

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: P590324

Luminaire Tested: FSR-24-2-LD4-2LO-50-UNV-93-97-EDD

Issue Date: 12/8/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P590324  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/8/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: FAIL-SAFE  
Catalog Number: FSR-24-2-LD4-2LO-50-UNV-93-97-EDD  
Description: 2X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

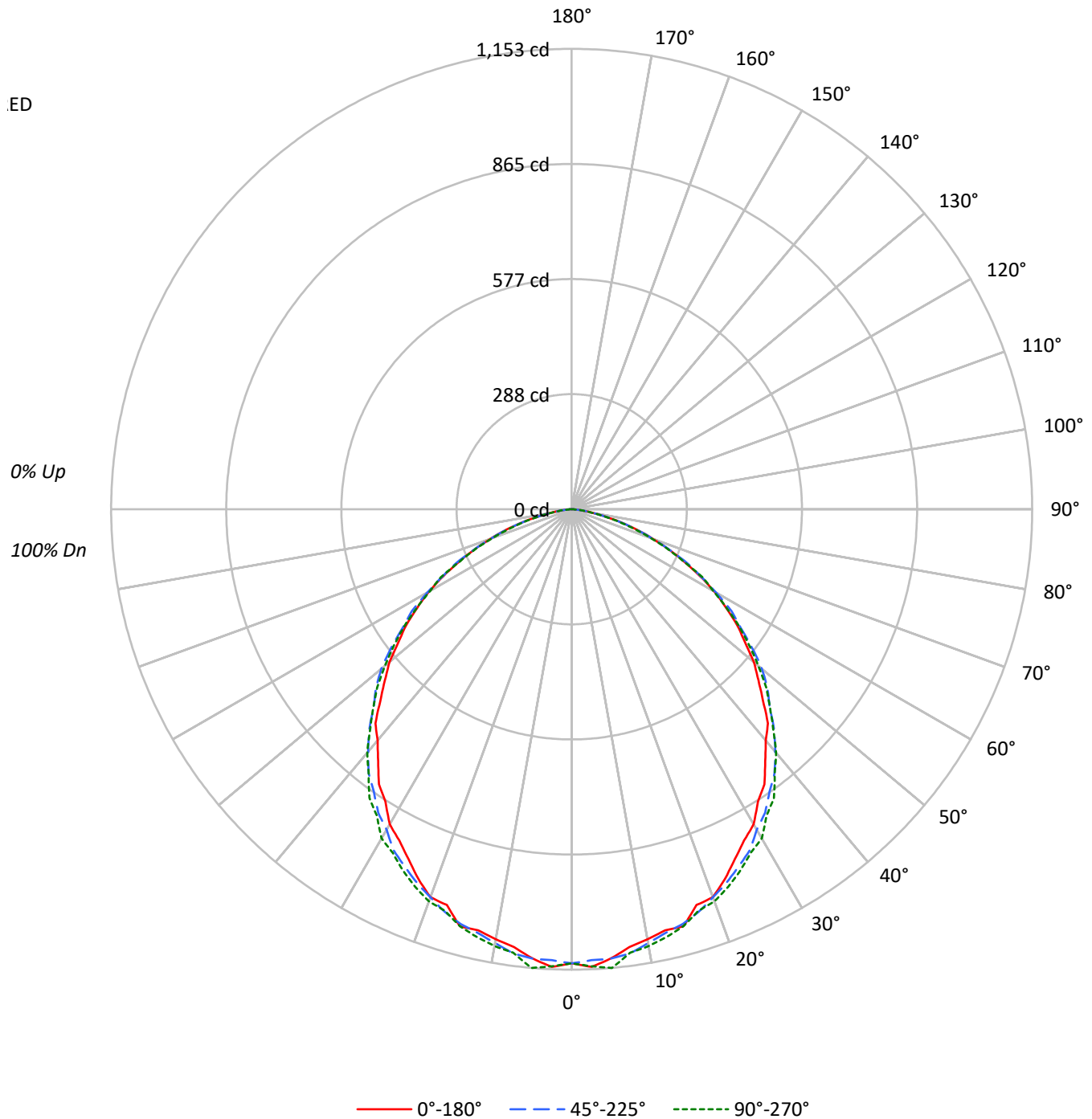
Lumens per Lamp: N/A  
Luminaire Lumens: 2866.0 lumens  
Efficiency: N/A  
Efficacy: 122.5 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 23.4  
Input Voltage (V):  
Input Current (Ain): NR  
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 | 105 | 101 | 98  | 107 | 103 | 100 | 96  | 99  | 96  | 93  | 95  | 93  | 90  | 91  | 90  | 88  | 86  |
| 2   | 100 | 93  | 86  | 81  | 98  | 91  | 85  | 80  | 87  | 82  | 78  | 84  | 80  | 76  | 81  | 78  | 75  | 73  |
| 3   | 92  | 82  | 74  | 68  | 89  | 80  | 73  | 67  | 77  | 71  | 66  | 75  | 69  | 65  | 72  | 68  | 64  | 62  |
| 4   | 84  | 73  | 64  | 58  | 82  | 71  | 64  | 58  | 69  | 62  | 57  | 67  | 61  | 56  | 65  | 59  | 55  | 53  |
| 5   | 78  | 65  | 57  | 50  | 76  | 64  | 56  | 50  | 62  | 55  | 49  | 60  | 54  | 49  | 58  | 53  | 48  | 46  |
| 6   | 72  | 59  | 50  | 44  | 70  | 58  | 50  | 44  | 56  | 49  | 43  | 54  | 48  | 43  | 53  | 47  | 43  | 41  |
| 7   | 67  | 53  | 45  | 39  | 65  | 53  | 45  | 39  | 51  | 44  | 39  | 50  | 43  | 38  | 48  | 42  | 38  | 36  |
| 8   | 62  | 49  | 41  | 35  | 61  | 48  | 40  | 35  | 47  | 40  | 34  | 46  | 39  | 34  | 44  | 39  | 34  | 32  |
| 9   | 58  | 45  | 37  | 31  | 57  | 44  | 37  | 31  | 43  | 36  | 31  | 42  | 36  | 31  | 41  | 35  | 31  | 29  |
| 10  | 54  | 41  | 34  | 29  | 53  | 41  | 33  | 28  | 40  | 33  | 28  | 39  | 33  | 28  | 38  | 32  | 28  | 26  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3060 | 3060 | 3060 |
| 5°  | 3050 | 3051 | 3115 |
| 10° | 2988 | 3014 | 3036 |
| 15° | 3012 | 2995 | 3012 |
| 20° | 2961 | 2961 | 2993 |
| 25° | 2870 | 2933 | 2965 |
| 30° | 2830 | 2880 | 2957 |
| 35° | 2764 | 2836 | 2900 |
| 40° | 2656 | 2784 | 2797 |
| 45° | 2576 | 2667 | 2672 |
| 50° | 2491 | 2604 | 2554 |
| 55° | 2374 | 2420 | 2403 |
| 60° | 2220 | 2242 | 2202 |
| 65° | 1979 | 2030 | 1965 |
| 70° | 1698 | 1704 | 1656 |
| 75° | 1345 | 1342 | 1290 |
| 80° | 900  | 876  | 841  |
| 85° | 491  | 485  | 454  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 67.5°  
 Vertical Angle: 45°  
 Luminance: 2736 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 107.0  | 3.7       |
| 10°-20°   | 303.2  | 10.6      |
| 20°-30°   | 454.2  | 15.8      |
| 30°-40°   | 538.3  | 18.8      |
| 40°-50°   | 539.3  | 18.8      |
| 50°-60°   | 457.8  | 16.0      |
| 60°-70°   | 308.6  | 10.8      |
| 70°-80°   | 135.6  | 4.7       |
| 80°-90°   | 22.0   | 0.8       |
| 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°    | 864.3  | 30.2      |
| 0°-40°    | 1402.6 | 48.9      |
| 0°-60°    | 2399.7 | 83.7      |
| 0°-90°    | 2866.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2866.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1137 | 1137  | 1137 | 1137  | 1137 |      |
| 5°  | 1129 | 1126  | 1130 | 1126  | 1153 | 106  |
| 15° | 1081 | 1069  | 1075 | 1081  | 1081 | 301  |
| 25° | 966  | 972   | 988  | 1001  | 999  | 447  |
| 35° | 841  | 844   | 863  | 883   | 883  | 522  |
| 45° | 677  | 690   | 701  | 719   | 702  | 524  |
| 55° | 506  | 503   | 516  | 512   | 512  | 450  |
| 65° | 311  | 307   | 319  | 307   | 309  | 309  |
| 75° | 129  | 127   | 129  | 120   | 124  | 139  |
| 85° | 16   | 15    | 16   | 15    | 15   | 23   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1137.2 | 1137.2 | 1137.2 | 1137.2 | 1137.2 |
| 2.5°  | 1147.0 | 1138.3 | 1130.3 | 1139.7 | 1145.4 |
| 5°    | 1129.1 | 1126.4 | 1129.5 | 1126.1 | 1153.3 |
| 7.5°  | 1105.9 | 1116.0 | 1121.9 | 1118.2 | 1119.8 |
| 10°   | 1093.5 | 1090.0 | 1103.1 | 1112.2 | 1110.9 |
| 12.5° | 1080.3 | 1085.6 | 1086.4 | 1096.2 | 1097.1 |
| 15°   | 1081.1 | 1068.6 | 1075.2 | 1080.8 | 1081.2 |
| 17.5° | 1039.1 | 1052.6 | 1057.1 | 1069.9 | 1054.1 |
| 20°   | 1033.9 | 1024.1 | 1033.9 | 1047.0 | 1045.0 |
| 22.5° | 1002.4 | 991.4  | 1012.5 | 1024.1 | 1023.4 |
| 25°   | 966.5  | 971.8  | 987.7  | 1000.6 | 998.6  |
| 27.5° | 935.1  | 941.3  | 963.9  | 981.7  | 970.2  |
| 30°   | 910.9  | 907.8  | 926.9  | 942.8  | 951.6  |
| 32.5° | 867.6  | 878.7  | 901.1  | 916.8  | 908.4  |
| 35°   | 841.3  | 843.8  | 863.3  | 883.3  | 882.7  |
| 37.5° | 795.3  | 806.9  | 834.4  | 840.0  | 834.8  |
| 40°   | 756.1  | 767.7  | 792.6  | 798.6  | 796.1  |
| 42.5° | 727.2  | 729.3  | 750.6  | 757.5  | 746.5  |
| 45°   | 676.9  | 689.5  | 700.9  | 719.0  | 702.0  |
| 47.5° | 634.0  | 639.9  | 664.5  | 669.4  | 660.4  |
| 50°   | 595.1  | 597.1  | 621.9  | 615.9  | 610.1  |
| 52.5° | 546.2  | 554.9  | 568.8  | 567.6  | 560.7  |
| 55°   | 506.0  | 502.6  | 515.8  | 512.3  | 512.1  |
| 57.5° | 457.7  | 463.5  | 474.4  | 468.8  | 459.9  |
| 60°   | 412.4  | 412.6  | 416.5  | 410.2  | 409.1  |
| 62.5° | 362.1  | 363.8  | 364.7  | 356.9  | 369.6  |
| 65°   | 310.8  | 306.7  | 318.8  | 306.6  | 308.6  |
| 67.5° | 263.7  | 265.8  | 264.6  | 256.9  | 259.9  |
| 70°   | 215.8  | 218.5  | 216.6  | 207.9  | 210.5  |
| 72.5° | 172.1  | 168.8  | 170.9  | 160.0  | 165.0  |
| 75°   | 129.4  | 126.7  | 129.1  | 120.0  | 124.1  |
| 77.5° | 88.1   | 90.2   | 88.7   | 83.8   | 86.6   |
| 80°   | 58.1   | 56.5   | 56.5   | 53.7   | 54.3   |
| 82.5° | 33.9   | 32.3   | 31.9   | 31.0   | 32.3   |
| 85°   | 15.9   | 15.4   | 15.7   | 15.3   | 14.7   |
| 87.5° | 5.7    | 5.9    | 5.9    | 5.6    | 5.3    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)