

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: P563408

Luminaire Tested: FSR-24-4-LD4-3LO-50-UNV-82-84-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563408  
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-82-84-EDD-90  
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI  
LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

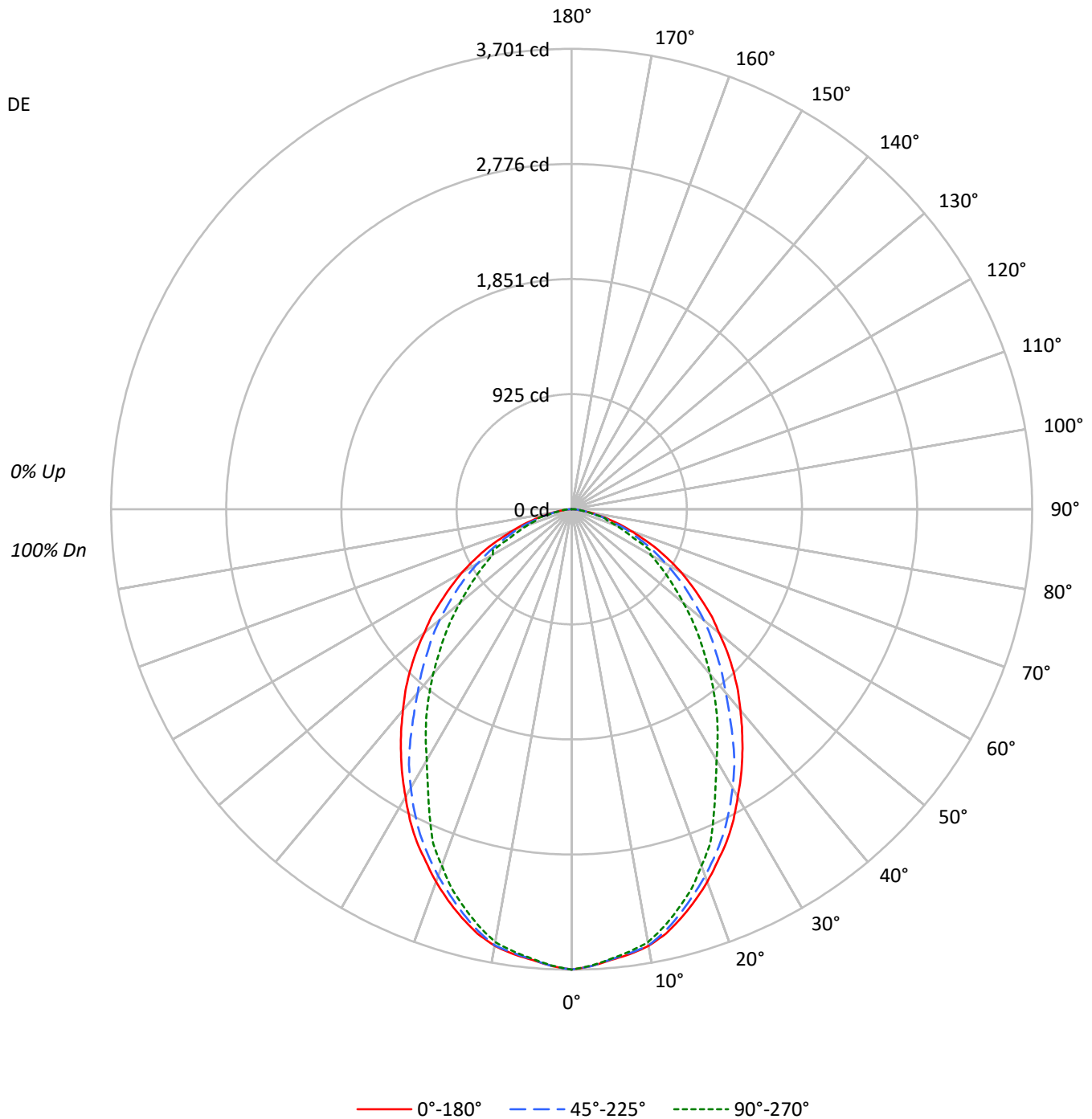
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7265.0 lumens  
Efficiency: N/A  
Efficacy: 103.5 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



TEST NUMBER: P563408  
CATALOG NUMBER: FSR-24-4-LD4-3LO-50-UNV-82-84-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P563408

CATALOG NUMBER: FSR-24-4-LD4-3LO-50-UNV-82-84-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  | 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  |    |    |    |    | 87  |   |  |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 79  | 77  | 75  |    |    |    |    | 75  |   |  |   |
| 3   | 93  | 84  | 77  | 71  | 91  | 82  | 76  | 70  | 79  | 74  | 69  | 77  | 72  | 68  | 74  | 70  | 67  | 65  |    |    |    |    | 65  |   |  |   |
| 4   | 86  | 75  | 67  | 61  | 84  | 74  | 66  | 61  | 72  | 65  | 60  | 69  | 64  | 59  | 67  | 62  | 58  | 56  |    |    |    |    | 56  |   |  |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 59  | 53  | 65  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 52  | 50  |    |    |    |    | 50  |   |  |   |
| 6   | 74  | 62  | 53  | 48  | 72  | 61  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 47  | 56  | 50  | 46  | 44  |    |    |    |    | 44  |   |  |   |
| 7   | 69  | 56  | 48  | 43  | 67  | 56  | 48  | 42  | 54  | 47  | 42  | 53  | 46  | 42  | 51  | 46  | 42  | 40  |    |    |    |    | 40  |   |  |   |
| 8   | 65  | 52  | 44  | 38  | 63  | 51  | 44  | 38  | 50  | 43  | 38  | 49  | 42  | 38  | 48  | 42  | 38  | 36  |    |    |    |    | 36  |   |  |   |
| 9   | 61  | 48  | 40  | 35  | 59  | 47  | 40  | 35  | 46  | 39  | 35  | 45  | 39  | 34  | 44  | 38  | 34  | 33  |    |    |    |    | 33  |   |  |   |
| 10  | 57  | 44  | 37  | 32  | 56  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 32  | 41  | 36  | 32  | 30  |    |    |    |    | 30  |   |  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4979 | 4979 | 4979 |
| 5°  | 4912 | 4906 | 4900 |
| 10° | 4869 | 4863 | 4828 |
| 15° | 4738 | 4690 | 4624 |
| 20° | 4564 | 4490 | 4368 |
| 25° | 4376 | 4281 | 4014 |
| 30° | 4148 | 4015 | 3616 |
| 35° | 3928 | 3710 | 3345 |
| 40° | 3705 | 3381 | 3043 |
| 45° | 3492 | 3126 | 2752 |
| 50° | 3233 | 2902 | 2454 |
| 55° | 2991 | 2629 | 2198 |
| 60° | 2740 | 2349 | 1969 |
| 65° | 2411 | 2057 | 1743 |
| 70° | 1986 | 1801 | 1481 |
| 75° | 1579 | 1379 | 1446 |
| 80° | 1061 | 994  | 928  |
| 85° | 661  | 792  | 925  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3492 cd/sqm



TEST NUMBER: P563408

CATALOG NUMBER: FSR-24-4-LD4-3LO-50-UNV-82-84-EDD-90

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 344.5  | 4.7       |
| 10°-20°   | 945.4  | 13.0      |
| 20°-30°   | 1308.9 | 18.0      |
| 30°-40°   | 1395.6 | 19.2      |
| 40°-50°   | 1273.2 | 17.5      |
| 50°-60°   | 997.5  | 13.7      |
| 60°-70°   | 650.1  | 8.9       |
| 70°-80°   | 288.0  | 4.0       |
| 80°-90°   | 61.8   | 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°    | 2598.7 | 35.8      |
| 0°-40°    | 3994.4 | 55.0      |
| 0°-60°    | 6265.0 | 86.2      |
| 0°-90°    | 7265.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7265.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3701 | 3701  | 3701 | 3701  | 3701 |      |
| 5°  | 3636 | 3632  | 3632 | 3628  | 3628 | 345  |
| 15° | 3401 | 3401  | 3367 | 3333  | 3320 | 956  |
| 25° | 2948 | 2931  | 2884 | 2781  | 2704 | 1353 |
| 35° | 2392 | 2374  | 2259 | 2088  | 2036 | 1495 |
| 45° | 1835 | 1797  | 1643 | 1506  | 1446 | 1414 |
| 55° | 1275 | 1236  | 1121 | 988   | 937  | 1144 |
| 65° | 757  | 714   | 646  | 659   | 548  | 746  |
| 75° | 304  | 282   | 265  | 252   | 278  | 326  |
| 85° | 43   | 47    | 51   | 56    | 60   | 59   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



TEST NUMBER: P563408

CATALOG NUMBER: FSR-24-4-LD4-3LO-50-UNV-82-84-EDD-90

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3700.7 | 3700.7 | 3700.7 | 3700.7 | 3700.7 |
| 2.5°  | 3675.0 | 3675.0 | 3675.0 | 3670.7 | 3670.7 |
| 5°    | 3636.5 | 3632.2 | 3632.2 | 3628.0 | 3628.0 |
| 7.5°  | 3606.6 | 3602.3 | 3598.0 | 3593.7 | 3585.2 |
| 10°   | 3563.8 | 3563.8 | 3559.5 | 3538.1 | 3533.8 |
| 12.5° | 3495.3 | 3491.1 | 3473.9 | 3444.0 | 3435.4 |
| 15°   | 3401.2 | 3401.2 | 3367.0 | 3332.8 | 3319.9 |
| 17.5° | 3298.5 | 3294.3 | 3251.5 | 3217.3 | 3200.1 |
| 20°   | 3187.3 | 3178.7 | 3136.0 | 3080.3 | 3050.4 |
| 22.5° | 3063.2 | 3063.2 | 3011.9 | 2939.2 | 2909.2 |
| 25°   | 2947.7 | 2930.6 | 2883.5 | 2780.9 | 2703.9 |
| 27.5° | 2815.1 | 2789.4 | 2738.1 | 2592.6 | 2502.8 |
| 30°   | 2669.6 | 2656.8 | 2584.1 | 2395.8 | 2327.4 |
| 32.5° | 2532.7 | 2511.3 | 2434.3 | 2237.5 | 2181.9 |
| 35°   | 2391.5 | 2374.4 | 2258.9 | 2087.8 | 2036.5 |
| 37.5° | 2250.4 | 2229.0 | 2083.5 | 1946.6 | 1882.4 |
| 40°   | 2109.2 | 2083.5 | 1925.2 | 1801.1 | 1732.7 |
| 42.5° | 1976.6 | 1942.3 | 1788.3 | 1655.7 | 1578.7 |
| 45°   | 1835.4 | 1796.9 | 1642.9 | 1505.9 | 1446.1 |
| 47.5° | 1694.2 | 1660.0 | 1518.8 | 1377.6 | 1309.1 |
| 50°   | 1544.5 | 1514.5 | 1386.2 | 1245.0 | 1172.2 |
| 52.5° | 1420.4 | 1373.3 | 1249.3 | 1108.1 | 1048.2 |
| 55°   | 1274.9 | 1236.4 | 1120.9 | 988.3  | 936.9  |
| 57.5° | 1142.3 | 1103.8 | 996.8  | 872.8  | 830.0  |
| 60°   | 1018.2 | 962.6  | 872.8  | 765.8  | 731.6  |
| 62.5° | 881.3  | 838.5  | 761.5  | 671.7  | 714.5  |
| 65°   | 757.3  | 714.5  | 646.0  | 658.9  | 547.6  |
| 67.5° | 620.3  | 599.0  | 539.1  | 479.2  | 462.1  |
| 70°   | 504.8  | 479.2  | 457.8  | 393.6  | 376.5  |
| 72.5° | 402.2  | 376.5  | 346.5  | 312.3  | 299.5  |
| 75°   | 303.8  | 282.4  | 265.3  | 252.4  | 278.1  |
| 77.5° | 209.6  | 201.1  | 188.2  | 175.4  | 171.1  |
| 80°   | 136.9  | 132.6  | 128.3  | 124.1  | 119.8  |
| 82.5° | 81.3   | 81.3   | 81.3   | 81.3   | 81.3   |
| 85°   | 42.8   | 47.1   | 51.3   | 55.6   | 59.9   |
| 87.5° | 25.7   | 25.7   | 29.9   | 34.2   | 38.5   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)