

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: P559742

Luminaire Tested: FSR-12-2-LD4-1HI-50-UNV-80-97-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559742  
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-LD4-1HI-50-UNV-80-97-EDD-90  
Description: 1X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

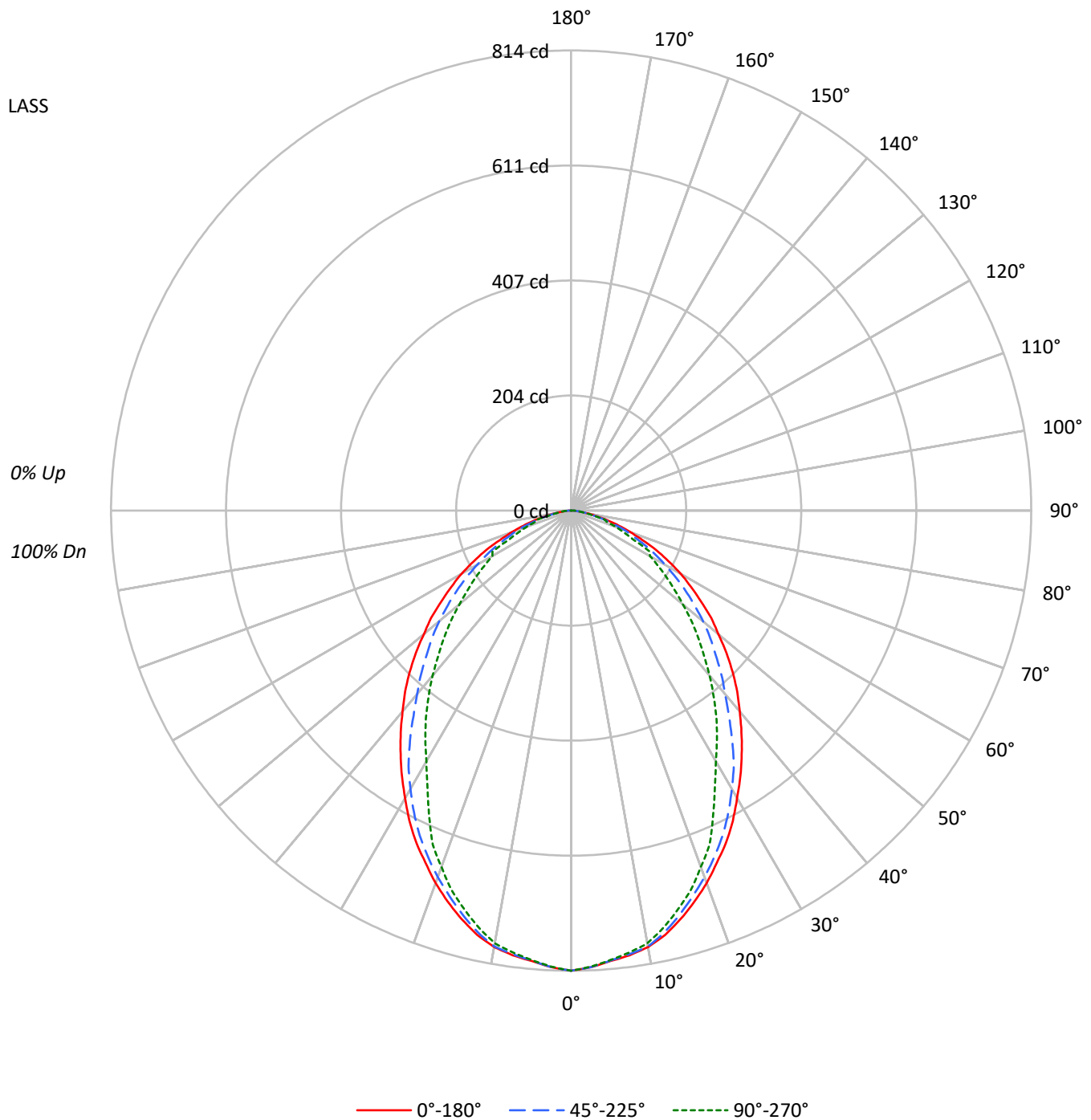
Lumens per Lamp: N/A  
Luminaire Lumens: 1598.0 lumens  
Efficiency: N/A  
Efficacy: 74.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 21.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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°  | 4381 | 4381 | 4381 |
| 5°  | 4321 | 4316 | 4311 |
| 10° | 4284 | 4279 | 4248 |
| 15° | 4168 | 4126 | 4069 |
| 20° | 4015 | 3951 | 3843 |
| 25° | 3850 | 3767 | 3532 |
| 30° | 3649 | 3532 | 3181 |
| 35° | 3456 | 3265 | 2943 |
| 40° | 3259 | 2975 | 2677 |
| 45° | 3073 | 2751 | 2421 |
| 50° | 2844 | 2553 | 2159 |
| 55° | 2631 | 2314 | 1934 |
| 60° | 2411 | 2067 | 1732 |
| 65° | 2122 | 1810 | 1535 |
| 70° | 1747 | 1585 | 1303 |
| 75° | 1389 | 1212 | 1273 |
| 80° | 933  | 874  | 815  |
| 85° | 580  | 698  | 815  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3073 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 75.8   | 4.7       |
| 10°-20°   | 207.9  | 13.0      |
| 20°-30°   | 287.9  | 18.0      |
| 30°-40°   | 307.0  | 19.2      |
| 40°-50°   | 280.1  | 17.5      |
| 50°-60°   | 219.4  | 13.7      |
| 60°-70°   | 143.0  | 8.9       |
| 70°-80°   | 63.3   | 4.0       |
| 80°-90°   | 13.6   | 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°    | 571.6  | 35.8      |
| 0°-40°    | 878.6  | 55.0      |
| 0°-60°    | 1378.1 | 86.2      |
| 0°-90°    | 1598.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1598.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 814 | 814   | 814 | 814   | 814 |      |
| 5°  | 800 | 799   | 799 | 798   | 798 | 76   |
| 15° | 748 | 748   | 741 | 733   | 730 | 210  |
| 25° | 648 | 645   | 634 | 612   | 595 | 298  |
| 35° | 526 | 522   | 497 | 459   | 448 | 329  |
| 45° | 404 | 395   | 361 | 331   | 318 | 311  |
| 55° | 280 | 272   | 247 | 217   | 206 | 252  |
| 65° | 167 | 157   | 142 | 145   | 120 | 164  |
| 75° | 67  | 62    | 58  | 56    | 61  | 72   |
| 85° | 9   | 10    | 11  | 12    | 13  | 13   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 814.0 | 814.0 | 814.0 | 814.0 | 814.0 |
| 2.5°  | 808.4 | 808.4 | 808.4 | 807.4 | 807.4 |
| 5°    | 799.9 | 798.9 | 798.9 | 798.0 | 798.0 |
| 7.5°  | 793.3 | 792.4 | 791.4 | 790.5 | 788.6 |
| 10°   | 783.9 | 783.9 | 782.9 | 778.2 | 777.3 |
| 12.5° | 768.8 | 767.9 | 764.1 | 757.5 | 755.7 |
| 15°   | 748.1 | 748.1 | 740.6 | 733.1 | 730.2 |
| 17.5° | 725.5 | 724.6 | 715.2 | 707.7 | 703.9 |
| 20°   | 701.1 | 699.2 | 689.8 | 677.5 | 671.0 |
| 22.5° | 673.8 | 673.8 | 662.5 | 646.5 | 639.9 |
| 25°   | 648.4 | 644.6 | 634.3 | 611.7 | 594.7 |
| 27.5° | 619.2 | 613.6 | 602.3 | 570.3 | 550.5 |
| 30°   | 587.2 | 584.4 | 568.4 | 527.0 | 511.9 |
| 32.5° | 557.1 | 552.4 | 535.5 | 492.2 | 479.9 |
| 35°   | 526.0 | 522.3 | 496.9 | 459.2 | 447.9 |
| 37.5° | 495.0 | 490.3 | 458.3 | 428.2 | 414.1 |
| 40°   | 463.9 | 458.3 | 423.5 | 396.2 | 381.1 |
| 42.5° | 434.8 | 427.2 | 393.4 | 364.2 | 347.2 |
| 45°   | 403.7 | 395.2 | 361.4 | 331.2 | 318.1 |
| 47.5° | 372.7 | 365.1 | 334.1 | 303.0 | 288.0 |
| 50°   | 339.7 | 333.1 | 304.9 | 273.8 | 257.8 |
| 52.5° | 312.4 | 302.1 | 274.8 | 243.7 | 230.6 |
| 55°   | 280.4 | 272.0 | 246.6 | 217.4 | 206.1 |
| 57.5° | 251.3 | 242.8 | 219.3 | 192.0 | 182.6 |
| 60°   | 224.0 | 211.7 | 192.0 | 168.4 | 160.9 |
| 62.5° | 193.9 | 184.4 | 167.5 | 147.7 | 157.2 |
| 65°   | 166.6 | 157.2 | 142.1 | 144.9 | 120.5 |
| 67.5° | 136.5 | 131.7 | 118.6 | 105.4 | 101.6 |
| 70°   | 111.0 | 105.4 | 100.7 | 86.6  | 82.8  |
| 72.5° | 88.5  | 82.8  | 76.2  | 68.7  | 65.9  |
| 75°   | 66.8  | 62.1  | 58.3  | 55.5  | 61.2  |
| 77.5° | 46.1  | 44.2  | 41.4  | 38.6  | 37.6  |
| 80°   | 30.1  | 29.2  | 28.2  | 27.3  | 26.3  |
| 82.5° | 17.9  | 17.9  | 17.9  | 17.9  | 17.9  |
| 85°   | 9.4   | 10.4  | 11.3  | 12.2  | 13.2  |
| 87.5° | 5.6   | 5.6   | 6.6   | 7.5   | 8.5   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)