

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: P563804

Luminaire Tested: FSR-24-4-LD4-4HI-50-UNV-82-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563804
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-LD4-4HI-50-UNV-82-96-EDD-90
Description: 2X4 FSR TROFFER WITH .187 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: 15772.0 lumens
Efficiency: N/A
Efficacy: 91.3 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

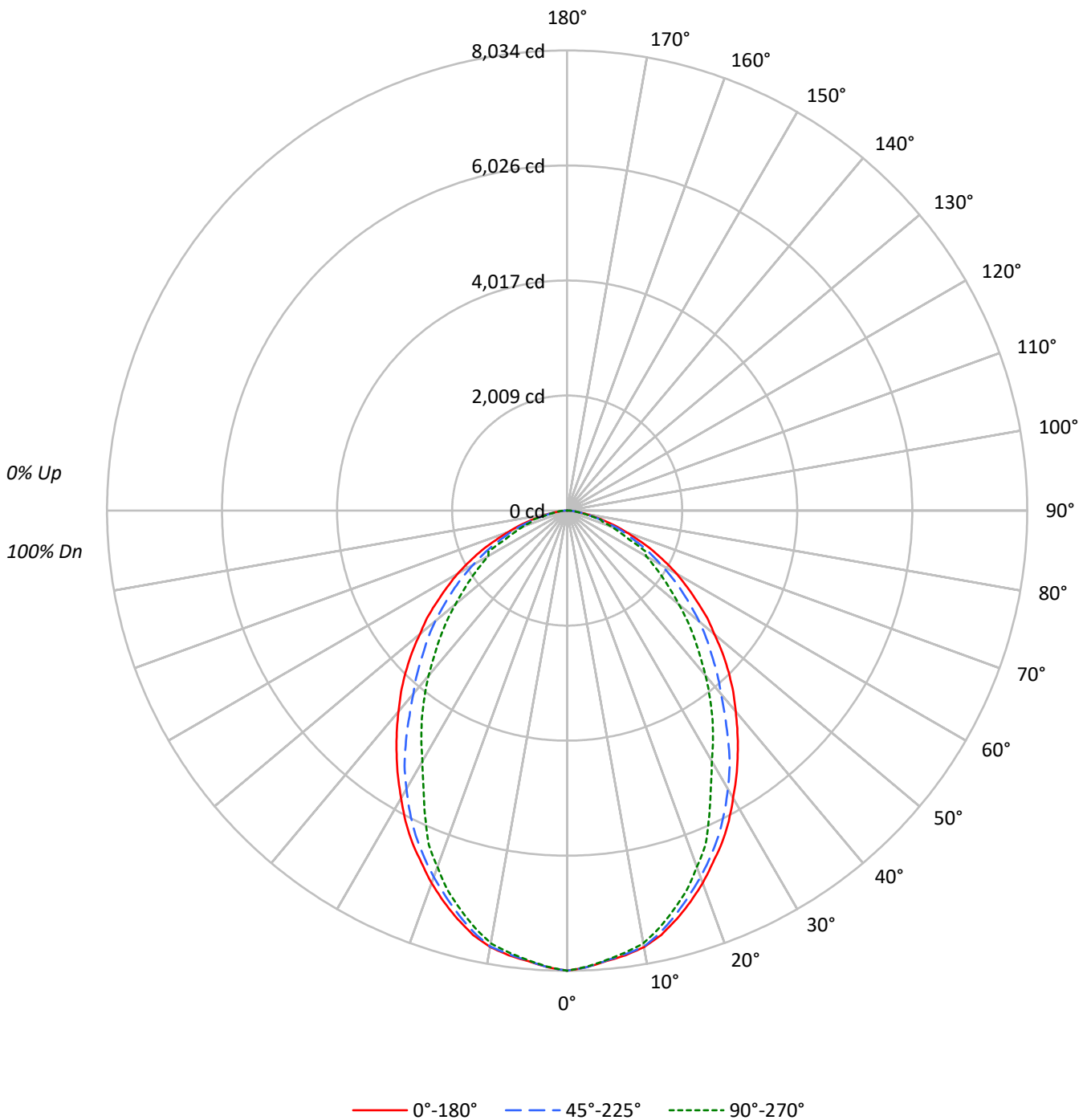
Input Watts (W): 172.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563804

CATALOG NUMBER: FSR-24-4-LD4-4HI-50-UNV-82-96-EDD-90

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° | 10810 | 10810 | 10810 |
| 5° | 10663 | 10650 | 10638 |
| 10° | 10570 | 10558 | 10482 |
| 15° | 10285 | 10182 | 10040 |
| 20° | 9908 | 9748 | 9482 |
| 25° | 9500 | 9294 | 8715 |
| 30° | 9004 | 8716 | 7850 |
| 35° | 8528 | 8055 | 7262 |
| 40° | 8042 | 7341 | 6607 |
| 45° | 7582 | 6787 | 5973 |
| 50° | 7018 | 6299 | 5327 |
| 55° | 6493 | 5708 | 4772 |
| 60° | 5948 | 5099 | 4274 |
| 65° | 5234 | 4465 | 3785 |
| 70° | 4312 | 3910 | 3215 |
| 75° | 3428 | 2994 | 3138 |
| 80° | 2303 | 2159 | 2015 |
| 85° | 1434 | 1721 | 2007 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7582 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 747.9 | 4.7 |
| 10°-20° | 2052.4 | 13.0 |
| 20°-30° | 2841.5 | 18.0 |
| 30°-40° | 3029.8 | 19.2 |
| 40°-50° | 2764.1 | 17.5 |
| 50°-60° | 2165.4 | 13.7 |
| 60°-70° | 1411.3 | 8.9 |
| 70°-80° | 625.3 | 4.0 |
| 80°-90° | 134.3 | 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° | 5641.8 | 35.8 |
| 0°-40° | 8671.6 | 55.0 |
| 0°-60° | 13601.1 | 86.2 |
| 0°-90° | 15772.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 15772.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 8034 | 8034 | 8034 | 8034 | 8034 | |
| 5° | 7895 | 7885 | 7885 | 7876 | 7876 | 749 |
| 15° | 7384 | 7384 | 7310 | 7235 | 7207 | 2076 |
| 25° | 6399 | 6362 | 6260 | 6037 | 5870 | 2938 |
| 35° | 5192 | 5155 | 4904 | 4532 | 4421 | 3246 |
| 45° | 3984 | 3901 | 3567 | 3269 | 3139 | 3069 |
| 55° | 2768 | 2684 | 2433 | 2146 | 2034 | 2483 |
| 65° | 1644 | 1551 | 1402 | 1430 | 1189 | 1620 |
| 75° | 659 | 613 | 576 | 548 | 604 | 707 |
| 85° | 93 | 102 | 112 | 121 | 130 | 129 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563804

CATALOG NUMBER: FSR-24-4-LD4-4HI-50-UNV-82-96-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 8034.0 | 8034.0 | 8034.0 | 8034.0 | 8034.0 |
| 2.5° | 7978.3 | 7978.3 | 7978.3 | 7969.0 | 7969.0 |
| 5° | 7894.7 | 7885.4 | 7885.4 | 7876.2 | 7876.2 |
| 7.5° | 7829.7 | 7820.4 | 7811.1 | 7801.8 | 7783.3 |
| 10° | 7736.8 | 7736.8 | 7727.5 | 7681.1 | 7671.8 |
| 12.5° | 7588.2 | 7578.9 | 7541.8 | 7476.8 | 7458.2 |
| 15° | 7383.9 | 7383.9 | 7309.6 | 7235.3 | 7207.4 |
| 17.5° | 7161.0 | 7151.7 | 7058.8 | 6984.5 | 6947.4 |
| 20° | 6919.5 | 6900.9 | 6808.0 | 6687.3 | 6622.3 |
| 22.5° | 6650.1 | 6650.1 | 6538.7 | 6380.8 | 6315.8 |
| 25° | 6399.4 | 6362.2 | 6260.1 | 6037.1 | 5870.0 |
| 27.5° | 6111.4 | 6055.7 | 5944.3 | 5628.5 | 5433.4 |
| 30° | 5795.7 | 5767.8 | 5609.9 | 5201.2 | 5052.6 |
| 32.5° | 5498.4 | 5452.0 | 5284.8 | 4857.6 | 4736.8 |
| 35° | 5191.9 | 5154.8 | 4904.0 | 4532.5 | 4421.0 |
| 37.5° | 4885.4 | 4839.0 | 4523.2 | 4226.0 | 4086.7 |
| 40° | 4578.9 | 4523.2 | 4179.6 | 3910.2 | 3761.6 |
| 42.5° | 4291.0 | 4216.7 | 3882.3 | 3594.4 | 3427.2 |
| 45° | 3984.5 | 3900.9 | 3566.6 | 3269.3 | 3139.3 |
| 47.5° | 3678.0 | 3603.7 | 3297.2 | 2990.7 | 2842.1 |
| 50° | 3352.9 | 3287.9 | 3009.3 | 2702.8 | 2544.9 |
| 52.5° | 3083.6 | 2981.4 | 2712.1 | 2405.6 | 2275.5 |
| 55° | 2767.8 | 2684.2 | 2433.4 | 2145.5 | 2034.1 |
| 57.5° | 2479.9 | 2396.3 | 2164.1 | 1894.7 | 1801.9 |
| 60° | 2210.5 | 2089.8 | 1894.7 | 1662.5 | 1588.2 |
| 62.5° | 1913.3 | 1820.4 | 1653.2 | 1458.2 | 1551.1 |
| 65° | 1644.0 | 1551.1 | 1402.5 | 1430.3 | 1188.9 |
| 67.5° | 1346.7 | 1300.3 | 1170.3 | 1040.2 | 1003.1 |
| 70° | 1096.0 | 1040.2 | 993.8 | 854.5 | 817.3 |
| 72.5° | 873.1 | 817.3 | 752.3 | 678.0 | 650.2 |
| 75° | 659.4 | 613.0 | 575.9 | 548.0 | 603.7 |
| 77.5° | 455.1 | 436.5 | 408.7 | 380.8 | 371.5 |
| 80° | 297.2 | 287.9 | 278.6 | 269.3 | 260.1 |
| 82.5° | 176.5 | 176.5 | 176.5 | 176.5 | 176.5 |
| 85° | 92.9 | 102.2 | 111.5 | 120.7 | 130.0 |
| 87.5° | 55.7 | 55.7 | 65.0 | 74.3 | 83.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)