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: P1200815

Luminaire Tested: GPC-SB2D-830-U-SL3

Issue Date: 10/30/2025

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P1200815 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2411-289-12) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/15/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GPC-SB2D-830-U-SL3 |
| Description: | GALLEON PEDESTRIAN LUMINAIRE |
| | (2) 80 CRI, 3000K, 900mA LIGHTSQUARES WITH 26 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 17867 lumens |
| Efficiency: | N/A |
| Efficacy: | 121.1 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.5' x H: 0') |
| IES Classification: | Type IV - Medium |
| BUG Rating: | B2 - U0 - G3 |

| | |
|---|---|
| Input Watts (W): | 147.6 |
| Input Voltage (V): | 120.0 |
| Input Current (Ain): | 1.234 |
| Voltage Rise (V): | NR |
| Power Factor: | 0.999 |
| Total Harmonic Distortion (THDi): | 3.108 |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

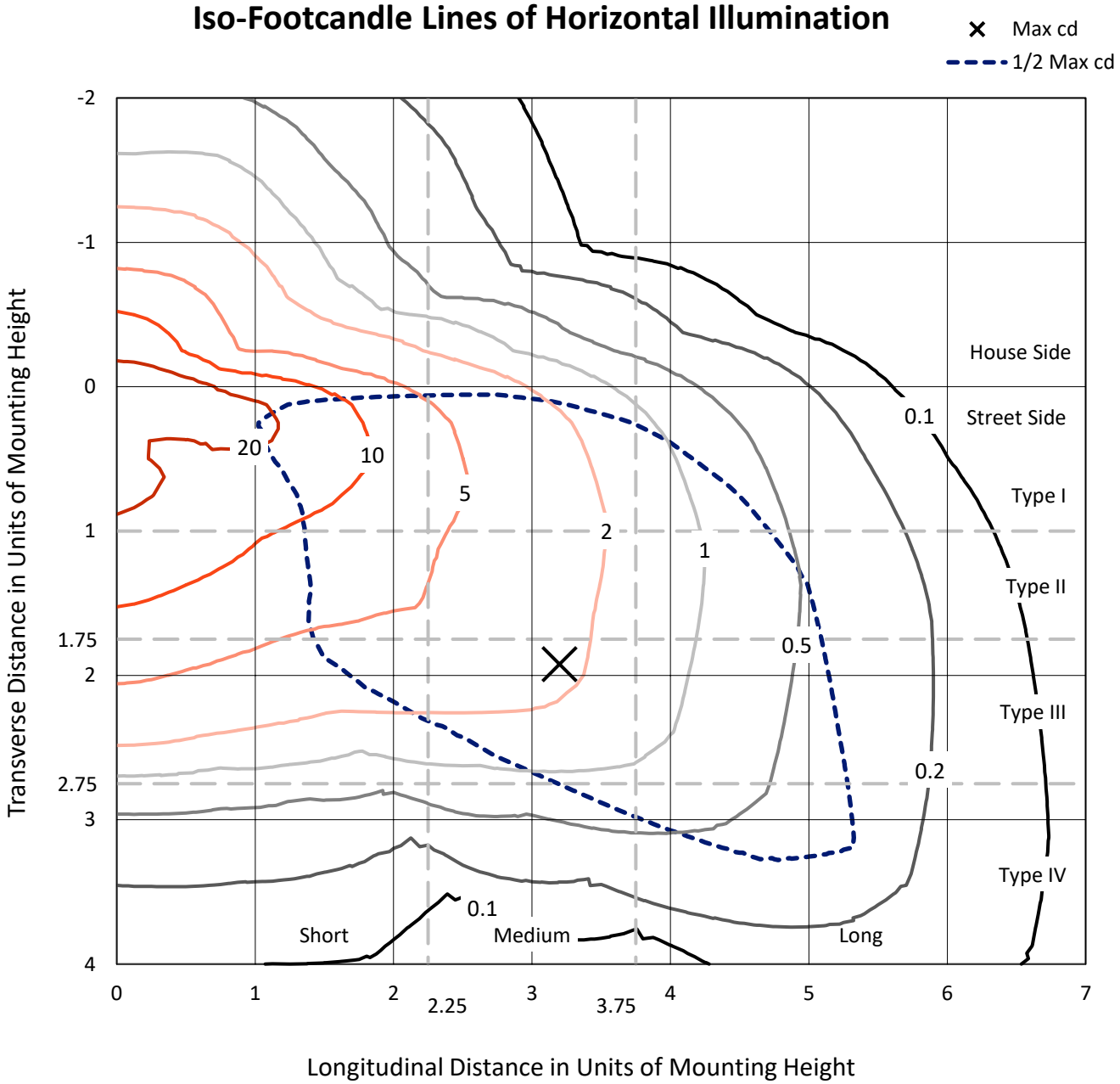


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REPORT NUMBER: P1200815
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## Iso-Footcandle Lines of Horizontal Illumination



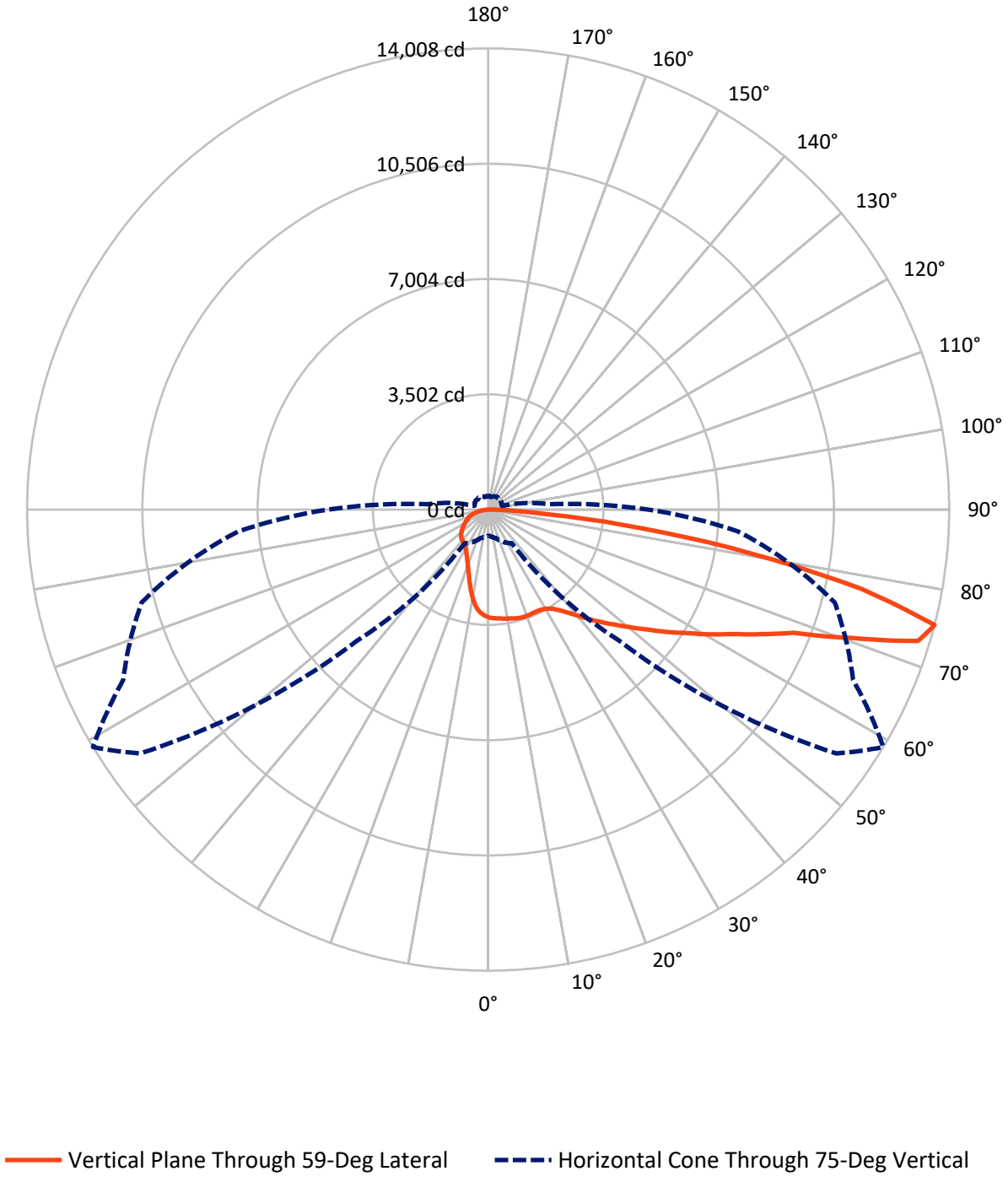

Based on 10 foot mounting height. Maximum calculated value = 32.8 fc
Type IV - Medium - N/A

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## Luminous Intensity Polar Plot



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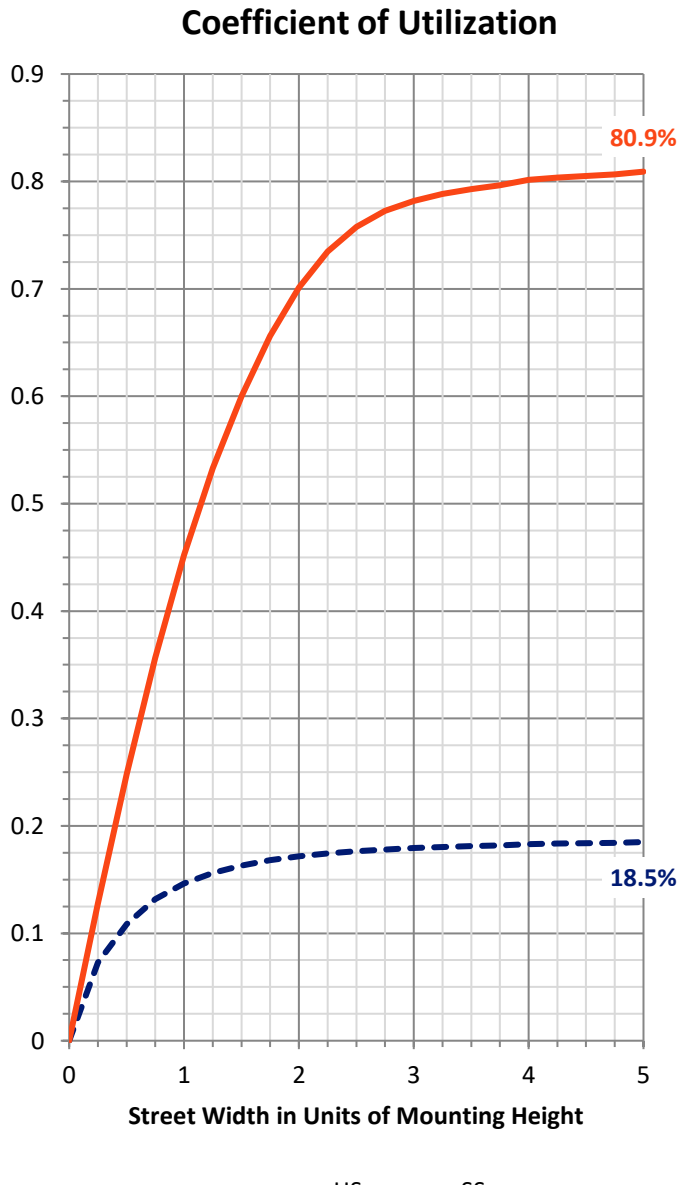
REPORT NUMBER: P1200815
CATALOG NUMBER: GPC-SB2D-830-U-SL3

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 3351.1 | 0.0 | 3351.1 |
| | % Fixture | 18.8 | 0.0 | 18.8 |
| **Street Side** | Lumens | 14515.9 | 0.0 | 14515.9 |
| | % Fixture | 81.2 | 0.0 | 81.2 |
| **Total** | Lumens | 17867.0 | 0.0 | 17867.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 294.1 | 1.6 |
| 10°-20° | 751.6 | 4.2 |
| 20°-30° | 1141.7 | 6.4 |
| 30°-40° | 1697.0 | 9.5 |
| 40°-50° | 2523.8 | 14.1 |
| 50°-60° | 3425.8 | 19.2 |
| 60°-70° | 4182.3 | 23.4 |
| 70°-80° | 3282.2 | 18.4 |
| 80°-90° | 568.6 | 3.2 |
| 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° | 17867.0 | 100.0 |
| 0°-180° | 17867.0 | 100.0 |



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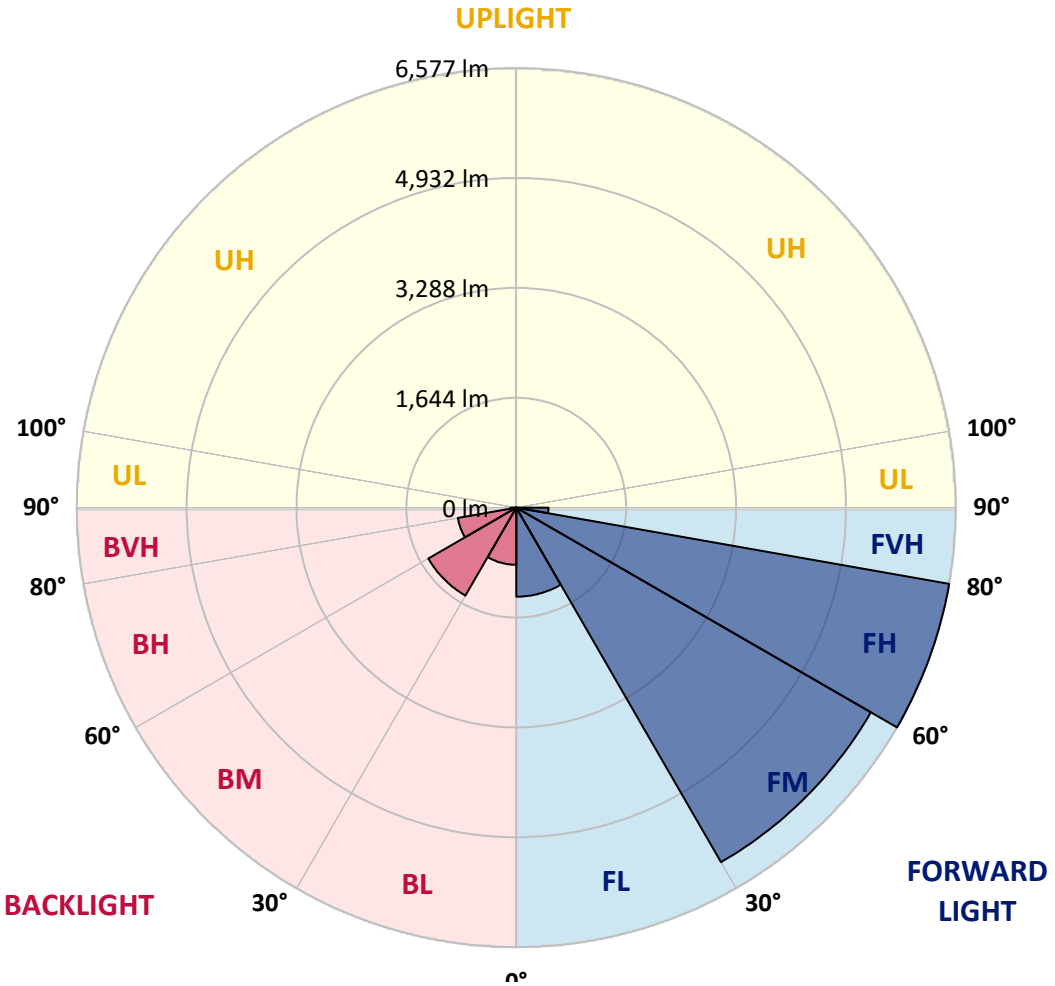
Scaled Data Report

REPORT NUMBER: P1200815
CATALOG NUMBER: GPC-SB2D-830-U-SL3

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1332.2 | 7.5 | | | |
| FM | (30°-60°) | 6125.5 | 34.3 | | | |
| FH | (60°-80°) | 6576.7 | 36.8 | | | G3/7500 |
| FVH | (80°-90°) | 481.5 | 2.7 | | | G3/500 |
| BL | (0°-30°) | 855.2 | 4.8 | B2/1000 | | |
| BM | (30°-60°) | 1521.1 | 8.5 | B2/2500 | | |
| BH | (60°-80°) | 887.8 | 5.0 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 87.0 | 0.5 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B2-U0-G3**
Type IV Medium



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | *3279.4* | 3279.4 | 3279.4 | 3279.4 |
| 2.5° | 3307.3 | 3295.8 | 3307.3 | 3302.5 | 3300.6 | 3296.7 | 3297.7 | *3304.4* | 3300.6 | 3305.4 | 3289.1 |
| 5° | 3285.2 | 3278.5 | 3290.0 | 3287.1 | 3299.6 | 3301.6 | 3314.0 | *3321.7* | 3326.5 | 3327.5 | 3315.0 |
| 7.5° | 3248.7 | 3242.0 | 3258.3 | 3271.8 | 3298.7 | 3306.4 | 3332.3 | *3344.8* | 3351.5 | 3363.1 | 3344.8 |
| 10° | 3115.1 | 3112.2 | 3152.6 | 3203.5 | 3267.0 | 3306.4 | 3345.8 | *3366.9* | 3377.5 | 3408.2 | 3387.1 |
| 12.5° | 2878.6 | 2882.5 | 2935.4 | 3033.4 | 3160.3 | 3287.1 | 3361.1 | *3391.9* | 3408.2 | 3446.7 | 3437.1 |
| 15° | 2652.8 | 2651.8 | 2709.5 | 2814.3 | 2992.1 | 3202.6 | 3368.8 | *3421.7* | 3449.6 | 3506.3 | 3498.6 |
| 17.5° | 2522.1 | 2518.2 | 2558.6 | 2638.4 | 2803.7 | 3072.8 | 3349.6 | *3438.0* | 3497.6 | 3568.8 | 3562.0 |
| 20° | 2498.0 | 2490.3 | 2511.5 | 2550.9 | 2668.2 | 2930.6 | 3299.6 | *3438.0* | 3536.1 | 3628.3 | 3624.5 |
| 22.5° | 2585.5 | 2573.0 | 2564.4 | 2559.5 | 2611.4 | 2813.3 | 3242.9 | *3426.5* | 3592.8 | 3713.9 | 3707.2 |
| 25° | 2761.4 | 2742.2 | 2698.0 | 2654.7 | 2639.3 | 2760.4 | 3192.9 | *3423.6* | 3677.4 | 3829.2 | 3804.2 |
| 27.5° | 3045.9 | 3021.9 | 2932.5 | 2828.7 | 2735.4 | 2787.3 | 3170.8 | *3440.9* | 3770.6 | 3951.3 | 3901.3 |
| 30° | 3398.6 | 3372.7 | 3260.2 | 3100.7 | 2933.4 | 2887.3 | 3198.7 | *3491.9* | 3889.8 | 4113.7 | 4015.7 |
| 32.5° | 3714.8 | 3686.0 | 3589.9 | 3427.5 | 3201.6 | 3060.3 | 3287.1 | *3588.9* | 4077.2 | 4339.6 | 4187.7 |
| 35° | 3995.5 | 3961.9 | 3875.4 | 3725.4 | 3530.3 | 3303.5 | 3446.7 | *3761.0* | 4343.4 | 4706.8 | 4421.3 |
| 37.5° | 4270.4 | 4231.0 | 4136.8 | 3978.2 | 3841.7 | 3627.4 | 3666.8 | *3982.0* | 4697.1 | 5152.7 | 4730.8 |
| 40° | 4578.0 | 4521.3 | 4406.9 | 4250.2 | 4117.6 | 4007.0 | 3956.1 | *4253.1* | 5056.6 | 5650.6 | 5117.2 |
| 42.5° | 4875.9 | 4822.1 | 4685.6 | 4552.0 | 4385.7 | 4354.0 | 4291.5 | *4570.3* | 5449.7 | 6197.5 | 5509.3 |
| 45° | 5196.9 | 5132.5 | 4967.2 | 4798.1 | 4693.3 | 4584.7 | 4616.4 | *4887.5* | 5835.1 | 6755.0 | 5920.7 |
| 47.5° | 5497.8 | 5425.7 | 5230.6 | 5042.2 | 4984.5 | 4778.8 | 4914.4 | *5236.4* | 6235.9 | 7320.1 | 6328.2 |
| 50° | 5660.2 | 5589.1 | 5426.7 | 5256.5 | 5211.4 | 5018.2 | 5237.3 | *5619.9* | 6656.0 | 7883.4 | 6719.4 |
| 52.5° | 5795.7 | 5718.8 | 5506.4 | 5412.2 | 5398.8 | 5278.6 | 5635.2 | *6058.1* | 7076.0 | 8381.2 | 7097.1 |
| 55° | 5939.9 | 5854.4 | 5583.3 | 5498.7 | 5560.3 | 5570.8 | 6107.2 | *6555.1* | 7520.0 | 8866.6 | 7453.7 |
| 57.5° | 6106.2 | 5997.6 | 5657.3 | 5571.8 | 5717.9 | 5913.0 | 6649.2 | *7070.2* | 7956.4 | 9316.4 | 7770.9 |
| 60° | 6262.9 | 6153.3 | 5799.6 | 5688.1 | 5888.0 | 6310.0 | 7271.1 | *7694.0* | 8450.4 | 9717.2 | 8070.8 |
| 62.5° | 6293.6 | 6203.3 | 5913.0 | 5912.0 | 6118.7 | 6773.2 | 8007.4 | *8323.6* | 8882.0 | 10113.2 | 8339.9 |
| 65° | 5761.1 | 5704.4 | 5532.4 | 5903.4 | 6449.3 | 7440.3 | 8827.2 | *9129.0* | 9430.8 | 10459.2 | 8576.4 |
| 67.5° | 4384.8 | 4392.5 | 4380.0 | 5096.0 | 6182.1 | 8398.5 | 10014.2 | *9991.2* | 10108.4 | 10847.6 | 8848.4 |
| 70° | 2005.0 | 2050.1 | 2344.2 | 3517.8 | 4952.8 | 8509.1 | 11976.9 | *11678.0* | 10959.0 | 11350.2 | 9083.8 |
| 72.5° | 1083.2 | 1117.8 | 1238.0 | 1704.1 | 2977.6 | 7565.2 | 13443.6 | *13656.0* | 12090.3 | 11688.6 | 8825.3 |
| 75° | *794.9* | *814.1* | *897.7* | *1083.2* | *1250.5* | *5622.7* | *12917.9* | *14007.8* | *12231.6* | *10899.5* | *7621.0* |
| 77.5° | 595.0 | 603.6 | 671.8 | 858.3 | 640.1 | 2964.2 | 10321.8 | *11601.1* | 10470.8 | 8955.0 | 5629.5 |
| 80° | 431.6 | 441.2 | 492.1 | 644.0 | 448.9 | 1084.2 | 7087.5 | *8142.9* | 7171.1 | 5708.3 | 2805.6 |
| 82.5° | 298.0 | 301.8 | 323.9 | 438.3 | 313.3 | 421.0 | 4021.5 | *4775.0* | 4003.2 | 2003.0 | 757.4 |
| 85° | 179.7 | 184.5 | 194.2 | 255.7 | 177.8 | 199.9 | 1735.8 | *1795.4* | 1196.6 | 478.7 | 235.5 |
| 87.5° | 74.0 | 78.8 | 86.5 | 107.6 | 70.2 | 55.7 | 286.4 | *359.5* | 223.9 | 140.3 | 73.0 |
| 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: P1200815
CATALOG NUMBER: GPC-SB2D-830-U-SL3

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 | 3279.4 |
| 2.5° | 3284.3 | 3277.5 | 3259.3 | 3234.3 | 3211.2 | 3182.4 | 3169.9 | 3159.3 | 3149.7 | 3131.4 | 3122.8 |
| 5° | 3304.4 | 3286.2 | 3237.2 | 3173.7 | 3101.6 | 3022.8 | 2945.9 | 2893.1 | 2847.9 | 2814.3 | 2786.4 |
| 7.5° | 3335.2 | 3300.6 | 3211.2 | 3081.5 | 2916.1 | 2747.0 | 2594.1 | 2485.5 | 2403.8 | 2374.0 | 2322.1 |
| 10° | 3366.9 | 3325.6 | 3169.9 | 2941.1 | 2655.7 | 2395.2 | 2192.4 | 2080.9 | 2015.5 | 1994.4 | 1961.7 |
| 12.5° | 3404.4 | 3343.8 | 3105.5 | 2746.0 | 2364.4 | 2079.0 | 1902.1 | 1836.8 | 1803.1 | 1791.6 | 1794.5 |
| 15° | 3459.2 | 3359.2 | 3008.4 | 2501.9 | 2086.7 | 1848.3 | 1733.9 | 1688.7 | 1671.4 | 1670.5 | 1674.3 |
| 17.5° | 3500.5 | 3362.1 | 2857.5 | 2240.4 | 1873.3 | 1708.9 | 1614.7 | 1597.4 | 1609.0 | 1626.3 | 1633.0 |
| 20° | 3546.6 | 3336.2 | 2659.5 | 2002.1 | 1723.3 | 1586.9 | 1547.5 | 1559.0 | 1586.9 | 1611.9 | 1620.5 |
| 22.5° | 3579.3 | 3289.1 | 2420.2 | 1816.6 | 1593.6 | 1516.7 | 1514.8 | 1538.8 | 1554.2 | 1566.7 | 1573.4 |
| 25° | 3608.2 | 3209.3 | 2166.4 | 1660.9 | 1486.9 | 1474.4 | 1495.6 | 1487.9 | 1477.3 | 1487.9 | 1494.6 |
| 27.5° | 3629.3 | 3083.4 | 1939.6 | 1524.4 | 1411.9 | 1445.6 | 1433.1 | 1415.8 | 1414.8 | 1420.6 | 1430.2 |
| 30° | 3622.6 | 2915.2 | 1753.1 | 1394.6 | 1359.1 | 1391.7 | 1362.0 | 1359.1 | 1356.2 | 1359.1 | 1369.6 |
| 32.5° | 3622.6 | 2723.9 | 1609.9 | 1305.2 | 1325.4 | 1312.9 | 1310.0 | 1303.3 | 1291.8 | 1290.8 | 1303.3 |
| 35° | 3642.8 | 2532.6 | 1486.9 | 1257.2 | 1297.6 | 1267.8 | 1269.7 | 1253.3 | 1229.3 | 1217.8 | 1229.3 |
| 37.5° | 3684.1 | 2378.8 | 1364.8 | 1234.1 | 1248.5 | 1247.6 | 1239.9 | 1212.0 | 1169.7 | 1133.2 | 1145.7 |
| 40° | 3784.1 | 2333.7 | 1281.2 | 1223.5 | 1225.5 | 1237.0 | 1216.8 | 1163.0 | 1066.9 | 1007.3 | 1015.0 |
| 42.5° | 3940.7 | 2409.6 | 1263.0 | 1197.6 | 1210.1 | 1221.6 | 1182.2 | 1057.3 | 989.0 | 953.5 | 953.5 |
| 45° | 4139.7 | 2542.2 | 1302.4 | 1160.1 | 1173.6 | 1193.7 | 1076.5 | 1016.9 | 986.1 | 987.1 | 991.9 |
| 47.5° | 4391.5 | 2681.6 | 1375.4 | 1127.4 | 1120.7 | 1132.2 | 1006.3 | 969.8 | 927.5 | 938.1 | 965.0 |
| 50° | 4682.7 | 2822.9 | 1444.6 | 1083.2 | 1062.1 | 1024.6 | 961.2 | 926.5 | 872.7 | 847.7 | 854.5 |
| 52.5° | 4998.0 | 2959.4 | 1472.5 | 1029.4 | 998.6 | 955.4 | 930.4 | 888.1 | 822.7 | 781.4 | 780.5 |
| 55° | 5296.9 | 3083.4 | 1441.7 | 965.0 | 935.2 | 901.6 | 897.7 | 871.8 | 801.6 | 743.9 | 743.9 |
| 57.5° | 5579.5 | 3187.2 | 1364.8 | 899.6 | 870.8 | 850.6 | 876.6 | 864.1 | 775.6 | 701.6 | 697.8 |
| 60° | 5818.8 | 3258.3 | 1253.3 | 833.3 | 813.1 | 802.6 | 842.0 | 838.1 | 739.1 | 656.5 | 653.6 |
| 62.5° | 6009.1 | 3286.2 | 1130.3 | 769.9 | 765.1 | 745.9 | 793.9 | 793.9 | 693.0 | 612.3 | 609.4 |
| 65° | 6158.1 | 3259.3 | 1005.4 | 707.4 | 717.0 | 688.2 | 735.3 | 729.5 | 644.0 | 572.8 | 569.0 |
| 67.5° | 6289.8 | 3170.8 | 867.0 | 645.9 | 668.0 | 631.5 | 673.8 | 660.3 | 590.1 | 533.4 | 529.6 |
| 70° | 6348.4 | 2965.2 | 709.3 | 584.4 | 611.3 | 575.7 | 612.3 | 587.3 | 529.6 | 491.1 | 483.5 |
| 72.5° | 5877.4 | 2464.4 | 558.4 | 520.0 | 543.1 | 514.2 | 545.9 | 517.1 | 464.2 | 446.9 | 432.5 |
| 75° | *4862.5* | *1849.3* | *429.6* | *449.8* | *467.1* | *445.0* | *466.2* | *445.0* | *397.0* | *409.5* | *373.9* |
| 77.5° | 3531.3 | 1248.5 | 328.7 | 375.8 | 383.5 | 372.0 | 390.2 | 366.2 | 322.9 | 320.1 | 305.6 |
| 80° | 1756.0 | 731.4 | 257.6 | 297.0 | 294.1 | 286.4 | 307.6 | 296.0 | 259.5 | 274.9 | 272.0 |
| 82.5° | 508.4 | 313.3 | 187.4 | 208.6 | 202.8 | 204.7 | 220.1 | 225.9 | 338.3 | 335.4 | 343.1 |
| 85° | 159.6 | 123.0 | 112.5 | 116.3 | 110.5 | 113.4 | 129.8 | 257.6 | 238.4 | 139.4 | 150.9 |
| 87.5° | 41.3 | 42.3 | 27.9 | 29.8 | 30.8 | 36.5 | 41.3 | 156.7 | 75.0 | 49.0 | 51.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |


HS
SS

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Peachtree City, GA 30269

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

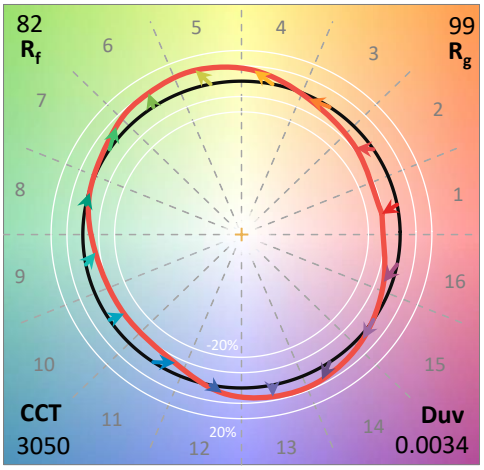
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2408-195-9 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 08/07/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | MCGRAW EDISON |
| Catalog Number: | **GALN-SB1A-830-U-5WQ** |
| Description: | GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3050 | CRI (Ra): | 81.0 | | |
| CIE u': | 0.2476 | R1: | 79.6 | R9: | 7.1 |
| CIE v': | 0.5251 | R2: | 85.6 | R10: | 67.0 |
| Duv: | 0.0034 | R3: | 92.0 | R11: | 82.7 |
| CIE x: | 0.4383 | R4: | 82.6 | R12: | 63.2 |
| CIE y: | 0.4131 | R5: | 78.9 | R13: | 80.3 |
| CIE z: | 0.1487 | R6: | 81.7 | R14: | 95.0 |
| Peak Wavelength (nm): | 603 | R7: | 85.2 | R15: | 71.7 |
| Dominant Wavelength (nm): | 581 | R8: | 62.0 | | |
| Purity: | 55.55201 | | | | |

| | |
|---|---|
| Rf: | 81.5 |
| Rg: | 99.2 |




## Test Conditions

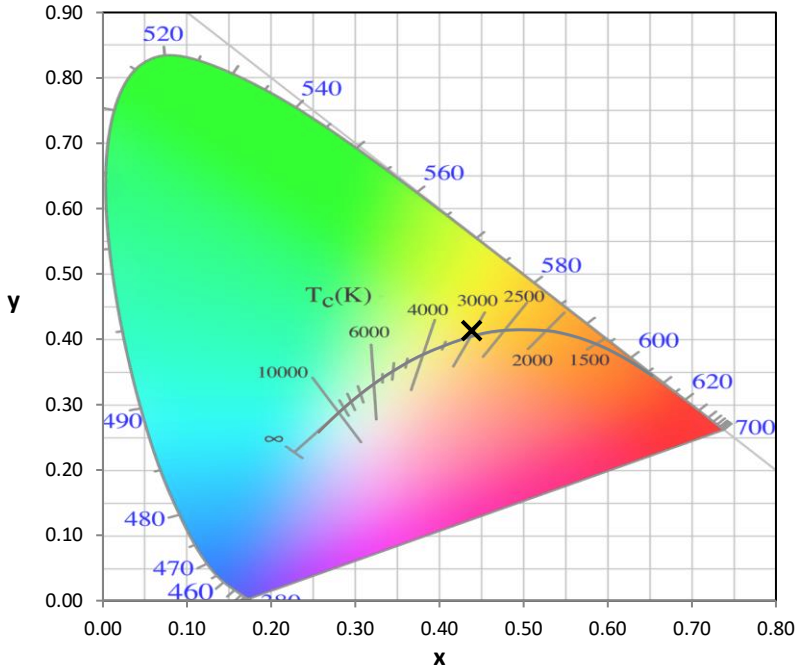
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 24.2 |

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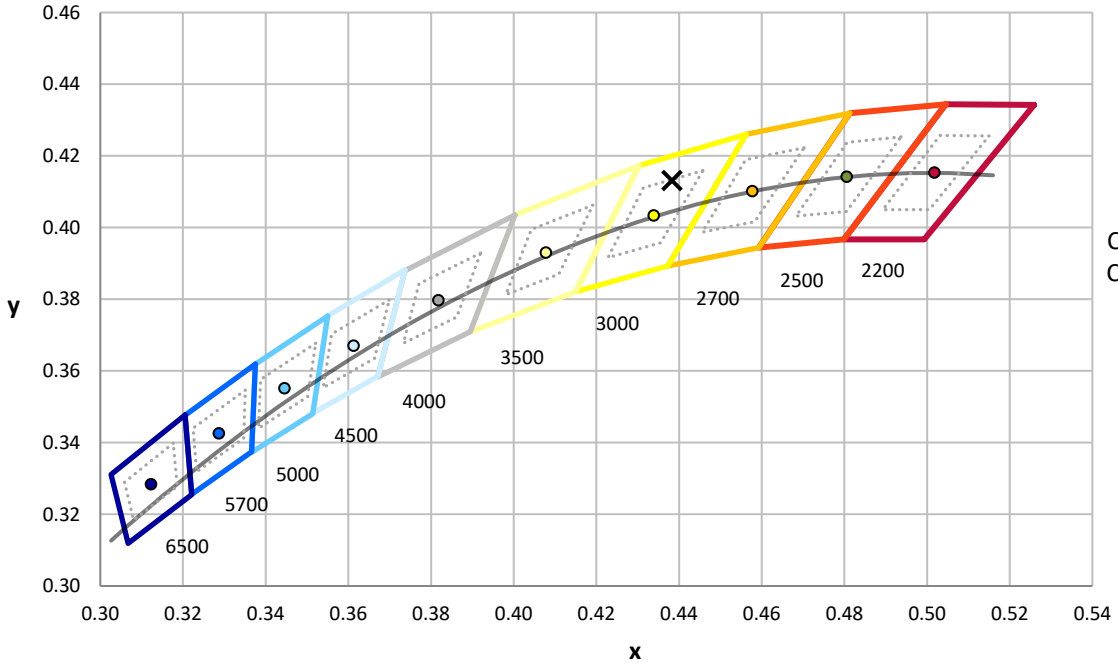
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

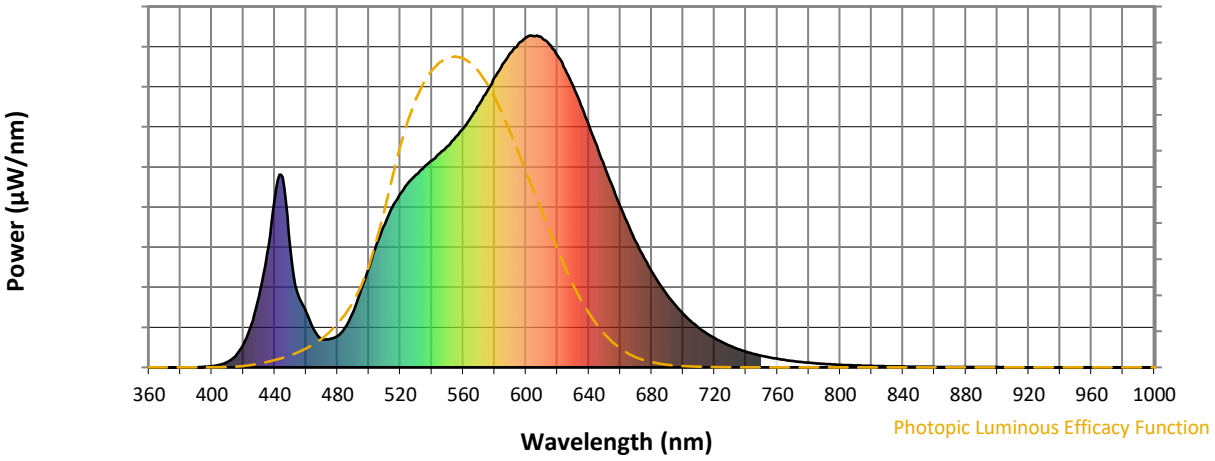



CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

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## Photopic Flux vs. Wavelength

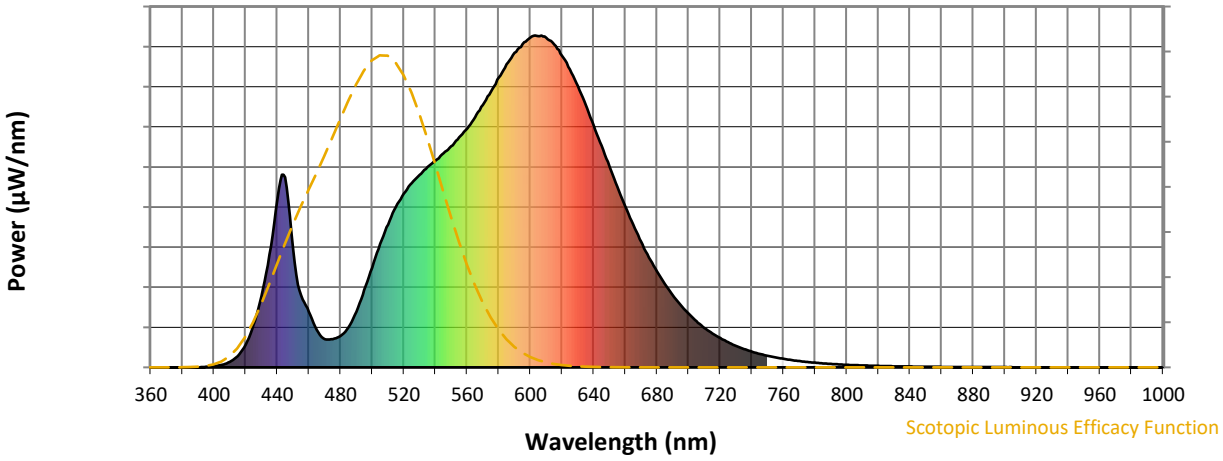



## Photopic Lumens: NR

| 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 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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## Scotopic Flux vs. Wavelength

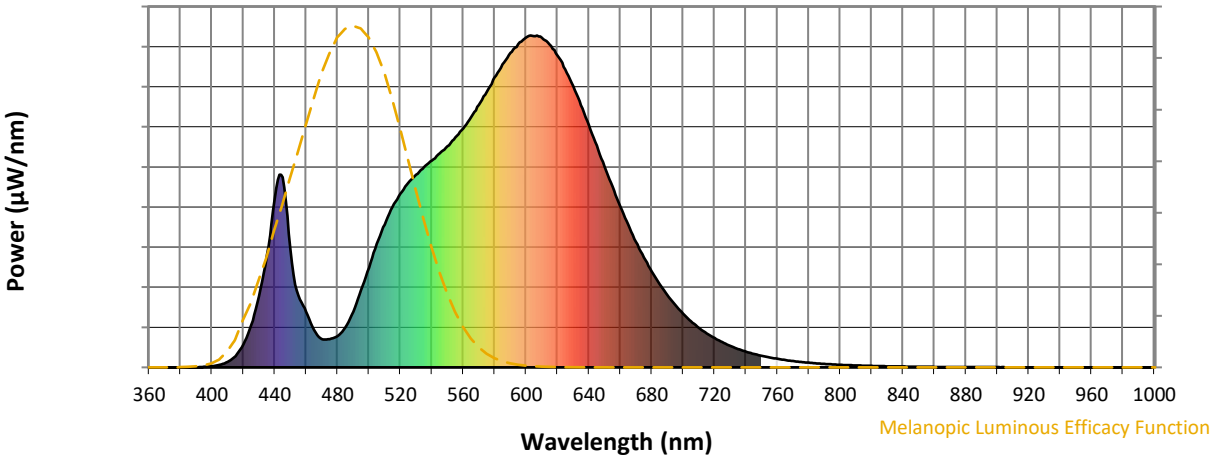



**Scotopic Lumens: NR** **S/P: 1.27**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.32**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

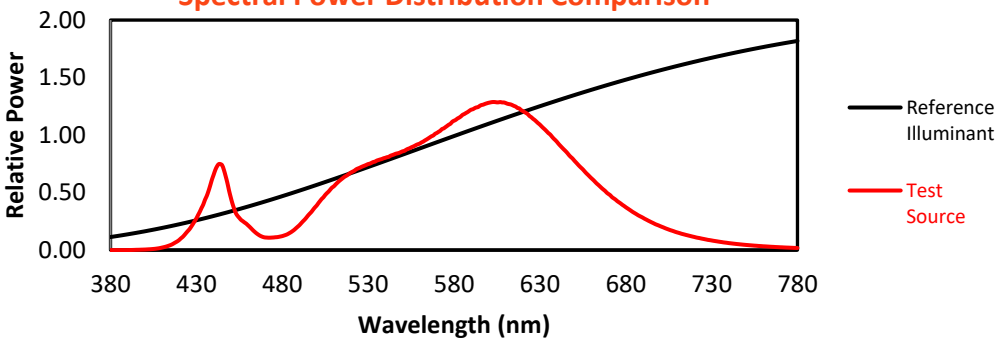
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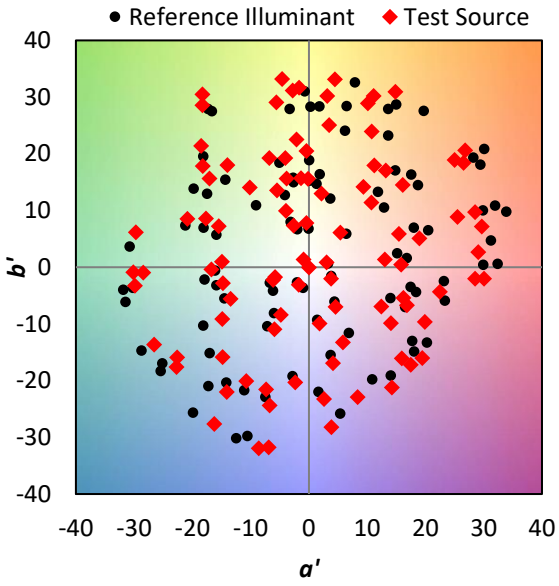
## Summary

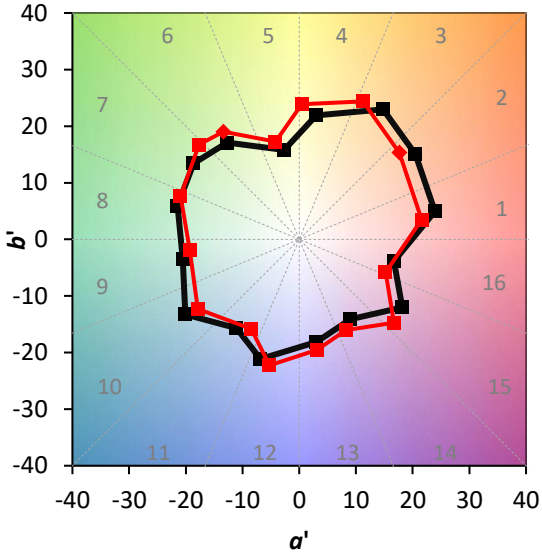
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

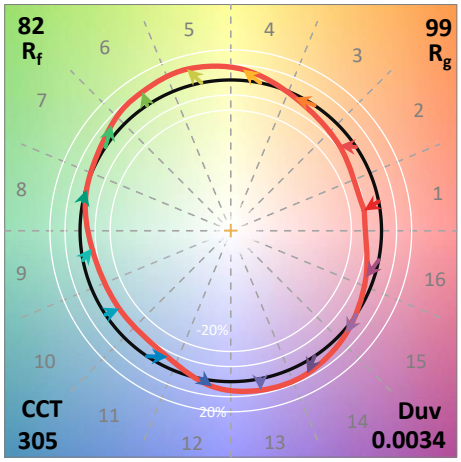
## Spectral Power Distribution Comparison

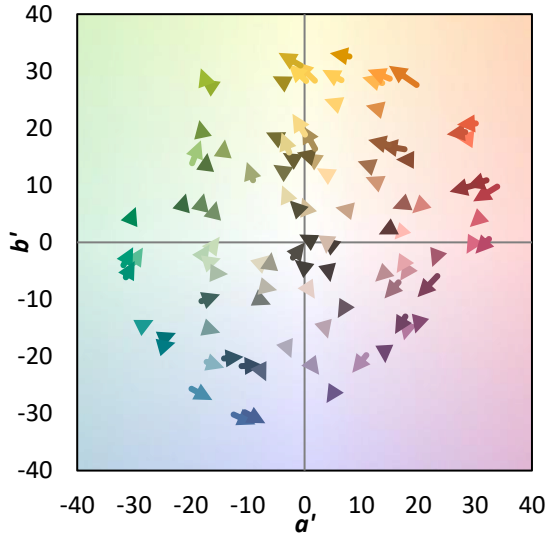



## Color Vector Graphics



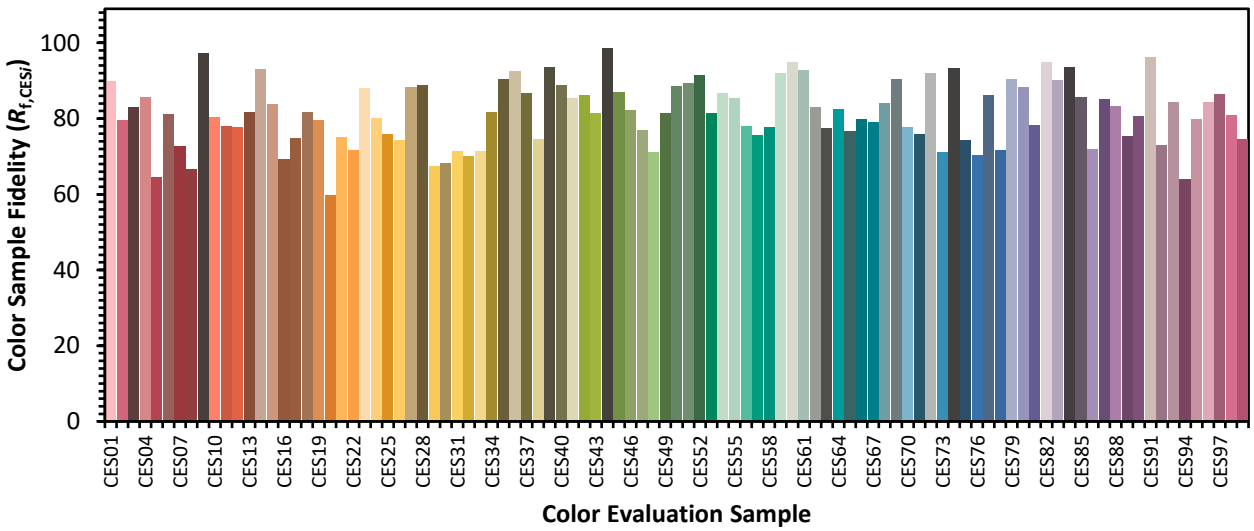



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**Individual Sample Fidelity Index ($R_{f,i}$)**

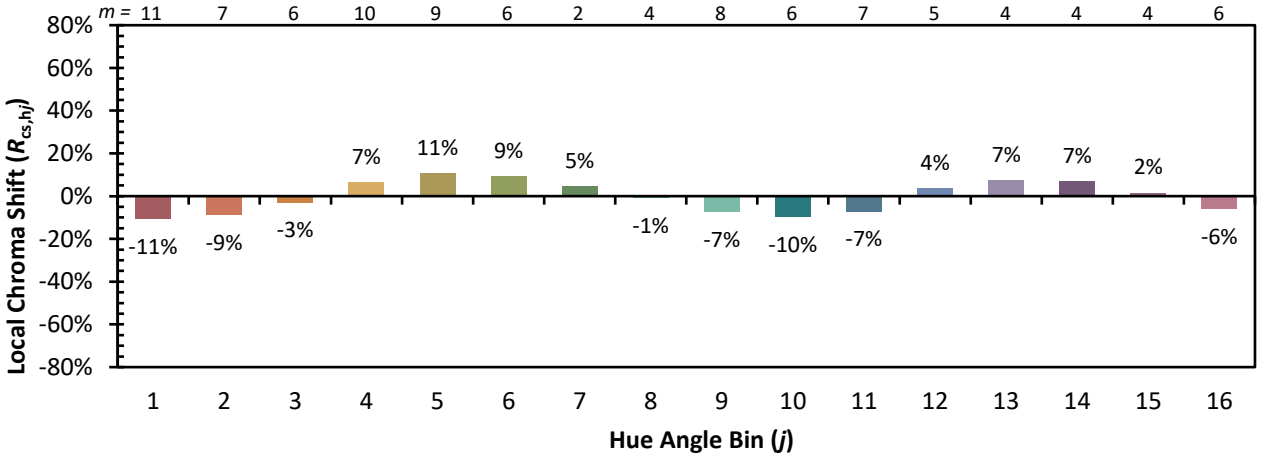
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |

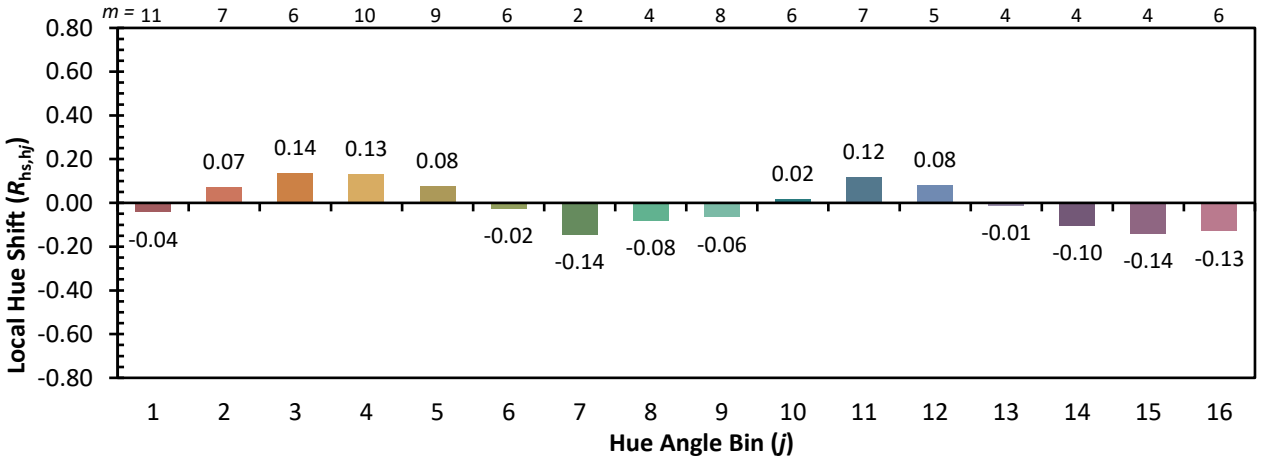


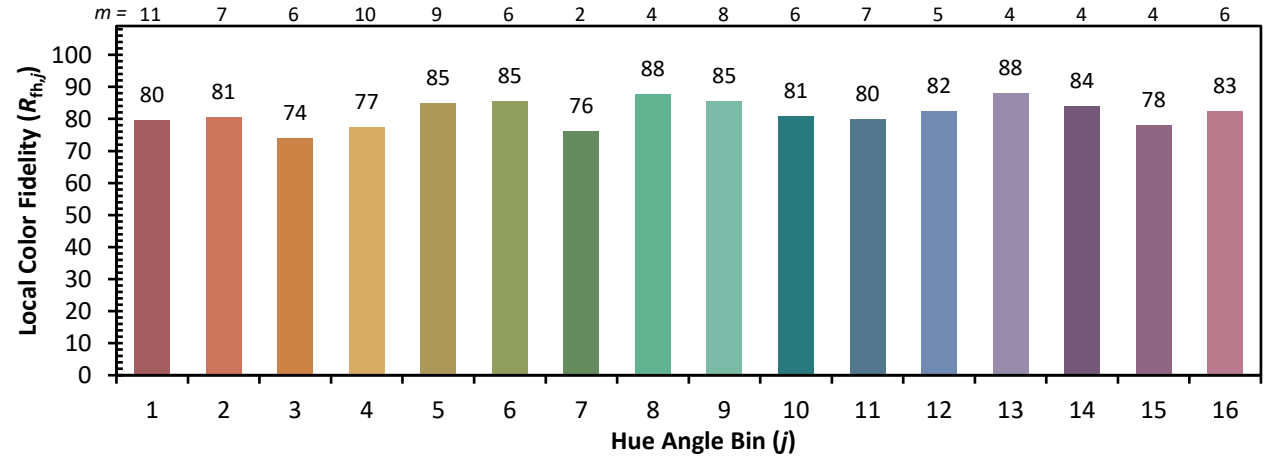
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## Color Rendition by Hue-Angle Bin



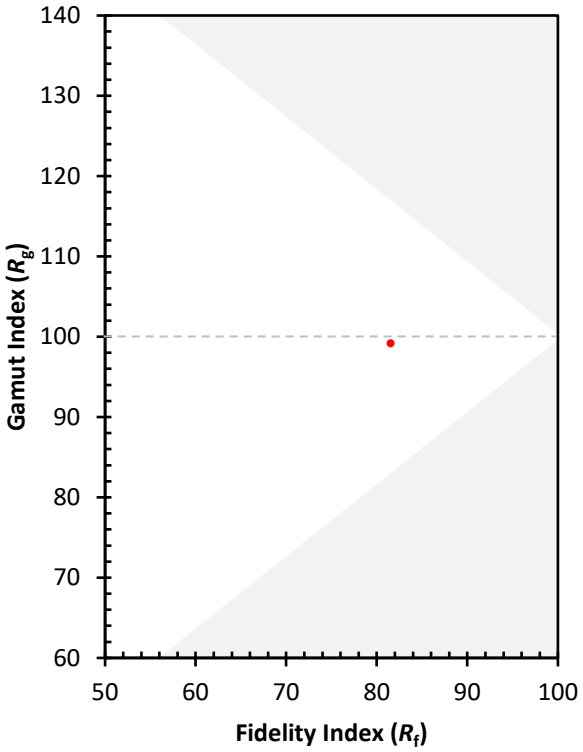



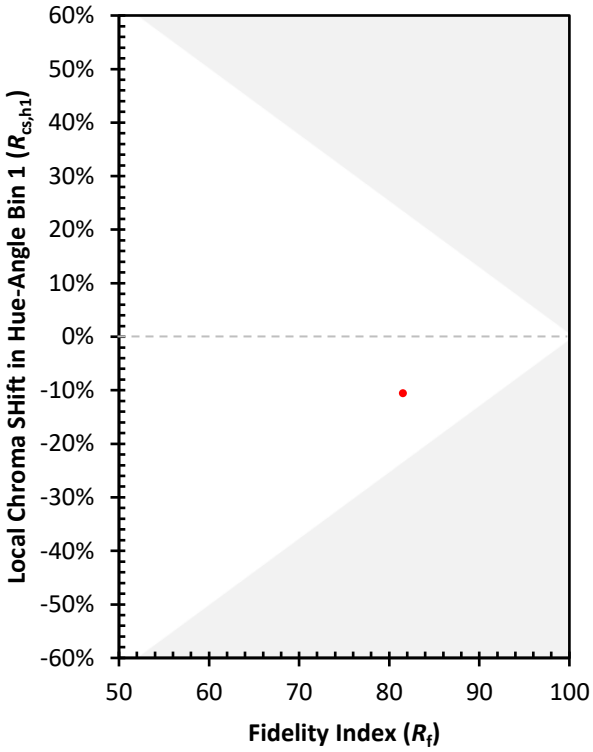



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## Measure Comparisons




(END OF REPORT)