

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: P1063542

Luminaire Tested: **GLAN-SA8B-827-U-T2BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063542  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA8B-827-U-T2BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 800mA 8xLight Square PACKAGE  
80CRI 2700K FIXTURE w/ TYPE II ANGLED BACKLIGHT CONTROL  
Light Source: (112) 2700K CCT, 80 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 30663.8 lumens  
Efficiency: N/A  
Efficacy: 108.4 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): 282.8  
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



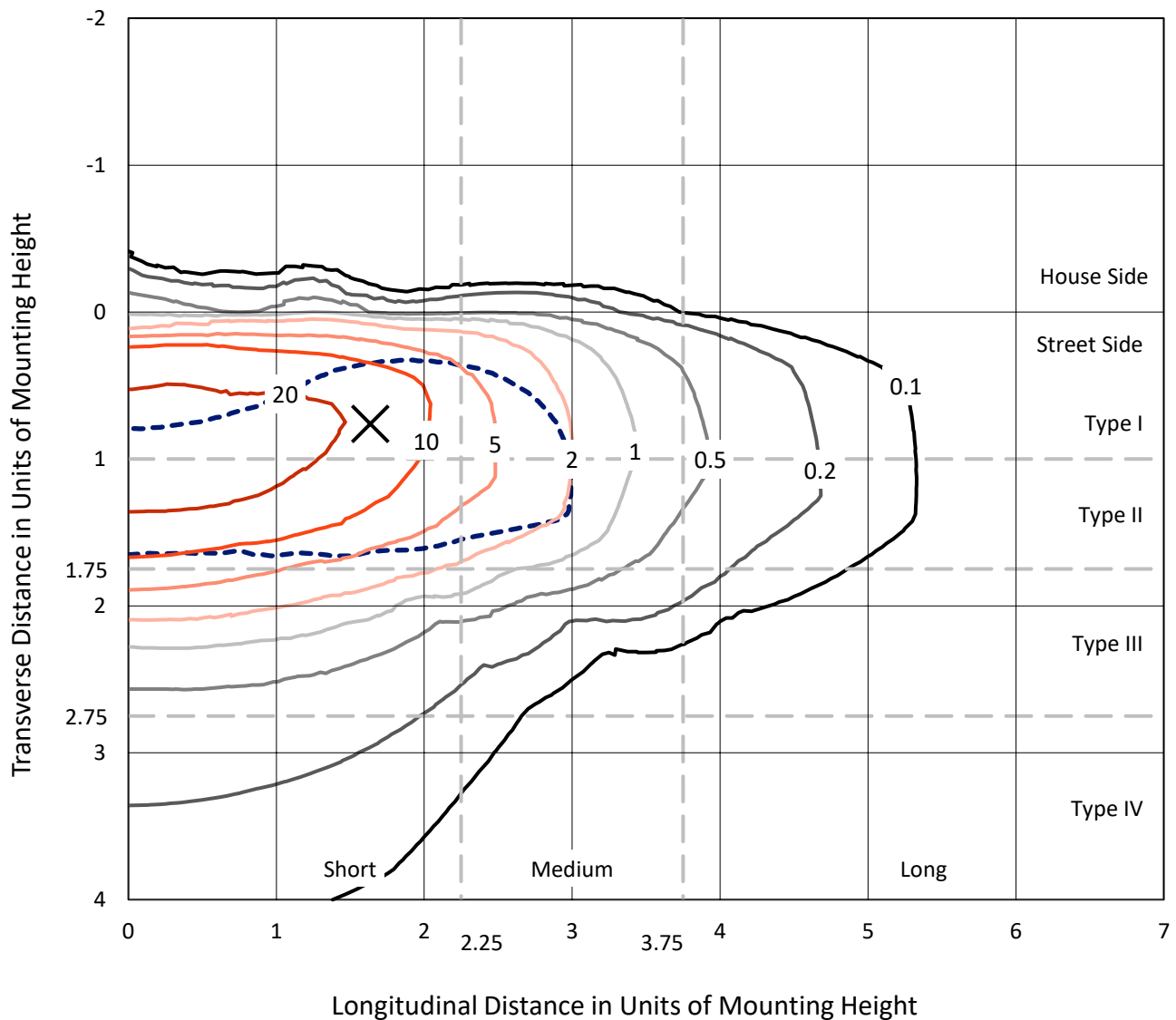
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## Iso-Footcandle Lines of Horizontal Illumination

✗ Max cd

--- 1/2 Max cd

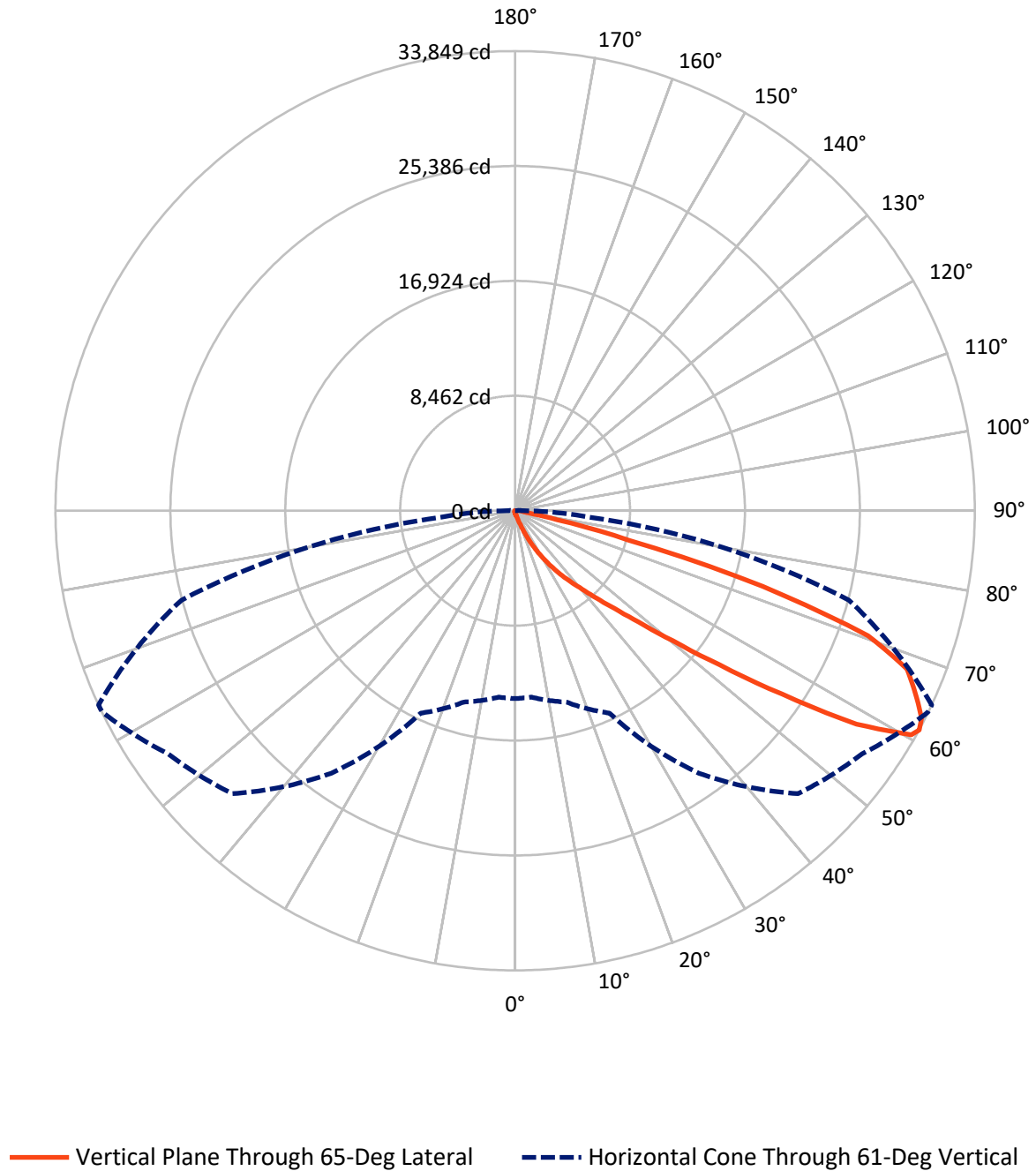


Based on 15 foot mounting height. Maximum calculated value = 40.6 fc  
Type II - Short - N/A

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## Luminous Intensity Polar Plot



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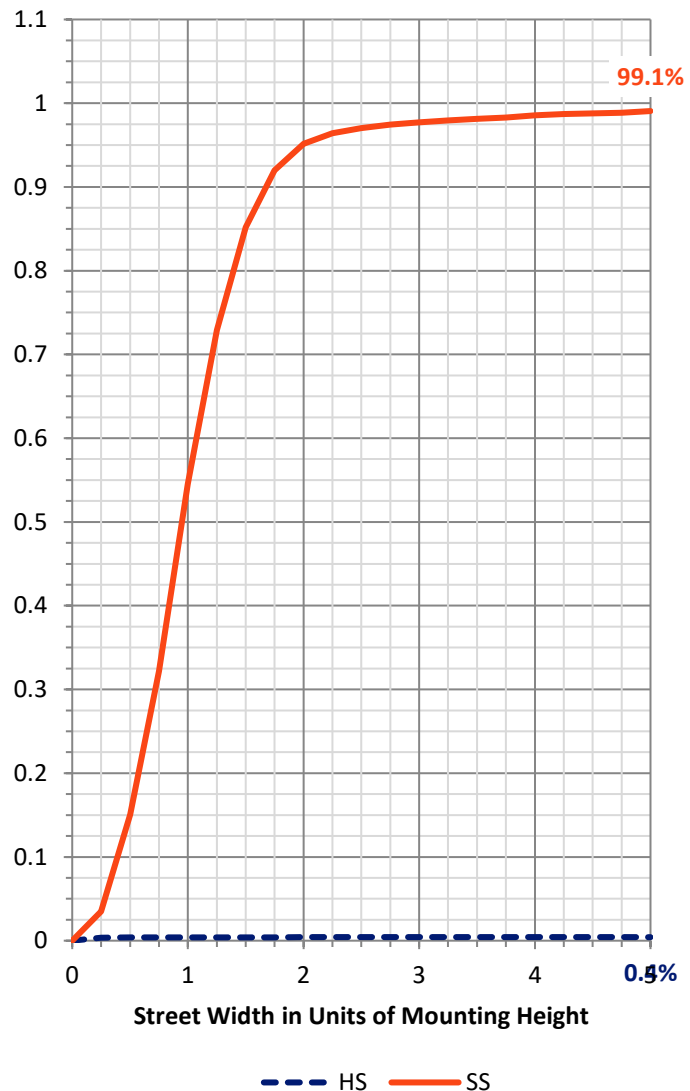
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 130.9    | 0.0    | 130.9   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 30532.9  | 0.0    | 30532.9 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 30663.8  | 0.0    | 30663.8 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 23.9    | 0.1       |
| 10°-20°   | 252.2   | 0.8       |
| 20°-30°   | 904.9   | 3.0       |
| 30°-40°   | 2409.3  | 7.9       |
| 40°-50°   | 6329.2  | 20.6      |
| 50°-60°   | 9805.1  | 32.0      |
| 60°-70°   | 8221.4  | 26.8      |
| 70°-80°   | 2419.4  | 7.9       |
| 80°-90°   | 298.5   | 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°    | 30663.8 | 100.0     |
| 0°-180°   | 30663.8 | 100.0     |



REPORT NUMBER: P1063542

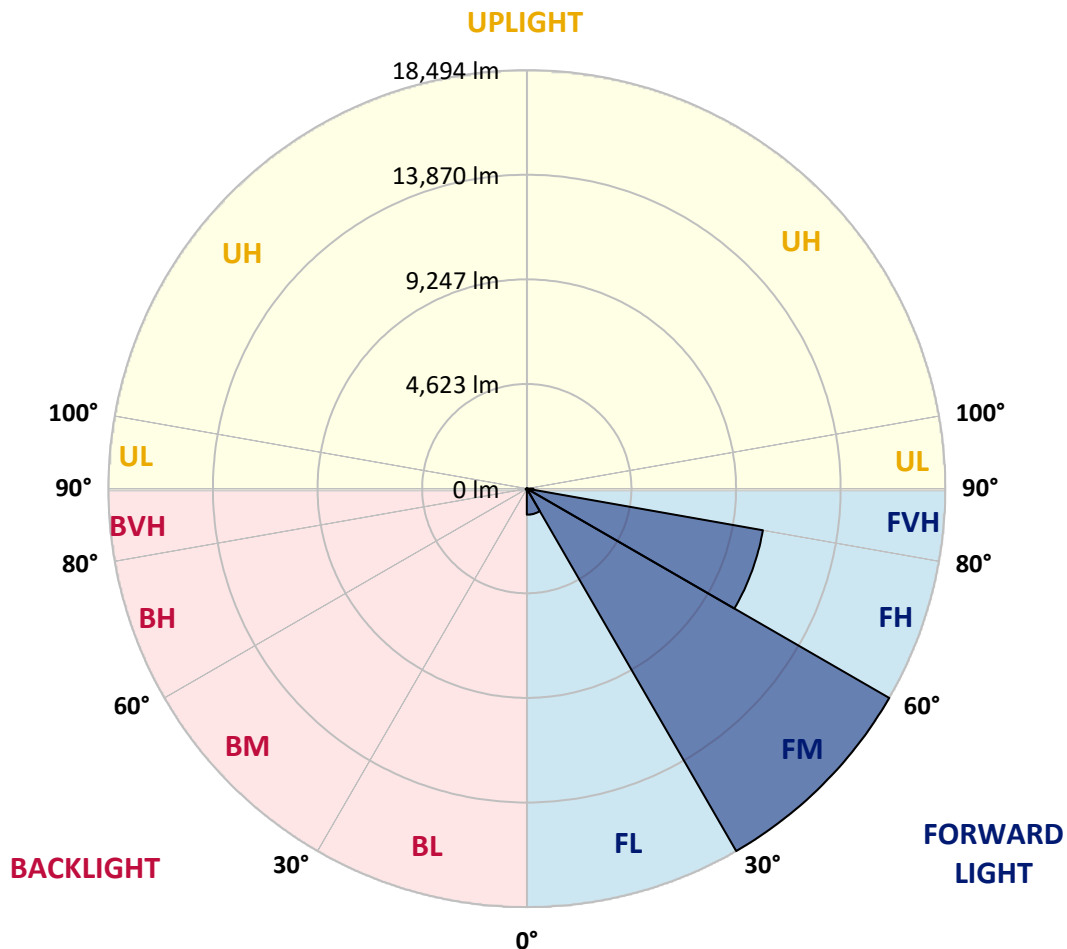
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|------|-------------|---------|-----------|-------------------------|------|----------|
|      |             |         |           | B                       | U    | G        |
| FL   | (0°-30°)    | 1151.6  | 3.8       |                         |      |          |
| FM   | (30°-60°)   | 18493.8 | 60.3      |                         |      |          |
| FH   | (60°-80°)   | 10594.7 | 34.6      |                         |      | G4/12000 |
| FVH  | (80°-90°)   | 292.9   | 1.0       |                         |      | G3/500   |
| BL   | (0°-30°)    | 29.4    | 0.1       | B0/110                  |      |          |
| BM   | (30°-60°)   | 49.8    | 0.2       | B0/220                  |      |          |
| BH   | (60°-80°)   | 46.2    | 0.2       | B0/110                  |      | G0/110   |
| BVH  | (80°-90°)   | 5.5     | 0.0       |                         |      | G0/10    |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

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

Type II Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 187.7   | 187.7   | 187.7   | 187.7   | 187.7   | 187.7   | 187.7   | 187.7   | 187.7   | 187.7   | 187.7   |
| 2.5°  | 227.8   | 229.9   | 225.7   | 217.3   | 210.9   | 210.9   | 208.8   | 202.5   | 202.5   | 196.2   | 192.0   |
| 5°    | 318.5   | 314.3   | 305.9   | 289.0   | 274.2   | 259.4   | 244.7   | 229.9   | 227.8   | 208.8   | 196.2   |
| 7.5°  | 521.0   | 525.2   | 497.8   | 445.1   | 400.8   | 343.8   | 291.1   | 259.4   | 255.2   | 223.6   | 198.3   |
| 10°   | 1143.3  | 1111.6  | 1048.3  | 843.7   | 694.0   | 523.1   | 388.1   | 301.6   | 297.4   | 240.5   | 202.5   |
| 12.5° | 2084.0  | 2058.7  | 1942.7  | 1731.8  | 1345.8  | 936.5   | 567.4   | 373.4   | 360.7   | 255.2   | 204.6   |
| 15°   | 3003.7  | 2963.6  | 2900.3  | 2687.3  | 2235.9  | 1679.0  | 928.1   | 510.5   | 476.7   | 276.3   | 202.5   |
| 17.5° | 3590.1  | 3596.4  | 3539.5  | 3448.8  | 3157.7  | 2484.8  | 1603.1  | 761.5   | 696.1   | 314.3   | 198.3   |
| 20°   | 4102.7  | 4087.9  | 4119.5  | 4071.0  | 3866.4  | 3377.1  | 2332.9  | 1206.5  | 1094.7  | 375.5   | 200.4   |
| 22.5° | 4693.3  | 4729.1  | 4752.3  | 4741.8  | 4516.1  | 4098.5  | 3161.9  | 1805.6  | 1664.3  | 487.3   | 206.7   |
| 25°   | 5484.3  | 5480.1  | 5482.2  | 5454.8  | 5235.4  | 4771.3  | 3993.0  | 2550.2  | 2406.8  | 668.7   | 221.5   |
| 27.5° | 6313.3  | 6338.6  | 6349.1  | 6250.0  | 5963.1  | 5507.5  | 4762.9  | 3364.4  | 3195.7  | 959.8   | 240.5   |
| 30°   | 7446.0  | 7424.9  | 7376.4  | 7173.9  | 6825.8  | 6260.5  | 5522.3  | 4218.7  | 4041.5  | 1366.9  | 270.0   |
| 32.5° | 8973.1  | 8949.9  | 8705.3  | 8258.1  | 7737.1  | 7045.2  | 6285.8  | 5075.1  | 4859.9  | 1875.2  | 310.1   |
| 35°   | 11489.6 | 11525.4 | 10924.3 | 9766.3  | 8831.8  | 7988.1  | 7131.7  | 5927.2  | 5737.4  | 2501.7  | 364.9   |
| 37.5° | 15343.3 | 15147.2 | 14330.9 | 12284.8 | 10272.5 | 9165.1  | 7939.6  | 6787.9  | 6623.3  | 3273.7  | 436.6   |
| 40°   | 19087.4 | 18893.4 | 18657.1 | 16718.6 | 12776.3 | 10462.3 | 9070.2  | 7798.2  | 7585.2  | 4144.9  | 542.1   |
| 42.5° | 23023.5 | 22915.9 | 22905.3 | 21443.6 | 17345.1 | 12502.1 | 10430.7 | 8981.6  | 8800.2  | 5100.4  | 715.1   |
| 45°   | 25812.0 | 25704.4 | 25930.1 | 26185.4 | 23567.7 | 16872.6 | 12799.5 | 10519.3 | 10255.6 | 6260.5  | 991.4   |
| 47.5° | 26187.5 | 26191.7 | 26795.0 | 27594.4 | 28191.3 | 23633.1 | 15955.1 | 12556.9 | 12236.3 | 7920.6  | 1455.4  |
| 50°   | 24938.7 | 24987.3 | 25947.0 | 27377.1 | 28984.5 | 29305.1 | 21519.5 | 15514.2 | 15039.6 | 9888.6  | 2113.6  |
| 52.5° | 22561.5 | 22616.4 | 23953.7 | 26305.6 | 28254.6 | 30667.7 | 28071.1 | 19382.7 | 18836.4 | 12343.9 | 3041.7  |
| 55°   | 20420.5 | 20454.3 | 21987.8 | 24959.8 | 27375.0 | 29927.3 | 31960.7 | 24548.5 | 23831.3 | 15364.4 | 3957.1  |
| 57.5° | 18300.6 | 18222.6 | 19220.3 | 22622.7 | 27225.3 | 29018.2 | 32534.5 | 30435.7 | 29644.7 | 18665.6 | 4670.1  |
| 60°   | 15465.7 | 15334.9 | 16136.5 | 18300.6 | 25255.1 | 29615.2 | 31460.8 | 33692.5 | 33513.2 | 23261.8 | 5220.6  |
| 61°   | 13835.2 | 13780.3 | 14586.1 | 16442.3 | 23597.2 | 29463.3 | 31203.5 | 33829.6 | 33848.6 | 25436.5 | 5467.4  |
| 62.5° | 9880.2  | 10036.2 | 11268.1 | 13681.2 | 19764.5 | 28478.2 | 31237.2 | 33405.6 | 33593.4 | 28326.3 | 6106.5  |
| 65°   | 4391.6  | 4642.7  | 5600.3  | 7564.1  | 11493.8 | 23690.0 | 30937.7 | 32475.4 | 32382.6 | 29119.5 | 8308.7  |
| 67.5° | 2605.0  | 2643.0  | 3119.7  | 4286.2  | 6087.6  | 12742.5 | 27301.2 | 31245.7 | 31121.2 | 25350.1 | 10337.9 |
| 70°   | 2052.4  | 2071.4  | 2223.2  | 2689.4  | 3533.1  | 4881.0  | 15581.7 | 27033.3 | 27575.4 | 20555.5 | 10120.6 |
| 72.5° | 1946.9  | 1942.7  | 1963.8  | 2046.1  | 2225.4  | 2421.5  | 6032.7  | 17969.5 | 19072.7 | 14803.4 | 8485.9  |
| 75°   | 1921.6  | 1913.2  | 1892.1  | 1860.4  | 1611.5  | 1425.9  | 1868.9  | 7948.0  | 8587.1  | 10114.3 | 6389.2  |
| 77.5° | 1864.7  | 1866.8  | 1871.0  | 1784.5  | 1381.6  | 1008.3  | 904.9   | 2550.2  | 3136.6  | 6418.7  | 4541.4  |
| 80°   | 1261.4  | 1280.4  | 1312.0  | 1278.3  | 1242.4  | 729.8   | 639.1   | 907.0   | 919.7   | 3602.8  | 2999.5  |
| 82.5° | 639.1   | 639.1   | 624.4   | 556.9   | 480.9   | 474.6   | 508.4   | 658.1   | 666.6   | 1822.5  | 1411.1  |
| 85°   | 386.0   | 407.1   | 415.5   | 377.6   | 345.9   | 318.5   | 388.1   | 523.1   | 542.1   | 706.6   | 329.1   |
| 87.5° | 86.5    | 88.6    | 97.0    | 128.7   | 187.7   | 255.2   | 360.7   | 478.8   | 487.3   | 453.5   | 40.1    |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |

REPORT NUMBER: P1063542

CATALOG NUMBER: GLAN-SA8B-827-U-T2BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 187.7  | 187.7 | 187.7 | 187.7 | 187.7 | 187.7 | 187.7 | 187.7 | 187.7 | 187.7 | 187.7 |
| 2.5°  | 189.8  | 185.6 | 183.5 | 177.2 | 170.9 | 164.5 | 160.3 | 158.2 | 160.3 | 162.4 | 162.4 |
| 5°    | 187.7  | 181.4 | 170.9 | 160.3 | 151.9 | 143.4 | 135.0 | 132.9 | 132.9 | 135.0 | 135.0 |
| 7.5°  | 187.7  | 177.2 | 162.4 | 149.8 | 137.1 | 124.5 | 118.1 | 113.9 | 116.0 | 116.0 | 116.0 |
| 10°   | 187.7  | 175.1 | 156.1 | 137.1 | 122.3 | 107.6 | 97.0  | 92.8  | 92.8  | 92.8  | 92.8  |
| 12.5° | 185.6  | 173.0 | 149.8 | 126.6 | 105.5 | 88.6  | 75.9  | 69.6  | 71.7  | 71.7  | 71.7  |
| 15°   | 181.4  | 166.6 | 141.3 | 107.6 | 84.4  | 67.5  | 54.8  | 48.5  | 50.6  | 54.8  | 57.0  |
| 17.5° | 175.1  | 160.3 | 126.6 | 90.7  | 67.5  | 50.6  | 38.0  | 33.7  | 35.9  | 42.2  | 42.2  |
| 20°   | 173.0  | 154.0 | 111.8 | 73.8  | 50.6  | 35.9  | 25.3  | 21.1  | 23.2  | 31.6  | 33.7  |
| 22.5° | 173.0  | 149.8 | 101.2 | 61.2  | 38.0  | 23.2  | 14.8  | 8.4   | 8.4   | 14.8  | 14.8  |
| 25°   | 175.1  | 147.7 | 92.8  | 50.6  | 27.4  | 16.9  | 8.4   | 4.2   | 8.4   | 23.2  | 27.4  |
| 27.5° | 179.3  | 145.5 | 88.6  | 42.2  | 21.1  | 14.8  | 6.3   | 14.8  | 25.3  | 25.3  | 25.3  |
| 30°   | 183.5  | 141.3 | 82.3  | 35.9  | 19.0  | 10.5  | 10.5  | 21.1  | 21.1  | 25.3  | 27.4  |
| 32.5° | 189.8  | 139.2 | 78.0  | 31.6  | 14.8  | 8.4   | 14.8  | 12.7  | 12.7  | 14.8  | 16.9  |
| 35°   | 202.5  | 141.3 | 73.8  | 31.6  | 14.8  | 10.5  | 12.7  | 6.3   | 4.2   | 4.2   | 4.2   |
| 37.5° | 219.4  | 143.4 | 67.5  | 27.4  | 12.7  | 12.7  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 246.8  | 149.8 | 63.3  | 25.3  | 10.5  | 10.5  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 293.2  | 162.4 | 61.2  | 23.2  | 10.5  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 386.0  | 192.0 | 57.0  | 21.1  | 10.5  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 554.8  | 261.6 | 54.8  | 16.9  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 810.0  | 354.4 | 52.7  | 14.8  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 1033.6 | 373.4 | 35.9  | 12.7  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 1058.9 | 257.3 | 27.4  | 8.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 843.7  | 166.6 | 23.2  | 6.3   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 639.1  | 126.6 | 21.1  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 61°   | 613.8  | 113.9 | 21.1  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 677.1  | 99.1  | 19.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1101.1 | 82.3  | 16.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 1913.2 | 71.7  | 14.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 2417.3 | 67.5  | 12.7  | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2107.2 | 61.2  | 12.7  | 4.2   | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1267.7 | 52.7  | 12.7  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 664.4  | 40.1  | 12.7  | 10.5  | 6.3   | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 322.7  | 35.9  | 14.8  | 10.5  | 8.4   | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 126.6  | 29.5  | 16.9  | 14.8  | 10.5  | 6.3   | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 57.0   | 25.3  | 19.0  | 16.9  | 14.8  | 8.4   | 2.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 29.5   | 23.2  | 21.1  | 19.0  | 14.8  | 10.5  | 4.2   | 0.0   | 0.0   | 0.0   | 0.0   |
| 90°   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |



Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-8

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-827-U-5WQ

Data in this report applies to families of products including GSS-SB1A-827-U-5WQ

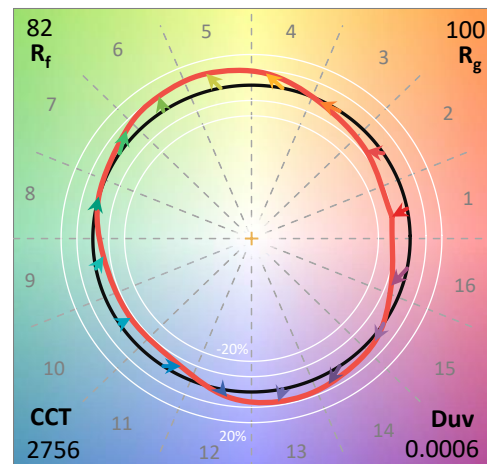
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-8  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-827-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2756  
 CIE  $u'$ : 0.2599  
 CIE  $v'$ : 0.5271  
 Duv: 0.0006  
 CIE x: 0.4563  
 CIE y: 0.4112  
 CIE z: 0.1325  
 Peak Wavelength (nm): 609  
 Dominant Wavelength (nm): 583  
 Purity: 60.41121  
 Rf: 82.2  
 Rg: 99.9

CRI (Ra): 82.9  
 R1: 81.6  
 R2: 88.8  
 R3: 96.0  
 R4: 83.4  
 R5: 81.4  
 R6: 87.0  
 R7: 84.0  
 R8: 60.8  
 R9: 10.8  
 R10: 74.8  
 R11: 84.3  
 R12: 72.1  
 R13: 82.9  
 R14: 97.3  
 R15: 73.7



### Test Conditions

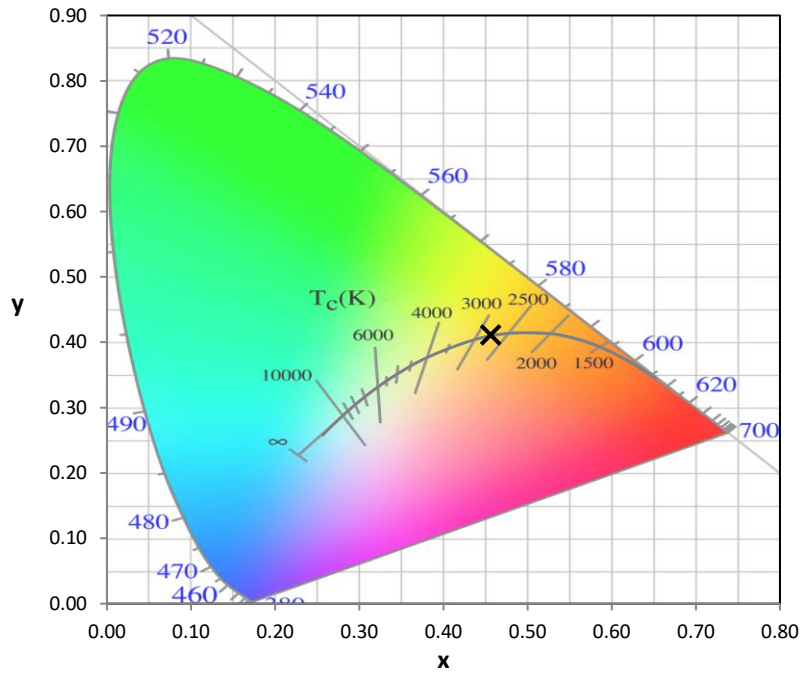
Stabilization Time: 29M  
 Operation Time: 1H 29M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-8

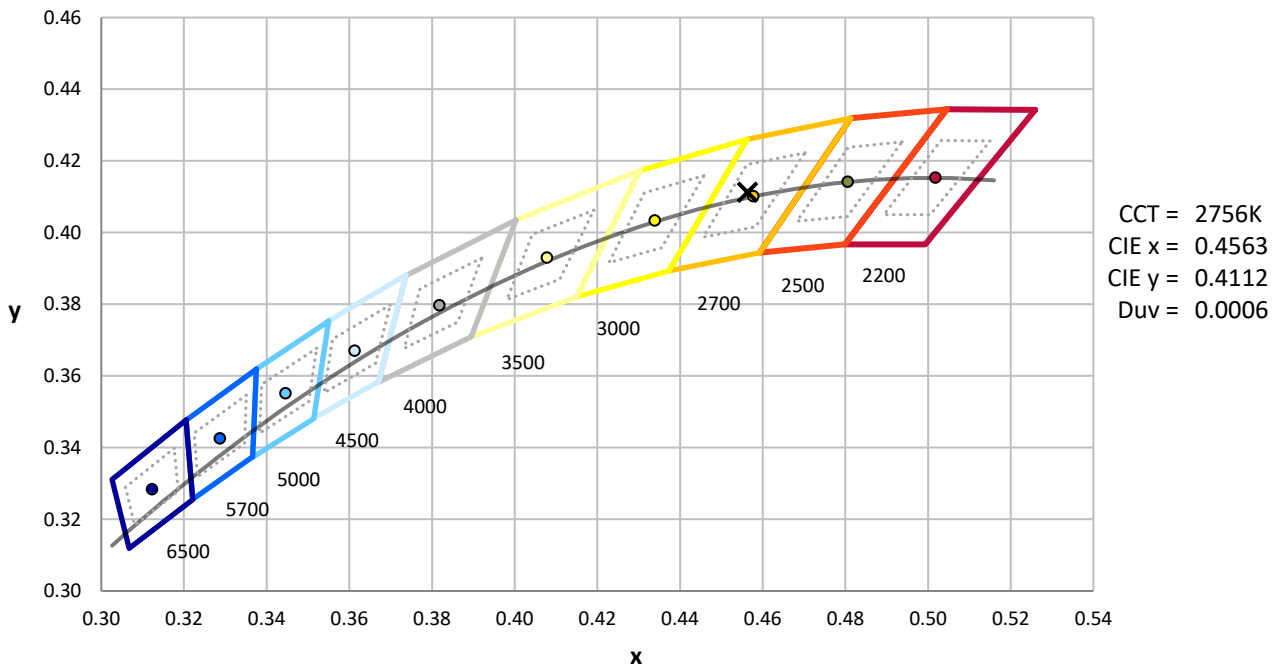
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

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**CIE 1931 Chromaticity Diagram**



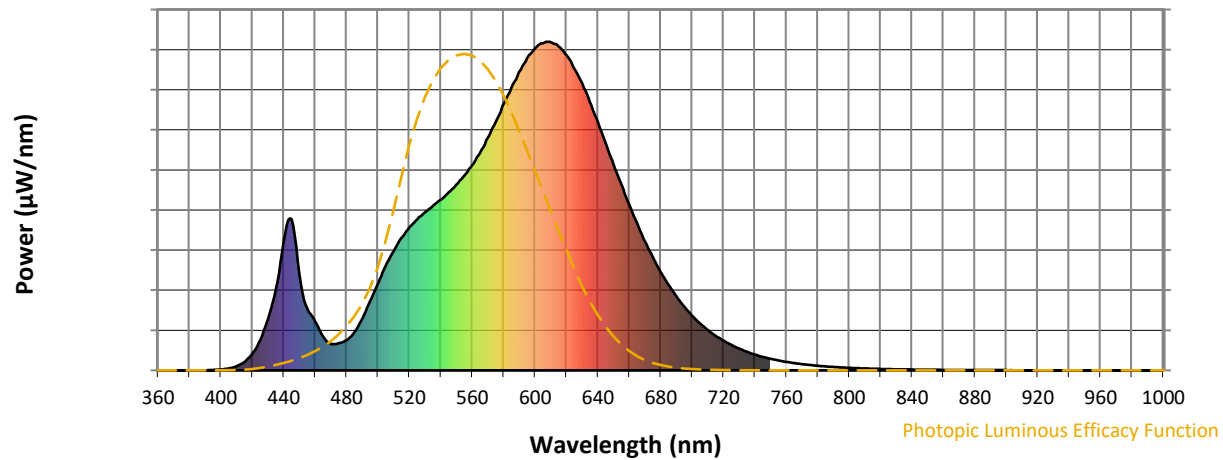
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

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### Photopic Flux vs. Wavelength

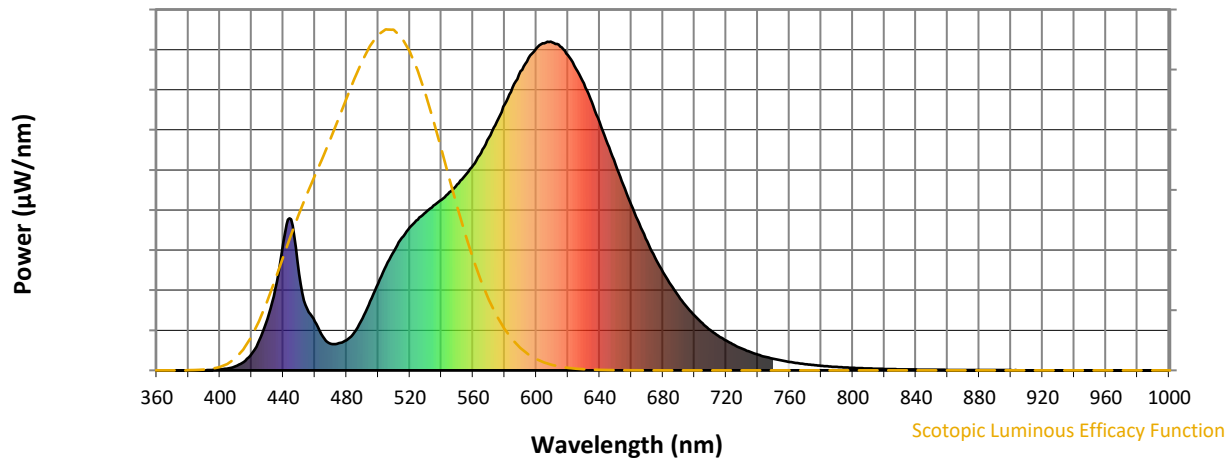


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 158                                  | NR                             | 620               | 959                                  | NR                             | 750               | 35                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 211                                  | NR                             | 625               | 918                                  | NR                             | 755               | 30                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 264                                  | NR                             | 630               | 873                                  | NR                             | 760               | 26                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 318                                  | NR                             | 635               | 816                                  | NR                             | 765               | 22                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 363                                  | NR                             | 640               | 755                                  | NR                             | 770               | 19                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 403                                  | NR                             | 645               | 689                                  | NR                             | 775               | 16                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 435                                  | NR                             | 650               | 626                                  | NR                             | 780               | 14                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 459                                  | NR                             | 655               | 564                                  | NR                             | 785               | 12                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 481                                  | NR                             | 660               | 503                                  | NR                             | 790               | 10                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 501                                  | NR                             | 665               | 447                                  | NR                             | 795               | 9                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 13                                   | NR                             | 540               | 519                                  | NR                             | 670               | 392                                  | NR                             | 800               | 8                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 26                                   | NR                             | 545               | 542                                  | NR                             | 675               | 343                                  | NR                             | 805               | 7                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 51                                   | NR                             | 550               | 565                                  | NR                             | 680               | 299                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 93                                   | NR                             | 555               | 593                                  | NR                             | 685               | 260                                  | NR                             | 815               | 5                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 156                                  | NR                             | 560               | 624                                  | NR                             | 690               | 225                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 250                                  | NR                             | 565               | 662                                  | NR                             | 695               | 194                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 391                                  | NR                             | 570               | 707                                  | NR                             | 700               | 166                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 460                                  | NR                             | 575               | 756                                  | NR                             | 705               | 143                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 293                                  | NR                             | 580               | 810                                  | NR                             | 710               | 122                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 188                                  | NR                             | 585               | 860                                  | NR                             | 715               | 105                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 149                                  | NR                             | 590               | 910                                  | NR                             | 720               | 90                                   | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 103                                  | NR                             | 595               | 950                                  | NR                             | 725               | 77                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 80                                   | NR                             | 600               | 980                                  | NR                             | 730               | 66                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 82                                   | NR                             | 605               | 995                                  | NR                             | 735               | 56                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 92                                   | NR                             | 610               | 998                                  | NR                             | 740               | 48                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 116                                  | NR                             | 615               | 985                                  | NR                             | 745               | 41                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength

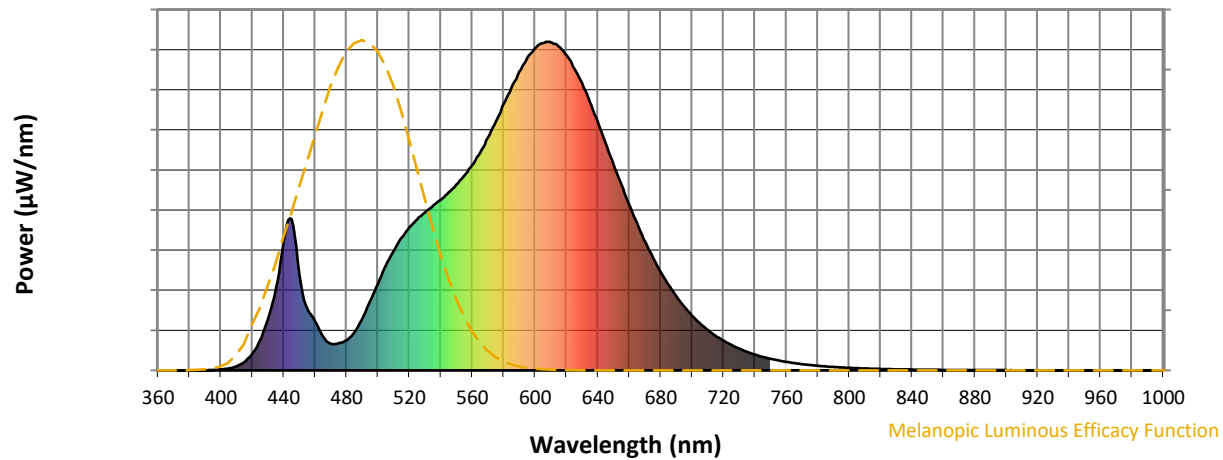


Scotopic Lumens: NR

S/P: 1.2

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 158                                  | NR                             | 620               | 959                                  | NR                             | 750               | 35                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 211                                  | NR                             | 625               | 918                                  | NR                             | 755               | 30                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 264                                  | NR                             | 630               | 873                                  | NR                             | 760               | 26                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 318                                  | NR                             | 635               | 816                                  | NR                             | 765               | 22                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 363                                  | NR                             | 640               | 755                                  | NR                             | 770               | 19                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 403                                  | NR                             | 645               | 689                                  | NR                             | 775               | 16                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 435                                  | NR                             | 650               | 626                                  | NR                             | 780               | 14                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 459                                  | NR                             | 655               | 564                                  | NR                             | 785               | 12                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 481                                  | NR                             | 660               | 503                                  | NR                             | 790               | 10                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 501                                  | NR                             | 665               | 447                                  | NR                             | 795               | 9                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 13                                   | NR                             | 540               | 519                                  | NR                             | 670               | 392                                  | NR                             | 800               | 8                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 26                                   | NR                             | 545               | 542                                  | NR                             | 675               | 343                                  | NR                             | 805               | 7                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 51                                   | NR                             | 550               | 565                                  | NR                             | 680               | 299                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 93                                   | NR                             | 555               | 593                                  | NR                             | 685               | 260                                  | NR                             | 815               | 5                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 156                                  | NR                             | 560               | 624                                  | NR                             | 690               | 225                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 250                                  | NR                             | 565               | 662                                  | NR                             | 695               | 194                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 391                                  | NR                             | 570               | 707                                  | NR                             | 700               | 166                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 460                                  | NR                             | 575               | 756                                  | NR                             | 705               | 143                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 293                                  | NR                             | 580               | 810                                  | NR                             | 710               | 122                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 188                                  | NR                             | 585               | 860                                  | NR                             | 715               | 105                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 149                                  | NR                             | 590               | 910                                  | NR                             | 720               | 90                                   | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 103                                  | NR                             | 595               | 950                                  | NR                             | 725               | 77                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 80                                   | NR                             | 600               | 980                                  | NR                             | 730               | 66                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 82                                   | NR                             | 605               | 995                                  | NR                             | 735               | 56                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 92                                   | NR                             | 610               | 998                                  | NR                             | 740               | 48                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 116                                  | NR                             | 615               | 985                                  | NR                             | 745               | 41                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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**Melanopic Flux vs. Wavelength**

**Melanopic Lumens: NR**
**M/P: 2.16**

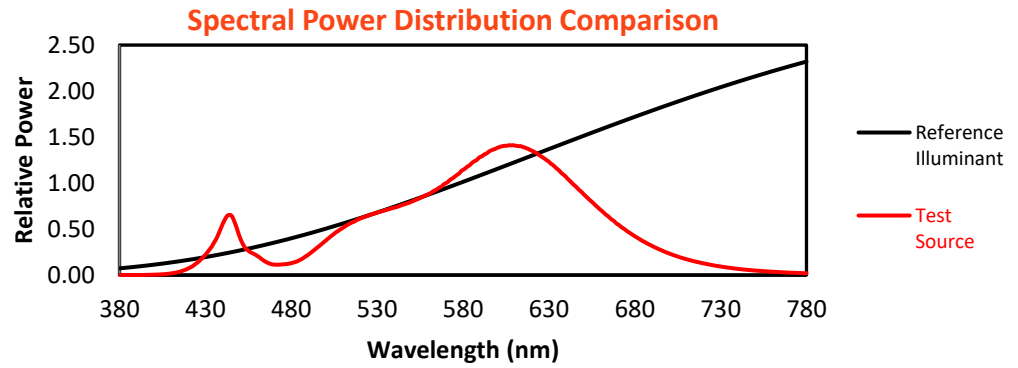
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 158                                  | NR                             | 620               | 959                                  | NR                             | 750               | 35                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 211                                  | NR                             | 625               | 918                                  | NR                             | 755               | 30                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 264                                  | NR                             | 630               | 873                                  | NR                             | 760               | 26                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 318                                  | NR                             | 635               | 816                                  | NR                             | 765               | 22                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 363                                  | NR                             | 640               | 755                                  | NR                             | 770               | 19                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 403                                  | NR                             | 645               | 689                                  | NR                             | 775               | 16                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 435                                  | NR                             | 650               | 626                                  | NR                             | 780               | 14                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 459                                  | NR                             | 655               | 564                                  | NR                             | 785               | 12                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 481                                  | NR                             | 660               | 503                                  | NR                             | 790               | 10                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 6                                    | NR                             | 535               | 501                                  | NR                             | 665               | 447                                  | NR                             | 795               | 9                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 13                                   | NR                             | 540               | 519                                  | NR                             | 670               | 392                                  | NR                             | 800               | 8                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 26                                   | NR                             | 545               | 542                                  | NR                             | 675               | 343                                  | NR                             | 805               | 7                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 51                                   | NR                             | 550               | 565                                  | NR                             | 680               | 299                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 93                                   | NR                             | 555               | 593                                  | NR                             | 685               | 260                                  | NR                             | 815               | 5                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 156                                  | NR                             | 560               | 624                                  | NR                             | 690               | 225                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 250                                  | NR                             | 565               | 662                                  | NR                             | 695               | 194                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 391                                  | NR                             | 570               | 707                                  | NR                             | 700               | 166                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 460                                  | NR                             | 575               | 756                                  | NR                             | 705               | 143                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 293                                  | NR                             | 580               | 810                                  | NR                             | 710               | 122                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 188                                  | NR                             | 585               | 860                                  | NR                             | 715               | 105                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 149                                  | NR                             | 590               | 910                                  | NR                             | 720               | 90                                   | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 103                                  | NR                             | 595               | 950                                  | NR                             | 725               | 77                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 80                                   | NR                             | 600               | 980                                  | NR                             | 730               | 66                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 82                                   | NR                             | 605               | 995                                  | NR                             | 735               | 56                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 92                                   | NR                             | 610               | 998                                  | NR                             | 740               | 48                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 116                                  | NR                             | 615               | 985                                  | NR                             | 745               | 41                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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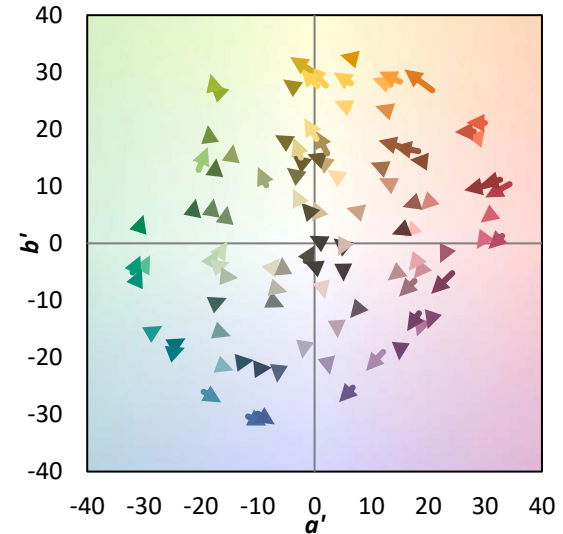
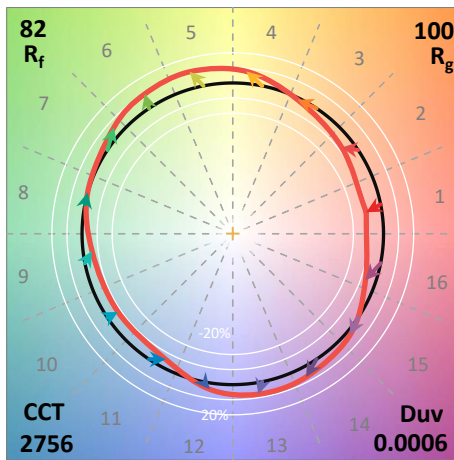
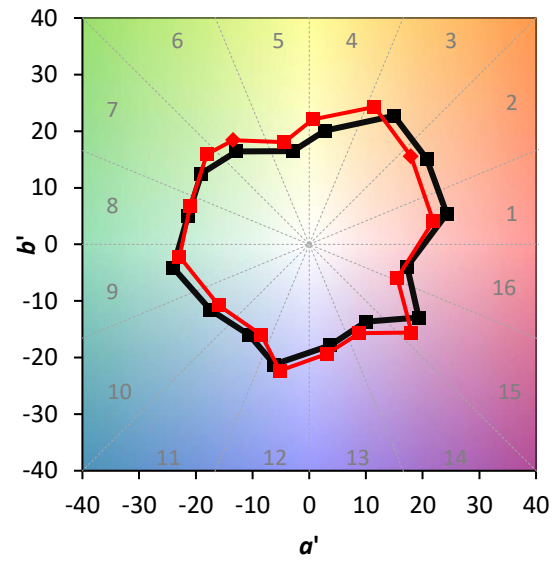
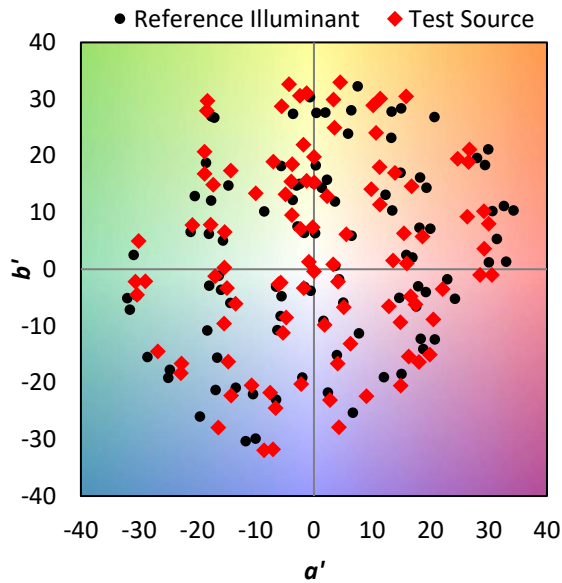
TM-30-18

### Summary

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



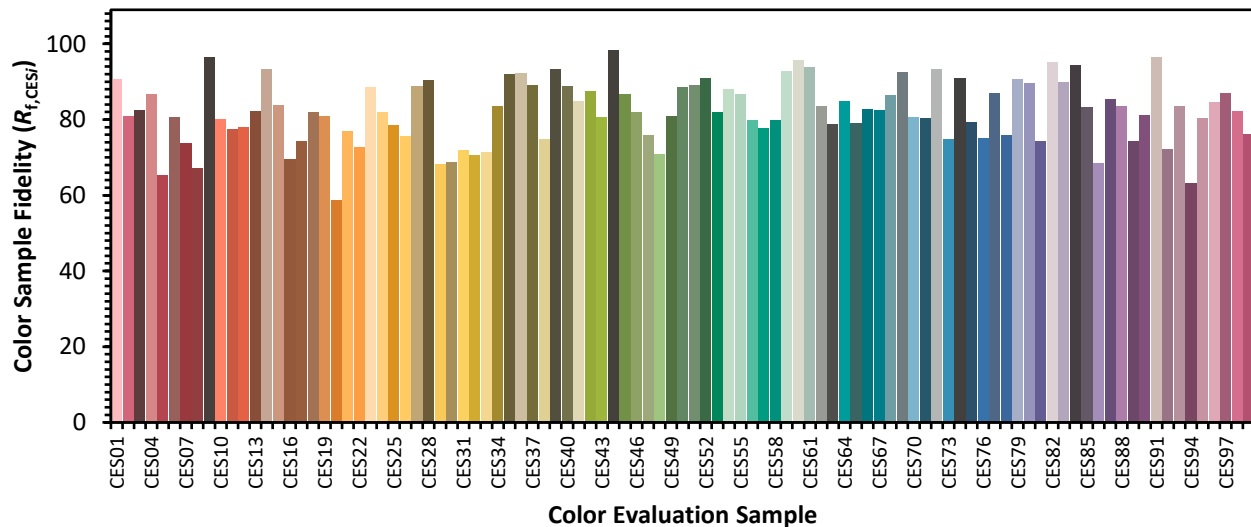
### Color Vector Graphics



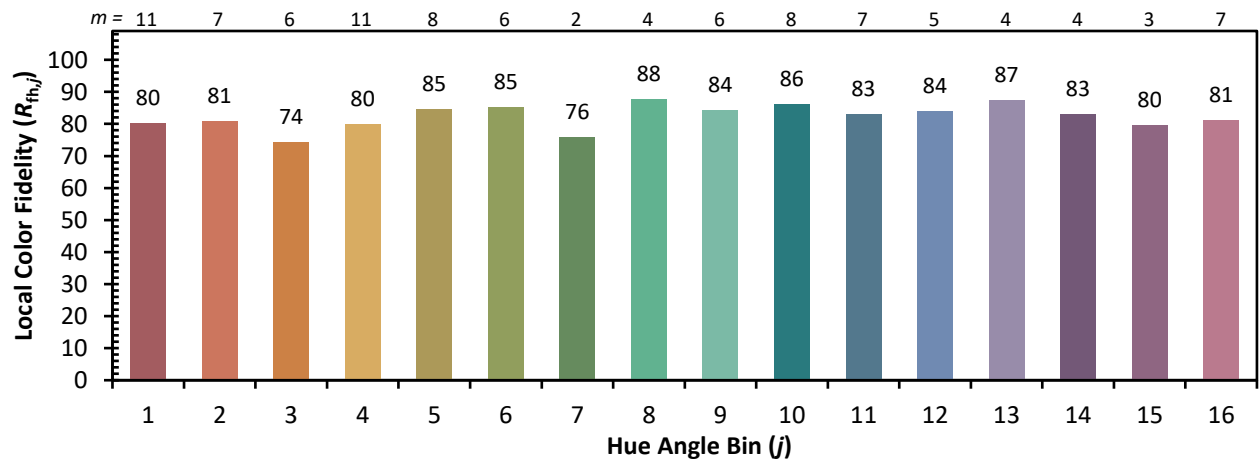
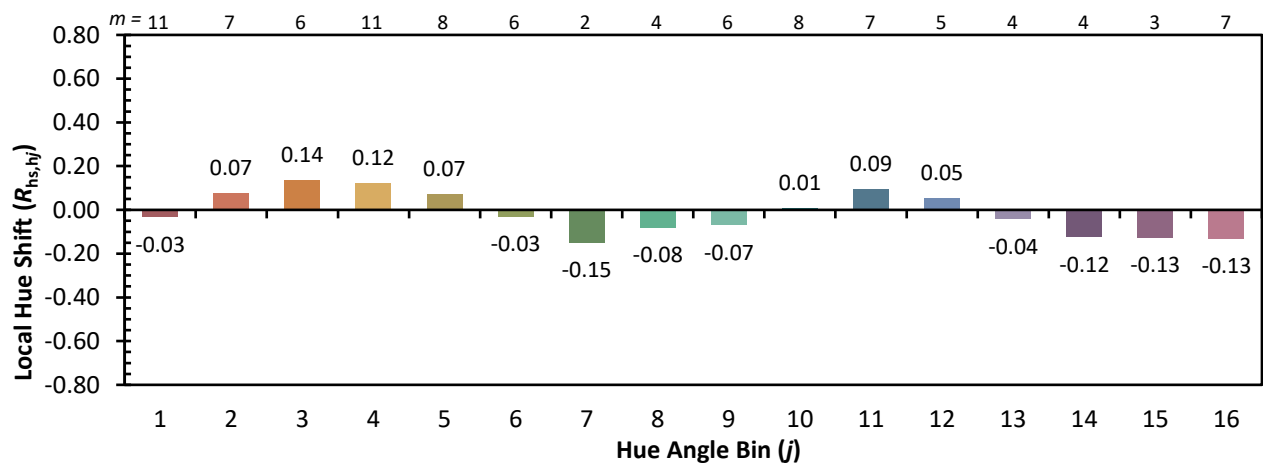
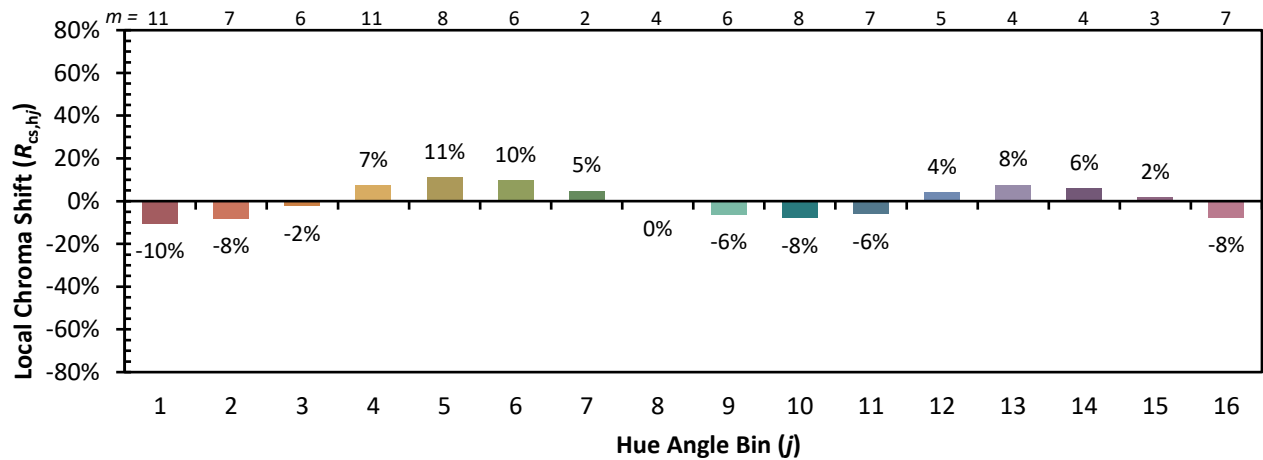


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

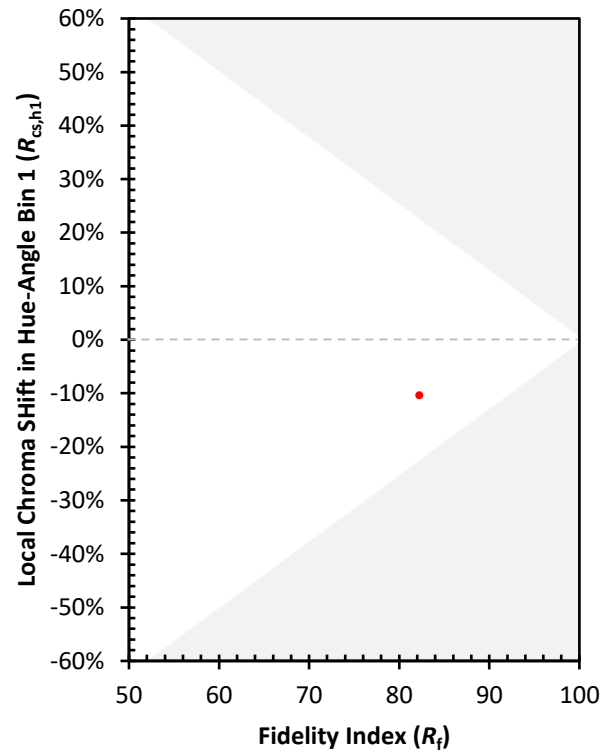
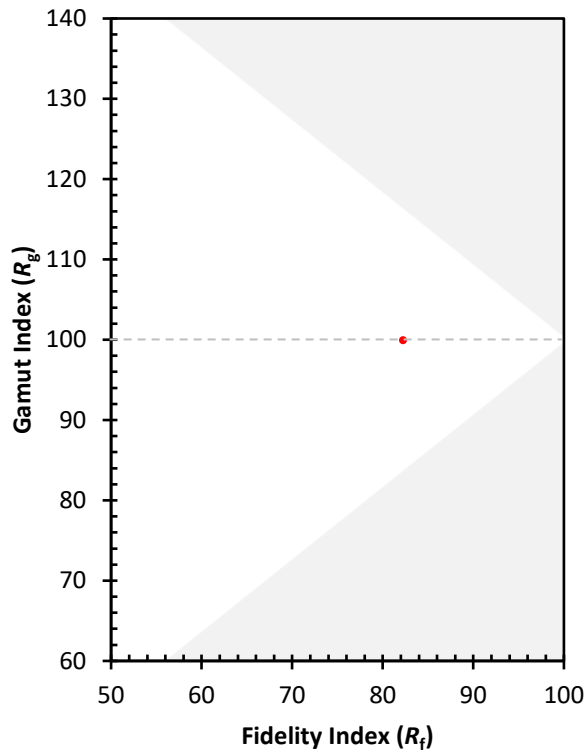
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 76 | CES51 = 89 | CES76 = 75 |
| CES02 = 63 | CES27 = 89 | CES52 = 91 | CES77 = 87 |
| CES03 = 31 | CES28 = 90 | CES53 = 82 | CES78 = 76 |
| CES04 = 71 | CES29 = 68 | CES54 = 88 | CES79 = 91 |
| CES05 = 50 | CES30 = 69 | CES55 = 87 | CES80 = 90 |
| CES06 = 52 | CES31 = 72 | CES56 = 80 | CES81 = 74 |
| CES07 = 43 | CES32 = 71 | CES57 = 78 | CES82 = 95 |
| CES08 = 42 | CES33 = 71 | CES58 = 80 | CES83 = 90 |
| CES09 = 29 | CES34 = 84 | CES59 = 93 | CES84 = 94 |
| CES10 = 77 | CES35 = 92 | CES60 = 96 | CES85 = 83 |
| CES11 = 59 | CES36 = 92 | CES61 = 94 | CES86 = 69 |
| CES12 = 66 | CES37 = 89 | CES62 = 84 | CES87 = 85 |
| CES13 = 44 | CES38 = 75 | CES63 = 79 | CES88 = 84 |
| CES14 = 74 | CES39 = 93 | CES64 = 85 | CES89 = 74 |
| CES15 = 72 | CES40 = 89 | CES65 = 79 | CES90 = 81 |
| CES16 = 48 | CES41 = 85 | CES66 = 83 | CES91 = 96 |
| CES17 = 50 | CES42 = 88 | CES67 = 82 | CES92 = 72 |
| CES18 = 57 | CES43 = 81 | CES68 = 86 | CES93 = 84 |
| CES19 = 73 | CES44 = 98 | CES69 = 92 | CES94 = 63 |
| CES20 = 67 | CES45 = 87 | CES70 = 81 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 81 | CES96 = 85 |
| CES22 = 79 | CES47 = 76 | CES72 = 93 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 75 | CES98 = 82 |
| CES24 = 91 | CES49 = 81 | CES74 = 91 | CES99 = 76 |
| CES25 = 72 | CES50 = 88 | CES75 = 79 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)