

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: iO LED

Report Number: P861225

Luminaire Tested: CS-SL-9SCT-120-ID-UNV-W-SA-STD-1F (Low-3500K)

Issue Date: 8/14/2024

Test Information

Test Method: LM-79-2019
Report Number: P861225
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-259-1)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 8/14/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: iO LED
Catalog Number: CS-SL-9SCT-120-ID-UNV-W-SA-STD-1F (Low-3500K)
Description: iO CovSelect LED LINEAR LUMINAIRE, 1 FOOT, HIGH OUTPUT
ADJUSTED TO 3500K
Light Source: 3500 CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 368.6 lumens
Efficiency: N/A
Efficacy: 105.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.19 / 1.3
Luminous Opening: Rectangular w/ Sides (W: 0.08' x L: 1' x H: 0.02')
CIE Type: Direct

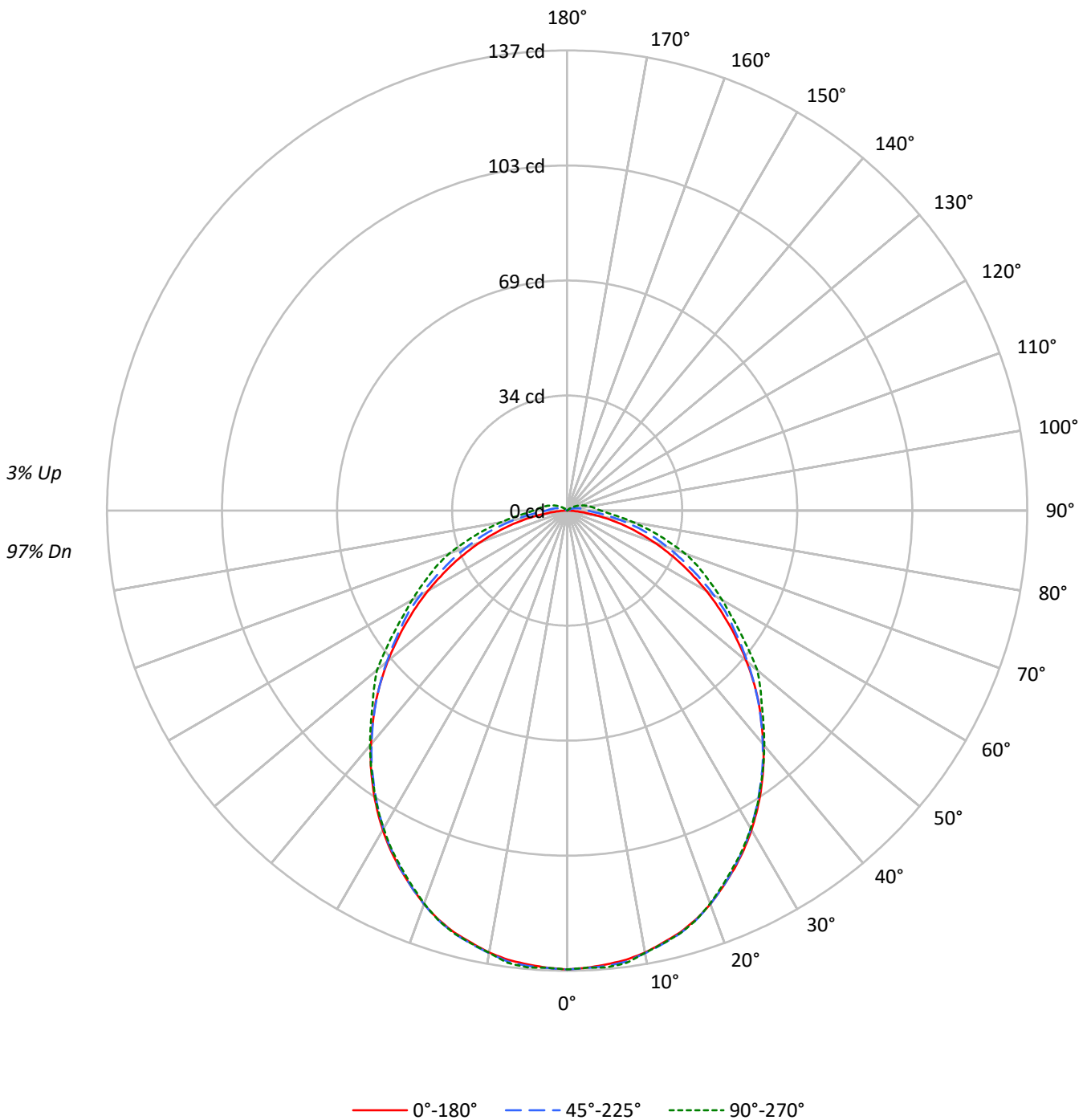
Input Watts (W): 3.5
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9414
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: 0.333 HR
Operation Time: 3 HR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P861225

CATALOG NUMBER: CS-SL-9SCT-120-ID-UNV-W-SA-STD-1F (Low-3500K)

Luminous Intensity Polar Plot





TEST NUMBER: P861225

CATALOG NUMBER: CS-SL-9SCT-120-ID-UNV-W-SA-STD-1F (Low-3500K)

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|---|--|---|
| RF | 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 | 50 | 30 | 10 | 50 | 30 | 10 | 0 | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 110 | 110 | 110 | 104 | 104 | 104 | 100 | 100 | 100 | 97 | | | | | | | | |
| 1 | 108 | 103 | 99 | 95 | 105 | 101 | 97 | 93 | 96 | 93 | 90 | 91 | 89 | 86 | 87 | 85 | 83 | 81 | | | | | | | | |
| 2 | 98 | 90 | 83 | 77 | 95 | 88 | 82 | 76 | 84 | 79 | 74 | 80 | 76 | 72 | 77 | 73 | 70 | 68 | | | | | | | | |
| 3 | 90 | 79 | 71 | 65 | 87 | 77 | 70 | 64 | 74 | 68 | 62 | 71 | 65 | 61 | 68 | 63 | 60 | 57 | | | | | | | | |
| 4 | 82 | 70 | 62 | 55 | 80 | 69 | 61 | 54 | 66 | 59 | 53 | 63 | 57 | 52 | 61 | 56 | 51 | 49 | | | | | | | | |
| 5 | 76 | 63 | 54 | 47 | 73 | 62 | 53 | 47 | 59 | 52 | 46 | 57 | 51 | 46 | 55 | 49 | 45 | 43 | | | | | | | | |
| 6 | 70 | 57 | 48 | 42 | 68 | 56 | 47 | 41 | 54 | 46 | 41 | 52 | 45 | 40 | 50 | 44 | 40 | 37 | | | | | | | | |
| 7 | 65 | 52 | 43 | 37 | 63 | 51 | 42 | 37 | 49 | 41 | 36 | 47 | 41 | 36 | 46 | 40 | 35 | 33 | | | | | | | | |
| 8 | 61 | 47 | 39 | 33 | 59 | 46 | 38 | 33 | 45 | 38 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 30 | | | | | | | | |
| 9 | 57 | 43 | 35 | 30 | 55 | 43 | 35 | 30 | 41 | 34 | 29 | 40 | 34 | 29 | 39 | 33 | 29 | 27 | | | | | | | | |
| 10 | 53 | 40 | 32 | 27 | 52 | 39 | 32 | 27 | 38 | 31 | 27 | 37 | 31 | 26 | 36 | 30 | 26 | 24 | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 17644 | 17644 | 17644 |
| 5° | 17550 | 17356 | 17320 |
| 10° | 17459 | 16976 | 16796 |
| 15° | 17288 | 16574 | 16330 |
| 20° | 17012 | 16024 | 15686 |
| 25° | 16613 | 15373 | 14947 |
| 30° | 16182 | 14692 | 14246 |
| 35° | 15666 | 13932 | 13473 |
| 40° | 15064 | 13162 | 12725 |
| 45° | 14423 | 12326 | 11969 |
| 50° | 13667 | 11469 | 11441 |
| 55° | 12815 | 10645 | 10405 |
| 60° | 11943 | 9796 | 9609 |
| 65° | 10942 | 8775 | 8973 |
| 70° | 9823 | 7869 | 8351 |
| 75° | 8474 | 6956 | 7255 |
| 80° | 6586 | 5705 | 6122 |
| 85° | 3711 | 4508 | 5187 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 14423 cd/sqm



TEST NUMBER: P861225

CATALOG NUMBER: CS-SL-9SCT-120-ID-UNV-W-SA-STD-1F (Low-3500K)

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 12.9 | 3.5 |
| 10°-20° | 36.6 | 9.9 |
| 20°-30° | 54.0 | 14.7 |
| 30°-40° | 62.8 | 17.0 |
| 40°-50° | 62.4 | 16.9 |
| 50°-60° | 54.2 | 14.7 |
| 60°-70° | 40.6 | 11.0 |
| 70°-80° | 24.9 | 6.8 |
| 80°-90° | 10.5 | 2.8 |
| 90°-100° | 4.9 | 1.3 |
| 100°-110° | 2.9 | 0.8 |
| 110°-120° | 1.3 | 0.4 |
| 120°-130° | 0.4 | 0.1 |
| 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° | 103.6 | 28.1 |
| 0°-40° | 166.3 | 45.1 |
| 0°-60° | 282.9 | 76.8 |
| 0°-90° | 359.0 | 97.4 |
| 90°-120° | 9.1 | 2.5 |
| 90°-150° | 9.6 | 2.6 |
| 90°-180° | 10.0 | 2.7 |
| 0°-180° | 368.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0° | 137 | 137 | 137 | 137 | 137 | |
| 5° | 136 | 136 | 136 | 136 | 136 | 13 |
| 15° | 130 | 130 | 130 | 130 | 130 | 37 |
| 25° | 118 | 117 | 118 | 117 | 117 | 54 |
| 35° | 101 | 100 | 100 | 101 | 100 | 63 |
| 45° | 81 | 80 | 80 | 82 | 82 | 62 |
| 55° | 59 | 58 | 60 | 63 | 63 | 52 |
| 65° | 37 | 38 | 40 | 44 | 45 | 37 |
| 75° | 18 | 20 | 24 | 27 | 28 | 19 |
| 85° | 3 | 6 | 10 | 13 | 14 | 4 |
| 90° | 0 | 2 | 6 | 9 | 10 | 0 |
| 95° | 0 | 2 | 5 | 7 | 8 | 0 |
| 105° | 0 | 0 | 3 | 5 | 6 | 0 |
| 115° | 0 | 0 | 1 | 3 | 3 | 0 |
| 125° | 0 | 0 | 0 | 1 | 1 | 0 |
| 135° | 0 | 0 | 0 | 0 | 0 | 0 |
| 145° | 0 | 0 | 0 | 0 | 0 | 0 |
| 155° | 0 | 0 | 0 | 0 | 0 | 0 |
| 165° | 0 | 0 | 0 | 0 | 0 | 0 |
| 175° | 0 | 0 | 0 | 0 | 0 | 0 |
| 180° | 0 | 0 | 0 | 0 | 0 | 0 |



TEST NUMBER: P861225

CATALOG NUMBER: CS-SL-9SCT-120-ID-UNV-W-SA-STD-1F (Low-3500K)

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 136.6 | 136.6 | 136.6 | 136.6 | 136.6 |
| 2.5° | 136.2 | 135.8 | 136.3 | 136.1 | 136.2 |
| 5° | 135.6 | 135.5 | 136.1 | 136.2 | 136.5 |
| 7.5° | 134.9 | 134.7 | 135.4 | 135.5 | 135.8 |
| 10° | 133.6 | 133.3 | 133.8 | 133.7 | 133.7 |
| 12.5° | 131.8 | 131.6 | 132.1 | 131.9 | 132.0 |
| 15° | 130.0 | 129.6 | 130.3 | 130.2 | 130.3 |
| 17.5° | 127.6 | 127.3 | 127.8 | 127.6 | 127.8 |
| 20° | 124.7 | 124.3 | 124.7 | 124.5 | 124.5 |
| 22.5° | 121.2 | 120.9 | 121.2 | 120.9 | 120.8 |
| 25° | 117.7 | 117.2 | 117.5 | 117.2 | 117.1 |
| 27.5° | 113.9 | 113.4 | 113.6 | 113.5 | 113.4 |
| 30° | 109.8 | 109.2 | 109.4 | 109.4 | 109.3 |
| 32.5° | 105.4 | 104.6 | 104.9 | 105.1 | 105.0 |
| 35° | 100.8 | 99.9 | 100.2 | 100.6 | 100.4 |
| 37.5° | 96.0 | 95.3 | 95.6 | 95.8 | 95.9 |
| 40° | 90.9 | 90.4 | 90.6 | 91.2 | 91.3 |
| 42.5° | 85.6 | 85.2 | 85.6 | 86.5 | 86.6 |
| 45° | 80.6 | 80.0 | 80.4 | 81.6 | 81.9 |
| 47.5° | 75.2 | 74.6 | 75.3 | 76.8 | 78.0 |
| 50° | 69.7 | 69.3 | 70.1 | 72.8 | 73.9 |
| 52.5° | 64.1 | 63.8 | 65.0 | 68.3 | 68.1 |
| 55° | 58.6 | 58.4 | 60.2 | 62.6 | 62.7 |
| 57.5° | 53.2 | 53.1 | 55.8 | 57.2 | 57.6 |
| 60° | 47.9 | 48.0 | 50.5 | 52.3 | 53.3 |
| 62.5° | 42.5 | 42.8 | 45.4 | 47.9 | 49.1 |
| 65° | 37.4 | 37.9 | 40.5 | 43.8 | 45.1 |
| 67.5° | 32.4 | 33.3 | 36.0 | 39.9 | 41.4 |
| 70° | 27.5 | 28.8 | 31.8 | 36.0 | 37.3 |
| 72.5° | 22.8 | 24.2 | 27.8 | 31.6 | 32.4 |
| 75° | 18.3 | 19.8 | 23.9 | 27.1 | 28.1 |
| 77.5° | 14.0 | 15.7 | 19.8 | 23.1 | 23.9 |
| 80° | 9.9 | 12.1 | 16.0 | 19.1 | 19.9 |
| 82.5° | 6.2 | 8.7 | 12.6 | 15.6 | 16.5 |
| 85° | 3.1 | 5.8 | 9.7 | 12.6 | 13.5 |
| 87.5° | 0.9 | 3.5 | 7.3 | 10.3 | 11.4 |
| 90° | 0.0 | 2.3 | 6.2 | 8.9 | 10.0 |
| 92.5° | 0.0 | 1.9 | 5.5 | 8.1 | 9.0 |
| 95° | 0.0 | 1.5 | 4.8 | 7.3 | 8.3 |
| 97.5° | 0.0 | 1.2 | 4.3 | 6.7 | 7.6 |
| 100° | 0.0 | 0.8 | 3.8 | 6.1 | 6.9 |
| 102.5° | 0.0 | 0.5 | 3.3 | 5.5 | 6.3 |
| 105° | 0.0 | 0.3 | 2.7 | 4.8 | 5.7 |
| 107.5° | 0.0 | 0.2 | 2.2 | 4.3 | 5.0 |
| 110° | 0.0 | 0.1 | 1.8 | 3.7 | 4.5 |



TEST NUMBER: P861225

CATALOG NUMBER: CS-SL-9SCT-120-ID-UNV-W-SA-STD-1F (Low-3500K)

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 0.0 | 0.0 | 1.4 | 3.1 | 3.9 |
| 115° | 0.0 | 0.0 | 1.0 | 2.6 | 3.4 |
| 117.5° | 0.0 | 0.0 | 0.7 | 2.1 | 2.8 |
| 120° | 0.0 | 0.0 | 0.5 | 1.7 | 2.2 |
| 122.5° | 0.0 | 0.0 | 0.3 | 1.3 | 1.8 |
| 125° | 0.0 | 0.0 | 0.2 | 0.9 | 1.4 |
| 127.5° | 0.0 | 0.0 | 0.1 | 0.7 | 1.0 |
| 130° | 0.0 | 0.0 | 0.0 | 0.4 | 0.7 |
| 132.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 135° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 137.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 140° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 142.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 145° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 147.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 150° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 152.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 155° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 160° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 162.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 167.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 172.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 177.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Report Prepared for

Cooper Lighting Solutions

iO LED

Report Number: SP1-2312-259-9

Test Date: 02/01/2024

Luminaire Tested: CS-SL-8SCT-120-ID-UNV-W-SA-STD-1F (HIGH-3500K)

Data in this report applies to families of CS-SL-8SCT products

Test Information

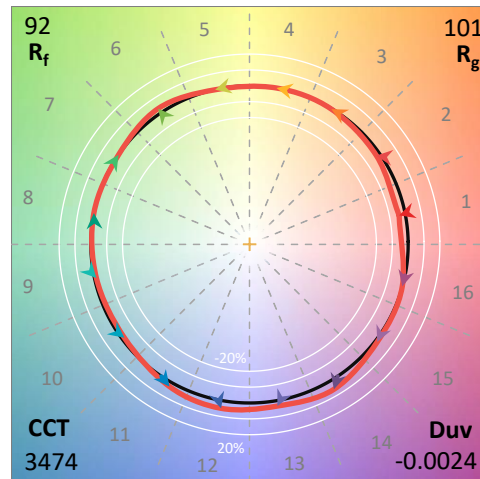
Test Method: LM-79-2019
 Report Number: SP1-2312-259-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 02/08/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: iO LED
 Catalog Number: **CS-SL-9SCT-120-ID-UNV-W-SA-STD-1F (HIGH-3500K)**
 Description: IO LED COVSELECT ARCHITECTURAL COVE

Spectral Parameters

CCT (K): 3474
 CIE u': 0.2374
 CIE v': 0.5086
 Duv: -0.0024
 CIE x: 0.4041
 CIE y: 0.3847
 CIE z: 0.2112
 Peak Wavelength (nm): 614
 Dominant Wavelength (nm): 582
 Purity: 36.9

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 94.8 | | |
| R1: | 96.3 | R9: | 68.8 |
| R2: | 97.4 | R10: | 93.0 |
| R3: | 96.9 | R11: | 95.8 |
| R4: | 95.8 | R12: | 81.2 |
| R5: | 96.0 | R13: | 97.0 |
| R6: | 95.5 | R14: | 97.8 |
| R7: | 93.7 | | |
| R8: | 86.9 | | |

Rf: 92.4
 Rg: 101



Test Conditions

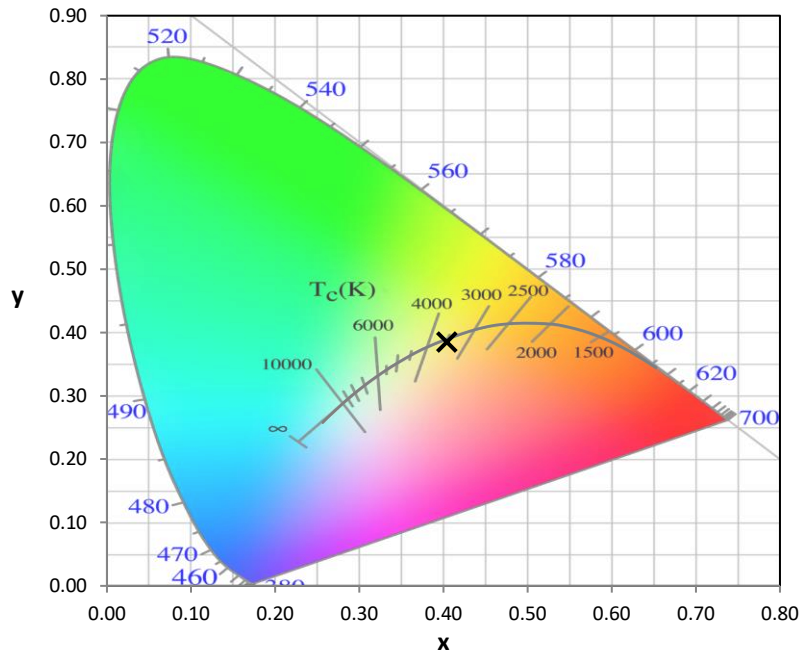
Stabilization Time: 11M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.4/24%
 Sphere Temperature (°C): 25.1

REPORT NUMBER: SP1-2312-259-9

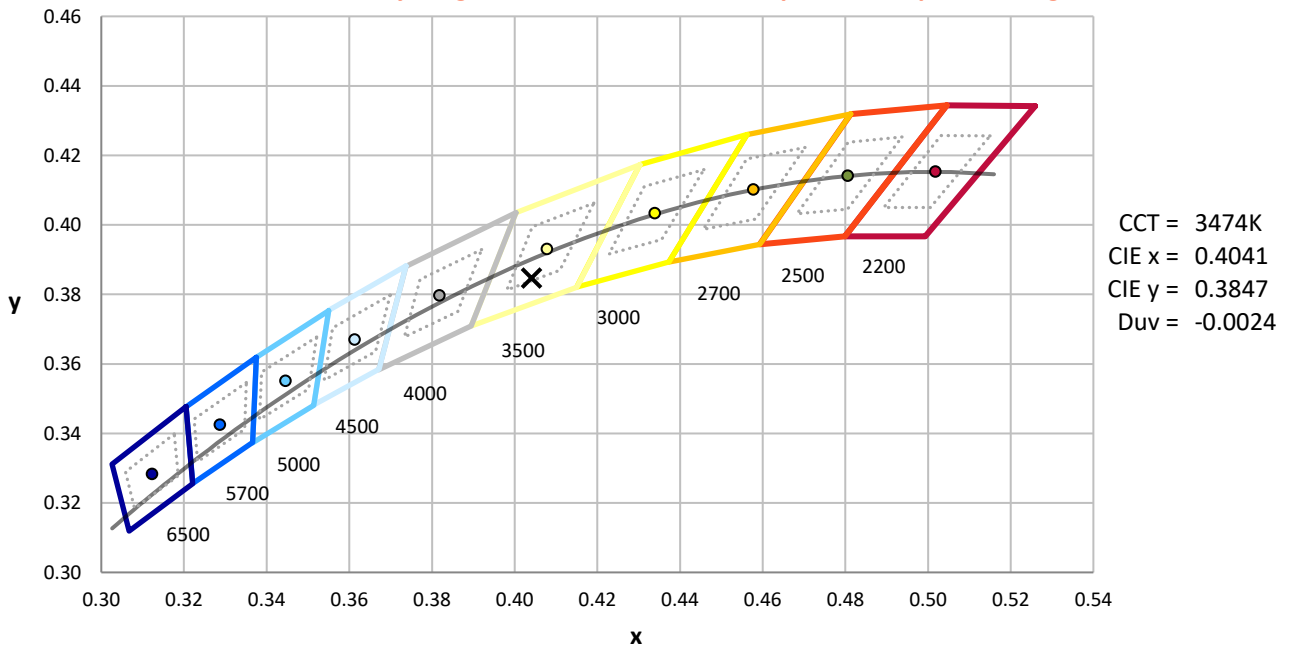
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 8/9/2023 | 2/9/2024 |
| Power Meter | XITRON 2801 IN0071 | 10/23/2023 | 10/23/2024 |
| AC Power Source | CHROMA 61603 IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | AGILENT E3634A IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | ONSET IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | ONSET IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2312-259-9

CIE 1931 Chromaticity Diagram



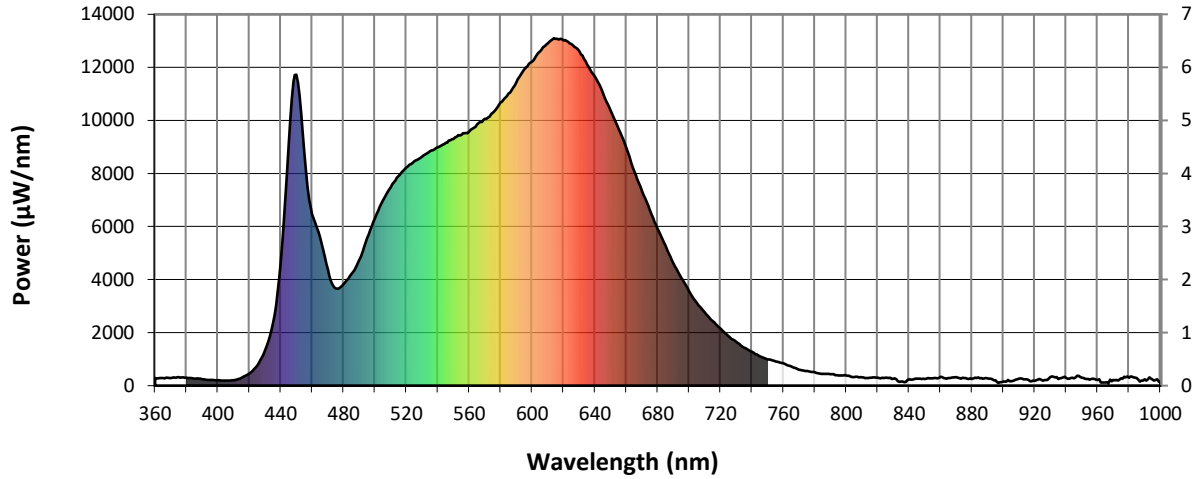
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2312-259-9

Photopic Flux vs. Wavelength

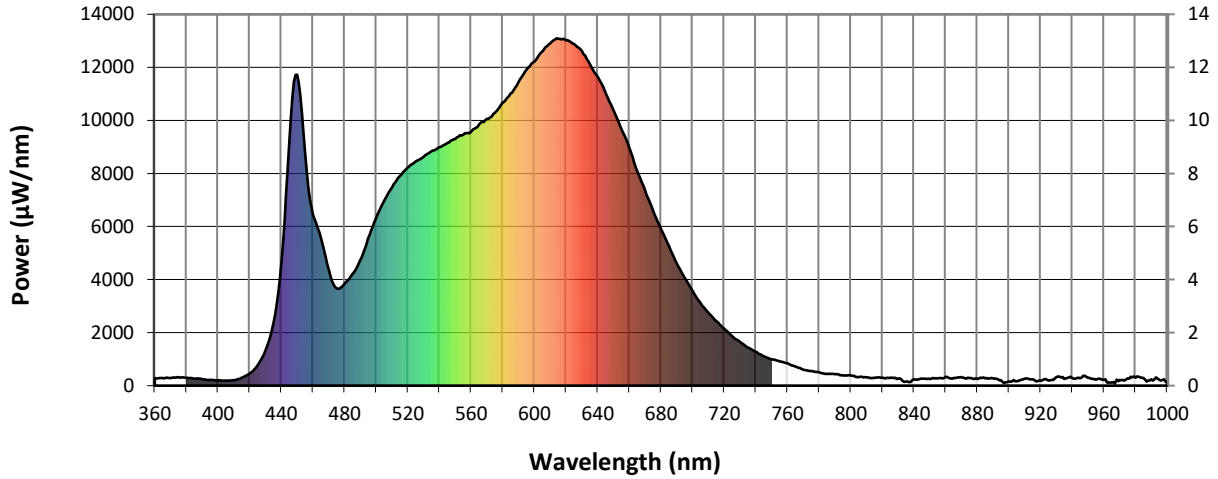


#####

| 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 | 291 | NR | 490 | 4747 | NR | 620 | 13009 | NR | 750 | 988 | NR | 880 | 252 | NR |
| 365 | 282 | NR | 495 | 5555 | NR | 625 | 12881 | NR | 755 | 912 | NR | 885 | 276 | NR |
| 370 | 290 | NR | 500 | 6319 | NR | 630 | 12622 | NR | 760 | 836 | NR | 890 | 280 | NR |
| 375 | 328 | NR | 505 | 6975 | NR | 635 | 12118 | NR | 765 | 724 | NR | 895 | 201 | NR |
| 380 | 305 | NR | 510 | 7477 | NR | 640 | 11658 | NR | 770 | 604 | NR | 900 | 157 | NR |
| 385 | 268 | NR | 515 | 7901 | NR | 645 | 11039 | NR | 775 | 552 | NR | 905 | 168 | NR |
| 390 | 244 | NR | 520 | 8226 | NR | 650 | 10377 | NR | 780 | 501 | NR | 910 | 258 | NR |
| 395 | 218 | NR | 525 | 8460 | NR | 655 | 9681 | NR | 785 | 439 | NR | 915 | 233 | NR |
| 400 | 202 | NR | 530 | 8638 | NR | 660 | 8972 | NR | 790 | 437 | NR | 920 | 184 | NR |
| 405 | 190 | NR | 535 | 8835 | NR | 665 | 8081 | NR | 795 | 390 | NR | 925 | 194 | NR |
| 410 | 207 | NR | 540 | 8980 | NR | 670 | 7347 | NR | 800 | 387 | NR | 930 | 323 | NR |
| 415 | 297 | NR | 545 | 9149 | NR | 675 | 6606 | NR | 805 | 321 | NR | 935 | 257 | NR |
| 420 | 459 | NR | 550 | 9305 | NR | 680 | 5911 | NR | 810 | 316 | NR | 940 | 285 | NR |
| 425 | 760 | NR | 555 | 9458 | NR | 685 | 5264 | NR | 815 | 296 | NR | 945 | 273 | NR |
| 430 | 1320 | NR | 560 | 9576 | NR | 690 | 4617 | NR | 820 | 296 | NR | 950 | 304 | NR |
| 435 | 2349 | NR | 565 | 9850 | NR | 695 | 4067 | NR | 825 | 296 | NR | 955 | 225 | NR |
| 440 | 4635 | NR | 570 | 10059 | NR | 700 | 3570 | NR | 830 | 267 | NR | 960 | 213 | NR |
| 445 | 9061 | NR | 575 | 10295 | NR | 705 | 3110 | NR | 835 | 156 | NR | 965 | 123 | NR |
| 450 | 11728 | NR | 580 | 10672 | NR | 710 | 2744 | NR | 840 | 242 | NR | 970 | 212 | NR |
| 455 | 8770 | NR | 585 | 11012 | NR | 715 | 2433 | NR | 845 | 266 | NR | 975 | 276 | NR |
| 460 | 6469 | NR | 590 | 11448 | NR | 720 | 2148 | NR | 850 | 246 | NR | 980 | 295 | NR |
| 465 | 5601 | NR | 595 | 11922 | NR | 725 | 1872 | NR | 855 | 278 | NR | 985 | 282 | NR |
| 470 | 4361 | NR | 600 | 12225 | NR | 730 | 1650 | NR | 860 | 332 | NR | 990 | 244 | NR |
| 475 | 3665 | NR | 605 | 12594 | NR | 735 | 1434 | NR | 865 | 291 | NR | 995 | 228 | NR |
| 480 | 3839 | NR | 610 | 12912 | NR | 740 | 1274 | NR | 870 | 323 | NR | 1000 | 132 | NR |
| 485 | 4204 | NR | 615 | 13069 | NR | 745 | 1106 | NR | 875 | 292 | NR | | | |

REPORT NUMBER: SP1-2312-259-9

Scotopic Flux vs. Wavelength



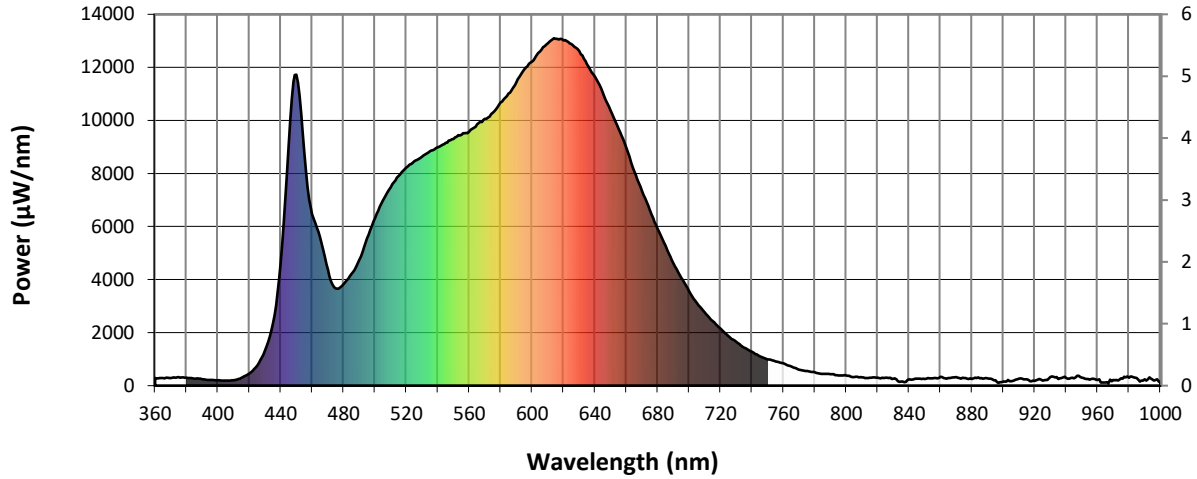
Scotopic Lumens: 1153

S/P: 1.63

| 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 | 291 | NR | 490 | 4747 | NR | 620 | 13009 | NR | 750 | 988 | NR | 880 | 252 | NR |
| 365 | 282 | NR | 495 | 5555 | NR | 625 | 12881 | NR | 755 | 912 | NR | 885 | 276 | NR |
| 370 | 290 | NR | 500 | 6319 | NR | 630 | 12622 | NR | 760 | 836 | NR | 890 | 280 | NR |
| 375 | 328 | NR | 505 | 6975 | NR | 635 | 12118 | NR | 765 | 724 | NR | 895 | 201 | NR |
| 380 | 305 | NR | 510 | 7477 | NR | 640 | 11658 | NR | 770 | 604 | NR | 900 | 157 | NR |
| 385 | 268 | NR | 515 | 7901 | NR | 645 | 11039 | NR | 775 | 552 | NR | 905 | 168 | NR |
| 390 | 244 | NR | 520 | 8226 | NR | 650 | 10377 | NR | 780 | 501 | NR | 910 | 258 | NR |
| 395 | 218 | NR | 525 | 8460 | NR | 655 | 9681 | NR | 785 | 439 | NR | 915 | 233 | NR |
| 400 | 202 | NR | 530 | 8638 | NR | 660 | 8972 | NR | 790 | 437 | NR | 920 | 184 | NR |
| 405 | 190 | NR | 535 | 8835 | NR | 665 | 8081 | NR | 795 | 390 | NR | 925 | 194 | NR |
| 410 | 207 | NR | 540 | 8980 | NR | 670 | 7347 | NR | 800 | 387 | NR | 930 | 323 | NR |
| 415 | 297 | NR | 545 | 9149 | NR | 675 | 6606 | NR | 805 | 321 | NR | 935 | 257 | NR |
| 420 | 459 | NR | 550 | 9305 | NR | 680 | 5911 | NR | 810 | 316 | NR | 940 | 285 | NR |
| 425 | 760 | NR | 555 | 9458 | NR | 685 | 5264 | NR | 815 | 296 | NR | 945 | 273 | NR |
| 430 | 1320 | NR | 560 | 9576 | NR | 690 | 4617 | NR | 820 | 296 | NR | 950 | 304 | NR |
| 435 | 2349 | NR | 565 | 9850 | NR | 695 | 4067 | NR | 825 | 296 | NR | 955 | 225 | NR |
| 440 | 4635 | NR | 570 | 10059 | NR | 700 | 3570 | NR | 830 | 267 | NR | 960 | 213 | NR |
| 445 | 9061 | NR | 575 | 10295 | NR | 705 | 3110 | NR | 835 | 156 | NR | 965 | 123 | NR |
| 450 | 11728 | NR | 580 | 10672 | NR | 710 | 2744 | NR | 840 | 242 | NR | 970 | 212 | NR |
| 455 | 8770 | NR | 585 | 11012 | NR | 715 | 2433 | NR | 845 | 266 | NR | 975 | 276 | NR |
| 460 | 6469 | NR | 590 | 11448 | NR | 720 | 2148 | NR | 850 | 246 | NR | 980 | 295 | NR |
| 465 | 5601 | NR | 595 | 11922 | NR | 725 | 1872 | NR | 855 | 278 | NR | 985 | 282 | NR |
| 470 | 4361 | NR | 600 | 12225 | NR | 730 | 1650 | NR | 860 | 332 | NR | 990 | 244 | NR |
| 475 | 3665 | NR | 605 | 12594 | NR | 735 | 1434 | NR | 865 | 291 | NR | 995 | 228 | NR |
| 480 | 3839 | NR | 610 | 12912 | NR | 740 | 1274 | NR | 870 | 323 | NR | 1000 | 132 | NR |
| 485 | 4204 | NR | 615 | 13069 | NR | 745 | 1106 | NR | 875 | 292 | NR | | | |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 462.7

M/P: 0.66

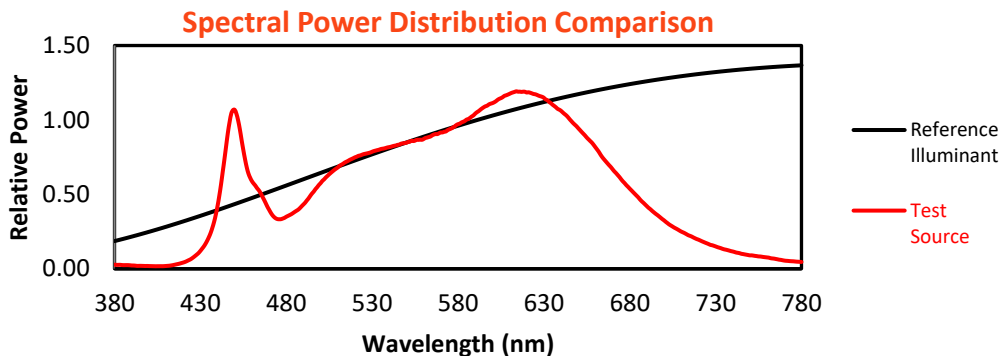
| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 291 | NR | 490 | 4747 | NR | 620 | 13009 | NR | 750 | 988 | NR | 880 | 252 | NR |
| 365 | 282 | NR | 495 | 5555 | NR | 625 | 12881 | NR | 755 | 912 | NR | 885 | 276 | NR |
| 370 | 290 | NR | 500 | 6319 | NR | 630 | 12622 | NR | 760 | 836 | NR | 890 | 280 | NR |
| 375 | 328 | NR | 505 | 6975 | NR | 635 | 12118 | NR | 765 | 724 | NR | 895 | 201 | NR |
| 380 | 305 | NR | 510 | 7477 | NR | 640 | 11658 | NR | 770 | 604 | NR | 900 | 157 | NR |
| 385 | 268 | NR | 515 | 7901 | NR | 645 | 11039 | NR | 775 | 552 | NR | 905 | 168 | NR |
| 390 | 244 | NR | 520 | 8226 | NR | 650 | 10377 | NR | 780 | 501 | NR | 910 | 258 | NR |
| 395 | 218 | NR | 525 | 8460 | NR | 655 | 9681 | NR | 785 | 439 | NR | 915 | 233 | NR |
| 400 | 202 | NR | 530 | 8638 | NR | 660 | 8972 | NR | 790 | 437 | NR | 920 | 184 | NR |
| 405 | 190 | NR | 535 | 8835 | NR | 665 | 8081 | NR | 795 | 390 | NR | 925 | 194 | NR |
| 410 | 207 | NR | 540 | 8980 | NR | 670 | 7347 | NR | 800 | 387 | NR | 930 | 323 | NR |
| 415 | 297 | NR | 545 | 9149 | NR | 675 | 6606 | NR | 805 | 321 | NR | 935 | 257 | NR |
| 420 | 459 | NR | 550 | 9305 | NR | 680 | 5911 | NR | 810 | 316 | NR | 940 | 285 | NR |
| 425 | 760 | NR | 555 | 9458 | NR | 685 | 5264 | NR | 815 | 296 | NR | 945 | 273 | NR |
| 430 | 1320 | NR | 560 | 9576 | NR | 690 | 4617 | NR | 820 | 296 | NR | 950 | 304 | NR |
| 435 | 2349 | NR | 565 | 9850 | NR | 695 | 4067 | NR | 825 | 296 | NR | 955 | 225 | NR |
| 440 | 4635 | NR | 570 | 10059 | NR | 700 | 3570 | NR | 830 | 267 | NR | 960 | 213 | NR |
| 445 | 9061 | NR | 575 | 10295 | NR | 705 | 3110 | NR | 835 | 156 | NR | 965 | 123 | NR |
| 450 | 11728 | NR | 580 | 10672 | NR | 710 | 2744 | NR | 840 | 242 | NR | 970 | 212 | NR |
| 455 | 8770 | NR | 585 | 11012 | NR | 715 | 2433 | NR | 845 | 266 | NR | 975 | 276 | NR |
| 460 | 6469 | NR | 590 | 11448 | NR | 720 | 2148 | NR | 850 | 246 | NR | 980 | 295 | NR |
| 465 | 5601 | NR | 595 | 11922 | NR | 725 | 1872 | NR | 855 | 278 | NR | 985 | 282 | NR |
| 470 | 4361 | NR | 600 | 12225 | NR | 730 | 1650 | NR | 860 | 332 | NR | 990 | 244 | NR |
| 475 | 3665 | NR | 605 | 12594 | NR | 735 | 1434 | NR | 865 | 291 | NR | 995 | 228 | NR |
| 480 | 3839 | NR | 610 | 12912 | NR | 740 | 1274 | NR | 870 | 323 | NR | 1000 | 132 | NR |
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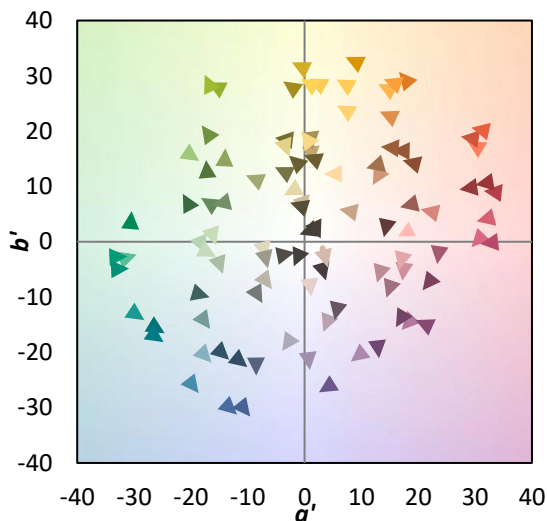
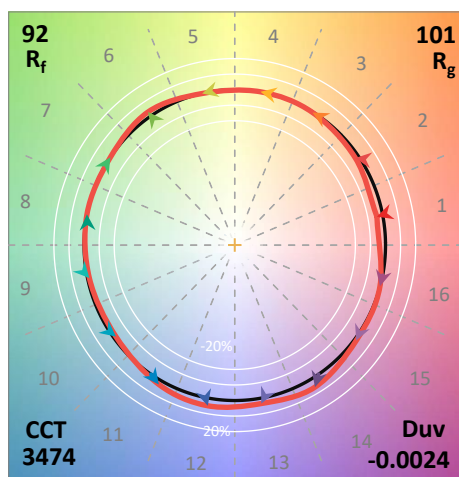
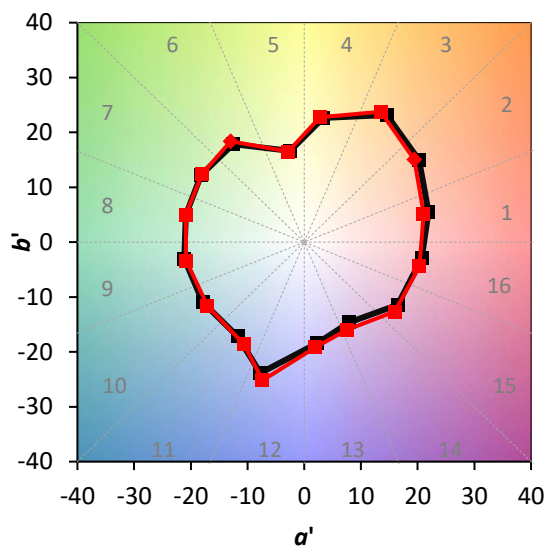
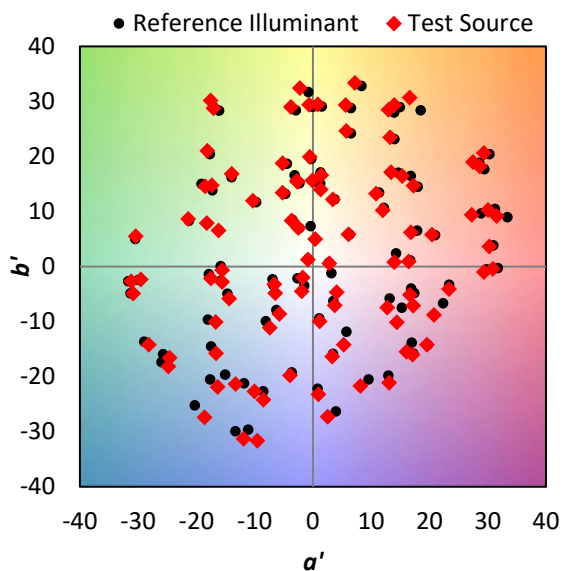
TM-30-18

Summary

$R_f = 92.4$
 $R_g = 101$
 CIE $R_a = 94.8$
 $R_9 = 68.8$



Color Vector Graphics

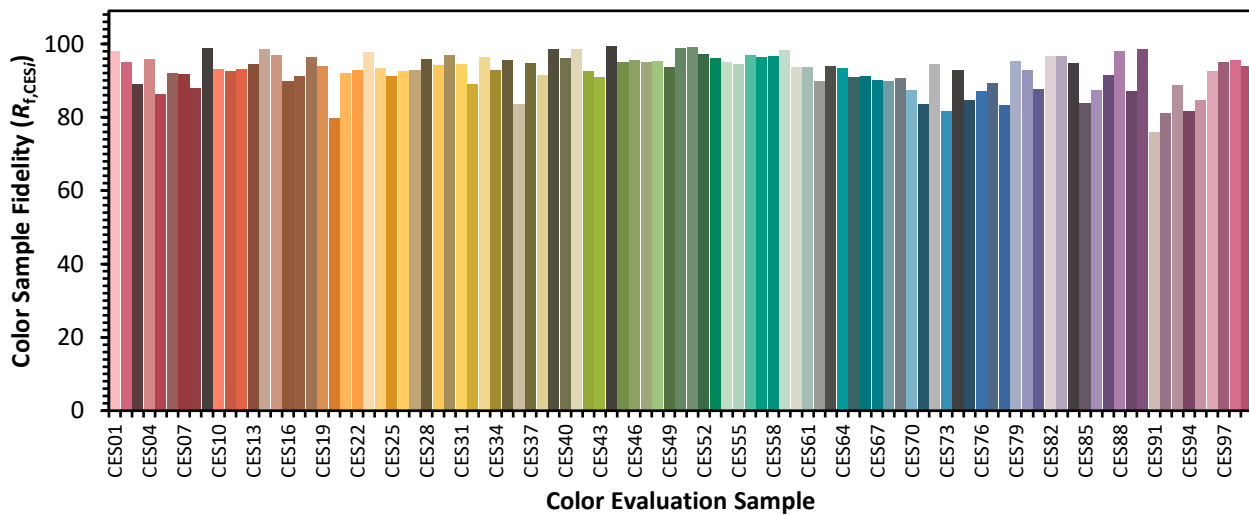


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Individual Sample Fidelity Index ($R_{f,i}$)

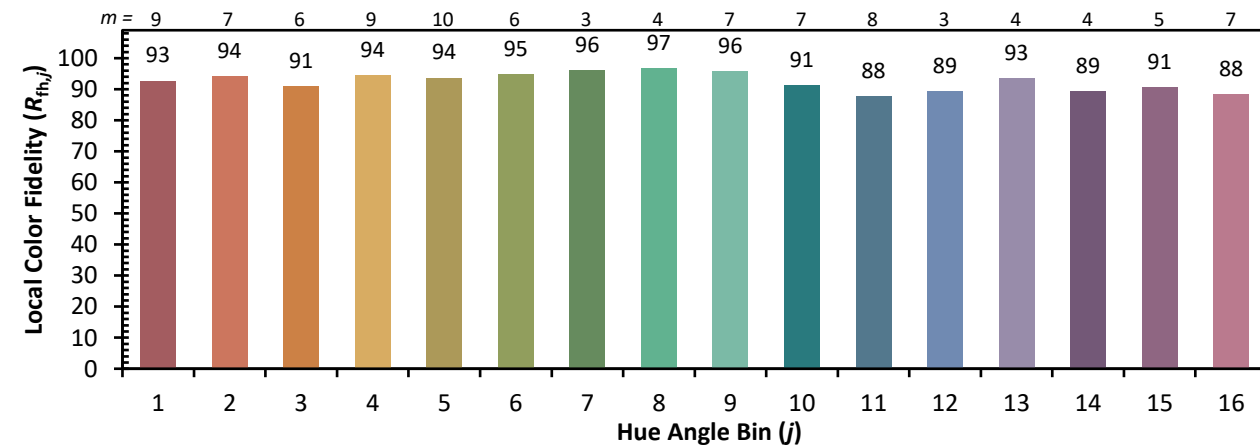
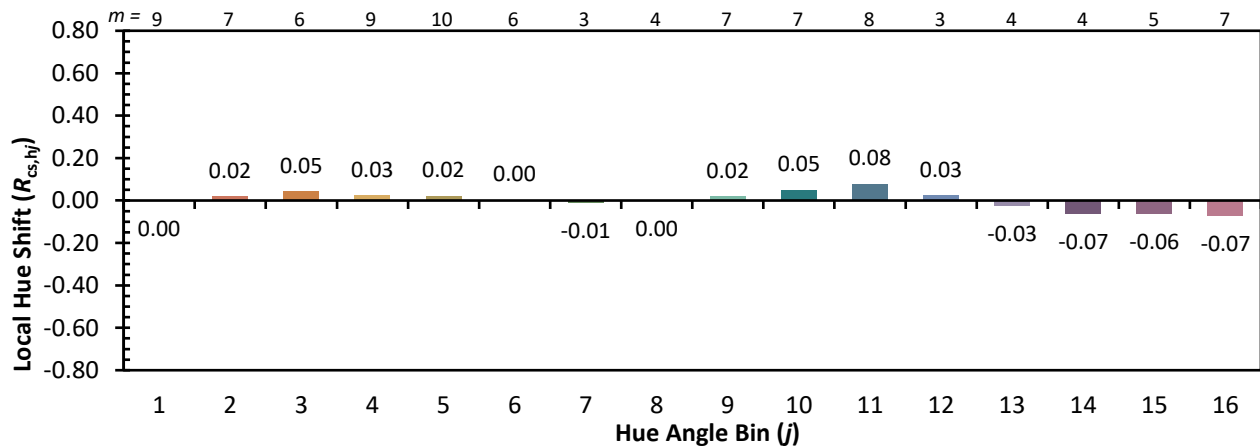
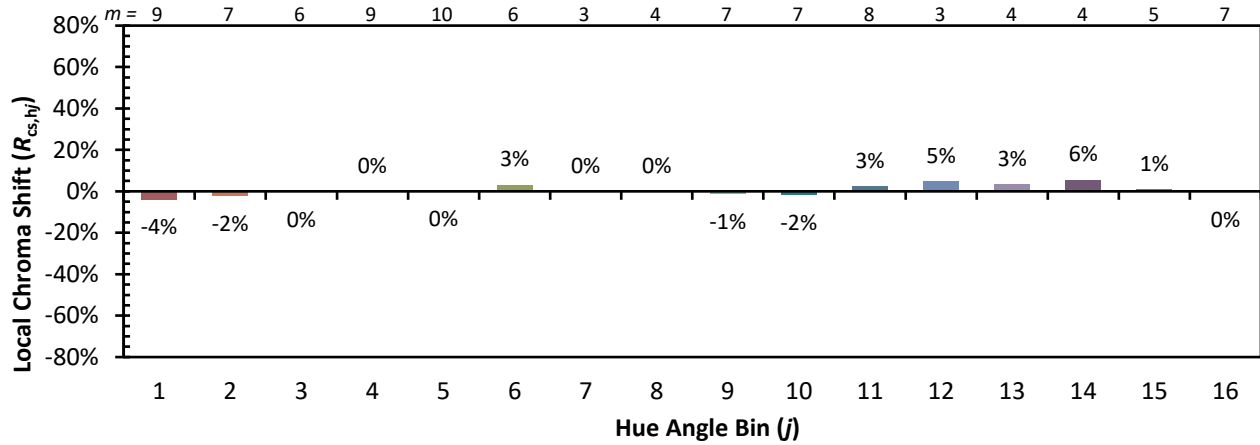
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|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 93 | CES51 = 99 | CES76 = 87 |
| CES02 = 62 | CES27 = 93 | CES52 = 97 | CES77 = 89 |
| CES03 = 31 | CES28 = 96 | CES53 = 96 | CES78 = 83 |
| CES04 = 70 | CES29 = 94 | CES54 = 95 | CES79 = 95 |
| CES05 = 50 | CES30 = 97 | CES55 = 94 | CES80 = 93 |
| CES06 = 51 | CES31 = 95 | CES56 = 97 | CES81 = 88 |
| CES07 = 43 | CES32 = 89 | CES57 = 96 | CES82 = 97 |
| CES08 = 41 | CES33 = 96 | CES58 = 97 | CES83 = 97 |
| CES09 = 29 | CES34 = 93 | CES59 = 98 | CES84 = 95 |
| CES10 = 75 | CES35 = 96 | CES60 = 94 | CES85 = 84 |
| CES11 = 58 | CES36 = 84 | CES61 = 94 | CES86 = 87 |
| CES12 = 64 | CES37 = 95 | CES62 = 90 | CES87 = 91 |
| CES13 = 43 | CES38 = 92 | CES63 = 94 | CES88 = 98 |
| CES14 = 74 | CES39 = 98 | CES64 = 93 | CES89 = 87 |
| CES15 = 72 | CES40 = 96 | CES65 = 91 | CES90 = 98 |
| CES16 = 48 | CES41 = 98 | CES66 = 91 | CES91 = 76 |
| CES17 = 49 | CES42 = 93 | CES67 = 90 | CES92 = 81 |
| CES18 = 56 | CES43 = 91 | CES68 = 90 | CES93 = 89 |
| CES19 = 71 | CES44 = 99 | CES69 = 91 | CES94 = 82 |
| CES20 = 67 | CES45 = 95 | CES70 = 87 | CES95 = 85 |
| CES21 = 86 | CES46 = 95 | CES71 = 83 | CES96 = 92 |
| CES22 = 78 | CES47 = 95 | CES72 = 94 | CES97 = 95 |
| CES23 = 91 | CES48 = 95 | CES73 = 82 | CES98 = 96 |
| CES24 = 90 | CES49 = 94 | CES74 = 93 | CES99 = 94 |
| CES25 = 71 | CES50 = 99 | CES75 = 85 | |



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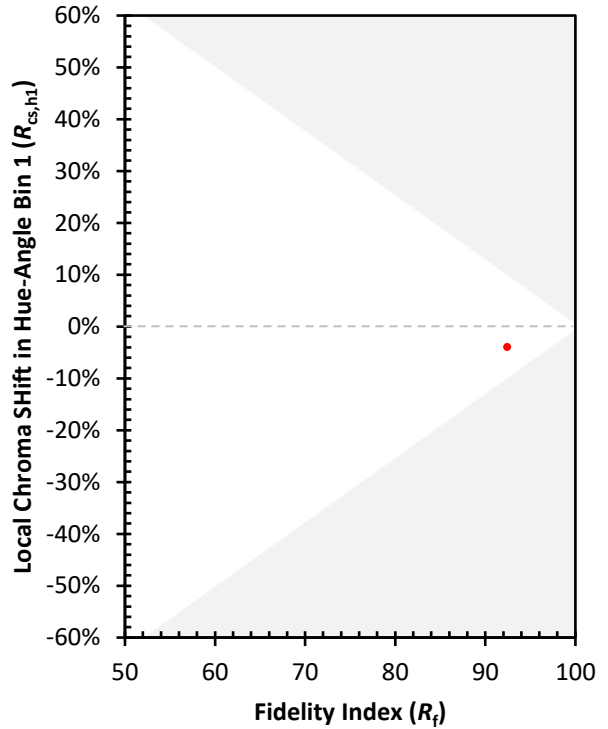
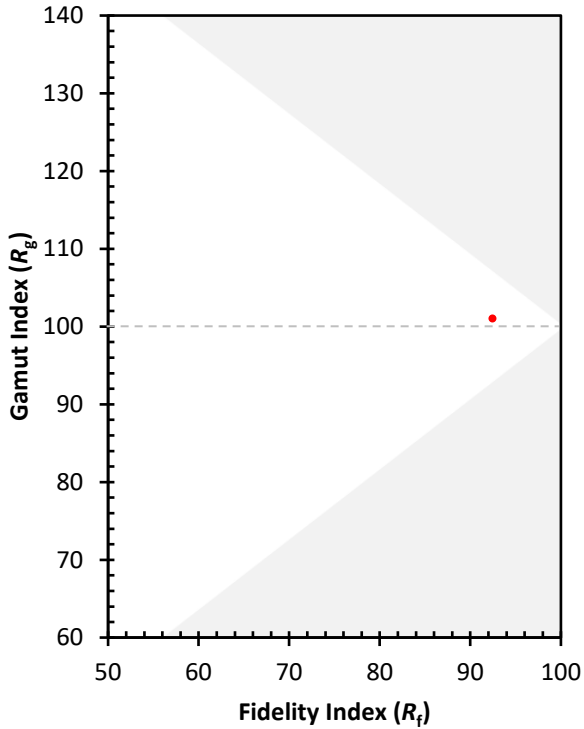
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)