

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P1211789

Luminaire Tested: **GKO-PB2C-830-U-T4W**

Issue Date: 11/5/2025



**Test Information**

Test Method: LM-79-08  
Report Number: P1211789  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 11/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB2C-830-U-T4W  
Description: GEKKO WALL PACK 8000LM PACKAGE 80CRI 3000K FIXTURE w/ TYPE IV WIDE DISTRIBUTION OPTIC  
Light Source: (20) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7076.9 lumens  
Efficiency: N/A  
Efficacy: 121.6 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B1 - U0 - G2

Input Watts (W): 58.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): 5%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

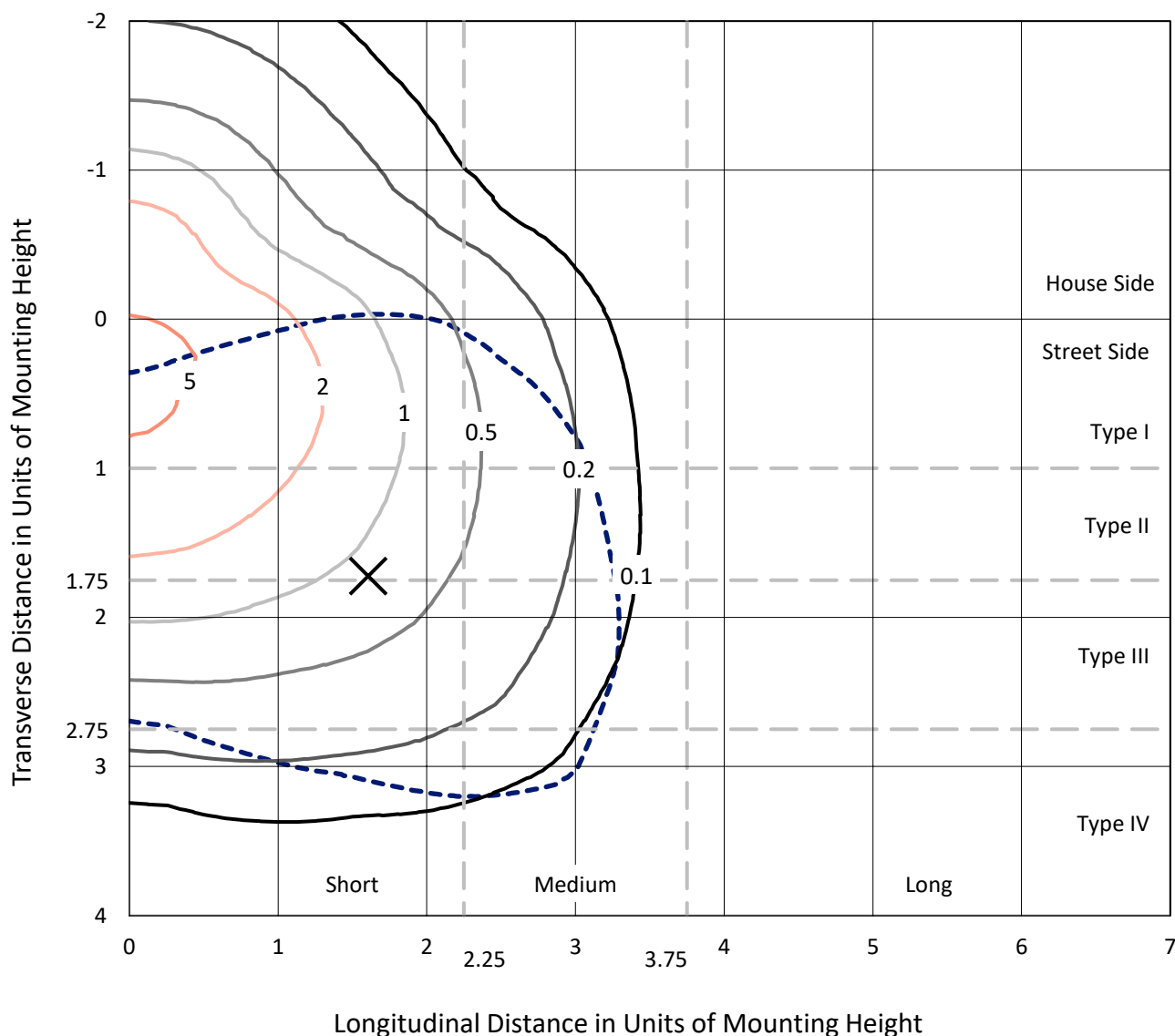
REPORT NUMBER: P1211789

CATALOG NUMBER: GKO-PB2C-830-U-T4W

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

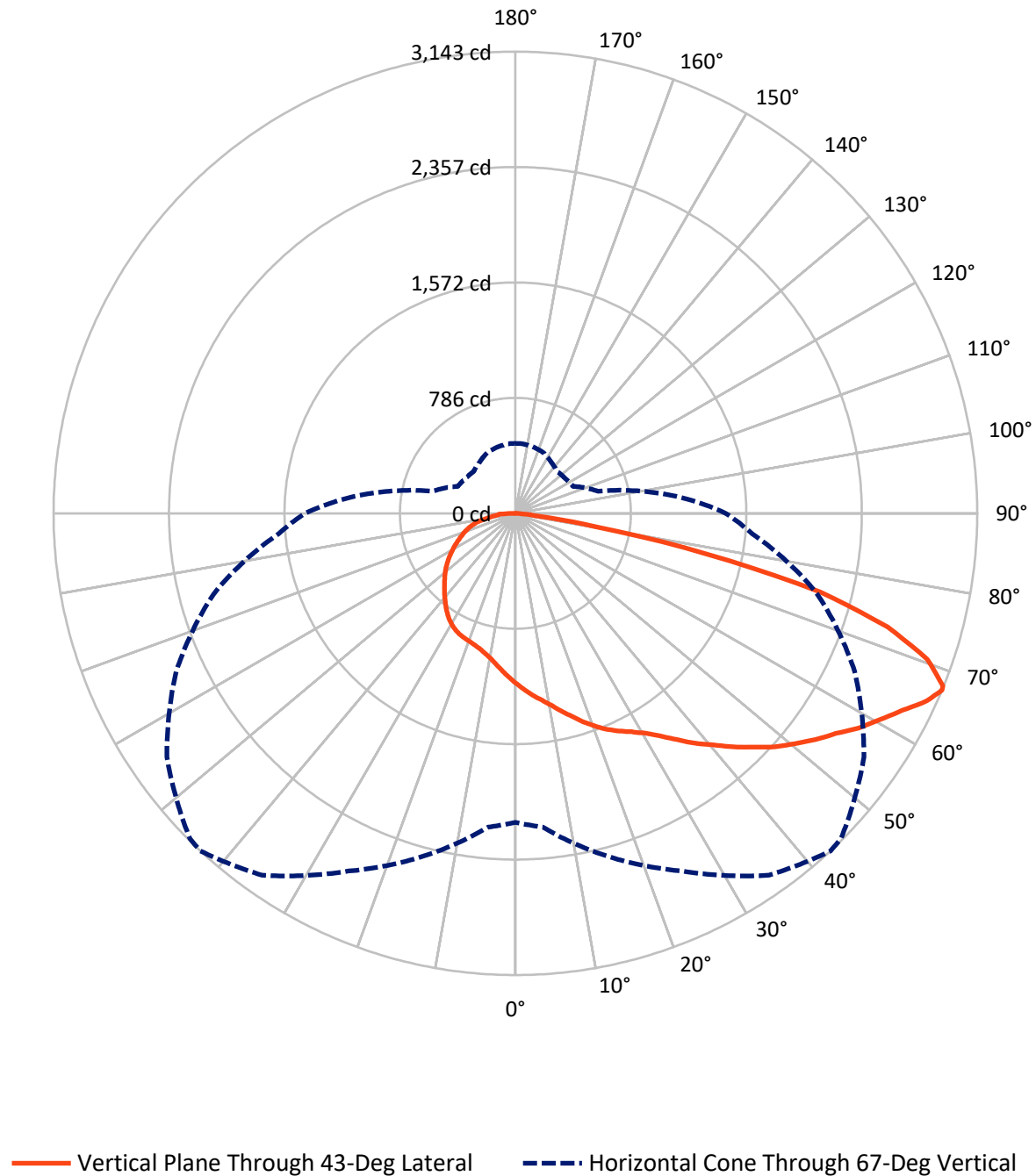


Based on 15 foot mounting height. Maximum calculated value = 6 fc

Type IV - Short - N/A

REPORT NUMBER: P1211789  
CATALOG NUMBER: GKO-PB2C-830-U-T4W

## Luminous Intensity Polar Plot



REPORT NUMBER: P1211789

CATALOG NUMBER: GKO-PB2C-830-U-T4W

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1903.5   | 0.0    | 1903.5 |
|                    | % Fixture | 26.9     | 0.0    | 26.9   |
| <b>Street Side</b> | Lumens    | 5173.5   | 0.0    | 5173.5 |
|                    | % Fixture | 73.1     | 0.0    | 73.1   |
| <b>Total</b>       | Lumens    | 7076.9   | 0.0    | 7076.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 111.0  | 1.6       |
| 10°-20°   | 341.3  | 4.8       |
| 20°-30°   | 590.8  | 8.3       |
| 30°-40°   | 876.8  | 12.4      |
| 40°-50°   | 1191.1 | 16.8      |
| 50°-60°   | 1462.2 | 20.7      |
| 60°-70°   | 1541.1 | 21.8      |
| 70°-80°   | 850.6  | 12.0      |
| 80°-90°   | 112.1  | 1.6       |
| 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°    | 7076.9 | 100.0     |
| 0°-180°   | 7076.9 | 100.0     |



REPORT NUMBER: P1211789

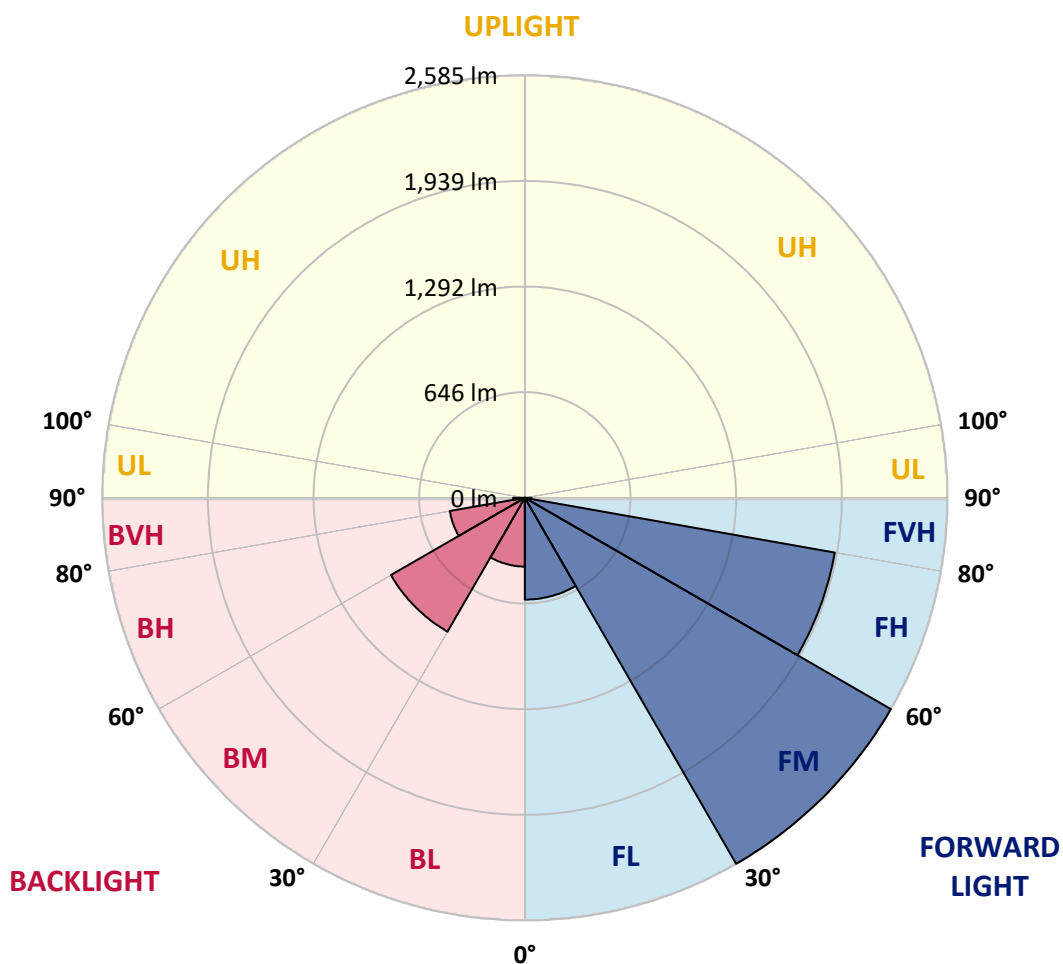
CATALOG NUMBER: GKO-PB2C-830-U-T4W

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 622.6  | 8.8       |                         |      |         |
| FM   | (30°-60°)   | 2584.7 | 36.5      |                         |      |         |
| FH   | (60°-80°)   | 1925.3 | 27.2      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 40.9   | 0.6       |                         |      | G1/100  |
| BL   | (0°-30°)    | 420.5  | 5.9       | B1/500                  |      |         |
| BM   | (30°-60°)   | 945.4  | 13.4      | B1/1000                 |      |         |
| BH   | (60°-80°)   | 466.5  | 6.6       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 71.1   | 1.0       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G2**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 43°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 |
| 2.5°  | 1215.4 | 1218.2 | 1215.4 | 1212.6 | 1206.9 | 1204.1 | 1201.2 | 1194.1 | 1185.7 | 1172.9 | 1163.0 |
| 5°    | 1269.2 | 1269.2 | 1265.0 | 1262.1 | 1253.6 | 1245.1 | 1240.9 | 1223.9 | 1205.5 | 1184.2 | 1164.4 |
| 7.5°  | 1318.8 | 1324.5 | 1317.4 | 1310.3 | 1297.6 | 1283.4 | 1280.6 | 1255.1 | 1229.6 | 1201.2 | 1171.5 |
| 10°   | 1381.1 | 1385.4 | 1375.5 | 1369.8 | 1345.7 | 1327.3 | 1321.6 | 1290.5 | 1256.5 | 1221.1 | 1182.8 |
| 12.5° | 1444.9 | 1447.7 | 1440.6 | 1427.9 | 1402.4 | 1379.7 | 1371.2 | 1330.1 | 1286.2 | 1243.7 | 1195.6 |
| 15°   | 1500.1 | 1503.0 | 1500.1 | 1486.0 | 1461.9 | 1433.5 | 1422.2 | 1376.9 | 1323.1 | 1267.8 | 1211.1 |
| 17.5° | 1541.2 | 1546.9 | 1546.9 | 1539.8 | 1518.5 | 1491.6 | 1484.5 | 1427.9 | 1365.6 | 1296.1 | 1229.6 |
| 20°   | 1576.6 | 1579.5 | 1585.1 | 1580.9 | 1569.5 | 1546.9 | 1537.0 | 1483.1 | 1408.0 | 1328.7 | 1248.0 |
| 22.5° | 1604.9 | 1607.8 | 1617.7 | 1616.3 | 1609.2 | 1597.9 | 1588.0 | 1538.4 | 1457.6 | 1361.3 | 1265.0 |
| 25°   | 1654.5 | 1653.1 | 1658.8 | 1654.5 | 1646.0 | 1641.8 | 1636.1 | 1592.2 | 1507.2 | 1399.5 | 1287.6 |
| 27.5° | 1740.9 | 1738.1 | 1732.4 | 1711.2 | 1689.9 | 1684.3 | 1680.0 | 1648.9 | 1565.3 | 1443.5 | 1313.1 |
| 30°   | 1868.4 | 1871.3 | 1844.3 | 1796.2 | 1753.7 | 1736.7 | 1731.0 | 1709.8 | 1630.4 | 1494.5 | 1341.5 |
| 32.5° | 2020.0 | 2018.6 | 1974.7 | 1906.7 | 1840.1 | 1806.1 | 1794.8 | 1772.1 | 1695.6 | 1545.5 | 1374.1 |
| 35°   | 2129.1 | 2126.2 | 2103.6 | 2042.7 | 1973.3 | 1892.5 | 1871.3 | 1835.8 | 1765.0 | 1603.5 | 1406.6 |
| 37.5° | 2276.4 | 2272.1 | 2228.2 | 2164.5 | 2102.2 | 1986.0 | 1961.9 | 1913.8 | 1831.6 | 1660.2 | 1443.5 |
| 40°   | 2445.0 | 2418.0 | 2345.8 | 2280.6 | 2195.6 | 2072.4 | 2052.6 | 1990.2 | 1908.1 | 1729.6 | 1486.0 |
| 42.5° | 2597.9 | 2558.3 | 2464.8 | 2382.6 | 2276.4 | 2174.4 | 2148.9 | 2075.2 | 1981.8 | 1793.3 | 1529.9 |
| 45°   | 2827.4 | 2731.1 | 2596.5 | 2548.4 | 2364.2 | 2270.7 | 2249.5 | 2158.8 | 2062.5 | 1862.8 | 1573.8 |
| 47.5° | 2799.1 | 2731.1 | 2687.2 | 2681.5 | 2456.3 | 2375.6 | 2344.4 | 2250.9 | 2148.9 | 1936.4 | 1619.1 |
| 50°   | 2854.3 | 2800.5 | 2803.3 | 2733.9 | 2539.9 | 2464.8 | 2442.1 | 2347.2 | 2236.7 | 2008.7 | 1667.3 |
| 52.5° | 2843.0 | 2858.6 | 2850.1 | 2742.4 | 2620.6 | 2558.3 | 2541.3 | 2446.4 | 2320.3 | 2078.1 | 1709.8 |
| 55°   | 2933.7 | 2925.2 | 2906.8 | 2800.5 | 2709.9 | 2646.1 | 2631.9 | 2549.8 | 2405.3 | 2137.6 | 1746.6 |
| 57.5° | 3000.2 | 2956.3 | 2954.9 | 2865.7 | 2809.0 | 2756.6 | 2733.9 | 2656.0 | 2484.6 | 2190.0 | 1774.9 |
| 60°   | 2959.2 | 2906.8 | 2945.0 | 2875.6 | 2869.9 | 2850.1 | 2837.3 | 2749.5 | 2555.5 | 2229.6 | 1786.3 |
| 62.5° | 2739.6 | 2752.4 | 2865.7 | 2861.4 | 2936.5 | 2954.9 | 2940.8 | 2814.7 | 2602.2 | 2243.8 | 1777.8 |
| 65°   | 2449.2 | 2487.5 | 2661.7 | 2810.4 | 3014.4 | 3078.2 | 3064.0 | 2861.4 | 2597.9 | 2211.2 | 1721.1 |
| 67°   | 2103.6 | 2144.7 | 2416.6 | 2687.2 | 3007.3 | 3143.3 | 3133.4 | 2895.4 | 2547.0 | 2127.7 | 1619.1 |
| 67.5° | 2027.1 | 2073.8 | 2345.8 | 2630.5 | 2981.8 | 3137.7 | 3130.6 | 2898.3 | 2530.0 | 2088.0 | 1579.5 |
| 70°   | 1491.6 | 1546.9 | 1930.8 | 2311.8 | 2777.9 | 2973.3 | 2971.9 | 2792.0 | 2354.3 | 1872.7 | 1369.8 |
| 72.5° | 929.3  | 978.8  | 1376.9 | 1803.3 | 2406.7 | 2647.5 | 2637.6 | 2432.2 | 2027.1 | 1528.5 | 1080.8 |
| 75°   | 569.5  | 600.6  | 866.9  | 1175.7 | 1745.2 | 2143.2 | 2157.4 | 1901.0 | 1382.6 | 908.0  | 610.5  |
| 77.5° | 348.5  | 382.5  | 546.8  | 725.3  | 1066.7 | 1333.0 | 1335.8 | 1053.9 | 709.7  | 494.4  | 334.3  |
| 80°   | 194.1  | 202.6  | 284.7  | 379.6  | 546.8  | 549.6  | 527.0  | 464.6  | 368.3  | 238.0  | 171.4  |
| 82.5° | 76.5   | 82.2   | 123.2  | 153.0  | 155.8  | 162.9  | 151.6  | 137.4  | 116.2  | 76.5   | 53.8   |
| 85°   | 0.0    | 0.0    | 0.0    | 2.8    | 9.9    | 19.8   | 19.8   | 14.2   | 5.7    | 4.2    | 4.2    |
| 87.5° | 0.0    | 0.0    | 0.0    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    | 1.4    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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CATALOG NUMBER: GKO-PB2C-830-U-T4W

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 | 1161.6 |
| 2.5°  | 1160.2 | 1158.7 | 1148.8 | 1137.5 | 1129.0 | 1121.9 | 1114.8 | 1106.3 | 1106.3 | 1109.2 | 1107.7 |
| 5°    | 1157.3 | 1150.2 | 1131.8 | 1112.0 | 1096.4 | 1082.2 | 1069.5 | 1058.2 | 1056.7 | 1058.2 | 1059.6 |
| 7.5°  | 1158.7 | 1146.0 | 1117.7 | 1087.9 | 1062.4 | 1044.0 | 1025.6 | 1017.1 | 1015.7 | 1015.7 | 1015.7 |
| 10°   | 1164.4 | 1146.0 | 1107.7 | 1066.7 | 1035.5 | 1008.6 | 988.8  | 980.3  | 981.7  | 983.1  | 984.5  |
| 12.5° | 1174.3 | 1148.8 | 1100.7 | 1048.2 | 1008.6 | 981.7  | 961.8  | 954.8  | 960.4  | 967.5  | 968.9  |
| 15°   | 1184.2 | 1154.5 | 1093.6 | 1032.7 | 987.3  | 957.6  | 943.4  | 942.0  | 951.9  | 964.7  | 967.5  |
| 17.5° | 1195.6 | 1158.7 | 1085.1 | 1012.8 | 964.7  | 940.6  | 933.5  | 937.8  | 953.3  | 973.2  | 977.4  |
| 20°   | 1206.9 | 1164.4 | 1075.2 | 994.4  | 943.4  | 926.4  | 930.7  | 943.4  | 963.3  | 987.3  | 991.6  |
| 22.5° | 1218.2 | 1168.7 | 1062.4 | 971.8  | 920.8  | 915.1  | 930.7  | 951.9  | 971.8  | 998.7  | 1004.3 |
| 25°   | 1231.0 | 1174.3 | 1046.8 | 943.4  | 898.1  | 902.3  | 929.3  | 954.8  | 976.0  | 1004.3 | 1011.4 |
| 27.5° | 1250.8 | 1182.8 | 1031.2 | 917.9  | 872.6  | 886.8  | 922.2  | 953.3  | 976.0  | 1002.9 | 1011.4 |
| 30°   | 1270.6 | 1191.3 | 1018.5 | 891.0  | 847.1  | 865.5  | 908.0  | 946.3  | 968.9  | 993.0  | 1004.3 |
| 32.5° | 1293.3 | 1202.6 | 1007.2 | 864.1  | 818.8  | 841.4  | 888.2  | 930.7  | 957.6  | 978.8  | 990.2  |
| 35°   | 1317.4 | 1219.6 | 998.7  | 840.0  | 790.4  | 810.3  | 858.4  | 910.8  | 937.8  | 957.6  | 967.5  |
| 37.5° | 1348.6 | 1238.1 | 993.0  | 815.9  | 760.7  | 777.7  | 827.3  | 882.5  | 913.7  | 929.3  | 942.0  |
| 40°   | 1382.6 | 1265.0 | 993.0  | 796.1  | 732.4  | 743.7  | 794.7  | 854.2  | 885.3  | 898.1  | 910.8  |
| 42.5° | 1416.5 | 1291.9 | 991.6  | 776.3  | 702.6  | 711.1  | 762.1  | 823.0  | 852.8  | 862.7  | 872.6  |
| 45°   | 1456.2 | 1323.1 | 990.2  | 753.6  | 670.0  | 678.5  | 730.9  | 791.9  | 820.2  | 828.7  | 837.2  |
| 47.5° | 1498.7 | 1354.2 | 984.5  | 725.3  | 640.3  | 647.4  | 699.8  | 756.4  | 784.8  | 794.7  | 803.2  |
| 50°   | 1537.0 | 1384.0 | 970.3  | 692.7  | 613.4  | 620.4  | 667.2  | 713.9  | 739.4  | 750.8  | 759.3  |
| 52.5° | 1571.0 | 1405.2 | 947.7  | 655.9  | 583.6  | 592.1  | 627.5  | 668.6  | 688.4  | 696.9  | 702.6  |
| 55°   | 1597.9 | 1416.5 | 910.8  | 620.4  | 555.3  | 559.5  | 587.9  | 624.7  | 640.3  | 641.7  | 645.9  |
| 57.5° | 1616.3 | 1415.1 | 861.3  | 579.4  | 527.0  | 528.4  | 548.2  | 580.8  | 592.1  | 590.7  | 593.5  |
| 60°   | 1620.5 | 1396.7 | 801.8  | 541.1  | 498.6  | 494.4  | 514.2  | 536.9  | 544.0  | 549.6  | 556.7  |
| 62.5° | 1603.5 | 1352.8 | 733.8  | 502.9  | 470.3  | 463.2  | 477.4  | 497.2  | 508.5  | 511.4  | 514.2  |
| 65°   | 1541.2 | 1272.1 | 651.6  | 463.2  | 442.0  | 429.2  | 444.8  | 473.1  | 491.5  | 497.2  | 495.8  |
| 67°   | 1432.1 | 1158.7 | 580.8  | 433.5  | 413.6  | 402.3  | 425.0  | 454.7  | 467.5  | 476.0  | 476.0  |
| 67.5° | 1396.7 | 1117.7 | 556.7  | 423.5  | 406.5  | 396.6  | 417.9  | 446.2  | 463.2  | 473.1  | 473.1  |
| 70°   | 1185.7 | 916.5  | 470.3  | 374.0  | 365.5  | 366.9  | 392.4  | 423.5  | 444.8  | 454.7  | 454.7  |
| 72.5° | 903.8  | 709.7  | 382.5  | 325.8  | 323.0  | 332.9  | 365.5  | 393.8  | 420.7  | 437.7  | 436.3  |
| 75°   | 512.8  | 409.4  | 279.1  | 266.3  | 277.6  | 297.5  | 338.6  | 369.7  | 393.8  | 410.8  | 409.4  |
| 77.5° | 298.9  | 246.5  | 192.7  | 182.7  | 215.3  | 260.6  | 303.1  | 342.8  | 359.8  | 365.5  | 361.2  |
| 80°   | 151.6  | 128.9  | 120.4  | 124.7  | 144.5  | 194.1  | 264.9  | 311.6  | 324.4  | 328.6  | 324.4  |
| 82.5° | 48.2   | 43.9   | 48.2   | 63.7   | 96.3   | 153.0  | 213.9  | 281.9  | 297.5  | 297.5  | 296.1  |
| 85°   | 2.8    | 2.8    | 2.8    | 28.3   | 66.6   | 113.3  | 167.2  | 246.5  | 279.1  | 276.2  | 272.0  |
| 87.5° | 1.4    | 1.4    | 1.4    | 18.4   | 52.4   | 94.9   | 147.3  | 223.8  | 266.3  | 246.5  | 232.3  |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP3-2511-595-4

Test Date: 11/12/2025

Luminaire Tested: GKO-PB1C-830-U-T4W

Data in this report applies to families of products including GKO-PB1C-830\*

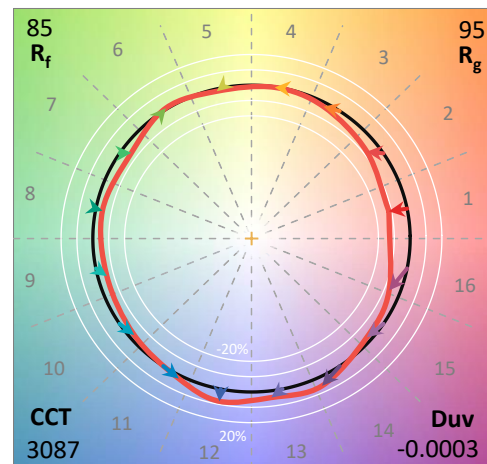
### Test Information

Test Method: LM-79-2019  
 Report Number: SP3-2511-595-4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP3 - 3M SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 01/27/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GKO-PB1C-830-U-T4W**  
 Description: Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution

### Spectral Parameters

CCT (K): 3087  
 CIE  $u'$ : 0.2477  
 CIE  $v'$ : 0.5192  
 Duv: -0.0003  
 CIE x: 0.4305  
 CIE y: 0.4010  
 CIE z: 0.1685  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 582  
 Purity: 49.5752  
 Rf: 84.7  
 Rg: 94.9

CRI (Ra): 82.7  
 R1: 81.5  
 R2: 92.1  
 R3: 95.2  
 R4: 80.4  
 R5: 81.9  
 R6: 90.5  
 R7: 82.0  
 R8: 58.3  
 R9: 5.8  
 R10: 82.0  
 R11: 80.1  
 R12: 71.1  
 R13: 84.2  
 R14: 98.1  
 R15: 73.7



### Test Conditions

Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.0

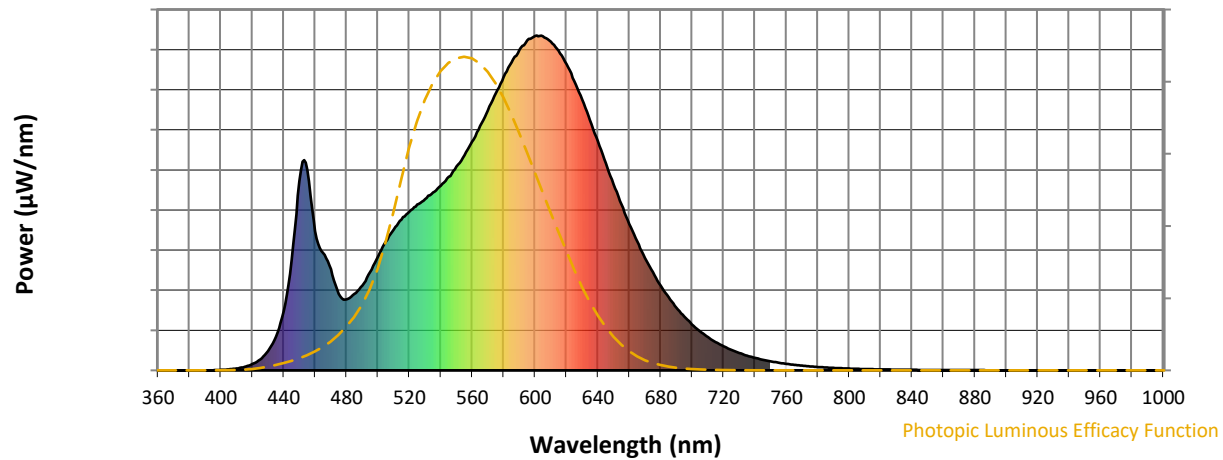
REPORT NUMBER: SP3-2511-595-4

| 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    | 10/21/2025       | 10/21/2026           |
| AC Power Source                | CHROMA 61604 IN6064A  | 10/20/2025       | 10/20/2026           |
| DC Power Source                | EYSIGHT N5770A IN0534 | 10/20/2025       | 10/20/2026           |
| Sphere Thermometer             | TANDD IN4036E         | 10/21/2025       | 10/21/2026           |
|                                |                       |                  |                      |



REPORT NUMBER: SP3-2511-595-4

### Photopic Flux vs. Wavelength

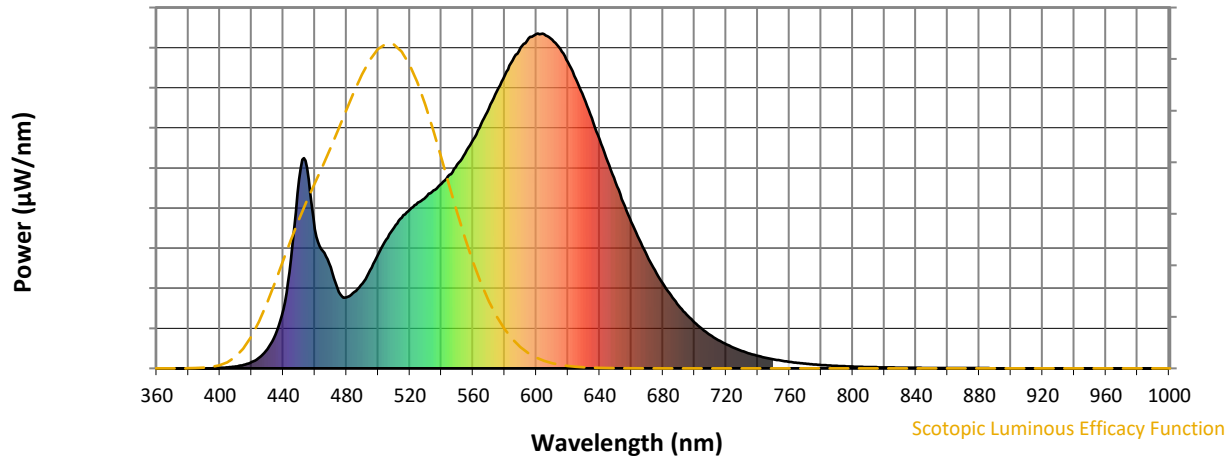


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 253                                  | NR                             | 620               | 915                                  | NR                             | 750               | 27                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 293                                  | NR                             | 625               | 864                                  | NR                             | 755               | 23                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 340                                  | NR                             | 630               | 809                                  | NR                             | 760               | 19                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 384                                  | NR                             | 635               | 748                                  | NR                             | 765               | 16                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 420                                  | NR                             | 640               | 684                                  | NR                             | 770               | 14                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 450                                  | NR                             | 645               | 619                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 474                                  | NR                             | 650               | 556                                  | NR                             | 780               | 10                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 495                                  | NR                             | 655               | 495                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 2                                    | NR                             | 530               | 511                                  | NR                             | 660               | 437                                  | NR                             | 790               | 7                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 3                                    | NR                             | 535               | 531                                  | NR                             | 665               | 385                                  | NR                             | 795               | 6                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 6                                    | NR                             | 540               | 551                                  | NR                             | 670               | 336                                  | NR                             | 800               | 5                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 10                                   | NR                             | 545               | 578                                  | NR                             | 675               | 293                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 19                                   | NR                             | 550               | 609                                  | NR                             | 680               | 253                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 33                                   | NR                             | 555               | 642                                  | NR                             | 685               | 219                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 58                                   | NR                             | 560               | 683                                  | NR                             | 690               | 187                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 101                                  | NR                             | 565               | 730                                  | NR                             | 695               | 161                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 176                                  | NR                             | 570               | 776                                  | NR                             | 700               | 137                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 329                                  | NR                             | 575               | 827                                  | NR                             | 705               | 117                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 565                                  | NR                             | 580               | 876                                  | NR                             | 710               | 100                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 599                                  | NR                             | 585               | 919                                  | NR                             | 715               | 84                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 416                                  | NR                             | 590               | 958                                  | NR                             | 720               | 72                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 350                                  | NR                             | 595               | 985                                  | NR                             | 725               | 61                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 302                                  | NR                             | 600               | 998                                  | NR                             | 730               | 52                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 229                                  | NR                             | 605               | 998                                  | NR                             | 735               | 44                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 212                                  | NR                             | 610               | 982                                  | NR                             | 740               | 37                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 228                                  | NR                             | 615               | 955                                  | NR                             | 745               | 32                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

REPORT NUMBER: SP3-2511-595-4

### Scotopic Flux vs. Wavelength



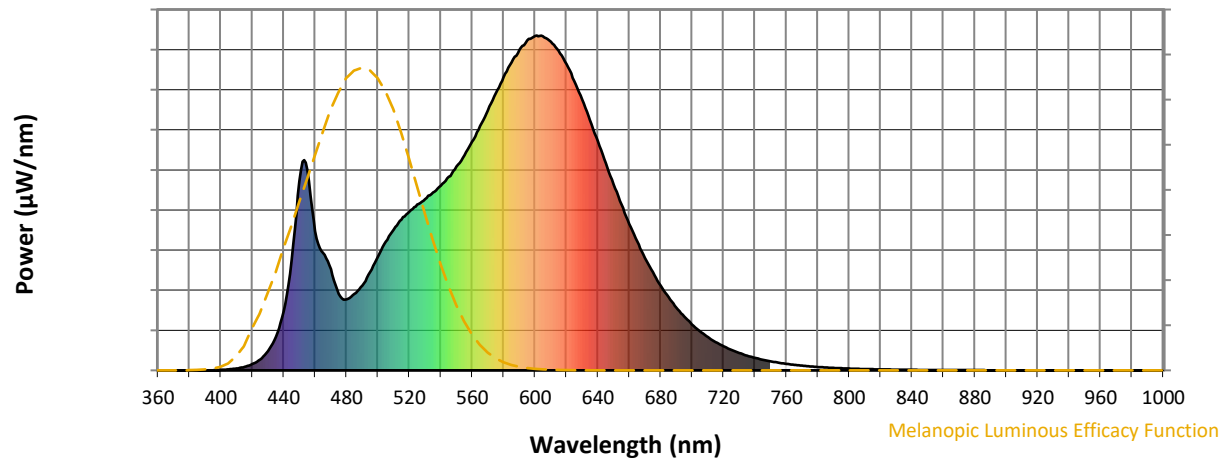
Scotopic Lumens: NR

S/P: 1.4

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 253                                  | NR                             | 620               | 915                                  | NR                             | 750               | 27                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 293                                  | NR                             | 625               | 864                                  | NR                             | 755               | 23                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 340                                  | NR                             | 630               | 809                                  | NR                             | 760               | 19                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 384                                  | NR                             | 635               | 748                                  | NR                             | 765               | 16                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 420                                  | NR                             | 640               | 684                                  | NR                             | 770               | 14                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 450                                  | NR                             | 645               | 619                                  | NR                             | 775               | 12                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 474                                  | NR                             | 650               | 556                                  | NR                             | 780               | 10                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 495                                  | NR                             | 655               | 495                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 2                                    | NR                             | 530               | 511                                  | NR                             | 660               | 437                                  | NR                             | 790               | 7                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 3                                    | NR                             | 535               | 531                                  | NR                             | 665               | 385                                  | NR                             | 795               | 6                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 6                                    | NR                             | 540               | 551                                  | NR                             | 670               | 336                                  | NR                             | 800               | 5                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 10                                   | NR                             | 545               | 578                                  | NR                             | 675               | 293                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 19                                   | NR                             | 550               | 609                                  | NR                             | 680               | 253                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 33                                   | NR                             | 555               | 642                                  | NR                             | 685               | 219                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 58                                   | NR                             | 560               | 683                                  | NR                             | 690               | 187                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 101                                  | NR                             | 565               | 730                                  | NR                             | 695               | 161                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 176                                  | NR                             | 570               | 776                                  | NR                             | 700               | 137                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 329                                  | NR                             | 575               | 827                                  | NR                             | 705               | 117                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 565                                  | NR                             | 580               | 876                                  | NR                             | 710               | 100                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 599                                  | NR                             | 585               | 919                                  | NR                             | 715               | 84                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 416                                  | NR                             | 590               | 958                                  | NR                             | 720               | 72                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 350                                  | NR                             | 595               | 985                                  | NR                             | 725               | 61                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 302                                  | NR                             | 600               | 998                                  | NR                             | 730               | 52                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 229                                  | NR                             | 605               | 998                                  | NR                             | 735               | 44                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 212                                  | NR                             | 610               | 982                                  | NR                             | 740               | 37                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 228                                  | NR                             | 615               | 955                                  | NR                             | 745               | 32                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.74**

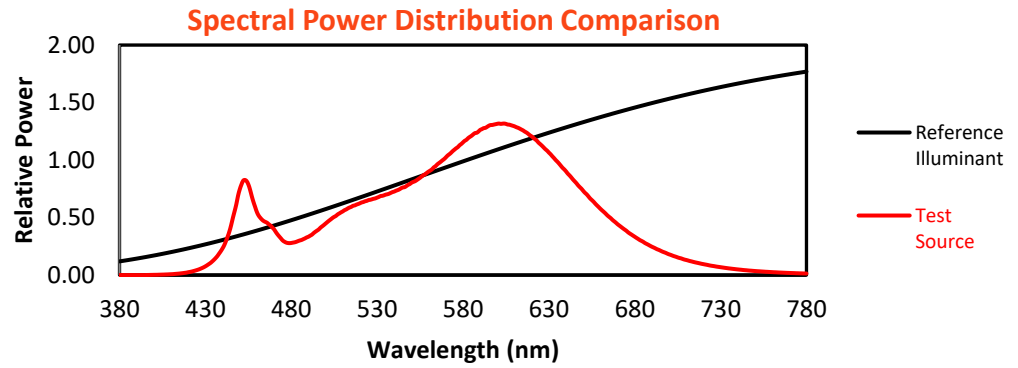
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 253                                    | NR                             | 620               | 915                                    | NR                             | 750               | 27                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 293                                    | NR                             | 625               | 864                                    | NR                             | 755               | 23                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 340                                    | NR                             | 630               | 809                                    | NR                             | 760               | 19                                     | NR                             | 890               | 0                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 384                                    | NR                             | 635               | 748                                    | NR                             | 765               | 16                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 420                                    | NR                             | 640               | 684                                    | NR                             | 770               | 14                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 450                                    | NR                             | 645               | 619                                    | NR                             | 775               | 12                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 474                                    | NR                             | 650               | 556                                    | NR                             | 780               | 10                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 0                                      | NR                             | 525               | 495                                    | NR                             | 655               | 495                                    | NR                             | 785               | 9                                      | NR                             | 915               | 0                                      | NR                             |
| 400               | 2                                      | NR                             | 530               | 511                                    | NR                             | 660               | 437                                    | NR                             | 790               | 7                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 3                                      | NR                             | 535               | 531                                    | NR                             | 665               | 385                                    | NR                             | 795               | 6                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 6                                      | NR                             | 540               | 551                                    | NR                             | 670               | 336                                    | NR                             | 800               | 5                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 10                                     | NR                             | 545               | 578                                    | NR                             | 675               | 293                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 19                                     | NR                             | 550               | 609                                    | NR                             | 680               | 253                                    | NR                             | 810               | 4                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 33                                     | NR                             | 555               | 642                                    | NR                             | 685               | 219                                    | NR                             | 815               | 3                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 58                                     | NR                             | 560               | 683                                    | NR                             | 690               | 187                                    | NR                             | 820               | 3                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 101                                    | NR                             | 565               | 730                                    | NR                             | 695               | 161                                    | NR                             | 825               | 2                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 176                                    | NR                             | 570               | 776                                    | NR                             | 700               | 137                                    | NR                             | 830               | 2                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 329                                    | NR                             | 575               | 827                                    | NR                             | 705               | 117                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 565                                    | NR                             | 580               | 876                                    | NR                             | 710               | 100                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 599                                    | NR                             | 585               | 919                                    | NR                             | 715               | 84                                     | NR                             | 845               | 1                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 416                                    | NR                             | 590               | 958                                    | NR                             | 720               | 72                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 350                                    | NR                             | 595               | 985                                    | NR                             | 725               | 61                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 302                                    | NR                             | 600               | 998                                    | NR                             | 730               | 52                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 229                                    | NR                             | 605               | 998                                    | NR                             | 735               | 44                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 212                                    | NR                             | 610               | 982                                    | NR                             | 740               | 37                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 228                                    | NR                             | 615               | 955                                    | NR                             | 745               | 32                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP3-2511-595-4

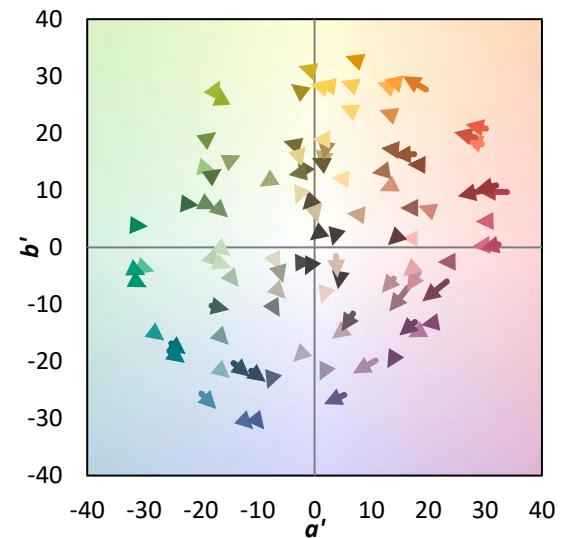
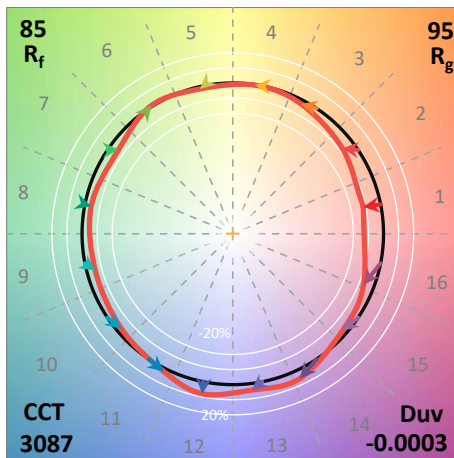
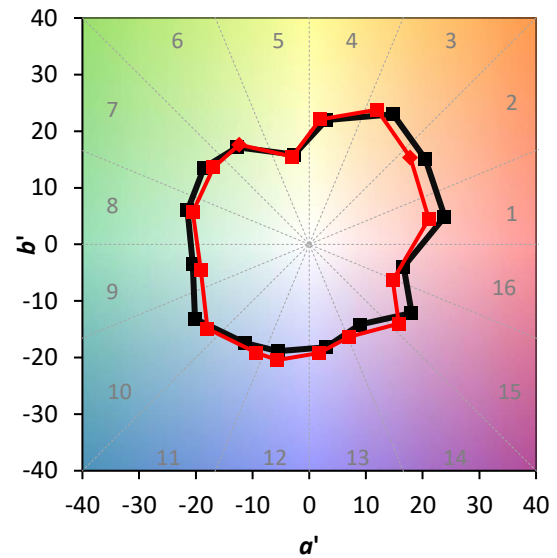
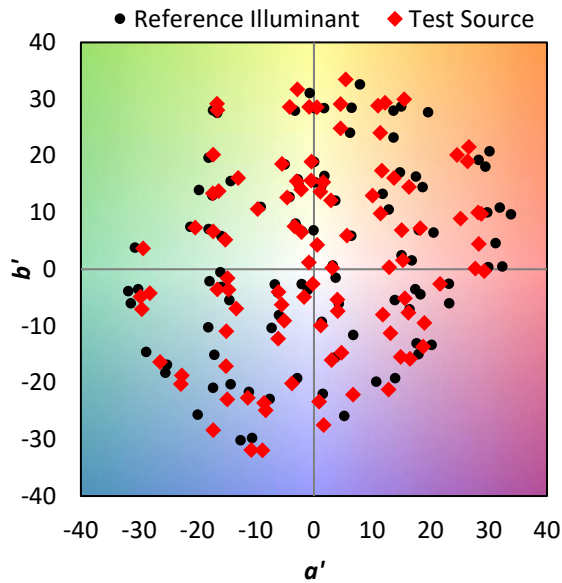
TM-30-18

### Summary

$R_f = 84.7$   
 $R_g = 94.9$   
 $CIE R_a = 82.7$   
 $R_9 = 5.8$

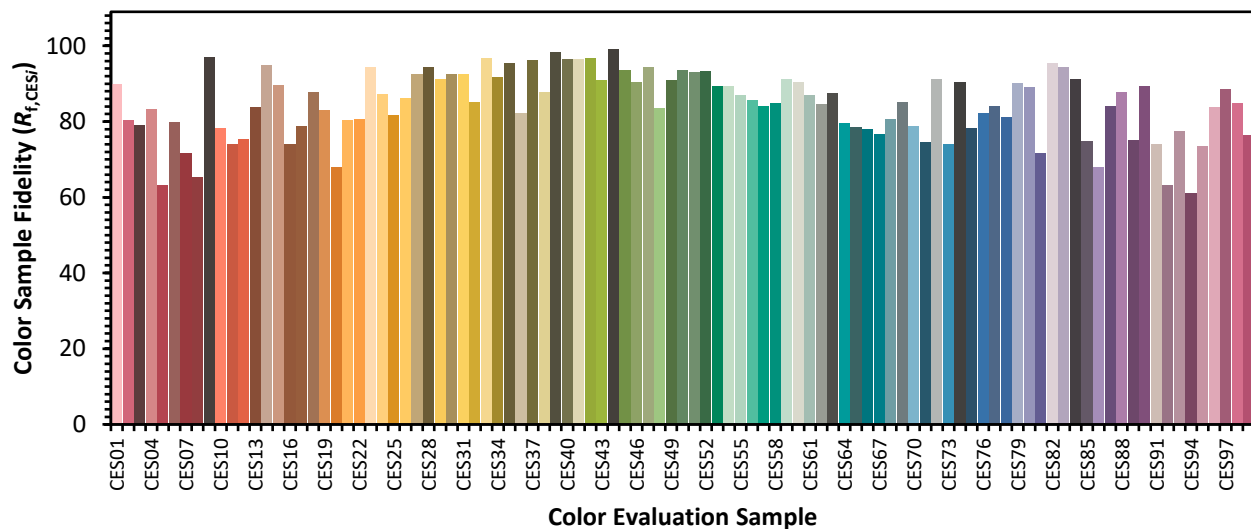


### Color Vector Graphics

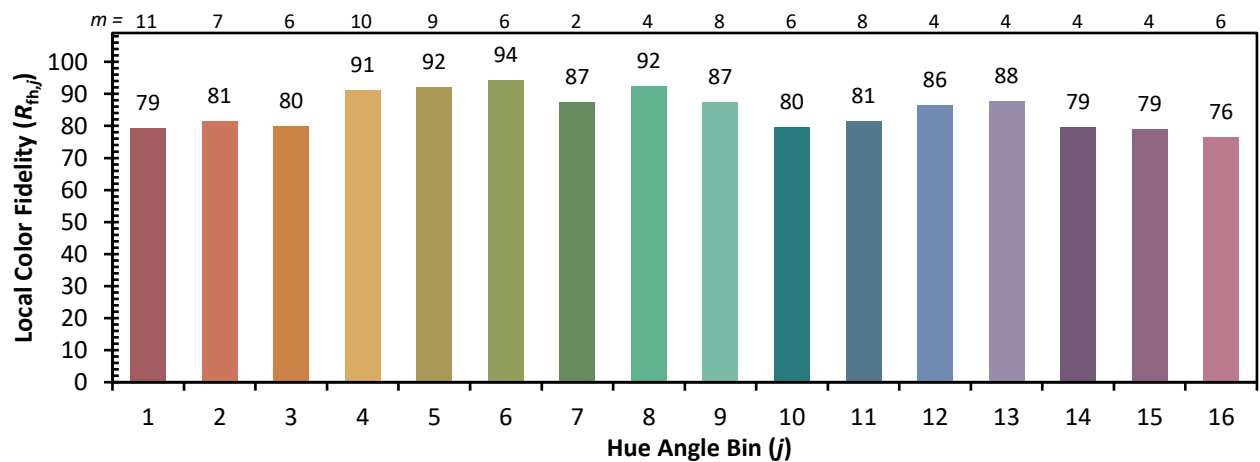
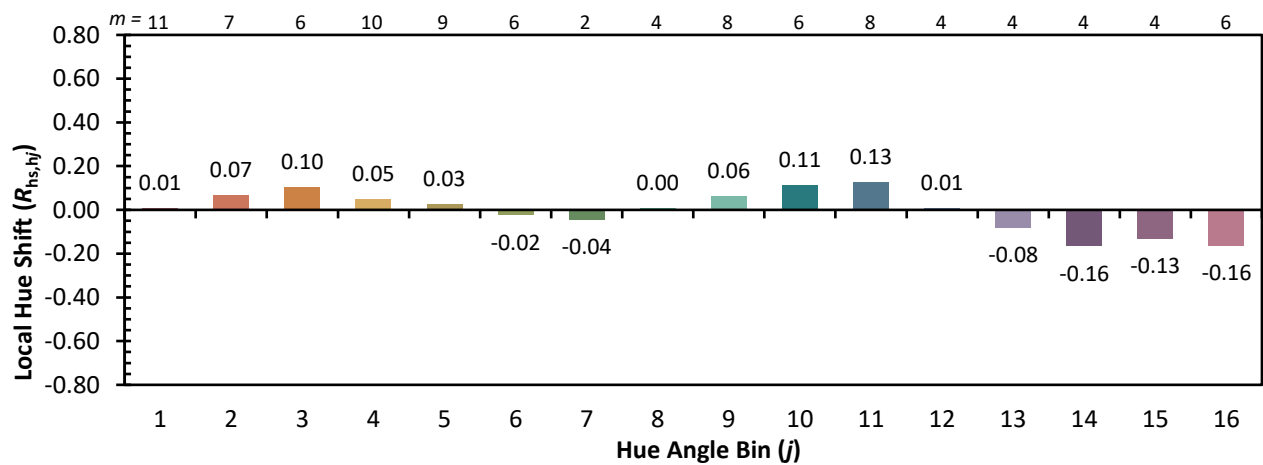
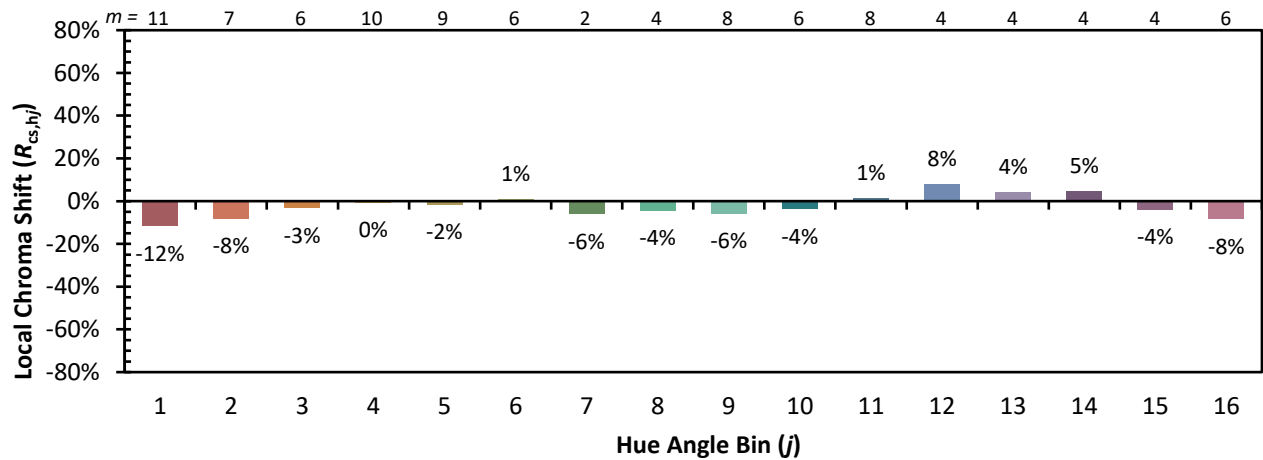


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

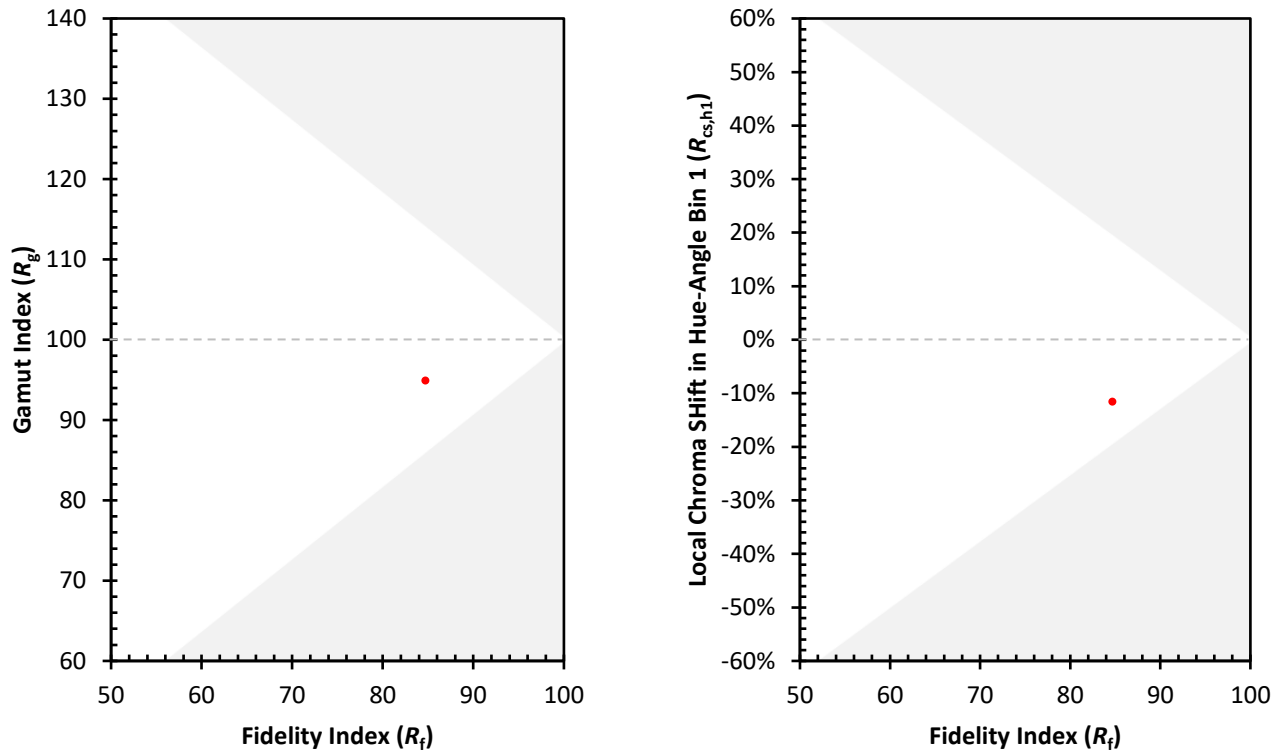
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 86 | CES51 = 93 | CES76 = 82 |
| CES02 = 63 | CES27 = 93 | CES52 = 93 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 70 | CES29 = 91 | CES54 = 89 | CES79 = 90 |
| CES05 = 49 | CES30 = 93 | CES55 = 87 | CES80 = 89 |
| CES06 = 51 | CES31 = 93 | CES56 = 86 | CES81 = 72 |
| CES07 = 42 | CES32 = 85 | CES57 = 84 | CES82 = 95 |
| CES08 = 41 | CES33 = 97 | CES58 = 85 | CES83 = 94 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 91 |
| CES10 = 76 | CES35 = 95 | CES60 = 90 | CES85 = 75 |
| CES11 = 59 | CES36 = 82 | CES61 = 87 | CES86 = 68 |
| CES12 = 65 | CES37 = 96 | CES62 = 85 | CES87 = 84 |
| CES13 = 43 | CES38 = 88 | CES63 = 87 | CES88 = 88 |
| CES14 = 74 | CES39 = 98 | CES64 = 80 | CES89 = 75 |
| CES15 = 72 | CES40 = 96 | CES65 = 79 | CES90 = 89 |
| CES16 = 47 | CES41 = 96 | CES66 = 78 | CES91 = 74 |
| CES17 = 50 | CES42 = 97 | CES67 = 77 | CES92 = 63 |
| CES18 = 56 | CES43 = 91 | CES68 = 81 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 85 | CES94 = 61 |
| CES20 = 66 | CES45 = 93 | CES70 = 79 | CES95 = 74 |
| CES21 = 87 | CES46 = 90 | CES71 = 75 | CES96 = 84 |
| CES22 = 79 | CES47 = 94 | CES72 = 91 | CES97 = 89 |
| CES23 = 92 | CES48 = 84 | CES73 = 74 | CES98 = 85 |
| CES24 = 91 | CES49 = 91 | CES74 = 90 | CES99 = 77 |
| CES25 = 72 | CES50 = 93 | CES75 = 78 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)