

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: P1211761

Luminaire Tested: **GKO-PB1F-850-U-T1**

Issue Date: 11/5/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1211761  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 11/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB1F-850-U-T1  
Description: GEKKO WALL PACK 6500LM PACKAGE 80CRI 5000K FIXTURE w/ TYPE I DISTRIBUTION OPTIC  
Light Source: (10) 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

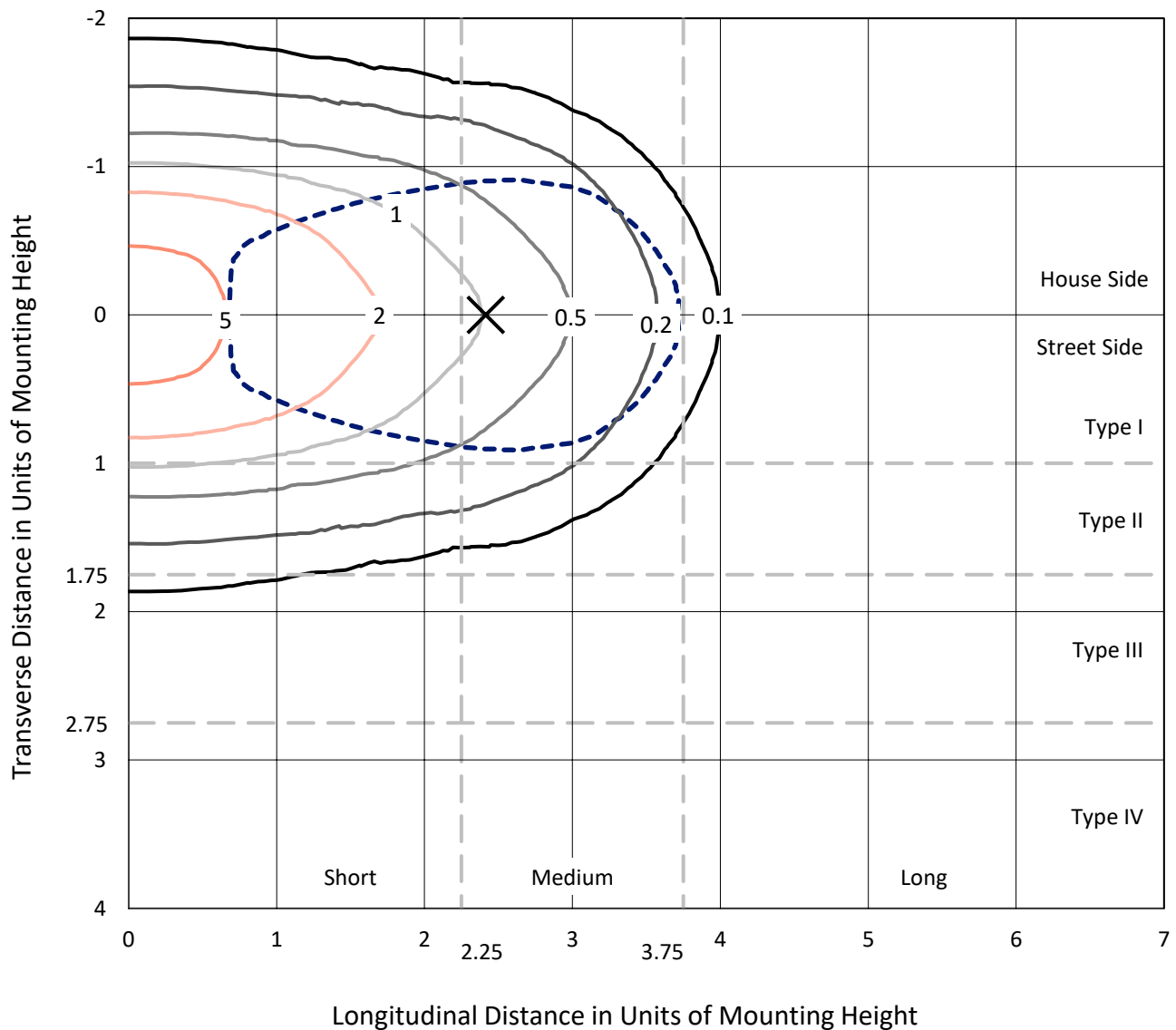
Lumens per Lamp: N/A  
Luminaire Lumens: 6472.8 lumens  
Efficiency: N/A  
Efficacy: 118.8 lumens/watt  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
IES Classification: Type I - Short  
BUG Rating: B2 - U0 - G2

Input Watts (W): 54.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 5.7%  
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

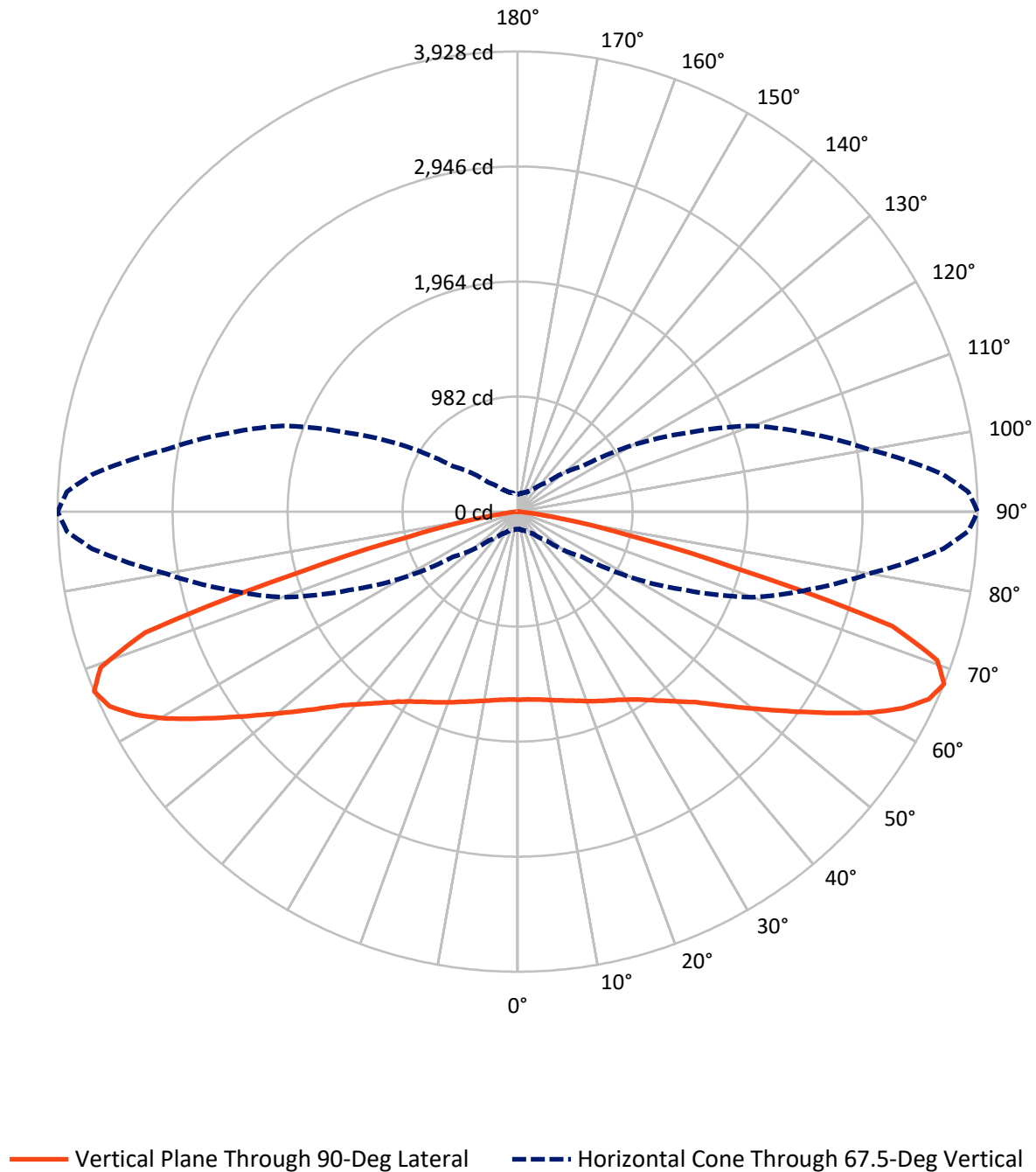
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 7.1 fc  
 Type I - Short - N/A

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## Luminous Intensity Polar Plot



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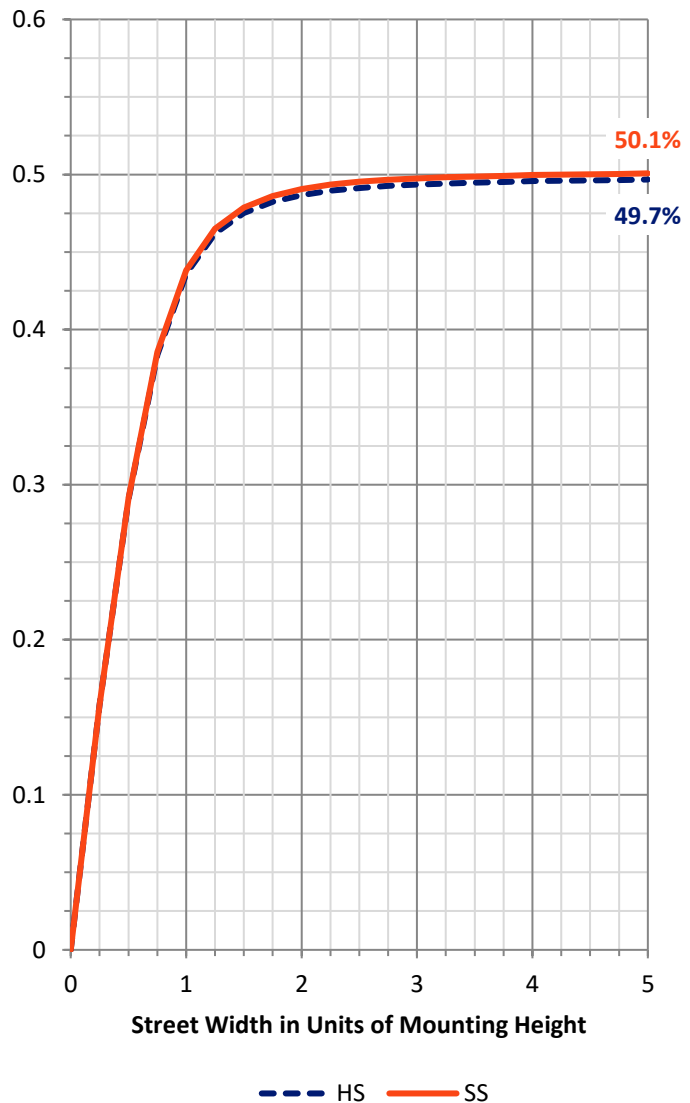
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 3236.4   | 0.0    | 3236.4 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Street Side</b> | Lumens    | 3236.4   | 0.0    | 3236.4 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Total</b>       | Lumens    | 6472.8   | 0.0    | 6472.8 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 154.0  | 2.4       |
| 10°-20°   | 464.2  | 7.2       |
| 20°-30°   | 771.9  | 11.9      |
| 30°-40°   | 1025.4 | 15.8      |
| 40°-50°   | 1156.0 | 17.9      |
| 50°-60°   | 1188.7 | 18.4      |
| 60°-70°   | 1123.3 | 17.4      |
| 70°-80°   | 549.9  | 8.5       |
| 80°-90°   | 39.3   | 0.6       |
| 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°    | 6472.8 | 100.0     |
| 0°-180°   | 6472.8 | 100.0     |



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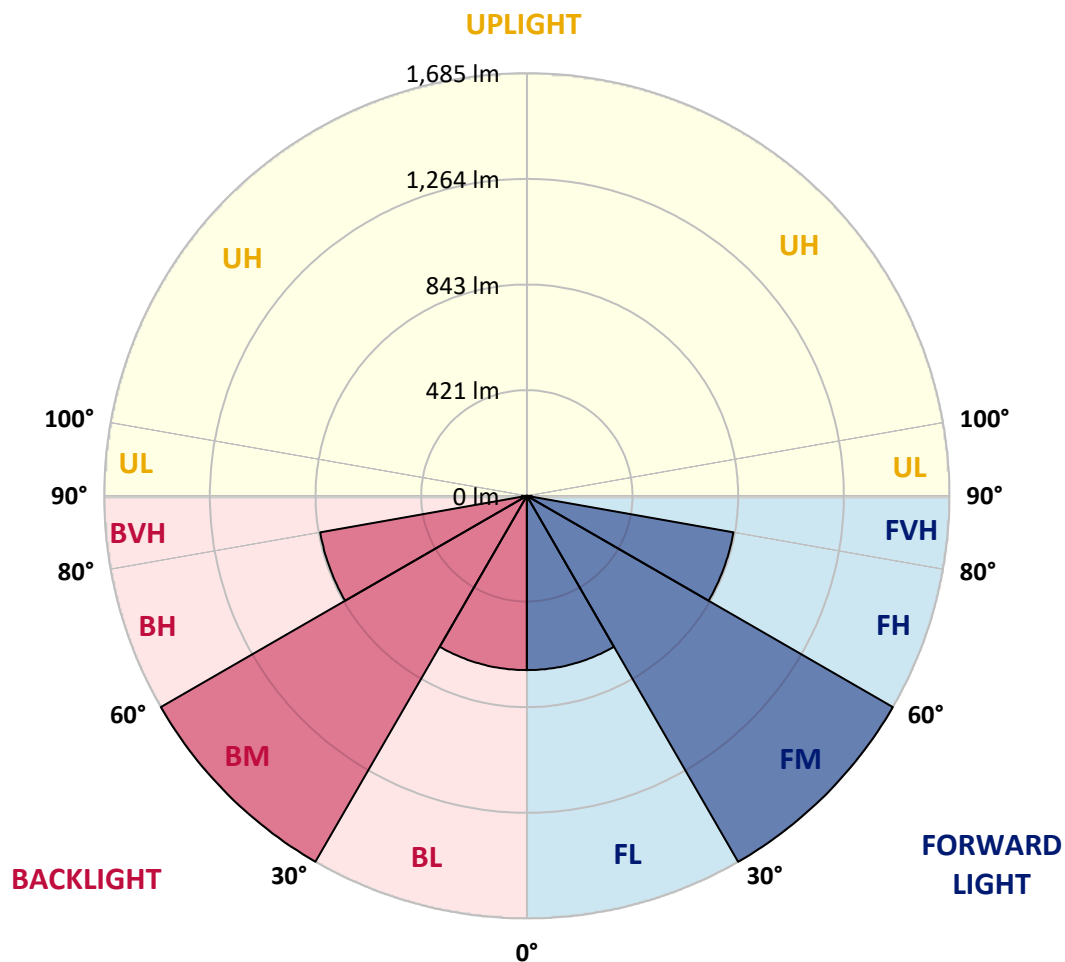
CATALOG NUMBER: GKO-PB1F-850-U-T1

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 695.0  | 10.7      |                         |      |         |
| FM   | (30°-60°)   | 1685.0 | 26.0      |                         |      |         |
| FH   | (60°-80°)   | 836.6  | 12.9      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 19.7   | 0.3       |                         |      | G1/100  |
| BL   | (0°-30°)    | 695.0  | 10.7      | B2/1000                 |      |         |
| BM   | (30°-60°)   | 1685.0 | 26.0      | B2/2500                 |      |         |
| BH   | (60°-80°)   | 836.6  | 12.9      | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 19.7   | 0.3       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G2**

Type I Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 70°    | 75°    | 80°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1606.2 | 1606.2 | 1606.2 | 1606.2 | 1606.2 | 1606.2 | 1606.2 | 1606.2 | 1606.2 | 1606.2 | 1606.2 |
| 2.5°  | 1607.3 | 1609.7 | 1605.0 | 1605.0 | 1607.3 | 1608.5 | 1608.5 | 1609.7 | 1607.3 | 1607.3 | 1606.2 |
| 5°    | 1607.3 | 1608.5 | 1606.2 | 1606.2 | 1608.5 | 1612.1 | 1610.9 | 1613.3 | 1613.3 | 1612.1 | 1612.1 |
| 7.5°  | 1606.2 | 1608.5 | 1606.2 | 1607.3 | 1610.9 | 1618.1 | 1618.1 | 1618.1 | 1620.5 | 1622.9 | 1622.9 |
| 10°   | 1605.0 | 1607.3 | 1608.5 | 1609.7 | 1614.5 | 1625.2 | 1627.6 | 1628.8 | 1632.4 | 1636.0 | 1636.0 |
| 12.5° | 1599.0 | 1601.4 | 1605.0 | 1609.7 | 1618.1 | 1632.4 | 1637.2 | 1640.8 | 1646.7 | 1650.3 | 1652.7 |
| 15°   | 1590.6 | 1591.8 | 1600.2 | 1609.7 | 1622.9 | 1640.8 | 1650.3 | 1656.3 | 1664.6 | 1669.4 | 1673.0 |
| 17.5° | 1578.7 | 1579.9 | 1593.0 | 1607.3 | 1626.4 | 1651.5 | 1667.0 | 1676.6 | 1684.9 | 1692.1 | 1696.8 |
| 20°   | 1563.2 | 1566.8 | 1582.3 | 1605.0 | 1632.4 | 1662.2 | 1684.9 | 1701.6 | 1710.0 | 1717.1 | 1724.3 |
| 22.5° | 1544.1 | 1547.7 | 1566.8 | 1599.0 | 1638.4 | 1676.6 | 1706.4 | 1727.9 | 1738.6 | 1748.2 | 1756.5 |
| 25°   | 1515.5 | 1520.2 | 1542.9 | 1584.7 | 1640.8 | 1692.1 | 1730.3 | 1757.7 | 1767.2 | 1779.2 | 1786.3 |
| 27.5° | 1471.3 | 1474.9 | 1502.3 | 1556.0 | 1633.6 | 1708.8 | 1757.7 | 1789.9 | 1800.7 | 1813.8 | 1820.9 |
| 30°   | 1402.1 | 1409.3 | 1442.7 | 1509.5 | 1615.7 | 1721.9 | 1789.9 | 1822.1 | 1835.3 | 1848.4 | 1857.9 |
| 32.5° | 1312.6 | 1323.3 | 1360.3 | 1446.3 | 1581.1 | 1726.7 | 1824.5 | 1861.5 | 1878.2 | 1892.5 | 1904.5 |
| 35°   | 1201.6 | 1212.4 | 1256.5 | 1365.1 | 1526.2 | 1717.1 | 1859.1 | 1906.9 | 1927.1 | 1946.2 | 1960.6 |
| 37.5° | 1075.1 | 1084.7 | 1138.4 | 1262.5 | 1447.4 | 1687.3 | 1886.6 | 1957.0 | 1984.4 | 2009.5 | 2028.6 |
| 40°   | 947.5  | 958.2  | 1016.7 | 1149.1 | 1352.0 | 1630.0 | 1898.5 | 2011.9 | 2046.5 | 2078.7 | 2102.6 |
| 42.5° | 809.0  | 822.2  | 887.8  | 1028.6 | 1241.0 | 1551.3 | 1889.0 | 2065.6 | 2108.5 | 2152.7 | 2188.5 |
| 45°   | 686.1  | 688.5  | 760.1  | 896.2  | 1119.3 | 1449.8 | 1855.5 | 2116.9 | 2175.3 | 2237.4 | 2288.7 |
| 47.5° | 568.0  | 572.8  | 634.8  | 769.7  | 992.8  | 1335.3 | 1794.7 | 2157.4 | 2250.5 | 2330.5 | 2405.6 |
| 50°   | 463.0  | 469.0  | 525.0  | 645.6  | 866.3  | 1210.0 | 1712.4 | 2181.3 | 2315.0 | 2423.5 | 2528.6 |
| 52.5° | 377.1  | 384.2  | 430.8  | 537.0  | 738.6  | 1078.7 | 1610.9 | 2184.9 | 2373.4 | 2516.6 | 2656.2 |
| 55°   | 313.8  | 318.6  | 354.4  | 439.1  | 615.7  | 942.7  | 1495.2 | 2167.0 | 2411.6 | 2600.2 | 2786.3 |
| 57.5° | 264.9  | 269.7  | 294.7  | 361.6  | 504.8  | 803.1  | 1354.4 | 2125.2 | 2431.9 | 2672.9 | 2917.6 |
| 60°   | 230.3  | 233.9  | 251.8  | 299.5  | 415.3  | 671.8  | 1202.8 | 2051.2 | 2425.9 | 2718.3 | 3026.2 |
| 62.5° | 205.2  | 206.4  | 221.9  | 255.4  | 342.5  | 547.7  | 1032.2 | 1940.3 | 2377.0 | 2724.3 | 3100.1 |
| 65°   | 182.6  | 183.8  | 193.3  | 217.2  | 281.6  | 440.3  | 854.4  | 1787.5 | 2283.9 | 2682.5 | 3110.9 |
| 67.5° | 148.0  | 150.4  | 164.7  | 182.6  | 231.5  | 348.4  | 673.0  | 1587.1 | 2138.4 | 2573.9 | 3050.0 |
| 70°   | 118.1  | 119.3  | 133.6  | 153.9  | 188.5  | 274.5  | 516.7  | 1317.4 | 1910.4 | 2397.3 | 2892.5 |
| 72.5° | 88.3   | 90.7   | 103.8  | 124.1  | 153.9  | 212.4  | 373.5  | 996.4  | 1527.4 | 2021.4 | 2519.0 |
| 75°   | 70.4   | 71.6   | 76.4   | 95.5   | 119.3  | 161.1  | 251.8  | 603.8  | 920.0  | 1250.6 | 1544.1 |
| 77.5° | 59.7   | 60.9   | 60.9   | 74.0   | 88.3   | 108.6  | 133.6  | 239.8  | 389.0  | 553.7  | 733.9  |
| 80°   | 48.9   | 51.3   | 46.5   | 54.9   | 63.2   | 63.2   | 62.1   | 114.6  | 183.8  | 260.1  | 341.3  |
| 82.5° | 35.8   | 38.2   | 35.8   | 38.2   | 38.2   | 34.6   | 32.2   | 43.0   | 58.5   | 79.9   | 87.1   |
| 85°   | 25.1   | 26.3   | 28.6   | 26.3   | 25.1   | 20.3   | 15.5   | 11.9   | 7.2    | 8.4    | 11.9   |
| 87.5° | 16.7   | 20.3   | 23.9   | 22.7   | 19.1   | 15.5   | 10.7   | 7.2    | 3.6    | 4.8    | 4.8    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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**CANDELA DISTRIBUTION (continued):**

|       | 85°    | 87.5°  | 90°    |
|-------|--------|--------|--------|
| 0°    | 1606.2 | 1606.2 | 1606.2 |
| 2.5°  | 1607.3 | 1606.2 | 1605.0 |
| 5°    | 1613.3 | 1612.1 | 1610.9 |
| 7.5°  | 1621.7 | 1621.7 | 1621.7 |
| 10°   | 1634.8 | 1637.2 | 1637.2 |
| 12.5° | 1651.5 | 1653.9 | 1653.9 |
| 15°   | 1671.8 | 1673.0 | 1675.4 |
| 17.5° | 1696.8 | 1698.0 | 1698.0 |
| 20°   | 1726.7 | 1725.5 | 1727.9 |
| 22.5° | 1756.5 | 1756.5 | 1756.5 |
| 25°   | 1787.5 | 1787.5 | 1787.5 |
| 27.5° | 1823.3 | 1823.3 | 1820.9 |
| 30°   | 1862.7 | 1862.7 | 1862.7 |
| 32.5° | 1910.4 | 1911.6 | 1912.8 |
| 35°   | 1971.3 | 1973.7 | 1977.3 |
| 37.5° | 2040.5 | 2046.5 | 2050.1 |
| 40°   | 2122.8 | 2125.2 | 2131.2 |
| 42.5° | 2214.7 | 2221.9 | 2223.1 |
| 45°   | 2329.3 | 2341.2 | 2346.0 |
| 47.5° | 2464.1 | 2480.8 | 2489.2 |
| 50°   | 2614.5 | 2633.6 | 2645.5 |
| 52.5° | 2778.0 | 2809.0 | 2823.3 |
| 55°   | 2952.2 | 3005.9 | 3021.4 |
| 57.5° | 3149.1 | 3221.9 | 3243.3 |
| 60°   | 3342.4 | 3445.0 | 3479.6 |
| 62.5° | 3507.0 | 3651.4 | 3694.4 |
| 65°   | 3622.8 | 3797.0 | 3860.3 |
| 67.5° | 3646.7 | 3853.1 | 3928.3 |
| 70°   | 3503.5 | 3714.7 | 3801.8 |
| 72.5° | 3046.4 | 3237.4 | 3346.0 |
| 75°   | 1799.5 | 1936.7 | 1903.3 |
| 77.5° | 903.3  | 942.7  | 948.7  |
| 80°   | 396.2  | 420.0  | 429.6  |
| 82.5° | 97.8   | 100.2  | 113.4  |
| 85°   | 13.1   | 15.5   | 14.3   |
| 87.5° | 4.8    | 4.8    | 6.0    |
| 90°   | 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: SP1-2511-595-4

Test Date: 01/09/2026

Luminaire Tested: GKO-PB1C-850-U-T4W

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

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2511-595-4  
 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-850-U-T4W**  
 Description: Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution

### Spectral Parameters

CCT (K): 5005  
 CIE  $u'$ : 0.2100  
 CIE  $v'$ : 0.4867  
 Duv: 0.0019  
 CIE x: 0.3453  
 CIE y: 0.3557  
 CIE z: 0.2990  
 Peak Wavelength (nm): 451  
 Dominant Wavelength (nm): 570  
 Purity: 10.34221  
 R<sub>f</sub>: 83.7  
 R<sub>g</sub>: 95.5

CRI (Ra): 83.1  
 R1: 81.4  
 R2: 89.2  
 R3: 93.9  
 R4: 82.4  
 R5: 82.2  
 R6: 84.5  
 R7: 86.1  
 R8: 65.5  
 R9: 4.4  
 R10: 74.2  
 R11: 81.9  
 R12: 62.2  
 R13: 83.6  
 R14: 97.0  
 R15: 75.4



### Test Conditions

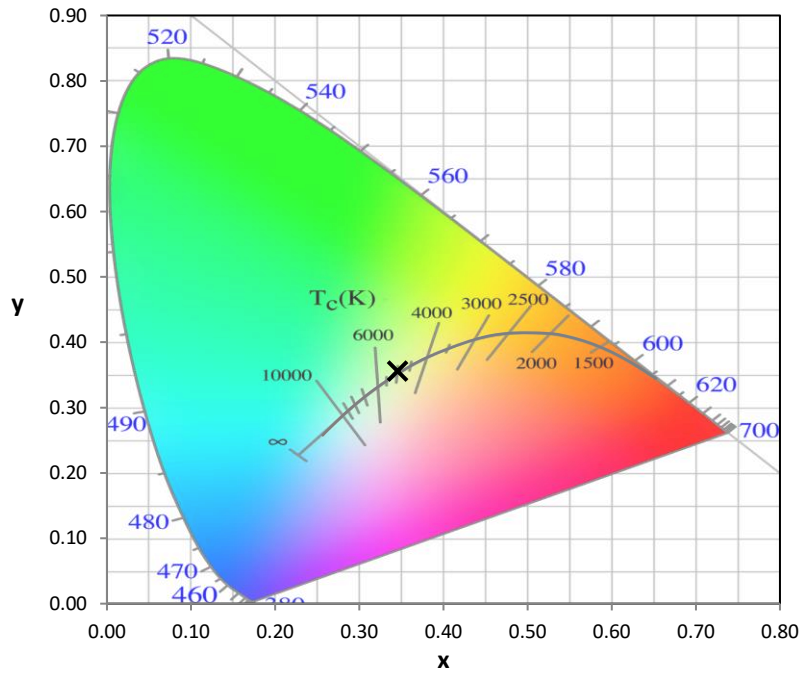
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.1

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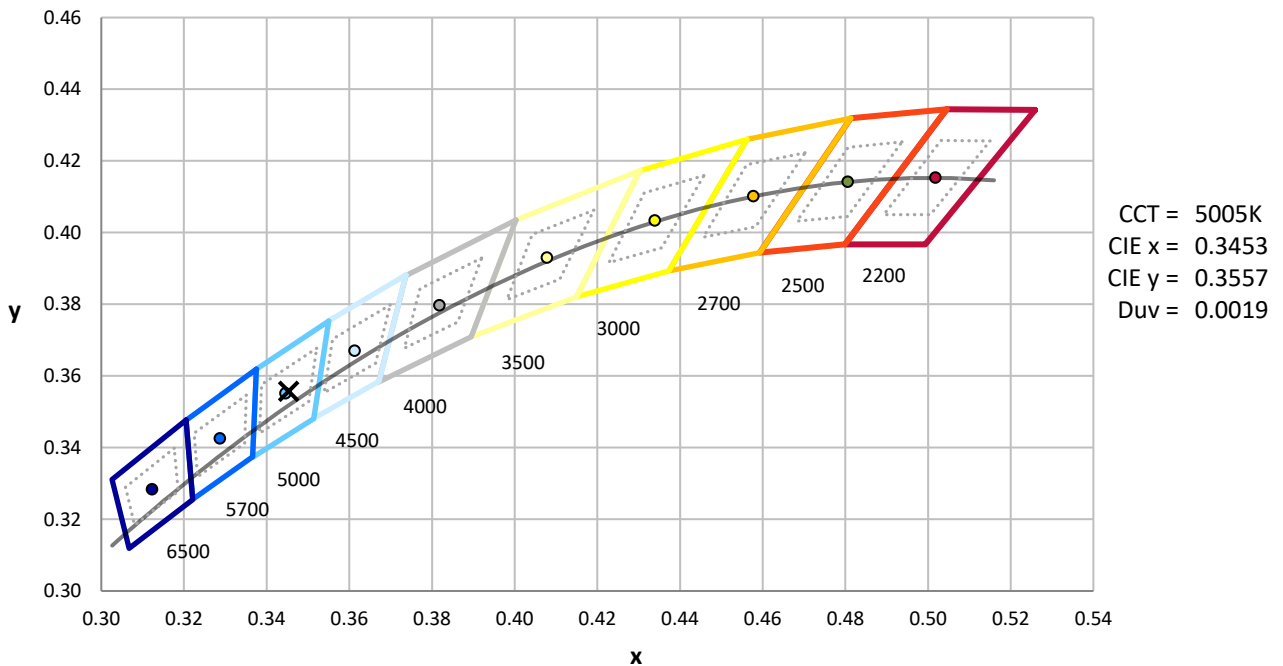
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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           |

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**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<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               | 267                                  | NR                             | 620               | 453                                  | NR                             | 750               | 11                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 305                                  | NR                             | 625               | 420                                  | NR                             | 755               | 10                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 350                                  | NR                             | 630               | 387                                  | NR                             | 760               | 8                                    | NR                             | 890               | 0                                    | NR                             |
| 375               | 1                                    | NR                             | 505               | 386                                  | NR                             | 635               | 351                                  | NR                             | 765               | 7                                    | NR                             | 895               | 0                                    | NR                             |
| 380               | 1                                    | NR                             | 510               | 415                                  | NR                             | 640               | 317                                  | NR                             | 770               | 6                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 2                                    | NR                             | 515               | 441                                  | NR                             | 645               | 283                                  | NR                             | 775               | 5                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 3                                    | NR                             | 520               | 454                                  | NR                             | 650               | 252                                  | NR                             | 780               | 4                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 466                                  | NR                             | 655               | 222                                  | NR                             | 785               | 4                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 474                                  | NR                             | 660               | 194                                  | NR                             | 790               | 3                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 484                                  | NR                             | 665               | 170                                  | NR                             | 795               | 3                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 492                                  | NR                             | 670               | 147                                  | NR                             | 800               | 2                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 19                                   | NR                             | 545               | 502                                  | NR                             | 675               | 127                                  | NR                             | 805               | 2                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 33                                   | NR                             | 550               | 512                                  | NR                             | 680               | 109                                  | NR                             | 810               | 2                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 57                                   | NR                             | 555               | 522                                  | NR                             | 685               | 94                                   | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 101                                  | NR                             | 560               | 535                                  | NR                             | 690               | 80                                   | NR                             | 820               | 1                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 183                                  | NR                             | 565               | 546                                  | NR                             | 695               | 69                                   | NR                             | 825               | 1                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 325                                  | NR                             | 570               | 555                                  | NR                             | 700               | 58                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 630                                  | NR                             | 575               | 562                                  | NR                             | 705               | 50                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 982                                  | NR                             | 580               | 567                                  | NR                             | 710               | 42                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 847                                  | NR                             | 585               | 567                                  | NR                             | 715               | 36                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 545                                  | NR                             | 590               | 566                                  | NR                             | 720               | 31                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 456                                  | NR                             | 595               | 561                                  | NR                             | 725               | 26                                   | NR                             | 855               | 0                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 349                                  | NR                             | 600               | 547                                  | NR                             | 730               | 22                                   | NR                             | 860               | 0                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 253                                  | NR                             | 605               | 530                                  | NR                             | 735               | 19                                   | NR                             | 865               | 0                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 235                                  | NR                             | 610               | 509                                  | NR                             | 740               | 16                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 247                                  | NR                             | 615               | 482                                  | NR                             | 745               | 13                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength


**Scotopic Lumens: NR**
**S/P: 1.97**

| 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       | 267                         | NR               | 620       | 453                         | NR               | 750       | 11                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 305                         | NR               | 625       | 420                         | NR               | 755       | 10                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 350                         | NR               | 630       | 387                         | NR               | 760       | 8                           | NR               | 890       | 0                           | NR               |
| 375       | 1                           | NR               | 505       | 386                         | NR               | 635       | 351                         | NR               | 765       | 7                           | NR               | 895       | 0                           | NR               |
| 380       | 1                           | NR               | 510       | 415                         | NR               | 640       | 317                         | NR               | 770       | 6                           | NR               | 900       | 0                           | NR               |
| 385       | 2                           | NR               | 515       | 441                         | NR               | 645       | 283                         | NR               | 775       | 5                           | NR               | 905       | 0                           | NR               |
| 390       | 3                           | NR               | 520       | 454                         | NR               | 650       | 252                         | NR               | 780       | 4                           | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 466                         | NR               | 655       | 222                         | NR               | 785       | 4                           | NR               | 915       | 0                           | NR               |
| 400       | 6                           | NR               | 530       | 474                         | NR               | 660       | 194                         | NR               | 790       | 3                           | NR               | 920       | 0                           | NR               |
| 405       | 8                           | NR               | 535       | 484                         | NR               | 665       | 170                         | NR               | 795       | 3                           | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 492                         | NR               | 670       | 147                         | NR               | 800       | 2                           | NR               | 930       | 0                           | NR               |
| 415       | 19                          | NR               | 545       | 502                         | NR               | 675       | 127                         | NR               | 805       | 2                           | NR               | 935       | 0                           | NR               |
| 420       | 33                          | NR               | 550       | 512                         | NR               | 680       | 109                         | NR               | 810       | 2                           | NR               | 940       | 0                           | NR               |
| 425       | 57                          | NR               | 555       | 522                         | NR               | 685       | 94                          | NR               | 815       | 2                           | NR               | 945       | 0                           | NR               |
| 430       | 101                         | NR               | 560       | 535                         | NR               | 690       | 80                          | NR               | 820       | 1                           | NR               | 950       | 0                           | NR               |
| 435       | 183                         | NR               | 565       | 546                         | NR               | 695       | 69                          | NR               | 825       | 1                           | NR               | 955       | 0                           | NR               |
| 440       | 325                         | NR               | 570       | 555                         | NR               | 700       | 58                          | NR               | 830       | 1                           | NR               | 960       | 0                           | NR               |
| 445       | 630                         | NR               | 575       | 562                         | NR               | 705       | 50                          | NR               | 835       | 1                           | NR               | 965       | 0                           | NR               |
| 450       | 982                         | NR               | 580       | 567                         | NR               | 710       | 42                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 847                         | NR               | 585       | 567                         | NR               | 715       | 36                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 545                         | NR               | 590       | 566                         | NR               | 720       | 31                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 456                         | NR               | 595       | 561                         | NR               | 725       | 26                          | NR               | 855       | 0                           | NR               | 985       | 0                           | NR               |
| 470       | 349                         | NR               | 600       | 547                         | NR               | 730       | 22                          | NR               | 860       | 0                           | NR               | 990       | 0                           | NR               |
| 475       | 253                         | NR               | 605       | 530                         | NR               | 735       | 19                          | NR               | 865       | 0                           | NR               | 995       | 0                           | NR               |
| 480       | 235                         | NR               | 610       | 509                         | NR               | 740       | 16                          | NR               | 870       | 0                           | NR               | 1000      | 0                           | NR               |
| 485       | 247                         | NR               | 615       | 482                         | NR               | 745       | 13                          | NR               | 875       | 0                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.21

| $\lambda$<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               | 267                                  | NR                             | 620               | 453                                  | NR                             | 750               | 11                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 305                                  | NR                             | 625               | 420                                  | NR                             | 755               | 10                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 350                                  | NR                             | 630               | 387                                  | NR                             | 760               | 8                                    | NR                             | 890               | 0                                    | NR                             |
| 375               | 1                                    | NR                             | 505               | 386                                  | NR                             | 635               | 351                                  | NR                             | 765               | 7                                    | NR                             | 895               | 0                                    | NR                             |
| 380               | 1                                    | NR                             | 510               | 415                                  | NR                             | 640               | 317                                  | NR                             | 770               | 6                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 2                                    | NR                             | 515               | 441                                  | NR                             | 645               | 283                                  | NR                             | 775               | 5                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 3                                    | NR                             | 520               | 454                                  | NR                             | 650               | 252                                  | NR                             | 780               | 4                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 466                                  | NR                             | 655               | 222                                  | NR                             | 785               | 4                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 6                                    | NR                             | 530               | 474                                  | NR                             | 660               | 194                                  | NR                             | 790               | 3                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 484                                  | NR                             | 665               | 170                                  | NR                             | 795               | 3                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 492                                  | NR                             | 670               | 147                                  | NR                             | 800               | 2                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 19                                   | NR                             | 545               | 502                                  | NR                             | 675               | 127                                  | NR                             | 805               | 2                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 33                                   | NR                             | 550               | 512                                  | NR                             | 680               | 109                                  | NR                             | 810               | 2                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 57                                   | NR                             | 555               | 522                                  | NR                             | 685               | 94                                   | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 101                                  | NR                             | 560               | 535                                  | NR                             | 690               | 80                                   | NR                             | 820               | 1                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 183                                  | NR                             | 565               | 546                                  | NR                             | 695               | 69                                   | NR                             | 825               | 1                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 325                                  | NR                             | 570               | 555                                  | NR                             | 700               | 58                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 630                                  | NR                             | 575               | 562                                  | NR                             | 705               | 50                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 982                                  | NR                             | 580               | 567                                  | NR                             | 710               | 42                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 847                                  | NR                             | 585               | 567                                  | NR                             | 715               | 36                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 545                                  | NR                             | 590               | 566                                  | NR                             | 720               | 31                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 456                                  | NR                             | 595               | 561                                  | NR                             | 725               | 26                                   | NR                             | 855               | 0                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 349                                  | NR                             | 600               | 547                                  | NR                             | 730               | 22                                   | NR                             | 860               | 0                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 253                                  | NR                             | 605               | 530                                  | NR                             | 735               | 19                                   | NR                             | 865               | 0                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 235                                  | NR                             | 610               | 509                                  | NR                             | 740               | 16                                   | NR                             | 870               | 0                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 247                                  | NR                             | 615               | 482                                  | NR                             | 745               | 13                                   | NR                             | 875               | 0                                    | NR                             |                   |                                      |                                |

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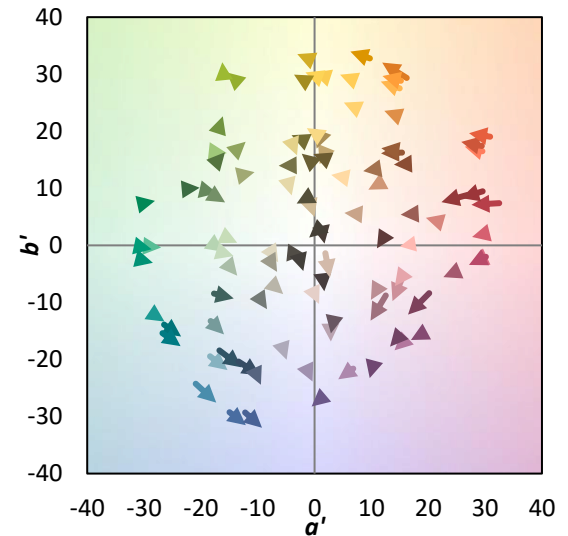
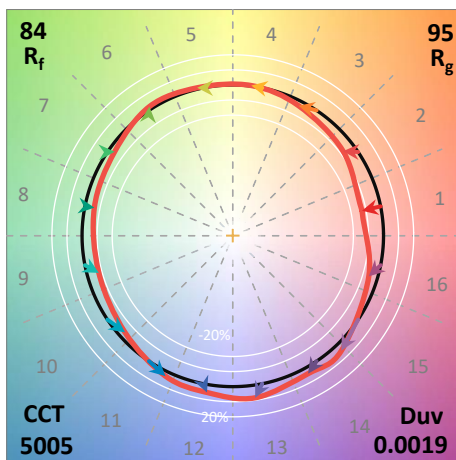
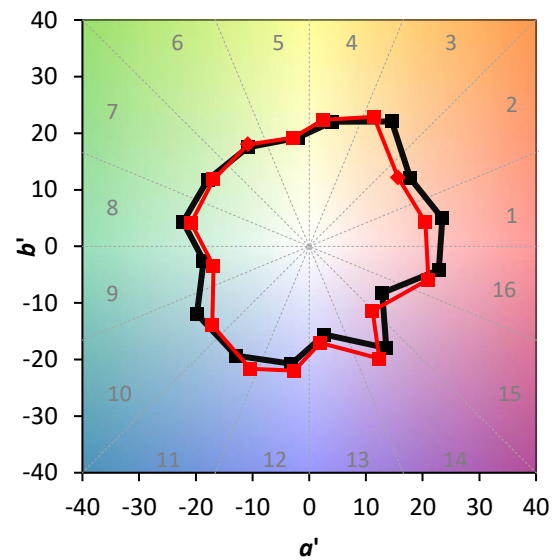
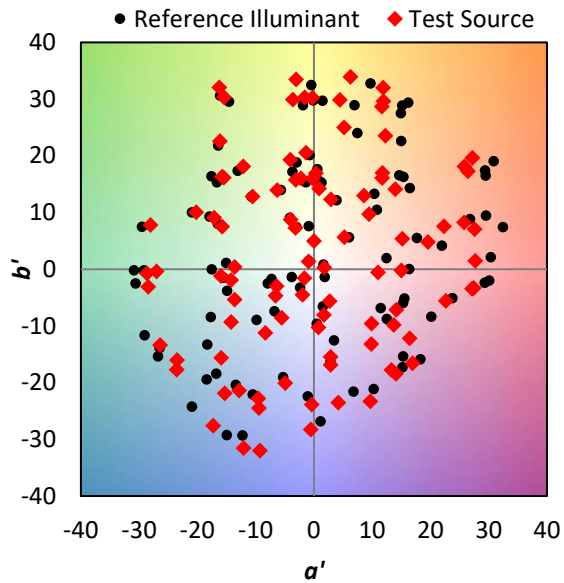
TM-30-18

### Summary

$R_f = 83.7$   
 $R_g = 95.5$   
 $\text{CIE } R_a = 83.1$   
 $R_9 = 4.4$



### Color Vector Graphics





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

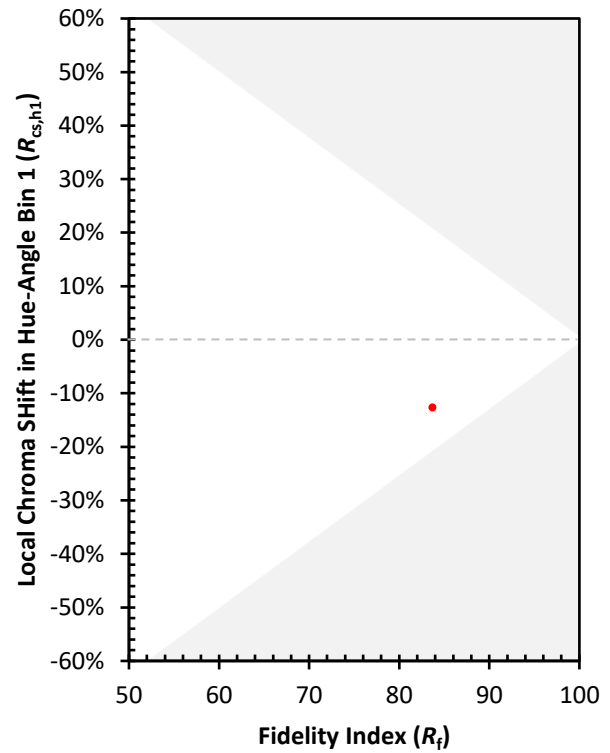
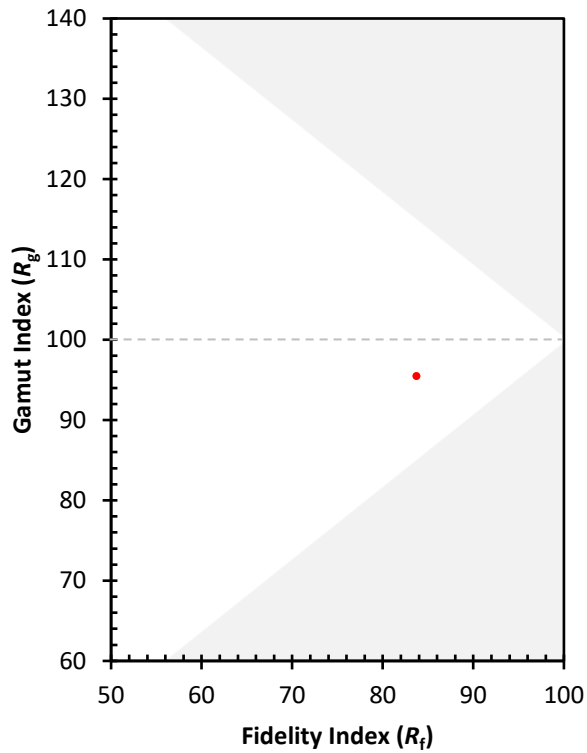
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 81 | CES51 = 94 | CES76 = 74 |
| CES02 = 60 | CES27 = 93 | CES52 = 95 | CES77 = 81 |
| CES03 = 30 | CES28 = 91 | CES53 = 90 | CES78 = 73 |
| CES04 = 69 | CES29 = 87 | CES54 = 89 | CES79 = 91 |
| CES05 = 47 | CES30 = 95 | CES55 = 87 | CES80 = 88 |
| CES06 = 50 | CES31 = 89 | CES56 = 85 | CES81 = 82 |
| CES07 = 39 | CES32 = 81 | CES57 = 85 | CES82 = 95 |
| CES08 = 39 | CES33 = 95 | CES58 = 85 | CES83 = 96 |
| CES09 = 29 | CES34 = 86 | CES59 = 91 | CES84 = 90 |
| CES10 = 73 | CES35 = 92 | CES60 = 90 | CES85 = 80 |
| CES11 = 56 | CES36 = 82 | CES61 = 87 | CES86 = 77 |
| CES12 = 62 | CES37 = 91 | CES62 = 83 | CES87 = 84 |
| CES13 = 42 | CES38 = 90 | CES63 = 85 | CES88 = 88 |
| CES14 = 74 | CES39 = 98 | CES64 = 78 | CES89 = 78 |
| CES15 = 71 | CES40 = 95 | CES65 = 76 | CES90 = 89 |
| CES16 = 46 | CES41 = 98 | CES66 = 74 | CES91 = 71 |
| CES17 = 49 | CES42 = 92 | CES67 = 73 | CES92 = 64 |
| CES18 = 55 | CES43 = 90 | CES68 = 77 | CES93 = 79 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 63 |
| CES20 = 64 | CES45 = 94 | CES70 = 73 | CES95 = 72 |
| CES21 = 85 | CES46 = 92 | CES71 = 67 | CES96 = 83 |
| CES22 = 77 | CES47 = 97 | CES72 = 89 | CES97 = 91 |
| CES23 = 91 | CES48 = 86 | CES73 = 67 | CES98 = 86 |
| CES24 = 90 | CES49 = 91 | CES74 = 91 | CES99 = 75 |
| CES25 = 71 | CES50 = 94 | CES75 = 69 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)