

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: P559159

Luminaire Tested: FSR-12-1-LD4-2HI-50-UNV-80-87-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559159  
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-80-87-EDD  
Description: 1X1 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR PC ENVIRON  
SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

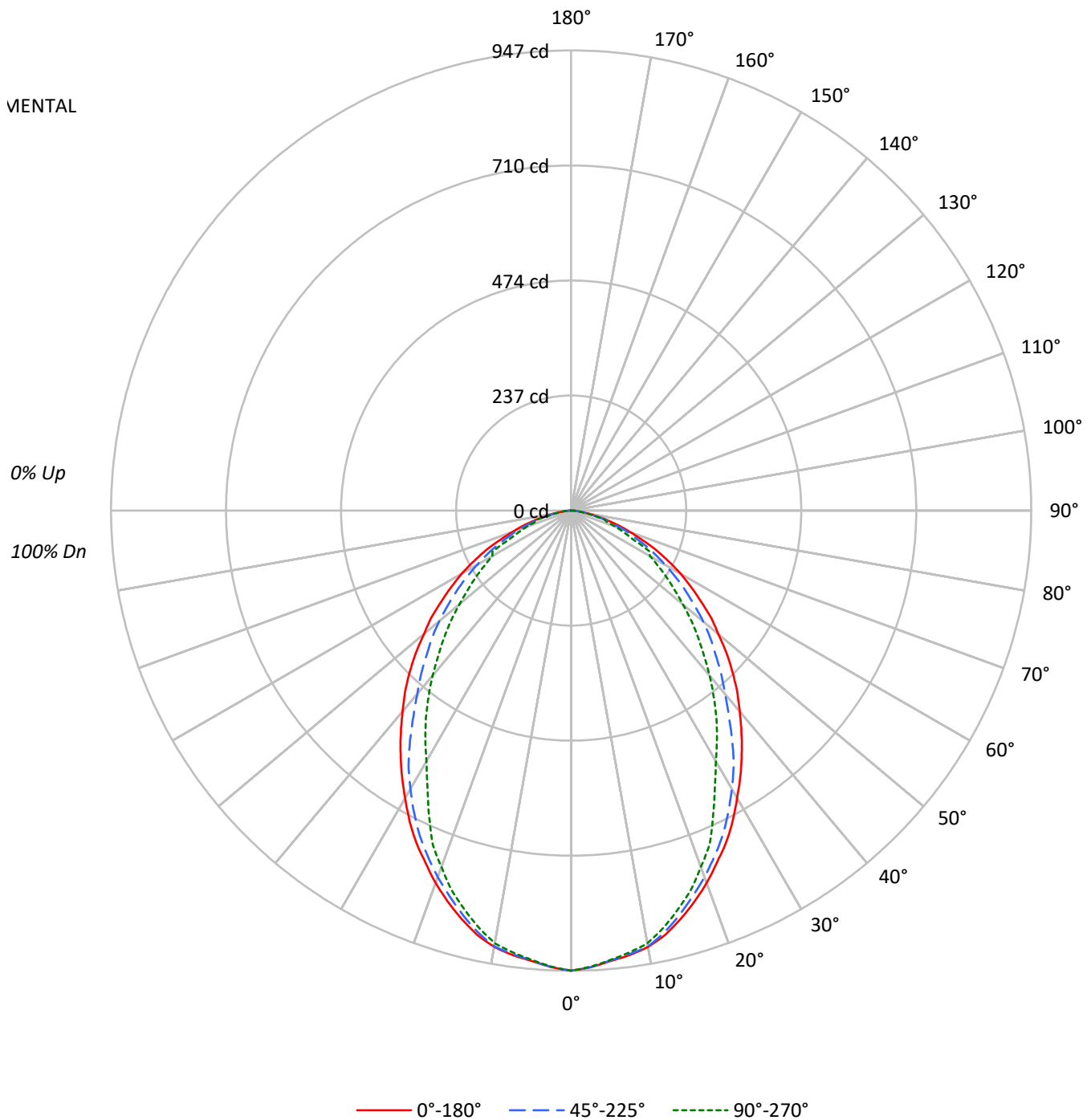
Lumens per Lamp: N/A  
Luminaire Lumens: 1859.0 lumens  
Efficiency: N/A  
Efficacy: 86.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 21.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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 |     |   |  |   |
| 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°  | 10192 | 10192 | 10192 |
| 5°  | 10054 | 10042 | 10030 |
| 10° | 9967  | 9955  | 9884  |
| 15° | 9698  | 9601  | 9467  |
| 20° | 9342  | 9191  | 8940  |
| 25° | 8959  | 8764  | 8217  |
| 30° | 8490  | 8218  | 7402  |
| 35° | 8042  | 7595  | 6847  |
| 40° | 7583  | 6922  | 6230  |
| 45° | 7148  | 6400  | 5632  |
| 50° | 6618  | 5940  | 5024  |
| 55° | 6122  | 5382  | 4498  |
| 60° | 5608  | 4807  | 4030  |
| 65° | 4936  | 4210  | 3568  |
| 70° | 4066  | 3685  | 3031  |
| 75° | 3231  | 2824  | 2961  |
| 80° | 2170  | 2033  | 1903  |
| 85° | 1346  | 1618  | 1890  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7148 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 88.1   | 4.7       |
| 10°-20°   | 241.9  | 13.0      |
| 20°-30°   | 334.9  | 18.0      |
| 30°-40°   | 357.1  | 19.2      |
| 40°-50°   | 325.8  | 17.5      |
| 50°-60°   | 255.2  | 13.7      |
| 60°-70°   | 166.3  | 8.9       |
| 70°-80°   | 73.7   | 4.0       |
| 80°-90°   | 15.8   | 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°    | 665.0  | 35.8      |
| 0°-40°    | 1022.1 | 55.0      |
| 0°-60°    | 1603.1 | 86.2      |
| 0°-90°    | 1859.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1859.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 947 | 947   | 947 | 947   | 947 |      |
| 5°  | 930 | 929   | 929 | 928   | 928 | 88   |
| 15° | 870 | 870   | 862 | 853   | 850 | 245  |
| 25° | 754 | 750   | 738 | 712   | 692 | 346  |
| 35° | 612 | 608   | 578 | 534   | 521 | 383  |
| 45° | 470 | 460   | 420 | 385   | 370 | 362  |
| 55° | 326 | 316   | 287 | 253   | 240 | 293  |
| 65° | 194 | 183   | 165 | 169   | 140 | 191  |
| 75° | 78  | 72    | 68  | 65    | 71  | 83   |
| 85° | 11  | 12    | 13  | 14    | 15  | 15   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 946.9 | 946.9 | 946.9 | 946.9 | 946.9 |
| 2.5°  | 940.4 | 940.4 | 940.4 | 939.3 | 939.3 |
| 5°    | 930.5 | 929.4 | 929.4 | 928.3 | 928.3 |
| 7.5°  | 922.9 | 921.8 | 920.7 | 919.6 | 917.4 |
| 10°   | 911.9 | 911.9 | 910.8 | 905.3 | 904.3 |
| 12.5° | 894.4 | 893.3 | 888.9 | 881.3 | 879.1 |
| 15°   | 870.3 | 870.3 | 861.6 | 852.8 | 849.5 |
| 17.5° | 844.0 | 842.9 | 832.0 | 823.2 | 818.9 |
| 20°   | 815.6 | 813.4 | 802.4 | 788.2 | 780.5 |
| 22.5° | 783.8 | 783.8 | 770.7 | 752.1 | 744.4 |
| 25°   | 754.3 | 749.9 | 737.9 | 711.6 | 691.9 |
| 27.5° | 720.3 | 713.8 | 700.6 | 663.4 | 640.4 |
| 30°   | 683.1 | 679.8 | 661.2 | 613.1 | 595.5 |
| 32.5° | 648.1 | 642.6 | 622.9 | 572.5 | 558.3 |
| 35°   | 612.0 | 607.6 | 578.0 | 534.2 | 521.1 |
| 37.5° | 575.8 | 570.4 | 533.1 | 498.1 | 481.7 |
| 40°   | 539.7 | 533.1 | 492.6 | 460.9 | 443.4 |
| 42.5° | 505.8 | 497.0 | 457.6 | 423.7 | 404.0 |
| 45°   | 469.6 | 459.8 | 420.4 | 385.3 | 370.0 |
| 47.5° | 433.5 | 424.8 | 388.6 | 352.5 | 335.0 |
| 50°   | 395.2 | 387.5 | 354.7 | 318.6 | 300.0 |
| 52.5° | 363.5 | 351.4 | 319.7 | 283.5 | 268.2 |
| 55°   | 326.2 | 316.4 | 286.8 | 252.9 | 239.7 |
| 57.5° | 292.3 | 282.4 | 255.1 | 223.3 | 212.4 |
| 60°   | 260.5 | 246.3 | 223.3 | 196.0 | 187.2 |
| 62.5° | 225.5 | 214.6 | 194.9 | 171.9 | 182.8 |
| 65°   | 193.8 | 182.8 | 165.3 | 168.6 | 140.1 |
| 67.5° | 158.7 | 153.3 | 137.9 | 122.6 | 118.2 |
| 70°   | 129.2 | 122.6 | 117.1 | 100.7 | 96.3  |
| 72.5° | 102.9 | 96.3  | 88.7  | 79.9  | 76.6  |
| 75°   | 77.7  | 72.3  | 67.9  | 64.6  | 71.2  |
| 77.5° | 53.6  | 51.5  | 48.2  | 44.9  | 43.8  |
| 80°   | 35.0  | 33.9  | 32.8  | 31.7  | 30.7  |
| 82.5° | 20.8  | 20.8  | 20.8  | 20.8  | 20.8  |
| 85°   | 10.9  | 12.0  | 13.1  | 14.2  | 15.3  |
| 87.5° | 6.6   | 6.6   | 7.7   | 8.8   | 9.9   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)