

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: P561656

Luminaire Tested: FSR-12-4-LD4-2LO-50-UNV-80-88-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561656  
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-12-4-LD4-2LO-50-UNV-80-88-EDD-90  
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .500 CLEAR PC ENVIRON  
SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

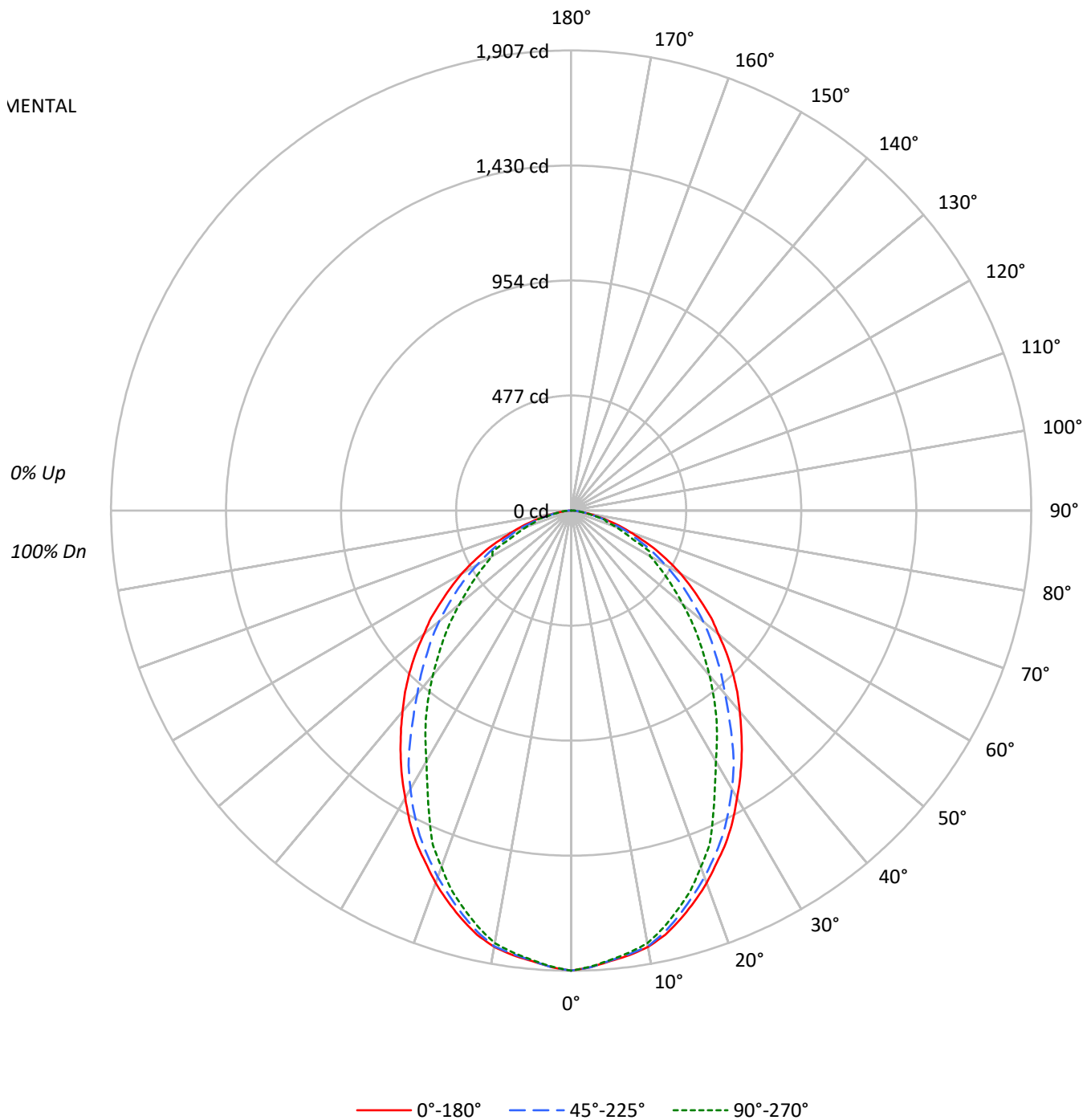
Lumens per Lamp: N/A  
Luminaire Lumens: 3743.0 lumens  
Efficiency: N/A  
Efficacy: 80.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 46.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 0 |  |   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |     |   |  |   |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |    |    | 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°  | 5131 | 5131 | 5131 |
| 5°  | 5061 | 5055 | 5049 |
| 10° | 5017 | 5011 | 4975 |
| 15° | 4882 | 4833 | 4765 |
| 20° | 4702 | 4627 | 4501 |
| 25° | 4509 | 4411 | 4136 |
| 30° | 4274 | 4137 | 3726 |
| 35° | 4048 | 3823 | 3447 |
| 40° | 3817 | 3484 | 3136 |
| 45° | 3599 | 3221 | 2835 |
| 50° | 3331 | 2990 | 2529 |
| 55° | 3082 | 2709 | 2265 |
| 60° | 2823 | 2420 | 2028 |
| 65° | 2484 | 2119 | 1796 |
| 70° | 2046 | 1855 | 1526 |
| 75° | 1627 | 1421 | 1490 |
| 80° | 1093 | 1024 | 956  |
| 85° | 679  | 818  | 954  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3599 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 177.5  | 4.7       |
| 10°-20°   | 487.1  | 13.0      |
| 20°-30°   | 674.3  | 18.0      |
| 30°-40°   | 719.0  | 19.2      |
| 40°-50°   | 656.0  | 17.5      |
| 50°-60°   | 513.9  | 13.7      |
| 60°-70°   | 334.9  | 8.9       |
| 70°-80°   | 148.4  | 4.0       |
| 80°-90°   | 31.9   | 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°    | 1338.9 | 35.8      |
| 0°-40°    | 2057.9 | 55.0      |
| 0°-60°    | 3227.8 | 86.2      |
| 0°-90°    | 3743.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3743.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1907 | 1907  | 1907 | 1907  | 1907 |      |
| 5°  | 1874 | 1871  | 1871 | 1869  | 1869 | 178  |
| 15° | 1752 | 1752  | 1735 | 1717  | 1710 | 493  |
| 25° | 1519 | 1510  | 1486 | 1433  | 1393 | 697  |
| 35° | 1232 | 1223  | 1164 | 1076  | 1049 | 770  |
| 45° | 946  | 926   | 846  | 776   | 745  | 728  |
| 55° | 657  | 637   | 578  | 509   | 483  | 589  |
| 65° | 390  | 368   | 333  | 339   | 282  | 384  |
| 75° | 156  | 146   | 137  | 130   | 143  | 168  |
| 85° | 22   | 24    | 26   | 29    | 31   | 31   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1906.6 | 1906.6 | 1906.6 | 1906.6 | 1906.6 |
| 2.5°  | 1893.4 | 1893.4 | 1893.4 | 1891.2 | 1891.2 |
| 5°    | 1873.6 | 1871.4 | 1871.4 | 1869.2 | 1869.2 |
| 7.5°  | 1858.1 | 1855.9 | 1853.7 | 1851.5 | 1847.1 |
| 10°   | 1836.1 | 1836.1 | 1833.9 | 1822.9 | 1820.7 |
| 12.5° | 1800.8 | 1798.6 | 1789.8 | 1774.4 | 1770.0 |
| 15°   | 1752.3 | 1752.3 | 1734.7 | 1717.1 | 1710.5 |
| 17.5° | 1699.4 | 1697.2 | 1675.2 | 1657.6 | 1648.7 |
| 20°   | 1642.1 | 1637.7 | 1615.7 | 1587.0 | 1571.6 |
| 22.5° | 1578.2 | 1578.2 | 1551.8 | 1514.3 | 1498.9 |
| 25°   | 1518.7 | 1509.9 | 1485.6 | 1432.7 | 1393.1 |
| 27.5° | 1450.4 | 1437.1 | 1410.7 | 1335.7 | 1289.5 |
| 30°   | 1375.4 | 1368.8 | 1331.3 | 1234.4 | 1199.1 |
| 32.5° | 1304.9 | 1293.9 | 1254.2 | 1152.8 | 1124.1 |
| 35°   | 1232.1 | 1223.3 | 1163.8 | 1075.7 | 1049.2 |
| 37.5° | 1159.4 | 1148.4 | 1073.4 | 1002.9 | 969.8  |
| 40°   | 1086.7 | 1073.4 | 991.9  | 928.0  | 892.7  |
| 42.5° | 1018.3 | 1000.7 | 921.4  | 853.0  | 813.4  |
| 45°   | 945.6  | 925.8  | 846.4  | 775.9  | 745.0  |
| 47.5° | 872.9  | 855.2  | 782.5  | 709.8  | 674.5  |
| 50°   | 795.7  | 780.3  | 714.2  | 641.4  | 604.0  |
| 52.5° | 731.8  | 707.5  | 643.6  | 570.9  | 540.0  |
| 55°   | 656.9  | 637.0  | 577.5  | 509.2  | 482.7  |
| 57.5° | 588.5  | 568.7  | 513.6  | 449.7  | 427.6  |
| 60°   | 524.6  | 495.9  | 449.7  | 394.6  | 376.9  |
| 62.5° | 454.1  | 432.0  | 392.3  | 346.1  | 368.1  |
| 65°   | 390.1  | 368.1  | 332.8  | 339.4  | 282.1  |
| 67.5° | 319.6  | 308.6  | 277.7  | 246.9  | 238.1  |
| 70°   | 260.1  | 246.9  | 235.8  | 202.8  | 194.0  |
| 72.5° | 207.2  | 194.0  | 178.5  | 160.9  | 154.3  |
| 75°   | 156.5  | 145.5  | 136.7  | 130.0  | 143.3  |
| 77.5° | 108.0  | 103.6  | 97.0   | 90.4   | 88.2   |
| 80°   | 70.5   | 68.3   | 66.1   | 63.9   | 61.7   |
| 82.5° | 41.9   | 41.9   | 41.9   | 41.9   | 41.9   |
| 85°   | 22.0   | 24.2   | 26.5   | 28.7   | 30.9   |
| 87.5° | 13.2   | 13.2   | 15.4   | 17.6   | 19.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)