Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled data based on original data using

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

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P641440

Luminaire Tested: GWS-SA5F-830-U-SL2-W-GRSWH

Issue Date: 1/10/2023

Report Generated By 670246102 / DESKTOP-G35701P

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P641440 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-29) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 1/10/2023 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWS-SA5F-830-U-SL2-W-GRSWH |
| Description: | GALLEON WALL SLIM LUMINAIRE. (5) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL LIGHT ELIMINATOR OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH |
| Light Source: | (80) 3000K CCT, 80 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 28239.9 lumens |
| Efficiency: | N/A |
| Efficacy: | 91.0 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B4 - U0 - G3 |

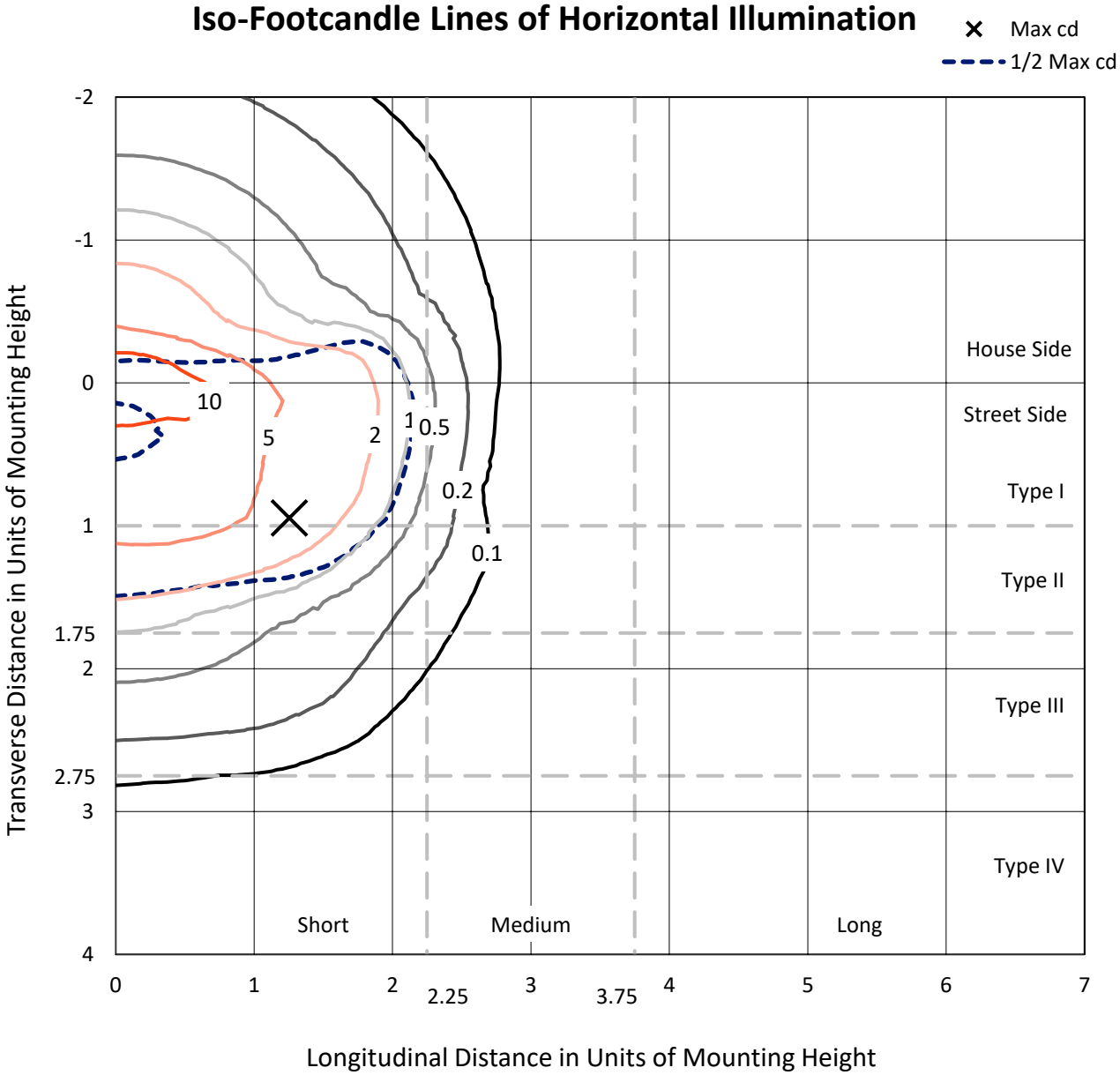
| | |
|---|---|
| Input Watts (W): | 310.3 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 0 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P641440
CATALOG NUMBER: GWS-SA5F-830-U-SL2-W-GRSWH

## Iso-Footcandle Lines of Horizontal Illumination



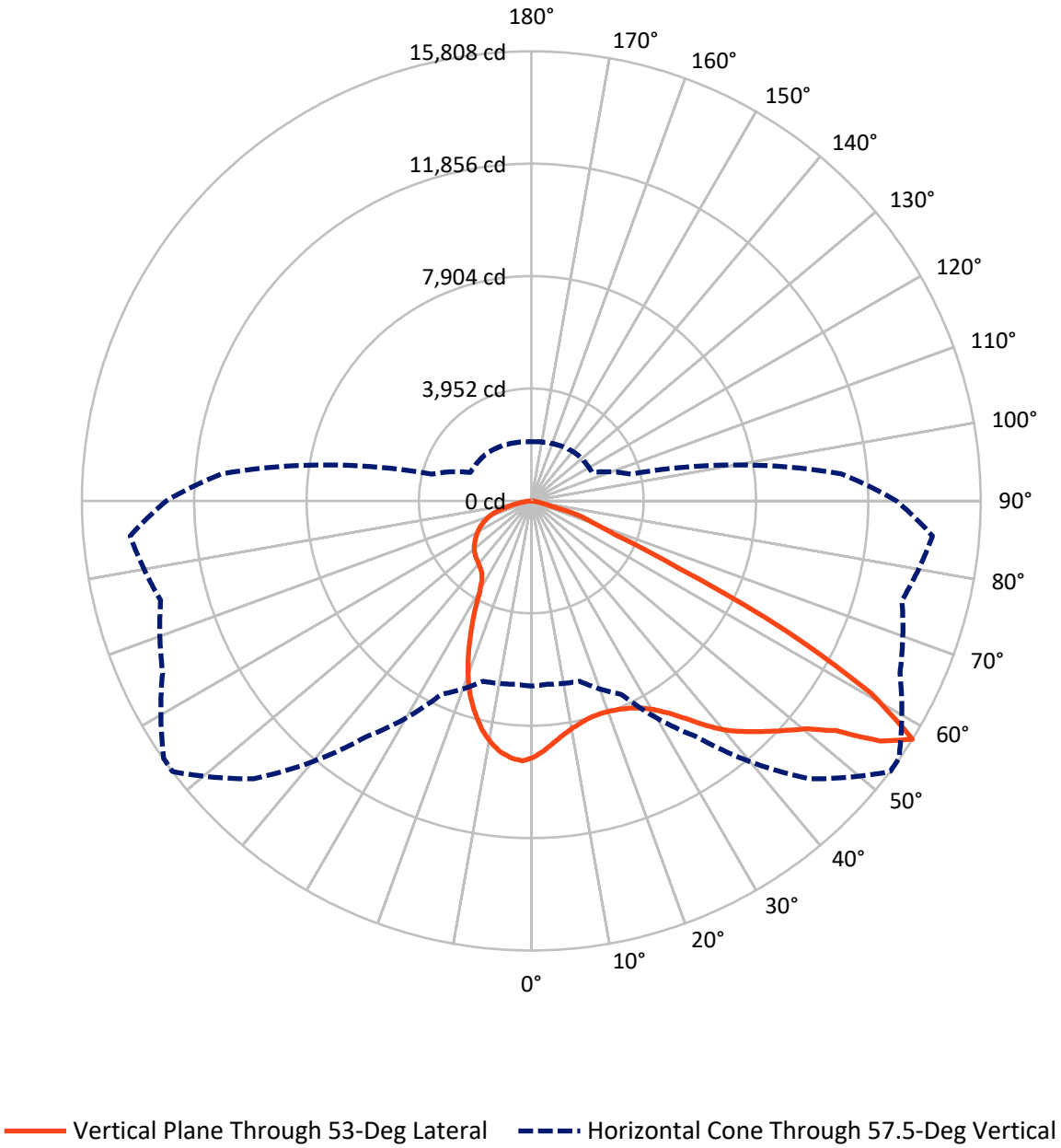

Based on 25 foot mounting height. Maximum calculated value = 14.4 fc
Type II - Short - N/A

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P641440
CATALOG NUMBER: GWS-SA5F-830-U-SL2-W-GRSWH

## Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

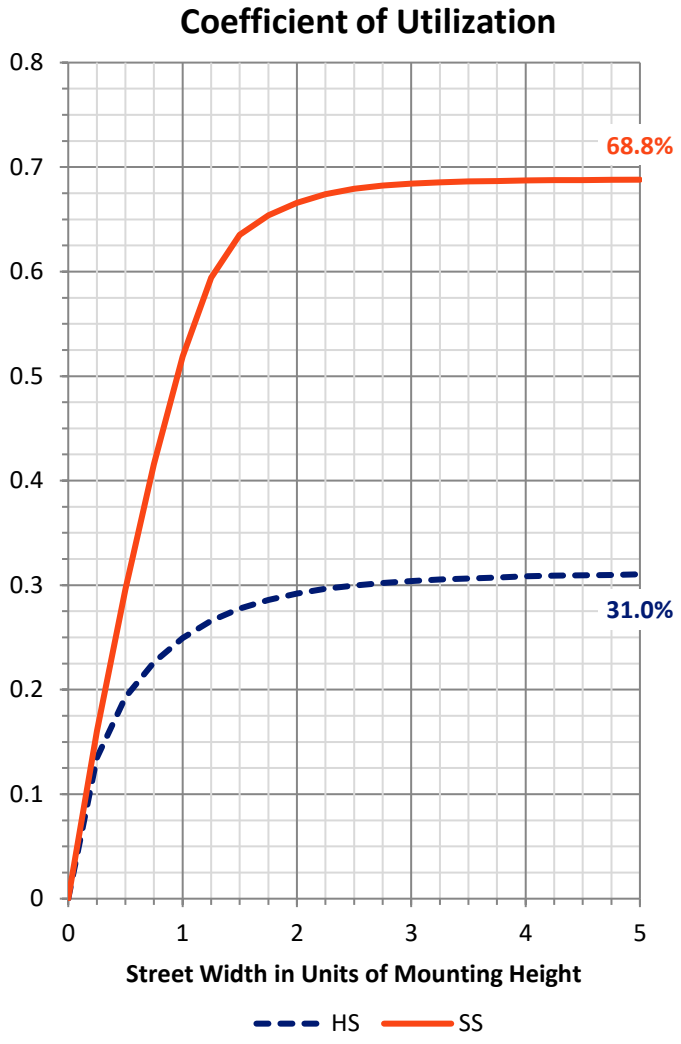
REPORT NUMBER: P641440
CATALOG NUMBER: GWS-SA5F-830-U-SL2-W-GRSWH

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 8829.6 | 0.0 | 8829.6 |
| | % Fixture | 31.3 | 0.0 | 31.3 |
| **Street Side** | Lumens | 19410.3 | 0.0 | 19410.3 |
| | % Fixture | 68.7 | 0.0 | 68.7 |
| **Total** | Lumens | 28239.9 | 0.0 | 28239.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 815.5 | 2.9 |
| 10°-20° | 2139.4 | 7.6 |
| 20°-30° | 3152.1 | 11.2 |
| 30°-40° | 4412.2 | 15.6 |
| 40°-50° | 5800.1 | 20.5 |
| 50°-60° | 6800.6 | 24.1 |
| 60°-70° | 4006.3 | 14.2 |
| 70°-80° | 996.6 | 3.5 |
| 80°-90° | 116.9 | 0.4 |
| 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° | 28239.9 | 100.0 |
| 0°-180° | 28239.9 | 100.0 |



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

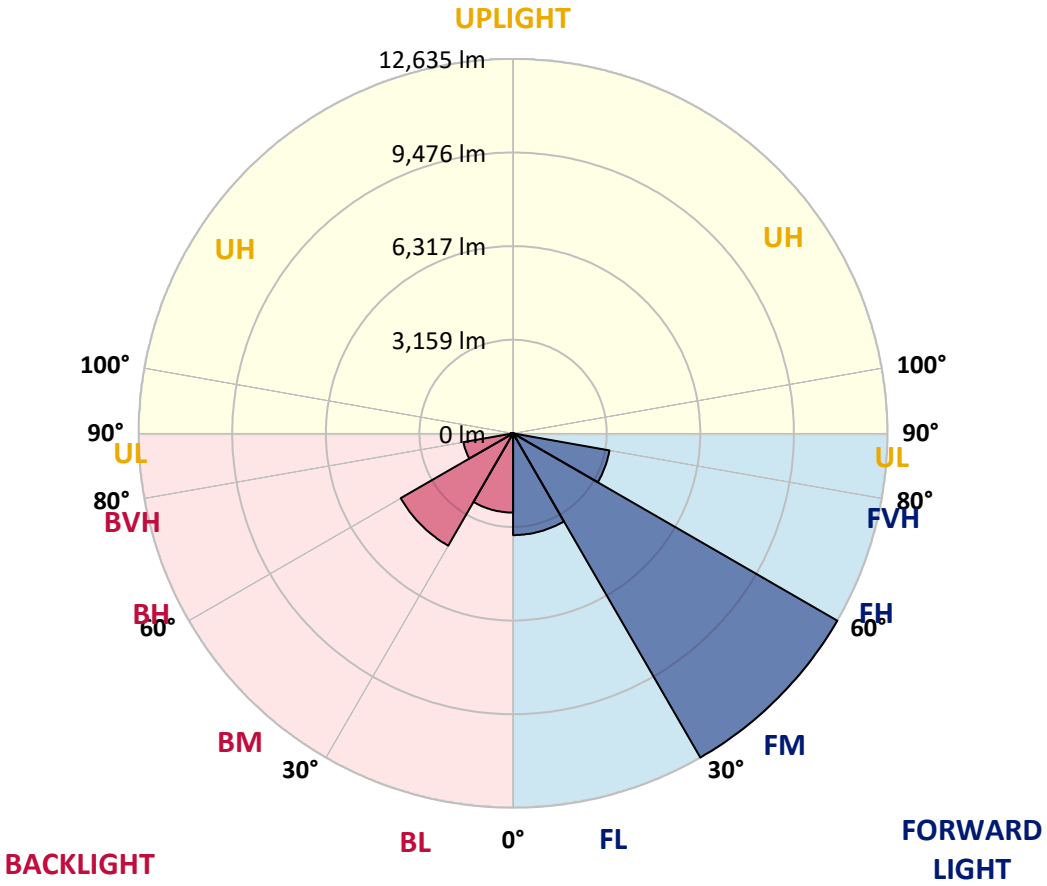
Scaled Data Report

REPORT NUMBER: P641440
CATALOG NUMBER: GWS-SA5F-830-U-SL2-W-GRSWH

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 3433.4 | 12.2 | | | |
| FM | (30°-60°) | 12634.8 | 44.7 | | | |
| FH | (60°-80°) | 3303.0 | 11.7 | | | G2/5000 |
| FVH | (80°-90°) | 39.1 | 0.1 | | | G1/100 |
| BL | (0°-30°) | 2673.6 | 9.5 | B4/5000 | | |
| BM | (30°-60°) | 4378.2 | 15.5 | B3/5000 | | |
| BH | (60°-80°) | 1700.0 | 6.0 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 77.8 | 0.3 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B4-U0-G3**
Type II Short



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P641440
CATALOG NUMBER: GWS-SA5F-830-U-SL2-W-GRSWH

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 53° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 | *9017.8* | 9017.8 | 9017.8 | 9017.8 | 9017.8 |
| 2.5° | 8499.6 | 8523.4 | 8528.1 | 8601.8 | 8606.6 | 8713.5 | *8784.8* | 8770.6 | 8844.3 | 8934.6 | 9005.9 |
| 5° | 8093.2 | 8095.5 | 8119.3 | 8207.3 | 8254.8 | 8395.0 | *8513.9* | 8513.9 | 8656.5 | 8841.9 | 9001.1 |
| 7.5° | 7758.0 | 7755.7 | 7777.0 | 7874.5 | 7952.9 | 8121.7 | *8283.3* | 8302.3 | 8502.0 | 8772.9 | 9032.0 |
| 10° | 7446.7 | 7463.3 | 7487.1 | 7605.9 | 7705.7 | 7914.9 | *8107.4* | 8138.3 | 8390.3 | 8725.4 | 9074.8 |
| 12.5° | 7247.0 | 7249.4 | 7285.0 | 7418.1 | 7546.5 | 7769.9 | *7971.9* | 8010.0 | 8300.0 | 8680.3 | 9105.7 |
| 15° | 7118.7 | 7121.0 | 7159.1 | 7306.4 | 7456.2 | 7682.0 | *7888.8* | 7931.5 | 8247.7 | 8673.1 | 9165.1 |
| 17.5° | 7061.6 | 7059.2 | 7094.9 | 7242.3 | 7406.3 | 7641.6 | *7862.6* | 7914.9 | 8271.4 | 8727.8 | 9269.7 |
| 20° | 7061.6 | 7064.0 | 7083.0 | 7216.1 | 7382.5 | 7632.1 | *7888.8* | 7952.9 | 8364.1 | 8851.4 | 9431.3 |
| 22.5° | 7161.4 | 7171.0 | 7180.5 | 7270.8 | 7401.5 | 7646.3 | *7957.7* | 8043.3 | 8563.8 | 9058.2 | 9642.9 |
| 25° | 7356.3 | 7358.7 | 7368.2 | 7441.9 | 7501.3 | 7686.7 | *8071.8* | 8200.1 | 8875.2 | 9360.0 | 9909.1 |
| 27.5° | 7617.8 | 7651.1 | 7660.6 | 7708.1 | 7708.1 | 7786.6 | *8250.0* | 8435.4 | 9295.9 | 9795.0 | 10249.0 |
| 30° | 7983.8 | 7995.7 | 8012.4 | 8064.6 | 8007.6 | 7974.3 | *8511.5* | 8749.2 | 9783.1 | 10320.3 | 10657.8 |
| 32.5° | 8304.7 | 8330.9 | 8421.2 | 8506.7 | 8404.5 | 8300.0 | *8896.5* | 9177.0 | 10251.3 | 10867.0 | 11092.8 |
| 35° | 8578.0 | 8642.2 | 8815.7 | 9005.9 | 8934.6 | 8830.0 | *9407.6* | 9699.9 | 10636.4 | 11259.1 | 11477.8 |
| 37.5° | 8908.4 | 8958.3 | 9196.0 | 9505.0 | 9569.2 | 9519.3 | *10030.3* | 10239.5 | 10893.1 | 11359.0 | 11687.0 |
| 40° | 9243.6 | 9319.6 | 9626.2 | 10054.1 | 10298.9 | 10334.5 | *10605.5* | 10745.7 | 10981.0 | 11164.1 | 11646.6 |
| 42.5° | 9585.8 | 9716.6 | 10137.3 | 10636.4 | 11071.4 | 11152.2 | *11090.4* | 11149.8 | 10952.5 | 10895.5 | 11458.8 |
| 45° | 10004.2 | 10158.7 | 10634.0 | 11271.0 | 11843.8 | 11969.8 | *11565.7* | 11511.1 | 10947.8 | 10793.3 | 11342.3 |
| 47.5° | 10498.5 | 10653.0 | 11107.0 | 11848.6 | 12580.7 | 12673.4 | *12053.0* | 11953.2 | 11114.1 | 10950.1 | 11499.2 |
| 50° | 10935.9 | 11042.8 | 11449.3 | 12278.8 | 13267.6 | 13322.2 | *12590.2* | 12468.9 | 11527.7 | 11385.1 | 11988.8 |
| 52.5° | 10491.4 | 10479.5 | 10907.4 | 11929.4 | 13624.1 | 14282.5 | *13417.3* | 13300.8 | 12326.3 | 12107.7 | 12747.0 |
| 55° | 8901.3 | 8765.8 | 9148.5 | 10153.9 | 12628.2 | 15135.8 | *14900.5* | 14667.5 | 13391.2 | 12835.0 | 13457.7 |
| 57.5° | *6507.8* | *6469.8* | *6562.5* | *7506.1* | *10115.9* | *13814.2* | *15808.4* | *15787.0* | *14311.0* | *13500.5* | *14166.0* |
| 60° | 5088.8 | 5031.8 | 4784.6 | 4810.7 | 6895.2 | 10790.9 | *13719.2* | 14349.0 | 14881.4 | 13899.8 | 14660.4 |
| 62.5° | 4518.4 | 4475.6 | 4347.3 | 3993.1 | 4107.2 | 7235.1 | *10056.4* | 10634.0 | 13003.7 | 12276.4 | 12592.5 |
| 65° | 3741.2 | 3729.3 | 3836.2 | 3822.0 | 3441.7 | 3995.5 | *5675.9* | 6258.2 | 8176.4 | 8278.6 | 8176.4 |
| 67.5° | 2719.1 | 2697.7 | 2968.7 | 3503.5 | 3313.3 | 3016.2 | *3163.6* | 3365.6 | 4192.8 | 3764.9 | 3389.4 |
| 70° | 1768.4 | 1737.5 | 1894.3 | 2531.3 | 2966.3 | 2628.8 | *2279.4* | 2246.1 | 2305.5 | 1433.2 | 1549.7 |
| 72.5° | 1186.0 | 1150.4 | 1148.0 | 1392.8 | 1792.1 | 1770.8 | *1766.0* | 1749.4 | 1561.6 | 1131.4 | 1255.0 |
| 75° | 660.8 | 632.2 | 625.1 | 601.3 | 641.7 | 653.6 | *696.4* | 720.2 | 779.6 | 858.0 | 950.7 |
| 77.5° | 111.7 | 109.3 | 137.9 | 175.9 | 242.4 | 311.4 | *385.0* | 406.4 | 501.5 | 594.2 | 653.6 |
| 80° | 61.8 | 64.2 | 83.2 | 102.2 | 135.5 | 185.4 | *237.7* | 251.9 | 309.0 | 358.9 | 406.4 |
| 82.5° | 33.3 | 33.3 | 42.8 | 54.7 | 73.7 | 97.5 | *128.3* | 140.2 | 178.3 | 209.2 | 242.4 |
| 85° | 11.9 | 11.9 | 16.6 | 21.4 | 30.9 | 40.4 | *49.9* | 57.0 | 78.4 | 107.0 | 121.2 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 4.8 | *9.5* | 9.5 | 11.9 | 21.4 | 30.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P641440
CATALOG NUMBER: GWS-SA5F-830-U-SL2-W-GRSWH

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 | 9017.8 |
| 2.5° | 9065.3 | 9001.1 | 9089.1 | 9129.5 | 9143.7 | 9153.2 | 9091.4 | 9048.7 | 9034.4 | 8989.2 | 8963.1 |
| 5° | 9098.6 | 9055.8 | 9139.0 | 9139.0 | 9079.6 | 9017.8 | 8891.8 | 8803.8 | 8742.0 | 8668.4 | 8656.5 |
| 7.5° | 9155.6 | 9124.7 | 9169.9 | 9077.2 | 8927.4 | 8761.1 | 8542.4 | 8371.3 | 8233.4 | 8143.1 | 8145.5 |
| 10° | 9231.7 | 9193.6 | 9158.0 | 8951.2 | 8677.9 | 8371.3 | 8036.1 | 7786.6 | 7558.4 | 7453.8 | 7396.8 |
| 12.5° | 9281.6 | 9226.9 | 9077.2 | 8734.9 | 8333.2 | 7922.0 | 7449.0 | 7078.3 | 6747.9 | 6598.1 | 6586.2 |
| 15° | 9343.4 | 9243.6 | 8944.1 | 8454.4 | 7895.9 | 7335.0 | 6726.5 | 6210.7 | 5763.9 | 5530.9 | 5519.0 |
| 17.5° | 9424.2 | 9260.2 | 8784.8 | 8133.6 | 7434.8 | 6607.6 | 5842.3 | 5193.4 | 4718.0 | 4537.4 | 4568.3 |
| 20° | 9538.3 | 9279.2 | 8604.2 | 7777.0 | 6862.0 | 5780.5 | 4827.4 | 4230.8 | 4047.8 | 4035.9 | 4012.1 |
| 22.5° | 9666.6 | 9291.1 | 8404.5 | 7377.7 | 6167.9 | 4898.7 | 3988.4 | 3734.0 | 3731.7 | 3791.1 | 3805.3 |
| 25° | 9811.6 | 9300.6 | 8178.7 | 6911.9 | 5416.8 | 4019.3 | 3527.2 | 3451.2 | 3510.6 | 3622.3 | 3636.6 |
| 27.5° | 9997.0 | 9319.6 | 7905.4 | 6400.9 | 4618.2 | 3472.6 | 3272.9 | 3253.9 | 3325.2 | 3429.8 | 3425.0 |
| 30° | 10270.4 | 9388.6 | 7615.4 | 5813.8 | 3798.2 | 3213.5 | 3118.4 | 3120.8 | 3149.3 | 3199.2 | 3206.4 |
| 32.5° | 10548.5 | 9495.5 | 7332.6 | 5153.0 | 3327.6 | 3066.1 | 3023.4 | 3018.6 | 3018.6 | 3040.0 | 3044.7 |
| 35° | 10812.3 | 9616.7 | 7026.0 | 4463.7 | 3099.4 | 2980.6 | 2952.0 | 2937.8 | 2930.7 | 2925.9 | 2918.8 |
| 37.5° | 10959.6 | 9676.2 | 6726.5 | 3783.9 | 2978.2 | 2923.5 | 2895.0 | 2876.0 | 2849.8 | 2830.8 | 2826.1 |
| 40° | 10895.5 | 9607.2 | 6379.5 | 3275.3 | 2904.5 | 2868.9 | 2835.6 | 2809.4 | 2773.8 | 2757.1 | 2747.6 |
| 42.5° | 10681.6 | 9393.3 | 6001.5 | 3035.2 | 2845.1 | 2809.4 | 2769.0 | 2726.2 | 2702.5 | 2688.2 | 2685.8 |
| 45° | 10455.8 | 9134.2 | 5545.2 | 2895.0 | 2788.0 | 2745.3 | 2697.7 | 2650.2 | 2624.0 | 2616.9 | 2614.5 |
| 47.5° | 10448.6 | 9005.9 | 5060.3 | 2783.3 | 2719.1 | 2676.3 | 2616.9 | 2569.4 | 2540.9 | 2531.3 | 2521.8 |
| 50° | 10762.4 | 9136.6 | 4513.6 | 2685.8 | 2647.8 | 2602.6 | 2536.1 | 2483.8 | 2448.2 | 2436.3 | 2433.9 |
| 52.5° | 11413.6 | 9628.6 | 4024.0 | 2588.4 | 2552.7 | 2500.4 | 2445.8 | 2393.5 | 2350.7 | 2329.3 | 2326.9 |
| 55° | 12117.2 | 10253.7 | 3719.8 | 2488.6 | 2441.0 | 2395.9 | 2345.9 | 2288.9 | 2241.4 | 2208.1 | 2203.3 |
| 57.5° | *12844.5* | *10935.9* | *3627.1* | *2362.6* | *2326.9* | *2296.0* | *2236.6* | *2174.8* | *2120.1* | *2089.2* | *2082.1* |
| 60° | 13443.5 | 11523.0 | 3800.6 | 2229.5 | 2210.5 | 2170.1 | 2115.4 | 2056.0 | 2017.9 | 1994.2 | 1989.4 |
| 62.5° | 11254.4 | 9381.4 | 3068.5 | 2084.5 | 2084.5 | 2041.7 | 1979.9 | 1937.1 | 1911.0 | 1894.3 | 1889.6 |
| 65° | 7142.4 | 5809.0 | 2094.0 | 1939.5 | 1937.1 | 1880.1 | 1827.8 | 1799.3 | 1787.4 | 1761.2 | 1756.5 |
| 67.5° | 3111.3 | 2654.9 | 1789.8 | 1792.1 | 1782.6 | 1720.8 | 1668.5 | 1647.2 | 1623.4 | 1594.9 | 1592.5 |
| 70° | 1613.9 | 1644.8 | 1602.0 | 1628.1 | 1611.5 | 1537.8 | 1487.9 | 1454.6 | 1404.7 | 1376.2 | 1378.6 |
| 72.5° | 1302.5 | 1335.8 | 1383.3 | 1423.7 | 1388.1 | 1328.7 | 1250.2 | 1209.8 | 1145.6 | 1114.7 | 1117.1 |
| 75° | 993.5 | 1029.2 | 1074.3 | 1117.1 | 1088.6 | 1014.9 | 965.0 | 924.6 | 850.9 | 815.3 | 822.4 |
| 77.5° | 684.5 | 703.5 | 758.2 | 755.8 | 746.3 | 724.9 | 651.3 | 603.7 | 527.7 | 484.9 | 489.6 |
| 80° | 425.5 | 437.3 | 463.5 | 475.4 | 470.6 | 442.1 | 382.7 | 347.0 | 301.9 | 275.7 | 278.1 |
| 82.5° | 256.7 | 263.8 | 287.6 | 290.0 | 287.6 | 266.2 | 221.0 | 194.9 | 166.4 | 152.1 | 152.1 |
| 85° | 130.7 | 135.5 | 149.7 | 149.7 | 135.5 | 114.1 | 102.2 | 90.3 | 73.7 | 66.6 | 66.6 |
| 87.5° | 35.7 | 35.7 | 45.2 | 38.0 | 30.9 | 28.5 | 14.3 | 11.9 | 4.8 | 2.4 | 2.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

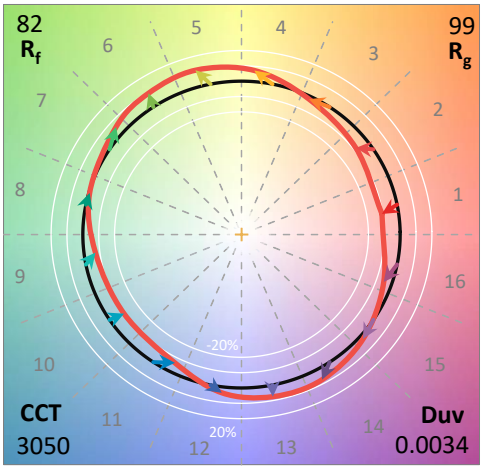
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2408-195-9 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 08/07/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | MCGRAW EDISON |
| Catalog Number: | **GALN-SB1A-830-U-5WQ** |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3050 | CRI (Ra): | 81.0 | | |
| CIE u': | 0.2476 | R1: | 79.6 | R9: | 7.1 |
| CIE v': | 0.5251 | R2: | 85.6 | R10: | 67.0 |
| Duv: | 0.0034 | R3: | 92.0 | R11: | 82.7 |
| CIE x: | 0.4383 | R4: | 82.6 | R12: | 63.2 |
| CIE y: | 0.4131 | R5: | 78.9 | R13: | 80.3 |
| CIE z: | 0.1487 | R6: | 81.7 | R14: | 95.0 |
| Peak Wavelength (nm): | 603 | R7: | 85.2 | R15: | 71.7 |
| Dominant Wavelength (nm): | 581 | R8: | 62.0 | | |
| Purity: | 55.55201 | | | | |

| | |
|---|---|
| Rf: | 81.5 |
| Rg: | 99.2 |




## Test Conditions

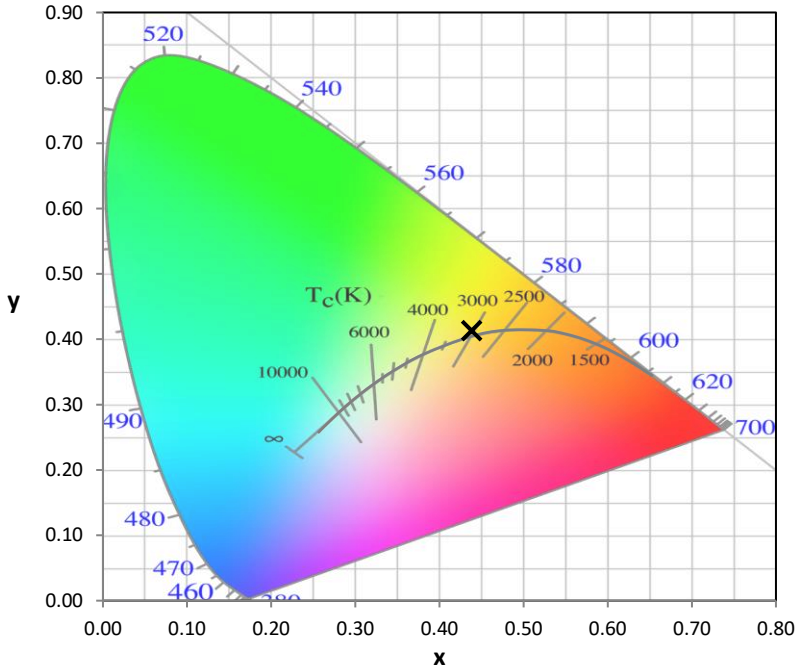
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 24.2 |

REPORT NUMBER: SP1-2408-195-9

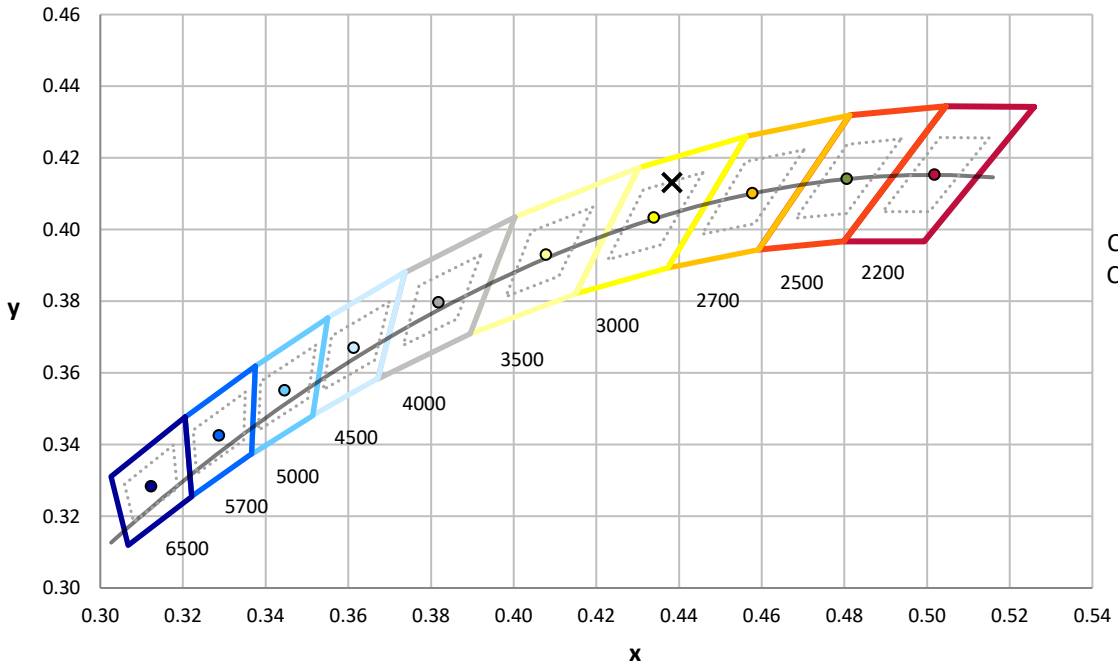
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

REPORT NUMBER: SP1-2408-195-9

## CIE 1931 Chromaticity Diagram




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

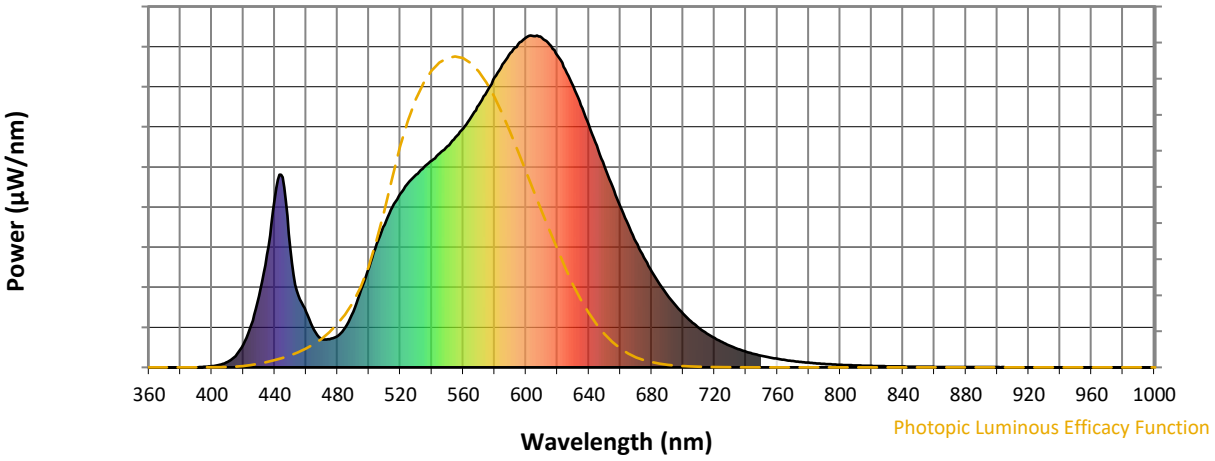



CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2408-195-9

## Photopic Flux vs. Wavelength

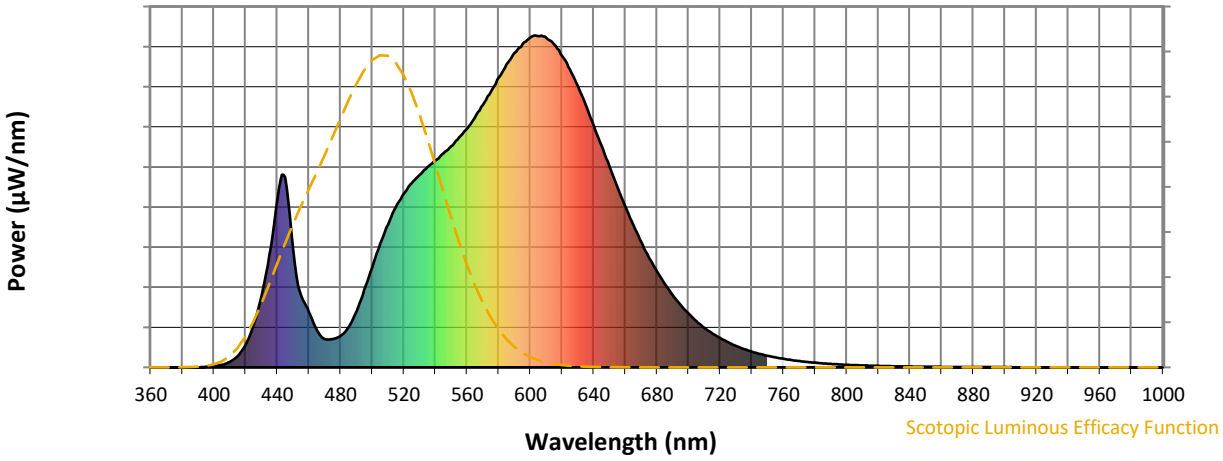



## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

## Scotopic Flux vs. Wavelength

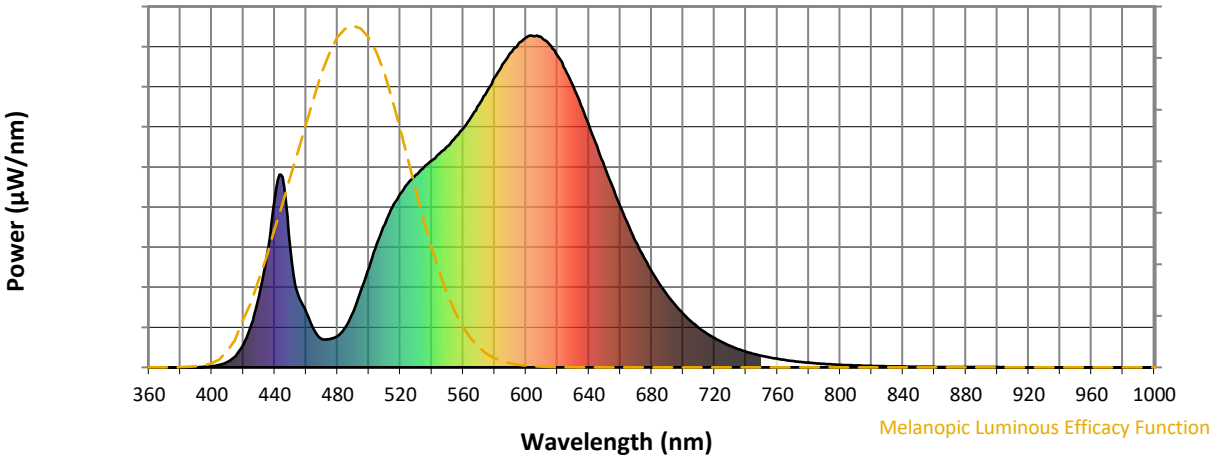



**Scotopic Lumens: NR** **S/P: 1.27**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.32**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

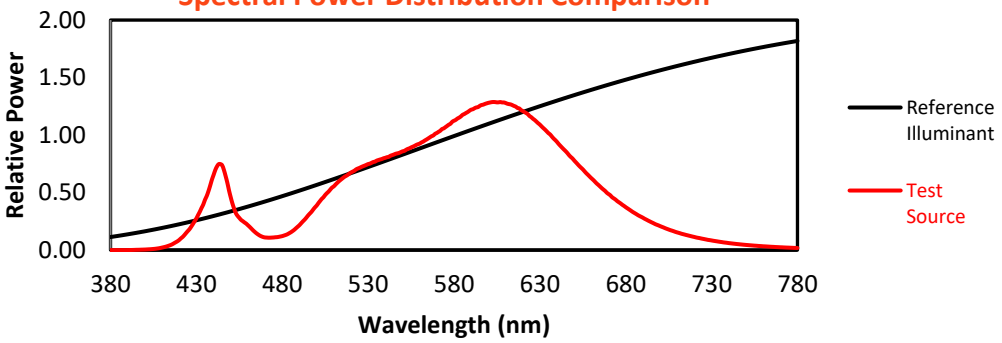
REPORT NUMBER: SP1-2408-195-9

# TM-30-18

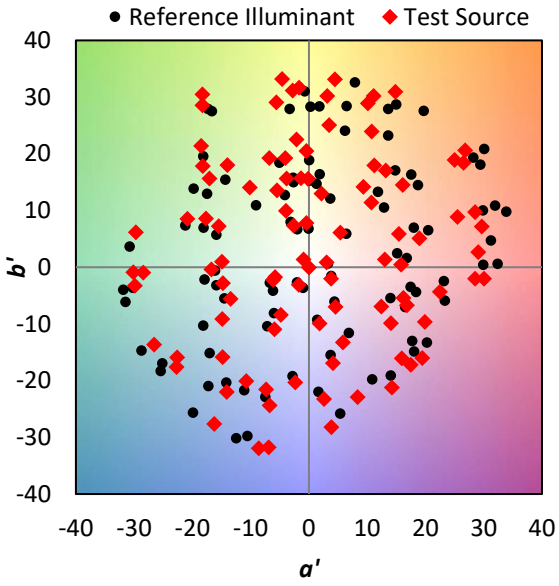
## Summary

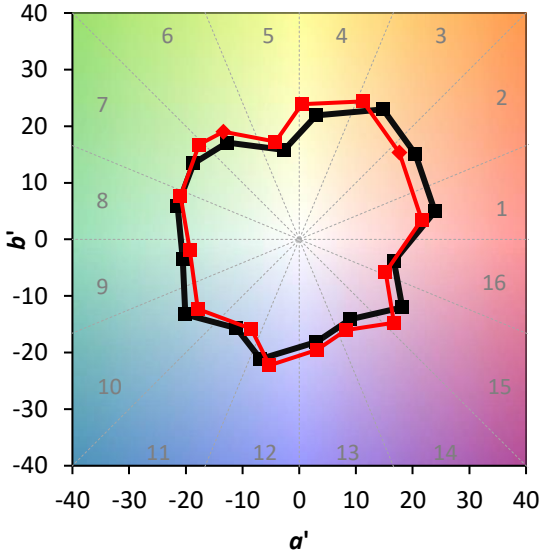
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

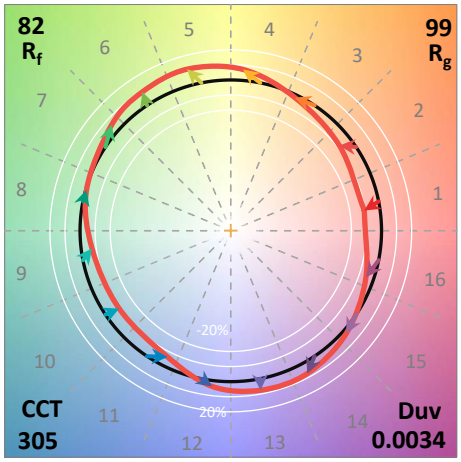
## Spectral Power Distribution Comparison

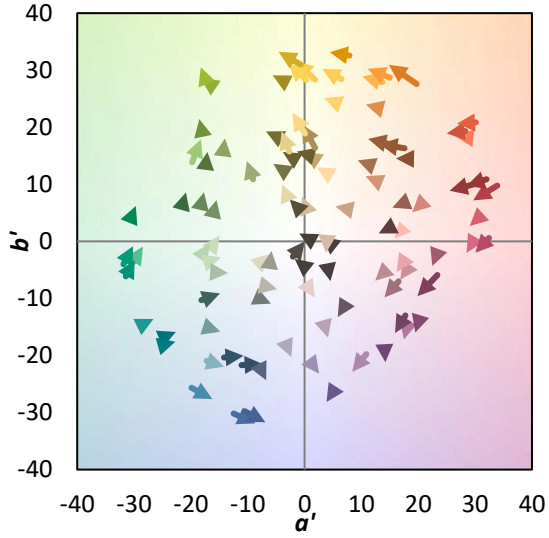



## Color Vector Graphics



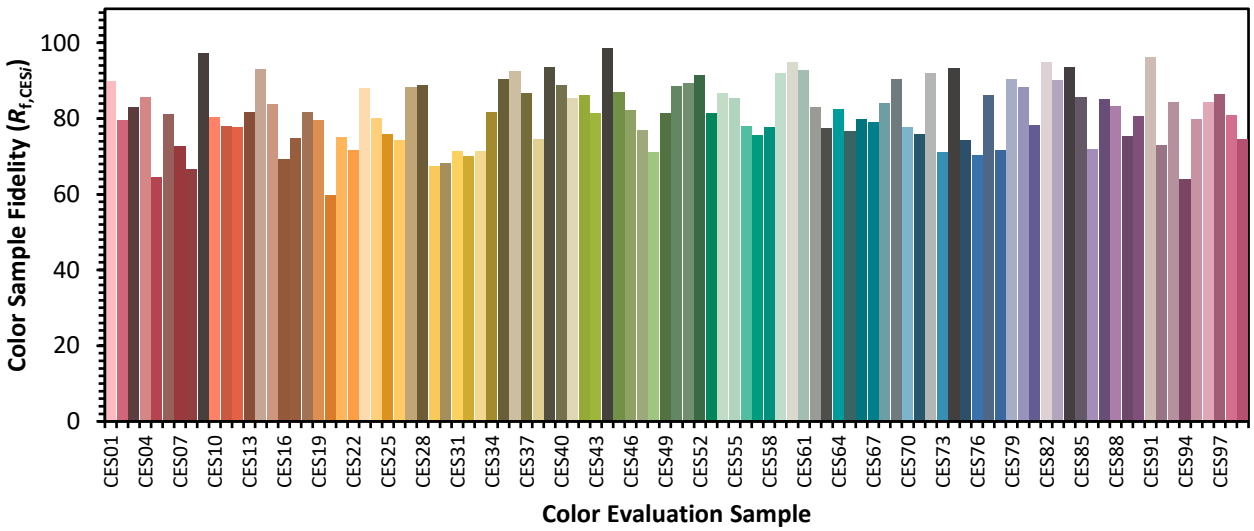



REPORT NUMBER: SP1-2408-195-9

# TM-30-18

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

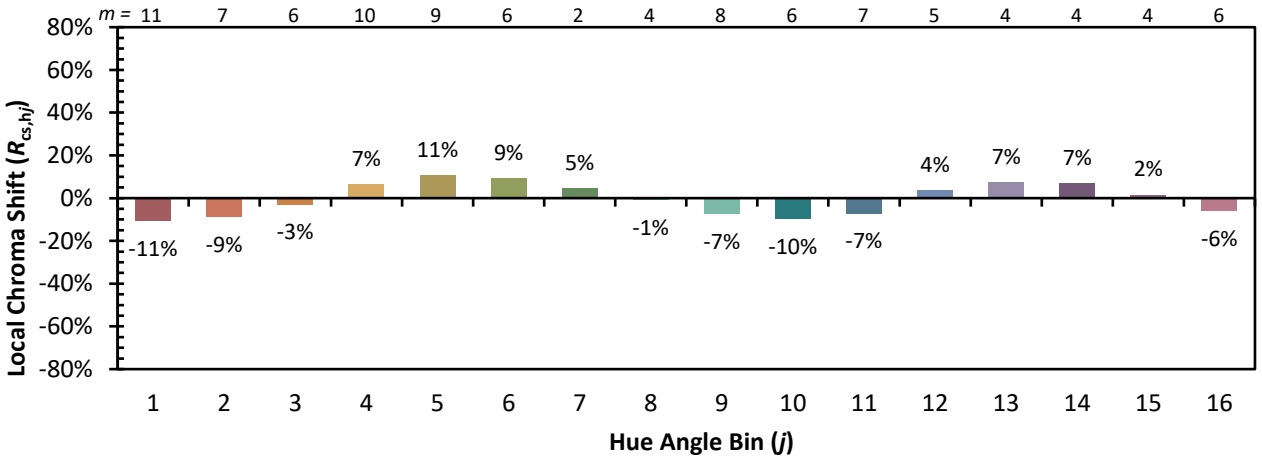
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |

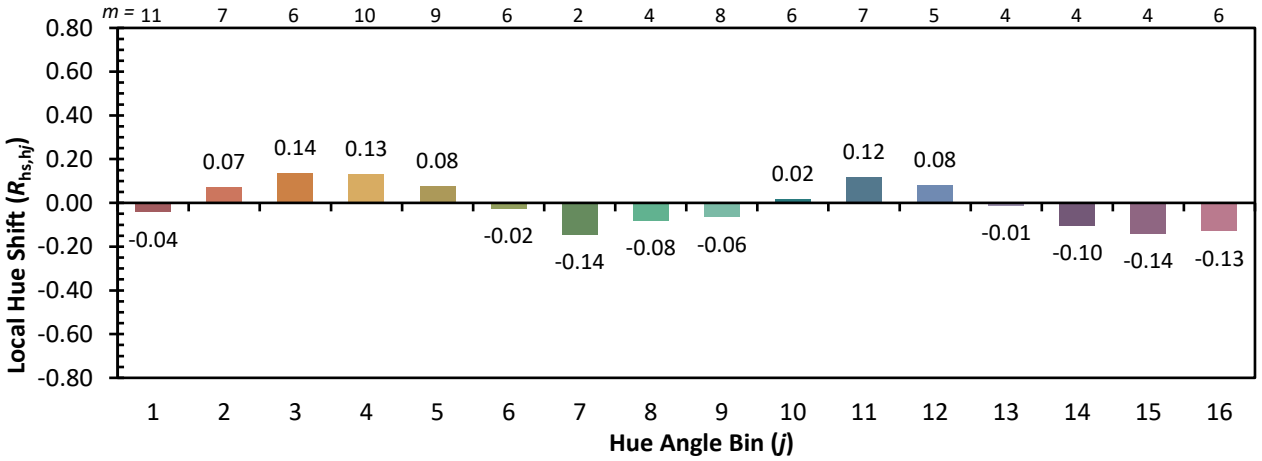


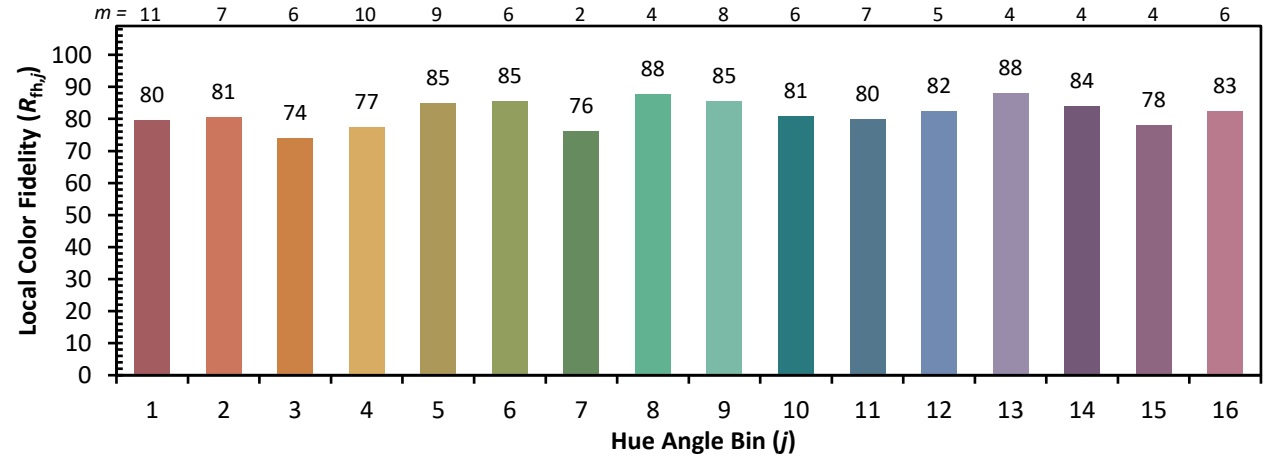
REPORT NUMBER: SP1-2408-195-9

# TM-30-18

## Color Rendition by Hue-Angle Bin



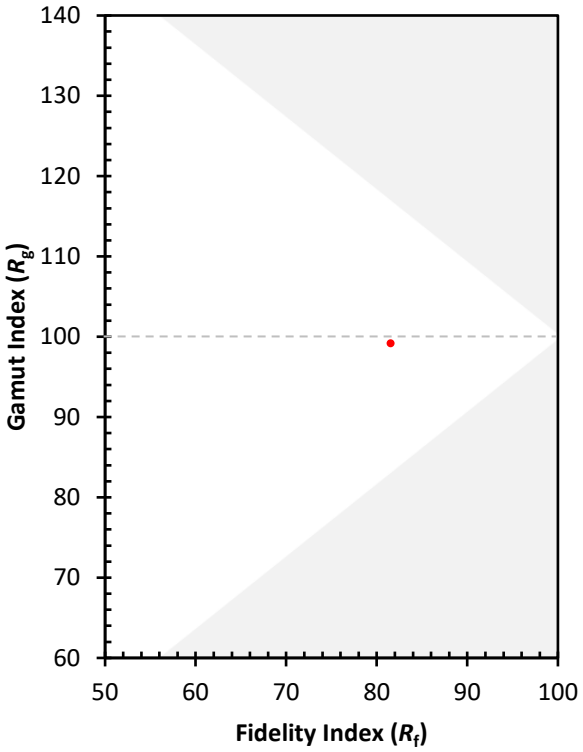



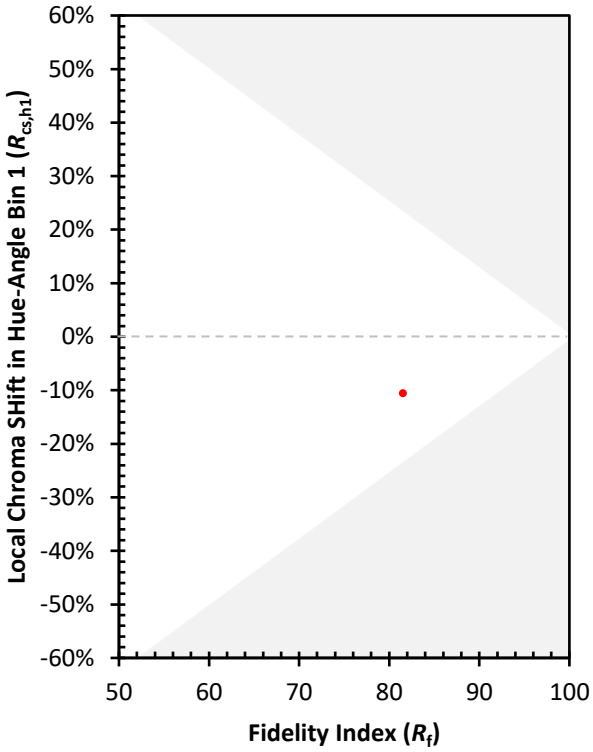



REPORT NUMBER: SP1-2408-195-9

## TM-30-18

### Measure Comparisons




(END OF REPORT)