

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: P972399

Luminaire Tested: **GKO-PB2C-722-U-T1**

Issue Date: 02/27/2025



**Test Information**

Test Method: LM-79-08  
Report Number: P972399  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 02/27/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB2C-722-U-T1  
Description: GEKKO WALL PACK 8000LM PACKAGE 70CRI 2200K FIXTURE w/ TYPE I DISTRIBUTION OPTIC  
Light Source: (20) 2200K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7241.2 lumens  
Efficiency: N/A  
Efficacy: 124.4 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')  
IES Classification: Type I - Short  
BUG Rating: B2 - U0 - G2

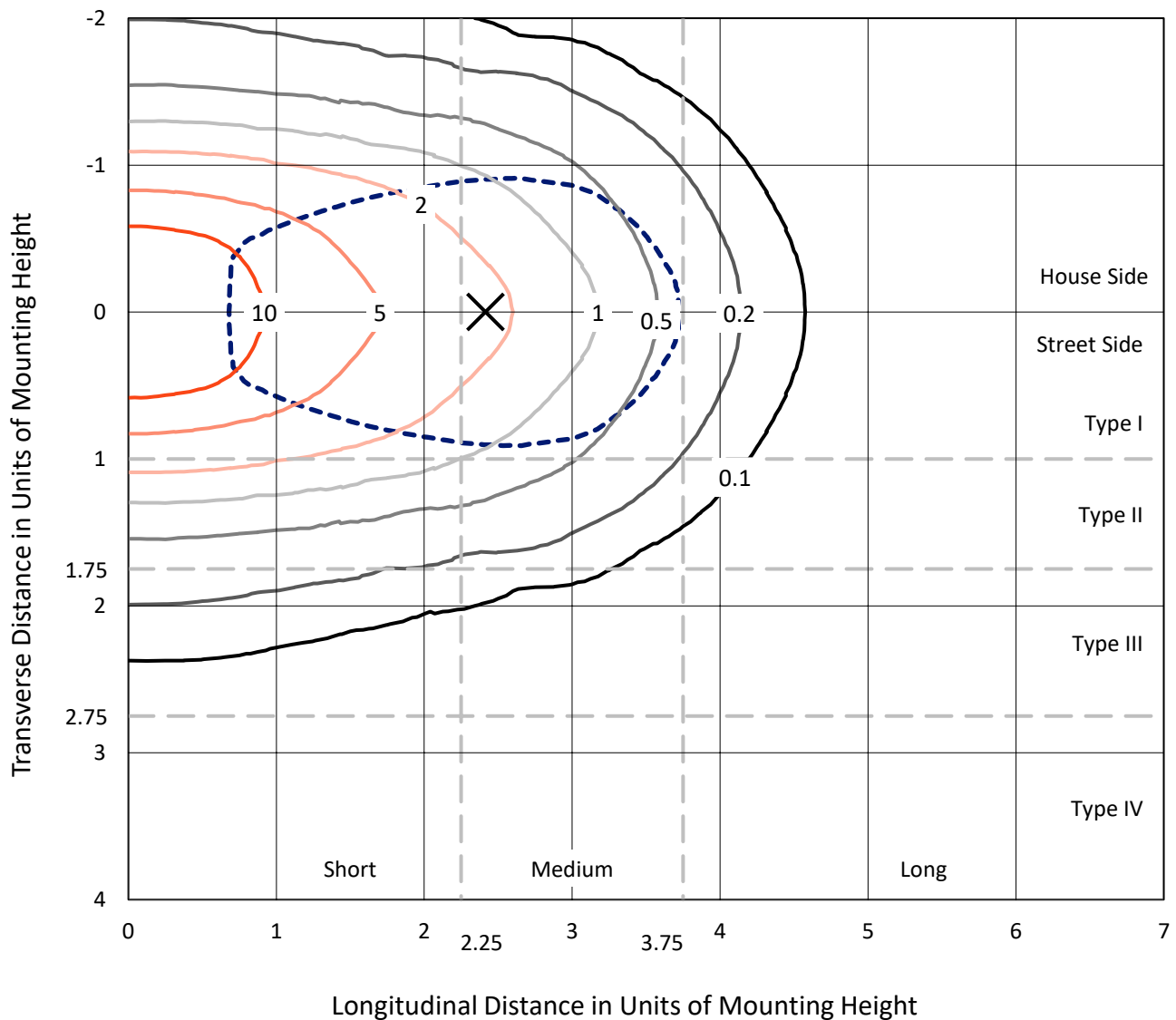
Input Watts (W): 58.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): 5%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

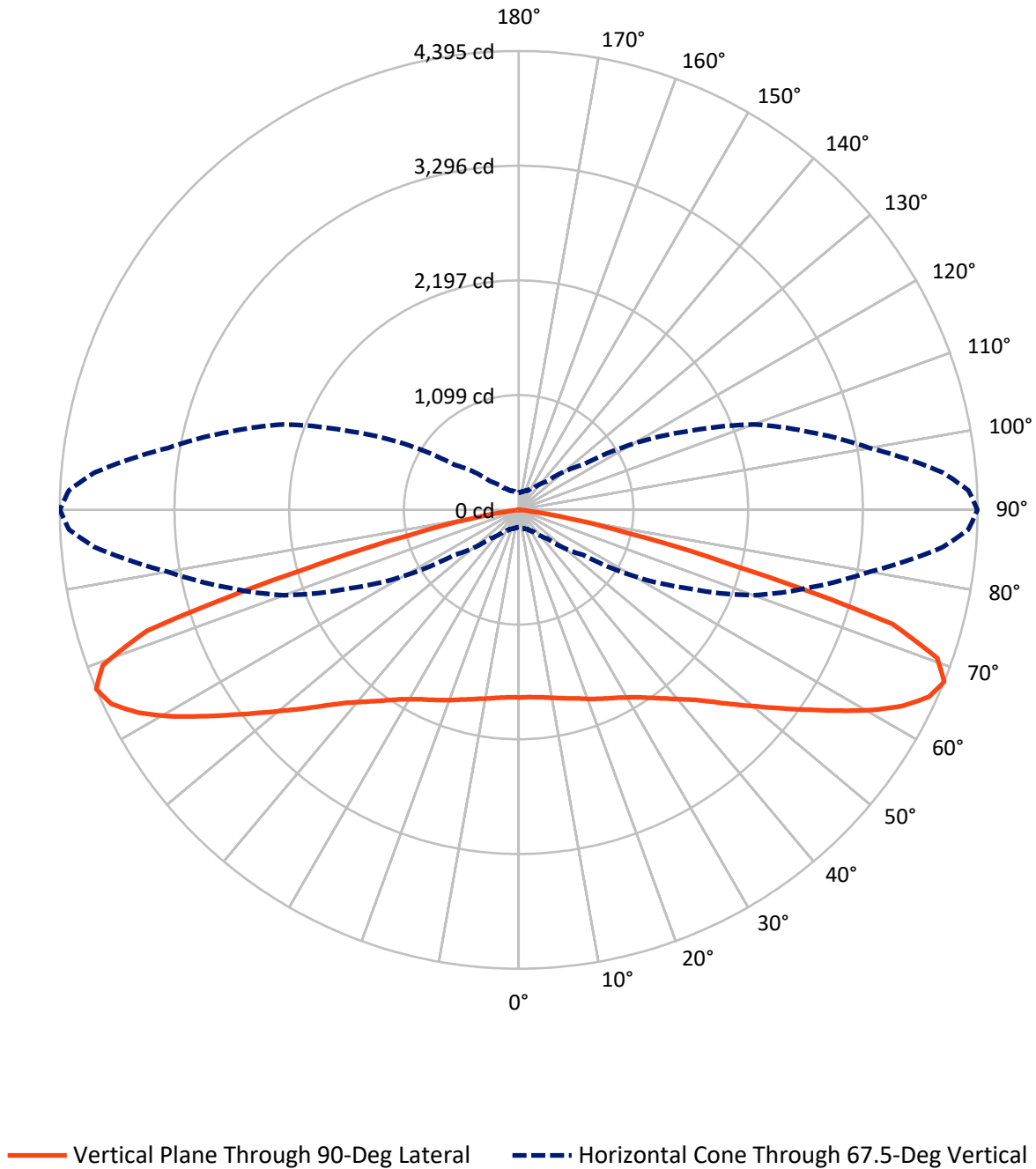


Based on 10 foot mounting height. Maximum calculated value = 18 fc  
 Type I - Short - N/A

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## Luminous Intensity Polar Plot



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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 3620.6   | 0.0    | 3620.6 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Street Side</b> | Lumens    | 3620.6   | 0.0    | 3620.6 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Total</b>       | Lumens    | 7241.2   | 0.0    | 7241.2 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 172.3  | 2.4       |
| 10°-20°   | 519.3  | 7.2       |
| 20°-30°   | 863.5  | 11.9      |
| 30°-40°   | 1147.1 | 15.8      |
| 40°-50°   | 1293.2 | 17.9      |
| 50°-60°   | 1329.8 | 18.4      |
| 60°-70°   | 1256.7 | 17.4      |
| 70°-80°   | 615.2  | 8.5       |
| 80°-90°   | 44.0   | 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°    | 7241.2 | 100.0     |
| 0°-180°   | 7241.2 | 100.0     |

**Coefficient of Utilization**



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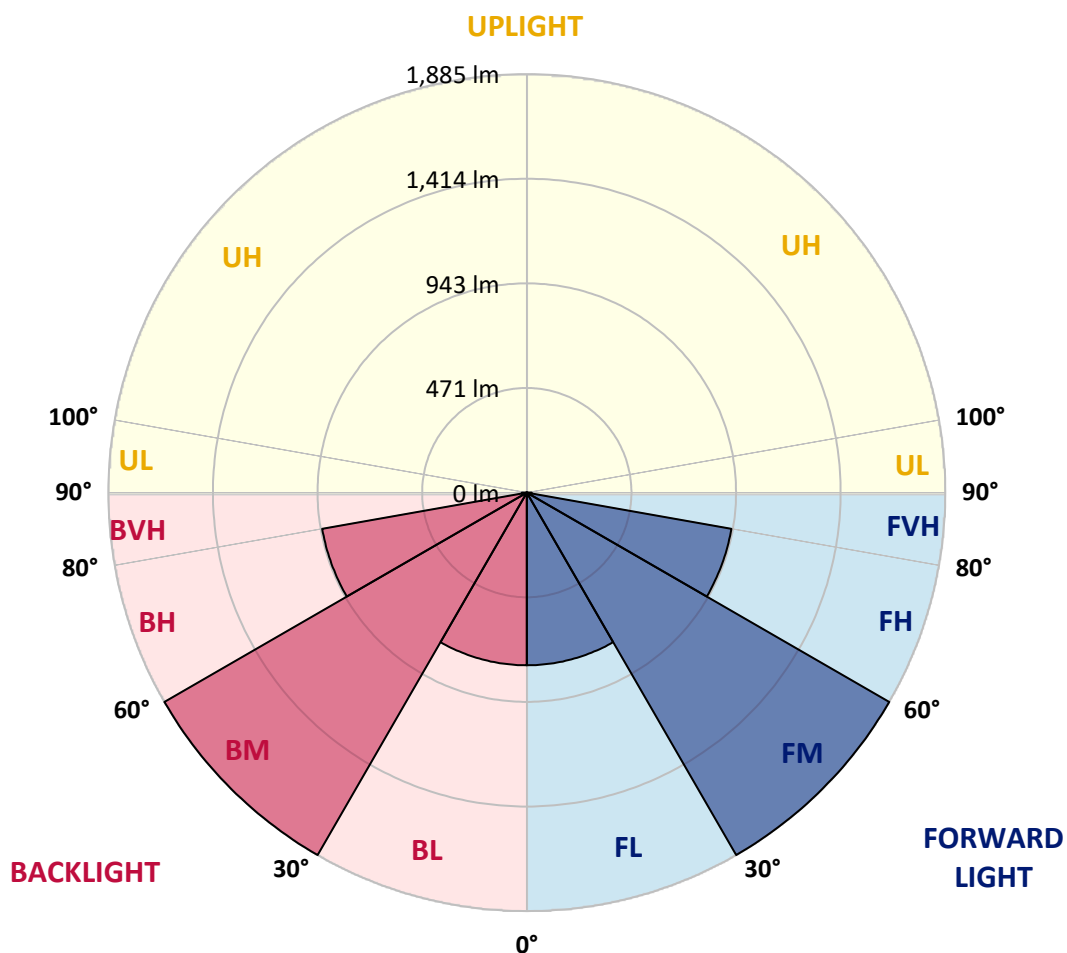
CATALOG NUMBER: GKO-PB2C-722-U-T1

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 777.6  | 10.7      |                         |      |         |
| FM   | (30°-60°)   | 1885.1 | 26.0      |                         |      |         |
| FH   | (60°-80°)   | 935.9  | 12.9      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 22.0   | 0.3       |                         |      | G1/100  |
| BL   | (0°-30°)    | 777.6  | 10.7      | B2/1000                 |      |         |
| BM   | (30°-60°)   | 1885.1 | 26.0      | B2/2500                 |      |         |
| BH   | (60°-80°)   | 935.9  | 12.9      | B2/1000                 |      | G2/1000 |
| BVH  | (80°-90°)   | 22.0   | 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°    | 1796.8 | 1796.8 | 1796.8 | 1796.8 | 1796.8 | 1796.8 | 1796.8 | 1796.8 | 1796.8 | 1796.8 | 1796.8 |
| 2.5°  | 1798.2 | 1800.9 | 1795.5 | 1795.5 | 1798.2 | 1799.5 | 1799.5 | 1800.9 | 1798.2 | 1798.2 | 1796.8 |
| 5°    | 1798.2 | 1799.5 | 1796.8 | 1796.8 | 1799.5 | 1803.5 | 1802.2 | 1804.9 | 1804.9 | 1803.5 | 1803.5 |
| 7.5°  | 1796.8 | 1799.5 | 1796.8 | 1798.2 | 1802.2 | 1810.2 | 1810.2 | 1810.2 | 1812.9 | 1815.5 | 1815.5 |
| 10°   | 1795.5 | 1798.2 | 1799.5 | 1800.9 | 1806.2 | 1818.2 | 1820.9 | 1822.2 | 1826.2 | 1830.2 | 1830.2 |
| 12.5° | 1788.8 | 1791.5 | 1795.5 | 1800.9 | 1810.2 | 1826.2 | 1831.6 | 1835.6 | 1842.2 | 1846.2 | 1848.9 |
| 15°   | 1779.5 | 1780.8 | 1790.2 | 1800.9 | 1815.5 | 1835.6 | 1846.2 | 1852.9 | 1862.3 | 1867.6 | 1871.6 |
| 17.5° | 1766.1 | 1767.5 | 1782.2 | 1798.2 | 1819.5 | 1847.6 | 1864.9 | 1875.6 | 1885.0 | 1893.0 | 1898.3 |
| 20°   | 1748.8 | 1752.8 | 1770.1 | 1795.5 | 1826.2 | 1859.6 | 1885.0 | 1903.6 | 1913.0 | 1921.0 | 1929.0 |
| 22.5° | 1727.4 | 1731.4 | 1752.8 | 1788.8 | 1832.9 | 1875.6 | 1909.0 | 1933.0 | 1945.0 | 1955.7 | 1965.1 |
| 25°   | 1695.4 | 1700.7 | 1726.1 | 1772.8 | 1835.6 | 1893.0 | 1935.7 | 1966.4 | 1977.1 | 1990.4 | 1998.4 |
| 27.5° | 1646.0 | 1650.0 | 1680.7 | 1740.8 | 1827.6 | 1911.7 | 1966.4 | 2002.4 | 2014.4 | 2029.1 | 2037.1 |
| 30°   | 1568.6 | 1576.6 | 1614.0 | 1688.7 | 1807.5 | 1926.3 | 2002.4 | 2038.5 | 2053.2 | 2067.8 | 2078.5 |
| 32.5° | 1468.4 | 1480.5 | 1521.8 | 1618.0 | 1768.8 | 1931.7 | 2041.1 | 2082.5 | 2101.2 | 2117.2 | 2130.6 |
| 35°   | 1344.3 | 1356.3 | 1405.7 | 1527.2 | 1707.4 | 1921.0 | 2079.9 | 2133.3 | 2155.9 | 2177.3 | 2193.3 |
| 37.5° | 1202.8 | 1213.5 | 1273.5 | 1412.4 | 1619.3 | 1887.6 | 2110.6 | 2189.3 | 2220.0 | 2248.1 | 2269.4 |
| 40°   | 1060.0 | 1072.0 | 1137.4 | 1285.6 | 1512.5 | 1823.5 | 2123.9 | 2250.7 | 2289.4 | 2325.5 | 2352.2 |
| 42.5° | 905.1  | 919.8  | 993.2  | 1150.7 | 1388.4 | 1735.4 | 2113.2 | 2310.8 | 2358.9 | 2408.3 | 2448.3 |
| 45°   | 767.6  | 770.3  | 850.4  | 1002.5 | 1252.2 | 1622.0 | 2075.9 | 2368.2 | 2433.6 | 2503.0 | 2560.4 |
| 47.5° | 635.4  | 640.8  | 710.2  | 861.0  | 1110.7 | 1493.8 | 2007.8 | 2413.6 | 2517.7 | 2607.2 | 2691.3 |
| 50°   | 518.0  | 524.6  | 587.4  | 722.2  | 969.2  | 1353.6 | 1915.7 | 2440.3 | 2589.8 | 2711.3 | 2828.8 |
| 52.5° | 421.8  | 429.9  | 481.9  | 600.7  | 826.3  | 1206.8 | 1802.2 | 2444.3 | 2655.2 | 2815.4 | 2971.6 |
| 55°   | 351.1  | 356.4  | 396.5  | 491.3  | 688.8  | 1054.6 | 1672.7 | 2424.3 | 2697.9 | 2908.9 | 3117.1 |
| 57.5° | 296.4  | 301.7  | 329.7  | 404.5  | 564.7  | 898.4  | 1515.2 | 2377.6 | 2720.6 | 2990.3 | 3264.0 |
| 60°   | 257.6  | 261.7  | 281.7  | 335.1  | 464.6  | 751.6  | 1345.6 | 2294.8 | 2714.0 | 3041.0 | 3385.4 |
| 62.5° | 229.6  | 230.9  | 248.3  | 285.7  | 383.1  | 612.7  | 1154.7 | 2170.6 | 2659.2 | 3047.7 | 3468.2 |
| 65°   | 204.2  | 205.6  | 216.3  | 243.0  | 315.0  | 492.6  | 955.8  | 1999.8 | 2555.1 | 3001.0 | 3480.2 |
| 67.5° | 165.5  | 168.2  | 184.2  | 204.2  | 259.0  | 389.8  | 752.9  | 1775.5 | 2392.2 | 2879.5 | 3412.1 |
| 70°   | 132.2  | 133.5  | 149.5  | 172.2  | 210.9  | 307.0  | 578.0  | 1473.8 | 2137.3 | 2681.9 | 3235.9 |
| 72.5° | 98.8   | 101.5  | 116.1  | 138.8  | 172.2  | 237.6  | 417.8  | 1114.7 | 1708.7 | 2261.4 | 2818.1 |
| 75°   | 78.8   | 80.1   | 85.4   | 106.8  | 133.5  | 180.2  | 281.7  | 675.5  | 1029.2 | 1399.0 | 1727.4 |
| 77.5° | 66.7   | 68.1   | 68.1   | 82.8   | 98.8   | 121.5  | 149.5  | 268.3  | 435.2  | 619.4  | 821.0  |
| 80°   | 54.7   | 57.4   | 52.1   | 61.4   | 70.8   | 70.8   | 69.4   | 128.2  | 205.6  | 291.0  | 381.8  |
| 82.5° | 40.0   | 42.7   | 40.0   | 42.7   | 42.7   | 38.7   | 36.0   | 48.1   | 65.4   | 89.4   | 97.5   |
| 85°   | 28.0   | 29.4   | 32.0   | 29.4   | 28.0   | 22.7   | 17.4   | 13.3   | 8.0    | 9.3    | 13.3   |
| 87.5° | 18.7   | 22.7   | 26.7   | 25.4   | 21.4   | 17.4   | 12.0   | 8.0    | 4.0    | 5.3    | 5.3    |
| 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°    | 1796.8 | 1796.8 | 1796.8 |
| 2.5°  | 1798.2 | 1796.8 | 1795.5 |
| 5°    | 1804.9 | 1803.5 | 1802.2 |
| 7.5°  | 1814.2 | 1814.2 | 1814.2 |
| 10°   | 1828.9 | 1831.6 | 1831.6 |
| 12.5° | 1847.6 | 1850.2 | 1850.2 |
| 15°   | 1870.3 | 1871.6 | 1874.3 |
| 17.5° | 1898.3 | 1899.6 | 1899.6 |
| 20°   | 1931.7 | 1930.3 | 1933.0 |
| 22.5° | 1965.1 | 1965.1 | 1965.1 |
| 25°   | 1999.8 | 1999.8 | 1999.8 |
| 27.5° | 2039.8 | 2039.8 | 2037.1 |
| 30°   | 2083.9 | 2083.9 | 2083.9 |
| 32.5° | 2137.3 | 2138.6 | 2139.9 |
| 35°   | 2205.3 | 2208.0 | 2212.0 |
| 37.5° | 2282.8 | 2289.4 | 2293.4 |
| 40°   | 2374.9 | 2377.6 | 2384.2 |
| 42.5° | 2477.7 | 2485.7 | 2487.0 |
| 45°   | 2605.8 | 2619.2 | 2624.5 |
| 47.5° | 2756.7 | 2775.4 | 2784.7 |
| 50°   | 2924.9 | 2946.2 | 2959.6 |
| 52.5° | 3107.8 | 3142.5 | 3158.5 |
| 55°   | 3302.7 | 3362.7 | 3380.1 |
| 57.5° | 3522.9 | 3604.4 | 3628.4 |
| 60°   | 3739.2 | 3854.0 | 3892.7 |
| 62.5° | 3923.4 | 4085.0 | 4133.0 |
| 65°   | 4052.9 | 4247.8 | 4318.6 |
| 67.5° | 4079.6 | 4310.6 | 4394.7 |
| 70°   | 3919.4 | 4155.7 | 4253.2 |
| 72.5° | 3408.1 | 3621.7 | 3743.2 |
| 75°   | 2013.1 | 2166.6 | 2129.3 |
| 77.5° | 1010.6 | 1054.6 | 1061.3 |
| 80°   | 443.2  | 469.9  | 480.6  |
| 82.5° | 109.5  | 112.1  | 126.8  |
| 85°   | 14.7   | 17.4   | 16.0   |
| 87.5° | 5.3    | 5.3    | 6.7    |
| 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: SP2-2501-321-2

Test Date: 04/09/2025

Luminaire Tested: GKO-PB1E-722-U-T4W

Data in this report applies to families of products including GKO-PB1E-722-U-T4W

### Test Information

Test Method: LM-79-2019  
 Report Number: SP2-2501-321-2  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP2 - 165CM SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 04/10/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GKO-PB1E-722-U-T4W**  
 Description: Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 2281     | CRI (Ra): | 70.6 |      |       |
| CIE u':                   | 0.2851   | R1:       | 68.4 | R9:  | -35.1 |
| CIE v':                   | 0.5324   | R2:       | 88.7 | R10: | 78.0  |
| Duv:                      | -0.0016  | R3:       | 85.7 | R11: | 60.2  |
| CIE x:                    | 0.4942   | R4:       | 63.2 | R12: | 73.8  |
| CIE y:                    | 0.4102   | R5:       | 69.0 | R13: | 72.8  |
| CIE z:                    | 0.0956   | R6:       | 88.6 | R14: | 92.4  |
| Peak Wavelength (nm):     | 602      | R7:       | 68.8 | R15: | 58.4  |
| Dominant Wavelength (nm): | 587      | R8:       | 32.6 |      |       |
| Purity:                   | 71.48321 |           |      |      |       |
| Rf:                       | 76.9     |           |      |      |       |
| Rg:                       | 92.6     |           |      |      |       |



### Test Conditions

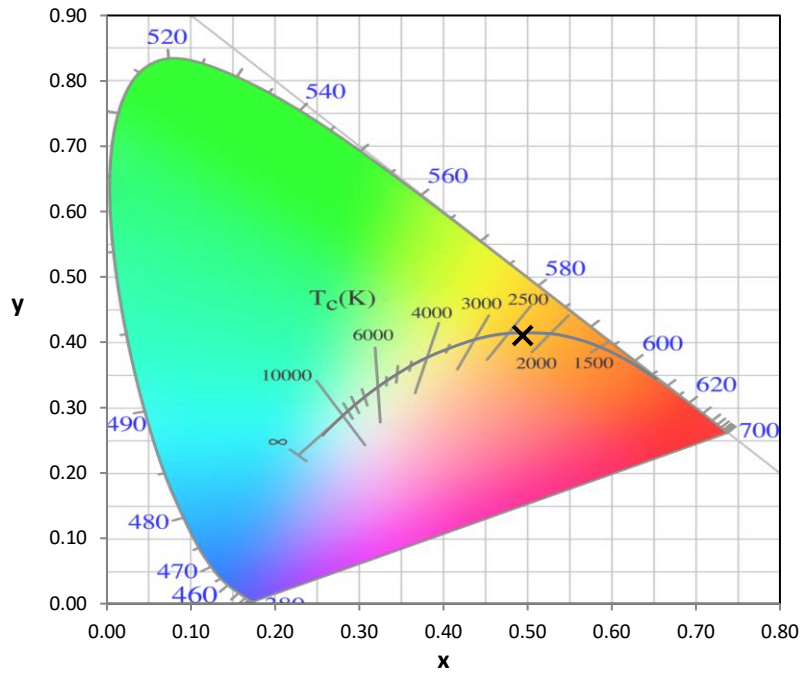
Stabilization Time: 40M  
 Operation Time: 1H 40M  
 Sphere Temperature (°C): 25.0

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

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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 2200K 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               | 124                                  | NR                             | 620               | 894                                  | NR                             | 750               | 22                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 141                                  | NR                             | 625               | 837                                  | NR                             | 755               | 19                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 163                                  | NR                             | 630               | 774                                  | NR                             | 760               | 16                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 184                                  | NR                             | 635               | 706                                  | NR                             | 765               | 13                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 204                                  | NR                             | 640               | 638                                  | NR                             | 770               | 11                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 221                                  | NR                             | 645               | 570                                  | NR                             | 775               | 10                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 237                                  | NR                             | 650               | 505                                  | NR                             | 780               | 8                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 0                                    | NR                             | 525               | 252                                  | NR                             | 655               | 446                                  | NR                             | 785               | 7                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 0                                    | NR                             | 530               | 268                                  | NR                             | 660               | 389                                  | NR                             | 790               | 6                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 1                                    | NR                             | 535               | 287                                  | NR                             | 665               | 339                                  | NR                             | 795               | 5                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 2                                    | NR                             | 540               | 310                                  | NR                             | 670               | 292                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 5                                    | NR                             | 545               | 339                                  | NR                             | 675               | 253                                  | NR                             | 805               | 4                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 9                                    | NR                             | 550               | 377                                  | NR                             | 680               | 217                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 15                                   | NR                             | 555               | 424                                  | NR                             | 685               | 186                                  | NR                             | 815               | 3                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 26                                   | NR                             | 560               | 482                                  | NR                             | 690               | 158                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 43                                   | NR                             | 565               | 551                                  | NR                             | 695               | 135                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 71                                   | NR                             | 570               | 632                                  | NR                             | 700               | 114                                  | NR                             | 830               | 2                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 123                                  | NR                             | 575               | 714                                  | NR                             | 705               | 97                                   | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 210                                  | NR                             | 580               | 797                                  | NR                             | 710               | 82                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 245                                  | NR                             | 585               | 873                                  | NR                             | 715               | 70                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 190                                  | NR                             | 590               | 934                                  | NR                             | 720               | 59                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 161                                  | NR                             | 595               | 975                                  | NR                             | 725               | 50                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 145                                  | NR                             | 600               | 996                                  | NR                             | 730               | 43                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 117                                  | NR                             | 605               | 997                                  | NR                             | 735               | 36                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 107                                  | NR                             | 610               | 978                                  | NR                             | 740               | 30                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 113                                  | NR                             | 615               | 945                                  | NR                             | 745               | 26                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



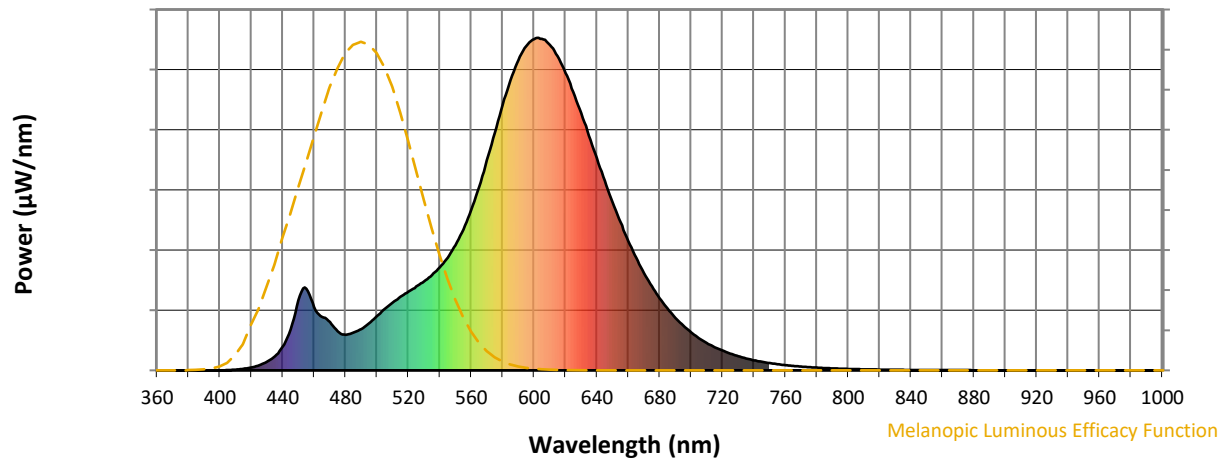
Scotopic Lumens: NR

S/P: 0.98

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (Φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 124                      | NR            | 620    | 894                      | NR            | 750    | 22                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 141                      | NR            | 625    | 837                      | NR            | 755    | 19                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 163                      | NR            | 630    | 774                      | NR            | 760    | 16                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 184                      | NR            | 635    | 706                      | NR            | 765    | 13                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 204                      | NR            | 640    | 638                      | NR            | 770    | 11                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 221                      | NR            | 645    | 570                      | NR            | 775    | 10                       | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 237                      | NR            | 650    | 505                      | NR            | 780    | 8                        | NR            | 910    | 0                        | NR            |
| 395    | 0                        | NR            | 525    | 252                      | NR            | 655    | 446                      | NR            | 785    | 7                        | NR            | 915    | 0                        | NR            |
| 400    | 0                        | NR            | 530    | 268                      | NR            | 660    | 389                      | NR            | 790    | 6                        | NR            | 920    | 0                        | NR            |
| 405    | 1                        | NR            | 535    | 287                      | NR            | 665    | 339                      | NR            | 795    | 5                        | NR            | 925    | 0                        | NR            |
| 410    | 2                        | NR            | 540    | 310                      | NR            | 670    | 292                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 5                        | NR            | 545    | 339                      | NR            | 675    | 253                      | NR            | 805    | 4                        | NR            | 935    | 0                        | NR            |
| 420    | 9                        | NR            | 550    | 377                      | NR            | 680    | 217                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 15                       | NR            | 555    | 424                      | NR            | 685    | 186                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 26                       | NR            | 560    | 482                      | NR            | 690    | 158                      | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 43                       | NR            | 565    | 551                      | NR            | 695    | 135                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 71                       | NR            | 570    | 632                      | NR            | 700    | 114                      | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 123                      | NR            | 575    | 714                      | NR            | 705    | 97                       | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 210                      | NR            | 580    | 797                      | NR            | 710    | 82                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 245                      | NR            | 585    | 873                      | NR            | 715    | 70                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 190                      | NR            | 590    | 934                      | NR            | 720    | 59                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 161                      | NR            | 595    | 975                      | NR            | 725    | 50                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 145                      | NR            | 600    | 996                      | NR            | 730    | 43                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 117                      | NR            | 605    | 997                      | NR            | 735    | 36                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 107                      | NR            | 610    | 978                      | NR            | 740    | 30                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 113                      | NR            | 615    | 945                      | NR            | 745    | 26                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.75

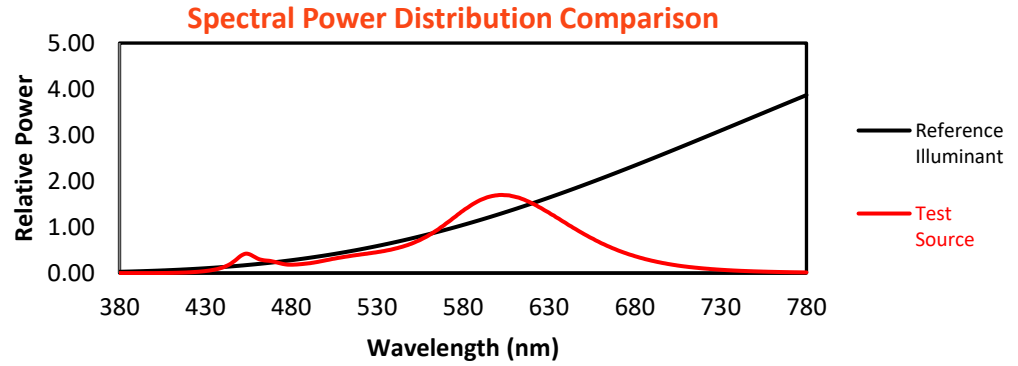
| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 124                         | NR               | 620       | 894                         | NR               | 750       | 22                          | NR               | 880       | 0                           | NR               |
| 365       | 0                           | NR               | 495       | 141                         | NR               | 625       | 837                         | NR               | 755       | 19                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 163                         | NR               | 630       | 774                         | NR               | 760       | 16                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 184                         | NR               | 635       | 706                         | NR               | 765       | 13                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 204                         | NR               | 640       | 638                         | NR               | 770       | 11                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 221                         | NR               | 645       | 570                         | NR               | 775       | 10                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 237                         | NR               | 650       | 505                         | NR               | 780       | 8                           | NR               | 910       | 0                           | NR               |
| 395       | 0                           | NR               | 525       | 252                         | NR               | 655       | 446                         | NR               | 785       | 7                           | NR               | 915       | 0                           | NR               |
| 400       | 0                           | NR               | 530       | 268                         | NR               | 660       | 389                         | NR               | 790       | 6                           | NR               | 920       | 0                           | NR               |
| 405       | 1                           | NR               | 535       | 287                         | NR               | 665       | 339                         | NR               | 795       | 5                           | NR               | 925       | 0                           | NR               |
| 410       | 2                           | NR               | 540       | 310                         | NR               | 670       | 292                         | NR               | 800       | 4                           | NR               | 930       | 0                           | NR               |
| 415       | 5                           | NR               | 545       | 339                         | NR               | 675       | 253                         | NR               | 805       | 4                           | NR               | 935       | 0                           | NR               |
| 420       | 9                           | NR               | 550       | 377                         | NR               | 680       | 217                         | NR               | 810       | 3                           | NR               | 940       | 0                           | NR               |
| 425       | 15                          | NR               | 555       | 424                         | NR               | 685       | 186                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 26                          | NR               | 560       | 482                         | NR               | 690       | 158                         | NR               | 820       | 2                           | NR               | 950       | 0                           | NR               |
| 435       | 43                          | NR               | 565       | 551                         | NR               | 695       | 135                         | NR               | 825       | 2                           | NR               | 955       | 0                           | NR               |
| 440       | 71                          | NR               | 570       | 632                         | NR               | 700       | 114                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 123                         | NR               | 575       | 714                         | NR               | 705       | 97                          | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 210                         | NR               | 580       | 797                         | NR               | 710       | 82                          | NR               | 840       | 1                           | NR               | 970       | 0                           | NR               |
| 455       | 245                         | NR               | 585       | 873                         | NR               | 715       | 70                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 190                         | NR               | 590       | 934                         | NR               | 720       | 59                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 161                         | NR               | 595       | 975                         | NR               | 725       | 50                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 145                         | NR               | 600       | 996                         | NR               | 730       | 43                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 117                         | NR               | 605       | 997                         | NR               | 735       | 36                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 107                         | NR               | 610       | 978                         | NR               | 740       | 30                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 113                         | NR               | 615       | 945                         | NR               | 745       | 26                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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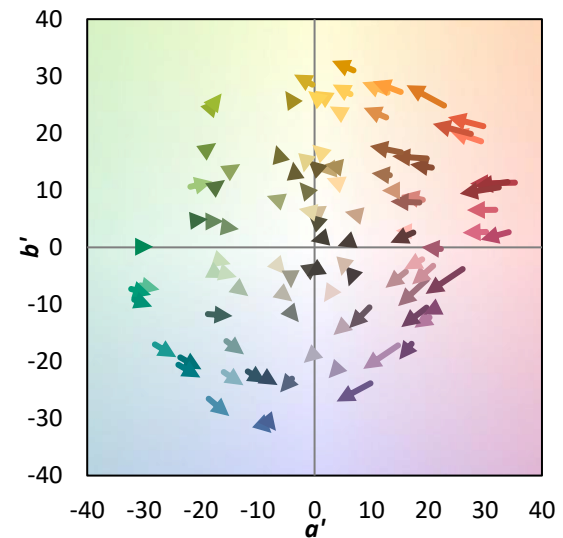
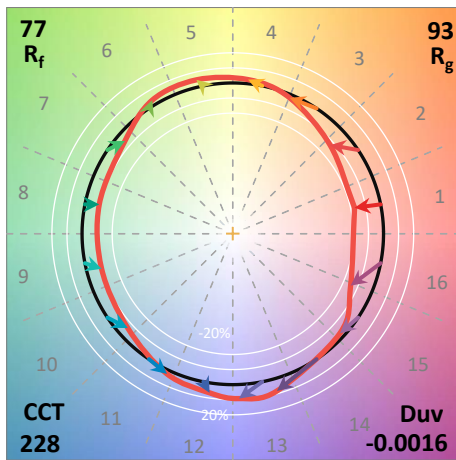
TM-30-18

### Summary

$R_f = 76.9$   
 $R_g = 92.6$   
 $CIE R_a = 70.6$   
 $R_g = -35.1$

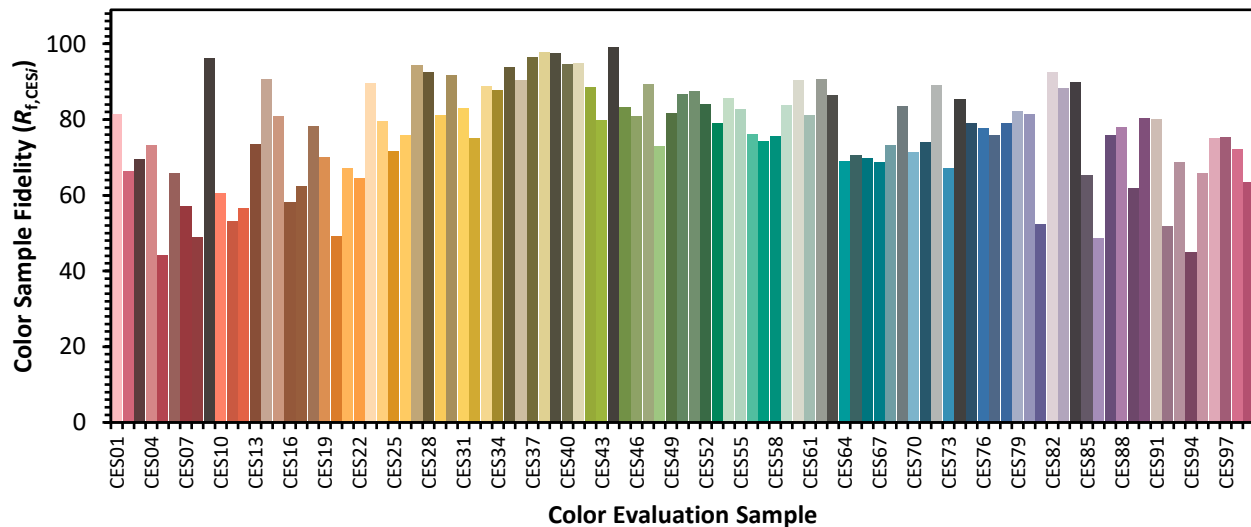


### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 76 | CES51 = 88 | CES76 = 78 |
| CES02 = 65 | CES27 = 94 | CES52 = 84 | CES77 = 76 |
| CES03 = 32 | CES28 = 93 | CES53 = 79 | CES78 = 79 |
| CES04 = 72 | CES29 = 81 | CES54 = 86 | CES79 = 82 |
| CES05 = 51 | CES30 = 92 | CES55 = 83 | CES80 = 81 |
| CES06 = 52 | CES31 = 83 | CES56 = 76 | CES81 = 52 |
| CES07 = 44 | CES32 = 75 | CES57 = 74 | CES82 = 92 |
| CES08 = 42 | CES33 = 89 | CES58 = 76 | CES83 = 88 |
| CES09 = 29 | CES34 = 88 | CES59 = 84 | CES84 = 90 |
| CES10 = 79 | CES35 = 94 | CES60 = 91 | CES85 = 65 |
| CES11 = 62 | CES36 = 90 | CES61 = 81 | CES86 = 49 |
| CES12 = 68 | CES37 = 96 | CES62 = 91 | CES87 = 76 |
| CES13 = 44 | CES38 = 98 | CES63 = 86 | CES88 = 78 |
| CES14 = 75 | CES39 = 98 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 95 | CES65 = 71 | CES90 = 80 |
| CES16 = 48 | CES41 = 95 | CES66 = 70 | CES91 = 80 |
| CES17 = 51 | CES42 = 89 | CES67 = 69 | CES92 = 52 |
| CES18 = 57 | CES43 = 80 | CES68 = 73 | CES93 = 69 |
| CES19 = 74 | CES44 = 99 | CES69 = 84 | CES94 = 45 |
| CES20 = 68 | CES45 = 83 | CES70 = 71 | CES95 = 66 |
| CES21 = 88 | CES46 = 81 | CES71 = 74 | CES96 = 75 |
| CES22 = 81 | CES47 = 89 | CES72 = 89 | CES97 = 75 |
| CES23 = 92 | CES48 = 73 | CES73 = 67 | CES98 = 72 |
| CES24 = 92 | CES49 = 82 | CES74 = 85 | CES99 = 64 |
| CES25 = 73 | CES50 = 87 | CES75 = 79 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)