

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: P1215912

Luminaire Tested: 24-ID2-35-CFD2-L950-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215912  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2506-458-28)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-35-CFD2-L950-U  
Description: 2X4 IN DEPTH TROFFER WITH 2INCH CUBE DROP LENS  
Light Source: 5000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

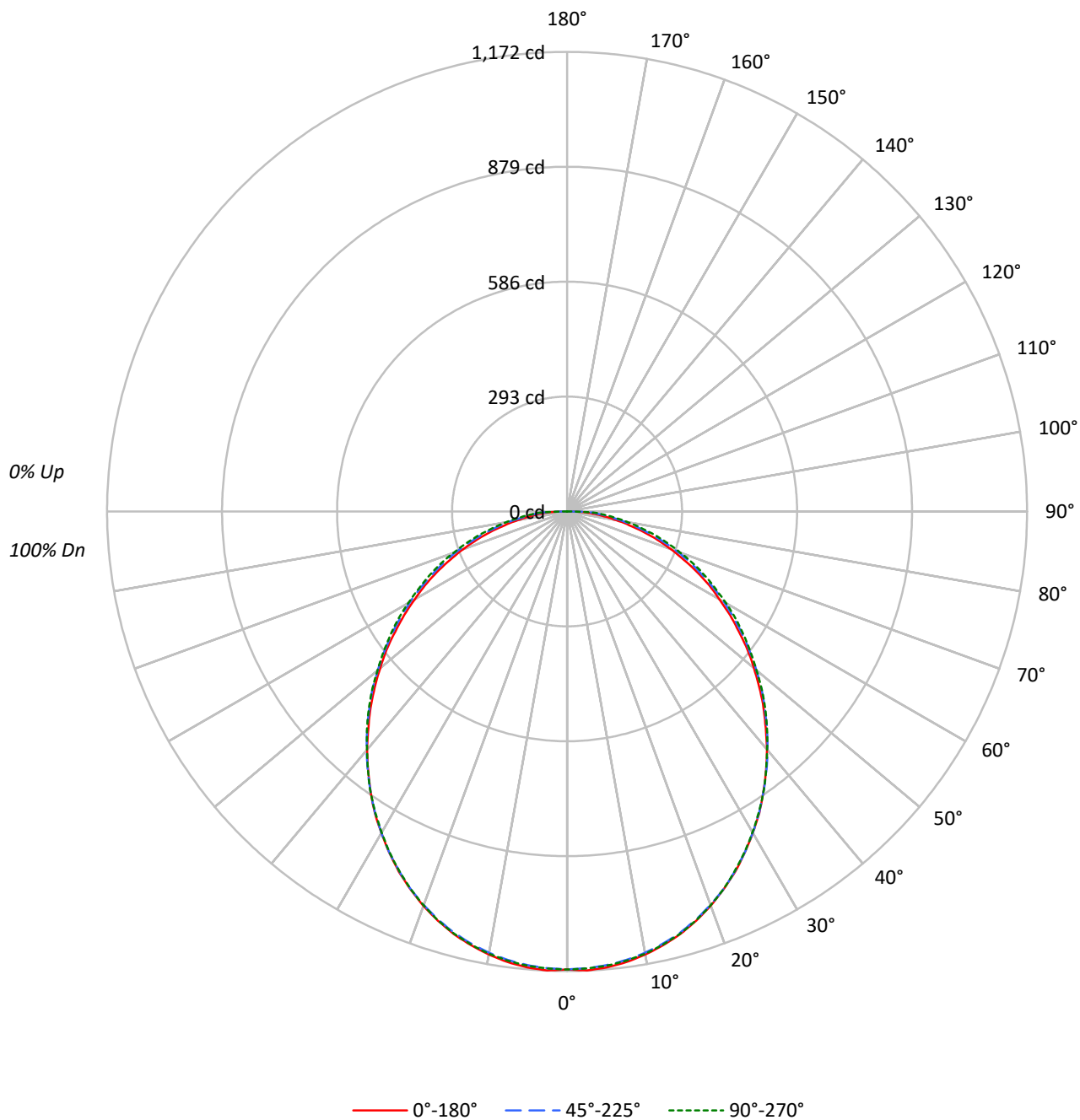
Lumens per Lamp: N/A  
Luminaire Lumens: 3168.4 lumens  
Efficiency: N/A  
Efficacy: 104.2 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.32  
Luminous Opening: Rectangular w/ Sides (W: 2' x L: 4' x H: 0.16')  
CIE Type: Direct

Input Watts (W): 30.4  
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: P1215912

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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  |  | 50  | 30  | 10  |
| RCR |     |     |     |     |     |     |     |     |  |     |     |     |  |     |     |     |  |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 |  | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 | 102 | 102 |
| 1   | 108 | 103 | 99  | 95  | 106 | 101 | 97  | 93  |  | 97  | 94  | 90  |  | 93  | 90  | 88  |  | 89  | 87  | 85  |
| 2   | 99  | 90  | 83  | 77  | 96  | 88  | 82  | 76  |  | 85  | 79  | 75  |  | 81  | 77  | 73  |  | 78  | 75  | 71  |
| 3   | 90  | 79  | 71  | 64  | 87  | 78  | 70  | 64  |  | 75  | 68  | 63  |  | 72  | 66  | 61  |  | 69  | 64  | 60  |
| 4   | 82  | 70  | 61  | 55  | 80  | 69  | 61  | 54  |  | 66  | 59  | 53  |  | 64  | 58  | 53  |  | 62  | 56  | 52  |
| 5   | 76  | 63  | 54  | 47  | 74  | 62  | 53  | 47  |  | 60  | 52  | 46  |  | 58  | 51  | 46  |  | 56  | 50  | 45  |
| 6   | 70  | 57  | 48  | 41  | 68  | 56  | 47  | 41  |  | 54  | 46  | 41  |  | 52  | 45  | 40  |  | 51  | 45  | 40  |
| 7   | 65  | 51  | 43  | 36  | 63  | 51  | 42  | 36  |  | 49  | 42  | 36  |  | 48  | 41  | 36  |  | 46  | 40  | 36  |
| 8   | 61  | 47  | 38  | 33  | 59  | 46  | 38  | 32  |  | 45  | 38  | 32  |  | 44  | 37  | 32  |  | 43  | 36  | 32  |
| 9   | 57  | 43  | 35  | 29  | 55  | 43  | 35  | 29  |  | 41  | 34  | 29  |  | 40  | 34  | 29  |  | 39  | 33  | 29  |
| 10  | 53  | 40  | 32  | 27  | 52  | 39  | 32  | 27  |  | 38  | 31  | 26  |  | 37  | 31  | 26  |  | 37  | 31  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1572 | 1572 | 1572 |
| 5°  | 1571 | 1557 | 1559 |
| 10° | 1557 | 1538 | 1543 |
| 15° | 1537 | 1515 | 1519 |
| 20° | 1510 | 1483 | 1487 |
| 25° | 1478 | 1445 | 1448 |
| 30° | 1437 | 1402 | 1403 |
| 35° | 1394 | 1353 | 1358 |
| 40° | 1347 | 1302 | 1305 |
| 45° | 1296 | 1250 | 1259 |
| 50° | 1242 | 1197 | 1205 |
| 55° | 1185 | 1140 | 1157 |
| 60° | 1127 | 1083 | 1105 |
| 65° | 1073 | 1020 | 1054 |
| 70° | 998  | 955  | 991  |
| 75° | 914  | 863  | 923  |
| 80° | 808  | 769  | 841  |
| 85° | 706  | 672  | 760  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1296 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 110.4  | 3.5       |
| 10°-20°   | 313.6  | 9.9       |
| 20°-30°   | 465.9  | 14.7      |
| 30°-40°   | 545.9  | 17.2      |
| 40°-50°   | 549.5  | 17.3      |
| 50°-60°   | 487.0  | 15.4      |
| 60°-70°   | 374.7  | 11.8      |
| 70°-80°   | 231.7  | 7.3       |
| 80°-90°   | 89.8   | 2.8       |
| 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°    | 889.9  | 28.1      |
| 0°-40°    | 1435.8 | 45.3      |
| 0°-60°    | 2472.3 | 78.0      |
| 0°-90°    | 3168.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3168.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1168 | 1168  | 1168 | 1168  | 1168 |      |
| 5°  | 1167 | 1164  | 1161 | 1160  | 1163 | 111  |
| 15° | 1116 | 1112  | 1112 | 1112  | 1114 | 314  |
| 25° | 1014 | 1012  | 1012 | 1012  | 1012 | 466  |
| 35° | 872  | 873   | 872  | 873   | 873  | 546  |
| 45° | 708  | 710   | 713  | 714   | 715  | 546  |
| 55° | 534  | 540   | 545  | 550   | 550  | 479  |
| 65° | 366  | 371   | 378  | 386   | 388  | 362  |
| 75° | 202  | 209   | 219  | 229   | 231  | 214  |
| 85° | 67   | 75    | 86   | 93    | 94   | 73   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1168.0 | 1168.0 | 1168.0 | 1168.0 | 1168.0 |
| 2.5°  | 1171.5 | 1168.0 | 1165.7 | 1164.4 | 1166.6 |
| 5°    | 1167.1 | 1163.5 | 1161.3 | 1160.4 | 1162.6 |
| 7.5°  | 1159.1 | 1155.5 | 1153.7 | 1153.3 | 1155.5 |
| 10°   | 1147.5 | 1144.0 | 1142.6 | 1142.2 | 1145.3 |
| 12.5° | 1132.9 | 1129.7 | 1128.9 | 1129.3 | 1131.1 |
| 15°   | 1115.5 | 1112.4 | 1112.0 | 1111.5 | 1114.2 |
| 17.5° | 1094.2 | 1091.5 | 1091.5 | 1090.7 | 1093.3 |
| 20°   | 1070.2 | 1067.1 | 1067.6 | 1067.1 | 1068.9 |
| 22.5° | 1042.7 | 1040.9 | 1042.2 | 1041.8 | 1042.2 |
| 25°   | 1013.8 | 1012.0 | 1012.0 | 1011.6 | 1011.6 |
| 27.5° | 980.9  | 980.5  | 980.5  | 979.1  | 979.6  |
| 30°   | 946.3  | 946.7  | 946.3  | 945.8  | 944.9  |
| 32.5° | 911.6  | 910.7  | 910.7  | 910.7  | 909.4  |
| 35°   | 872.5  | 873.0  | 872.5  | 873.0  | 873.0  |
| 37.5° | 832.5  | 835.2  | 834.3  | 835.2  | 833.0  |
| 40°   | 792.6  | 793.4  | 794.3  | 794.3  | 793.0  |
| 42.5° | 749.0  | 753.9  | 754.4  | 754.4  | 754.4  |
| 45°   | 708.1  | 710.4  | 712.6  | 713.5  | 714.8  |
| 47.5° | 664.6  | 668.6  | 672.6  | 671.7  | 673.5  |
| 50°   | 621.5  | 626.8  | 629.5  | 631.7  | 630.4  |
| 52.5° | 579.8  | 582.9  | 587.3  | 590.0  | 589.5  |
| 55°   | 534.0  | 540.2  | 544.7  | 549.5  | 549.5  |
| 57.5° | 492.2  | 499.3  | 502.9  | 508.7  | 509.6  |
| 60°   | 447.8  | 455.8  | 461.6  | 466.9  | 467.4  |
| 62.5° | 408.3  | 413.6  | 419.8  | 427.4  | 426.0  |
| 65°   | 366.1  | 371.4  | 378.5  | 385.6  | 387.8  |
| 67.5° | 322.5  | 330.1  | 338.5  | 345.6  | 348.7  |
| 70°   | 281.7  | 289.7  | 299.4  | 306.5  | 307.4  |
| 72.5° | 241.7  | 250.1  | 258.1  | 267.0  | 269.2  |
| 75°   | 202.1  | 209.2  | 218.6  | 229.2  | 230.6  |
| 77.5° | 162.6  | 172.4  | 181.7  | 191.5  | 191.9  |
| 80°   | 127.9  | 135.9  | 147.0  | 155.9  | 157.7  |
| 82.5° | 94.2   | 103.1  | 113.7  | 123.1  | 123.9  |
| 85°   | 66.6   | 75.1   | 85.7   | 93.3   | 94.2   |
| 87.5° | 44.9   | 53.3   | 63.1   | 70.6   | 71.5   |
| 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 | 12.31            | 13.94 | 12.67 | 14.26 | 14.57 | 12.58          | 14.22 | 12.95 | 14.54 | 14.85 |
|                 | 3H   | 14.02            | 15.50 | 14.39 | 15.83 | 16.19 | 14.47          | 15.96 | 14.85 | 16.28 | 16.64 |
|                 | 4H   | 14.65            | 16.06 | 15.05 | 16.40 | 16.78 | 15.23          | 16.63 | 15.63 | 16.98 | 17.36 |
|                 | 6H   | 15.12            | 16.42 | 15.53 | 16.78 | 17.17 | 15.86          | 17.16 | 16.27 | 17.52 | 17.91 |
|                 | 8H   | 15.27            | 16.51 | 15.69 | 16.90 | 17.30 | 16.11          | 17.35 | 16.53 | 17.74 | 18.14 |
|                 | 12H  | 15.38            | 16.57 | 15.80 | 16.95 | 17.38 | 16.32          | 17.51 | 16.75 | 17.89 | 18.32 |
| 4H              | 2H   | 12.94            | 14.35 | 13.34 | 14.69 | 15.07 | 13.16          | 14.56 | 13.56 | 14.91 | 15.29 |
|                 | 3H   | 14.89            | 16.07 | 15.29 | 16.46 | 16.86 | 15.28          | 16.46 | 15.69 | 16.85 | 17.25 |
|                 | 4H   | 15.65            | 16.72 | 16.08 | 17.13 | 17.57 | 16.18          | 17.25 | 16.61 | 17.66 | 18.10 |
|                 | 6H   | 16.24            | 17.18 | 16.70 | 17.62 | 18.08 | 16.95          | 17.89 | 17.40 | 18.33 | 18.79 |
|                 | 8H   | 16.44            | 17.32 | 16.90 | 17.76 | 18.23 | 17.26          | 18.14 | 17.72 | 18.58 | 19.05 |
|                 | 12H  | 16.60            | 17.39 | 17.08 | 17.87 | 18.33 | 17.54          | 18.34 | 18.02 | 18.81 | 19.28 |
| 8H              | 4H   | 16.00            | 16.88 | 16.46 | 17.32 | 17.79 | 16.47          | 17.35 | 16.93 | 17.79 | 18.26 |
|                 | 6H   | 16.73            | 17.46 | 17.22 | 17.95 | 18.42 | 17.38          | 18.12 | 17.87 | 18.60 | 19.08 |
|                 | 8H   | 17.00            | 17.67 | 17.51 | 18.17 | 18.66 | 17.79          | 18.45 | 18.29 | 18.95 | 19.44 |
|                 | 12H  | 17.24            | 17.83 | 17.75 | 18.32 | 18.88 | 18.18          | 18.77 | 18.69 | 19.26 | 19.82 |
| 12H             | 4H   | 16.06            | 16.85 | 16.53 | 17.32 | 17.79 | 16.50          | 17.29 | 16.98 | 17.77 | 18.24 |
|                 | 6H   | 16.81            | 17.48 | 17.32 | 17.98 | 18.47 | 17.43          | 18.10 | 17.94 | 18.60 | 19.09 |
|                 | 8H   | 17.16            | 17.74 | 17.66 | 18.23 | 18.79 | 17.91          | 18.49 | 18.41 | 18.98 | 19.54 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-13

Test Date: 08/27/2025

Luminaire Tested: 22ID2-55-CFR1-L950-U

Data in this report applies to families of products including 22ID2-55-CFR1-L950-U

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-13  
 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-L950-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 5000K 90CRI

### Spectral Parameters

CCT (K): 4919  
 CIE  $u'$ : 0.2096  
 CIE  $v'$ : 0.4901  
 Duv: 0.0038  
 CIE x: 0.3483  
 CIE y: 0.3619  
 CIE z: 0.2898  
 Peak Wavelength (nm): 453  
 Dominant Wavelength (nm): 570  
 Purity: 13.10873  
 R<sub>f</sub>: 90.8  
 R<sub>g</sub>: 97.4

CRI (Ra): 94.0  
 R1: 94.8  
 R2: 97.7  
 R3: 98.4  
 R4: 90.8  
 R5: 92.2  
 R6: 94.3  
 R7: 94.0  
 R8: 90.0  
 R9: 77.7  
 R10: 93.1  
 R11: 92.0  
 R12: 65.9  
 R13: 95.9  
 R14: 99.0  
 R15: 91.4



### Test Conditions

Stabilization Time: M  
 Operation Time: 1H 0M  
 Sphere Temperature (°C): 25.0

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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 5000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>$\text{W}^\wedge/\text{nm}$ | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360               | 0                                    | NR                             | 490               | 419                                  | NR                             | 620               | 583                                  | NR                             | 750               | 44                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 441                                  | NR                             | 625               | 580                                  | NR                             | 755               | 37                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 472                                  | NR                             | 630               | 572                                  | NR                             | 760               | 32                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 501                                  | NR                             | 635               | 559                                  | NR                             | 765               | 27                                   | NR                             | 895               | 0                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 524                                  | NR                             | 640               | 543                                  | NR                             | 770               | 23                                   | NR                             | 900               | 0                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 545                                  | NR                             | 645               | 522                                  | NR                             | 775               | 20                                   | NR                             | 905               | 0                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 559                                  | NR                             | 650               | 496                                  | NR                             | 780               | 17                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 3                                    | NR                             | 525               | 572                                  | NR                             | 655               | 468                                  | NR                             | 785               | 14                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 4                                    | NR                             | 530               | 581                                  | NR                             | 660               | 435                                  | NR                             | 790               | 12                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 7                                    | NR                             | 535               | 590                                  | NR                             | 665               | 403                                  | NR                             | 795               | 10                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 9                                    | NR                             | 540               | 595                                  | NR                             | 670               | 368                                  | NR                             | 800               | 9                                    | NR                             | 930               | 0                                    | NR                             |
| 415               | 14                                   | NR                             | 545               | 599                                  | NR                             | 675               | 335                                  | NR                             | 805               | 8                                    | NR                             | 935               | 0                                    | NR                             |
| 420               | 23                                   | NR                             | 550               | 599                                  | NR                             | 680               | 304                                  | NR                             | 810               | 6                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 40                                   | NR                             | 555               | 599                                  | NR                             | 685               | 271                                  | NR                             | 815               | 6                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 72                                   | NR                             | 560               | 595                                  | NR                             | 690               | 243                                  | NR                             | 820               | 5                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 132                                  | NR                             | 565               | 589                                  | NR                             | 695               | 215                                  | NR                             | 825               | 4                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 243                                  | NR                             | 570               | 581                                  | NR                             | 700               | 189                                  | NR                             | 830               | 3                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 488                                  | NR                             | 575               | 575                                  | NR                             | 705               | 165                                  | NR                             | 835               | 3                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 879                                  | NR                             | 580               | 573                                  | NR                             | 710               | 144                                  | NR                             | 840               | 3                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 974                                  | NR                             | 585               | 570                                  | NR                             | 715               | 124                                  | NR                             | 845               | 2                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 726                                  | NR                             | 590               | 572                                  | NR                             | 720               | 108                                  | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 627                                  | NR                             | 595               | 574                                  | NR                             | 725               | 93                                   | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 546                                  | NR                             | 600               | 576                                  | NR                             | 730               | 80                                   | NR                             | 860               | 1                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 434                                  | NR                             | 605               | 581                                  | NR                             | 735               | 69                                   | NR                             | 865               | 1                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 395                                  | NR                             | 610               | 582                                  | NR                             | 740               | 59                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 403                                  | NR                             | 615               | 586                                  | NR                             | 745               | 51                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 2.09

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(Φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 419                         | NR               | 620       | 583                         | NR               | 750       | 44                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 441                         | NR               | 625       | 580                         | NR               | 755       | 37                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 472                         | NR               | 630       | 572                         | NR               | 760       | 32                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 501                         | NR               | 635       | 559                         | NR               | 765       | 27                          | NR               | 895       | 0                           | NR               |
| 380       | 0                           | NR               | 510       | 524                         | NR               | 640       | 543                         | NR               | 770       | 23                          | NR               | 900       | 0                           | NR               |
| 385       | 0                           | NR               | 515       | 545                         | NR               | 645       | 522                         | NR               | 775       | 20                          | NR               | 905       | 0                           | NR               |
| 390       | 1                           | NR               | 520       | 559                         | NR               | 650       | 496                         | NR               | 780       | 17                          | NR               | 910       | 0                           | NR               |
| 395       | 3                           | NR               | 525       | 572                         | NR               | 655       | 468                         | NR               | 785       | 14                          | NR               | 915       | 0                           | NR               |
| 400       | 4                           | NR               | 530       | 581                         | NR               | 660       | 435                         | NR               | 790       | 12                          | NR               | 920       | 0                           | NR               |
| 405       | 7                           | NR               | 535       | 590                         | NR               | 665       | 403                         | NR               | 795       | 10                          | NR               | 925       | 0                           | NR               |
| 410       | 9                           | NR               | 540       | 595                         | NR               | 670       | 368                         | NR               | 800       | 9                           | NR               | 930       | 0                           | NR               |
| 415       | 14                          | NR               | 545       | 599                         | NR               | 675       | 335                         | NR               | 805       | 8                           | NR               | 935       | 0                           | NR               |
| 420       | 23                          | NR               | 550       | 599                         | NR               | 680       | 304                         | NR               | 810       | 6                           | NR               | 940       | 0                           | NR               |
| 425       | 40                          | NR               | 555       | 599                         | NR               | 685       | 271                         | NR               | 815       | 6                           | NR               | 945       | 0                           | NR               |
| 430       | 72                          | NR               | 560       | 595                         | NR               | 690       | 243                         | NR               | 820       | 5                           | NR               | 950       | 0                           | NR               |
| 435       | 132                         | NR               | 565       | 589                         | NR               | 695       | 215                         | NR               | 825       | 4                           | NR               | 955       | 0                           | NR               |
| 440       | 243                         | NR               | 570       | 581                         | NR               | 700       | 189                         | NR               | 830       | 3                           | NR               | 960       | 0                           | NR               |
| 445       | 488                         | NR               | 575       | 575                         | NR               | 705       | 165                         | NR               | 835       | 3                           | NR               | 965       | 0                           | NR               |
| 450       | 879                         | NR               | 580       | 573                         | NR               | 710       | 144                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 974                         | NR               | 585       | 570                         | NR               | 715       | 124                         | NR               | 845       | 2                           | NR               | 975       | 0                           | NR               |
| 460       | 726                         | NR               | 590       | 572                         | NR               | 720       | 108                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 627                         | NR               | 595       | 574                         | NR               | 725       | 93                          | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 546                         | NR               | 600       | 576                         | NR               | 730       | 80                          | NR               | 860       | 1                           | NR               | 990       | 0                           | NR               |
| 475       | 434                         | NR               | 605       | 581                         | NR               | 735       | 69                          | NR               | 865       | 1                           | NR               | 995       | 0                           | NR               |
| 480       | 395                         | NR               | 610       | 582                         | NR               | 740       | 59                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 403                         | NR               | 615       | 586                         | NR               | 745       | 51                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.55

| λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>λ</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 419                      | NR            | 620    | 583                      | NR            | 750    | 44                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 441                      | NR            | 625    | 580                      | NR            | 755    | 37                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 472                      | NR            | 630    | 572                      | NR            | 760    | 32                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 501                      | NR            | 635    | 559                      | NR            | 765    | 27                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 524                      | NR            | 640    | 543                      | NR            | 770    | 23                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 545                      | NR            | 645    | 522                      | NR            | 775    | 20                       | NR            | 905    | 0                        | NR            |
| 390    | 1                        | NR            | 520    | 559                      | NR            | 650    | 496                      | NR            | 780    | 17                       | NR            | 910    | 0                        | NR            |
| 395    | 3                        | NR            | 525    | 572                      | NR            | 655    | 468                      | NR            | 785    | 14                       | NR            | 915    | 0                        | NR            |
| 400    | 4                        | NR            | 530    | 581                      | NR            | 660    | 435                      | NR            | 790    | 12                       | NR            | 920    | 0                        | NR            |
| 405    | 7                        | NR            | 535    | 590                      | NR            | 665    | 403                      | NR            | 795    | 10                       | NR            | 925    | 0                        | NR            |
| 410    | 9                        | NR            | 540    | 595                      | NR            | 670    | 368                      | NR            | 800    | 9                        | NR            | 930    | 0                        | NR            |
| 415    | 14                       | NR            | 545    | 599                      | NR            | 675    | 335                      | NR            | 805    | 8                        | NR            | 935    | 0                        | NR            |
| 420    | 23                       | NR            | 550    | 599                      | NR            | 680    | 304                      | NR            | 810    | 6                        | NR            | 940    | 0                        | NR            |
| 425    | 40                       | NR            | 555    | 599                      | NR            | 685    | 271                      | NR            | 815    | 6                        | NR            | 945    | 0                        | NR            |
| 430    | 72                       | NR            | 560    | 595                      | NR            | 690    | 243                      | NR            | 820    | 5                        | NR            | 950    | 0                        | NR            |
| 435    | 132                      | NR            | 565    | 589                      | NR            | 695    | 215                      | NR            | 825    | 4                        | NR            | 955    | 0                        | NR            |
| 440    | 243                      | NR            | 570    | 581                      | NR            | 700    | 189                      | NR            | 830    | 3                        | NR            | 960    | 0                        | NR            |
| 445    | 488                      | NR            | 575    | 575                      | NR            | 705    | 165                      | NR            | 835    | 3                        | NR            | 965    | 0                        | NR            |
| 450    | 879                      | NR            | 580    | 573                      | NR            | 710    | 144                      | NR            | 840    | 3                        | NR            | 970    | 0                        | NR            |
| 455    | 974                      | NR            | 585    | 570                      | NR            | 715    | 124                      | NR            | 845    | 2                        | NR            | 975    | 0                        | NR            |
| 460    | 726                      | NR            | 590    | 572                      | NR            | 720    | 108                      | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 627                      | NR            | 595    | 574                      | NR            | 725    | 93                       | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 546                      | NR            | 600    | 576                      | NR            | 730    | 80                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 434                      | NR            | 605    | 581                      | NR            | 735    | 69                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 395                      | NR            | 610    | 582                      | NR            | 740    | 59                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 403                      | NR            | 615    | 586                      | NR            | 745    | 51                       | NR            | 875    | 1                        | NR            |        |                          |               |

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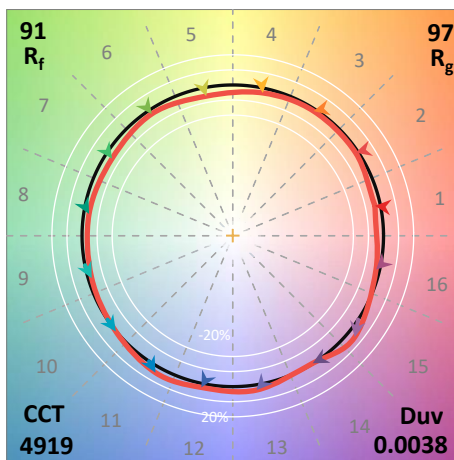
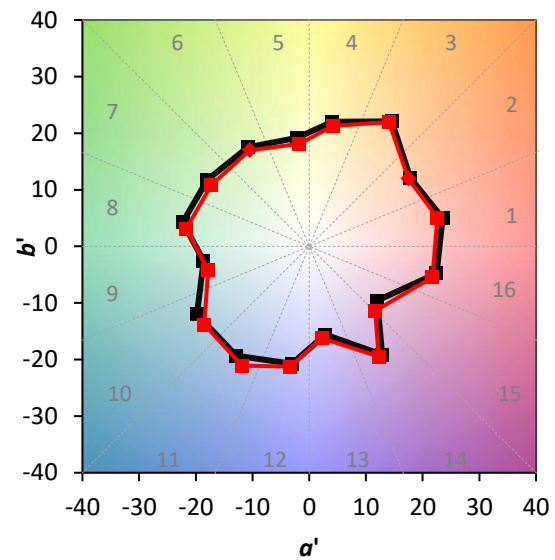
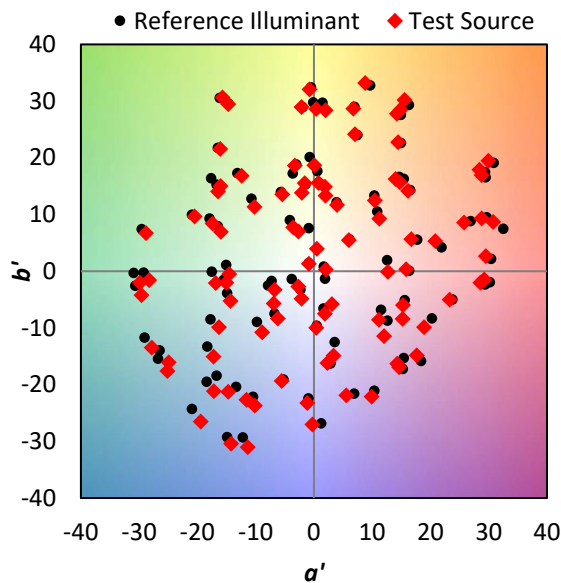
TM-30-18

### Summary

$R_f = 90.8$   
 $R_g = 97.4$   
 $CIE R_a = 94.0$   
 $R_9 = 77.7$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 98 | CES51 = 93 | CES76 = 91 |
| CES02 = 61 | CES27 = 86 | CES52 = 96 | CES77 = 89 |
| CES03 = 31 | CES28 = 98 | CES53 = 93 | CES78 = 87 |
| CES04 = 68 | CES29 = 90 | CES54 = 89 | CES79 = 97 |
| CES05 = 48 | CES30 = 80 | CES55 = 86 | CES80 = 94 |
| CES06 = 50 | CES31 = 92 | CES56 = 89 | CES81 = 89 |
| CES07 = 41 | CES32 = 97 | CES57 = 87 | CES82 = 97 |
| CES08 = 40 | CES33 = 89 | CES58 = 87 | CES83 = 96 |
| CES09 = 29 | CES34 = 98 | CES59 = 96 | CES84 = 94 |
| CES10 = 73 | CES35 = 98 | CES60 = 89 | CES85 = 84 |
| CES11 = 56 | CES36 = 74 | CES61 = 90 | CES86 = 90 |
| CES12 = 62 | CES37 = 97 | CES62 = 78 | CES87 = 92 |
| CES13 = 42 | CES38 = 75 | CES63 = 89 | CES88 = 95 |
| CES14 = 74 | CES39 = 97 | CES64 = 85 | CES89 = 90 |
| CES15 = 71 | CES40 = 97 | CES65 = 87 | CES90 = 92 |
| CES16 = 47 | CES41 = 91 | CES66 = 82 | CES91 = 69 |
| CES17 = 48 | CES42 = 99 | CES67 = 82 | CES92 = 81 |
| CES18 = 56 | CES43 = 97 | CES68 = 86 | CES93 = 88 |
| CES19 = 70 | CES44 = 99 | CES69 = 87 | CES94 = 86 |
| CES20 = 65 | CES45 = 97 | CES70 = 86 | CES95 = 83 |
| CES21 = 84 | CES46 = 94 | CES71 = 77 | CES96 = 94 |
| CES22 = 77 | CES47 = 90 | CES72 = 93 | CES97 = 97 |
| CES23 = 91 | CES48 = 83 | CES73 = 82 | CES98 = 94 |
| CES24 = 89 | CES49 = 95 | CES74 = 89 | CES99 = 92 |
| CES25 = 70 | CES50 = 94 | CES75 = 81 |            |



**Color Rendition by Hue-Angle Bin**


**Measure Comparisons**


(END OF REPORT)