

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: P563385

Luminaire Tested: FSR-24-4-LD4-3LO-50-UNV-80-88-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563385  
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-LD4-3LO-50-UNV-80-88-EDD  
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .500 CLEAR PC ENVIRON  
SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

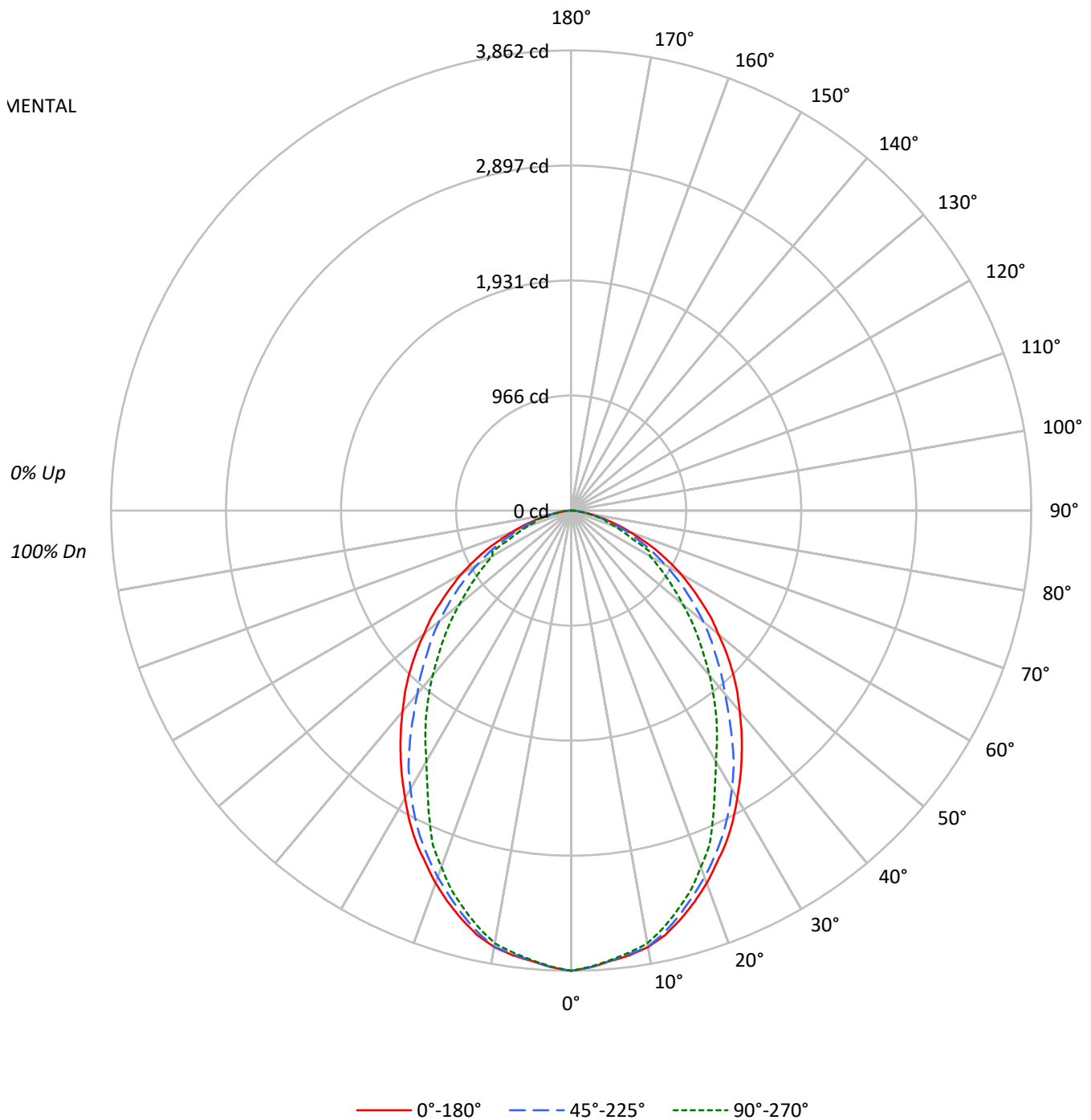
Lumens per Lamp: N/A  
Luminaire Lumens: 7582.0 lumens  
Efficiency: N/A  
Efficacy: 108.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 70.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°  | 5197 | 5197 | 5197 |
| 5°  | 5126 | 5120 | 5114 |
| 10° | 5081 | 5075 | 5039 |
| 15° | 4944 | 4895 | 4826 |
| 20° | 4763 | 4686 | 4558 |
| 25° | 4567 | 4468 | 4189 |
| 30° | 4329 | 4190 | 3774 |
| 35° | 4100 | 3872 | 3491 |
| 40° | 3866 | 3529 | 3176 |
| 45° | 3645 | 3262 | 2872 |
| 50° | 3374 | 3028 | 2561 |
| 55° | 3121 | 2744 | 2294 |
| 60° | 2860 | 2451 | 2055 |
| 65° | 2516 | 2146 | 1819 |
| 70° | 2073 | 1879 | 1546 |
| 75° | 1648 | 1439 | 1509 |
| 80° | 1107 | 1038 | 969  |
| 85° | 689  | 827  | 965  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3645 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 359.5  | 4.7       |
| 10°-20°   | 986.7  | 13.0      |
| 20°-30°   | 1366.0 | 18.0      |
| 30°-40°   | 1456.5 | 19.2      |
| 40°-50°   | 1328.8 | 17.5      |
| 50°-60°   | 1041.0 | 13.7      |
| 60°-70°   | 678.5  | 8.9       |
| 70°-80°   | 300.6  | 4.0       |
| 80°-90°   | 64.5   | 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°    | 2712.1 | 35.8      |
| 0°-40°    | 4168.7 | 55.0      |
| 0°-60°    | 6538.4 | 86.2      |
| 0°-90°    | 7582.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7582.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3862 | 3862  | 3862 | 3862  | 3862 |      |
| 5°  | 3795 | 3791  | 3791 | 3786  | 3786 | 360  |
| 15° | 3550 | 3550  | 3514 | 3478  | 3465 | 998  |
| 25° | 3076 | 3058  | 3009 | 2902  | 2822 | 1412 |
| 35° | 2496 | 2478  | 2358 | 2179  | 2125 | 1560 |
| 45° | 1916 | 1875  | 1714 | 1572  | 1509 | 1475 |
| 55° | 1331 | 1290  | 1170 | 1031  | 978  | 1193 |
| 65° | 790  | 746   | 674  | 688   | 572  | 779  |
| 75° | 317  | 295   | 277  | 263   | 290  | 340  |
| 85° | 45   | 49    | 54   | 58    | 62   | 62   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3862.2 | 3862.2 | 3862.2 | 3862.2 | 3862.2 |
| 2.5°  | 3835.4 | 3835.4 | 3835.4 | 3830.9 | 3830.9 |
| 5°    | 3795.2 | 3790.7 | 3790.7 | 3786.3 | 3786.3 |
| 7.5°  | 3763.9 | 3759.5 | 3755.0 | 3750.5 | 3741.6 |
| 10°   | 3719.3 | 3719.3 | 3714.8 | 3692.5 | 3688.0 |
| 12.5° | 3647.9 | 3643.4 | 3625.5 | 3594.3 | 3585.3 |
| 15°   | 3549.6 | 3549.6 | 3513.9 | 3478.2 | 3464.8 |
| 17.5° | 3442.5 | 3438.0 | 3393.4 | 3357.6 | 3339.8 |
| 20°   | 3326.4 | 3317.4 | 3272.8 | 3214.8 | 3183.5 |
| 22.5° | 3196.9 | 3196.9 | 3143.3 | 3067.4 | 3036.2 |
| 25°   | 3076.3 | 3058.5 | 3009.4 | 2902.2 | 2821.8 |
| 27.5° | 2937.9 | 2911.1 | 2857.6 | 2705.8 | 2612.0 |
| 30°   | 2786.1 | 2772.7 | 2696.8 | 2500.4 | 2428.9 |
| 32.5° | 2643.2 | 2620.9 | 2540.5 | 2335.2 | 2277.1 |
| 35°   | 2495.9 | 2478.0 | 2357.5 | 2178.9 | 2125.3 |
| 37.5° | 2348.6 | 2326.2 | 2174.4 | 2031.5 | 1964.6 |
| 40°   | 2201.2 | 2174.4 | 2009.2 | 1879.7 | 1808.3 |
| 42.5° | 2062.8 | 2027.1 | 1866.3 | 1727.9 | 1647.6 |
| 45°   | 1915.5 | 1875.3 | 1714.5 | 1571.7 | 1509.1 |
| 47.5° | 1768.1 | 1732.4 | 1585.1 | 1437.7 | 1366.3 |
| 50°   | 1611.8 | 1580.6 | 1446.6 | 1299.3 | 1223.4 |
| 52.5° | 1482.4 | 1433.2 | 1303.8 | 1156.4 | 1093.9 |
| 55°   | 1330.6 | 1290.4 | 1169.8 | 1031.4 | 977.8  |
| 57.5° | 1192.1 | 1152.0 | 1040.3 | 910.8  | 866.2  |
| 60°   | 1062.7 | 1004.6 | 910.8  | 799.2  | 763.5  |
| 62.5° | 919.8  | 875.1  | 794.8  | 701.0  | 745.6  |
| 65°   | 790.3  | 745.6  | 674.2  | 687.6  | 571.5  |
| 67.5° | 647.4  | 625.1  | 562.6  | 500.1  | 482.2  |
| 70°   | 526.9  | 500.1  | 477.7  | 410.8  | 392.9  |
| 72.5° | 419.7  | 392.9  | 361.7  | 325.9  | 312.5  |
| 75°   | 317.0  | 294.7  | 276.8  | 263.4  | 290.2  |
| 77.5° | 218.8  | 209.9  | 196.5  | 183.1  | 178.6  |
| 80°   | 142.9  | 138.4  | 133.9  | 129.5  | 125.0  |
| 82.5° | 84.8   | 84.8   | 84.8   | 84.8   | 84.8   |
| 85°   | 44.6   | 49.1   | 53.6   | 58.0   | 62.5   |
| 87.5° | 26.8   | 26.8   | 31.3   | 35.7   | 40.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)