

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: P972236

Luminaire Tested: **GKO-PB1A-750-U-T4W**

Issue Date: 02/27/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P972236  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 02/27/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB1A-750-U-T4W  
Description: GEKKO WALL PACK 750LM PACKAGE 70CRI 5000K FIXTURE w/ TYPE IV WIDE DISTRIBUTION OPTIC  
Light Source: (10) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 744.9 lumens  
Efficiency: N/A  
Efficacy: 155.2 lumens/watt  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B0 - U0 - G0

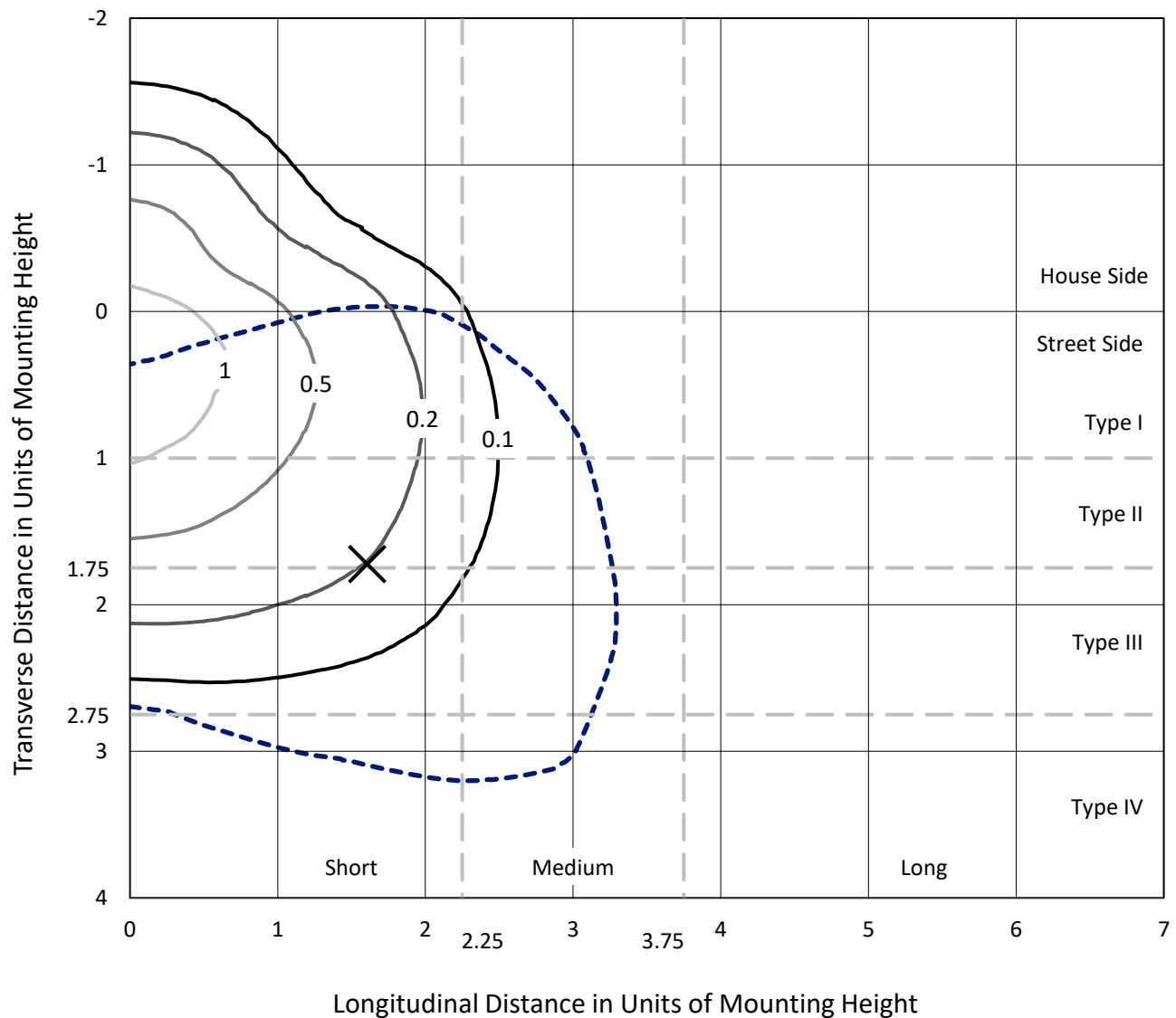
Input Watts (W): 4.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): 16%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

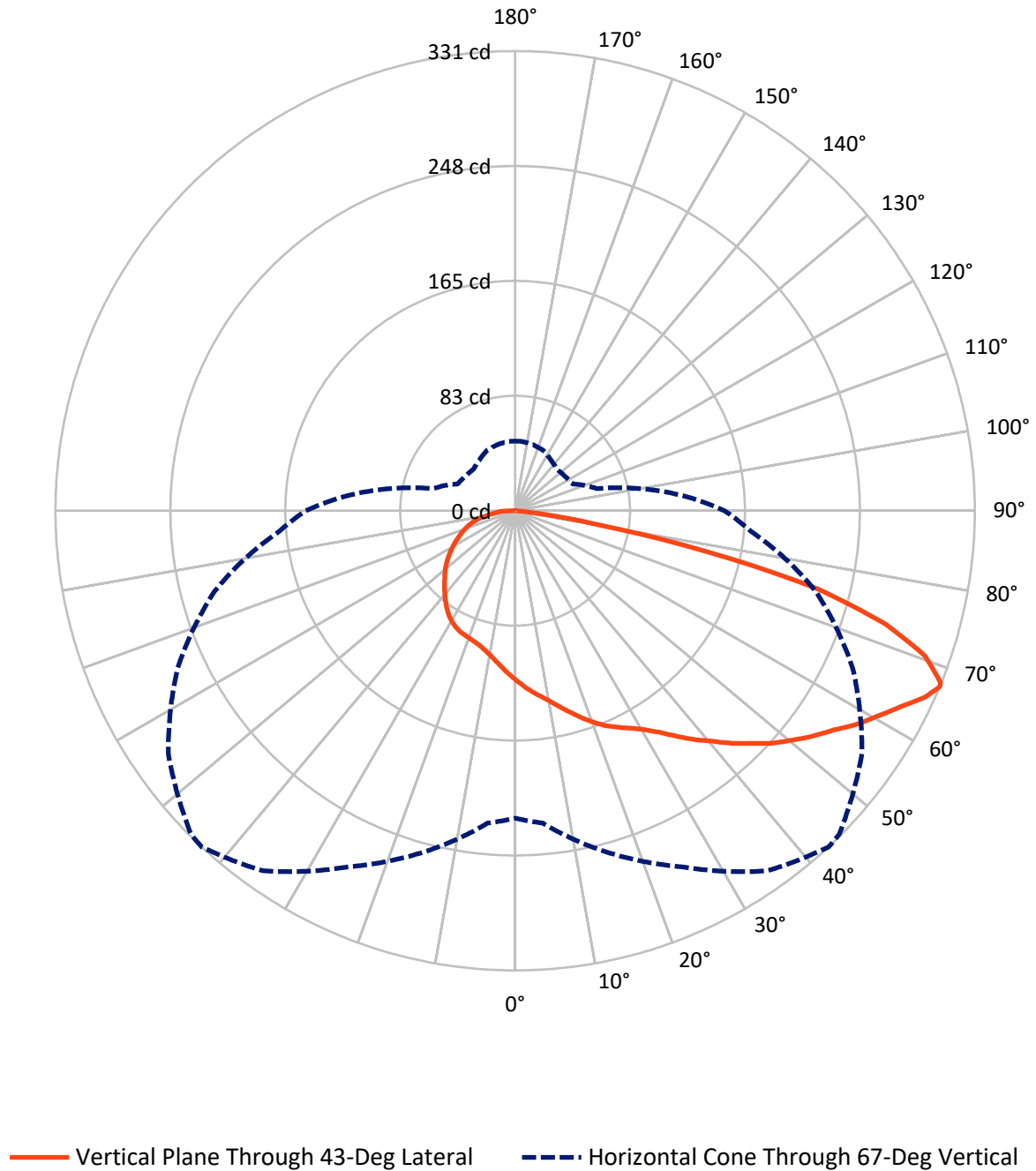


Based on 10 foot mounting height. Maximum calculated value = 1.4 fc  
 Type IV - Short - N/A

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CATALOG NUMBER: GKO-PB1A-750-U-T4W

## Luminous Intensity Polar Plot



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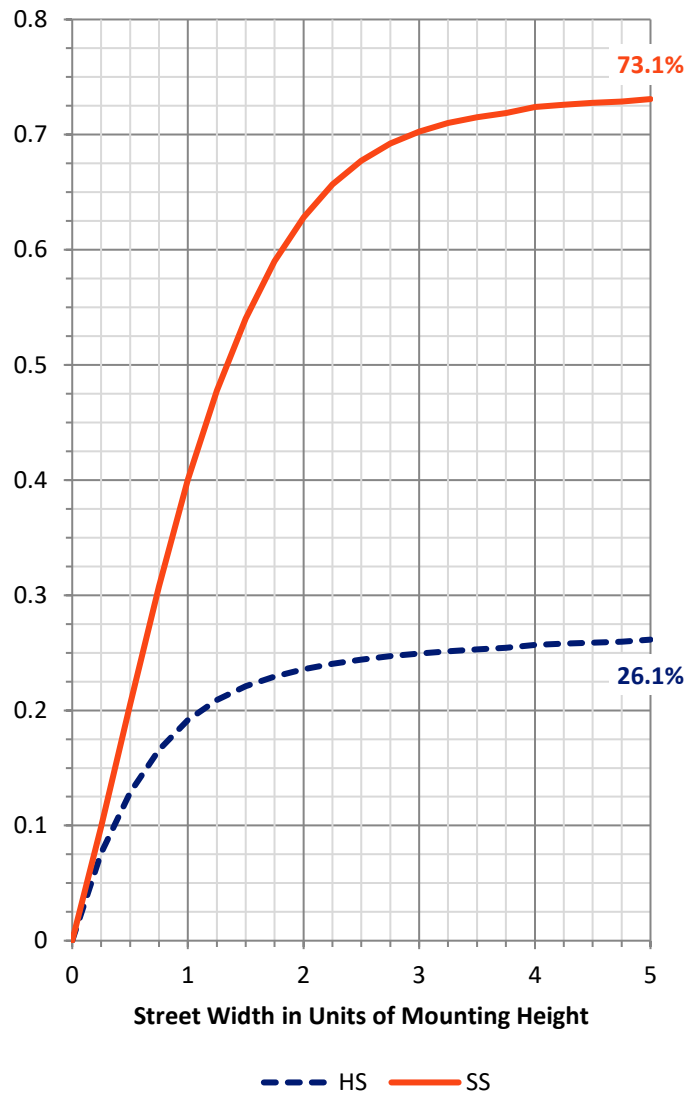
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total |
|--------------------|-----------|----------|--------|-------|
| <b>House Side</b>  | Lumens    | 200.3    | 0.0    | 200.3 |
|                    | % Fixture | 26.9     | 0.0    | 26.9  |
| <b>Street Side</b> | Lumens    | 544.5    | 0.0    | 544.5 |
|                    | % Fixture | 73.1     | 0.0    | 73.1  |
| <b>Total</b>       | Lumens    | 744.9    | 0.0    | 744.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0 |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 11.7   | 1.6       |
| 10°-20°   | 35.9   | 4.8       |
| 20°-30°   | 62.2   | 8.3       |
| 30°-40°   | 92.3   | 12.4      |
| 40°-50°   | 125.4  | 16.8      |
| 50°-60°   | 153.9  | 20.7      |
| 60°-70°   | 162.2  | 21.8      |
| 70°-80°   | 89.5   | 12.0      |
| 80°-90°   | 11.8   | 1.6       |
| 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°    | 744.9  | 100.0     |
| 0°-180°   | 744.9  | 100.0     |



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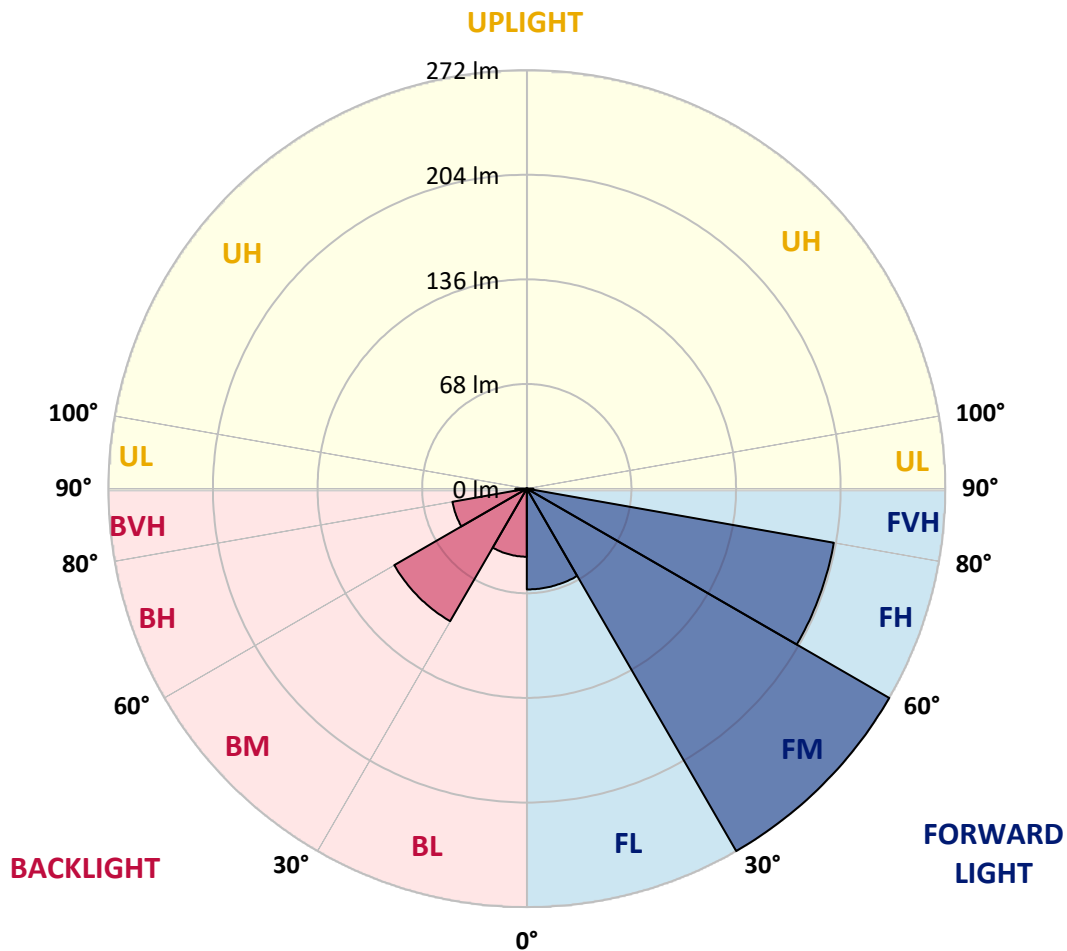
CATALOG NUMBER: GKO-PB1A-750-U-T4W

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|--------|-----------|-------------------------|------|--------|
|      |             |        |           | B                       | U    | G      |
| FL   | (0°-30°)    | 65.5   | 8.8       |                         |      |        |
| FM   | (30°-60°)   | 272.1  | 36.5      |                         |      |        |
| FH   | (60°-80°)   | 202.6  | 27.2      |                         |      | G0/660 |
| FVH  | (80°-90°)   | 4.3    | 0.6       |                         |      | G0/10  |
| BL   | (0°-30°)    | 44.3   | 5.9       | B0/110                  |      |        |
| BM   | (30°-60°)   | 99.5   | 13.4      | B0/220                  |      |        |
| BH   | (60°-80°)   | 49.1   | 6.6       | B0/110                  |      | G0/110 |
| BVH  | (80°-90°)   | 7.5    | 1.0       |                         |      | G0/10  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |        |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |        |

**BUG Rating: B0-U0-G0**

Type IV Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 5°    | 15°   | 25°   | 35°   | 43°   | 45°   | 55°   | 65°   | 75°   | 85°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 |
| 2.5°  | 127.9 | 128.2 | 127.9 | 127.6 | 127.0 | 126.7 | 126.4 | 125.7 | 124.8 | 123.5 | 122.4 |
| 5°    | 133.6 | 133.6 | 133.1 | 132.8 | 132.0 | 131.1 | 130.6 | 128.8 | 126.9 | 124.6 | 122.6 |
| 7.5°  | 138.8 | 139.4 | 138.7 | 137.9 | 136.6 | 135.1 | 134.8 | 132.1 | 129.4 | 126.4 | 123.3 |
| 10°   | 145.4 | 145.8 | 144.8 | 144.2 | 141.6 | 139.7 | 139.1 | 135.8 | 132.3 | 128.5 | 124.5 |
| 12.5° | 152.1 | 152.4 | 151.6 | 150.3 | 147.6 | 145.2 | 144.3 | 140.0 | 135.4 | 130.9 | 125.8 |
| 15°   | 157.9 | 158.2 | 157.9 | 156.4 | 153.9 | 150.9 | 149.7 | 144.9 | 139.3 | 133.4 | 127.5 |
| 17.5° | 162.2 | 162.8 | 162.8 | 162.1 | 159.8 | 157.0 | 156.3 | 150.3 | 143.7 | 136.4 | 129.4 |
| 20°   | 165.9 | 166.2 | 166.8 | 166.4 | 165.2 | 162.8 | 161.8 | 156.1 | 148.2 | 139.9 | 131.4 |
| 22.5° | 168.9 | 169.2 | 170.3 | 170.1 | 169.4 | 168.2 | 167.1 | 161.9 | 153.4 | 143.3 | 133.1 |
| 25°   | 174.1 | 174.0 | 174.6 | 174.1 | 173.3 | 172.8 | 172.2 | 167.6 | 158.6 | 147.3 | 135.5 |
| 27.5° | 183.2 | 182.9 | 182.3 | 180.1 | 177.9 | 177.3 | 176.8 | 173.6 | 164.8 | 151.9 | 138.2 |
| 30°   | 196.7 | 197.0 | 194.1 | 189.1 | 184.6 | 182.8 | 182.2 | 180.0 | 171.6 | 157.3 | 141.2 |
| 32.5° | 212.6 | 212.5 | 207.8 | 200.7 | 193.7 | 190.1 | 188.9 | 186.5 | 178.5 | 162.7 | 144.6 |
| 35°   | 224.1 | 223.8 | 221.4 | 215.0 | 207.7 | 199.2 | 197.0 | 193.2 | 185.8 | 168.8 | 148.1 |
| 37.5° | 239.6 | 239.2 | 234.5 | 227.8 | 221.3 | 209.0 | 206.5 | 201.4 | 192.8 | 174.7 | 151.9 |
| 40°   | 257.3 | 254.5 | 246.9 | 240.0 | 231.1 | 218.1 | 216.0 | 209.5 | 200.8 | 182.1 | 156.4 |
| 42.5° | 273.4 | 269.3 | 259.4 | 250.8 | 239.6 | 228.9 | 226.2 | 218.4 | 208.6 | 188.8 | 161.0 |
| 45°   | 297.6 | 287.5 | 273.3 | 268.2 | 248.8 | 239.0 | 236.8 | 227.2 | 217.1 | 196.1 | 165.6 |
| 47.5° | 294.6 | 287.5 | 282.8 | 282.2 | 258.5 | 250.0 | 246.8 | 236.9 | 226.2 | 203.8 | 170.4 |
| 50°   | 300.4 | 294.8 | 295.1 | 287.8 | 267.3 | 259.4 | 257.0 | 247.1 | 235.4 | 211.4 | 175.5 |
| 52.5° | 299.2 | 300.9 | 300.0 | 288.7 | 275.8 | 269.3 | 267.5 | 257.5 | 244.2 | 218.7 | 180.0 |
| 55°   | 308.8 | 307.9 | 306.0 | 294.8 | 285.2 | 278.5 | 277.0 | 268.4 | 253.2 | 225.0 | 183.8 |
| 57.5° | 315.8 | 311.2 | 311.0 | 301.6 | 295.7 | 290.1 | 287.8 | 279.6 | 261.5 | 230.5 | 186.8 |
| 60°   | 311.5 | 306.0 | 310.0 | 302.7 | 302.1 | 300.0 | 298.6 | 289.4 | 269.0 | 234.7 | 188.0 |
| 62.5° | 288.4 | 289.7 | 301.6 | 301.2 | 309.1 | 311.0 | 309.5 | 296.3 | 273.9 | 236.2 | 187.1 |
| 65°   | 257.8 | 261.8 | 280.2 | 295.8 | 317.3 | 324.0 | 322.5 | 301.2 | 273.4 | 232.7 | 181.2 |
| 67°   | 221.4 | 225.7 | 254.4 | 282.8 | 316.5 | 330.9 | 329.8 | 304.8 | 268.1 | 223.9 | 170.4 |
| 67.5° | 213.4 | 218.3 | 246.9 | 276.9 | 313.9 | 330.3 | 329.5 | 305.1 | 266.3 | 219.8 | 166.2 |
| 70°   | 157.0 | 162.8 | 203.2 | 243.3 | 292.4 | 313.0 | 312.8 | 293.9 | 247.8 | 197.1 | 144.2 |
| 72.5° | 97.8  | 103.0 | 144.9 | 189.8 | 253.3 | 278.7 | 277.6 | 256.0 | 213.4 | 160.9 | 113.8 |
| 75°   | 59.9  | 63.2  | 91.2  | 123.8 | 183.7 | 225.6 | 227.1 | 200.1 | 145.5 | 95.6  | 64.3  |
| 77.5° | 36.7  | 40.3  | 57.6  | 76.3  | 112.3 | 140.3 | 140.6 | 110.9 | 74.7  | 52.0  | 35.2  |
| 80°   | 20.4  | 21.3  | 30.0  | 40.0  | 57.6  | 57.9  | 55.5  | 48.9  | 38.8  | 25.0  | 18.0  |
| 82.5° | 8.1   | 8.6   | 13.0  | 16.1  | 16.4  | 17.1  | 16.0  | 14.5  | 12.2  | 8.1   | 5.7   |
| 85°   | 0.0   | 0.0   | 0.0   | 0.3   | 1.0   | 2.1   | 2.1   | 1.5   | 0.6   | 0.4   | 0.4   |
| 87.5° | 0.0   | 0.0   | 0.0   | 0.1   | 0.1   | 0.1   | 0.1   | 0.1   | 0.1   | 0.1   | 0.1   |
| 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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CATALOG NUMBER: GKO-PB1A-750-U-T4W

**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 | 122.3 |
| 2.5°  | 122.1 | 122.0 | 120.9 | 119.7 | 118.8 | 118.1 | 117.3 | 116.4 | 116.4 | 116.7 | 116.6 |
| 5°    | 121.8 | 121.1 | 119.1 | 117.0 | 115.4 | 113.9 | 112.6 | 111.4 | 111.2 | 111.4 | 111.5 |
| 7.5°  | 122.0 | 120.6 | 117.6 | 114.5 | 111.8 | 109.9 | 107.9 | 107.1 | 106.9 | 106.9 | 106.9 |
| 10°   | 122.6 | 120.6 | 116.6 | 112.3 | 109.0 | 106.2 | 104.1 | 103.2 | 103.3 | 103.5 | 103.6 |
| 12.5° | 123.6 | 120.9 | 115.9 | 110.3 | 106.2 | 103.3 | 101.2 | 100.5 | 101.1 | 101.8 | 102.0 |
| 15°   | 124.6 | 121.5 | 115.1 | 108.7 | 103.9 | 100.8 | 99.3  | 99.2  | 100.2 | 101.5 | 101.8 |
| 17.5° | 125.8 | 122.0 | 114.2 | 106.6 | 101.5 | 99.0  | 98.3  | 98.7  | 100.3 | 102.4 | 102.9 |
| 20°   | 127.0 | 122.6 | 113.2 | 104.7 | 99.3  | 97.5  | 98.0  | 99.3  | 101.4 | 103.9 | 104.4 |
| 22.5° | 128.2 | 123.0 | 111.8 | 102.3 | 96.9  | 96.3  | 98.0  | 100.2 | 102.3 | 105.1 | 105.7 |
| 25°   | 129.6 | 123.6 | 110.2 | 99.3  | 94.5  | 95.0  | 97.8  | 100.5 | 102.7 | 105.7 | 106.5 |
| 27.5° | 131.7 | 124.5 | 108.5 | 96.6  | 91.8  | 93.3  | 97.1  | 100.3 | 102.7 | 105.6 | 106.5 |
| 30°   | 133.7 | 125.4 | 107.2 | 93.8  | 89.2  | 91.1  | 95.6  | 99.6  | 102.0 | 104.5 | 105.7 |
| 32.5° | 136.1 | 126.6 | 106.0 | 91.0  | 86.2  | 88.6  | 93.5  | 98.0  | 100.8 | 103.0 | 104.2 |
| 35°   | 138.7 | 128.4 | 105.1 | 88.4  | 83.2  | 85.3  | 90.4  | 95.9  | 98.7  | 100.8 | 101.8 |
| 37.5° | 141.9 | 130.3 | 104.5 | 85.9  | 80.1  | 81.9  | 87.1  | 92.9  | 96.2  | 97.8  | 99.2  |
| 40°   | 145.5 | 133.1 | 104.5 | 83.8  | 77.1  | 78.3  | 83.6  | 89.9  | 93.2  | 94.5  | 95.9  |
| 42.5° | 149.1 | 136.0 | 104.4 | 81.7  | 74.0  | 74.8  | 80.2  | 86.6  | 89.8  | 90.8  | 91.8  |
| 45°   | 153.3 | 139.3 | 104.2 | 79.3  | 70.5  | 71.4  | 76.9  | 83.3  | 86.3  | 87.2  | 88.1  |
| 47.5° | 157.7 | 142.5 | 103.6 | 76.3  | 67.4  | 68.1  | 73.7  | 79.6  | 82.6  | 83.6  | 84.5  |
| 50°   | 161.8 | 145.7 | 102.1 | 72.9  | 64.6  | 65.3  | 70.2  | 75.1  | 77.8  | 79.0  | 79.9  |
| 52.5° | 165.4 | 147.9 | 99.7  | 69.0  | 61.4  | 62.3  | 66.1  | 70.4  | 72.5  | 73.4  | 74.0  |
| 55°   | 168.2 | 149.1 | 95.9  | 65.3  | 58.4  | 58.9  | 61.9  | 65.8  | 67.4  | 67.5  | 68.0  |
| 57.5° | 170.1 | 149.0 | 90.7  | 61.0  | 55.5  | 55.6  | 57.7  | 61.1  | 62.3  | 62.2  | 62.5  |
| 60°   | 170.6 | 147.0 | 84.4  | 57.0  | 52.5  | 52.0  | 54.1  | 56.5  | 57.3  | 57.9  | 58.6  |
| 62.5° | 168.8 | 142.4 | 77.2  | 52.9  | 49.5  | 48.8  | 50.2  | 52.3  | 53.5  | 53.8  | 54.1  |
| 65°   | 162.2 | 133.9 | 68.6  | 48.8  | 46.5  | 45.2  | 46.8  | 49.8  | 51.7  | 52.3  | 52.2  |
| 67°   | 150.7 | 122.0 | 61.1  | 45.6  | 43.5  | 42.3  | 44.7  | 47.9  | 49.2  | 50.1  | 50.1  |
| 67.5° | 147.0 | 117.6 | 58.6  | 44.6  | 42.8  | 41.7  | 44.0  | 47.0  | 48.8  | 49.8  | 49.8  |
| 70°   | 124.8 | 96.5  | 49.5  | 39.4  | 38.5  | 38.6  | 41.3  | 44.6  | 46.8  | 47.9  | 47.9  |
| 72.5° | 95.1  | 74.7  | 40.3  | 34.3  | 34.0  | 35.0  | 38.5  | 41.4  | 44.3  | 46.1  | 45.9  |
| 75°   | 54.0  | 43.1  | 29.4  | 28.0  | 29.2  | 31.3  | 35.6  | 38.9  | 41.4  | 43.2  | 43.1  |
| 77.5° | 31.5  | 25.9  | 20.3  | 19.2  | 22.7  | 27.4  | 31.9  | 36.1  | 37.9  | 38.5  | 38.0  |
| 80°   | 16.0  | 13.6  | 12.7  | 13.1  | 15.2  | 20.4  | 27.9  | 32.8  | 34.1  | 34.6  | 34.1  |
| 82.5° | 5.1   | 4.6   | 5.1   | 6.7   | 10.1  | 16.1  | 22.5  | 29.7  | 31.3  | 31.3  | 31.2  |
| 85°   | 0.3   | 0.3   | 0.3   | 3.0   | 7.0   | 11.9  | 17.6  | 25.9  | 29.4  | 29.1  | 28.6  |
| 87.5° | 0.1   | 0.1   | 0.1   | 1.9   | 5.5   | 10.0  | 15.5  | 23.6  | 28.0  | 25.9  | 24.5  |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP2-2501-321-5

Test Date: 04/10/2025

Luminaire Tested: GKO-PB1E-750-U-T4W

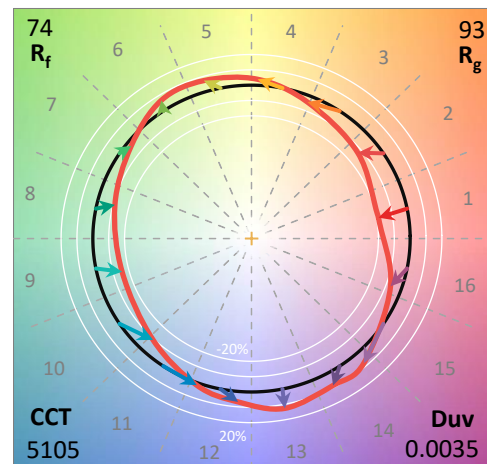
Data in this report applies to families of products including GKO-PB1E-750-U-T4W

### Test Information

Test Method: LM-79-2019  
 Report Number: SP2-2501-321-5  
 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-750-U-T4W**  
 Description: Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution

### Spectral Parameters

|                           |          |           |      |      |       |
|---------------------------|----------|-----------|------|------|-------|
| CCT (K):                  | 5105     | CRI (Ra): | 72.2 |      |       |
| CIE u':                   | 0.2079   | R1:       | 68.8 | R9:  | -38.2 |
| CIE v':                   | 0.4868   | R2:       | 78.3 | R10: | 48.2  |
| Duv:                      | 0.0035   | R3:       | 84.9 | R11: | 68.1  |
| CIE x:                    | 0.3428   | R4:       | 71.7 | R12: | 42.9  |
| CIE y:                    | 0.3567   | R5:       | 69.8 | R13: | 70.6  |
| CIE z:                    | 0.3005   | R6:       | 69.8 | R14: | 91.6  |
| Peak Wavelength (nm):     | 451      | R7:       | 81.2 | R15: | 61.7  |
| Dominant Wavelength (nm): | 567      | R8:       | 53.5 |      |       |
| Purity:                   | 9.884628 |           |      |      |       |
| Rf:                       | 74.2     |           |      |      |       |
| Rg:                       | 92.7     |           |      |      |       |



### Test Conditions

Stabilization Time: 30M  
 Operation Time: 1H 30M  
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP2-2501-321-5

| 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           |

REPORT NUMBER: SP2-2501-321-5

**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

| 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    | 134                      | NR            | 620    | 390                      | NR            | 750    | 10                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 165                      | NR            | 625    | 354                      | NR            | 755    | 9                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 218                      | NR            | 630    | 319                      | NR            | 760    | 8                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 281                      | NR            | 635    | 285                      | NR            | 765    | 7                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 343                      | NR            | 640    | 254                      | NR            | 770    | 6                        | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 400                      | NR            | 645    | 224                      | NR            | 775    | 5                        | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 444                      | NR            | 650    | 197                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 477                      | NR            | 655    | 173                      | NR            | 785    | 4                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 501                      | NR            | 660    | 150                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 9                        | NR            | 535    | 520                      | NR            | 665    | 131                      | NR            | 795    | 3                        | NR            | 925    | 0                        | NR            |
| 410    | 14                       | NR            | 540    | 534                      | NR            | 670    | 113                      | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 26                       | NR            | 545    | 547                      | NR            | 675    | 98                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 50                       | NR            | 550    | 561                      | NR            | 680    | 85                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 95                       | NR            | 555    | 574                      | NR            | 685    | 73                       | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 168                      | NR            | 560    | 586                      | NR            | 690    | 63                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 284                      | NR            | 565    | 596                      | NR            | 695    | 54                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 452                      | NR            | 570    | 604                      | NR            | 700    | 46                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 705                      | NR            | 575    | 606                      | NR            | 705    | 40                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 980                      | NR            | 580    | 603                      | NR            | 710    | 34                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 869                      | NR            | 585    | 592                      | NR            | 715    | 29                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 531                      | NR            | 590    | 577                      | NR            | 720    | 25                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 372                      | NR            | 595    | 554                      | NR            | 725    | 22                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 268                      | NR            | 600    | 527                      | NR            | 730    | 19                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 174                      | NR            | 605    | 497                      | NR            | 735    | 16                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 135                      | NR            | 610    | 462                      | NR            | 740    | 14                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 126                      | NR            | 615    | 428                      | NR            | 745    | 12                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.82

| 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    | 134                      | NR            | 620    | 390                      | NR            | 750    | 10                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 165                      | NR            | 625    | 354                      | NR            | 755    | 9                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 218                      | NR            | 630    | 319                      | NR            | 760    | 8                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 281                      | NR            | 635    | 285                      | NR            | 765    | 7                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 343                      | NR            | 640    | 254                      | NR            | 770    | 6                        | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 400                      | NR            | 645    | 224                      | NR            | 775    | 5                        | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 444                      | NR            | 650    | 197                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 477                      | NR            | 655    | 173                      | NR            | 785    | 4                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 501                      | NR            | 660    | 150                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 9                        | NR            | 535    | 520                      | NR            | 665    | 131                      | NR            | 795    | 3                        | NR            | 925    | 0                        | NR            |
| 410    | 14                       | NR            | 540    | 534                      | NR            | 670    | 113                      | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 26                       | NR            | 545    | 547                      | NR            | 675    | 98                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 50                       | NR            | 550    | 561                      | NR            | 680    | 85                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 95                       | NR            | 555    | 574                      | NR            | 685    | 73                       | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 168                      | NR            | 560    | 586                      | NR            | 690    | 63                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 284                      | NR            | 565    | 596                      | NR            | 695    | 54                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 452                      | NR            | 570    | 604                      | NR            | 700    | 46                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 705                      | NR            | 575    | 606                      | NR            | 705    | 40                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 980                      | NR            | 580    | 603                      | NR            | 710    | 34                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 869                      | NR            | 585    | 592                      | NR            | 715    | 29                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 531                      | NR            | 590    | 577                      | NR            | 720    | 25                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 372                      | NR            | 595    | 554                      | NR            | 725    | 22                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 268                      | NR            | 600    | 527                      | NR            | 730    | 19                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 174                      | NR            | 605    | 497                      | NR            | 735    | 16                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 135                      | NR            | 610    | 462                      | NR            | 740    | 14                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 126                      | NR            | 615    | 428                      | NR            | 745    | 12                       | NR            | 875    | 0                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.75

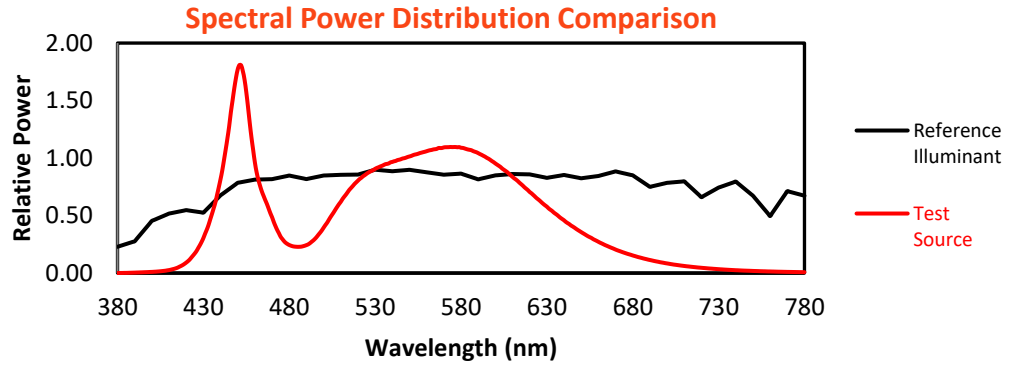
| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 134                      | NR            | 620    | 390                      | NR            | 750    | 10                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 165                      | NR            | 625    | 354                      | NR            | 755    | 9                        | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 218                      | NR            | 630    | 319                      | NR            | 760    | 8                        | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 281                      | NR            | 635    | 285                      | NR            | 765    | 7                        | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 343                      | NR            | 640    | 254                      | NR            | 770    | 6                        | NR            | 900    | 0                        | NR            |
| 385    | 1                        | NR            | 515    | 400                      | NR            | 645    | 224                      | NR            | 775    | 5                        | NR            | 905    | 0                        | NR            |
| 390    | 2                        | NR            | 520    | 444                      | NR            | 650    | 197                      | NR            | 780    | 4                        | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 477                      | NR            | 655    | 173                      | NR            | 785    | 4                        | NR            | 915    | 0                        | NR            |
| 400    | 6                        | NR            | 530    | 501                      | NR            | 660    | 150                      | NR            | 790    | 3                        | NR            | 920    | 0                        | NR            |
| 405    | 9                        | NR            | 535    | 520                      | NR            | 665    | 131                      | NR            | 795    | 3                        | NR            | 925    | 0                        | NR            |
| 410    | 14                       | NR            | 540    | 534                      | NR            | 670    | 113                      | NR            | 800    | 2                        | NR            | 930    | 0                        | NR            |
| 415    | 26                       | NR            | 545    | 547                      | NR            | 675    | 98                       | NR            | 805    | 2                        | NR            | 935    | 0                        | NR            |
| 420    | 50                       | NR            | 550    | 561                      | NR            | 680    | 85                       | NR            | 810    | 2                        | NR            | 940    | 0                        | NR            |
| 425    | 95                       | NR            | 555    | 574                      | NR            | 685    | 73                       | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 168                      | NR            | 560    | 586                      | NR            | 690    | 63                       | NR            | 820    | 1                        | NR            | 950    | 0                        | NR            |
| 435    | 284                      | NR            | 565    | 596                      | NR            | 695    | 54                       | NR            | 825    | 1                        | NR            | 955    | 0                        | NR            |
| 440    | 452                      | NR            | 570    | 604                      | NR            | 700    | 46                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 705                      | NR            | 575    | 606                      | NR            | 705    | 40                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 980                      | NR            | 580    | 603                      | NR            | 710    | 34                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 869                      | NR            | 585    | 592                      | NR            | 715    | 29                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 531                      | NR            | 590    | 577                      | NR            | 720    | 25                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 372                      | NR            | 595    | 554                      | NR            | 725    | 22                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 268                      | NR            | 600    | 527                      | NR            | 730    | 19                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 174                      | NR            | 605    | 497                      | NR            | 735    | 16                       | NR            | 865    | 0                        | NR            | 995    | 0                        | NR            |
| 480    | 135                      | NR            | 610    | 462                      | NR            | 740    | 14                       | NR            | 870    | 0                        | NR            | 1000   | 0                        | NR            |
| 485    | 126                      | NR            | 615    | 428                      | NR            | 745    | 12                       | NR            | 875    | 0                        | NR            |        |                          |               |

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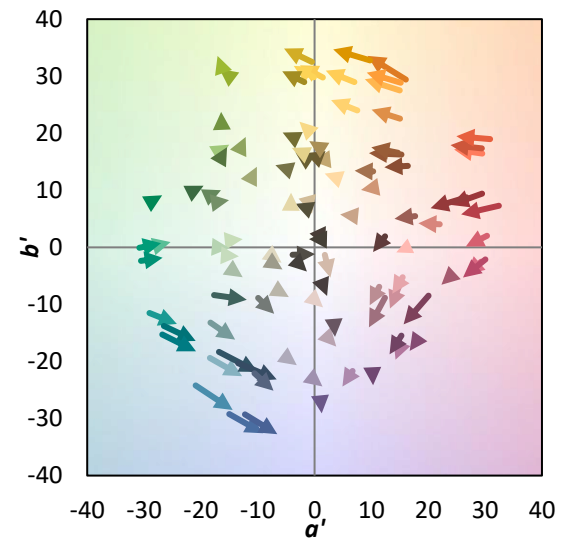
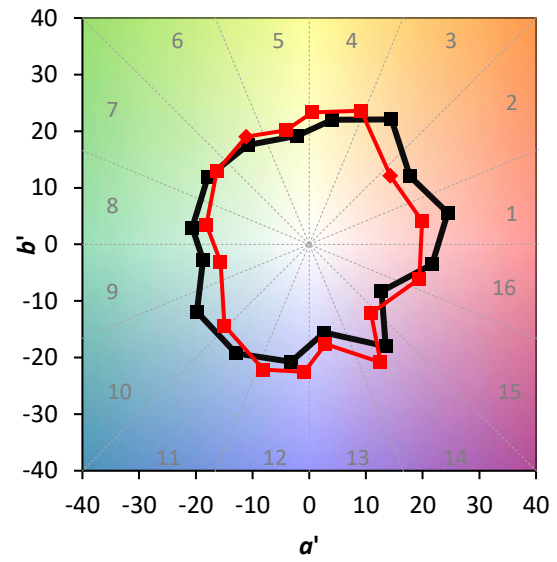
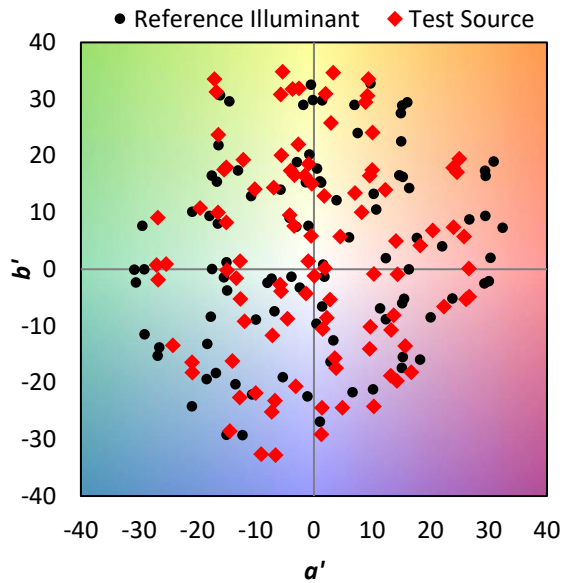
TM-30-18

### Summary

$R_f = 74.2$   
 $R_g = 92.7$   
 $CIE R_a = 72.2$   
 $R_g = -38.2$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 63 | CES51 = 89 | CES76 = 51 |
| CES02 = 59 | CES27 = 89 | CES52 = 89 | CES77 = 68 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 69 | CES54 = 84 | CES79 = 80 |
| CES05 = 46 | CES30 = 88 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 72 | CES56 = 74 | CES81 = 79 |
| CES07 = 38 | CES32 = 63 | CES57 = 73 | CES82 = 91 |
| CES08 = 38 | CES33 = 82 | CES58 = 74 | CES83 = 90 |
| CES09 = 29 | CES34 = 70 | CES59 = 86 | CES84 = 85 |
| CES10 = 72 | CES35 = 83 | CES60 = 88 | CES85 = 78 |
| CES11 = 56 | CES36 = 88 | CES61 = 82 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 81 | CES87 = 77 |
| CES13 = 41 | CES38 = 98 | CES63 = 73 | CES88 = 81 |
| CES14 = 74 | CES39 = 97 | CES64 = 64 | CES89 = 73 |
| CES15 = 70 | CES40 = 91 | CES65 = 61 | CES90 = 80 |
| CES16 = 46 | CES41 = 96 | CES66 = 56 | CES91 = 72 |
| CES17 = 49 | CES42 = 80 | CES67 = 54 | CES92 = 58 |
| CES18 = 55 | CES43 = 79 | CES68 = 64 | CES93 = 75 |
| CES19 = 71 | CES44 = 99 | CES69 = 73 | CES94 = 53 |
| CES20 = 63 | CES45 = 87 | CES70 = 56 | CES95 = 64 |
| CES21 = 85 | CES46 = 85 | CES71 = 47 | CES96 = 76 |
| CES22 = 77 | CES47 = 90 | CES72 = 82 | CES97 = 86 |
| CES23 = 91 | CES48 = 80 | CES73 = 47 | CES98 = 76 |
| CES24 = 90 | CES49 = 83 | CES74 = 90 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 50 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)