

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: P559454

Luminaire Tested: FSR-12-1-LD4-2STD-35-UNV-82-97-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559454  
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-LD4-2STD-35-UNV-82-97-EDD-90  
Description: 1X1 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

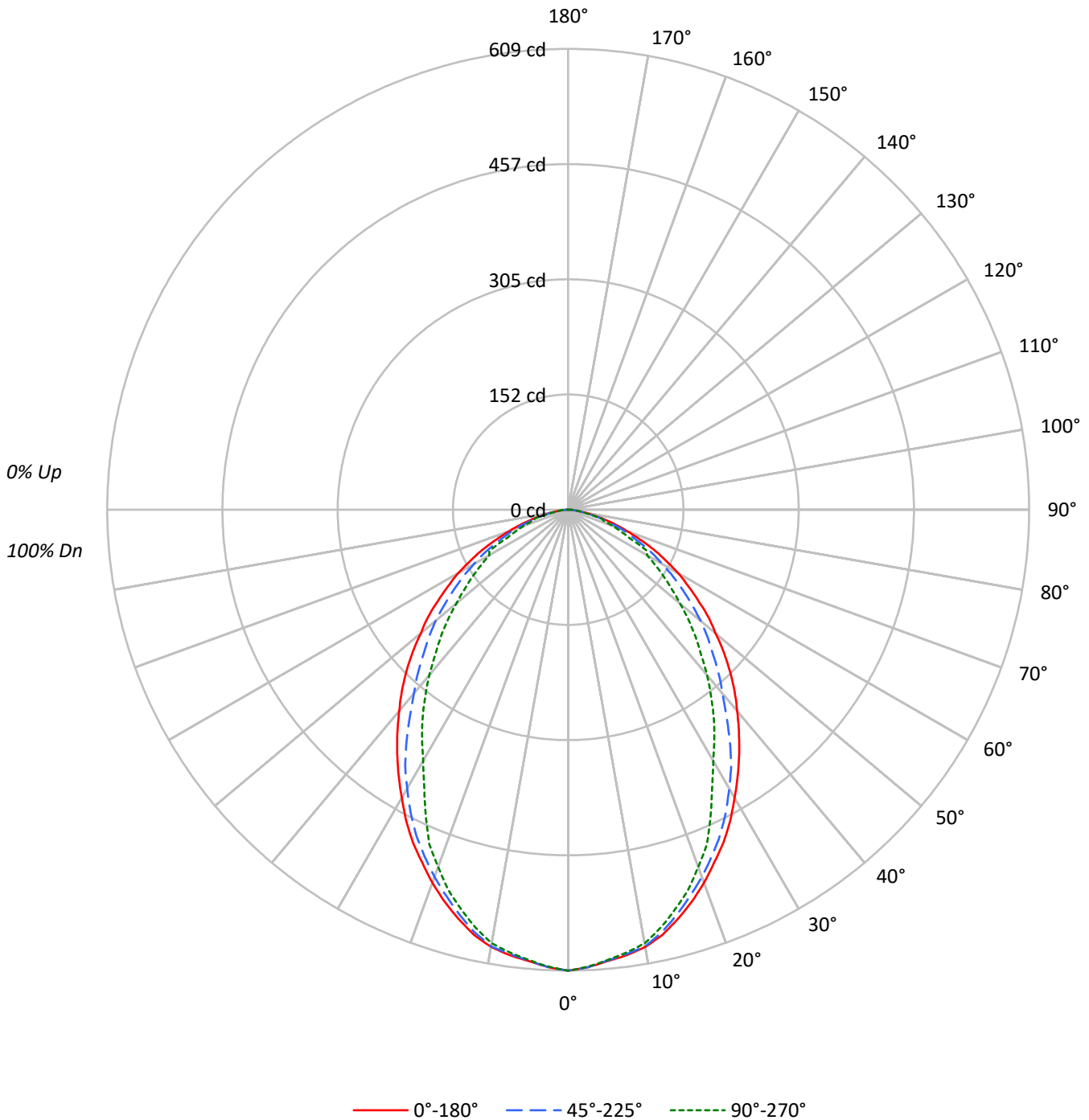
Lumens per Lamp: N/A  
Luminaire Lumens: 1196.0 lumens  
Efficiency: N/A  
Efficacy: 72.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 16.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°  | 6557 | 6557 | 6557 |
| 5°  | 6469 | 6461 | 6454 |
| 10° | 6413 | 6405 | 6359 |
| 15° | 6239 | 6177 | 6090 |
| 20° | 6010 | 5914 | 5753 |
| 25° | 5764 | 5638 | 5286 |
| 30° | 5463 | 5287 | 4762 |
| 35° | 5173 | 4887 | 4406 |
| 40° | 4879 | 4453 | 4007 |
| 45° | 4599 | 4118 | 3624 |
| 50° | 4258 | 3821 | 3232 |
| 55° | 3939 | 3462 | 2894 |
| 60° | 3608 | 3094 | 2592 |
| 65° | 3176 | 2710 | 2297 |
| 70° | 2615 | 2373 | 1951 |
| 75° | 2079 | 1817 | 1905 |
| 80° | 1395 | 1308 | 1221 |
| 85° | 865  | 1050 | 1223 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4599 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 56.7   | 4.7       |
| 10°-20°   | 155.6  | 13.0      |
| 20°-30°   | 215.5  | 18.0      |
| 30°-40°   | 229.8  | 19.2      |
| 40°-50°   | 209.6  | 17.5      |
| 50°-60°   | 164.2  | 13.7      |
| 60°-70°   | 107.0  | 8.9       |
| 70°-80°   | 47.4   | 4.0       |
| 80°-90°   | 10.2   | 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°    | 427.8  | 35.8      |
| 0°-40°    | 657.6  | 55.0      |
| 0°-60°    | 1031.4 | 86.2      |
| 0°-90°    | 1196.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1196.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 609 | 609   | 609 | 609   | 609 |      |
| 5°  | 599 | 598   | 598 | 597   | 597 | 57   |
| 15° | 560 | 560   | 554 | 549   | 546 | 157  |
| 25° | 485 | 482   | 475 | 458   | 445 | 223  |
| 35° | 394 | 391   | 372 | 344   | 335 | 246  |
| 45° | 302 | 296   | 270 | 248   | 238 | 233  |
| 55° | 210 | 204   | 184 | 163   | 154 | 188  |
| 65° | 125 | 118   | 106 | 108   | 90  | 123  |
| 75° | 50  | 46    | 44  | 42    | 46  | 54   |
| 85° | 7   | 8     | 8   | 9     | 10  | 10   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 609.2 | 609.2 | 609.2 | 609.2 | 609.2 |
| 2.5°  | 605.0 | 605.0 | 605.0 | 604.3 | 604.3 |
| 5°    | 598.7 | 598.0 | 598.0 | 597.3 | 597.3 |
| 7.5°  | 593.7 | 593.0 | 592.3 | 591.6 | 590.2 |
| 10°   | 586.7 | 586.7 | 586.0 | 582.5 | 581.8 |
| 12.5° | 575.4 | 574.7 | 571.9 | 567.0 | 565.6 |
| 15°   | 559.9 | 559.9 | 554.3 | 548.7 | 546.5 |
| 17.5° | 543.0 | 542.3 | 535.3 | 529.6 | 526.8 |
| 20°   | 524.7 | 523.3 | 516.3 | 507.1 | 502.2 |
| 22.5° | 504.3 | 504.3 | 495.8 | 483.9 | 478.9 |
| 25°   | 485.3 | 482.5 | 474.7 | 457.8 | 445.1 |
| 27.5° | 463.4 | 459.2 | 450.8 | 426.8 | 412.0 |
| 30°   | 439.5 | 437.4 | 425.4 | 394.4 | 383.1 |
| 32.5° | 417.0 | 413.4 | 400.8 | 368.4 | 359.2 |
| 35°   | 393.7 | 390.9 | 371.9 | 343.7 | 335.3 |
| 37.5° | 370.5 | 366.9 | 343.0 | 320.5 | 309.9 |
| 40°   | 347.2 | 343.0 | 316.9 | 296.5 | 285.2 |
| 42.5° | 325.4 | 319.8 | 294.4 | 272.6 | 259.9 |
| 45°   | 302.1 | 295.8 | 270.5 | 247.9 | 238.1 |
| 47.5° | 278.9 | 273.3 | 250.0 | 226.8 | 215.5 |
| 50°   | 254.3 | 249.3 | 228.2 | 205.0 | 193.0 |
| 52.5° | 233.8 | 226.1 | 205.7 | 182.4 | 172.6 |
| 55°   | 209.9 | 203.5 | 184.5 | 162.7 | 154.2 |
| 57.5° | 188.1 | 181.7 | 164.1 | 143.7 | 136.6 |
| 60°   | 167.6 | 158.5 | 143.7 | 126.1 | 120.4 |
| 62.5° | 145.1 | 138.0 | 125.4 | 110.6 | 117.6 |
| 65°   | 124.7 | 117.6 | 106.4 | 108.5 | 90.2  |
| 67.5° | 102.1 | 98.6  | 88.7  | 78.9  | 76.1  |
| 70°   | 83.1  | 78.9  | 75.4  | 64.8  | 62.0  |
| 72.5° | 66.2  | 62.0  | 57.0  | 51.4  | 49.3  |
| 75°   | 50.0  | 46.5  | 43.7  | 41.6  | 45.8  |
| 77.5° | 34.5  | 33.1  | 31.0  | 28.9  | 28.2  |
| 80°   | 22.5  | 21.8  | 21.1  | 20.4  | 19.7  |
| 82.5° | 13.4  | 13.4  | 13.4  | 13.4  | 13.4  |
| 85°   | 7.0   | 7.7   | 8.5   | 9.2   | 9.9   |
| 87.5° | 4.2   | 4.2   | 4.9   | 5.6   | 6.3   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)