

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: P560140

Luminaire Tested: FSR-12-2-LD4-1STD-50-UNV-81-96-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560140  
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-LD4-1STD-50-UNV-81-96-EDD-90  
Description: 1X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1284.0 lumens  
Efficiency: N/A  
Efficacy: 77.3 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

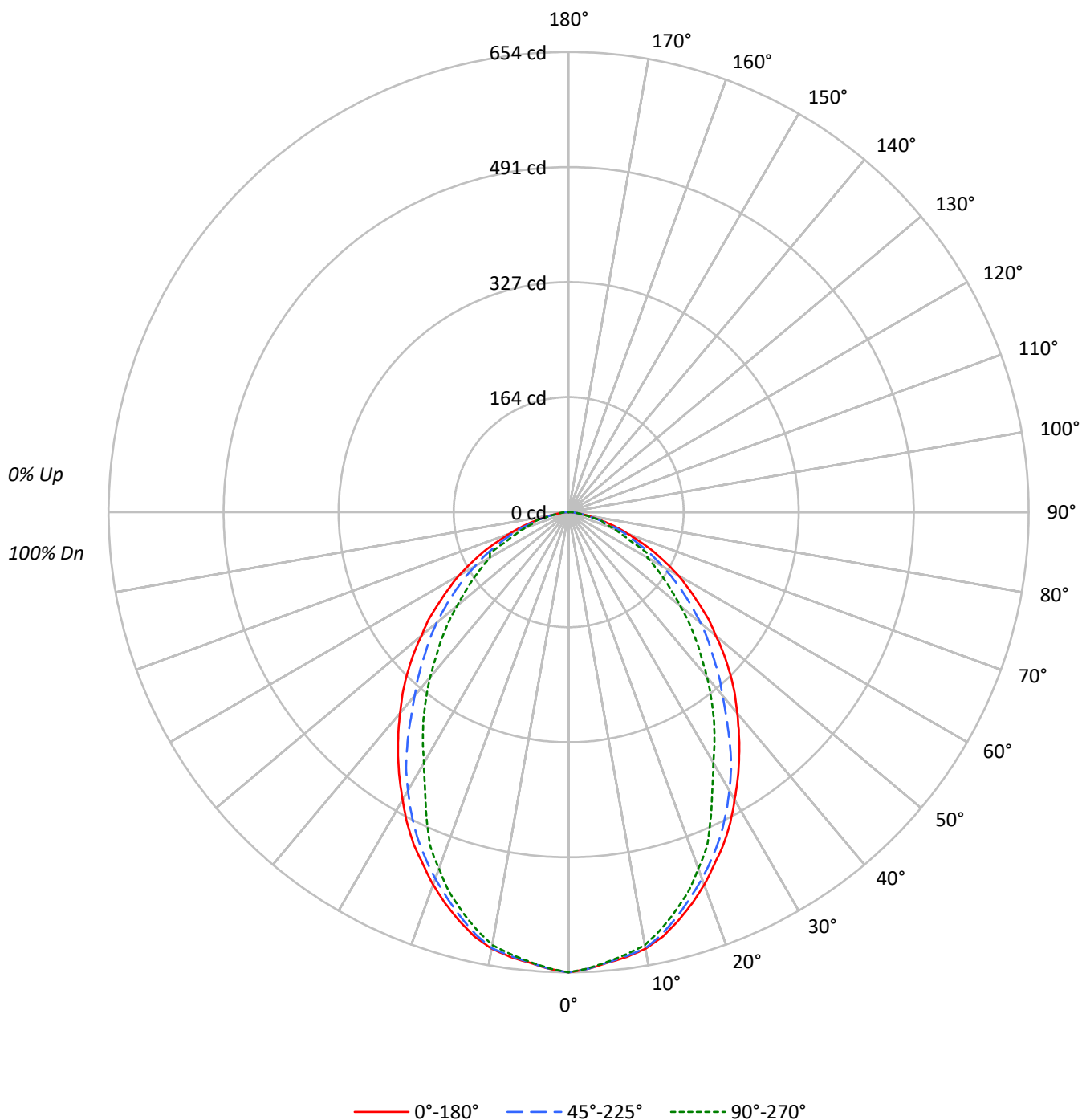
Input Watts (W): 16.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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  |     |  |  |
| 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°  | 3520 | 3520 | 3520 |
| 5°  | 3472 | 3468 | 3464 |
| 10° | 3442 | 3438 | 3413 |
| 15° | 3349 | 3316 | 3270 |
| 20° | 3226 | 3174 | 3088 |
| 25° | 3094 | 3026 | 2838 |
| 30° | 2932 | 2838 | 2556 |
| 35° | 2777 | 2623 | 2365 |
| 40° | 2619 | 2391 | 2151 |
| 45° | 2469 | 2210 | 1945 |
| 50° | 2286 | 2051 | 1735 |
| 55° | 2114 | 1859 | 1554 |
| 60° | 1938 | 1661 | 1392 |
| 65° | 1704 | 1454 | 1233 |
| 70° | 1404 | 1273 | 1046 |
| 75° | 1117 | 975  | 1021 |
| 80° | 750  | 704  | 657  |
| 85° | 469  | 562  | 655  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle:  $0^\circ$ 

Vertical Angle:  $45^\circ$

Luminance: 2469 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 60.9   | 4.7       |
| 10°-20°   | 167.1  | 13.0      |
| 20°-30°   | 231.3  | 18.0      |
| 30°-40°   | 246.7  | 19.2      |
| 40°-50°   | 225.0  | 17.5      |
| 50°-60°   | 176.3  | 13.7      |
| 60°-70°   | 114.9  | 8.9       |
| 70°-80°   | 50.9   | 4.0       |
| 80°-90°   | 10.9   | 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°    | 459.3  | 35.8      |
| 0°-40°    | 705.9  | 55.0      |
| 0°-60°    | 1107.3 | 86.2      |
| 0°-90°    | 1284.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1284.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 654 | 654   | 654 | 654   | 654 |      |
| 5°  | 643 | 642   | 642 | 641   | 641 | 61   |
| 15° | 601 | 601   | 595 | 589   | 587 | 169  |
| 25° | 521 | 518   | 510 | 492   | 478 | 239  |
| 35° | 423 | 420   | 399 | 369   | 360 | 264  |
| 45° | 324 | 318   | 290 | 266   | 256 | 250  |
| 55° | 225 | 218   | 198 | 175   | 166 | 202  |
| 65° | 134 | 126   | 114 | 116   | 97  | 132  |
| 75° | 54  | 50    | 47  | 45    | 49  | 58   |
| 85° | 8   | 8     | 9   | 10    | 11  | 10   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 654.1 | 654.1 | 654.1 | 654.1 | 654.1 |
| 2.5°  | 649.5 | 649.5 | 649.5 | 648.8 | 648.8 |
| 5°    | 642.7 | 642.0 | 642.0 | 641.2 | 641.2 |
| 7.5°  | 637.4 | 636.7 | 635.9 | 635.1 | 633.6 |
| 10°   | 629.9 | 629.9 | 629.1 | 625.3 | 624.6 |
| 12.5° | 617.8 | 617.0 | 614.0 | 608.7 | 607.2 |
| 15°   | 601.1 | 601.1 | 595.1 | 589.0 | 586.8 |
| 17.5° | 583.0 | 582.2 | 574.7 | 568.6 | 565.6 |
| 20°   | 563.3 | 561.8 | 554.2 | 544.4 | 539.1 |
| 22.5° | 541.4 | 541.4 | 532.3 | 519.5 | 514.2 |
| 25°   | 521.0 | 517.9 | 509.6 | 491.5 | 477.9 |
| 27.5° | 497.5 | 493.0 | 483.9 | 458.2 | 442.3 |
| 30°   | 471.8 | 469.6 | 456.7 | 423.4 | 411.3 |
| 32.5° | 447.6 | 443.8 | 430.2 | 395.5 | 385.6 |
| 35°   | 422.7 | 419.7 | 399.2 | 369.0 | 359.9 |
| 37.5° | 397.7 | 393.9 | 368.2 | 344.0 | 332.7 |
| 40°   | 372.8 | 368.2 | 340.3 | 318.3 | 306.2 |
| 42.5° | 349.3 | 343.3 | 316.1 | 292.6 | 279.0 |
| 45°   | 324.4 | 317.6 | 290.4 | 266.2 | 255.6 |
| 47.5° | 299.4 | 293.4 | 268.4 | 243.5 | 231.4 |
| 50°   | 273.0 | 267.7 | 245.0 | 220.0 | 207.2 |
| 52.5° | 251.0 | 242.7 | 220.8 | 195.8 | 185.3 |
| 55°   | 225.3 | 218.5 | 198.1 | 174.7 | 165.6 |
| 57.5° | 201.9 | 195.1 | 176.2 | 154.3 | 146.7 |
| 60°   | 180.0 | 170.1 | 154.3 | 135.3 | 129.3 |
| 62.5° | 155.8 | 148.2 | 134.6 | 118.7 | 126.3 |
| 65°   | 133.8 | 126.3 | 114.2 | 116.4 | 96.8  |
| 67.5° | 109.6 | 105.9 | 95.3  | 84.7  | 81.7  |
| 70°   | 89.2  | 84.7  | 80.9  | 69.6  | 66.5  |
| 72.5° | 71.1  | 66.5  | 61.2  | 55.2  | 52.9  |
| 75°   | 53.7  | 49.9  | 46.9  | 44.6  | 49.1  |
| 77.5° | 37.1  | 35.5  | 33.3  | 31.0  | 30.2  |
| 80°   | 24.2  | 23.4  | 22.7  | 21.9  | 21.2  |
| 82.5° | 14.4  | 14.4  | 14.4  | 14.4  | 14.4  |
| 85°   | 7.6   | 8.3   | 9.1   | 9.8   | 10.6  |
| 87.5° | 4.5   | 4.5   | 5.3   | 6.0   | 6.8   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)