

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: P559676

Luminaire Tested: FSR-12-2-LD4-1HI-40-UNV-80-96-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559676  
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-40-UNV-80-96-EDD-90  
Description: 1X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

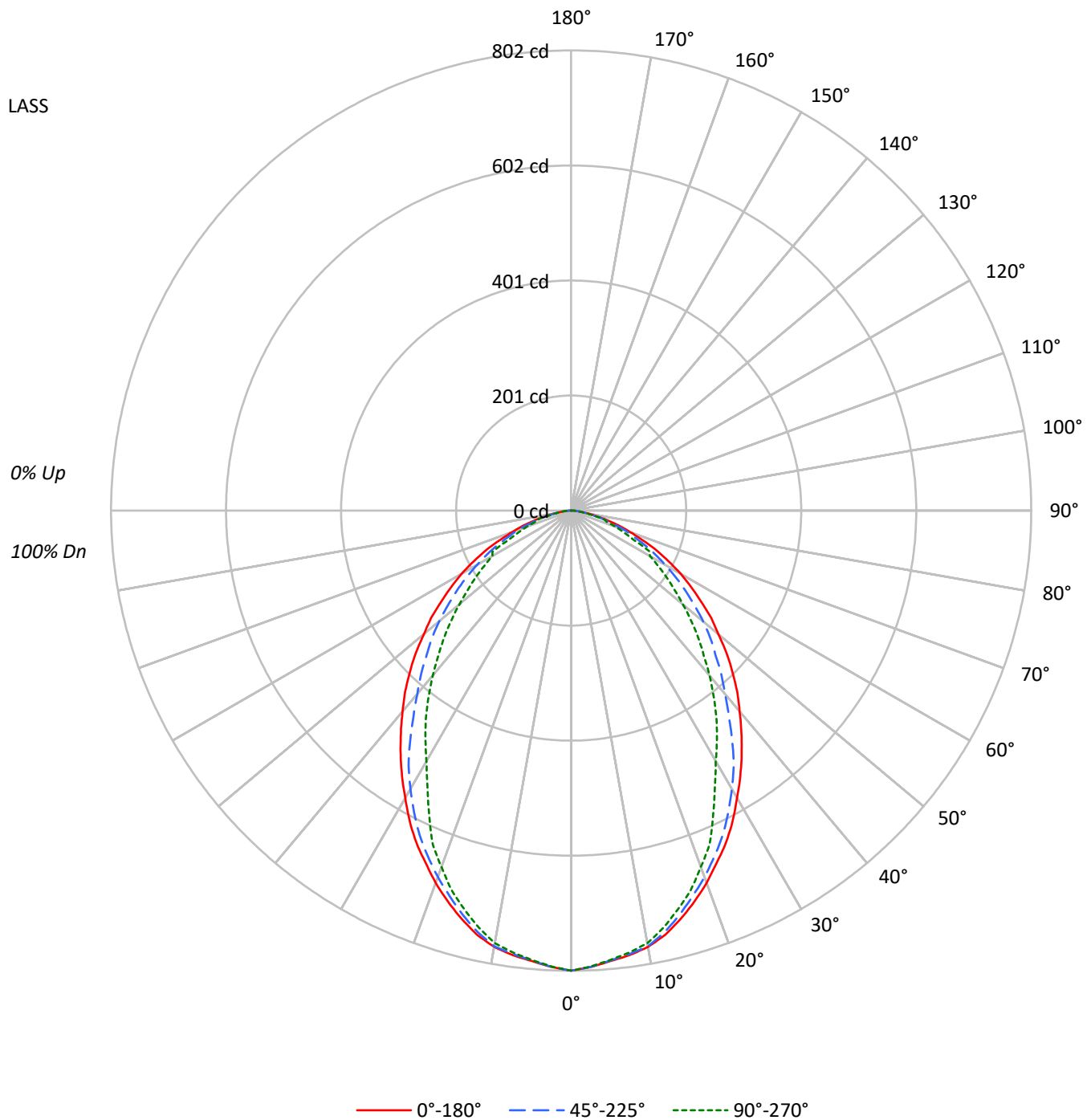
Lumens per Lamp: N/A  
Luminaire Lumens: 1574.0 lumens  
Efficiency: N/A  
Efficacy: 72.9 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 21.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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 | 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°  | 4315 | 4315 | 4315 |
| 5°  | 4257 | 4251 | 4246 |
| 10° | 4220 | 4215 | 4184 |
| 15° | 4106 | 4065 | 4008 |
| 20° | 3955 | 3891 | 3785 |
| 25° | 3792 | 3710 | 3479 |
| 30° | 3594 | 3480 | 3133 |
| 35° | 3404 | 3215 | 2899 |
| 40° | 3211 | 2930 | 2637 |
| 45° | 3026 | 2709 | 2385 |
| 50° | 2802 | 2514 | 2127 |
| 55° | 2592 | 2278 | 1905 |
| 60° | 2375 | 2035 | 1706 |
| 65° | 2090 | 1783 | 1510 |
| 70° | 1721 | 1561 | 1284 |
| 75° | 1368 | 1196 | 1252 |
| 80° | 921  | 862  | 806  |
| 85° | 574  | 685  | 803  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3026 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 74.6   | 4.7       |
| 10°-20°   | 204.8  | 13.0      |
| 20°-30°   | 283.6  | 18.0      |
| 30°-40°   | 302.4  | 19.2      |
| 40°-50°   | 275.8  | 17.5      |
| 50°-60°   | 216.1  | 13.7      |
| 60°-70°   | 140.9  | 8.9       |
| 70°-80°   | 62.4   | 4.0       |
| 80°-90°   | 13.4   | 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°    | 563.0  | 35.8      |
| 0°-40°    | 865.4  | 55.0      |
| 0°-60°    | 1357.3 | 86.2      |
| 0°-90°    | 1574.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1574.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 802 | 802   | 802 | 802   | 802 |      |
| 5°  | 788 | 787   | 787 | 786   | 786 | 75   |
| 15° | 737 | 737   | 730 | 722   | 719 | 207  |
| 25° | 639 | 635   | 625 | 602   | 586 | 293  |
| 35° | 518 | 514   | 489 | 452   | 441 | 324  |
| 45° | 398 | 389   | 356 | 326   | 313 | 306  |
| 55° | 276 | 268   | 243 | 214   | 203 | 248  |
| 65° | 164 | 155   | 140 | 143   | 119 | 162  |
| 75° | 66  | 61    | 58  | 55    | 60  | 71   |
| 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°    | 801.8 | 801.8 | 801.8 | 801.8 | 801.8 |
| 2.5°  | 796.2 | 796.2 | 796.2 | 795.3 | 795.3 |
| 5°    | 787.9 | 786.9 | 786.9 | 786.0 | 786.0 |
| 7.5°  | 781.4 | 780.5 | 779.5 | 778.6 | 776.7 |
| 10°   | 772.1 | 772.1 | 771.2 | 766.6 | 765.6 |
| 12.5° | 757.3 | 756.4 | 752.6 | 746.2 | 744.3 |
| 15°   | 736.9 | 736.9 | 729.5 | 722.1 | 719.3 |
| 17.5° | 714.6 | 713.7 | 704.4 | 697.0 | 693.3 |
| 20°   | 690.5 | 688.7 | 679.4 | 667.4 | 660.9 |
| 22.5° | 663.7 | 663.7 | 652.5 | 636.8 | 630.3 |
| 25°   | 638.6 | 634.9 | 624.7 | 602.5 | 585.8 |
| 27.5° | 609.9 | 604.3 | 593.2 | 561.7 | 542.2 |
| 30°   | 578.4 | 575.6 | 559.9 | 519.1 | 504.2 |
| 32.5° | 548.7 | 544.1 | 527.4 | 484.8 | 472.7 |
| 35°   | 518.1 | 514.4 | 489.4 | 452.3 | 441.2 |
| 37.5° | 487.6 | 482.9 | 451.4 | 421.7 | 407.8 |
| 40°   | 457.0 | 451.4 | 417.1 | 390.2 | 375.4 |
| 42.5° | 428.2 | 420.8 | 387.4 | 358.7 | 342.0 |
| 45°   | 397.6 | 389.3 | 355.9 | 326.3 | 313.3 |
| 47.5° | 367.1 | 359.6 | 329.1 | 298.5 | 283.6 |
| 50°   | 334.6 | 328.1 | 300.3 | 269.7 | 254.0 |
| 52.5° | 307.7 | 297.5 | 270.7 | 240.1 | 227.1 |
| 55°   | 276.2 | 267.9 | 242.8 | 214.1 | 203.0 |
| 57.5° | 247.5 | 239.1 | 216.0 | 189.1 | 179.8 |
| 60°   | 220.6 | 208.6 | 189.1 | 165.9 | 158.5 |
| 62.5° | 190.9 | 181.7 | 165.0 | 145.5 | 154.8 |
| 65°   | 164.1 | 154.8 | 140.0 | 142.7 | 118.6 |
| 67.5° | 134.4 | 129.8 | 116.8 | 103.8 | 100.1 |
| 70°   | 109.4 | 103.8 | 99.2  | 85.3  | 81.6  |
| 72.5° | 87.1  | 81.6  | 75.1  | 67.7  | 64.9  |
| 75°   | 65.8  | 61.2  | 57.5  | 54.7  | 60.2  |
| 77.5° | 45.4  | 43.6  | 40.8  | 38.0  | 37.1  |
| 80°   | 29.7  | 28.7  | 27.8  | 26.9  | 26.0  |
| 82.5° | 17.6  | 17.6  | 17.6  | 17.6  | 17.6  |
| 85°   | 9.3   | 10.2  | 11.1  | 12.0  | 13.0  |
| 87.5° | 5.6   | 5.6   | 6.5   | 7.4   | 8.3   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)