

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: P561786

Luminaire Tested: FSR-12-4-LD4-2STD-40-UNV-80-94-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561786  
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-12-4-LD4-2STD-40-UNV-80-94-EDD-90  
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

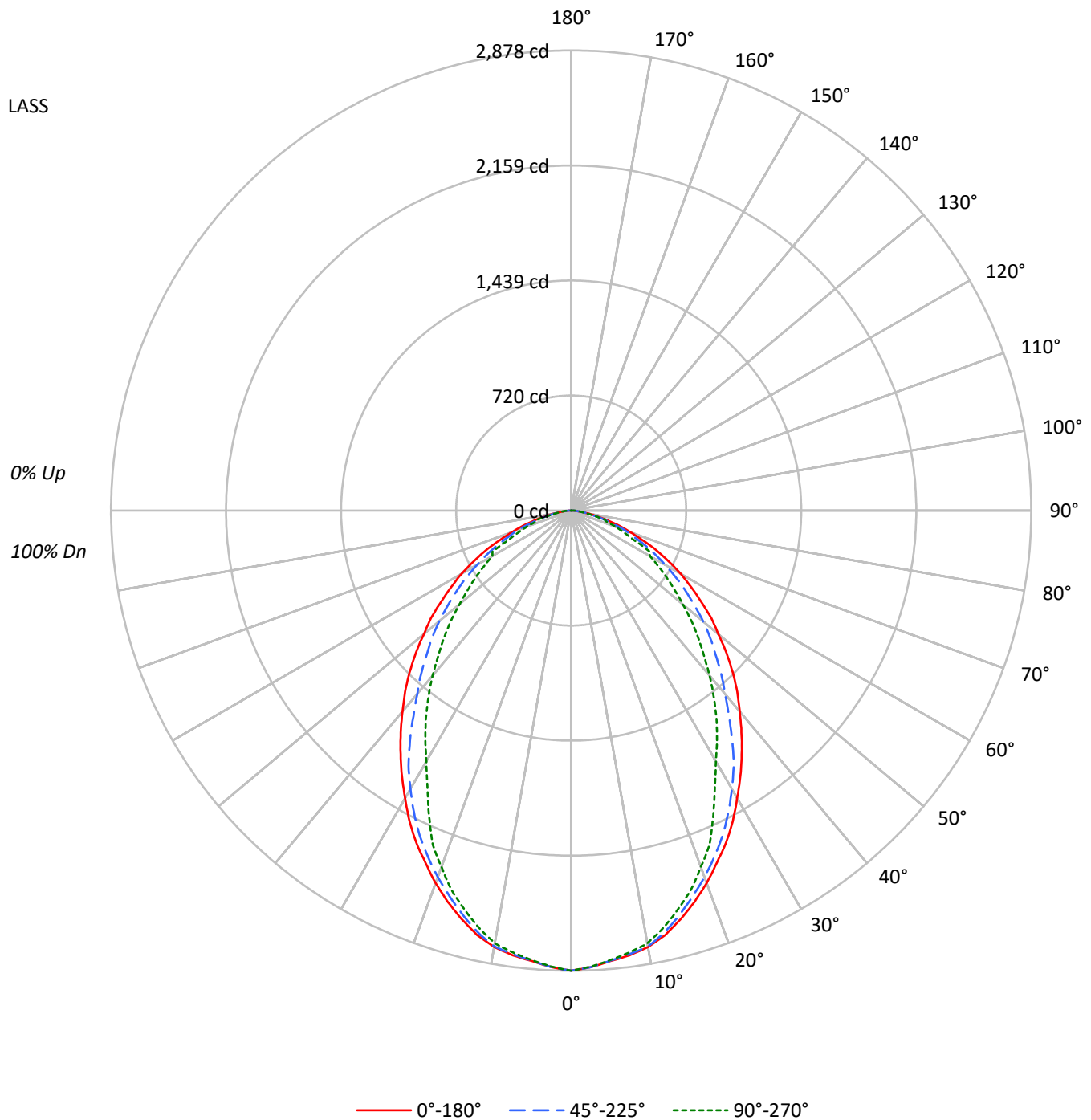
Lumens per Lamp: N/A  
Luminaire Lumens: 5650.0 lumens  
Efficiency: N/A  
Efficacy: 84.8 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 66.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°  | 7745 | 7745 | 7745 |
| 5°  | 7639 | 7631 | 7622 |
| 10° | 7573 | 7564 | 7510 |
| 15° | 7369 | 7295 | 7193 |
| 20° | 7098 | 6984 | 6794 |
| 25° | 6807 | 6658 | 6244 |
| 30° | 6451 | 6244 | 5624 |
| 35° | 6110 | 5771 | 5203 |
| 40° | 5762 | 5259 | 4734 |
| 45° | 5432 | 4862 | 4280 |
| 50° | 5028 | 4513 | 3817 |
| 55° | 4652 | 4090 | 3419 |
| 60° | 4262 | 3653 | 3062 |
| 65° | 3750 | 3199 | 2712 |
| 70° | 3089 | 2801 | 2304 |
| 75° | 2456 | 2145 | 2249 |
| 80° | 1650 | 1547 | 1444 |
| 85° | 1028 | 1232 | 1439 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5432 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 267.9  | 4.7       |
| 10°-20°   | 735.2  | 13.0      |
| 20°-30°   | 1017.9 | 18.0      |
| 30°-40°   | 1085.4 | 19.2      |
| 40°-50°   | 990.2  | 17.5      |
| 50°-60°   | 775.7  | 13.7      |
| 60°-70°   | 505.6  | 8.9       |
| 70°-80°   | 224.0  | 4.0       |
| 80°-90°   | 48.1   | 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°    | 2021.0 | 35.8      |
| 0°-40°    | 3106.4 | 55.0      |
| 0°-60°    | 4872.3 | 86.2      |
| 0°-90°    | 5650.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5650.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2878 | 2878  | 2878 | 2878  | 2878 |      |
| 5°  | 2828 | 2825  | 2825 | 2822  | 2822 | 268  |
| 15° | 2645 | 2645  | 2618 | 2592  | 2582 | 744  |
| 25° | 2292 | 2279  | 2242 | 2163  | 2103 | 1052 |
| 35° | 1860 | 1847  | 1757 | 1624  | 1584 | 1163 |
| 45° | 1427 | 1397  | 1278 | 1171  | 1125 | 1100 |
| 55° | 992  | 962   | 872  | 769   | 729  | 889  |
| 65° | 589  | 556   | 502  | 512   | 426  | 580  |
| 75° | 236  | 220   | 206  | 196   | 216  | 253  |
| 85° | 33   | 37    | 40   | 43    | 47   | 46   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2878.0 | 2878.0 | 2878.0 | 2878.0 | 2878.0 |
| 2.5°  | 2858.1 | 2858.1 | 2858.1 | 2854.7 | 2854.7 |
| 5°    | 2828.1 | 2824.8 | 2824.8 | 2821.5 | 2821.5 |
| 7.5°  | 2804.8 | 2801.5 | 2798.2 | 2794.9 | 2788.2 |
| 10°   | 2771.6 | 2771.6 | 2768.2 | 2751.6 | 2748.3 |
| 12.5° | 2718.3 | 2715.0 | 2701.7 | 2678.4 | 2671.7 |
| 15°   | 2645.1 | 2645.1 | 2618.5 | 2591.9 | 2581.9 |
| 17.5° | 2565.3 | 2561.9 | 2528.7 | 2502.1 | 2488.8 |
| 20°   | 2478.8 | 2472.1 | 2438.8 | 2395.6 | 2372.3 |
| 22.5° | 2382.3 | 2382.3 | 2342.4 | 2285.8 | 2262.5 |
| 25°   | 2292.4 | 2279.1 | 2242.5 | 2162.7 | 2102.8 |
| 27.5° | 2189.3 | 2169.3 | 2129.4 | 2016.3 | 1946.4 |
| 30°   | 2076.2 | 2066.2 | 2009.6 | 1863.2 | 1810.0 |
| 32.5° | 1969.7 | 1953.1 | 1893.2 | 1740.1 | 1696.9 |
| 35°   | 1859.9 | 1846.6 | 1756.8 | 1623.7 | 1583.8 |
| 37.5° | 1750.1 | 1733.5 | 1620.4 | 1513.9 | 1464.0 |
| 40°   | 1640.3 | 1620.4 | 1497.2 | 1400.8 | 1347.5 |
| 42.5° | 1537.2 | 1510.6 | 1390.8 | 1287.6 | 1227.7 |
| 45°   | 1427.4 | 1397.4 | 1277.6 | 1171.2 | 1124.6 |
| 47.5° | 1317.6 | 1291.0 | 1181.2 | 1071.4 | 1018.1 |
| 50°   | 1201.1 | 1177.8 | 1078.0 | 968.2  | 911.7  |
| 52.5° | 1104.6 | 1068.0 | 971.5  | 861.7  | 815.2  |
| 55°   | 991.5  | 961.6  | 871.7  | 768.6  | 728.7  |
| 57.5° | 888.4  | 858.4  | 775.2  | 678.8  | 645.5  |
| 60°   | 791.9  | 748.6  | 678.8  | 595.6  | 569.0  |
| 62.5° | 685.4  | 652.1  | 592.2  | 522.4  | 555.6  |
| 65°   | 588.9  | 555.6  | 502.4  | 512.4  | 425.9  |
| 67.5° | 482.4  | 465.8  | 419.2  | 372.6  | 359.3  |
| 70°   | 392.6  | 372.6  | 356.0  | 306.1  | 292.8  |
| 72.5° | 312.8  | 292.8  | 269.5  | 242.9  | 232.9  |
| 75°   | 236.2  | 219.6  | 206.3  | 196.3  | 216.3  |
| 77.5° | 163.0  | 156.4  | 146.4  | 136.4  | 133.1  |
| 80°   | 106.5  | 103.1  | 99.8   | 96.5   | 93.2   |
| 82.5° | 63.2   | 63.2   | 63.2   | 63.2   | 63.2   |
| 85°   | 33.3   | 36.6   | 39.9   | 43.3   | 46.6   |
| 87.5° | 20.0   | 20.0   | 23.3   | 26.6   | 29.9   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)