

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: P563039

Luminaire Tested: FSR-24-4-LD4-2STD-50-UNV-82-97-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563039
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-LD4-2STD-50-UNV-82-97-EDD
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7278.0 lumens
Efficiency: N/A
Efficacy: 109.3 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

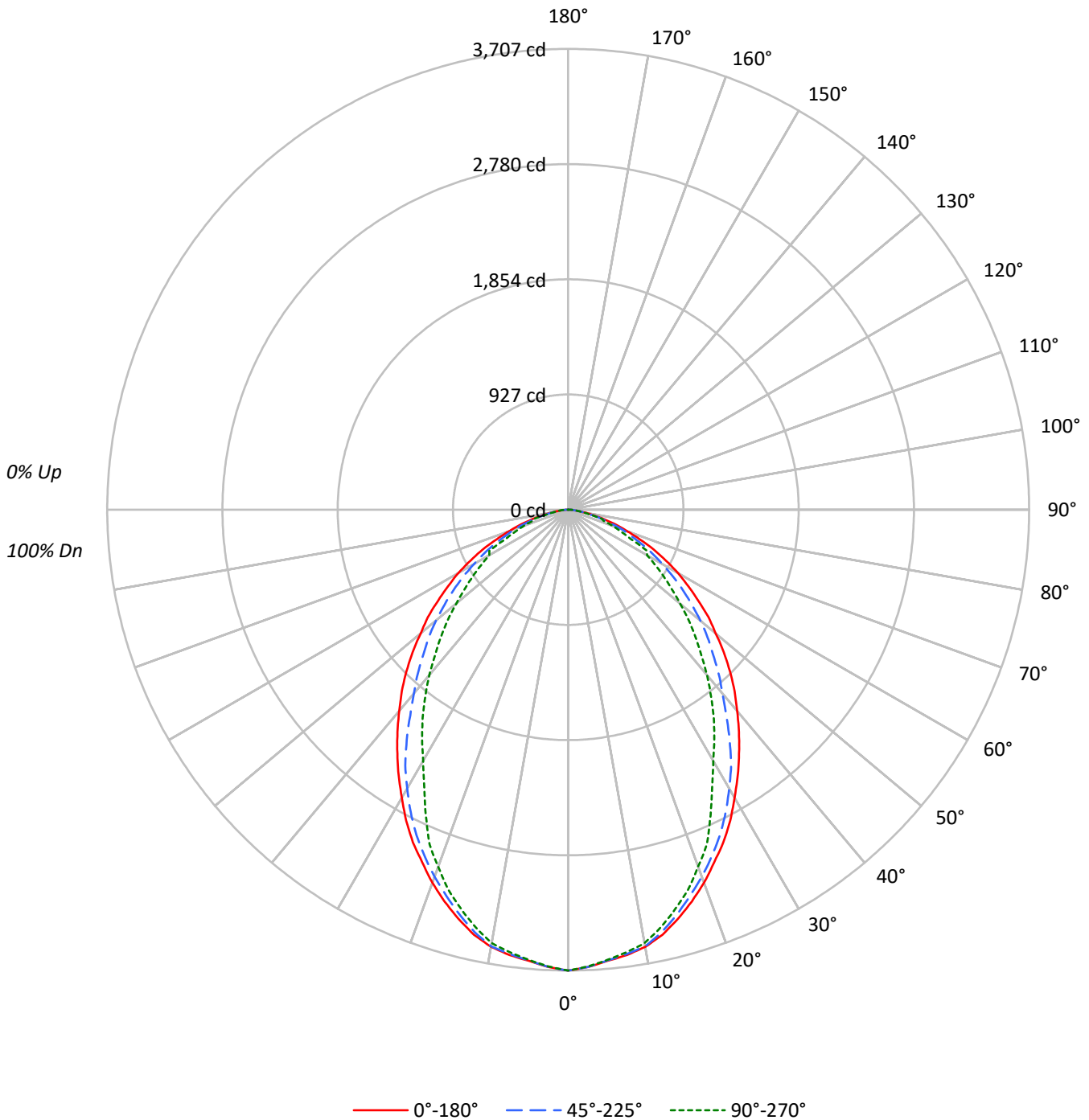
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563039

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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° | 4988 | 4988 | 4988 |
| 5° | 4920 | 4915 | 4909 |
| 10° | 4878 | 4872 | 4837 |
| 15° | 4746 | 4698 | 4633 |
| 20° | 4572 | 4498 | 4376 |
| 25° | 4384 | 4289 | 4021 |
| 30° | 4155 | 4022 | 3622 |
| 35° | 3935 | 3717 | 3351 |
| 40° | 3711 | 3388 | 3049 |
| 45° | 3499 | 3132 | 2756 |
| 50° | 3239 | 2907 | 2458 |
| 55° | 2996 | 2634 | 2202 |
| 60° | 2745 | 2353 | 1972 |
| 65° | 2415 | 2060 | 1747 |
| 70° | 1989 | 1804 | 1484 |
| 75° | 1582 | 1381 | 1448 |
| 80° | 1062 | 996 | 930 |
| 85° | 662 | 794 | 926 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3499 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 345.1 | 4.7 |
| 10°-20° | 947.1 | 13.0 |
| 20°-30° | 1311.2 | 18.0 |
| 30°-40° | 1398.1 | 19.2 |
| 40°-50° | 1275.5 | 17.5 |
| 50°-60° | 999.2 | 13.7 |
| 60°-70° | 651.2 | 8.9 |
| 70°-80° | 288.5 | 4.0 |
| 80°-90° | 61.9 | 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° | 2603.4 | 35.8 |
| 0°-40° | 4001.5 | 55.0 |
| 0°-60° | 6276.2 | 86.2 |
| 0°-90° | 7278.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7278.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3707 | 3707 | 3707 | 3707 | 3707 | |
| 5° | 3643 | 3639 | 3639 | 3634 | 3634 | 346 |
| 15° | 3407 | 3407 | 3373 | 3339 | 3326 | 958 |
| 25° | 2953 | 2936 | 2889 | 2786 | 2709 | 1356 |
| 35° | 2396 | 2379 | 2263 | 2092 | 2040 | 1498 |
| 45° | 1839 | 1800 | 1646 | 1509 | 1449 | 1416 |
| 55° | 1277 | 1239 | 1123 | 990 | 939 | 1146 |
| 65° | 759 | 716 | 647 | 660 | 549 | 748 |
| 75° | 304 | 283 | 266 | 253 | 279 | 326 |
| 85° | 43 | 47 | 51 | 56 | 60 | 59 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563039

CATALOG NUMBER: FSR-24-4-LD4-2STD-50-UNV-82-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3707.3 | 3707.3 | 3707.3 | 3707.3 | 3707.3 |
| 2.5° | 3681.6 | 3681.6 | 3681.6 | 3677.3 | 3677.3 |
| 5° | 3643.0 | 3638.7 | 3638.7 | 3634.5 | 3634.5 |
| 7.5° | 3613.0 | 3608.7 | 3604.5 | 3600.2 | 3591.6 |
| 10° | 3570.2 | 3570.2 | 3565.9 | 3544.5 | 3540.2 |
| 12.5° | 3501.6 | 3497.3 | 3480.2 | 3450.2 | 3441.6 |
| 15° | 3407.3 | 3407.3 | 3373.0 | 3338.7 | 3325.9 |
| 17.5° | 3304.4 | 3300.2 | 3257.3 | 3223.0 | 3205.9 |
| 20° | 3193.0 | 3184.4 | 3141.6 | 3085.9 | 3055.9 |
| 22.5° | 3068.7 | 3068.7 | 3017.3 | 2944.4 | 2914.4 |
| 25° | 2953.0 | 2935.9 | 2888.7 | 2785.8 | 2708.7 |
| 27.5° | 2820.1 | 2794.4 | 2743.0 | 2597.3 | 2507.3 |
| 30° | 2674.4 | 2661.6 | 2588.7 | 2400.1 | 2331.5 |
| 32.5° | 2537.3 | 2515.8 | 2438.7 | 2241.5 | 2185.8 |
| 35° | 2395.8 | 2378.7 | 2263.0 | 2091.5 | 2040.1 |
| 37.5° | 2254.4 | 2233.0 | 2087.2 | 1950.1 | 1885.8 |
| 40° | 2113.0 | 2087.2 | 1928.7 | 1804.4 | 1735.8 |
| 42.5° | 1980.1 | 1945.8 | 1791.5 | 1658.6 | 1581.5 |
| 45° | 1838.7 | 1800.1 | 1645.8 | 1508.6 | 1448.6 |
| 47.5° | 1697.2 | 1662.9 | 1521.5 | 1380.1 | 1311.5 |
| 50° | 1547.2 | 1517.2 | 1388.6 | 1247.2 | 1174.3 |
| 52.5° | 1422.9 | 1375.8 | 1251.5 | 1110.1 | 1050.0 |
| 55° | 1277.2 | 1238.6 | 1122.9 | 990.0 | 938.6 |
| 57.5° | 1144.3 | 1105.8 | 998.6 | 874.3 | 831.5 |
| 60° | 1020.0 | 964.3 | 874.3 | 767.2 | 732.9 |
| 62.5° | 882.9 | 840.0 | 762.9 | 672.9 | 715.7 |
| 65° | 758.6 | 715.7 | 647.2 | 660.0 | 548.6 |
| 67.5° | 621.5 | 600.0 | 540.0 | 480.0 | 462.9 |
| 70° | 505.7 | 480.0 | 458.6 | 394.3 | 377.2 |
| 72.5° | 402.9 | 377.2 | 347.2 | 312.9 | 300.0 |
| 75° | 304.3 | 282.9 | 265.7 | 252.9 | 278.6 |
| 77.5° | 210.0 | 201.4 | 188.6 | 175.7 | 171.4 |
| 80° | 137.1 | 132.9 | 128.6 | 124.3 | 120.0 |
| 82.5° | 81.4 | 81.4 | 81.4 | 81.4 | 81.4 |
| 85° | 42.9 | 47.1 | 51.4 | 55.7 | 60.0 |
| 87.5° | 25.7 | 25.7 | 30.0 | 34.3 | 38.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)