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: P1502720

Luminaire Tested: GSS-SB1D-840-U-T4LG-HSS

Issue Date: 07/20/2026

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P1502720 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 7/20/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GSS-SB1D-840-U-T4LG-HSS |
| Description: | GALLEON II SLIM SITE HIGH DENSITY LED ARRAYS 1SQUARE 76W 80CRI 4000K FIXTURE w/ TYPE IV LOW GLARE DISTRIBUTION FIXTURE W/ HOUSE SIDE SHIELD |
| Light Source: | (26) 4000K CCT, 80 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 7171 lumens |
| Efficiency: | N/A |
| Efficacy: | 94.4 lumens/watt |
| Luminous Opening: | Rectangular (W 0.5' x L: 0.5' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B1 - U0 - G1 |

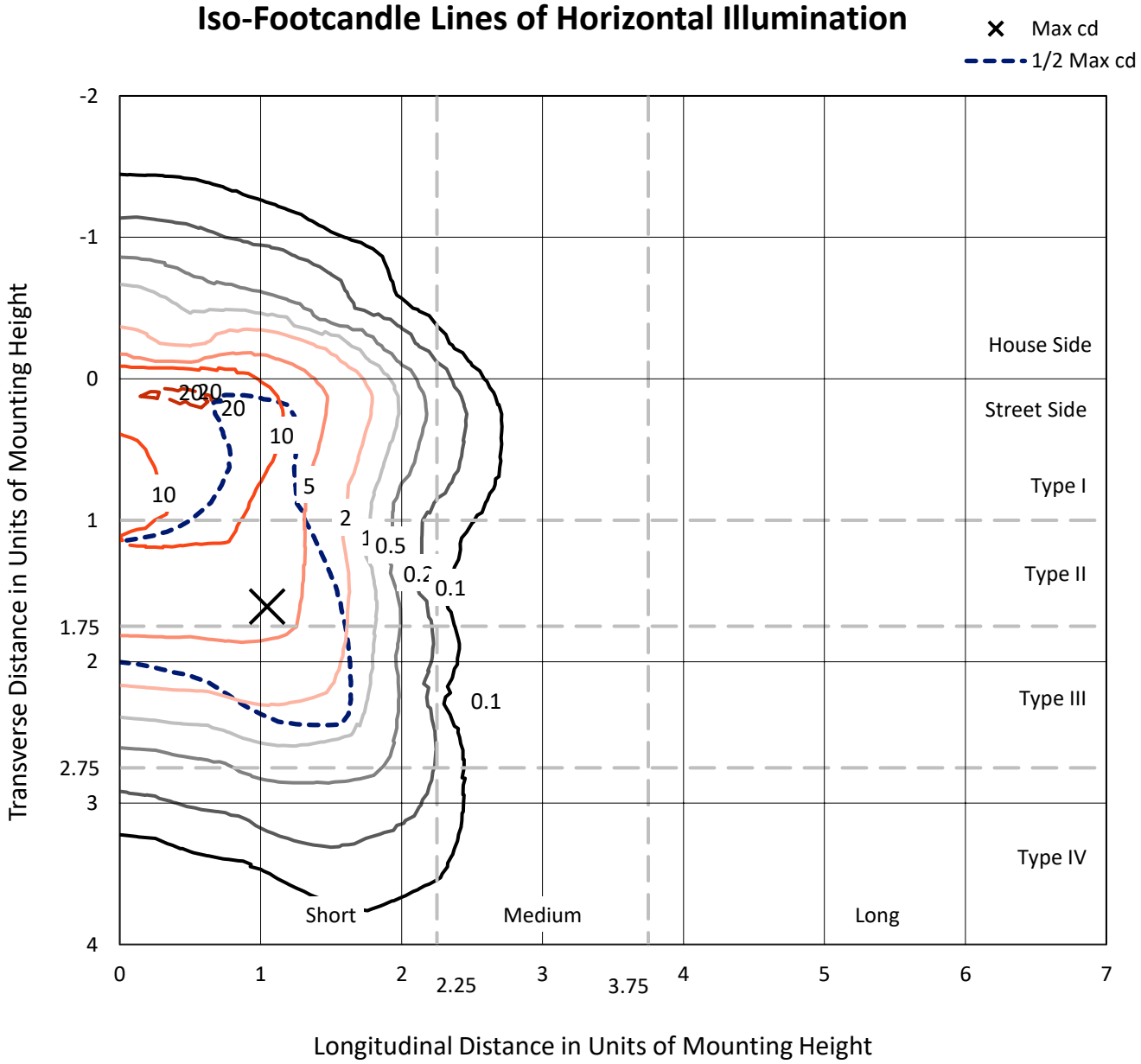
| | |
|---|---|
| Input Watts (W): | 76 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.98 |
| Total Harmonic Distortion (THDi): | 6.7% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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Scaled Data Report

REPORT NUMBER: P1502720
CATALOG NUMBER: GSS-SB1D-840-U-T4LG-HSS

## Iso-Footcandle Lines of Horizontal Illumination



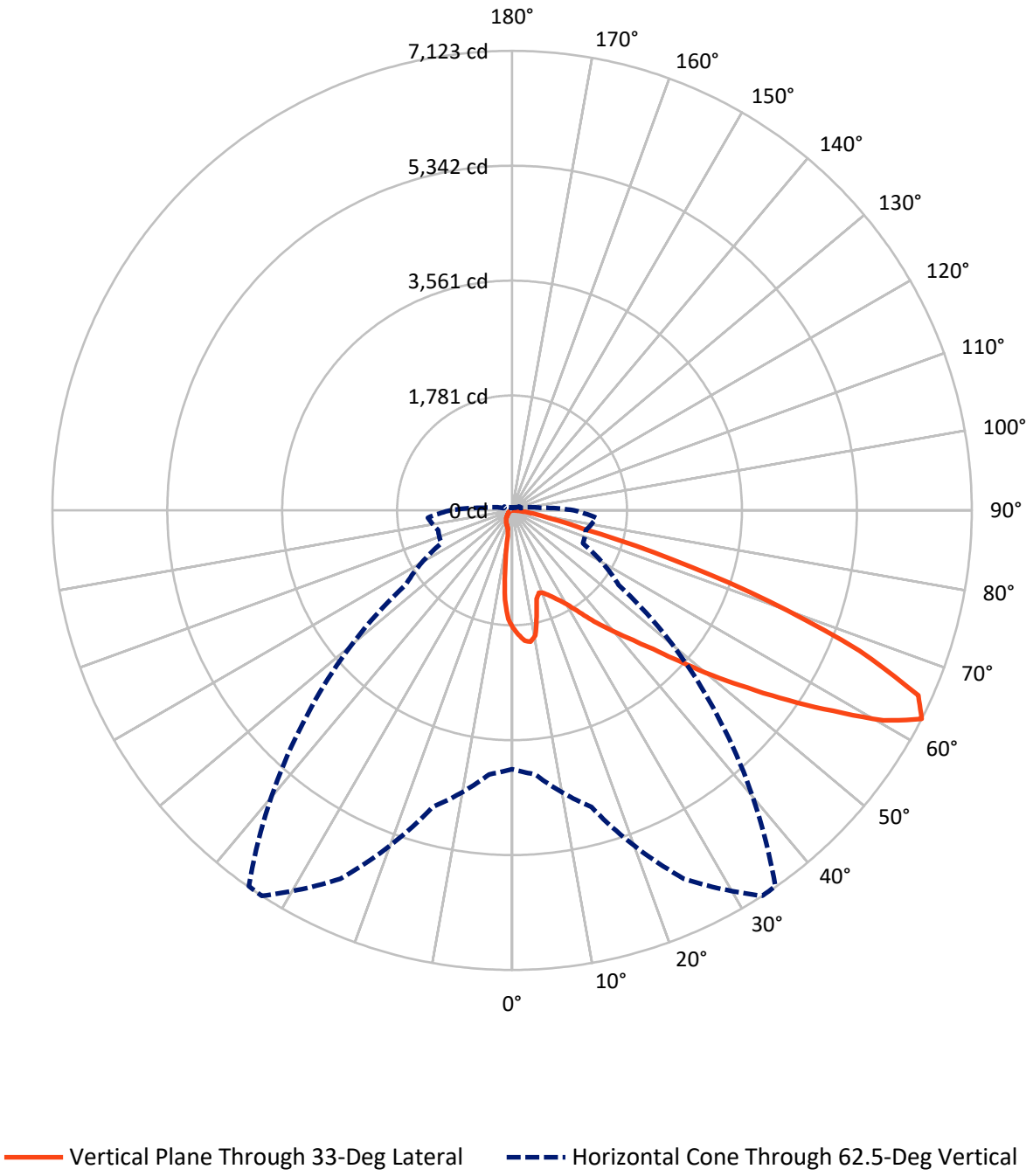

Based on 10 foot mounting height. Maximum calculated value = 21.7 fc
Type III - Short - N/A

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## Luminous Intensity Polar Plot



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Scaled Data Report

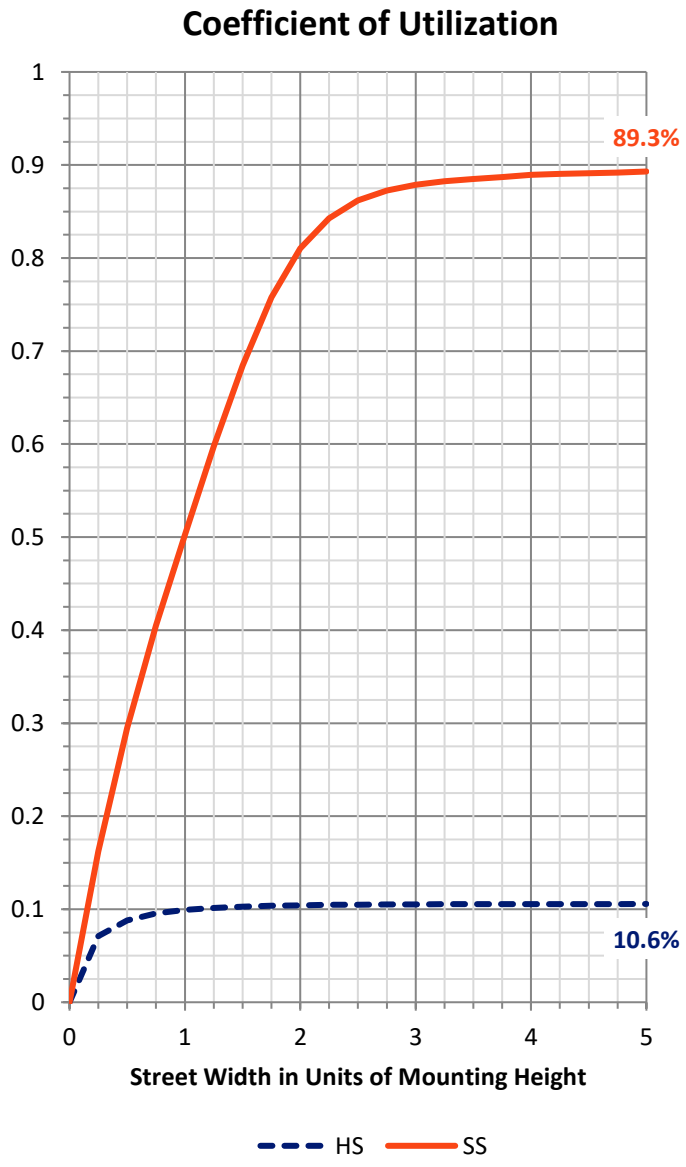
REPORT NUMBER: P1502720
CATALOG NUMBER: GSS-SB1D-840-U-T4LG-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 763.0 | 0.0 | 763.0 |
| | % Fixture | 10.6 | 0.0 | 10.6 |
| **Street Side** | Lumens | 6407.9 | 0.0 | 6407.9 |
| | % Fixture | 89.4 | 0.0 | 89.4 |
| **Total** | Lumens | 7171.0 | 0.0 | 7171.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 154.9 | 2.2 |
| 10°-20° | 345.6 | 4.8 |
| 20°-30° | 557.0 | 7.8 |
| 30°-40° | 926.6 | 12.9 |
| 40°-50° | 1464.5 | 20.4 |
| 50°-60° | 1967.5 | 27.4 |
| 60°-70° | 1444.3 | 20.1 |
| 70°-80° | 285.9 | 4.0 |
| 80°-90° | 24.8 | 0.3 |
| 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° | 7171.0 | 100.0 |
| 0°-180° | 7171.0 | 100.0 |



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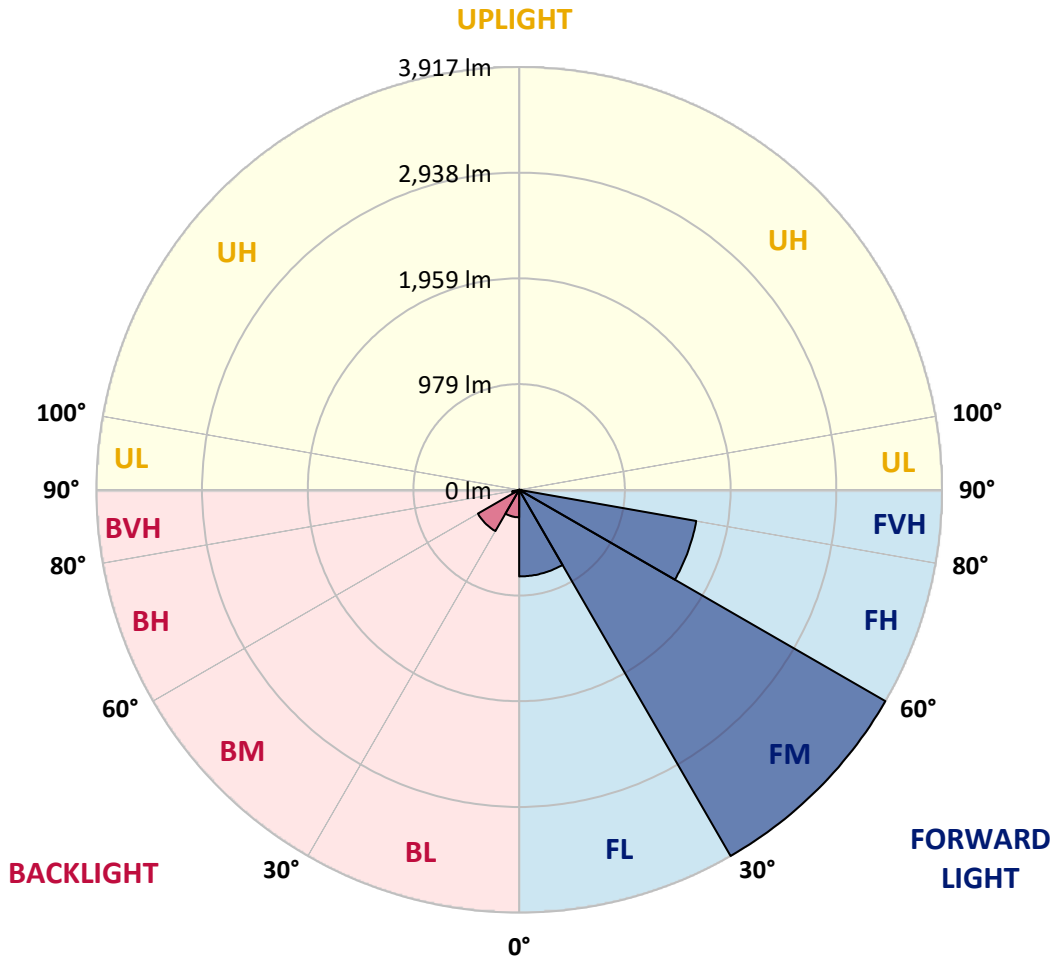
Scaled Data Report

REPORT NUMBER: P1502720
CATALOG NUMBER: GSS-SB1D-840-U-T4LG-HSS

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 802.8 | 11.2 | | | |
| FM | (30°-60°) | 3917.1 | 54.6 | | | |
| FH | (60°-80°) | 1665.0 | 23.2 | | | G1/1800 |
| FVH | (80°-90°) | 23.0 | 0.3 | | | G1/100 |
| BL | (0°-30°) | 254.6 | 3.6 | B1/500 | | |
| BM | (30°-60°) | 441.4 | 6.2 | B1/1000 | | |
| BH | (60°-80°) | 65.2 | 0.9 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 1.9 | 0.0 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B1-U0-G1**
Type III Short



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REPORT NUMBER: P1502720
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 33° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1821.5 | 1821.5 | 1821.5 | 1821.5 | *1821.5* | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 |
| 2.5° | 1940.7 | 1948.7 | 1948.7 | 1932.6 | *1928.5* | 1920.5 | 1912.4 | 1910.4 | 1884.1 | 1863.9 | 1843.7 |
| 5° | 2039.6 | 2037.6 | 2035.6 | 2027.5 | *2029.5* | 2019.4 | 2013.4 | 2003.3 | 1958.8 | 1928.5 | 1874.0 |
| 7.5° | 1997.2 | 2015.4 | 2023.4 | 2045.7 | *2055.8* | 2053.7 | 2069.9 | 2073.9 | 2035.6 | 1993.2 | 1910.4 |
| 10° | 1720.5 | 1710.4 | 1783.1 | 1878.1 | *1973.0* | 1995.2 | 2082.0 | 2128.5 | 2114.3 | 2076.0 | 1968.9 |
| 12.5° | 1363.1 | 1373.2 | 1423.7 | 1534.8 | *1690.2* | 1738.7 | 1989.1 | 2172.9 | 2213.3 | 2189.0 | 2049.7 |
| 15° | 1248.0 | 1248.0 | 1274.2 | 1326.8 | *1419.6* | 1466.1 | 1775.1 | 2166.8 | 2318.3 | 2320.3 | 2150.7 |
| 17.5° | 1223.8 | 1227.8 | 1250.0 | 1284.3 | *1344.9* | 1365.1 | 1581.2 | 2078.0 | 2421.3 | 2457.6 | 2263.8 |
| 20° | 1227.8 | 1233.9 | 1258.1 | 1306.6 | *1365.1* | 1389.4 | 1530.7 | 1964.9 | 2508.1 | 2607.1 | 2382.9 |
| 22.5° | 1241.9 | 1239.9 | 1282.3 | 1346.9 | *1421.7* | 1443.9 | 1573.1 | 1918.4 | 2580.8 | 2778.7 | 2522.2 |
| 25° | 1258.1 | 1260.1 | 1314.6 | 1405.5 | *1496.4* | 1522.6 | 1668.0 | 1960.8 | 2633.3 | 2962.5 | 2663.6 |
| 27.5° | 1306.6 | 1312.6 | 1379.3 | 1478.2 | *1585.2* | 1619.6 | 1791.2 | 2071.9 | 2724.2 | 3140.2 | 2817.1 |
| 30° | 1381.3 | 1387.3 | 1464.1 | 1583.2 | *1698.3* | 1750.8 | 1944.7 | 2211.3 | 2859.5 | 3346.2 | 2974.6 |
| 32.5° | 1468.1 | 1476.2 | 1575.1 | 1712.5 | *1851.8* | 1902.3 | 2120.4 | 2423.3 | 3039.2 | 3556.2 | 3138.2 |
| 35° | 1577.2 | 1599.4 | 1706.4 | 1870.0 | *2057.8* | 2106.2 | 2336.5 | 2663.6 | 3273.5 | 3744.0 | 3277.5 |
| 37.5° | 1726.6 | 1744.8 | 1876.0 | 2080.0 | *2269.8* | 2334.4 | 2578.8 | 2916.0 | 3485.5 | 3911.6 | 3390.6 |
| 40° | 1908.3 | 1924.5 | 2071.9 | 2294.1 | *2492.0* | 2546.5 | 2833.2 | 3170.5 | 3713.7 | 4004.5 | 3414.8 |
| 42.5° | 2211.3 | 2255.7 | 2348.6 | 2536.4 | *2748.4* | 2817.1 | 3116.0 | 3416.8 | 3879.3 | 4022.7 | 3376.5 |
| 45° | 2740.3 | 2754.5 | 2774.7 | 2863.5 | *3067.5* | 3128.1 | 3414.8 | 3630.9 | 3978.2 | 4026.7 | 3342.1 |
| 47.5° | 3247.2 | 3295.7 | 3323.9 | 3364.3 | *3487.5* | 3509.7 | 3727.8 | 3822.7 | 4057.0 | 4012.6 | 3342.1 |
| 50° | 3754.1 | 3790.4 | 3838.9 | 3887.4 | *4018.6* | 4026.7 | 4059.0 | 3952.0 | 4061.0 | 3897.5 | 3321.9 |
| 52.5° | 4214.5 | 4226.6 | 4309.4 | 4402.3 | *4565.9* | 4610.3 | 4366.0 | 4046.9 | 3816.7 | 3534.0 | 3227.0 |
| 55° | 4626.5 | 4642.6 | 4767.8 | 4957.7 | *5191.9* | 5250.5 | 4741.6 | 3863.1 | 3293.7 | 3063.4 | 3006.9 |
| 57.5° | 4893.0 | 4931.4 | 5181.8 | 5599.8 | *5864.4* | 5838.1 | 5032.4 | 3433.0 | 2645.4 | 2506.1 | 2617.2 |
| 60° | 4759.8 | 4812.3 | 5339.3 | 6139.0 | *6609.5* | 6532.8 | 4951.6 | 2825.2 | 1954.8 | 1853.8 | 2071.9 |
| 62.5° | *4010.5* | *4107.5* | *4759.8* | *6298.5* | *7122.5* | *7110.3* | *4495.2* | *2015.4* | *1211.6* | *1185.4* | *1308.6* |
| 65° | 2788.8 | 2956.4 | 3729.9 | 5765.4 | *6916.5* | 6934.7 | 3784.4 | 1173.3 | 561.4 | 696.7 | 765.4 |
| 67.5° | 1643.8 | 1762.9 | 2403.1 | 4707.2 | *5803.8* | 5636.2 | 2572.7 | 543.2 | 280.7 | 424.1 | 405.9 |
| 70° | 722.9 | 803.7 | 1377.2 | 3261.3 | *4228.6* | 3958.0 | 1256.1 | 264.5 | 214.1 | 256.5 | 224.2 |
| 72.5° | 397.8 | 434.2 | 725.0 | 1722.6 | *2572.7* | 2445.5 | 424.1 | 175.7 | 183.8 | 191.8 | 161.6 |
| 75° | 222.1 | 238.3 | 381.7 | 995.6 | *1130.9* | 1052.1 | 206.0 | 115.1 | 155.5 | 155.5 | 119.1 |
| 77.5° | 129.2 | 143.4 | 238.3 | 620.0 | *620.0* | 500.8 | 125.2 | 72.7 | 117.1 | 105.0 | 64.6 |
| 80° | 60.6 | 68.7 | 131.3 | 343.3 | *391.8* | 323.1 | 70.7 | 50.5 | 76.7 | 66.6 | 42.4 |
| 82.5° | 18.2 | 22.2 | 64.6 | 133.3 | *222.1* | 189.8 | 36.3 | 32.3 | 56.5 | 42.4 | 24.2 |
| 85° | 12.1 | 14.1 | 32.3 | 54.5 | *109.0* | 94.9 | 12.1 | 10.1 | 24.2 | 20.2 | 10.1 |
| 87.5° | 2.0 | 2.0 | 4.0 | 4.0 | *4.0* | 4.0 | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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Scaled Data Report

REPORT NUMBER: P1502720
CATALOG NUMBER: GSS-SB1D-840-U-T4LG-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 | 1821.5 |
| 2.5° | 1831.6 | 1817.5 | 1785.2 | 1754.9 | 1738.7 | 1702.4 | 1688.2 | 1672.1 | 1664.0 | 1662.0 | 1649.9 |
| 5° | 1839.7 | 1813.4 | 1732.7 | 1651.9 | 1567.1 | 1486.3 | 1403.5 | 1330.8 | 1272.2 | 1274.2 | 1276.3 |
| 7.5° | 1863.9 | 1811.4 | 1670.1 | 1508.5 | 1326.8 | 1116.7 | 892.6 | 725.0 | 617.9 | 595.7 | 575.5 |
| 10° | 1896.2 | 1819.5 | 1593.3 | 1294.4 | 937.0 | 589.7 | 416.0 | 355.4 | 329.2 | 323.1 | 325.1 |
| 12.5° | 1956.8 | 1839.7 | 1496.4 | 999.6 | 519.0 | 339.3 | 300.9 | 290.8 | 286.8 | 286.8 | 286.8 |
| 15° | 2031.5 | 1868.0 | 1344.9 | 654.3 | 339.3 | 282.7 | 274.6 | 272.6 | 268.6 | 268.6 | 270.6 |
| 17.5° | 2094.1 | 1868.0 | 1145.0 | 426.1 | 278.7 | 262.5 | 256.5 | 254.4 | 254.4 | 256.5 | 254.4 |
| 20° | 2162.8 | 1853.8 | 920.9 | 321.1 | 258.5 | 244.3 | 240.3 | 240.3 | 240.3 | 242.3 | 242.3 |
| 22.5° | 2233.5 | 1829.6 | 712.9 | 274.6 | 240.3 | 228.2 | 226.2 | 228.2 | 230.2 | 232.2 | 232.2 |
| 25° | 2312.2 | 1799.3 | 563.4 | 254.4 | 224.2 | 214.1 | 214.1 | 214.1 | 216.1 | 220.1 | 222.1 |
| 27.5° | 2399.1 | 1773.0 | 482.6 | 242.3 | 210.0 | 199.9 | 199.9 | 201.9 | 206.0 | 208.0 | 210.0 |
| 30° | 2479.8 | 1773.0 | 456.4 | 248.4 | 204.0 | 191.8 | 187.8 | 189.8 | 193.9 | 197.9 | 197.9 |
| 32.5° | 2580.8 | 1793.2 | 470.5 | 274.6 | 201.9 | 179.7 | 175.7 | 175.7 | 179.7 | 181.7 | 181.7 |
| 35° | 2665.6 | 1831.6 | 519.0 | 311.0 | 210.0 | 169.6 | 161.6 | 159.5 | 163.6 | 161.6 | 163.6 |
| 37.5° | 2734.3 | 1884.1 | 607.8 | 359.5 | 226.2 | 157.5 | 147.4 | 141.4 | 141.4 | 141.4 | 141.4 |
| 40° | 2754.5 | 1936.6 | 720.9 | 391.8 | 224.2 | 143.4 | 129.2 | 123.2 | 121.2 | 119.1 | 119.1 |
| 42.5° | 2726.2 | 1960.8 | 811.8 | 389.7 | 199.9 | 133.3 | 115.1 | 107.0 | 101.0 | 99.0 | 99.0 |
| 45° | 2704.0 | 1973.0 | 844.1 | 339.3 | 181.7 | 121.2 | 103.0 | 92.9 | 86.8 | 84.8 | 82.8 |
| 47.5° | 2706.0 | 1985.1 | 795.6 | 276.7 | 165.6 | 111.1 | 92.9 | 82.8 | 76.7 | 74.7 | 72.7 |
| 50° | 2714.1 | 1964.9 | 674.5 | 230.2 | 151.5 | 101.0 | 82.8 | 74.7 | 68.7 | 66.6 | 64.6 |
| 52.5° | 2629.3 | 1857.9 | 474.6 | 201.9 | 139.3 | 94.9 | 74.7 | 68.7 | 62.6 | 60.6 | 60.6 |
| 55° | 2407.1 | 1601.4 | 321.1 | 179.7 | 129.2 | 86.8 | 68.7 | 64.6 | 58.6 | 54.5 | 54.5 |
| 57.5° | 2051.7 | 1207.6 | 222.1 | 163.6 | 113.1 | 78.8 | 64.6 | 58.6 | 52.5 | 48.5 | 48.5 |
| 60° | 1569.1 | 787.6 | 161.6 | 149.4 | 92.9 | 72.7 | 60.6 | 56.5 | 48.5 | 44.4 | 42.4 |
| 62.5° | *955.2* | *442.3* | *131.3* | *131.3* | *78.8* | *68.7* | *54.5* | *50.5* | *42.4* | *36.3* | *34.3* |
| 65° | 553.3 | 260.5 | 107.0 | 111.1 | 68.7 | 62.6 | 48.5 | 42.4 | 34.3 | 28.3 | 26.3 |
| 67.5° | 266.6 | 151.5 | 84.8 | 78.8 | 60.6 | 52.5 | 42.4 | 36.3 | 30.3 | 24.2 | 22.2 |
| 70° | 163.6 | 117.1 | 64.6 | 56.5 | 48.5 | 40.4 | 34.3 | 32.3 | 26.3 | 20.2 | 20.2 |
| 72.5° | 133.3 | 94.9 | 50.5 | 40.4 | 36.3 | 28.3 | 28.3 | 26.3 | 20.2 | 16.2 | 14.1 |
| 75° | 105.0 | 70.7 | 38.4 | 28.3 | 22.2 | 22.2 | 20.2 | 18.2 | 16.2 | 12.1 | 12.1 |
| 77.5° | 56.5 | 48.5 | 28.3 | 16.2 | 12.1 | 14.1 | 14.1 | 12.1 | 10.1 | 8.1 | 8.1 |
| 80° | 36.3 | 28.3 | 16.2 | 8.1 | 8.1 | 8.1 | 8.1 | 6.1 | 6.1 | 4.0 | 4.0 |
| 82.5° | 18.2 | 14.1 | 8.1 | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 2.0 | 2.0 |
| 85° | 4.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-11

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-840-U-5WQ

Data in this report applies to families of products including GSS-SB1A-840-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

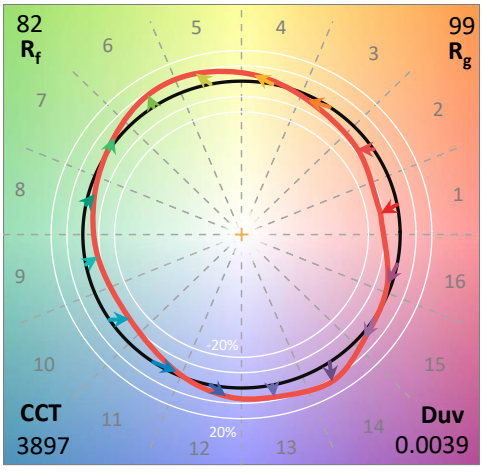
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-11 |
| 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-840-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI 4000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3897 |
| CIE u': | 0.2249 |
| CIE v': | 0.5084 |
| Duv: | 0.0039 |
| CIE x: | 0.3882 |
| CIE y: | 0.3900 |
| CIE z: | 0.2218 |
| Peak Wavelength (nm): | 445 |
| Dominant Wavelength (nm): | 577 |
| Purity: | 33.54925 |
| Rf: | 81.8 |
| Rg: | 98.6 |

| | |
|---|---|
| CRI (Ra): | 80.2 |
| R1: | 78.9 |
| R2: | 83.5 |
| R3: | 88.3 |
| R4: | 82.1 |
| R5: | 78.8 |
| R6: | 78.4 |
| R7: | 85.8 |
| R8: | 65.8 |
| R9: | 6.7 |
| R10: | 61.9 |
| R11: | 81.9 |
| R12: | 58.9 |
| R13: | 79.2 |
| R14: | 93.2 |
| R15: | 71.9 |




## Test Conditions

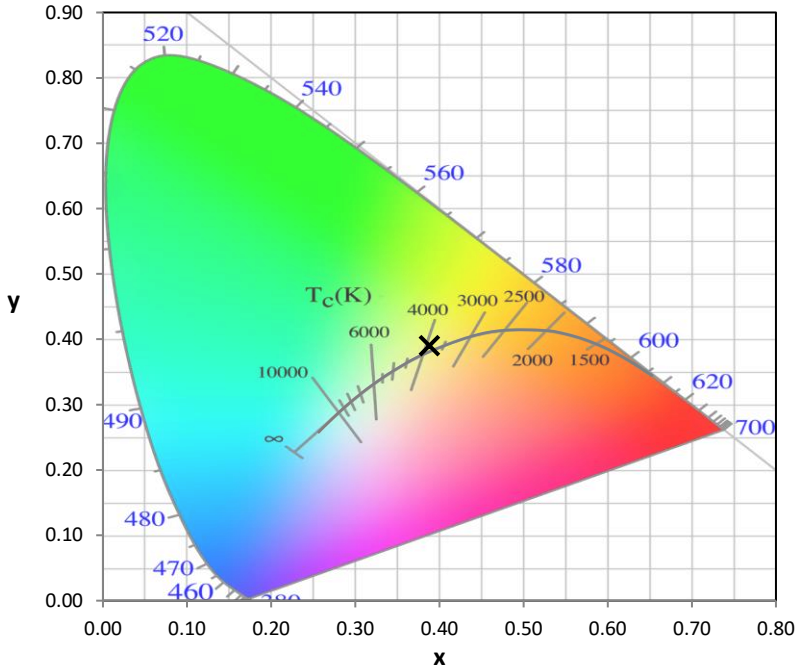
| | |
|---|---|
| Stabilization Time: | 24M |
| Operation Time: | 1H 24M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-11

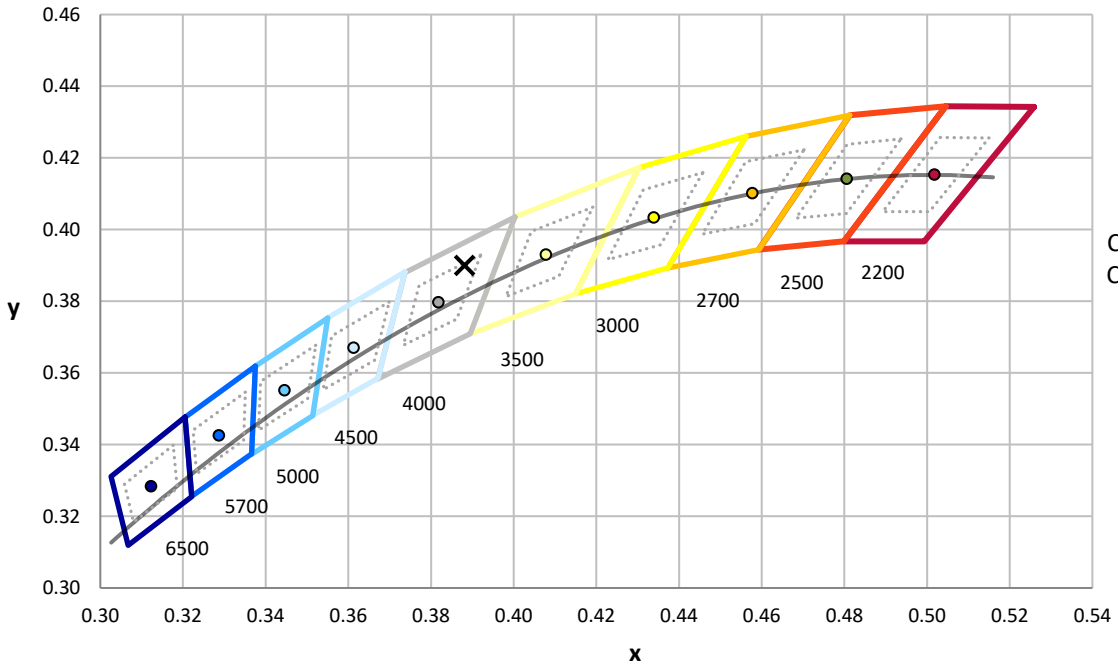
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

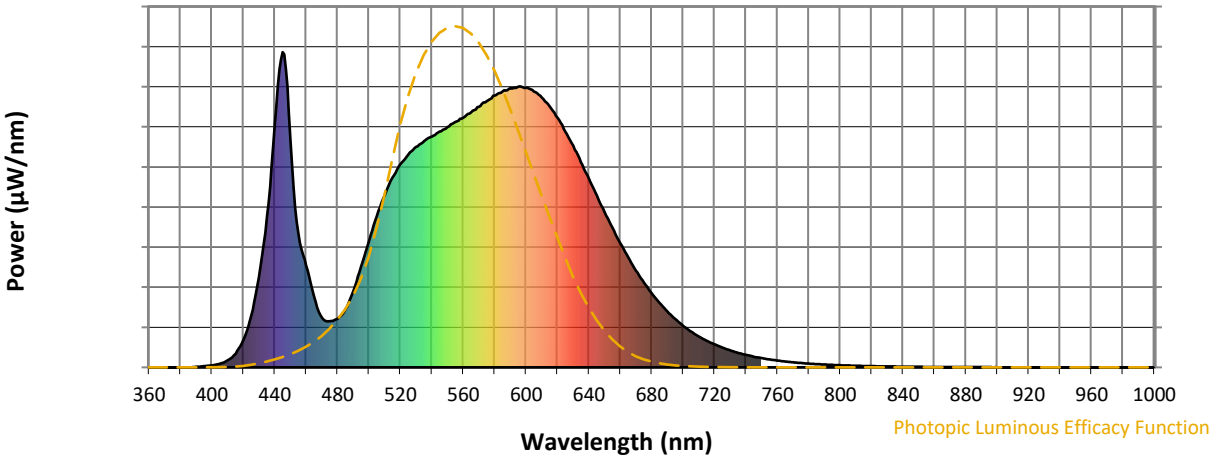



CCT = 3897K
CIE x = 0.3882
CIE y = 0.3900
Duv = 0.0039

Point lies inside the ANSI 4000K 4-step quadrangle

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## Photopic Flux vs. Wavelength

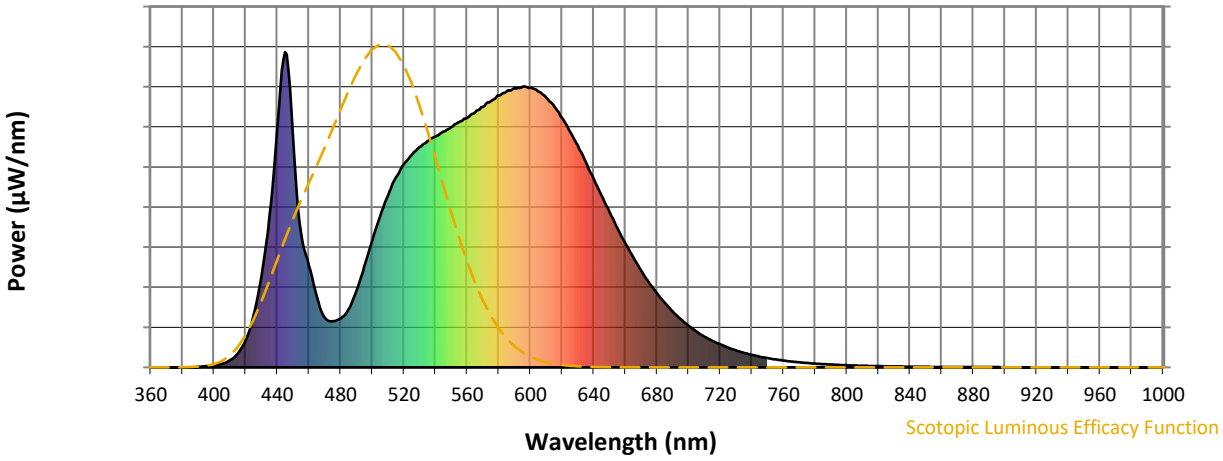



## Photopic Lumens: NR

| 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 | 242 | NR | 620 | 792 | NR | 750 | 29 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 320 | NR | 625 | 748 | NR | 755 | 25 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 401 | NR | 630 | 703 | NR | 760 | 22 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 479 | NR | 635 | 651 | NR | 765 | 19 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 546 | NR | 640 | 599 | NR | 770 | 16 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 602 | NR | 645 | 545 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 645 | NR | 650 | 493 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 674 | NR | 655 | 443 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 699 | NR | 660 | 394 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 11 | NR | 535 | 718 | NR | 665 | 349 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 22 | NR | 540 | 732 | NR | 670 | 307 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 43 | NR | 545 | 749 | NR | 675 | 269 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 86 | NR | 550 | 762 | NR | 680 | 235 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 164 | NR | 555 | 778 | NR | 685 | 204 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 288 | NR | 560 | 792 | NR | 690 | 178 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 478 | NR | 565 | 809 | NR | 695 | 153 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 766 | NR | 570 | 827 | NR | 700 | 132 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 1000 | NR | 575 | 845 | NR | 705 | 114 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 726 | NR | 580 | 862 | NR | 710 | 98 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 425 | NR | 585 | 875 | NR | 715 | 84 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 324 | NR | 590 | 887 | NR | 720 | 73 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 225 | NR | 595 | 890 | NR | 725 | 63 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 157 | NR | 600 | 887 | NR | 730 | 54 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 147 | NR | 605 | 875 | NR | 735 | 46 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 154 | NR | 610 | 856 | NR | 740 | 40 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 184 | NR | 615 | 828 | NR | 745 | 34 | NR | 875 | 1 | NR | | | |

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## Scotopic Flux vs. Wavelength

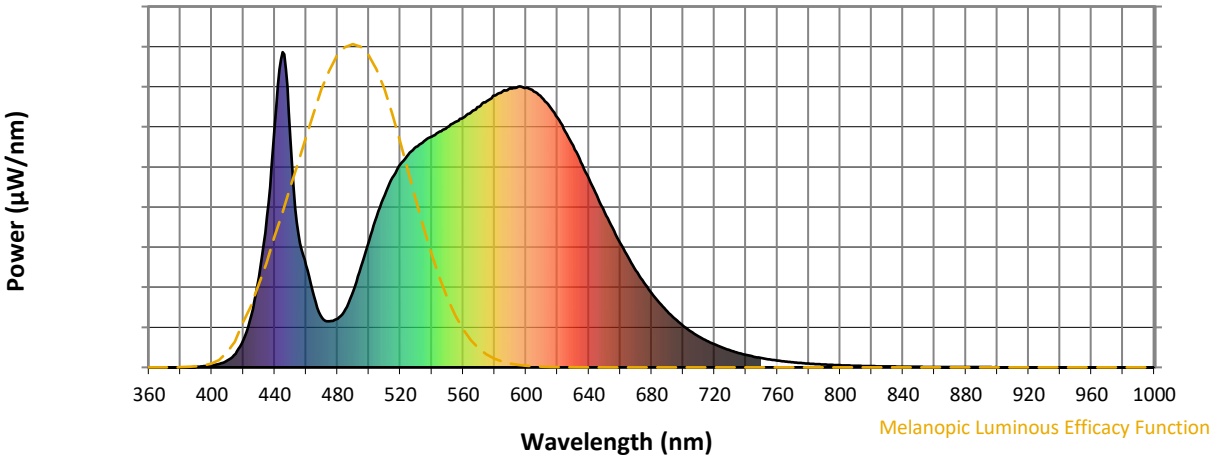



**Scotopic Lumens: NR** **S/P: 1.57**

| 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 | 242 | NR | 620 | 792 | NR | 750 | 29 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 320 | NR | 625 | 748 | NR | 755 | 25 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 401 | NR | 630 | 703 | NR | 760 | 22 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 479 | NR | 635 | 651 | NR | 765 | 19 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 546 | NR | 640 | 599 | NR | 770 | 16 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 602 | NR | 645 | 545 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 645 | NR | 650 | 493 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 674 | NR | 655 | 443 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 699 | NR | 660 | 394 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 11 | NR | 535 | 718 | NR | 665 | 349 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 22 | NR | 540 | 732 | NR | 670 | 307 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 43 | NR | 545 | 749 | NR | 675 | 269 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 86 | NR | 550 | 762 | NR | 680 | 235 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 164 | NR | 555 | 778 | NR | 685 | 204 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 288 | NR | 560 | 792 | NR | 690 | 178 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 478 | NR | 565 | 809 | NR | 695 | 153 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 766 | NR | 570 | 827 | NR | 700 | 132 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 1000 | NR | 575 | 845 | NR | 705 | 114 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 726 | NR | 580 | 862 | NR | 710 | 98 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 425 | NR | 585 | 875 | NR | 715 | 84 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 324 | NR | 590 | 887 | NR | 720 | 73 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 225 | NR | 595 | 890 | NR | 725 | 63 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 157 | NR | 600 | 887 | NR | 730 | 54 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 147 | NR | 605 | 875 | NR | 735 | 46 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 154 | NR | 610 | 856 | NR | 740 | 40 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 184 | NR | 615 | 828 | NR | 745 | 34 | NR | 875 | 1 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 3.06**

| 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 | 242 | NR | 620 | 792 | NR | 750 | 29 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 320 | NR | 625 | 748 | NR | 755 | 25 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 401 | NR | 630 | 703 | NR | 760 | 22 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 479 | NR | 635 | 651 | NR | 765 | 19 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 546 | NR | 640 | 599 | NR | 770 | 16 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 602 | NR | 645 | 545 | NR | 775 | 14 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 645 | NR | 650 | 493 | NR | 780 | 12 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 674 | NR | 655 | 443 | NR | 785 | 10 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 699 | NR | 660 | 394 | NR | 790 | 9 | NR | 920 | 0 | NR |
| 405 | 11 | NR | 535 | 718 | NR | 665 | 349 | NR | 795 | 8 | NR | 925 | 0 | NR |
| 410 | 22 | NR | 540 | 732 | NR | 670 | 307 | NR | 800 | 7 | NR | 930 | 0 | NR |
| 415 | 43 | NR | 545 | 749 | NR | 675 | 269 | NR | 805 | 6 | NR | 935 | 0 | NR |
| 420 | 86 | NR | 550 | 762 | NR | 680 | 235 | NR | 810 | 5 | NR | 940 | 0 | NR |
| 425 | 164 | NR | 555 | 778 | NR | 685 | 204 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 288 | NR | 560 | 792 | NR | 690 | 178 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 478 | NR | 565 | 809 | NR | 695 | 153 | NR | 825 | 3 | NR | 955 | 0 | NR |
| 440 | 766 | NR | 570 | 827 | NR | 700 | 132 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 1000 | NR | 575 | 845 | NR | 705 | 114 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 726 | NR | 580 | 862 | NR | 710 | 98 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 425 | NR | 585 | 875 | NR | 715 | 84 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 324 | NR | 590 | 887 | NR | 720 | 73 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 225 | NR | 595 | 890 | NR | 725 | 63 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 157 | NR | 600 | 887 | NR | 730 | 54 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 147 | NR | 605 | 875 | NR | 735 | 46 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 154 | NR | 610 | 856 | NR | 740 | 40 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 184 | NR | 615 | 828 | NR | 745 | 34 | NR | 875 | 1 | NR | | | |

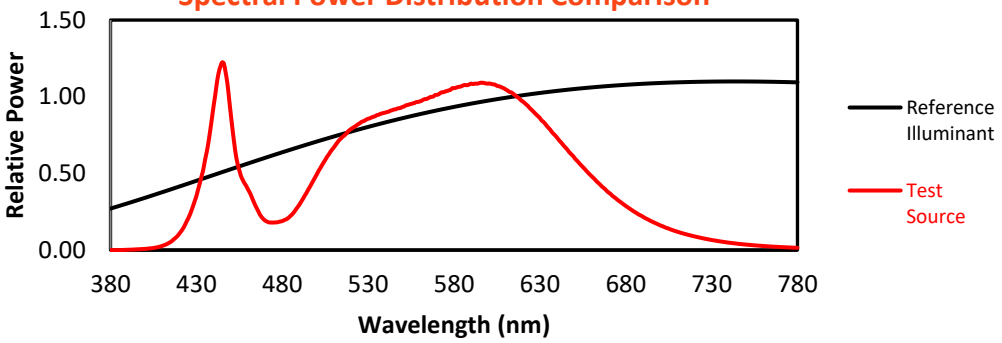
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# TM-30-18

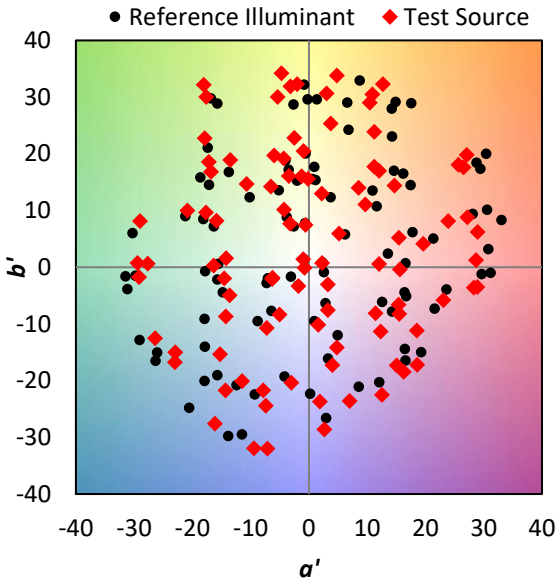
## Summary

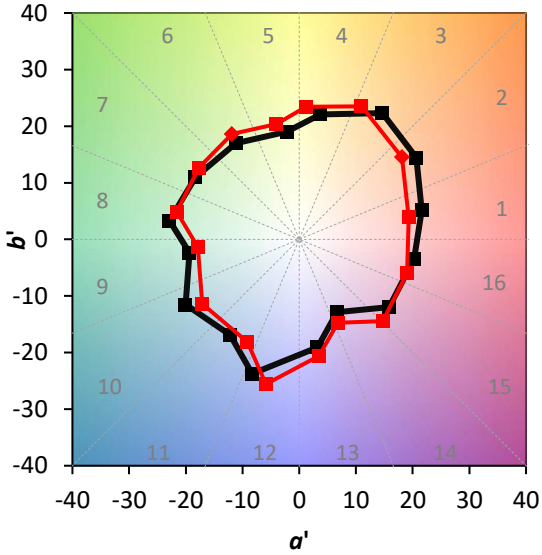
$R_f$ = 81.8
$R_g$ = 98.6
CIE $R_a$ = 80.2
$R_9$ = 6.7

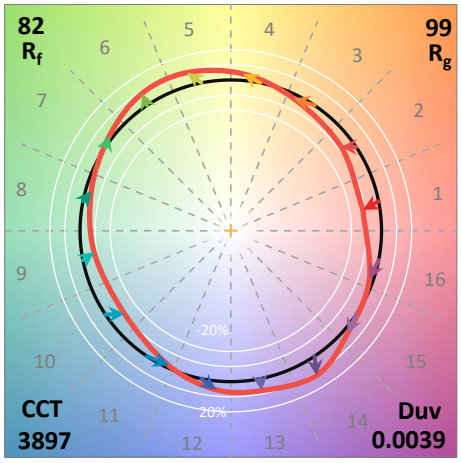
## Spectral Power Distribution Comparison

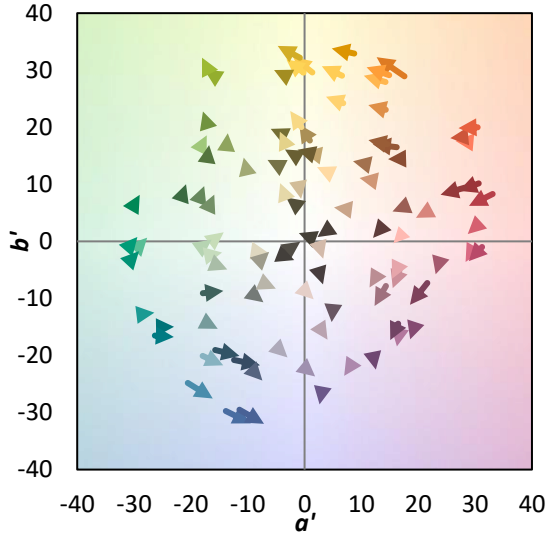



## Color Vector Graphics



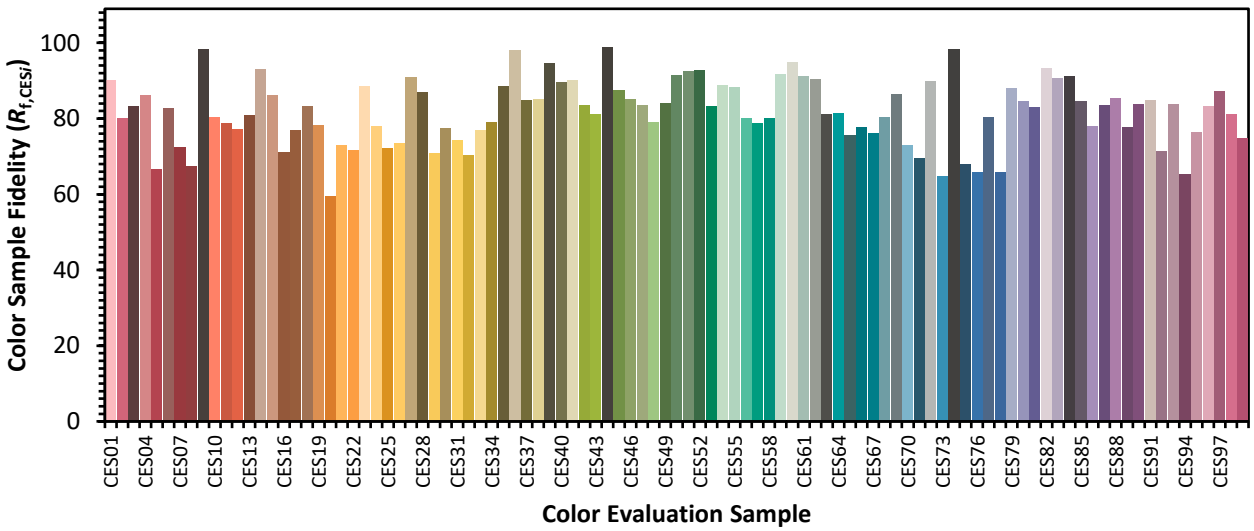



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# TM-30-18

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

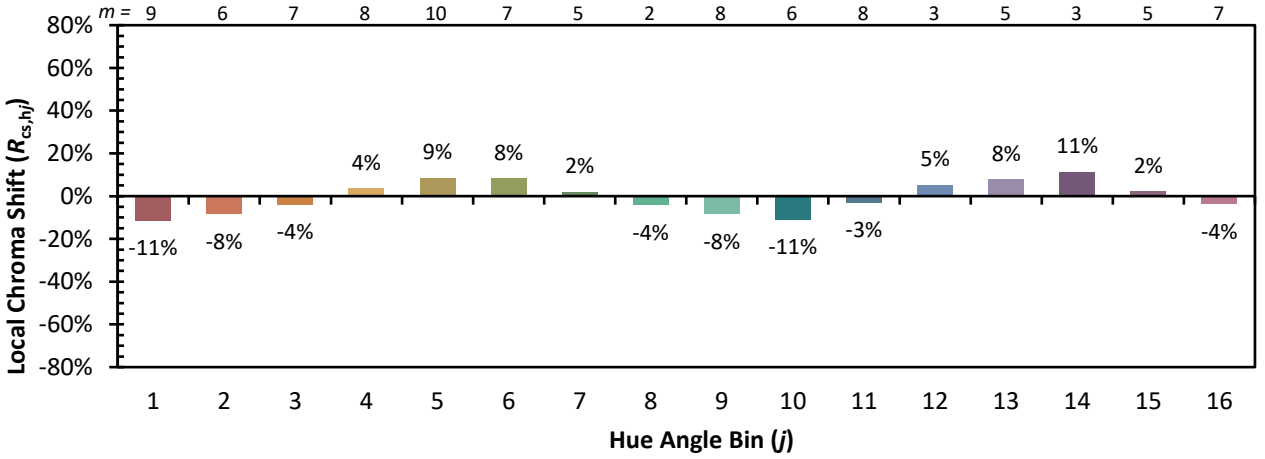
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 73 | CES51 = 93 | CES76 = 66 |
| CES02 = 61 | CES27 = 91 | CES52 = 93 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 83 | CES78 = 66 |
| CES04 = 69 | CES29 = 71 | CES54 = 89 | CES79 = 88 |
| CES05 = 48 | CES30 = 77 | CES55 = 88 | CES80 = 85 |
| CES06 = 50 | CES31 = 74 | CES56 = 80 | CES81 = 83 |
| CES07 = 41 | CES32 = 70 | CES57 = 79 | CES82 = 93 |
| CES08 = 40 | CES33 = 77 | CES58 = 80 | CES83 = 91 |
| CES09 = 29 | CES34 = 79 | CES59 = 92 | CES84 = 91 |
| CES10 = 74 | CES35 = 88 | CES60 = 95 | CES85 = 84 |
| CES11 = 57 | CES36 = 98 | CES61 = 91 | CES86 = 78 |
| CES12 = 63 | CES37 = 85 | CES62 = 90 | CES87 = 84 |
| CES13 = 42 | CES38 = 85 | CES63 = 81 | CES88 = 85 |
| CES14 = 74 | CES39 = 95 | CES64 = 81 | CES89 = 78 |
| CES15 = 71 | CES40 = 90 | CES65 = 76 | CES90 = 84 |
| CES16 = 47 | CES41 = 90 | CES66 = 78 | CES91 = 85 |
| CES17 = 49 | CES42 = 84 | CES67 = 76 | CES92 = 71 |
| CES18 = 56 | CES43 = 81 | CES68 = 80 | CES93 = 84 |
| CES19 = 71 | CES44 = 99 | CES69 = 86 | CES94 = 65 |
| CES20 = 65 | CES45 = 87 | CES70 = 73 | CES95 = 77 |
| CES21 = 86 | CES46 = 85 | CES71 = 70 | CES96 = 83 |
| CES22 = 78 | CES47 = 84 | CES72 = 90 | CES97 = 87 |
| CES23 = 91 | CES48 = 79 | CES73 = 65 | CES98 = 81 |
| CES24 = 90 | CES49 = 84 | CES74 = 98 | CES99 = 75 |
| CES25 = 71 | CES50 = 91 | CES75 = 68 | |

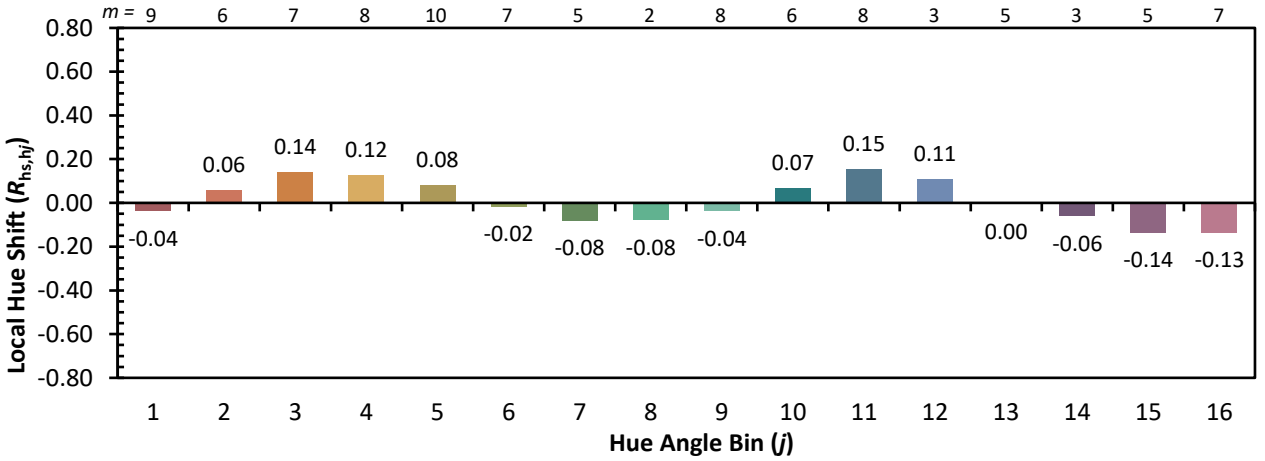


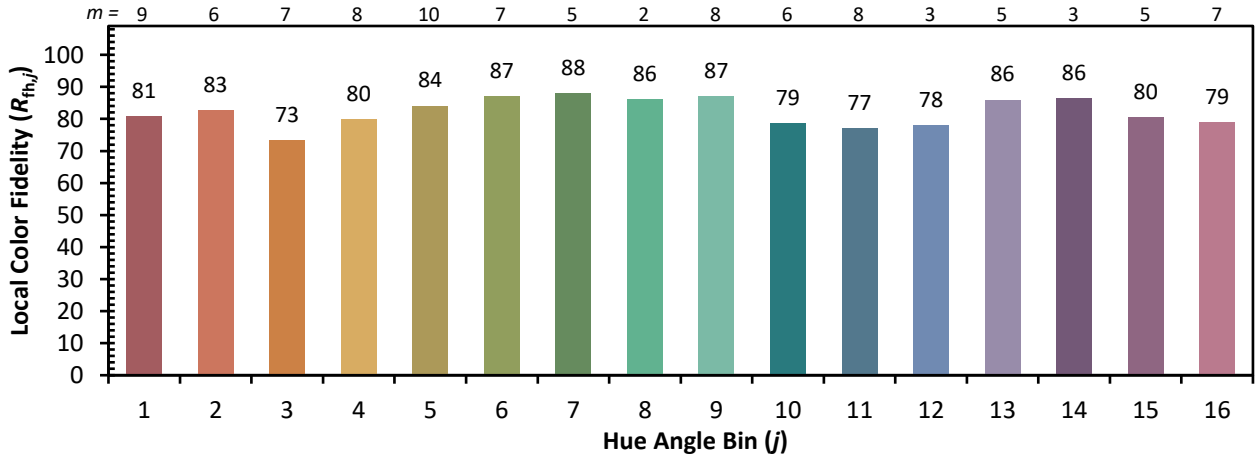
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## Color Rendition by Hue-Angle Bin



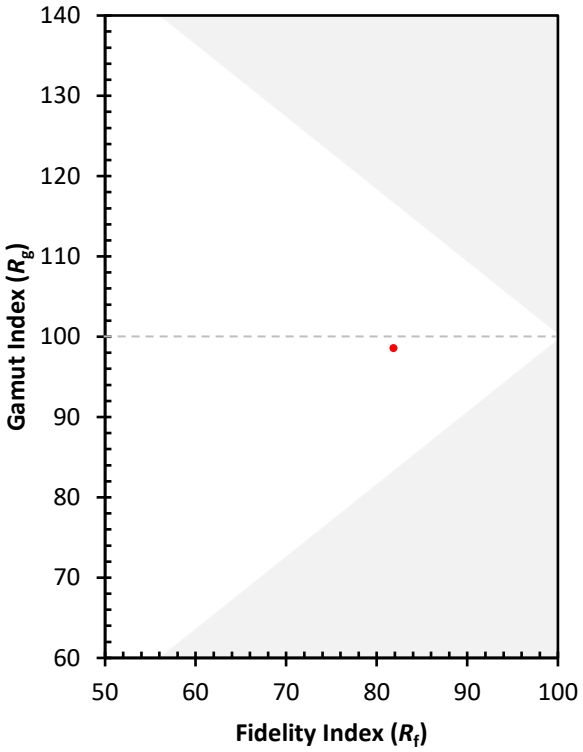



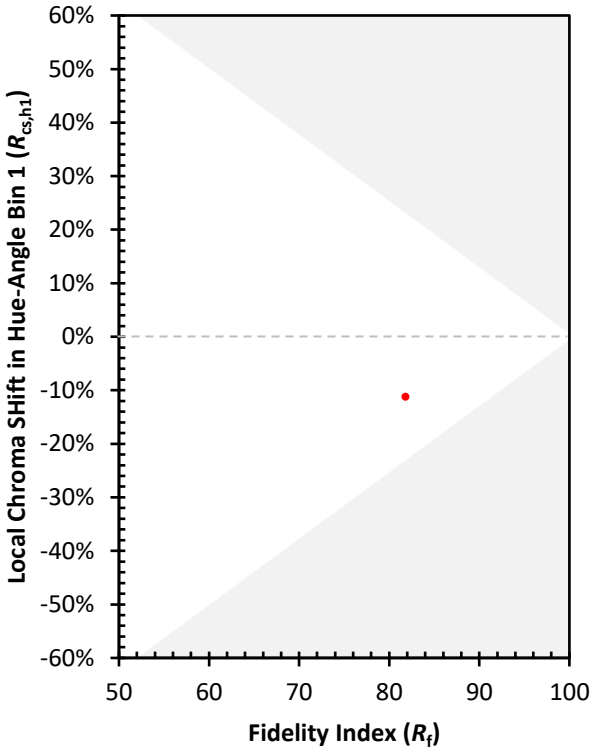



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## Measure Comparisons




(END OF REPORT)