

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: P562662

Luminaire Tested: FSR-24-4-LD4-2HI-50-UNV-93-87-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562662
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-93-87-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8037.0 lumens
Efficiency: N/A
Efficacy: 93.0 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

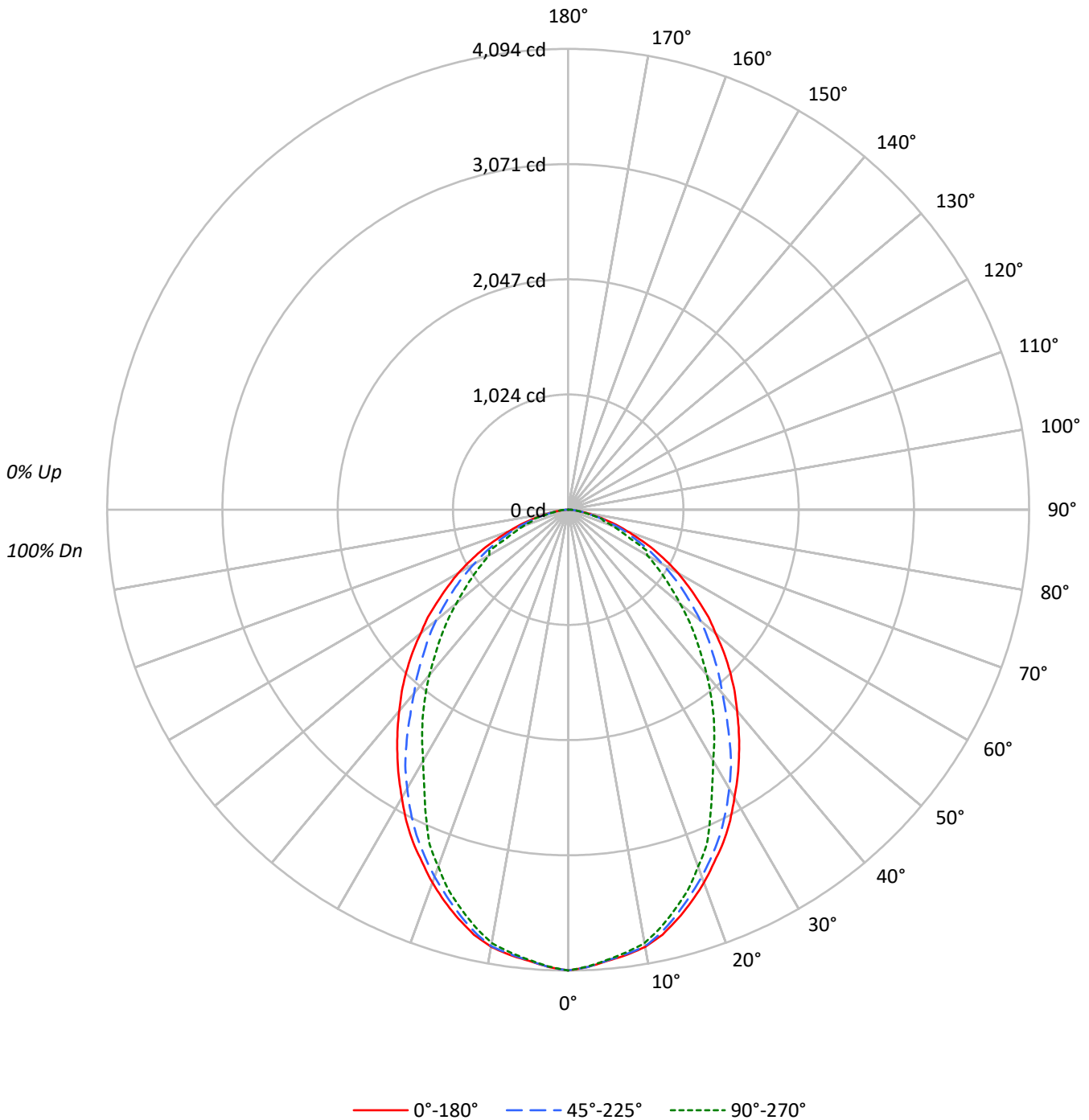
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562662

CATALOG NUMBER: FSR-24-4-LD4-2HI-50-UNV-93-87-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 | 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° | 5508 | 5508 | 5508 |
| 5° | 5433 | 5427 | 5421 |
| 10° | 5386 | 5380 | 5341 |
| 15° | 5241 | 5188 | 5116 |
| 20° | 5049 | 4967 | 4832 |
| 25° | 4841 | 4736 | 4441 |
| 30° | 4588 | 4441 | 4000 |
| 35° | 4346 | 4105 | 3700 |
| 40° | 4098 | 3741 | 3367 |
| 45° | 3863 | 3458 | 3044 |
| 50° | 3576 | 3210 | 2714 |
| 55° | 3309 | 2909 | 2431 |
| 60° | 3031 | 2598 | 2178 |
| 65° | 2667 | 2275 | 1929 |
| 70° | 2197 | 1992 | 1638 |
| 75° | 1747 | 1525 | 1599 |
| 80° | 1174 | 1100 | 1027 |
| 85° | 730 | 877 | 1024 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3863 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 381.1 | 4.7 |
| 10°-20° | 1045.9 | 13.0 |
| 20°-30° | 1447.9 | 18.0 |
| 30°-40° | 1543.9 | 19.2 |
| 40°-50° | 1408.5 | 17.5 |
| 50°-60° | 1103.5 | 13.7 |
| 60°-70° | 719.2 | 8.9 |
| 70°-80° | 318.6 | 4.0 |
| 80°-90° | 68.4 | 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° | 2874.9 | 35.8 |
| 0°-40° | 4418.8 | 55.0 |
| 0°-60° | 6930.8 | 86.2 |
| 0°-90° | 8037.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 8037.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4094 | 4094 | 4094 | 4094 | 4094 | |
| 5° | 4023 | 4018 | 4018 | 4014 | 4014 | 382 |
| 15° | 3763 | 3763 | 3725 | 3687 | 3673 | 1058 |
| 25° | 3261 | 3242 | 3190 | 3076 | 2991 | 1497 |
| 35° | 2646 | 2627 | 2499 | 2310 | 2253 | 1654 |
| 45° | 2030 | 1988 | 1817 | 1666 | 1600 | 1564 |
| 55° | 1410 | 1368 | 1240 | 1093 | 1036 | 1265 |
| 65° | 838 | 790 | 715 | 729 | 606 | 826 |
| 75° | 336 | 312 | 293 | 279 | 308 | 360 |
| 85° | 47 | 52 | 57 | 62 | 66 | 66 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4093.9 | 4093.9 | 4093.9 | 4093.9 | 4093.9 |
| 2.5° | 4065.5 | 4065.5 | 4065.5 | 4060.8 | 4060.8 |
| 5° | 4022.9 | 4018.2 | 4018.2 | 4013.5 | 4013.5 |
| 7.5° | 3989.8 | 3985.1 | 3980.4 | 3975.6 | 3966.2 |
| 10° | 3942.5 | 3942.5 | 3937.8 | 3914.1 | 3909.4 |
| 12.5° | 3866.8 | 3862.0 | 3843.1 | 3810.0 | 3800.5 |
| 15° | 3762.6 | 3762.6 | 3724.8 | 3686.9 | 3672.7 |
| 17.5° | 3649.0 | 3644.3 | 3597.0 | 3559.1 | 3540.2 |
| 20° | 3526.0 | 3516.5 | 3469.2 | 3407.7 | 3374.5 |
| 22.5° | 3388.7 | 3388.7 | 3331.9 | 3251.5 | 3218.4 |
| 25° | 3261.0 | 3242.0 | 3190.0 | 3076.4 | 2991.2 |
| 27.5° | 3114.2 | 3085.8 | 3029.0 | 2868.1 | 2768.7 |
| 30° | 2953.3 | 2939.1 | 2858.7 | 2650.4 | 2574.7 |
| 32.5° | 2801.9 | 2778.2 | 2693.0 | 2475.3 | 2413.8 |
| 35° | 2645.7 | 2626.7 | 2499.0 | 2309.6 | 2252.9 |
| 37.5° | 2489.5 | 2465.8 | 2304.9 | 2153.5 | 2082.5 |
| 40° | 2333.3 | 2304.9 | 2129.8 | 1992.5 | 1916.8 |
| 42.5° | 2186.6 | 2148.7 | 1978.3 | 1831.6 | 1746.4 |
| 45° | 2030.4 | 1987.8 | 1817.4 | 1666.0 | 1599.7 |
| 47.5° | 1874.2 | 1836.4 | 1680.2 | 1524.0 | 1448.3 |
| 50° | 1708.6 | 1675.4 | 1533.5 | 1377.3 | 1296.8 |
| 52.5° | 1571.3 | 1519.3 | 1382.0 | 1225.8 | 1159.6 |
| 55° | 1410.4 | 1367.8 | 1240.0 | 1093.3 | 1036.5 |
| 57.5° | 1263.7 | 1221.1 | 1102.8 | 965.5 | 918.2 |
| 60° | 1126.4 | 1064.9 | 965.5 | 847.2 | 809.3 |
| 62.5° | 975.0 | 927.6 | 842.5 | 743.1 | 790.4 |
| 65° | 837.7 | 790.4 | 714.7 | 728.9 | 605.8 |
| 67.5° | 686.3 | 662.6 | 596.3 | 530.1 | 511.2 |
| 70° | 558.5 | 530.1 | 506.4 | 435.4 | 416.5 |
| 72.5° | 444.9 | 416.5 | 383.4 | 345.5 | 331.3 |
| 75° | 336.0 | 312.4 | 293.4 | 279.2 | 307.6 |
| 77.5° | 231.9 | 222.4 | 208.2 | 194.0 | 189.3 |
| 80° | 151.5 | 146.7 | 142.0 | 137.3 | 132.5 |
| 82.5° | 89.9 | 89.9 | 89.9 | 89.9 | 89.9 |
| 85° | 47.3 | 52.1 | 56.8 | 61.5 | 66.3 |
| 87.5° | 28.4 | 28.4 | 33.1 | 37.9 | 42.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)