

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: P562664

Luminaire Tested: FSR-24-4-LD4-2HI-50-UNV-93-88-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562664
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-LD4-2HI-50-UNV-93-88-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7238.0 lumens
Efficiency: N/A
Efficacy: 83.8 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

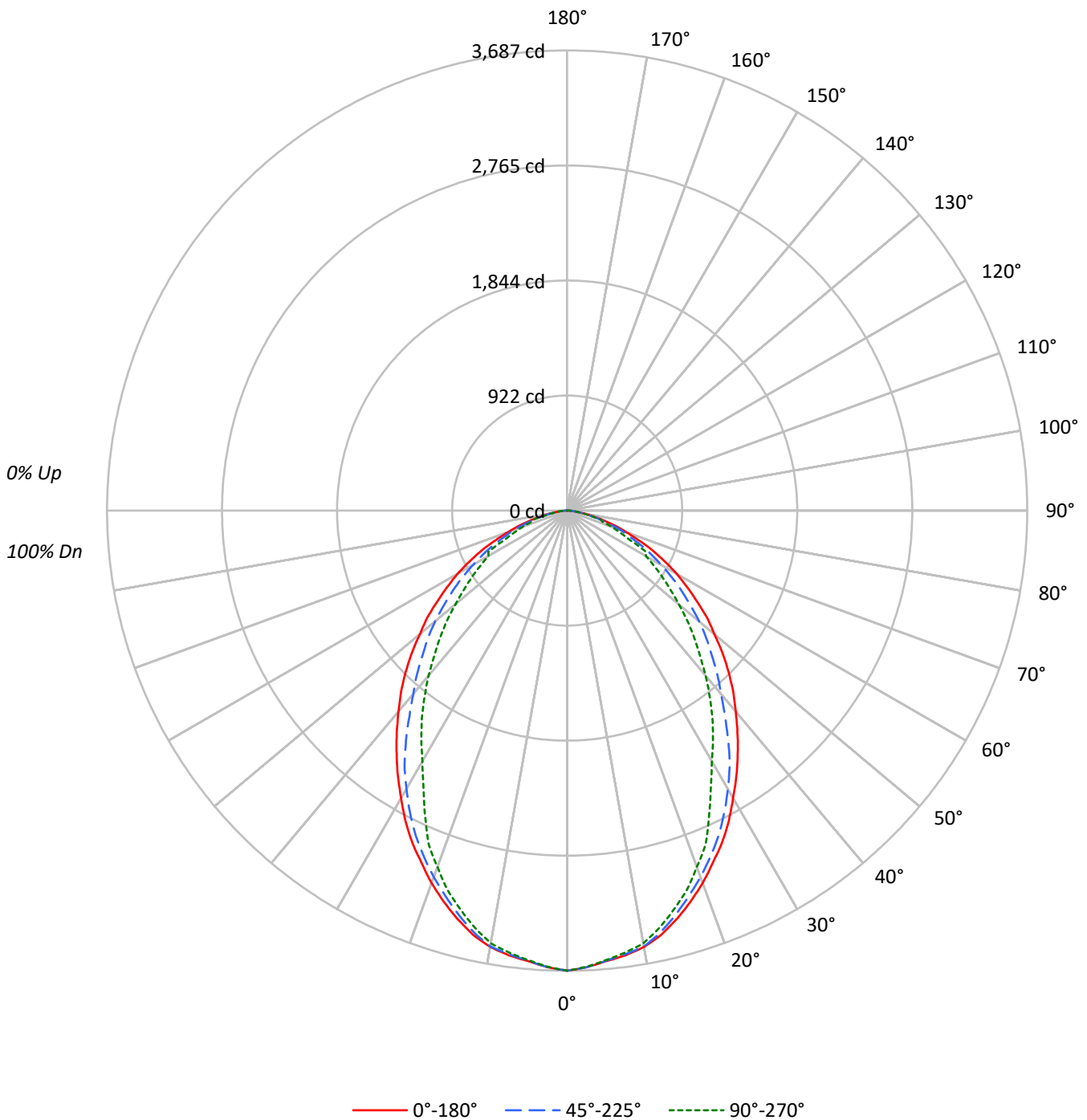
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562664

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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 | 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 | | | | |
| 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° | 4961 | 4961 | 4961 |
| 5° | 4893 | 4888 | 4882 |
| 10° | 4851 | 4845 | 4810 |
| 15° | 4720 | 4673 | 4607 |
| 20° | 4547 | 4473 | 4352 |
| 25° | 4360 | 4265 | 3999 |
| 30° | 4132 | 4000 | 3602 |
| 35° | 3914 | 3697 | 3333 |
| 40° | 3691 | 3369 | 3032 |
| 45° | 3479 | 3114 | 2741 |
| 50° | 3221 | 2891 | 2445 |
| 55° | 2980 | 2620 | 2190 |
| 60° | 2730 | 2340 | 1961 |
| 65° | 2402 | 2049 | 1737 |
| 70° | 1979 | 1794 | 1476 |
| 75° | 1573 | 1374 | 1441 |
| 80° | 1057 | 991 | 924 |
| 85° | 658 | 789 | 922 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3479 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 343.2 | 4.7 |
| 10°-20° | 941.9 | 13.0 |
| 20°-30° | 1304.0 | 18.0 |
| 30°-40° | 1390.4 | 19.2 |
| 40°-50° | 1268.5 | 17.5 |
| 50°-60° | 993.7 | 13.7 |
| 60°-70° | 647.7 | 8.9 |
| 70°-80° | 287.0 | 4.0 |
| 80°-90° | 61.6 | 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° | 2589.1 | 35.8 |
| 0°-40° | 3979.5 | 55.0 |
| 0°-60° | 6241.8 | 86.2 |
| 0°-90° | 7238.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7238.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3687 | 3687 | 3687 | 3687 | 3687 | |
| 5° | 3623 | 3619 | 3619 | 3614 | 3614 | 344 |
| 15° | 3389 | 3389 | 3354 | 3320 | 3308 | 953 |
| 25° | 2937 | 2920 | 2873 | 2770 | 2694 | 1348 |
| 35° | 2383 | 2366 | 2250 | 2080 | 2029 | 1490 |
| 45° | 1829 | 1790 | 1637 | 1500 | 1441 | 1409 |
| 55° | 1270 | 1232 | 1117 | 985 | 934 | 1139 |
| 65° | 754 | 712 | 644 | 656 | 546 | 743 |
| 75° | 303 | 281 | 264 | 252 | 277 | 324 |
| 85° | 43 | 47 | 51 | 55 | 60 | 59 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562664

CATALOG NUMBER: FSR-24-4-LD4-2HI-50-UNV-93-88-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3686.9 | 3686.9 | 3686.9 | 3686.9 | 3686.9 |
| 2.5° | 3661.4 | 3661.4 | 3661.4 | 3657.1 | 3657.1 |
| 5° | 3623.0 | 3618.7 | 3618.7 | 3614.5 | 3614.5 |
| 7.5° | 3593.2 | 3588.9 | 3584.6 | 3580.4 | 3571.9 |
| 10° | 3550.5 | 3550.5 | 3546.3 | 3525.0 | 3520.7 |
| 12.5° | 3482.3 | 3478.1 | 3461.0 | 3431.2 | 3422.7 |
| 15° | 3388.6 | 3388.6 | 3354.5 | 3320.4 | 3307.6 |
| 17.5° | 3286.3 | 3282.0 | 3239.4 | 3205.3 | 3188.2 |
| 20° | 3175.5 | 3166.9 | 3124.3 | 3068.9 | 3039.1 |
| 22.5° | 3051.8 | 3051.8 | 3000.7 | 2928.2 | 2898.4 |
| 25° | 2936.8 | 2919.7 | 2872.8 | 2770.5 | 2693.8 |
| 27.5° | 2804.6 | 2779.1 | 2727.9 | 2583.0 | 2493.5 |
| 30° | 2659.7 | 2646.9 | 2574.5 | 2386.9 | 2318.7 |
| 32.5° | 2523.3 | 2502.0 | 2425.3 | 2229.2 | 2173.8 |
| 35° | 2382.7 | 2365.6 | 2250.5 | 2080.0 | 2028.9 |
| 37.5° | 2242.0 | 2220.7 | 2075.8 | 1939.4 | 1875.4 |
| 40° | 2101.3 | 2075.8 | 1918.1 | 1794.5 | 1726.3 |
| 42.5° | 1969.2 | 1935.1 | 1781.7 | 1649.5 | 1572.8 |
| 45° | 1828.6 | 1790.2 | 1636.7 | 1500.4 | 1440.7 |
| 47.5° | 1687.9 | 1653.8 | 1513.1 | 1372.5 | 1304.3 |
| 50° | 1538.7 | 1508.9 | 1381.0 | 1240.3 | 1167.9 |
| 52.5° | 1415.1 | 1368.2 | 1244.6 | 1104.0 | 1044.3 |
| 55° | 1270.2 | 1231.8 | 1116.7 | 984.6 | 933.5 |
| 57.5° | 1138.0 | 1099.7 | 993.1 | 869.5 | 826.9 |
| 60° | 1014.4 | 959.0 | 869.5 | 763.0 | 728.9 |
| 62.5° | 878.0 | 835.4 | 758.7 | 669.2 | 711.8 |
| 65° | 754.4 | 711.8 | 643.6 | 656.4 | 545.6 |
| 67.5° | 618.0 | 596.7 | 537.1 | 477.4 | 460.3 |
| 70° | 503.0 | 477.4 | 456.1 | 392.1 | 375.1 |
| 72.5° | 400.7 | 375.1 | 345.3 | 311.2 | 298.4 |
| 75° | 302.6 | 281.3 | 264.3 | 251.5 | 277.1 |
| 77.5° | 208.9 | 200.3 | 187.5 | 174.8 | 170.5 |
| 80° | 136.4 | 132.1 | 127.9 | 123.6 | 119.3 |
| 82.5° | 81.0 | 81.0 | 81.0 | 81.0 | 81.0 |
| 85° | 42.6 | 46.9 | 51.1 | 55.4 | 59.7 |
| 87.5° | 25.6 | 25.6 | 29.8 | 34.1 | 38.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)