

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: P1062667

Luminaire Tested: **GLAN-SA5C-740-U-T3BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1062667  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA5C-740-U-T3BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 5xLight Square PACKAGE  
70CRI 4000K FIXTURE w/ TYPE III ANGLED BACKLIGHT CONTROL  
Light Source: (70) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 29019.9 lumens  
Efficiency: N/A  
Efficacy: 123.0 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B0 - U0 - G5

Input Watts (W): 236  
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

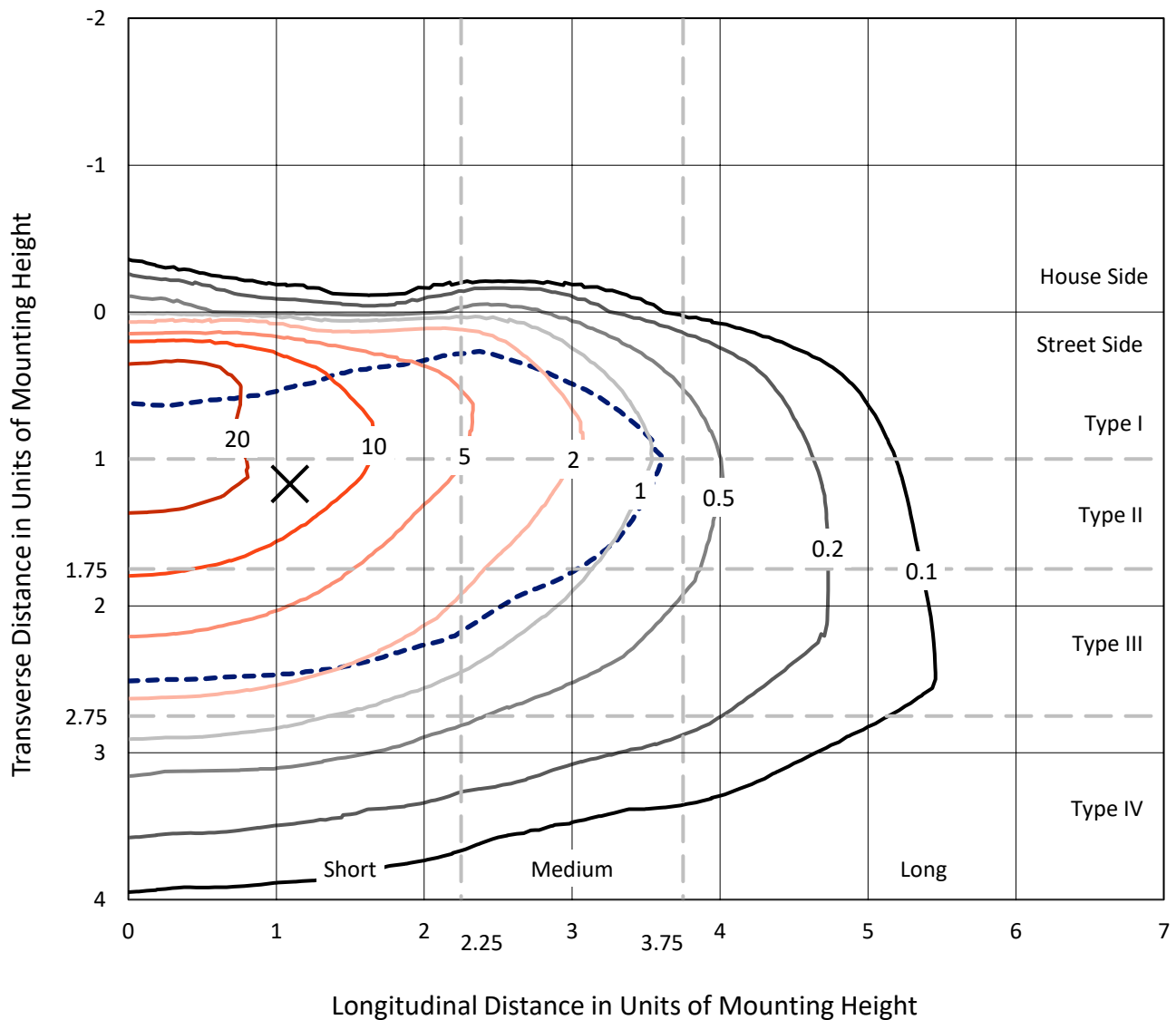


REPORT NUMBER: P1062667

CATALOG NUMBER: GLAN-SA5C-740-U-T3BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

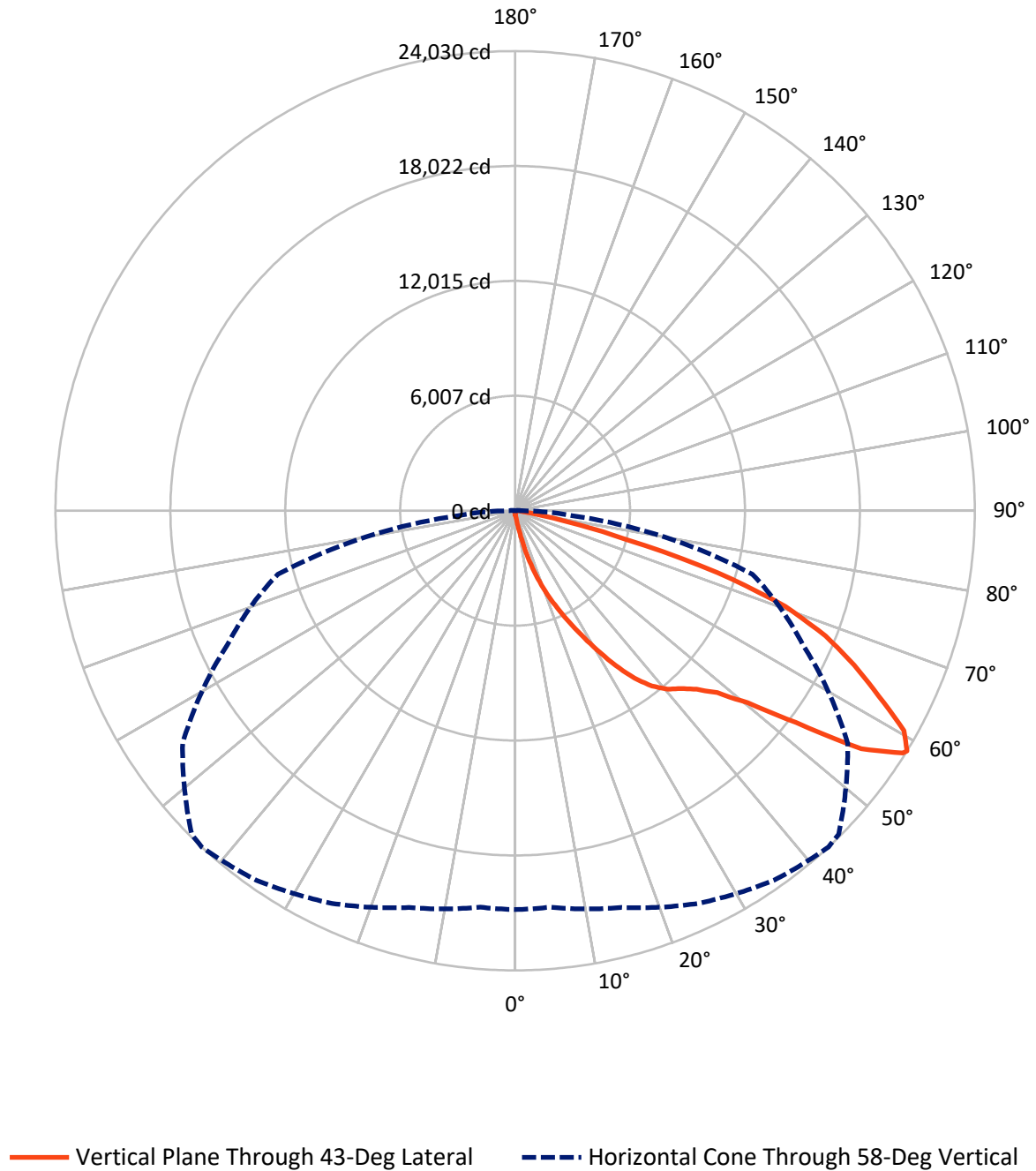


Based on 15 foot mounting height. Maximum calculated value = 32.6 fc  
 Type III - Short - N/A

REPORT NUMBER: P1062667

CATALOG NUMBER: GLAN-SA5C-740-U-T3BC

## Luminous Intensity Polar Plot



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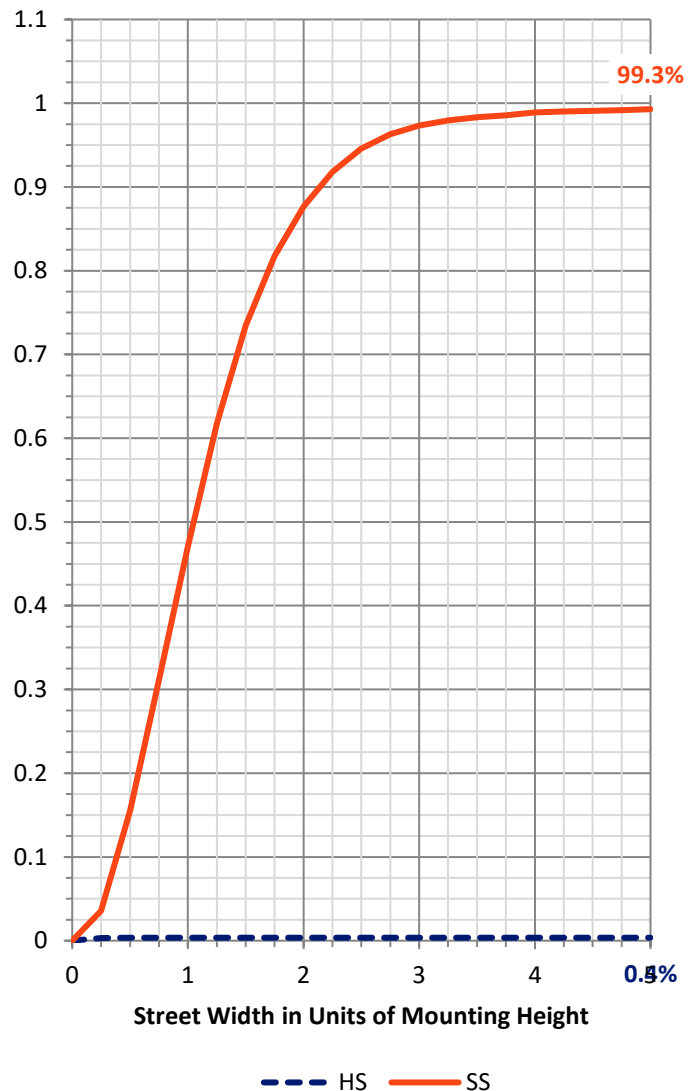
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 106.0    | 0.0    | 106.0   |
|                    | % Fixture | 0.4      | 0.0    | 0.4     |
| <b>Street Side</b> | Lumens    | 28914.0  | 0.0    | 28914.0 |
|                    | % Fixture | 99.6     | 0.0    | 99.6    |
| <b>Total</b>       | Lumens    | 29019.9  | 0.0    | 29019.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 27.8    | 0.1       |
| 10°-20°   | 333.6   | 1.1       |
| 20°-30°   | 1202.3  | 4.1       |
| 30°-40°   | 2750.9  | 9.5       |
| 40°-50°   | 4639.7  | 16.0      |
| 50°-60°   | 7656.6  | 26.4      |
| 60°-70°   | 8557.3  | 29.5      |
| 70°-80°   | 3533.2  | 12.2      |
| 80°-90°   | 318.5   | 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°    | 29019.9 | 100.0     |
| 0°-180°   | 29019.9 | 100.0     |



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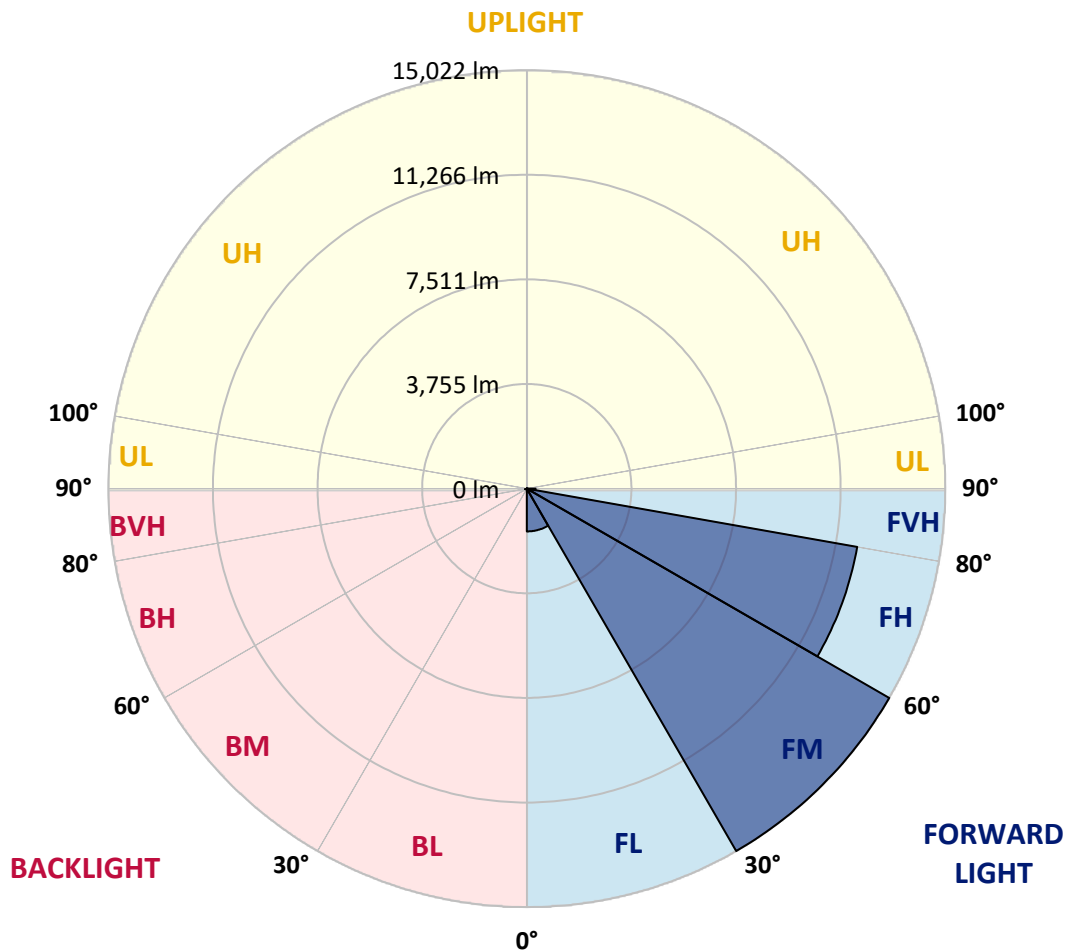
CATALOG NUMBER: GLAN-SA5C-740-U-T3BC

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|---------|-----------|-------------------------|------|--------|
|      |             |         |           | B                       | U    | G      |
| FL   | (0°-30°)    | 1536.1  | 5.3       |                         |      |        |
| FM   | (30°-60°)   | 15021.8 | 51.8      |                         |      |        |
| FH   | (60°-80°)   | 12041.9 | 41.5      |                         |      | G5     |
| FVH  | (80°-90°)   | 314.1   | 1.1       |                         |      | G3/500 |
| BL   | (0°-30°)    | 27.6    | 0.1       | B0/110                  |      |        |
| BM   | (30°-60°)   | 25.4    | 0.1       | B0/220                  |      |        |
| BH   | (60°-80°)   | 48.6    | 0.2       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 4.4     | 0.0       |                         |      | G0/10  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |        |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |        |

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

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 43°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 189.7   | 189.7   | 189.7   | 189.7   | 189.7   | 189.7   | 189.7   | 189.7   | 189.7   | 189.7   | 189.7   |
| 2.5°  | 227.7   | 235.3   | 227.7   | 227.7   | 227.7   | 220.1   | 220.1   | 212.5   | 212.5   | 204.9   | 197.3   |
| 5°    | 334.0   | 334.0   | 311.2   | 296.0   | 280.8   | 273.2   | 265.6   | 250.5   | 235.3   | 220.1   | 204.9   |
| 7.5°  | 743.8   | 743.8   | 675.5   | 584.4   | 463.0   | 394.7   | 379.5   | 311.2   | 265.6   | 235.3   | 204.9   |
| 10°   | 1776.0  | 1776.0  | 1624.2  | 1373.8  | 1062.6  | 789.4   | 705.9   | 447.8   | 318.8   | 250.5   | 212.5   |
| 12.5° | 2952.5  | 2990.4  | 2800.7  | 2481.9  | 2018.9  | 1540.8  | 1373.8  | 819.7   | 425.0   | 273.2   | 212.5   |
| 15°   | 4007.5  | 3916.4  | 3863.3  | 3559.7  | 3119.5  | 2550.2  | 2337.7  | 1381.4  | 614.8   | 311.2   | 212.5   |
| 17.5° | 4720.9  | 4720.9  | 4645.0  | 4440.1  | 4037.8  | 3536.9  | 3362.3  | 2231.4  | 994.3   | 356.7   | 220.1   |
| 20°   | 5555.8  | 5555.8  | 5419.2  | 5275.0  | 4918.3  | 4493.2  | 4326.2  | 3172.6  | 1540.8  | 455.4   | 220.1   |
| 22.5° | 6565.3  | 6580.4  | 6428.6  | 6170.6  | 5829.0  | 5358.5  | 5214.3  | 4045.4  | 2231.4  | 607.2   | 227.7   |
| 25°   | 7794.8  | 7810.0  | 7589.9  | 7347.0  | 6823.3  | 6314.8  | 6094.7  | 5047.3  | 3073.9  | 850.1   | 227.7   |
| 27.5° | 9153.4  | 9259.7  | 8933.3  | 8515.9  | 7961.8  | 7324.3  | 7157.3  | 5950.5  | 3908.8  | 1199.2  | 242.9   |
| 30°   | 10846.0 | 10846.0 | 10413.3 | 9828.9  | 9229.3  | 8440.0  | 8227.5  | 6899.2  | 4796.8  | 1662.2  | 258.1   |
| 32.5° | 12303.2 | 12189.4 | 11635.3 | 11020.5 | 10383.0 | 9646.8  | 9419.1  | 7893.5  | 5707.6  | 2239.0  | 288.4   |
| 35°   | 13419.0 | 13320.3 | 12637.2 | 11976.9 | 11422.8 | 10747.3 | 10474.1 | 8971.3  | 6671.5  | 2891.8  | 334.0   |
| 37.5° | 14375.3 | 14337.3 | 13411.4 | 12584.1 | 12219.7 | 11627.7 | 11384.9 | 9988.3  | 7620.3  | 3597.6  | 387.1   |
| 40°   | 15422.7 | 15301.2 | 14314.6 | 13289.9 | 12743.4 | 12265.3 | 12045.2 | 10808.0 | 8531.1  | 4424.9  | 463.0   |
| 42.5° | 16318.3 | 16174.1 | 15286.1 | 14284.2 | 13350.6 | 12705.5 | 12493.0 | 11498.7 | 9419.1  | 5252.2  | 561.7   |
| 45°   | 17312.6 | 17236.7 | 16341.1 | 15582.1 | 14337.3 | 13305.1 | 13024.3 | 12052.8 | 10231.2 | 6238.9  | 690.7   |
| 47.5° | 18807.8 | 18671.2 | 17836.3 | 17213.9 | 15771.8 | 14215.9 | 13813.6 | 12622.0 | 11013.0 | 7210.4  | 888.0   |
| 50°   | 20545.9 | 20454.8 | 19961.4 | 19468.1 | 18033.6 | 15771.8 | 15293.7 | 13441.7 | 11885.8 | 8364.1  | 1146.1  |
| 52.5° | 21965.2 | 21950.0 | 22010.7 | 22018.3 | 20933.0 | 18390.3 | 17676.9 | 14762.4 | 12887.7 | 9502.6  | 1510.4  |
| 55°   | 21934.8 | 22003.1 | 22671.0 | 23437.6 | 23521.1 | 21965.2 | 21274.5 | 16986.2 | 14193.1 | 10906.7 | 2018.9  |
| 57.5° | 21115.1 | 21062.0 | 21767.8 | 22921.5 | 23733.6 | 23900.6 | 23786.8 | 20439.6 | 16158.9 | 12599.2 | 2800.7  |
| 58°   | 20849.5 | 20803.9 | 21471.8 | 22648.3 | 23581.8 | 24029.6 | 23915.8 | 21221.4 | 16599.1 | 12842.1 | 3013.2  |
| 60°   | 19885.5 | 19893.1 | 20287.8 | 21358.0 | 22291.5 | 23354.1 | 23460.4 | 23452.8 | 18792.6 | 14466.4 | 4083.4  |
| 62.5° | 18610.4 | 18549.7 | 18914.0 | 19786.9 | 20606.6 | 21320.0 | 21502.2 | 23604.6 | 22003.1 | 16530.8 | 6125.1  |
| 65°   | 16849.6 | 16758.5 | 17145.6 | 18132.3 | 19012.7 | 19475.7 | 19483.3 | 21570.5 | 23513.5 | 18747.1 | 9039.6  |
| 67.5° | 13578.3 | 13502.4 | 14276.6 | 15544.1 | 16902.7 | 17509.9 | 17783.1 | 18716.7 | 22238.4 | 20249.9 | 10709.4 |
| 70°   | 8318.5  | 8477.9  | 9555.7  | 11544.2 | 13866.8 | 14982.5 | 15392.3 | 15680.7 | 18936.8 | 20022.2 | 8956.1  |
| 72.5° | 3840.5  | 3650.7  | 4569.1  | 5958.1  | 8607.0  | 11088.9 | 11513.9 | 12644.8 | 15012.8 | 17380.9 | 6679.1  |
| 75°   | 1791.2  | 1722.9  | 1935.4  | 2603.3  | 3901.2  | 5988.4  | 6762.6  | 10094.6 | 11513.9 | 12090.7 | 4819.6  |
| 77.5° | 918.4   | 926.0   | 1100.5  | 1184.0  | 1609.1  | 2770.3  | 3180.2  | 6641.2  | 8440.0  | 6747.4  | 3233.3  |
| 80°   | 402.3   | 417.4   | 425.0   | 463.0   | 652.7   | 1070.2  | 1206.8  | 3081.5  | 5768.3  | 3438.2  | 1768.4  |
| 82.5° | 258.1   | 265.6   | 265.6   | 265.6   | 311.2   | 425.0   | 485.8   | 1237.2  | 2876.6  | 1707.7  | 546.5   |
| 85°   | 136.6   | 136.6   | 151.8   | 189.7   | 220.1   | 258.1   | 273.2   | 394.7   | 948.7   | 508.5   | 129.0   |
| 87.5° | 75.9    | 83.5    | 91.1    | 113.8   | 144.2   | 174.6   | 189.7   | 273.2   | 364.3   | 349.1   | 30.4    |
| 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: P1062667

CATALOG NUMBER: GLAN-SA5C-740-U-T3BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 189.7  | 189.7 | 189.7 | 189.7 | 189.7 | 189.7 | 189.7 | 189.7 | 189.7 | 189.7 | 189.7 |
| 2.5°  | 197.3  | 189.7 | 182.2 | 174.6 | 167.0 | 159.4 | 159.4 | 159.4 | 159.4 | 159.4 | 159.4 |
| 5°    | 189.7  | 182.2 | 174.6 | 159.4 | 144.2 | 136.6 | 129.0 | 121.4 | 121.4 | 121.4 | 121.4 |
| 7.5°  | 189.7  | 182.2 | 159.4 | 144.2 | 129.0 | 113.8 | 98.7  | 98.7  | 98.7  | 98.7  | 98.7  |
| 10°   | 189.7  | 174.6 | 151.8 | 129.0 | 106.3 | 91.1  | 83.5  | 75.9  | 75.9  | 75.9  | 75.9  |
| 12.5° | 189.7  | 167.0 | 144.2 | 113.8 | 91.1  | 75.9  | 68.3  | 60.7  | 60.7  | 60.7  | 60.7  |
| 15°   | 189.7  | 167.0 | 136.6 | 106.3 | 83.5  | 60.7  | 53.1  | 45.5  | 45.5  | 45.5  | 45.5  |
| 17.5° | 182.2  | 159.4 | 129.0 | 91.1  | 68.3  | 45.5  | 37.9  | 30.4  | 30.4  | 37.9  | 37.9  |
| 20°   | 174.6  | 151.8 | 113.8 | 75.9  | 53.1  | 37.9  | 22.8  | 22.8  | 22.8  | 22.8  | 22.8  |
| 22.5° | 174.6  | 151.8 | 106.3 | 68.3  | 45.5  | 22.8  | 15.2  | 15.2  | 15.2  | 15.2  | 22.8  |
| 25°   | 174.6  | 144.2 | 91.1  | 53.1  | 30.4  | 15.2  | 7.6   | 7.6   | 7.6   | 7.6   | 7.6   |
| 27.5° | 174.6  | 144.2 | 83.5  | 45.5  | 22.8  | 15.2  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   |
| 30°   | 167.0  | 136.6 | 75.9  | 37.9  | 15.2  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 32.5° | 167.0  | 129.0 | 60.7  | 30.4  | 15.2  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 35°   | 174.6  | 121.4 | 53.1  | 22.8  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 7.6   |
| 37.5° | 182.2  | 113.8 | 45.5  | 15.2  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 40°   | 189.7  | 106.3 | 45.5  | 15.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 42.5° | 204.9  | 106.3 | 37.9  | 15.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 45°   | 220.1  | 106.3 | 30.4  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 47.5° | 250.5  | 113.8 | 30.4  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 50°   | 273.2  | 121.4 | 22.8  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 52.5° | 303.6  | 113.8 | 22.8  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 55°   | 341.5  | 113.8 | 22.8  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 57.5° | 371.9  | 106.3 | 22.8  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 58°   | 387.1  | 98.7  | 15.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 60°   | 463.0  | 91.1  | 15.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 62.5° | 721.0  | 75.9  | 15.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 65°   | 1464.9 | 68.3  | 15.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 67.5° | 2732.4 | 60.7  | 15.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 70°   | 3058.7 | 68.3  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 72.5° | 1927.8 | 53.1  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 75°   | 1017.0 | 53.1  | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 77.5° | 508.5  | 53.1  | 7.6   | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 235.3  | 37.9  | 7.6   | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 98.7   | 22.8  | 15.2  | 7.6   | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 45.5   | 22.8  | 15.2  | 15.2  | 7.6   | 7.6   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 22.8   | 22.8  | 22.8  | 15.2  | 15.2  | 7.6   | 7.6   | 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: SP1-2407-184-1

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-740-U-5WQ

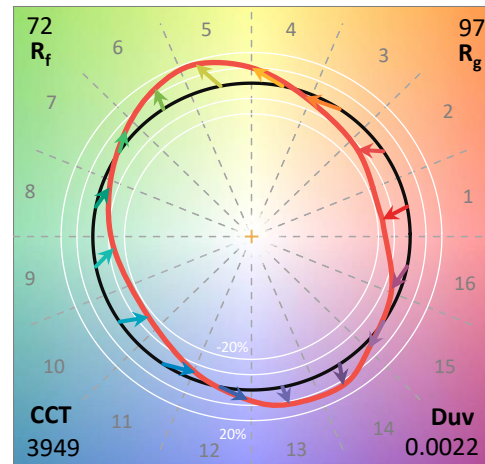
Data in this report applies to families of products including GSS-SB1A-740-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-1  
 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-740-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 4000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 3949     | CRI (Ra): | 70.7 |      |       |
| CIE u':                   | 0.2248   | R1:       | 68.0 | R9:  | -36.7 |
| CIE v':                   | 0.5053   | R2:       | 76.0 | R10: | 45.1  |
| Duv:                      | 0.0022   | R3:       | 84.3 | R11: | 70.7  |
| CIE x:                    | 0.3844   | R4:       | 72.0 | R12: | 47.1  |
| CIE y:                    | 0.3840   | R5:       | 68.6 | R13: | 68.5  |
| CIE z:                    | 0.2316   | R6:       | 68.3 | R14: | 91.1  |
| Peak Wavelength (nm):     | 440      | R7:       | 77.9 | R15: | 58.7  |
| Dominant Wavelength (nm): | 578      | R8:       | 50.3 |      |       |
| Purity:                   | 30.60026 |           |      |      |       |
| Rf:                       | 71.8     |           |      |      |       |
| Rg:                       | 96.5     |           |      |      |       |



### Test Conditions

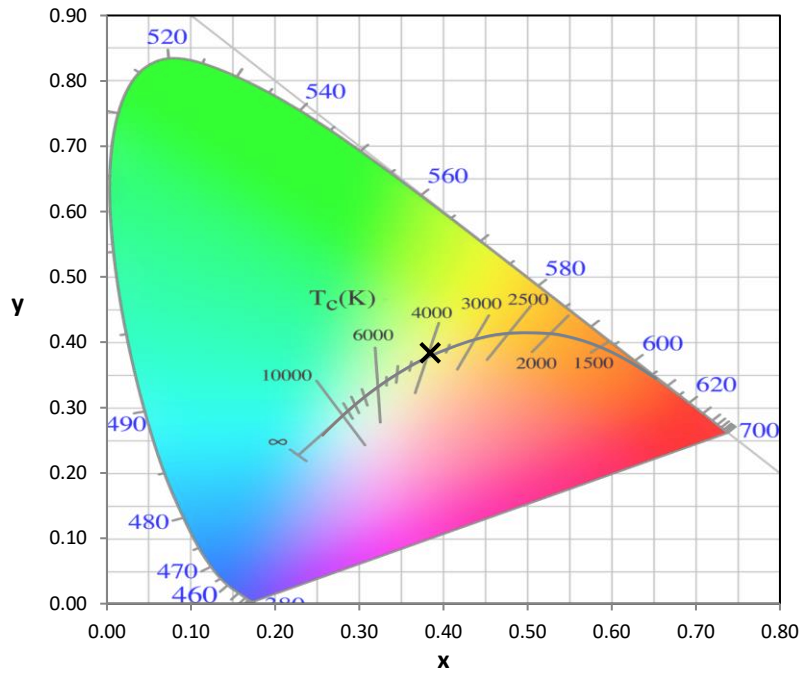
Stabilization Time: 34M  
 Operation Time: 1H 34M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-1

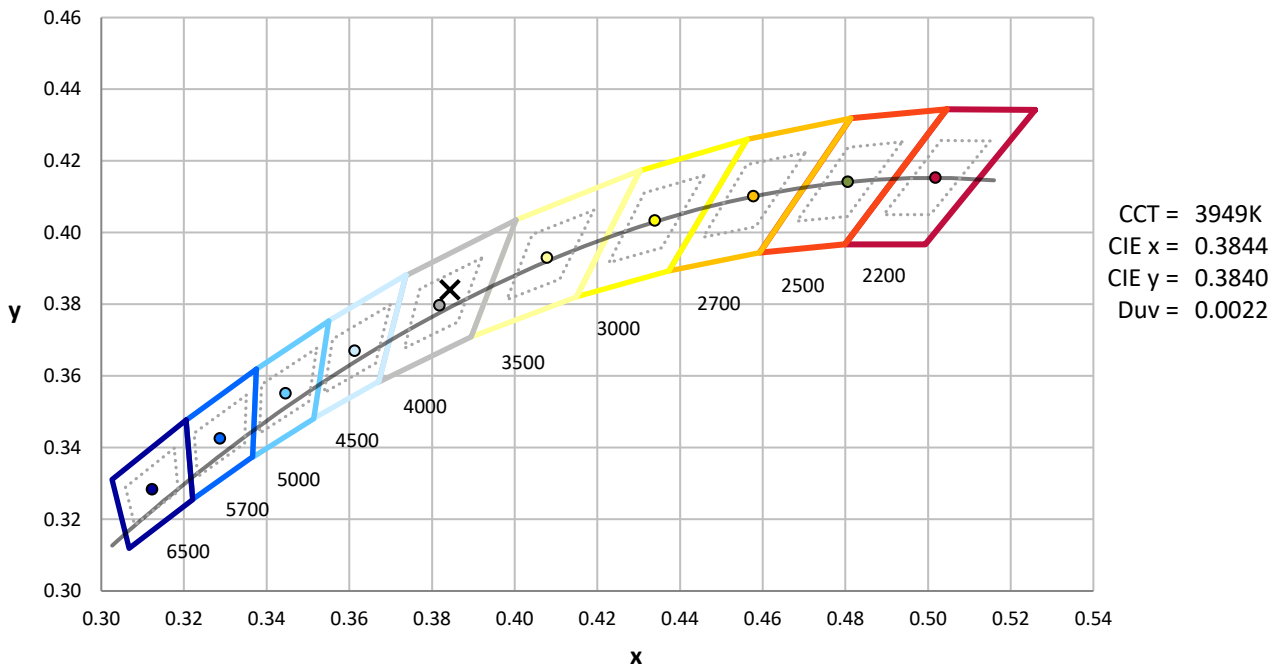
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

REPORT NUMBER: SP1-2407-184-1

**CIE 1931 Chromaticity Diagram**



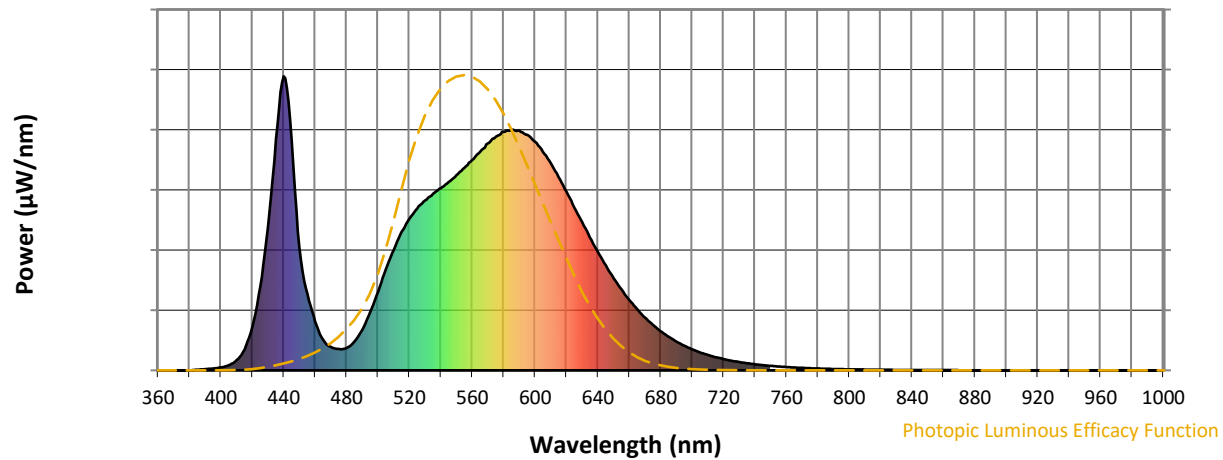
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-1

### Photopic Flux vs. Wavelength

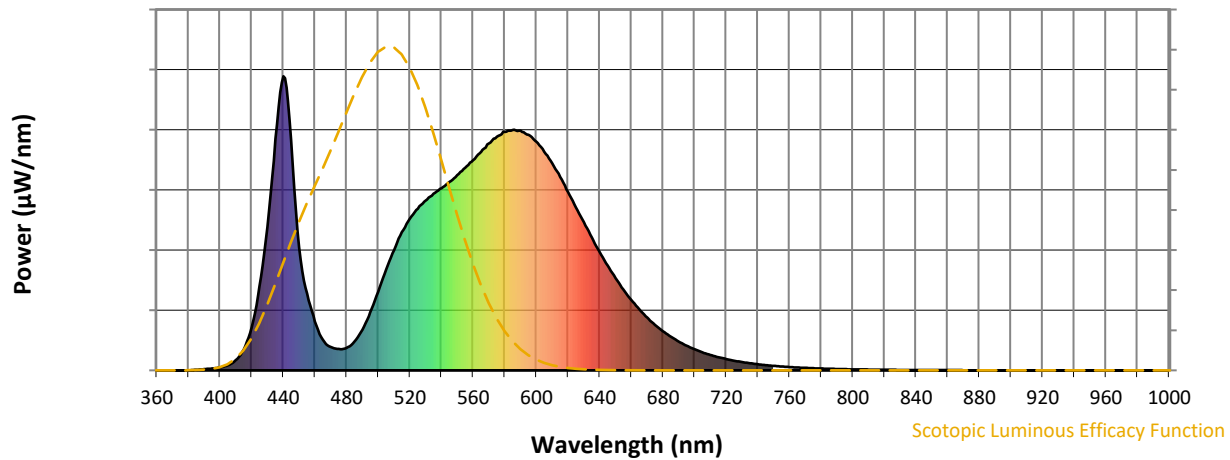


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 139                           | NR                             | 620               | 607                           | NR                             | 750               | 15                            | NR                             | 880               | 0                             | NR                             |
| 365               | 0                             | NR                             | 495               | 198                           | NR                             | 625               | 554                           | NR                             | 755               | 13                            | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 267                           | NR                             | 630               | 504                           | NR                             | 760               | 11                            | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 343                           | NR                             | 635               | 452                           | NR                             | 765               | 10                            | NR                             | 895               | 0                             | NR                             |
| 380               | 0                             | NR                             | 510               | 410                           | NR                             | 640               | 403                           | NR                             | 770               | 8                             | NR                             | 900               | 0                             | NR                             |
| 385               | 2                             | NR                             | 515               | 470                           | NR                             | 645               | 357                           | NR                             | 775               | 7                             | NR                             | 905               | 0                             | NR                             |
| 390               | 4                             | NR                             | 520               | 516                           | NR                             | 650               | 314                           | NR                             | 780               | 6                             | NR                             | 910               | 0                             | NR                             |
| 395               | 7                             | NR                             | 525               | 550                           | NR                             | 655               | 275                           | NR                             | 785               | 5                             | NR                             | 915               | 0                             | NR                             |
| 400               | 10                            | NR                             | 530               | 578                           | NR                             | 660               | 240                           | NR                             | 790               | 5                             | NR                             | 920               | 0                             | NR                             |
| 405               | 17                            | NR                             | 535               | 601                           | NR                             | 665               | 208                           | NR                             | 795               | 4                             | NR                             | 925               | 0                             | NR                             |
| 410               | 35                            | NR                             | 540               | 620                           | NR                             | 670               | 179                           | NR                             | 800               | 4                             | NR                             | 930               | 0                             | NR                             |
| 415               | 70                            | NR                             | 545               | 641                           | NR                             | 675               | 155                           | NR                             | 805               | 3                             | NR                             | 935               | 0                             | NR                             |
| 420               | 147                           | NR                             | 550               | 664                           | NR                             | 680               | 133                           | NR                             | 810               | 3                             | NR                             | 940               | 0                             | NR                             |
| 425               | 285                           | NR                             | 555               | 689                           | NR                             | 685               | 114                           | NR                             | 815               | 2                             | NR                             | 945               | 0                             | NR                             |
| 430               | 487                           | NR                             | 560               | 715                           | NR                             | 690               | 98                            | NR                             | 820               | 2                             | NR                             | 950               | 0                             | NR                             |
| 435               | 787                           | NR                             | 565               | 743                           | NR                             | 695               | 84                            | NR                             | 825               | 2                             | NR                             | 955               | 0                             | NR                             |
| 440               | 1000                          | NR                             | 570               | 771                           | NR                             | 700               | 72                            | NR                             | 830               | 2                             | NR                             | 960               | 0                             | NR                             |
| 445               | 783                           | NR                             | 575               | 794                           | NR                             | 705               | 61                            | NR                             | 835               | 1                             | NR                             | 965               | 0                             | NR                             |
| 450               | 417                           | NR                             | 580               | 811                           | NR                             | 710               | 52                            | NR                             | 840               | 1                             | NR                             | 970               | 0                             | NR                             |
| 455               | 261                           | NR                             | 585               | 817                           | NR                             | 715               | 45                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 167                           | NR                             | 590               | 815                           | NR                             | 720               | 39                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 104                           | NR                             | 595               | 801                           | NR                             | 725               | 33                            | NR                             | 855               | 1                             | NR                             | 985               | 0                             | NR                             |
| 470               | 79                            | NR                             | 600               | 777                           | NR                             | 730               | 28                            | NR                             | 860               | 1                             | NR                             | 990               | 0                             | NR                             |
| 475               | 73                            | NR                             | 605               | 744                           | NR                             | 735               | 24                            | NR                             | 865               | 1                             | NR                             | 995               | 0                             | NR                             |
| 480               | 76                            | NR                             | 610               | 704                           | NR                             | 740               | 21                            | NR                             | 870               | 1                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 98                            | NR                             | 615               | 657                           | NR                             | 745               | 18                            | NR                             | 875               | 1                             | NR                             |                   |                               |                                |

REPORT NUMBER: SP1-2407-184-1

### Scotopic Flux vs. Wavelength



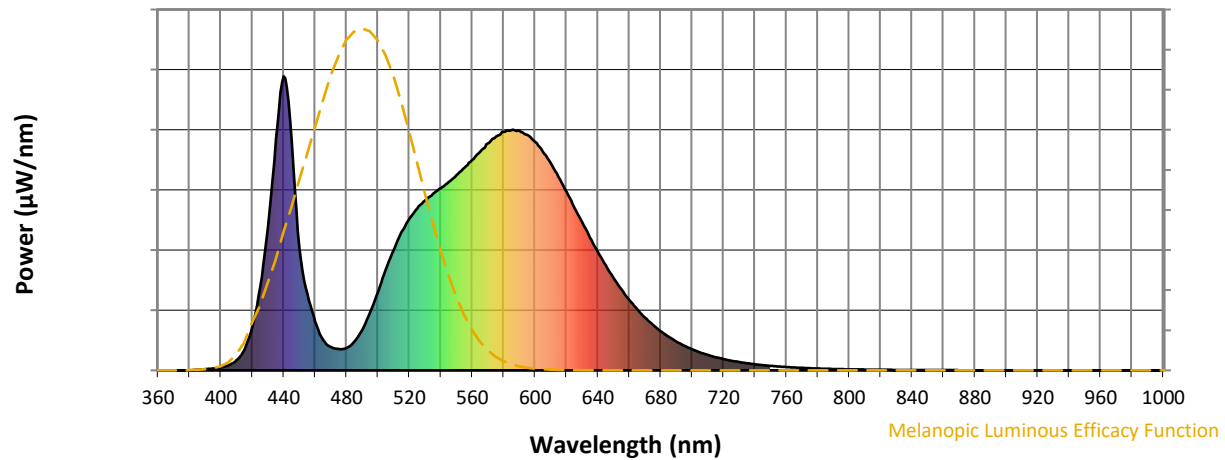
Scotopic Lumens: NR

S/P: 1.47

| 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       | 139                         | NR               | 620       | 607                         | NR               | 750       | 15                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 198                         | NR               | 625       | 554                         | NR               | 755       | 13                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 267                         | NR               | 630       | 504                         | NR               | 760       | 11                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 343                         | NR               | 635       | 452                         | NR               | 765       | 10                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 410                         | NR               | 640       | 403                         | NR               | 770       | 8                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 470                         | NR               | 645       | 357                         | NR               | 775       | 7                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 516                         | NR               | 650       | 314                         | NR               | 780       | 6                           | NR               | 910       | 0                           | NR               |
| 395       | 7                           | NR               | 525       | 550                         | NR               | 655       | 275                         | NR               | 785       | 5                           | NR               | 915       | 0                           | NR               |
| 400       | 10                          | NR               | 530       | 578                         | NR               | 660       | 240                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 17                          | NR               | 535       | 601                         | NR               | 665       | 208                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 35                          | NR               | 540       | 620                         | NR               | 670       | 179                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 70                          | NR               | 545       | 641                         | NR               | 675       | 155                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 147                         | NR               | 550       | 664                         | NR               | 680       | 133                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 285                         | NR               | 555       | 689                         | NR               | 685       | 114                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 487                         | NR               | 560       | 715                         | NR               | 690       | 98                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 787                         | NR               | 565       | 743                         | NR               | 695       | 84                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 1000                        | NR               | 570       | 771                         | NR               | 700       | 72                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 783                         | NR               | 575       | 794                         | NR               | 705       | 61                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 417                         | NR               | 580       | 811                         | NR               | 710       | 52                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 261                         | NR               | 585       | 817                         | NR               | 715       | 45                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 167                         | NR               | 590       | 815                         | NR               | 720       | 39                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 104                         | NR               | 595       | 801                         | NR               | 725       | 33                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 79                          | NR               | 600       | 777                         | NR               | 730       | 28                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 73                          | NR               | 605       | 744                         | NR               | 735       | 24                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 704                         | NR               | 740       | 21                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 98                          | NR               | 615       | 657                         | NR               | 745       | 18                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-1

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.78

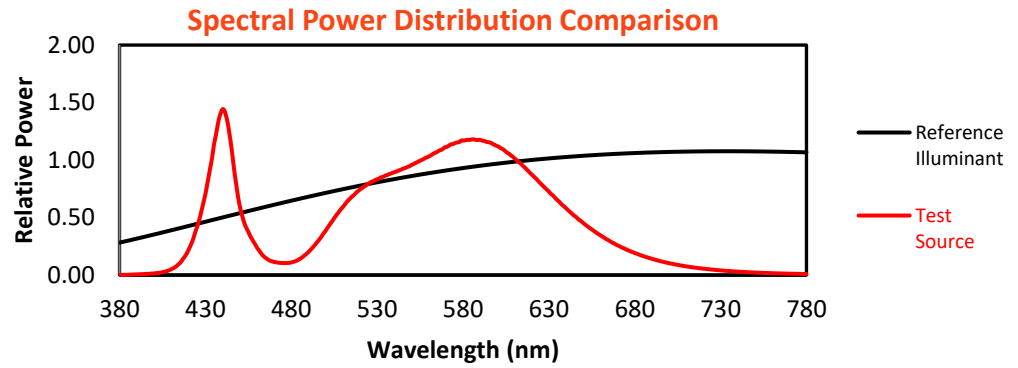
| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 139                         | NR               | 620       | 607                         | NR               | 750       | 15                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 198                         | NR               | 625       | 554                         | NR               | 755       | 13                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 267                         | NR               | 630       | 504                         | NR               | 760       | 11                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 343                         | NR               | 635       | 452                         | NR               | 765       | 10                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 410                         | NR               | 640       | 403                         | NR               | 770       | 8                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 470                         | NR               | 645       | 357                         | NR               | 775       | 7                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 516                         | NR               | 650       | 314                         | NR               | 780       | 6                           | NR               | 910       | 0                           | NR               |
| 395       | 7                           | NR               | 525       | 550                         | NR               | 655       | 275                         | NR               | 785       | 5                           | NR               | 915       | 0                           | NR               |
| 400       | 10                          | NR               | 530       | 578                         | NR               | 660       | 240                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 17                          | NR               | 535       | 601                         | NR               | 665       | 208                         | NR               | 795       | 4                           | NR               | 925       | 0                           | NR               |
| 410       | 35                          | NR               | 540       | 620                         | NR               | 670       | 179                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 70                          | NR               | 545       | 641                         | NR               | 675       | 155                         | NR               | 805       | 3                           | NR               | 935       | 0                           | NR               |
| 420       | 147                         | NR               | 550       | 664                         | NR               | 680       | 133                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 285                         | NR               | 555       | 689                         | NR               | 685       | 114                         | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 487                         | NR               | 560       | 715                         | NR               | 690       | 98                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 787                         | NR               | 565       | 743                         | NR               | 695       | 84                          | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 1000                        | NR               | 570       | 771                         | NR               | 700       | 72                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 783                         | NR               | 575       | 794                         | NR               | 705       | 61                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 417                         | NR               | 580       | 811                         | NR               | 710       | 52                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 261                         | NR               | 585       | 817                         | NR               | 715       | 45                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 167                         | NR               | 590       | 815                         | NR               | 720       | 39                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 104                         | NR               | 595       | 801                         | NR               | 725       | 33                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 79                          | NR               | 600       | 777                         | NR               | 730       | 28                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 73                          | NR               | 605       | 744                         | NR               | 735       | 24                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 704                         | NR               | 740       | 21                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 98                          | NR               | 615       | 657                         | NR               | 745       | 18                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2407-184-1

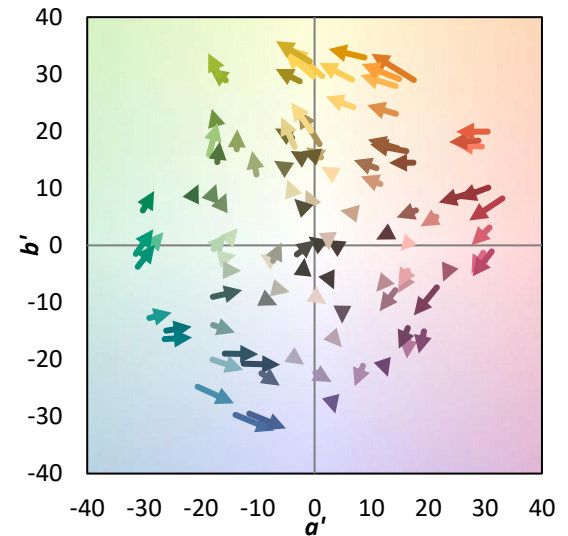
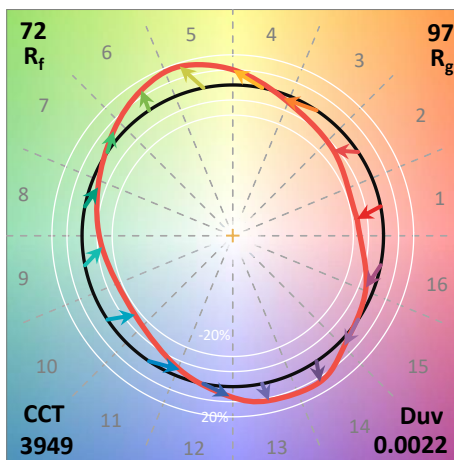
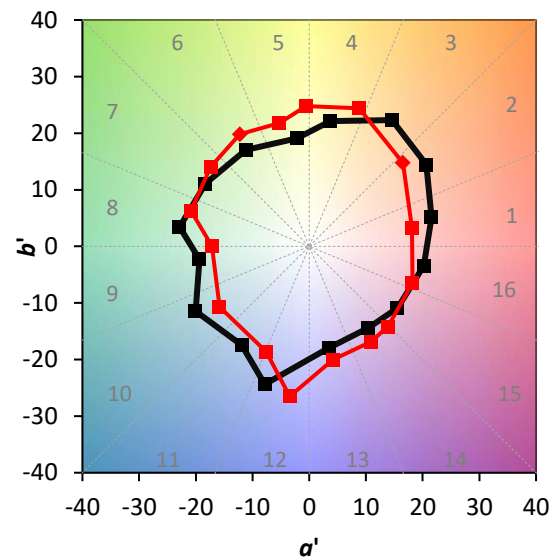
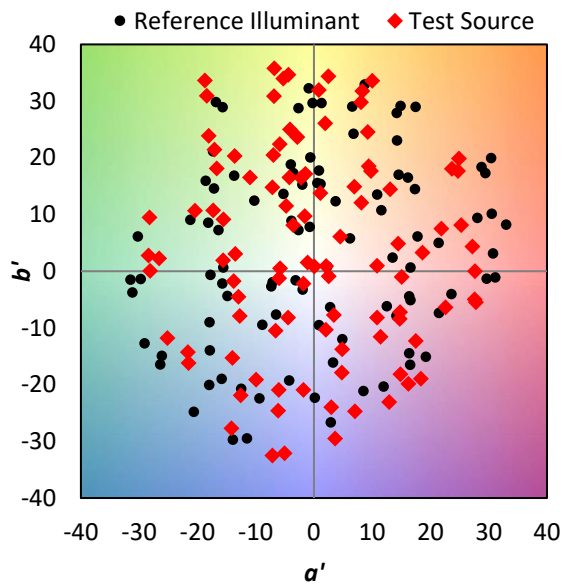
TM-30-18

### Summary

$R_f = 71.8$   
 $R_g = 96.5$   
 CIE  $R_a = 70.7$   
 $R_g = -36.7$



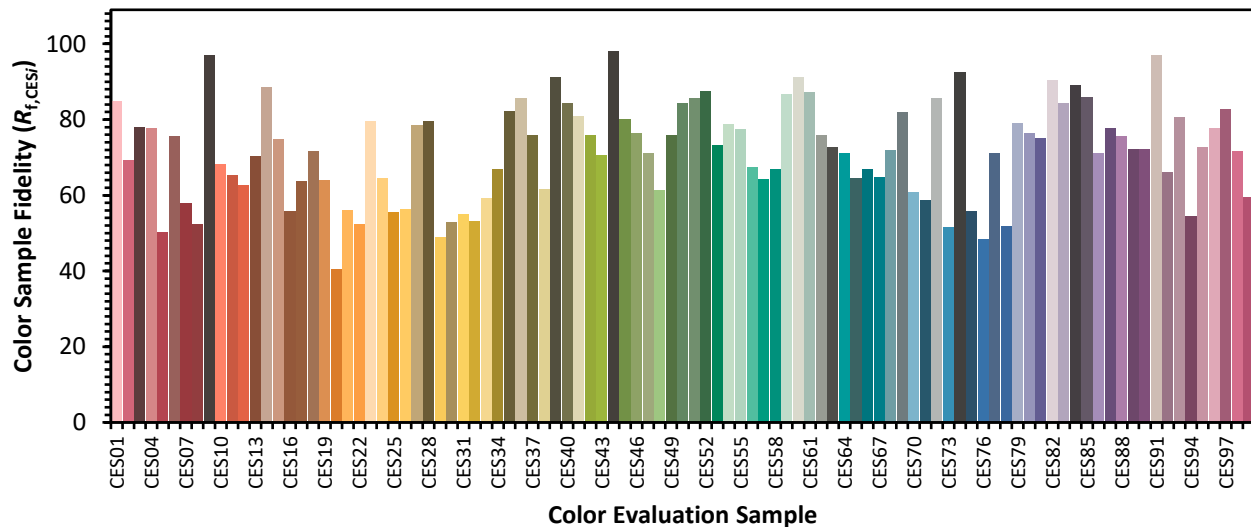
### Color Vector Graphics



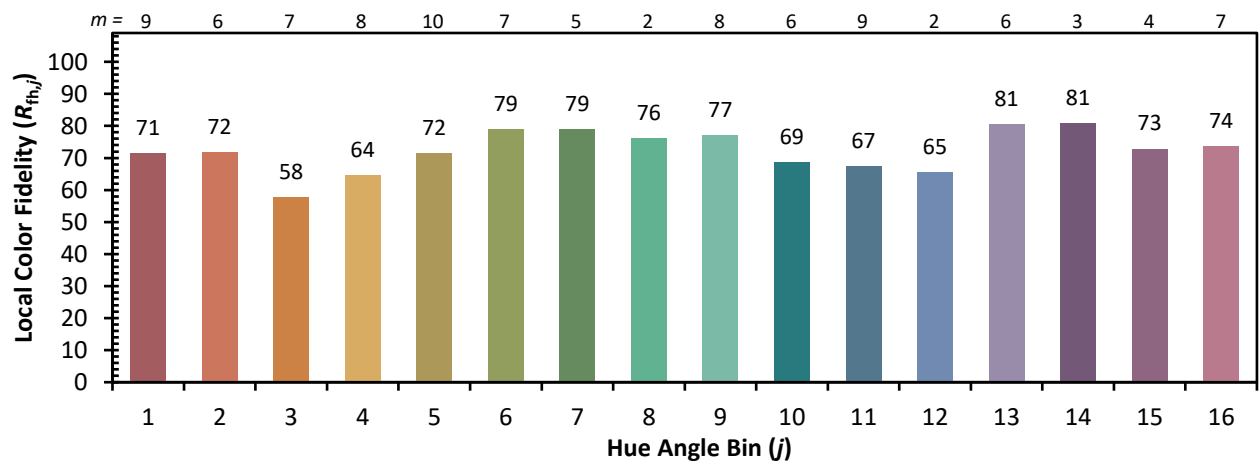
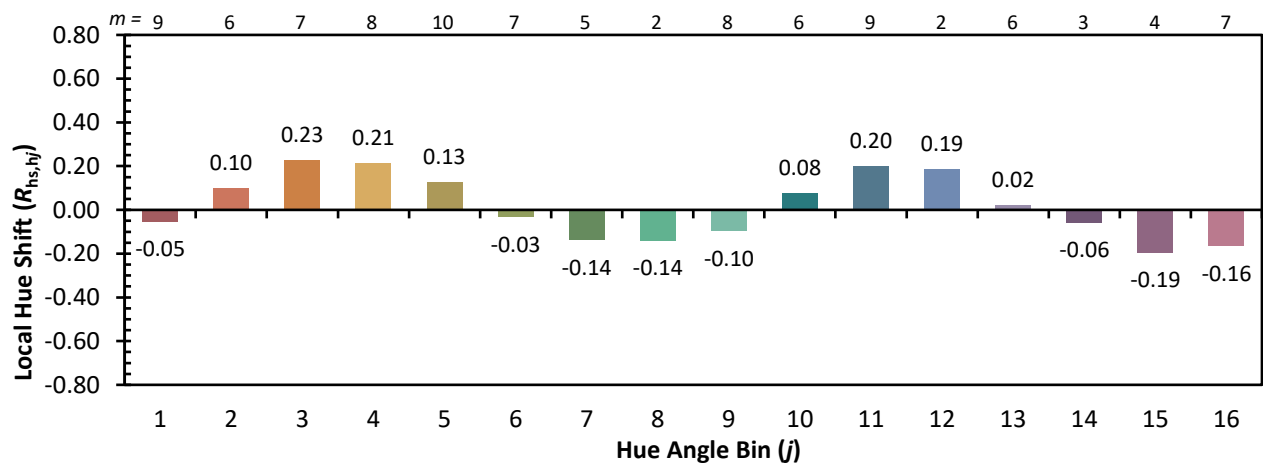
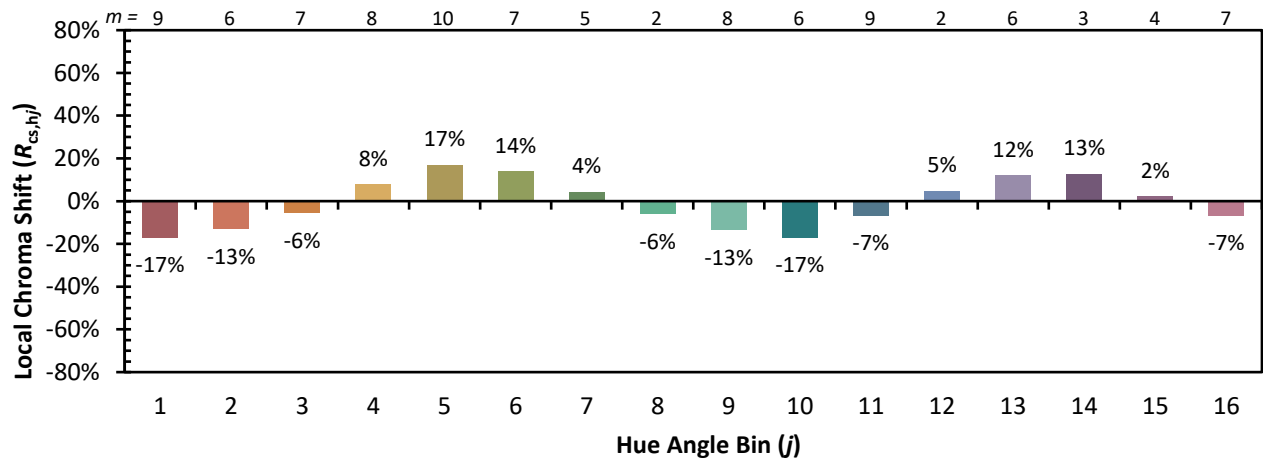


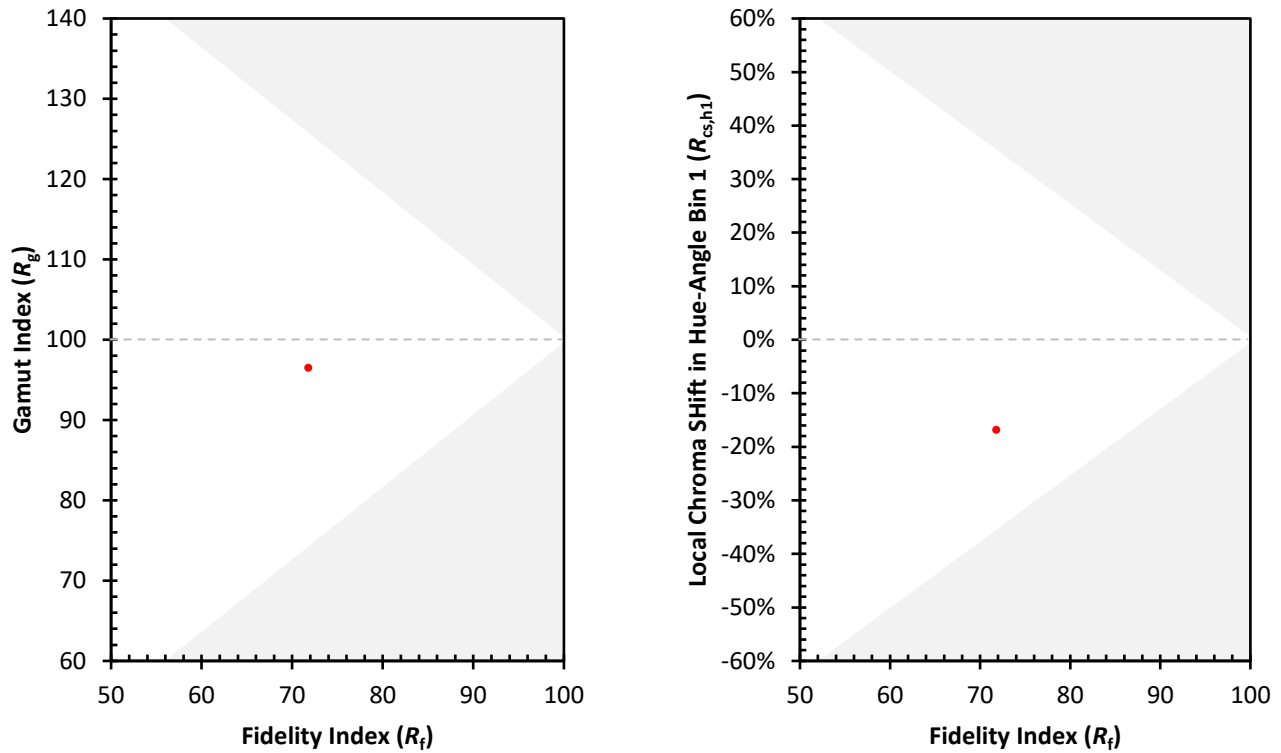
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 56 | CES51 = 86 | CES76 = 48 |
| CES02 = 61 | CES27 = 79 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 80 | CES53 = 73 | CES78 = 52 |
| CES04 = 70 | CES29 = 49 | CES54 = 79 | CES79 = 79 |
| CES05 = 47 | CES30 = 53 | CES55 = 77 | CES80 = 77 |
| CES06 = 50 | CES31 = 55 | CES56 = 67 | CES81 = 75 |
| CES07 = 40 | CES32 = 53 | CES57 = 64 | CES82 = 90 |
| CES08 = 39 | CES33 = 59 | CES58 = 67 | CES83 = 84 |
| CES09 = 29 | CES34 = 67 | CES59 = 87 | CES84 = 89 |
| CES10 = 74 | CES35 = 82 | CES60 = 91 | CES85 = 86 |
| CES11 = 57 | CES36 = 86 | CES61 = 87 | CES86 = 71 |
| CES12 = 63 | CES37 = 76 | CES62 = 76 | CES87 = 78 |
| CES13 = 42 | CES38 = 62 | CES63 = 73 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 71 | CES89 = 72 |
| CES15 = 71 | CES40 = 84 | CES65 = 64 | CES90 = 72 |
| CES16 = 46 | CES41 = 81 | CES66 = 67 | CES91 = 97 |
| CES17 = 49 | CES42 = 76 | CES67 = 65 | CES92 = 66 |
| CES18 = 56 | CES43 = 71 | CES68 = 72 | CES93 = 81 |
| CES19 = 72 | CES44 = 98 | CES69 = 82 | CES94 = 55 |
| CES20 = 65 | CES45 = 80 | CES70 = 61 | CES95 = 73 |
| CES21 = 86 | CES46 = 76 | CES71 = 59 | CES96 = 78 |
| CES22 = 78 | CES47 = 71 | CES72 = 86 | CES97 = 83 |
| CES23 = 92 | CES48 = 61 | CES73 = 52 | CES98 = 72 |
| CES24 = 91 | CES49 = 76 | CES74 = 93 | CES99 = 60 |
| CES25 = 72 | CES50 = 84 | CES75 = 56 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)