

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: P562817

Luminaire Tested: FSR-24-4-LD4-2LO-50-UNV-81-84-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562817
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-LD4-2LO-50-UNV-81-84-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5687.0 lumens
Efficiency: N/A
Efficacy: 121.5 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

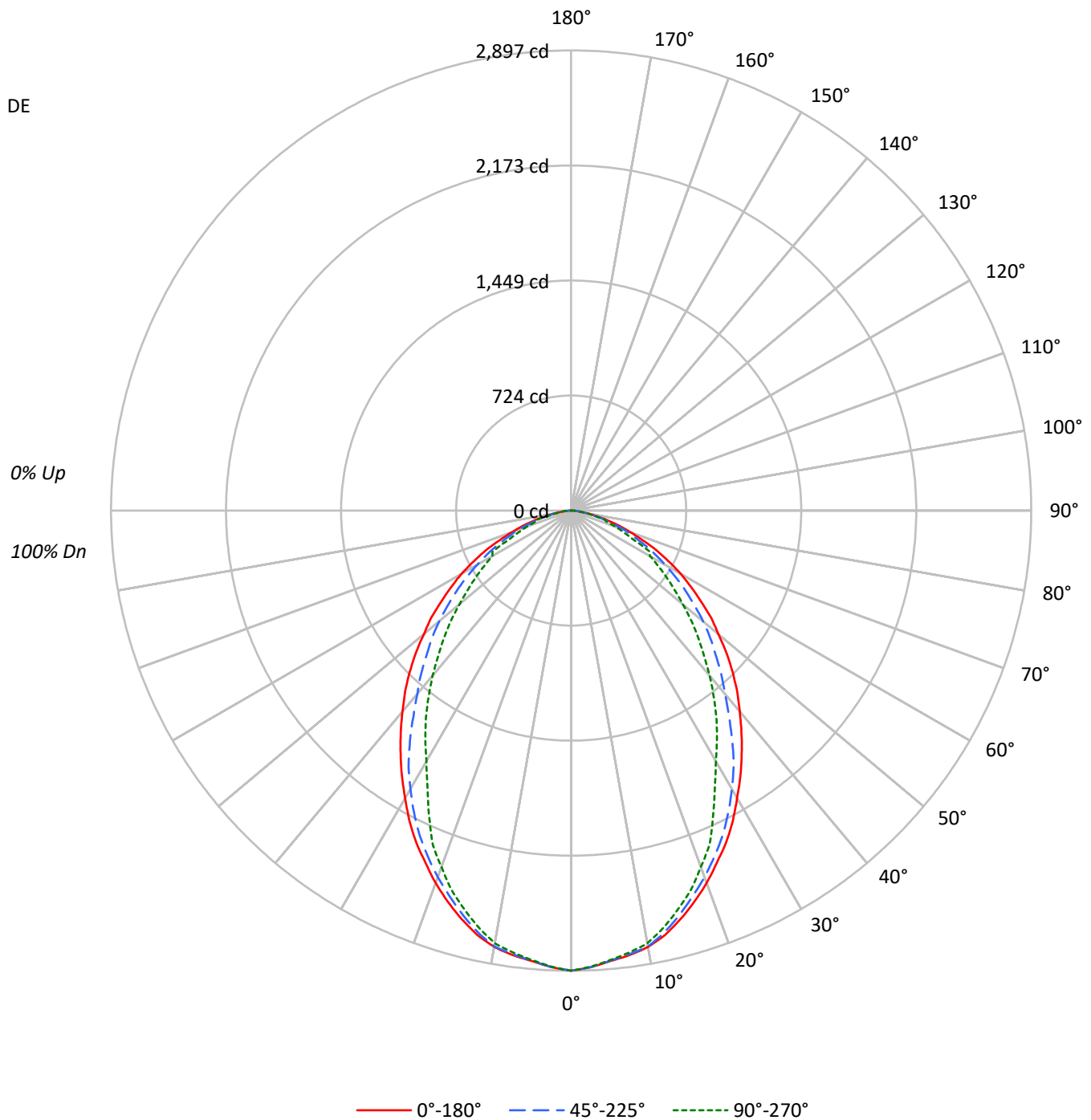
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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CATALOG NUMBER: FSR-24-4-LD4-2LO-50-UNV-81-84-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P562817

CATALOG NUMBER: FSR-24-4-LD4-2LO-50-UNV-81-84-EDD

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° | 3898 | 3898 | 3898 |
| 5° | 3845 | 3840 | 3836 |
| 10° | 3811 | 3807 | 3779 |
| 15° | 3709 | 3671 | 3620 |
| 20° | 3572 | 3515 | 3419 |
| 25° | 3426 | 3351 | 3142 |
| 30° | 3247 | 3143 | 2831 |
| 35° | 3075 | 2905 | 2618 |
| 40° | 2900 | 2647 | 2382 |
| 45° | 2734 | 2447 | 2154 |
| 50° | 2531 | 2271 | 1921 |
| 55° | 2341 | 2058 | 1720 |
| 60° | 2145 | 1838 | 1541 |
| 65° | 1887 | 1610 | 1365 |
| 70° | 1555 | 1410 | 1159 |
| 75° | 1236 | 1079 | 1132 |
| 80° | 831 | 779 | 727 |
| 85° | 517 | 621 | 724 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2734 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 269.7 | 4.7 |
| 10°-20° | 740.1 | 13.0 |
| 20°-30° | 1024.6 | 18.0 |
| 30°-40° | 1092.5 | 19.2 |
| 40°-50° | 996.7 | 17.5 |
| 50°-60° | 780.8 | 13.7 |
| 60°-70° | 508.9 | 8.9 |
| 70°-80° | 225.5 | 4.0 |
| 80°-90° | 48.4 | 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° | 2034.3 | 35.8 |
| 0°-40° | 3126.8 | 55.0 |
| 0°-60° | 4904.2 | 86.2 |
| 0°-90° | 5687.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5687.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2897 | 2897 | 2897 | 2897 | 2897 | |
| 5° | 2847 | 2843 | 2843 | 2840 | 2840 | 270 |
| 15° | 2662 | 2662 | 2636 | 2609 | 2599 | 748 |
| 25° | 2308 | 2294 | 2257 | 2177 | 2117 | 1059 |
| 35° | 1872 | 1859 | 1768 | 1634 | 1594 | 1170 |
| 45° | 1437 | 1407 | 1286 | 1179 | 1132 | 1107 |
| 55° | 998 | 968 | 877 | 774 | 733 | 895 |
| 65° | 593 | 559 | 506 | 516 | 429 | 584 |
| 75° | 238 | 221 | 208 | 198 | 218 | 255 |
| 85° | 34 | 37 | 40 | 44 | 47 | 46 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562817

CATALOG NUMBER: FSR-24-4-LD4-2LO-50-UNV-81-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2896.9 | 2896.9 | 2896.9 | 2896.9 | 2896.9 |
| 2.5° | 2876.8 | 2876.8 | 2876.8 | 2873.4 | 2873.4 |
| 5° | 2846.6 | 2843.3 | 2843.3 | 2839.9 | 2839.9 |
| 7.5° | 2823.2 | 2819.9 | 2816.5 | 2813.2 | 2806.5 |
| 10° | 2789.7 | 2789.7 | 2786.4 | 2769.6 | 2766.3 |
| 12.5° | 2736.1 | 2732.8 | 2719.4 | 2695.9 | 2689.2 |
| 15° | 2662.5 | 2662.5 | 2635.7 | 2608.9 | 2598.8 |
| 17.5° | 2582.1 | 2578.7 | 2545.2 | 2518.4 | 2505.0 |
| 20° | 2495.0 | 2488.3 | 2454.8 | 2411.3 | 2387.8 |
| 22.5° | 2397.9 | 2397.9 | 2357.7 | 2300.8 | 2277.3 |
| 25° | 2307.5 | 2294.1 | 2257.2 | 2176.8 | 2116.6 |
| 27.5° | 2203.6 | 2183.5 | 2143.4 | 2029.5 | 1959.2 |
| 30° | 2089.8 | 2079.7 | 2022.8 | 1875.4 | 1821.9 |
| 32.5° | 1982.6 | 1965.9 | 1905.6 | 1751.5 | 1708.0 |
| 35° | 1872.1 | 1858.7 | 1768.3 | 1634.3 | 1594.1 |
| 37.5° | 1761.6 | 1744.8 | 1631.0 | 1523.8 | 1473.6 |
| 40° | 1651.1 | 1631.0 | 1507.0 | 1409.9 | 1356.3 |
| 42.5° | 1547.2 | 1520.4 | 1399.9 | 1296.1 | 1235.8 |
| 45° | 1436.7 | 1406.6 | 1286.0 | 1178.8 | 1132.0 |
| 47.5° | 1326.2 | 1299.4 | 1188.9 | 1078.4 | 1024.8 |
| 50° | 1209.0 | 1185.5 | 1085.1 | 974.6 | 917.6 |
| 52.5° | 1111.9 | 1075.0 | 977.9 | 867.4 | 820.5 |
| 55° | 998.0 | 967.9 | 877.4 | 773.6 | 733.4 |
| 57.5° | 894.2 | 864.0 | 780.3 | 683.2 | 649.7 |
| 60° | 797.1 | 753.5 | 683.2 | 599.5 | 572.7 |
| 62.5° | 689.9 | 656.4 | 596.1 | 525.8 | 559.3 |
| 65° | 592.8 | 559.3 | 505.7 | 515.7 | 428.7 |
| 67.5° | 485.6 | 468.9 | 422.0 | 375.1 | 361.7 |
| 70° | 395.2 | 375.1 | 358.3 | 308.1 | 294.7 |
| 72.5° | 314.8 | 294.7 | 271.3 | 244.5 | 234.4 |
| 75° | 237.8 | 221.0 | 207.6 | 197.6 | 217.7 |
| 77.5° | 164.1 | 157.4 | 147.4 | 137.3 | 134.0 |
| 80° | 107.2 | 103.8 | 100.5 | 97.1 | 93.8 |
| 82.5° | 63.6 | 63.6 | 63.6 | 63.6 | 63.6 |
| 85° | 33.5 | 36.8 | 40.2 | 43.5 | 46.9 |
| 87.5° | 20.1 | 20.1 | 23.4 | 26.8 | 30.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)