

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: P559656

Luminaire Tested: FSR-12-2-LD4-1HI-35-UNV-93-88-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559656  
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-35-UNV-93-88-EDD-90  
Description: 1X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

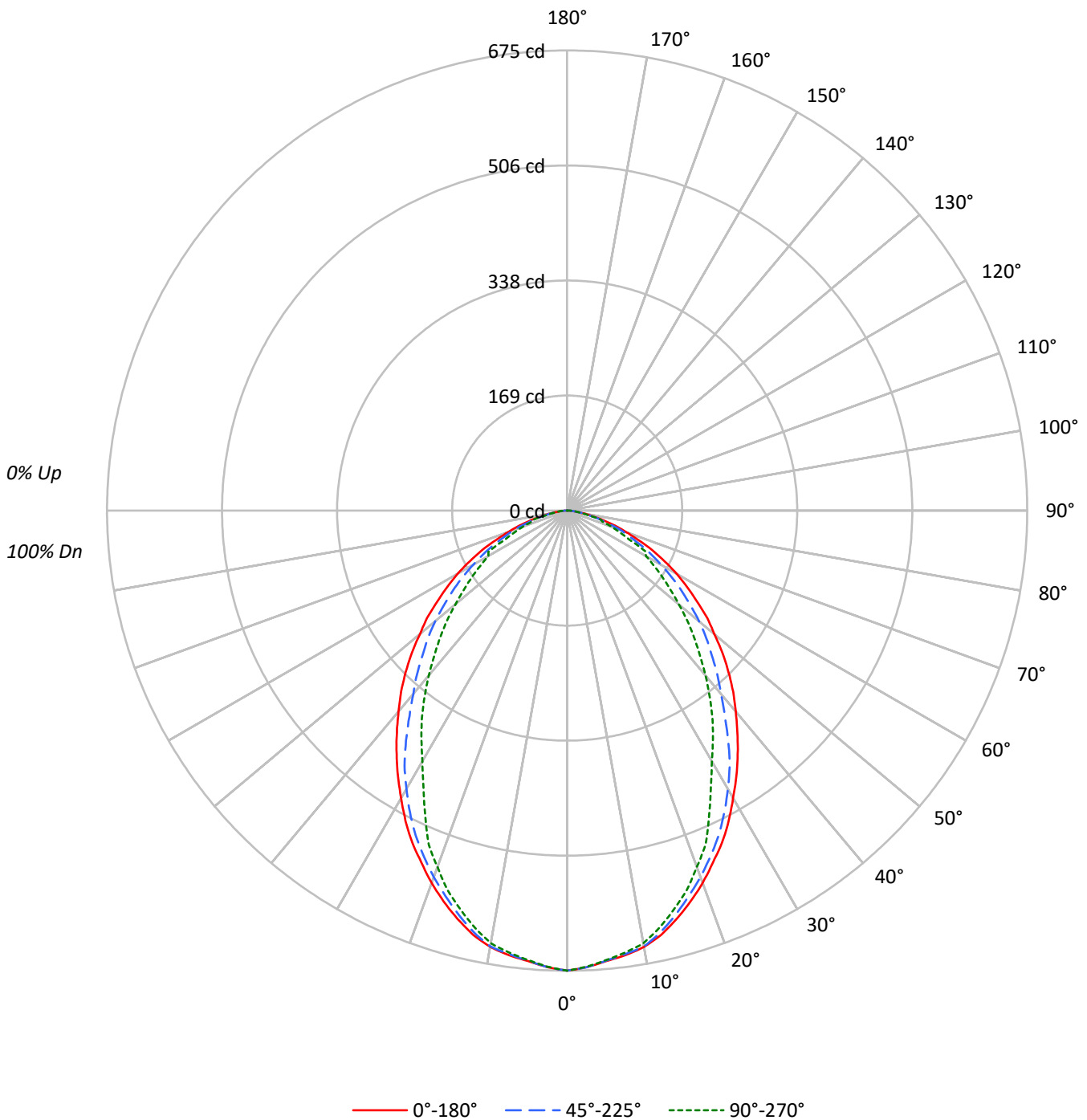
Lumens per Lamp: N/A  
Luminaire Lumens: 1325.0 lumens  
Efficiency: N/A  
Efficacy: 61.3 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 21.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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



TEST NUMBER: P559656

CATALOG NUMBER: FSR-12-2-LD4-1HI-35-UNV-93-88-EDD-90

### Luminous Intensity Polar Plot





TEST NUMBER: P559656

CATALOG NUMBER: FSR-12-2-LD4-1HI-35-UNV-93-88-EDD-90

**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  | 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°  | 3632 | 3632 | 3632 |
| 5°  | 3583 | 3579 | 3575 |
| 10° | 3552 | 3548 | 3522 |
| 15° | 3456 | 3422 | 3374 |
| 20° | 3329 | 3275 | 3186 |
| 25° | 3192 | 3123 | 2928 |
| 30° | 3026 | 2929 | 2638 |
| 35° | 2866 | 2707 | 2440 |
| 40° | 2703 | 2467 | 2220 |
| 45° | 2547 | 2280 | 2007 |
| 50° | 2359 | 2117 | 1790 |
| 55° | 2182 | 1918 | 1604 |
| 60° | 1999 | 1714 | 1436 |
| 65° | 1759 | 1500 | 1272 |
| 70° | 1449 | 1314 | 1081 |
| 75° | 1152 | 1006 | 1054 |
| 80° | 775  | 725  | 676  |
| 85° | 482  | 580  | 673  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2547 cd/sqm



TEST NUMBER: P559656

CATALOG NUMBER: FSR-12-2-LD4-1HI-35-UNV-93-88-EDD-90

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 62.8   | 4.7       |
| 10°-20°   | 172.4  | 13.0      |
| 20°-30°   | 238.7  | 18.0      |
| 30°-40°   | 254.5  | 19.2      |
| 40°-50°   | 232.2  | 17.5      |
| 50°-60°   | 181.9  | 13.7      |
| 60°-70°   | 118.6  | 8.9       |
| 70°-80°   | 52.5   | 4.0       |
| 80°-90°   | 11.3   | 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°    | 474.0  | 35.8      |
| 0°-40°    | 728.5  | 55.0      |
| 0°-60°    | 1142.6 | 86.2      |
| 0°-90°    | 1325.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1325.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 675 | 675   | 675 | 675   | 675 |      |
| 5°  | 663 | 662   | 662 | 662   | 662 | 63   |
| 15° | 620 | 620   | 614 | 608   | 606 | 174  |
| 25° | 538 | 534   | 526 | 507   | 493 | 247  |
| 35° | 436 | 433   | 412 | 381   | 371 | 273  |
| 45° | 335 | 328   | 300 | 275   | 264 | 258  |
| 55° | 232 | 226   | 204 | 180   | 171 | 209  |
| 65° | 138 | 130   | 118 | 120   | 100 | 136  |
| 75° | 55  | 52    | 48  | 46    | 51  | 59   |
| 85° | 8   | 9     | 9   | 10    | 11  | 11   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



TEST NUMBER: P559656

CATALOG NUMBER: FSR-12-2-LD4-1HI-35-UNV-93-88-EDD-90

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 674.9 | 674.9 | 674.9 | 674.9 | 674.9 |
| 2.5°  | 670.3 | 670.3 | 670.3 | 669.5 | 669.5 |
| 5°    | 663.2 | 662.5 | 662.5 | 661.7 | 661.7 |
| 7.5°  | 657.8 | 657.0 | 656.2 | 655.4 | 653.9 |
| 10°   | 650.0 | 650.0 | 649.2 | 645.3 | 644.5 |
| 12.5° | 637.5 | 636.7 | 633.6 | 628.1 | 626.6 |
| 15°   | 620.3 | 620.3 | 614.1 | 607.8 | 605.5 |
| 17.5° | 601.6 | 600.8 | 593.0 | 586.8 | 583.6 |
| 20°   | 581.3 | 579.7 | 571.9 | 561.8 | 556.3 |
| 22.5° | 558.7 | 558.7 | 549.3 | 536.0 | 530.6 |
| 25°   | 537.6 | 534.5 | 525.9 | 507.2 | 493.1 |
| 27.5° | 513.4 | 508.7 | 499.4 | 472.8 | 456.5 |
| 30°   | 486.9 | 484.6 | 471.3 | 437.0 | 424.5 |
| 32.5° | 461.9 | 458.0 | 444.0 | 408.1 | 397.9 |
| 35°   | 436.2 | 433.1 | 412.0 | 380.8 | 371.4 |
| 37.5° | 410.4 | 406.5 | 380.0 | 355.0 | 343.3 |
| 40°   | 384.7 | 380.0 | 351.1 | 328.5 | 316.0 |
| 42.5° | 360.5 | 354.2 | 326.2 | 302.0 | 287.9 |
| 45°   | 334.7 | 327.7 | 299.6 | 274.7 | 263.7 |
| 47.5° | 309.0 | 302.7 | 277.0 | 251.2 | 238.8 |
| 50°   | 281.7 | 276.2 | 252.8 | 227.1 | 213.8 |
| 52.5° | 259.1 | 250.5 | 227.8 | 202.1 | 191.2 |
| 55°   | 232.5 | 225.5 | 204.4 | 180.2 | 170.9 |
| 57.5° | 208.3 | 201.3 | 181.8 | 159.2 | 151.4 |
| 60°   | 185.7 | 175.6 | 159.2 | 139.7 | 133.4 |
| 62.5° | 160.7 | 152.9 | 138.9 | 122.5 | 130.3 |
| 65°   | 138.1 | 130.3 | 117.8 | 120.2 | 99.9  |
| 67.5° | 113.1 | 109.2 | 98.3  | 87.4  | 84.3  |
| 70°   | 92.1  | 87.4  | 83.5  | 71.8  | 68.7  |
| 72.5° | 73.3  | 68.7  | 63.2  | 57.0  | 54.6  |
| 75°   | 55.4  | 51.5  | 48.4  | 46.0  | 50.7  |
| 77.5° | 38.2  | 36.7  | 34.3  | 32.0  | 31.2  |
| 80°   | 25.0  | 24.2  | 23.4  | 22.6  | 21.8  |
| 82.5° | 14.8  | 14.8  | 14.8  | 14.8  | 14.8  |
| 85°   | 7.8   | 8.6   | 9.4   | 10.1  | 10.9  |
| 87.5° | 4.7   | 4.7   | 5.5   | 6.2   | 7.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)