

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: P1057613

Luminaire Tested: **GAP-SA1D-750-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1057613  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GAP-SA1D-750-U-T4BC  
Description: GALLEON PEDESTRAIAN COMPANION 1200mA 1xLight Square PACKAGE 70CRI  
5000K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (14) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6048 lumens  
Efficiency: N/A  
Efficacy: 107.8 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 0.67' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 56.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

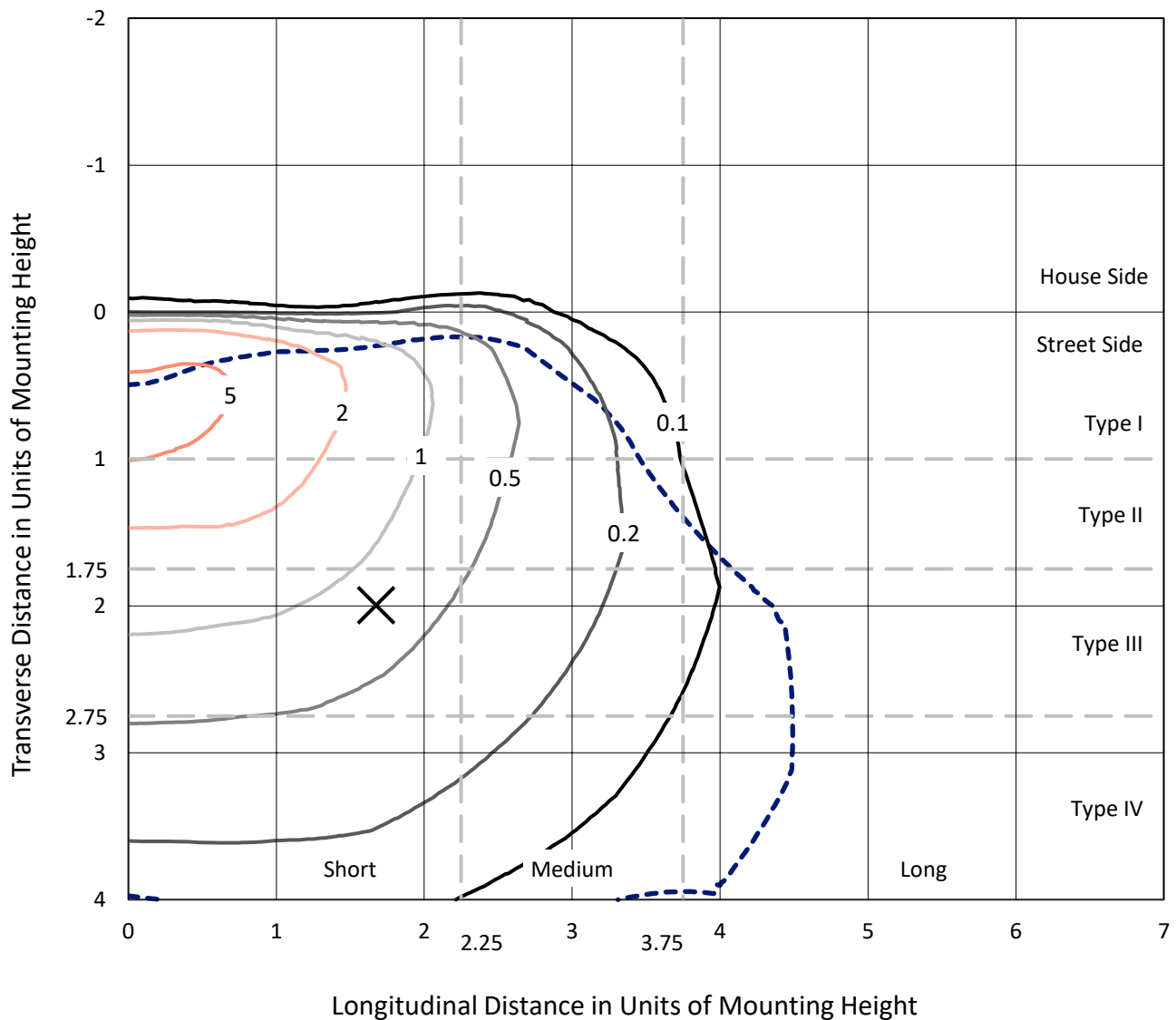


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CATALOG NUMBER: GAP-SA1D-750-U-T4BC

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 --- 1/2 Max cd

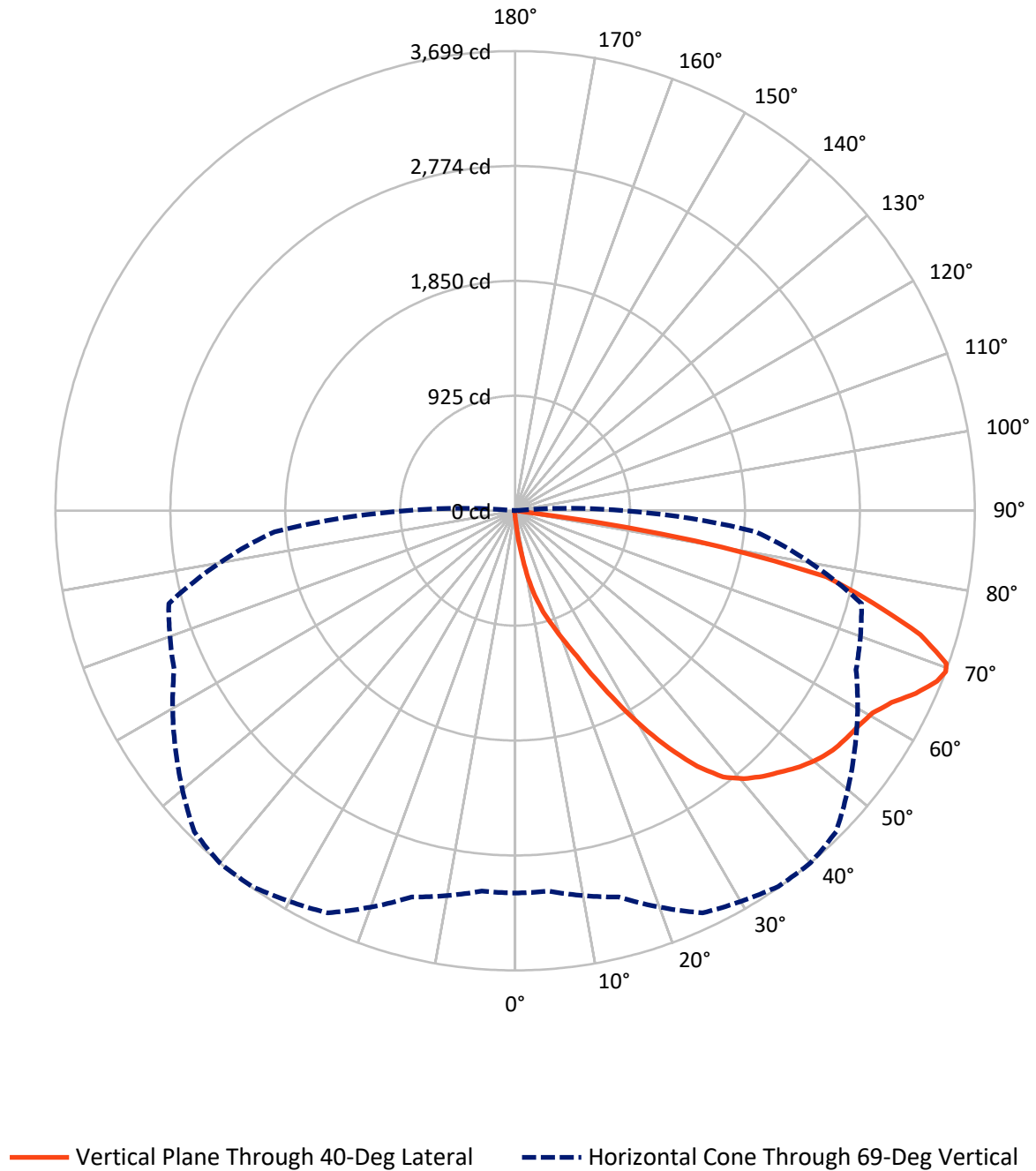


Based on 15 foot mounting height. Maximum calculated value = 6.9 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GAP-SA1D-750-U-T4BC

## Luminous Intensity Polar Plot



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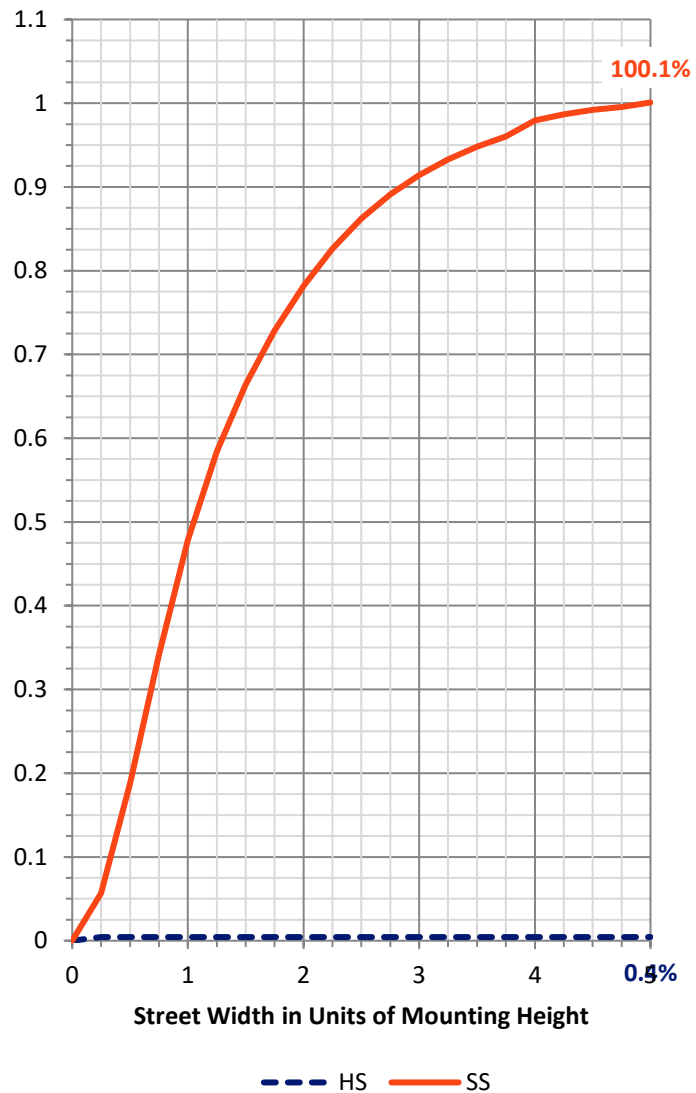
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 26.5     | 0.0    | 26.5   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 6021.5   | 0.0    | 6021.5 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 6048.0   | 0.0    | 6048.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 12.7   | 0.2       |
| 10°-20°   | 96.6   | 1.6       |
| 20°-30°   | 290.9  | 4.8       |
| 30°-40°   | 640.5  | 10.6      |
| 40°-50°   | 984.3  | 16.3      |
| 50°-60°   | 1212.1 | 20.0      |
| 60°-70°   | 1530.2 | 25.3      |
| 70°-80°   | 1177.1 | 19.5      |
| 80°-90°   | 103.4  | 1.7       |
| 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°    | 6048.0 | 100.0     |
| 0°-180°   | 6048.0 | 100.0     |



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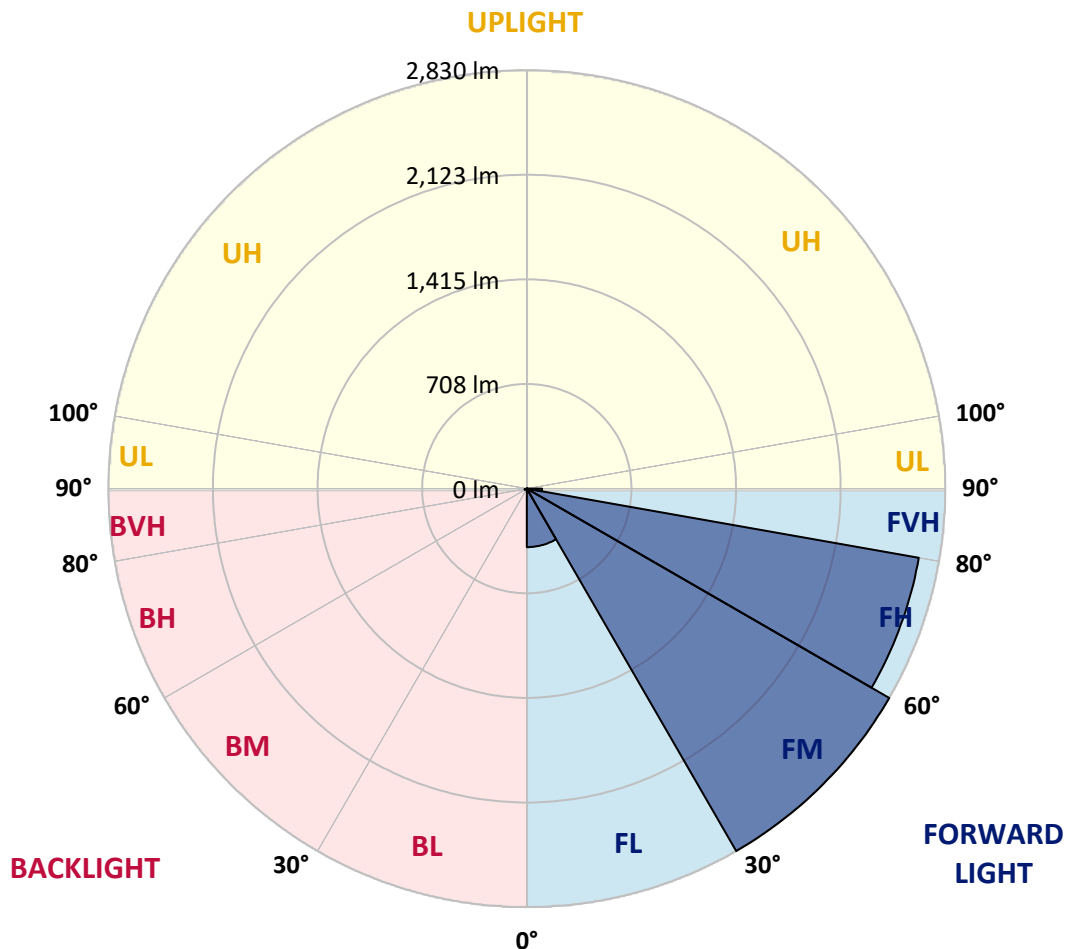
CATALOG NUMBER: GAP-SA1D-750-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 395.8  | 6.5       |                         |      |         |
| FM   | (30°-60°)   | 2830.5 | 46.8      |                         |      |         |
| FH   | (60°-80°)   | 2692.1 | 44.5      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 103.1  | 1.7       |                         |      | G2/225  |
| BL   | (0°-30°)    | 4.5    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 6.5    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 15.2   | 0.3       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 0.3    | 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°    | 40°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   | 44.2   |
| 2.5°  | 98.7   | 97.6   | 93.0   | 87.4   | 82.8   | 79.4   | 74.9   | 68.1   | 61.3   | 53.3   | 47.6   |
| 5°    | 258.6  | 257.5  | 239.4  | 216.7  | 186.0  | 165.6  | 145.2  | 112.3  | 85.1   | 65.8   | 49.9   |
| 7.5°  | 478.7  | 475.3  | 458.3  | 423.1  | 358.5  | 323.3  | 285.9  | 200.8  | 130.5  | 81.7   | 53.3   |
| 10°   | 696.5  | 694.3  | 672.7  | 621.7  | 551.3  | 516.2  | 466.2  | 342.6  | 205.3  | 106.6  | 57.9   |
| 12.5° | 824.7  | 830.4  | 814.5  | 790.7  | 730.6  | 697.7  | 640.9  | 498.0  | 315.4  | 146.3  | 63.5   |
| 15°   | 930.2  | 932.5  | 917.7  | 903.0  | 870.1  | 842.9  | 795.2  | 663.6  | 447.0  | 199.7  | 70.3   |
| 17.5° | 1060.7 | 1057.3 | 1041.4 | 1024.4 | 988.1  | 967.7  | 937.0  | 816.8  | 587.6  | 275.7  | 79.4   |
| 20°   | 1226.3 | 1217.2 | 1199.1 | 1169.6 | 1129.9 | 1104.9 | 1073.2 | 973.3  | 728.3  | 359.6  | 90.8   |
| 22.5° | 1438.4 | 1427.1 | 1407.8 | 1380.6 | 1310.3 | 1271.7 | 1230.8 | 1107.2 | 883.7  | 466.2  | 105.5  |
| 25°   | 1683.5 | 1677.8 | 1657.4 | 1618.8 | 1543.9 | 1492.9 | 1427.1 | 1263.7 | 1038.0 | 579.7  | 123.7  |
| 27.5° | 1971.6 | 1961.4 | 1934.2 | 1888.8 | 1808.3 | 1741.3 | 1659.7 | 1436.2 | 1185.5 | 699.9  | 146.3  |
| 30°   | 2293.8 | 2271.1 | 2215.5 | 2175.8 | 2081.7 | 2015.9 | 1920.6 | 1665.3 | 1337.5 | 825.9  | 170.2  |
| 32.5° | 2593.3 | 2563.8 | 2483.2 | 2428.8 | 2341.4 | 2282.4 | 2195.1 | 1896.7 | 1508.8 | 957.4  | 200.8  |
| 35°   | 2864.4 | 2832.6 | 2702.2 | 2619.4 | 2575.1 | 2525.2 | 2436.7 | 2161.1 | 1693.7 | 1098.1 | 236.0  |
| 37.5° | 3093.6 | 3061.8 | 2893.9 | 2763.4 | 2736.2 | 2719.2 | 2647.7 | 2384.5 | 1903.6 | 1256.9 | 276.8  |
| 40°   | 3221.7 | 3201.3 | 3056.1 | 2908.6 | 2856.5 | 2836.0 | 2783.9 | 2571.7 | 2137.2 | 1415.8 | 324.4  |
| 42.5° | 3261.4 | 3249.0 | 3131.0 | 3058.4 | 2963.1 | 2922.3 | 2859.9 | 2714.7 | 2338.0 | 1593.9 | 378.9  |
| 45°   | 3239.9 | 3226.3 | 3140.1 | 3157.1 | 3077.7 | 2998.3 | 2913.2 | 2812.2 | 2507.1 | 1803.7 | 447.0  |
| 47.5° | 3148.0 | 3143.5 | 3084.5 | 3180.9 | 3171.8 | 3081.1 | 2975.6 | 2876.9 | 2652.3 | 2006.8 | 532.0  |
| 50°   | 2923.4 | 2921.1 | 2948.3 | 3148.0 | 3234.2 | 3149.1 | 3043.6 | 2934.7 | 2768.0 | 2209.8 | 640.9  |
| 52.5° | 2620.5 | 2636.4 | 2773.6 | 3086.7 | 3252.4 | 3202.5 | 3111.7 | 3000.5 | 2863.3 | 2412.9 | 787.3  |
| 55°   | 2460.5 | 2474.2 | 2654.5 | 3019.8 | 3249.0 | 3234.2 | 3180.9 | 3064.1 | 2950.6 | 2579.7 | 982.4  |
| 57.5° | 2581.9 | 2567.2 | 2650.0 | 3010.7 | 3234.2 | 3261.4 | 3230.8 | 3114.0 | 3030.0 | 2727.1 | 1252.4 |
| 60°   | 2812.2 | 2807.7 | 2817.9 | 3075.4 | 3264.8 | 3305.7 | 3284.1 | 3148.0 | 3108.3 | 2839.4 | 1549.6 |
| 62.5° | 3044.8 | 3032.3 | 3042.5 | 3253.5 | 3371.5 | 3399.8 | 3373.8 | 3203.6 | 3169.6 | 2921.1 | 1871.8 |
| 65°   | 3160.5 | 3151.4 | 3199.1 | 3432.7 | 3523.5 | 3542.8 | 3508.7 | 3293.2 | 3179.8 | 2963.1 | 2074.8 |
| 67.5° | 3145.7 | 3143.5 | 3254.6 | 3558.7 | 3650.6 | 3661.9 | 3633.5 | 3382.8 | 3136.7 | 2962.0 | 2096.4 |
| 69°   | 3076.5 | 3072.0 | 3218.3 | 3571.1 | 3691.4 | 3699.3 | 3652.8 | 3337.5 | 3027.8 | 2886.0 | 1943.3 |
| 70°   | 2994.9 | 2999.4 | 3165.0 | 3548.5 | 3692.5 | 3681.2 | 3573.4 | 3272.8 | 2944.9 | 2798.6 | 1748.1 |
| 72.5° | 2690.8 | 2719.2 | 2946.1 | 3399.8 | 3537.1 | 3410.1 | 3269.4 | 3060.7 | 2787.3 | 2385.7 | 1220.6 |
| 75°   | 2250.7 | 2290.4 | 2583.1 | 3091.3 | 3041.4 | 2977.8 | 2960.8 | 2802.0 | 2525.2 | 1584.8 | 867.8  |
| 77.5° | 1100.4 | 1232.0 | 1833.2 | 2374.3 | 2495.7 | 2560.4 | 2536.6 | 2316.5 | 2029.5 | 778.2  | 566.1  |
| 80°   | 57.9   | 60.1   | 96.4   | 226.9  | 1156.0 | 1470.2 | 1808.3 | 1768.6 | 1536.0 | 355.1  | 298.4  |
| 82.5° | 30.6   | 30.6   | 34.0   | 39.7   | 46.5   | 55.6   | 147.5  | 1013.0 | 913.2  | 182.6  | 111.2  |
| 85°   | 17.0   | 17.0   | 20.4   | 27.2   | 35.2   | 40.8   | 46.5   | 61.3   | 196.3  | 65.8   | 18.2   |
| 87.5° | 7.9    | 10.2   | 13.6   | 19.3   | 25.0   | 31.8   | 36.3   | 45.4   | 57.9   | 55.6   | 3.4    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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CATALOG NUMBER: GAP-SA1D-750-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 44.2  | 44.2 | 44.2 | 44.2 | 44.2 | 44.2 | 44.2 | 44.2 | 44.2 | 44.2 | 44.2 |
| 2.5°  | 44.2  | 42.0 | 38.6 | 36.3 | 35.2 | 32.9 | 30.6 | 29.5 | 28.4 | 27.2 | 28.4 |
| 5°    | 44.2  | 40.8 | 35.2 | 31.8 | 29.5 | 26.1 | 23.8 | 22.7 | 21.6 | 20.4 | 20.4 |
| 7.5°  | 44.2  | 38.6 | 31.8 | 27.2 | 23.8 | 21.6 | 18.2 | 17.0 | 15.9 | 14.7 | 14.7 |
| 10°   | 45.4  | 36.3 | 28.4 | 23.8 | 20.4 | 17.0 | 14.7 | 12.5 | 11.3 | 11.3 | 11.3 |
| 12.5° | 45.4  | 34.0 | 25.0 | 20.4 | 17.0 | 13.6 | 10.2 | 7.9  | 6.8  | 6.8  | 6.8  |
| 15°   | 45.4  | 31.8 | 22.7 | 17.0 | 13.6 | 10.2 | 5.7  | 3.4  | 2.3  | 2.3  | 1.1  |
| 17.5° | 46.5  | 30.6 | 20.4 | 14.7 | 10.2 | 5.7  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  |
| 20°   | 48.8  | 29.5 | 18.2 | 12.5 | 6.8  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 22.5° | 51.0  | 28.4 | 15.9 | 9.1  | 3.4  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 25°   | 55.6  | 28.4 | 14.7 | 7.9  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 27.5° | 60.1  | 28.4 | 11.3 | 4.5  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 30°   | 63.5  | 28.4 | 10.2 | 3.4  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 32.5° | 68.1  | 28.4 | 9.1  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 35°   | 71.5  | 27.2 | 6.8  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 74.9  | 26.1 | 5.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 79.4  | 25.0 | 4.5  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 83.9  | 22.7 | 3.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 89.6  | 21.6 | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 97.6  | 20.4 | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 108.9 | 20.4 | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 128.2 | 20.4 | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 160.0 | 20.4 | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 215.5 | 20.4 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 324.4 | 20.4 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 501.4 | 22.7 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 766.9 | 27.2 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 972.2 | 32.9 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 69°   | 878.0 | 30.6 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 744.2 | 23.8 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 414.1 | 12.5 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 215.5 | 5.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 91.9  | 3.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 27.2  | 2.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 9.1   | 2.3  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 3.4   | 2.3  | 1.1  | 1.1  | 1.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 2.3   | 1.1  | 1.1  | 1.1  | 1.1  | 0.0  | 0.0  | 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: SP1-2407-184-6

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-750-U-5WQ

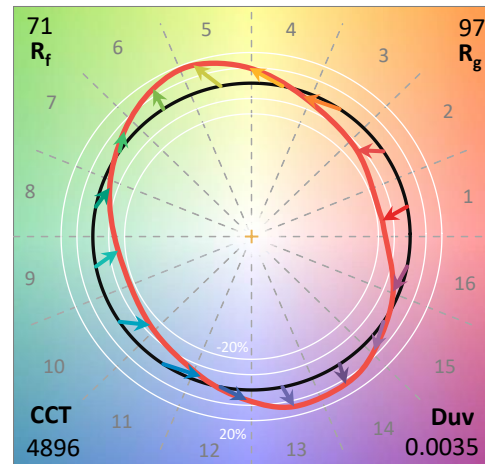
Data in this report applies to families of products including GSS-SB1A-750-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-6  
 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-750-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 5000K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 4896     | CRI (Ra): | 70.2 |      |       |
| CIE u':                   | 0.2101   | R1:       | 68.1 | R9:  | -35.1 |
| CIE v':                   | 0.4901   | R2:       | 73.9 | R10: | 39.3  |
| Duv:                      | 0.0035   | R3:       | 79.4 | R11: | 71.1  |
| CIE x:                    | 0.3489   | R4:       | 72.1 | R12: | 43.8  |
| CIE y:                    | 0.3618   | R5:       | 69.2 | R13: | 68.1  |
| CIE z:                    | 0.2893   | R6:       | 65.7 | R14: | 88.4  |
| Peak Wavelength (nm):     | 443      | R7:       | 78.1 | R15: | 59.7  |
| Dominant Wavelength (nm): | 570      | R8:       | 55.3 |      |       |
| Purity:                   | 13.25435 |           |      |      |       |
| Rf:                       | 70.7     |           |      |      |       |
| Rg:                       | 96.8     |           |      |      |       |



### Test Conditions

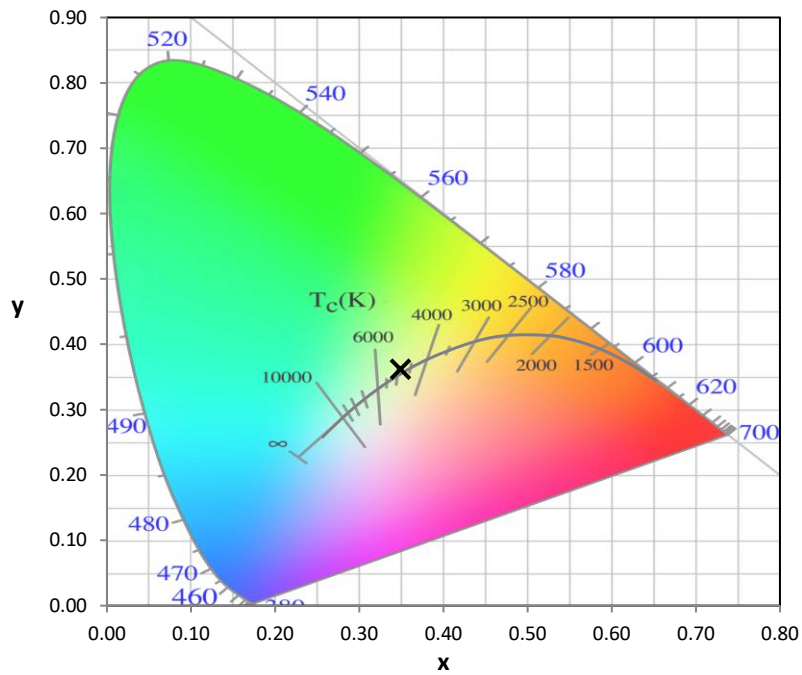
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-6

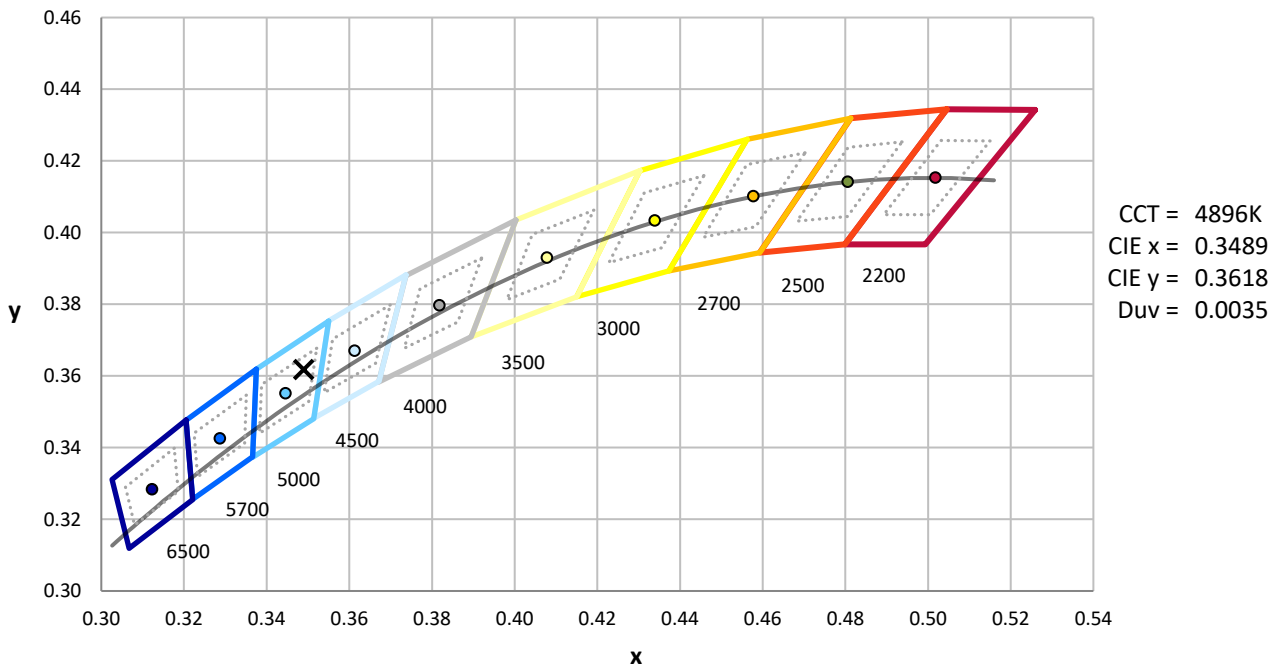
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



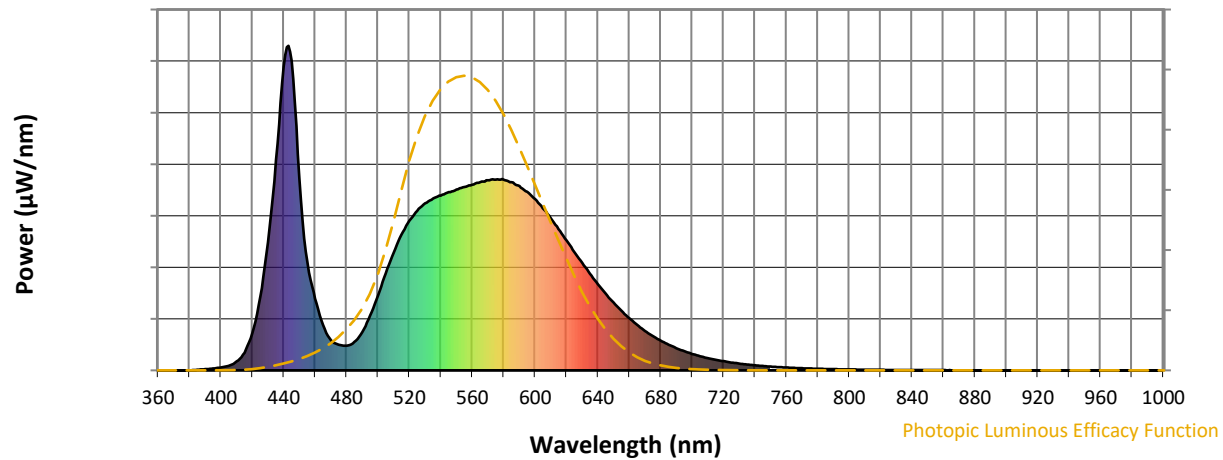
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

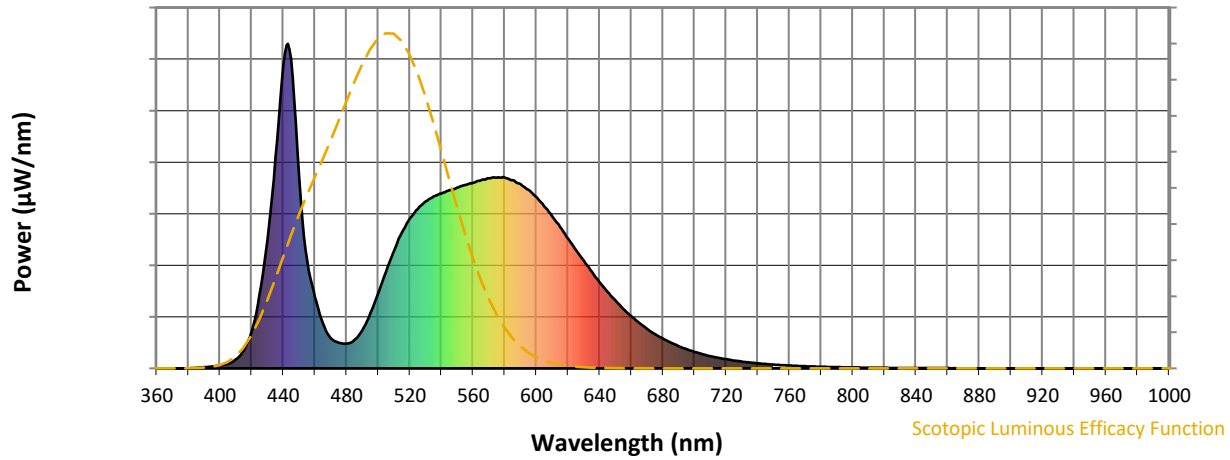


### Photopic Lumens: NR

| 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       | 118                         | NR               | 620       | 401                         | NR               | 750       | 12                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 168                         | NR               | 625       | 365                         | NR               | 755       | 10                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 331                         | NR               | 760       | 9                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 299                         | NR               | 635       | 298                         | NR               | 765       | 8                           | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 362                         | NR               | 640       | 266                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 418                         | NR               | 645       | 236                         | NR               | 775       | 6                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 461                         | NR               | 650       | 209                         | NR               | 780       | 5                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 491                         | NR               | 655       | 184                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 514                         | NR               | 660       | 160                         | NR               | 790       | 4                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 530                         | NR               | 665       | 140                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 27                          | NR               | 540       | 539                         | NR               | 670       | 122                         | NR               | 800       | 3                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 549                         | NR               | 675       | 106                         | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 115                         | NR               | 550       | 557                         | NR               | 680       | 92                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 226                         | NR               | 555       | 565                         | NR               | 685       | 79                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 395                         | NR               | 560       | 572                         | NR               | 690       | 68                          | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 648                         | NR               | 565       | 580                         | NR               | 695       | 59                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 937                         | NR               | 570       | 586                         | NR               | 700       | 51                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 953                         | NR               | 575       | 588                         | NR               | 705       | 44                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 591                         | NR               | 580       | 588                         | NR               | 710       | 38                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 334                         | NR               | 585       | 580                         | NR               | 715       | 32                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 221                         | NR               | 590       | 568                         | NR               | 720       | 28                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 140                         | NR               | 595       | 550                         | NR               | 725       | 24                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 93                          | NR               | 600       | 527                         | NR               | 730       | 21                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 79                          | NR               | 605       | 499                         | NR               | 735       | 18                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 76                          | NR               | 610       | 469                         | NR               | 740       | 15                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 87                          | NR               | 615       | 435                         | NR               | 745       | 13                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



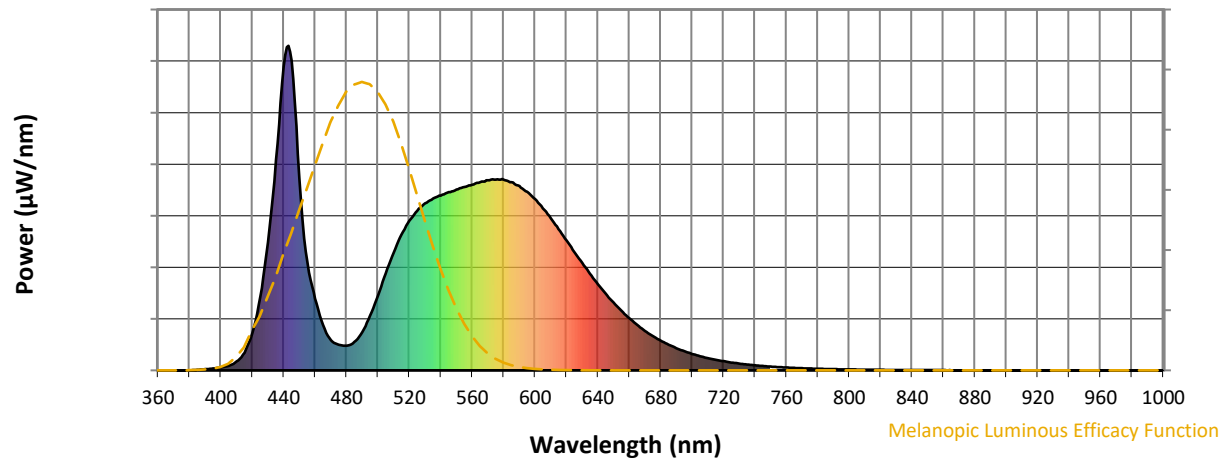
Scotopic Lumens: NR

S/P: 1.7

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 118                      | NR            | 620    | 401                      | NR            | 750    | 12                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 168                      | NR            | 625    | 365                      | NR            | 755    | 10                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 230                      | NR            | 630    | 331                      | NR            | 760    | 9                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 299                      | NR            | 635    | 298                      | NR            | 765    | 8                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 362                      | NR            | 640    | 266                      | NR            | 770    | 6                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 418                      | NR            | 645    | 236                      | NR            | 775    | 6                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 461                      | NR            | 650    | 209                      | NR            | 780    | 5                        | NR            | 910    | 0                        | NR            |
| 395    | 6                        | NR            | 525    | 491                      | NR            | 655    | 184                      | NR            | 785    | 4                        | NR            | 915    | 0                        | NR            |
| 400    | 9                        | NR            | 530    | 514                      | NR            | 660    | 160                      | NR            | 790    | 4                        | NR            | 920    | 0                        | NR            |
| 405    | 14                       | NR            | 535    | 530                      | NR            | 665    | 140                      | NR            | 795    | 3                        | NR            | 925    | 0                        | NR            |
| 410    | 27                       | NR            | 540    | 539                      | NR            | 670    | 122                      | NR            | 800    | 3                        | NR            | 930    | 0                        | NR            |
| 415    | 55                       | NR            | 545    | 549                      | NR            | 675    | 106                      | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 115                      | NR            | 550    | 557                      | NR            | 680    | 92                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 226                      | NR            | 555    | 565                      | NR            | 685    | 79                       | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 395                      | NR            | 560    | 572                      | NR            | 690    | 68                       | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 648                      | NR            | 565    | 580                      | NR            | 695    | 59                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 937                      | NR            | 570    | 586                      | NR            | 700    | 51                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 953                      | NR            | 575    | 588                      | NR            | 705    | 44                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 591                      | NR            | 580    | 588                      | NR            | 710    | 38                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 334                      | NR            | 585    | 580                      | NR            | 715    | 32                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 221                      | NR            | 590    | 568                      | NR            | 720    | 28                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 140                      | NR            | 595    | 550                      | NR            | 725    | 24                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 93                       | NR            | 600    | 527                      | NR            | 730    | 21                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 79                       | NR            | 605    | 499                      | NR            | 735    | 18                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 76                       | NR            | 610    | 469                      | NR            | 740    | 15                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 87                       | NR            | 615    | 435                      | NR            | 745    | 13                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 3.37**

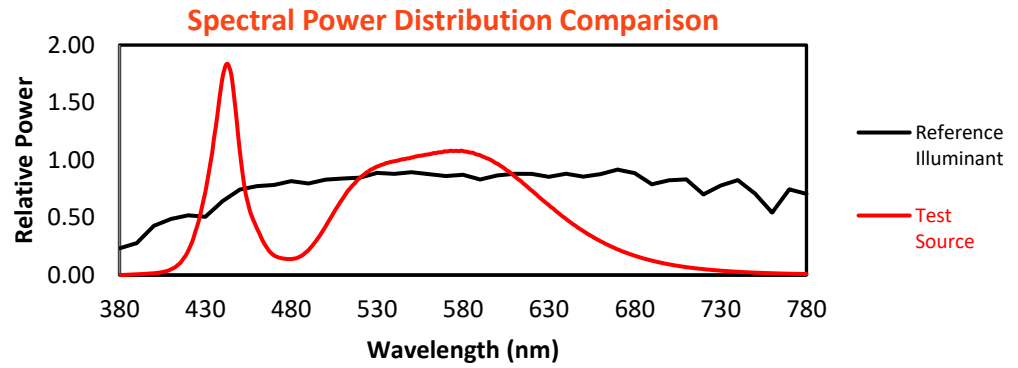
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 118                                  | NR                             | 620               | 401                                  | NR                             | 750               | 12                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 168                                  | NR                             | 625               | 365                                  | NR                             | 755               | 10                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 230                                  | NR                             | 630               | 331                                  | NR                             | 760               | 9                                    | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 299                                  | NR                             | 635               | 298                                  | NR                             | 765               | 8                                    | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 362                                  | NR                             | 640               | 266                                  | NR                             | 770               | 6                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 2                                    | NR                             | 515               | 418                                  | NR                             | 645               | 236                                  | NR                             | 775               | 6                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 4                                    | NR                             | 520               | 461                                  | NR                             | 650               | 209                                  | NR                             | 780               | 5                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 6                                    | NR                             | 525               | 491                                  | NR                             | 655               | 184                                  | NR                             | 785               | 4                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 9                                    | NR                             | 530               | 514                                  | NR                             | 660               | 160                                  | NR                             | 790               | 4                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 14                                   | NR                             | 535               | 530                                  | NR                             | 665               | 140                                  | NR                             | 795               | 3                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 27                                   | NR                             | 540               | 539                                  | NR                             | 670               | 122                                  | NR                             | 800               | 3                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 55                                   | NR                             | 545               | 549                                  | NR                             | 675               | 106                                  | NR                             | 805               | 2                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 115                                  | NR                             | 550               | 557                                  | NR                             | 680               | 92                                   | NR                             | 810               | 2                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 226                                  | NR                             | 555               | 565                                  | NR                             | 685               | 79                                   | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 395                                  | NR                             | 560               | 572                                  | NR                             | 690               | 68                                   | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 648                                  | NR                             | 565               | 580                                  | NR                             | 695               | 59                                   | NR                             | 825               | 1                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 937                                  | NR                             | 570               | 586                                  | NR                             | 700               | 51                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 953                                  | NR                             | 575               | 588                                  | NR                             | 705               | 44                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 591                                  | NR                             | 580               | 588                                  | NR                             | 710               | 38                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 334                                  | NR                             | 585               | 580                                  | NR                             | 715               | 32                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 221                                  | NR                             | 590               | 568                                  | NR                             | 720               | 28                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 140                                  | NR                             | 595               | 550                                  | NR                             | 725               | 24                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 93                                   | NR                             | 600               | 527                                  | NR                             | 730               | 21                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 79                                   | NR                             | 605               | 499                                  | NR                             | 735               | 18                                   | NR                             | 865               | 0                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 76                                   | NR                             | 610               | 469                                  | NR                             | 740               | 15                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 87                                   | NR                             | 615               | 435                                  | NR                             | 745               | 13                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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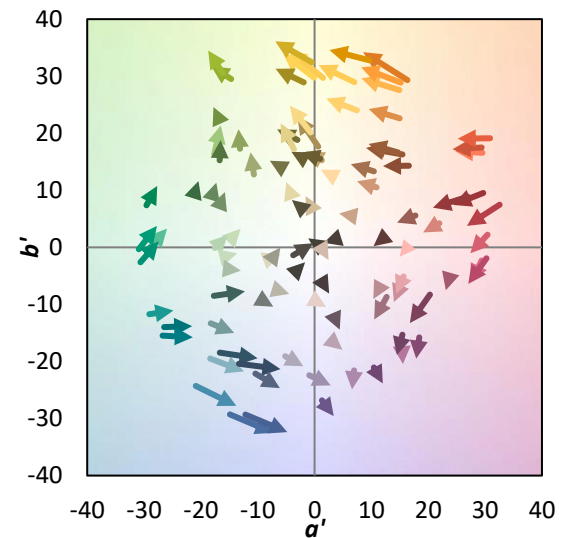
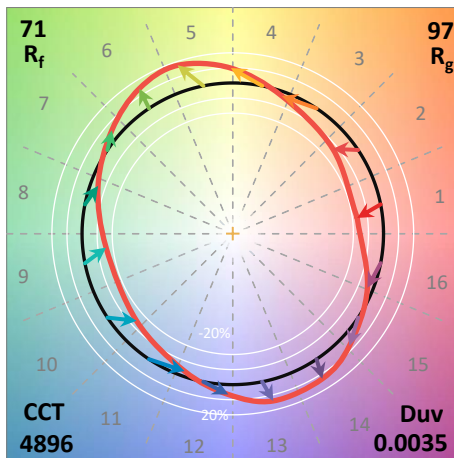
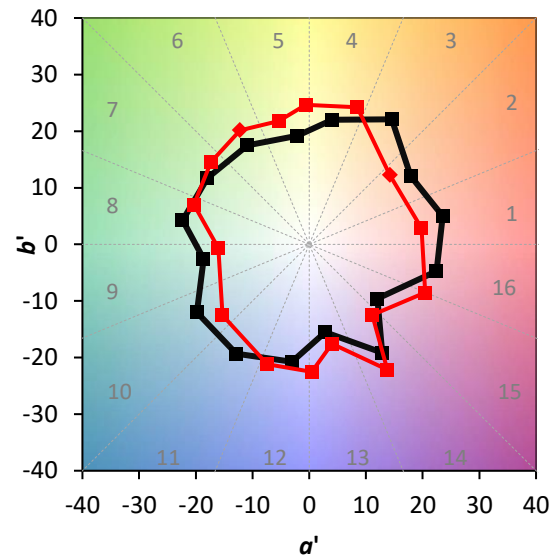
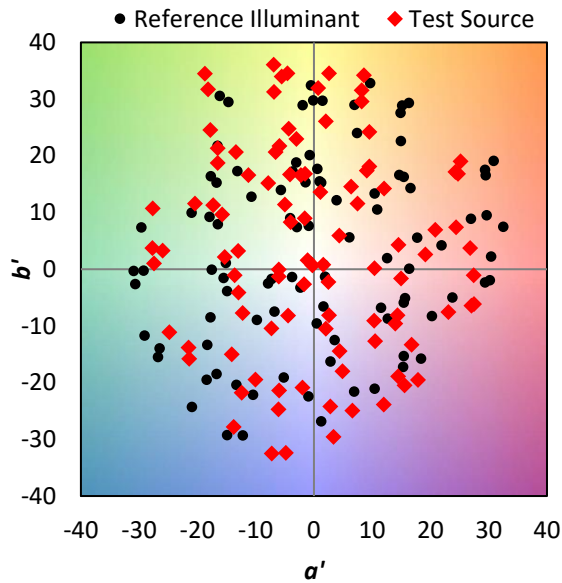
TM-30-18

### Summary

$R_f = 70.7$   
 $R_g = 96.8$   
 $CIE R_a = 70.2$   
 $R_g = -35.1$



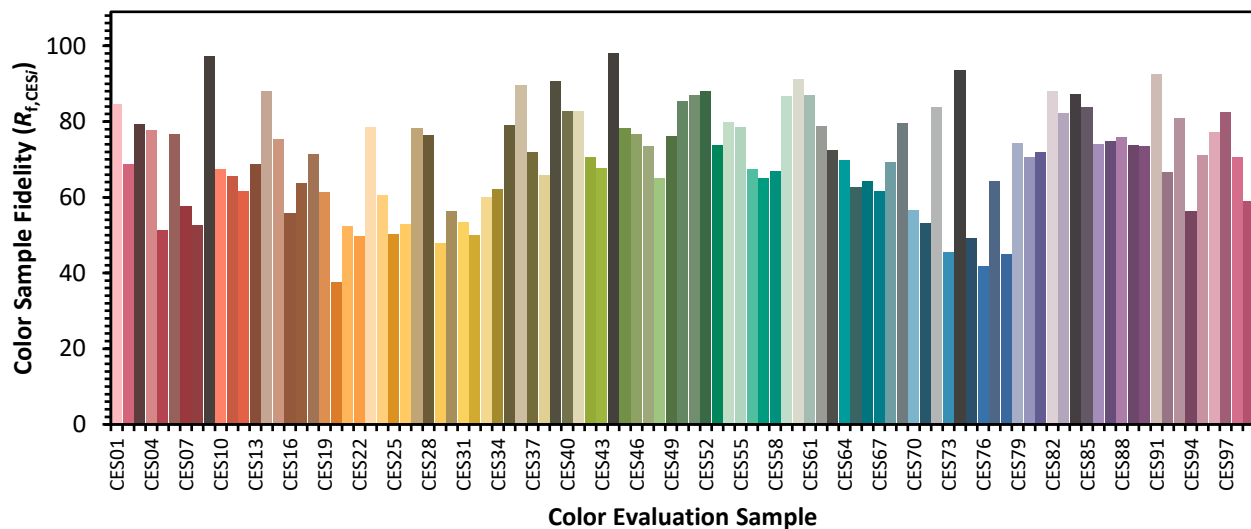
### Color Vector Graphics



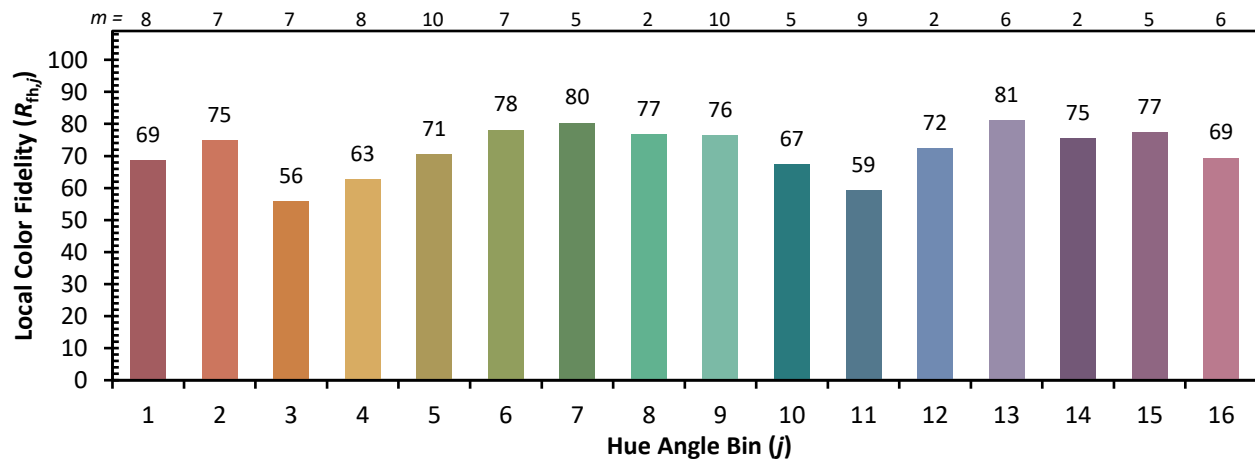
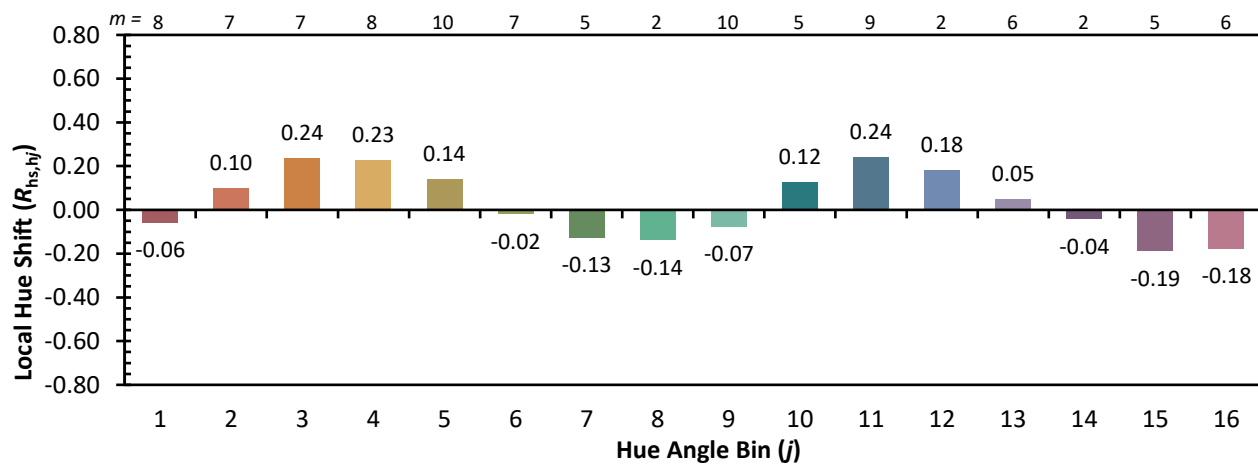
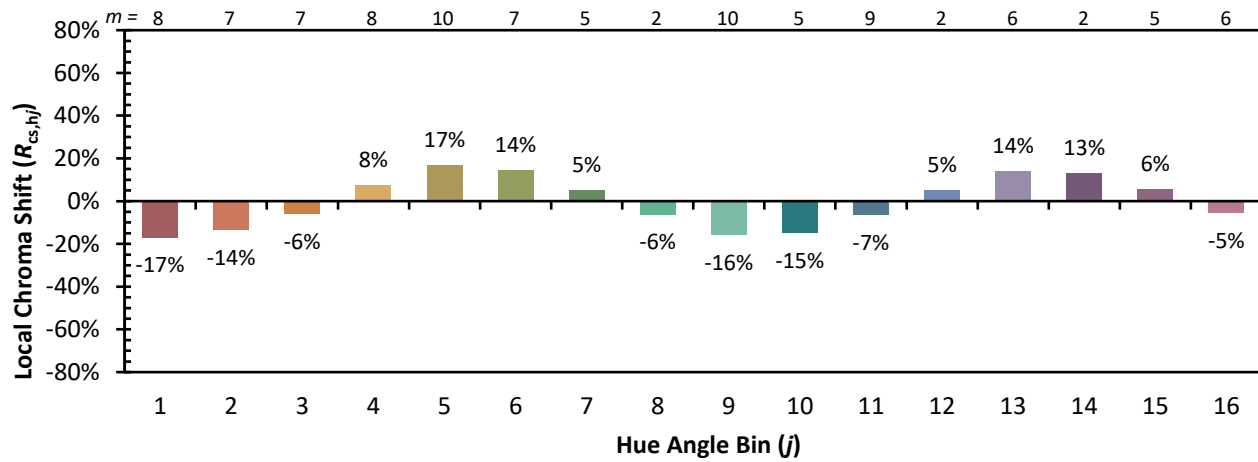


Individual Sample Fidelity Index ( $R_{f,i}$ )

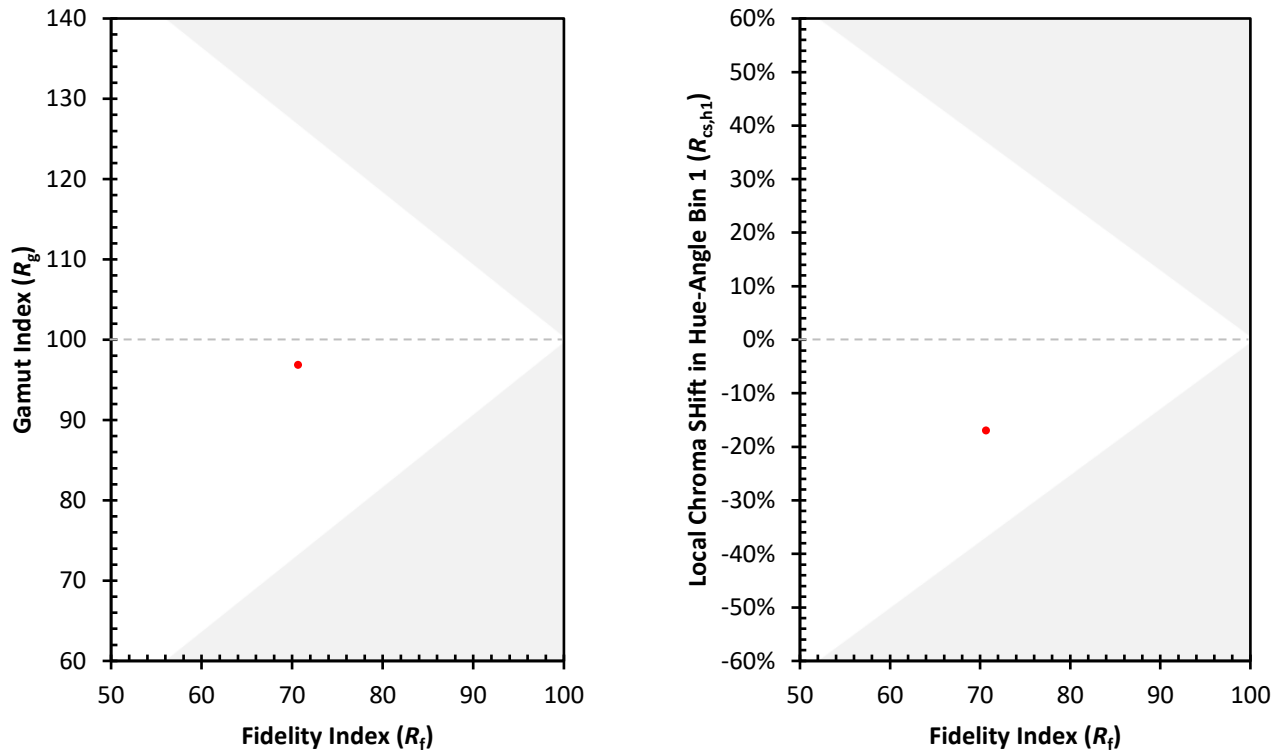
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 53 | CES51 = 87 | CES76 = 42 |
| CES02 = 59 | CES27 = 78 | CES52 = 88 | CES77 = 64 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 45 |
| CES04 = 69 | CES29 = 48 | CES54 = 80 | CES79 = 74 |
| CES05 = 46 | CES30 = 56 | CES55 = 79 | CES80 = 71 |
| CES06 = 50 | CES31 = 54 | CES56 = 68 | CES81 = 72 |
| CES07 = 39 | CES32 = 50 | CES57 = 65 | CES82 = 88 |
| CES08 = 38 | CES33 = 60 | CES58 = 67 | CES83 = 82 |
| CES09 = 29 | CES34 = 62 | CES59 = 87 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 91 | CES85 = 84 |
| CES11 = 56 | CES36 = 90 | CES61 = 87 | CES86 = 74 |
| CES12 = 61 | CES37 = 72 | CES62 = 79 | CES87 = 75 |
| CES13 = 41 | CES38 = 66 | CES63 = 72 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 70 | CES89 = 74 |
| CES15 = 70 | CES40 = 83 | CES65 = 63 | CES90 = 73 |
| CES16 = 46 | CES41 = 83 | CES66 = 64 | CES91 = 92 |
| CES17 = 49 | CES42 = 70 | CES67 = 62 | CES92 = 67 |
| CES18 = 55 | CES43 = 68 | CES68 = 69 | CES93 = 81 |
| CES19 = 71 | CES44 = 98 | CES69 = 80 | CES94 = 56 |
| CES20 = 64 | CES45 = 78 | CES70 = 56 | CES95 = 71 |
| CES21 = 85 | CES46 = 77 | CES71 = 53 | CES96 = 77 |
| CES22 = 77 | CES47 = 73 | CES72 = 84 | CES97 = 82 |
| CES23 = 91 | CES48 = 65 | CES73 = 46 | CES98 = 71 |
| CES24 = 90 | CES49 = 76 | CES74 = 94 | CES99 = 59 |
| CES25 = 71 | CES50 = 85 | CES75 = 49 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)