

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: P1216891

Luminaire Tested: 14-ID2-60-CFR2-L940-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1216891  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2508-507-14)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 14-ID2-60-CFR2-L940-U  
Description: 1X4 IN DEPTH TROFFER WITH 2INCH CUBE REGRESS LENS  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

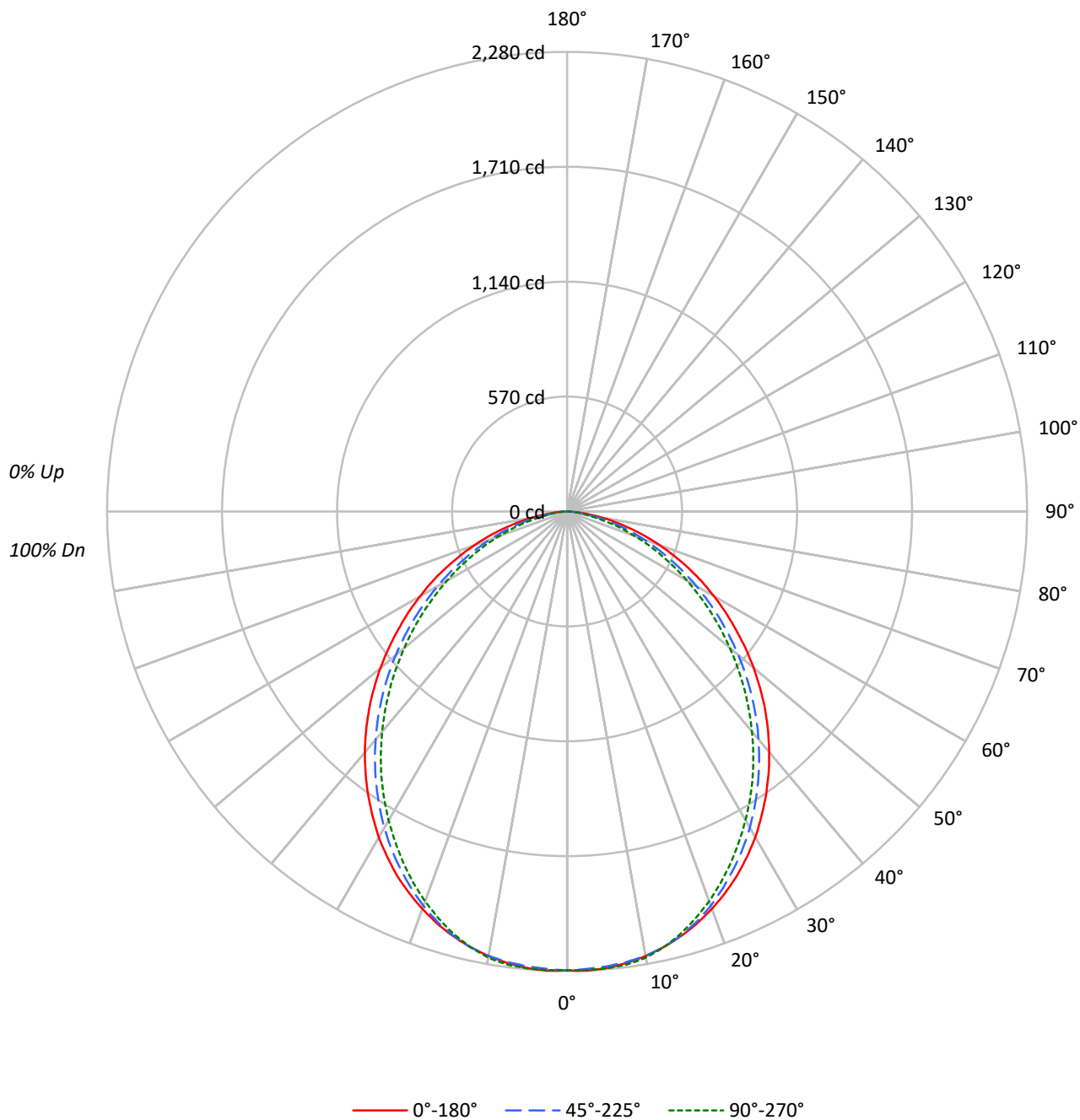
Lumens per Lamp: N/A  
Luminaire Lumens: 5524.0 lumens  
Efficiency: N/A  
Efficacy: 103.3 lumens/watt  
Spacing Criteria (0/90/45): 1.22 / 1.16 / 1.28  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 53.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P1216891  
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### Luminous Intensity Polar Plot



TEST NUMBER: P1216891

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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   | 110 | 105 | 101 | 98  | 107 | 103 | 99  | 96  | 99  | 96  | 93  |  | 95  | 93  | 90  |  | 86  |
| 2   | 100 | 93  | 86  | 81  | 98  | 91  | 85  | 80  | 87  | 82  | 78  |  | 84  | 80  | 76  |  | 72  |
| 3   | 92  | 82  | 74  | 68  | 89  | 80  | 73  | 67  | 77  | 71  | 66  |  | 75  | 70  | 65  |  | 62  |
| 4   | 84  | 73  | 65  | 58  | 82  | 72  | 64  | 58  | 69  | 62  | 57  |  | 67  | 61  | 56  |  | 53  |
| 5   | 78  | 66  | 57  | 51  | 76  | 64  | 56  | 50  | 62  | 55  | 50  |  | 60  | 54  | 49  |  | 47  |
| 6   | 72  | 59  | 51  | 44  | 70  | 58  | 50  | 44  | 57  | 49  | 44  |  | 55  | 48  | 44  |  | 41  |
| 7   | 67  | 54  | 45  | 40  | 65  | 53  | 45  | 39  | 52  | 44  | 39  |  | 50  | 44  | 39  |  | 37  |
| 8   | 62  | 49  | 41  | 35  | 61  | 49  | 41  | 35  | 47  | 40  | 35  |  | 46  | 40  | 35  |  | 33  |
| 9   | 58  | 45  | 37  | 32  | 57  | 45  | 37  | 32  | 44  | 37  | 32  |  | 43  | 36  | 32  |  | 30  |
| 10  | 55  | 42  | 34  | 29  | 54  | 41  | 34  | 29  | 40  | 34  | 29  |  | 40  | 33  | 29  |  | 27  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 6127 | 6127 | 6127 |
| 5°  | 6140 | 6119 | 6145 |
| 10° | 6121 | 6116 | 6143 |
| 15° | 6078 | 6070 | 6045 |
| 20° | 6009 | 5962 | 5893 |
| 25° | 5918 | 5806 | 5705 |
| 30° | 5800 | 5630 | 5496 |
| 35° | 5646 | 5419 | 5271 |
| 40° | 5476 | 5186 | 5009 |
| 45° | 5280 | 4928 | 4723 |
| 50° | 5053 | 4636 | 4407 |
| 55° | 4792 | 4324 | 4071 |
| 60° | 4521 | 3980 | 3704 |
| 65° | 4217 | 3600 | 3291 |
| 70° | 3834 | 3184 | 2832 |
| 75° | 3359 | 2706 | 2230 |
| 80° | 2712 | 2002 | 1557 |
| 85° | 1828 | 1470 | 1303 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 5280 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 215.7  | 3.9       |
| 10°-20°   | 613.1  | 11.1      |
| 20°-30°   | 901.6  | 16.3      |
| 30°-40°   | 1036.8 | 18.8      |
| 40°-50°   | 1007.8 | 18.2      |
| 50°-60°   | 836.0  | 15.1      |
| 60°-70°   | 573.0  | 10.4      |
| 70°-80°   | 280.7  | 5.1       |
| 80°-90°   | 59.3   | 1.1       |
| 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°    | 1730.5 | 31.3      |
| 0°-40°    | 2767.2 | 50.1      |
| 0°-60°    | 4611.0 | 83.5      |
| 0°-90°    | 5524.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5524.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2277 | 2277  | 2277 | 2277  | 2277 |      |
| 5°  | 2273 | 2270  | 2265 | 2269  | 2275 | 216  |
| 15° | 2182 | 2183  | 2179 | 2170  | 2170 | 615  |
| 25° | 1993 | 1996  | 1956 | 1930  | 1921 | 917  |
| 35° | 1719 | 1710  | 1650 | 1616  | 1605 | 1074 |
| 45° | 1387 | 1364  | 1295 | 1256  | 1241 | 1069 |
| 55° | 1021 | 988   | 922  | 884   | 868  | 915  |
| 65° | 662  | 621   | 565  | 533   | 517  | 656  |
| 75° | 323  | 296   | 260  | 227   | 214  | 344  |
| 85° | 59   | 52    | 48   | 44    | 42   | 76   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2276.8 | 2276.8 | 2276.8 | 2276.8 | 2276.8 |
| 2.5°  | 2280.3 | 2276.8 | 2271.4 | 2273.2 | 2276.8 |
| 5°    | 2273.2 | 2270.5 | 2265.1 | 2268.7 | 2275.0 |
| 7.5°  | 2259.7 | 2257.9 | 2254.3 | 2259.7 | 2267.8 |
| 10°   | 2240.0 | 2239.1 | 2238.2 | 2241.8 | 2248.0 |
| 12.5° | 2213.9 | 2213.9 | 2213.9 | 2211.2 | 2213.9 |
| 15°   | 2181.6 | 2183.4 | 2178.9 | 2170.0 | 2170.0 |
| 17.5° | 2143.0 | 2146.6 | 2135.0 | 2120.6 | 2117.0 |
| 20°   | 2098.2 | 2102.7 | 2082.0 | 2061.4 | 2057.8 |
| 22.5° | 2047.9 | 2052.4 | 2021.0 | 1996.8 | 1992.3 |
| 25°   | 1993.2 | 1995.9 | 1955.5 | 1929.5 | 1921.4 |
| 27.5° | 1931.2 | 1931.2 | 1886.4 | 1856.8 | 1846.0 |
| 30°   | 1866.6 | 1863.0 | 1811.9 | 1780.5 | 1768.8 |
| 32.5° | 1793.0 | 1788.6 | 1732.0 | 1699.7 | 1688.0 |
| 35°   | 1718.6 | 1709.6 | 1649.5 | 1616.3 | 1604.6 |
| 37.5° | 1640.5 | 1627.9 | 1564.2 | 1529.2 | 1515.7 |
| 40°   | 1558.8 | 1541.8 | 1476.3 | 1439.5 | 1426.0 |
| 42.5° | 1474.5 | 1454.7 | 1386.5 | 1350.6 | 1333.6 |
| 45°   | 1387.4 | 1364.1 | 1295.0 | 1255.5 | 1241.1 |
| 47.5° | 1297.7 | 1271.6 | 1201.6 | 1164.0 | 1146.9 |
| 50°   | 1207.0 | 1177.4 | 1107.4 | 1069.7 | 1052.7 |
| 52.5° | 1114.6 | 1080.5 | 1014.1 | 976.4  | 960.2  |
| 55°   | 1021.3 | 988.1  | 921.6  | 884.0  | 867.8  |
| 57.5° | 932.4  | 893.8  | 829.2  | 794.2  | 776.3  |
| 60°   | 840.0  | 801.4  | 739.5  | 704.5  | 688.3  |
| 62.5° | 752.9  | 709.9  | 651.5  | 617.4  | 601.3  |
| 65°   | 662.3  | 621.0  | 565.4  | 533.1  | 516.9  |
| 67.5° | 573.5  | 534.9  | 483.7  | 450.5  | 437.0  |
| 70°   | 487.3  | 450.5  | 404.7  | 373.3  | 359.9  |
| 72.5° | 403.8  | 372.4  | 332.0  | 297.9  | 286.3  |
| 75°   | 323.1  | 296.1  | 260.3  | 227.0  | 214.5  |
| 77.5° | 246.8  | 225.3  | 191.2  | 158.8  | 146.3  |
| 80°   | 175.0  | 158.8  | 129.2  | 102.3  | 100.5  |
| 82.5° | 113.1  | 101.4  | 77.2   | 73.6   | 71.8   |
| 85°   | 59.2   | 52.1   | 47.6   | 44.0   | 42.2   |
| 87.5° | 18.8   | 18.8   | 18.8   | 15.3   | 14.4   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 17.44            | 19.01 | 17.80 | 19.32 | 19.64 | 16.53          | 18.10 | 16.90 | 18.41 | 18.73 |
|                 | 3H   | 19.04            | 20.45 | 19.42 | 20.77 | 21.14 | 17.87          | 19.28 | 18.25 | 19.61 | 19.97 |
|                 | 4H   | 19.59            | 20.92 | 19.99 | 21.27 | 21.64 | 18.26          | 19.58 | 18.66 | 19.93 | 20.31 |
|                 | 6H   | 19.96            | 21.18 | 20.37 | 21.54 | 21.94 | 18.44          | 19.66 | 18.85 | 20.03 | 20.42 |
|                 | 8H   | 20.05            | 21.21 | 20.47 | 21.60 | 22.00 | 18.48          | 19.65 | 18.90 | 20.03 | 20.43 |
|                 | 12H  | 20.09            | 21.21 | 20.52 | 21.59 | 22.02 | 18.50          | 19.62 | 18.93 | 20.00 | 20.43 |
| 4H              | 2H   | 17.86            | 19.18 | 18.26 | 19.53 | 19.91 | 17.12          | 18.44 | 17.52 | 18.79 | 19.17 |
|                 | 3H   | 19.66            | 20.76 | 20.07 | 21.16 | 21.56 | 18.66          | 19.76 | 19.07 | 20.15 | 20.56 |
|                 | 4H   | 20.33            | 21.32 | 20.76 | 21.74 | 22.17 | 19.13          | 20.12 | 19.56 | 20.54 | 20.98 |
|                 | 6H   | 20.80            | 21.66 | 21.26 | 22.11 | 22.56 | 19.38          | 20.24 | 19.84 | 20.68 | 21.14 |
|                 | 8H   | 20.93            | 21.73 | 21.39 | 22.18 | 22.64 | 19.44          | 20.25 | 19.90 | 20.69 | 21.16 |
|                 | 12H  | 21.00            | 21.72 | 21.48 | 22.20 | 22.67 | 19.49          | 20.21 | 19.97 | 20.69 | 21.16 |
| 8H              | 4H   | 20.48            | 21.28 | 20.94 | 21.73 | 22.19 | 19.38          | 20.19 | 19.85 | 20.63 | 21.10 |
|                 | 6H   | 21.02            | 21.69 | 21.52 | 22.18 | 22.66 | 19.69          | 20.36 | 20.19 | 20.85 | 21.33 |
|                 | 8H   | 21.20            | 21.79 | 21.71 | 22.30 | 22.79 | 19.79          | 20.39 | 20.30 | 20.90 | 21.38 |
|                 | 12H  | 21.31            | 21.84 | 21.82 | 22.33 | 22.89 | 19.88          | 20.40 | 20.38 | 20.89 | 21.46 |
| 12H             | 4H   | 20.47            | 21.19 | 20.95 | 21.67 | 22.14 | 19.40          | 20.12 | 19.88 | 20.60 | 21.07 |
|                 | 6H   | 21.02            | 21.61 | 21.53 | 22.12 | 22.61 | 19.72          | 20.32 | 20.23 | 20.82 | 21.31 |
|                 | 8H   | 21.23            | 21.75 | 21.73 | 22.24 | 22.81 | 19.86          | 20.38 | 20.37 | 20.88 | 21.44 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-11

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L940-U

Data in this report applies to families of products including 22ID2-55-CFR1-L940-U

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-11  
 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-L940-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 4000K 90CRI

### Spectral Parameters

CCT (K): 3910  
 CIE  $u'$ : 0.2263  
 CIE  $v'$ : 0.5043  
 Duv: 0.0008  
 CIE x: 0.3851  
 CIE y: 0.3813  
 CIE z: 0.2336  
 Peak Wavelength (nm): 451  
 Dominant Wavelength (nm): 578  
 Purity: 30.01895  
 R<sub>f</sub>: 90.8  
 R<sub>g</sub>: 98.8

CRI (Ra): 92.4  
 R1: 92.5  
 R2: 94.9  
 R3: 95.8  
 R4: 92.7  
 R5: 91.7  
 R6: 92.1  
 R7: 94.3  
 R8: 85.2  
 R9: 62.0  
 R10: 87.0  
 R11: 92.8  
 R12: 71.7  
 R13: 93.2  
 R14: 97.3  
 R15: 89.6



### Test Conditions

Stabilization Time: 31M  
 Operation Time: 1H 31M  
 Sphere Temperature (°C): 25.2.

REPORT NUMBER: SP1-2506-458-11

| 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           |

REPORT NUMBER: SP1-2506-458-11

**CIE 1931 Chromaticity Diagram**



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



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2506-458-11

### 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               | 394                                  | NR                             | 620               | 868                                  | NR                             | 750               | 58                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 449                                  | NR                             | 625               | 858                                  | NR                             | 755               | 49                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 505                                  | NR                             | 630               | 839                                  | NR                             | 760               | 42                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 553                                  | NR                             | 635               | 813                                  | NR                             | 765               | 36                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 593                                  | NR                             | 640               | 783                                  | NR                             | 770               | 31                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 628                                  | NR                             | 645               | 746                                  | NR                             | 775               | 26                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 1                                    | NR                             | 520               | 651                                  | NR                             | 650               | 702                                  | NR                             | 780               | 22                                   | NR                             | 910               | 0                                    | NR                             |
| 395               | 4                                    | NR                             | 525               | 670                                  | NR                             | 655               | 657                                  | NR                             | 785               | 19                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 5                                    | NR                             | 530               | 687                                  | NR                             | 660               | 607                                  | NR                             | 790               | 16                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 8                                    | NR                             | 535               | 705                                  | NR                             | 665               | 559                                  | NR                             | 795               | 14                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 12                                   | NR                             | 540               | 717                                  | NR                             | 670               | 507                                  | NR                             | 800               | 12                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 19                                   | NR                             | 545               | 731                                  | NR                             | 675               | 458                                  | NR                             | 805               | 10                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 34                                   | NR                             | 550               | 745                                  | NR                             | 680               | 413                                  | NR                             | 810               | 9                                    | NR                             | 940               | 0                                    | NR                             |
| 425               | 60                                   | NR                             | 555               | 757                                  | NR                             | 685               | 367                                  | NR                             | 815               | 7                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 107                                  | NR                             | 560               | 767                                  | NR                             | 690               | 328                                  | NR                             | 820               | 6                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 194                                  | NR                             | 565               | 777                                  | NR                             | 695               | 289                                  | NR                             | 825               | 5                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 349                                  | NR                             | 570               | 785                                  | NR                             | 700               | 253                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 678                                  | NR                             | 575               | 794                                  | NR                             | 705               | 221                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 997                                  | NR                             | 580               | 809                                  | NR                             | 710               | 192                                  | NR                             | 840               | 3                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 819                                  | NR                             | 585               | 820                                  | NR                             | 715               | 165                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 581                                  | NR                             | 590               | 838                                  | NR                             | 720               | 144                                  | NR                             | 850               | 2                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 517                                  | NR                             | 595               | 851                                  | NR                             | 725               | 124                                  | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 406                                  | NR                             | 600               | 861                                  | NR                             | 730               | 107                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 327                                  | NR                             | 605               | 873                                  | NR                             | 735               | 91                                   | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 330                                  | NR                             | 610               | 875                                  | NR                             | 740               | 78                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 356                                  | NR                             | 615               | 877                                  | NR                             | 745               | 67                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.75

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 394                         | NR               | 620       | 868                         | NR               | 750       | 58                          | NR               | 880       | 1                           | NR               |
| 365       | 0                           | NR               | 495       | 449                         | NR               | 625       | 858                         | NR               | 755       | 49                          | NR               | 885       | 1                           | NR               |
| 370       | 0                           | NR               | 500       | 505                         | NR               | 630       | 839                         | NR               | 760       | 42                          | NR               | 890       | 1                           | NR               |
| 375       | 0                           | NR               | 505       | 553                         | NR               | 635       | 813                         | NR               | 765       | 36                          | NR               | 895       | 1                           | NR               |
| 380       | 0                           | NR               | 510       | 593                         | NR               | 640       | 783                         | NR               | 770       | 31                          | NR               | 900       | 1                           | NR               |
| 385       | 0                           | NR               | 515       | 628                         | NR               | 645       | 746                         | NR               | 775       | 26                          | NR               | 905       | 1                           | NR               |
| 390       | 1                           | NR               | 520       | 651                         | NR               | 650       | 702                         | NR               | 780       | 22                          | NR               | 910       | 0                           | NR               |
| 395       | 4                           | NR               | 525       | 670                         | NR               | 655       | 657                         | NR               | 785       | 19                          | NR               | 915       | 0                           | NR               |
| 400       | 5                           | NR               | 530       | 687                         | NR               | 660       | 607                         | NR               | 790       | 16                          | NR               | 920       | 0                           | NR               |
| 405       | 8                           | NR               | 535       | 705                         | NR               | 665       | 559                         | NR               | 795       | 14                          | NR               | 925       | 0                           | NR               |
| 410       | 12                          | NR               | 540       | 717                         | NR               | 670       | 507                         | NR               | 800       | 12                          | NR               | 930       | 0                           | NR               |
| 415       | 19                          | NR               | 545       | 731                         | NR               | 675       | 458                         | NR               | 805       | 10                          | NR               | 935       | 0                           | NR               |
| 420       | 34                          | NR               | 550       | 745                         | NR               | 680       | 413                         | NR               | 810       | 9                           | NR               | 940       | 0                           | NR               |
| 425       | 60                          | NR               | 555       | 757                         | NR               | 685       | 367                         | NR               | 815       | 7                           | NR               | 945       | 0                           | NR               |
| 430       | 107                         | NR               | 560       | 767                         | NR               | 690       | 328                         | NR               | 820       | 6                           | NR               | 950       | 0                           | NR               |
| 435       | 194                         | NR               | 565       | 777                         | NR               | 695       | 289                         | NR               | 825       | 5                           | NR               | 955       | 0                           | NR               |
| 440       | 349                         | NR               | 570       | 785                         | NR               | 700       | 253                         | NR               | 830       | 5                           | NR               | 960       | 0                           | NR               |
| 445       | 678                         | NR               | 575       | 794                         | NR               | 705       | 221                         | NR               | 835       | 4                           | NR               | 965       | 0                           | NR               |
| 450       | 997                         | NR               | 580       | 809                         | NR               | 710       | 192                         | NR               | 840       | 3                           | NR               | 970       | 0                           | NR               |
| 455       | 819                         | NR               | 585       | 820                         | NR               | 715       | 165                         | NR               | 845       | 3                           | NR               | 975       | 0                           | NR               |
| 460       | 581                         | NR               | 590       | 838                         | NR               | 720       | 144                         | NR               | 850       | 2                           | NR               | 980       | 0                           | NR               |
| 465       | 517                         | NR               | 595       | 851                         | NR               | 725       | 124                         | NR               | 855       | 2                           | NR               | 985       | 0                           | NR               |
| 470       | 406                         | NR               | 600       | 861                         | NR               | 730       | 107                         | NR               | 860       | 2                           | NR               | 990       | 0                           | NR               |
| 475       | 327                         | NR               | 605       | 873                         | NR               | 735       | 91                          | NR               | 865       | 2                           | NR               | 995       | 0                           | NR               |
| 480       | 330                         | NR               | 610       | 875                         | NR               | 740       | 78                          | NR               | 870       | 1                           | NR               | 1000      | 0                           | NR               |
| 485       | 356                         | NR               | 615       | 877                         | NR               | 745       | 67                          | NR               | 875       | 1                           | NR               |           |                             |                  |

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.61

| 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    | 394                      | NR            | 620    | 868                      | NR            | 750    | 58                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 449                      | NR            | 625    | 858                      | NR            | 755    | 49                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 505                      | NR            | 630    | 839                      | NR            | 760    | 42                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 553                      | NR            | 635    | 813                      | NR            | 765    | 36                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 593                      | NR            | 640    | 783                      | NR            | 770    | 31                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 628                      | NR            | 645    | 746                      | NR            | 775    | 26                       | NR            | 905    | 1                        | NR            |
| 390    | 1                        | NR            | 520    | 651                      | NR            | 650    | 702                      | NR            | 780    | 22                       | NR            | 910    | 0                        | NR            |
| 395    | 4                        | NR            | 525    | 670                      | NR            | 655    | 657                      | NR            | 785    | 19                       | NR            | 915    | 0                        | NR            |
| 400    | 5                        | NR            | 530    | 687                      | NR            | 660    | 607                      | NR            | 790    | 16                       | NR            | 920    | 0                        | NR            |
| 405    | 8                        | NR            | 535    | 705                      | NR            | 665    | 559                      | NR            | 795    | 14                       | NR            | 925    | 0                        | NR            |
| 410    | 12                       | NR            | 540    | 717                      | NR            | 670    | 507                      | NR            | 800    | 12                       | NR            | 930    | 0                        | NR            |
| 415    | 19                       | NR            | 545    | 731                      | NR            | 675    | 458                      | NR            | 805    | 10                       | NR            | 935    | 0                        | NR            |
| 420    | 34                       | NR            | 550    | 745                      | NR            | 680    | 413                      | NR            | 810    | 9                        | NR            | 940    | 0                        | NR            |
| 425    | 60                       | NR            | 555    | 757                      | NR            | 685    | 367                      | NR            | 815    | 7                        | NR            | 945    | 0                        | NR            |
| 430    | 107                      | NR            | 560    | 767                      | NR            | 690    | 328                      | NR            | 820    | 6                        | NR            | 950    | 0                        | NR            |
| 435    | 194                      | NR            | 565    | 777                      | NR            | 695    | 289                      | NR            | 825    | 5                        | NR            | 955    | 0                        | NR            |
| 440    | 349                      | NR            | 570    | 785                      | NR            | 700    | 253                      | NR            | 830    | 5                        | NR            | 960    | 0                        | NR            |
| 445    | 678                      | NR            | 575    | 794                      | NR            | 705    | 221                      | NR            | 835    | 4                        | NR            | 965    | 0                        | NR            |
| 450    | 997                      | NR            | 580    | 809                      | NR            | 710    | 192                      | NR            | 840    | 3                        | NR            | 970    | 0                        | NR            |
| 455    | 819                      | NR            | 585    | 820                      | NR            | 715    | 165                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 581                      | NR            | 590    | 838                      | NR            | 720    | 144                      | NR            | 850    | 2                        | NR            | 980    | 0                        | NR            |
| 465    | 517                      | NR            | 595    | 851                      | NR            | 725    | 124                      | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 406                      | NR            | 600    | 861                      | NR            | 730    | 107                      | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 327                      | NR            | 605    | 873                      | NR            | 735    | 91                       | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 330                      | NR            | 610    | 875                      | NR            | 740    | 78                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 356                      | NR            | 615    | 877                      | NR            | 745    | 67                       | NR            | 875    | 1                        | NR            |        |                          |               |

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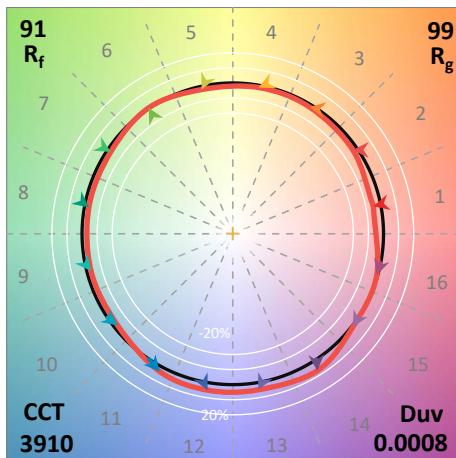
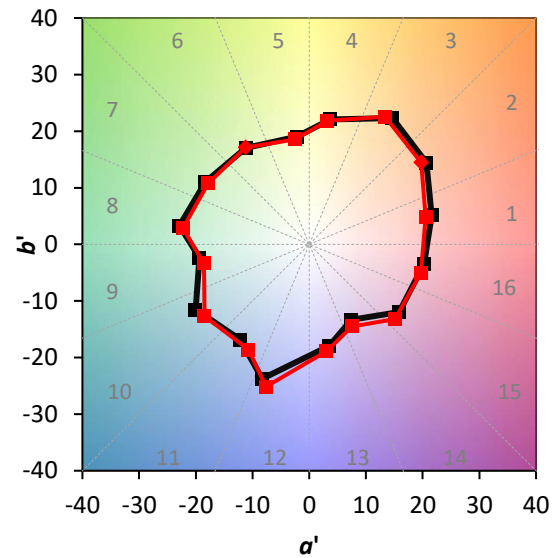
TM-30-18

### Summary

$R_f = 90.8$   
 $R_g = 98.8$   
 $CIE R_a = 92.4$   
 $R_9 = 62.0$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 93 | CES51 = 96 | CES76 = 85 |
| CES02 = 62 | CES27 = 90 | CES52 = 98 | CES77 = 88 |
| CES03 = 31 | CES28 = 96 | CES53 = 96 | CES78 = 82 |
| CES04 = 69 | CES29 = 96 | CES54 = 92 | CES79 = 96 |
| CES05 = 49 | CES30 = 90 | CES55 = 90 | CES80 = 93 |
| CES06 = 50 | CES31 = 97 | CES56 = 93 | CES81 = 89 |
| CES07 = 42 | CES32 = 91 | CES57 = 91 | CES82 = 97 |
| CES08 = 41 | CES33 = 98 | CES58 = 92 | CES83 = 98 |
| CES09 = 29 | CES34 = 93 | CES59 = 96 | CES84 = 93 |
| CES10 = 74 | CES35 = 96 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 79 | CES61 = 91 | CES86 = 88 |
| CES12 = 63 | CES37 = 95 | CES62 = 84 | CES87 = 91 |
| CES13 = 43 | CES38 = 85 | CES63 = 91 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 87 | CES89 = 87 |
| CES15 = 71 | CES40 = 98 | CES65 = 87 | CES90 = 96 |
| CES16 = 47 | CES41 = 96 | CES66 = 84 | CES91 = 71 |
| CES17 = 49 | CES42 = 95 | CES67 = 83 | CES92 = 79 |
| CES18 = 56 | CES43 = 95 | CES68 = 86 | CES93 = 87 |
| CES19 = 71 | CES44 = 99 | CES69 = 87 | CES94 = 81 |
| CES20 = 66 | CES45 = 98 | CES70 = 84 | CES95 = 82 |
| CES21 = 85 | CES46 = 97 | CES71 = 77 | CES96 = 91 |
| CES22 = 78 | CES47 = 97 | CES72 = 93 | CES97 = 96 |
| CES23 = 91 | CES48 = 90 | CES73 = 78 | CES98 = 94 |
| CES24 = 90 | CES49 = 96 | CES74 = 91 | CES99 = 91 |
| CES25 = 71 | CES50 = 97 | CES75 = 80 |            |



### Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)