

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: P1215282

Luminaire Tested: 22-ID2-40-DBR-L835-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215282  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-16)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-40-DBR-L835-U  
Description: 2X2 IN DEPTH TROFFER WITH 2INCH DOUBLE BARREL REGRESSED  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

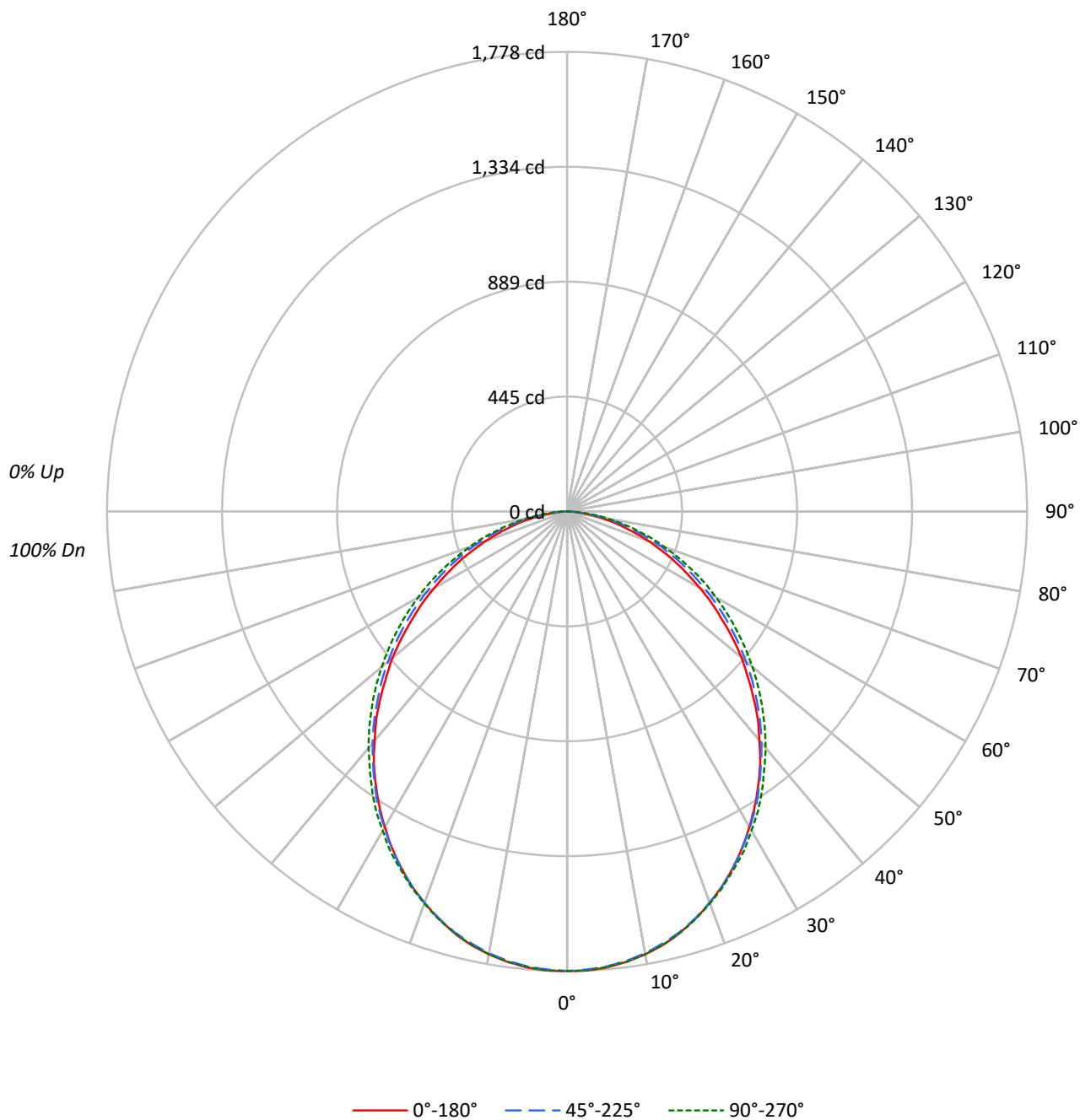
Lumens per Lamp: N/A  
Luminaire Lumens: 4469.3 lumens  
Efficiency: N/A  
Efficacy: 127.0 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 1.2 / 1.29  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct

Input Watts (W): 35.2  
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: P1215282

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

|     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |  | 20  |     |     |  | 20  |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |  | 30  |     |     |  | 0   |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 100 |
| 1   | 109 | 105 | 101 | 97  | 107 | 102 | 99  | 95  | 98  | 95  | 92  |  | 94  | 92  | 89  |  | 85  |
| 2   | 100 | 92  | 85  | 80  | 97  | 90  | 84  | 79  | 86  | 81  | 77  |  | 83  | 79  | 75  |  | 71  |
| 3   | 91  | 81  | 73  | 67  | 89  | 79  | 72  | 66  | 76  | 70  | 65  |  | 74  | 68  | 64  |  | 61  |
| 4   | 84  | 72  | 63  | 57  | 81  | 71  | 63  | 56  | 68  | 61  | 56  |  | 66  | 60  | 55  |  | 52  |
| 5   | 77  | 65  | 56  | 49  | 75  | 63  | 55  | 49  | 61  | 54  | 48  |  | 59  | 53  | 48  |  | 45  |
| 6   | 71  | 58  | 50  | 43  | 69  | 57  | 49  | 43  | 56  | 48  | 43  |  | 54  | 47  | 42  |  | 40  |
| 7   | 66  | 53  | 44  | 38  | 65  | 52  | 44  | 38  | 51  | 43  | 38  |  | 49  | 43  | 38  |  | 35  |
| 8   | 62  | 48  | 40  | 34  | 60  | 48  | 40  | 34  | 46  | 39  | 34  |  | 45  | 39  | 34  |  | 32  |
| 9   | 58  | 45  | 36  | 31  | 56  | 44  | 36  | 31  | 43  | 36  | 31  |  | 42  | 35  | 31  |  | 29  |
| 10  | 54  | 41  | 33  | 28  | 53  | 41  | 33  | 28  | 40  | 33  | 28  |  | 39  | 32  | 28  |  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4783 | 4783 | 4783 |
| 5°  | 4782 | 4772 | 4778 |
| 10° | 4753 | 4742 | 4753 |
| 15° | 4702 | 4691 | 4701 |
| 20° | 4615 | 4613 | 4622 |
| 25° | 4510 | 4511 | 4529 |
| 30° | 4378 | 4389 | 4428 |
| 35° | 4234 | 4254 | 4318 |
| 40° | 4062 | 4105 | 4193 |
| 45° | 3880 | 3945 | 4057 |
| 50° | 3686 | 3777 | 3913 |
| 55° | 3439 | 3590 | 3754 |
| 60° | 3194 | 3388 | 3576 |
| 65° | 2939 | 3179 | 3387 |
| 70° | 2637 | 2947 | 3143 |
| 75° | 2281 | 2644 | 2863 |
| 80° | 1863 | 2292 | 2507 |
| 85° | 1250 | 1763 | 1967 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4057 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 167.8  | 3.8       |
| 10°-20°   | 474.7  | 10.6      |
| 20°-30°   | 700.3  | 15.7      |
| 30°-40°   | 812.0  | 18.2      |
| 40°-50°   | 802.3  | 18.0      |
| 50°-60°   | 685.3  | 15.3      |
| 60°-70°   | 492.9  | 11.0      |
| 70°-80°   | 267.7  | 6.0       |
| 80°-90°   | 66.2   | 1.5       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1342.9 | 30.0      |
| 0°-40°    | 2154.8 | 48.2      |
| 0°-60°    | 3642.5 | 81.5      |
| 0°-90°    | 4469.3 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4469.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1778 | 1778  | 1778 | 1778  | 1778 |      |
| 5°  | 1770 | 1768  | 1766 | 1767  | 1769 | 168  |
| 15° | 1688 | 1686  | 1684 | 1684  | 1687 | 475  |
| 25° | 1519 | 1518  | 1519 | 1526  | 1526 | 699  |
| 35° | 1289 | 1290  | 1295 | 1308  | 1314 | 806  |
| 45° | 1020 | 1023  | 1037 | 1058  | 1066 | 786  |
| 55° | 733  | 743   | 765  | 788   | 800  | 657  |
| 65° | 462  | 472   | 499  | 520   | 532  | 457  |
| 75° | 219  | 236   | 254  | 268   | 275  | 234  |
| 85° | 40   | 48    | 57   | 62    | 64   | 52   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1777.6 | 1777.6 | 1777.6 | 1777.6 | 1777.6 |
| 2.5°  | 1777.6 | 1775.4 | 1773.7 | 1774.8 | 1777.0 |
| 5°    | 1770.4 | 1768.2 | 1766.5 | 1767.1 | 1768.7 |
| 7.5°  | 1757.6 | 1755.4 | 1753.2 | 1754.9 | 1757.1 |
| 10°   | 1739.4 | 1738.2 | 1735.5 | 1737.1 | 1739.4 |
| 12.5° | 1717.7 | 1713.9 | 1711.6 | 1713.9 | 1716.1 |
| 15°   | 1687.8 | 1685.6 | 1683.9 | 1683.9 | 1687.3 |
| 17.5° | 1651.8 | 1650.7 | 1649.6 | 1651.3 | 1652.9 |
| 20°   | 1611.4 | 1610.8 | 1610.8 | 1611.9 | 1614.1 |
| 22.5° | 1568.1 | 1566.5 | 1568.7 | 1570.9 | 1572.6 |
| 25°   | 1518.8 | 1517.7 | 1519.4 | 1526.0 | 1525.5 |
| 27.5° | 1466.2 | 1466.7 | 1467.3 | 1475.6 | 1480.6 |
| 30°   | 1409.1 | 1410.8 | 1412.4 | 1424.1 | 1425.2 |
| 32.5° | 1350.9 | 1352.0 | 1357.0 | 1368.7 | 1373.6 |
| 35°   | 1288.9 | 1290.0 | 1295.0 | 1307.7 | 1314.4 |
| 37.5° | 1226.8 | 1226.2 | 1231.2 | 1249.0 | 1252.3 |
| 40°   | 1156.4 | 1158.1 | 1168.6 | 1188.0 | 1193.6 |
| 42.5° | 1091.6 | 1092.2 | 1104.3 | 1123.2 | 1130.9 |
| 45°   | 1019.6 | 1023.4 | 1036.7 | 1057.8 | 1066.1 |
| 47.5° | 947.5  | 952.0  | 971.4  | 991.9  | 1001.8 |
| 50°   | 880.5  | 883.3  | 902.1  | 924.3  | 934.8  |
| 52.5° | 807.3  | 814.5  | 833.9  | 857.2  | 867.7  |
| 55°   | 733.1  | 743.1  | 765.2  | 787.9  | 800.1  |
| 57.5° | 664.9  | 674.4  | 697.6  | 720.9  | 732.0  |
| 60°   | 593.5  | 605.1  | 629.5  | 653.3  | 664.4  |
| 62.5° | 525.3  | 538.0  | 564.1  | 588.5  | 600.7  |
| 65°   | 461.6  | 472.1  | 499.3  | 520.3  | 531.9  |
| 67.5° | 395.1  | 409.5  | 435.0  | 457.1  | 463.8  |
| 70°   | 335.2  | 347.4  | 374.6  | 391.2  | 399.5  |
| 72.5° | 273.7  | 291.5  | 314.2  | 329.7  | 339.7  |
| 75°   | 219.4  | 236.1  | 254.3  | 267.6  | 275.4  |
| 77.5° | 167.3  | 180.6  | 201.1  | 211.7  | 216.1  |
| 80°   | 120.2  | 130.8  | 147.9  | 158.5  | 161.8  |
| 82.5° | 78.1   | 87.5   | 99.7   | 106.4  | 109.7  |
| 85°   | 40.5   | 47.7   | 57.1   | 62.1   | 63.7   |
| 87.5° | 13.3   | 16.6   | 20.5   | 22.2   | 23.3   |
| 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 | 16.11            | 17.71 | 16.48 | 18.02 | 18.33 | 16.62          | 18.21 | 16.98 | 18.53 | 18.84 |
|                 | 3H   | 17.64            | 19.07 | 18.01 | 19.40 | 19.76 | 18.33          | 19.76 | 18.70 | 20.09 | 20.45 |
|                 | 4H   | 18.16            | 19.51 | 18.56 | 19.86 | 20.24 | 18.95          | 20.31 | 19.35 | 20.65 | 21.03 |
|                 | 6H   | 18.50            | 19.75 | 18.91 | 20.11 | 20.51 | 19.40          | 20.65 | 19.81 | 21.02 | 21.41 |
|                 | 8H   | 18.58            | 19.78 | 19.01 | 20.17 | 20.57 | 19.53          | 20.73 | 19.96 | 21.12 | 21.52 |
|                 | 12H  | 18.62            | 19.77 | 19.05 | 20.15 | 20.58 | 19.61          | 20.76 | 20.04 | 21.14 | 21.57 |
| 4H              | 2H   | 16.75            | 18.10 | 17.15 | 18.45 | 18.82 | 17.15          | 18.50 | 17.55 | 18.85 | 19.23 |
|                 | 3H   | 18.49            | 19.62 | 18.90 | 20.02 | 20.42 | 19.08          | 20.21 | 19.49 | 20.61 | 21.01 |
|                 | 4H   | 19.14            | 20.16 | 19.57 | 20.57 | 21.01 | 19.83          | 20.85 | 20.26 | 21.27 | 21.70 |
|                 | 6H   | 19.58            | 20.47 | 20.04 | 20.91 | 21.37 | 20.41          | 21.30 | 20.86 | 21.74 | 22.19 |
|                 | 8H   | 19.70            | 20.53 | 20.16 | 20.98 | 21.44 | 20.58          | 21.42 | 21.05 | 21.86 | 22.32 |
|                 | 12H  | 19.77            | 20.52 | 20.25 | 20.99 | 21.46 | 20.70          | 21.45 | 21.18 | 21.93 | 22.40 |
| 8H              | 4H   | 19.45            | 20.29 | 19.92 | 20.73 | 21.19 | 20.07          | 20.91 | 20.54 | 21.35 | 21.81 |
|                 | 6H   | 20.01            | 20.69 | 20.50 | 21.18 | 21.66 | 20.76          | 21.45 | 21.25 | 21.94 | 22.41 |
|                 | 8H   | 20.18            | 20.80 | 20.69 | 21.31 | 21.79 | 21.00          | 21.62 | 21.51 | 22.13 | 22.61 |
|                 | 12H  | 20.30            | 20.84 | 20.80 | 21.33 | 21.90 | 21.18          | 21.73 | 21.69 | 22.22 | 22.78 |
| 12H             | 4H   | 19.49            | 20.23 | 19.97 | 20.71 | 21.18 | 20.09          | 20.83 | 20.57 | 21.31 | 21.78 |
|                 | 6H   | 20.06            | 20.68 | 20.57 | 21.19 | 21.67 | 20.79          | 21.41 | 21.30 | 21.91 | 22.40 |
|                 | 8H   | 20.29            | 20.84 | 20.80 | 21.33 | 21.89 | 21.08          | 21.63 | 21.59 | 22.12 | 22.68 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-1

Test Date: 07/23/2025

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

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



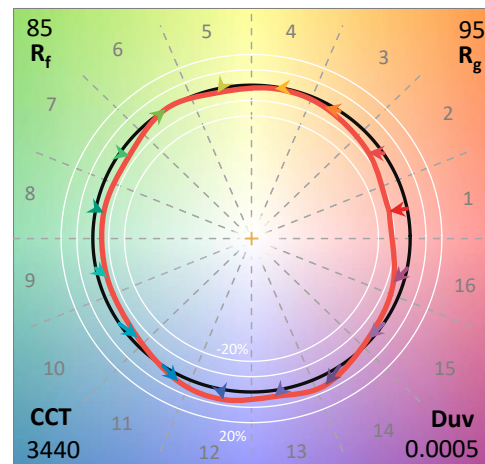
### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-1  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 08/27/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Corelite  
 Catalog Number: **22ID2-55-CFR1-L835-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3500K 80CRI

### Spectral Parameters

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

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



### Test Conditions

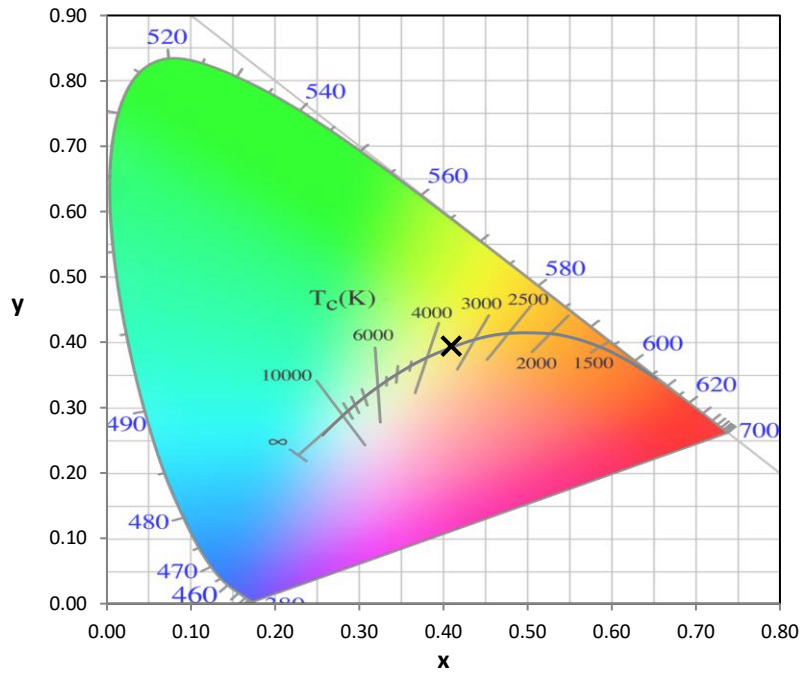
Stabilization Time: 36M  
 Operation Time: 1H 36M  
 Sphere Temperature (°C): 24.0

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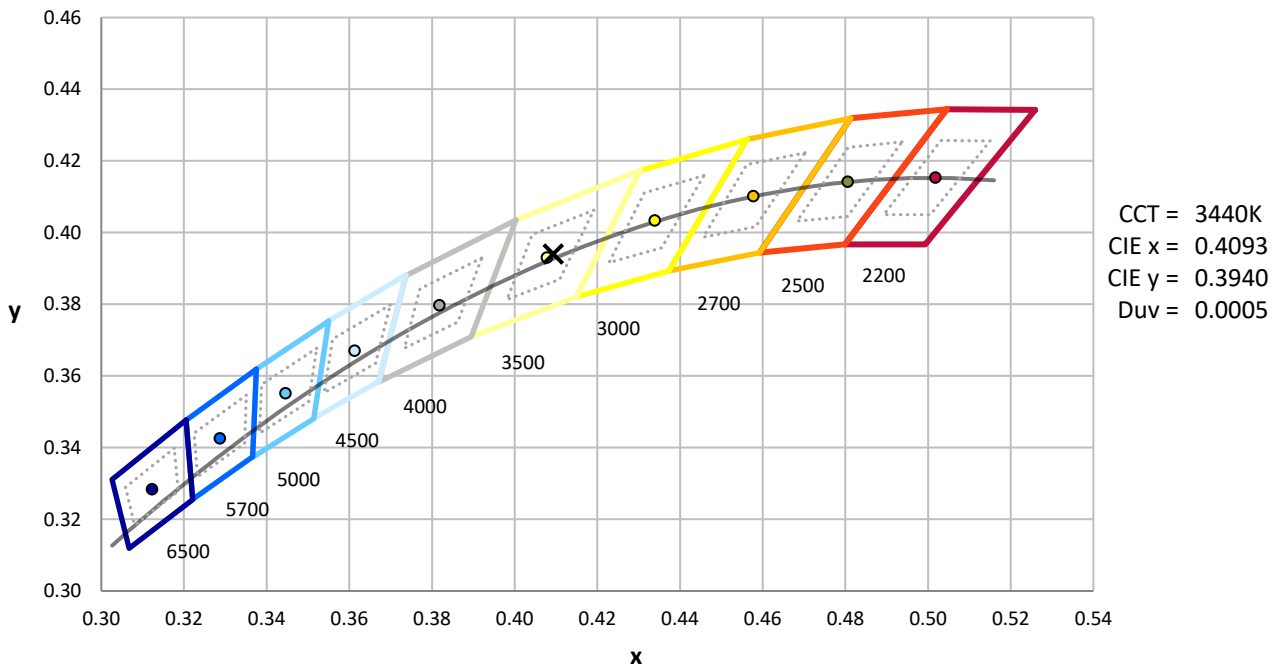
| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date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

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**CIE 1931 Chromaticity Diagram**



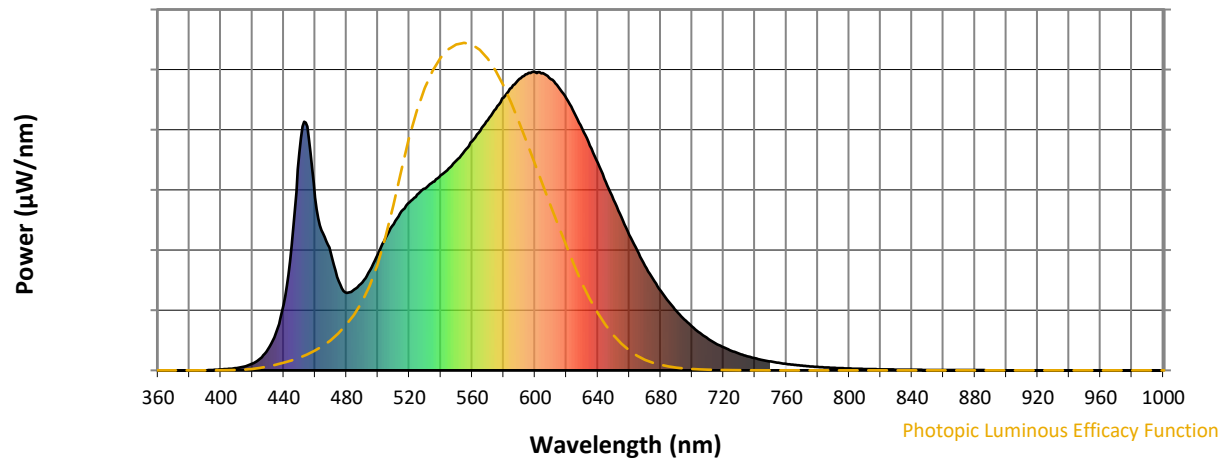
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 3500K 4-step quadrangle

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### Photopic Flux vs. Wavelength

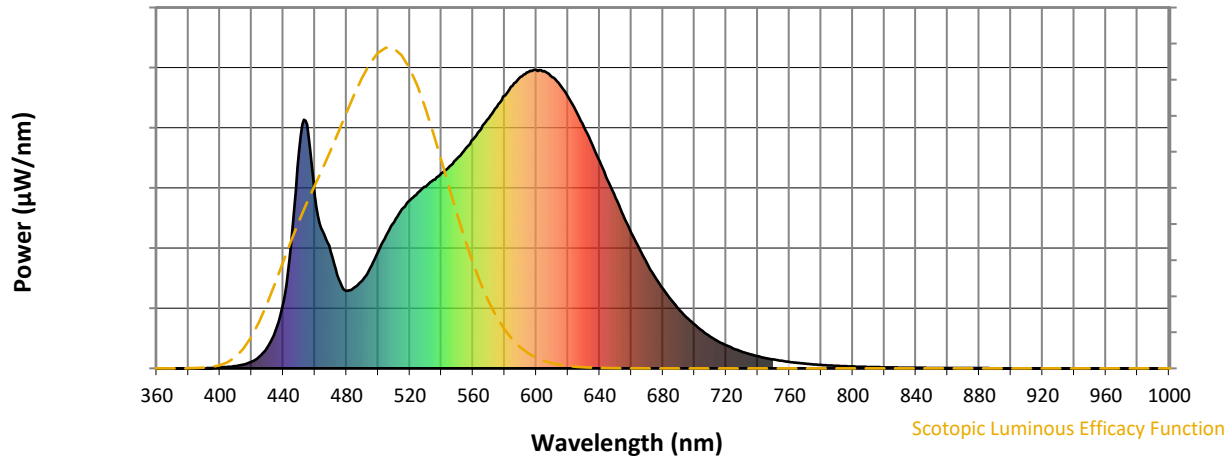


### Photopic Lumens: NR

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

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### Scotopic Flux vs. Wavelength



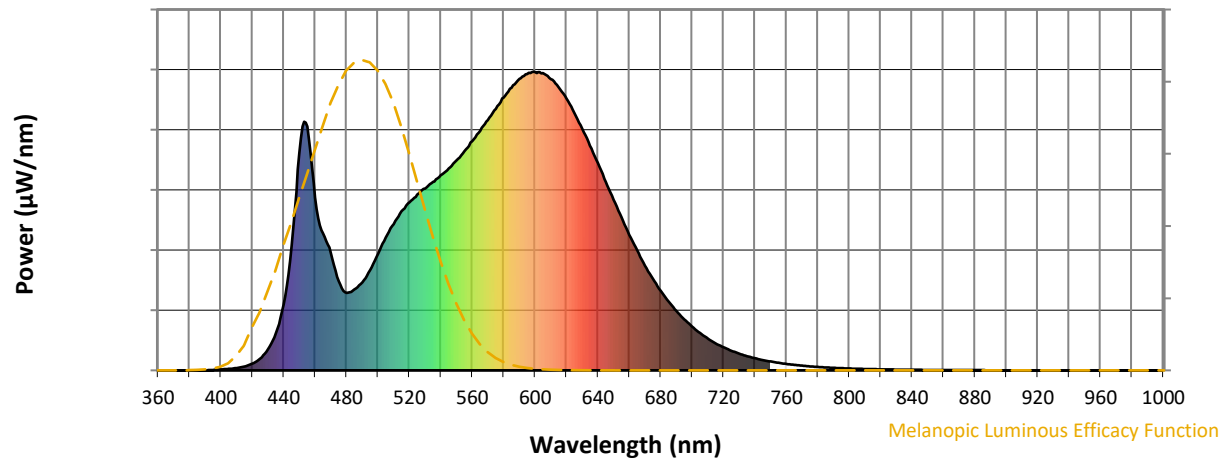
Scotopic Lumens: NR

S/P: 1.53

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

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 3.07**

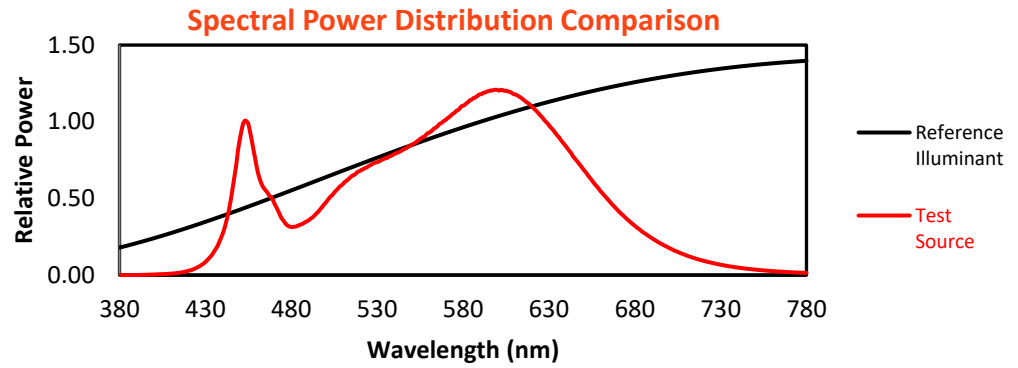
| $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^{\wedge}/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm)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

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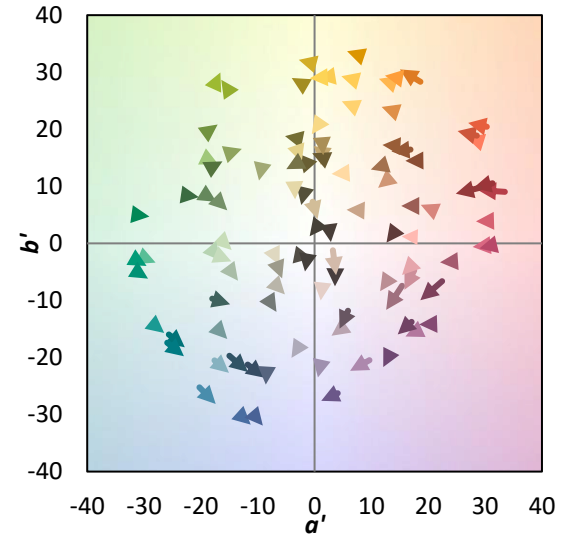
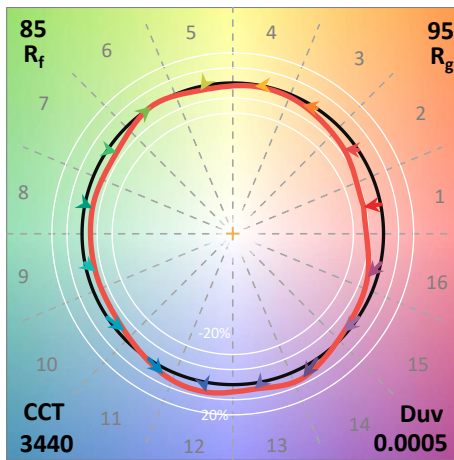
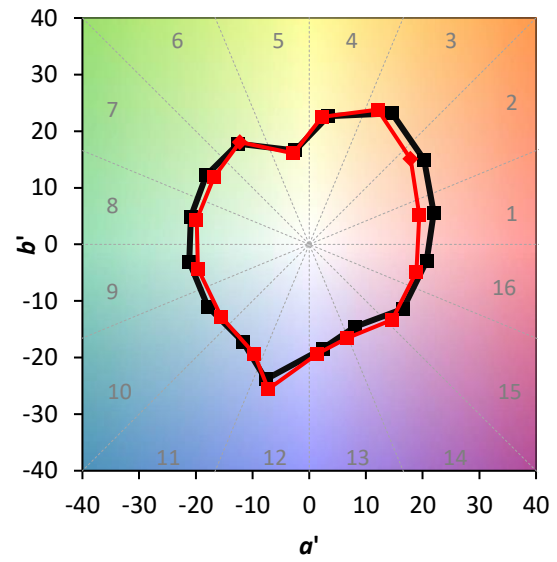
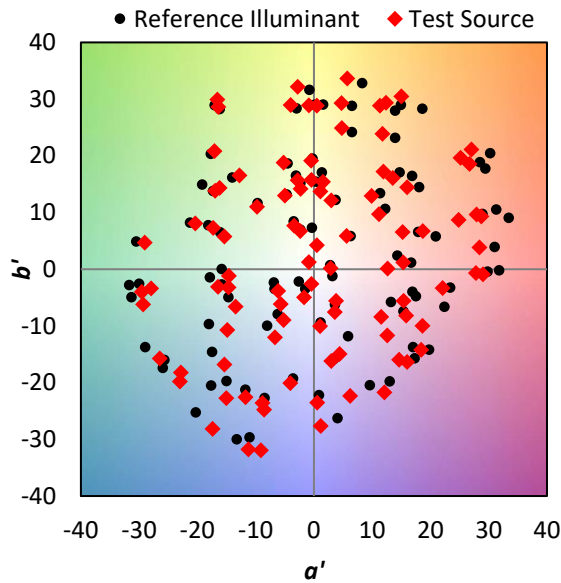
TM-30-18

### Summary

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

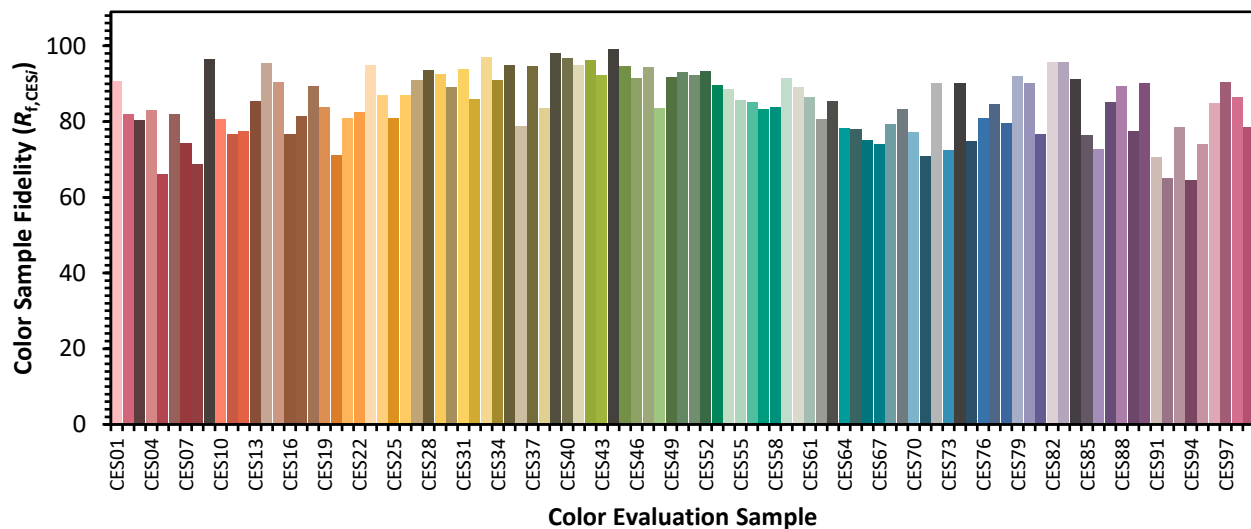


### Color Vector Graphics



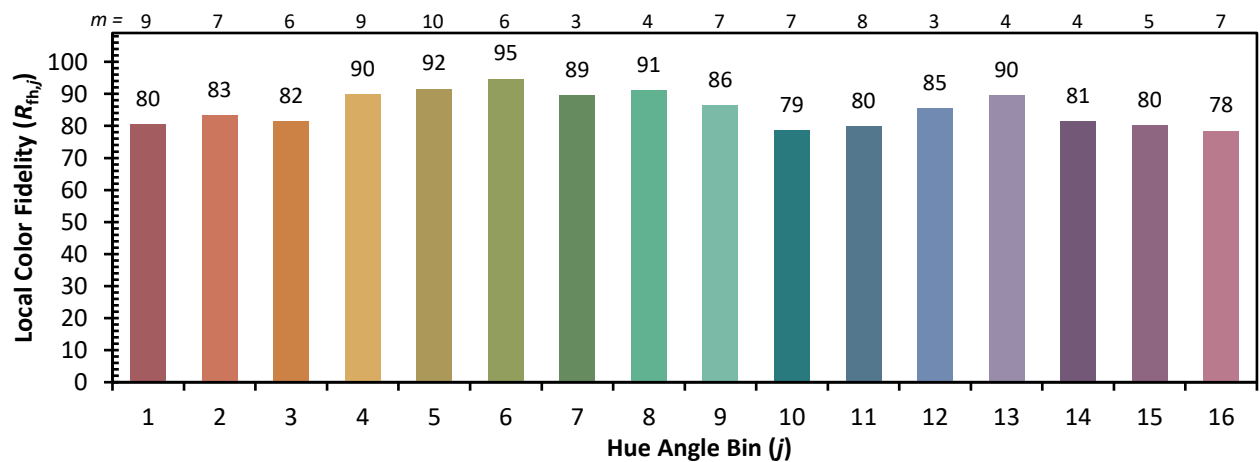
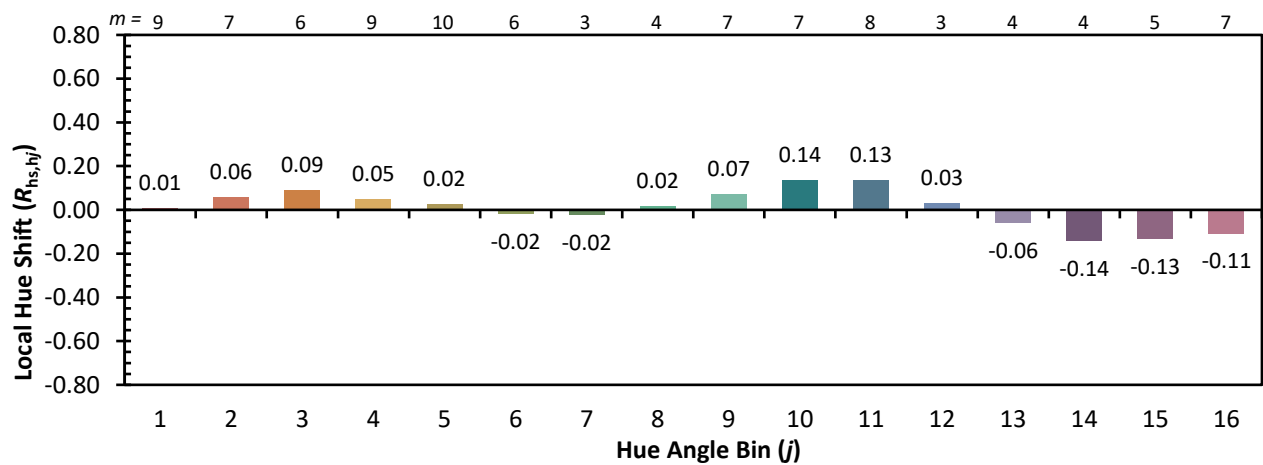
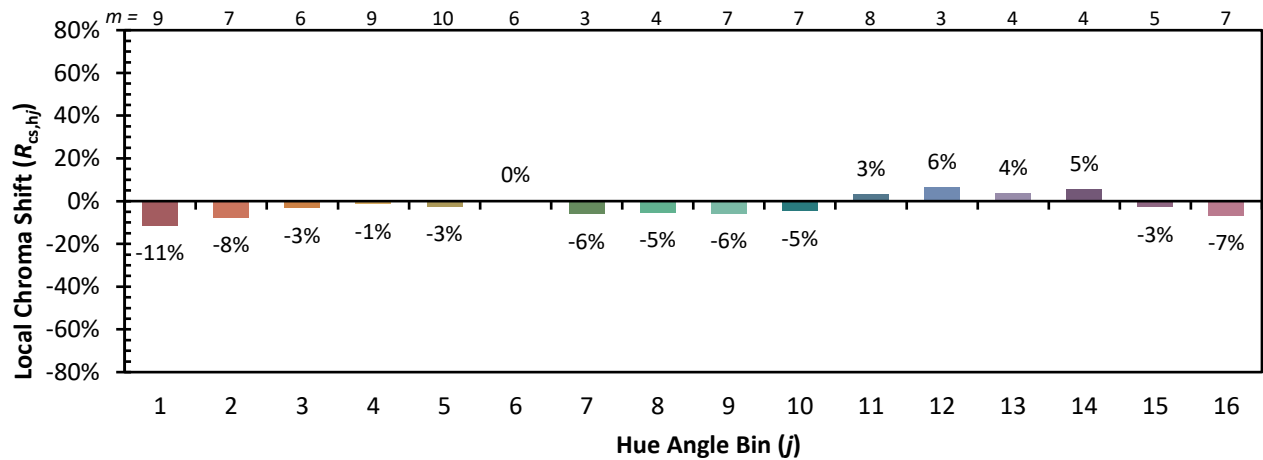
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

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

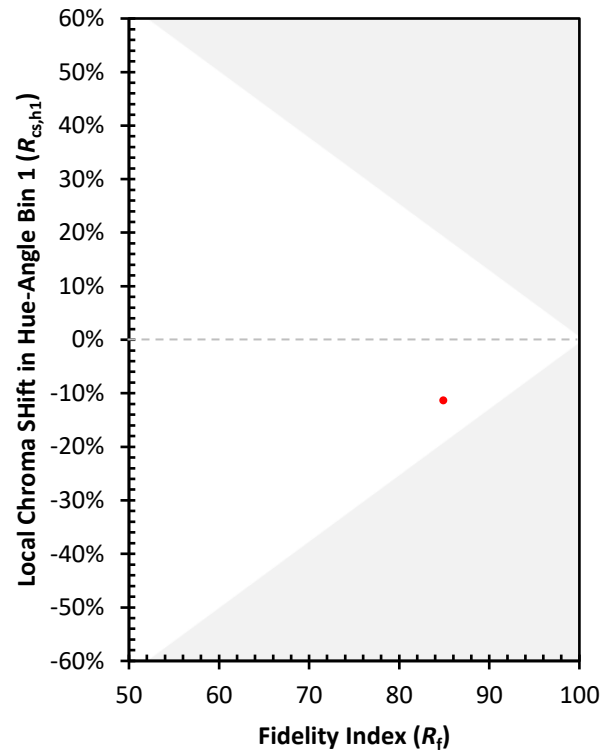
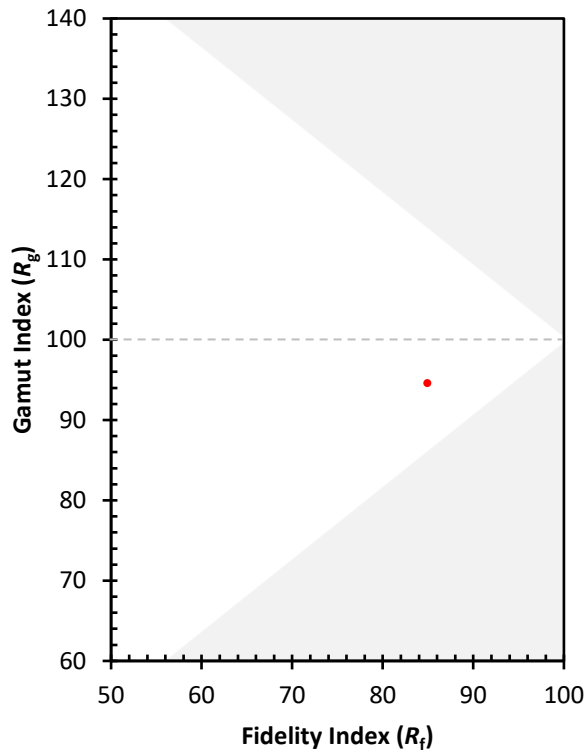




Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)