

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: P561870

Luminaire Tested: FSR-12-4-LD4-2STD-50-UNV-81-97-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561870  
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-50-UNV-81-97-EDD-90  
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

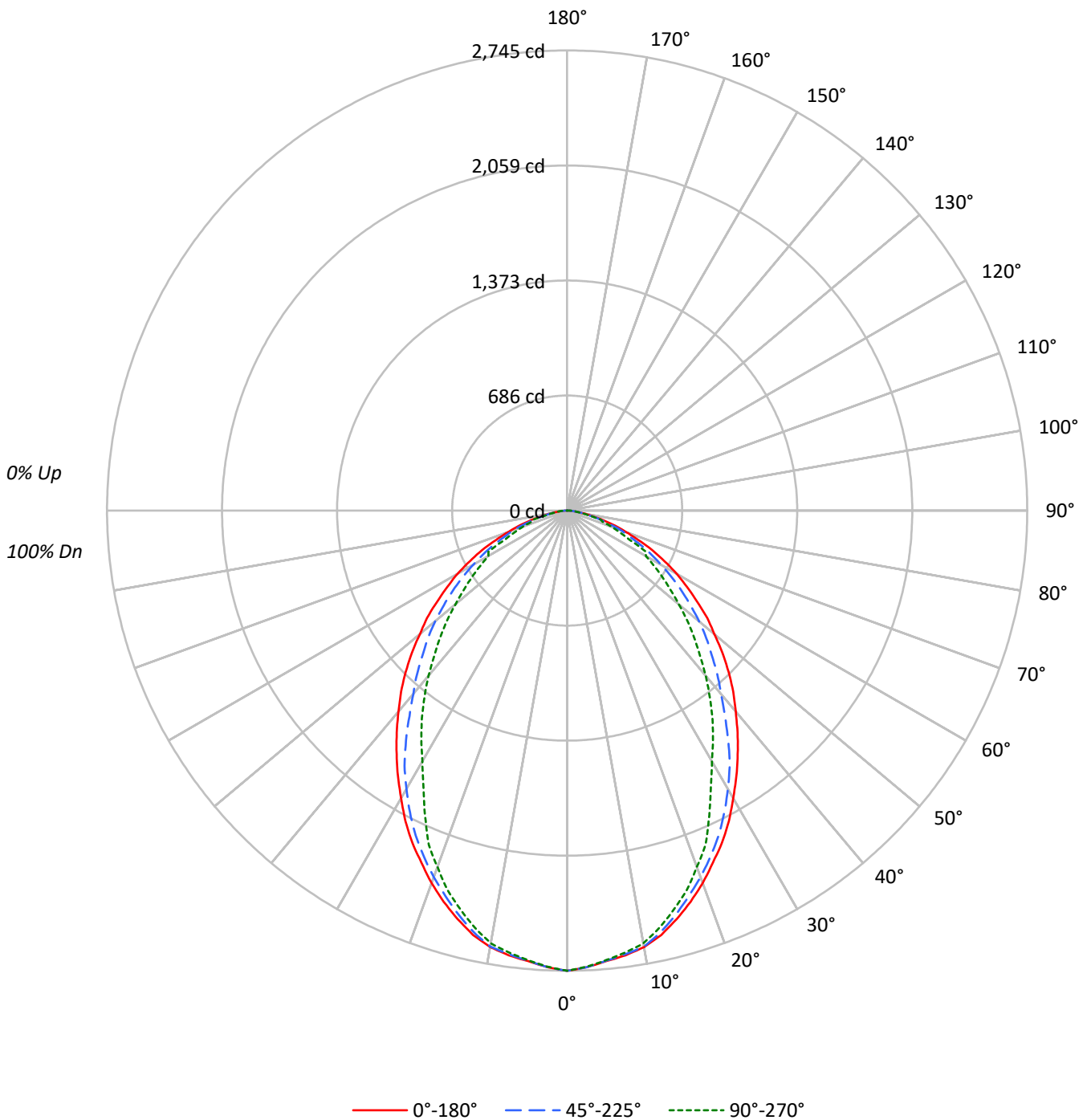
Lumens per Lamp: N/A  
Luminaire Lumens: 5389.0 lumens  
Efficiency: N/A  
Efficacy: 80.9 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 66.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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



TEST NUMBER: P561870

CATALOG NUMBER: FSR-12-4-LD4-2STD-50-UNV-81-97-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P561870

CATALOG NUMBER: FSR-12-4-LD4-2STD-50-UNV-81-97-EDD-90

**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°  | 7387 | 7387 | 7387 |
| 5°  | 7287 | 7278 | 7269 |
| 10° | 7223 | 7215 | 7163 |
| 15° | 7029 | 6958 | 6861 |
| 20° | 6771 | 6661 | 6480 |
| 25° | 6492 | 6351 | 5955 |
| 30° | 6153 | 5956 | 5364 |
| 35° | 5828 | 5504 | 4962 |
| 40° | 5496 | 5017 | 4515 |
| 45° | 5181 | 4638 | 4082 |
| 50° | 4796 | 4304 | 3640 |
| 55° | 4437 | 3901 | 3261 |
| 60° | 4065 | 3484 | 2921 |
| 65° | 3577 | 3051 | 2586 |
| 70° | 2947 | 2672 | 2198 |
| 75° | 2342 | 2046 | 2145 |
| 80° | 1574 | 1475 | 1378 |
| 85° | 979  | 1176 | 1371 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5181 cd/sqm



TEST NUMBER: P561870

CATALOG NUMBER: FSR-12-4-LD4-2STD-50-UNV-81-97-EDD-90

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 255.5  | 4.7       |
| 10°-20°   | 701.3  | 13.0      |
| 20°-30°   | 970.9  | 18.0      |
| 30°-40°   | 1035.2 | 19.2      |
| 40°-50°   | 944.4  | 17.5      |
| 50°-60°   | 739.9  | 13.7      |
| 60°-70°   | 482.2  | 8.9       |
| 70°-80°   | 213.7  | 4.0       |
| 80°-90°   | 45.9   | 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°    | 1927.7 | 35.8      |
| 0°-40°    | 2962.9 | 55.0      |
| 0°-60°    | 4647.2 | 86.2      |
| 0°-90°    | 5389.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5389.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2745 | 2745  | 2745 | 2745  | 2745 |      |
| 5°  | 2698 | 2694  | 2694 | 2691  | 2691 | 256  |
| 15° | 2523 | 2523  | 2498 | 2472  | 2463 | 709  |
| 25° | 2186 | 2174  | 2139 | 2063  | 2006 | 1004 |
| 35° | 1774 | 1761  | 1676 | 1549  | 1511 | 1109 |
| 45° | 1361 | 1333  | 1219 | 1117  | 1073 | 1049 |
| 55° | 946  | 917   | 832  | 733   | 695  | 848  |
| 65° | 562  | 530   | 479  | 489   | 406  | 554  |
| 75° | 225  | 210   | 197  | 187   | 206  | 241  |
| 85° | 32   | 35    | 38   | 41    | 44   | 44   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



TEST NUMBER: P561870

CATALOG NUMBER: FSR-12-4-LD4-2STD-50-UNV-81-97-EDD-90

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2745.1 | 2745.1 | 2745.1 | 2745.1 | 2745.1 |
| 2.5°  | 2726.0 | 2726.0 | 2726.0 | 2722.9 | 2722.9 |
| 5°    | 2697.5 | 2694.3 | 2694.3 | 2691.1 | 2691.1 |
| 7.5°  | 2675.3 | 2672.1 | 2668.9 | 2665.7 | 2659.4 |
| 10°   | 2643.5 | 2643.5 | 2640.4 | 2624.5 | 2621.3 |
| 12.5° | 2592.8 | 2589.6 | 2576.9 | 2554.7 | 2548.3 |
| 15°   | 2522.9 | 2522.9 | 2497.6 | 2472.2 | 2462.6 |
| 17.5° | 2446.8 | 2443.6 | 2411.9 | 2386.5 | 2373.8 |
| 20°   | 2364.3 | 2357.9 | 2326.2 | 2284.9 | 2262.7 |
| 22.5° | 2272.2 | 2272.2 | 2234.1 | 2180.2 | 2158.0 |
| 25°   | 2186.5 | 2173.9 | 2138.9 | 2062.8 | 2005.7 |
| 27.5° | 2088.2 | 2069.1 | 2031.0 | 1923.1 | 1856.5 |
| 30°   | 1980.3 | 1970.7 | 1916.8 | 1777.2 | 1726.4 |
| 32.5° | 1878.7 | 1862.8 | 1805.7 | 1659.7 | 1618.5 |
| 35°   | 1774.0 | 1761.3 | 1675.6 | 1548.7 | 1510.6 |
| 37.5° | 1669.3 | 1653.4 | 1545.5 | 1443.9 | 1396.3 |
| 40°   | 1564.5 | 1545.5 | 1428.1 | 1336.0 | 1285.3 |
| 42.5° | 1466.2 | 1440.8 | 1326.5 | 1228.1 | 1171.0 |
| 45°   | 1361.4 | 1332.9 | 1218.6 | 1117.1 | 1072.6 |
| 47.5° | 1256.7 | 1231.3 | 1126.6 | 1021.9 | 971.1  |
| 50°   | 1145.6 | 1123.4 | 1028.2 | 923.5  | 869.5  |
| 52.5° | 1053.6 | 1018.7 | 926.7  | 821.9  | 777.5  |
| 55°   | 945.7  | 917.1  | 831.5  | 733.1  | 695.0  |
| 57.5° | 847.3  | 818.8  | 739.4  | 647.4  | 615.7  |
| 60°   | 755.3  | 714.0  | 647.4  | 568.1  | 542.7  |
| 62.5° | 653.7  | 622.0  | 564.9  | 498.2  | 530.0  |
| 65°   | 561.7  | 530.0  | 479.2  | 488.7  | 406.2  |
| 67.5° | 460.2  | 444.3  | 399.9  | 355.4  | 342.7  |
| 70°   | 374.5  | 355.4  | 339.6  | 292.0  | 279.3  |
| 72.5° | 298.3  | 279.3  | 257.1  | 231.7  | 222.1  |
| 75°   | 225.3  | 209.5  | 196.8  | 187.2  | 206.3  |
| 77.5° | 155.5  | 149.2  | 139.6  | 130.1  | 126.9  |
| 80°   | 101.6  | 98.4   | 95.2   | 92.0   | 88.9   |
| 82.5° | 60.3   | 60.3   | 60.3   | 60.3   | 60.3   |
| 85°   | 31.7   | 34.9   | 38.1   | 41.3   | 44.4   |
| 87.5° | 19.0   | 19.0   | 22.2   | 25.4   | 28.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)