

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: P561472

Luminaire Tested: FSR-12-4-LD4-2HI-50-UNV-81-84-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561472
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-LD4-2HI-50-UNV-81-84-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6917.0 lumens
Efficiency: N/A
Efficacy: 80.1 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

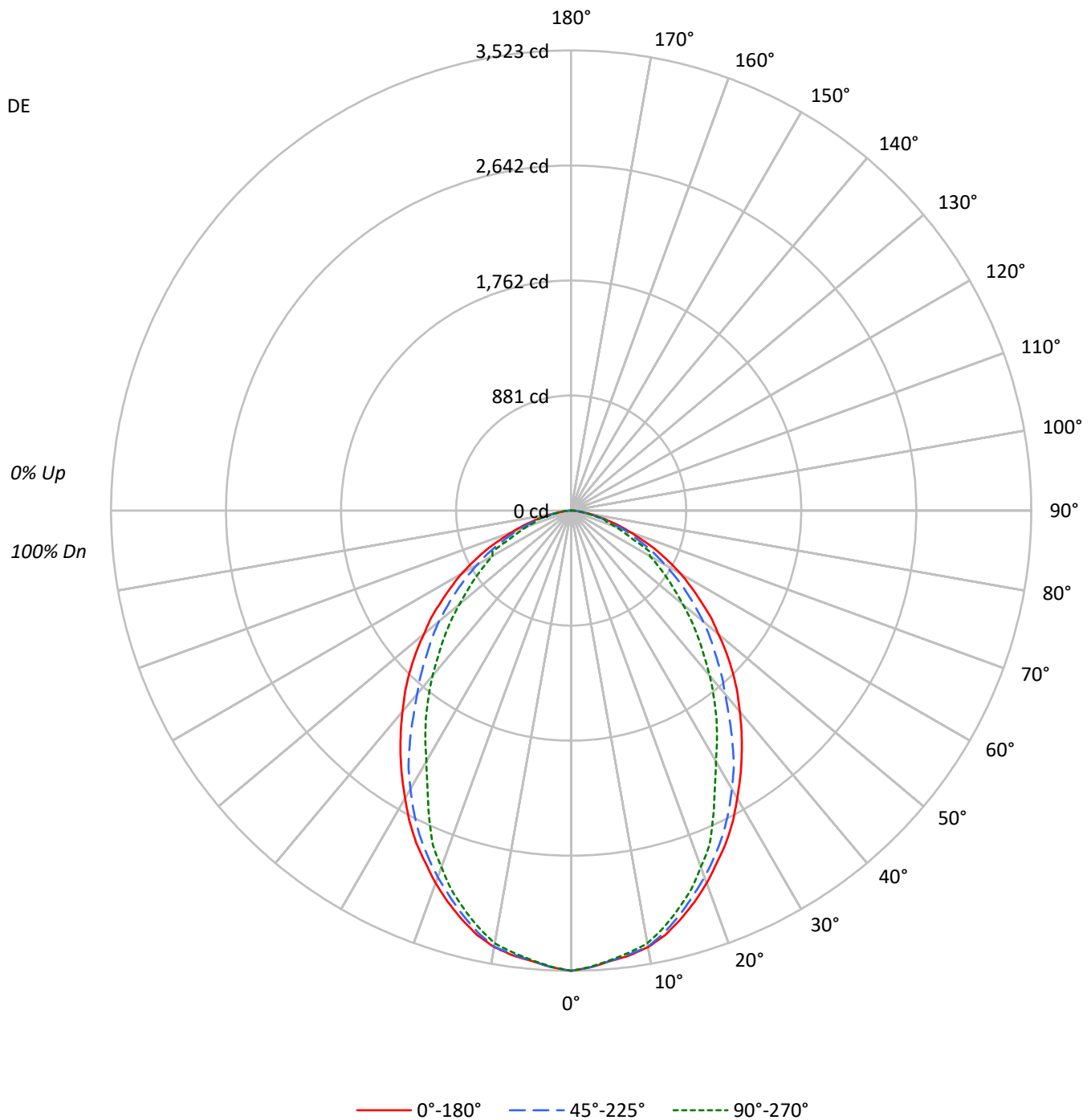
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561472

CATALOG NUMBER: FSR-12-4-LD4-2HI-50-UNV-81-84-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° | 9481 | 9481 | 9481 |
| 5° | 9353 | 9342 | 9331 |
| 10° | 9272 | 9260 | 9194 |
| 15° | 9022 | 8931 | 8806 |
| 20° | 8690 | 8550 | 8317 |
| 25° | 8333 | 8152 | 7644 |
| 30° | 7898 | 7645 | 6885 |
| 35° | 7480 | 7065 | 6369 |
| 40° | 7054 | 6439 | 5795 |
| 45° | 6650 | 5953 | 5240 |
| 50° | 6156 | 5525 | 4672 |
| 55° | 5695 | 5007 | 4185 |
| 60° | 5218 | 4472 | 3749 |
| 65° | 4591 | 3917 | 3320 |
| 70° | 3782 | 3429 | 2821 |
| 75° | 3007 | 2625 | 2753 |
| 80° | 2019 | 1894 | 1768 |
| 85° | 1257 | 1510 | 1760 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 6650 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 328.0 | 4.7 |
| 10°-20° | 900.1 | 13.0 |
| 20°-30° | 1246.2 | 18.0 |
| 30°-40° | 1328.8 | 19.2 |
| 40°-50° | 1212.2 | 17.5 |
| 50°-60° | 949.7 | 13.7 |
| 60°-70° | 619.0 | 8.9 |
| 70°-80° | 274.2 | 4.0 |
| 80°-90° | 58.9 | 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° | 2474.3 | 35.8 |
| 0°-40° | 3803.0 | 55.0 |
| 0°-60° | 5964.9 | 86.2 |
| 0°-90° | 6917.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6917.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3523 | 3523 | 3523 | 3523 | 3523 | |
| 5° | 3462 | 3458 | 3458 | 3454 | 3454 | 329 |
| 15° | 3238 | 3238 | 3206 | 3173 | 3161 | 910 |
| 25° | 2806 | 2790 | 2745 | 2648 | 2574 | 1288 |
| 35° | 2277 | 2261 | 2151 | 1988 | 1939 | 1424 |
| 45° | 1748 | 1711 | 1564 | 1434 | 1377 | 1346 |
| 55° | 1214 | 1177 | 1067 | 941 | 892 | 1089 |
| 65° | 721 | 680 | 615 | 627 | 521 | 711 |
| 75° | 289 | 269 | 252 | 240 | 265 | 310 |
| 85° | 41 | 45 | 49 | 53 | 57 | 56 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561472

CATALOG NUMBER: FSR-12-4-LD4-2HI-50-UNV-81-84-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3523.4 | 3523.4 | 3523.4 | 3523.4 | 3523.4 |
| 2.5° | 3499.0 | 3499.0 | 3499.0 | 3494.9 | 3494.9 |
| 5° | 3462.3 | 3458.3 | 3458.3 | 3454.2 | 3454.2 |
| 7.5° | 3433.8 | 3429.7 | 3425.7 | 3421.6 | 3413.4 |
| 10° | 3393.1 | 3393.1 | 3389.0 | 3368.6 | 3364.6 |
| 12.5° | 3327.9 | 3323.8 | 3307.5 | 3279.0 | 3270.9 |
| 15° | 3238.3 | 3238.3 | 3205.7 | 3173.1 | 3160.9 |
| 17.5° | 3140.5 | 3136.5 | 3095.7 | 3063.1 | 3046.8 |
| 20° | 3034.6 | 3026.5 | 2985.7 | 2932.8 | 2904.3 |
| 22.5° | 2916.5 | 2916.5 | 2867.6 | 2798.4 | 2769.9 |
| 25° | 2806.5 | 2790.2 | 2745.4 | 2647.7 | 2574.3 |
| 27.5° | 2680.2 | 2655.8 | 2606.9 | 2468.4 | 2382.9 |
| 30° | 2541.8 | 2529.5 | 2460.3 | 2281.1 | 2215.9 |
| 32.5° | 2411.4 | 2391.0 | 2317.7 | 2130.3 | 2077.4 |
| 35° | 2277.0 | 2260.7 | 2150.7 | 1987.8 | 1938.9 |
| 37.5° | 2142.6 | 2122.2 | 1983.7 | 1853.4 | 1792.3 |
| 40° | 2008.1 | 1983.7 | 1833.0 | 1714.9 | 1649.7 |
| 42.5° | 1881.9 | 1849.3 | 1702.7 | 1576.4 | 1503.1 |
| 45° | 1747.5 | 1710.8 | 1564.2 | 1433.8 | 1376.8 |
| 47.5° | 1613.0 | 1580.5 | 1446.0 | 1311.6 | 1246.4 |
| 50° | 1470.5 | 1442.0 | 1319.8 | 1185.3 | 1116.1 |
| 52.5° | 1352.3 | 1307.5 | 1189.4 | 1055.0 | 998.0 |
| 55° | 1213.9 | 1177.2 | 1067.2 | 940.9 | 892.1 |
| 57.5° | 1087.6 | 1050.9 | 949.1 | 831.0 | 790.2 |
| 60° | 969.5 | 916.5 | 831.0 | 729.1 | 696.5 |
| 62.5° | 839.1 | 798.4 | 725.1 | 639.5 | 680.2 |
| 65° | 721.0 | 680.2 | 615.1 | 627.3 | 521.4 |
| 67.5° | 590.6 | 570.3 | 513.2 | 456.2 | 439.9 |
| 70° | 480.7 | 456.2 | 435.8 | 374.7 | 358.5 |
| 72.5° | 382.9 | 358.5 | 329.9 | 297.4 | 285.1 |
| 75° | 289.2 | 268.8 | 252.5 | 240.3 | 264.8 |
| 77.5° | 199.6 | 191.4 | 179.2 | 167.0 | 162.9 |
| 80° | 130.3 | 126.3 | 122.2 | 118.1 | 114.1 |
| 82.5° | 77.4 | 77.4 | 77.4 | 77.4 | 77.4 |
| 85° | 40.7 | 44.8 | 48.9 | 53.0 | 57.0 |
| 87.5° | 24.4 | 24.4 | 28.5 | 32.6 | 36.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)