

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: P1215474

Luminaire Tested: 22-ID2-50-SWR-L835-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215474  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-18)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-50-SWR-L835-U  
Description: 2X2 IN DEPTH TROFFER WITH SWEEP REGRESSED  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

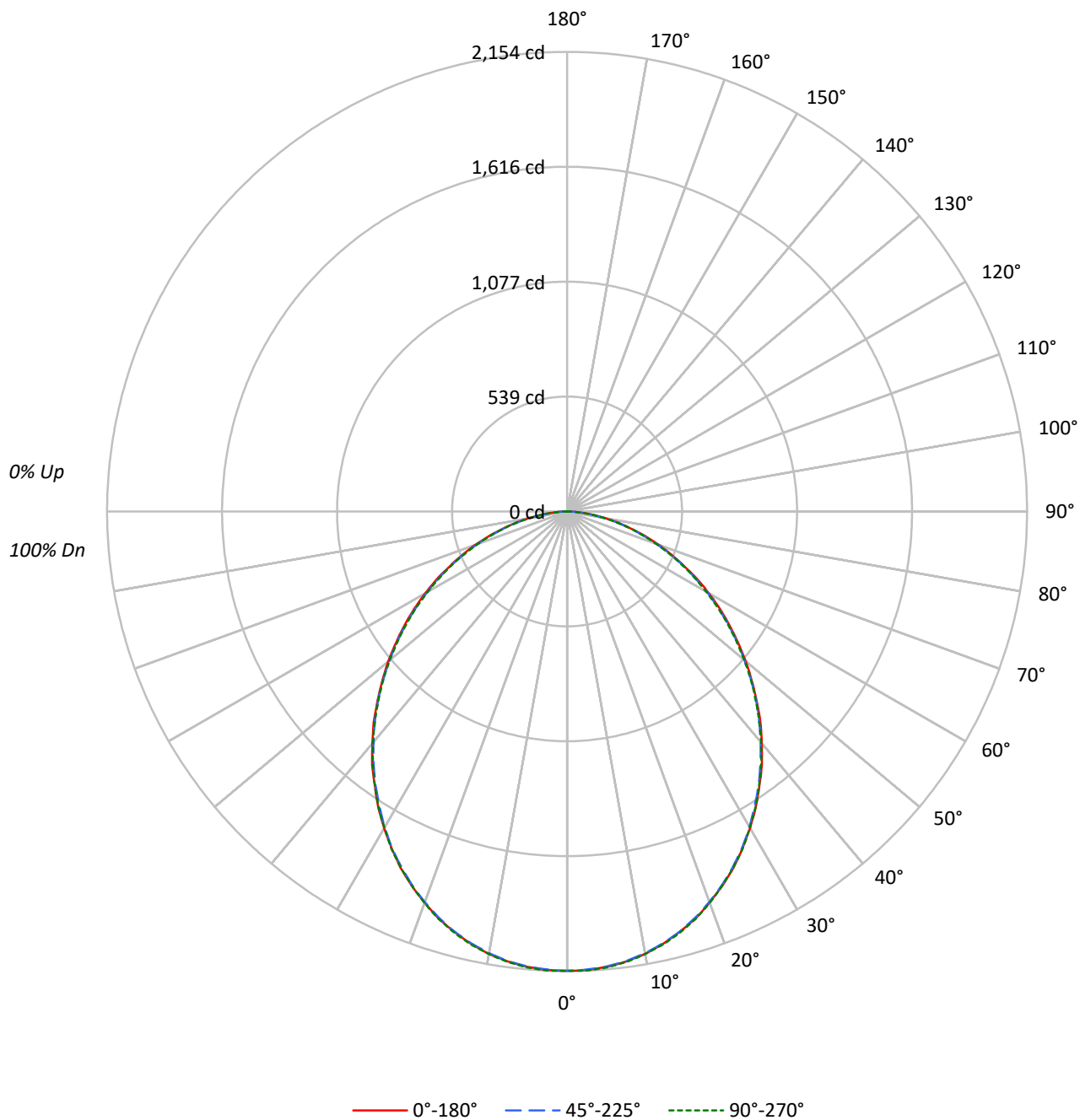
Lumens per Lamp: N/A  
Luminaire Lumens: 5399.1 lumens  
Efficiency: N/A  
Efficacy: 120.5 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.29  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct

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



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### Luminous Intensity Polar Plot



TEST NUMBER: P1215474

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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°  | 5793 | 5793 | 5793 |
| 5°  | 5786 | 5781 | 5794 |
| 10° | 5754 | 5743 | 5755 |
| 15° | 5682 | 5678 | 5693 |
| 20° | 5586 | 5578 | 5592 |
| 25° | 5473 | 5455 | 5467 |
| 30° | 5324 | 5307 | 5317 |
| 35° | 5156 | 5137 | 5152 |
| 40° | 4981 | 4952 | 4964 |
| 45° | 4775 | 4762 | 4752 |
| 50° | 4573 | 4539 | 4533 |
| 55° | 4356 | 4318 | 4302 |
| 60° | 4126 | 4079 | 4050 |
| 65° | 3851 | 3826 | 3795 |
| 70° | 3596 | 3522 | 3491 |
| 75° | 3225 | 3162 | 3183 |
| 80° | 2831 | 2706 | 2738 |
| 85° | 2186 | 2081 | 2124 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°

Vertical Angle: 45°

Luminance: 4783 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 203.2  | 3.8       |
| 10°-20°   | 574.7  | 10.6      |
| 20°-30°   | 846.7  | 15.7      |
| 30°-40°   | 979.7  | 18.1      |
| 40°-50°   | 965.5  | 17.9      |
| 50°-60°   | 824.7  | 15.3      |
| 60°-70°   | 595.9  | 11.0      |
| 70°-80°   | 326.3  | 6.0       |
| 80°-90°   | 82.4   | 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°    | 1624.6 | 30.1      |
| 0°-40°    | 2604.4 | 48.2      |
| 0°-60°    | 4394.6 | 81.4      |
| 0°-90°    | 5399.1 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5399.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2153 | 2153  | 2153 | 2153  | 2153 |      |
| 5°  | 2142 | 2141  | 2140 | 2142  | 2145 | 203  |
| 15° | 2040 | 2039  | 2038 | 2042  | 2044 | 575  |
| 25° | 1843 | 1839  | 1837 | 1839  | 1841 | 848  |
| 35° | 1570 | 1569  | 1564 | 1566  | 1568 | 982  |
| 45° | 1255 | 1257  | 1251 | 1248  | 1249 | 969  |
| 55° | 928  | 922   | 920  | 918   | 917  | 830  |
| 65° | 605  | 605   | 601  | 599   | 596  | 602  |
| 75° | 310  | 310   | 304  | 303   | 306  | 332  |
| 85° | 71   | 69    | 67   | 68    | 69   | 84   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2152.9 | 2152.9 | 2152.9 | 2152.9 | 2152.9 |
| 2.5°  | 2151.5 | 2150.2 | 2148.8 | 2151.5 | 2153.5 |
| 5°    | 2142.1 | 2140.7 | 2140.1 | 2142.1 | 2144.8 |
| 7.5°  | 2127.2 | 2125.9 | 2125.2 | 2126.6 | 2129.3 |
| 10°   | 2105.7 | 2103.6 | 2101.6 | 2105.0 | 2106.3 |
| 12.5° | 2076.0 | 2074.6 | 2073.3 | 2075.3 | 2078.7 |
| 15°   | 2039.6 | 2038.9 | 2038.2 | 2041.6 | 2043.6 |
| 17.5° | 2000.5 | 1997.8 | 1996.4 | 1997.1 | 2001.8 |
| 20°   | 1950.6 | 1950.6 | 1947.9 | 1950.6 | 1952.6 |
| 22.5° | 1899.3 | 1898.0 | 1895.3 | 1897.3 | 1898.7 |
| 25°   | 1843.4 | 1839.3 | 1837.3 | 1839.3 | 1841.4 |
| 27.5° | 1779.3 | 1778.0 | 1776.0 | 1777.3 | 1781.4 |
| 30°   | 1713.3 | 1711.9 | 1707.9 | 1710.6 | 1711.2 |
| 32.5° | 1644.5 | 1645.2 | 1635.7 | 1639.8 | 1643.1 |
| 35°   | 1569.6 | 1569.0 | 1563.6 | 1566.3 | 1568.3 |
| 37.5° | 1498.8 | 1493.5 | 1487.4 | 1490.1 | 1493.5 |
| 40°   | 1417.9 | 1414.6 | 1409.8 | 1410.5 | 1413.2 |
| 42.5° | 1340.4 | 1334.3 | 1331.0 | 1332.3 | 1331.6 |
| 45°   | 1254.8 | 1256.8 | 1251.4 | 1248.0 | 1248.7 |
| 47.5° | 1173.2 | 1173.2 | 1168.5 | 1167.1 | 1167.1 |
| 50°   | 1092.3 | 1092.3 | 1084.2 | 1082.2 | 1082.8 |
| 52.5° | 1008.7 | 1011.4 | 1001.9 | 1002.6 | 999.9  |
| 55°   | 928.4  | 922.4  | 920.3  | 918.3  | 917.0  |
| 57.5° | 848.2  | 844.8  | 838.8  | 836.7  | 835.4  |
| 60°   | 766.6  | 763.9  | 757.9  | 756.5  | 752.5  |
| 62.5° | 687.7  | 684.4  | 676.9  | 676.3  | 673.6  |
| 65°   | 604.8  | 604.8  | 600.8  | 599.4  | 596.0  |
| 67.5° | 528.6  | 527.3  | 521.9  | 521.9  | 517.8  |
| 70°   | 457.1  | 455.1  | 447.7  | 445.7  | 443.7  |
| 72.5° | 381.6  | 379.6  | 374.2  | 376.9  | 372.2  |
| 75°   | 310.2  | 309.5  | 304.1  | 303.4  | 306.1  |
| 77.5° | 247.4  | 242.7  | 238.7  | 239.4  | 238.0  |
| 80°   | 182.7  | 179.3  | 174.6  | 176.0  | 176.7  |
| 82.5° | 121.4  | 122.7  | 119.3  | 119.3  | 120.7  |
| 85°   | 70.8   | 68.8   | 67.4   | 68.1   | 68.8   |
| 87.5° | 24.9   | 26.3   | 24.3   | 25.6   | 24.3   |
| 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 | 17.05            | 18.64 | 17.41 | 18.96 | 19.27 | 16.97          | 18.57 | 17.34 | 18.88 | 19.20 |
|                 | 3H   | 18.71            | 20.15 | 19.08 | 20.47 | 20.83 | 18.61          | 20.05 | 18.99 | 20.37 | 20.73 |
|                 | 4H   | 19.31            | 20.66 | 19.70 | 21.01 | 21.38 | 19.20          | 20.56 | 19.60 | 20.91 | 21.28 |
|                 | 6H   | 19.74            | 20.99 | 20.15 | 21.36 | 21.75 | 19.62          | 20.87 | 20.03 | 21.24 | 21.63 |
|                 | 8H   | 19.86            | 21.06 | 20.29 | 21.45 | 21.85 | 19.75          | 20.94 | 20.17 | 21.33 | 21.73 |
|                 | 12H  | 19.94            | 21.08 | 20.36 | 21.46 | 21.89 | 19.82          | 20.96 | 20.25 | 21.35 | 21.77 |
| 4H              | 2H   | 17.62            | 18.97 | 18.02 | 19.32 | 19.70 | 17.56          | 18.91 | 17.96 | 19.26 | 19.64 |
|                 | 3H   | 19.50            | 20.63 | 19.91 | 21.03 | 21.43 | 19.41          | 20.54 | 19.82 | 20.94 | 21.34 |
|                 | 4H   | 20.22            | 21.24 | 20.65 | 21.65 | 22.09 | 20.13          | 21.15 | 20.56 | 21.56 | 22.00 |
|                 | 6H   | 20.77            | 21.66 | 21.22 | 22.10 | 22.56 | 20.66          | 21.55 | 21.12 | 22.00 | 22.45 |
|                 | 8H   | 20.94            | 21.77 | 21.40 | 22.21 | 22.68 | 20.83          | 21.66 | 21.29 | 22.10 | 22.57 |
|                 | 12H  | 21.04            | 21.79 | 21.53 | 22.27 | 22.74 | 20.94          | 21.68 | 21.42 | 22.16 | 22.63 |
| 8H              | 4H   | 20.48            | 21.32 | 20.94 | 21.76 | 22.22 | 20.40          | 21.24 | 20.86 | 21.68 | 22.14 |
|                 | 6H   | 21.14            | 21.83 | 21.63 | 22.32 | 22.80 | 21.04          | 21.74 | 21.54 | 22.22 | 22.70 |
|                 | 8H   | 21.37            | 21.99 | 21.88 | 22.50 | 22.98 | 21.27          | 21.89 | 21.78 | 22.40 | 22.88 |
|                 | 12H  | 21.54            | 22.09 | 22.05 | 22.58 | 23.14 | 21.44          | 21.99 | 21.95 | 22.48 | 23.04 |
| 12H             | 4H   | 20.51            | 21.25 | 20.99 | 21.73 | 22.20 | 20.43          | 21.17 | 20.91 | 21.65 | 22.12 |
|                 | 6H   | 21.18            | 21.80 | 21.69 | 22.31 | 22.79 | 21.08          | 21.71 | 21.60 | 22.21 | 22.70 |
|                 | 8H   | 21.46            | 22.01 | 21.97 | 22.50 | 23.06 | 21.36          | 21.91 | 21.87 | 22.40 | 22.96 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-1

Test Date: 07/23/2025

Luminaire Tested: 22ID2-55-CFR1-L835-U

Data in this report applies to families of products including 22ID2-55-CFR1-L835-U



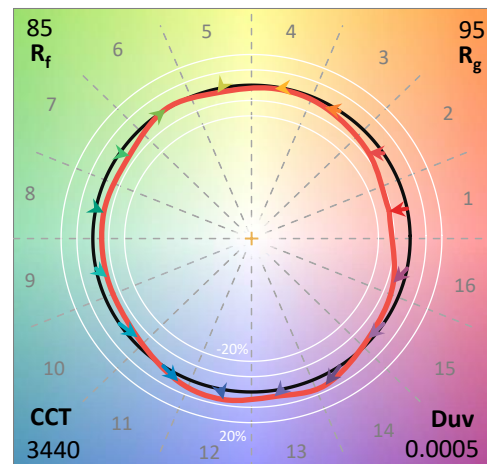
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-1  
 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-L835-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3500K 80CRI

### Spectral Parameters

CCT (K): 3440  
 CIE  $u'$ : 0.2370  
 CIE  $v'$ : 0.5132  
 Duv: 0.0005  
 CIE x: 0.4093  
 CIE y: 0.3940  
 CIE z: 0.1967  
 Peak Wavelength (nm): 599  
 Dominant Wavelength (nm): 580  
 Purity: 41.09375  
 R<sub>f</sub>: 84.9  
 R<sub>g</sub>: 94.6

CRI (Ra): 84.2  
 R1: 82.8  
 R2: 91.7  
 R3: 96.7  
 R4: 81.9  
 R5: 82.6  
 R6: 88.8  
 R7: 85.0  
 R8: 63.7  
 R9: 13.6  
 R10: 80.1  
 R11: 81.1  
 R12: 65.8  
 R13: 85.2  
 R14: 98.7  
 R15: 76.2



### Test Conditions

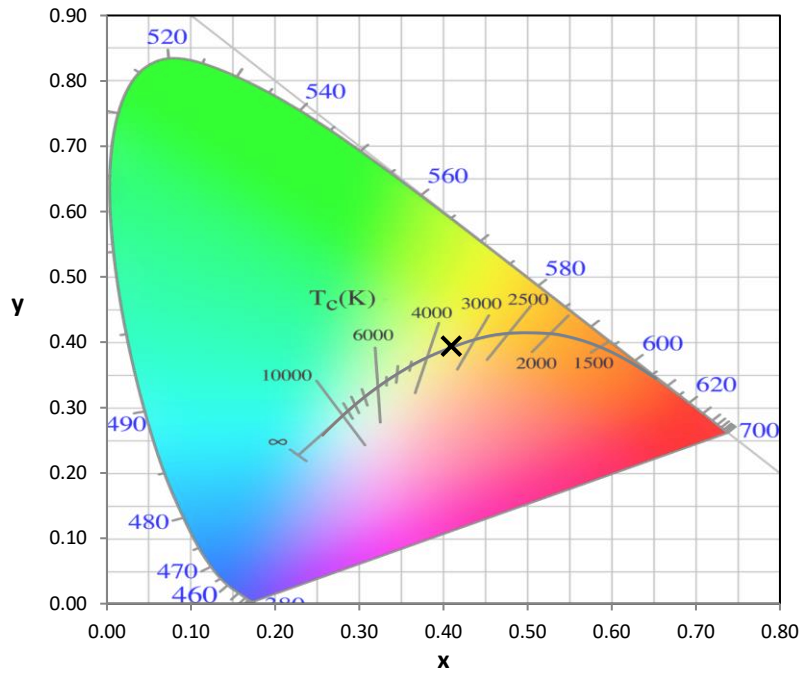
Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 24.0

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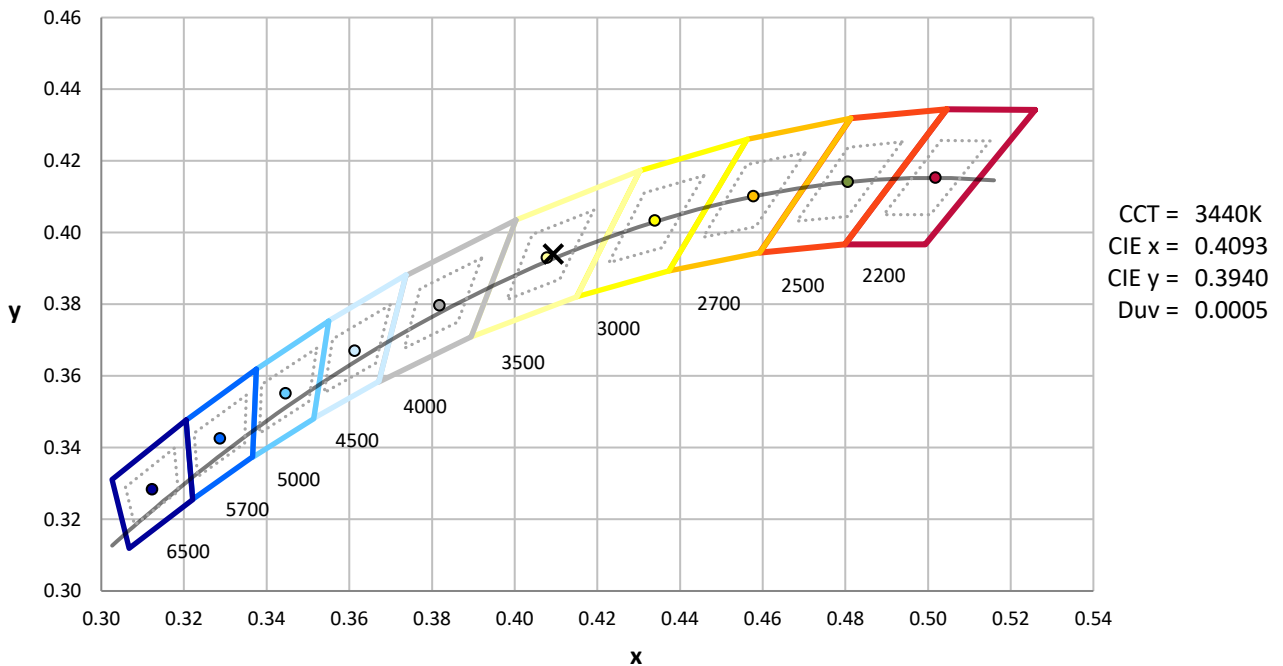
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



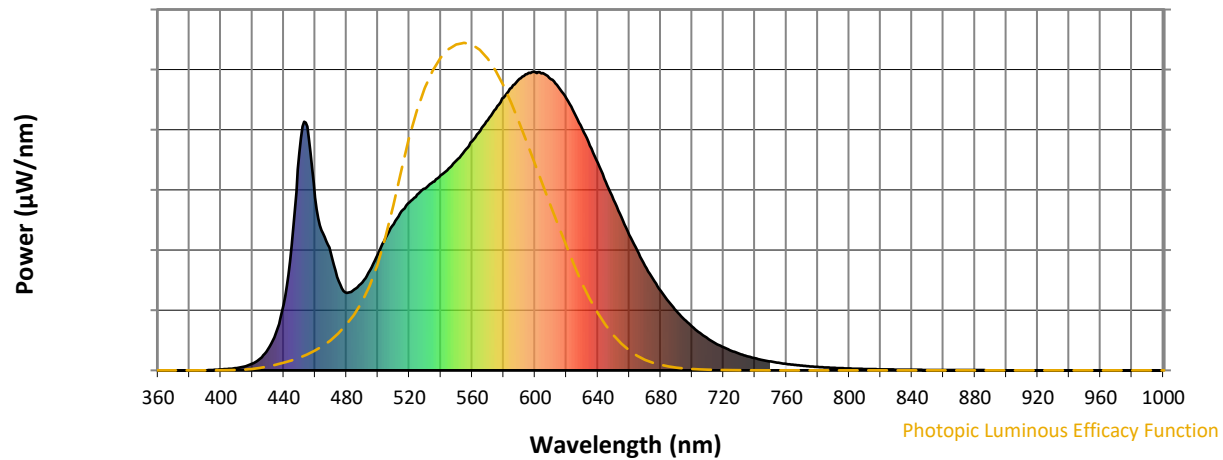
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3500K 4-step quadrangle

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### Photopic Flux vs. Wavelength

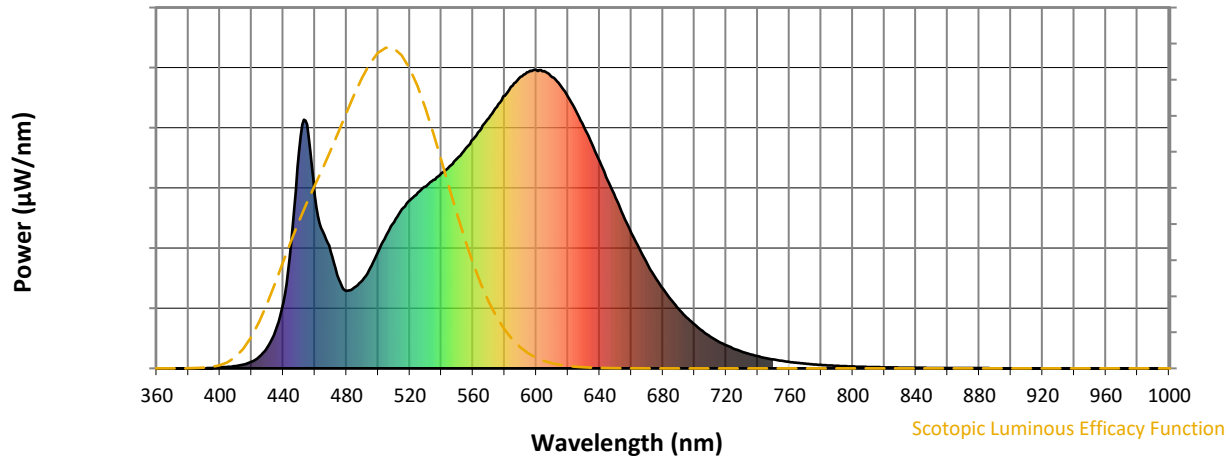


### Photopic Lumens: NR

| $\lambda$<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               | 295                                  | NR                             | 620               | 910                                  | NR                             | 750               | 30                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 335                                  | NR                             | 625               | 862                                  | NR                             | 755               | 25                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 390                                  | NR                             | 630               | 809                                  | NR                             | 760               | 21                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 445                                  | NR                             | 635               | 752                                  | NR                             | 765               | 18                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 490                                  | NR                             | 640               | 694                                  | NR                             | 770               | 16                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 532                                  | NR                             | 645               | 630                                  | NR                             | 775               | 13                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 563                                  | NR                             | 650               | 571                                  | NR                             | 780               | 12                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 588                                  | NR                             | 655               | 512                                  | NR                             | 785               | 10                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 609                                  | NR                             | 660               | 453                                  | NR                             | 790               | 8                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 5                                    | NR                             | 535               | 631                                  | NR                             | 665               | 401                                  | NR                             | 795               | 7                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 8                                    | NR                             | 540               | 654                                  | NR                             | 670               | 351                                  | NR                             | 800               | 6                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 13                                   | NR                             | 545               | 677                                  | NR                             | 675               | 306                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 23                                   | NR                             | 550               | 702                                  | NR                             | 680               | 267                                  | NR                             | 810               | 5                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 40                                   | NR                             | 555               | 734                                  | NR                             | 685               | 230                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 70                                   | NR                             | 560               | 767                                  | NR                             | 690               | 199                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 126                                  | NR                             | 565               | 802                                  | NR                             | 695               | 171                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 221                                  | NR                             | 570               | 838                                  | NR                             | 700               | 146                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 418                                  | NR                             | 575               | 875                                  | NR                             | 705               | 125                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 729                                  | NR                             | 580               | 913                                  | NR                             | 710               | 107                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 816                                  | NR                             | 585               | 946                                  | NR                             | 715               | 90                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 578                                  | NR                             | 590               | 976                                  | NR                             | 720               | 77                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 458                                  | NR                             | 595               | 992                                  | NR                             | 725               | 66                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 390                                  | NR                             | 600               | 999                                  | NR                             | 730               | 56                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 299                                  | NR                             | 605               | 995                                  | NR                             | 735               | 47                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 260                                  | NR                             | 610               | 975                                  | NR                             | 740               | 40                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 271                                  | NR                             | 615               | 948                                  | NR                             | 745               | 34                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



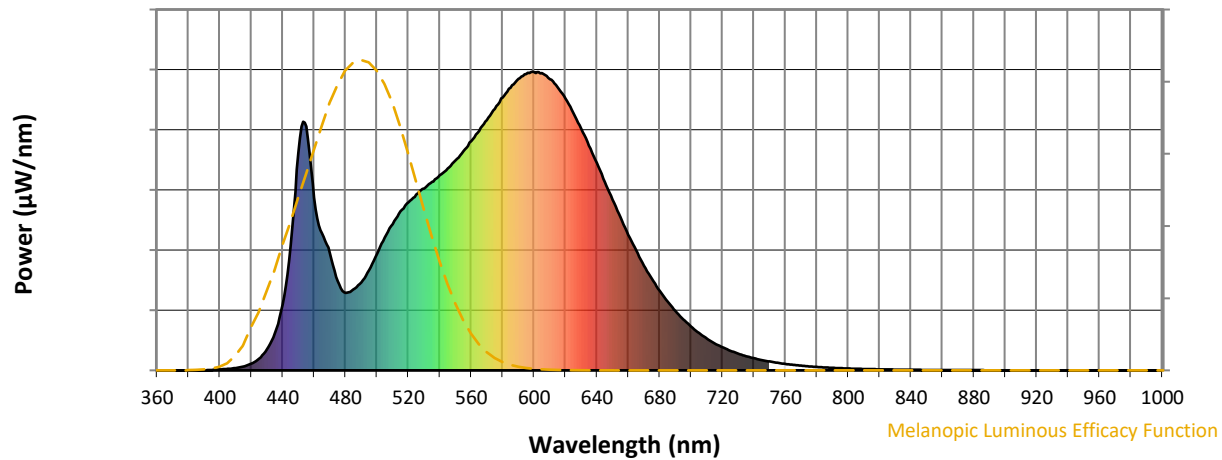
Scotopic Lumens: NR

S/P: 1.53

| $\lambda$<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               | 295                                  | NR                             | 620               | 910                                  | NR                             | 750               | 30                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 335                                  | NR                             | 625               | 862                                  | NR                             | 755               | 25                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 390                                  | NR                             | 630               | 809                                  | NR                             | 760               | 21                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 445                                  | NR                             | 635               | 752                                  | NR                             | 765               | 18                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 490                                  | NR                             | 640               | 694                                  | NR                             | 770               | 16                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 532                                  | NR                             | 645               | 630                                  | NR                             | 775               | 13                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 563                                  | NR                             | 650               | 571                                  | NR                             | 780               | 12                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 2                                    | NR                             | 525               | 588                                  | NR                             | 655               | 512                                  | NR                             | 785               | 10                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 3                                    | NR                             | 530               | 609                                  | NR                             | 660               | 453                                  | NR                             | 790               | 8                                    | NR                             | 920               | 0                                    | NR                             |
| 405               | 5                                    | NR                             | 535               | 631                                  | NR                             | 665               | 401                                  | NR                             | 795               | 7                                    | NR                             | 925               | 0                                    | NR                             |
| 410               | 8                                    | NR                             | 540               | 654                                  | NR                             | 670               | 351                                  | NR                             | 800               | 6                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 13                                   | NR                             | 545               | 677                                  | NR                             | 675               | 306                                  | NR                             | 805               | 5                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 23                                   | NR                             | 550               | 702                                  | NR                             | 680               | 267                                  | NR                             | 810               | 5                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 40                                   | NR                             | 555               | 734                                  | NR                             | 685               | 230                                  | NR                             | 815               | 4                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 70                                   | NR                             | 560               | 767                                  | NR                             | 690               | 199                                  | NR                             | 820               | 4                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 126                                  | NR                             | 565               | 802                                  | NR                             | 695               | 171                                  | NR                             | 825               | 3                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 221                                  | NR                             | 570               | 838                                  | NR                             | 700               | 146                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 418                                  | NR                             | 575               | 875                                  | NR                             | 705               | 125                                  | NR                             | 835               | 2                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 729                                  | NR                             | 580               | 913                                  | NR                             | 710               | 107                                  | NR                             | 840               | 2                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 816                                  | NR                             | 585               | 946                                  | NR                             | 715               | 90                                   | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 578                                  | NR                             | 590               | 976                                  | NR                             | 720               | 77                                   | NR                             | 850               | 1                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 458                                  | NR                             | 595               | 992                                  | NR                             | 725               | 66                                   | NR                             | 855               | 1                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 390                                  | NR                             | 600               | 999                                  | NR                             | 730               | 56                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 299                                  | NR                             | 605               | 995                                  | NR                             | 735               | 47                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 260                                  | NR                             | 610               | 975                                  | NR                             | 740               | 40                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 271                                  | NR                             | 615               | 948                                  | NR                             | 745               | 34                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.07

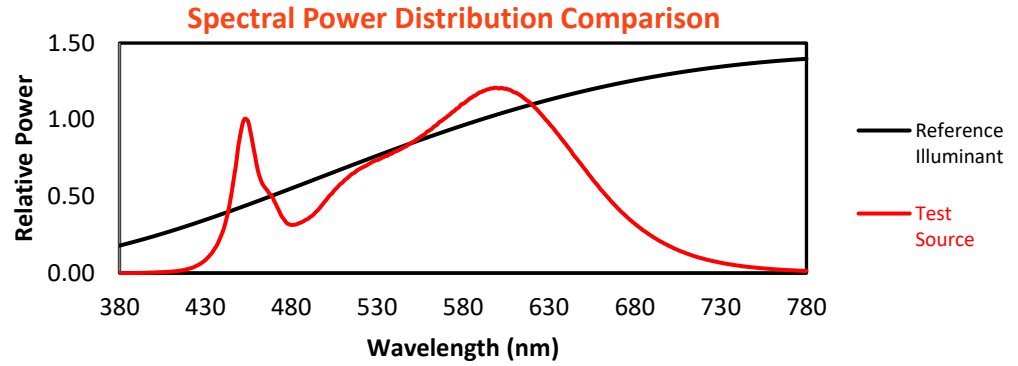
| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 295                         | NR               | 620       | 910                         | NR               | 750       | 30                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 335                         | NR               | 625       | 862                         | NR               | 755       | 25                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 390                         | NR               | 630       | 809                         | NR               | 760       | 21                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 445                         | NR               | 635       | 752                         | NR               | 765       | 18                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 490                         | NR               | 640       | 694                         | NR               | 770       | 16                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 532                         | NR               | 645       | 630                         | NR               | 775       | 13                          | NR               | 905       | 0                           | NR               |
| 390       | 0                           | NR               | 520       | 563                         | NR               | 650       | 571                         | NR               | 780       | 12                          | NR               | 910       | 0                           | NR               |
| 395       | 2                           | NR               | 525       | 588                         | NR               | 655       | 512                         | NR               | 785       | 10                          | NR               | 915       | 0                           | NR               |
| 400       | 3                           | NR               | 530       | 609                         | NR               | 660       | 453                         | NR               | 790       | 8                           | NR               | 920       | 0                           | NR               |
| 405       | 5                           | NR               | 535       | 631                         | NR               | 665       | 401                         | NR               | 795       | 7                           | NR               | 925       | 0                           | NR               |
| 410       | 8                           | NR               | 540       | 654                         | NR               | 670       | 351                         | NR               | 800       | 6                           | NR               | 930       | 0                           | NR               |
| 415       | 13                          | NR               | 545       | 677                         | NR               | 675       | 306                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 23                          | NR               | 550       | 702                         | NR               | 680       | 267                         | NR               | 810       | 5                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 734                         | NR               | 685       | 230                         | NR               | 815       | 4                           | NR               | 945       | 0                           | NR               |
| 430       | 70                          | NR               | 560       | 767                         | NR               | 690       | 199                         | NR               | 820       | 4                           | NR               | 950       | 0                           | NR               |
| 435       | 126                         | NR               | 565       | 802                         | NR               | 695       | 171                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 221                         | NR               | 570       | 838                         | NR               | 700       | 146                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 418                         | NR               | 575       | 875                         | NR               | 705       | 125                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 729                         | NR               | 580       | 913                         | NR               | 710       | 107                         | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 816                         | NR               | 585       | 946                         | NR               | 715       | 90                          | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 578                         | NR               | 590       | 976                         | NR               | 720       | 77                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 458                         | NR               | 595       | 992                         | NR               | 725       | 66                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 390                         | NR               | 600       | 999                         | NR               | 730       | 56                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 299                         | NR               | 605       | 995                         | NR               | 735       | 47                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 260                         | NR               | 610       | 975                         | NR               | 740       | 40                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 271                         | NR               | 615       | 948                         | NR               | 745       | 34                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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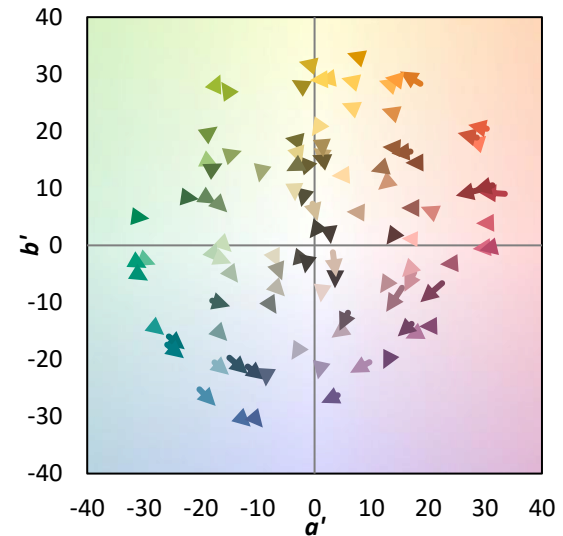
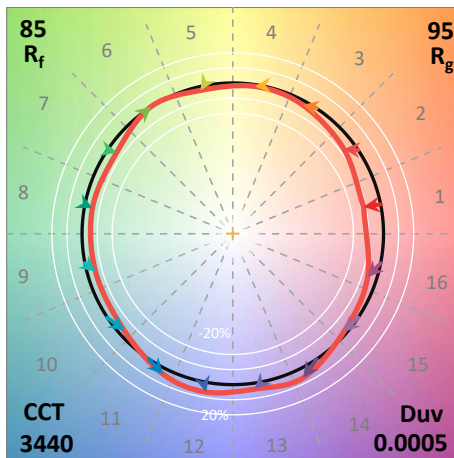
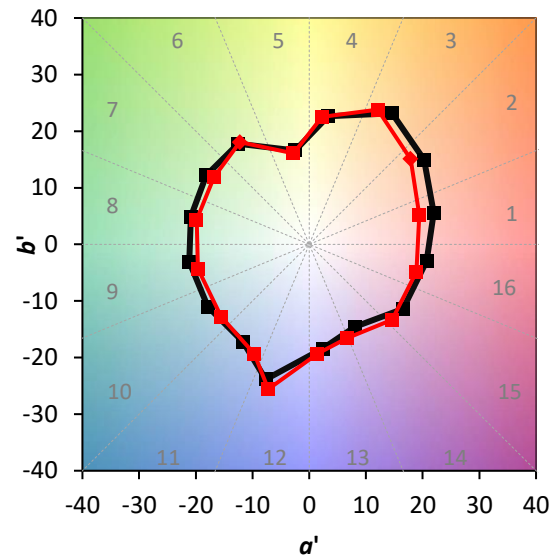
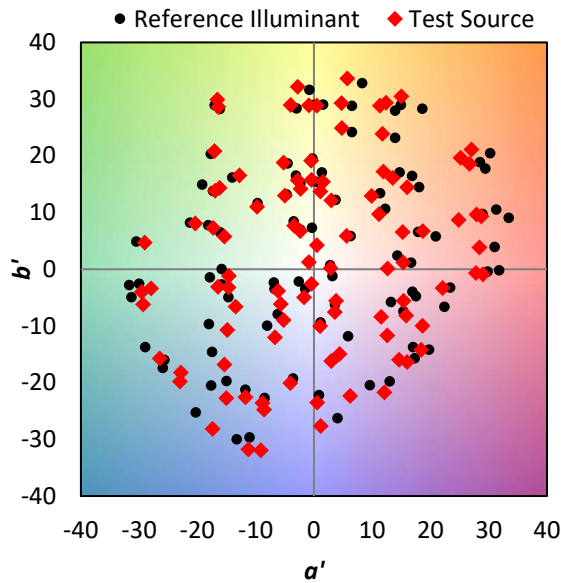
TM-30-18

### Summary

$R_f = 84.9$   
 $R_g = 94.6$   
 $CIE R_a = 84.2$   
 $R_9 = 13.6$

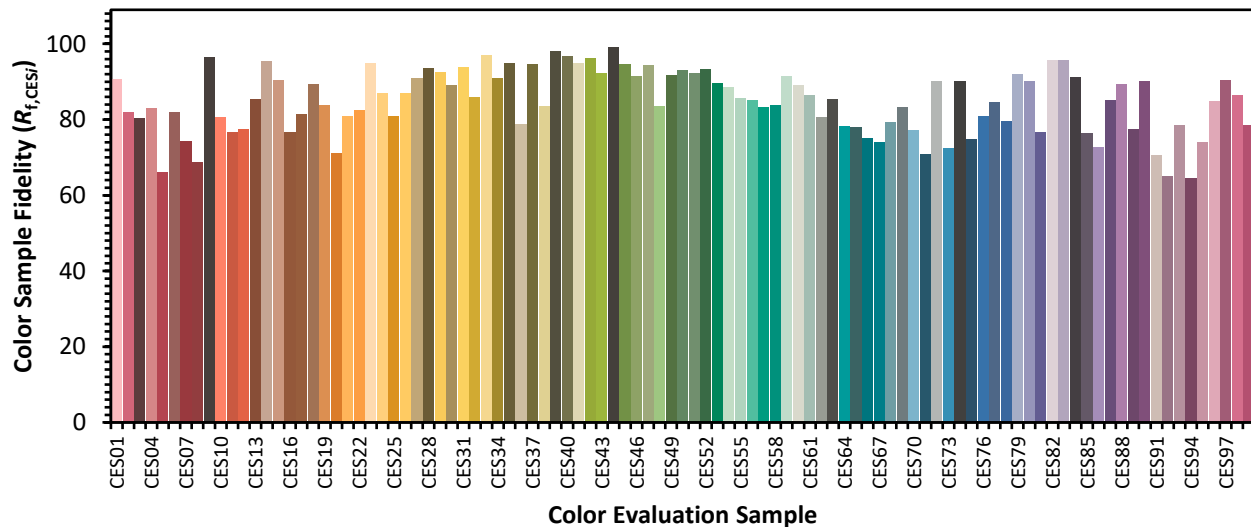


### Color Vector Graphics



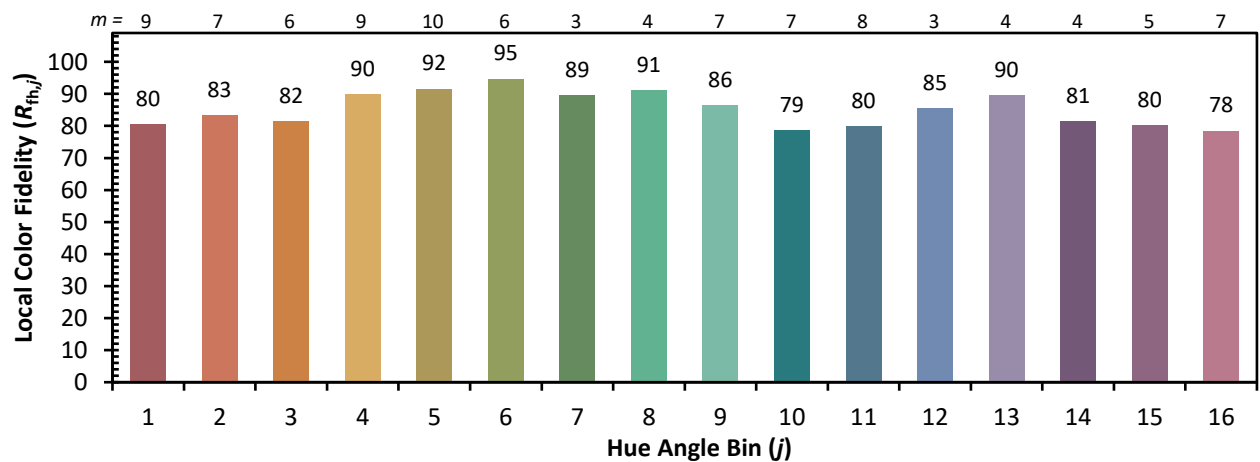
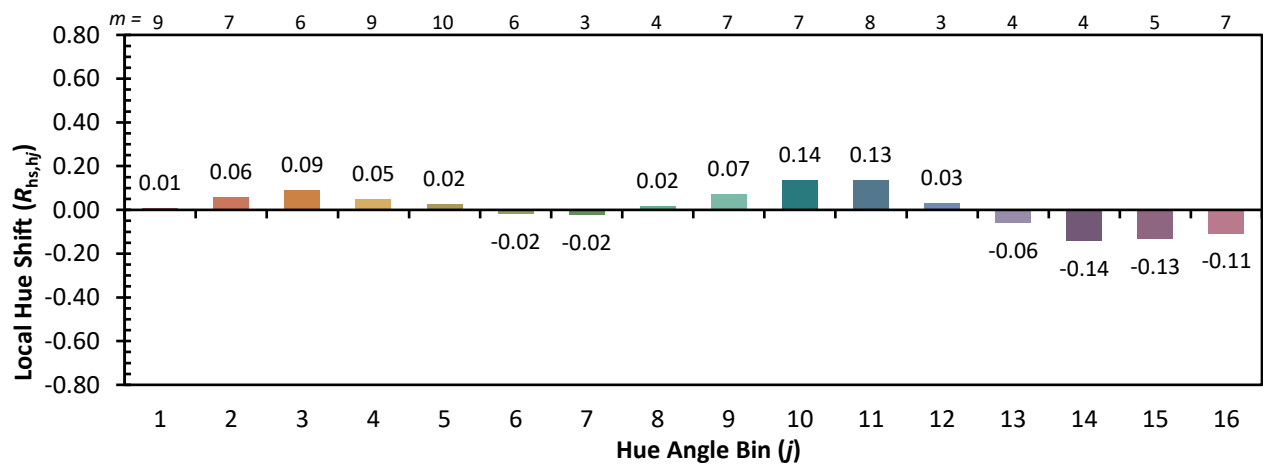
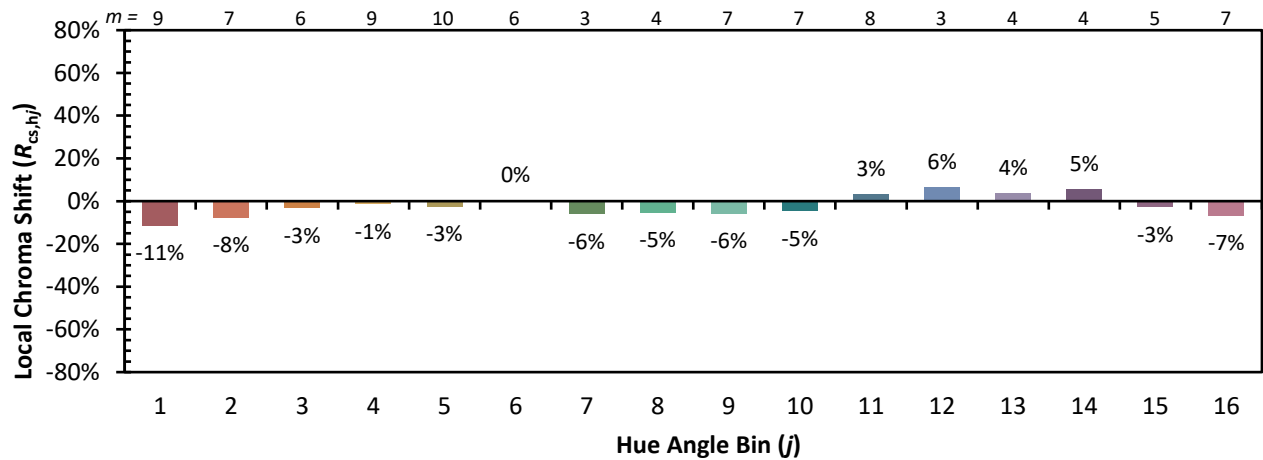
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 87 | CES51 = 92 | CES76 = 81 |
| CES02 = 62 | CES27 = 91 | CES52 = 93 | CES77 = 85 |
| CES03 = 31 | CES28 = 94 | CES53 = 90 | CES78 = 80 |
| CES04 = 70 | CES29 = 92 | CES54 = 89 | CES79 = 92 |
| CES05 = 49 | CES30 = 89 | CES55 = 86 | CES80 = 90 |
| CES06 = 51 | CES31 = 94 | CES56 = 85 | CES81 = 77 |
| CES07 = 41 | CES32 = 86 | CES57 = 83 | CES82 = 96 |
| CES08 = 40 | CES33 = 97 | CES58 = 84 | CES83 = 96 |
| CES09 = 29 | CES34 = 91 | CES59 = 91 | CES84 = 91 |
| CES10 = 75 | CES35 = 95 | CES60 = 89 | CES85 = 76 |
| CES11 = 58 | CES36 = 79 | CES61 = 87 | CES86 = 73 |
| CES12 = 64 | CES37 = 95 | CES62 = 81 | CES87 = 85 |
| CES13 = 43 | CES38 = 84 | CES63 = 85 | CES88 = 89 |
| CES14 = 74 | CES39 = 98 | CES64 = 78 | CES89 = 78 |
| CES15 = 71 | CES40 = 97 | CES65 = 78 | CES90 = 90 |
| CES16 = 47 | CES41 = 95 | CES66 = 75 | CES91 = 71 |
| CES17 = 50 | CES42 = 96 | CES67 = 74 | CES92 = 65 |
| CES18 = 56 | CES43 = 92 | CES68 = 79 | CES93 = 79 |
| CES19 = 72 | CES44 = 99 | CES69 = 83 | CES94 = 64 |
| CES20 = 66 | CES45 = 95 | CES70 = 77 | CES95 = 74 |
| CES21 = 86 | CES46 = 91 | CES71 = 71 | CES96 = 85 |
| CES22 = 78 | CES47 = 94 | CES72 = 90 | CES97 = 90 |
| CES23 = 92 | CES48 = 83 | CES73 = 72 | CES98 = 86 |
| CES24 = 90 | CES49 = 92 | CES74 = 90 | CES99 = 79 |
| CES25 = 72 | CES50 = 93 | CES75 = 75 |            |

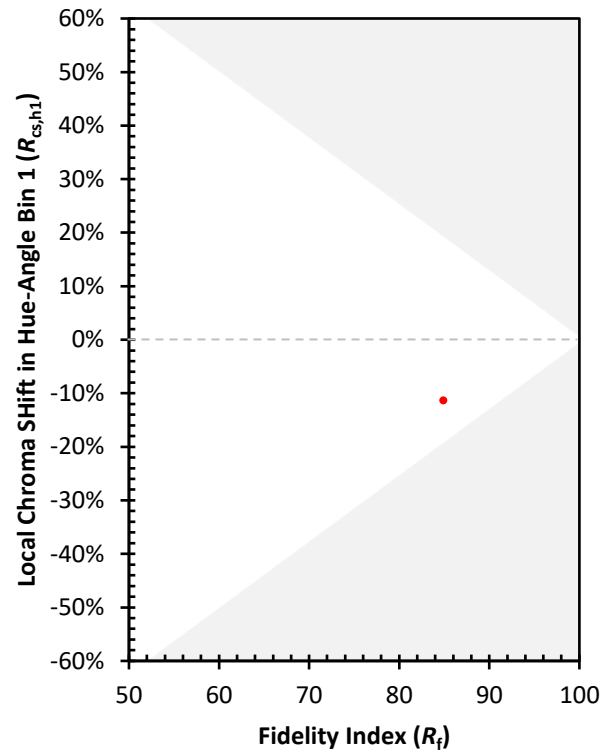
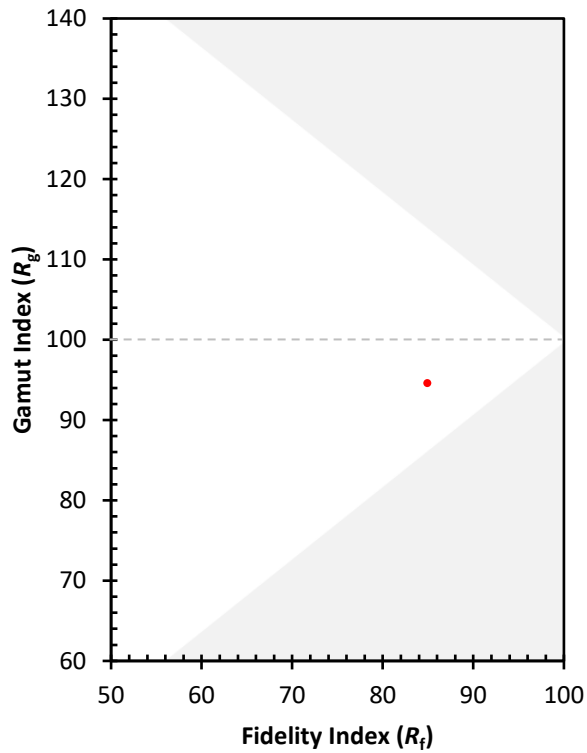




### Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)