

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: P560177

Luminaire Tested: FSR-12-2-LD4-2HI-35-UNV-80-84-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560177  
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-LD4-2HI-35-UNV-80-84-EDD  
Description: 1X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .125 CLEAR PC ENVIRON  
SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

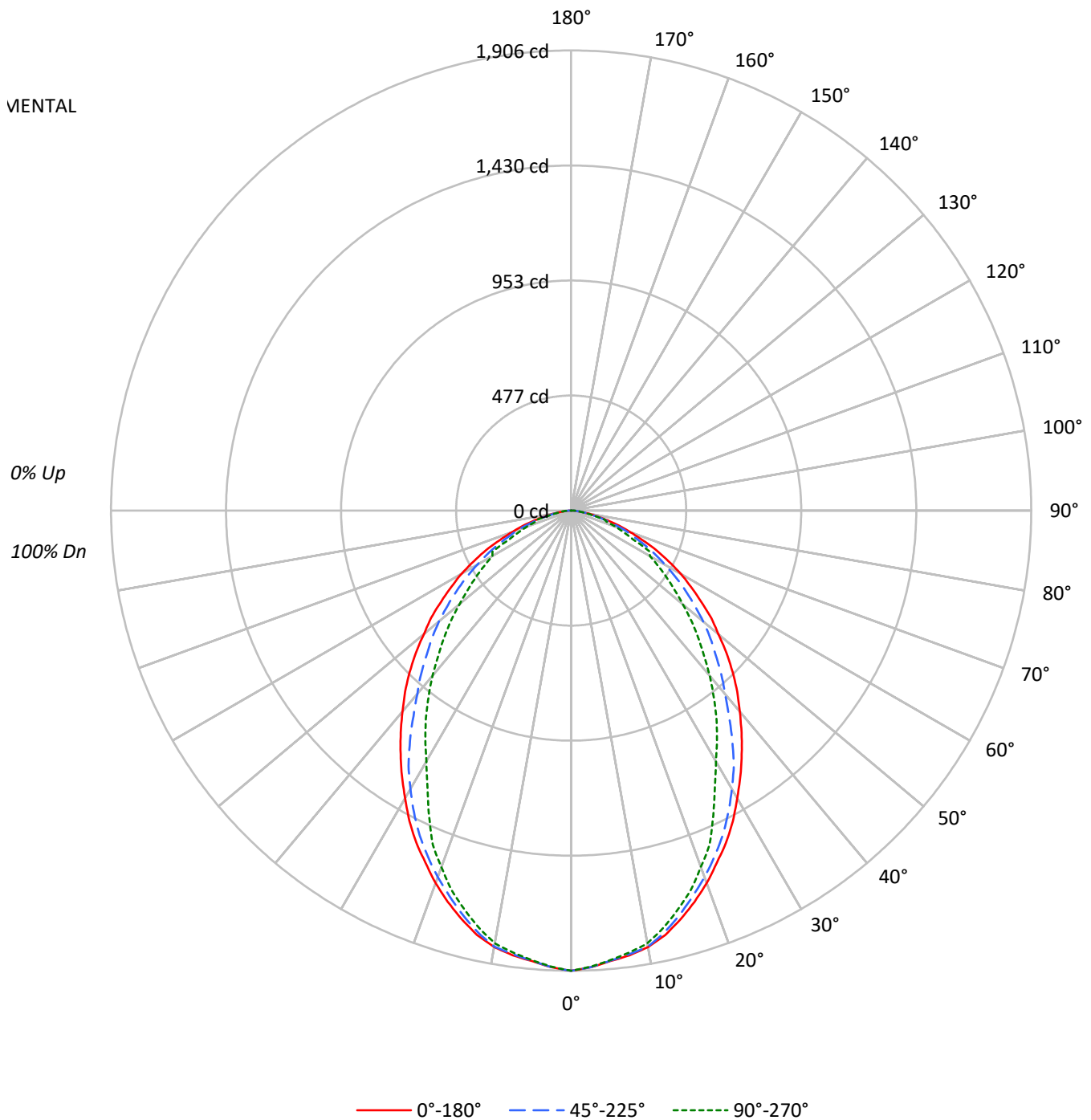
Lumens per Lamp: N/A  
Luminaire Lumens: 3742.0 lumens  
Efficiency: N/A  
Efficacy: 86.6 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 43.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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 | 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  |    |    |    |    |    |    |    |    |    |    | 87  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 79  | 77  | 75  |    |    |    |    |    |    |    |    |    |    | 75  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 93  | 84  | 77  | 71  | 91  | 82  | 76  | 70  | 79  | 74  | 69  | 77  | 72  | 68  | 74  | 70  | 67  | 65  |    |    |    |    |    |    |    |    |    |    | 65  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 86  | 75  | 67  | 61  | 84  | 74  | 66  | 61  | 72  | 65  | 60  | 69  | 64  | 59  | 67  | 62  | 58  | 56  |    |    |    |    |    |    |    |    |    |    | 56  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 59  | 53  | 65  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 52  | 50  |    |    |    |    |    |    |    |    |    |    | 50  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 74  | 62  | 53  | 48  | 72  | 61  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 47  | 56  | 50  | 46  | 44  |    |    |    |    |    |    |    |    |    |    | 44  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 69  | 56  | 48  | 43  | 67  | 56  | 48  | 42  | 54  | 47  | 42  | 53  | 46  | 42  | 51  | 46  | 42  | 40  |    |    |    |    |    |    |    |    |    |    | 40  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 65  | 52  | 44  | 38  | 63  | 51  | 44  | 38  | 50  | 43  | 38  | 49  | 42  | 38  | 48  | 42  | 38  | 36  |    |    |    |    |    |    |    |    |    |    | 36  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 61  | 48  | 40  | 35  | 59  | 47  | 40  | 35  | 46  | 39  | 35  | 45  | 39  | 34  | 44  | 38  | 34  | 33  |    |    |    |    |    |    |    |    |    |    | 33  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 57  | 44  | 37  | 32  | 56  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 32  | 41  | 36  | 32  | 30  |    |    |    |    |    |    |    |    |    |    | 30  |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 10259 | 10259 | 10259 |
| 5°  | 10119 | 10108 | 10096 |
| 10° | 10032 | 10019 | 9947  |
| 15° | 9761  | 9663  | 9528  |
| 20° | 9403  | 9251  | 8999  |
| 25° | 9016  | 8820  | 8270  |
| 30° | 8546  | 8272  | 7450  |
| 35° | 8093  | 7644  | 6891  |
| 40° | 7633  | 6967  | 6270  |
| 45° | 7195  | 6441  | 5669  |
| 50° | 6661  | 5978  | 5056  |
| 55° | 6162  | 5417  | 4528  |
| 60° | 5646  | 4838  | 4056  |
| 65° | 4967  | 4237  | 3592  |
| 70° | 4091  | 3710  | 3051  |
| 75° | 3254  | 2840  | 2978  |
| 80° | 2185  | 2049  | 1912  |
| 85° | 1359  | 1630  | 1908  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7195 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 177.4  | 4.7       |
| 10°-20°   | 487.0  | 13.0      |
| 20°-30°   | 674.2  | 18.0      |
| 30°-40°   | 718.8  | 19.2      |
| 40°-50°   | 655.8  | 17.5      |
| 50°-60°   | 513.8  | 13.7      |
| 60°-70°   | 334.8  | 8.9       |
| 70°-80°   | 148.3  | 4.0       |
| 80°-90°   | 31.8   | 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°    | 1338.5 | 35.8      |
| 0°-40°    | 2057.4 | 55.0      |
| 0°-60°    | 3226.9 | 86.2      |
| 0°-90°    | 3742.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3742.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1906 | 1906  | 1906 | 1906  | 1906 |      |
| 5°  | 1873 | 1871  | 1871 | 1869  | 1869 | 178  |
| 15° | 1752 | 1752  | 1734 | 1717  | 1710 | 493  |
| 25° | 1518 | 1510  | 1485 | 1432  | 1393 | 697  |
| 35° | 1232 | 1223  | 1164 | 1075  | 1049 | 770  |
| 45° | 945  | 926   | 846  | 776   | 745  | 728  |
| 55° | 657  | 637   | 577  | 509   | 483  | 589  |
| 65° | 390  | 368   | 333  | 339   | 282  | 384  |
| 75° | 156  | 145   | 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°    | 1906.1 | 1906.1 | 1906.1 | 1906.1 | 1906.1 |
| 2.5°  | 1892.9 | 1892.9 | 1892.9 | 1890.7 | 1890.7 |
| 5°    | 1873.1 | 1870.9 | 1870.9 | 1868.7 | 1868.7 |
| 7.5°  | 1857.6 | 1855.4 | 1853.2 | 1851.0 | 1846.6 |
| 10°   | 1835.6 | 1835.6 | 1833.4 | 1822.4 | 1820.2 |
| 12.5° | 1800.4 | 1798.1 | 1789.3 | 1773.9 | 1769.5 |
| 15°   | 1751.9 | 1751.9 | 1734.2 | 1716.6 | 1710.0 |
| 17.5° | 1699.0 | 1696.8 | 1674.7 | 1657.1 | 1648.3 |
| 20°   | 1641.7 | 1637.3 | 1615.2 | 1586.6 | 1571.2 |
| 22.5° | 1577.8 | 1577.8 | 1551.3 | 1513.9 | 1498.5 |
| 25°   | 1518.3 | 1509.5 | 1485.2 | 1432.3 | 1392.7 |
| 27.5° | 1450.0 | 1436.8 | 1410.3 | 1335.4 | 1289.1 |
| 30°   | 1375.1 | 1368.4 | 1331.0 | 1234.0 | 1198.8 |
| 32.5° | 1304.5 | 1293.5 | 1253.9 | 1152.5 | 1123.8 |
| 35°   | 1231.8 | 1223.0 | 1163.5 | 1075.4 | 1048.9 |
| 37.5° | 1159.1 | 1148.1 | 1073.2 | 1002.6 | 969.6  |
| 40°   | 1086.4 | 1073.2 | 991.6  | 927.7  | 892.5  |
| 42.5° | 1018.1 | 1000.4 | 921.1  | 852.8  | 813.1  |
| 45°   | 945.3  | 925.5  | 846.2  | 775.7  | 744.8  |
| 47.5° | 872.6  | 855.0  | 782.3  | 709.6  | 674.3  |
| 50°   | 795.5  | 780.1  | 714.0  | 641.3  | 603.8  |
| 52.5° | 731.6  | 707.4  | 643.5  | 570.7  | 539.9  |
| 55°   | 656.7  | 636.8  | 577.3  | 509.0  | 482.6  |
| 57.5° | 588.4  | 568.5  | 513.4  | 449.5  | 427.5  |
| 60°   | 524.5  | 495.8  | 449.5  | 394.4  | 376.8  |
| 62.5° | 453.9  | 431.9  | 392.2  | 346.0  | 368.0  |
| 65°   | 390.0  | 368.0  | 332.7  | 339.4  | 282.1  |
| 67.5° | 319.5  | 308.5  | 277.7  | 246.8  | 238.0  |
| 70°   | 260.0  | 246.8  | 235.8  | 202.7  | 193.9  |
| 72.5° | 207.1  | 193.9  | 178.5  | 160.9  | 154.3  |
| 75°   | 156.5  | 145.4  | 136.6  | 130.0  | 143.2  |
| 77.5° | 108.0  | 103.6  | 97.0   | 90.3   | 88.1   |
| 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   | 26.4   | 28.6   | 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)