

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: P562996

Luminaire Tested: FSR-24-4-LD4-2STD-50-UNV-80-86-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P562996  
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-LD4-2STD-50-UNV-80-86-EDD-90  
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR PC ENVIRON  
SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

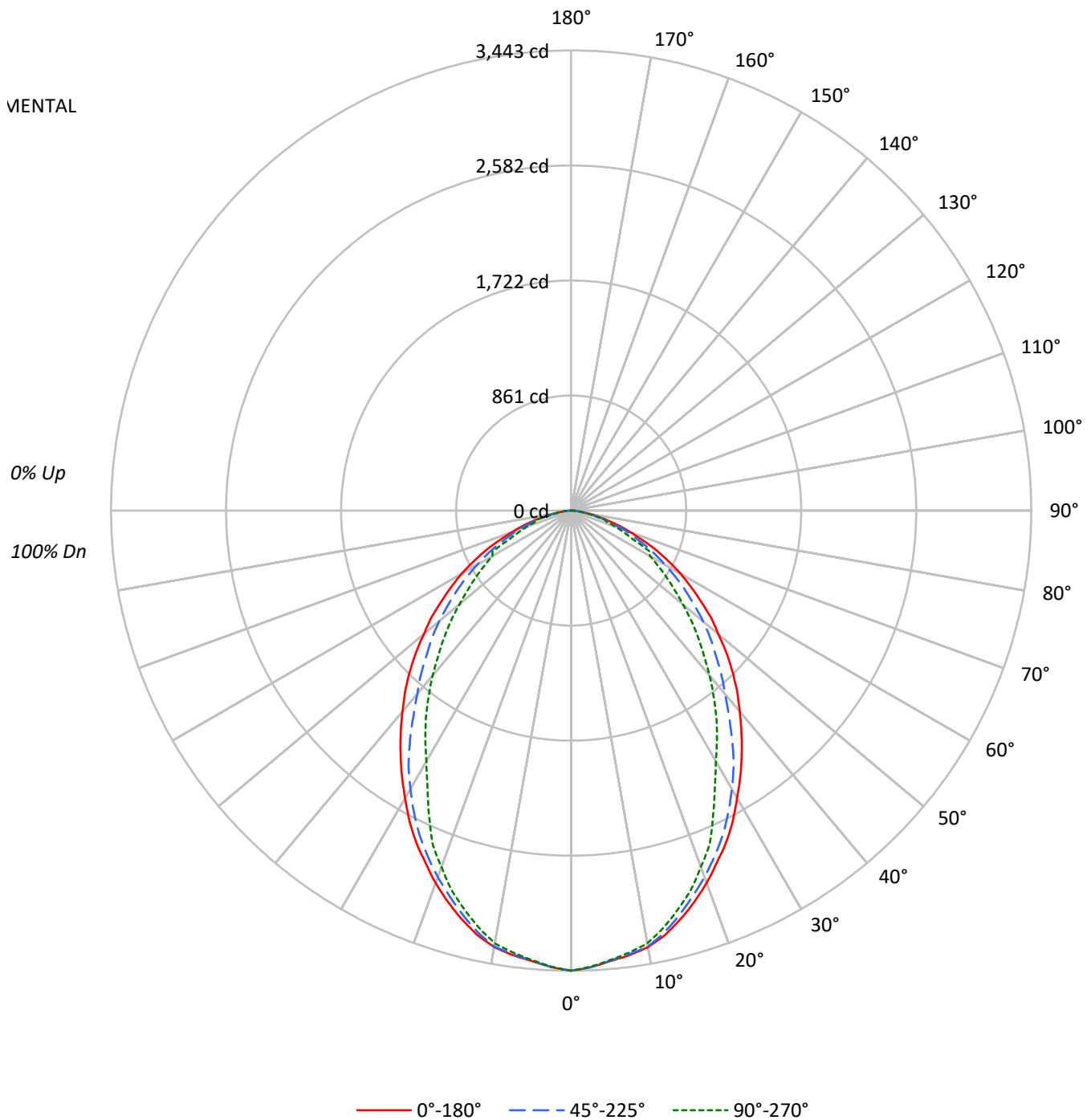
Lumens per Lamp: N/A  
Luminaire Lumens: 6759.0 lumens  
Efficiency: N/A  
Efficacy: 101.5 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 66.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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°  | 4632 | 4632 | 4632 |
| 5°  | 4569 | 4564 | 4559 |
| 10° | 4530 | 4524 | 4492 |
| 15° | 4408 | 4363 | 4302 |
| 20° | 4246 | 4177 | 4063 |
| 25° | 4071 | 3983 | 3734 |
| 30° | 3859 | 3735 | 3364 |
| 35° | 3655 | 3452 | 3112 |
| 40° | 3447 | 3146 | 2831 |
| 45° | 3249 | 2908 | 2560 |
| 50° | 3008 | 2699 | 2283 |
| 55° | 2782 | 2446 | 2045 |
| 60° | 2549 | 2185 | 1831 |
| 65° | 2243 | 1913 | 1622 |
| 70° | 1848 | 1675 | 1378 |
| 75° | 1469 | 1283 | 1345 |
| 80° | 987  | 925  | 863  |
| 85° | 614  | 738  | 860  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3249 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 320.5  | 4.7       |
| 10°-20°   | 879.6  | 13.0      |
| 20°-30°   | 1217.7 | 18.0      |
| 30°-40°   | 1298.4 | 19.2      |
| 40°-50°   | 1184.5 | 17.5      |
| 50°-60°   | 928.0  | 13.7      |
| 60°-70°   | 604.8  | 8.9       |
| 70°-80°   | 268.0  | 4.0       |
| 80°-90°   | 57.5   | 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°    | 2417.8 | 35.8      |
| 0°-40°    | 3716.2 | 55.0      |
| 0°-60°    | 5828.7 | 86.2      |
| 0°-90°    | 6759.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 6759.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3443 | 3443  | 3443 | 3443  | 3443 |      |
| 5°  | 3383 | 3379  | 3379 | 3375  | 3375 | 321  |
| 15° | 3164 | 3164  | 3132 | 3101  | 3089 | 890  |
| 25° | 2742 | 2726  | 2683 | 2587  | 2516 | 1259 |
| 35° | 2225 | 2209  | 2102 | 1942  | 1895 | 1391 |
| 45° | 1708 | 1672  | 1528 | 1401  | 1345 | 1315 |
| 55° | 1186 | 1150  | 1043 | 919   | 872  | 1064 |
| 65° | 704  | 665   | 601  | 613   | 510  | 694  |
| 75° | 283  | 263   | 247  | 235   | 259  | 303  |
| 85° | 40   | 44    | 48   | 52    | 56   | 55   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3442.9 | 3442.9 | 3442.9 | 3442.9 | 3442.9 |
| 2.5°  | 3419.1 | 3419.1 | 3419.1 | 3415.1 | 3415.1 |
| 5°    | 3383.2 | 3379.3 | 3379.3 | 3375.3 | 3375.3 |
| 7.5°  | 3355.4 | 3351.4 | 3347.4 | 3343.4 | 3335.5 |
| 10°   | 3315.6 | 3315.6 | 3311.6 | 3291.7 | 3287.7 |
| 12.5° | 3251.9 | 3247.9 | 3232.0 | 3204.1 | 3196.2 |
| 15°   | 3164.3 | 3164.3 | 3132.5 | 3100.6 | 3088.7 |
| 17.5° | 3068.8 | 3064.8 | 3025.0 | 2993.2 | 2977.3 |
| 20°   | 2965.3 | 2957.3 | 2917.5 | 2865.8 | 2837.9 |
| 22.5° | 2849.9 | 2849.9 | 2802.1 | 2734.5 | 2706.6 |
| 25°   | 2742.4 | 2726.5 | 2682.7 | 2587.2 | 2515.5 |
| 27.5° | 2619.0 | 2595.1 | 2547.4 | 2412.1 | 2328.5 |
| 30°   | 2483.7 | 2471.8 | 2404.1 | 2229.0 | 2165.3 |
| 32.5° | 2356.3 | 2336.4 | 2264.8 | 2081.7 | 2029.9 |
| 35°   | 2225.0 | 2209.1 | 2101.6 | 1942.4 | 1894.6 |
| 37.5° | 2093.6 | 2073.7 | 1938.4 | 1811.0 | 1751.3 |
| 40°   | 1962.3 | 1938.4 | 1791.1 | 1675.7 | 1612.0 |
| 42.5° | 1838.9 | 1807.0 | 1663.8 | 1540.4 | 1468.7 |
| 45°   | 1707.5 | 1671.7 | 1528.4 | 1401.1 | 1345.3 |
| 47.5° | 1576.2 | 1544.3 | 1413.0 | 1281.7 | 1218.0 |
| 50°   | 1436.9 | 1409.0 | 1289.6 | 1158.3 | 1090.6 |
| 52.5° | 1321.5 | 1277.7 | 1162.2 | 1030.9 | 975.2  |
| 55°   | 1186.1 | 1150.3 | 1042.8 | 919.4  | 871.7  |
| 57.5° | 1062.7 | 1026.9 | 927.4  | 812.0  | 772.2  |
| 60°   | 947.3  | 895.6  | 812.0  | 712.5  | 680.6  |
| 62.5° | 819.9  | 780.1  | 708.5  | 624.9  | 664.7  |
| 65°   | 704.5  | 664.7  | 601.0  | 613.0  | 509.5  |
| 67.5° | 577.1  | 557.2  | 501.5  | 445.8  | 429.9  |
| 70°   | 469.7  | 445.8  | 425.9  | 366.2  | 350.3  |
| 72.5° | 374.1  | 350.3  | 322.4  | 290.6  | 278.6  |
| 75°   | 282.6  | 262.7  | 246.8  | 234.8  | 258.7  |
| 77.5° | 195.0  | 187.1  | 175.1  | 163.2  | 159.2  |
| 80°   | 127.4  | 123.4  | 119.4  | 115.4  | 111.4  |
| 82.5° | 75.6   | 75.6   | 75.6   | 75.6   | 75.6   |
| 85°   | 39.8   | 43.8   | 47.8   | 51.7   | 55.7   |
| 87.5° | 23.9   | 23.9   | 27.9   | 31.8   | 35.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)