

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: FAIL-SAFE

Report Number: P559968

Luminaire Tested: FSR-12-2-LD4-1LO-50-UNV-93-84-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559968  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-5)  
Test Lab: INNOVATION CENTER  
Issue Date: 7/20/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: FAIL-SAFE  
Catalog Number: FSR-12-2-LD4-1LO-50-UNV-93-84-EDD-90  
Description: 1X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

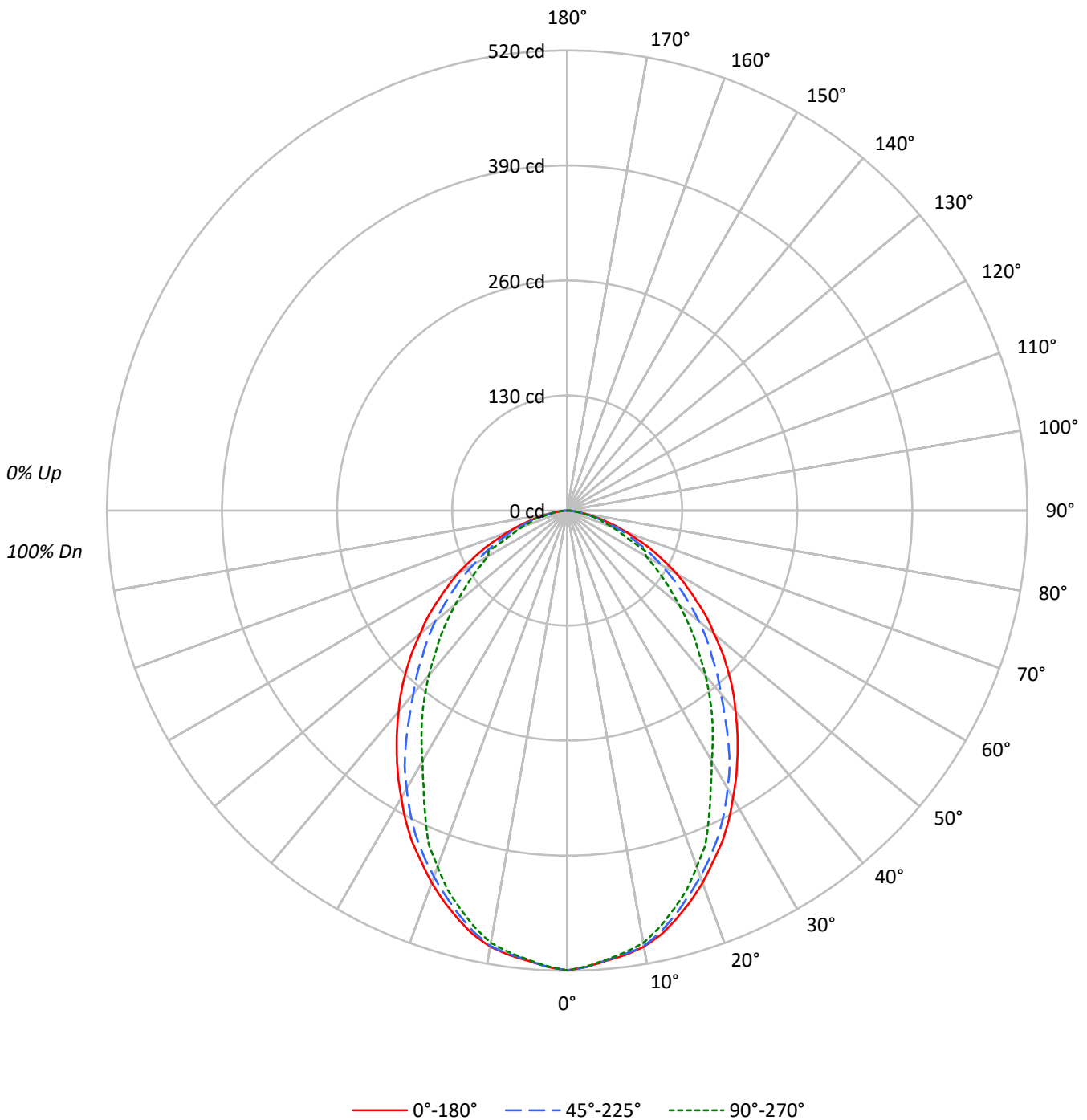
Lumens per Lamp: N/A  
Luminaire Lumens: 1020.0 lumens  
Efficiency: N/A  
Efficacy: 87.2 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |     |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|-----|----|----|---|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF  | 20  |     |     |     |     |     |     |     |     | 20  |     |     |     |     |     |     |     |     | 20 |    |    |    |    |    |    |    |     | 20 |    |   |  |  |  |  |  |  | 20 |  |  |  |  |  |  |  |  |   |
| RC  | 80  |     |     |     |     |     |     |     |     | 70  |     |     |     |     |     |     |     |     | 50 |    |    |    |    |    |    |    |     | 30 |    |   |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 0 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30 | 10 | 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 | 102 | 102 | 102 | 100 |    |    |    |    |    |    |    |    | 100 |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 110 | 106 | 102 | 99  | 108 | 104 | 100 | 97  | 100 | 97  | 94  | 96  | 94  | 91  | 92  | 90  | 89  | 87  |    |    |    |    |    |    |    |    | 87  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 79  | 77  | 75  |    |    |    |    |    |    |    |    | 75  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 93  | 84  | 77  | 71  | 91  | 82  | 76  | 70  | 79  | 74  | 69  | 77  | 72  | 68  | 74  | 70  | 67  | 65  |    |    |    |    |    |    |    |    | 65  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 86  | 75  | 67  | 61  | 84  | 74  | 66  | 61  | 72  | 65  | 60  | 69  | 64  | 59  | 67  | 62  | 58  | 56  |    |    |    |    |    |    |    |    | 56  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 59  | 53  | 65  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 52  | 50  |    |    |    |    |    |    |    |    | 50  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 74  | 62  | 53  | 48  | 72  | 61  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 47  | 56  | 50  | 46  | 44  |    |    |    |    |    |    |    |    | 44  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 69  | 56  | 48  | 43  | 67  | 56  | 48  | 42  | 54  | 47  | 42  | 53  | 46  | 42  | 51  | 46  | 42  | 40  |    |    |    |    |    |    |    |    | 40  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 65  | 52  | 44  | 38  | 63  | 51  | 44  | 38  | 50  | 43  | 38  | 49  | 42  | 38  | 48  | 42  | 38  | 36  |    |    |    |    |    |    |    |    | 36  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 61  | 48  | 40  | 35  | 59  | 47  | 40  | 35  | 46  | 39  | 35  | 45  | 39  | 34  | 44  | 38  | 34  | 33  |    |    |    |    |    |    |    |    | 33  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 57  | 44  | 37  | 32  | 56  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 32  | 41  | 36  | 32  | 30  |    |    |    |    |    |    |    |    | 30  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2796 | 2796 | 2796 |
| 5°  | 2759 | 2755 | 2752 |
| 10° | 2735 | 2731 | 2711 |
| 15° | 2661 | 2634 | 2597 |
| 20° | 2563 | 2522 | 2453 |
| 25° | 2458 | 2404 | 2254 |
| 30° | 2329 | 2255 | 2031 |
| 35° | 2206 | 2084 | 1878 |
| 40° | 2080 | 1899 | 1709 |
| 45° | 1961 | 1756 | 1545 |
| 50° | 1815 | 1629 | 1378 |
| 55° | 1680 | 1477 | 1234 |
| 60° | 1539 | 1319 | 1105 |
| 65° | 1354 | 1155 | 979  |
| 70° | 1116 | 1012 | 832  |
| 75° | 886  | 774  | 811  |
| 80° | 595  | 558  | 521  |
| 85° | 371  | 445  | 519  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1961 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 48.4   | 4.7       |
| 10°-20°   | 132.7  | 13.0      |
| 20°-30°   | 183.8  | 18.0      |
| 30°-40°   | 195.9  | 19.2      |
| 40°-50°   | 178.8  | 17.5      |
| 50°-60°   | 140.0  | 13.7      |
| 60°-70°   | 91.3   | 8.9       |
| 70°-80°   | 40.4   | 4.0       |
| 80°-90°   | 8.7    | 0.9       |
| 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°    | 364.9  | 35.8      |
| 0°-40°    | 560.8  | 55.0      |
| 0°-60°    | 879.6  | 86.2      |
| 0°-90°    | 1020.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1020.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 520 | 520   | 520 | 520   | 520 |      |
| 5°  | 511 | 510   | 510 | 509   | 509 | 48   |
| 15° | 478 | 478   | 473 | 468   | 466 | 134  |
| 25° | 414 | 412   | 405 | 390   | 380 | 190  |
| 35° | 336 | 333   | 317 | 293   | 286 | 210  |
| 45° | 258 | 252   | 231 | 211   | 203 | 198  |
| 55° | 179 | 174   | 157 | 139   | 132 | 161  |
| 65° | 106 | 100   | 91  | 92    | 77  | 105  |
| 75° | 43  | 40    | 37  | 35    | 39  | 46   |
| 85° | 6   | 7     | 7   | 8     | 8   | 8    |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 519.6 | 519.6 | 519.6 | 519.6 | 519.6 |
| 2.5°  | 516.0 | 516.0 | 516.0 | 515.4 | 515.4 |
| 5°    | 510.6 | 510.0 | 510.0 | 509.4 | 509.4 |
| 7.5°  | 506.4 | 505.8 | 505.2 | 504.6 | 503.4 |
| 10°   | 500.4 | 500.4 | 499.8 | 496.7 | 496.1 |
| 12.5° | 490.7 | 490.1 | 487.7 | 483.5 | 482.3 |
| 15°   | 477.5 | 477.5 | 472.7 | 467.9 | 466.1 |
| 17.5° | 463.1 | 462.5 | 456.5 | 451.7 | 449.3 |
| 20°   | 447.5 | 446.3 | 440.3 | 432.5 | 428.3 |
| 22.5° | 430.1 | 430.1 | 422.9 | 412.7 | 408.5 |
| 25°   | 413.9 | 411.5 | 404.8 | 390.4 | 379.6 |
| 27.5° | 395.2 | 391.6 | 384.4 | 364.0 | 351.4 |
| 30°   | 374.8 | 373.0 | 362.8 | 336.4 | 326.8 |
| 32.5° | 355.6 | 352.6 | 341.8 | 314.1 | 306.3 |
| 35°   | 335.8 | 333.4 | 317.2 | 293.1 | 285.9 |
| 37.5° | 315.9 | 312.9 | 292.5 | 273.3 | 264.3 |
| 40°   | 296.1 | 292.5 | 270.3 | 252.9 | 243.3 |
| 42.5° | 277.5 | 272.7 | 251.1 | 232.5 | 221.6 |
| 45°   | 257.7 | 252.3 | 230.7 | 211.4 | 203.0 |
| 47.5° | 237.9 | 233.1 | 213.2 | 193.4 | 183.8 |
| 50°   | 216.8 | 212.6 | 194.6 | 174.8 | 164.6 |
| 52.5° | 199.4 | 192.8 | 175.4 | 155.6 | 147.2 |
| 55°   | 179.0 | 173.6 | 157.4 | 138.8 | 131.5 |
| 57.5° | 160.4 | 155.0 | 140.0 | 122.5 | 116.5 |
| 60°   | 143.0 | 135.1 | 122.5 | 107.5 | 102.7 |
| 62.5° | 123.7 | 117.7 | 106.9 | 94.3  | 100.3 |
| 65°   | 106.3 | 100.3 | 90.7  | 92.5  | 76.9  |
| 67.5° | 87.1  | 84.1  | 75.7  | 67.3  | 64.9  |
| 70°   | 70.9  | 67.3  | 64.3  | 55.3  | 52.9  |
| 72.5° | 56.5  | 52.9  | 48.7  | 43.8  | 42.0  |
| 75°   | 42.6  | 39.6  | 37.2  | 35.4  | 39.0  |
| 77.5° | 29.4  | 28.2  | 26.4  | 24.6  | 24.0  |
| 80°   | 19.2  | 18.6  | 18.0  | 17.4  | 16.8  |
| 82.5° | 11.4  | 11.4  | 11.4  | 11.4  | 11.4  |
| 85°   | 6.0   | 6.6   | 7.2   | 7.8   | 8.4   |
| 87.5° | 3.6   | 3.6   | 4.2   | 4.8   | 5.4   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)