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

Scaled data based on original data using

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P972321

Luminaire Tested: **GKO-PB2A-730-U-T2R**

Issue Date: 02/27/2025

Report Generated By 670245763

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P972321 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 02/27/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GKO-PB2A-730-U-T2R |
| Description: | GEKKO WALL PACK 4000LM PACKAGE 70CRI 3000K FIXTURE w/ TYPE II ROADWAY DISTRIBUTION OPTIC |
| Light Source: | (20) 3000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 3990.1 lumens |
| Efficiency: | N/A |
| Efficacy: | 150.6 lumens/watt |
| Luminous Opening: | Rectangular (W 0.67' x L: 0.33' x H: 0') |
| IES Classification: | Type II - Medium |
| BUG Rating: | B1 - U0 - G1 |

| | |
|---|---|
| Input Watts (W): | 26.5 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.97 |
| Total Harmonic Distortion (THDi): | 12% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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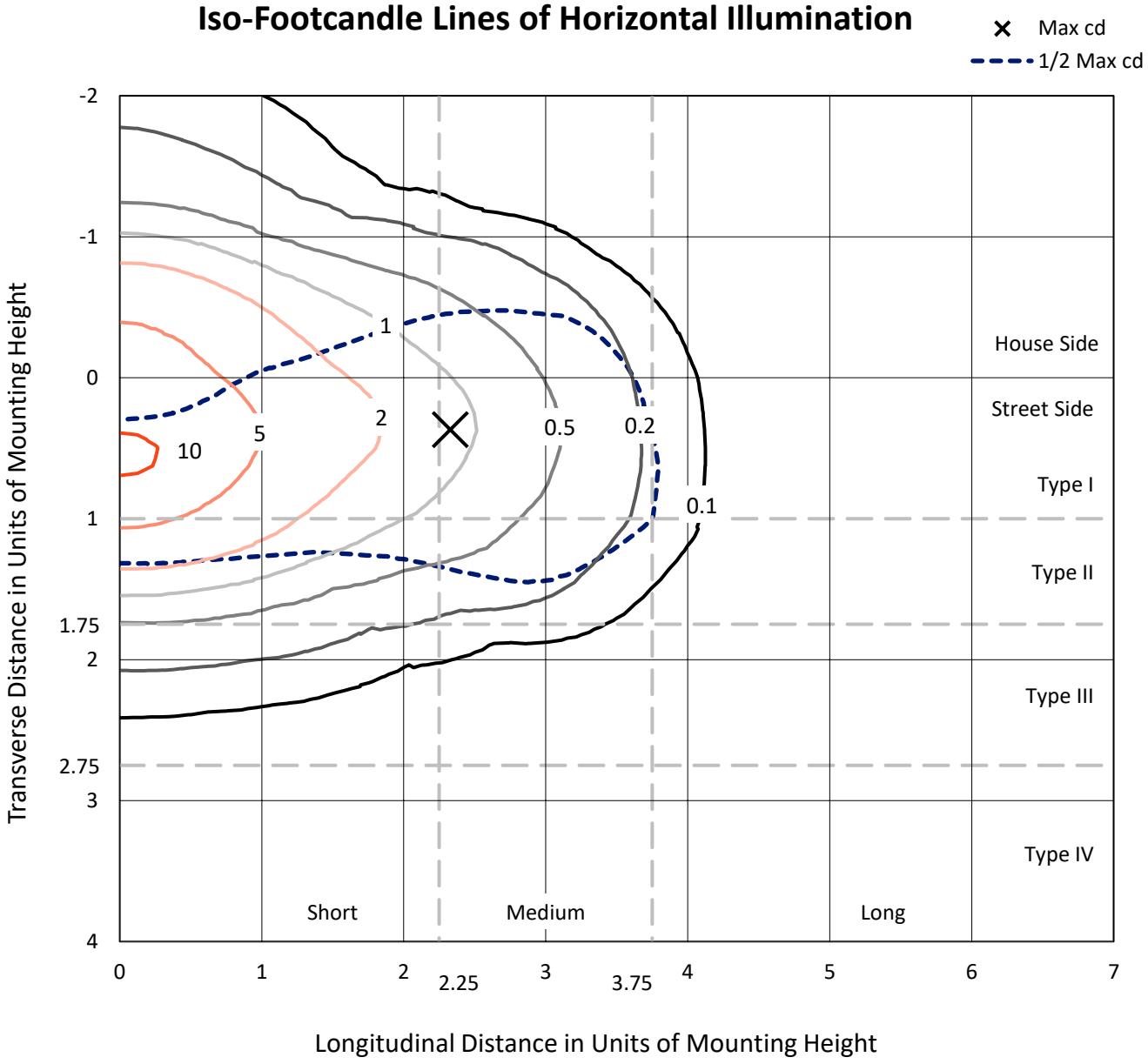
Scaled Data Report

REPORT NUMBER: P972321
CATALOG NUMBER: GKO-PB2A-730-U-T2R

## Iso-Footcandle Lines of Horizontal Illumination




Based on 10 foot mounting height. Maximum calculated value = 10.7 fc
Type II - Medium - N/A

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REPORT NUMBER: P972321
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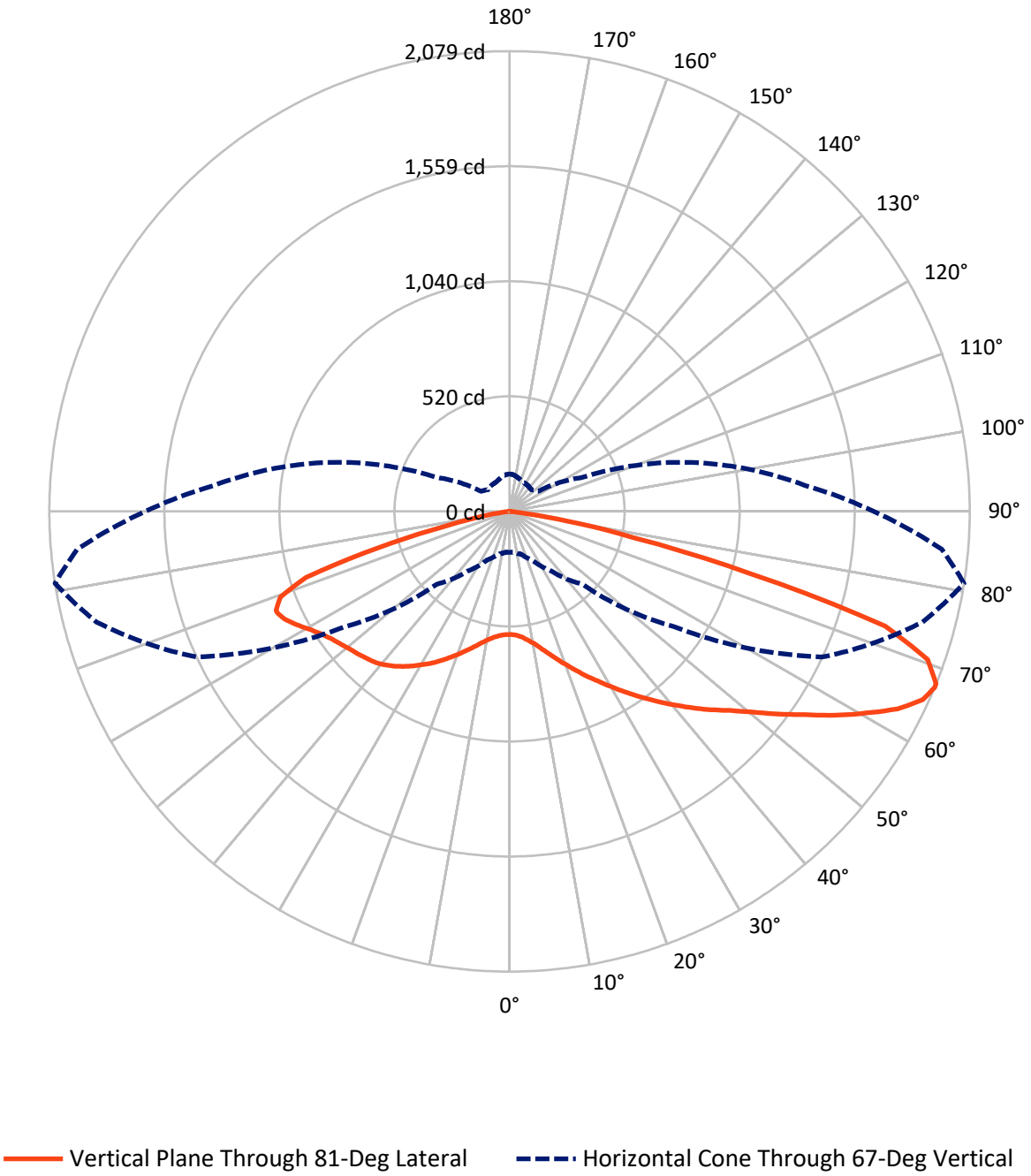
## Luminous Intensity Polar Plot



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Scaled Data Report

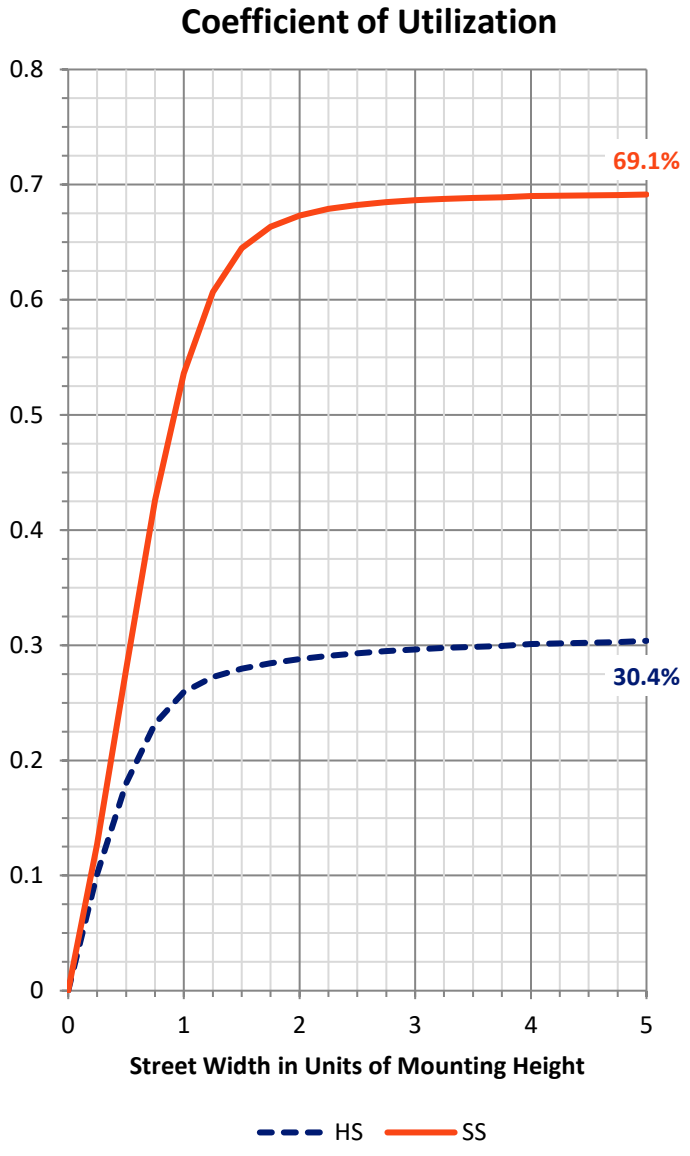
REPORT NUMBER: P972321
CATALOG NUMBER: GKO-PB2A-730-U-T2R

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1232.1 | 0.0 | 1232.1 |
| | % Fixture | 30.9 | 0.0 | 30.9 |
| **Street Side** | Lumens | 2758.0 | 0.0 | 2758.0 |
| | % Fixture | 69.1 | 0.0 | 69.1 |
| **Total** | Lumens | 3990.1 | 0.0 | 3990.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 57.6 | 1.4 |
| 10°-20° | 208.4 | 5.2 |
| 20°-30° | 422.2 | 10.6 |
| 30°-40° | 665.7 | 16.7 |
| 40°-50° | 817.5 | 20.5 |
| 50°-60° | 781.0 | 19.6 |
| 60°-70° | 655.0 | 16.4 |
| 70°-80° | 347.0 | 8.7 |
| 80°-90° | 35.8 | 0.9 |
| 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° | 3990.1 | 100.0 |
| 0°-180° | 3990.1 | 100.0 |



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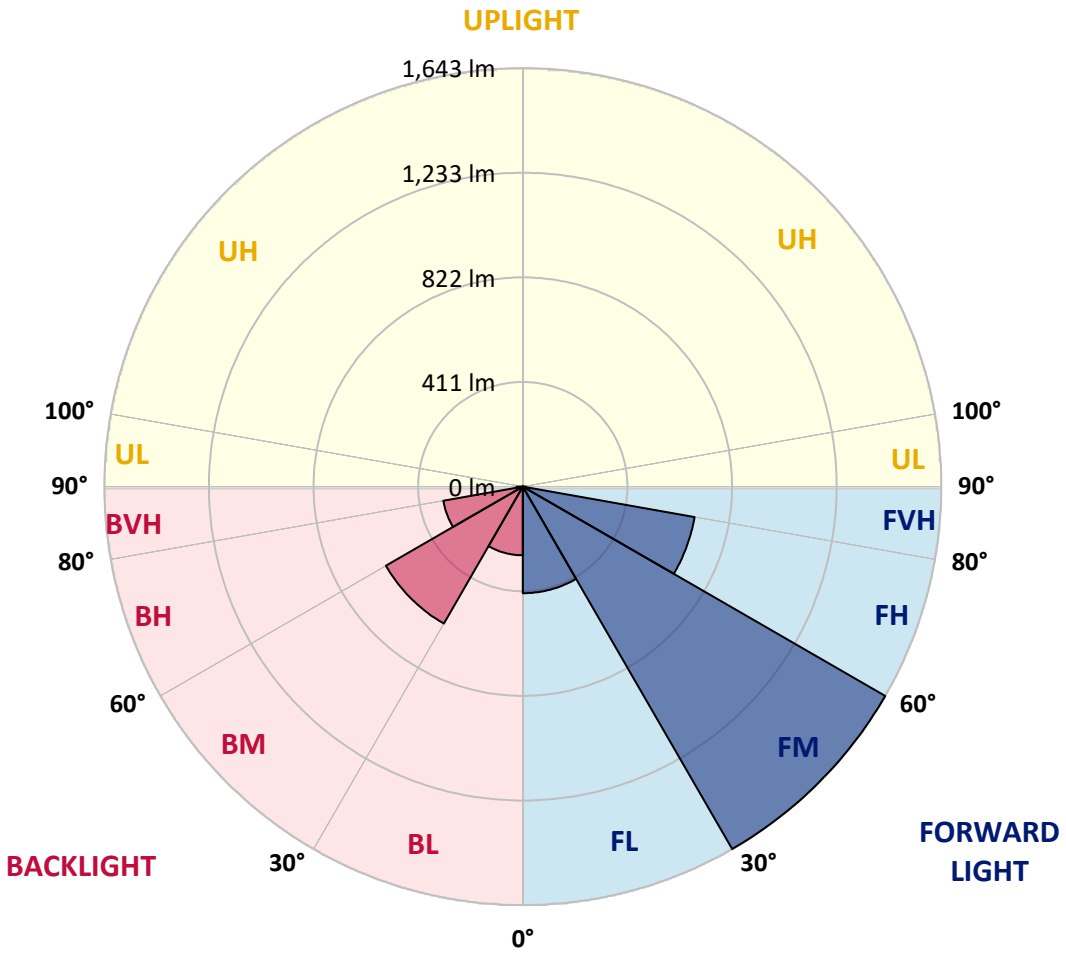
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 418.5 | 10.5 | | | |
| FM | (30°-60°) | 1643.4 | 41.2 | | | |
| FH | (60°-80°) | 685.0 | 17.2 | | | G1/1800 |
| FVH | (80°-90°) | 11.1 | 0.3 | | | G1/100 |
| BL | (0°-30°) | 269.6 | 6.8 | B1/500 | | |
| BM | (30°-60°) | 620.8 | 15.6 | B1/1000 | | |
| BH | (60°-80°) | 317.0 | 7.9 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 24.7 | 0.6 | | | 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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REPORT NUMBER: P972321
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 81° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | *555.8* | 555.8 |
| 2.5° | 587.9 | 589.4 | 586.4 | 585.6 | 582.5 | 578.0 | 572.6 | 568.8 | 562.7 | *559.6* | 558.1 |
| 5° | 643.6 | 640.6 | 638.3 | 634.5 | 623.8 | 614.6 | 599.3 | 588.6 | 577.2 | *569.6* | 567.3 |
| 7.5° | 711.6 | 713.1 | 705.5 | 695.5 | 680.3 | 661.9 | 637.5 | 617.7 | 596.3 | *586.4* | 581.8 |
| 10° | 785.6 | 791.7 | 784.1 | 771.9 | 742.9 | 715.4 | 685.6 | 651.3 | 622.2 | *607.0* | 600.9 |
| 12.5° | 875.7 | 879.5 | 869.6 | 853.6 | 818.5 | 777.2 | 735.2 | 692.5 | 654.3 | *635.2* | 624.5 |
| 15° | 976.5 | 973.4 | 963.5 | 939.9 | 894.8 | 849.0 | 791.7 | 736.0 | 691.0 | *667.3* | 652.0 |
| 17.5° | 1080.3 | 1076.5 | 1063.5 | 1033.0 | 981.8 | 924.6 | 856.6 | 786.4 | 729.9 | *703.9* | 683.3 |
| 20° | 1179.6 | 1175.8 | 1166.6 | 1132.3 | 1070.4 | 1000.2 | 920.8 | 844.4 | 774.2 | *742.1* | 719.2 |
| 22.5° | 1289.5 | 1286.5 | 1272.0 | 1230.0 | 1163.6 | 1086.4 | 994.1 | 903.2 | 822.3 | *784.1* | 756.6 |
| 25° | 1408.6 | 1409.4 | 1393.4 | 1334.6 | 1259.8 | 1169.7 | 1072.7 | 969.6 | 876.5 | *828.4* | 797.1 |
| 27.5° | 1547.6 | 1546.8 | 1519.3 | 1456.0 | 1362.1 | 1258.2 | 1150.6 | 1039.1 | 929.9 | *873.4* | 837.5 |
| 30° | 1673.6 | 1670.5 | 1640.0 | 1576.6 | 1468.2 | 1351.4 | 1233.0 | 1106.3 | 990.2 | *923.1* | 879.5 |
| 32.5° | 1766.7 | 1767.5 | 1742.3 | 1672.8 | 1566.7 | 1442.2 | 1310.1 | 1181.9 | 1048.3 | *976.5* | 928.4 |
| 35° | 1833.9 | 1834.7 | 1810.2 | 1750.7 | 1651.4 | 1527.0 | 1391.8 | 1252.9 | 1113.2 | *1031.5* | 979.6 |
| 37.5° | 1855.3 | 1855.3 | 1839.2 | 1792.7 | 1711.7 | 1603.3 | 1472.0 | 1333.8 | 1178.1 | *1091.0* | 1031.5 |
| 40° | 1826.3 | 1828.6 | 1827.8 | 1797.3 | 1741.5 | 1656.0 | 1546.1 | 1411.7 | 1250.6 | *1149.8* | 1084.2 |
| 42.5° | 1760.6 | 1762.1 | 1764.4 | 1753.0 | 1735.4 | 1684.3 | 1605.6 | 1491.1 | 1323.1 | *1213.9* | 1136.1 |
| 45° | 1652.2 | 1658.3 | 1669.7 | 1674.3 | 1681.2 | 1677.4 | 1642.3 | 1565.2 | 1404.1 | *1278.1* | 1187.2 |
| 47.5° | 1514.8 | 1524.7 | 1540.0 | 1567.4 | 1605.6 | 1636.2 | 1651.4 | 1622.4 | 1482.7 | *1344.5* | 1244.5 |
| 50° | 1323.9 | 1334.6 | 1375.8 | 1433.1 | 1508.7 | 1568.2 | 1626.2 | 1665.2 | 1570.5 | *1425.4* | 1308.6 |
| 52.5° | 1059.7 | 1082.6 | 1152.1 | 1262.0 | 1391.8 | 1480.4 | 1572.8 | 1685.8 | 1659.8 | *1520.9* | 1385.0 |
| 55° | 806.2 | 814.6 | 904.0 | 1036.1 | 1236.1 | 1385.7 | 1499.5 | 1675.1 | 1743.8 | *1620.9* | 1472.0 |
| 57.5° | 563.5 | 572.6 | 650.5 | 794.8 | 1016.2 | 1262.0 | 1426.2 | 1639.2 | 1820.2 | *1738.5* | 1572.0 |
| 60° | 400.1 | 410.0 | 468.0 | 574.9 | 789.4 | 1081.9 | 1358.2 | 1593.4 | 1886.6 | *1849.9* | 1687.3 |
| 62.5° | 290.9 | 296.2 | 326.8 | 416.9 | 570.3 | 845.9 | 1261.3 | 1563.6 | 1933.2 | *1966.0* | 1805.6 |
| 65° | 222.9 | 228.3 | 245.8 | 302.3 | 421.4 | 618.4 | 1087.2 | 1562.9 | 1945.4 | *2051.5* | 1908.0 |
| 67° | *185.5* | *184.8* | *200.0* | *242.8* | *329.1* | *465.0* | *907.8* | *1556.8* | *1931.6* | *2079.0* | *1959.9* |
| 67.5° | 175.6 | 178.7 | 190.9 | 226.8 | 310.7 | 428.3 | 868.8 | 1546.8 | 1927.0 | *2078.2* | 1963.7 |
| 70° | 139.7 | 140.5 | 151.2 | 179.4 | 233.6 | 310.7 | 625.3 | 1449.1 | 1857.6 | *2003.4* | 1920.9 |
| 72.5° | 102.3 | 101.5 | 117.6 | 135.9 | 178.7 | 226.0 | 419.2 | 1217.0 | 1707.2 | *1775.1* | 1707.9 |
| 75° | 75.6 | 74.8 | 83.2 | 103.8 | 127.5 | 168.7 | 271.8 | 794.0 | 1155.9 | *1129.2* | 1042.9 |
| 77.5° | 50.4 | 51.9 | 59.6 | 76.3 | 90.9 | 104.6 | 135.9 | 365.7 | 636.7 | *575.7* | 554.3 |
| 80° | 30.5 | 28.2 | 33.6 | 43.5 | 52.7 | 53.4 | 58.0 | 158.0 | 273.3 | *260.3* | 244.3 |
| 82.5° | 10.7 | 10.7 | 13.0 | 17.6 | 17.6 | 17.6 | 21.4 | 38.2 | 54.2 | *49.6* | 47.3 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 2.3 | 1.5 | 3.1 | 5.3 | *6.1* | 6.1 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 1.5 | 2.3 | *3.1* | 3.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 |

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P972321
CATALOG NUMBER: GKO-PB2A-730-U-T2R

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 | 555.8 |
| 2.5° | 558.1 | 558.1 | 555.8 | 552.8 | 551.2 | 550.5 | 548.2 | 545.1 | 547.4 | 549.7 | 549.7 |
| 5° | 565.7 | 564.2 | 559.6 | 556.6 | 554.3 | 554.3 | 551.2 | 550.5 | 552.8 | 555.1 | 554.3 |
| 7.5° | 578.0 | 574.9 | 569.6 | 565.0 | 565.7 | 566.5 | 561.9 | 561.9 | 564.2 | 566.5 | 566.5 |
| 10° | 594.8 | 589.4 | 584.1 | 580.3 | 581.0 | 581.8 | 577.2 | 575.7 | 578.0 | 580.3 | 581.8 |
| 12.5° | 616.1 | 609.3 | 603.2 | 599.3 | 598.6 | 599.3 | 594.8 | 593.2 | 593.2 | 594.8 | 594.8 |
| 15° | 641.3 | 633.7 | 626.1 | 620.7 | 619.2 | 618.4 | 612.3 | 607.0 | 607.0 | 607.7 | 607.7 |
| 17.5° | 670.3 | 659.7 | 649.7 | 643.6 | 639.8 | 634.5 | 627.6 | 620.0 | 617.7 | 618.4 | 618.4 |
| 20° | 699.4 | 687.9 | 674.9 | 666.5 | 658.9 | 649.7 | 639.0 | 629.1 | 624.5 | 624.5 | 623.8 |
| 22.5° | 732.9 | 717.7 | 700.1 | 688.7 | 674.9 | 659.7 | 644.4 | 631.4 | 626.8 | 625.3 | 625.3 |
| 25° | 767.3 | 749.7 | 724.6 | 707.0 | 687.1 | 665.0 | 645.1 | 627.6 | 620.0 | 616.9 | 616.9 |
| 27.5° | 802.4 | 781.8 | 749.0 | 723.8 | 694.8 | 664.2 | 637.5 | 615.4 | 604.7 | 600.9 | 599.3 |
| 30° | 842.1 | 812.4 | 770.4 | 736.0 | 696.3 | 657.4 | 623.0 | 597.0 | 581.0 | 571.9 | 572.6 |
| 32.5° | 883.4 | 845.9 | 790.2 | 743.6 | 694.0 | 644.4 | 600.9 | 568.0 | 547.4 | 539.0 | 536.0 |
| 35° | 925.3 | 878.0 | 807.8 | 747.5 | 686.4 | 624.5 | 572.6 | 536.0 | 513.1 | 500.8 | 500.8 |
| 37.5° | 968.1 | 911.6 | 820.0 | 746.7 | 672.6 | 598.6 | 539.8 | 500.8 | 474.1 | 458.9 | 455.0 |
| 40° | 1010.1 | 942.9 | 829.1 | 740.6 | 652.0 | 567.3 | 504.7 | 462.7 | 426.8 | 406.9 | 403.9 |
| 42.5° | 1051.3 | 968.9 | 833.7 | 730.7 | 627.6 | 532.9 | 465.0 | 408.5 | 374.1 | 355.8 | 355.0 |
| 45° | 1088.7 | 989.5 | 834.5 | 717.7 | 595.5 | 494.0 | 411.5 | 357.3 | 323.0 | 303.9 | 303.9 |
| 47.5° | 1125.4 | 1012.4 | 833.7 | 700.9 | 560.4 | 443.6 | 355.0 | 302.3 | 271.0 | 258.8 | 255.0 |
| 50° | 1169.7 | 1035.3 | 833.0 | 680.3 | 515.4 | 383.3 | 300.1 | 255.0 | 228.3 | 216.1 | 216.1 |
| 52.5° | 1214.7 | 1062.0 | 834.5 | 651.3 | 461.9 | 324.5 | 251.2 | 211.5 | 193.9 | 186.3 | 185.5 |
| 55° | 1272.7 | 1090.3 | 838.3 | 616.9 | 406.2 | 267.2 | 209.2 | 182.5 | 170.3 | 166.4 | 167.2 |
| 57.5° | 1343.0 | 1129.2 | 845.9 | 576.4 | 341.3 | 219.1 | 179.4 | 164.9 | 161.9 | 163.4 | 164.1 |
| 60° | 1423.1 | 1177.3 | 856.6 | 530.6 | 284.0 | 182.5 | 161.9 | 158.8 | 161.9 | 168.0 | 168.7 |
| 62.5° | 1516.3 | 1235.3 | 870.4 | 479.5 | 227.5 | 160.3 | 154.2 | 156.5 | 158.8 | 168.7 | 169.5 |
| 65° | 1598.7 | 1297.9 | 873.4 | 419.2 | 184.8 | 145.8 | 149.6 | 151.2 | 157.3 | 168.7 | 169.5 |
| 67° | *1645.3* | *1340.7* | *852.8* | *361.9* | *158.0* | *138.2* | *143.5* | *145.1* | *155.8* | *167.2* | *168.7* |
| 67.5° | 1650.7 | 1349.8 | 839.1 | 347.4 | 152.7 | 136.7 | 142.0 | 145.1 | 155.8 | 167.2 | 168.0 |
| 70° | 1634.6 | 1343.7 | 747.5 | 261.9 | 126.0 | 126.0 | 132.1 | 139.0 | 149.6 | 161.9 | 167.2 |
| 72.5° | 1491.9 | 1225.4 | 578.7 | 177.9 | 106.9 | 113.8 | 122.9 | 132.8 | 142.8 | 157.3 | 166.4 |
| 75° | 942.9 | 788.7 | 354.3 | 119.1 | 89.3 | 101.5 | 116.1 | 127.5 | 135.9 | 146.6 | 152.7 |
| 77.5° | 503.9 | 390.1 | 152.7 | 70.2 | 70.2 | 90.1 | 107.7 | 118.3 | 122.9 | 126.7 | 130.6 |
| 80° | 238.2 | 181.7 | 74.1 | 42.0 | 48.9 | 70.2 | 95.4 | 106.9 | 108.4 | 113.0 | 114.5 |
| 82.5° | 47.3 | 41.2 | 24.4 | 22.1 | 32.1 | 50.4 | 79.4 | 92.4 | 93.1 | 100.8 | 102.3 |
| 85° | 6.1 | 5.3 | 3.8 | 8.4 | 20.6 | 37.4 | 61.1 | 79.4 | 80.9 | 80.9 | 79.4 |
| 87.5° | 3.1 | 2.3 | 2.3 | 6.1 | 15.3 | 28.2 | 50.4 | 66.4 | 67.2 | 52.7 | 51.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
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: SP2-2501-321-4

Test Date: 04/10/2025

Luminaire Tested: GKO-PB1E-730-U-T4W

Data in this report applies to families of products including GKO-PB1E-730-U-T4W

Report Generated By FNC07603 / LDUCLS01DT447
Version: v7.04

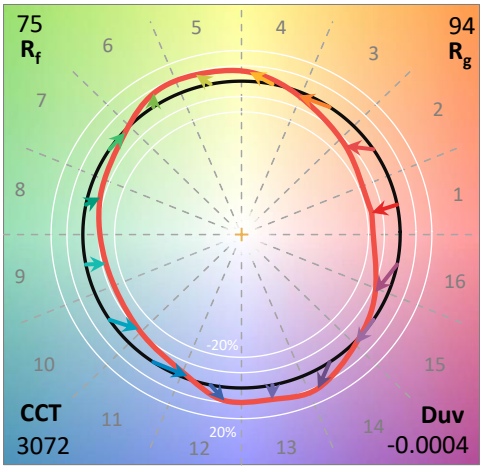
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP2-2501-321-4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP2 - 165CM SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 04/10/2025 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGraw-Edison |
| Catalog Number: | **GKO-PB1E-730-U-T4W** |
| Description: | Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3072 |
| CIE u': | 0.2482 |
| CIE v': | 0.5193 |
| Duv: | -0.0004 |
| CIE x: | 0.4313 |
| CIE y: | 0.4010 |
| CIE z: | 0.1677 |
| Peak Wavelength (nm): | 593 |
| Dominant Wavelength (nm): | 582 |
| Purity: | 49.8225 |
| Rf: | 74.7 |
| Rg: | 94.2 |

| | | | | | |
|---|---|---|---|---|---|
| CRI (Ra): | 71.7 | | | | |
| R1: | 68.1 | R9: | -33.9 | | |
| R2: | 82.1 | R10: | 58.6 | | |
| R3: | 93.4 | R11: | 62.0 | | |
| R4: | 67.3 | R12: | 48.5 | | |
| R5: | 67.2 | R13: | 70.7 | | |
| R6: | 74.9 | R14: | 96.4 | | |
| R7: | 77.5 | R15: | 60.2 | | |
| R8: | 43.4 | | | | |




## Test Conditions

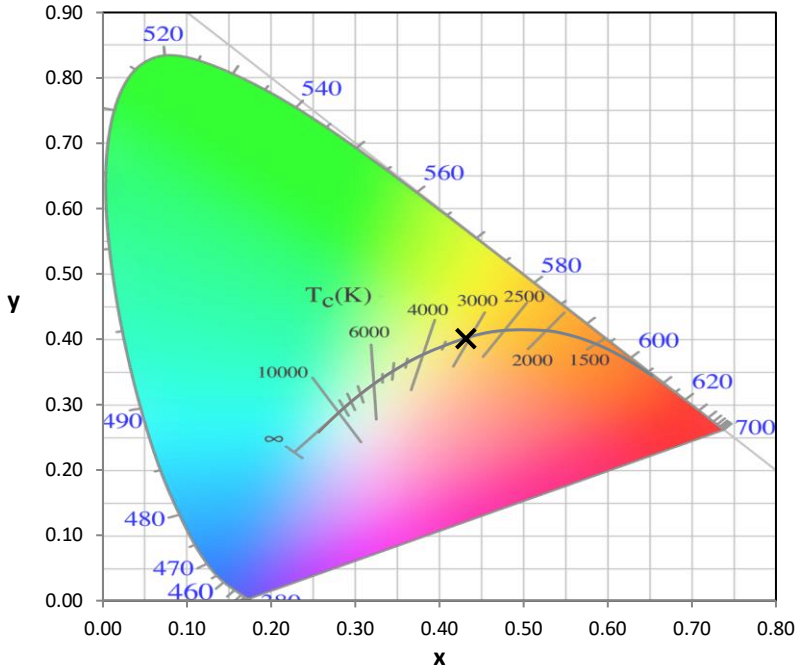
| | |
|---|---|
| Stabilization Time: | 30M |
| Operation Time: | 1H 30M |
| Sphere Temperature (°C): | 25.7 |

REPORT NUMBER: SP2-2501-321-4

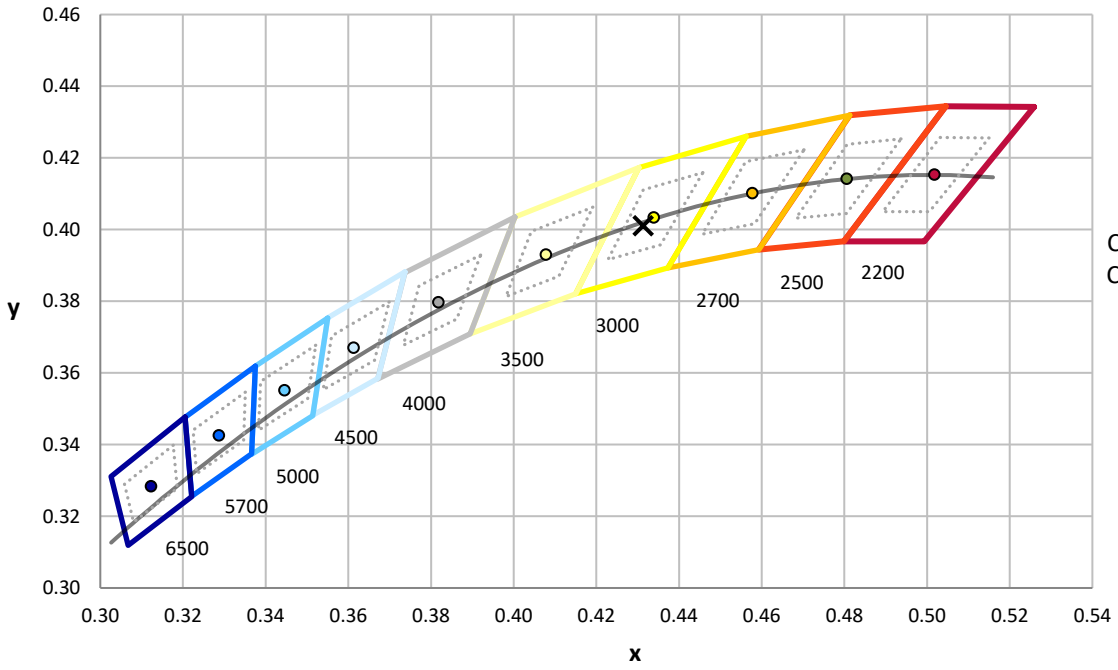
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN2187 | 1/6/2025 | 7/6/2025 |
| Power Meter | INXT2011002 | 1/21/2025 | 1/21/2026 |
| AC Power Source | IN0458 | 10/22/2024 | 10/22/2025 |
| DC Power Source | IN0212 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | IN4036B | 10/22/2024 | 10/22/2025 |
| Room Thermometer | IN0046 | 10/22/2024 | 10/22/2025 |

REPORT NUMBER: SP2-2501-321-4

## CIE 1931 Chromaticity Diagram




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




CCT = 3072K
CIE x = 0.4313
CIE y = 0.4010
Duv = -0.0004

Point lies inside the ANSI 3000K 4-step quadrangle

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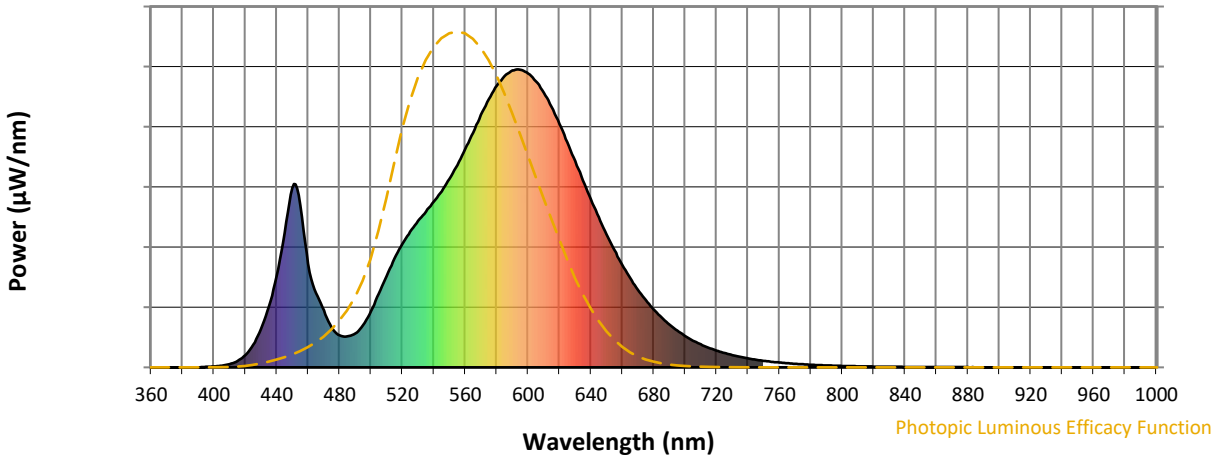
## Photopic Flux vs. Wavelength




## 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 | 114 | NR | 620 | 817 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 141 | NR | 625 | 756 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 189 | NR | 630 | 693 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 628 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 307 | NR | 640 | 564 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 366 | NR | 645 | 504 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 415 | NR | 650 | 446 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 455 | NR | 655 | 393 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 491 | NR | 660 | 344 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 523 | NR | 665 | 300 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 556 | NR | 670 | 260 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 591 | NR | 675 | 226 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 41 | NR | 550 | 632 | NR | 680 | 195 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 679 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 129 | NR | 560 | 732 | NR | 690 | 144 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 205 | NR | 565 | 787 | NR | 695 | 123 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 307 | NR | 570 | 847 | NR | 700 | 105 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 451 | NR | 575 | 900 | NR | 705 | 90 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 603 | NR | 580 | 944 | NR | 710 | 77 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 544 | NR | 585 | 977 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 348 | NR | 590 | 997 | NR | 720 | 56 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 249 | NR | 595 | 998 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 191 | NR | 600 | 986 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 133 | NR | 605 | 960 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 921 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 874 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

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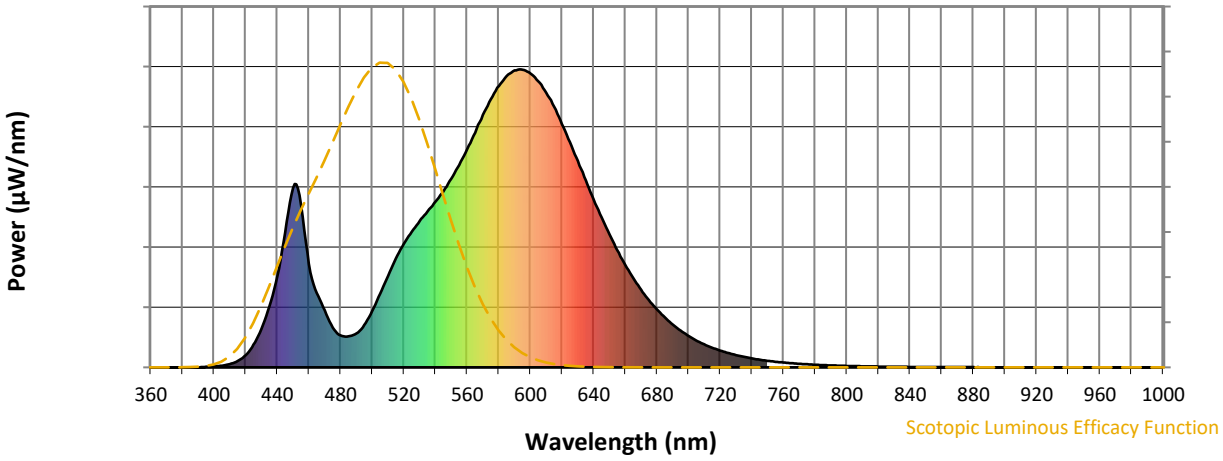
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: NR** **S/P: 1.24**

| 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 | 114 | NR | 620 | 817 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 141 | NR | 625 | 756 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 189 | NR | 630 | 693 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 628 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 307 | NR | 640 | 564 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 366 | NR | 645 | 504 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 415 | NR | 650 | 446 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 455 | NR | 655 | 393 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 491 | NR | 660 | 344 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 523 | NR | 665 | 300 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 556 | NR | 670 | 260 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 591 | NR | 675 | 226 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 41 | NR | 550 | 632 | NR | 680 | 195 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 679 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 129 | NR | 560 | 732 | NR | 690 | 144 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 205 | NR | 565 | 787 | NR | 695 | 123 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 307 | NR | 570 | 847 | NR | 700 | 105 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 451 | NR | 575 | 900 | NR | 705 | 90 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 603 | NR | 580 | 944 | NR | 710 | 77 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 544 | NR | 585 | 977 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 348 | NR | 590 | 997 | NR | 720 | 56 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 249 | NR | 595 | 998 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 191 | NR | 600 | 986 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 133 | NR | 605 | 960 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 921 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 874 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

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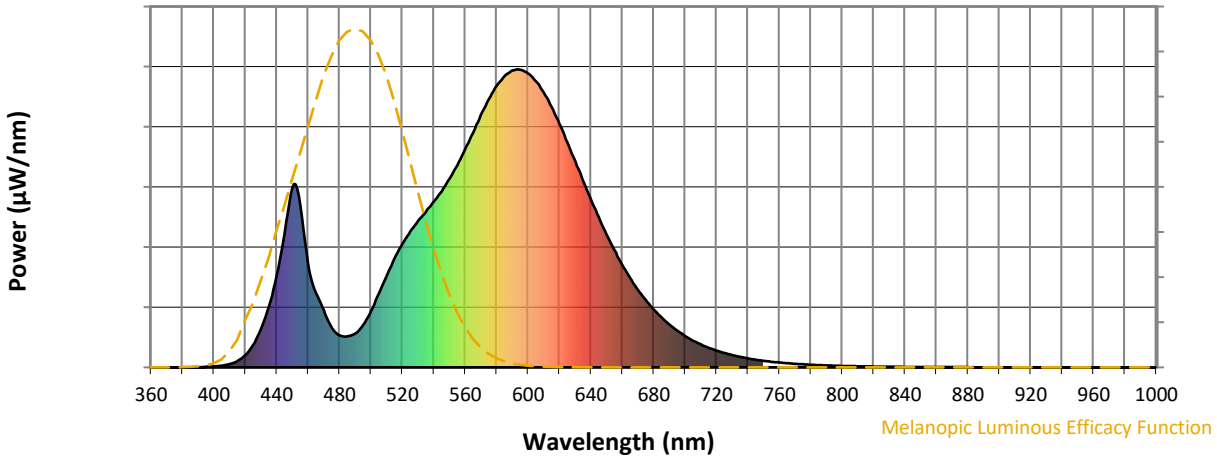
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.3**

| 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 | 114 | NR | 620 | 817 | NR | 750 | 22 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 141 | NR | 625 | 756 | NR | 755 | 19 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 189 | NR | 630 | 693 | NR | 760 | 16 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 247 | NR | 635 | 628 | NR | 765 | 14 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 307 | NR | 640 | 564 | NR | 770 | 12 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 366 | NR | 645 | 504 | NR | 775 | 10 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 415 | NR | 650 | 446 | NR | 780 | 9 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 455 | NR | 655 | 393 | NR | 785 | 8 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 491 | NR | 660 | 344 | NR | 790 | 7 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 523 | NR | 665 | 300 | NR | 795 | 6 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 556 | NR | 670 | 260 | NR | 800 | 5 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 591 | NR | 675 | 226 | NR | 805 | 4 | NR | 935 | 0 | NR |
| 420 | 41 | NR | 550 | 632 | NR | 680 | 195 | NR | 810 | 4 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 679 | NR | 685 | 167 | NR | 815 | 3 | NR | 945 | 0 | NR |
| 430 | 129 | NR | 560 | 732 | NR | 690 | 144 | NR | 820 | 3 | NR | 950 | 0 | NR |
| 435 | 205 | NR | 565 | 787 | NR | 695 | 123 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 307 | NR | 570 | 847 | NR | 700 | 105 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 451 | NR | 575 | 900 | NR | 705 | 90 | NR | 835 | 2 | NR | 965 | 0 | NR |
| 450 | 603 | NR | 580 | 944 | NR | 710 | 77 | NR | 840 | 2 | NR | 970 | 0 | NR |
| 455 | 544 | NR | 585 | 977 | NR | 715 | 66 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 348 | NR | 590 | 997 | NR | 720 | 56 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 249 | NR | 595 | 998 | NR | 725 | 48 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 191 | NR | 600 | 986 | NR | 730 | 41 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 133 | NR | 605 | 960 | NR | 735 | 35 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 107 | NR | 610 | 921 | NR | 740 | 30 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 104 | NR | 615 | 874 | NR | 745 | 26 | NR | 875 | 1 | NR | | | |

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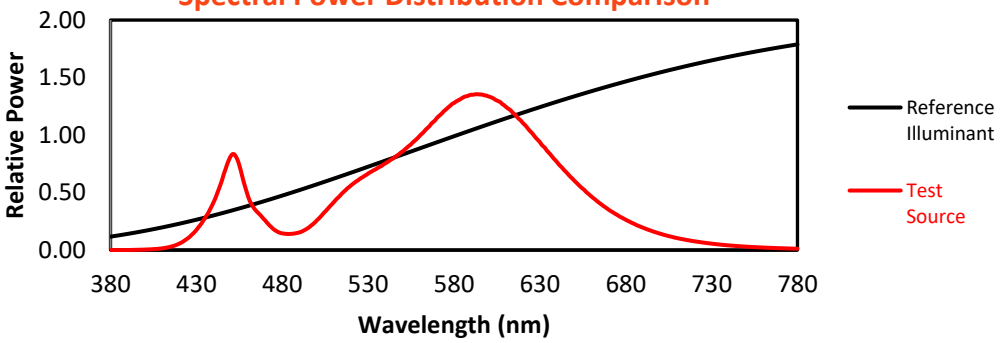
# TM-30-18

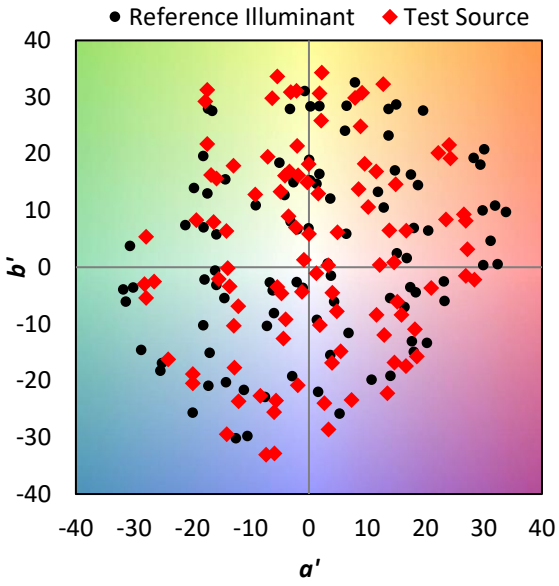
## Summary

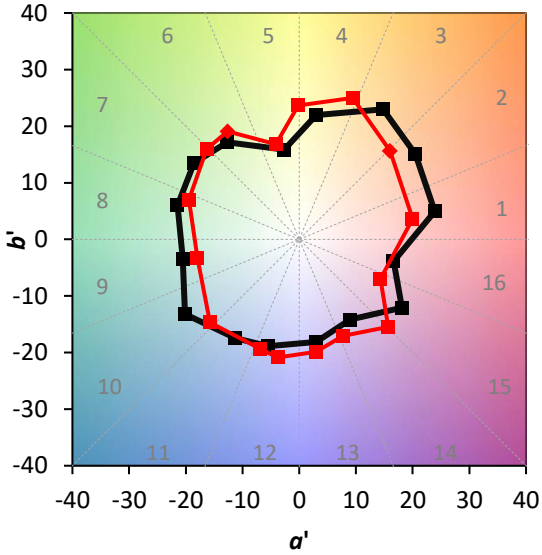
$R_f$ = 74.7
$R_g$ = 94.2
CIE $R_a$ = 71.7
$R_9$ = -33.9

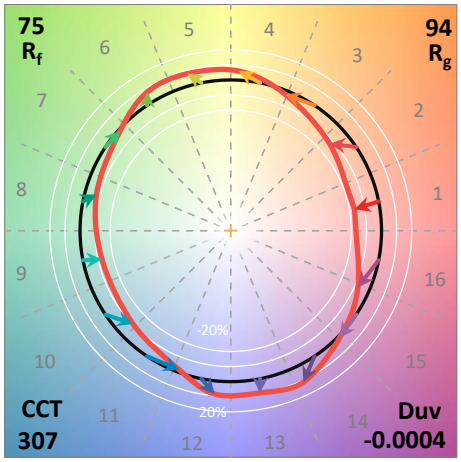
## Spectral Power Distribution Comparison

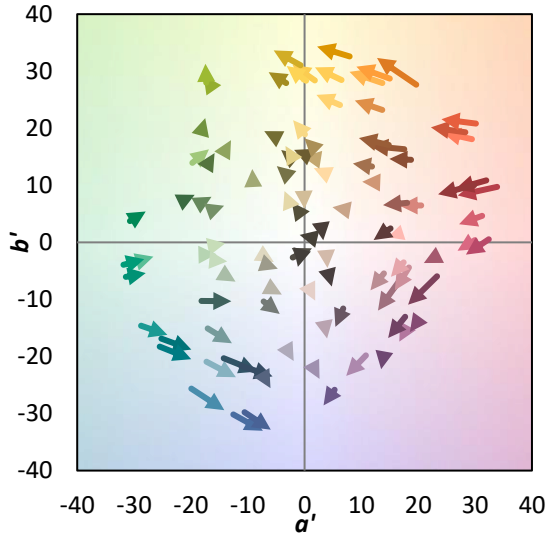



## Color Vector Graphics



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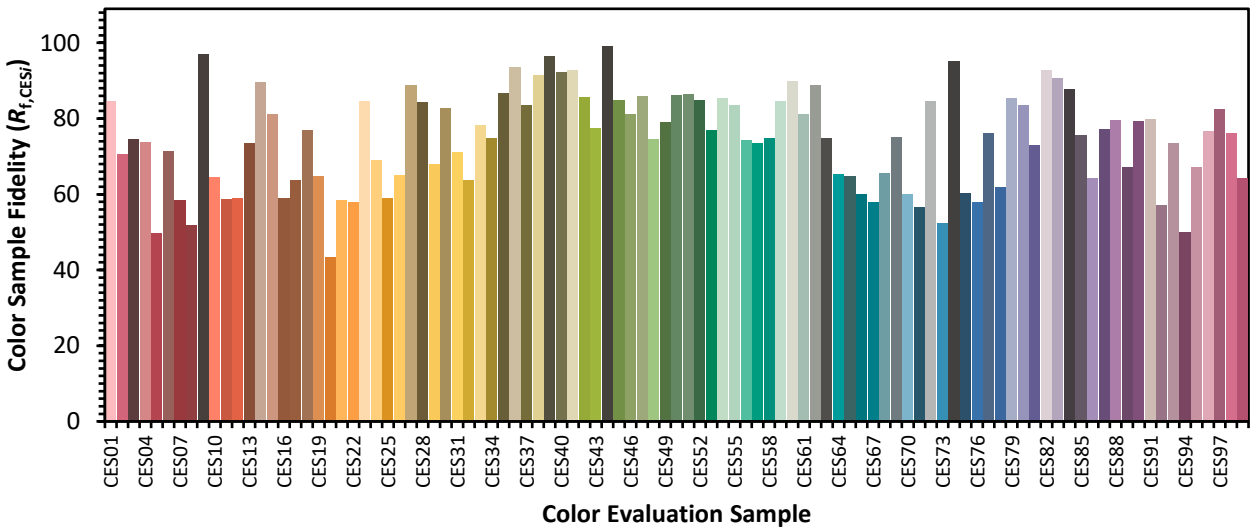
# TM-30-18

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

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 65 | CES51 = 86 | CES76 = 58 |
| CES02 = 62 | CES27 = 89 | CES52 = 85 | CES77 = 76 |
| CES03 = 31 | CES28 = 84 | CES53 = 77 | CES78 = 62 |
| CES04 = 71 | CES29 = 68 | CES54 = 85 | CES79 = 85 |
| CES05 = 49 | CES30 = 83 | CES55 = 84 | CES80 = 84 |
| CES06 = 51 | CES31 = 71 | CES56 = 74 | CES81 = 73 |
| CES07 = 41 | CES32 = 64 | CES57 = 74 | CES82 = 93 |
| CES08 = 40 | CES33 = 78 | CES58 = 75 | CES83 = 91 |
| CES09 = 29 | CES34 = 75 | CES59 = 85 | CES84 = 88 |
| CES10 = 76 | CES35 = 87 | CES60 = 90 | CES85 = 76 |
| CES11 = 59 | CES36 = 94 | CES61 = 81 | CES86 = 64 |
| CES12 = 65 | CES37 = 84 | CES62 = 89 | CES87 = 77 |
| CES13 = 43 | CES38 = 92 | CES63 = 75 | CES88 = 80 |
| CES14 = 74 | CES39 = 96 | CES64 = 65 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 65 | CES90 = 79 |
| CES16 = 47 | CES41 = 93 | CES66 = 60 | CES91 = 80 |
| CES17 = 50 | CES42 = 86 | CES67 = 58 | CES92 = 57 |
| CES18 = 56 | CES43 = 78 | CES68 = 66 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 75 | CES94 = 50 |
| CES20 = 66 | CES45 = 85 | CES70 = 60 | CES95 = 67 |
| CES21 = 87 | CES46 = 81 | CES71 = 57 | CES96 = 77 |
| CES22 = 79 | CES47 = 86 | CES72 = 85 | CES97 = 83 |
| CES23 = 92 | CES48 = 75 | CES73 = 52 | CES98 = 76 |
| CES24 = 91 | CES49 = 79 | CES74 = 95 | CES99 = 64 |
| CES25 = 73 | CES50 = 86 | CES75 = 60 | |



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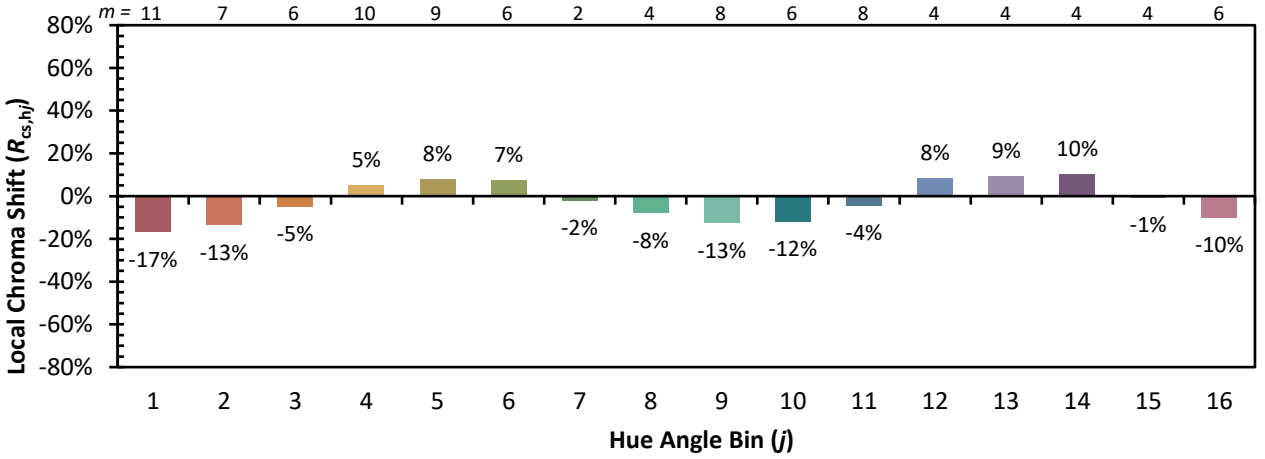
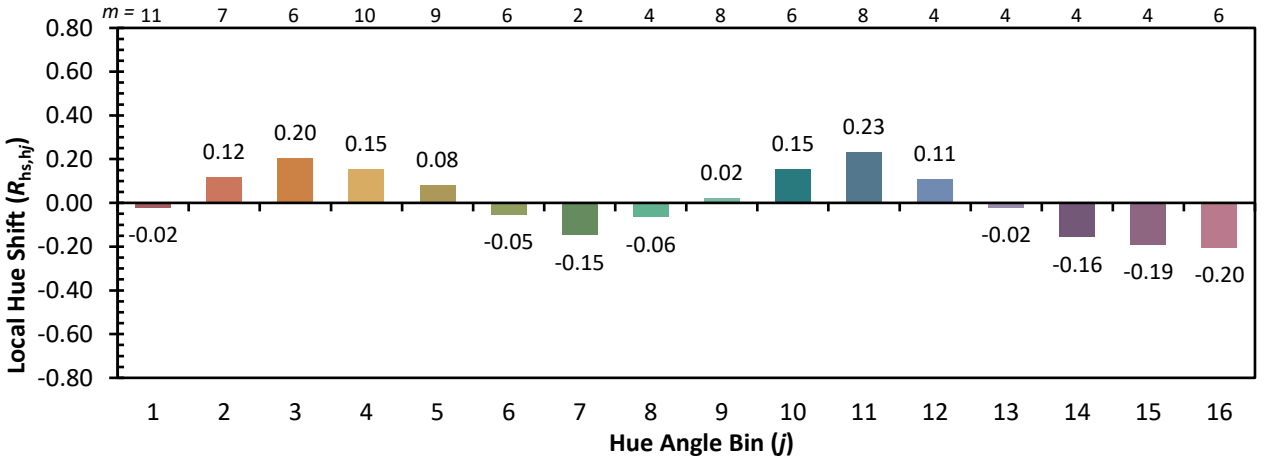
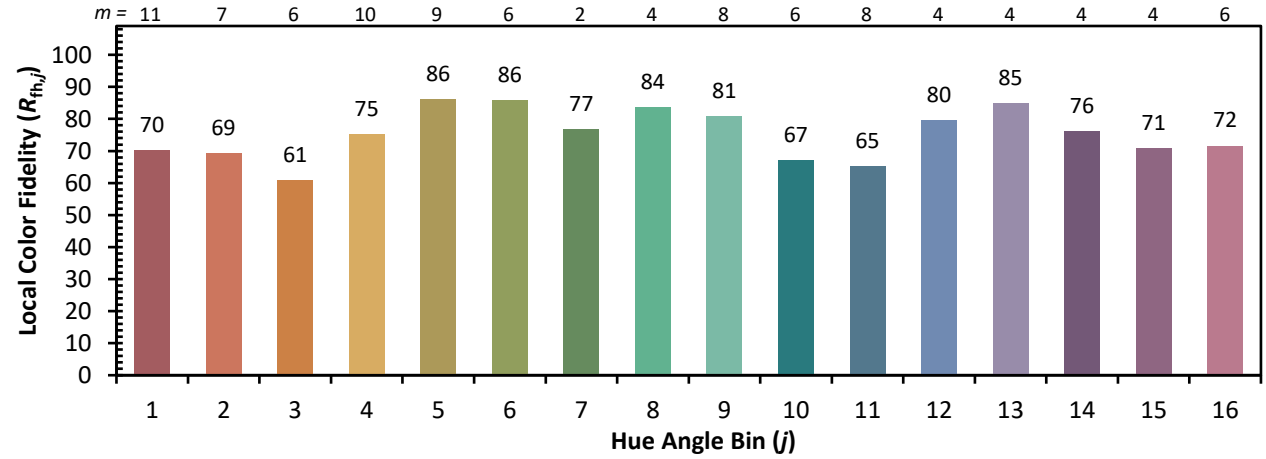
## Color Rendition by Hue-Angle Bin



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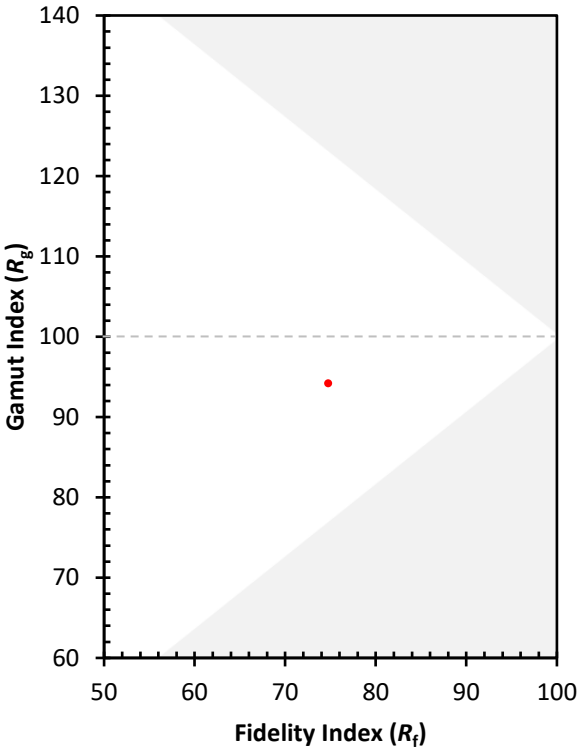
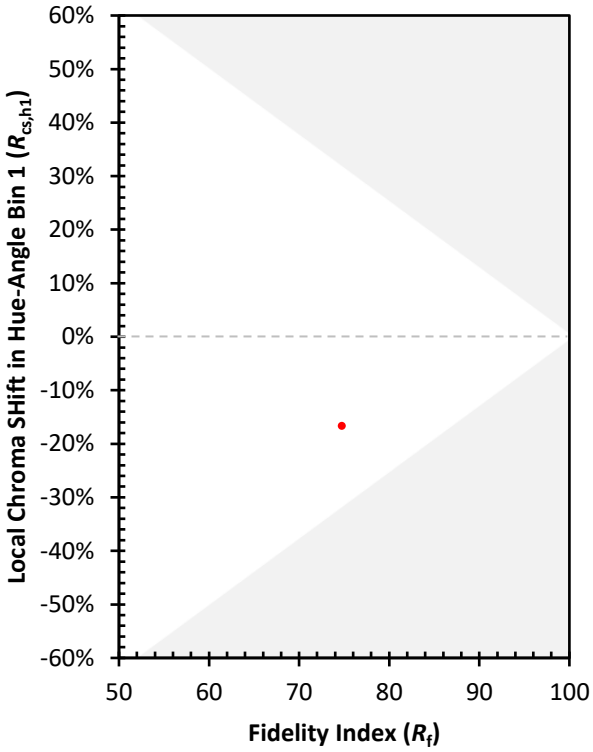
## Measure Comparisons




(END OF REPORT)