

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: P1211893

Luminaire Tested: **GKO-PB1D-827-U-T2R**

Issue Date: 11/5/2025



**Test Information**

Test Method: LM-79-08  
Report Number: P1211893  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 11/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB1D-827-U-T2R  
Description: GEKKO WALL PACK 3500LM PACKAGE 80CRI 2700K FIXTURE w/ TYPE II  
ROADWAY DISTRIBUTION OPTIC  
Light Source: (10) 2700K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

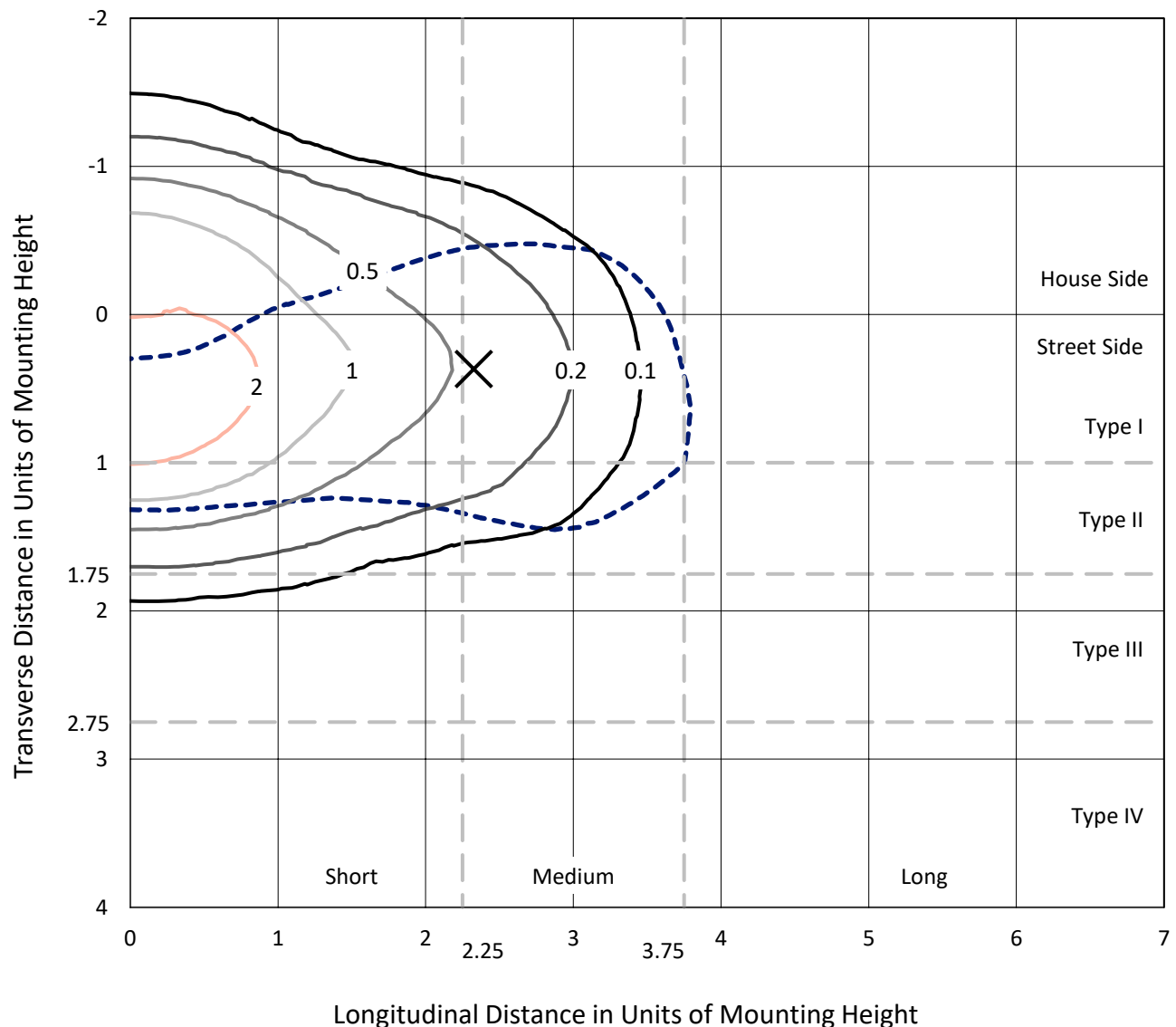
Lumens per Lamp: N/A  
Luminaire Lumens: 3133 lumens  
Efficiency: N/A  
Efficacy: 122.4 lumens/watt  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B1 - U0 - G1

Input Watts (W): 25.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi):  
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

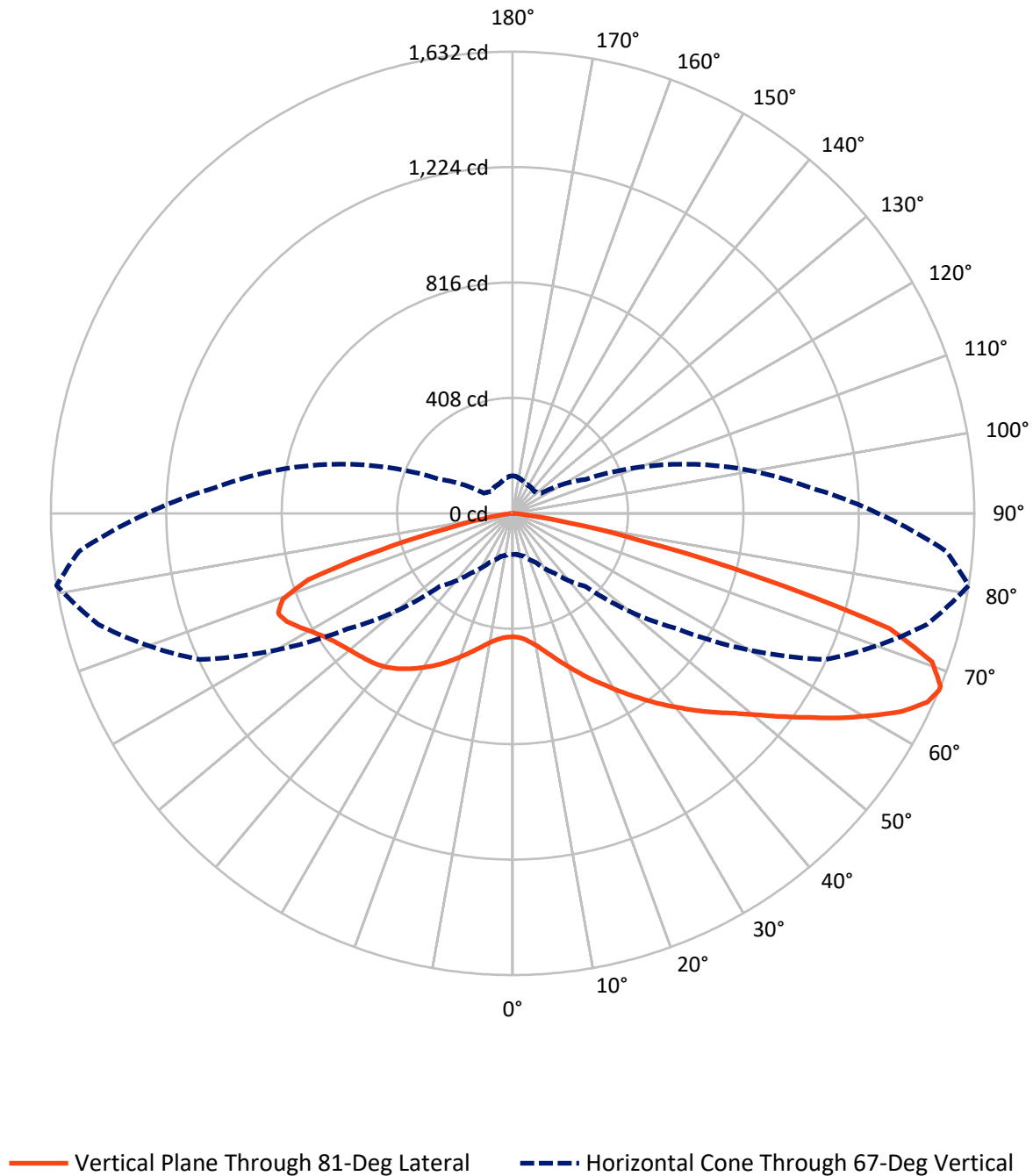
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 3.7 fc  
 Type II - Medium - N/A

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## Luminous Intensity Polar Plot



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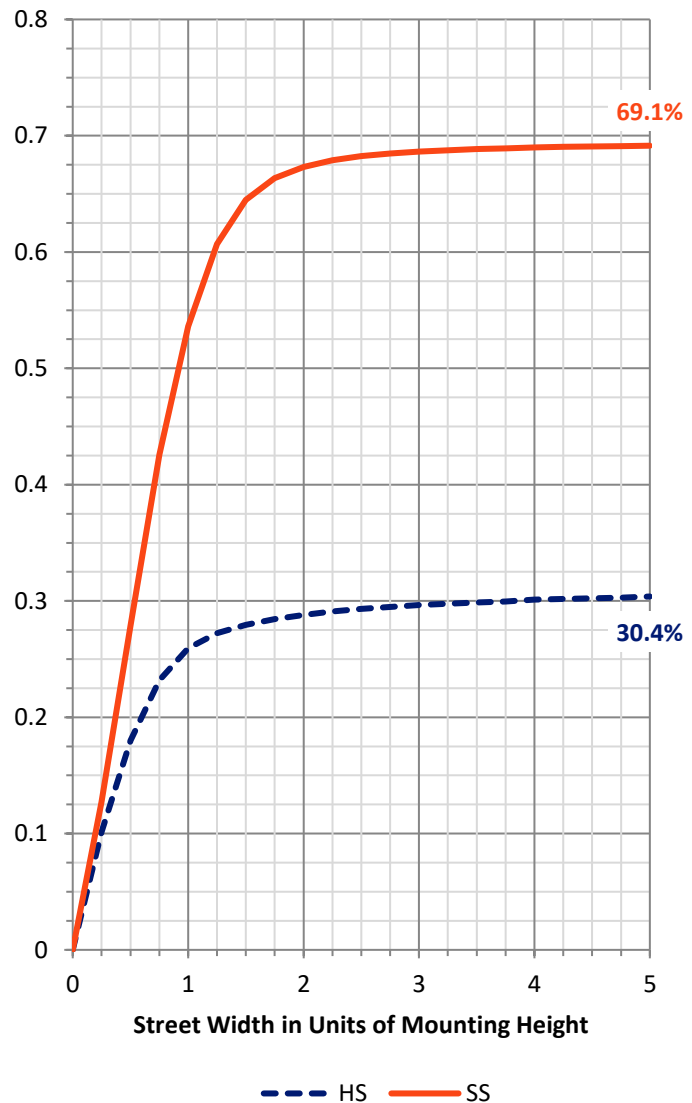
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 967.5    | 0.0    | 967.5  |
|                    | % Fixture | 30.9     | 0.0    | 30.9   |
| <b>Street Side</b> | Lumens    | 2165.6   | 0.0    | 2165.6 |
|                    | % Fixture | 69.1     | 0.0    | 69.1   |
| <b>Total</b>       | Lumens    | 3133.0   | 0.0    | 3133.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 45.2   | 1.4       |
| 10°-20°   | 163.6  | 5.2       |
| 20°-30°   | 331.5  | 10.6      |
| 30°-40°   | 522.7  | 16.7      |
| 40°-50°   | 641.9  | 20.5      |
| 50°-60°   | 613.2  | 19.6      |
| 60°-70°   | 514.3  | 16.4      |
| 70°-80°   | 272.4  | 8.7       |
| 80°-90°   | 28.2   | 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°    | 3133.0 | 100.0     |
| 0°-180°   | 3133.0 | 100.0     |

**Coefficient of Utilization**



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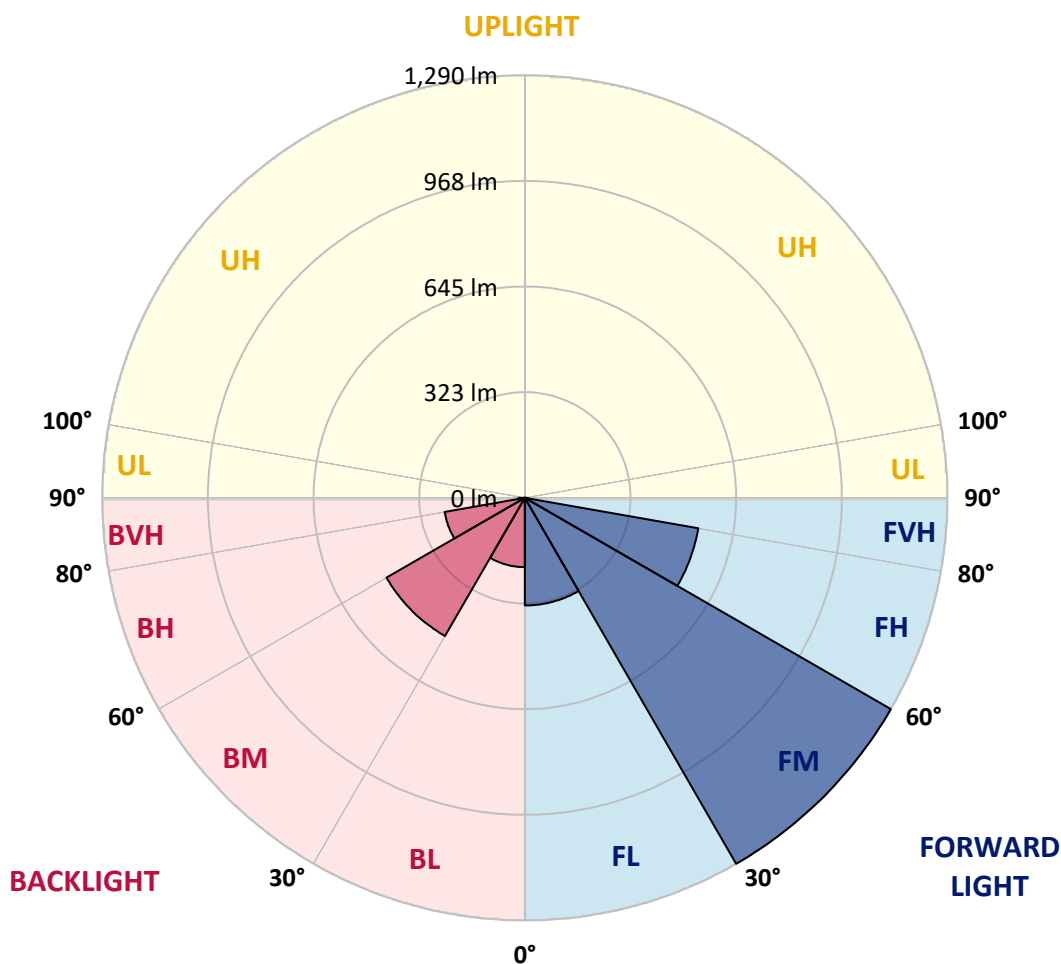
CATALOG NUMBER: GKO-PB1D-827-U-T2R

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|--------|-----------|-------------------------|------|--------|
|      |             |        |           | B                       | U    | G      |
| FL   | (0°-30°)    | 328.6  | 10.5      |                         |      |        |
| FM   | (30°-60°)   | 1290.4 | 41.2      |                         |      |        |
| FH   | (60°-80°)   | 537.8  | 17.2      |                         |      | G0/660 |
| FVH  | (80°-90°)   | 8.7    | 0.3       |                         |      | G0/10  |
| BL   | (0°-30°)    | 211.7  | 6.8       | B1/500                  |      |        |
| BM   | (30°-60°)   | 487.5  | 15.6      | B1/1000                 |      |        |
| BH   | (60°-80°)   | 248.9  | 7.9       | B1/500                  |      | G1/500 |
| BVH  | (80°-90°)   | 19.4   | 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°    | 436.4  | 436.4  | 436.4  | 436.4  | 436.4  | 436.4  | 436.4  | 436.4  | 436.4  | 436.4  | 436.4  |
| 2.5°  | 461.6  | 462.8  | 460.4  | 459.8  | 457.4  | 453.8  | 449.6  | 446.6  | 441.8  | 439.4  | 438.2  |
| 5°    | 505.4  | 503.0  | 501.2  | 498.2  | 489.8  | 482.6  | 470.6  | 462.2  | 453.2  | 447.2  | 445.4  |
| 7.5°  | 558.7  | 559.9  | 553.9  | 546.1  | 534.1  | 519.8  | 500.6  | 485.0  | 468.2  | 460.4  | 456.8  |
| 10°   | 616.9  | 621.7  | 615.7  | 606.1  | 583.3  | 561.7  | 538.3  | 511.4  | 488.6  | 476.6  | 471.8  |
| 12.5° | 687.6  | 690.6  | 682.8  | 670.2  | 642.6  | 610.3  | 577.3  | 543.7  | 513.8  | 498.8  | 490.4  |
| 15°   | 766.7  | 764.3  | 756.6  | 738.0  | 702.6  | 666.6  | 621.7  | 577.9  | 542.5  | 524.0  | 512.0  |
| 17.5° | 848.3  | 845.3  | 835.1  | 811.1  | 770.9  | 726.0  | 672.6  | 617.5  | 573.1  | 552.7  | 536.5  |
| 20°   | 926.2  | 923.2  | 916.0  | 889.0  | 840.5  | 785.3  | 723.0  | 663.0  | 607.9  | 582.7  | 564.7  |
| 22.5° | 1012.5 | 1010.1 | 998.7  | 965.8  | 913.6  | 853.1  | 780.5  | 709.2  | 645.6  | 615.7  | 594.1  |
| 25°   | 1106.1 | 1106.7 | 1094.1 | 1047.9 | 989.2  | 918.4  | 842.3  | 761.3  | 688.2  | 650.4  | 625.9  |
| 27.5° | 1215.2 | 1214.6 | 1193.0 | 1143.2 | 1069.5 | 988.0  | 903.4  | 815.9  | 730.2  | 685.8  | 657.6  |
| 30°   | 1314.1 | 1311.7 | 1287.7 | 1237.9 | 1152.8 | 1061.1 | 968.2  | 868.7  | 777.5  | 724.8  | 690.6  |
| 32.5° | 1387.2 | 1387.8 | 1368.0 | 1313.5 | 1230.1 | 1132.4 | 1028.7 | 928.0  | 823.1  | 766.7  | 729.0  |
| 35°   | 1440.0 | 1440.6 | 1421.4 | 1374.6 | 1296.7 | 1199.0 | 1092.9 | 983.8  | 874.1  | 809.9  | 769.1  |
| 37.5° | 1456.8 | 1456.8 | 1444.2 | 1407.6 | 1344.0 | 1258.9 | 1155.8 | 1047.3 | 925.0  | 856.7  | 809.9  |
| 40°   | 1434.0 | 1435.8 | 1435.2 | 1411.2 | 1367.4 | 1300.3 | 1214.0 | 1108.4 | 982.0  | 902.8  | 851.3  |
| 42.5° | 1382.4 | 1383.6 | 1385.4 | 1376.4 | 1362.6 | 1322.5 | 1260.7 | 1170.8 | 1038.9 | 953.2  | 892.0  |
| 45°   | 1297.3 | 1302.1 | 1311.1 | 1314.7 | 1320.1 | 1317.1 | 1289.5 | 1228.9 | 1102.5 | 1003.5 | 932.2  |
| 47.5° | 1189.4 | 1197.2 | 1209.2 | 1230.7 | 1260.7 | 1284.7 | 1296.7 | 1273.9 | 1164.2 | 1055.7 | 977.2  |
| 50°   | 1039.5 | 1047.9 | 1080.3 | 1125.2 | 1184.6 | 1231.3 | 1276.9 | 1307.5 | 1233.1 | 1119.2 | 1027.5 |
| 52.5° | 832.1  | 850.1  | 904.6  | 990.9  | 1092.9 | 1162.4 | 1234.9 | 1323.7 | 1303.3 | 1194.2 | 1087.5 |
| 55°   | 633.1  | 639.7  | 709.8  | 813.5  | 970.6  | 1088.1 | 1177.4 | 1315.3 | 1369.2 | 1272.7 | 1155.8 |
| 57.5° | 442.4  | 449.6  | 510.8  | 624.1  | 797.9  | 990.9  | 1119.8 | 1287.1 | 1429.2 | 1365.0 | 1234.3 |
| 60°   | 314.1  | 321.9  | 367.5  | 451.4  | 619.9  | 849.5  | 1066.5 | 1251.1 | 1481.3 | 1452.6 | 1324.9 |
| 62.5° | 228.4  | 232.6  | 256.6  | 327.3  | 447.8  | 664.2  | 990.4  | 1227.7 | 1517.9 | 1543.7 | 1417.8 |
| 65°   | 175.0  | 179.2  | 193.0  | 237.4  | 330.9  | 485.6  | 853.7  | 1227.1 | 1527.5 | 1610.8 | 1498.1 |
| 67°   | 145.7  | 145.1  | 157.1  | 190.6  | 258.4  | 365.1  | 712.8  | 1222.4 | 1516.7 | 1632.4 | 1538.9 |
| 67.5° | 137.9  | 140.3  | 149.9  | 178.0  | 244.0  | 336.3  | 682.2  | 1214.6 | 1513.1 | 1631.8 | 1541.9 |
| 70°   | 109.7  | 110.3  | 118.7  | 140.9  | 183.4  | 244.0  | 491.0  | 1137.8 | 1458.5 | 1573.1 | 1508.3 |
| 72.5° | 80.3   | 79.7   | 92.3   | 106.7  | 140.3  | 177.4  | 329.1  | 955.6  | 1340.5 | 1393.8 | 1341.0 |
| 75°   | 59.3   | 58.7   | 65.3   | 81.5   | 100.1  | 132.5  | 213.4  | 623.5  | 907.6  | 886.6  | 818.9  |
| 77.5° | 39.6   | 40.8   | 46.8   | 59.9   | 71.3   | 82.1   | 106.7  | 287.2  | 500.0  | 452.0  | 435.2  |
| 80°   | 24.0   | 22.2   | 26.4   | 34.2   | 41.4   | 42.0   | 45.6   | 124.1  | 214.6  | 204.4  | 191.8  |
| 82.5° | 8.4    | 8.4    | 10.2   | 13.8   | 13.8   | 13.8   | 16.8   | 30.0   | 42.6   | 39.0   | 37.2   |
| 85°   | 0.0    | 0.0    | 0.0    | 0.0    | 1.2    | 1.8    | 1.2    | 2.4    | 4.2    | 4.8    | 4.8    |
| 87.5° | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.6    | 0.6    | 1.2    | 1.8    | 2.4    | 2.4    |
| 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: P1211893

CATALOG NUMBER: GKO-PB1D-827-U-T2R

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 436.4  | 436.4  | 436.4 | 436.4 | 436.4 | 436.4 | 436.4 | 436.4 | 436.4 | 436.4 | 436.4 |
| 2.5°  | 438.2  | 438.2  | 436.4 | 434.0 | 432.8 | 432.2 | 430.4 | 428.0 | 429.8 | 431.6 | 431.6 |
| 5°    | 444.2  | 443.0  | 439.4 | 437.0 | 435.2 | 435.2 | 432.8 | 432.2 | 434.0 | 435.8 | 435.2 |
| 7.5°  | 453.8  | 451.4  | 447.2 | 443.6 | 444.2 | 444.8 | 441.2 | 441.2 | 443.0 | 444.8 | 444.8 |
| 10°   | 467.0  | 462.8  | 458.6 | 455.6 | 456.2 | 456.8 | 453.2 | 452.0 | 453.8 | 455.6 | 456.8 |
| 12.5° | 483.8  | 478.4  | 473.6 | 470.6 | 470.0 | 470.6 | 467.0 | 465.8 | 465.8 | 467.0 | 467.0 |
| 15°   | 503.6  | 497.6  | 491.6 | 487.4 | 486.2 | 485.6 | 480.8 | 476.6 | 476.6 | 477.2 | 477.2 |
| 17.5° | 526.3  | 518.0  | 510.2 | 505.4 | 502.4 | 498.2 | 492.8 | 486.8 | 485.0 | 485.6 | 485.6 |
| 20°   | 549.1  | 540.1  | 529.9 | 523.4 | 517.4 | 510.2 | 501.8 | 494.0 | 490.4 | 490.4 | 489.8 |
| 22.5° | 575.5  | 563.5  | 549.7 | 540.7 | 529.9 | 518.0 | 506.0 | 495.8 | 492.2 | 491.0 | 491.0 |
| 25°   | 602.5  | 588.7  | 568.9 | 555.1 | 539.5 | 522.2 | 506.6 | 492.8 | 486.8 | 484.4 | 484.4 |
| 27.5° | 630.1  | 613.9  | 588.1 | 568.3 | 545.5 | 521.6 | 500.6 | 483.2 | 474.8 | 471.8 | 470.6 |
| 30°   | 661.2  | 637.9  | 604.9 | 577.9 | 546.7 | 516.2 | 489.2 | 468.8 | 456.2 | 449.0 | 449.6 |
| 32.5° | 693.6  | 664.2  | 620.5 | 583.9 | 544.9 | 506.0 | 471.8 | 446.0 | 429.8 | 423.2 | 420.8 |
| 35°   | 726.6  | 689.4  | 634.3 | 586.9 | 538.9 | 490.4 | 449.6 | 420.8 | 402.9 | 393.3 | 393.3 |
| 37.5° | 760.1  | 715.8  | 643.8 | 586.3 | 528.1 | 470.0 | 423.8 | 393.3 | 372.3 | 360.3 | 357.3 |
| 40°   | 793.1  | 740.4  | 651.0 | 581.5 | 512.0 | 445.4 | 396.3 | 363.3 | 335.1 | 319.5 | 317.1 |
| 42.5° | 825.5  | 760.7  | 654.6 | 573.7 | 492.8 | 418.4 | 365.1 | 320.7 | 293.7 | 279.4 | 278.8 |
| 45°   | 854.9  | 776.9  | 655.2 | 563.5 | 467.6 | 387.9 | 323.1 | 280.6 | 253.6 | 238.6 | 238.6 |
| 47.5° | 883.6  | 794.9  | 654.6 | 550.3 | 440.0 | 348.3 | 278.8 | 237.4 | 212.8 | 203.2 | 200.2 |
| 50°   | 918.4  | 812.9  | 654.0 | 534.1 | 404.7 | 300.9 | 235.6 | 200.2 | 179.2 | 169.7 | 169.7 |
| 52.5° | 953.8  | 833.9  | 655.2 | 511.4 | 362.7 | 254.8 | 197.2 | 166.1 | 152.3 | 146.3 | 145.7 |
| 55°   | 999.3  | 856.1  | 658.2 | 484.4 | 318.9 | 209.8 | 164.3 | 143.3 | 133.7 | 130.7 | 131.3 |
| 57.5° | 1054.5 | 886.6  | 664.2 | 452.6 | 268.0 | 172.1 | 140.9 | 129.5 | 127.1 | 128.3 | 128.9 |
| 60°   | 1117.4 | 924.4  | 672.6 | 416.6 | 223.0 | 143.3 | 127.1 | 124.7 | 127.1 | 131.9 | 132.5 |
| 62.5° | 1190.6 | 970.0  | 683.4 | 376.5 | 178.6 | 125.9 | 121.1 | 122.9 | 124.7 | 132.5 | 133.1 |
| 65°   | 1255.3 | 1019.1 | 685.8 | 329.1 | 145.1 | 114.5 | 117.5 | 118.7 | 123.5 | 132.5 | 133.1 |
| 67°   | 1291.9 | 1052.7 | 669.6 | 284.2 | 124.1 | 108.5 | 112.7 | 113.9 | 122.3 | 131.3 | 132.5 |
| 67.5° | 1296.1 | 1059.9 | 658.8 | 272.8 | 119.9 | 107.3 | 111.5 | 113.9 | 122.3 | 131.3 | 131.9 |
| 70°   | 1283.5 | 1055.1 | 586.9 | 205.6 | 98.9  | 98.9  | 103.7 | 109.1 | 117.5 | 127.1 | 131.3 |
| 72.5° | 1171.4 | 962.2  | 454.4 | 139.7 | 83.9  | 89.3  | 96.5  | 104.3 | 112.1 | 123.5 | 130.7 |
| 75°   | 740.4  | 619.3  | 278.2 | 93.5  | 70.1  | 79.7  | 91.1  | 100.1 | 106.7 | 115.1 | 119.9 |
| 77.5° | 395.7  | 306.3  | 119.9 | 55.2  | 55.2  | 70.7  | 84.5  | 92.9  | 96.5  | 99.5  | 102.5 |
| 80°   | 187.0  | 142.7  | 58.2  | 33.0  | 38.4  | 55.2  | 74.9  | 83.9  | 85.1  | 88.7  | 89.9  |
| 82.5° | 37.2   | 32.4   | 19.2  | 17.4  | 25.2  | 39.6  | 62.3  | 72.5  | 73.1  | 79.1  | 80.3  |
| 85°   | 4.8    | 4.2    | 3.0   | 6.6   | 16.2  | 29.4  | 48.0  | 62.3  | 63.5  | 63.5  | 62.3  |
| 87.5° | 2.4    | 1.8    | 1.8   | 4.8   | 12.0  | 22.2  | 39.6  | 52.2  | 52.8  | 41.4  | 40.2  |
| 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: SP3-2511-595-2

Test Date: 11/12/2025

Luminaire Tested: GKO-PB1C-827-U-T4W

Data in this report applies to families of products including GKO-PB1C-827\*

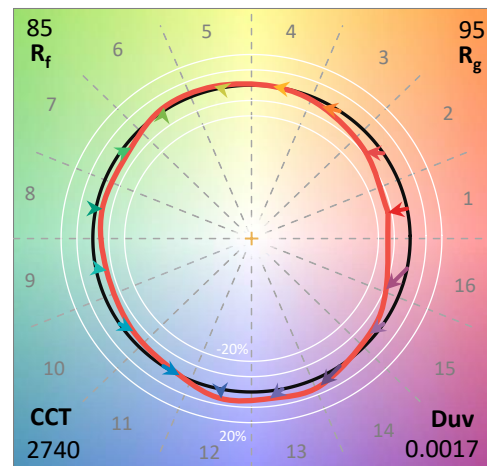
### Test Information

Test Method: LM-79-2019  
 Report Number: SP3-2511-595-2  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP3 - 3M SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 01/27/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GKO-PB1C-827-U-T4W**  
 Description: Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution

### Spectral Parameters

CCT (K): 2740  
 CIE  $u'$ : 0.2602  
 CIE  $v'$ : 0.5290  
 Duv: 0.0017  
 CIE x: 0.4595  
 CIE y: 0.4151  
 CIE z: 0.1255  
 Peak Wavelength (nm): 605  
 Dominant Wavelength (nm): 583  
 Purity: 62.5206  
 R<sub>f</sub>: 84.8  
 R<sub>g</sub>: 94.5

CRI (Ra): 81.1  
 R1: 79.2  
 R2: 90.4  
 R3: 95.8  
 R4: 79.2  
 R5: 79.6  
 R6: 89.5  
 R7: 81.1  
 R8: 54.5  
 R9: -0.3  
 R10: 79.1  
 R11: 79.0  
 R12: 72.7  
 R13: 81.7  
 R14: 98.3  
 R15: 70.3



### Test Conditions

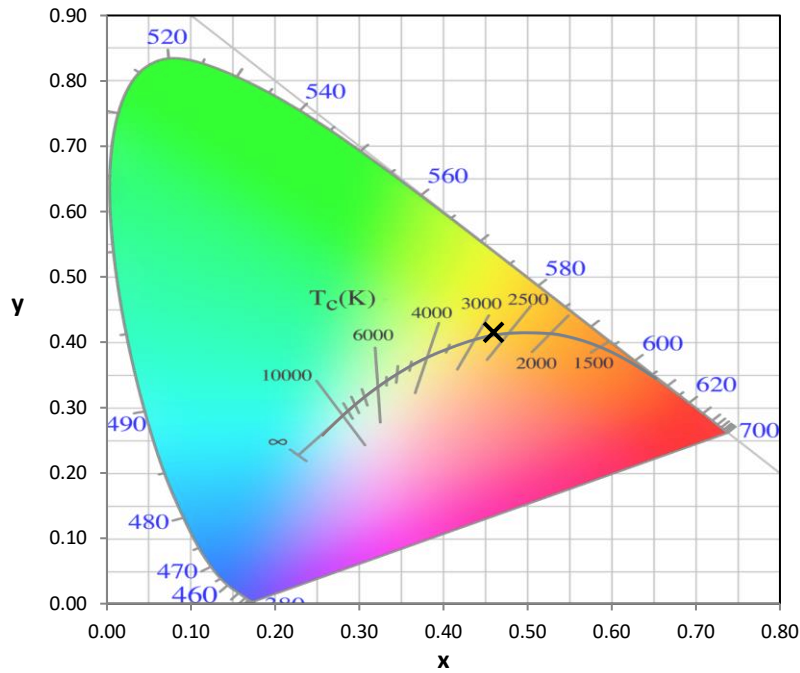
Stabilization Time: 20M  
 Operation Time: 1H 20M  
 Sphere Temperature (°C): 25.0

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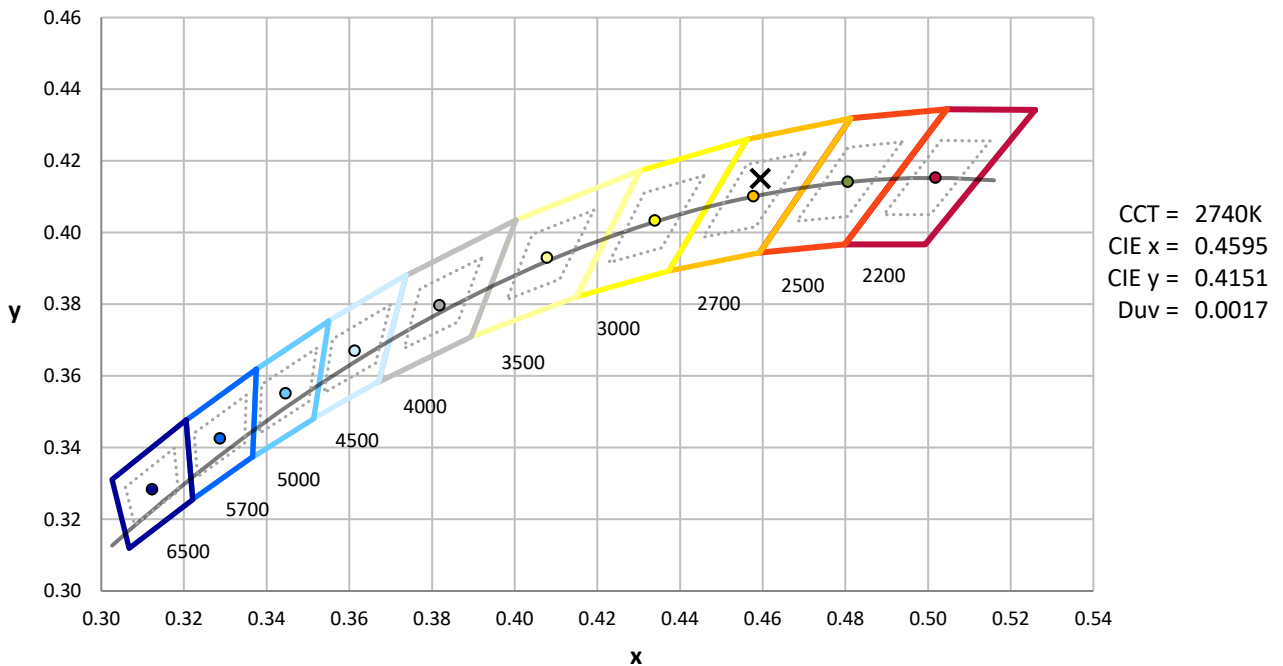
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 3M SPHERE IN02505     | 7/1/2025         | 1/1/2026             |
| Power Meter                    | XITRON INXT2011006    | 10/21/2025       | 10/21/2026           |
| AC Power Source                | CHROMA 61604 IN6064A  | 10/20/2025       | 10/20/2026           |
| DC Power Source                | EYSIGHT N5770A IN0534 | 10/20/2025       | 10/20/2026           |
| Sphere Thermometer             | TANDD IN4036E         | 10/21/2025       | 10/21/2026           |
|                                |                       |                  |                      |

REPORT NUMBER: SP3-2511-595-2

**CIE 1931 Chromaticity Diagram**



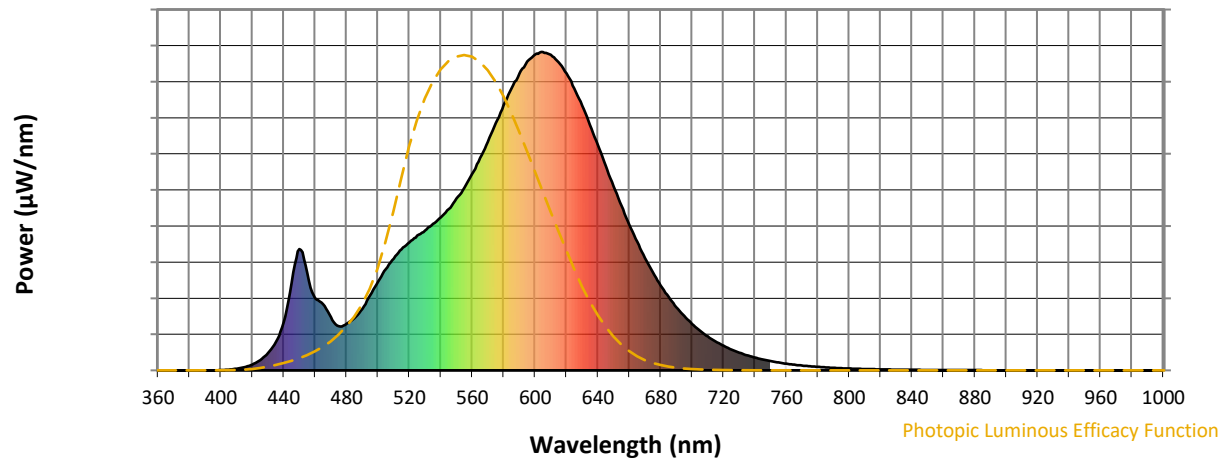
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

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### Photopic Flux vs. Wavelength

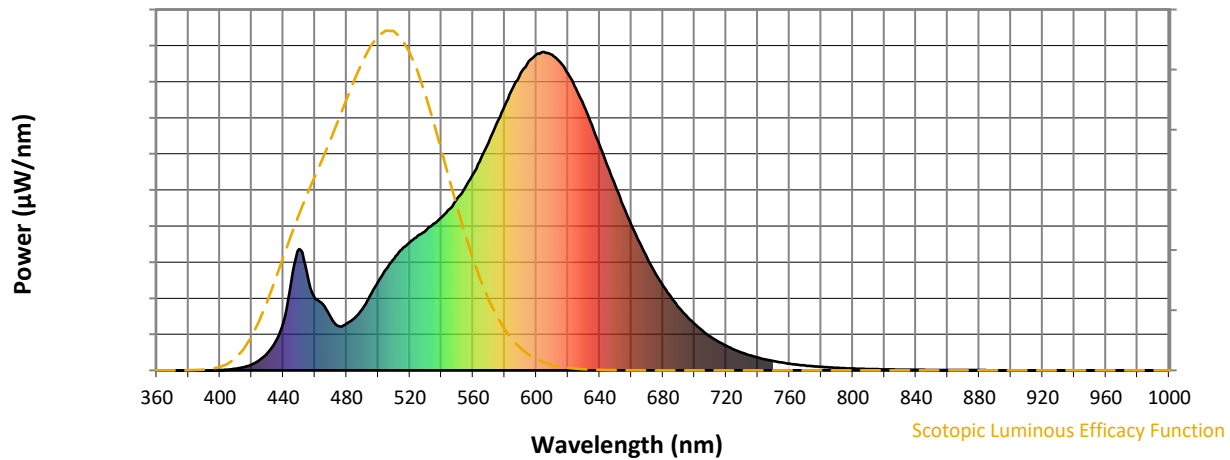


### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 193                         | NR               | 620       | 932                         | NR               | 750       | 29                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 235                         | NR               | 625       | 886                         | NR               | 755       | 25                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 278                         | NR               | 630       | 832                         | NR               | 760       | 21                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 318                         | NR               | 635       | 771                         | NR               | 765       | 18                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 351                         | NR               | 640       | 708                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 380                         | NR               | 645       | 642                         | NR               | 775       | 13                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 402                         | NR               | 650       | 578                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 0                           | NR               | 525       | 423                         | NR               | 655       | 517                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 1                           | NR               | 530       | 440                         | NR               | 660       | 457                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 2                           | NR               | 535       | 460                         | NR               | 665       | 404                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 5                           | NR               | 540       | 480                         | NR               | 670       | 352                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 10                          | NR               | 545       | 507                         | NR               | 675       | 308                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 19                          | NR               | 550       | 539                         | NR               | 680       | 267                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 32                          | NR               | 555       | 574                         | NR               | 685       | 231                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 55                          | NR               | 560       | 617                         | NR               | 690       | 198                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 90                          | NR               | 565       | 668                         | NR               | 695       | 171                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 151                         | NR               | 570       | 718                         | NR               | 700       | 146                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 275                         | NR               | 575       | 777                         | NR               | 705       | 124                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 381                         | NR               | 580       | 832                         | NR               | 710       | 106                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 304                         | NR               | 585       | 886                         | NR               | 715       | 90                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 227                         | NR               | 590       | 933                         | NR               | 720       | 77                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 208                         | NR               | 595       | 970                         | NR               | 725       | 66                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 167                         | NR               | 600       | 992                         | NR               | 730       | 56                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 138                         | NR               | 605       | 1000                        | NR               | 735       | 47                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 146                         | NR               | 610       | 991                         | NR               | 740       | 40                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 164                         | NR               | 615       | 969                         | NR               | 745       | 34                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



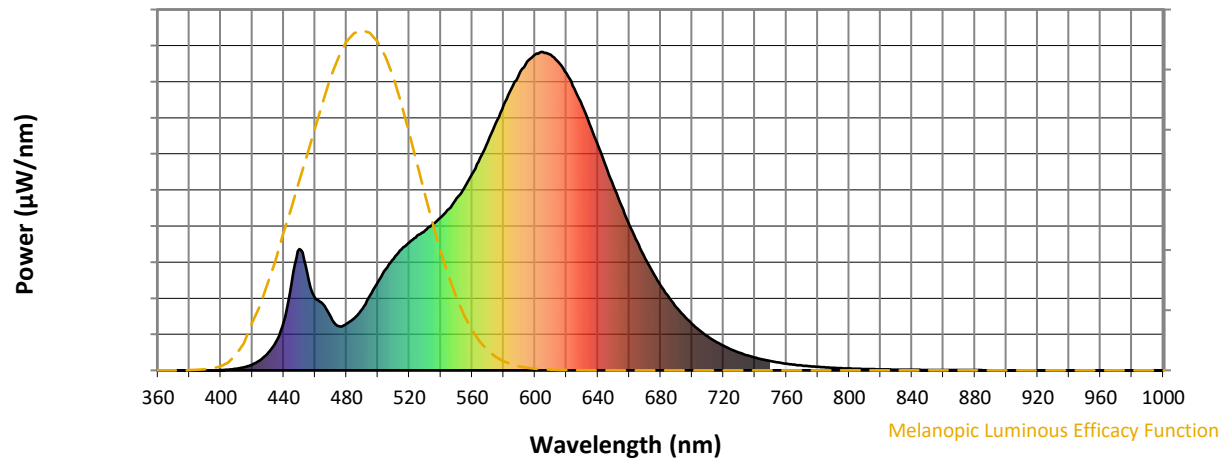
Scotopic Lumens: NR

S/P: 1.22

| 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       | 193                         | NR               | 620       | 932                         | NR               | 750       | 29                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 235                         | NR               | 625       | 886                         | NR               | 755       | 25                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 278                         | NR               | 630       | 832                         | NR               | 760       | 21                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 318                         | NR               | 635       | 771                         | NR               | 765       | 18                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 351                         | NR               | 640       | 708                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 380                         | NR               | 645       | 642                         | NR               | 775       | 13                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 402                         | NR               | 650       | 578                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 0                           | NR               | 525       | 423                         | NR               | 655       | 517                         | NR               | 785       | 9                           | NR               | 915       | 0                           | NR               |
| 400       | 1                           | NR               | 530       | 440                         | NR               | 660       | 457                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 2                           | NR               | 535       | 460                         | NR               | 665       | 404                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 5                           | NR               | 540       | 480                         | NR               | 670       | 352                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 10                          | NR               | 545       | 507                         | NR               | 675       | 308                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 19                          | NR               | 550       | 539                         | NR               | 680       | 267                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 32                          | NR               | 555       | 574                         | NR               | 685       | 231                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 55                          | NR               | 560       | 617                         | NR               | 690       | 198                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 90                          | NR               | 565       | 668                         | NR               | 695       | 171                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 151                         | NR               | 570       | 718                         | NR               | 700       | 146                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 275                         | NR               | 575       | 777                         | NR               | 705       | 124                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 381                         | NR               | 580       | 832                         | NR               | 710       | 106                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 304                         | NR               | 585       | 886                         | NR               | 715       | 90                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 227                         | NR               | 590       | 933                         | NR               | 720       | 77                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 208                         | NR               | 595       | 970                         | NR               | 725       | 66                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 167                         | NR               | 600       | 992                         | NR               | 730       | 56                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 138                         | NR               | 605       | 1000                        | NR               | 735       | 47                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 146                         | NR               | 610       | 991                         | NR               | 740       | 40                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 164                         | NR               | 615       | 969                         | NR               | 745       | 34                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.26**

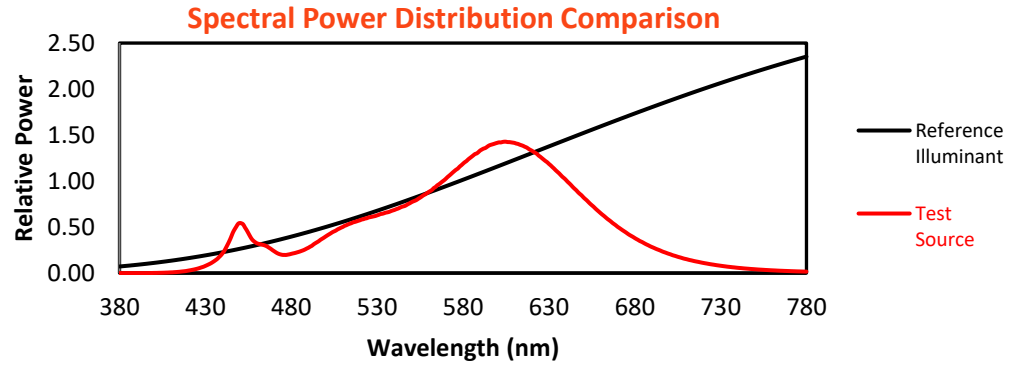
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 193                                  | NR                             | 620               | 932                                  | NR                             | 750               | 29                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 235                                  | NR                             | 625               | 886                                  | NR                             | 755               | 25                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 278                                  | NR                             | 630               | 832                                  | NR                             | 760               | 21                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 318                                  | NR                             | 635               | 771                                  | NR                             | 765               | 18                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 351                                  | NR                             | 640               | 708                                  | NR                             | 770               | 15                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 380                                  | NR                             | 645               | 642                                  | NR                             | 775               | 13                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 402                                  | NR                             | 650               | 578                                  | NR                             | 780               | 11                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 423                                  | NR                             | 655               | 517                                  | NR                             | 785               | 9                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 1                                    | NR                             | 530               | 440                                  | NR                             | 660               | 457                                  | NR                             | 790               | 8                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 2                                    | NR                             | 535               | 460                                  | NR                             | 665               | 404                                  | NR                             | 795               | 7                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 5                                    | NR                             | 540               | 480                                  | NR                             | 670               | 352                                  | NR                             | 800               | 6                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 10                                   | NR                             | 545               | 507                                  | NR                             | 675               | 308                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 19                                   | NR                             | 550               | 539                                  | NR                             | 680               | 267                                  | NR                             | 810               | 4                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 32                                   | NR                             | 555               | 574                                  | NR                             | 685               | 231                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 55                                   | NR                             | 560               | 617                                  | NR                             | 690               | 198                                  | NR                             | 820               | 3                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 90                                   | NR                             | 565               | 668                                  | NR                             | 695               | 171                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 151                                  | NR                             | 570               | 718                                  | NR                             | 700               | 146                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 275                                  | NR                             | 575               | 777                                  | NR                             | 705               | 124                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 381                                  | NR                             | 580               | 832                                  | NR                             | 710               | 106                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 304                                  | NR                             | 585               | 886                                  | NR                             | 715               | 90                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 227                                  | NR                             | 590               | 933                                  | NR                             | 720               | 77                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 208                                  | NR                             | 595               | 970                                  | NR                             | 725               | 66                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 167                                  | NR                             | 600               | 992                                  | NR                             | 730               | 56                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 138                                  | NR                             | 605               | 1000                                 | NR                             | 735               | 47                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 146                                  | NR                             | 610               | 991                                  | NR                             | 740               | 40                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 164                                  | NR                             | 615               | 969                                  | NR                             | 745               | 34                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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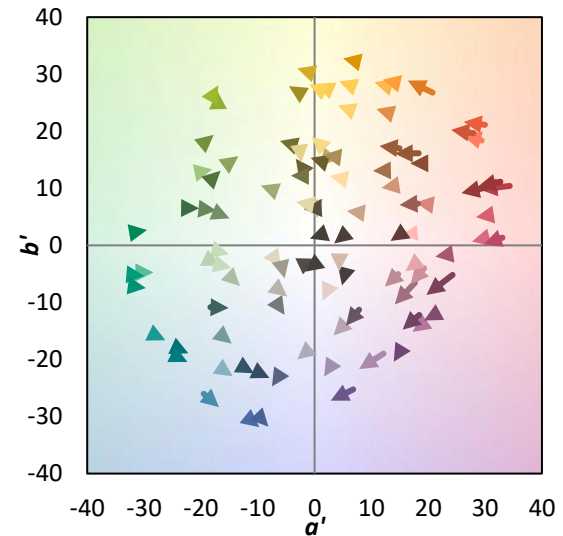
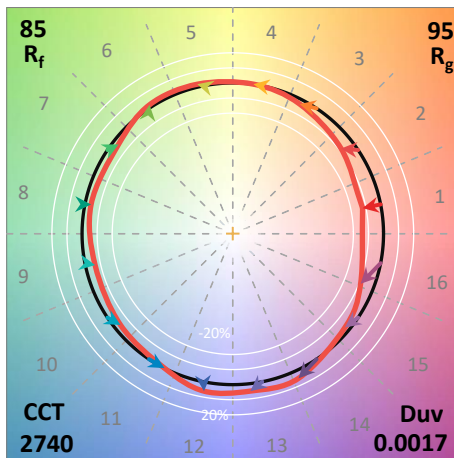
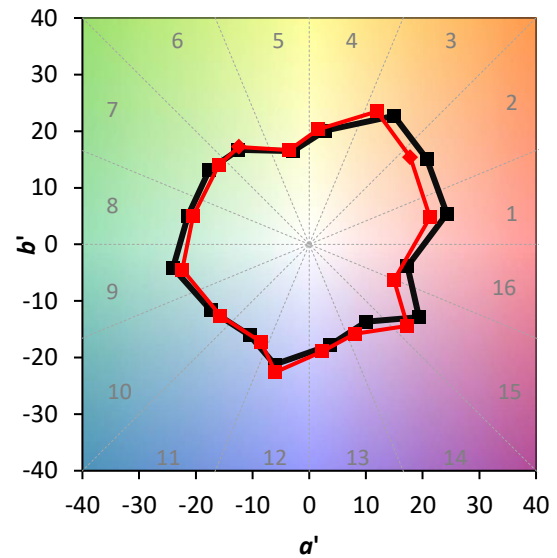
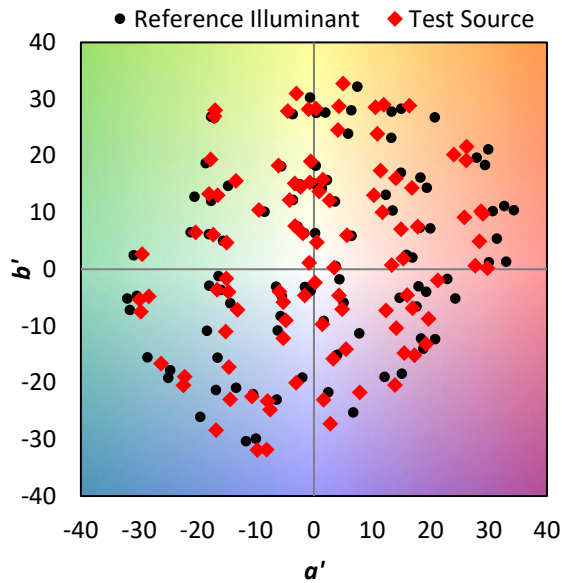
TM-30-18

### Summary

$R_f = 84.8$   
 $R_g = 94.5$   
 $CIE R_a = 81.1$   
 $R_g = -0.3$



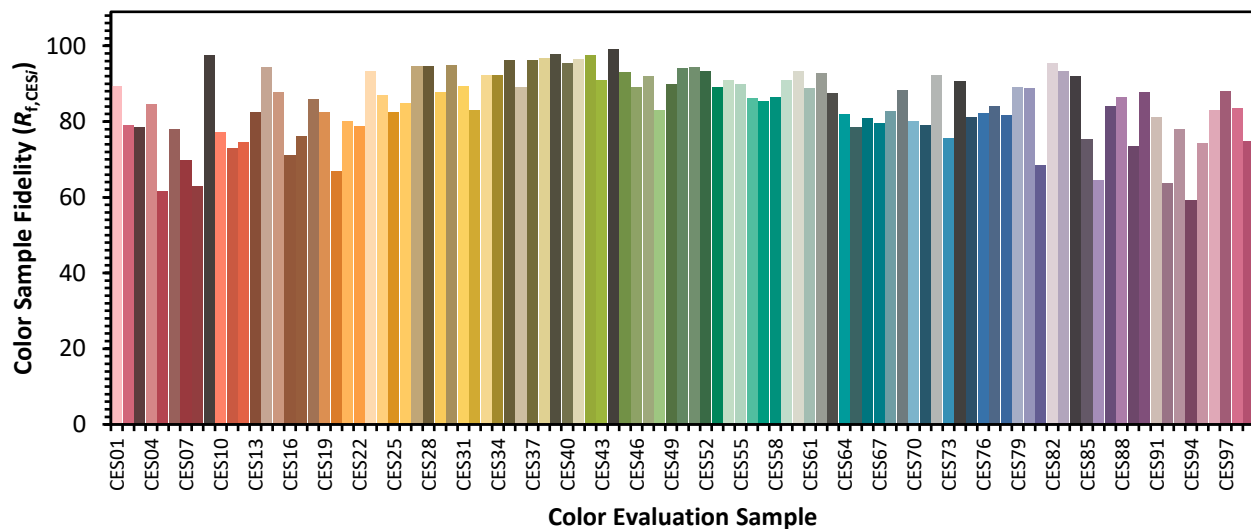
### Color Vector Graphics



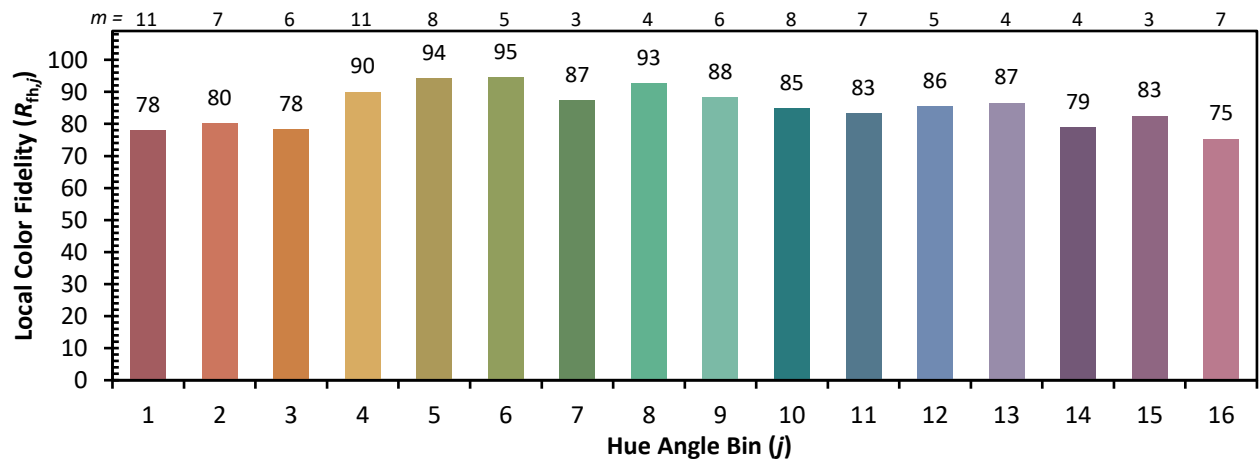
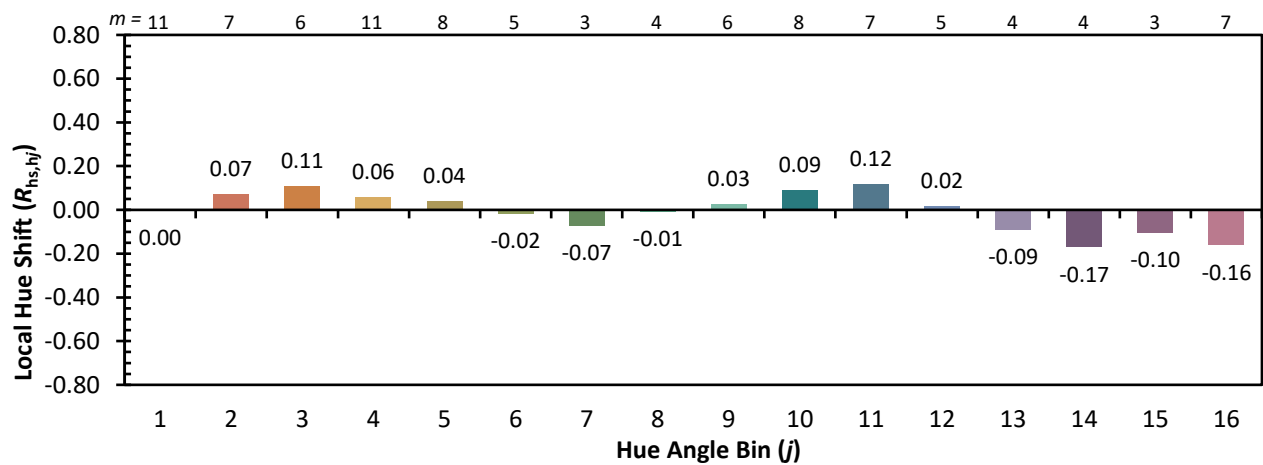
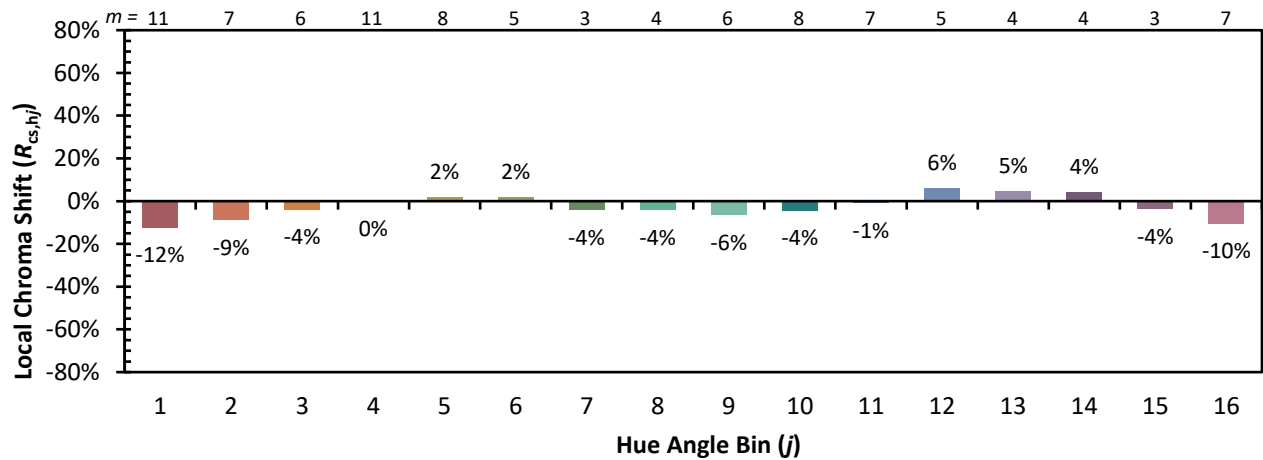


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

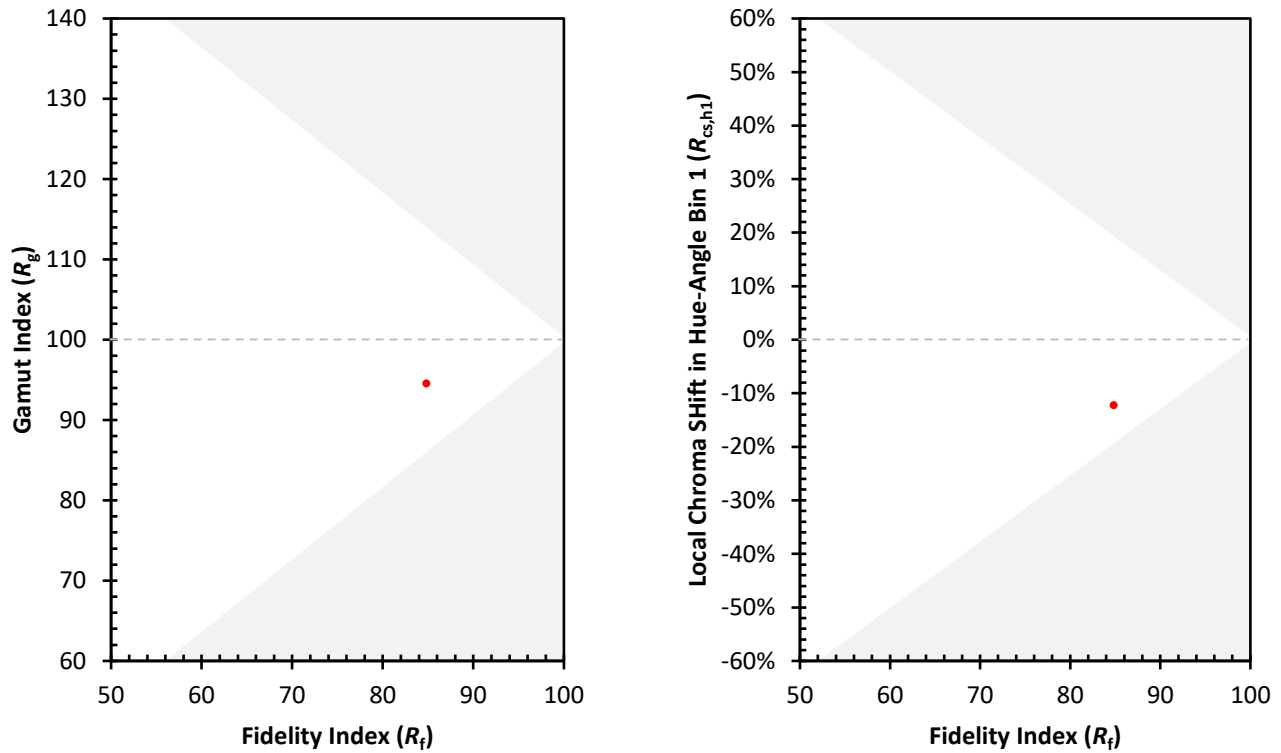
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 85 | CES51 = 94 | CES76 = 82 |
| CES02 = 63 | CES27 = 95 | CES52 = 93 | CES77 = 84 |
| CES03 = 31 | CES28 = 95 | CES53 = 89 | CES78 = 82 |
| CES04 = 71 | CES29 = 88 | CES54 = 91 | CES79 = 89 |
| CES05 = 50 | CES30 = 95 | CES55 = 90 | CES80 = 89 |
| CES06 = 52 | CES31 = 89 | CES56 = 86 | CES81 = 68 |
| CES07 = 43 | CES32 = 83 | CES57 = 85 | CES82 = 96 |
| CES08 = 41 | CES33 = 92 | CES58 = 86 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 92 |
| CES10 = 77 | CES35 = 96 | CES60 = 93 | CES85 = 75 |
| CES11 = 60 | CES36 = 89 | CES61 = 89 | CES86 = 65 |
| CES12 = 66 | CES37 = 96 | CES62 = 93 | CES87 = 84 |
| CES13 = 44 | CES38 = 97 | CES63 = 87 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 82 | CES89 = 73 |
| CES15 = 72 | CES40 = 95 | CES65 = 79 | CES90 = 88 |
| CES16 = 48 | CES41 = 96 | CES66 = 81 | CES91 = 81 |
| CES17 = 50 | CES42 = 98 | CES67 = 80 | CES92 = 64 |
| CES18 = 57 | CES43 = 91 | CES68 = 83 | CES93 = 78 |
| CES19 = 73 | CES44 = 99 | CES69 = 88 | CES94 = 59 |
| CES20 = 67 | CES45 = 93 | CES70 = 80 | CES95 = 74 |
| CES21 = 87 | CES46 = 89 | CES71 = 79 | CES96 = 83 |
| CES22 = 79 | CES47 = 92 | CES72 = 92 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 76 | CES98 = 84 |
| CES24 = 91 | CES49 = 90 | CES74 = 91 | CES99 = 75 |
| CES25 = 72 | CES50 = 94 | CES75 = 81 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)