

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: P563179

Luminaire Tested: FSR-24-4-LD4-3HI-40-UNV-93-94-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P563179  
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-24-4-LD4-3HI-40-UNV-93-94-EDD  
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

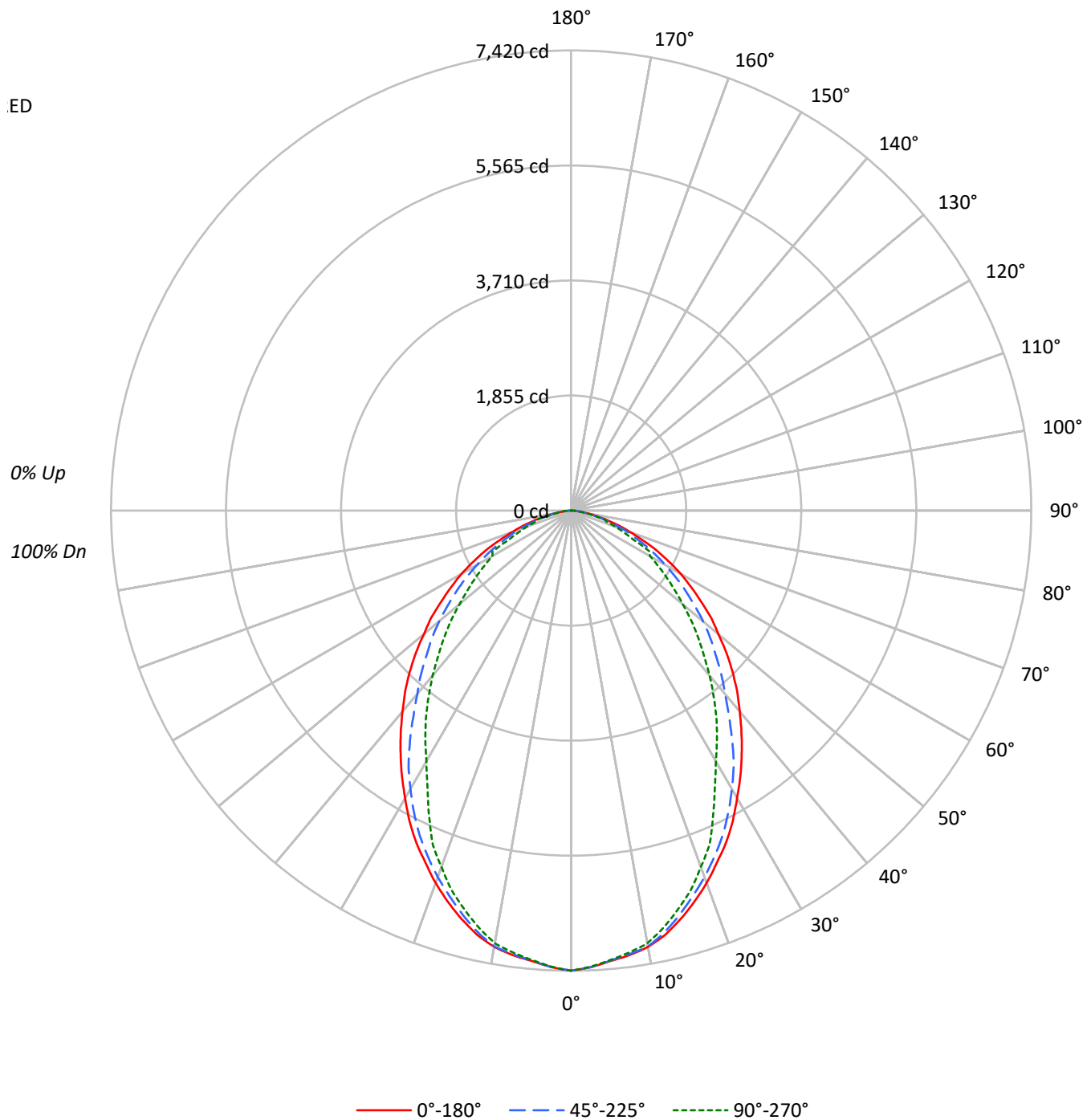
Lumens per Lamp: N/A  
Luminaire Lumens: 14566.0 lumens  
Efficiency: N/A  
Efficacy: 112.4 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 129.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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°  | 9983 | 9983 | 9983 |
| 5°  | 9848 | 9836 | 9824 |
| 10° | 9762 | 9750 | 9680 |
| 15° | 9499 | 9403 | 9272 |
| 20° | 9150 | 9003 | 8757 |
| 25° | 8774 | 8583 | 8048 |
| 30° | 8316 | 8049 | 7250 |
| 35° | 7876 | 7439 | 6706 |
| 40° | 7428 | 6780 | 6102 |
| 45° | 7002 | 6267 | 5517 |
| 50° | 6482 | 5817 | 4920 |
| 55° | 5996 | 5272 | 4407 |
| 60° | 5494 | 4709 | 3947 |
| 65° | 4834 | 4124 | 3495 |
| 70° | 3982 | 3611 | 2969 |
| 75° | 3166 | 2765 | 2899 |
| 80° | 2127 | 1994 | 1861 |
| 85° | 1325 | 1589 | 1854 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7002 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 690.7   | 4.7       |
| 10°-20°   | 1895.5  | 13.0      |
| 20°-30°   | 2624.2  | 18.0      |
| 30°-40°   | 2798.1  | 19.2      |
| 40°-50°   | 2552.7  | 17.5      |
| 50°-60°   | 1999.9  | 13.7      |
| 60°-70°   | 1303.4  | 8.9       |
| 70°-80°   | 577.5   | 4.0       |
| 80°-90°   | 124.0   | 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°    | 5210.4  | 35.8      |
| 0°-40°    | 8008.5  | 55.0      |
| 0°-60°    | 12561.1 | 86.2      |
| 0°-90°    | 14566.0 | 100.0     |
| 90°-120°  | 0.0     | 0.0       |
| 90°-150°  | 0.0     | 0.0       |
| 90°-180°  | 0.0     | 0.0       |
| 0°-180°   | 14566.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 7420 | 7420  | 7420 | 7420  | 7420 |      |
| 5°  | 7291 | 7282  | 7282 | 7274  | 7274 | 692  |
| 15° | 6819 | 6819  | 6751 | 6682  | 6656 | 1917 |
| 25° | 5910 | 5876  | 5781 | 5576  | 5421 | 2713 |
| 35° | 4795 | 4761  | 4529 | 4186  | 4083 | 2998 |
| 45° | 3680 | 3603  | 3294 | 3019  | 2899 | 2835 |
| 55° | 2556 | 2479  | 2247 | 1982  | 1878 | 2293 |
| 65° | 1518 | 1432  | 1295 | 1321  | 1098 | 1496 |
| 75° | 609  | 566   | 532  | 506   | 558  | 653  |
| 85° | 86   | 94    | 103  | 112   | 120  | 119  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 7419.7 | 7419.7 | 7419.7 | 7419.7 | 7419.7 |
| 2.5°  | 7368.3 | 7368.3 | 7368.3 | 7359.7 | 7359.7 |
| 5°    | 7291.1 | 7282.5 | 7282.5 | 7273.9 | 7273.9 |
| 7.5°  | 7231.0 | 7222.4 | 7213.9 | 7205.3 | 7188.1 |
| 10°   | 7145.2 | 7145.2 | 7136.7 | 7093.8 | 7085.2 |
| 12.5° | 7008.0 | 6999.4 | 6965.1 | 6905.1 | 6887.9 |
| 15°   | 6819.3 | 6819.3 | 6750.7 | 6682.0 | 6656.3 |
| 17.5° | 6613.4 | 6604.8 | 6519.1 | 6450.4 | 6416.1 |
| 20°   | 6390.4 | 6373.2 | 6287.5 | 6176.0 | 6115.9 |
| 22.5° | 6141.6 | 6141.6 | 6038.7 | 5892.9 | 5832.8 |
| 25°   | 5910.0 | 5875.7 | 5781.4 | 5575.5 | 5421.1 |
| 27.5° | 5644.1 | 5592.7 | 5489.7 | 5198.1 | 5018.0 |
| 30°   | 5352.5 | 5326.8 | 5180.9 | 4803.5 | 4666.3 |
| 32.5° | 5078.0 | 5035.1 | 4880.7 | 4486.1 | 4374.6 |
| 35°   | 4794.9 | 4760.6 | 4529.0 | 4185.9 | 4083.0 |
| 37.5° | 4511.9 | 4469.0 | 4177.3 | 3902.9 | 3774.2 |
| 40°   | 4228.8 | 4177.3 | 3860.0 | 3611.2 | 3474.0 |
| 42.5° | 3962.9 | 3894.3 | 3585.5 | 3319.6 | 3165.2 |
| 45°   | 3679.8 | 3602.6 | 3293.8 | 3019.4 | 2899.3 |
| 47.5° | 3396.8 | 3328.2 | 3045.1 | 2762.0 | 2624.8 |
| 50°   | 3096.6 | 3036.5 | 2779.2 | 2496.1 | 2350.3 |
| 52.5° | 2847.8 | 2753.4 | 2504.7 | 2221.6 | 2101.5 |
| 55°   | 2556.2 | 2479.0 | 2247.4 | 1981.5 | 1878.5 |
| 57.5° | 2290.3 | 2213.1 | 1998.6 | 1749.9 | 1664.1 |
| 60°   | 2041.5 | 1930.0 | 1749.9 | 1535.4 | 1466.8 |
| 62.5° | 1767.0 | 1681.2 | 1526.8 | 1346.7 | 1432.5 |
| 65°   | 1518.3 | 1432.5 | 1295.2 | 1321.0 | 1097.9 |
| 67.5° | 1243.8 | 1200.9 | 1080.8 | 960.7  | 926.4  |
| 70°   | 1012.2 | 960.7  | 917.8  | 789.2  | 754.8  |
| 72.5° | 806.3  | 754.8  | 694.8  | 626.2  | 600.4  |
| 75°   | 609.0  | 566.1  | 531.8  | 506.1  | 557.6  |
| 77.5° | 420.3  | 403.2  | 377.4  | 351.7  | 343.1  |
| 80°   | 274.5  | 265.9  | 257.3  | 248.8  | 240.2  |
| 82.5° | 163.0  | 163.0  | 163.0  | 163.0  | 163.0  |
| 85°   | 85.8   | 94.4   | 102.9  | 111.5  | 120.1  |
| 87.5° | 51.5   | 51.5   | 60.0   | 68.6   | 77.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)