

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: P1433946

Luminaire Tested: EHBR1-54-UNV-N-L940

Issue Date: 3/13/2026

Test Information

Test Method: LM-79-2019
Report Number: P1433946
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2601-654-3)
Test Lab: INNOVATION CENTER
Issue Date: 3/13/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-54-UNV-N-L940
Description: Elevate Round Highbay at, 54000 lumens, 4000K 90CRI LEDs with N lens
Light Source: -
Ballast/Driver: -

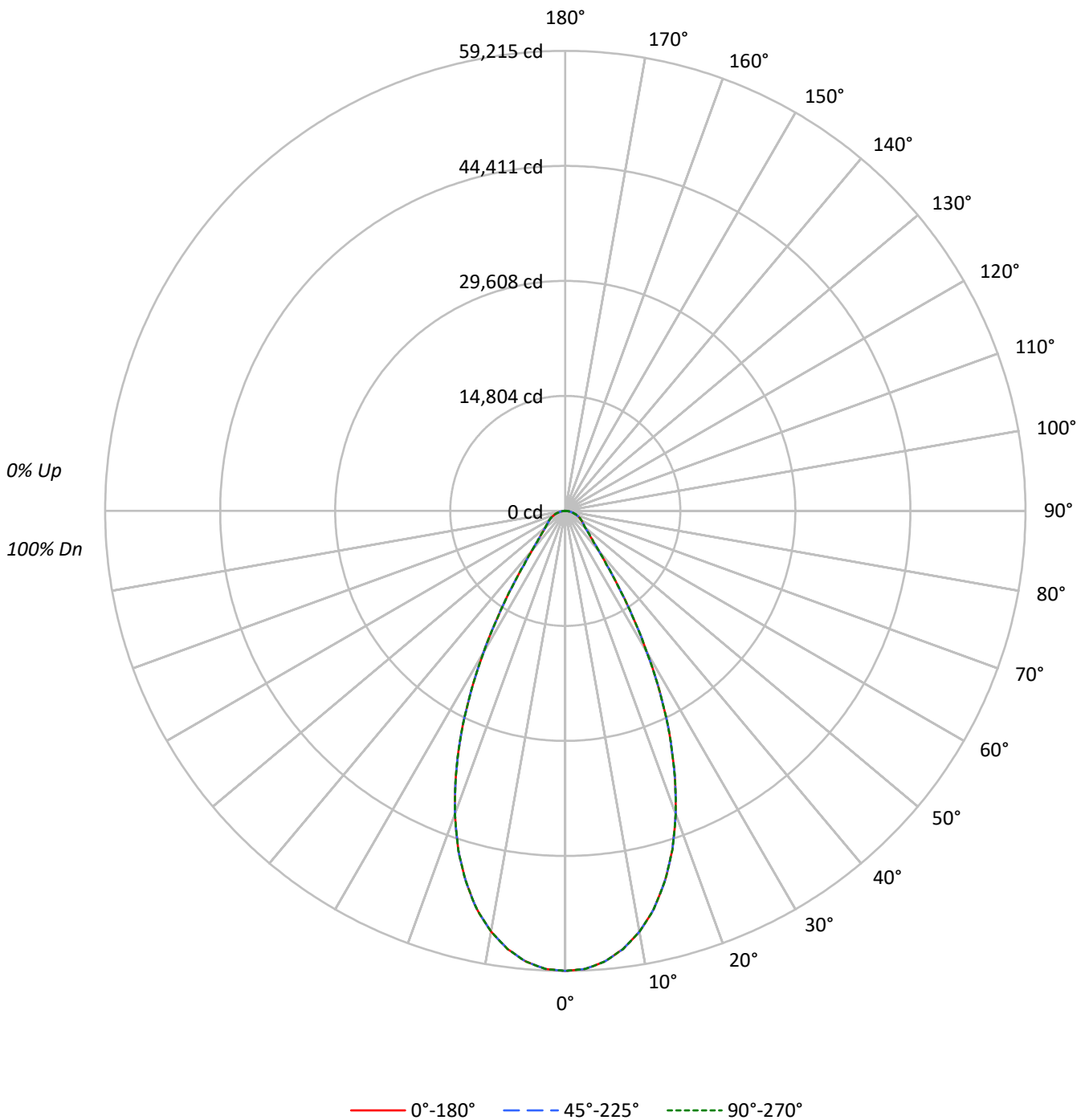
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 50743.0 lumens
Efficiency: N/A
Efficacy: 171.4 lumens/watt
Spacing Criteria (0/90/45): 0.82 / 0.82 / 0.8
Luminous Opening: Circular (Dia: 1.71' x H: 0')
CIE Type: Direct

Input Watts (W): 296
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: 24 FT

TEST NUMBER: P1433946
CATALOG NUMBER: EHBR1-54-UNV-N-L940

Luminous Intensity Polar Plot





TEST NUMBER: P1433946
 CATALOG NUMBER: EHBR1-54-UNV-N-L940

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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | 100 | 100 | 100 |
| 1 | 112 | 109 | 106 | 104 | 110 | 107 | 104 | 102 | 103 | 101 | 99 | 99 | 97 | 96 | 96 | 94 | 93 | 91 | 91 | 91 | 91 |
| 2 | 106 | 100 | 96 | 92 | 104 | 98 | 94 | 91 | 95 | 92 | 89 | 92 | 89 | 87 | 89 | 87 | 85 | 83 | 83 | 83 | 83 |
| 3 | 100 | 92 | 87 | 82 | 98 | 91 | 86 | 82 | 88 | 84 | 80 | 86 | 82 | 79 | 84 | 80 | 78 | 76 | 76 | 76 | 76 |
| 4 | 94 | 86 | 80 | 75 | 92 | 85 | 79 | 74 | 82 | 77 | 74 | 80 | 76 | 73 | 78 | 75 | 72 | 70 | 70 | 70 | 70 |
| 5 | 89 | 80 | 74 | 69 | 87 | 79 | 73 | 68 | 77 | 72 | 68 | 75 | 71 | 67 | 74 | 70 | 67 | 65 | 65 | 65 | 65 |
| 6 | 85 | 75 | 68 | 64 | 83 | 74 | 68 | 63 | 72 | 67 | 63 | 71 | 66 | 63 | 70 | 65 | 62 | 61 | 61 | 61 | 61 |
| 7 | 80 | 70 | 64 | 59 | 79 | 70 | 63 | 59 | 68 | 63 | 59 | 67 | 62 | 58 | 66 | 61 | 58 | 57 | 57 | 57 | 57 |
| 8 | 76 | 66 | 60 | 55 | 75 | 66 | 59 | 55 | 64 | 59 | 55 | 63 | 58 | 55 | 62 | 58 | 55 | 53 | 53 | 53 | 53 |
| 9 | 73 | 62 | 56 | 52 | 72 | 62 | 56 | 52 | 61 | 56 | 52 | 60 | 55 | 52 | 59 | 55 | 51 | 50 | 50 | 50 | 50 |
| 10 | 69 | 59 | 53 | 49 | 68 | 59 | 53 | 49 | 58 | 52 | 49 | 57 | 52 | 49 | 56 | 52 | 48 | 47 | 47 | 47 | 47 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 278080 | 278080 | 278080 |
| 5° | 274460 | 274460 | 274460 |
| 10° | 262209 | 262209 | 262209 |
| 15° | 240183 | 240183 | 240183 |
| 20° | 207470 | 207470 | 207470 |
| 25° | 164420 | 164420 | 164420 |
| 30° | 113737 | 113737 | 113737 |
| 35° | 68156 | 68156 | 68156 |
| 40° | 40724 | 40724 | 40724 |
| 45° | 29563 | 29563 | 29563 |
| 50° | 24624 | 24624 | 24624 |
| 55° | 22741 | 22741 | 22741 |
| 60° | 22215 | 22215 | 22215 |
| 65° | 21766 | 21766 | 21766 |
| 70° | 21025 | 21025 | 21025 |
| 75° | 20166 | 20166 | 20166 |
| 80° | 18633 | 18633 | 18633 |
| 85° | 15356 | 15356 | 15356 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 29563 cd/sqm



TEST NUMBER: P1433946
 CATALOG NUMBER: EHBR1-54-UNV-N-L940

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 5454.7 | 10.7 |
| 10°-20° | 13692.1 | 27.0 |
| 20°-30° | 14316.5 | 28.2 |
| 30°-40° | 7757.1 | 15.3 |
| 40°-50° | 3568.7 | 7.0 |
| 50°-60° | 2514.9 | 5.0 |
| 60°-70° | 1935.4 | 3.8 |
| 70°-80° | 1173.3 | 2.3 |
| 80°-90° | 330.4 | 0.7 |
| 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° | 33463.3 | 65.9 |
| 0°-40° | 41220.4 | 81.2 |
| 0°-60° | 47303.9 | 93.2 |
| 0°-90° | 50743.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 50743.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-------|-------|-------|-------|-------|-------|
| 0° | 59215 | 59215 | 59215 | 59215 | 59215 | |
| 5° | 58222 | 58222 | 58222 | 58222 | 58222 | 5455 |
| 15° | 49403 | 49403 | 49403 | 49403 | 49403 | 13692 |
| 25° | 31732 | 31732 | 31732 | 31732 | 31732 | 14317 |
| 35° | 11889 | 11889 | 11889 | 11889 | 11889 | 7757 |
| 45° | 4451 | 4451 | 4451 | 4451 | 4451 | 3569 |
| 55° | 2778 | 2778 | 2778 | 2778 | 2778 | 2515 |
| 65° | 1959 | 1959 | 1959 | 1959 | 1959 | 1935 |
| 75° | 1111 | 1111 | 1111 | 1111 | 1111 | 1173 |
| 85° | 285 | 285 | 285 | 285 | 285 | 330 |
| 90° | 2 | 2 | 2 | 2 | 2 | |



TEST NUMBER: P1433946
 CATALOG NUMBER: EHBR1-54-UNV-N-L940

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|---------|---------|---------|---------|---------|
| 0° | 59215.2 | 59215.2 | 59215.2 | 59215.2 | 59215.2 |
| 2.5° | 59005.3 | 59005.3 | 59005.3 | 59005.3 | 59005.3 |
| 5° | 58221.9 | 58221.9 | 58221.9 | 58221.9 | 58221.9 |
| 7.5° | 56884.5 | 56884.5 | 56884.5 | 56884.5 | 56884.5 |
| 10° | 54987.2 | 54987.2 | 54987.2 | 54987.2 | 54987.2 |
| 12.5° | 52535.1 | 52535.1 | 52535.1 | 52535.1 | 52535.1 |
| 15° | 49402.6 | 49402.6 | 49402.6 | 49402.6 | 49402.6 |
| 17.5° | 45768.2 | 45768.2 | 45768.2 | 45768.2 | 45768.2 |
| 20° | 41514.9 | 41514.9 | 41514.9 | 41514.9 | 41514.9 |
| 22.5° | 36779.3 | 36779.3 | 36779.3 | 36779.3 | 36779.3 |
| 25° | 31731.8 | 31731.8 | 31731.8 | 31731.8 | 31731.8 |
| 27.5° | 26380.6 | 26380.6 | 26380.6 | 26380.6 | 26380.6 |
| 30° | 20974.6 | 20974.6 | 20974.6 | 20974.6 | 20974.6 |
| 32.5° | 16097.4 | 16097.4 | 16097.4 | 16097.4 | 16097.4 |
| 35° | 11888.7 | 11888.7 | 11888.7 | 11888.7 | 11888.7 |
| 37.5° | 8729.2 | 8729.2 | 8729.2 | 8729.2 | 8729.2 |
| 40° | 6643.0 | 6643.0 | 6643.0 | 6643.0 | 6643.0 |
| 42.5° | 5326.7 | 5326.7 | 5326.7 | 5326.7 | 5326.7 |
| 45° | 4451.4 | 4451.4 | 4451.4 | 4451.4 | 4451.4 |
| 47.5° | 3820.7 | 3820.7 | 3820.7 | 3820.7 | 3820.7 |
| 50° | 3370.4 | 3370.4 | 3370.4 | 3370.4 | 3370.4 |
| 52.5° | 3041.5 | 3041.5 | 3041.5 | 3041.5 | 3041.5 |
| 55° | 2777.6 | 2777.6 | 2777.6 | 2777.6 | 2777.6 |
| 57.5° | 2563.4 | 2563.4 | 2563.4 | 2563.4 | 2563.4 |
| 60° | 2365.3 | 2365.3 | 2365.3 | 2365.3 | 2365.3 |
| 62.5° | 2167.1 | 2167.1 | 2167.1 | 2167.1 | 2167.1 |
| 65° | 1958.8 | 1958.8 | 1958.8 | 1958.8 | 1958.8 |
| 67.5° | 1746.4 | 1746.4 | 1746.4 | 1746.4 | 1746.4 |
| 70° | 1531.3 | 1531.3 | 1531.3 | 1531.3 | 1531.3 |
| 72.5° | 1322.2 | 1322.2 | 1322.2 | 1322.2 | 1322.2 |
| 75° | 1111.4 | 1111.4 | 1111.4 | 1111.4 | 1111.4 |
| 77.5° | 904.8 | 904.8 | 904.8 | 904.8 | 904.8 |
| 80° | 689.0 | 689.0 | 689.0 | 689.0 | 689.0 |
| 82.5° | 482.3 | 482.3 | 482.3 | 482.3 | 482.3 |
| 85° | 285.0 | 285.0 | 285.0 | 285.0 | 285.0 |
| 87.5° | 102.0 | 102.0 | 102.0 | 102.0 | 102.0 |
| 90° | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |



TEST NUMBER: P1433946
 CATALOG NUMBER: EHBR1-54-UNV-N-L940

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 | 19.47 | 20.63 | 19.83 | 20.94 | 21.25 | 19.47 | 20.63 | 19.83 | 20.94 | 21.25 |
| | 3H | 21.34 | 22.38 | 21.73 | 22.71 | 23.07 | 21.34 | 22.38 | 21.73 | 22.71 | 23.07 |
| | 4H | 22.07 | 23.03 | 22.48 | 23.38 | 23.77 | 22.07 | 23.03 | 22.48 | 23.38 | 23.77 |
| | 6H | 22.62 | 23.50 | 23.03 | 23.87 | 24.27 | 22.62 | 23.50 | 23.03 | 23.87 | 24.27 |
| | 8H | 22.78 | 23.62 | 23.22 | 24.01 | 24.42 | 22.78 | 23.62 | 23.22 | 24.01 | 24.42 |
| | 12H | 22.88 | 23.68 | 23.31 | 24.06 | 24.49 | 22.88 | 23.68 | 23.31 | 24.06 | 24.49 |
| 4H | 2H | 20.06 | 21.02 | 20.46 | 21.37 | 21.76 | 20.06 | 21.02 | 20.46 | 21.37 | 21.76 |
| | 3H | 22.14 | 22.94 | 22.56 | 23.34 | 23.75 | 22.14 | 22.94 | 22.56 | 23.34 | 23.75 |
| | 4H | 23.00 | 23.71 | 23.43 | 24.13 | 24.57 | 23.00 | 23.71 | 23.43 | 24.13 | 24.57 |
| | 6H | 23.67 | 24.28 | 24.14 | 24.73 | 25.20 | 23.67 | 24.28 | 24.14 | 24.73 | 25.20 |
| | 8H | 23.88 | 24.45 | 24.35 | 24.90 | 25.37 | 23.88 | 24.45 | 24.35 | 24.90 | 25.37 |
| | 12H | 24.02 | 24.52 | 24.50 | 25.00 | 25.48 | 24.02 | 24.52 | 24.50 | 25.00 | 25.48 |
| 8H | 4H | 23.28 | 23.85 | 23.75 | 24.30 | 24.77 | 23.28 | 23.85 | 23.75 | 24.30 | 24.77 |
| | 6H | 24.09 | 24.55 | 24.59 | 25.05 | 25.53 | 24.09 | 24.55 | 24.59 | 25.05 | 25.53 |
| | 8H | 24.38 | 24.79 | 24.91 | 25.31 | 25.80 | 24.38 | 24.79 | 24.91 | 25.31 | 25.80 |
| | 12H | 24.59 | 24.95 | 25.11 | 25.45 | 26.02 | 24.59 | 24.95 | 25.11 | 25.45 | 26.02 |
| 12H | 4H | 23.29 | 23.79 | 23.78 | 24.28 | 24.76 | 23.29 | 23.79 | 23.78 | 24.28 | 24.76 |
| | 6H | 24.13 | 24.55 | 24.66 | 25.06 | 25.56 | 24.13 | 24.55 | 24.66 | 25.06 | 25.56 |
| | 8H | 24.48 | 24.84 | 25.00 | 25.34 | 25.91 | 24.48 | 24.84 | 25.00 | 25.34 | 25.91 |

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-7

Test Date: 08/04/2025

Luminaire Tested: EHBR-60-L940-N

Data in this report applies to families of products including EHBR-60-L940-N

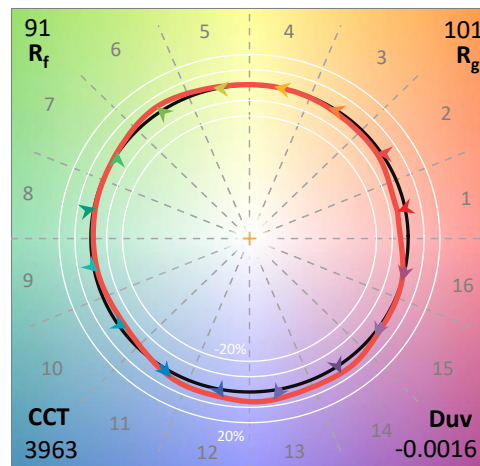
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-7
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/05/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Metalux
 Catalog Number: **EHBR-60-L940-N**
 Description: Elevate Round Highbay at, 60000 lumens, 4000K 90CRI LEDs with N lens

Spectral Parameters

CCT (K): 3963
 CIE u': 0.2267
 CIE v': 0.5003
 Duv: -0.0016
 CIE x: 0.3810
 CIE y: 0.3738
 CIE z: 0.2453
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 580
 Purity: 26.49712
 Rf: 90.7
 Rg: 101

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 93.4 | | |
| R1: | 95.2 | R9: | 66.4 |
| R2: | 95.1 | R10: | 86.6 |
| R3: | 93.3 | R11: | 94.4 |
| R4: | 94.5 | R12: | 75.4 |
| R5: | 94.2 | R13: | 95.0 |
| R6: | 92.9 | R14: | 95.4 |
| R7: | 94.0 | R15: | 92.8 |
| R8: | 87.7 | | |



Test Conditions

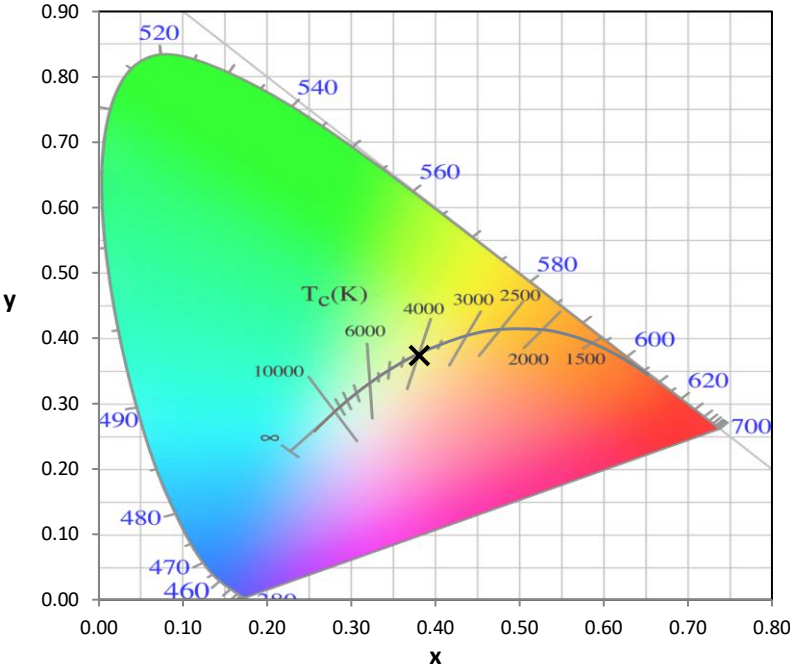
Stabilization Time: 44M
 Operation Time: 1H 44M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-7

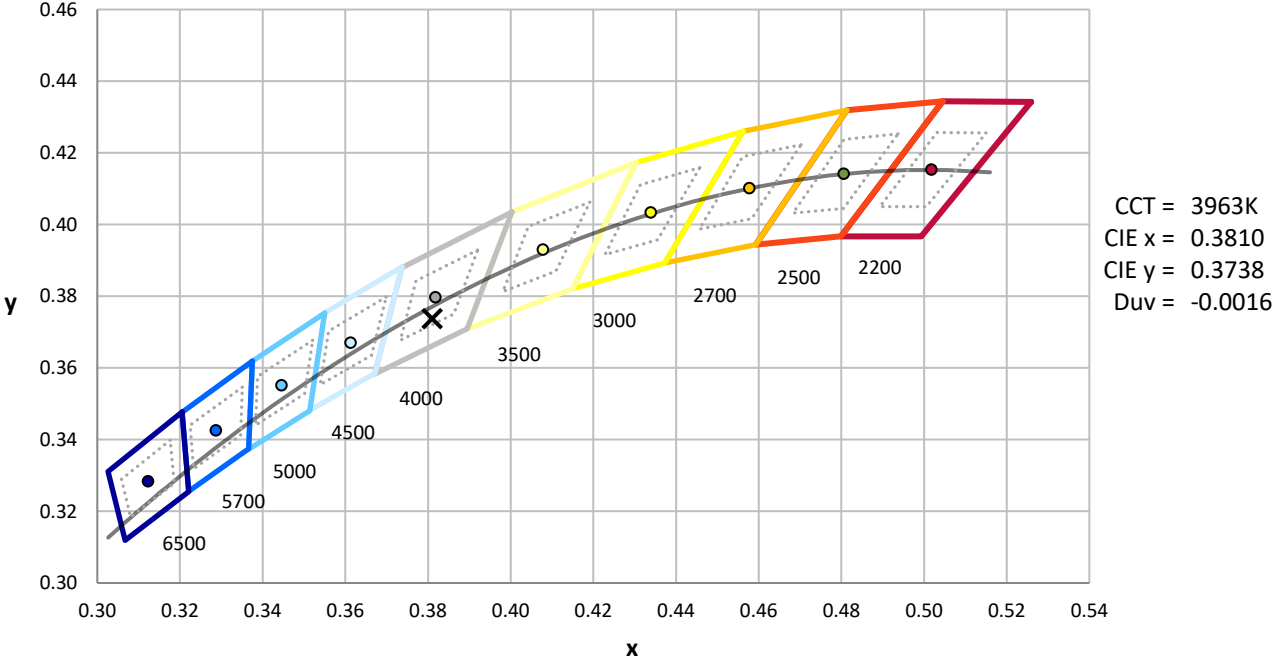
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 6/16/2025 | 12/16/2025 |
| Power Meter | 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 |

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CIE 1931 Chromaticity Diagram



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

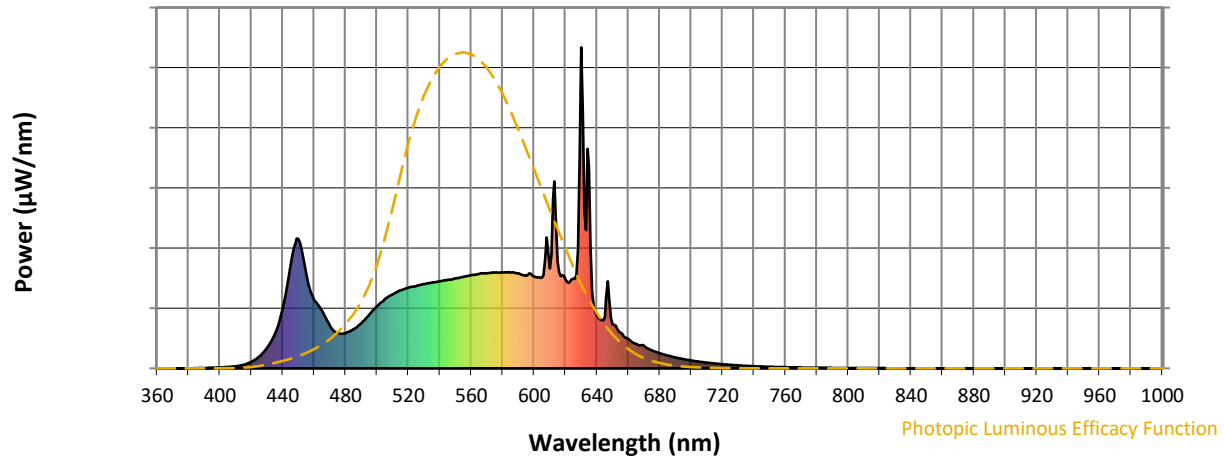


CCT = 3963K
 CIE x = 0.3810
 CIE y = 0.3738
 Duv = -0.0016

Point lies inside the ANSI 4000K 4-step quadrangle

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Photopic Flux vs. Wavelength

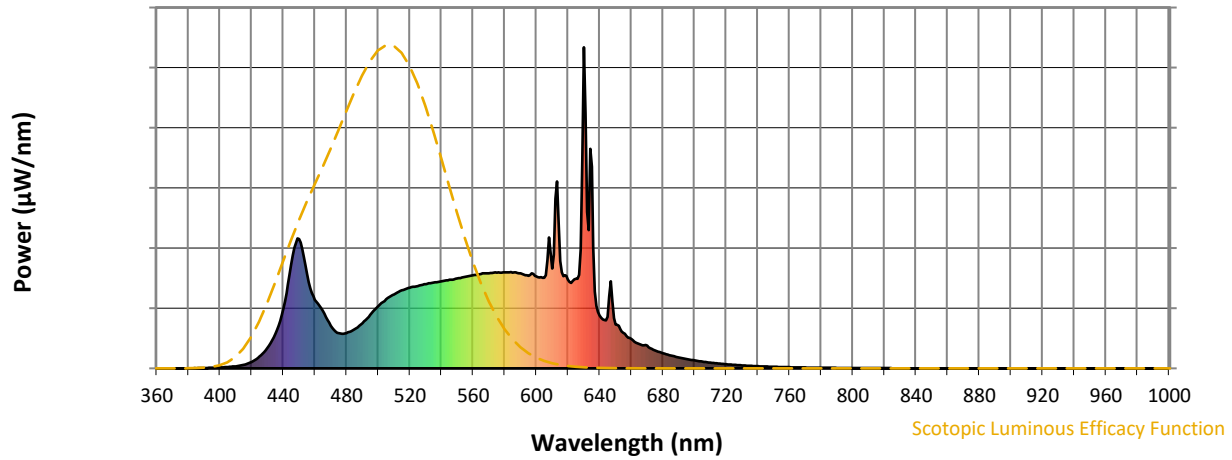


Photopic Lumens: NR

| 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 | 141 | NR | 620 | 276 | NR | 750 | 5 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 167 | NR | 625 | 279 | NR | 755 | 4 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 193 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 215 | NR | 635 | 628 | NR | 765 | 3 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 164 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 243 | NR | 645 | 161 | NR | 775 | 2 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 251 | NR | 650 | 137 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 256 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 262 | NR | 660 | 92 | NR | 790 | 1 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 267 | NR | 665 | 76 | NR | 795 | 1 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 271 | NR | 670 | 71 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 276 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 280 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 37 | NR | 555 | 285 | NR | 685 | 40 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 290 | NR | 690 | 34 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 294 | NR | 695 | 29 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 186 | NR | 570 | 296 | NR | 700 | 25 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 298 | NR | 705 | 21 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 403 | NR | 580 | 299 | NR | 710 | 18 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 293 | NR | 585 | 298 | NR | 715 | 15 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 296 | NR | 720 | 13 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 180 | NR | 595 | 288 | NR | 725 | 11 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 286 | NR | 730 | 9 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 109 | NR | 605 | 282 | NR | 735 | 8 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 110 | NR | 610 | 311 | NR | 740 | 7 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 121 | NR | 615 | 334 | NR | 745 | 6 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-7

Scotopic Flux vs. Wavelength



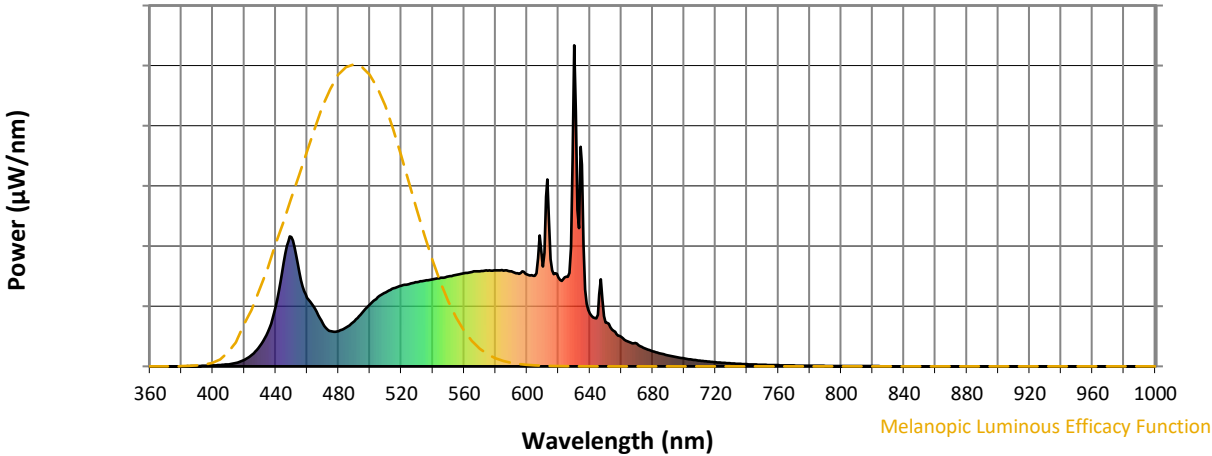
Scotopic Lumens: NR

S/P: 1.76

| 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 | 141 | NR | 620 | 276 | NR | 750 | 5 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 167 | NR | 625 | 279 | NR | 755 | 4 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 193 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 215 | NR | 635 | 628 | NR | 765 | 3 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 164 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 243 | NR | 645 | 161 | NR | 775 | 2 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 251 | NR | 650 | 137 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 256 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 262 | NR | 660 | 92 | NR | 790 | 1 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 267 | NR | 665 | 76 | NR | 795 | 1 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 271 | NR | 670 | 71 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 276 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 280 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 37 | NR | 555 | 285 | NR | 685 | 40 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 290 | NR | 690 | 34 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 294 | NR | 695 | 29 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 186 | NR | 570 | 296 | NR | 700 | 25 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 298 | NR | 705 | 21 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 403 | NR | 580 | 299 | NR | 710 | 18 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 293 | NR | 585 | 298 | NR | 715 | 15 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 296 | NR | 720 | 13 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 180 | NR | 595 | 288 | NR | 725 | 11 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 286 | NR | 730 | 9 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 109 | NR | 605 | 282 | NR | 735 | 8 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 110 | NR | 610 | 311 | NR | 740 | 7 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 121 | NR | 615 | 334 | NR | 745 | 6 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-7

Melanopic Flux vs. Wavelength

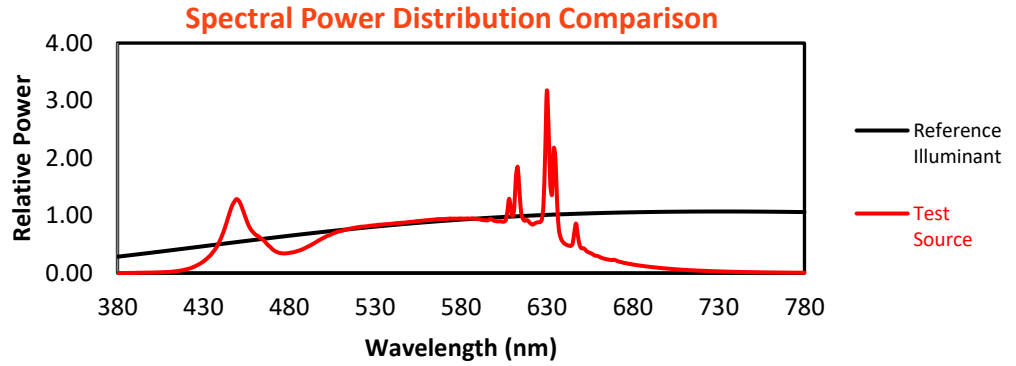


Melanopic Lumens: NR M/P: 3.64

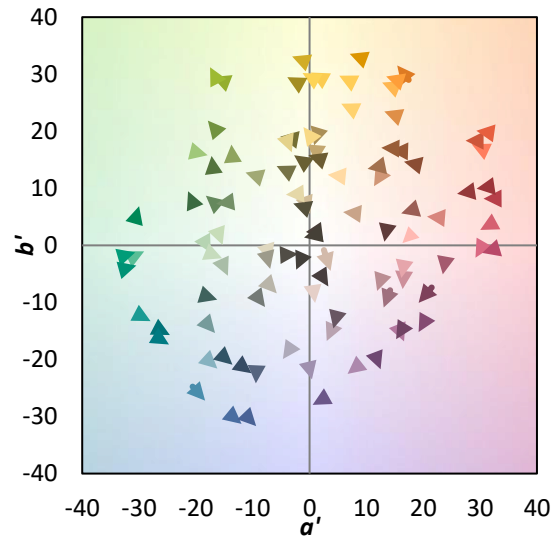
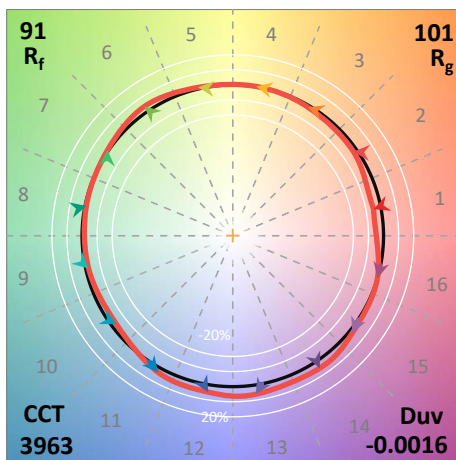
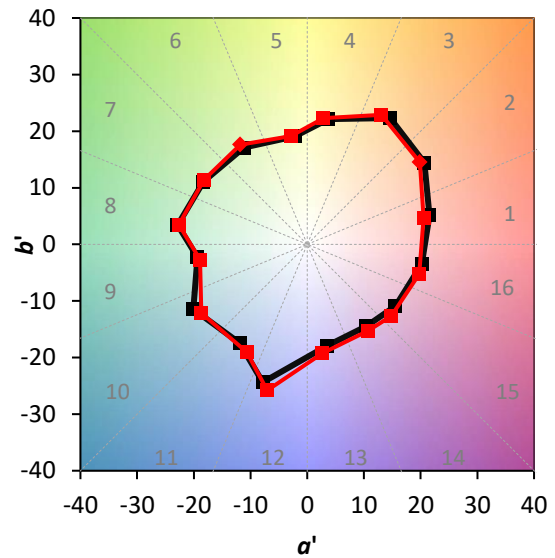
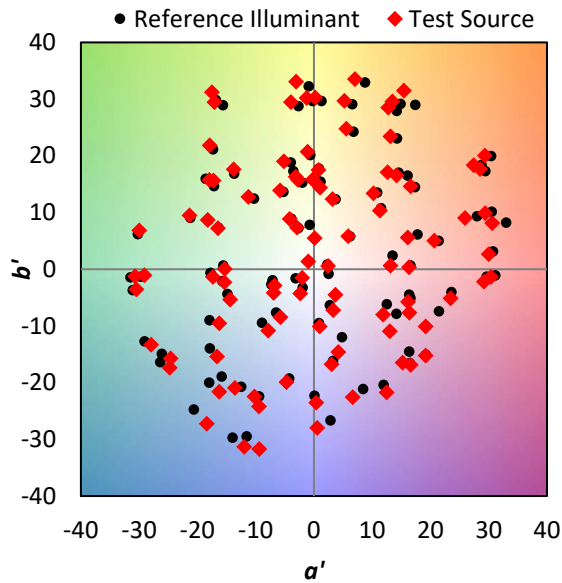
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 141 | NR | 620 | 276 | NR | 750 | 5 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 167 | NR | 625 | 279 | NR | 755 | 4 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 193 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 215 | NR | 635 | 628 | NR | 765 | 3 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 164 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 243 | NR | 645 | 161 | NR | 775 | 2 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 251 | NR | 650 | 137 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 256 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 262 | NR | 660 | 92 | NR | 790 | 1 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 267 | NR | 665 | 76 | NR | 795 | 1 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 271 | NR | 670 | 71 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 276 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 280 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 37 | NR | 555 | 285 | NR | 685 | 40 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 290 | NR | 690 | 34 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 294 | NR | 695 | 29 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 186 | NR | 570 | 296 | NR | 700 | 25 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 298 | NR | 705 | 21 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 403 | NR | 580 | 299 | NR | 710 | 18 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 293 | NR | 585 | 298 | NR | 715 | 15 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 296 | NR | 720 | 13 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 180 | NR | 595 | 288 | NR | 725 | 11 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 286 | NR | 730 | 9 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 109 | NR | 605 | 282 | NR | 735 | 8 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 110 | NR | 610 | 311 | NR | 740 | 7 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 121 | NR | 615 | 334 | NR | 745 | 6 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 90.7$
 $R_g = 101$
 $CIE R_a = 93.4$
 $R_9 = 66.4$

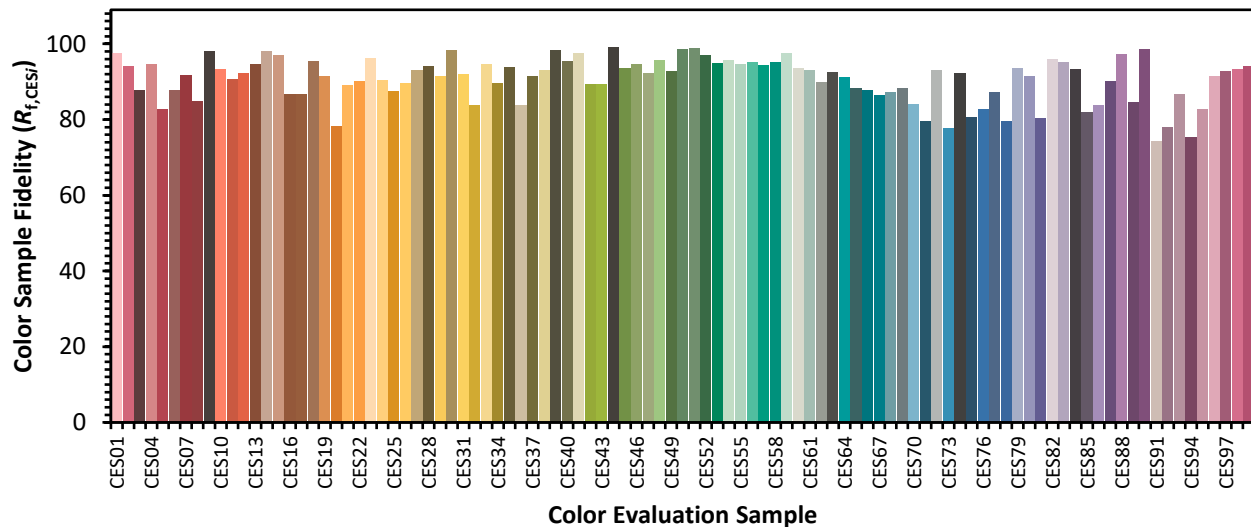


Color Vector Graphics

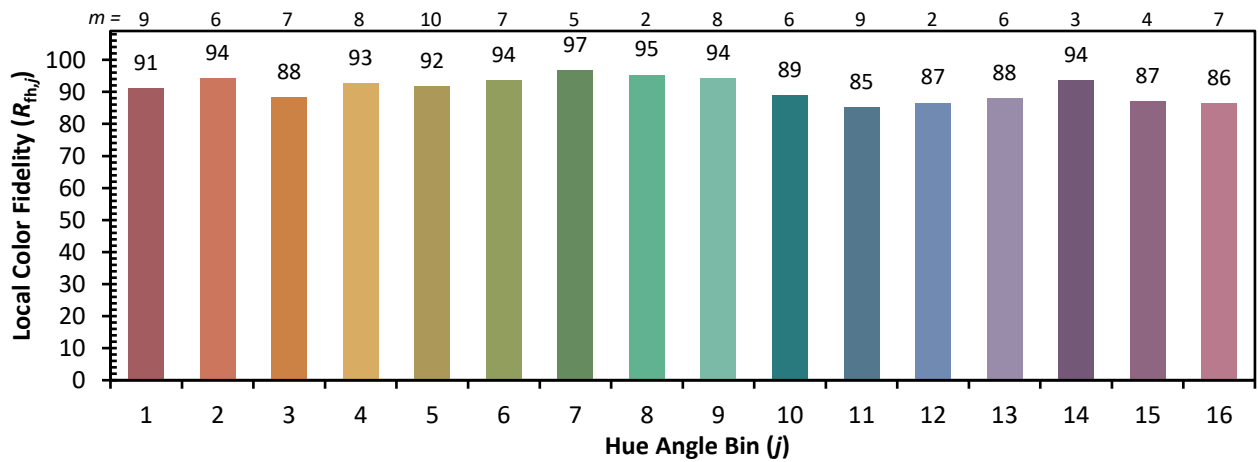
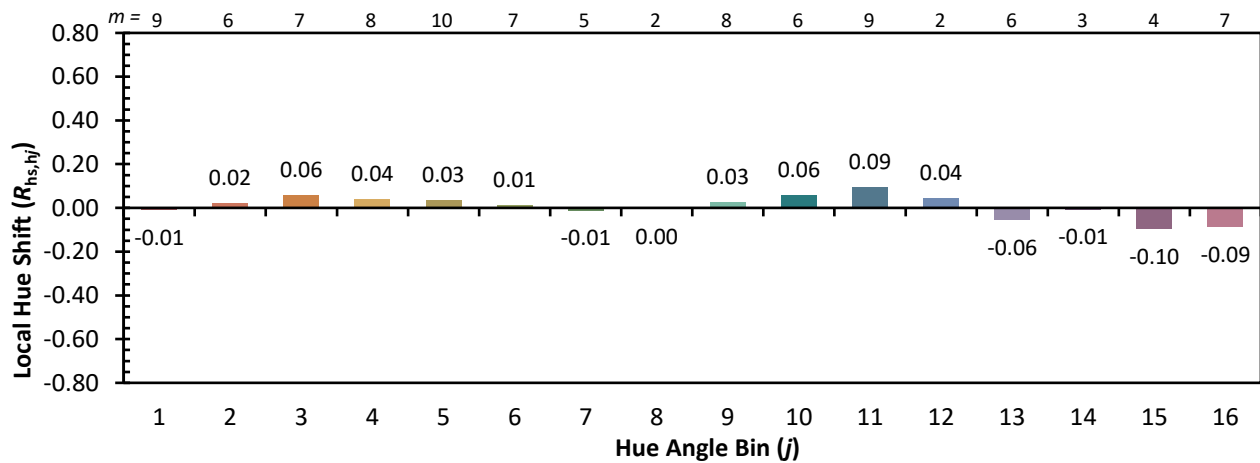
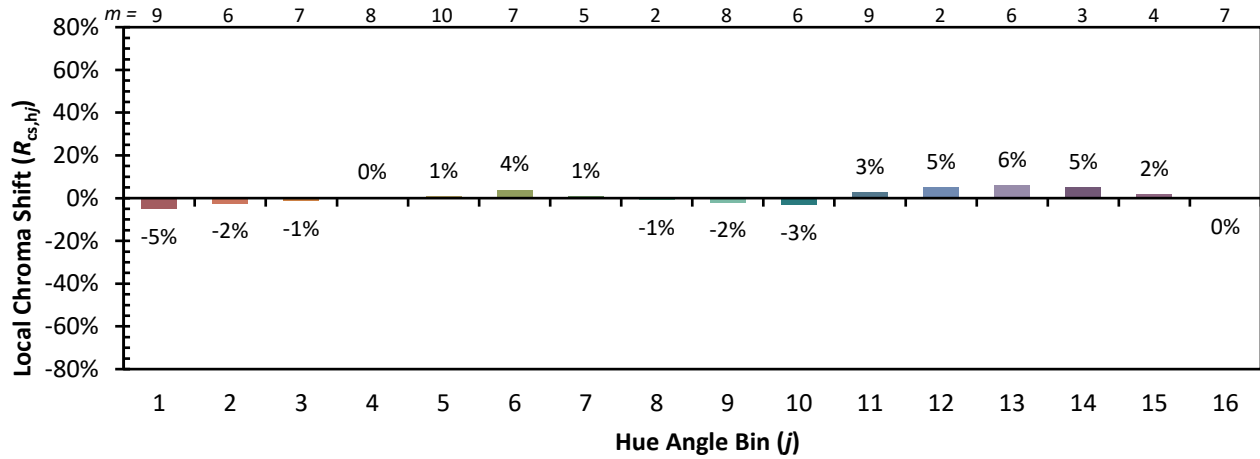


Individual Sample Fidelity Index ($R_{f,i}$)

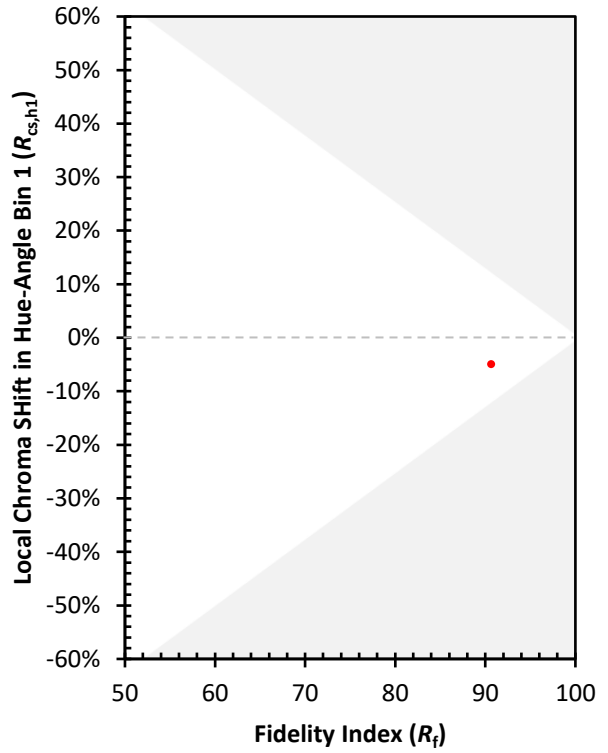
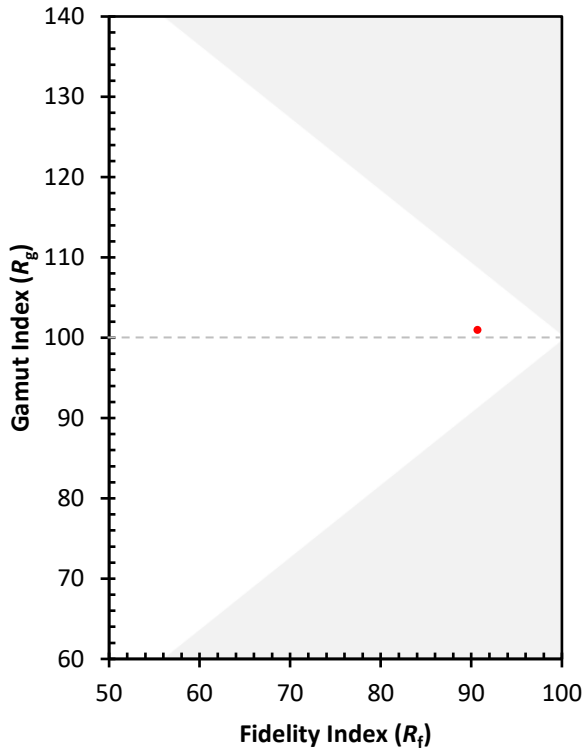
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 90 | CES51 = 99 | CES76 = 83 |
| CES02 = 62 | CES27 = 93 | CES52 = 97 | CES77 = 87 |
| CES03 = 31 | CES28 = 94 | CES53 = 95 | CES78 = 79 |
| CES04 = 69 | CES29 = 91 | CES54 = 96 | CES79 = 94 |
| CES05 = 49 | CES30 = 98 | CES55 = 95 | CES80 = 91 |
| CES06 = 50 | CES31 = 92 | CES56 = 95 | CES81 = 80 |
| CES07 = 42 | CES32 = 84 | CES57 = 94 | CES82 = 96 |
| CES08 = 41 | CES33 = 95 | CES58 = 95 | CES83 = 95 |
| CES09 = 29 | CES34 = 90 | CES59 = 98 | CES84 = 93 |
| CES10 = 74 | CES35 = 94 | CES60 = 93 | CES85 = 82 |
| CES11 = 57 | CES36 = 84 | CES61 = 93 | CES86 = 84 |
| CES12 = 63 | CES37 = 92 | CES62 = 90 | CES87 = 90 |
| CES13 = 43 | CES38 = 93 | CES63 = 92 | CES88 = 97 |
| CES14 = 74 | CES39 = 98 | CES64 = 91 | CES89 = 84 |
| CES15 = 71 | CES40 = 96 | CES65 = 88 | CES90 = 99 |
| CES16 = 47 | CES41 = 98 | CES66 = 88 | CES91 = 74 |
| CES17 = 49 | CES42 = 89 | CES67 = 87 | CES92 = 78 |
| CES18 = 56 | CES43 = 89 | CES68 = 87 | CES93 = 87 |
| CES19 = 71 | CES44 = 99 | CES69 = 88 | CES94 = 75 |
| CES20 = 66 | CES45 = 93 | CES70 = 84 | CES95 = 83 |
| CES21 = 85 | CES46 = 95 | CES71 = 80 | CES96 = 91 |
| CES22 = 78 | CES47 = 92 | CES72 = 93 | CES97 = 93 |
| CES23 = 91 | CES48 = 96 | CES73 = 78 | CES98 = 93 |
| CES24 = 90 | CES49 = 93 | CES74 = 92 | CES99 = 94 |
| CES25 = 71 | CES50 = 99 | CES75 = 81 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)