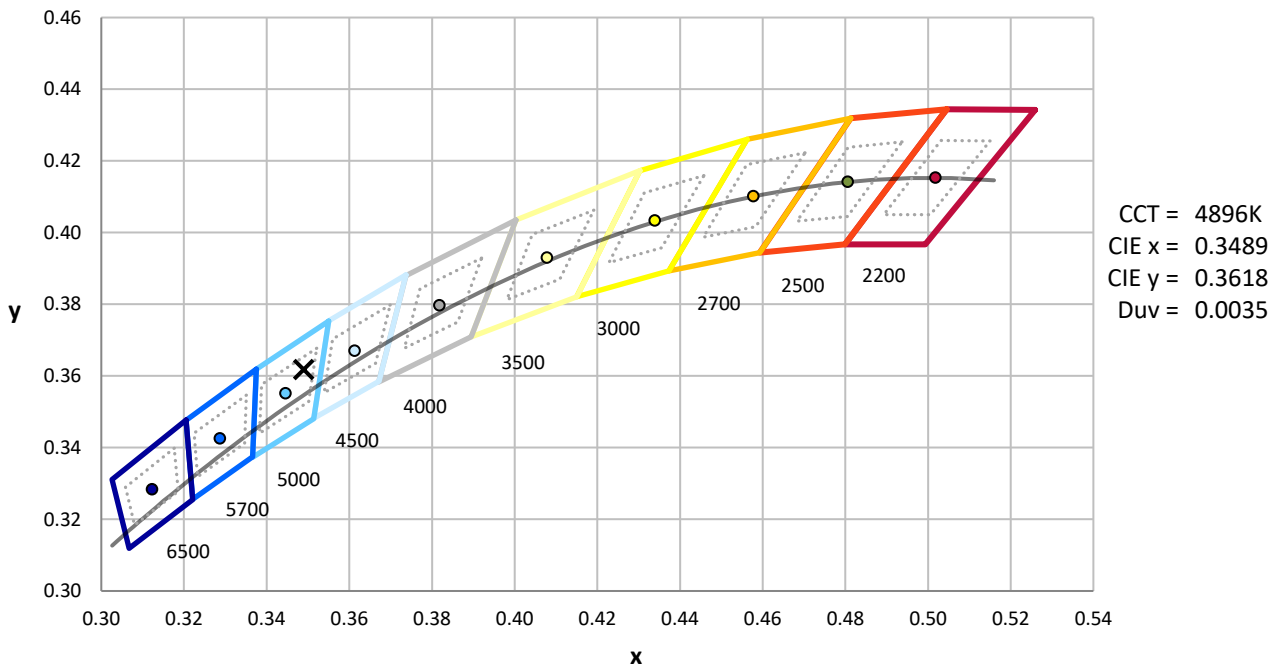
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



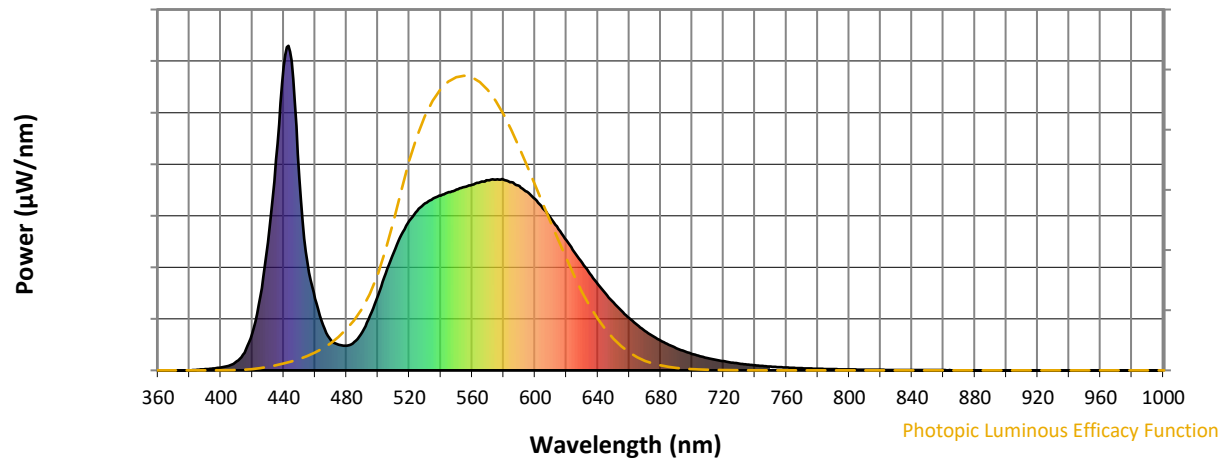
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

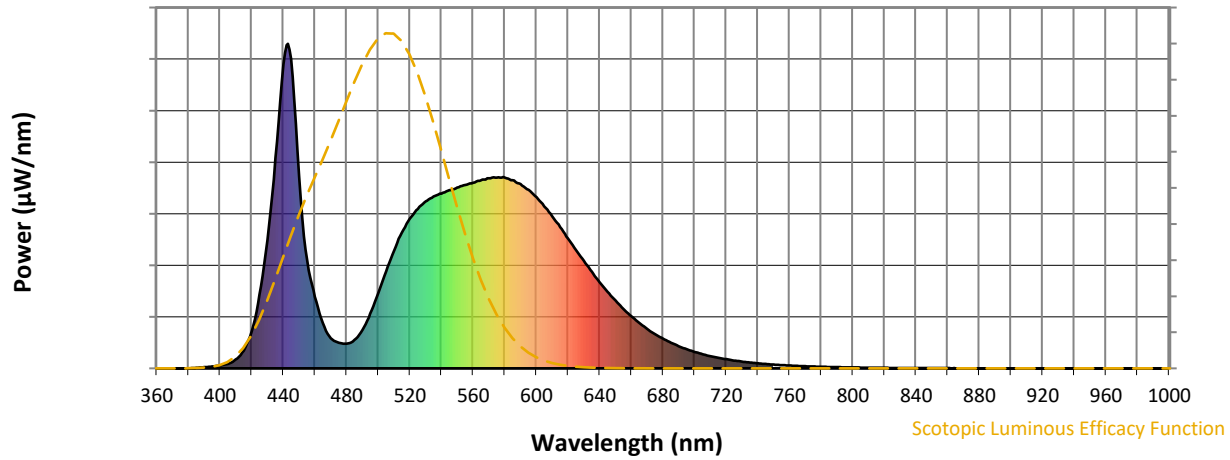


### Photopic Lumens: NR

| 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    | 118                      | NR            | 620    | 401                      | NR            | 750    | 12                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 168                      | NR            | 625    | 365                      | NR            | 755    | 10                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 230                      | NR            | 630    | 331                      | NR            | 760    | 9                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 299                      | NR            | 635    | 298                      | NR            | 765    | 8                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 362                      | NR            | 640    | 266                      | NR            | 770    | 6                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 418                      | NR            | 645    | 236                      | NR            | 775    | 6                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 461                      | NR            | 650    | 209                      | NR            | 780    | 5                        | NR            | 910    | 0                        | NR            |
| 395    | 6                        | NR            | 525    | 491                      | NR            | 655    | 184                      | NR            | 785    | 4                        | NR            | 915    | 0                        | NR            |
| 400    | 9                        | NR            | 530    | 514                      | NR            | 660    | 160                      | NR            | 790    | 4                        | NR            | 920    | 0                        | NR            |
| 405    | 14                       | NR            | 535    | 530                      | NR            | 665    | 140                      | NR            | 795    | 3                        | NR            | 925    | 0                        | NR            |
| 410    | 27                       | NR            | 540    | 539                      | NR            | 670    | 122                      | NR            | 800    | 3                        | NR            | 930    | 0                        | NR            |
| 415    | 55                       | NR            | 545    | 549                      | NR            | 675    | 106                      | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 115                      | NR            | 550    | 557                      | NR            | 680    | 92                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 226                      | NR            | 555    | 565                      | NR            | 685    | 79                       | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 395                      | NR            | 560    | 572                      | NR            | 690    | 68                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 648                      | NR            | 565    | 580                      | NR            | 695    | 59                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 937                      | NR            | 570    | 586                      | NR            | 700    | 51                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 953                      | NR            | 575    | 588                      | NR            | 705    | 44                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 591                      | NR            | 580    | 588                      | NR            | 710    | 38                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 334                      | NR            | 585    | 580                      | NR            | 715    | 32                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 221                      | NR            | 590    | 568                      | NR            | 720    | 28                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 140                      | NR            | 595    | 550                      | NR            | 725    | 24                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 93                       | NR            | 600    | 527                      | NR            | 730    | 21                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 79                       | NR            | 605    | 499                      | NR            | 735    | 18                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 469                      | NR            | 740    | 15                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 87                       | NR            | 615    | 435                      | NR            | 745    | 13                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



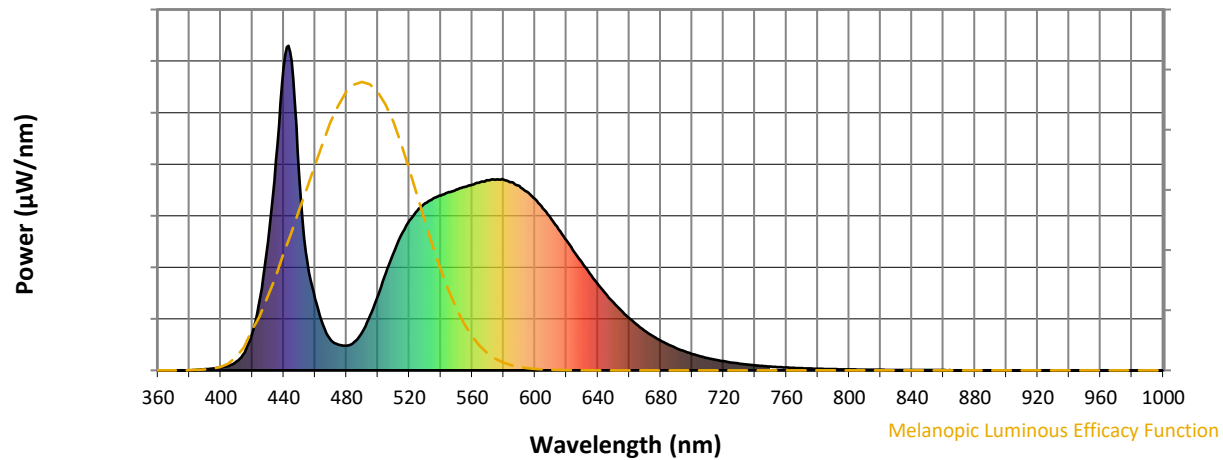
Scotopic Lumens: NR

S/P: 1.7

| λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>Λ</sup> /nm | Lumens<br>(Φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 118                         | NR               | 620       | 401                         | NR               | 750       | 12                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 168                         | NR               | 625       | 365                         | NR               | 755       | 10                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 331                         | NR               | 760       | 9                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 299                         | NR               | 635       | 298                         | NR               | 765       | 8                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 362                         | NR               | 640       | 266                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 418                         | NR               | 645       | 236                         | NR               | 775       | 6                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 461                         | NR               | 650       | 209                         | NR               | 780       | 5                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 491                         | NR               | 655       | 184                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 514                         | NR               | 660       | 160                         | NR               | 790       | 4                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 530                         | NR               | 665       | 140                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 27                          | NR               | 540       | 539                         | NR               | 670       | 122                         | NR               | 800       | 3                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 549                         | NR               | 675       | 106                         | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 115                         | NR               | 550       | 557                         | NR               | 680       | 92                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 226                         | NR               | 555       | 565                         | NR               | 685       | 79                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 395                         | NR               | 560       | 572                         | NR               | 690       | 68                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 648                         | NR               | 565       | 580                         | NR               | 695       | 59                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 937                         | NR               | 570       | 586                         | NR               | 700       | 51                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 953                         | NR               | 575       | 588                         | NR               | 705       | 44                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 591                         | NR               | 580       | 588                         | NR               | 710       | 38                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 334                         | NR               | 585       | 580                         | NR               | 715       | 32                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 221                         | NR               | 590       | 568                         | NR               | 720       | 28                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 140                         | NR               | 595       | 550                         | NR               | 725       | 24                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 93                          | NR               | 600       | 527                         | NR               | 730       | 21                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 79                          | NR               | 605       | 499                         | NR               | 735       | 18                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 469                         | NR               | 740       | 15                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 87                          | NR               | 615       | 435                         | NR               | 745       | 13                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.37

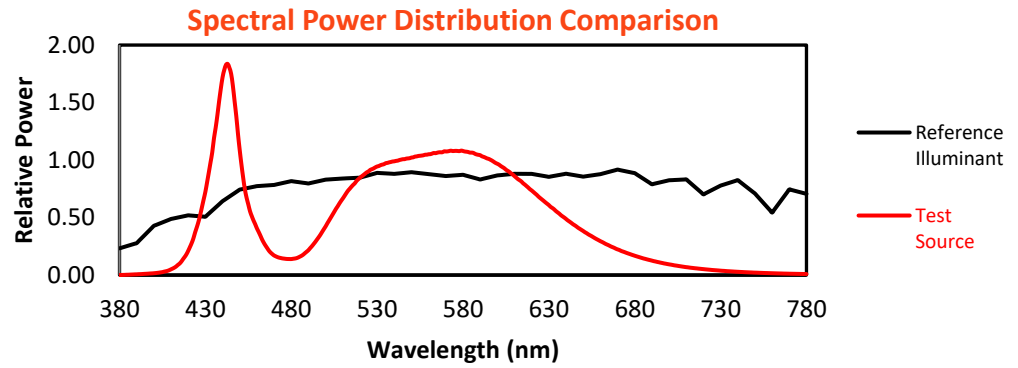
| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 118                         | NR               | 620       | 401                         | NR               | 750       | 12                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 168                         | NR               | 625       | 365                         | NR               | 755       | 10                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 331                         | NR               | 760       | 9                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 299                         | NR               | 635       | 298                         | NR               | 765       | 8                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 362                         | NR               | 640       | 266                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 418                         | NR               | 645       | 236                         | NR               | 775       | 6                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 461                         | NR               | 650       | 209                         | NR               | 780       | 5                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 491                         | NR               | 655       | 184                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 514                         | NR               | 660       | 160                         | NR               | 790       | 4                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 530                         | NR               | 665       | 140                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 27                          | NR               | 540       | 539                         | NR               | 670       | 122                         | NR               | 800       | 3                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 549                         | NR               | 675       | 106                         | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 115                         | NR               | 550       | 557                         | NR               | 680       | 92                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 226                         | NR               | 555       | 565                         | NR               | 685       | 79                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 395                         | NR               | 560       | 572                         | NR               | 690       | 68                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 648                         | NR               | 565       | 580                         | NR               | 695       | 59                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 937                         | NR               | 570       | 586                         | NR               | 700       | 51                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 953                         | NR               | 575       | 588                         | NR               | 705       | 44                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 591                         | NR               | 580       | 588                         | NR               | 710       | 38                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 334                         | NR               | 585       | 580                         | NR               | 715       | 32                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 221                         | NR               | 590       | 568                         | NR               | 720       | 28                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 140                         | NR               | 595       | 550                         | NR               | 725       | 24                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 93                          | NR               | 600       | 527                         | NR               | 730       | 21                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 79                          | NR               | 605       | 499                         | NR               | 735       | 18                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 469                         | NR               | 740       | 15                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 87                          | NR               | 615       | 435                         | NR               | 745       | 13                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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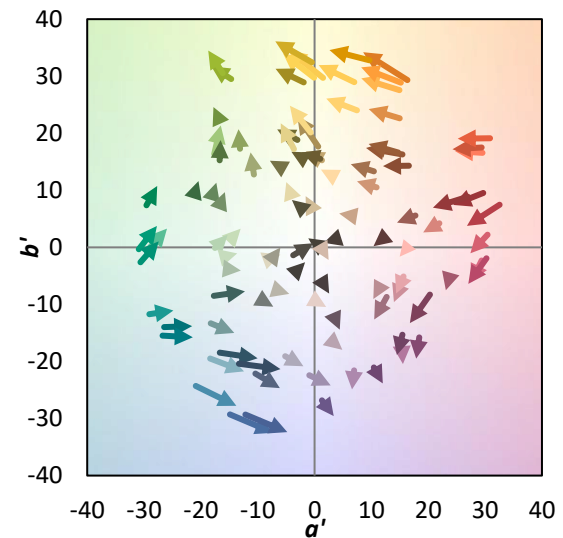
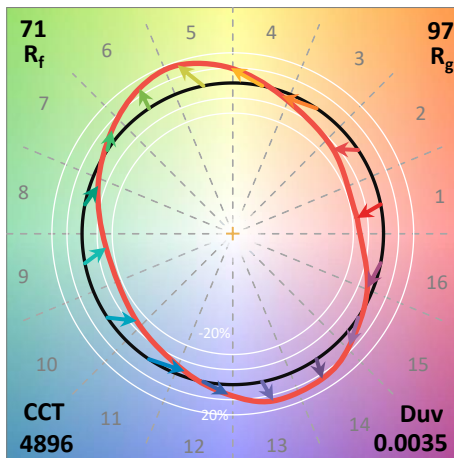
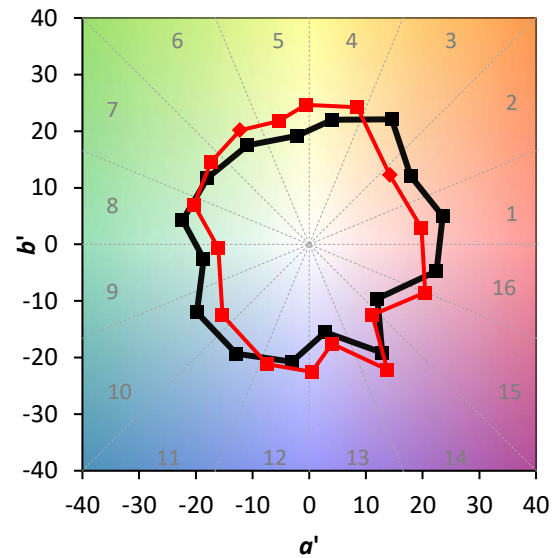
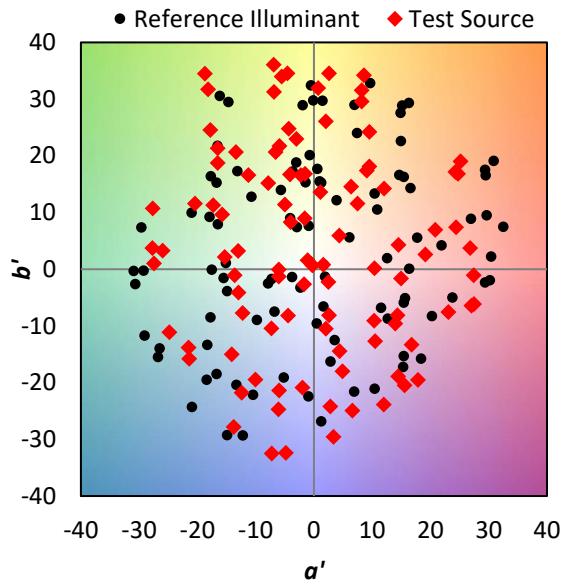
TM-30-18

### Summary

$R_f = 70.7$   
 $R_g = 96.8$   
 $CIE R_a = 70.2$   
 $R_g = -35.1$



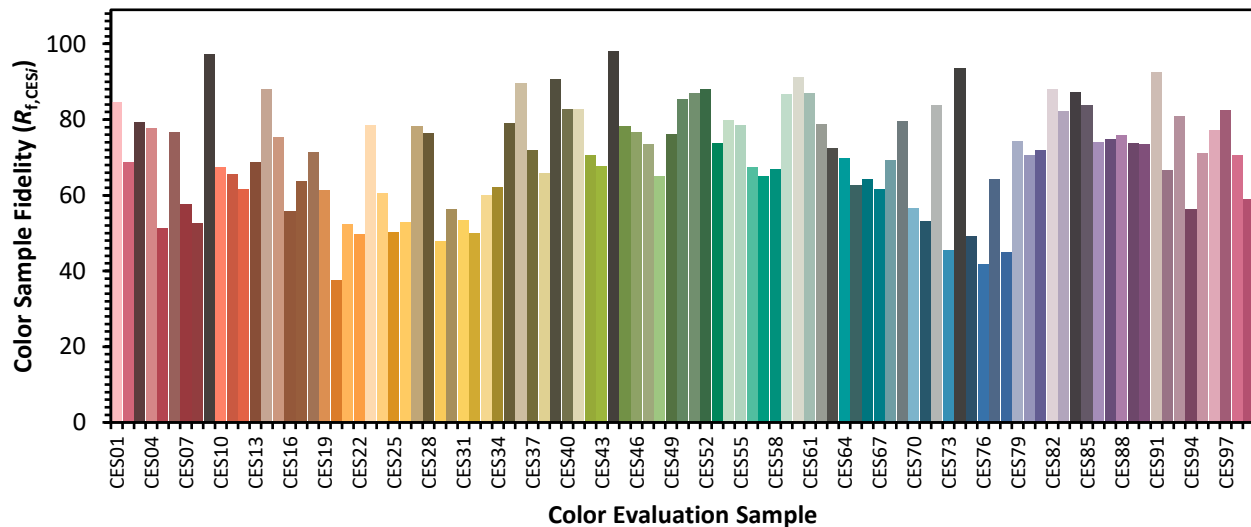
### Color Vector Graphics

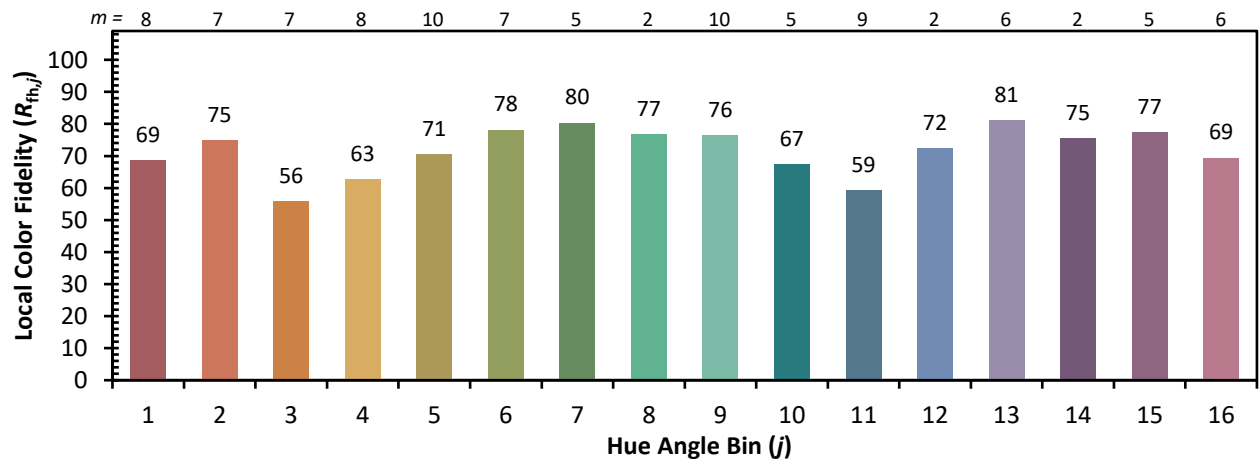
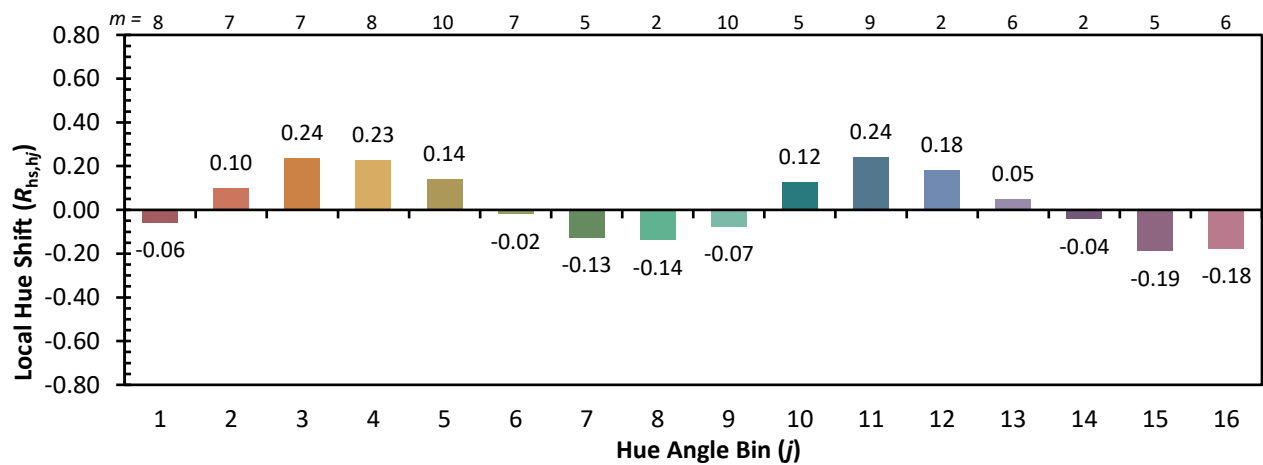
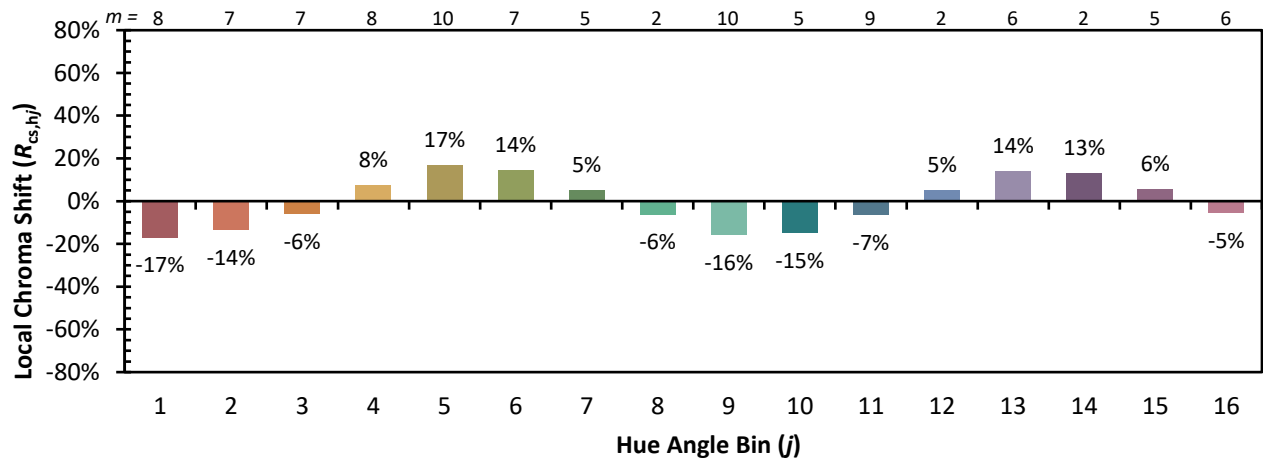




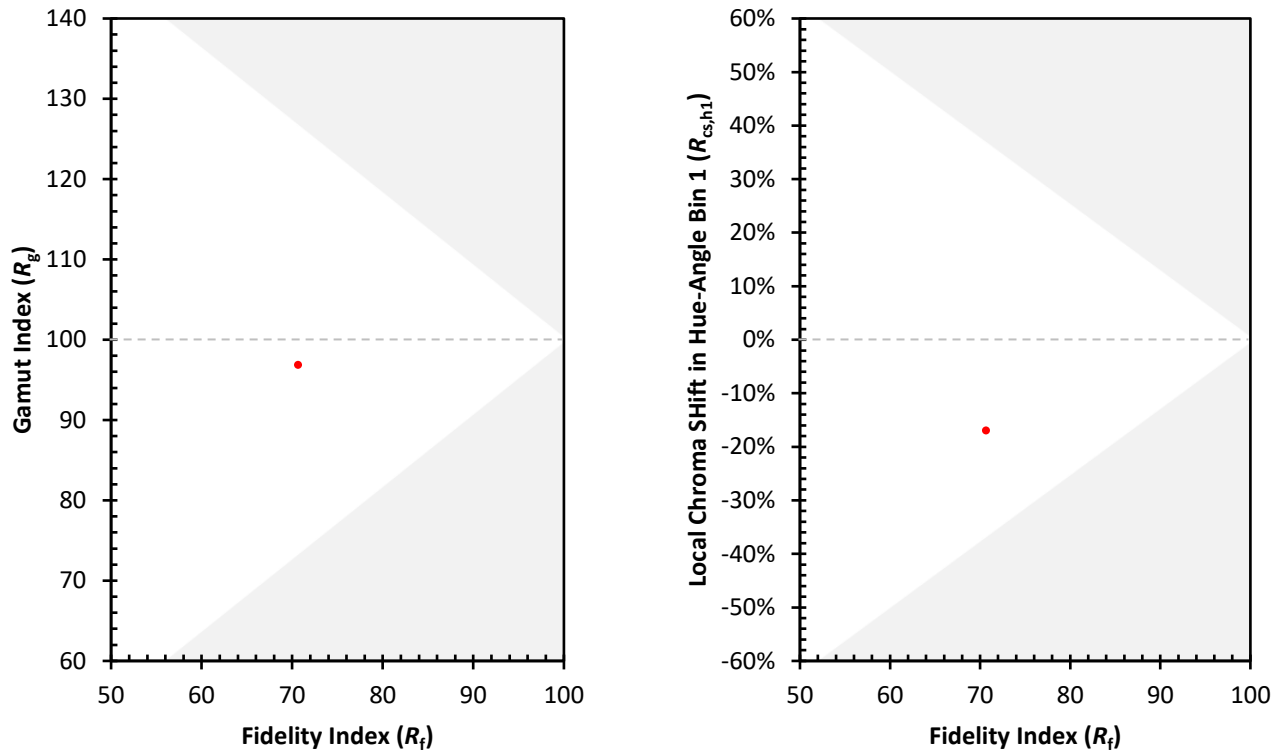
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 53 | CES51 = 87 | CES76 = 42 |
| CES02 = 59 | CES27 = 78 | CES52 = 88 | CES77 = 64 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 45 |
| CES04 = 69 | CES29 = 48 | CES54 = 80 | CES79 = 74 |
| CES05 = 46 | CES30 = 56 | CES55 = 79 | CES80 = 71 |
| CES06 = 50 | CES31 = 54 | CES56 = 68 | CES81 = 72 |
| CES07 = 39 | CES32 = 50 | CES57 = 65 | CES82 = 88 |
| CES08 = 38 | CES33 = 60 | CES58 = 67 | CES83 = 82 |
| CES09 = 29 | CES34 = 62 | CES59 = 87 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 91 | CES85 = 84 |
| CES11 = 56 | CES36 = 90 | CES61 = 87 | CES86 = 74 |
| CES12 = 61 | CES37 = 72 | CES62 = 79 | CES87 = 75 |
| CES13 = 41 | CES38 = 66 | CES63 = 72 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 70 | CES89 = 74 |
| CES15 = 70 | CES40 = 83 | CES65 = 63 | CES90 = 73 |
| CES16 = 46 | CES41 = 83 | CES66 = 64 | CES91 = 92 |
| CES17 = 49 | CES42 = 70 | CES67 = 62 | CES92 = 67 |
| CES18 = 55 | CES43 = 68 | CES68 = 69 | CES93 = 81 |
| CES19 = 71 | CES44 = 98 | CES69 = 80 | CES94 = 56 |
| CES20 = 64 | CES45 = 78 | CES70 = 56 | CES95 = 71 |
| CES21 = 85 | CES46 = 77 | CES71 = 53 | CES96 = 77 |
| CES22 = 77 | CES47 = 73 | CES72 = 84 | CES97 = 82 |
| CES23 = 91 | CES48 = 65 | CES73 = 46 | CES98 = 71 |
| CES24 = 90 | CES49 = 76 | CES74 = 94 | CES99 = 59 |
| CES25 = 71 | CES50 = 85 | CES75 = 49 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)