

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: P564047

Luminaire Tested: FSR-24-4-LD4-4STD-35-UNV-81-97-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P564047
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-LD4-4STD-35-UNV-81-97-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14172.0 lumens
Efficiency: N/A
Efficacy: 106.4 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

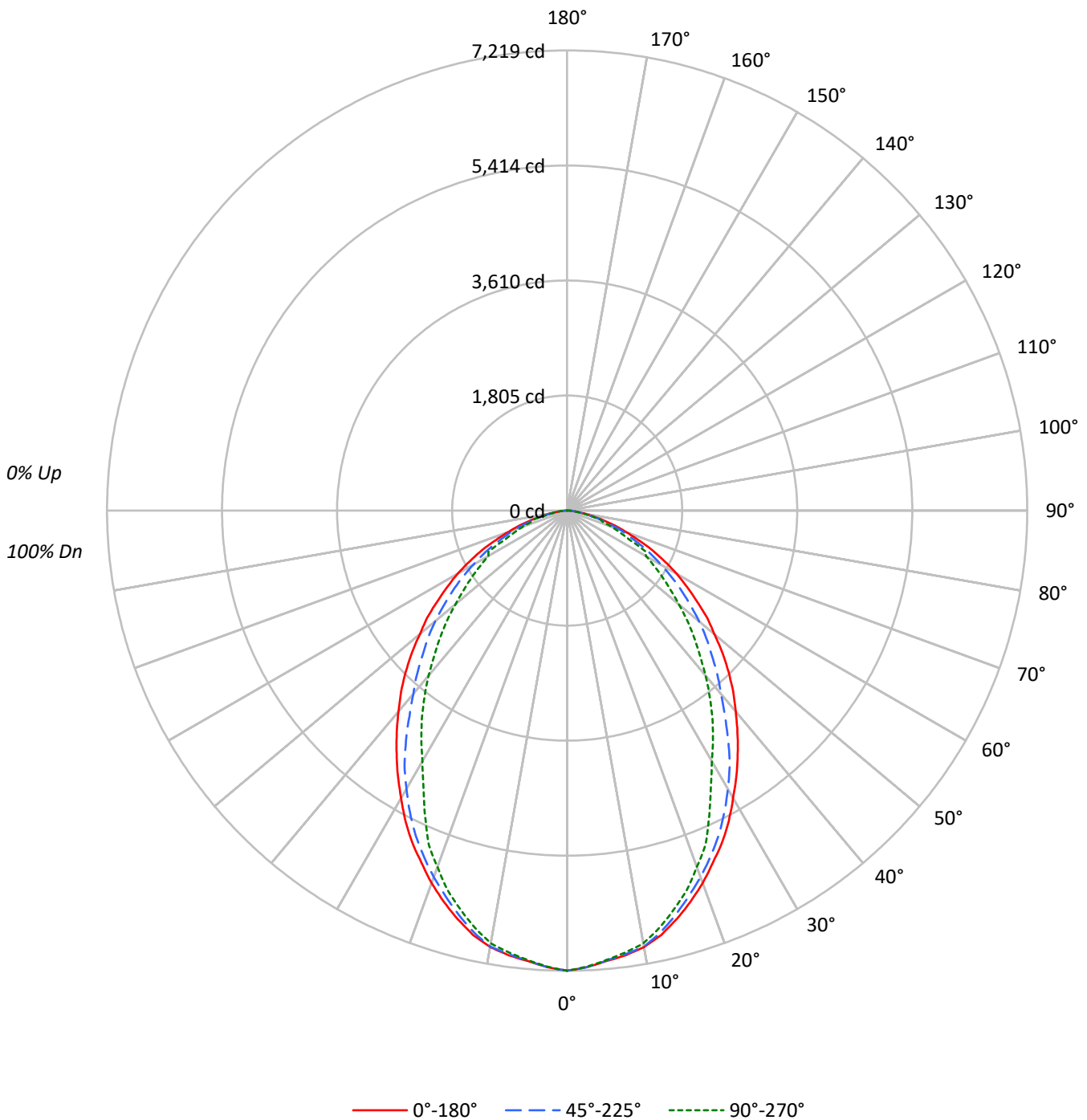
Input Watts (W): 133.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 |
| RC | 80 | | | | 70 | | | | 50 | | | | 30 | | | | 10 |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 |
| 1 | 110 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 9713 | 9713 | 9713 |
| 5° | 9581 | 9570 | 9559 |
| 10° | 9498 | 9487 | 9418 |
| 15° | 9242 | 9149 | 9021 |
| 20° | 8902 | 8759 | 8520 |
| 25° | 8537 | 8351 | 7830 |
| 30° | 8091 | 7832 | 7054 |
| 35° | 7663 | 7238 | 6525 |
| 40° | 7227 | 6596 | 5937 |
| 45° | 6813 | 6098 | 5367 |
| 50° | 6306 | 5660 | 4787 |
| 55° | 5834 | 5129 | 4287 |
| 60° | 5345 | 4581 | 3840 |
| 65° | 4703 | 4012 | 3401 |
| 70° | 3874 | 3513 | 2889 |
| 75° | 3080 | 2690 | 2820 |
| 80° | 2070 | 1940 | 1811 |
| 85° | 1289 | 1545 | 1803 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 6813 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 672.0 | 4.7 |
| 10°-20° | 1844.2 | 13.0 |
| 20°-30° | 2553.2 | 18.0 |
| 30°-40° | 2722.5 | 19.2 |
| 40°-50° | 2483.7 | 17.5 |
| 50°-60° | 1945.8 | 13.7 |
| 60°-70° | 1268.2 | 8.9 |
| 70°-80° | 561.8 | 4.0 |
| 80°-90° | 120.6 | 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° | 5069.4 | 35.8 |
| 0°-40° | 7791.9 | 55.0 |
| 0°-60° | 12221.4 | 86.2 |
| 0°-90° | 14172.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 14172.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 7219 | 7219 | 7219 | 7219 | 7219 | |
| 5° | 7094 | 7086 | 7086 | 7077 | 7077 | 673 |
| 15° | 6635 | 6635 | 6568 | 6501 | 6476 | 1865 |
| 25° | 5750 | 5717 | 5625 | 5425 | 5274 | 2640 |
| 35° | 4665 | 4632 | 4406 | 4073 | 3973 | 2917 |
| 45° | 3580 | 3505 | 3205 | 2938 | 2821 | 2758 |
| 55° | 2487 | 2412 | 2187 | 1928 | 1828 | 2231 |
| 65° | 1477 | 1394 | 1260 | 1285 | 1068 | 1456 |
| 75° | 592 | 551 | 517 | 492 | 542 | 635 |
| 85° | 84 | 92 | 100 | 108 | 117 | 116 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P564047

CATALOG NUMBER: FSR-24-4-LD4-4STD-35-UNV-81-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 7219.0 | 7219.0 | 7219.0 | 7219.0 | 7219.0 |
| 2.5° | 7169.0 | 7169.0 | 7169.0 | 7160.6 | 7160.6 |
| 5° | 7093.8 | 7085.5 | 7085.5 | 7077.2 | 7077.2 |
| 7.5° | 7035.4 | 7027.1 | 7018.7 | 7010.4 | 6993.7 |
| 10° | 6952.0 | 6952.0 | 6943.6 | 6901.9 | 6893.5 |
| 12.5° | 6818.4 | 6810.1 | 6776.7 | 6718.3 | 6701.6 |
| 15° | 6634.8 | 6634.8 | 6568.1 | 6501.3 | 6476.3 |
| 17.5° | 6434.5 | 6426.2 | 6342.7 | 6276.0 | 6242.6 |
| 20° | 6217.5 | 6200.9 | 6117.4 | 6008.9 | 5950.5 |
| 22.5° | 5975.5 | 5975.5 | 5875.4 | 5733.5 | 5675.1 |
| 25° | 5750.2 | 5716.8 | 5625.0 | 5424.7 | 5274.5 |
| 27.5° | 5491.5 | 5441.4 | 5341.2 | 5057.5 | 4882.2 |
| 30° | 5207.7 | 5182.7 | 5040.8 | 4673.6 | 4540.1 |
| 32.5° | 4940.7 | 4898.9 | 4748.7 | 4364.8 | 4256.3 |
| 35° | 4665.2 | 4631.9 | 4406.5 | 4072.7 | 3972.6 |
| 37.5° | 4389.8 | 4348.1 | 4064.4 | 3797.3 | 3672.1 |
| 40° | 4114.4 | 4064.4 | 3755.6 | 3513.5 | 3380.0 |
| 42.5° | 3855.7 | 3788.9 | 3488.5 | 3229.8 | 3079.6 |
| 45° | 3580.3 | 3505.2 | 3204.7 | 2937.7 | 2820.8 |
| 47.5° | 3304.9 | 3238.1 | 2962.7 | 2687.3 | 2553.8 |
| 50° | 3012.8 | 2954.4 | 2704.0 | 2428.6 | 2286.7 |
| 52.5° | 2770.8 | 2679.0 | 2436.9 | 2161.5 | 2044.7 |
| 55° | 2487.0 | 2411.9 | 2186.6 | 1927.9 | 1827.7 |
| 57.5° | 2228.3 | 2153.2 | 1944.5 | 1702.5 | 1619.1 |
| 60° | 1986.3 | 1877.8 | 1702.5 | 1493.9 | 1427.1 |
| 62.5° | 1719.2 | 1635.8 | 1485.5 | 1310.3 | 1393.7 |
| 65° | 1477.2 | 1393.7 | 1260.2 | 1285.2 | 1068.2 |
| 67.5° | 1210.1 | 1168.4 | 1051.6 | 934.7 | 901.3 |
| 70° | 984.8 | 934.7 | 893.0 | 767.8 | 734.4 |
| 72.5° | 784.5 | 734.4 | 676.0 | 609.2 | 584.2 |
| 75° | 592.5 | 550.8 | 517.4 | 492.4 | 542.5 |
| 77.5° | 408.9 | 392.2 | 367.2 | 342.2 | 333.8 |
| 80° | 267.1 | 258.7 | 250.4 | 242.0 | 233.7 |
| 82.5° | 158.6 | 158.6 | 158.6 | 158.6 | 158.6 |
| 85° | 83.5 | 91.8 | 100.1 | 108.5 | 116.8 |
| 87.5° | 50.1 | 50.1 | 58.4 | 66.8 | 75.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)