

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: P559198

Luminaire Tested: FSR-12-1-LD4-2HI-50-UNV-82-97-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559198  
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-50-UNV-82-97-EDD-90  
Description: 1X1 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

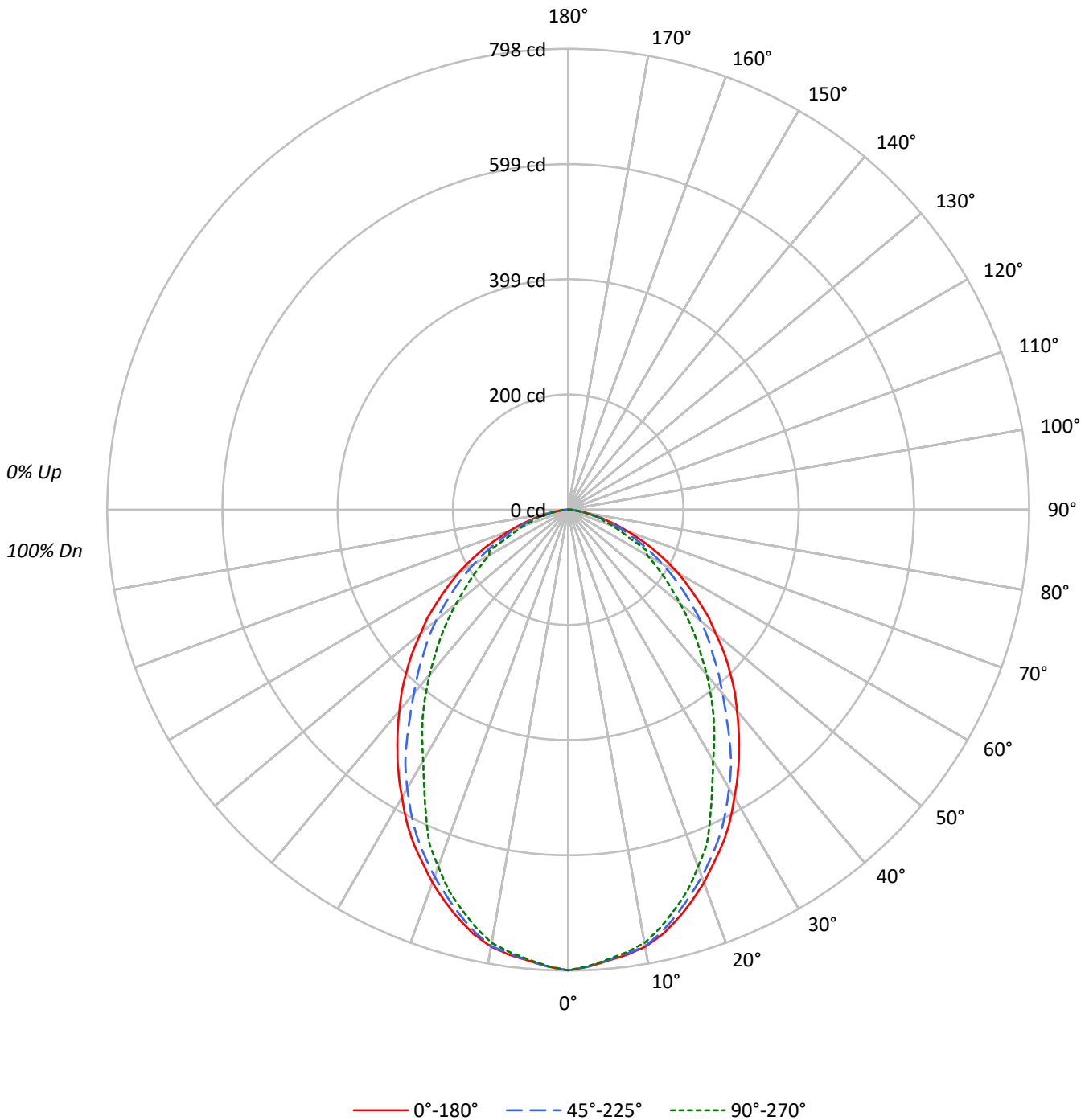
Lumens per Lamp: N/A  
Luminaire Lumens: 1566.0 lumens  
Efficiency: N/A  
Efficacy: 72.5 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 21.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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 |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 110 | 106 | 102 | 99  | 108 | 104 | 100 | 97  | 100 | 97  | 94  | 96  | 94  | 91  | 92  | 90  | 89  | 87  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 79  | 77  | 75  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 93  | 84  | 77  | 71  | 91  | 82  | 76  | 70  | 79  | 74  | 69  | 77  | 72  | 68  | 74  | 70  | 67  | 65  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 86  | 75  | 67  | 61  | 84  | 74  | 66  | 61  | 72  | 65  | 60  | 69  | 64  | 59  | 67  | 62  | 58  | 56  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 59  | 53  | 65  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 52  | 50  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 74  | 62  | 53  | 48  | 72  | 61  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 47  | 56  | 50  | 46  | 44  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 69  | 56  | 48  | 43  | 67  | 56  | 48  | 42  | 54  | 47  | 42  | 53  | 46  | 42  | 51  | 46  | 42  | 40  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 65  | 52  | 44  | 38  | 63  | 51  | 44  | 38  | 50  | 43  | 38  | 49  | 42  | 38  | 48  | 42  | 38  | 36  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 61  | 48  | 40  | 35  | 59  | 47  | 40  | 35  | 46  | 39  | 35  | 45  | 39  | 34  | 44  | 38  | 34  | 33  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 57  | 44  | 37  | 32  | 56  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 32  | 41  | 36  | 32  | 30  |    |    |    |    |    |    |    |    |   |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 8586 | 8586 | 8586 |
| 5°  | 8470 | 8459 | 8450 |
| 10° | 8396 | 8387 | 8325 |
| 15° | 8169 | 8088 | 7974 |
| 20° | 7869 | 7743 | 7531 |
| 25° | 7546 | 7383 | 6922 |
| 30° | 7153 | 6923 | 6236 |
| 35° | 6774 | 6398 | 5769 |
| 40° | 6388 | 5831 | 5248 |
| 45° | 6022 | 5390 | 4745 |
| 50° | 5575 | 5004 | 4232 |
| 55° | 5157 | 4534 | 3791 |
| 60° | 4725 | 4049 | 3395 |
| 65° | 4157 | 3548 | 3005 |
| 70° | 3424 | 3106 | 2555 |
| 75° | 2724 | 2379 | 2491 |
| 80° | 1829 | 1717 | 1599 |
| 85° | 1136 | 1371 | 1593 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 6022 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 74.3   | 4.7       |
| 10°-20°   | 203.8  | 13.0      |
| 20°-30°   | 282.1  | 18.0      |
| 30°-40°   | 300.8  | 19.2      |
| 40°-50°   | 274.4  | 17.5      |
| 50°-60°   | 215.0  | 13.7      |
| 60°-70°   | 140.1  | 8.9       |
| 70°-80°   | 62.1   | 4.0       |
| 80°-90°   | 13.3   | 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°    | 560.2  | 35.8      |
| 0°-40°    | 861.0  | 55.0      |
| 0°-60°    | 1350.4 | 86.2      |
| 0°-90°    | 1566.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1566.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 798 | 798   | 798 | 798   | 798 |      |
| 5°  | 784 | 783   | 783 | 782   | 782 | 74   |
| 15° | 733 | 733   | 726 | 718   | 716 | 206  |
| 25° | 635 | 632   | 622 | 599   | 583 | 292  |
| 35° | 516 | 512   | 487 | 450   | 439 | 322  |
| 45° | 396 | 387   | 354 | 325   | 312 | 305  |
| 55° | 275 | 266   | 242 | 213   | 202 | 246  |
| 65° | 163 | 154   | 139 | 142   | 118 | 161  |
| 75° | 66  | 61    | 57  | 54    | 60  | 70   |
| 85° | 9   | 10    | 11  | 12    | 13  | 13   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 797.7 | 797.7 | 797.7 | 797.7 | 797.7 |
| 2.5°  | 792.2 | 792.2 | 792.2 | 791.2 | 791.2 |
| 5°    | 783.9 | 782.9 | 782.9 | 782.0 | 782.0 |
| 7.5°  | 777.4 | 776.5 | 775.6 | 774.6 | 772.8 |
| 10°   | 768.2 | 768.2 | 767.3 | 762.7 | 761.7 |
| 12.5° | 753.4 | 752.5 | 748.8 | 742.4 | 740.5 |
| 15°   | 733.1 | 733.1 | 725.8 | 718.4 | 715.6 |
| 17.5° | 711.0 | 710.1 | 700.9 | 693.5 | 689.8 |
| 20°   | 687.0 | 685.2 | 676.0 | 664.0 | 657.5 |
| 22.5° | 660.3 | 660.3 | 649.2 | 633.5 | 627.1 |
| 25°   | 635.4 | 631.7 | 621.6 | 599.4 | 582.8 |
| 27.5° | 606.8 | 601.3 | 590.2 | 558.9 | 539.5 |
| 30°   | 575.5 | 572.7 | 557.0 | 516.4 | 501.7 |
| 32.5° | 545.9 | 541.3 | 524.7 | 482.3 | 470.3 |
| 35°   | 515.5 | 511.8 | 486.9 | 450.0 | 439.0 |
| 37.5° | 485.1 | 480.5 | 449.1 | 419.6 | 405.8 |
| 40°   | 454.6 | 449.1 | 415.0 | 388.2 | 373.5 |
| 42.5° | 426.1 | 418.7 | 385.5 | 356.9 | 340.3 |
| 45°   | 395.6 | 387.3 | 354.1 | 324.6 | 311.7 |
| 47.5° | 365.2 | 357.8 | 327.4 | 296.9 | 282.2 |
| 50°   | 332.9 | 326.5 | 298.8 | 268.4 | 252.7 |
| 52.5° | 306.2 | 296.0 | 269.3 | 238.8 | 225.9 |
| 55°   | 274.8 | 266.5 | 241.6 | 213.0 | 202.0 |
| 57.5° | 246.2 | 237.9 | 214.9 | 188.1 | 178.9 |
| 60°   | 219.5 | 207.5 | 188.1 | 165.1 | 157.7 |
| 62.5° | 190.0 | 180.8 | 164.2 | 144.8 | 154.0 |
| 65°   | 163.2 | 154.0 | 139.3 | 142.0 | 118.0 |
| 67.5° | 133.7 | 129.1 | 116.2 | 103.3 | 99.6  |
| 70°   | 108.8 | 103.3 | 98.7  | 84.8  | 81.2  |
| 72.5° | 86.7  | 81.2  | 74.7  | 67.3  | 64.6  |
| 75°   | 65.5  | 60.9  | 57.2  | 54.4  | 59.9  |
| 77.5° | 45.2  | 43.3  | 40.6  | 37.8  | 36.9  |
| 80°   | 29.5  | 28.6  | 27.7  | 26.7  | 25.8  |
| 82.5° | 17.5  | 17.5  | 17.5  | 17.5  | 17.5  |
| 85°   | 9.2   | 10.1  | 11.1  | 12.0  | 12.9  |
| 87.5° | 5.5   | 5.5   | 6.5   | 7.4   | 8.3   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)