

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: P1214545

Luminaire Tested: 22-ID2-20-CFR1-L830-U

Issue Date: 12/4/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1214545  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2506-458-3)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/4/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 22-ID2-20-CFR1-L830-U  
Description: 2X2 IN DEPTH TROFFER WITH 1INCH CUBE REGRESS LENS  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

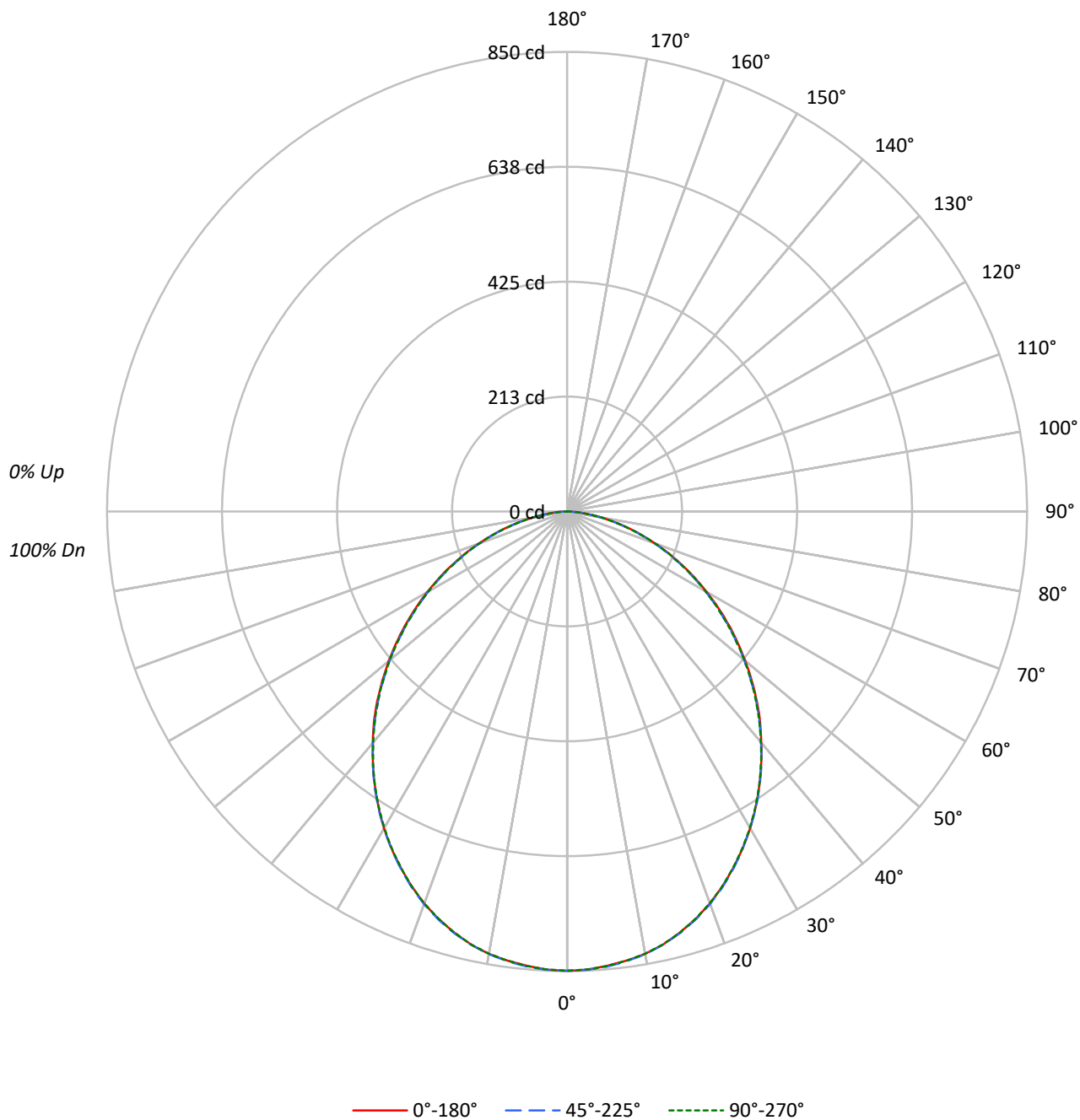
Lumens per Lamp: N/A  
Luminaire Lumens: 2109.9 lumens  
Efficiency: N/A  
Efficacy: 124.1 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.19 / 1.29  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct

Input Watts (W): 17  
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: P1214545

CATALOG NUMBER: 22-ID2-20-CFR1-L830-U

**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   | 109 | 105 | 101 | 97  | 107 | 103 | 99  | 96  | 98  | 95  | 93  | 94  | 92  | 90  | 91  | 89  | 87  |
| 2   | 100 | 92  | 85  | 80  | 97  | 90  | 84  | 79  | 87  | 82  | 77  | 83  | 79  | 75  | 80  | 77  | 74  |
| 3   | 91  | 81  | 73  | 67  | 89  | 80  | 72  | 67  | 77  | 70  | 65  | 74  | 69  | 64  | 71  | 67  | 63  |
| 4   | 84  | 72  | 64  | 57  | 82  | 71  | 63  | 57  | 68  | 62  | 56  | 66  | 60  | 55  | 64  | 59  | 55  |
| 5   | 77  | 65  | 56  | 50  | 75  | 64  | 56  | 49  | 62  | 54  | 49  | 60  | 53  | 48  | 58  | 52  | 48  |
| 6   | 72  | 59  | 50  | 44  | 70  | 58  | 49  | 43  | 56  | 48  | 43  | 54  | 48  | 43  | 53  | 47  | 42  |
| 7   | 66  | 53  | 45  | 39  | 65  | 52  | 44  | 39  | 51  | 44  | 38  | 49  | 43  | 38  | 48  | 42  | 38  |
| 8   | 62  | 49  | 40  | 35  | 60  | 48  | 40  | 35  | 47  | 39  | 34  | 45  | 39  | 34  | 44  | 38  | 34  |
| 9   | 58  | 45  | 37  | 31  | 57  | 44  | 36  | 31  | 43  | 36  | 31  | 42  | 36  | 31  | 41  | 35  | 31  |
| 10  | 54  | 41  | 34  | 28  | 53  | 41  | 33  | 28  | 40  | 33  | 28  | 39  | 33  | 28  | 38  | 32  | 28  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2286 | 2286 | 2286 |
| 5°  | 2279 | 2283 | 2281 |
| 10° | 2270 | 2271 | 2270 |
| 15° | 2246 | 2249 | 2246 |
| 20° | 2209 | 2212 | 2208 |
| 25° | 2159 | 2162 | 2157 |
| 30° | 2102 | 2101 | 2099 |
| 35° | 2034 | 2037 | 2033 |
| 40° | 1961 | 1960 | 1958 |
| 45° | 1887 | 1878 | 1877 |
| 50° | 1799 | 1789 | 1789 |
| 55° | 1707 | 1693 | 1693 |
| 60° | 1605 | 1589 | 1589 |
| 65° | 1493 | 1476 | 1476 |
| 70° | 1363 | 1349 | 1354 |
| 75° | 1202 | 1190 | 1194 |
| 80° | 984  | 976  | 984  |
| 85° | 698  | 692  | 716  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1887 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 80.2   | 3.8       |
| 10°-20°   | 227.3  | 10.8      |
| 20°-30°   | 334.8  | 15.9      |
| 30°-40°   | 386.9  | 18.3      |
| 40°-50°   | 380.1  | 18.0      |
| 50°-60°   | 322.5  | 15.3      |
| 60°-70°   | 229.6  | 10.9      |
| 70°-80°   | 121.0  | 5.7       |
| 80°-90°   | 27.5   | 1.3       |
| 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°    | 642.3  | 30.4      |
| 0°-40°    | 1029.1 | 48.8      |
| 0°-60°    | 1731.8 | 82.1      |
| 0°-90°    | 2109.9 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2109.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 850 | 850   | 850 | 850   | 850 |      |
| 5°  | 844 | 845   | 845 | 845   | 844 | 80   |
| 15° | 806 | 807   | 807 | 807   | 806 | 227  |
| 25° | 727 | 728   | 728 | 727   | 726 | 335  |
| 35° | 619 | 620   | 620 | 617   | 619 | 387  |
| 45° | 496 | 493   | 494 | 491   | 493 | 382  |
| 55° | 364 | 360   | 361 | 359   | 361 | 325  |
| 65° | 234 | 232   | 232 | 230   | 232 | 233  |
| 75° | 116 | 113   | 114 | 112   | 115 | 123  |
| 85° | 23  | 21    | 22  | 22    | 23  | 28   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 849.5 | 849.5 | 849.5 | 849.5 | 849.5 |
| 2.5°  | 848.1 | 848.6 | 848.4 | 848.6 | 847.8 |
| 5°    | 843.7 | 845.1 | 845.1 | 844.8 | 844.3 |
| 7.5°  | 838.0 | 839.4 | 839.1 | 839.1 | 838.0 |
| 10°   | 830.9 | 831.5 | 831.2 | 831.2 | 830.6 |
| 12.5° | 820.3 | 820.8 | 820.6 | 820.6 | 820.0 |
| 15°   | 806.1 | 807.2 | 807.2 | 806.6 | 806.1 |
| 17.5° | 790.0 | 790.8 | 791.1 | 790.0 | 789.7 |
| 20°   | 771.5 | 772.3 | 772.6 | 771.2 | 771.2 |
| 22.5° | 750.2 | 751.3 | 751.3 | 749.9 | 750.2 |
| 25°   | 727.0 | 728.1 | 728.1 | 726.7 | 726.5 |
| 27.5° | 702.5 | 703.3 | 703.0 | 701.7 | 701.7 |
| 30°   | 676.6 | 676.8 | 676.3 | 673.8 | 675.5 |
| 32.5° | 648.5 | 649.0 | 649.3 | 646.6 | 647.7 |
| 35°   | 619.3 | 620.1 | 620.1 | 617.4 | 618.8 |
| 37.5° | 589.3 | 589.6 | 589.6 | 586.9 | 588.5 |
| 40°   | 558.2 | 558.2 | 557.9 | 555.2 | 557.4 |
| 42.5° | 528.2 | 525.5 | 526.0 | 523.3 | 525.8 |
| 45°   | 495.8 | 493.0 | 493.6 | 490.6 | 493.3 |
| 47.5° | 462.8 | 460.0 | 460.3 | 458.4 | 460.3 |
| 50°   | 429.8 | 427.0 | 427.3 | 425.1 | 427.3 |
| 52.5° | 396.8 | 393.8 | 393.8 | 391.9 | 393.8 |
| 55°   | 363.8 | 360.5 | 360.8 | 358.6 | 360.8 |
| 57.5° | 330.8 | 327.5 | 327.8 | 325.9 | 327.8 |
| 60°   | 298.3 | 295.1 | 295.3 | 293.4 | 295.3 |
| 62.5° | 266.2 | 262.9 | 263.2 | 261.2 | 264.8 |
| 65°   | 234.5 | 231.5 | 231.8 | 229.9 | 231.8 |
| 67.5° | 203.7 | 200.7 | 201.0 | 198.3 | 202.3 |
| 70°   | 173.2 | 170.4 | 171.5 | 168.3 | 172.1 |
| 72.5° | 144.0 | 141.3 | 142.3 | 139.4 | 142.9 |
| 75°   | 115.6 | 113.2 | 114.5 | 112.1 | 114.8 |
| 77.5° | 88.6  | 86.7  | 87.8  | 85.9  | 88.1  |
| 80°   | 63.5  | 61.9  | 63.0  | 61.1  | 63.5  |
| 82.5° | 41.2  | 39.8  | 41.2  | 40.1  | 41.5  |
| 85°   | 22.6  | 21.3  | 22.4  | 21.8  | 23.2  |
| 87.5° | 7.6   | 6.8   | 7.6   | 6.8   | 7.9   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

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**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 13.74            | 15.33 | 14.11 | 15.64 | 15.96 | 13.70          | 15.29 | 14.07 | 15.60 | 15.92 |
|                 | 3H   | 15.35            | 16.78 | 15.73 | 17.11 | 17.47 | 15.30          | 16.73 | 15.68 | 17.06 | 17.42 |
|                 | 4H   | 15.91            | 17.25 | 16.31 | 17.60 | 17.98 | 15.86          | 17.20 | 16.26 | 17.55 | 17.93 |
|                 | 6H   | 16.27            | 17.52 | 16.69 | 17.88 | 18.27 | 16.22          | 17.47 | 16.64 | 17.83 | 18.22 |
|                 | 8H   | 16.37            | 17.55 | 16.79 | 17.94 | 18.34 | 16.32          | 17.51 | 16.75 | 17.90 | 18.30 |
|                 | 12H  | 16.42            | 17.55 | 16.85 | 17.93 | 18.36 | 16.37          | 17.51 | 16.80 | 17.89 | 18.32 |
| 4H              | 2H   | 14.31            | 15.65 | 14.71 | 16.00 | 16.38 | 14.28          | 15.62 | 14.68 | 15.97 | 16.35 |
|                 | 3H   | 16.12            | 17.24 | 16.53 | 17.64 | 18.04 | 16.08          | 17.20 | 16.49 | 17.60 | 18.00 |
|                 | 4H   | 16.79            | 17.80 | 17.22 | 18.22 | 18.65 | 16.74          | 17.75 | 17.18 | 18.17 | 18.61 |
|                 | 6H   | 17.26            | 18.14 | 17.72 | 18.59 | 19.04 | 17.22          | 18.10 | 17.67 | 18.54 | 18.99 |
|                 | 8H   | 17.39            | 18.21 | 17.85 | 18.66 | 19.12 | 17.35          | 18.17 | 17.81 | 18.61 | 19.08 |
|                 | 12H  | 17.47            | 18.20 | 17.95 | 18.68 | 19.15 | 17.43          | 18.16 | 17.91 | 18.64 | 19.11 |
| 8H              | 4H   | 17.04            | 17.86 | 17.50 | 18.30 | 18.77 | 17.00          | 17.82 | 17.46 | 18.26 | 18.73 |
|                 | 6H   | 17.60            | 18.28 | 18.09 | 18.77 | 19.25 | 17.56          | 18.24 | 18.05 | 18.73 | 19.20 |
|                 | 8H   | 17.78            | 18.39 | 18.29 | 18.89 | 19.38 | 17.74          | 18.35 | 18.25 | 18.86 | 19.34 |
|                 | 12H  | 17.90            | 18.44 | 18.40 | 18.93 | 19.49 | 17.86          | 18.40 | 18.37 | 18.90 | 19.46 |
| 12H             | 4H   | 17.05            | 17.79 | 17.53 | 18.27 | 18.74 | 17.01          | 17.75 | 17.49 | 18.23 | 18.70 |
|                 | 6H   | 17.63            | 18.24 | 18.14 | 18.75 | 19.23 | 17.58          | 18.20 | 18.10 | 18.70 | 19.19 |
|                 | 8H   | 17.85            | 18.39 | 18.36 | 18.88 | 19.44 | 17.81          | 18.35 | 18.32 | 18.84 | 19.40 |

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

Report Prepared for

Cooper Lighting Solutions

Corelite

Report Number: SP1-2506-458-3

Test Date: 07/24/2025

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

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

### Test Information

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

### Spectral Parameters

CCT (K): 3031  
 CIE  $u'$ : 0.2493  
 CIE  $v'$ : 0.5215  
 Duv: 0.0005  
 CIE x: 0.4355  
 CIE y: 0.4049  
 CIE z: 0.1596  
 Peak Wavelength (nm): 603  
 Dominant Wavelength (nm): 582  
 Purity: 52.24762  
 Rf: 84.8  
 Rg: 95.8

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



### Test Conditions

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

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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

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

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### Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.35

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

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### Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.59

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

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TM-30-18

### Summary

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



### Color Vector Graphics



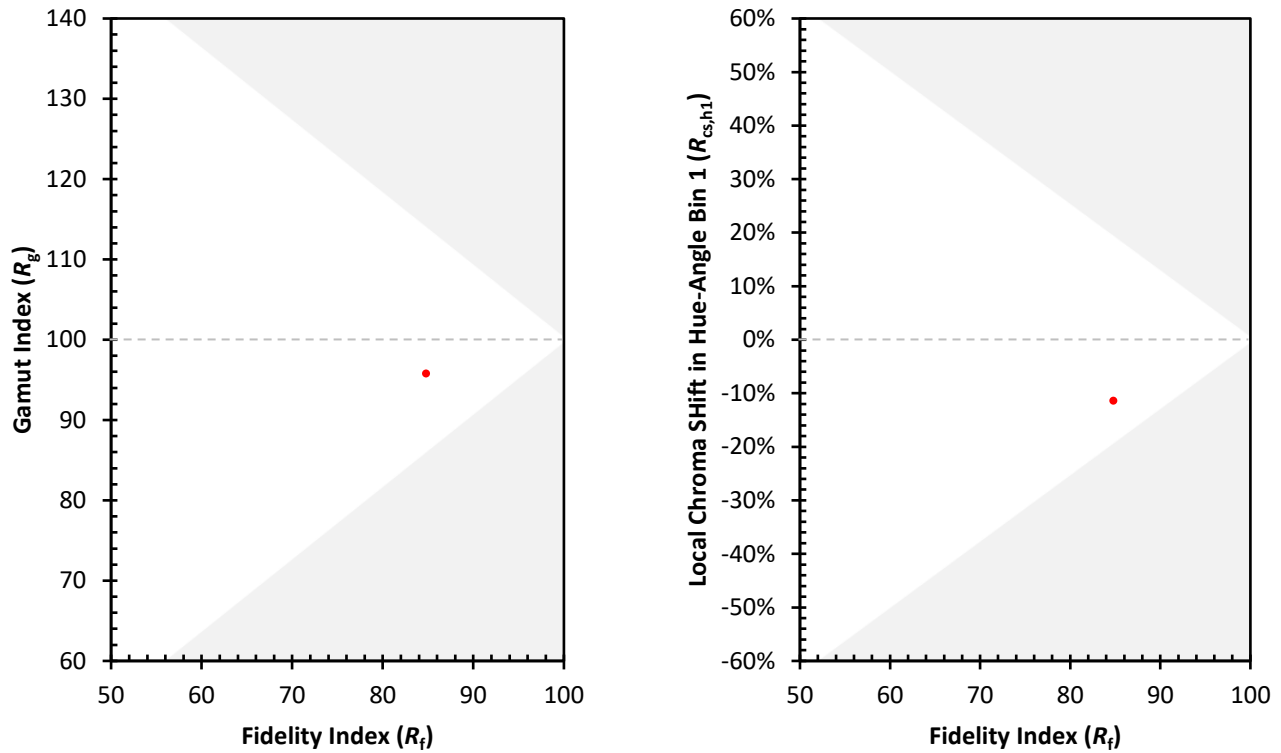
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

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



Color Rendition by Hue-Angle Bin



**Measure Comparisons**


(END OF REPORT)