

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: P560523

Luminaire Tested: FSR-12-2-LD4-2LO-50-UNV-81-94-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560523  
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-LD4-2LO-50-UNV-81-94-EDD  
Description: 1X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

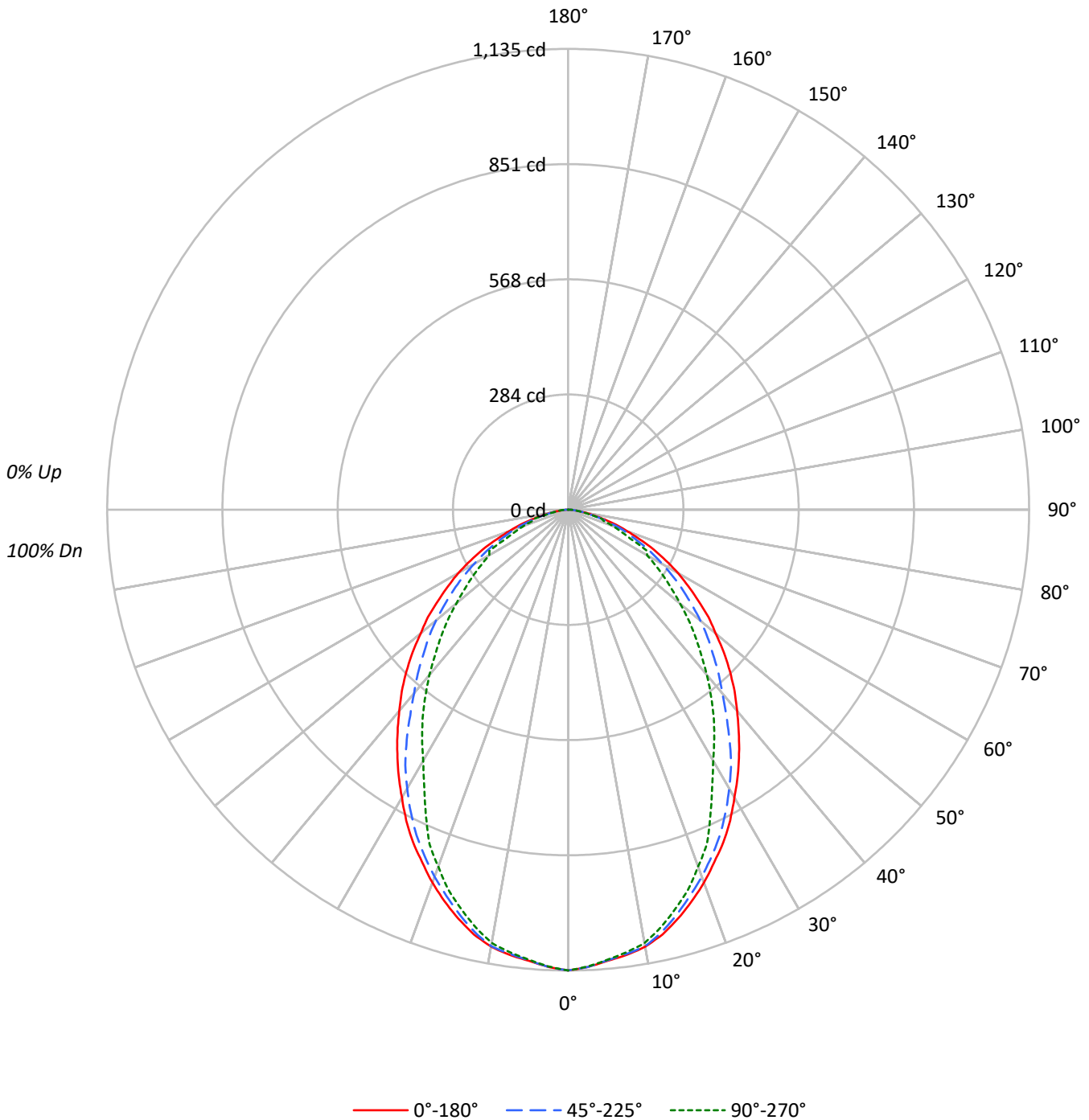
Lumens per Lamp: N/A  
Luminaire Lumens: 2228.0 lumens  
Efficiency: N/A  
Efficacy: 95.2 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 23.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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: P560523

CATALOG NUMBER: FSR-12-2-LD4-2LO-50-UNV-81-94-EDD

### Luminous Intensity Polar Plot





TEST NUMBER: P560523

CATALOG NUMBER: FSR-12-2-LD4-2LO-50-UNV-81-94-EDD

**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°  | 6108 | 6108 | 6108 |
| 5°  | 6025 | 6018 | 6011 |
| 10° | 5973 | 5966 | 5922 |
| 15° | 5812 | 5753 | 5673 |
| 20° | 5598 | 5508 | 5358 |
| 25° | 5368 | 5251 | 4924 |
| 30° | 5088 | 4925 | 4435 |
| 35° | 4819 | 4552 | 4103 |
| 40° | 4544 | 4148 | 3733 |
| 45° | 4284 | 3835 | 3376 |
| 50° | 3965 | 3559 | 3010 |
| 55° | 3669 | 3226 | 2696 |
| 60° | 3362 | 2882 | 2415 |
| 65° | 2957 | 2523 | 2138 |
| 70° | 2436 | 2209 | 1817 |
| 75° | 1938 | 1691 | 1774 |
| 80° | 1302 | 1221 | 1137 |
| 85° | 809  | 969  | 1136 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4284 cd/sqm

TEST NUMBER: P560523

CATALOG NUMBER: FSR-12-2-LD4-2LO-50-UNV-81-94-EDD

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 105.6  | 4.7       |
| 10°-20°   | 289.9  | 13.0      |
| 20°-30°   | 401.4  | 18.0      |
| 30°-40°   | 428.0  | 19.2      |
| 40°-50°   | 390.5  | 17.5      |
| 50°-60°   | 305.9  | 13.7      |
| 60°-70°   | 199.4  | 8.9       |
| 70°-80°   | 88.3   | 4.0       |
| 80°-90°   | 19.0   | 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°    | 797.0  | 35.8      |
| 0°-40°    | 1225.0 | 55.0      |
| 0°-60°    | 1921.4 | 86.2      |
| 0°-90°    | 2228.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2228.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1135 | 1135  | 1135 | 1135  | 1135 |      |
| 5°  | 1115 | 1114  | 1114 | 1113  | 1113 | 106  |
| 15° | 1043 | 1043  | 1033 | 1022  | 1018 | 293  |
| 25° | 904  | 899   | 884  | 853   | 829  | 415  |
| 35° | 733  | 728   | 693  | 640   | 624  | 459  |
| 45° | 563  | 551   | 504  | 462   | 444  | 434  |
| 55° | 391  | 379   | 344  | 303   | 287  | 351  |
| 65° | 232  | 219   | 198  | 202   | 168  | 229  |
| 75° | 93   | 87    | 81   | 77    | 85   | 100  |
| 85° | 13   | 14    | 16   | 17    | 18   | 18   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P560523

CATALOG NUMBER: FSR-12-2-LD4-2LO-50-UNV-81-94-EDD

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1134.9 | 1134.9 | 1134.9 | 1134.9 | 1134.9 |
| 2.5°  | 1127.0 | 1127.0 | 1127.0 | 1125.7 | 1125.7 |
| 5°    | 1115.2 | 1113.9 | 1113.9 | 1112.6 | 1112.6 |
| 7.5°  | 1106.0 | 1104.7 | 1103.4 | 1102.1 | 1099.5 |
| 10°   | 1092.9 | 1092.9 | 1091.6 | 1085.1 | 1083.7 |
| 12.5° | 1071.9 | 1070.6 | 1065.4 | 1056.2 | 1053.6 |
| 15°   | 1043.1 | 1043.1 | 1032.6 | 1022.1 | 1018.1 |
| 17.5° | 1011.6 | 1010.3 | 997.1  | 986.7  | 981.4  |
| 20°   | 977.5  | 974.8  | 961.7  | 944.7  | 935.5  |
| 22.5° | 939.4  | 939.4  | 923.7  | 901.4  | 892.2  |
| 25°   | 904.0  | 898.7  | 884.3  | 852.8  | 829.2  |
| 27.5° | 863.3  | 855.4  | 839.7  | 795.1  | 767.5  |
| 30°   | 818.7  | 814.8  | 792.5  | 734.7  | 713.7  |
| 32.5° | 776.7  | 770.2  | 746.5  | 686.2  | 669.1  |
| 35°   | 733.4  | 728.2  | 692.8  | 640.3  | 624.5  |
| 37.5° | 690.1  | 683.6  | 639.0  | 597.0  | 577.3  |
| 40°   | 646.8  | 639.0  | 590.4  | 552.4  | 531.4  |
| 42.5° | 606.2  | 595.7  | 548.4  | 507.8  | 484.1  |
| 45°   | 562.9  | 551.1  | 503.8  | 461.8  | 443.5  |
| 47.5° | 519.6  | 509.1  | 465.8  | 422.5  | 401.5  |
| 50°   | 473.6  | 464.5  | 425.1  | 381.8  | 359.5  |
| 52.5° | 435.6  | 421.2  | 383.1  | 339.8  | 321.4  |
| 55°   | 391.0  | 379.2  | 343.8  | 303.1  | 287.3  |
| 57.5° | 350.3  | 338.5  | 305.7  | 267.7  | 254.5  |
| 60°   | 312.3  | 295.2  | 267.7  | 234.9  | 224.4  |
| 62.5° | 270.3  | 257.2  | 233.5  | 206.0  | 219.1  |
| 65°   | 232.2  | 219.1  | 198.1  | 202.1  | 167.9  |
| 67.5° | 190.2  | 183.7  | 165.3  | 146.9  | 141.7  |
| 70°   | 154.8  | 146.9  | 140.4  | 120.7  | 115.5  |
| 72.5° | 123.3  | 115.5  | 106.3  | 95.8   | 91.8   |
| 75°   | 93.2   | 86.6   | 81.3   | 77.4   | 85.3   |
| 77.5° | 64.3   | 61.7   | 57.7   | 53.8   | 52.5   |
| 80°   | 42.0   | 40.7   | 39.4   | 38.0   | 36.7   |
| 82.5° | 24.9   | 24.9   | 24.9   | 24.9   | 24.9   |
| 85°   | 13.1   | 14.4   | 15.7   | 17.1   | 18.4   |
| 87.5° | 7.9    | 7.9    | 9.2    | 10.5   | 11.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)