

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: P560716

Luminaire Tested: FSR-12-2-LD4-2STD-50-UNV-81-96-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560716  
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-12-2-LD4-2STD-50-UNV-81-96-EDD-90  
Description: 1X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

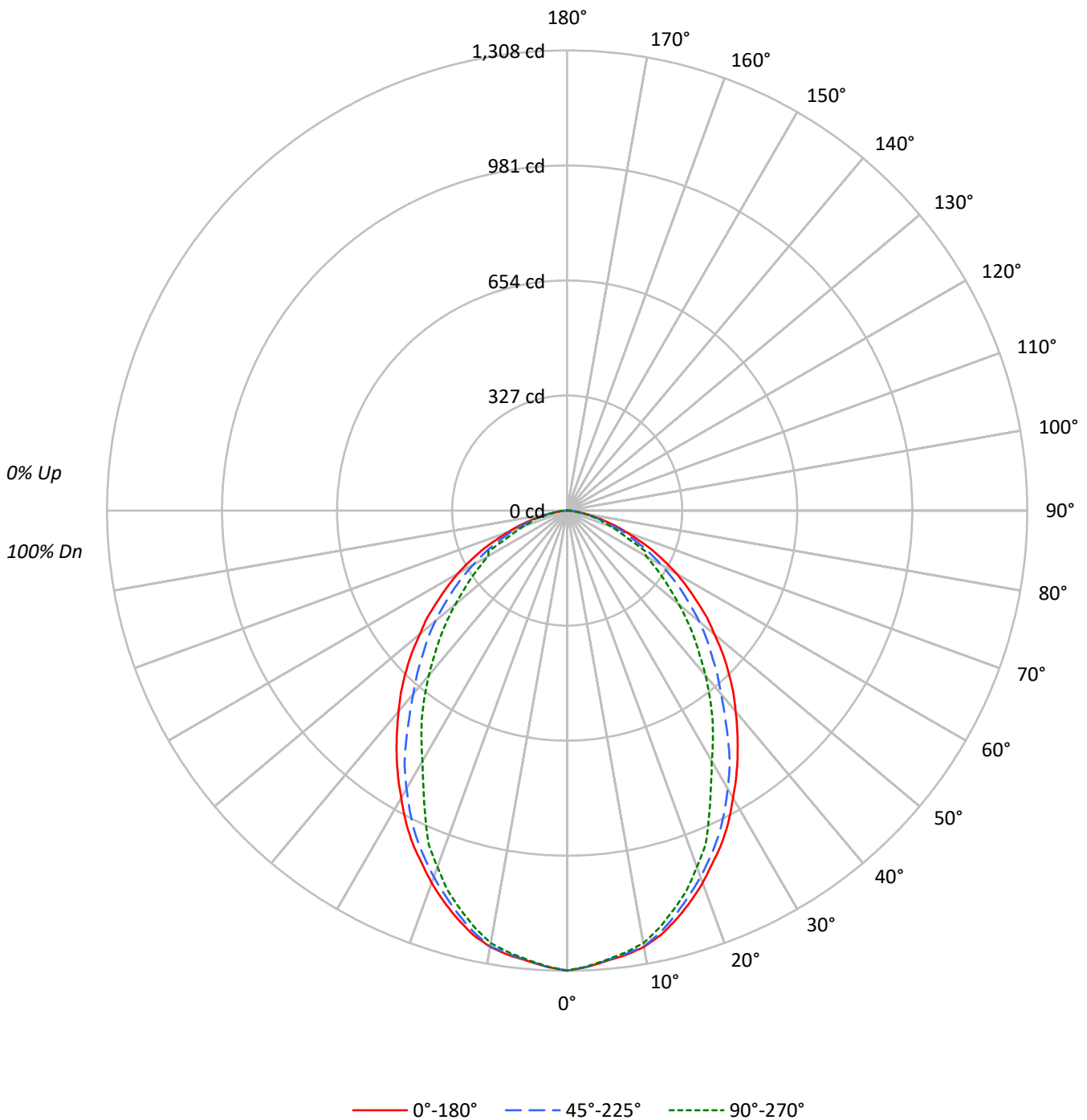
Lumens per Lamp: N/A  
Luminaire Lumens: 2567.0 lumens  
Efficiency: N/A  
Efficacy: 77.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 33.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 110 | 106 | 102 | 99  | 108 | 104 | 100 | 97  | 100 | 97  | 94  | 96  | 94  | 91  | 92  | 90  | 89  | 87  | 87  | 87  | 87  | 87  | 87  | 87  | 87  | 87  | 87  | 87  | 87  | 87  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 79  | 77  | 75  | 75  | 75  | 75  | 75  | 75  | 75  | 75  | 75  | 75  | 75  | 75  | 75  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 93  | 84  | 77  | 71  | 91  | 82  | 76  | 70  | 79  | 74  | 69  | 77  | 72  | 68  | 74  | 70  | 67  | 65  | 65  | 65  | 65  | 65  | 65  | 65  | 65  | 65  | 65  | 65  | 65  | 65  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 86  | 75  | 67  | 61  | 84  | 74  | 66  | 61  | 72  | 65  | 60  | 69  | 64  | 59  | 67  | 62  | 58  | 56  | 56  | 56  | 56  | 56  | 56  | 56  | 56  | 56  | 56  | 56  | 56  | 56  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 59  | 53  | 65  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 52  | 50  | 50  | 50  | 50  | 50  | 50  | 50  | 50  | 50  | 50  | 50  | 50  | 50  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 74  | 62  | 53  | 48  | 72  | 61  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 47  | 56  | 50  | 46  | 44  | 44  | 44  | 44  | 44  | 44  | 44  | 44  | 44  | 44  | 44  | 44  | 44  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 69  | 56  | 48  | 43  | 67  | 56  | 48  | 42  | 54  | 47  | 42  | 53  | 46  | 42  | 51  | 46  | 42  | 40  | 40  | 40  | 40  | 40  | 40  | 40  | 40  | 40  | 40  | 40  | 40  | 40  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 65  | 52  | 44  | 38  | 63  | 51  | 44  | 38  | 50  | 43  | 38  | 49  | 42  | 38  | 48  | 42  | 38  | 36  | 36  | 36  | 36  | 36  | 36  | 36  | 36  | 36  | 36  | 36  | 36  | 36  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 61  | 48  | 40  | 35  | 59  | 47  | 40  | 35  | 46  | 39  | 35  | 45  | 39  | 34  | 44  | 38  | 34  | 33  | 33  | 33  | 33  | 33  | 33  | 33  | 33  | 33  | 33  | 33  | 33  | 33  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 57  | 44  | 37  | 32  | 56  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 32  | 41  | 36  | 32  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 7037 | 7037 | 7037 |
| 5°  | 6942 | 6934 | 6925 |
| 10° | 6882 | 6873 | 6824 |
| 15° | 6696 | 6629 | 6536 |
| 20° | 6450 | 6346 | 6173 |
| 25° | 6185 | 6051 | 5673 |
| 30° | 5862 | 5674 | 5110 |
| 35° | 5552 | 5244 | 4728 |
| 40° | 5236 | 4780 | 4301 |
| 45° | 4936 | 4418 | 3889 |
| 50° | 4569 | 4101 | 3468 |
| 55° | 4227 | 3717 | 3107 |
| 60° | 3873 | 3320 | 2782 |
| 65° | 3408 | 2907 | 2464 |
| 70° | 2807 | 2544 | 2093 |
| 75° | 2231 | 1948 | 2044 |
| 80° | 1500 | 1407 | 1311 |
| 85° | 932  | 1118 | 1309 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4936 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 121.7  | 4.7       |
| 10°-20°   | 334.1  | 13.0      |
| 20°-30°   | 462.5  | 18.0      |
| 30°-40°   | 493.1  | 19.2      |
| 40°-50°   | 449.9  | 17.5      |
| 50°-60°   | 352.4  | 13.7      |
| 60°-70°   | 229.7  | 8.9       |
| 70°-80°   | 101.8  | 4.0       |
| 80°-90°   | 21.8   | 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°    | 918.2  | 35.8      |
| 0°-40°    | 1411.4 | 55.0      |
| 0°-60°    | 2213.7 | 86.2      |
| 0°-90°    | 2567.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2567.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1308 | 1308  | 1308 | 1308  | 1308 |      |
| 5°  | 1285 | 1283  | 1283 | 1282  | 1282 | 122  |
| 15° | 1202 | 1202  | 1190 | 1178  | 1173 | 338  |
| 25° | 1042 | 1036  | 1019 | 983   | 955  | 478  |
| 35° | 845  | 839   | 798  | 738   | 720  | 528  |
| 45° | 648  | 635   | 580  | 532   | 511  | 500  |
| 55° | 450  | 437   | 396  | 349   | 331  | 404  |
| 65° | 268  | 252   | 228  | 233   | 194  | 264  |
| 75° | 107  | 100   | 94   | 89    | 98   | 115  |
| 85° | 15   | 17    | 18   | 20    | 21   | 21   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1307.6 | 1307.6 | 1307.6 | 1307.6 | 1307.6 |
| 2.5°  | 1298.5 | 1298.5 | 1298.5 | 1297.0 | 1297.0 |
| 5°    | 1284.9 | 1283.4 | 1283.4 | 1281.9 | 1281.9 |
| 7.5°  | 1274.3 | 1272.8 | 1271.3 | 1269.8 | 1266.8 |
| 10°   | 1259.2 | 1259.2 | 1257.7 | 1250.2 | 1248.6 |
| 12.5° | 1235.0 | 1233.5 | 1227.5 | 1216.9 | 1213.9 |
| 15°   | 1201.8 | 1201.8 | 1189.7 | 1177.6 | 1173.1 |
| 17.5° | 1165.5 | 1164.0 | 1148.9 | 1136.8 | 1130.7 |
| 20°   | 1126.2 | 1123.2 | 1108.1 | 1088.4 | 1077.8 |
| 22.5° | 1082.4 | 1082.4 | 1064.2 | 1038.5 | 1027.9 |
| 25°   | 1041.5 | 1035.5 | 1018.9 | 982.6  | 955.4  |
| 27.5° | 994.7  | 985.6  | 967.5  | 916.1  | 884.3  |
| 30°   | 943.3  | 938.7  | 913.0  | 846.5  | 822.3  |
| 32.5° | 894.9  | 887.4  | 860.1  | 790.6  | 771.0  |
| 35°   | 845.0  | 839.0  | 798.2  | 737.7  | 719.6  |
| 37.5° | 795.1  | 787.6  | 736.2  | 687.8  | 665.1  |
| 40°   | 745.3  | 736.2  | 680.3  | 636.4  | 612.2  |
| 42.5° | 698.4  | 686.3  | 631.9  | 585.0  | 557.8  |
| 45°   | 648.5  | 634.9  | 580.5  | 532.1  | 510.9  |
| 47.5° | 598.6  | 586.5  | 536.6  | 486.8  | 462.6  |
| 50°   | 545.7  | 535.1  | 489.8  | 439.9  | 414.2  |
| 52.5° | 501.9  | 485.2  | 441.4  | 391.5  | 370.4  |
| 55°   | 450.5  | 436.9  | 396.1  | 349.2  | 331.1  |
| 57.5° | 403.6  | 390.0  | 352.2  | 308.4  | 293.3  |
| 60°   | 359.8  | 340.1  | 308.4  | 270.6  | 258.5  |
| 62.5° | 311.4  | 296.3  | 269.1  | 237.3  | 252.4  |
| 65°   | 267.6  | 252.4  | 228.3  | 232.8  | 193.5  |
| 67.5° | 219.2  | 211.6  | 190.5  | 169.3  | 163.3  |
| 70°   | 178.4  | 169.3  | 161.7  | 139.1  | 133.0  |
| 72.5° | 142.1  | 133.0  | 122.4  | 110.4  | 105.8  |
| 75°   | 107.3  | 99.8   | 93.7   | 89.2   | 98.3   |
| 77.5° | 74.1   | 71.0   | 66.5   | 62.0   | 60.5   |
| 80°   | 48.4   | 46.9   | 45.4   | 43.8   | 42.3   |
| 82.5° | 28.7   | 28.7   | 28.7   | 28.7   | 28.7   |
| 85°   | 15.1   | 16.6   | 18.1   | 19.7   | 21.2   |
| 87.5° | 9.1    | 9.1    | 10.6   | 12.1   | 13.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)