

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: P1063983

Luminaire Tested: **GLAN-SA1C-730-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1063983  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GLAN-SA1C-730-U-T4BC  
Description: GALLEON II AREA AND ROADWAY LUMINAIRE 1050mA 1xLight Square PACKAGE  
70CRI 3000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (14) 3000K CCT, 70 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5603.3 lumens  
Efficiency: N/A  
Efficacy: 111.6 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 50.2  
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

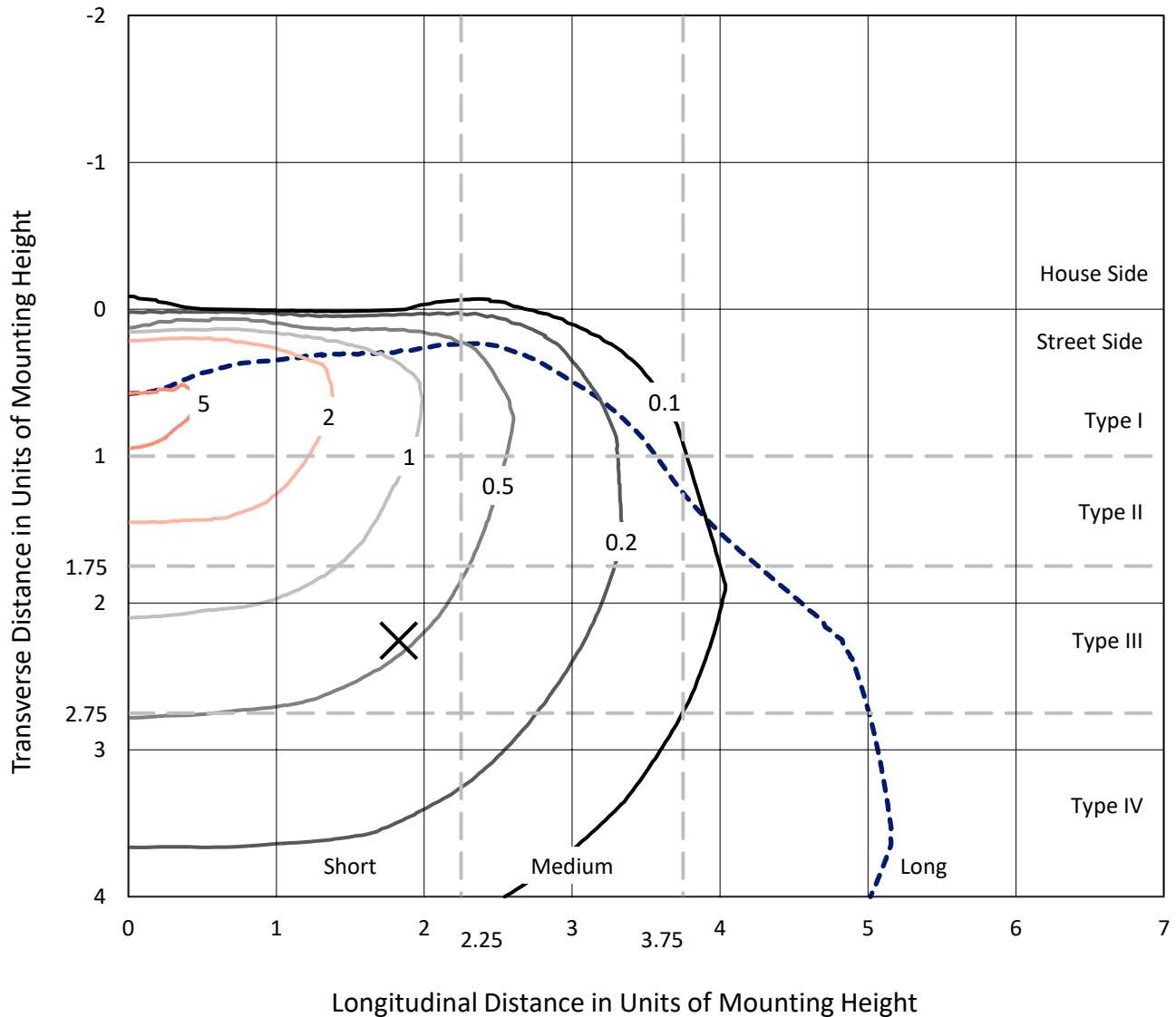


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

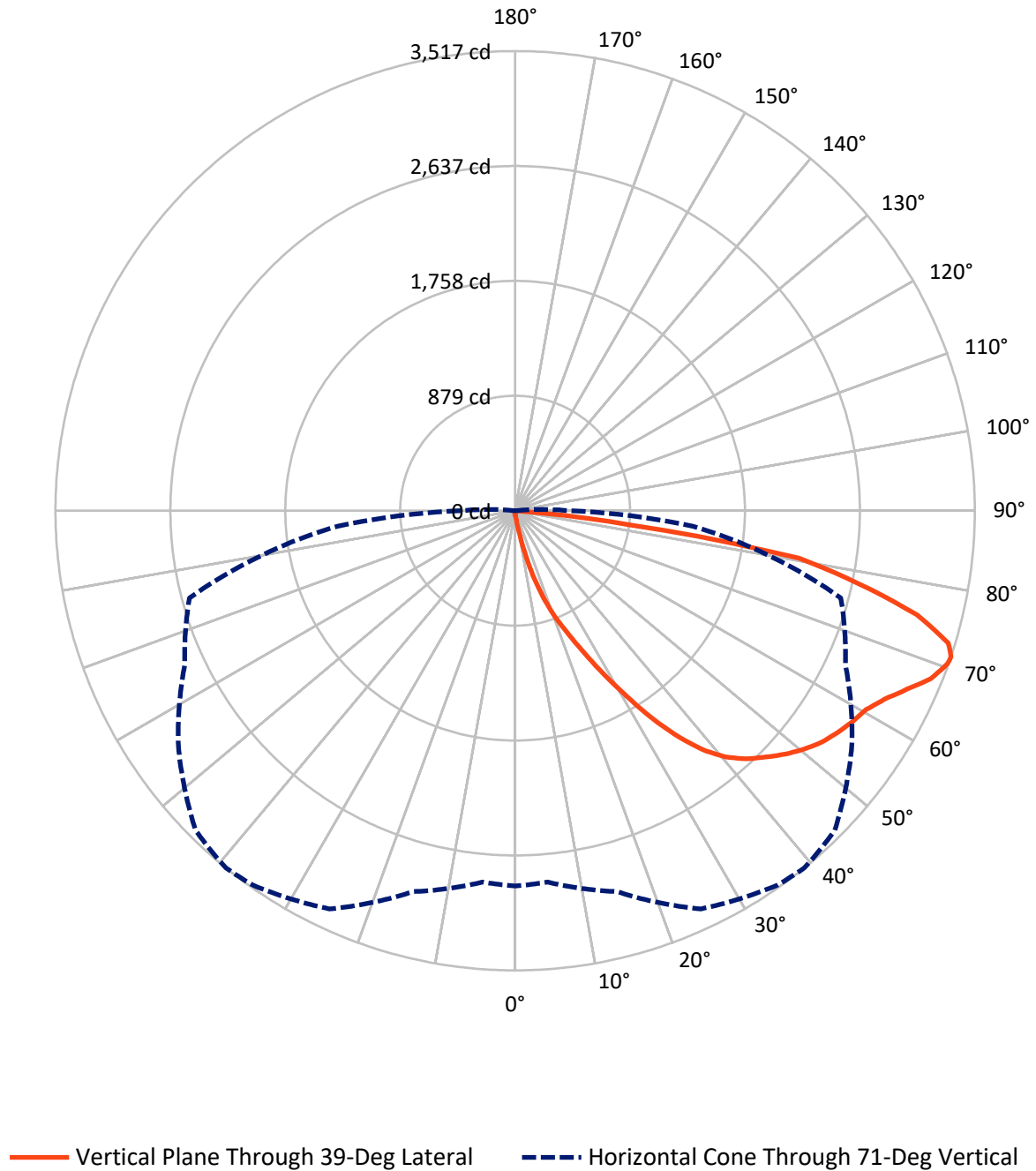


Based on 15 foot mounting height. Maximum calculated value = 5.8 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GLAN-SA1C-730-U-T4BC

## Luminous Intensity Polar Plot



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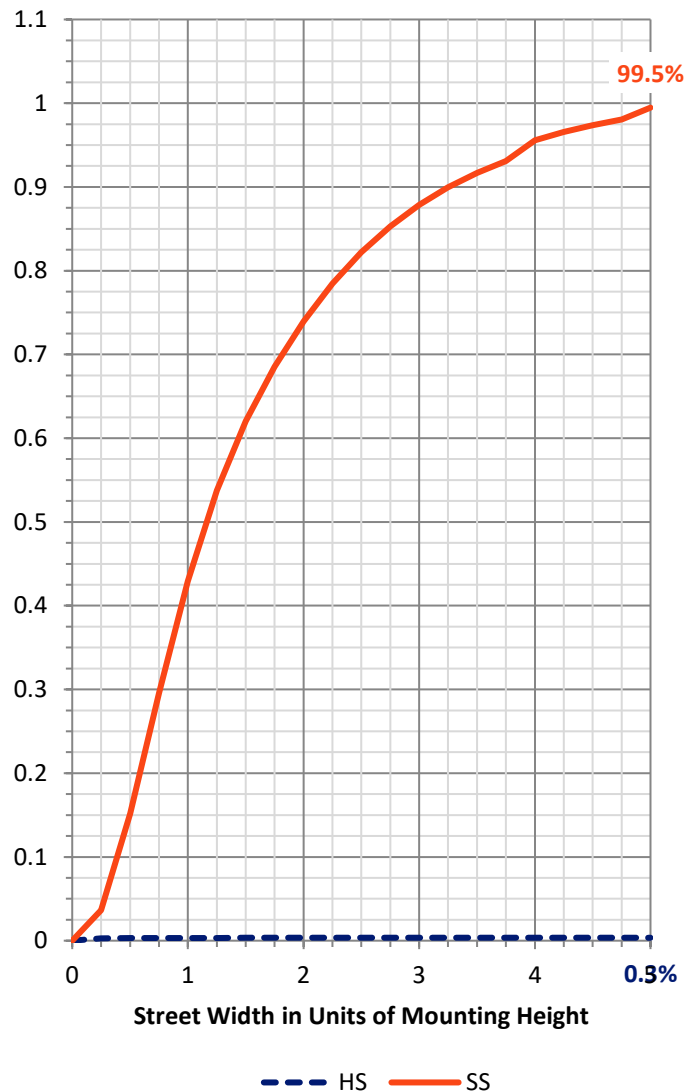
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 19.9     | 0.0    | 19.9   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 5583.4   | 0.0    | 5583.4 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 5603.3   | 0.0    | 5603.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 4.7    | 0.1       |
| 10°-20°   | 59.9   | 1.1       |
| 20°-30°   | 213.3  | 3.8       |
| 30°-40°   | 514.0  | 9.2       |
| 40°-50°   | 860.2  | 15.4      |
| 50°-60°   | 1104.9 | 19.7      |
| 60°-70°   | 1398.2 | 25.0      |
| 70°-80°   | 1246.6 | 22.2      |
| 80°-90°   | 201.5  | 3.6       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 5603.3 | 100.0     |
| 0°-180°   | 5603.3 | 100.0     |



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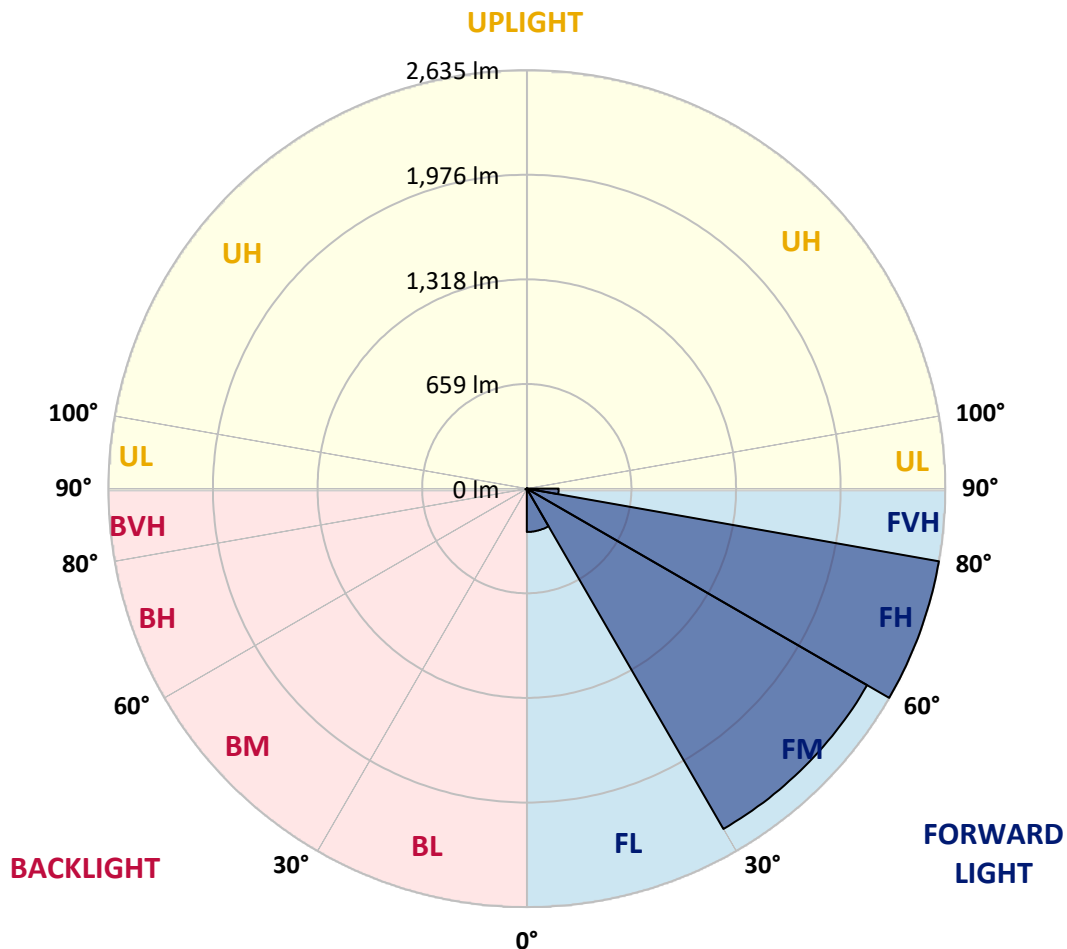
CATALOG NUMBER: GLAN-SA1C-730-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 273.0  | 4.9       |                         |      |         |
| FM   | (30°-60°)   | 2474.5 | 44.2      |                         |      |         |
| FH   | (60°-80°)   | 2635.2 | 47.0      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 200.6  | 3.6       |                         |      | G2/225  |
| BL   | (0°-30°)    | 4.8    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 4.6    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 9.6    | 0.2       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 0.9    | 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-G2**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 39°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 30.7   | 30.7   | 30.7   | 30.7   | 30.7   | 30.7   | 30.7   | 30.7   | 30.7   | 30.7   | 30.7   |
| 2.5°  | 35.3   | 35.3   | 35.3   | 34.1   | 34.1   | 33.8   | 33.4   | 33.4   | 32.6   | 32.2   | 31.5   |
| 5°    | 53.5   | 52.3   | 49.7   | 48.2   | 45.1   | 43.2   | 41.3   | 38.7   | 36.0   | 34.1   | 31.9   |
| 7.5°  | 121.0  | 123.7  | 114.9  | 98.6   | 81.9   | 74.7   | 62.6   | 50.4   | 41.7   | 36.0   | 32.2   |
| 10°   | 308.4  | 306.9  | 277.3  | 244.7  | 188.9  | 166.5  | 130.5  | 82.3   | 53.9   | 39.4   | 32.6   |
| 12.5° | 524.6  | 523.1  | 488.2  | 443.8  | 370.2  | 323.6  | 255.3  | 153.6  | 77.4   | 44.8   | 32.6   |
| 15°   | 706.3  | 700.2  | 689.2  | 645.2  | 559.1  | 520.0  | 429.8  | 271.6  | 125.2  | 53.9   | 33.4   |
| 17.5° | 826.5  | 821.2  | 811.0  | 795.0  | 740.4  | 694.1  | 621.7  | 426.7  | 202.6  | 69.8   | 34.9   |
| 20°   | 936.9  | 933.1  | 924.8  | 921.7  | 886.5  | 861.8  | 801.9  | 605.0  | 315.6  | 94.8   | 37.2   |
| 22.5° | 1088.6 | 1080.7 | 1084.1 | 1065.9 | 1031.3 | 1001.8 | 965.0  | 791.6  | 453.7  | 136.6  | 41.3   |
| 25°   | 1274.5 | 1270.7 | 1261.2 | 1248.3 | 1200.5 | 1174.7 | 1118.2 | 967.6  | 608.0  | 191.2  | 45.9   |
| 27.5° | 1499.0 | 1494.9 | 1492.6 | 1463.0 | 1408.0 | 1379.9 | 1301.0 | 1133.8 | 781.8  | 267.8  | 52.0   |
| 30°   | 1757.7 | 1759.6 | 1744.8 | 1706.9 | 1642.8 | 1603.3 | 1522.2 | 1307.9 | 959.7  | 357.7  | 58.4   |
| 32.5° | 2025.5 | 2021.7 | 1999.0 | 1954.2 | 1896.9 | 1860.1 | 1757.0 | 1498.7 | 1146.3 | 476.4  | 66.0   |
| 35°   | 2314.2 | 2307.0 | 2247.0 | 2195.8 | 2146.9 | 2100.6 | 2006.6 | 1720.2 | 1332.9 | 609.6  | 76.2   |
| 37.5° | 2605.5 | 2571.7 | 2451.5 | 2386.6 | 2352.9 | 2314.9 | 2227.3 | 1956.5 | 1518.4 | 758.2  | 88.8   |
| 40°   | 2825.5 | 2799.3 | 2656.7 | 2537.2 | 2510.3 | 2478.0 | 2412.8 | 2160.6 | 1715.6 | 917.9  | 103.9  |
| 42.5° | 2947.2 | 2932.8 | 2804.6 | 2686.7 | 2623.3 | 2594.9 | 2539.1 | 2338.8 | 1910.6 | 1094.3 | 125.9  |
| 45°   | 2999.2 | 2976.8 | 2891.1 | 2836.1 | 2735.2 | 2688.2 | 2621.8 | 2473.5 | 2114.3 | 1294.6 | 156.7  |
| 47.5° | 2983.3 | 2970.4 | 2908.9 | 2929.0 | 2855.8 | 2782.6 | 2685.1 | 2576.7 | 2288.4 | 1524.5 | 198.8  |
| 50°   | 2883.1 | 2872.1 | 2853.2 | 2962.0 | 2952.9 | 2866.5 | 2767.1 | 2658.2 | 2430.6 | 1761.5 | 264.0  |
| 52.5° | 2692.7 | 2688.2 | 2736.7 | 2936.2 | 3007.9 | 2940.4 | 2846.0 | 2730.3 | 2563.4 | 2009.2 | 357.3  |
| 55°   | 2447.3 | 2465.9 | 2604.7 | 2896.0 | 3036.0 | 2995.0 | 2915.8 | 2797.8 | 2670.0 | 2230.7 | 495.0  |
| 57.5° | 2346.4 | 2351.4 | 2524.7 | 2867.6 | 3048.5 | 3043.2 | 2983.7 | 2862.3 | 2767.8 | 2407.9 | 705.1  |
| 60°   | 2464.4 | 2456.8 | 2548.2 | 2889.2 | 3073.6 | 3086.5 | 3044.0 | 2922.2 | 2852.8 | 2560.0 | 985.1  |
| 62.5° | 2677.6 | 2673.4 | 2702.6 | 2981.4 | 3146.8 | 3172.9 | 3127.8 | 2965.5 | 2927.9 | 2660.1 | 1304.5 |
| 65°   | 2868.0 | 2859.2 | 2913.5 | 3144.9 | 3275.4 | 3293.9 | 3254.5 | 3039.4 | 2960.9 | 2732.9 | 1604.5 |
| 67.5° | 2950.3 | 2948.4 | 3035.6 | 3300.4 | 3410.4 | 3430.5 | 3396.0 | 3141.5 | 2953.3 | 2756.1 | 1736.9 |
| 70°   | 2912.7 | 2905.5 | 3045.1 | 3366.4 | 3486.6 | 3509.4 | 3476.0 | 3179.4 | 2871.0 | 2682.9 | 1540.8 |
| 71°   | 2871.4 | 2852.0 | 3016.7 | 3361.8 | 3497.2 | 3516.6 | 3458.2 | 3144.9 | 2788.3 | 2578.9 | 1362.9 |
| 72.5° | 2743.2 | 2746.6 | 2938.5 | 3314.4 | 3471.8 | 3466.1 | 3357.3 | 3021.2 | 2688.6 | 2343.0 | 1094.7 |
| 75°   | 2427.6 | 2447.7 | 2685.5 | 3115.3 | 3245.0 | 3172.6 | 3006.0 | 2784.9 | 2488.3 | 1680.0 | 760.1  |
| 77.5° | 1983.8 | 2013.8 | 2275.1 | 2732.2 | 2695.4 | 2688.2 | 2681.4 | 2453.8 | 2124.9 | 902.4  | 528.8  |
| 80°   | 947.1  | 1012.0 | 1372.3 | 1950.4 | 2118.8 | 2200.4 | 2149.2 | 1977.3 | 1643.2 | 429.8  | 316.0  |
| 82.5° | 61.8   | 61.1   | 86.5   | 163.9  | 690.7  | 892.9  | 1418.6 | 1413.3 | 1145.5 | 209.4  | 129.0  |
| 85°   | 29.2   | 30.0   | 33.0   | 37.6   | 43.6   | 47.8   | 66.0   | 386.9  | 548.1  | 99.8   | 28.1   |
| 87.5° | 17.1   | 17.4   | 20.5   | 26.2   | 34.1   | 37.9   | 45.1   | 58.0   | 71.3   | 55.0   | 6.1    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



REPORT NUMBER: P1063983

CATALOG NUMBER: GLAN-SA1C-730-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 30.7  | 30.7 | 30.7 | 30.7 | 30.7 | 30.7 | 30.7 | 30.7 | 30.7 | 30.7 | 30.7 |
| 2.5°  | 31.1  | 30.7 | 29.6 | 28.4 | 27.3 | 26.6 | 26.2 | 26.6 | 26.6 | 26.9 | 26.9 |
| 5°    | 31.1  | 30.0 | 28.1 | 25.8 | 24.3 | 22.8 | 22.0 | 21.6 | 22.0 | 22.0 | 22.0 |
| 7.5°  | 30.7  | 28.8 | 26.2 | 23.5 | 21.6 | 19.7 | 19.0 | 18.6 | 18.6 | 19.0 | 19.0 |
| 10°   | 30.0  | 28.1 | 24.7 | 21.6 | 19.3 | 17.1 | 15.9 | 14.8 | 14.8 | 14.8 | 15.2 |
| 12.5° | 29.6  | 26.9 | 22.8 | 19.7 | 16.7 | 14.0 | 11.8 | 10.6 | 11.0 | 11.0 | 11.0 |
| 15°   | 28.8  | 25.8 | 21.6 | 17.8 | 14.0 | 10.6 | 8.7  | 7.6  | 8.0  | 8.3  | 8.0  |
| 17.5° | 28.8  | 25.4 | 20.1 | 15.6 | 11.0 | 8.0  | 6.4  | 5.7  | 5.7  | 6.1  | 6.1  |
| 20°   | 28.8  | 24.7 | 19.0 | 13.3 | 8.3  | 6.1  | 4.6  | 4.2  | 4.2  | 4.9  | 5.3  |
| 22.5° | 29.6  | 24.7 | 17.4 | 11.0 | 6.8  | 4.6  | 3.4  | 3.0  | 3.4  | 4.2  | 4.6  |
| 25°   | 30.7  | 24.3 | 15.9 | 9.9  | 5.7  | 3.4  | 2.7  | 1.9  | 2.3  | 3.0  | 3.4  |
| 27.5° | 31.9  | 23.9 | 14.4 | 8.7  | 4.6  | 2.7  | 1.9  | 1.5  | 1.1  | 1.5  | 1.5  |
| 30°   | 33.0  | 23.9 | 12.9 | 7.2  | 3.8  | 1.9  | 1.1  | 0.8  | 0.4  | 0.0  | 0.0  |
| 32.5° | 33.8  | 23.1 | 11.8 | 5.7  | 3.0  | 1.5  | 0.8  | 0.4  | 0.0  | 0.0  | 0.0  |
| 35°   | 34.5  | 22.4 | 10.2 | 4.6  | 2.3  | 1.1  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 35.3  | 21.2 | 8.7  | 3.8  | 1.9  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 36.0  | 19.7 | 7.2  | 3.4  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 36.8  | 18.6 | 6.1  | 2.7  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 38.7  | 17.8 | 4.9  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 42.1  | 17.1 | 4.6  | 1.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 47.0  | 16.3 | 4.2  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 53.9  | 15.9 | 3.8  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 66.0  | 15.6 | 3.4  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 86.9  | 15.2 | 3.4  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 133.1 | 14.4 | 3.4  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 237.8 | 14.0 | 3.0  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 414.6 | 14.4 | 3.0  | 0.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 594.4 | 15.2 | 2.7  | 1.1  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 508.7 | 13.3 | 2.7  | 1.5  | 0.8  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 71°   | 414.6 | 11.8 | 2.7  | 1.5  | 0.8  | 0.4  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 266.7 | 9.1  | 2.3  | 1.5  | 0.8  | 0.8  | 0.4  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 112.7 | 7.6  | 2.3  | 1.5  | 1.1  | 0.8  | 0.8  | 0.4  | 0.0  | 0.0  | 0.0  |
| 77.5° | 48.2  | 5.7  | 2.3  | 1.9  | 1.5  | 1.1  | 1.1  | 0.8  | 0.4  | 0.0  | 0.0  |
| 80°   | 18.2  | 4.6  | 2.7  | 2.3  | 1.9  | 1.9  | 1.5  | 0.8  | 0.4  | 0.0  | 0.0  |
| 82.5° | 8.3   | 3.8  | 2.7  | 2.3  | 2.3  | 1.9  | 1.5  | 1.1  | 0.8  | 0.0  | 0.0  |
| 85°   | 5.3   | 3.4  | 2.7  | 2.3  | 2.3  | 1.9  | 1.9  | 1.1  | 0.8  | 0.0  | 0.0  |
| 87.5° | 4.2   | 3.4  | 2.7  | 2.7  | 2.3  | 2.3  | 1.5  | 1.1  | 0.4  | 0.0  | 0.0  |
| 90°   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |



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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-4

Test Date: 10/10/2024

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

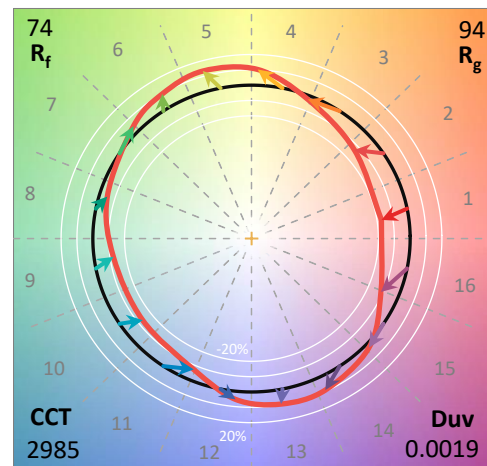
Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-730-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 3000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2985     | CRI (Ra): | 70.8 |      |       |
| CIE u':                   | 0.2504   | R1:       | 66.3 | R9:  | -43.2 |
| CIE v':                   | 0.5243   | R2:       | 80.6 | R10: | 57.6  |
| Duv:                      | 0.0019   | R3:       | 94.5 | R11: | 64.8  |
| CIE x:                    | 0.4408   | R4:       | 68.2 | R12: | 53.5  |
| CIE y:                    | 0.4101   | R5:       | 66.5 | R13: | 68.7  |
| CIE z:                    | 0.1491   | R6:       | 74.7 | R14: | 97.0  |
| Peak Wavelength (nm):     | 595      | R7:       | 76.2 | R15: | 56.4  |
| Dominant Wavelength (nm): | 582      | R8:       | 39.6 |      |       |
| Purity:                   | 55.41818 |           |      |      |       |
| Rf:                       | 73.8     |           |      |      |       |
| Rg:                       | 94.4     |           |      |      |       |



### Test Conditions

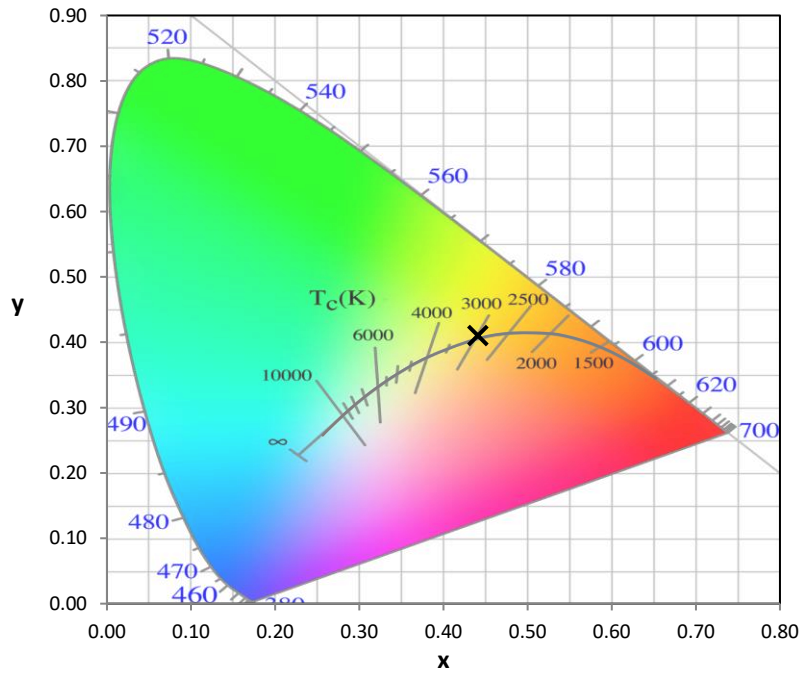
Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-4

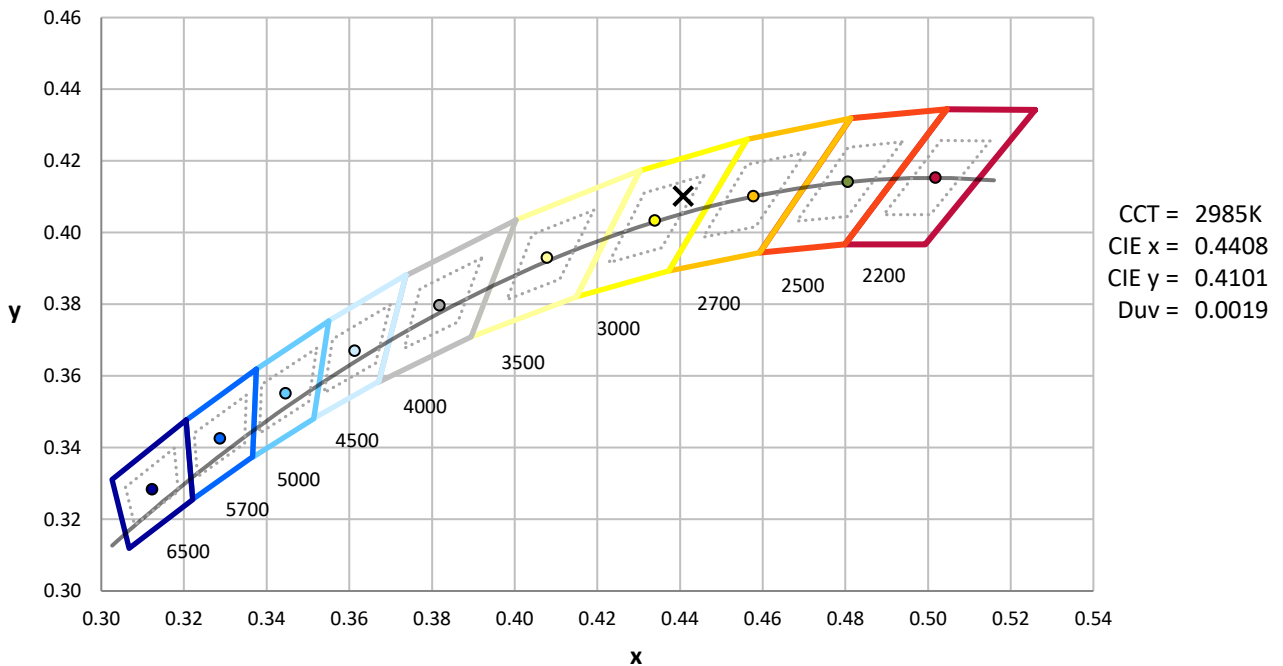
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

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**CIE 1931 Chromaticity Diagram**



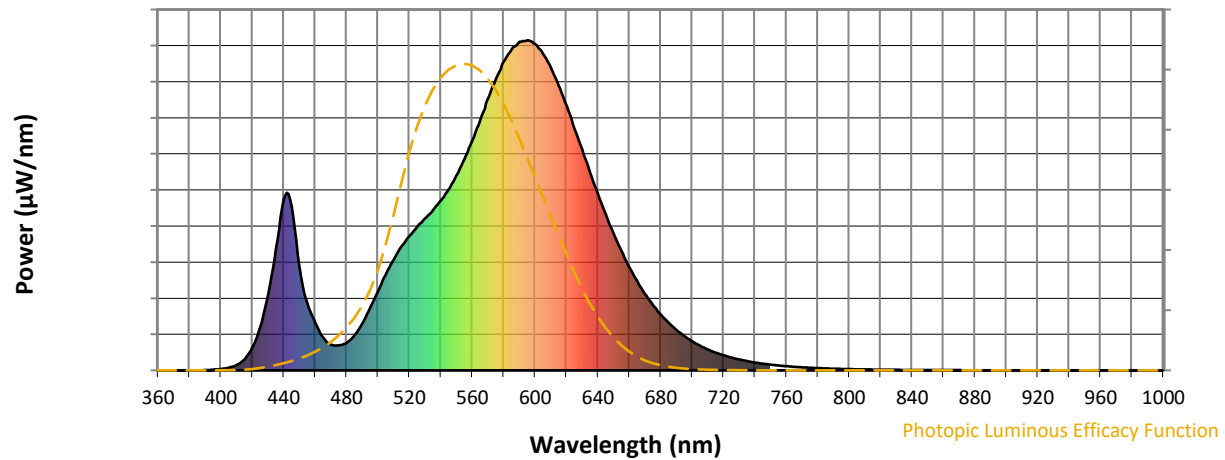
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

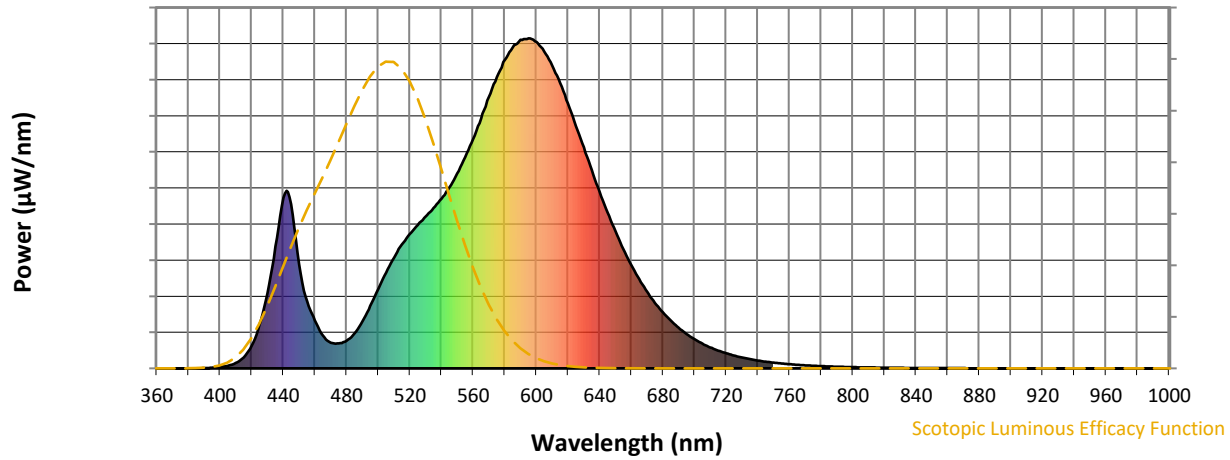


### Photopic Lumens: NR

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

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### Scotopic Flux vs. Wavelength



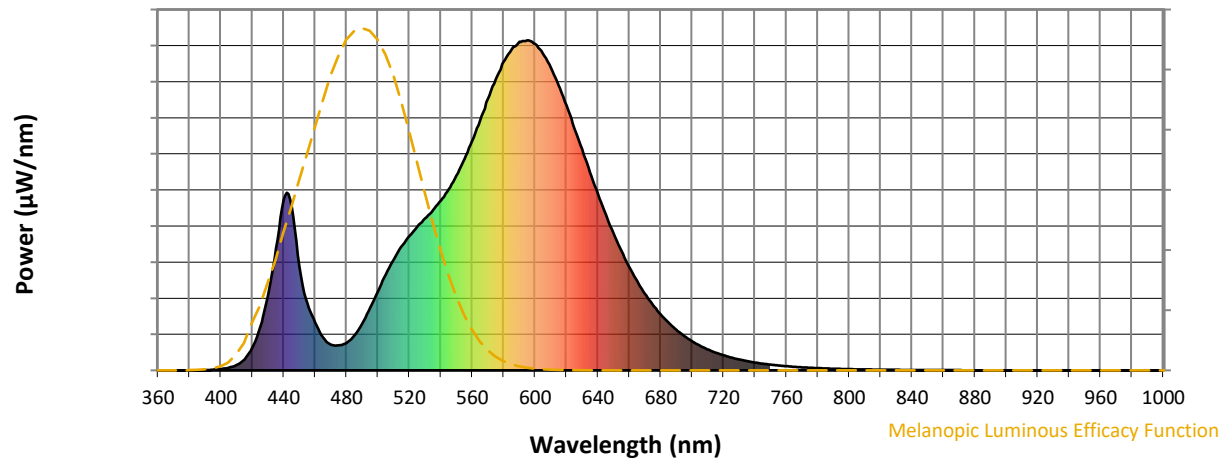
Scotopic Lumens: NR

S/P: 1.19

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

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### Melanopic Flux vs. Wavelength


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

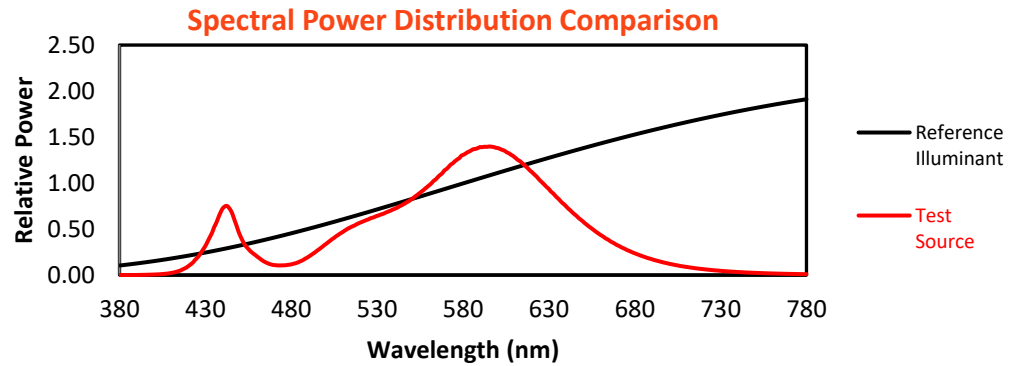
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power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

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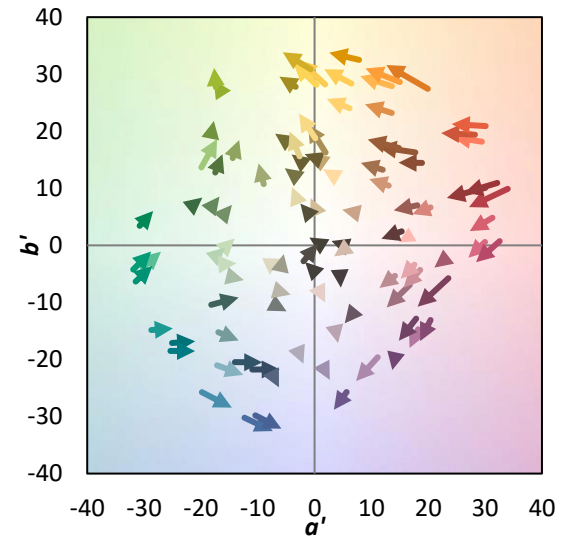
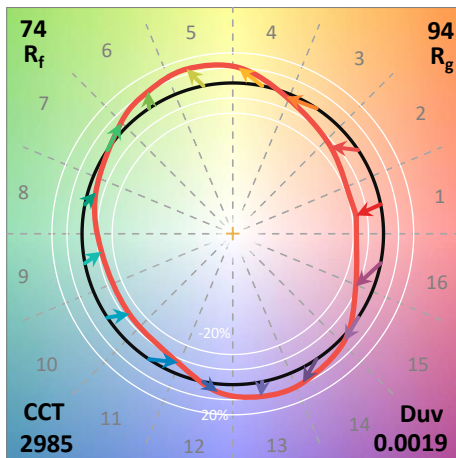
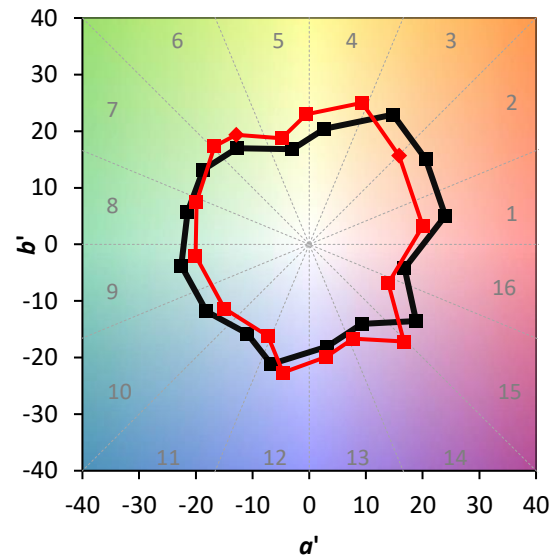
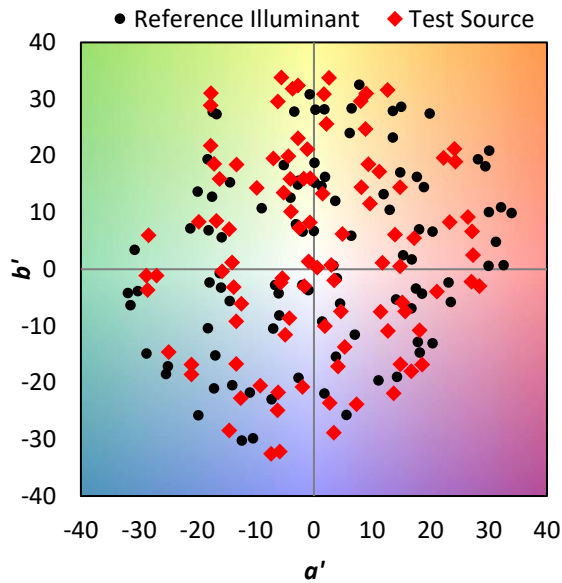
TM-30-18

### Summary

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



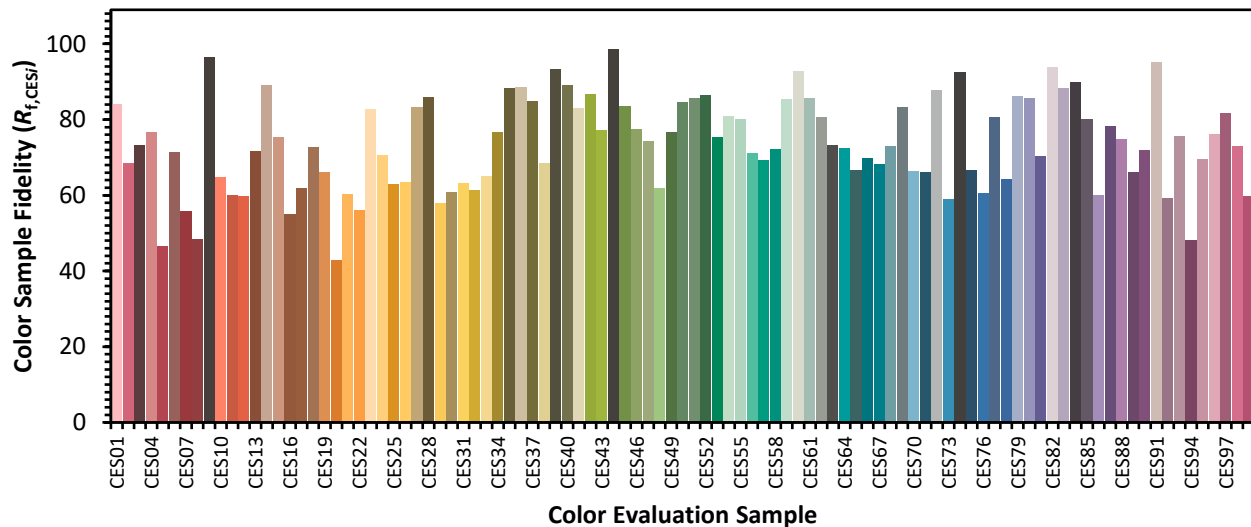
### Color Vector Graphics



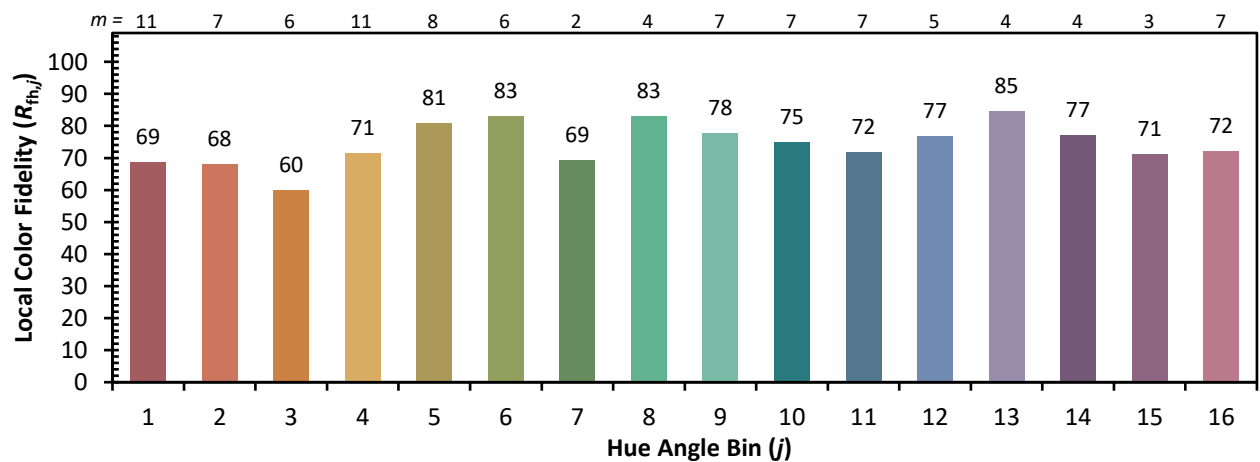
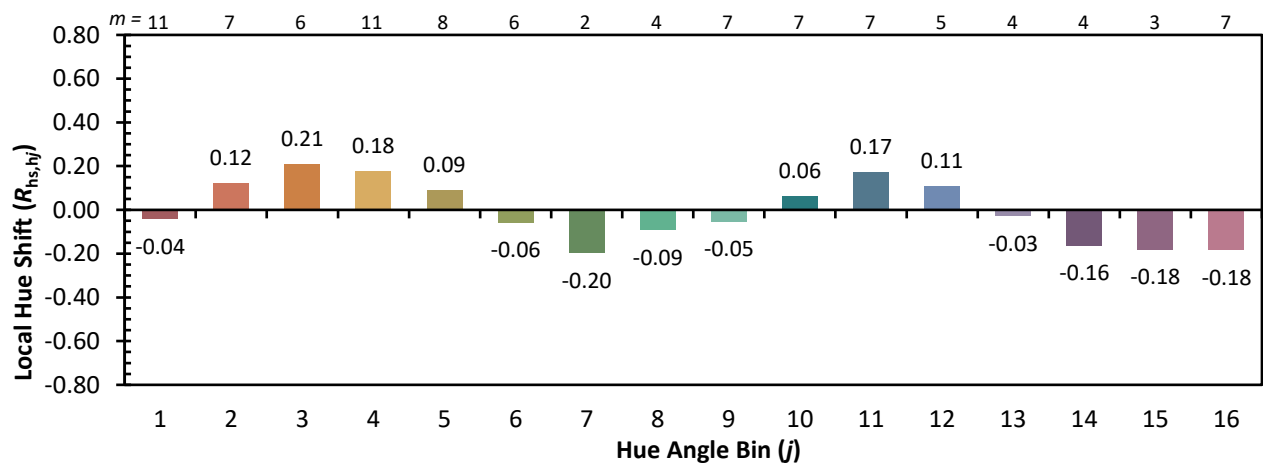
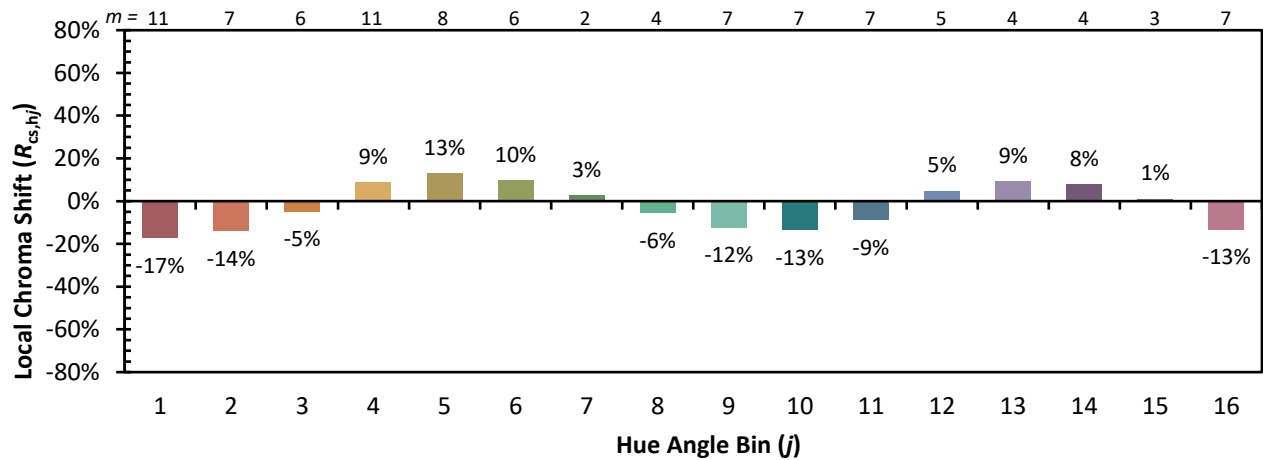


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

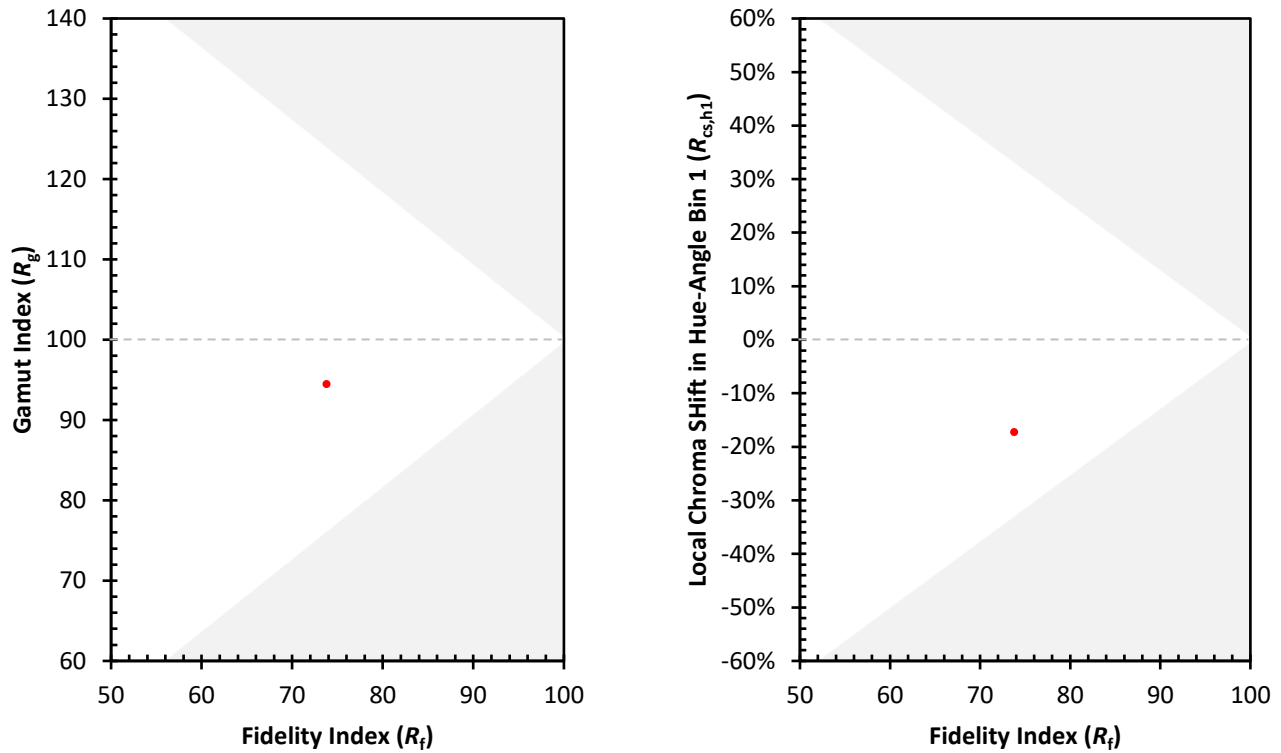
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54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



### Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)