

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: P561079

Luminaire Tested: FSR-12-4-LD4-1LO-50-UNV-80-87-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561079  
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-50-UNV-80-87-EDD  
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2389.0 lumens  
Efficiency: N/A  
Efficacy: 102.1 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

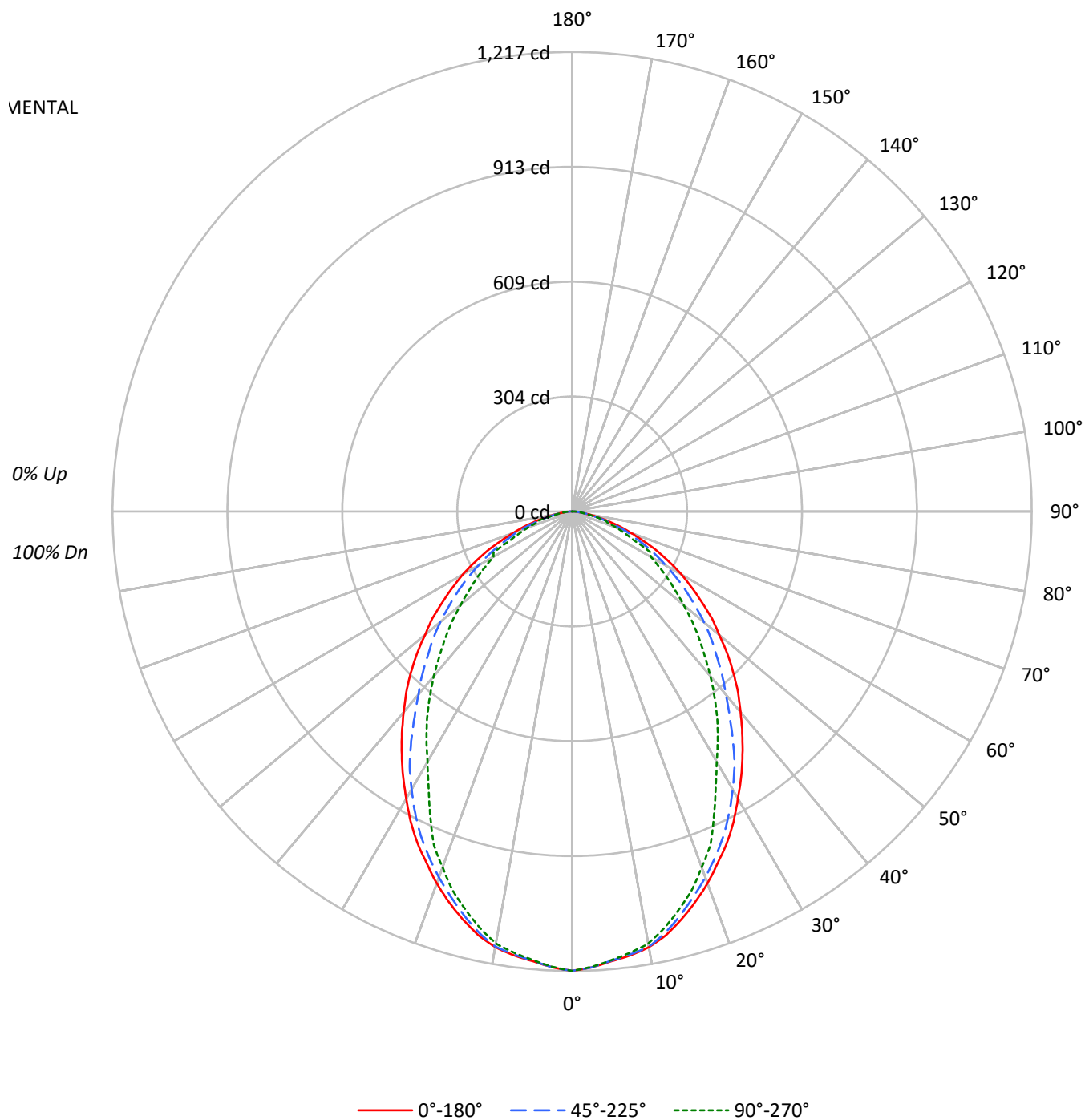
Input Watts (W): 23.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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  |
| RW  | 70  | 50  | 30  | 10  |  | 70  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  | 30  | 10  |  | 50  | 30  | 10  |
| RCR |     |     |     |     |  |     |     |     |     |  |     |     |     |  |     |     |     |  |     |     |     |
| 0   | 119 | 119 | 119 | 119 |  | 116 | 116 | 116 | 116 |  | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 102 | 102 | 102 |
| 1   | 110 | 106 | 102 | 99  |  | 108 | 104 | 100 | 97  |  | 100 | 97  | 94  |  | 96  | 94  | 91  |  | 92  | 90  | 89  |
| 2   | 101 | 94  | 88  | 83  |  | 99  | 92  | 87  | 82  |  | 89  | 84  | 80  |  | 86  | 82  | 78  |  | 83  | 79  | 77  |
| 3   | 93  | 84  | 77  | 71  |  | 91  | 82  | 76  | 70  |  | 79  | 74  | 69  |  | 77  | 72  | 68  |  | 74  | 70  | 67  |
| 4   | 86  | 75  | 67  | 61  |  | 84  | 74  | 66  | 61  |  | 72  | 65  | 60  |  | 69  | 64  | 59  |  | 67  | 62  | 58  |
| 5   | 80  | 68  | 60  | 54  |  | 78  | 67  | 59  | 53  |  | 65  | 58  | 53  |  | 63  | 57  | 52  |  | 61  | 56  | 52  |
| 6   | 74  | 62  | 53  | 48  |  | 72  | 61  | 53  | 47  |  | 59  | 52  | 47  |  | 57  | 51  | 47  |  | 56  | 50  | 46  |
| 7   | 69  | 56  | 48  | 43  |  | 67  | 56  | 48  | 42  |  | 54  | 47  | 42  |  | 53  | 46  | 42  |  | 51  | 46  | 42  |
| 8   | 65  | 52  | 44  | 38  |  | 63  | 51  | 44  | 38  |  | 50  | 43  | 38  |  | 49  | 42  | 38  |  | 48  | 42  | 38  |
| 9   | 61  | 48  | 40  | 35  |  | 59  | 47  | 40  | 35  |  | 46  | 39  | 35  |  | 45  | 39  | 34  |  | 44  | 38  | 34  |
| 10  | 57  | 44  | 37  | 32  |  | 56  | 44  | 37  | 32  |  | 43  | 36  | 32  |  | 42  | 36  | 32  |  | 41  | 36  | 32  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3275 | 3275 | 3275 |
| 5°  | 3230 | 3226 | 3223 |
| 10° | 3202 | 3198 | 3175 |
| 15° | 3116 | 3085 | 3041 |
| 20° | 3001 | 2953 | 2873 |
| 25° | 2878 | 2815 | 2640 |
| 30° | 2728 | 2640 | 2378 |
| 35° | 2583 | 2440 | 2200 |
| 40° | 2436 | 2224 | 2002 |
| 45° | 2297 | 2056 | 1810 |
| 50° | 2126 | 1908 | 1614 |
| 55° | 1967 | 1729 | 1445 |
| 60° | 1802 | 1545 | 1295 |
| 65° | 1585 | 1352 | 1147 |
| 70° | 1306 | 1184 | 974  |
| 75° | 1039 | 907  | 950  |
| 80° | 697  | 654  | 611  |
| 85° | 435  | 522  | 608  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2297 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 113.3  | 4.7       |
| 10°-20°   | 310.9  | 13.0      |
| 20°-30°   | 430.4  | 18.0      |
| 30°-40°   | 458.9  | 19.2      |
| 40°-50°   | 418.7  | 17.5      |
| 50°-60°   | 328.0  | 13.7      |
| 60°-70°   | 213.8  | 8.9       |
| 70°-80°   | 94.7   | 4.0       |
| 80°-90°   | 20.3   | 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°    | 854.6  | 35.8      |
| 0°-40°    | 1313.5 | 55.0      |
| 0°-60°    | 2060.2 | 86.2      |
| 0°-90°    | 2389.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2389.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1217 | 1217  | 1217 | 1217  | 1217 |      |
| 5°  | 1196 | 1194  | 1194 | 1193  | 1193 | 114  |
| 15° | 1118 | 1118  | 1107 | 1096  | 1092 | 314  |
| 25° | 969  | 964   | 948  | 914   | 889  | 445  |
| 35° | 786  | 781   | 743  | 686   | 670  | 492  |
| 45° | 604  | 591   | 540  | 495   | 476  | 465  |
| 55° | 419  | 407   | 369  | 325   | 308  | 376  |
| 65° | 249  | 235   | 212  | 217   | 180  | 245  |
| 75° | 100  | 93    | 87   | 83    | 91   | 107  |
| 85° | 14   | 16    | 17   | 18    | 20   | 20   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1216.9 | 1216.9 | 1216.9 | 1216.9 | 1216.9 |
| 2.5°  | 1208.5 | 1208.5 | 1208.5 | 1207.1 | 1207.1 |
| 5°    | 1195.8 | 1194.4 | 1194.4 | 1193.0 | 1193.0 |
| 7.5°  | 1186.0 | 1184.6 | 1183.2 | 1181.8 | 1178.9 |
| 10°   | 1171.9 | 1171.9 | 1170.5 | 1163.5 | 1162.1 |
| 12.5° | 1149.4 | 1148.0 | 1142.4 | 1132.5 | 1129.7 |
| 15°   | 1118.4 | 1118.4 | 1107.2 | 1095.9 | 1091.7 |
| 17.5° | 1084.7 | 1083.3 | 1069.2 | 1058.0 | 1052.3 |
| 20°   | 1048.1 | 1045.3 | 1031.2 | 1012.9 | 1003.1 |
| 22.5° | 1007.3 | 1007.3 | 990.4  | 966.5  | 956.7  |
| 25°   | 969.3  | 963.7  | 948.2  | 914.5  | 889.1  |
| 27.5° | 925.7  | 917.3  | 900.4  | 852.6  | 823.0  |
| 30°   | 877.9  | 873.7  | 849.7  | 787.8  | 765.3  |
| 32.5° | 832.9  | 825.8  | 800.5  | 735.8  | 717.5  |
| 35°   | 786.4  | 780.8  | 742.8  | 686.5  | 669.7  |
| 37.5° | 740.0  | 733.0  | 685.1  | 640.1  | 619.0  |
| 40°   | 693.6  | 685.1  | 633.1  | 592.3  | 569.8  |
| 42.5° | 650.0  | 638.7  | 588.1  | 544.5  | 519.1  |
| 45°   | 603.5  | 590.9  | 540.2  | 495.2  | 475.5  |
| 47.5° | 557.1  | 545.9  | 499.4  | 453.0  | 430.5  |
| 50°   | 507.9  | 498.0  | 455.8  | 409.4  | 385.5  |
| 52.5° | 467.1  | 451.6  | 410.8  | 364.4  | 344.7  |
| 55°   | 419.2  | 406.6  | 368.6  | 325.0  | 308.1  |
| 57.5° | 375.6  | 363.0  | 327.8  | 287.0  | 272.9  |
| 60°   | 334.8  | 316.5  | 287.0  | 251.8  | 240.6  |
| 62.5° | 289.8  | 275.7  | 250.4  | 220.9  | 234.9  |
| 65°   | 249.0  | 234.9  | 212.4  | 216.7  | 180.1  |
| 67.5° | 204.0  | 197.0  | 177.3  | 157.6  | 151.9  |
| 70°   | 166.0  | 157.6  | 150.5  | 129.4  | 123.8  |
| 72.5° | 132.2  | 123.8  | 114.0  | 102.7  | 98.5   |
| 75°   | 99.9   | 92.9   | 87.2   | 83.0   | 91.4   |
| 77.5° | 68.9   | 66.1   | 61.9   | 57.7   | 56.3   |
| 80°   | 45.0   | 43.6   | 42.2   | 40.8   | 39.4   |
| 82.5° | 26.7   | 26.7   | 26.7   | 26.7   | 26.7   |
| 85°   | 14.1   | 15.5   | 16.9   | 18.3   | 19.7   |
| 87.5° | 8.4    | 8.4    | 9.8    | 11.3   | 12.7   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)