

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: P561013

Luminaire Tested: FSR-12-4-LD4-1LO-40-UNV-80-86-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561013  
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-LD4-1LO-40-UNV-80-86-EDD  
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR PC ENVIRON  
SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

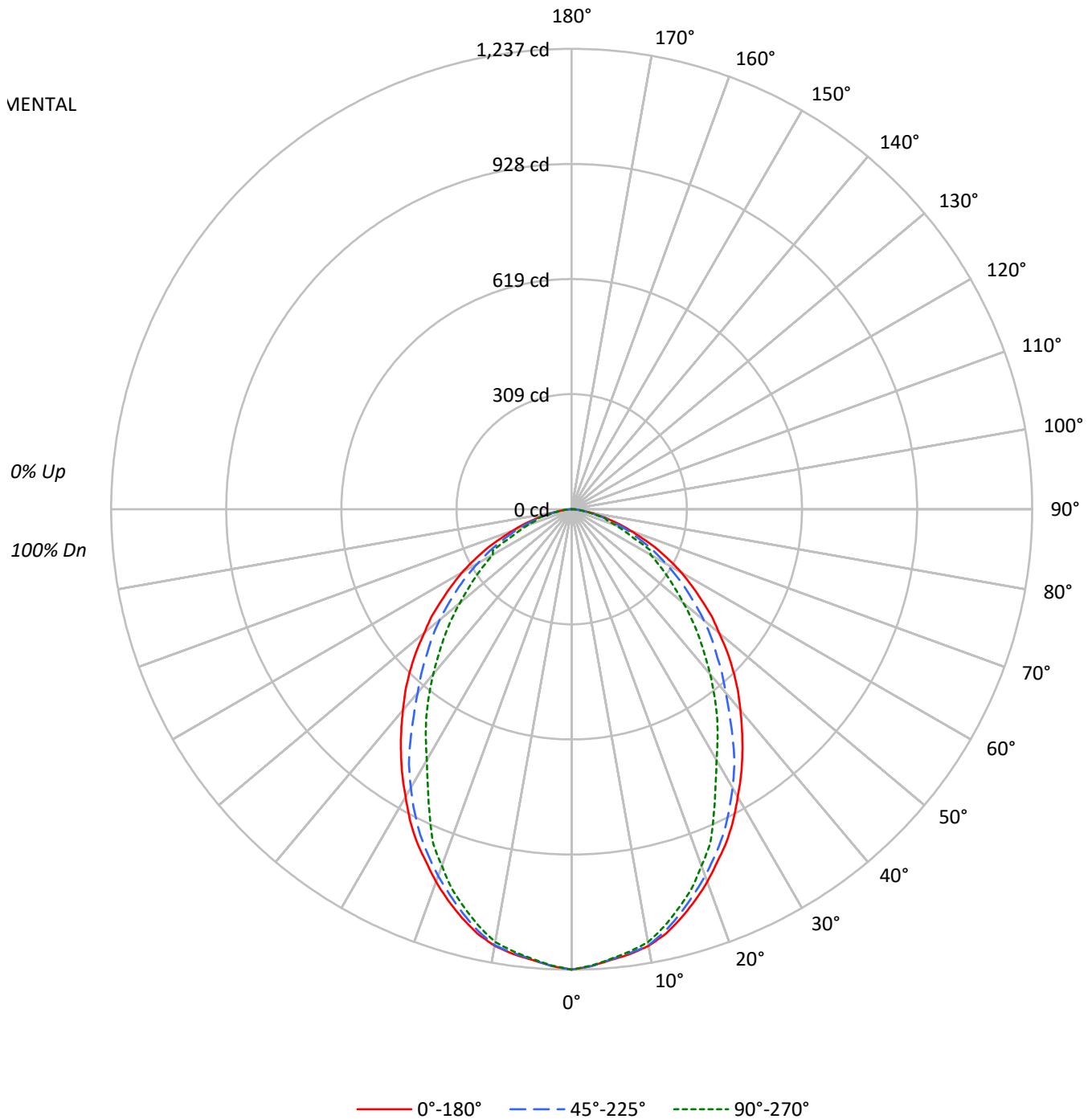
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2428.0 lumens  
Efficiency: N/A  
Efficacy: 103.8 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): 23.4  
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°  | 3328 | 3328 | 3328 |
| 5°  | 3283 | 3279 | 3275 |
| 10° | 3254 | 3251 | 3227 |
| 15° | 3167 | 3135 | 3091 |
| 20° | 3050 | 3001 | 2920 |
| 25° | 2925 | 2861 | 2683 |
| 30° | 2772 | 2683 | 2417 |
| 35° | 2626 | 2480 | 2236 |
| 40° | 2476 | 2260 | 2034 |
| 45° | 2334 | 2089 | 1839 |
| 50° | 2161 | 1940 | 1640 |
| 55° | 1999 | 1757 | 1469 |
| 60° | 1831 | 1570 | 1316 |
| 65° | 1612 | 1375 | 1165 |
| 70° | 1327 | 1204 | 990  |
| 75° | 1055 | 921  | 966  |
| 80° | 710  | 665  | 620  |
| 85° | 442  | 531  | 618  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2334 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 115.1  | 4.7       |
| 10°-20°   | 316.0  | 13.0      |
| 20°-30°   | 437.4  | 18.0      |
| 30°-40°   | 466.4  | 19.2      |
| 40°-50°   | 425.5  | 17.5      |
| 50°-60°   | 333.4  | 13.7      |
| 60°-70°   | 217.3  | 8.9       |
| 70°-80°   | 96.3   | 4.0       |
| 80°-90°   | 20.7   | 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°    | 868.5  | 35.8      |
| 0°-40°    | 1334.9 | 55.0      |
| 0°-60°    | 2093.8 | 86.2      |
| 0°-90°    | 2428.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2428.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1237 | 1237  | 1237 | 1237  | 1237 |      |
| 5°  | 1215 | 1214  | 1214 | 1212  | 1212 | 115  |
| 15° | 1137 | 1137  | 1125 | 1114  | 1110 | 320  |
| 25° | 985  | 979   | 964  | 929   | 904  | 452  |
| 35° | 799  | 794   | 755  | 698   | 681  | 500  |
| 45° | 613  | 600   | 549  | 503   | 483  | 472  |
| 55° | 426  | 413   | 375  | 330   | 313  | 382  |
| 65° | 253  | 239   | 216  | 220   | 183  | 249  |
| 75° | 102  | 94    | 89   | 84    | 93   | 109  |
| 85° | 14   | 16    | 17   | 19    | 20   | 20   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1236.8 | 1236.8 | 1236.8 | 1236.8 | 1236.8 |
| 2.5°  | 1228.2 | 1228.2 | 1228.2 | 1226.8 | 1226.8 |
| 5°    | 1215.3 | 1213.9 | 1213.9 | 1212.5 | 1212.5 |
| 7.5°  | 1205.3 | 1203.9 | 1202.5 | 1201.0 | 1198.2 |
| 10°   | 1191.0 | 1191.0 | 1189.6 | 1182.5 | 1181.0 |
| 12.5° | 1168.2 | 1166.7 | 1161.0 | 1151.0 | 1148.1 |
| 15°   | 1136.7 | 1136.7 | 1125.3 | 1113.8 | 1109.5 |
| 17.5° | 1102.4 | 1101.0 | 1086.7 | 1075.2 | 1069.5 |
| 20°   | 1065.2 | 1062.4 | 1048.1 | 1029.5 | 1019.5 |
| 22.5° | 1023.7 | 1023.7 | 1006.6 | 982.3  | 972.3  |
| 25°   | 985.1  | 979.4  | 963.7  | 929.4  | 903.6  |
| 27.5° | 940.8  | 932.2  | 915.1  | 866.5  | 836.4  |
| 30°   | 892.2  | 887.9  | 863.6  | 800.7  | 777.8  |
| 32.5° | 846.5  | 839.3  | 813.6  | 747.8  | 729.2  |
| 35°   | 799.3  | 793.5  | 754.9  | 697.8  | 680.6  |
| 37.5° | 752.1  | 744.9  | 696.3  | 650.6  | 629.1  |
| 40°   | 704.9  | 696.3  | 643.4  | 602.0  | 579.1  |
| 42.5° | 660.6  | 649.1  | 597.7  | 553.3  | 527.6  |
| 45°   | 613.4  | 600.5  | 549.0  | 503.3  | 483.3  |
| 47.5° | 566.2  | 554.8  | 507.6  | 460.4  | 437.5  |
| 50°   | 516.2  | 506.2  | 463.3  | 416.1  | 391.8  |
| 52.5° | 474.7  | 459.0  | 417.5  | 370.3  | 350.3  |
| 55°   | 426.1  | 413.2  | 374.6  | 330.3  | 313.1  |
| 57.5° | 381.8  | 368.9  | 333.1  | 291.7  | 277.4  |
| 60°   | 340.3  | 321.7  | 291.7  | 255.9  | 244.5  |
| 62.5° | 294.5  | 280.2  | 254.5  | 224.5  | 238.8  |
| 65°   | 253.1  | 238.8  | 215.9  | 220.2  | 183.0  |
| 67.5° | 207.3  | 200.2  | 180.2  | 160.1  | 154.4  |
| 70°   | 168.7  | 160.1  | 153.0  | 131.5  | 125.8  |
| 72.5° | 134.4  | 125.8  | 115.8  | 104.4  | 100.1  |
| 75°   | 101.5  | 94.4   | 88.6   | 84.4   | 92.9   |
| 77.5° | 70.1   | 67.2   | 62.9   | 58.6   | 57.2   |
| 80°   | 45.8   | 44.3   | 42.9   | 41.5   | 40.0   |
| 82.5° | 27.2   | 27.2   | 27.2   | 27.2   | 27.2   |
| 85°   | 14.3   | 15.7   | 17.2   | 18.6   | 20.0   |
| 87.5° | 8.6    | 8.6    | 10.0   | 11.4   | 12.9   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)