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

Scaled data based on original data using

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: STREETWORKS

Report Number: P348736

Luminaire Tested: **ARCH-N-PA1-10-830-24VDC-5WQ**

Issue Date: 3/3/2020

Report Generated By 670245763

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P348736 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-2) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/3/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | STREETWORKS |
| Catalog Number: | ARCH-N-PA1-10-830-24VDC-5WQ |
| Description: | ARCHEON ROADWAY AND AREA LUMINAIRE |
| | (1) 80 CRI, 3000K, 270mA LIGHT ENGINE WITH 16 LEDS AND |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 1829 lumens |
| Efficiency: | N/A |
| Efficacy: | 130.6 lumens/watt |
| Luminous Opening: | Rectangular (W 0.5' x L: 0.75' x H: 0') |
| IES Classification: | Type V - Short |
| BUG Rating: | B2 - U0 - G1 |

| | |
|---|---|
| Input Watts (W): | 14 |
| Input Voltage (V): | NR |
| 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: | 25 FT |

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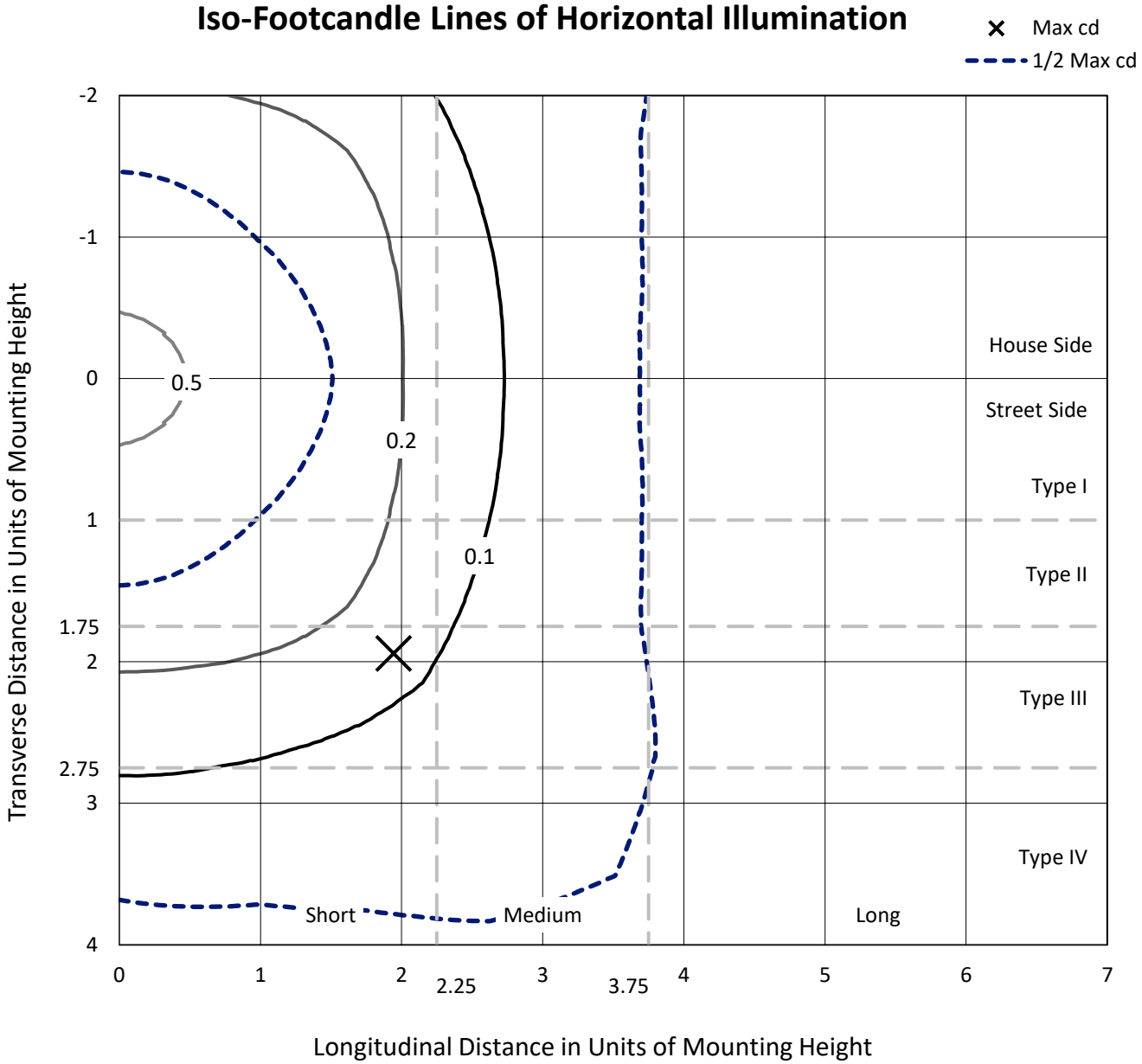
Scaled Data Report

REPORT NUMBER: P348736
CATALOG NUMBER: ARCH-N-PA1-10-830-24VDC-5WQ

## Iso-Footcandle Lines of Horizontal Illumination




Based on 15 foot mounting height. Maximum calculated value = 0.7 fc
Type V - Short - N/A

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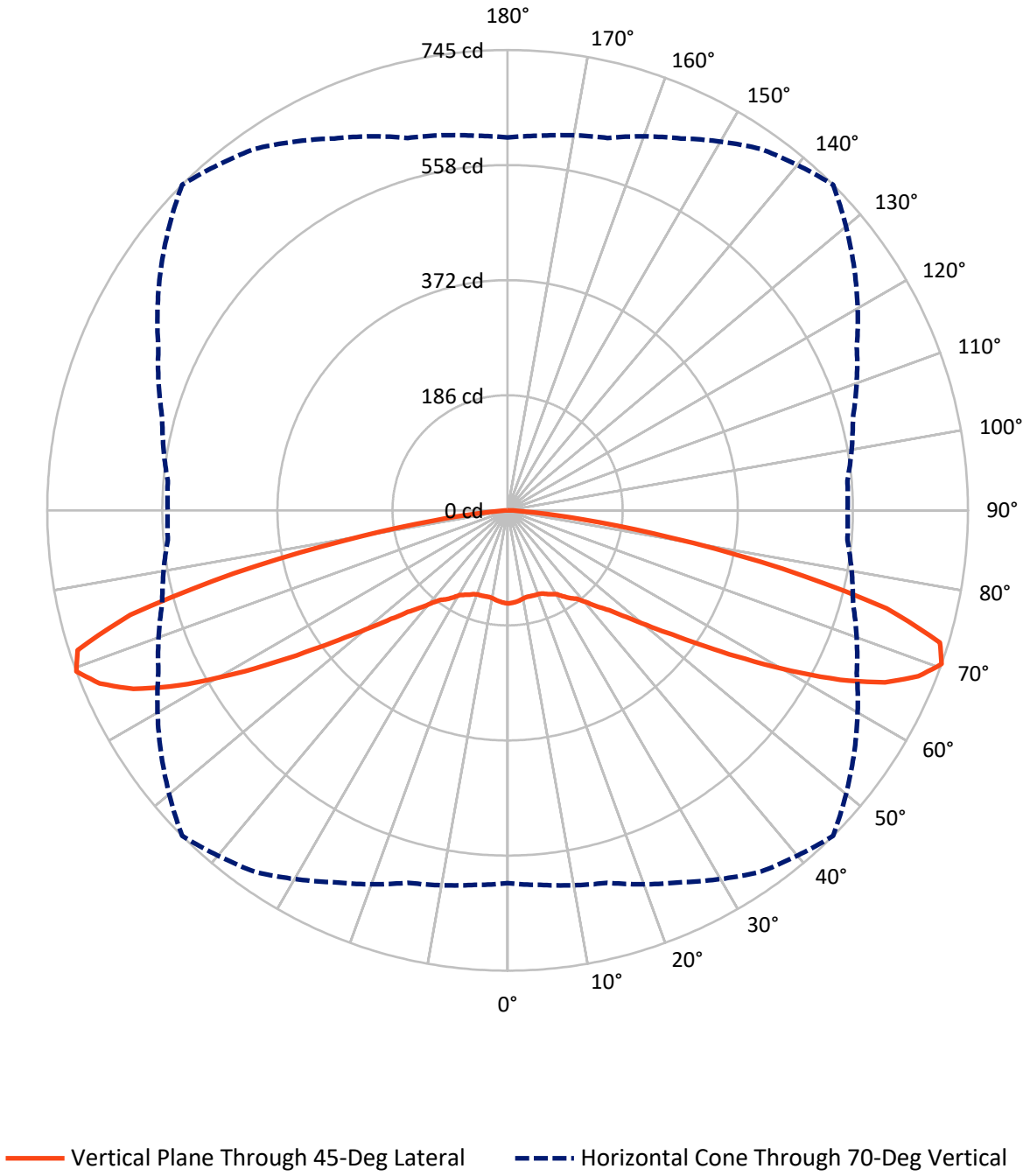
## Luminous Intensity Polar Plot



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Scaled Data Report

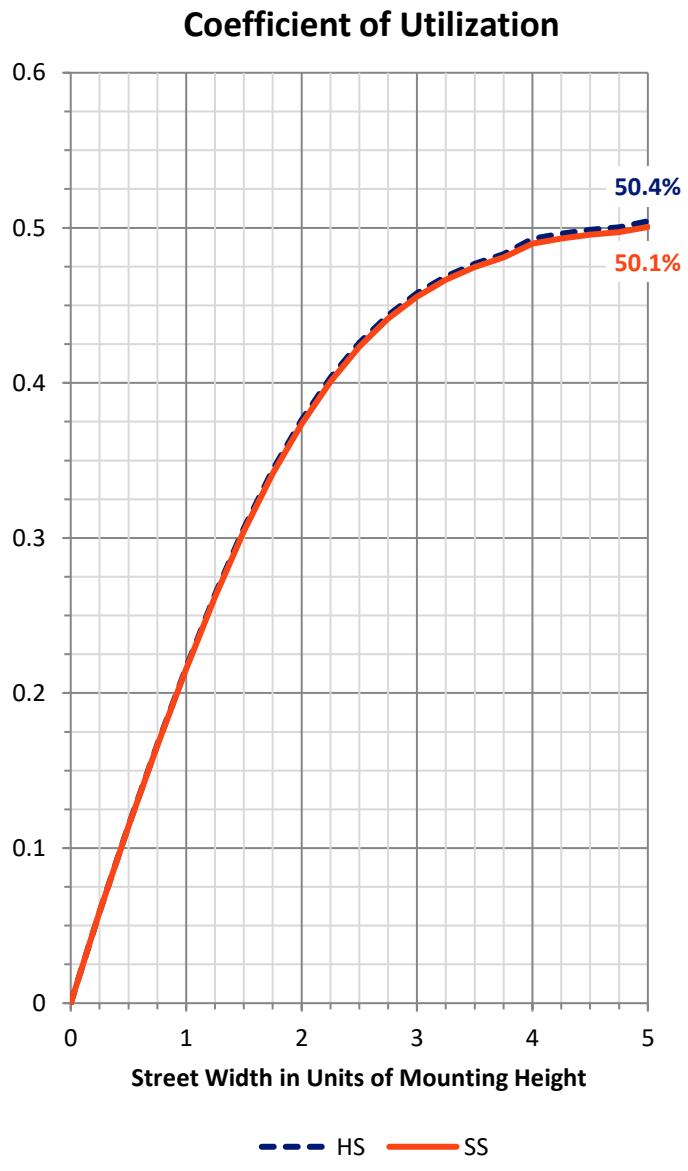
REPORT NUMBER: P348736
CATALOG NUMBER: ARCH-N-PA1-10-830-24VDC-5WQ

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 914.5 | 0.0 | 914.5 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Street Side** | Lumens | 914.5 | 0.0 | 914.5 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| **Total** | Lumens | 1829.0 | 0.0 | 1829.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 14.0 | 0.8 |
| 10°-20° | 41.0 | 2.2 |
| 20°-30° | 70.0 | 3.8 |
| 30°-40° | 109.3 | 6.0 |
| 40°-50° | 185.3 | 10.1 |
| 50°-60° | 337.9 | 18.5 |
| 60°-70° | 581.7 | 31.8 |
| 70°-80° | 455.9 | 24.9 |
| 80°-90° | 33.8 | 1.8 |
| 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°-90° | 1829.0 | 100.0 |
| 0°-180° | 1829.0 | 100.0 |



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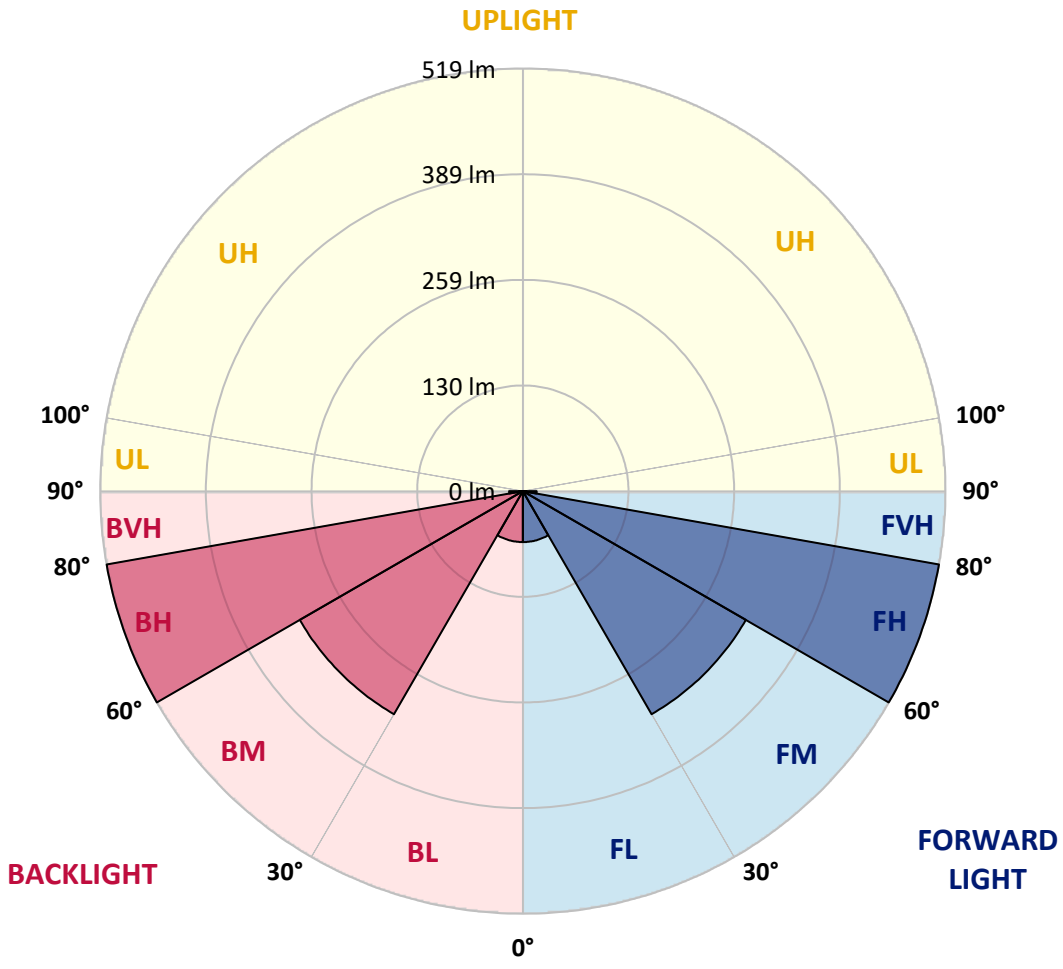
Scaled Data Report

REPORT NUMBER: P348736
CATALOG NUMBER: ARCH-N-PA1-10-830-24VDC-5WQ

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 62.5 | 3.4 | | | |
| FM | (30°-60°) | 316.3 | 17.3 | | | |
| FH | (60°-80°) | 518.8 | 28.4 | | | G0/660 |
| FVH | (80°-90°) | 16.9 | 0.9 | | | G1/100 |
| BL | (0°-30°) | 62.5 | 3.4 | B0/110 | | |
| BM | (30°-60°) | 316.3 | 17.3 | B1/1000 | | |
| BH | (60°-80°) | 518.8 | 28.4 | B2/1000 | | G0/660 |
| BVH | (80°-90°) | 16.9 | 0.9 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B2-U0-G1**
Type V Short



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Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P348736
CATALOG NUMBER: ARCH-N-PA1-10-830-24VDC-5WQ

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 85° | 90° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 150.5 | 150.5 | 150.5 | 150.5 | 150.5 | *150.5* | 150.5 | 150.5 | 150.5 | 150.5 | 150.5 |
| 2.5° | 149.9 | 150.0 | 149.9 | 150.0 | 149.7 | *149.8* | 149.8 | 149.8 | 149.7 | 149.8 | 149.7 |
| 5° | 148.5 | 148.7 | 148.4 | 148.5 | 148.3 | *148.5* | 148.6 | 148.5 | 148.4 | 148.5 | 148.2 |
| 7.5° | 146.5 | 146.7 | 146.5 | 146.7 | 146.4 | *146.7* | 146.7 | 146.5 | 146.3 | 146.3 | 146.0 |
| 10° | 145.4 | 145.5 | 145.0 | 144.8 | 144.3 | *144.4* | 144.6 | 144.8 | 145.0 | 145.3 | 145.3 |
| 12.5° | 145.5 | 145.5 | 144.8 | 144.0 | 143.2 | *143.4* | 143.7 | 144.4 | 145.1 | 145.7 | 145.8 |
| 15° | 146.1 | 146.0 | 145.0 | 143.7 | 143.1 | *143.7* | 143.9 | 144.3 | 145.4 | 146.6 | 146.7 |
| 17.5° | 146.5 | 146.5 | 144.8 | 143.4 | 143.3 | *144.2* | 144.1 | 144.3 | 145.6 | 147.3 | 147.3 |
| 20° | 147.3 | 147.3 | 145.1 | 143.6 | 143.6 | *144.5* | 144.5 | 144.8 | 146.1 | 148.0 | 148.3 |
| 22.5° | 149.1 | 149.1 | 146.8 | 145.6 | 145.7 | *146.2* | 146.4 | 146.9 | 148.0 | 150.1 | 150.5 |
| 25° | 151.6 | 151.7 | 149.3 | 148.6 | 149.0 | *150.0* | 149.9 | 150.3 | 151.6 | 153.6 | 153.9 |
| 27.5° | 155.0 | 154.7 | 152.5 | 152.2 | 152.6 | *153.4* | 153.3 | 153.4 | 154.4 | 156.2 | 156.6 |
| 30° | 159.5 | 159.4 | 157.8 | 158.0 | 157.8 | *157.5* | 157.6 | 158.1 | 158.6 | 160.1 | 160.5 |
| 32.5° | 163.8 | 164.0 | 163.0 | 163.9 | 165.2 | *166.1* | 164.7 | 163.4 | 162.8 | 163.6 | 164.0 |
| 35° | 171.7 | 172.0 | 170.5 | 169.9 | 171.7 | *174.4* | 170.4 | 168.3 | 169.5 | 170.5 | 170.8 |
| 37.5° | 185.1 | 185.3 | 182.7 | 180.3 | 179.0 | *181.5* | 177.6 | 177.8 | 182.0 | 183.9 | 183.9 |
| 40° | 200.3 | 200.4 | 198.7 | 196.6 | 194.3 | *194.9* | 193.3 | 193.8 | 196.6 | 198.3 | 198.8 |
| 42.5° | 218.5 | 218.3 | 215.6 | 212.6 | 211.9 | *212.5* | 209.9 | 209.5 | 212.7 | 215.9 | 215.9 |
| 45° | 242.0 | 241.6 | 238.1 | 234.8 | 231.6 | *230.3* | 229.6 | 231.4 | 235.8 | 238.7 | 238.7 |
| 47.5° | 267.4 | 266.2 | 264.4 | 261.7 | 258.9 | *257.6* | 256.5 | 257.4 | 260.6 | 261.7 | 261.8 |
| 50° | 293.4 | 293.7 | 294.0 | 293.0 | 292.0 | *291.6* | 288.7 | 287.1 | 288.0 | 285.9 | 285.6 |
| 52.5° | 324.3 | 324.8 | 328.3 | 331.3 | 333.1 | *334.0* | 328.6 | 323.0 | 319.8 | 315.7 | 314.5 |
| 55° | 360.8 | 361.6 | 366.8 | 375.0 | 383.5 | *387.9* | 378.2 | 367.7 | 357.9 | 350.2 | 347.8 |
| 57.5° | 401.5 | 402.9 | 410.0 | 425.7 | 443.1 | *453.7* | 437.2 | 418.1 | 399.3 | 388.2 | 386.3 |
| 60° | 449.2 | 450.5 | 460.3 | 482.9 | 511.1 | *527.0* | 502.0 | 470.8 | 447.3 | 436.8 | 433.2 |
| 62.5° | 505.9 | 506.0 | 518.1 | 544.5 | 581.7 | *603.8* | 570.0 | 528.2 | 504.1 | 491.3 | 487.9 |
| 65° | 567.0 | 567.3 | 579.7 | 608.3 | 646.7 | *670.8* | 632.7 | 589.1 | 559.6 | 540.8 | 538.1 |
| 67.5° | 610.1 | 611.4 | 624.5 | 658.9 | 694.8 | *716.5* | 677.1 | 627.8 | 593.7 | 571.3 | 569.0 |
| 70° | *603.2* | *608.2* | *623.6* | *663.7* | *713.7* | *744.6* | *684.3* | *623.2* | *578.2* | *551.7* | *549.8* |
| 72.5° | 526.1 | 535.6 | 556.1 | 608.8 | 688.7 | *731.3* | 645.0 | 558.2 | 507.2 | 484.7 | 481.3 |
| 75° | 358.2 | 373.7 | 404.7 | 480.6 | 588.4 | *633.2* | 543.0 | 445.0 | 397.1 | 365.9 | 363.6 |
| 77.5° | 159.7 | 163.2 | 202.6 | 290.0 | 406.0 | *454.7* | 394.5 | 291.1 | 218.5 | 174.3 | 165.0 |
| 80° | 44.5 | 45.1 | 60.1 | 108.0 | 203.2 | *267.2* | 218.2 | 113.4 | 63.8 | 45.0 | 42.4 |
| 82.5° | 14.2 | 15.4 | 18.8 | 28.0 | 68.3 | *121.9* | 70.1 | 30.3 | 21.5 | 17.2 | 15.5 |
| 85° | 6.9 | 6.8 | 9.5 | 11.4 | 17.4 | *27.0* | 18.6 | 14.0 | 12.3 | 8.2 | 7.4 |
| 87.5° | 2.9 | 3.0 | 4.4 | 4.0 | 5.1 | *4.4* | 6.0 | 6.3 | 6.6 | 3.6 | 3.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

INVUE

Report Number: SP1-2104-224-6

Luminaire Tested: CCW-SA-2A-830-U-SL4

Test Date: 04/27/2021

Report Generated By controller / USPTCWHP6086842

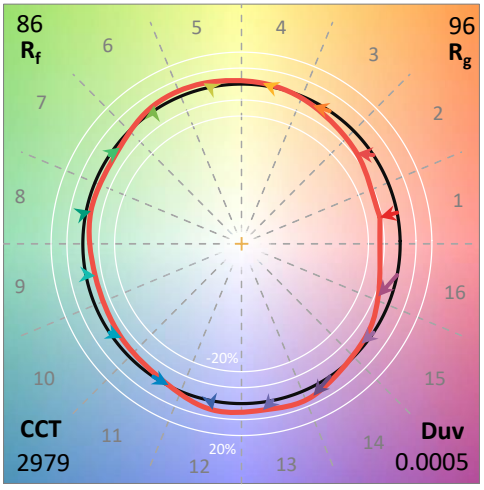
## Test Information

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | SP1-2104-224-6 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 |
| Measurement Geometry: | 4π |
| Issue Date: | 04/27/2021 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | INVUE |
| Catalog Number: | **CCW-SA-2A-830-U-SL4** |
| Description: | INVUE WALL PACK ClearCurve Light Square |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 2979 | CRI (Ra): | 83.1 | | |
| CIE u': | 0.2511 | R1: | 81.3 | R9: | 7.1 |
| CIE v': | 0.5225 | R2: | 91.2 | R10: | 80.8 |
| Duv: | 0.0005 | R3: | 96.2 | R11: | 82.0 |
| CIE x: | 0.4390 | R4: | 81.7 | R12: | 76.3 |
| CIE y: | 0.4060 | R5: | 82.0 | R13: | 83.6 |
| CIE z: | 0.1550 | R6: | 90.2 | R14: | 98.4 |
| Peak Wavelength (nm): | 603 | R7: | 82.8 | | |
| Dominant Wavelength (nm): | 582 | R8: | 58.9 | | |
| Purity: | 54 | | | | |

| | |
|---|---|
| Rf: | 86 |
| Rg: | 96.1 |




## Test Conditions

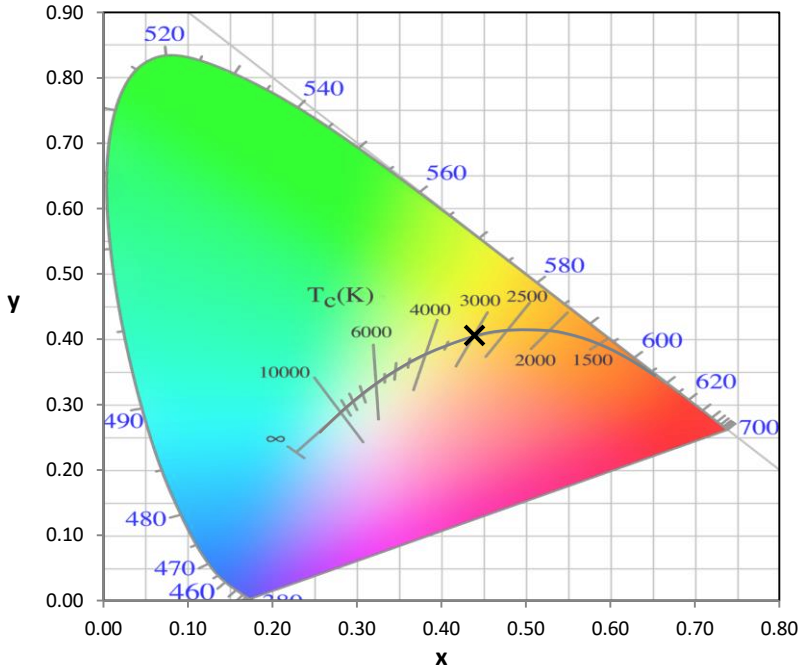
| | |
|---|---|
| Stabilization Time: | 78M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 25.0/47% |
| Sphere Temperature (°C): | 24.1 |

REPORT NUMBER: SP1-2104-224-6

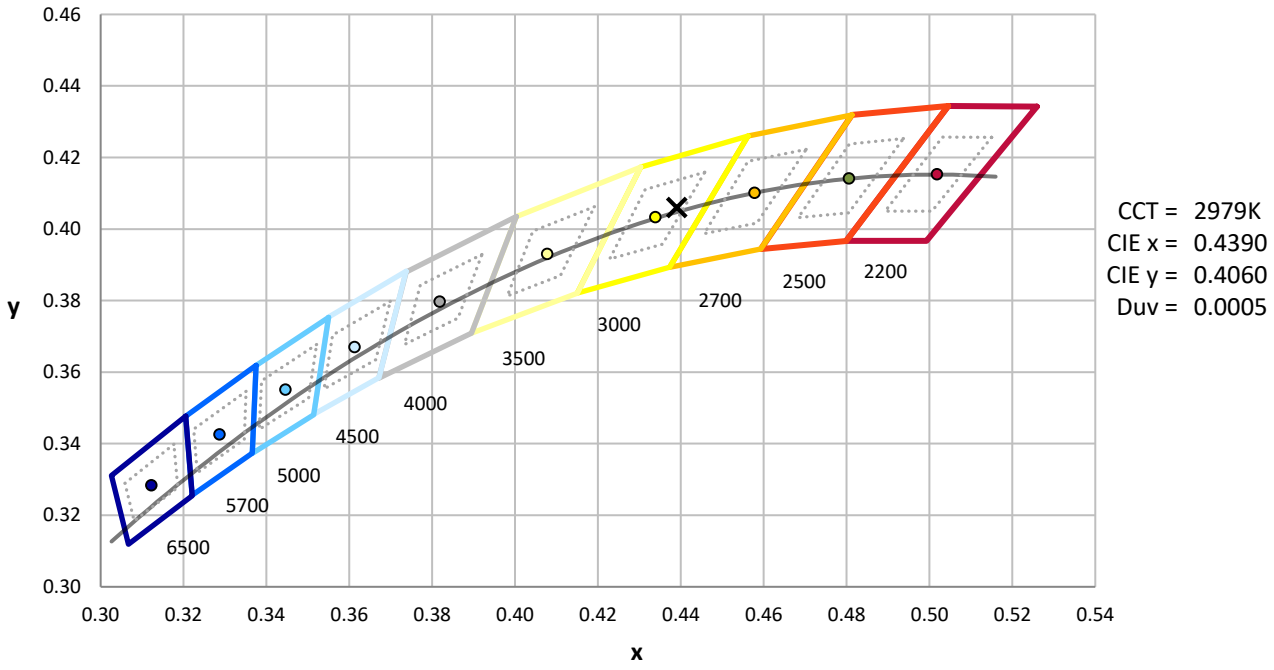
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 1/31/2021 | 7/31/2021 |
| Power Meter | IN0071 | 12/1/2020 | 12/1/2021 |
| AC Power Source | IN0063 | 12/1/2020 | 12/1/2021 |
| DC Power Source | IN0208 | 12/1/2020 | 12/1/2021 |
| Sphere Thermometer | IN0085 | 12/1/2020 | 12/1/2021 |
| Room Thermometer | IN0046 | 12/1/2020 | 12/1/2021 |

REPORT NUMBER: SP1-2104-224-6

## CIE 1931 Chromaticity Diagram




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

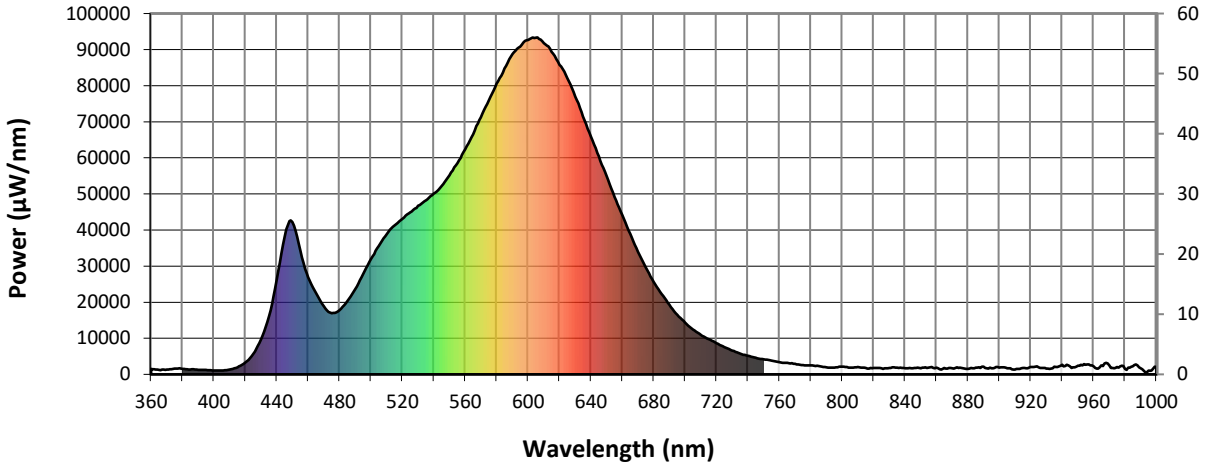



CCT = 2979K
CIE x = 0.4390
CIE y = 0.4060
Duv = 0.0005

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2104-224-6

## Photopic Flux vs. Wavelength

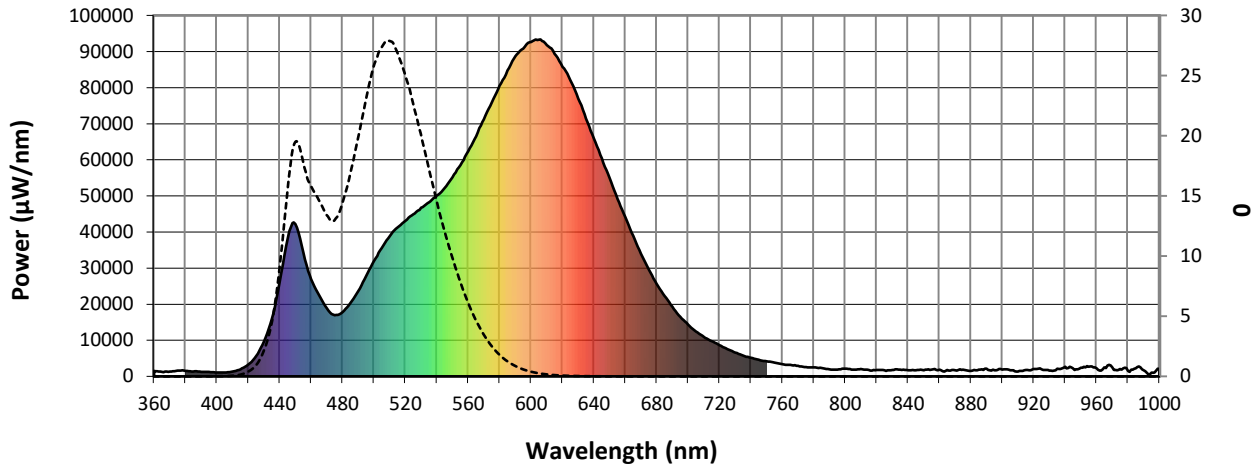



######

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 1540 | 0.0 | 490 | 23715 | 3.4 | 620 | 85792 | 22.3 | 750 | 4198 | 0.0 | 880 | 1529 | 0.0 |
| 365 | 1274 | 0.0 | 495 | 27763 | 5.0 | 625 | 82163 | 18.1 | 755 | 3846 | 0.0 | 885 | 1863 | 0.0 |
| 370 | 1307 | 0.0 | 500 | 32023 | 7.1 | 630 | 76960 | 13.9 | 760 | 3380 | 0.0 | 890 | 2114 | 0.0 |
| 375 | 1612 | 0.0 | 505 | 35605 | 10.0 | 635 | 71512 | 10.7 | 765 | 3174 | 0.0 | 895 | 1695 | 0.0 |
| 380 | 1536 | 0.0 | 510 | 38842 | 13.3 | 640 | 65929 | 7.9 | 770 | 2898 | 0.0 | 900 | 1843 | 0.0 |
| 385 | 1342 | 0.0 | 515 | 41267 | 17.1 | 645 | 60362 | 5.8 | 775 | 2539 | 0.0 | 905 | 1730 | 0.0 |
| 390 | 1278 | 0.0 | 520 | 43140 | 20.9 | 650 | 55010 | 4.0 | 780 | 2473 | 0.0 | 910 | 1325 | 0.0 |
| 395 | 1204 | 0.0 | 525 | 44884 | 24.1 | 655 | 49154 | 2.8 | 785 | 2349 | 0.0 | 915 | 1786 | 0.0 |
| 400 | 1038 | 0.0 | 530 | 46722 | 27.5 | 660 | 44162 | 1.8 | 790 | 1939 | 0.0 | 920 | 2044 | 0.0 |
| 405 | 1061 | 0.0 | 535 | 48254 | 29.9 | 665 | 38916 | 1.2 | 795 | 1859 | 0.0 | 925 | 1947 | 0.0 |
| 410 | 1327 | 0.0 | 540 | 50064 | 32.6 | 670 | 33949 | 0.7 | 800 | 2145 | 0.0 | 930 | 1610 | 0.0 |
| 415 | 1996 | 0.0 | 545 | 52217 | 34.8 | 675 | 29528 | 0.5 | 805 | 1833 | 0.0 | 935 | 2111 | 0.0 |
| 420 | 3268 | 0.0 | 550 | 55198 | 37.5 | 680 | 25626 | 0.3 | 810 | 2023 | 0.0 | 940 | 2657 | 0.0 |
| 425 | 5667 | 0.0 | 555 | 58564 | 40.0 | 685 | 22299 | 0.2 | 815 | 1752 | 0.0 | 945 | 2238 | 0.0 |
| 430 | 9713 | 0.1 | 560 | 62385 | 42.4 | 690 | 19299 | 0.1 | 820 | 1756 | 0.0 | 950 | 2401 | 0.0 |
| 435 | 16063 | 0.2 | 565 | 66522 | 44.2 | 695 | 16488 | 0.1 | 825 | 1713 | 0.0 | 955 | 2656 | 0.0 |
| 440 | 26124 | 0.4 | 570 | 71254 | 46.3 | 700 | 14392 | 0.0 | 830 | 1766 | 0.0 | 960 | 2228 | 0.0 |
| 445 | 38102 | 0.8 | 575 | 75923 | 47.2 | 705 | 12426 | 0.0 | 835 | 1901 | 0.0 | 965 | 2517 | 0.0 |
| 450 | 42175 | 1.1 | 580 | 80516 | 47.8 | 710 | 10953 | 0.0 | 840 | 1722 | 0.0 | 970 | 2476 | 0.0 |
| 455 | 34315 | 1.1 | 585 | 84772 | 47.1 | 715 | 9724 | 0.0 | 845 | 1694 | 0.0 | 975 | 2085 | 0.0 |
| 460 | 26966 | 1.1 | 590 | 88815 | 45.9 | 720 | 8614 | 0.0 | 850 | 1717 | 0.0 | 980 | 1509 | 0.0 |
| 465 | 22504 | 1.2 | 595 | 90846 | 43.1 | 725 | 7544 | 0.0 | 855 | 1853 | 0.0 | 985 | 2241 | 0.0 |
| 470 | 18776 | 1.2 | 600 | 92683 | 39.9 | 730 | 6583 | 0.0 | 860 | 1827 | 0.0 | 990 | 1651 | 0.0 |
| 475 | 16954 | 1.3 | 605 | 93294 | 36.1 | 735 | 5796 | 0.0 | 865 | 1745 | 0.0 | 995 | 1035 | 0.0 |
| 480 | 17815 | 1.7 | 610 | 91814 | 31.5 | 740 | 5170 | 0.0 | 870 | 1690 | 0.0 | 1000 | 2009 | 0.0 |
| 485 | 20300 | 2.4 | 615 | 89370 | 27.0 | 745 | 4593 | 0.0 | 875 | 1834 | 0.0 | | | |

REPORT NUMBER: SP1-2104-224-6

## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 6076.4** **S/P: 1.34**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 1540 | 0.0 | 490 | 23715 | 36.5 | 620 | 85792 | 1.1 | 750 | 4198 | 0.0 | 880 | 1529 | 0.0 |
| 365 | 1274 | 0.0 | 495 | 27763 | 44.9 | 625 | 82163 | 0.7 | 755 | 3846 | 0.0 | 885 | 1863 | 0.0 |
| 370 | 1307 | 0.0 | 500 | 32023 | 53.6 | 630 | 76960 | 0.4 | 760 | 3380 | 0.0 | 890 | 2114 | 0.0 |
| 375 | 1612 | 0.0 | 505 | 35605 | 60.5 | 635 | 71512 | 0.3 | 765 | 3174 | 0.0 | 895 | 1695 | 0.0 |
| 380 | 1536 | 0.0 | 510 | 38842 | 65.8 | 640 | 65929 | 0.2 | 770 | 2898 | 0.0 | 900 | 1843 | 0.0 |
| 385 | 1342 | 0.0 | 515 | 41267 | 68.4 | 645 | 60362 | 0.1 | 775 | 2539 | 0.0 | 905 | 1730 | 0.0 |
| 390 | 1278 | 0.0 | 520 | 43140 | 68.6 | 650 | 55010 | 0.1 | 780 | 2473 | 0.0 | 910 | 1325 | 0.0 |
| 395 | 1204 | 0.0 | 525 | 44884 | 67.1 | 655 | 49154 | 0.0 | 785 | 2349 | 0.0 | 915 | 1786 | 0.0 |
| 400 | 1038 | 0.0 | 530 | 46722 | 64.4 | 660 | 44162 | 0.0 | 790 | 1939 | 0.0 | 920 | 2044 | 0.0 |
| 405 | 1061 | 0.0 | 535 | 48254 | 60.1 | 665 | 38916 | 0.0 | 795 | 1859 | 0.0 | 925 | 1947 | 0.0 |
| 410 | 1327 | 0.1 | 540 | 50064 | 55.3 | 670 | 33949 | 0.0 | 800 | 2145 | 0.0 | 930 | 1610 | 0.0 |
| 415 | 1996 | 0.2 | 545 | 52217 | 50.1 | 675 | 29528 | 0.0 | 805 | 1833 | 0.0 | 935 | 2111 | 0.0 |
| 420 | 3268 | 0.5 | 550 | 55198 | 45.1 | 680 | 25626 | 0.0 | 810 | 2023 | 0.0 | 940 | 2657 | 0.0 |
| 425 | 5667 | 1.4 | 555 | 58564 | 40.0 | 685 | 22299 | 0.0 | 815 | 1752 | 0.0 | 945 | 2238 | 0.0 |
| 430 | 9713 | 3.3 | 560 | 62385 | 34.9 | 690 | 19299 | 0.0 | 820 | 1756 | 0.0 | 950 | 2401 | 0.0 |
| 435 | 16063 | 7.2 | 565 | 66522 | 29.8 | 695 | 16488 | 0.0 | 825 | 1713 | 0.0 | 955 | 2656 | 0.0 |
| 440 | 26124 | 14.6 | 570 | 71254 | 25.1 | 700 | 14392 | 0.0 | 830 | 1766 | 0.0 | 960 | 2228 | 0.0 |
| 445 | 38102 | 25.5 | 575 | 75923 | 20.7 | 705 | 12426 | 0.0 | 835 | 1901 | 0.0 | 965 | 2517 | 0.0 |
| 450 | 42175 | 32.7 | 580 | 80516 | 16.6 | 710 | 10953 | 0.0 | 840 | 1722 | 0.0 | 970 | 2476 | 0.0 |
| 455 | 34315 | 30.0 | 585 | 84772 | 13.0 | 715 | 9724 | 0.0 | 845 | 1694 | 0.0 | 975 | 2085 | 0.0 |
| 460 | 26966 | 26.0 | 590 | 88815 | 9.9 | 720 | 8614 | 0.0 | 850 | 1717 | 0.0 | 980 | 1509 | 0.0 |
| 465 | 22504 | 23.8 | 595 | 90846 | 7.2 | 725 | 7544 | 0.0 | 855 | 1853 | 0.0 | 985 | 2241 | 0.0 |
| 470 | 18776 | 21.6 | 600 | 92683 | 5.2 | 730 | 6583 | 0.0 | 860 | 1827 | 0.0 | 990 | 1651 | 0.0 |
| 475 | 16954 | 21.2 | 605 | 93294 | 3.7 | 735 | 5796 | 0.0 | 865 | 1745 | 0.0 | 995 | 1035 | 0.0 |
| 480 | 17815 | 24.1 | 610 | 91814 | 2.5 | 740 | 5170 | 0.0 | 870 | 1690 | 0.0 | 1000 | 2009 | 0.0 |
| 485 | 20300 | 29.4 | 615 | 89370 | 1.7 | 745 | 4593 | 0.0 | 875 | 1834 | 0.0 | | | |

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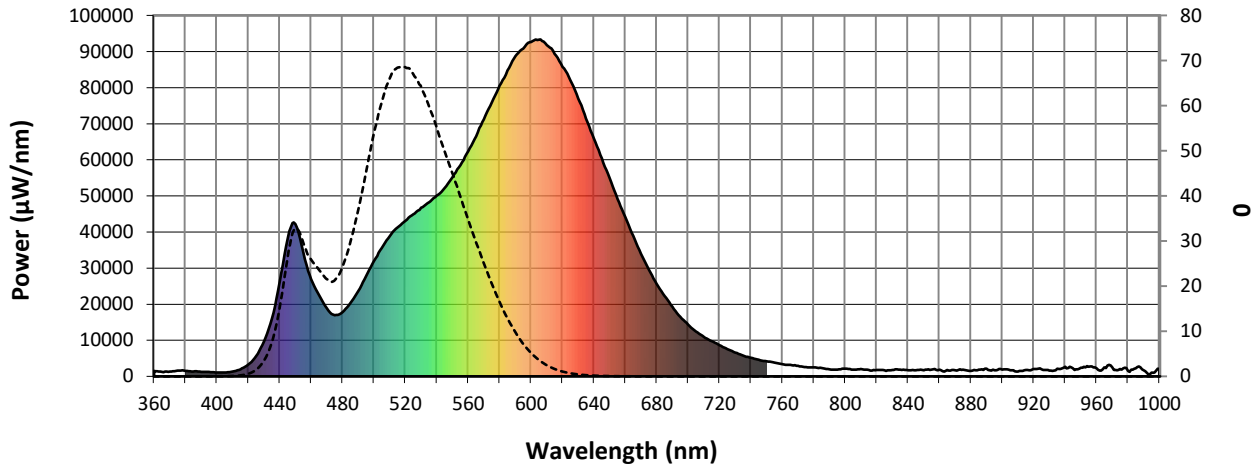
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 2300.1** **M/P: 0.51**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 1540 | 0.0 | 490 | 23715 | 19.7 | 620 | 85792 | 0.1 | 750 | 4198 | 0.0 | 880 | 1529 | 0.0 |
| 365 | 1274 | 0.0 | 495 | 27763 | 22.9 | 625 | 82163 | 0.0 | 755 | 3846 | 0.0 | 885 | 1863 | 0.0 |
| 370 | 1307 | 0.0 | 500 | 32023 | 25.7 | 630 | 76960 | 0.0 | 760 | 3380 | 0.0 | 890 | 2114 | 0.0 |
| 375 | 1612 | 0.0 | 505 | 35605 | 27.3 | 635 | 71512 | 0.0 | 765 | 3174 | 0.0 | 895 | 1695 | 0.0 |
| 380 | 1536 | 0.0 | 510 | 38842 | 27.9 | 640 | 65929 | 0.0 | 770 | 2898 | 0.0 | 900 | 1843 | 0.0 |
| 385 | 1342 | 0.0 | 515 | 41267 | 27.0 | 645 | 60362 | 0.0 | 775 | 2539 | 0.0 | 905 | 1730 | 0.0 |
| 390 | 1278 | 0.0 | 520 | 43140 | 25.1 | 650 | 55010 | 0.0 | 780 | 2473 | 0.0 | 910 | 1325 | 0.0 |
| 395 | 1204 | 0.0 | 525 | 44884 | 22.8 | 655 | 49154 | 0.0 | 785 | 2349 | 0.0 | 915 | 1786 | 0.0 |
| 400 | 1038 | 0.0 | 530 | 46722 | 20.2 | 660 | 44162 | 0.0 | 790 | 1939 | 0.0 | 920 | 2044 | 0.0 |
| 405 | 1061 | 0.0 | 535 | 48254 | 17.4 | 665 | 38916 | 0.0 | 795 | 1859 | 0.0 | 925 | 1947 | 0.0 |
| 410 | 1327 | 0.1 | 540 | 50064 | 14.7 | 670 | 33949 | 0.0 | 800 | 2145 | 0.0 | 930 | 1610 | 0.0 |
| 415 | 1996 | 0.1 | 545 | 52217 | 12.1 | 675 | 29528 | 0.0 | 805 | 1833 | 0.0 | 935 | 2111 | 0.0 |
| 420 | 3268 | 0.4 | 550 | 55198 | 9.9 | 680 | 25626 | 0.0 | 810 | 2023 | 0.0 | 940 | 2657 | 0.0 |
| 425 | 5667 | 0.9 | 555 | 58564 | 7.9 | 685 | 22299 | 0.0 | 815 | 1752 | 0.0 | 945 | 2238 | 0.0 |
| 430 | 9713 | 2.1 | 560 | 62385 | 6.2 | 690 | 19299 | 0.0 | 820 | 1756 | 0.0 | 950 | 2401 | 0.0 |
| 435 | 16063 | 4.3 | 565 | 66522 | 4.7 | 695 | 16488 | 0.0 | 825 | 1713 | 0.0 | 955 | 2656 | 0.0 |
| 440 | 26124 | 8.7 | 570 | 71254 | 3.5 | 700 | 14392 | 0.0 | 830 | 1766 | 0.0 | 960 | 2228 | 0.0 |
| 445 | 38102 | 15.0 | 575 | 75923 | 2.5 | 705 | 12426 | 0.0 | 835 | 1901 | 0.0 | 965 | 2517 | 0.0 |
| 450 | 42175 | 19.4 | 580 | 80516 | 1.8 | 710 | 10953 | 0.0 | 840 | 1722 | 0.0 | 970 | 2476 | 0.0 |
| 455 | 34315 | 18.0 | 585 | 84772 | 1.3 | 715 | 9724 | 0.0 | 845 | 1694 | 0.0 | 975 | 2085 | 0.0 |
| 460 | 26966 | 15.9 | 590 | 88815 | 0.9 | 720 | 8614 | 0.0 | 850 | 1717 | 0.0 | 980 | 1509 | 0.0 |
| 465 | 22504 | 14.7 | 595 | 90846 | 0.6 | 725 | 7544 | 0.0 | 855 | 1853 | 0.0 | 985 | 2241 | 0.0 |
| 470 | 18776 | 13.4 | 600 | 92683 | 0.4 | 730 | 6583 | 0.0 | 860 | 1827 | 0.0 | 990 | 1651 | 0.0 |
| 475 | 16954 | 12.9 | 605 | 93294 | 0.3 | 735 | 5796 | 0.0 | 865 | 1745 | 0.0 | 995 | 1035 | 0.0 |
| 480 | 17815 | 14.3 | 610 | 91814 | 0.2 | 740 | 5170 | 0.0 | 870 | 1690 | 0.0 | 1000 | 2009 | 0.0 |
| 485 | 20300 | 16.7 | 615 | 89370 | 0.1 | 745 | 4593 | 0.0 | 875 | 1834 | 0.0 | | | |

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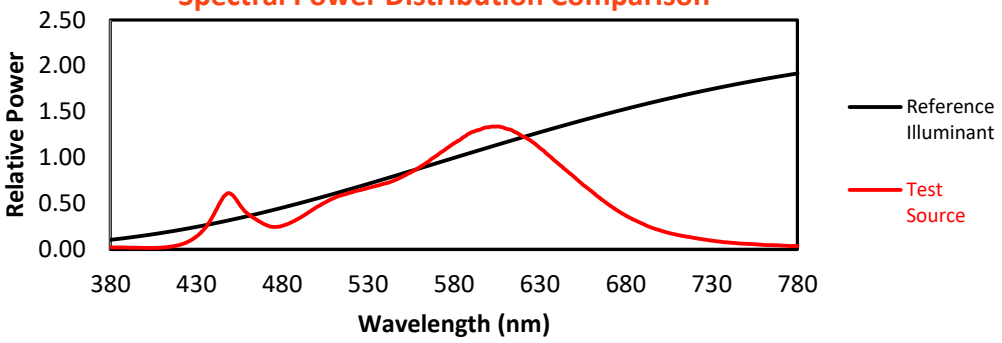
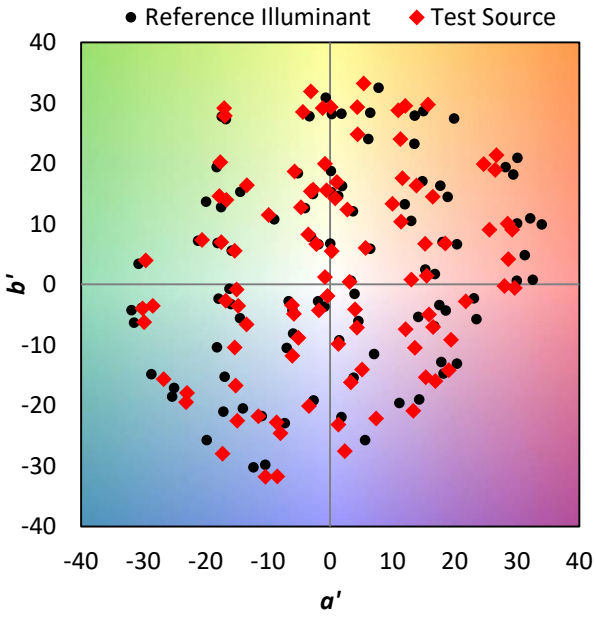
## Summary

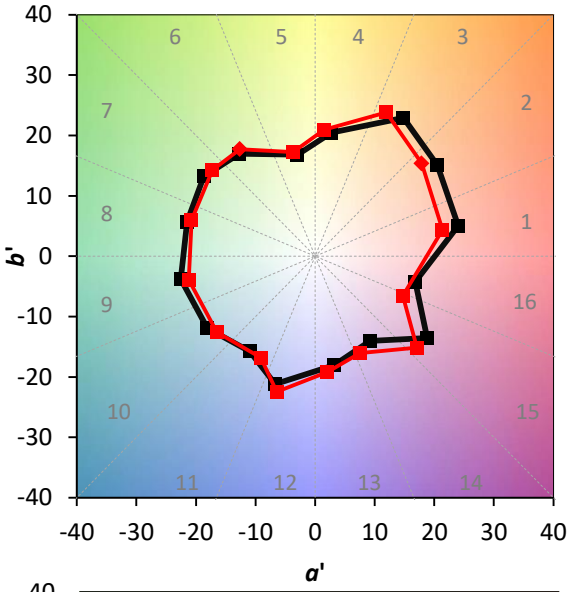
$R_f$ = 86
$R_g$ = 96.1
CIE $R_a$ = 83.1
$R_9$ = 7.1

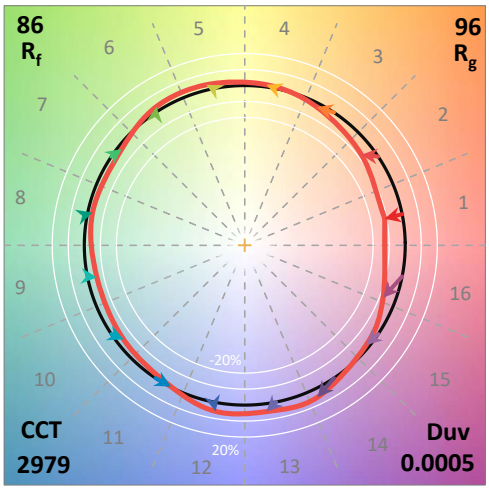
## Spectral Power Distribution Comparison

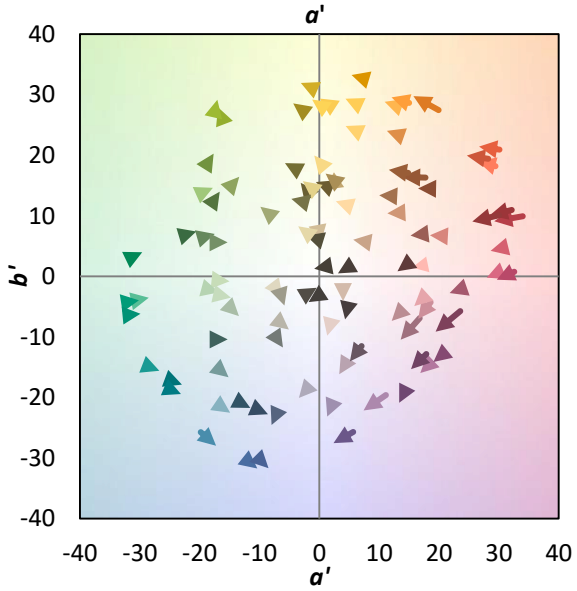



## Color Vector Graphics



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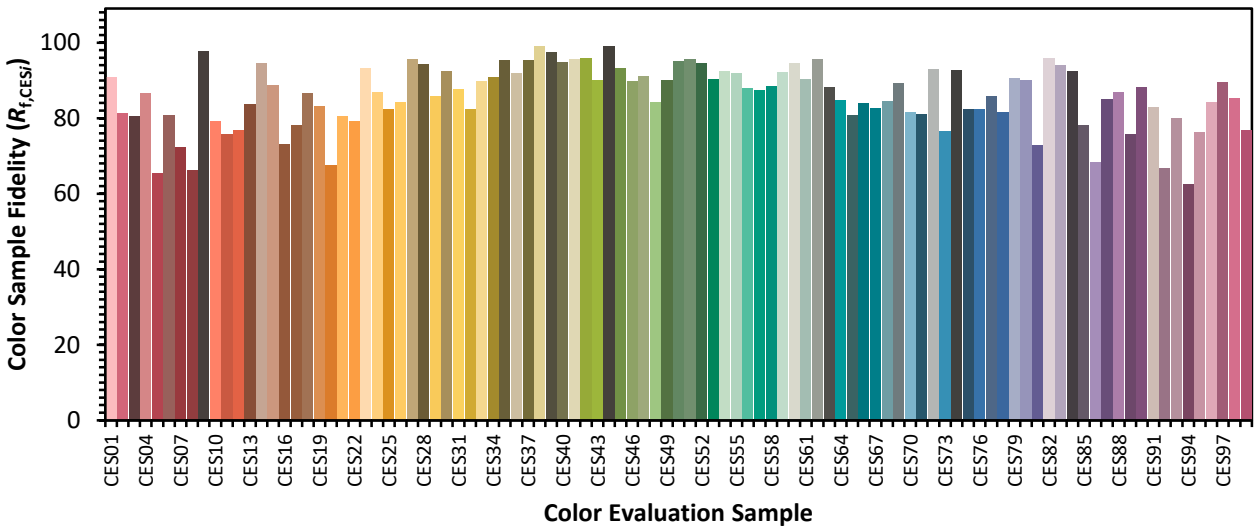
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 84 | CES51 = 96 | CES76 = 82 |
| CES02 = 63 | CES27 = 96 | CES52 = 95 | CES77 = 86 |
| CES03 = 31 | CES28 = 94 | CES53 = 90 | CES78 = 82 |
| CES04 = 70 | CES29 = 86 | CES54 = 92 | CES79 = 91 |
| CES05 = 50 | CES30 = 92 | CES55 = 92 | CES80 = 90 |
| CES06 = 51 | CES31 = 88 | CES56 = 88 | CES81 = 73 |
| CES07 = 42 | CES32 = 82 | CES57 = 88 | CES82 = 96 |
| CES08 = 41 | CES33 = 90 | CES58 = 89 | CES83 = 94 |
| CES09 = 29 | CES34 = 91 | CES59 = 92 | CES84 = 92 |
| CES10 = 76 | CES35 = 95 | CES60 = 95 | CES85 = 78 |
| CES11 = 59 | CES36 = 92 | CES61 = 90 | CES86 = 68 |
| CES12 = 65 | CES37 = 95 | CES62 = 96 | CES87 = 85 |
| CES13 = 44 | CES38 = 99 | CES63 = 88 | CES88 = 87 |
| CES14 = 74 | CES39 = 98 | CES64 = 85 | CES89 = 76 |
| CES15 = 72 | CES40 = 95 | CES65 = 81 | CES90 = 88 |
| CES16 = 48 | CES41 = 96 | CES66 = 84 | CES91 = 83 |
| CES17 = 50 | CES42 = 96 | CES67 = 83 | CES92 = 67 |
| CES18 = 57 | CES43 = 90 | CES68 = 84 | CES93 = 80 |
| CES19 = 72 | CES44 = 99 | CES69 = 89 | CES94 = 63 |
| CES20 = 67 | CES45 = 93 | CES70 = 82 | CES95 = 76 |
| CES21 = 87 | CES46 = 90 | CES71 = 81 | CES96 = 84 |
| CES22 = 79 | CES47 = 91 | CES72 = 93 | CES97 = 90 |
| CES23 = 92 | CES48 = 84 | CES73 = 77 | CES98 = 85 |
| CES24 = 91 | CES49 = 90 | CES74 = 93 | CES99 = 77 |
| CES25 = 72 | CES50 = 95 | CES75 = 82 | |



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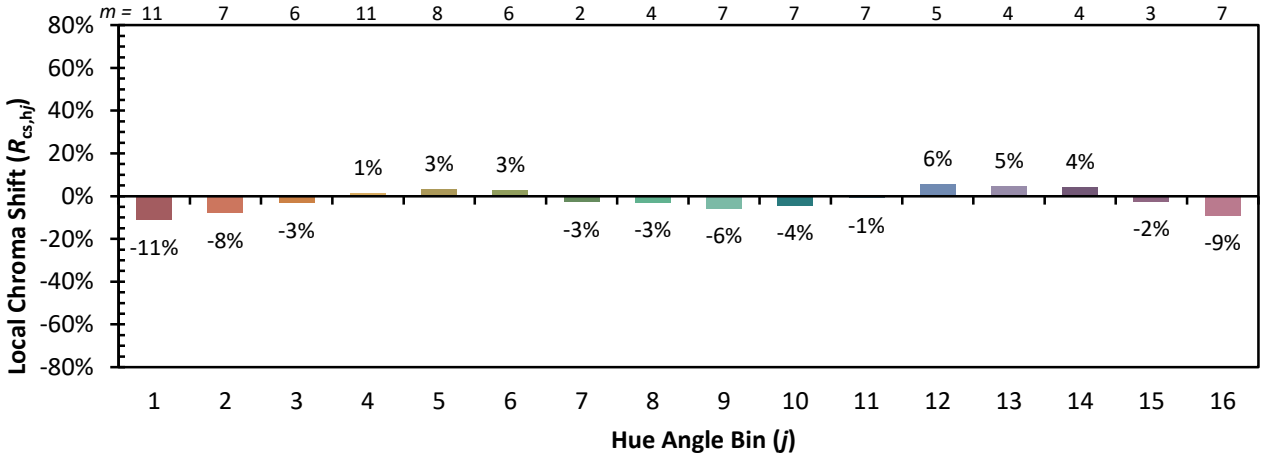
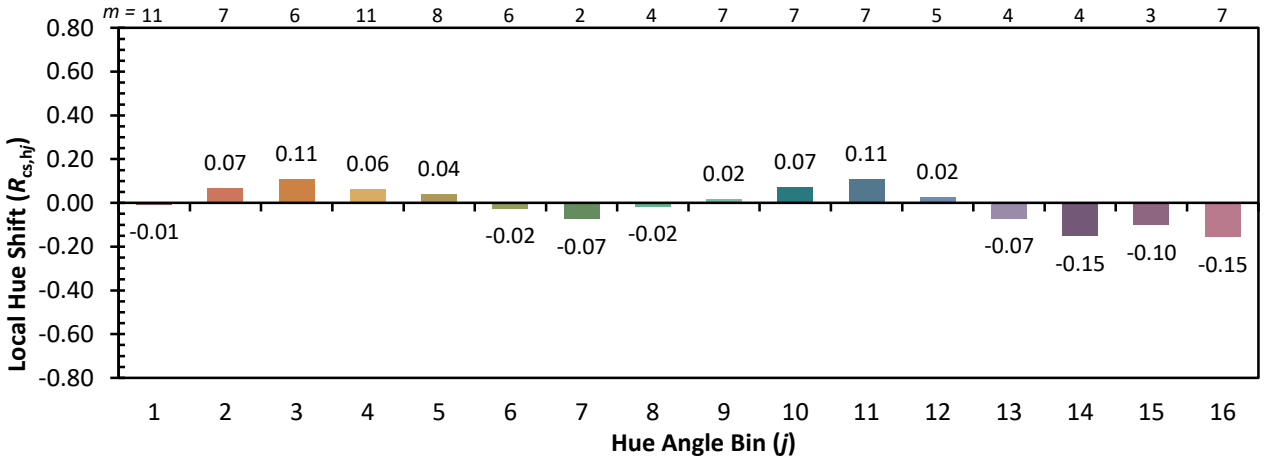
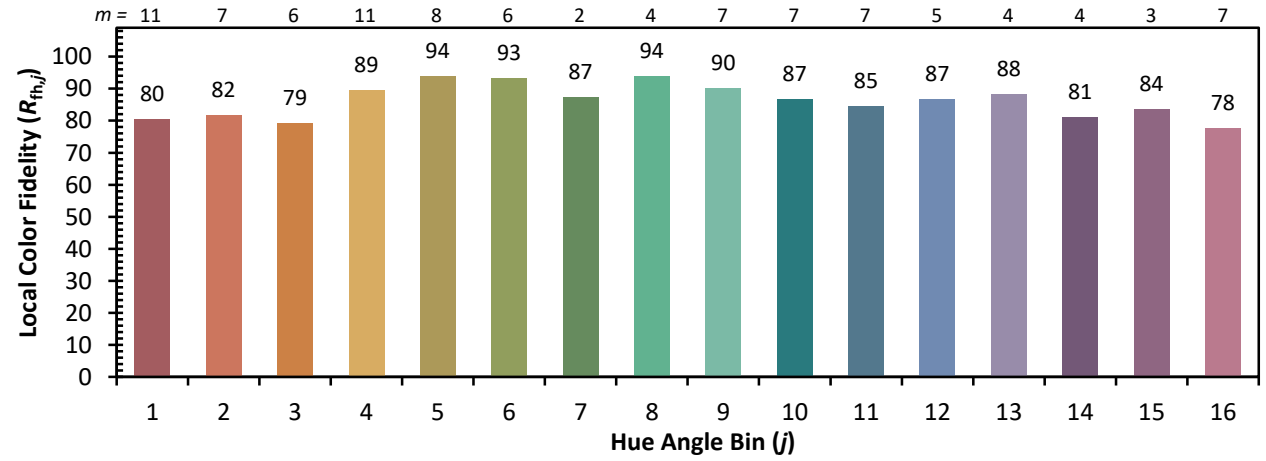
## Color Rendition by Hue-Angle Bin



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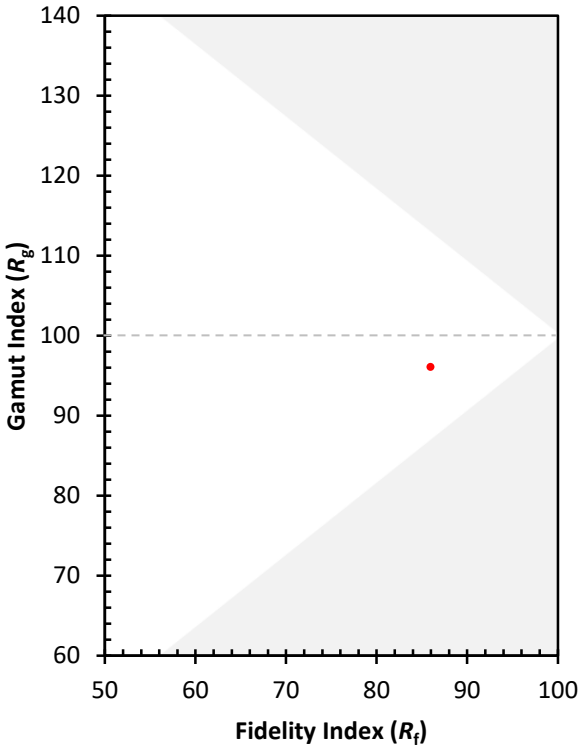
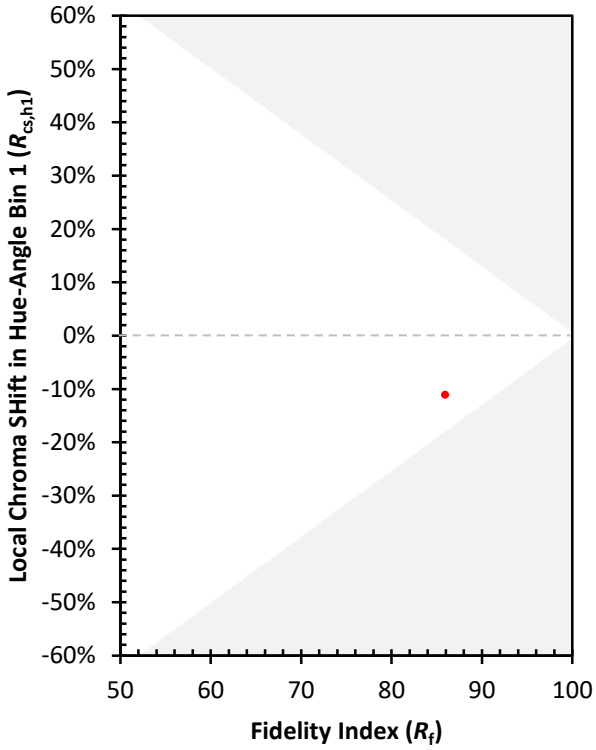
## Measure Comparisons

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