

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: P1063397

Luminaire Tested: **GLAN-SA8A-730-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063397  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA8A-730-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 615mA 8xLight Square PACKAGE  
70CRI 3000K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (112) 3000K CCT, 70 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 27694.8 lumens  
Efficiency: N/A  
Efficacy: 127.3 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type II - Short  
BUG Rating: B0 - U0 - G4

Input Watts (W): 217.6  
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

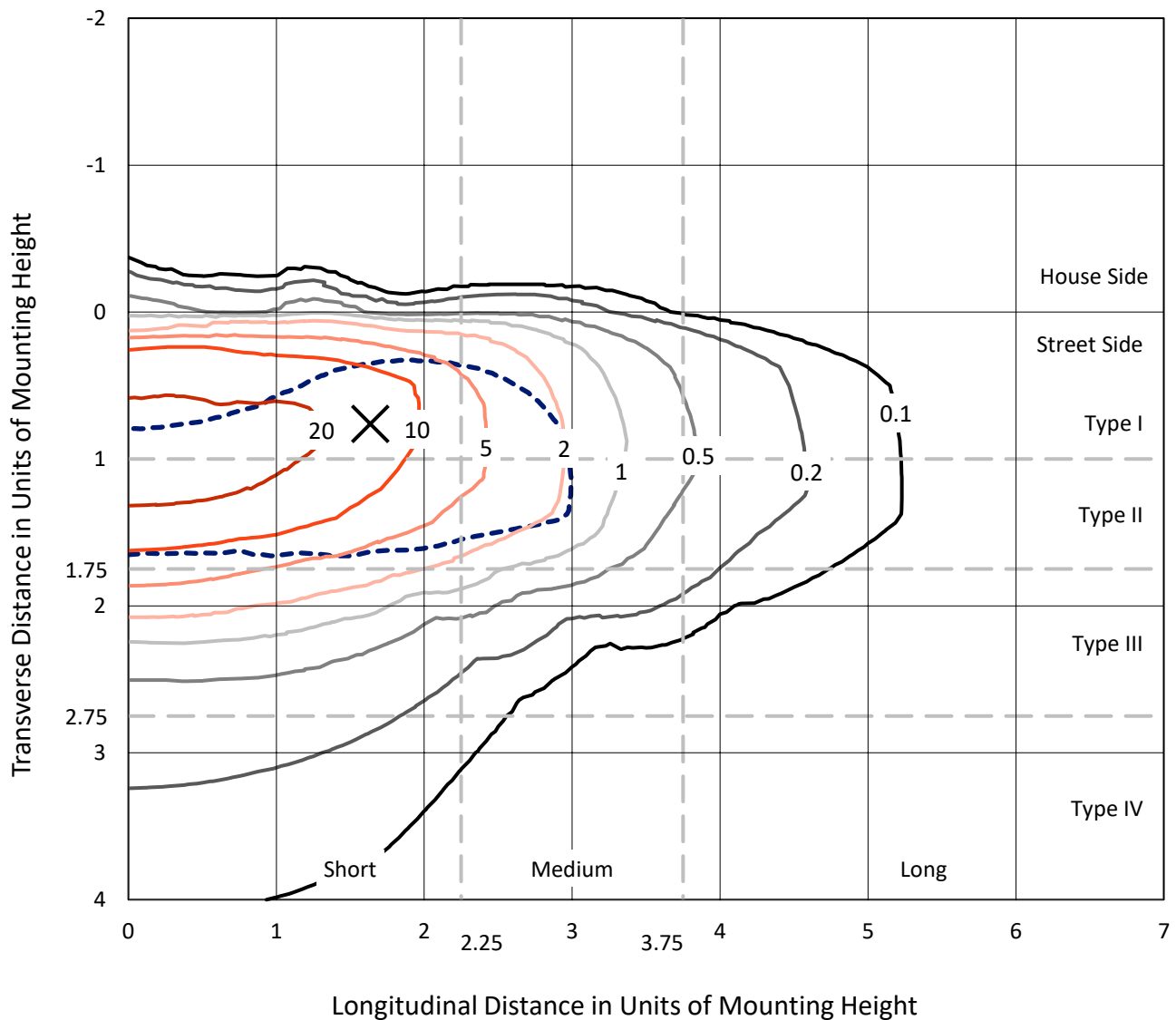


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

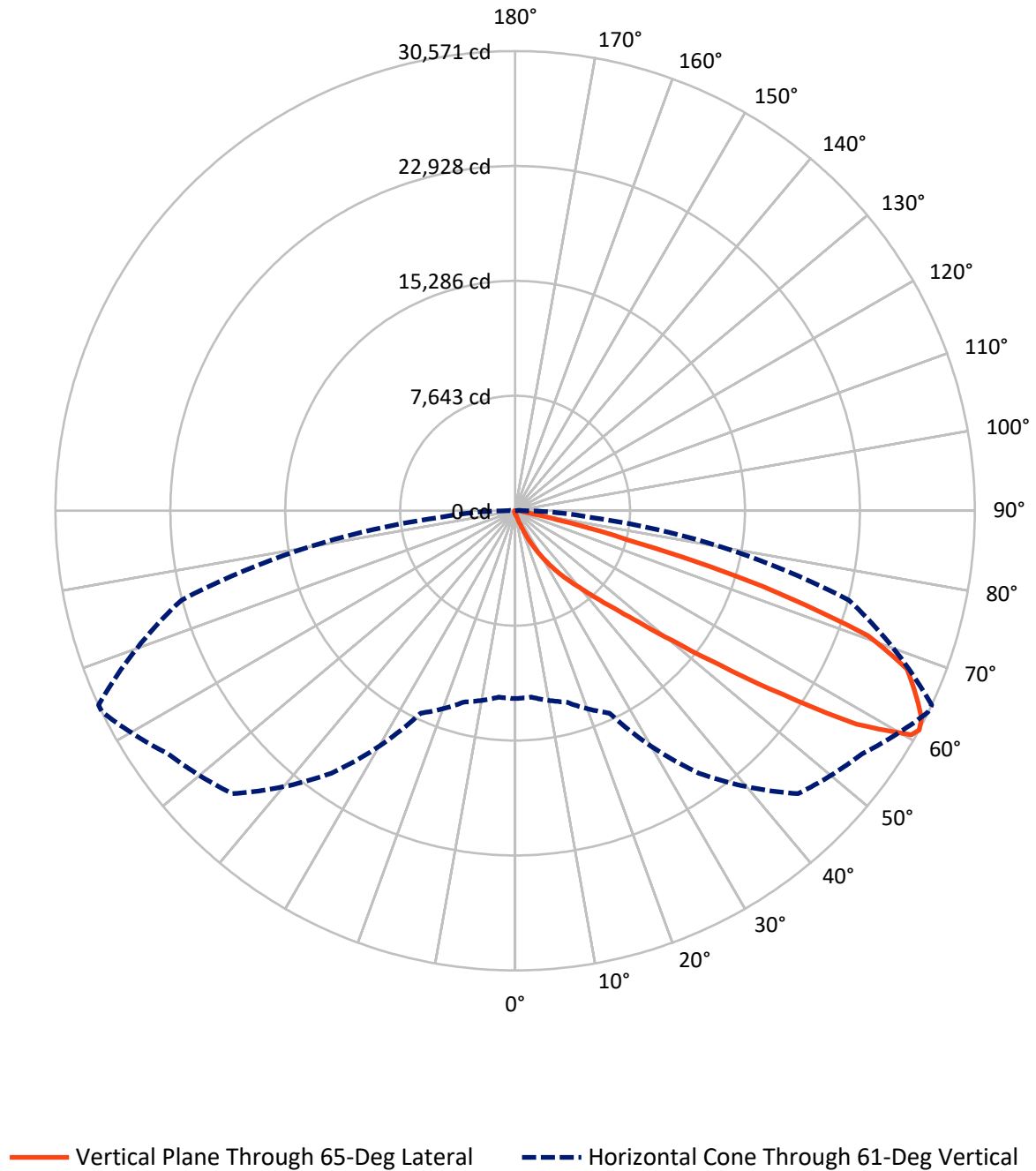


Based on 15 foot mounting height. Maximum calculated value = 36.6 fc  
 Type II - Short - N/A

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## Luminous Intensity Polar Plot



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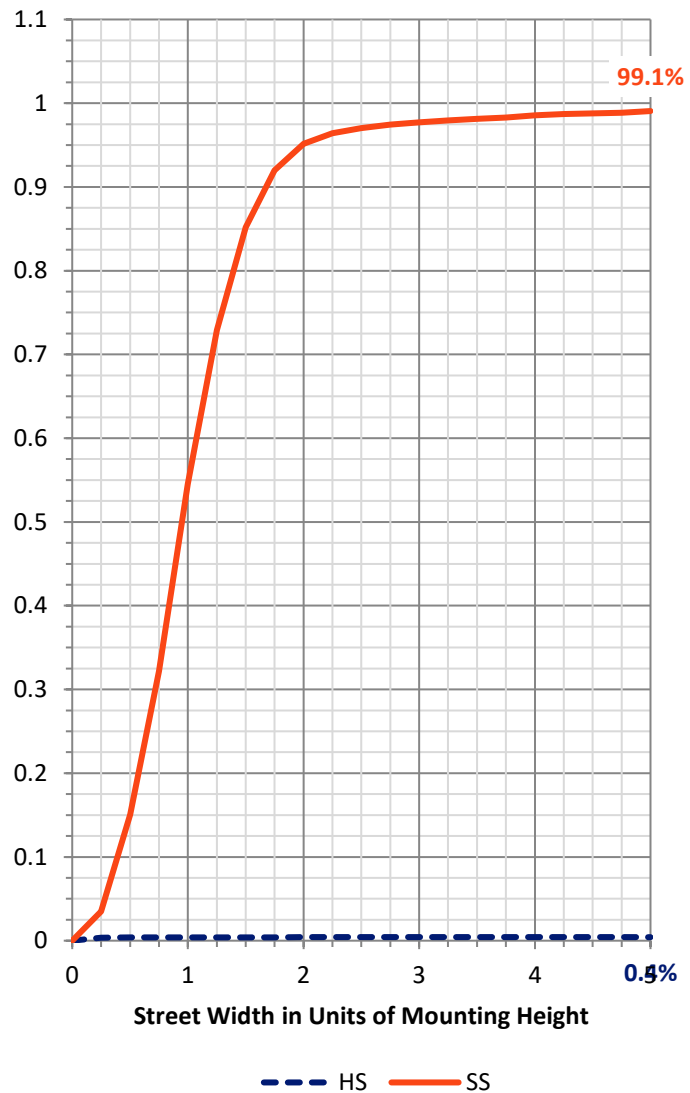
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 118.2    | 0.0    | 118.2   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 27576.6  | 0.0    | 27576.6 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 27694.8  | 0.0    | 27694.8 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 21.6    | 0.1       |
| 10°-20°   | 227.7   | 0.8       |
| 20°-30°   | 817.3   | 3.0       |
| 30°-40°   | 2176.0  | 7.9       |
| 40°-50°   | 5716.4  | 20.6      |
| 50°-60°   | 8855.7  | 32.0      |
| 60°-70°   | 7425.4  | 26.8      |
| 70°-80°   | 2185.2  | 7.9       |
| 80°-90°   | 269.6   | 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°    | 27694.8 | 100.0     |
| 0°-180°   | 27694.8 | 100.0     |



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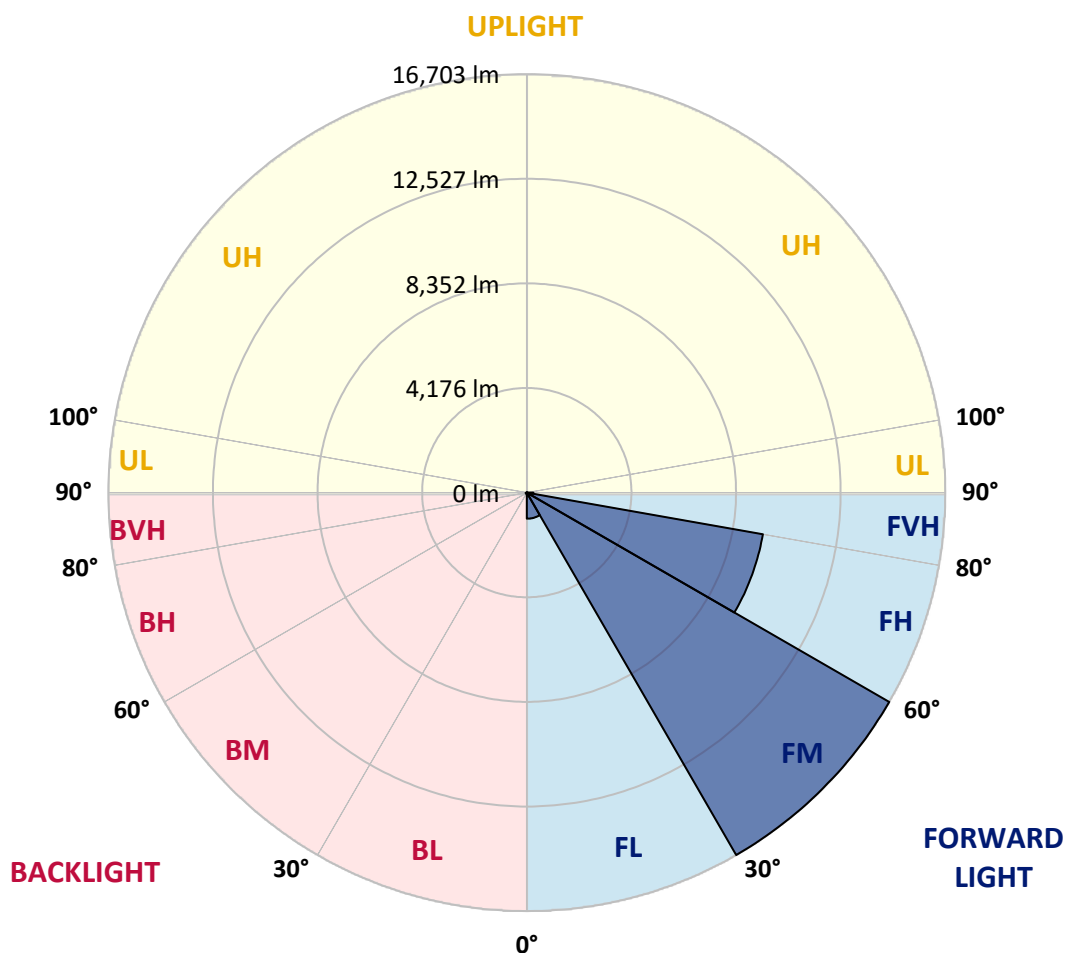
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1040.1  | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 16703.1 | 60.3      |                         |      |          |
| FH   | (60°-80°)   | 9568.9  | 34.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 264.6   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 26.5    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 45.0    | 0.2       | B0/220                  |      |          |
| BH   | (60°-80°)   | 41.7    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 5.0     | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B0-U0-G4**

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 0°    | 169.6   | 169.6   | 169.6   | 169.6   | 169.6   | 169.6   | 169.6   | 169.6   | 169.6   | 169.6   | 169.6  |
| 2.5°  | 205.8   | 207.7   | 203.8   | 196.2   | 190.5   | 190.5   | 188.6   | 182.9   | 182.9   | 177.2   | 173.4  |
| 5°    | 287.7   | 283.9   | 276.2   | 261.0   | 247.7   | 234.3   | 221.0   | 207.7   | 205.8   | 188.6   | 177.2  |
| 7.5°  | 470.6   | 474.4   | 449.6   | 402.0   | 362.0   | 310.5   | 262.9   | 234.3   | 230.5   | 201.9   | 179.1  |
| 10°   | 1032.6  | 1004.0  | 946.8   | 762.0   | 626.8   | 472.5   | 350.5   | 272.4   | 268.6   | 217.2   | 182.9  |
| 12.5° | 1882.2  | 1859.4  | 1754.6  | 1564.1  | 1215.5  | 845.9   | 512.5   | 337.2   | 325.8   | 230.5   | 184.8  |
| 15°   | 2712.9  | 2676.7  | 2619.5  | 2427.1  | 2019.4  | 1516.5  | 838.2   | 461.0   | 430.6   | 249.6   | 182.9  |
| 17.5° | 3242.5  | 3248.2  | 3196.8  | 3114.9  | 2851.9  | 2244.2  | 1447.9  | 687.7   | 628.7   | 283.9   | 179.1  |
| 20°   | 3705.4  | 3692.1  | 3720.7  | 3676.9  | 3492.1  | 3050.1  | 2107.0  | 1089.7  | 988.8   | 339.1   | 181.0  |
| 22.5° | 4238.9  | 4271.3  | 4292.2  | 4282.7  | 4078.8  | 3701.6  | 2855.8  | 1630.8  | 1503.1  | 440.1   | 186.7  |
| 25°   | 4953.3  | 4949.5  | 4951.4  | 4926.6  | 4728.5  | 4309.4  | 3606.4  | 2303.3  | 2173.7  | 603.9   | 200.0  |
| 27.5° | 5702.0  | 5724.8  | 5734.4  | 5644.8  | 5385.7  | 4974.2  | 4301.7  | 3038.6  | 2886.2  | 866.8   | 217.2  |
| 30°   | 6725.0  | 6706.0  | 6662.2  | 6479.3  | 6164.9  | 5654.4  | 4987.6  | 3810.2  | 3650.2  | 1234.5  | 243.9  |
| 32.5° | 8104.3  | 8083.4  | 7862.4  | 7458.5  | 6987.9  | 6363.1  | 5677.2  | 4583.7  | 4389.4  | 1693.6  | 280.1  |
| 35°   | 10377.1 | 10409.5 | 9866.6  | 8820.6  | 7976.7  | 7214.6  | 6441.2  | 5353.4  | 5181.9  | 2259.5  | 329.6  |
| 37.5° | 13857.8 | 13680.6 | 12943.3 | 11095.3 | 9277.9  | 8277.7  | 7170.8  | 6130.6  | 5982.0  | 2956.7  | 394.4  |
| 40°   | 17239.3 | 17064.1 | 16850.7 | 15099.9 | 11539.2 | 9449.3  | 8192.0  | 7043.2  | 6850.8  | 3743.5  | 489.6  |
| 42.5° | 20794.3 | 20697.1 | 20687.6 | 19367.3 | 15665.7 | 11291.6 | 9420.8  | 8111.9  | 7948.1  | 4606.6  | 645.8  |
| 45°   | 23312.8 | 23215.6 | 23419.5 | 23650.0 | 21285.8 | 15239.0 | 11560.2 | 9500.8  | 9262.6  | 5654.4  | 895.4  |
| 47.5° | 23651.9 | 23655.7 | 24200.6 | 24922.6 | 25461.8 | 21344.8 | 14410.2 | 11341.1 | 11051.5 | 7153.7  | 1314.5 |
| 50°   | 22524.1 | 22567.9 | 23434.7 | 24726.4 | 26178.1 | 26467.7 | 19435.9 | 14012.1 | 13583.4 | 8931.1  | 1908.9 |
| 52.5° | 20377.0 | 20426.6 | 21634.4 | 23758.6 | 25518.9 | 27698.4 | 25353.2 | 17506.0 | 17012.6 | 11148.7 | 2747.2 |
| 55°   | 18443.3 | 18473.8 | 19858.8 | 22543.1 | 24724.5 | 27029.7 | 28866.2 | 22171.6 | 21523.9 | 13876.8 | 3574.0 |
| 57.5° | 16528.7 | 16458.2 | 17359.3 | 20432.3 | 24589.2 | 26208.6 | 29384.4 | 27488.8 | 26774.4 | 16858.3 | 4217.9 |
| 60°   | 13968.3 | 13850.1 | 14574.1 | 16528.7 | 22809.9 | 26747.7 | 28414.7 | 30430.3 | 30268.4 | 21009.5 | 4715.1 |
| 61°   | 12495.6 | 12446.1 | 13173.8 | 14850.3 | 21312.4 | 26610.5 | 28182.3 | 30554.1 | 30571.3 | 22973.7 | 4938.0 |
| 62.5° | 8923.5  | 9064.5  | 10177.1 | 12356.5 | 17850.9 | 25720.9 | 28212.7 | 30171.2 | 30340.7 | 25583.7 | 5515.3 |
| 65°   | 3966.4  | 4193.1  | 5058.1  | 6831.7  | 10380.9 | 21396.3 | 27942.2 | 29331.0 | 29247.2 | 26300.0 | 7504.2 |
| 67.5° | 2352.8  | 2387.1  | 2817.7  | 3871.2  | 5498.1  | 11508.8 | 24657.8 | 28220.4 | 28108.0 | 22895.6 | 9336.9 |
| 70°   | 1853.7  | 1870.8  | 2008.0  | 2429.0  | 3191.1  | 4408.4  | 14073.0 | 24415.9 | 24905.5 | 18565.3 | 9140.7 |
| 72.5° | 1758.4  | 1754.6  | 1773.7  | 1848.0  | 2009.9  | 2187.1  | 5448.6  | 16229.6 | 17226.0 | 13370.0 | 7664.2 |
| 75°   | 1735.6  | 1727.9  | 1708.9  | 1680.3  | 1455.5  | 1287.9  | 1687.9  | 7178.4  | 7755.7  | 9135.0  | 5770.6 |
| 77.5° | 1684.1  | 1686.0  | 1689.8  | 1611.7  | 1247.8  | 910.6   | 817.3   | 2303.3  | 2832.9  | 5797.2  | 4101.7 |
| 80°   | 1139.3  | 1156.4  | 1185.0  | 1154.5  | 1122.1  | 659.2   | 577.2   | 819.2   | 830.6   | 3253.9  | 2709.1 |
| 82.5° | 577.2   | 577.2   | 563.9   | 502.9   | 434.4   | 428.6   | 459.1   | 594.4   | 602.0   | 1646.0  | 1274.5 |
| 85°   | 348.6   | 367.7   | 375.3   | 341.0   | 312.4   | 287.7   | 350.5   | 472.5   | 489.6   | 638.2   | 297.2  |
| 87.5° | 78.1    | 80.0    | 87.6    | 116.2   | 169.6   | 230.5   | 325.8   | 432.5   | 440.1   | 409.6   | 36.2   |
| 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-SA8A-730-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 169.6  | 169.6 | 169.6 | 169.6 | 169.6 | 169.6 | 169.6 | 169.6 | 169.6 | 169.6 | 169.6 |
| 2.5°  | 171.5  | 167.6 | 165.7 | 160.0 | 154.3 | 148.6 | 144.8 | 142.9 | 144.8 | 146.7 | 146.7 |
| 5°    | 169.6  | 163.8 | 154.3 | 144.8 | 137.2 | 129.5 | 121.9 | 120.0 | 120.0 | 121.9 | 121.9 |
| 7.5°  | 169.6  | 160.0 | 146.7 | 135.3 | 123.8 | 112.4 | 106.7 | 102.9 | 104.8 | 104.8 | 104.8 |
| 10°   | 169.6  | 158.1 | 141.0 | 123.8 | 110.5 | 97.2  | 87.6  | 83.8  | 83.8  | 83.8  | 83.8  |
| 12.5° | 167.6  | 156.2 | 135.3 | 114.3 | 95.3  | 80.0  | 68.6  | 62.9  | 64.8  | 64.8  | 64.8  |
| 15°   | 163.8  | 150.5 | 127.6 | 97.2  | 76.2  | 61.0  | 49.5  | 43.8  | 45.7  | 49.5  | 51.4  |
| 17.5° | 158.1  | 144.8 | 114.3 | 81.9  | 61.0  | 45.7  | 34.3  | 30.5  | 32.4  | 38.1  | 38.1  |
| 20°   | 156.2  | 139.1 | 101.0 | 66.7  | 45.7  | 32.4  | 22.9  | 19.1  | 21.0  | 28.6  | 30.5  |
| 22.5° | 156.2  | 135.3 | 91.4  | 55.2  | 34.3  | 21.0  | 13.3  | 7.6   | 7.6   | 13.3  | 13.3  |
| 25°   | 158.1  | 133.4 | 83.8  | 45.7  | 24.8  | 15.2  | 7.6   | 3.8   | 7.6   | 21.0  | 24.8  |
| 27.5° | 161.9  | 131.5 | 80.0  | 38.1  | 19.1  | 13.3  | 5.7   | 13.3  | 22.9  | 22.9  | 22.9  |
| 30°   | 165.7  | 127.6 | 74.3  | 32.4  | 17.1  | 9.5   | 9.5   | 19.1  | 19.1  | 22.9  | 24.8  |
| 32.5° | 171.5  | 125.7 | 70.5  | 28.6  | 13.3  | 7.6   | 13.3  | 11.4  | 11.4  | 13.3  | 15.2  |
| 35°   | 182.9  | 127.6 | 66.7  | 28.6  | 13.3  | 9.5   | 11.4  | 5.7   | 3.8   | 3.8   | 3.8   |
| 37.5° | 198.1  | 129.5 | 61.0  | 24.8  | 11.4  | 11.4  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 222.9  | 135.3 | 57.2  | 22.9  | 9.5   | 9.5   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 264.8  | 146.7 | 55.2  | 21.0  | 9.5   | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 348.6  | 173.4 | 51.4  | 19.1  | 9.5   | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 501.0  | 236.2 | 49.5  | 15.2  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 731.6  | 320.1 | 47.6  | 13.3  | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 933.5  | 337.2 | 32.4  | 11.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 956.4  | 232.4 | 24.8  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 762.0  | 150.5 | 21.0  | 5.7   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 577.2  | 114.3 | 19.1  | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 554.4  | 102.9 | 19.1  | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 611.5  | 89.5  | 17.1  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 994.5  | 74.3  | 15.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1727.9 | 64.8  | 13.3  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2183.3 | 61.0  | 11.4  | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1903.2 | 55.2  | 11.4  | 3.8   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1145.0 | 47.6  | 11.4  | 7.6   | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 600.1  | 36.2  | 11.4  | 9.5   | 5.7   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 291.5  | 32.4  | 13.3  | 9.5   | 7.6   | 3.8   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 114.3  | 26.7  | 15.2  | 13.3  | 9.5   | 5.7   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 51.4   | 22.9  | 17.1  | 15.2  | 13.3  | 7.6   | 1.9   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 26.7   | 21.0  | 19.1  | 17.1  | 13.3  | 9.5   | 3.8   | 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: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

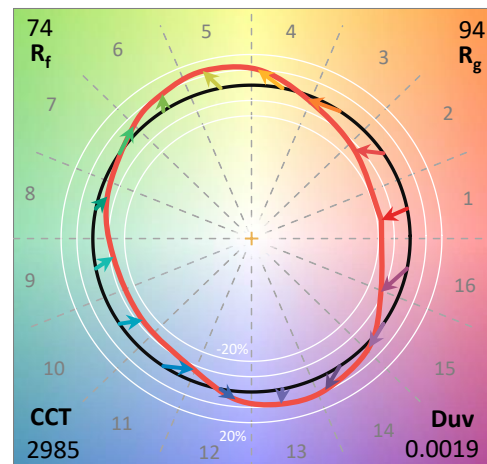
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 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-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2985  
 CIE  $u'$ : 0.2504  
 CIE  $v'$ : 0.5243  
 Duv: 0.0019  
 CIE x: 0.4408  
 CIE y: 0.4101  
 CIE z: 0.1491  
 Peak Wavelength (nm): 595  
 Dominant Wavelength (nm): 582  
 Purity: 55.41818  
 R<sub>f</sub>: 73.8  
 R<sub>g</sub>: 94.4

CRI (Ra): 70.8  
 R1: 66.3  
 R2: 80.6  
 R3: 94.5  
 R4: 68.2  
 R5: 66.5  
 R6: 74.7  
 R7: 76.2  
 R8: 39.6  
 R9: -43.2  
 R10: 57.6  
 R11: 64.8  
 R12: 53.5  
 R13: 68.7  
 R14: 97.0  
 R15: 56.4



### Test Conditions

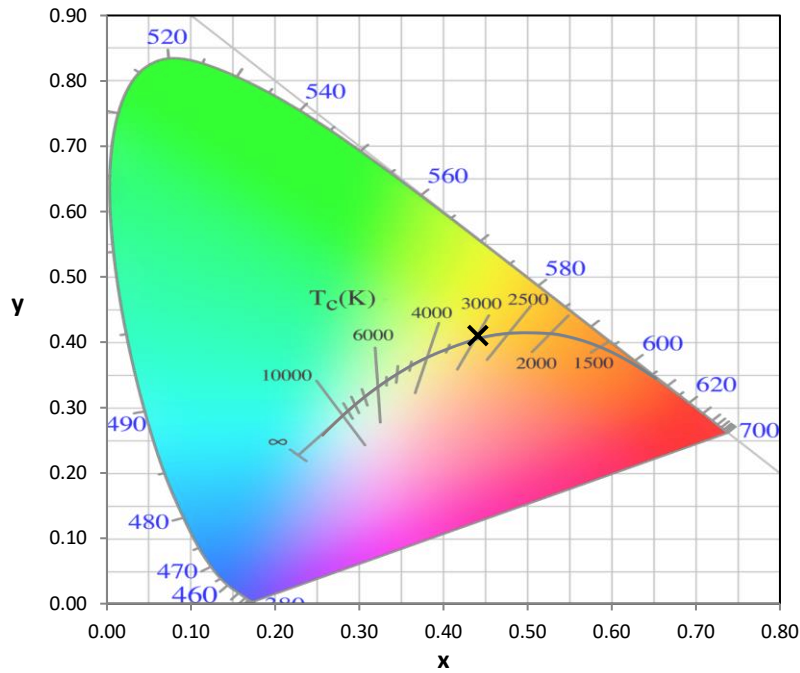
Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-4

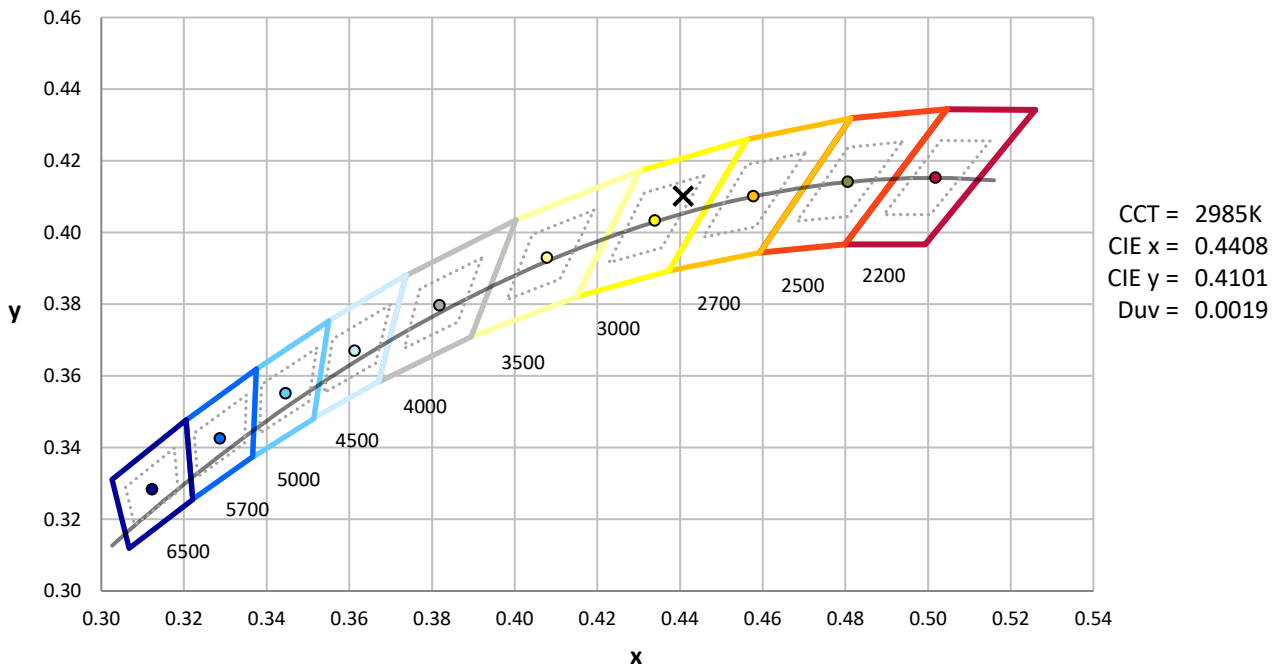
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



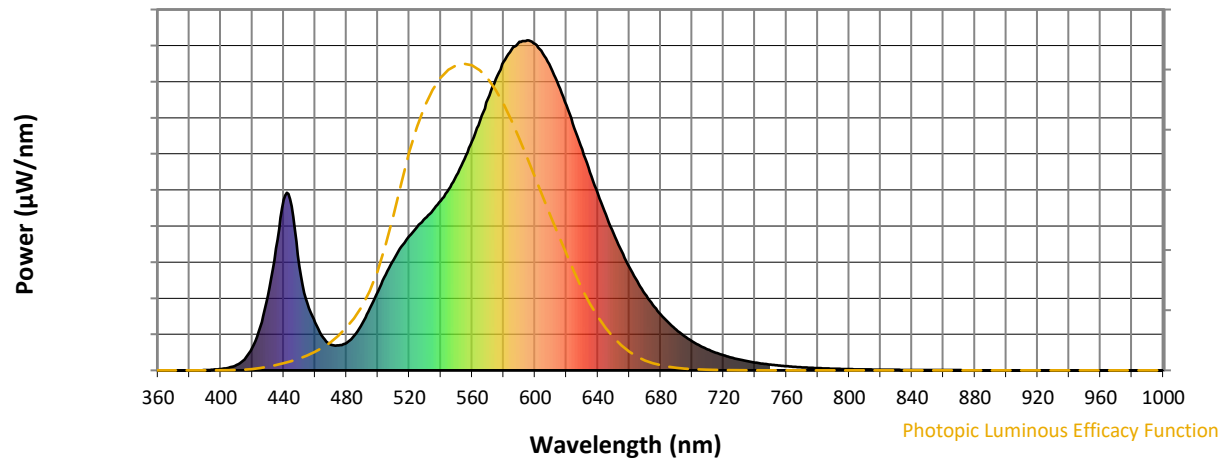
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

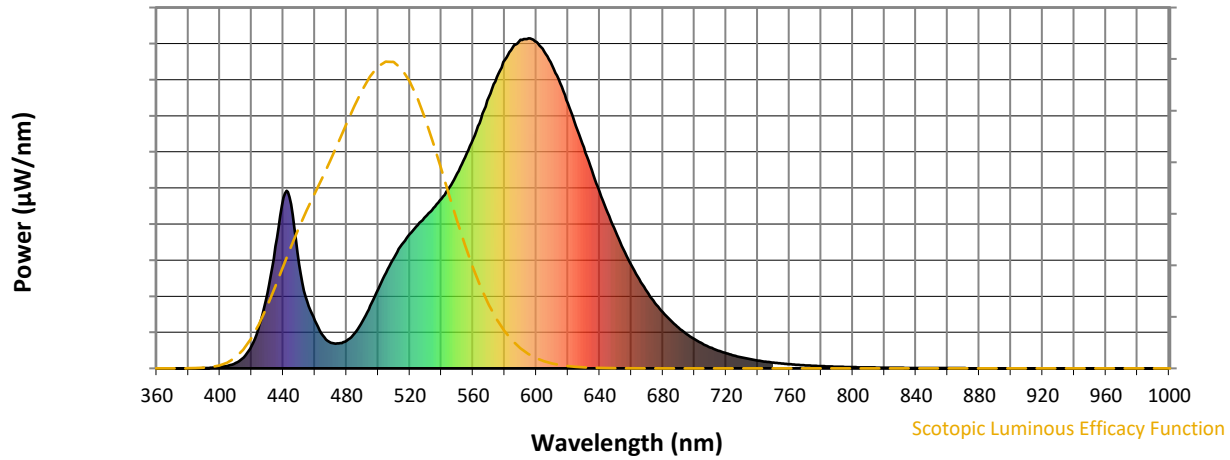


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 142                           | NR                             | 620               | 803                           | NR                             | 750               | 17                            | NR                             | 880               | 0                             | NR                             |
| 365               | 0                             | NR                             | 495               | 189                           | NR                             | 625               | 734                           | NR                             | 755               | 15                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 240                           | NR                             | 630               | 670                           | NR                             | 760               | 13                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 290                           | NR                             | 635               | 600                           | NR                             | 765               | 11                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 335                           | NR                             | 640               | 535                           | NR                             | 770               | 9                             | NR                             | 900               | 0                             | NR                             |
| 385               | 0                             | NR                             | 515               | 375                           | NR                             | 645               | 473                           | NR                             | 775               | 8                             | NR                             | 905               | 0                             | NR                             |
| 390               | 1                             | NR                             | 520               | 408                           | NR                             | 650               | 415                           | NR                             | 780               | 7                             | NR                             | 910               | 0                             | NR                             |
| 395               | 2                             | NR                             | 525               | 434                           | NR                             | 655               | 362                           | NR                             | 785               | 6                             | NR                             | 915               | 0                             | NR                             |
| 400               | 4                             | NR                             | 530               | 461                           | NR                             | 660               | 313                           | NR                             | 790               | 5                             | NR                             | 920               | 0                             | NR                             |
| 405               | 8                             | NR                             | 535               | 486                           | NR                             | 665               | 271                           | NR                             | 795               | 4                             | NR                             | 925               | 0                             | NR                             |
| 410               | 16                            | NR                             | 540               | 514                           | NR                             | 670               | 231                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 33                            | NR                             | 545               | 549                           | NR                             | 675               | 198                           | NR                             | 805               | 3                             | NR                             | 935               | 0                             | NR                             |
| 420               | 69                            | NR                             | 550               | 591                           | NR                             | 680               | 169                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 131                           | NR                             | 555               | 640                           | NR                             | 685               | 144                           | NR                             | 815               | 2                             | NR                             | 945               | 0                             | NR                             |
| 430               | 227                           | NR                             | 560               | 695                           | NR                             | 690               | 123                           | NR                             | 820               | 2                             | NR                             | 950               | 0                             | NR                             |
| 435               | 369                           | NR                             | 565               | 757                           | NR                             | 695               | 104                           | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 517                           | NR                             | 570               | 822                           | NR                             | 700               | 88                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 498                           | NR                             | 575               | 882                           | NR                             | 705               | 75                            | NR                             | 835               | 1                             | NR                             | 965               | 0                             | NR                             |
| 450               | 315                           | NR                             | 580               | 935                           | NR                             | 710               | 63                            | NR                             | 840               | 1                             | NR                             | 970               | 0                             | NR                             |
| 455               | 204                           | NR                             | 585               | 972                           | NR                             | 715               | 54                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 145                           | NR                             | 590               | 996                           | NR                             | 720               | 46                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 100                           | NR                             | 595               | 1000                          | NR                             | 725               | 39                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 78                            | NR                             | 600               | 989                           | NR                             | 730               | 33                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 76                            | NR                             | 605               | 960                           | NR                             | 735               | 28                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 83                            | NR                             | 610               | 918                           | NR                             | 740               | 24                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 105                           | NR                             | 615               | 864                           | NR                             | 745               | 20                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



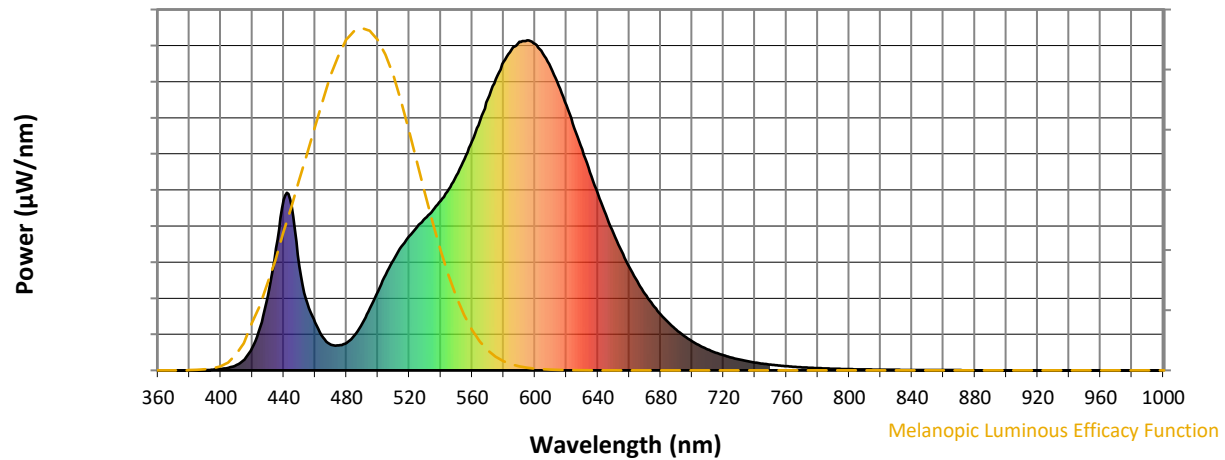
Scotopic Lumens: NR

S/P: 1.19

| 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    | 142                      | NR            | 620    | 803                      | NR            | 750    | 17                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 189                      | NR            | 625    | 734                      | NR            | 755    | 15                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 240                      | NR            | 630    | 670                      | NR            | 760    | 13                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 290                      | NR            | 635    | 600                      | NR            | 765    | 11                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 335                      | NR            | 640    | 535                      | NR            | 770    | 9                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 375                      | NR            | 645    | 473                      | NR            | 775    | 8                        | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 408                      | NR            | 650    | 415                      | NR            | 780    | 7                        | NR            | 910    | 0                        | NR            |
| 395    | 2                        | NR            | 525    | 434                      | NR            | 655    | 362                      | NR            | 785    | 6                        | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 461                      | NR            | 660    | 313                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 486                      | NR            | 665    | 271                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 16                       | NR            | 540    | 514                      | NR            | 670    | 231                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 33                       | NR            | 545    | 549                      | NR            | 675    | 198                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 69                       | NR            | 550    | 591                      | NR            | 680    | 169                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 131                      | NR            | 555    | 640                      | NR            | 685    | 144                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 227                      | NR            | 560    | 695                      | NR            | 690    | 123                      | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 369                      | NR            | 565    | 757                      | NR            | 695    | 104                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 517                      | NR            | 570    | 822                      | NR            | 700    | 88                       | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 498                      | NR            | 575    | 882                      | NR            | 705    | 75                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 315                      | NR            | 580    | 935                      | NR            | 710    | 63                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 204                      | NR            | 585    | 972                      | NR            | 715    | 54                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 145                      | NR            | 590    | 996                      | NR            | 720    | 46                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 100                      | NR            | 595    | 1000                     | NR            | 725    | 39                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 78                       | NR            | 600    | 989                      | NR            | 730    | 33                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 76                       | NR            | 605    | 960                      | NR            | 735    | 28                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 83                       | NR            | 610    | 918                      | NR            | 740    | 24                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 105                      | NR            | 615    | 864                      | NR            | 745    | 20                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.13**

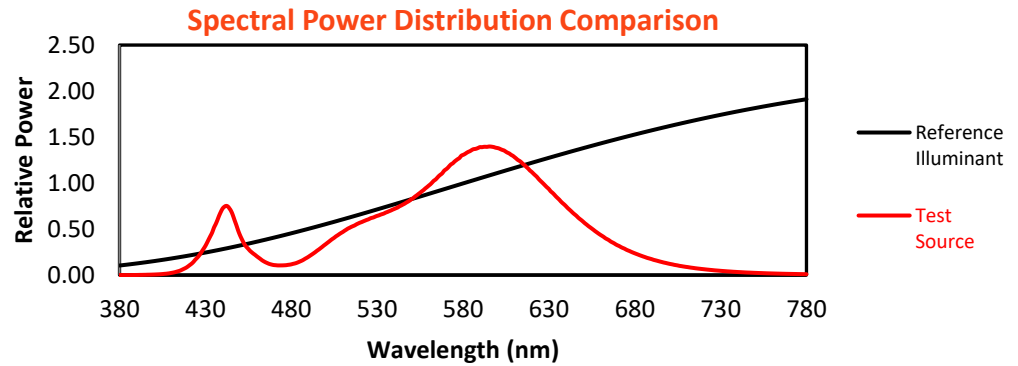
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 142                                  | NR                             | 620               | 803                                  | NR                             | 750               | 17                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 189                                  | NR                             | 625               | 734                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 240                                  | NR                             | 630               | 670                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 290                                  | NR                             | 635               | 600                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 335                                  | NR                             | 640               | 535                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 375                                  | NR                             | 645               | 473                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 408                                  | NR                             | 650               | 415                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 434                                  | NR                             | 655               | 362                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 461                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 486                                  | NR                             | 665               | 271                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 16                                   | NR                             | 540               | 514                                  | NR                             | 670               | 231                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 33                                   | NR                             | 545               | 549                                  | NR                             | 675               | 198                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 69                                   | NR                             | 550               | 591                                  | NR                             | 680               | 169                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 131                                  | NR                             | 555               | 640                                  | NR                             | 685               | 144                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 227                                  | NR                             | 560               | 695                                  | NR                             | 690               | 123                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 369                                  | NR                             | 565               | 757                                  | NR                             | 695               | 104                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 517                                  | NR                             | 570               | 822                                  | NR                             | 700               | 88                                   | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 498                                  | NR                             | 575               | 882                                  | NR                             | 705               | 75                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 315                                  | NR                             | 580               | 935                                  | NR                             | 710               | 63                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 204                                  | NR                             | 585               | 972                                  | NR                             | 715               | 54                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 145                                  | NR                             | 590               | 996                                  | NR                             | 720               | 46                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 100                                  | NR                             | 595               | 1000                                 | NR                             | 725               | 39                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 78                                   | NR                             | 600               | 989                                  | NR                             | 730               | 33                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 76                                   | NR                             | 605               | 960                                  | NR                             | 735               | 28                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 83                                   | NR                             | 610               | 918                                  | NR                             | 740               | 24                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 105                                  | NR                             | 615               | 864                                  | NR                             | 745               | 20                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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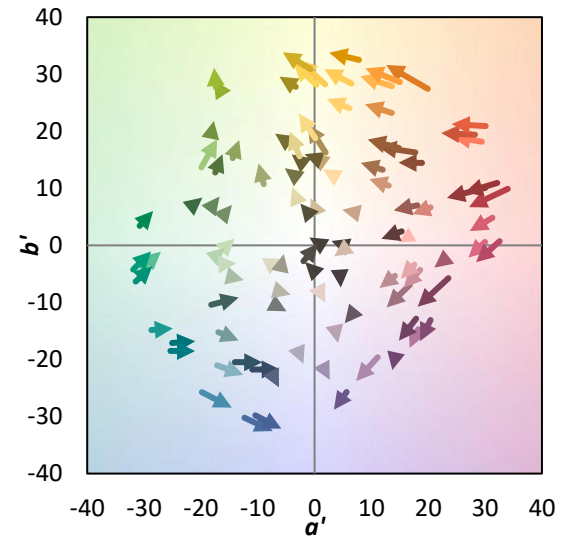
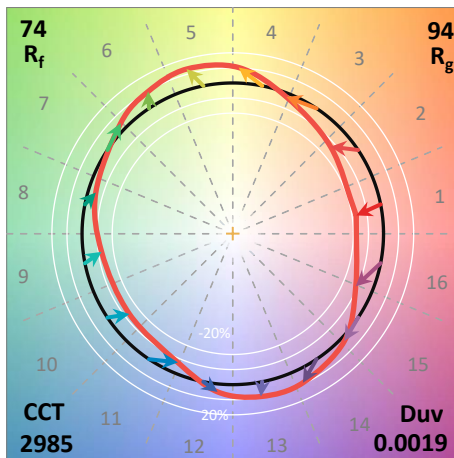
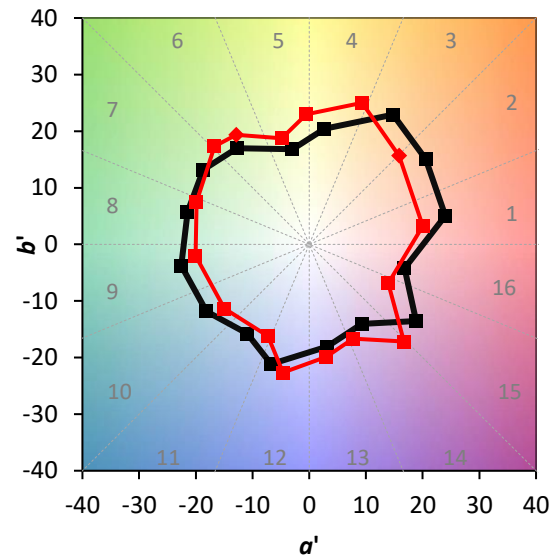
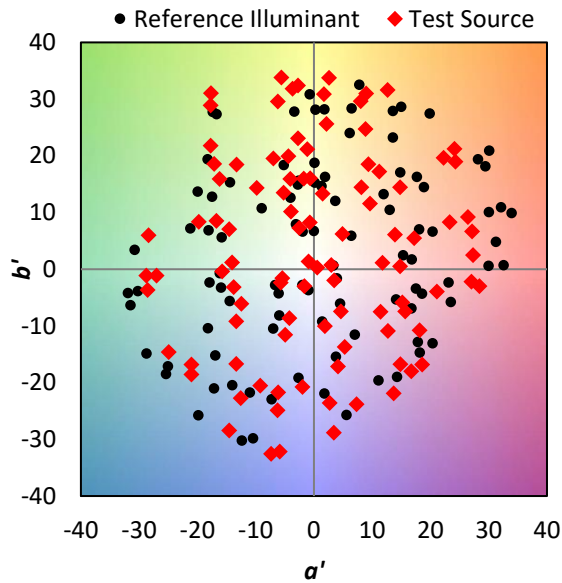
TM-30-18

### Summary

$R_f = 73.8$   
 $R_g = 94.4$   
 $CIE\ R_a = 70.8$   
 $R_g = -43.2$

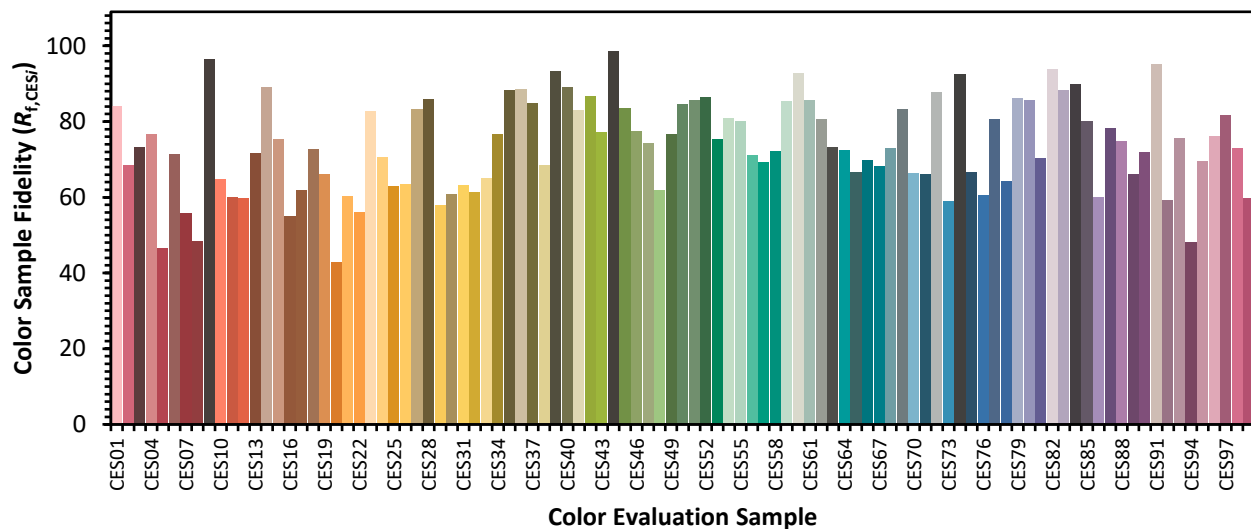


### Color Vector Graphics

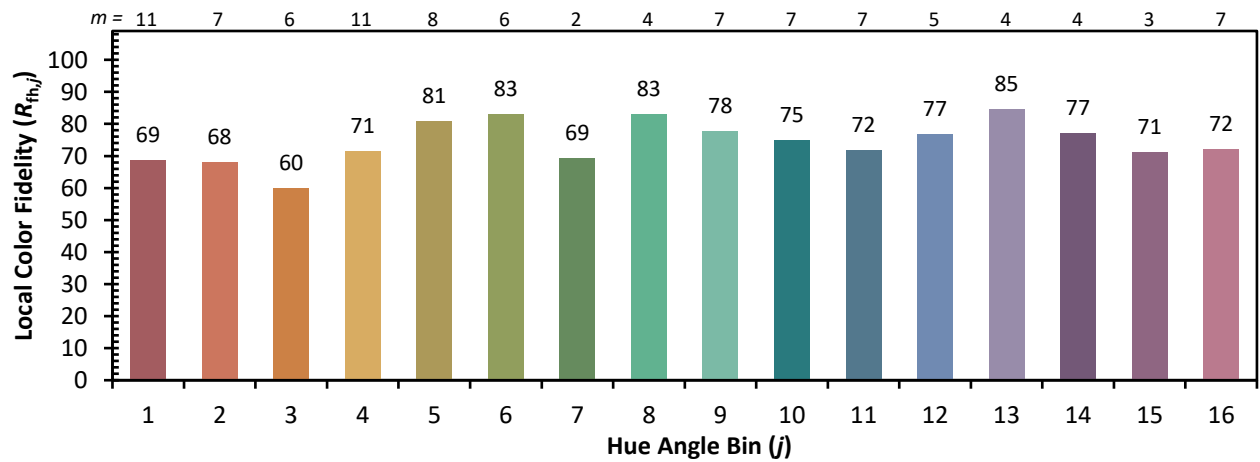
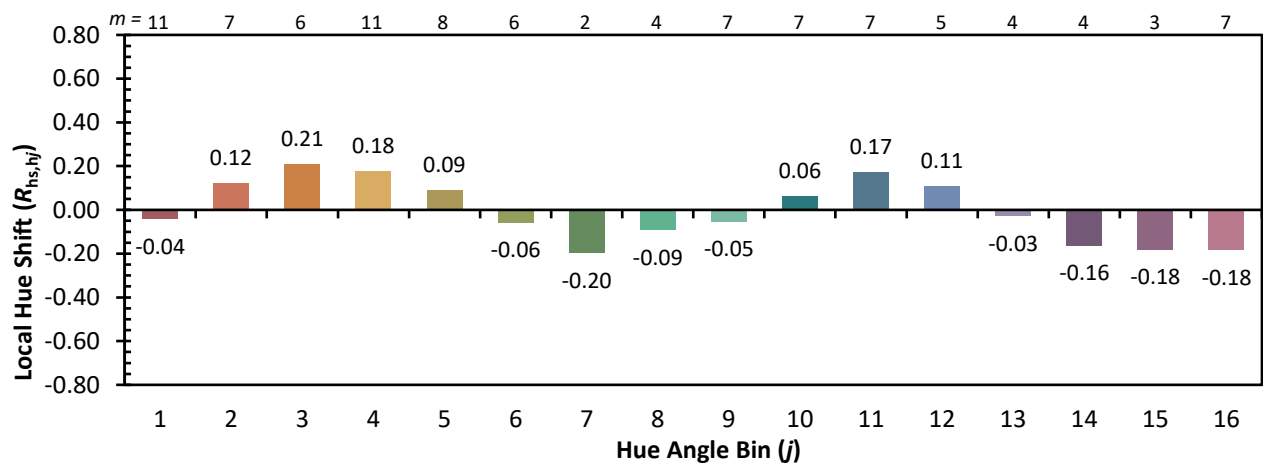
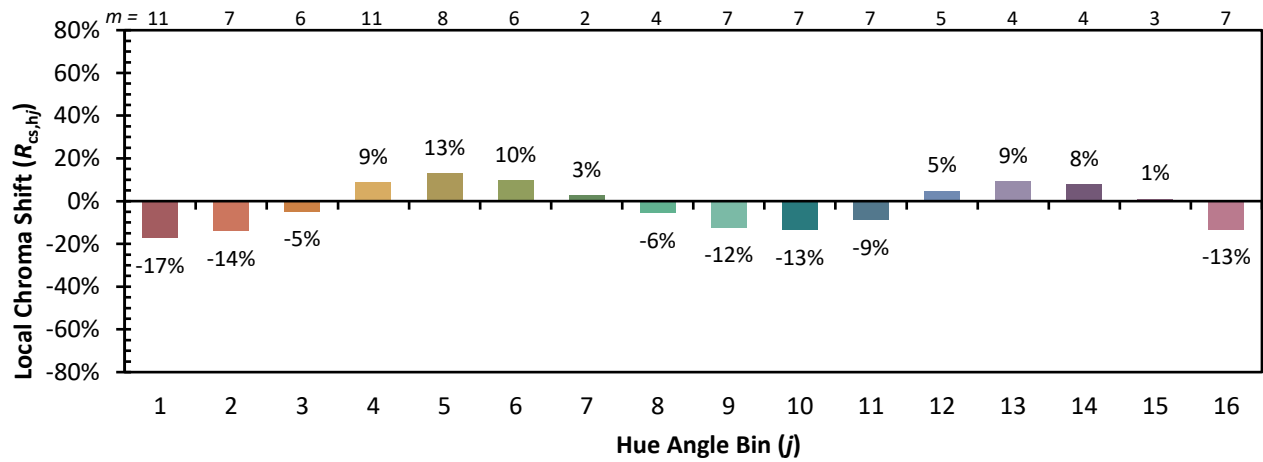


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

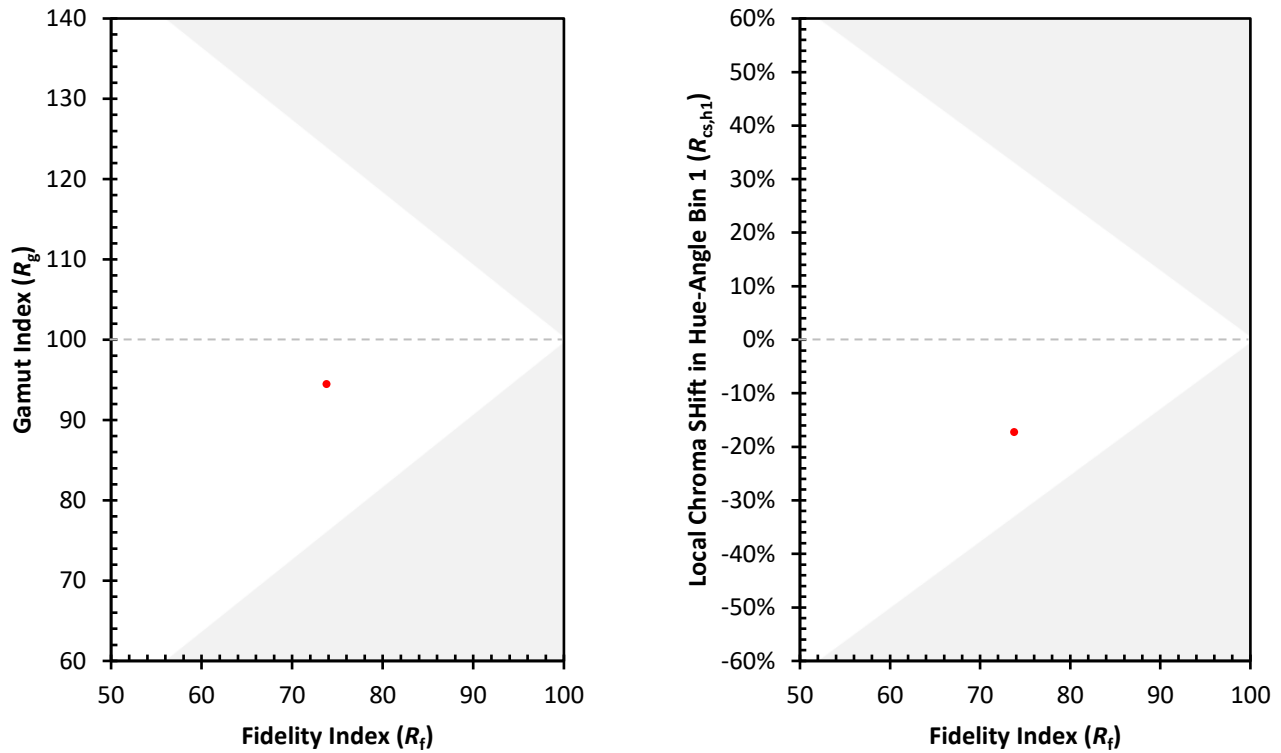
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)