

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: CORELITE

Report Number: P1215297

Luminaire Tested: 22-ID2-50-DBR-L830-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215297  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-16)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-50-DBR-L830-U  
Description: 2X2 IN DEPTH TROFFER WITH 2INCH DOUBLE BARREL REGRESSED  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

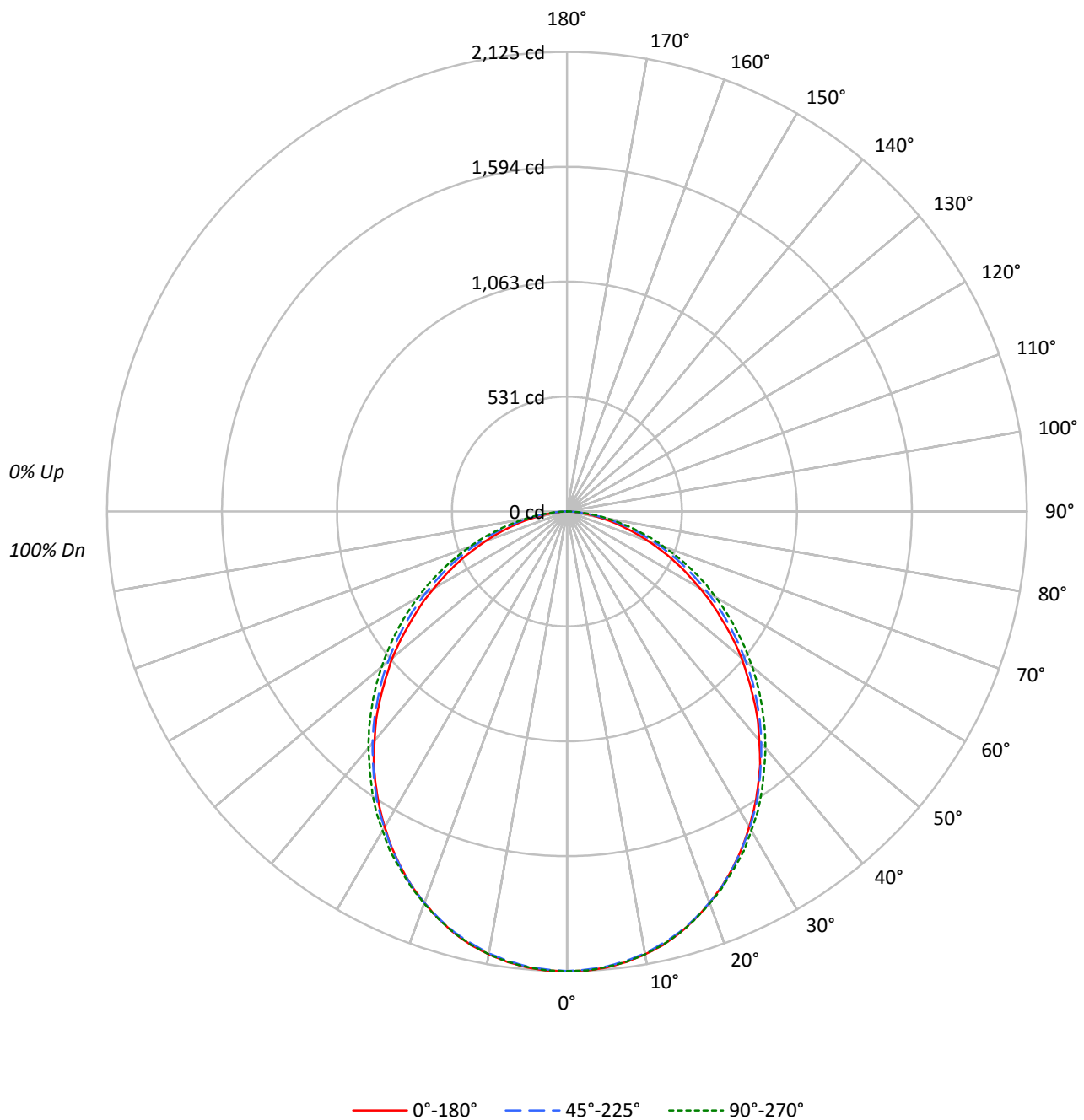
Lumens per Lamp: N/A  
Luminaire Lumens: 5341.7 lumens  
Efficiency: N/A  
Efficacy: 119.2 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 1.2 / 1.29  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct

Input Watts (W): 44.8  
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



TEST NUMBER: P1215297  
CATALOG NUMBER: 22-ID2-50-DBR-L830-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1215297

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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |  | 20  |     |     |  | 20  |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |  | 30  |     |     |  | 0   |
| RW  | 70  | 50  | 30  | 10  | 70  | 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 |  | 100 |
| 1   | 109 | 105 | 101 | 97  | 107 | 102 | 99  | 95  | 98  | 95  | 92  |  | 94  | 92  | 89  |  | 85  |
| 2   | 100 | 92  | 85  | 80  | 97  | 90  | 84  | 79  | 86  | 81  | 77  |  | 83  | 79  | 75  |  | 71  |
| 3   | 91  | 81  | 73  | 67  | 89  | 79  | 72  | 66  | 76  | 70  | 65  |  | 74  | 68  | 64  |  | 61  |
| 4   | 84  | 72  | 63  | 57  | 81  | 71  | 63  | 56  | 68  | 61  | 56  |  | 66  | 60  | 55  |  | 52  |
| 5   | 77  | 65  | 56  | 49  | 75  | 63  | 55  | 49  | 61  | 54  | 48  |  | 59  | 53  | 48  |  | 45  |
| 6   | 71  | 58  | 50  | 43  | 69  | 57  | 49  | 43  | 56  | 48  | 43  |  | 54  | 47  | 42  |  | 40  |
| 7   | 66  | 53  | 44  | 38  | 65  | 52  | 44  | 38  | 51  | 43  | 38  |  | 49  | 43  | 38  |  | 35  |
| 8   | 62  | 48  | 40  | 34  | 60  | 48  | 40  | 34  | 46  | 39  | 34  |  | 45  | 39  | 34  |  | 32  |
| 9   | 58  | 45  | 36  | 31  | 56  | 44  | 36  | 31  | 43  | 36  | 31  |  | 42  | 35  | 31  |  | 29  |
| 10  | 54  | 41  | 33  | 28  | 53  | 41  | 33  | 28  | 40  | 33  | 28  |  | 39  | 32  | 28  |  | 26  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 5717 | 5717 | 5717 |
| 5°  | 5716 | 5703 | 5710 |
| 10° | 5681 | 5668 | 5681 |
| 15° | 5620 | 5607 | 5618 |
| 20° | 5515 | 5513 | 5525 |
| 25° | 5390 | 5392 | 5413 |
| 30° | 5233 | 5245 | 5293 |
| 35° | 5060 | 5084 | 5161 |
| 40° | 4855 | 4906 | 5011 |
| 45° | 4638 | 4716 | 4849 |
| 50° | 4405 | 4514 | 4677 |
| 55° | 4111 | 4291 | 4487 |
| 60° | 3817 | 4049 | 4274 |
| 65° | 3513 | 3799 | 4048 |
| 70° | 3153 | 3522 | 3757 |
| 75° | 2727 | 3161 | 3422 |
| 80° | 2227 | 2740 | 2997 |
| 85° | 1491 | 2106 | 2353 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4849 cd/sqm

TEST NUMBER: P1215297  
 CATALOG NUMBER: 22-ID2-50-DBR-L830-U

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 200.5  | 3.8       |
| 10°-20°   | 567.4  | 10.6      |
| 20°-30°   | 837.0  | 15.7      |
| 30°-40°   | 970.5  | 18.2      |
| 40°-50°   | 959.0  | 18.0      |
| 50°-60°   | 819.1  | 15.3      |
| 60°-70°   | 589.1  | 11.0      |
| 70°-80°   | 320.0  | 6.0       |
| 80°-90°   | 79.1   | 1.5       |
| 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°    | 1605.0 | 30.0      |
| 0°-40°    | 2575.4 | 48.2      |
| 0°-60°    | 4353.5 | 81.5      |
| 0°-90°    | 5341.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5341.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2125 | 2125  | 2125 | 2125  | 2125 |      |
| 5°  | 2116 | 2113  | 2111 | 2112  | 2114 | 201  |
| 15° | 2017 | 2015  | 2013 | 2013  | 2017 | 568  |
| 25° | 1815 | 1814  | 1816 | 1824  | 1823 | 835  |
| 35° | 1540 | 1542  | 1548 | 1563  | 1571 | 963  |
| 45° | 1219 | 1223  | 1239 | 1264  | 1274 | 940  |
| 55° | 876  | 888   | 915  | 942   | 956  | 786  |
| 65° | 552  | 564   | 597  | 622   | 636  | 546  |
| 75° | 262  | 282   | 304  | 320   | 329  | 280  |
| 85° | 48   | 57    | 68   | 74    | 76   | 62   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P1215297

CATALOG NUMBER: 22-ID2-50-DBR-L830-U

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2124.6 | 2124.6 | 2124.6 | 2124.6 | 2124.6 |
| 2.5°  | 2124.6 | 2121.9 | 2119.9 | 2121.2 | 2123.9 |
| 5°    | 2115.9 | 2113.3 | 2111.3 | 2112.0 | 2114.0 |
| 7.5°  | 2100.7 | 2098.1 | 2095.4 | 2097.4 | 2100.1 |
| 10°   | 2078.9 | 2077.5 | 2074.2 | 2076.2 | 2078.9 |
| 12.5° | 2053.0 | 2048.4 | 2045.7 | 2048.4 | 2051.0 |
| 15°   | 2017.3 | 2014.6 | 2012.6 | 2012.6 | 2016.6 |
| 17.5° | 1974.2 | 1972.9 | 1971.6 | 1973.6 | 1975.5 |
| 20°   | 1925.9 | 1925.2 | 1925.2 | 1926.5 | 1929.2 |
| 22.5° | 1874.2 | 1872.2 | 1874.9 | 1877.5 | 1879.5 |
| 25°   | 1815.3 | 1814.0 | 1815.9 | 1823.9 | 1823.2 |
| 27.5° | 1752.4 | 1753.0 | 1753.7 | 1763.6 | 1769.6 |
| 30°   | 1684.1 | 1686.1 | 1688.1 | 1702.0 | 1703.4 |
| 32.5° | 1614.6 | 1615.9 | 1621.9 | 1635.8 | 1641.8 |
| 35°   | 1540.4 | 1541.8 | 1547.7 | 1563.0 | 1570.9 |
| 37.5° | 1466.3 | 1465.6 | 1471.6 | 1492.8 | 1496.7 |
| 40°   | 1382.2 | 1384.1 | 1396.7 | 1419.9 | 1426.5 |
| 42.5° | 1304.7 | 1305.3 | 1319.9 | 1342.4 | 1351.7 |
| 45°   | 1218.6 | 1223.2 | 1239.1 | 1264.3 | 1274.2 |
| 47.5° | 1132.5 | 1137.8 | 1161.0 | 1185.5 | 1197.4 |
| 50°   | 1052.3 | 1055.7 | 1078.2 | 1104.7 | 1117.2 |
| 52.5° | 964.9  | 973.5  | 996.7  | 1024.5 | 1037.1 |
| 55°   | 876.2  | 888.1  | 914.6  | 941.7  | 956.3  |
| 57.5° | 794.7  | 806.0  | 833.8  | 861.6  | 874.9  |
| 60°   | 709.3  | 723.2  | 752.3  | 780.8  | 794.1  |
| 62.5° | 627.8  | 643.1  | 674.2  | 703.3  | 717.9  |
| 65°   | 551.7  | 564.3  | 596.7  | 621.9  | 635.8  |
| 67.5° | 472.2  | 489.4  | 519.9  | 546.4  | 554.3  |
| 70°   | 400.7  | 415.2  | 447.7  | 467.6  | 477.5  |
| 72.5° | 327.2  | 348.4  | 375.5  | 394.0  | 406.0  |
| 75°   | 262.3  | 282.1  | 304.0  | 319.9  | 329.1  |
| 77.5° | 200.0  | 215.9  | 240.4  | 253.0  | 258.3  |
| 80°   | 143.7  | 156.3  | 176.8  | 189.4  | 193.4  |
| 82.5° | 93.4   | 104.6  | 119.2  | 127.2  | 131.1  |
| 85°   | 48.3   | 57.0   | 68.2   | 74.2   | 76.2   |
| 87.5° | 15.9   | 19.9   | 24.5   | 26.5   | 27.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

TEST NUMBER: P1215297

CATALOG NUMBER: 22-ID2-50-DBR-L830-U

**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 | 16.73            | 18.33 | 17.09 | 18.64 | 18.95 | 17.24          | 18.83 | 17.60 | 19.15 | 19.46 |
|                 | 3H   | 18.26            | 19.69 | 18.63 | 20.02 | 20.38 | 18.95          | 20.38 | 19.32 | 20.71 | 21.07 |
|                 | 4H   | 18.78            | 20.13 | 19.18 | 20.48 | 20.86 | 19.57          | 20.92 | 19.97 | 21.27 | 21.65 |
|                 | 6H   | 19.12            | 20.37 | 19.53 | 20.73 | 21.13 | 20.02          | 21.27 | 20.43 | 21.64 | 22.03 |
|                 | 8H   | 19.20            | 20.40 | 19.63 | 20.79 | 21.19 | 20.15          | 21.35 | 20.58 | 21.74 | 22.14 |
|                 | 12H  | 19.24            | 20.39 | 19.67 | 20.77 | 21.20 | 20.23          | 21.38 | 20.66 | 21.76 | 22.19 |
| 4H              | 2H   | 17.37            | 18.72 | 17.77 | 19.07 | 19.44 | 17.77          | 19.12 | 18.17 | 19.47 | 19.85 |
|                 | 3H   | 19.11            | 20.24 | 19.52 | 20.64 | 21.04 | 19.70          | 20.83 | 20.11 | 21.23 | 21.63 |
|                 | 4H   | 19.76            | 20.78 | 20.19 | 21.19 | 21.63 | 20.45          | 21.47 | 20.88 | 21.89 | 22.32 |
|                 | 6H   | 20.20            | 21.09 | 20.66 | 21.53 | 21.99 | 21.03          | 21.92 | 21.48 | 22.36 | 22.81 |
|                 | 8H   | 20.32            | 21.15 | 20.78 | 21.60 | 22.06 | 21.20          | 22.04 | 21.66 | 22.48 | 22.94 |
|                 | 12H  | 20.39            | 21.13 | 20.87 | 21.61 | 22.08 | 21.32          | 22.07 | 21.80 | 22.55 | 23.02 |
| 8H              | 4H   | 20.07            | 20.91 | 20.53 | 21.35 | 21.81 | 20.69          | 21.53 | 21.16 | 21.97 | 22.43 |
|                 | 6H   | 20.62            | 21.31 | 21.12 | 21.80 | 22.28 | 21.38          | 22.07 | 21.87 | 22.56 | 23.03 |
|                 | 8H   | 20.80            | 21.42 | 21.31 | 21.93 | 22.41 | 21.62          | 22.24 | 22.13 | 22.75 | 23.23 |
|                 | 12H  | 20.92            | 21.46 | 21.42 | 21.95 | 22.52 | 21.80          | 22.35 | 22.31 | 22.84 | 23.40 |
| 12H             | 4H   | 20.11            | 20.85 | 20.59 | 21.33 | 21.80 | 20.71          | 21.45 | 21.19 | 21.93 | 22.40 |
|                 | 6H   | 20.68            | 21.30 | 21.19 | 21.81 | 22.29 | 21.41          | 22.03 | 21.92 | 22.53 | 23.02 |
|                 | 8H   | 20.91            | 21.45 | 21.42 | 21.95 | 22.51 | 21.70          | 22.25 | 22.21 | 22.74 | 23.30 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-3

Test Date: 07/24/2025

Luminaire Tested: 22ID2-55-CFR1-L830-U

Data in this report applies to families of products including 22ID2-55-CFR1-L830-U



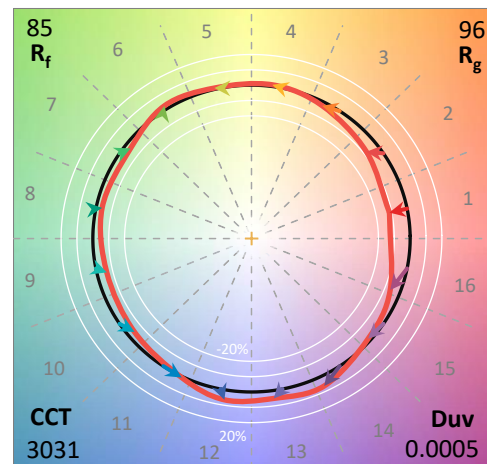
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 08/27/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Corelite  
 Catalog Number: **22ID2-55-CFR1-L830-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3000K 80CRI

### Spectral Parameters

CCT (K): 3031  
 CIE  $u'$ : 0.2493  
 CIE  $v'$ : 0.5215  
 Duv: 0.0005  
 CIE x: 0.4355  
 CIE y: 0.4049  
 CIE z: 0.1596  
 Peak Wavelength (nm): 603  
 Dominant Wavelength (nm): 582  
 Purity: 52.24762  
 Rf: 84.8  
 Rg: 95.8

CRI (Ra): 82.5  
 R1: 80.7  
 R2: 90.5  
 R3: 96.7  
 R4: 80.7  
 R5: 80.9  
 R6: 88.5  
 R7: 83.0  
 R8: 58.8  
 R9: 5.8  
 R10: 78.6  
 R11: 80.2  
 R12: 69.8  
 R13: 83.0  
 R14: 98.8  
 R15: 73.0



### Test Conditions

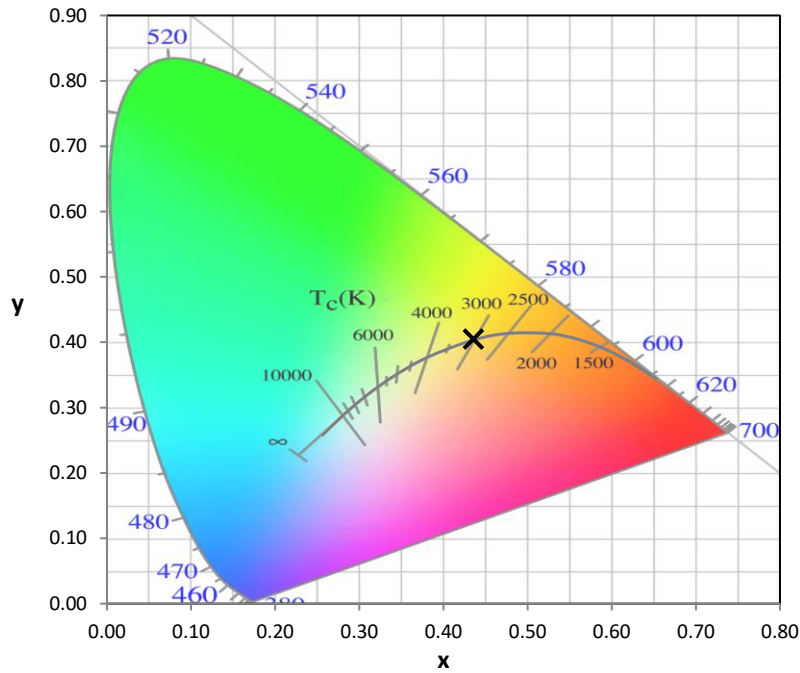
Stabilization Time: 38M  
 Operation Time: 1H 38M  
 Sphere Temperature (°C): 24.0

REPORT NUMBER: SP1-2506-458-3

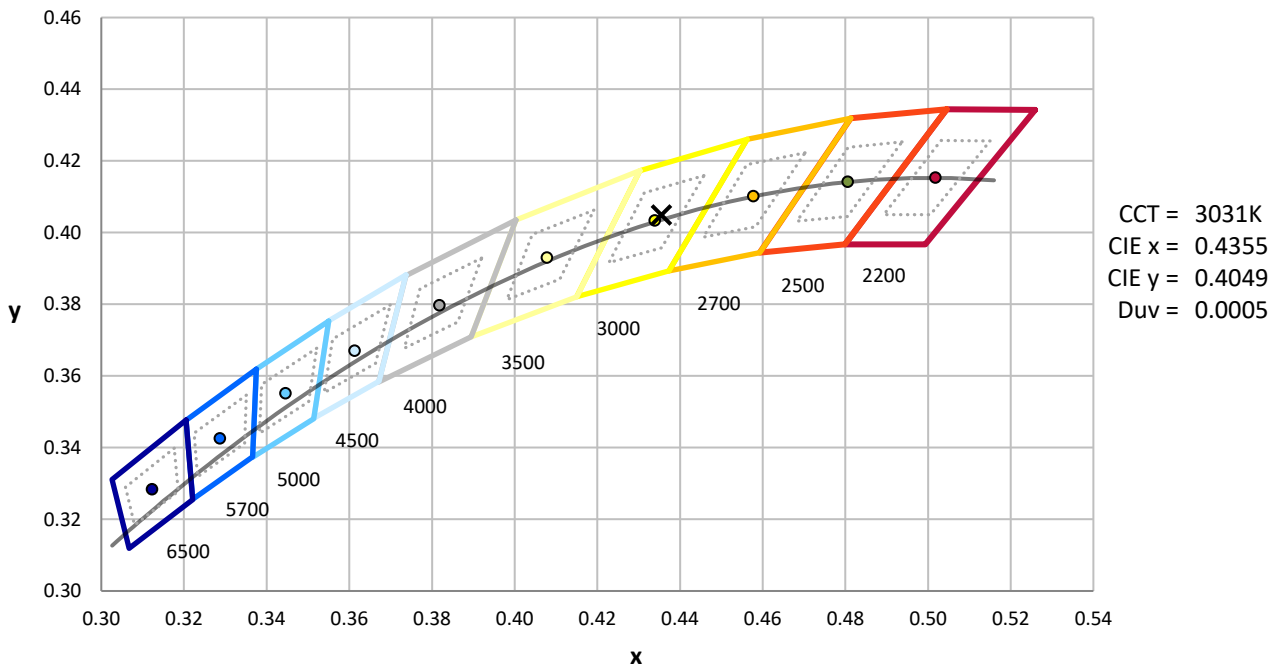
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| 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           |

REPORT NUMBER: SP1-2506-458-3

**CIE 1931 Chromaticity Diagram**



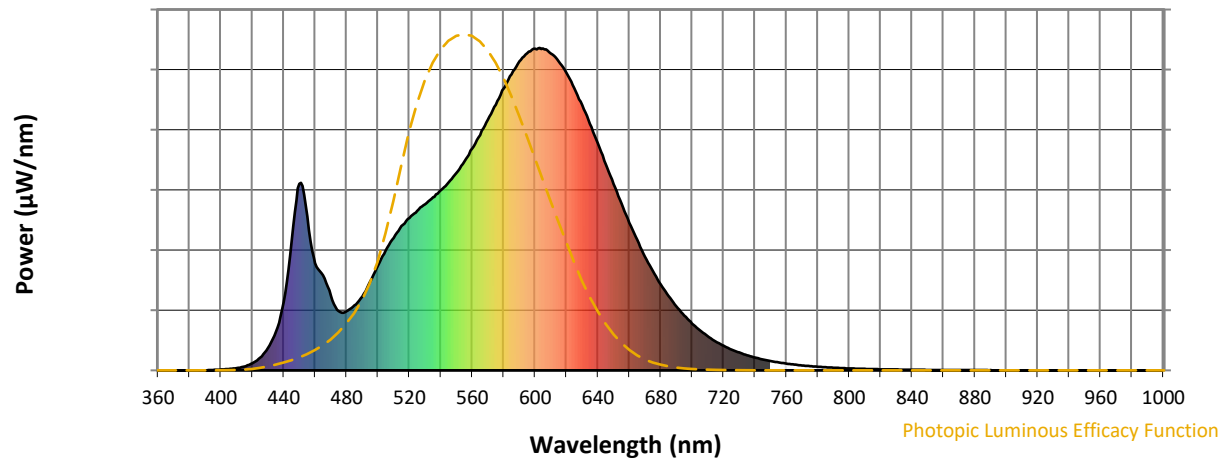
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2506-458-3

### Photopic Flux vs. Wavelength

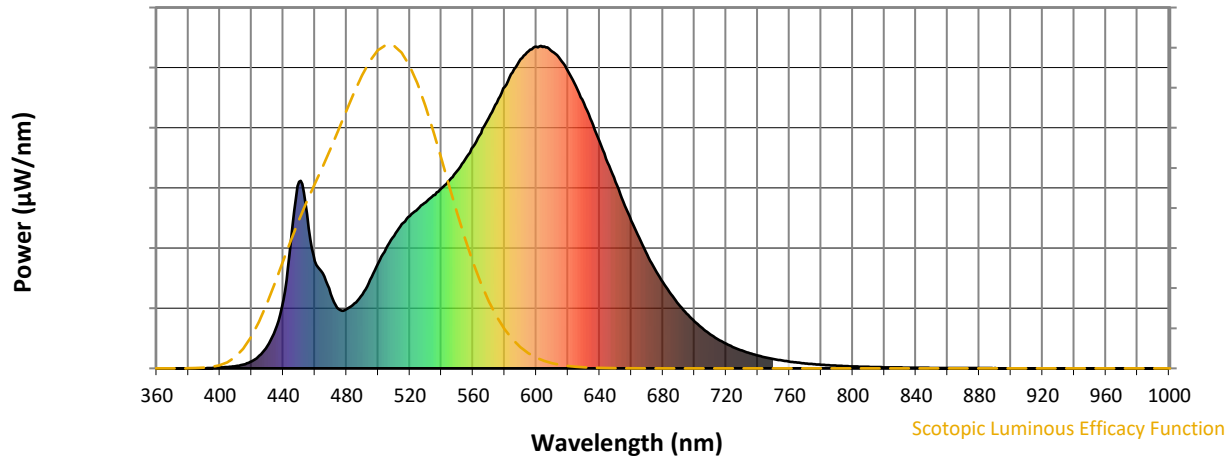


### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 229                                    | NR                             | 620               | 922                                    | NR                             | 750               | 29                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 275                                    | NR                             | 625               | 875                                    | NR                             | 755               | 25                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 326                                    | NR                             | 630               | 822                                    | NR                             | 760               | 21                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 372                                    | NR                             | 635               | 764                                    | NR                             | 765               | 18                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 411                                    | NR                             | 640               | 704                                    | NR                             | 770               | 15                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 447                                    | NR                             | 645               | 638                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 473                                    | NR                             | 650               | 577                                    | NR                             | 780               | 11                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 1                                      | NR                             | 525               | 495                                    | NR                             | 655               | 517                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 515                                    | NR                             | 660               | 457                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 4                                      | NR                             | 535               | 537                                    | NR                             | 665               | 404                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 7                                      | NR                             | 540               | 559                                    | NR                             | 670               | 353                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 12                                     | NR                             | 545               | 584                                    | NR                             | 675               | 307                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 22                                     | NR                             | 550               | 612                                    | NR                             | 680               | 267                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 40                                     | NR                             | 555               | 648                                    | NR                             | 685               | 230                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 69                                     | NR                             | 560               | 688                                    | NR                             | 690               | 199                                    | NR                             | 820               | 3                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 120                                    | NR                             | 565               | 730                                    | NR                             | 695               | 170                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 212                                    | NR                             | 570               | 777                                    | NR                             | 700               | 145                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 400                                    | NR                             | 575               | 824                                    | NR                             | 705               | 124                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 578                                    | NR                             | 580               | 873                                    | NR                             | 710               | 106                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 478                                    | NR                             | 585               | 918                                    | NR                             | 715               | 90                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 332                                    | NR                             | 590               | 958                                    | NR                             | 720               | 76                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 295                                    | NR                             | 595               | 983                                    | NR                             | 725               | 65                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 231                                    | NR                             | 600               | 997                                    | NR                             | 730               | 55                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 183                                    | NR                             | 605               | 998                                    | NR                             | 735               | 47                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 184                                    | NR                             | 610               | 982                                    | NR                             | 740               | 40                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 201                                    | NR                             | 615               | 958                                    | NR                             | 745               | 34                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2506-458-3

### Scotopic Flux vs. Wavelength



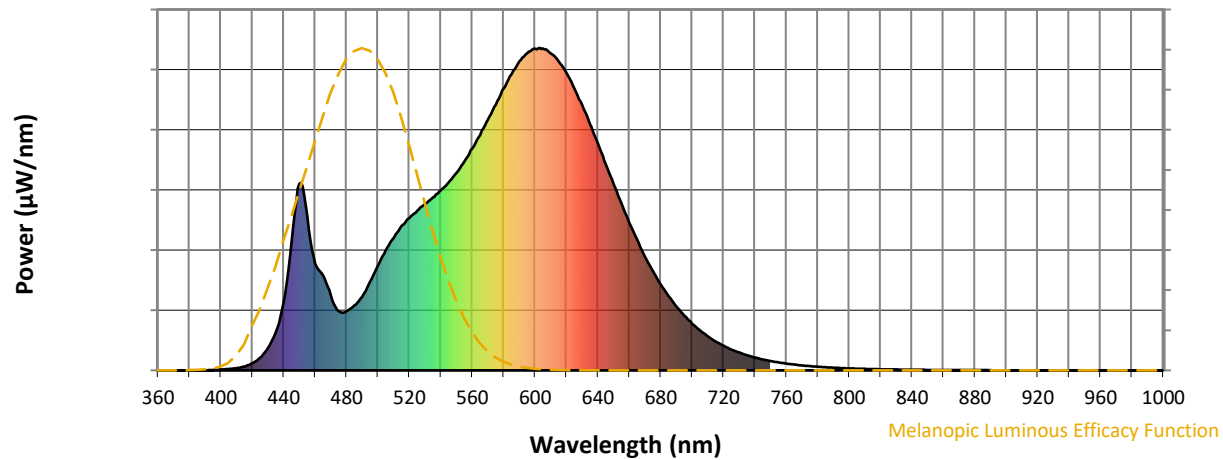
Scotopic Lumens: NR

S/P: 1.35

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 229                         | NR               | 620       | 922                         | NR               | 750       | 29                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 275                         | NR               | 625       | 875                         | NR               | 755       | 25                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 326                         | NR               | 630       | 822                         | NR               | 760       | 21                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 372                         | NR               | 635       | 764                         | NR               | 765       | 18                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 411                         | NR               | 640       | 704                         | NR               | 770       | 15                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 447                         | NR               | 645       | 638                         | NR               | 775       | 13                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 473                         | NR               | 650       | 577                         | NR               | 780       | 11                          | NR               | 910       | 0                           | NR               |
| 395       | 1                           | NR               | 525       | 495                         | NR               | 655       | 517                         | NR               | 785       | 10                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 515                         | NR               | 660       | 457                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 4                           | NR               | 535       | 537                         | NR               | 665       | 404                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 7                           | NR               | 540       | 559                         | NR               | 670       | 353                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 12                          | NR               | 545       | 584                         | NR               | 675       | 307                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 22                          | NR               | 550       | 612                         | NR               | 680       | 267                         | NR               | 810       | 5                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 648                         | NR               | 685       | 230                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 69                          | NR               | 560       | 688                         | NR               | 690       | 199                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 120                         | NR               | 565       | 730                         | NR               | 695       | 170                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 212                         | NR               | 570       | 777                         | NR               | 700       | 145                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 400                         | NR               | 575       | 824                         | NR               | 705       | 124                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 578                         | NR               | 580       | 873                         | NR               | 710       | 106                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 478                         | NR               | 585       | 918                         | NR               | 715       | 90                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 332                         | NR               | 590       | 958                         | NR               | 720       | 76                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 295                         | NR               | 595       | 983                         | NR               | 725       | 65                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 231                         | NR               | 600       | 997                         | NR               | 730       | 55                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 183                         | NR               | 605       | 998                         | NR               | 735       | 47                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 184                         | NR               | 610       | 982                         | NR               | 740       | 40                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 201                         | NR               | 615       | 958                         | NR               | 745       | 34                          | NR               | 875       | 1                           | NR               |           |                             |                  |

REPORT NUMBER: SP1-2506-458-3

### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.59

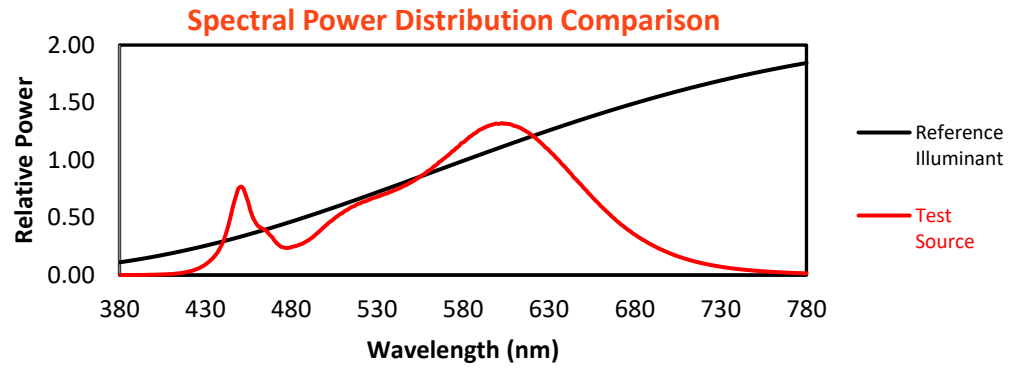
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|-------------------|----------------------------------------|--------------------------------|
| 360               | 0                                      | NR                             | 490               | 229                                    | NR                             | 620               | 922                                    | NR                             | 750               | 29                                     | NR                             | 880               | 1                                      | NR                             |
| 365               | 0                                      | NR                             | 495               | 275                                    | NR                             | 625               | 875                                    | NR                             | 755               | 25                                     | NR                             | 885               | 1                                      | NR                             |
| 370               | 0                                      | NR                             | 500               | 326                                    | NR                             | 630               | 822                                    | NR                             | 760               | 21                                     | NR                             | 890               | 1                                      | NR                             |
| 375               | 0                                      | NR                             | 505               | 372                                    | NR                             | 635               | 764                                    | NR                             | 765               | 18                                     | NR                             | 895               | 0                                      | NR                             |
| 380               | 0                                      | NR                             | 510               | 411                                    | NR                             | 640               | 704                                    | NR                             | 770               | 15                                     | NR                             | 900               | 0                                      | NR                             |
| 385               | 0                                      | NR                             | 515               | 447                                    | NR                             | 645               | 638                                    | NR                             | 775               | 13                                     | NR                             | 905               | 0                                      | NR                             |
| 390               | 0                                      | NR                             | 520               | 473                                    | NR                             | 650               | 577                                    | NR                             | 780               | 11                                     | NR                             | 910               | 0                                      | NR                             |
| 395               | 1                                      | NR                             | 525               | 495                                    | NR                             | 655               | 517                                    | NR                             | 785               | 10                                     | NR                             | 915               | 0                                      | NR                             |
| 400               | 3                                      | NR                             | 530               | 515                                    | NR                             | 660               | 457                                    | NR                             | 790               | 8                                      | NR                             | 920               | 0                                      | NR                             |
| 405               | 4                                      | NR                             | 535               | 537                                    | NR                             | 665               | 404                                    | NR                             | 795               | 7                                      | NR                             | 925               | 0                                      | NR                             |
| 410               | 7                                      | NR                             | 540               | 559                                    | NR                             | 670               | 353                                    | NR                             | 800               | 6                                      | NR                             | 930               | 0                                      | NR                             |
| 415               | 12                                     | NR                             | 545               | 584                                    | NR                             | 675               | 307                                    | NR                             | 805               | 5                                      | NR                             | 935               | 0                                      | NR                             |
| 420               | 22                                     | NR                             | 550               | 612                                    | NR                             | 680               | 267                                    | NR                             | 810               | 5                                      | NR                             | 940               | 0                                      | NR                             |
| 425               | 40                                     | NR                             | 555               | 648                                    | NR                             | 685               | 230                                    | NR                             | 815               | 4                                      | NR                             | 945               | 0                                      | NR                             |
| 430               | 69                                     | NR                             | 560               | 688                                    | NR                             | 690               | 199                                    | NR                             | 820               | 3                                      | NR                             | 950               | 0                                      | NR                             |
| 435               | 120                                    | NR                             | 565               | 730                                    | NR                             | 695               | 170                                    | NR                             | 825               | 3                                      | NR                             | 955               | 0                                      | NR                             |
| 440               | 212                                    | NR                             | 570               | 777                                    | NR                             | 700               | 145                                    | NR                             | 830               | 3                                      | NR                             | 960               | 0                                      | NR                             |
| 445               | 400                                    | NR                             | 575               | 824                                    | NR                             | 705               | 124                                    | NR                             | 835               | 2                                      | NR                             | 965               | 0                                      | NR                             |
| 450               | 578                                    | NR                             | 580               | 873                                    | NR                             | 710               | 106                                    | NR                             | 840               | 2                                      | NR                             | 970               | 0                                      | NR                             |
| 455               | 478                                    | NR                             | 585               | 918                                    | NR                             | 715               | 90                                     | NR                             | 845               | 2                                      | NR                             | 975               | 0                                      | NR                             |
| 460               | 332                                    | NR                             | 590               | 958                                    | NR                             | 720               | 76                                     | NR                             | 850               | 1                                      | NR                             | 980               | 0                                      | NR                             |
| 465               | 295                                    | NR                             | 595               | 983                                    | NR                             | 725               | 65                                     | NR                             | 855               | 1                                      | NR                             | 985               | 0                                      | NR                             |
| 470               | 231                                    | NR                             | 600               | 997                                    | NR                             | 730               | 55                                     | NR                             | 860               | 1                                      | NR                             | 990               | 0                                      | NR                             |
| 475               | 183                                    | NR                             | 605               | 998                                    | NR                             | 735               | 47                                     | NR                             | 865               | 1                                      | NR                             | 995               | 0                                      | NR                             |
| 480               | 184                                    | NR                             | 610               | 982                                    | NR                             | 740               | 40                                     | NR                             | 870               | 1                                      | NR                             | 1000              | 0                                      | NR                             |
| 485               | 201                                    | NR                             | 615               | 958                                    | NR                             | 745               | 34                                     | NR                             | 875               | 1                                      | NR                             |                   |                                        |                                |

REPORT NUMBER: SP1-2506-458-3

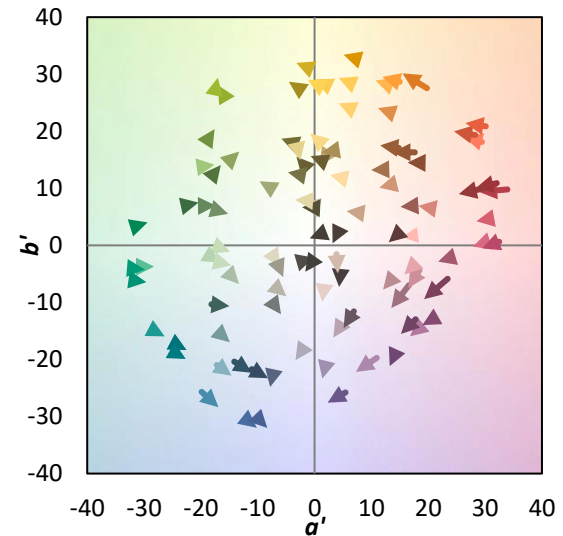
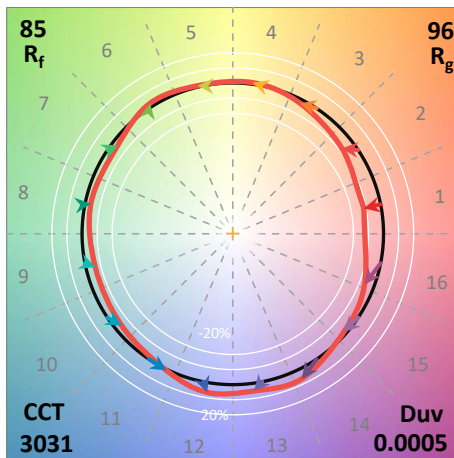
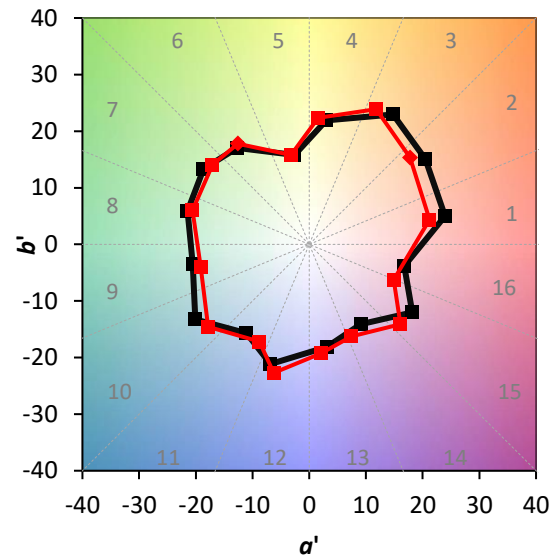
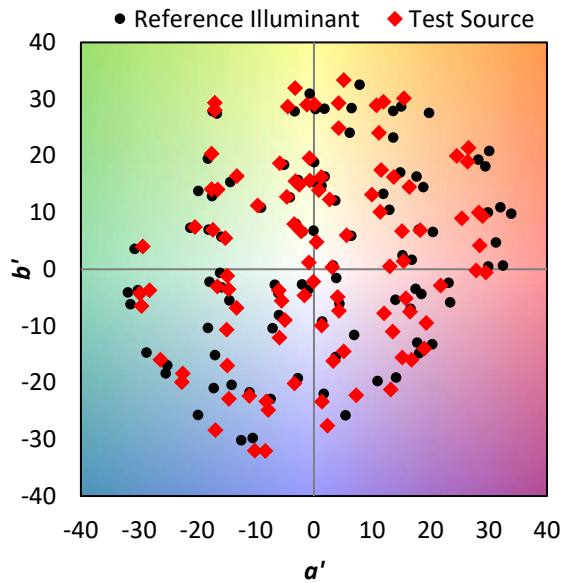
TM-30-18

### Summary

$R_f = 84.8$   
 $R_g = 95.8$   
 $CIE R_a = 82.5$   
 $R_9 = 5.8$

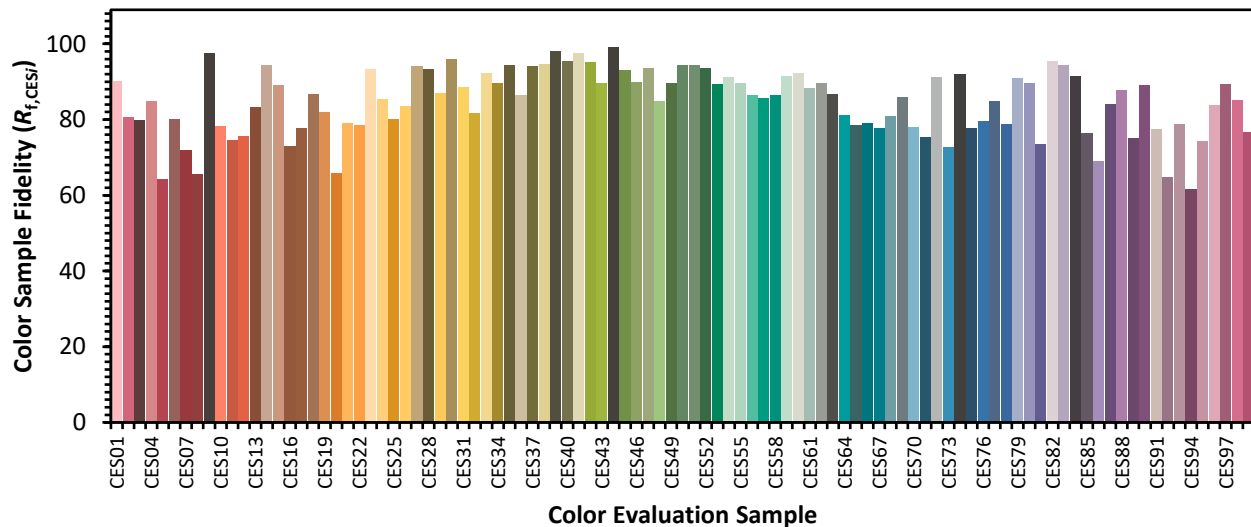


### Color Vector Graphics



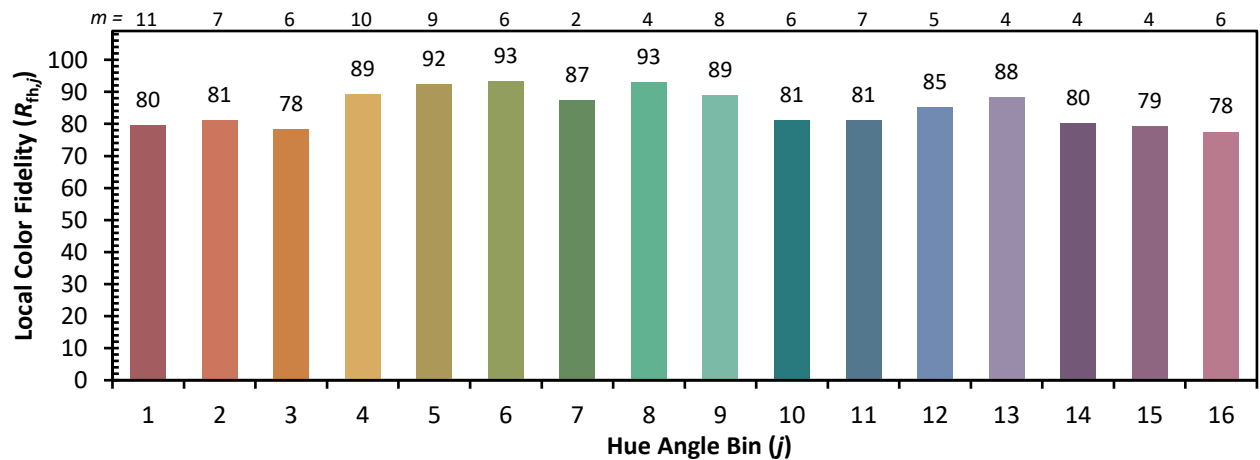
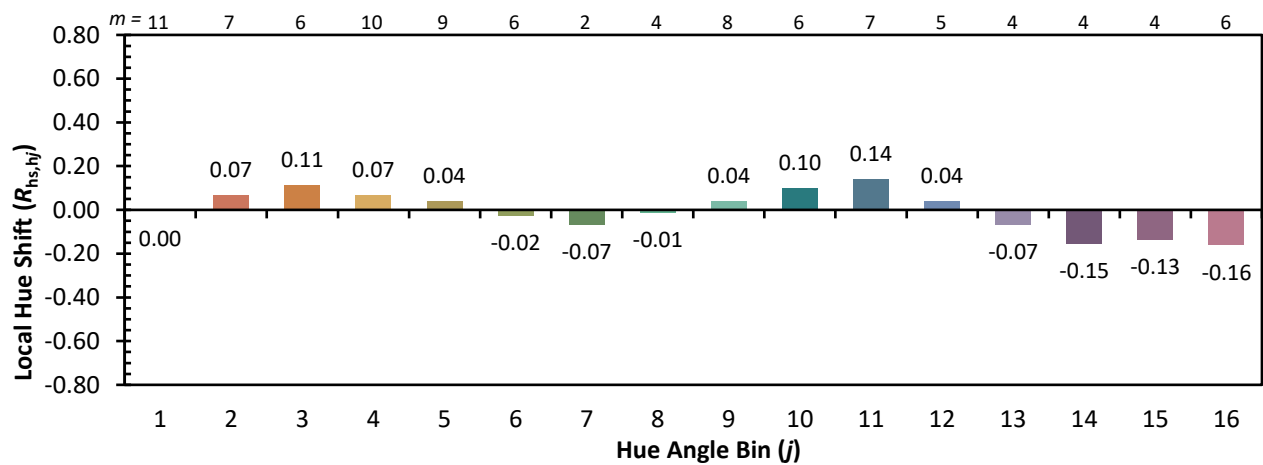
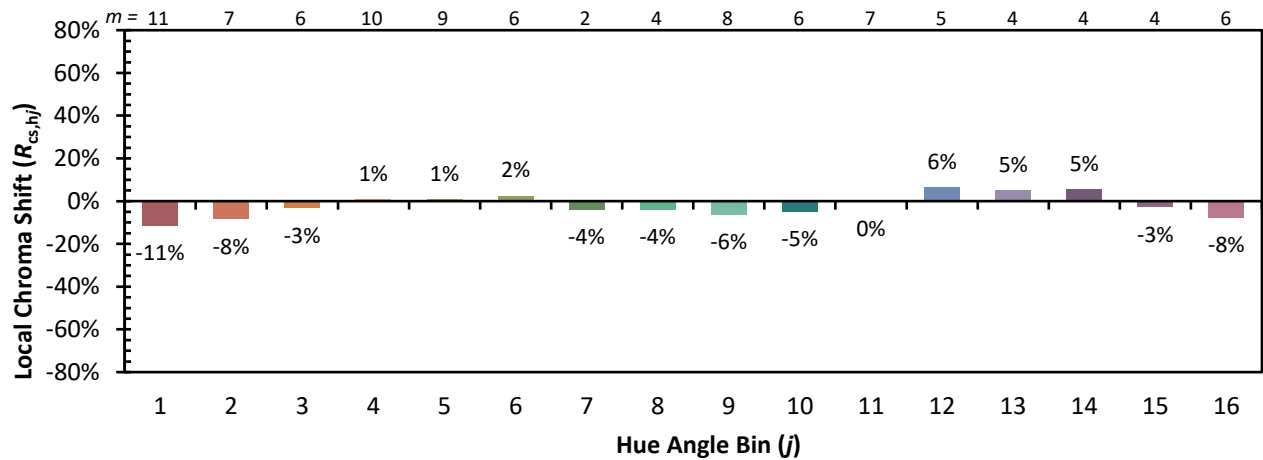
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 84 | CES51 = 94 | CES76 = 80 |
| CES02 = 63 | CES27 = 94 | CES52 = 94 | CES77 = 85 |
| CES03 = 31 | CES28 = 93 | CES53 = 89 | CES78 = 79 |
| CES04 = 70 | CES29 = 87 | CES54 = 91 | CES79 = 91 |
| CES05 = 50 | CES30 = 96 | CES55 = 90 | CES80 = 90 |
| CES06 = 51 | CES31 = 89 | CES56 = 87 | CES81 = 74 |
| CES07 = 42 | CES32 = 82 | CES57 = 86 | CES82 = 95 |
| CES08 = 41 | CES33 = 92 | CES58 = 87 | CES83 = 94 |
| CES09 = 29 | CES34 = 90 | CES59 = 91 | CES84 = 92 |
| CES10 = 76 | CES35 = 94 | CES60 = 92 | CES85 = 77 |
| CES11 = 59 | CES36 = 86 | CES61 = 88 | CES86 = 69 |
| CES12 = 65 | CES37 = 94 | CES62 = 90 | CES87 = 84 |
| CES13 = 43 | CES38 = 95 | CES63 = 87 | CES88 = 88 |
| CES14 = 74 | CES39 = 98 | CES64 = 81 | CES89 = 75 |
| CES15 = 72 | CES40 = 95 | CES65 = 79 | CES90 = 89 |
| CES16 = 47 | CES41 = 97 | CES66 = 79 | CES91 = 77 |
| CES17 = 50 | CES42 = 95 | CES67 = 78 | CES92 = 65 |
| CES18 = 56 | CES43 = 90 | CES68 = 81 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 86 | CES94 = 62 |
| CES20 = 67 | CES45 = 93 | CES70 = 78 | CES95 = 74 |
| CES21 = 87 | CES46 = 90 | CES71 = 75 | CES96 = 84 |
| CES22 = 79 | CES47 = 94 | CES72 = 91 | CES97 = 89 |
| CES23 = 92 | CES48 = 85 | CES73 = 73 | CES98 = 85 |
| CES24 = 91 | CES49 = 90 | CES74 = 92 | CES99 = 77 |
| CES25 = 72 | CES50 = 94 | CES75 = 78 |            |

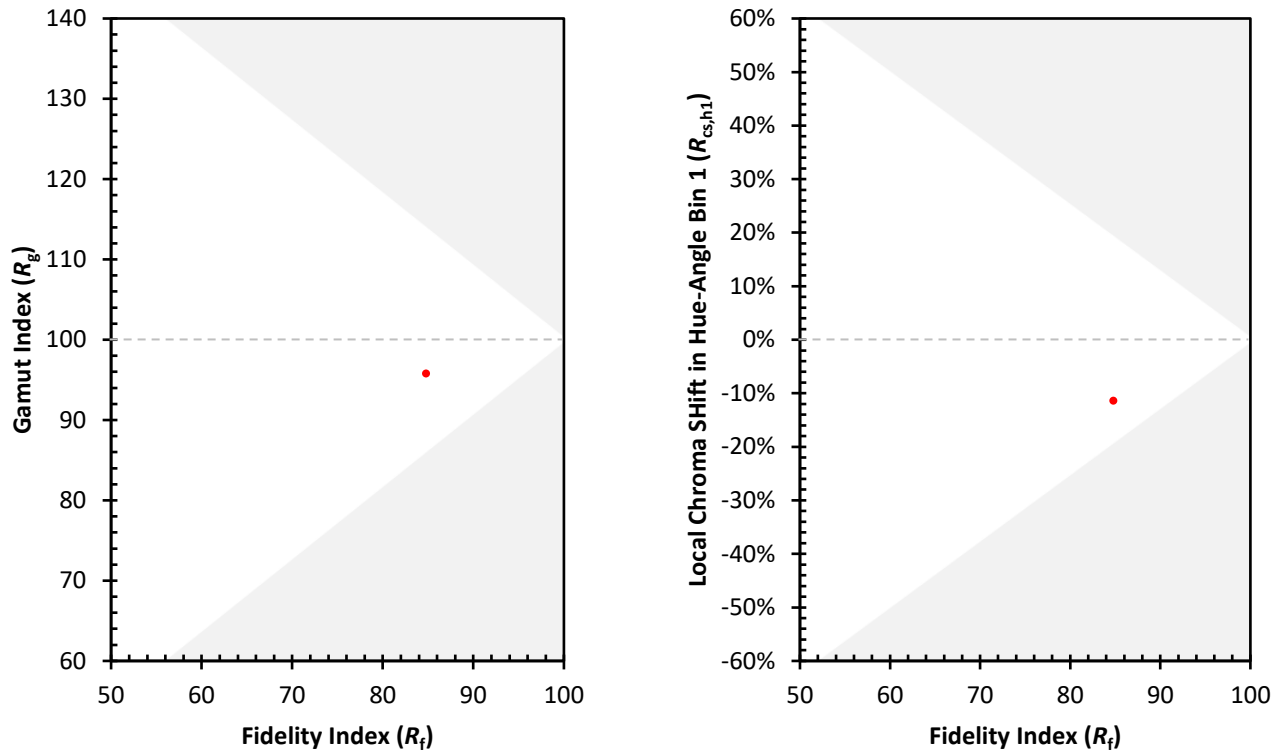




Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)