Signify Classified - Internal

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

Scaled data based on original data using

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

Test Report Prepared for

Cooper Lighting Solutions

Brand: METALUX

Report Number: P1590948

Luminaire Tested: 24CGTX-40-L93050-W2A-4000K

Issue Date: 9/7/2026

Report Generated By 670265710 / DESKTOP-98SHLC4

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

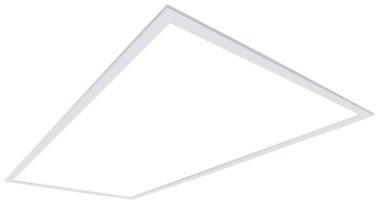
Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P1590948 |
| | TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G3-2512-631-17) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 9/7/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | METALUX |
| Catalog Number: | 24CGTX-40-L93050-W2A-4000K |
| Description: | 2X4 4000 LUMEN CGTX TROFFER WITH VividTune LEDS AT 4000K CCT |
| Light Source: | 4000K CCT, 90 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 4749.4 lumens |
| Efficiency: | N/A |
| Efficacy: | 121.5 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): | 39.1 |
| 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 |

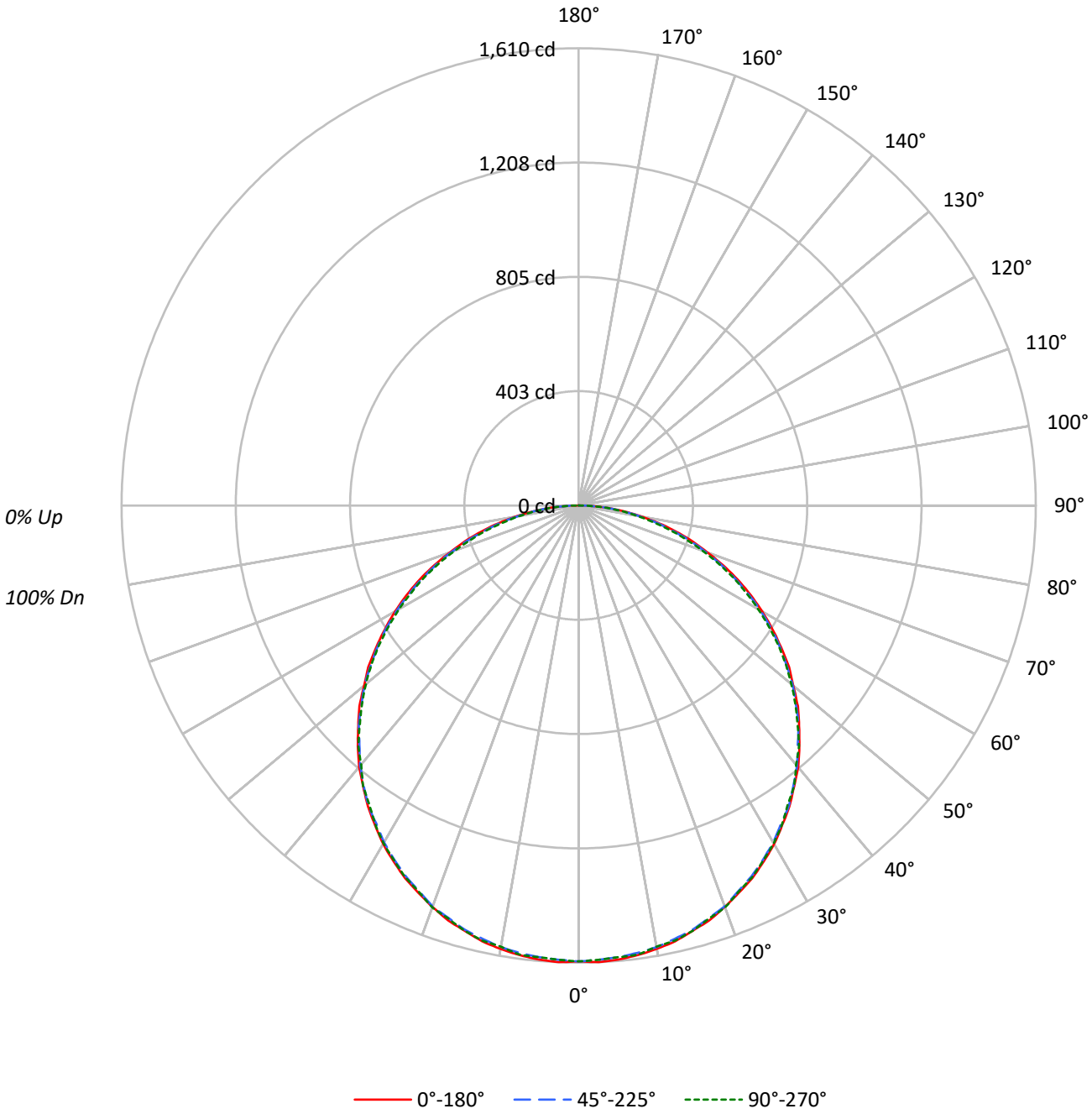


Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1590948
CATALOG NUMBER: 24CGTX-40-L93050-W2A-4000K

## Luminous Intensity Polar Plot



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

Scaled Data Report

TEST NUMBER: P1590948
CATALOG NUMBER: 24CGTX-40-L93050-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 | 106 | 101 | 97 | 93 | 97 | 93 | 90 | 93 | 90 | 88 | 89 | 87 | 85 | 83 |
| 2 | 98 | 90 | 83 | 77 | 96 | 88 | 81 | 76 | 84 | 79 | 74 | 81 | 76 | 72 | 78 | 74 | 71 | 69 |
| 3 | 89 | 79 | 70 | 64 | 87 | 77 | 69 | 63 | 74 | 67 | 62 | 71 | 66 | 61 | 69 | 64 | 60 | 57 |
| 4 | 82 | 70 | 61 | 54 | 79 | 68 | 60 | 53 | 66 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 51 | 49 |
| 5 | 75 | 62 | 53 | 46 | 73 | 61 | 52 | 46 | 59 | 51 | 45 | 57 | 50 | 45 | 55 | 49 | 44 | 42 |
| 6 | 69 | 56 | 47 | 40 | 67 | 55 | 46 | 40 | 53 | 45 | 40 | 51 | 44 | 39 | 50 | 44 | 39 | 37 |
| 7 | 64 | 51 | 42 | 35 | 62 | 50 | 41 | 35 | 48 | 41 | 35 | 47 | 40 | 35 | 45 | 39 | 34 | 32 |
| 8 | 60 | 46 | 37 | 31 | 58 | 45 | 37 | 31 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 35 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 42 | 34 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 38 | 31 | 26 | 37 | 30 | 25 | 36 | 30 | 25 | 36 | 30 | 25 | 23 |

## AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|---|---|---|---|
| 0° | 2160 | 2160 | 2160 |
| 5° | 2168 | 2157 | 2157 |
| 10° | 2166 | 2158 | 2155 |
| 15° | 2160 | 2155 | 2160 |
| 20° | 2155 | 2152 | 2157 |
| 25° | 2149 | 2138 | 2145 |
| 30° | 2140 | 2128 | 2135 |
| 35° | 2126 | 2121 | 2110 |
| 40° | 2113 | 2102 | 2093 |
| 45° | 2089 | 2083 | 2073 |
| 50° | 2064 | 2059 | 2046 |
| 55° | 2040 | 2025 | 2013 |
| 60° | 2008 | 1988 | 1963 |
| 65° | 1966 | 1930 | 1910 |
| 70° | 1894 | 1862 | 1821 |
| 75° | 1845 | 1775 | 1721 |
| 80° | 1729 | 1673 | 1609 |
| 85° | 1618 | 1570 | 1490 |

## MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2089 cd/sqm

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

Scaled Data Report

TEST NUMBER: P1590948
CATALOG NUMBER: 24CGTX-40-L93050-W2A-4000K

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 151.9 | 3.2 |
| 10°-20° | 436.8 | 9.2 |
| 20°-30° | 664.7 | 14.0 |
| 30°-40° | 806.4 | 17.0 |
| 40°-50° | 843.5 | 17.8 |
| 50°-60° | 771.8 | 16.2 |
| 60°-70° | 600.1 | 12.6 |
| 70°-80° | 361.9 | 7.6 |
| 80°-90° | 112.2 | 2.4 |
| 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° | 1253.5 | 26.4 |
| 0°-40° | 2059.9 | 43.4 |
| 0°-60° | 3675.1 | 77.4 |
| 0°-90° | 4749.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4749.4 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|---|---|---|---|---|---|---|
| 0° | 1605 | 1605 | 1605 | 1605 | 1605 | |
| 5° | 1605 | 1597 | 1597 | 1593 | 1597 | 153 |
| 15° | 1550 | 1546 | 1547 | 1547 | 1550 | 438 |
| 25° | 1448 | 1442 | 1440 | 1439 | 1445 | 667 |
| 35° | 1294 | 1289 | 1291 | 1288 | 1285 | 809 |
| 45° | 1098 | 1095 | 1095 | 1091 | 1090 | 848 |
| 55° | 870 | 868 | 863 | 859 | 858 | 778 |
| 65° | 618 | 613 | 606 | 601 | 600 | 610 |
| 75° | 355 | 350 | 341 | 333 | 331 | 374 |
| 85° | 105 | 104 | 102 | 96 | 96 | 116 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1590948
CATALOG NUMBER: 24CGTX-40-L93050-W2A-4000K

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 22.5° | 45° | 67.5° | 90° |
|---|---|---|---|---|---|
| 0° | *1605.4* | 1605.4 | 1605.4 | 1605.4 | 1605.4 |
| 2.5° | *1609.6* | *1601.3* | *1601.3* | *1597.1* | *1601.3* |
| 5° | *1605.4* | 1597.1 | 1597.1 | 1593.0 | 1597.1 |
| 7.5° | *1597.1* | 1590.9 | 1588.8 | 1588.8 | 1595.1 |
| 10° | *1585.7* | 1580.5 | 1579.5 | 1576.4 | 1577.4 |
| 12.5° | *1572.2* | 1563.9 | 1562.9 | 1561.8 | 1569.1 |
| 15° | *1550.4* | 1546.3 | 1547.3 | 1547.3 | 1550.4 |
| 17.5° | *1531.7* | 1528.6 | 1523.4 | 1525.5 | 1525.5 |
| 20° | *1504.8* | 1501.7 | 1502.7 | 1497.5 | 1506.8 |
| 22.5° | *1475.7* | 1475.7 | 1469.5 | 1471.6 | 1471.6 |
| 25° | *1447.7* | 1441.5 | 1440.4 | 1439.4 | 1444.6 |
| 27.5° | *1412.4* | 1409.3 | 1406.2 | 1407.2 | 1408.3 |
| 30° | *1377.1* | 1369.9 | 1369.9 | 1371.9 | 1374.0 |
| 32.5° | *1334.6* | 1335.6 | 1327.3 | 1327.3 | 1332.5 |
| 35° | *1294.1* | 1288.9 | 1291.0 | 1287.9 | 1284.8 |
| 37.5° | *1246.4* | 1246.4 | 1243.2 | 1242.2 | 1246.4 |
| 40° | *1202.8* | 1195.5 | 1196.5 | 1192.4 | 1191.4 |
| 42.5° | *1150.9* | 1148.8 | 1142.6 | 1142.6 | 1148.8 |
| 45° | *1098.0* | 1094.8 | 1094.8 | 1090.7 | 1089.7 |
| 47.5° | *1047.1* | 1044.0 | 1037.8 | 1035.7 | 1034.7 |
| 50° | *985.9* | 985.9 | 983.8 | 978.6 | 977.6 |
| 52.5° | *934.0* | 929.8 | 922.6 | 921.5 | 919.5 |
| 55° | *869.7* | 867.6 | 863.4 | 859.3 | 858.2 |
| 57.5° | *808.4* | 806.3 | 802.2 | 797.0 | 793.9 |
| 60° | *746.2* | 741.0 | 738.9 | 731.6 | 729.6 |
| 62.5° | *682.9* | 677.7 | 672.5 | 665.2 | 664.2 |
| 65° | *617.5* | 613.3 | 606.1 | 600.9 | 599.8 |
| 67.5° | *550.0* | 546.9 | 541.7 | 532.4 | 531.3 |
| 70° | *481.5* | 483.6 | 473.2 | 463.9 | 462.8 |
| 72.5° | *420.3* | 415.1 | 407.8 | 399.5 | 394.4 |
| 75° | *354.9* | 349.7 | 341.4 | 333.1 | 331.0 |
| 77.5° | *289.5* | 285.4 | 280.2 | 269.8 | 266.7 |
| 80° | *223.1* | 222.1 | 215.9 | 210.7 | 207.6 |
| 82.5° | *162.9* | 162.9 | 158.8 | 150.5 | 151.5 |
| 85° | *104.8* | 103.8 | 101.7 | 95.5 | 96.5 |
| 87.5° | *48.8* | 46.7 | 45.7 | 46.7 | 45.7 |
| 90° | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 |

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Peachtree City, GA 30269

TEST NUMBER: P1590948
CATALOG NUMBER: 24CGTX-40-L93050-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 | 14.68 | 16.34 | 15.05 | 16.66 | 16.97 | 14.59 | 16.25 | 14.96 | 16.57 | 16.88 |
| | 3H | 16.61 | 18.12 | 16.99 | 18.44 | 18.80 | 16.45 | 17.96 | 16.83 | 18.29 | 18.65 |
| | 4H | 17.38 | 18.80 | 17.78 | 19.15 | 19.52 | 17.17 | 18.59 | 17.57 | 18.94 | 19.31 |
| | 6H | 17.98 | 19.30 | 18.39 | 19.66 | 20.05 | 17.72 | 19.04 | 18.13 | 19.40 | 19.79 |
| | 8H | 18.19 | 19.45 | 18.61 | 19.84 | 20.24 | 17.92 | 19.18 | 18.34 | 19.57 | 19.96 |
| | 12H | 18.35 | 19.55 | 18.77 | 19.94 | 20.36 | 18.06 | 19.27 | 18.49 | 19.65 | 20.08 |
| 4H | 2H | 15.33 | 16.75 | 15.73 | 17.10 | 17.47 | 15.26 | 16.68 | 15.66 | 17.03 | 17.40 |
| | 3H | 17.49 | 18.69 | 17.90 | 19.09 | 19.48 | 17.35 | 18.55 | 17.76 | 18.94 | 19.34 |
| | 4H | 18.40 | 19.48 | 18.83 | 19.89 | 20.33 | 18.20 | 19.28 | 18.63 | 19.70 | 20.13 |
| | 6H | 19.14 | 20.09 | 19.59 | 20.53 | 20.98 | 18.89 | 19.84 | 19.34 | 20.28 | 20.73 |
| | 8H | 19.41 | 20.30 | 19.87 | 20.74 | 21.20 | 19.14 | 20.03 | 19.60 | 20.47 | 20.93 |
| | 12H | 19.62 | 20.42 | 20.10 | 20.89 | 21.36 | 19.33 | 20.13 | 19.81 | 20.61 | 21.07 |
| 8H | 4H | 18.74 | 19.63 | 19.20 | 20.07 | 20.53 | 18.56 | 19.45 | 19.02 | 19.90 | 20.36 |
| | 6H | 19.62 | 20.36 | 20.11 | 20.85 | 21.32 | 19.39 | 20.13 | 19.88 | 20.62 | 21.09 |
| | 8H | 19.98 | 20.64 | 20.48 | 21.15 | 21.63 | 19.72 | 20.39 | 20.23 | 20.89 | 21.38 |
| | 12H | 20.28 | 20.87 | 20.78 | 21.36 | 21.92 | 20.00 | 20.59 | 20.50 | 21.08 | 21.64 |
| 12H | 4H | 18.78 | 19.58 | 19.26 | 20.06 | 20.52 | 18.61 | 19.42 | 19.09 | 19.89 | 20.36 |
| | 6H | 19.69 | 20.36 | 20.20 | 20.86 | 21.35 | 19.47 | 20.14 | 19.98 | 20.65 | 21.13 |
| | 8H | 20.11 | 20.71 | 20.62 | 21.19 | 21.75 | 19.87 | 20.46 | 20.37 | 20.95 | 21.51 |

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

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2512-631-31-R2

Test Date: 02/05/2026

Luminaire Tested: 22CGTX-50-L93050-W2A-4000K

Data in this report applies to families of products including 22CGTX

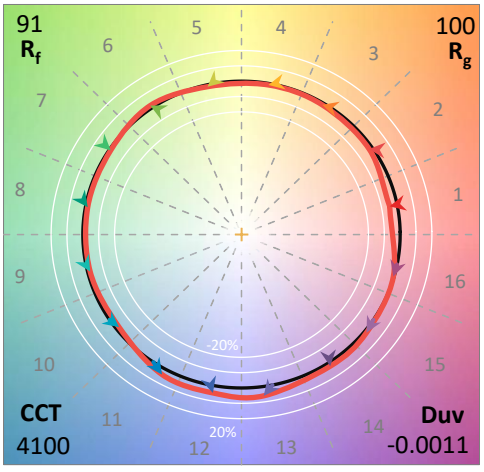
Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.05

## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2512-631-31-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: | **22CGTX-50-L93050-W2A-4000K** |
| Description: | *THIS IS A REVISION OF REPORT SP1-2512-631-31-R2 TO UPDATE THE CATALOG INFORMATION* 2X2 5000 LUMEN HE CGTX TUNABLE WHITE FROM 3000K TO 5000K - 4.5 Volt |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 4100 | CRI (Ra): | 94.2 | | |
| CIE u': | 0.2240 | R1: | 95.8 | R9: | 68.3 |
| CIE v': | 0.4984 | R2: | 96.4 | R10: | 89.3 |
| Duv: | -0.0011 | R3: | 94.9 | R11: | 95.3 |
| CIE x: | 0.3754 | R4: | 95.5 | R12: | 73.6 |
| CIE y: | 0.3712 | R5: | 94.7 | R13: | 96.1 |
| CIE z: | 0.2534 | R6: | 93.8 | R14: | 96.4 |
| Peak Wavelength (nm): | 630 | R7: | 94.6 | R15: | 93.4 |
| Dominant Wavelength (nm): | 579 | R8: | 88.1 | | |
| Purity: | 24.05581 | | | | |
| Rf: | 90.9 | | | | |
| Rg: | 99.8 | | | | |



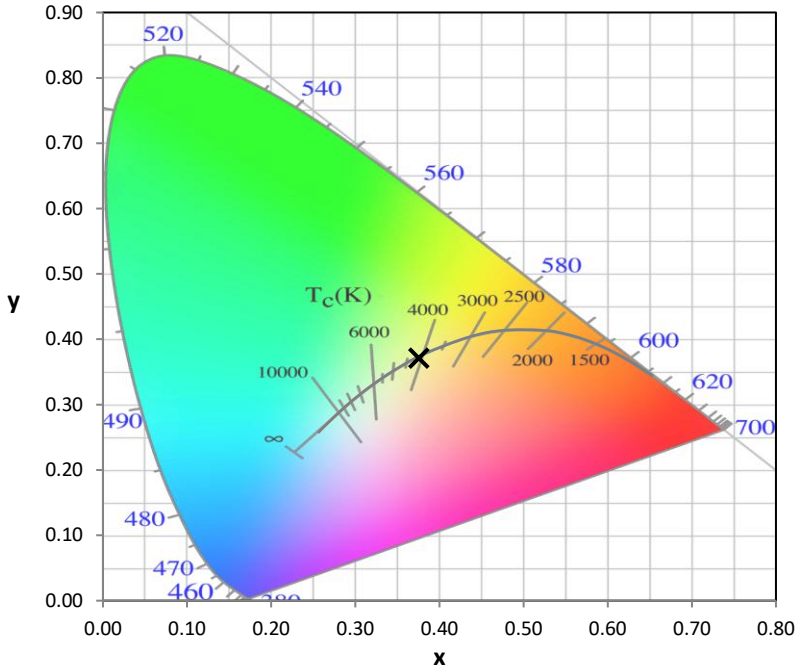

## Test Conditions

| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 25.1 |

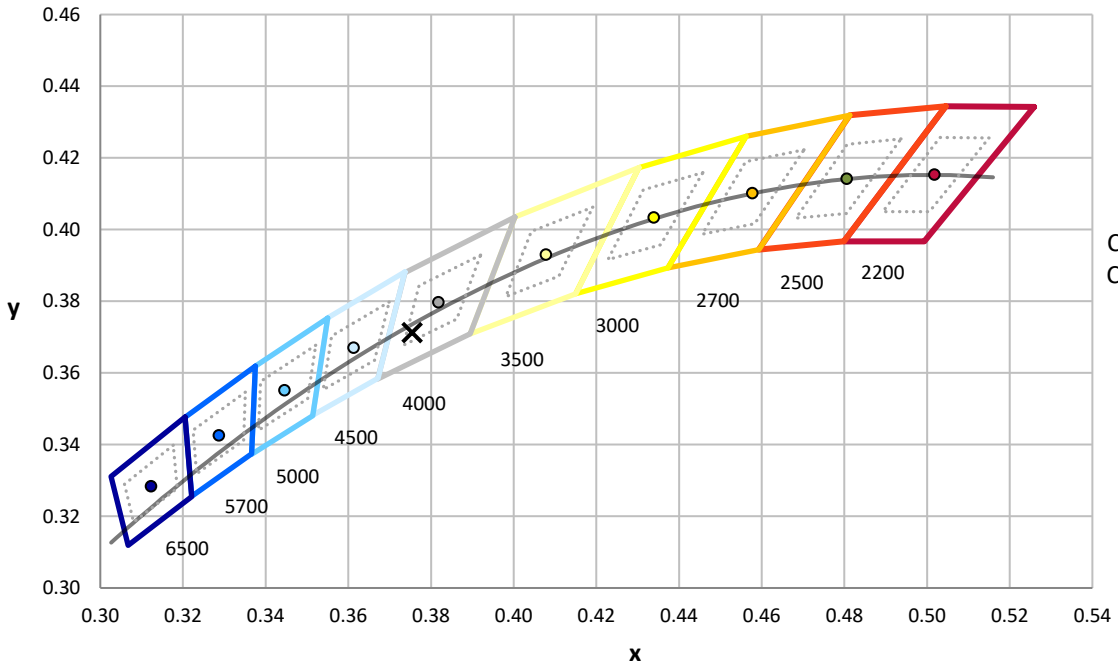
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2025 | 6/16/2026 |
| Power Meter | XITRON INXT2011004 | 10/21/2025 | 10/21/2026 |
| AC Power Source | CHROMA 61603 IN0063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

REPORT NUMBER: SP1-2512-631-31-R2

## CIE 1931 Chromaticity Diagram




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

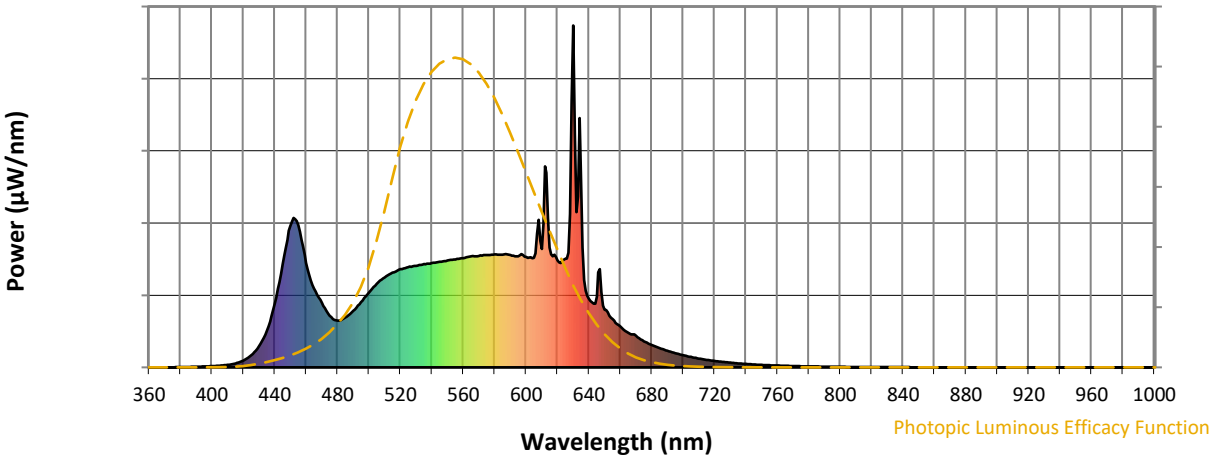



CCT = 4100K
CIE x = 0.3754
CIE y = 0.3712
Duv = -0.0011

Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2512-631-31-R2

## Photopic Flux vs. Wavelength

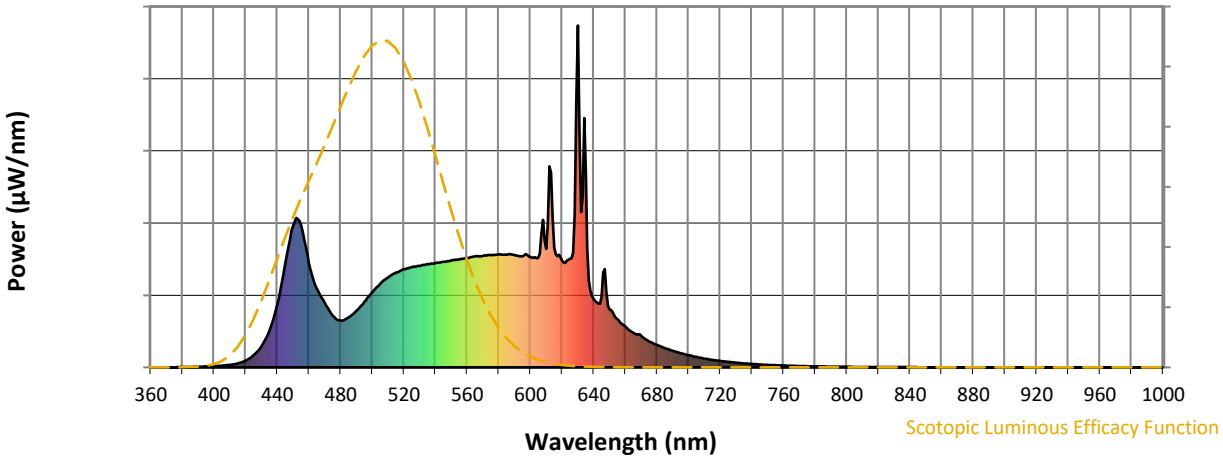



## Photopic Lumens: NR

| 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 | 165 | NR | 620 | 313 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 191 | NR | 625 | 318 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 219 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 245 | NR | 635 | 564 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 263 | NR | 640 | 200 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 277 | NR | 645 | 207 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 287 | NR | 650 | 169 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 293 | NR | 655 | 141 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 297 | NR | 660 | 120 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 302 | NR | 665 | 102 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 305 | NR | 670 | 93 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 12 | NR | 545 | 309 | NR | 675 | 76 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 313 | NR | 680 | 65 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 36 | NR | 555 | 316 | NR | 685 | 56 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 62 | NR | 560 | 320 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 325 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 185 | NR | 570 | 326 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 301 | NR | 575 | 329 | NR | 705 | 31 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 413 | NR | 580 | 330 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 415 | NR | 585 | 329 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 305 | NR | 590 | 329 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 231 | NR | 595 | 325 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 188 | NR | 600 | 323 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 151 | NR | 605 | 320 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 137 | NR | 610 | 346 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 146 | NR | 615 | 351 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2512-631-31-R2

## Scotopic Flux vs. Wavelength

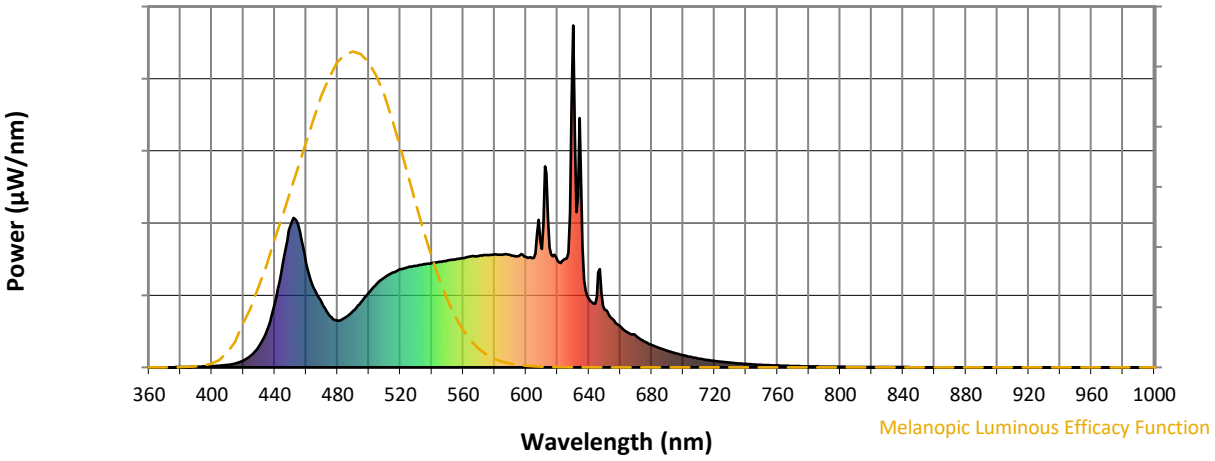



**Scotopic Lumens: NR** **S/P: 1.82**

| 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 | 165 | NR | 620 | 313 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 191 | NR | 625 | 318 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 219 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 245 | NR | 635 | 564 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 263 | NR | 640 | 200 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 277 | NR | 645 | 207 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 287 | NR | 650 | 169 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 293 | NR | 655 | 141 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 297 | NR | 660 | 120 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 302 | NR | 665 | 102 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 305 | NR | 670 | 93 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 12 | NR | 545 | 309 | NR | 675 | 76 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 313 | NR | 680 | 65 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 36 | NR | 555 | 316 | NR | 685 | 56 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 62 | NR | 560 | 320 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 325 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 185 | NR | 570 | 326 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 301 | NR | 575 | 329 | NR | 705 | 31 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 413 | NR | 580 | 330 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 415 | NR | 585 | 329 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 305 | NR | 590 | 329 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 231 | NR | 595 | 325 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 188 | NR | 600 | 323 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 151 | NR | 605 | 320 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 137 | NR | 610 | 346 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 146 | NR | 615 | 351 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 3.81**

| 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 | 165 | NR | 620 | 313 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 191 | NR | 625 | 318 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 219 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 245 | NR | 635 | 564 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 263 | NR | 640 | 200 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 277 | NR | 645 | 207 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 287 | NR | 650 | 169 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 293 | NR | 655 | 141 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 297 | NR | 660 | 120 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 5 | NR | 535 | 302 | NR | 665 | 102 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 7 | NR | 540 | 305 | NR | 670 | 93 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 12 | NR | 545 | 309 | NR | 675 | 76 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 313 | NR | 680 | 65 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 36 | NR | 555 | 316 | NR | 685 | 56 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 62 | NR | 560 | 320 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 325 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 185 | NR | 570 | 326 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 301 | NR | 575 | 329 | NR | 705 | 31 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 413 | NR | 580 | 330 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 415 | NR | 585 | 329 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 305 | NR | 590 | 329 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 231 | NR | 595 | 325 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 188 | NR | 600 | 323 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 151 | NR | 605 | 320 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 137 | NR | 610 | 346 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 146 | NR | 615 | 351 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

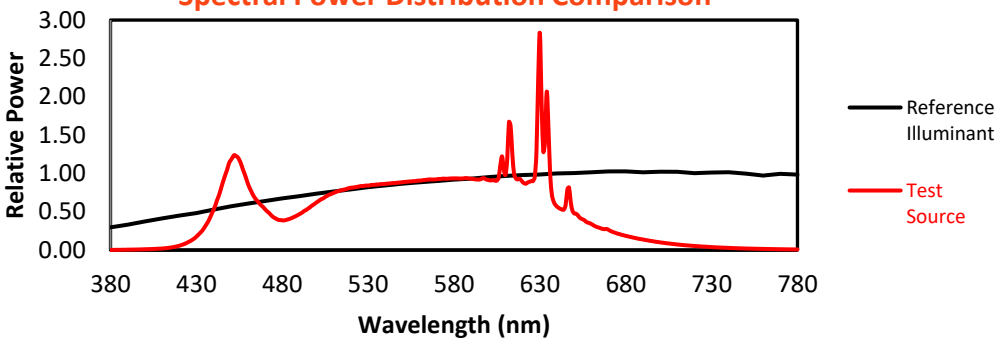
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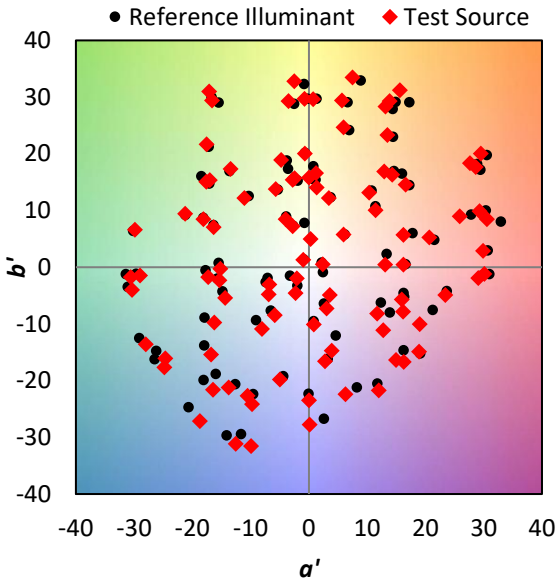
## Summary

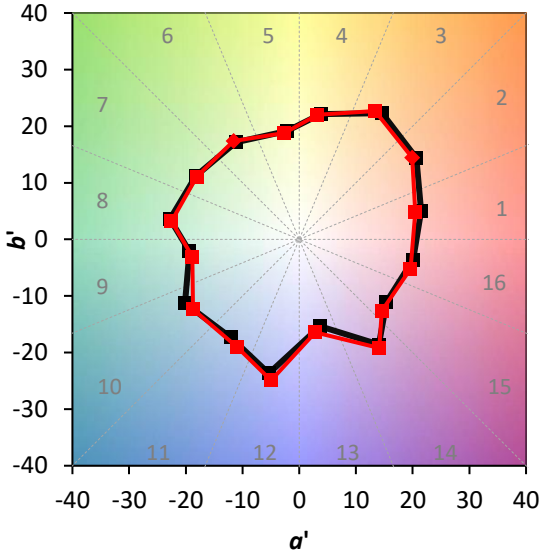
$R_f$ = 90.9
$R_g$ = 99.8
CIE $R_a$ = 94.2
$R_9$ = 68.3

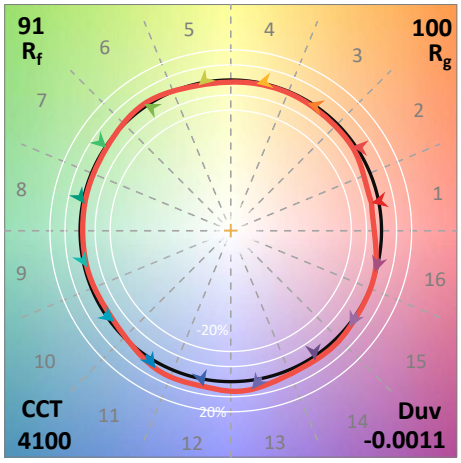
## Spectral Power Distribution Comparison

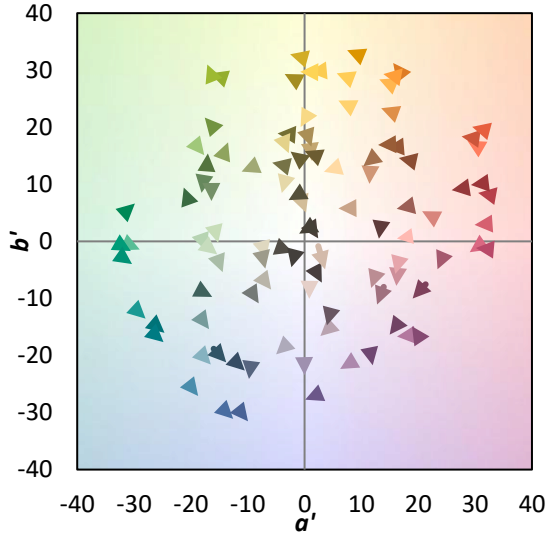



## Color Vector Graphics



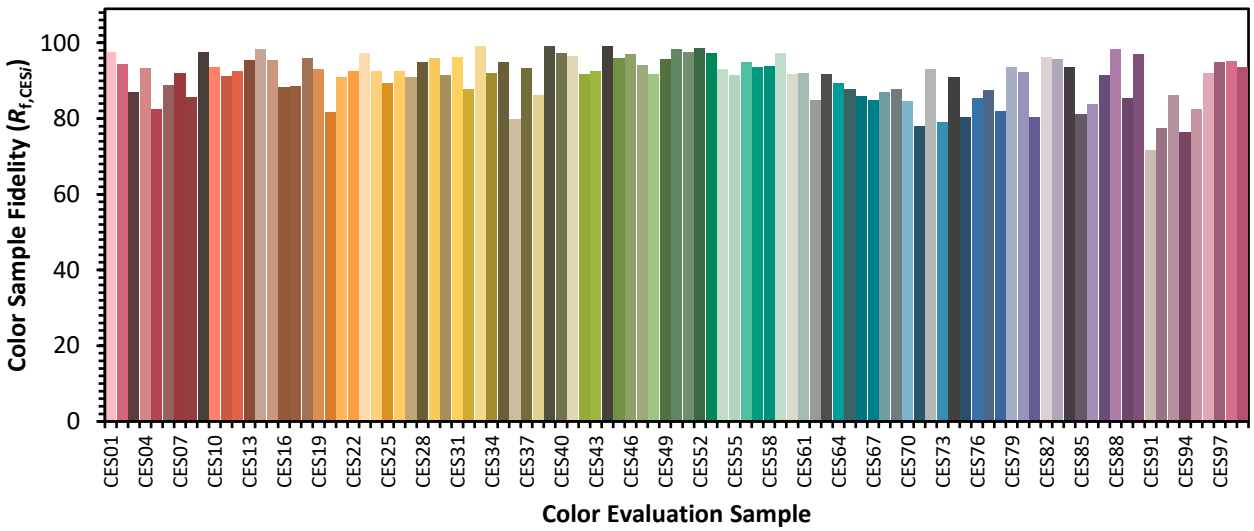



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**Individual Sample Fidelity Index ($R_{f,i}$)**

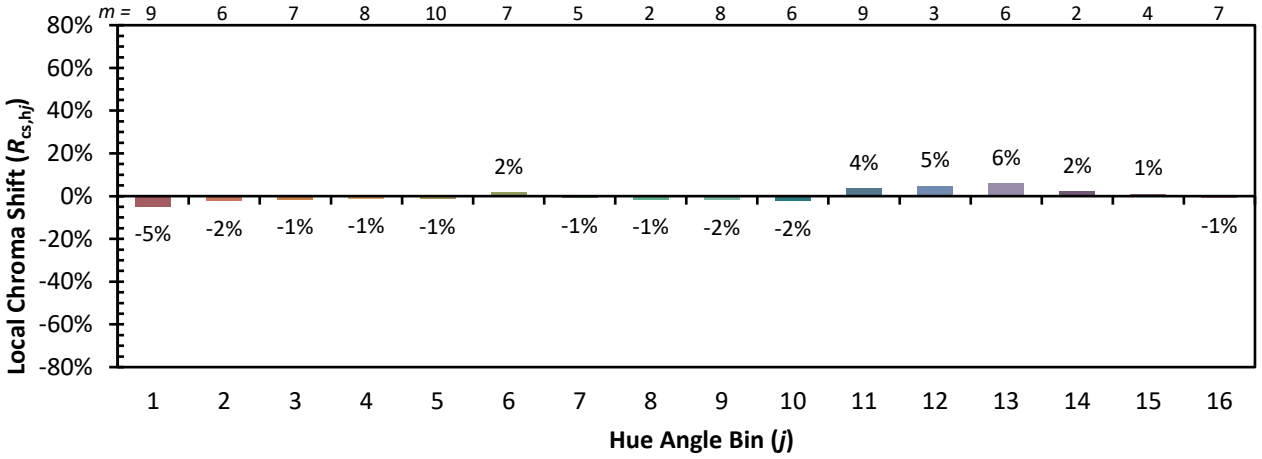
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 93 | CES51 = 97 | CES76 = 85 |
| CES02 = 62 | CES27 = 91 | CES52 = 99 | CES77 = 87 |
| CES03 = 31 | CES28 = 95 | CES53 = 97 | CES78 = 82 |
| CES04 = 69 | CES29 = 96 | CES54 = 93 | CES79 = 94 |
| CES05 = 49 | CES30 = 92 | CES55 = 91 | CES80 = 92 |
| CES06 = 50 | CES31 = 96 | CES56 = 95 | CES81 = 80 |
| CES07 = 42 | CES32 = 88 | CES57 = 93 | CES82 = 96 |
| CES08 = 41 | CES33 = 99 | CES58 = 94 | CES83 = 96 |
| CES09 = 29 | CES34 = 92 | CES59 = 97 | CES84 = 94 |
| CES10 = 74 | CES35 = 95 | CES60 = 92 | CES85 = 81 |
| CES11 = 57 | CES36 = 80 | CES61 = 92 | CES86 = 84 |
| CES12 = 63 | CES37 = 93 | CES62 = 85 | CES87 = 91 |
| CES13 = 43 | CES38 = 86 | CES63 = 92 | CES88 = 98 |
| CES14 = 74 | CES39 = 99 | CES64 = 89 | CES89 = 85 |
| CES15 = 71 | CES40 = 97 | CES65 = 88 | CES90 = 97 |
| CES16 = 47 | CES41 = 97 | CES66 = 86 | CES91 = 72 |
| CES17 = 49 | CES42 = 92 | CES67 = 85 | CES92 = 77 |
| CES18 = 56 | CES43 = 93 | CES68 = 87 | CES93 = 86 |
| CES19 = 71 | CES44 = 99 | CES69 = 88 | CES94 = 77 |
| CES20 = 66 | CES45 = 96 | CES70 = 85 | CES95 = 82 |
| CES21 = 85 | CES46 = 97 | CES71 = 78 | CES96 = 92 |
| CES22 = 78 | CES47 = 94 | CES72 = 93 | CES97 = 95 |
| CES23 = 91 | CES48 = 92 | CES73 = 79 | CES98 = 95 |
| CES24 = 90 | CES49 = 96 | CES74 = 91 | CES99 = 94 |
| CES25 = 71 | CES50 = 98 | CES75 = 80 | |

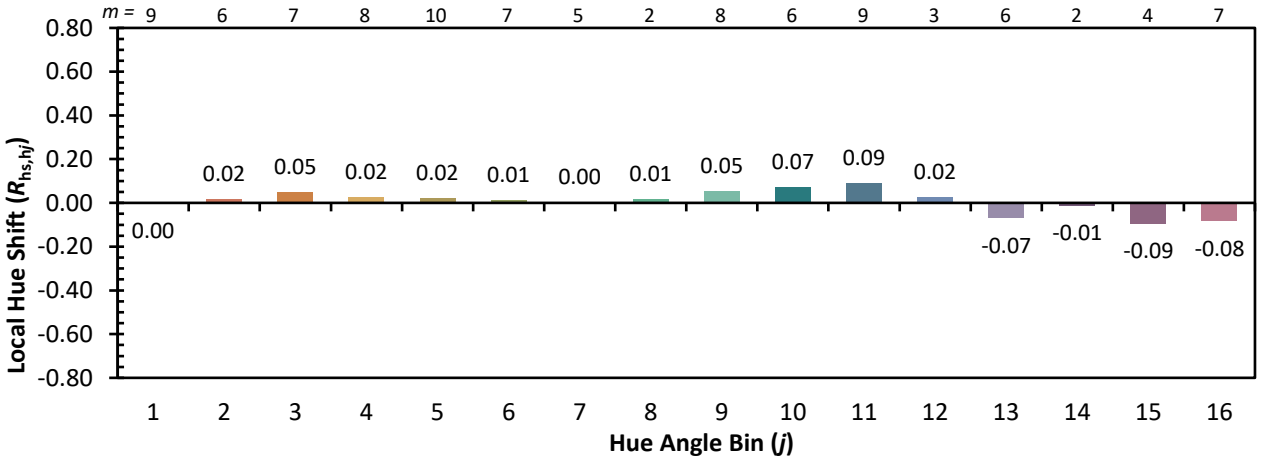


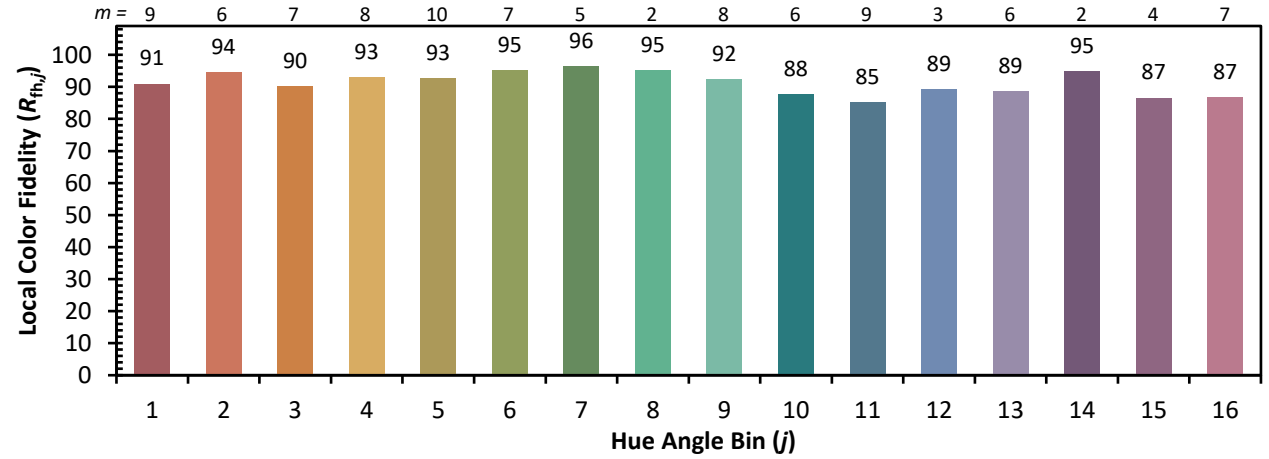
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## Color Rendition by Hue-Angle Bin



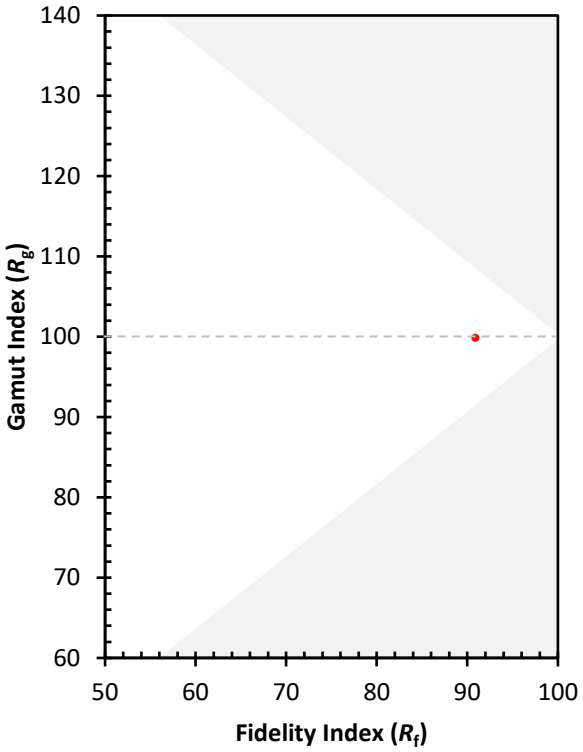



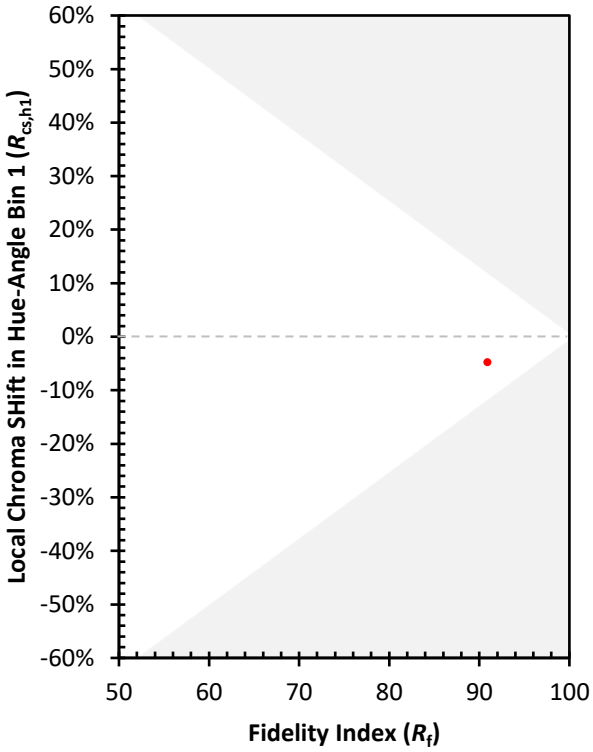



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## Measure Comparisons




(END OF REPORT)