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: P1527750

Luminaire Tested: 24CGTX-20-B2750-W2A-5000K

Issue Date: 8/26/2026

Report Generated By 670265710 / DESKTOP-98SHLC4

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report

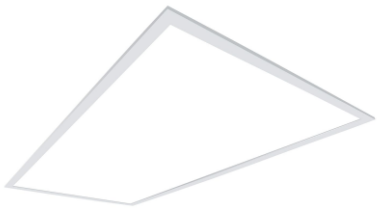
**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P1527750 |
| | TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G3-2510-581-9) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 8/26/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | METALUX |
| Catalog Number: | 24CGTX-20-B2750-W2A-5000K |
| Description: | 2X4 2000 LUMEN CGTX TROFFER WITH BIO UP LEDS AT 5000K CCT WITH FROSTED SMOOTH L |
| Light Source: | 5000K CCT, 80 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 2103.5 lumens |
| Efficiency: | N/A |
| Efficacy: | 116.9 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): | 18 |
| 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 |

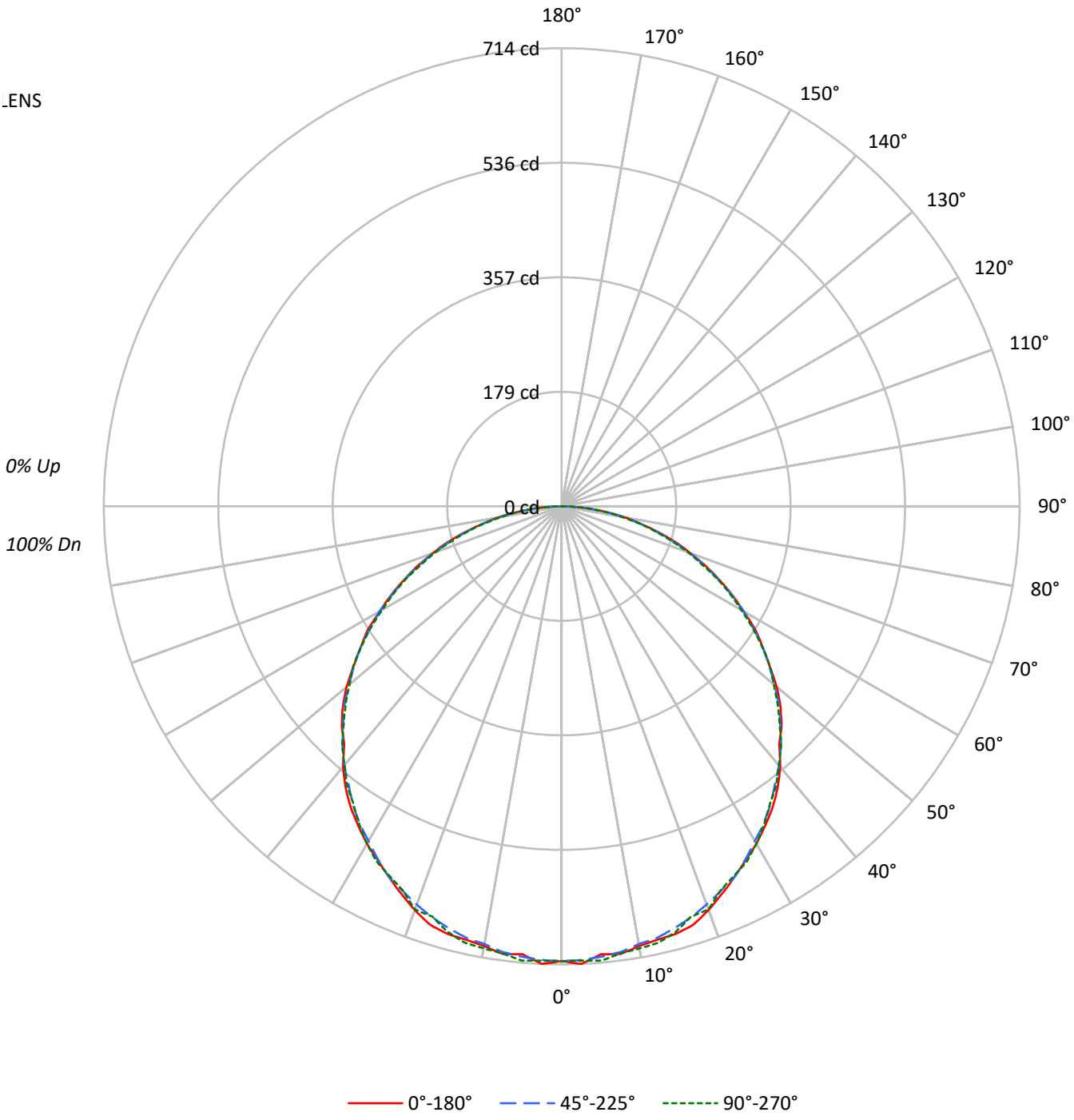


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Scaled Data Report

TEST NUMBER: P1527750
CATALOG NUMBER: 24CGTX-20-B2750-W2A-5000K

## Luminous Intensity Polar Plot



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TEST NUMBER: P1527750
CATALOG NUMBER: 24CGTX-20-B2750-W2A-5000K

## 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 | 26 | 37 | 30 | 25 | 36 | 30 | 25 | 36 | 29 | 25 | 23 |

## AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|---|---|---|---|
| 0° | 954 | 954 | 954 |
| 5° | 947 | 952 | 960 |
| 10° | 951 | 947 | 956 |
| 15° | 961 | 948 | 957 |
| 20° | 959 | 946 | 957 |
| 25° | 947 | 947 | 944 |
| 30° | 944 | 936 | 944 |
| 35° | 942 | 932 | 930 |
| 40° | 931 | 926 | 926 |
| 45° | 923 | 917 | 915 |
| 50° | 916 | 906 | 904 |
| 55° | 897 | 897 | 895 |
| 60° | 881 | 883 | 870 |
| 65° | 863 | 857 | 854 |
| 70° | 841 | 834 | 825 |
| 75° | 814 | 799 | 788 |
| 80° | 778 | 762 | 731 |
| 85° | 713 | 682 | 682 |

## MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 923 cd/sqm

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Scaled Data Report

TEST NUMBER: P1527750
CATALOG NUMBER: 24CGTX-20-B2750-W2A-5000K

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 67.0 | 3.2 |
| 10°-20° | 193.1 | 9.2 |
| 20°-30° | 293.6 | 14.0 |
| 30°-40° | 356.0 | 16.9 |
| 40°-50° | 372.5 | 17.7 |
| 50°-60° | 341.0 | 16.2 |
| 60°-70° | 267.0 | 12.7 |
| 70°-80° | 162.6 | 7.7 |
| 80°-90° | 50.5 | 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° | 553.8 | 26.3 |
| 0°-40° | 909.7 | 43.2 |
| 0°-60° | 1623.3 | 77.2 |
| 0°-90° | 2103.5 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2103.5 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|---|---|---|---|---|---|---|
| 0° | 709 | 709 | 709 | 709 | 709 | |
| 5° | 701 | 706 | 705 | 701 | 711 | 67 |
| 15° | 690 | 683 | 681 | 682 | 687 | 194 |
| 25° | 638 | 642 | 638 | 638 | 636 | 294 |
| 35° | 573 | 569 | 567 | 568 | 566 | 358 |
| 45° | 485 | 484 | 482 | 482 | 481 | 373 |
| 55° | 382 | 382 | 382 | 380 | 382 | 343 |
| 65° | 271 | 271 | 269 | 270 | 268 | 269 |
| 75° | 157 | 155 | 154 | 153 | 152 | 165 |
| 85° | 46 | 45 | 44 | 44 | 44 | 52 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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Scaled Data Report

TEST NUMBER: P1527750
CATALOG NUMBER: 24CGTX-20-B2750-W2A-5000K

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 22.5° | 45° | 67.5° | 90° |
|---|---|---|---|---|---|
| 0° | *708.8* | 708.8 | 708.8 | 708.8 | 708.8 |
| 2.5° | *713.9* | *705.8* | *707.8* | *703.8* | *708.8* |
| 5° | *700.8* | 705.8 | 704.8 | 700.8 | 710.9 |
| 7.5° | *703.8* | 706.8 | 700.8 | 699.8 | 702.8 |
| 10° | *695.8* | 698.8 | 692.8 | 694.8 | 699.8 |
| 12.5° | *691.8* | 693.8 | 688.8 | 696.8 | 696.8 |
| 15° | *689.8* | 682.7 | 680.7 | 681.7 | 686.8 |
| 17.5° | *683.7* | 672.7 | 671.7 | 677.7 | 670.7 |
| 20° | *669.7* | 664.7 | 660.7 | 660.7 | 668.7 |
| 22.5° | *653.6* | 651.6 | 648.6 | 653.6 | 647.6 |
| 25° | *637.6* | 641.6 | 637.6 | 637.6 | 635.6 |
| 27.5° | *621.5* | 621.5 | 620.5 | 617.5 | 624.5 |
| 30° | *607.4* | 603.4 | 602.4 | 607.4 | 607.4 |
| 32.5° | *590.4* | 585.4 | 586.4 | 588.4 | 587.4 |
| 35° | *573.3* | 569.3 | 567.3 | 568.3 | 566.3 |
| 37.5° | *553.2* | 553.2 | 546.2 | 549.2 | 549.2 |
| 40° | *530.1* | 528.1 | 527.1 | 528.1 | 527.1 |
| 42.5° | *502.0* | 507.0 | 506.0 | 505.0 | 506.0 |
| 45° | *484.9* | 483.9 | 481.9 | 481.9 | 480.9 |
| 47.5° | *462.9* | 458.8 | 459.8 | 460.9 | 456.8 |
| 50° | *437.8* | 435.8 | 432.7 | 434.7 | 431.7 |
| 52.5° | *408.6* | 409.6 | 407.6 | 406.6 | 409.6 |
| 55° | *382.5* | 381.5 | 382.5 | 380.5 | 381.5 |
| 57.5° | *358.4* | 353.4 | 354.4 | 352.4 | 353.4 |
| 60° | *327.3* | 329.3 | 328.3 | 325.3 | 323.3 |
| 62.5° | *300.2* | 300.2 | 298.2 | 297.2 | 296.2 |
| 65° | *271.1* | 271.1 | 269.1 | 270.1 | 268.1 |
| 67.5° | *243.0* | 243.0 | 241.0 | 240.0 | 237.0 |
| 70° | *213.9* | 214.9 | 211.9 | 208.8 | 209.8 |
| 72.5° | *186.8* | 184.7 | 182.7 | 179.7 | 179.7 |
| 75° | *156.6* | 154.6 | 153.6 | 152.6 | 151.6 |
| 77.5° | *126.5* | 127.5 | 125.5 | 123.5 | 123.5 |
| 80° | *100.4* | 99.4 | 98.4 | 96.4 | 94.4 |
| 82.5° | *72.3* | 72.3 | 70.3 | 69.3 | 70.3 |
| 85° | *46.2* | 45.2 | 44.2 | 44.2 | 44.2 |
| 87.5° | *21.1* | 21.1 | 21.1 | 21.1 | 22.1 |
| 90° | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 |

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TEST NUMBER: P1527750
CATALOG NUMBER: 24CGTX-20-B2750-W2A-5000K

**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 | 11.79 | 13.46 | 12.16 | 13.77 | 14.09 | 11.76 | 13.42 | 12.12 | 13.74 | 14.05 |
| | 3H | 13.75 | 15.26 | 14.13 | 15.59 | 15.95 | 13.67 | 15.18 | 14.05 | 15.50 | 15.86 |
| | 4H | 14.53 | 15.95 | 14.92 | 16.30 | 16.67 | 14.42 | 15.84 | 14.81 | 16.19 | 16.56 |
| | 6H | 15.13 | 16.45 | 15.54 | 16.82 | 17.21 | 15.00 | 16.32 | 15.41 | 16.68 | 17.07 |
| | 8H | 15.35 | 16.61 | 15.77 | 17.00 | 17.40 | 15.20 | 16.47 | 15.63 | 16.85 | 17.25 |
| | 12H | 15.50 | 16.71 | 15.93 | 17.09 | 17.52 | 15.35 | 16.56 | 15.78 | 16.94 | 17.37 |
| 4H | 2H | 12.46 | 13.88 | 12.86 | 14.23 | 14.61 | 12.43 | 13.86 | 12.83 | 14.20 | 14.58 |
| | 3H | 14.65 | 15.85 | 15.06 | 16.25 | 16.65 | 14.57 | 15.77 | 14.98 | 16.16 | 16.56 |
| | 4H | 15.56 | 16.64 | 15.99 | 17.06 | 17.49 | 15.46 | 16.54 | 15.89 | 16.96 | 17.39 |
| | 6H | 16.31 | 17.26 | 16.76 | 17.70 | 18.15 | 16.18 | 17.13 | 16.63 | 17.57 | 18.02 |
| | 8H | 16.58 | 17.47 | 17.04 | 17.91 | 18.38 | 16.44 | 17.33 | 16.90 | 17.77 | 18.23 |
| | 12H | 16.79 | 17.59 | 17.27 | 18.07 | 18.53 | 16.64 | 17.44 | 17.12 | 17.92 | 18.39 |
| 8H | 4H | 15.91 | 16.80 | 16.37 | 17.24 | 17.71 | 15.82 | 16.72 | 16.28 | 17.16 | 17.62 |
| | 6H | 16.80 | 17.55 | 17.29 | 18.03 | 18.51 | 16.68 | 17.43 | 17.17 | 17.91 | 18.39 |
| | 8H | 17.16 | 17.83 | 17.67 | 18.34 | 18.82 | 17.03 | 17.70 | 17.53 | 18.20 | 18.69 |
| | 12H | 17.46 | 18.05 | 17.96 | 18.54 | 19.10 | 17.32 | 17.91 | 17.82 | 18.40 | 18.96 |
| 12H | 4H | 15.96 | 16.76 | 16.44 | 17.24 | 17.70 | 15.87 | 16.68 | 16.35 | 17.15 | 17.62 |
| | 6H | 16.88 | 17.55 | 17.38 | 18.05 | 18.54 | 16.76 | 17.43 | 17.27 | 17.94 | 18.42 |
| | 8H | 17.30 | 17.89 | 17.81 | 18.38 | 18.94 | 17.17 | 17.77 | 17.68 | 18.26 | 18.81 |

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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: SP1-2505-441-5-R2

Test Date: 06/12/2025

Luminaire Tested: 24CGTX-55-B2750-W2A-5000K

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

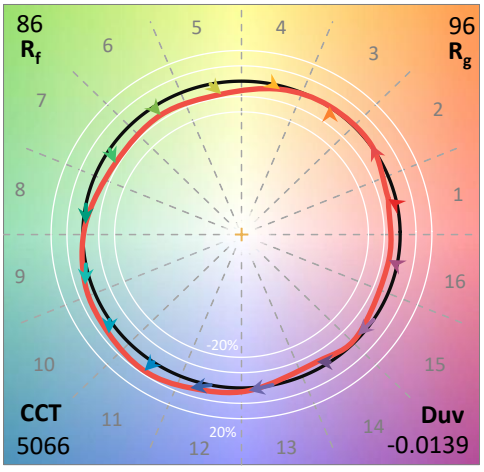
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2505-441-5-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-B2750-W2A-5000K** |
| Description: | *THIS IS A REVISION OF REPORT SP1-2504-441-5-R2 TO UPDATE THE CATALOG INFORMATION* 2X4 5500 LUMEN CGTX AT 2.0V |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 5066 | CRI (Ra): | 84.8 | | |
| CIE u': | 0.2206 | R1: | 90.0 | R9: | 84.7 |
| CIE v': | 0.4690 | R2: | 84.8 | R10: | 71.2 |
| Duv: | -0.0139 | R3: | 82.4 | R11: | 87.6 |
| CIE x: | 0.3411 | R4: | 87.2 | R12: | 68.6 |
| CIE y: | 0.3223 | R5: | 88.1 | R13: | 87.8 |
| CIE z: | 0.3366 | R6: | 78.9 | R14: | 91.9 |
| Peak Wavelength (nm): | 630 | R7: | 82.2 | R15: | 91.6 |
| Dominant Wavelength (nm): | 0 | R8: | 85.1 | | |
| Purity: | 0 | | | | |

| | |
|---|---|
| Rf: | 86.1 |
| Rg: | 95.8 |



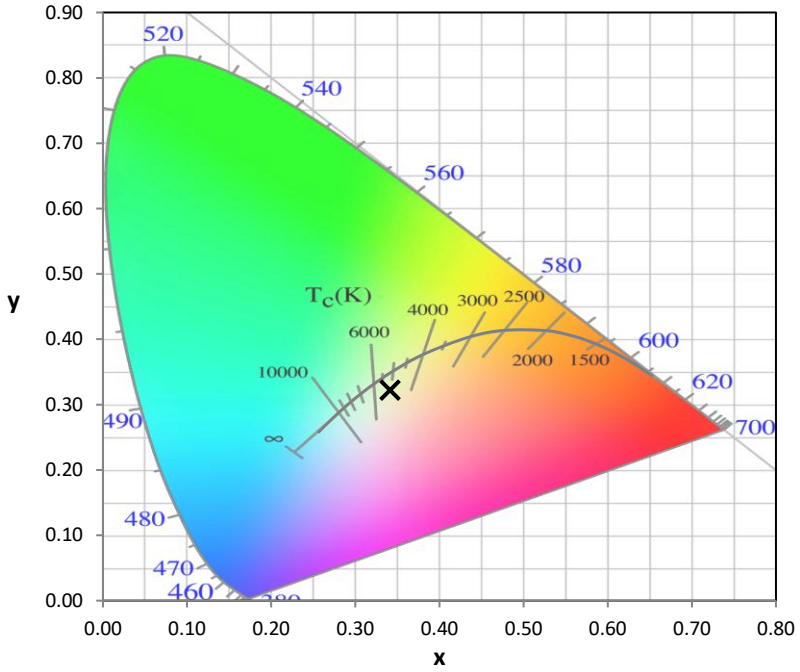

## Test Conditions

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

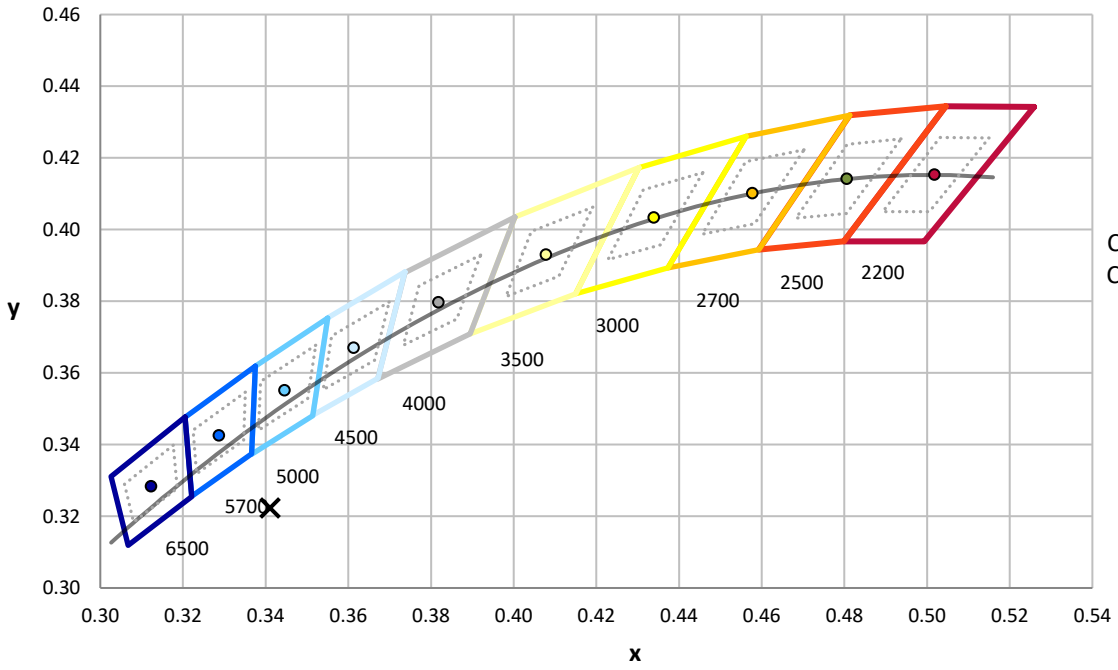
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2024 | 6/16/2025 |
| Power Meter | XITRON INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | CHROMA 61603 IN0063 | 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: SP1-2505-441-5-R2

## CIE 1931 Chromaticity Diagram




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

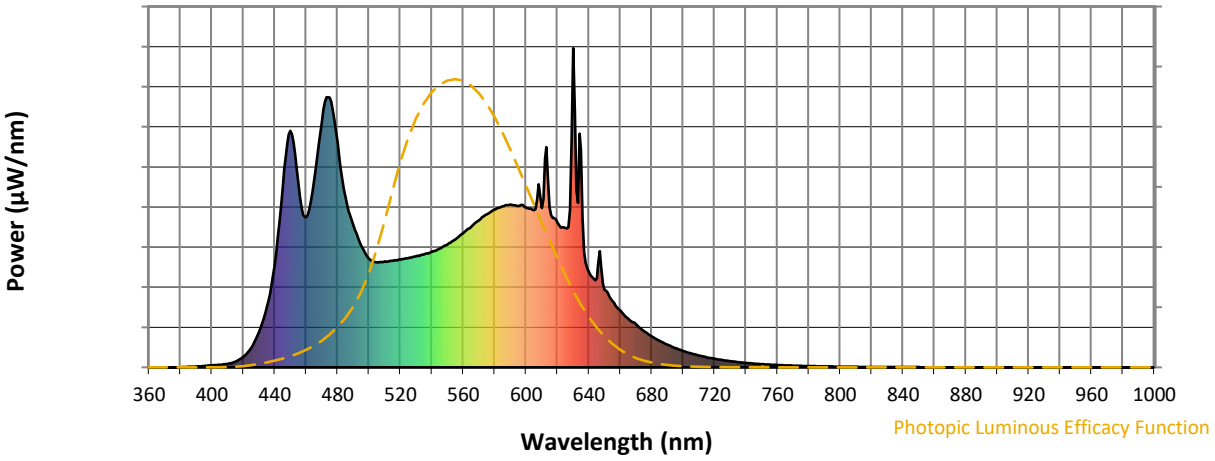



CCT = 5066K
CIE x = 0.3411
CIE y = 0.3223
Duv = -0.0139

Point lies outside the range

REPORT NUMBER: SP1-2505-441-5-R2

## Photopic Flux vs. Wavelength

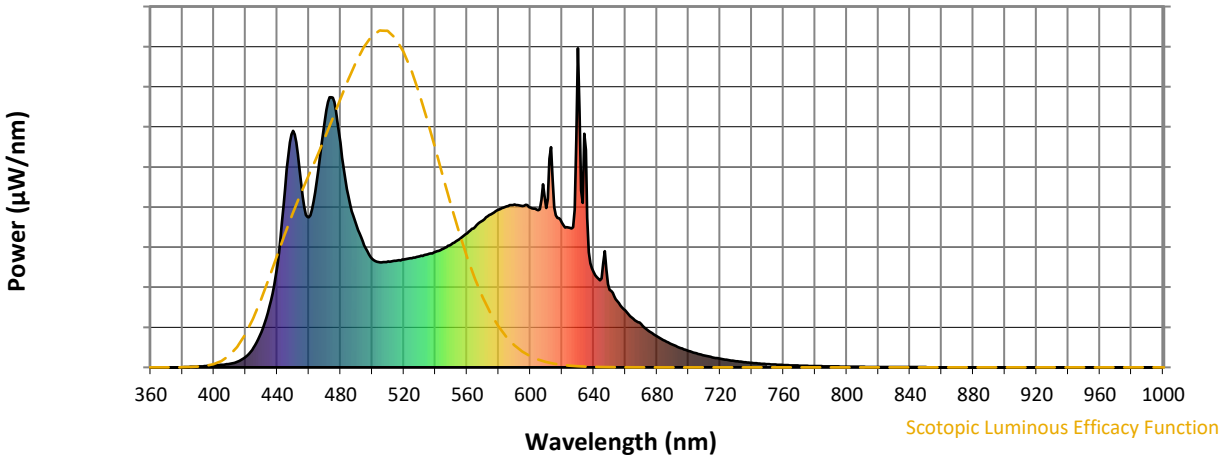



## Photopic Lumens: NR

| 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 | 446 | NR | 620 | 453 | NR | 750 | 10 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 382 | NR | 625 | 437 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 340 | NR | 630 | 1000 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 329 | NR | 635 | 681 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 332 | NR | 640 | 299 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 334 | NR | 645 | 278 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 338 | NR | 650 | 242 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 342 | NR | 655 | 208 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 348 | NR | 660 | 178 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 354 | NR | 665 | 152 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 362 | NR | 670 | 136 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 372 | NR | 675 | 113 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 33 | NR | 550 | 385 | NR | 680 | 97 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 61 | NR | 555 | 401 | NR | 685 | 83 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 111 | NR | 560 | 420 | NR | 690 | 71 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 191 | NR | 565 | 440 | NR | 695 | 61 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 320 | NR | 570 | 461 | NR | 700 | 52 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 560 | NR | 575 | 479 | NR | 705 | 44 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 741 | NR | 580 | 494 | NR | 710 | 37 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 577 | NR | 585 | 505 | NR | 715 | 32 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 471 | NR | 590 | 510 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 583 | NR | 595 | 506 | NR | 725 | 23 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 773 | NR | 600 | 501 | NR | 730 | 19 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 846 | NR | 605 | 492 | NR | 735 | 17 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 704 | NR | 610 | 500 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 536 | NR | 615 | 501 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2505-441-5-R2

## Scotopic Flux vs. Wavelength

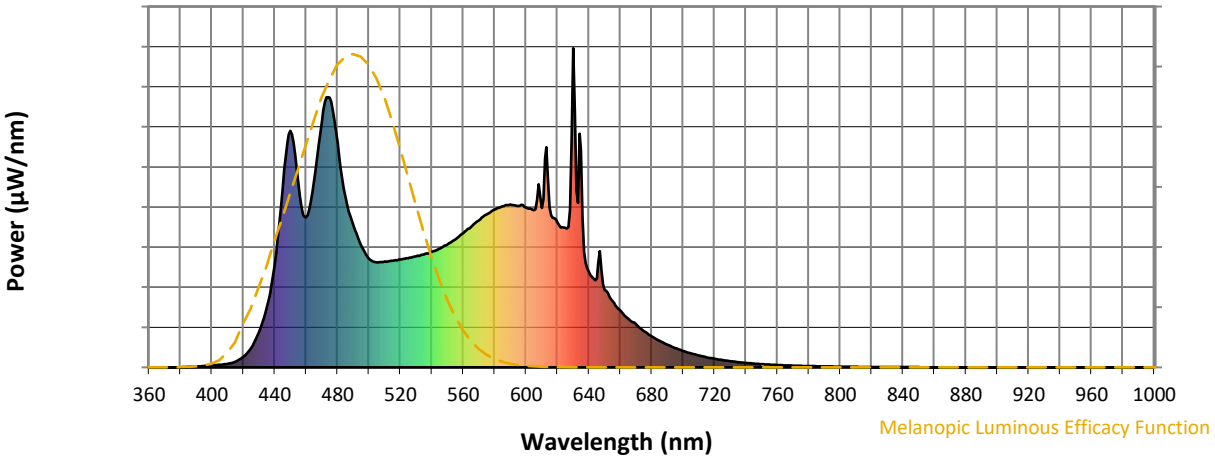



**Scotopic Lumens: NR** **S/P: 2.31**

| 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 | 446 | NR | 620 | 453 | NR | 750 | 10 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 382 | NR | 625 | 437 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 340 | NR | 630 | 1000 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 329 | NR | 635 | 681 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 332 | NR | 640 | 299 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 334 | NR | 645 | 278 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 338 | NR | 650 | 242 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 342 | NR | 655 | 208 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 348 | NR | 660 | 178 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 354 | NR | 665 | 152 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 362 | NR | 670 | 136 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 372 | NR | 675 | 113 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 33 | NR | 550 | 385 | NR | 680 | 97 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 61 | NR | 555 | 401 | NR | 685 | 83 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 111 | NR | 560 | 420 | NR | 690 | 71 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 191 | NR | 565 | 440 | NR | 695 | 61 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 320 | NR | 570 | 461 | NR | 700 | 52 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 560 | NR | 575 | 479 | NR | 705 | 44 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 741 | NR | 580 | 494 | NR | 710 | 37 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 577 | NR | 585 | 505 | NR | 715 | 32 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 471 | NR | 590 | 510 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 583 | NR | 595 | 506 | NR | 725 | 23 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 773 | NR | 600 | 501 | NR | 730 | 19 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 846 | NR | 605 | 492 | NR | 735 | 17 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 704 | NR | 610 | 500 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 536 | NR | 615 | 501 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 5.41**

| 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 | 446 | NR | 620 | 453 | NR | 750 | 10 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 382 | NR | 625 | 437 | NR | 755 | 9 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 340 | NR | 630 | 1000 | NR | 760 | 7 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 329 | NR | 635 | 681 | NR | 765 | 6 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 332 | NR | 640 | 299 | NR | 770 | 5 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 334 | NR | 645 | 278 | NR | 775 | 5 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 338 | NR | 650 | 242 | NR | 780 | 4 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 342 | NR | 655 | 208 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 6 | NR | 530 | 348 | NR | 660 | 178 | NR | 790 | 3 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 354 | NR | 665 | 152 | NR | 795 | 3 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 362 | NR | 670 | 136 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 18 | NR | 545 | 372 | NR | 675 | 113 | NR | 805 | 2 | NR | 935 | 0 | NR |
| 420 | 33 | NR | 550 | 385 | NR | 680 | 97 | NR | 810 | 2 | NR | 940 | 0 | NR |
| 425 | 61 | NR | 555 | 401 | NR | 685 | 83 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 111 | NR | 560 | 420 | NR | 690 | 71 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 191 | NR | 565 | 440 | NR | 695 | 61 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 320 | NR | 570 | 461 | NR | 700 | 52 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 560 | NR | 575 | 479 | NR | 705 | 44 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 741 | NR | 580 | 494 | NR | 710 | 37 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 577 | NR | 585 | 505 | NR | 715 | 32 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 471 | NR | 590 | 510 | NR | 720 | 27 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 583 | NR | 595 | 506 | NR | 725 | 23 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 773 | NR | 600 | 501 | NR | 730 | 19 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 846 | NR | 605 | 492 | NR | 735 | 17 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 704 | NR | 610 | 500 | NR | 740 | 14 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 536 | NR | 615 | 501 | NR | 745 | 12 | NR | 875 | 0 | NR | | | |

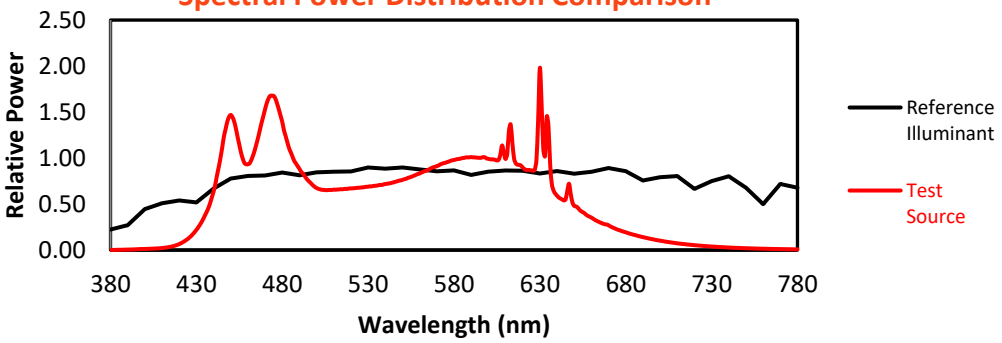
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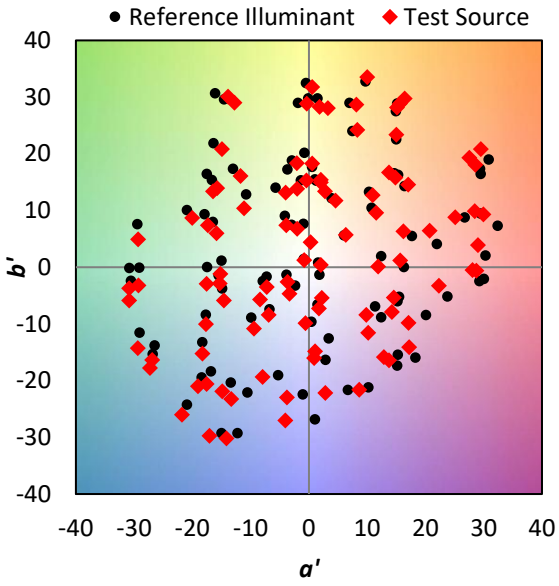
## Summary

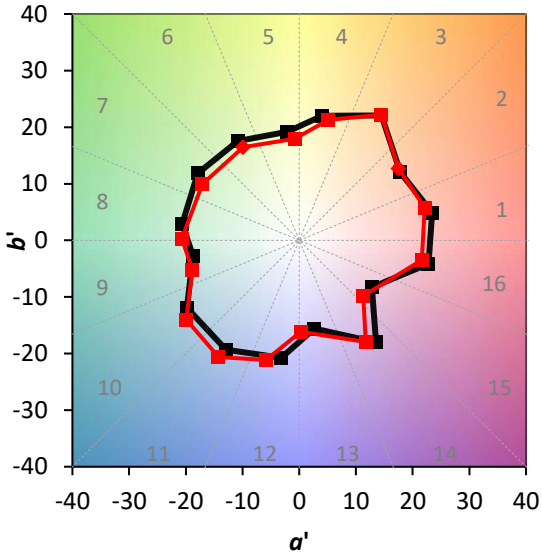
$R_f$ = 86.1
$R_g$ = 95.8
CIE $R_a$ = 84.8
$R_9$ = 84.7

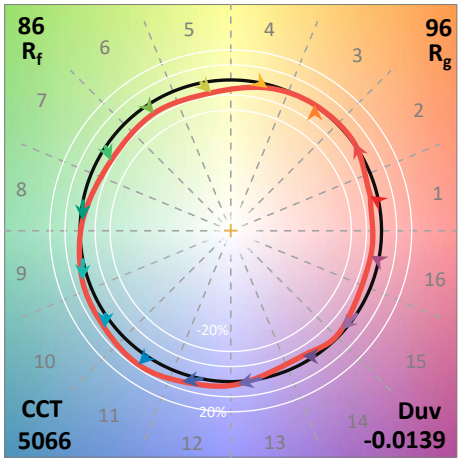
## Spectral Power Distribution Comparison

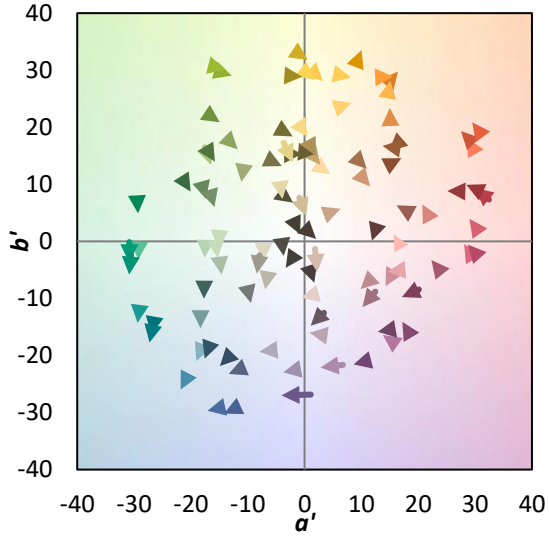



## Color Vector Graphics



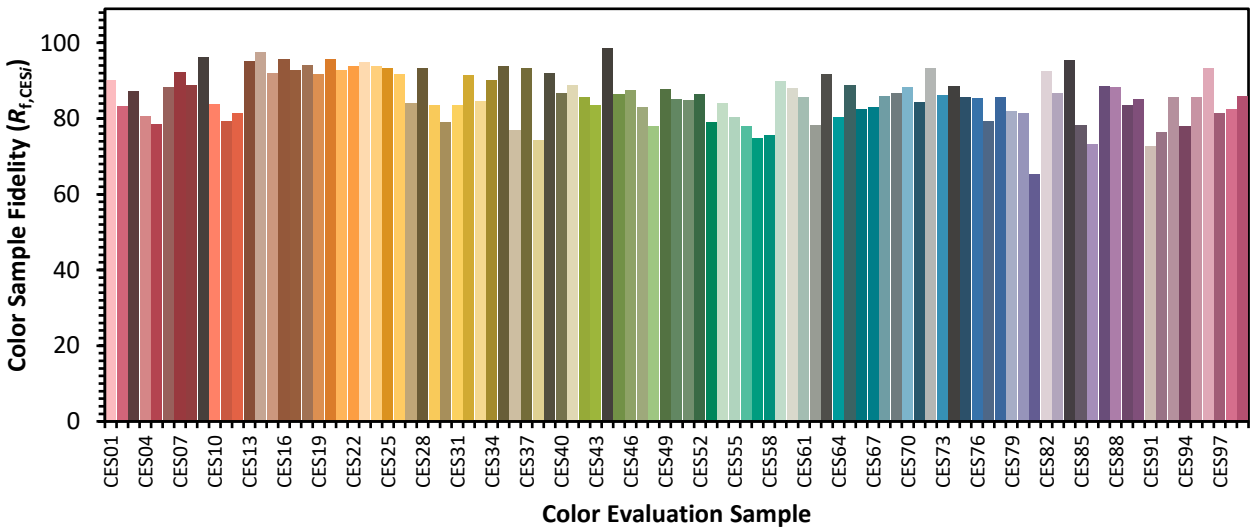



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**Individual Sample Fidelity Index ($R_{f,i}$)**

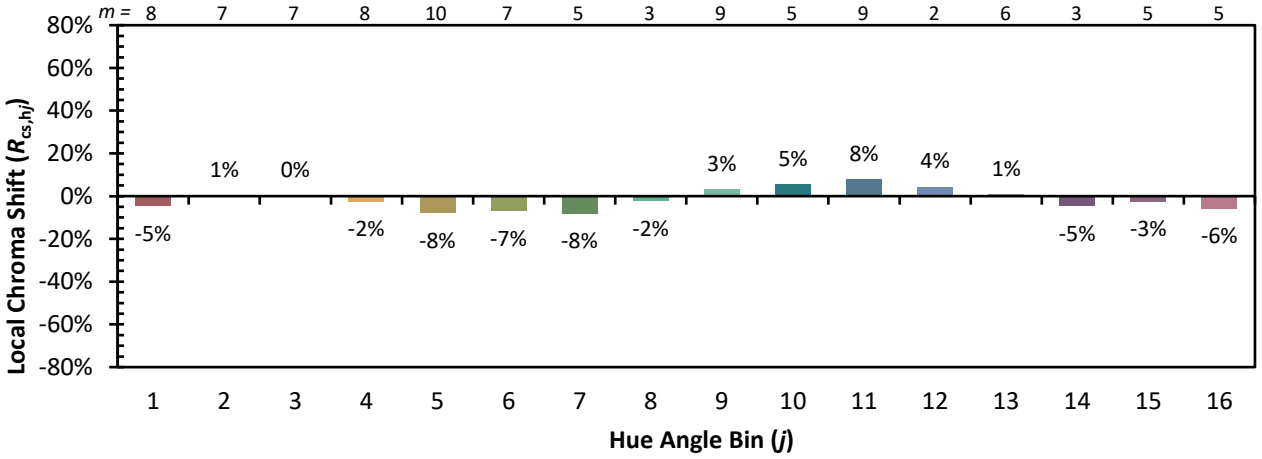
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 92 | CES51 = 85 | CES76 = 85 |
| CES02 = 62 | CES27 = 84 | CES52 = 86 | CES77 = 79 |
| CES03 = 31 | CES28 = 93 | CES53 = 79 | CES78 = 86 |
| CES04 = 69 | CES29 = 84 | CES54 = 84 | CES79 = 82 |
| CES05 = 48 | CES30 = 79 | CES55 = 80 | CES80 = 81 |
| CES06 = 50 | CES31 = 84 | CES56 = 78 | CES81 = 65 |
| CES07 = 41 | CES32 = 92 | CES57 = 75 | CES82 = 93 |
| CES08 = 40 | CES33 = 85 | CES58 = 76 | CES83 = 87 |
| CES09 = 29 | CES34 = 90 | CES59 = 90 | CES84 = 95 |
| CES10 = 74 | CES35 = 94 | CES60 = 88 | CES85 = 78 |
| CES11 = 57 | CES36 = 77 | CES61 = 86 | CES86 = 73 |
| CES12 = 63 | CES37 = 93 | CES62 = 78 | CES87 = 89 |
| CES13 = 43 | CES38 = 74 | CES63 = 92 | CES88 = 88 |
| CES14 = 74 | CES39 = 92 | CES64 = 80 | CES89 = 83 |
| CES15 = 71 | CES40 = 87 | CES65 = 89 | CES90 = 85 |
| CES16 = 47 | CES41 = 89 | CES66 = 82 | CES91 = 73 |
| CES17 = 49 | CES42 = 86 | CES67 = 83 | CES92 = 76 |
| CES18 = 56 | CES43 = 84 | CES68 = 86 | CES93 = 86 |
| CES19 = 71 | CES44 = 99 | CES69 = 87 | CES94 = 78 |
| CES20 = 66 | CES45 = 87 | CES70 = 88 | CES95 = 86 |
| CES21 = 85 | CES46 = 88 | CES71 = 84 | CES96 = 93 |
| CES22 = 77 | CES47 = 83 | CES72 = 93 | CES97 = 81 |
| CES23 = 91 | CES48 = 78 | CES73 = 86 | CES98 = 82 |
| CES24 = 90 | CES49 = 88 | CES74 = 89 | CES99 = 86 |
| CES25 = 70 | CES50 = 85 | CES75 = 86 | |

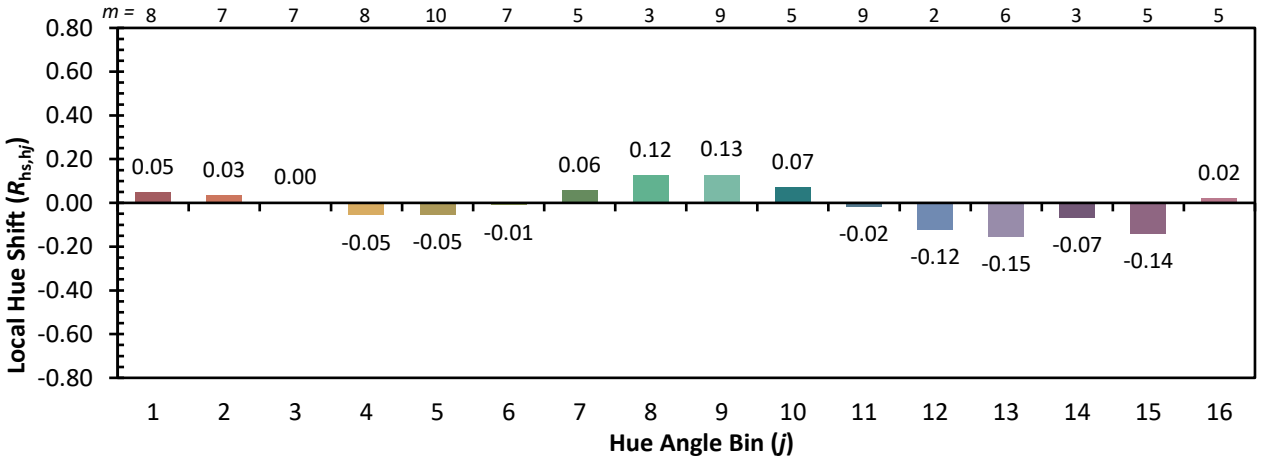


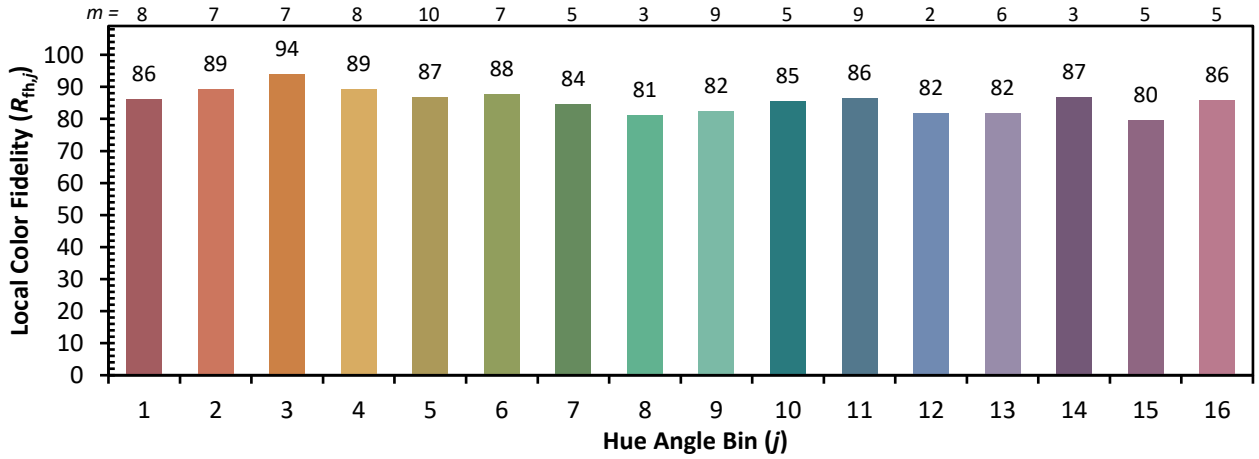
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## Color Rendition by Hue-Angle Bin



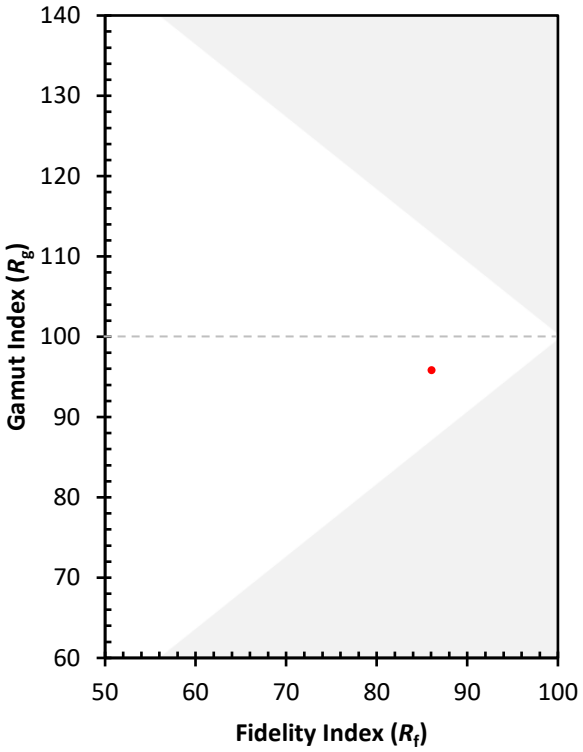



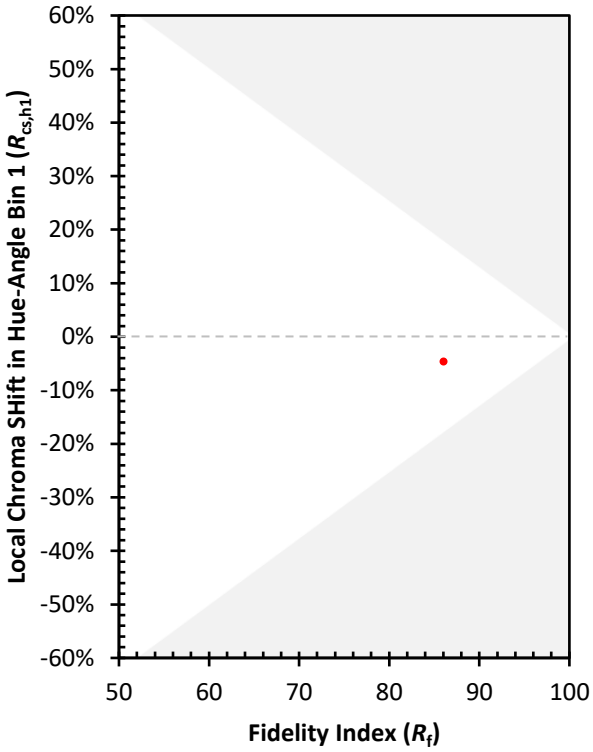



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## Measure Comparisons




(END OF REPORT)