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: P1590695

Luminaire Tested: 24CGTX-72-B50-HCD2

Issue Date: 9/4/2026

Report Generated By 670265710 / DESKTOP-98SHLC4

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

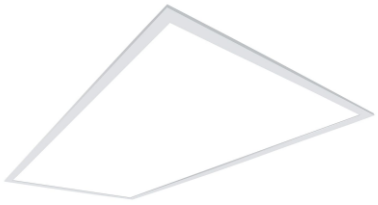
Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P1590695 |
| | TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G3-2510-581-29) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 9/4/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | METALUX |
| Catalog Number: | 24CGTX-72-B50-HCD2 |
| Description: | 2X4 7200 LUMEN CGTX TROFFER WITH BIO UP LEDS AT 5000K CCT WITH FROSTED SMOOTH LENS |
| Light Source: | 5000K CCT, 80 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 6896.8 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): | 64.5 |
| 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 |

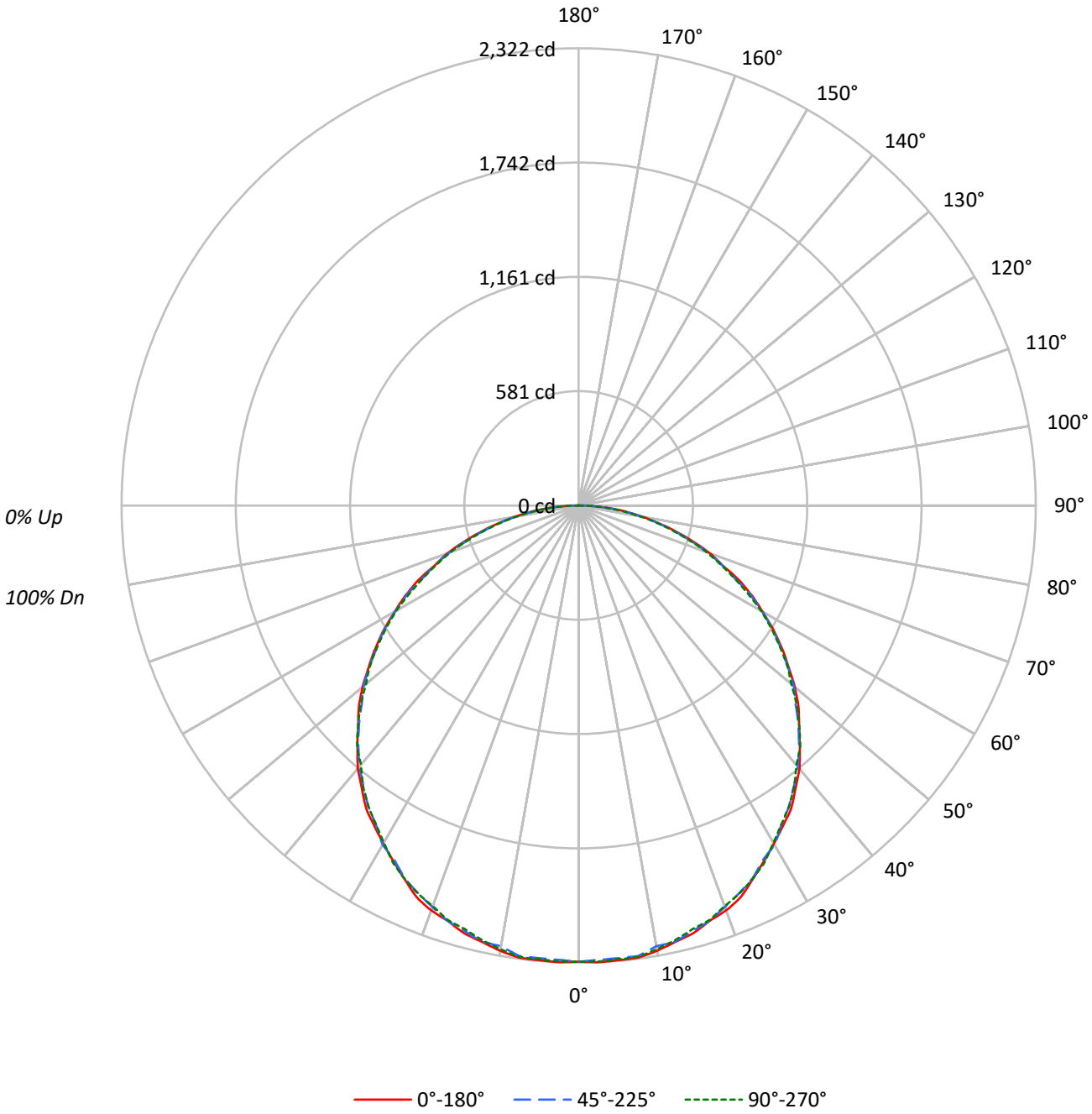


Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1590695
CATALOG NUMBER: 24CGTX-72-B50-HCD2

## Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1590695
CATALOG NUMBER: 24CGTX-72-B50-HCD2

## 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 | 68 |
| 3 | 89 | 79 | 70 | 63 | 87 | 77 | 69 | 63 | 74 | 67 | 62 | 71 | 65 | 61 | 69 | 64 | 60 | 57 |
| 4 | 82 | 69 | 60 | 54 | 79 | 68 | 60 | 53 | 66 | 58 | 52 | 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 | 39 | 51 | 44 | 39 | 50 | 44 | 39 | 37 |
| 7 | 64 | 50 | 42 | 35 | 62 | 50 | 41 | 35 | 48 | 40 | 35 | 47 | 40 | 35 | 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 | 42 | 34 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 38 | 31 | 25 | 37 | 30 | 25 | 36 | 30 | 25 | 36 | 29 | 25 | 23 |

## AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|---|---|---|---|
| 0° | 3117 | 3117 | 3117 |
| 5° | 3131 | 3117 | 3124 |
| 10° | 3138 | 3105 | 3126 |
| 15° | 3134 | 3117 | 3104 |
| 20° | 3135 | 3108 | 3101 |
| 25° | 3108 | 3104 | 3106 |
| 30° | 3082 | 3094 | 3074 |
| 35° | 3090 | 3061 | 3061 |
| 40° | 3065 | 3043 | 3021 |
| 45° | 3013 | 3003 | 3015 |
| 50° | 3000 | 2984 | 2950 |
| 55° | 2953 | 2929 | 2923 |
| 60° | 2902 | 2891 | 2878 |
| 65° | 2862 | 2786 | 2774 |
| 70° | 2786 | 2742 | 2712 |
| 75° | 2665 | 2606 | 2586 |
| 80° | 2524 | 2475 | 2446 |
| 85° | 2339 | 2221 | 2164 |

## MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
Vertical Angle: 45°
Luminance: 3018 cd/sqm

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TEST NUMBER: P1590695
CATALOG NUMBER: 24CGTX-72-B50-HCD2

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 220.2 | 3.2 |
| 10°-20° | 632.0 | 9.2 |
| 20°-30° | 962.6 | 14.0 |
| 30°-40° | 1167.6 | 16.9 |
| 40°-50° | 1220.4 | 17.7 |
| 50°-60° | 1120.1 | 16.2 |
| 60°-70° | 874.6 | 12.7 |
| 70°-80° | 533.6 | 7.7 |
| 80°-90° | 165.8 | 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° | 1814.7 | 26.3 |
| 0°-40° | 2982.3 | 43.2 |
| 0°-60° | 5322.8 | 77.2 |
| 0°-90° | 6896.8 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6896.8 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|---|---|---|---|---|---|---|
| 0° | 2317 | 2317 | 2317 | 2317 | 2317 | |
| 5° | 2318 | 2321 | 2308 | 2321 | 2313 | 221 |
| 15° | 2250 | 2249 | 2237 | 2237 | 2228 | 634 |
| 25° | 2093 | 2088 | 2091 | 2082 | 2092 | 966 |
| 35° | 1881 | 1875 | 1864 | 1866 | 1864 | 1173 |
| 45° | 1583 | 1581 | 1578 | 1586 | 1585 | 1226 |
| 55° | 1259 | 1255 | 1249 | 1258 | 1246 | 1125 |
| 65° | 899 | 888 | 875 | 878 | 871 | 884 |
| 75° | 513 | 511 | 501 | 499 | 498 | 541 |
| 85° | 152 | 149 | 144 | 146 | 140 | 170 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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Scaled Data Report

TEST NUMBER: P1590695
CATALOG NUMBER: 24CGTX-72-B50-HCD2

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 22.5° | 45° | 67.5° | 90° |
|---|---|---|---|---|---|
| 0° | 2316.9 | *2316.9* | 2316.9 | 2316.9 | 2316.9 |
| 2.5° | *2322.0* | *2338.4* | *2309.3* | *2311.9* | *2318.2* |
| 5° | 2318.2 | *2320.7* | 2308.1 | 2320.7 | 2313.1 |
| 7.5° | 2316.9 | *2304.3* | 2308.1 | 2301.8 | 2313.1 |
| 10° | 2296.7 | *2291.7* | 2272.7 | 2285.3 | 2287.9 |
| 12.5° | 2270.2 | *2260.1* | 2268.9 | 2266.4 | 2261.4 |
| 15° | 2250.0 | *2248.7* | 2237.4 | 2237.4 | 2228.5 |
| 17.5° | 2212.1 | *2193.2* | 2212.1 | 2204.5 | 2208.3 |
| 20° | 2189.4 | *2166.7* | 2170.4 | 2183.1 | 2165.4 |
| 22.5° | 2152.8 | *2142.7* | 2131.3 | 2116.2 | 2133.8 |
| 25° | 2093.4 | *2088.4* | 2090.9 | 2082.1 | 2092.2 |
| 27.5° | 2036.6 | *2034.1* | 2027.8 | 2045.4 | 2044.2 |
| 30° | 1983.6 | *1994.9* | 1991.2 | 1987.4 | 1978.5 |
| 32.5° | 1930.5 | *1931.8* | 1917.9 | 1928.0 | 1917.9 |
| 35° | 1881.3 | *1875.0* | 1863.6 | 1866.2 | 1863.6 |
| 37.5° | 1809.3 | *1806.8* | 1795.4 | 1795.4 | 1799.2 |
| 40° | 1744.9 | *1731.1* | 1732.3 | 1723.5 | 1719.7 |
| 42.5° | 1662.9 | *1662.9* | 1656.6 | 1650.2 | 1665.4 |
| 45° | 1583.3 | *1580.8* | 1578.3 | 1585.9 | 1584.6 |
| 47.5° | 1515.1 | *1506.3* | 1494.9 | 1498.7 | 1503.8 |
| 50° | 1433.1 | *1426.8* | 1425.5 | 1423.0 | 1409.1 |
| 52.5° | 1342.2 | *1339.6* | 1337.1 | 1340.9 | 1335.9 |
| 55° | 1258.8 | *1255.0* | 1248.7 | 1257.6 | 1246.2 |
| 57.5° | 1171.7 | *1165.4* | 1169.2 | 1159.1 | 1159.1 |
| 60° | 1078.3 | *1084.6* | 1074.5 | 1069.4 | 1069.4 |
| 62.5° | 992.4 | *979.8* | 984.8 | 972.2 | 968.4 |
| 65° | 899.0 | *887.6* | 875.0 | 877.5 | 871.2 |
| 67.5° | 787.9 | *794.2* | 786.6 | 782.8 | 777.8 |
| 70° | 708.3 | *707.1* | 697.0 | 690.7 | 689.4 |
| 72.5° | 608.6 | *608.6* | 593.4 | 597.2 | 590.9 |
| 75° | 512.6 | *511.4* | 501.3 | 498.7 | 497.5 |
| 77.5° | 414.1 | *419.2* | 410.4 | 402.8 | 402.8 |
| 80° | 325.8 | *324.5* | 319.4 | 314.4 | 315.7 |
| 82.5° | 239.9 | *233.6* | 232.3 | 228.5 | 227.3 |
| 85° | 151.5 | *149.0* | 143.9 | 146.5 | 140.2 |
| 87.5° | 70.7 | *69.4* | 72.0 | 72.0 | 72.0 |
| 90° | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 |

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TEST NUMBER: P1590695
CATALOG NUMBER: 24CGTX-72-B50-HCD2

**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 | 15.95 | 17.61 | 16.31 | 17.93 | 18.24 | 15.90 | 17.57 | 16.27 | 17.88 | 18.19 |
| | 3H | 17.89 | 19.40 | 18.27 | 19.73 | 20.08 | 17.81 | 19.32 | 18.18 | 19.64 | 20.00 |
| | 4H | 18.66 | 20.08 | 19.06 | 20.43 | 20.81 | 18.56 | 19.98 | 18.95 | 20.33 | 20.70 |
| | 6H | 19.26 | 20.58 | 19.67 | 20.95 | 21.34 | 19.14 | 20.46 | 19.55 | 20.82 | 21.21 |
| | 8H | 19.48 | 20.74 | 19.90 | 21.13 | 21.53 | 19.34 | 20.60 | 19.76 | 20.99 | 21.39 |
| | 12H | 19.63 | 20.84 | 20.06 | 21.22 | 21.65 | 19.48 | 20.69 | 19.91 | 21.07 | 21.50 |
| 4H | 2H | 16.60 | 18.02 | 17.00 | 18.37 | 18.74 | 16.56 | 17.99 | 16.96 | 18.33 | 18.71 |
| | 3H | 18.78 | 19.98 | 19.19 | 20.38 | 20.78 | 18.71 | 19.90 | 19.11 | 20.30 | 20.70 |
| | 4H | 19.69 | 20.78 | 20.12 | 21.19 | 21.63 | 19.59 | 20.68 | 20.02 | 21.09 | 21.52 |
| | 6H | 20.44 | 21.39 | 20.89 | 21.83 | 22.28 | 20.31 | 21.26 | 20.76 | 21.70 | 22.15 |
| | 8H | 20.71 | 21.60 | 21.17 | 22.04 | 22.51 | 20.57 | 21.46 | 21.03 | 21.90 | 22.37 |
| | 12H | 20.92 | 21.72 | 21.40 | 22.20 | 22.66 | 20.76 | 21.57 | 21.24 | 22.04 | 22.51 |
| 8H | 4H | 20.04 | 20.94 | 20.50 | 21.38 | 21.84 | 19.95 | 20.85 | 20.41 | 21.29 | 21.75 |
| | 6H | 20.93 | 21.67 | 21.42 | 22.16 | 22.63 | 20.81 | 21.55 | 21.30 | 22.04 | 22.51 |
| | 8H | 21.28 | 21.95 | 21.79 | 22.46 | 22.94 | 21.15 | 21.82 | 21.66 | 22.33 | 22.81 |
| | 12H | 21.58 | 22.18 | 22.09 | 22.66 | 23.22 | 21.44 | 22.03 | 21.94 | 22.52 | 23.08 |
| 12H | 4H | 20.09 | 20.89 | 20.57 | 21.37 | 21.84 | 20.00 | 20.81 | 20.48 | 21.28 | 21.75 |
| | 6H | 21.00 | 21.67 | 21.51 | 22.18 | 22.66 | 20.89 | 21.56 | 21.40 | 22.06 | 22.55 |
| | 8H | 21.42 | 22.02 | 21.93 | 22.51 | 23.06 | 21.30 | 21.89 | 21.81 | 22.38 | 22.94 |

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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: SP1-2510-581-5-R2

Test Date: 01/21/2026

Luminaire Tested: 24CGTX-55-B50-HCD

Data in this report applies to families of products including 24CGTX-55HE

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.05

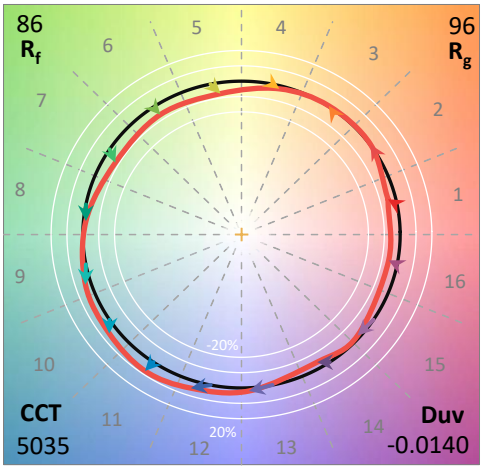
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2510-581-5-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-B50-HCD** |
| Description: | *THIS IS A REVISION OF REPORT SP1-2510-581-5-R2 TO UPDATE THE CATALOG INFORMATION* 2X4 CGTX 5500 lumen with BioUp Boards with fixed CCT 5000K - Control Volatge at 2V |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 5035 |
| CIE u': | 0.2209 |
| CIE v': | 0.4693 |
| Duv: | -0.0140 |
| CIE x: | 0.3418 |
| CIE y: | 0.3227 |
| CIE z: | 0.3355 |
| Peak Wavelength (nm): | 630 |
| Dominant Wavelength (nm): | 0 |
| Purity: | 0 |
| Rf: | 86.3 |
| Rg: | 96 |

| | |
|---|---|
| CRI (Ra): | 85.1 |
| R1: | 90.5 |
| R2: | 85.3 |
| R3: | 82.8 |
| R4: | 87.5 |
| R5: | 88.5 |
| R6: | 79.4 |
| R7: | 82.2 |
| R8: | 84.6 |
| R9: | 82.5 |
| R10: | 72.3 |
| R11: | 87.7 |
| R12: | 69.3 |
| R13: | 88.3 |
| R14: | 92.1 |
| R15: | 92.3 |




## Test Conditions

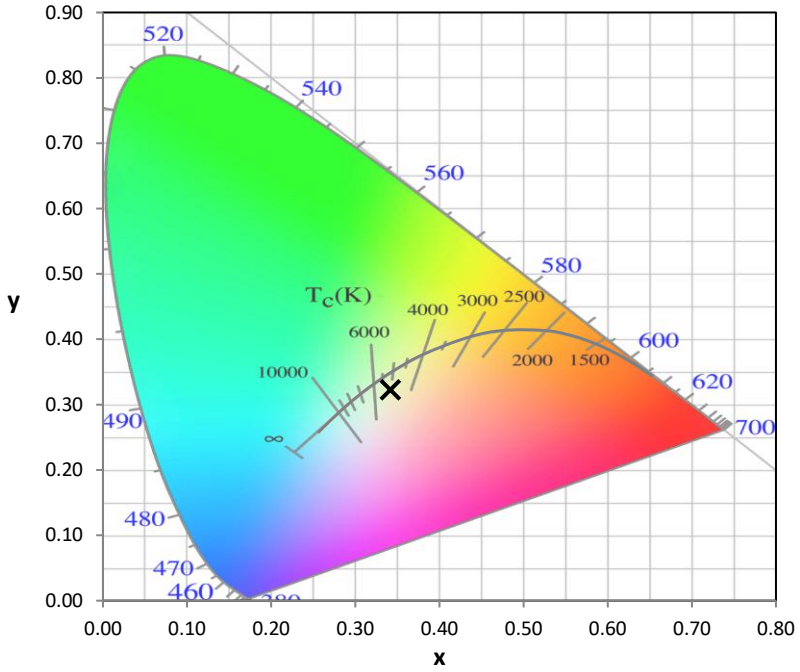
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 25.1 |

REPORT NUMBER: SP1-2510-581-5-R2

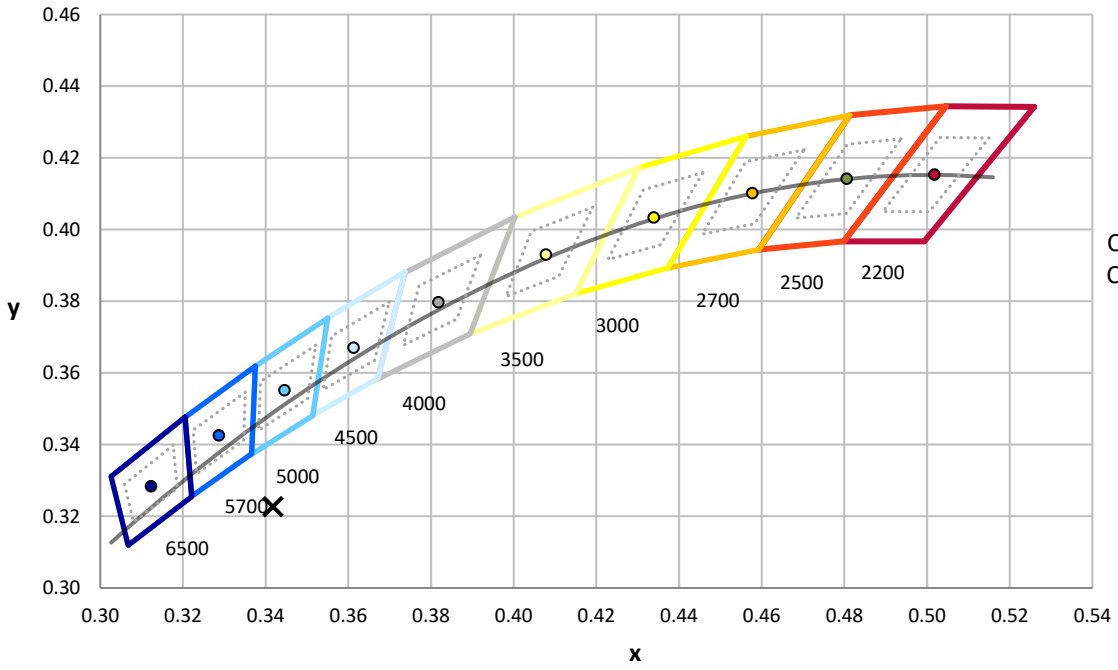
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2025 | 6/16/2026 |
| Power Meter | XITRON INXT2011004 | 10/21/2025 | 10/21/2026 |
| AC Power Source | CHROMA 61603 IN0063 | 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: SP1-2510-581-5-R2

## CIE 1931 Chromaticity Diagram




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

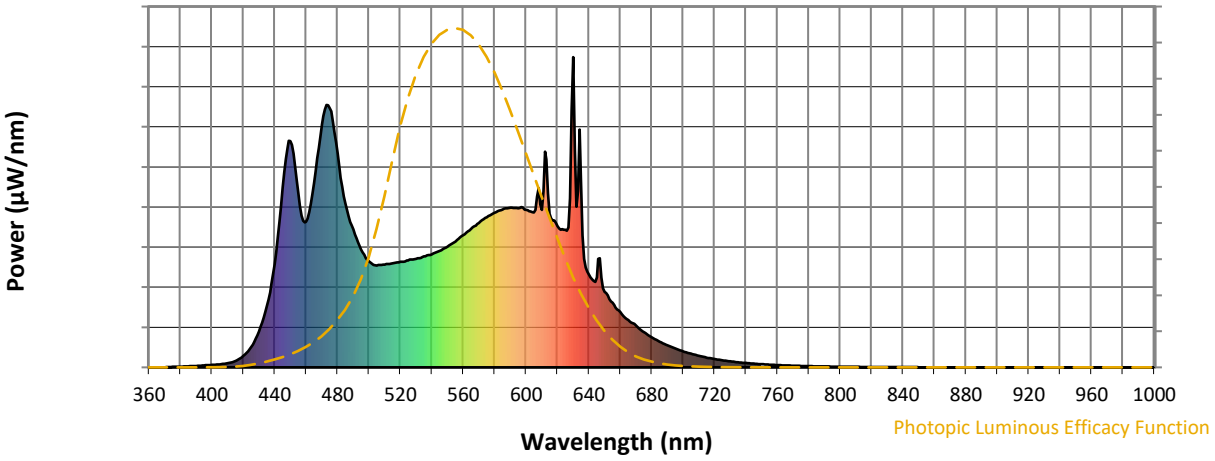



CCT = 5035K
CIE x = 0.3418
CIE y = 0.3227
Duv = -0.0140

Point lies outside the range

REPORT NUMBER: SP1-2510-581-5-R2

## Photopic Flux vs. Wavelength

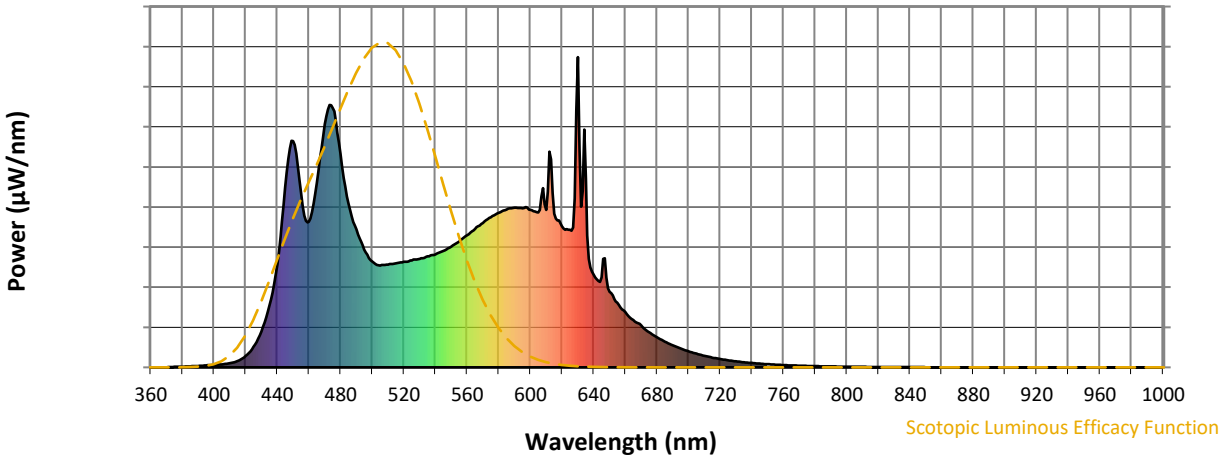



## Photopic Lumens: NR

| 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 | 444 | NR | 620 | 455 | NR | 750 | 10 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 380 | NR | 625 | 444 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 341 | NR | 630 | 1000 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 2 | NR | 505 | 328 | NR | 635 | 607 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 2 | NR | 510 | 331 | NR | 640 | 299 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 3 | NR | 515 | 335 | NR | 645 | 290 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 5 | NR | 520 | 340 | NR | 650 | 243 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 6 | NR | 525 | 344 | NR | 655 | 208 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 8 | NR | 530 | 350 | NR | 660 | 178 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 358 | NR | 665 | 152 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 13 | NR | 540 | 364 | NR | 670 | 136 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 20 | NR | 545 | 375 | NR | 675 | 113 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 37 | NR | 550 | 389 | NR | 680 | 97 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 66 | NR | 555 | 405 | NR | 685 | 83 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 115 | NR | 560 | 426 | NR | 690 | 71 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 199 | NR | 565 | 447 | NR | 695 | 61 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 332 | NR | 570 | 466 | NR | 700 | 52 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 580 | NR | 575 | 484 | NR | 705 | 44 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 730 | NR | 580 | 498 | NR | 710 | 37 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 508 | NR | 715 | 31 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 469 | NR | 590 | 514 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 593 | NR | 595 | 513 | NR | 725 | 23 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 784 | NR | 600 | 507 | NR | 730 | 19 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 836 | NR | 605 | 499 | NR | 735 | 16 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 689 | NR | 610 | 507 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 529 | NR | 615 | 495 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

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## Scotopic Flux vs. Wavelength

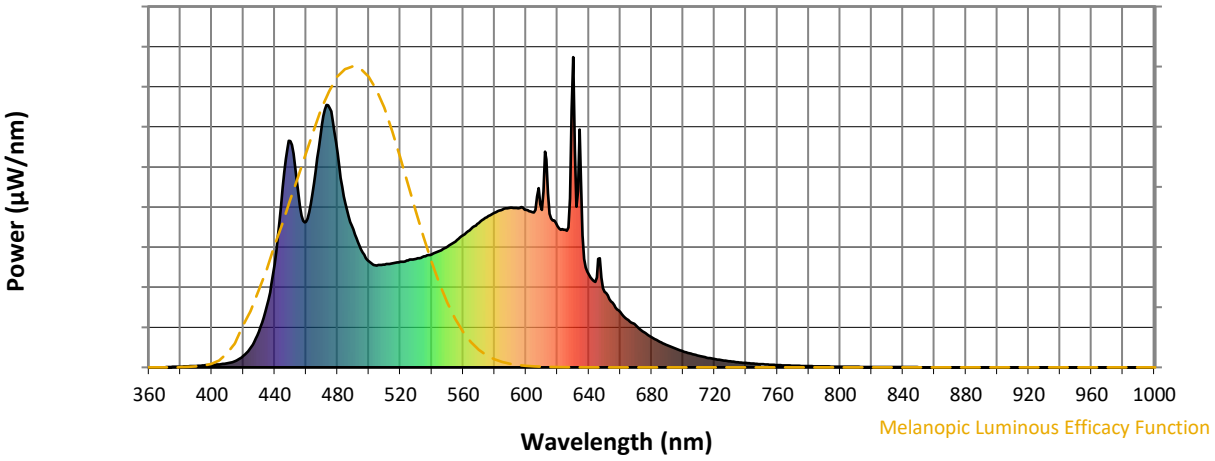



**Scotopic Lumens: NR** **S/P: 2.29**

| 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 | 444 | NR | 620 | 455 | NR | 750 | 10 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 380 | NR | 625 | 444 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 341 | NR | 630 | 1000 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 2 | NR | 505 | 328 | NR | 635 | 607 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 2 | NR | 510 | 331 | NR | 640 | 299 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 3 | NR | 515 | 335 | NR | 645 | 290 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 5 | NR | 520 | 340 | NR | 650 | 243 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 6 | NR | 525 | 344 | NR | 655 | 208 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 8 | NR | 530 | 350 | NR | 660 | 178 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 358 | NR | 665 | 152 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 13 | NR | 540 | 364 | NR | 670 | 136 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 20 | NR | 545 | 375 | NR | 675 | 113 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 37 | NR | 550 | 389 | NR | 680 | 97 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 66 | NR | 555 | 405 | NR | 685 | 83 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 115 | NR | 560 | 426 | NR | 690 | 71 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 199 | NR | 565 | 447 | NR | 695 | 61 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 332 | NR | 570 | 466 | NR | 700 | 52 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 580 | NR | 575 | 484 | NR | 705 | 44 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 730 | NR | 580 | 498 | NR | 710 | 37 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 508 | NR | 715 | 31 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 469 | NR | 590 | 514 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 593 | NR | 595 | 513 | NR | 725 | 23 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 784 | NR | 600 | 507 | NR | 730 | 19 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 836 | NR | 605 | 499 | NR | 735 | 16 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 689 | NR | 610 | 507 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 529 | NR | 615 | 495 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 5.37**

| 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 | 444 | NR | 620 | 455 | NR | 750 | 10 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 380 | NR | 625 | 444 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 341 | NR | 630 | 1000 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 2 | NR | 505 | 328 | NR | 635 | 607 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 2 | NR | 510 | 331 | NR | 640 | 299 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 3 | NR | 515 | 335 | NR | 645 | 290 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 5 | NR | 520 | 340 | NR | 650 | 243 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 6 | NR | 525 | 344 | NR | 655 | 208 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 8 | NR | 530 | 350 | NR | 660 | 178 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 358 | NR | 665 | 152 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 13 | NR | 540 | 364 | NR | 670 | 136 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 20 | NR | 545 | 375 | NR | 675 | 113 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 37 | NR | 550 | 389 | NR | 680 | 97 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 66 | NR | 555 | 405 | NR | 685 | 83 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 115 | NR | 560 | 426 | NR | 690 | 71 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 199 | NR | 565 | 447 | NR | 695 | 61 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 332 | NR | 570 | 466 | NR | 700 | 52 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 580 | NR | 575 | 484 | NR | 705 | 44 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 730 | NR | 580 | 498 | NR | 710 | 37 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 561 | NR | 585 | 508 | NR | 715 | 31 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 469 | NR | 590 | 514 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 593 | NR | 595 | 513 | NR | 725 | 23 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 784 | NR | 600 | 507 | NR | 730 | 19 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 836 | NR | 605 | 499 | NR | 735 | 16 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 689 | NR | 610 | 507 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 529 | NR | 615 | 495 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

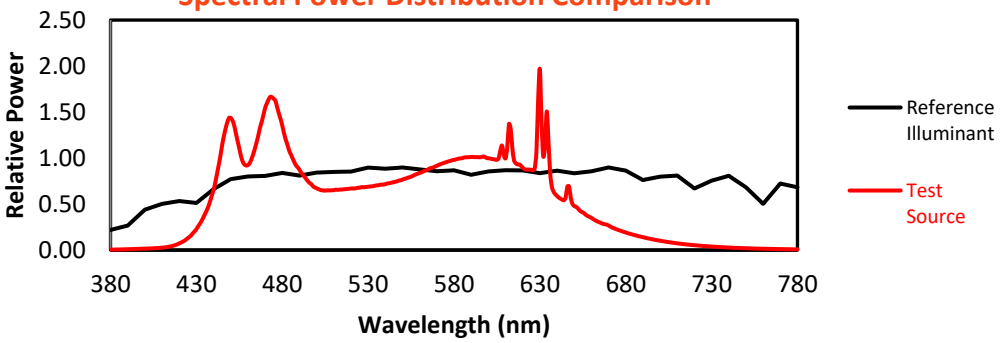
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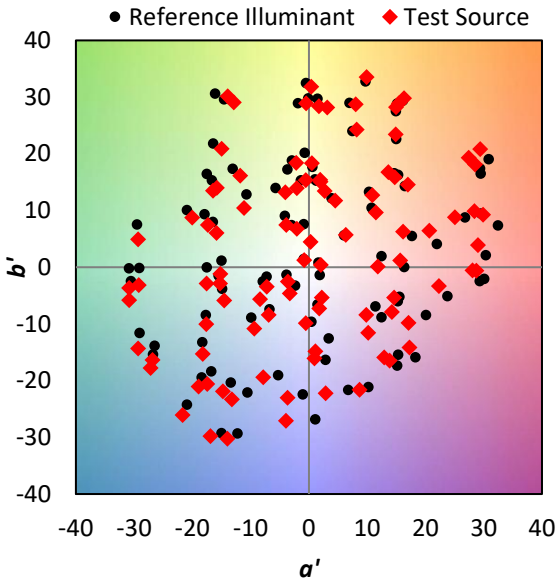
## Summary

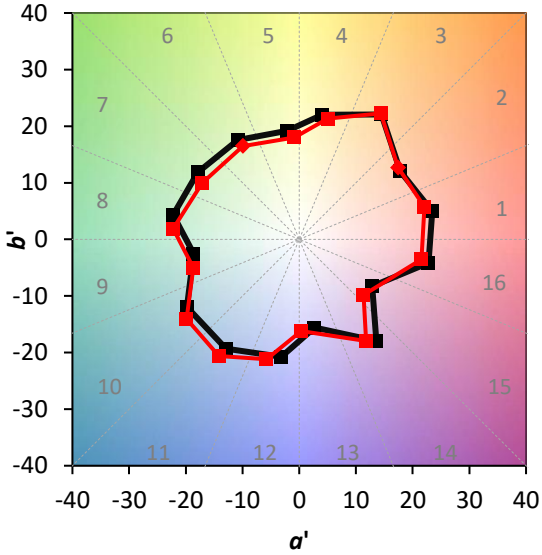
$R_f$ = 86.3
$R_g$ = 96
CIE $R_a$ = 85.1
$R_9$ = 82.5

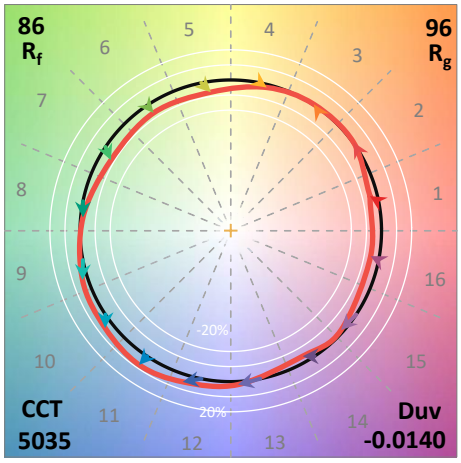
## Spectral Power Distribution Comparison

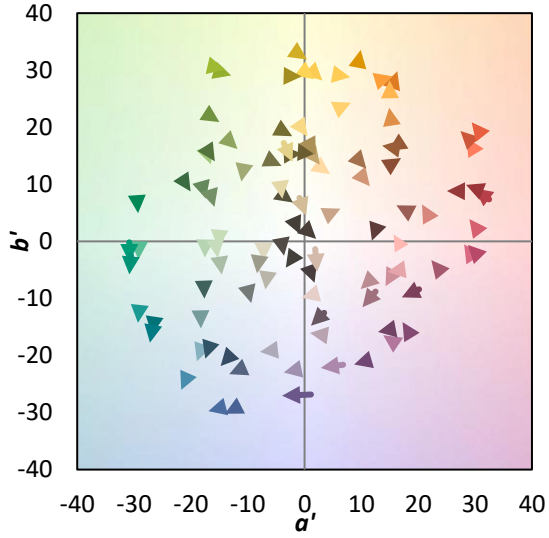



## Color Vector Graphics



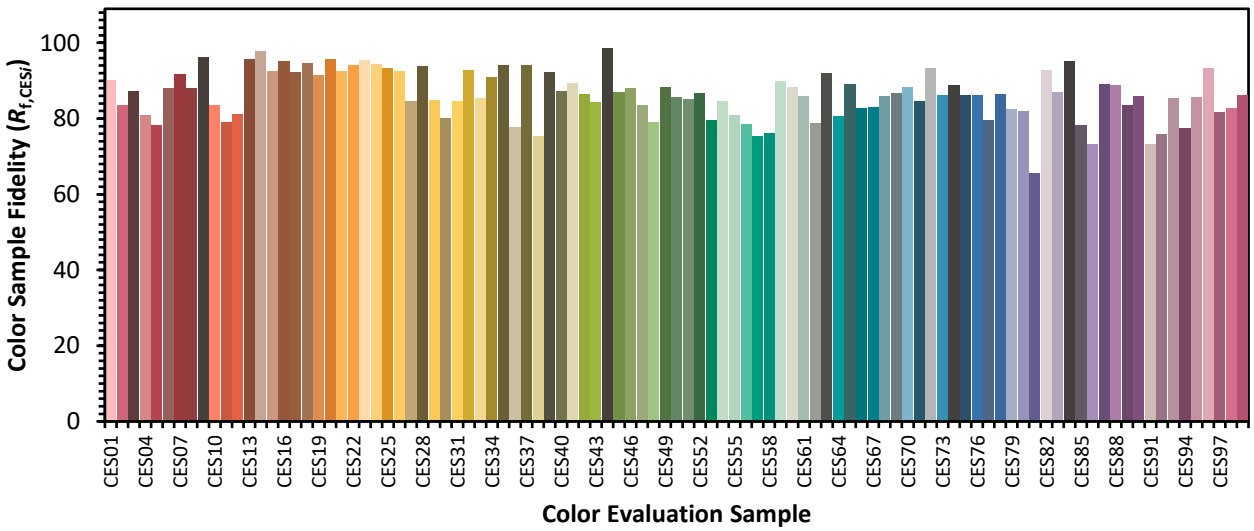



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**Individual Sample Fidelity Index ($R_{f,i}$)**

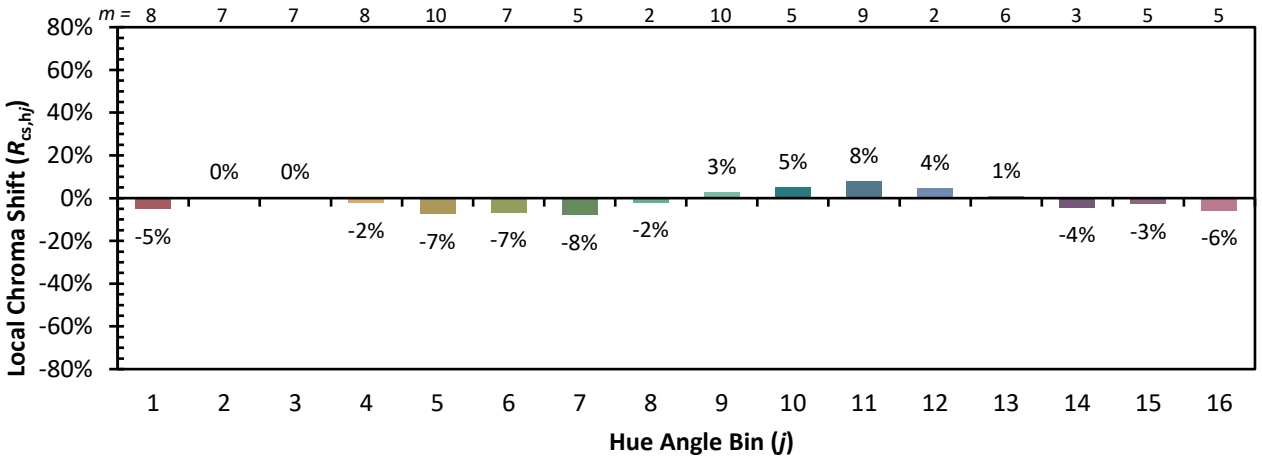
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 93 | CES51 = 85 | CES76 = 86 |
| CES02 = 62 | CES27 = 85 | CES52 = 87 | CES77 = 80 |
| CES03 = 31 | CES28 = 94 | CES53 = 80 | CES78 = 86 |
| CES04 = 69 | CES29 = 85 | CES54 = 85 | CES79 = 82 |
| CES05 = 48 | CES30 = 80 | CES55 = 81 | CES80 = 82 |
| CES06 = 50 | CES31 = 85 | CES56 = 78 | CES81 = 66 |
| CES07 = 41 | CES32 = 93 | CES57 = 75 | CES82 = 93 |
| CES08 = 40 | CES33 = 86 | CES58 = 76 | CES83 = 87 |
| CES09 = 29 | CES34 = 91 | CES59 = 90 | CES84 = 95 |
| CES10 = 74 | CES35 = 94 | CES60 = 88 | CES85 = 78 |
| CES11 = 57 | CES36 = 78 | CES61 = 86 | CES86 = 73 |
| CES12 = 63 | CES37 = 94 | CES62 = 79 | CES87 = 89 |
| CES13 = 43 | CES38 = 75 | CES63 = 92 | CES88 = 89 |
| CES14 = 74 | CES39 = 92 | CES64 = 81 | CES89 = 83 |
| CES15 = 71 | CES40 = 87 | CES65 = 89 | CES90 = 86 |
| CES16 = 47 | CES41 = 89 | CES66 = 83 | CES91 = 73 |
| CES17 = 49 | CES42 = 86 | CES67 = 83 | CES92 = 76 |
| CES18 = 56 | CES43 = 84 | CES68 = 86 | CES93 = 85 |
| CES19 = 71 | CES44 = 99 | CES69 = 87 | CES94 = 77 |
| CES20 = 66 | CES45 = 87 | CES70 = 88 | CES95 = 86 |
| CES21 = 85 | CES46 = 88 | CES71 = 85 | CES96 = 93 |
| CES22 = 77 | CES47 = 84 | CES72 = 93 | CES97 = 82 |
| CES23 = 91 | CES48 = 79 | CES73 = 86 | CES98 = 83 |
| CES24 = 90 | CES49 = 88 | CES74 = 89 | CES99 = 86 |
| CES25 = 70 | CES50 = 86 | CES75 = 86 | |

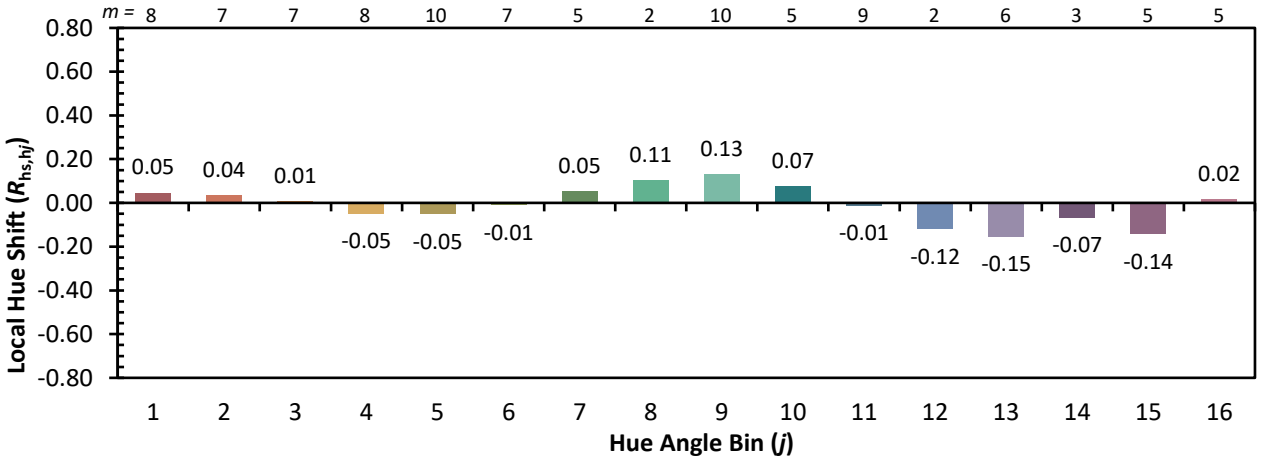


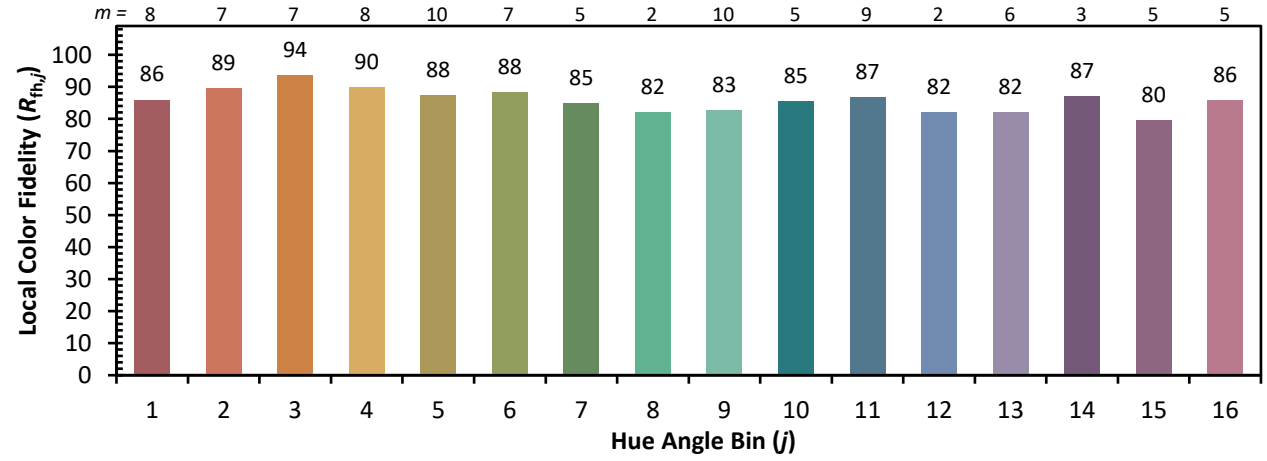
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## Color Rendition by Hue-Angle Bin



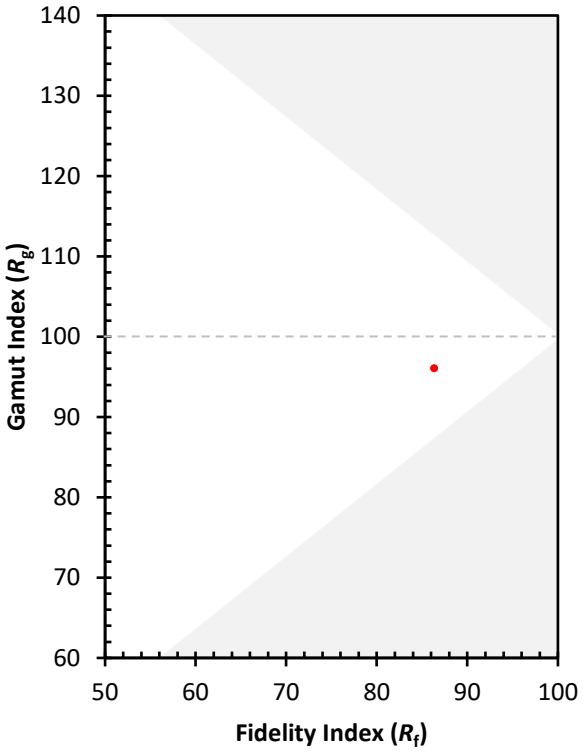



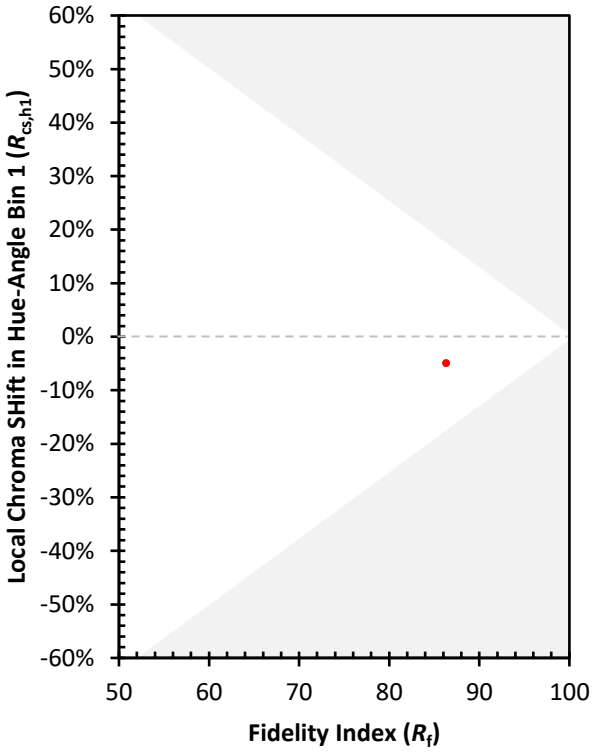



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## Measure Comparisons




(END OF REPORT)