

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: P561624

Luminaire Tested: FSR-12-4-LD4-2LO-40-UNV-82-88-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561624
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-40-UNV-82-88-EDD-90
Description: 1X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

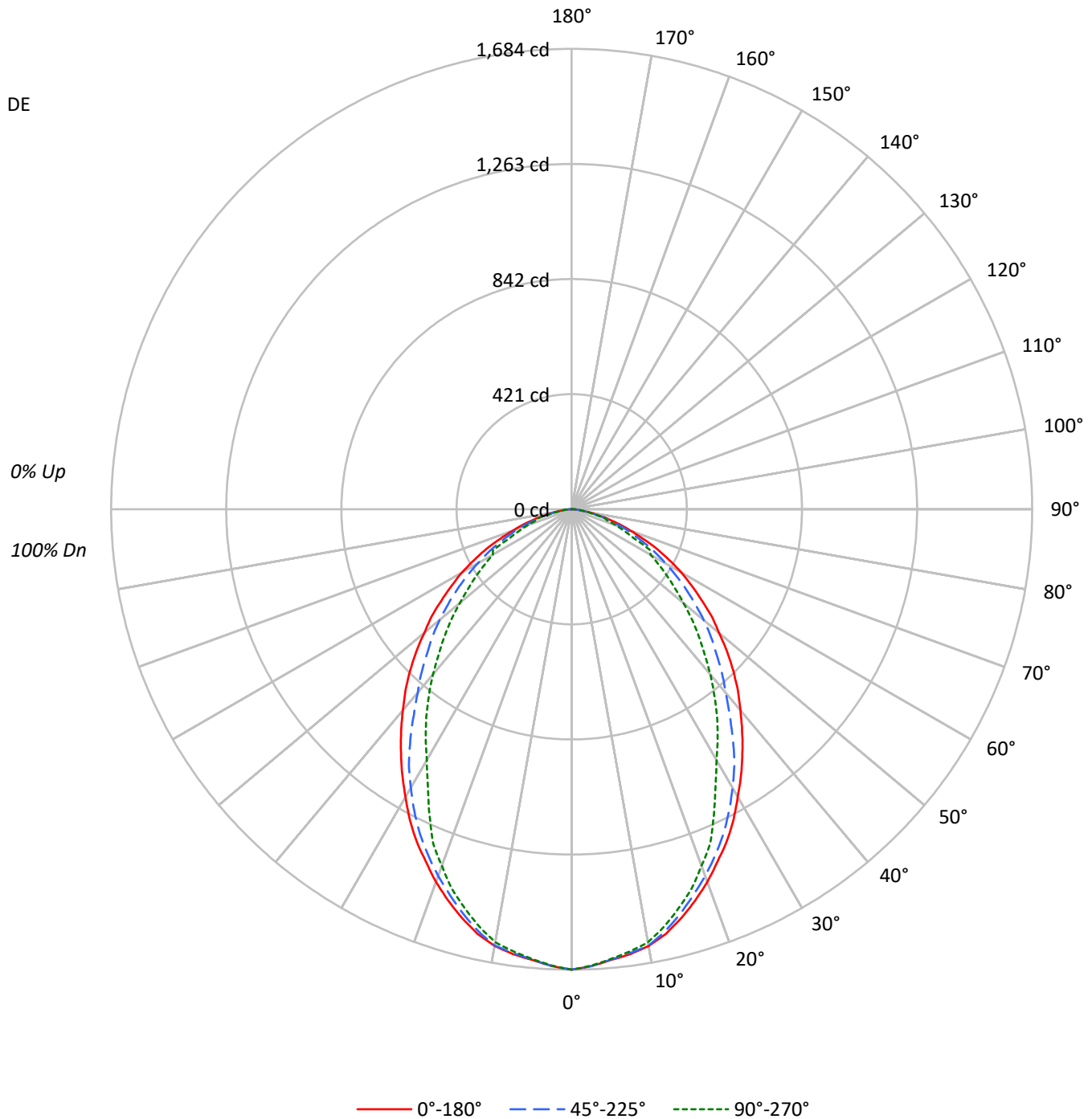
Lumens per Lamp: N/A
Luminaire Lumens: 3306.0 lumens
Efficiency: N/A
Efficacy: 70.6 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

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



TEST NUMBER: P561624
CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-82-88-EDD-90

Luminous Intensity Polar Plot





TEST NUMBER: P561624

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-82-88-EDD-90

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 | 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° | 4532 | 4532 | 4532 |
| 5° | 4470 | 4465 | 4460 |
| 10° | 4431 | 4426 | 4394 |
| 15° | 4312 | 4269 | 4209 |
| 20° | 4153 | 4086 | 3975 |
| 25° | 3983 | 3896 | 3653 |
| 30° | 3775 | 3654 | 3291 |
| 35° | 3575 | 3377 | 3044 |
| 40° | 3372 | 3078 | 2770 |
| 45° | 3178 | 2845 | 2504 |
| 50° | 2942 | 2641 | 2233 |
| 55° | 2722 | 2393 | 2000 |
| 60° | 2494 | 2138 | 1792 |
| 65° | 2194 | 1872 | 1587 |
| 70° | 1807 | 1639 | 1348 |
| 75° | 1437 | 1255 | 1315 |
| 80° | 965 | 905 | 845 |
| 85° | 602 | 722 | 843 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3178 cd/sqm



TEST NUMBER: P561624

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-82-88-EDD-90

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 156.8 | 4.7 |
| 10°-20° | 430.2 | 13.0 |
| 20°-30° | 595.6 | 18.0 |
| 30°-40° | 635.1 | 19.2 |
| 40°-50° | 579.4 | 17.5 |
| 50°-60° | 453.9 | 13.7 |
| 60°-70° | 295.8 | 8.9 |
| 70°-80° | 131.1 | 4.0 |
| 80°-90° | 28.1 | 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° | 1182.6 | 35.8 |
| 0°-40° | 1817.7 | 55.0 |
| 0°-60° | 2851.0 | 86.2 |
| 0°-90° | 3306.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3306.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1684 | 1684 | 1684 | 1684 | 1684 | |
| 5° | 1655 | 1653 | 1653 | 1651 | 1651 | 157 |
| 15° | 1548 | 1548 | 1532 | 1517 | 1511 | 435 |
| 25° | 1341 | 1334 | 1312 | 1266 | 1230 | 616 |
| 35° | 1088 | 1080 | 1028 | 950 | 927 | 680 |
| 45° | 835 | 818 | 748 | 685 | 658 | 643 |
| 55° | 580 | 563 | 510 | 450 | 426 | 520 |
| 65° | 345 | 325 | 294 | 300 | 249 | 340 |
| 75° | 138 | 128 | 121 | 115 | 126 | 148 |
| 85° | 20 | 21 | 23 | 25 | 27 | 27 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561624

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-82-88-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1684.0 | 1684.0 | 1684.0 | 1684.0 | 1684.0 |
| 2.5° | 1672.4 | 1672.4 | 1672.4 | 1670.4 | 1670.4 |
| 5° | 1654.8 | 1652.9 | 1652.9 | 1650.9 | 1650.9 |
| 7.5° | 1641.2 | 1639.3 | 1637.3 | 1635.4 | 1631.5 |
| 10° | 1621.7 | 1621.7 | 1619.8 | 1610.1 | 1608.1 |
| 12.5° | 1590.6 | 1588.6 | 1580.8 | 1567.2 | 1563.3 |
| 15° | 1547.8 | 1547.8 | 1532.2 | 1516.6 | 1510.8 |
| 17.5° | 1501.0 | 1499.1 | 1479.6 | 1464.0 | 1456.2 |
| 20° | 1450.4 | 1446.5 | 1427.0 | 1401.7 | 1388.1 |
| 22.5° | 1394.0 | 1394.0 | 1370.6 | 1337.5 | 1323.9 |
| 25° | 1341.4 | 1333.6 | 1312.2 | 1265.5 | 1230.4 |
| 27.5° | 1281.0 | 1269.4 | 1246.0 | 1179.8 | 1138.9 |
| 30° | 1214.8 | 1209.0 | 1175.9 | 1090.2 | 1059.1 |
| 32.5° | 1152.5 | 1142.8 | 1107.8 | 1018.2 | 992.9 |
| 35° | 1088.3 | 1080.5 | 1027.9 | 950.1 | 926.7 |
| 37.5° | 1024.0 | 1014.3 | 948.1 | 885.8 | 856.6 |
| 40° | 959.8 | 948.1 | 876.1 | 819.6 | 788.5 |
| 42.5° | 899.4 | 883.9 | 813.8 | 753.4 | 718.4 |
| 45° | 835.2 | 817.7 | 747.6 | 685.3 | 658.0 |
| 47.5° | 771.0 | 755.4 | 691.1 | 626.9 | 595.7 |
| 50° | 702.8 | 689.2 | 630.8 | 566.5 | 533.4 |
| 52.5° | 646.4 | 624.9 | 568.5 | 504.2 | 477.0 |
| 55° | 580.2 | 562.6 | 510.1 | 449.7 | 426.4 |
| 57.5° | 519.8 | 502.3 | 453.6 | 397.2 | 377.7 |
| 60° | 463.4 | 438.0 | 397.2 | 348.5 | 332.9 |
| 62.5° | 401.1 | 381.6 | 346.5 | 305.7 | 325.1 |
| 65° | 344.6 | 325.1 | 294.0 | 299.8 | 249.2 |
| 67.5° | 282.3 | 272.6 | 245.3 | 218.0 | 210.3 |
| 70° | 229.7 | 218.0 | 208.3 | 179.1 | 171.3 |
| 72.5° | 183.0 | 171.3 | 157.7 | 142.1 | 136.3 |
| 75° | 138.2 | 128.5 | 120.7 | 114.9 | 126.5 |
| 77.5° | 95.4 | 91.5 | 85.7 | 79.8 | 77.9 |
| 80° | 62.3 | 60.4 | 58.4 | 56.5 | 54.5 |
| 82.5° | 37.0 | 37.0 | 37.0 | 37.0 | 37.0 |
| 85° | 19.5 | 21.4 | 23.4 | 25.3 | 27.3 |
| 87.5° | 11.7 | 11.7 | 13.6 | 15.6 | 17.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)