

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: P560692

Luminaire Tested: FSR-12-2-LD4-2STD-50-UNV-80-86-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560692  
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-80-86-EDD-90  
Description: 1X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR PC ENVIRON  
SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

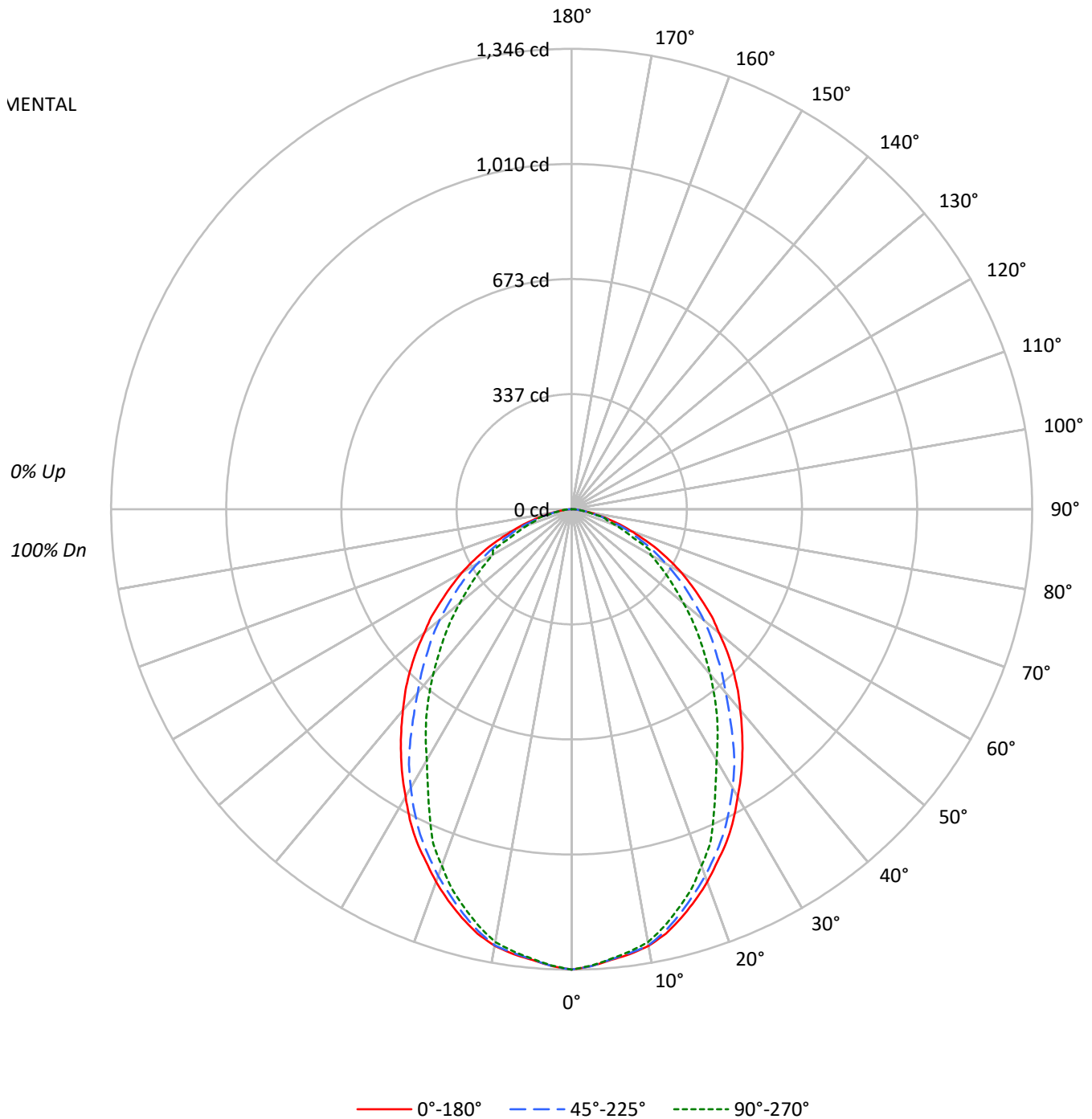
Lumens per Lamp: N/A  
Luminaire Lumens: 2642.0 lumens  
Efficiency: N/A  
Efficacy: 79.3 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 33.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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 |  |  |  |  |  |  |  |  |   |
| 1   | 110 | 106 | 102 | 99  | 108 | 104 | 100 | 97  | 100 | 97  | 94  | 96  | 94  | 91  | 92  | 90  | 89  | 87  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 87  |  |  |  |  |  |  |  |  |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 79  | 77  | 75  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 75  |  |  |  |  |  |  |  |  |   |
| 3   | 93  | 84  | 77  | 71  | 91  | 82  | 76  | 70  | 79  | 74  | 69  | 77  | 72  | 68  | 74  | 70  | 67  | 65  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 65  |  |  |  |  |  |  |  |  |   |
| 4   | 86  | 75  | 67  | 61  | 84  | 74  | 66  | 61  | 72  | 65  | 60  | 69  | 64  | 59  | 67  | 62  | 58  | 56  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 56  |  |  |  |  |  |  |  |  |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 59  | 53  | 65  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 52  | 50  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 50  |  |  |  |  |  |  |  |  |   |
| 6   | 74  | 62  | 53  | 48  | 72  | 61  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 47  | 56  | 50  | 46  | 44  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 44  |  |  |  |  |  |  |  |  |   |
| 7   | 69  | 56  | 48  | 43  | 67  | 56  | 48  | 42  | 54  | 47  | 42  | 53  | 46  | 42  | 51  | 46  | 42  | 40  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 40  |  |  |  |  |  |  |  |  |   |
| 8   | 65  | 52  | 44  | 38  | 63  | 51  | 44  | 38  | 50  | 43  | 38  | 49  | 42  | 38  | 48  | 42  | 38  | 36  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 36  |  |  |  |  |  |  |  |  |   |
| 9   | 61  | 48  | 40  | 35  | 59  | 47  | 40  | 35  | 46  | 39  | 35  | 45  | 39  | 34  | 44  | 38  | 34  | 33  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 33  |  |  |  |  |  |  |  |  |   |
| 10  | 57  | 44  | 37  | 32  | 56  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 32  | 41  | 36  | 32  | 30  |    |    |    |    |    |    |    |    |    |    |    |   |  |  |  |  |  |  | 30  |  |  |  |  |  |  |  |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 7243 | 7243 | 7243 |
| 5°  | 7145 | 7136 | 7128 |
| 10° | 7083 | 7074 | 7023 |
| 15° | 6892 | 6822 | 6727 |
| 20° | 6639 | 6531 | 6353 |
| 25° | 6366 | 6227 | 5839 |
| 30° | 6033 | 5840 | 5260 |
| 35° | 5714 | 5397 | 4866 |
| 40° | 5389 | 4919 | 4427 |
| 45° | 5081 | 4547 | 4003 |
| 50° | 4703 | 4221 | 3569 |
| 55° | 4350 | 3825 | 3197 |
| 60° | 3986 | 3416 | 2863 |
| 65° | 3507 | 2991 | 2535 |
| 70° | 2889 | 2620 | 2154 |
| 75° | 2298 | 2007 | 2102 |
| 80° | 1543 | 1447 | 1351 |
| 85° | 963  | 1155 | 1346 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5081 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 125.3  | 4.7       |
| 10°-20°   | 343.8  | 13.0      |
| 20°-30°   | 476.0  | 18.0      |
| 30°-40°   | 507.5  | 19.2      |
| 40°-50°   | 463.0  | 17.5      |
| 50°-60°   | 362.7  | 13.7      |
| 60°-70°   | 236.4  | 8.9       |
| 70°-80°   | 104.7  | 4.0       |
| 80°-90°   | 22.5   | 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°    | 945.1  | 35.8      |
| 0°-40°    | 1452.6 | 55.0      |
| 0°-60°    | 2278.4 | 86.2      |
| 0°-90°    | 2642.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2642.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1346 | 1346  | 1346 | 1346  | 1346 |      |
| 5°  | 1322 | 1321  | 1321 | 1319  | 1319 | 126  |
| 15° | 1237 | 1237  | 1224 | 1212  | 1207 | 348  |
| 25° | 1072 | 1066  | 1049 | 1011  | 983  | 492  |
| 35° | 870  | 864   | 822  | 759   | 741  | 544  |
| 45° | 668  | 654   | 597  | 548   | 526  | 514  |
| 55° | 464  | 450   | 408  | 359   | 341  | 416  |
| 65° | 275  | 260   | 235  | 240   | 199  | 271  |
| 75° | 110  | 103   | 96   | 92    | 101  | 118  |
| 85° | 16   | 17    | 19   | 20    | 22   | 22   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1345.8 | 1345.8 | 1345.8 | 1345.8 | 1345.8 |
| 2.5°  | 1336.5 | 1336.5 | 1336.5 | 1334.9 | 1334.9 |
| 5°    | 1322.5 | 1320.9 | 1320.9 | 1319.4 | 1319.4 |
| 7.5°  | 1311.6 | 1310.0 | 1308.5 | 1306.9 | 1303.8 |
| 10°   | 1296.0 | 1296.0 | 1294.5 | 1286.7 | 1285.1 |
| 12.5° | 1271.1 | 1269.6 | 1263.3 | 1252.4 | 1249.3 |
| 15°   | 1236.9 | 1236.9 | 1224.4 | 1212.0 | 1207.3 |
| 17.5° | 1199.6 | 1198.0 | 1182.4 | 1170.0 | 1163.8 |
| 20°   | 1159.1 | 1156.0 | 1140.4 | 1120.2 | 1109.3 |
| 22.5° | 1114.0 | 1114.0 | 1095.3 | 1068.9 | 1058.0 |
| 25°   | 1072.0 | 1065.7 | 1048.6 | 1011.3 | 983.3  |
| 27.5° | 1023.7 | 1014.4 | 995.7  | 942.8  | 910.2  |
| 30°   | 970.8  | 966.2  | 939.7  | 871.3  | 846.4  |
| 32.5° | 921.1  | 913.3  | 885.3  | 813.7  | 793.5  |
| 35°   | 869.7  | 863.5  | 821.5  | 759.2  | 740.6  |
| 37.5° | 818.4  | 810.6  | 757.7  | 707.9  | 684.6  |
| 40°   | 767.0  | 757.7  | 700.1  | 655.0  | 630.1  |
| 42.5° | 718.8  | 706.4  | 650.3  | 602.1  | 574.1  |
| 45°   | 667.5  | 653.5  | 597.4  | 547.7  | 525.9  |
| 47.5° | 616.1  | 603.7  | 552.3  | 501.0  | 476.1  |
| 50°   | 561.7  | 550.8  | 504.1  | 452.7  | 426.3  |
| 52.5° | 516.5  | 499.4  | 454.3  | 403.0  | 381.2  |
| 55°   | 463.6  | 449.6  | 407.6  | 359.4  | 340.7  |
| 57.5° | 415.4  | 401.4  | 362.5  | 317.4  | 301.8  |
| 60°   | 370.3  | 350.1  | 317.4  | 278.5  | 266.0  |
| 62.5° | 320.5  | 304.9  | 276.9  | 244.3  | 259.8  |
| 65°   | 275.4  | 259.8  | 234.9  | 239.6  | 199.1  |
| 67.5° | 225.6  | 217.8  | 196.0  | 174.3  | 168.0  |
| 70°   | 183.6  | 174.3  | 166.5  | 143.1  | 136.9  |
| 72.5° | 146.2  | 136.9  | 126.0  | 113.6  | 108.9  |
| 75°   | 110.5  | 102.7  | 96.5   | 91.8   | 101.1  |
| 77.5° | 76.2   | 73.1   | 68.5   | 63.8   | 62.2   |
| 80°   | 49.8   | 48.2   | 46.7   | 45.1   | 43.6   |
| 82.5° | 29.6   | 29.6   | 29.6   | 29.6   | 29.6   |
| 85°   | 15.6   | 17.1   | 18.7   | 20.2   | 21.8   |
| 87.5° | 9.3    | 9.3    | 10.9   | 12.4   | 14.0   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)