

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: P972393

Luminaire Tested: **GKO-PB1D-722-U-T1**

Issue Date: 02/27/2025



**Test Information**

Test Method: LM-79-08  
Report Number: P972393  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 02/27/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: MCGRAW-EDISON  
Catalog Number: GKO-PB1D-722-U-T1  
Description: GEKKO WALL PACK 3500LM PACKAGE 70CRI 2200K FIXTURE w/ TYPE I DISTRIBUTION OPTIC  
Light Source: (10) 2200K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3183.9 lumens  
Efficiency: N/A  
Efficacy: 124.4 lumens/watt  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
IES Classification: Type I - Short  
BUG Rating: B1 - U0 - G1

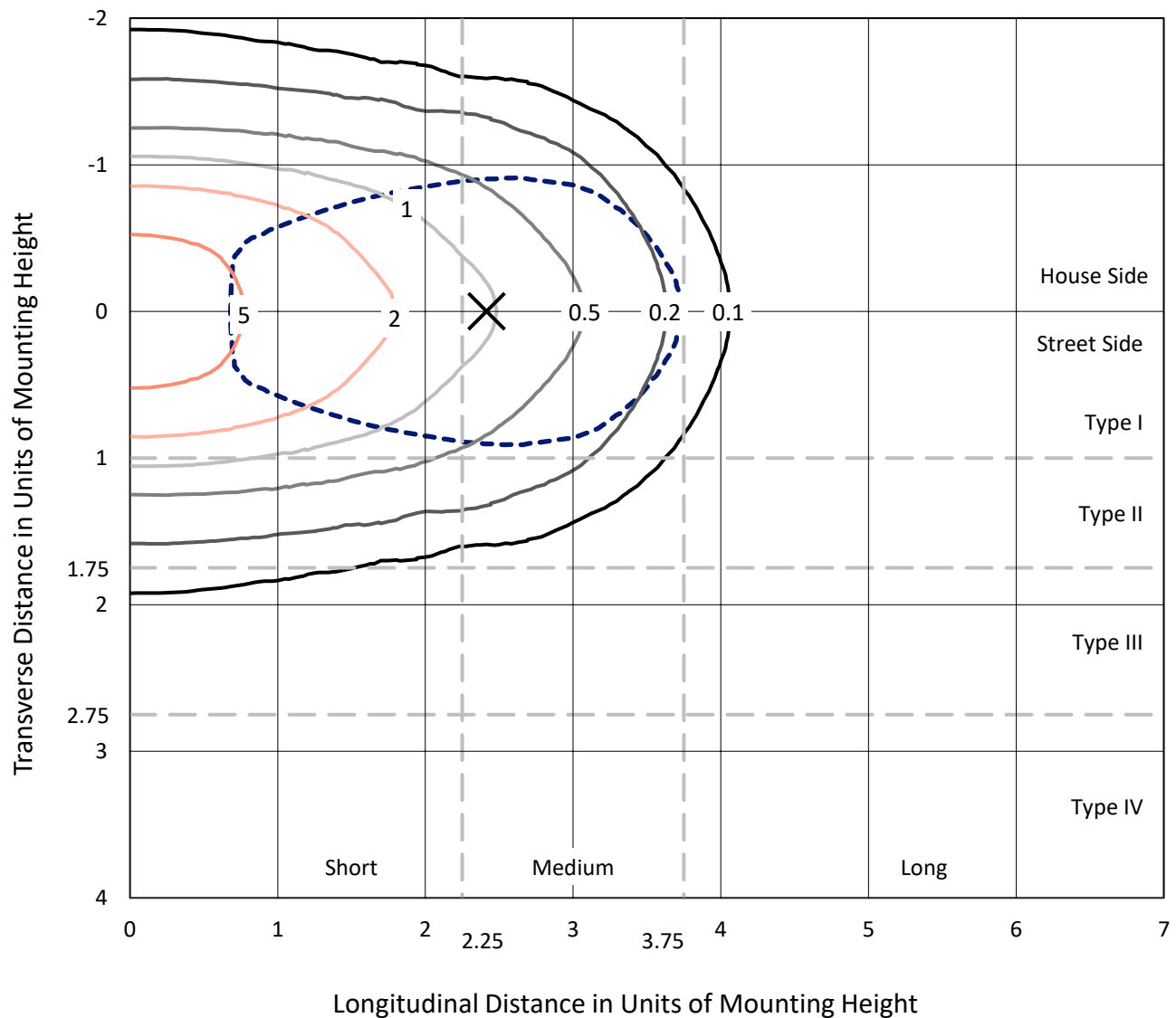
Input Watts (W): 25.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi):  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

REPORT NUMBER: P972393

CATALOG NUMBER: GKO-PB1D-722-U-T1

## Iso-Footcandle Lines of Horizontal Illumination

× Max cd  
 - - - 1/2 Max cd

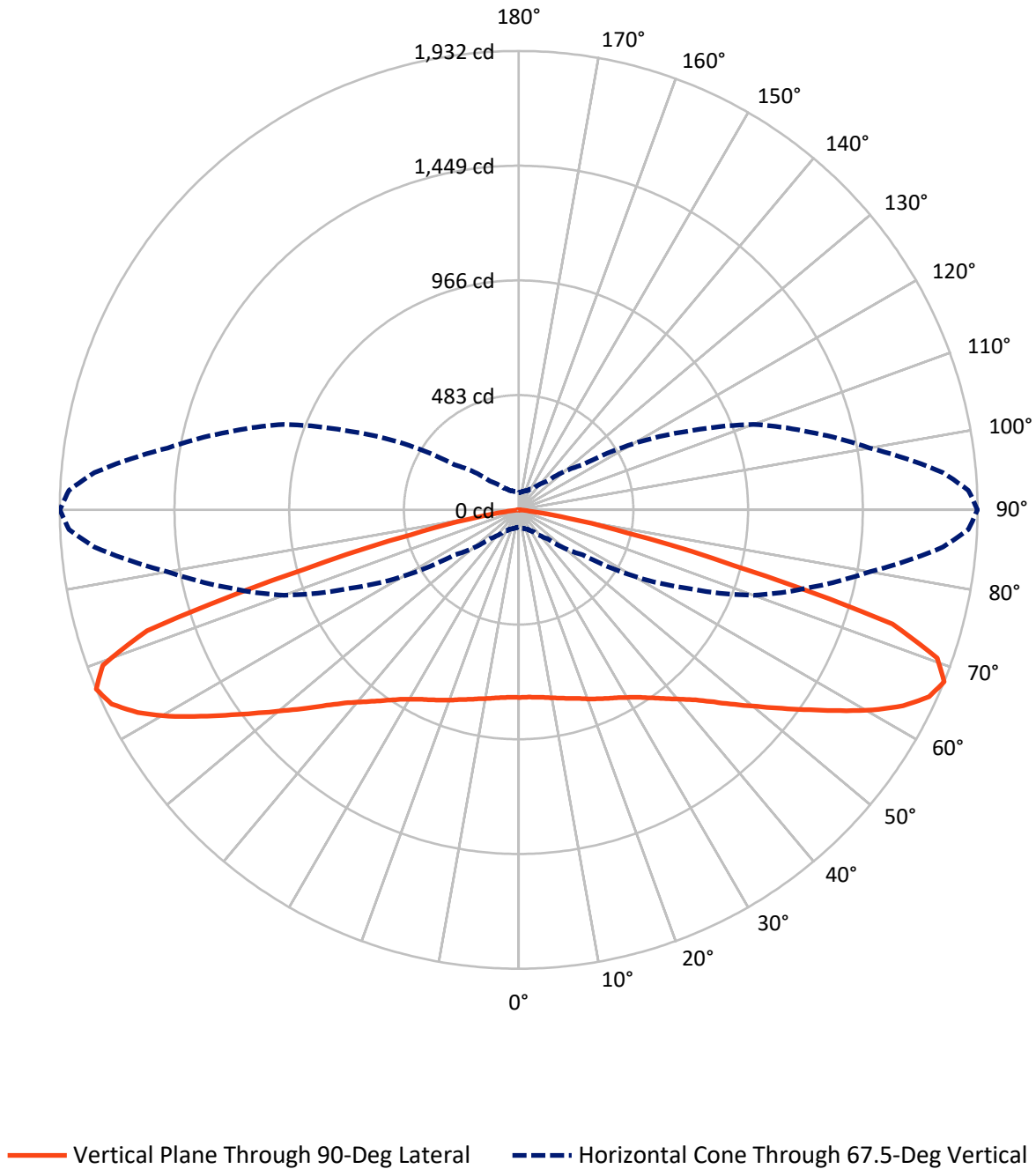


Based on 10 foot mounting height. Maximum calculated value = 7.9 fc  
 Type I - Short - N/A

REPORT NUMBER: P972393

CATALOG NUMBER: GKO-PB1D-722-U-T1

## Luminous Intensity Polar Plot



REPORT NUMBER: P972393

CATALOG NUMBER: GKO-PB1D-722-U-T1

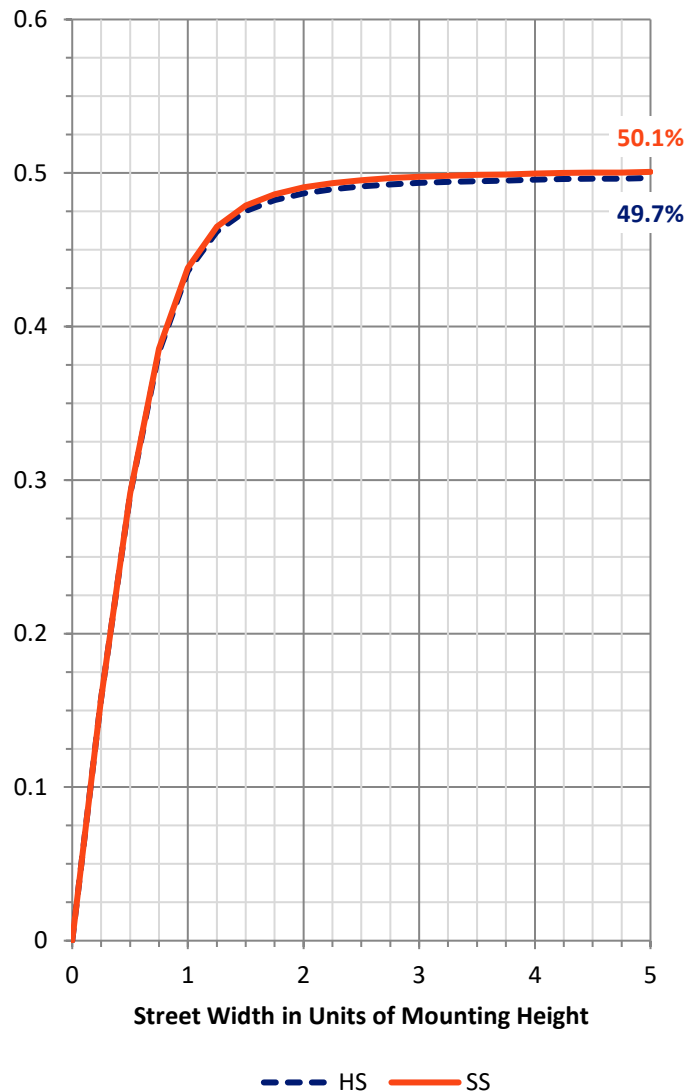
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 1591.9   | 0.0    | 1591.9 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Street Side</b> | Lumens    | 1591.9   | 0.0    | 1591.9 |
|                    | % Fixture | 50.0     | 0.0    | 50.0   |
| <b>Total</b>       | Lumens    | 3183.9   | 0.0    | 3183.9 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 75.8   | 2.4       |
| 10°-20°   | 228.3  | 7.2       |
| 20°-30°   | 379.7  | 11.9      |
| 30°-40°   | 504.4  | 15.8      |
| 40°-50°   | 568.6  | 17.9      |
| 50°-60°   | 584.7  | 18.4      |
| 60°-70°   | 552.6  | 17.4      |
| 70°-80°   | 270.5  | 8.5       |
| 80°-90°   | 19.3   | 0.6       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-90°    | 3183.9 | 100.0     |
| 0°-180°   | 3183.9 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P972393

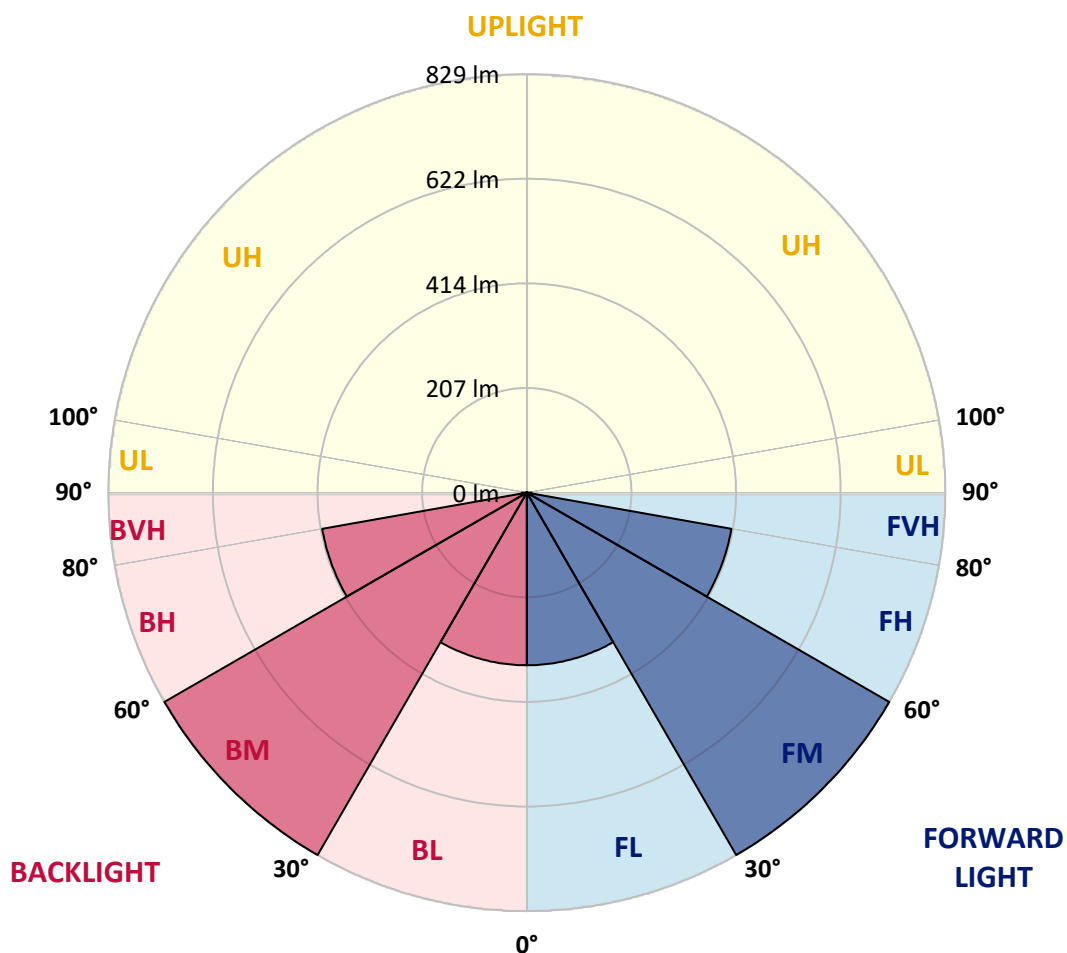
CATALOG NUMBER: GKO-PB1D-722-U-T1

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |        |
|------|-------------|--------|-----------|-------------------------|------|--------|
|      |             |        |           | B                       | U    | G      |
| FL   | (0°-30°)    | 341.9  | 10.7      |                         |      |        |
| FM   | (30°-60°)   | 828.9  | 26.0      |                         |      |        |
| FH   | (60°-80°)   | 411.5  | 12.9      |                         |      | G0/660 |
| FVH  | (80°-90°)   | 9.7    | 0.3       |                         |      | G0/10  |
| BL   | (0°-30°)    | 341.9  | 10.7      | B1/500                  |      |        |
| BM   | (30°-60°)   | 828.9  | 26.0      | B1/1000                 |      |        |
| BH   | (60°-80°)   | 411.5  | 12.9      | B1/500                  |      | G1/500 |
| BVH  | (80°-90°)   | 9.7    | 0.3       |                         |      | 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 I Short



REPORT NUMBER: P972393

CATALOG NUMBER: GKO-PB1D-722-U-T1

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 5°    | 15°   | 25°   | 35°   | 45°   | 55°   | 65°    | 70°    | 75°    | 80°    |
|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 0°    | 790.0 | 790.0 | 790.0 | 790.0 | 790.0 | 790.0 | 790.0 | 790.0  | 790.0  | 790.0  | 790.0  |
| 2.5°  | 790.6 | 791.8 | 789.5 | 789.5 | 790.6 | 791.2 | 791.2 | 791.8  | 790.6  | 790.6  | 790.0  |
| 5°    | 790.6 | 791.2 | 790.0 | 790.0 | 791.2 | 793.0 | 792.4 | 793.6  | 793.6  | 793.0  | 793.0  |
| 7.5°  | 790.0 | 791.2 | 790.0 | 790.6 | 792.4 | 795.9 | 795.9 | 795.9  | 797.1  | 798.3  | 798.3  |
| 10°   | 789.5 | 790.6 | 791.2 | 791.8 | 794.2 | 799.4 | 800.6 | 801.2  | 803.0  | 804.7  | 804.7  |
| 12.5° | 786.5 | 787.7 | 789.5 | 791.8 | 795.9 | 803.0 | 805.3 | 807.1  | 810.0  | 811.8  | 812.9  |
| 15°   | 782.4 | 783.0 | 787.1 | 791.8 | 798.3 | 807.1 | 811.8 | 814.7  | 818.8  | 821.2  | 822.9  |
| 17.5° | 776.5 | 777.1 | 783.6 | 790.6 | 800.0 | 812.4 | 820.0 | 824.7  | 828.8  | 832.3  | 834.7  |
| 20°   | 768.9 | 770.7 | 778.3 | 789.5 | 803.0 | 817.6 | 828.8 | 837.0  | 841.1  | 844.6  | 848.2  |
| 22.5° | 759.5 | 761.3 | 770.7 | 786.5 | 805.9 | 824.7 | 839.4 | 849.9  | 855.2  | 859.9  | 864.0  |
| 25°   | 745.4 | 747.8 | 758.9 | 779.5 | 807.1 | 832.3 | 851.1 | 864.6  | 869.3  | 875.2  | 878.7  |
| 27.5° | 723.7 | 725.5 | 739.0 | 765.4 | 803.5 | 840.5 | 864.6 | 880.4  | 885.7  | 892.2  | 895.7  |
| 30°   | 689.7 | 693.2 | 709.6 | 742.5 | 794.7 | 847.0 | 880.4 | 896.3  | 902.7  | 909.2  | 913.9  |
| 32.5° | 645.7 | 650.9 | 669.1 | 711.4 | 777.7 | 849.3 | 897.5 | 915.7  | 923.9  | 930.9  | 936.8  |
| 35°   | 591.1 | 596.4 | 618.1 | 671.5 | 750.7 | 844.6 | 914.5 | 938.0  | 947.9  | 957.3  | 964.4  |
| 37.5° | 528.9 | 533.5 | 560.0 | 621.0 | 712.0 | 830.0 | 928.0 | 962.6  | 976.1  | 988.4  | 997.8  |
| 40°   | 466.0 | 471.3 | 500.1 | 565.2 | 665.0 | 801.8 | 933.9 | 989.6  | 1006.6 | 1022.5 | 1034.2 |
| 42.5° | 398.0 | 404.4 | 436.7 | 506.0 | 610.4 | 763.0 | 929.2 | 1016.0 | 1037.2 | 1058.9 | 1076.5 |
| 45°   | 337.5 | 338.7 | 373.9 | 440.8 | 550.6 | 713.2 | 912.7 | 1041.3 | 1070.0 | 1100.6 | 1125.8 |
| 47.5° | 279.4 | 281.7 | 312.3 | 378.6 | 488.4 | 656.8 | 882.8 | 1061.2 | 1107.0 | 1146.3 | 1183.3 |
| 50°   | 227.7 | 230.7 | 258.3 | 317.5 | 426.1 | 595.2 | 842.3 | 1073.0 | 1138.7 | 1192.1 | 1243.8 |
| 52.5° | 185.5 | 189.0 | 211.9 | 264.1 | 363.3 | 530.6 | 792.4 | 1074.7 | 1167.5 | 1237.9 | 1306.6 |
| 55°   | 154.4 | 156.7 | 174.3 | 216.0 | 302.9 | 463.7 | 735.5 | 1065.9 | 1186.2 | 1279.0 | 1370.6 |
| 57.5° | 130.3 | 132.7 | 145.0 | 177.8 | 248.3 | 395.0 | 666.2 | 1045.4 | 1196.2 | 1314.8 | 1435.1 |
| 60°   | 113.3 | 115.0 | 123.8 | 147.3 | 204.3 | 330.5 | 591.7 | 1009.0 | 1193.3 | 1337.1 | 1488.5 |
| 62.5° | 101.0 | 101.5 | 109.2 | 125.6 | 168.5 | 269.4 | 507.7 | 954.4  | 1169.2 | 1340.0 | 1524.9 |
| 65°   | 89.8  | 90.4  | 95.1  | 106.8 | 138.5 | 216.6 | 420.3 | 879.3  | 1123.4 | 1319.5 | 1530.2 |
| 67.5° | 72.8  | 74.0  | 81.0  | 89.8  | 113.9 | 171.4 | 331.0 | 780.7  | 1051.8 | 1266.1 | 1500.3 |
| 70°   | 58.1  | 58.7  | 65.7  | 75.7  | 92.7  | 135.0 | 254.2 | 648.0  | 939.7  | 1179.2 | 1422.8 |
| 72.5° | 43.4  | 44.6  | 51.1  | 61.0  | 75.7  | 104.5 | 183.7 | 490.1  | 751.3  | 994.3  | 1239.1 |
| 75°   | 34.6  | 35.2  | 37.6  | 47.0  | 58.7  | 79.2  | 123.8 | 297.0  | 452.5  | 615.1  | 759.5  |
| 77.5° | 29.3  | 29.9  | 29.9  | 36.4  | 43.4  | 53.4  | 65.7  | 118.0  | 191.3  | 272.3  | 361.0  |
| 80°   | 24.1  | 25.2  | 22.9  | 27.0  | 31.1  | 31.1  | 30.5  | 56.3   | 90.4   | 128.0  | 167.9  |
| 82.5° | 17.6  | 18.8  | 17.6  | 18.8  | 18.8  | 17.0  | 15.8  | 21.1   | 28.8   | 39.3   | 42.8   |
| 85°   | 12.3  | 12.9  | 14.1  | 12.9  | 12.3  | 10.0  | 7.6   | 5.9    | 3.5    | 4.1    | 5.9    |
| 87.5° | 8.2   | 10.0  | 11.7  | 11.2  | 9.4   | 7.6   | 5.3   | 3.5    | 1.8    | 2.3    | 2.3    |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0    | 0.0    | 0.0    | 0.0    |



REPORT NUMBER: P972393

CATALOG NUMBER: GKO-PB1D-722-U-T1

**CANDELA DISTRIBUTION (continued):**

|       | 85°    | 87.5°  | 90°    |
|-------|--------|--------|--------|
| 0°    | 790.0  | 790.0  | 790.0  |
| 2.5°  | 790.6  | 790.0  | 789.5  |
| 5°    | 793.6  | 793.0  | 792.4  |
| 7.5°  | 797.7  | 797.7  | 797.7  |
| 10°   | 804.1  | 805.3  | 805.3  |
| 12.5° | 812.4  | 813.5  | 813.5  |
| 15°   | 822.3  | 822.9  | 824.1  |
| 17.5° | 834.7  | 835.2  | 835.2  |
| 20°   | 849.3  | 848.7  | 849.9  |
| 22.5° | 864.0  | 864.0  | 864.0  |
| 25°   | 879.3  | 879.3  | 879.3  |
| 27.5° | 896.9  | 896.9  | 895.7  |
| 30°   | 916.2  | 916.2  | 916.2  |
| 32.5° | 939.7  | 940.3  | 940.9  |
| 35°   | 969.7  | 970.8  | 972.6  |
| 37.5° | 1003.7 | 1006.6 | 1008.4 |
| 40°   | 1044.2 | 1045.4 | 1048.3 |
| 42.5° | 1089.4 | 1092.9 | 1093.5 |
| 45°   | 1145.7 | 1151.6 | 1154.0 |
| 47.5° | 1212.1 | 1220.3 | 1224.4 |
| 50°   | 1286.0 | 1295.4 | 1301.3 |
| 52.5° | 1366.4 | 1381.7 | 1388.7 |
| 55°   | 1452.1 | 1478.6 | 1486.2 |
| 57.5° | 1549.0 | 1584.8 | 1595.4 |
| 60°   | 1644.1 | 1694.6 | 1711.6 |
| 62.5° | 1725.1 | 1796.1 | 1817.2 |
| 65°   | 1782.0 | 1867.7 | 1898.8 |
| 67.5° | 1793.8 | 1895.3 | 1932.3 |
| 70°   | 1723.3 | 1827.2 | 1870.1 |
| 72.5° | 1498.5 | 1592.4 | 1645.8 |
| 75°   | 885.1  | 952.6  | 936.2  |
| 77.5° | 444.3  | 463.7  | 466.6  |
| 80°   | 194.9  | 206.6  | 211.3  |
| 82.5° | 48.1   | 49.3   | 55.8   |
| 85°   | 6.5    | 7.6    | 7.0    |
| 87.5° | 2.3    | 2.3    | 2.9    |
| 90°   | 0.0    | 0.0    | 0.0    |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP2-2501-321-2

Test Date: 04/09/2025

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

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

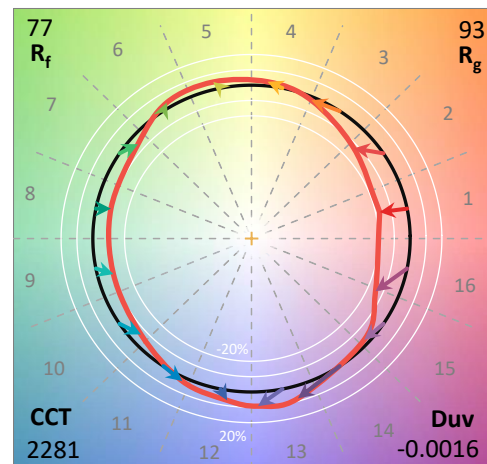
### Test Information

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

### Spectral Parameters

CCT (K): 2281  
 CIE  $u'$ : 0.2851  
 CIE  $v'$ : 0.5324  
 Duv: -0.0016  
 CIE x: 0.4942  
 CIE y: 0.4102  
 CIE z: 0.0956  
 Peak Wavelength (nm): 602  
 Dominant Wavelength (nm): 587  
 Purity: 71.48321  
 R<sub>f</sub>: 76.9  
 R<sub>g</sub>: 92.6

CRI (Ra): 70.6  
 R1: 68.4  
 R2: 88.7  
 R3: 85.7  
 R4: 63.2  
 R5: 69.0  
 R6: 88.6  
 R7: 68.8  
 R8: 32.6  
 R9: -35.1  
 R10: 78.0  
 R11: 60.2  
 R12: 73.8  
 R13: 72.8  
 R14: 92.4  
 R15: 58.4



### Test Conditions

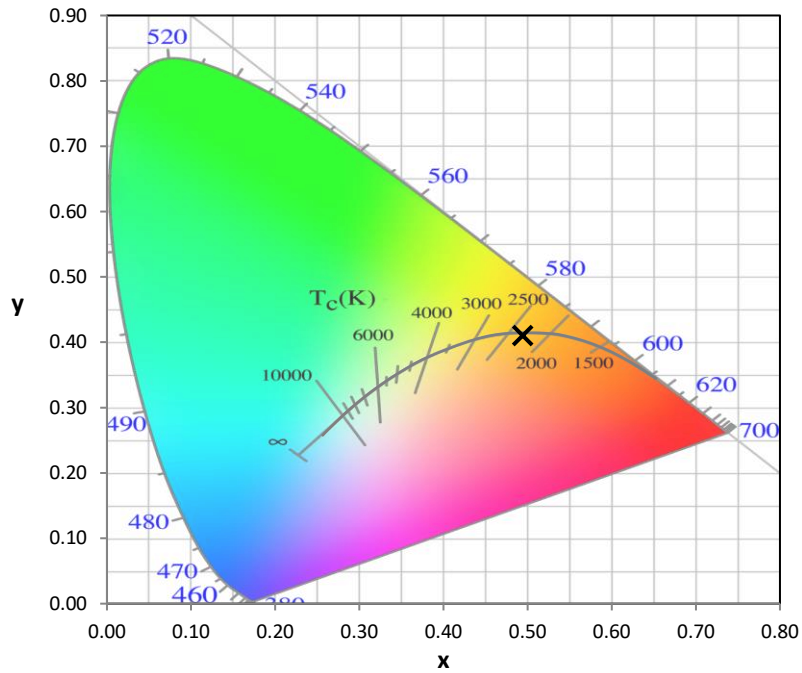
Stabilization Time: 40M  
 Operation Time: 1H 40M  
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP2-2501-321-2

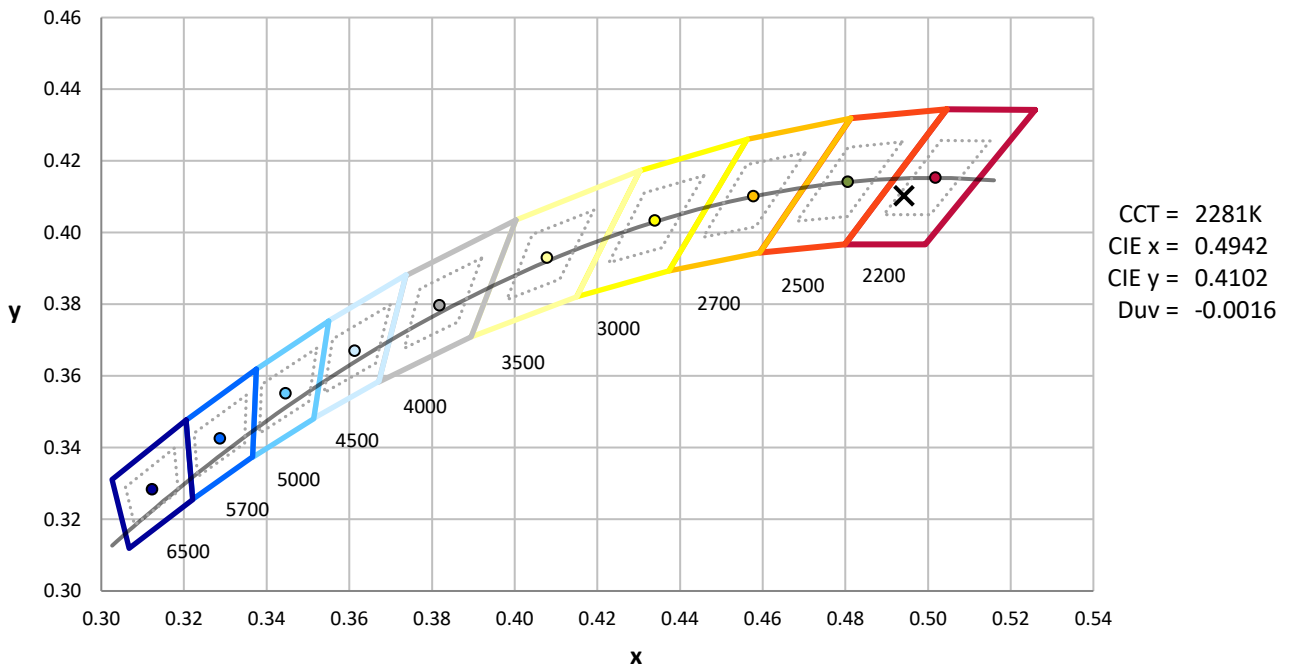
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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: SP2-2501-321-2

**CIE 1931 Chromaticity Diagram**



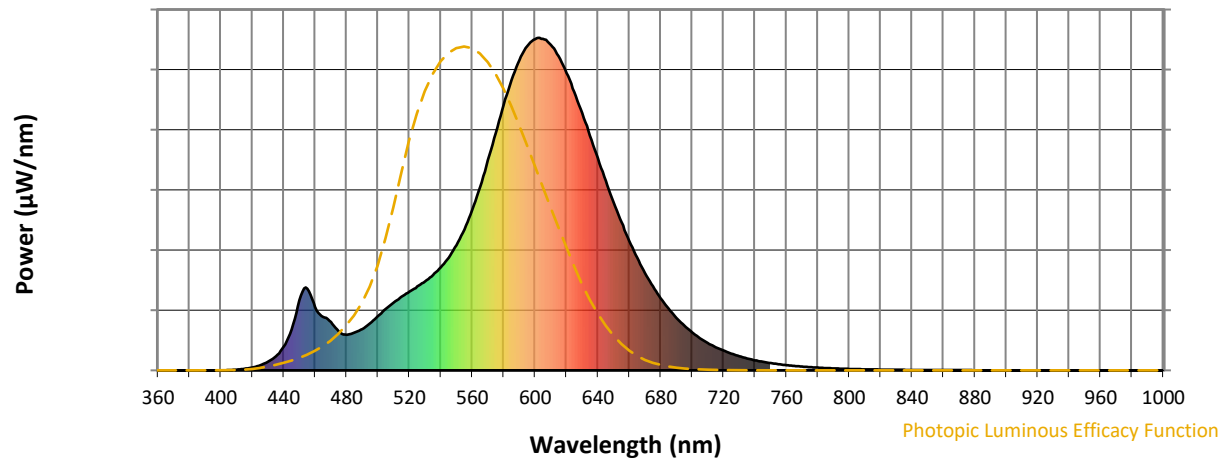
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2200K 4-step quadrangle

REPORT NUMBER: SP2-2501-321-2

### Photopic Flux vs. Wavelength

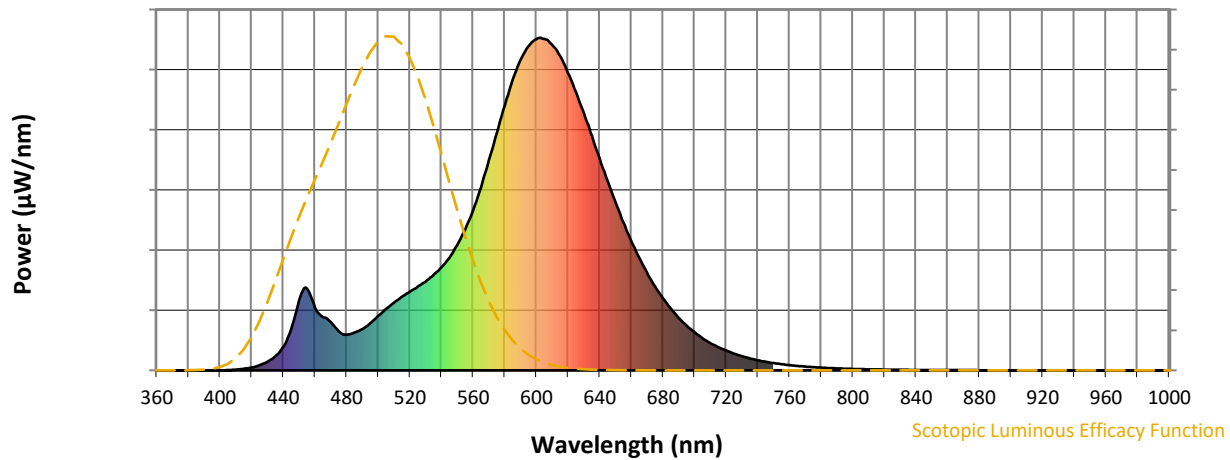


### Photopic Lumens: NR

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

REPORT NUMBER: SP2-2501-321-2

### Scotopic Flux vs. Wavelength



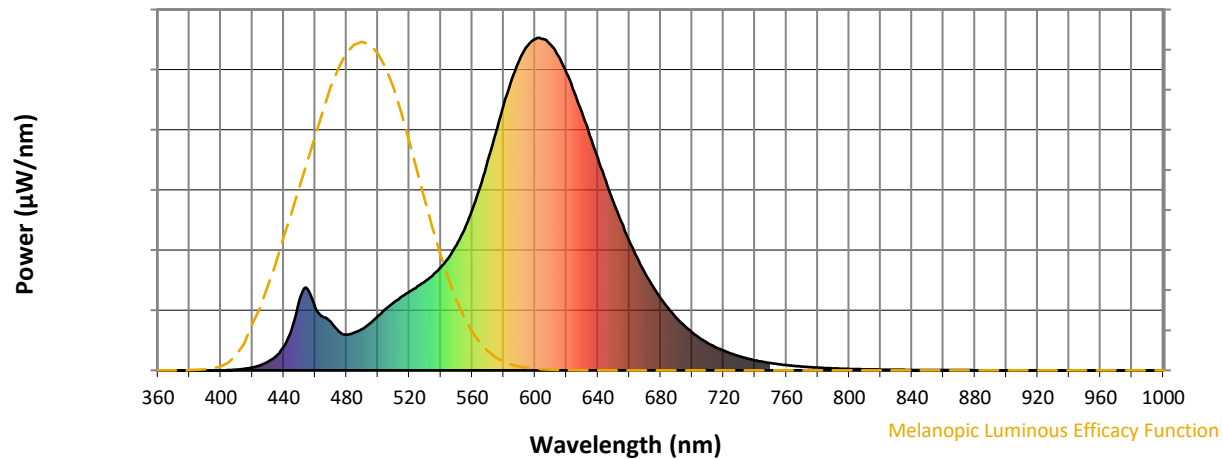
Scotopic Lumens: NR

S/P: 0.98

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

REPORT NUMBER: SP2-2501-321-2

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 1.75

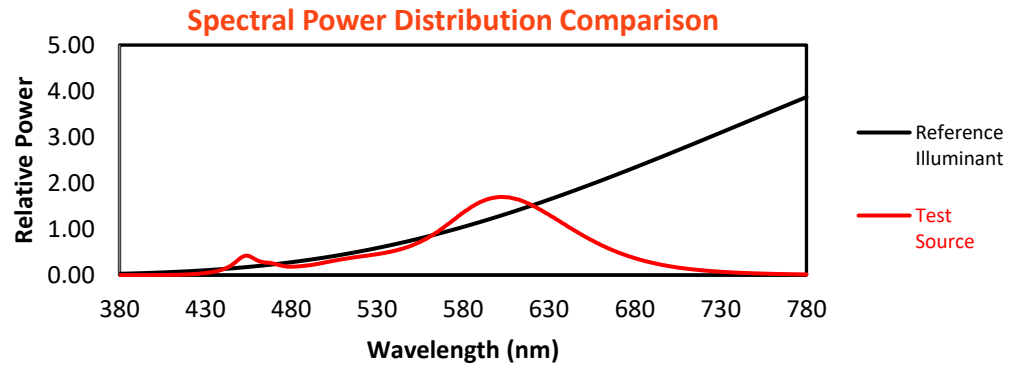
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power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

REPORT NUMBER: SP2-2501-321-2

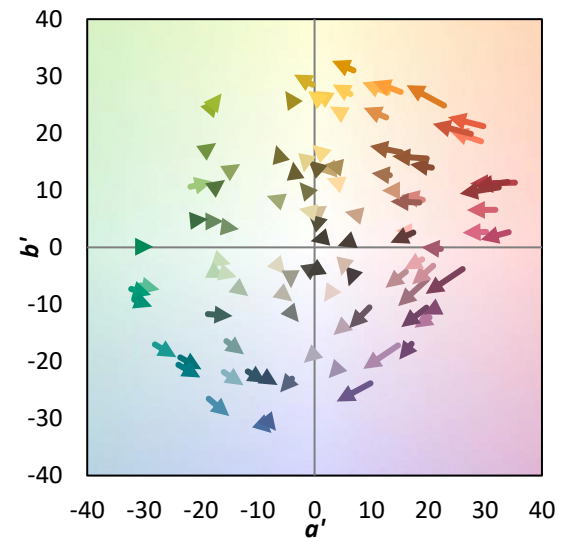
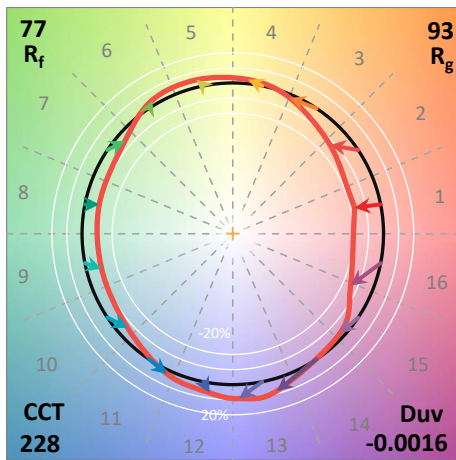
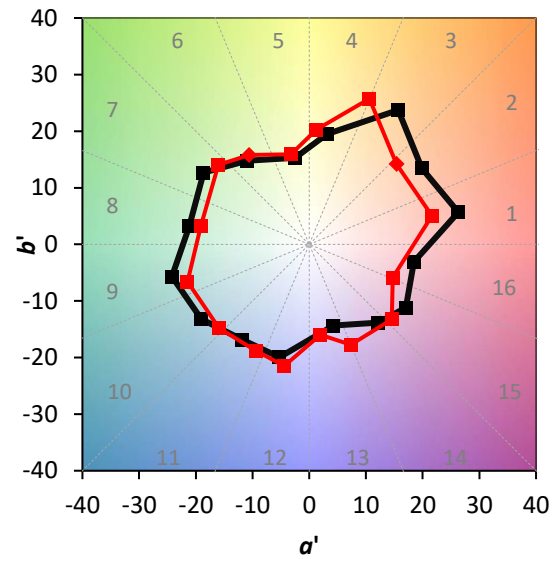
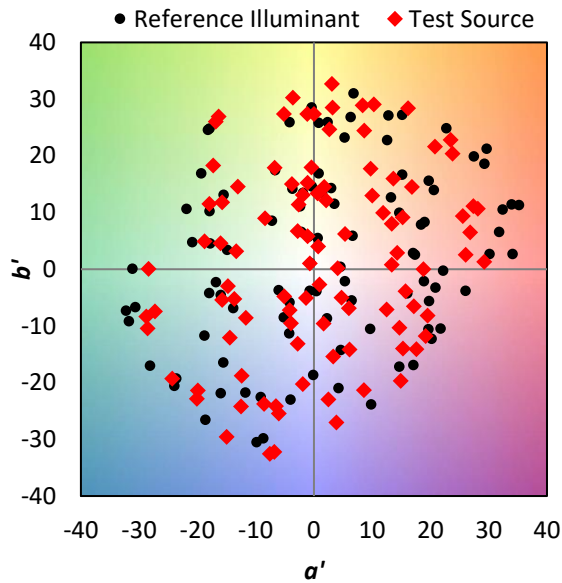
TM-30-18

### Summary

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

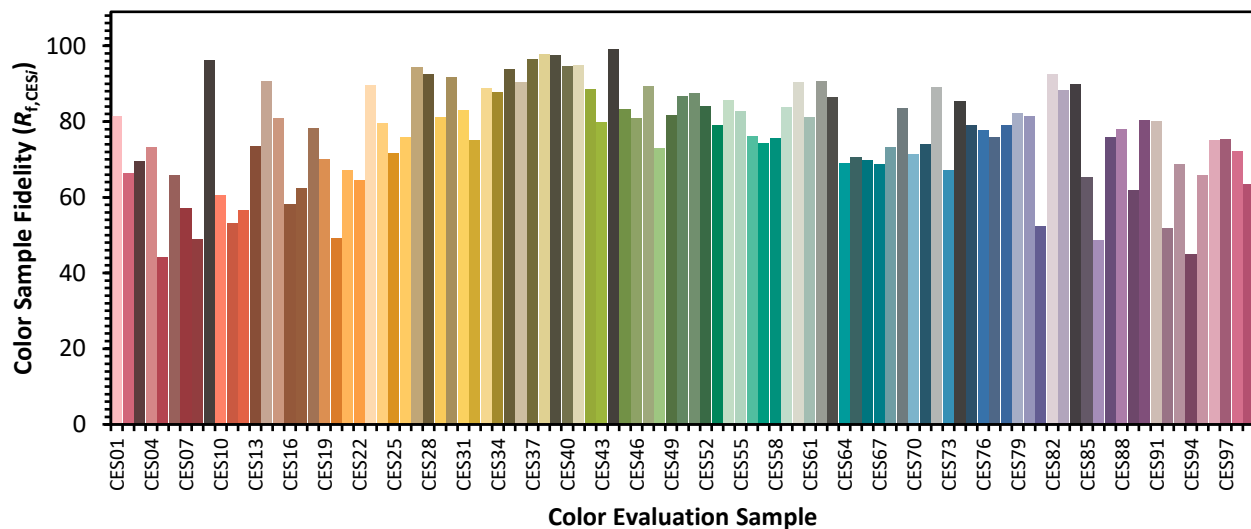


### Color Vector Graphics

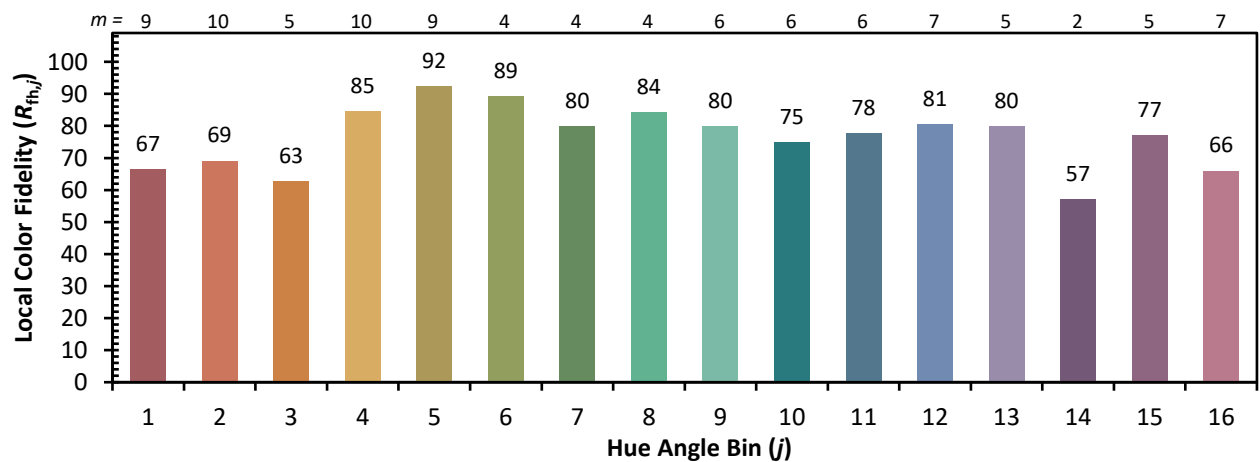
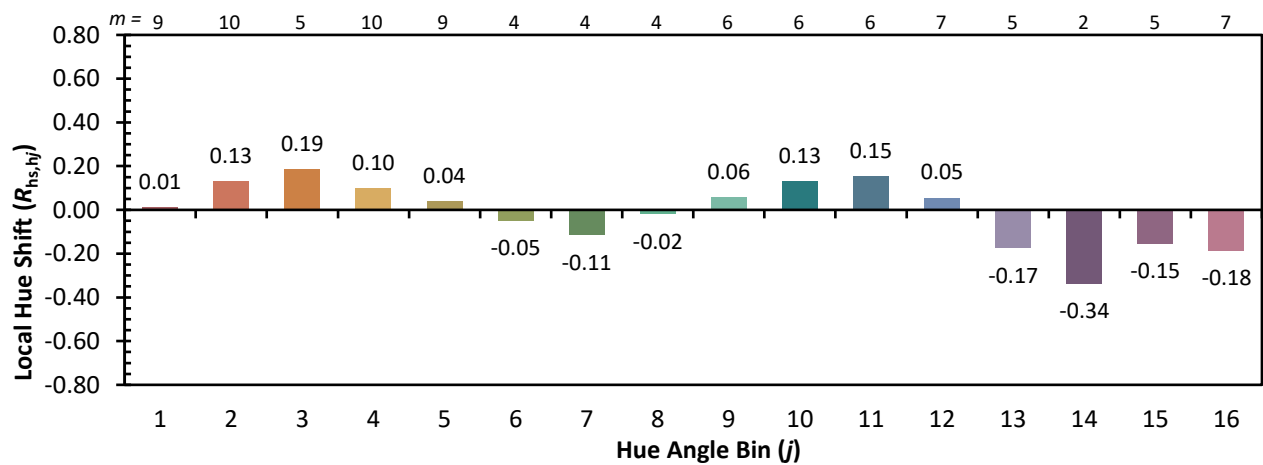
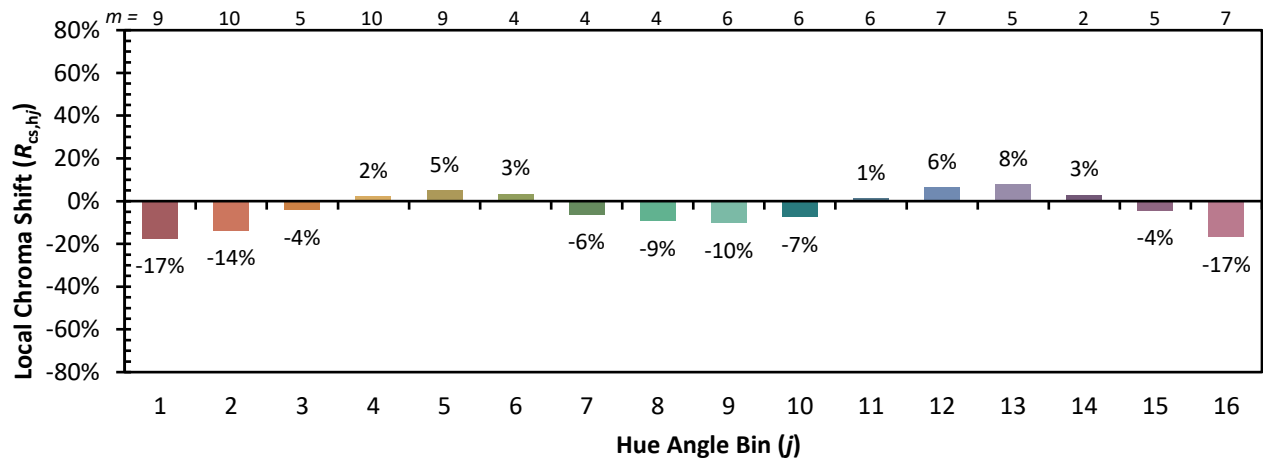


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

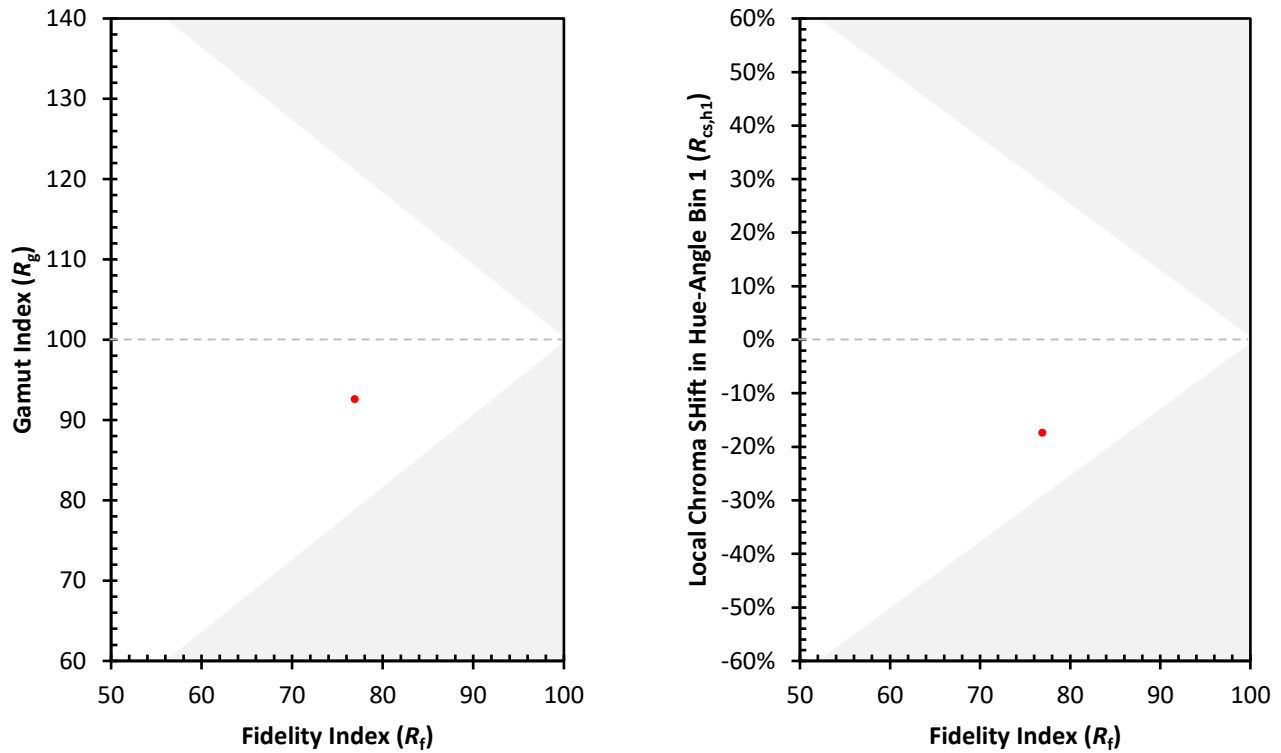
|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 76 | CES51 = 88 | CES76 = 78 |
| CES02 = 65 | CES27 = 94 | CES52 = 84 | CES77 = 76 |
| CES03 = 32 | CES28 = 93 | CES53 = 79 | CES78 = 79 |
| CES04 = 72 | CES29 = 81 | CES54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



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)