

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: P559278

Luminaire Tested: FSR-12-1-LD4-2LO-35-UNV-93-97-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P559278
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-35-UNV-93-97-EDD-90
Description: 1X1 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 942.0 lumens
Efficiency: N/A
Efficacy: 80.5 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

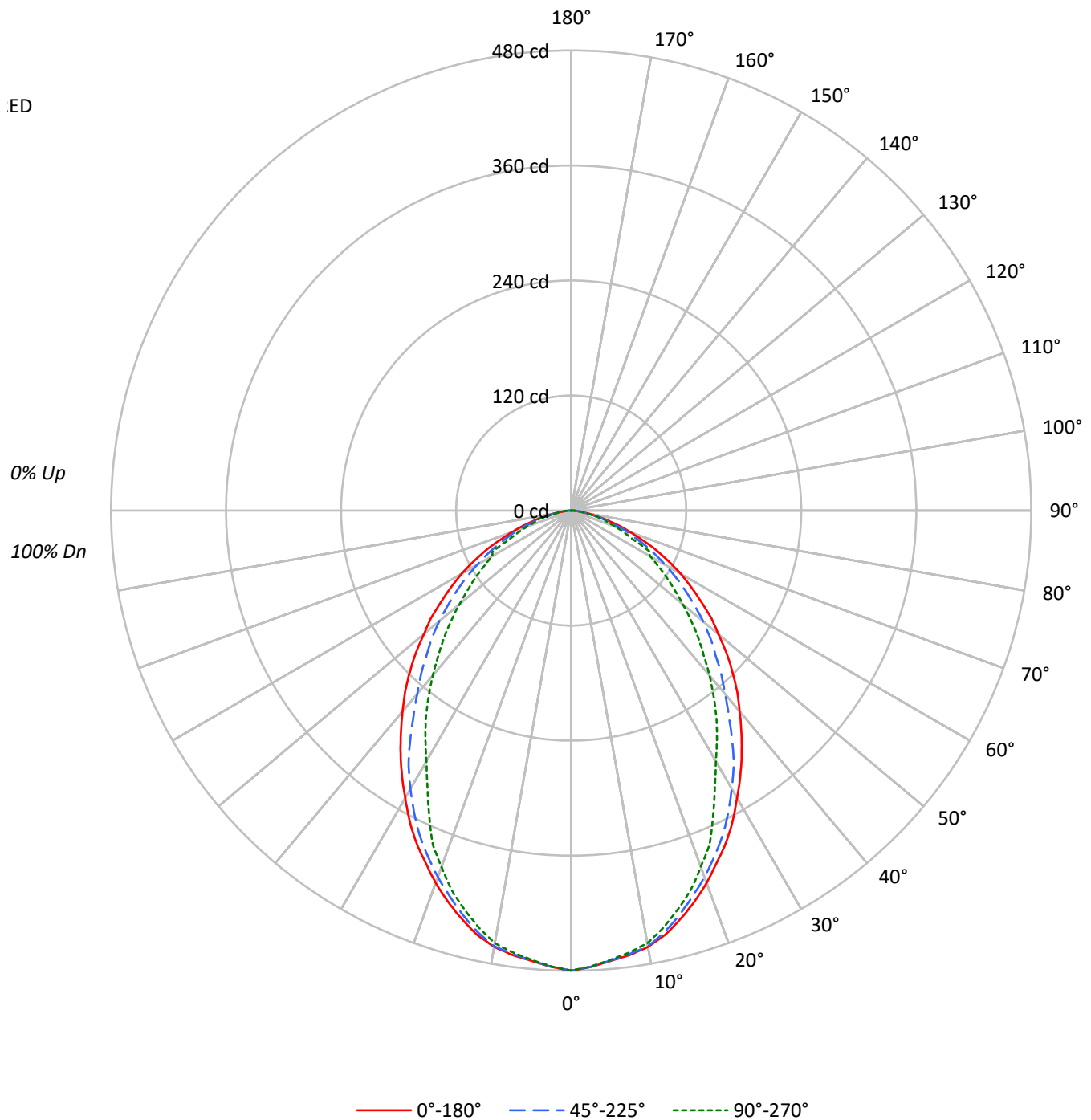
Input Watts (W): 11.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 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 | 102 | 100 | 100 | 100 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | | | | | | | | | | | | | | | |
| | 1 | 110 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | | | | | | | | | | | | | | |
| | 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | | | | | | | | | | | | | |
| | 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | | | | | | | | | | | | |
| | 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | | | | | | | | | | | | |
| | 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | | | | | | | | | | | | |
| | 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | | | | | | | | | | | | |
| | 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | | | | | | | | | | | | |
| | 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | | | | | | | | | | | | |
| | 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | | | | | | | | | | | | |
| | 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5165 | 5165 | 5165 |
| 5° | 5095 | 5089 | 5083 |
| 10° | 5051 | 5044 | 5008 |
| 15° | 4914 | 4865 | 4797 |
| 20° | 4734 | 4657 | 4530 |
| 25° | 4539 | 4441 | 4164 |
| 30° | 4303 | 4165 | 3751 |
| 35° | 4075 | 3849 | 3470 |
| 40° | 3843 | 3507 | 3157 |
| 45° | 3623 | 3242 | 2854 |
| 50° | 3354 | 3009 | 2545 |
| 55° | 3102 | 2727 | 2280 |
| 60° | 2842 | 2437 | 2043 |
| 65° | 2501 | 2134 | 1808 |
| 70° | 2061 | 1869 | 1536 |
| 75° | 1639 | 1431 | 1501 |
| 80° | 1103 | 1029 | 961 |
| 85° | 679 | 827 | 963 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3623 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 44.7 | 4.7 |
| 10°-20° | 122.6 | 13.0 |
| 20°-30° | 169.7 | 18.0 |
| 30°-40° | 181.0 | 19.2 |
| 40°-50° | 165.1 | 17.5 |
| 50°-60° | 129.3 | 13.7 |
| 60°-70° | 84.3 | 8.9 |
| 70°-80° | 37.3 | 4.0 |
| 80°-90° | 8.0 | 0.8 |
| 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° | 337.0 | 35.8 |
| 0°-40° | 517.9 | 55.0 |
| 0°-60° | 812.3 | 86.2 |
| 0°-90° | 942.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 942.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 480 | 480 | 480 | 480 | 480 | |
| 5° | 472 | 471 | 471 | 470 | 470 | 45 |
| 15° | 441 | 441 | 437 | 432 | 430 | 124 |
| 25° | 382 | 380 | 374 | 361 | 351 | 175 |
| 35° | 310 | 308 | 293 | 271 | 264 | 194 |
| 45° | 238 | 233 | 213 | 195 | 188 | 183 |
| 55° | 165 | 160 | 145 | 128 | 122 | 148 |
| 65° | 98 | 93 | 84 | 85 | 71 | 97 |
| 75° | 39 | 37 | 34 | 33 | 36 | 42 |
| 85° | 6 | 6 | 7 | 7 | 8 | 8 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P559278

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 479.8 | 479.8 | 479.8 | 479.8 | 479.8 |
| 2.5° | 476.5 | 476.5 | 476.5 | 476.0 | 476.0 |
| 5° | 471.5 | 471.0 | 471.0 | 470.4 | 470.4 |
| 7.5° | 467.6 | 467.1 | 466.5 | 466.0 | 464.9 |
| 10° | 462.1 | 462.1 | 461.5 | 458.8 | 458.2 |
| 12.5° | 453.2 | 452.7 | 450.4 | 446.6 | 445.4 |
| 15° | 441.0 | 441.0 | 436.6 | 432.1 | 430.5 |
| 17.5° | 427.7 | 427.1 | 421.6 | 417.2 | 414.9 |
| 20° | 413.3 | 412.2 | 406.6 | 399.4 | 395.5 |
| 22.5° | 397.2 | 397.2 | 390.5 | 381.1 | 377.2 |
| 25° | 382.2 | 380.0 | 373.9 | 360.6 | 350.6 |
| 27.5° | 365.0 | 361.7 | 355.0 | 336.2 | 324.5 |
| 30° | 346.2 | 344.5 | 335.1 | 310.6 | 301.8 |
| 32.5° | 328.4 | 325.6 | 315.6 | 290.1 | 282.9 |
| 35° | 310.1 | 307.9 | 292.9 | 270.7 | 264.1 |
| 37.5° | 291.8 | 289.0 | 270.2 | 252.4 | 244.1 |
| 40° | 273.5 | 270.2 | 249.6 | 233.5 | 224.7 |
| 42.5° | 256.3 | 251.8 | 231.9 | 214.7 | 204.7 |
| 45° | 238.0 | 233.0 | 213.0 | 195.3 | 187.5 |
| 47.5° | 219.7 | 215.2 | 196.9 | 178.6 | 169.7 |
| 50° | 200.3 | 196.4 | 179.7 | 161.4 | 152.0 |
| 52.5° | 184.2 | 178.1 | 162.0 | 143.7 | 135.9 |
| 55° | 165.3 | 160.3 | 145.3 | 128.1 | 121.5 |
| 57.5° | 148.1 | 143.1 | 129.3 | 113.2 | 107.6 |
| 60° | 132.0 | 124.8 | 113.2 | 99.3 | 94.9 |
| 62.5° | 114.3 | 108.7 | 98.7 | 87.1 | 92.6 |
| 65° | 98.2 | 92.6 | 83.8 | 85.4 | 71.0 |
| 67.5° | 80.4 | 77.7 | 69.9 | 62.1 | 59.9 |
| 70° | 65.5 | 62.1 | 59.4 | 51.0 | 48.8 |
| 72.5° | 52.1 | 48.8 | 44.9 | 40.5 | 38.8 |
| 75° | 39.4 | 36.6 | 34.4 | 32.7 | 36.1 |
| 77.5° | 27.2 | 26.1 | 24.4 | 22.7 | 22.2 |
| 80° | 17.8 | 17.2 | 16.6 | 16.1 | 15.5 |
| 82.5° | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 |
| 85° | 5.5 | 6.1 | 6.7 | 7.2 | 7.8 |
| 87.5° | 3.3 | 3.3 | 3.9 | 4.4 | 5.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)