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

Cooper Lighting Solutions Photometric Lab
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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: P1203125

Luminaire Tested: GWC-SB2B-830-U-T4W

Issue Date: 10/30/2025

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: | P1203125 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2411-289-1) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/14/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWC-SB2B-830-U-T4W |
| Description: | GALLEON WALL LUMINAIRE |
| | (2) 80 CRI, 3000K, 450mA LIGHTSQUARES WITH 26 LEDS EACH AND TYPE IV WIDE OPTICS |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 10097 lumens |
| Efficiency: | N/A |
| Efficacy: | 136.6 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.5' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B2 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 73.9 |
| Input Voltage (V): | 120.0 |
| Input Current (Ain): | 0.627 |
| Voltage Rise (V): | NR |
| Power Factor: | 0.988 |
| Total Harmonic Distortion (THDi): | 13.593 |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

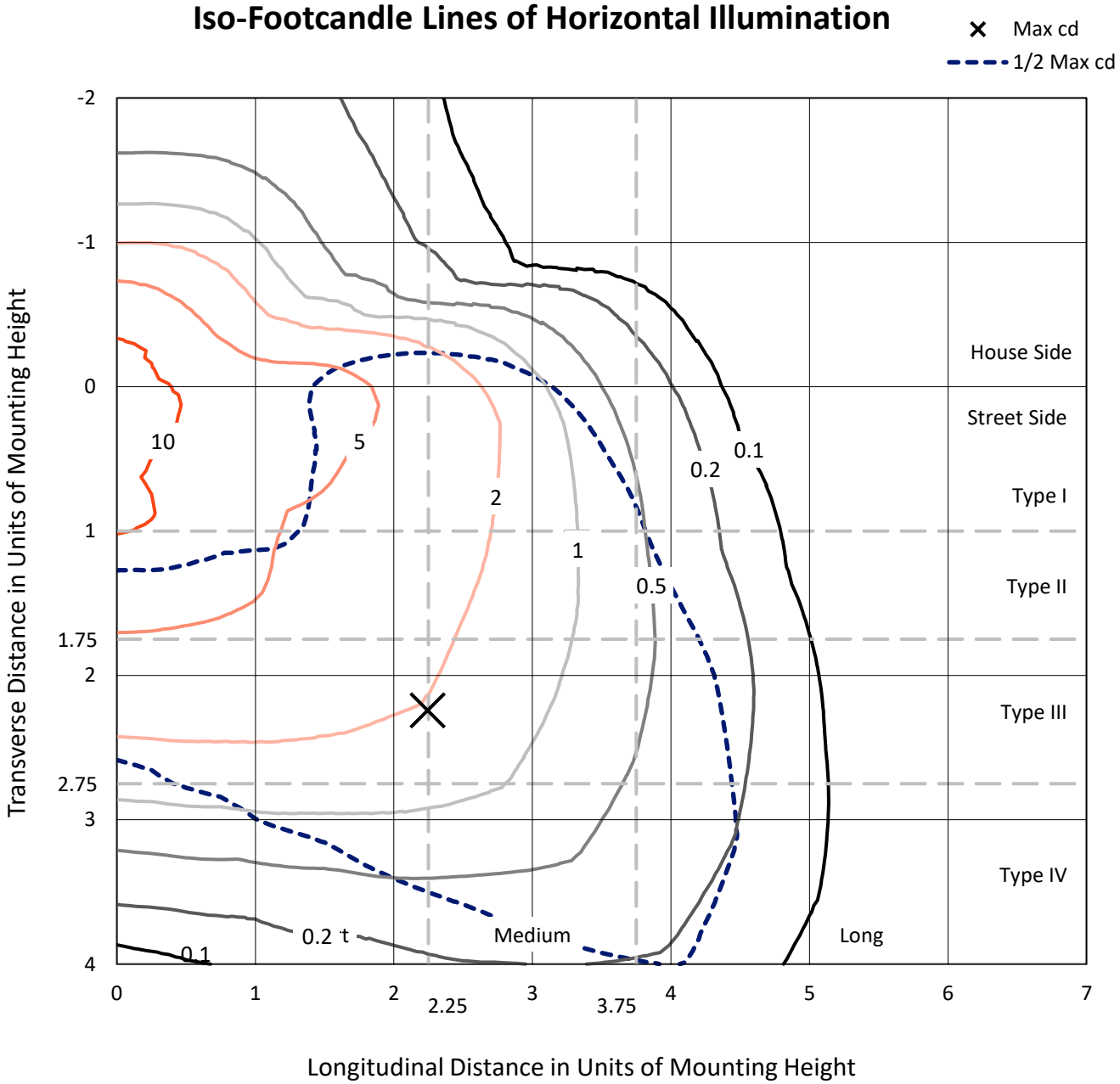


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Scaled Data Report

REPORT NUMBER: P1203125
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## Iso-Footcandle Lines of Horizontal Illumination



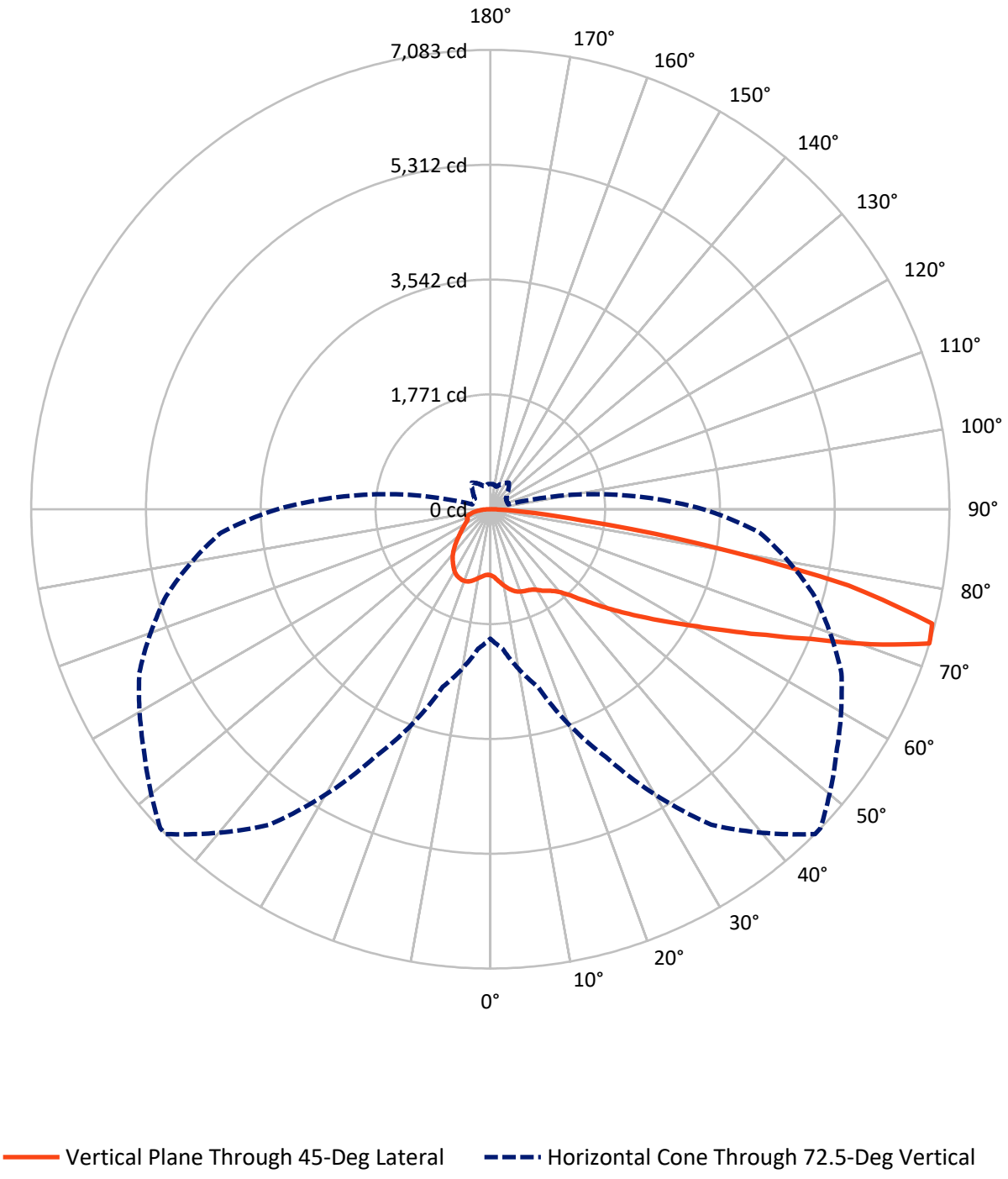

Based on 10 foot mounting height. Maximum calculated value = 11.7 fc
Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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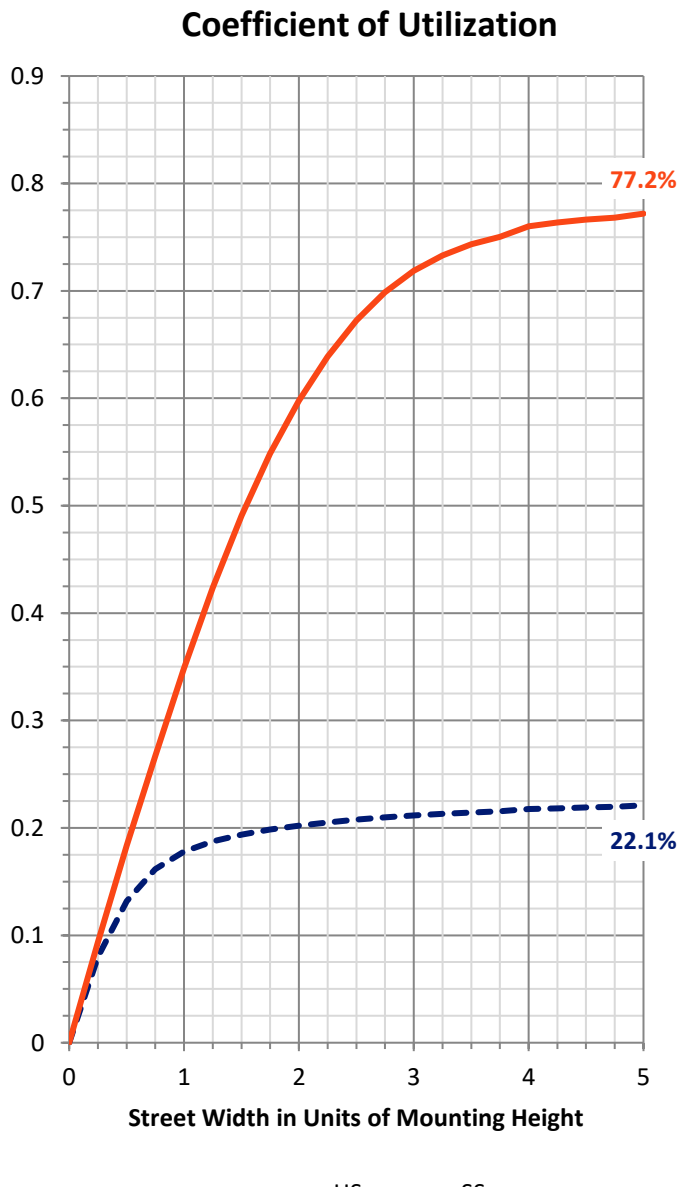
REPORT NUMBER: P1203125
CATALOG NUMBER: GWC-SB2B-830-U-T4W

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 2282.6 | 0.0 | 2282.6 |
| | % Fixture | 22.6 | 0.0 | 22.6 |
| **Street Side** | Lumens | 7814.4 | 0.0 | 7814.4 |
| | % Fixture | 77.4 | 0.0 | 77.4 |
| **Total** | Lumens | 10097.0 | 0.0 | 10097.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 103.7 | 1.0 |
| 10°-20° | 345.7 | 3.4 |
| 20°-30° | 601.3 | 6.0 |
| 30°-40° | 862.0 | 8.5 |
| 40°-50° | 1213.7 | 12.0 |
| 50°-60° | 1859.1 | 18.4 |
| 60°-70° | 2693.1 | 26.7 |
| 70°-80° | 2150.6 | 21.3 |
| 80°-90° | 267.9 | 2.7 |
| 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° | 10097.0 | 100.0 |
| 0°-180° | 10097.0 | 100.0 |



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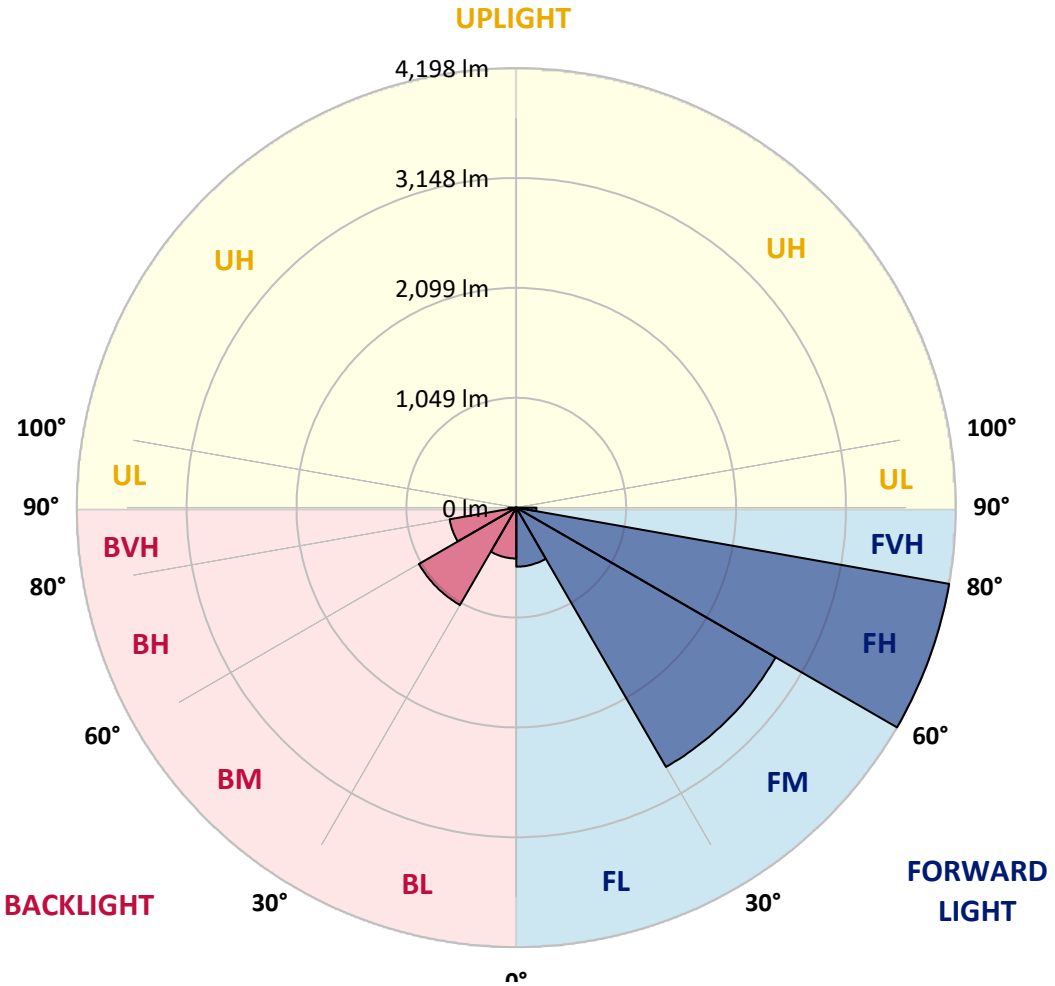
Scaled Data Report

REPORT NUMBER: P1203125
CATALOG NUMBER: GWC-SB2B-830-U-T4W

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 564.6 | 5.6 | | | |
| FM | (30°-60°) | 2860.0 | 28.3 | | | |
| FH | (60°-80°) | 4197.6 | 41.6 | | | G2/5000 |
| FVH | (80°-90°) | 192.2 | 1.9 | | | G2/225 |
| BL | (0°-30°) | 486.0 | 4.8 | B1/500 | | |
| BM | (30°-60°) | 1074.8 | 10.6 | B2/2500 | | |
| BH | (60°-80°) | 646.1 | 6.4 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 75.7 | 0.7 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B2-U0-G2**
Type IV Short



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REPORT NUMBER: P1203125
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 46° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 | *1018.6* | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 |
| 2.5° | 1058.5 | 1065.4 | 1059.0 | 1053.2 | 1050.5 | *1043.6* | 1043.1 | 1038.8 | 1036.1 | 1028.7 | 1026.6 |
| 5° | 1132.4 | 1141.5 | 1130.8 | 1119.1 | 1108.5 | *1091.5* | 1089.3 | 1077.1 | 1063.3 | 1047.3 | 1038.3 |
| 7.5° | 1215.9 | 1223.9 | 1211.7 | 1194.1 | 1175.5 | *1147.3* | 1146.8 | 1124.4 | 1102.6 | 1075.5 | 1060.1 |
| 10° | 1288.8 | 1299.4 | 1282.9 | 1259.0 | 1235.6 | *1203.7* | 1200.0 | 1174.4 | 1146.8 | 1111.7 | 1088.3 |
| 12.5° | 1353.2 | 1360.6 | 1344.6 | 1315.4 | 1288.3 | *1256.4* | 1251.6 | 1223.4 | 1192.5 | 1152.6 | 1122.8 |
| 15° | 1404.2 | 1413.8 | 1392.5 | 1361.1 | 1332.4 | *1301.0* | 1296.8 | 1271.2 | 1240.4 | 1198.4 | 1160.1 |
| 17.5° | 1437.7 | 1445.7 | 1423.9 | 1388.8 | 1361.1 | *1335.1* | 1331.9 | 1310.6 | 1283.5 | 1240.9 | 1200.0 |
| 20° | 1450.5 | 1459.0 | 1436.1 | 1400.5 | 1375.0 | *1354.8* | 1353.2 | 1337.7 | 1319.1 | 1280.3 | 1238.8 |
| 22.5° | 1463.3 | 1471.2 | 1441.5 | 1404.2 | 1381.9 | *1369.1* | 1368.6 | 1358.5 | 1351.0 | 1319.1 | 1278.7 |
| 25° | 1514.9 | 1517.0 | 1477.1 | 1423.4 | 1391.5 | *1380.3* | 1379.8 | 1379.2 | 1382.4 | 1357.4 | 1321.8 |
| 27.5° | 1559.5 | 1559.0 | 1525.0 | 1474.4 | 1425.0 | *1401.6* | 1401.0 | 1406.3 | 1416.5 | 1395.7 | 1366.5 |
| 30° | 1625.0 | 1619.1 | 1578.7 | 1526.0 | 1480.8 | *1444.6* | 1441.5 | 1436.7 | 1444.6 | 1428.2 | 1411.1 |
| 32.5° | 1763.8 | 1745.2 | 1679.7 | 1586.1 | 1527.1 | *1499.4* | 1495.2 | 1465.4 | 1468.6 | 1458.5 | 1450.0 |
| 35° | 1962.7 | 1938.2 | 1851.0 | 1700.0 | 1584.5 | *1545.2* | 1543.0 | 1505.3 | 1498.9 | 1489.9 | 1493.0 |
| 37.5° | 2199.4 | 2169.1 | 2067.5 | 1864.8 | 1683.5 | *1598.4* | 1595.2 | 1561.1 | 1535.1 | 1525.5 | 1543.6 |
| 40° | 2437.2 | 2398.9 | 2314.8 | 2065.9 | 1829.2 | *1687.2* | 1677.1 | 1625.5 | 1595.7 | 1579.7 | 1618.0 |
| 42.5° | 2668.0 | 2636.1 | 2564.3 | 2291.4 | 2009.0 | *1817.0* | 1794.6 | 1706.3 | 1684.0 | 1669.1 | 1738.3 |
| 45° | 2872.3 | 2843.5 | 2790.9 | 2532.4 | 2219.6 | *1993.6* | 1971.8 | 1827.6 | 1820.7 | 1820.7 | 1920.7 |
| 47.5° | 3038.2 | 3031.8 | 2976.0 | 2778.1 | 2468.0 | *2194.6* | 2156.9 | 1996.2 | 2014.8 | 2043.6 | 2179.7 |
| 50° | 3222.3 | 3204.7 | 3145.1 | 3020.1 | 2760.0 | *2424.9* | 2394.1 | 2203.1 | 2272.8 | 2351.5 | 2554.2 |
| 52.5° | 3391.4 | 3401.0 | 3334.5 | 3272.3 | 3089.8 | *2681.8* | 2627.6 | 2447.3 | 2597.8 | 2728.1 | 2993.0 |
| 55° | 3565.3 | 3565.9 | 3547.2 | 3538.7 | 3435.5 | *2965.9* | 2906.3 | 2740.9 | 2980.2 | 3141.9 | 3504.7 |
| 57.5° | 3728.6 | 3729.7 | 3757.3 | 3832.3 | 3836.6 | *3293.5* | 3226.0 | 3101.5 | 3405.2 | 3570.1 | 4032.3 |
| 60° | 3874.4 | 3881.8 | 3957.3 | 4132.9 | 4189.3 | *3669.1* | 3605.2 | 3527.6 | 3844.6 | 4010.5 | 4587.1 |
| 62.5° | 3923.3 | 3950.4 | 4118.5 | 4368.0 | 4537.6 | *4129.7* | 4066.9 | 4020.6 | 4306.3 | 4460.5 | 5050.9 |
| 65° | 3840.3 | 3902.6 | 4227.6 | 4562.1 | 4896.2 | *4677.0* | 4614.8 | 4564.2 | 4786.0 | 4931.3 | 5431.8 |
| 67.5° | 3636.6 | 3716.9 | 4221.2 | 4765.8 | 5331.2 | *5335.5* | 5277.5 | 5158.9 | 5300.4 | 5356.2 | 5555.7 |
| 70° | 3099.9 | 3220.1 | 3849.4 | 4841.9 | 5830.7 | *6236.0* | 6180.2 | 5874.8 | 5813.7 | 5543.5 | 5206.8 |
| 72.5° | *1997.3* | *2159.0* | *2834.5* | *4215.8* | *5941.9* | *7083.3* | *7080.1* | *6521.1* | *5975.9* | *5179.7* | *4176.0* |
| 75° | 728.7 | 827.6 | 1317.0 | 2646.2 | 4987.6 | *7040.2* | 7061.0 | 6410.5 | 5455.2 | 4001.0 | 2601.5 |
| 77.5° | 265.4 | 290.4 | 429.8 | 1017.0 | 3067.5 | *5648.8* | 5691.9 | 5124.9 | 3882.9 | 2007.9 | 1030.8 |
| 80° | 139.4 | 153.2 | 220.2 | 394.7 | 1314.3 | *3354.7* | 3422.3 | 3045.7 | 1825.0 | 604.8 | 309.0 |
| 82.5° | 77.1 | 83.5 | 123.4 | 214.4 | 592.0 | *1434.5* | 1475.0 | 1203.2 | 642.0 | 256.4 | 127.7 |
| 85° | 41.5 | 44.1 | 58.0 | 117.0 | 289.4 | *497.3* | 508.5 | 359.6 | 255.8 | 150.5 | 61.7 |
| 87.5° | 12.2 | 14.9 | 19.1 | 37.2 | 113.3 | *111.7* | 114.4 | 71.3 | 101.1 | 76.1 | 20.2 |
| 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: P1203125
CATALOG NUMBER: GWC-SB2B-830-U-T4W

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 | 1018.6 |
| 2.5° | 1023.4 | 1021.8 | 1015.9 | 1013.3 | 1010.1 | 1009.5 | 1012.2 | 1012.7 | 1013.3 | 1013.8 | 1015.9 |
| 5° | 1033.0 | 1027.6 | 1022.3 | 1019.1 | 1020.2 | 1020.7 | 1026.0 | 1029.8 | 1032.4 | 1034.5 | 1035.6 |
| 7.5° | 1051.6 | 1047.3 | 1038.3 | 1037.7 | 1039.3 | 1044.1 | 1051.0 | 1059.5 | 1064.3 | 1068.1 | 1069.1 |
| 10° | 1079.2 | 1071.2 | 1060.6 | 1062.2 | 1065.4 | 1072.3 | 1086.7 | 1093.6 | 1101.6 | 1108.5 | 1106.9 |
| 12.5° | 1107.4 | 1100.5 | 1088.3 | 1089.3 | 1094.7 | 1106.9 | 1120.7 | 1129.2 | 1134.5 | 1139.9 | 1142.0 |
| 15° | 1144.1 | 1131.9 | 1118.6 | 1118.6 | 1128.2 | 1141.5 | 1147.8 | 1154.8 | 1157.9 | 1163.8 | 1165.9 |
| 17.5° | 1181.9 | 1165.9 | 1148.4 | 1147.3 | 1159.0 | 1165.4 | 1169.1 | 1170.2 | 1171.2 | 1177.6 | 1179.8 |
| 20° | 1219.6 | 1202.1 | 1177.1 | 1175.0 | 1177.6 | 1176.6 | 1176.0 | 1175.0 | 1176.6 | 1184.5 | 1187.7 |
| 22.5° | 1256.9 | 1236.7 | 1202.1 | 1192.5 | 1185.1 | 1175.0 | 1174.4 | 1173.9 | 1175.0 | 1182.9 | 1188.3 |
| 25° | 1300.5 | 1276.0 | 1229.8 | 1201.0 | 1176.0 | 1162.2 | 1163.8 | 1164.3 | 1165.4 | 1171.8 | 1180.3 |
| 27.5° | 1347.8 | 1320.7 | 1255.3 | 1198.4 | 1153.2 | 1143.6 | 1140.9 | 1142.5 | 1146.2 | 1156.4 | 1166.5 |
| 30° | 1395.2 | 1363.3 | 1278.7 | 1187.7 | 1124.4 | 1111.1 | 1102.6 | 1106.4 | 1118.1 | 1128.2 | 1139.3 |
| 32.5° | 1438.3 | 1406.3 | 1297.3 | 1164.3 | 1087.7 | 1067.0 | 1055.8 | 1060.6 | 1072.3 | 1076.0 | 1089.3 |
| 35° | 1488.8 | 1452.6 | 1305.3 | 1127.1 | 1047.8 | 1015.9 | 1001.0 | 994.1 | 1000.0 | 996.3 | 1008.0 |
| 37.5° | 1545.2 | 1507.4 | 1304.2 | 1078.2 | 1001.0 | 964.3 | 943.6 | 917.5 | 905.3 | 892.5 | 900.5 |
| 40° | 1628.7 | 1574.4 | 1291.5 | 1019.1 | 943.1 | 909.6 | 872.3 | 828.2 | 800.5 | 775.5 | 777.1 |
| 42.5° | 1742.5 | 1667.5 | 1268.1 | 954.2 | 877.6 | 846.3 | 795.7 | 744.1 | 700.5 | 659.0 | 655.3 |
| 45° | 1912.2 | 1789.3 | 1238.8 | 885.1 | 806.9 | 776.0 | 721.3 | 663.3 | 613.8 | 560.6 | 554.2 |
| 47.5° | 2156.9 | 1953.1 | 1211.1 | 806.4 | 732.4 | 704.2 | 654.8 | 601.0 | 542.5 | 490.9 | 485.1 |
| 50° | 2493.0 | 2188.2 | 1185.6 | 729.8 | 659.0 | 637.7 | 598.4 | 543.6 | 484.6 | 443.1 | 440.4 |
| 52.5° | 2920.7 | 2507.9 | 1175.0 | 655.8 | 590.4 | 582.4 | 551.0 | 500.0 | 444.1 | 409.0 | 406.4 |
| 55° | 3411.6 | 2890.4 | 1175.0 | 585.1 | 530.3 | 533.0 | 511.2 | 463.8 | 415.4 | 384.0 | 380.8 |
| 57.5° | 3912.7 | 3277.6 | 1153.7 | 519.7 | 479.2 | 490.4 | 476.6 | 435.1 | 391.5 | 359.0 | 353.7 |
| 60° | 4374.4 | 3602.0 | 1067.5 | 460.1 | 434.0 | 451.6 | 442.5 | 406.9 | 353.7 | 326.6 | 322.3 |
| 62.5° | 4729.1 | 3785.0 | 901.6 | 412.8 | 396.8 | 417.0 | 412.2 | 369.7 | 346.8 | 335.6 | 331.9 |
| 65° | 4906.8 | 3755.2 | 689.3 | 370.7 | 365.4 | 396.8 | 386.7 | 385.1 | 367.0 | 354.2 | 350.0 |
| 67.5° | 4797.7 | 3498.8 | 500.0 | 339.9 | 347.3 | 378.2 | 417.0 | 423.4 | 389.9 | 364.9 | 360.6 |
| 70° | 4319.6 | 3035.0 | 372.3 | 310.6 | 324.5 | 378.7 | 475.5 | 443.1 | 382.4 | 353.2 | 348.4 |
| 72.5° | *3286.1* | *2263.2* | *288.8* | *279.8* | *294.7* | *381.4* | *501.6* | *434.0* | *361.2* | *390.4* | *387.2* |
| 75° | 1879.2 | 1242.5 | 231.9 | 242.0 | 257.4 | 356.4 | 488.3 | 410.6 | 344.7 | 358.5 | 358.5 |
| 77.5° | 716.5 | 477.6 | 191.5 | 204.8 | 206.9 | 311.2 | 467.0 | 409.0 | 328.2 | 320.2 | 292.0 |
| 80° | 248.4 | 186.7 | 158.5 | 162.8 | 160.1 | 276.6 | 447.9 | 355.8 | 268.6 | 240.4 | 232.4 |
| 82.5° | 101.6 | 93.1 | 125.5 | 120.2 | 113.8 | 214.9 | 361.7 | 290.9 | 219.7 | 194.1 | 192.0 |
| 85° | 44.1 | 59.0 | 83.0 | 72.9 | 66.0 | 148.9 | 289.9 | 246.3 | 185.6 | 160.1 | 159.6 |
| 87.5° | 9.0 | 22.3 | 35.1 | 33.0 | 34.0 | 99.5 | 205.8 | 175.0 | 131.4 | 98.4 | 77.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |


HS
SS

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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

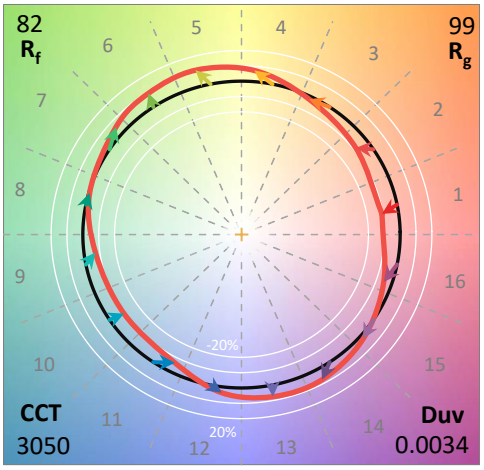
## Test Information

| | |
|---|---|
| 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

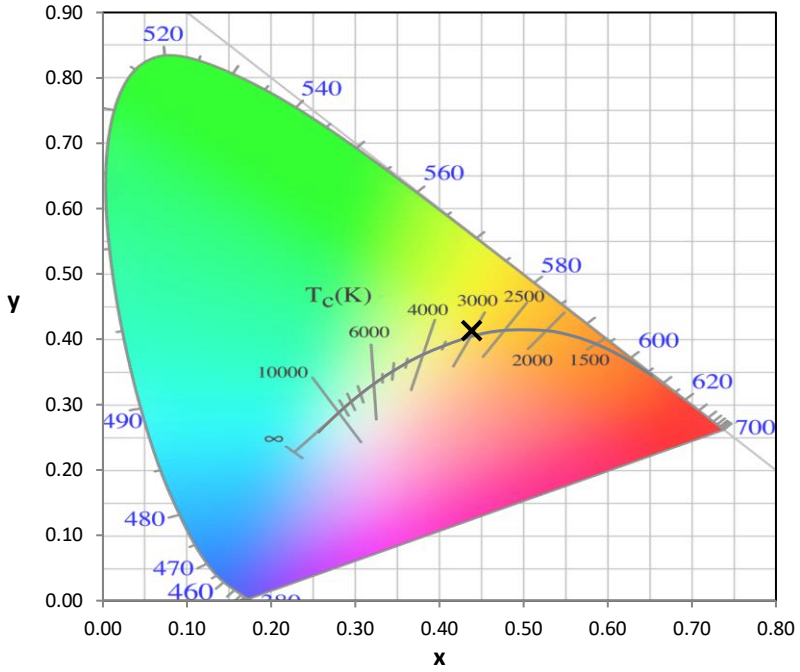
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 24.2 |

REPORT NUMBER: SP1-2408-195-9

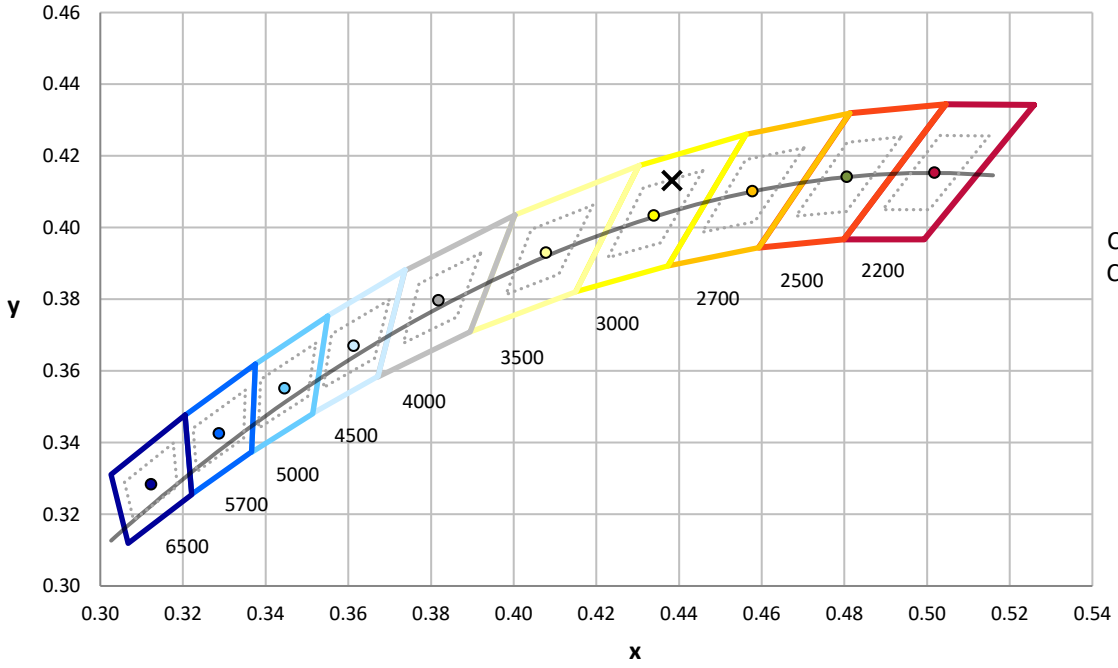
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

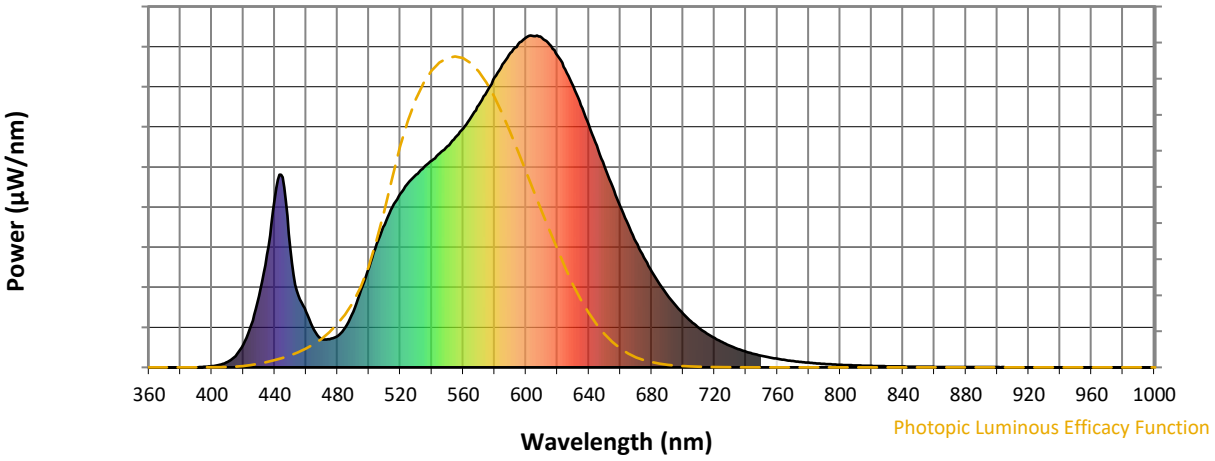



CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2408-195-9

## Photopic Flux vs. Wavelength

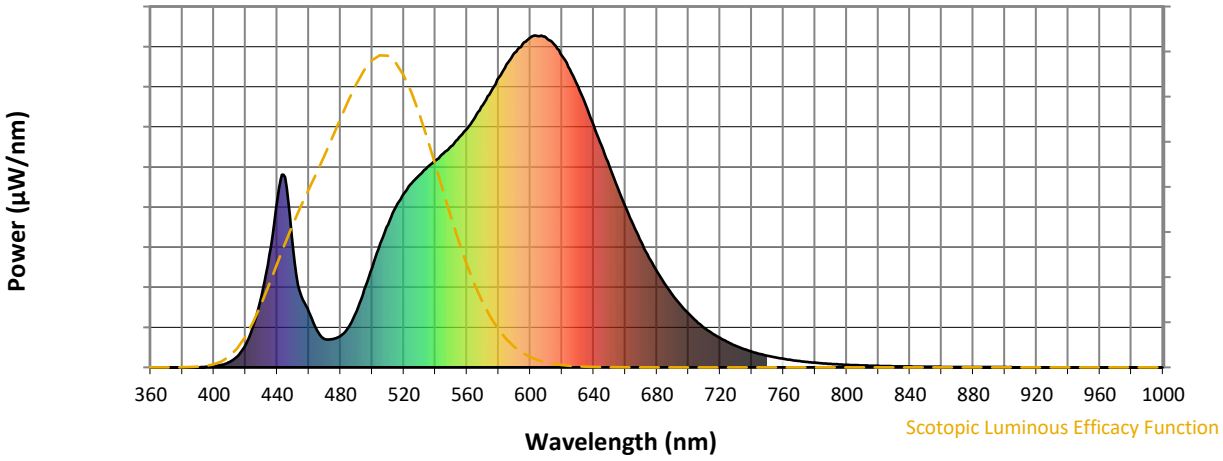



## Photopic Lumens: NR

| 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

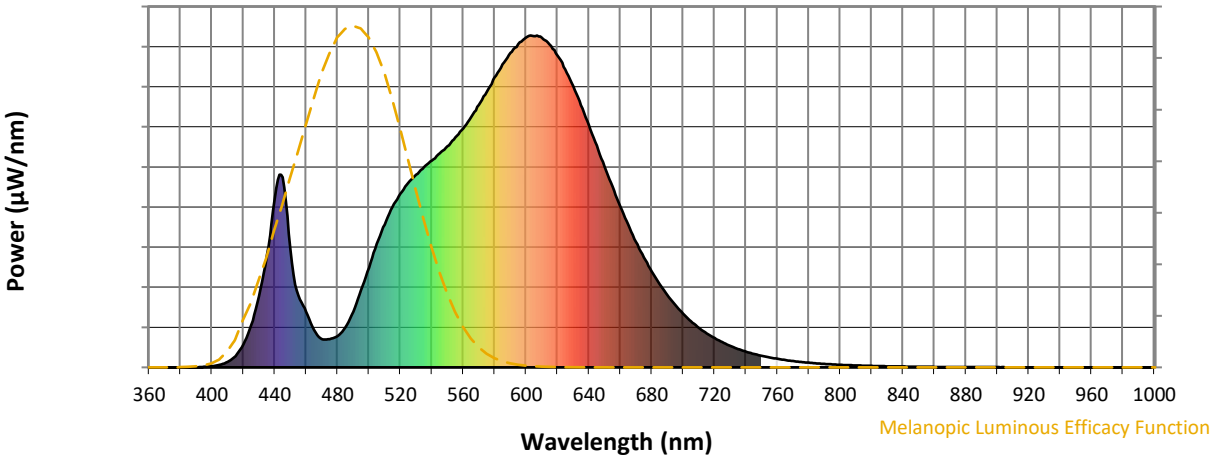



**Scotopic Lumens: NR** **S/P: 1.27**

| 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 | | | |

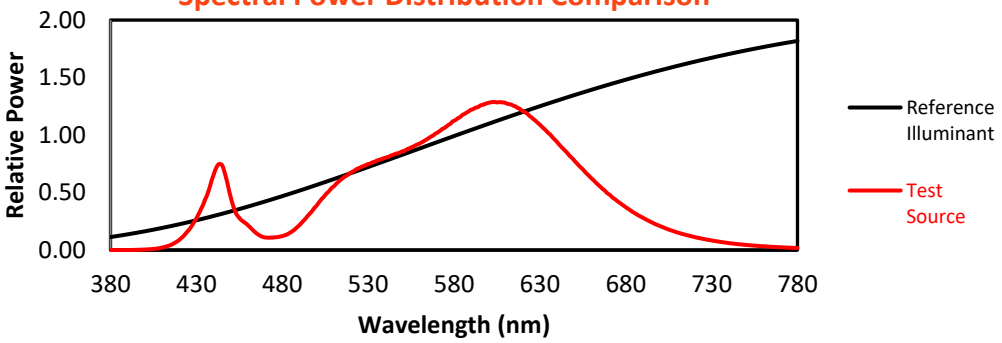
REPORT NUMBER: SP1-2408-195-9

# TM-30-18

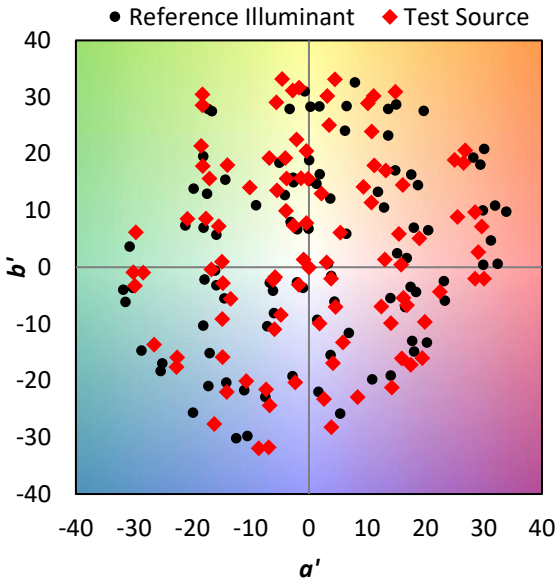
## Summary

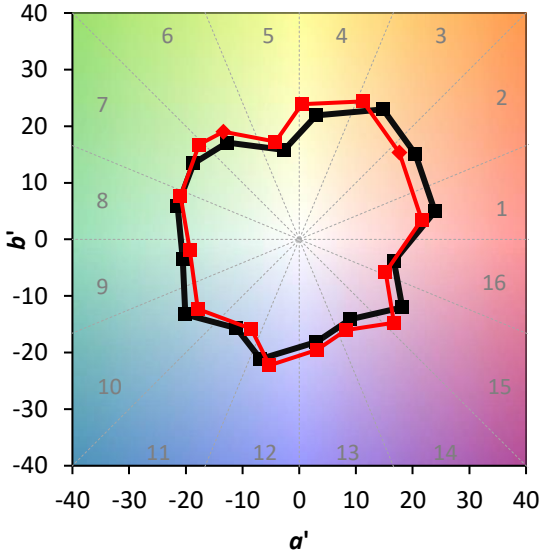
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

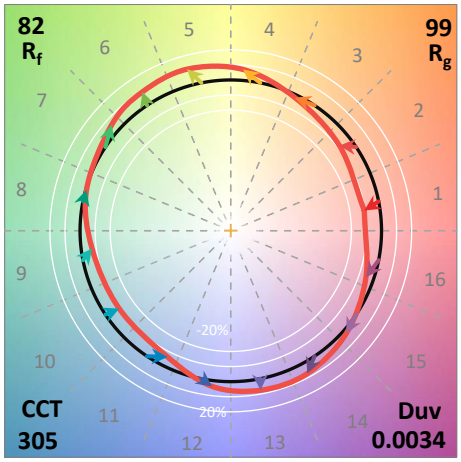
## Spectral Power Distribution Comparison

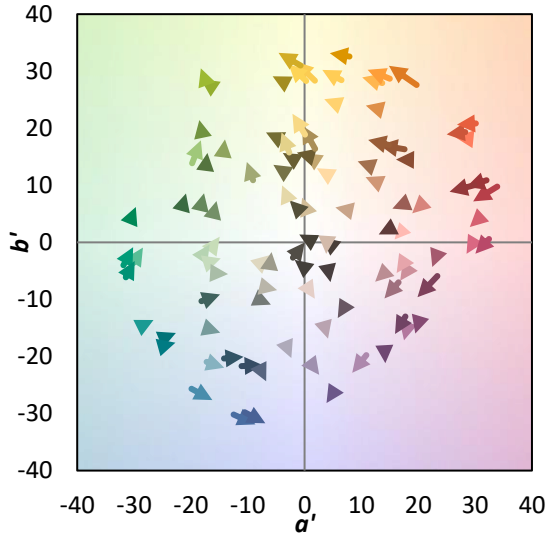



## Color Vector Graphics



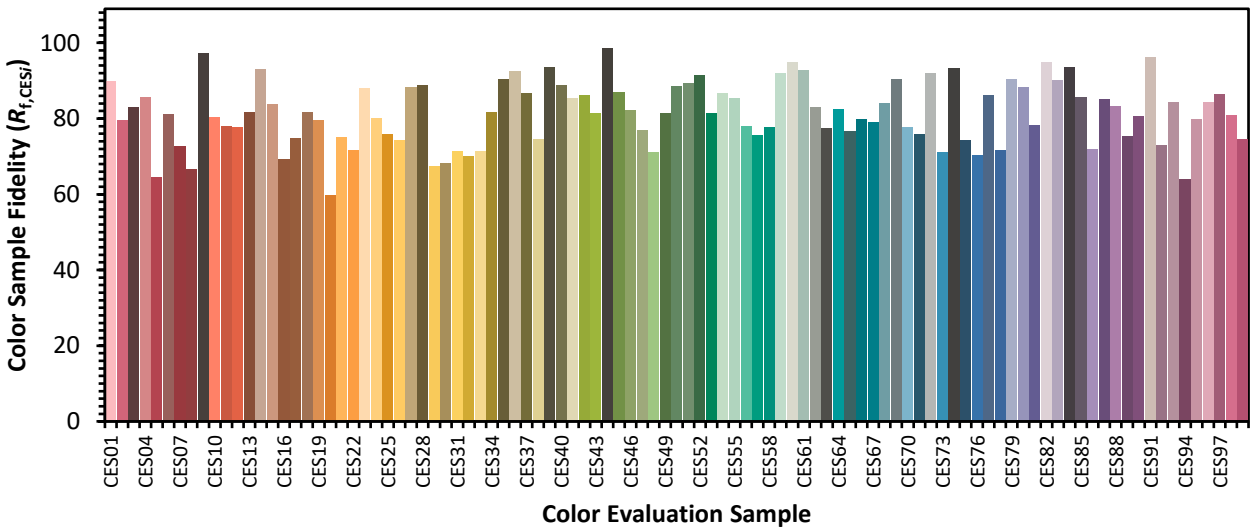



REPORT NUMBER: SP1-2408-195-9

# TM-30-18

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

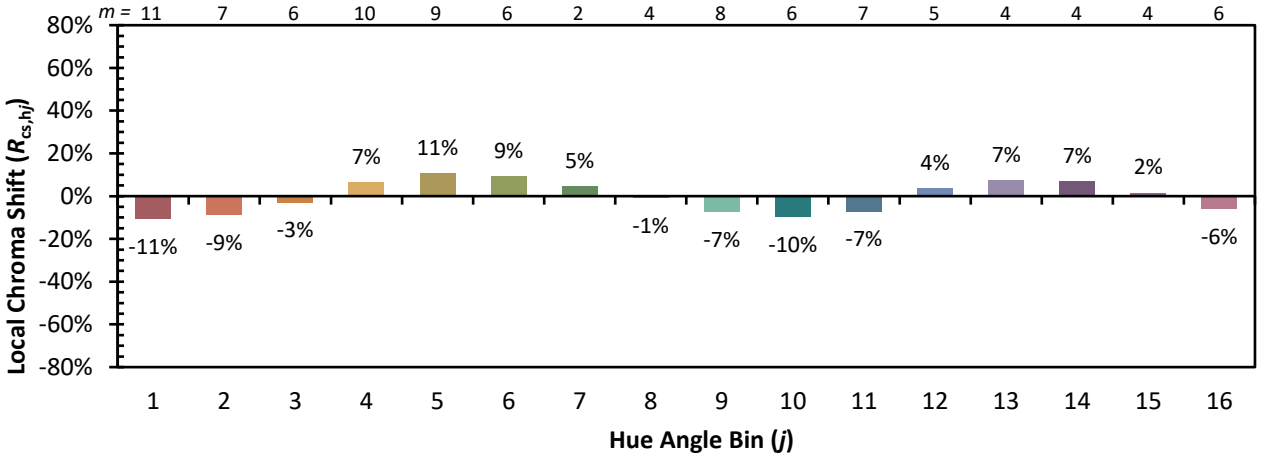
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 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 | |

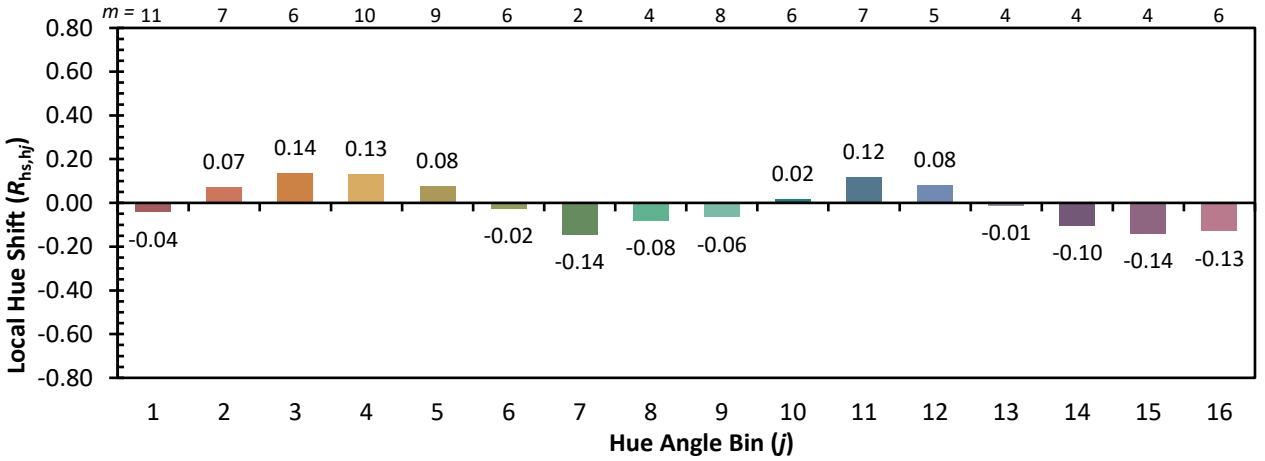


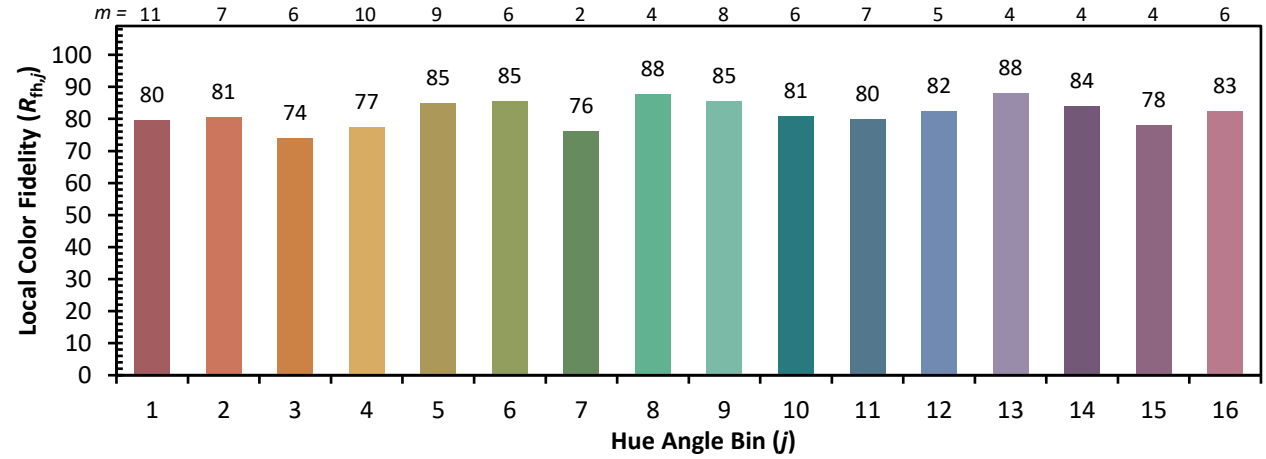
REPORT NUMBER: SP1-2408-195-9

**TM-30-18**

## Color Rendition by Hue-Angle Bin



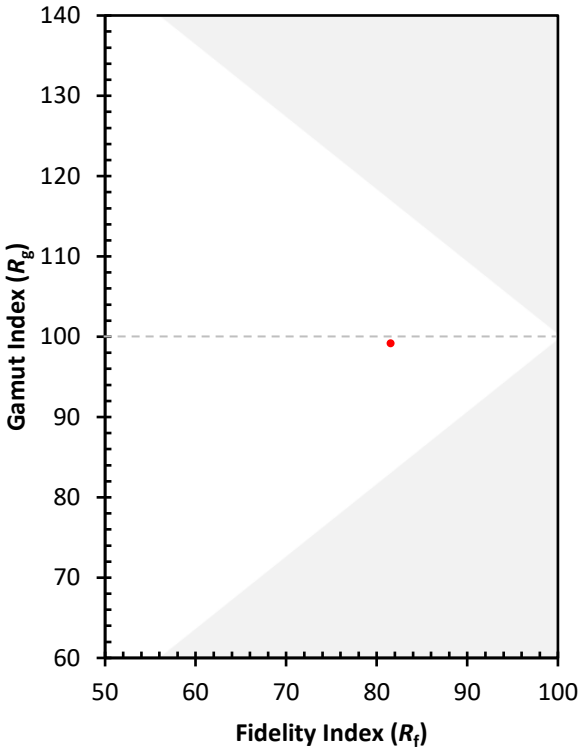



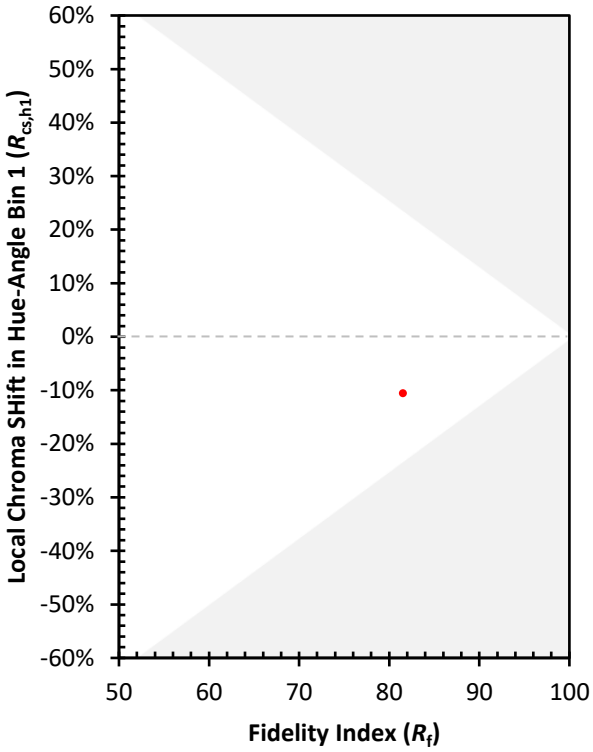



REPORT NUMBER: SP1-2408-195-9

# TM-30-18

## Measure Comparisons




(END OF REPORT)