

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: P563644

Luminaire Tested: FSR-24-4-LD4-4HI-35-UNV-80-96-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563644  
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-LD4-4HI-35-UNV-80-96-EDD-90  
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

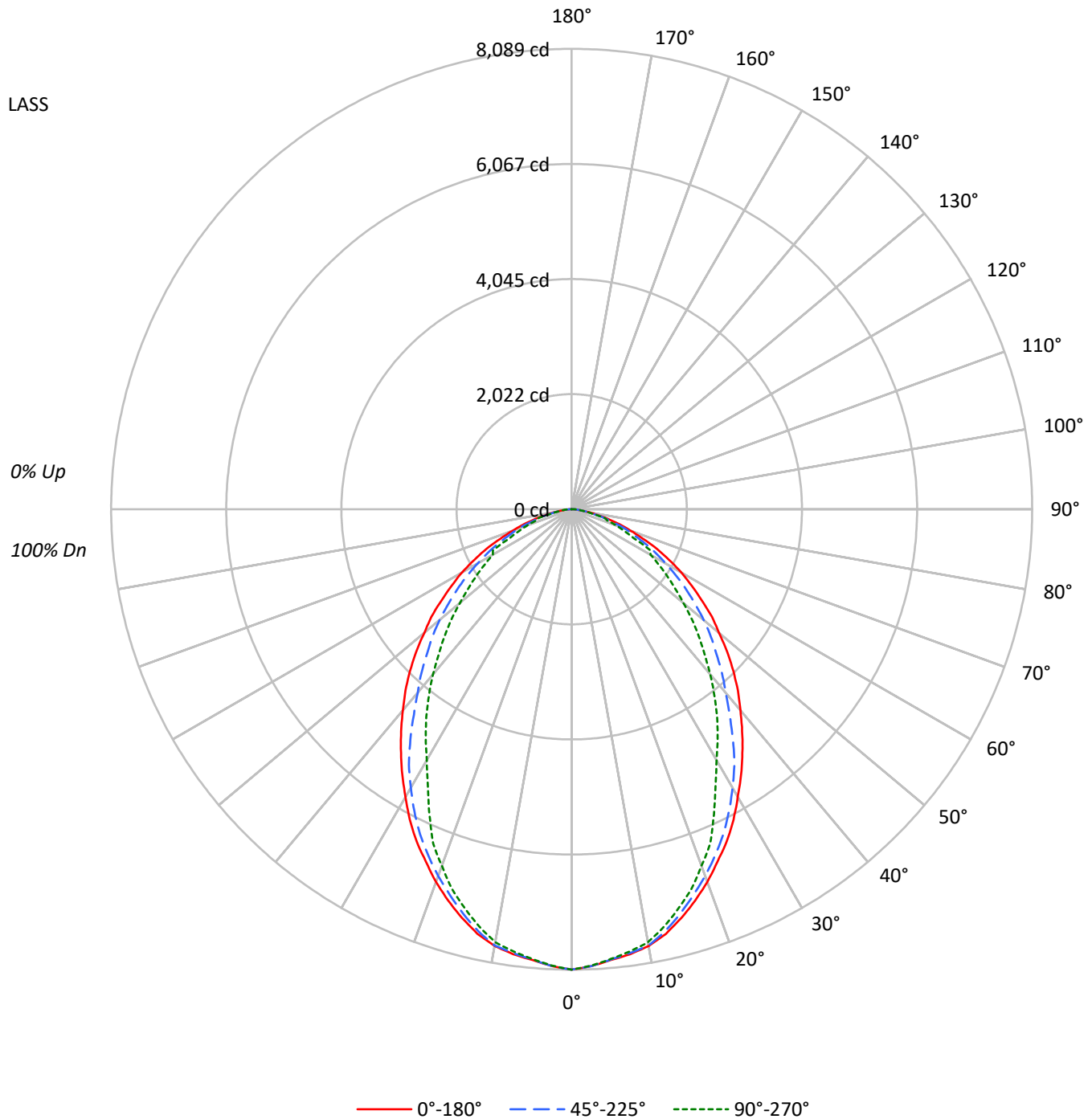
Lumens per Lamp: N/A  
Luminaire Lumens: 15880.0 lumens  
Efficiency: N/A  
Efficacy: 91.9 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 172.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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: P563644

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-80-96-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P563644

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-80-96-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  | 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°  | 10884 | 10884 | 10884 |
| 5°  | 10736 | 10723 | 10711 |
| 10° | 10643 | 10630 | 10553 |
| 15° | 10356 | 10252 | 10108 |
| 20° | 9975  | 9815  | 9547  |
| 25° | 9565  | 9357  | 8774  |
| 30° | 9066  | 8775  | 7904  |
| 35° | 8586  | 8110  | 7311  |
| 40° | 8098  | 7391  | 6652  |
| 45° | 7634  | 6833  | 6014  |
| 50° | 7066  | 6342  | 5363  |
| 55° | 6537  | 5747  | 4804  |
| 60° | 5989  | 5134  | 4303  |
| 65° | 5270  | 4496  | 3811  |
| 70° | 4341  | 3936  | 3237  |
| 75° | 3452  | 3014  | 3160  |
| 80° | 2318  | 2173  | 2029  |
| 85° | 1443  | 1732  | 2021  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7634 cd/sqm



TEST NUMBER: P563644

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-80-96-EDD-90

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 753.0   | 4.7       |
| 10°-20°   | 2066.5  | 13.0      |
| 20°-30°   | 2860.9  | 18.0      |
| 30°-40°   | 3050.6  | 19.2      |
| 40°-50°   | 2783.0  | 17.5      |
| 50°-60°   | 2180.3  | 13.7      |
| 60°-70°   | 1421.0  | 8.9       |
| 70°-80°   | 629.6   | 4.0       |
| 80°-90°   | 135.2   | 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°    | 5680.4  | 35.8      |
| 0°-40°    | 8731.0  | 55.0      |
| 0°-60°    | 13694.3 | 86.2      |
| 0°-90°    | 15880.0 | 100.0     |
| 90°-120°  | 0.0     | 0.0       |
| 90°-150°  | 0.0     | 0.0       |
| 90°-180°  | 0.0     | 0.0       |
| 0°-180°   | 15880.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 8089 | 8089  | 8089 | 8089  | 8089 |      |
| 5°  | 7949 | 7939  | 7939 | 7930  | 7930 | 755  |
| 15° | 7434 | 7434  | 7360 | 7285  | 7257 | 2090 |
| 25° | 6443 | 6406  | 6303 | 6078  | 5910 | 2958 |
| 35° | 5228 | 5190  | 4938 | 4564  | 4451 | 3268 |
| 45° | 4012 | 3928  | 3591 | 3292  | 3161 | 3090 |
| 55° | 2787 | 2703  | 2450 | 2160  | 2048 | 2500 |
| 65° | 1655 | 1562  | 1412 | 1440  | 1197 | 1631 |
| 75° | 664  | 617   | 580  | 552   | 608  | 712  |
| 85° | 94   | 103   | 112  | 122   | 131  | 130  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



TEST NUMBER: P563644

CATALOG NUMBER: FSR-24-4-LD4-4HI-35-UNV-80-96-EDD-90

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 8089.1 | 8089.1 | 8089.1 | 8089.1 | 8089.1 |
| 2.5°  | 8033.0 | 8033.0 | 8033.0 | 8023.6 | 8023.6 |
| 5°    | 7948.8 | 7939.4 | 7939.4 | 7930.1 | 7930.1 |
| 7.5°  | 7883.3 | 7874.0 | 7864.6 | 7855.3 | 7836.6 |
| 10°   | 7789.8 | 7789.8 | 7780.5 | 7733.7 | 7724.4 |
| 12.5° | 7640.2 | 7630.8 | 7593.4 | 7528.0 | 7509.3 |
| 15°   | 7434.5 | 7434.5 | 7359.6 | 7284.8 | 7256.8 |
| 17.5° | 7210.0 | 7200.7 | 7107.2 | 7032.3 | 6994.9 |
| 20°   | 6966.9 | 6948.2 | 6854.7 | 6733.1 | 6667.6 |
| 22.5° | 6695.7 | 6695.7 | 6583.5 | 6424.5 | 6359.0 |
| 25°   | 6443.2 | 6405.8 | 6302.9 | 6078.5 | 5910.2 |
| 27.5° | 6153.3 | 6097.2 | 5985.0 | 5667.0 | 5470.6 |
| 30°   | 5835.3 | 5807.3 | 5648.3 | 5236.8 | 5087.2 |
| 32.5° | 5536.1 | 5489.3 | 5321.0 | 4890.8 | 4769.3 |
| 35°   | 5227.5 | 5190.1 | 4937.6 | 4563.5 | 4451.3 |
| 37.5° | 4918.9 | 4872.1 | 4554.2 | 4254.9 | 4114.7 |
| 40°   | 4610.3 | 4554.2 | 4208.2 | 3937.0 | 3787.4 |
| 42.5° | 4320.4 | 4245.6 | 3908.9 | 3619.0 | 3450.7 |
| 45°   | 4011.8 | 3927.6 | 3591.0 | 3291.7 | 3160.8 |
| 47.5° | 3703.2 | 3628.4 | 3319.8 | 3011.2 | 2861.6 |
| 50°   | 3375.9 | 3310.4 | 3029.9 | 2721.3 | 2562.3 |
| 52.5° | 3104.7 | 3001.8 | 2730.6 | 2422.0 | 2291.1 |
| 55°   | 2786.8 | 2702.6 | 2450.1 | 2160.2 | 2048.0 |
| 57.5° | 2496.9 | 2412.7 | 2178.9 | 1907.7 | 1814.2 |
| 60°   | 2225.7 | 2104.1 | 1907.7 | 1673.9 | 1599.1 |
| 62.5° | 1926.4 | 1832.9 | 1664.6 | 1468.2 | 1561.7 |
| 65°   | 1655.2 | 1561.7 | 1412.1 | 1440.1 | 1197.0 |
| 67.5° | 1356.0 | 1309.2 | 1178.3 | 1047.4 | 1010.0 |
| 70°   | 1103.5 | 1047.4 | 1000.6 | 860.3  | 822.9  |
| 72.5° | 879.0  | 822.9  | 757.5  | 682.7  | 654.6  |
| 75°   | 664.0  | 617.2  | 579.8  | 551.7  | 607.8  |
| 77.5° | 458.2  | 439.5  | 411.5  | 383.4  | 374.1  |
| 80°   | 299.2  | 289.9  | 280.5  | 271.2  | 261.8  |
| 82.5° | 177.7  | 177.7  | 177.7  | 177.7  | 177.7  |
| 85°   | 93.5   | 102.9  | 112.2  | 121.6  | 130.9  |
| 87.5° | 56.1   | 56.1   | 65.5   | 74.8   | 84.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)