

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: P558470

Luminaire Tested: FSR-12-1-LD4-1HI-35-UNV-81-87-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P558470  
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-LD4-1HI-35-UNV-81-87-EDD-90  
Description: 1X1 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SI  
LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

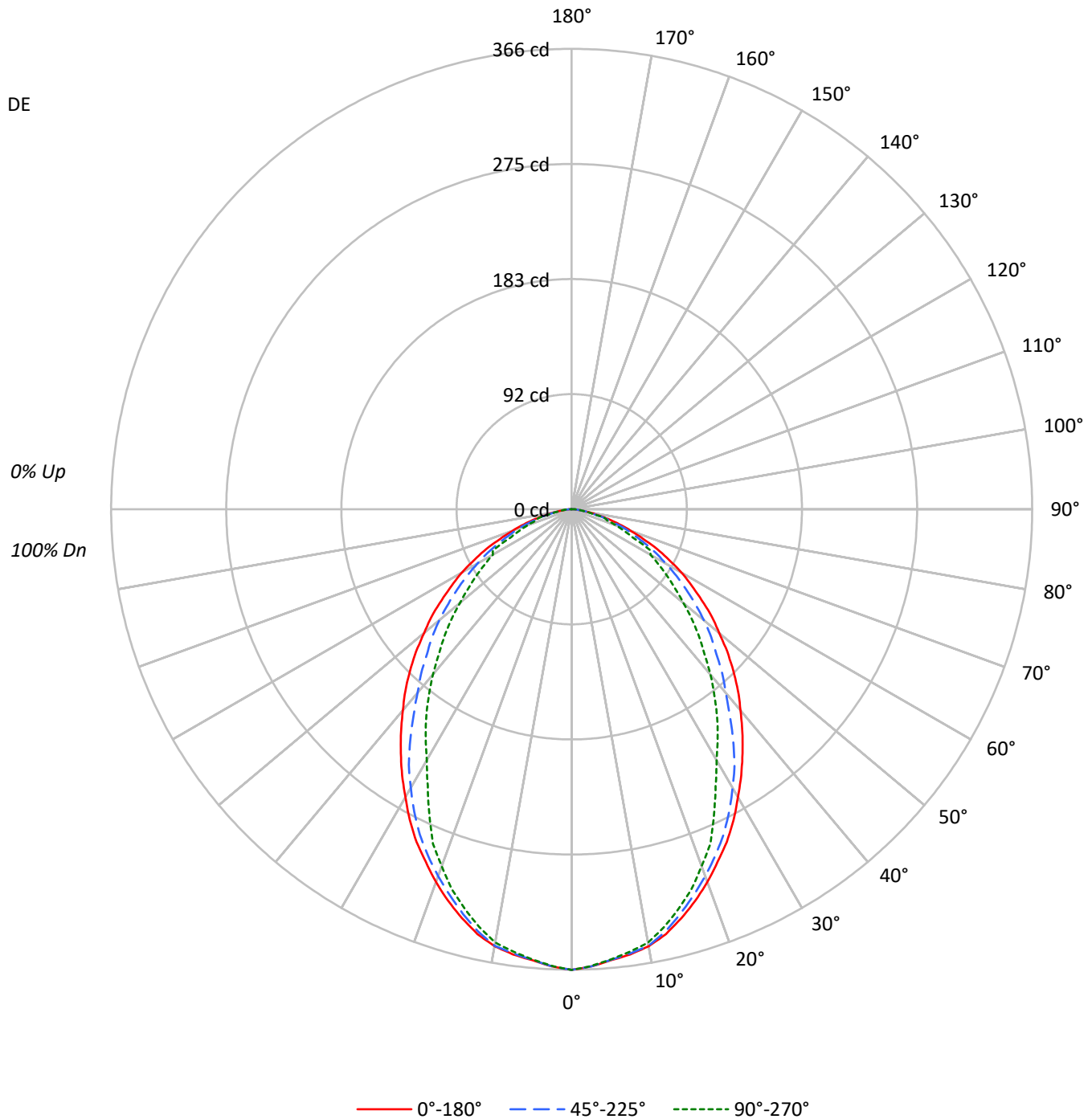
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 719.0 lumens  
Efficiency: N/A  
Efficacy: 66.6 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): 10.8  
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°  | 3942 | 3942 | 3942 |
| 5°  | 3889 | 3884 | 3880 |
| 10° | 3855 | 3851 | 3822 |
| 15° | 3751 | 3713 | 3662 |
| 20° | 3613 | 3556 | 3458 |
| 25° | 3464 | 3390 | 3178 |
| 30° | 3284 | 3178 | 2862 |
| 35° | 3110 | 2938 | 2648 |
| 40° | 2933 | 2677 | 2410 |
| 45° | 2764 | 2475 | 2178 |
| 50° | 2560 | 2298 | 1942 |
| 55° | 2368 | 2081 | 1740 |
| 60° | 2170 | 1860 | 1559 |
| 65° | 1908 | 1628 | 1380 |
| 70° | 1574 | 1426 | 1174 |
| 75° | 1252 | 1094 | 1144 |
| 80° | 837  | 787  | 738  |
| 85° | 519  | 630  | 729  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2764 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 34.1   | 4.7       |
| 10°-20°   | 93.6   | 13.0      |
| 20°-30°   | 129.5  | 18.0      |
| 30°-40°   | 138.1  | 19.2      |
| 40°-50°   | 126.0  | 17.5      |
| 50°-60°   | 98.7   | 13.7      |
| 60°-70°   | 64.3   | 8.9       |
| 70°-80°   | 28.5   | 4.0       |
| 80°-90°   | 6.1    | 0.8       |
| 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°    | 257.2  | 35.8      |
| 0°-40°    | 395.3  | 55.0      |
| 0°-60°    | 620.0  | 86.2      |
| 0°-90°    | 719.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 719.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 366 | 366   | 366 | 366   | 366 |      |
| 5°  | 360 | 360   | 360 | 359   | 359 | 34   |
| 15° | 337 | 337   | 333 | 330   | 329 | 95   |
| 25° | 292 | 290   | 285 | 275   | 268 | 134  |
| 35° | 237 | 235   | 224 | 207   | 202 | 148  |
| 45° | 182 | 178   | 163 | 149   | 143 | 140  |
| 55° | 126 | 122   | 111 | 98    | 93  | 113  |
| 65° | 75  | 71    | 64  | 65    | 54  | 74   |
| 75° | 30  | 28    | 26  | 25    | 28  | 32   |
| 85° | 4   | 5     | 5   | 6     | 6   | 6    |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 366.2 | 366.2 | 366.2 | 366.2 | 366.2 |
| 2.5°  | 363.7 | 363.7 | 363.7 | 363.3 | 363.3 |
| 5°    | 359.9 | 359.5 | 359.5 | 359.1 | 359.1 |
| 7.5°  | 356.9 | 356.5 | 356.1 | 355.7 | 354.8 |
| 10°   | 352.7 | 352.7 | 352.3 | 350.2 | 349.7 |
| 12.5° | 345.9 | 345.5 | 343.8 | 340.8 | 340.0 |
| 15°   | 336.6 | 336.6 | 333.2 | 329.8 | 328.6 |
| 17.5° | 326.4 | 326.0 | 321.8 | 318.4 | 316.7 |
| 20°   | 315.4 | 314.6 | 310.4 | 304.9 | 301.9 |
| 22.5° | 303.2 | 303.2 | 298.1 | 290.9 | 287.9 |
| 25°   | 291.7 | 290.0 | 285.4 | 275.2 | 267.6 |
| 27.5° | 278.6 | 276.1 | 271.0 | 256.6 | 247.7 |
| 30°   | 264.2 | 262.9 | 255.7 | 237.1 | 230.3 |
| 32.5° | 250.7 | 248.5 | 240.9 | 221.4 | 215.9 |
| 35°   | 236.7 | 235.0 | 223.6 | 206.6 | 201.5 |
| 37.5° | 222.7 | 220.6 | 206.2 | 192.7 | 186.3 |
| 40°   | 208.7 | 206.2 | 190.5 | 178.3 | 171.5 |
| 42.5° | 195.6 | 192.2 | 177.0 | 163.9 | 156.2 |
| 45°   | 181.6 | 177.8 | 162.6 | 149.0 | 143.1 |
| 47.5° | 167.7 | 164.3 | 150.3 | 136.3 | 129.6 |
| 50°   | 152.9 | 149.9 | 137.2 | 123.2 | 116.0 |
| 52.5° | 140.6 | 135.9 | 123.6 | 109.7 | 103.7 |
| 55°   | 126.2 | 122.4 | 110.9 | 97.8  | 92.7  |
| 57.5° | 113.1 | 109.2 | 98.7  | 86.4  | 82.1  |
| 60°   | 100.8 | 95.3  | 86.4  | 75.8  | 72.4  |
| 62.5° | 87.2  | 83.0  | 75.4  | 66.5  | 70.7  |
| 65°   | 74.9  | 70.7  | 63.9  | 65.2  | 54.2  |
| 67.5° | 61.4  | 59.3  | 53.3  | 47.4  | 45.7  |
| 70°   | 50.0  | 47.4  | 45.3  | 39.0  | 37.3  |
| 72.5° | 39.8  | 37.3  | 34.3  | 30.9  | 29.6  |
| 75°   | 30.1  | 27.9  | 26.3  | 25.0  | 27.5  |
| 77.5° | 20.7  | 19.9  | 18.6  | 17.4  | 16.9  |
| 80°   | 13.5  | 13.1  | 12.7  | 12.3  | 11.9  |
| 82.5° | 8.0   | 8.0   | 8.0   | 8.0   | 8.0   |
| 85°   | 4.2   | 4.7   | 5.1   | 5.5   | 5.9   |
| 87.5° | 2.5   | 2.5   | 3.0   | 3.4   | 3.8   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)