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: P1197972

Luminaire Tested: GPC-SB1B-830-U-T3R

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: | P1197972 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2411-289-5) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/15/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GPC-SB1B-830-U-T3R |
| Description: | GALLEON PEDESTRIAN LUMINAIRE |
| | (1) 80 CRI, 3000K, 450mA LIGHTSQUARE WITH 26 LEDS AND TYPE III ROADWAY OPTICS |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 5222 lumens |
| Efficiency: | N/A |
| Efficacy: | 131.2 lumens/watt |
| Luminous Opening: | Rectangular (W 0.5' x L: 0.5' x H: 0') |
| IES Classification: | Type III - Medium |
| BUG Rating: | B1 - U0 - G1 |

| | |
|---|---|
| Input Watts (W): | 39.8 |
| Input Voltage (V): | 120.0 |
| Input Current (Ain): | 0.33 |
| Voltage Rise (V): | NR |
| Power Factor: | 0.996 |
| Total Harmonic Distortion (THDi): | 5.305 |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

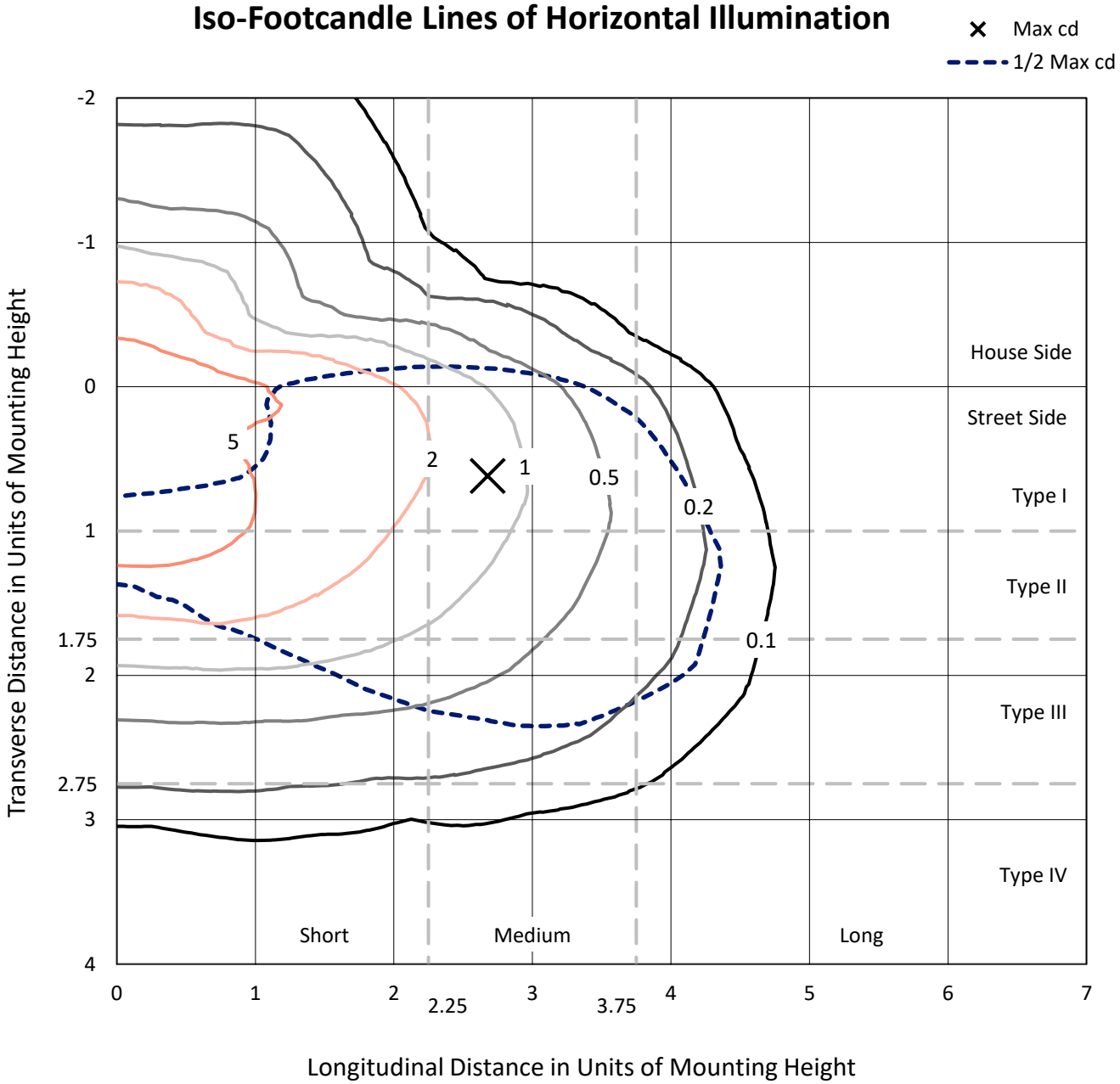


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Scaled Data Report

REPORT NUMBER: P1197972
CATALOG NUMBER: GPC-SB1B-830-U-T3R

## Iso-Footcandle Lines of Horizontal Illumination



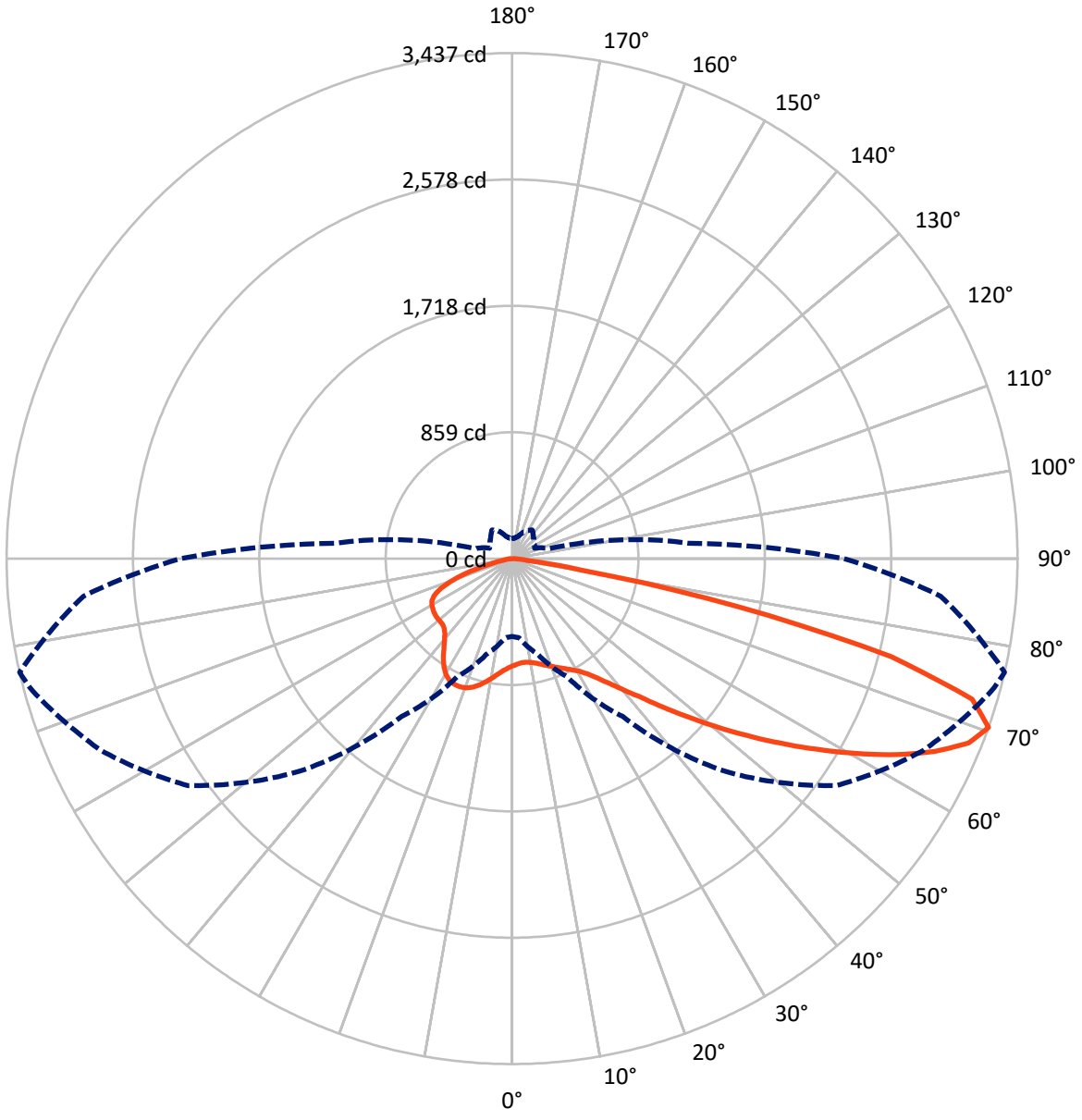

Based on 10 foot mounting height. Maximum calculated value = 8.6 fc
Type III - Medium - N/A

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## Luminous Intensity Polar Plot



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Scaled Data Report

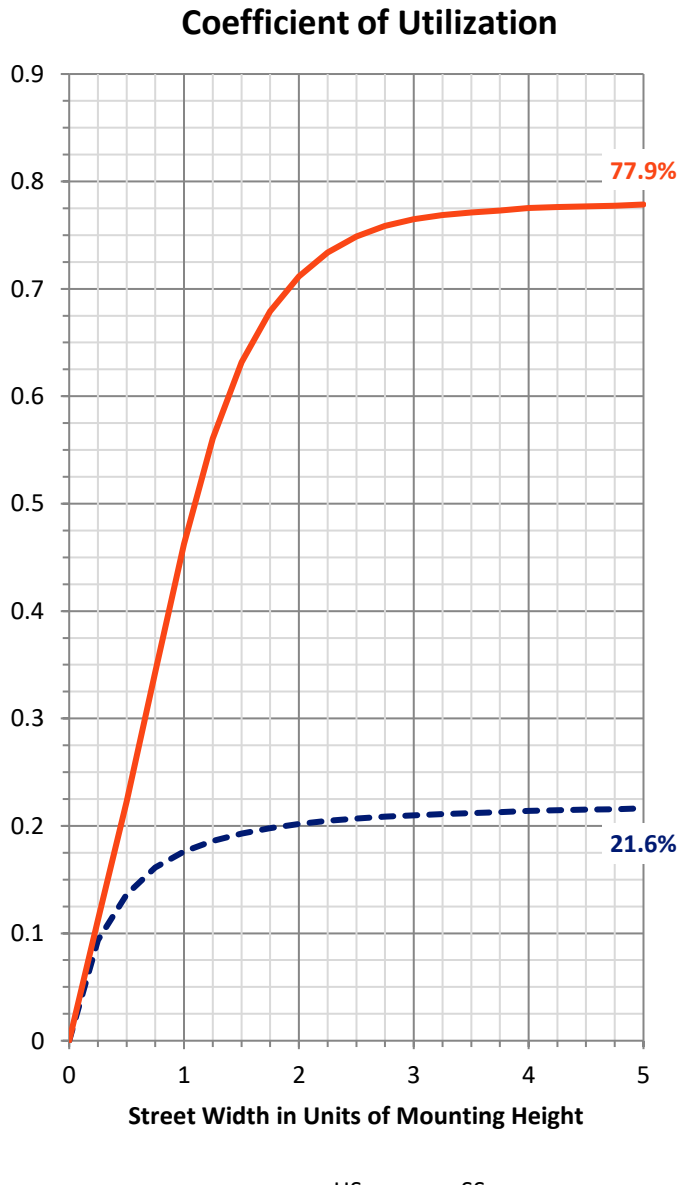
REPORT NUMBER: P1197972
CATALOG NUMBER: GPC-SB1B-830-U-T3R

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1143.5 | 0.0 | 1143.5 |
| | % Fixture | 21.9 | 0.0 | 21.9 |
| **Street Side** | Lumens | 4078.5 | 0.0 | 4078.5 |
| | % Fixture | 78.1 | 0.0 | 78.1 |
| **Total** | Lumens | 5222.0 | 0.0 | 5222.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 69.5 | 1.3 |
| 10°-20° | 200.5 | 3.8 |
| 20°-30° | 342.9 | 6.6 |
| 30°-40° | 551.5 | 10.6 |
| 40°-50° | 861.0 | 16.5 |
| 50°-60° | 1150.1 | 22.0 |
| 60°-70° | 1225.8 | 23.5 |
| 70°-80° | 754.6 | 14.5 |
| 80°-90° | 66.1 | 1.3 |
| 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° | 5222.0 | 100.0 |
| 0°-180° | 5222.0 | 100.0 |



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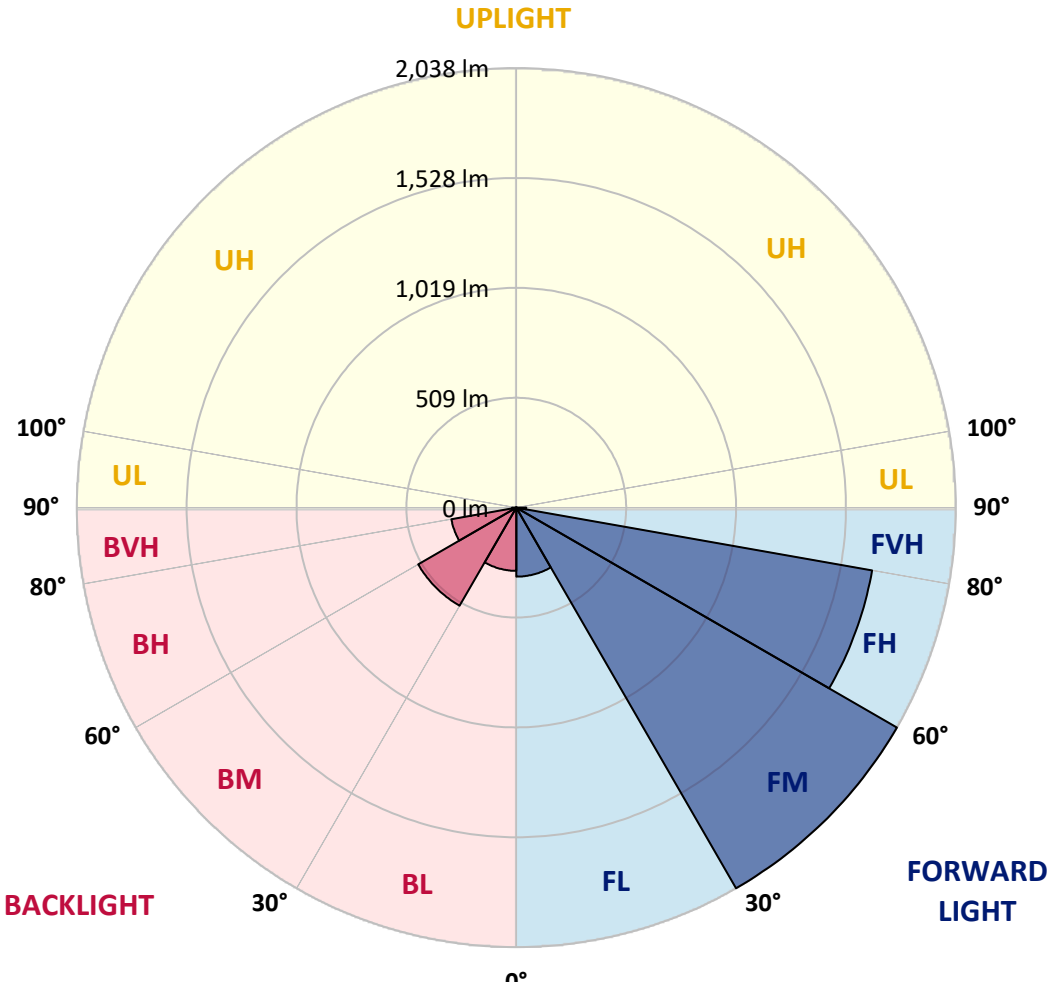
Scaled Data Report

REPORT NUMBER: P1197972
CATALOG NUMBER: GPC-SB1B-830-U-T3R

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 319.9 | 6.1 | | | |
| FM | (30°-60°) | 2037.5 | 39.0 | | | |
| FH | (60°-80°) | 1674.8 | 32.1 | | | G1/1800 |
| FVH | (80°-90°) | 46.2 | 0.9 | | | G1/100 |
| BL | (0°-30°) | 293.0 | 5.6 | B1/500 | | |
| BM | (30°-60°) | 525.0 | 10.1 | B1/1000 | | |
| BH | (60°-80°) | 305.6 | 5.9 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 19.9 | 0.4 | | | G1/100 |
| 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 Medium



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REPORT NUMBER: P1197972
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 77° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 |
| 2.5° | 671.6 | 671.3 | 674.8 | 675.8 | 682.2 | 686.8 | 695.4 | 704.4 | 716.2 | 717.6 | 724.8 |
| 5° | 632.8 | 632.8 | 636.8 | 641.1 | 649.4 | 658.4 | 671.6 | 687.3 | 707.7 | 710.9 | 728.8 |
| 7.5° | 599.9 | 602.0 | 605.5 | 613.8 | 623.4 | 636.5 | 656.6 | 679.0 | 705.8 | 710.9 | 739.7 |
| 10° | 573.4 | 575.8 | 580.1 | 586.8 | 601.2 | 619.4 | 645.6 | 674.5 | 710.3 | 718.4 | 755.8 |
| 12.5° | 565.1 | 567.5 | 569.9 | 575.0 | 588.4 | 609.8 | 641.1 | 676.6 | 721.3 | 729.3 | 777.7 |
| 15° | 584.4 | 587.3 | 585.4 | 584.1 | 591.1 | 610.6 | 643.2 | 684.4 | 734.9 | 746.4 | 804.7 |
| 17.5° | 628.8 | 629.8 | 625.6 | 613.0 | 611.9 | 622.3 | 653.4 | 695.1 | 752.1 | 764.6 | 832.0 |
| 20° | 700.4 | 698.6 | 689.7 | 664.9 | 650.7 | 648.6 | 670.7 | 711.1 | 769.7 | 783.1 | 861.4 |
| 22.5° | 797.8 | 795.6 | 778.0 | 738.7 | 707.1 | 686.3 | 695.9 | 732.0 | 789.5 | 804.5 | 890.1 |
| 25° | 919.2 | 916.3 | 890.3 | 836.8 | 787.9 | 736.3 | 730.1 | 759.5 | 813.8 | 827.7 | 920.0 |
| 27.5° | 1060.9 | 1058.5 | 1030.5 | 959.9 | 889.3 | 804.7 | 772.6 | 791.9 | 839.2 | 855.0 | 953.7 |
| 30° | 1213.4 | 1220.3 | 1170.6 | 1094.6 | 1005.3 | 894.1 | 829.9 | 831.7 | 872.1 | 886.3 | 994.6 |
| 32.5° | 1392.6 | 1404.6 | 1344.7 | 1248.4 | 1126.5 | 991.1 | 902.1 | 887.4 | 920.0 | 931.8 | 1046.2 |
| 35° | 1570.2 | 1583.8 | 1534.1 | 1427.6 | 1287.2 | 1105.6 | 977.5 | 951.3 | 983.7 | 996.5 | 1114.7 |
| 37.5° | 1723.7 | 1741.9 | 1716.2 | 1623.7 | 1459.2 | 1243.6 | 1075.9 | 1026.4 | 1062.0 | 1078.1 | 1206.7 |
| 40° | 1844.8 | 1872.6 | 1870.8 | 1813.0 | 1661.9 | 1411.0 | 1200.8 | 1119.3 | 1159.4 | 1176.8 | 1318.2 |
| 42.5° | 1943.2 | 1967.3 | 1988.2 | 1985.2 | 1873.4 | 1601.2 | 1347.6 | 1239.9 | 1270.4 | 1290.4 | 1443.7 |
| 45° | 2011.2 | 2036.9 | 2081.8 | 2130.2 | 2077.0 | 1804.7 | 1515.9 | 1383.0 | 1410.8 | 1441.0 | 1593.2 |
| 47.5° | 2071.9 | 2101.0 | 2159.3 | 2236.1 | 2249.7 | 2009.0 | 1700.1 | 1549.6 | 1575.0 | 1606.3 | 1743.2 |
| 50° | 2077.2 | 2102.4 | 2192.8 | 2301.6 | 2372.5 | 2205.3 | 1898.0 | 1736.5 | 1760.3 | 1793.7 | 1903.9 |
| 52.5° | 1948.1 | 1987.6 | 2145.4 | 2299.7 | 2428.9 | 2369.6 | 2094.6 | 1930.9 | 1957.7 | 1997.8 | 2070.3 |
| 55° | 1512.1 | 1570.2 | 2006.6 | 2228.1 | 2408.9 | 2475.7 | 2281.6 | 2137.7 | 2171.9 | 2213.9 | 2237.7 |
| 57.5° | 1302.5 | 1327.9 | 1592.9 | 2097.6 | 2317.4 | 2503.3 | 2439.4 | 2346.6 | 2401.6 | 2447.6 | 2414.7 |
| 60° | 1170.6 | 1191.7 | 1348.5 | 1894.6 | 2197.0 | 2459.7 | 2561.3 | 2541.3 | 2636.5 | 2691.3 | 2595.8 |
| 62.5° | 1029.4 | 1049.4 | 1192.0 | 1581.9 | 2043.0 | 2387.2 | 2638.3 | 2721.0 | 2877.2 | 2937.1 | 2766.4 |
| 65° | 889.3 | 906.4 | 1043.0 | 1329.2 | 1847.2 | 2314.7 | 2678.2 | 2876.4 | 3099.9 | 3162.0 | 2908.2 |
| 67.5° | 733.1 | 747.2 | 876.4 | 1121.4 | 1609.2 | 2215.5 | 2698.0 | 2998.6 | 3293.8 | 3347.1 | 2978.3 |
| 70° | 529.0 | 540.0 | 673.4 | 886.8 | 1310.5 | 2044.9 | 2689.9 | 3085.2 | 3394.4 | 3436.9 | 2925.3 |
| 72.5° | 250.1 | 260.0 | 416.7 | 575.8 | 925.6 | 1712.7 | 2527.6 | 3016.5 | 3292.2 | 3271.1 | 2601.2 |
| 75° | 133.5 | 142.0 | 239.4 | 315.9 | 488.9 | 1174.1 | 2068.4 | 2598.5 | 2764.6 | 2661.9 | 1922.4 |
| 77.5° | 90.4 | 97.1 | 148.2 | 189.6 | 223.3 | 557.4 | 1329.5 | 1799.1 | 1730.9 | 1561.3 | 962.8 |
| 80° | 71.7 | 78.6 | 121.4 | 128.4 | 108.0 | 201.4 | 549.3 | 832.8 | 598.3 | 478.5 | 273.9 |
| 82.5° | 55.1 | 62.8 | 102.2 | 93.1 | 58.8 | 82.6 | 159.9 | 263.4 | 153.2 | 116.6 | 66.3 |
| 85° | 33.7 | 42.0 | 80.2 | 59.4 | 33.2 | 37.7 | 54.3 | 73.3 | 46.8 | 39.0 | 23.8 |
| 87.5° | 17.1 | 24.1 | 40.7 | 21.7 | 15.0 | 8.8 | 14.4 | 14.4 | 12.3 | 10.7 | 6.2 |
| 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: P1197972
CATALOG NUMBER: GPC-SB1B-830-U-T3R

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 | 728.5 |
| 2.5° | 731.2 | 736.5 | 745.6 | 754.2 | 760.9 | 767.3 | 773.7 | 777.2 | 778.3 | 782.5 | 784.9 |
| 5° | 739.7 | 749.6 | 767.3 | 783.9 | 794.3 | 800.7 | 805.3 | 807.9 | 808.5 | 809.8 | 812.0 |
| 7.5° | 755.5 | 771.3 | 795.9 | 812.5 | 820.2 | 819.7 | 817.8 | 811.2 | 808.5 | 806.1 | 806.6 |
| 10° | 777.7 | 798.6 | 828.8 | 840.3 | 835.5 | 822.7 | 806.1 | 786.6 | 777.5 | 768.6 | 766.0 |
| 12.5° | 805.3 | 831.7 | 861.4 | 860.9 | 837.1 | 804.2 | 765.7 | 735.7 | 716.7 | 703.1 | 699.9 |
| 15° | 838.7 | 869.2 | 891.9 | 873.7 | 821.6 | 762.5 | 706.1 | 667.0 | 649.9 | 634.9 | 633.3 |
| 17.5° | 873.2 | 905.8 | 916.3 | 869.7 | 782.5 | 700.7 | 636.8 | 606.0 | 589.2 | 581.2 | 583.6 |
| 20° | 906.9 | 939.3 | 930.7 | 846.7 | 723.2 | 630.6 | 573.7 | 556.8 | 553.3 | 555.2 | 554.4 |
| 22.5° | 942.5 | 971.4 | 933.6 | 802.3 | 647.5 | 559.0 | 527.7 | 528.2 | 536.0 | 541.6 | 542.9 |
| 25° | 978.8 | 998.4 | 925.9 | 738.1 | 566.2 | 506.3 | 498.5 | 507.1 | 522.3 | 533.3 | 536.2 |
| 27.5° | 1013.9 | 1022.4 | 909.0 | 658.7 | 496.4 | 468.6 | 469.9 | 487.5 | 510.6 | 525.8 | 529.5 |
| 30° | 1053.5 | 1043.8 | 876.7 | 569.4 | 448.0 | 436.2 | 447.4 | 468.0 | 491.0 | 504.7 | 507.9 |
| 32.5° | 1098.1 | 1062.3 | 825.3 | 486.7 | 413.7 | 410.3 | 428.7 | 442.1 | 452.2 | 456.3 | 458.4 |
| 35° | 1153.8 | 1088.2 | 759.5 | 428.7 | 383.0 | 391.3 | 408.9 | 402.2 | 398.2 | 396.1 | 398.2 |
| 37.5° | 1226.0 | 1123.3 | 682.5 | 391.0 | 358.1 | 377.6 | 384.9 | 364.0 | 348.2 | 340.5 | 342.3 |
| 40° | 1312.9 | 1174.6 | 608.4 | 361.9 | 342.3 | 365.9 | 353.3 | 328.2 | 308.1 | 297.1 | 297.9 |
| 42.5° | 1409.4 | 1228.4 | 546.1 | 339.9 | 333.5 | 356.2 | 330.0 | 300.1 | 267.7 | 264.2 | 267.7 |
| 45° | 1510.8 | 1283.7 | 503.6 | 323.1 | 329.2 | 347.9 | 316.7 | 268.2 | 245.2 | 259.4 | 266.9 |
| 47.5° | 1612.2 | 1334.5 | 477.9 | 310.5 | 327.1 | 338.6 | 304.9 | 250.6 | 234.3 | 254.9 | 264.5 |
| 50° | 1725.0 | 1380.0 | 466.4 | 301.4 | 324.7 | 334.8 | 287.2 | 246.0 | 222.8 | 236.4 | 246.6 |
| 52.5° | 1837.1 | 1415.3 | 457.9 | 292.3 | 321.2 | 331.9 | 278.7 | 240.7 | 208.9 | 209.7 | 215.3 |
| 55° | 1948.9 | 1438.3 | 448.5 | 280.3 | 313.4 | 325.5 | 277.9 | 234.8 | 198.4 | 194.7 | 197.4 |
| 57.5° | 2068.1 | 1451.4 | 437.0 | 266.9 | 300.1 | 309.2 | 277.1 | 230.3 | 195.2 | 189.1 | 189.9 |
| 60° | 2189.6 | 1470.7 | 422.0 | 250.6 | 282.2 | 289.6 | 275.2 | 228.7 | 193.4 | 182.9 | 183.7 |
| 62.5° | 2298.4 | 1477.4 | 404.1 | 235.1 | 259.2 | 270.4 | 271.2 | 227.3 | 188.3 | 170.4 | 170.4 |
| 65° | 2369.8 | 1448.5 | 372.8 | 217.4 | 234.3 | 250.6 | 263.4 | 222.8 | 179.2 | 161.3 | 161.3 |
| 67.5° | 2366.9 | 1366.1 | 323.9 | 194.7 | 210.2 | 228.7 | 252.2 | 215.0 | 168.2 | 150.0 | 150.8 |
| 70° | *2256.7* | *1203.5* | *261.8* | *168.2* | *183.7* | *205.1* | *237.8* | *203.5* | *155.1* | *137.7* | *139.3* |
| 72.5° | 1935.5 | 941.9 | 190.2 | 137.2 | 153.0 | 180.8 | 219.0 | 189.6 | 141.7 | 126.8 | 126.0 |
| 75° | 1382.7 | 596.1 | 128.9 | 105.4 | 119.0 | 153.2 | 195.8 | 173.3 | 129.4 | 127.3 | 120.1 |
| 77.5° | 706.3 | 284.8 | 85.3 | 77.0 | 82.9 | 120.9 | 164.5 | 154.8 | 131.3 | 105.1 | 93.6 |
| 80° | 229.7 | 105.1 | 53.8 | 52.4 | 55.1 | 80.5 | 127.3 | 127.0 | 99.5 | 71.4 | 63.1 |
| 82.5° | 73.3 | 45.2 | 35.0 | 33.7 | 32.4 | 50.5 | 88.8 | 100.6 | 67.1 | 45.2 | 44.9 |
| 85° | 29.2 | 27.0 | 20.6 | 19.0 | 13.6 | 23.8 | 46.5 | 66.9 | 50.0 | 32.6 | 33.4 |
| 87.5° | 10.7 | 10.7 | 5.6 | 4.0 | 2.9 | 8.0 | 12.6 | 20.1 | 28.6 | 16.8 | 16.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |


HS
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1121 Highway 74 South
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

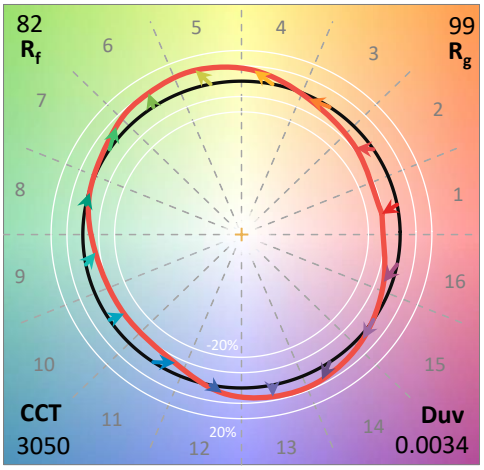
## Test Information

| | |
|---|---|
| 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

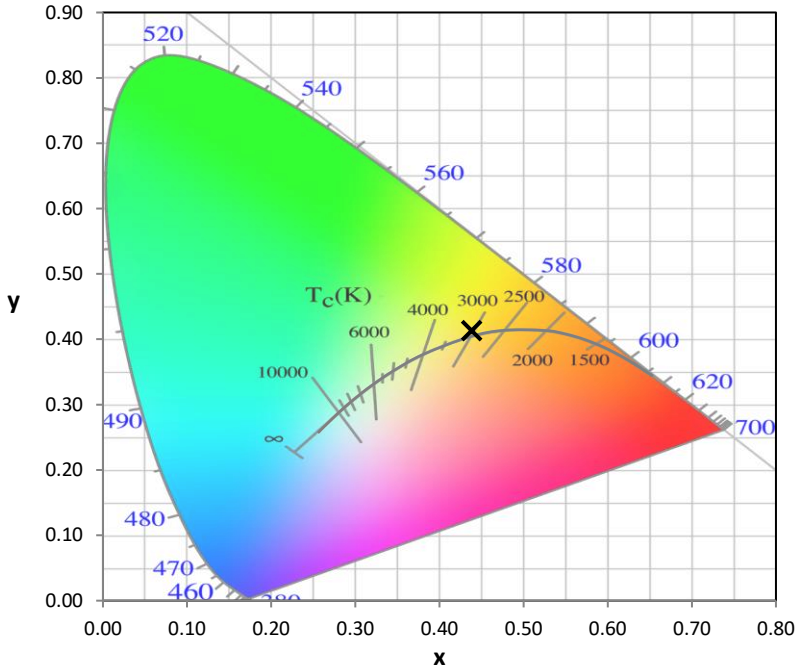
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 24.2 |

REPORT NUMBER: SP1-2408-195-9

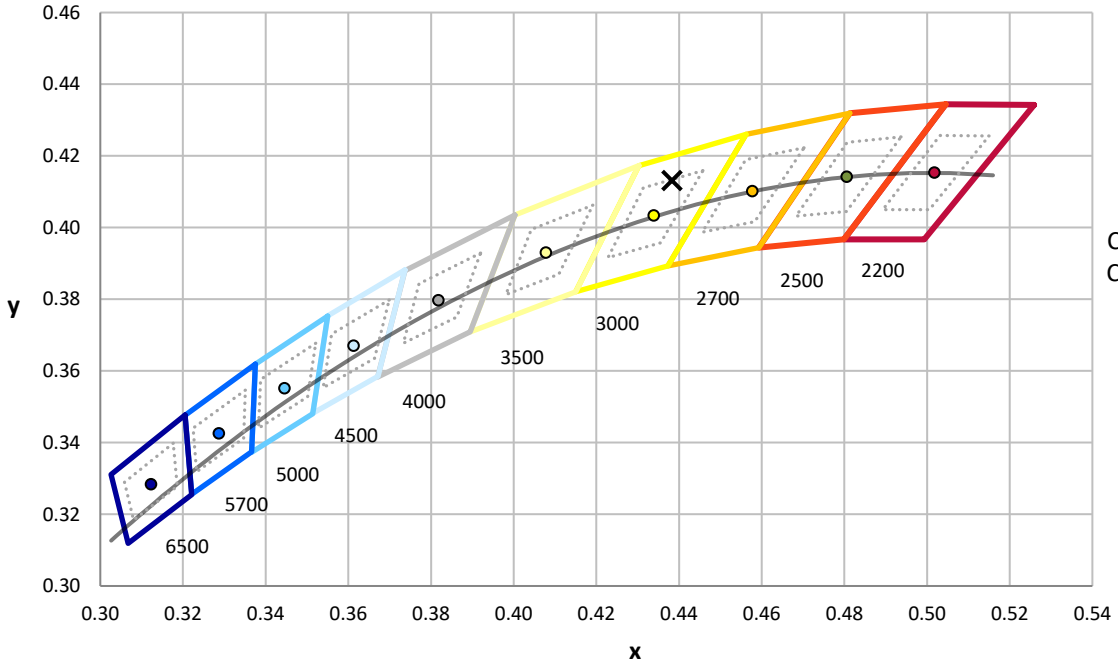
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

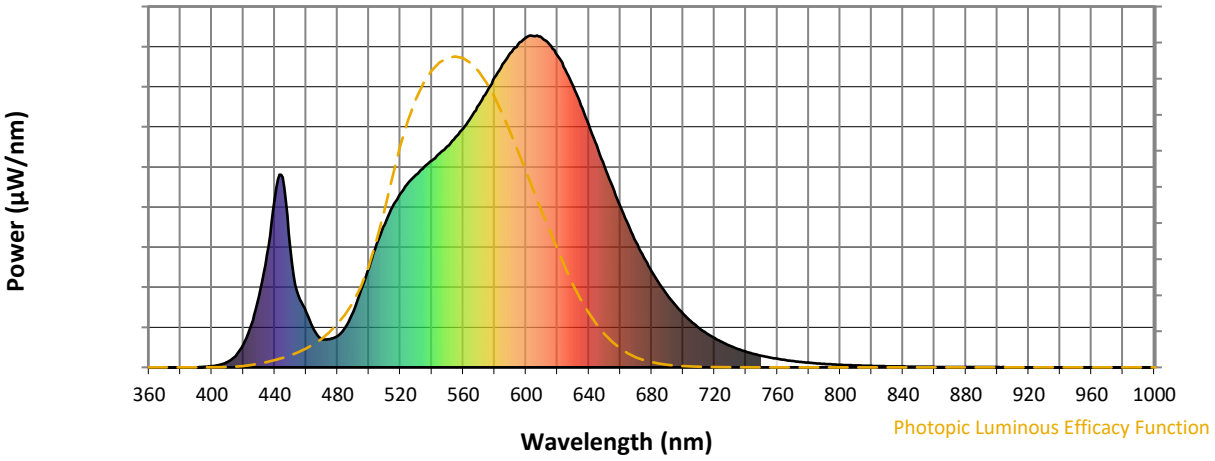



CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

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## Photopic Flux vs. Wavelength

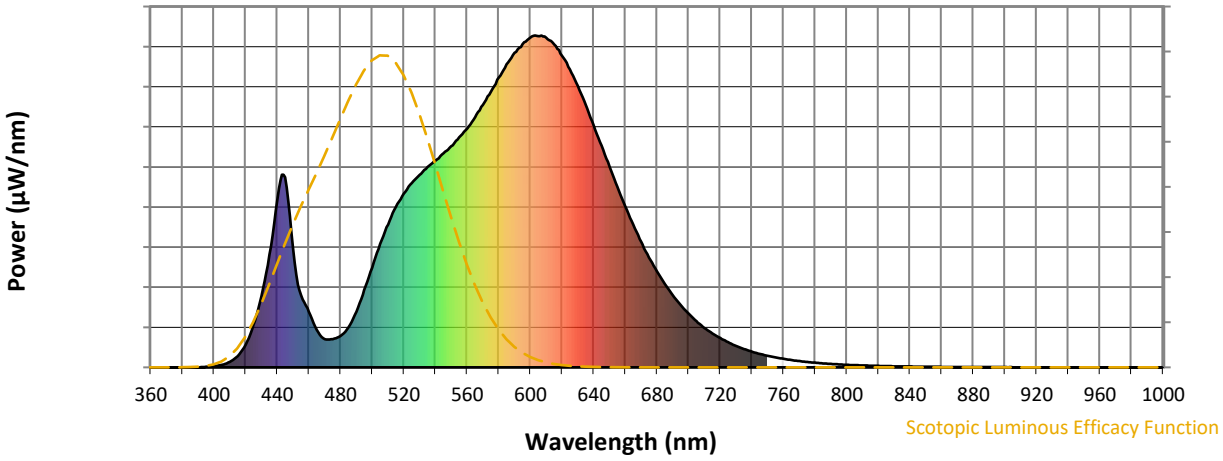



## Photopic Lumens: NR

| 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

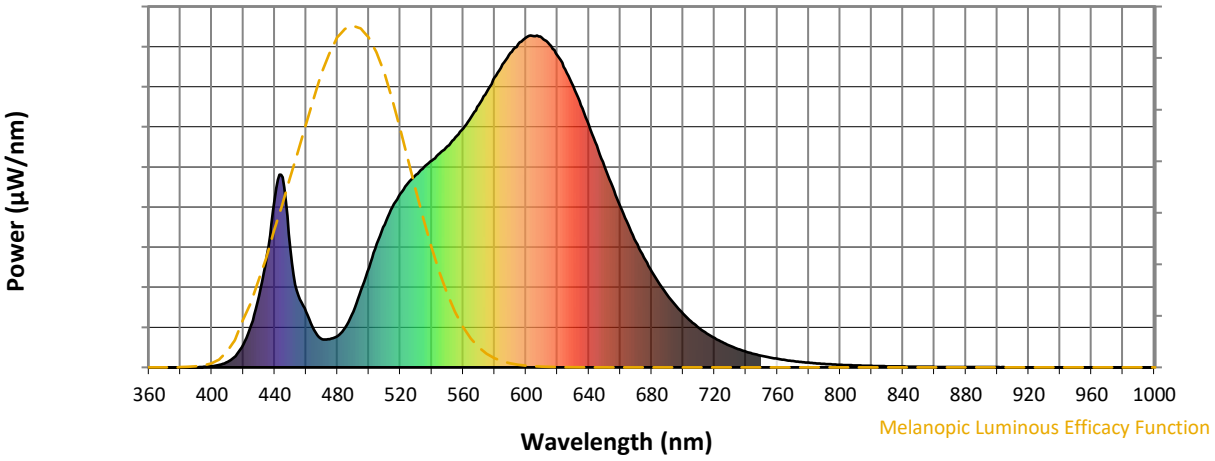



**Scotopic Lumens: NR** **S/P: 1.27**

| 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 | | | |

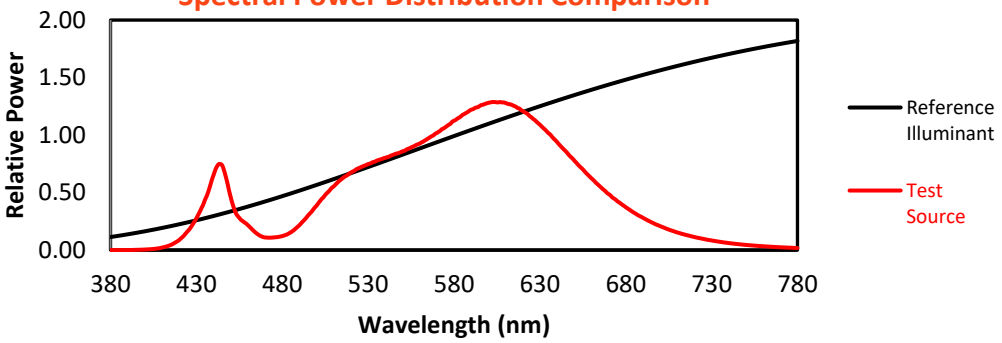
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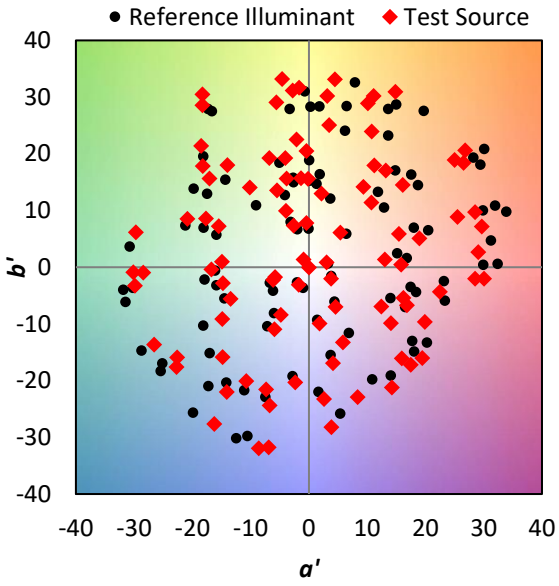
## Summary

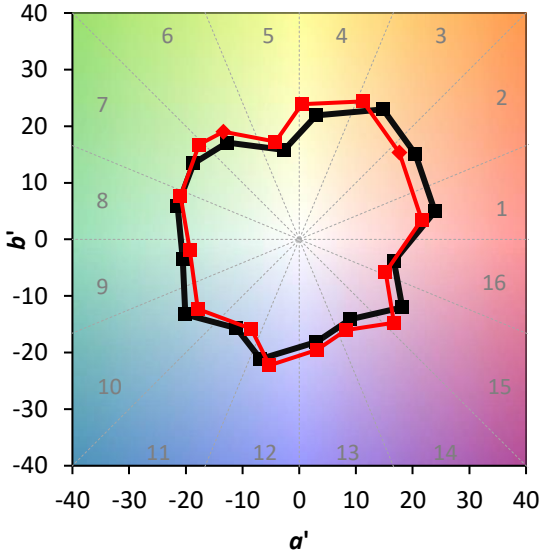
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

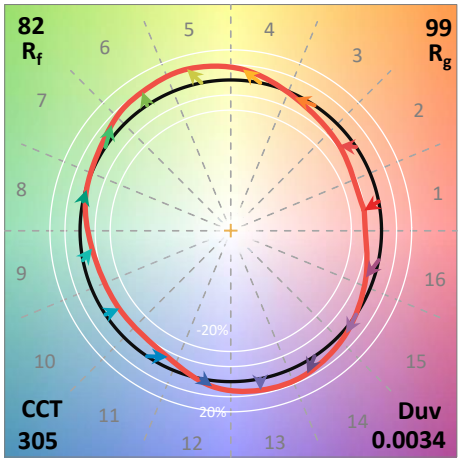
## Spectral Power Distribution Comparison

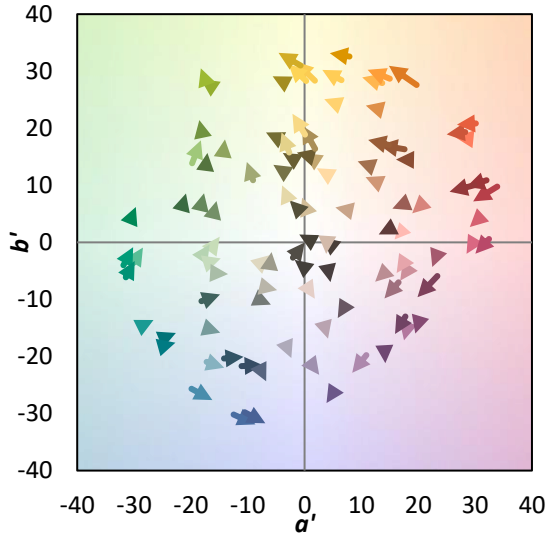



## Color Vector Graphics



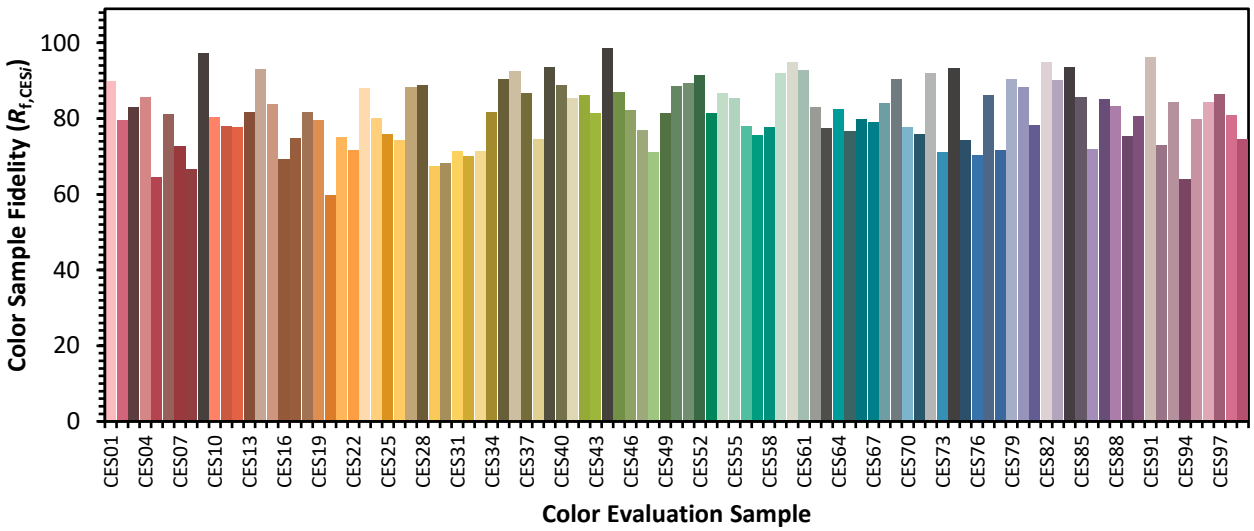



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**Individual Sample Fidelity Index ($R_{f,i}$)**

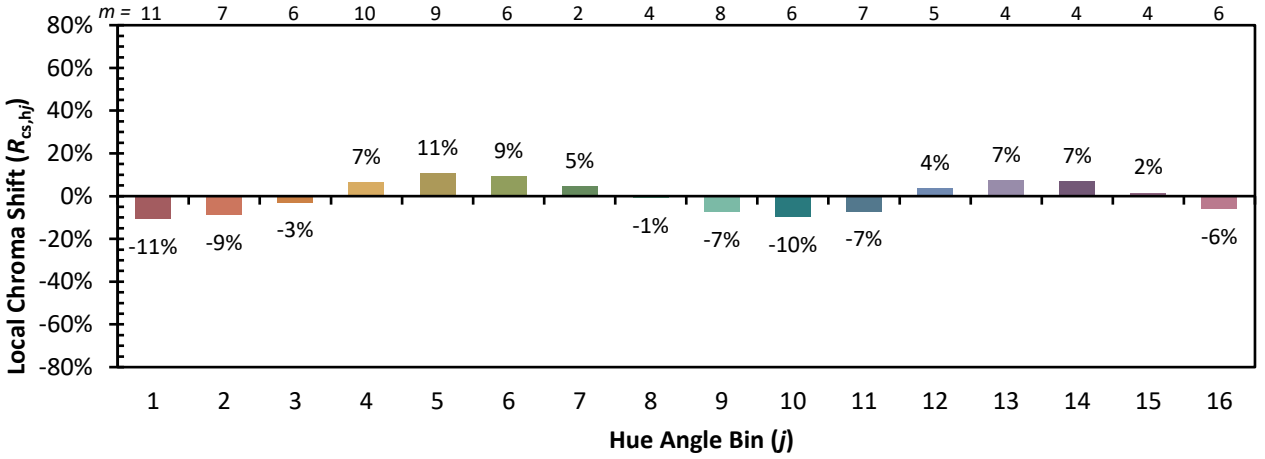
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06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

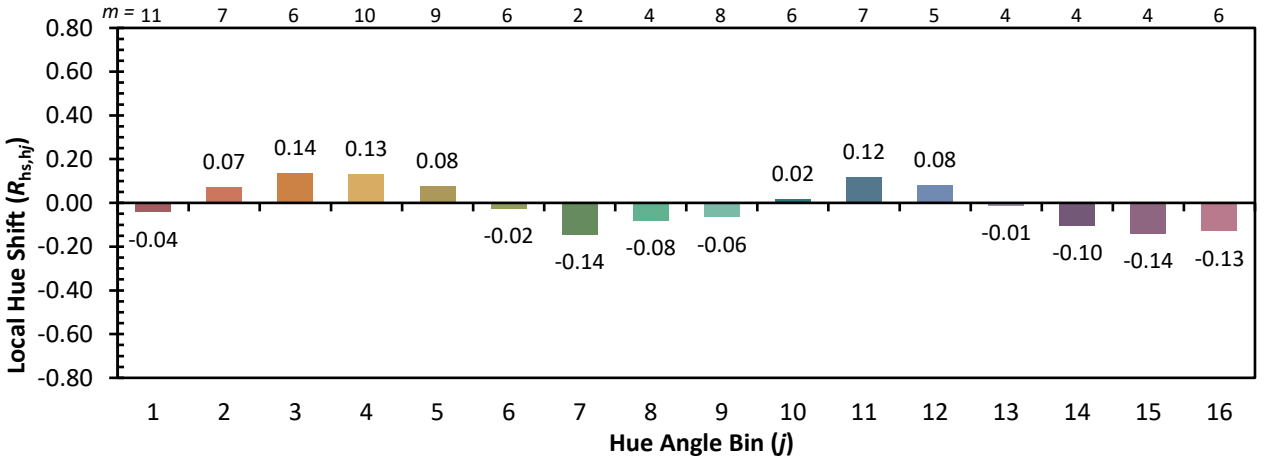


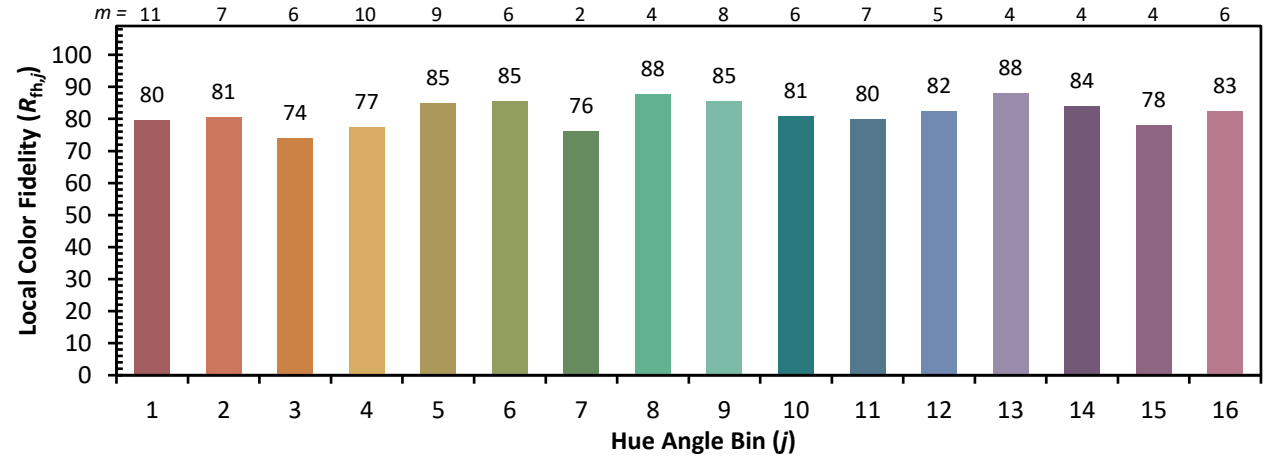
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## Color Rendition by Hue-Angle Bin



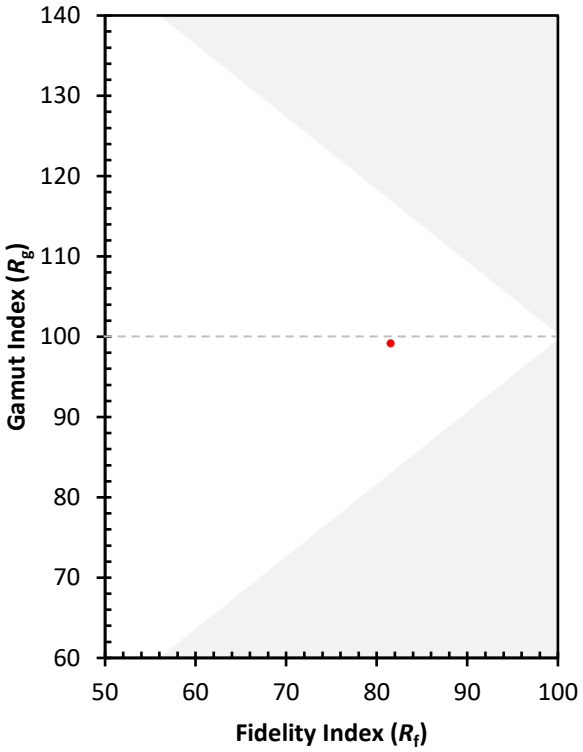



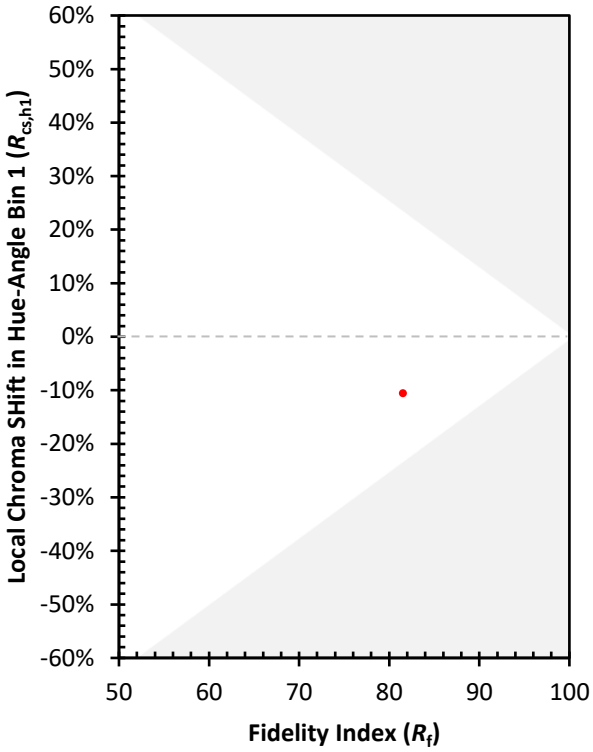



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## Measure Comparisons




(END OF REPORT)