

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: P561627

Luminaire Tested: FSR-12-4-LD4-2LO-40-UNV-82-94-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561627
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-82-94-EDD
Description: 1X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4670.0 lumens
Efficiency: N/A
Efficacy: 99.8 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

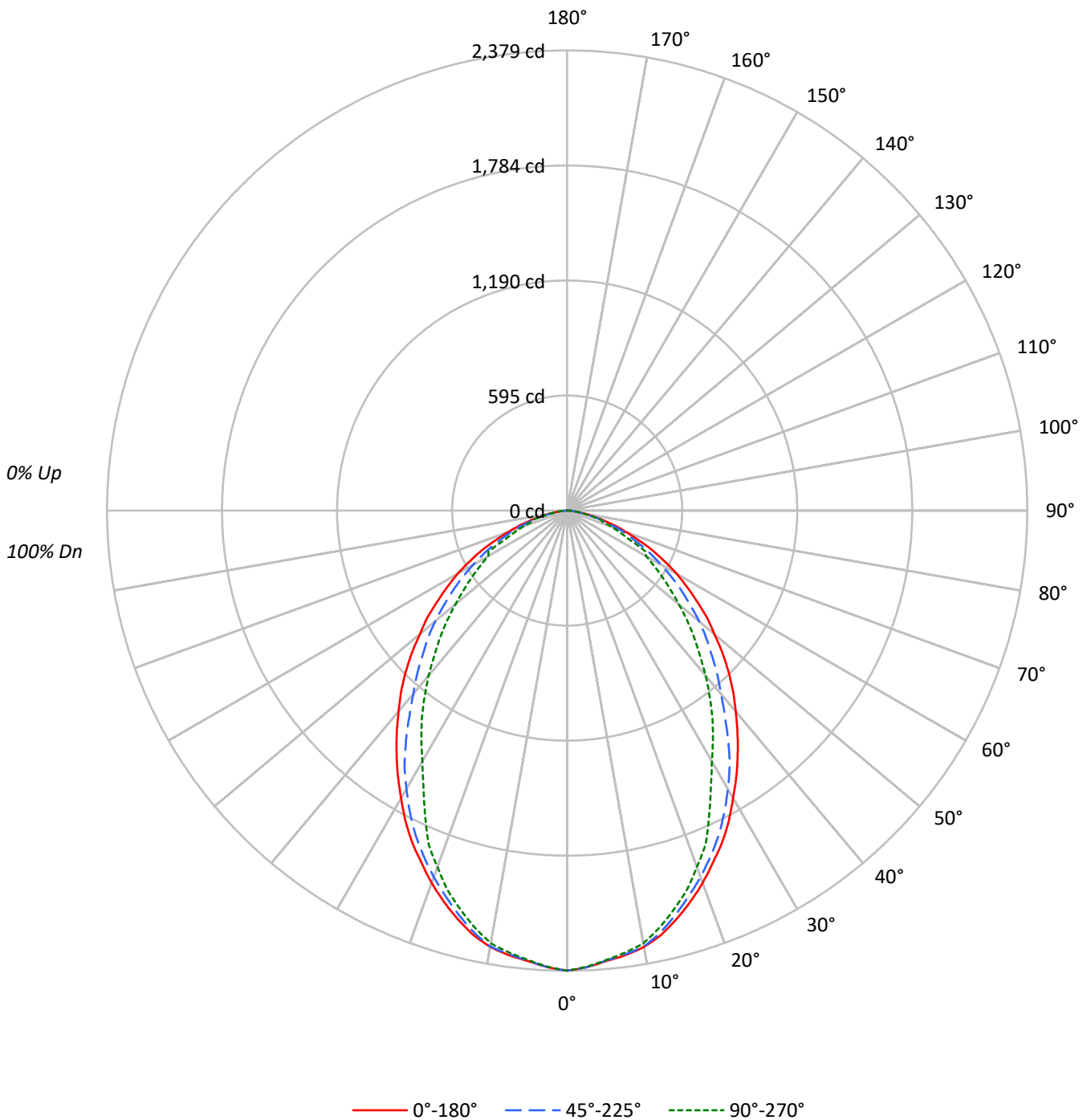
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561627

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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° | 6401 | 6401 | 6401 |
| 5° | 6314 | 6307 | 6300 |
| 10° | 6260 | 6252 | 6207 |
| 15° | 6091 | 6030 | 5945 |
| 20° | 5867 | 5773 | 5615 |
| 25° | 5626 | 5504 | 5161 |
| 30° | 5332 | 5161 | 4649 |
| 35° | 5050 | 4770 | 4300 |
| 40° | 4763 | 4347 | 3913 |
| 45° | 4490 | 4019 | 3537 |
| 50° | 4156 | 3730 | 3154 |
| 55° | 3845 | 3380 | 2826 |
| 60° | 3522 | 3019 | 2531 |
| 65° | 3100 | 2644 | 2241 |
| 70° | 2553 | 2316 | 1904 |
| 75° | 2031 | 1773 | 1859 |
| 80° | 1364 | 1278 | 1193 |
| 85° | 849 | 1019 | 1189 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4490 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 221.4 | 4.7 |
| 10°-20° | 607.7 | 13.0 |
| 20°-30° | 841.4 | 18.0 |
| 30°-40° | 897.1 | 19.2 |
| 40°-50° | 818.4 | 17.5 |
| 50°-60° | 641.2 | 13.7 |
| 60°-70° | 417.9 | 8.9 |
| 70°-80° | 185.2 | 4.0 |
| 80°-90° | 39.8 | 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° | 1670.5 | 35.8 |
| 0°-40° | 2567.6 | 55.0 |
| 0°-60° | 4027.2 | 86.2 |
| 0°-90° | 4670.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4670.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2379 | 2379 | 2379 | 2379 | 2379 | |
| 5° | 2338 | 2335 | 2335 | 2332 | 2332 | 222 |
| 15° | 2186 | 2186 | 2164 | 2142 | 2134 | 615 |
| 25° | 1895 | 1884 | 1854 | 1788 | 1738 | 870 |
| 35° | 1537 | 1526 | 1452 | 1342 | 1309 | 961 |
| 45° | 1180 | 1155 | 1056 | 968 | 930 | 909 |
| 55° | 820 | 795 | 720 | 635 | 602 | 735 |
| 65° | 487 | 459 | 415 | 424 | 352 | 480 |
| 75° | 195 | 182 | 170 | 162 | 179 | 209 |
| 85° | 28 | 30 | 33 | 36 | 38 | 38 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561627

CATALOG NUMBER: FSR-12-4-LD4-2LO-40-UNV-82-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2378.8 | 2378.8 | 2378.8 | 2378.8 | 2378.8 |
| 2.5° | 2362.3 | 2362.3 | 2362.3 | 2359.6 | 2359.6 |
| 5° | 2337.6 | 2334.8 | 2334.8 | 2332.1 | 2332.1 |
| 7.5° | 2318.3 | 2315.6 | 2312.8 | 2310.1 | 2304.6 |
| 10° | 2290.8 | 2290.8 | 2288.1 | 2274.3 | 2271.6 |
| 12.5° | 2246.8 | 2244.1 | 2233.1 | 2213.8 | 2208.3 |
| 15° | 2186.3 | 2186.3 | 2164.3 | 2142.3 | 2134.1 |
| 17.5° | 2120.3 | 2117.6 | 2090.1 | 2068.1 | 2057.1 |
| 20° | 2048.8 | 2043.3 | 2015.8 | 1980.1 | 1960.8 |
| 22.5° | 1969.1 | 1969.1 | 1936.1 | 1889.3 | 1870.1 |
| 25° | 1894.8 | 1883.8 | 1853.6 | 1787.6 | 1738.1 |
| 27.5° | 1809.6 | 1793.1 | 1760.1 | 1666.6 | 1608.8 |
| 30° | 1716.1 | 1707.8 | 1661.1 | 1540.1 | 1496.1 |
| 32.5° | 1628.1 | 1614.3 | 1564.8 | 1438.3 | 1402.6 |
| 35° | 1537.3 | 1526.3 | 1452.1 | 1342.0 | 1309.0 |
| 37.5° | 1446.6 | 1432.8 | 1339.3 | 1251.3 | 1210.0 |
| 40° | 1355.8 | 1339.3 | 1237.5 | 1157.8 | 1113.8 |
| 42.5° | 1270.5 | 1248.5 | 1149.5 | 1064.3 | 1014.8 |
| 45° | 1179.8 | 1155.0 | 1056.0 | 968.0 | 929.5 |
| 47.5° | 1089.0 | 1067.0 | 976.3 | 885.5 | 841.5 |
| 50° | 992.8 | 973.5 | 891.0 | 800.3 | 753.5 |
| 52.5° | 913.0 | 882.8 | 803.0 | 712.3 | 673.8 |
| 55° | 819.5 | 794.8 | 720.5 | 635.3 | 602.3 |
| 57.5° | 734.3 | 709.5 | 640.8 | 561.0 | 533.5 |
| 60° | 654.5 | 618.8 | 561.0 | 492.3 | 470.3 |
| 62.5° | 566.5 | 539.0 | 489.5 | 431.8 | 459.3 |
| 65° | 486.8 | 459.3 | 415.3 | 423.5 | 352.0 |
| 67.5° | 398.8 | 385.0 | 346.5 | 308.0 | 297.0 |
| 70° | 324.5 | 308.0 | 294.3 | 253.0 | 242.0 |
| 72.5° | 258.5 | 242.0 | 222.8 | 200.8 | 192.5 |
| 75° | 195.3 | 181.5 | 170.5 | 162.3 | 178.8 |
| 77.5° | 134.8 | 129.3 | 121.0 | 112.8 | 110.0 |
| 80° | 88.0 | 85.3 | 82.5 | 79.8 | 77.0 |
| 82.5° | 52.3 | 52.3 | 52.3 | 52.3 | 52.3 |
| 85° | 27.5 | 30.3 | 33.0 | 35.8 | 38.5 |
| 87.5° | 16.5 | 16.5 | 19.3 | 22.0 | 24.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)