

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: P560264

Luminaire Tested: FSR-12-2-LD4-2HI-40-UNV-81-88-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560264  
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-LD4-2HI-40-UNV-81-88-EDD-90  
Description: 1X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SI  
LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

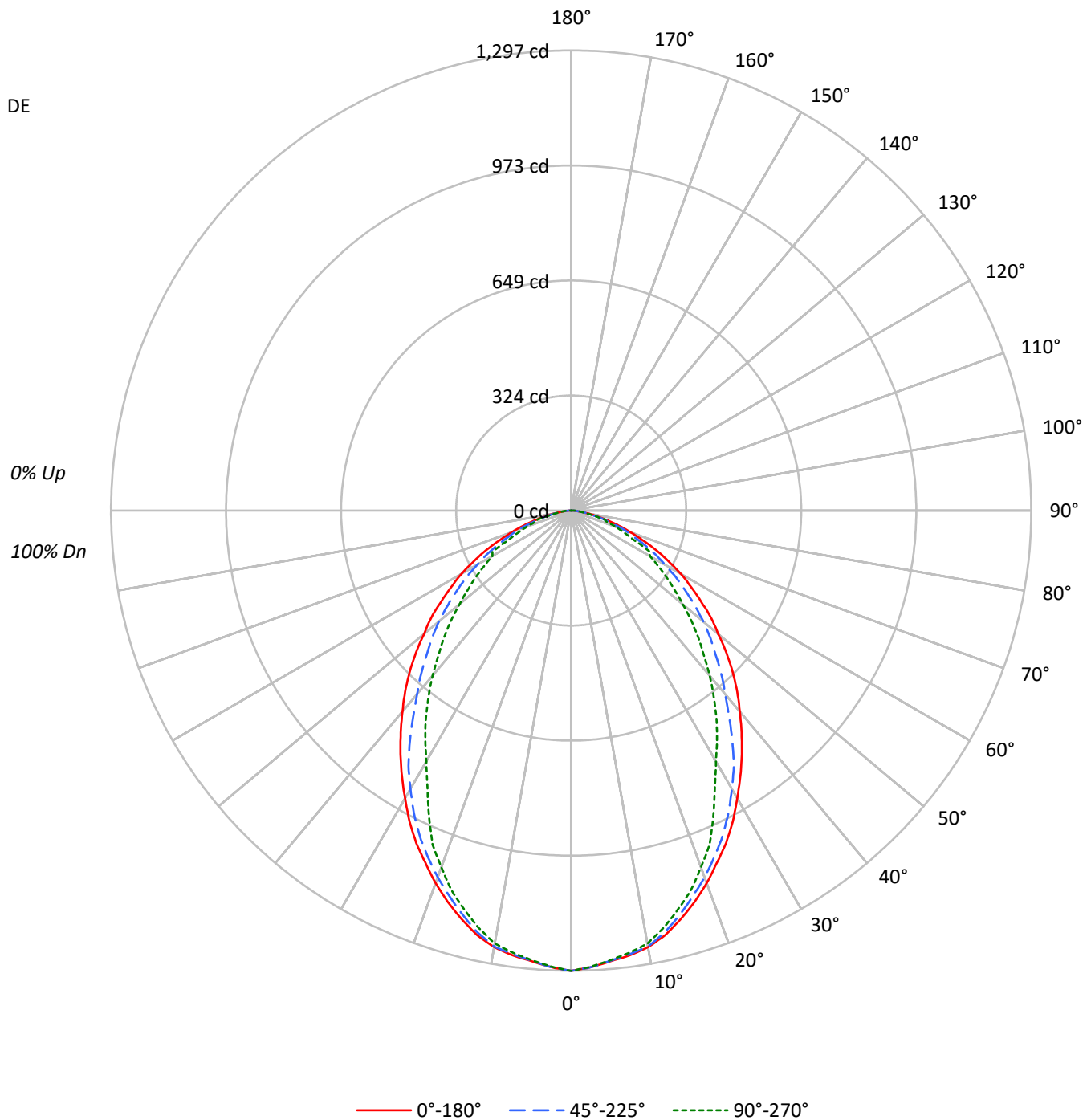
Lumens per Lamp: N/A  
Luminaire Lumens: 2547.0 lumens  
Efficiency: N/A  
Efficacy: 59.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 43.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°  | 6983 | 6983 | 6983 |
| 5°  | 6888 | 6880 | 6871 |
| 10° | 6828 | 6820 | 6771 |
| 15° | 6644 | 6577 | 6485 |
| 20° | 6400 | 6297 | 6125 |
| 25° | 6137 | 6003 | 5629 |
| 30° | 5816 | 5630 | 5070 |
| 35° | 5508 | 5203 | 4690 |
| 40° | 5195 | 4742 | 4268 |
| 45° | 4898 | 4384 | 3859 |
| 50° | 4534 | 4069 | 3441 |
| 55° | 4194 | 3688 | 3082 |
| 60° | 3843 | 3294 | 2761 |
| 65° | 3381 | 2884 | 2445 |
| 70° | 2785 | 2526 | 2077 |
| 75° | 2215 | 1934 | 2027 |
| 80° | 1488 | 1395 | 1302 |
| 85° | 926  | 1112 | 1297 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4898 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 120.8  | 4.7       |
| 10°-20°   | 331.4  | 13.0      |
| 20°-30°   | 458.9  | 18.0      |
| 30°-40°   | 489.3  | 19.2      |
| 40°-50°   | 446.4  | 17.5      |
| 50°-60°   | 349.7  | 13.7      |
| 60°-70°   | 227.9  | 8.9       |
| 70°-80°   | 101.0  | 4.0       |
| 80°-90°   | 21.7   | 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°    | 911.1  | 35.8      |
| 0°-40°    | 1400.3 | 55.0      |
| 0°-60°    | 2196.4 | 86.2      |
| 0°-90°    | 2547.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2547.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1297 | 1297  | 1297 | 1297  | 1297 |      |
| 5°  | 1275 | 1273  | 1273 | 1272  | 1272 | 121  |
| 15° | 1192 | 1192  | 1180 | 1168  | 1164 | 335  |
| 25° | 1033 | 1027  | 1011 | 975   | 948  | 474  |
| 35° | 838  | 832   | 792  | 732   | 714  | 524  |
| 45° | 644  | 630   | 576  | 528   | 507  | 496  |
| 55° | 447  | 434   | 393  | 346   | 328  | 401  |
| 65° | 266  | 250   | 226  | 231   | 192  | 262  |
| 75° | 106  | 99    | 93   | 88    | 98   | 114  |
| 85° | 15   | 16    | 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°    | 1297.4 | 1297.4 | 1297.4 | 1297.4 | 1297.4 |
| 2.5°  | 1288.4 | 1288.4 | 1288.4 | 1286.9 | 1286.9 |
| 5°    | 1274.9 | 1273.4 | 1273.4 | 1271.9 | 1271.9 |
| 7.5°  | 1264.4 | 1262.9 | 1261.4 | 1259.9 | 1256.9 |
| 10°   | 1249.4 | 1249.4 | 1247.9 | 1240.4 | 1238.9 |
| 12.5° | 1225.4 | 1223.9 | 1217.9 | 1207.4 | 1204.4 |
| 15°   | 1192.4 | 1192.4 | 1180.4 | 1168.4 | 1163.9 |
| 17.5° | 1156.4 | 1154.9 | 1139.9 | 1127.9 | 1121.9 |
| 20°   | 1117.4 | 1114.4 | 1099.4 | 1079.9 | 1069.4 |
| 22.5° | 1073.9 | 1073.9 | 1055.9 | 1030.4 | 1019.9 |
| 25°   | 1033.4 | 1027.4 | 1010.9 | 974.9  | 947.9  |
| 27.5° | 986.9  | 977.9  | 959.9  | 908.9  | 877.4  |
| 30°   | 935.9  | 931.4  | 905.9  | 839.9  | 815.9  |
| 32.5° | 887.9  | 880.4  | 853.4  | 784.4  | 764.9  |
| 35°   | 838.4  | 832.4  | 791.9  | 731.9  | 713.9  |
| 37.5° | 788.9  | 781.4  | 730.4  | 682.5  | 660.0  |
| 40°   | 739.4  | 730.4  | 675.0  | 631.5  | 607.5  |
| 42.5° | 693.0  | 681.0  | 627.0  | 580.5  | 553.5  |
| 45°   | 643.5  | 630.0  | 576.0  | 528.0  | 507.0  |
| 47.5° | 594.0  | 582.0  | 532.5  | 483.0  | 459.0  |
| 50°   | 541.5  | 531.0  | 486.0  | 436.5  | 411.0  |
| 52.5° | 498.0  | 481.5  | 438.0  | 388.5  | 367.5  |
| 55°   | 447.0  | 433.5  | 393.0  | 346.5  | 328.5  |
| 57.5° | 400.5  | 387.0  | 349.5  | 306.0  | 291.0  |
| 60°   | 357.0  | 337.5  | 306.0  | 268.5  | 256.5  |
| 62.5° | 309.0  | 294.0  | 267.0  | 235.5  | 250.5  |
| 65°   | 265.5  | 250.5  | 226.5  | 231.0  | 192.0  |
| 67.5° | 217.5  | 210.0  | 189.0  | 168.0  | 162.0  |
| 70°   | 177.0  | 168.0  | 160.5  | 138.0  | 132.0  |
| 72.5° | 141.0  | 132.0  | 121.5  | 109.5  | 105.0  |
| 75°   | 106.5  | 99.0   | 93.0   | 88.5   | 97.5   |
| 77.5° | 73.5   | 70.5   | 66.0   | 61.5   | 60.0   |
| 80°   | 48.0   | 46.5   | 45.0   | 43.5   | 42.0   |
| 82.5° | 28.5   | 28.5   | 28.5   | 28.5   | 28.5   |
| 85°   | 15.0   | 16.5   | 18.0   | 19.5   | 21.0   |
| 87.5° | 9.0    | 9.0    | 10.5   | 12.0   | 13.5   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)