

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: P560696

Luminaire Tested: FSR-12-2-LD4-2STD-50-UNV-80-88-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560696  
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-80-88-EDD-90  
Description: 1X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .500 CLEAR PC ENVIRON  
SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

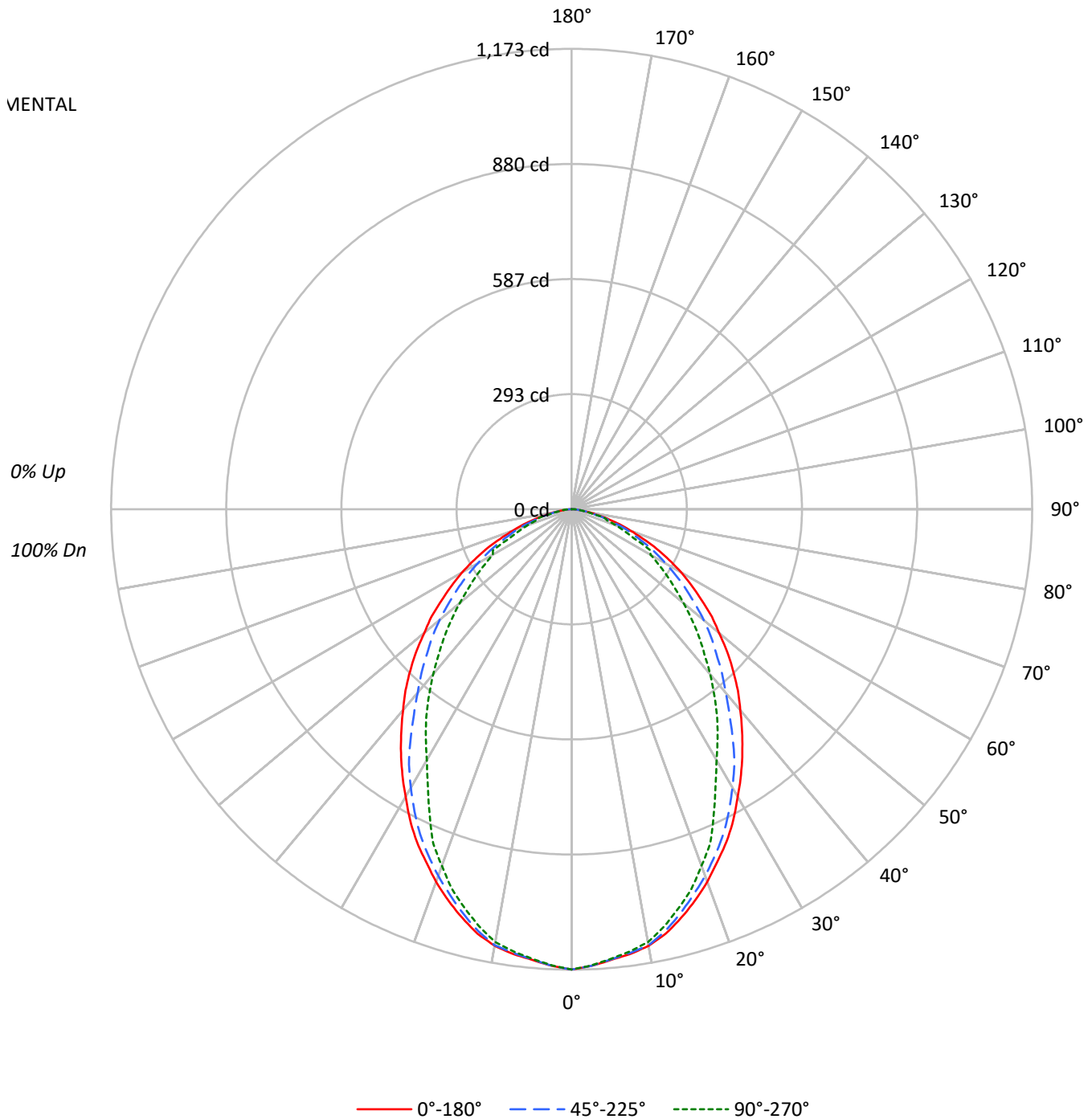
Lumens per Lamp: N/A  
Luminaire Lumens: 2302.0 lumens  
Efficiency: N/A  
Efficacy: 69.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 33.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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 | 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°  | 6311 | 6311 | 6311 |
| 5°  | 6225 | 6218 | 6211 |
| 10° | 6171 | 6164 | 6119 |
| 15° | 6005 | 5945 | 5862 |
| 20° | 5784 | 5691 | 5536 |
| 25° | 5546 | 5426 | 5087 |
| 30° | 5257 | 5088 | 4583 |
| 35° | 4979 | 4703 | 4240 |
| 40° | 4695 | 4286 | 3857 |
| 45° | 4427 | 3962 | 3487 |
| 50° | 4098 | 3677 | 3110 |
| 55° | 3791 | 3333 | 2786 |
| 60° | 3472 | 2976 | 2495 |
| 65° | 3055 | 2607 | 2209 |
| 70° | 2518 | 2283 | 1877 |
| 75° | 2000 | 1747 | 1832 |
| 80° | 1345 | 1261 | 1178 |
| 85° | 840  | 1007 | 1173 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4427 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 109.2  | 4.7       |
| 10°-20°   | 299.6  | 13.0      |
| 20°-30°   | 414.7  | 18.0      |
| 30°-40°   | 442.2  | 19.2      |
| 40°-50°   | 403.4  | 17.5      |
| 50°-60°   | 316.1  | 13.7      |
| 60°-70°   | 206.0  | 8.9       |
| 70°-80°   | 91.3   | 4.0       |
| 80°-90°   | 19.6   | 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°    | 823.4  | 35.8      |
| 0°-40°    | 1265.7 | 55.0      |
| 0°-60°    | 1985.1 | 86.2      |
| 0°-90°    | 2302.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2302.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1173 | 1173  | 1173 | 1173  | 1173 |      |
| 5°  | 1152 | 1151  | 1151 | 1150  | 1150 | 109  |
| 15° | 1078 | 1078  | 1067 | 1056  | 1052 | 303  |
| 25° | 934  | 929   | 914  | 881   | 857  | 429  |
| 35° | 758  | 752   | 716  | 662   | 645  | 474  |
| 45° | 582  | 569   | 521  | 477   | 458  | 448  |
| 55° | 404  | 392   | 355  | 313   | 297  | 362  |
| 65° | 240  | 226   | 205  | 209   | 174  | 236  |
| 75° | 96   | 90    | 84   | 80    | 88   | 103  |
| 85° | 14   | 15    | 16   | 18    | 19   | 19   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1172.6 | 1172.6 | 1172.6 | 1172.6 | 1172.6 |
| 2.5°  | 1164.5 | 1164.5 | 1164.5 | 1163.1 | 1163.1 |
| 5°    | 1152.3 | 1150.9 | 1150.9 | 1149.6 | 1149.6 |
| 7.5°  | 1142.8 | 1141.4 | 1140.1 | 1138.7 | 1136.0 |
| 10°   | 1129.2 | 1129.2 | 1127.9 | 1121.1 | 1119.7 |
| 12.5° | 1107.5 | 1106.2 | 1100.8 | 1091.3 | 1088.6 |
| 15°   | 1077.7 | 1077.7 | 1066.9 | 1056.0 | 1052.0 |
| 17.5° | 1045.2 | 1043.8 | 1030.3 | 1019.4 | 1014.0 |
| 20°   | 1009.9 | 1007.2 | 993.7  | 976.0  | 966.6  |
| 22.5° | 970.6  | 970.6  | 954.4  | 931.3  | 921.8  |
| 25°   | 934.0  | 928.6  | 913.7  | 881.2  | 856.7  |
| 27.5° | 892.0  | 883.9  | 867.6  | 821.5  | 793.0  |
| 30°   | 845.9  | 841.8  | 818.8  | 759.1  | 737.5  |
| 32.5° | 802.5  | 795.7  | 771.3  | 709.0  | 691.4  |
| 35°   | 757.8  | 752.4  | 715.8  | 661.5  | 645.3  |
| 37.5° | 713.1  | 706.3  | 660.2  | 616.8  | 596.5  |
| 40°   | 668.3  | 660.2  | 610.0  | 570.7  | 549.0  |
| 42.5° | 626.3  | 615.4  | 566.6  | 524.6  | 500.2  |
| 45°   | 581.6  | 569.4  | 520.6  | 477.2  | 458.2  |
| 47.5° | 536.8  | 526.0  | 481.2  | 436.5  | 414.8  |
| 50°   | 489.4  | 479.9  | 439.2  | 394.5  | 371.4  |
| 52.5° | 450.1  | 435.2  | 395.8  | 351.1  | 332.1  |
| 55°   | 404.0  | 391.8  | 355.2  | 313.1  | 296.9  |
| 57.5° | 361.9  | 349.7  | 315.9  | 276.5  | 263.0  |
| 60°   | 322.6  | 305.0  | 276.5  | 242.7  | 231.8  |
| 62.5° | 279.3  | 265.7  | 241.3  | 212.8  | 226.4  |
| 65°   | 239.9  | 226.4  | 204.7  | 208.8  | 173.5  |
| 67.5° | 196.6  | 189.8  | 170.8  | 151.8  | 146.4  |
| 70°   | 160.0  | 151.8  | 145.1  | 124.7  | 119.3  |
| 72.5° | 127.4  | 119.3  | 109.8  | 99.0   | 94.9   |
| 75°   | 96.2   | 89.5   | 84.0   | 80.0   | 88.1   |
| 77.5° | 66.4   | 63.7   | 59.6   | 55.6   | 54.2   |
| 80°   | 43.4   | 42.0   | 40.7   | 39.3   | 38.0   |
| 82.5° | 25.8   | 25.8   | 25.8   | 25.8   | 25.8   |
| 85°   | 13.6   | 14.9   | 16.3   | 17.6   | 19.0   |
| 87.5° | 8.1    | 8.1    | 9.5    | 10.8   | 12.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)