

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: P561782

Luminaire Tested: FSR-12-4-LD4-2STD-40-UNV-80-87-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561782  
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-80-87-EDD-90  
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR PC ENVIRON  
SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

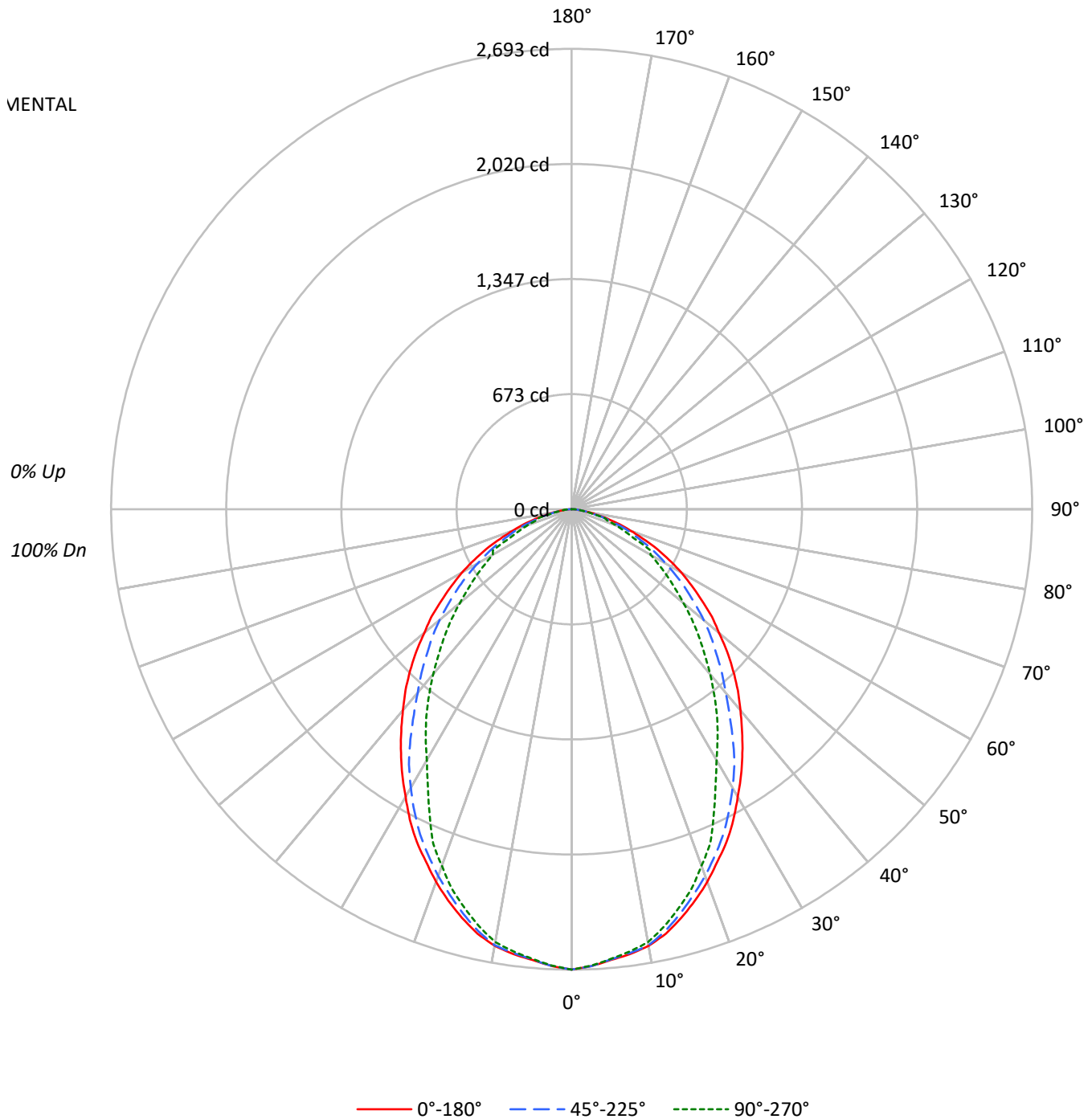
Lumens per Lamp: N/A  
Luminaire Lumens: 5286.0 lumens  
Efficiency: N/A  
Efficacy: 79.4 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 66.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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





TEST NUMBER: P561782

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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°  | 7246 | 7246 | 7246 |
| 5°  | 7147 | 7139 | 7131 |
| 10° | 7085 | 7077 | 7026 |
| 15° | 6894 | 6825 | 6730 |
| 20° | 6641 | 6534 | 6356 |
| 25° | 6368 | 6230 | 5841 |
| 30° | 6036 | 5842 | 5262 |
| 35° | 5716 | 5399 | 4868 |
| 40° | 5391 | 4921 | 4429 |
| 45° | 5082 | 4549 | 4004 |
| 50° | 4704 | 4222 | 3571 |
| 55° | 4352 | 3826 | 3198 |
| 60° | 3987 | 3418 | 2865 |
| 65° | 3508 | 2993 | 2537 |
| 70° | 2890 | 2621 | 2155 |
| 75° | 2298 | 2007 | 2103 |
| 80° | 1543 | 1447 | 1351 |
| 85° | 960  | 1155 | 1346 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5082 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 250.6  | 4.7       |
| 10°-20°   | 687.9  | 13.0      |
| 20°-30°   | 952.3  | 18.0      |
| 30°-40°   | 1015.5 | 19.2      |
| 40°-50°   | 926.4  | 17.5      |
| 50°-60°   | 725.7  | 13.7      |
| 60°-70°   | 473.0  | 8.9       |
| 70°-80°   | 209.6  | 4.0       |
| 80°-90°   | 45.0   | 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°    | 1890.8 | 35.8      |
| 0°-40°    | 2906.3 | 55.0      |
| 0°-60°    | 4558.4 | 86.2      |
| 0°-90°    | 5286.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5286.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2693 | 2693  | 2693 | 2693  | 2693 |      |
| 5°  | 2646 | 2643  | 2643 | 2640  | 2640 | 251  |
| 15° | 2475 | 2475  | 2450 | 2425  | 2416 | 696  |
| 25° | 2145 | 2132  | 2098 | 2023  | 1967 | 985  |
| 35° | 1740 | 1728  | 1644 | 1519  | 1482 | 1088 |
| 45° | 1335 | 1307  | 1195 | 1096  | 1052 | 1029 |
| 55° | 928  | 900   | 816  | 719   | 682  | 832  |
| 65° | 551  | 520   | 470  | 479   | 398  | 543  |
| 75° | 221  | 205   | 193  | 184   | 202  | 237  |
| 85° | 31   | 34    | 37   | 40    | 44   | 43   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2692.6 | 2692.6 | 2692.6 | 2692.6 | 2692.6 |
| 2.5°  | 2673.9 | 2673.9 | 2673.9 | 2670.8 | 2670.8 |
| 5°    | 2645.9 | 2642.8 | 2642.8 | 2639.7 | 2639.7 |
| 7.5°  | 2624.1 | 2621.0 | 2617.9 | 2614.8 | 2608.6 |
| 10°   | 2593.0 | 2593.0 | 2589.9 | 2574.3 | 2571.2 |
| 12.5° | 2543.2 | 2540.1 | 2527.6 | 2505.8 | 2499.6 |
| 15°   | 2474.7 | 2474.7 | 2449.8 | 2424.9 | 2415.6 |
| 17.5° | 2400.0 | 2396.9 | 2365.8 | 2340.9 | 2328.4 |
| 20°   | 2319.1 | 2312.8 | 2281.7 | 2241.3 | 2219.5 |
| 22.5° | 2228.8 | 2228.8 | 2191.4 | 2138.5 | 2116.7 |
| 25°   | 2144.8 | 2132.3 | 2098.1 | 2023.4 | 1967.3 |
| 27.5° | 2048.3 | 2029.6 | 1992.2 | 1886.4 | 1821.0 |
| 30°   | 1942.4 | 1933.1 | 1880.2 | 1743.2 | 1693.4 |
| 32.5° | 1842.8 | 1827.2 | 1771.2 | 1628.0 | 1587.6 |
| 35°   | 1740.1 | 1727.6 | 1643.6 | 1519.1 | 1481.7 |
| 37.5° | 1637.4 | 1621.8 | 1516.0 | 1416.3 | 1369.7 |
| 40°   | 1534.6 | 1516.0 | 1400.8 | 1310.5 | 1260.7 |
| 42.5° | 1438.1 | 1413.2 | 1301.2 | 1204.7 | 1148.6 |
| 45°   | 1335.4 | 1307.4 | 1195.3 | 1095.7 | 1052.1 |
| 47.5° | 1232.7 | 1207.8 | 1105.1 | 1002.3 | 952.5  |
| 50°   | 1123.7 | 1101.9 | 1008.6 | 905.8  | 852.9  |
| 52.5° | 1033.5 | 999.2  | 909.0  | 806.2  | 762.6  |
| 55°   | 927.6  | 899.6  | 815.6  | 719.1  | 681.7  |
| 57.5° | 831.1  | 803.1  | 725.3  | 635.0  | 603.9  |
| 60°   | 740.9  | 700.4  | 635.0  | 557.2  | 532.3  |
| 62.5° | 641.2  | 610.1  | 554.1  | 488.7  | 519.8  |
| 65°   | 551.0  | 519.8  | 470.0  | 479.4  | 398.4  |
| 67.5° | 451.4  | 435.8  | 392.2  | 348.6  | 336.2  |
| 70°   | 367.3  | 348.6  | 333.1  | 286.4  | 273.9  |
| 72.5° | 292.6  | 273.9  | 252.1  | 227.2  | 217.9  |
| 75°   | 221.0  | 205.4  | 193.0  | 183.7  | 202.3  |
| 77.5° | 152.5  | 146.3  | 137.0  | 127.6  | 124.5  |
| 80°   | 99.6   | 96.5   | 93.4   | 90.3   | 87.2   |
| 82.5° | 59.1   | 59.1   | 59.1   | 59.1   | 59.1   |
| 85°   | 31.1   | 34.2   | 37.4   | 40.5   | 43.6   |
| 87.5° | 18.7   | 18.7   | 21.8   | 24.9   | 28.0   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)