

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: P1216804

Luminaire Tested: 14-ID2-60-CFR1-L940-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1216804  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2508-507-13)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 14-ID2-60-CFR1-L940-U  
Description: 1X4 IN DEPTH TROFFER WITH 1INCH CUBE REGRESS LENS  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

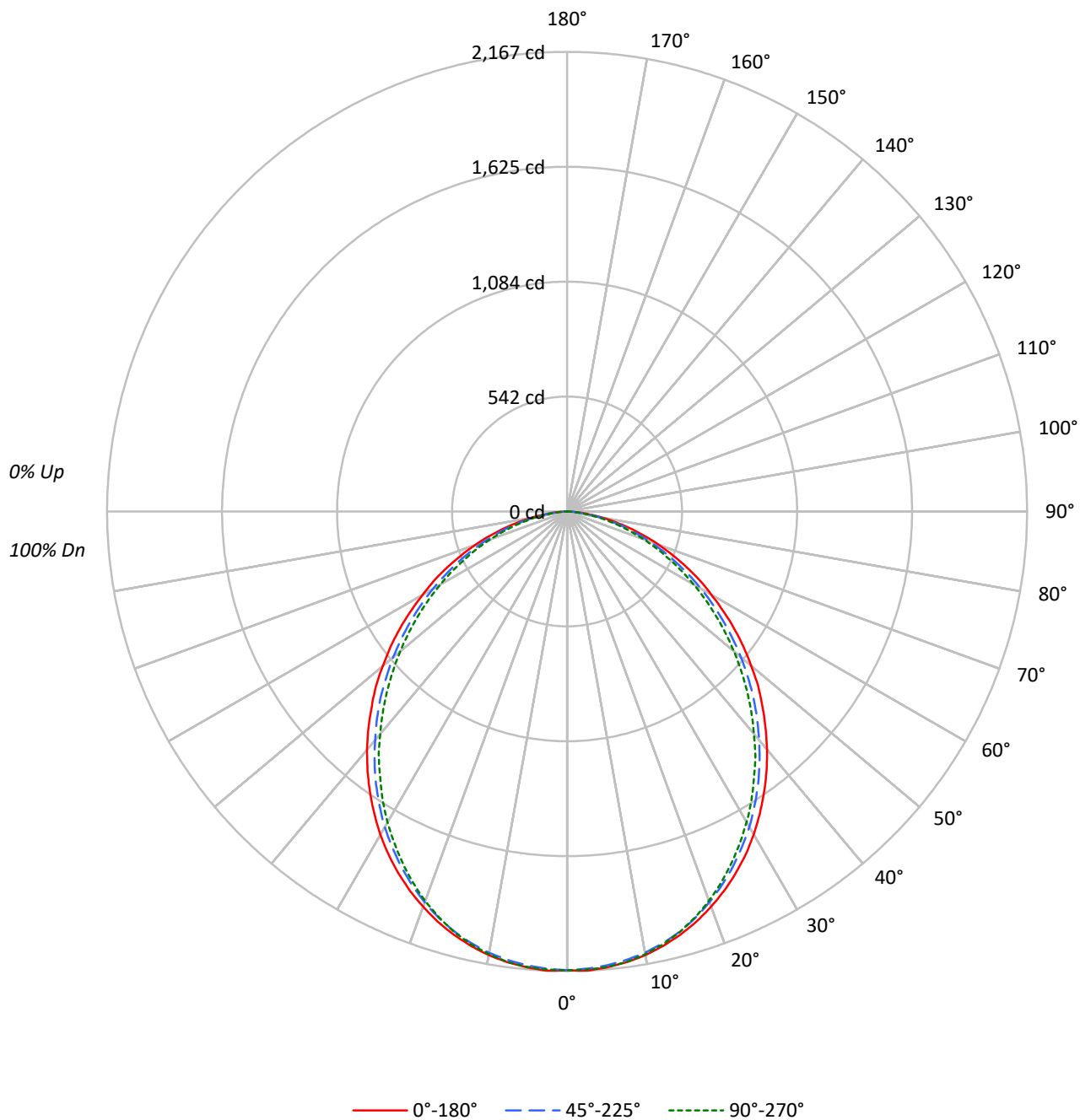
Lumens per Lamp: N/A  
Luminaire Lumens: 5314.9 lumens  
Efficiency: N/A  
Efficacy: 99.3 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.17 / 1.28  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 53.5  
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: P1216804  
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### Luminous Intensity Polar Plot



TEST NUMBER: P1216804

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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 | 103 | 99  | 96  | 99  | 96  | 93  |  | 95  | 92  | 90  |  | 85  |
| 2   | 100 | 92  | 86  | 80  | 97  | 90  | 84  | 79  | 87  | 82  | 77  |  | 84  | 79  | 76  |  | 72  |
| 3   | 92  | 81  | 74  | 67  | 89  | 80  | 73  | 67  | 77  | 71  | 66  |  | 74  | 69  | 65  |  | 61  |
| 4   | 84  | 73  | 64  | 58  | 82  | 71  | 63  | 57  | 69  | 62  | 56  |  | 66  | 61  | 56  |  | 53  |
| 5   | 78  | 65  | 56  | 50  | 75  | 64  | 56  | 50  | 62  | 55  | 49  |  | 60  | 54  | 49  |  | 46  |
| 6   | 72  | 59  | 50  | 44  | 70  | 58  | 50  | 44  | 56  | 49  | 43  |  | 54  | 48  | 43  |  | 41  |
| 7   | 67  | 53  | 45  | 39  | 65  | 53  | 45  | 39  | 51  | 44  | 39  |  | 50  | 43  | 38  |  | 36  |
| 8   | 62  | 49  | 41  | 35  | 61  | 48  | 40  | 35  | 47  | 40  | 35  |  | 46  | 39  | 34  |  | 32  |
| 9   | 58  | 45  | 37  | 32  | 57  | 44  | 37  | 31  | 43  | 36  | 31  |  | 42  | 36  | 31  |  | 29  |
| 10  | 55  | 42  | 34  | 29  | 53  | 41  | 34  | 29  | 40  | 33  | 29  |  | 39  | 33  | 28  |  | 27  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 5820 | 5820 | 5820 |
| 5°  | 5828 | 5804 | 5823 |
| 10° | 5805 | 5773 | 5792 |
| 15° | 5753 | 5713 | 5718 |
| 20° | 5680 | 5616 | 5595 |
| 25° | 5585 | 5487 | 5436 |
| 30° | 5466 | 5338 | 5257 |
| 35° | 5316 | 5154 | 5042 |
| 40° | 5148 | 4943 | 4811 |
| 45° | 4952 | 4727 | 4563 |
| 50° | 4742 | 4475 | 4294 |
| 55° | 4505 | 4206 | 4013 |
| 60° | 4226 | 3922 | 3710 |
| 65° | 3955 | 3606 | 3372 |
| 70° | 3615 | 3262 | 3022 |
| 75° | 3200 | 2836 | 2594 |
| 80° | 2614 | 2295 | 2058 |
| 85° | 1856 | 1525 | 1247 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4952 cd/sqm

TEST NUMBER: P1216804  
 CATALOG NUMBER: 14-ID2-60-CFR1-L940-U

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 204.3  | 3.8       |
| 10°-20°   | 578.7  | 10.9      |
| 20°-30°   | 852.2  | 16.0      |
| 30°-40°   | 983.0  | 18.5      |
| 40°-50°   | 961.3  | 18.1      |
| 50°-60°   | 808.2  | 15.2      |
| 60°-70°   | 567.8  | 10.7      |
| 70°-80°   | 294.1  | 5.5       |
| 80°-90°   | 65.2   | 1.2       |
| 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°    | 1635.2 | 30.8      |
| 0°-40°    | 2618.2 | 49.3      |
| 0°-60°    | 4387.7 | 82.6      |
| 0°-90°    | 5314.9 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5314.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2163 | 2163  | 2163 | 2163  | 2163 |      |
| 5°  | 2158 | 2155  | 2149 | 2150  | 2156 | 205  |
| 15° | 2065 | 2061  | 2051 | 2047  | 2052 | 582  |
| 25° | 1881 | 1873  | 1848 | 1829  | 1831 | 866  |
| 35° | 1618 | 1605  | 1569 | 1540  | 1535 | 1012 |
| 45° | 1301 | 1285  | 1242 | 1208  | 1199 | 1005 |
| 55° | 960  | 942   | 897  | 867   | 855  | 858  |
| 65° | 621  | 605   | 566  | 541   | 530  | 615  |
| 75° | 308  | 297   | 273  | 255   | 250  | 327  |
| 85° | 60   | 62    | 49   | 42    | 40   | 75   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2162.9 | 2162.9 | 2162.9 | 2162.9 | 2162.9 |
| 2.5°  | 2167.4 | 2162.9 | 2157.5 | 2159.3 | 2162.0 |
| 5°    | 2157.5 | 2154.8 | 2148.6 | 2149.5 | 2155.7 |
| 7.5°  | 2144.1 | 2140.5 | 2133.3 | 2135.1 | 2142.3 |
| 10°   | 2124.3 | 2118.9 | 2112.7 | 2113.6 | 2119.8 |
| 12.5° | 2097.4 | 2092.9 | 2084.8 | 2083.9 | 2090.2 |
| 15°   | 2065.1 | 2060.6 | 2050.7 | 2047.1 | 2052.5 |
| 17.5° | 2027.4 | 2022.0 | 2009.4 | 2003.2 | 2006.8 |
| 20°   | 1983.4 | 1978.0 | 1961.0 | 1949.3 | 1953.8 |
| 22.5° | 1935.0 | 1928.7 | 1907.1 | 1893.7 | 1895.5 |
| 25°   | 1881.1 | 1873.0 | 1847.9 | 1829.1 | 1830.8 |
| 27.5° | 1822.8 | 1812.0 | 1784.2 | 1763.5 | 1762.6 |
| 30°   | 1759.0 | 1747.4 | 1717.8 | 1693.5 | 1691.7 |
| 32.5° | 1689.9 | 1678.3 | 1644.2 | 1618.1 | 1616.4 |
| 35°   | 1618.1 | 1604.7 | 1568.8 | 1540.1 | 1534.7 |
| 37.5° | 1543.7 | 1528.4 | 1489.8 | 1462.0 | 1457.5 |
| 40°   | 1465.6 | 1449.4 | 1407.2 | 1377.6 | 1369.5 |
| 42.5° | 1384.8 | 1369.5 | 1324.7 | 1296.0 | 1285.2 |
| 45°   | 1301.3 | 1285.2 | 1242.1 | 1208.0 | 1199.0 |
| 47.5° | 1221.5 | 1199.9 | 1154.2 | 1125.4 | 1112.0 |
| 50°   | 1132.6 | 1114.7 | 1068.9 | 1039.3 | 1025.8 |
| 52.5° | 1047.4 | 1029.4 | 981.8  | 952.2  | 940.6  |
| 55°   | 960.3  | 942.3  | 896.6  | 867.0  | 855.3  |
| 57.5° | 870.6  | 856.2  | 812.2  | 784.4  | 771.8  |
| 60°   | 785.3  | 770.9  | 728.7  | 702.7  | 689.3  |
| 62.5° | 705.4  | 687.5  | 646.2  | 621.9  | 608.5  |
| 65°   | 621.1  | 604.9  | 566.3  | 541.2  | 529.5  |
| 67.5° | 539.4  | 524.1  | 488.2  | 466.7  | 457.7  |
| 70°   | 459.5  | 446.0  | 414.6  | 393.1  | 384.1  |
| 72.5° | 381.4  | 369.8  | 341.9  | 321.3  | 315.0  |
| 75°   | 307.8  | 297.1  | 272.8  | 254.9  | 249.5  |
| 77.5° | 236.0  | 229.8  | 207.3  | 192.1  | 187.6  |
| 80°   | 168.7  | 166.0  | 148.1  | 135.5  | 132.8  |
| 82.5° | 109.5  | 108.6  | 96.9   | 86.2   | 82.6   |
| 85°   | 60.1   | 61.9   | 49.4   | 42.2   | 40.4   |
| 87.5° | 21.5   | 21.5   | 15.3   | 13.5   | 12.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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**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 | 17.23            | 18.81 | 17.59 | 19.12 | 19.44 | 16.57          | 18.16 | 16.94 | 18.47 | 18.78 |
|                 | 3H   | 18.85            | 20.27 | 19.23 | 20.60 | 20.96 | 18.06          | 19.48 | 18.44 | 19.81 | 20.17 |
|                 | 4H   | 19.42            | 20.76 | 19.82 | 21.10 | 21.48 | 18.55          | 19.89 | 18.95 | 20.24 | 20.61 |
|                 | 6H   | 19.79            | 21.03 | 20.21 | 21.40 | 21.79 | 18.86          | 20.09 | 19.27 | 20.46 | 20.85 |
|                 | 8H   | 19.89            | 21.07 | 20.32 | 21.46 | 21.86 | 18.93          | 20.10 | 19.35 | 20.49 | 20.89 |
|                 | 12H  | 19.94            | 21.07 | 20.37 | 21.45 | 21.88 | 18.95          | 20.08 | 19.38 | 20.46 | 20.89 |
| 4H              | 2H   | 17.71            | 19.04 | 18.10 | 19.39 | 19.77 | 17.18          | 18.51 | 17.58 | 18.86 | 19.24 |
|                 | 3H   | 19.54            | 20.66 | 19.95 | 21.05 | 21.45 | 18.87          | 19.98 | 19.28 | 20.38 | 20.78 |
|                 | 4H   | 20.23            | 21.24 | 20.66 | 21.65 | 22.09 | 19.46          | 20.47 | 19.89 | 20.88 | 21.32 |
|                 | 6H   | 20.73            | 21.60 | 21.18 | 22.04 | 22.50 | 19.86          | 20.74 | 20.32 | 21.18 | 21.64 |
|                 | 8H   | 20.86            | 21.68 | 21.32 | 22.12 | 22.59 | 19.96          | 20.78 | 20.42 | 21.22 | 21.68 |
|                 | 12H  | 20.94            | 21.68 | 21.42 | 22.15 | 22.62 | 20.00          | 20.74 | 20.49 | 21.21 | 21.68 |
| 8H              | 4H   | 20.43            | 21.25 | 20.89 | 21.69 | 22.16 | 19.73          | 20.55 | 20.20 | 20.99 | 21.46 |
|                 | 6H   | 21.02            | 21.69 | 21.51 | 22.18 | 22.66 | 20.22          | 20.89 | 20.71 | 21.38 | 21.86 |
|                 | 8H   | 21.21            | 21.81 | 21.72 | 22.32 | 22.81 | 20.36          | 20.96 | 20.87 | 21.47 | 21.96 |
|                 | 12H  | 21.34            | 21.88 | 21.85 | 22.37 | 22.93 | 20.44          | 20.97 | 20.95 | 21.47 | 22.03 |
| 12H             | 4H   | 20.43            | 21.16 | 20.91 | 21.64 | 22.11 | 19.76          | 20.49 | 20.24 | 20.97 | 21.44 |
|                 | 6H   | 21.03            | 21.63 | 21.54 | 22.14 | 22.63 | 20.25          | 20.86 | 20.76 | 21.37 | 21.86 |
|                 | 8H   | 21.26            | 21.80 | 21.77 | 22.29 | 22.85 | 20.44          | 20.97 | 20.94 | 21.46 | 22.03 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-11

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L940-U

Data in this report applies to families of products including 22ID2-55-CFR1-L940-U



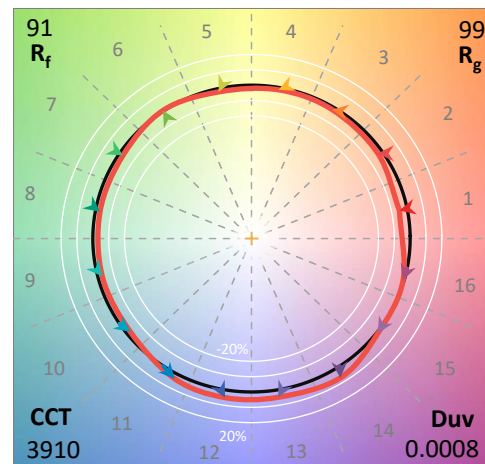
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-11  
 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-L940-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 4000K 90CRI

### Spectral Parameters

CCT (K): 3910  
 CIE  $u'$ : 0.2263  
 CIE  $v'$ : 0.5043  
 Duv: 0.0008  
 CIE x: 0.3851  
 CIE y: 0.3813  
 CIE z: 0.2336  
 Peak Wavelength (nm): 451  
 Dominant Wavelength (nm): 578  
 Purity: 30.01895  
 Rf: 90.8  
 Rg: 98.8

CRI (Ra): 92.4  
 R1: 92.5  
 R2: 94.9  
 R3: 95.8  
 R4: 92.7  
 R5: 91.7  
 R6: 92.1  
 R7: 94.3  
 R8: 85.2  
 R9: 62.0  
 R10: 87.0  
 R11: 92.8  
 R12: 71.7  
 R13: 93.2  
 R14: 97.3  
 R15: 89.6



### Test Conditions

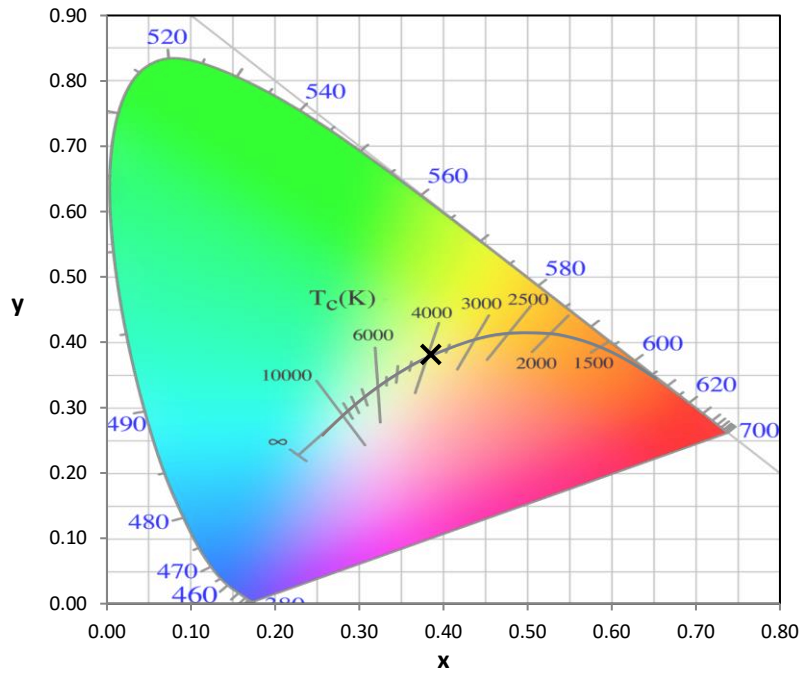
Stabilization Time: 31M  
 Operation Time: 1H 31M  
 Sphere Temperature (°C): 25.2.

REPORT NUMBER: SP1-2506-458-11

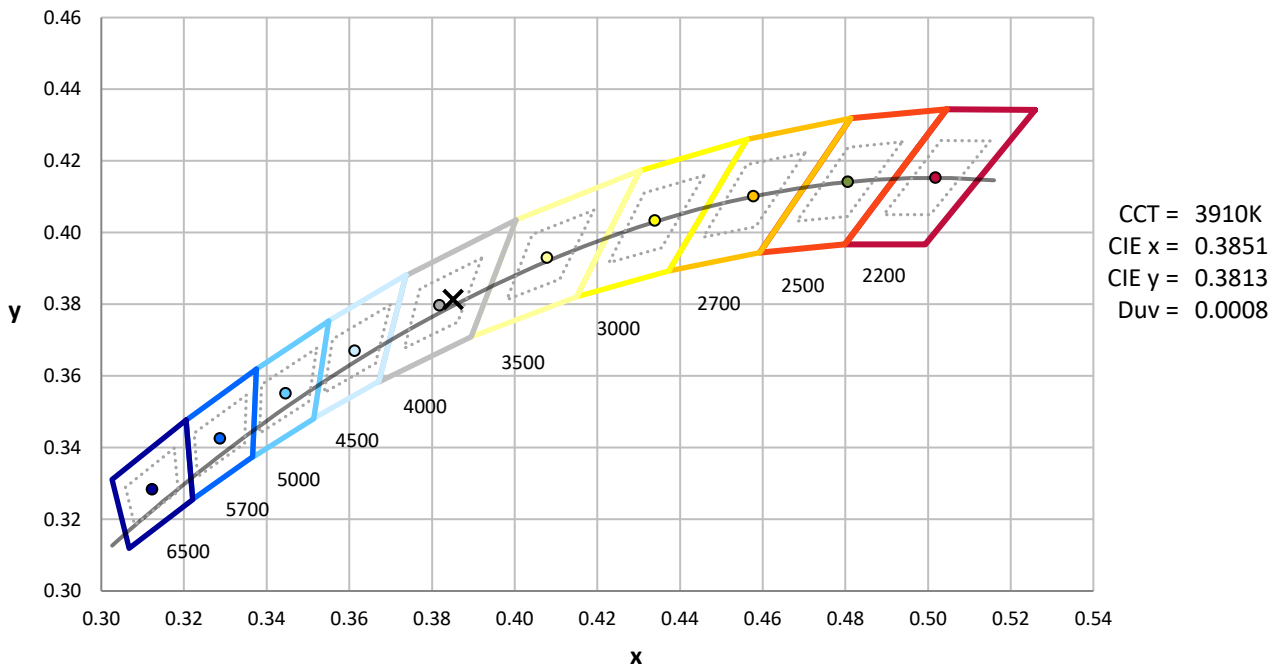
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



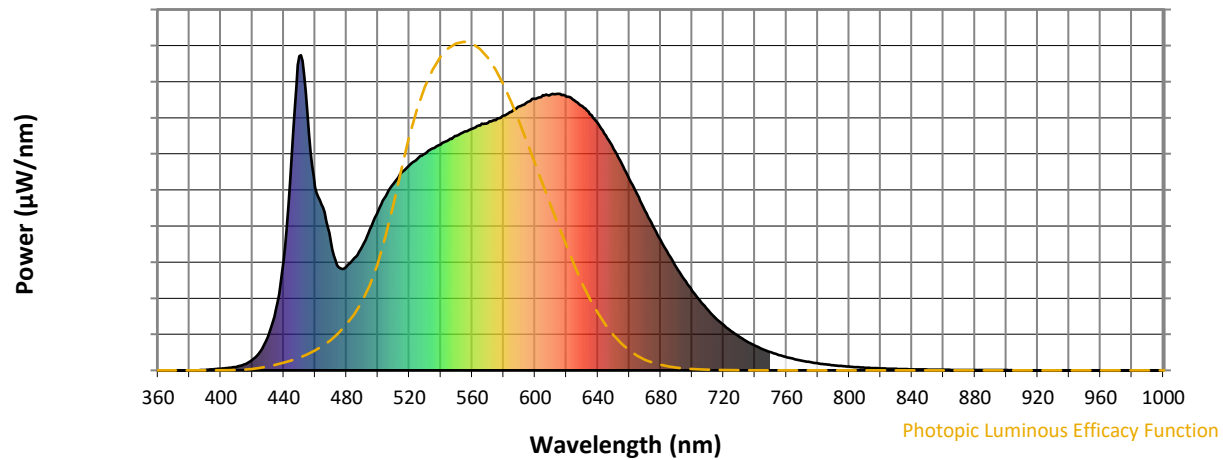
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 4-step quadrangle

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### Photopic Flux vs. Wavelength

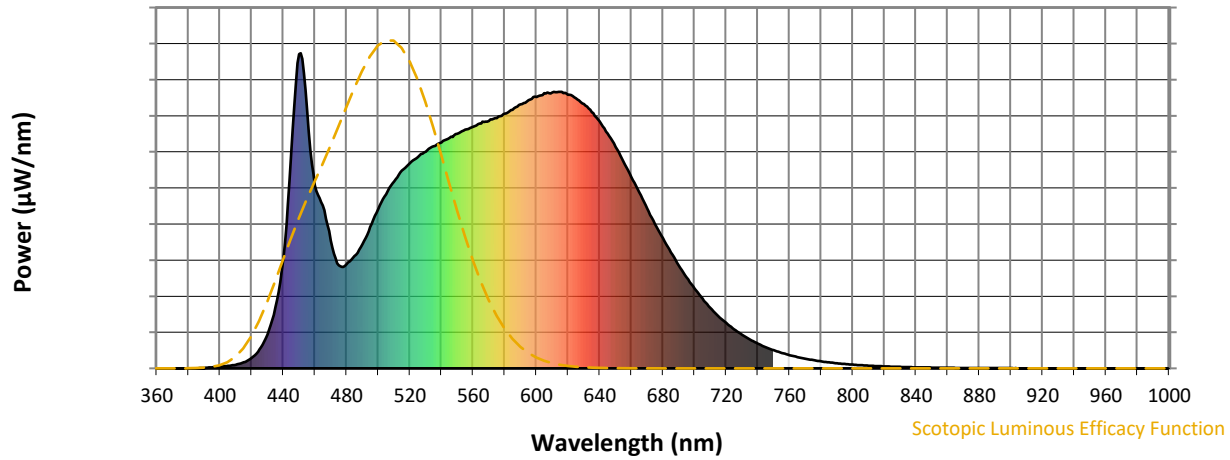


### Photopic Lumens: NR

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 394                      | NR            | 620    | 868                      | NR            | 750    | 58                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 449                      | NR            | 625    | 858                      | NR            | 755    | 49                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 505                      | NR            | 630    | 839                      | NR            | 760    | 42                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 553                      | NR            | 635    | 813                      | NR            | 765    | 36                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 593                      | NR            | 640    | 783                      | NR            | 770    | 31                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 628                      | NR            | 645    | 746                      | NR            | 775    | 26                       | NR            | 905    | 1                        | NR            |
| 390    | 1                        | NR            | 520    | 651                      | NR            | 650    | 702                      | NR            | 780    | 22                       | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 670                      | NR            | 655    | 657                      | NR            | 785    | 19                       | NR            | 915    | 0                        | NR            |
| 400    | 5                        | NR            | 530    | 687                      | NR            | 660    | 607                      | NR            | 790    | 16                       | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 705                      | NR            | 665    | 559                      | NR            | 795    | 14                       | NR            | 925    | 0                        | NR            |
| 410    | 12                       | NR            | 540    | 717                      | NR            | 670    | 507                      | NR            | 800    | 12                       | NR            | 930    | 0                        | NR            |
| 415    | 19                       | NR            | 545    | 731                      | NR            | 675    | 458                      | NR            | 805    | 10                       | NR            | 935    | 0                        | NR            |
| 420    | 34                       | NR            | 550    | 745                      | NR            | 680    | 413                      | NR            | 810    | 9                        | NR            | 940    | 0                        | NR            |
| 425    | 60                       | NR            | 555    | 757                      | NR            | 685    | 367                      | NR            | 815    | 7                        | NR            | 945    | 0                        | NR            |
| 430    | 107                      | NR            | 560    | 767                      | NR            | 690    | 328                      | NR            | 820    | 6                        | NR            | 950    | 0                        | NR            |
| 435    | 194                      | NR            | 565    | 777                      | NR            | 695    | 289                      | NR            | 825    | 5                        | NR            | 955    | 0                        | NR            |
| 440    | 349                      | NR            | 570    | 785                      | NR            | 700    | 253                      | NR            | 830    | 5                        | NR            | 960    | 0                        | NR            |
| 445    | 678                      | NR            | 575    | 794                      | NR            | 705    | 221                      | NR            | 835    | 4                        | NR            | 965    | 0                        | NR            |
| 450    | 997                      | NR            | 580    | 809                      | NR            | 710    | 192                      | NR            | 840    | 3                        | NR            | 970    | 0                        | NR            |
| 455    | 819                      | NR            | 585    | 820                      | NR            | 715    | 165                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 581                      | NR            | 590    | 838                      | NR            | 720    | 144                      | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 517                      | NR            | 595    | 851                      | NR            | 725    | 124                      | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 406                      | NR            | 600    | 861                      | NR            | 730    | 107                      | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 327                      | NR            | 605    | 873                      | NR            | 735    | 91                       | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 330                      | NR            | 610    | 875                      | NR            | 740    | 78                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 356                      | NR            | 615    | 877                      | NR            | 745    | 67                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



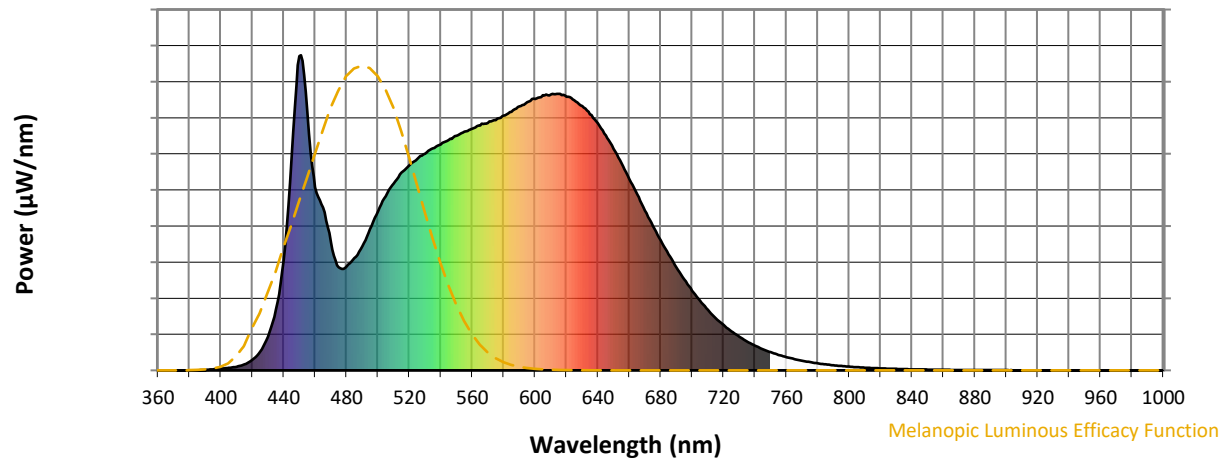
Scotopic Lumens: NR

S/P: 1.75

| $\lambda$<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               | 394                                  | NR                             | 620               | 868                                  | NR                             | 750               | 58                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 449                                  | NR                             | 625               | 858                                  | NR                             | 755               | 49                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 505                                  | NR                             | 630               | 839                                  | NR                             | 760               | 42                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 553                                  | NR                             | 635               | 813                                  | NR                             | 765               | 36                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 593                                  | NR                             | 640               | 783                                  | NR                             | 770               | 31                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 628                                  | NR                             | 645               | 746                                  | NR                             | 775               | 26                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 651                                  | NR                             | 650               | 702                                  | NR                             | 780               | 22                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 670                                  | NR                             | 655               | 657                                  | NR                             | 785               | 19                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 5                                    | NR                             | 530               | 687                                  | NR                             | 660               | 607                                  | NR                             | 790               | 16                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 705                                  | NR                             | 665               | 559                                  | NR                             | 795               | 14                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 717                                  | NR                             | 670               | 507                                  | NR                             | 800               | 12                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 19                                   | NR                             | 545               | 731                                  | NR                             | 675               | 458                                  | NR                             | 805               | 10                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 34                                   | NR                             | 550               | 745                                  | NR                             | 680               | 413                                  | NR                             | 810               | 9                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 60                                   | NR                             | 555               | 757                                  | NR                             | 685               | 367                                  | NR                             | 815               | 7                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 107                                  | NR                             | 560               | 767                                  | NR                             | 690               | 328                                  | NR                             | 820               | 6                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 194                                  | NR                             | 565               | 777                                  | NR                             | 695               | 289                                  | NR                             | 825               | 5                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 349                                  | NR                             | 570               | 785                                  | NR                             | 700               | 253                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 678                                  | NR                             | 575               | 794                                  | NR                             | 705               | 221                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 997                                  | NR                             | 580               | 809                                  | NR                             | 710               | 192                                  | NR                             | 840               | 3                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 819                                  | NR                             | 585               | 820                                  | NR                             | 715               | 165                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 581                                  | NR                             | 590               | 838                                  | NR                             | 720               | 144                                  | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 517                                  | NR                             | 595               | 851                                  | NR                             | 725               | 124                                  | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 406                                  | NR                             | 600               | 861                                  | NR                             | 730               | 107                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 327                                  | NR                             | 605               | 873                                  | NR                             | 735               | 91                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 330                                  | NR                             | 610               | 875                                  | NR                             | 740               | 78                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 356                                  | NR                             | 615               | 877                                  | NR                             | 745               | 67                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 3.61**

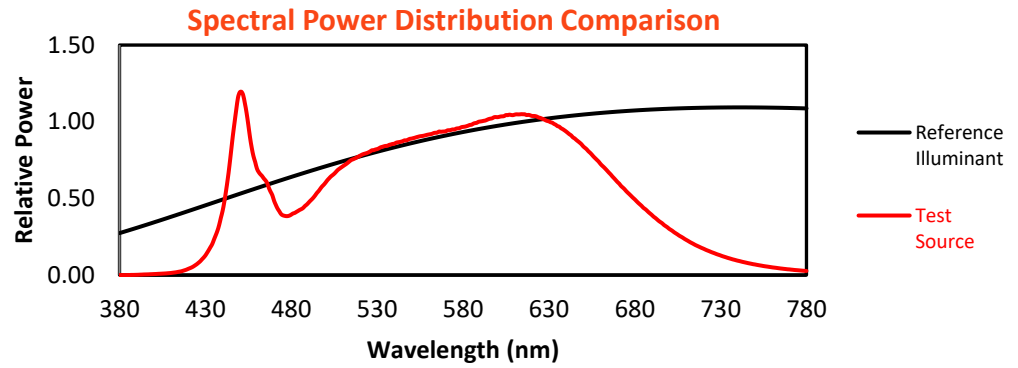
| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<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               | 394                                  | NR                             | 620               | 868                                  | NR                             | 750               | 58                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 449                                  | NR                             | 625               | 858                                  | NR                             | 755               | 49                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 505                                  | NR                             | 630               | 839                                  | NR                             | 760               | 42                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 553                                  | NR                             | 635               | 813                                  | NR                             | 765               | 36                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 593                                  | NR                             | 640               | 783                                  | NR                             | 770               | 31                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 628                                  | NR                             | 645               | 746                                  | NR                             | 775               | 26                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 651                                  | NR                             | 650               | 702                                  | NR                             | 780               | 22                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 670                                  | NR                             | 655               | 657                                  | NR                             | 785               | 19                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 5                                    | NR                             | 530               | 687                                  | NR                             | 660               | 607                                  | NR                             | 790               | 16                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 705                                  | NR                             | 665               | 559                                  | NR                             | 795               | 14                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 717                                  | NR                             | 670               | 507                                  | NR                             | 800               | 12                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 19                                   | NR                             | 545               | 731                                  | NR                             | 675               | 458                                  | NR                             | 805               | 10                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 34                                   | NR                             | 550               | 745                                  | NR                             | 680               | 413                                  | NR                             | 810               | 9                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 60                                   | NR                             | 555               | 757                                  | NR                             | 685               | 367                                  | NR                             | 815               | 7                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 107                                  | NR                             | 560               | 767                                  | NR                             | 690               | 328                                  | NR                             | 820               | 6                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 194                                  | NR                             | 565               | 777                                  | NR                             | 695               | 289                                  | NR                             | 825               | 5                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 349                                  | NR                             | 570               | 785                                  | NR                             | 700               | 253                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 678                                  | NR                             | 575               | 794                                  | NR                             | 705               | 221                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 997                                  | NR                             | 580               | 809                                  | NR                             | 710               | 192                                  | NR                             | 840               | 3                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 819                                  | NR                             | 585               | 820                                  | NR                             | 715               | 165                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 581                                  | NR                             | 590               | 838                                  | NR                             | 720               | 144                                  | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 517                                  | NR                             | 595               | 851                                  | NR                             | 725               | 124                                  | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 406                                  | NR                             | 600               | 861                                  | NR                             | 730               | 107                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 327                                  | NR                             | 605               | 873                                  | NR                             | 735               | 91                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 330                                  | NR                             | 610               | 875                                  | NR                             | 740               | 78                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 356                                  | NR                             | 615               | 877                                  | NR                             | 745               | 67                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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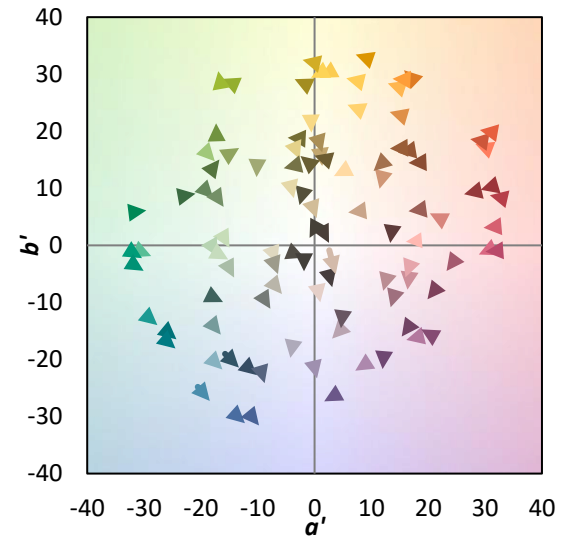
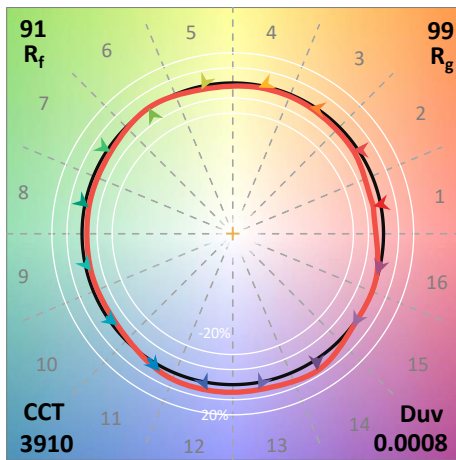
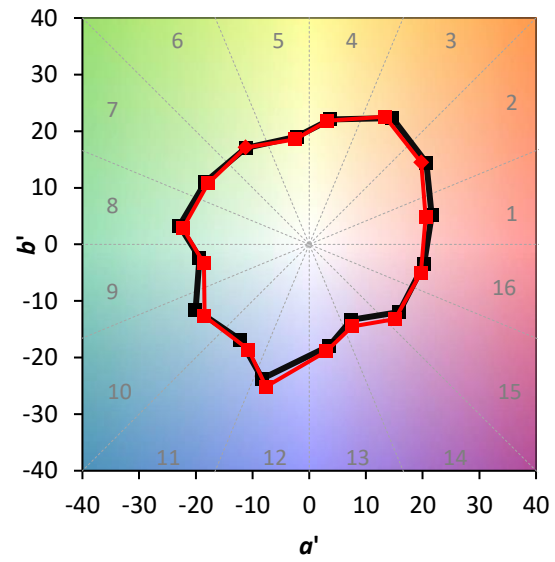
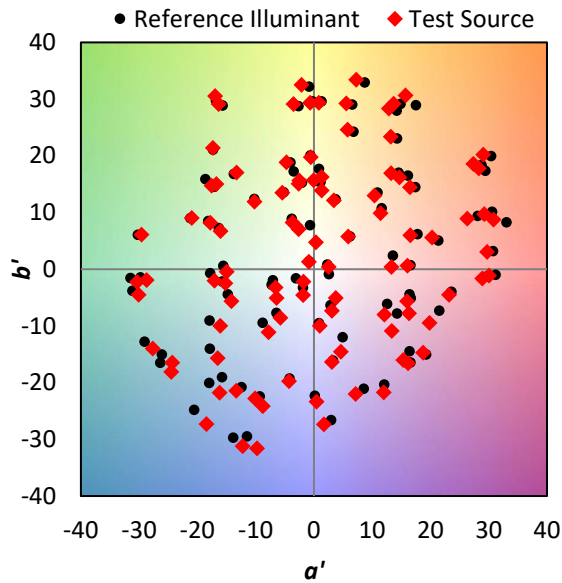
TM-30-18

### Summary

$R_f = 90.8$   
 $R_g = 98.8$   
 $CIE R_a = 92.4$   
 $R_9 = 62.0$

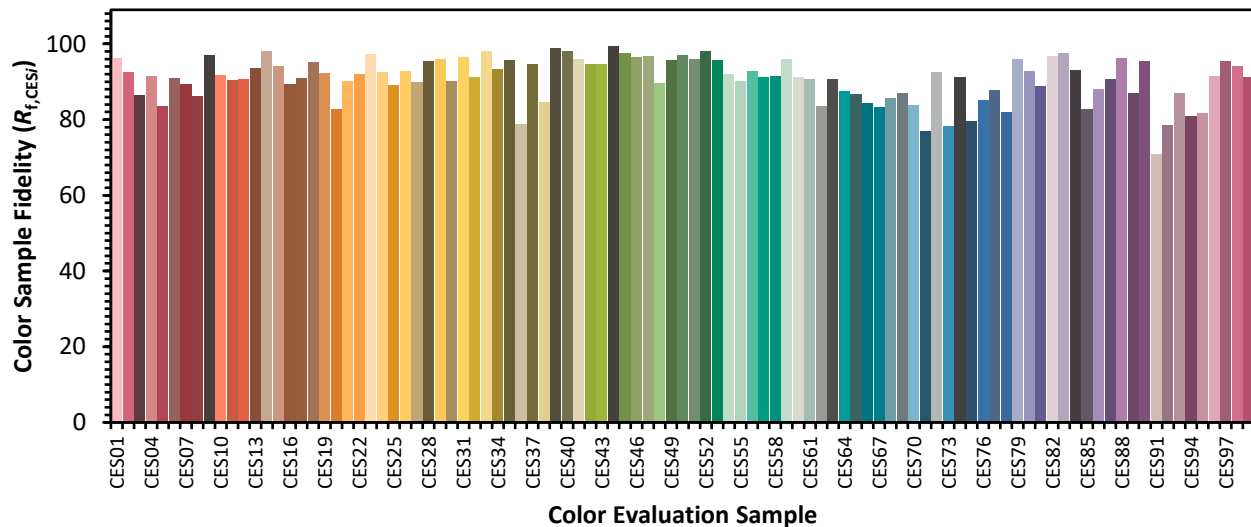


### Color Vector Graphics

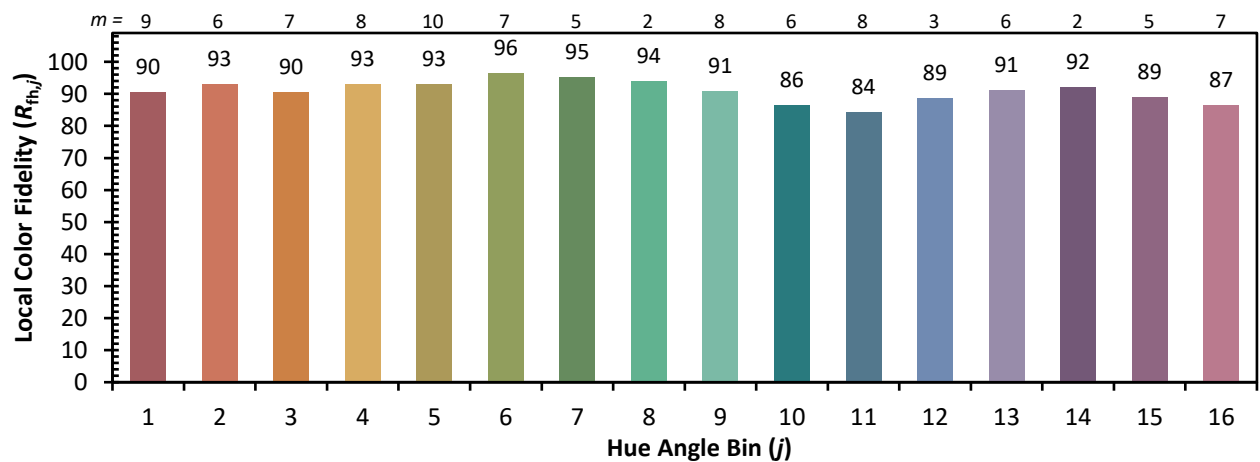
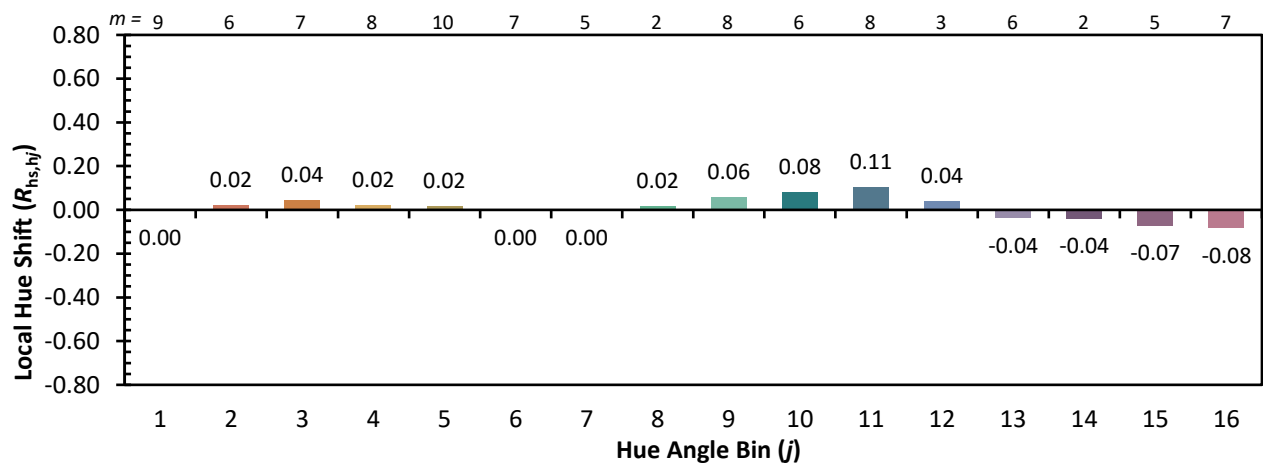
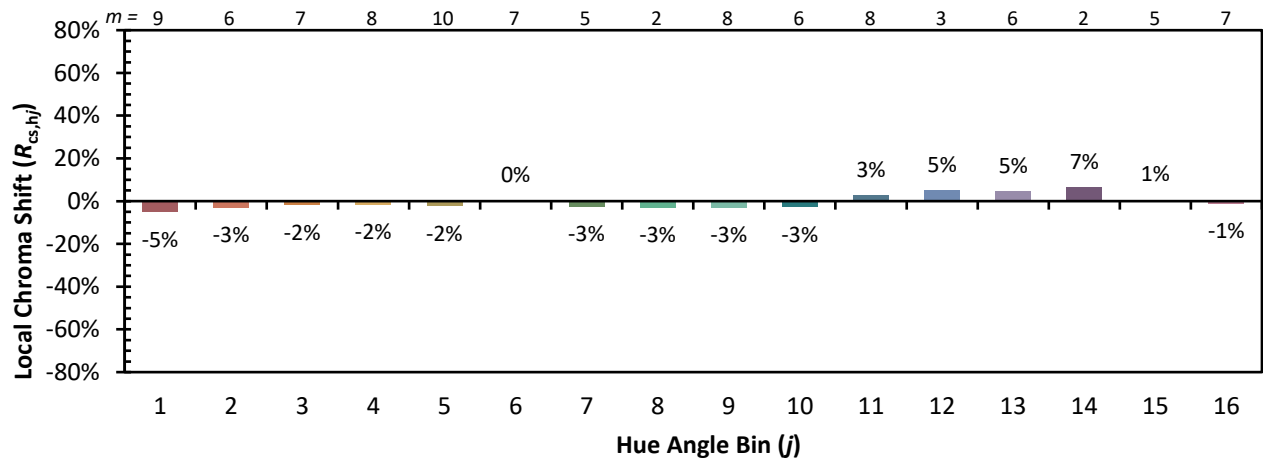


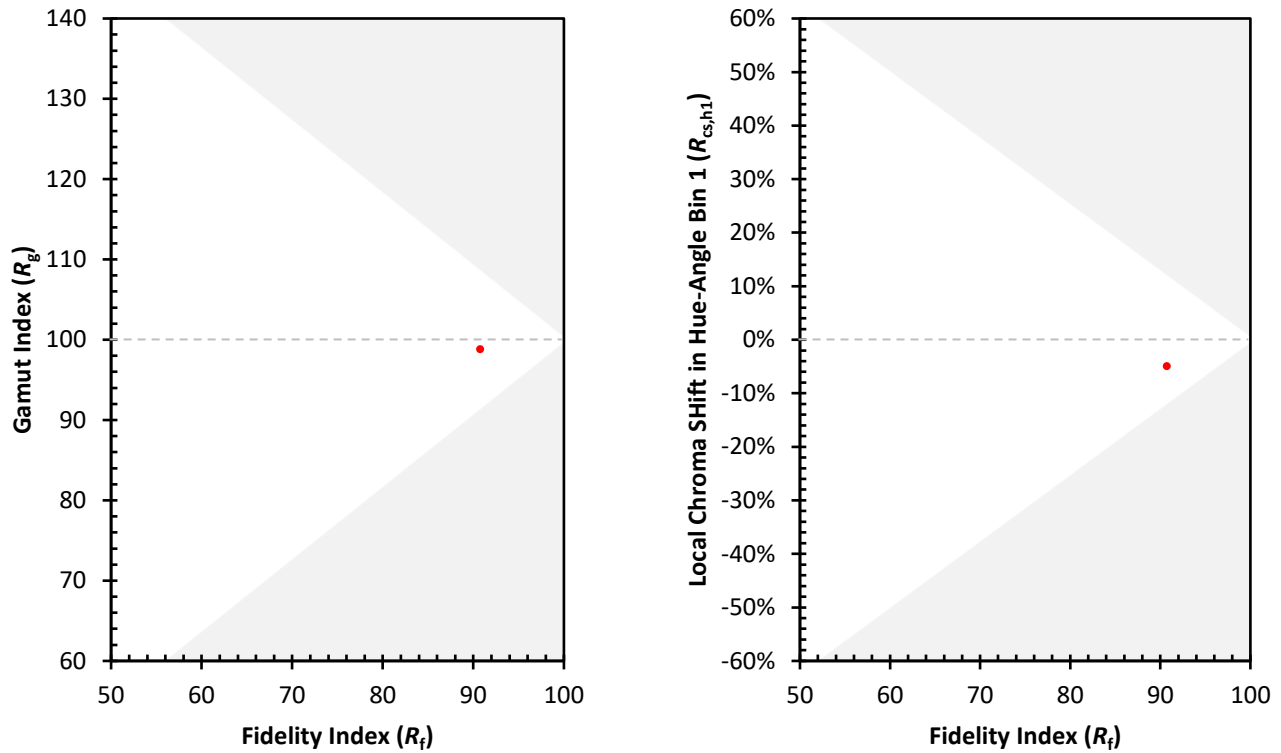
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 93 | CES51 = 96 | CES76 = 85 |
| CES02 = 62 | CES27 = 90 | CES52 = 98 | CES77 = 88 |
| CES03 = 31 | CES28 = 96 | CES53 = 96 | CES78 = 82 |
| CES04 = 69 | CES29 = 96 | CES54 = 92 | CES79 = 96 |
| CES05 = 49 | CES30 = 90 | CES55 = 90 | CES80 = 93 |
| CES06 = 50 | CES31 = 97 | CES56 = 93 | CES81 = 89 |
| CES07 = 42 | CES32 = 91 | CES57 = 91 | CES82 = 97 |
| CES08 = 41 | CES33 = 98 | CES58 = 92 | CES83 = 98 |
| CES09 = 29 | CES34 = 93 | CES59 = 96 | CES84 = 93 |
| CES10 = 74 | CES35 = 96 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 79 | CES61 = 91 | CES86 = 88 |
| CES12 = 63 | CES37 = 95 | CES62 = 84 | CES87 = 91 |
| CES13 = 43 | CES38 = 85 | CES63 = 91 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 87 | CES89 = 87 |
| CES15 = 71 | CES40 = 98 | CES65 = 87 | CES90 = 96 |
| CES16 = 47 | CES41 = 96 | CES66 = 84 | CES91 = 71 |
| CES17 = 49 | CES42 = 95 | CES67 = 83 | CES92 = 79 |
| CES18 = 56 | CES43 = 95 | CES68 = 86 | CES93 = 87 |
| CES19 = 71 | CES44 = 99 | CES69 = 87 | CES94 = 81 |
| CES20 = 66 | CES45 = 98 | CES70 = 84 | CES95 = 82 |
| CES21 = 85 | CES46 = 97 | CES71 = 77 | CES96 = 91 |
| CES22 = 78 | CES47 = 97 | CES72 = 93 | CES97 = 96 |
| CES23 = 91 | CES48 = 90 | CES73 = 78 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 91 | CES99 = 91 |
| CES25 = 71 | CES50 = 97 | CES75 = 80 |            |





**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**


(END OF REPORT)