

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: P561764

Luminaire Tested: FSR-12-4-LD4-2STD-35-UNV-93-86-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561764
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-35-UNV-93-86-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5397.0 lumens
Efficiency: N/A
Efficacy: 81.0 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

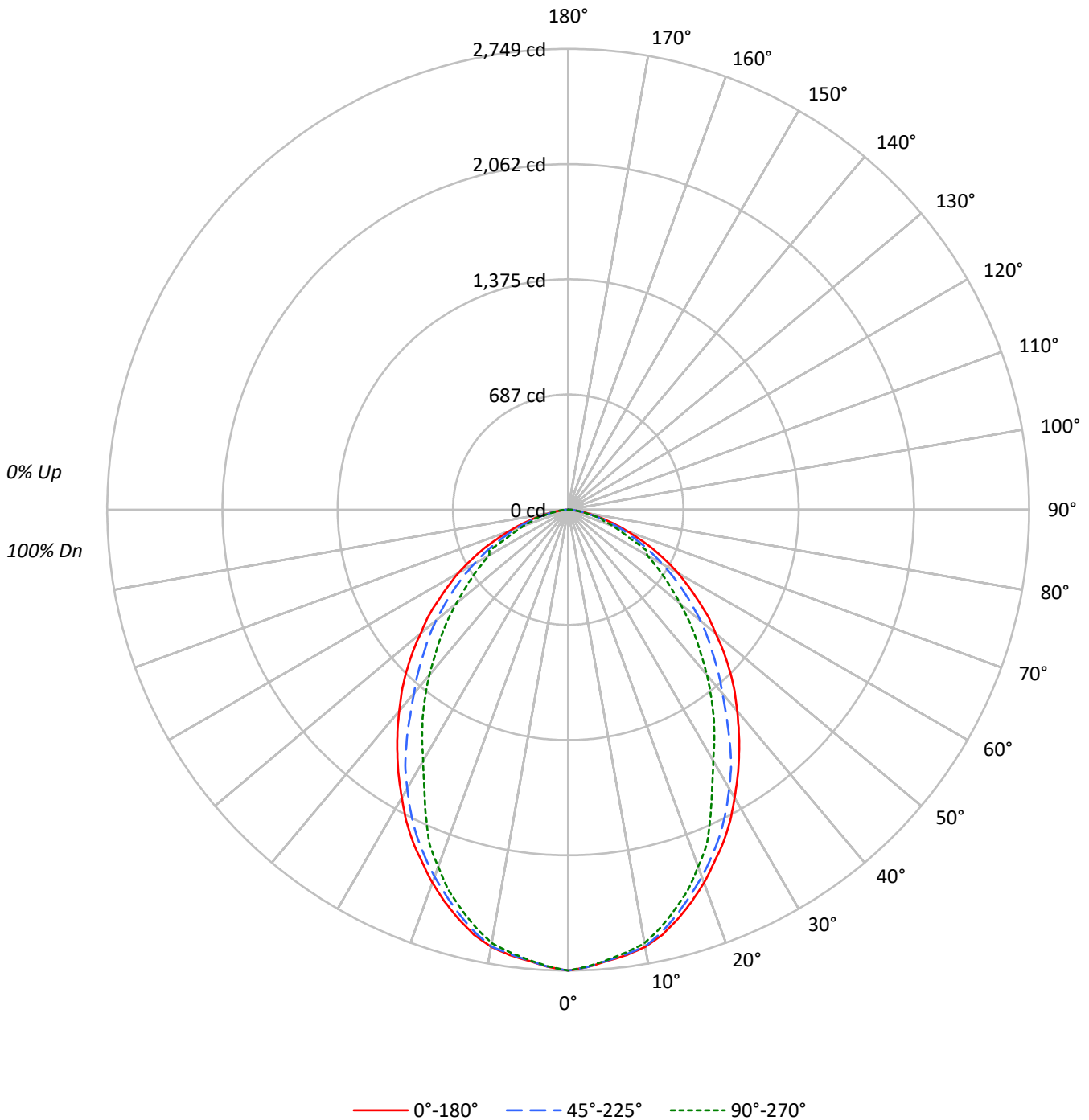
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561764

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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 | 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° | 7398 | 7398 | 7398 |
| 5° | 7297 | 7289 | 7280 |
| 10° | 7234 | 7226 | 7173 |
| 15° | 7039 | 6968 | 6871 |
| 20° | 6781 | 6671 | 6489 |
| 25° | 6502 | 6360 | 5964 |
| 30° | 6162 | 5965 | 5372 |
| 35° | 5836 | 5513 | 4970 |
| 40° | 5504 | 5024 | 4522 |
| 45° | 5189 | 4644 | 4088 |
| 50° | 4803 | 4311 | 3646 |
| 55° | 4443 | 3907 | 3265 |
| 60° | 4071 | 3490 | 2925 |
| 65° | 3582 | 3056 | 2590 |
| 70° | 2950 | 2676 | 2201 |
| 75° | 2347 | 2048 | 2148 |
| 80° | 1576 | 1477 | 1379 |
| 85° | 982 | 1176 | 1374 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5189 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 255.9 | 4.7 |
| 10°-20° | 702.3 | 13.0 |
| 20°-30° | 972.3 | 18.0 |
| 30°-40° | 1036.8 | 19.2 |
| 40°-50° | 945.8 | 17.5 |
| 50°-60° | 741.0 | 13.7 |
| 60°-70° | 482.9 | 8.9 |
| 70°-80° | 214.0 | 4.0 |
| 80°-90° | 45.9 | 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° | 1930.5 | 35.8 |
| 0°-40° | 2967.3 | 55.0 |
| 0°-60° | 4654.2 | 86.2 |
| 0°-90° | 5397.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5397.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2749 | 2749 | 2749 | 2749 | 2749 | |
| 5° | 2702 | 2698 | 2698 | 2695 | 2695 | 256 |
| 15° | 2527 | 2527 | 2501 | 2476 | 2466 | 710 |
| 25° | 2190 | 2177 | 2142 | 2066 | 2009 | 1005 |
| 35° | 1777 | 1764 | 1678 | 1551 | 1513 | 1111 |
| 45° | 1364 | 1335 | 1220 | 1119 | 1074 | 1050 |
| 55° | 947 | 918 | 833 | 734 | 696 | 849 |
| 65° | 562 | 531 | 480 | 489 | 407 | 554 |
| 75° | 226 | 210 | 197 | 188 | 207 | 242 |
| 85° | 32 | 35 | 38 | 41 | 44 | 44 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561764

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2749.2 | 2749.2 | 2749.2 | 2749.2 | 2749.2 |
| 2.5° | 2730.1 | 2730.1 | 2730.1 | 2726.9 | 2726.9 |
| 5° | 2701.5 | 2698.3 | 2698.3 | 2695.1 | 2695.1 |
| 7.5° | 2679.2 | 2676.1 | 2672.9 | 2669.7 | 2663.3 |
| 10° | 2647.5 | 2647.5 | 2644.3 | 2628.4 | 2625.2 |
| 12.5° | 2596.6 | 2593.4 | 2580.7 | 2558.5 | 2552.1 |
| 15° | 2526.7 | 2526.7 | 2501.3 | 2475.8 | 2466.3 |
| 17.5° | 2450.4 | 2447.2 | 2415.4 | 2390.0 | 2377.3 |
| 20° | 2367.8 | 2361.4 | 2329.6 | 2288.3 | 2266.1 |
| 22.5° | 2275.6 | 2275.6 | 2237.5 | 2183.4 | 2161.2 |
| 25° | 2189.8 | 2177.1 | 2142.1 | 2065.8 | 2008.6 |
| 27.5° | 2091.3 | 2072.2 | 2034.1 | 1926.0 | 1859.3 |
| 30° | 1983.2 | 1973.7 | 1919.6 | 1779.8 | 1729.0 |
| 32.5° | 1881.5 | 1865.6 | 1808.4 | 1662.2 | 1620.9 |
| 35° | 1776.6 | 1763.9 | 1678.1 | 1551.0 | 1512.8 |
| 37.5° | 1671.7 | 1655.9 | 1547.8 | 1446.1 | 1398.4 |
| 40° | 1566.9 | 1547.8 | 1430.2 | 1338.0 | 1287.2 |
| 42.5° | 1468.3 | 1442.9 | 1328.5 | 1230.0 | 1172.8 |
| 45° | 1363.5 | 1334.9 | 1220.4 | 1118.7 | 1074.2 |
| 47.5° | 1258.6 | 1233.1 | 1128.3 | 1023.4 | 972.5 |
| 50° | 1147.3 | 1125.1 | 1029.7 | 924.9 | 870.8 |
| 52.5° | 1055.2 | 1020.2 | 928.0 | 823.2 | 778.7 |
| 55° | 947.1 | 918.5 | 832.7 | 734.2 | 696.0 |
| 57.5° | 848.6 | 820.0 | 740.5 | 648.4 | 616.6 |
| 60° | 756.4 | 715.1 | 648.4 | 568.9 | 543.5 |
| 62.5° | 654.7 | 622.9 | 565.7 | 499.0 | 530.8 |
| 65° | 562.5 | 530.8 | 479.9 | 489.4 | 406.8 |
| 67.5° | 460.8 | 445.0 | 400.5 | 356.0 | 343.2 |
| 70° | 375.0 | 356.0 | 340.1 | 292.4 | 279.7 |
| 72.5° | 298.8 | 279.7 | 257.4 | 232.0 | 222.5 |
| 75° | 225.7 | 209.8 | 197.0 | 187.5 | 206.6 |
| 77.5° | 155.7 | 149.4 | 139.8 | 130.3 | 127.1 |
| 80° | 101.7 | 98.5 | 95.3 | 92.2 | 89.0 |
| 82.5° | 60.4 | 60.4 | 60.4 | 60.4 | 60.4 |
| 85° | 31.8 | 35.0 | 38.1 | 41.3 | 44.5 |
| 87.5° | 19.1 | 19.1 | 22.2 | 25.4 | 28.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)