

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: P1215701

Luminaire Tested: 24-ID2-55-CFR2-L930-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1215701  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2508-510-7)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-55-CFR2-L930-U  
Description: 2X4 IN DEPTH TROFFER WITH 2INCH CUBE REGRESS LENS  
Light Source: 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

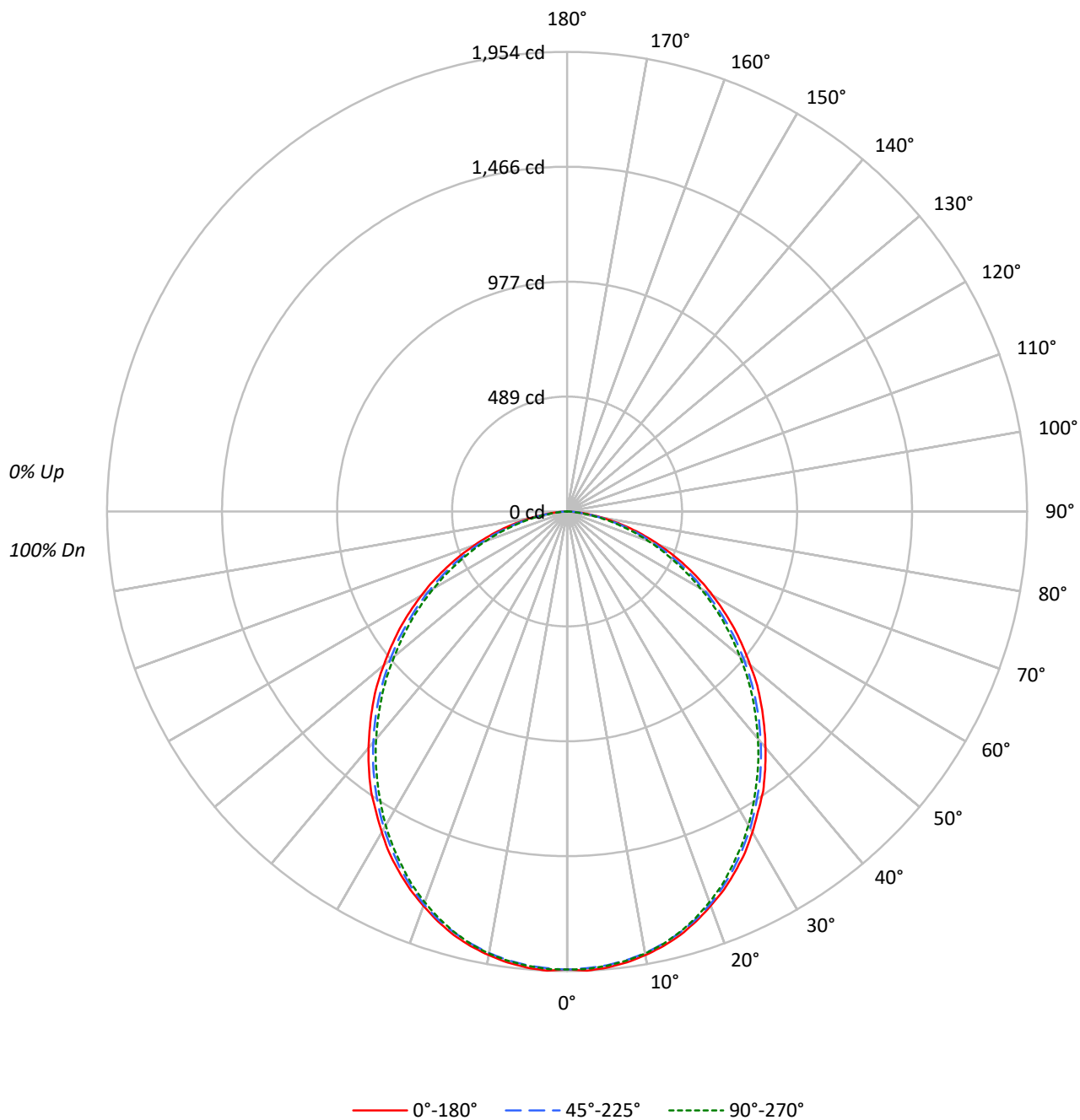
Lumens per Lamp: N/A  
Luminaire Lumens: 4846.5 lumens  
Efficiency: N/A  
Efficacy: 102.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.18 / 1.29  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 47.5  
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: P1215701  
CATALOG NUMBER: 24-ID2-55-CFR2-L930-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1215701  
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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|--|-----|
| RF  | 20  |     |     |     | 20  |     |     |     | 20  |     |     |  | 20  |     |     |  | 20  |
| RC  | 80  |     |     |     | 70  |     |     |     | 50  |     |     |  | 30  |     |     |  | 0   |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 100 |
| 1   | 109 | 105 | 101 | 97  | 107 | 103 | 99  | 96  | 98  | 95  | 93  |  | 95  | 92  | 90  |  | 85  |
| 2   | 100 | 92  | 86  | 80  | 97  | 90  | 84  | 79  | 87  | 82  | 77  |  | 83  | 79  | 76  |  | 72  |
| 3   | 91  | 81  | 74  | 67  | 89  | 80  | 73  | 67  | 77  | 71  | 65  |  | 74  | 69  | 64  |  | 61  |
| 4   | 84  | 72  | 64  | 57  | 82  | 71  | 63  | 57  | 69  | 62  | 56  |  | 66  | 60  | 55  |  | 53  |
| 5   | 77  | 65  | 56  | 50  | 75  | 64  | 56  | 49  | 62  | 54  | 49  |  | 60  | 53  | 48  |  | 46  |
| 6   | 72  | 59  | 50  | 44  | 70  | 58  | 49  | 43  | 56  | 49  | 43  |  | 54  | 48  | 43  |  | 40  |
| 7   | 67  | 53  | 45  | 39  | 65  | 53  | 44  | 39  | 51  | 44  | 38  |  | 50  | 43  | 38  |  | 36  |
| 8   | 62  | 49  | 40  | 35  | 60  | 48  | 40  | 35  | 47  | 40  | 34  |  | 46  | 39  | 34  |  | 32  |
| 9   | 58  | 45  | 37  | 31  | 57  | 44  | 37  | 31  | 43  | 36  | 31  |  | 42  | 36  | 31  |  | 29  |
| 10  | 54  | 41  | 34  | 29  | 53  | 41  | 33  | 28  | 40  | 33  | 28  |  | 39  | 33  | 28  |  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2620 | 2620 | 2620 |
| 5°  | 2629 | 2616 | 2619 |
| 10° | 2617 | 2605 | 2608 |
| 15° | 2596 | 2582 | 2579 |
| 20° | 2554 | 2545 | 2532 |
| 25° | 2508 | 2487 | 2466 |
| 30° | 2446 | 2417 | 2394 |
| 35° | 2385 | 2337 | 2306 |
| 40° | 2304 | 2248 | 2216 |
| 45° | 2222 | 2154 | 2118 |
| 50° | 2126 | 2053 | 2004 |
| 55° | 2034 | 1942 | 1892 |
| 60° | 1923 | 1822 | 1757 |
| 65° | 1797 | 1688 | 1610 |
| 70° | 1640 | 1533 | 1450 |
| 75° | 1452 | 1321 | 1225 |
| 80° | 1169 | 1041 | 954  |
| 85° | 777  | 664  | 542  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2222 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 184.1  | 3.8       |
| 10°-20°   | 522.4  | 10.8      |
| 20°-30°   | 770.8  | 15.9      |
| 30°-40°   | 891.3  | 18.4      |
| 40°-50°   | 876.6  | 18.1      |
| 50°-60°   | 744.5  | 15.4      |
| 60°-70°   | 527.7  | 10.9      |
| 70°-80°   | 272.0  | 5.6       |
| 80°-90°   | 57.2   | 1.2       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 0.0       |
| 140°-150° | 0.0    | 0.0       |
| 150°-160° | 0.0    | 0.0       |
| 160°-170° | 0.0    | 0.0       |
| 170°-180° | 0.0    | 0.0       |
| 0°-30°    | 1477.2 | 30.5      |
| 0°-40°    | 2368.5 | 48.9      |
| 0°-60°    | 3989.5 | 82.3      |
| 0°-90°    | 4846.5 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4846.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1948 | 1948  | 1948 | 1948  | 1948 |      |
| 5°  | 1947 | 1940  | 1937 | 1935  | 1939 | 185  |
| 15° | 1864 | 1856  | 1854 | 1850  | 1852 | 525  |
| 25° | 1689 | 1684  | 1675 | 1664  | 1661 | 778  |
| 35° | 1452 | 1444  | 1423 | 1410  | 1404 | 906  |
| 45° | 1168 | 1158  | 1132 | 1116  | 1113 | 900  |
| 55° | 867  | 854   | 828  | 813   | 807  | 774  |
| 65° | 564  | 551   | 530  | 513   | 506  | 559  |
| 75° | 279  | 267   | 254  | 240   | 236  | 295  |
| 85° | 50   | 48    | 43   | 38    | 35   | 64   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1947.5 | 1947.5 | 1947.5 | 1947.5 | 1947.5 |
| 2.5°  | 1954.1 | 1947.5 | 1943.5 | 1942.2 | 1946.8 |
| 5°    | 1946.8 | 1939.6 | 1936.9 | 1934.9 | 1938.9 |
| 7.5°  | 1934.3 | 1927.0 | 1924.3 | 1922.3 | 1926.3 |
| 10°   | 1915.7 | 1909.1 | 1906.5 | 1904.5 | 1909.1 |
| 12.5° | 1892.6 | 1885.9 | 1882.6 | 1880.7 | 1884.0 |
| 15°   | 1863.5 | 1856.2 | 1853.5 | 1849.6 | 1851.5 |
| 17.5° | 1826.4 | 1821.1 | 1819.1 | 1811.8 | 1812.5 |
| 20°   | 1784.0 | 1780.1 | 1777.4 | 1766.8 | 1768.2 |
| 22.5° | 1740.4 | 1735.1 | 1728.5 | 1719.2 | 1719.2 |
| 25°   | 1689.4 | 1683.5 | 1674.9 | 1664.3 | 1661.0 |
| 27.5° | 1636.5 | 1629.9 | 1616.0 | 1606.7 | 1603.4 |
| 30°   | 1574.3 | 1570.3 | 1555.7 | 1543.8 | 1541.2 |
| 32.5° | 1510.7 | 1508.1 | 1489.6 | 1479.6 | 1473.0 |
| 35°   | 1451.9 | 1443.9 | 1422.7 | 1410.2 | 1404.2 |
| 37.5° | 1382.4 | 1375.1 | 1352.6 | 1341.3 | 1334.7 |
| 40°   | 1311.6 | 1302.3 | 1279.8 | 1270.5 | 1261.9 |
| 42.5° | 1239.4 | 1232.8 | 1207.0 | 1192.4 | 1186.5 |
| 45°   | 1168.0 | 1158.0 | 1132.2 | 1116.3 | 1113.0 |
| 47.5° | 1095.8 | 1081.9 | 1056.8 | 1040.3 | 1036.9 |
| 50°   | 1015.8 | 1005.8 | 980.7  | 963.5  | 957.5  |
| 52.5° | 940.3  | 928.4  | 905.9  | 889.4  | 881.4  |
| 55°   | 866.9  | 853.6  | 827.8  | 813.3  | 806.7  |
| 57.5° | 789.5  | 777.5  | 754.4  | 735.9  | 730.6  |
| 60°   | 714.7  | 699.5  | 677.0  | 661.7  | 653.1  |
| 62.5° | 641.2  | 626.0  | 604.2  | 585.0  | 581.0  |
| 65°   | 564.5  | 550.6  | 530.1  | 512.8  | 505.6  |
| 67.5° | 490.3  | 476.5  | 456.6  | 443.4  | 436.7  |
| 70°   | 416.9  | 405.6  | 389.8  | 372.6  | 368.6  |
| 72.5° | 346.8  | 336.2  | 319.6  | 305.1  | 301.8  |
| 75°   | 279.3  | 267.3  | 254.1  | 239.5  | 235.6  |
| 77.5° | 211.1  | 205.1  | 191.2  | 183.3  | 178.7  |
| 80°   | 150.9  | 143.6  | 134.3  | 127.1  | 123.1  |
| 82.5° | 94.0   | 91.3   | 85.4   | 78.7   | 74.8   |
| 85°   | 50.3   | 47.6   | 43.0   | 38.4   | 35.1   |
| 87.5° | 13.9   | 15.2   | 15.2   | 14.6   | 14.6   |
| 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 | 14.46            | 16.05 | 14.83 | 16.36 | 16.68 | 14.05          | 15.64 | 14.41 | 15.95 | 16.26 |
|                 | 3H   | 16.09            | 17.51 | 16.46 | 17.84 | 18.20 | 15.57          | 17.00 | 15.95 | 17.33 | 17.69 |
|                 | 4H   | 16.65            | 18.00 | 17.05 | 18.34 | 18.72 | 16.07          | 17.41 | 16.47 | 17.76 | 18.13 |
|                 | 6H   | 17.02            | 18.26 | 17.43 | 18.62 | 19.01 | 16.37          | 17.61 | 16.78 | 17.98 | 18.37 |
|                 | 8H   | 17.10            | 18.29 | 17.53 | 18.68 | 19.07 | 16.43          | 17.62 | 16.86 | 18.01 | 18.41 |
|                 | 12H  | 17.14            | 18.28 | 17.57 | 18.66 | 19.09 | 16.45          | 17.59 | 16.88 | 17.97 | 18.40 |
| 4H              | 2H   | 14.98            | 16.32 | 15.38 | 16.67 | 17.05 | 14.65          | 15.99 | 15.05 | 16.34 | 16.71 |
|                 | 3H   | 16.81            | 17.93 | 17.22 | 18.33 | 18.73 | 16.37          | 17.49 | 16.78 | 17.89 | 18.29 |
|                 | 4H   | 17.49            | 18.50 | 17.92 | 18.91 | 19.35 | 16.97          | 17.98 | 17.40 | 18.39 | 18.83 |
|                 | 6H   | 17.96            | 18.84 | 18.42 | 19.28 | 19.74 | 17.37          | 18.25 | 17.82 | 18.69 | 19.15 |
|                 | 8H   | 18.08            | 18.90 | 18.54 | 19.34 | 19.81 | 17.46          | 18.28 | 17.92 | 18.72 | 19.19 |
|                 | 12H  | 18.15            | 18.88 | 18.63 | 19.36 | 19.83 | 17.50          | 18.23 | 17.98 | 18.71 | 19.18 |
| 8H              | 4H   | 17.70            | 18.52 | 18.16 | 18.96 | 19.43 | 17.23          | 18.05 | 17.69 | 18.49 | 18.96 |
|                 | 6H   | 18.25            | 18.93 | 18.75 | 19.42 | 19.90 | 17.71          | 18.39 | 18.20 | 18.88 | 19.35 |
|                 | 8H   | 18.42            | 19.03 | 18.93 | 19.53 | 20.02 | 17.84          | 18.45 | 18.35 | 18.96 | 19.44 |
|                 | 12H  | 18.53            | 19.06 | 19.04 | 19.56 | 20.12 | 17.91          | 18.45 | 18.42 | 18.94 | 19.50 |
| 12H             | 4H   | 17.70            | 18.44 | 18.19 | 18.92 | 19.39 | 17.24          | 17.98 | 17.72 | 18.45 | 18.93 |
|                 | 6H   | 18.26            | 18.87 | 18.77 | 19.38 | 19.87 | 17.74          | 18.35 | 18.25 | 18.85 | 19.34 |
|                 | 8H   | 18.47            | 19.01 | 18.98 | 19.50 | 20.06 | 17.91          | 18.45 | 18.42 | 18.94 | 19.50 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-9

Test Date: 08/26/2025

Luminaire Tested: 22ID2-55-CFR1-L930-U

Data in this report applies to families of products including 22ID2-55-CFR1-L930-U

### Test Information

Test Method: LM-79-2019  
 Report Number: SP1-2506-458-9  
 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-L930-U**  
 Description: 2X2 CGTX WITH INDEPTH FRAME AND CFR1 LENS - 5500 LUMEN 3000K 90CRI

### Spectral Parameters

CCT (K): 3003  
 CIE  $u'$ : 0.2507  
 CIE  $v'$ : 0.5202  
 Duv: -0.0008  
 CIE x: 0.4356  
 CIE y: 0.4017  
 CIE z: 0.1627  
 Peak Wavelength (nm): 618  
 Dominant Wavelength (nm): 583  
 Purity: 51.31044  
 R<sub>f</sub>: 91.9  
 R<sub>g</sub>: 99.2

CRI (Ra): 93.2  
 R1: 93.7  
 R2: 97.2  
 R3: 98.7  
 R4: 93.5  
 R5: 93.6  
 R6: 96.3  
 R7: 91.5  
 R8: 81.5  
 R9: 59.0  
 R10: 92.7  
 R11: 94.9  
 R12: 82.6  
 R13: 94.8  
 R14: 99.1  
 R15: 89.5



### Test Conditions

Stabilization Time: 32M  
 Operation Time: 1H 32M  
 Sphere Temperature (°C): 25.2

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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 3000K 4-step quadrangle

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### Photopic Flux vs. Wavelength



### Photopic Lumens: NR

| 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    | 296                      | NR            | 620    | 997                      | NR            | 750    | 66                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 338                      | NR            | 625    | 992                      | NR            | 755    | 56                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 381                      | NR            | 630    | 975                      | NR            | 760    | 48                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 421                      | NR            | 635    | 949                      | NR            | 765    | 41                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 456                      | NR            | 640    | 916                      | NR            | 770    | 35                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 487                      | NR            | 645    | 871                      | NR            | 775    | 30                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 508                      | NR            | 650    | 821                      | NR            | 780    | 26                       | NR            | 910    | 1                        | NR            |
| 395    | 1                        | NR            | 525    | 529                      | NR            | 655    | 769                      | NR            | 785    | 22                       | NR            | 915    | 0                        | NR            |
| 400    | 2                        | NR            | 530    | 548                      | NR            | 660    | 709                      | NR            | 790    | 18                       | NR            | 920    | 0                        | NR            |
| 405    | 4                        | NR            | 535    | 568                      | NR            | 665    | 652                      | NR            | 795    | 16                       | NR            | 925    | 0                        | NR            |
| 410    | 6                        | NR            | 540    | 585                      | NR            | 670    | 591                      | NR            | 800    | 13                       | NR            | 930    | 0                        | NR            |
| 415    | 11                       | NR            | 545    | 607                      | NR            | 675    | 534                      | NR            | 805    | 11                       | NR            | 935    | 0                        | NR            |
| 420    | 19                       | NR            | 550    | 627                      | NR            | 680    | 480                      | NR            | 810    | 10                       | NR            | 940    | 0                        | NR            |
| 425    | 33                       | NR            | 555    | 649                      | NR            | 685    | 427                      | NR            | 815    | 8                        | NR            | 945    | 0                        | NR            |
| 430    | 58                       | NR            | 560    | 673                      | NR            | 690    | 380                      | NR            | 820    | 7                        | NR            | 950    | 0                        | NR            |
| 435    | 103                      | NR            | 565    | 697                      | NR            | 695    | 334                      | NR            | 825    | 6                        | NR            | 955    | 0                        | NR            |
| 440    | 184                      | NR            | 570    | 723                      | NR            | 700    | 292                      | NR            | 830    | 5                        | NR            | 960    | 0                        | NR            |
| 445    | 360                      | NR            | 575    | 753                      | NR            | 705    | 255                      | NR            | 835    | 4                        | NR            | 965    | 0                        | NR            |
| 450    | 557                      | NR            | 580    | 789                      | NR            | 710    | 221                      | NR            | 840    | 4                        | NR            | 970    | 0                        | NR            |
| 455    | 486                      | NR            | 585    | 825                      | NR            | 715    | 190                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 362                      | NR            | 590    | 864                      | NR            | 720    | 166                      | NR            | 850    | 3                        | NR            | 980    | 0                        | NR            |
| 465    | 337                      | NR            | 595    | 902                      | NR            | 725    | 143                      | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 279                      | NR            | 600    | 932                      | NR            | 730    | 122                      | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 233                      | NR            | 605    | 963                      | NR            | 735    | 105                      | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 241                      | NR            | 610    | 981                      | NR            | 740    | 90                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 264                      | NR            | 615    | 997                      | NR            | 745    | 77                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.43

| 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    | 296                      | NR            | 620    | 997                      | NR            | 750    | 66                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 338                      | NR            | 625    | 992                      | NR            | 755    | 56                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 381                      | NR            | 630    | 975                      | NR            | 760    | 48                       | NR            | 890    | 1                        | NR            |
| 375    | 0                        | NR            | 505    | 421                      | NR            | 635    | 949                      | NR            | 765    | 41                       | NR            | 895    | 1                        | NR            |
| 380    | 0                        | NR            | 510    | 456                      | NR            | 640    | 916                      | NR            | 770    | 35                       | NR            | 900    | 1                        | NR            |
| 385    | 0                        | NR            | 515    | 487                      | NR            | 645    | 871                      | NR            | 775    | 30                       | NR            | 905    | 1                        | NR            |
| 390    | 0                        | NR            | 520    | 508                      | NR            | 650    | 821                      | NR            | 780    | 26                       | NR            | 910    | 1                        | NR            |
| 395    | 1                        | NR            | 525    | 529                      | NR            | 655    | 769                      | NR            | 785    | 22                       | NR            | 915    | 0                        | NR            |
| 400    | 2                        | NR            | 530    | 548                      | NR            | 660    | 709                      | NR            | 790    | 18                       | NR            | 920    | 0                        | NR            |
| 405    | 4                        | NR            | 535    | 568                      | NR            | 665    | 652                      | NR            | 795    | 16                       | NR            | 925    | 0                        | NR            |
| 410    | 6                        | NR            | 540    | 585                      | NR            | 670    | 591                      | NR            | 800    | 13                       | NR            | 930    | 0                        | NR            |
| 415    | 11                       | NR            | 545    | 607                      | NR            | 675    | 534                      | NR            | 805    | 11                       | NR            | 935    | 0                        | NR            |
| 420    | 19                       | NR            | 550    | 627                      | NR            | 680    | 480                      | NR            | 810    | 10                       | NR            | 940    | 0                        | NR            |
| 425    | 33                       | NR            | 555    | 649                      | NR            | 685    | 427                      | NR            | 815    | 8                        | NR            | 945    | 0                        | NR            |
| 430    | 58                       | NR            | 560    | 673                      | NR            | 690    | 380                      | NR            | 820    | 7                        | NR            | 950    | 0                        | NR            |
| 435    | 103                      | NR            | 565    | 697                      | NR            | 695    | 334                      | NR            | 825    | 6                        | NR            | 955    | 0                        | NR            |
| 440    | 184                      | NR            | 570    | 723                      | NR            | 700    | 292                      | NR            | 830    | 5                        | NR            | 960    | 0                        | NR            |
| 445    | 360                      | NR            | 575    | 753                      | NR            | 705    | 255                      | NR            | 835    | 4                        | NR            | 965    | 0                        | NR            |
| 450    | 557                      | NR            | 580    | 789                      | NR            | 710    | 221                      | NR            | 840    | 4                        | NR            | 970    | 0                        | NR            |
| 455    | 486                      | NR            | 585    | 825                      | NR            | 715    | 190                      | NR            | 845    | 3                        | NR            | 975    | 0                        | NR            |
| 460    | 362                      | NR            | 590    | 864                      | NR            | 720    | 166                      | NR            | 850    | 3                        | NR            | 980    | 0                        | NR            |
| 465    | 337                      | NR            | 595    | 902                      | NR            | 725    | 143                      | NR            | 855    | 2                        | NR            | 985    | 0                        | NR            |
| 470    | 279                      | NR            | 600    | 932                      | NR            | 730    | 122                      | NR            | 860    | 2                        | NR            | 990    | 0                        | NR            |
| 475    | 233                      | NR            | 605    | 963                      | NR            | 735    | 105                      | NR            | 865    | 2                        | NR            | 995    | 0                        | NR            |
| 480    | 241                      | NR            | 610    | 981                      | NR            | 740    | 90                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 264                      | NR            | 615    | 997                      | NR            | 745    | 77                       | NR            | 875    | 1                        | NR            |        |                          |               |

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### Melanopic Flux vs. Wavelength


**Melanopic Lumens: NR**
**M/P: 2.82**

| $\lambda$<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               | 296                                  | NR                             | 620               | 997                                  | NR                             | 750               | 66                                   | NR                             | 880               | 1                                    | NR                             |
| 365               | 0                                    | NR                             | 495               | 338                                  | NR                             | 625               | 992                                  | NR                             | 755               | 56                                   | NR                             | 885               | 1                                    | NR                             |
| 370               | 0                                    | NR                             | 500               | 381                                  | NR                             | 630               | 975                                  | NR                             | 760               | 48                                   | NR                             | 890               | 1                                    | NR                             |
| 375               | 0                                    | NR                             | 505               | 421                                  | NR                             | 635               | 949                                  | NR                             | 765               | 41                                   | NR                             | 895               | 1                                    | NR                             |
| 380               | 0                                    | NR                             | 510               | 456                                  | NR                             | 640               | 916                                  | NR                             | 770               | 35                                   | NR                             | 900               | 1                                    | NR                             |
| 385               | 0                                    | NR                             | 515               | 487                                  | NR                             | 645               | 871                                  | NR                             | 775               | 30                                   | NR                             | 905               | 1                                    | NR                             |
| 390               | 0                                    | NR                             | 520               | 508                                  | NR                             | 650               | 821                                  | NR                             | 780               | 26                                   | NR                             | 910               | 1                                    | NR                             |
| 395               | 1                                    | NR                             | 525               | 529                                  | NR                             | 655               | 769                                  | NR                             | 785               | 22                                   | NR                             | 915               | 0                                    | NR                             |
| 400               | 2                                    | NR                             | 530               | 548                                  | NR                             | 660               | 709                                  | NR                             | 790               | 18                                   | NR                             | 920               | 0                                    | NR                             |
| 405               | 4                                    | NR                             | 535               | 568                                  | NR                             | 665               | 652                                  | NR                             | 795               | 16                                   | NR                             | 925               | 0                                    | NR                             |
| 410               | 6                                    | NR                             | 540               | 585                                  | NR                             | 670               | 591                                  | NR                             | 800               | 13                                   | NR                             | 930               | 0                                    | NR                             |
| 415               | 11                                   | NR                             | 545               | 607                                  | NR                             | 675               | 534                                  | NR                             | 805               | 11                                   | NR                             | 935               | 0                                    | NR                             |
| 420               | 19                                   | NR                             | 550               | 627                                  | NR                             | 680               | 480                                  | NR                             | 810               | 10                                   | NR                             | 940               | 0                                    | NR                             |
| 425               | 33                                   | NR                             | 555               | 649                                  | NR                             | 685               | 427                                  | NR                             | 815               | 8                                    | NR                             | 945               | 0                                    | NR                             |
| 430               | 58                                   | NR                             | 560               | 673                                  | NR                             | 690               | 380                                  | NR                             | 820               | 7                                    | NR                             | 950               | 0                                    | NR                             |
| 435               | 103                                  | NR                             | 565               | 697                                  | NR                             | 695               | 334                                  | NR                             | 825               | 6                                    | NR                             | 955               | 0                                    | NR                             |
| 440               | 184                                  | NR                             | 570               | 723                                  | NR                             | 700               | 292                                  | NR                             | 830               | 5                                    | NR                             | 960               | 0                                    | NR                             |
| 445               | 360                                  | NR                             | 575               | 753                                  | NR                             | 705               | 255                                  | NR                             | 835               | 4                                    | NR                             | 965               | 0                                    | NR                             |
| 450               | 557                                  | NR                             | 580               | 789                                  | NR                             | 710               | 221                                  | NR                             | 840               | 4                                    | NR                             | 970               | 0                                    | NR                             |
| 455               | 486                                  | NR                             | 585               | 825                                  | NR                             | 715               | 190                                  | NR                             | 845               | 3                                    | NR                             | 975               | 0                                    | NR                             |
| 460               | 362                                  | NR                             | 590               | 864                                  | NR                             | 720               | 166                                  | NR                             | 850               | 3                                    | NR                             | 980               | 0                                    | NR                             |
| 465               | 337                                  | NR                             | 595               | 902                                  | NR                             | 725               | 143                                  | NR                             | 855               | 2                                    | NR                             | 985               | 0                                    | NR                             |
| 470               | 279                                  | NR                             | 600               | 932                                  | NR                             | 730               | 122                                  | NR                             | 860               | 2                                    | NR                             | 990               | 0                                    | NR                             |
| 475               | 233                                  | NR                             | 605               | 963                                  | NR                             | 735               | 105                                  | NR                             | 865               | 2                                    | NR                             | 995               | 0                                    | NR                             |
| 480               | 241                                  | NR                             | 610               | 981                                  | NR                             | 740               | 90                                   | NR                             | 870               | 1                                    | NR                             | 1000              | 0                                    | NR                             |
| 485               | 264                                  | NR                             | 615               | 997                                  | NR                             | 745               | 77                                   | NR                             | 875               | 1                                    | NR                             |                   |                                      |                                |

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TM-30-18

### Summary

$R_f = 91.9$   
 $R_g = 99.2$   
 $CIE R_a = 93.2$   
 $R_9 = 59.0$



### Color Vector Graphics



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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 94 | CES51 = 97 | CES76 = 90 |
| CES02 = 63 | CES27 = 92 | CES52 = 99 | CES77 = 89 |
| CES03 = 32 | CES28 = 97 | CES53 = 97 | CES78 = 87 |
| CES04 = 70 | CES29 = 97 | CES54 = 94 | CES79 = 93 |
| CES05 = 51 | CES30 = 93 | CES55 = 92 | CES80 = 93 |
| CES06 = 51 | CES31 = 97 | CES56 = 95 | CES81 = 82 |
| CES07 = 43 | CES32 = 91 | CES57 = 94 | CES82 = 97 |
| CES08 = 42 | CES33 = 99 | CES58 = 94 | CES83 = 96 |
| CES09 = 29 | CES34 = 95 | CES59 = 97 | CES84 = 95 |
| CES10 = 76 | CES35 = 97 | CES60 = 93 | CES85 = 82 |
| CES11 = 59 | CES36 = 83 | CES61 = 93 | CES86 = 83 |
| CES12 = 65 | CES37 = 97 | CES62 = 88 | CES87 = 91 |
| CES13 = 44 | CES38 = 89 | CES63 = 94 | CES88 = 96 |
| CES14 = 74 | CES39 = 99 | CES64 = 91 | CES89 = 85 |
| CES15 = 72 | CES40 = 98 | CES65 = 90 | CES90 = 96 |
| CES16 = 48 | CES41 = 97 | CES66 = 90 | CES91 = 78 |
| CES17 = 50 | CES42 = 96 | CES67 = 89 | CES92 = 79 |
| CES18 = 57 | CES43 = 94 | CES68 = 90 | CES93 = 87 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 79 |
| CES20 = 67 | CES45 = 98 | CES70 = 88 | CES95 = 84 |
| CES21 = 86 | CES46 = 96 | CES71 = 85 | CES96 = 92 |
| CES22 = 79 | CES47 = 94 | CES72 = 95 | CES97 = 96 |
| CES23 = 92 | CES48 = 91 | CES73 = 84 | CES98 = 94 |
| CES24 = 91 | CES49 = 96 | CES74 = 91 | CES99 = 91 |
| CES25 = 72 | CES50 = 98 | CES75 = 87 |            |



Color Rendition by Hue-Angle Bin



**Measure Comparisons**



(END OF REPORT)