

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: P560750

Luminaire Tested: FSR-12-2-LD4-2STD-50-UNV-93-97-EDD-90

Issue Date: 7/20/2021

**Test Information**

Test Method: LM-79-2019  
Report Number: P560750  
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-LD4-2STD-50-UNV-93-97-EDD-90  
Description: 1X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER  
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

**Summary**

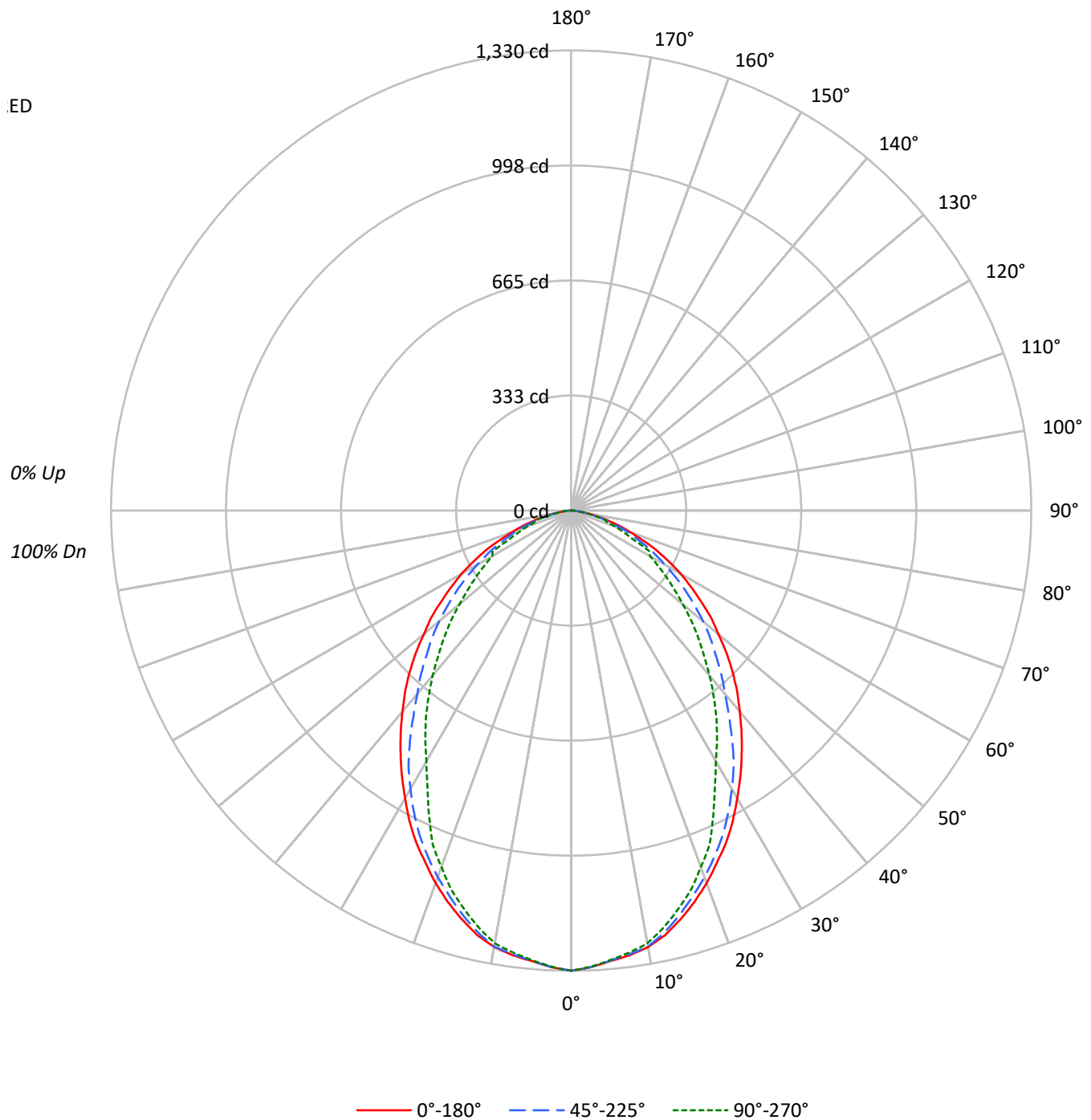
Lumens per Lamp: N/A  
Luminaire Lumens: 2611.0 lumens  
Efficiency: N/A  
Efficacy: 78.4 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 33.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage 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 |    |    |    |    |    |    |    |    | 100 |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 1   | 110 | 106 | 102 | 99  | 108 | 104 | 100 | 97  | 100 | 97  | 94  | 96  | 94  | 91  | 92  | 90  | 89  | 87  |    |    |    |    |    |    |    |    | 87  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 79  | 77  | 75  |    |    |    |    |    |    |    |    | 75  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 3   | 93  | 84  | 77  | 71  | 91  | 82  | 76  | 70  | 79  | 74  | 69  | 77  | 72  | 68  | 74  | 70  | 67  | 65  |    |    |    |    |    |    |    |    | 65  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 4   | 86  | 75  | 67  | 61  | 84  | 74  | 66  | 61  | 72  | 65  | 60  | 69  | 64  | 59  | 67  | 62  | 58  | 56  |    |    |    |    |    |    |    |    | 56  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 5   | 80  | 68  | 60  | 54  | 78  | 67  | 59  | 53  | 65  | 58  | 53  | 63  | 57  | 52  | 61  | 56  | 52  | 50  |    |    |    |    |    |    |    |    | 50  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 6   | 74  | 62  | 53  | 48  | 72  | 61  | 53  | 47  | 59  | 52  | 47  | 57  | 51  | 47  | 56  | 50  | 46  | 44  |    |    |    |    |    |    |    |    | 44  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 7   | 69  | 56  | 48  | 43  | 67  | 56  | 48  | 42  | 54  | 47  | 42  | 53  | 46  | 42  | 51  | 46  | 42  | 40  |    |    |    |    |    |    |    |    | 40  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 8   | 65  | 52  | 44  | 38  | 63  | 51  | 44  | 38  | 50  | 43  | 38  | 49  | 42  | 38  | 48  | 42  | 38  | 36  |    |    |    |    |    |    |    |    | 36  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 9   | 61  | 48  | 40  | 35  | 59  | 47  | 40  | 35  | 46  | 39  | 35  | 45  | 39  | 34  | 44  | 38  | 34  | 33  |    |    |    |    |    |    |    |    | 33  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |
| 10  | 57  | 44  | 37  | 32  | 56  | 44  | 37  | 32  | 43  | 36  | 32  | 42  | 36  | 32  | 41  | 36  | 32  | 30  |    |    |    |    |    |    |    |    | 30  |    |    |   |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 7158 | 7158 | 7158 |
| 5°  | 7061 | 7052 | 7044 |
| 10° | 7000 | 6991 | 6941 |
| 15° | 6811 | 6742 | 6648 |
| 20° | 6561 | 6455 | 6279 |
| 25° | 6291 | 6154 | 5771 |
| 30° | 5963 | 5771 | 5198 |
| 35° | 5647 | 5334 | 4809 |
| 40° | 5325 | 4861 | 4375 |
| 45° | 5020 | 4494 | 3956 |
| 50° | 4648 | 4171 | 3527 |
| 55° | 4299 | 3780 | 3159 |
| 60° | 3939 | 3377 | 2830 |
| 65° | 3466 | 2957 | 2506 |
| 70° | 2854 | 2589 | 2129 |
| 75° | 2271 | 1982 | 2077 |
| 80° | 1525 | 1429 | 1336 |
| 85° | 951  | 1142 | 1328 |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5020 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 123.8  | 4.7       |
| 10°-20°   | 339.8  | 13.0      |
| 20°-30°   | 470.4  | 18.0      |
| 30°-40°   | 501.6  | 19.2      |
| 40°-50°   | 457.6  | 17.5      |
| 50°-60°   | 358.5  | 13.7      |
| 60°-70°   | 233.6  | 8.9       |
| 70°-80°   | 103.5  | 4.0       |
| 80°-90°   | 22.2   | 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°    | 934.0  | 35.8      |
| 0°-40°    | 1435.6 | 55.0      |
| 0°-60°    | 2251.6 | 86.2      |
| 0°-90°    | 2611.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2611.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1330 | 1330  | 1330 | 1330  | 1330 |      |
| 5°  | 1307 | 1305  | 1305 | 1304  | 1304 | 124  |
| 15° | 1222 | 1222  | 1210 | 1198  | 1193 | 344  |
| 25° | 1059 | 1053  | 1036 | 999   | 972  | 486  |
| 35° | 860  | 853   | 812  | 750   | 732  | 537  |
| 45° | 660  | 646   | 590  | 541   | 520  | 508  |
| 55° | 458  | 444   | 403  | 355   | 337  | 411  |
| 65° | 272  | 257   | 232  | 237   | 197  | 268  |
| 75° | 109  | 102   | 95   | 91    | 100  | 117  |
| 85° | 15   | 17    | 18   | 20    | 22   | 21   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1330.0 | 1330.0 | 1330.0 | 1330.0 | 1330.0 |
| 2.5°  | 1320.8 | 1320.8 | 1320.8 | 1319.2 | 1319.2 |
| 5°    | 1306.9 | 1305.4 | 1305.4 | 1303.9 | 1303.9 |
| 7.5°  | 1296.2 | 1294.6 | 1293.1 | 1291.6 | 1288.5 |
| 10°   | 1280.8 | 1280.8 | 1279.3 | 1271.6 | 1270.0 |
| 12.5° | 1256.2 | 1254.7 | 1248.5 | 1237.8 | 1234.7 |
| 15°   | 1222.4 | 1222.4 | 1210.1 | 1197.8 | 1193.2 |
| 17.5° | 1185.5 | 1183.9 | 1168.6 | 1156.3 | 1150.1 |
| 20°   | 1145.5 | 1142.4 | 1127.0 | 1107.1 | 1096.3 |
| 22.5° | 1100.9 | 1100.9 | 1082.5 | 1056.3 | 1045.6 |
| 25°   | 1059.4 | 1053.2 | 1036.3 | 999.4  | 971.8  |
| 27.5° | 1011.7 | 1002.5 | 984.1  | 931.8  | 899.5  |
| 30°   | 959.5  | 954.8  | 928.7  | 861.0  | 836.4  |
| 32.5° | 910.2  | 902.6  | 874.9  | 804.2  | 784.2  |
| 35°   | 859.5  | 853.4  | 811.8  | 750.3  | 731.9  |
| 37.5° | 808.8  | 801.1  | 748.8  | 699.6  | 676.5  |
| 40°   | 758.0  | 748.8  | 691.9  | 647.3  | 622.7  |
| 42.5° | 710.4  | 698.1  | 642.7  | 595.0  | 567.4  |
| 45°   | 659.6  | 645.8  | 590.4  | 541.2  | 519.7  |
| 47.5° | 608.9  | 596.6  | 545.8  | 495.1  | 470.5  |
| 50°   | 555.1  | 544.3  | 498.2  | 447.4  | 421.3  |
| 52.5° | 510.5  | 493.6  | 449.0  | 398.2  | 376.7  |
| 55°   | 458.2  | 444.4  | 402.8  | 355.2  | 336.7  |
| 57.5° | 410.5  | 396.7  | 358.3  | 313.7  | 298.3  |
| 60°   | 365.9  | 346.0  | 313.7  | 275.2  | 262.9  |
| 62.5° | 316.7  | 301.4  | 273.7  | 241.4  | 256.8  |
| 65°   | 272.2  | 256.8  | 232.2  | 236.8  | 196.8  |
| 67.5° | 222.9  | 215.3  | 193.7  | 172.2  | 166.1  |
| 70°   | 181.4  | 172.2  | 164.5  | 141.5  | 135.3  |
| 72.5° | 144.5  | 135.3  | 124.5  | 112.2  | 107.6  |
| 75°   | 109.2  | 101.5  | 95.3   | 90.7   | 99.9   |
| 77.5° | 75.3   | 72.3   | 67.7   | 63.0   | 61.5   |
| 80°   | 49.2   | 47.7   | 46.1   | 44.6   | 43.1   |
| 82.5° | 29.2   | 29.2   | 29.2   | 29.2   | 29.2   |
| 85°   | 15.4   | 16.9   | 18.5   | 20.0   | 21.5   |
| 87.5° | 9.2    | 9.2    | 10.8   | 12.3   | 13.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)