

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: P559688

Luminaire Tested: FSR-12-2-LD4-1HI-40-UNV-81-88-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559688  
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-LD4-1HI-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**

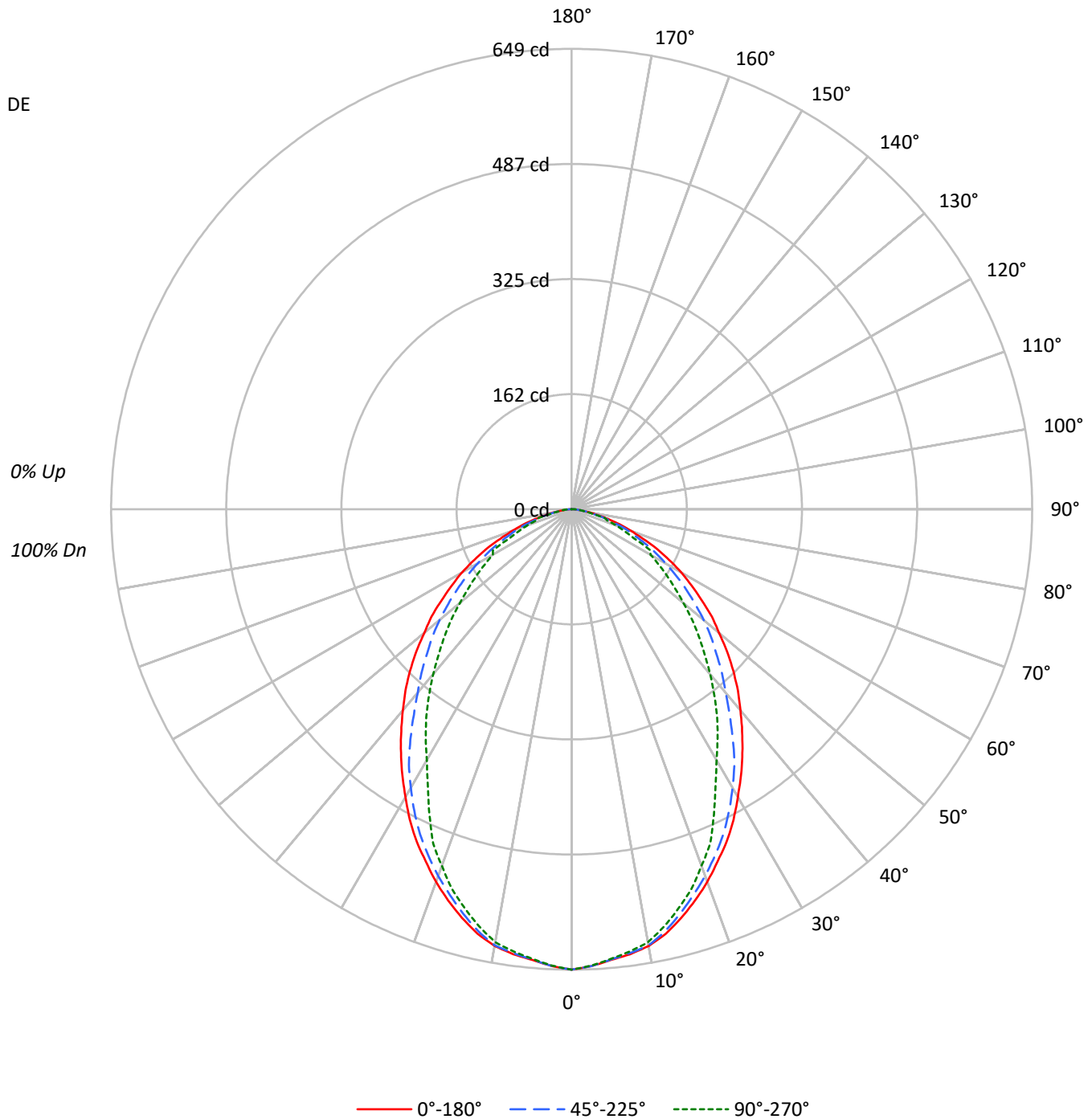
Lumens per Lamp: N/A  
Luminaire Lumens: 1274.0 lumens  
Efficiency: N/A  
Efficacy: 59.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 21.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°  | 3493 | 3493 | 3493 |
| 5°  | 3445 | 3441 | 3437 |
| 10° | 3416 | 3411 | 3387 |
| 15° | 3323 | 3290 | 3244 |
| 20° | 3201 | 3149 | 3064 |
| 25° | 3070 | 3003 | 2816 |
| 30° | 2910 | 2816 | 2536 |
| 35° | 2756 | 2602 | 2346 |
| 40° | 2599 | 2372 | 2134 |
| 45° | 2450 | 2193 | 1930 |
| 50° | 2267 | 2035 | 1721 |
| 55° | 2098 | 1845 | 1542 |
| 60° | 1922 | 1647 | 1381 |
| 65° | 1691 | 1443 | 1223 |
| 70° | 1393 | 1264 | 1039 |
| 75° | 1108 | 967  | 1015 |
| 80° | 744  | 697  | 651  |
| 85° | 463  | 556  | 648  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2450 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 60.4   | 4.7       |
| 10°-20°   | 165.8  | 13.0      |
| 20°-30°   | 229.5  | 18.0      |
| 30°-40°   | 244.7  | 19.2      |
| 40°-50°   | 223.3  | 17.5      |
| 50°-60°   | 174.9  | 13.7      |
| 60°-70°   | 114.0  | 8.9       |
| 70°-80°   | 50.5   | 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°    | 455.7  | 35.8      |
| 0°-40°    | 700.5  | 55.0      |
| 0°-60°    | 1098.7 | 86.2      |
| 0°-90°    | 1274.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1274.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 649 | 649   | 649 | 649   | 649 |      |
| 5°  | 638 | 637   | 637 | 636   | 636 | 61   |
| 15° | 596 | 596   | 590 | 584   | 582 | 168  |
| 25° | 517 | 514   | 506 | 488   | 474 | 237  |
| 35° | 419 | 416   | 396 | 366   | 357 | 262  |
| 45° | 322 | 315   | 288 | 264   | 254 | 248  |
| 55° | 224 | 217   | 197 | 173   | 164 | 201  |
| 65° | 133 | 125   | 113 | 116   | 96  | 131  |
| 75° | 53  | 50    | 46  | 44    | 49  | 57   |
| 85° | 8   | 8     | 9   | 10    | 10  | 10   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 649.0 | 649.0 | 649.0 | 649.0 | 649.0 |
| 2.5°  | 644.5 | 644.5 | 644.5 | 643.7 | 643.7 |
| 5°    | 637.7 | 637.0 | 637.0 | 636.2 | 636.2 |
| 7.5°  | 632.5 | 631.7 | 631.0 | 630.2 | 628.7 |
| 10°   | 625.0 | 625.0 | 624.2 | 620.4 | 619.7 |
| 12.5° | 612.9 | 612.2 | 609.2 | 603.9 | 602.4 |
| 15°   | 596.4 | 596.4 | 590.4 | 584.4 | 582.2 |
| 17.5° | 578.4 | 577.7 | 570.2 | 564.2 | 561.2 |
| 20°   | 558.9 | 557.4 | 549.9 | 540.2 | 534.9 |
| 22.5° | 537.2 | 537.2 | 528.2 | 515.4 | 510.2 |
| 25°   | 516.9 | 513.9 | 505.7 | 487.7 | 474.2 |
| 27.5° | 493.7 | 489.2 | 480.2 | 454.6 | 438.9 |
| 30°   | 468.2 | 465.9 | 453.1 | 420.1 | 408.1 |
| 32.5° | 444.1 | 440.4 | 426.9 | 392.4 | 382.6 |
| 35°   | 419.4 | 416.4 | 396.1 | 366.1 | 357.1 |
| 37.5° | 394.6 | 390.9 | 365.4 | 341.4 | 330.1 |
| 40°   | 369.9 | 365.4 | 337.6 | 315.9 | 303.8 |
| 42.5° | 346.6 | 340.6 | 313.6 | 290.3 | 276.8 |
| 45°   | 321.9 | 315.1 | 288.1 | 264.1 | 253.6 |
| 47.5° | 297.1 | 291.1 | 266.3 | 241.6 | 229.6 |
| 50°   | 270.8 | 265.6 | 243.1 | 218.3 | 205.6 |
| 52.5° | 249.1 | 240.8 | 219.1 | 194.3 | 183.8 |
| 55°   | 223.6 | 216.8 | 196.6 | 173.3 | 164.3 |
| 57.5° | 200.3 | 193.6 | 174.8 | 153.0 | 145.5 |
| 60°   | 178.6 | 168.8 | 153.0 | 134.3 | 128.3 |
| 62.5° | 154.5 | 147.0 | 133.5 | 117.8 | 125.3 |
| 65°   | 132.8 | 125.3 | 113.3 | 115.5 | 96.0  |
| 67.5° | 108.8 | 105.0 | 94.5  | 84.0  | 81.0  |
| 70°   | 88.5  | 84.0  | 80.3  | 69.0  | 66.0  |
| 72.5° | 70.5  | 66.0  | 60.8  | 54.8  | 52.5  |
| 75°   | 53.3  | 49.5  | 46.5  | 44.3  | 48.8  |
| 77.5° | 36.8  | 35.3  | 33.0  | 30.8  | 30.0  |
| 80°   | 24.0  | 23.3  | 22.5  | 21.8  | 21.0  |
| 82.5° | 14.3  | 14.3  | 14.3  | 14.3  | 14.3  |
| 85°   | 7.5   | 8.3   | 9.0   | 9.8   | 10.5  |
| 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)