

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: P561690

Luminaire Tested: FSR-12-4-LD4-2LO-50-UNV-82-94-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561690
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-12-4-LD4-2LO-50-UNV-82-94-EDD-90
Description: 1X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4132.0 lumens
Efficiency: N/A
Efficacy: 88.3 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

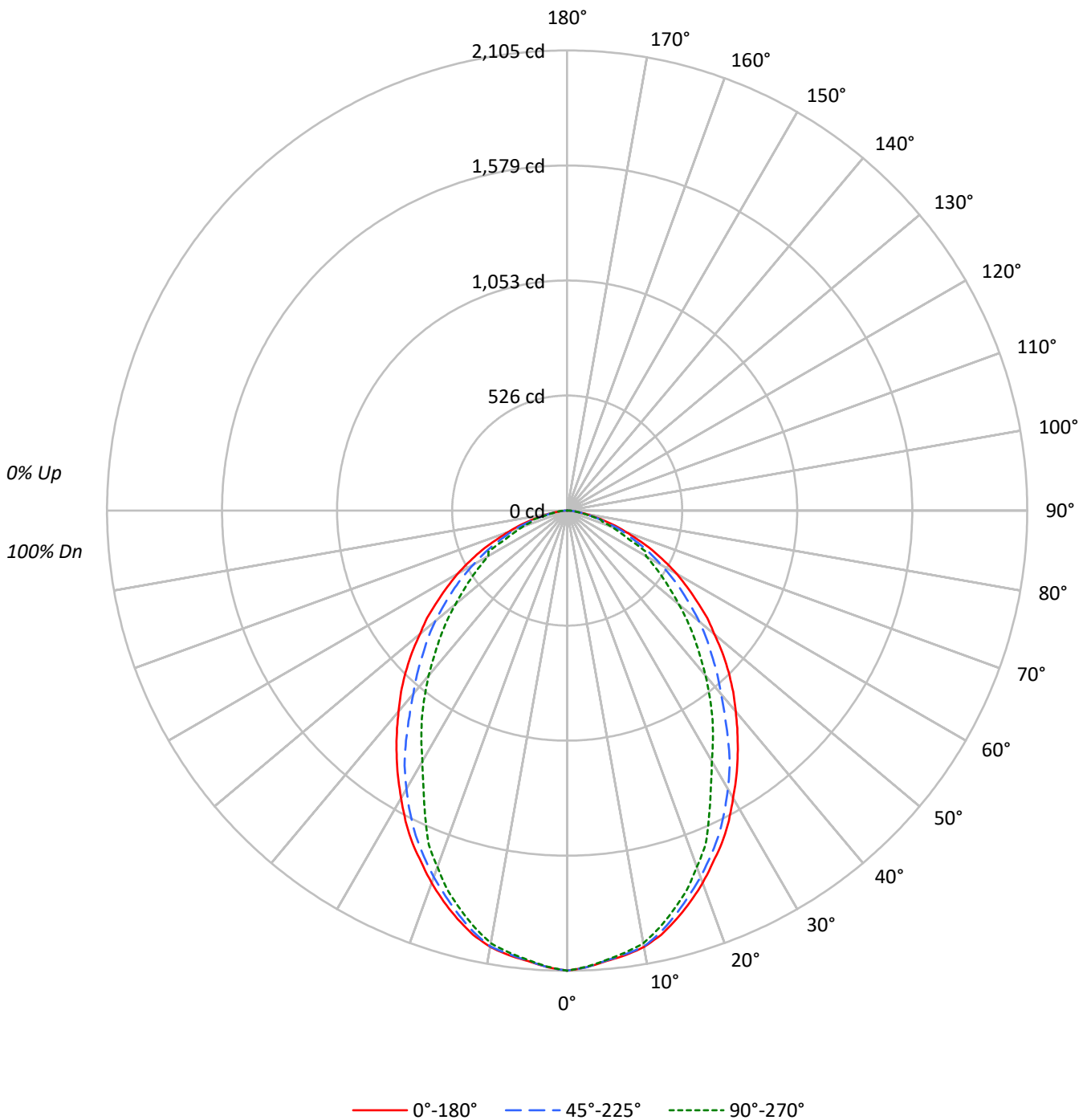
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | 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° | 5664 | 5664 | 5664 |
| 5° | 5587 | 5581 | 5574 |
| 10° | 5538 | 5532 | 5492 |
| 15° | 5389 | 5335 | 5260 |
| 20° | 5191 | 5108 | 4968 |
| 25° | 4978 | 4869 | 4566 |
| 30° | 4718 | 4567 | 4113 |
| 35° | 4468 | 4221 | 3805 |
| 40° | 4214 | 3847 | 3462 |
| 45° | 3973 | 3556 | 3130 |
| 50° | 3677 | 3301 | 2791 |
| 55° | 3402 | 2991 | 2500 |
| 60° | 3117 | 2672 | 2239 |
| 65° | 2742 | 2339 | 1983 |
| 70° | 2259 | 2049 | 1685 |
| 75° | 1797 | 1569 | 1645 |
| 80° | 1207 | 1131 | 1055 |
| 85° | 750 | 902 | 1053 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3973 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 195.9 | 4.7 |
| 10°-20° | 537.7 | 13.0 |
| 20°-30° | 744.4 | 18.0 |
| 30°-40° | 793.8 | 19.2 |
| 40°-50° | 724.1 | 17.5 |
| 50°-60° | 567.3 | 13.7 |
| 60°-70° | 369.7 | 8.9 |
| 70°-80° | 163.8 | 4.0 |
| 80°-90° | 35.2 | 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° | 1478.1 | 35.8 |
| 0°-40° | 2271.8 | 55.0 |
| 0°-60° | 3563.3 | 86.2 |
| 0°-90° | 4132.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4132.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2105 | 2105 | 2105 | 2105 | 2105 | |
| 5° | 2068 | 2066 | 2066 | 2063 | 2063 | 196 |
| 15° | 1934 | 1934 | 1915 | 1896 | 1888 | 544 |
| 25° | 1676 | 1667 | 1640 | 1582 | 1538 | 770 |
| 35° | 1360 | 1350 | 1285 | 1187 | 1158 | 850 |
| 45° | 1044 | 1022 | 934 | 856 | 822 | 804 |
| 55° | 725 | 703 | 638 | 562 | 533 | 650 |
| 65° | 431 | 406 | 367 | 375 | 312 | 424 |
| 75° | 173 | 161 | 151 | 144 | 158 | 185 |
| 85° | 24 | 27 | 29 | 32 | 34 | 34 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561690

CATALOG NUMBER: FSR-12-4-LD4-2LO-50-UNV-82-94-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2104.8 | 2104.8 | 2104.8 | 2104.8 | 2104.8 |
| 2.5° | 2090.2 | 2090.2 | 2090.2 | 2087.8 | 2087.8 |
| 5° | 2068.3 | 2065.9 | 2065.9 | 2063.4 | 2063.4 |
| 7.5° | 2051.3 | 2048.8 | 2046.4 | 2044.0 | 2039.1 |
| 10° | 2026.9 | 2026.9 | 2024.5 | 2012.3 | 2009.9 |
| 12.5° | 1988.0 | 1985.6 | 1975.8 | 1958.8 | 1953.9 |
| 15° | 1934.5 | 1934.5 | 1915.0 | 1895.5 | 1888.2 |
| 17.5° | 1876.1 | 1873.6 | 1849.3 | 1829.8 | 1820.1 |
| 20° | 1812.8 | 1807.9 | 1783.6 | 1752.0 | 1734.9 |
| 22.5° | 1742.2 | 1742.2 | 1713.0 | 1671.7 | 1654.6 |
| 25° | 1676.5 | 1666.8 | 1640.0 | 1581.6 | 1537.8 |
| 27.5° | 1601.1 | 1586.5 | 1557.3 | 1474.6 | 1423.5 |
| 30° | 1518.4 | 1511.1 | 1469.7 | 1362.6 | 1323.7 |
| 32.5° | 1440.5 | 1428.3 | 1384.5 | 1272.6 | 1241.0 |
| 35° | 1360.2 | 1350.5 | 1284.8 | 1187.4 | 1158.2 |
| 37.5° | 1279.9 | 1267.7 | 1185.0 | 1107.1 | 1070.6 |
| 40° | 1199.6 | 1185.0 | 1095.0 | 1024.4 | 985.5 |
| 42.5° | 1124.2 | 1104.7 | 1017.1 | 941.7 | 897.9 |
| 45° | 1043.9 | 1022.0 | 934.4 | 856.5 | 822.4 |
| 47.5° | 963.6 | 944.1 | 863.8 | 783.5 | 744.6 |
| 50° | 878.4 | 861.4 | 788.4 | 708.1 | 666.7 |
| 52.5° | 807.8 | 781.1 | 710.5 | 630.2 | 596.2 |
| 55° | 725.1 | 703.2 | 637.5 | 562.1 | 532.9 |
| 57.5° | 649.7 | 627.8 | 567.0 | 496.4 | 472.1 |
| 60° | 579.1 | 547.5 | 496.4 | 435.6 | 416.1 |
| 62.5° | 501.3 | 476.9 | 433.1 | 382.0 | 406.4 |
| 65° | 430.7 | 406.4 | 367.4 | 374.7 | 311.5 |
| 67.5° | 352.8 | 340.7 | 306.6 | 272.5 | 262.8 |
| 70° | 287.1 | 272.5 | 260.4 | 223.9 | 214.1 |
| 72.5° | 228.7 | 214.1 | 197.1 | 177.6 | 170.3 |
| 75° | 172.8 | 160.6 | 150.9 | 143.6 | 158.2 |
| 77.5° | 119.2 | 114.4 | 107.1 | 99.8 | 97.3 |
| 80° | 77.9 | 75.4 | 73.0 | 70.6 | 68.1 |
| 82.5° | 46.2 | 46.2 | 46.2 | 46.2 | 46.2 |
| 85° | 24.3 | 26.8 | 29.2 | 31.6 | 34.1 |
| 87.5° | 14.6 | 14.6 | 17.0 | 19.5 | 21.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)