

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: P561868

Luminaire Tested: FSR-12-4-LD4-2STD-50-UNV-81-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561868
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-LD4-2STD-50-UNV-81-96-EDD-90
Description: 1X4 FSR TROFFER WITH .156 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: 5590.0 lumens
Efficiency: N/A
Efficacy: 83.9 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

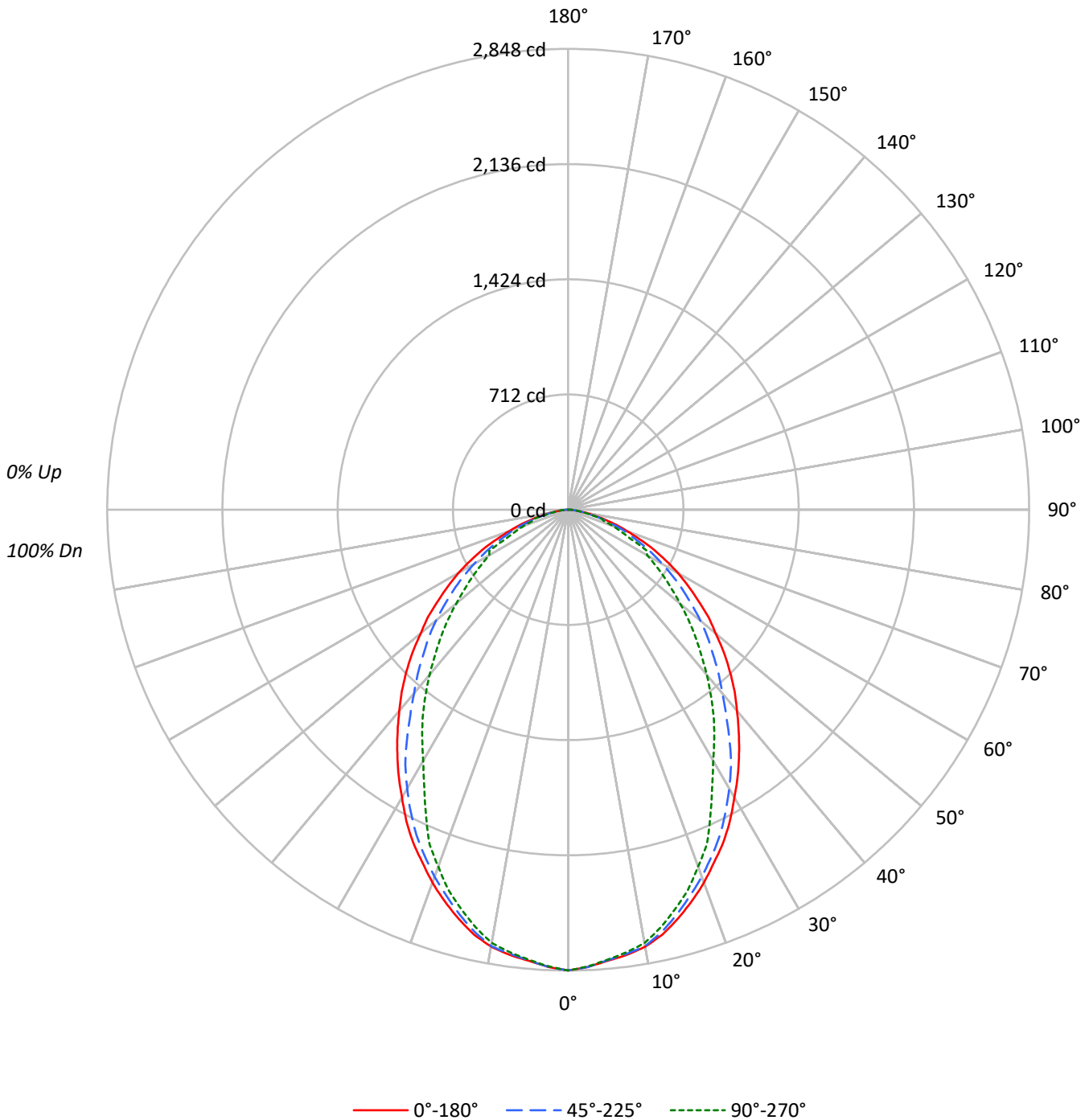
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561868

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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 | | | | | 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° | 7663 | 7663 | 7663 |
| 5° | 7558 | 7549 | 7541 |
| 10° | 7493 | 7484 | 7430 |
| 15° | 7291 | 7217 | 7117 |
| 20° | 7023 | 6910 | 6721 |
| 25° | 6734 | 6588 | 6177 |
| 30° | 6383 | 6178 | 5565 |
| 35° | 6045 | 5710 | 5147 |
| 40° | 5701 | 5204 | 4683 |
| 45° | 5374 | 4811 | 4235 |
| 50° | 4975 | 4465 | 3776 |
| 55° | 4602 | 4046 | 3382 |
| 60° | 4217 | 3614 | 3030 |
| 65° | 3710 | 3165 | 2683 |
| 70° | 3056 | 2771 | 2279 |
| 75° | 2430 | 2122 | 2225 |
| 80° | 1632 | 1531 | 1429 |
| 85° | 1016 | 1220 | 1423 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5374 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 265.1 | 4.7 |
| 10°-20° | 727.4 | 13.0 |
| 20°-30° | 1007.1 | 18.0 |
| 30°-40° | 1073.8 | 19.2 |
| 40°-50° | 979.7 | 17.5 |
| 50°-60° | 767.5 | 13.7 |
| 60°-70° | 500.2 | 8.9 |
| 70°-80° | 221.6 | 4.0 |
| 80°-90° | 47.6 | 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° | 1999.6 | 35.8 |
| 0°-40° | 3073.4 | 55.0 |
| 0°-60° | 4820.6 | 86.2 |
| 0°-90° | 5590.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5590.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2848 | 2848 | 2848 | 2848 | 2848 | |
| 5° | 2798 | 2795 | 2795 | 2792 | 2792 | 266 |
| 15° | 2617 | 2617 | 2591 | 2564 | 2554 | 736 |
| 25° | 2268 | 2255 | 2219 | 2140 | 2080 | 1041 |
| 35° | 1840 | 1827 | 1738 | 1606 | 1567 | 1150 |
| 45° | 1412 | 1383 | 1264 | 1159 | 1113 | 1088 |
| 55° | 981 | 951 | 862 | 760 | 721 | 880 |
| 65° | 583 | 550 | 497 | 507 | 421 | 574 |
| 75° | 234 | 217 | 204 | 194 | 214 | 250 |
| 85° | 33 | 36 | 40 | 43 | 46 | 46 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561868

CATALOG NUMBER: FSR-12-4-LD4-2STD-50-UNV-81-96-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2847.5 | 2847.5 | 2847.5 | 2847.5 | 2847.5 |
| 2.5° | 2827.7 | 2827.7 | 2827.7 | 2824.4 | 2824.4 |
| 5° | 2798.1 | 2794.8 | 2794.8 | 2791.5 | 2791.5 |
| 7.5° | 2775.1 | 2771.8 | 2768.5 | 2765.2 | 2758.6 |
| 10° | 2742.1 | 2742.1 | 2738.8 | 2722.4 | 2719.1 |
| 12.5° | 2689.5 | 2686.2 | 2673.0 | 2650.0 | 2643.4 |
| 15° | 2617.0 | 2617.0 | 2590.7 | 2564.4 | 2554.5 |
| 17.5° | 2538.0 | 2534.7 | 2501.8 | 2475.5 | 2462.3 |
| 20° | 2452.4 | 2445.9 | 2412.9 | 2370.1 | 2347.1 |
| 22.5° | 2357.0 | 2357.0 | 2317.5 | 2261.5 | 2238.5 |
| 25° | 2268.1 | 2254.9 | 2218.7 | 2139.7 | 2080.5 |
| 27.5° | 2166.1 | 2146.3 | 2106.8 | 1994.9 | 1925.7 |
| 30° | 2054.1 | 2044.3 | 1988.3 | 1843.4 | 1790.8 |
| 32.5° | 1948.8 | 1932.3 | 1873.1 | 1721.7 | 1678.9 |
| 35° | 1840.2 | 1827.0 | 1738.1 | 1606.4 | 1566.9 |
| 37.5° | 1731.5 | 1715.1 | 1603.1 | 1497.8 | 1448.4 |
| 40° | 1622.9 | 1603.1 | 1481.3 | 1385.9 | 1333.2 |
| 42.5° | 1520.8 | 1494.5 | 1376.0 | 1274.0 | 1214.7 |
| 45° | 1412.2 | 1382.6 | 1264.1 | 1158.7 | 1112.7 |
| 47.5° | 1303.6 | 1277.2 | 1168.6 | 1060.0 | 1007.3 |
| 50° | 1188.4 | 1165.3 | 1066.6 | 957.9 | 902.0 |
| 52.5° | 1092.9 | 1056.7 | 961.2 | 852.6 | 806.5 |
| 55° | 981.0 | 951.4 | 862.5 | 760.4 | 720.9 |
| 57.5° | 878.9 | 849.3 | 767.0 | 671.5 | 638.6 |
| 60° | 783.5 | 740.7 | 671.5 | 589.2 | 562.9 |
| 62.5° | 678.1 | 645.2 | 586.0 | 516.8 | 549.7 |
| 65° | 582.7 | 549.7 | 497.1 | 506.9 | 421.4 |
| 67.5° | 477.3 | 460.9 | 414.8 | 368.7 | 355.5 |
| 70° | 388.4 | 368.7 | 352.2 | 302.9 | 289.7 |
| 72.5° | 309.4 | 289.7 | 266.6 | 240.3 | 230.4 |
| 75° | 233.7 | 217.3 | 204.1 | 194.2 | 214.0 |
| 77.5° | 161.3 | 154.7 | 144.8 | 135.0 | 131.7 |
| 80° | 105.3 | 102.0 | 98.8 | 95.5 | 92.2 |
| 82.5° | 62.5 | 62.5 | 62.5 | 62.5 | 62.5 |
| 85° | 32.9 | 36.2 | 39.5 | 42.8 | 46.1 |
| 87.5° | 19.8 | 19.8 | 23.0 | 26.3 | 29.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)