

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: P561772

Luminaire Tested: FSR-12-4-LD4-2STD-35-UNV-93-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561772
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-93-96-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5521.0 lumens
Efficiency: N/A
Efficacy: 82.9 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

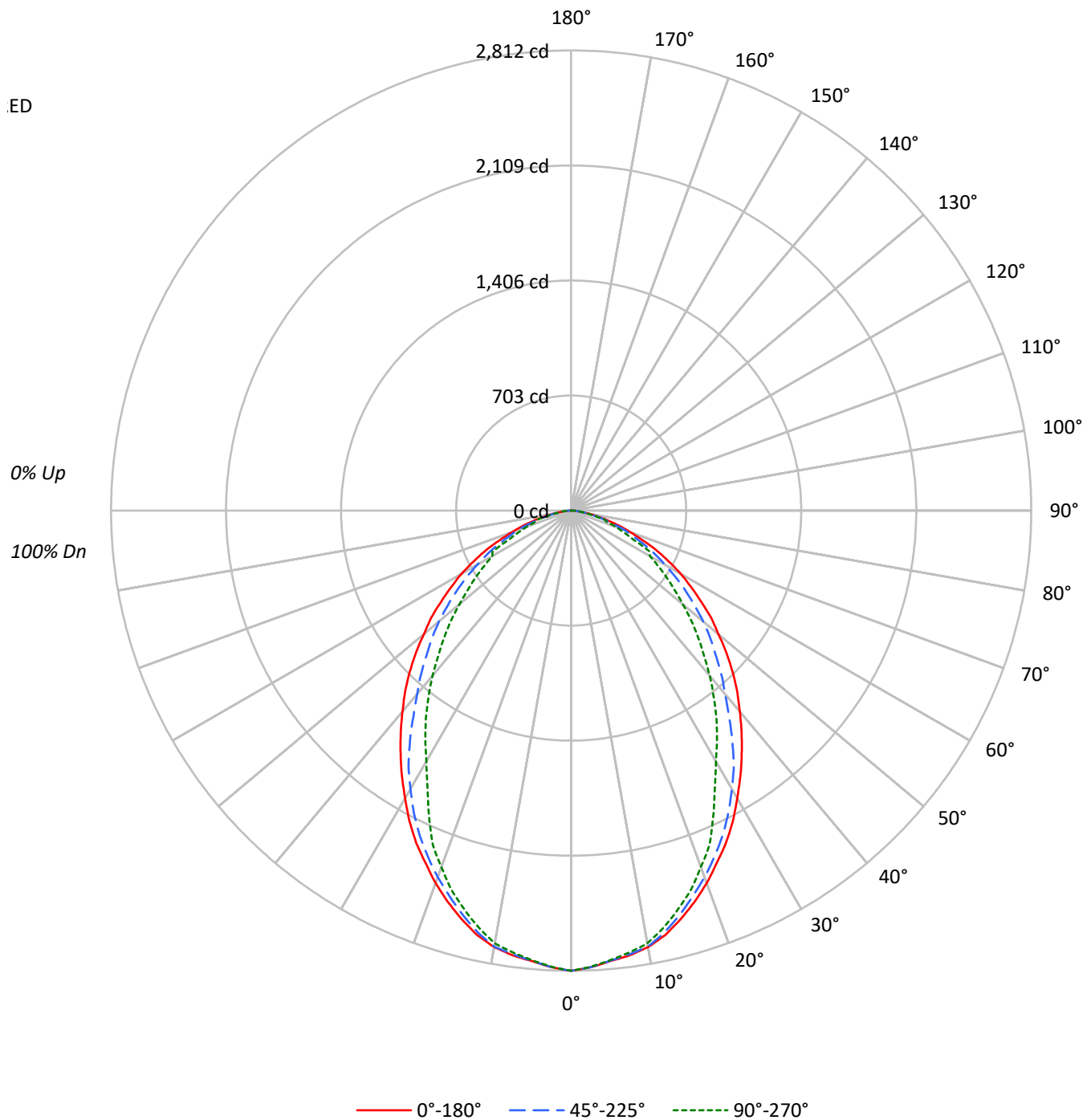
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561772

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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 | 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° | 7568 | 7568 | 7568 |
| 5° | 7465 | 7456 | 7448 |
| 10° | 7400 | 7391 | 7338 |
| 15° | 7201 | 7128 | 7029 |
| 20° | 6936 | 6825 | 6638 |
| 25° | 6651 | 6506 | 6101 |
| 30° | 6304 | 6102 | 5496 |
| 35° | 5970 | 5639 | 5084 |
| 40° | 5631 | 5140 | 4626 |
| 45° | 5308 | 4751 | 4182 |
| 50° | 4914 | 4410 | 3729 |
| 55° | 4546 | 3996 | 3340 |
| 60° | 4165 | 3570 | 2992 |
| 65° | 3664 | 3126 | 2650 |
| 70° | 3018 | 2737 | 2251 |
| 75° | 2400 | 2096 | 2197 |
| 80° | 1612 | 1511 | 1410 |
| 85° | 1003 | 1204 | 1405 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5308 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 261.8 | 4.7 |
| 10°-20° | 718.5 | 13.0 |
| 20°-30° | 994.7 | 18.0 |
| 30°-40° | 1060.6 | 19.2 |
| 40°-50° | 967.6 | 17.5 |
| 50°-60° | 758.0 | 13.7 |
| 60°-70° | 494.0 | 8.9 |
| 70°-80° | 218.9 | 4.0 |
| 80°-90° | 47.0 | 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° | 1974.9 | 35.8 |
| 0°-40° | 3035.5 | 55.0 |
| 0°-60° | 4761.1 | 86.2 |
| 0°-90° | 5521.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5521.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2812 | 2812 | 2812 | 2812 | 2812 | |
| 5° | 2764 | 2760 | 2760 | 2757 | 2757 | 262 |
| 15° | 2585 | 2585 | 2559 | 2533 | 2523 | 727 |
| 25° | 2240 | 2227 | 2191 | 2113 | 2055 | 1028 |
| 35° | 1817 | 1804 | 1717 | 1587 | 1548 | 1136 |
| 45° | 1395 | 1366 | 1248 | 1144 | 1099 | 1074 |
| 55° | 969 | 940 | 852 | 751 | 712 | 869 |
| 65° | 576 | 543 | 491 | 501 | 416 | 567 |
| 75° | 231 | 215 | 202 | 192 | 211 | 247 |
| 85° | 32 | 36 | 39 | 42 | 46 | 45 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561772

CATALOG NUMBER: FSR-12-4-LD4-2STD-35-UNV-93-96-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2812.3 | 2812.3 | 2812.3 | 2812.3 | 2812.3 |
| 2.5° | 2792.8 | 2792.8 | 2792.8 | 2789.6 | 2789.6 |
| 5° | 2763.6 | 2760.3 | 2760.3 | 2757.1 | 2757.1 |
| 7.5° | 2740.8 | 2737.5 | 2734.3 | 2731.0 | 2724.5 |
| 10° | 2708.3 | 2708.3 | 2705.0 | 2688.8 | 2685.5 |
| 12.5° | 2656.3 | 2653.0 | 2640.0 | 2617.2 | 2610.7 |
| 15° | 2584.7 | 2584.7 | 2558.7 | 2532.7 | 2523.0 |
| 17.5° | 2506.7 | 2503.5 | 2470.9 | 2444.9 | 2431.9 |
| 20° | 2422.2 | 2415.7 | 2383.2 | 2340.9 | 2318.1 |
| 22.5° | 2327.9 | 2327.9 | 2288.9 | 2233.6 | 2210.8 |
| 25° | 2240.1 | 2227.1 | 2191.3 | 2113.3 | 2054.8 |
| 27.5° | 2139.3 | 2119.8 | 2080.8 | 1970.3 | 1902.0 |
| 30° | 2028.8 | 2019.0 | 1963.7 | 1820.7 | 1768.7 |
| 32.5° | 1924.7 | 1908.5 | 1850.0 | 1700.4 | 1658.1 |
| 35° | 1817.4 | 1804.4 | 1716.7 | 1586.6 | 1547.6 |
| 37.5° | 1710.2 | 1693.9 | 1583.4 | 1479.3 | 1430.5 |
| 40° | 1602.9 | 1583.4 | 1463.1 | 1368.8 | 1316.8 |
| 42.5° | 1502.1 | 1476.1 | 1359.0 | 1258.2 | 1199.7 |
| 45° | 1394.8 | 1365.5 | 1248.5 | 1144.4 | 1098.9 |
| 47.5° | 1287.5 | 1261.5 | 1154.2 | 1046.9 | 994.9 |
| 50° | 1173.7 | 1150.9 | 1053.4 | 946.1 | 890.8 |
| 52.5° | 1079.4 | 1043.6 | 949.4 | 842.1 | 796.6 |
| 55° | 968.9 | 939.6 | 851.8 | 751.0 | 712.0 |
| 57.5° | 868.1 | 838.8 | 757.5 | 663.3 | 630.7 |
| 60° | 773.8 | 731.5 | 663.3 | 582.0 | 556.0 |
| 62.5° | 669.8 | 637.2 | 578.7 | 510.4 | 543.0 |
| 65° | 575.5 | 543.0 | 490.9 | 500.7 | 416.2 |
| 67.5° | 471.4 | 455.2 | 409.7 | 364.1 | 351.1 |
| 70° | 383.6 | 364.1 | 347.9 | 299.1 | 286.1 |
| 72.5° | 305.6 | 286.1 | 263.4 | 237.3 | 227.6 |
| 75° | 230.8 | 214.6 | 201.6 | 191.8 | 211.3 |
| 77.5° | 159.3 | 152.8 | 143.1 | 133.3 | 130.0 |
| 80° | 104.0 | 100.8 | 97.5 | 94.3 | 91.0 |
| 82.5° | 61.8 | 61.8 | 61.8 | 61.8 | 61.8 |
| 85° | 32.5 | 35.8 | 39.0 | 42.3 | 45.5 |
| 87.5° | 19.5 | 19.5 | 22.8 | 26.0 | 29.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)