

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: P563567

Luminaire Tested: FSR-24-4-LD4-3STD-40-UNV-93-97-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563567
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-LD4-3STD-40-UNV-93-97-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11323.0 lumens
Efficiency: N/A
Efficacy: 113.3 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

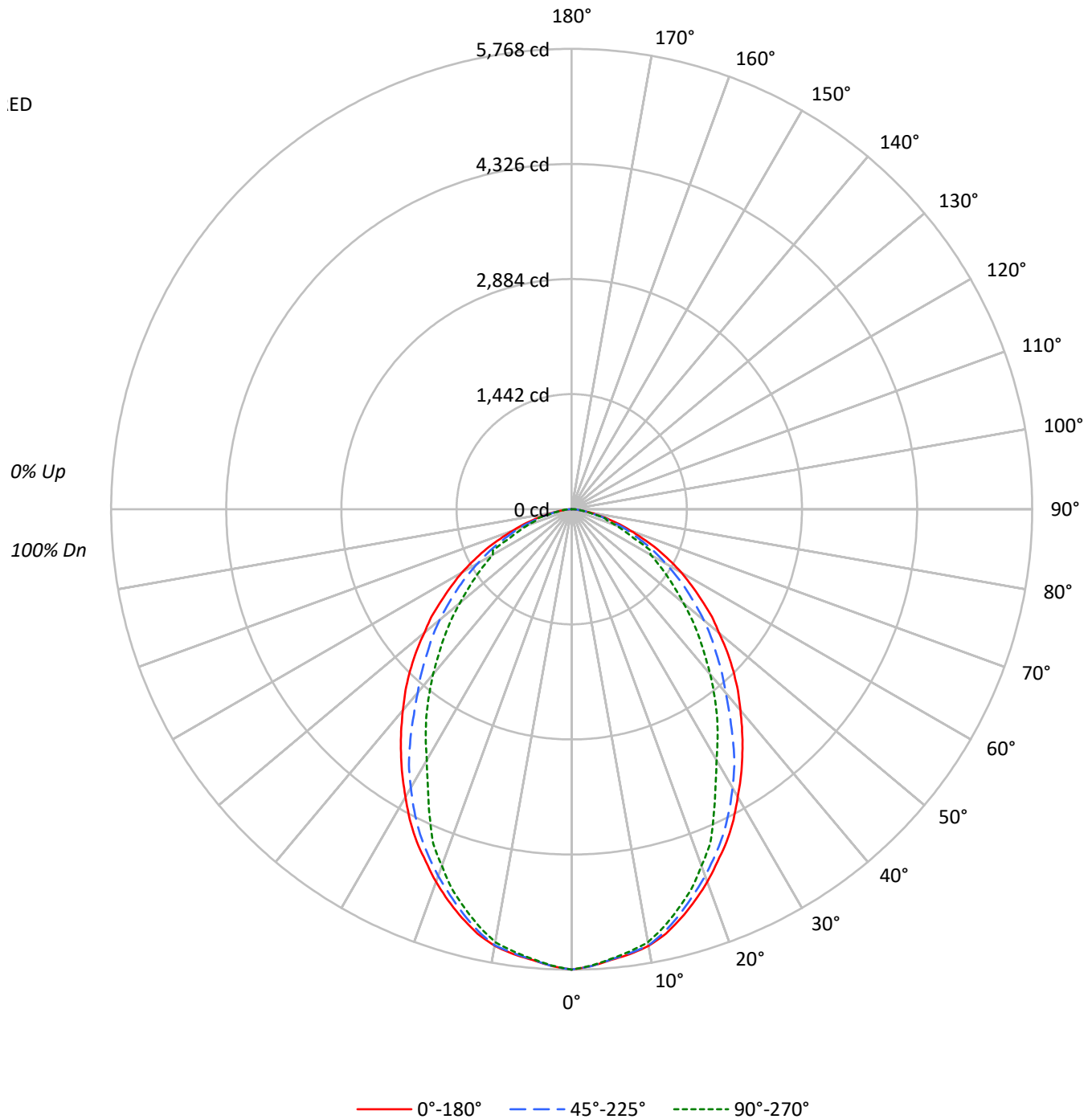
Input Watts (W): 99.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563567

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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 | 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° | 7761 | 7761 | 7761 |
| 5° | 7655 | 7646 | 7637 |
| 10° | 7589 | 7580 | 7525 |
| 15° | 7384 | 7310 | 7208 |
| 20° | 7113 | 6998 | 6807 |
| 25° | 6820 | 6672 | 6256 |
| 30° | 6464 | 6257 | 5636 |
| 35° | 6122 | 5783 | 5213 |
| 40° | 5774 | 5270 | 4743 |
| 45° | 5443 | 4872 | 4289 |
| 50° | 5039 | 4522 | 3824 |
| 55° | 4661 | 4098 | 3426 |
| 60° | 4271 | 3661 | 3068 |
| 65° | 3757 | 3206 | 2717 |
| 70° | 3095 | 2807 | 2308 |
| 75° | 2461 | 2149 | 2253 |
| 80° | 1654 | 1550 | 1447 |
| 85° | 1030 | 1235 | 1442 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5443 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 536.9 | 4.7 |
| 10°-20° | 1473.5 | 13.0 |
| 20°-30° | 2039.9 | 18.0 |
| 30°-40° | 2175.2 | 19.2 |
| 40°-50° | 1984.4 | 17.5 |
| 50°-60° | 1554.6 | 13.7 |
| 60°-70° | 1013.2 | 8.9 |
| 70°-80° | 448.9 | 4.0 |
| 80°-90° | 96.4 | 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° | 4050.3 | 35.8 |
| 0°-40° | 6225.5 | 55.0 |
| 0°-60° | 9764.5 | 86.2 |
| 0°-90° | 11323.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 11323.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 5768 | 5768 | 5768 | 5768 | 5768 | |
| 5° | 5668 | 5661 | 5661 | 5654 | 5654 | 538 |
| 15° | 5301 | 5301 | 5248 | 5194 | 5174 | 1490 |
| 25° | 4594 | 4568 | 4494 | 4334 | 4214 | 2109 |
| 35° | 3727 | 3701 | 3521 | 3254 | 3174 | 2330 |
| 45° | 2861 | 2800 | 2560 | 2347 | 2254 | 2203 |
| 55° | 1987 | 1927 | 1747 | 1540 | 1460 | 1782 |
| 65° | 1180 | 1114 | 1007 | 1027 | 854 | 1163 |
| 75° | 473 | 440 | 413 | 393 | 433 | 507 |
| 85° | 67 | 73 | 80 | 87 | 93 | 93 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563567

CATALOG NUMBER: FSR-24-4-LD4-3STD-40-UNV-93-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 5767.8 | 5767.8 | 5767.8 | 5767.8 | 5767.8 |
| 2.5° | 5727.8 | 5727.8 | 5727.8 | 5721.1 | 5721.1 |
| 5° | 5667.8 | 5661.1 | 5661.1 | 5654.4 | 5654.4 |
| 7.5° | 5621.1 | 5614.4 | 5607.8 | 5601.1 | 5587.8 |
| 10° | 5554.4 | 5554.4 | 5547.7 | 5514.4 | 5507.7 |
| 12.5° | 5447.7 | 5441.1 | 5414.4 | 5367.7 | 5354.4 |
| 15° | 5301.0 | 5301.0 | 5247.7 | 5194.3 | 5174.3 |
| 17.5° | 5141.0 | 5134.3 | 5067.6 | 5014.3 | 4987.6 |
| 20° | 4967.6 | 4954.3 | 4887.6 | 4800.9 | 4754.3 |
| 22.5° | 4774.3 | 4774.3 | 4694.2 | 4580.9 | 4534.2 |
| 25° | 4594.2 | 4567.6 | 4494.2 | 4334.2 | 4214.2 |
| 27.5° | 4387.5 | 4347.5 | 4267.5 | 4040.8 | 3900.8 |
| 30° | 4160.8 | 4140.8 | 4027.4 | 3734.1 | 3627.4 |
| 32.5° | 3947.4 | 3914.1 | 3794.1 | 3487.3 | 3400.7 |
| 35° | 3727.4 | 3700.7 | 3520.7 | 3254.0 | 3173.9 |
| 37.5° | 3507.3 | 3474.0 | 3247.3 | 3033.9 | 2933.9 |
| 40° | 3287.3 | 3247.3 | 3000.6 | 2807.2 | 2700.5 |
| 42.5° | 3080.6 | 3027.3 | 2787.2 | 2580.5 | 2460.5 |
| 45° | 2860.6 | 2800.5 | 2560.5 | 2347.1 | 2253.8 |
| 47.5° | 2640.5 | 2587.2 | 2367.1 | 2147.1 | 2040.4 |
| 50° | 2407.1 | 2360.5 | 2160.4 | 1940.4 | 1827.0 |
| 52.5° | 2213.8 | 2140.4 | 1947.0 | 1727.0 | 1633.7 |
| 55° | 1987.1 | 1927.0 | 1747.0 | 1540.3 | 1460.3 |
| 57.5° | 1780.3 | 1720.3 | 1553.6 | 1360.3 | 1293.6 |
| 60° | 1587.0 | 1500.3 | 1360.3 | 1193.6 | 1140.2 |
| 62.5° | 1373.6 | 1306.9 | 1186.9 | 1046.9 | 1113.5 |
| 65° | 1180.2 | 1113.5 | 1006.9 | 1026.9 | 853.5 |
| 67.5° | 966.9 | 933.5 | 840.2 | 746.8 | 720.1 |
| 70° | 786.8 | 746.8 | 713.5 | 613.5 | 586.8 |
| 72.5° | 626.8 | 586.8 | 540.1 | 486.8 | 466.8 |
| 75° | 473.4 | 440.1 | 413.4 | 393.4 | 433.4 |
| 77.5° | 326.7 | 313.4 | 293.4 | 273.4 | 266.7 |
| 80° | 213.4 | 206.7 | 200.0 | 193.4 | 186.7 |
| 82.5° | 126.7 | 126.7 | 126.7 | 126.7 | 126.7 |
| 85° | 66.7 | 73.3 | 80.0 | 86.7 | 93.4 |
| 87.5° | 40.0 | 40.0 | 46.7 | 53.3 | 60.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)