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: P1704731

Luminaire Tested: GSS-SB4A-AMB-U-SL2-HSS

Issue Date: 10/28/2026

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: | P1704731 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 10/28/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GSS-SB4A-AMB-U-SL2-HSS |
| Description: | GALLEON SITE SLIM HIGH DENSITY LED ARRAYS 4SQUARE 130W 1590K FIXTURE w/ T2 SPILL CONTROL DISTRIBUTION WITH HOUSE SIDE SHIELD |
| Light Source: | (104) 1590K CCT, 0 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 6897.4 lumens |
| Efficiency: | N/A |
| Efficacy: | 53.0 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 1' x H: 0') |
| IES Classification: | Type II - Medium |
| BUG Rating: | B1 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 130.1 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

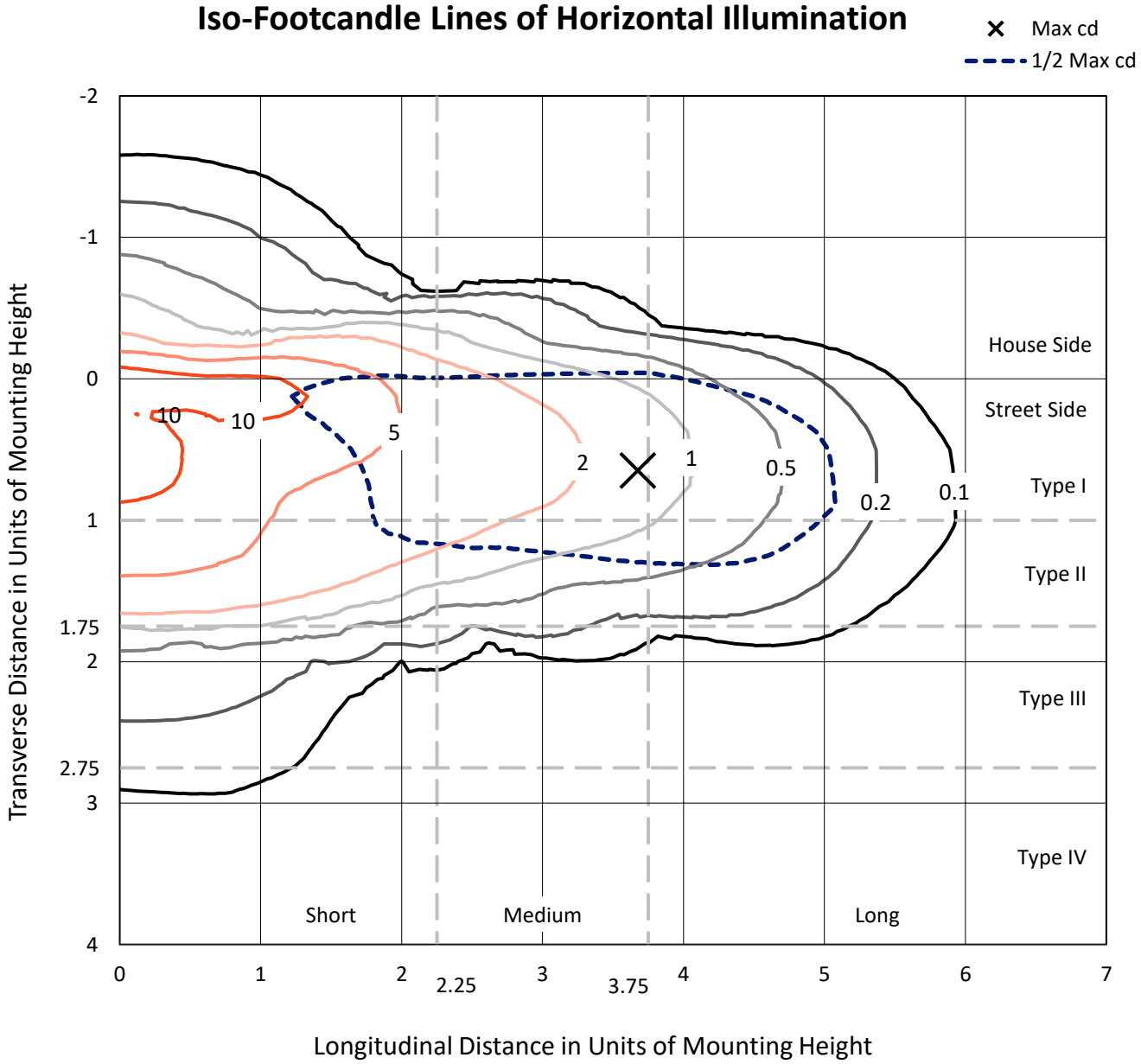


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REPORT NUMBER: P1704731
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## Iso-Footcandle Lines of Horizontal Illumination



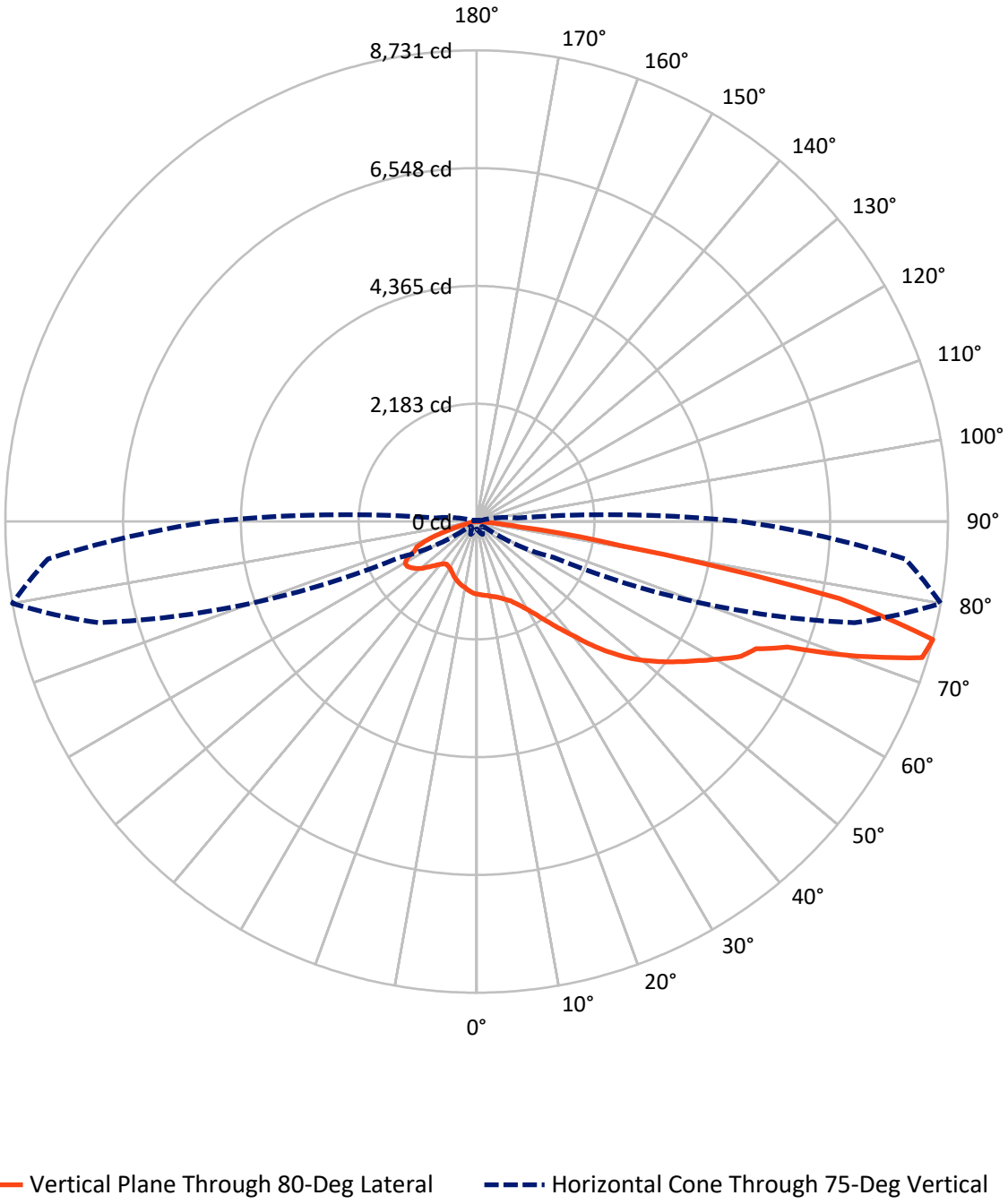

Based on 10 foot mounting height. Maximum calculated value = 13.4 fc
Type II - Medium - N/A

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## Luminous Intensity Polar Plot



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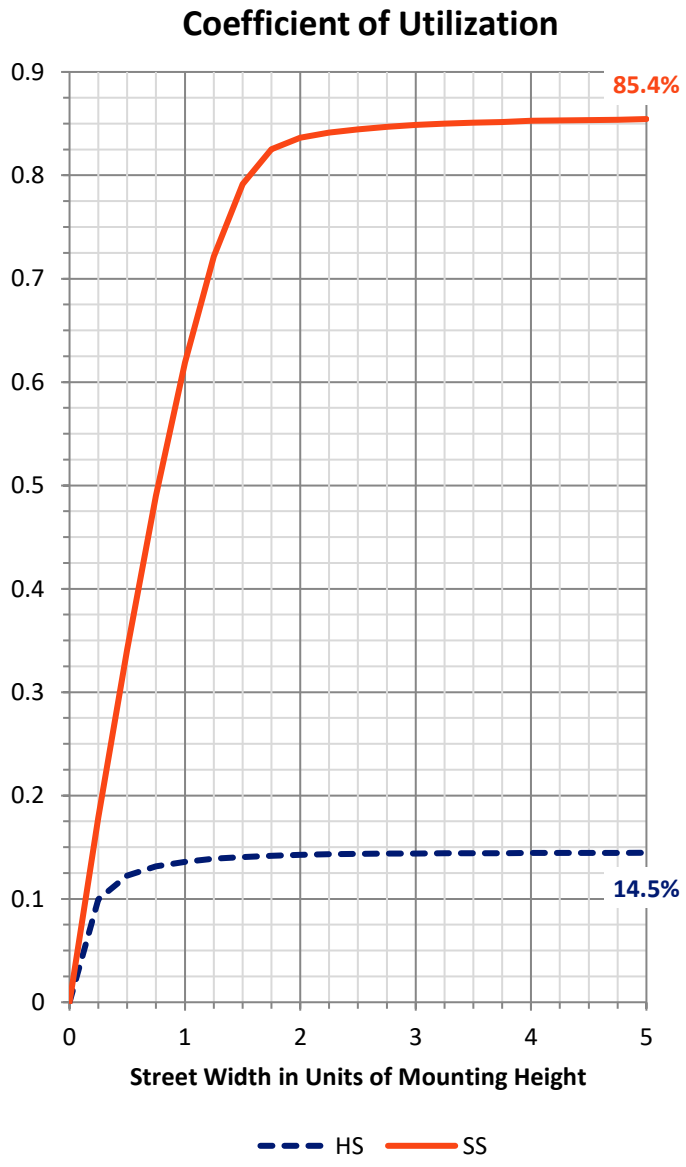
REPORT NUMBER: P1704731
CATALOG NUMBER: GSS-SB4A-AMB-U-SL2-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1005.0 | 0.0 | 1005.0 |
| | % Fixture | 14.6 | 0.0 | 14.6 |
| **Street Side** | Lumens | 5892.4 | 0.0 | 5892.4 |
| | % Fixture | 85.4 | 0.0 | 85.4 |
| **Total** | Lumens | 6897.4 | 0.0 | 6897.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 113.1 | 1.6 |
| 10°-20° | 259.4 | 3.8 |
| 20°-30° | 439.4 | 6.4 |
| 30°-40° | 723.7 | 10.5 |
| 40°-50° | 1141.9 | 16.6 |
| 50°-60° | 1574.7 | 22.8 |
| 60°-70° | 1525.7 | 22.1 |
| 70°-80° | 1042.5 | 15.1 |
| 80°-90° | 77.0 | 1.1 |
| 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° | 6897.4 | 100.0 |
| 0°-180° | 6897.4 | 100.0 |



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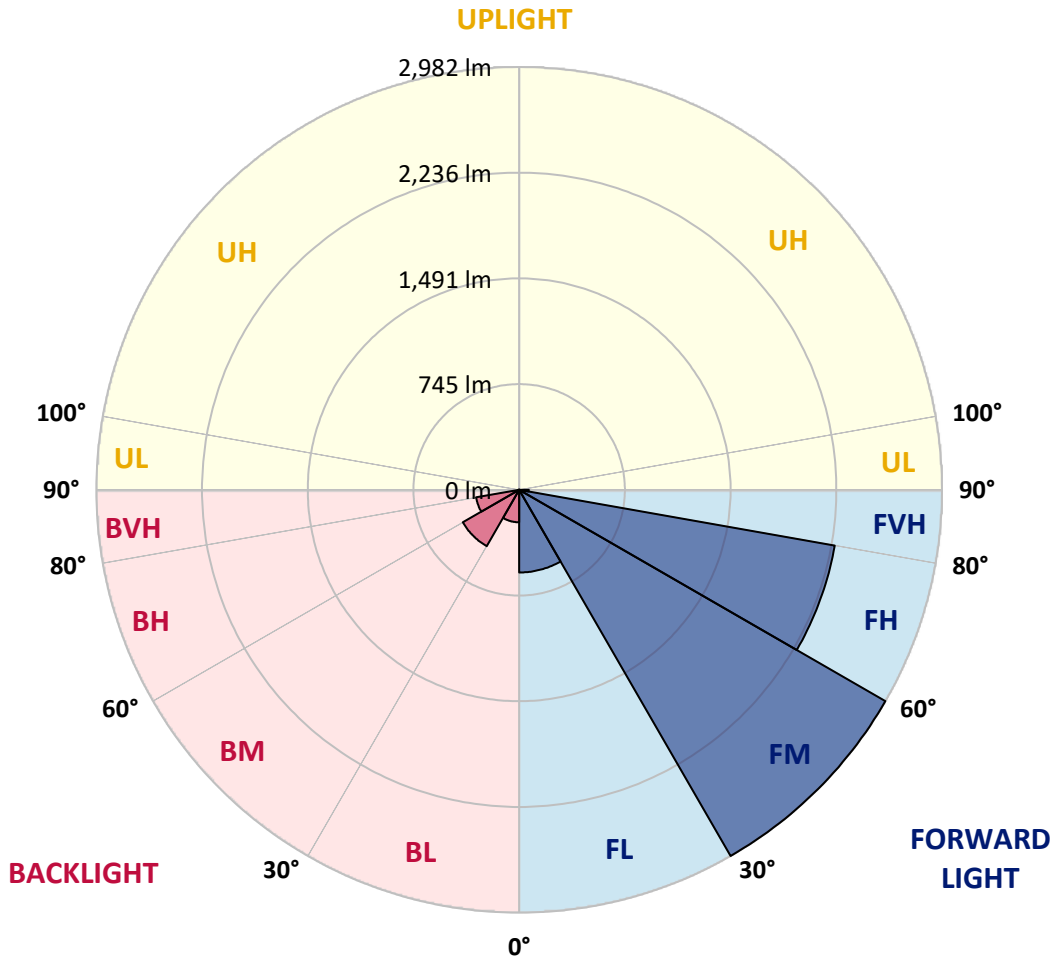
Scaled Data Report

REPORT NUMBER: P1704731
CATALOG NUMBER: GSS-SB4A-AMB-U-SL2-HSS

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 583.0 | 8.5 | | | |
| FM | (30°-60°) | 2981.6 | 43.2 | | | |
| FH | (60°-80°) | 2259.8 | 32.8 | | | G2/5000 |
| FVH | (80°-90°) | 68.0 | 1.0 | | | G1/100 |
| BL | (0°-30°) | 228.8 | 3.3 | B1/500 | | |
| BM | (30°-60°) | 458.7 | 6.7 | B1/1000 | | |
| BH | (60°-80°) | 308.4 | 4.5 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 9.0 | 0.1 | | | 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 II Medium



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 80° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | *1344.7* | 1344.7 |
| 2.5° | 1419.6 | 1411.8 | 1407.8 | 1403.9 | 1407.8 | 1396.0 | 1396.0 | 1376.3 | 1368.4 | *1356.5* | 1352.6 |
| 5° | 1321.1 | 1313.2 | 1317.1 | 1332.9 | 1336.8 | 1356.5 | 1376.3 | 1399.9 | 1392.0 | *1372.3* | 1364.4 |
| 7.5° | 1194.9 | 1187.0 | 1198.8 | 1226.4 | 1261.9 | 1293.5 | 1325.0 | 1364.4 | 1403.9 | *1384.2* | 1364.4 |
| 10° | 1096.3 | 1096.3 | 1108.1 | 1123.9 | 1151.5 | 1214.6 | 1285.6 | 1336.8 | 1407.8 | *1407.8* | 1376.3 |
| 12.5° | 1080.5 | 1080.5 | 1072.6 | 1080.5 | 1100.2 | 1139.7 | 1226.4 | 1321.1 | 1403.9 | *1427.5* | 1392.0 |
| 15° | 1131.8 | 1123.9 | 1116.0 | 1104.2 | 1096.3 | 1116.0 | 1179.1 | 1317.1 | 1411.8 | *1455.1* | 1423.6 |
| 17.5° | 1226.4 | 1210.6 | 1198.8 | 1167.3 | 1139.7 | 1127.8 | 1167.3 | 1309.2 | 1435.4 | *1494.6* | 1459.1 |
| 20° | 1336.8 | 1325.0 | 1301.3 | 1250.1 | 1214.6 | 1171.2 | 1179.1 | 1293.5 | 1470.9 | *1541.9* | 1514.3 |
| 22.5° | 1463.0 | 1455.1 | 1427.5 | 1372.3 | 1297.4 | 1242.2 | 1214.6 | 1301.3 | 1518.2 | *1593.2* | 1577.4 |
| 25° | 1605.0 | 1597.1 | 1561.6 | 1502.5 | 1415.7 | 1332.9 | 1273.7 | 1325.0 | 1605.0 | *1683.9* | 1656.3 |
| 27.5° | 1731.2 | 1719.3 | 1683.9 | 1636.5 | 1541.9 | 1435.4 | 1352.6 | 1384.2 | 1695.7 | *1778.5* | 1750.9 |
| 30° | 1833.7 | 1833.7 | 1802.2 | 1754.8 | 1668.1 | 1534.0 | 1439.4 | 1459.1 | 1817.9 | *1908.6* | 1888.9 |
| 32.5° | 1959.9 | 1940.2 | 1916.5 | 1857.4 | 1774.6 | 1644.4 | 1541.9 | 1561.6 | 1956.0 | *2074.3* | 2050.6 |
| 35° | 2101.9 | 2094.0 | 2058.5 | 1975.7 | 1888.9 | 1750.9 | 1660.2 | 1679.9 | 2117.6 | *2291.1* | 2271.4 |
| 37.5° | 2196.5 | 2180.7 | 2157.1 | 2117.6 | 1995.4 | 1849.5 | 1758.8 | 1810.0 | 2299.0 | *2527.8* | 2531.7 |
| 40° | 2295.1 | 2279.3 | 2267.5 | 2239.9 | 2149.2 | 1948.1 | 1865.3 | 1959.9 | 2492.3 | *2799.9* | 2823.5 |
| 42.5° | 2397.6 | 2389.7 | 2381.8 | 2370.0 | 2291.1 | 2105.8 | 1983.6 | 2113.7 | 2709.2 | *3131.1* | 3190.3 |
| 45° | 2488.3 | 2476.5 | 2496.2 | 2500.1 | 2441.0 | 2291.1 | 2101.9 | 2263.5 | 2941.8 | *3454.5* | 3576.7 |
| 47.5° | 2571.1 | 2559.3 | 2594.8 | 2598.7 | 2571.1 | 2429.2 | 2239.9 | 2456.8 | 3194.2 | *3769.9* | 3967.1 |
| 50° | 2618.5 | 2618.5 | 2685.5 | 2701.3 | 2673.7 | 2512.0 | 2354.2 | 2614.5 | 3426.9 | *4049.9* | 4282.6 |
| 52.5° | 2571.1 | 2579.0 | 2689.4 | 2807.7 | 2799.9 | 2598.7 | 2476.5 | 2827.5 | 3679.2 | *4318.1* | 4590.2 |
| 55° | 2539.6 | 2535.6 | 2661.8 | 2882.7 | 2937.9 | 2717.0 | 2634.2 | 3036.5 | 3919.8 | *4582.3* | 4897.8 |
| 57.5° | 2054.5 | 2141.3 | 2374.0 | 2721.0 | 3056.2 | 2961.5 | 2855.1 | 3277.0 | 4223.4 | *4862.3* | 5142.3 |
| 60° | 875.4 | 942.5 | 1332.9 | 2196.5 | 2862.9 | 3253.3 | 3241.5 | 3612.2 | 4542.9 | *5169.9* | 5414.4 |
| 62.5° | 453.5 | 453.5 | 465.3 | 962.2 | 2121.6 | 3198.1 | 3833.0 | 4184.0 | 5004.2 | *5501.1* | 5662.8 |
| 65° | 386.5 | 394.3 | 394.3 | 449.6 | 812.4 | 2362.1 | 3860.6 | 4882.0 | 5465.6 | *5686.5* | 5619.4 |
| 67.5° | 358.9 | 362.8 | 378.6 | 378.6 | 347.0 | 918.8 | 2918.2 | 5221.1 | 6396.3 | *6210.9* | 5816.6 |
| 70° | 315.5 | 327.3 | 354.9 | 335.2 | 260.3 | 287.9 | 1348.7 | 4629.6 | 7642.4 | *7468.9* | 6546.1 |
| 72.5° | 248.4 | 260.3 | 311.5 | 307.6 | 205.1 | 185.3 | 394.3 | 3202.1 | 7981.5 | *8628.3* | 7338.8 |
| 75° | *142.0* | *145.9* | *189.3* | *260.3* | *161.7* | *134.1* | *181.4* | *1569.5* | *7244.1* | *8730.8* | *7969.7* |
| 77.5° | 98.6 | 102.5 | 138.0 | 181.4 | 110.4 | 94.6 | 118.3 | 496.9 | 5248.7 | *6873.4* | 6222.8 |
| 80° | 39.4 | 43.4 | 86.8 | 138.0 | 78.9 | 59.2 | 74.9 | 220.8 | 2082.1 | *2717.0* | 2512.0 |
| 82.5° | 15.8 | 19.7 | 51.3 | 71.0 | 51.3 | 39.4 | 43.4 | 102.5 | 512.6 | *796.6* | 414.1 |
| 85° | 11.8 | 7.9 | 23.7 | 35.5 | 27.6 | 19.7 | 23.7 | 47.3 | 98.6 | *118.3* | 74.9 |
| 87.5° | 0.0 | 0.0 | 3.9 | 3.9 | 3.9 | 3.9 | 7.9 | 15.8 | 19.7 | *23.7* | 23.7 |
| 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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REPORT NUMBER: P1704731
CATALOG NUMBER: GSS-SB4A-AMB-U-SL2-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 | 1344.7 |
| 2.5° | 1348.7 | 1340.8 | 1328.9 | 1309.2 | 1293.5 | 1293.5 | 1273.7 | 1265.8 | 1258.0 | 1261.9 | 1258.0 |
| 5° | 1344.7 | 1325.0 | 1289.5 | 1258.0 | 1198.8 | 1147.5 | 1112.1 | 1084.4 | 1060.8 | 1045.0 | 1056.8 |
| 7.5° | 1340.8 | 1309.2 | 1258.0 | 1159.4 | 1076.6 | 989.8 | 918.8 | 851.8 | 808.4 | 788.7 | 800.5 |
| 10° | 1340.8 | 1297.4 | 1194.9 | 1060.8 | 934.6 | 800.5 | 658.6 | 563.9 | 516.6 | 496.9 | 492.9 |
| 12.5° | 1348.7 | 1297.4 | 1151.5 | 966.1 | 761.1 | 560.0 | 445.6 | 351.0 | 315.5 | 299.7 | 299.7 |
| 15° | 1364.4 | 1309.2 | 1092.3 | 847.8 | 571.8 | 386.5 | 291.8 | 260.3 | 248.4 | 248.4 | 248.4 |
| 17.5° | 1388.1 | 1301.3 | 1037.1 | 694.0 | 410.1 | 283.9 | 248.4 | 236.6 | 228.7 | 228.7 | 228.7 |
| 20° | 1431.5 | 1301.3 | 970.1 | 560.0 | 299.7 | 244.5 | 224.8 | 216.9 | 212.9 | 212.9 | 212.9 |
| 22.5° | 1478.8 | 1313.2 | 895.2 | 421.9 | 248.4 | 220.8 | 205.1 | 197.2 | 193.2 | 193.2 | 197.2 |
| 25° | 1541.9 | 1336.8 | 784.7 | 315.5 | 224.8 | 201.1 | 185.3 | 177.5 | 177.5 | 177.5 | 181.4 |
| 27.5° | 1601.0 | 1360.5 | 694.0 | 260.3 | 201.1 | 177.5 | 165.6 | 161.7 | 161.7 | 165.6 | 165.6 |
| 30° | 1687.8 | 1392.0 | 599.4 | 224.8 | 185.3 | 165.6 | 153.8 | 149.9 | 153.8 | 157.7 | 157.7 |
| 32.5° | 1806.1 | 1455.1 | 508.7 | 209.0 | 173.5 | 153.8 | 145.9 | 142.0 | 145.9 | 149.9 | 153.8 |
| 35° | 1987.5 | 1522.2 | 414.1 | 197.2 | 161.7 | 145.9 | 138.0 | 134.1 | 138.0 | 142.0 | 142.0 |
| 37.5° | 2192.6 | 1608.9 | 354.9 | 189.3 | 157.7 | 142.0 | 134.1 | 130.1 | 130.1 | 130.1 | 130.1 |
| 40° | 2405.5 | 1715.4 | 327.3 | 185.3 | 149.9 | 138.0 | 126.2 | 118.3 | 118.3 | 122.2 | 122.2 |
| 42.5° | 2701.3 | 1841.6 | 315.5 | 181.4 | 149.9 | 134.1 | 118.3 | 110.4 | 110.4 | 114.4 | 114.4 |
| 45° | 3004.9 | 2003.3 | 307.6 | 177.5 | 145.9 | 126.2 | 110.4 | 102.5 | 102.5 | 106.5 | 106.5 |
| 47.5° | 3328.3 | 2172.8 | 307.6 | 173.5 | 142.0 | 118.3 | 106.5 | 98.6 | 94.6 | 94.6 | 98.6 |
| 50° | 3655.6 | 2350.3 | 323.4 | 165.6 | 134.1 | 114.4 | 102.5 | 90.7 | 90.7 | 86.8 | 86.8 |
| 52.5° | 3915.8 | 2488.3 | 339.1 | 153.8 | 130.1 | 110.4 | 98.6 | 86.8 | 82.8 | 78.9 | 78.9 |
| 55° | 4136.7 | 2602.7 | 351.0 | 145.9 | 126.2 | 102.5 | 94.6 | 82.8 | 74.9 | 74.9 | 71.0 |
| 57.5° | 4365.4 | 2713.1 | 343.1 | 134.1 | 114.4 | 98.6 | 86.8 | 78.9 | 71.0 | 67.0 | 67.0 |
| 60° | 4527.1 | 2760.4 | 307.6 | 122.2 | 106.5 | 90.7 | 82.8 | 71.0 | 63.1 | 59.2 | 55.2 |
| 62.5° | 4629.6 | 2677.6 | 248.4 | 110.4 | 94.6 | 86.8 | 78.9 | 67.0 | 55.2 | 47.3 | 47.3 |
| 65° | 4389.1 | 2381.8 | 165.6 | 94.6 | 86.8 | 78.9 | 67.0 | 55.2 | 43.4 | 35.5 | 35.5 |
| 67.5° | 4452.2 | 2287.2 | 126.2 | 82.8 | 74.9 | 63.1 | 55.2 | 47.3 | 35.5 | 27.6 | 27.6 |
| 70° | 4649.3 | 1865.3 | 90.7 | 71.0 | 63.1 | 51.3 | 43.4 | 39.4 | 31.5 | 23.7 | 23.7 |
| 72.5° | 4799.2 | 1293.5 | 71.0 | 59.2 | 51.3 | 35.5 | 31.5 | 31.5 | 23.7 | 15.8 | 15.8 |
| 75° | *4905.7* | *749.3* | *55.2* | *47.3* | *35.5* | *27.6* | *27.6* | *23.7* | *15.8* | *11.8* | *11.8* |
| 77.5° | 3434.7 | 339.1 | 43.4 | 35.5 | 23.7 | 19.7 | 15.8 | 11.8 | 11.8 | 3.9 | 3.9 |
| 80° | 1514.3 | 149.9 | 35.5 | 23.7 | 15.8 | 11.8 | 11.8 | 7.9 | 3.9 | 3.9 | 0.0 |
| 82.5° | 240.6 | 55.2 | 23.7 | 19.7 | 11.8 | 7.9 | 3.9 | 3.9 | 0.0 | 0.0 | 0.0 |
| 85° | 51.3 | 27.6 | 15.8 | 11.8 | 7.9 | 3.9 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 19.7 | 19.7 | 11.8 | 7.9 | 3.9 | 3.9 | 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: SP3-2509-541-1

Test Date: 09/16/2025

Luminaire Tested: GALN-SA1A-AMB-U-T3BC

Data in this report applies to families of products including GALN-SA1A*

Report Generated By FNC07603 / LDUCLS01DT01661
Version: v7.05

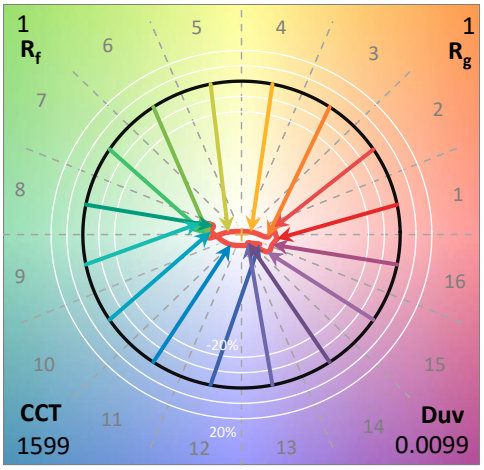
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP3-2509-541-1 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP3 - 3M SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/02/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGraw-Edison |
| Catalog Number: | **GALN-SA1A-AMB-U-T3BC** |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE. (1) AMBER, 615MA LIGHTSQUARES TYPE III ROADWAY OPTICS WITH ANGLED BACKLIGHT CONTROL HEATSINK |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 1599 |
| CIE u': | 0.3452 |
| CIE v': | 0.5480 |
| Duv: | 0.0099 |
| CIE x: | 0.5859 |
| CIE y: | 0.4133 |
| CIE z: | 0.0008 |
| Peak Wavelength (nm): | 596 |
| Dominant Wavelength (nm): | 591 |
| Purity: | 99.94224 |
| Rf: | 1.2 |
| Rg: | 0.9 |

| | | | | | |
|---|---|---|---|---|---|
| CRI (Ra): | -22.7 | | | | |
| R1: | -36.4 | R9: | -395.3 | | |
| R2: | 50.8 | R10: | 26.0 | | |
| R3: | 18.3 | R11: | -97.2 | | |
| R4: | -69.1 | R12: | -14.1 | | |
| R5: | -41.9 | R13: | -17.6 | | |
| R6: | 38.5 | R14: | 46.4 | | |
| R7: | -6.7 | R15: | -69.4 | | |
| R8: | -135.4 | | | | |




## Test Conditions

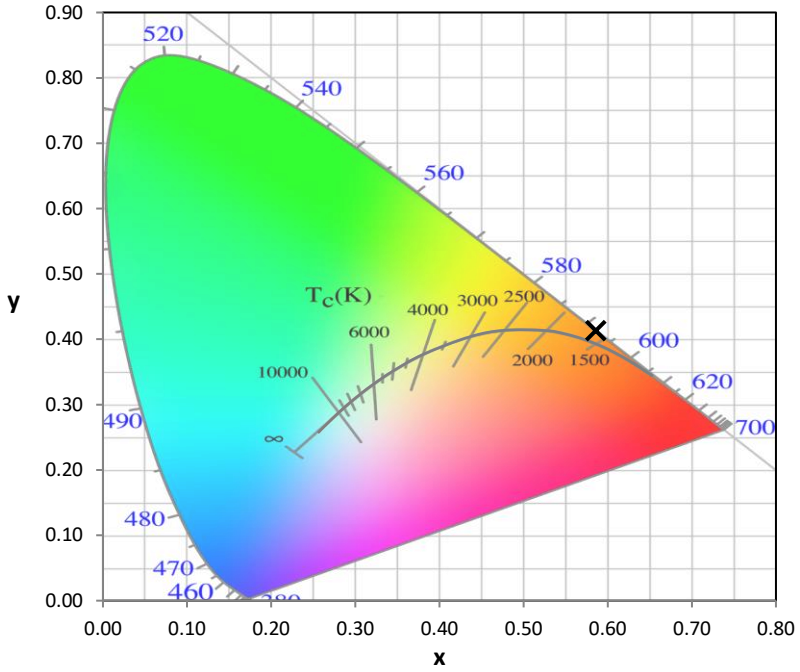
| | |
|---|---|
| Stabilization Time: | 64M |
| Operation Time: | 2H 4M |
| Sphere Temperature (°C): | 25.0 |

REPORT NUMBER: SP3-2509-541-1

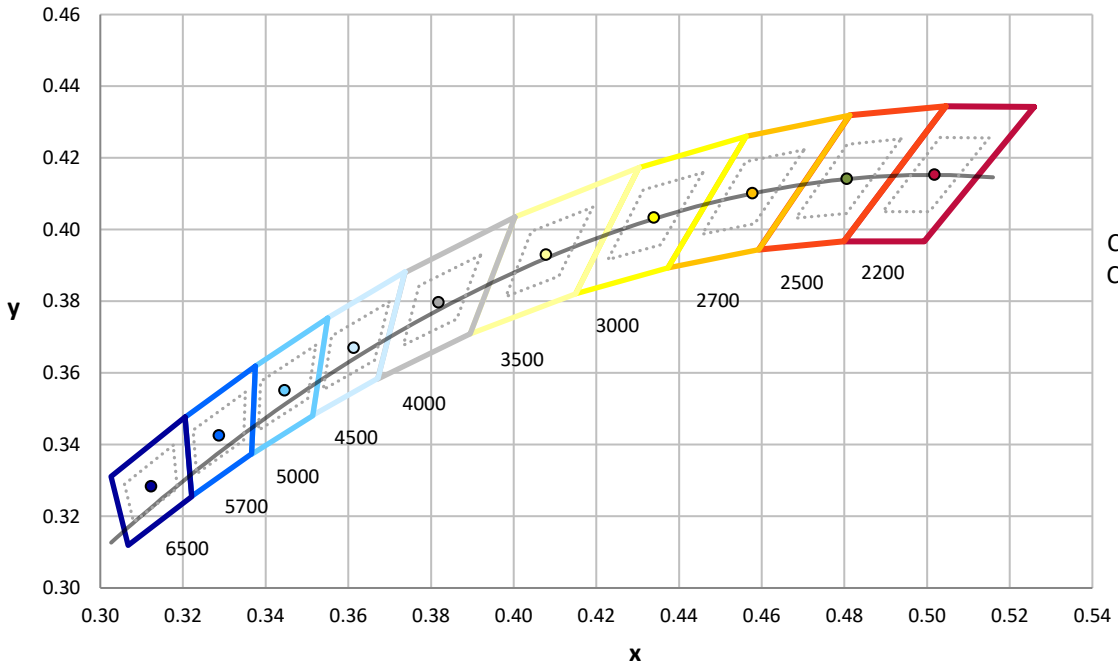
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 3M SPHERE IN02505 | 7/1/2025 | 1/1/2026 |
| Power Meter | XITRON INXT2011006 | 1/20/2025 | 1/20/2026 |
| AC Power Source | CHROMA 61604 IN6064A | 10/22/2024 | 10/22/2025 |
| DC Power Source | EYSIGHT N5770A IN0534 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | TANDD IN4036E | 10/22/2024 | 10/22/2025 |
| | | | |

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## CIE 1931 Chromaticity Diagram




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

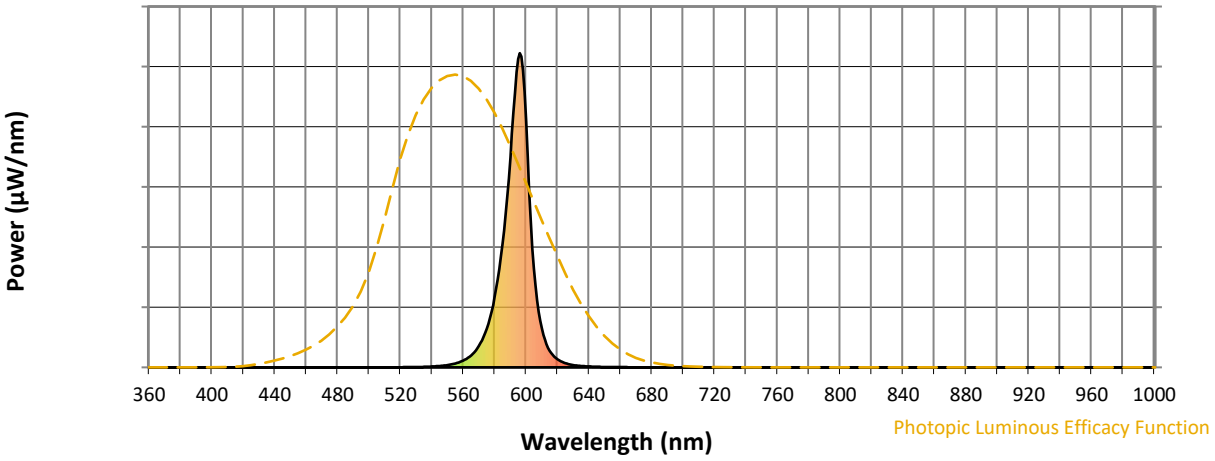



CCT = 1599K
CIE x = 0.5859
CIE y = 0.4133
Duv = 0.0099

Point lies outside the range

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## Photopic Flux vs. Wavelength

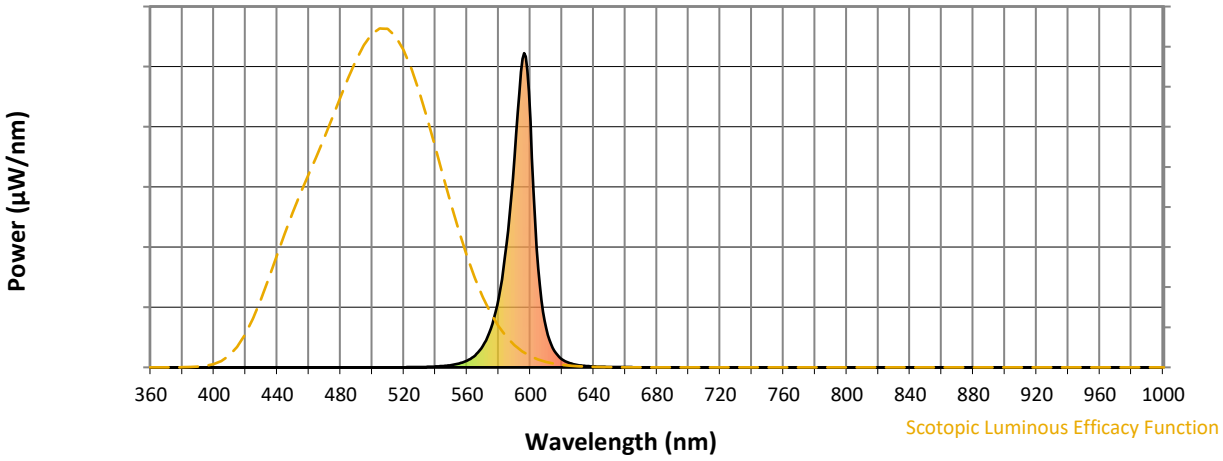



## Photopic Lumens: NR

| 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 | 0 | NR | 620 | 26 | NR | 750 | 0 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 0 | NR | 625 | 13 | NR | 755 | 0 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 0 | NR | 630 | 8 | NR | 760 | 0 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 0 | NR | 635 | 4 | NR | 765 | 0 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 0 | NR | 640 | 3 | NR | 770 | 0 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 0 | NR | 645 | 2 | NR | 775 | 0 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 1 | NR | 650 | 1 | NR | 780 | 0 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 1 | NR | 655 | 1 | NR | 785 | 0 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 1 | NR | 660 | 1 | NR | 790 | 0 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 2 | NR | 665 | 1 | NR | 795 | 0 | NR | 925 | 0 | NR |
| 410 | 0 | NR | 540 | 3 | NR | 670 | 0 | NR | 800 | 0 | NR | 930 | 0 | NR |
| 415 | 0 | NR | 545 | 4 | NR | 675 | 0 | NR | 805 | 0 | NR | 935 | 0 | NR |
| 420 | 0 | NR | 550 | 7 | NR | 680 | 0 | NR | 810 | 0 | NR | 940 | 0 | NR |
| 425 | 0 | NR | 555 | 12 | NR | 685 | 0 | NR | 815 | 0 | NR | 945 | 0 | NR |
| 430 | 0 | NR | 560 | 22 | NR | 690 | 0 | NR | 820 | 0 | NR | 950 | 0 | NR |
| 435 | 0 | NR | 565 | 38 | NR | 695 | 0 | NR | 825 | 0 | NR | 955 | 0 | NR |
| 440 | 0 | NR | 570 | 68 | NR | 700 | 0 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 0 | NR | 575 | 123 | NR | 705 | 0 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 0 | NR | 580 | 223 | NR | 710 | 0 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 0 | NR | 585 | 392 | NR | 715 | 0 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 0 | NR | 590 | 669 | NR | 720 | 0 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 0 | NR | 595 | 982 | NR | 725 | 0 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 0 | NR | 600 | 783 | NR | 730 | 0 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 0 | NR | 605 | 315 | NR | 735 | 0 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 0 | NR | 610 | 124 | NR | 740 | 0 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 0 | NR | 615 | 53 | NR | 745 | 0 | NR | 875 | 0 | NR | | | |

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## Scotopic Flux vs. Wavelength

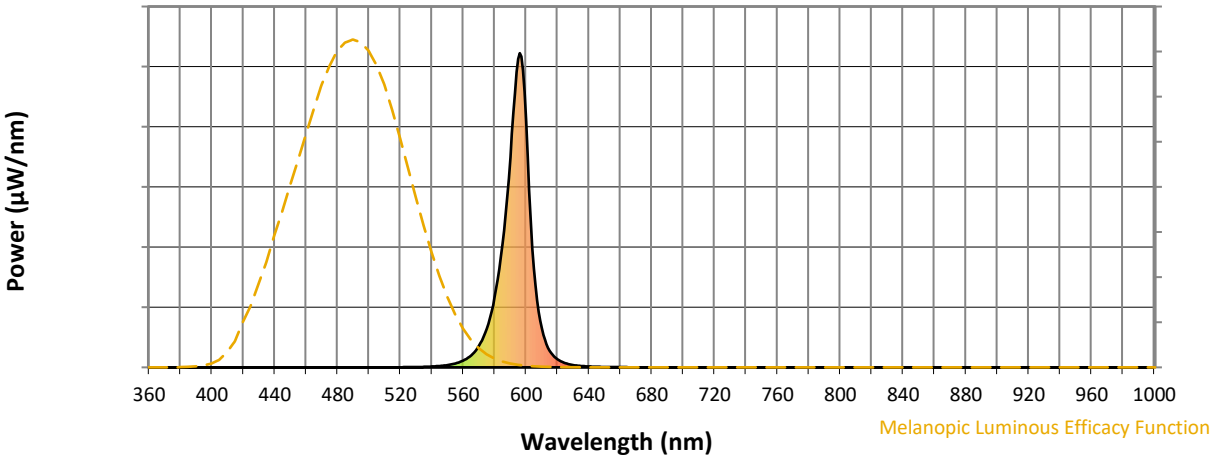



**Scotopic Lumens: NR** **S/P: 0.23**

| 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 | 0 | NR | 620 | 26 | NR | 750 | 0 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 0 | NR | 625 | 13 | NR | 755 | 0 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 0 | NR | 630 | 8 | NR | 760 | 0 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 0 | NR | 635 | 4 | NR | 765 | 0 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 0 | NR | 640 | 3 | NR | 770 | 0 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 0 | NR | 645 | 2 | NR | 775 | 0 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 1 | NR | 650 | 1 | NR | 780 | 0 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 1 | NR | 655 | 1 | NR | 785 | 0 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 1 | NR | 660 | 1 | NR | 790 | 0 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 2 | NR | 665 | 1 | NR | 795 | 0 | NR | 925 | 0 | NR |
| 410 | 0 | NR | 540 | 3 | NR | 670 | 0 | NR | 800 | 0 | NR | 930 | 0 | NR |
| 415 | 0 | NR | 545 | 4 | NR | 675 | 0 | NR | 805 | 0 | NR | 935 | 0 | NR |
| 420 | 0 | NR | 550 | 7 | NR | 680 | 0 | NR | 810 | 0 | NR | 940 | 0 | NR |
| 425 | 0 | NR | 555 | 12 | NR | 685 | 0 | NR | 815 | 0 | NR | 945 | 0 | NR |
| 430 | 0 | NR | 560 | 22 | NR | 690 | 0 | NR | 820 | 0 | NR | 950 | 0 | NR |
| 435 | 0 | NR | 565 | 38 | NR | 695 | 0 | NR | 825 | 0 | NR | 955 | 0 | NR |
| 440 | 0 | NR | 570 | 68 | NR | 700 | 0 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 0 | NR | 575 | 123 | NR | 705 | 0 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 0 | NR | 580 | 223 | NR | 710 | 0 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 0 | NR | 585 | 392 | NR | 715 | 0 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 0 | NR | 590 | 669 | NR | 720 | 0 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 0 | NR | 595 | 982 | NR | 725 | 0 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 0 | NR | 600 | 783 | NR | 730 | 0 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 0 | NR | 605 | 315 | NR | 735 | 0 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 0 | NR | 610 | 124 | NR | 740 | 0 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 0 | NR | 615 | 53 | NR | 745 | 0 | NR | 875 | 0 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 0.13**

| 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 | 0 | NR | 620 | 26 | NR | 750 | 0 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 0 | NR | 625 | 13 | NR | 755 | 0 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 0 | NR | 630 | 8 | NR | 760 | 0 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 0 | NR | 635 | 4 | NR | 765 | 0 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 0 | NR | 640 | 3 | NR | 770 | 0 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 0 | NR | 645 | 2 | NR | 775 | 0 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 1 | NR | 650 | 1 | NR | 780 | 0 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 1 | NR | 655 | 1 | NR | 785 | 0 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 1 | NR | 660 | 1 | NR | 790 | 0 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 2 | NR | 665 | 1 | NR | 795 | 0 | NR | 925 | 0 | NR |
| 410 | 0 | NR | 540 | 3 | NR | 670 | 0 | NR | 800 | 0 | NR | 930 | 0 | NR |
| 415 | 0 | NR | 545 | 4 | NR | 675 | 0 | NR | 805 | 0 | NR | 935 | 0 | NR |
| 420 | 0 | NR | 550 | 7 | NR | 680 | 0 | NR | 810 | 0 | NR | 940 | 0 | NR |
| 425 | 0 | NR | 555 | 12 | NR | 685 | 0 | NR | 815 | 0 | NR | 945 | 0 | NR |
| 430 | 0 | NR | 560 | 22 | NR | 690 | 0 | NR | 820 | 0 | NR | 950 | 0 | NR |
| 435 | 0 | NR | 565 | 38 | NR | 695 | 0 | NR | 825 | 0 | NR | 955 | 0 | NR |
| 440 | 0 | NR | 570 | 68 | NR | 700 | 0 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 0 | NR | 575 | 123 | NR | 705 | 0 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 0 | NR | 580 | 223 | NR | 710 | 0 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 0 | NR | 585 | 392 | NR | 715 | 0 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 0 | NR | 590 | 669 | NR | 720 | 0 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 0 | NR | 595 | 982 | NR | 725 | 0 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 0 | NR | 600 | 783 | NR | 730 | 0 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 0 | NR | 605 | 315 | NR | 735 | 0 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 0 | NR | 610 | 124 | NR | 740 | 0 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 0 | NR | 615 | 53 | NR | 745 | 0 | NR | 875 | 0 | NR | | | |

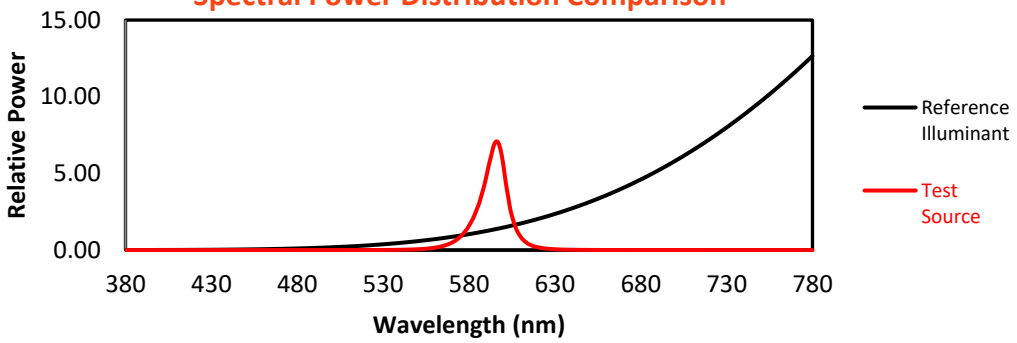
REPORT NUMBER: SP3-2509-541-1

# TM-30-18

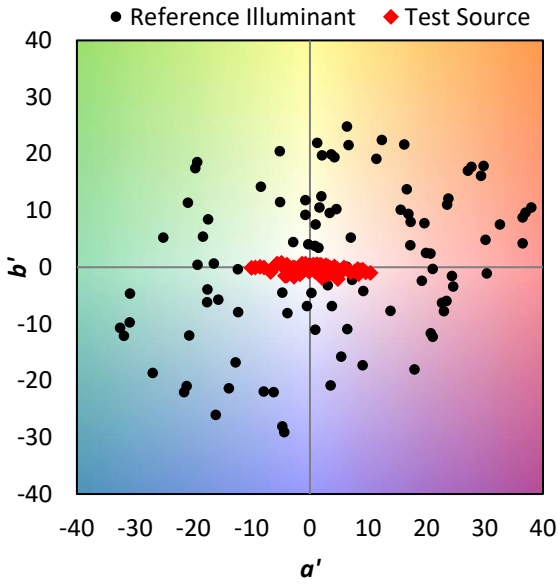
## Summary

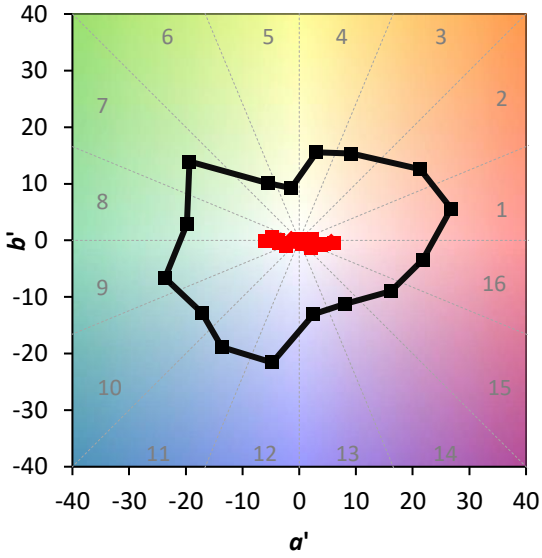
$R_f$ = 1.2
$R_g$ = 0.9
CIE $R_a$ = -22.7
$R_9$ = -395.3

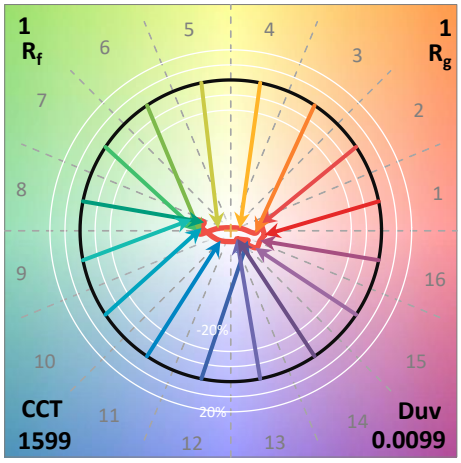
## Spectral Power Distribution Comparison

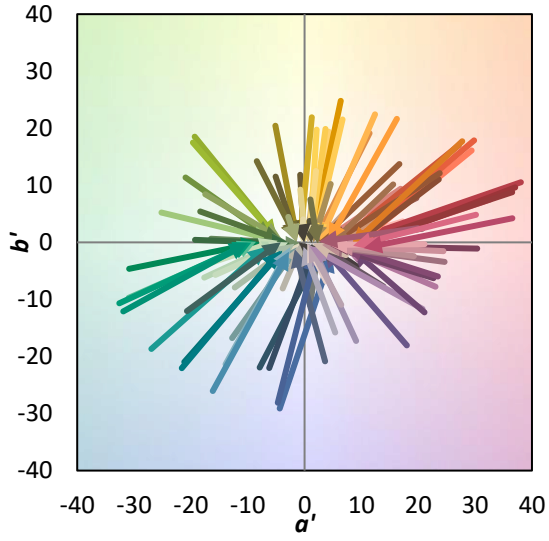



## Color Vector Graphics



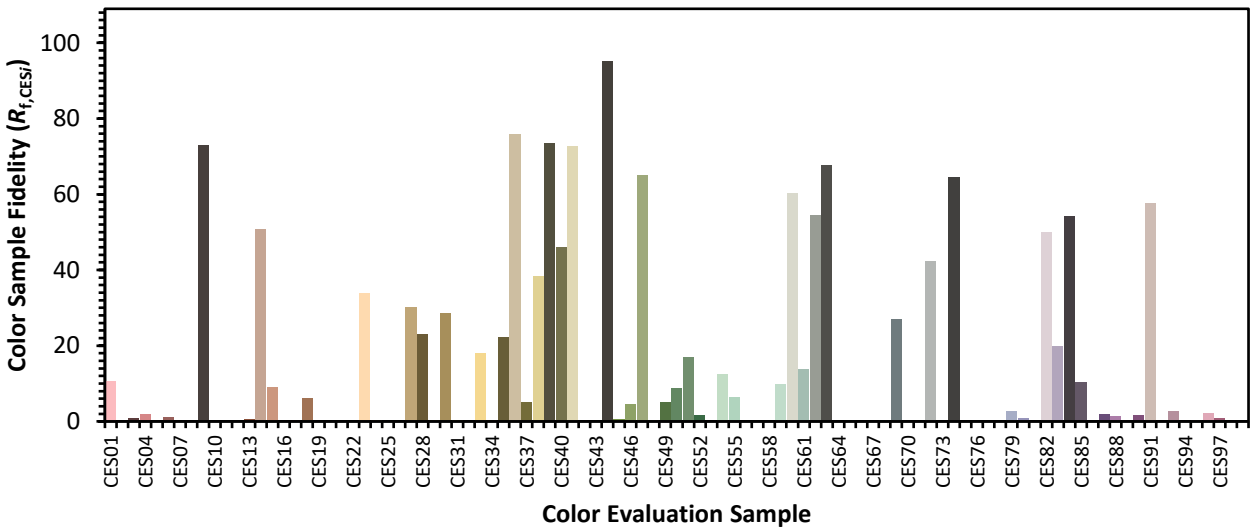



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# TM-30-18

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

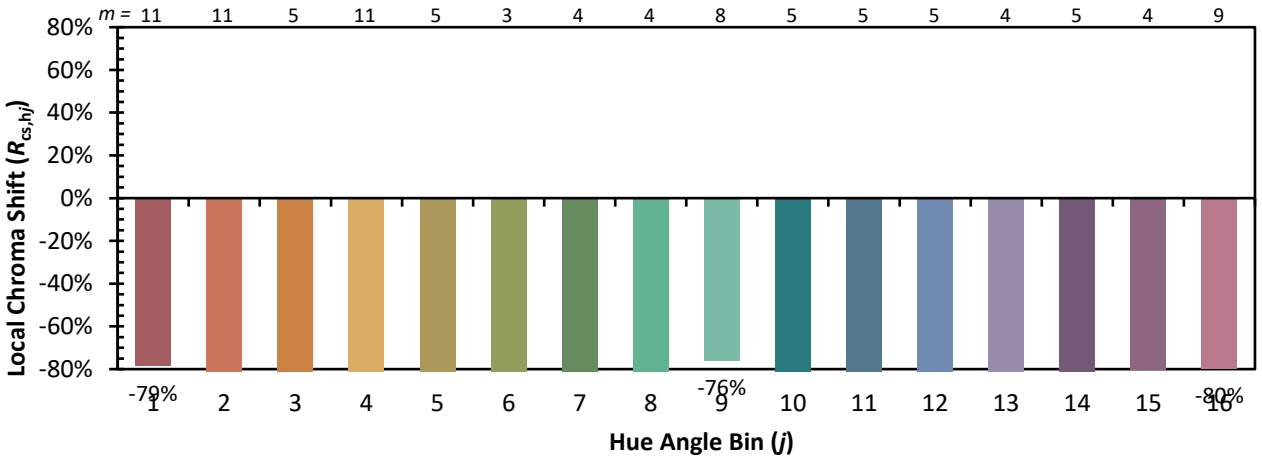
| | | | |
|---|---|---|---|
| CES01 = 90 | CES26 = 0 | CES51 = 17 | CES76 = 0 |
| CES02 = 69 | CES27 = 30 | CES52 = 2 | CES77 = 0 |
| CES03 = 30 | CES28 = 23 | CES53 = 0 | CES78 = 0 |
| CES04 = 77 | CES29 = 0 | CES54 = 12 | CES79 = 3 |
| CES05 = 51 | CES30 = 29 | CES55 = 6 | CES80 = 1 |
| CES06 = 56 | CES31 = 0 | CES56 = 0 | CES81 = 0 |
| CES07 = 40 | CES32 = 0 | CES57 = 0 | CES82 = 50 |
| CES08 = 38 | CES33 = 18 | CES58 = 0 | CES83 = 20 |
| CES09 = 29 | CES34 = 0 | CES59 = 10 | CES84 = 54 |
| CES10 = 87 | CES35 = 22 | CES60 = 60 | CES85 = 10 |
| CES11 = 70 | CES36 = 76 | CES61 = 14 | CES86 = 0 |
| CES12 = 75 | CES37 = 5 | CES62 = 55 | CES87 = 2 |
| CES13 = 46 | CES38 = 38 | CES63 = 68 | CES88 = 1 |
| CES14 = 76 | CES39 = 73 | CES64 = 0 | CES89 = 0 |
| CES15 = 74 | CES40 = 46 | CES65 = 0 | CES90 = 2 |
| CES16 = 49 | CES41 = 73 | CES66 = 0 | CES91 = 58 |
| CES17 = 56 | CES42 = 0 | CES67 = 0 | CES92 = 0 |
| CES18 = 59 | CES43 = 0 | CES68 = 0 | CES93 = 3 |
| CES19 = 80 | CES44 = 95 | CES69 = 27 | CES94 = 0 |
| CES20 = 71 | CES45 = 1 | CES70 = 0 | CES95 = 0 |
| CES21 = 94 | CES46 = 5 | CES71 = 0 | CES96 = 2 |
| CES22 = 86 | CES47 = 65 | CES72 = 42 | CES97 = 1 |
| CES23 = 94 | CES48 = 0 | CES73 = 0 | CES98 = 0 |
| CES24 = 95 | CES49 = 5 | CES74 = 65 | CES99 = 0 |
| CES25 = 79 | CES50 = 9 | CES75 = 0 | |

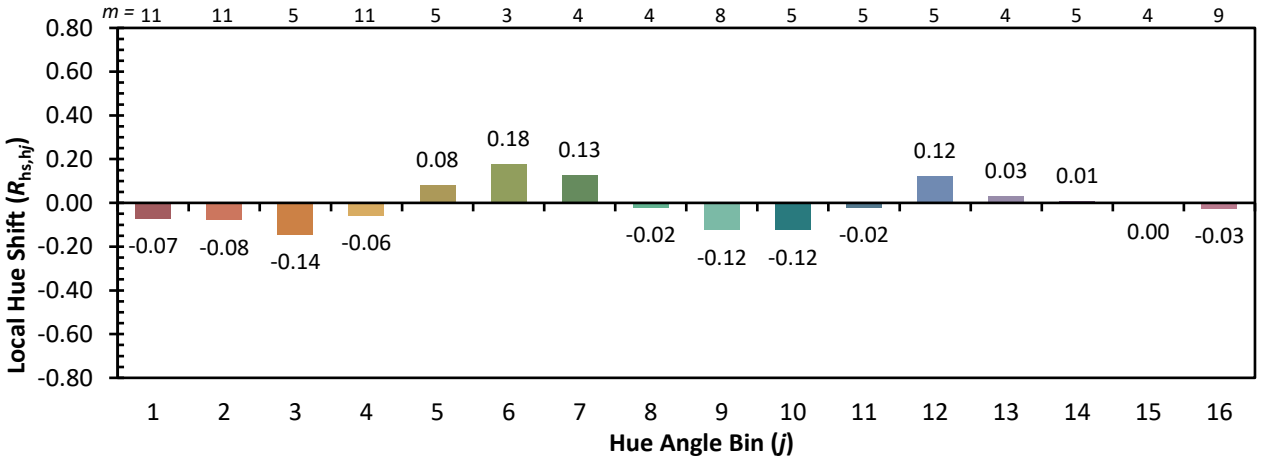


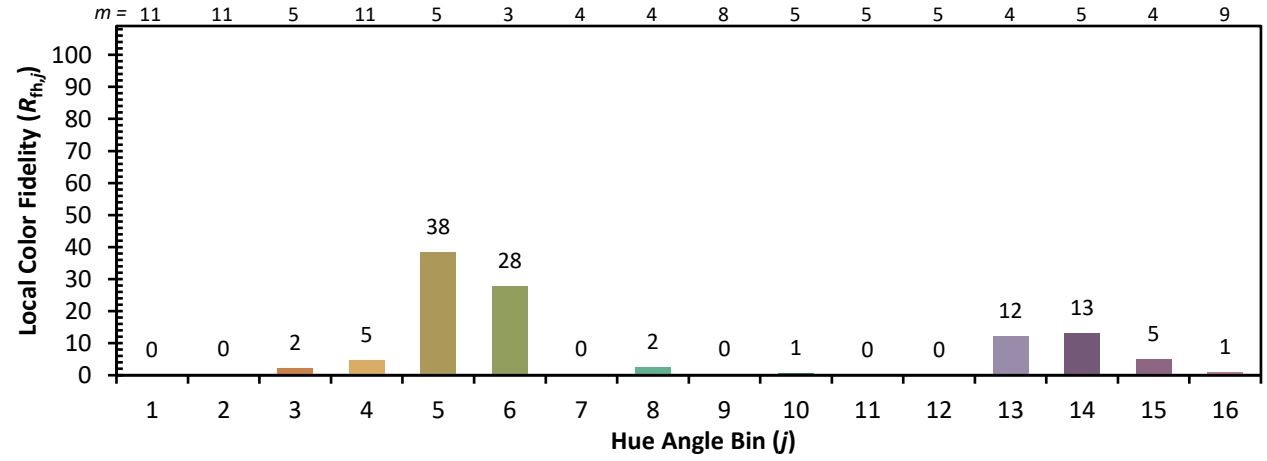
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## Color Rendition by Hue-Angle Bin



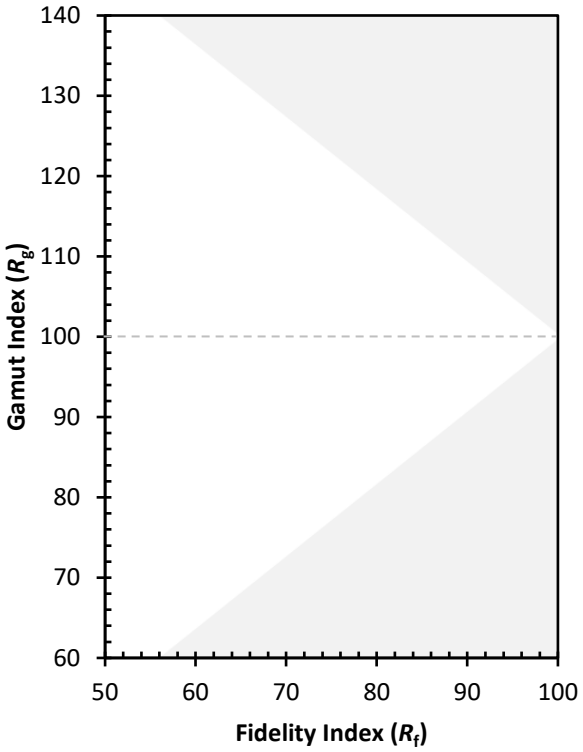



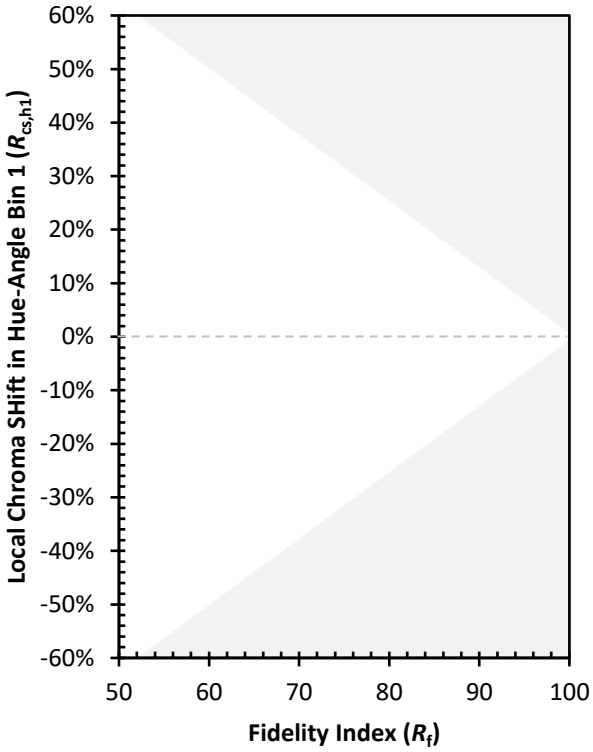



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## Measure Comparisons




(END OF REPORT)