

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: P1216389

Luminaire Tested: 24-ID2-35-DBR-L930-U

Issue Date: 12/5/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1216389  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2508-510-10)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/5/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: CORELITE  
Catalog Number: 24-ID2-35-DBR-L930-U  
Description: 2X4 IN DEPTH TROFFER WITH 2INCH DOUBLE BARREL REGRESSED  
Light Source: 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

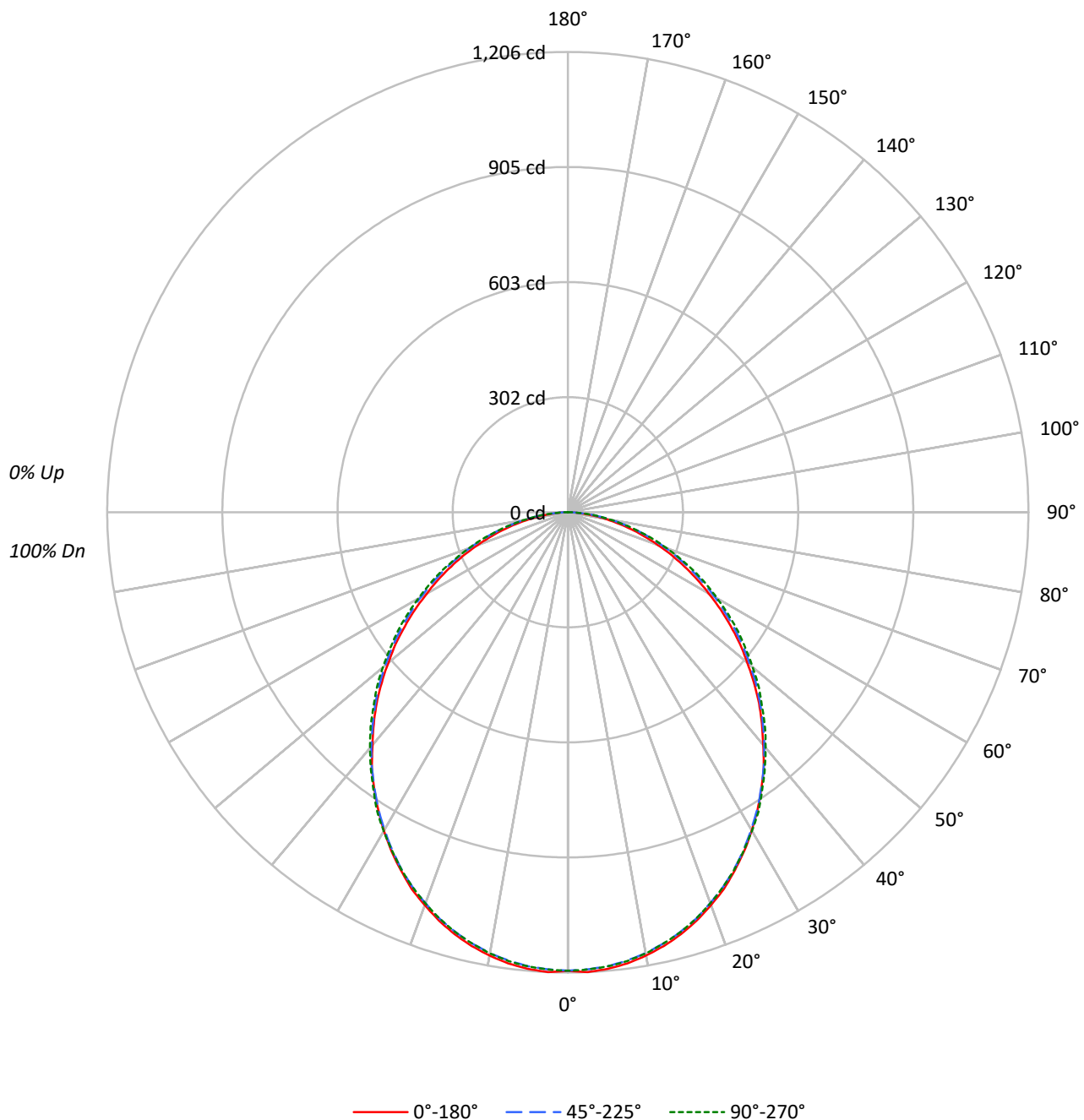
Lumens per Lamp: N/A  
Luminaire Lumens: 3089.4 lumens  
Efficiency: N/A  
Efficacy: 101.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.2 / 1.3  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 30.4  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P1216389  
CATALOG NUMBER: 24-ID2-35-DBR-L930-U

### Luminous Intensity Polar Plot



TEST NUMBER: P1216389

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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 | 104 | 100 | 96  | 106 | 102 | 98  | 95  | 98  | 95  | 92  |  | 94  | 91  | 89  |  | 84  |
| 2   | 99  | 91  | 85  | 79  | 97  | 89  | 83  | 78  | 86  | 81  | 76  |  | 83  | 78  | 74  |  | 71  |
| 3   | 91  | 80  | 72  | 66  | 88  | 79  | 71  | 65  | 76  | 70  | 64  |  | 73  | 68  | 63  |  | 60  |
| 4   | 83  | 71  | 63  | 56  | 81  | 70  | 62  | 56  | 68  | 61  | 55  |  | 65  | 59  | 54  |  | 51  |
| 5   | 77  | 64  | 55  | 49  | 75  | 63  | 55  | 48  | 61  | 53  | 48  |  | 59  | 52  | 47  |  | 45  |
| 6   | 71  | 58  | 49  | 43  | 69  | 57  | 48  | 42  | 55  | 48  | 42  |  | 53  | 47  | 42  |  | 39  |
| 7   | 66  | 52  | 44  | 38  | 64  | 52  | 43  | 38  | 50  | 43  | 37  |  | 49  | 42  | 37  |  | 35  |
| 8   | 61  | 48  | 40  | 34  | 60  | 47  | 39  | 34  | 46  | 39  | 33  |  | 45  | 38  | 33  |  | 31  |
| 9   | 57  | 44  | 36  | 31  | 56  | 44  | 36  | 30  | 42  | 35  | 30  |  | 41  | 35  | 30  |  | 28  |
| 10  | 54  | 41  | 33  | 28  | 53  | 40  | 33  | 28  | 39  | 32  | 28  |  | 38  | 32  | 27  |  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1616 | 1616 | 1616 |
| 5°  | 1622 | 1613 | 1613 |
| 10° | 1611 | 1602 | 1604 |
| 15° | 1594 | 1586 | 1587 |
| 20° | 1569 | 1561 | 1561 |
| 25° | 1536 | 1531 | 1532 |
| 30° | 1496 | 1492 | 1498 |
| 35° | 1452 | 1450 | 1457 |
| 40° | 1397 | 1406 | 1415 |
| 45° | 1347 | 1357 | 1368 |
| 50° | 1284 | 1304 | 1323 |
| 55° | 1221 | 1251 | 1275 |
| 60° | 1147 | 1196 | 1216 |
| 65° | 1073 | 1129 | 1161 |
| 70° | 987  | 1066 | 1085 |
| 75° | 891  | 992  | 1001 |
| 80° | 756  | 885  | 895  |
| 85° | 579  | 730  | 750  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°

Vertical Angle: 45°

Luminance: 1368 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 113.4  | 3.7       |
| 10°-20°   | 321.1  | 10.4      |
| 20°-30°   | 474.9  | 15.4      |
| 30°-40°   | 552.8  | 17.9      |
| 40°-50°   | 550.0  | 17.8      |
| 50°-60°   | 475.9  | 15.4      |
| 60°-70°   | 350.0  | 11.3      |
| 70°-80°   | 197.7  | 6.4       |
| 80°-90°   | 53.6   | 1.7       |
| 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°    | 909.4  | 29.4      |
| 0°-40°    | 1462.1 | 47.3      |
| 0°-60°    | 2488.0 | 80.5      |
| 0°-90°    | 3089.4 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3089.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1201 | 1201  | 1201 | 1201  | 1201 |      |
| 5°  | 1201 | 1197  | 1194 | 1192  | 1194 | 114  |
| 15° | 1145 | 1141  | 1139 | 1136  | 1139 | 323  |
| 25° | 1035 | 1032  | 1031 | 1030  | 1032 | 476  |
| 35° | 884  | 882   | 882  | 886   | 887  | 552  |
| 45° | 708  | 708   | 713  | 719   | 719  | 545  |
| 55° | 521  | 523   | 533  | 540   | 544  | 466  |
| 65° | 337  | 344   | 354  | 361   | 365  | 335  |
| 75° | 171  | 181   | 191  | 192   | 193  | 182  |
| 85° | 38   | 44    | 47   | 48    | 49   | 45   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1201.3 | 1201.3 | 1201.3 | 1201.3 | 1201.3 |
| 2.5°  | 1206.0 | 1201.3 | 1198.7 | 1197.4 | 1199.1 |
| 5°    | 1200.8 | 1196.6 | 1194.0 | 1192.3 | 1194.5 |
| 7.5°  | 1192.3 | 1187.6 | 1185.1 | 1183.4 | 1186.4 |
| 10°   | 1179.5 | 1174.8 | 1172.7 | 1171.4 | 1174.0 |
| 12.5° | 1163.8 | 1159.9 | 1157.4 | 1155.7 | 1157.4 |
| 15°   | 1144.6 | 1141.2 | 1138.6 | 1136.5 | 1139.1 |
| 17.5° | 1122.0 | 1117.7 | 1116.9 | 1114.3 | 1116.5 |
| 20°   | 1095.6 | 1092.2 | 1090.0 | 1088.8 | 1090.5 |
| 22.5° | 1068.3 | 1063.6 | 1062.4 | 1061.1 | 1062.8 |
| 25°   | 1034.7 | 1031.7 | 1031.2 | 1030.0 | 1032.1 |
| 27.5° | 1000.6 | 998.9  | 996.7  | 997.6  | 998.0  |
| 30°   | 963.1  | 960.9  | 960.1  | 961.8  | 964.3  |
| 32.5° | 924.3  | 922.6  | 923.0  | 924.7  | 929.4  |
| 35°   | 883.8  | 882.1  | 882.5  | 886.4  | 887.2  |
| 37.5° | 842.5  | 839.5  | 842.5  | 845.0  | 847.2  |
| 40°   | 795.6  | 796.0  | 800.3  | 803.7  | 805.8  |
| 42.5° | 752.1  | 752.1  | 756.4  | 761.5  | 764.1  |
| 45°   | 707.8  | 707.8  | 712.9  | 718.9  | 718.9  |
| 47.5° | 660.9  | 660.1  | 669.5  | 675.8  | 678.0  |
| 50°   | 613.2  | 614.9  | 623.0  | 629.4  | 632.0  |
| 52.5° | 568.5  | 569.3  | 578.3  | 585.1  | 586.4  |
| 55°   | 520.7  | 523.3  | 533.1  | 540.3  | 543.7  |
| 57.5° | 473.9  | 478.1  | 487.9  | 496.9  | 497.7  |
| 60°   | 426.1  | 433.0  | 444.5  | 449.1  | 451.7  |
| 62.5° | 382.7  | 389.5  | 398.9  | 406.5  | 408.2  |
| 65°   | 337.1  | 343.9  | 354.5  | 361.4  | 364.8  |
| 67.5° | 294.5  | 302.6  | 313.2  | 318.3  | 318.3  |
| 70°   | 251.0  | 259.9  | 271.0  | 275.3  | 275.7  |
| 72.5° | 210.1  | 220.3  | 230.1  | 233.5  | 234.4  |
| 75°   | 171.3  | 180.7  | 190.9  | 192.2  | 192.6  |
| 77.5° | 133.4  | 143.2  | 150.9  | 153.4  | 152.1  |
| 80°   | 97.6   | 107.4  | 114.2  | 115.9  | 115.5  |
| 82.5° | 66.5   | 74.6   | 81.0   | 81.0   | 81.0   |
| 85°   | 37.5   | 44.3   | 47.3   | 48.2   | 48.6   |
| 87.5° | 12.4   | 17.5   | 20.0   | 20.0   | 20.0   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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**CIE UGR TABLE:**

| Reflectances:   |      |                  |       |       |       |       |                |       |       |       |       |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling         |      | 0.7              | 0.7   | 0.5   | 0.5   | 0.3   | 0.7            | 0.7   | 0.5   | 0.5   | 0.3   |
| Wall            |      | 0.5              | 0.3   | 0.5   | 0.3   | 0.3   | 0.5            | 0.3   | 0.5   | 0.3   | 0.3   |
| Reference plane |      | 0.2              | 0.2   | 0.2   | 0.2   | 0.2   | 0.2            | 0.2   | 0.2   | 0.2   | 0.2   |
| Room dimensions |      | Viewed crosswise |       |       |       |       | Viewed endwise |       |       |       |       |
| X=2H            | Y=2H | 12.59            | 14.20 | 12.95 | 14.51 | 14.83 | 12.87          | 14.48 | 13.24 | 14.79 | 15.11 |
|                 | 3H   | 14.24            | 15.70 | 14.62 | 16.02 | 16.38 | 14.60          | 16.06 | 14.98 | 16.38 | 16.74 |
|                 | 4H   | 14.84            | 16.21 | 15.24 | 16.55 | 16.93 | 15.25          | 16.62 | 15.65 | 16.97 | 17.35 |
|                 | 6H   | 15.25            | 16.52 | 15.66 | 16.88 | 17.28 | 15.73          | 16.99 | 16.14 | 17.36 | 17.75 |
|                 | 8H   | 15.37            | 16.58 | 15.80 | 16.97 | 17.37 | 15.88          | 17.09 | 16.31 | 17.48 | 17.88 |
|                 | 12H  | 15.44            | 16.60 | 15.87 | 16.98 | 17.41 | 15.98          | 17.14 | 16.41 | 17.52 | 17.95 |
| 4H              | 2H   | 13.22            | 14.59 | 13.62 | 14.94 | 15.32 | 13.45          | 14.81 | 13.85 | 15.16 | 15.54 |
|                 | 3H   | 15.11            | 16.25 | 15.52 | 16.65 | 17.05 | 15.41          | 16.56 | 15.82 | 16.95 | 17.35 |
|                 | 4H   | 15.83            | 16.87 | 16.27 | 17.28 | 17.72 | 16.19          | 17.23 | 16.63 | 17.64 | 18.08 |
|                 | 6H   | 16.37            | 17.28 | 16.83 | 17.72 | 18.17 | 16.80          | 17.70 | 17.25 | 18.14 | 18.60 |
|                 | 8H   | 16.54            | 17.38 | 17.00 | 17.82 | 18.29 | 17.00          | 17.85 | 17.46 | 18.29 | 18.75 |
|                 | 12H  | 16.64            | 17.40 | 17.12 | 17.88 | 18.35 | 17.14          | 17.90 | 17.62 | 18.38 | 18.85 |
| 8H              | 4H   | 16.16            | 17.01 | 16.63 | 17.45 | 17.92 | 16.48          | 17.33 | 16.94 | 17.77 | 18.24 |
|                 | 6H   | 16.83            | 17.53 | 17.32 | 18.02 | 18.49 | 17.21          | 17.91 | 17.70 | 18.40 | 18.88 |
|                 | 8H   | 17.06            | 17.69 | 17.57 | 18.20 | 18.69 | 17.48          | 18.11 | 17.99 | 18.62 | 19.11 |
|                 | 12H  | 17.24            | 17.79 | 17.74 | 18.28 | 18.84 | 17.70          | 18.25 | 18.20 | 18.75 | 19.31 |
| 12H             | 4H   | 16.20            | 16.96 | 16.68 | 17.44 | 17.91 | 16.51          | 17.27 | 16.99 | 17.74 | 18.21 |
|                 | 6H   | 16.89            | 17.52 | 17.40 | 18.03 | 18.52 | 17.26          | 17.89 | 17.77 | 18.40 | 18.88 |
|                 | 8H   | 17.19            | 17.74 | 17.69 | 18.23 | 18.79 | 17.59          | 18.15 | 18.10 | 18.64 | 19.20 |

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

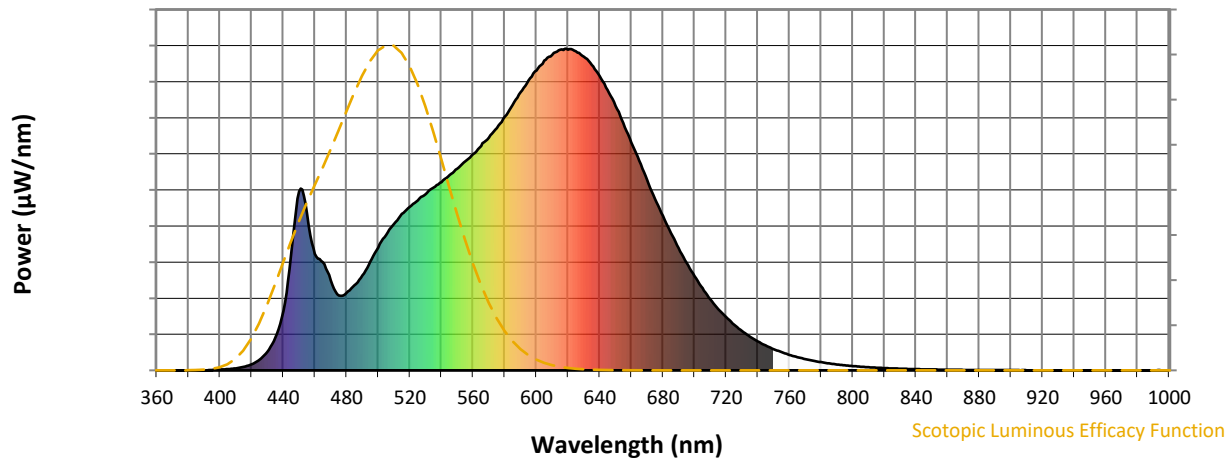


### Photopic Lumens: NR

| λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>λ</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 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



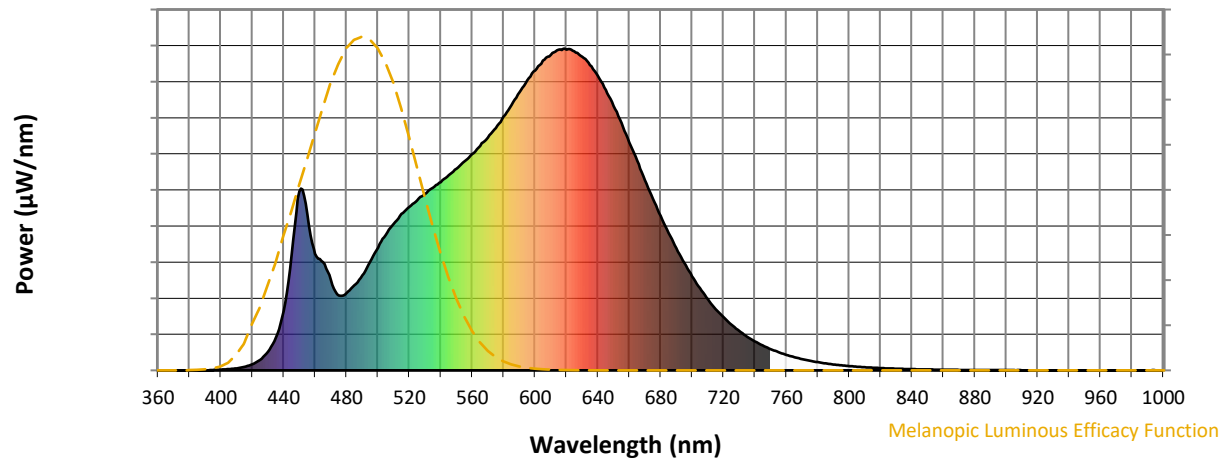
Scotopic Lumens: NR

S/P: 1.43

| λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>(φ/nm) |
|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|-----------|-----------------------------|------------------|
| 360       | 0                           | NR               | 490       | 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               |           |                             |                  |

REPORT NUMBER: SP1-2506-458-9

### 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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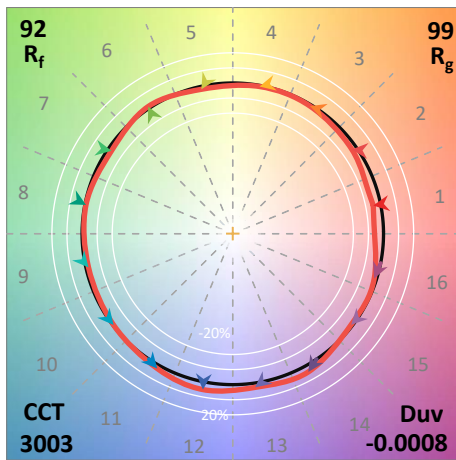
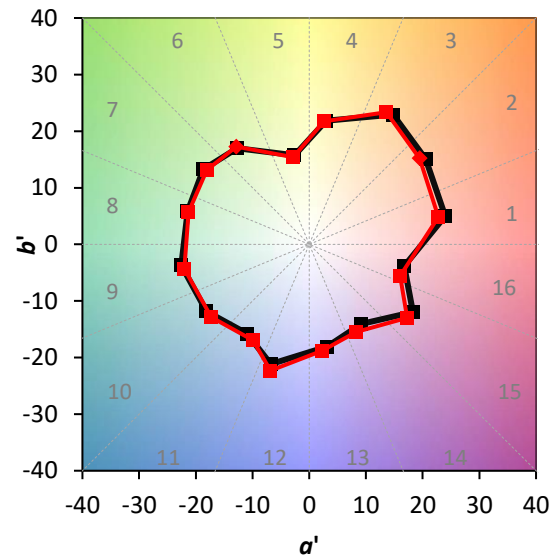
TM-30-18

### Summary

$R_f = 91.9$   
 $R_g = 99.2$   
 $\text{CIE } R_a = 93.2$   
 $R_9 = 59.0$



### 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)