

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: P560698

Luminaire Tested: FSR-12-2-LD4-2STD-50-UNV-80-94-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560698  
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-80-94-EDD-90  
Description: 1X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

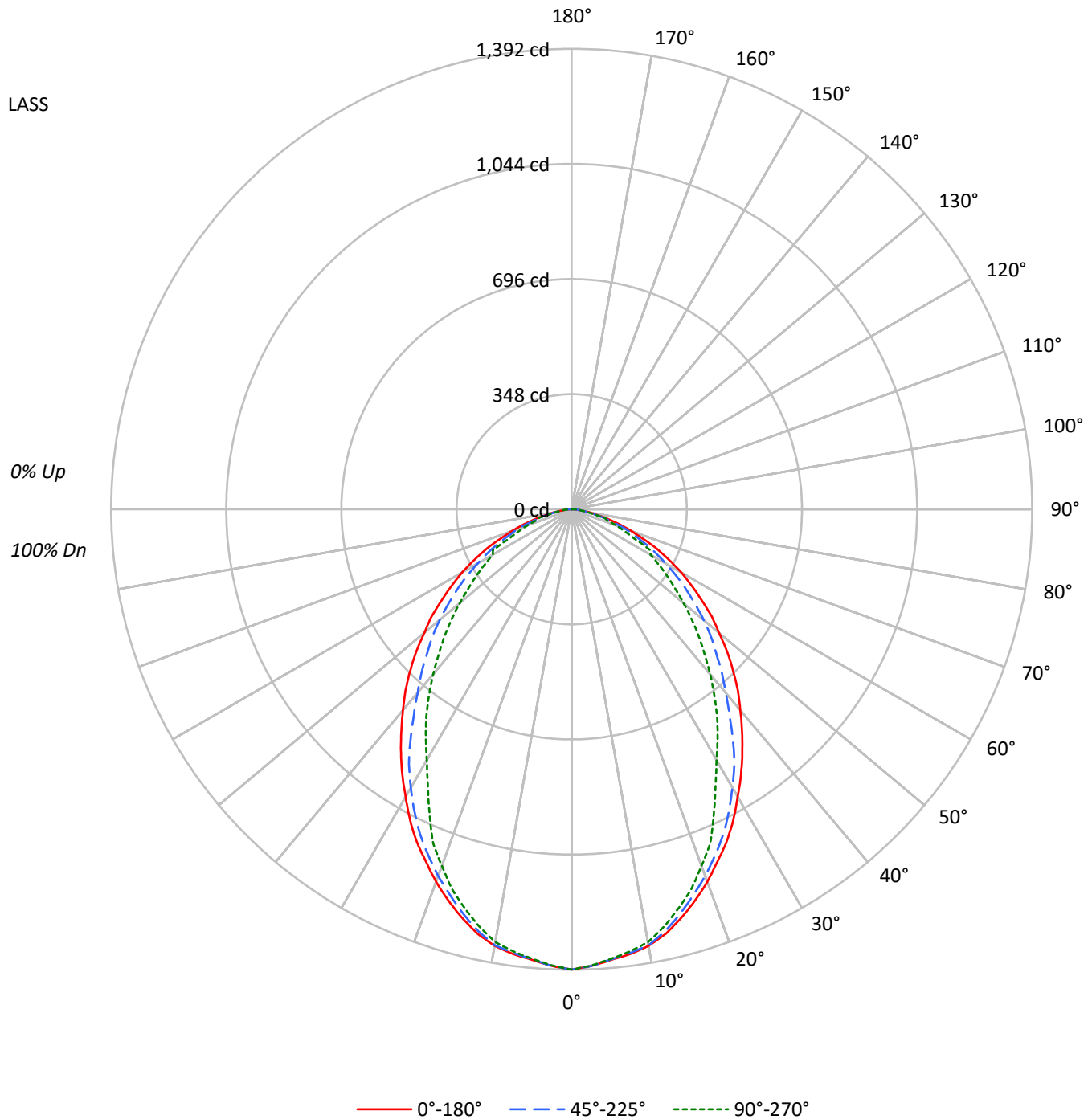
Lumens per Lamp: N/A  
Luminaire Lumens: 2732.0 lumens  
Efficiency: N/A  
Efficacy: 82.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 33.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°  | 7490 | 7490 | 7490 |
| 5°  | 7388 | 7379 | 7371 |
| 10° | 7324 | 7315 | 7262 |
| 15° | 7126 | 7055 | 6956 |
| 20° | 6865 | 6754 | 6570 |
| 25° | 6583 | 6440 | 6038 |
| 30° | 6239 | 6039 | 5439 |
| 35° | 5909 | 5581 | 5031 |
| 40° | 5573 | 5087 | 4578 |
| 45° | 5253 | 4702 | 4139 |
| 50° | 4863 | 4365 | 3691 |
| 55° | 4498 | 3955 | 3306 |
| 60° | 4122 | 3533 | 2961 |
| 65° | 3627 | 3093 | 2622 |
| 70° | 2987 | 2708 | 2228 |
| 75° | 2375 | 2073 | 2175 |
| 80° | 1596 | 1497 | 1395 |
| 85° | 994  | 1192 | 1389 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5253 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 129.5  | 4.7       |
| 10°-20°   | 355.5  | 13.0      |
| 20°-30°   | 492.2  | 18.0      |
| 30°-40°   | 524.8  | 19.2      |
| 40°-50°   | 478.8  | 17.5      |
| 50°-60°   | 375.1  | 13.7      |
| 60°-70°   | 244.5  | 8.9       |
| 70°-80°   | 108.3  | 4.0       |
| 80°-90°   | 23.3   | 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°    | 977.3  | 35.8      |
| 0°-40°    | 1502.1 | 55.0      |
| 0°-60°    | 2356.0 | 86.2      |
| 0°-90°    | 2732.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2732.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1392 | 1392  | 1392 | 1392  | 1392 |      |
| 5°  | 1368 | 1366  | 1366 | 1364  | 1364 | 130  |
| 15° | 1279 | 1279  | 1266 | 1253  | 1248 | 360  |
| 25° | 1108 | 1102  | 1084 | 1046  | 1017 | 509  |
| 35° | 899  | 893   | 850  | 785   | 766  | 562  |
| 45° | 690  | 676   | 618  | 566   | 544  | 532  |
| 55° | 479  | 465   | 422  | 372   | 352  | 430  |
| 65° | 285  | 269   | 243  | 248   | 206  | 281  |
| 75° | 114  | 106   | 100  | 95    | 105  | 122  |
| 85° | 16   | 18    | 19   | 21    | 22   | 22   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1391.6 | 1391.6 | 1391.6 | 1391.6 | 1391.6 |
| 2.5°  | 1382.0 | 1382.0 | 1382.0 | 1380.4 | 1380.4 |
| 5°    | 1367.5 | 1365.9 | 1365.9 | 1364.3 | 1364.3 |
| 7.5°  | 1356.2 | 1354.6 | 1353.0 | 1351.4 | 1348.2 |
| 10°   | 1340.2 | 1340.2 | 1338.6 | 1330.5 | 1328.9 |
| 12.5° | 1314.4 | 1312.8 | 1306.4 | 1295.1 | 1291.9 |
| 15°   | 1279.0 | 1279.0 | 1266.2 | 1253.3 | 1248.5 |
| 17.5° | 1240.4 | 1238.8 | 1222.7 | 1209.8 | 1203.4 |
| 20°   | 1198.6 | 1195.4 | 1179.3 | 1158.4 | 1147.1 |
| 22.5° | 1151.9 | 1151.9 | 1132.6 | 1105.3 | 1094.0 |
| 25°   | 1108.5 | 1102.1 | 1084.4 | 1045.7 | 1016.8 |
| 27.5° | 1058.6 | 1049.0 | 1029.7 | 975.0  | 941.2  |
| 30°   | 1003.9 | 999.1  | 971.7  | 900.9  | 875.2  |
| 32.5° | 952.4  | 944.4  | 915.4  | 841.4  | 820.5  |
| 35°   | 899.3  | 892.9  | 849.5  | 785.1  | 765.8  |
| 37.5° | 846.2  | 838.2  | 783.5  | 732.0  | 707.9  |
| 40°   | 793.2  | 783.5  | 724.0  | 677.3  | 651.6  |
| 42.5° | 743.3  | 730.4  | 672.5  | 622.6  | 593.7  |
| 45°   | 690.2  | 675.7  | 617.8  | 566.3  | 543.8  |
| 47.5° | 637.1  | 624.2  | 571.1  | 518.0  | 492.3  |
| 50°   | 580.8  | 569.5  | 521.3  | 468.2  | 440.8  |
| 52.5° | 534.1  | 516.4  | 469.8  | 416.7  | 394.2  |
| 55°   | 479.4  | 465.0  | 421.5  | 371.6  | 352.3  |
| 57.5° | 429.6  | 415.1  | 374.9  | 328.2  | 312.1  |
| 60°   | 382.9  | 362.0  | 328.2  | 288.0  | 275.1  |
| 62.5° | 331.4  | 315.3  | 286.4  | 252.6  | 268.7  |
| 65°   | 284.8  | 268.7  | 242.9  | 247.8  | 205.9  |
| 67.5° | 233.3  | 225.2  | 202.7  | 180.2  | 173.8  |
| 70°   | 189.8  | 180.2  | 172.1  | 148.0  | 141.6  |
| 72.5° | 151.2  | 141.6  | 130.3  | 117.4  | 112.6  |
| 75°   | 114.2  | 106.2  | 99.7   | 94.9   | 104.6  |
| 77.5° | 78.8   | 75.6   | 70.8   | 66.0   | 64.4   |
| 80°   | 51.5   | 49.9   | 48.3   | 46.7   | 45.0   |
| 82.5° | 30.6   | 30.6   | 30.6   | 30.6   | 30.6   |
| 85°   | 16.1   | 17.7   | 19.3   | 20.9   | 22.5   |
| 87.5° | 9.7    | 9.7    | 11.3   | 12.9   | 14.5   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)