

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: P563874

Luminaire Tested: FSR-24-4-LD4-4LO-35-UNV-93-85-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563874
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-LD4-4LO-35-UNV-93-85-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9579.0 lumens
Efficiency: N/A
Efficacy: 102.3 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

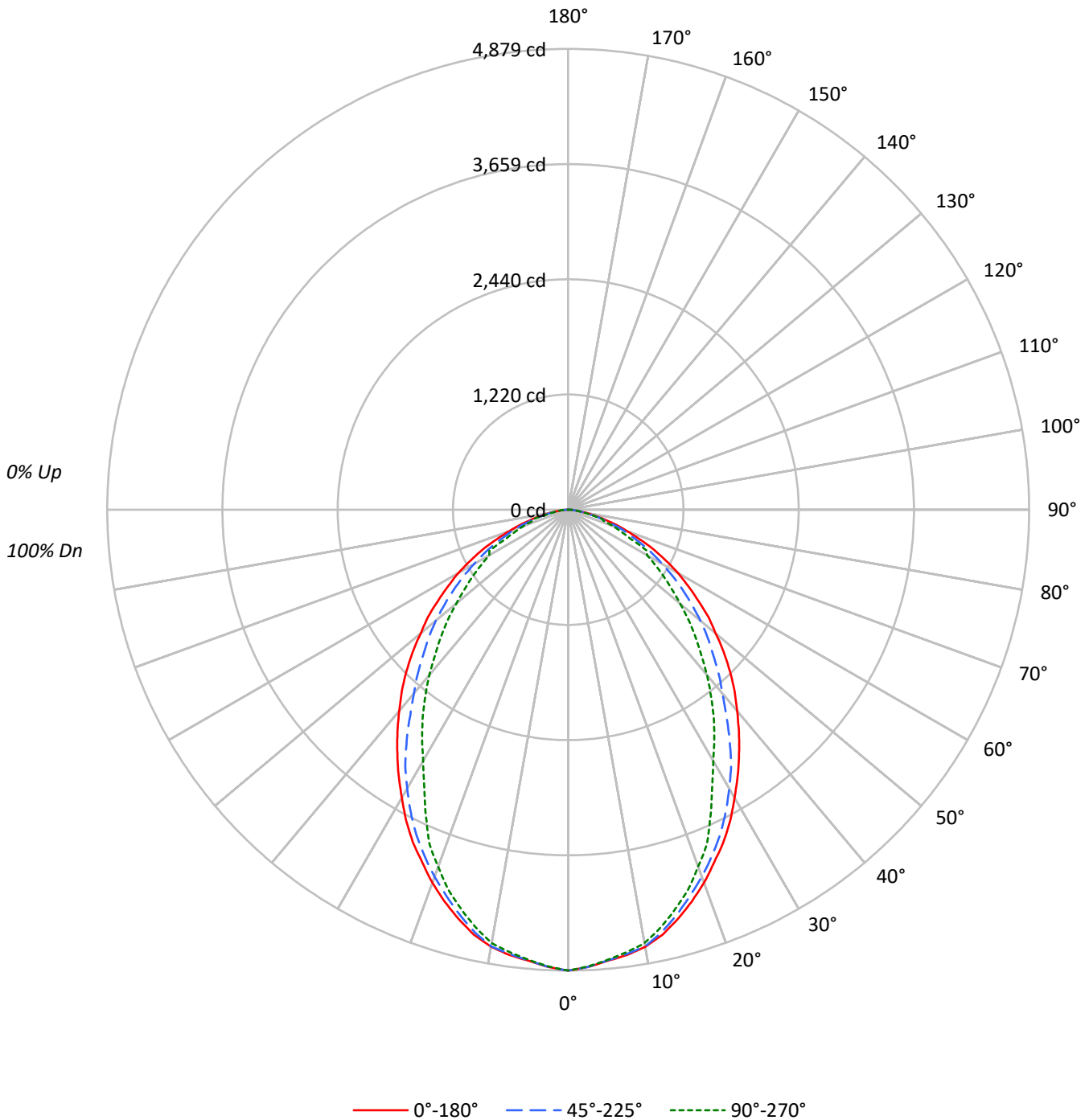
Input Watts (W): 93.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563874

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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 | | | | | | | | | 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° | 6565 | 6565 | 6565 |
| 5° | 6476 | 6468 | 6461 |
| 10° | 6420 | 6412 | 6366 |
| 15° | 6247 | 6184 | 6098 |
| 20° | 6017 | 5920 | 5759 |
| 25° | 5770 | 5644 | 5293 |
| 30° | 5469 | 5293 | 4768 |
| 35° | 5179 | 4892 | 4410 |
| 40° | 4885 | 4458 | 4013 |
| 45° | 4605 | 4122 | 3628 |
| 50° | 4263 | 3826 | 3235 |
| 55° | 3943 | 3467 | 2898 |
| 60° | 3613 | 3097 | 2596 |
| 65° | 3179 | 2712 | 2299 |
| 70° | 2618 | 2375 | 1953 |
| 75° | 2082 | 1818 | 1906 |
| 80° | 1399 | 1311 | 1223 |
| 85° | 871 | 1045 | 1220 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4605 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 454.2 | 4.7 |
| 10°-20° | 1246.5 | 13.0 |
| 20°-30° | 1725.7 | 18.0 |
| 30°-40° | 1840.1 | 19.2 |
| 40°-50° | 1678.7 | 17.5 |
| 50°-60° | 1315.2 | 13.7 |
| 60°-70° | 857.2 | 8.9 |
| 70°-80° | 379.8 | 4.0 |
| 80°-90° | 81.5 | 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° | 3426.5 | 35.8 |
| 0°-40° | 5266.6 | 55.0 |
| 0°-60° | 8260.5 | 86.2 |
| 0°-90° | 9579.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 9579.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4879 | 4879 | 4879 | 4879 | 4879 | |
| 5° | 4795 | 4789 | 4789 | 4784 | 4784 | 455 |
| 15° | 4484 | 4484 | 4439 | 4394 | 4377 | 1261 |
| 25° | 3887 | 3864 | 3802 | 3667 | 3565 | 1784 |
| 35° | 3153 | 3131 | 2978 | 2753 | 2685 | 1971 |
| 45° | 2420 | 2369 | 2166 | 1986 | 1907 | 1864 |
| 55° | 1681 | 1630 | 1478 | 1303 | 1235 | 1508 |
| 65° | 998 | 942 | 852 | 869 | 722 | 984 |
| 75° | 400 | 372 | 350 | 333 | 367 | 429 |
| 85° | 56 | 62 | 68 | 73 | 79 | 78 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4879.4 | 4879.4 | 4879.4 | 4879.4 | 4879.4 |
| 2.5° | 4845.6 | 4845.6 | 4845.6 | 4839.9 | 4839.9 |
| 5° | 4794.8 | 4789.2 | 4789.2 | 4783.5 | 4783.5 |
| 7.5° | 4755.3 | 4749.7 | 4744.0 | 4738.4 | 4727.1 |
| 10° | 4698.9 | 4698.9 | 4693.3 | 4665.1 | 4659.4 |
| 12.5° | 4608.6 | 4603.0 | 4580.4 | 4541.0 | 4529.7 |
| 15° | 4484.5 | 4484.5 | 4439.4 | 4394.3 | 4377.4 |
| 17.5° | 4349.2 | 4343.5 | 4287.1 | 4242.0 | 4219.4 |
| 20° | 4202.5 | 4191.2 | 4134.8 | 4061.5 | 4022.0 |
| 22.5° | 4038.9 | 4038.9 | 3971.2 | 3875.3 | 3835.8 |
| 25° | 3886.6 | 3864.0 | 3802.0 | 3666.6 | 3565.1 |
| 27.5° | 3711.7 | 3677.9 | 3610.2 | 3418.4 | 3300.0 |
| 30° | 3519.9 | 3503.0 | 3407.1 | 3158.9 | 3068.7 |
| 32.5° | 3339.4 | 3311.2 | 3209.7 | 2950.2 | 2876.9 |
| 35° | 3153.3 | 3130.7 | 2978.4 | 2752.8 | 2685.1 |
| 37.5° | 2967.1 | 2938.9 | 2747.1 | 2566.6 | 2482.0 |
| 40° | 2781.0 | 2747.1 | 2538.4 | 2374.8 | 2284.6 |
| 42.5° | 2606.1 | 2561.0 | 2357.9 | 2183.0 | 2081.5 |
| 45° | 2420.0 | 2369.2 | 2166.1 | 1985.6 | 1906.6 |
| 47.5° | 2233.8 | 2188.7 | 2002.5 | 1816.4 | 1726.1 |
| 50° | 2036.4 | 1996.9 | 1827.7 | 1641.5 | 1545.6 |
| 52.5° | 1872.8 | 1810.7 | 1647.2 | 1461.0 | 1382.0 |
| 55° | 1681.0 | 1630.2 | 1477.9 | 1303.1 | 1235.4 |
| 57.5° | 1506.1 | 1455.4 | 1314.3 | 1150.8 | 1094.3 |
| 60° | 1342.5 | 1269.2 | 1150.8 | 1009.7 | 964.6 |
| 62.5° | 1162.0 | 1105.6 | 1004.1 | 885.6 | 942.0 |
| 65° | 998.4 | 942.0 | 851.8 | 868.7 | 722.0 |
| 67.5° | 817.9 | 789.7 | 710.8 | 631.8 | 609.2 |
| 70° | 665.6 | 631.8 | 603.6 | 519.0 | 496.4 |
| 72.5° | 530.2 | 496.4 | 456.9 | 411.8 | 394.9 |
| 75° | 400.5 | 372.3 | 349.7 | 332.8 | 366.7 |
| 77.5° | 276.4 | 265.1 | 248.2 | 231.3 | 225.6 |
| 80° | 180.5 | 174.9 | 169.2 | 163.6 | 157.9 |
| 82.5° | 107.2 | 107.2 | 107.2 | 107.2 | 107.2 |
| 85° | 56.4 | 62.1 | 67.7 | 73.3 | 79.0 |
| 87.5° | 33.8 | 33.8 | 39.5 | 45.1 | 50.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)