

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: P1216776

Luminaire Tested: 14-ID2-45-CFR1-L840-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1216776  
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-ID2-45-CFR1-L840-U  
Description: 1X4 IN DEPTH TROFFER WITH 1INCH CUBE REGRESS LENS  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

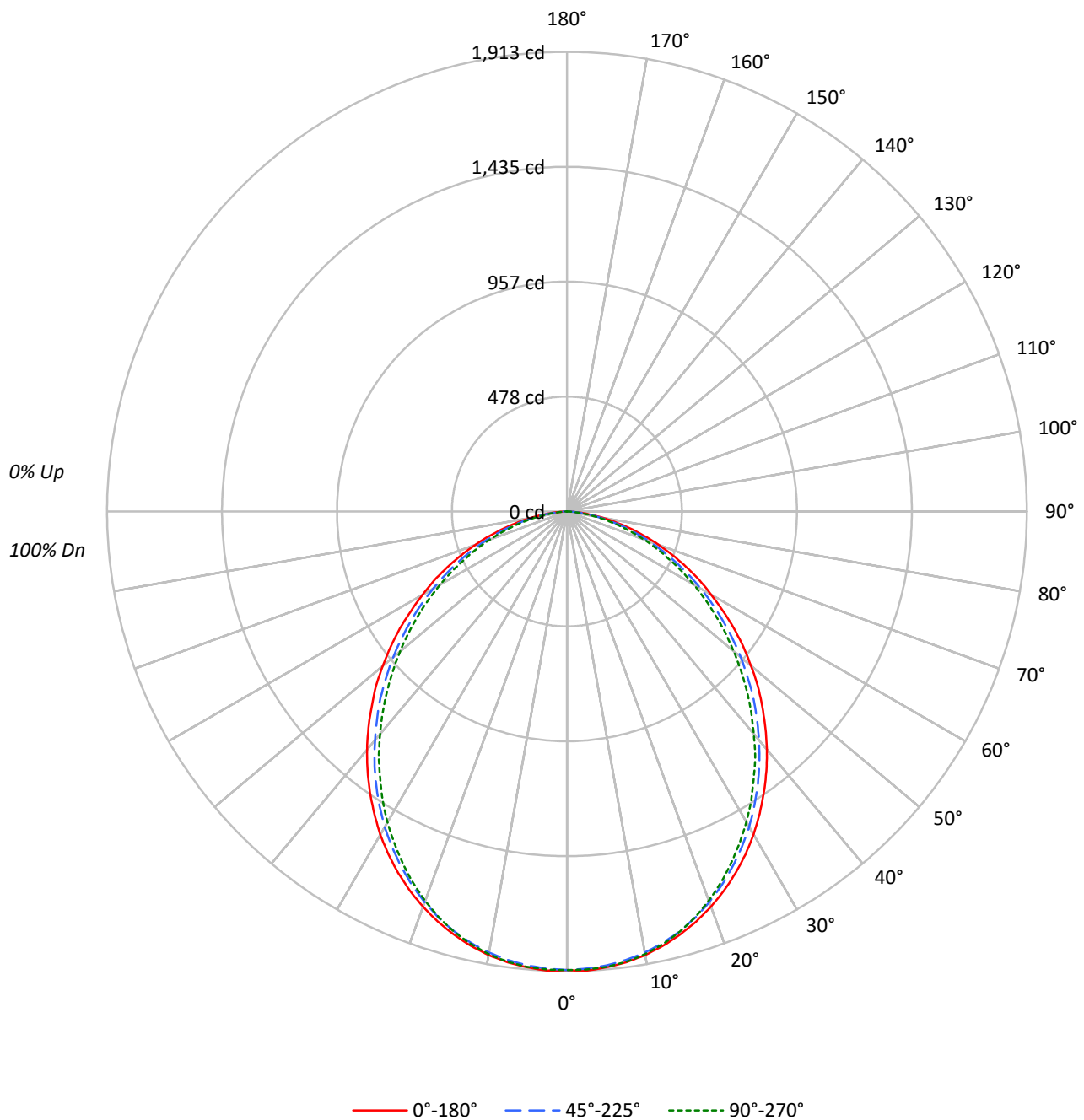
Lumens per Lamp: N/A  
Luminaire Lumens: 4690.7 lumens  
Efficiency: N/A  
Efficacy: 118.5 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.17 / 1.28  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 39.6  
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: P1216776

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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°  | 5137 | 5137 | 5137 |
| 5°  | 5143 | 5122 | 5139 |
| 10° | 5123 | 5095 | 5112 |
| 15° | 5078 | 5042 | 5047 |
| 20° | 5013 | 4956 | 4938 |
| 25° | 4929 | 4842 | 4798 |
| 30° | 4824 | 4711 | 4639 |
| 35° | 4691 | 4548 | 4449 |
| 40° | 4544 | 4363 | 4246 |
| 45° | 4371 | 4172 | 4027 |
| 50° | 4185 | 3949 | 3790 |
| 55° | 3976 | 3712 | 3541 |
| 60° | 3730 | 3462 | 3274 |
| 65° | 3490 | 3182 | 2975 |
| 70° | 3190 | 2879 | 2667 |
| 75° | 2825 | 2504 | 2289 |
| 80° | 2307 | 2025 | 1816 |
| 85° | 1639 | 1346 | 1099 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4371 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 180.3  | 3.8       |
| 10°-20°   | 510.7  | 10.9      |
| 20°-30°   | 752.1  | 16.0      |
| 30°-40°   | 867.5  | 18.5      |
| 40°-50°   | 848.4  | 18.1      |
| 50°-60°   | 713.3  | 15.2      |
| 60°-70°   | 501.2  | 10.7      |
| 70°-80°   | 259.5  | 5.5       |
| 80°-90°   | 57.5   | 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°    | 1443.2 | 30.8      |
| 0°-40°    | 2310.7 | 49.3      |
| 0°-60°    | 3872.4 | 82.6      |
| 0°-90°    | 4690.7 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4690.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1909 | 1909  | 1909 | 1909  | 1909 |      |
| 5°  | 1904 | 1902  | 1896 | 1897  | 1903 | 181  |
| 15° | 1823 | 1819  | 1810 | 1807  | 1812 | 514  |
| 25° | 1660 | 1653  | 1631 | 1614  | 1616 | 764  |
| 35° | 1428 | 1416  | 1384 | 1359  | 1354 | 893  |
| 45° | 1148 | 1134  | 1096 | 1066  | 1058 | 887  |
| 55° | 848  | 832   | 791  | 765   | 755  | 757  |
| 65° | 548  | 534   | 500  | 478   | 467  | 543  |
| 75° | 272  | 262   | 241  | 225   | 220  | 288  |
| 85° | 53   | 55    | 44   | 37    | 36   | 66   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1908.9 | 1908.9 | 1908.9 | 1908.9 | 1908.9 |
| 2.5°  | 1912.9 | 1908.9 | 1904.1 | 1905.7 | 1908.1 |
| 5°    | 1904.1 | 1901.8 | 1896.2 | 1897.0 | 1902.6 |
| 7.5°  | 1892.3 | 1889.1 | 1882.8 | 1884.3 | 1890.7 |
| 10°   | 1874.8 | 1870.1 | 1864.5 | 1865.3 | 1870.9 |
| 12.5° | 1851.1 | 1847.1 | 1840.0 | 1839.2 | 1844.7 |
| 15°   | 1822.6 | 1818.6 | 1809.9 | 1806.7 | 1811.5 |
| 17.5° | 1789.3 | 1784.5 | 1773.4 | 1767.9 | 1771.1 |
| 20°   | 1750.5 | 1745.7 | 1730.7 | 1720.4 | 1724.3 |
| 22.5° | 1707.7 | 1702.2 | 1683.2 | 1671.3 | 1672.9 |
| 25°   | 1660.2 | 1653.1 | 1630.9 | 1614.2 | 1615.8 |
| 27.5° | 1608.7 | 1599.2 | 1574.6 | 1556.4 | 1555.6 |
| 30°   | 1552.5 | 1542.2 | 1516.0 | 1494.6 | 1493.1 |
| 32.5° | 1491.5 | 1481.2 | 1451.1 | 1428.1 | 1426.5 |
| 35°   | 1428.1 | 1416.2 | 1384.5 | 1359.2 | 1354.4 |
| 37.5° | 1362.4 | 1348.9 | 1314.8 | 1290.3 | 1286.3 |
| 40°   | 1293.5 | 1279.2 | 1242.0 | 1215.8 | 1208.7 |
| 42.5° | 1222.2 | 1208.7 | 1169.1 | 1143.8 | 1134.2 |
| 45°   | 1148.5 | 1134.2 | 1096.2 | 1066.1 | 1058.2 |
| 47.5° | 1078.0 | 1059.0 | 1018.6 | 993.3  | 981.4  |
| 50°   | 999.6  | 983.8  | 943.4  | 917.2  | 905.3  |
| 52.5° | 924.3  | 908.5  | 866.5  | 840.4  | 830.1  |
| 55°   | 847.5  | 831.7  | 791.3  | 765.1  | 754.8  |
| 57.5° | 768.3  | 755.6  | 716.8  | 692.3  | 681.2  |
| 60°   | 693.1  | 680.4  | 643.2  | 620.2  | 608.3  |
| 62.5° | 622.6  | 606.7  | 570.3  | 548.9  | 537.0  |
| 65°   | 548.1  | 533.9  | 499.8  | 477.6  | 467.3  |
| 67.5° | 476.0  | 462.6  | 430.9  | 411.9  | 404.0  |
| 70°   | 405.5  | 393.7  | 365.9  | 346.9  | 339.0  |
| 72.5° | 336.6  | 326.3  | 301.8  | 283.6  | 278.0  |
| 75°   | 271.7  | 262.2  | 240.8  | 224.9  | 220.2  |
| 77.5° | 208.3  | 202.8  | 183.0  | 169.5  | 165.5  |
| 80°   | 148.9  | 146.5  | 130.7  | 119.6  | 117.2  |
| 82.5° | 96.6   | 95.8   | 85.5   | 76.0   | 72.9   |
| 85°   | 53.1   | 54.7   | 43.6   | 37.2   | 35.6   |
| 87.5° | 19.0   | 19.0   | 13.5   | 11.9   | 11.1   |
| 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 | 16.79            | 18.37 | 17.16 | 18.69 | 19.00 | 16.14          | 17.72 | 16.51 | 18.04 | 18.35 |
|                 | 3H   | 18.42            | 19.84 | 18.79 | 20.17 | 20.53 | 17.63          | 19.05 | 18.00 | 19.38 | 19.74 |
|                 | 4H   | 18.98            | 20.32 | 19.38 | 20.67 | 21.05 | 18.12          | 19.46 | 18.52 | 19.80 | 20.18 |
|                 | 6H   | 19.36            | 20.60 | 19.77 | 20.96 | 21.35 | 18.42          | 19.66 | 18.83 | 20.02 | 20.42 |
|                 | 8H   | 19.46            | 20.64 | 19.88 | 21.03 | 21.43 | 18.49          | 19.67 | 18.92 | 20.06 | 20.46 |
|                 | 12H  | 19.51            | 20.64 | 19.94 | 21.02 | 21.45 | 18.52          | 19.64 | 18.95 | 20.03 | 20.46 |
| 4H              | 2H   | 17.27            | 18.61 | 17.67 | 18.96 | 19.33 | 16.74          | 18.08 | 17.14 | 18.43 | 18.81 |
|                 | 3H   | 19.11            | 20.22 | 19.52 | 20.62 | 21.02 | 18.43          | 19.55 | 18.84 | 19.95 | 20.35 |
|                 | 4H   | 19.80            | 20.80 | 20.23 | 21.22 | 21.65 | 19.03          | 20.03 | 19.46 | 20.45 | 20.88 |
|                 | 6H   | 20.29            | 21.17 | 20.75 | 21.61 | 22.07 | 19.43          | 20.30 | 19.88 | 20.74 | 21.20 |
|                 | 8H   | 20.43            | 21.24 | 20.89 | 21.69 | 22.15 | 19.52          | 20.34 | 19.99 | 20.78 | 21.25 |
|                 | 12H  | 20.51            | 21.24 | 20.99 | 21.72 | 22.19 | 19.57          | 20.30 | 20.05 | 20.78 | 21.25 |
| 8H              | 4H   | 19.99            | 20.81 | 20.46 | 21.25 | 21.72 | 19.30          | 20.12 | 19.76 | 20.56 | 21.03 |
|                 | 6H   | 20.58            | 21.26 | 21.08 | 21.75 | 22.22 | 19.78          | 20.46 | 20.28 | 20.95 | 21.43 |
|                 | 8H   | 20.77            | 21.38 | 21.28 | 21.89 | 22.37 | 19.92          | 20.53 | 20.43 | 21.04 | 21.52 |
|                 | 12H  | 20.91            | 21.44 | 21.42 | 21.93 | 22.50 | 20.00          | 20.54 | 20.51 | 21.03 | 21.59 |
| 12H             | 4H   | 20.00            | 20.73 | 20.48 | 21.21 | 21.68 | 19.32          | 20.05 | 19.80 | 20.53 | 21.00 |
|                 | 6H   | 20.59            | 21.20 | 21.10 | 21.71 | 22.20 | 19.82          | 20.43 | 20.33 | 20.93 | 21.42 |
|                 | 8H   | 20.83            | 21.36 | 21.34 | 21.85 | 22.42 | 20.00          | 20.54 | 20.51 | 21.03 | 21.59 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-5

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L840-U

Data in this report applies to families of products including 22ID2-55-CFR1-L840-U



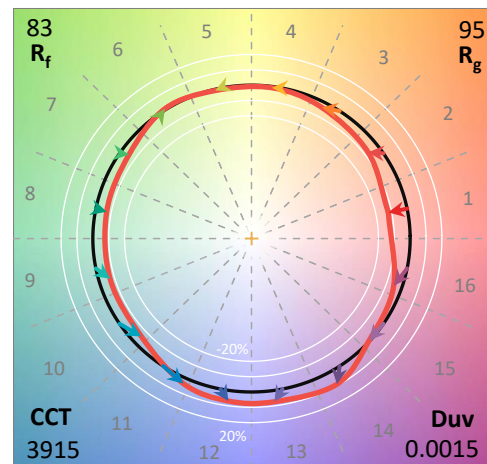
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-5  
 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-L840-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 4000K 80CRI

### Spectral Parameters

CCT (K): 3915  
 CIE  $u'$ : 0.2259  
 CIE  $v'$ : 0.5051  
 Duv: 0.0015  
 CIE x: 0.3854  
 CIE y: 0.3830  
 CIE z: 0.2316  
 Peak Wavelength (nm): 453  
 Dominant Wavelength (nm): 578  
 Purity: 30.6207  
 R<sub>f</sub>: 83.2  
 R<sub>g</sub>: 94.6

CRI (Ra): 82.3  
 R1: 80.6  
 R2: 88.9  
 R3: 94.6  
 R4: 80.5  
 R5: 80.0  
 R6: 84.0  
 R7: 86.1  
 R8: 64.0  
 R9: 7.6  
 R10: 72.9  
 R11: 78.7  
 R12: 57.3  
 R13: 82.7  
 R14: 97.1  
 R15: 74.3



### Test Conditions

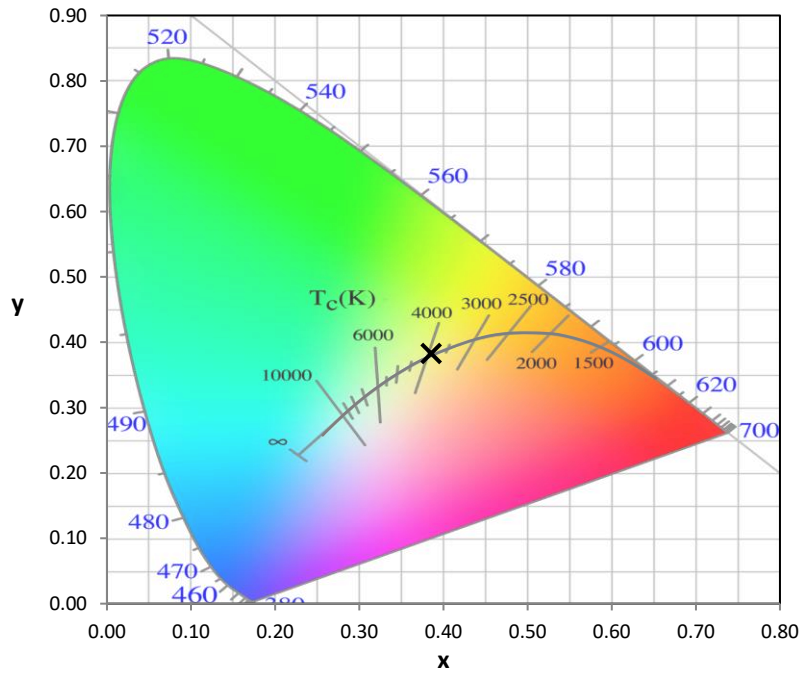
Stabilization Time: 34M  
 Operation Time: 1H 34M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2506-458-5

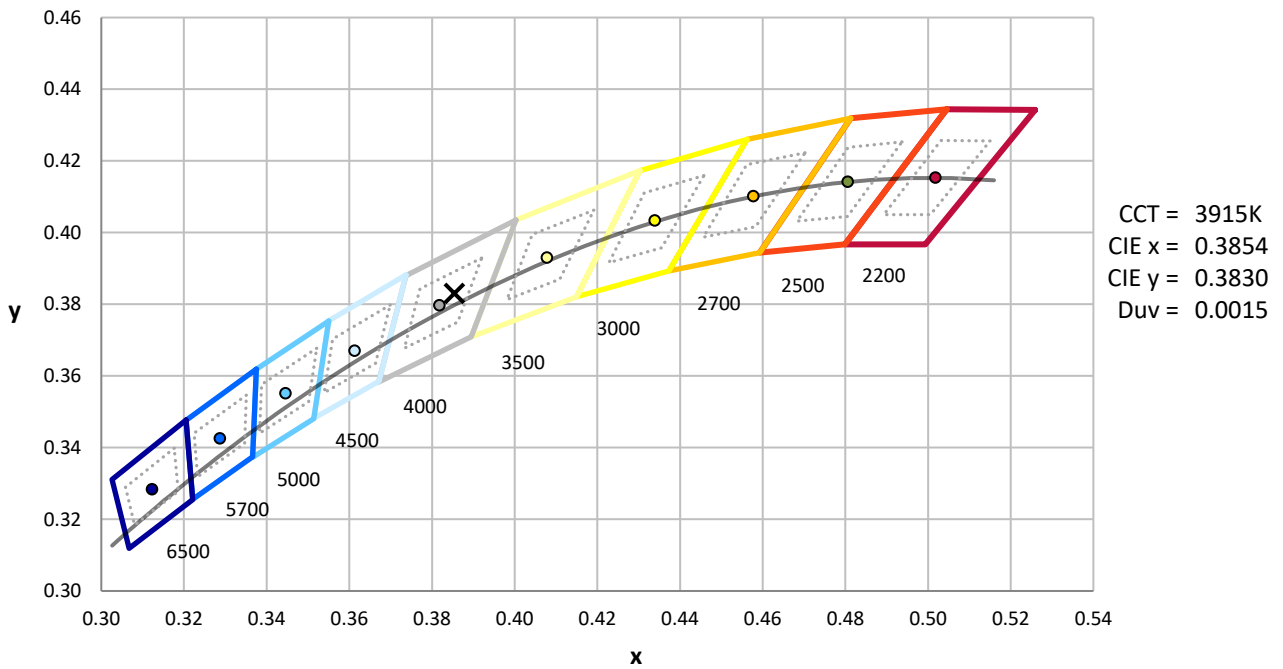
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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



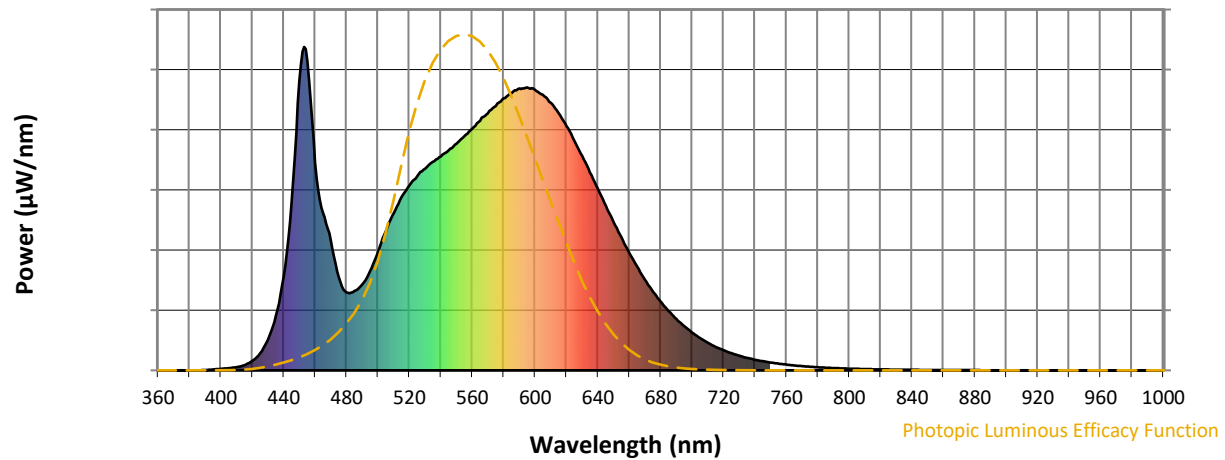
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2506-458-5

### Photopic Flux vs. Wavelength

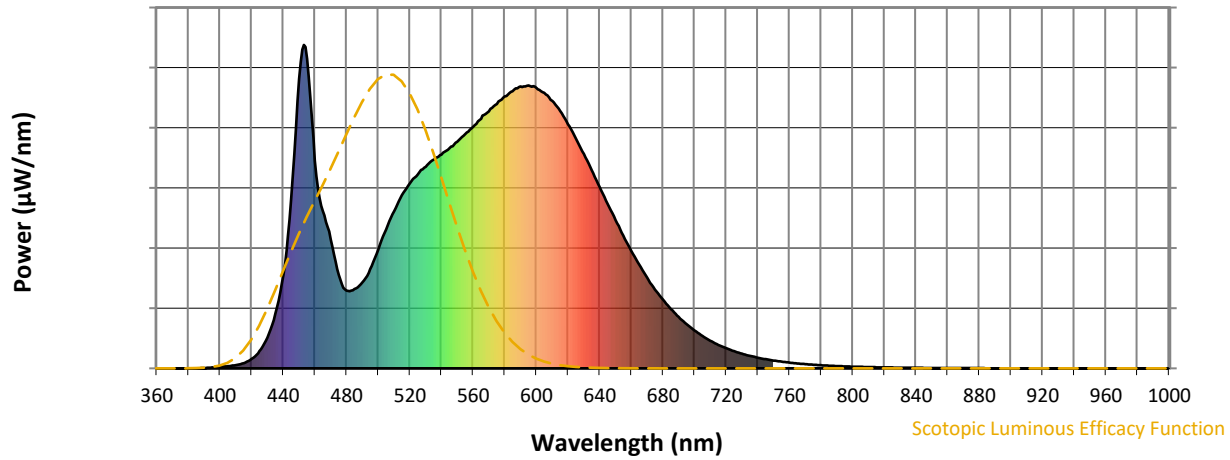


### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 266                         | NR               | 620       | 755                         | NR               | 750       | 24                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 307                         | NR               | 625       | 710                         | NR               | 755       | 21                          | NR               | 885       | 0                           | NR               |
| 370       | 0                           | NR               | 500       | 366                         | NR               | 630       | 663                         | NR               | 760       | 18                          | NR               | 890       | 0                           | NR               |
| 375       | 0                           | NR               | 505       | 430                         | NR               | 635       | 612                         | NR               | 765       | 15                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 486                         | NR               | 640       | 561                         | NR               | 770       | 13                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 536                         | NR               | 645       | 509                         | NR               | 775       | 11                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 571                         | NR               | 650       | 458                         | NR               | 780       | 10                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 600                         | NR               | 655       | 410                         | NR               | 785       | 8                           | NR               | 915       | 0                           | NR               |
| 400       | 5                           | NR               | 530       | 624                         | NR               | 660       | 363                         | NR               | 790       | 7                           | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 645                         | NR               | 665       | 321                         | NR               | 795       | 6                           | NR               | 925       | 0                           | NR               |
| 410       | 10                          | NR               | 540       | 661                         | NR               | 670       | 280                         | NR               | 800       | 5                           | NR               | 930       | 0                           | NR               |
| 415       | 16                          | NR               | 545       | 681                         | NR               | 675       | 244                         | NR               | 805       | 5                           | NR               | 935       | 0                           | NR               |
| 420       | 30                          | NR               | 550       | 701                         | NR               | 680       | 213                         | NR               | 810       | 4                           | NR               | 940       | 0                           | NR               |
| 425       | 53                          | NR               | 555       | 724                         | NR               | 685       | 183                         | NR               | 815       | 3                           | NR               | 945       | 0                           | NR               |
| 430       | 95                          | NR               | 560       | 747                         | NR               | 690       | 159                         | NR               | 820       | 3                           | NR               | 950       | 0                           | NR               |
| 435       | 170                         | NR               | 565       | 772                         | NR               | 695       | 136                         | NR               | 825       | 3                           | NR               | 955       | 0                           | NR               |
| 440       | 289                         | NR               | 570       | 795                         | NR               | 700       | 117                         | NR               | 830       | 2                           | NR               | 960       | 0                           | NR               |
| 445       | 522                         | NR               | 575       | 817                         | NR               | 705       | 100                         | NR               | 835       | 2                           | NR               | 965       | 0                           | NR               |
| 450       | 895                         | NR               | 580       | 841                         | NR               | 710       | 85                          | NR               | 840       | 2                           | NR               | 970       | 0                           | NR               |
| 455       | 957                         | NR               | 585       | 857                         | NR               | 715       | 72                          | NR               | 845       | 1                           | NR               | 975       | 0                           | NR               |
| 460       | 642                         | NR               | 590       | 871                         | NR               | 720       | 62                          | NR               | 850       | 1                           | NR               | 980       | 0                           | NR               |
| 465       | 487                         | NR               | 595       | 875                         | NR               | 725       | 53                          | NR               | 855       | 1                           | NR               | 985       | 0                           | NR               |
| 470       | 397                         | NR               | 600       | 866                         | NR               | 730       | 45                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 289                         | NR               | 605       | 852                         | NR               | 735       | 39                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 241                         | NR               | 610       | 827                         | NR               | 740       | 33                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 245                         | NR               | 615       | 796                         | NR               | 745       | 28                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Scotopic Flux vs. Wavelength



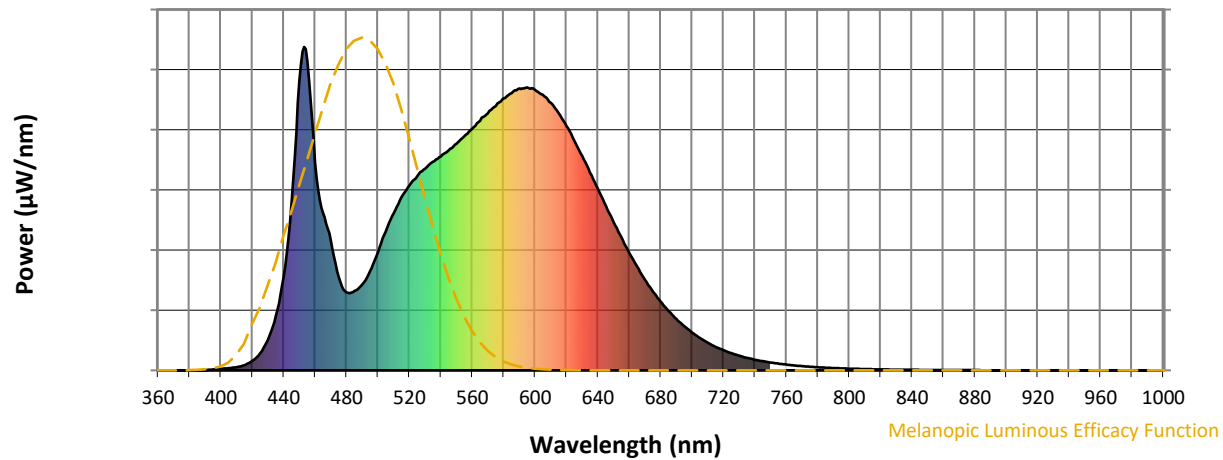
Scotopic Lumens: NR

S/P: 1.65

| 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    | 266                      | NR            | 620    | 755                      | NR            | 750    | 24                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 307                      | NR            | 625    | 710                      | NR            | 755    | 21                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 366                      | NR            | 630    | 663                      | NR            | 760    | 18                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 430                      | NR            | 635    | 612                      | NR            | 765    | 15                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 486                      | NR            | 640    | 561                      | NR            | 770    | 13                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 536                      | NR            | 645    | 509                      | NR            | 775    | 11                       | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 571                      | NR            | 650    | 458                      | NR            | 780    | 10                       | NR            | 910    | 0                        | NR            |
| 395    | 3                        | NR            | 525    | 600                      | NR            | 655    | 410                      | NR            | 785    | 8                        | NR            | 915    | 0                        | NR            |
| 400    | 5                        | NR            | 530    | 624                      | NR            | 660    | 363                      | NR            | 790    | 7                        | NR            | 920    | 0                        | NR            |
| 405    | 7                        | NR            | 535    | 645                      | NR            | 665    | 321                      | NR            | 795    | 6                        | NR            | 925    | 0                        | NR            |
| 410    | 10                       | NR            | 540    | 661                      | NR            | 670    | 280                      | NR            | 800    | 5                        | NR            | 930    | 0                        | NR            |
| 415    | 16                       | NR            | 545    | 681                      | NR            | 675    | 244                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 30                       | NR            | 550    | 701                      | NR            | 680    | 213                      | NR            | 810    | 4                        | NR            | 940    | 0                        | NR            |
| 425    | 53                       | NR            | 555    | 724                      | NR            | 685    | 183                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 95                       | NR            | 560    | 747                      | NR            | 690    | 159                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 170                      | NR            | 565    | 772                      | NR            | 695    | 136                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 289                      | NR            | 570    | 795                      | NR            | 700    | 117                      | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 522                      | NR            | 575    | 817                      | NR            | 705    | 100                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 895                      | NR            | 580    | 841                      | NR            | 710    | 85                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 957                      | NR            | 585    | 857                      | NR            | 715    | 72                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 642                      | NR            | 590    | 871                      | NR            | 720    | 62                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 487                      | NR            | 595    | 875                      | NR            | 725    | 53                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 397                      | NR            | 600    | 866                      | NR            | 730    | 45                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 289                      | NR            | 605    | 852                      | NR            | 735    | 39                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 241                      | NR            | 610    | 827                      | NR            | 740    | 33                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 245                      | NR            | 615    | 796                      | NR            | 745    | 28                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.36

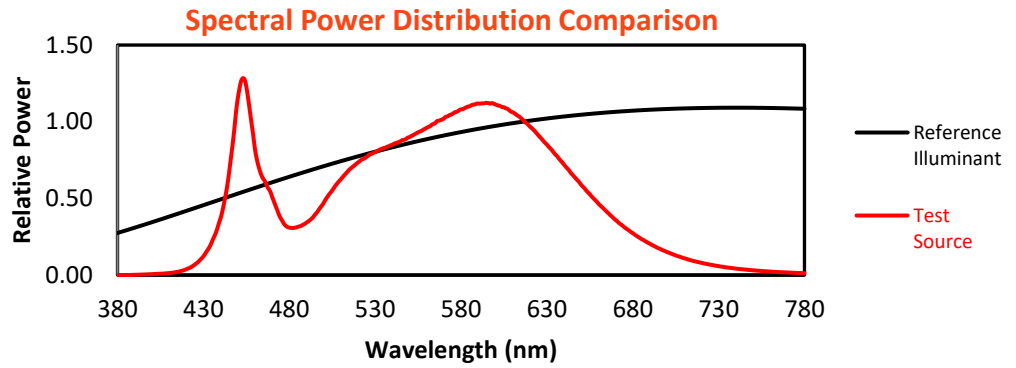
| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 266                      | NR            | 620    | 755                      | NR            | 750    | 24                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 307                      | NR            | 625    | 710                      | NR            | 755    | 21                       | NR            | 885    | 0                        | NR            |
| 370    | 0                        | NR            | 500    | 366                      | NR            | 630    | 663                      | NR            | 760    | 18                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 430                      | NR            | 635    | 612                      | NR            | 765    | 15                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 486                      | NR            | 640    | 561                      | NR            | 770    | 13                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 536                      | NR            | 645    | 509                      | NR            | 775    | 11                       | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 571                      | NR            | 650    | 458                      | NR            | 780    | 10                       | NR            | 910    | 0                        | NR            |
| 395    | 3                        | NR            | 525    | 600                      | NR            | 655    | 410                      | NR            | 785    | 8                        | NR            | 915    | 0                        | NR            |
| 400    | 5                        | NR            | 530    | 624                      | NR            | 660    | 363                      | NR            | 790    | 7                        | NR            | 920    | 0                        | NR            |
| 405    | 7                        | NR            | 535    | 645                      | NR            | 665    | 321                      | NR            | 795    | 6                        | NR            | 925    | 0                        | NR            |
| 410    | 10                       | NR            | 540    | 661                      | NR            | 670    | 280                      | NR            | 800    | 5                        | NR            | 930    | 0                        | NR            |
| 415    | 16                       | NR            | 545    | 681                      | NR            | 675    | 244                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 30                       | NR            | 550    | 701                      | NR            | 680    | 213                      | NR            | 810    | 4                        | NR            | 940    | 0                        | NR            |
| 425    | 53                       | NR            | 555    | 724                      | NR            | 685    | 183                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 95                       | NR            | 560    | 747                      | NR            | 690    | 159                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 170                      | NR            | 565    | 772                      | NR            | 695    | 136                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 289                      | NR            | 570    | 795                      | NR            | 700    | 117                      | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 522                      | NR            | 575    | 817                      | NR            | 705    | 100                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 895                      | NR            | 580    | 841                      | NR            | 710    | 85                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 957                      | NR            | 585    | 857                      | NR            | 715    | 72                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 642                      | NR            | 590    | 871                      | NR            | 720    | 62                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 487                      | NR            | 595    | 875                      | NR            | 725    | 53                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 397                      | NR            | 600    | 866                      | NR            | 730    | 45                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 289                      | NR            | 605    | 852                      | NR            | 735    | 39                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 241                      | NR            | 610    | 827                      | NR            | 740    | 33                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 245                      | NR            | 615    | 796                      | NR            | 745    | 28                       | NR            | 875    | 1                        | NR            |        |                          |               |

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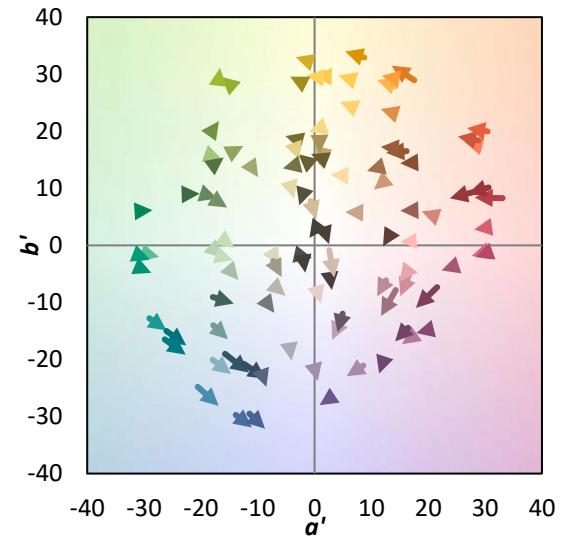
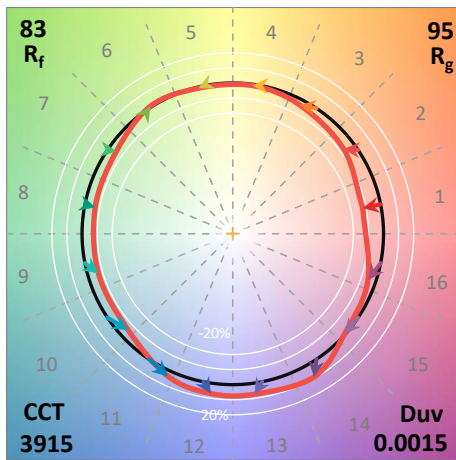
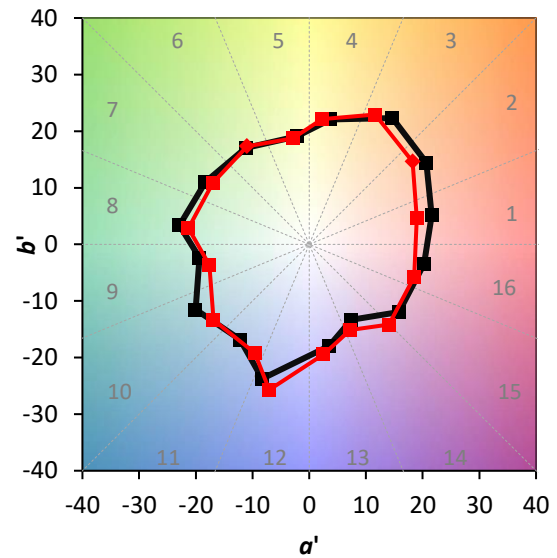
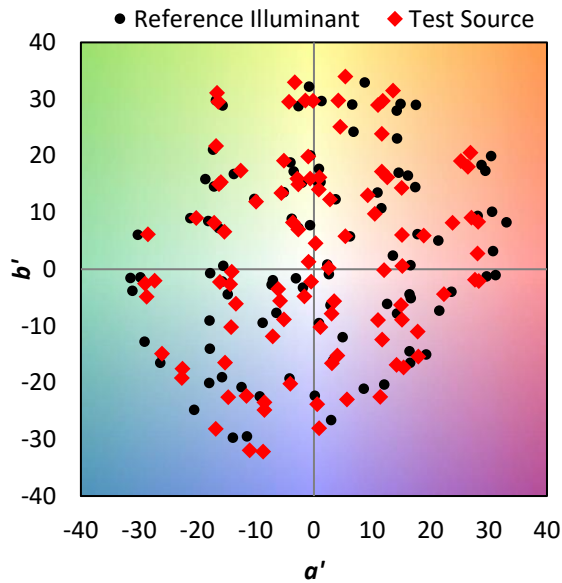
TM-30-18

### Summary

$R_f = 83.2$   
 $R_g = 94.6$   
 $CIE R_a = 82.3$   
 $R_9 = 7.6$

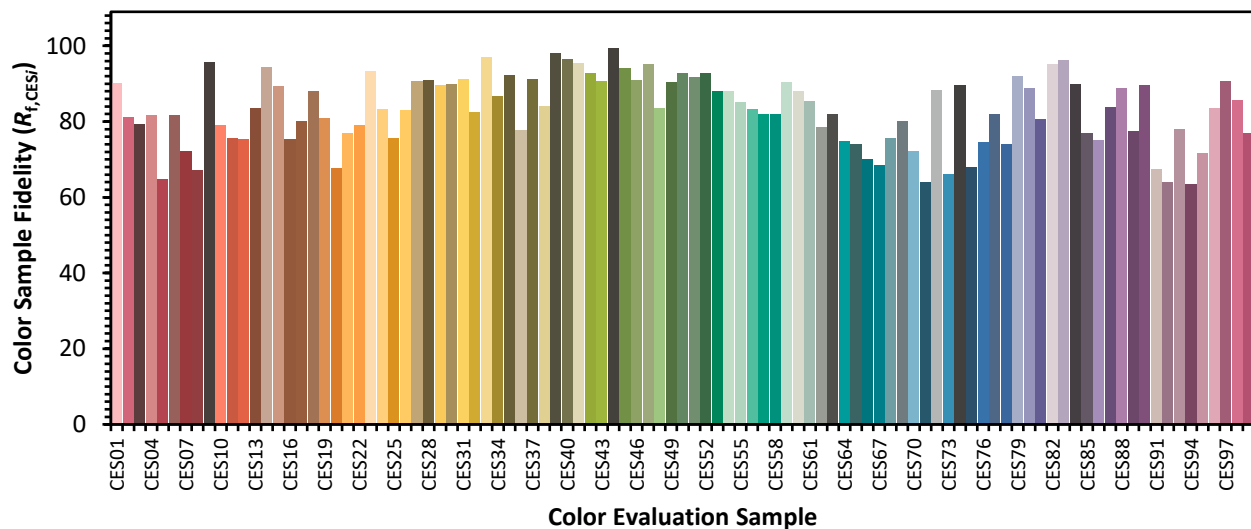


### Color Vector Graphics



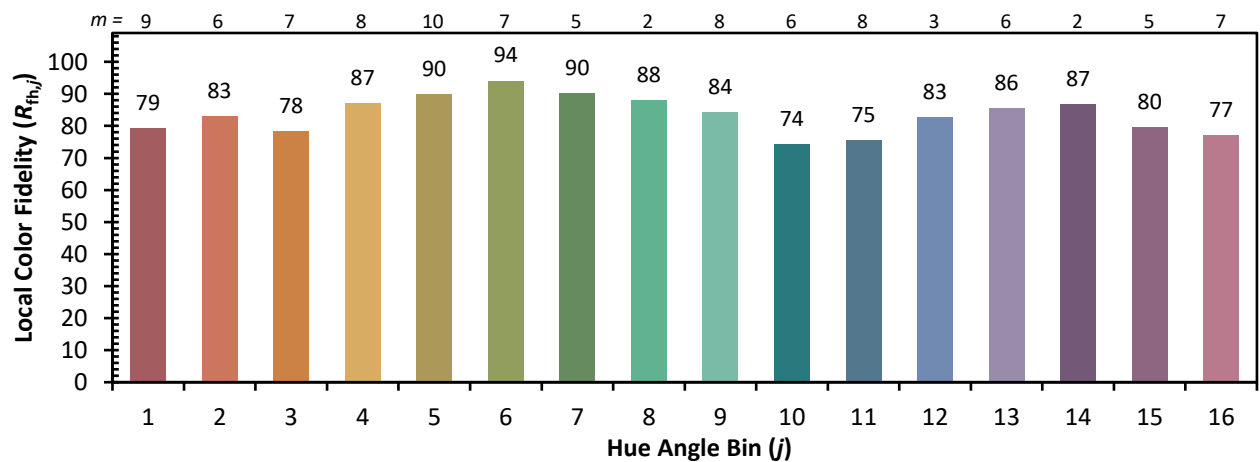
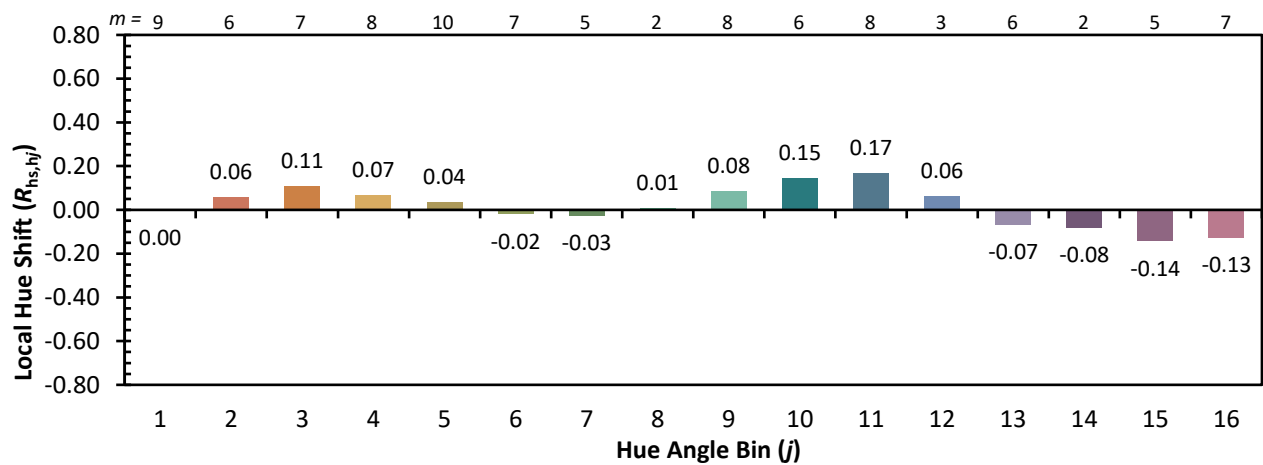
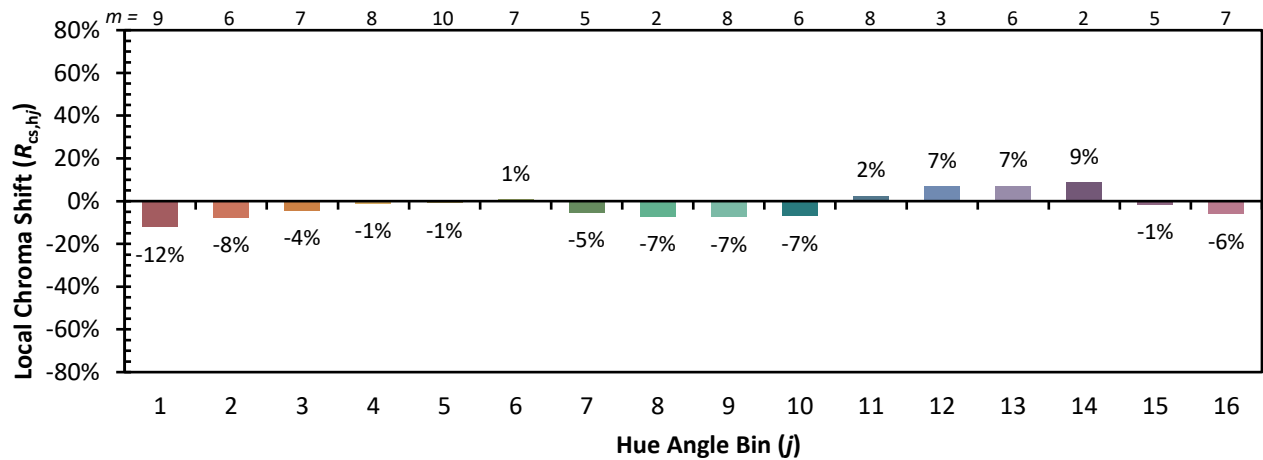
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 83 | CES51 = 92 | CES76 = 75 |
| CES02 = 61 | CES27 = 91 | CES52 = 93 | CES77 = 82 |
| CES03 = 31 | CES28 = 91 | CES53 = 88 | CES78 = 74 |
| CES04 = 70 | CES29 = 90 | CES54 = 88 | CES79 = 92 |
| CES05 = 48 | CES30 = 90 | CES55 = 85 | CES80 = 89 |
| CES06 = 50 | CES31 = 91 | CES56 = 83 | CES81 = 81 |
| CES07 = 41 | CES32 = 83 | CES57 = 82 | CES82 = 95 |
| CES08 = 40 | CES33 = 97 | CES58 = 82 | CES83 = 96 |
| CES09 = 29 | CES34 = 87 | CES59 = 90 | CES84 = 90 |
| CES10 = 74 | CES35 = 92 | CES60 = 88 | CES85 = 77 |
| CES11 = 57 | CES36 = 78 | CES61 = 85 | CES86 = 75 |
| CES12 = 63 | CES37 = 91 | CES62 = 79 | CES87 = 84 |
| CES13 = 42 | CES38 = 84 | CES63 = 82 | CES88 = 89 |
| CES14 = 74 | CES39 = 98 | CES64 = 75 | CES89 = 77 |
| CES15 = 71 | CES40 = 96 | CES65 = 74 | CES90 = 90 |
| CES16 = 47 | CES41 = 95 | CES66 = 70 | CES91 = 67 |
| CES17 = 49 | CES42 = 93 | CES67 = 69 | CES92 = 64 |
| CES18 = 56 | CES43 = 91 | CES68 = 76 | CES93 = 78 |
| CES19 = 71 | CES44 = 99 | CES69 = 80 | CES94 = 63 |
| CES20 = 65 | CES45 = 94 | CES70 = 72 | CES95 = 72 |
| CES21 = 86 | CES46 = 91 | CES71 = 64 | CES96 = 84 |
| CES22 = 78 | CES47 = 95 | CES72 = 88 | CES97 = 91 |
| CES23 = 91 | CES48 = 83 | CES73 = 66 | CES98 = 86 |
| CES24 = 90 | CES49 = 90 | CES74 = 90 | CES99 = 77 |
| CES25 = 71 | CES50 = 93 | CES75 = 68 |            |

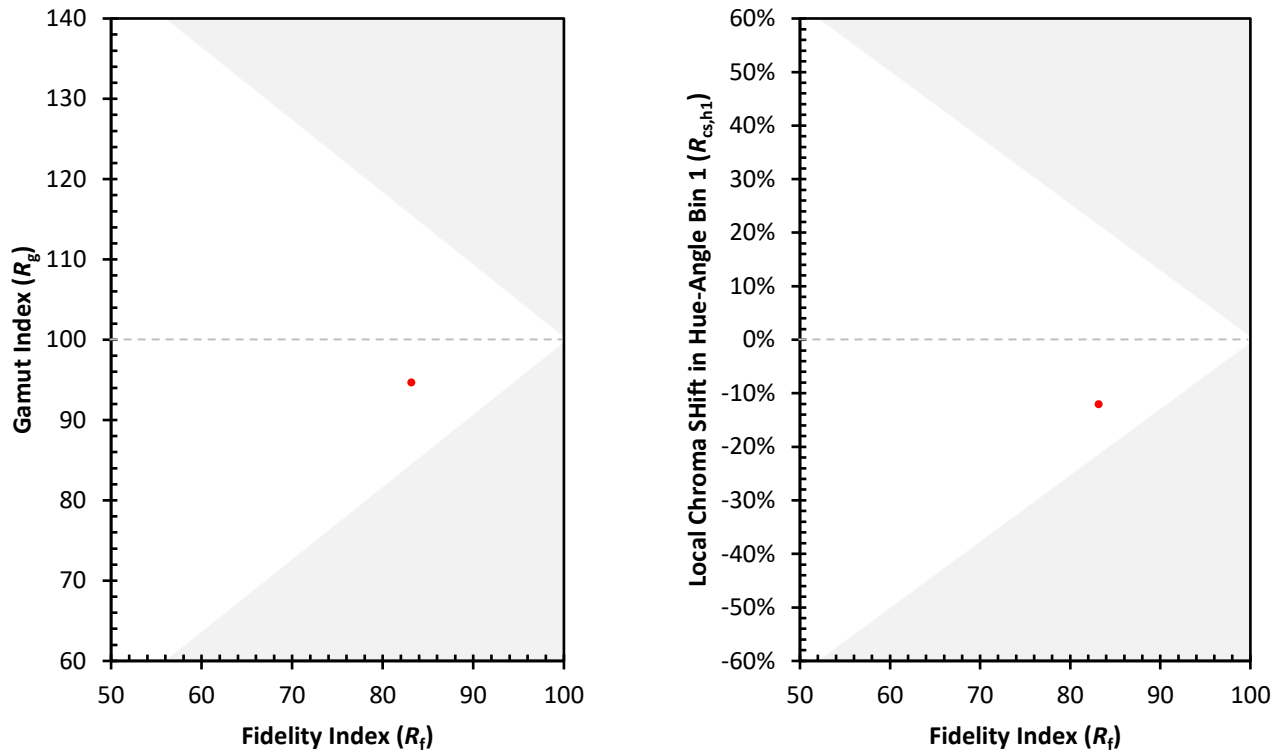




Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)