

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: P560991

Luminaire Tested: FSR-12-4-LD4-1LO-35-UNV-82-97-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560991
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-12-4-LD4-1LO-35-UNV-82-97-EDD
Description: 1X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2252.0 lumens
Efficiency: N/A
Efficacy: 96.2 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

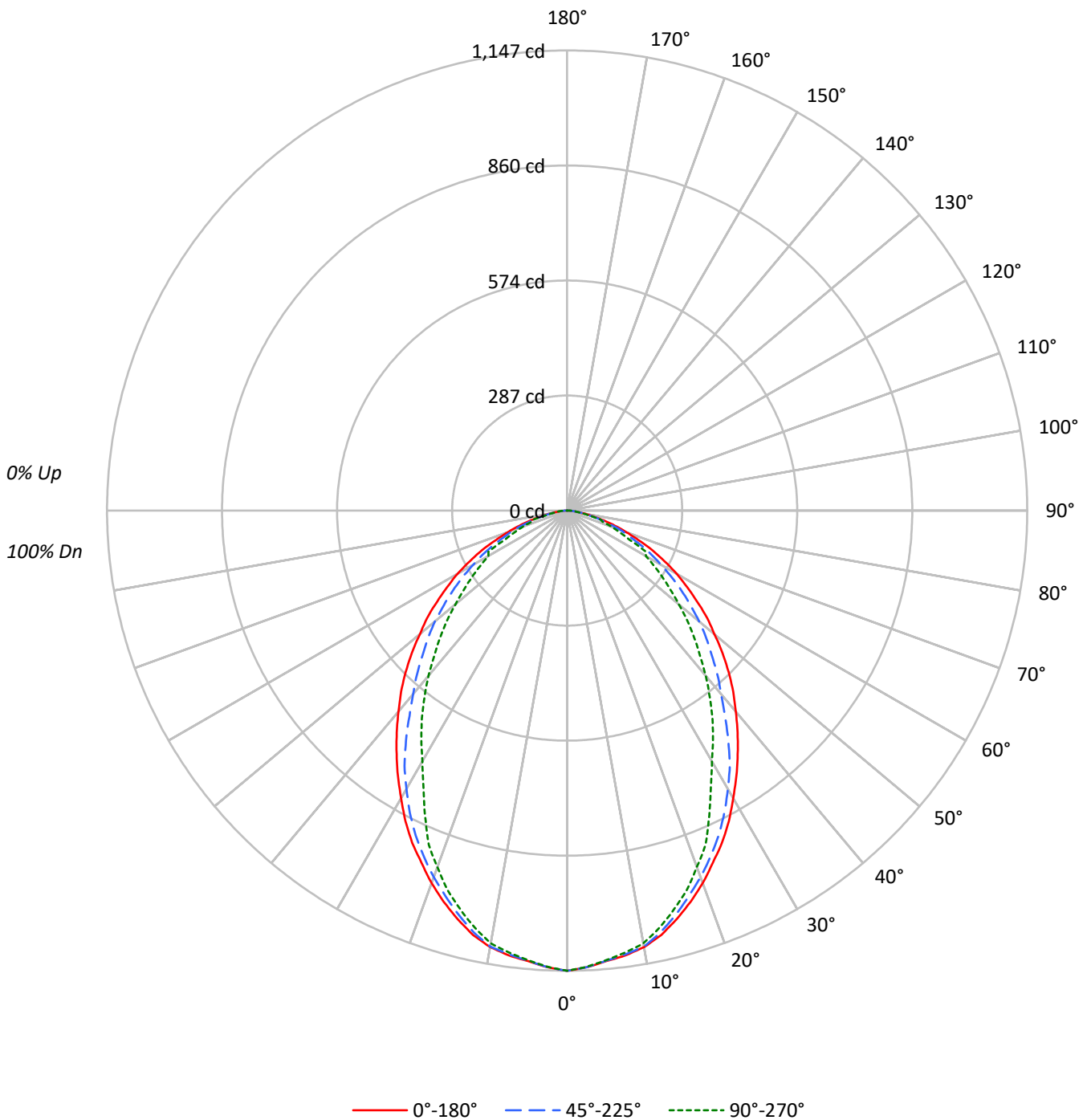
Input Watts (W): 23.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P560991

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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° | 3087 | 3087 | 3087 |
| 5° | 3045 | 3041 | 3038 |
| 10° | 3019 | 3015 | 2993 |
| 15° | 2937 | 2908 | 2867 |
| 20° | 2829 | 2784 | 2708 |
| 25° | 2713 | 2654 | 2488 |
| 30° | 2571 | 2489 | 2242 |
| 35° | 2435 | 2300 | 2074 |
| 40° | 2297 | 2096 | 1887 |
| 45° | 2165 | 1938 | 1706 |
| 50° | 2004 | 1799 | 1521 |
| 55° | 1854 | 1630 | 1362 |
| 60° | 1699 | 1456 | 1221 |
| 65° | 1494 | 1275 | 1081 |
| 70° | 1231 | 1116 | 918 |
| 75° | 979 | 855 | 896 |
| 80° | 657 | 617 | 575 |
| 85° | 411 | 491 | 574 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2165 cd/sqm

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 106.8 | 4.7 |
| 10°-20° | 293.1 | 13.0 |
| 20°-30° | 405.7 | 18.0 |
| 30°-40° | 432.6 | 19.2 |
| 40°-50° | 394.7 | 17.5 |
| 50°-60° | 309.2 | 13.7 |
| 60°-70° | 201.5 | 8.9 |
| 70°-80° | 89.3 | 4.0 |
| 80°-90° | 19.2 | 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° | 805.6 | 35.8 |
| 0°-40° | 1238.2 | 55.0 |
| 0°-60° | 1942.0 | 86.2 |
| 0°-90° | 2252.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2252.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1147 | 1147 | 1147 | 1147 | 1147 | |
| 5° | 1127 | 1126 | 1126 | 1125 | 1125 | 107 |
| 15° | 1054 | 1054 | 1044 | 1033 | 1029 | 296 |
| 25° | 914 | 908 | 894 | 862 | 838 | 419 |
| 35° | 741 | 736 | 700 | 647 | 631 | 463 |
| 45° | 569 | 557 | 509 | 467 | 448 | 438 |
| 55° | 395 | 383 | 348 | 306 | 290 | 354 |
| 65° | 235 | 222 | 200 | 204 | 170 | 231 |
| 75° | 94 | 88 | 82 | 78 | 86 | 101 |
| 85° | 13 | 15 | 16 | 17 | 19 | 18 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560991

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1147.1 | 1147.1 | 1147.1 | 1147.1 | 1147.1 |
| 2.5° | 1139.2 | 1139.2 | 1139.2 | 1137.9 | 1137.9 |
| 5° | 1127.2 | 1125.9 | 1125.9 | 1124.6 | 1124.6 |
| 7.5° | 1118.0 | 1116.6 | 1115.3 | 1114.0 | 1111.3 |
| 10° | 1104.7 | 1104.7 | 1103.4 | 1096.7 | 1095.4 |
| 12.5° | 1083.5 | 1082.2 | 1076.9 | 1067.6 | 1064.9 |
| 15° | 1054.3 | 1054.3 | 1043.7 | 1033.1 | 1029.1 |
| 17.5° | 1022.5 | 1021.2 | 1007.9 | 997.3 | 992.0 |
| 20° | 988.0 | 985.3 | 972.1 | 954.8 | 945.6 |
| 22.5° | 949.5 | 949.5 | 933.6 | 911.1 | 901.8 |
| 25° | 913.7 | 908.4 | 893.8 | 862.0 | 838.1 |
| 27.5° | 872.6 | 864.7 | 848.8 | 803.7 | 775.8 |
| 30° | 827.5 | 823.6 | 801.0 | 742.7 | 721.4 |
| 32.5° | 785.1 | 778.5 | 754.6 | 693.6 | 676.3 |
| 35° | 741.3 | 736.0 | 700.2 | 647.2 | 631.3 |
| 37.5° | 697.6 | 690.9 | 645.8 | 603.4 | 583.5 |
| 40° | 653.8 | 645.8 | 596.8 | 558.3 | 537.1 |
| 42.5° | 612.7 | 602.1 | 554.3 | 513.2 | 489.4 |
| 45° | 568.9 | 557.0 | 509.3 | 466.8 | 448.2 |
| 47.5° | 525.2 | 514.6 | 470.8 | 427.0 | 405.8 |
| 50° | 478.7 | 469.5 | 429.7 | 385.9 | 363.4 |
| 52.5° | 440.3 | 425.7 | 387.2 | 343.5 | 324.9 |
| 55° | 395.2 | 383.3 | 347.5 | 306.3 | 290.4 |
| 57.5° | 354.1 | 342.2 | 309.0 | 270.5 | 257.3 |
| 60° | 315.6 | 298.4 | 270.5 | 237.4 | 226.8 |
| 62.5° | 273.2 | 259.9 | 236.1 | 208.2 | 221.5 |
| 65° | 234.7 | 221.5 | 200.3 | 204.2 | 169.8 |
| 67.5° | 192.3 | 185.7 | 167.1 | 148.5 | 143.2 |
| 70° | 156.5 | 148.5 | 141.9 | 122.0 | 116.7 |
| 72.5° | 124.7 | 116.7 | 107.4 | 96.8 | 92.8 |
| 75° | 94.2 | 87.5 | 82.2 | 78.2 | 86.2 |
| 77.5° | 65.0 | 62.3 | 58.4 | 54.4 | 53.0 |
| 80° | 42.4 | 41.1 | 39.8 | 38.5 | 37.1 |
| 82.5° | 25.2 | 25.2 | 25.2 | 25.2 | 25.2 |
| 85° | 13.3 | 14.6 | 15.9 | 17.2 | 18.6 |
| 87.5° | 8.0 | 8.0 | 9.3 | 10.6 | 11.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)