

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: P559816

Luminaire Tested: FSR-12-2-LD4-1LO-35-UNV-81-88-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559816  
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-LD4-1LO-35-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 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 765.0 lumens  
Efficiency: N/A  
Efficacy: 65.4 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

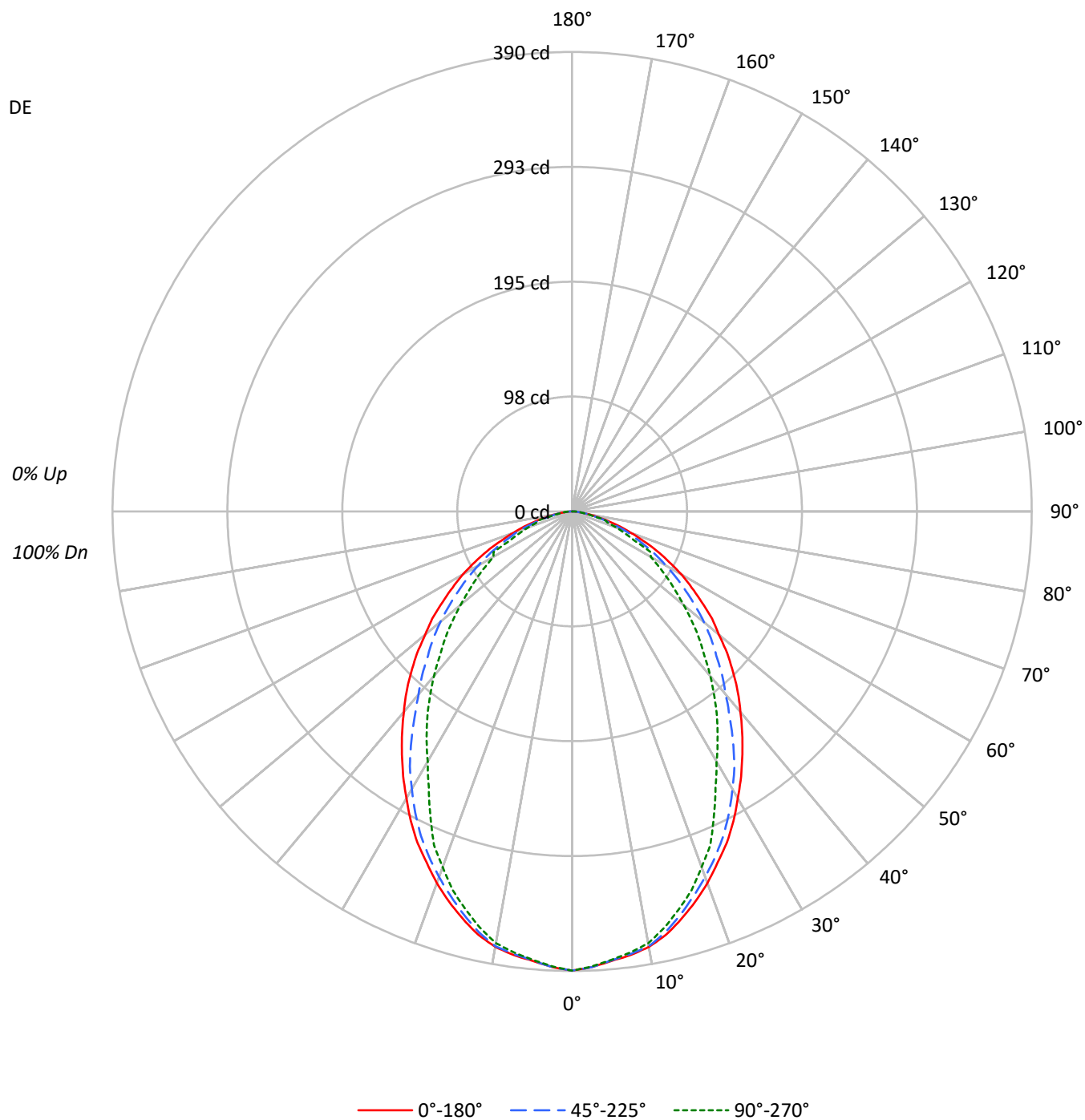
Input Watts (W): 11.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P559816

CATALOG NUMBER: FSR-12-2-LD4-1LO-35-UNV-81-88-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P559816

CATALOG NUMBER: FSR-12-2-LD4-1LO-35-UNV-81-88-EDD-90

### 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  | 50  | 30 | 10 | 50 | 30 | 10 |  |  |
| 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  | 47  | 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°  | 2097 | 2097 | 2097 |
| 5°  | 2069 | 2066 | 2064 |
| 10° | 2051 | 2048 | 2034 |
| 15° | 1995 | 1975 | 1948 |
| 20° | 1922 | 1891 | 1840 |
| 25° | 1843 | 1803 | 1691 |
| 30° | 1747 | 1691 | 1523 |
| 35° | 1654 | 1563 | 1409 |
| 40° | 1560 | 1424 | 1282 |
| 45° | 1471 | 1317 | 1159 |
| 50° | 1361 | 1222 | 1033 |
| 55° | 1259 | 1107 | 926  |
| 60° | 1154 | 989  | 829  |
| 65° | 1015 | 866  | 735  |
| 70° | 837  | 758  | 623  |
| 75° | 665  | 580  | 609  |
| 80° | 446  | 418  | 391  |
| 85° | 278  | 333  | 389  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle:  $0^\circ$ 

Vertical Angle:  $45^\circ$

Luminance: 1471 cd/sqm

TEST NUMBER: P559816

CATALOG NUMBER: FSR-12-2-LD4-1LO-35-UNV-81-88-EDD-90

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 36.3   | 4.7       |
| 10°-20°   | 99.6   | 13.0      |
| 20°-30°   | 137.8  | 18.0      |
| 30°-40°   | 147.0  | 19.2      |
| 40°-50°   | 134.1  | 17.5      |
| 50°-60°   | 105.0  | 13.7      |
| 60°-70°   | 68.5   | 8.9       |
| 70°-80°   | 30.3   | 4.0       |
| 80°-90°   | 6.5    | 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°    | 273.6  | 35.8      |
| 0°-40°    | 420.6  | 55.0      |
| 0°-60°    | 659.7  | 86.2      |
| 0°-90°    | 765.0  | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 765.0  | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 390 | 390   | 390 | 390   | 390 |      |
| 5°  | 383 | 382   | 382 | 382   | 382 | 36   |
| 15° | 358 | 358   | 354 | 351   | 350 | 101  |
| 25° | 310 | 309   | 304 | 293   | 285 | 143  |
| 35° | 252 | 250   | 238 | 220   | 214 | 157  |
| 45° | 193 | 189   | 173 | 159   | 152 | 149  |
| 55° | 134 | 130   | 118 | 104   | 99  | 120  |
| 65° | 80  | 75    | 68  | 69    | 58  | 79   |
| 75° | 32  | 30    | 28  | 27    | 29  | 34   |
| 85° | 4   | 5     | 5   | 6     | 6   | 6    |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

TEST NUMBER: P559816

CATALOG NUMBER: FSR-12-2-LD4-1LO-35-UNV-81-88-EDD-90

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 389.7 | 389.7 | 389.7 | 389.7 | 389.7 |
| 2.5°  | 387.0 | 387.0 | 387.0 | 386.5 | 386.5 |
| 5°    | 382.9 | 382.5 | 382.5 | 382.0 | 382.0 |
| 7.5°  | 379.8 | 379.3 | 378.9 | 378.4 | 377.5 |
| 10°   | 375.3 | 375.3 | 374.8 | 372.6 | 372.1 |
| 12.5° | 368.1 | 367.6 | 365.8 | 362.7 | 361.7 |
| 15°   | 358.1 | 358.1 | 354.5 | 350.9 | 349.6 |
| 17.5° | 347.3 | 346.9 | 342.4 | 338.8 | 337.0 |
| 20°   | 335.6 | 334.7 | 330.2 | 324.4 | 321.2 |
| 22.5° | 322.6 | 322.6 | 317.2 | 309.5 | 306.3 |
| 25°   | 310.4 | 308.6 | 303.6 | 292.8 | 284.7 |
| 27.5° | 296.4 | 293.7 | 288.3 | 273.0 | 263.5 |
| 30°   | 281.1 | 279.8 | 272.1 | 252.3 | 245.1 |
| 32.5° | 266.7 | 264.4 | 256.3 | 235.6 | 229.8 |
| 35°   | 251.8 | 250.0 | 237.9 | 219.8 | 214.4 |
| 37.5° | 237.0 | 234.7 | 219.4 | 205.0 | 198.2 |
| 40°   | 222.1 | 219.4 | 202.7 | 189.7 | 182.5 |
| 42.5° | 208.1 | 204.5 | 188.3 | 174.3 | 166.2 |
| 45°   | 193.3 | 189.2 | 173.0 | 158.6 | 152.3 |
| 47.5° | 178.4 | 174.8 | 159.9 | 145.1 | 137.9 |
| 50°   | 162.6 | 159.5 | 146.0 | 131.1 | 123.4 |
| 52.5° | 149.6 | 144.6 | 131.5 | 116.7 | 110.4 |
| 55°   | 134.2 | 130.2 | 118.0 | 104.1 | 98.7  |
| 57.5° | 120.3 | 116.2 | 105.0 | 91.9  | 87.4  |
| 60°   | 107.2 | 101.4 | 91.9  | 80.6  | 77.0  |
| 62.5° | 92.8  | 88.3  | 80.2  | 70.7  | 75.2  |
| 65°   | 79.7  | 75.2  | 68.0  | 69.4  | 57.7  |
| 67.5° | 65.3  | 63.1  | 56.8  | 50.5  | 48.7  |
| 70°   | 53.2  | 50.5  | 48.2  | 41.4  | 39.6  |
| 72.5° | 42.3  | 39.6  | 36.5  | 32.9  | 31.5  |
| 75°   | 32.0  | 29.7  | 27.9  | 26.6  | 29.3  |
| 77.5° | 22.1  | 21.2  | 19.8  | 18.5  | 18.0  |
| 80°   | 14.4  | 14.0  | 13.5  | 13.1  | 12.6  |
| 82.5° | 8.6   | 8.6   | 8.6   | 8.6   | 8.6   |
| 85°   | 4.5   | 5.0   | 5.4   | 5.9   | 6.3   |
| 87.5° | 2.7   | 2.7   | 3.2   | 3.6   | 4.1   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)