Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled data based on original data using

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

Test Report Prepared for

Cooper Lighting Solutions

Brand: METALUX

Report Number: P1527778

Luminaire Tested: 24CGTX-55-B2750-W2A-4000K

Issue Date: 8/26/2026

Report Generated By 670265710 / DESKTOP-98SHLC4

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

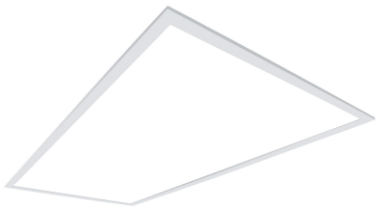
**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P1527778 |
| | TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G2-2505-441-7) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 8/26/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | METALUX |
| Catalog Number: | 24CGTX-55-B2750-W2A-4000K |
| Description: | 2X4 5500 LUMEN CGTX TROFFER WITH BIO UP LEDS AT 4000K CCT WITH FROSTED SMOOTH L |
| Light Source: | 4000K CCT, 80 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 5365.0 lumens |
| Efficiency: | N/A |
| Efficacy: | 106.9 lumens/watt |
| Spacing Criteria (0/90/45): | 1.27 / 1.27 / 1.39 |
| Luminous Opening: | Rectangular (W 2' x L: 4' x H: 0') |
| CIE Type: | Direct |

| | |
|---|---|
| Input Watts (W): | 50.2 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 24 FT |

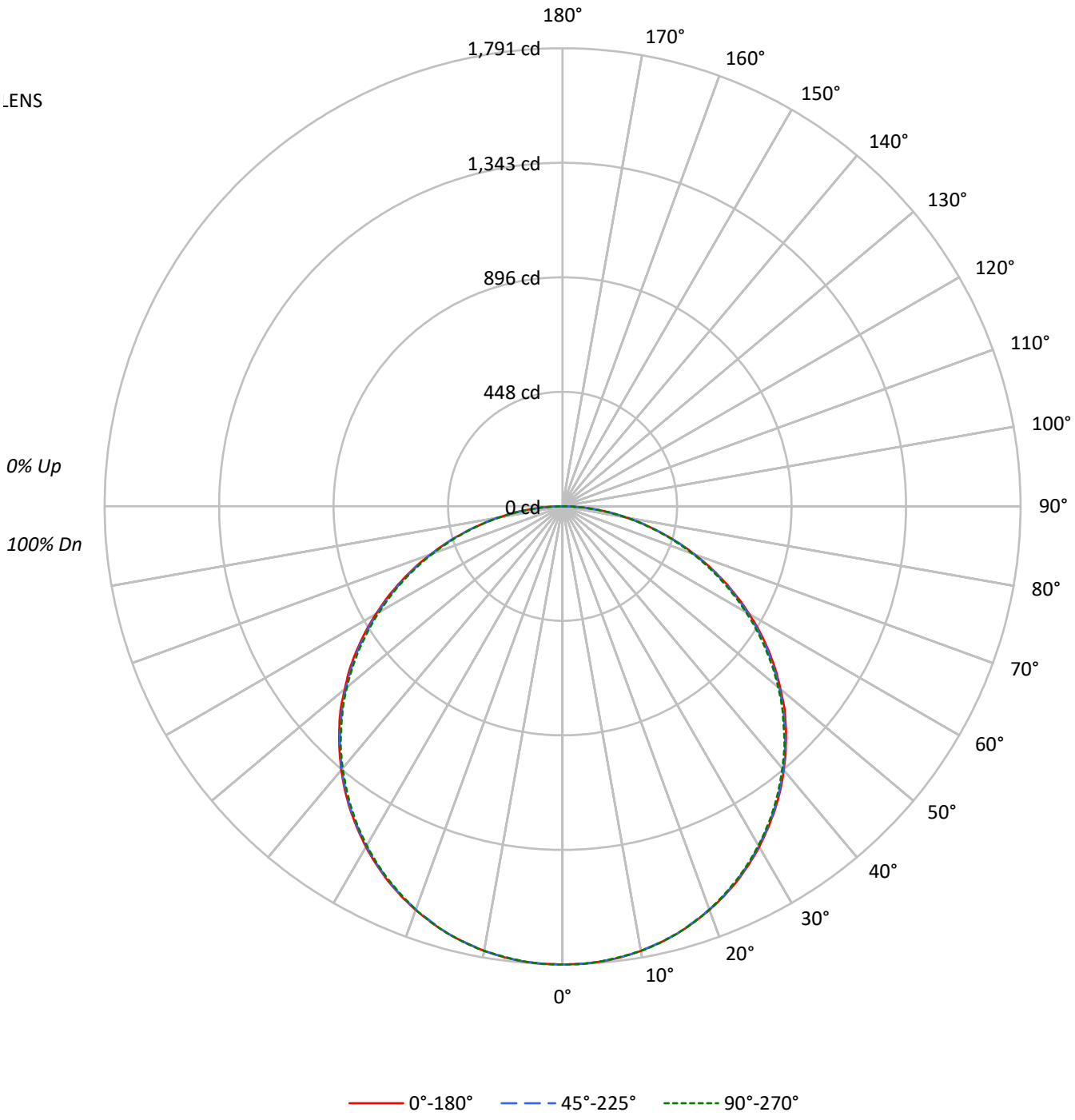


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Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1527778
CATALOG NUMBER: 24CGTX-55-B2750-W2A-4000K

## Luminous Intensity Polar Plot



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TEST NUMBER: P1527778
CATALOG NUMBER: 24CGTX-55-B2750-W2A-4000K

## COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| RF | 20 | | | | 20 | | | | 20 | | | 20 | | | 20 | | | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RC | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 108 | 103 | 99 | 95 | 105 | 101 | 97 | 93 | 97 | 93 | 90 | 93 | 90 | 87 | 89 | 87 | 85 | 83 |
| 2 | 98 | 90 | 82 | 77 | 95 | 88 | 81 | 76 | 84 | 79 | 74 | 81 | 76 | 72 | 78 | 74 | 70 | 68 |
| 3 | 89 | 78 | 70 | 63 | 87 | 77 | 69 | 63 | 74 | 67 | 62 | 71 | 65 | 60 | 68 | 64 | 59 | 57 |
| 4 | 82 | 69 | 60 | 53 | 79 | 68 | 59 | 53 | 65 | 58 | 52 | 63 | 57 | 51 | 61 | 55 | 51 | 49 |
| 5 | 75 | 62 | 53 | 46 | 73 | 61 | 52 | 46 | 58 | 51 | 45 | 56 | 50 | 44 | 55 | 49 | 44 | 42 |
| 6 | 69 | 56 | 46 | 40 | 67 | 55 | 46 | 40 | 53 | 45 | 39 | 51 | 44 | 39 | 49 | 43 | 39 | 36 |
| 7 | 64 | 50 | 41 | 35 | 62 | 49 | 41 | 35 | 48 | 40 | 35 | 46 | 40 | 34 | 45 | 39 | 34 | 32 |
| 8 | 60 | 46 | 37 | 31 | 58 | 45 | 37 | 31 | 44 | 36 | 31 | 43 | 36 | 31 | 41 | 35 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 32 | 28 | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 25 | 51 | 38 | 31 | 25 | 37 | 30 | 25 | 36 | 30 | 25 | 35 | 29 | 25 | 23 |

## AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|---|---|---|---|
| 0° | 2410 | 2410 | 2410 |
| 5° | 2413 | 2411 | 2411 |
| 10° | 2411 | 2411 | 2412 |
| 15° | 2410 | 2410 | 2410 |
| 20° | 2405 | 2402 | 2403 |
| 25° | 2399 | 2395 | 2392 |
| 30° | 2390 | 2383 | 2379 |
| 35° | 2379 | 2374 | 2365 |
| 40° | 2364 | 2359 | 2349 |
| 45° | 2351 | 2340 | 2328 |
| 50° | 2327 | 2317 | 2304 |
| 55° | 2306 | 2290 | 2271 |
| 60° | 2270 | 2252 | 2231 |
| 65° | 2226 | 2208 | 2182 |
| 70° | 2160 | 2152 | 2125 |
| 75° | 2067 | 2083 | 2047 |
| 80° | 1977 | 2001 | 1962 |
| 85° | 1879 | 1832 | 1832 |

## MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2351 cd/sqm

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TEST NUMBER: P1527778
CATALOG NUMBER: 24CGTX-55-B2750-W2A-4000K

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 169.8 | 3.2 |
| 10°-20° | 488.1 | 9.1 |
| 20°-30° | 743.5 | 13.9 |
| 30°-40° | 903.5 | 16.8 |
| 40°-50° | 948.1 | 17.7 |
| 50°-60° | 871.0 | 16.2 |
| 60°-70° | 684.4 | 12.8 |
| 70°-80° | 421.9 | 7.9 |
| 80°-90° | 134.7 | 2.5 |
| 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°-30° | 1401.4 | 26.1 |
| 0°-40° | 2304.9 | 43.0 |
| 0°-60° | 4124.0 | 76.9 |
| 0°-90° | 5365.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5365.0 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|---|---|---|---|---|---|---|
| 0° | 1791 | 1791 | 1791 | 1791 | 1791 | |
| 5° | 1786 | 1785 | 1785 | 1786 | 1785 | 170 |
| 15° | 1730 | 1729 | 1730 | 1729 | 1730 | 488 |
| 25° | 1616 | 1615 | 1613 | 1610 | 1611 | 745 |
| 35° | 1448 | 1446 | 1445 | 1442 | 1440 | 906 |
| 45° | 1235 | 1231 | 1230 | 1226 | 1224 | 953 |
| 55° | 983 | 978 | 976 | 970 | 968 | 878 |
| 65° | 699 | 694 | 693 | 687 | 686 | 692 |
| 75° | 398 | 401 | 401 | 398 | 394 | 423 |
| 85° | 122 | 125 | 119 | 119 | 119 | 134 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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Scaled Data Report

TEST NUMBER: P1527778
CATALOG NUMBER: 24CGTX-55-B2750-W2A-4000K

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 22.5° | 45° | 67.5° | 90° |
|---|---|---|---|---|---|
| 0° | *1791.3* | *1791.3* | *1791.3* | *1791.3* | *1791.3* |
| 2.5° | *1790.3* | 1790.3 | 1790.3 | 1790.3 | 1791.3 |
| 5° | *1786.3* | 1785.3 | 1785.3 | 1786.3 | 1785.3 |
| 7.5° | *1777.4* | 1777.4 | 1777.4 | 1777.4 | 1775.5 |
| 10° | *1764.6* | 1764.6 | 1764.6 | 1765.6 | 1765.6 |
| 12.5° | *1748.7* | 1748.7 | 1747.8 | 1749.7 | 1749.7 |
| 15° | *1730.0* | 1729.0 | 1730.0 | 1729.0 | 1730.0 |
| 17.5° | *1706.2* | 1706.2 | 1704.2 | 1705.2 | 1706.2 |
| 20° | *1679.5* | 1679.5 | 1677.5 | 1677.5 | 1678.5 |
| 22.5° | *1649.8* | 1648.8 | 1647.9 | 1645.9 | 1645.9 |
| 25° | *1616.2* | 1615.2 | 1613.2 | 1610.3 | 1611.3 |
| 27.5° | *1578.6* | 1577.6 | 1575.7 | 1572.7 | 1572.7 |
| 30° | *1538.1* | 1537.1 | 1534.1 | 1530.2 | 1531.1 |
| 32.5° | *1493.6* | 1493.6 | 1490.6 | 1488.6 | 1487.6 |
| 35° | *1448.1* | 1446.1 | 1445.1 | 1442.1 | 1440.1 |
| 37.5° | *1398.6* | 1396.6 | 1394.6 | 1392.7 | 1389.7 |
| 40° | *1346.2* | 1344.2 | 1343.2 | 1340.2 | 1337.3 |
| 42.5° | *1291.8* | 1288.8 | 1287.8 | 1284.9 | 1283.9 |
| 45° | *1235.4* | 1231.4 | 1229.5 | 1226.5 | 1223.5 |
| 47.5° | *1178.0* | 1171.1 | 1169.1 | 1165.2 | 1165.2 |
| 50° | *1111.8* | 1107.8 | 1106.8 | 1102.9 | 1100.9 |
| 52.5° | *1050.4* | 1043.5 | 1041.5 | 1037.6 | 1035.6 |
| 55° | *983.2* | 978.2 | 976.3 | 970.3 | 968.3 |
| 57.5° | *914.9* | 908.0 | 907.0 | 902.1 | 899.1 |
| 60° | *843.7* | 838.8 | 836.8 | 831.8 | 828.9 |
| 62.5° | *772.5* | 767.5 | 764.6 | 759.6 | 757.7 |
| 65° | *699.3* | 694.4 | 693.4 | 687.4 | 685.5 |
| 67.5° | *626.1* | 621.2 | 620.2 | 614.2 | 613.2 |
| 70° | *549.0* | 548.0 | 547.0 | 541.0 | 540.1 |
| 72.5° | *475.8* | 474.8 | 473.8 | 469.8 | 466.9 |
| 75° | *397.6* | 400.6 | 400.6 | 397.6 | 393.7 |
| 77.5° | *326.4* | 331.4 | 328.4 | 326.4 | 322.5 |
| 80° | *255.2* | 259.1 | 258.2 | 254.2 | 253.2 |
| 82.5° | *185.0* | 190.9 | 186.0 | 185.0 | 183.0 |
| 85° | *121.7* | 124.6 | 118.7 | 118.7 | 118.7 |
| 87.5° | *58.4* | 61.3 | 57.4 | 60.3 | 61.3 |
| 90° | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 |

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TEST NUMBER: P1527778
CATALOG NUMBER: 24CGTX-55-B2750-W2A-4000K

**CIE UGR TABLE:**

| Reflectances: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ceiling | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| | Wall | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| | Reference plane | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 15.08 | 16.75 | 15.45 | 17.06 | 17.38 | 15.02 | 16.69 | 15.39 | 17.00 | 17.32 |
| | 3H | 17.04 | 18.55 | 17.42 | 18.88 | 19.24 | 16.96 | 18.47 | 17.33 | 18.80 | 19.16 |
| | 4H | 17.81 | 19.23 | 18.20 | 19.58 | 19.96 | 17.73 | 19.15 | 18.12 | 19.50 | 19.88 |
| | 6H | 18.42 | 19.74 | 18.83 | 20.11 | 20.50 | 18.34 | 19.66 | 18.75 | 20.03 | 20.42 |
| | 8H | 18.63 | 19.90 | 19.06 | 20.29 | 20.69 | 18.55 | 19.82 | 18.97 | 20.21 | 20.61 |
| | 12H | 18.79 | 20.01 | 19.22 | 20.39 | 20.82 | 18.71 | 19.92 | 19.14 | 20.31 | 20.73 |
| 4H | 2H | 15.76 | 17.18 | 16.15 | 17.53 | 17.90 | 15.71 | 17.14 | 16.11 | 17.48 | 17.86 |
| | 3H | 17.94 | 19.14 | 18.35 | 19.54 | 19.94 | 17.87 | 19.08 | 18.28 | 19.47 | 19.87 |
| | 4H | 18.85 | 19.94 | 19.28 | 20.35 | 20.79 | 18.78 | 19.87 | 19.21 | 20.29 | 20.72 |
| | 6H | 19.61 | 20.57 | 20.06 | 21.00 | 21.46 | 19.53 | 20.49 | 19.99 | 20.93 | 21.38 |
| | 8H | 19.88 | 20.78 | 20.34 | 21.22 | 21.69 | 19.81 | 20.70 | 20.26 | 21.14 | 21.61 |
| | 12H | 20.10 | 20.91 | 20.58 | 21.38 | 21.85 | 20.02 | 20.83 | 20.50 | 21.30 | 21.77 |
| 8H | 4H | 19.22 | 20.11 | 19.68 | 20.56 | 21.02 | 19.16 | 20.05 | 19.62 | 20.50 | 20.96 |
| | 6H | 20.12 | 20.87 | 20.61 | 21.36 | 21.83 | 20.05 | 20.80 | 20.55 | 21.29 | 21.76 |
| | 8H | 20.49 | 21.16 | 21.00 | 21.67 | 22.15 | 20.41 | 21.09 | 20.92 | 21.59 | 22.07 |
| | 12H | 20.80 | 21.40 | 21.31 | 21.89 | 22.45 | 20.72 | 21.31 | 21.22 | 21.80 | 22.36 |
| 12H | 4H | 19.27 | 20.08 | 19.75 | 20.55 | 21.02 | 19.21 | 20.02 | 19.69 | 20.49 | 20.96 |
| | 6H | 20.20 | 20.88 | 20.71 | 21.38 | 21.86 | 20.14 | 20.81 | 20.64 | 21.32 | 21.80 |
| | 8H | 20.64 | 21.23 | 21.14 | 21.72 | 22.28 | 20.56 | 21.16 | 21.07 | 21.65 | 22.21 |

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2505-441-9-R2

Test Date: 06/12/2025

Luminaire Tested: 24CGTX-55-B2750-W2A-4000K

Data in this report applies to families of products including 24CGTX

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

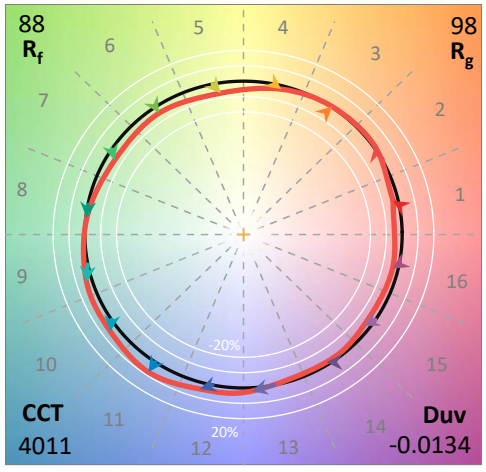
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2505-441-9-R2 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 07/28/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Metalux |
| Catalog Number: | **24CGTX-55-B2750-W2A-4000K** |
| Description: | *THIS IS A REVISION OF REPORT SP1-2504-441-9-R2 TO UPDATE THE CATALOG INFORMATION* 2X4 5500 LUMEN CGTX AT 4.0V |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 4011 |
| CIE u': | 0.2325 |
| CIE v': | 0.4849 |
| Duv: | -0.0134 |
| CIE x: | 0.3712 |
| CIE y: | 0.3440 |
| CIE z: | 0.2848 |
| Peak Wavelength (nm): | 630 |
| Dominant Wavelength (nm): | 593 |
| Purity: | 14.59231 |
| Rf: | 88.3 |
| Rg: | 97.6 |

| | |
|---|---|
| CRI (Ra): | 88.2 |
| R1: | 91.9 |
| R2: | 87.7 |
| R3: | 86.7 |
| R4: | 92.6 |
| R5: | 90.4 |
| R6: | 81.2 |
| R7: | 85.8 |
| R8: | 89.2 |
| R9: | 89.9 |
| R10: | 76.6 |
| R11: | 93.9 |
| R12: | 70.9 |
| R13: | 89.9 |
| R14: | 94.3 |
| R15: | 92.5 |



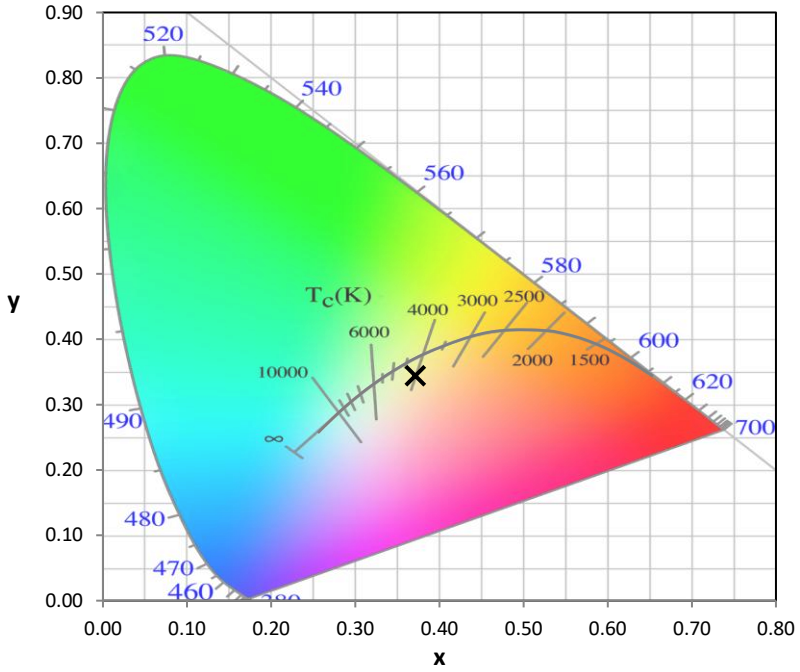

## Test Conditions

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

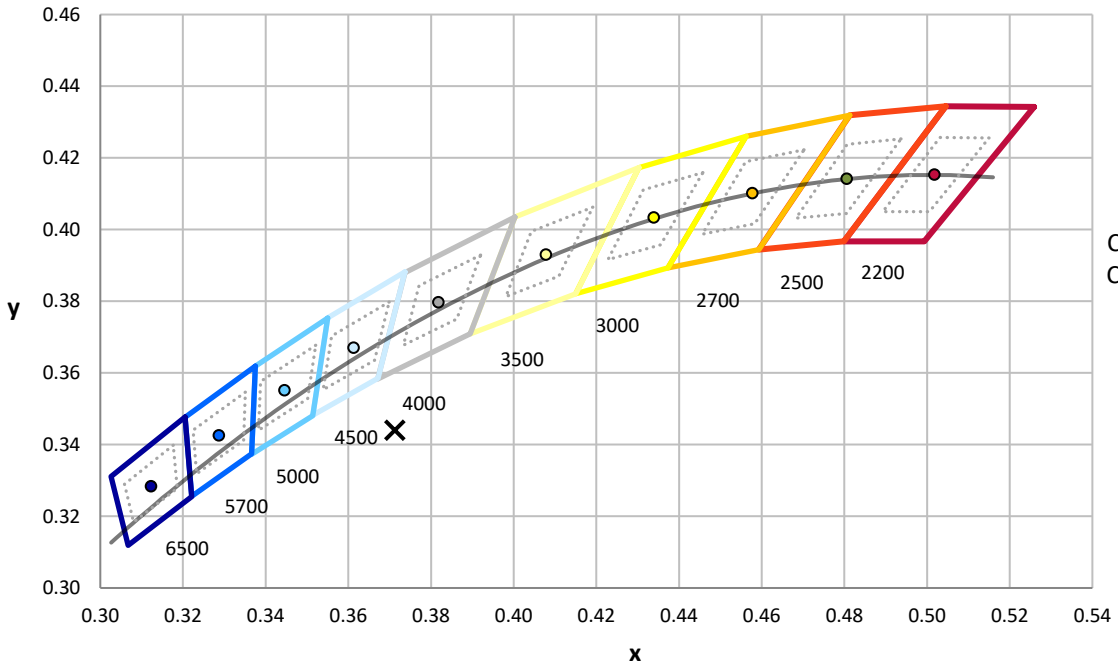
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2024 | 6/16/2025 |
| Power Meter | XITRON INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | CHROMA 61603 IN0063 | 10/22/2024 | 10/22/2025 |
| DC Power Source | AGILENT E3634A IN0208 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | ONSET IN0085 | 10/22/2024 | 10/22/2025 |
| Room Thermometer | ONSET IN0046 | 10/22/2024 | 10/22/2025 |

REPORT NUMBER: SP1-2505-441-9-R2

## CIE 1931 Chromaticity Diagram




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

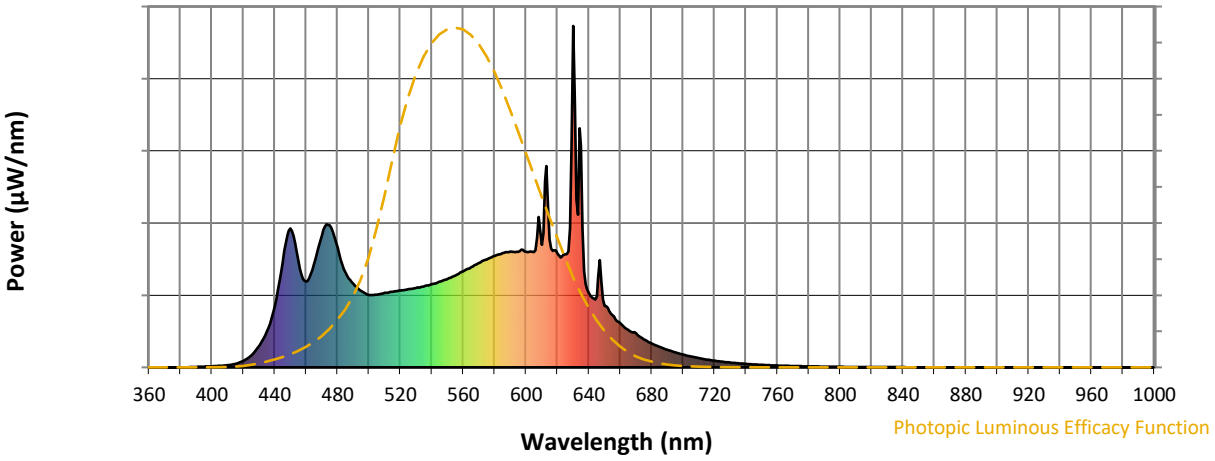



CCT = 4011K
CIE x = 0.3712
CIE y = 0.3440
Duv = -0.0134

Point lies outside the range

REPORT NUMBER: SP1-2505-441-9-R2

## Photopic Flux vs. Wavelength

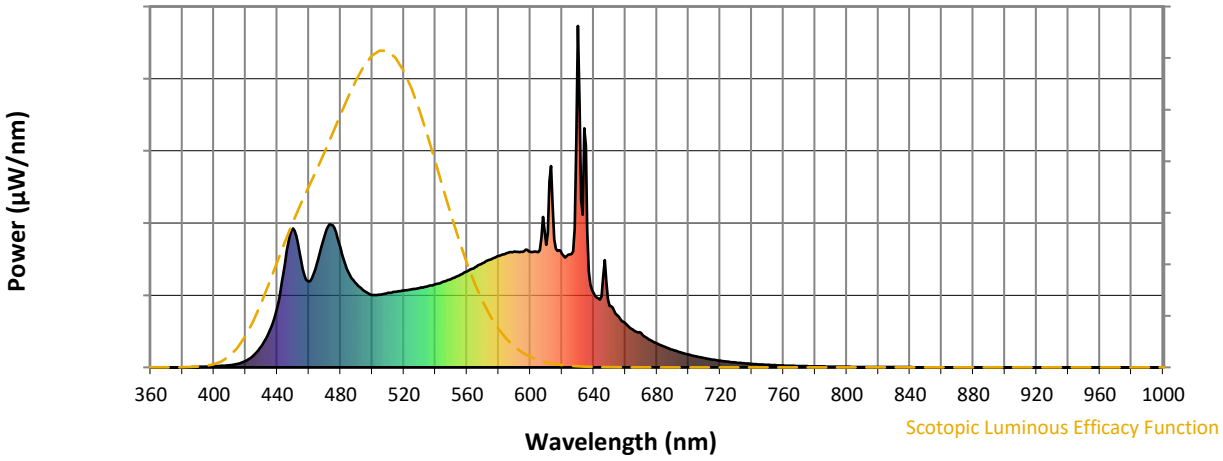



## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 244 | NR | 620 | 332 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 224 | NR | 625 | 331 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 212 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 213 | NR | 635 | 647 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 218 | NR | 640 | 217 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 221 | NR | 645 | 208 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 225 | NR | 650 | 180 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 228 | NR | 655 | 152 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 232 | NR | 660 | 130 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 237 | NR | 665 | 109 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 243 | NR | 670 | 100 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 251 | NR | 675 | 82 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 19 | NR | 550 | 259 | NR | 680 | 70 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 269 | NR | 685 | 60 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 62 | NR | 560 | 281 | NR | 690 | 51 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 106 | NR | 565 | 293 | NR | 695 | 44 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 177 | NR | 570 | 305 | NR | 700 | 37 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 307 | NR | 575 | 316 | NR | 705 | 32 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 327 | NR | 710 | 27 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 335 | NR | 715 | 23 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 252 | NR | 590 | 339 | NR | 720 | 20 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 303 | NR | 595 | 338 | NR | 725 | 17 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 387 | NR | 600 | 339 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 416 | NR | 605 | 338 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 350 | NR | 610 | 359 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 279 | NR | 615 | 375 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

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## Scotopic Flux vs. Wavelength

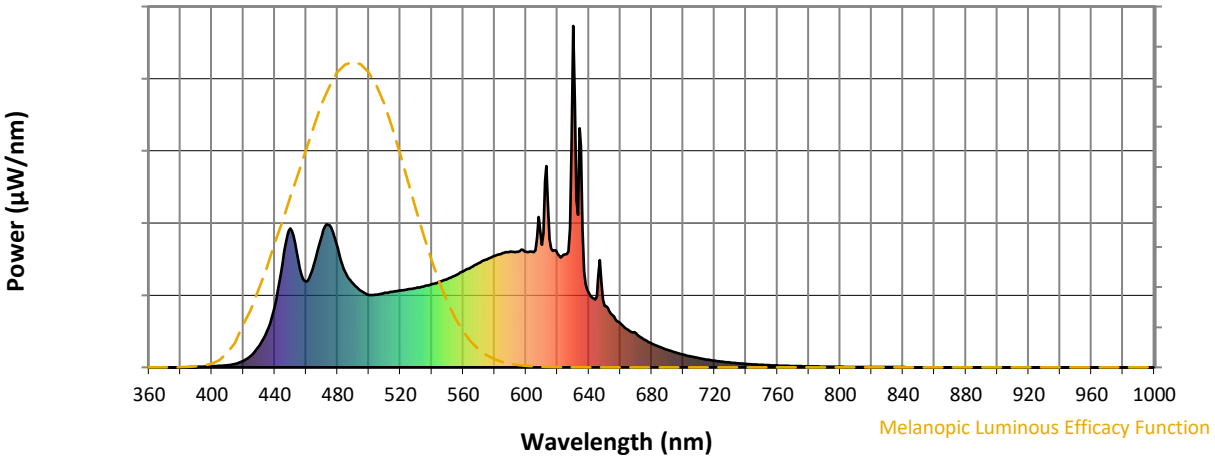



**Scotopic Lumens: NR** **S/P: 2.01**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 244 | NR | 620 | 332 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 224 | NR | 625 | 331 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 212 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 213 | NR | 635 | 647 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 218 | NR | 640 | 217 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 221 | NR | 645 | 208 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 225 | NR | 650 | 180 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 228 | NR | 655 | 152 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 232 | NR | 660 | 130 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 237 | NR | 665 | 109 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 243 | NR | 670 | 100 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 251 | NR | 675 | 82 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 19 | NR | 550 | 259 | NR | 680 | 70 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 269 | NR | 685 | 60 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 62 | NR | 560 | 281 | NR | 690 | 51 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 106 | NR | 565 | 293 | NR | 695 | 44 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 177 | NR | 570 | 305 | NR | 700 | 37 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 307 | NR | 575 | 316 | NR | 705 | 32 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 327 | NR | 710 | 27 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 335 | NR | 715 | 23 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 252 | NR | 590 | 339 | NR | 720 | 20 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 303 | NR | 595 | 338 | NR | 725 | 17 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 387 | NR | 600 | 339 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 416 | NR | 605 | 338 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 350 | NR | 610 | 359 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 279 | NR | 615 | 375 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 4.55**

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 244 | NR | 620 | 332 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 224 | NR | 625 | 331 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 212 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 213 | NR | 635 | 647 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 218 | NR | 640 | 217 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 221 | NR | 645 | 208 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 225 | NR | 650 | 180 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 228 | NR | 655 | 152 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 232 | NR | 660 | 130 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 237 | NR | 665 | 109 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 243 | NR | 670 | 100 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 251 | NR | 675 | 82 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 19 | NR | 550 | 259 | NR | 680 | 70 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 269 | NR | 685 | 60 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 62 | NR | 560 | 281 | NR | 690 | 51 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 106 | NR | 565 | 293 | NR | 695 | 44 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 177 | NR | 570 | 305 | NR | 700 | 37 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 307 | NR | 575 | 316 | NR | 705 | 32 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 327 | NR | 710 | 27 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 335 | NR | 715 | 23 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 252 | NR | 590 | 339 | NR | 720 | 20 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 303 | NR | 595 | 338 | NR | 725 | 17 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 387 | NR | 600 | 339 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 416 | NR | 605 | 338 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 350 | NR | 610 | 359 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 279 | NR | 615 | 375 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

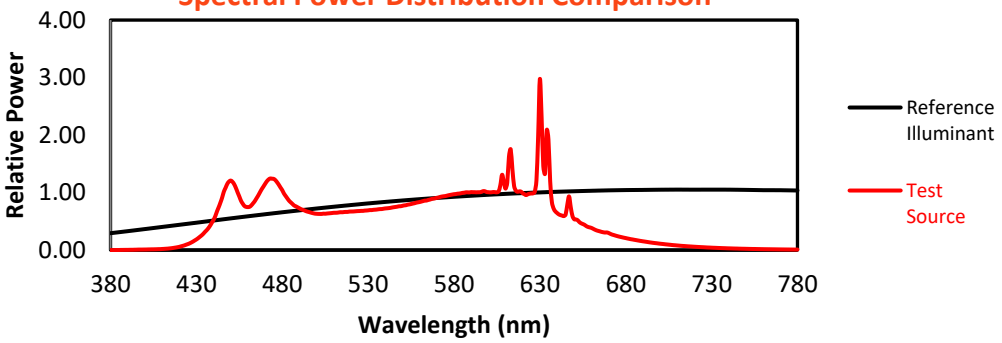
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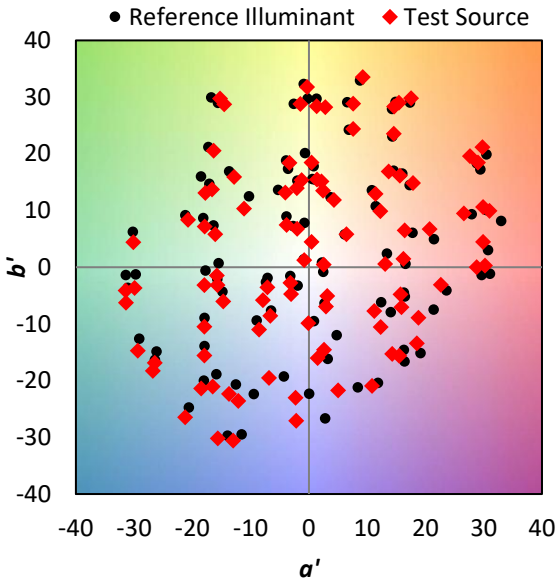
## Summary

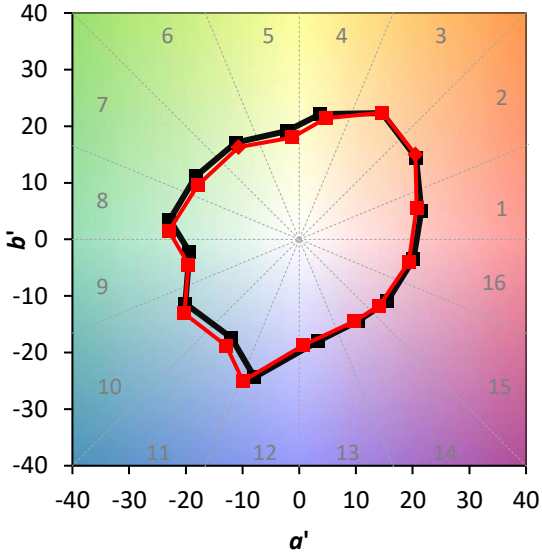
$R_f$ = 88.3
$R_g$ = 97.6
CIE $R_a$ = 88.2
$R_9$ = 89.9

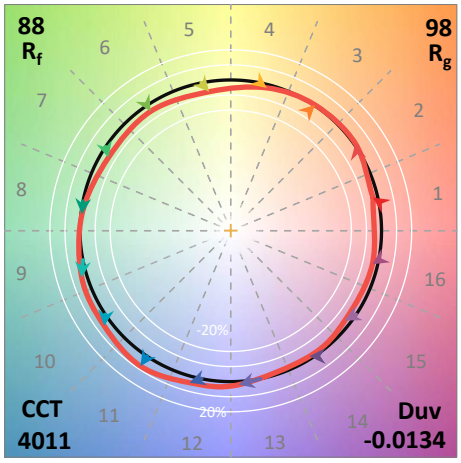
## Spectral Power Distribution Comparison

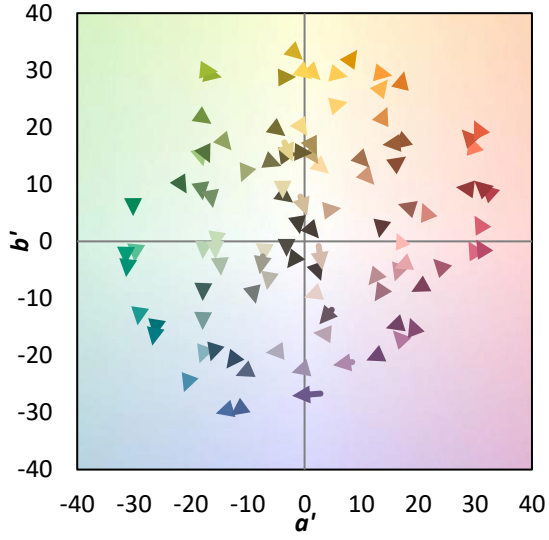



## Color Vector Graphics



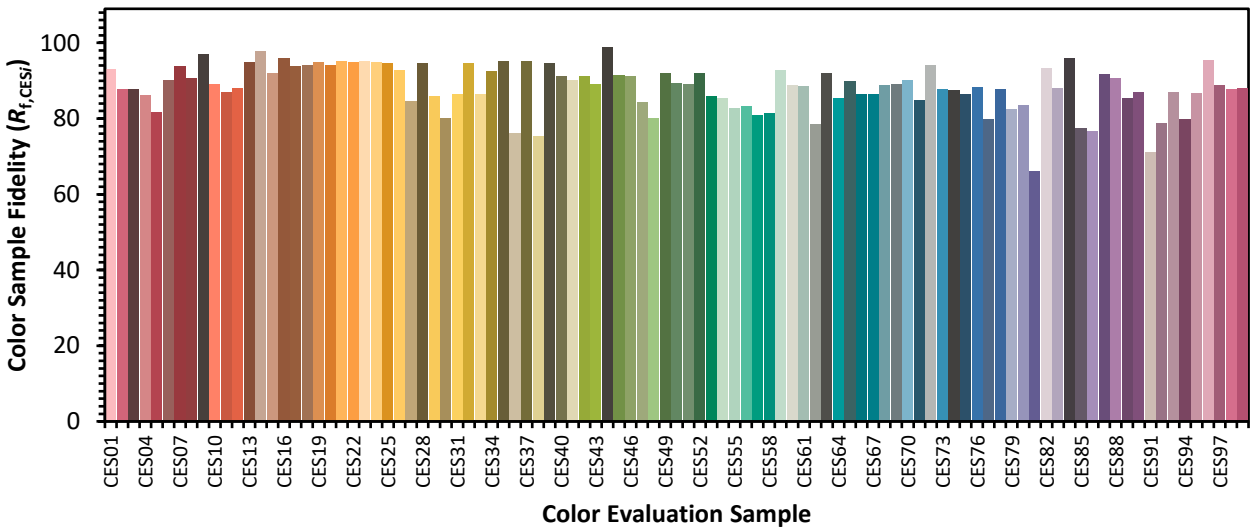



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**Individual Sample Fidelity Index ($R_{f,i}$)**

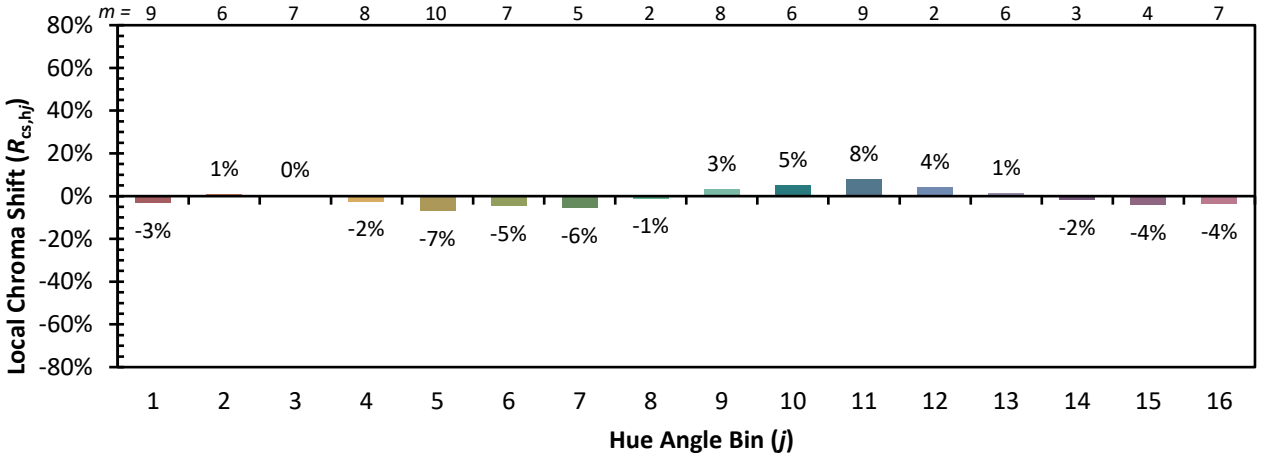
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 93 | CES51 = 89 | CES76 = 88 |
| CES02 = 62 | CES27 = 84 | CES52 = 92 | CES77 = 80 |
| CES03 = 32 | CES28 = 95 | CES53 = 86 | CES78 = 88 |
| CES04 = 70 | CES29 = 86 | CES54 = 85 | CES79 = 83 |
| CES05 = 49 | CES30 = 80 | CES55 = 83 | CES80 = 83 |
| CES06 = 51 | CES31 = 86 | CES56 = 83 | CES81 = 66 |
| CES07 = 43 | CES32 = 95 | CES57 = 81 | CES82 = 93 |
| CES08 = 41 | CES33 = 86 | CES58 = 81 | CES83 = 88 |
| CES09 = 29 | CES34 = 93 | CES59 = 93 | CES84 = 96 |
| CES10 = 75 | CES35 = 95 | CES60 = 89 | CES85 = 78 |
| CES11 = 58 | CES36 = 76 | CES61 = 88 | CES86 = 77 |
| CES12 = 64 | CES37 = 95 | CES62 = 79 | CES87 = 92 |
| CES13 = 43 | CES38 = 75 | CES63 = 92 | CES88 = 91 |
| CES14 = 74 | CES39 = 95 | CES64 = 85 | CES89 = 85 |
| CES15 = 72 | CES40 = 91 | CES65 = 90 | CES90 = 87 |
| CES16 = 47 | CES41 = 90 | CES66 = 86 | CES91 = 71 |
| CES17 = 49 | CES42 = 91 | CES67 = 87 | CES92 = 79 |
| CES18 = 56 | CES43 = 89 | CES68 = 89 | CES93 = 87 |
| CES19 = 71 | CES44 = 99 | CES69 = 89 | CES94 = 80 |
| CES20 = 66 | CES45 = 92 | CES70 = 90 | CES95 = 87 |
| CES21 = 85 | CES46 = 91 | CES71 = 85 | CES96 = 95 |
| CES22 = 78 | CES47 = 84 | CES72 = 94 | CES97 = 89 |
| CES23 = 91 | CES48 = 80 | CES73 = 88 | CES98 = 88 |
| CES24 = 90 | CES49 = 92 | CES74 = 87 | CES99 = 88 |
| CES25 = 71 | CES50 = 89 | CES75 = 86 | |

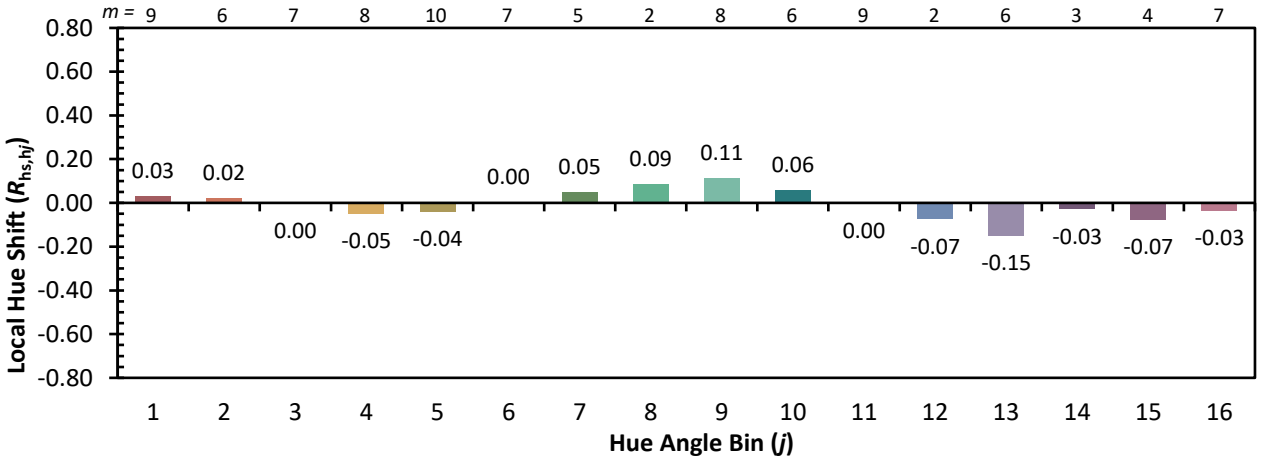


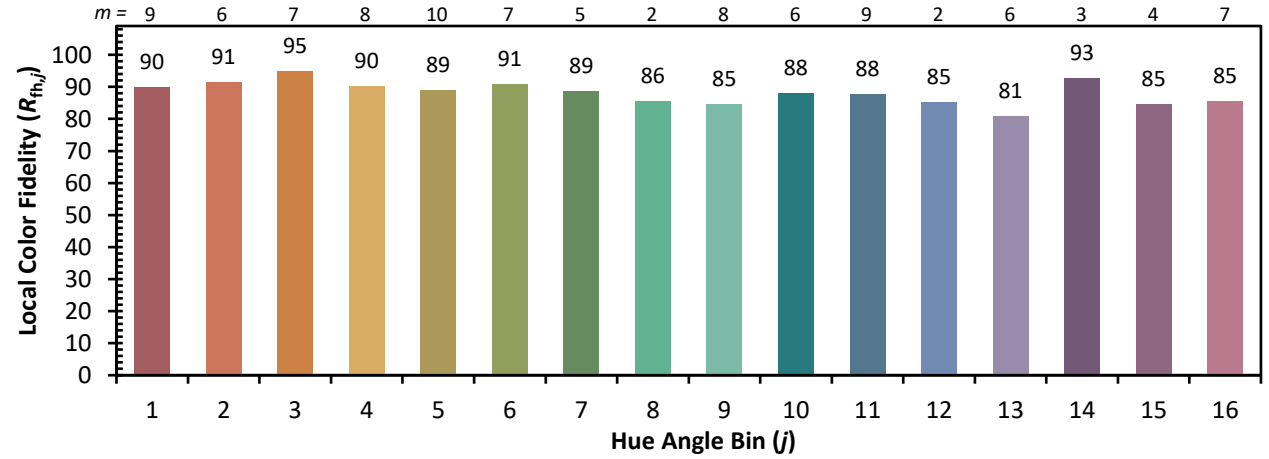
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## Color Rendition by Hue-Angle Bin



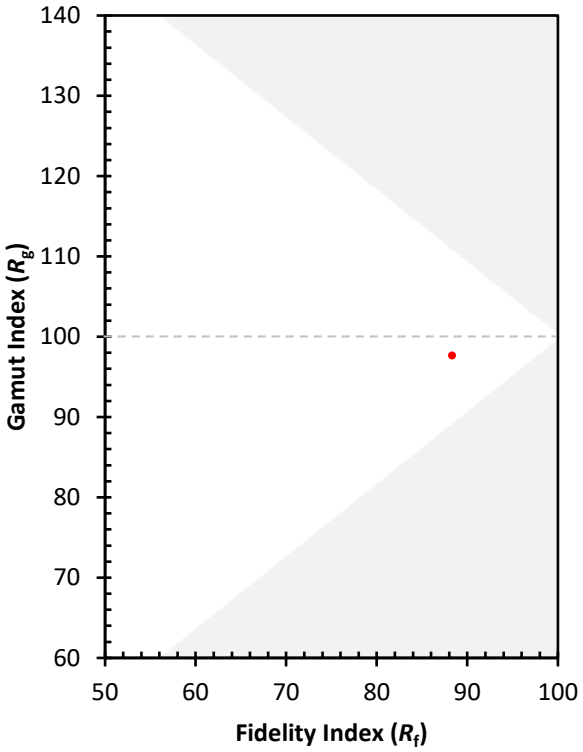



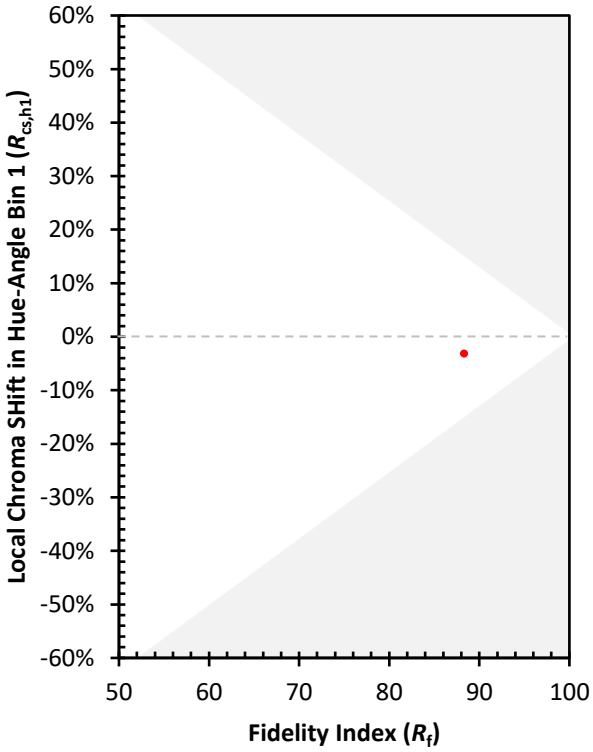



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### Measure Comparisons




(END OF REPORT)