

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: P559078

Luminaire Tested: FSR-12-1-LD4-2HI-35-UNV-93-87-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559078  
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-12-1-LD4-2HI-35-UNV-93-87-EDD-90  
Description: 1X1 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

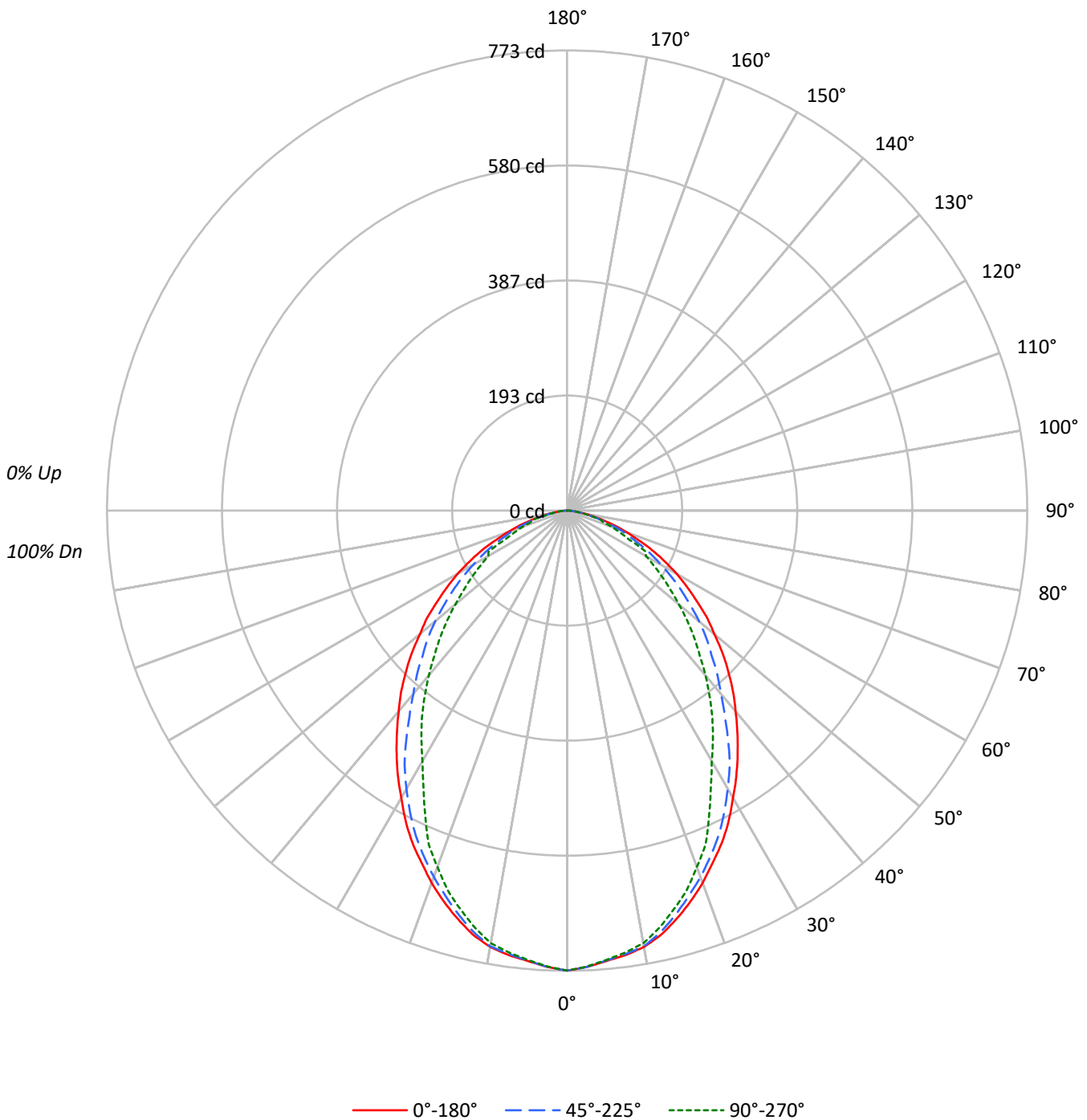
Lumens per Lamp: N/A  
Luminaire Lumens: 1517.0 lumens  
Efficiency: N/A  
Efficacy: 70.2 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 21.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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 | 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°  | 8317 | 8317 | 8317 |
| 5°  | 8204 | 8195 | 8186 |
| 10° | 8134 | 8124 | 8065 |
| 15° | 7914 | 7835 | 7725 |
| 20° | 7623 | 7501 | 7297 |
| 25° | 7310 | 7151 | 6706 |
| 30° | 6928 | 6707 | 6041 |
| 35° | 6562 | 6198 | 5587 |
| 40° | 6188 | 5649 | 5084 |
| 45° | 5833 | 5221 | 4596 |
| 50° | 5400 | 4846 | 4099 |
| 55° | 4996 | 4393 | 3671 |
| 60° | 4577 | 3922 | 3289 |
| 65° | 4027 | 3436 | 2911 |
| 70° | 3317 | 3009 | 2474 |
| 75° | 2637 | 2304 | 2416 |
| 80° | 1773 | 1661 | 1550 |
| 85° | 1099 | 1321 | 1544 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5833 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 71.9   | 4.7       |
| 10°-20°   | 197.4  | 13.0      |
| 20°-30°   | 273.3  | 18.0      |
| 30°-40°   | 291.4  | 19.2      |
| 40°-50°   | 265.9  | 17.5      |
| 50°-60°   | 208.3  | 13.7      |
| 60°-70°   | 135.8  | 8.9       |
| 70°-80°   | 60.1   | 4.0       |
| 80°-90°   | 12.9   | 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°    | 542.6  | 35.8      |
| 0°-40°    | 834.1  | 55.0      |
| 0°-60°    | 1308.2 | 86.2      |
| 0°-90°    | 1517.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1517.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 773 | 773   | 773 | 773   | 773 |      |
| 5°  | 759 | 758   | 758 | 758   | 758 | 72   |
| 15° | 710 | 710   | 703 | 696   | 693 | 200  |
| 25° | 616 | 612   | 602 | 581   | 565 | 283  |
| 35° | 499 | 496   | 472 | 436   | 425 | 312  |
| 45° | 383 | 375   | 343 | 314   | 302 | 295  |
| 55° | 266 | 258   | 234 | 206   | 196 | 239  |
| 65° | 158 | 149   | 135 | 138   | 114 | 156  |
| 75° | 63  | 59    | 55  | 53    | 58  | 68   |
| 85° | 9   | 10    | 11  | 12    | 12  | 12   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 772.7 | 772.7 | 772.7 | 772.7 | 772.7 |
| 2.5°  | 767.4 | 767.4 | 767.4 | 766.5 | 766.5 |
| 5°    | 759.3 | 758.4 | 758.4 | 757.6 | 757.6 |
| 7.5°  | 753.1 | 752.2 | 751.3 | 750.4 | 748.6 |
| 10°   | 744.2 | 744.2 | 743.3 | 738.8 | 737.9 |
| 12.5° | 729.9 | 729.0 | 725.4 | 719.1 | 717.4 |
| 15°   | 710.2 | 710.2 | 703.1 | 695.9 | 693.2 |
| 17.5° | 688.8 | 687.9 | 678.9 | 671.8 | 668.2 |
| 20°   | 665.5 | 663.8 | 654.8 | 643.2 | 637.0 |
| 22.5° | 639.6 | 639.6 | 628.9 | 613.7 | 607.5 |
| 25°   | 615.5 | 611.9 | 602.1 | 580.7 | 564.6 |
| 27.5° | 587.8 | 582.5 | 571.7 | 541.4 | 522.6 |
| 30°   | 557.4 | 554.8 | 539.6 | 500.3 | 486.0 |
| 32.5° | 528.9 | 524.4 | 508.3 | 467.2 | 455.6 |
| 35°   | 499.4 | 495.8 | 471.7 | 436.0 | 425.2 |
| 37.5° | 469.9 | 465.4 | 435.1 | 406.5 | 393.1 |
| 40°   | 440.4 | 435.1 | 402.0 | 376.1 | 361.8 |
| 42.5° | 412.7 | 405.6 | 373.4 | 345.7 | 329.6 |
| 45°   | 383.2 | 375.2 | 343.0 | 314.5 | 301.9 |
| 47.5° | 353.8 | 346.6 | 317.1 | 287.7 | 273.4 |
| 50°   | 322.5 | 316.2 | 289.4 | 260.0 | 244.8 |
| 52.5° | 296.6 | 286.8 | 260.9 | 231.4 | 218.9 |
| 55°   | 266.2 | 258.2 | 234.1 | 206.4 | 195.6 |
| 57.5° | 238.5 | 230.5 | 208.1 | 182.2 | 173.3 |
| 60°   | 212.6 | 201.0 | 182.2 | 159.9 | 152.8 |
| 62.5° | 184.0 | 175.1 | 159.0 | 140.3 | 149.2 |
| 65°   | 158.1 | 149.2 | 134.9 | 137.6 | 114.3 |
| 67.5° | 129.5 | 125.1 | 112.6 | 100.1 | 96.5  |
| 70°   | 105.4 | 100.1 | 95.6  | 82.2  | 78.6  |
| 72.5° | 84.0  | 78.6  | 72.4  | 65.2  | 62.5  |
| 75°   | 63.4  | 59.0  | 55.4  | 52.7  | 58.1  |
| 77.5° | 43.8  | 42.0  | 39.3  | 36.6  | 35.7  |
| 80°   | 28.6  | 27.7  | 26.8  | 25.9  | 25.0  |
| 82.5° | 17.0  | 17.0  | 17.0  | 17.0  | 17.0  |
| 85°   | 8.9   | 9.8   | 10.7  | 11.6  | 12.5  |
| 87.5° | 5.4   | 5.4   | 6.3   | 7.1   | 8.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)