

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: P1212057

Luminaire Tested: **GKO-PB2E-850-U-T1**

Issue Date: 11/5/2025



**Test Information**

Test Method: LM-79-08  
Report Number: P1212057  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 11/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB2E-850-U-T1  
Description: GEKKO WALL PACK 12000LM PACKAGE 80CRI 5000K FIXTURE w/ TYPE I DISTRIBUTION OPTIC  
Light Source: (20) 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

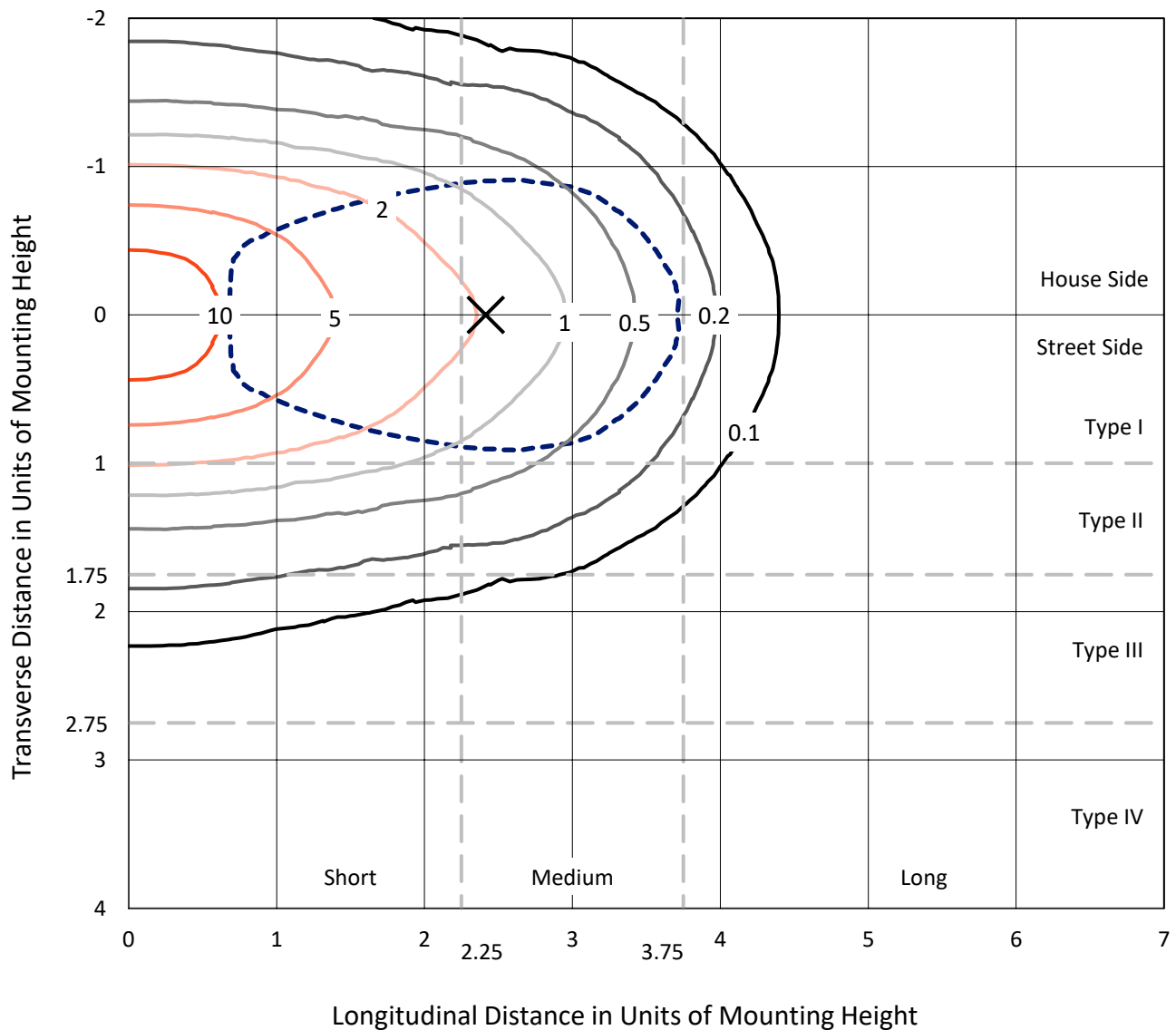
Lumens per Lamp: N/A  
Luminaire Lumens: 12444.7 lumens  
Efficiency: N/A  
Efficacy: 118.9 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')  
IES Classification: Type I - Short  
BUG Rating: B3 - U0 - G3

Input Watts (W): 104.7  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): 6%  
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

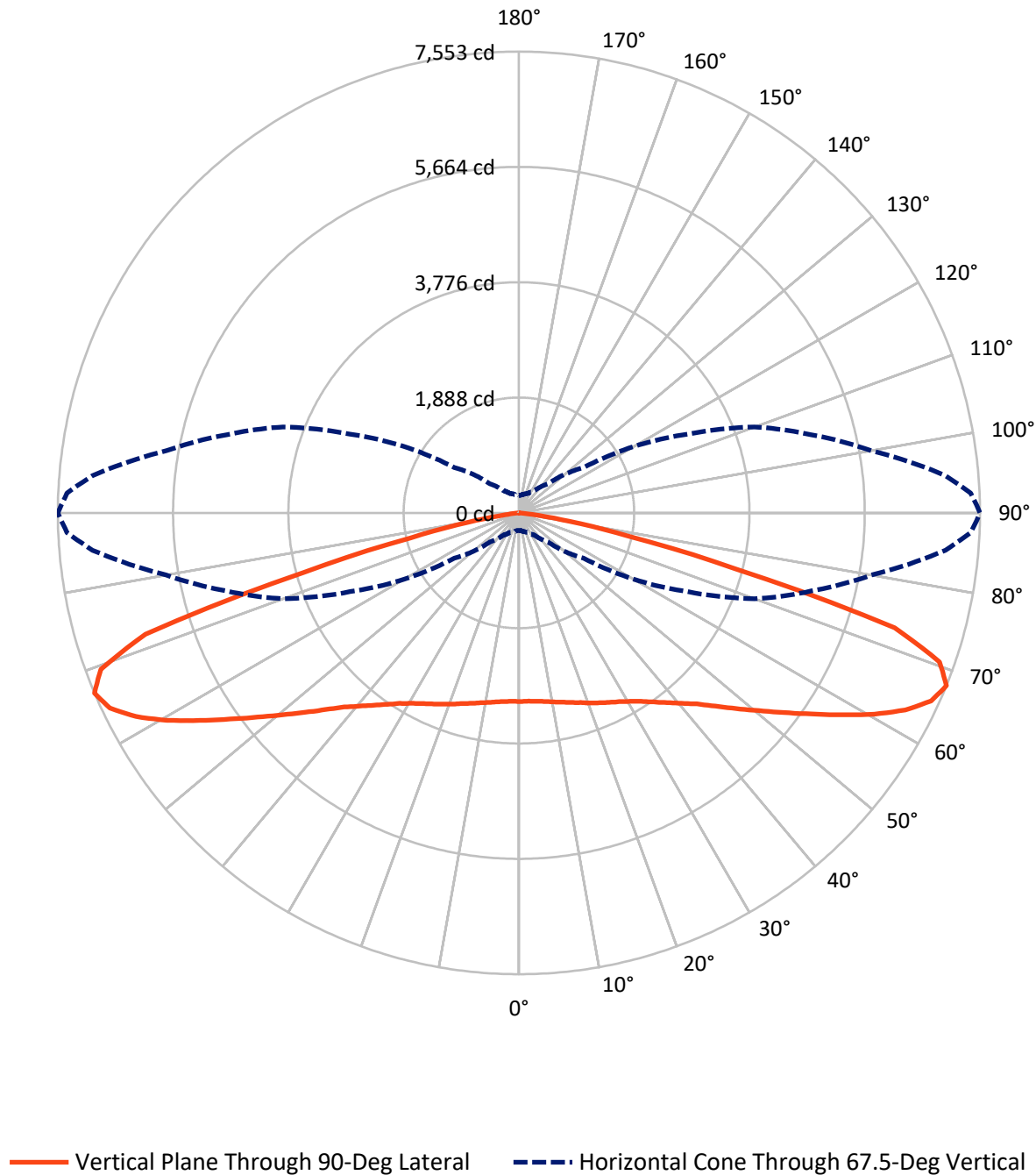
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 13.7 fc  
 Type I - Short - N/A

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## Luminous Intensity Polar Plot



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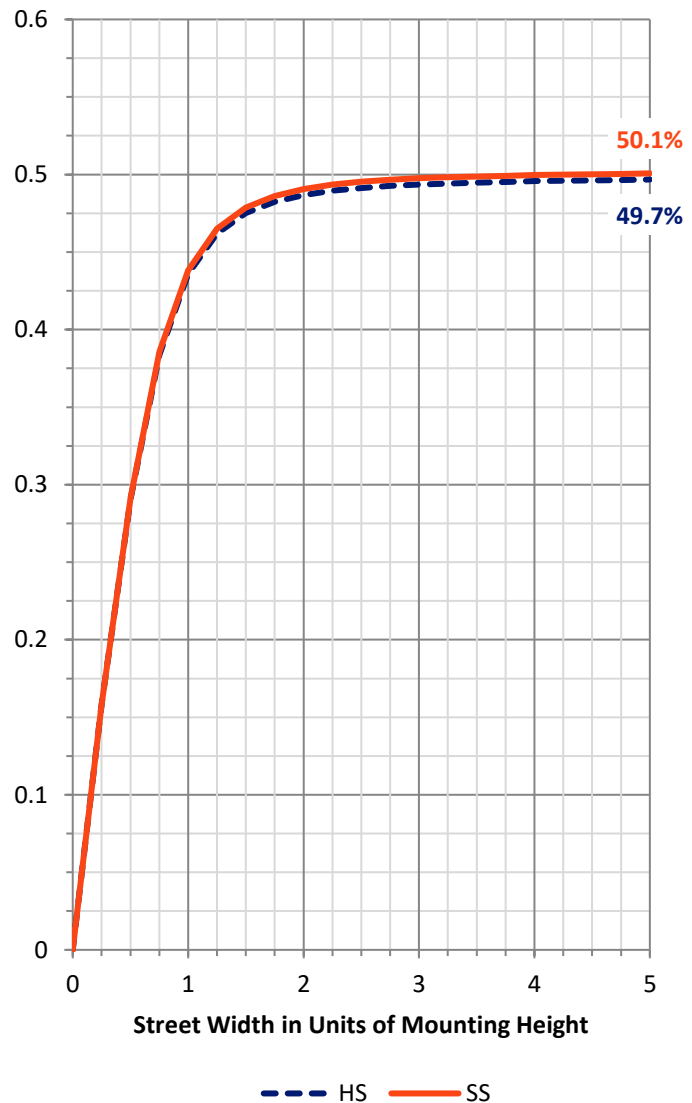
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 6222.4   | 0.0    | 6222.4  |
|                    | % Fixture | 50.0     | 0.0    | 50.0    |
| <b>Street Side</b> | Lumens    | 6222.4   | 0.0    | 6222.4  |
|                    | % Fixture | 50.0     | 0.0    | 50.0    |
| <b>Total</b>       | Lumens    | 12444.7  | 0.0    | 12444.7 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 296.2   | 2.4       |
| 10°-20°   | 892.5   | 7.2       |
| 20°-30°   | 1484.0  | 11.9      |
| 30°-40°   | 1971.4  | 15.8      |
| 40°-50°   | 2222.6  | 17.9      |
| 50°-60°   | 2285.4  | 18.4      |
| 60°-70°   | 2159.8  | 17.4      |
| 70°-80°   | 1057.3  | 8.5       |
| 80°-90°   | 75.6    | 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°    | 12444.7 | 100.0     |
| 0°-180°   | 12444.7 | 100.0     |

**Coefficient of Utilization**



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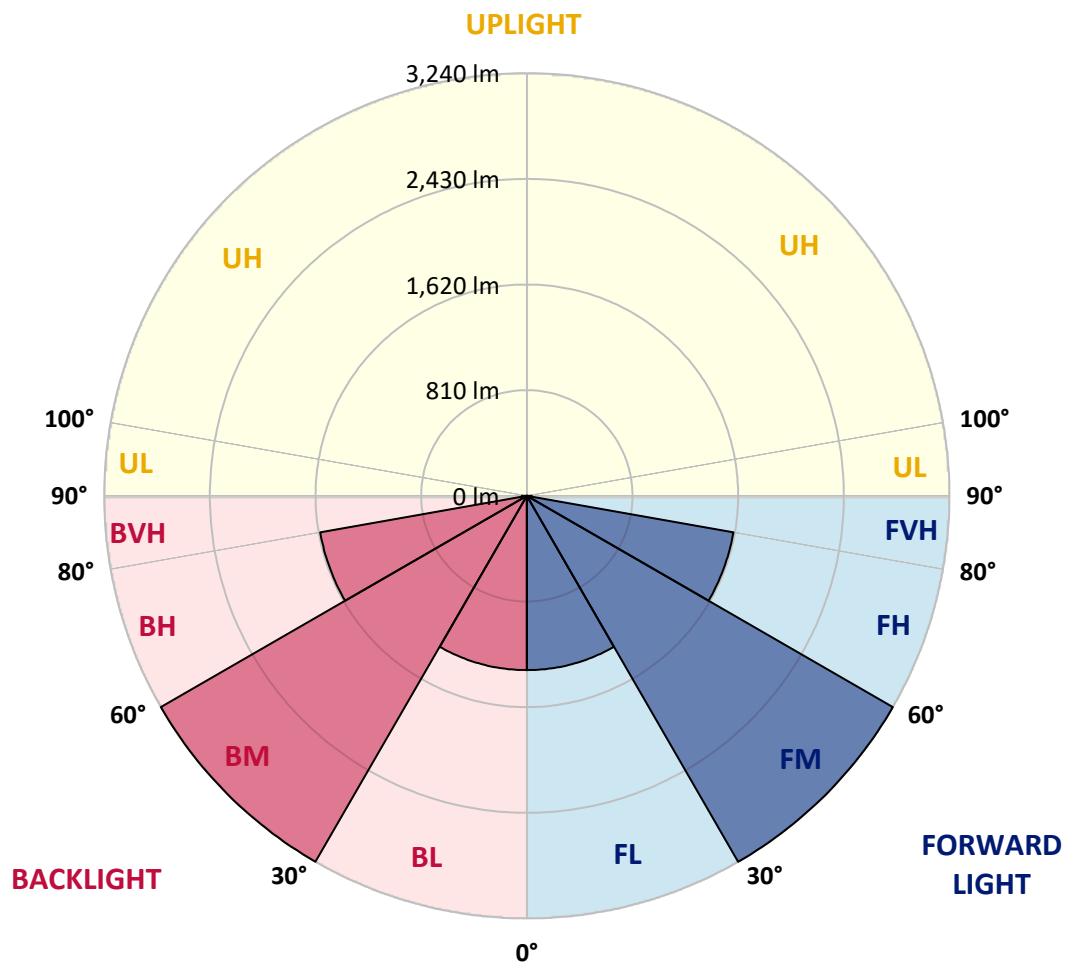
CATALOG NUMBER: GKO-PB2E-850-U-T1

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 1336.3 | 10.7      |                         |      |         |
| FM   | (30°-60°)   | 3239.7 | 26.0      |                         |      |         |
| FH   | (60°-80°)   | 1608.5 | 12.9      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 37.8   | 0.3       |                         |      | G1/100  |
| BL   | (0°-30°)    | 1336.3 | 10.7      | B3/2500                 |      |         |
| BM   | (30°-60°)   | 3239.7 | 26.0      | B3/5000                 |      |         |
| BH   | (60°-80°)   | 1608.5 | 12.9      | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 37.8   | 0.3       |                         |      | G1/100  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G3**

Type I Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 70°    | 75°    | 80°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 3088.0 | 3088.0 | 3088.0 | 3088.0 | 3088.0 | 3088.0 | 3088.0 | 3088.0 | 3088.0 | 3088.0 | 3088.0 |
| 2.5°  | 3090.3 | 3094.9 | 3085.8 | 3085.8 | 3090.3 | 3092.6 | 3092.6 | 3094.9 | 3090.3 | 3090.3 | 3088.0 |
| 5°    | 3090.3 | 3092.6 | 3088.0 | 3088.0 | 3092.6 | 3099.5 | 3097.2 | 3101.8 | 3101.8 | 3099.5 | 3099.5 |
| 7.5°  | 3088.0 | 3092.6 | 3088.0 | 3090.3 | 3097.2 | 3111.0 | 3111.0 | 3111.0 | 3115.6 | 3120.2 | 3120.2 |
| 10°   | 3085.8 | 3090.3 | 3092.6 | 3094.9 | 3104.1 | 3124.8 | 3129.3 | 3131.6 | 3138.5 | 3145.4 | 3145.4 |
| 12.5° | 3074.3 | 3078.9 | 3085.8 | 3094.9 | 3111.0 | 3138.5 | 3147.7 | 3154.6 | 3166.1 | 3172.9 | 3177.5 |
| 15°   | 3058.2 | 3060.5 | 3076.6 | 3094.9 | 3120.2 | 3154.6 | 3172.9 | 3184.4 | 3200.5 | 3209.6 | 3216.5 |
| 17.5° | 3035.3 | 3037.6 | 3062.8 | 3090.3 | 3127.0 | 3175.2 | 3205.1 | 3223.4 | 3239.5 | 3253.2 | 3262.4 |
| 20°   | 3005.5 | 3012.3 | 3042.2 | 3085.8 | 3138.5 | 3195.9 | 3239.5 | 3271.6 | 3287.6 | 3301.4 | 3315.2 |
| 22.5° | 2968.7 | 2975.6 | 3012.3 | 3074.3 | 3150.0 | 3223.4 | 3280.8 | 3322.1 | 3342.7 | 3361.1 | 3377.1 |
| 25°   | 2913.7 | 2922.9 | 2966.5 | 3046.8 | 3154.6 | 3253.2 | 3326.6 | 3379.4 | 3397.8 | 3420.7 | 3434.5 |
| 27.5° | 2828.8 | 2835.7 | 2888.4 | 2991.7 | 3140.8 | 3285.4 | 3379.4 | 3441.4 | 3462.0 | 3487.2 | 3501.0 |
| 30°   | 2695.7 | 2709.5 | 2773.7 | 2902.2 | 3106.4 | 3310.6 | 3441.4 | 3503.3 | 3528.5 | 3553.8 | 3572.1 |
| 32.5° | 2523.7 | 2544.3 | 2615.4 | 2780.6 | 3039.9 | 3319.8 | 3507.9 | 3579.0 | 3611.1 | 3638.7 | 3661.6 |
| 35°   | 2310.3 | 2330.9 | 2415.8 | 2624.6 | 2934.3 | 3301.4 | 3574.4 | 3666.2 | 3705.2 | 3741.9 | 3769.4 |
| 37.5° | 2067.1 | 2085.5 | 2188.7 | 2427.3 | 2782.9 | 3244.1 | 3627.2 | 3762.6 | 3815.3 | 3863.5 | 3900.2 |
| 40°   | 1821.6 | 1842.3 | 1954.7 | 2209.4 | 2599.4 | 3133.9 | 3650.1 | 3868.1 | 3934.6 | 3996.6 | 4042.5 |
| 42.5° | 1555.5 | 1580.7 | 1706.9 | 1977.6 | 2386.0 | 2982.5 | 3631.8 | 3971.3 | 4053.9 | 4138.8 | 4207.6 |
| 45°   | 1319.2 | 1323.8 | 1461.4 | 1723.0 | 2152.0 | 2787.5 | 3567.5 | 4070.0 | 4182.4 | 4301.7 | 4400.4 |
| 47.5° | 1092.1 | 1101.2 | 1220.5 | 1479.8 | 1908.8 | 2567.3 | 3450.5 | 4148.0 | 4326.9 | 4480.7 | 4625.2 |
| 50°   | 890.2  | 901.6  | 1009.5 | 1241.2 | 1665.6 | 2326.4 | 3292.2 | 4193.9 | 4450.8 | 4659.6 | 4861.5 |
| 52.5° | 725.0  | 738.7  | 828.2  | 1032.4 | 1420.1 | 2074.0 | 3097.2 | 4200.8 | 4563.2 | 4838.6 | 5107.0 |
| 55°   | 603.4  | 612.6  | 681.4  | 844.3  | 1183.8 | 1812.4 | 2874.7 | 4166.3 | 4636.7 | 4999.1 | 5357.1 |
| 57.5° | 509.3  | 518.5  | 566.7  | 695.2  | 970.5  | 1544.0 | 2604.0 | 4086.0 | 4675.7 | 5139.1 | 5609.4 |
| 60°   | 442.8  | 449.7  | 484.1  | 575.9  | 798.4  | 1291.7 | 2312.6 | 3943.8 | 4664.2 | 5226.3 | 5818.2 |
| 62.5° | 394.6  | 396.9  | 426.7  | 491.0  | 658.4  | 1053.1 | 1984.5 | 3730.4 | 4570.1 | 5237.7 | 5960.4 |
| 65°   | 351.0  | 353.3  | 371.7  | 417.6  | 541.4  | 846.6  | 1642.7 | 3436.8 | 4391.2 | 5157.5 | 5981.1 |
| 67.5° | 284.5  | 289.1  | 316.6  | 351.0  | 445.1  | 669.9  | 1294.0 | 3051.3 | 4111.3 | 4948.7 | 5864.1 |
| 70°   | 227.1  | 229.4  | 257.0  | 296.0  | 362.5  | 527.7  | 993.4  | 2532.8 | 3673.1 | 4609.1 | 5561.2 |
| 72.5° | 169.8  | 174.4  | 199.6  | 238.6  | 296.0  | 408.4  | 718.1  | 1915.7 | 2936.6 | 3886.4 | 4843.1 |
| 75°   | 135.4  | 137.7  | 146.8  | 183.5  | 229.4  | 309.7  | 484.1  | 1160.9 | 1768.9 | 2404.4 | 2968.7 |
| 77.5° | 114.7  | 117.0  | 117.0  | 142.2  | 169.8  | 208.8  | 257.0  | 461.1  | 747.9  | 1064.5 | 1411.0 |
| 80°   | 94.1   | 98.7   | 89.5   | 105.5  | 121.6  | 121.6  | 119.3  | 220.2  | 353.3  | 500.1  | 656.2  |
| 82.5° | 68.8   | 73.4   | 68.8   | 73.4   | 73.4   | 66.5   | 61.9   | 82.6   | 112.4  | 153.7  | 167.5  |
| 85°   | 48.2   | 50.5   | 55.1   | 50.5   | 48.2   | 39.0   | 29.8   | 22.9   | 13.8   | 16.1   | 22.9   |
| 87.5° | 32.1   | 39.0   | 45.9   | 43.6   | 36.7   | 29.8   | 20.6   | 13.8   | 6.9    | 9.2    | 9.2    |
| 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°    | 3088.0 | 3088.0 | 3088.0 |
| 2.5°  | 3090.3 | 3088.0 | 3085.8 |
| 5°    | 3101.8 | 3099.5 | 3097.2 |
| 7.5°  | 3117.9 | 3117.9 | 3117.9 |
| 10°   | 3143.1 | 3147.7 | 3147.7 |
| 12.5° | 3175.2 | 3179.8 | 3179.8 |
| 15°   | 3214.2 | 3216.5 | 3221.1 |
| 17.5° | 3262.4 | 3264.7 | 3264.7 |
| 20°   | 3319.8 | 3317.5 | 3322.1 |
| 22.5° | 3377.1 | 3377.1 | 3377.1 |
| 25°   | 3436.8 | 3436.8 | 3436.8 |
| 27.5° | 3505.6 | 3505.6 | 3501.0 |
| 30°   | 3581.3 | 3581.3 | 3581.3 |
| 32.5° | 3673.1 | 3675.4 | 3677.7 |
| 35°   | 3790.1 | 3794.7 | 3801.6 |
| 37.5° | 3923.2 | 3934.6 | 3941.5 |
| 40°   | 4081.5 | 4086.0 | 4097.5 |
| 42.5° | 4258.1 | 4271.9 | 4274.2 |
| 45°   | 4478.4 | 4501.3 | 4510.5 |
| 47.5° | 4737.6 | 4769.7 | 4785.8 |
| 50°   | 5026.7 | 5063.4 | 5086.3 |
| 52.5° | 5341.0 | 5400.6 | 5428.2 |
| 55°   | 5675.9 | 5779.2 | 5809.0 |
| 57.5° | 6054.5 | 6194.4 | 6235.7 |
| 60°   | 6426.2 | 6623.5 | 6690.0 |
| 62.5° | 6742.8 | 7020.4 | 7103.0 |
| 65°   | 6965.3 | 7300.3 | 7421.9 |
| 67.5° | 7011.2 | 7408.1 | 7552.6 |
| 70°   | 6735.9 | 7142.0 | 7309.4 |
| 72.5° | 5857.2 | 6224.3 | 6433.0 |
| 75°   | 3459.7 | 3723.6 | 3659.3 |
| 77.5° | 1736.7 | 1812.4 | 1823.9 |
| 80°   | 761.7  | 807.6  | 825.9  |
| 82.5° | 188.1  | 192.7  | 218.0  |
| 85°   | 25.2   | 29.8   | 27.5   |
| 87.5° | 9.2    | 9.2    | 11.5   |
| 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 (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (Φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (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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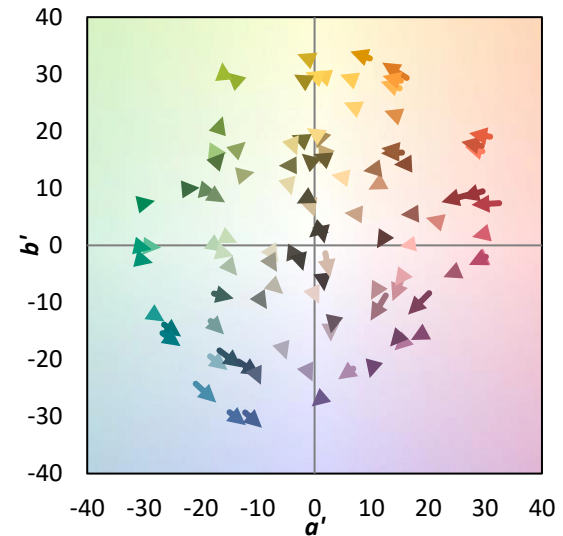
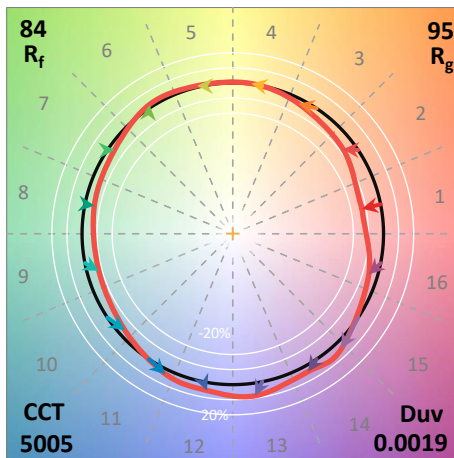
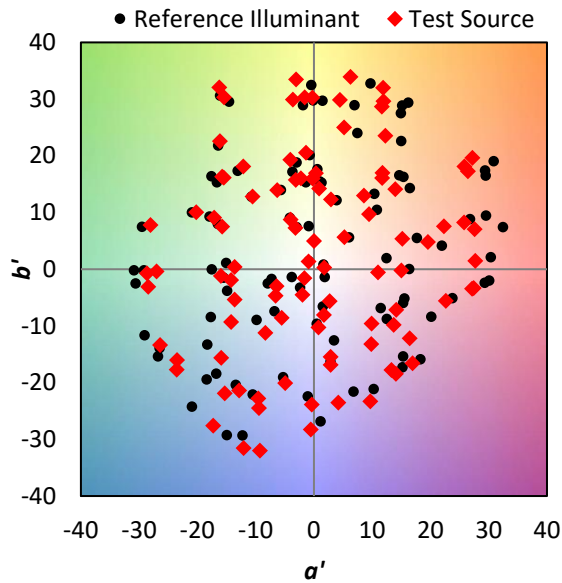
TM-30-18

### Summary

$R_f = 83.7$   
 $R_g = 95.5$   
 $CIE R_a = 83.1$   
 $R_9 = 4.4$

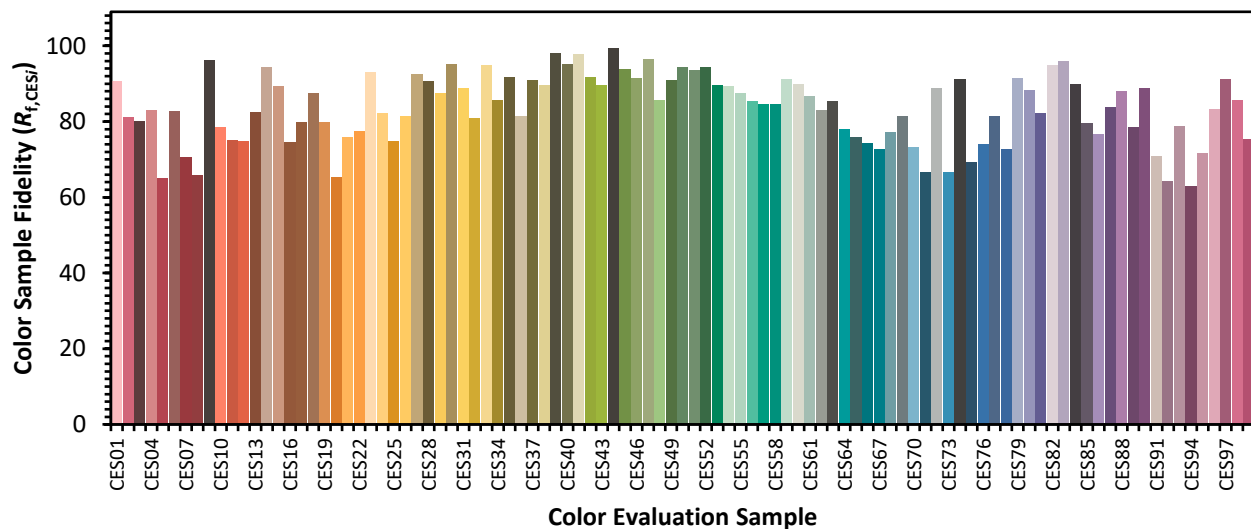


### Color Vector Graphics



**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)