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: P1199388

Luminaire Tested: GPC-SB2A-830-U-SL4-HSS

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: | P1199388 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2405-108-10) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/15/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GPC-SB2A-830-U-SL4-HSS |
| Description: | GALLEON PEDESTRIAN LUMINAIRE |
| | (2) 80 CRI, 3000K, 350mA LIGHTSQUARES WITH 26 LEDS EACH AND TYPE IV SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 5626 lumens |
| Efficiency: | N/A |
| Efficacy: | 98.2 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.5' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B1 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 57.3 |
| Input Voltage (V): | 120.0 |
| Input Current (Ain): | 0.484 |
| Voltage Rise (V): | NR |
| Power Factor: | 0.994 |
| Total Harmonic Distortion (THDi): | 9.038 |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

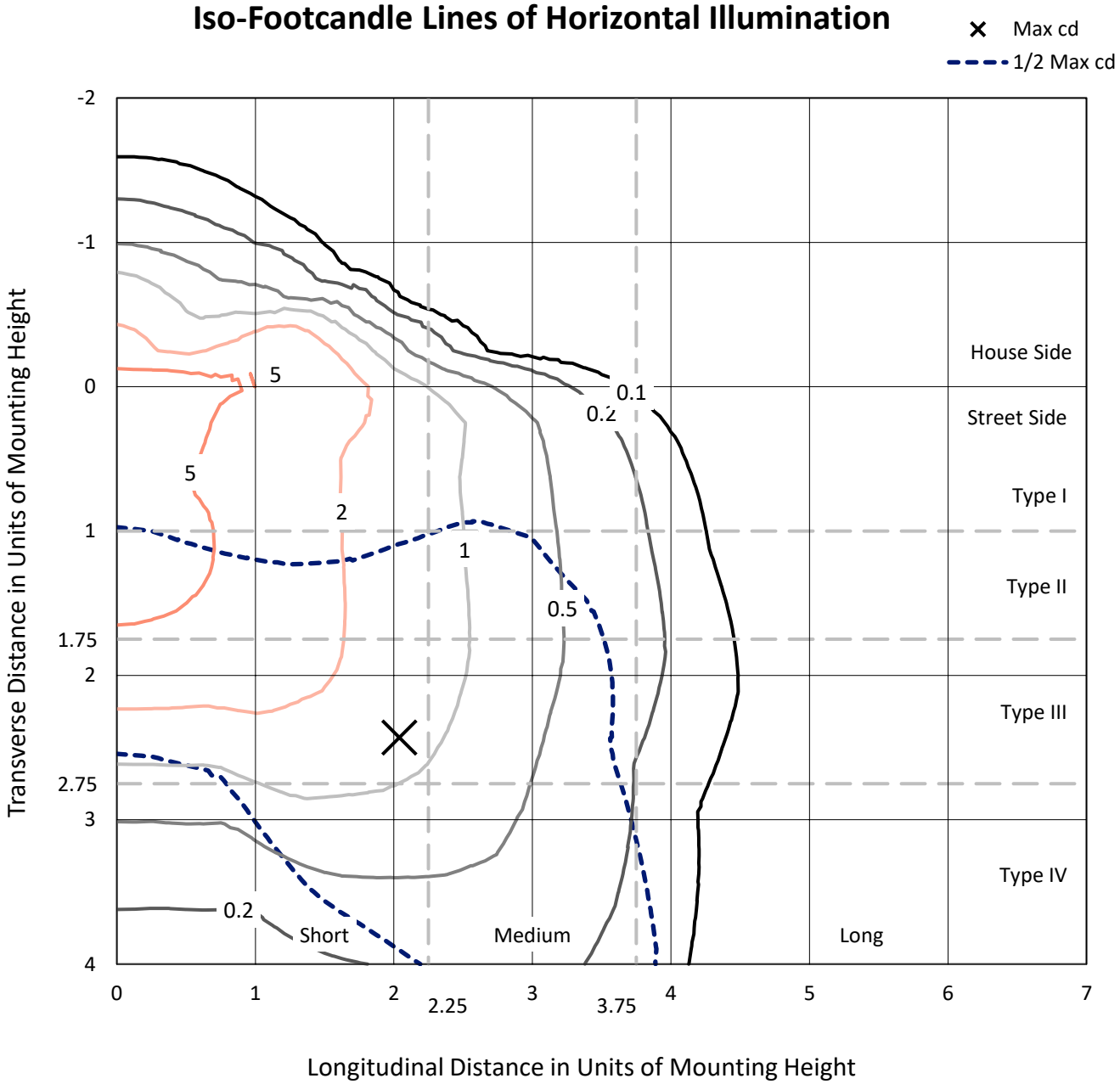


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Scaled Data Report

REPORT NUMBER: P1199388
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## Iso-Footcandle Lines of Horizontal Illumination



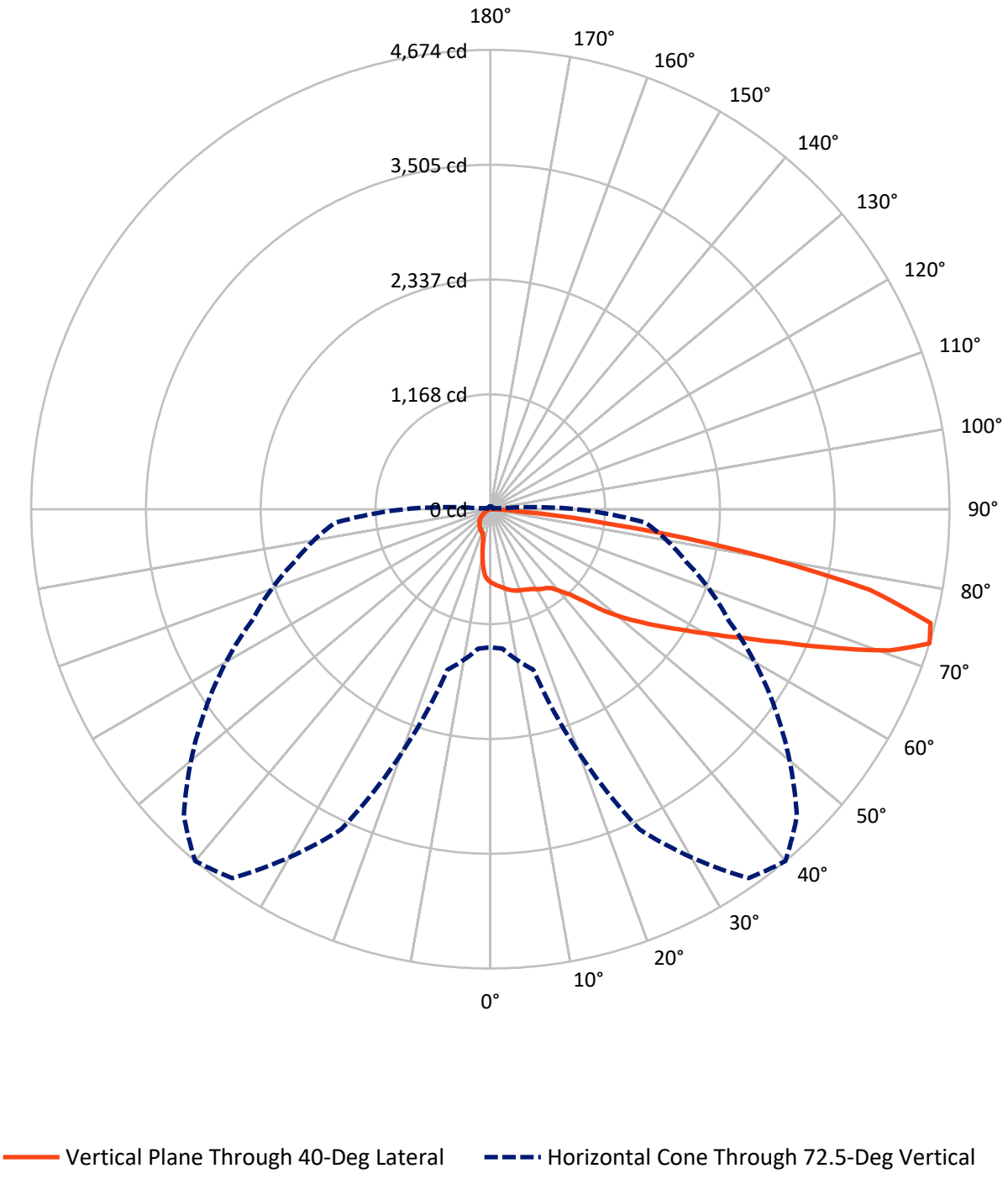

Based on 10 foot mounting height. Maximum calculated value = 8.6 fc
Type IV - Short - N/A

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REPORT NUMBER: P1199388
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## Luminous Intensity Polar Plot



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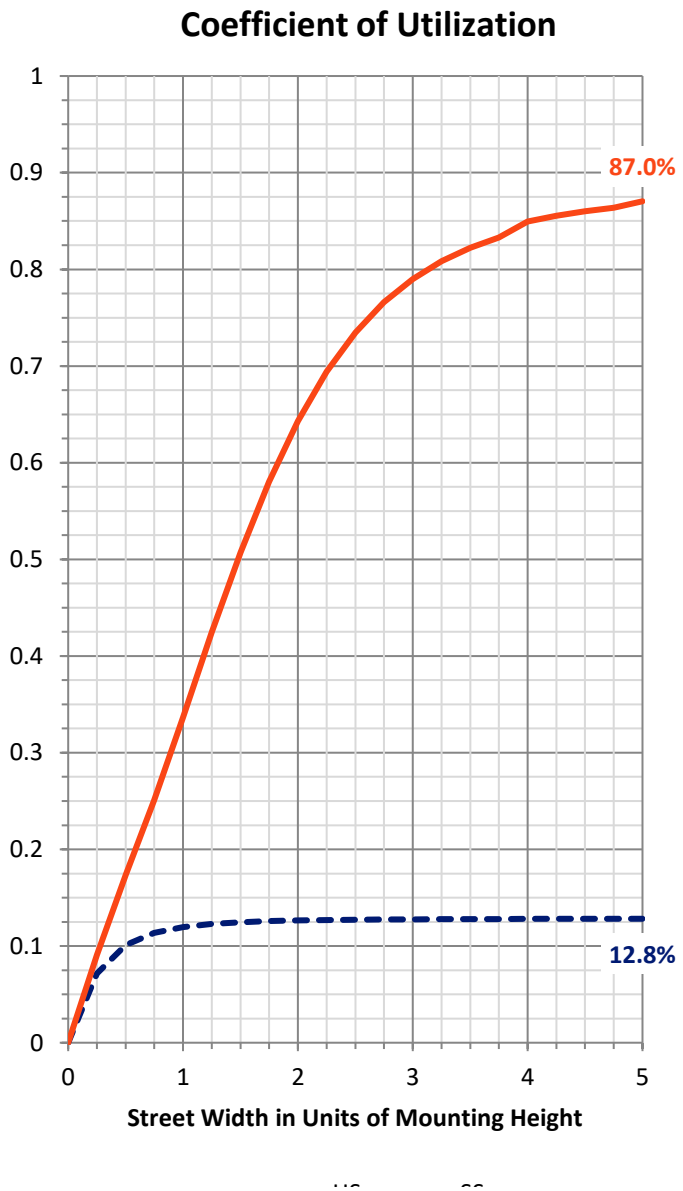
REPORT NUMBER: P1199388
CATALOG NUMBER: GPC-SB2A-830-U-SL4-HSS

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 726.5 | 0.0 | 726.5 |
| | % Fixture | 12.9 | 0.0 | 12.9 |
| **Street Side** | Lumens | 4899.5 | 0.0 | 4899.5 |
| | % Fixture | 87.1 | 0.0 | 87.1 |
| **Total** | Lumens | 5626.0 | 0.0 | 5626.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 68.0 | 1.2 |
| 10°-20° | 184.7 | 3.3 |
| 20°-30° | 298.9 | 5.3 |
| 30°-40° | 441.3 | 7.8 |
| 40°-50° | 742.8 | 13.2 |
| 50°-60° | 1153.4 | 20.5 |
| 60°-70° | 1443.2 | 25.7 |
| 70°-80° | 1181.5 | 21.0 |
| 80°-90° | 112.0 | 2.0 |
| 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° | 5626.0 | 100.0 |
| 0°-180° | 5626.0 | 100.0 |



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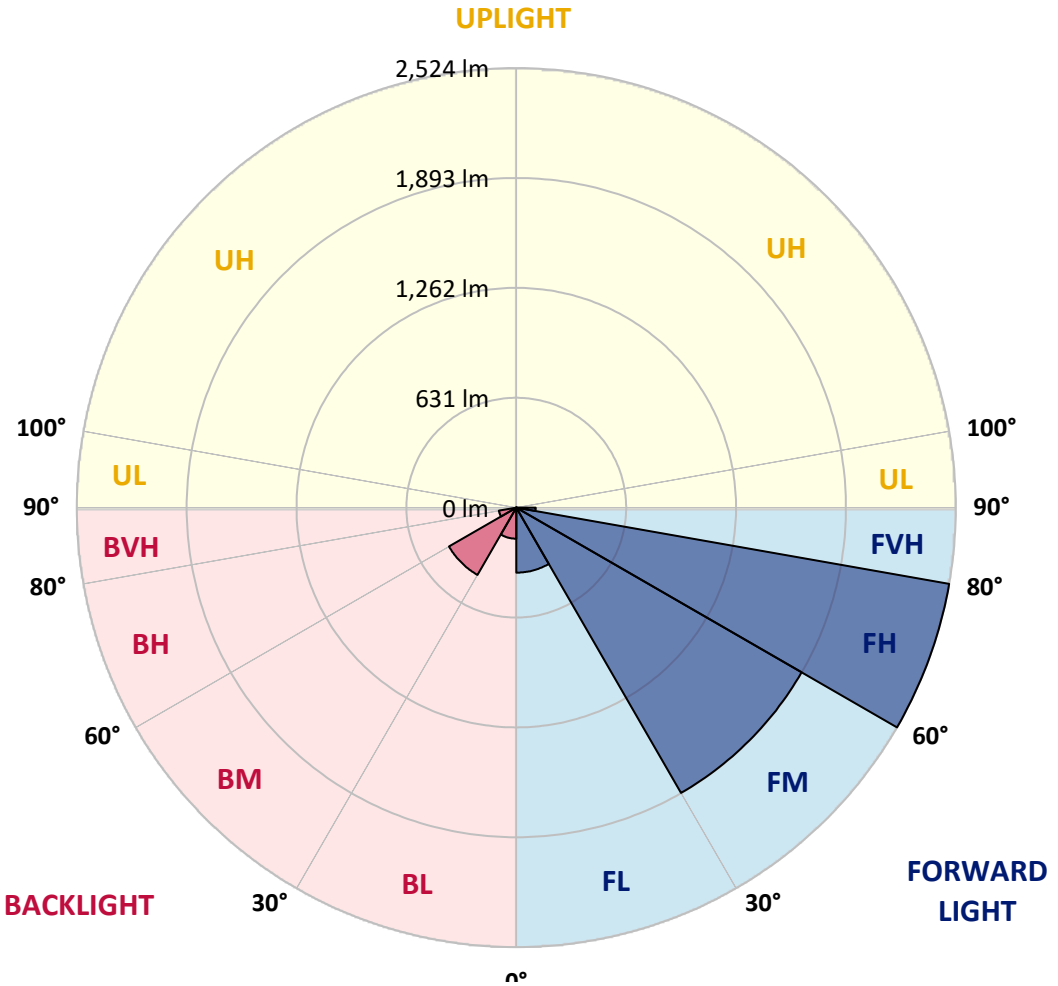
Scaled Data Report

REPORT NUMBER: P1199388
CATALOG NUMBER: GPC-SB2A-830-U-SL4-HSS

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 373.4 | 6.6 | | | |
| FM | (30°-60°) | 1891.4 | 33.6 | | | |
| FH | (60°-80°) | 2523.5 | 44.9 | | | G2/5000 |
| FVH | (80°-90°) | 111.2 | 2.0 | | | G2/225 |
| BL | (0°-30°) | 178.3 | 3.2 | B1/500 | | |
| BM | (30°-60°) | 446.1 | 7.9 | B1/1000 | | |
| BH | (60°-80°) | 101.2 | 1.8 | B0/110 | | G0/110 |
| BVH | (80°-90°) | 0.8 | 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-G2**
Type IV Short



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REPORT NUMBER: P1199388
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 40° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 |
| 2.5° | 767.4 | 770.4 | 768.7 | 765.3 | 764.4 | 762.7 | 760.6 | 759.8 | 756.8 | 754.3 | 751.3 |
| 5° | 789.0 | 792.0 | 789.8 | 785.2 | 783.1 | 780.9 | 778.0 | 775.4 | 769.5 | 764.0 | 757.2 |
| 7.5° | 812.7 | 815.3 | 812.7 | 805.9 | 802.6 | 800.0 | 795.8 | 792.0 | 785.2 | 777.1 | 768.7 |
| 10° | 839.0 | 841.1 | 837.3 | 828.4 | 822.9 | 819.1 | 815.3 | 811.0 | 804.7 | 795.8 | 785.6 |
| 12.5° | 863.6 | 866.1 | 860.2 | 849.6 | 843.2 | 839.4 | 835.2 | 831.8 | 825.4 | 817.0 | 806.4 |
| 15° | 886.0 | 889.8 | 879.7 | 868.2 | 861.0 | 858.1 | 853.8 | 851.7 | 847.5 | 841.5 | 831.8 |
| 17.5° | 903.0 | 905.5 | 894.9 | 881.4 | 873.3 | 871.2 | 868.2 | 869.5 | 868.7 | 865.7 | 859.3 |
| 20° | 917.4 | 919.1 | 905.1 | 888.6 | 879.7 | 880.1 | 879.3 | 883.5 | 885.2 | 885.2 | 884.8 |
| 22.5° | 935.2 | 935.6 | 917.8 | 897.0 | 886.5 | 889.4 | 890.7 | 895.4 | 898.7 | 902.1 | 909.8 |
| 25° | 958.5 | 957.6 | 936.5 | 908.1 | 898.7 | 903.0 | 905.9 | 907.6 | 911.5 | 917.0 | 934.3 |
| 27.5° | 993.2 | 990.7 | 963.6 | 925.9 | 914.8 | 918.7 | 924.2 | 923.3 | 921.6 | 925.9 | 955.1 |
| 30° | 1037.3 | 1033.9 | 997.9 | 950.9 | 940.7 | 944.1 | 945.8 | 938.2 | 925.9 | 929.7 | 973.3 |
| 32.5° | 1107.2 | 1101.3 | 1051.3 | 978.8 | 963.2 | 967.0 | 964.8 | 949.2 | 930.9 | 934.8 | 991.5 |
| 35° | 1228.8 | 1214.4 | 1143.7 | 1037.3 | 988.6 | 984.3 | 979.3 | 964.0 | 941.5 | 937.7 | 1006.8 |
| 37.5° | 1487.3 | 1461.9 | 1341.1 | 1151.3 | 1046.2 | 1018.7 | 1003.0 | 987.7 | 953.0 | 937.7 | 1024.2 |
| 40° | 1778.8 | 1753.0 | 1613.6 | 1342.0 | 1142.0 | 1095.4 | 1058.1 | 1015.7 | 964.8 | 943.2 | 1051.3 |
| 42.5° | 2083.1 | 2054.7 | 1911.5 | 1578.4 | 1278.8 | 1183.1 | 1113.6 | 1038.2 | 984.3 | 960.2 | 1087.3 |
| 45° | 2422.9 | 2387.3 | 2200.0 | 1825.0 | 1477.6 | 1328.8 | 1203.0 | 1084.3 | 1018.2 | 990.3 | 1136.5 |
| 47.5° | 2781.4 | 2735.2 | 2487.8 | 2064.4 | 1691.6 | 1530.5 | 1366.5 | 1167.0 | 1068.2 | 1035.2 | 1203.0 |
| 50° | 3099.2 | 3053.4 | 2784.8 | 2314.9 | 1891.6 | 1722.5 | 1553.0 | 1281.4 | 1143.2 | 1098.7 | 1292.4 |
| 52.5° | 3327.6 | 3292.9 | 3055.1 | 2573.3 | 2099.6 | 1902.6 | 1722.1 | 1414.4 | 1238.2 | 1180.1 | 1397.9 |
| 55° | 3480.6 | 3448.8 | 3246.7 | 2818.3 | 2341.6 | 2100.9 | 1888.6 | 1558.9 | 1352.6 | 1277.6 | 1514.4 |
| 57.5° | 3573.4 | 3555.1 | 3385.2 | 3036.9 | 2581.4 | 2317.8 | 2079.3 | 1717.8 | 1487.3 | 1392.4 | 1644.5 |
| 60° | 3606.4 | 3591.6 | 3471.2 | 3245.4 | 2871.2 | 2578.4 | 2303.4 | 1897.1 | 1650.9 | 1522.9 | 1778.0 |
| 62.5° | 3518.3 | 3521.2 | 3533.1 | 3492.4 | 3176.7 | 2883.5 | 2572.1 | 2112.3 | 1832.2 | 1670.8 | 1903.4 |
| 65° | 3103.4 | 3128.0 | 3353.4 | 3766.2 | 3581.4 | 3265.7 | 2914.0 | 2375.0 | 2039.9 | 1839.0 | 2003.0 |
| 67.5° | 2569.5 | 2605.1 | 2885.6 | 3926.3 | 4012.8 | 3761.9 | 3390.3 | 2709.8 | 2287.3 | 2010.2 | 2040.7 |
| 70° | 1967.0 | 2005.1 | 2345.0 | 3892.9 | 4416.6 | 4304.3 | 3979.3 | 3135.6 | 2543.7 | 2128.9 | 1944.5 |
| 72.5° | 1403.8 | 1423.3 | 1691.1 | 3595.0 | 4582.3 | 4673.8 | 4413.2 | 3539.0 | 2674.6 | 2063.2 | 1586.0 |
| 75° | 986.5 | 983.1 | 1160.6 | 2895.0 | 4324.2 | 4628.9 | 4261.1 | 3320.8 | 2420.4 | 1639.0 | 978.0 |
| 77.5° | 429.7 | 430.5 | 579.7 | 1758.1 | 3451.3 | 3953.5 | 3542.0 | 2080.1 | 1687.3 | 868.7 | 412.7 |
| 80° | 111.4 | 114.8 | 212.7 | 700.0 | 2078.0 | 2609.4 | 2160.2 | 914.4 | 779.7 | 211.9 | 78.8 |
| 82.5° | 39.4 | 41.9 | 97.9 | 219.9 | 766.5 | 1196.6 | 961.9 | 292.4 | 203.4 | 60.6 | 21.2 |
| 85° | 11.4 | 13.6 | 52.5 | 67.4 | 158.5 | 338.1 | 233.5 | 56.8 | 50.0 | 31.4 | 5.5 |
| 87.5° | 0.0 | 1.7 | 10.6 | 9.3 | 9.3 | 6.4 | 11.9 | 6.4 | 8.1 | 3.8 | 1.7 |
| 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: P1199388
CATALOG NUMBER: GPC-SB2A-830-U-SL4-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 | 744.9 |
| 2.5° | 748.7 | 745.8 | 739.4 | 732.6 | 726.3 | 720.4 | 718.7 | 712.3 | 709.3 | 709.8 | 709.3 |
| 5° | 752.6 | 747.0 | 734.8 | 719.9 | 704.7 | 687.3 | 672.9 | 652.6 | 635.2 | 633.1 | 631.8 |
| 7.5° | 762.7 | 753.8 | 733.9 | 705.1 | 667.0 | 619.1 | 574.6 | 530.5 | 505.5 | 492.0 | 491.1 |
| 10° | 778.4 | 766.5 | 736.0 | 680.9 | 600.0 | 514.4 | 447.0 | 391.5 | 363.1 | 350.0 | 347.5 |
| 12.5° | 797.0 | 783.9 | 739.4 | 639.8 | 513.6 | 401.3 | 328.4 | 294.5 | 288.6 | 287.7 | 287.3 |
| 15° | 823.3 | 808.9 | 743.2 | 584.3 | 419.9 | 305.5 | 272.0 | 272.5 | 277.1 | 279.7 | 279.2 |
| 17.5° | 852.6 | 838.1 | 737.7 | 516.5 | 327.5 | 261.0 | 260.2 | 264.0 | 270.8 | 273.3 | 272.9 |
| 20° | 882.2 | 868.7 | 718.2 | 436.9 | 264.8 | 248.7 | 252.1 | 256.4 | 263.1 | 266.5 | 266.5 |
| 22.5° | 912.7 | 900.9 | 687.3 | 352.1 | 239.0 | 239.8 | 244.1 | 248.3 | 255.9 | 259.8 | 259.8 |
| 25° | 945.4 | 935.2 | 646.2 | 282.2 | 228.0 | 230.5 | 236.0 | 241.1 | 249.2 | 253.8 | 253.8 |
| 27.5° | 978.4 | 970.8 | 599.6 | 235.6 | 217.8 | 220.8 | 227.1 | 233.9 | 242.0 | 247.5 | 247.9 |
| 30° | 1014.4 | 1010.2 | 562.3 | 218.2 | 208.1 | 210.6 | 217.8 | 225.4 | 234.3 | 241.1 | 242.0 |
| 32.5° | 1051.3 | 1050.4 | 544.1 | 230.9 | 199.2 | 200.9 | 207.2 | 214.8 | 225.9 | 234.3 | 235.2 |
| 35° | 1087.7 | 1089.4 | 533.5 | 267.0 | 196.2 | 191.5 | 195.8 | 202.5 | 215.7 | 226.3 | 228.0 |
| 37.5° | 1134.3 | 1138.6 | 533.1 | 305.9 | 203.4 | 182.2 | 185.2 | 189.8 | 201.3 | 213.6 | 215.7 |
| 40° | 1203.8 | 1226.3 | 560.2 | 339.4 | 216.1 | 173.7 | 174.6 | 175.4 | 181.4 | 191.5 | 194.9 |
| 42.5° | 1296.2 | 1361.9 | 658.1 | 362.3 | 221.2 | 166.1 | 163.1 | 158.5 | 157.6 | 163.1 | 166.1 |
| 45° | 1411.0 | 1525.9 | 830.1 | 375.0 | 216.1 | 157.6 | 149.6 | 137.3 | 132.6 | 136.4 | 136.4 |
| 47.5° | 1546.2 | 1705.5 | 1033.9 | 378.0 | 207.6 | 147.0 | 132.6 | 116.5 | 112.7 | 114.0 | 113.6 |
| 50° | 1678.0 | 1840.3 | 1213.2 | 353.4 | 193.6 | 133.5 | 114.0 | 100.4 | 97.9 | 98.3 | 98.3 |
| 52.5° | 1794.5 | 1886.5 | 1264.0 | 295.3 | 175.0 | 117.0 | 97.9 | 88.6 | 86.9 | 86.9 | 86.4 |
| 55° | 1871.6 | 1836.5 | 1127.1 | 225.9 | 151.7 | 100.0 | 83.9 | 79.2 | 78.4 | 78.0 | 77.1 |
| 57.5° | 1887.7 | 1673.8 | 851.3 | 163.1 | 118.6 | 84.3 | 74.6 | 72.0 | 70.3 | 68.6 | 67.8 |
| 60° | 1830.1 | 1402.6 | 542.0 | 114.0 | 89.0 | 72.0 | 66.1 | 64.4 | 61.0 | 57.6 | 56.4 |
| 62.5° | 1705.5 | 1059.3 | 300.0 | 79.2 | 71.6 | 61.4 | 58.5 | 56.4 | 50.0 | 44.5 | 42.8 |
| 65° | 1538.2 | 704.2 | 132.6 | 61.9 | 58.5 | 51.7 | 50.0 | 47.0 | 39.4 | 33.1 | 31.8 |
| 67.5° | 1369.9 | 405.5 | 59.7 | 49.6 | 47.0 | 42.4 | 41.1 | 39.0 | 33.5 | 27.5 | 26.7 |
| 70° | 1178.0 | 205.5 | 41.1 | 39.4 | 36.4 | 32.2 | 33.5 | 33.1 | 27.5 | 22.5 | 21.6 |
| 72.5° | *877.1* | *102.1* | *30.9* | *29.7* | *26.3* | *22.9* | *27.5* | *27.1* | *21.6* | *16.9* | *16.1* |
| 75° | 496.6 | 50.4 | 22.5 | 20.8 | 15.7 | 16.9 | 22.0 | 20.8 | 14.8 | 11.0 | 10.2 |
| 77.5° | 197.0 | 25.8 | 14.8 | 12.7 | 9.3 | 11.4 | 16.1 | 14.0 | 7.6 | 4.7 | 4.2 |
| 80° | 45.3 | 12.7 | 7.6 | 5.5 | 4.2 | 6.8 | 8.5 | 5.1 | 2.1 | 0.4 | 0.0 |
| 82.5° | 12.7 | 5.5 | 2.5 | 2.1 | 2.1 | 2.5 | 2.1 | 0.8 | 0.0 | 0.0 | 0.0 |
| 85° | 4.2 | 2.5 | 0.8 | 0.4 | 0.4 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.7 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |


HS
SS

0

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Peachtree City, GA 30269

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

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

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

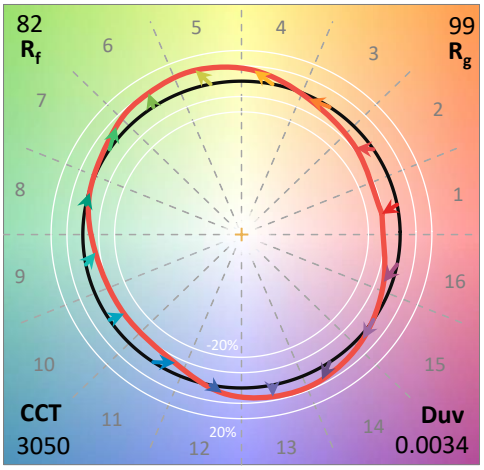
## Test Information

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

## Spectral Parameters

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

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




## Test Conditions

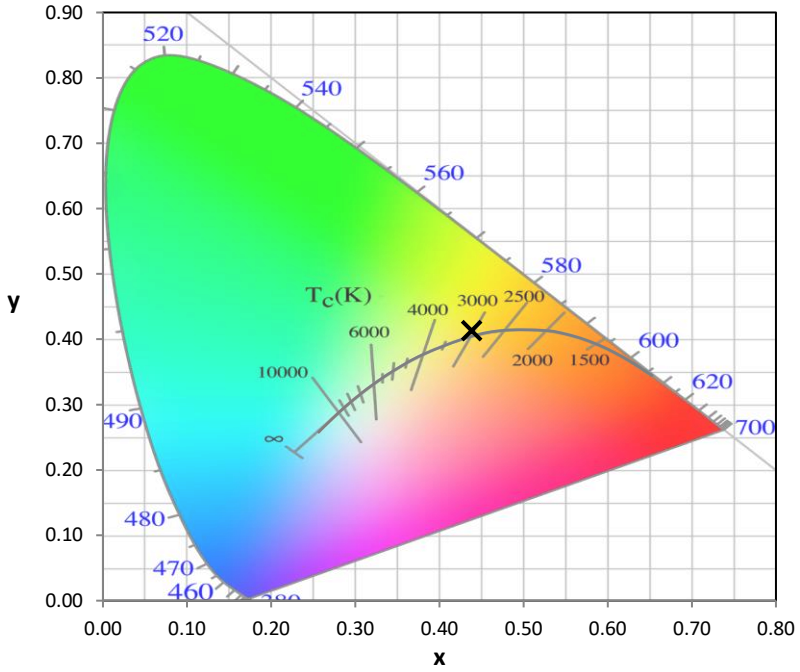
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 24.2 |

REPORT NUMBER: SP1-2408-195-9

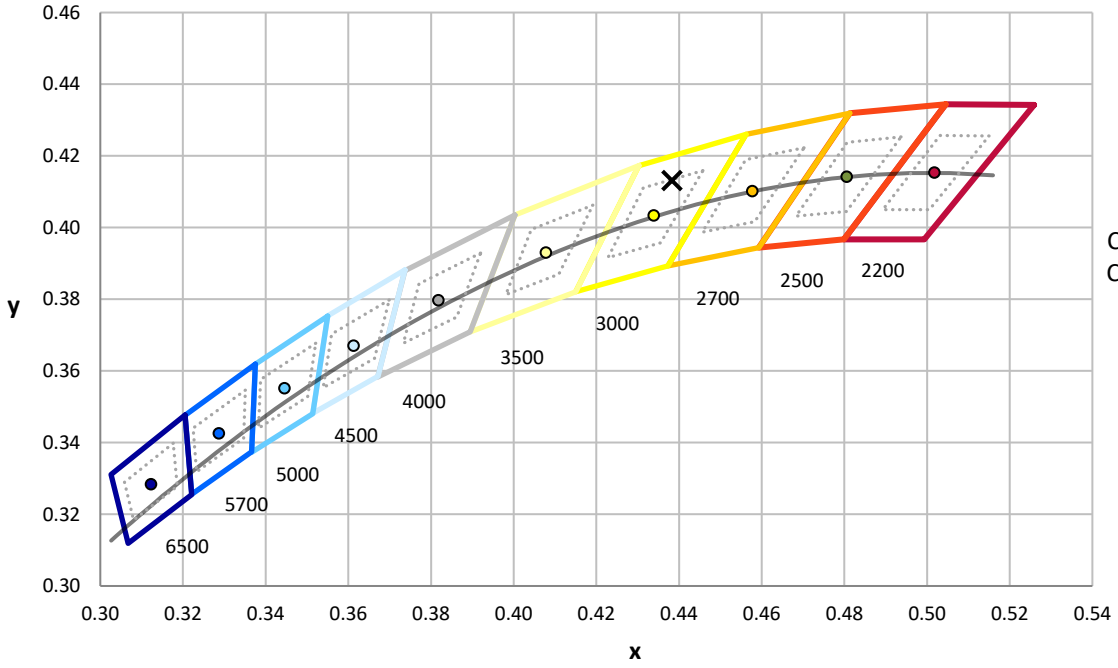
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

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## CIE 1931 Chromaticity Diagram




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

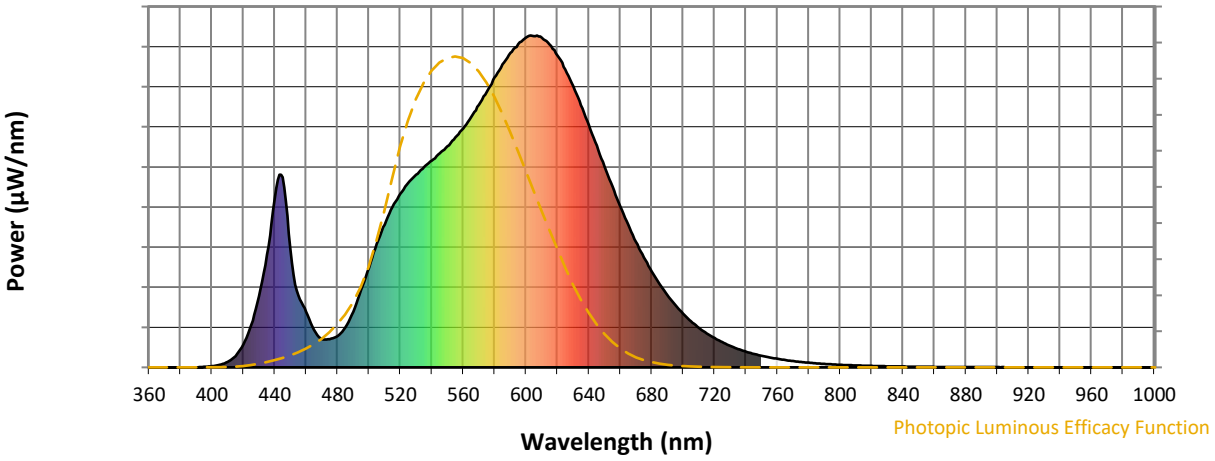



CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

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## Photopic Flux vs. Wavelength

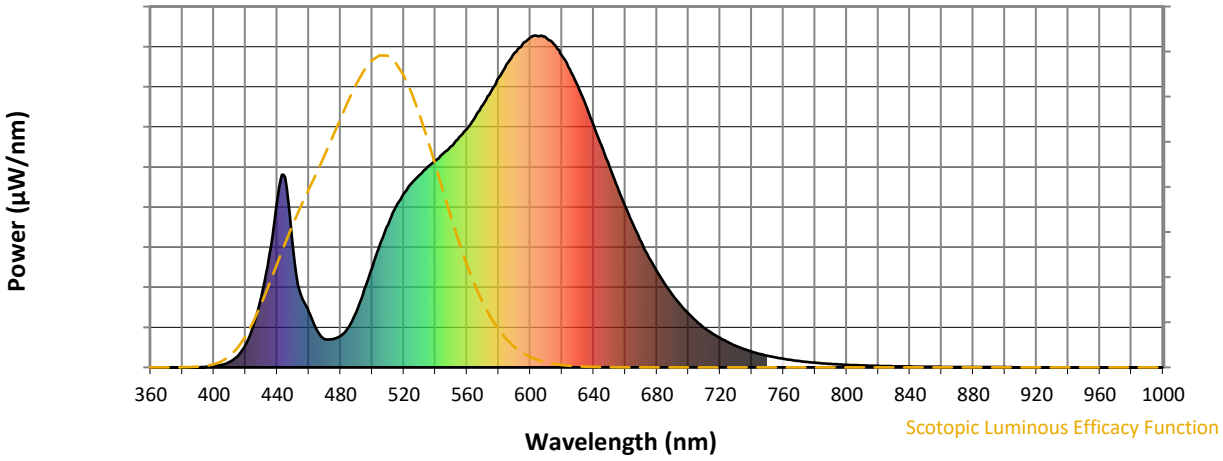



## Photopic Lumens: NR

| 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

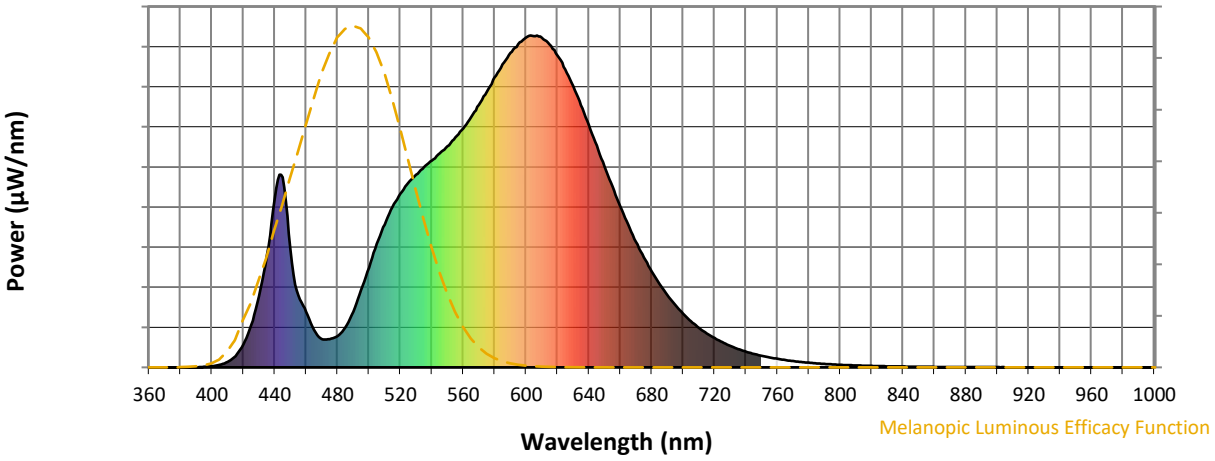



**Scotopic Lumens: NR** **S/P: 1.27**

| 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 | | | |

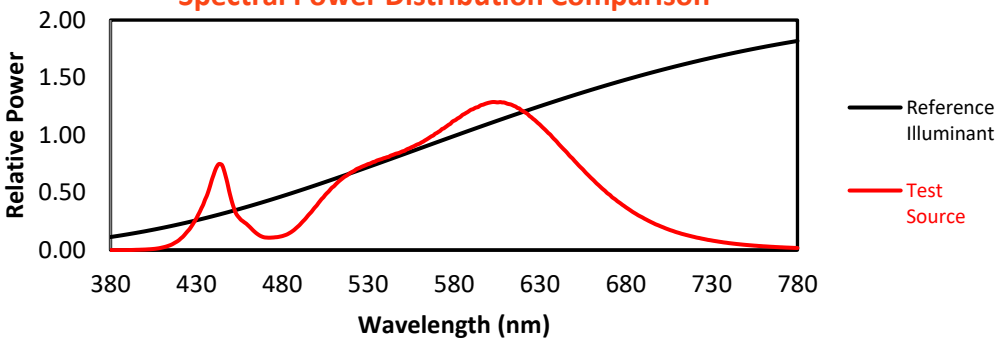
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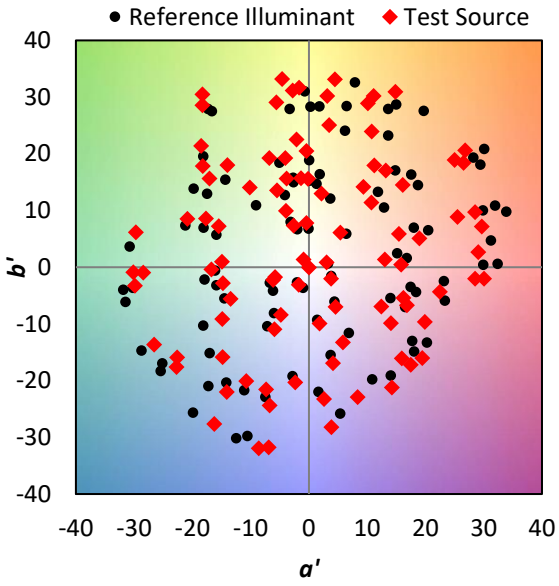
## Summary

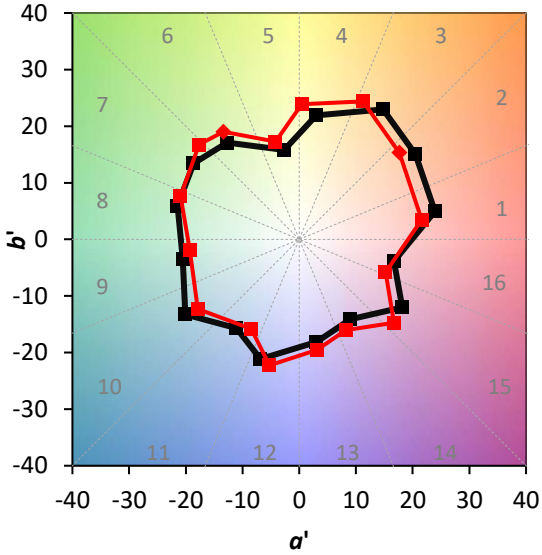
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

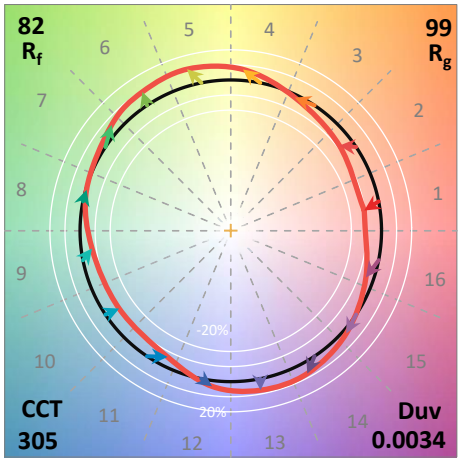
## Spectral Power Distribution Comparison

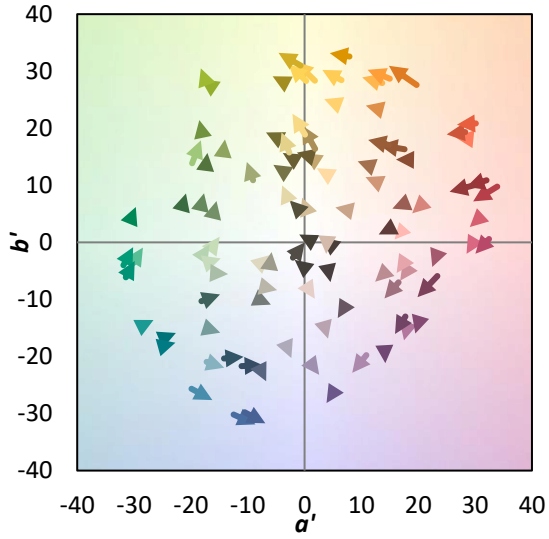



## Color Vector Graphics



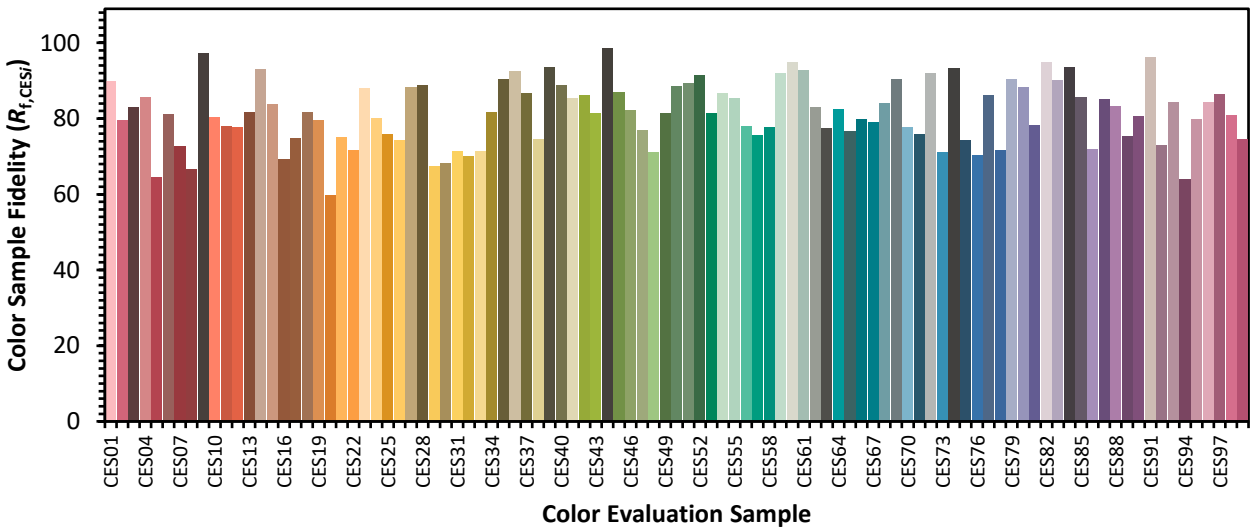



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**Individual Sample Fidelity Index ($R_{f,i}$)**

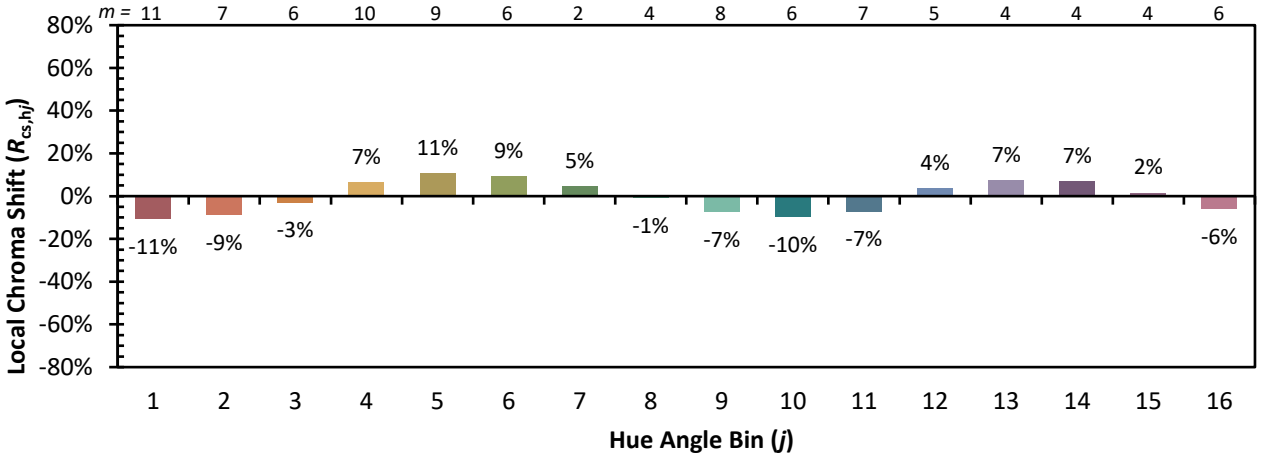
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06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

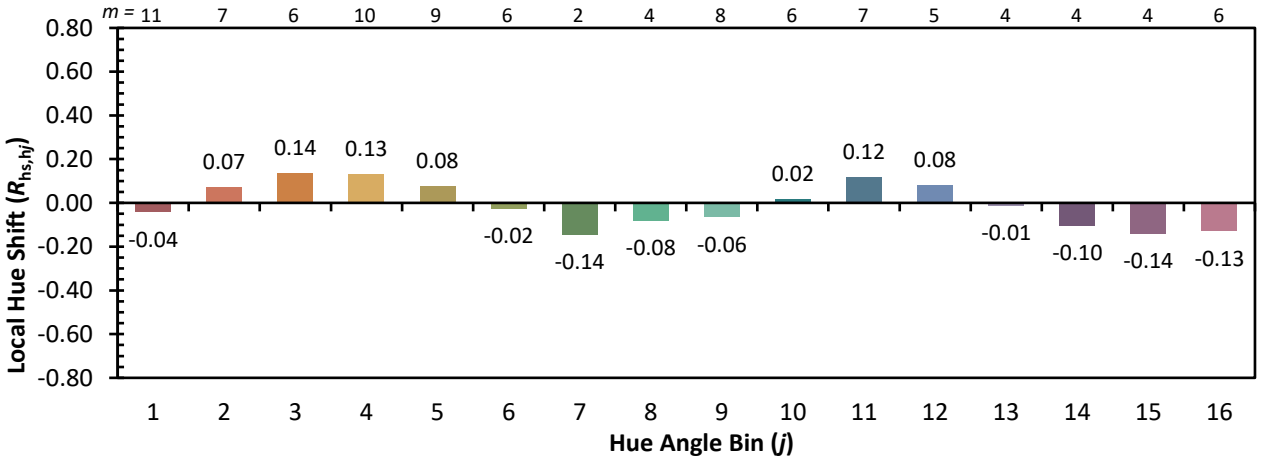


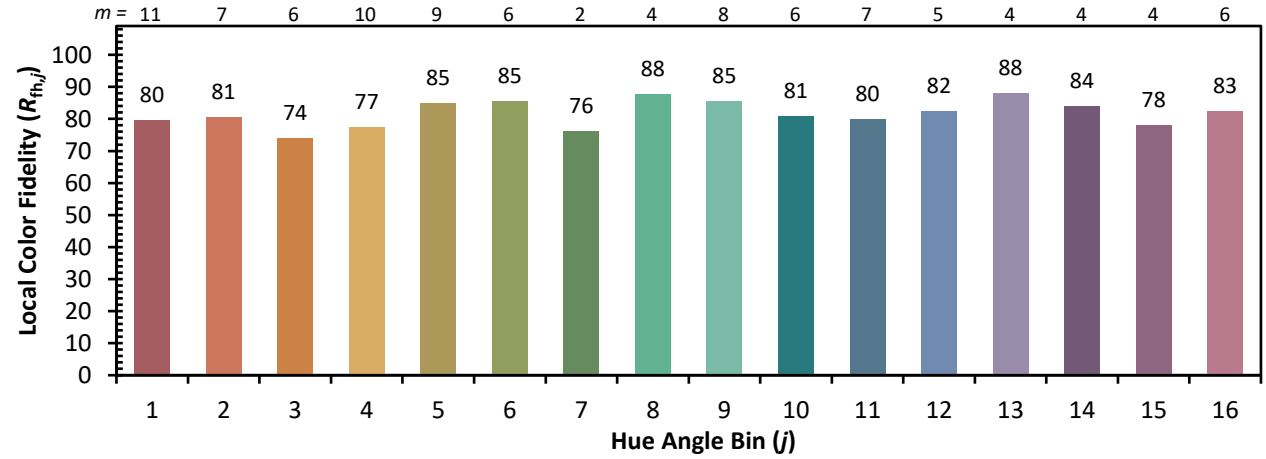
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## Color Rendition by Hue-Angle Bin



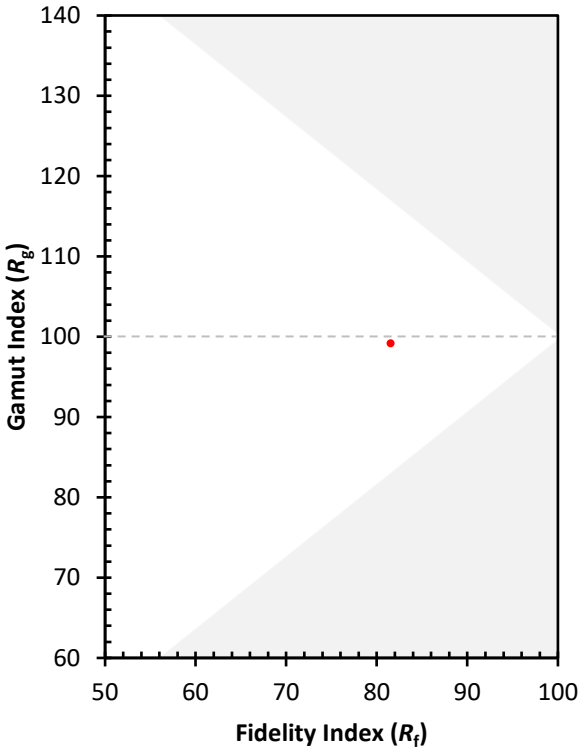



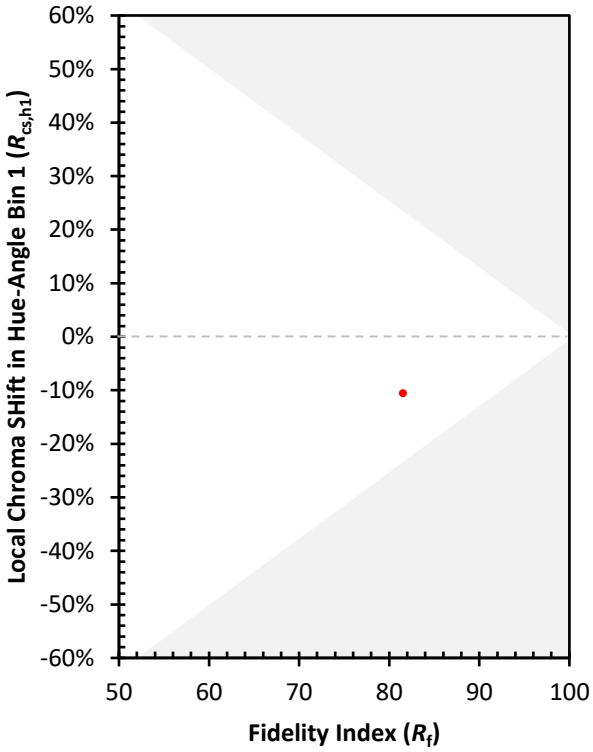



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## Measure Comparisons




(END OF REPORT)