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: P1590906

Luminaire Tested: 22CGTX-20-L93050-W2A-3000K

Issue Date: 9/7/2026

Report Generated By 670265710 / DESKTOP-98SHLC4

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P1590906 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 9/7/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | METALUX |
| Catalog Number: | 22CGTX-20-L93050-W2A-3000K |
| Description: | 2X2 2000 LUMEN CGTX TROFFER WITH VividTune LEDS AT 3000K CCT |
| Light Source: | 3000K CCT, 90 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 2141.2 lumens |
| Efficiency: | N/A |
| Efficacy: | 117.0 lumens/watt |
| Spacing Criteria (0/90/45): | 1.27 / 1.27 / 1.39 |
| Luminous Opening: | Rectangular (W 1.81' x L: 1.81' x H: 0') |
| CIE Type: | Direct |
| Input Watts (W): | 18.3 |
| 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 |

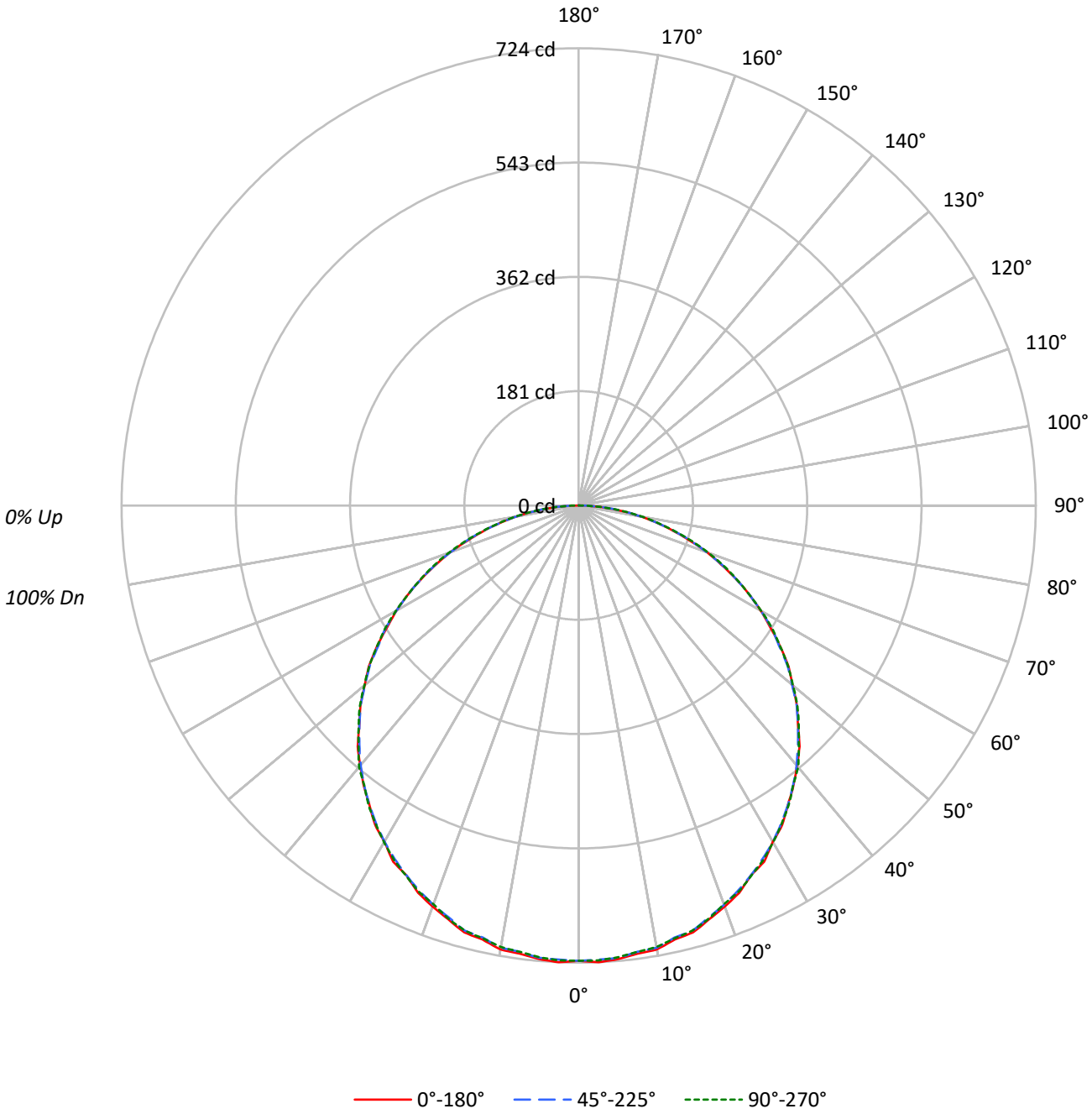


Cooper Lighting Solutions Photometric Lab
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Scaled Data Report

TEST NUMBER: P1590906
CATALOG NUMBER: 22CGTX-20-L93050-W2A-3000K

## Luminous Intensity Polar Plot



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

Scaled Data Report

TEST NUMBER: P1590906
CATALOG NUMBER: 22CGTX-20-L93050-W2A-3000K

## 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° | 2362 | 2362 | 2362 |
| 5° | 2371 | 2365 | 2362 |
| 10° | 2376 | 2366 | 2362 |
| 15° | 2374 | 2364 | 2364 |
| 20° | 2357 | 2347 | 2343 |
| 25° | 2335 | 2335 | 2339 |
| 30° | 2327 | 2327 | 2331 |
| 35° | 2312 | 2312 | 2320 |
| 40° | 2301 | 2297 | 2314 |
| 45° | 2275 | 2275 | 2284 |
| 50° | 2253 | 2248 | 2258 |
| 55° | 2228 | 2211 | 2228 |
| 60° | 2182 | 2182 | 2189 |
| 65° | 2132 | 2132 | 2140 |
| 70° | 2069 | 2060 | 2098 |
| 75° | 1962 | 1988 | 2000 |
| 80° | 1868 | 1868 | 1925 |
| 85° | 1654 | 1729 | 1692 |

## MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
Vertical Angle: 45°
Luminance: 2284 cd/sqm

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

Scaled Data Report

TEST NUMBER: P1590906
CATALOG NUMBER: 22CGTX-20-L93050-W2A-3000K

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 68.3 | 3.2 |
| 10°-20° | 196.3 | 9.2 |
| 20°-30° | 298.4 | 13.9 |
| 30°-40° | 362.1 | 16.9 |
| 40°-50° | 379.4 | 17.7 |
| 50°-60° | 347.9 | 16.3 |
| 60°-70° | 272.0 | 12.7 |
| 70°-80° | 165.7 | 7.7 |
| 80°-90° | 50.9 | 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° | 563.1 | 26.3 |
| 0°-40° | 925.2 | 43.2 |
| 0°-60° | 1652.6 | 77.2 |
| 0°-90° | 2141.2 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2141.2 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|---|---|---|---|---|---|---|
| 0° | 721 | 721 | 721 | 721 | 721 | |
| 5° | 721 | 720 | 719 | 719 | 718 | 69 |
| 15° | 700 | 695 | 697 | 695 | 697 | 197 |
| 25° | 646 | 647 | 646 | 646 | 647 | 299 |
| 35° | 578 | 579 | 578 | 578 | 580 | 362 |
| 45° | 491 | 492 | 491 | 492 | 493 | 380 |
| 55° | 390 | 389 | 387 | 390 | 390 | 348 |
| 65° | 275 | 274 | 275 | 276 | 276 | 272 |
| 75° | 155 | 156 | 157 | 158 | 158 | 164 |
| 85° | 44 | 44 | 46 | 46 | 45 | 50 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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Scaled Data Report

TEST NUMBER: P1590906
CATALOG NUMBER: 22CGTX-20-L93050-W2A-3000K

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 22.5° | 45° | 67.5° | 90° |
|---|---|---|---|---|---|
| 0° | *721* | 721 | 721 | 721 | 721 |
| 2.5° | *724* | *722* | *720* | *719* | *721* |
| 5° | *721* | 720 | 719 | 719 | 718 |
| 7.5° | *716* | 716 | 713 | 715 | 713 |
| 10° | *714* | 711 | 711 | 710 | 710 |
| 12.5° | *704* | 705 | 701 | 704 | 702 |
| 15° | *700* | 695 | 697 | 695 | 697 |
| 17.5° | *687* | 687 | 684 | 686 | 686 |
| 20° | *676* | 674 | 673 | 672 | 672 |
| 22.5° | *664* | 663 | 660 | 663 | 662 |
| 25° | *646* | 647 | 646 | 646 | 647 |
| 27.5° | *636* | 633 | 631 | 633 | 633 |
| 30° | *615* | 615 | 615 | 616 | 616 |
| 32.5° | *600* | 598 | 597 | 598 | 598 |
| 35° | *578* | 579 | 578 | 578 | 580 |
| 37.5° | *559* | 560 | 558 | 560 | 558 |
| 40° | *538* | 538 | 537 | 535 | 541 |
| 42.5° | *518* | 514 | 514 | 516 | 516 |
| 45° | *491* | 492 | 491 | 492 | 493 |
| 47.5° | *469* | 467 | 468 | 468 | 470 |
| 50° | *442* | 442 | 441 | 443 | 443 |
| 52.5° | *419* | 416 | 417 | 416 | 418 |
| 55° | *390* | 389 | 387 | 390 | 390 |
| 57.5° | *360* | 361 | 363 | 361 | 364 |
| 60° | *333* | 333 | 333 | 335 | 334 |
| 62.5° | *304* | 302 | 304 | 305 | 304 |
| 65° | *275* | 274 | 275 | 276 | 276 |
| 67.5° | *244* | 244 | 246 | 246 | 248 |
| 70° | *216* | 215 | 215 | 215 | 219 |
| 72.5° | *184* | 185 | 186 | 187 | 188 |
| 75° | *155* | 156 | 157 | 158 | 158 |
| 77.5° | *127* | 127 | 127 | 129 | 129 |
| 80° | *99* | 98 | 99 | 100 | 102 |
| 82.5° | *72* | 71 | 72 | 73 | 73 |
| 85° | *44* | 44 | 46 | 46 | 45 |
| 87.5° | *20* | 19 | 21 | 21 | 20 |
| 90° | *0* | 0 | 0 | 0 | 0 |

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Peachtree City, GA 30269

TEST NUMBER: P1590906
CATALOG NUMBER: 22CGTX-20-L93050-W2A-3000K

**CIE UGR TABLE:**

| Reflectances: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ceiling | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| | Wall | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| | Reference plane | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 14.95 | 16.61 | 15.31 | 16.93 | 17.24 | 14.96 | 16.63 | 15.33 | 16.94 | 17.26 |
| | 3H | 16.87 | 18.38 | 17.24 | 18.70 | 19.06 | 16.91 | 18.42 | 17.28 | 18.74 | 19.10 |
| | 4H | 17.61 | 19.04 | 18.01 | 19.38 | 19.76 | 17.67 | 19.09 | 18.07 | 19.44 | 19.82 |
| | 6H | 18.20 | 19.53 | 18.61 | 19.89 | 20.28 | 18.27 | 19.60 | 18.69 | 19.96 | 20.35 |
| | 8H | 18.41 | 19.68 | 18.84 | 20.06 | 20.46 | 18.49 | 19.75 | 18.91 | 20.14 | 20.54 |
| | 12H | 18.56 | 19.77 | 18.98 | 20.15 | 20.58 | 18.63 | 19.85 | 19.06 | 20.23 | 20.66 |
| 4H | 2H | 15.62 | 17.04 | 16.02 | 17.39 | 17.77 | 15.63 | 17.06 | 16.03 | 17.40 | 17.78 |
| | 3H | 17.77 | 18.96 | 18.17 | 19.36 | 19.76 | 17.80 | 19.00 | 18.21 | 19.39 | 19.79 |
| | 4H | 18.65 | 19.74 | 19.08 | 20.15 | 20.59 | 18.70 | 19.79 | 19.13 | 20.20 | 20.64 |
| | 6H | 19.38 | 20.33 | 19.83 | 20.77 | 21.23 | 19.45 | 20.40 | 19.90 | 20.84 | 21.29 |
| | 8H | 19.64 | 20.53 | 20.10 | 20.98 | 21.44 | 19.72 | 20.61 | 20.18 | 21.05 | 21.51 |
| | 12H | 19.84 | 20.64 | 20.32 | 21.12 | 21.58 | 19.92 | 20.72 | 20.40 | 21.19 | 21.66 |
| 8H | 4H | 19.01 | 19.90 | 19.47 | 20.35 | 20.81 | 19.06 | 19.95 | 19.51 | 20.39 | 20.85 |
| | 6H | 19.88 | 20.62 | 20.37 | 21.11 | 21.58 | 19.94 | 20.69 | 20.43 | 21.17 | 21.65 |
| | 8H | 20.22 | 20.89 | 20.73 | 21.40 | 21.88 | 20.30 | 20.97 | 20.80 | 21.47 | 21.95 |
| | 12H | 20.50 | 21.09 | 21.01 | 21.58 | 22.14 | 20.59 | 21.18 | 21.09 | 21.67 | 22.23 |
| 12H | 4H | 19.06 | 19.87 | 19.54 | 20.34 | 20.81 | 19.10 | 19.91 | 19.58 | 20.38 | 20.85 |
| | 6H | 19.95 | 20.63 | 20.46 | 21.13 | 21.61 | 20.02 | 20.69 | 20.52 | 21.19 | 21.67 |
| | 8H | 20.37 | 20.96 | 20.87 | 21.45 | 22.01 | 20.44 | 21.03 | 20.94 | 21.52 | 22.08 |

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

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2512-631-41-R2

Test Date: 02/05/2026

Luminaire Tested: 22CGTX-50-L93050-W2A-3000K

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

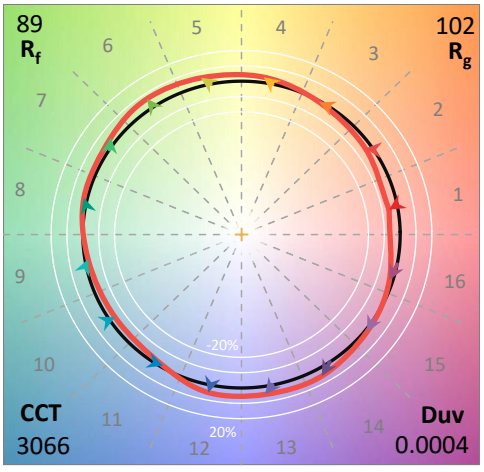
Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.05

## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2512-631-41-R2 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 07/28/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | Metalux |
| Catalog Number: | **22CGTX-50-L93050-W2A-3000K** |
| Description: | *THIS IS A REVISION OF REPORT SP1-2512-631-41-R2 TO UPDATE THE CATALOG INFORMATION* 2X2 5000 LUMEN HE CGTX TUNABLE WHITE FROM 3000K TO 5000K - 9.5 Volt |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3066 | CRI (Ra): | 91.7 | | |
| CIE u': | 0.2482 | R1: | 93.0 | R9: | 52.5 |
| CIE v': | 0.5206 | R2: | 94.0 | R10: | 85.0 |
| Duv: | 0.0004 | R3: | 94.3 | R11: | 94.8 |
| CIE x: | 0.4328 | R4: | 93.4 | R12: | 82.8 |
| CIE y: | 0.4036 | R5: | 92.4 | R13: | 92.9 |
| CIE z: | 0.1636 | R6: | 94.1 | R14: | 95.7 |
| Peak Wavelength (nm): | 630 | R7: | 91.5 | R15: | 87.8 |
| Dominant Wavelength (nm): | 582 | R8: | 80.7 | | |
| Purity: | 51.0461 | | | | |
| Rf: | 89.5 | | | | |
| Rg: | 102 | | | | |



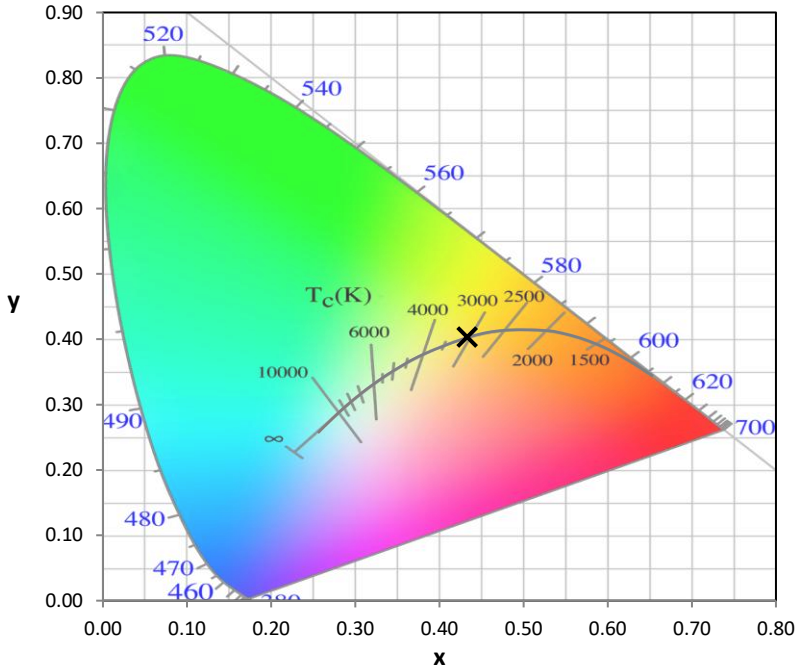

## Test Conditions

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

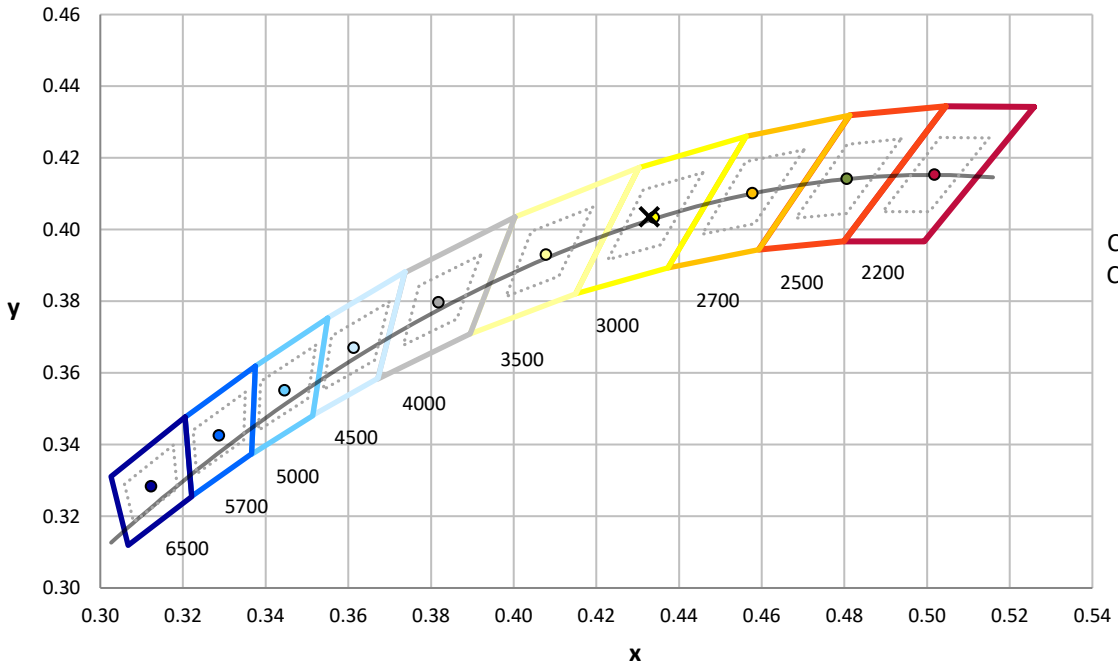
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 12/16/2025 | 6/16/2026 |
| Power Meter | XITRON INXT2011004 | 10/21/2025 | 10/21/2026 |
| AC Power Source | CHROMA 61603 IN0063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

REPORT NUMBER: SP1-2512-631-41-R2

## CIE 1931 Chromaticity Diagram




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

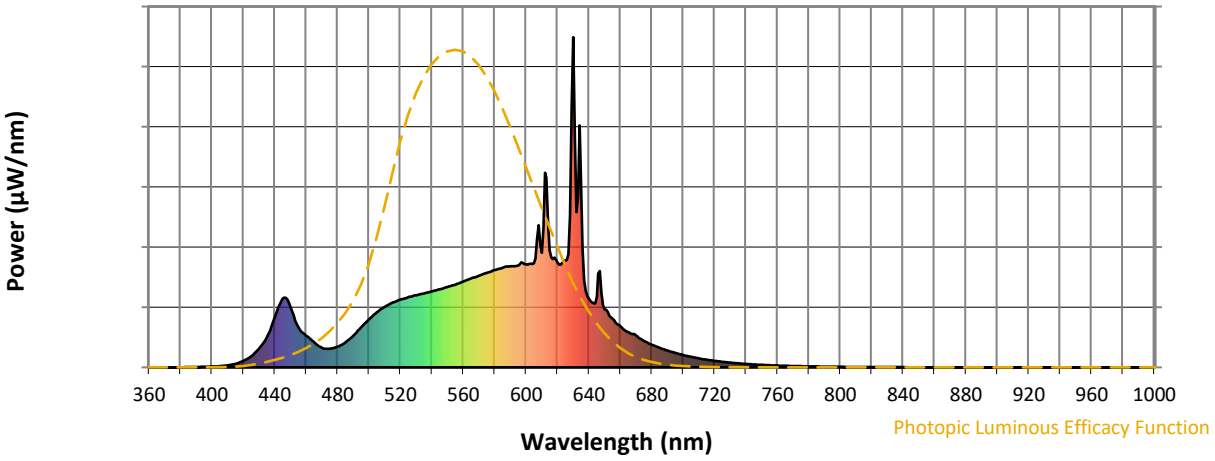



CCT = 3066K
CIE x = 0.4328
CIE y = 0.4036
Duv = 0.0004

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2512-631-41-R2

## Photopic Flux vs. Wavelength

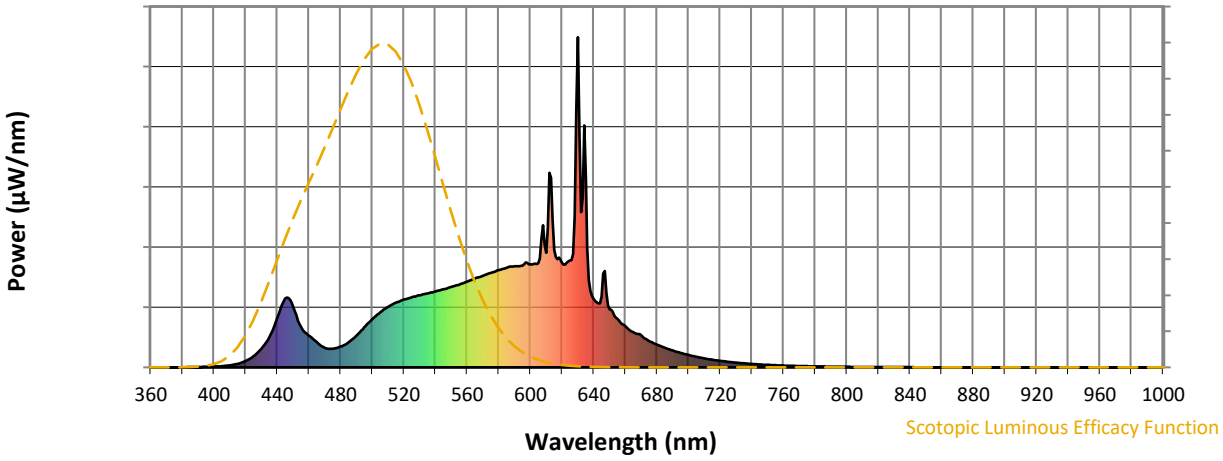



## Photopic Lumens: NR

| 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 | 96 | NR | 620 | 317 | NR | 750 | 8 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 324 | NR | 755 | 7 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 146 | NR | 630 | 1000 | NR | 760 | 6 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 167 | NR | 635 | 572 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 183 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 196 | NR | 645 | 215 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 205 | NR | 650 | 175 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 212 | NR | 655 | 147 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 218 | NR | 660 | 125 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 224 | NR | 665 | 106 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 230 | NR | 670 | 97 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 236 | NR | 675 | 80 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 19 | NR | 550 | 244 | NR | 680 | 69 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 34 | NR | 555 | 250 | NR | 685 | 59 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 57 | NR | 560 | 260 | NR | 690 | 51 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 92 | NR | 565 | 269 | NR | 695 | 44 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 151 | NR | 570 | 277 | NR | 700 | 37 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 208 | NR | 575 | 286 | NR | 705 | 32 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 184 | NR | 580 | 294 | NR | 710 | 27 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 122 | NR | 585 | 301 | NR | 715 | 23 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 96 | NR | 590 | 307 | NR | 720 | 20 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 308 | NR | 725 | 17 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 59 | NR | 600 | 312 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 57 | NR | 605 | 315 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 63 | NR | 610 | 347 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 76 | NR | 615 | 356 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2512-631-41-R2

## Scotopic Flux vs. Wavelength

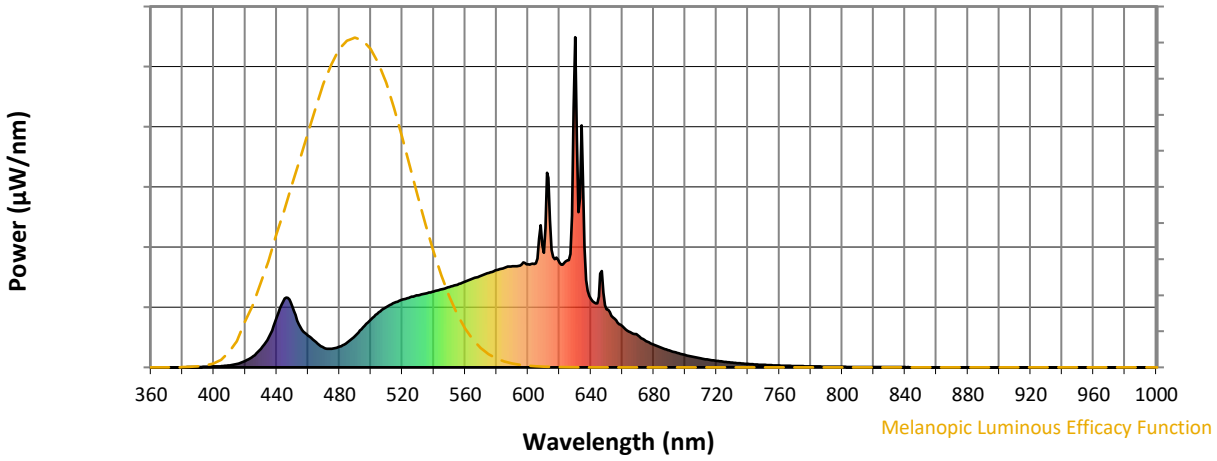



**Scotopic Lumens: NR** **S/P: 1.41**

| 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 | 96 | NR | 620 | 317 | NR | 750 | 8 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 324 | NR | 755 | 7 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 146 | NR | 630 | 1000 | NR | 760 | 6 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 167 | NR | 635 | 572 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 183 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 196 | NR | 645 | 215 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 205 | NR | 650 | 175 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 212 | NR | 655 | 147 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 218 | NR | 660 | 125 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 224 | NR | 665 | 106 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 230 | NR | 670 | 97 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 236 | NR | 675 | 80 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 19 | NR | 550 | 244 | NR | 680 | 69 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 34 | NR | 555 | 250 | NR | 685 | 59 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 57 | NR | 560 | 260 | NR | 690 | 51 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 92 | NR | 565 | 269 | NR | 695 | 44 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 151 | NR | 570 | 277 | NR | 700 | 37 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 208 | NR | 575 | 286 | NR | 705 | 32 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 184 | NR | 580 | 294 | NR | 710 | 27 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 122 | NR | 585 | 301 | NR | 715 | 23 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 96 | NR | 590 | 307 | NR | 720 | 20 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 308 | NR | 725 | 17 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 59 | NR | 600 | 312 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 57 | NR | 605 | 315 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 63 | NR | 610 | 347 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 76 | NR | 615 | 356 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.7**

| 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 | 96 | NR | 620 | 317 | NR | 750 | 8 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 324 | NR | 755 | 7 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 146 | NR | 630 | 1000 | NR | 760 | 6 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 167 | NR | 635 | 572 | NR | 765 | 5 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 183 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 196 | NR | 645 | 215 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 205 | NR | 650 | 175 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 212 | NR | 655 | 147 | NR | 785 | 3 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 218 | NR | 660 | 125 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 224 | NR | 665 | 106 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 230 | NR | 670 | 97 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 236 | NR | 675 | 80 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 19 | NR | 550 | 244 | NR | 680 | 69 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 34 | NR | 555 | 250 | NR | 685 | 59 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 57 | NR | 560 | 260 | NR | 690 | 51 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 92 | NR | 565 | 269 | NR | 695 | 44 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 151 | NR | 570 | 277 | NR | 700 | 37 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 208 | NR | 575 | 286 | NR | 705 | 32 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 184 | NR | 580 | 294 | NR | 710 | 27 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 122 | NR | 585 | 301 | NR | 715 | 23 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 96 | NR | 590 | 307 | NR | 720 | 20 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 308 | NR | 725 | 17 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 59 | NR | 600 | 312 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 57 | NR | 605 | 315 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 63 | NR | 610 | 347 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 76 | NR | 615 | 356 | NR | 745 | 9 | NR | 875 | 0 | NR | | | |

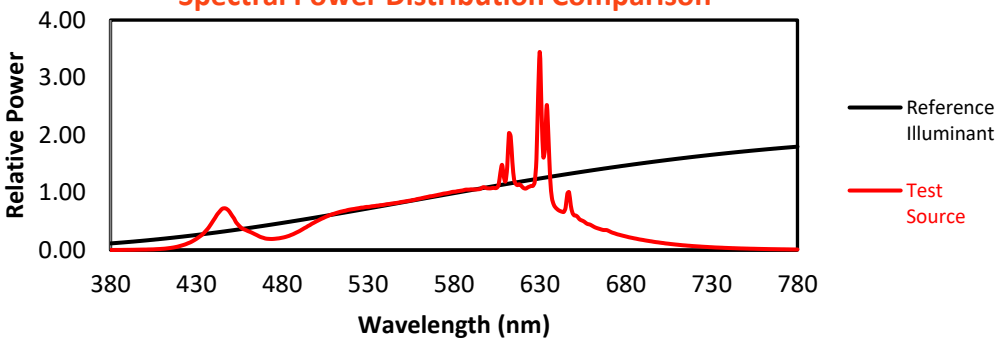
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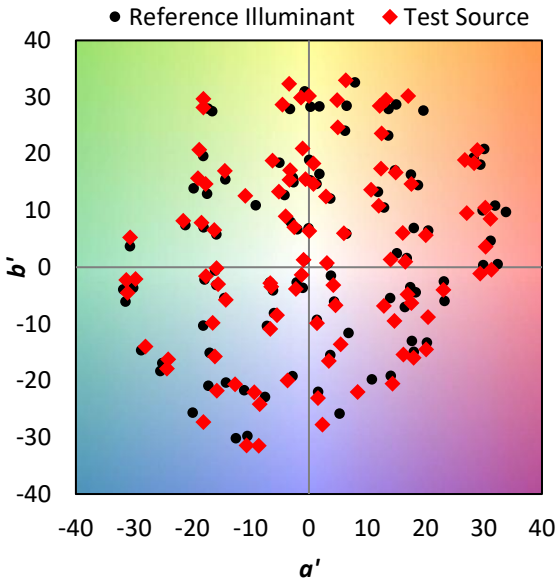
## Summary

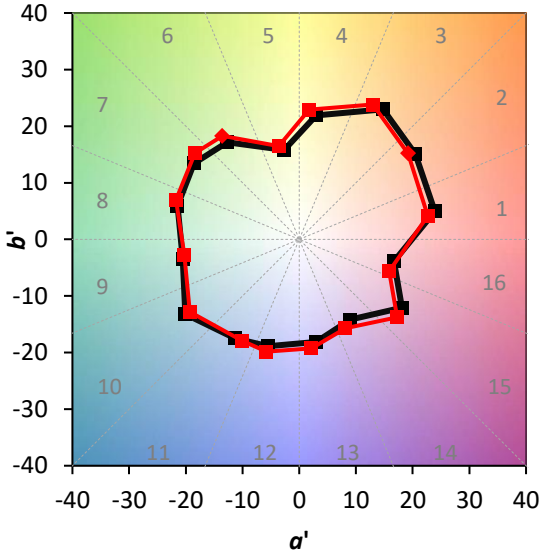
$R_f$ = 89.5
$R_g$ = 102
CIE $R_a$ = 91.7
$R_9$ = 52.5

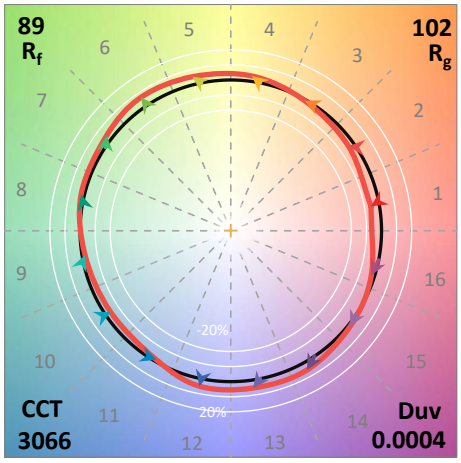
## Spectral Power Distribution Comparison

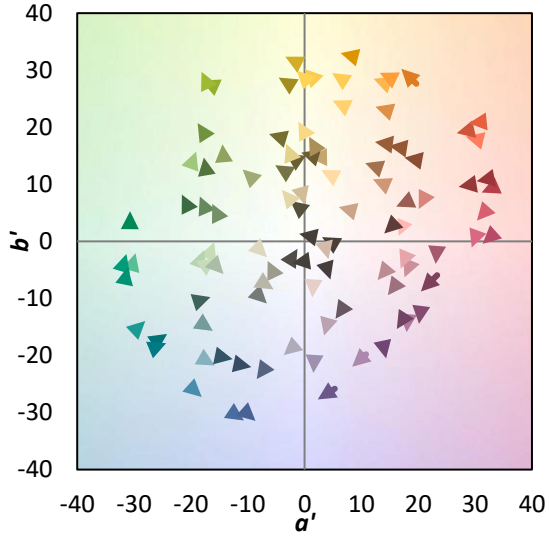



## Color Vector Graphics



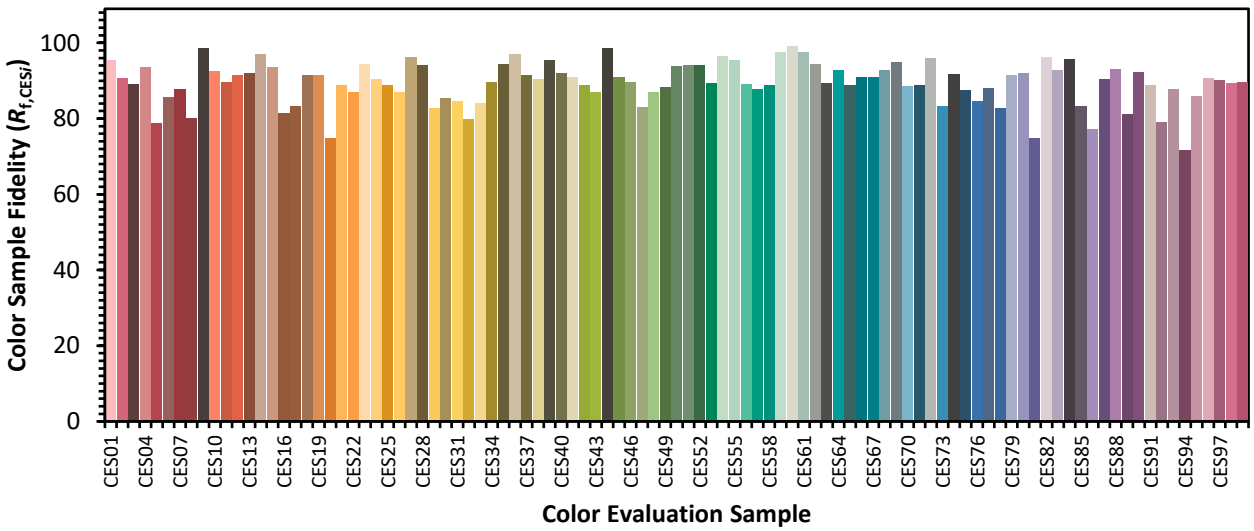



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**Individual Sample Fidelity Index ($R_{f,i}$)**

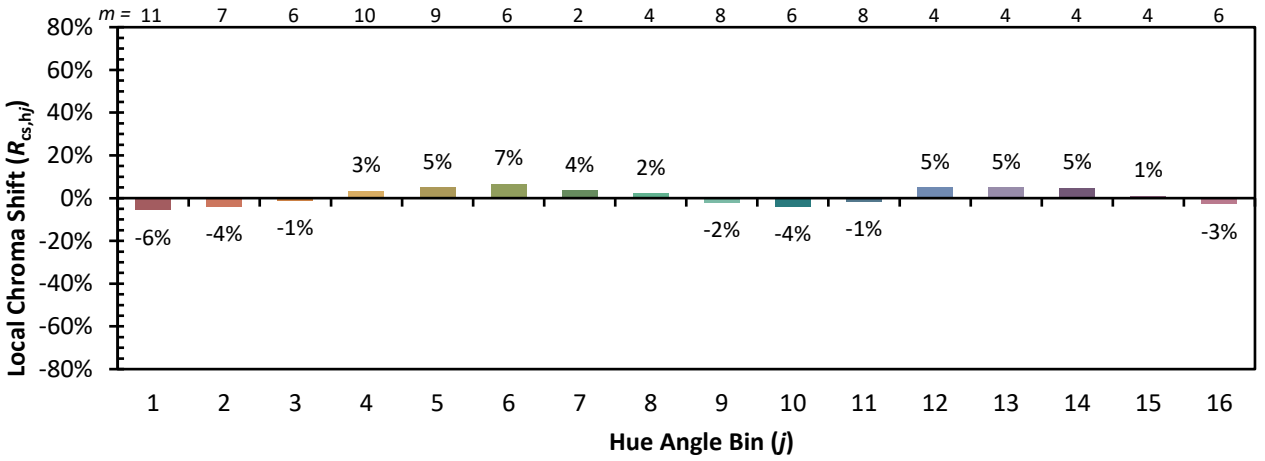
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 87 | CES51 = 94 | CES76 = 85 |
| CES02 = 63 | CES27 = 96 | CES52 = 94 | CES77 = 88 |
| CES03 = 32 | CES28 = 94 | CES53 = 89 | CES78 = 83 |
| CES04 = 70 | CES29 = 83 | CES54 = 97 | CES79 = 92 |
| CES05 = 50 | CES30 = 85 | CES55 = 95 | CES80 = 92 |
| CES06 = 51 | CES31 = 85 | CES56 = 89 | CES81 = 75 |
| CES07 = 43 | CES32 = 80 | CES57 = 88 | CES82 = 96 |
| CES08 = 42 | CES33 = 84 | CES58 = 89 | CES83 = 93 |
| CES09 = 29 | CES34 = 90 | CES59 = 98 | CES84 = 96 |
| CES10 = 76 | CES35 = 94 | CES60 = 99 | CES85 = 83 |
| CES11 = 58 | CES36 = 97 | CES61 = 97 | CES86 = 77 |
| CES12 = 65 | CES37 = 91 | CES62 = 94 | CES87 = 91 |
| CES13 = 44 | CES38 = 90 | CES63 = 89 | CES88 = 93 |
| CES14 = 74 | CES39 = 95 | CES64 = 93 | CES89 = 81 |
| CES15 = 72 | CES40 = 92 | CES65 = 89 | CES90 = 92 |
| CES16 = 48 | CES41 = 91 | CES66 = 91 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 91 | CES92 = 79 |
| CES18 = 57 | CES43 = 87 | CES68 = 93 | CES93 = 88 |
| CES19 = 72 | CES44 = 99 | CES69 = 95 | CES94 = 72 |
| CES20 = 67 | CES45 = 91 | CES70 = 89 | CES95 = 86 |
| CES21 = 86 | CES46 = 90 | CES71 = 89 | CES96 = 91 |
| CES22 = 79 | CES47 = 83 | CES72 = 96 | CES97 = 90 |
| CES23 = 92 | CES48 = 87 | CES73 = 83 | CES98 = 89 |
| CES24 = 91 | CES49 = 88 | CES74 = 92 | CES99 = 90 |
| CES25 = 72 | CES50 = 94 | CES75 = 87 | |

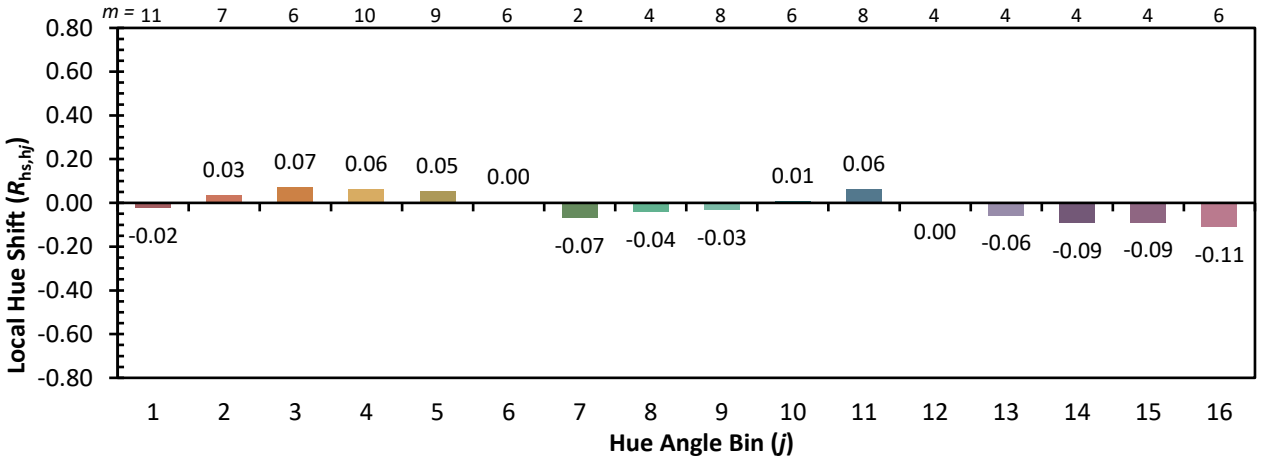


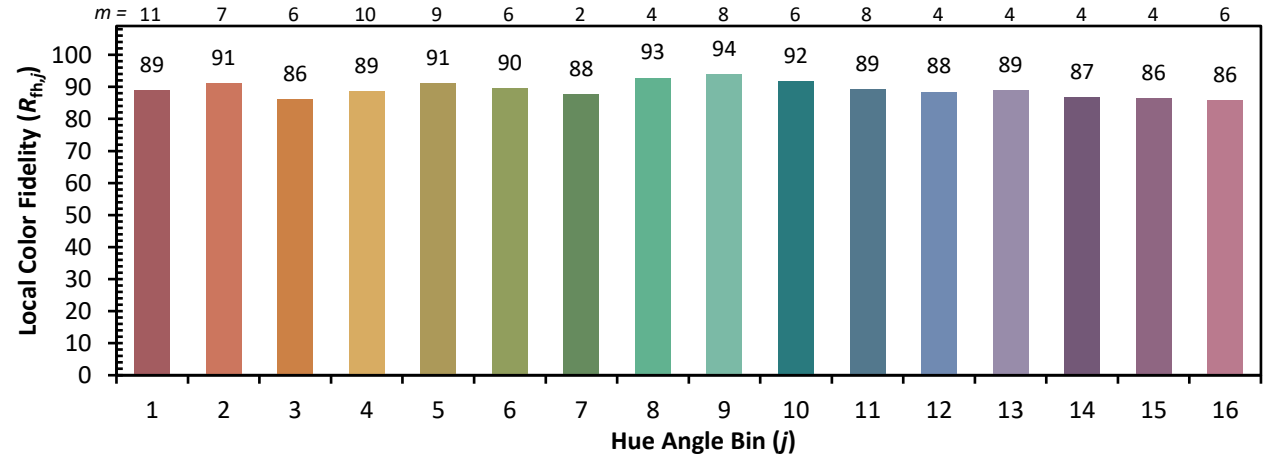
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## Color Rendition by Hue-Angle Bin



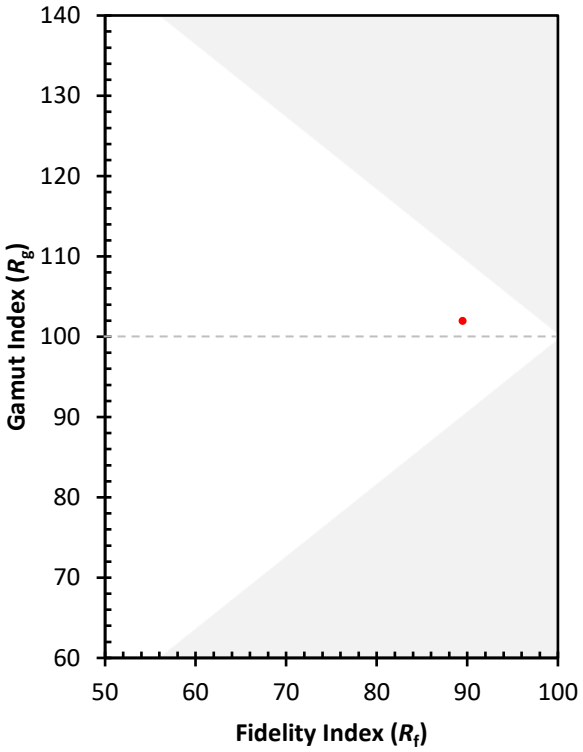



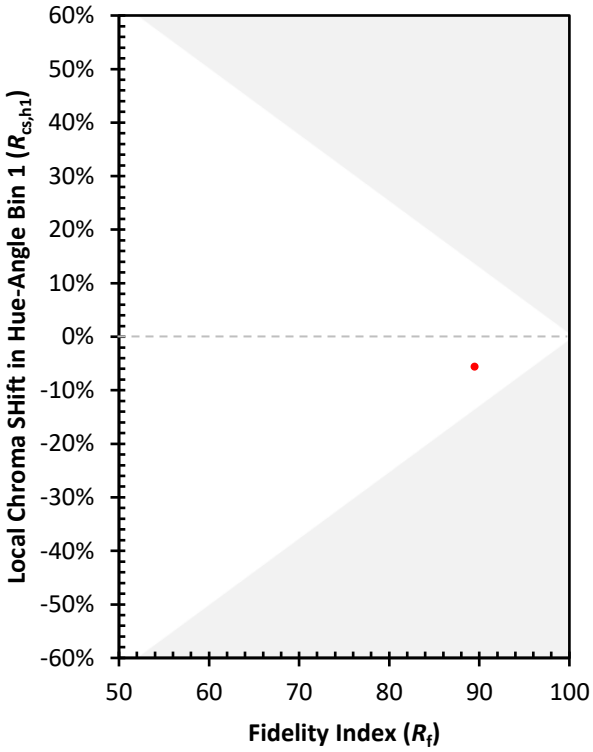



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## Measure Comparisons




(END OF REPORT)