

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: P561604

Luminaire Tested: FSR-12-4-LD4-2LO-40-UNV-81-86-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561604
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-81-86-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3875.0 lumens
Efficiency: N/A
Efficacy: 82.8 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

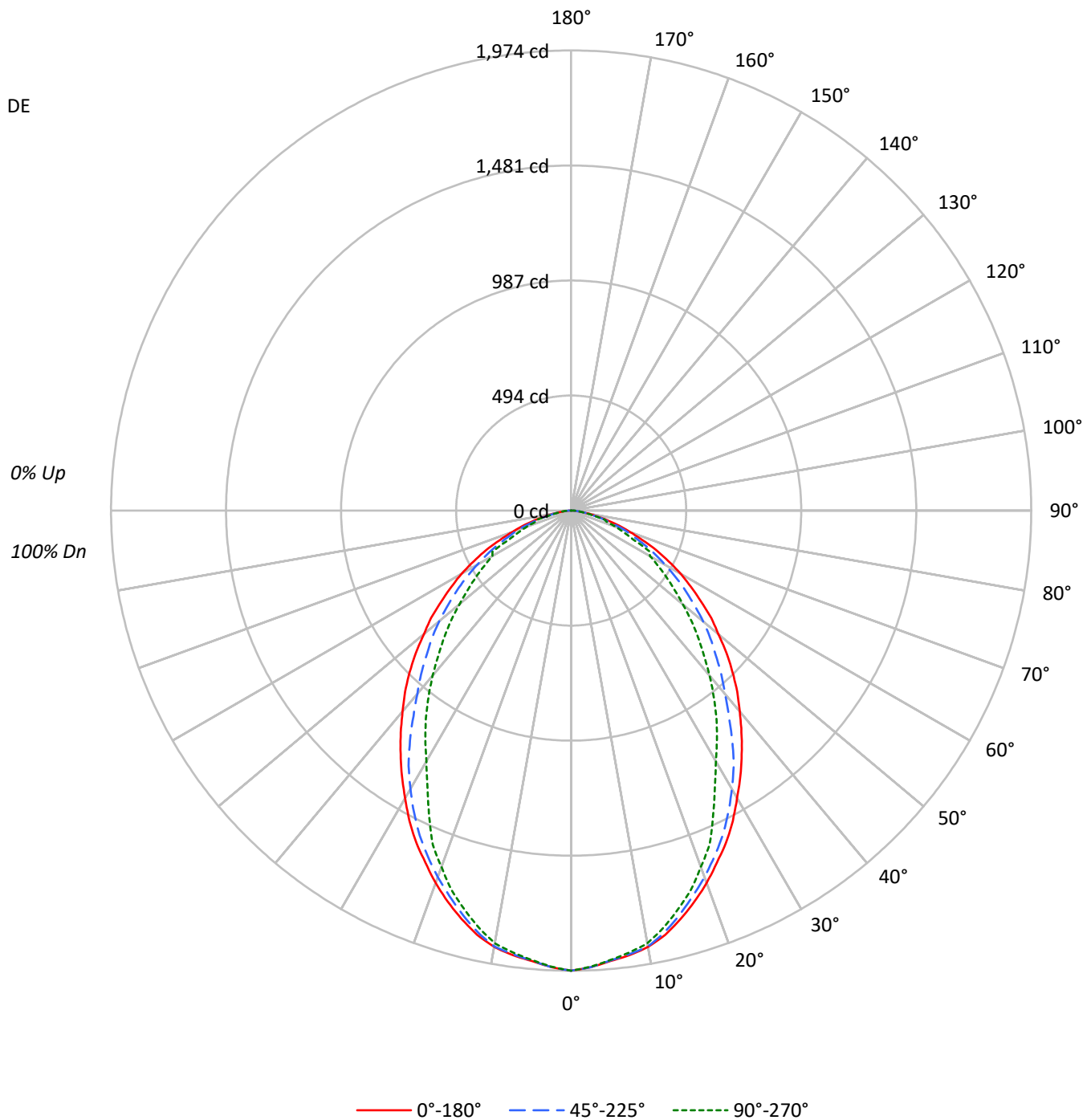
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561604

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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° | 5312 | 5312 | 5312 |
| 5° | 5239 | 5233 | 5227 |
| 10° | 5194 | 5188 | 5150 |
| 15° | 5054 | 5003 | 4933 |
| 20° | 4868 | 4790 | 4659 |
| 25° | 4668 | 4567 | 4282 |
| 30° | 4424 | 4283 | 3857 |
| 35° | 4190 | 3958 | 3568 |
| 40° | 3952 | 3607 | 3247 |
| 45° | 3725 | 3335 | 2935 |
| 50° | 3449 | 3095 | 2618 |
| 55° | 3190 | 2805 | 2344 |
| 60° | 2923 | 2505 | 2100 |
| 65° | 2572 | 2194 | 1860 |
| 70° | 2119 | 1921 | 1580 |
| 75° | 1684 | 1471 | 1542 |
| 80° | 1131 | 1062 | 990 |
| 85° | 704 | 846 | 985 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3725 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 183.7 | 4.7 |
| 10°-20° | 504.3 | 13.0 |
| 20°-30° | 698.1 | 18.0 |
| 30°-40° | 744.4 | 19.2 |
| 40°-50° | 679.1 | 17.5 |
| 50°-60° | 532.0 | 13.7 |
| 60°-70° | 346.8 | 8.9 |
| 70°-80° | 153.6 | 4.0 |
| 80°-90° | 33.0 | 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° | 1386.1 | 35.8 |
| 0°-40° | 2130.5 | 55.0 |
| 0°-60° | 3341.7 | 86.2 |
| 0°-90° | 3875.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3875.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1974 | 1974 | 1974 | 1974 | 1974 | |
| 5° | 1940 | 1937 | 1937 | 1935 | 1935 | 184 |
| 15° | 1814 | 1814 | 1796 | 1778 | 1771 | 510 |
| 25° | 1572 | 1563 | 1538 | 1483 | 1442 | 722 |
| 35° | 1276 | 1266 | 1205 | 1114 | 1086 | 797 |
| 45° | 979 | 958 | 876 | 803 | 771 | 754 |
| 55° | 680 | 660 | 598 | 527 | 500 | 610 |
| 65° | 404 | 381 | 345 | 351 | 292 | 398 |
| 75° | 162 | 151 | 142 | 135 | 148 | 174 |
| 85° | 23 | 25 | 27 | 30 | 32 | 32 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P561604

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-81-86-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1973.9 | 1973.9 | 1973.9 | 1973.9 | 1973.9 |
| 2.5° | 1960.2 | 1960.2 | 1960.2 | 1957.9 | 1957.9 |
| 5° | 1939.6 | 1937.4 | 1937.4 | 1935.1 | 1935.1 |
| 7.5° | 1923.7 | 1921.4 | 1919.1 | 1916.8 | 1912.3 |
| 10° | 1900.9 | 1900.9 | 1898.6 | 1887.2 | 1884.9 |
| 12.5° | 1864.3 | 1862.1 | 1852.9 | 1837.0 | 1832.4 |
| 15° | 1814.1 | 1814.1 | 1795.9 | 1777.6 | 1770.8 |
| 17.5° | 1759.4 | 1757.1 | 1734.3 | 1716.0 | 1706.9 |
| 20° | 1700.0 | 1695.5 | 1672.7 | 1643.0 | 1627.0 |
| 22.5° | 1633.9 | 1633.9 | 1606.5 | 1567.7 | 1551.7 |
| 25° | 1572.3 | 1563.1 | 1538.0 | 1483.3 | 1442.2 |
| 27.5° | 1501.5 | 1487.8 | 1460.4 | 1382.9 | 1334.9 |
| 30° | 1423.9 | 1417.1 | 1378.3 | 1277.9 | 1241.4 |
| 32.5° | 1350.9 | 1339.5 | 1298.4 | 1193.5 | 1163.8 |
| 35° | 1275.6 | 1266.5 | 1204.9 | 1113.6 | 1086.2 |
| 37.5° | 1200.3 | 1188.9 | 1111.3 | 1038.3 | 1004.1 |
| 40° | 1125.0 | 1111.3 | 1026.9 | 960.7 | 924.2 |
| 42.5° | 1054.3 | 1036.0 | 953.8 | 883.1 | 842.0 |
| 45° | 978.9 | 958.4 | 876.3 | 803.2 | 771.3 |
| 47.5° | 903.6 | 885.4 | 810.1 | 734.8 | 698.3 |
| 50° | 823.8 | 807.8 | 739.3 | 664.0 | 625.3 |
| 52.5° | 757.6 | 732.5 | 666.3 | 591.0 | 559.1 |
| 55° | 680.0 | 659.5 | 597.9 | 527.1 | 499.7 |
| 57.5° | 609.3 | 588.7 | 531.7 | 465.5 | 442.7 |
| 60° | 543.1 | 513.4 | 465.5 | 408.5 | 390.2 |
| 62.5° | 470.1 | 447.3 | 406.2 | 358.3 | 381.1 |
| 65° | 403.9 | 381.1 | 344.6 | 351.4 | 292.1 |
| 67.5° | 330.9 | 319.5 | 287.5 | 255.6 | 246.4 |
| 70° | 269.3 | 255.6 | 244.2 | 209.9 | 200.8 |
| 72.5° | 214.5 | 200.8 | 184.8 | 166.6 | 159.7 |
| 75° | 162.0 | 150.6 | 141.5 | 134.6 | 148.3 |
| 77.5° | 111.8 | 107.3 | 100.4 | 93.6 | 91.3 |
| 80° | 73.0 | 70.7 | 68.5 | 66.2 | 63.9 |
| 82.5° | 43.4 | 43.4 | 43.4 | 43.4 | 43.4 |
| 85° | 22.8 | 25.1 | 27.4 | 29.7 | 31.9 |
| 87.5° | 13.7 | 13.7 | 16.0 | 18.3 | 20.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)