

Signify Classified - Internal  
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: P1211891

Luminaire Tested: **GKO-PB2A-735-U-T2R**

Issue Date: 11/5/2025



**Test Information**

Test Method: LM-79-08  
Report Number: P1211891  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 11/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB2A-735-U-T2R  
Description: GEKKO WALL PACK 4000LM PACKAGE 70CRI 3500K FIXTURE w/ TYPE II  
ROADWAY DISTRIBUTION OPTIC  
Light Source: (20) 3500K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

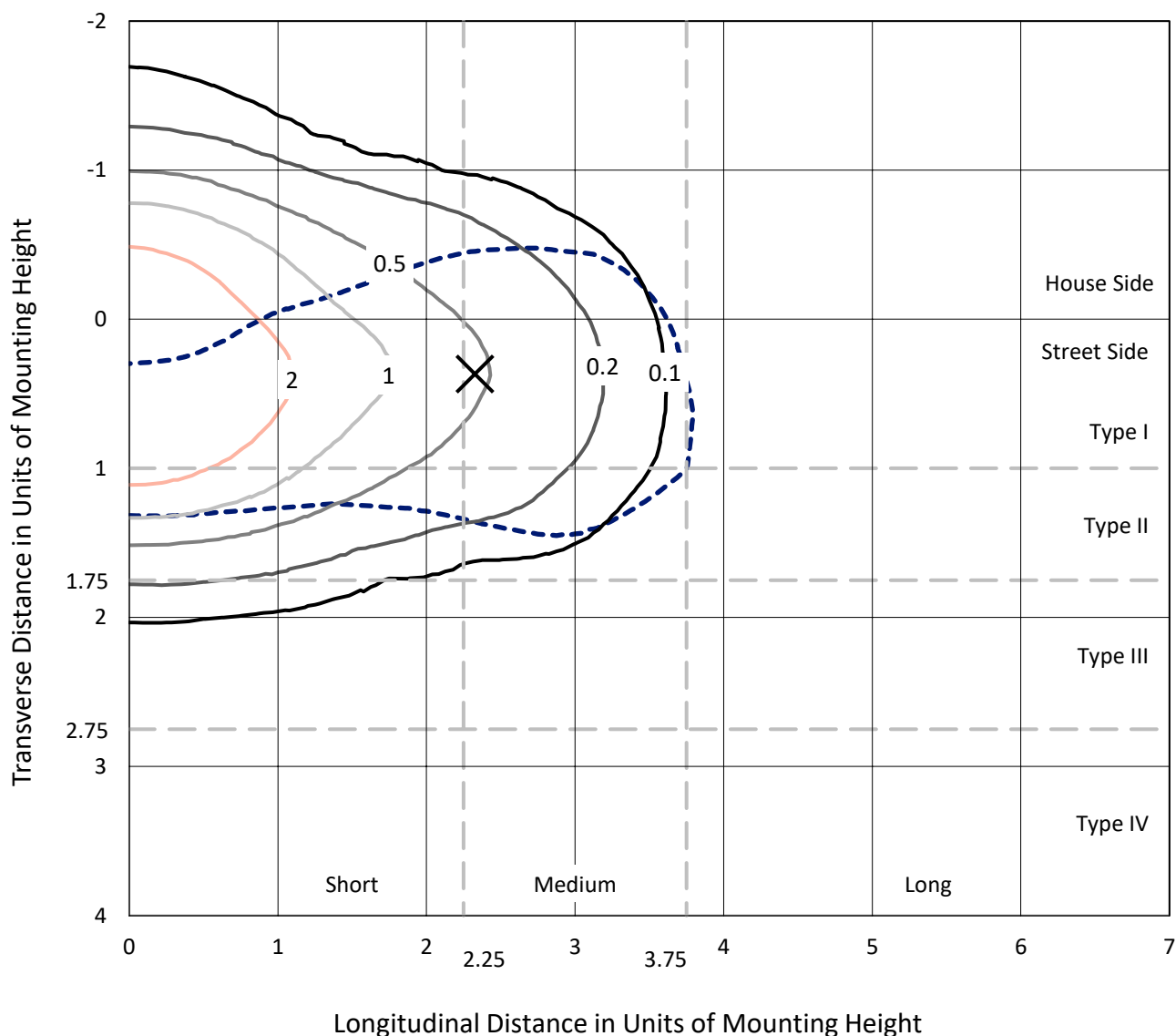
Lumens per Lamp: N/A  
Luminaire Lumens: 4062.9 lumens  
Efficiency: N/A  
Efficacy: 153.3 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B1 - U0 - G1

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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## Iso-Footcandle Lines of Horizontal Illumination

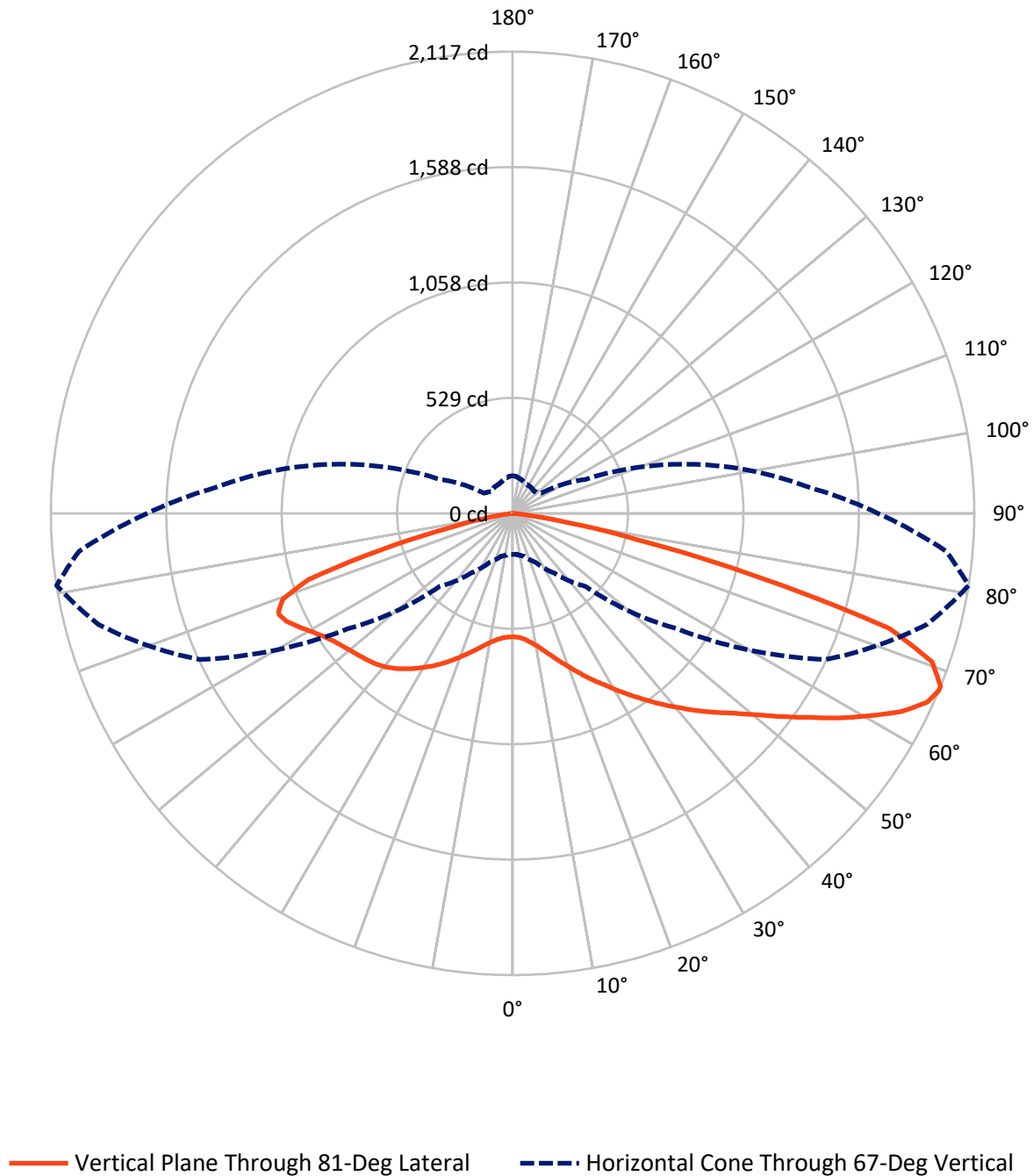
✕ Max cd  
- - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 4.8 fc  
Type II - Medium - N/A

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## Luminous Intensity Polar Plot



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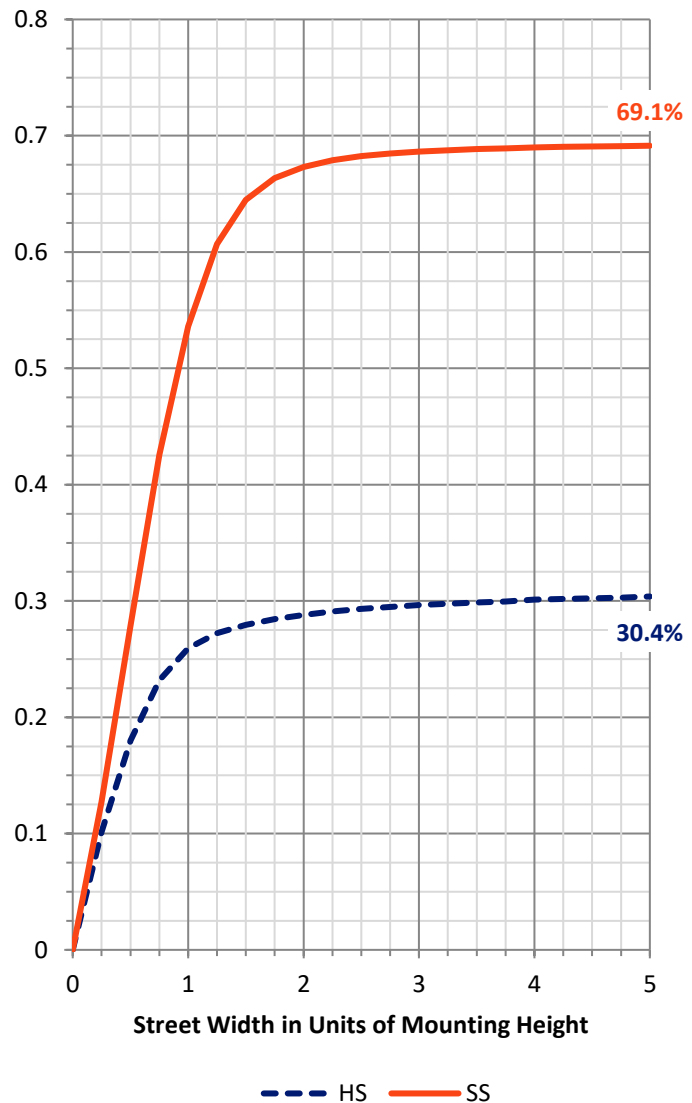
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1254.6   | 0.0    | 1254.6 |
|                    | % Fixture | 30.9     | 0.0    | 30.9   |
| <b>Street Side</b> | Lumens    | 2808.3   | 0.0    | 2808.3 |
|                    | % Fixture | 69.1     | 0.0    | 69.1   |
| <b>Total</b>       | Lumens    | 4062.9   | 0.0    | 4062.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 58.6   | 1.4       |
| 10°-20°   | 212.2  | 5.2       |
| 20°-30°   | 429.9  | 10.6      |
| 30°-40°   | 677.8  | 16.7      |
| 40°-50°   | 832.4  | 20.5      |
| 50°-60°   | 795.2  | 19.6      |
| 60°-70°   | 666.9  | 16.4      |
| 70°-80°   | 353.3  | 8.7       |
| 80°-90°   | 36.5   | 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°    | 4062.9 | 100.0     |
| 0°-180°   | 4062.9 | 100.0     |

**Coefficient of Utilization**



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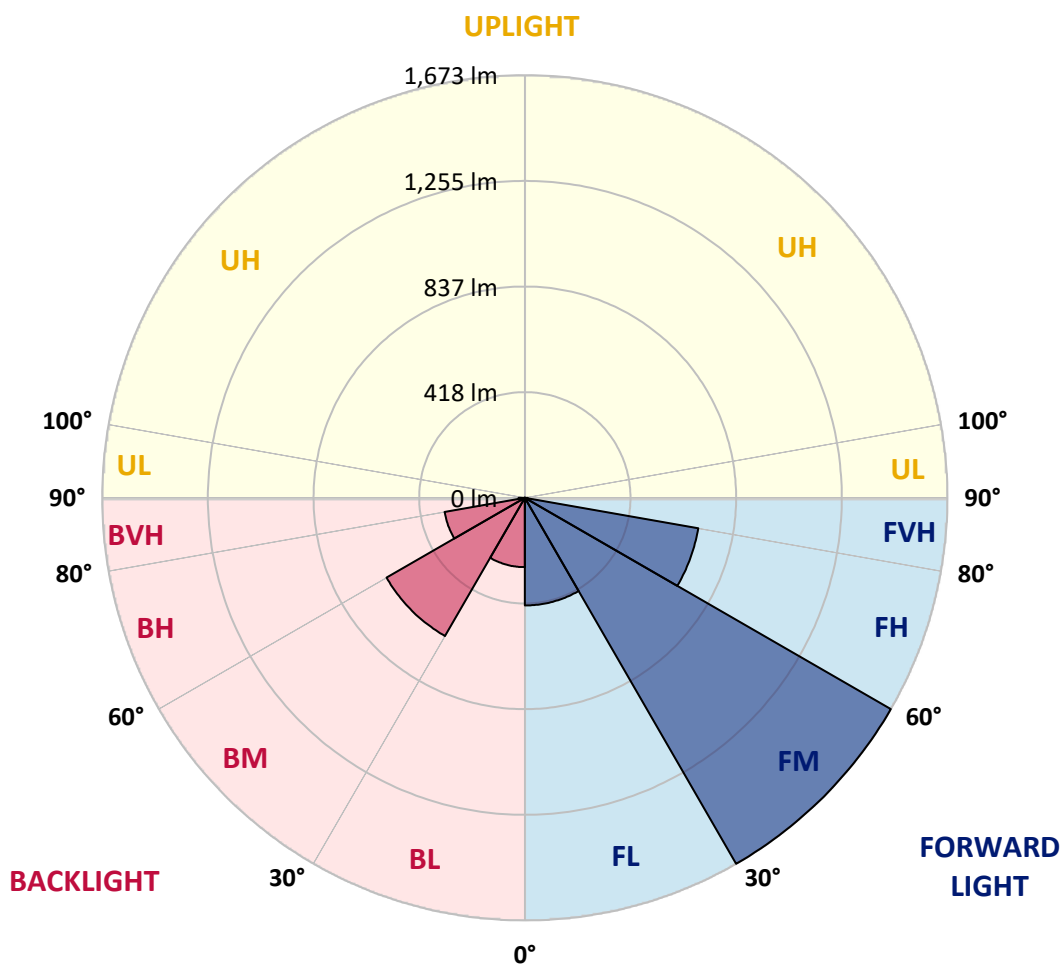
CATALOG NUMBER: GKO-PB2A-735-U-T2R

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 426.1  | 10.5      |                         |      |         |
| FM   | (30°-60°)   | 1673.4 | 41.2      |                         |      |         |
| FH   | (60°-80°)   | 697.4  | 17.2      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 11.3   | 0.3       |                         |      | G1/100  |
| BL   | (0°-30°)    | 274.5  | 6.8       | B1/500                  |      |         |
| BM   | (30°-60°)   | 632.2  | 15.6      | B1/1000                 |      |         |
| BH   | (60°-80°)   | 322.7  | 7.9       | B1/500                  |      | G1/500  |
| BVH  | (80°-90°)   | 25.2   | 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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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 81°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 566.0  | 566.0  | 566.0  | 566.0  | 566.0  | 566.0  | 566.0  | 566.0  | 566.0  | 566.0  | 566.0  |
| 2.5°  | 598.6  | 600.2  | 597.1  | 596.3  | 593.2  | 588.5  | 583.1  | 579.2  | 573.0  | 569.8  | 568.3  |
| 5°    | 655.4  | 652.2  | 649.9  | 646.0  | 635.1  | 625.8  | 610.3  | 599.4  | 587.7  | 579.9  | 577.6  |
| 7.5°  | 724.5  | 726.1  | 718.3  | 708.2  | 692.7  | 674.0  | 649.1  | 628.9  | 607.2  | 597.1  | 592.4  |
| 10°   | 800.0  | 806.2  | 798.4  | 786.0  | 756.4  | 728.4  | 698.1  | 663.1  | 633.6  | 618.0  | 611.8  |
| 12.5° | 891.7  | 895.6  | 885.5  | 869.1  | 833.4  | 791.4  | 748.6  | 705.1  | 666.2  | 646.8  | 635.9  |
| 15°   | 994.3  | 991.2  | 981.1  | 957.0  | 911.1  | 864.5  | 806.2  | 749.4  | 703.6  | 679.5  | 663.9  |
| 17.5° | 1100.0 | 1096.1 | 1082.9 | 1051.8 | 999.7  | 941.4  | 872.3  | 800.7  | 743.2  | 716.8  | 695.8  |
| 20°   | 1201.1 | 1197.2 | 1187.9 | 1152.9 | 1089.9 | 1018.4 | 937.6  | 859.8  | 788.3  | 755.6  | 732.3  |
| 22.5° | 1313.0 | 1309.9 | 1295.2 | 1252.4 | 1184.8 | 1106.3 | 1012.2 | 919.7  | 837.3  | 798.4  | 770.4  |
| 25°   | 1434.3 | 1435.1 | 1418.8 | 1358.9 | 1282.7 | 1191.0 | 1092.3 | 987.3  | 892.5  | 843.5  | 811.6  |
| 27.5° | 1575.8 | 1575.0 | 1547.0 | 1482.5 | 1386.9 | 1281.2 | 1171.6 | 1058.1 | 946.9  | 889.4  | 852.8  |
| 30°   | 1704.1 | 1701.0 | 1669.9 | 1605.4 | 1495.0 | 1376.0 | 1255.5 | 1126.5 | 1008.3 | 939.9  | 895.6  |
| 32.5° | 1798.9 | 1799.7 | 1774.0 | 1703.3 | 1595.2 | 1468.5 | 1334.0 | 1203.4 | 1067.4 | 994.3  | 945.3  |
| 35°   | 1867.3 | 1868.1 | 1843.2 | 1782.6 | 1681.5 | 1554.8 | 1417.2 | 1275.7 | 1133.5 | 1050.3 | 997.4  |
| 37.5° | 1889.1 | 1889.1 | 1872.8 | 1825.4 | 1743.0 | 1632.6 | 1498.8 | 1358.1 | 1199.5 | 1110.9 | 1050.3 |
| 40°   | 1859.6 | 1861.9 | 1861.1 | 1830.0 | 1773.3 | 1686.2 | 1574.3 | 1437.4 | 1273.4 | 1170.8 | 1103.9 |
| 42.5° | 1792.7 | 1794.3 | 1796.6 | 1784.9 | 1767.1 | 1715.0 | 1634.9 | 1518.3 | 1347.3 | 1236.1 | 1156.8 |
| 45°   | 1682.3 | 1688.5 | 1700.2 | 1704.9 | 1711.9 | 1708.0 | 1672.2 | 1593.7 | 1429.7 | 1301.4 | 1208.9 |
| 47.5° | 1542.4 | 1552.5 | 1568.0 | 1596.0 | 1634.9 | 1666.0 | 1681.5 | 1652.0 | 1509.7 | 1369.0 | 1267.2 |
| 50°   | 1348.0 | 1358.9 | 1400.9 | 1459.2 | 1536.2 | 1596.8 | 1655.9 | 1695.5 | 1599.1 | 1451.4 | 1332.5 |
| 52.5° | 1079.0 | 1102.4 | 1173.1 | 1285.1 | 1417.2 | 1507.4 | 1601.5 | 1716.5 | 1690.1 | 1548.6 | 1410.2 |
| 55°   | 820.9  | 829.5  | 920.5  | 1054.9 | 1258.6 | 1411.0 | 1526.8 | 1705.6 | 1775.6 | 1650.4 | 1498.8 |
| 57.5° | 573.7  | 583.1  | 662.4  | 809.3  | 1034.7 | 1285.1 | 1452.2 | 1669.1 | 1853.3 | 1770.2 | 1600.7 |
| 60°   | 407.4  | 417.5  | 476.6  | 585.4  | 803.8  | 1101.6 | 1383.0 | 1622.5 | 1921.0 | 1883.7 | 1718.1 |
| 62.5° | 296.2  | 301.6  | 332.7  | 424.5  | 580.7  | 861.4  | 1284.3 | 1592.1 | 1968.4 | 2001.8 | 1838.6 |
| 65°   | 227.0  | 232.4  | 250.3  | 307.9  | 429.1  | 629.7  | 1107.0 | 1591.4 | 1980.8 | 2088.9 | 1942.7 |
| 67°   | 188.9  | 188.1  | 203.7  | 247.2  | 335.1  | 473.4  | 924.3  | 1585.1 | 1966.8 | 2116.9 | 1995.6 |
| 67.5° | 178.8  | 181.9  | 194.4  | 230.9  | 316.4  | 436.1  | 884.7  | 1575.0 | 1962.2 | 2116.1 | 1999.5 |
| 70°   | 142.3  | 143.0  | 153.9  | 182.7  | 237.9  | 316.4  | 636.7  | 1475.5 | 1891.4 | 2039.9 | 1956.0 |
| 72.5° | 104.2  | 103.4  | 119.7  | 138.4  | 181.9  | 230.1  | 426.8  | 1239.2 | 1738.3 | 1807.5 | 1739.1 |
| 75°   | 77.0   | 76.2   | 84.7   | 105.7  | 129.8  | 171.8  | 276.8  | 808.5  | 1177.0 | 1149.8 | 1061.9 |
| 77.5° | 51.3   | 52.9   | 60.6   | 77.7   | 92.5   | 106.5  | 138.4  | 372.4  | 648.4  | 586.2  | 564.4  |
| 80°   | 31.1   | 28.8   | 34.2   | 44.3   | 53.6   | 54.4   | 59.1   | 160.9  | 278.3  | 265.1  | 248.8  |
| 82.5° | 10.9   | 10.9   | 13.2   | 17.9   | 17.9   | 17.9   | 21.8   | 38.9   | 55.2   | 50.5   | 48.2   |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 1.6    | 2.3    | 1.6    | 3.1    | 5.4    | 6.2    | 6.2    |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.8    | 0.8    | 1.6    | 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    |



REPORT NUMBER: P1211891

CATALOG NUMBER: GKO-PB2A-735-U-T2R

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 566.0  | 566.0  | 566.0 | 566.0 | 566.0 | 566.0 | 566.0 | 566.0 | 566.0 | 566.0 | 566.0 |
| 2.5°  | 568.3  | 568.3  | 566.0 | 562.8 | 561.3 | 560.5 | 558.2 | 555.1 | 557.4 | 559.7 | 559.7 |
| 5°    | 576.1  | 574.5  | 569.8 | 566.7 | 564.4 | 564.4 | 561.3 | 560.5 | 562.8 | 565.2 | 564.4 |
| 7.5°  | 588.5  | 585.4  | 579.9 | 575.3 | 576.1 | 576.8 | 572.2 | 572.2 | 574.5 | 576.8 | 576.8 |
| 10°   | 605.6  | 600.2  | 594.7 | 590.8 | 591.6 | 592.4 | 587.7 | 586.2 | 588.5 | 590.8 | 592.4 |
| 12.5° | 627.4  | 620.4  | 614.2 | 610.3 | 609.5 | 610.3 | 605.6 | 604.0 | 604.0 | 605.6 | 605.6 |
| 15°   | 653.0  | 645.2  | 637.5 | 632.0 | 630.5 | 629.7 | 623.5 | 618.0 | 618.0 | 618.8 | 618.8 |
| 17.5° | 682.6  | 671.7  | 661.6 | 655.4 | 651.5 | 646.0 | 639.0 | 631.3 | 628.9 | 629.7 | 629.7 |
| 20°   | 712.1  | 700.4  | 687.2 | 678.7 | 670.9 | 661.6 | 650.7 | 640.6 | 635.9 | 635.9 | 635.1 |
| 22.5° | 746.3  | 730.8  | 712.9 | 701.2 | 687.2 | 671.7 | 656.1 | 642.9 | 638.3 | 636.7 | 636.7 |
| 25°   | 781.3  | 763.4  | 737.8 | 719.9 | 699.7 | 677.1 | 656.9 | 639.0 | 631.3 | 628.1 | 628.1 |
| 27.5° | 817.1  | 796.1  | 762.6 | 737.0 | 707.4 | 676.3 | 649.1 | 626.6 | 615.7 | 611.8 | 610.3 |
| 30°   | 857.5  | 827.2  | 784.4 | 749.4 | 709.0 | 669.3 | 634.4 | 607.9 | 591.6 | 582.3 | 583.1 |
| 32.5° | 899.5  | 861.4  | 804.6 | 757.2 | 706.7 | 656.1 | 611.8 | 578.4 | 557.4 | 548.9 | 545.7 |
| 35°   | 942.2  | 894.0  | 822.5 | 761.1 | 698.9 | 635.9 | 583.1 | 545.7 | 522.4 | 510.0 | 510.0 |
| 37.5° | 985.8  | 928.2  | 834.9 | 760.3 | 684.9 | 609.5 | 549.6 | 510.0 | 482.8 | 467.2 | 463.3 |
| 40°   | 1028.5 | 960.1  | 844.3 | 754.1 | 663.9 | 577.6 | 513.9 | 471.1 | 434.6 | 414.4 | 411.2 |
| 42.5° | 1070.5 | 986.5  | 848.9 | 744.0 | 639.0 | 542.6 | 473.4 | 415.9 | 380.9 | 362.3 | 361.5 |
| 45°   | 1108.6 | 1007.5 | 849.7 | 730.8 | 606.4 | 503.0 | 419.0 | 363.8 | 328.8 | 309.4 | 309.4 |
| 47.5° | 1145.9 | 1030.8 | 848.9 | 713.7 | 570.6 | 451.7 | 361.5 | 307.9 | 276.0 | 263.5 | 259.7 |
| 50°   | 1191.0 | 1054.2 | 848.2 | 692.7 | 524.8 | 390.3 | 305.5 | 259.7 | 232.4 | 220.0 | 220.0 |
| 52.5° | 1236.9 | 1081.4 | 849.7 | 663.1 | 470.3 | 330.4 | 255.8 | 215.3 | 197.5 | 189.7 | 188.9 |
| 55°   | 1295.9 | 1110.1 | 853.6 | 628.1 | 413.6 | 272.1 | 213.0 | 185.8 | 173.4 | 169.5 | 170.3 |
| 57.5° | 1367.5 | 1149.8 | 861.4 | 586.9 | 347.5 | 223.1 | 182.7 | 167.9 | 164.8 | 166.4 | 167.1 |
| 60°   | 1449.1 | 1198.8 | 872.3 | 540.3 | 289.2 | 185.8 | 164.8 | 161.7 | 164.8 | 171.0 | 171.8 |
| 62.5° | 1543.9 | 1257.8 | 886.2 | 488.2 | 231.7 | 163.3 | 157.0 | 159.4 | 161.7 | 171.8 | 172.6 |
| 65°   | 1627.9 | 1321.6 | 889.4 | 426.8 | 188.1 | 148.5 | 152.4 | 153.9 | 160.1 | 171.8 | 172.6 |
| 67°   | 1675.3 | 1365.1 | 868.4 | 368.5 | 160.9 | 140.7 | 146.2 | 147.7 | 158.6 | 170.3 | 171.8 |
| 67.5° | 1680.8 | 1374.5 | 854.4 | 353.7 | 155.5 | 139.2 | 144.6 | 147.7 | 158.6 | 170.3 | 171.0 |
| 70°   | 1664.4 | 1368.2 | 761.1 | 266.7 | 128.3 | 128.3 | 134.5 | 141.5 | 152.4 | 164.8 | 170.3 |
| 72.5° | 1519.1 | 1247.7 | 589.3 | 181.1 | 108.8 | 115.8 | 125.2 | 135.3 | 145.4 | 160.1 | 169.5 |
| 75°   | 960.1  | 803.1  | 360.7 | 121.3 | 91.0  | 103.4 | 118.2 | 129.8 | 138.4 | 149.3 | 155.5 |
| 77.5° | 513.1  | 397.3  | 155.5 | 71.5  | 71.5  | 91.7  | 109.6 | 120.5 | 125.2 | 129.0 | 132.9 |
| 80°   | 242.6  | 185.0  | 75.4  | 42.8  | 49.8  | 71.5  | 97.2  | 108.8 | 110.4 | 115.1 | 116.6 |
| 82.5° | 48.2   | 42.0   | 24.9  | 22.5  | 32.7  | 51.3  | 80.9  | 94.1  | 94.8  | 102.6 | 104.2 |
| 85°   | 6.2    | 5.4    | 3.9   | 8.6   | 21.0  | 38.1  | 62.2  | 80.9  | 82.4  | 82.4  | 80.9  |
| 87.5° | 3.1    | 2.3    | 2.3   | 6.2   | 15.5  | 28.8  | 51.3  | 67.6  | 68.4  | 53.6  | 52.1  |
| 90°   | 0.0    | 0.0    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2511-595-2

Test Date: 01/09/2026

Luminaire Tested: GKO-PB1C-735-U-T4W

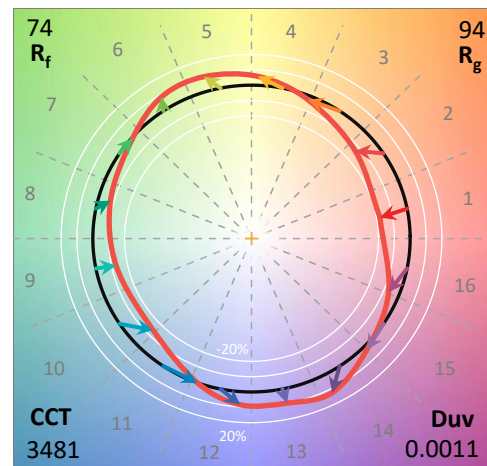
Data in this report applies to families of products including GKO-PB1C

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2511-595-2  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 01/09/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GKO-PB1C-735-U-T4W**  
 Description: Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution

### Spectral Parameters

|                           |         |           |      |      |       |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K):                  | 3481    | CRI (Ra): | 71.1 |      |       |
| CIE u':                   | 0.2357  | R1:       | 67.5 | R9:  | -37.9 |
| CIE v':                   | 0.5131  | R2:       | 79.5 | R10: | 52.4  |
| Duv:                      | 0.0011  | R3:       | 90.0 | R11: | 64.5  |
| CIE x:                    | 0.4076  | R4:       | 69.0 | R12: | 43.0  |
| CIE y:                    | 0.3944  | R5:       | 67.0 | R13: | 69.5  |
| CIE z:                    | 0.1981  | R6:       | 71.2 | R14: | 94.3  |
| Peak Wavelength (nm):     | 589     | R7:       | 78.9 | R15: | 59.3  |
| Dominant Wavelength (nm): | 580     | R8:       | 45.9 |      |       |
| Purity:                   | 40.6853 |           |      |      |       |
| Rf:                       | 73.8    |           |      |      |       |
| Rg:                       | 93.8    |           |      |      |       |



### Test Conditions

Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.1

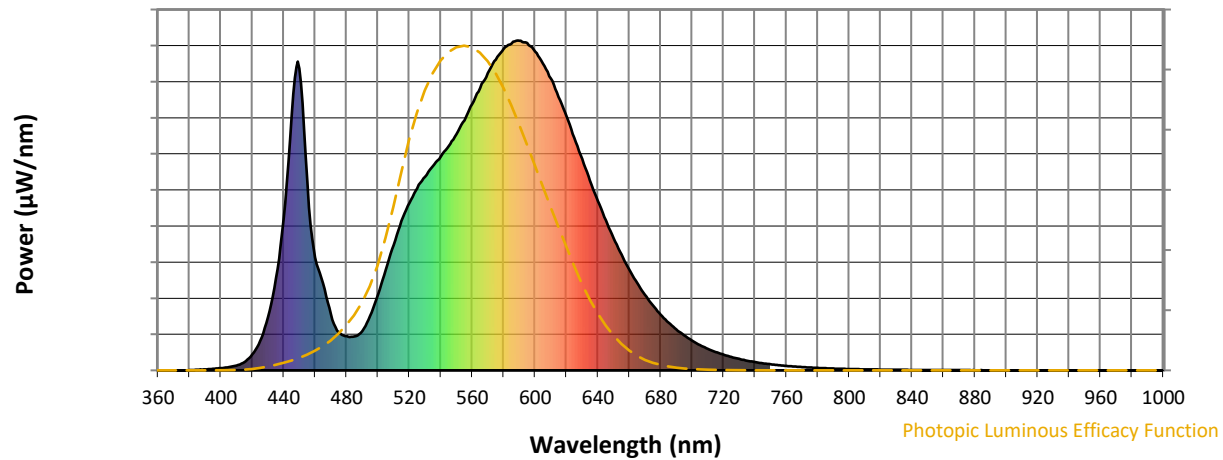
REPORT NUMBER: SP1-2511-595-2

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 12/16/2025       | 6/16/2026            |
| Power Meter                    | XITRON INXT2011004    | 10/21/2025       | 10/21/2026           |
| AC Power Source                | CHROMA 61603 IN0063   | 10/21/2025       | 10/21/2026           |
| DC Power Source                | AGILENT E3634A IN0208 | 10/21/2025       | 10/21/2026           |
| Sphere Thermometer             | ONSET IN0085          | 10/21/2025       | 10/21/2026           |
| Room Thermometer               | ONSET IN0046          | 10/21/2025       | 10/21/2026           |



REPORT NUMBER: SP1-2511-595-2

### Photopic Flux vs. Wavelength

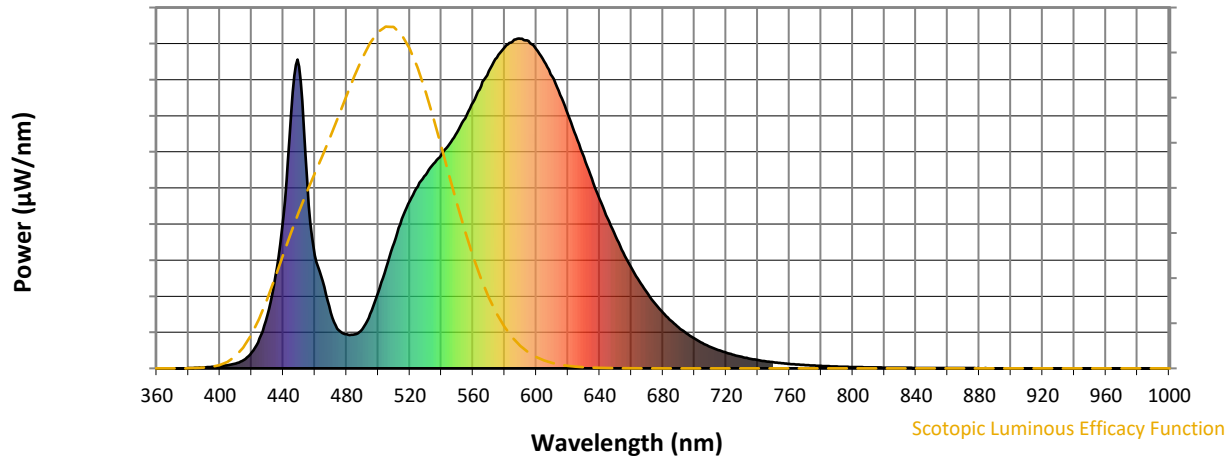


### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 119                         | NR               | 620       | 771                         | NR               | 750       | 19                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 165                         | NR               | 625       | 705                         | NR               | 755       | 16                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 641                         | NR               | 760       | 14                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 305                         | NR               | 635       | 575                         | NR               | 765       | 12                          | NR               | 895       | 0                           | NR               |
| 380       | 1                           | NR               | 510       | 380                         | NR               | 640       | 513                         | NR               | 770       | 10                          | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 453                         | NR               | 645       | 455                         | NR               | 775       | 9                           | NR               | 905       | 0                           | NR               |
| 390       | 3                           | NR               | 520       | 507                         | NR               | 650       | 401                         | NR               | 780       | 7                           | NR               | 910       | 0                           | NR               |
| 395       | 5                           | NR               | 525       | 551                         | NR               | 655       | 351                         | NR               | 785       | 6                           | NR               | 915       | 0                           | NR               |
| 400       | 7                           | NR               | 530       | 587                         | NR               | 660       | 305                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 10                          | NR               | 535       | 620                         | NR               | 665       | 265                         | NR               | 795       | 5                           | NR               | 925       | 0                           | NR               |
| 410       | 15                          | NR               | 540       | 648                         | NR               | 670       | 229                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 25                          | NR               | 545       | 680                         | NR               | 675       | 197                         | NR               | 805       | 4                           | NR               | 935       | 0                           | NR               |
| 420       | 48                          | NR               | 550       | 716                         | NR               | 680       | 169                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 90                          | NR               | 555       | 757                         | NR               | 685       | 145                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 161                         | NR               | 560       | 807                         | NR               | 690       | 124                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 279                         | NR               | 565       | 856                         | NR               | 695       | 106                         | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 460                         | NR               | 570       | 901                         | NR               | 700       | 90                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 771                         | NR               | 575       | 942                         | NR               | 705       | 77                          | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 915                         | NR               | 580       | 974                         | NR               | 710       | 65                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 572                         | NR               | 585       | 991                         | NR               | 715       | 56                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 342                         | NR               | 590       | 999                         | NR               | 720       | 48                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 264                         | NR               | 595       | 992                         | NR               | 725       | 40                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 169                         | NR               | 600       | 966                         | NR               | 730       | 35                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 115                         | NR               | 605       | 931                         | NR               | 735       | 29                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 103                         | NR               | 610       | 885                         | NR               | 740       | 25                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 103                         | NR               | 615       | 829                         | NR               | 745       | 21                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



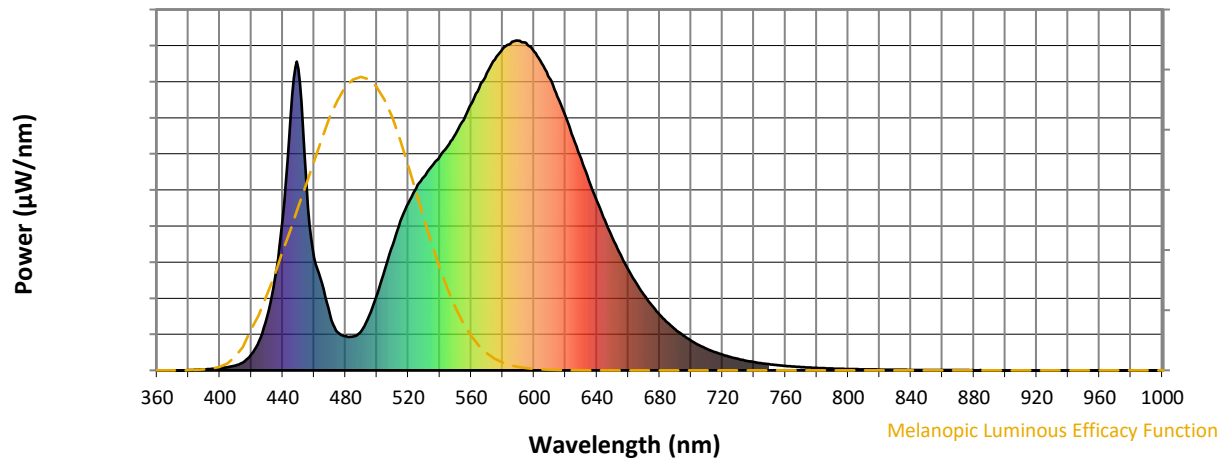
Scotopic Lumens: NR

S/P: 1.36

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 119                         | NR               | 620       | 771                         | NR               | 750       | 19                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 165                         | NR               | 625       | 705                         | NR               | 755       | 16                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 641                         | NR               | 760       | 14                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 305                         | NR               | 635       | 575                         | NR               | 765       | 12                          | NR               | 895       | 0                           | NR               |
| 380       | 1                           | NR               | 510       | 380                         | NR               | 640       | 513                         | NR               | 770       | 10                          | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 453                         | NR               | 645       | 455                         | NR               | 775       | 9                           | NR               | 905       | 0                           | NR               |
| 390       | 3                           | NR               | 520       | 507                         | NR               | 650       | 401                         | NR               | 780       | 7                           | NR               | 910       | 0                           | NR               |
| 395       | 5                           | NR               | 525       | 551                         | NR               | 655       | 351                         | NR               | 785       | 6                           | NR               | 915       | 0                           | NR               |
| 400       | 7                           | NR               | 530       | 587                         | NR               | 660       | 305                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 10                          | NR               | 535       | 620                         | NR               | 665       | 265                         | NR               | 795       | 5                           | NR               | 925       | 0                           | NR               |
| 410       | 15                          | NR               | 540       | 648                         | NR               | 670       | 229                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 25                          | NR               | 545       | 680                         | NR               | 675       | 197                         | NR               | 805       | 4                           | NR               | 935       | 0                           | NR               |
| 420       | 48                          | NR               | 550       | 716                         | NR               | 680       | 169                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 90                          | NR               | 555       | 757                         | NR               | 685       | 145                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 161                         | NR               | 560       | 807                         | NR               | 690       | 124                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 279                         | NR               | 565       | 856                         | NR               | 695       | 106                         | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 460                         | NR               | 570       | 901                         | NR               | 700       | 90                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 771                         | NR               | 575       | 942                         | NR               | 705       | 77                          | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 915                         | NR               | 580       | 974                         | NR               | 710       | 65                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 572                         | NR               | 585       | 991                         | NR               | 715       | 56                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 342                         | NR               | 590       | 999                         | NR               | 720       | 48                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 264                         | NR               | 595       | 992                         | NR               | 725       | 40                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 169                         | NR               | 600       | 966                         | NR               | 730       | 35                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 115                         | NR               | 605       | 931                         | NR               | 735       | 29                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 103                         | NR               | 610       | 885                         | NR               | 740       | 25                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 103                         | NR               | 615       | 829                         | NR               | 745       | 21                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.56

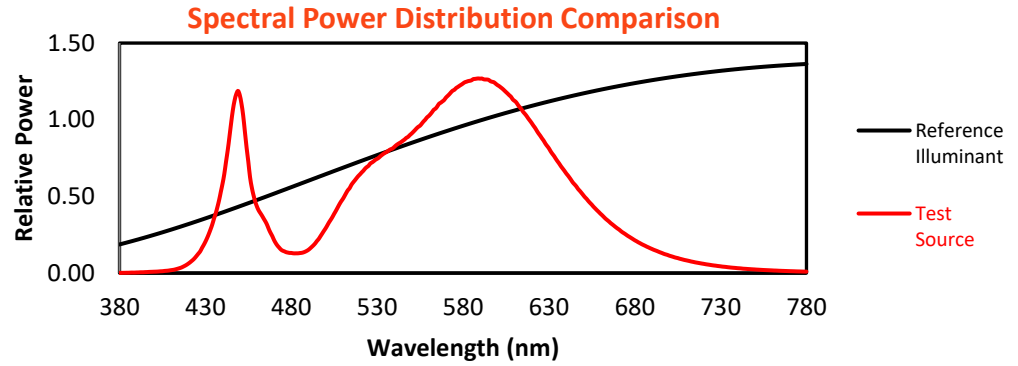
| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 119                         | NR               | 620       | 771                         | NR               | 750       | 19                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 165                         | NR               | 625       | 705                         | NR               | 755       | 16                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 230                         | NR               | 630       | 641                         | NR               | 760       | 14                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 305                         | NR               | 635       | 575                         | NR               | 765       | 12                          | NR               | 895       | 0                           | NR               |
| 380       | 1                           | NR               | 510       | 380                         | NR               | 640       | 513                         | NR               | 770       | 10                          | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 453                         | NR               | 645       | 455                         | NR               | 775       | 9                           | NR               | 905       | 0                           | NR               |
| 390       | 3                           | NR               | 520       | 507                         | NR               | 650       | 401                         | NR               | 780       | 7                           | NR               | 910       | 0                           | NR               |
| 395       | 5                           | NR               | 525       | 551                         | NR               | 655       | 351                         | NR               | 785       | 6                           | NR               | 915       | 0                           | NR               |
| 400       | 7                           | NR               | 530       | 587                         | NR               | 660       | 305                         | NR               | 790       | 5                           | NR               | 920       | 0                           | NR               |
| 405       | 10                          | NR               | 535       | 620                         | NR               | 665       | 265                         | NR               | 795       | 5                           | NR               | 925       | 0                           | NR               |
| 410       | 15                          | NR               | 540       | 648                         | NR               | 670       | 229                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 25                          | NR               | 545       | 680                         | NR               | 675       | 197                         | NR               | 805       | 4                           | NR               | 935       | 0                           | NR               |
| 420       | 48                          | NR               | 550       | 716                         | NR               | 680       | 169                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 90                          | NR               | 555       | 757                         | NR               | 685       | 145                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 161                         | NR               | 560       | 807                         | NR               | 690       | 124                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 279                         | NR               | 565       | 856                         | NR               | 695       | 106                         | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 460                         | NR               | 570       | 901                         | NR               | 700       | 90                          | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 771                         | NR               | 575       | 942                         | NR               | 705       | 77                          | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 915                         | NR               | 580       | 974                         | NR               | 710       | 65                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 572                         | NR               | 585       | 991                         | NR               | 715       | 56                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 342                         | NR               | 590       | 999                         | NR               | 720       | 48                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 264                         | NR               | 595       | 992                         | NR               | 725       | 40                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 169                         | NR               | 600       | 966                         | NR               | 730       | 35                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 115                         | NR               | 605       | 931                         | NR               | 735       | 29                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 103                         | NR               | 610       | 885                         | NR               | 740       | 25                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 103                         | NR               | 615       | 829                         | NR               | 745       | 21                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2511-595-2

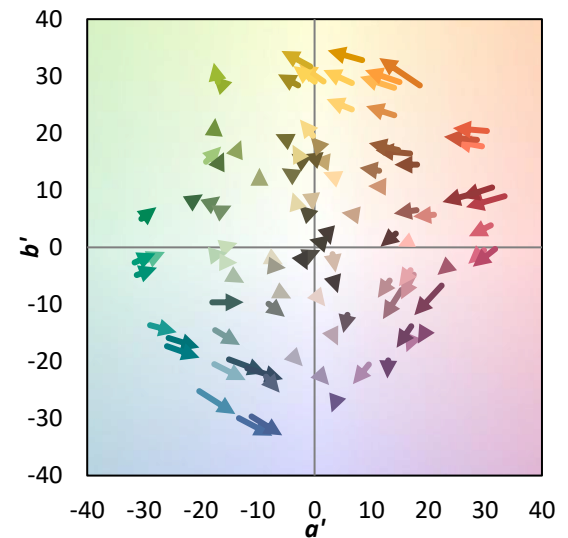
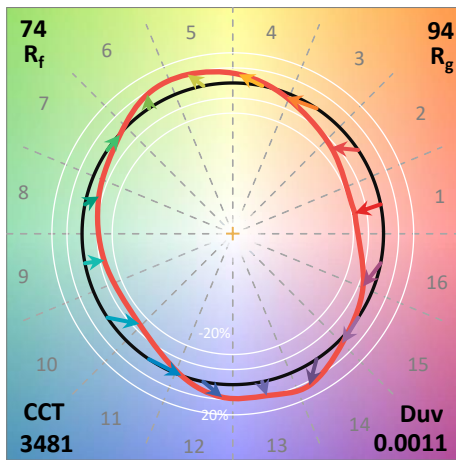
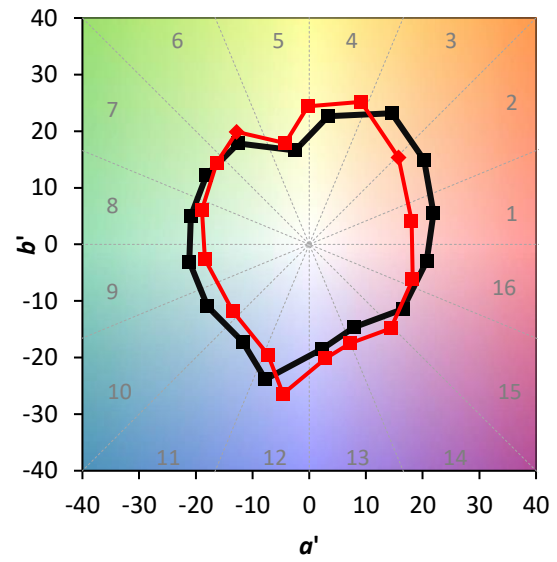
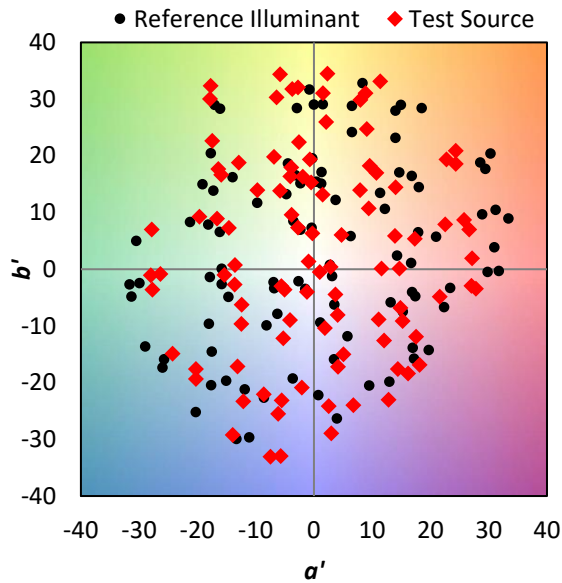
TM-30-18

### Summary

$R_f = 73.8$   
 $R_g = 93.8$   
 $CIE R_a = 71.1$   
 $R_g = -37.9$

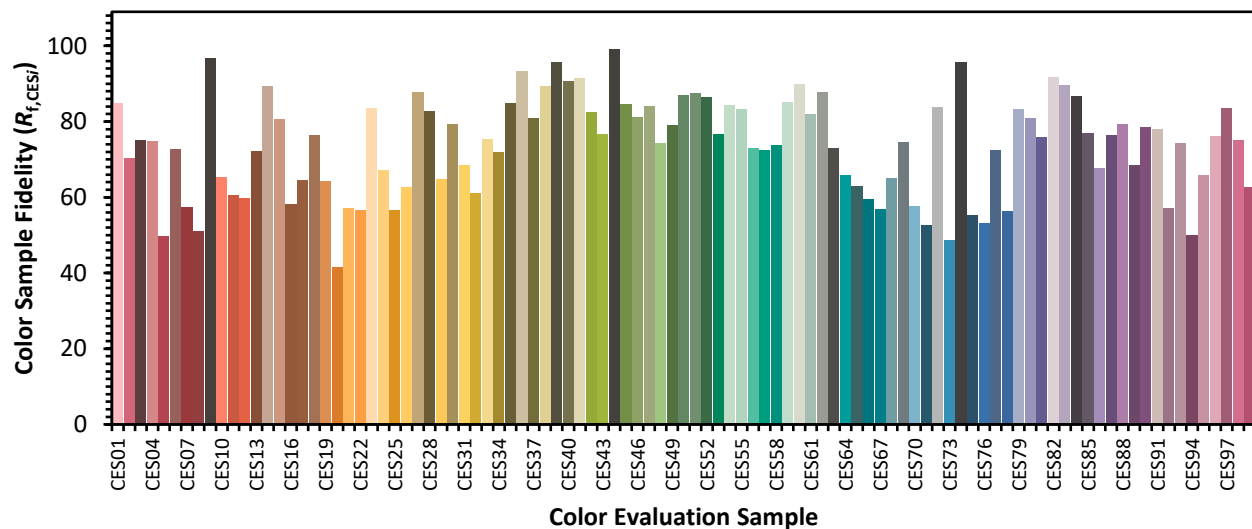


### Color Vector Graphics

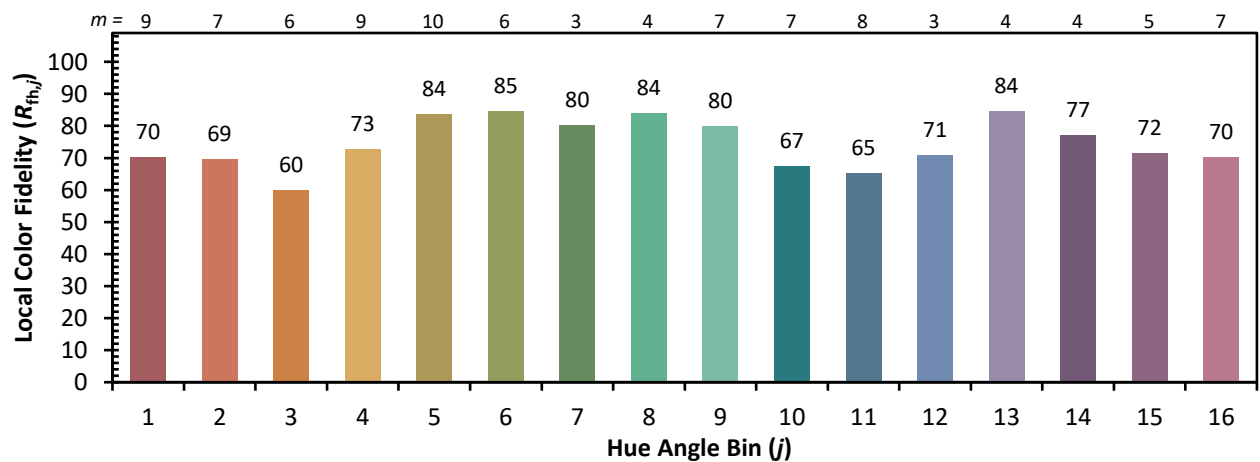
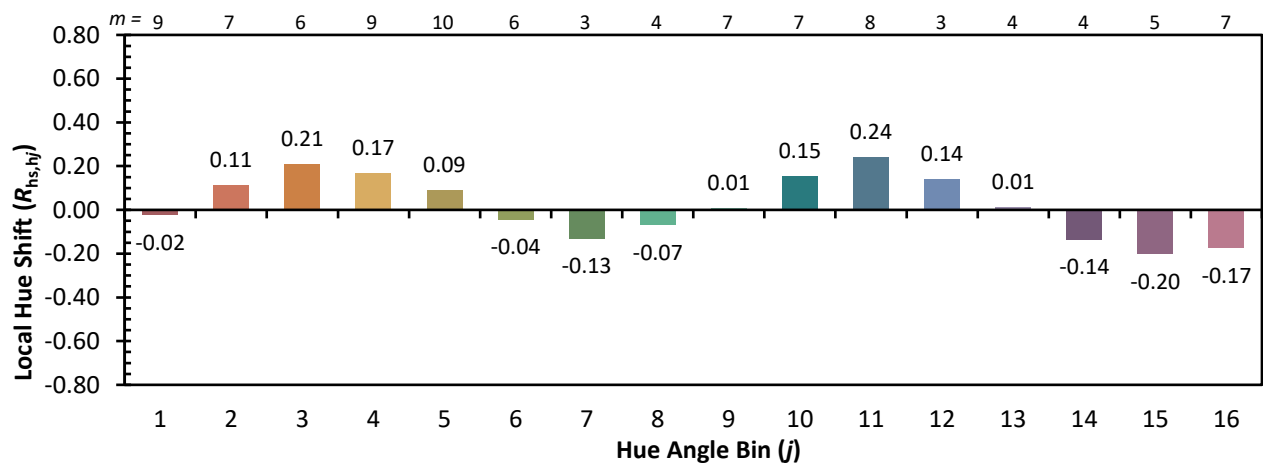
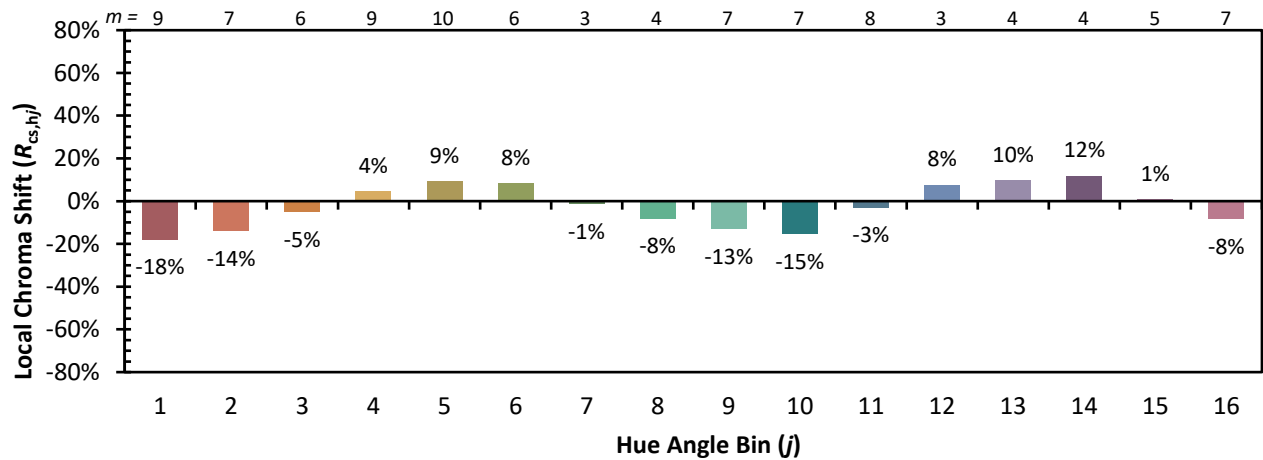


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

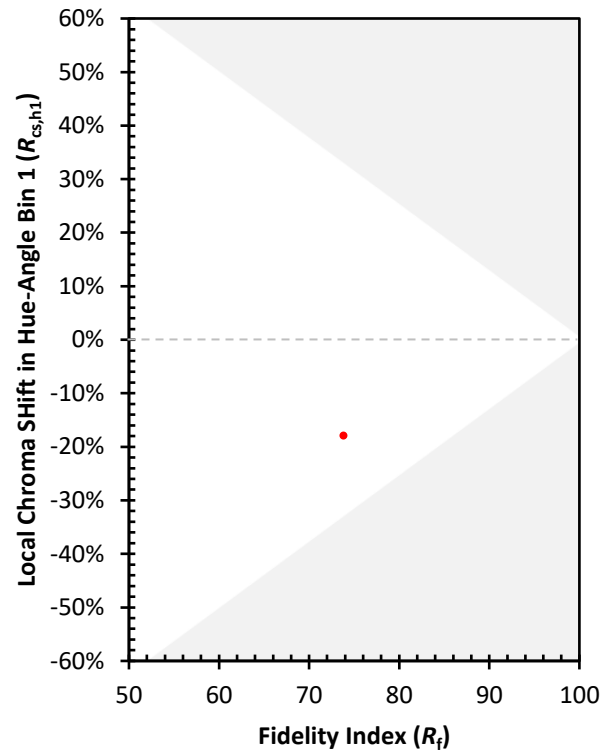
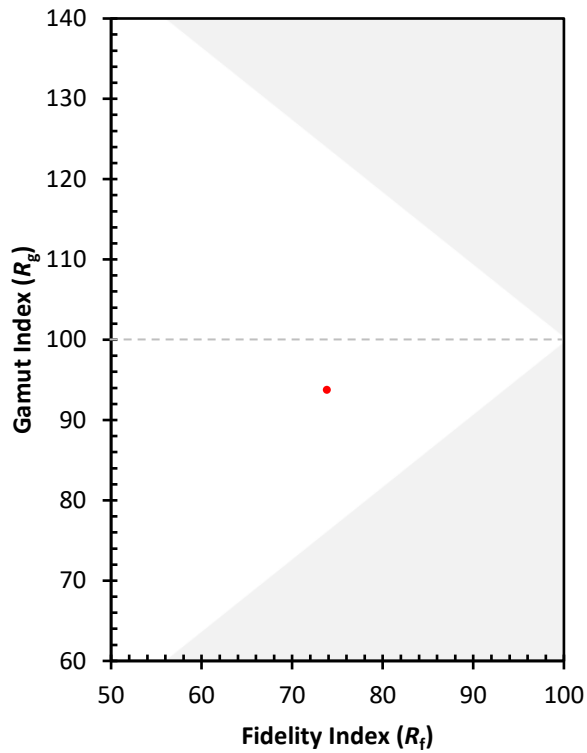
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 63 | CES51 = 88 | CES76 = 53 |
| CES02 = 61 | CES27 = 88 | CES52 = 87 | CES77 = 73 |
| CES03 = 31 | CES28 = 83 | CES53 = 77 | CES78 = 56 |
| CES04 = 70 | CES29 = 65 | CES54 = 84 | CES79 = 83 |
| CES05 = 48 | CES30 = 79 | CES55 = 83 | CES80 = 81 |
| CES06 = 51 | CES31 = 69 | CES56 = 73 | CES81 = 76 |
| CES07 = 40 | CES32 = 61 | CES57 = 72 | CES82 = 92 |
| CES08 = 39 | CES33 = 75 | CES58 = 74 | CES83 = 90 |
| CES09 = 29 | CES34 = 72 | CES59 = 85 | CES84 = 87 |
| CES10 = 75 | CES35 = 85 | CES60 = 90 | CES85 = 77 |
| CES11 = 58 | CES36 = 93 | CES61 = 82 | CES86 = 68 |
| CES12 = 64 | CES37 = 81 | CES62 = 88 | CES87 = 77 |
| CES13 = 42 | CES38 = 89 | CES63 = 73 | CES88 = 79 |
| CES14 = 74 | CES39 = 96 | CES64 = 66 | CES89 = 68 |
| CES15 = 71 | CES40 = 91 | CES65 = 63 | CES90 = 79 |
| CES16 = 47 | CES41 = 92 | CES66 = 60 | CES91 = 78 |
| CES17 = 50 | CES42 = 83 | CES67 = 57 | CES92 = 57 |
| CES18 = 56 | CES43 = 77 | CES68 = 65 | CES93 = 74 |
| CES19 = 72 | CES44 = 99 | CES69 = 75 | CES94 = 50 |
| CES20 = 65 | CES45 = 85 | CES70 = 58 | CES95 = 66 |
| CES21 = 87 | CES46 = 81 | CES71 = 53 | CES96 = 76 |
| CES22 = 79 | CES47 = 84 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 74 | CES73 = 49 | CES98 = 75 |
| CES24 = 91 | CES49 = 79 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 87 | CES75 = 55 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)