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: P1197957

Luminaire Tested: GPC-SB1B-830-U-SL2

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: | P1197957 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2411-289-10) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/15/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GPC-SB1B-830-U-SL2 |
| Description: | GALLEON PEDESTRIAN LUMINAIRE |
| | (1) 80 CRI, 3000K, 450mA LIGHTSQUARE WITH 26 LEDS AND TYPE II SPILL LIGHT ELIMINATOR OPTICS |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 5056 lumens |
| Efficiency: | N/A |
| Efficacy: | 127.0 lumens/watt |
| Luminous Opening: | Rectangular (W 0.5' x L: 0.5' x H: 0') |
| IES Classification: | Type II - 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 |

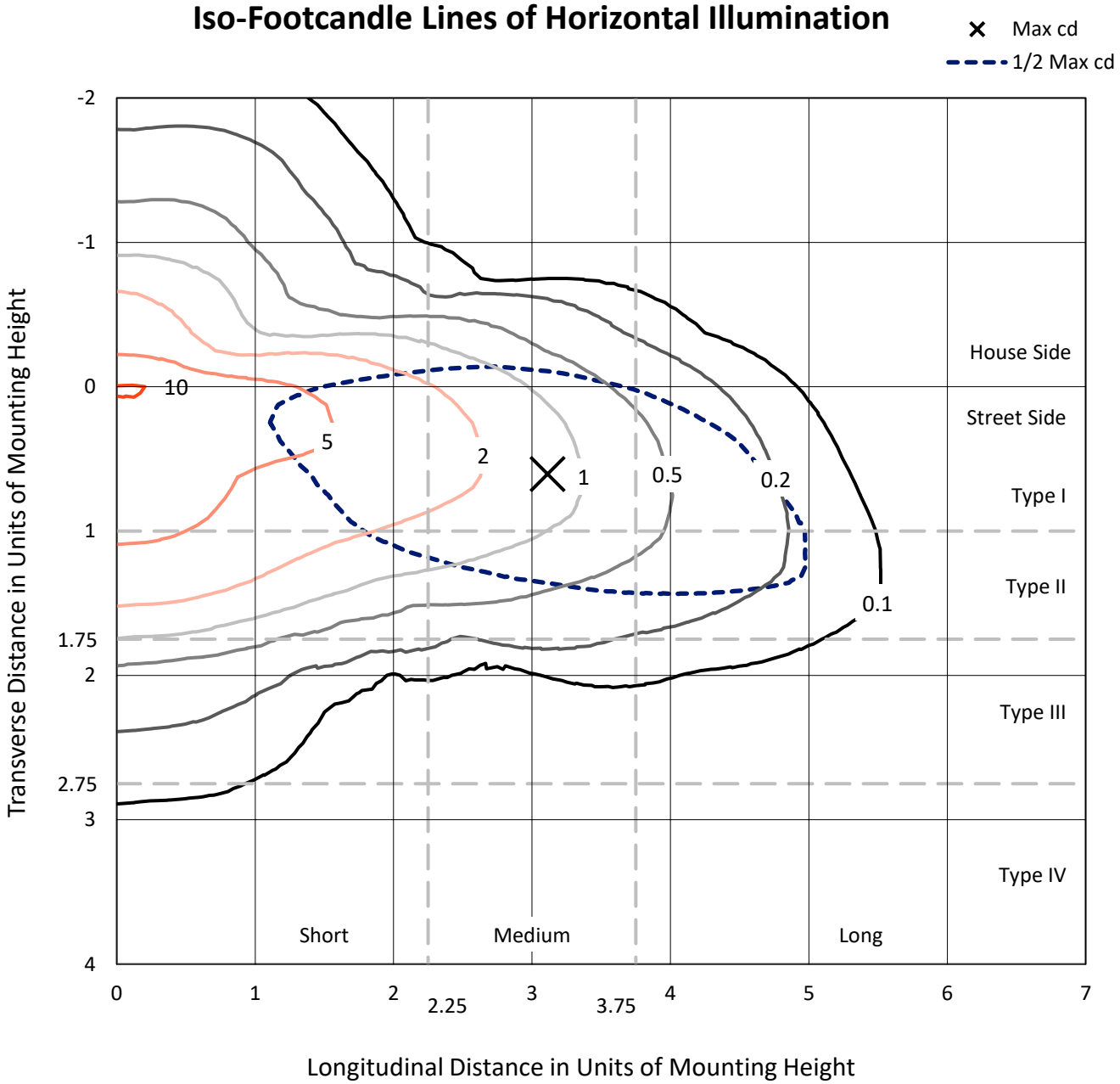


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REPORT NUMBER: P1197957
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## Iso-Footcandle Lines of Horizontal Illumination



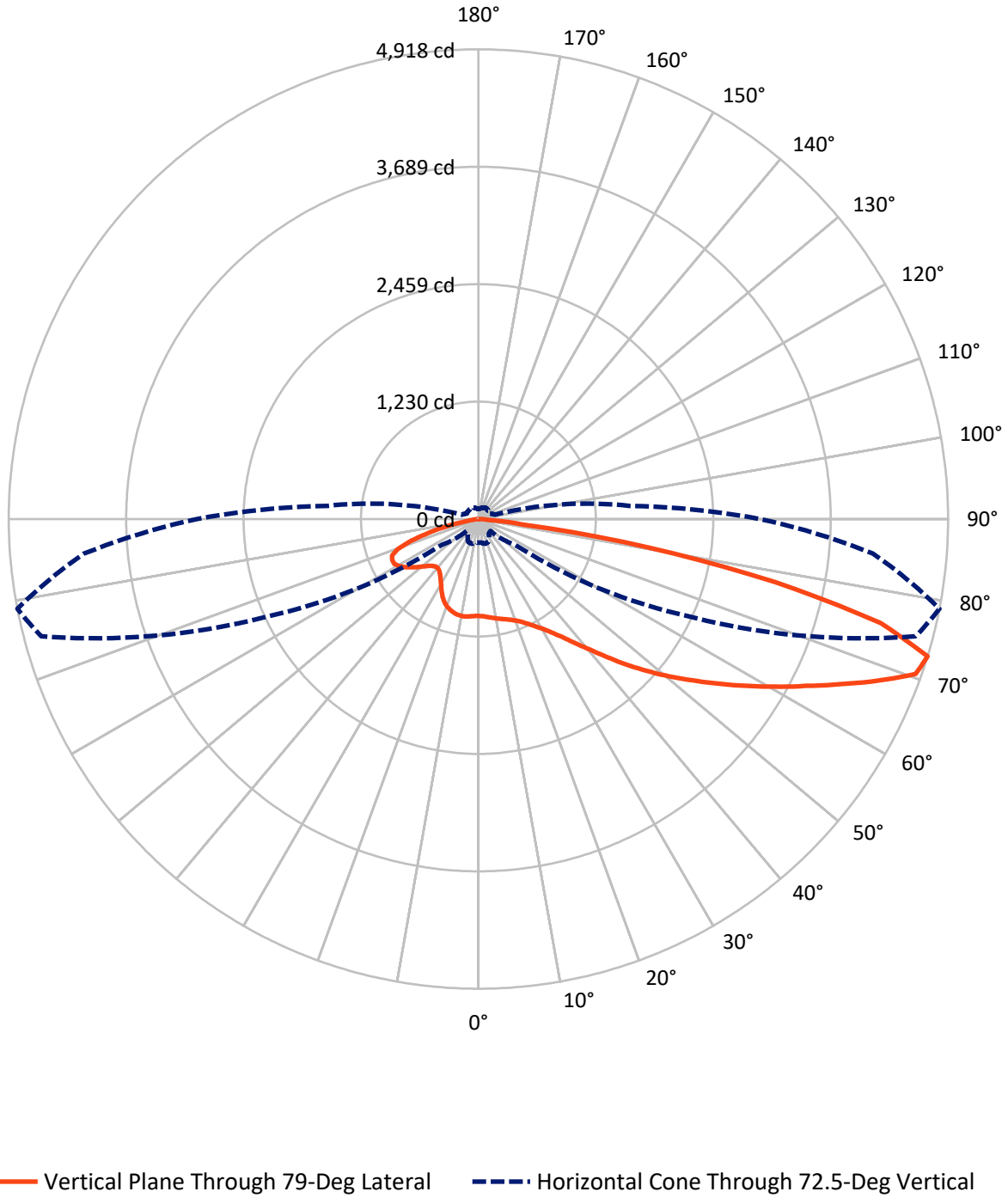

Based on 10 foot mounting height. Maximum calculated value = 10.2 fc
Type II - Medium - N/A

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## Luminous Intensity Polar Plot



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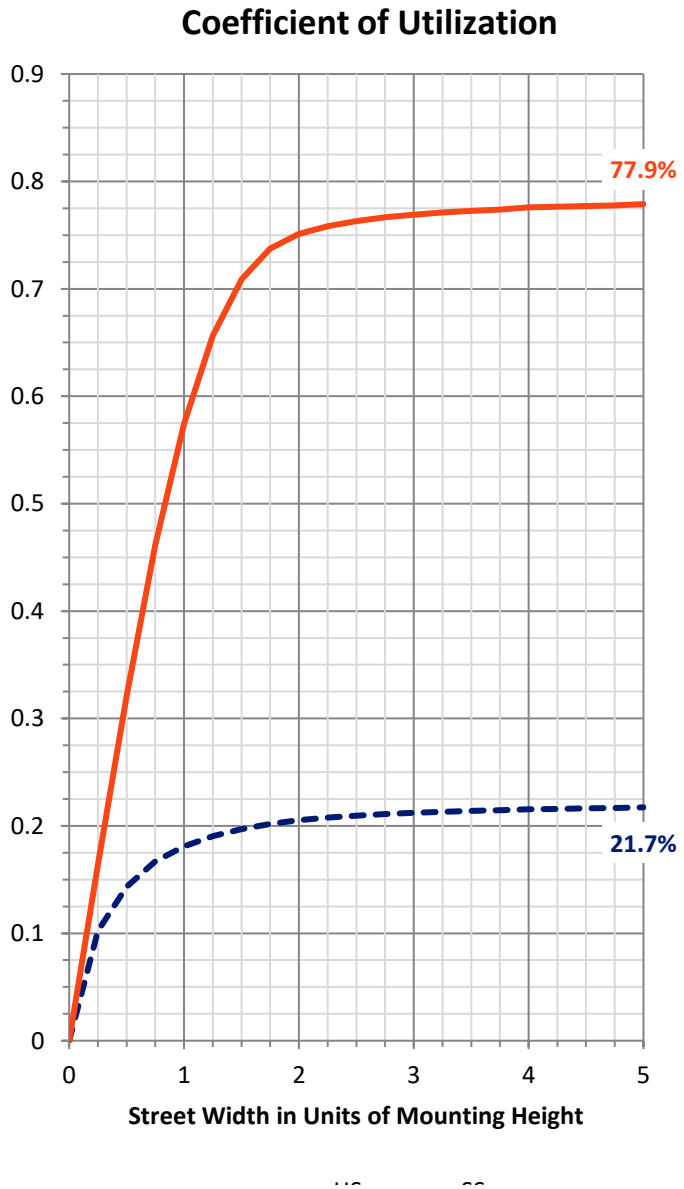
REPORT NUMBER: P1197957
CATALOG NUMBER: GPC-SB1B-830-U-SL2

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1112.6 | 0.0 | 1112.6 |
| | % Fixture | 22.0 | 0.0 | 22.0 |
| **Street Side** | Lumens | 3943.4 | 0.0 | 3943.4 |
| | % Fixture | 78.0 | 0.0 | 78.0 |
| **Total** | Lumens | 5056.0 | 0.0 | 5056.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 92.1 | 1.8 |
| 10°-20° | 240.9 | 4.8 |
| 20°-30° | 388.7 | 7.7 |
| 30°-40° | 583.3 | 11.5 |
| 40°-50° | 827.5 | 16.4 |
| 50°-60° | 1045.0 | 20.7 |
| 60°-70° | 1061.3 | 21.0 |
| 70°-80° | 723.3 | 14.3 |
| 80°-90° | 93.9 | 1.9 |
| 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° | 5056.0 | 100.0 |
| 0°-180° | 5056.0 | 100.0 |



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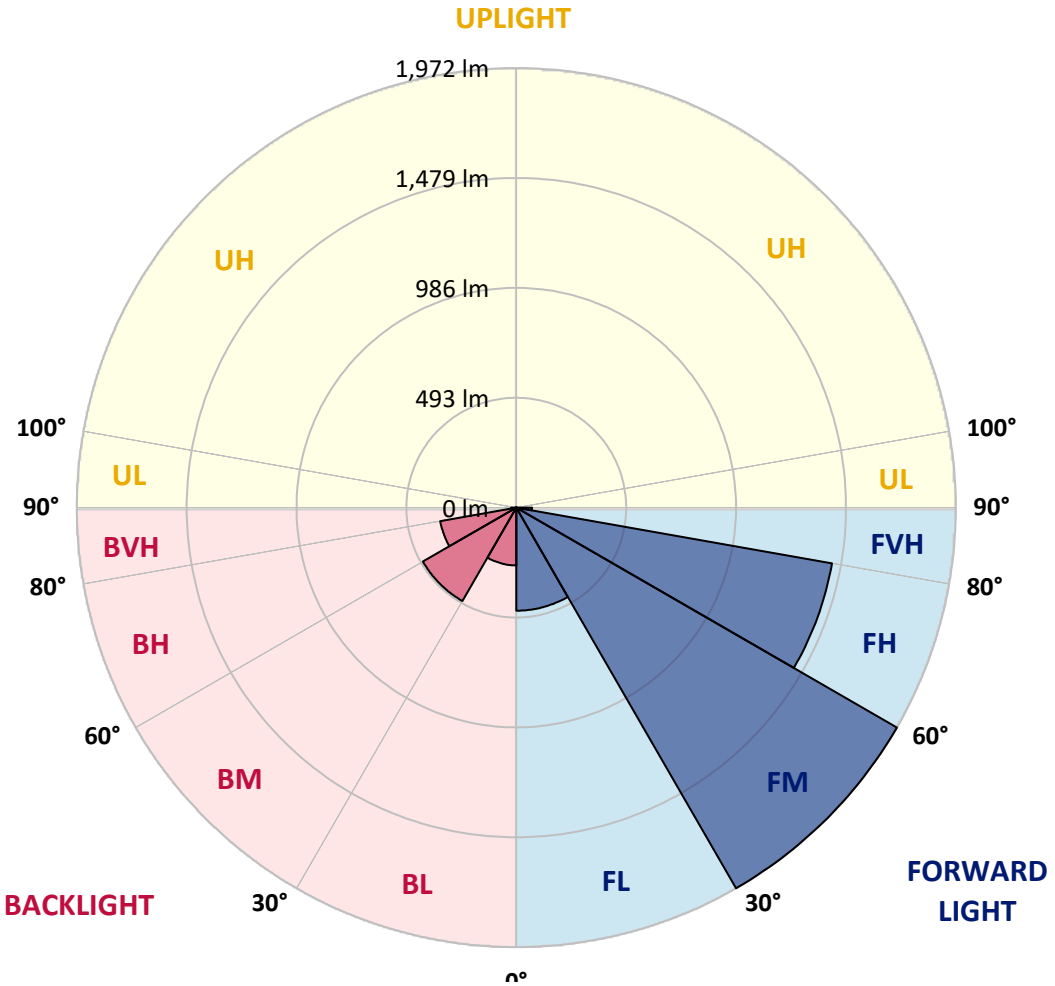
Scaled Data Report

REPORT NUMBER: P1197957
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## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 462.5 | 9.1 | | | |
| FM | (30°-60°) | 1971.9 | 39.0 | | | |
| FH | (60°-80°) | 1438.3 | 28.4 | | | G1/1800 |
| FVH | (80°-90°) | 70.7 | 1.4 | | | G1/100 |
| BL | (0°-30°) | 259.2 | 5.1 | B1/500 | | |
| BM | (30°-60°) | 483.9 | 9.6 | B1/1000 | | |
| BH | (60°-80°) | 346.4 | 6.9 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 23.2 | 0.5 | | | 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 II Medium



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 79° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | *1014.9* | 1014.9 |
| 2.5° | 1015.5 | 1010.7 | 1013.6 | 1012.5 | 1013.9 | 1015.5 | 1016.0 | 1016.8 | 1019.5 | *1019.2* | 1019.0 |
| 5° | 1013.3 | 1008.5 | 1012.5 | 1011.2 | 1014.7 | 1018.4 | 1021.6 | 1024.6 | 1028.9 | *1030.7* | 1028.0 |
| 7.5° | 1008.8 | 1005.6 | 1009.6 | 1013.6 | 1020.0 | 1025.6 | 1030.2 | 1036.9 | 1043.0 | *1044.1* | 1046.0 |
| 10° | 982.3 | 979.9 | 989.3 | 999.7 | 1017.4 | 1032.6 | 1042.5 | 1050.2 | 1056.9 | *1058.0* | 1060.7 |
| 12.5° | 954.8 | 951.8 | 962.3 | 976.4 | 1005.0 | 1032.6 | 1053.5 | 1063.6 | 1069.5 | *1073.0* | 1077.0 |
| 15° | 950.2 | 947.8 | 953.7 | 966.0 | 989.8 | 1025.4 | 1060.9 | 1079.7 | 1084.7 | *1088.8* | 1090.4 |
| 17.5° | 972.2 | 967.6 | 970.0 | 974.3 | 988.2 | 1018.7 | 1066.8 | 1097.9 | 1105.6 | *1109.9* | 1109.9 |
| 20° | 1023.0 | 1016.5 | 1012.8 | 1004.2 | 1001.8 | 1019.8 | 1066.3 | 1119.8 | 1129.9 | *1135.3* | 1136.6 |
| 22.5° | 1090.6 | 1086.4 | 1078.3 | 1056.7 | 1033.1 | 1032.9 | 1076.5 | 1147.9 | 1166.9 | *1171.9* | 1168.7 |
| 25° | 1172.5 | 1166.0 | 1155.9 | 1126.5 | 1081.3 | 1058.8 | 1093.6 | 1183.7 | 1215.5 | *1216.9* | 1207.5 |
| 27.5° | 1266.6 | 1257.0 | 1243.1 | 1204.3 | 1143.3 | 1099.5 | 1119.8 | 1224.9 | 1271.4 | *1270.9* | 1251.6 |
| 30° | 1365.8 | 1356.2 | 1341.5 | 1294.4 | 1217.7 | 1154.3 | 1156.2 | 1269.3 | 1337.7 | *1334.8* | 1301.9 |
| 32.5° | 1438.3 | 1431.1 | 1428.1 | 1391.8 | 1303.2 | 1219.0 | 1197.9 | 1318.5 | 1419.6 | *1416.9* | 1370.9 |
| 35° | 1493.9 | 1484.6 | 1488.0 | 1469.6 | 1396.6 | 1291.5 | 1249.0 | 1377.1 | 1519.1 | *1518.8* | 1461.6 |
| 37.5° | 1549.0 | 1540.7 | 1543.7 | 1531.4 | 1483.0 | 1383.5 | 1311.3 | 1448.7 | 1642.4 | *1648.2* | 1571.2 |
| 40° | 1599.3 | 1590.5 | 1602.2 | 1590.7 | 1550.1 | 1481.4 | 1382.1 | 1529.8 | 1785.2 | *1796.4* | 1703.9 |
| 42.5° | 1629.5 | 1622.6 | 1642.1 | 1642.4 | 1608.4 | 1564.0 | 1460.0 | 1619.1 | 1950.5 | *1975.6* | 1867.0 |
| 45° | 1640.0 | 1637.5 | 1667.0 | 1673.1 | 1660.0 | 1611.9 | 1530.0 | 1716.4 | 2128.6 | *2173.5* | 2052.9 |
| 47.5° | 1628.7 | 1624.2 | 1664.8 | 1687.6 | 1698.0 | 1634.3 | 1588.1 | 1821.8 | 2310.4 | *2376.2* | 2255.6 |
| 50° | 1572.0 | 1563.2 | 1623.6 | 1671.5 | 1708.7 | 1649.0 | 1646.6 | 1943.5 | 2517.2 | *2589.1* | 2459.4 |
| 52.5° | 1470.1 | 1463.4 | 1532.2 | 1615.4 | 1685.2 | 1656.3 | 1712.4 | 2076.4 | 2713.5 | *2806.5* | 2668.3 |
| 55° | 1339.9 | 1331.1 | 1406.7 | 1515.3 | 1626.6 | 1653.9 | 1778.2 | 2225.1 | 2945.1 | *3039.5* | 2884.1 |
| 57.5° | 1133.4 | 1115.8 | 1211.5 | 1339.9 | 1531.1 | 1650.9 | 1846.7 | 2373.0 | 3180.4 | *3293.6* | 3114.4 |
| 60° | 832.3 | 806.1 | 923.5 | 1075.7 | 1344.4 | 1622.3 | 1931.5 | 2538.8 | 3462.8 | *3564.7* | 3365.8 |
| 62.5° | 484.6 | 469.4 | 546.1 | 688.1 | 1013.3 | 1453.8 | 1979.1 | 2731.7 | 3740.4 | *3847.4* | 3612.9 |
| 65° | 376.3 | 372.0 | 378.7 | 389.7 | 564.0 | 1088.5 | 1832.2 | 2919.7 | 4093.5 | *4168.4* | 3870.4 |
| 67.5° | 344.2 | 341.0 | 343.9 | 323.3 | 286.2 | 606.3 | 1449.5 | 2967.3 | 4471.6 | *4517.1* | 4095.9 |
| 70° | 306.0 | 302.2 | 311.8 | 294.2 | 225.2 | 275.7 | 936.6 | 2794.5 | 4772.5 | *4857.8* | 4267.3 |
| 72.5° | *249.3* | *245.0* | *267.4* | *259.4* | *189.6* | *177.0* | *470.4* | *2384.0* | *4741.0* | *4918.0* | *4144.6* |
| 75° | 191.5 | 189.1 | 215.8 | 222.5 | 154.6 | 139.3 | 225.7 | 1772.1 | 4172.1 | *4350.5* | 3572.0 |
| 77.5° | 148.7 | 146.8 | 160.5 | 184.8 | 124.6 | 108.0 | 138.8 | 1124.1 | 3144.1 | *3175.3* | 2461.5 |
| 80° | 111.5 | 106.2 | 118.7 | 143.1 | 97.1 | 78.9 | 94.1 | 655.5 | 1987.4 | *1801.5* | 1071.4 |
| 82.5° | 69.8 | 67.1 | 77.6 | 95.5 | 68.5 | 54.3 | 61.2 | 362.1 | 796.4 | *469.1* | 206.7 |
| 85° | 39.8 | 38.8 | 42.3 | 54.6 | 37.2 | 31.3 | 35.0 | 159.9 | 145.5 | *100.0* | 62.3 |
| 87.5° | 16.0 | 15.5 | 19.3 | 24.3 | 13.6 | 11.5 | 12.3 | 38.5 | 32.1 | *29.7* | 20.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 |

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Scaled Data Report

REPORT NUMBER: P1197957
CATALOG NUMBER: GPC-SB1B-830-U-SL2

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 | 1014.9 |
| 2.5° | 1017.9 | 1017.9 | 1014.1 | 1008.3 | 1001.6 | 997.3 | 990.3 | 988.5 | 981.2 | 979.1 | 982.6 |
| 5° | 1030.2 | 1028.0 | 1016.5 | 1000.0 | 977.2 | 956.4 | 933.4 | 918.9 | 898.6 | 891.4 | 896.7 |
| 7.5° | 1045.7 | 1039.8 | 1020.0 | 983.7 | 936.0 | 889.2 | 840.6 | 803.7 | 768.4 | 755.8 | 757.4 |
| 10° | 1059.9 | 1051.6 | 1017.9 | 954.2 | 871.9 | 790.8 | 713.3 | 659.0 | 617.8 | 600.9 | 604.7 |
| 12.5° | 1074.0 | 1058.8 | 1003.7 | 905.3 | 780.7 | 670.7 | 588.1 | 545.8 | 520.4 | 500.1 | 506.8 |
| 15° | 1087.4 | 1066.0 | 981.8 | 839.8 | 680.6 | 569.1 | 508.1 | 474.4 | 454.1 | 440.7 | 443.2 |
| 17.5° | 1102.9 | 1072.2 | 948.9 | 756.6 | 585.4 | 498.8 | 449.0 | 428.7 | 424.7 | 423.1 | 424.2 |
| 20° | 1124.6 | 1077.8 | 905.6 | 663.5 | 515.4 | 442.6 | 416.9 | 415.1 | 414.8 | 414.0 | 416.7 |
| 22.5° | 1147.9 | 1084.5 | 848.3 | 579.0 | 455.7 | 407.6 | 403.0 | 399.3 | 396.9 | 396.6 | 399.6 |
| 25° | 1175.4 | 1086.6 | 776.7 | 509.7 | 404.9 | 391.0 | 385.7 | 380.0 | 378.4 | 378.4 | 380.0 |
| 27.5° | 1202.2 | 1079.4 | 693.2 | 449.6 | 376.3 | 375.8 | 368.8 | 366.9 | 366.7 | 367.5 | 369.6 |
| 30° | 1228.9 | 1065.8 | 610.3 | 393.9 | 359.7 | 359.7 | 357.3 | 358.6 | 359.7 | 362.4 | 364.3 |
| 32.5° | 1265.0 | 1051.3 | 541.0 | 352.8 | 345.3 | 342.6 | 345.0 | 347.7 | 348.7 | 352.2 | 355.2 |
| 35° | 1318.0 | 1041.2 | 485.9 | 330.3 | 330.3 | 326.8 | 328.2 | 327.6 | 325.2 | 323.6 | 327.3 |
| 37.5° | 1388.0 | 1040.6 | 440.5 | 319.9 | 317.7 | 317.2 | 317.5 | 314.0 | 304.6 | 293.4 | 293.7 |
| 40° | 1472.3 | 1055.1 | 405.4 | 312.6 | 311.0 | 314.2 | 312.6 | 303.3 | 277.6 | 258.1 | 257.5 |
| 42.5° | 1585.4 | 1096.2 | 383.0 | 303.8 | 308.6 | 312.6 | 306.2 | 273.9 | 256.5 | 243.4 | 242.8 |
| 45° | 1718.6 | 1163.1 | 371.5 | 294.5 | 304.1 | 308.9 | 277.9 | 263.7 | 249.8 | 234.0 | 232.9 |
| 47.5° | 1869.4 | 1247.4 | 368.8 | 285.6 | 293.9 | 296.9 | 265.8 | 259.4 | 243.6 | 226.5 | 225.2 |
| 50° | 2033.6 | 1347.1 | 376.0 | 275.2 | 279.2 | 269.0 | 261.8 | 255.9 | 239.6 | 222.8 | 220.9 |
| 52.5° | 2203.5 | 1457.0 | 390.5 | 261.0 | 264.5 | 253.3 | 260.2 | 255.1 | 237.2 | 214.5 | 212.9 |
| 55° | 2370.3 | 1567.7 | 404.4 | 244.4 | 249.5 | 239.1 | 255.7 | 251.9 | 226.3 | 200.6 | 199.2 |
| 57.5° | 2539.9 | 1677.9 | 418.0 | 229.7 | 235.1 | 225.5 | 248.5 | 243.4 | 214.0 | 187.7 | 187.2 |
| 60° | 2716.1 | 1784.9 | 424.4 | 215.6 | 219.3 | 212.9 | 237.5 | 228.7 | 200.0 | 174.6 | 173.8 |
| 62.5° | 2881.2 | 1874.0 | 414.0 | 201.4 | 203.8 | 201.1 | 223.0 | 211.3 | 186.1 | 159.9 | 159.7 |
| 65° | 3046.7 | 1926.9 | 381.9 | 187.5 | 188.0 | 186.7 | 202.7 | 192.6 | 169.8 | 147.1 | 145.5 |
| 67.5° | 3196.7 | 1956.6 | 330.8 | 172.5 | 171.2 | 170.6 | 183.7 | 172.2 | 154.0 | 134.3 | 132.7 |
| 70° | 3228.6 | 1881.2 | 252.7 | 154.8 | 154.8 | 153.5 | 162.9 | 151.1 | 136.7 | 120.6 | 120.1 |
| 72.5° | *2948.8* | *1582.5* | *179.5* | *134.8* | *136.9* | *134.3* | *142.0* | *132.1* | *119.0* | *108.3* | *105.1* |
| 75° | 2377.8 | 1160.4 | 130.5 | 114.2 | 117.9 | 113.4 | 120.6 | 113.7 | 102.4 | 102.2 | 92.0 |
| 77.5° | 1633.8 | 717.5 | 94.7 | 94.1 | 96.8 | 90.9 | 99.2 | 95.5 | 85.3 | 80.8 | 75.7 |
| 80° | 697.2 | 286.2 | 69.0 | 72.7 | 72.7 | 67.4 | 77.0 | 78.1 | 69.3 | 67.1 | 67.1 |
| 82.5° | 138.8 | 81.3 | 48.4 | 50.0 | 47.1 | 45.5 | 54.6 | 60.4 | 83.4 | 92.8 | 93.1 |
| 85° | 41.7 | 30.0 | 29.2 | 27.3 | 24.1 | 24.3 | 32.1 | 60.7 | 74.9 | 42.8 | 36.9 |
| 87.5° | 11.5 | 7.5 | 7.8 | 6.2 | 5.1 | 6.7 | 11.0 | 46.0 | 25.1 | 10.7 | 9.1 |
| 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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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

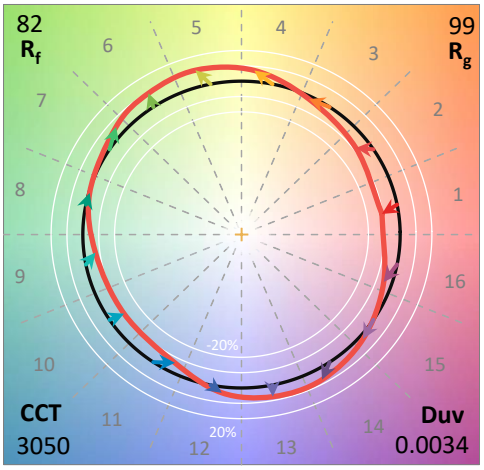
## Test Information

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

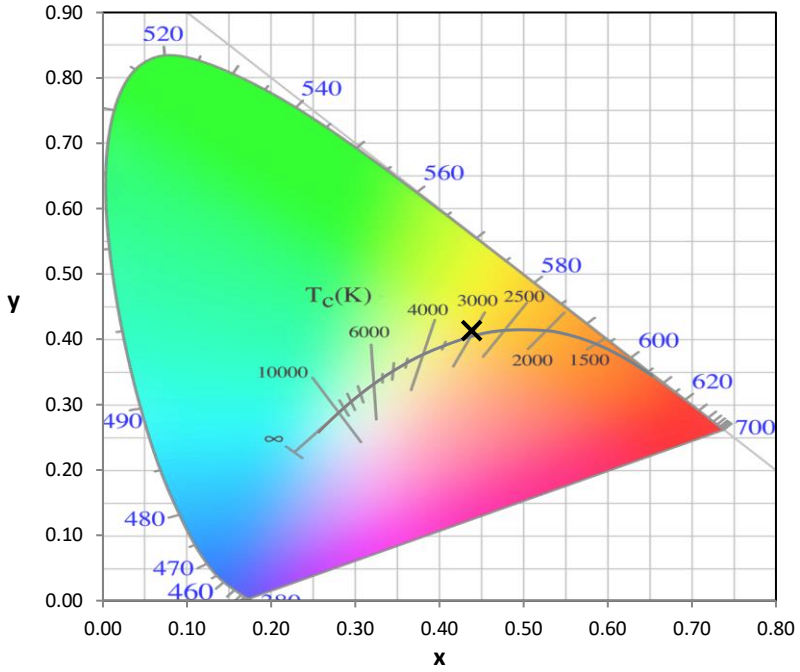
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 24.2 |

REPORT NUMBER: SP1-2408-195-9

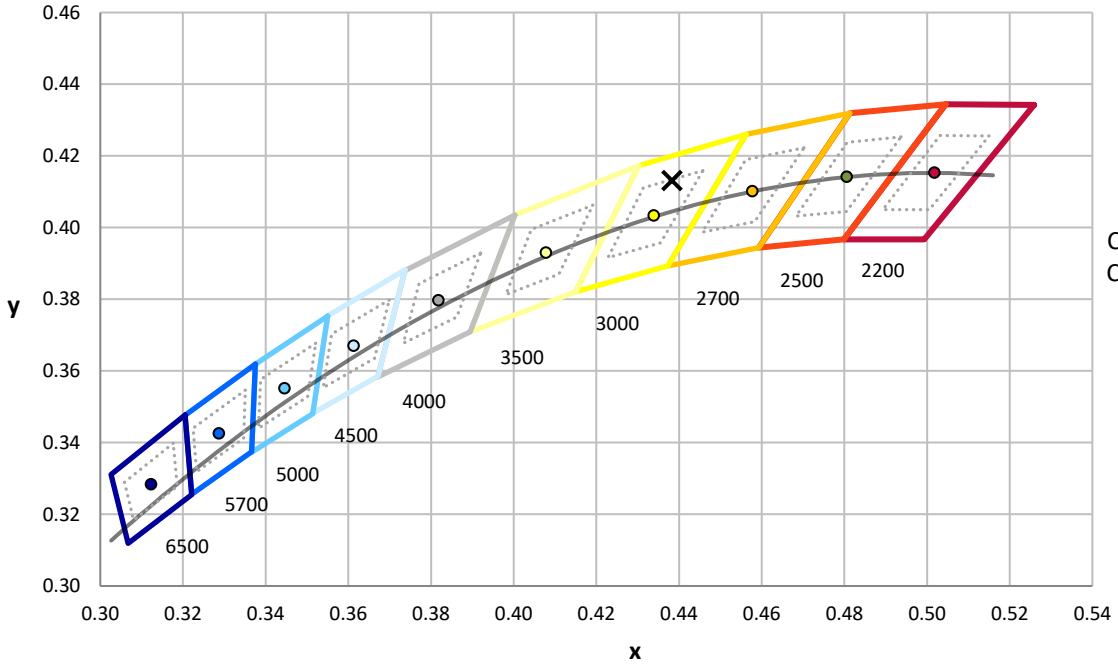
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

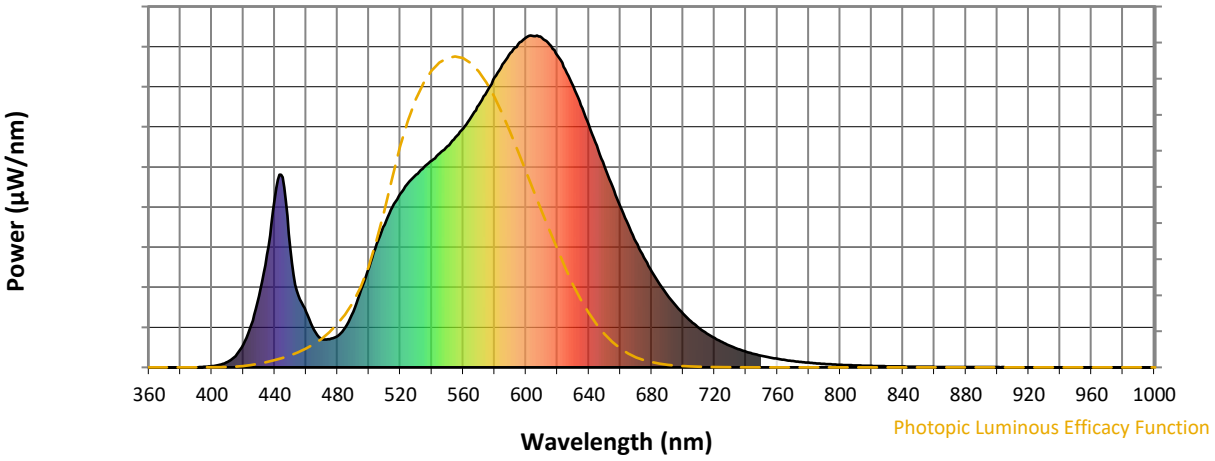



CCT = 3050K
CIE x = 0.4383
CIE y = 0.4131
Duv = 0.0034

Point lies inside the ANSI 3000K 4-step quadrangle

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## Photopic Flux vs. Wavelength

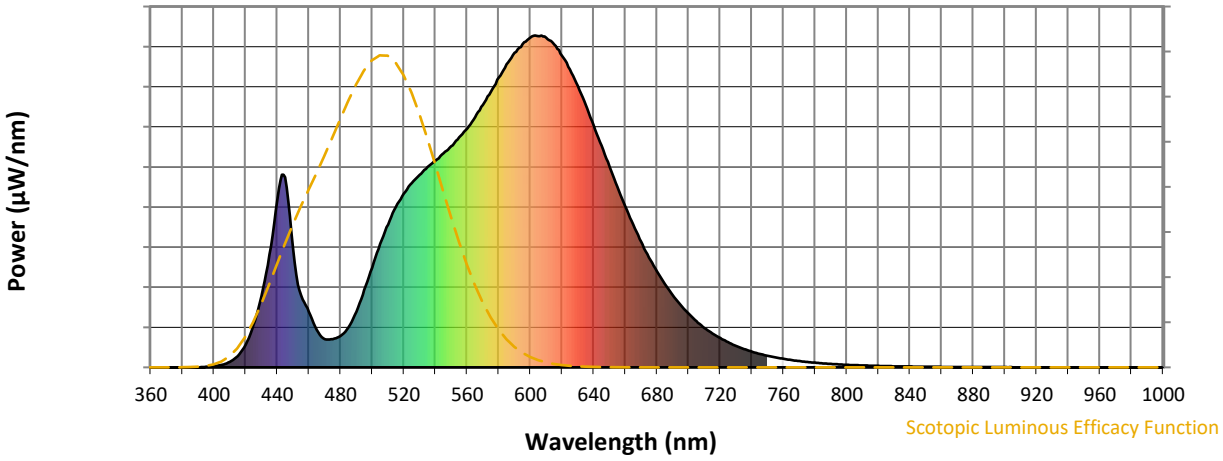



## Photopic Lumens: NR

| 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

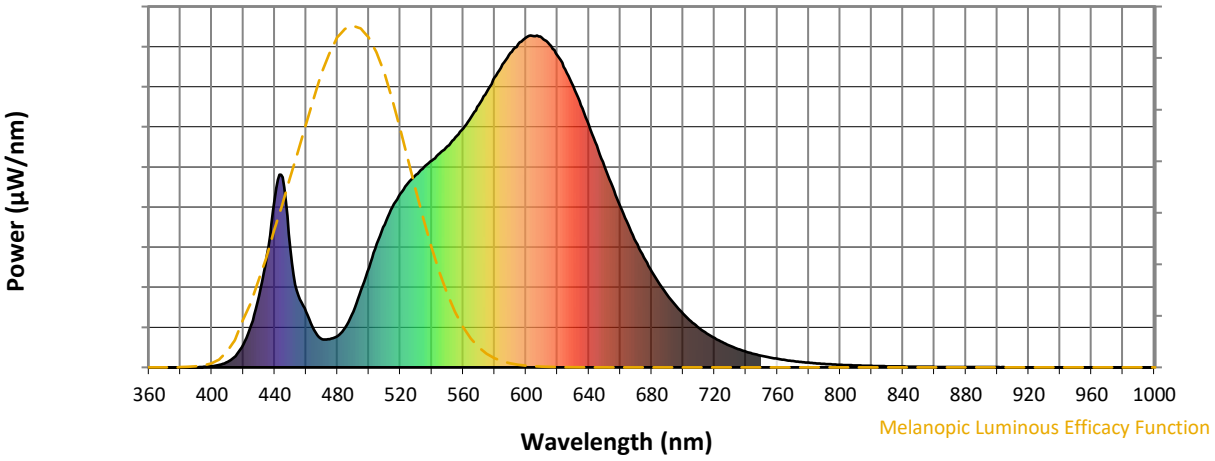



**Scotopic Lumens: NR** **S/P: 1.27**

| 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 | | | |

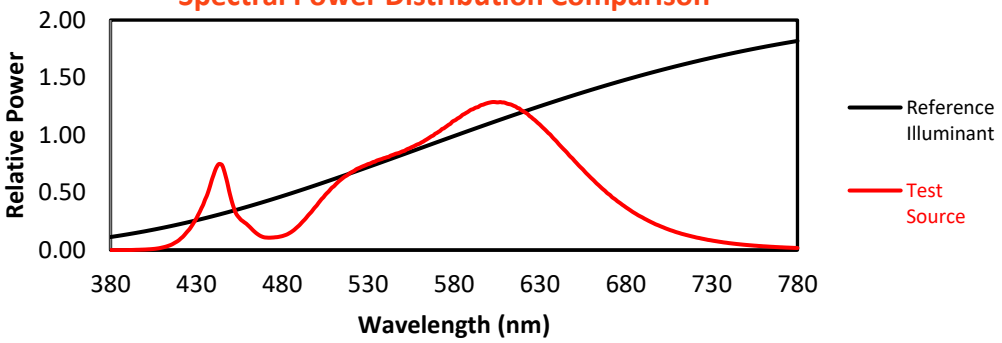
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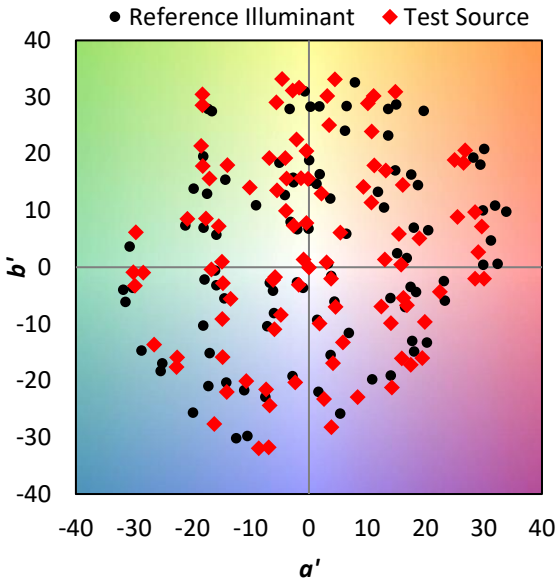
## Summary

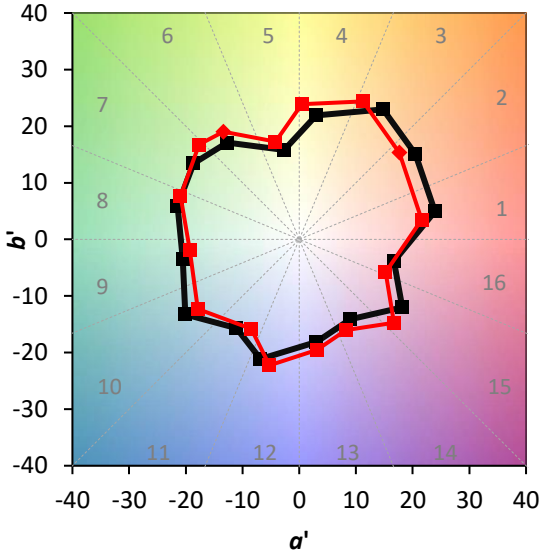
$R_f$ = 81.5
$R_g$ = 99.2
CIE $R_a$ = 81.0
$R_9$ = 7.1

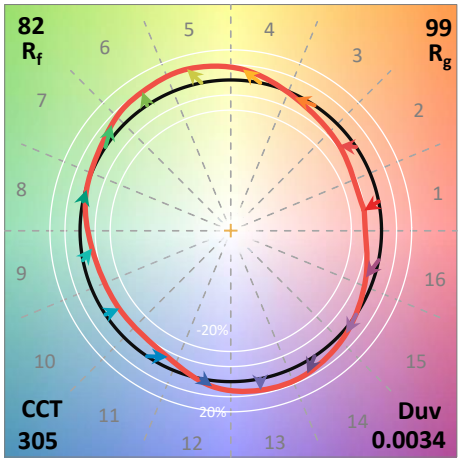
## Spectral Power Distribution Comparison

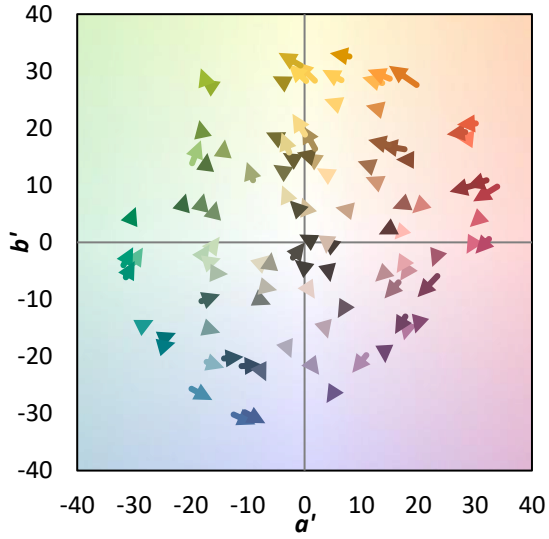



## Color Vector Graphics



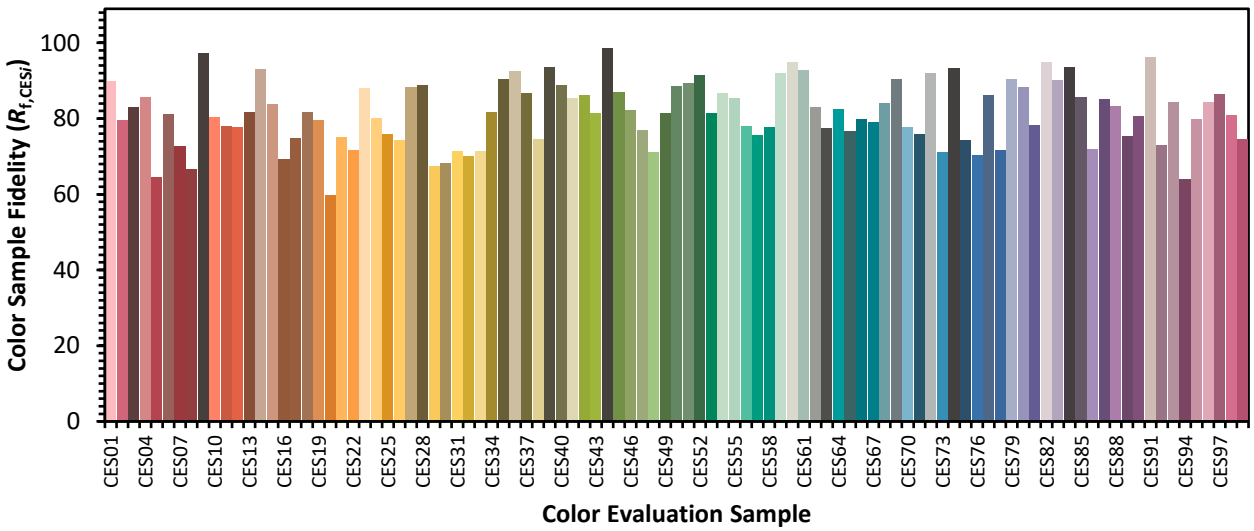



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**Individual Sample Fidelity Index ($R_{f,i}$)**

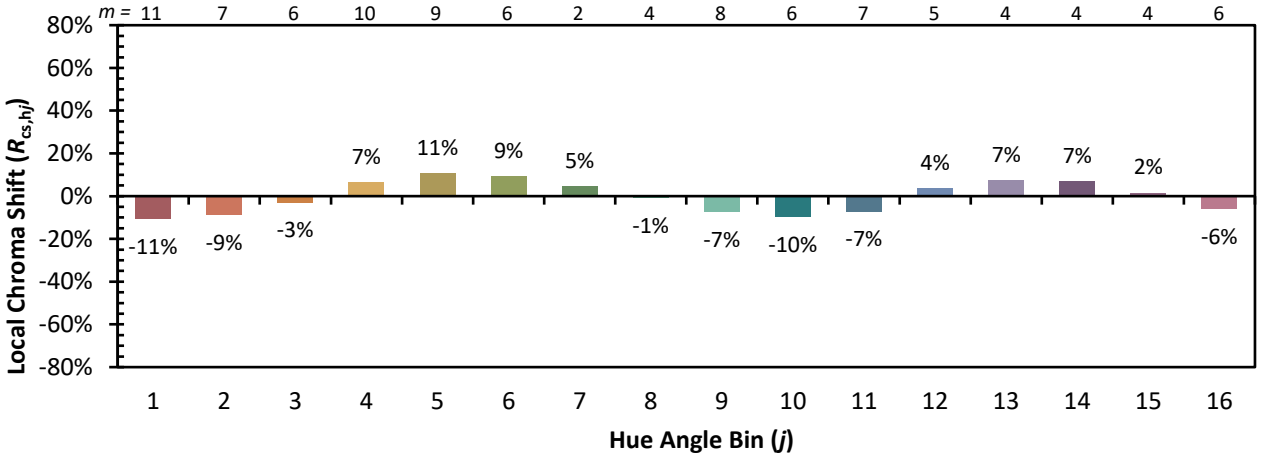
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06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

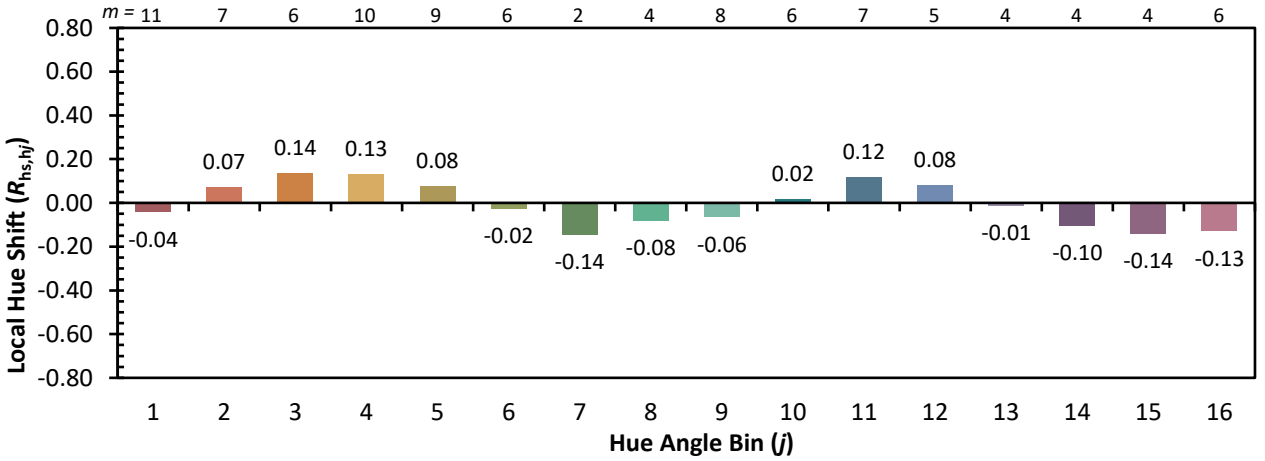


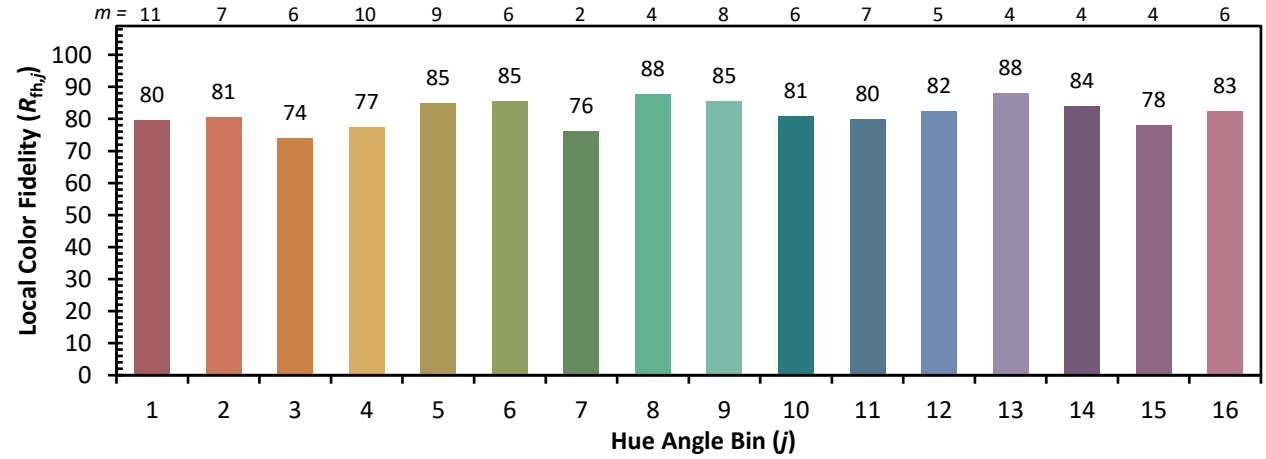
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## Color Rendition by Hue-Angle Bin



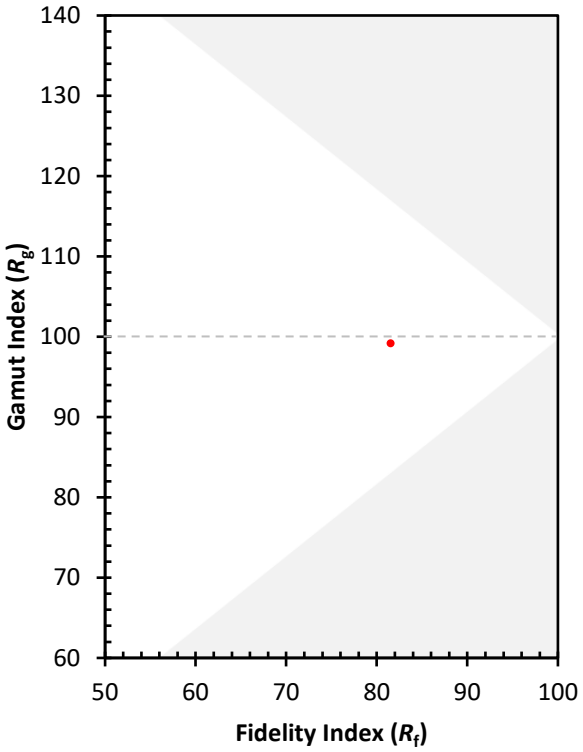



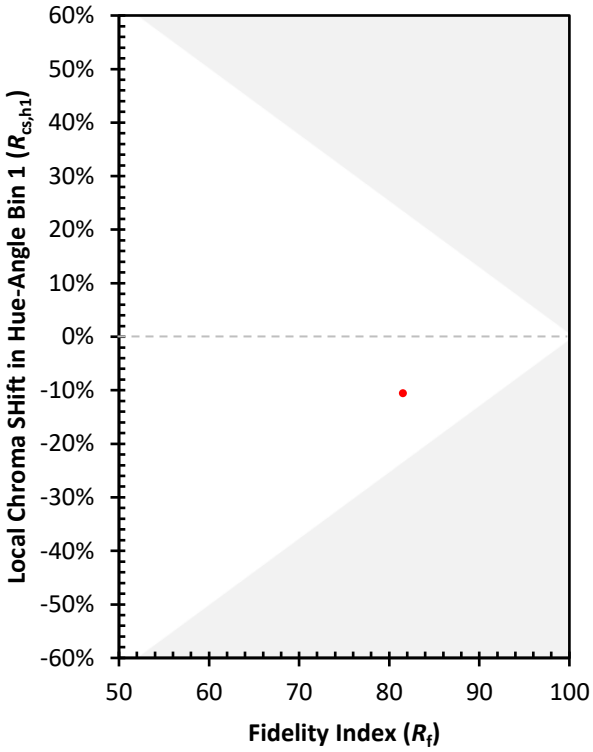



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## Measure Comparisons




(END OF REPORT)