

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: P1211925

Luminaire Tested: **GKO-PB1B-840-U-T2R**

Issue Date: 11/5/2025

**Test Information**

Test Method: LM-79-08  
Report Number: P1211925  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 11/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB1B-840-U-T2R  
Description: GEKKO WALL PACK 1500LM PACKAGE 80CRI 4000K FIXTURE w/ TYPE II  
ROADWAY DISTRIBUTION OPTIC  
Light Source: (10) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

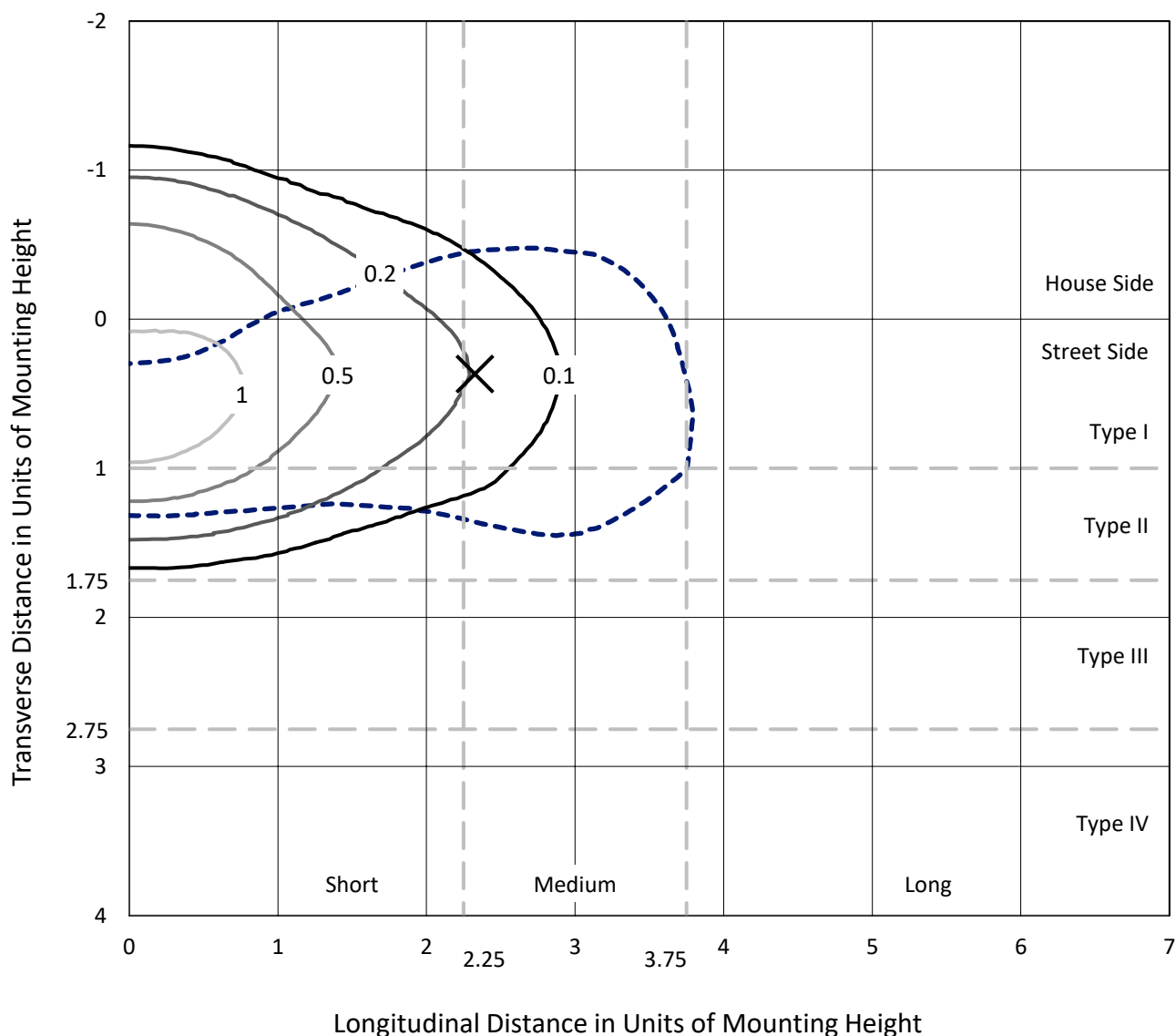
Lumens per Lamp: N/A  
Luminaire Lumens: 1401.5 lumens  
Efficiency: N/A  
Efficacy: 150.7 lumens/watt  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B1 - U0 - G1

Input Watts (W): 9.3  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): 14%  
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

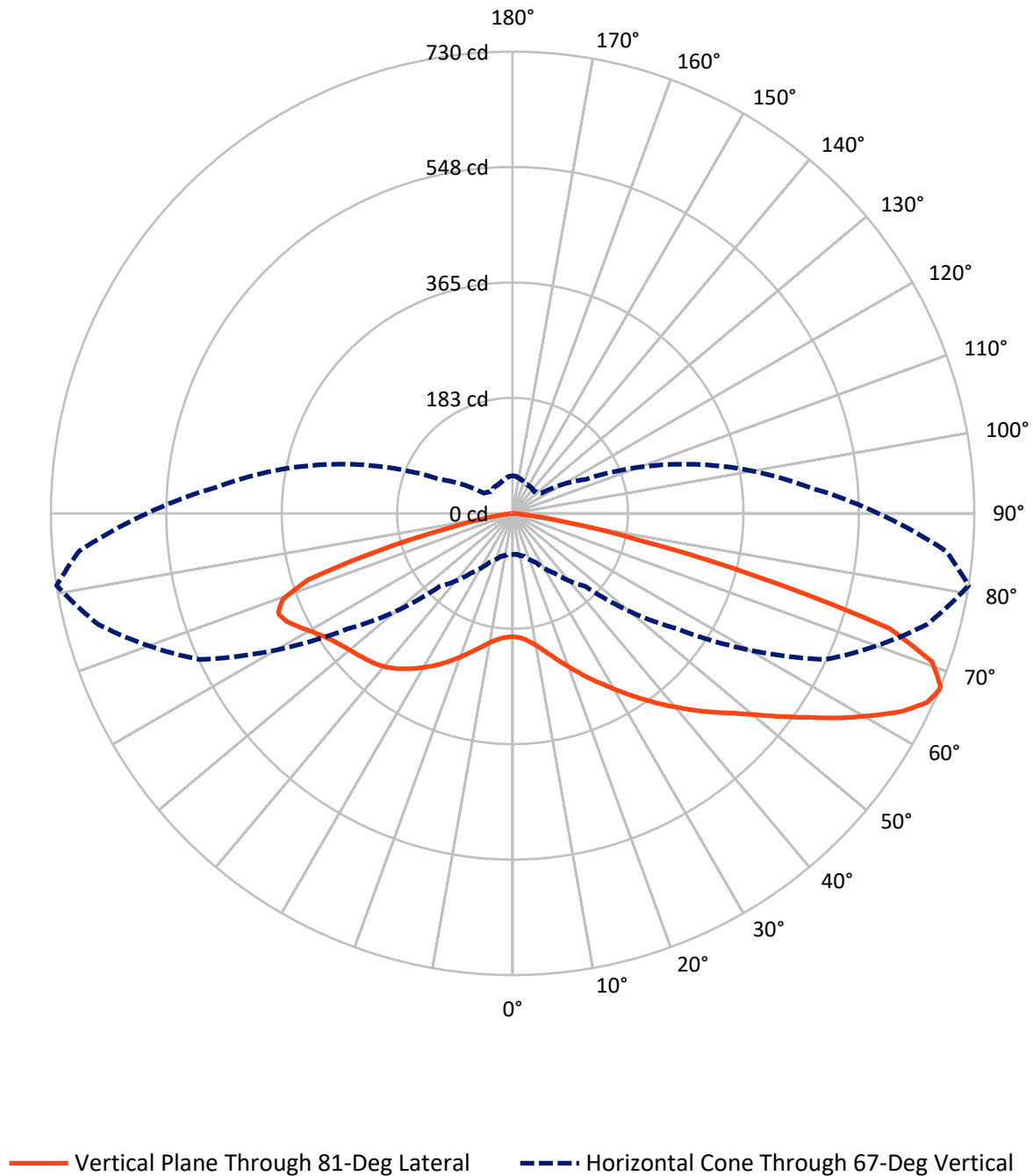
× Max cd  
 --- 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.7 fc  
 Type II - Medium - N/A

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## Luminous Intensity Polar Plot



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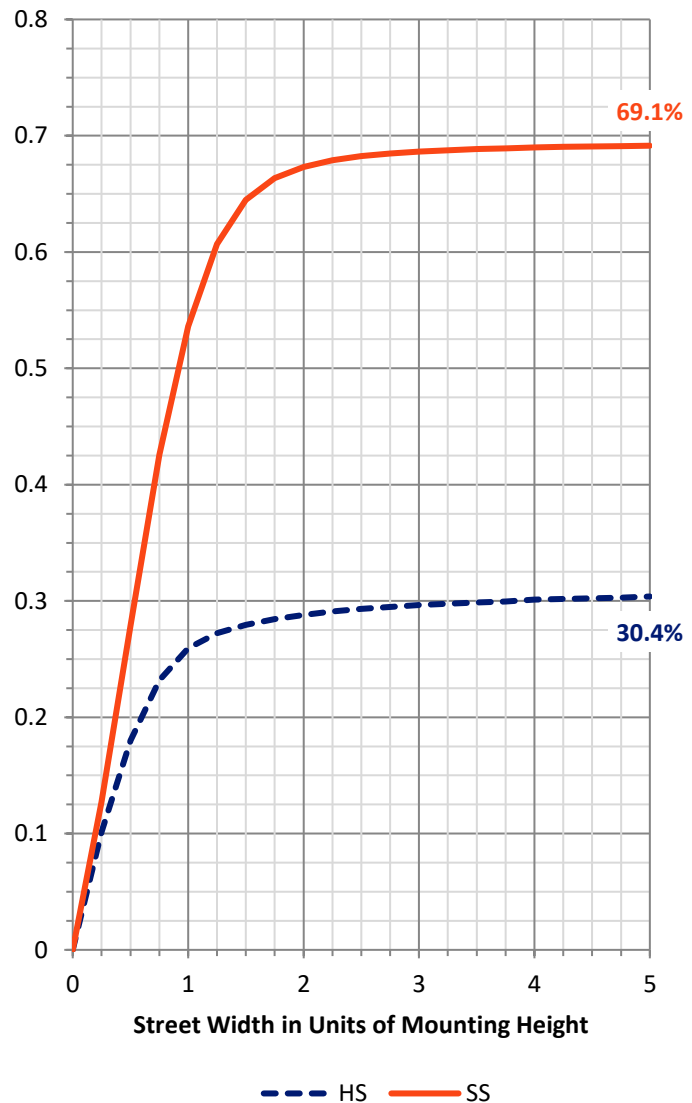
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 432.8    | 0.0    | 432.8  |
|                    | % Fixture | 30.9     | 0.0    | 30.9   |
| <b>Street Side</b> | Lumens    | 968.7    | 0.0    | 968.7  |
|                    | % Fixture | 69.1     | 0.0    | 69.1   |
| <b>Total</b>       | Lumens    | 1401.5   | 0.0    | 1401.5 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 20.2   | 1.4       |
| 10°-20°   | 73.2   | 5.2       |
| 20°-30°   | 148.3  | 10.6      |
| 30°-40°   | 233.8  | 16.7      |
| 40°-50°   | 287.1  | 20.5      |
| 50°-60°   | 274.3  | 19.6      |
| 60°-70°   | 230.0  | 16.4      |
| 70°-80°   | 121.9  | 8.7       |
| 80°-90°   | 12.6   | 0.9       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 1401.5 | 100.0     |
| 0°-180°   | 1401.5 | 100.0     |

**Coefficient of Utilization**



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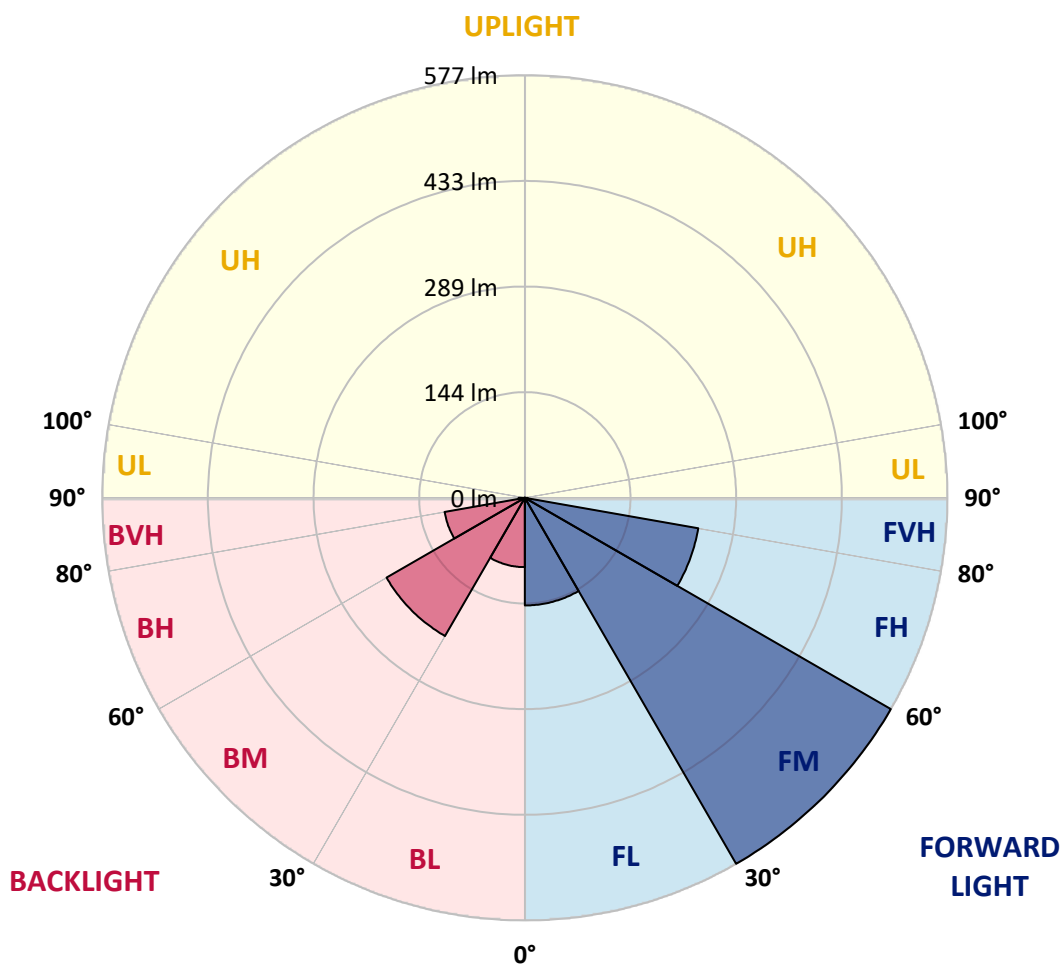
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|--------|-----------|-------------------------|------|--------|
|      |             |        |           | B                       | U    | G      |
| FL   | (0°-30°)    | 147.0  | 10.5      |                         |      |        |
| FM   | (30°-60°)   | 577.2  | 41.2      |                         |      |        |
| FH   | (60°-80°)   | 240.6  | 17.2      |                         |      | G0/660 |
| FVH  | (80°-90°)   | 3.9    | 0.3       |                         |      | G0/10  |
| BL   | (0°-30°)    | 94.7   | 6.8       | B0/110                  |      |        |
| BM   | (30°-60°)   | 218.1  | 15.6      | B0/220                  |      |        |
| BH   | (60°-80°)   | 111.3  | 7.9       | B1/500                  |      | G1/500 |
| BVH  | (80°-90°)   | 8.7    | 0.6       |                         |      | G0/10  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |        |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |        |

**BUG Rating: B1-U0-G1**

Type II Medium



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 5°    | 15°   | 25°   | 35°   | 45°   | 55°   | 65°   | 75°   | 81°   | 85°   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 |
| 2.5°  | 206.5 | 207.0 | 206.0 | 205.7 | 204.6 | 203.0 | 201.1 | 199.8 | 197.6 | 196.6 | 196.0 |
| 5°    | 226.1 | 225.0 | 224.2 | 222.8 | 219.1 | 215.9 | 210.5 | 206.8 | 202.7 | 200.1 | 199.2 |
| 7.5°  | 249.9 | 250.5 | 247.8 | 244.3 | 238.9 | 232.5 | 223.9 | 216.9 | 209.4 | 206.0 | 204.3 |
| 10°   | 275.9 | 278.1 | 275.4 | 271.1 | 260.9 | 251.3 | 240.8 | 228.7 | 218.6 | 213.2 | 211.0 |
| 12.5° | 307.6 | 308.9 | 305.4 | 299.8 | 287.5 | 273.0 | 258.2 | 243.2 | 229.8 | 223.1 | 219.4 |
| 15°   | 343.0 | 341.9 | 338.4 | 330.1 | 314.3 | 298.2 | 278.1 | 258.5 | 242.7 | 234.4 | 229.0 |
| 17.5° | 379.5 | 378.1 | 373.6 | 362.8 | 344.9 | 324.7 | 300.9 | 276.2 | 256.4 | 247.2 | 240.0 |
| 20°   | 414.3 | 413.0 | 409.8 | 397.7 | 376.0 | 351.3 | 323.4 | 296.6 | 271.9 | 260.7 | 252.6 |
| 22.5° | 452.9 | 451.9 | 446.8 | 432.0 | 408.7 | 381.6 | 349.2 | 317.2 | 288.8 | 275.4 | 265.8 |
| 25°   | 494.8 | 495.0 | 489.4 | 468.8 | 442.5 | 410.8 | 376.8 | 340.6 | 307.9 | 291.0 | 280.0 |
| 27.5° | 543.6 | 543.3 | 533.6 | 511.4 | 478.4 | 441.9 | 404.1 | 365.0 | 326.6 | 306.8 | 294.2 |
| 30°   | 587.8 | 586.7 | 576.0 | 553.8 | 515.7 | 474.7 | 433.1 | 388.6 | 347.8 | 324.2 | 308.9 |
| 32.5° | 620.5 | 620.8 | 612.0 | 587.5 | 550.3 | 506.6 | 460.2 | 415.1 | 368.2 | 343.0 | 326.1 |
| 35°   | 644.1 | 644.4 | 635.8 | 614.9 | 580.0 | 536.3 | 488.9 | 440.1 | 391.0 | 362.3 | 344.1 |
| 37.5° | 651.6 | 651.6 | 646.0 | 629.7 | 601.2 | 563.1 | 517.0 | 468.5 | 413.8 | 383.2 | 362.3 |
| 40°   | 641.5 | 642.3 | 642.0 | 631.3 | 611.7 | 581.7 | 543.0 | 495.8 | 439.3 | 403.9 | 380.8 |
| 42.5° | 618.4 | 618.9 | 619.7 | 615.7 | 609.5 | 591.6 | 564.0 | 523.7 | 464.7 | 426.4 | 399.0 |
| 45°   | 580.3 | 582.5 | 586.5 | 588.1 | 590.5 | 589.2 | 576.8 | 549.7 | 493.2 | 448.9 | 417.0 |
| 47.5° | 532.0 | 535.5 | 540.9 | 550.5 | 564.0 | 574.7 | 580.0 | 569.9 | 520.8 | 472.2 | 437.1 |
| 50°   | 465.0 | 468.8 | 483.2 | 503.3 | 529.9 | 550.8 | 571.2 | 584.9 | 551.6 | 500.7 | 459.6 |
| 52.5° | 372.2 | 380.3 | 404.7 | 443.3 | 488.9 | 520.0 | 552.4 | 592.1 | 583.0 | 534.2 | 486.5 |
| 55°   | 283.2 | 286.1 | 317.5 | 363.9 | 434.2 | 486.7 | 526.7 | 588.4 | 612.5 | 569.3 | 517.0 |
| 57.5° | 197.9 | 201.1 | 228.5 | 279.2 | 356.9 | 443.3 | 500.9 | 575.8 | 639.3 | 610.6 | 552.2 |
| 60°   | 140.5 | 144.0 | 164.4 | 201.9 | 277.3 | 380.0 | 477.1 | 559.7 | 662.6 | 649.8 | 592.6 |
| 62.5° | 102.2 | 104.0 | 114.8 | 146.4 | 200.3 | 297.1 | 443.0 | 549.2 | 679.0 | 690.5 | 634.2 |
| 65°   | 78.3  | 80.2  | 86.3  | 106.2 | 148.0 | 217.2 | 381.9 | 548.9 | 683.3 | 720.6 | 670.1 |
| 67°   | 65.2  | 64.9  | 70.3  | 85.3  | 115.6 | 163.3 | 318.8 | 546.8 | 678.5 | 730.2 | 688.4 |
| 67.5° | 61.7  | 62.8  | 67.0  | 79.6  | 109.1 | 150.4 | 305.2 | 543.3 | 676.8 | 729.9 | 689.7 |
| 70°   | 49.1  | 49.3  | 53.1  | 63.0  | 82.1  | 109.1 | 219.6 | 509.0 | 652.4 | 703.7 | 674.7 |
| 72.5° | 35.9  | 35.7  | 41.3  | 47.7  | 62.8  | 79.4  | 147.2 | 427.5 | 599.6 | 623.5 | 599.9 |
| 75°   | 26.5  | 26.3  | 29.2  | 36.5  | 44.8  | 59.3  | 95.5  | 278.9 | 406.0 | 396.6 | 366.3 |
| 77.5° | 17.7  | 18.2  | 20.9  | 26.8  | 31.9  | 36.7  | 47.7  | 128.5 | 223.6 | 202.2 | 194.7 |
| 80°   | 10.7  | 9.9   | 11.8  | 15.3  | 18.5  | 18.8  | 20.4  | 55.5  | 96.0  | 91.4  | 85.8  |
| 82.5° | 3.8   | 3.8   | 4.6   | 6.2   | 6.2   | 6.2   | 7.5   | 13.4  | 19.0  | 17.4  | 16.6  |
| 85°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.5   | 0.8   | 0.5   | 1.1   | 1.9   | 2.1   | 2.1   |
| 87.5° | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.3   | 0.3   | 0.5   | 0.8   | 1.1   | 1.1   |
| 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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**CANDELA DISTRIBUTION (continued):**

|       | 90°   | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 | 195.2 |
| 2.5°  | 196.0 | 196.0 | 195.2 | 194.2 | 193.6 | 193.3 | 192.5 | 191.5 | 192.3 | 193.1 | 193.1 |
| 5°    | 198.7 | 198.2 | 196.6 | 195.5 | 194.7 | 194.7 | 193.6 | 193.3 | 194.2 | 195.0 | 194.7 |
| 7.5°  | 203.0 | 201.9 | 200.1 | 198.4 | 198.7 | 199.0 | 197.4 | 197.4 | 198.2 | 199.0 | 199.0 |
| 10°   | 208.9 | 207.0 | 205.1 | 203.8 | 204.1 | 204.3 | 202.7 | 202.2 | 203.0 | 203.8 | 204.3 |
| 12.5° | 216.4 | 214.0 | 211.9 | 210.5 | 210.2 | 210.5 | 208.9 | 208.4 | 208.4 | 208.9 | 208.9 |
| 15°   | 225.3 | 222.6 | 219.9 | 218.0 | 217.5 | 217.2 | 215.1 | 213.2 | 213.2 | 213.5 | 213.5 |
| 17.5° | 235.4 | 231.7 | 228.2 | 226.1 | 224.7 | 222.8 | 220.4 | 217.8 | 216.9 | 217.2 | 217.2 |
| 20°   | 245.6 | 241.6 | 237.1 | 234.1 | 231.4 | 228.2 | 224.5 | 221.0 | 219.4 | 219.4 | 219.1 |
| 22.5° | 257.4 | 252.1 | 245.9 | 241.9 | 237.1 | 231.7 | 226.3 | 221.8 | 220.2 | 219.6 | 219.6 |
| 25°   | 269.5 | 263.3 | 254.5 | 248.3 | 241.3 | 233.6 | 226.6 | 220.4 | 217.8 | 216.7 | 216.7 |
| 27.5° | 281.8 | 274.6 | 263.1 | 254.2 | 244.0 | 233.3 | 223.9 | 216.1 | 212.4 | 211.0 | 210.5 |
| 30°   | 295.8 | 285.3 | 270.6 | 258.5 | 244.6 | 230.9 | 218.8 | 209.7 | 204.1 | 200.9 | 201.1 |
| 32.5° | 310.3 | 297.1 | 277.6 | 261.2 | 243.8 | 226.3 | 211.0 | 199.5 | 192.3 | 189.3 | 188.3 |
| 35°   | 325.0 | 308.4 | 283.7 | 262.5 | 241.1 | 219.4 | 201.1 | 188.3 | 180.2 | 175.9 | 175.9 |
| 37.5° | 340.0 | 320.2 | 288.0 | 262.3 | 236.3 | 210.2 | 189.6 | 175.9 | 166.5 | 161.2 | 159.8 |
| 40°   | 354.8 | 331.2 | 291.2 | 260.1 | 229.0 | 199.2 | 177.3 | 162.5 | 149.9 | 142.9 | 141.9 |
| 42.5° | 369.3 | 340.3 | 292.8 | 256.6 | 220.4 | 187.2 | 163.3 | 143.5 | 131.4 | 125.0 | 124.7 |
| 45°   | 382.4 | 347.5 | 293.1 | 252.1 | 209.2 | 173.5 | 144.5 | 125.5 | 113.4 | 106.7 | 106.7 |
| 47.5° | 395.3 | 355.6 | 292.8 | 246.2 | 196.8 | 155.8 | 124.7 | 106.2 | 95.2  | 90.9  | 89.6  |
| 50°   | 410.8 | 363.6 | 292.6 | 238.9 | 181.0 | 134.6 | 105.4 | 89.6  | 80.2  | 75.9  | 75.9  |
| 52.5° | 426.7 | 373.0 | 293.1 | 228.7 | 162.2 | 114.0 | 88.2  | 74.3  | 68.1  | 65.4  | 65.2  |
| 55°   | 447.0 | 382.9 | 294.4 | 216.7 | 142.7 | 93.9  | 73.5  | 64.1  | 59.8  | 58.5  | 58.7  |
| 57.5° | 471.7 | 396.6 | 297.1 | 202.5 | 119.9 | 77.0  | 63.0  | 57.9  | 56.9  | 57.4  | 57.7  |
| 60°   | 499.9 | 413.5 | 300.9 | 186.4 | 99.8  | 64.1  | 56.9  | 55.8  | 56.9  | 59.0  | 59.3  |
| 62.5° | 532.6 | 433.9 | 305.7 | 168.4 | 79.9  | 56.3  | 54.2  | 55.0  | 55.8  | 59.3  | 59.5  |
| 65°   | 561.5 | 455.9 | 306.8 | 147.2 | 64.9  | 51.2  | 52.6  | 53.1  | 55.2  | 59.3  | 59.5  |
| 67°   | 577.9 | 470.9 | 299.5 | 127.1 | 55.5  | 48.5  | 50.4  | 51.0  | 54.7  | 58.7  | 59.3  |
| 67.5° | 579.8 | 474.1 | 294.7 | 122.0 | 53.6  | 48.0  | 49.9  | 51.0  | 54.7  | 58.7  | 59.0  |
| 70°   | 574.1 | 472.0 | 262.5 | 92.0  | 44.2  | 44.2  | 46.4  | 48.8  | 52.6  | 56.9  | 58.7  |
| 72.5° | 524.0 | 430.4 | 203.3 | 62.5  | 37.5  | 40.0  | 43.2  | 46.7  | 50.1  | 55.2  | 58.5  |
| 75°   | 331.2 | 277.0 | 124.4 | 41.8  | 31.4  | 35.7  | 40.8  | 44.8  | 47.7  | 51.5  | 53.6  |
| 77.5° | 177.0 | 137.0 | 53.6  | 24.7  | 24.7  | 31.6  | 37.8  | 41.6  | 43.2  | 44.5  | 45.9  |
| 80°   | 83.7  | 63.8  | 26.0  | 14.7  | 17.2  | 24.7  | 33.5  | 37.5  | 38.1  | 39.7  | 40.2  |
| 82.5° | 16.6  | 14.5  | 8.6   | 7.8   | 11.3  | 17.7  | 27.9  | 32.4  | 32.7  | 35.4  | 35.9  |
| 85°   | 2.1   | 1.9   | 1.3   | 2.9   | 7.2   | 13.1  | 21.5  | 27.9  | 28.4  | 28.4  | 27.9  |
| 87.5° | 1.1   | 0.8   | 0.8   | 2.1   | 5.4   | 9.9   | 17.7  | 23.3  | 23.6  | 18.5  | 18.0  |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP3-2511-595-3

Test Date: 11/12/2025

Luminaire Tested: GKO-PB1C-840-U-T4W

Data in this report applies to families of products including GKO-PB1C-840\*

### Test Information

Test Method: LM-79-2019  
 Report Number: SP3-2511-595-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP3 - 3M SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 01/27/2026  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GKO-PB1C-840-U-T4W**  
 Description: Gekko Wedge Wall Pack Fixture 1 SQ w/ T4W distribution

### Spectral Parameters

CCT (K): 3958  
 CIE  $u'$ : 0.2251  
 CIE  $v'$ : 0.5041  
 Duv: 0.0014  
 CIE x: 0.3833  
 CIE y: 0.3816  
 CIE z: 0.2351  
 Peak Wavelength (nm): 450  
 Dominant Wavelength (nm): 578  
 Purity: 29.56261  
 R<sub>f</sub>: 82.9  
 R<sub>g</sub>: 94.7

CRI (Ra): 80.8  
 R1: 78.3  
 R2: 87.6  
 R3: 95.0  
 R4: 79.6  
 R5: 78.8  
 R6: 83.3  
 R7: 84.3  
 R8: 59.4  
 R9: -5.1  
 R10: 71.4  
 R11: 78.5  
 R12: 60.5  
 R13: 80.5  
 R14: 97.5  
 R15: 70.7



### Test Conditions

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

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

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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 4000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

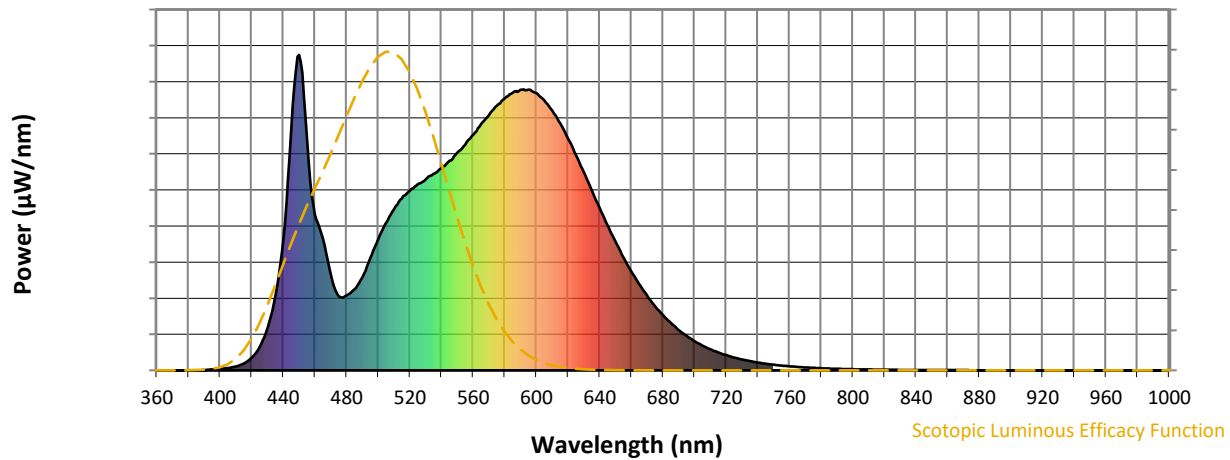


### Photopic Lumens: NR

| 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    | 296                      | NR            | 620    | 736                      | NR            | 750    | 18                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 355                      | NR            | 625    | 683                      | NR            | 755    | 15                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 415                      | NR            | 630    | 628                      | NR            | 760    | 13                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 468                      | NR            | 635    | 571                      | NR            | 765    | 11                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 511                      | NR            | 640    | 515                      | NR            | 770    | 9                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 545                      | NR            | 645    | 460                      | NR            | 775    | 8                        | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 570                      | NR            | 650    | 408                      | NR            | 780    | 7                        | NR            | 910    | 0                        | NR            |
| 395    | 3                        | NR            | 525    | 590                      | NR            | 655    | 359                      | NR            | 785    | 6                        | NR            | 915    | 0                        | NR            |
| 400    | 5                        | NR            | 530    | 606                      | NR            | 660    | 313                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 7                        | NR            | 535    | 623                      | NR            | 665    | 273                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 12                       | NR            | 540    | 641                      | NR            | 670    | 236                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 22                       | NR            | 545    | 664                      | NR            | 675    | 204                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 40                       | NR            | 550    | 690                      | NR            | 680    | 175                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 73                       | NR            | 555    | 715                      | NR            | 685    | 151                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 133                      | NR            | 560    | 747                      | NR            | 690    | 128                      | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 236                      | NR            | 565    | 781                      | NR            | 695    | 109                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 416                      | NR            | 570    | 809                      | NR            | 700    | 93                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 757                      | NR            | 575    | 840                      | NR            | 705    | 78                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 1000                     | NR            | 580    | 863                      | NR            | 710    | 67                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 730                      | NR            | 585    | 880                      | NR            | 715    | 57                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 494                      | NR            | 590    | 890                      | NR            | 720    | 48                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 419                      | NR            | 595    | 890                      | NR            | 725    | 41                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 305                      | NR            | 600    | 879                      | NR            | 730    | 35                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 235                      | NR            | 605    | 856                      | NR            | 735    | 29                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 237                      | NR            | 610    | 824                      | NR            | 740    | 25                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 257                      | NR            | 615    | 783                      | NR            | 745    | 21                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.65

| 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    | 296                      | NR            | 620    | 736                      | NR            | 750    | 18                       | NR            | 880    | 0                        | NR            |
| 365    | 0                        | NR            | 495    | 355                      | NR            | 625    | 683                      | NR            | 755    | 15                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 415                      | NR            | 630    | 628                      | NR            | 760    | 13                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 468                      | NR            | 635    | 571                      | NR            | 765    | 11                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 511                      | NR            | 640    | 515                      | NR            | 770    | 9                        | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 545                      | NR            | 645    | 460                      | NR            | 775    | 8                        | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 570                      | NR            | 650    | 408                      | NR            | 780    | 7                        | NR            | 910    | 0                        | NR            |
| 395    | 3                        | NR            | 525    | 590                      | NR            | 655    | 359                      | NR            | 785    | 6                        | NR            | 915    | 0                        | NR            |
| 400    | 5                        | NR            | 530    | 606                      | NR            | 660    | 313                      | NR            | 790    | 5                        | NR            | 920    | 0                        | NR            |
| 405    | 7                        | NR            | 535    | 623                      | NR            | 665    | 273                      | NR            | 795    | 4                        | NR            | 925    | 0                        | NR            |
| 410    | 12                       | NR            | 540    | 641                      | NR            | 670    | 236                      | NR            | 800    | 4                        | NR            | 930    | 0                        | NR            |
| 415    | 22                       | NR            | 545    | 664                      | NR            | 675    | 204                      | NR            | 805    | 3                        | NR            | 935    | 0                        | NR            |
| 420    | 40                       | NR            | 550    | 690                      | NR            | 680    | 175                      | NR            | 810    | 3                        | NR            | 940    | 0                        | NR            |
| 425    | 73                       | NR            | 555    | 715                      | NR            | 685    | 151                      | NR            | 815    | 2                        | NR            | 945    | 0                        | NR            |
| 430    | 133                      | NR            | 560    | 747                      | NR            | 690    | 128                      | NR            | 820    | 2                        | NR            | 950    | 0                        | NR            |
| 435    | 236                      | NR            | 565    | 781                      | NR            | 695    | 109                      | NR            | 825    | 2                        | NR            | 955    | 0                        | NR            |
| 440    | 416                      | NR            | 570    | 809                      | NR            | 700    | 93                       | NR            | 830    | 1                        | NR            | 960    | 0                        | NR            |
| 445    | 757                      | NR            | 575    | 840                      | NR            | 705    | 78                       | NR            | 835    | 1                        | NR            | 965    | 0                        | NR            |
| 450    | 1000                     | NR            | 580    | 863                      | NR            | 710    | 67                       | NR            | 840    | 1                        | NR            | 970    | 0                        | NR            |
| 455    | 730                      | NR            | 585    | 880                      | NR            | 715    | 57                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 494                      | NR            | 590    | 890                      | NR            | 720    | 48                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 419                      | NR            | 595    | 890                      | NR            | 725    | 41                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 305                      | NR            | 600    | 879                      | NR            | 730    | 35                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 235                      | NR            | 605    | 856                      | NR            | 735    | 29                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 237                      | NR            | 610    | 824                      | NR            | 740    | 25                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 257                      | NR            | 615    | 783                      | NR            | 745    | 21                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 3.36**

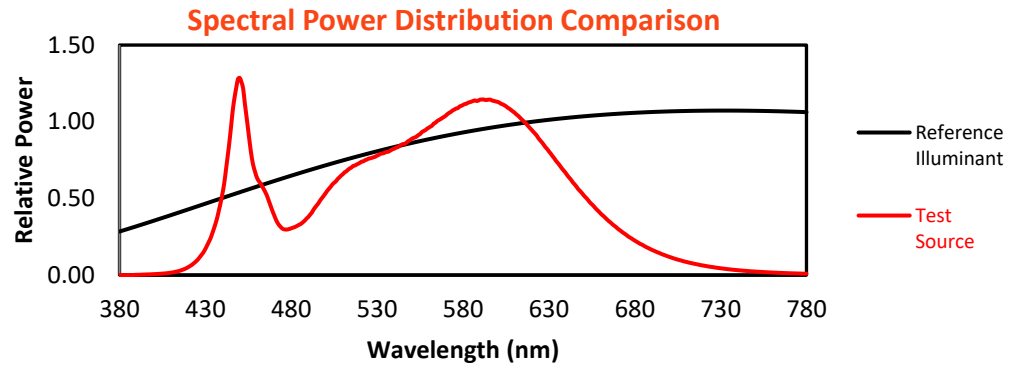
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 296                                  | NR                             | 620               | 736                                  | NR                             | 750               | 18                                   | NR                             | 880               | 0                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 355                                  | NR                             | 625               | 683                                  | NR                             | 755               | 15                                   | NR                             | 885               | 0                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 415                                  | NR                             | 630               | 628                                  | NR                             | 760               | 13                                   | NR                             | 890               | 0                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 468                                  | NR                             | 635               | 571                                  | NR                             | 765               | 11                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 511                                  | NR                             | 640               | 515                                  | NR                             | 770               | 9                                    | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 545                                  | NR                             | 645               | 460                                  | NR                             | 775               | 8                                    | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 570                                  | NR                             | 650               | 408                                  | NR                             | 780               | 7                                    | NR                             | 910               | 0                                    | NR                             |
| 395               | 3                                    | NR                             | 525               | 590                                  | NR                             | 655               | 359                                  | NR                             | 785               | 6                                    | NR                             | 915               | 0                                    | NR                             |
| 400               | 5                                    | NR                             | 530               | 606                                  | NR                             | 660               | 313                                  | NR                             | 790               | 5                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 7                                    | NR                             | 535               | 623                                  | NR                             | 665               | 273                                  | NR                             | 795               | 4                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 641                                  | NR                             | 670               | 236                                  | NR                             | 800               | 4                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 22                                   | NR                             | 545               | 664                                  | NR                             | 675               | 204                                  | NR                             | 805               | 3                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 40                                   | NR                             | 550               | 690                                  | NR                             | 680               | 175                                  | NR                             | 810               | 3                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 73                                   | NR                             | 555               | 715                                  | NR                             | 685               | 151                                  | NR                             | 815               | 2                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 133                                  | NR                             | 560               | 747                                  | NR                             | 690               | 128                                  | NR                             | 820               | 2                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 236                                  | NR                             | 565               | 781                                  | NR                             | 695               | 109                                  | NR                             | 825               | 2                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 416                                  | NR                             | 570               | 809                                  | NR                             | 700               | 93                                   | NR                             | 830               | 1                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 757                                  | NR                             | 575               | 840                                  | NR                             | 705               | 78                                   | NR                             | 835               | 1                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 1000                                 | NR                             | 580               | 863                                  | NR                             | 710               | 67                                   | NR                             | 840               | 1                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 730                                  | NR                             | 585               | 880                                  | NR                             | 715               | 57                                   | NR                             | 845               | 1                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 494                                  | NR                             | 590               | 890                                  | NR                             | 720               | 48                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 419                                  | NR                             | 595               | 890                                  | NR                             | 725               | 41                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 305                                  | NR                             | 600               | 879                                  | NR                             | 730               | 35                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 235                                  | NR                             | 605               | 856                                  | NR                             | 735               | 29                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 237                                  | NR                             | 610               | 824                                  | NR                             | 740               | 25                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 257                                  | NR                             | 615               | 783                                  | NR                             | 745               | 21                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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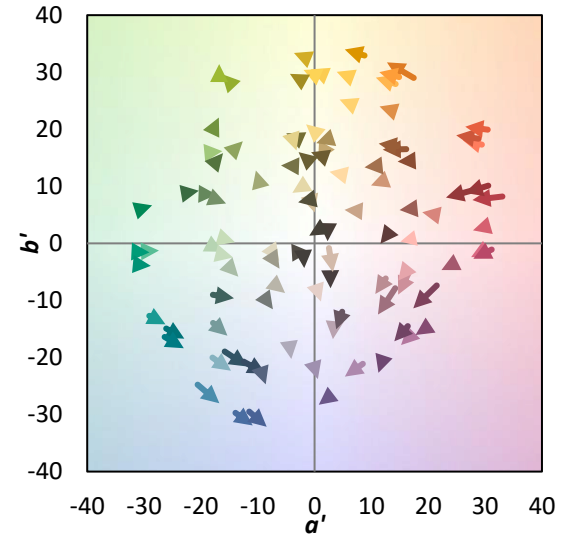
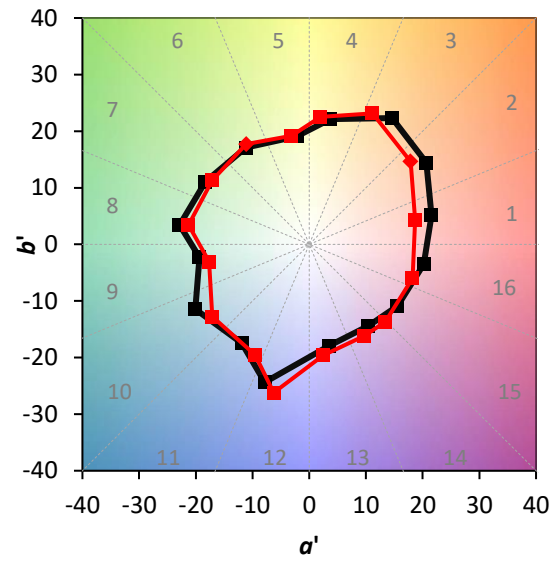
TM-30-18

### Summary

$R_f = 82.9$   
 $R_g = 94.7$   
 $CIE R_a = 80.8$   
 $R_g = -5.1$

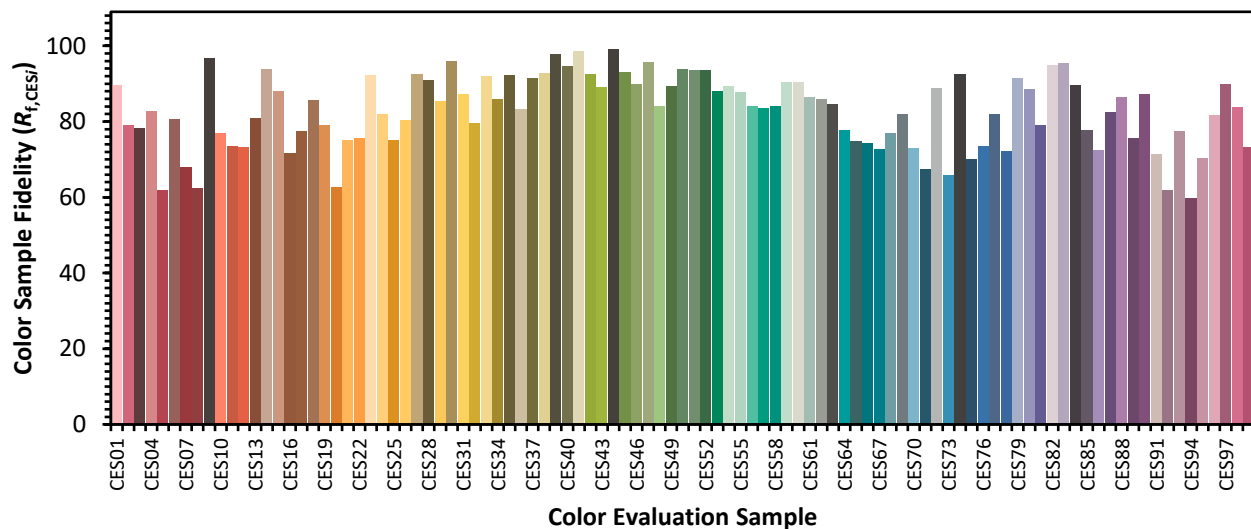


### Color Vector Graphics



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

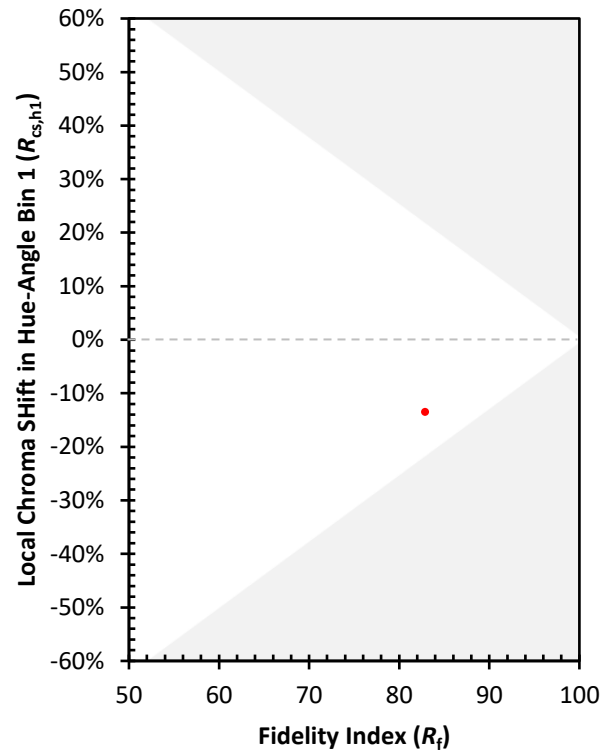
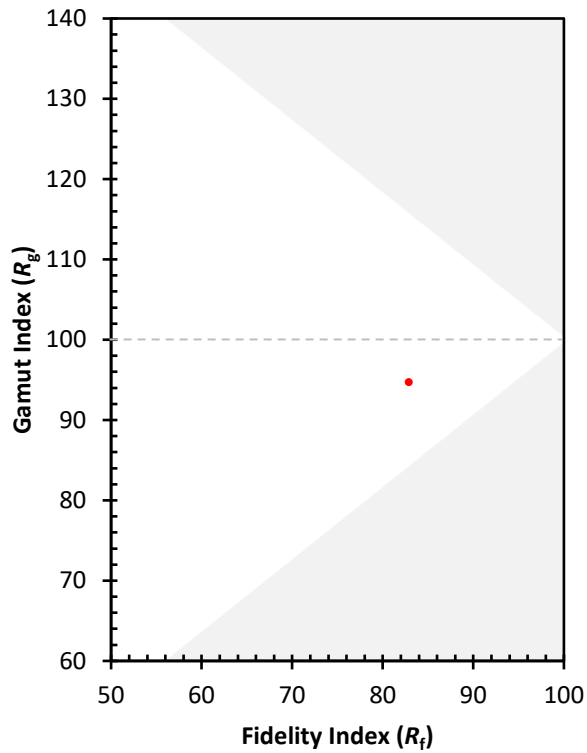
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 80 | CES51 = 94 | CES76 = 73 |
| CES02 = 61 | CES27 = 93 | CES52 = 94 | CES77 = 82 |
| CES03 = 31 | CES28 = 91 | CES53 = 88 | CES78 = 72 |
| CES04 = 70 | CES29 = 85 | CES54 = 89 | CES79 = 91 |
| CES05 = 48 | CES30 = 96 | CES55 = 88 | CES80 = 89 |
| CES06 = 50 | CES31 = 87 | CES56 = 84 | CES81 = 79 |
| CES07 = 40 | CES32 = 80 | CES57 = 83 | CES82 = 95 |
| CES08 = 39 | CES33 = 92 | CES58 = 84 | CES83 = 95 |
| CES09 = 29 | CES34 = 86 | CES59 = 90 | CES84 = 90 |
| CES10 = 74 | CES35 = 92 | CES60 = 90 | CES85 = 78 |
| CES11 = 57 | CES36 = 83 | CES61 = 86 | CES86 = 72 |
| CES12 = 63 | CES37 = 91 | CES62 = 86 | CES87 = 83 |
| CES13 = 42 | CES38 = 93 | CES63 = 85 | CES88 = 87 |
| CES14 = 74 | CES39 = 98 | CES64 = 78 | CES89 = 76 |
| CES15 = 71 | CES40 = 95 | CES65 = 75 | CES90 = 87 |
| CES16 = 47 | CES41 = 99 | CES66 = 74 | CES91 = 71 |
| CES17 = 49 | CES42 = 93 | CES67 = 73 | CES92 = 62 |
| CES18 = 56 | CES43 = 89 | CES68 = 77 | CES93 = 77 |
| CES19 = 71 | CES44 = 99 | CES69 = 82 | CES94 = 60 |
| CES20 = 65 | CES45 = 93 | CES70 = 73 | CES95 = 70 |
| CES21 = 86 | CES46 = 90 | CES71 = 67 | CES96 = 82 |
| CES22 = 78 | CES47 = 96 | CES72 = 89 | CES97 = 90 |
| CES23 = 91 | CES48 = 84 | CES73 = 66 | CES98 = 84 |
| CES24 = 90 | CES49 = 89 | CES74 = 93 | CES99 = 73 |
| CES25 = 71 | CES50 = 94 | CES75 = 70 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)