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: P1500825

Luminaire Tested: GSS-SB2A-850-U-T4LG

Issue Date: 07/20/2026

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P1500825 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 7/20/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GSS-SB2A-850-U-T4LG |
| Description: | GALLEON II SLIM SITE HIGH DENSITY LED ARRAYS 2SQUARE 58W 80CRI 5000K FIXTURE w/ TYPE IV LOW GLARE DISTRIBUTION FIXTURE |
| Light Source: | (52) 5000K CCT, 80 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 7973.8 lumens |
| Efficiency: | N/A |
| Efficacy: | 137.5 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.5' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B2 - U0 - G2 |

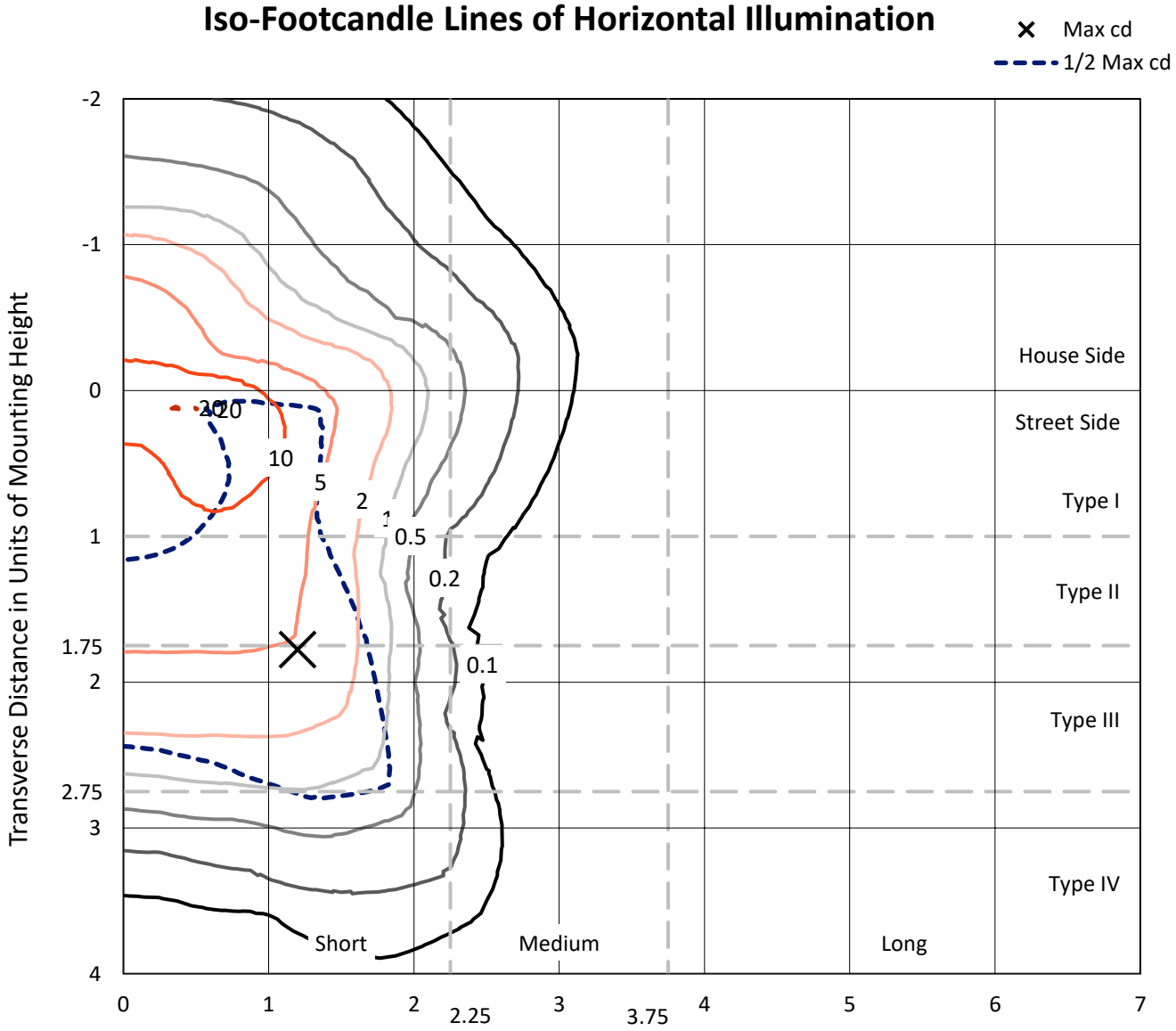
| | |
|---|---|
| Input Watts (W): | 58 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.98 |
| Total Harmonic Distortion (THDi): | 9.0% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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Scaled Data Report

REPORT NUMBER: P1500825
CATALOG NUMBER: GSS-SB2A-850-U-T4LG

## Iso-Footcandle Lines of Horizontal Illumination



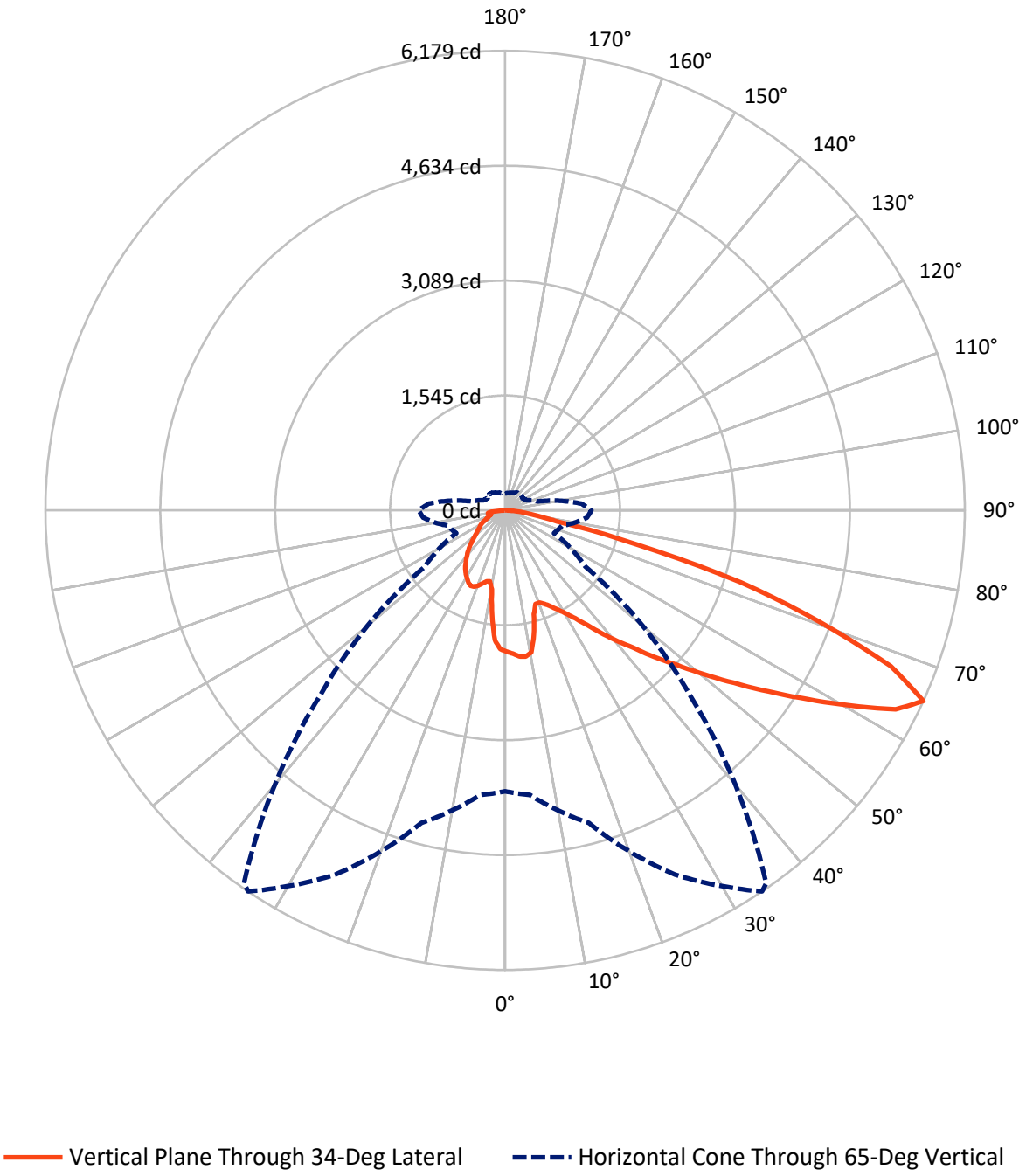

Based on 10 foot mounting height. Maximum calculated value = 20.1 fc
Type III - Short - N/A

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## Luminous Intensity Polar Plot



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Scaled Data Report

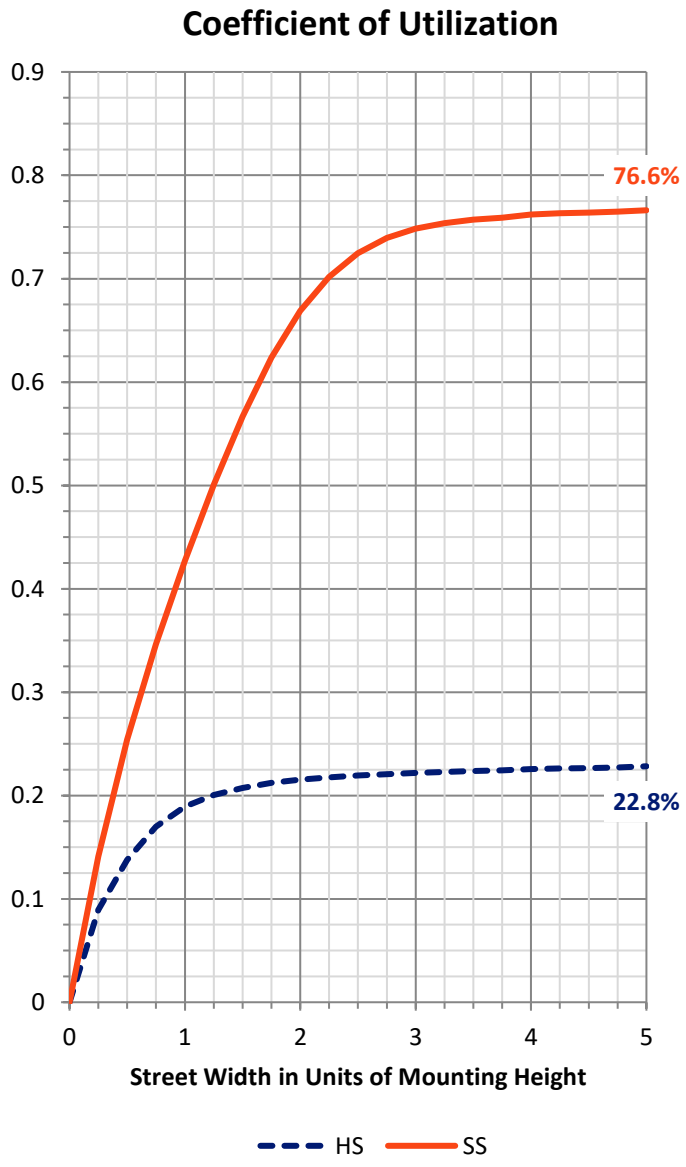
REPORT NUMBER: P1500825
CATALOG NUMBER: GSS-SB2A-850-U-T4LG

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1855.2 | 0.0 | 1855.2 |
| | % Fixture | 23.3 | 0.0 | 23.3 |
| **Street Side** | Lumens | 6118.7 | 0.0 | 6118.7 |
| | % Fixture | 76.7 | 0.0 | 76.7 |
| **Total** | Lumens | 7973.8 | 0.0 | 7973.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 170.9 | 2.1 |
| 10°-20° | 430.2 | 5.4 |
| 20°-30° | 713.0 | 8.9 |
| 30°-40° | 1072.4 | 13.4 |
| 40°-50° | 1502.4 | 18.8 |
| 50°-60° | 1894.2 | 23.8 |
| 60°-70° | 1629.2 | 20.4 |
| 70°-80° | 484.4 | 6.1 |
| 80°-90° | 77.3 | 1.0 |
| 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° | 7973.8 | 100.0 |
| 0°-180° | 7973.8 | 100.0 |



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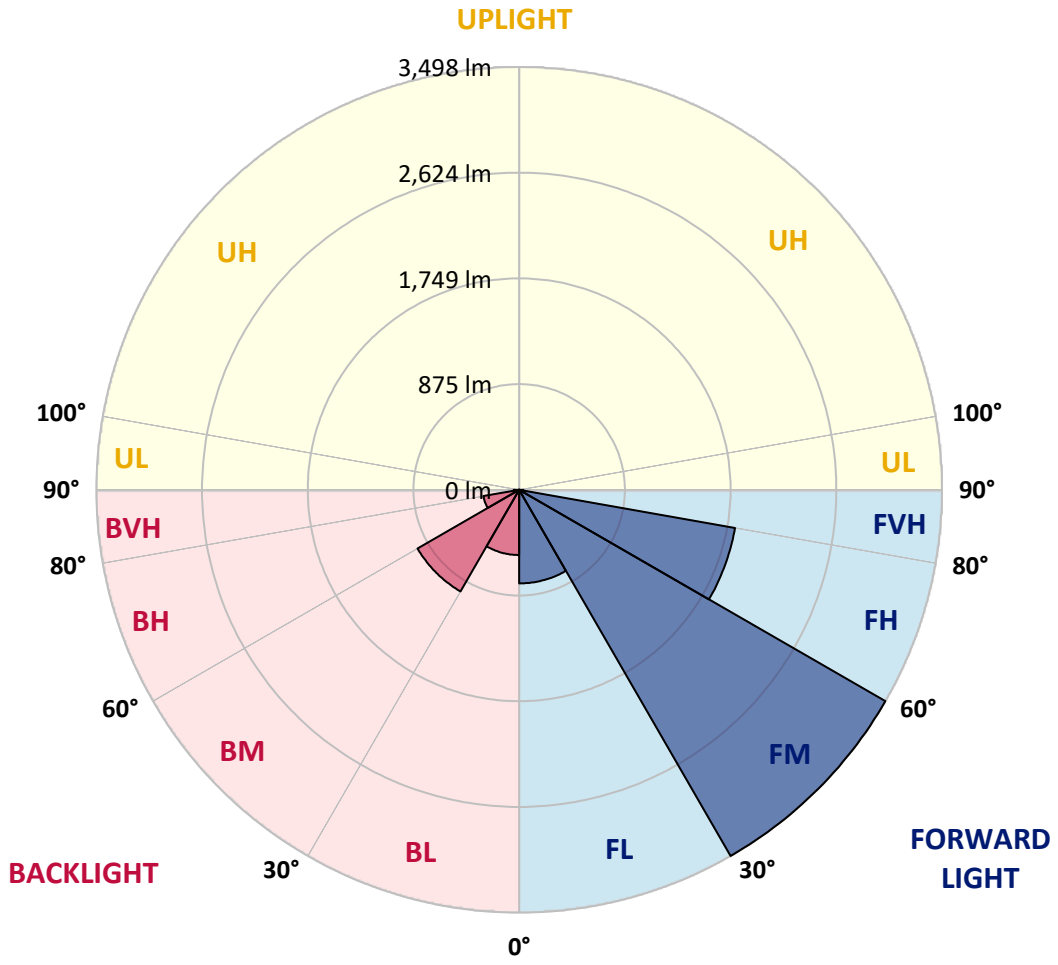
Scaled Data Report

REPORT NUMBER: P1500825
CATALOG NUMBER: GSS-SB2A-850-U-T4LG

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 774.3 | 9.7 | | | |
| FM | (30°-60°) | 3498.4 | 43.9 | | | |
| FH | (60°-80°) | 1813.3 | 22.7 | | | G2/5000 |
| FVH | (80°-90°) | 32.7 | 0.4 | | | G1/100 |
| BL | (0°-30°) | 539.8 | 6.8 | B2/1000 | | |
| BM | (30°-60°) | 970.6 | 12.2 | B1/1000 | | |
| BH | (60°-80°) | 300.2 | 3.8 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 44.6 | 0.6 | | | 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 III Short



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REPORT NUMBER: P1500825
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 34° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1895.8 | 1895.8 | 1895.8 | 1895.8 | *1895.8* | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 |
| 2.5° | 1931.9 | 1942.8 | 1930.1 | 1924.7 | *1926.5* | 1928.3 | 1919.3 | 1921.1 | 1910.3 | 1910.3 | 1901.2 |
| 5° | 1973.5 | 1975.3 | 1968.0 | 1973.5 | *1971.6* | 1969.8 | 1969.8 | 1968.0 | 1944.6 | 1939.1 | 1930.1 |
| 7.5° | 1950.0 | 1957.2 | 1960.8 | 1980.7 | *1986.1* | 1996.9 | 2004.1 | 2007.8 | 1989.7 | 1975.3 | 1951.8 |
| 10° | 1735.1 | 1740.5 | 1782.1 | 1872.3 | *1941.0* | 1953.6 | 2020.4 | 2058.3 | 2045.7 | 2038.5 | 1998.7 |
| 12.5° | 1386.7 | 1395.7 | 1442.6 | 1560.0 | *1720.7* | 1755.0 | 1968.0 | 2096.2 | 2125.1 | 2126.9 | 2069.1 |
| 15° | 1236.8 | 1236.8 | 1251.2 | 1318.0 | *1448.0* | 1475.1 | 1789.3 | 2107.1 | 2210.0 | 2222.6 | 2152.2 |
| 17.5° | 1206.1 | 1204.3 | 1213.3 | 1253.0 | *1321.7* | 1337.9 | 1583.5 | 2051.1 | 2311.1 | 2332.8 | 2242.5 |
| 20° | 1204.3 | 1198.9 | 1216.9 | 1262.1 | *1321.7* | 1336.1 | 1487.8 | 1953.6 | 2390.5 | 2459.1 | 2332.8 |
| 22.5° | 1206.1 | 1206.1 | 1231.4 | 1296.4 | *1365.0* | 1377.6 | 1505.8 | 1872.3 | 2455.5 | 2590.9 | 2428.4 |
| 25° | 1226.0 | 1222.3 | 1258.5 | 1337.9 | *1431.8* | 1440.8 | 1579.8 | 1868.7 | 2511.5 | 2739.0 | 2544.0 |
| 27.5° | 1258.5 | 1260.3 | 1309.0 | 1404.7 | *1511.2* | 1529.3 | 1682.8 | 1946.4 | 2580.1 | 2901.5 | 2655.9 |
| 30° | 1327.1 | 1328.9 | 1386.7 | 1484.2 | *1606.9* | 1630.4 | 1801.9 | 2061.9 | 2677.6 | 3076.6 | 2776.9 |
| 32.5° | 1404.7 | 1413.7 | 1484.2 | 1597.9 | *1729.7* | 1742.3 | 1948.2 | 2235.3 | 2823.9 | 3251.8 | 2906.9 |
| 35° | 1534.7 | 1543.7 | 1623.2 | 1742.3 | *1888.6* | 1906.6 | 2126.9 | 2435.7 | 3002.6 | 3428.7 | 3008.0 |
| 37.5° | 1702.6 | 1709.8 | 1787.5 | 1931.9 | *2087.2* | 2105.3 | 2325.5 | 2648.7 | 3183.2 | 3569.5 | 3098.3 |
| 40° | 1903.0 | 1919.3 | 2002.3 | 2143.2 | *2300.3* | 2311.1 | 2542.2 | 2854.6 | 3378.2 | 3667.0 | 3134.4 |
| 42.5° | 2121.5 | 2137.8 | 2222.6 | 2377.9 | *2522.3* | 2554.8 | 2776.9 | 3073.0 | 3537.0 | 3710.4 | 3105.5 |
| 45° | 2401.4 | 2397.8 | 2477.2 | 2639.7 | *2809.4* | 2822.1 | 3027.9 | 3253.6 | 3632.7 | 3674.3 | 3076.6 |
| 47.5° | 2740.8 | 2744.4 | 2795.0 | 2926.8 | *3101.9* | 3130.8 | 3289.7 | 3408.9 | 3688.7 | 3645.4 | 3044.1 |
| 50° | 3123.6 | 3132.6 | 3175.9 | 3271.6 | *3459.4* | 3479.3 | 3526.2 | 3517.2 | 3723.0 | 3584.0 | 3056.8 |
| 52.5° | 3506.4 | 3511.8 | 3569.5 | 3670.7 | *3853.0* | 3867.5 | 3764.5 | 3600.2 | 3594.8 | 3336.6 | 3029.7 |
| 55° | 3820.5 | 3818.7 | 3921.6 | 4076.9 | *4299.0* | 4290.0 | 3999.3 | 3537.0 | 3194.0 | 2952.1 | 2908.7 |
| 57.5° | 4093.2 | 4104.0 | 4237.6 | 4506.6 | *4786.5* | 4779.3 | 4250.2 | 3203.0 | 2609.0 | 2497.1 | 2711.9 |
| 60° | 4338.7 | 4364.0 | 4615.0 | 5017.6 | *5326.3* | 5283.0 | 4295.4 | 2699.3 | 2029.4 | 1955.4 | 2321.9 |
| 62.5° | 4232.2 | 4279.1 | 4681.8 | 5467.2 | *5891.5* | 5795.8 | 4017.3 | 2090.8 | 1374.0 | 1307.2 | 1641.2 |
| 65° | *3777.2* | *3840.4* | *4351.3* | *5402.2* | *6178.5* | *6119.0* | *3511.8* | *1314.4* | *724.0* | *794.4* | *1105.0* |
| 67.5° | 3172.3 | 3248.2 | 3800.7 | 4853.3 | *5589.9* | 5461.7 | 2728.2 | 691.5 | 337.6 | 523.6 | 686.1 |
| 70° | 1738.7 | 1926.5 | 2748.0 | 4127.5 | *4477.7* | 4299.0 | 1578.0 | 326.8 | 245.6 | 326.8 | 409.9 |
| 72.5° | 653.6 | 698.7 | 1191.7 | 2775.1 | *3316.8* | 3096.5 | 599.4 | 211.2 | 205.8 | 241.9 | 296.1 |
| 75° | 314.2 | 335.8 | 518.2 | 1262.1 | *1811.0* | 1688.2 | 294.3 | 157.1 | 176.9 | 189.6 | 214.9 |
| 77.5° | 187.8 | 202.2 | 323.2 | 733.0 | *713.2* | 655.4 | 180.6 | 121.0 | 142.6 | 135.4 | 126.4 |
| 80° | 111.9 | 124.6 | 196.8 | 417.1 | *429.7* | 381.0 | 110.1 | 84.9 | 99.3 | 86.7 | 77.6 |
| 82.5° | 65.0 | 70.4 | 102.9 | 187.8 | *272.6* | 251.0 | 63.2 | 50.6 | 72.2 | 57.8 | 43.3 |
| 85° | 32.5 | 34.3 | 46.9 | 81.2 | *135.4* | 102.9 | 27.1 | 23.5 | 34.3 | 25.3 | 14.4 |
| 87.5° | 7.2 | 7.2 | 7.2 | 9.0 | *12.6* | 12.6 | 3.6 | 1.8 | 1.8 | 1.8 | 1.8 |
| 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: P1500825
CATALOG NUMBER: GSS-SB2A-850-U-T4LG

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 | 1895.8 |
| 2.5° | 1899.4 | 1903.0 | 1890.4 | 1876.0 | 1872.3 | 1861.5 | 1865.1 | 1857.9 | 1847.1 | 1848.9 | 1850.7 |
| 5° | 1917.5 | 1910.3 | 1885.0 | 1852.5 | 1823.6 | 1791.1 | 1753.2 | 1709.8 | 1679.1 | 1666.5 | 1677.3 |
| 7.5° | 1933.7 | 1926.5 | 1883.2 | 1811.0 | 1713.5 | 1578.0 | 1437.2 | 1309.0 | 1220.5 | 1188.0 | 1195.3 |
| 10° | 1978.9 | 1950.0 | 1870.5 | 1713.5 | 1480.5 | 1224.2 | 1081.5 | 1002.1 | 975.0 | 960.5 | 962.4 |
| 12.5° | 2038.5 | 1998.7 | 1847.1 | 1543.7 | 1191.7 | 1029.2 | 978.6 | 960.5 | 951.5 | 947.9 | 951.5 |
| 15° | 2110.7 | 2049.3 | 1791.1 | 1330.7 | 1058.0 | 994.9 | 984.0 | 985.8 | 985.8 | 987.6 | 987.6 |
| 17.5° | 2173.9 | 2078.2 | 1690.0 | 1177.2 | 1031.0 | 1012.9 | 1023.7 | 1032.8 | 1032.8 | 1034.6 | 1032.8 |
| 20° | 2231.6 | 2092.6 | 1560.0 | 1112.2 | 1036.4 | 1045.4 | 1070.7 | 1079.7 | 1081.5 | 1079.7 | 1079.7 |
| 22.5° | 2293.0 | 2101.6 | 1430.0 | 1076.1 | 1049.0 | 1076.1 | 1103.2 | 1115.8 | 1119.4 | 1121.2 | 1123.0 |
| 25° | 2352.6 | 2083.6 | 1323.5 | 1047.2 | 1043.6 | 1081.5 | 1112.2 | 1128.5 | 1132.1 | 1132.1 | 1133.9 |
| 27.5° | 2412.2 | 2078.2 | 1251.2 | 1009.3 | 1018.3 | 1049.0 | 1085.1 | 1106.8 | 1121.2 | 1123.0 | 1124.8 |
| 30° | 2480.8 | 2061.9 | 1182.6 | 958.7 | 962.4 | 1000.3 | 1038.2 | 1076.1 | 1105.0 | 1117.6 | 1117.6 |
| 32.5° | 2527.8 | 2045.7 | 1121.2 | 904.6 | 904.6 | 944.3 | 991.2 | 1038.2 | 1079.7 | 1105.0 | 1110.4 |
| 35° | 2572.9 | 2031.2 | 1067.1 | 850.4 | 852.2 | 890.1 | 938.9 | 989.4 | 1041.8 | 1072.5 | 1086.9 |
| 37.5° | 2596.4 | 2016.8 | 1029.2 | 808.9 | 801.7 | 841.4 | 873.9 | 915.4 | 971.4 | 1021.9 | 1034.6 |
| 40° | 2601.8 | 2016.8 | 1025.5 | 780.0 | 749.3 | 794.4 | 808.9 | 837.8 | 888.3 | 942.5 | 962.4 |
| 42.5° | 2565.7 | 1996.9 | 1043.6 | 761.9 | 695.1 | 727.6 | 743.9 | 758.3 | 790.8 | 836.0 | 852.2 |
| 45° | 2522.3 | 1969.8 | 1059.8 | 736.7 | 628.3 | 653.6 | 678.9 | 680.7 | 695.1 | 706.0 | 716.8 |
| 47.5° | 2486.2 | 1941.0 | 1031.0 | 689.7 | 559.7 | 577.8 | 604.9 | 604.9 | 597.6 | 576.0 | 568.7 |
| 50° | 2515.1 | 1950.0 | 982.2 | 622.9 | 496.5 | 509.2 | 538.0 | 521.8 | 505.6 | 460.4 | 455.0 |
| 52.5° | 2540.4 | 1984.3 | 924.4 | 557.9 | 442.4 | 455.0 | 483.9 | 458.6 | 426.1 | 390.0 | 384.6 |
| 55° | 2498.9 | 1986.1 | 817.9 | 485.7 | 404.4 | 415.3 | 442.4 | 411.7 | 381.0 | 359.3 | 355.7 |
| 57.5° | 2374.3 | 1931.9 | 706.0 | 429.7 | 371.9 | 382.8 | 408.1 | 377.4 | 348.5 | 346.7 | 355.7 |
| 60° | 2099.8 | 1742.3 | 603.0 | 393.6 | 341.2 | 353.9 | 379.2 | 346.7 | 308.7 | 292.5 | 297.9 |
| 62.5° | 1585.3 | 1339.7 | 516.4 | 352.1 | 312.4 | 328.6 | 346.7 | 294.3 | 261.8 | 254.6 | 247.4 |
| 65° | *1159.2* | *1029.2* | *464.0* | *319.6* | *285.3* | *305.1* | *290.7* | *261.8* | *240.1* | *232.9* | *229.3* |
| 67.5° | 749.3 | 698.7 | 399.0 | 288.9 | 260.0 | 276.2 | 256.4 | 241.9 | 218.5 | 214.9 | 220.3 |
| 70° | 458.6 | 474.9 | 334.0 | 254.6 | 234.7 | 231.1 | 234.7 | 220.3 | 195.0 | 200.4 | 207.6 |
| 72.5° | 325.0 | 350.3 | 287.1 | 222.1 | 200.4 | 193.2 | 209.4 | 200.4 | 182.4 | 187.8 | 195.0 |
| 75° | 232.9 | 260.0 | 236.5 | 182.4 | 169.7 | 166.1 | 195.0 | 200.4 | 187.8 | 191.4 | 196.8 |
| 77.5° | 137.2 | 166.1 | 167.9 | 140.8 | 128.2 | 148.1 | 207.6 | 231.1 | 222.1 | 211.2 | 205.8 |
| 80° | 88.5 | 99.3 | 119.2 | 90.3 | 90.3 | 128.2 | 227.5 | 281.7 | 241.9 | 214.9 | 211.2 |
| 82.5° | 45.1 | 52.4 | 77.6 | 57.8 | 54.2 | 95.7 | 223.9 | 269.0 | 267.2 | 238.3 | 232.9 |
| 85° | 12.6 | 16.2 | 36.1 | 25.3 | 21.7 | 50.6 | 167.9 | 202.2 | 180.6 | 131.8 | 133.6 |
| 87.5° | 1.8 | 1.8 | 0.0 | 0.0 | 1.8 | 7.2 | 19.9 | 3.6 | 3.6 | 3.6 | 3.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-12

Test Date: 10/11/2024

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

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

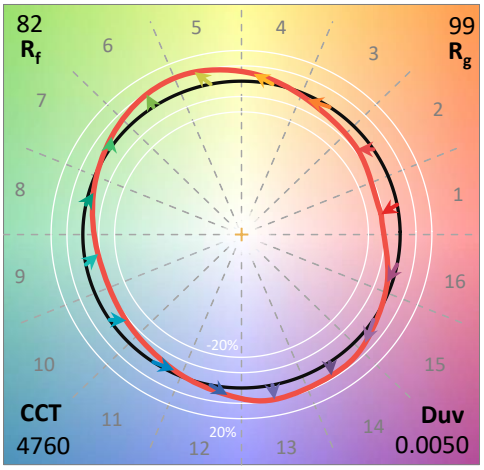
## Test Information

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

## Spectral Parameters

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

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




## Test Conditions

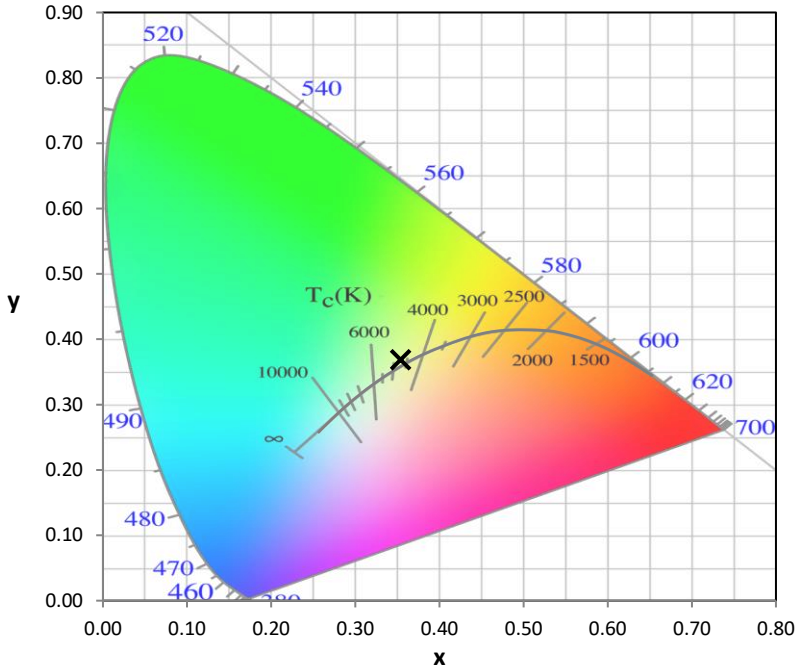
| | |
|---|---|
| Stabilization Time: | 21M |
| Operation Time: | 1H 21M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-12

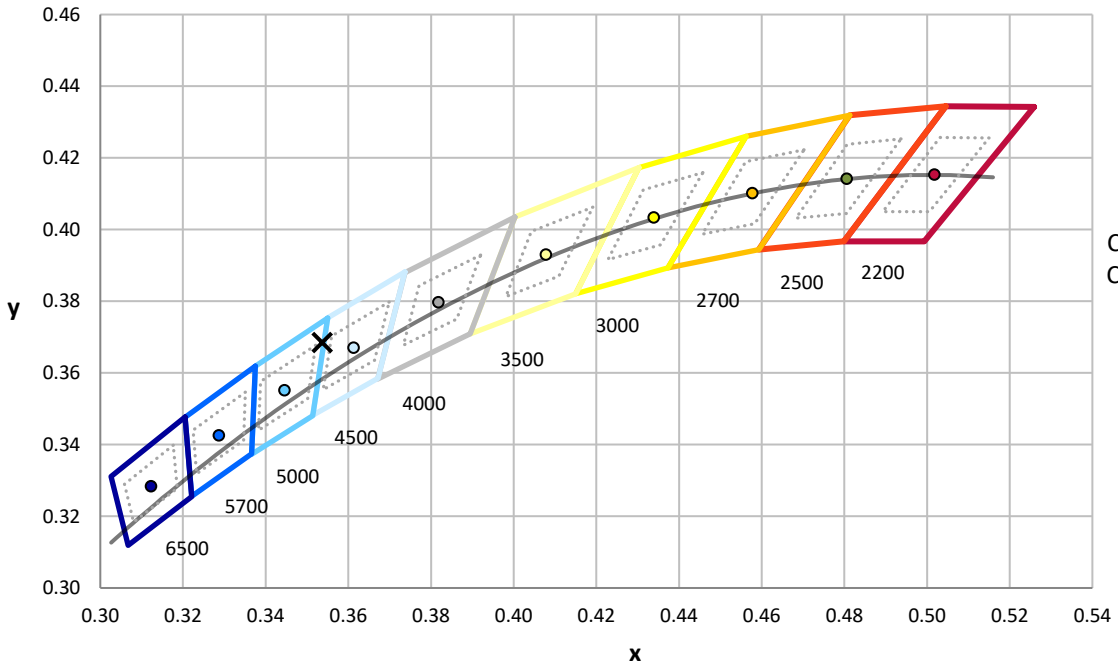
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

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## CIE 1931 Chromaticity Diagram




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

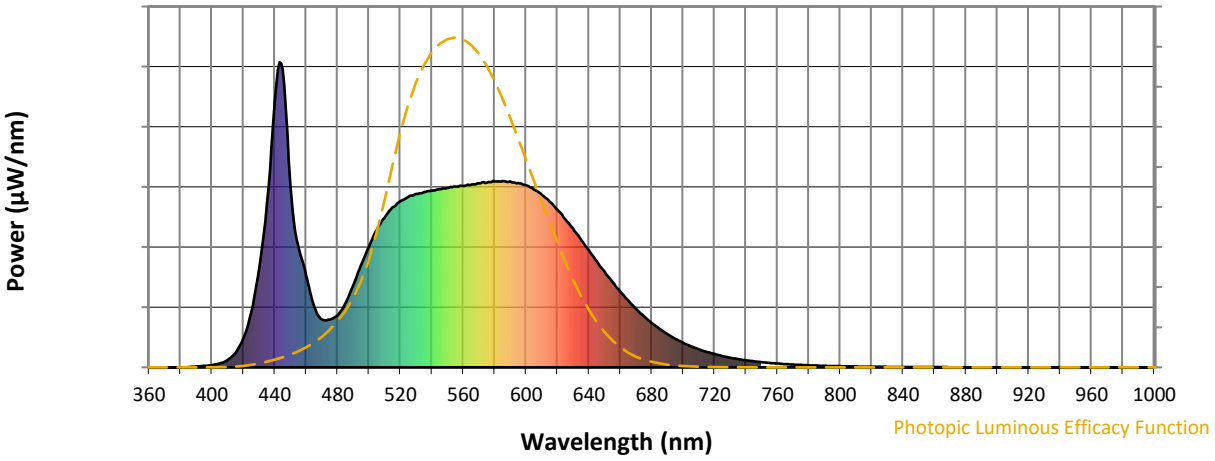



CCT = 4760K
CIE x = 0.3537
CIE y = 0.3685
Duv = 0.0050

Point lies inside the ANSI 5000K 7-step quadrangle

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## Photopic Flux vs. Wavelength

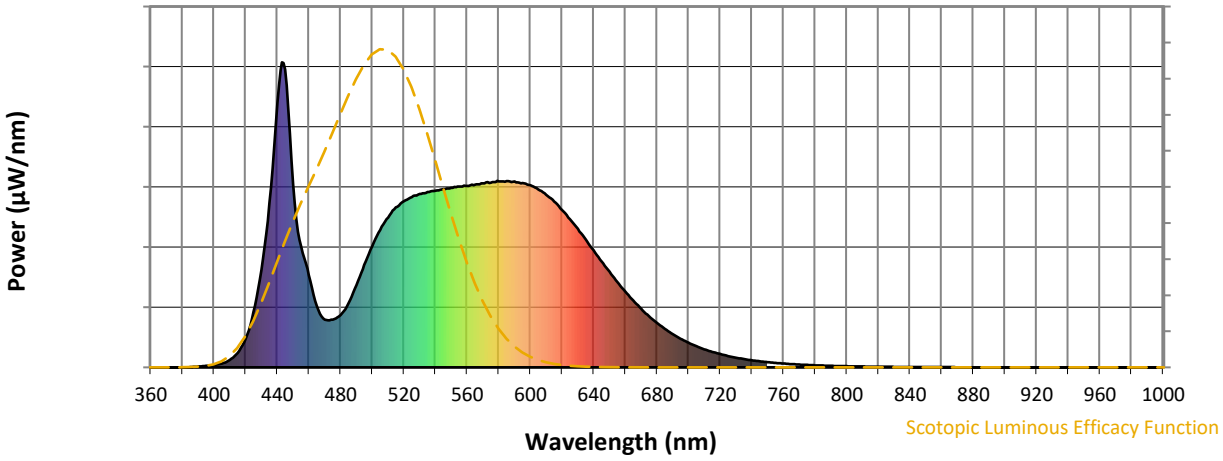



## Photopic Lumens: NR

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

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## Scotopic Flux vs. Wavelength

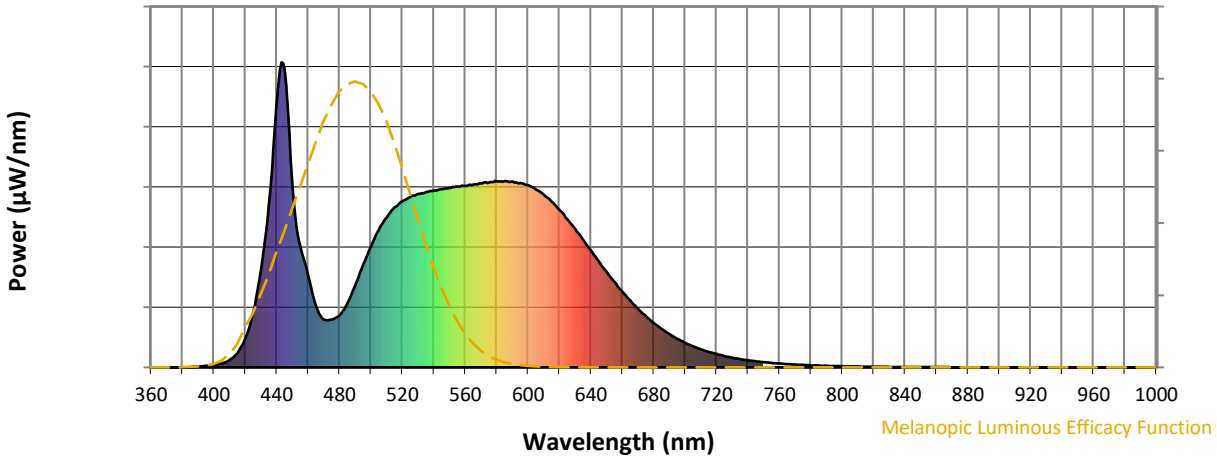



**Scotopic Lumens: NR** **S/P: 1.83**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 270 | NR | 620 | 517 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 335 | NR | 625 | 486 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 397 | NR | 630 | 454 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 451 | NR | 635 | 419 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 492 | NR | 640 | 384 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 524 | NR | 645 | 347 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 545 | NR | 650 | 313 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 558 | NR | 655 | 280 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 568 | NR | 660 | 248 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 13 | NR | 535 | 575 | NR | 665 | 219 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 24 | NR | 540 | 579 | NR | 670 | 192 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 47 | NR | 545 | 585 | NR | 675 | 167 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 95 | NR | 550 | 588 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 181 | NR | 555 | 593 | NR | 685 | 126 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 319 | NR | 560 | 595 | NR | 690 | 109 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 539 | NR | 565 | 600 | NR | 695 | 94 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 868 | NR | 570 | 603 | NR | 700 | 80 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 977 | NR | 575 | 606 | NR | 705 | 69 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 601 | NR | 580 | 609 | NR | 710 | 59 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 397 | NR | 585 | 611 | NR | 715 | 51 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 302 | NR | 590 | 610 | NR | 720 | 44 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 201 | NR | 595 | 604 | NR | 725 | 37 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 157 | NR | 600 | 596 | NR | 730 | 32 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 157 | NR | 605 | 583 | NR | 735 | 27 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 171 | NR | 610 | 566 | NR | 740 | 23 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 210 | NR | 615 | 543 | NR | 745 | 20 | NR | 875 | 0 | NR | | | |

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## Melanopic Flux vs. Wavelength




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

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 270 | NR | 620 | 517 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 335 | NR | 625 | 486 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 397 | NR | 630 | 454 | NR | 760 | 12 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 451 | NR | 635 | 419 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 492 | NR | 640 | 384 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 524 | NR | 645 | 347 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 545 | NR | 650 | 313 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 558 | NR | 655 | 280 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 568 | NR | 660 | 248 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 13 | NR | 535 | 575 | NR | 665 | 219 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 24 | NR | 540 | 579 | NR | 670 | 192 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 47 | NR | 545 | 585 | NR | 675 | 167 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 95 | NR | 550 | 588 | NR | 680 | 146 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 181 | NR | 555 | 593 | NR | 685 | 126 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 319 | NR | 560 | 595 | NR | 690 | 109 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 539 | NR | 565 | 600 | NR | 695 | 94 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 868 | NR | 570 | 603 | NR | 700 | 80 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 977 | NR | 575 | 606 | NR | 705 | 69 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 601 | NR | 580 | 609 | NR | 710 | 59 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 397 | NR | 585 | 611 | NR | 715 | 51 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 302 | NR | 590 | 610 | NR | 720 | 44 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 201 | NR | 595 | 604 | NR | 725 | 37 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 157 | NR | 600 | 596 | NR | 730 | 32 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 157 | NR | 605 | 583 | NR | 735 | 27 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 171 | NR | 610 | 566 | NR | 740 | 23 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 210 | NR | 615 | 543 | NR | 745 | 20 | NR | 875 | 0 | NR | | | |

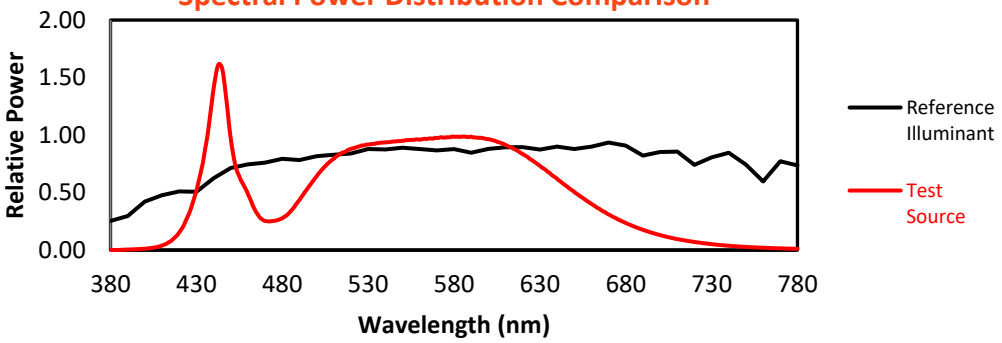
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# TM-30-18

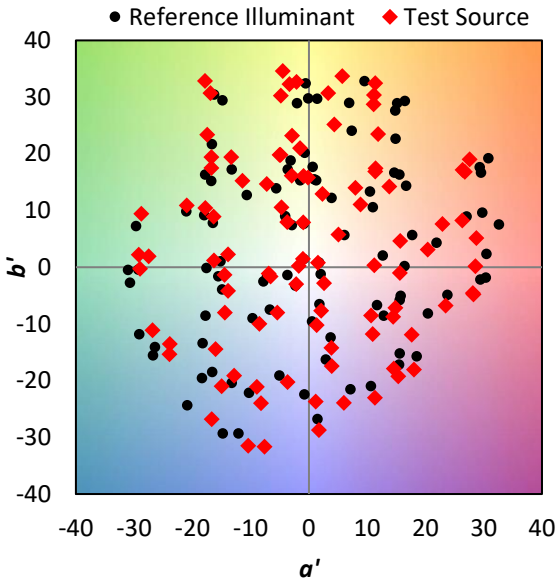
## Summary

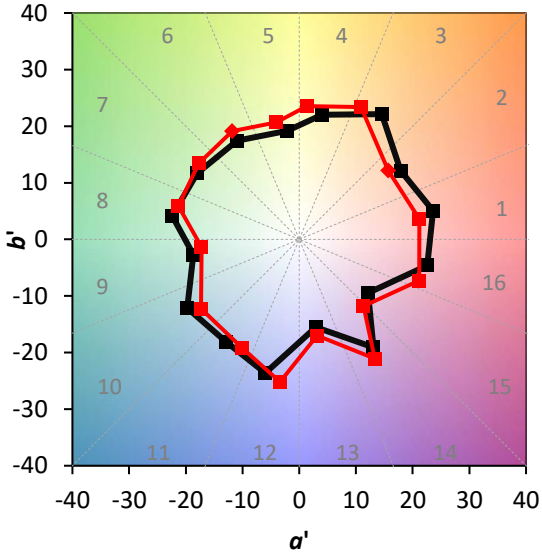
$R_f$ = 82
$R_g$ = 99.4
CIE $R_a$ = 81.1
$R_9$ = 8.7

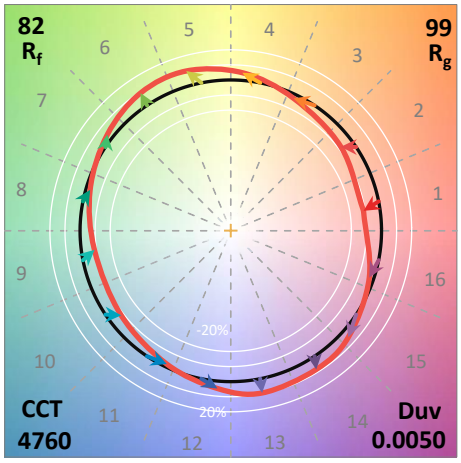
## Spectral Power Distribution Comparison

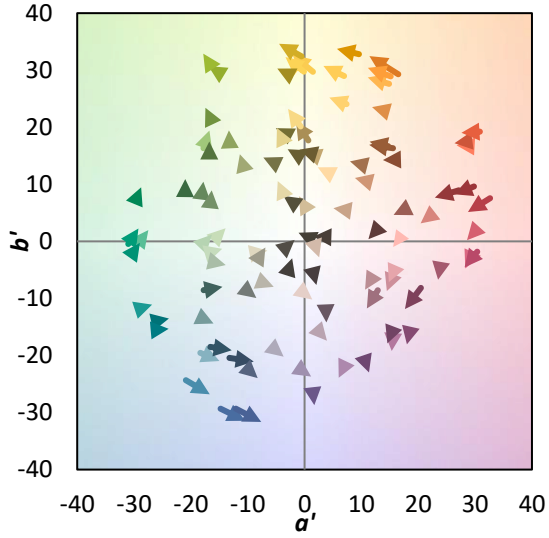



## Color Vector Graphics



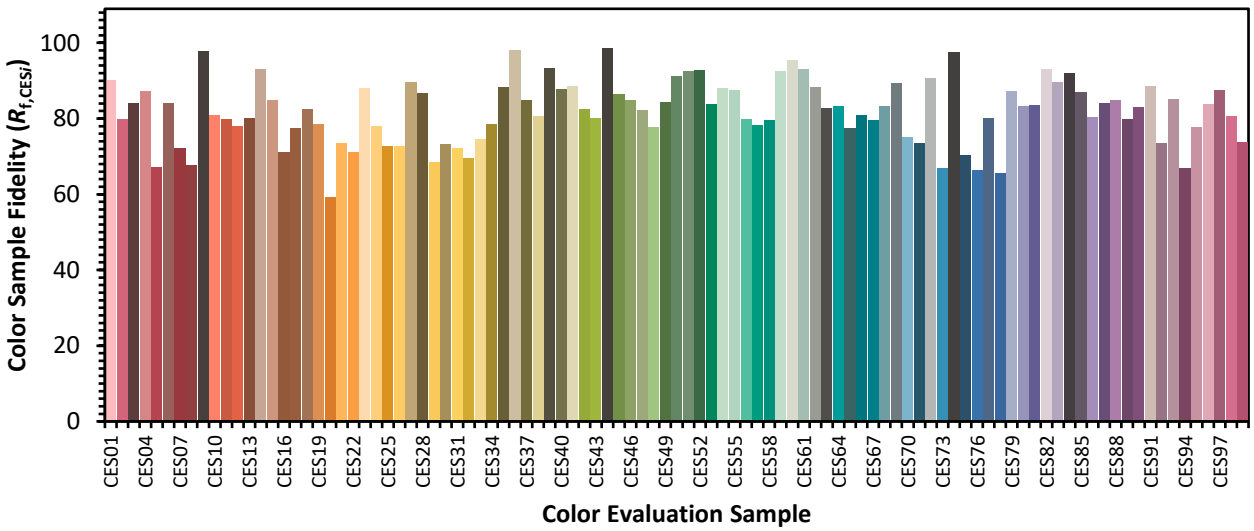



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# TM-30-18

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

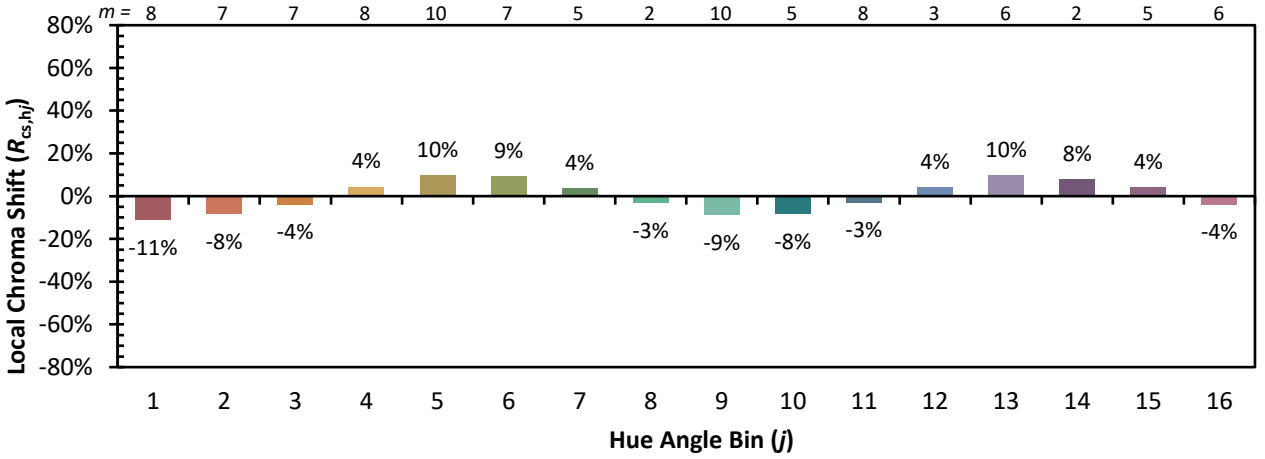
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 73 | CES51 = 92 | CES76 = 66 |
| CES02 = 60 | CES27 = 90 | CES52 = 93 | CES77 = 80 |
| CES03 = 30 | CES28 = 87 | CES53 = 84 | CES78 = 65 |
| CES04 = 69 | CES29 = 69 | CES54 = 88 | CES79 = 87 |
| CES05 = 47 | CES30 = 73 | CES55 = 88 | CES80 = 83 |
| CES06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

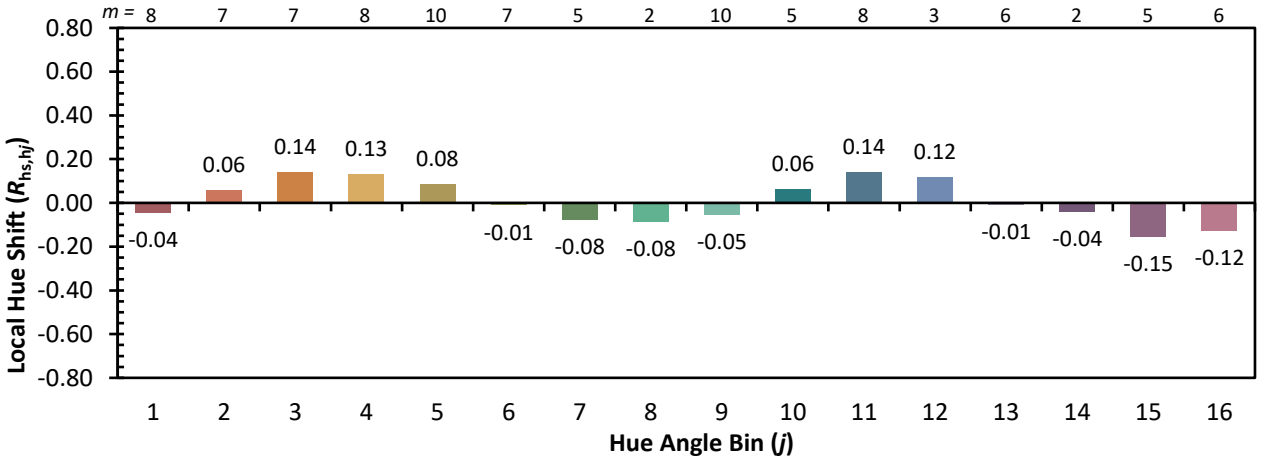


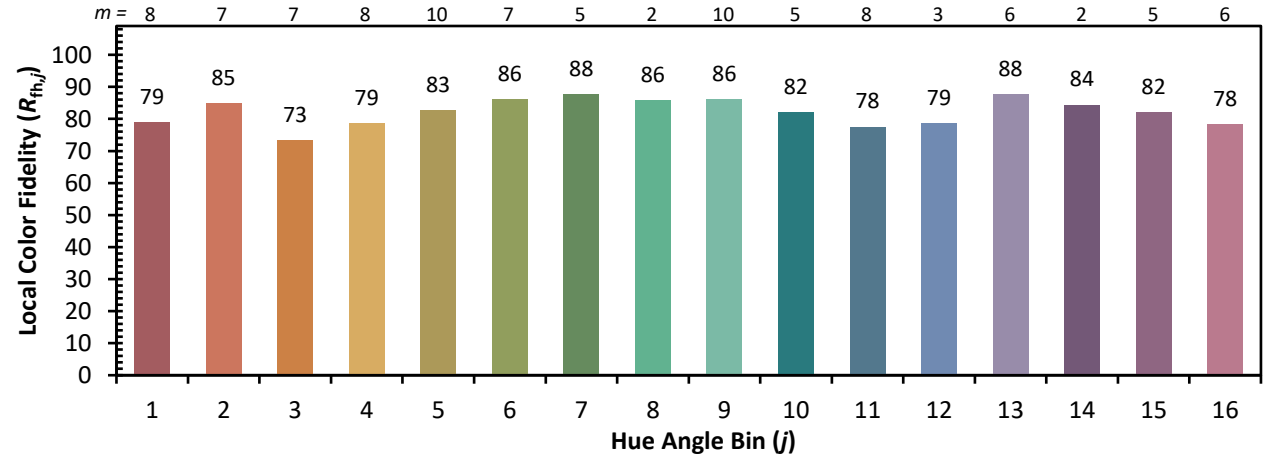
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## Color Rendition by Hue-Angle Bin



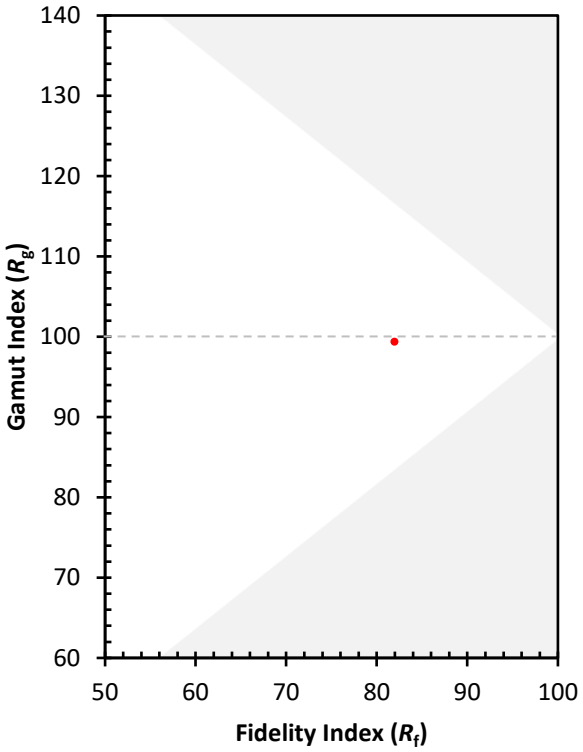



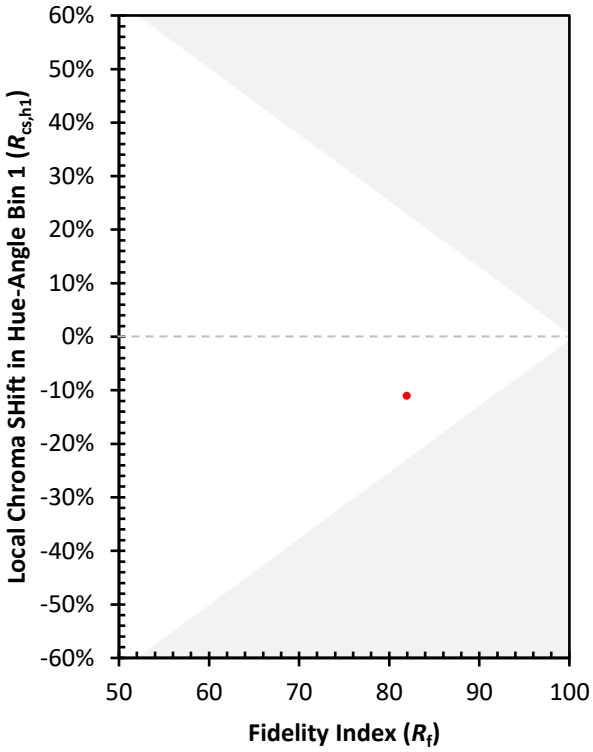



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## Measure Comparisons




(END OF REPORT)