

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: P562875

Luminaire Tested: FSR-24-4-LD4-2STD-35-UNV-80-94-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P562875  
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-35-UNV-80-94-EDD  
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

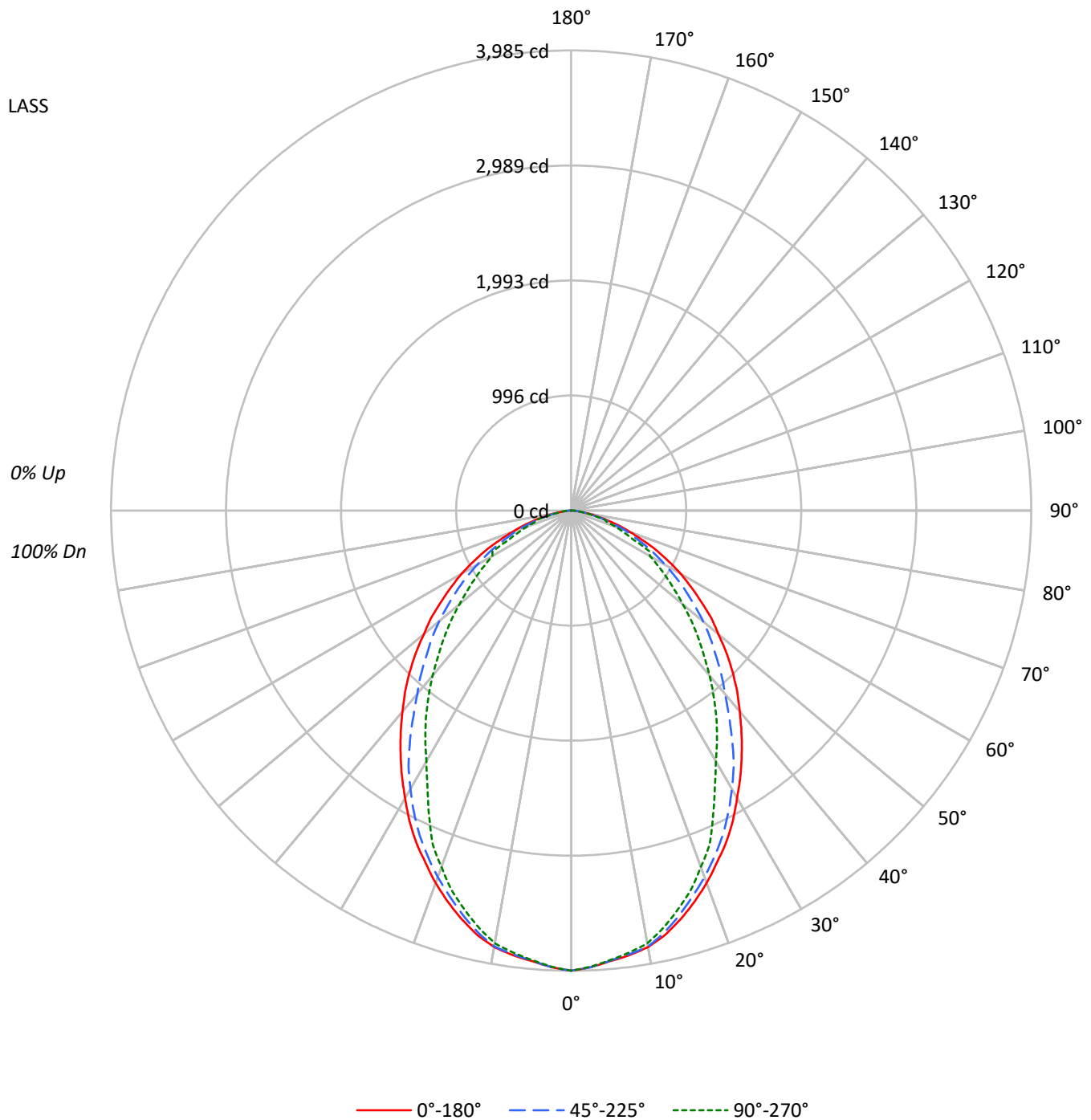
Lumens per Lamp: N/A  
Luminaire Lumens: 7823.0 lumens  
Efficiency: N/A  
Efficacy: 117.5 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 66.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°  | 5362 | 5362 | 5362 |
| 5°  | 5289 | 5283 | 5276 |
| 10° | 5243 | 5237 | 5199 |
| 15° | 5102 | 5050 | 4980 |
| 20° | 4914 | 4835 | 4703 |
| 25° | 4712 | 4610 | 4322 |
| 30° | 4466 | 4323 | 3894 |
| 35° | 4230 | 3995 | 3602 |
| 40° | 3989 | 3641 | 3277 |
| 45° | 3761 | 3366 | 2963 |
| 50° | 3481 | 3124 | 2642 |
| 55° | 3220 | 2831 | 2367 |
| 60° | 2950 | 2529 | 2120 |
| 65° | 2596 | 2215 | 1877 |
| 70° | 2138 | 1939 | 1595 |
| 75° | 1700 | 1485 | 1556 |
| 80° | 1142 | 1071 | 1000 |
| 85° | 712  | 854  | 996  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3761 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 370.9  | 4.7       |
| 10°-20°   | 1018.0 | 13.0      |
| 20°-30°   | 1409.4 | 18.0      |
| 30°-40°   | 1502.8 | 19.2      |
| 40°-50°   | 1371.0 | 17.5      |
| 50°-60°   | 1074.1 | 13.7      |
| 60°-70°   | 700.0  | 8.9       |
| 70°-80°   | 310.1  | 4.0       |
| 80°-90°   | 66.6   | 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°    | 2798.4 | 35.8      |
| 0°-40°    | 4301.2 | 55.0      |
| 0°-60°    | 6746.2 | 86.2      |
| 0°-90°    | 7823.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7823.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3985 | 3985  | 3985 | 3985  | 3985 |      |
| 5°  | 3916 | 3911  | 3911 | 3907  | 3907 | 372  |
| 15° | 3662 | 3662  | 3626 | 3589  | 3575 | 1030 |
| 25° | 3174 | 3156  | 3105 | 2994  | 2912 | 1457 |
| 35° | 2575 | 2557  | 2432 | 2248  | 2193 | 1610 |
| 45° | 1976 | 1935  | 1769 | 1622  | 1557 | 1522 |
| 55° | 1373 | 1331  | 1207 | 1064  | 1009 | 1231 |
| 65° | 815  | 769   | 696  | 710   | 590  | 804  |
| 75° | 327  | 304   | 286  | 272   | 299  | 351  |
| 85° | 46   | 51    | 55   | 60    | 64   | 64   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3984.9 | 3984.9 | 3984.9 | 3984.9 | 3984.9 |
| 2.5°  | 3957.3 | 3957.3 | 3957.3 | 3952.7 | 3952.7 |
| 5°    | 3915.8 | 3911.2 | 3911.2 | 3906.6 | 3906.6 |
| 7.5°  | 3883.6 | 3879.0 | 3874.4 | 3869.8 | 3860.5 |
| 10°   | 3837.5 | 3837.5 | 3832.9 | 3809.9 | 3805.3 |
| 12.5° | 3763.8 | 3759.2 | 3740.8 | 3708.5 | 3699.3 |
| 15°   | 3662.5 | 3662.5 | 3625.6 | 3588.7 | 3574.9 |
| 17.5° | 3551.9 | 3547.3 | 3501.2 | 3464.4 | 3445.9 |
| 20°   | 3432.1 | 3422.9 | 3376.8 | 3316.9 | 3284.7 |
| 22.5° | 3298.5 | 3298.5 | 3243.2 | 3164.9 | 3132.7 |
| 25°   | 3174.1 | 3155.7 | 3105.0 | 2994.5 | 2911.5 |
| 27.5° | 3031.3 | 3003.7 | 2948.4 | 2791.8 | 2695.0 |
| 30°   | 2874.7 | 2860.9 | 2782.5 | 2579.8 | 2506.1 |
| 32.5° | 2727.3 | 2704.2 | 2621.3 | 2409.4 | 2349.5 |
| 35°   | 2575.2 | 2556.8 | 2432.4 | 2248.1 | 2192.9 |
| 37.5° | 2423.2 | 2400.2 | 2243.5 | 2096.1 | 2027.0 |
| 40°   | 2271.2 | 2243.5 | 2073.1 | 1939.5 | 1865.8 |
| 42.5° | 2128.4 | 2091.5 | 1925.7 | 1782.9 | 1699.9 |
| 45°   | 1976.3 | 1934.9 | 1769.0 | 1621.6 | 1557.1 |
| 47.5° | 1824.3 | 1787.5 | 1635.4 | 1483.4 | 1409.7 |
| 50°   | 1663.1 | 1630.8 | 1492.6 | 1340.6 | 1262.3 |
| 52.5° | 1529.5 | 1478.8 | 1345.2 | 1193.2 | 1128.7 |
| 55°   | 1372.8 | 1331.4 | 1207.0 | 1064.2 | 1008.9 |
| 57.5° | 1230.0 | 1188.6 | 1073.4 | 939.8  | 893.7  |
| 60°   | 1096.4 | 1036.5 | 939.8  | 824.6  | 787.8  |
| 62.5° | 949.0  | 902.9  | 820.0  | 723.3  | 769.3  |
| 65°   | 815.4  | 769.3  | 695.6  | 709.5  | 589.7  |
| 67.5° | 668.0  | 645.0  | 580.5  | 516.0  | 497.5  |
| 70°   | 543.6  | 516.0  | 492.9  | 423.8  | 405.4  |
| 72.5° | 433.0  | 405.4  | 373.2  | 336.3  | 322.5  |
| 75°   | 327.1  | 304.1  | 285.6  | 271.8  | 299.4  |
| 77.5° | 225.7  | 216.5  | 202.7  | 188.9  | 184.3  |
| 80°   | 147.4  | 142.8  | 138.2  | 133.6  | 129.0  |
| 82.5° | 87.5   | 87.5   | 87.5   | 87.5   | 87.5   |
| 85°   | 46.1   | 50.7   | 55.3   | 59.9   | 64.5   |
| 87.5° | 27.6   | 27.6   | 32.2   | 36.9   | 41.5   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)