

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: P559398

Luminaire Tested: FSR-12-1-LD4-2LO-50-UNV-93-87-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P559398
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-12-1-LD4-2LO-50-UNV-93-87-EDD-90
Description: 1X1 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 987.0 lumens
Efficiency: N/A
Efficacy: 84.4 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
CIE Type: Direct

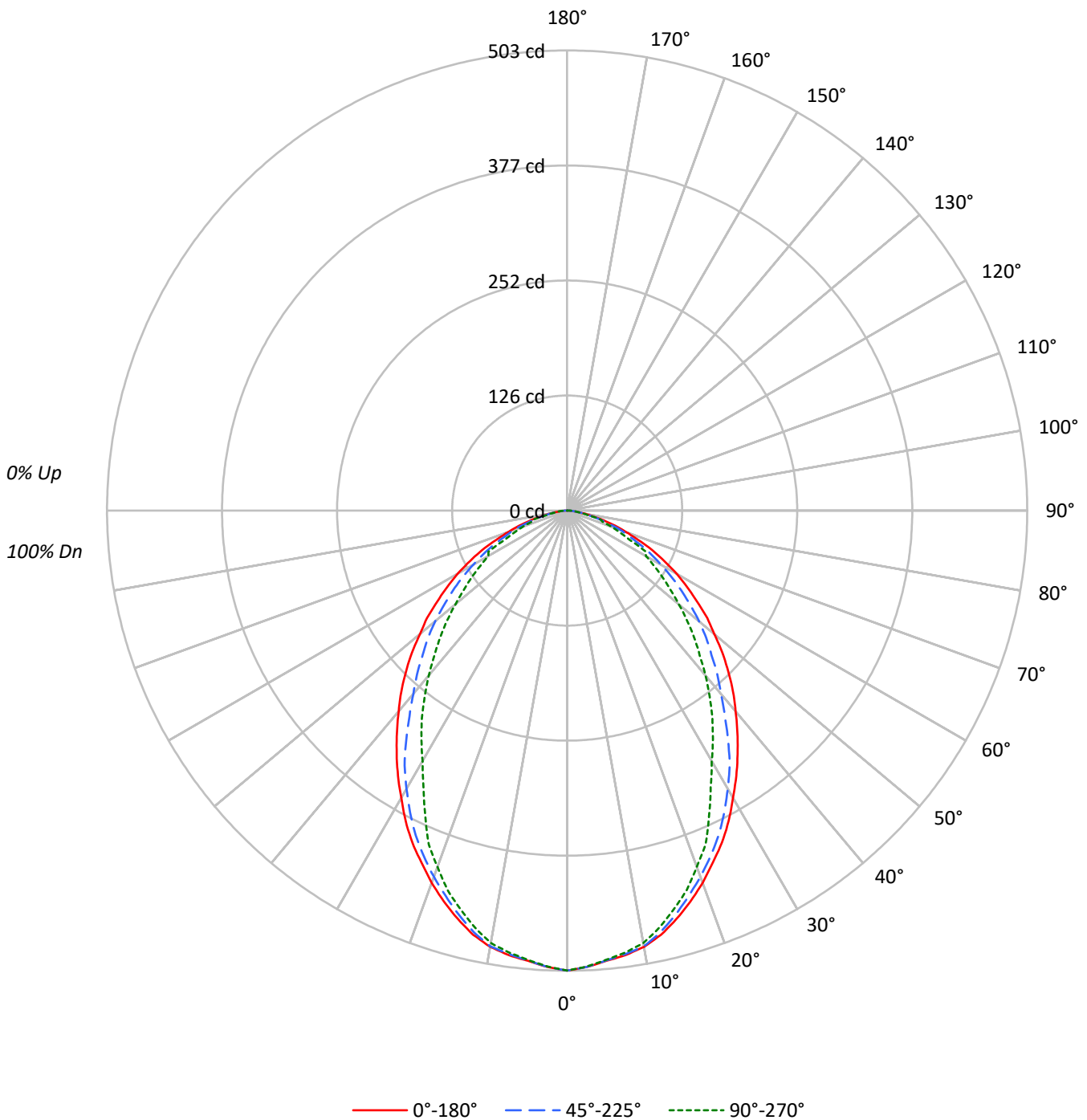
Input Watts (W): 11.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | 0 |
| RW | 70 | 50 | 30 | 10 | 70 | 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° | 5412 | 5412 | 5412 |
| 5° | 5338 | 5332 | 5326 |
| 10° | 5292 | 5286 | 5247 |
| 15° | 5149 | 5097 | 5026 |
| 20° | 4960 | 4880 | 4747 |
| 25° | 4757 | 4652 | 4362 |
| 30° | 4508 | 4364 | 3930 |
| 35° | 4269 | 4033 | 3636 |
| 40° | 4026 | 3676 | 3308 |
| 45° | 3795 | 3398 | 2991 |
| 50° | 3513 | 3153 | 2668 |
| 55° | 3250 | 2858 | 2389 |
| 60° | 2977 | 2553 | 2140 |
| 65° | 2621 | 2236 | 1895 |
| 70° | 2159 | 1958 | 1608 |
| 75° | 1718 | 1497 | 1572 |
| 80° | 1153 | 1079 | 1010 |
| 85° | 716 | 865 | 1000 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3795 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 46.8 | 4.7 |
| 10°-20° | 128.4 | 13.0 |
| 20°-30° | 177.8 | 18.0 |
| 30°-40° | 189.6 | 19.2 |
| 40°-50° | 173.0 | 17.5 |
| 50°-60° | 135.5 | 13.7 |
| 60°-70° | 88.3 | 8.9 |
| 70°-80° | 39.1 | 4.0 |
| 80°-90° | 8.4 | 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° | 353.1 | 35.8 |
| 0°-40° | 542.7 | 55.0 |
| 0°-60° | 851.2 | 86.2 |
| 0°-90° | 987.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 987.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 503 | 503 | 503 | 503 | 503 | |
| 5° | 494 | 494 | 494 | 493 | 493 | 47 |
| 15° | 462 | 462 | 457 | 453 | 451 | 130 |
| 25° | 400 | 398 | 392 | 378 | 367 | 184 |
| 35° | 325 | 323 | 307 | 284 | 277 | 203 |
| 45° | 249 | 244 | 223 | 205 | 196 | 192 |
| 55° | 173 | 168 | 152 | 134 | 127 | 155 |
| 65° | 103 | 97 | 88 | 90 | 74 | 101 |
| 75° | 41 | 38 | 36 | 34 | 38 | 44 |
| 85° | 6 | 6 | 7 | 8 | 8 | 8 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P559398

CATALOG NUMBER: FSR-12-1-LD4-2LO-50-UNV-93-87-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 502.8 | 502.8 | 502.8 | 502.8 | 502.8 |
| 2.5° | 499.3 | 499.3 | 499.3 | 498.7 | 498.7 |
| 5° | 494.0 | 493.5 | 493.5 | 492.9 | 492.9 |
| 7.5° | 490.0 | 489.4 | 488.8 | 488.2 | 487.1 |
| 10° | 484.2 | 484.2 | 483.6 | 480.7 | 480.1 |
| 12.5° | 474.9 | 474.3 | 472.0 | 467.9 | 466.7 |
| 15° | 462.1 | 462.1 | 457.4 | 452.8 | 451.0 |
| 17.5° | 448.1 | 447.5 | 441.7 | 437.1 | 434.8 |
| 20° | 433.0 | 431.9 | 426.0 | 418.5 | 414.4 |
| 22.5° | 416.2 | 416.2 | 409.2 | 399.3 | 395.2 |
| 25° | 400.5 | 398.1 | 391.7 | 377.8 | 367.3 |
| 27.5° | 382.4 | 379.0 | 372.0 | 352.2 | 340.0 |
| 30° | 362.7 | 360.9 | 351.1 | 325.5 | 316.2 |
| 32.5° | 344.1 | 341.2 | 330.7 | 304.0 | 296.4 |
| 35° | 324.9 | 322.6 | 306.9 | 283.6 | 276.7 |
| 37.5° | 305.7 | 302.8 | 283.1 | 264.5 | 255.7 |
| 40° | 286.5 | 283.1 | 261.6 | 244.7 | 235.4 |
| 42.5° | 268.5 | 263.9 | 243.0 | 224.9 | 214.5 |
| 45° | 249.3 | 244.1 | 223.2 | 204.6 | 196.5 |
| 47.5° | 230.2 | 225.5 | 206.3 | 187.2 | 177.9 |
| 50° | 209.8 | 205.8 | 188.3 | 169.1 | 159.3 |
| 52.5° | 193.0 | 186.6 | 169.7 | 150.5 | 142.4 |
| 55° | 173.2 | 168.0 | 152.3 | 134.3 | 127.3 |
| 57.5° | 155.2 | 150.0 | 135.4 | 118.6 | 112.8 |
| 60° | 138.3 | 130.8 | 118.6 | 104.0 | 99.4 |
| 62.5° | 119.7 | 113.9 | 103.5 | 91.3 | 97.1 |
| 65° | 102.9 | 97.1 | 87.8 | 89.5 | 74.4 |
| 67.5° | 84.3 | 81.4 | 73.2 | 65.1 | 62.8 |
| 70° | 68.6 | 65.1 | 62.2 | 53.5 | 51.1 |
| 72.5° | 54.6 | 51.1 | 47.1 | 42.4 | 40.7 |
| 75° | 41.3 | 38.4 | 36.0 | 34.3 | 37.8 |
| 77.5° | 28.5 | 27.3 | 25.6 | 23.8 | 23.2 |
| 80° | 18.6 | 18.0 | 17.4 | 16.9 | 16.3 |
| 82.5° | 11.0 | 11.0 | 11.0 | 11.0 | 11.0 |
| 85° | 5.8 | 6.4 | 7.0 | 7.6 | 8.1 |
| 87.5° | 3.5 | 3.5 | 4.1 | 4.6 | 5.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)