

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: P561116

Luminaire Tested: FSR-12-4-LD4-1LO-50-UNV-82-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561116
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-50-UNV-82-96-EDD-90
Description: 1X4 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: 2043.0 lumens
Efficiency: N/A
Efficacy: 87.3 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

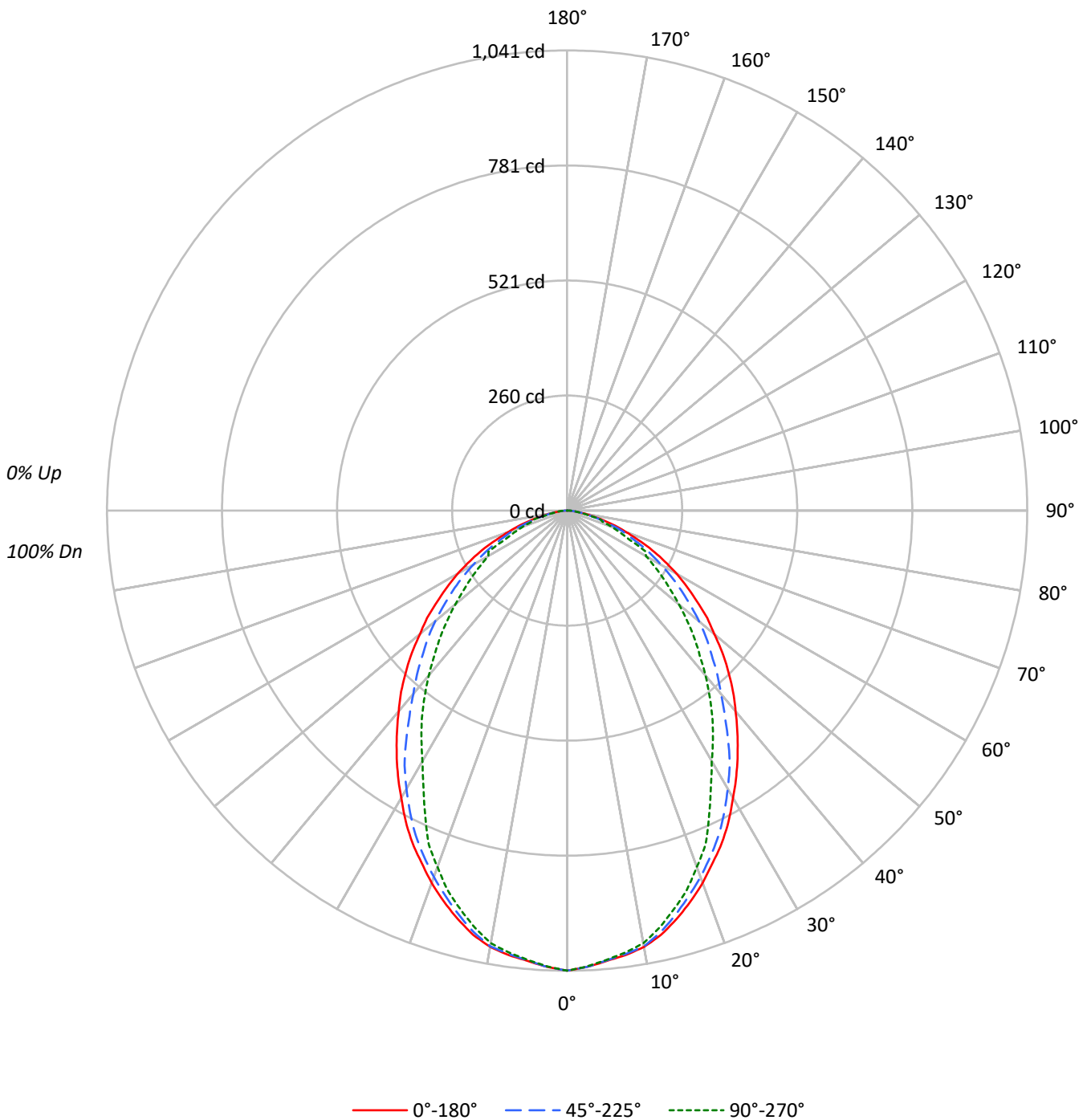
Input Watts (W): 23.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561116

CATALOG NUMBER: FSR-12-4-LD4-1LO-50-UNV-82-96-EDD-90

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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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° | 2801 | 2801 | 2801 |
| 5° | 2762 | 2759 | 2756 |
| 10° | 2739 | 2735 | 2716 |
| 15° | 2665 | 2638 | 2601 |
| 20° | 2567 | 2525 | 2456 |
| 25° | 2461 | 2408 | 2258 |
| 30° | 2333 | 2258 | 2034 |
| 35° | 2209 | 2087 | 1881 |
| 40° | 2083 | 1902 | 1712 |
| 45° | 1964 | 1758 | 1547 |
| 50° | 1818 | 1632 | 1380 |
| 55° | 1682 | 1479 | 1236 |
| 60° | 1541 | 1321 | 1107 |
| 65° | 1356 | 1157 | 981 |
| 70° | 1117 | 1013 | 833 |
| 75° | 888 | 776 | 813 |
| 80° | 597 | 559 | 522 |
| 85° | 371 | 445 | 519 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1964 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 96.9 | 4.7 |
| 10°-20° | 265.9 | 13.0 |
| 20°-30° | 368.1 | 18.0 |
| 30°-40° | 392.5 | 19.2 |
| 40°-50° | 358.0 | 17.5 |
| 50°-60° | 280.5 | 13.7 |
| 60°-70° | 182.8 | 8.9 |
| 70°-80° | 81.0 | 4.0 |
| 80°-90° | 17.4 | 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° | 730.8 | 35.8 |
| 0°-40° | 1123.3 | 55.0 |
| 0°-60° | 1761.8 | 86.2 |
| 0°-90° | 2043.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2043.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1041 | 1041 | 1041 | 1041 | 1041 | |
| 5° | 1023 | 1021 | 1021 | 1020 | 1020 | 97 |
| 15° | 956 | 956 | 947 | 937 | 934 | 269 |
| 25° | 829 | 824 | 811 | 782 | 760 | 381 |
| 35° | 672 | 668 | 635 | 587 | 573 | 420 |
| 45° | 516 | 505 | 462 | 424 | 407 | 398 |
| 55° | 358 | 348 | 315 | 278 | 264 | 322 |
| 65° | 213 | 201 | 182 | 185 | 154 | 210 |
| 75° | 85 | 79 | 75 | 71 | 78 | 92 |
| 85° | 12 | 13 | 14 | 16 | 17 | 17 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1040.7 | 1040.7 | 1040.7 | 1040.7 | 1040.7 |
| 2.5° | 1033.5 | 1033.5 | 1033.5 | 1032.3 | 1032.3 |
| 5° | 1022.6 | 1021.4 | 1021.4 | 1020.2 | 1020.2 |
| 7.5° | 1014.2 | 1013.0 | 1011.8 | 1010.6 | 1008.2 |
| 10° | 1002.2 | 1002.2 | 1001.0 | 995.0 | 993.8 |
| 12.5° | 982.9 | 981.7 | 976.9 | 968.5 | 966.1 |
| 15° | 956.5 | 956.5 | 946.8 | 937.2 | 933.6 |
| 17.5° | 927.6 | 926.4 | 914.4 | 904.7 | 899.9 |
| 20° | 896.3 | 893.9 | 881.9 | 866.2 | 857.8 |
| 22.5° | 861.4 | 861.4 | 847.0 | 826.5 | 818.1 |
| 25° | 828.9 | 824.1 | 810.9 | 782.0 | 760.4 |
| 27.5° | 791.6 | 784.4 | 770.0 | 729.1 | 703.8 |
| 30° | 750.7 | 747.1 | 726.7 | 673.7 | 654.5 |
| 32.5° | 712.2 | 706.2 | 684.6 | 629.2 | 613.6 |
| 35° | 672.5 | 667.7 | 635.2 | 587.1 | 572.7 |
| 37.5° | 632.8 | 626.8 | 585.9 | 547.4 | 529.4 |
| 40° | 593.1 | 585.9 | 541.4 | 506.5 | 487.3 |
| 42.5° | 555.8 | 546.2 | 502.9 | 465.6 | 443.9 |
| 45° | 516.1 | 505.3 | 462.0 | 423.5 | 406.6 |
| 47.5° | 476.4 | 466.8 | 427.1 | 387.4 | 368.1 |
| 50° | 434.3 | 425.9 | 389.8 | 350.1 | 329.6 |
| 52.5° | 399.4 | 386.2 | 351.3 | 311.6 | 294.8 |
| 55° | 358.5 | 347.7 | 315.2 | 277.9 | 263.5 |
| 57.5° | 321.2 | 310.4 | 280.3 | 245.4 | 233.4 |
| 60° | 286.3 | 270.7 | 245.4 | 215.4 | 205.7 |
| 62.5° | 247.8 | 235.8 | 214.2 | 188.9 | 200.9 |
| 65° | 212.9 | 200.9 | 181.7 | 185.3 | 154.0 |
| 67.5° | 174.4 | 168.4 | 151.6 | 134.7 | 129.9 |
| 70° | 142.0 | 134.7 | 128.7 | 110.7 | 105.9 |
| 72.5° | 113.1 | 105.9 | 97.5 | 87.8 | 84.2 |
| 75° | 85.4 | 79.4 | 74.6 | 71.0 | 78.2 |
| 77.5° | 59.0 | 56.5 | 52.9 | 49.3 | 48.1 |
| 80° | 38.5 | 37.3 | 36.1 | 34.9 | 33.7 |
| 82.5° | 22.9 | 22.9 | 22.9 | 22.9 | 22.9 |
| 85° | 12.0 | 13.2 | 14.4 | 15.6 | 16.8 |
| 87.5° | 7.2 | 7.2 | 8.4 | 9.6 | 10.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)