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: P1527732

Luminaire Tested: 22CGTX-35-B2750-W2A-5000K

Issue Date: 8/26/2026

Report Generated By 670265710 / DESKTOP-98SHLC4

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P1527732 |
| | TEST IS SCALED FROM IESNA LM-79-24 TEST DATA (G3-2510-581-6) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 8/26/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | METALUX |
| Catalog Number: | 22CGTX-35-B2750-W2A-5000K |
| Description: | 2X2 3500 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: | 3516.2 lumens |
| Efficiency: | N/A |
| Efficacy: | 107.9 lumens/watt |
| Spacing Criteria (0/90/45): | 1.26 / 1.27 / 1.38 |
| Luminous Opening: | Rectangular (W 2' x L: 2' x H: 0') |
| CIE Type: | Direct |

| | |
|---|---|
| Input Watts (W): | 32.6 |
| 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 |

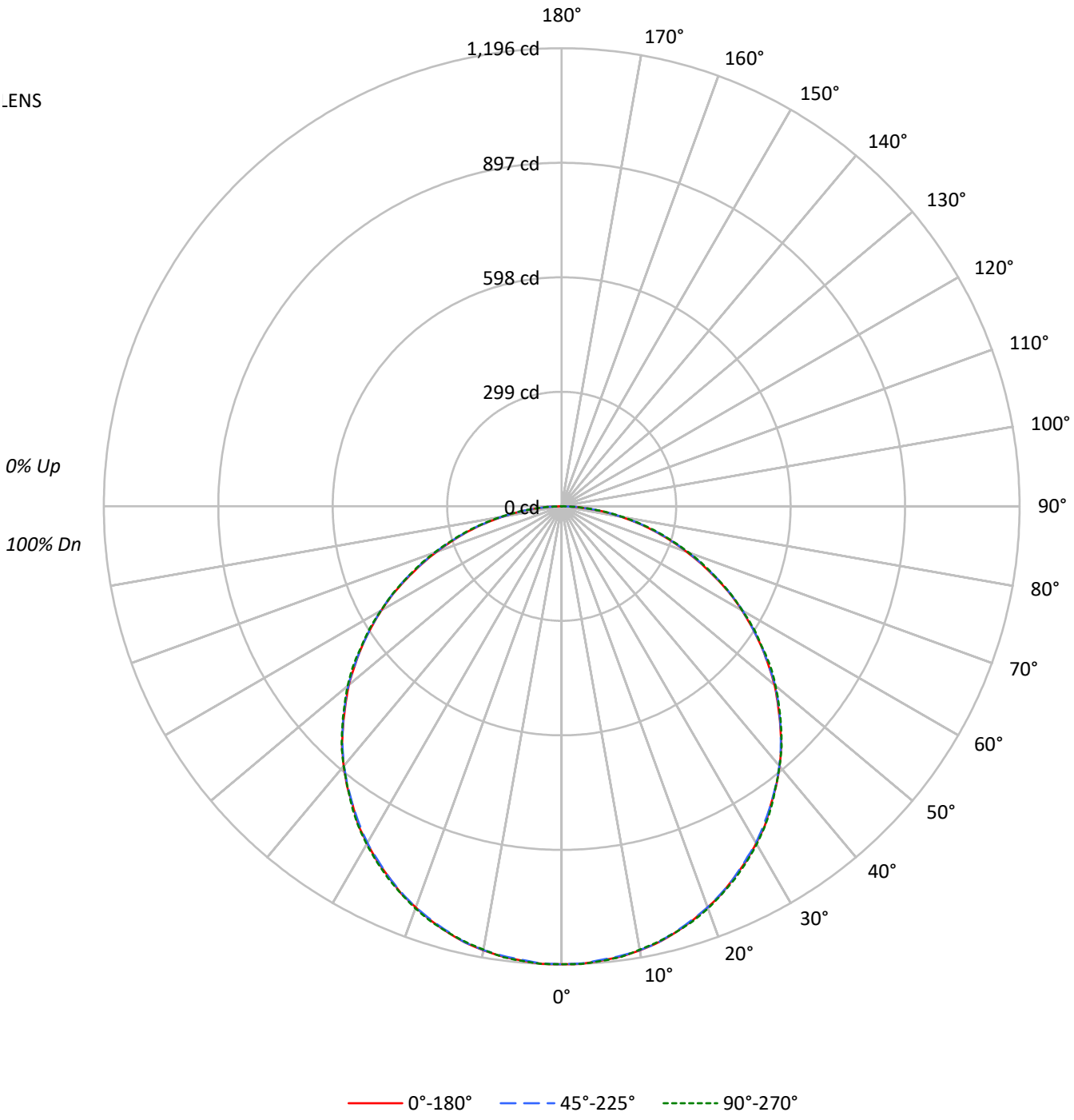


Cooper Lighting Solutions Photometric Lab
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Scaled Data Report

TEST NUMBER: P1527732
CATALOG NUMBER: 22CGTX-35-B2750-W2A-5000K

## Luminous Intensity Polar Plot



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

Scaled Data Report

TEST NUMBER: P1527732
CATALOG NUMBER: 22CGTX-35-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 | 94 | 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 | 58 |
| 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 | 63 | 50 | 41 | 35 | 48 | 41 | 35 | 47 | 40 | 35 | 45 | 39 | 34 | 32 |
| 8 | 60 | 46 | 37 | 32 | 58 | 45 | 37 | 31 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 35 | 31 | 29 |
| 9 | 56 | 42 | 34 | 28 | 54 | 42 | 34 | 28 | 41 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |
| 10 | 52 | 39 | 31 | 26 | 51 | 38 | 31 | 26 | 37 | 30 | 25 | 37 | 30 | 25 | 36 | 30 | 25 | 23 |

## AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|---|---|---|---|
| 0° | 3218 | 3218 | 3218 |
| 5° | 3216 | 3211 | 3219 |
| 10° | 3218 | 3215 | 3212 |
| 15° | 3208 | 3202 | 3208 |
| 20° | 3191 | 3191 | 3200 |
| 25° | 3172 | 3172 | 3184 |
| 30° | 3157 | 3154 | 3166 |
| 35° | 3127 | 3127 | 3140 |
| 40° | 3111 | 3107 | 3111 |
| 45° | 3072 | 3076 | 3083 |
| 50° | 3039 | 3047 | 3056 |
| 55° | 2986 | 2991 | 2996 |
| 60° | 2928 | 2940 | 2934 |
| 65° | 2839 | 2864 | 2864 |
| 70° | 2733 | 2765 | 2781 |
| 75° | 2610 | 2651 | 2682 |
| 80° | 2442 | 2489 | 2520 |
| 85° | 2171 | 2232 | 2263 |

## MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
Vertical Angle: 45°
Luminance: 3083 cd/sqm

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Scaled Data Report

TEST NUMBER: P1527732
CATALOG NUMBER: 22CGTX-35-B2750-W2A-5000K

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 113.2 | 3.2 |
| 10°-20° | 324.8 | 9.2 |
| 20°-30° | 492.9 | 14.0 |
| 30°-40° | 596.6 | 17.0 |
| 40°-50° | 623.6 | 17.7 |
| 50°-60° | 570.0 | 16.2 |
| 60°-70° | 444.3 | 12.6 |
| 70°-80° | 269.1 | 7.7 |
| 80°-90° | 81.6 | 2.3 |
| 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° | 931.0 | 26.5 |
| 0°-40° | 1527.6 | 43.4 |
| 0°-60° | 2721.1 | 77.4 |
| 0°-90° | 3516.2 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3516.2 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|---|---|---|---|---|---|---|
| 0° | 1196 | 1196 | 1196 | 1196 | 1196 | |
| 5° | 1191 | 1189 | 1189 | 1193 | 1192 | 113 |
| 15° | 1152 | 1150 | 1150 | 1152 | 1152 | 325 |
| 25° | 1068 | 1068 | 1068 | 1070 | 1072 | 493 |
| 35° | 952 | 953 | 952 | 954 | 956 | 597 |
| 45° | 807 | 808 | 808 | 809 | 810 | 623 |
| 55° | 636 | 636 | 638 | 640 | 638 | 569 |
| 65° | 446 | 447 | 450 | 452 | 450 | 442 |
| 75° | 251 | 253 | 255 | 257 | 258 | 266 |
| 85° | 70 | 70 | 72 | 73 | 73 | 80 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1527732
CATALOG NUMBER: 22CGTX-35-B2750-W2A-5000K

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 22.5° | 45° | 67.5° | 90° |
|---|---|---|---|---|---|
| 0° | *1195.7* | *1195.7* | *1195.7* | *1195.7* | *1195.7* |
| 2.5° | *1195.7* | 1194.7 | 1194.7 | 1195.7 | 1195.7 |
| 5° | *1190.7* | 1188.7 | 1188.7 | 1192.7 | 1191.7 |
| 7.5° | *1185.7* | 1184.7 | 1183.7 | 1185.7 | 1186.7 |
| 10° | *1177.6* | 1177.6 | 1176.6 | 1176.6 | 1175.6 |
| 12.5° | *1166.6* | 1164.6 | 1166.6 | 1165.6 | 1164.6 |
| 15° | *1151.5* | 1150.5 | 1149.5 | 1151.5 | 1151.5 |
| 17.5° | *1134.5* | 1132.5 | 1132.5 | 1135.5 | 1136.5 |
| 20° | *1114.4* | 1114.4 | 1114.4 | 1115.4 | 1117.4 |
| 22.5° | *1094.3* | 1093.3 | 1092.3 | 1094.3 | 1095.3 |
| 25° | *1068.2* | 1068.2 | 1068.2 | 1070.2 | 1072.2 |
| 27.5° | *1044.1* | 1042.1 | 1041.1 | 1044.1 | 1046.1 |
| 30° | *1016.0* | 1015.0 | 1015.0 | 1016.0 | 1019.0 |
| 32.5° | *987.9* | 985.9 | 983.9 | 986.9 | 988.9 |
| 35° | *951.8* | 952.8 | 951.8 | 953.8 | 955.8 |
| 37.5° | *920.6* | 919.6 | 918.6 | 919.6 | 919.6 |
| 40° | *885.5* | 882.5 | 884.5 | 885.5 | 885.5 |
| 42.5° | *849.3* | 845.3 | 847.3 | 848.3 | 850.4 |
| 45° | *807.2* | 808.2 | 808.2 | 809.2 | 810.2 |
| 47.5° | *766.0* | 768.0 | 768.0 | 767.0 | 770.0 |
| 50° | *725.9* | 724.9 | 727.9 | 725.9 | 729.9 |
| 52.5° | *680.7* | 680.7 | 681.7 | 684.7 | 687.7 |
| 55° | *636.5* | 636.5 | 637.5 | 640.5 | 638.5 |
| 57.5° | *590.3* | 589.3 | 590.3 | 593.3 | 595.3 |
| 60° | *544.1* | 543.1 | 546.2 | 546.2 | 545.1 |
| 62.5° | *497.0* | 496.0 | 499.0 | 499.0 | 500.0 |
| 65° | *445.8* | 446.8 | 449.8 | 451.8 | 449.8 |
| 67.5° | *396.6* | 399.6 | 399.6 | 401.6 | 402.6 |
| 70° | *347.4* | 349.4 | 351.4 | 353.4 | 353.4 |
| 72.5° | *299.2* | 299.2 | 301.2 | 305.2 | 305.2 |
| 75° | *251.0* | 253.0 | 255.0 | 257.0 | 258.0 |
| 77.5° | *204.8* | 203.8 | 207.8 | 209.8 | 211.8 |
| 80° | *157.6* | 159.6 | 160.6 | 164.6 | 162.6 |
| 82.5° | *114.5* | 113.4 | 115.5 | 118.5 | 118.5 |
| 85° | *70.3* | 70.3 | 72.3 | 73.3 | 73.3 |
| 87.5° | *30.1* | 30.1 | 32.1 | 32.1 | 33.1 |
| 90° | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 |

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TEST NUMBER: P1527732
CATALOG NUMBER: 22CGTX-35-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 | 15.96 | 17.62 | 16.32 | 17.93 | 18.24 | 16.00 | 17.66 | 16.37 | 17.98 | 18.29 |
| | 3H | 17.86 | 19.36 | 18.24 | 19.69 | 20.05 | 17.92 | 19.43 | 18.30 | 19.75 | 20.11 |
| | 4H | 18.60 | 20.02 | 19.00 | 20.36 | 20.74 | 18.68 | 20.10 | 19.08 | 20.45 | 20.82 |
| | 6H | 19.17 | 20.49 | 19.58 | 20.85 | 21.24 | 19.28 | 20.60 | 19.69 | 20.96 | 21.35 |
| | 8H | 19.37 | 20.63 | 19.80 | 21.02 | 21.42 | 19.49 | 20.75 | 19.91 | 21.13 | 21.53 |
| | 12H | 19.51 | 20.72 | 19.94 | 21.10 | 21.53 | 19.63 | 20.84 | 20.06 | 21.22 | 21.65 |
| 4H | 2H | 16.63 | 18.05 | 17.03 | 18.40 | 18.77 | 16.67 | 18.09 | 17.07 | 18.44 | 18.81 |
| | 3H | 18.76 | 19.95 | 19.17 | 20.35 | 20.75 | 18.81 | 20.01 | 19.22 | 20.40 | 20.80 |
| | 4H | 19.63 | 20.72 | 20.06 | 21.13 | 21.56 | 19.71 | 20.79 | 20.14 | 21.20 | 21.64 |
| | 6H | 20.35 | 21.29 | 20.80 | 21.73 | 22.19 | 20.45 | 21.40 | 20.90 | 21.84 | 22.29 |
| | 8H | 20.60 | 21.49 | 21.06 | 21.93 | 22.39 | 20.71 | 21.60 | 21.17 | 22.04 | 22.51 |
| | 12H | 20.79 | 21.59 | 21.27 | 22.06 | 22.53 | 20.91 | 21.71 | 21.39 | 22.19 | 22.66 |
| 8H | 4H | 19.99 | 20.88 | 20.45 | 21.32 | 21.79 | 20.06 | 20.95 | 20.52 | 21.39 | 21.85 |
| | 6H | 20.84 | 21.58 | 21.33 | 22.07 | 22.54 | 20.94 | 21.68 | 21.43 | 22.17 | 22.64 |
| | 8H | 21.18 | 21.84 | 21.68 | 22.35 | 22.83 | 21.29 | 21.96 | 21.80 | 22.46 | 22.95 |
| | 12H | 21.45 | 22.04 | 21.95 | 22.53 | 23.09 | 21.57 | 22.16 | 22.08 | 22.65 | 23.21 |
| 12H | 4H | 20.04 | 20.84 | 20.52 | 21.32 | 21.79 | 20.10 | 20.91 | 20.58 | 21.38 | 21.85 |
| | 6H | 20.92 | 21.59 | 21.43 | 22.09 | 22.58 | 21.01 | 21.68 | 21.52 | 22.18 | 22.67 |
| | 8H | 21.32 | 21.91 | 21.82 | 22.40 | 22.96 | 21.43 | 22.02 | 21.93 | 22.51 | 23.07 |

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: SP1-2505-441-5-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

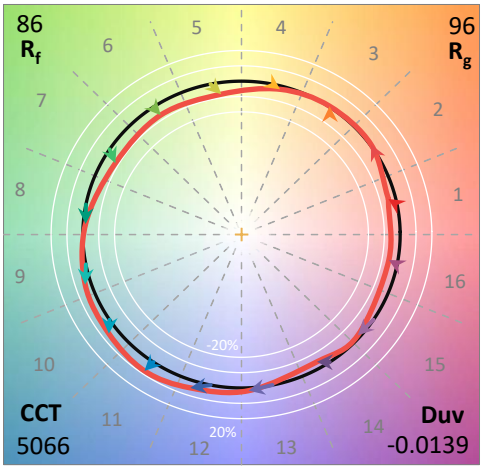
## Test Information

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



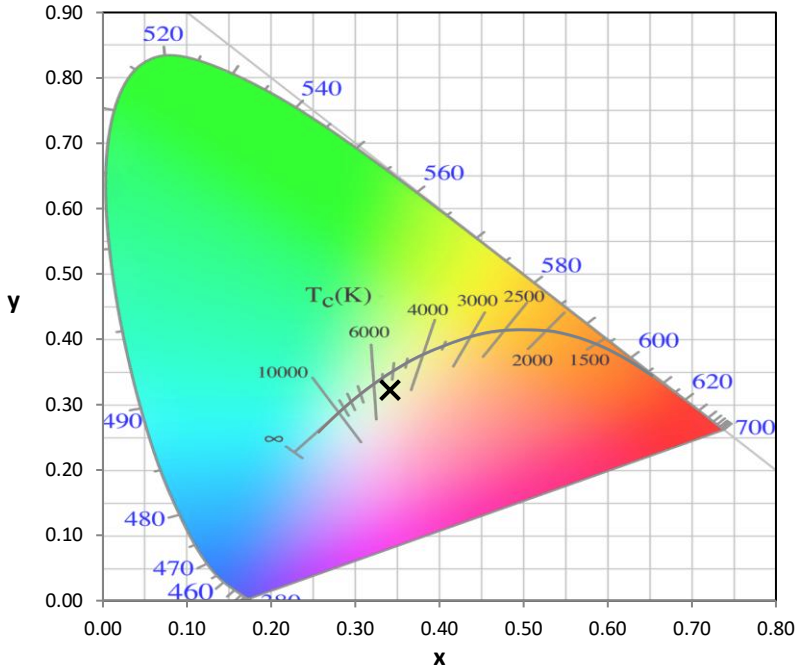

## Test Conditions

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

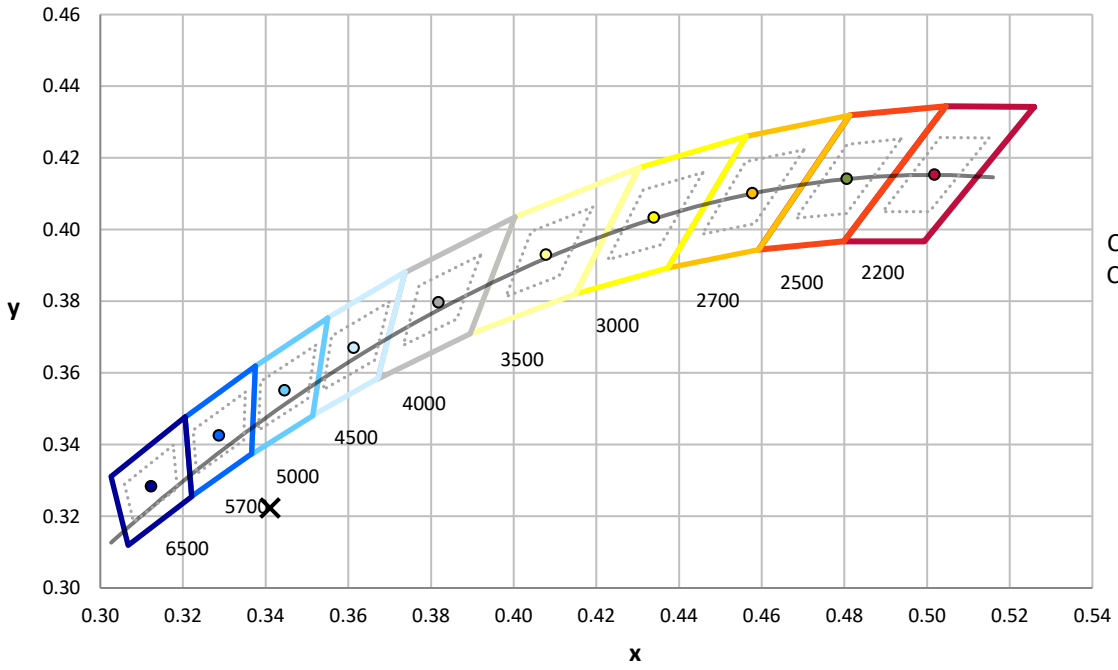
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2024 | 6/16/2025 |
| Power Meter | XITRON INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | CHROMA 61603 IN0063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

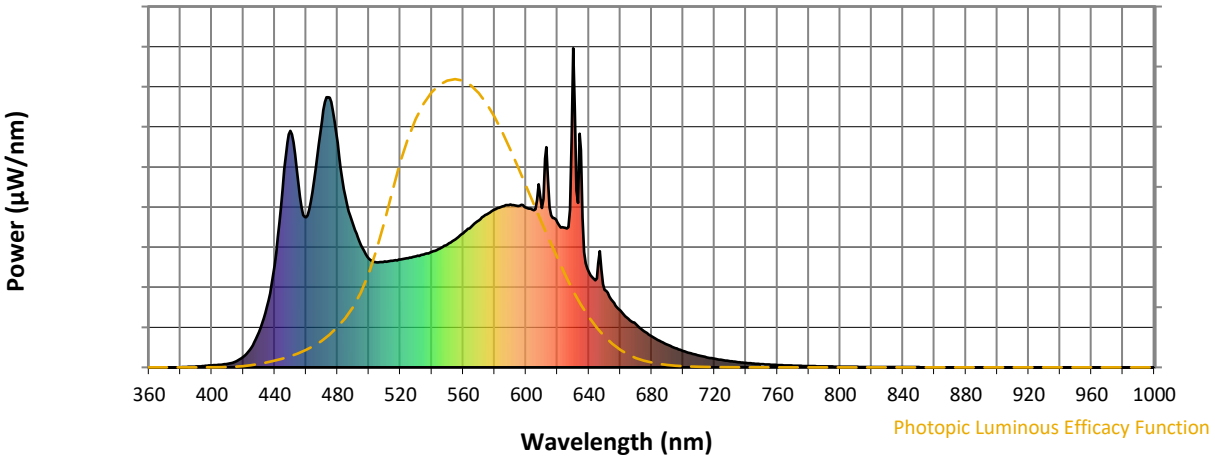



CCT = 5066K
CIE x = 0.3411
CIE y = 0.3223
Duv = -0.0139

Point lies outside the range

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

## Photopic Flux vs. Wavelength

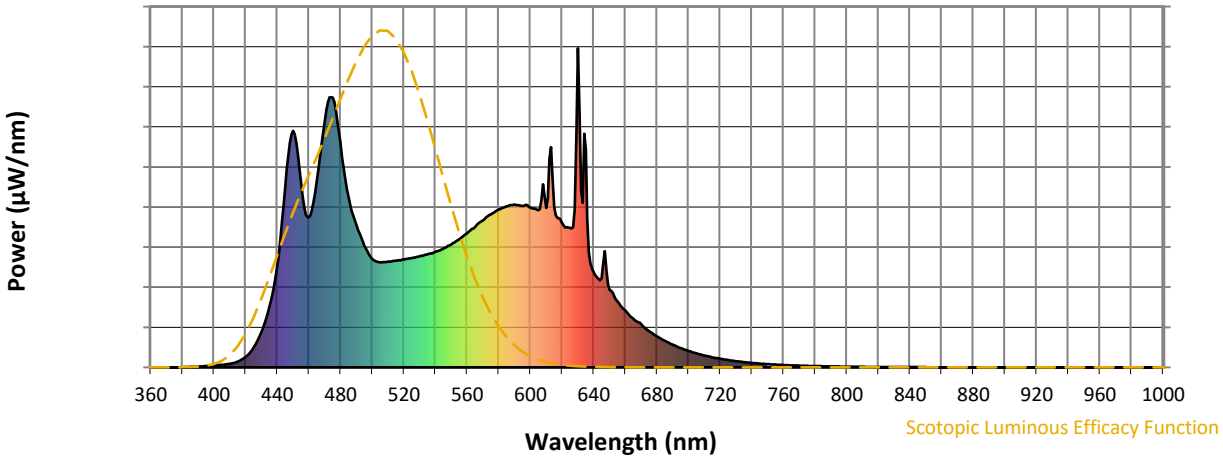



## Photopic Lumens: NR

| 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

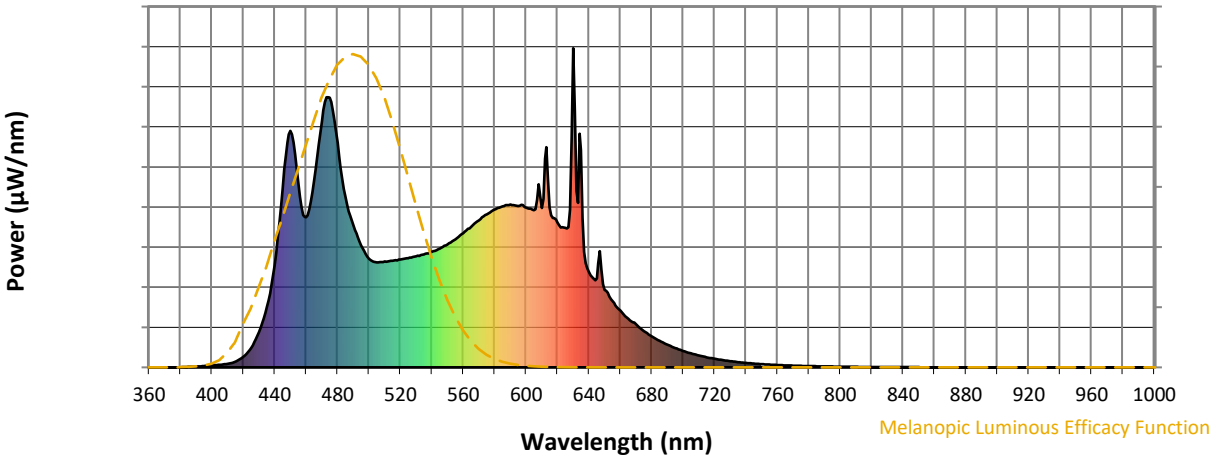



**Scotopic Lumens: NR** **S/P: 2.31**

| 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 | | | |

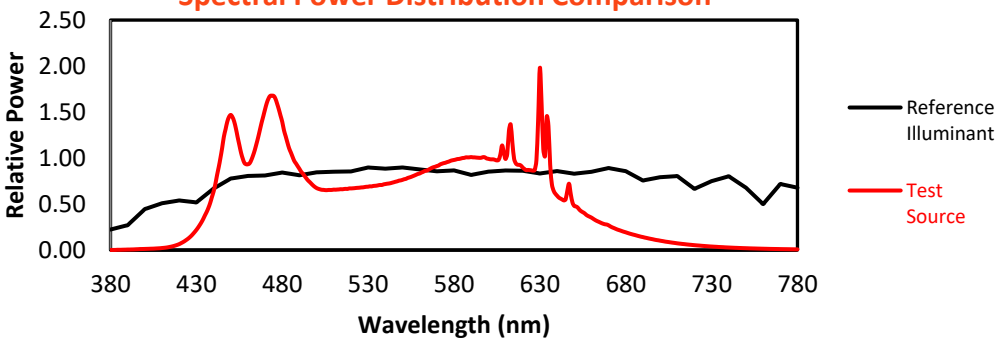
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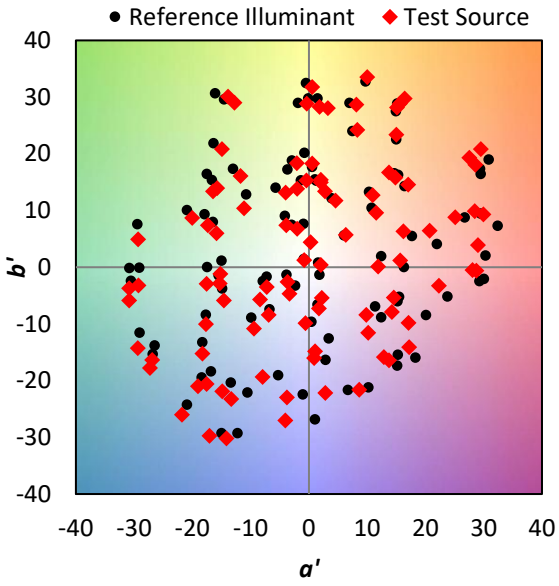
## Summary

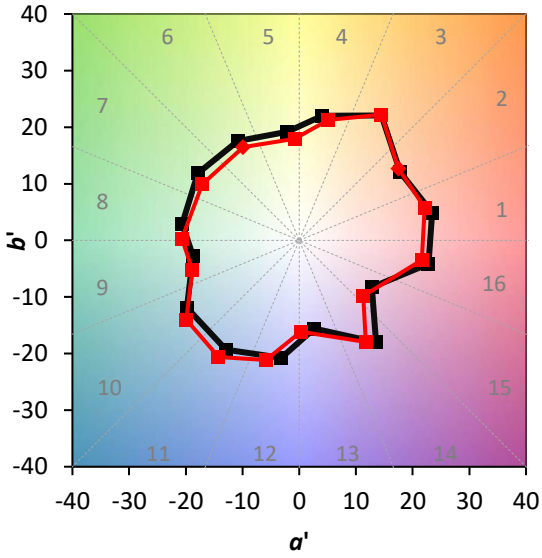
$R_f$ = 86.1
$R_g$ = 95.8
CIE $R_a$ = 84.8
$R_9$ = 84.7

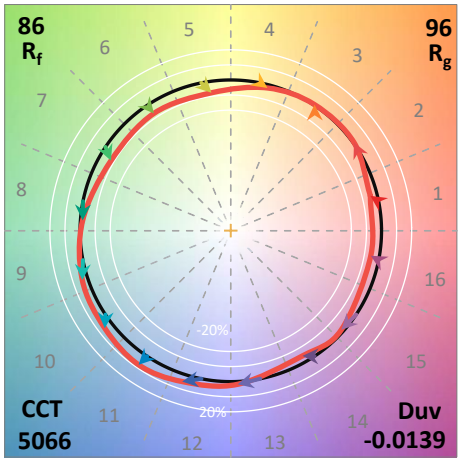
## Spectral Power Distribution Comparison

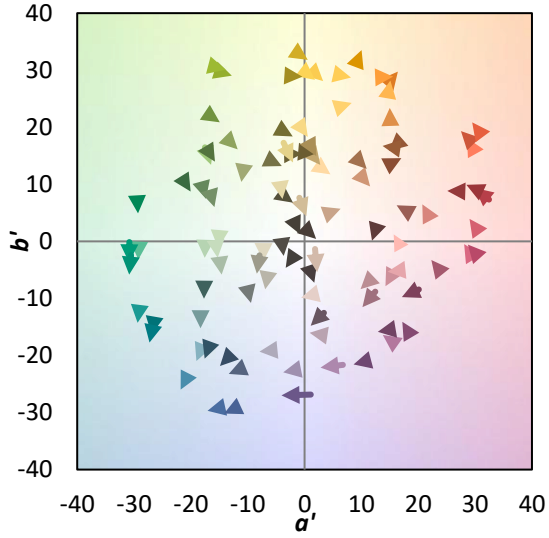



## Color Vector Graphics



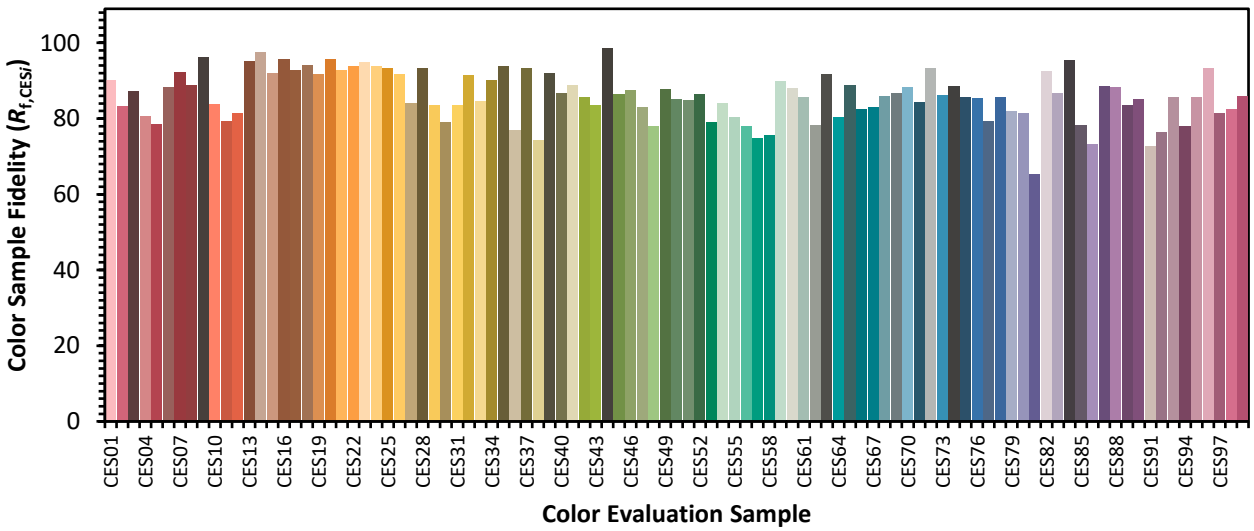



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**Individual Sample Fidelity Index ($R_{f,i}$)**

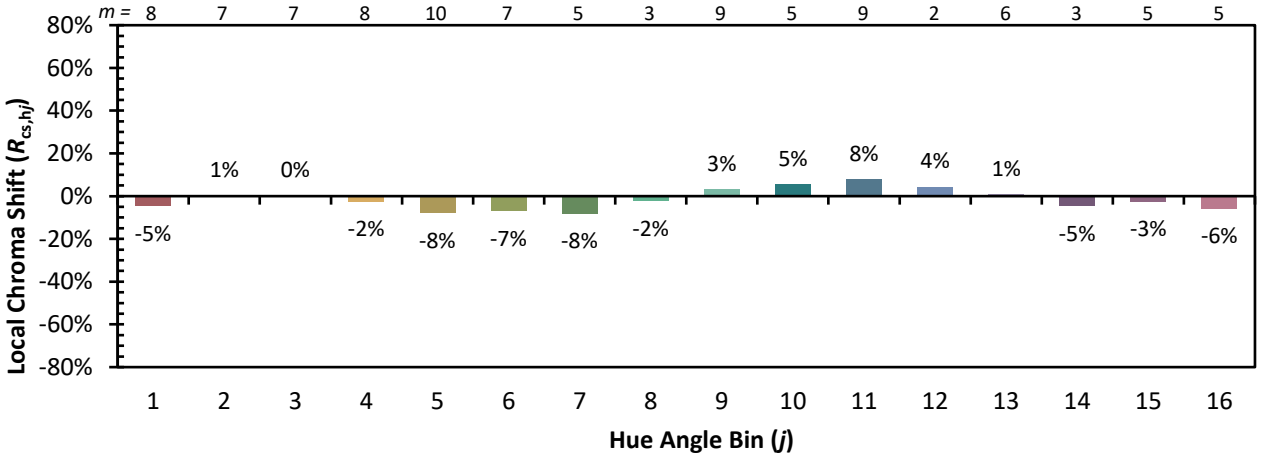
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 92 | CES51 = 85 | CES76 = 85 |
| CES02 = 62 | CES27 = 84 | CES52 = 86 | CES77 = 79 |
| CES03 = 31 | CES28 = 93 | CES53 = 79 | CES78 = 86 |
| CES04 = 69 | CES29 = 84 | CES54 = 84 | CES79 = 82 |
| CES05 = 48 | CES30 = 79 | CES55 = 80 | CES80 = 81 |
| CES06 = 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 | |

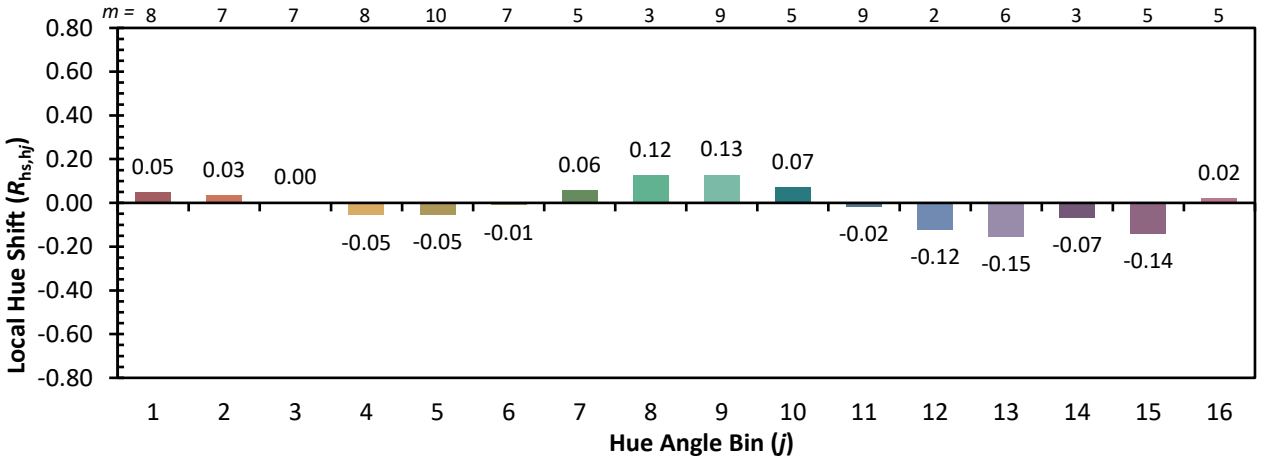


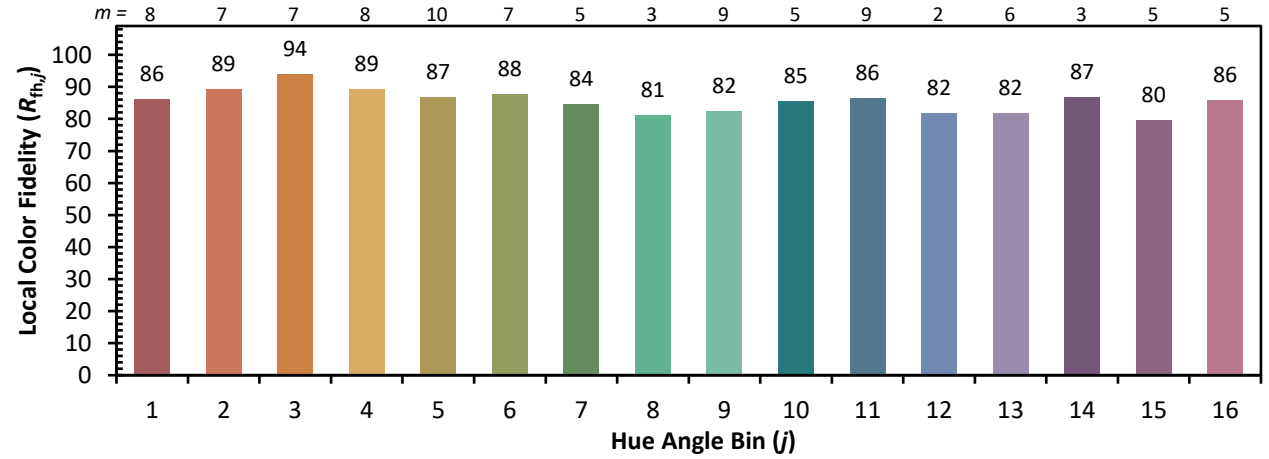
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## Color Rendition by Hue-Angle Bin



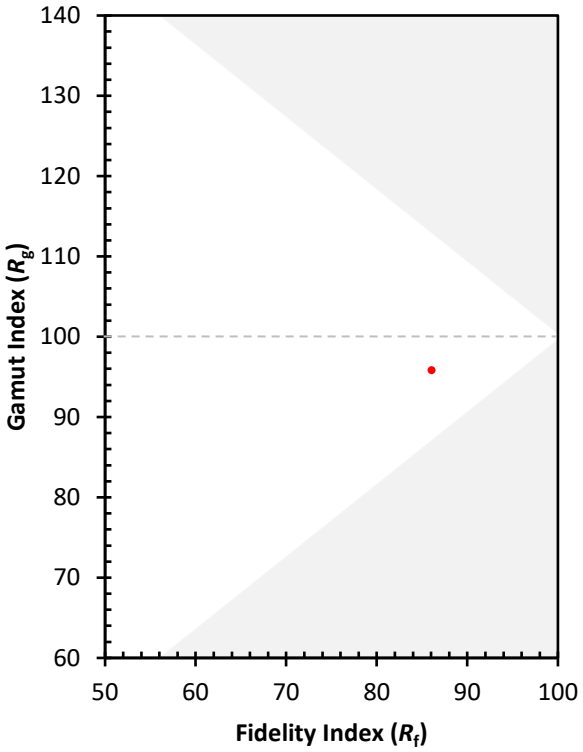



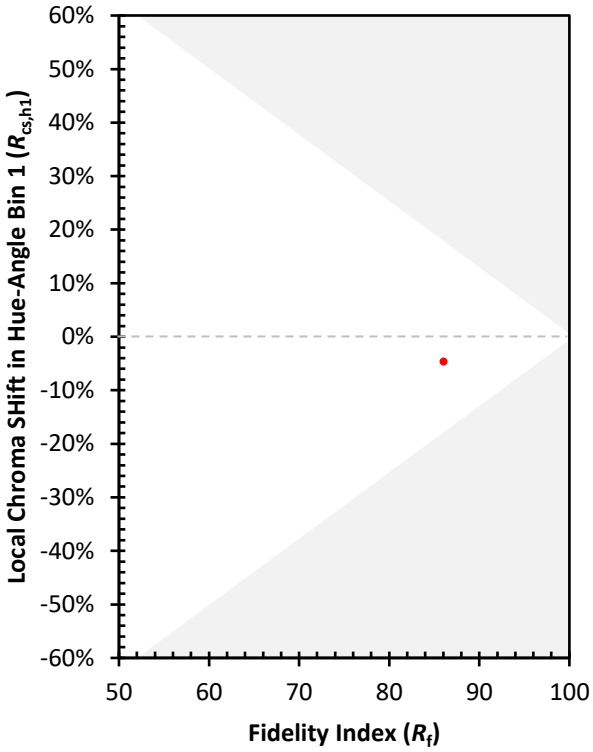



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## Measure Comparisons




(END OF REPORT)