

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: P559663

Luminaire Tested: FSR-12-2-LD4-1HI-35-UNV-93-97-EDD

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P559663  
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-35-UNV-93-97-EDD  
Description: 1X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1792.0 lumens  
Efficiency: N/A  
Efficacy: 83.0 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

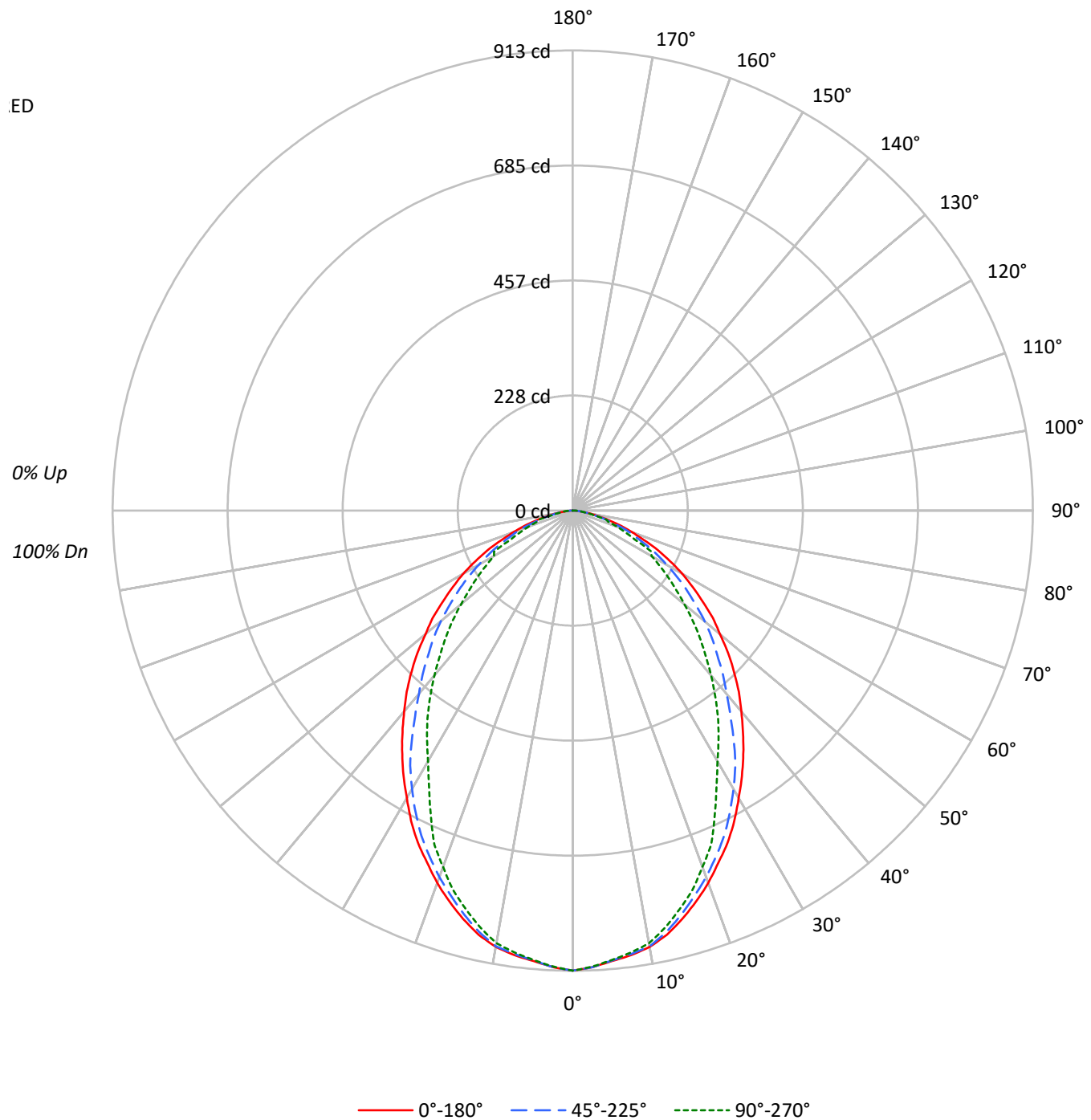
Input Watts (W): 21.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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  |     |     |     |    | 0  |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30  | 10  | 50  | 30 | 10 |
| 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°  | 4913 | 4913 | 4913 |
| 5°  | 4846 | 4840 | 4835 |
| 10° | 4804 | 4798 | 4764 |
| 15° | 4675 | 4627 | 4563 |
| 20° | 4503 | 4430 | 4309 |
| 25° | 4318 | 4224 | 3960 |
| 30° | 4092 | 3961 | 3568 |
| 35° | 3876 | 3661 | 3300 |
| 40° | 3655 | 3336 | 3003 |
| 45° | 3446 | 3084 | 2715 |
| 50° | 3190 | 2863 | 2421 |
| 55° | 2951 | 2594 | 2168 |
| 60° | 2704 | 2317 | 1943 |
| 65° | 2379 | 2029 | 1720 |
| 70° | 1959 | 1777 | 1462 |
| 75° | 1557 | 1360 | 1426 |
| 80° | 1048 | 982  | 914  |
| 85° | 655  | 784  | 914  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3446 cd/sqm

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 85.0   | 4.7       |
| 10°-20°   | 233.2  | 13.0      |
| 20°-30°   | 322.8  | 18.0      |
| 30°-40°   | 344.3  | 19.2      |
| 40°-50°   | 314.1  | 17.5      |
| 50°-60°   | 246.0  | 13.7      |
| 60°-70°   | 160.3  | 8.9       |
| 70°-80°   | 71.0   | 4.0       |
| 80°-90°   | 15.3   | 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°    | 641.0  | 35.8      |
| 0°-40°    | 985.3  | 55.0      |
| 0°-60°    | 1545.4 | 86.2      |
| 0°-90°    | 1792.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 1792.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 913 | 913   | 913 | 913   | 913 |      |
| 5°  | 897 | 896   | 896 | 895   | 895 | 85   |
| 15° | 839 | 839   | 830 | 822   | 819 | 236  |
| 25° | 727 | 723   | 711 | 686   | 667 | 334  |
| 35° | 590 | 586   | 557 | 515   | 502 | 369  |
| 45° | 453 | 443   | 405 | 372   | 357 | 349  |
| 55° | 314 | 305   | 276 | 244   | 231 | 282  |
| 65° | 187 | 176   | 159 | 162   | 135 | 184  |
| 75° | 75  | 70    | 65  | 62    | 69  | 80   |
| 85° | 11  | 12    | 13  | 14    | 15  | 15   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 912.8 | 912.8 | 912.8 | 912.8 | 912.8 |
| 2.5°  | 906.5 | 906.5 | 906.5 | 905.4 | 905.4 |
| 5°    | 897.0 | 895.9 | 895.9 | 894.9 | 894.9 |
| 7.5°  | 889.6 | 888.5 | 887.5 | 886.4 | 884.3 |
| 10°   | 879.1 | 879.1 | 878.0 | 872.7 | 871.7 |
| 12.5° | 862.2 | 861.1 | 856.9 | 849.5 | 847.4 |
| 15°   | 839.0 | 839.0 | 830.5 | 822.1 | 818.9 |
| 17.5° | 813.6 | 812.6 | 802.0 | 793.6 | 789.4 |
| 20°   | 786.2 | 784.1 | 773.5 | 759.8 | 752.4 |
| 22.5° | 755.6 | 755.6 | 742.9 | 725.0 | 717.6 |
| 25°   | 727.1 | 722.9 | 711.3 | 685.9 | 666.9 |
| 27.5° | 694.4 | 688.0 | 675.4 | 639.5 | 617.3 |
| 30°   | 658.5 | 655.3 | 637.4 | 591.0 | 574.1 |
| 32.5° | 624.7 | 619.5 | 600.5 | 551.9 | 538.2 |
| 35°   | 589.9 | 585.7 | 557.2 | 515.0 | 502.3 |
| 37.5° | 555.1 | 549.8 | 513.9 | 480.2 | 464.3 |
| 40°   | 520.3 | 513.9 | 474.9 | 444.3 | 427.4 |
| 42.5° | 487.5 | 479.1 | 441.1 | 408.4 | 389.4 |
| 45°   | 452.7 | 443.2 | 405.2 | 371.5 | 356.7 |
| 47.5° | 417.9 | 409.5 | 374.6 | 339.8 | 322.9 |
| 50°   | 381.0 | 373.6 | 341.9 | 307.1 | 289.1 |
| 52.5° | 350.4 | 338.7 | 308.1 | 273.3 | 258.5 |
| 55°   | 314.5 | 305.0 | 276.5 | 243.8 | 231.1 |
| 57.5° | 281.8 | 272.3 | 245.9 | 215.3 | 204.7 |
| 60°   | 251.2 | 237.4 | 215.3 | 188.9 | 180.5 |
| 62.5° | 217.4 | 206.8 | 187.8 | 165.7 | 176.2 |
| 65°   | 186.8 | 176.2 | 159.3 | 162.5 | 135.1 |
| 67.5° | 153.0 | 147.7 | 133.0 | 118.2 | 114.0 |
| 70°   | 124.5 | 118.2 | 112.9 | 97.1  | 92.9  |
| 72.5° | 99.2  | 92.9  | 85.5  | 77.0  | 73.9  |
| 75°   | 74.9  | 69.6  | 65.4  | 62.3  | 68.6  |
| 77.5° | 51.7  | 49.6  | 46.4  | 43.3  | 42.2  |
| 80°   | 33.8  | 32.7  | 31.7  | 30.6  | 29.5  |
| 82.5° | 20.1  | 20.1  | 20.1  | 20.1  | 20.1  |
| 85°   | 10.6  | 11.6  | 12.7  | 13.7  | 14.8  |
| 87.5° | 6.3   | 6.3   | 7.4   | 8.4   | 9.5   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)