

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: P561335

Luminaire Tested: FSR-12-4-LD4-2HI-35-UNV-80-87-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P561335  
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-LD4-2HI-35-UNV-80-87-EDD  
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR PC ENVIRON  
SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

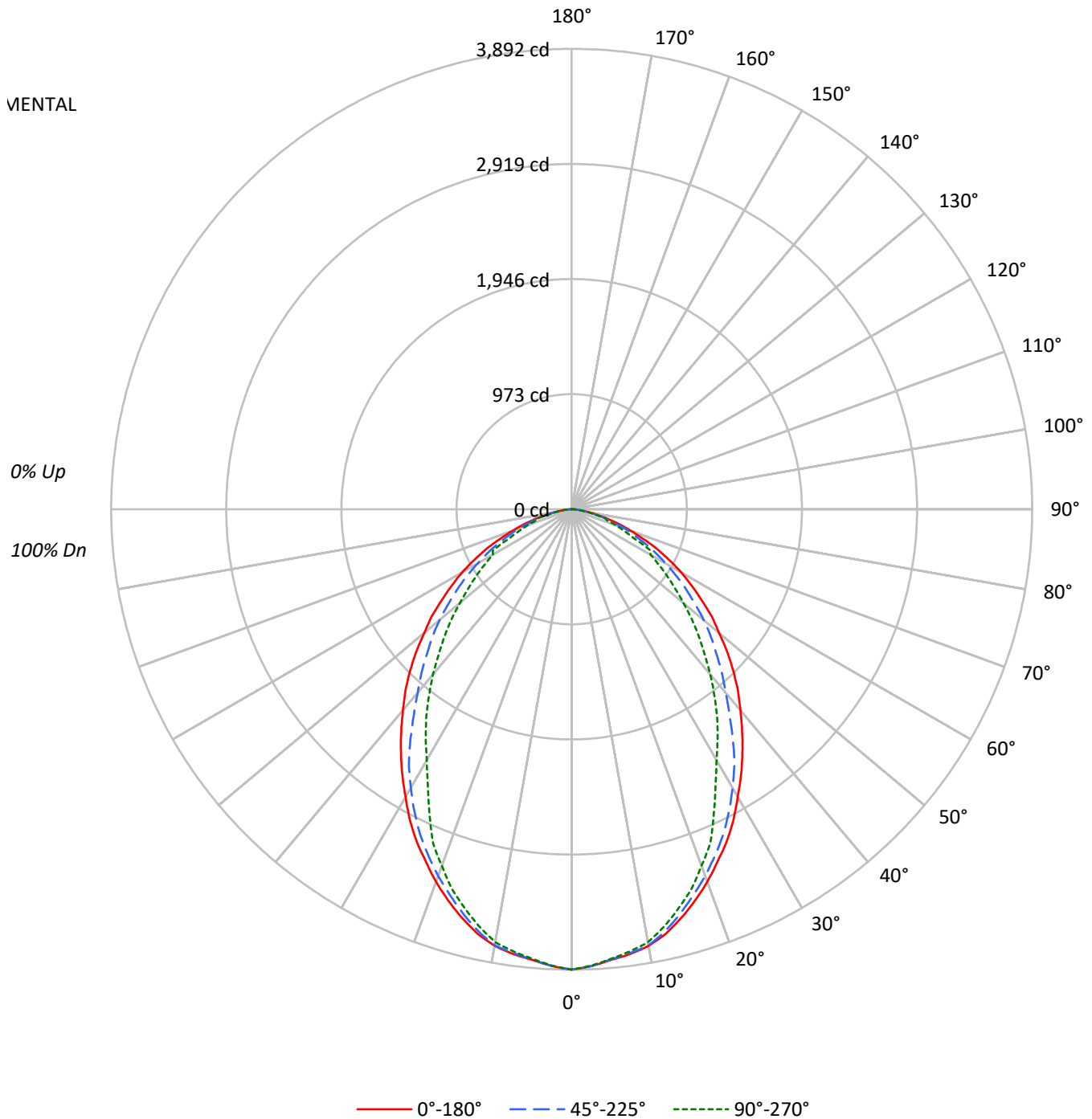
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7640.0 lumens  
Efficiency: N/A  
Efficacy: 88.4 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): 86.4  
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



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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°  | 10472 | 10472 | 10472 |
| 5°  | 10330 | 10318 | 10306 |
| 10° | 10241 | 10228 | 10154 |
| 15° | 9965  | 9864  | 9726  |
| 20° | 9598  | 9444  | 9186  |
| 25° | 9204  | 9004  | 8443  |
| 30° | 8723  | 8444  | 7605  |
| 35° | 8262  | 7804  | 7035  |
| 40° | 7792  | 7112  | 6401  |
| 45° | 7345  | 6575  | 5787  |
| 50° | 6800  | 6103  | 5161  |
| 55° | 6290  | 5530  | 4623  |
| 60° | 5763  | 4940  | 4140  |
| 65° | 5070  | 4326  | 3667  |
| 70° | 4177  | 3788  | 3115  |
| 75° | 3321  | 2900  | 3040  |
| 80° | 2232  | 2092  | 1953  |
| 85° | 1389  | 1667  | 1945  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7345 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 362.3  | 4.7       |
| 10°-20°   | 994.2  | 13.0      |
| 20°-30°   | 1376.4 | 18.0      |
| 30°-40°   | 1467.7 | 19.2      |
| 40°-50°   | 1338.9 | 17.5      |
| 50°-60°   | 1048.9 | 13.7      |
| 60°-70°   | 683.7  | 8.9       |
| 70°-80°   | 302.9  | 4.0       |
| 80°-90°   | 65.0   | 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°    | 2732.9 | 35.8      |
| 0°-40°    | 4200.5 | 55.0      |
| 0°-60°    | 6588.4 | 86.2      |
| 0°-90°    | 7640.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7640.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3892 | 3892  | 3892 | 3892  | 3892 |      |
| 5°  | 3824 | 3820  | 3820 | 3815  | 3815 | 363  |
| 15° | 3577 | 3577  | 3541 | 3505  | 3491 | 1006 |
| 25° | 3100 | 3082  | 3032 | 2924  | 2843 | 1423 |
| 35° | 2515 | 2497  | 2376 | 2196  | 2142 | 1572 |
| 45° | 1930 | 1890  | 1728 | 1584  | 1521 | 1487 |
| 55° | 1341 | 1300  | 1179 | 1039  | 985  | 1203 |
| 65° | 796  | 751   | 679  | 693   | 576  | 785  |
| 75° | 319  | 297   | 279  | 265   | 292  | 342  |
| 85° | 45   | 50    | 54   | 58    | 63   | 62   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3891.7 | 3891.7 | 3891.7 | 3891.7 | 3891.7 |
| 2.5°  | 3864.7 | 3864.7 | 3864.7 | 3860.2 | 3860.2 |
| 5°    | 3824.2 | 3819.7 | 3819.7 | 3815.2 | 3815.2 |
| 7.5°  | 3792.7 | 3788.2 | 3783.7 | 3779.2 | 3770.2 |
| 10°   | 3747.7 | 3747.7 | 3743.2 | 3720.7 | 3716.2 |
| 12.5° | 3675.8 | 3671.3 | 3653.3 | 3621.8 | 3612.8 |
| 15°   | 3576.8 | 3576.8 | 3540.8 | 3504.8 | 3491.3 |
| 17.5° | 3468.8 | 3464.3 | 3419.3 | 3383.3 | 3365.3 |
| 20°   | 3351.8 | 3342.8 | 3297.8 | 3239.3 | 3207.9 |
| 22.5° | 3221.3 | 3221.3 | 3167.4 | 3090.9 | 3059.4 |
| 25°   | 3099.9 | 3081.9 | 3032.4 | 2924.4 | 2843.4 |
| 27.5° | 2960.4 | 2933.4 | 2879.4 | 2726.4 | 2632.0 |
| 30°   | 2807.4 | 2793.9 | 2717.5 | 2519.5 | 2447.5 |
| 32.5° | 2663.5 | 2641.0 | 2560.0 | 2353.0 | 2294.5 |
| 35°   | 2515.0 | 2497.0 | 2375.5 | 2195.6 | 2141.6 |
| 37.5° | 2366.5 | 2344.0 | 2191.1 | 2047.1 | 1979.6 |
| 40°   | 2218.1 | 2191.1 | 2024.6 | 1894.1 | 1822.1 |
| 42.5° | 2078.6 | 2042.6 | 1880.6 | 1741.1 | 1660.2 |
| 45°   | 1930.1 | 1889.6 | 1727.7 | 1583.7 | 1520.7 |
| 47.5° | 1781.6 | 1745.6 | 1597.2 | 1448.7 | 1376.7 |
| 50°   | 1624.2 | 1592.7 | 1457.7 | 1309.2 | 1232.8 |
| 52.5° | 1493.7 | 1444.2 | 1313.7 | 1165.3 | 1102.3 |
| 55°   | 1340.7 | 1300.2 | 1178.8 | 1039.3 | 985.3  |
| 57.5° | 1201.3 | 1160.8 | 1048.3 | 917.8  | 872.8  |
| 60°   | 1070.8 | 1012.3 | 917.8  | 805.3  | 769.3  |
| 62.5° | 926.8  | 881.8  | 800.8  | 706.4  | 751.3  |
| 65°   | 796.3  | 751.3  | 679.4  | 692.9  | 575.9  |
| 67.5° | 652.4  | 629.9  | 566.9  | 503.9  | 485.9  |
| 70°   | 530.9  | 503.9  | 481.4  | 413.9  | 395.9  |
| 72.5° | 422.9  | 395.9  | 364.4  | 328.4  | 314.9  |
| 75°   | 319.4  | 296.9  | 278.9  | 265.4  | 292.4  |
| 77.5° | 220.5  | 211.5  | 198.0  | 184.5  | 180.0  |
| 80°   | 144.0  | 139.5  | 135.0  | 130.5  | 126.0  |
| 82.5° | 85.5   | 85.5   | 85.5   | 85.5   | 85.5   |
| 85°   | 45.0   | 49.5   | 54.0   | 58.5   | 63.0   |
| 87.5° | 27.0   | 27.0   | 31.5   | 36.0   | 40.5   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)