

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: P560143

Luminaire Tested: FSR-12-2-LD4-1STD-50-UNV-81-97-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560143  
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-LD4-1STD-50-UNV-81-97-EDD  
Description: 1X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

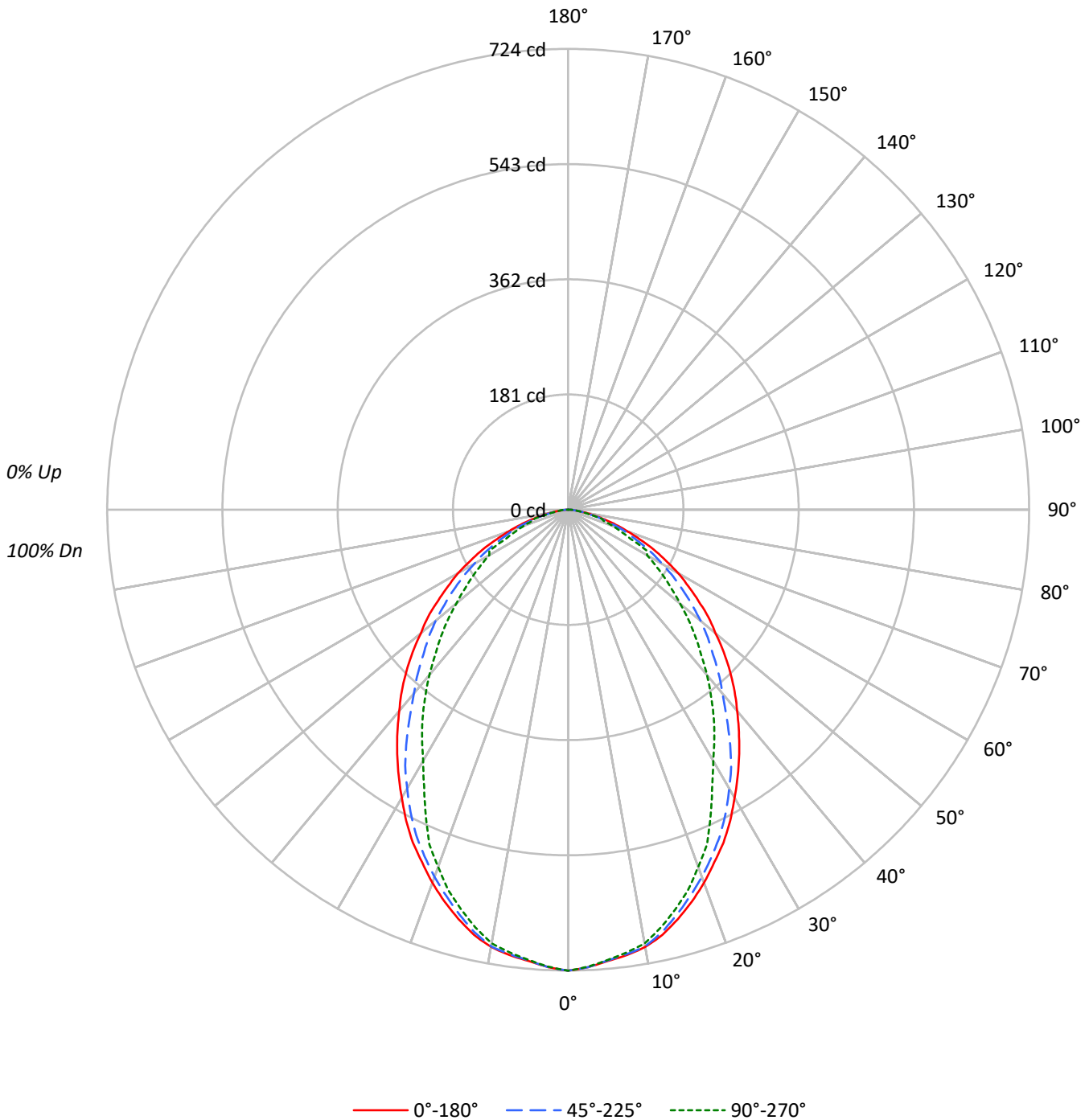
Lumens per Lamp: N/A  
Luminaire Lumens: 1422.0 lumens  
Efficiency: N/A  
Efficacy: 85.7 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 16.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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°  | 3898 | 3898 | 3898 |
| 5°  | 3846 | 3841 | 3836 |
| 10° | 3812 | 3807 | 3780 |
| 15° | 3709 | 3672 | 3621 |
| 20° | 3573 | 3515 | 3420 |
| 25° | 3426 | 3352 | 3143 |
| 30° | 3247 | 3143 | 2831 |
| 35° | 3075 | 2905 | 2619 |
| 40° | 2900 | 2647 | 2382 |
| 45° | 2734 | 2448 | 2154 |
| 50° | 2531 | 2272 | 1921 |
| 55° | 2341 | 2059 | 1721 |
| 60° | 2145 | 1838 | 1541 |
| 65° | 1887 | 1610 | 1365 |
| 70° | 1555 | 1410 | 1160 |
| 75° | 1237 | 1079 | 1131 |
| 80° | 831  | 778  | 725  |
| 85° | 519  | 618  | 722  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2734 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 67.4   | 4.7       |
| 10°-20°   | 185.0  | 13.0      |
| 20°-30°   | 256.2  | 18.0      |
| 30°-40°   | 273.2  | 19.2      |
| 40°-50°   | 249.2  | 17.5      |
| 50°-60°   | 195.2  | 13.7      |
| 60°-70°   | 127.2  | 8.9       |
| 70°-80°   | 56.4   | 4.0       |
| 80°-90°   | 12.1   | 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°    | 508.7  | 35.8      |
| 0°-40°    | 781.8  | 55.0      |
| 0°-60°    | 1226.3 | 86.2      |
| 0°-90°    | 1422.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1422.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 724 | 724   | 724 | 724   | 724 |      |
| 5°  | 712 | 711   | 711 | 710   | 710 | 68   |
| 15° | 666 | 666   | 659 | 652   | 650 | 187  |
| 25° | 577 | 574   | 564 | 544   | 529 | 265  |
| 35° | 468 | 465   | 442 | 409   | 399 | 293  |
| 45° | 359 | 352   | 322 | 295   | 283 | 277  |
| 55° | 250 | 242   | 219 | 193   | 183 | 224  |
| 65° | 148 | 140   | 126 | 129   | 107 | 146  |
| 75° | 60  | 55    | 52  | 49    | 54  | 64   |
| 85° | 8   | 9     | 10  | 11    | 12  | 12   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 724.3 | 724.3 | 724.3 | 724.3 | 724.3 |
| 2.5°  | 719.3 | 719.3 | 719.3 | 718.5 | 718.5 |
| 5°    | 711.8 | 710.9 | 710.9 | 710.1 | 710.1 |
| 7.5°  | 705.9 | 705.1 | 704.3 | 703.4 | 701.7 |
| 10°   | 697.6 | 697.6 | 696.7 | 692.5 | 691.7 |
| 12.5° | 684.2 | 683.3 | 680.0 | 674.1 | 672.4 |
| 15°   | 665.7 | 665.7 | 659.0 | 652.3 | 649.8 |
| 17.5° | 645.6 | 644.8 | 636.4 | 629.7 | 626.4 |
| 20°   | 623.9 | 622.2 | 613.8 | 602.9 | 597.1 |
| 22.5° | 599.6 | 599.6 | 589.5 | 575.3 | 569.4 |
| 25°   | 577.0 | 573.6 | 564.4 | 544.3 | 529.2 |
| 27.5° | 551.0 | 546.0 | 535.9 | 507.5 | 489.9 |
| 30°   | 522.5 | 520.0 | 505.8 | 468.9 | 455.5 |
| 32.5° | 495.7 | 491.6 | 476.5 | 438.0 | 427.1 |
| 35°   | 468.1 | 464.8 | 442.1 | 408.6 | 398.6 |
| 37.5° | 440.5 | 436.3 | 407.8 | 381.0 | 368.5 |
| 40°   | 412.8 | 407.8 | 376.8 | 352.5 | 339.1 |
| 42.5° | 386.9 | 380.2 | 350.0 | 324.1 | 309.0 |
| 45°   | 359.2 | 351.7 | 321.6 | 294.8 | 283.0 |
| 47.5° | 331.6 | 324.9 | 297.3 | 269.6 | 256.2 |
| 50°   | 302.3 | 296.4 | 271.3 | 243.7 | 229.4 |
| 52.5° | 278.0 | 268.8 | 244.5 | 216.9 | 205.2 |
| 55°   | 249.5 | 242.0 | 219.4 | 193.4 | 183.4 |
| 57.5° | 223.6 | 216.0 | 195.1 | 170.8 | 162.5 |
| 60°   | 199.3 | 188.4 | 170.8 | 149.9 | 143.2 |
| 62.5° | 172.5 | 164.1 | 149.1 | 131.5 | 139.8 |
| 65°   | 148.2 | 139.8 | 126.4 | 129.0 | 107.2 |
| 67.5° | 121.4 | 117.2 | 105.5 | 93.8  | 90.4  |
| 70°   | 98.8  | 93.8  | 89.6  | 77.0  | 73.7  |
| 72.5° | 78.7  | 73.7  | 67.8  | 61.1  | 58.6  |
| 75°   | 59.5  | 55.3  | 51.9  | 49.4  | 54.4  |
| 77.5° | 41.0  | 39.4  | 36.8  | 34.3  | 33.5  |
| 80°   | 26.8  | 26.0  | 25.1  | 24.3  | 23.4  |
| 82.5° | 15.9  | 15.9  | 15.9  | 15.9  | 15.9  |
| 85°   | 8.4   | 9.2   | 10.0  | 10.9  | 11.7  |
| 87.5° | 5.0   | 5.0   | 5.9   | 6.7   | 7.5   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)