

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: P562347

Luminaire Tested: FSR-24-4-LD4-1STD-35-UNV-93-94-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P562347  
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-24-4-LD4-1STD-35-UNV-93-94-EDD  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

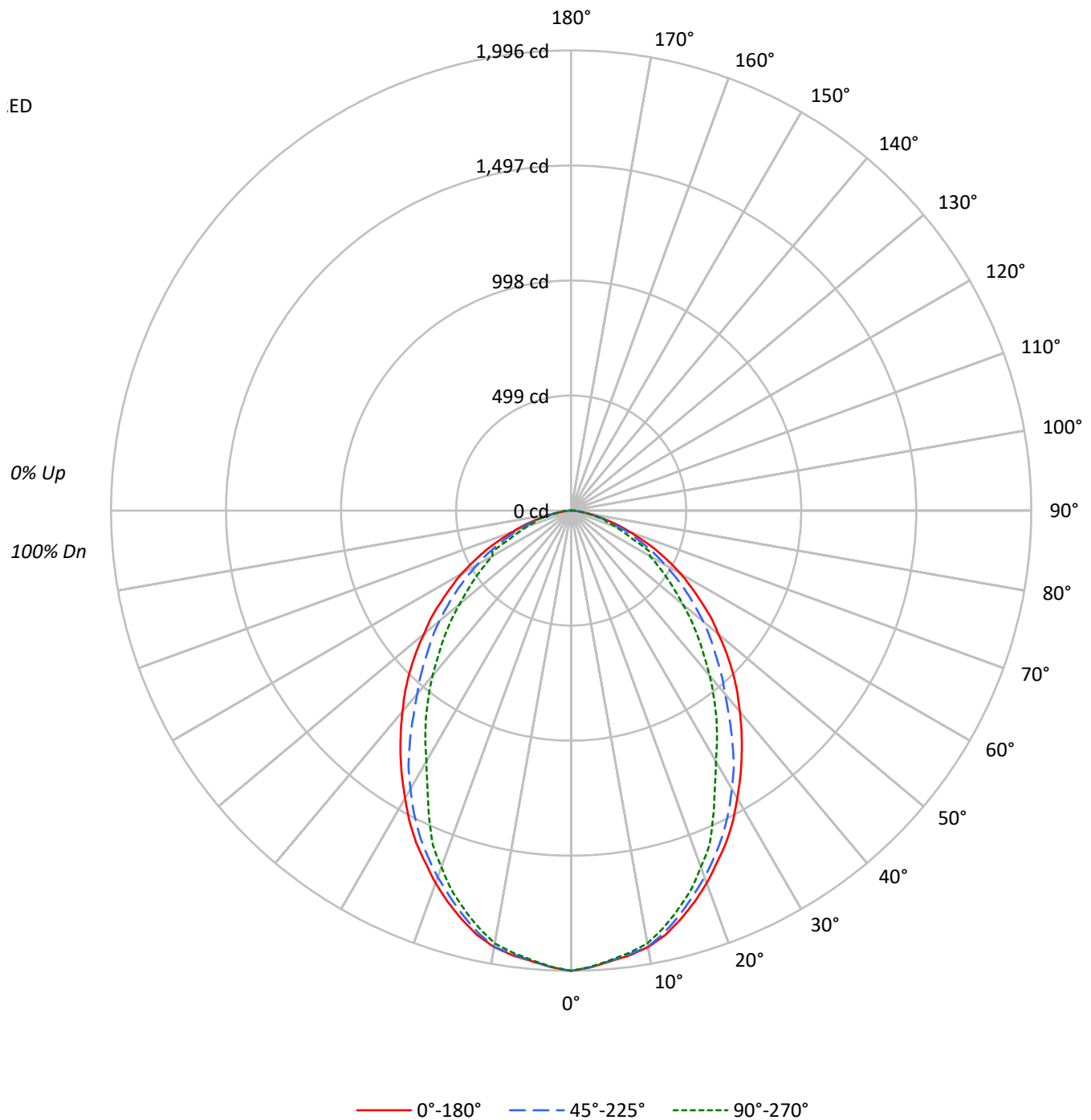
Lumens per Lamp: N/A  
Luminaire Lumens: 3919.0 lumens  
Efficiency: N/A  
Efficacy: 117.7 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 33.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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°  | 2686 | 2686 | 2686 |
| 5°  | 2650 | 2646 | 2643 |
| 10° | 2626 | 2623 | 2604 |
| 15° | 2556 | 2530 | 2495 |
| 20° | 2462 | 2422 | 2356 |
| 25° | 2361 | 2309 | 2165 |
| 30° | 2237 | 2166 | 1951 |
| 35° | 2119 | 2001 | 1804 |
| 40° | 1998 | 1824 | 1642 |
| 45° | 1884 | 1686 | 1484 |
| 50° | 1744 | 1565 | 1324 |
| 55° | 1613 | 1418 | 1186 |
| 60° | 1478 | 1267 | 1062 |
| 65° | 1301 | 1110 | 940  |
| 70° | 1071 | 971  | 799  |
| 75° | 852  | 744  | 780  |
| 80° | 573  | 536  | 501  |
| 85° | 357  | 428  | 499  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1884 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 185.8  | 4.7       |
| 10°-20°   | 510.0  | 13.0      |
| 20°-30°   | 706.0  | 18.0      |
| 30°-40°   | 752.8  | 19.2      |
| 40°-50°   | 686.8  | 17.5      |
| 50°-60°   | 538.1  | 13.7      |
| 60°-70°   | 350.7  | 8.9       |
| 70°-80°   | 155.4  | 4.0       |
| 80°-90°   | 33.3   | 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°    | 1401.9 | 35.8      |
| 0°-40°    | 2154.7 | 55.0      |
| 0°-60°    | 3379.6 | 86.2      |
| 0°-90°    | 3919.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3919.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1996 | 1996  | 1996 | 1996  | 1996 |      |
| 5°  | 1962 | 1959  | 1959 | 1957  | 1957 | 186  |
| 15° | 1835 | 1835  | 1816 | 1798  | 1791 | 516  |
| 25° | 1590 | 1581  | 1556 | 1500  | 1459 | 730  |
| 35° | 1290 | 1281  | 1218 | 1126  | 1098 | 807  |
| 45° | 990  | 969   | 886  | 812   | 780  | 763  |
| 55° | 688  | 667   | 605  | 533   | 505  | 617  |
| 65° | 408  | 385   | 348  | 355   | 295  | 403  |
| 75° | 164  | 152   | 143  | 136   | 150  | 176  |
| 85° | 23   | 25    | 28   | 30    | 32   | 32   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1996.3 | 1996.3 | 1996.3 | 1996.3 | 1996.3 |
| 2.5°  | 1982.4 | 1982.4 | 1982.4 | 1980.1 | 1980.1 |
| 5°    | 1961.7 | 1959.4 | 1959.4 | 1957.1 | 1957.1 |
| 7.5°  | 1945.5 | 1943.2 | 1940.9 | 1938.6 | 1934.0 |
| 10°   | 1922.4 | 1922.4 | 1920.1 | 1908.6 | 1906.3 |
| 12.5° | 1885.5 | 1883.2 | 1874.0 | 1857.8 | 1853.2 |
| 15°   | 1834.7 | 1834.7 | 1816.3 | 1797.8 | 1790.9 |
| 17.5° | 1779.3 | 1777.0 | 1754.0 | 1735.5 | 1726.3 |
| 20°   | 1719.3 | 1714.7 | 1691.7 | 1661.6 | 1645.5 |
| 22.5° | 1652.4 | 1652.4 | 1624.7 | 1585.5 | 1569.3 |
| 25°   | 1590.1 | 1580.9 | 1555.5 | 1500.1 | 1458.6 |
| 27.5° | 1518.6 | 1504.7 | 1477.0 | 1398.6 | 1350.1 |
| 30°   | 1440.1 | 1433.2 | 1393.9 | 1292.4 | 1255.5 |
| 32.5° | 1366.2 | 1354.7 | 1313.2 | 1207.0 | 1177.0 |
| 35°   | 1290.1 | 1280.9 | 1218.5 | 1126.2 | 1098.5 |
| 37.5° | 1213.9 | 1202.4 | 1123.9 | 1050.1 | 1015.5 |
| 40°   | 1137.8 | 1123.9 | 1038.5 | 971.6  | 934.7  |
| 42.5° | 1066.2 | 1047.8 | 964.7  | 893.1  | 851.6  |
| 45°   | 990.1  | 969.3  | 886.2  | 812.4  | 780.1  |
| 47.5° | 913.9  | 895.4  | 819.3  | 743.1  | 706.2  |
| 50°   | 833.1  | 817.0  | 747.7  | 671.6  | 632.3  |
| 52.5° | 766.2  | 740.8  | 673.9  | 597.7  | 565.4  |
| 55°   | 687.7  | 667.0  | 604.7  | 533.1  | 505.4  |
| 57.5° | 616.2  | 595.4  | 537.7  | 470.8  | 447.7  |
| 60°   | 549.3  | 519.3  | 470.8  | 413.1  | 394.6  |
| 62.5° | 475.4  | 452.3  | 410.8  | 362.3  | 385.4  |
| 65°   | 408.5  | 385.4  | 348.5  | 355.4  | 295.4  |
| 67.5° | 334.6  | 323.1  | 290.8  | 258.5  | 249.2  |
| 70°   | 272.3  | 258.5  | 246.9  | 212.3  | 203.1  |
| 72.5° | 216.9  | 203.1  | 186.9  | 168.5  | 161.5  |
| 75°   | 163.9  | 152.3  | 143.1  | 136.2  | 150.0  |
| 77.5° | 113.1  | 108.5  | 101.5  | 94.6   | 92.3   |
| 80°   | 73.9   | 71.5   | 69.2   | 66.9   | 64.6   |
| 82.5° | 43.8   | 43.8   | 43.8   | 43.8   | 43.8   |
| 85°   | 23.1   | 25.4   | 27.7   | 30.0   | 32.3   |
| 87.5° | 13.8   | 13.8   | 16.2   | 18.5   | 20.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)