

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: P1216033

Luminaire Tested: 24-ID2-40-CNC-L830-U

Issue Date: 12/5/2025

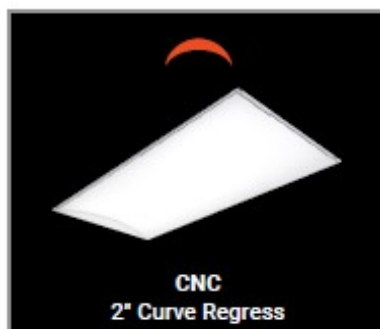
**Test Information**

Test Method: LM-79-2019  
Report Number: P1216033  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2508-510-9)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-40-CNC-L830-U  
Description: 2X4 IN DEPTH TROFFER WITH 2INCH CURVE REGRESSED  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

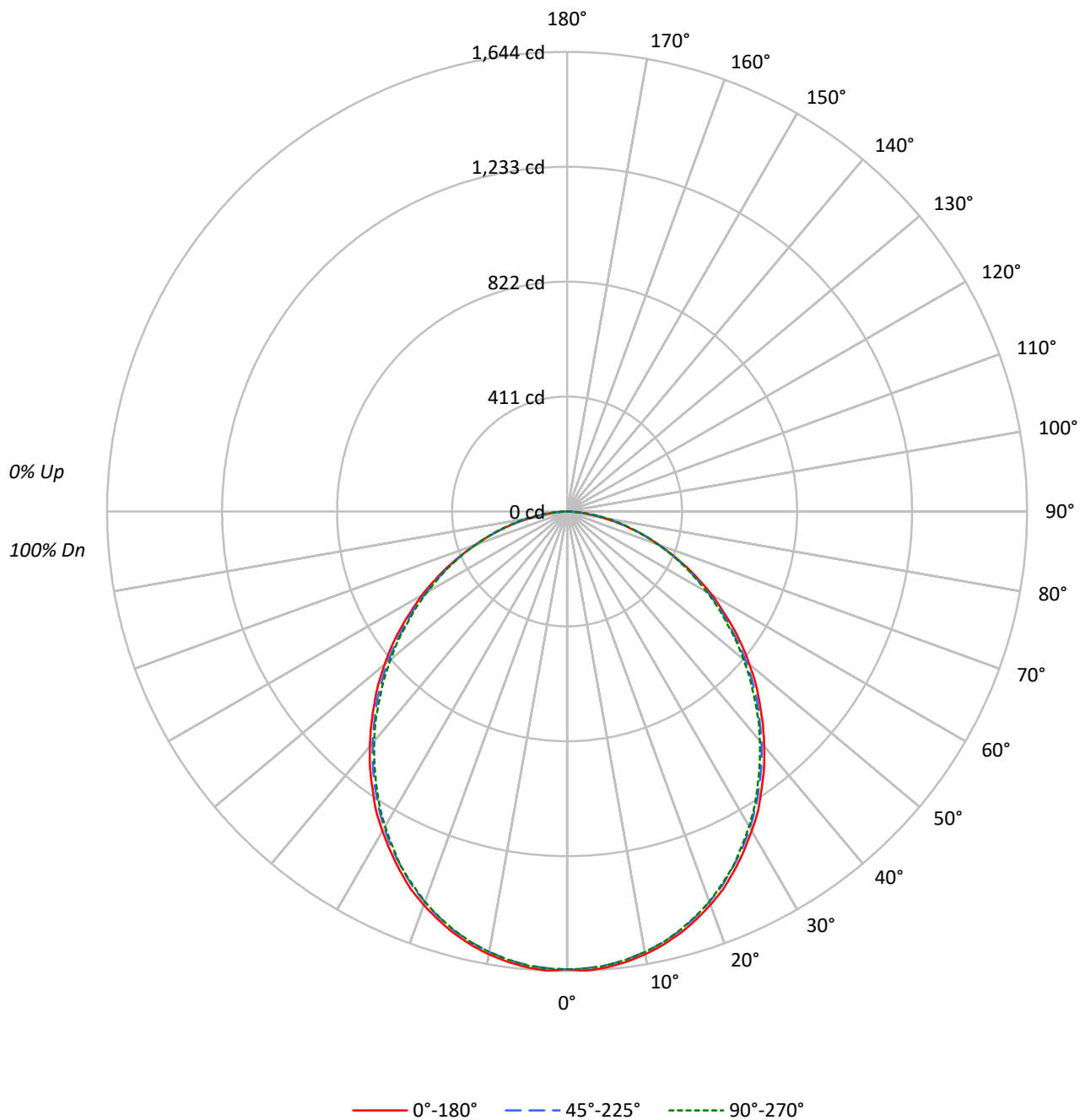
Lumens per Lamp: N/A  
Luminaire Lumens: 4143.9 lumens  
Efficiency: N/A  
Efficacy: 119.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.19 / 1.29  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 34.7  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P1216033  
CATALOG NUMBER: 24-ID2-40-CNC-L830-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1216033

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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 | 100 | 97  | 106 | 102 | 99  | 95  | 98  | 95  | 92  |  | 94  | 92  | 89  |  | 85  |
| 2   | 100 | 92  | 85  | 79  | 97  | 90  | 84  | 78  | 86  | 81  | 77  |  | 83  | 79  | 75  |  | 71  |
| 3   | 91  | 81  | 73  | 67  | 89  | 79  | 72  | 66  | 76  | 70  | 65  |  | 74  | 68  | 64  |  | 60  |
| 4   | 84  | 72  | 63  | 57  | 81  | 71  | 63  | 56  | 68  | 61  | 56  |  | 66  | 60  | 55  |  | 52  |
| 5   | 77  | 64  | 56  | 49  | 75  | 63  | 55  | 49  | 61  | 54  | 48  |  | 59  | 53  | 48  |  | 45  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 49  | 43  | 55  | 48  | 42  |  | 54  | 47  | 42  |  | 40  |
| 7   | 66  | 53  | 44  | 38  | 64  | 52  | 44  | 38  | 51  | 43  | 38  |  | 49  | 42  | 37  |  | 35  |
| 8   | 62  | 48  | 40  | 34  | 60  | 48  | 40  | 34  | 46  | 39  | 34  |  | 45  | 38  | 34  |  | 32  |
| 9   | 58  | 44  | 36  | 31  | 56  | 44  | 36  | 31  | 43  | 36  | 31  |  | 42  | 35  | 30  |  | 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°  | 2204 | 2204 | 2204 |
| 5°  | 2212 | 2200 | 2202 |
| 10° | 2198 | 2186 | 2186 |
| 15° | 2176 | 2164 | 2161 |
| 20° | 2144 | 2129 | 2127 |
| 25° | 2101 | 2083 | 2082 |
| 30° | 2050 | 2031 | 2021 |
| 35° | 1991 | 1968 | 1952 |
| 40° | 1926 | 1899 | 1883 |
| 45° | 1853 | 1828 | 1802 |
| 50° | 1780 | 1748 | 1723 |
| 55° | 1697 | 1657 | 1635 |
| 60° | 1613 | 1570 | 1555 |
| 65° | 1502 | 1475 | 1471 |
| 70° | 1375 | 1368 | 1364 |
| 75° | 1228 | 1249 | 1258 |
| 80° | 1002 | 1090 | 1144 |
| 85° | 689  | 874  | 874  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1853 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 154.7  | 3.7       |
| 10°-20°   | 438.0  | 10.6      |
| 20°-30°   | 646.8  | 15.6      |
| 30°-40°   | 749.9  | 18.1      |
| 40°-50°   | 740.8  | 17.9      |
| 50°-60°   | 634.6  | 15.3      |
| 60°-70°   | 460.5  | 11.1      |
| 70°-80°   | 254.2  | 6.1       |
| 80°-90°   | 64.4   | 1.6       |
| 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°    | 1239.5 | 29.9      |
| 0°-40°    | 1989.4 | 48.0      |
| 0°-60°    | 3364.8 | 81.2      |
| 0°-90°    | 4143.9 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4143.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1638 | 1638  | 1638 | 1638  | 1638 |      |
| 5°  | 1637 | 1631  | 1629 | 1626  | 1630 | 155  |
| 15° | 1562 | 1557  | 1553 | 1550  | 1552 | 440  |
| 25° | 1416 | 1410  | 1403 | 1400  | 1402 | 652  |
| 35° | 1212 | 1207  | 1198 | 1192  | 1188 | 758  |
| 45° | 974  | 968   | 961  | 951   | 947  | 752  |
| 55° | 724  | 717   | 706  | 701   | 697  | 647  |
| 65° | 472  | 468   | 463  | 461   | 462  | 467  |
| 75° | 236  | 235   | 240  | 242   | 242  | 250  |
| 85° | 45   | 49    | 57   | 57    | 57   | 56   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1638.0 | 1638.0 | 1638.0 | 1638.0 | 1638.0 |
| 2.5°  | 1643.7 | 1638.0 | 1635.2 | 1632.9 | 1636.3 |
| 5°    | 1637.4 | 1631.2 | 1628.9 | 1626.0 | 1630.0 |
| 7.5°  | 1624.9 | 1619.7 | 1616.9 | 1614.6 | 1616.9 |
| 10°   | 1608.8 | 1603.1 | 1600.3 | 1598.6 | 1600.3 |
| 12.5° | 1587.7 | 1583.7 | 1579.1 | 1575.7 | 1579.1 |
| 15°   | 1562.5 | 1556.8 | 1553.4 | 1549.9 | 1551.7 |
| 17.5° | 1531.6 | 1526.5 | 1521.9 | 1519.1 | 1520.8 |
| 20°   | 1497.3 | 1491.0 | 1487.0 | 1484.2 | 1485.3 |
| 22.5° | 1461.3 | 1453.3 | 1448.1 | 1443.6 | 1444.1 |
| 25°   | 1415.5 | 1409.8 | 1403.0 | 1400.1 | 1402.4 |
| 27.5° | 1368.6 | 1362.3 | 1356.6 | 1352.1 | 1350.9 |
| 30°   | 1319.5 | 1313.7 | 1307.4 | 1302.3 | 1300.6 |
| 32.5° | 1270.3 | 1260.5 | 1253.7 | 1248.5 | 1248.0 |
| 35°   | 1211.9 | 1207.4 | 1198.2 | 1192.5 | 1188.5 |
| 37.5° | 1156.5 | 1149.6 | 1140.4 | 1135.3 | 1131.3 |
| 40°   | 1096.4 | 1089.5 | 1081.0 | 1073.5 | 1071.8 |
| 42.5° | 1035.8 | 1030.6 | 1019.2 | 1014.6 | 1011.8 |
| 45°   | 974.0  | 967.7  | 960.8  | 951.1  | 947.1  |
| 47.5° | 915.1  | 908.8  | 897.4  | 888.8  | 886.5  |
| 50°   | 850.5  | 843.0  | 835.0  | 824.7  | 823.0  |
| 52.5° | 789.3  | 780.7  | 770.4  | 765.8  | 762.4  |
| 55°   | 723.5  | 716.6  | 706.3  | 700.6  | 697.2  |
| 57.5° | 658.3  | 654.3  | 647.4  | 639.4  | 638.9  |
| 60°   | 599.4  | 591.4  | 583.4  | 577.7  | 577.7  |
| 62.5° | 533.6  | 530.8  | 522.7  | 519.3  | 517.6  |
| 65°   | 471.8  | 467.8  | 463.3  | 461.0  | 462.1  |
| 67.5° | 408.4  | 407.8  | 404.4  | 404.9  | 403.8  |
| 70°   | 349.5  | 347.2  | 347.7  | 348.9  | 346.6  |
| 72.5° | 292.3  | 290.5  | 293.4  | 294.0  | 295.1  |
| 75°   | 236.2  | 235.1  | 240.2  | 241.9  | 241.9  |
| 77.5° | 180.2  | 183.6  | 189.3  | 193.9  | 193.9  |
| 80°   | 129.3  | 133.8  | 140.7  | 144.7  | 147.6  |
| 82.5° | 82.9   | 90.4   | 96.7   | 99.5   | 99.5   |
| 85°   | 44.6   | 49.2   | 56.6   | 57.2   | 56.6   |
| 87.5° | 13.7   | 17.2   | 20.6   | 21.7   | 22.3   |
| 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 | 13.78            | 15.38 | 14.15 | 15.69 | 16.01 | 13.61          | 15.21 | 13.98 | 15.52 | 15.84 |
|                 | 3H   | 15.42            | 16.86 | 15.80 | 17.19 | 17.55 | 15.30          | 16.74 | 15.68 | 17.07 | 17.43 |
|                 | 4H   | 16.00            | 17.36 | 16.40 | 17.71 | 18.09 | 15.93          | 17.29 | 16.33 | 17.64 | 18.01 |
|                 | 6H   | 16.39            | 17.65 | 16.80 | 18.01 | 18.40 | 16.40          | 17.66 | 16.81 | 18.02 | 18.42 |
|                 | 8H   | 16.49            | 17.69 | 16.91 | 18.08 | 18.48 | 16.55          | 17.75 | 16.97 | 18.13 | 18.53 |
|                 | 12H  | 16.54            | 17.69 | 16.97 | 18.07 | 18.50 | 16.63          | 17.78 | 17.06 | 18.16 | 18.59 |
| 4H              | 2H   | 14.35            | 15.70 | 14.75 | 16.05 | 16.43 | 14.21          | 15.57 | 14.61 | 15.92 | 16.29 |
|                 | 3H   | 16.21            | 17.34 | 16.62 | 17.74 | 18.14 | 16.12          | 17.26 | 16.53 | 17.65 | 18.05 |
|                 | 4H   | 16.91            | 17.93 | 17.34 | 18.35 | 18.78 | 16.88          | 17.90 | 17.31 | 18.31 | 18.75 |
|                 | 6H   | 17.41            | 18.31 | 17.87 | 18.75 | 19.20 | 17.47          | 18.37 | 17.93 | 18.81 | 19.27 |
|                 | 8H   | 17.55            | 18.39 | 18.01 | 18.83 | 19.29 | 17.66          | 18.50 | 18.12 | 18.94 | 19.41 |
|                 | 12H  | 17.63            | 18.38 | 18.11 | 18.86 | 19.33 | 17.79          | 18.53 | 18.27 | 19.01 | 19.48 |
| 8H              | 4H   | 17.19            | 18.02 | 17.65 | 18.47 | 18.93 | 17.16          | 18.00 | 17.62 | 18.44 | 18.90 |
|                 | 6H   | 17.80            | 18.49 | 18.29 | 18.98 | 19.46 | 17.87          | 18.57 | 18.37 | 19.05 | 19.53 |
|                 | 8H   | 18.00            | 18.62 | 18.51 | 19.13 | 19.61 | 18.13          | 18.75 | 18.64 | 19.26 | 19.74 |
|                 | 12H  | 18.13            | 18.68 | 18.64 | 19.17 | 19.73 | 18.32          | 18.87 | 18.82 | 19.36 | 19.92 |
| 12H             | 4H   | 17.22            | 17.97 | 17.70 | 18.44 | 18.91 | 17.18          | 17.93 | 17.66 | 18.41 | 18.88 |
|                 | 6H   | 17.85            | 18.47 | 18.36 | 18.98 | 19.46 | 17.91          | 18.54 | 18.42 | 19.04 | 19.53 |
|                 | 8H   | 18.10            | 18.65 | 18.60 | 19.14 | 19.70 | 18.22          | 18.77 | 18.73 | 19.26 | 19.83 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-3

Test Date: 07/24/2025

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

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



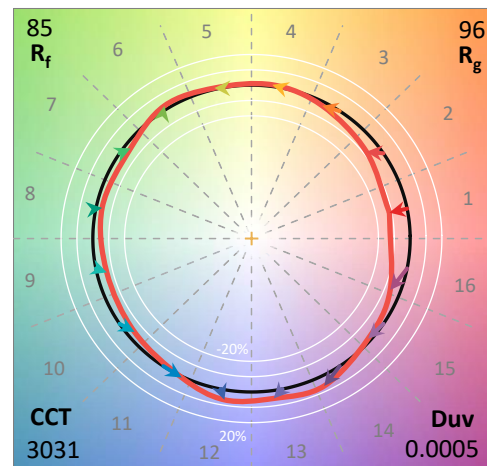
### Test Information

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

### Spectral Parameters

CCT (K): 3031  
 CIE  $u'$ : 0.2493  
 CIE  $v'$ : 0.5215  
 Duv: 0.0005  
 CIE x: 0.4355  
 CIE y: 0.4049  
 CIE z: 0.1596  
 Peak Wavelength (nm): 603  
 Dominant Wavelength (nm): 582  
 Purity: 52.24762  
 R<sub>f</sub>: 84.8  
 R<sub>g</sub>: 95.8

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



### Test Conditions

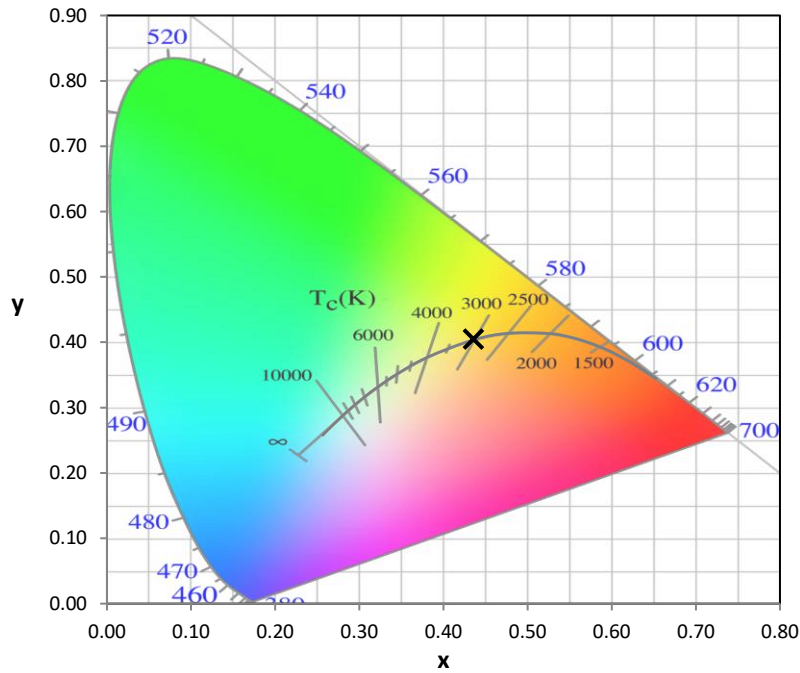
Stabilization Time: 38M  
 Operation Time: 1H 38M  
 Sphere Temperature (°C): 24.0

REPORT NUMBER: SP1-2506-458-3

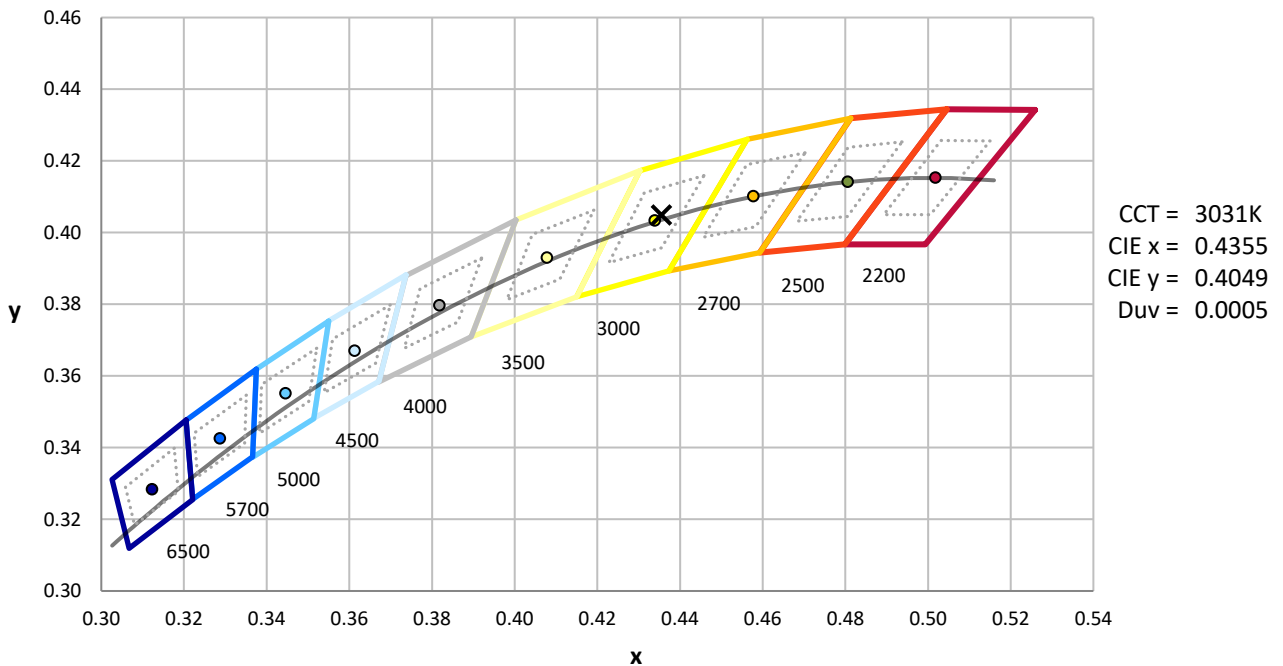
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | 76INCH SPHERE IN0058  | 6/16/2025        | 12/16/2025           |
| Power Meter                    | XITRON INXT2011004    | 1/21/2025        | 1/21/2026            |
| AC Power Source                | CHROMA 61603 IN0063   | 10/22/2024       | 10/22/2025           |
| DC Power Source                | AGILENT E3634A IN0208 | 10/22/2024       | 10/22/2025           |
| Sphere Thermometer             | ONSET IN0085          | 10/22/2024       | 10/22/2025           |
| Room Thermometer               | ONSET IN0046          | 10/22/2024       | 10/22/2025           |

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**CIE 1931 Chromaticity Diagram**

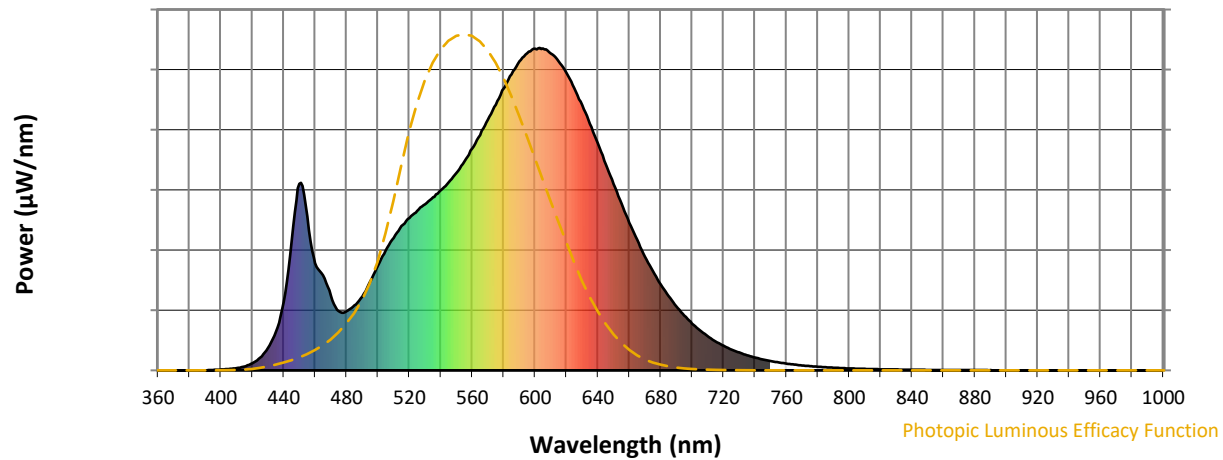


**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3000K 4-step quadrangle

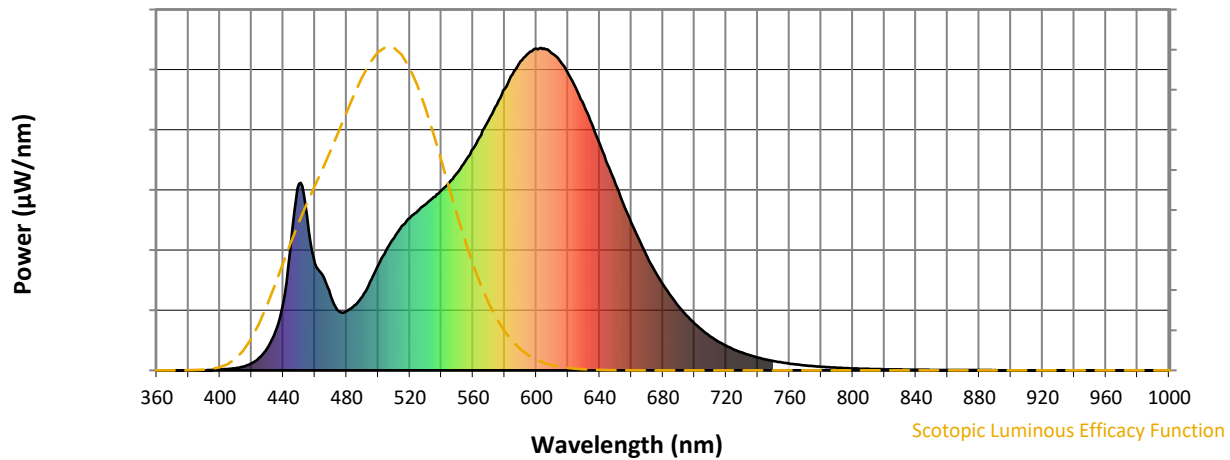
REPORT NUMBER: SP1-2506-458-3

**Photopic Flux vs. Wavelength**

**Photopic Lumens: NR**

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

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### Scotopic Flux vs. Wavelength



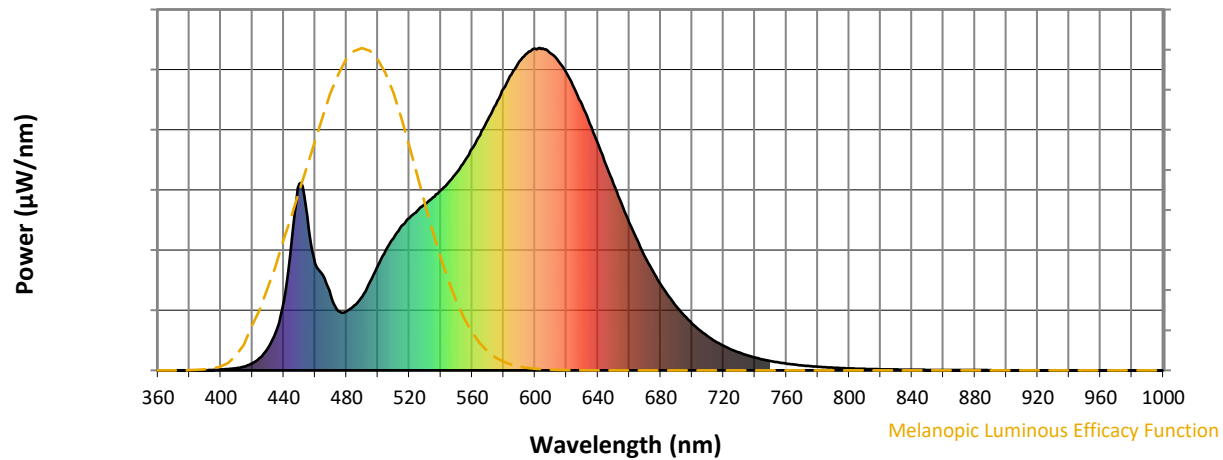
Scotopic Lumens: NR

S/P: 1.35

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

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.59

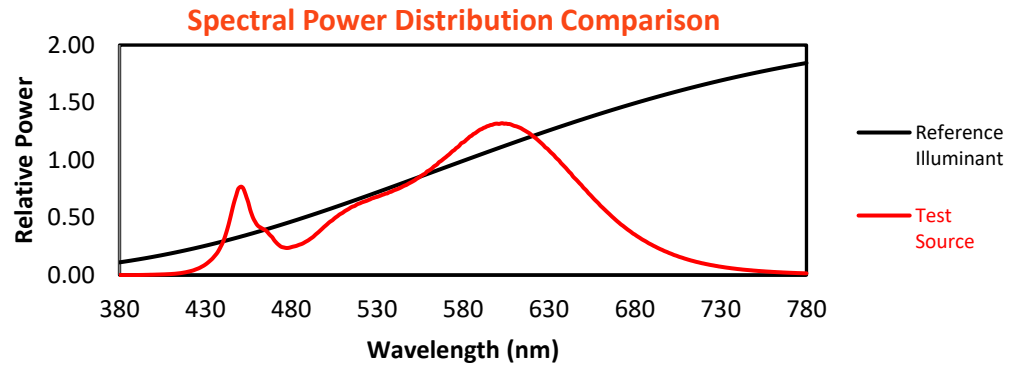
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm)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

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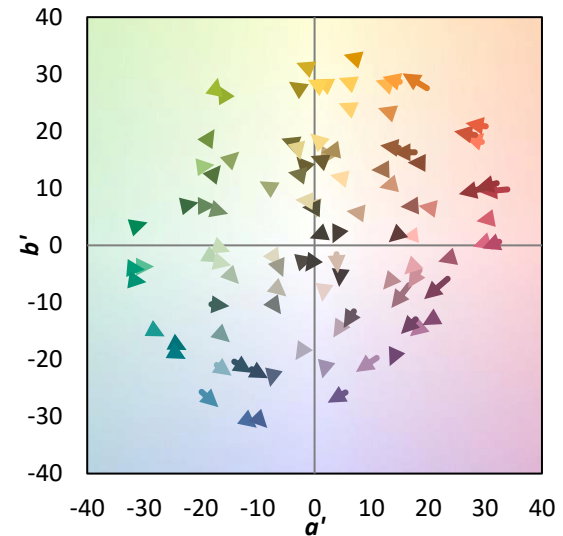
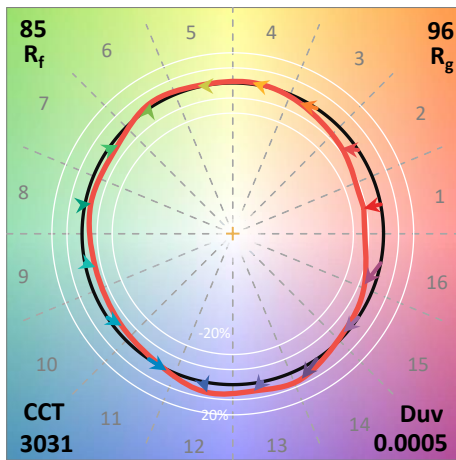
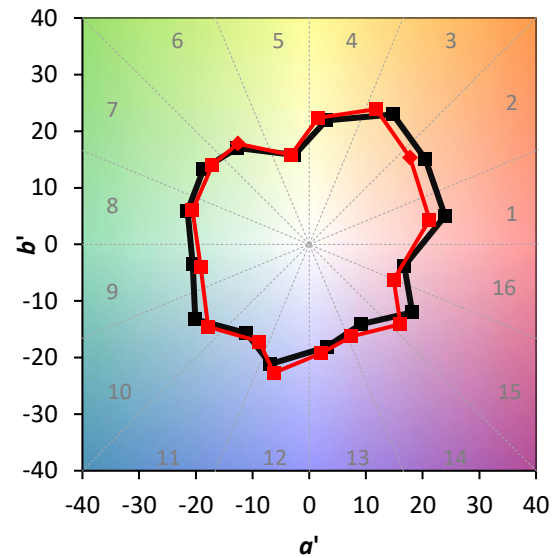
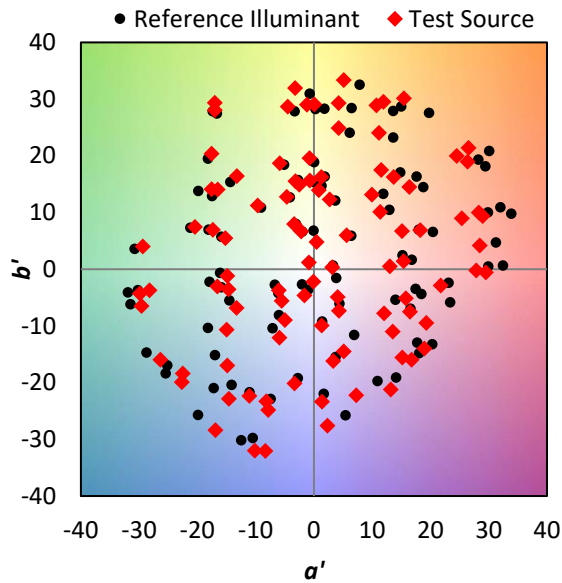
TM-30-18

### Summary

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

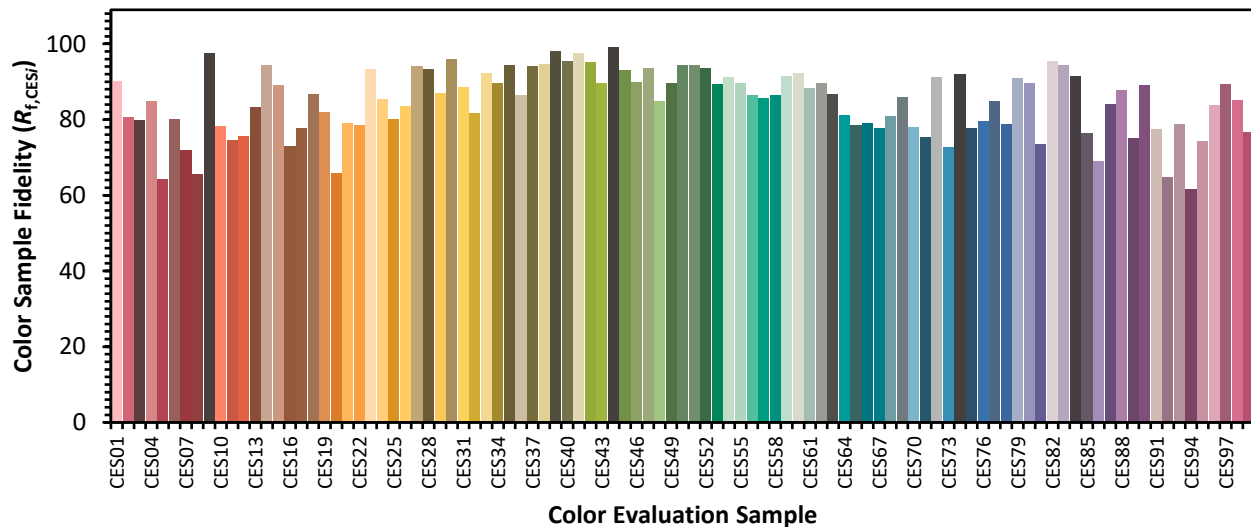


### Color Vector Graphics



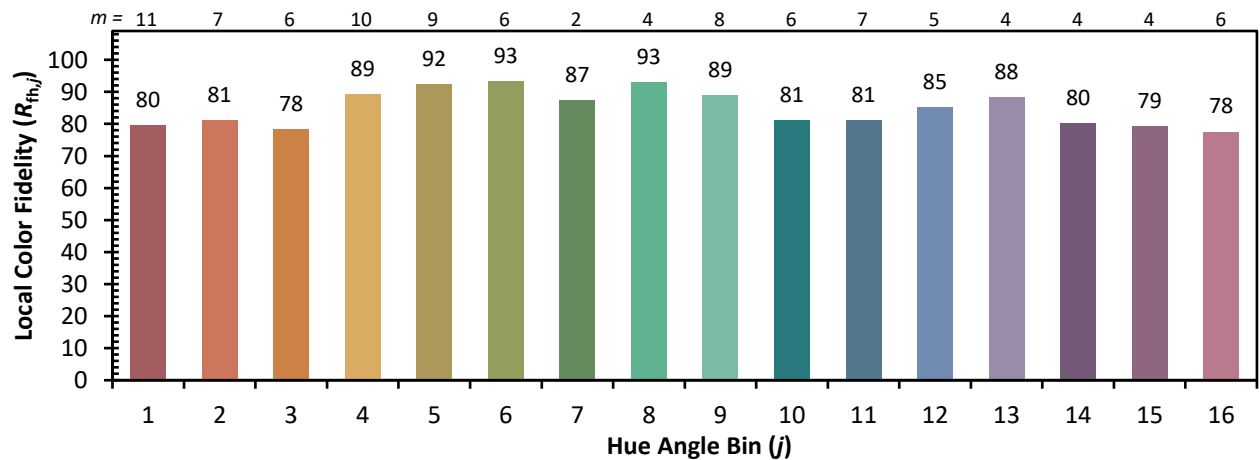
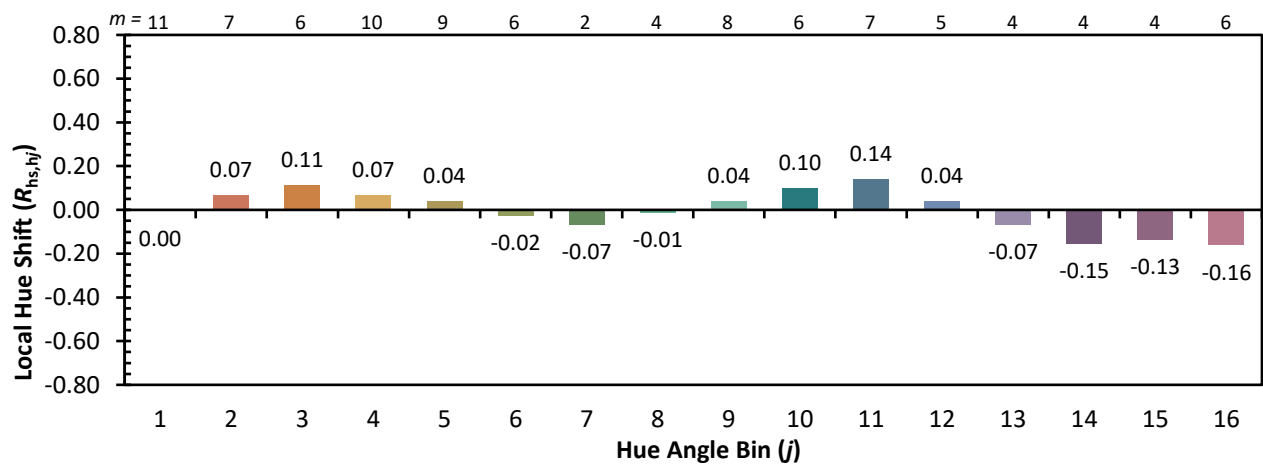
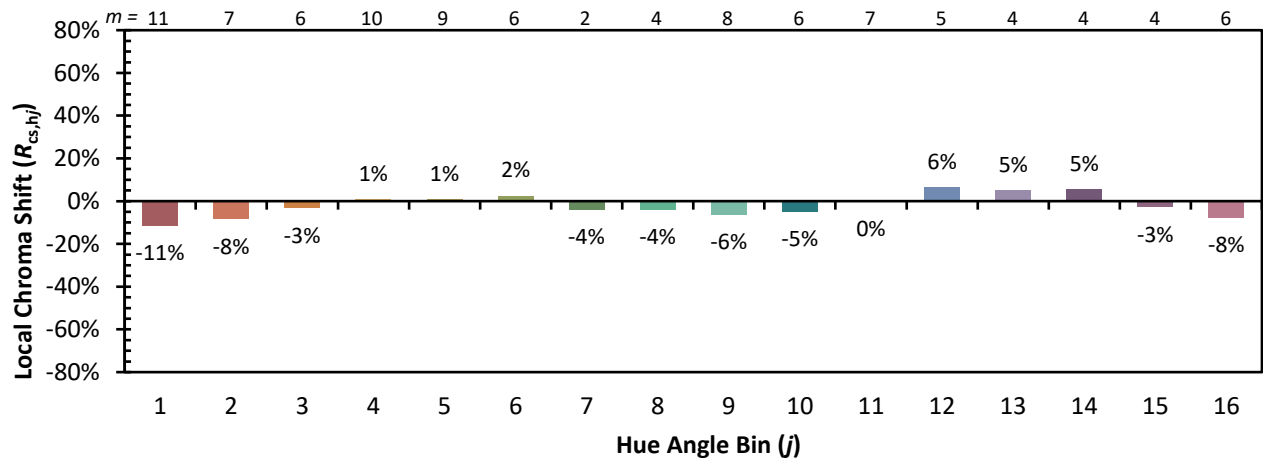
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

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

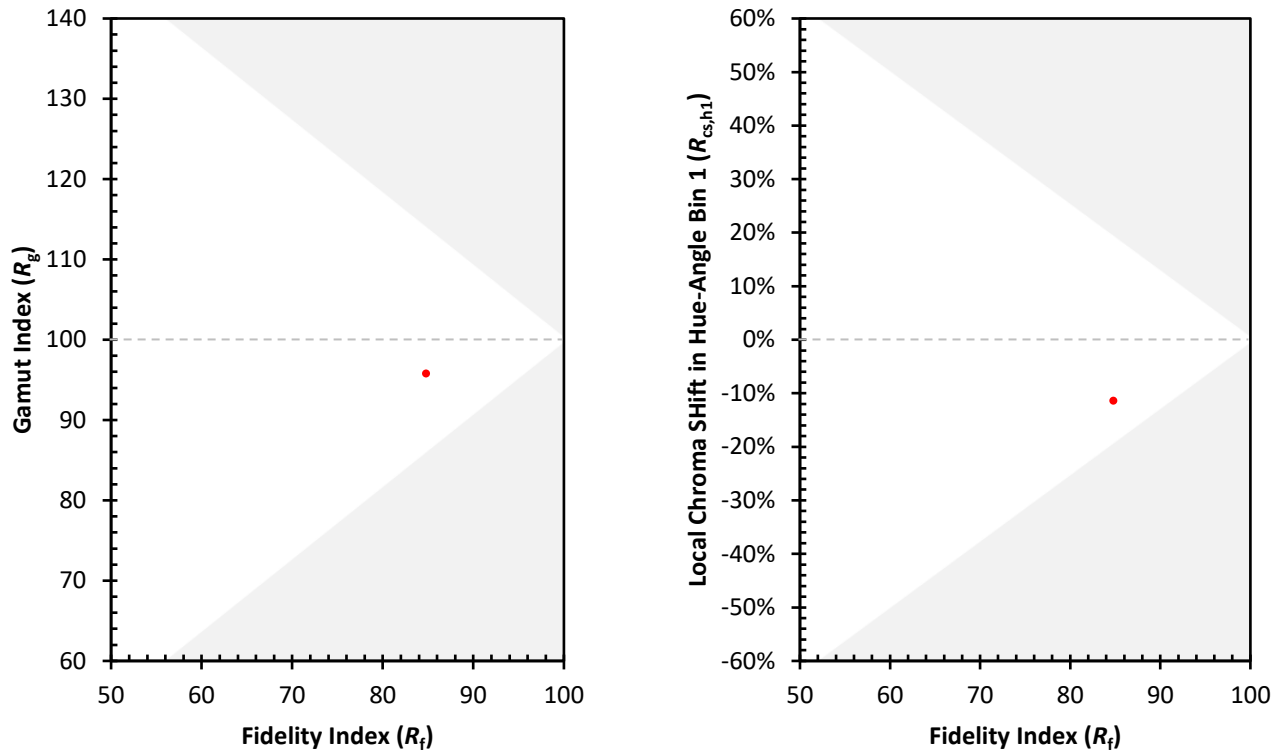




Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)