

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: P559307

Luminaire Tested: FSR-12-1-LD4-2LO-40-UNV-81-94-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559307  
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-12-1-LD4-2LO-40-UNV-81-94-EDD  
Description: 1X1 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

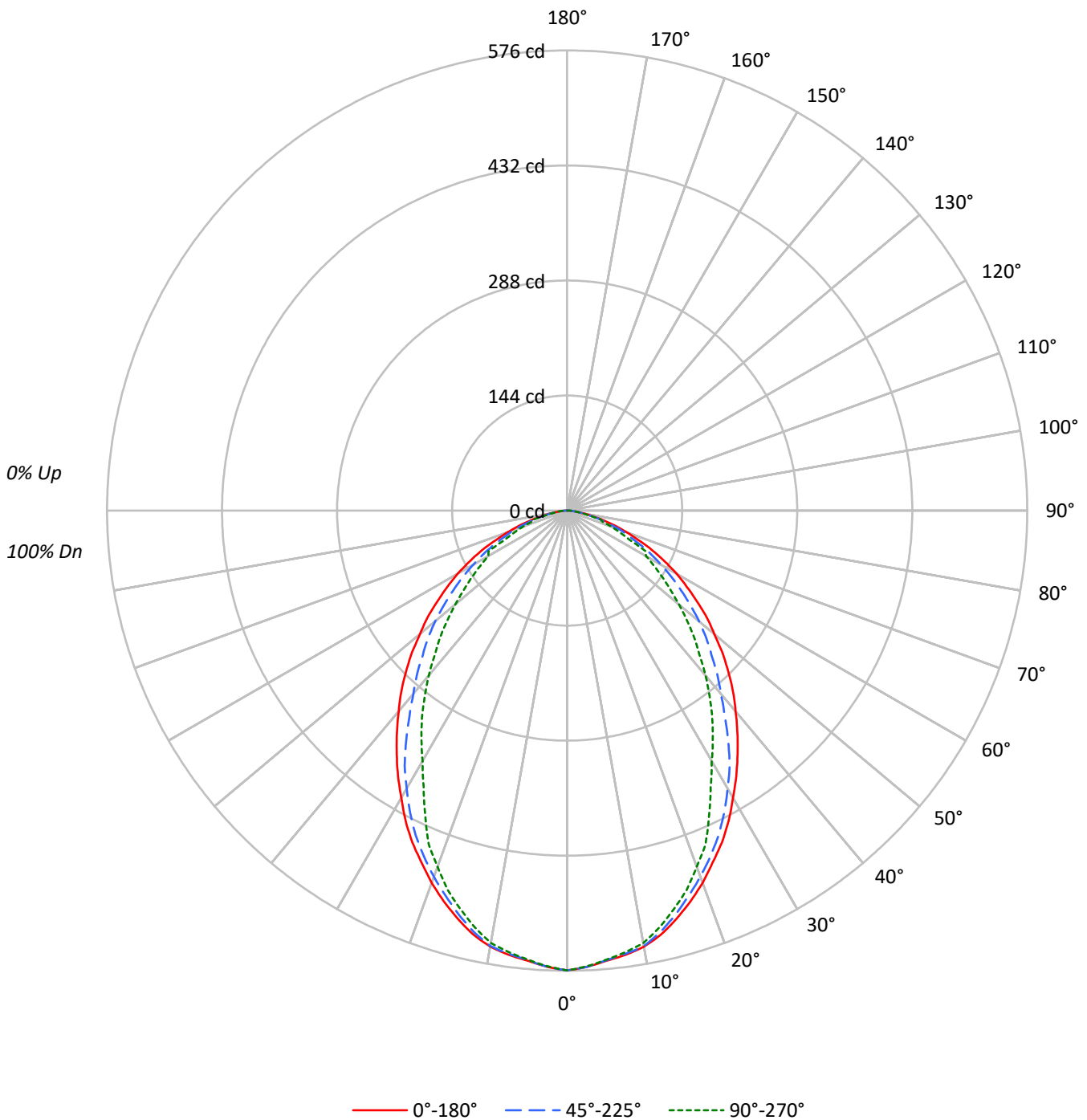
Lumens per Lamp: N/A  
Luminaire Lumens: 1130.0 lumens  
Efficiency: N/A  
Efficacy: 96.6 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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°  | 6196 | 6196 | 6196 |
| 5°  | 6111 | 6105 | 6097 |
| 10° | 6058 | 6051 | 6008 |
| 15° | 5895 | 5836 | 5755 |
| 20° | 5679 | 5588 | 5435 |
| 25° | 5445 | 5327 | 4995 |
| 30° | 5161 | 4995 | 4499 |
| 35° | 4888 | 4618 | 4163 |
| 40° | 4610 | 4207 | 3787 |
| 45° | 4346 | 3889 | 3424 |
| 50° | 4022 | 3610 | 3053 |
| 55° | 3721 | 3271 | 2734 |
| 60° | 3410 | 2923 | 2450 |
| 65° | 3000 | 2560 | 2170 |
| 70° | 2471 | 2241 | 1844 |
| 75° | 1963 | 1718 | 1801 |
| 80° | 1320 | 1240 | 1153 |
| 85° | 827  | 988  | 1149 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4346 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 53.6   | 4.7       |
| 10°-20°   | 147.0  | 13.0      |
| 20°-30°   | 203.6  | 18.0      |
| 30°-40°   | 217.1  | 19.2      |
| 40°-50°   | 198.0  | 17.5      |
| 50°-60°   | 155.1  | 13.7      |
| 60°-70°   | 101.1  | 8.9       |
| 70°-80°   | 44.8   | 4.0       |
| 80°-90°   | 9.6    | 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°    | 404.2  | 35.8      |
| 0°-40°    | 621.3  | 55.0      |
| 0°-60°    | 974.5  | 86.2      |
| 0°-90°    | 1130.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1130.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 576 | 576   | 576 | 576   | 576 |      |
| 5°  | 566 | 565   | 565 | 564   | 564 | 54   |
| 15° | 529 | 529   | 524 | 518   | 516 | 149  |
| 25° | 458 | 456   | 448 | 432   | 421 | 211  |
| 35° | 372 | 369   | 351 | 325   | 317 | 233  |
| 45° | 286 | 280   | 256 | 234   | 225 | 220  |
| 55° | 198 | 192   | 174 | 154   | 146 | 178  |
| 65° | 118 | 111   | 100 | 102   | 85  | 116  |
| 75° | 47  | 44    | 41  | 39    | 43  | 51   |
| 85° | 7   | 7     | 8   | 9     | 9   | 9    |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 575.6 | 575.6 | 575.6 | 575.6 | 575.6 |
| 2.5°  | 571.6 | 571.6 | 571.6 | 570.9 | 570.9 |
| 5°    | 565.6 | 565.0 | 565.0 | 564.3 | 564.3 |
| 7.5°  | 561.0 | 560.3 | 559.6 | 559.0 | 557.6 |
| 10°   | 554.3 | 554.3 | 553.6 | 550.3 | 549.7 |
| 12.5° | 543.7 | 543.0 | 540.3 | 535.7 | 534.3 |
| 15°   | 529.0 | 529.0 | 523.7 | 518.4 | 516.4 |
| 17.5° | 513.1 | 512.4 | 505.7 | 500.4 | 497.8 |
| 20°   | 495.8 | 494.4 | 487.8 | 479.1 | 474.5 |
| 22.5° | 476.5 | 476.5 | 468.5 | 457.2 | 452.5 |
| 25°   | 458.5 | 455.8 | 448.5 | 432.5 | 420.6 |
| 27.5° | 437.9 | 433.9 | 425.9 | 403.3 | 389.3 |
| 30°   | 415.2 | 413.2 | 401.9 | 372.6 | 362.0 |
| 32.5° | 393.9 | 390.6 | 378.6 | 348.0 | 339.4 |
| 35°   | 372.0 | 369.3 | 351.4 | 324.7 | 316.8 |
| 37.5° | 350.0 | 346.7 | 324.1 | 302.8 | 292.8 |
| 40°   | 328.1 | 324.1 | 299.4 | 280.2 | 269.5 |
| 42.5° | 307.4 | 302.1 | 278.2 | 257.5 | 245.5 |
| 45°   | 285.5 | 279.5 | 255.5 | 234.2 | 224.9 |
| 47.5° | 263.5 | 258.2 | 236.2 | 214.3 | 203.6 |
| 50°   | 240.2 | 235.6 | 215.6 | 193.6 | 182.3 |
| 52.5° | 220.9 | 213.6 | 194.3 | 172.3 | 163.0 |
| 55°   | 198.3 | 192.3 | 174.3 | 153.7 | 145.7 |
| 57.5° | 177.7 | 171.7 | 155.0 | 135.8 | 129.1 |
| 60°   | 158.4 | 149.7 | 135.8 | 119.1 | 113.8 |
| 62.5° | 137.1 | 130.4 | 118.4 | 104.5 | 111.1 |
| 65°   | 117.8 | 111.1 | 100.5 | 102.5 | 85.2  |
| 67.5° | 96.5  | 93.2  | 83.8  | 74.5  | 71.9  |
| 70°   | 78.5  | 74.5  | 71.2  | 61.2  | 58.6  |
| 72.5° | 62.6  | 58.6  | 53.9  | 48.6  | 46.6  |
| 75°   | 47.2  | 43.9  | 41.3  | 39.3  | 43.3  |
| 77.5° | 32.6  | 31.3  | 29.3  | 27.3  | 26.6  |
| 80°   | 21.3  | 20.6  | 20.0  | 19.3  | 18.6  |
| 82.5° | 12.6  | 12.6  | 12.6  | 12.6  | 12.6  |
| 85°   | 6.7   | 7.3   | 8.0   | 8.7   | 9.3   |
| 87.5° | 4.0   | 4.0   | 4.7   | 5.3   | 6.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)