

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: P562268

Luminaire Tested: FSR-24-4-LD4-1LO-50-UNV-82-96-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P562268  
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-LD4-1LO-50-UNV-82-96-EDD-90  
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

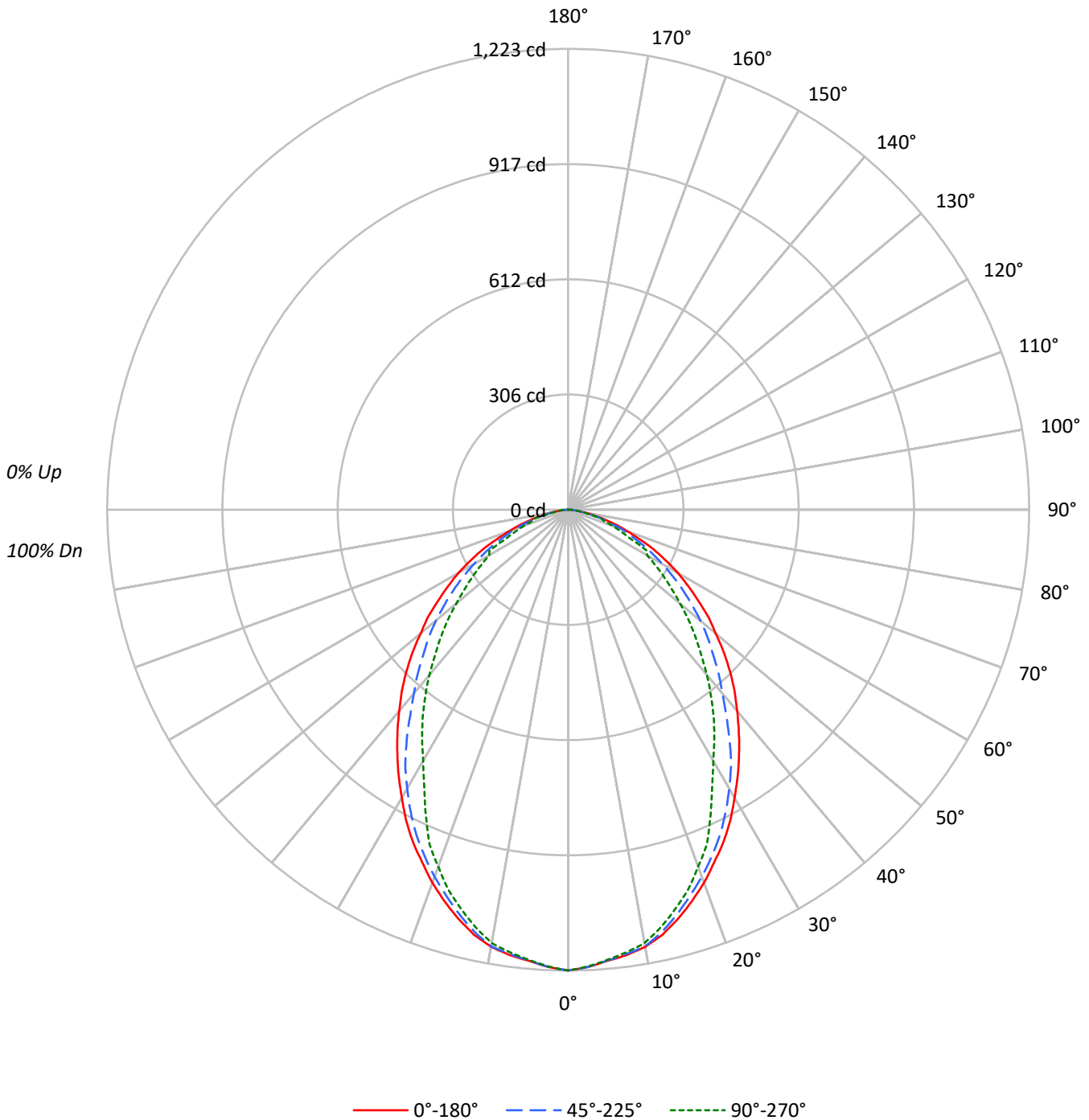
Lumens per Lamp: N/A  
Luminaire Lumens: 2401.0 lumens  
Efficiency: N/A  
Efficacy: 102.6 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 23.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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  | 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°  | 1646 | 1646 | 1646 |
| 5°  | 1623 | 1621 | 1619 |
| 10° | 1609 | 1607 | 1596 |
| 15° | 1566 | 1550 | 1528 |
| 20° | 1508 | 1484 | 1443 |
| 25° | 1446 | 1415 | 1327 |
| 30° | 1371 | 1327 | 1195 |
| 35° | 1298 | 1226 | 1105 |
| 40° | 1224 | 1118 | 1006 |
| 45° | 1154 | 1033 | 909  |
| 50° | 1068 | 959  | 811  |
| 55° | 988  | 869  | 726  |
| 60° | 906  | 776  | 651  |
| 65° | 797  | 680  | 576  |
| 70° | 656  | 595  | 489  |
| 75° | 522  | 456  | 478  |
| 80° | 350  | 329  | 307  |
| 85° | 218  | 262  | 306  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1154 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 113.8  | 4.7       |
| 10°-20°   | 312.4  | 13.0      |
| 20°-30°   | 432.6  | 18.0      |
| 30°-40°   | 461.2  | 19.2      |
| 40°-50°   | 420.8  | 17.5      |
| 50°-60°   | 329.6  | 13.7      |
| 60°-70°   | 214.8  | 8.9       |
| 70°-80°   | 95.2   | 4.0       |
| 80°-90°   | 20.5   | 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°    | 858.9  | 35.8      |
| 0°-40°    | 1320.1 | 55.0      |
| 0°-60°    | 2070.5 | 86.2      |
| 0°-90°    | 2401.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2401.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1223 | 1223  | 1223 | 1223  | 1223 |      |
| 5°  | 1202 | 1200  | 1200 | 1199  | 1199 | 114  |
| 15° | 1124 | 1124  | 1113 | 1101  | 1097 | 316  |
| 25° | 974  | 968   | 953  | 919   | 894  | 447  |
| 35° | 790  | 785   | 746  | 690   | 673  | 494  |
| 45° | 607  | 594   | 543  | 498   | 478  | 467  |
| 55° | 421  | 409   | 370  | 327   | 310  | 378  |
| 65° | 250  | 236   | 214  | 218   | 181  | 247  |
| 75° | 100  | 93    | 88   | 83    | 92   | 108  |
| 85° | 14   | 16    | 17   | 18    | 20   | 20   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1223.0 | 1223.0 | 1223.0 | 1223.0 | 1223.0 |
| 2.5°  | 1214.6 | 1214.6 | 1214.6 | 1213.1 | 1213.1 |
| 5°    | 1201.8 | 1200.4 | 1200.4 | 1199.0 | 1199.0 |
| 7.5°  | 1191.9 | 1190.5 | 1189.1 | 1187.7 | 1184.9 |
| 10°   | 1177.8 | 1177.8 | 1176.4 | 1169.3 | 1167.9 |
| 12.5° | 1155.2 | 1153.8 | 1148.1 | 1138.2 | 1135.4 |
| 15°   | 1124.1 | 1124.1 | 1112.8 | 1101.4 | 1097.2 |
| 17.5° | 1090.1 | 1088.7 | 1074.6 | 1063.3 | 1057.6 |
| 20°   | 1053.4 | 1050.5 | 1036.4 | 1018.0 | 1008.1 |
| 22.5° | 1012.4 | 1012.4 | 995.4  | 971.4  | 961.5  |
| 25°   | 974.2  | 968.5  | 953.0  | 919.0  | 893.6  |
| 27.5° | 930.4  | 921.9  | 904.9  | 856.8  | 827.1  |
| 30°   | 882.3  | 878.0  | 854.0  | 791.8  | 769.2  |
| 32.5° | 837.0  | 830.0  | 804.5  | 739.5  | 721.1  |
| 35°   | 790.4  | 784.7  | 746.5  | 690.0  | 673.0  |
| 37.5° | 743.7  | 736.7  | 688.6  | 643.3  | 622.1  |
| 40°   | 697.1  | 688.6  | 636.3  | 595.3  | 572.6  |
| 42.5° | 653.2  | 641.9  | 591.0  | 547.2  | 521.7  |
| 45°   | 606.6  | 593.8  | 542.9  | 497.7  | 477.9  |
| 47.5° | 559.9  | 548.6  | 501.9  | 455.3  | 432.7  |
| 50°   | 510.4  | 500.5  | 458.1  | 411.4  | 387.4  |
| 52.5° | 469.4  | 453.9  | 412.9  | 366.2  | 346.4  |
| 55°   | 421.3  | 408.6  | 370.4  | 326.6  | 309.6  |
| 57.5° | 377.5  | 364.8  | 329.4  | 288.4  | 274.3  |
| 60°   | 336.5  | 318.1  | 288.4  | 253.1  | 241.8  |
| 62.5° | 291.3  | 277.1  | 251.7  | 222.0  | 236.1  |
| 65°   | 250.3  | 236.1  | 213.5  | 217.7  | 181.0  |
| 67.5° | 205.0  | 197.9  | 178.2  | 158.4  | 152.7  |
| 70°   | 166.8  | 158.4  | 151.3  | 130.1  | 124.4  |
| 72.5° | 132.9  | 124.4  | 114.5  | 103.2  | 99.0   |
| 75°   | 100.4  | 93.3   | 87.7   | 83.4   | 91.9   |
| 77.5° | 69.3   | 66.5   | 62.2   | 58.0   | 56.6   |
| 80°   | 45.2   | 43.8   | 42.4   | 41.0   | 39.6   |
| 82.5° | 26.9   | 26.9   | 26.9   | 26.9   | 26.9   |
| 85°   | 14.1   | 15.6   | 17.0   | 18.4   | 19.8   |
| 87.5° | 8.5    | 8.5    | 9.9    | 11.3   | 12.7   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)