

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: P560164

Luminaire Tested: FSR-12-2-LD4-1STD-50-UNV-93-86-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560164
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-12-2-LD4-1STD-50-UNV-93-86-EDD-90
Description: 1X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1324.0 lumens
Efficiency: N/A
Efficacy: 79.8 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')
CIE Type: Direct

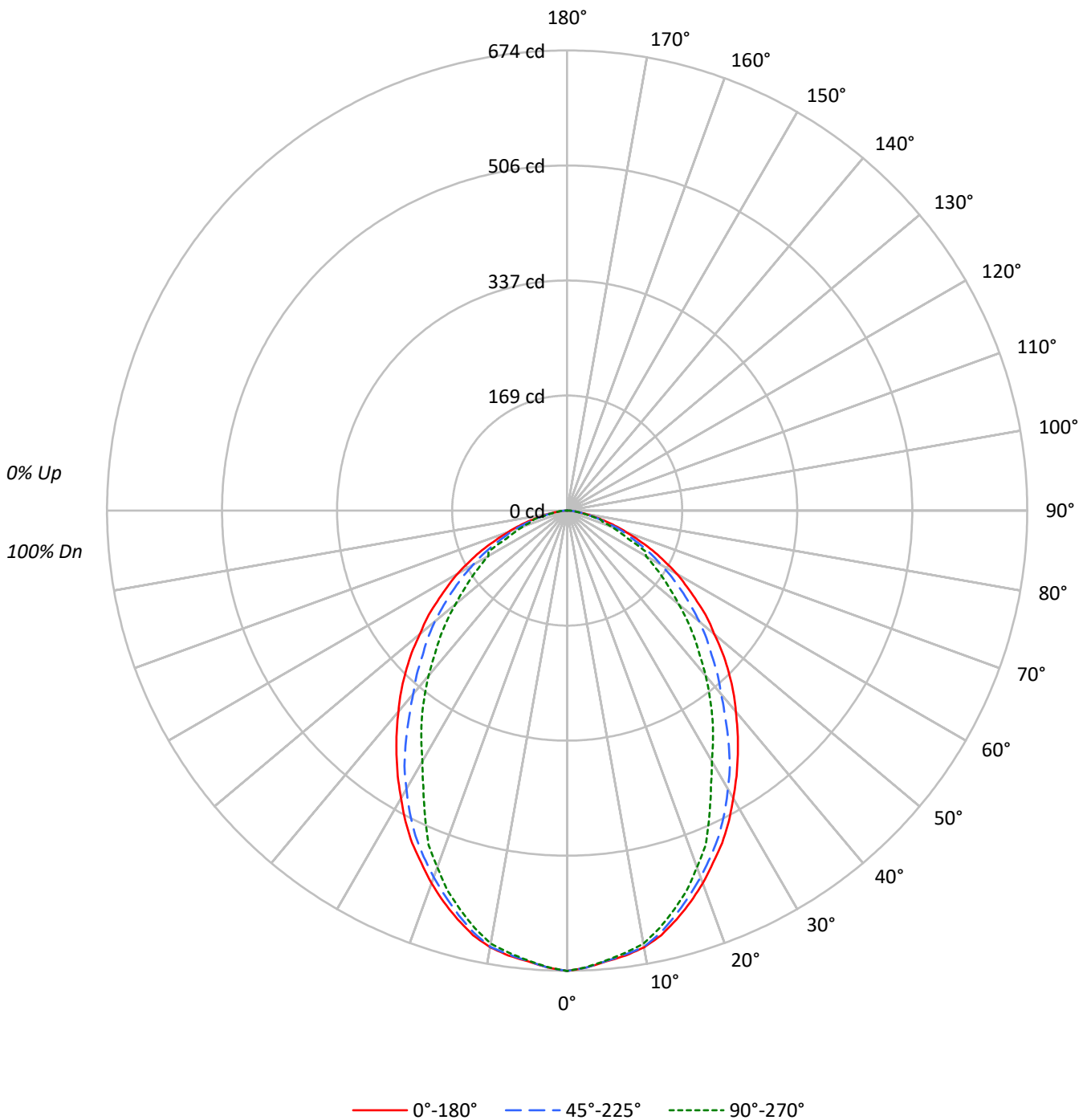
Input Watts (W): 16.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P560164

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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° | 3630 | 3630 | 3630 |
| 5° | 3580 | 3576 | 3572 |
| 10° | 3550 | 3545 | 3519 |
| 15° | 3453 | 3419 | 3371 |
| 20° | 3327 | 3273 | 3184 |
| 25° | 3190 | 3121 | 2926 |
| 30° | 3023 | 2926 | 2636 |
| 35° | 2863 | 2705 | 2438 |
| 40° | 2701 | 2465 | 2219 |
| 45° | 2546 | 2279 | 2006 |
| 50° | 2357 | 2115 | 1788 |
| 55° | 2180 | 1917 | 1603 |
| 60° | 1998 | 1713 | 1435 |
| 65° | 1757 | 1499 | 1271 |
| 70° | 1448 | 1312 | 1079 |
| 75° | 1152 | 1004 | 1054 |
| 80° | 772 | 725 | 676 |
| 85° | 482 | 580 | 673 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2546 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 62.8 | 4.7 |
| 10°-20° | 172.3 | 13.0 |
| 20°-30° | 238.5 | 18.0 |
| 30°-40° | 254.3 | 19.2 |
| 40°-50° | 232.0 | 17.5 |
| 50°-60° | 181.8 | 13.7 |
| 60°-70° | 118.5 | 8.9 |
| 70°-80° | 52.5 | 4.0 |
| 80°-90° | 11.3 | 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° | 473.6 | 35.8 |
| 0°-40° | 727.9 | 55.0 |
| 0°-60° | 1141.8 | 86.2 |
| 0°-90° | 1324.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1324.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 674 | 674 | 674 | 674 | 674 | |
| 5° | 663 | 662 | 662 | 661 | 661 | 63 |
| 15° | 620 | 620 | 614 | 607 | 605 | 174 |
| 25° | 537 | 534 | 526 | 507 | 493 | 247 |
| 35° | 436 | 433 | 412 | 380 | 371 | 272 |
| 45° | 334 | 328 | 299 | 274 | 264 | 258 |
| 55° | 232 | 225 | 204 | 180 | 171 | 208 |
| 65° | 138 | 130 | 118 | 120 | 100 | 136 |
| 75° | 55 | 52 | 48 | 46 | 51 | 59 |
| 85° | 8 | 9 | 9 | 10 | 11 | 11 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560164

CATALOG NUMBER: FSR-12-2-LD4-1STD-50-UNV-93-86-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 674.4 | 674.4 | 674.4 | 674.4 | 674.4 |
| 2.5° | 669.7 | 669.7 | 669.7 | 669.0 | 669.0 |
| 5° | 662.7 | 662.0 | 662.0 | 661.2 | 661.2 |
| 7.5° | 657.3 | 656.5 | 655.7 | 654.9 | 653.4 |
| 10° | 649.5 | 649.5 | 648.7 | 644.8 | 644.0 |
| 12.5° | 637.0 | 636.2 | 633.1 | 627.6 | 626.1 |
| 15° | 619.8 | 619.8 | 613.6 | 607.4 | 605.0 |
| 17.5° | 601.1 | 600.4 | 592.6 | 586.3 | 583.2 |
| 20° | 580.9 | 579.3 | 571.5 | 561.4 | 555.9 |
| 22.5° | 558.3 | 558.3 | 548.9 | 535.6 | 530.2 |
| 25° | 537.2 | 534.1 | 525.5 | 506.8 | 492.8 |
| 27.5° | 513.0 | 508.4 | 499.0 | 472.5 | 456.1 |
| 30° | 486.5 | 484.2 | 470.9 | 436.6 | 424.1 |
| 32.5° | 461.6 | 457.7 | 443.6 | 407.8 | 397.6 |
| 35° | 435.8 | 432.7 | 411.7 | 380.5 | 371.1 |
| 37.5° | 410.1 | 406.2 | 379.7 | 354.8 | 343.1 |
| 40° | 384.4 | 379.7 | 350.9 | 328.2 | 315.8 |
| 42.5° | 360.2 | 354.0 | 325.9 | 301.7 | 287.7 |
| 45° | 334.5 | 327.5 | 299.4 | 274.4 | 263.5 |
| 47.5° | 308.8 | 302.5 | 276.8 | 251.1 | 238.6 |
| 50° | 281.5 | 276.0 | 252.6 | 226.9 | 213.6 |
| 52.5° | 258.9 | 250.3 | 227.7 | 201.9 | 191.0 |
| 55° | 232.3 | 225.3 | 204.3 | 180.1 | 170.8 |
| 57.5° | 208.2 | 201.2 | 181.7 | 159.1 | 151.3 |
| 60° | 185.6 | 175.4 | 159.1 | 139.6 | 133.3 |
| 62.5° | 160.6 | 152.8 | 138.8 | 122.4 | 130.2 |
| 65° | 138.0 | 130.2 | 117.7 | 120.1 | 99.8 |
| 67.5° | 113.1 | 109.2 | 98.2 | 87.3 | 84.2 |
| 70° | 92.0 | 87.3 | 83.4 | 71.7 | 68.6 |
| 72.5° | 73.3 | 68.6 | 63.2 | 56.9 | 54.6 |
| 75° | 55.4 | 51.5 | 48.3 | 46.0 | 50.7 |
| 77.5° | 38.2 | 36.6 | 34.3 | 32.0 | 31.2 |
| 80° | 24.9 | 24.2 | 23.4 | 22.6 | 21.8 |
| 82.5° | 14.8 | 14.8 | 14.8 | 14.8 | 14.8 |
| 85° | 7.8 | 8.6 | 9.4 | 10.1 | 10.9 |
| 87.5° | 4.7 | 4.7 | 5.5 | 6.2 | 7.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)