

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: P1057628

Luminaire Tested: **GAP-SA2A-760-U-T4BC**

Issue Date: 08/07/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1057628  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 08/07/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: STREETWORKS  
Catalog Number: GAP-SA2A-760-U-T4BC  
Description: GALLEON PEDESTRAIAN COMPANION 615mA 2xLight Square PACKAGE 70CRI  
5700K FIXTURE w/ TYPE IV ANGLED BACKLIGHT CONTROL  
Light Source: (28) 5700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6829.3 lumens  
Efficiency: N/A  
Efficacy: 122.8 lumens/watt  
Luminous Opening: Rectangular (W 1.33' x L: 0.67' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G2

Input Watts (W): 55.6  
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

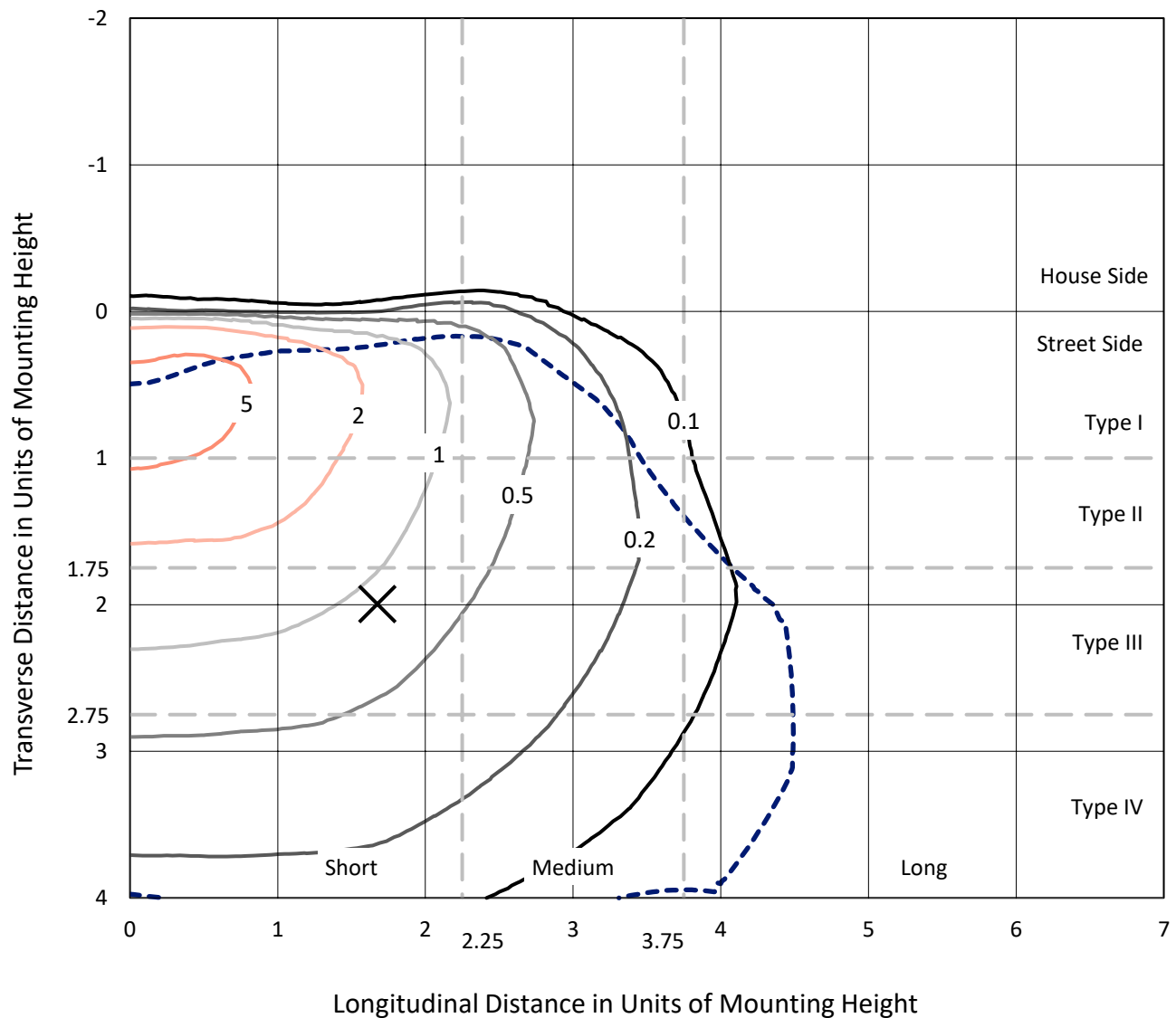


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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

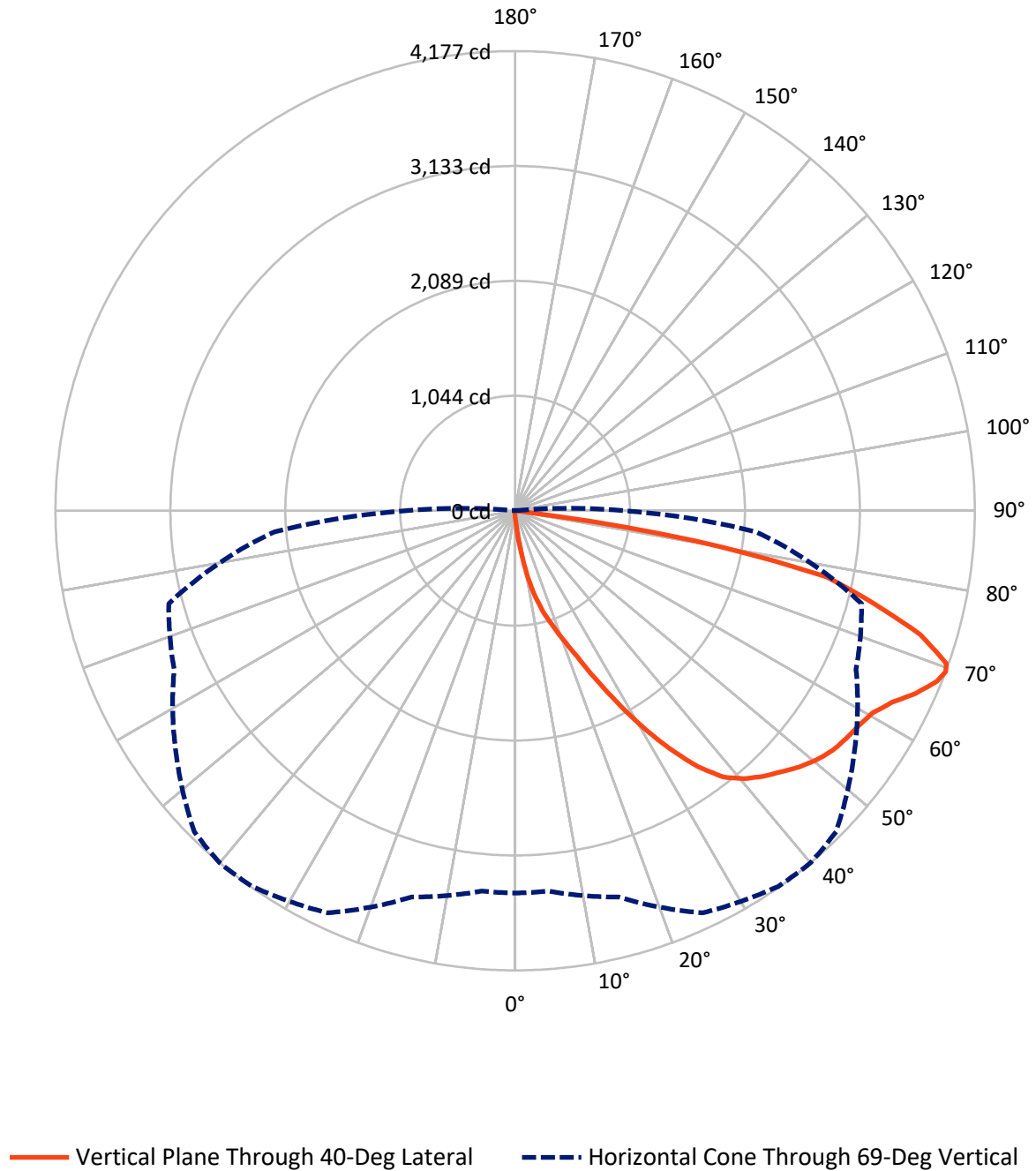


Based on 15 foot mounting height. Maximum calculated value = 7.8 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GAP-SA2A-760-U-T4BC

## Luminous Intensity Polar Plot



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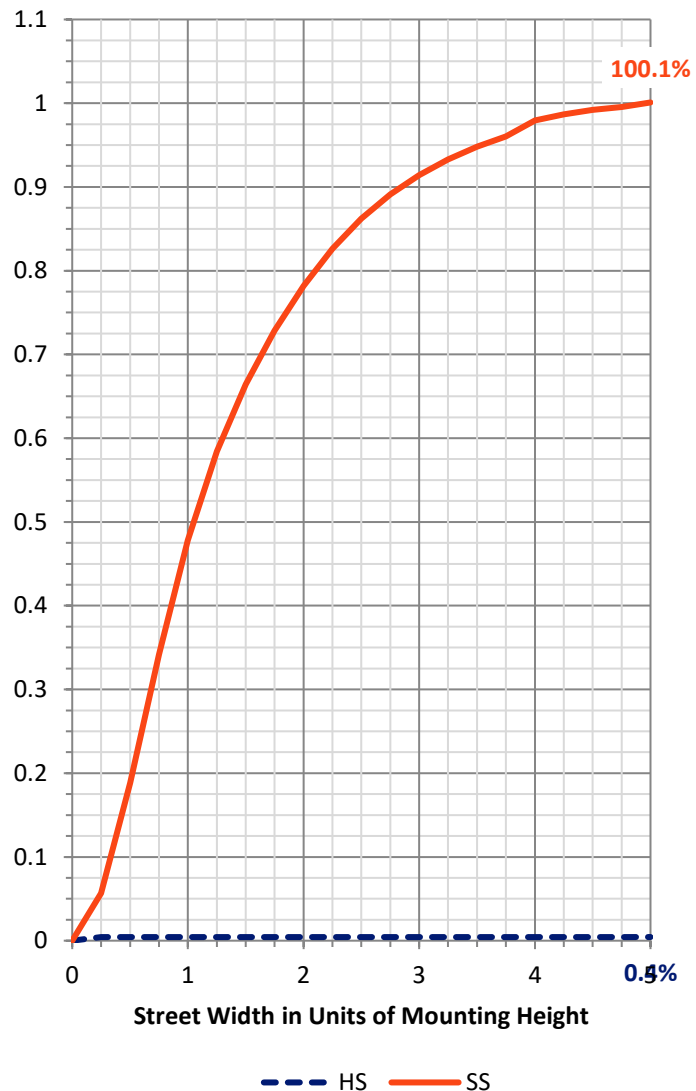
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 29.9     | 0.0    | 29.9   |
|                    | % Fixture | 0.4      | 0.0    | 0.4    |
| <b>Street Side</b> | Lumens    | 6799.4   | 0.0    | 6799.4 |
|                    | % Fixture | 99.6     | 0.0    | 99.6   |
| <b>Total</b>       | Lumens    | 6829.3   | 0.0    | 6829.3 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 14.4   | 0.2       |
| 10°-20°   | 109.1  | 1.6       |
| 20°-30°   | 328.5  | 4.8       |
| 30°-40°   | 723.3  | 10.6      |
| 40°-50°   | 1111.5 | 16.3      |
| 50°-60°   | 1368.7 | 20.0      |
| 60°-70°   | 1727.9 | 25.3      |
| 70°-80°   | 1329.1 | 19.5      |
| 80°-90°   | 116.8  | 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°    | 6829.3 | 100.0     |
| 0°-180°   | 6829.3 | 100.0     |



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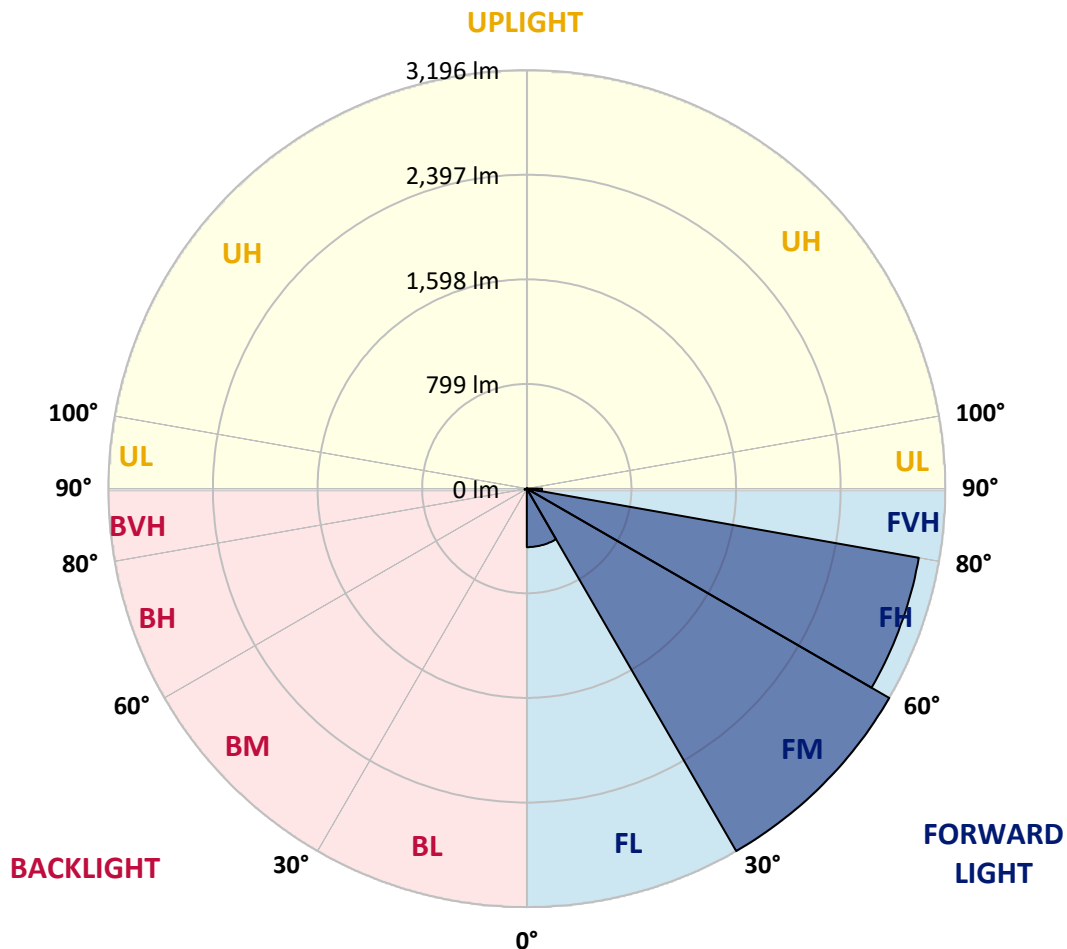
CATALOG NUMBER: GAP-SA2A-760-U-T4BC

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 446.9  | 6.5       |                         |      |         |
| FM   | (30°-60°)   | 3196.1 | 46.8      |                         |      |         |
| FH   | (60°-80°)   | 3039.9 | 44.5      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 116.5  | 1.7       |                         |      | G2/225  |
| BL   | (0°-30°)    | 5.1    | 0.1       | B0/110                  |      |         |
| BM   | (30°-60°)   | 7.3    | 0.1       | B0/220                  |      |         |
| BH   | (60°-80°)   | 17.2   | 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°    | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   | 50.0   |
| 2.5°  | 111.4  | 110.2  | 105.0  | 98.6   | 93.5   | 89.7   | 84.5   | 76.9   | 69.2   | 60.2   | 53.8   |
| 5°    | 292.1  | 290.8  | 270.3  | 244.7  | 210.1  | 187.0  | 164.0  | 126.8  | 96.1   | 74.3   | 56.4   |
| 7.5°  | 540.6  | 536.7  | 517.5  | 477.8  | 404.8  | 365.1  | 322.8  | 226.7  | 147.3  | 92.2   | 60.2   |
| 10°   | 786.5  | 784.0  | 759.6  | 702.0  | 622.6  | 582.8  | 526.5  | 386.9  | 231.9  | 120.4  | 65.3   |
| 12.5° | 931.3  | 937.7  | 919.7  | 892.8  | 824.9  | 787.8  | 723.7  | 562.3  | 356.1  | 165.2  | 71.7   |
| 15°   | 1050.4 | 1053.0 | 1036.3 | 1019.7 | 982.5  | 951.8  | 898.0  | 749.4  | 504.7  | 225.5  | 79.4   |
| 17.5° | 1197.7 | 1193.9 | 1175.9 | 1156.7 | 1115.7 | 1092.7 | 1058.1 | 922.3  | 663.5  | 311.3  | 89.7   |
| 20°   | 1384.7 | 1374.5 | 1354.0 | 1320.7 | 1275.8 | 1247.7 | 1211.8 | 1099.1 | 822.4  | 406.1  | 102.5  |
| 22.5° | 1624.3 | 1611.5 | 1589.7 | 1558.9 | 1479.5 | 1436.0 | 1389.9 | 1250.2 | 997.9  | 526.5  | 119.1  |
| 25°   | 1901.0 | 1894.6 | 1871.5 | 1827.9 | 1743.4 | 1685.8 | 1611.5 | 1427.0 | 1172.1 | 654.6  | 139.6  |
| 27.5° | 2226.3 | 2214.8 | 2184.1 | 2132.8 | 2041.9 | 1966.3 | 1874.1 | 1621.7 | 1338.6 | 790.4  | 165.2  |
| 30°   | 2590.1 | 2564.5 | 2501.7 | 2456.9 | 2350.6 | 2276.3 | 2168.7 | 1880.5 | 1510.3 | 932.5  | 192.1  |
| 32.5° | 2928.3 | 2895.0 | 2804.0 | 2742.6 | 2643.9 | 2577.3 | 2478.7 | 2141.8 | 1703.7 | 1081.1 | 226.7  |
| 35°   | 3234.5 | 3198.6 | 3051.3 | 2957.8 | 2907.8 | 2851.4 | 2751.5 | 2440.3 | 1912.5 | 1240.0 | 266.4  |
| 37.5° | 3493.2 | 3457.3 | 3267.8 | 3120.4 | 3089.7 | 3070.5 | 2989.8 | 2692.6 | 2149.5 | 1419.3 | 312.6  |
| 40°   | 3638.0 | 3614.9 | 3450.9 | 3284.4 | 3225.5 | 3202.4 | 3143.5 | 2904.0 | 2413.4 | 1598.7 | 366.4  |
| 42.5° | 3682.8 | 3668.7 | 3535.5 | 3453.5 | 3345.9 | 3299.8 | 3229.3 | 3065.4 | 2640.1 | 1799.8 | 427.8  |
| 45°   | 3658.5 | 3643.1 | 3545.7 | 3564.9 | 3475.3 | 3385.6 | 3289.5 | 3175.5 | 2830.9 | 2036.7 | 504.7  |
| 47.5° | 3554.7 | 3549.6 | 3483.0 | 3591.8 | 3581.6 | 3479.1 | 3360.0 | 3248.5 | 2994.9 | 2266.0 | 600.8  |
| 50°   | 3301.1 | 3298.5 | 3329.2 | 3554.7 | 3652.1 | 3556.0 | 3436.9 | 3313.9 | 3125.6 | 2495.3 | 723.7  |
| 52.5° | 2959.0 | 2977.0 | 3132.0 | 3485.5 | 3672.5 | 3616.2 | 3513.7 | 3388.2 | 3233.2 | 2724.6 | 889.0  |
| 55°   | 2778.4 | 2793.8 | 2997.5 | 3409.9 | 3668.7 | 3652.1 | 3591.8 | 3459.9 | 3331.8 | 2912.9 | 1109.3 |
| 57.5° | 2915.5 | 2898.8 | 2992.4 | 3399.7 | 3652.1 | 3682.8 | 3648.2 | 3516.3 | 3421.5 | 3079.5 | 1414.2 |
| 60°   | 3175.5 | 3170.4 | 3181.9 | 3472.7 | 3686.6 | 3732.8 | 3708.4 | 3554.7 | 3509.9 | 3206.3 | 1749.8 |
| 62.5° | 3438.1 | 3424.0 | 3435.6 | 3673.8 | 3807.1 | 3839.1 | 3809.6 | 3617.5 | 3579.0 | 3298.5 | 2113.6 |
| 65°   | 3568.8 | 3558.5 | 3612.3 | 3876.2 | 3978.7 | 4000.5 | 3962.0 | 3718.7 | 3590.6 | 3345.9 | 2342.9 |
| 67.5° | 3552.1 | 3549.6 | 3675.1 | 4018.4 | 4122.2 | 4135.0 | 4103.0 | 3819.9 | 3541.9 | 3344.6 | 2367.2 |
| 69°   | 3474.0 | 3468.9 | 3634.1 | 4032.5 | 4168.3 | 4177.3 | 4124.7 | 3768.6 | 3418.9 | 3258.8 | 2194.3 |
| 70°   | 3381.8 | 3386.9 | 3573.9 | 4006.9 | 4169.6 | 4156.8 | 4035.1 | 3695.6 | 3325.4 | 3160.2 | 1974.0 |
| 72.5° | 3038.5 | 3070.5 | 3326.7 | 3839.1 | 3994.1 | 3850.6 | 3691.8 | 3456.1 | 3147.4 | 2693.9 | 1378.3 |
| 75°   | 2541.5 | 2586.3 | 2916.8 | 3490.7 | 3434.3 | 3362.6 | 3343.3 | 3164.0 | 2851.4 | 1789.5 | 979.9  |
| 77.5° | 1242.5 | 1391.1 | 2070.1 | 2681.1 | 2818.1 | 2891.2 | 2864.3 | 2615.7 | 2291.7 | 878.7  | 639.2  |
| 80°   | 65.3   | 67.9   | 108.9  | 256.2  | 1305.3 | 1660.1 | 2041.9 | 1997.0 | 1734.4 | 400.9  | 336.9  |
| 82.5° | 34.6   | 34.6   | 38.4   | 44.8   | 52.5   | 62.8   | 166.5  | 1143.9 | 1031.2 | 206.2  | 125.5  |
| 85°   | 19.2   | 19.2   | 23.1   | 30.7   | 39.7   | 46.1   | 52.5   | 69.2   | 221.6  | 74.3   | 20.5   |
| 87.5° | 9.0    | 11.5   | 15.4   | 21.8   | 28.2   | 35.9   | 41.0   | 51.2   | 65.3   | 62.8   | 3.8    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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CATALOG NUMBER: GAP-SA2A-760-U-T4BC

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°  | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|------|------|------|------|------|------|------|------|------|------|
| 0°    | 50.0   | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| 2.5°  | 50.0   | 47.4 | 43.6 | 41.0 | 39.7 | 37.1 | 34.6 | 33.3 | 32.0 | 30.7 | 32.0 |
| 5°    | 50.0   | 46.1 | 39.7 | 35.9 | 33.3 | 29.5 | 26.9 | 25.6 | 24.3 | 23.1 | 23.1 |
| 7.5°  | 50.0   | 43.6 | 35.9 | 30.7 | 26.9 | 24.3 | 20.5 | 19.2 | 17.9 | 16.7 | 16.7 |
| 10°   | 51.2   | 41.0 | 32.0 | 26.9 | 23.1 | 19.2 | 16.7 | 14.1 | 12.8 | 12.8 | 12.8 |
| 12.5° | 51.2   | 38.4 | 28.2 | 23.1 | 19.2 | 15.4 | 11.5 | 9.0  | 7.7  | 7.7  | 7.7  |
| 15°   | 51.2   | 35.9 | 25.6 | 19.2 | 15.4 | 11.5 | 6.4  | 3.8  | 2.6  | 2.6  | 1.3  |
| 17.5° | 52.5   | 34.6 | 23.1 | 16.7 | 11.5 | 6.4  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  |
| 20°   | 55.1   | 33.3 | 20.5 | 14.1 | 7.7  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 22.5° | 57.6   | 32.0 | 17.9 | 10.2 | 3.8  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 25°   | 62.8   | 32.0 | 16.7 | 9.0  | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 27.5° | 67.9   | 32.0 | 12.8 | 5.1  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 30°   | 71.7   | 32.0 | 11.5 | 3.8  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 32.5° | 76.9   | 32.0 | 10.2 | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 35°   | 80.7   | 30.7 | 7.7  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 37.5° | 84.5   | 29.5 | 6.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 40°   | 89.7   | 28.2 | 5.1  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 42.5° | 94.8   | 25.6 | 3.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 45°   | 101.2  | 24.3 | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 47.5° | 110.2  | 23.1 | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 50°   | 123.0  | 23.1 | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 52.5° | 144.7  | 23.1 | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 55°   | 180.6  | 23.1 | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 57.5° | 243.4  | 23.1 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 60°   | 366.4  | 23.1 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 62.5° | 566.2  | 25.6 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 65°   | 865.9  | 30.7 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 67.5° | 1097.8 | 37.1 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 69°   | 991.5  | 34.6 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 70°   | 840.3  | 26.9 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 72.5° | 467.6  | 14.1 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 75°   | 243.4  | 6.4  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 77.5° | 103.8  | 3.8  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 80°   | 30.7   | 2.6  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 82.5° | 10.2   | 2.6  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 85°   | 3.8    | 2.6  | 1.3  | 1.3  | 1.3  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 87.5° | 2.6    | 1.3  | 1.3  | 1.3  | 1.3  | 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: SP1-2407-184-7

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-757-U-5WQ

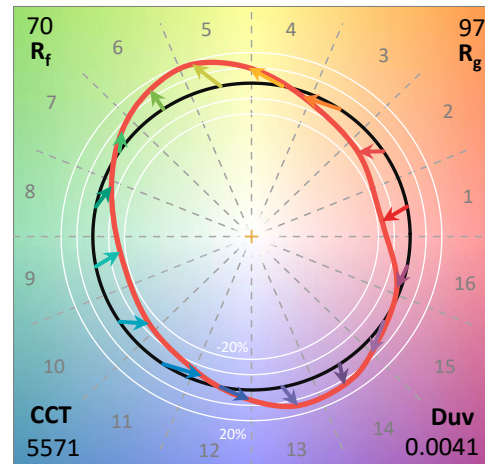
Data in this report applies to families of products including GSS-SB1A-757-U-5WQ

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-7  
 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-757-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI  
 5700K CCT 26 LEDS

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 5571     | CRI (Ra): | 69.9 |      |       |
| CIE u':                   | 0.2033   | R1:       | 68.8 | R9:  | -35.4 |
| CIE v':                   | 0.4806   | R2:       | 72.5 | R10: | 36.7  |
| Duv:                      | 0.0041   | R3:       | 76.8 | R11: | 73.9  |
| CIE x:                    | 0.3308   | R4:       | 72.0 | R12: | 47.8  |
| CIE y:                    | 0.3476   | R5:       | 70.9 | R13: | 68.0  |
| CIE z:                    | 0.3216   | R6:       | 65.6 | R14: | 87.0  |
| Peak Wavelength (nm):     | 442      | R7:       | 75.5 | R15: | 59.8  |
| Dominant Wavelength (nm): | 544      | R8:       | 56.8 |      |       |
| Purity:                   | 3.635698 |           |      |      |       |
| Rf:                       | 70.4     |           |      |      |       |
| Rg:                       | 97.1     |           |      |      |       |



### Test Conditions

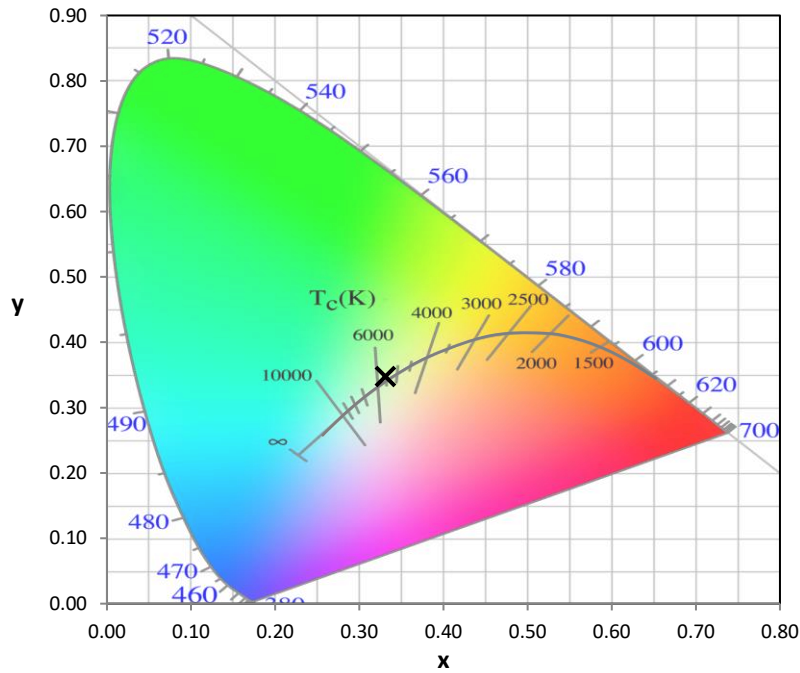
Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-184-7

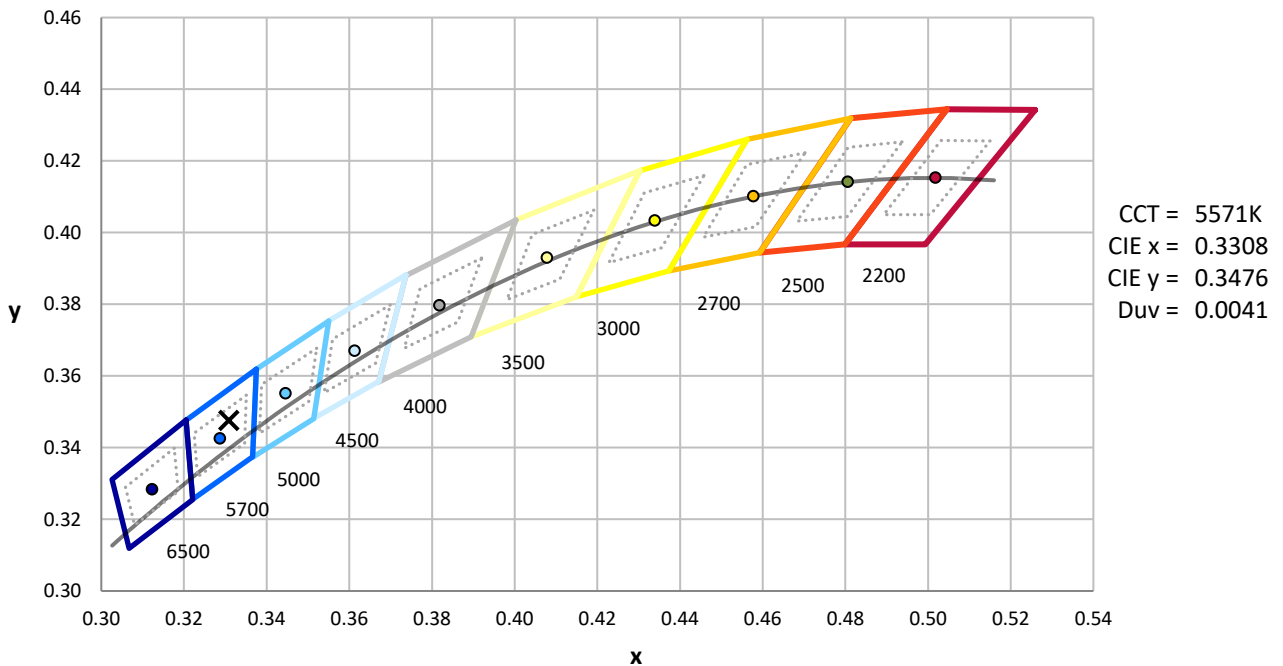
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

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**CIE 1931 Chromaticity Diagram**

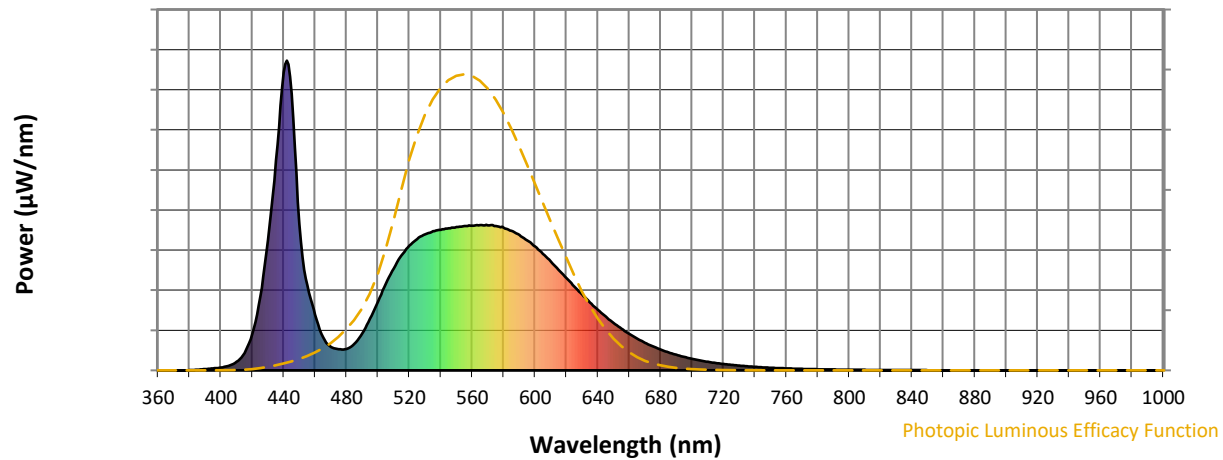


**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



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### Photopic Flux vs. Wavelength

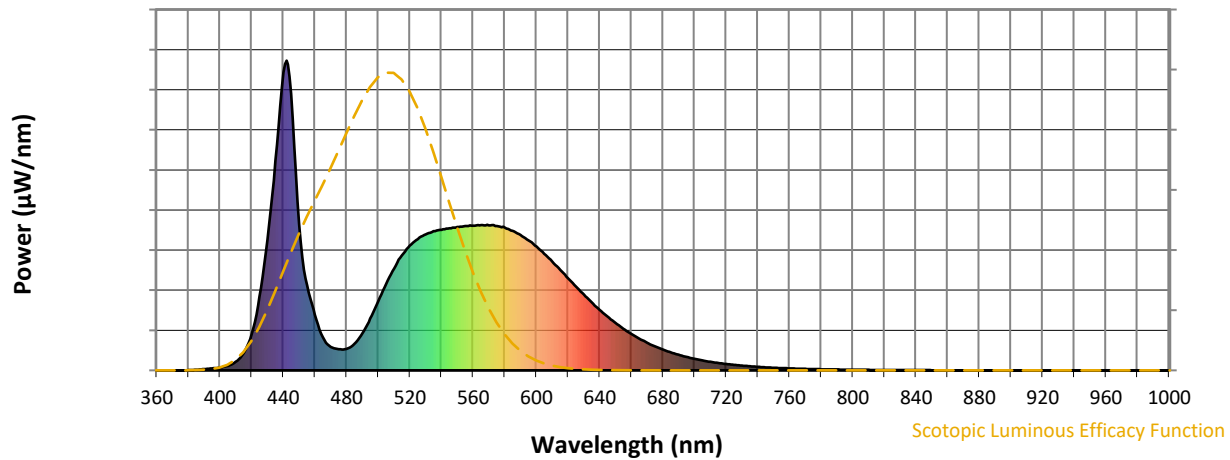


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|-------------------|-------------------------------|--------------------------------|
| 360               | 0                             | NR                             | 490               | 120                           | NR                             | 620               | 298                           | NR                             | 750               | 9                             | NR                             | 880               | 0                             | NR                             |
| 365               | 0                             | NR                             | 495               | 167                           | NR                             | 625               | 270                           | NR                             | 755               | 7                             | NR                             | 885               | 0                             | NR                             |
| 370               | 0                             | NR                             | 500               | 222                           | NR                             | 630               | 245                           | NR                             | 760               | 6                             | NR                             | 890               | 0                             | NR                             |
| 375               | 0                             | NR                             | 505               | 279                           | NR                             | 635               | 219                           | NR                             | 765               | 6                             | NR                             | 895               | 0                             | NR                             |
| 380               | 1                             | NR                             | 510               | 329                           | NR                             | 640               | 196                           | NR                             | 770               | 5                             | NR                             | 900               | 0                             | NR                             |
| 385               | 2                             | NR                             | 515               | 371                           | NR                             | 645               | 173                           | NR                             | 775               | 4                             | NR                             | 905               | 0                             | NR                             |
| 390               | 4                             | NR                             | 520               | 403                           | NR                             | 650               | 153                           | NR                             | 780               | 4                             | NR                             | 910               | 0                             | NR                             |
| 395               | 6                             | NR                             | 525               | 424                           | NR                             | 655               | 135                           | NR                             | 785               | 3                             | NR                             | 915               | 0                             | NR                             |
| 400               | 9                             | NR                             | 530               | 439                           | NR                             | 660               | 117                           | NR                             | 790               | 3                             | NR                             | 920               | 0                             | NR                             |
| 405               | 14                            | NR                             | 535               | 449                           | NR                             | 665               | 103                           | NR                             | 795               | 2                             | NR                             | 925               | 0                             | NR                             |
| 410               | 28                            | NR                             | 540               | 454                           | NR                             | 670               | 89                            | NR                             | 800               | 2                             | NR                             | 930               | 0                             | NR                             |
| 415               | 55                            | NR                             | 545               | 459                           | NR                             | 675               | 77                            | NR                             | 805               | 2                             | NR                             | 935               | 0                             | NR                             |
| 420               | 118                           | NR                             | 550               | 463                           | NR                             | 680               | 67                            | NR                             | 810               | 2                             | NR                             | 940               | 0                             | NR                             |
| 425               | 237                           | NR                             | 555               | 466                           | NR                             | 685               | 58                            | NR                             | 815               | 1                             | NR                             | 945               | 0                             | NR                             |
| 430               | 420                           | NR                             | 560               | 467                           | NR                             | 690               | 50                            | NR                             | 820               | 1                             | NR                             | 950               | 0                             | NR                             |
| 435               | 677                           | NR                             | 565               | 469                           | NR                             | 695               | 43                            | NR                             | 825               | 1                             | NR                             | 955               | 0                             | NR                             |
| 440               | 962                           | NR                             | 570               | 469                           | NR                             | 700               | 37                            | NR                             | 830               | 1                             | NR                             | 960               | 0                             | NR                             |
| 445               | 894                           | NR                             | 575               | 466                           | NR                             | 705               | 32                            | NR                             | 835               | 1                             | NR                             | 965               | 0                             | NR                             |
| 450               | 472                           | NR                             | 580               | 461                           | NR                             | 710               | 28                            | NR                             | 840               | 1                             | NR                             | 970               | 0                             | NR                             |
| 455               | 275                           | NR                             | 585               | 450                           | NR                             | 715               | 24                            | NR                             | 845               | 1                             | NR                             | 975               | 0                             | NR                             |
| 460               | 180                           | NR                             | 590               | 437                           | NR                             | 720               | 21                            | NR                             | 850               | 1                             | NR                             | 980               | 0                             | NR                             |
| 465               | 107                           | NR                             | 595               | 420                           | NR                             | 725               | 18                            | NR                             | 855               | 0                             | NR                             | 985               | 0                             | NR                             |
| 470               | 76                            | NR                             | 600               | 400                           | NR                             | 730               | 15                            | NR                             | 860               | 0                             | NR                             | 990               | 0                             | NR                             |
| 475               | 68                            | NR                             | 605               | 376                           | NR                             | 735               | 13                            | NR                             | 865               | 0                             | NR                             | 995               | 0                             | NR                             |
| 480               | 69                            | NR                             | 610               | 352                           | NR                             | 740               | 11                            | NR                             | 870               | 0                             | NR                             | 1000              | 0                             | NR                             |
| 485               | 86                            | NR                             | 615               | 325                           | NR                             | 745               | 10                            | NR                             | 875               | 0                             | NR                             |                   |                               |                                |

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### Scotopic Flux vs. Wavelength



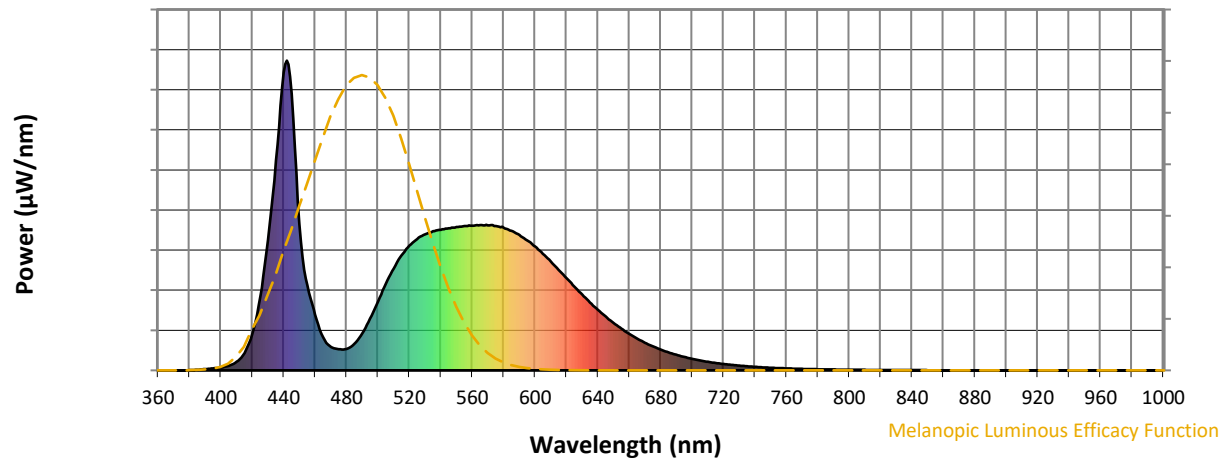
Scotopic Lumens: NR

S/P: 1.84

| 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    | 120                      | NR            | 620    | 298                      | NR            | 750    | 9                        | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 167                      | NR            | 625    | 270                      | NR            | 755    | 7                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 222                      | NR            | 630    | 245                      | NR            | 760    | 6                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 279                      | NR            | 635    | 219                      | NR            | 765    | 6                        | NR            | 895    | 0                        | NR            |
| 380    | 1                        | NR            | 510    | 329                      | NR            | 640    | 196                      | NR            | 770    | 5                        | NR            | 900    | 0                        | NR            |
| 385    | 2                        | NR            | 515    | 371                      | NR            | 645    | 173                      | NR            | 775    | 4                        | NR            | 905    | 0                        | NR            |
| 390    | 4                        | NR            | 520    | 403                      | NR            | 650    | 153                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 6                        | NR            | 525    | 424                      | NR            | 655    | 135                      | NR            | 785    | 3                        | NR            | 915    | 0                        | NR            |
| 400    | 9                        | NR            | 530    | 439                      | NR            | 660    | 117                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 14                       | NR            | 535    | 449                      | NR            | 665    | 103                      | NR            | 795    | 2                        | NR            | 925    | 0                        | NR            |
| 410    | 28                       | NR            | 540    | 454                      | NR            | 670    | 89                       | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 55                       | NR            | 545    | 459                      | NR            | 675    | 77                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 118                      | NR            | 550    | 463                      | NR            | 680    | 67                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 237                      | NR            | 555    | 466                      | NR            | 685    | 58                       | NR            | 815    | 1                        | NR            | 945    | 0                        | NR            |
| 430    | 420                      | NR            | 560    | 467                      | NR            | 690    | 50                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 677                      | NR            | 565    | 469                      | NR            | 695    | 43                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 962                      | NR            | 570    | 469                      | NR            | 700    | 37                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 894                      | NR            | 575    | 466                      | NR            | 705    | 32                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 472                      | NR            | 580    | 461                      | NR            | 710    | 28                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 275                      | NR            | 585    | 450                      | NR            | 715    | 24                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 180                      | NR            | 590    | 437                      | NR            | 720    | 21                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 107                      | NR            | 595    | 420                      | NR            | 725    | 18                       | NR            | 855    | 0                        | NR            | 985    | 0                        | NR            |
| 470    | 76                       | NR            | 600    | 400                      | NR            | 730    | 15                       | NR            | 860    | 0                        | NR            | 990    | 0                        | NR            |
| 475    | 68                       | NR            | 605    | 376                      | NR            | 735    | 13                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 69                       | NR            | 610    | 352                      | NR            | 740    | 11                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 86                       | NR            | 615    | 325                      | NR            | 745    | 10                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.71

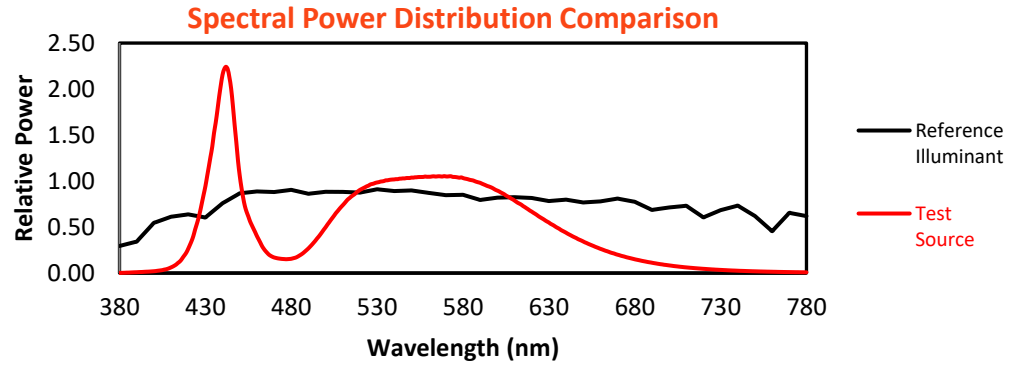
| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 120                         | NR               | 620       | 298                         | NR               | 750       | 9                           | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 167                         | NR               | 625       | 270                         | NR               | 755       | 7                           | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 222                         | NR               | 630       | 245                         | NR               | 760       | 6                           | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 279                         | NR               | 635       | 219                         | NR               | 765       | 6                           | NR               | 895       | 0                           | NR               |
| 380       | 1                           | NR               | 510       | 329                         | NR               | 640       | 196                         | NR               | 770       | 5                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 371                         | NR               | 645       | 173                         | NR               | 775       | 4                           | NR               | 905       | 0                           | NR               |
| 390       | 4                           | NR               | 520       | 403                         | NR               | 650       | 153                         | NR               | 780       | 4                           | NR               | 910       | 0                           | NR               |
| 395       | 6                           | NR               | 525       | 424                         | NR               | 655       | 135                         | NR               | 785       | 3                           | NR               | 915       | 0                           | NR               |
| 400       | 9                           | NR               | 530       | 439                         | NR               | 660       | 117                         | NR               | 790       | 3                           | NR               | 920       | 0                           | NR               |
| 405       | 14                          | NR               | 535       | 449                         | NR               | 665       | 103                         | NR               | 795       | 2                           | NR               | 925       | 0                           | NR               |
| 410       | 28                          | NR               | 540       | 454                         | NR               | 670       | 89                          | NR               | 800       | 2                           | NR               | 930       | 0                           | NR               |
| 415       | 55                          | NR               | 545       | 459                         | NR               | 675       | 77                          | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 118                         | NR               | 550       | 463                         | NR               | 680       | 67                          | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 237                         | NR               | 555       | 466                         | NR               | 685       | 58                          | NR               | 815       | 1                           | NR               | 945       | 0                           | NR               |
| 430       | 420                         | NR               | 560       | 467                         | NR               | 690       | 50                          | NR               | 820       | 1                           | NR               | 950       | 0                           | NR               |
| 435       | 677                         | NR               | 565       | 469                         | NR               | 695       | 43                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 962                         | NR               | 570       | 469                         | NR               | 700       | 37                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 894                         | NR               | 575       | 466                         | NR               | 705       | 32                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 472                         | NR               | 580       | 461                         | NR               | 710       | 28                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 275                         | NR               | 585       | 450                         | NR               | 715       | 24                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 180                         | NR               | 590       | 437                         | NR               | 720       | 21                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 107                         | NR               | 595       | 420                         | NR               | 725       | 18                          | NR               | 855       | 0                           | NR               | 985       | 0                           | NR               |
| 470       | 76                          | NR               | 600       | 400                         | NR               | 730       | 15                          | NR               | 860       | 0                           | NR               | 990       | 0                           | NR               |
| 475       | 68                          | NR               | 605       | 376                         | NR               | 735       | 13                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 69                          | NR               | 610       | 352                         | NR               | 740       | 11                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 86                          | NR               | 615       | 325                         | NR               | 745       | 10                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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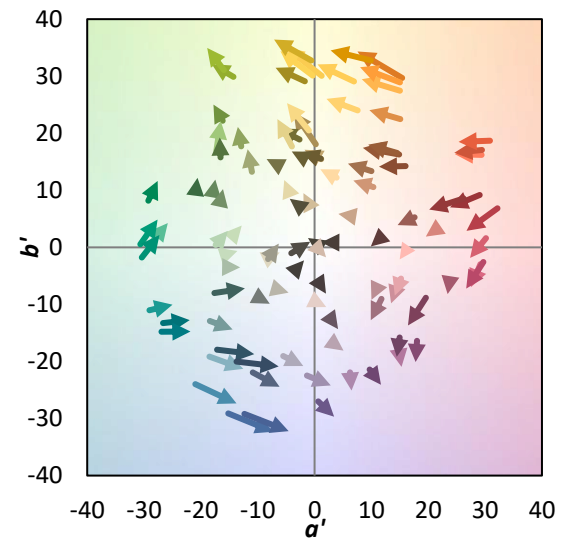
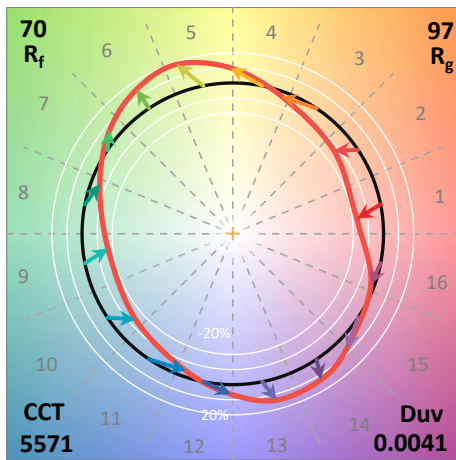
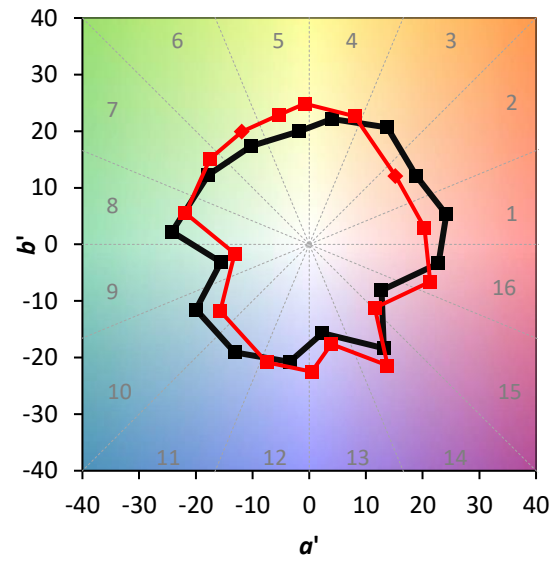
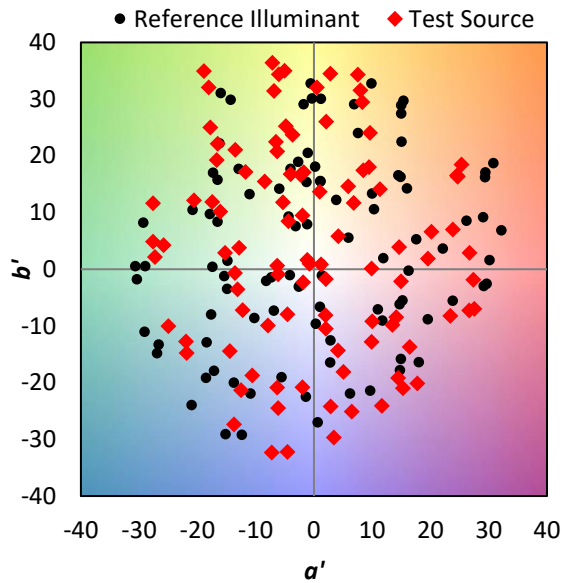
TM-30-18

### Summary

$R_f = 70.4$   
 $R_g = 97.1$   
 $CIE R_a = 69.9$   
 $R_g = -35.4$



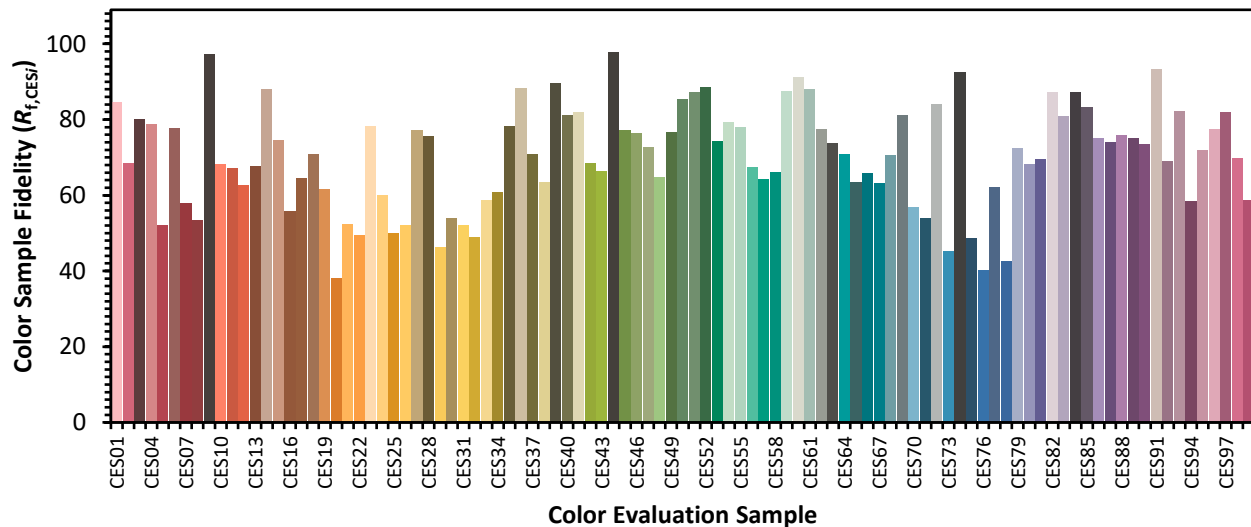
### Color Vector Graphics



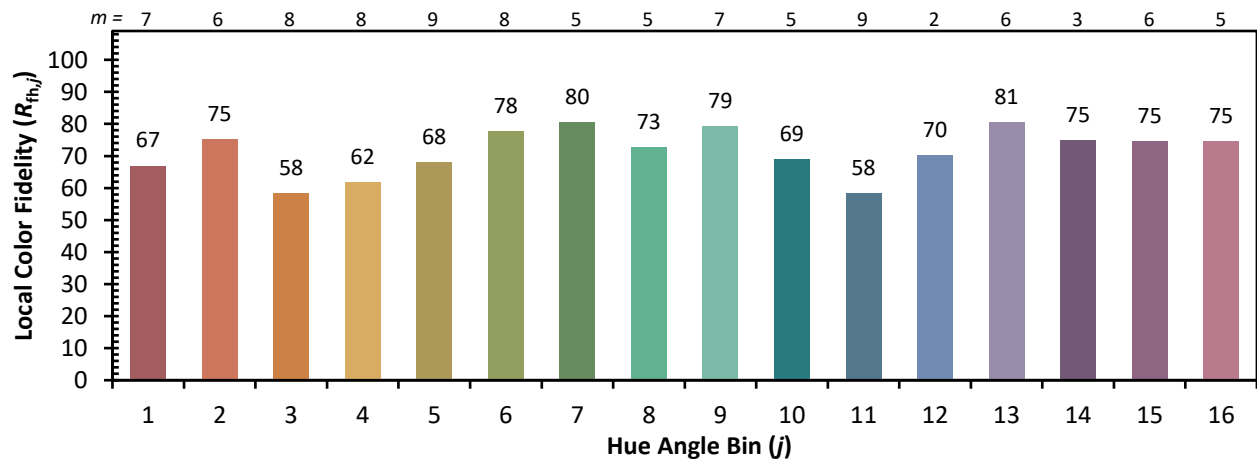
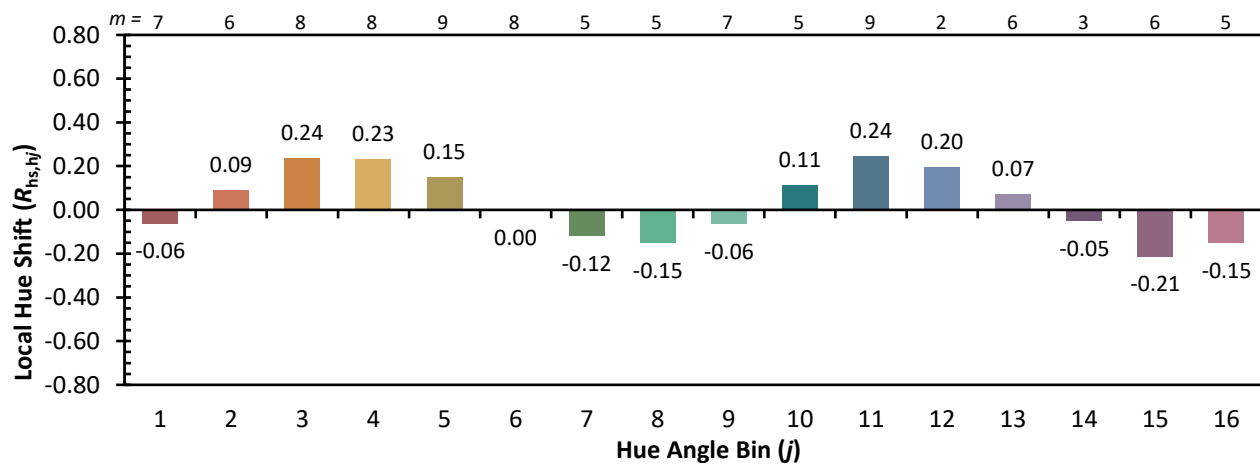
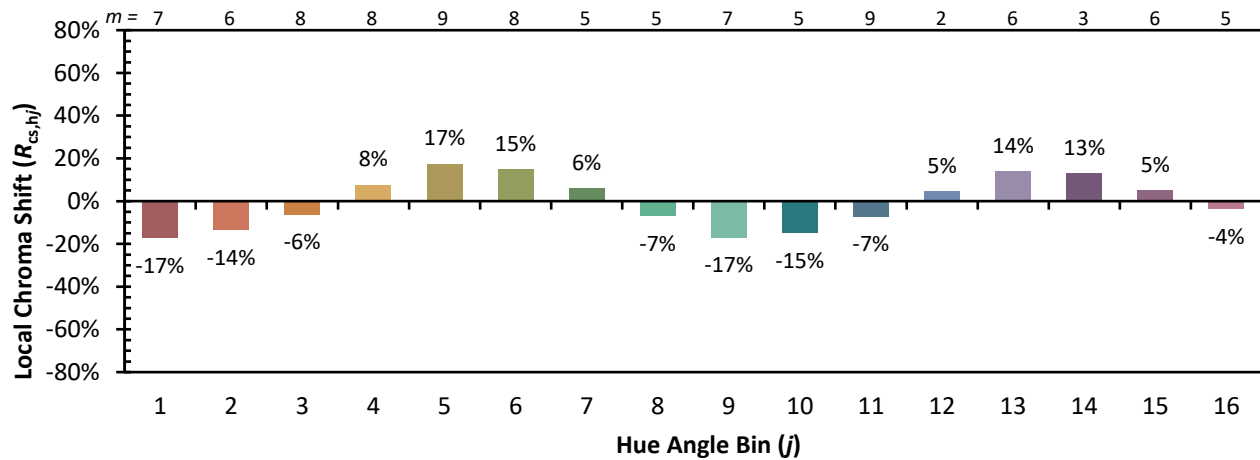


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

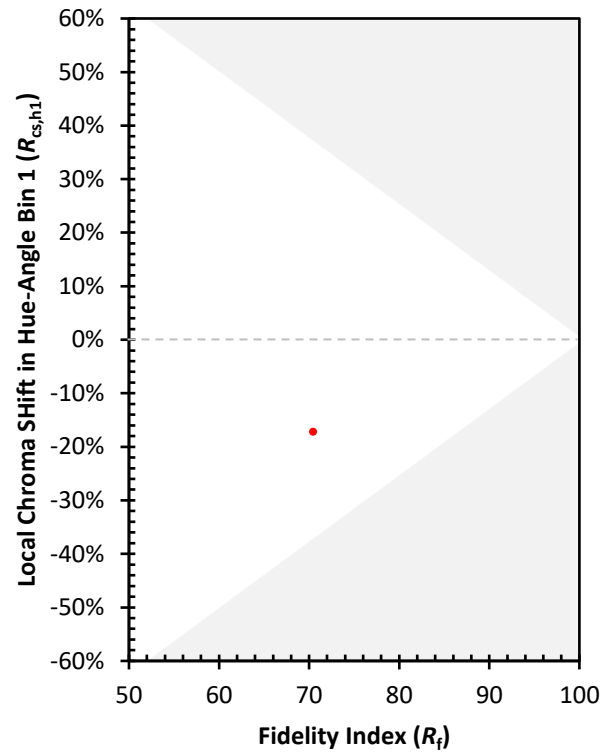
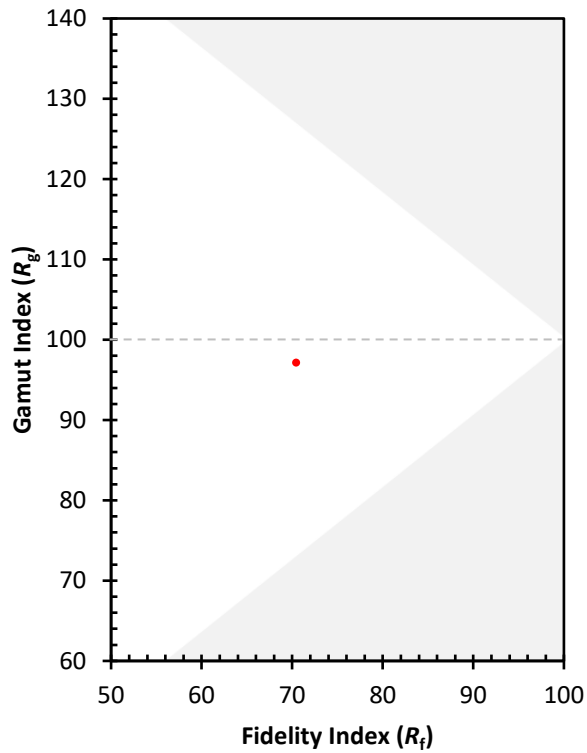
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 52 | CES51 = 87 | CES76 = 40 |
| CES02 = 59 | CES27 = 77 | CES52 = 88 | CES77 = 62 |
| CES03 = 30 | CES28 = 76 | CES53 = 74 | CES78 = 43 |
| CES04 = 68 | CES29 = 46 | CES54 = 79 | CES79 = 72 |
| CES05 = 45 | CES30 = 54 | CES55 = 78 | CES80 = 68 |
| CES06 = 49 | CES31 = 52 | CES56 = 67 | CES81 = 70 |
| CES07 = 38 | CES32 = 49 | CES57 = 64 | CES82 = 87 |
| CES08 = 37 | CES33 = 59 | CES58 = 66 | CES83 = 81 |
| CES09 = 29 | CES34 = 61 | CES59 = 87 | CES84 = 87 |
| CES10 = 72 | CES35 = 78 | CES60 = 91 | CES85 = 83 |
| CES11 = 55 | CES36 = 88 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 71 | CES62 = 77 | CES87 = 74 |
| CES13 = 41 | CES38 = 64 | CES63 = 74 | CES88 = 76 |
| CES14 = 74 | CES39 = 90 | CES64 = 71 | CES89 = 75 |
| CES15 = 70 | CES40 = 81 | CES65 = 63 | CES90 = 73 |
| CES16 = 46 | CES41 = 82 | CES66 = 66 | CES91 = 93 |
| CES17 = 48 | CES42 = 69 | CES67 = 63 | CES92 = 69 |
| CES18 = 55 | CES43 = 67 | CES68 = 71 | CES93 = 82 |
| CES19 = 70 | CES44 = 98 | CES69 = 81 | CES94 = 58 |
| CES20 = 63 | CES45 = 77 | CES70 = 57 | CES95 = 72 |
| CES21 = 85 | CES46 = 76 | CES71 = 54 | CES96 = 78 |
| CES22 = 77 | CES47 = 73 | CES72 = 84 | CES97 = 82 |
| CES23 = 91 | CES48 = 65 | CES73 = 45 | CES98 = 70 |
| CES24 = 90 | CES49 = 77 | CES74 = 92 | CES99 = 59 |
| CES25 = 71 | CES50 = 85 | CES75 = 49 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)