

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: P561612

Luminaire Tested: FSR-12-4-LD4-2LO-40-UNV-81-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561612
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-81-96-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3964.0 lumens
Efficiency: N/A
Efficacy: 84.7 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

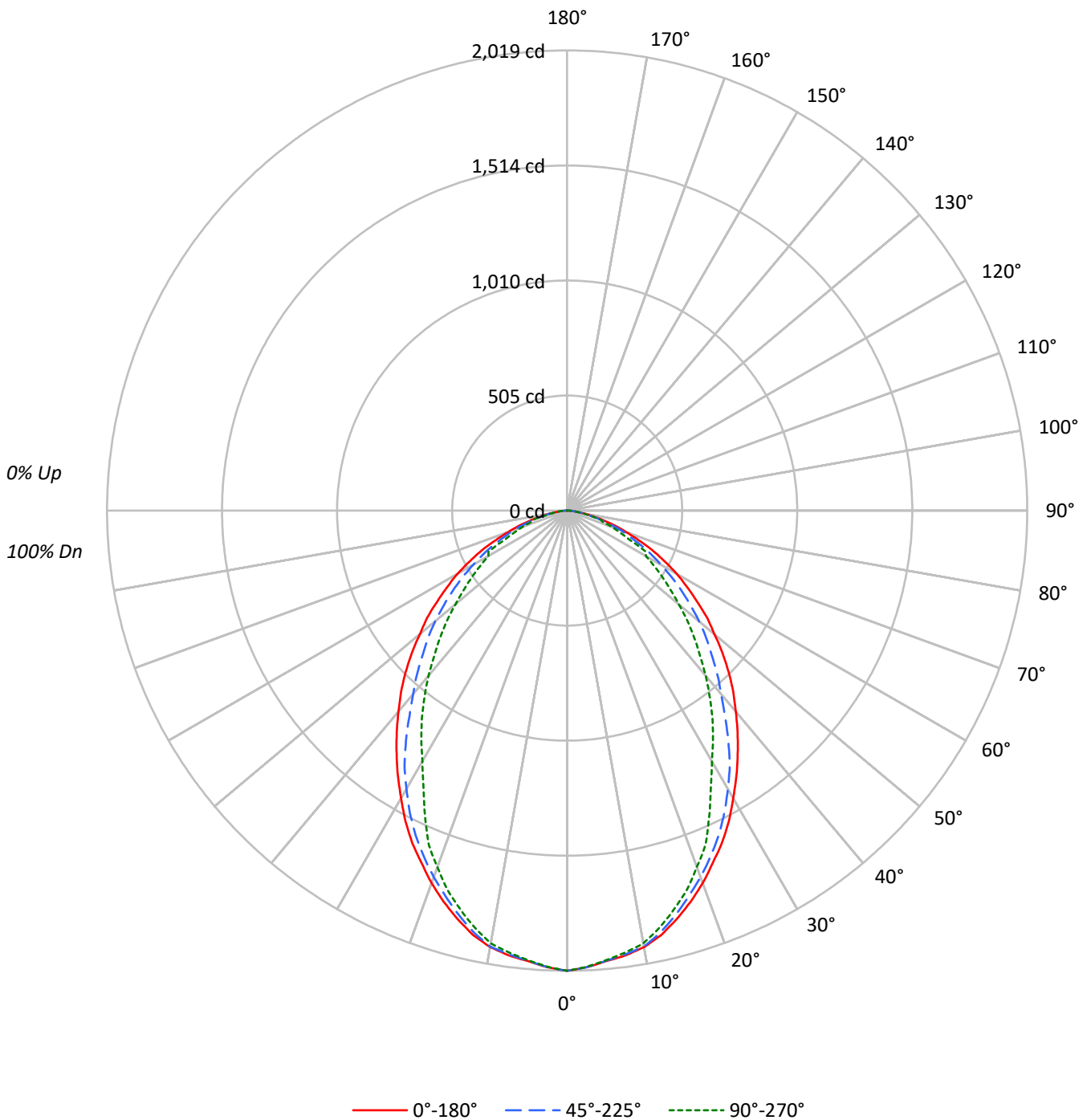
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P561612

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-81-96-EDD-90

Luminous Intensity Polar Plot





TEST NUMBER: P561612

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-81-96-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 | 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° | 5434 | 5434 | 5434 |
| 5° | 5360 | 5354 | 5347 |
| 10° | 5313 | 5307 | 5269 |
| 15° | 5170 | 5118 | 5047 |
| 20° | 4980 | 4900 | 4766 |
| 25° | 4776 | 4671 | 4380 |
| 30° | 4526 | 4381 | 3946 |
| 35° | 4287 | 4049 | 3650 |
| 40° | 4043 | 3690 | 3321 |
| 45° | 3811 | 3411 | 3003 |
| 50° | 3528 | 3166 | 2678 |
| 55° | 3263 | 2869 | 2398 |
| 60° | 2990 | 2563 | 2148 |
| 65° | 2631 | 2245 | 1903 |
| 70° | 2168 | 1965 | 1616 |
| 75° | 1723 | 1504 | 1577 |
| 80° | 1158 | 1085 | 1013 |
| 85° | 719 | 865 | 1010 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3811 cd/sqm



TEST NUMBER: P561612

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-81-96-EDD-90

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 188.0 | 4.7 |
| 10°-20° | 515.8 | 13.0 |
| 20°-30° | 714.1 | 18.0 |
| 30°-40° | 761.5 | 19.2 |
| 40°-50° | 694.7 | 17.5 |
| 50°-60° | 544.2 | 13.7 |
| 60°-70° | 354.7 | 8.9 |
| 70°-80° | 157.1 | 4.0 |
| 80°-90° | 33.7 | 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° | 1418.0 | 35.8 |
| 0°-40° | 2179.4 | 55.0 |
| 0°-60° | 3418.4 | 86.2 |
| 0°-90° | 3964.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3964.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2019 | 2019 | 2019 | 2019 | 2019 | |
| 5° | 1984 | 1982 | 1982 | 1980 | 1980 | 188 |
| 15° | 1856 | 1856 | 1837 | 1818 | 1812 | 522 |
| 25° | 1608 | 1599 | 1573 | 1517 | 1475 | 738 |
| 35° | 1305 | 1296 | 1232 | 1139 | 1111 | 816 |
| 45° | 1001 | 980 | 896 | 822 | 789 | 771 |
| 55° | 696 | 675 | 612 | 539 | 511 | 624 |
| 65° | 413 | 390 | 352 | 360 | 299 | 407 |
| 75° | 166 | 154 | 145 | 138 | 152 | 178 |
| 85° | 23 | 26 | 28 | 30 | 33 | 32 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561612

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-81-96-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2019.2 | 2019.2 | 2019.2 | 2019.2 | 2019.2 |
| 2.5° | 2005.2 | 2005.2 | 2005.2 | 2002.9 | 2002.9 |
| 5° | 1984.2 | 1981.9 | 1981.9 | 1979.5 | 1979.5 |
| 7.5° | 1967.9 | 1965.5 | 1963.2 | 1960.9 | 1956.2 |
| 10° | 1944.5 | 1944.5 | 1942.2 | 1930.5 | 1928.2 |
| 12.5° | 1907.2 | 1904.8 | 1895.5 | 1879.1 | 1874.5 |
| 15° | 1855.8 | 1855.8 | 1837.1 | 1818.5 | 1811.5 |
| 17.5° | 1799.8 | 1797.4 | 1774.1 | 1755.4 | 1746.1 |
| 20° | 1739.1 | 1734.4 | 1711.1 | 1680.7 | 1664.4 |
| 22.5° | 1671.4 | 1671.4 | 1643.4 | 1603.7 | 1587.4 |
| 25° | 1608.4 | 1599.0 | 1573.3 | 1517.3 | 1475.3 |
| 27.5° | 1536.0 | 1522.0 | 1494.0 | 1414.6 | 1365.6 |
| 30° | 1456.6 | 1449.6 | 1409.9 | 1307.2 | 1269.9 |
| 32.5° | 1381.9 | 1370.3 | 1328.2 | 1220.9 | 1190.5 |
| 35° | 1304.9 | 1295.6 | 1232.5 | 1139.2 | 1111.1 |
| 37.5° | 1227.9 | 1216.2 | 1136.8 | 1062.1 | 1027.1 |
| 40° | 1150.8 | 1136.8 | 1050.5 | 982.8 | 945.4 |
| 42.5° | 1078.5 | 1059.8 | 975.8 | 903.4 | 861.4 |
| 45° | 1001.4 | 980.4 | 896.4 | 821.7 | 789.0 |
| 47.5° | 924.4 | 905.7 | 828.7 | 751.7 | 714.3 |
| 50° | 842.7 | 826.4 | 756.3 | 679.3 | 639.6 |
| 52.5° | 775.0 | 749.3 | 681.6 | 604.6 | 571.9 |
| 55° | 695.6 | 674.6 | 611.6 | 539.2 | 511.2 |
| 57.5° | 623.3 | 602.3 | 543.9 | 476.2 | 452.9 |
| 60° | 555.6 | 525.2 | 476.2 | 417.8 | 399.2 |
| 62.5° | 480.9 | 457.5 | 415.5 | 366.5 | 389.8 |
| 65° | 413.2 | 389.8 | 352.5 | 359.5 | 298.8 |
| 67.5° | 338.5 | 326.8 | 294.1 | 261.4 | 252.1 |
| 70° | 275.5 | 261.4 | 249.8 | 214.8 | 205.4 |
| 72.5° | 219.4 | 205.4 | 189.1 | 170.4 | 163.4 |
| 75° | 165.7 | 154.1 | 144.7 | 137.7 | 151.7 |
| 77.5° | 114.4 | 109.7 | 102.7 | 95.7 | 93.4 |
| 80° | 74.7 | 72.4 | 70.0 | 67.7 | 65.4 |
| 82.5° | 44.4 | 44.4 | 44.4 | 44.4 | 44.4 |
| 85° | 23.3 | 25.7 | 28.0 | 30.3 | 32.7 |
| 87.5° | 14.0 | 14.0 | 16.3 | 18.7 | 21.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)