

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: P1063115

Luminaire Tested: **GLAN-SA9C-927-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063115  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA9C-927-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 9xLight Square PACKAGE  
90CRI 2700K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (126) 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 32315.7 lumens  
Efficiency: N/A  
Efficacy: 77.5 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 417.1  
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

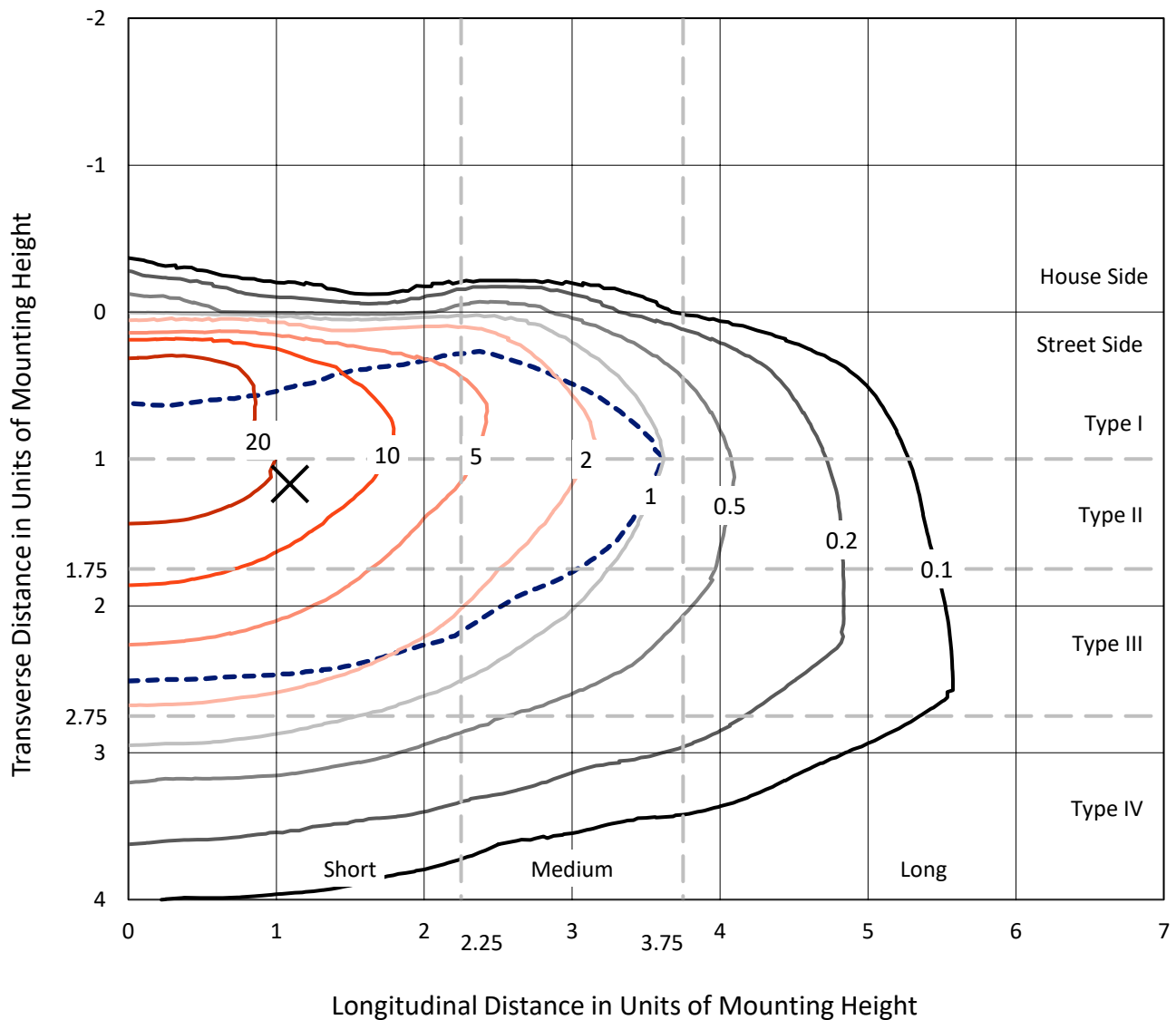


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## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

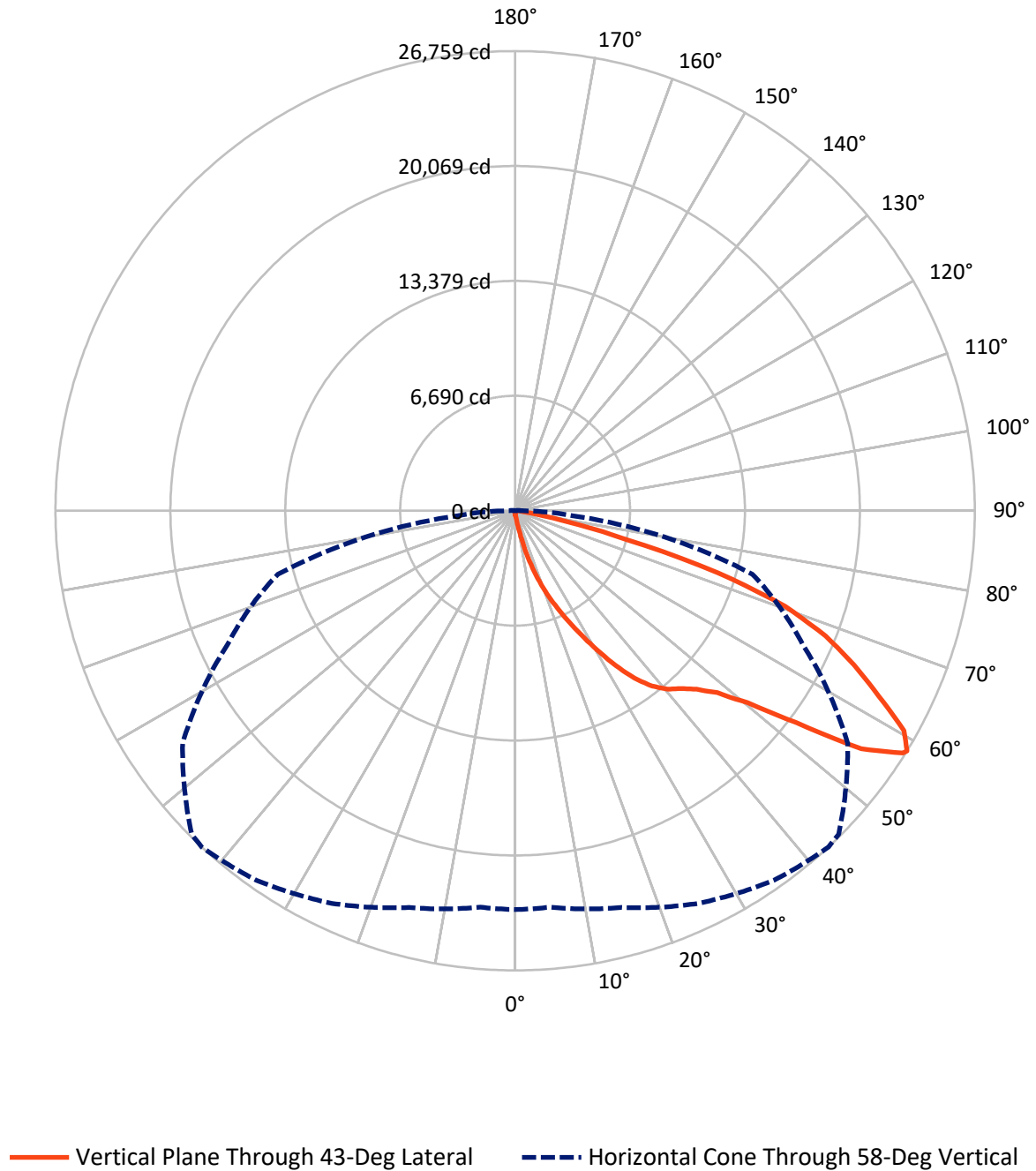


Based on 15 foot mounting height. Maximum calculated value = 36.3 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



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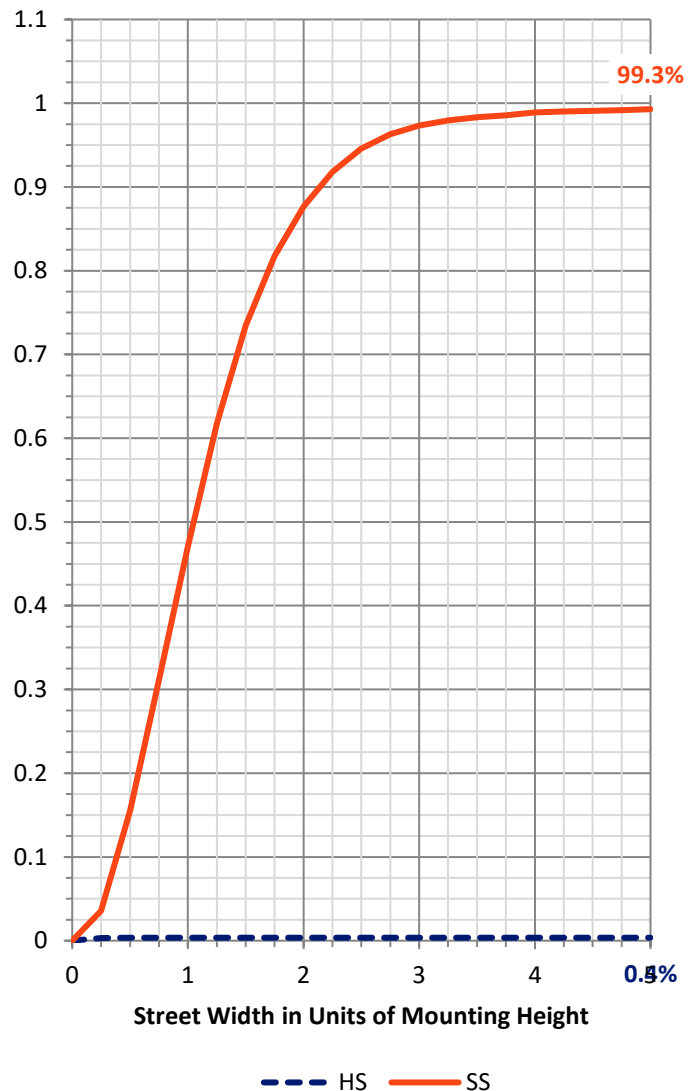
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 118.0    | 0.0    | 118.0   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 32197.7  | 0.0    | 32197.7 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 32315.7  | 0.0    | 32315.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 31.0    | 0.1       |
| 10°-20°   | 371.5   | 1.1       |
| 20°-30°   | 1338.9  | 4.1       |
| 30°-40°   | 3063.3  | 9.5       |
| 40°-50°   | 5166.6  | 16.0      |
| 50°-60°   | 8526.2  | 26.4      |
| 60°-70°   | 9529.2  | 29.5      |
| 70°-80°   | 3934.4  | 12.2      |
| 80°-90°   | 354.7   | 1.1       |
| 90°-100°  | 0.0     | 0.0       |
| 100°-110° | 0.0     | 0.0       |
| 110°-120° | 0.0     | 0.0       |
| 120°-130° | 0.0     | 0.0       |
| 130°-140° | 0.0     | 0.0       |
| 140°-150° | 0.0     | 0.0       |
| 150°-160° | 0.0     | 0.0       |
| 160°-170° | 0.0     | 0.0       |
| 170°-180° | 0.0     | 0.0       |
| 0°-90°    | 32315.7 | 100.0     |
| 0°-180°   | 32315.7 | 100.0     |



REPORT NUMBER: P1063115

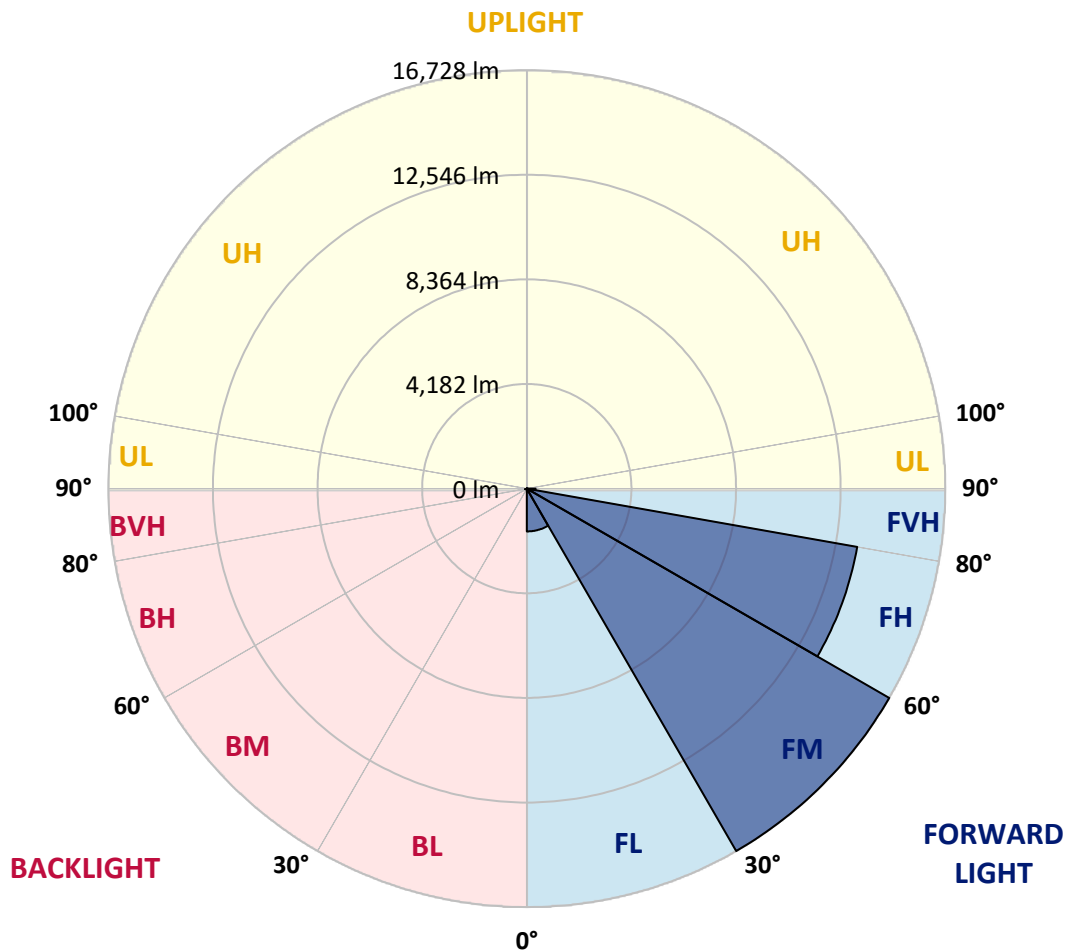
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1710.5  | 5.3       |                         |      |        |
| FM   | (30°-60°)   | 16727.9 | 51.8      |                         |      |        |
| FH   | (60°-80°)   | 13409.5 | 41.5      |                         |      | G5     |
| FVH  | (80°-90°)   | 349.8   | 1.1       |                         |      | G3/500 |
| BL   | (0°-30°)    | 30.8    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 28.3    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 54.1    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 4.9     | 0.0       |                         |      | G0/10  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |        |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |        |

**BUG Rating: B0-U0-G5**

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 211.3   | 211.3   | 211.3   | 211.3   | 211.3   | 211.3   | 211.3   | 211.3   | 211.3   | 211.3   | 211.3   |
| 2.5°  | 253.6   | 262.0   | 253.6   | 253.6   | 253.6   | 245.1   | 245.1   | 236.7   | 236.7   | 228.2   | 219.7   |
| 5°    | 371.9   | 371.9   | 346.5   | 329.6   | 312.7   | 304.3   | 295.8   | 278.9   | 262.0   | 245.1   | 228.2   |
| 7.5°  | 828.3   | 828.3   | 752.2   | 650.8   | 515.6   | 439.5   | 422.6   | 346.5   | 295.8   | 262.0   | 228.2   |
| 10°   | 1977.7  | 1977.7  | 1808.7  | 1529.8  | 1183.3  | 879.0   | 786.0   | 498.7   | 355.0   | 278.9   | 236.7   |
| 12.5° | 3287.8  | 3330.0  | 3118.7  | 2763.8  | 2248.2  | 1715.7  | 1529.8  | 912.8   | 473.3   | 304.3   | 236.7   |
| 15°   | 4462.6  | 4361.2  | 4302.0  | 3963.9  | 3473.7  | 2839.8  | 2603.2  | 1538.2  | 684.6   | 346.5   | 236.7   |
| 17.5° | 5257.1  | 5257.1  | 5172.6  | 4944.4  | 4496.4  | 3938.6  | 3744.2  | 2484.9  | 1107.2  | 397.2   | 245.1   |
| 20°   | 6186.8  | 6186.8  | 6034.6  | 5874.1  | 5476.8  | 5003.5  | 4817.6  | 3532.9  | 1715.7  | 507.1   | 245.1   |
| 22.5° | 7310.9  | 7327.8  | 7158.7  | 6871.4  | 6491.1  | 5967.0  | 5806.4  | 4504.9  | 2484.9  | 676.2   | 253.6   |
| 25°   | 8680.1  | 8697.0  | 8451.9  | 8181.4  | 7598.2  | 7032.0  | 6786.9  | 5620.5  | 3423.0  | 946.6   | 253.6   |
| 27.5° | 10193.0 | 10311.3 | 9947.9  | 9483.0  | 8866.0  | 8156.1  | 7970.1  | 6626.3  | 4352.7  | 1335.4  | 270.5   |
| 30°   | 12077.7 | 12077.7 | 11596.0 | 10945.2 | 10277.5 | 9398.5  | 9161.8  | 7682.8  | 5341.6  | 1851.0  | 287.4   |
| 32.5° | 13700.5 | 13573.7 | 12956.7 | 12272.1 | 11562.2 | 10742.3 | 10488.8 | 8790.0  | 6355.8  | 2493.3  | 321.2   |
| 35°   | 14942.9 | 14833.1 | 14072.4 | 13337.1 | 12720.1 | 11967.9 | 11663.6 | 9990.1  | 7429.2  | 3220.2  | 371.9   |
| 37.5° | 16007.9 | 15965.6 | 14934.5 | 14013.2 | 13607.5 | 12948.3 | 12677.8 | 11122.7 | 8485.7  | 4006.2  | 431.0   |
| 40°   | 17174.2 | 17039.0 | 15940.3 | 14799.3 | 14190.7 | 13658.3 | 13413.1 | 12035.5 | 9499.9  | 4927.5  | 515.6   |
| 42.5° | 18171.6 | 18011.0 | 17022.1 | 15906.5 | 14866.9 | 14148.5 | 13911.8 | 12804.6 | 10488.8 | 5848.7  | 625.4   |
| 45°   | 19278.8 | 19194.2 | 18196.9 | 17351.7 | 15965.6 | 14816.2 | 14503.4 | 13421.6 | 11393.1 | 6947.5  | 769.1   |
| 47.5° | 20943.8 | 20791.6 | 19861.9 | 19168.9 | 17563.0 | 15830.4 | 15382.4 | 14055.5 | 12263.7 | 8029.3  | 988.9   |
| 50°   | 22879.3 | 22777.8 | 22228.5 | 21679.1 | 20081.7 | 17563.0 | 17030.6 | 14968.3 | 13235.7 | 9314.0  | 1276.2  |
| 52.5° | 24459.8 | 24442.9 | 24510.5 | 24518.9 | 23310.3 | 20478.9 | 19684.4 | 16438.9 | 14351.3 | 10581.8 | 1681.9  |
| 55°   | 24426.0 | 24502.0 | 25245.8 | 26099.4 | 26192.4 | 24459.8 | 23690.6 | 18915.3 | 15805.0 | 12145.4 | 2248.2  |
| 57.5° | 23513.2 | 23454.0 | 24240.0 | 25524.7 | 26429.1 | 26615.0 | 26488.2 | 22760.9 | 17994.1 | 14030.1 | 3118.7  |
| 58°   | 23217.3 | 23166.6 | 23910.4 | 25220.4 | 26260.0 | 26758.7 | 26631.9 | 23631.5 | 18484.3 | 14300.6 | 3355.4  |
| 60°   | 22143.9 | 22152.4 | 22591.9 | 23783.6 | 24823.2 | 26006.5 | 26124.8 | 26116.3 | 20926.9 | 16109.3 | 4547.1  |
| 62.5° | 20724.0 | 20656.4 | 21062.1 | 22034.1 | 22946.9 | 23741.4 | 23944.2 | 26285.4 | 24502.0 | 18408.2 | 6820.7  |
| 65°   | 18763.2 | 18661.8 | 19092.8 | 20191.6 | 21172.0 | 21687.5 | 21696.0 | 24020.3 | 26183.9 | 20876.2 | 10066.2 |
| 67.5° | 15120.4 | 15035.9 | 15898.0 | 17309.5 | 18822.4 | 19498.5 | 19802.8 | 20842.4 | 24764.0 | 22549.6 | 11925.6 |
| 70°   | 9263.3  | 9440.8  | 10640.9 | 12855.3 | 15441.6 | 16684.0 | 17140.4 | 17461.6 | 21087.5 | 22296.1 | 9973.2  |
| 72.5° | 4276.7  | 4065.4  | 5088.0  | 6634.7  | 9584.4  | 12348.2 | 12821.5 | 14080.8 | 16717.8 | 19354.8 | 7437.7  |
| 75°   | 1994.6  | 1918.6  | 2155.2  | 2899.0  | 4344.3  | 6668.5  | 7530.6  | 11241.0 | 12821.5 | 13463.9 | 5366.9  |
| 77.5° | 1022.7  | 1031.1  | 1225.5  | 1318.5  | 1791.8  | 3084.9  | 3541.3  | 7395.4  | 9398.5  | 7513.7  | 3600.5  |
| 80°   | 448.0   | 464.9   | 473.3   | 515.6   | 726.9   | 1191.7  | 1343.9  | 3431.5  | 6423.4  | 3828.7  | 1969.3  |
| 82.5° | 287.4   | 295.8   | 295.8   | 295.8   | 346.5   | 473.3   | 540.9   | 1377.7  | 3203.3  | 1901.7  | 608.5   |
| 85°   | 152.1   | 152.1   | 169.0   | 211.3   | 245.1   | 287.4   | 304.3   | 439.5   | 1056.5  | 566.3   | 143.7   |
| 87.5° | 84.5    | 93.0    | 101.4   | 126.8   | 160.6   | 194.4   | 211.3   | 304.3   | 405.7   | 388.8   | 33.8    |
| 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-SA9C-927-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 211.3  | 211.3 | 211.3 | 211.3 | 211.3 | 211.3 | 211.3 | 211.3 | 211.3 | 211.3 | 211.3 |
| 2.5°  | 219.7  | 211.3 | 202.8 | 194.4 | 185.9 | 177.5 | 177.5 | 177.5 | 177.5 | 177.5 | 177.5 |
| 5°    | 211.3  | 202.8 | 194.4 | 177.5 | 160.6 | 152.1 | 143.7 | 135.2 | 135.2 | 135.2 | 135.2 |
| 7.5°  | 211.3  | 202.8 | 177.5 | 160.6 | 143.7 | 126.8 | 109.9 | 109.9 | 109.9 | 109.9 | 109.9 |
| 10°   | 211.3  | 194.4 | 169.0 | 143.7 | 118.3 | 101.4 | 93.0  | 84.5  | 84.5  | 84.5  | 84.5  |
| 12.5° | 211.3  | 185.9 | 160.6 | 126.8 | 101.4 | 84.5  | 76.1  | 67.6  | 67.6  | 67.6  | 67.6  |
| 15°   | 211.3  | 185.9 | 152.1 | 118.3 | 93.0  | 67.6  | 59.2  | 50.7  | 50.7  | 50.7  | 50.7  |
| 17.5° | 202.8  | 177.5 | 143.7 | 101.4 | 76.1  | 50.7  | 42.3  | 33.8  | 33.8  | 42.3  | 42.3  |
| 20°   | 194.4  | 169.0 | 126.8 | 84.5  | 59.2  | 42.3  | 25.4  | 25.4  | 25.4  | 25.4  | 25.4  |
| 22.5° | 194.4  | 169.0 | 118.3 | 76.1  | 50.7  | 25.4  | 16.9  | 16.9  | 16.9  | 16.9  | 25.4  |
| 25°   | 194.4  | 160.6 | 101.4 | 59.2  | 33.8  | 16.9  | 8.5   | 8.5   | 8.5   | 8.5   | 8.5   |
| 27.5° | 194.4  | 160.6 | 93.0  | 50.7  | 25.4  | 16.9  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 185.9  | 152.1 | 84.5  | 42.3  | 16.9  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 185.9  | 143.7 | 67.6  | 33.8  | 16.9  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 194.4  | 135.2 | 59.2  | 25.4  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 8.5   |
| 37.5° | 202.8  | 126.8 | 50.7  | 16.9  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 211.3  | 118.3 | 50.7  | 16.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 228.2  | 118.3 | 42.3  | 16.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 245.1  | 118.3 | 33.8  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 278.9  | 126.8 | 33.8  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 304.3  | 135.2 | 25.4  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 338.1  | 126.8 | 25.4  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 380.3  | 126.8 | 25.4  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 414.1  | 118.3 | 25.4  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 431.0  | 109.9 | 16.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 515.6  | 101.4 | 16.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 802.9  | 84.5  | 16.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1631.2 | 76.1  | 16.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 3042.7 | 67.6  | 16.9  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 3406.1 | 76.1  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 2146.8 | 59.2  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1132.6 | 59.2  | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 566.3  | 59.2  | 8.5   | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 262.0  | 42.3  | 8.5   | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 109.9  | 25.4  | 16.9  | 8.5   | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 50.7   | 25.4  | 16.9  | 16.9  | 8.5   | 8.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 25.4   | 25.4  | 25.4  | 16.9  | 16.9  | 8.5   | 8.5   | 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: SP1-2407-184-13

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-927-U-5WQ

Data in this report applies to families of products including GSS-SB1A-927-U-5WQ

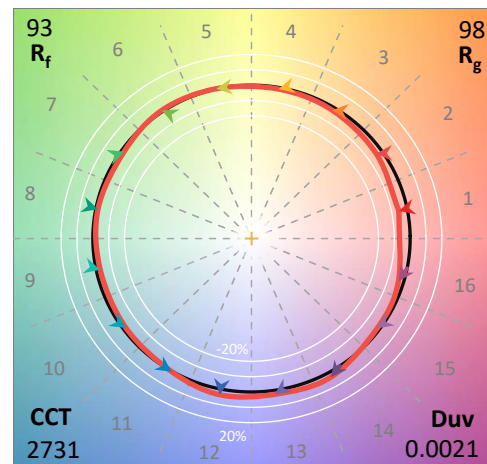
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-13  
 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-927-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI  
 2700K CCT 26 LEDS

### Spectral Parameters

CCT (K): 2731  
 CIE  $u'$ : 0.2605  
 CIE  $v'$ : 0.5298  
 Duv: 0.0021  
 CIE x: 0.4610  
 CIE y: 0.4166  
 CIE z: 0.1224  
 Peak Wavelength (nm): 622  
 Dominant Wavelength (nm): 583  
 Purity: 63.43685  
 R<sub>f</sub>: 92.6  
 R<sub>g</sub>: 98

CRI (Ra): 91.8  
 R1: 91.4  
 R2: 95.1  
 R3: 97.6  
 R4: 92.3  
 R5: 91.1  
 R6: 94.7  
 R7: 92.3  
 R8: 80.0  
 R9: 54.7  
 R10: 87.7  
 R11: 92.9  
 R12: 84.0  
 R13: 92.2  
 R14: 97.8  
 R15: 86.8



### Test Conditions

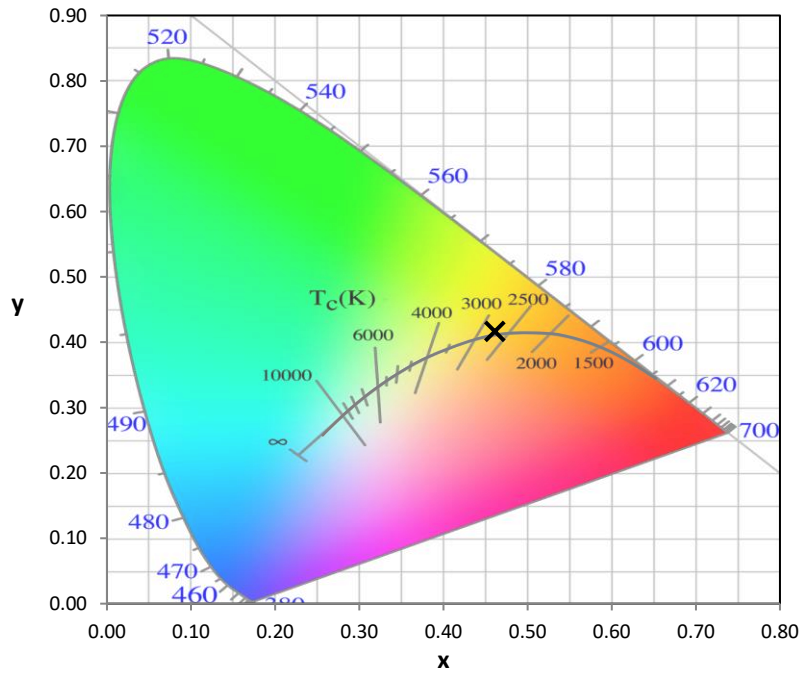
Stabilization Time: M  
 Operation Time: 1H 0M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-13

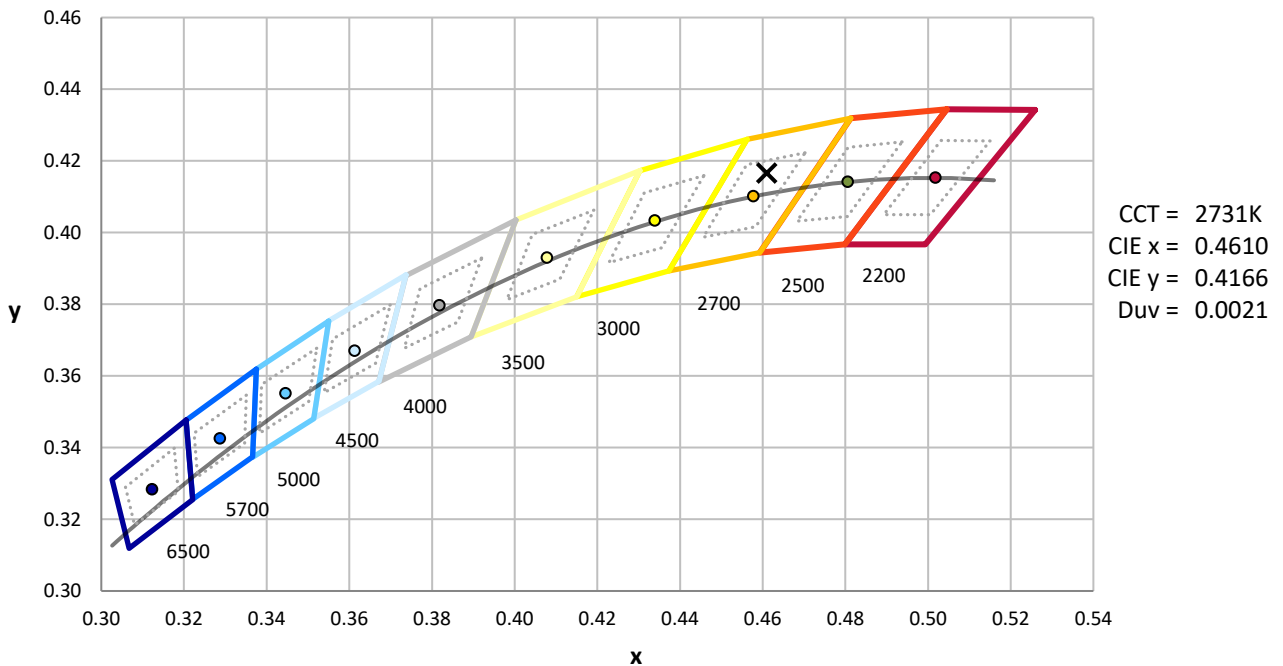
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

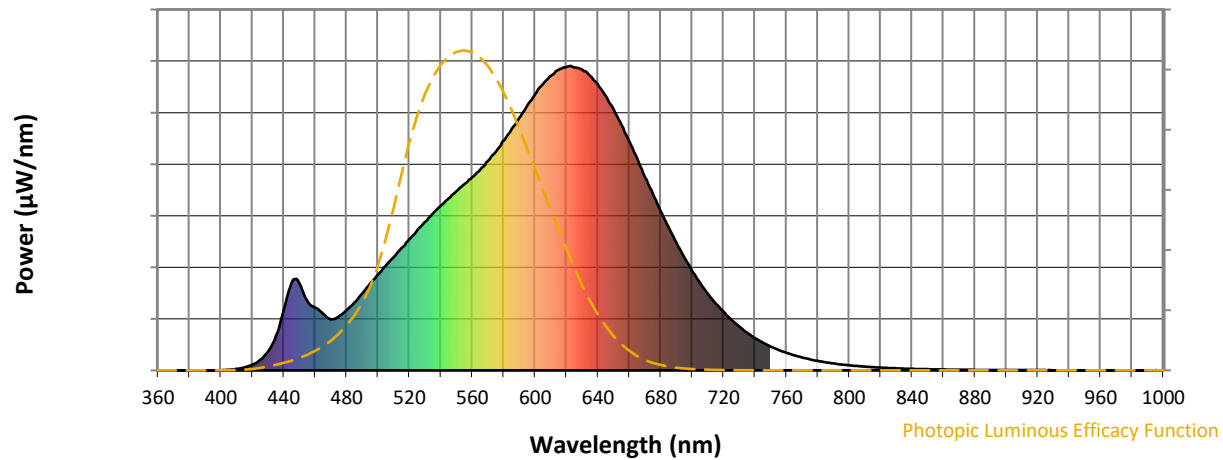


**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



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### Photopic Flux vs. Wavelength

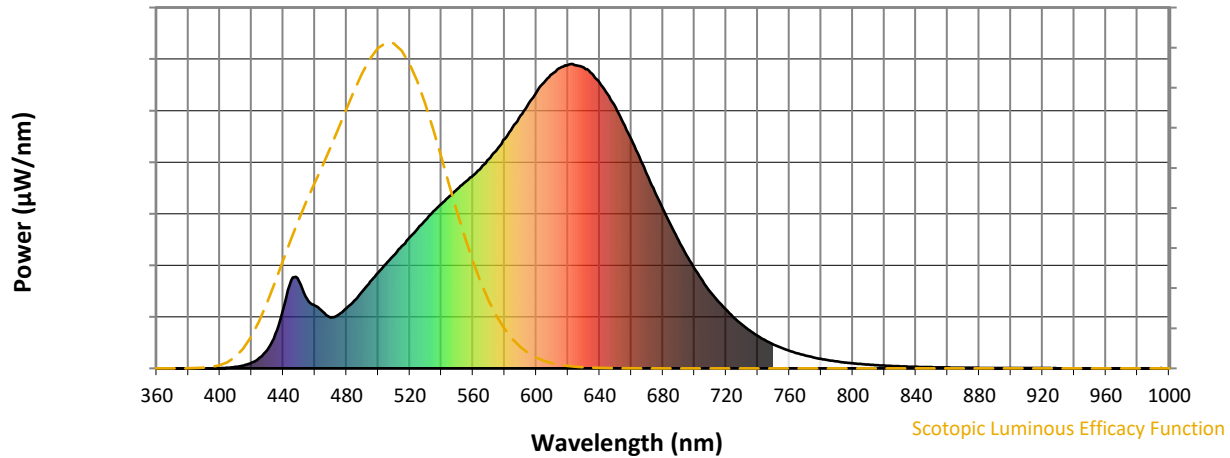


### Photopic Lumens: NR

| $\lambda$<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               | 253                                    | NR                             | 620               | 997                                    | NR                             | 750               | 78                                     | NR                             | 880               | 2                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 285                                    | NR                             | 625               | 996                                    | NR                             | 755               | 67                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 314                                    | NR                             | 630               | 989                                    | NR                             | 760               | 58                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 343                                    | NR                             | 635               | 969                                    | NR                             | 765               | 50                                     | NR                             | 895               | 1                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 372                                    | NR                             | 640               | 939                                    | NR                             | 770               | 42                                     | NR                             | 900               | 1                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 401                                    | NR                             | 645               | 901                                    | NR                             | 775               | 36                                     | NR                             | 905               | 1                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 431                                    | NR                             | 650               | 858                                    | NR                             | 780               | 31                                     | NR                             | 910               | 1                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 459                                    | NR                             | 655               | 806                                    | NR                             | 785               | 26                                     | NR                             | 915               | 1                                      | NR                             |
| 400               | 0                                      | NR                             | 530               | 488                                    | NR                             | 660               | 752                                    | NR                             | 790               | 23                                     | NR                             | 920               | 1                                      | NR                             |
| 405               | 2                                      | NR                             | 535               | 516                                    | NR                             | 665               | 696                                    | NR                             | 795               | 19                                     | NR                             | 925               | 1                                      | NR                             |
| 410               | 5                                      | NR                             | 540               | 540                                    | NR                             | 670               | 636                                    | NR                             | 800               | 17                                     | NR                             | 930               | 0                                      | NR                             |
| 415               | 10                                     | NR                             | 545               | 566                                    | NR                             | 675               | 579                                    | NR                             | 805               | 14                                     | NR                             | 935               | 0                                      | NR                             |
| 420               | 19                                     | NR                             | 550               | 589                                    | NR                             | 680               | 524                                    | NR                             | 810               | 12                                     | NR                             | 940               | 0                                      | NR                             |
| 425               | 34                                     | NR                             | 555               | 612                                    | NR                             | 685               | 470                                    | NR                             | 815               | 11                                     | NR                             | 945               | 0                                      | NR                             |
| 430               | 61                                     | NR                             | 560               | 634                                    | NR                             | 690               | 421                                    | NR                             | 820               | 9                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 113                                    | NR                             | 565               | 660                                    | NR                             | 695               | 371                                    | NR                             | 825               | 8                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 198                                    | NR                             | 570               | 688                                    | NR                             | 700               | 327                                    | NR                             | 830               | 7                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 288                                    | NR                             | 575               | 719                                    | NR                             | 705               | 288                                    | NR                             | 835               | 6                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 286                                    | NR                             | 580               | 754                                    | NR                             | 710               | 251                                    | NR                             | 840               | 5                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 228                                    | NR                             | 585               | 791                                    | NR                             | 715               | 220                                    | NR                             | 845               | 4                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 207                                    | NR                             | 590               | 831                                    | NR                             | 720               | 192                                    | NR                             | 850               | 4                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 186                                    | NR                             | 595               | 870                                    | NR                             | 725               | 166                                    | NR                             | 855               | 3                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 168                                    | NR                             | 600               | 907                                    | NR                             | 730               | 144                                    | NR                             | 860               | 3                                      | NR                             | 990               | 1                                      | NR                             |
| 475               | 177                                    | NR                             | 605               | 940                                    | NR                             | 735               | 124                                    | NR                             | 865               | 2                                      | NR                             | 995               | 1                                      | NR                             |
| 480               | 198                                    | NR                             | 610               | 967                                    | NR                             | 740               | 106                                    | NR                             | 870               | 2                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 223                                    | NR                             | 615               | 988                                    | NR                             | 745               | 91                                     | NR                             | 875               | 2                                      | NR                             |                   |                                        |                                |

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### Scotopic Flux vs. Wavelength



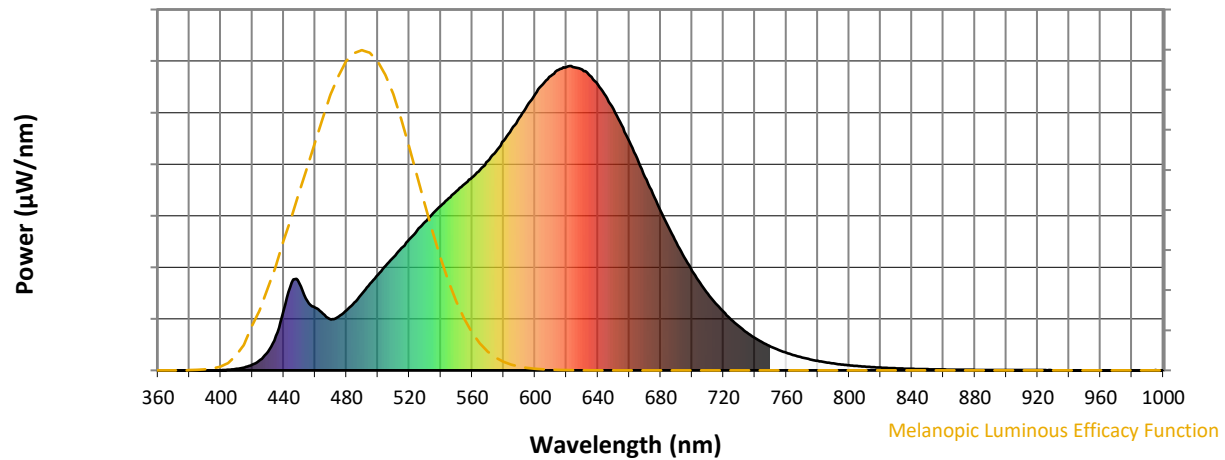
Scotopic Lumens: NR

S/P: 1.27

| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 253                      | NR            | 620    | 997                      | NR            | 750    | 78                       | NR            | 880    | 2                        | NR            |
| 365    | 0                        | NR            | 495    | 285                      | NR            | 625    | 996                      | NR            | 755    | 67                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 314                      | NR            | 630    | 989                      | NR            | 760    | 58                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 343                      | NR            | 635    | 969                      | NR            | 765    | 50                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 372                      | NR            | 640    | 939                      | NR            | 770    | 42                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 401                      | NR            | 645    | 901                      | NR            | 775    | 36                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 431                      | NR            | 650    | 858                      | NR            | 780    | 31                       | NR            | 910    | 1                        | NR            |
| 395    | 0                        | NR            | 525    | 459                      | NR            | 655    | 806                      | NR            | 785    | 26                       | NR            | 915    | 1                        | NR            |
| 400    | 0                        | NR            | 530    | 488                      | NR            | 660    | 752                      | NR            | 790    | 23                       | NR            | 920    | 1                        | NR            |
| 405    | 2                        | NR            | 535    | 516                      | NR            | 665    | 696                      | NR            | 795    | 19                       | NR            | 925    | 1                        | NR            |
| 410    | 5                        | NR            | 540    | 540                      | NR            | 670    | 636                      | NR            | 800    | 17                       | NR            | 930    | 0                        | NR            |
| 415    | 10                       | NR            | 545    | 566                      | NR            | 675    | 579                      | NR            | 805    | 14                       | NR            | 935    | 0                        | NR            |
| 420    | 19                       | NR            | 550    | 589                      | NR            | 680    | 524                      | NR            | 810    | 12                       | NR            | 940    | 0                        | NR            |
| 425    | 34                       | NR            | 555    | 612                      | NR            | 685    | 470                      | NR            | 815    | 11                       | NR            | 945    | 0                        | NR            |
| 430    | 61                       | NR            | 560    | 634                      | NR            | 690    | 421                      | NR            | 820    | 9                        | NR            | 950    | 0                        | NR            |
| 435    | 113                      | NR            | 565    | 660                      | NR            | 695    | 371                      | NR            | 825    | 8                        | NR            | 955    | 0                        | NR            |
| 440    | 198                      | NR            | 570    | 688                      | NR            | 700    | 327                      | NR            | 830    | 7                        | NR            | 960    | 0                        | NR            |
| 445    | 288                      | NR            | 575    | 719                      | NR            | 705    | 288                      | NR            | 835    | 6                        | NR            | 965    | 0                        | NR            |
| 450    | 286                      | NR            | 580    | 754                      | NR            | 710    | 251                      | NR            | 840    | 5                        | NR            | 970    | 0                        | NR            |
| 455    | 228                      | NR            | 585    | 791                      | NR            | 715    | 220                      | NR            | 845    | 4                        | NR            | 975    | 0                        | NR            |
| 460    | 207                      | NR            | 590    | 831                      | NR            | 720    | 192                      | NR            | 850    | 4                        | NR            | 980    | 0                        | NR            |
| 465    | 186                      | NR            | 595    | 870                      | NR            | 725    | 166                      | NR            | 855    | 3                        | NR            | 985    | 0                        | NR            |
| 470    | 168                      | NR            | 600    | 907                      | NR            | 730    | 144                      | NR            | 860    | 3                        | NR            | 990    | 1                        | NR            |
| 475    | 177                      | NR            | 605    | 940                      | NR            | 735    | 124                      | NR            | 865    | 2                        | NR            | 995    | 1                        | NR            |
| 480    | 198                      | NR            | 610    | 967                      | NR            | 740    | 106                      | NR            | 870    | 2                        | NR            | 1000   | 0                        | NR            |
| 485    | 223                      | NR            | 615    | 988                      | NR            | 745    | 91                       | NR            | 875    | 2                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.38

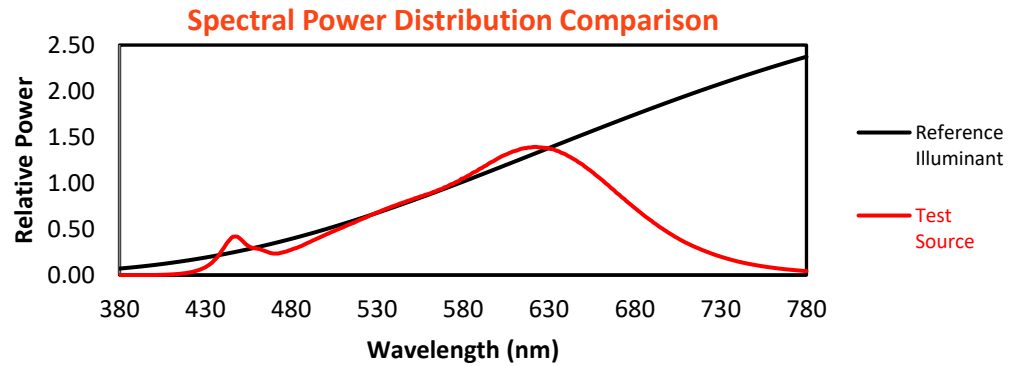
| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 253                         | NR               | 620       | 997                         | NR               | 750       | 78                          | NR               | 880       | 2                           | NR               |
| 365       | 0                           | NR               | 495       | 285                         | NR               | 625       | 996                         | NR               | 755       | 67                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 314                         | NR               | 630       | 989                         | NR               | 760       | 58                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 343                         | NR               | 635       | 969                         | NR               | 765       | 50                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 372                         | NR               | 640       | 939                         | NR               | 770       | 42                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 401                         | NR               | 645       | 901                         | NR               | 775       | 36                          | NR               | 905       | 1                           | NR               |
| 390       | 0                           | NR               | 520       | 431                         | NR               | 650       | 858                         | NR               | 780       | 31                          | NR               | 910       | 1                           | NR               |
| 395       | 0                           | NR               | 525       | 459                         | NR               | 655       | 806                         | NR               | 785       | 26                          | NR               | 915       | 1                           | NR               |
| 400       | 0                           | NR               | 530       | 488                         | NR               | 660       | 752                         | NR               | 790       | 23                          | NR               | 920       | 1                           | NR               |
| 405       | 2                           | NR               | 535       | 516                         | NR               | 665       | 696                         | NR               | 795       | 19                          | NR               | 925       | 1                           | NR               |
| 410       | 5                           | NR               | 540       | 540                         | NR               | 670       | 636                         | NR               | 800       | 17                          | NR               | 930       | 0                           | NR               |
| 415       | 10                          | NR               | 545       | 566                         | NR               | 675       | 579                         | NR               | 805       | 14                          | NR               | 935       | 0                           | NR               |
| 420       | 19                          | NR               | 550       | 589                         | NR               | 680       | 524                         | NR               | 810       | 12                          | NR               | 940       | 0                           | NR               |
| 425       | 34                          | NR               | 555       | 612                         | NR               | 685       | 470                         | NR               | 815       | 11                          | NR               | 945       | 0                           | NR               |
| 430       | 61                          | NR               | 560       | 634                         | NR               | 690       | 421                         | NR               | 820       | 9                           | NR               | 950       | 0                           | NR               |
| 435       | 113                         | NR               | 565       | 660                         | NR               | 695       | 371                         | NR               | 825       | 8                           | NR               | 955       | 0                           | NR               |
| 440       | 198                         | NR               | 570       | 688                         | NR               | 700       | 327                         | NR               | 830       | 7                           | NR               | 960       | 0                           | NR               |
| 445       | 288                         | NR               | 575       | 719                         | NR               | 705       | 288                         | NR               | 835       | 6                           | NR               | 965       | 0                           | NR               |
| 450       | 286                         | NR               | 580       | 754                         | NR               | 710       | 251                         | NR               | 840       | 5                           | NR               | 970       | 0                           | NR               |
| 455       | 228                         | NR               | 585       | 791                         | NR               | 715       | 220                         | NR               | 845       | 4                           | NR               | 975       | 0                           | NR               |
| 460       | 207                         | NR               | 590       | 831                         | NR               | 720       | 192                         | NR               | 850       | 4                           | NR               | 980       | 0                           | NR               |
| 465       | 186                         | NR               | 595       | 870                         | NR               | 725       | 166                         | NR               | 855       | 3                           | NR               | 985       | 0                           | NR               |
| 470       | 168                         | NR               | 600       | 907                         | NR               | 730       | 144                         | NR               | 860       | 3                           | NR               | 990       | 1                           | NR               |
| 475       | 177                         | NR               | 605       | 940                         | NR               | 735       | 124                         | NR               | 865       | 2                           | NR               | 995       | 1                           | NR               |
| 480       | 198                         | NR               | 610       | 967                         | NR               | 740       | 106                         | NR               | 870       | 2                           | NR               | 1000      | 0                           | NR               |
| 485       | 223                         | NR               | 615       | 988                         | NR               | 745       | 91                          | NR               | 875       | 2                           | NR               |           |                             |                  |

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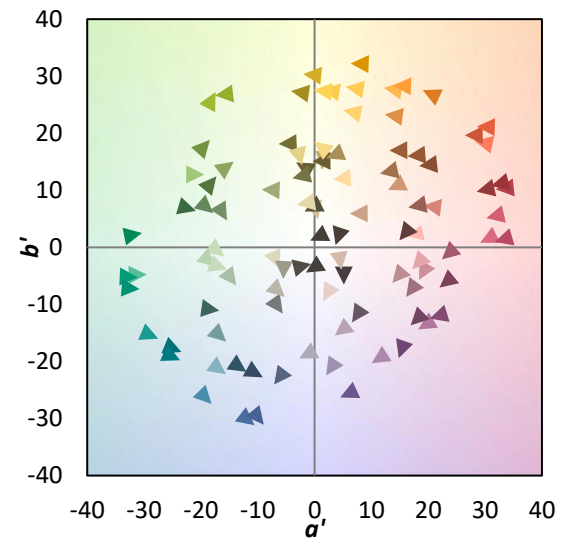
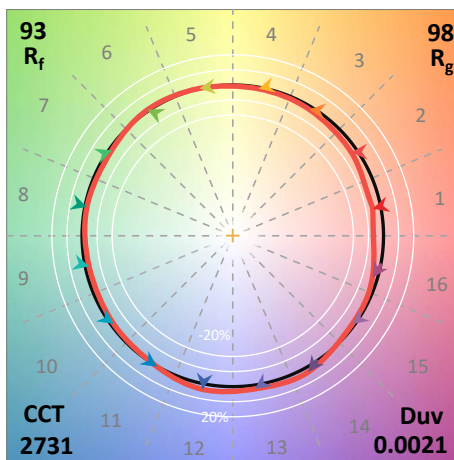
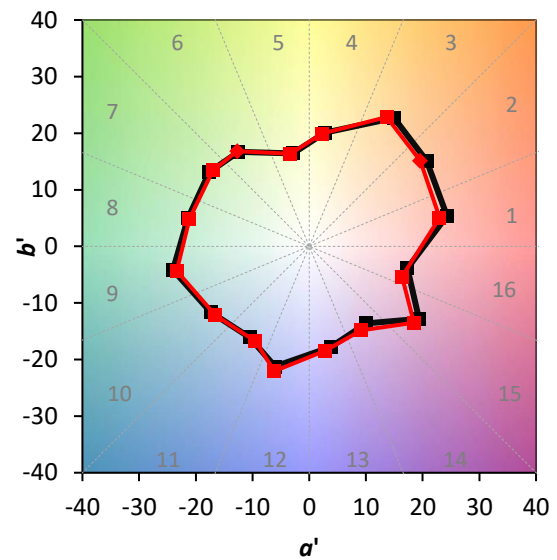
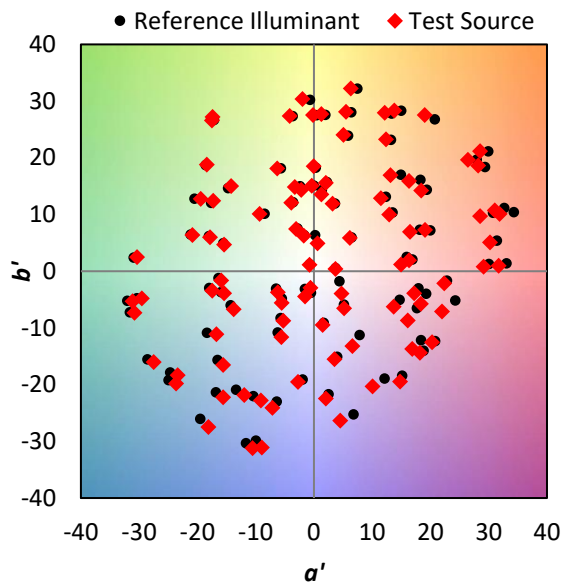
TM-30-18

### Summary

$R_f = 92.6$   
 $R_g = 98$   
 $CIE\ R_a = 91.8$   
 $R_9 = 54.7$



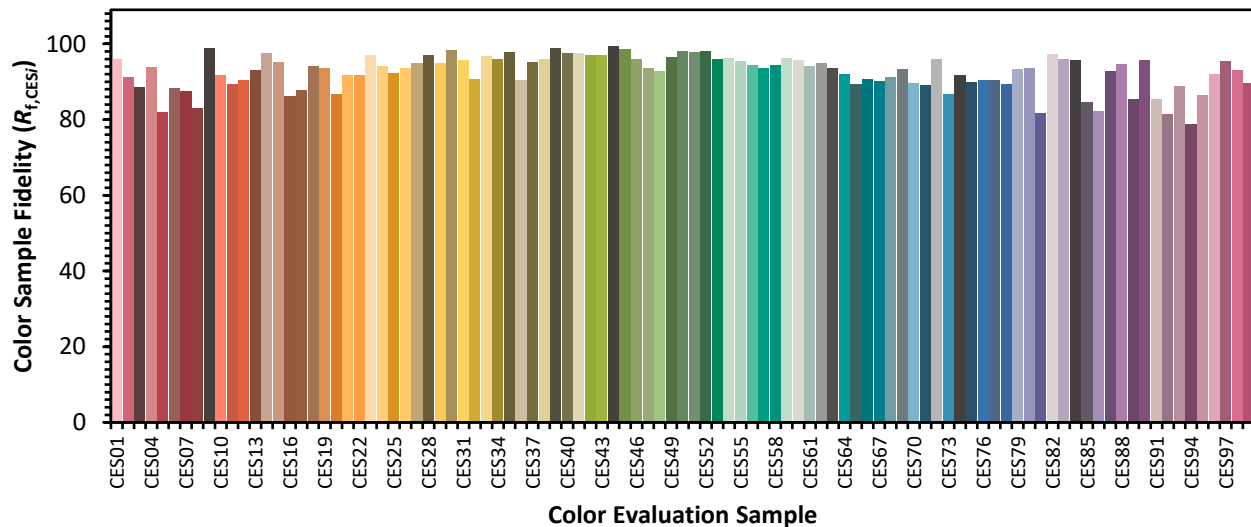
### Color Vector Graphics

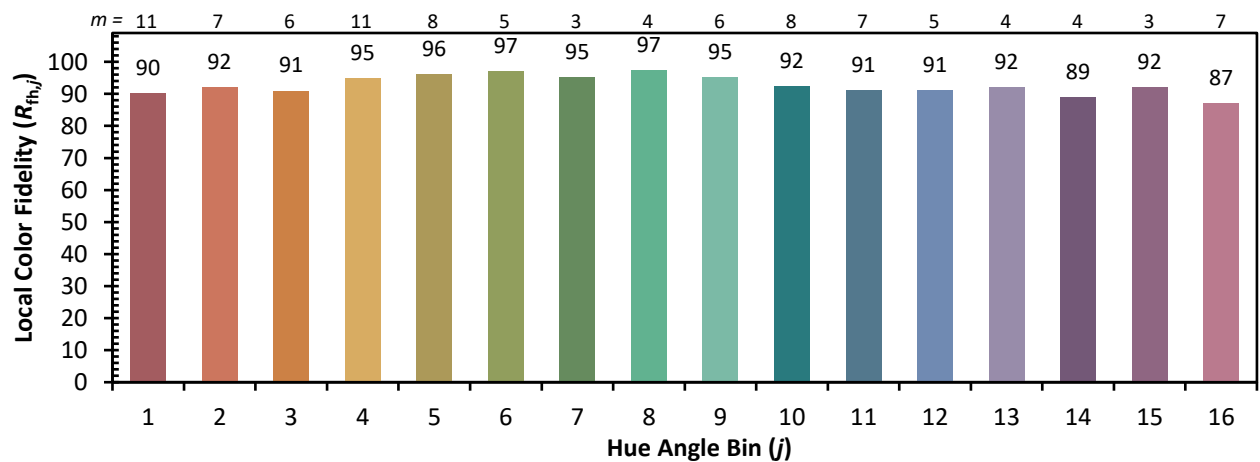
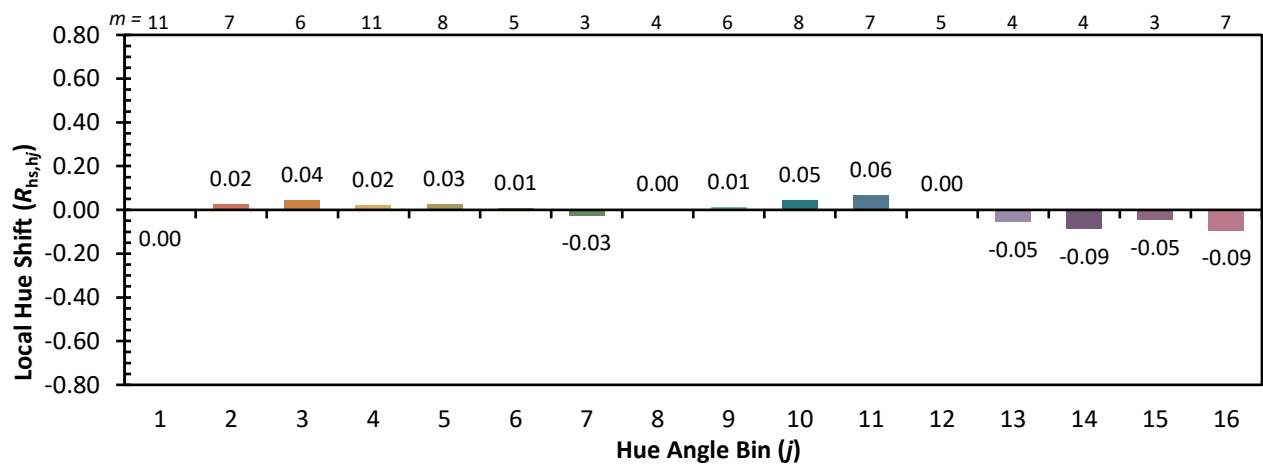
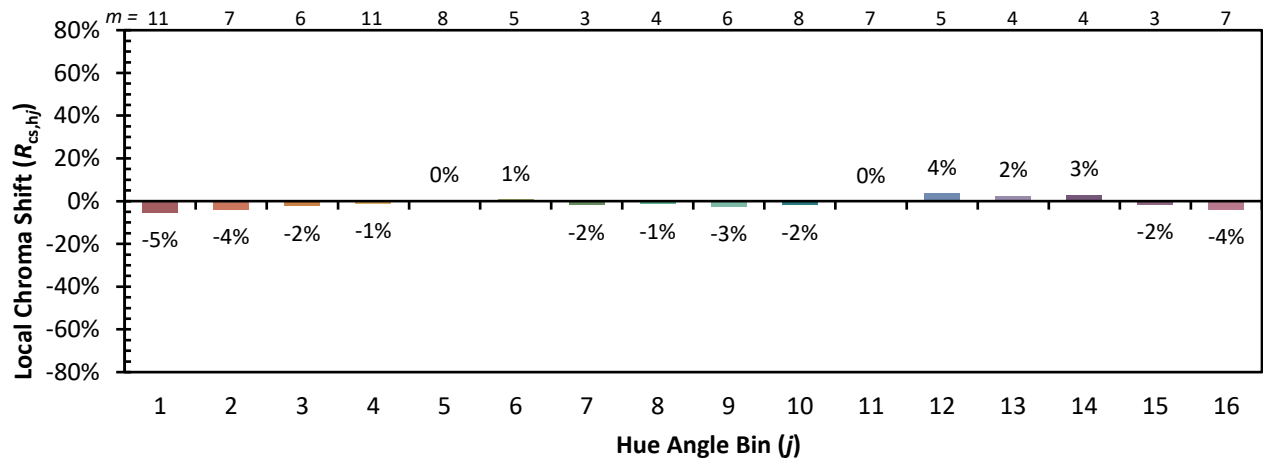




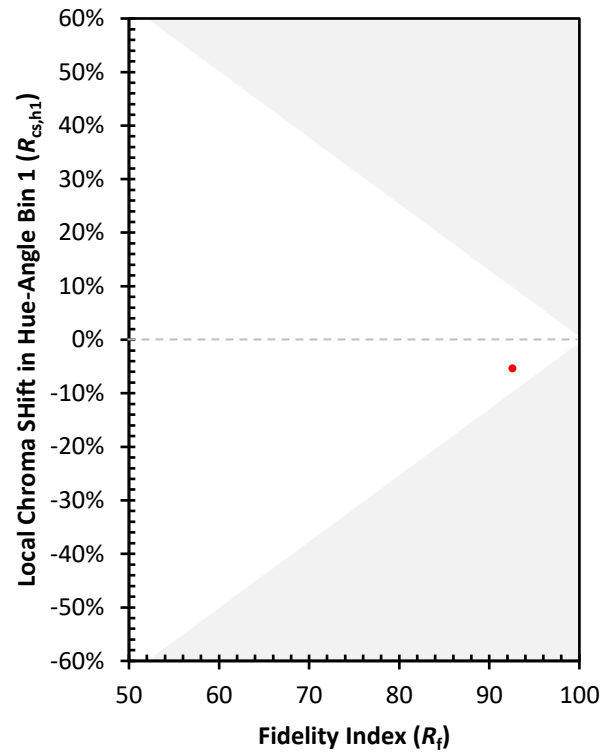
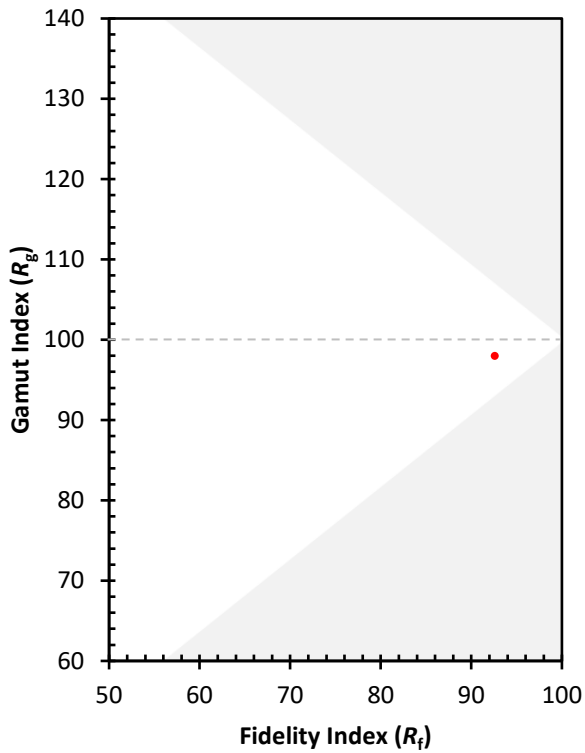
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 98 | CES76 = 90 |
| CES02 = 64 | CES27 = 95 | CES52 = 98 | CES77 = 90 |
| CES03 = 32 | CES28 = 97 | CES53 = 96 | CES78 = 89 |
| CES04 = 71 | CES29 = 95 | CES54 = 96 | CES79 = 93 |
| CES05 = 51 | CES30 = 98 | CES55 = 95 | CES80 = 94 |
| CES06 = 52 | CES31 = 96 | CES56 = 94 | CES81 = 82 |
| CES07 = 44 | CES32 = 91 | CES57 = 94 | CES82 = 97 |
| CES08 = 43 | CES33 = 97 | CES58 = 94 | CES83 = 96 |
| CES09 = 29 | CES34 = 96 | CES59 = 96 | CES84 = 96 |
| CES10 = 77 | CES35 = 98 | CES60 = 96 | CES85 = 85 |
| CES11 = 59 | CES36 = 90 | CES61 = 94 | CES86 = 82 |
| CES12 = 66 | CES37 = 95 | CES62 = 95 | CES87 = 93 |
| CES13 = 44 | CES38 = 96 | CES63 = 94 | CES88 = 95 |
| CES14 = 74 | CES39 = 99 | CES64 = 92 | CES89 = 85 |
| CES15 = 72 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 48 | CES41 = 98 | CES66 = 91 | CES91 = 85 |
| CES17 = 50 | CES42 = 97 | CES67 = 90 | CES92 = 82 |
| CES18 = 57 | CES43 = 97 | CES68 = 91 | CES93 = 89 |
| CES19 = 72 | CES44 = 99 | CES69 = 93 | CES94 = 79 |
| CES20 = 68 | CES45 = 99 | CES70 = 90 | CES95 = 87 |
| CES21 = 87 | CES46 = 96 | CES71 = 89 | CES96 = 92 |
| CES22 = 79 | CES47 = 94 | CES72 = 96 | CES97 = 96 |
| CES23 = 92 | CES48 = 93 | CES73 = 87 | CES98 = 93 |
| CES24 = 91 | CES49 = 96 | CES74 = 92 | CES99 = 90 |
| CES25 = 72 | CES50 = 98 | CES75 = 90 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**



(END OF REPORT)