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

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Peachtree City, GA 30269

Scaled data based on original data using

LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P1502365

Luminaire Tested: GSS-SB3A-850-U-T3LG-HSS

Issue Date: 07/20/2026

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P1502365 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 7/20/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GSS-SB3A-850-U-T3LG-HSS |
| Description: | GALLEON II SLIM SITE HIGH DENSITY LED ARRAYS 3SQUARE 85W 80CRI 5000K FIXTURE w/ TYPE III LOW GLARE DISTRIBUTION FIXTURE W/ HOUSE SIDE SHIELD |
| Light Source: | (78) 5000K CCT, 80 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 10028.2 lumens |
| Efficiency: | N/A |
| Efficacy: | 118.0 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 0.5' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B1 - U0 - G2 |

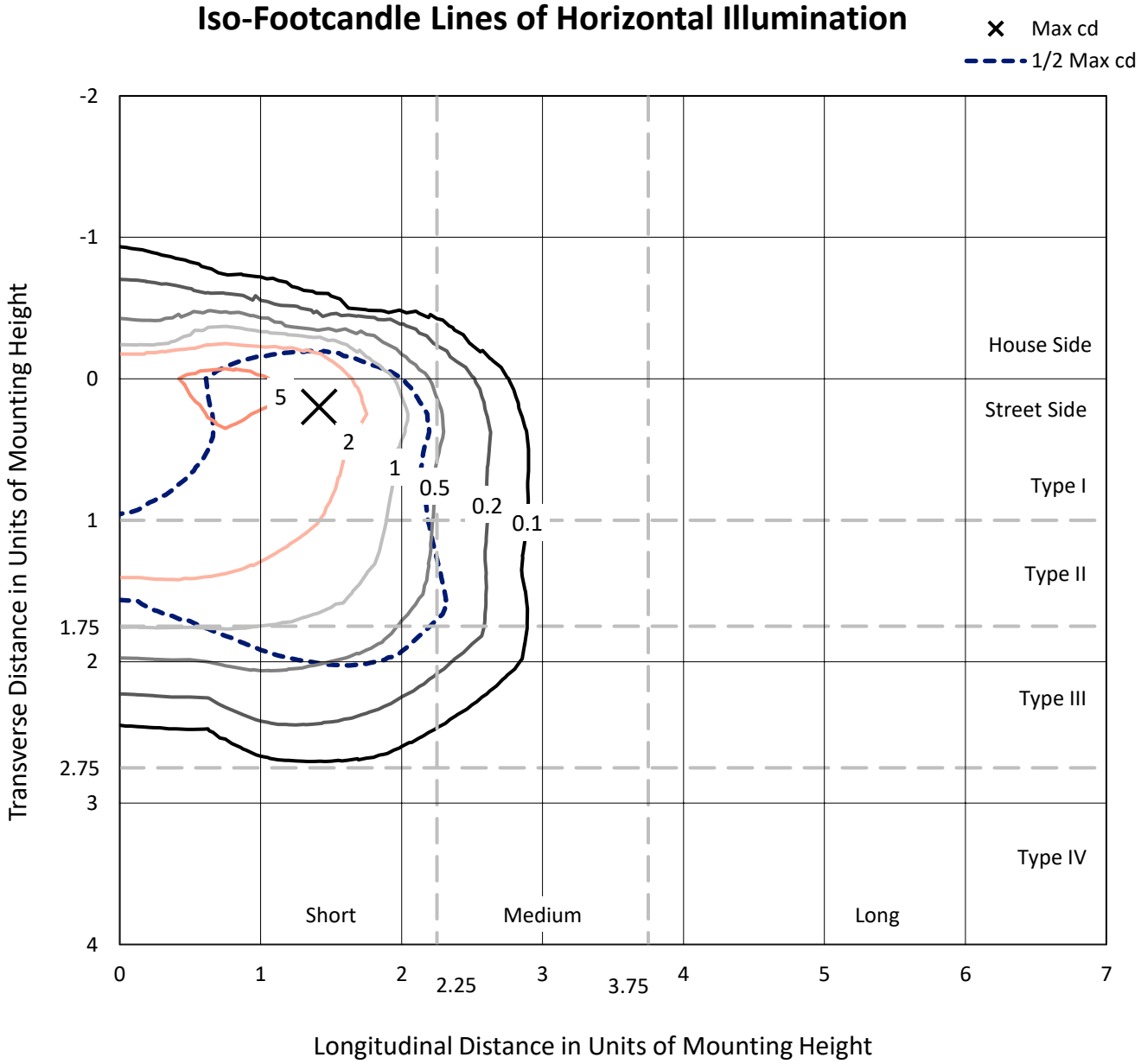
| | |
|---|---|
| Input Watts (W): | 85 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.98 |
| Total Harmonic Distortion (THDi): | 11.0% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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Scaled Data Report

REPORT NUMBER: P1502365
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## Iso-Footcandle Lines of Horizontal Illumination



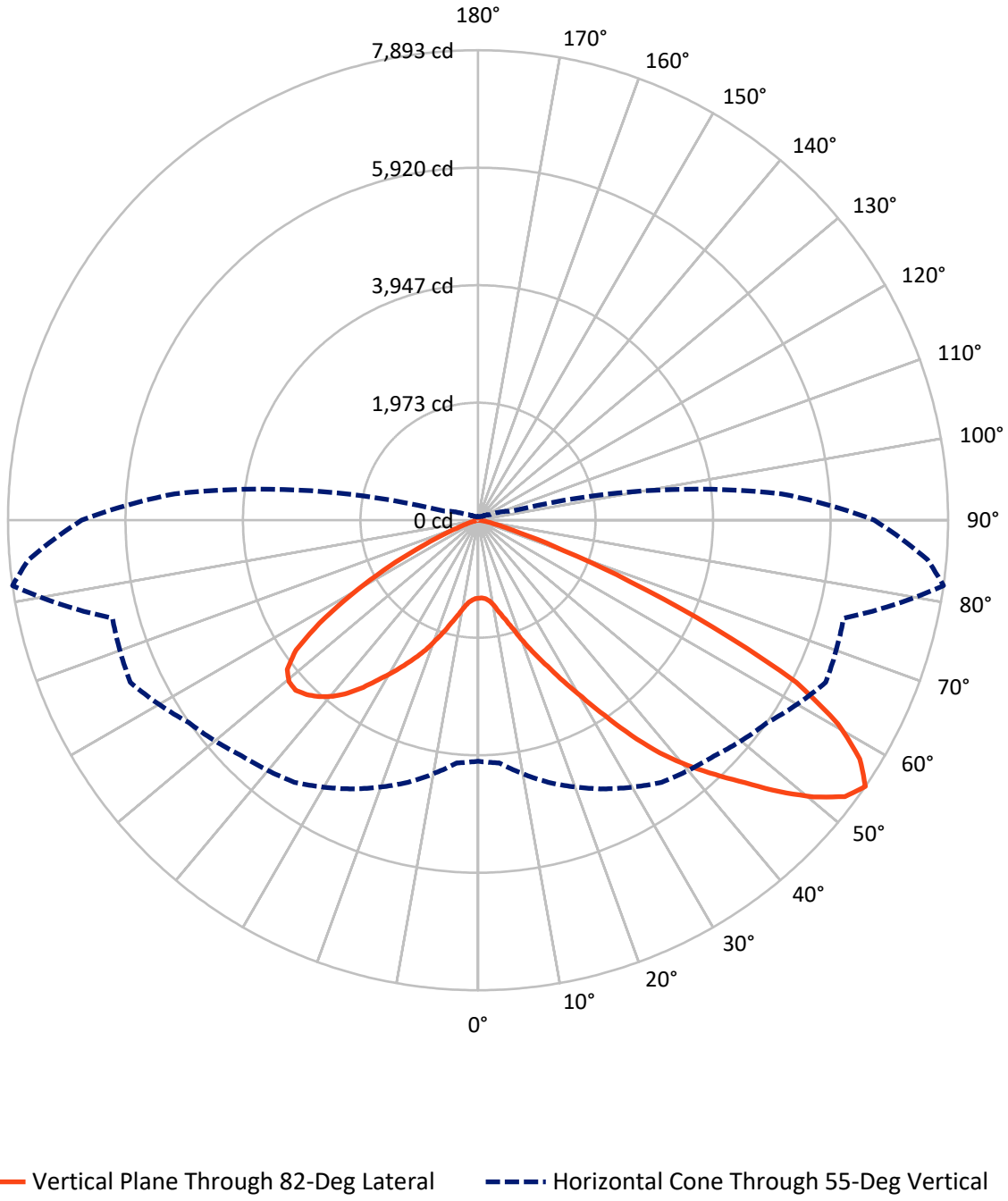

Based on 20 foot mounting height. Maximum calculated value = 6.1 fc
Type III - Short - N/A

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## Luminous Intensity Polar Plot



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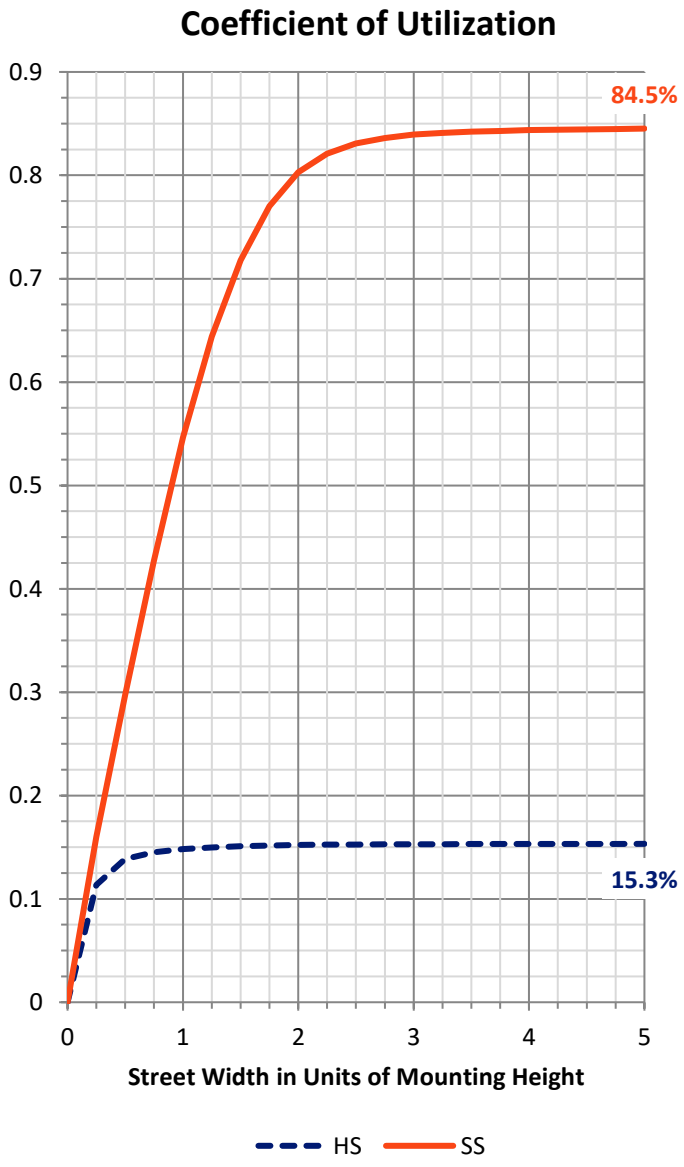
REPORT NUMBER: P1502365
CATALOG NUMBER: GSS-SB3A-850-U-T3LG-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1550.0 | 0.0 | 1550.0 |
| | % Fixture | 15.5 | 0.0 | 15.5 |
| **Street Side** | Lumens | 8478.2 | 0.0 | 8478.2 |
| | % Fixture | 84.5 | 0.0 | 84.5 |
| **Total** | Lumens | 10028.2 | 0.0 | 10028.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 118.7 | 1.2 |
| 10°-20° | 321.3 | 3.2 |
| 20°-30° | 642.2 | 6.4 |
| 30°-40° | 1329.9 | 13.3 |
| 40°-50° | 2221.7 | 22.2 |
| 50°-60° | 2817.8 | 28.1 |
| 60°-70° | 2106.5 | 21.0 |
| 70°-80° | 446.2 | 4.4 |
| 80°-90° | 24.0 | 0.2 |
| 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° | 10028.2 | 100.0 |
| 0°-180° | 10028.2 | 100.0 |



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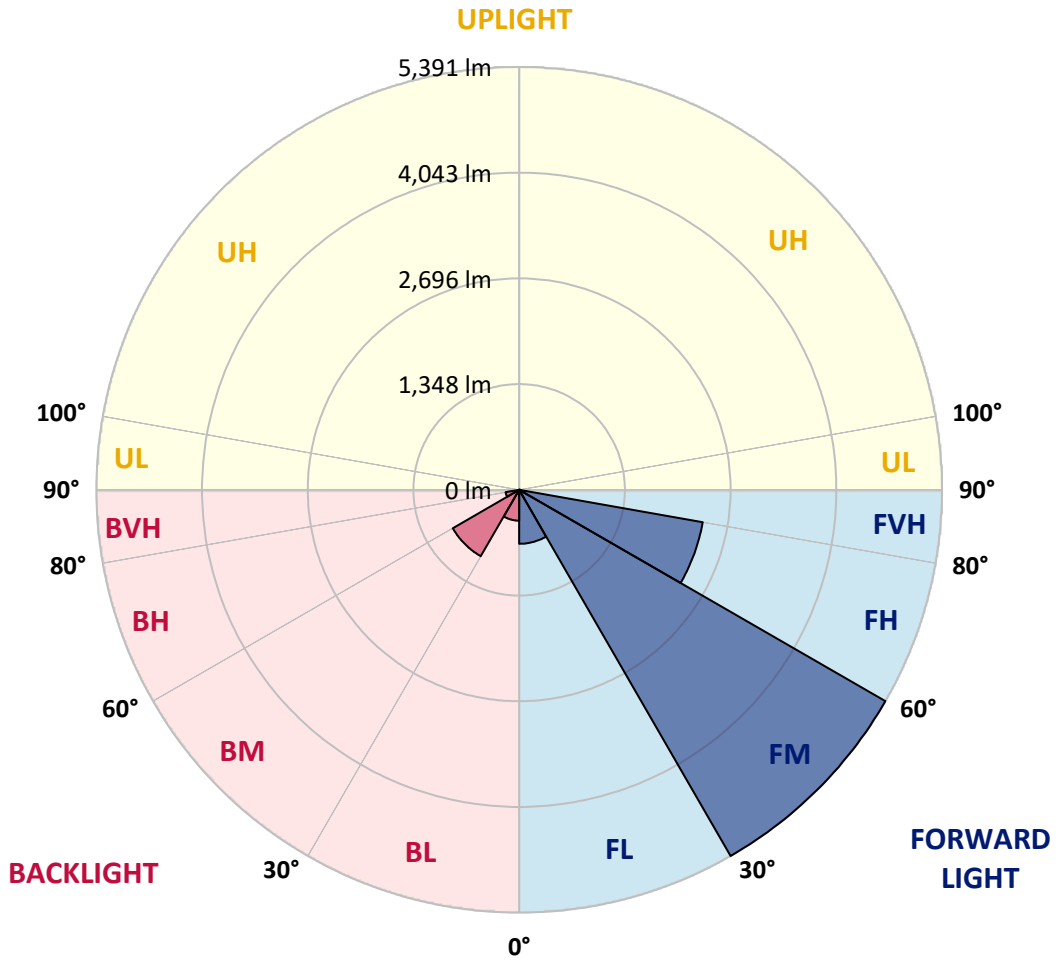
Scaled Data Report

REPORT NUMBER: P1502365
CATALOG NUMBER: GSS-SB3A-850-U-T3LG-HSS

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 688.7 | 6.9 | | | |
| FM | (30°-60°) | 5391.3 | 53.8 | | | |
| FH | (60°-80°) | 2376.6 | 23.7 | | | G2/5000 |
| FVH | (80°-90°) | 21.5 | 0.2 | | | G1/100 |
| BL | (0°-30°) | 393.5 | 3.9 | B1/500 | | |
| BM | (30°-60°) | 978.0 | 9.8 | B1/1000 | | |
| BH | (60°-80°) | 176.0 | 1.8 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 2.5 | 0.0 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B1-U0-G2**
Type III Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 82° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | *1309.2* | 1309.2 |
| 2.5° | 1273.8 | 1276.5 | 1271.1 | 1273.8 | 1279.2 | 1276.5 | 1287.4 | 1295.6 | 1303.7 | *1306.5* | 1309.2 |
| 5° | 1162.2 | 1164.9 | 1167.6 | 1189.4 | 1203.0 | 1235.7 | 1265.6 | 1284.7 | 1311.9 | *1325.5* | 1328.2 |
| 7.5° | 1028.8 | 1028.8 | 1039.7 | 1066.9 | 1102.3 | 1164.9 | 1233.0 | 1287.4 | 1339.1 | *1366.3* | 1371.8 |
| 10° | 1004.3 | 1007.1 | 1007.1 | 1026.1 | 1056.0 | 1118.7 | 1205.7 | 1314.6 | 1407.2 | *1448.0* | 1461.6 |
| 12.5° | 1009.8 | 1012.5 | 1015.2 | 1034.3 | 1064.2 | 1118.7 | 1230.2 | 1371.8 | 1516.0 | *1584.1* | 1592.2 |
| 15° | 1023.4 | 1028.8 | 1037.0 | 1061.5 | 1094.2 | 1164.9 | 1282.0 | 1453.4 | 1646.7 | *1733.8* | 1755.5 |
| 17.5° | 1064.2 | 1066.9 | 1080.5 | 1107.8 | 1159.5 | 1230.2 | 1358.2 | 1559.6 | 1829.0 | *1924.3* | 1965.1 |
| 20° | 1126.8 | 1132.3 | 1151.3 | 1189.4 | 1249.3 | 1339.1 | 1480.6 | 1698.4 | 2025.0 | *2172.0* | 2204.6 |
| 22.5° | 1205.7 | 1205.7 | 1233.0 | 1292.8 | 1377.2 | 1477.9 | 1649.4 | 1883.5 | 2264.5 | *2436.0* | 2490.4 |
| 25° | 1336.4 | 1333.7 | 1355.4 | 1423.5 | 1524.2 | 1671.2 | 1845.4 | 2103.9 | 2514.9 | *2719.1* | 2776.2 |
| 27.5° | 1635.8 | 1627.6 | 1619.5 | 1622.2 | 1709.3 | 1897.1 | 2098.5 | 2381.6 | 2825.2 | *3064.7* | 3108.3 |
| 30° | 1984.2 | 1995.1 | 1984.2 | 1957.0 | 1970.6 | 2144.8 | 2395.2 | 2721.8 | 3173.6 | *3443.0* | 3500.2 |
| 32.5° | 2289.0 | 2294.5 | 2340.7 | 2370.7 | 2381.6 | 2463.2 | 2738.1 | 3132.8 | 3617.2 | *3911.2* | 3984.7 |
| 35° | 2621.1 | 2629.2 | 2681.0 | 2743.6 | 2841.5 | 2915.0 | 3168.1 | 3609.1 | 4069.1 | *4439.2* | 4493.7 |
| 37.5° | 3007.6 | 3021.2 | 3089.2 | 3179.0 | 3315.1 | 3483.9 | 3620.0 | 4041.8 | 4529.0 | *4956.4* | 5013.5 |
| 40° | 3347.8 | 3391.3 | 3508.4 | 3622.7 | 3766.9 | 3957.5 | 4047.3 | 4420.2 | 4869.3 | *5413.6* | 5508.9 |
| 42.5° | 3669.0 | 3693.5 | 3881.3 | 4058.2 | 4229.6 | 4384.8 | 4471.9 | 4716.8 | 5171.4 | *5838.2* | 5944.4 |
| 45° | 3935.7 | 3954.7 | 4164.3 | 4398.4 | 4610.7 | 4765.8 | 4779.4 | 5005.3 | 5470.8 | *6287.3* | 6369.0 |
| 47.5° | 4099.0 | 4128.9 | 4398.4 | 4665.1 | 4899.2 | 5043.5 | 5021.7 | 5372.8 | 5797.4 | *6809.9* | 6820.8 |
| 50° | 4197.0 | 4216.0 | 4490.9 | 4836.6 | 5125.1 | 5225.8 | 5272.1 | 5723.9 | 6094.1 | *7305.3* | 7239.9 |
| 52.5° | 4267.7 | 4297.7 | 4567.1 | 4934.6 | 5258.5 | 5394.6 | 5560.6 | 6118.6 | 6328.1 | *7710.8* | 7536.6 |
| 55° | *4047.3* | *4090.8* | *4556.3* | *4978.1* | *5372.8* | *5601.4* | *5928.0* | *6442.4* | *6355.4* | *7893.2* | *7574.7* |
| 57.5° | 3799.6 | 3807.8 | 4267.7 | 4964.5 | 5500.7 | 5819.2 | 6265.5 | 6466.9 | 6102.2 | *7561.1* | 7188.2 |
| 60° | 3434.9 | 3483.9 | 3954.7 | 4787.6 | 5522.5 | 5993.4 | 6494.2 | 6170.3 | 5639.5 | *6946.0* | 6385.3 |
| 62.5° | 2411.5 | 2487.7 | 3102.8 | 4322.2 | 5367.3 | 6088.6 | 6456.1 | 5653.1 | 5059.8 | *5996.1* | 5367.3 |
| 65° | 1350.0 | 1415.3 | 1918.9 | 3486.6 | 4940.0 | 6066.8 | 6064.1 | 4961.8 | 4128.9 | *4333.1* | 3837.7 |
| 67.5° | 740.3 | 792.0 | 996.2 | 2623.8 | 3919.4 | 5601.4 | 5239.4 | 3786.0 | 2768.0 | *2751.7* | 2395.2 |
| 70° | 517.1 | 519.9 | 628.7 | 1771.9 | 2817.0 | 3908.5 | 4096.3 | 2539.4 | 1717.4 | *1518.8* | 1282.0 |
| 72.5° | 253.1 | 255.8 | 313.0 | 835.6 | 1722.9 | 2166.5 | 2808.9 | 1320.1 | 963.5 | *753.9* | 642.3 |
| 75° | 127.9 | 125.2 | 171.5 | 313.0 | 713.1 | 1056.0 | 1238.4 | 661.4 | 560.7 | *413.7* | 367.4 |
| 77.5° | 81.7 | 84.4 | 100.7 | 171.5 | 321.2 | 411.0 | 381.0 | 359.3 | 329.3 | *242.2* | 209.6 |
| 80° | 54.4 | 54.4 | 68.0 | 108.9 | 157.9 | 196.0 | 117.0 | 166.0 | 193.2 | *141.5* | 122.5 |
| 82.5° | 16.3 | 16.3 | 40.8 | 59.9 | 76.2 | 78.9 | 51.7 | 76.2 | 108.9 | *78.9* | 59.9 |
| 85° | 10.9 | 10.9 | 21.8 | 29.9 | 32.7 | 27.2 | 16.3 | 32.7 | 51.7 | *35.4* | 29.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | *2.7* | 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 |

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Scaled Data Report

REPORT NUMBER: P1502365
CATALOG NUMBER: GSS-SB3A-850-U-T3LG-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 | 1309.2 |
| 2.5° | 1311.9 | 1314.6 | 1322.8 | 1325.5 | 1330.9 | 1333.7 | 1333.7 | 1333.7 | 1330.9 | 1333.7 | 1339.1 |
| 5° | 1333.7 | 1347.3 | 1358.2 | 1355.4 | 1355.4 | 1341.8 | 1330.9 | 1309.2 | 1298.3 | 1295.6 | 1298.3 |
| 7.5° | 1388.1 | 1399.0 | 1409.9 | 1393.6 | 1352.7 | 1290.1 | 1222.1 | 1167.6 | 1121.4 | 1099.6 | 1107.8 |
| 10° | 1486.1 | 1499.7 | 1499.7 | 1423.5 | 1309.2 | 1162.2 | 1039.7 | 939.0 | 862.8 | 822.0 | 841.0 |
| 12.5° | 1627.6 | 1638.5 | 1611.3 | 1450.7 | 1233.0 | 990.7 | 786.6 | 617.8 | 519.9 | 470.9 | 460.0 |
| 15° | 1790.9 | 1807.3 | 1714.7 | 1445.3 | 1113.2 | 740.3 | 489.9 | 367.4 | 332.1 | 321.2 | 323.9 |
| 17.5° | 2000.5 | 2008.7 | 1829.0 | 1401.7 | 906.4 | 484.5 | 348.4 | 313.0 | 304.8 | 299.4 | 299.4 |
| 20° | 2259.1 | 2234.6 | 1921.6 | 1328.2 | 661.4 | 381.0 | 321.2 | 294.0 | 285.8 | 283.1 | 285.8 |
| 22.5° | 2536.7 | 2498.6 | 1997.8 | 1189.4 | 500.8 | 359.3 | 307.6 | 277.6 | 266.7 | 264.0 | 264.0 |
| 25° | 2827.9 | 2740.8 | 2057.7 | 985.3 | 468.1 | 353.8 | 291.2 | 253.1 | 242.2 | 236.8 | 236.8 |
| 27.5° | 3160.0 | 3010.3 | 2090.3 | 824.7 | 476.3 | 345.7 | 272.2 | 231.4 | 215.0 | 209.6 | 209.6 |
| 30° | 3527.4 | 3309.7 | 2093.0 | 792.0 | 492.6 | 334.8 | 253.1 | 206.9 | 190.5 | 182.4 | 185.1 |
| 32.5° | 3973.8 | 3614.5 | 2084.9 | 843.8 | 503.5 | 326.6 | 231.4 | 182.4 | 168.8 | 160.6 | 160.6 |
| 35° | 4436.5 | 3984.7 | 2052.2 | 941.7 | 509.0 | 302.1 | 204.1 | 160.6 | 144.3 | 141.5 | 144.3 |
| 37.5° | 4896.5 | 4335.8 | 2006.0 | 996.2 | 481.8 | 247.7 | 166.0 | 138.8 | 127.9 | 127.9 | 127.9 |
| 40° | 5315.6 | 4640.6 | 1943.3 | 949.9 | 383.8 | 179.6 | 136.1 | 119.8 | 114.3 | 111.6 | 114.3 |
| 42.5° | 5628.6 | 4912.8 | 1829.0 | 800.2 | 272.2 | 144.3 | 119.8 | 106.1 | 100.7 | 100.7 | 103.4 |
| 45° | 5971.6 | 5174.1 | 1608.6 | 587.9 | 206.9 | 125.2 | 103.4 | 92.5 | 89.8 | 89.8 | 92.5 |
| 47.5° | 6317.2 | 5383.7 | 1396.3 | 391.9 | 179.6 | 111.6 | 92.5 | 84.4 | 81.7 | 78.9 | 81.7 |
| 50° | 6581.3 | 5484.4 | 1118.7 | 285.8 | 163.3 | 100.7 | 84.4 | 78.9 | 73.5 | 70.8 | 70.8 |
| 52.5° | 6769.1 | 5457.2 | 819.3 | 245.0 | 149.7 | 92.5 | 78.9 | 73.5 | 65.3 | 65.3 | 65.3 |
| 55° | *6654.7* | *5108.8* | *590.6* | *220.5* | *138.8* | *87.1* | *76.2* | *68.0* | *62.6* | *59.9* | *59.9* |
| 57.5° | 6099.5 | 4354.8 | 427.3 | 198.7 | 122.5 | 81.7 | 73.5 | 65.3 | 57.2 | 54.4 | 54.4 |
| 60° | 5302.0 | 3391.3 | 318.4 | 174.2 | 106.1 | 78.9 | 65.3 | 62.6 | 54.4 | 49.0 | 49.0 |
| 62.5° | 4333.1 | 2468.7 | 247.7 | 149.7 | 95.3 | 68.0 | 62.6 | 57.2 | 49.0 | 43.5 | 40.8 |
| 65° | 3007.6 | 1575.9 | 190.5 | 122.5 | 89.8 | 59.9 | 57.2 | 49.0 | 40.8 | 32.7 | 32.7 |
| 67.5° | 1856.3 | 936.3 | 147.0 | 95.3 | 70.8 | 51.7 | 49.0 | 43.5 | 35.4 | 27.2 | 27.2 |
| 70° | 1026.1 | 495.4 | 100.7 | 70.8 | 54.4 | 40.8 | 38.1 | 38.1 | 29.9 | 24.5 | 21.8 |
| 72.5° | 492.6 | 269.5 | 68.0 | 59.9 | 40.8 | 27.2 | 29.9 | 29.9 | 24.5 | 19.1 | 19.1 |
| 75° | 296.7 | 160.6 | 46.3 | 46.3 | 27.2 | 21.8 | 21.8 | 24.5 | 19.1 | 13.6 | 13.6 |
| 77.5° | 168.8 | 95.3 | 27.2 | 35.4 | 19.1 | 13.6 | 16.3 | 13.6 | 10.9 | 8.2 | 8.2 |
| 80° | 95.3 | 54.4 | 16.3 | 24.5 | 10.9 | 8.2 | 8.2 | 5.4 | 5.4 | 2.7 | 2.7 |
| 82.5° | 46.3 | 29.9 | 8.2 | 8.2 | 5.4 | 2.7 | 2.7 | 2.7 | 2.7 | 0.0 | 0.0 |
| 85° | 21.8 | 5.4 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-12

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-850-U-5WQ

Data in this report applies to families of products including GSS-SB1A-850-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

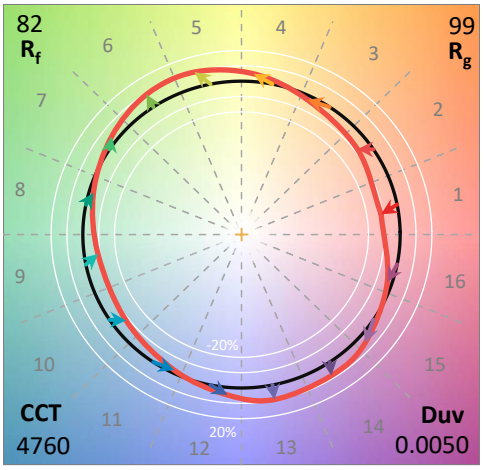
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-12 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/15/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGraw-Edison |
| Catalog Number: | **GSS-SB1A-850-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI 5000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 4760 |
| CIE u': | 0.2107 |
| CIE v': | 0.4939 |
| Duv: | 0.0050 |
| CIE x: | 0.3537 |
| CIE y: | 0.3685 |
| CIE z: | 0.2779 |
| Peak Wavelength (nm): | 443 |
| Dominant Wavelength (nm): | 571 |
| Purity: | 16.69598 |
| Rf: | 82 |
| Rg: | 99.4 |

| | | | | | |
|---|---|---|---|---|---|
| CRI (Ra): | 81.1 | | | | |
| R1: | 79.8 | R9: | 8.7 | | |
| R2: | 83.5 | R10: | 62.4 | | |
| R3: | 87.9 | R11: | 83.8 | | |
| R4: | 83.1 | R12: | 63.0 | | |
| R5: | 80.5 | R13: | 79.9 | | |
| R6: | 79.1 | R14: | 93.3 | | |
| R7: | 86.1 | R15: | 72.7 | | |
| R8: | 69.0 | | | | |




## Test Conditions

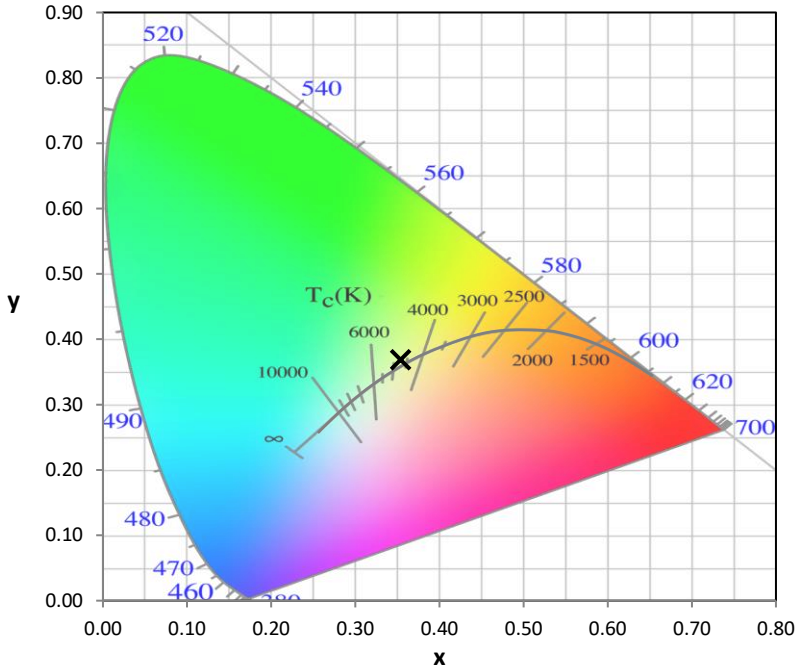
| | |
|---|---|
| Stabilization Time: | 21M |
| Operation Time: | 1H 21M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-12

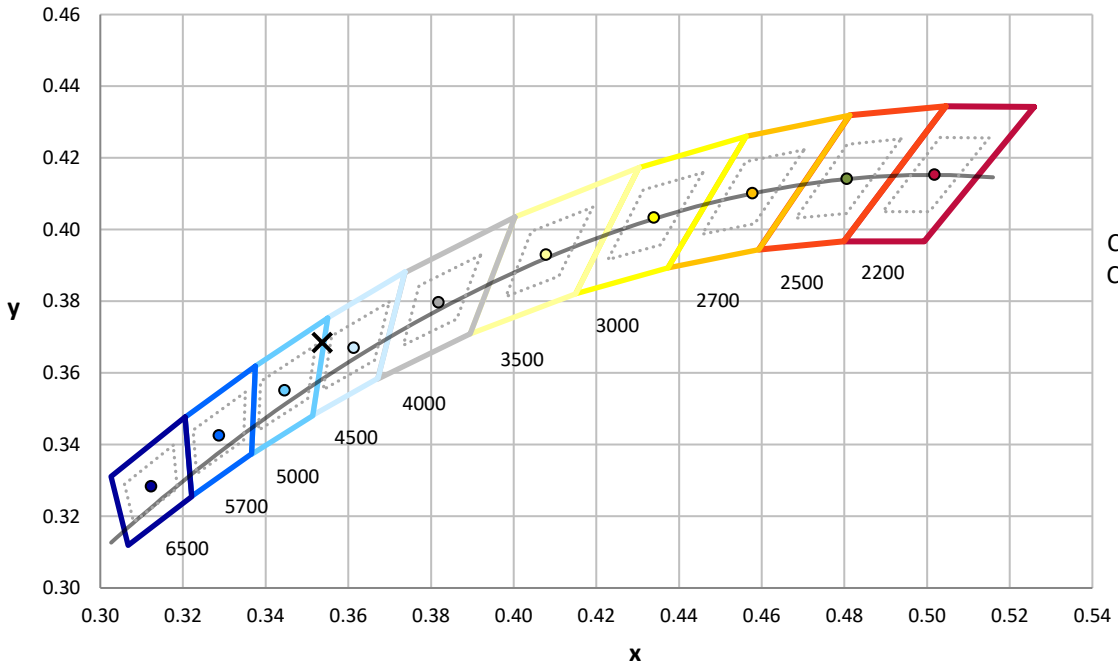
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

REPORT NUMBER: SP1-2407-184-12

## CIE 1931 Chromaticity Diagram




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

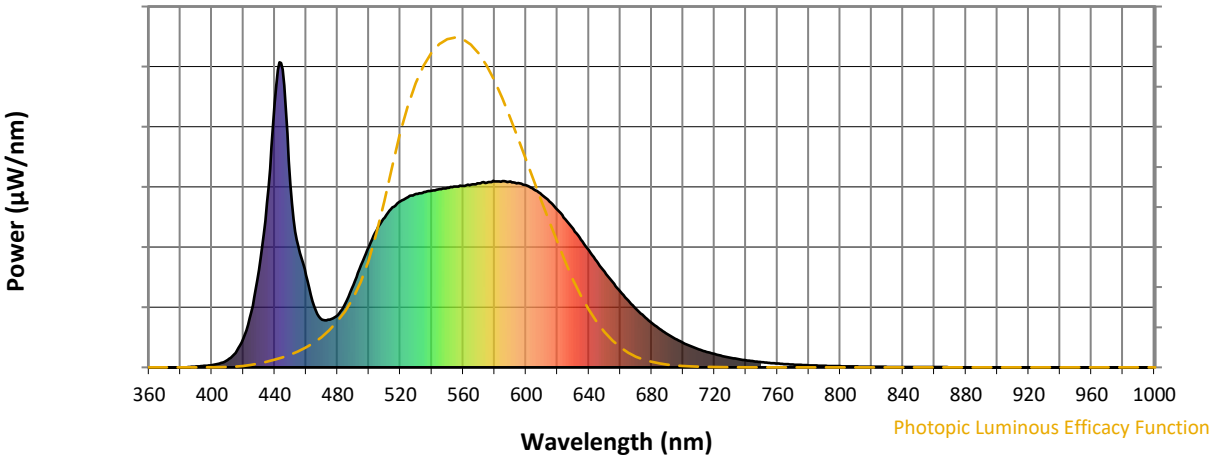



CCT = 4760K
CIE x = 0.3537
CIE y = 0.3685
Duv = 0.0050

Point lies inside the ANSI 5000K 7-step quadrangle

REPORT NUMBER: SP1-2407-184-12

## Photopic Flux vs. Wavelength

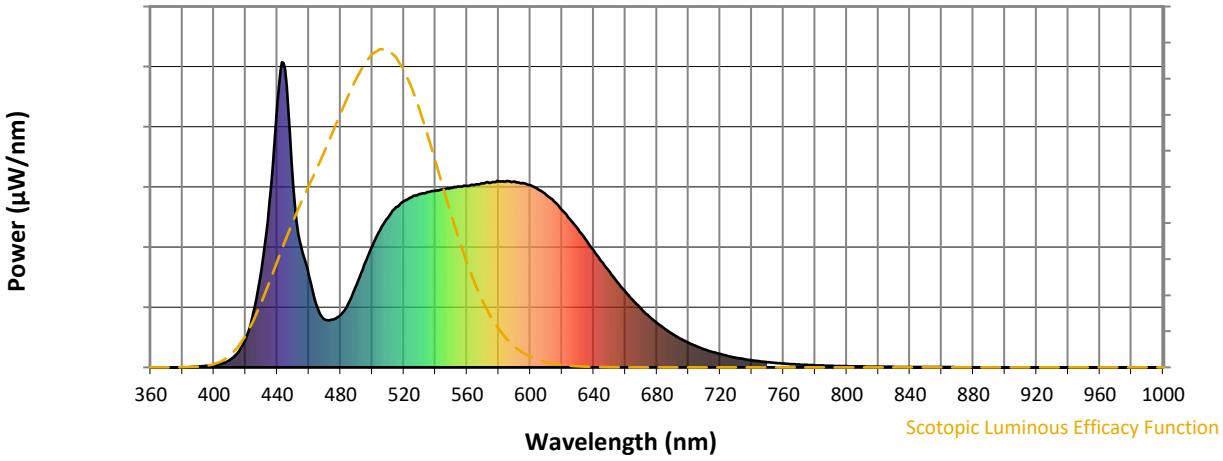



## Photopic Lumens: NR

| 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 | 270 | NR | 620 | 517 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 335 | NR | 625 | 486 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 397 | NR | 630 | 454 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 451 | NR | 635 | 419 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 492 | NR | 640 | 384 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 524 | NR | 645 | 347 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 545 | NR | 650 | 313 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 558 | NR | 655 | 280 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 568 | NR | 660 | 248 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 13 | NR | 535 | 575 | NR | 665 | 219 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 24 | NR | 540 | 579 | NR | 670 | 192 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 47 | NR | 545 | 585 | NR | 675 | 167 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 95 | NR | 550 | 588 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 181 | NR | 555 | 593 | NR | 685 | 126 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 319 | NR | 560 | 595 | NR | 690 | 109 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 539 | NR | 565 | 600 | NR | 695 | 94 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 868 | NR | 570 | 603 | NR | 700 | 80 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 977 | NR | 575 | 606 | NR | 705 | 69 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 601 | NR | 580 | 609 | NR | 710 | 59 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 397 | NR | 585 | 611 | NR | 715 | 51 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 302 | NR | 590 | 610 | NR | 720 | 44 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 201 | NR | 595 | 604 | NR | 725 | 37 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 157 | NR | 600 | 596 | NR | 730 | 32 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 157 | NR | 605 | 583 | NR | 735 | 27 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 171 | NR | 610 | 566 | NR | 740 | 23 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 210 | NR | 615 | 543 | NR | 745 | 20 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-184-12

## Scotopic Flux vs. Wavelength

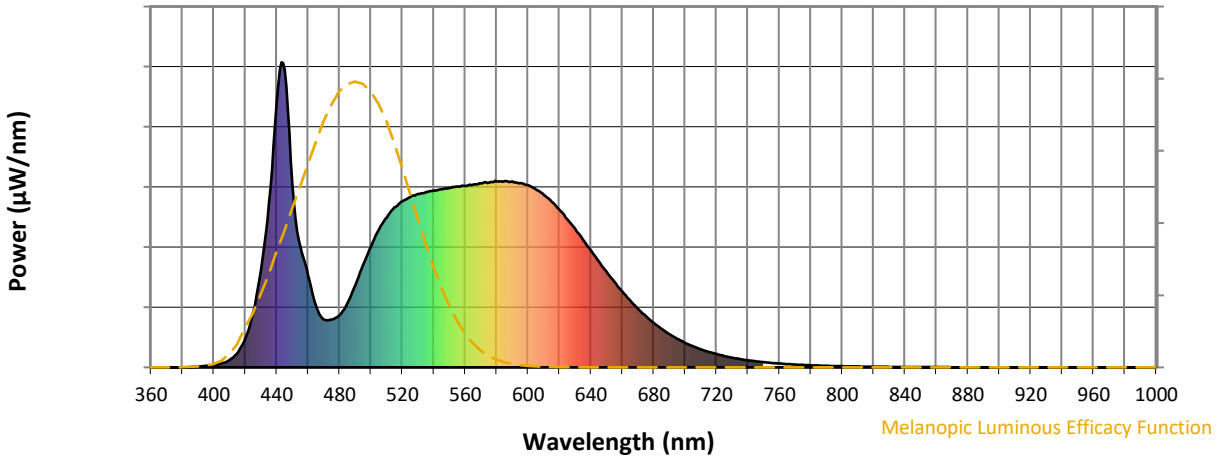



**Scotopic Lumens: NR** **S/P: 1.83**

| 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 | 270 | NR | 620 | 517 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 335 | NR | 625 | 486 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 397 | NR | 630 | 454 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 451 | NR | 635 | 419 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 492 | NR | 640 | 384 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 524 | NR | 645 | 347 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 545 | NR | 650 | 313 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 558 | NR | 655 | 280 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 568 | NR | 660 | 248 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 13 | NR | 535 | 575 | NR | 665 | 219 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 24 | NR | 540 | 579 | NR | 670 | 192 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 47 | NR | 545 | 585 | NR | 675 | 167 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 95 | NR | 550 | 588 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 181 | NR | 555 | 593 | NR | 685 | 126 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 319 | NR | 560 | 595 | NR | 690 | 109 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 539 | NR | 565 | 600 | NR | 695 | 94 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 868 | NR | 570 | 603 | NR | 700 | 80 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 977 | NR | 575 | 606 | NR | 705 | 69 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 601 | NR | 580 | 609 | NR | 710 | 59 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 397 | NR | 585 | 611 | NR | 715 | 51 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 302 | NR | 590 | 610 | NR | 720 | 44 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 201 | NR | 595 | 604 | NR | 725 | 37 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 157 | NR | 600 | 596 | NR | 730 | 32 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 157 | NR | 605 | 583 | NR | 735 | 27 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 171 | NR | 610 | 566 | NR | 740 | 23 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 210 | NR | 615 | 543 | NR | 745 | 20 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2407-184-12

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 3.74**

| 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 | 270 | NR | 620 | 517 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 335 | NR | 625 | 486 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 397 | NR | 630 | 454 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 451 | NR | 635 | 419 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 492 | NR | 640 | 384 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 524 | NR | 645 | 347 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 545 | NR | 650 | 313 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 558 | NR | 655 | 280 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 568 | NR | 660 | 248 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 13 | NR | 535 | 575 | NR | 665 | 219 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 24 | NR | 540 | 579 | NR | 670 | 192 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 47 | NR | 545 | 585 | NR | 675 | 167 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 95 | NR | 550 | 588 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 181 | NR | 555 | 593 | NR | 685 | 126 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 319 | NR | 560 | 595 | NR | 690 | 109 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 539 | NR | 565 | 600 | NR | 695 | 94 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 868 | NR | 570 | 603 | NR | 700 | 80 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 977 | NR | 575 | 606 | NR | 705 | 69 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 601 | NR | 580 | 609 | NR | 710 | 59 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 397 | NR | 585 | 611 | NR | 715 | 51 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 302 | NR | 590 | 610 | NR | 720 | 44 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 201 | NR | 595 | 604 | NR | 725 | 37 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 157 | NR | 600 | 596 | NR | 730 | 32 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 157 | NR | 605 | 583 | NR | 735 | 27 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 171 | NR | 610 | 566 | NR | 740 | 23 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 210 | NR | 615 | 543 | NR | 745 | 20 | NR | 875 | 0 | NR | | | |

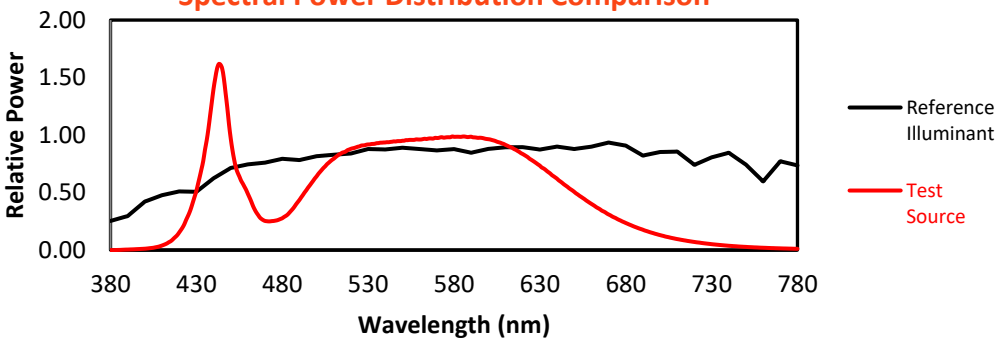
REPORT NUMBER: SP1-2407-184-12

# TM-30-18

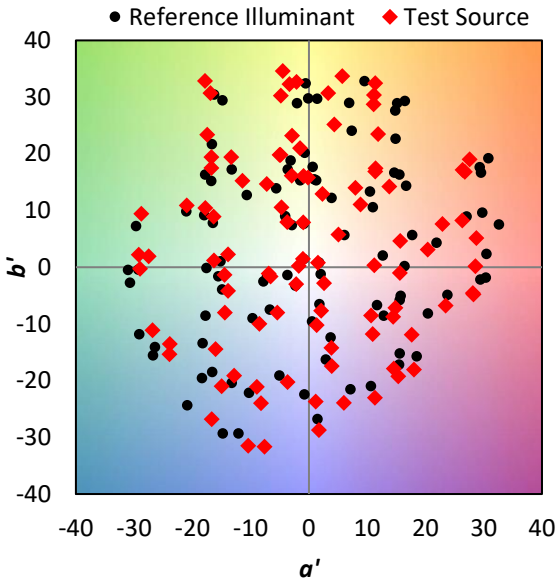
## Summary

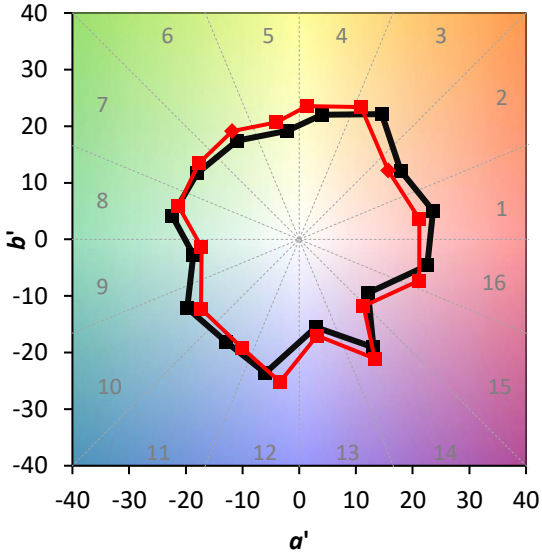
$R_f$ = 82
$R_g$ = 99.4
CIE $R_a$ = 81.1
$R_9$ = 8.7

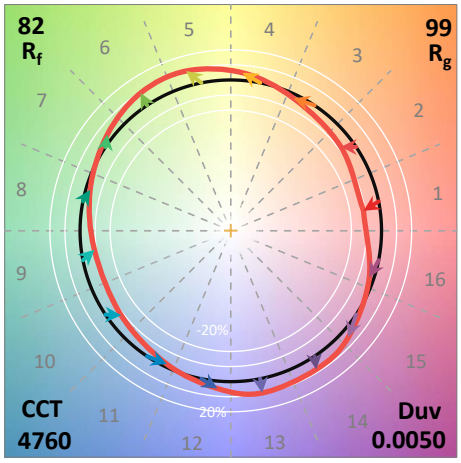
## Spectral Power Distribution Comparison

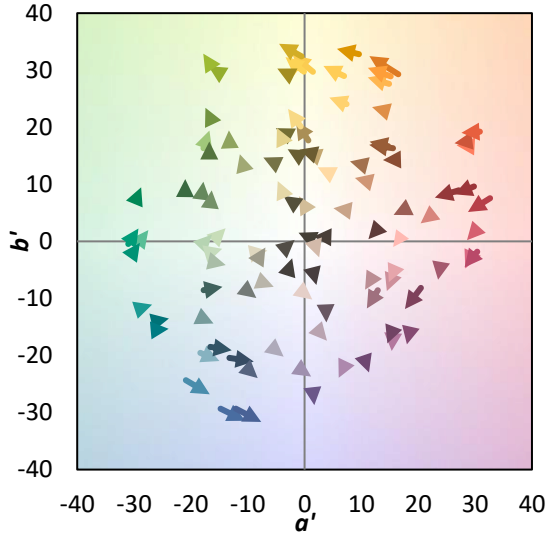



## Color Vector Graphics



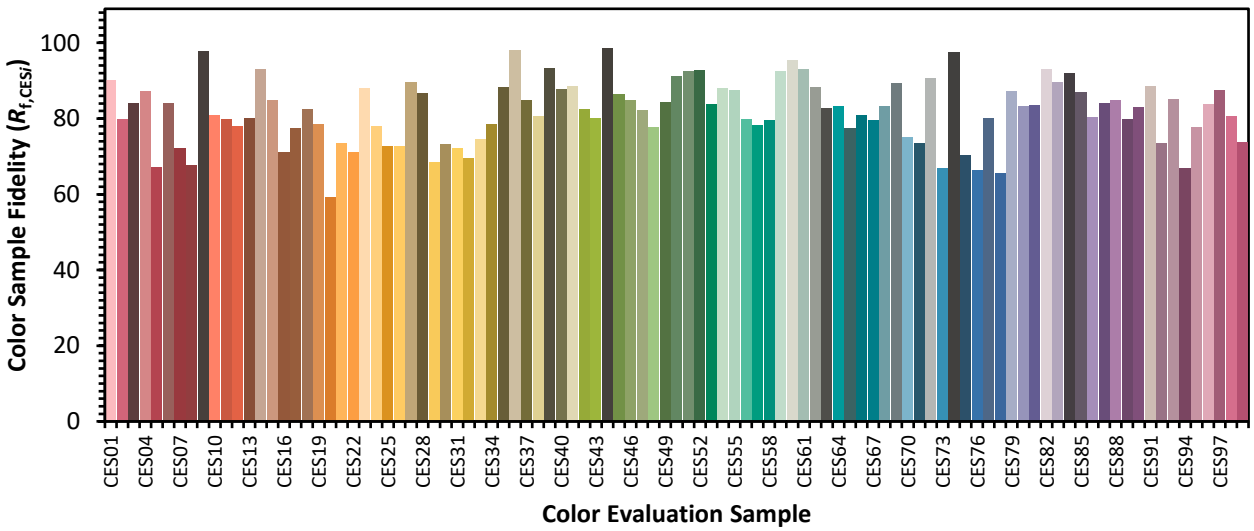



REPORT NUMBER: SP1-2407-184-12

# TM-30-18

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

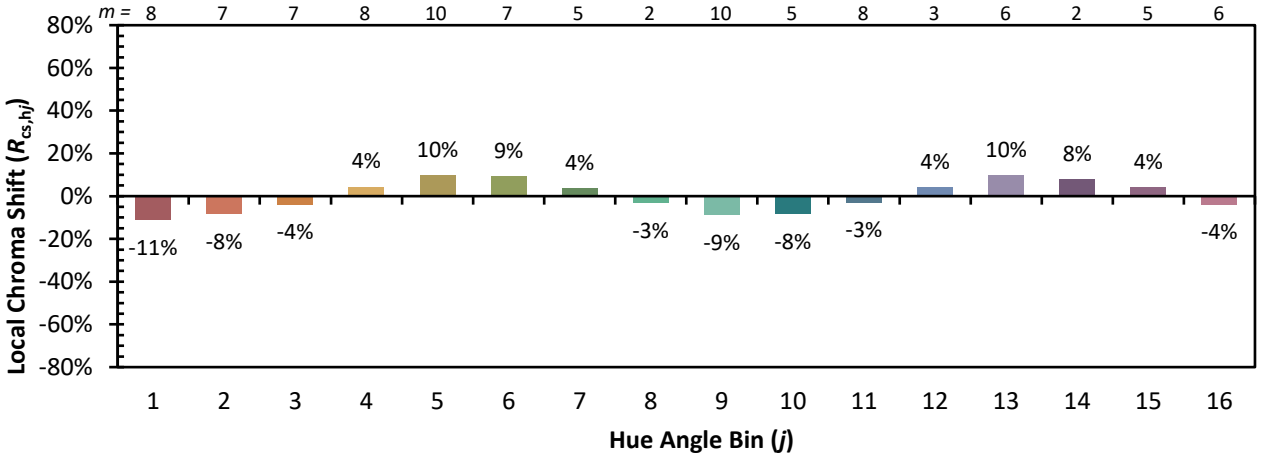
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 73 | CES51 = 92 | CES76 = 66 |
| CES02 = 60 | CES27 = 90 | CES52 = 93 | CES77 = 80 |
| CES03 = 30 | CES28 = 87 | CES53 = 84 | CES78 = 65 |
| CES04 = 69 | CES29 = 69 | CES54 = 88 | CES79 = 87 |
| CES05 = 47 | CES30 = 73 | CES55 = 88 | CES80 = 83 |
| CES06 = 50 | CES31 = 72 | CES56 = 80 | CES81 = 84 |
| CES07 = 40 | CES32 = 69 | CES57 = 78 | CES82 = 93 |
| CES08 = 39 | CES33 = 75 | CES58 = 80 | CES83 = 90 |
| CES09 = 29 | CES34 = 78 | CES59 = 93 | CES84 = 92 |
| CES10 = 73 | CES35 = 88 | CES60 = 95 | CES85 = 87 |
| CES11 = 56 | CES36 = 98 | CES61 = 93 | CES86 = 80 |
| CES12 = 62 | CES37 = 85 | CES62 = 88 | CES87 = 84 |
| CES13 = 42 | CES38 = 81 | CES63 = 83 | CES88 = 85 |
| CES14 = 74 | CES39 = 93 | CES64 = 83 | CES89 = 80 |
| CES15 = 71 | CES40 = 88 | CES65 = 77 | CES90 = 83 |
| CES16 = 46 | CES41 = 89 | CES66 = 81 | CES91 = 89 |
| CES17 = 48 | CES42 = 82 | CES67 = 80 | CES92 = 73 |
| CES18 = 55 | CES43 = 80 | CES68 = 83 | CES93 = 85 |
| CES19 = 70 | CES44 = 99 | CES69 = 89 | CES94 = 67 |
| CES20 = 64 | CES45 = 87 | CES70 = 75 | CES95 = 78 |
| CES21 = 85 | CES46 = 85 | CES71 = 73 | CES96 = 84 |
| CES22 = 77 | CES47 = 82 | CES72 = 91 | CES97 = 87 |
| CES23 = 91 | CES48 = 78 | CES73 = 67 | CES98 = 81 |
| CES24 = 90 | CES49 = 84 | CES74 = 98 | CES99 = 74 |
| CES25 = 71 | CES50 = 91 | CES75 = 70 | |

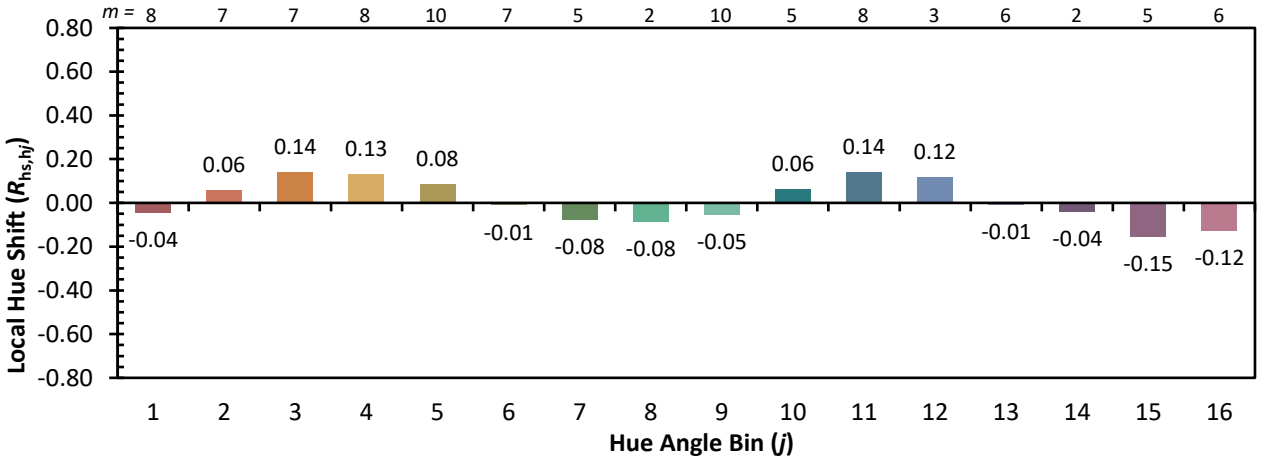


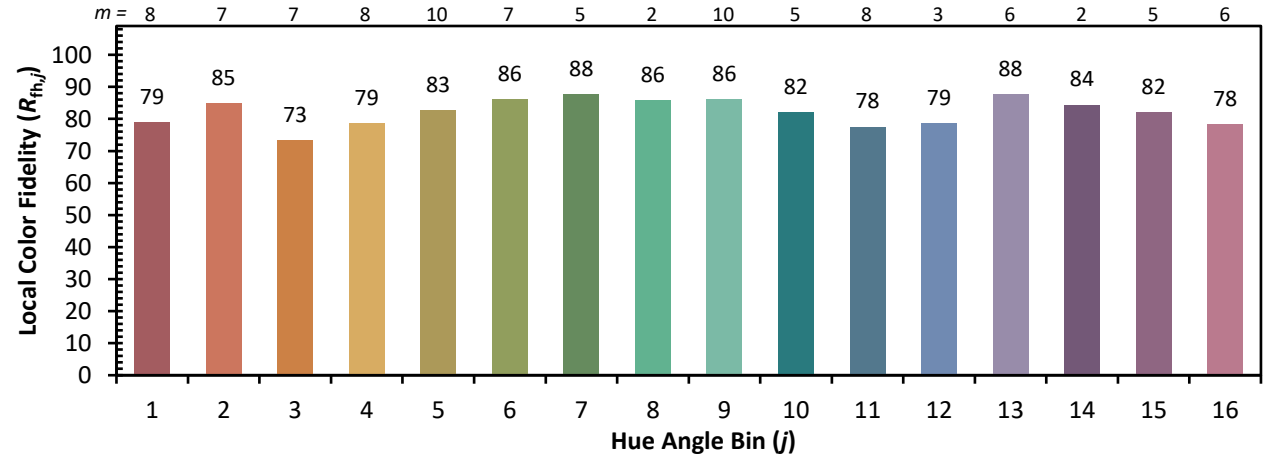
REPORT NUMBER: SP1-2407-184-12

# TM-30-18

## Color Rendition by Hue-Angle Bin



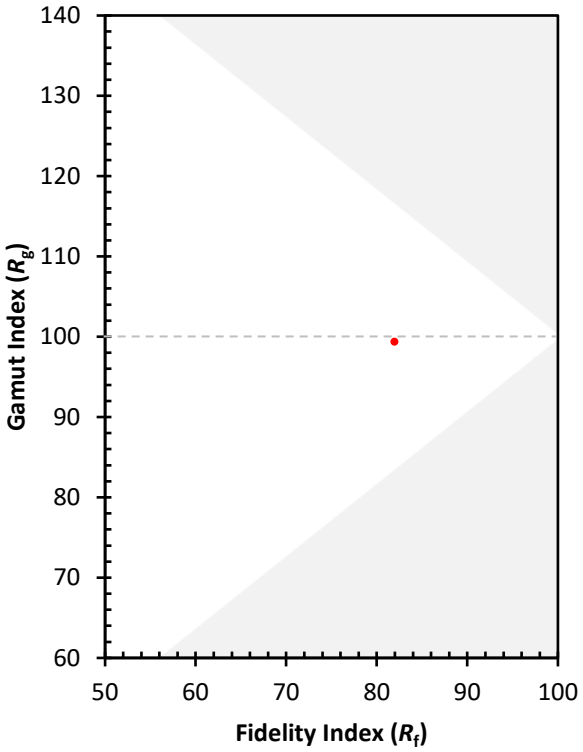



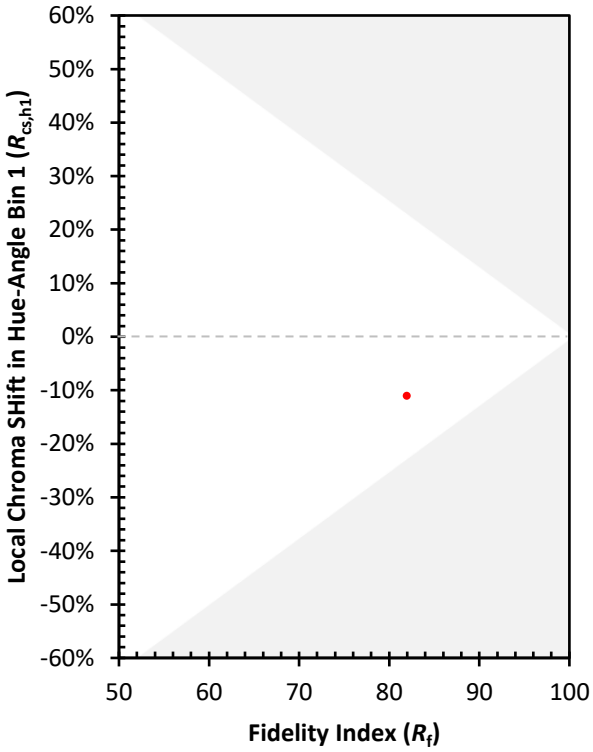



REPORT NUMBER: SP1-2407-184-12

# TM-30-18

## Measure Comparisons




(END OF REPORT)