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: P1590671

Luminaire Tested: 24CGTX-30-B50-HCD

Issue Date: 9/4/2026

Report Generated By 670265710 / DESKTOP-98SHLC4

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

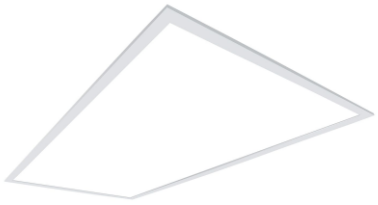
Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P1590671 |
| | 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-30-B50-HCD |
| Description: | 2X4 3000 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: | 2990.0 lumens |
| Efficiency: | N/A |
| Efficacy: | 116.3 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): | 25.7 |
| 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 |

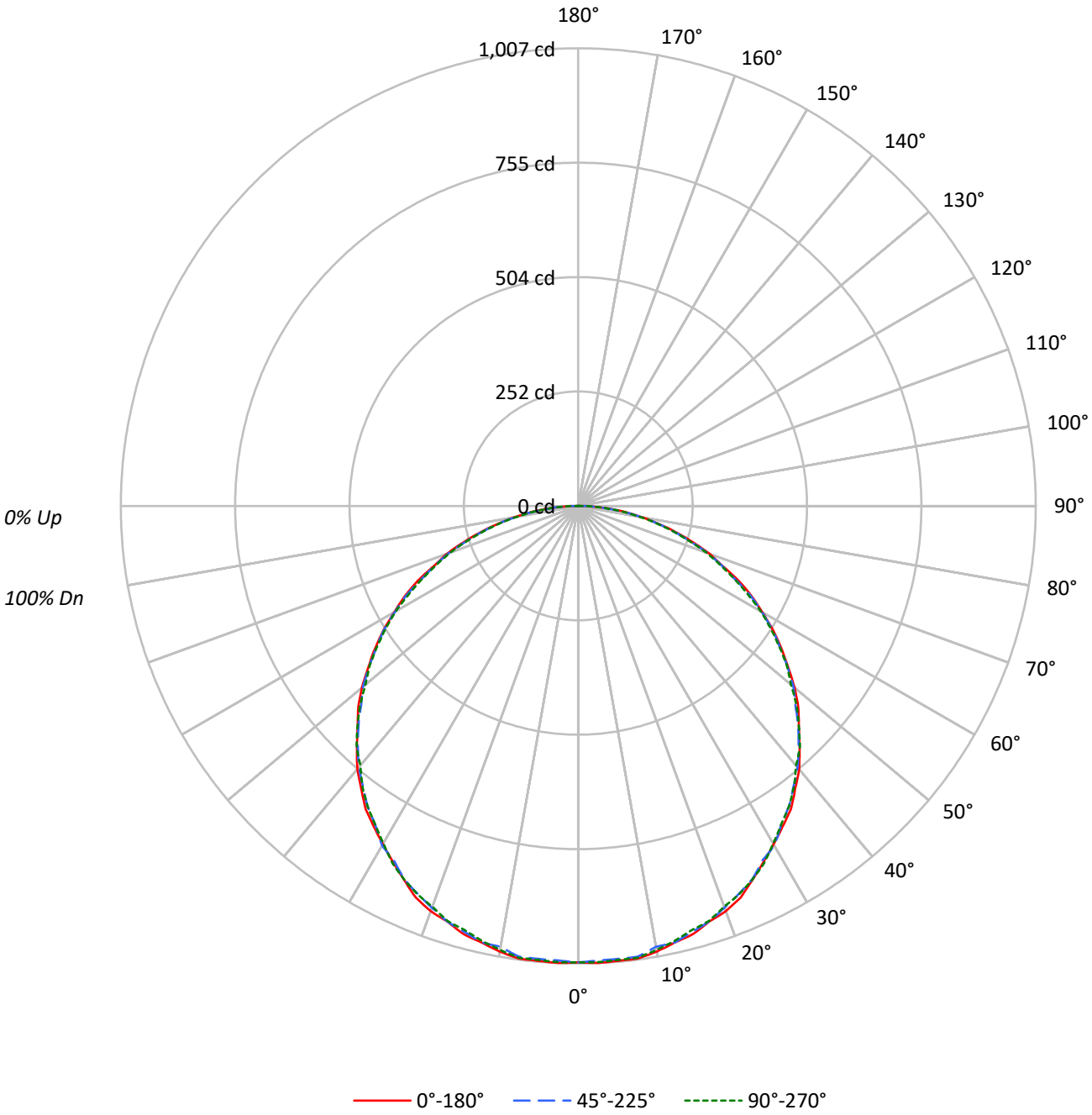


Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1590671
CATALOG NUMBER: 24CGTX-30-B50-HCD

## Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1590671
CATALOG NUMBER: 24CGTX-30-B50-HCD

## 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° | 1352 | 1352 | 1352 |
| 5° | 1357 | 1351 | 1354 |
| 10° | 1360 | 1346 | 1355 |
| 15° | 1359 | 1351 | 1346 |
| 20° | 1359 | 1347 | 1344 |
| 25° | 1347 | 1346 | 1347 |
| 30° | 1336 | 1341 | 1333 |
| 35° | 1340 | 1327 | 1327 |
| 40° | 1329 | 1319 | 1310 |
| 45° | 1306 | 1302 | 1307 |
| 50° | 1301 | 1294 | 1279 |
| 55° | 1280 | 1270 | 1267 |
| 60° | 1258 | 1253 | 1248 |
| 65° | 1241 | 1208 | 1202 |
| 70° | 1208 | 1189 | 1176 |
| 75° | 1155 | 1130 | 1121 |
| 80° | 1094 | 1073 | 1060 |
| 85° | 1014 | 963 | 939 |

## MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 47.5°
Luminance: 1308 cd/sqm

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Scaled Data Report

TEST NUMBER: P1590671
CATALOG NUMBER: 24CGTX-30-B50-HCD

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 95.5 | 3.2 |
| 10°-20° | 274.0 | 9.2 |
| 20°-30° | 417.3 | 14.0 |
| 30°-40° | 506.2 | 16.9 |
| 40°-50° | 529.1 | 17.7 |
| 50°-60° | 485.6 | 16.2 |
| 60°-70° | 379.2 | 12.7 |
| 70°-80° | 231.3 | 7.7 |
| 80°-90° | 71.9 | 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° | 786.7 | 26.3 |
| 0°-40° | 1293.0 | 43.2 |
| 0°-60° | 2307.6 | 77.2 |
| 0°-90° | 2990.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2990.0 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|---|---|---|---|---|---|---|
| 0° | 1004 | 1004 | 1004 | 1004 | 1004 | |
| 5° | 1005 | 1006 | 1001 | 1006 | 1003 | 96 |
| 15° | 976 | 975 | 970 | 970 | 966 | 275 |
| 25° | 908 | 905 | 906 | 903 | 907 | 419 |
| 35° | 816 | 813 | 808 | 809 | 808 | 508 |
| 45° | 686 | 685 | 684 | 688 | 687 | 532 |
| 55° | 546 | 544 | 541 | 545 | 540 | 488 |
| 65° | 390 | 385 | 379 | 380 | 378 | 383 |
| 75° | 222 | 222 | 217 | 216 | 216 | 235 |
| 85° | 66 | 65 | 62 | 64 | 61 | 74 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1590671
CATALOG NUMBER: 24CGTX-30-B50-HCD

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 22.5° | 45° | 67.5° | 90° |
|---|---|---|---|---|---|
| 0° | 1004.5 | *1004.5* | 1004.5 | 1004.5 | 1004.5 |
| 2.5° | *1006.7* | *1013.8* | *1001.2* | *1002.3* | *1005.0* |
| 5° | 1005.0 | *1006.1* | 1000.6 | 1006.1 | 1002.8 |
| 7.5° | 1004.5 | *999.0* | 1000.6 | 997.9 | 1002.8 |
| 10° | 995.7 | *993.5* | 985.3 | 990.8 | 991.9 |
| 12.5° | 984.2 | *979.8* | 983.7 | 982.6 | 980.4 |
| 15° | 975.5 | *974.9* | 970.0 | 970.0 | 966.2 |
| 17.5° | 959.0 | *950.8* | 959.0 | 955.8 | 957.4 |
| 20° | 949.2 | *939.3* | 941.0 | 946.5 | 938.8 |
| 22.5° | 933.3 | *928.9* | 924.0 | 917.4 | 925.1 |
| 25° | 907.6 | *905.4* | 906.5 | 902.7 | 907.0 |
| 27.5° | 883.0 | *881.9* | 879.1 | 886.8 | 886.2 |
| 30° | 860.0 | *864.9* | 863.2 | 861.6 | 857.8 |
| 32.5° | 837.0 | *837.5* | 831.5 | 835.9 | 831.5 |
| 35° | 815.6 | *812.9* | 808.0 | 809.1 | 808.0 |
| 37.5° | 784.4 | *783.3* | 778.4 | 778.4 | 780.0 |
| 40° | 756.5 | *750.5* | 751.0 | 747.2 | 745.6 |
| 42.5° | 720.9 | *720.9* | 718.2 | 715.5 | 722.0 |
| 45° | 686.4 | *685.3* | 684.2 | 687.5 | 687.0 |
| 47.5° | 656.9 | *653.0* | 648.1 | 649.8 | 652.0 |
| 50° | 621.3 | *618.6* | 618.0 | 616.9 | 610.9 |
| 52.5° | 581.9 | *580.8* | 579.7 | 581.3 | 579.1 |
| 55° | 545.8 | *544.1* | 541.4 | 545.2 | 540.3 |
| 57.5° | 508.0 | *505.2* | 506.9 | 502.5 | 502.5 |
| 60° | 467.5 | *470.2* | 465.8 | 463.6 | 463.6 |
| 62.5° | 430.3 | *424.8* | 427.0 | 421.5 | 419.9 |
| 65° | 389.7 | *384.8* | 379.3 | 380.4 | 377.7 |
| 67.5° | 341.6 | *344.3* | 341.0 | 339.4 | 337.2 |
| 70° | 307.1 | *306.5* | 302.2 | 299.4 | 298.9 |
| 72.5° | 263.8 | *263.8* | 257.3 | 258.9 | 256.2 |
| 75° | 222.2 | *221.7* | 217.3 | 216.2 | 215.7 |
| 77.5° | 179.5 | *181.7* | 177.9 | 174.6 | 174.6 |
| 80° | 141.2 | *140.7* | 138.5 | 136.3 | 136.8 |
| 82.5° | 104.0 | *101.3* | 100.7 | 99.1 | 98.5 |
| 85° | 65.7 | *64.6* | 62.4 | 63.5 | 60.8 |
| 87.5° | 30.7 | *30.1* | 31.2 | 31.2 | 31.2 |
| 90° | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 |

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TEST NUMBER: P1590671
CATALOG NUMBER: 24CGTX-30-B50-HCD

**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 | 13.05 | 14.71 | 13.41 | 15.02 | 15.34 | 13.00 | 14.66 | 13.36 | 14.98 | 15.29 |
| | 3H | 14.99 | 16.50 | 15.36 | 16.82 | 17.18 | 14.90 | 16.41 | 15.28 | 16.74 | 17.10 |
| | 4H | 15.76 | 17.18 | 16.15 | 17.53 | 17.90 | 15.65 | 17.08 | 16.05 | 17.42 | 17.80 |
| | 6H | 16.36 | 17.68 | 16.77 | 18.04 | 18.43 | 16.23 | 17.55 | 16.64 | 17.92 | 18.31 |
| | 8H | 16.57 | 17.83 | 17.00 | 18.22 | 18.62 | 16.44 | 17.70 | 16.86 | 18.09 | 18.49 |
| | 12H | 16.73 | 17.94 | 17.16 | 18.32 | 18.75 | 16.58 | 17.79 | 17.01 | 18.17 | 18.60 |
| 4H | 2H | 13.70 | 15.12 | 14.09 | 15.47 | 15.84 | 13.66 | 15.08 | 14.06 | 15.43 | 15.80 |
| | 3H | 15.88 | 17.08 | 16.29 | 17.47 | 17.87 | 15.80 | 17.00 | 16.21 | 17.40 | 17.80 |
| | 4H | 16.79 | 17.88 | 17.22 | 18.29 | 18.72 | 16.69 | 17.77 | 17.12 | 18.19 | 18.62 |
| | 6H | 17.53 | 18.48 | 17.98 | 18.92 | 19.38 | 17.40 | 18.36 | 17.86 | 18.80 | 19.25 |
| | 8H | 17.80 | 18.70 | 18.26 | 19.14 | 19.60 | 17.66 | 18.56 | 18.12 | 19.00 | 19.46 |
| | 12H | 18.01 | 18.82 | 18.49 | 19.29 | 19.76 | 17.86 | 18.66 | 18.34 | 19.14 | 19.61 |
| 8H | 4H | 17.14 | 18.03 | 17.60 | 18.47 | 18.94 | 17.05 | 17.94 | 17.51 | 18.38 | 18.85 |
| | 6H | 18.02 | 18.77 | 18.51 | 19.25 | 19.73 | 17.91 | 18.65 | 18.40 | 19.14 | 19.61 |
| | 8H | 18.38 | 19.05 | 18.89 | 19.55 | 20.04 | 18.25 | 18.92 | 18.76 | 19.42 | 19.91 |
| | 12H | 18.68 | 19.27 | 19.18 | 19.76 | 20.32 | 18.53 | 19.13 | 19.04 | 19.62 | 20.17 |
| 12H | 4H | 17.18 | 17.99 | 17.66 | 18.46 | 18.93 | 17.10 | 17.90 | 17.58 | 18.38 | 18.85 |
| | 6H | 18.10 | 18.77 | 18.60 | 19.27 | 19.76 | 17.99 | 18.66 | 18.49 | 19.16 | 19.65 |
| | 8H | 18.52 | 19.11 | 19.02 | 19.60 | 20.16 | 18.40 | 18.99 | 18.90 | 19.48 | 20.04 |

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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: SP1-2510-581-5-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

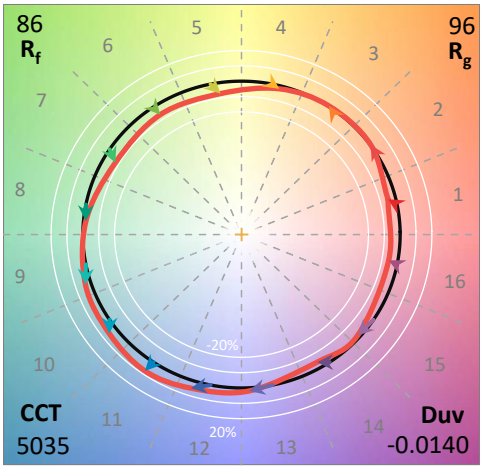
## Test Information

| | |
|---|---|
| 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

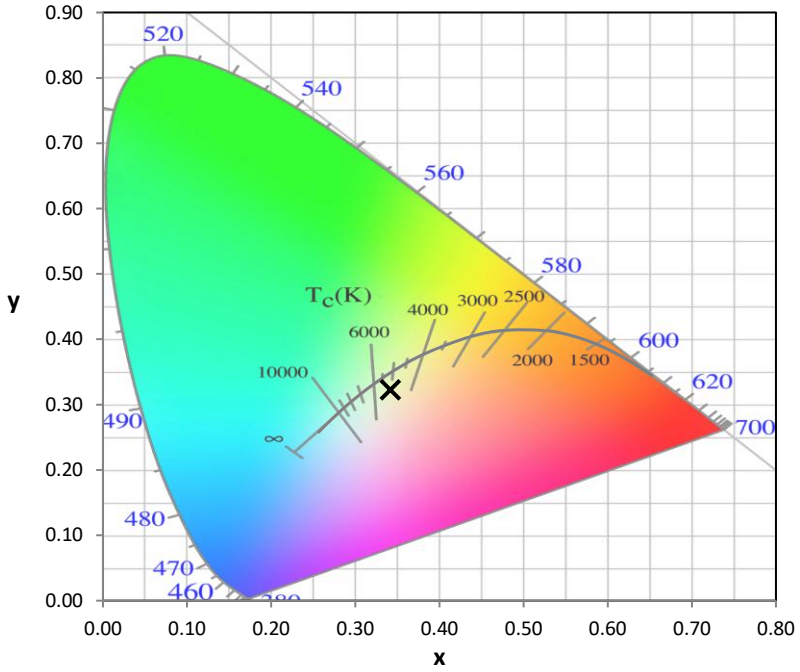
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 25.1 |

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

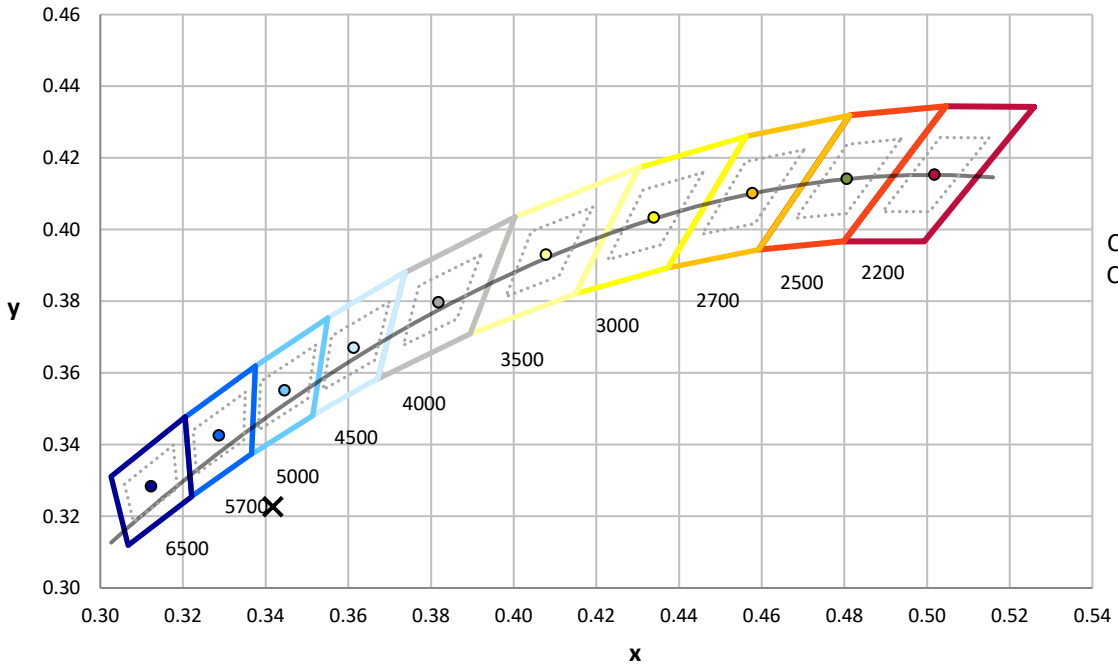
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2025 | 6/16/2026 |
| Power Meter | XITRON INXT2011004 | 10/21/2025 | 10/21/2026 |
| AC Power Source | CHROMA 61603 IN0063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

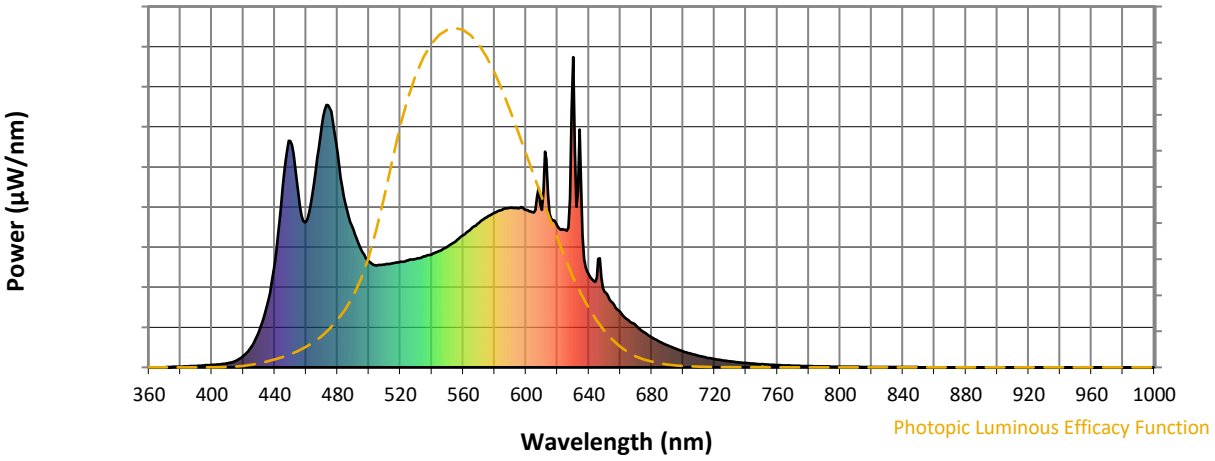



CCT = 5035K
CIE x = 0.3418
CIE y = 0.3227
Duv = -0.0140

Point lies outside the range

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

## Photopic Flux vs. Wavelength

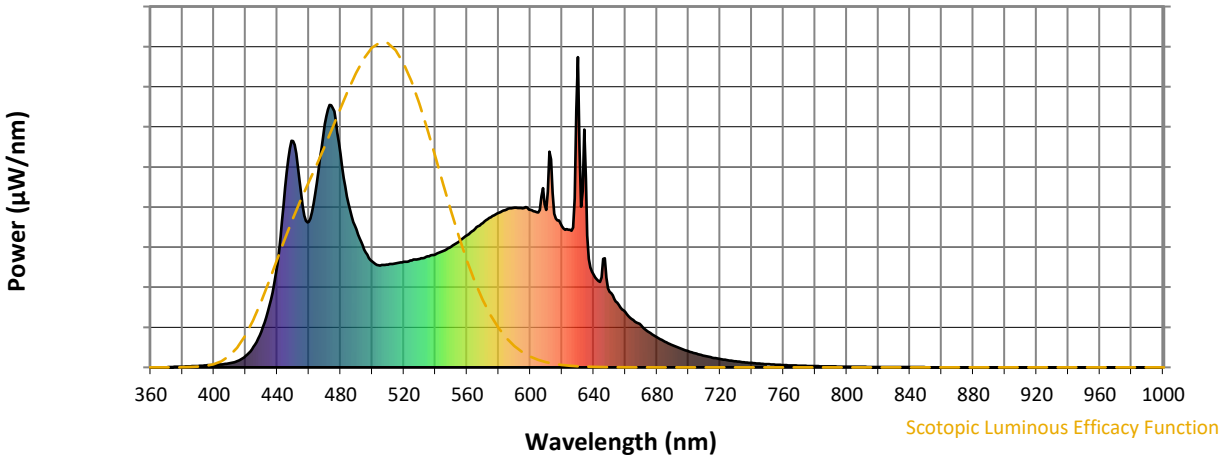



## Photopic Lumens: NR

| 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 | | | |

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

## Scotopic Flux vs. Wavelength

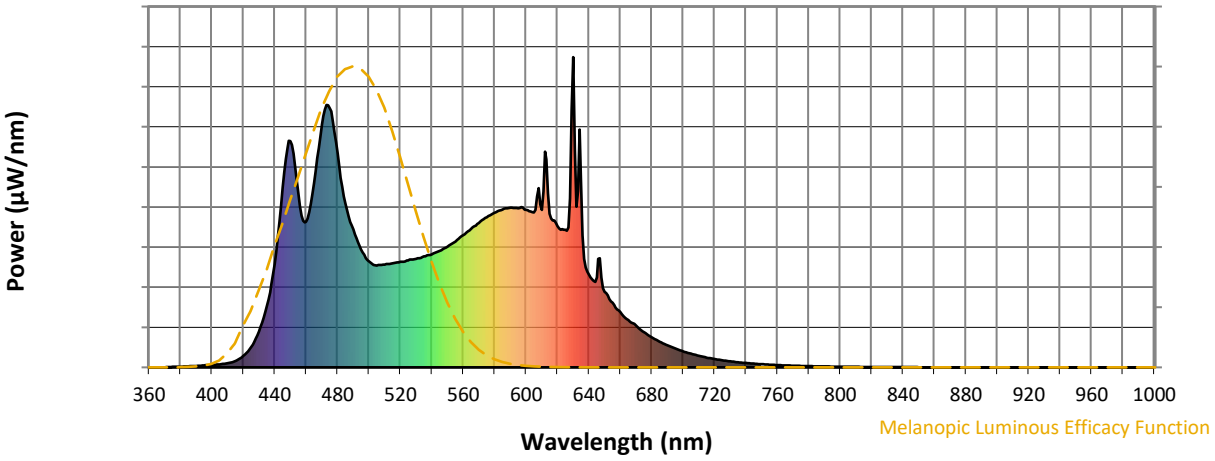



**Scotopic Lumens: NR** **S/P: 2.29**

| 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 | | | |

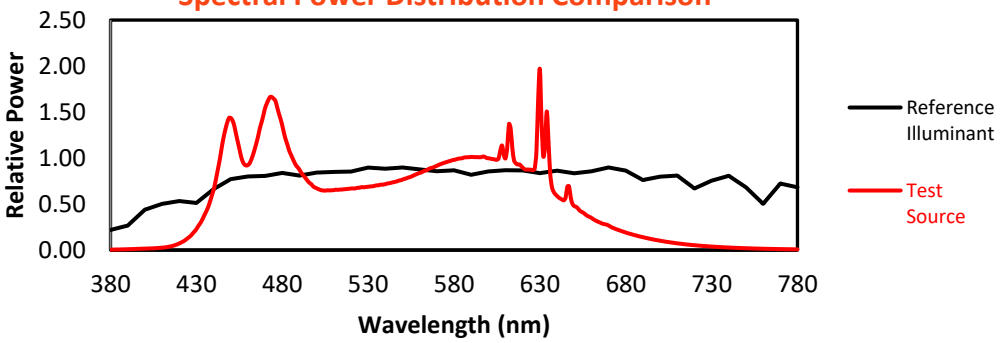
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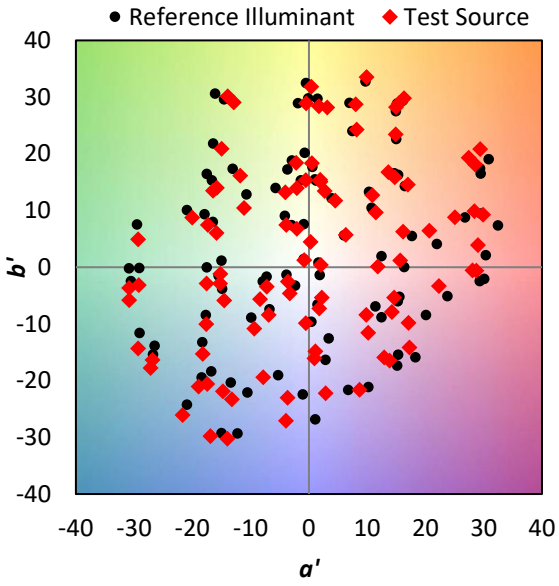
## Summary

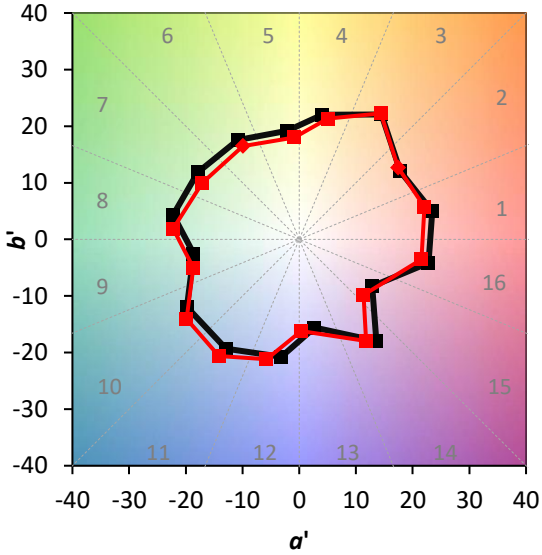
$R_f$ = 86.3
$R_g$ = 96
CIE $R_a$ = 85.1
$R_9$ = 82.5

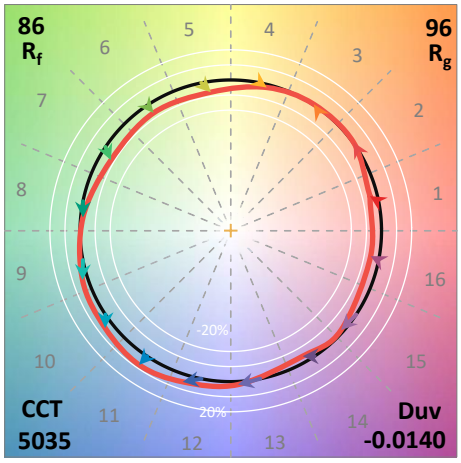
## Spectral Power Distribution Comparison

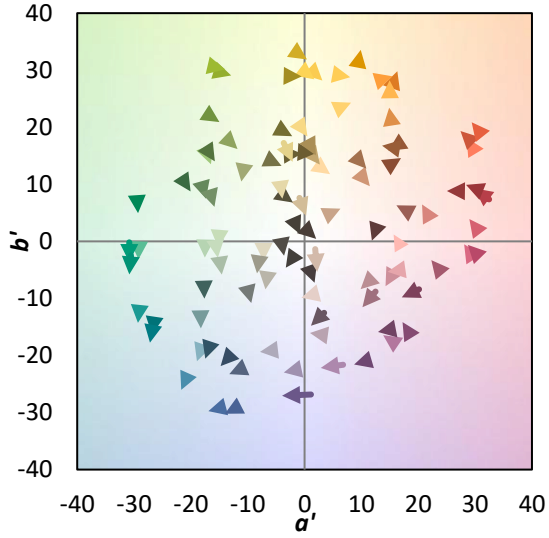



## Color Vector Graphics



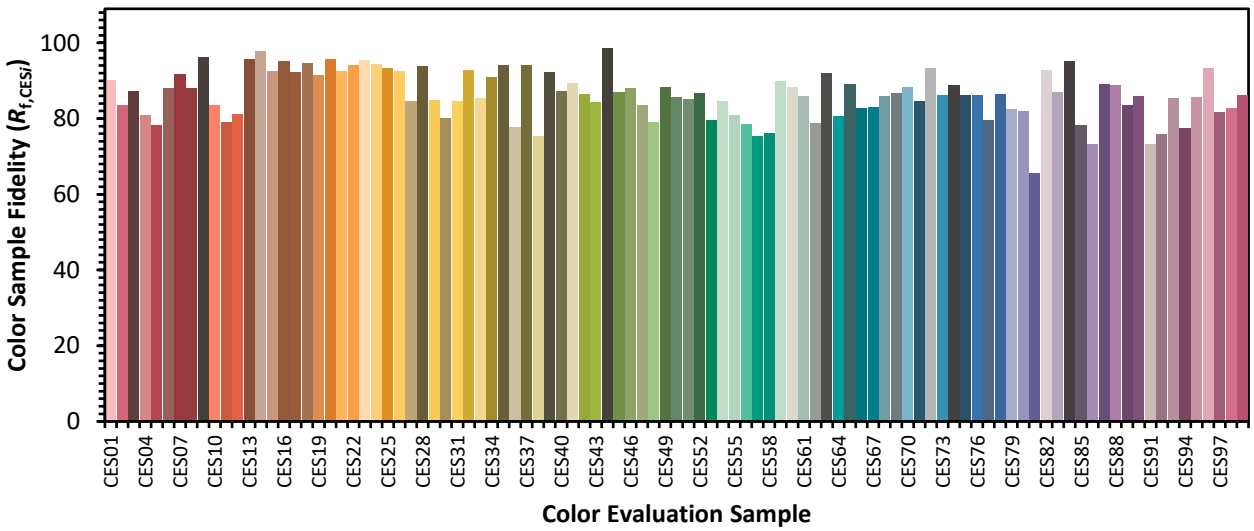



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**Individual Sample Fidelity Index ($R_{f,i}$)**

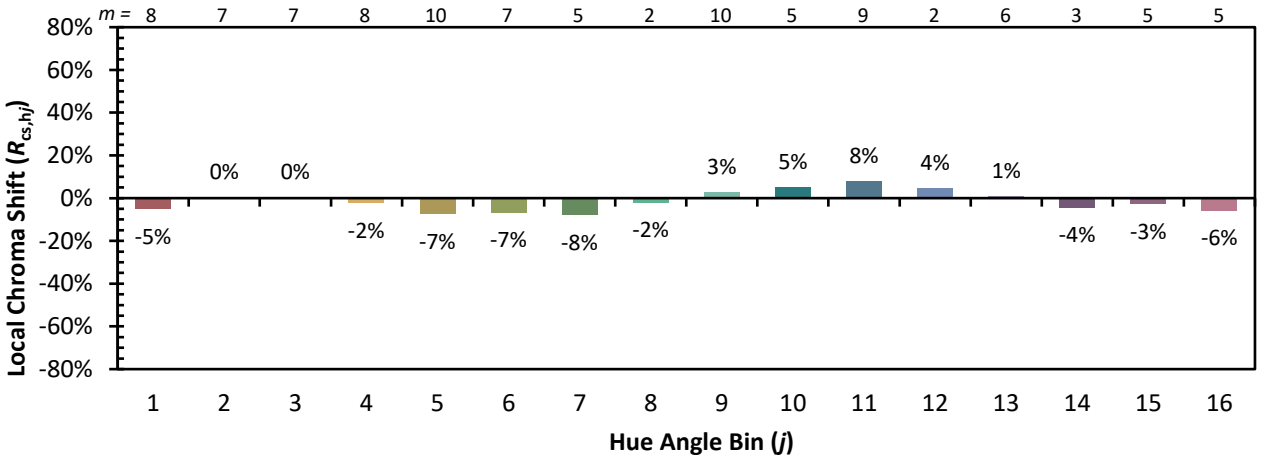
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 93 | CES51 = 85 | CES76 = 86 |
| CES02 = 62 | CES27 = 85 | CES52 = 87 | CES77 = 80 |
| CES03 = 31 | CES28 = 94 | CES53 = 80 | CES78 = 86 |
| CES04 = 69 | CES29 = 85 | CES54 = 85 | CES79 = 82 |
| CES05 = 48 | CES30 = 80 | CES55 = 81 | CES80 = 82 |
| CES06 = 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 | |

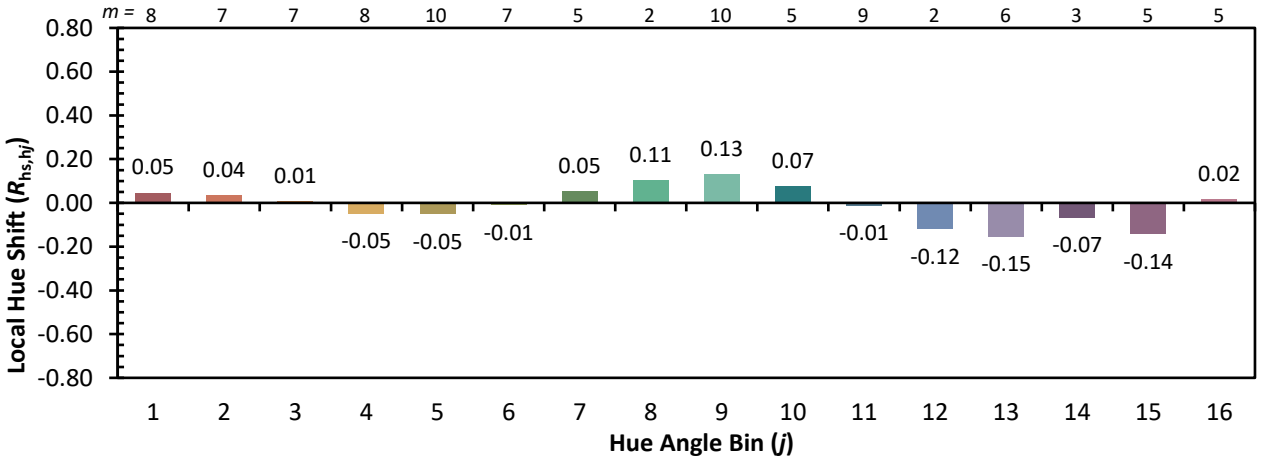


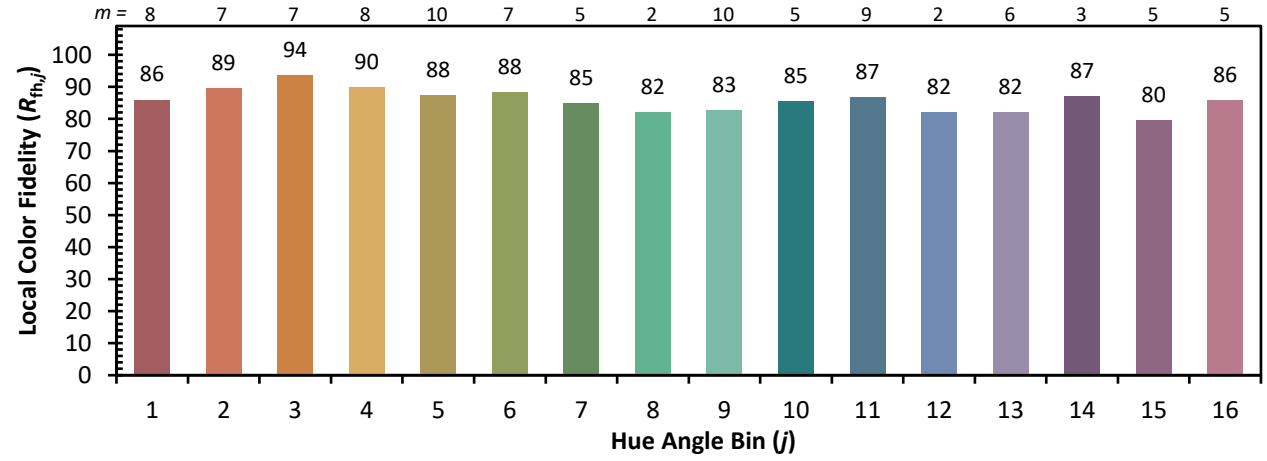
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## Color Rendition by Hue-Angle Bin



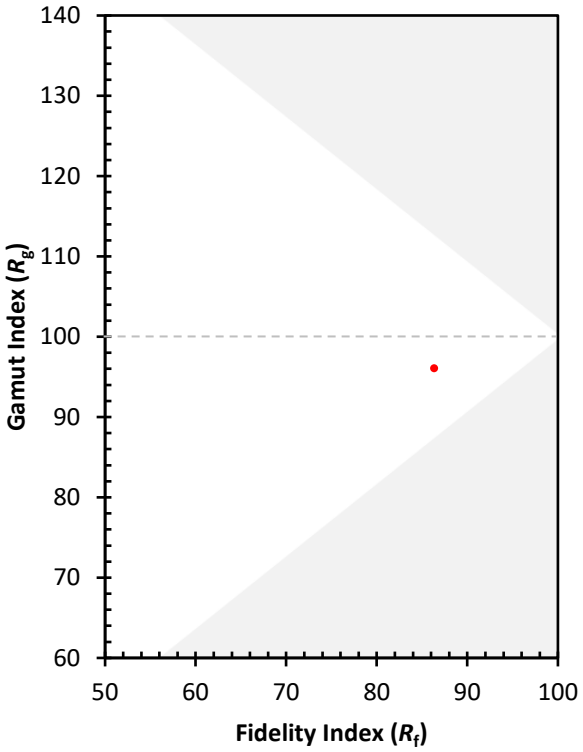



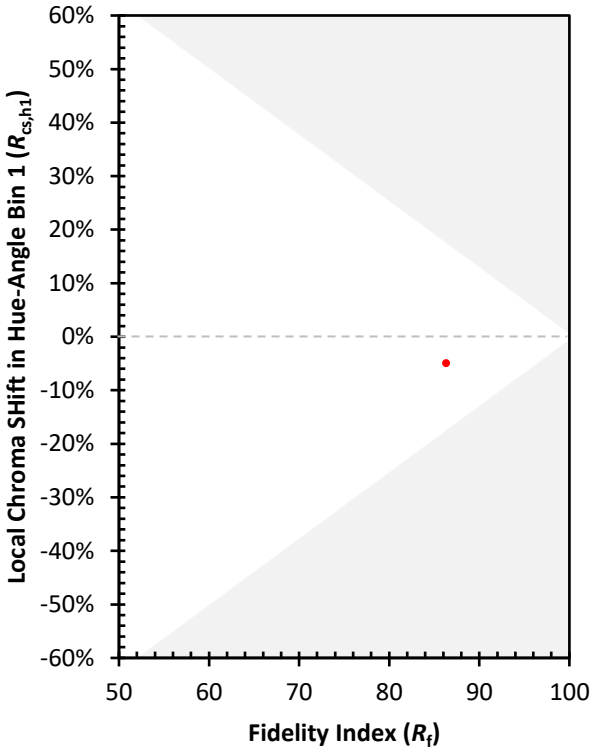



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## Measure Comparisons




(END OF REPORT)