

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: P561519

Luminaire Tested: FSR-12-4-LD4-2HI-50-UNV-93-97-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561519
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-LD4-2HI-50-UNV-93-97-EDD
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

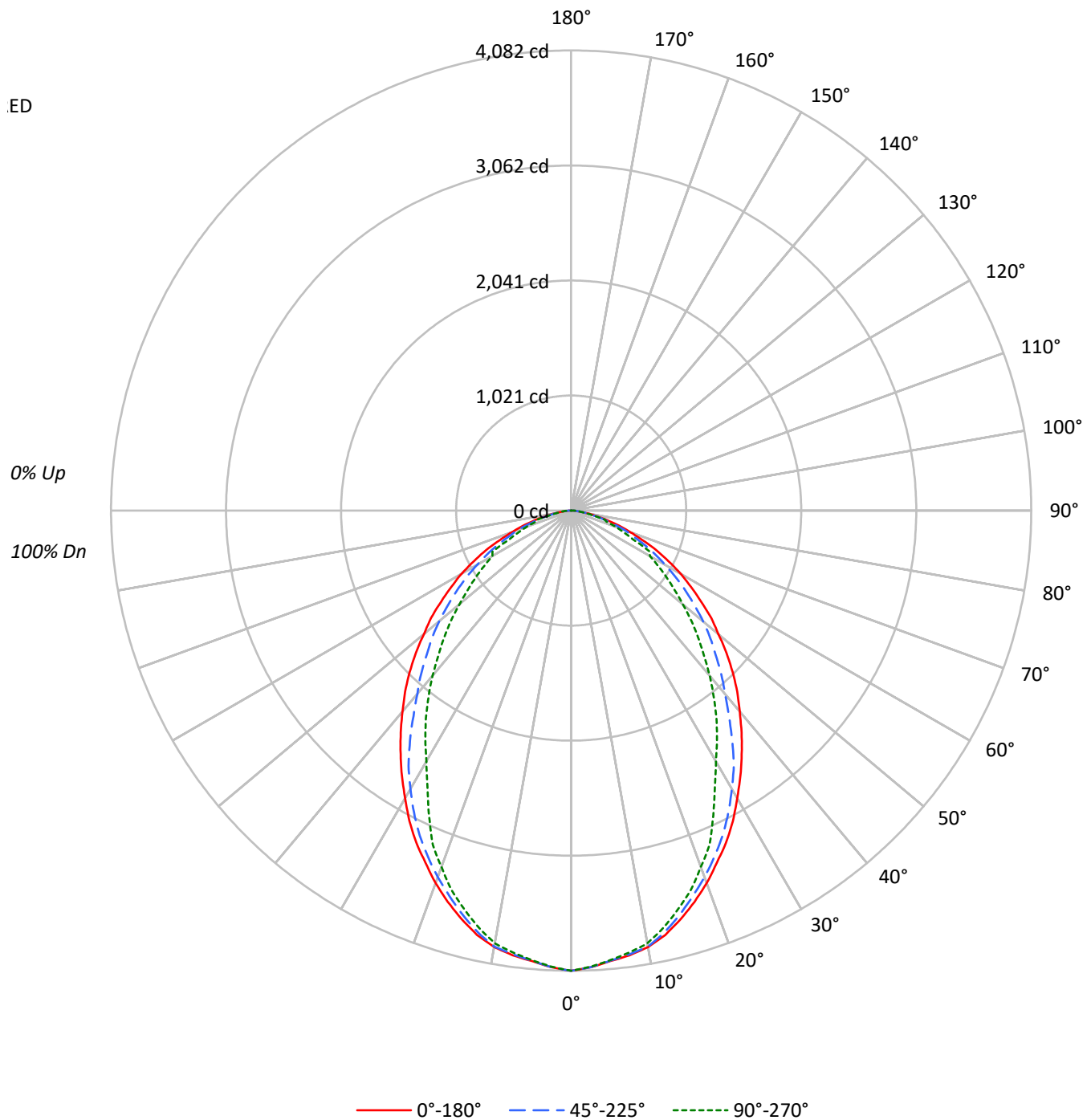
Lumens per Lamp: N/A
Luminaire Lumens: 8014.0 lumens
Efficiency: N/A
Efficacy: 92.8 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 86.4
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: P561519

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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° | 10985 | 10985 | 10985 |
| 5° | 10836 | 10823 | 10810 |
| 10° | 10742 | 10729 | 10652 |
| 15° | 10452 | 10347 | 10203 |
| 20° | 10068 | 9906 | 9636 |
| 25° | 9655 | 9444 | 8856 |
| 30° | 9151 | 8857 | 7977 |
| 35° | 8666 | 8186 | 7380 |
| 40° | 8173 | 7460 | 6714 |
| 45° | 7705 | 6897 | 6070 |
| 50° | 7132 | 6401 | 5413 |
| 55° | 6598 | 5801 | 4849 |
| 60° | 6045 | 5181 | 4343 |
| 65° | 5319 | 4537 | 3847 |
| 70° | 4382 | 3973 | 3268 |
| 75° | 3484 | 3042 | 3190 |
| 80° | 2340 | 2194 | 2047 |
| 85° | 1457 | 1748 | 2041 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7705 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 380.0 | 4.7 |
| 10°-20° | 1042.9 | 13.0 |
| 20°-30° | 1443.8 | 18.0 |
| 30°-40° | 1539.5 | 19.2 |
| 40°-50° | 1404.5 | 17.5 |
| 50°-60° | 1100.3 | 13.7 |
| 60°-70° | 717.1 | 8.9 |
| 70°-80° | 317.7 | 4.0 |
| 80°-90° | 68.2 | 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° | 2866.7 | 35.8 |
| 0°-40° | 4406.2 | 55.0 |
| 0°-60° | 6910.9 | 86.2 |
| 0°-90° | 8014.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 8014.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4082 | 4082 | 4082 | 4082 | 4082 | |
| 5° | 4011 | 4007 | 4007 | 4002 | 4002 | 381 |
| 15° | 3752 | 3752 | 3714 | 3676 | 3662 | 1055 |
| 25° | 3252 | 3233 | 3181 | 3068 | 2983 | 1493 |
| 35° | 2638 | 2619 | 2492 | 2303 | 2246 | 1649 |
| 45° | 2025 | 1982 | 1812 | 1661 | 1595 | 1560 |
| 55° | 1406 | 1364 | 1236 | 1090 | 1034 | 1261 |
| 65° | 835 | 788 | 713 | 727 | 604 | 823 |
| 75° | 335 | 312 | 293 | 278 | 307 | 359 |
| 85° | 47 | 52 | 57 | 61 | 66 | 65 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561519

CATALOG NUMBER: FSR-12-4-LD4-2HI-50-UNV-93-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4082.2 | 4082.2 | 4082.2 | 4082.2 | 4082.2 |
| 2.5° | 4053.9 | 4053.9 | 4053.9 | 4049.2 | 4049.2 |
| 5° | 4011.4 | 4006.7 | 4006.7 | 4002.0 | 4002.0 |
| 7.5° | 3978.4 | 3973.7 | 3969.0 | 3964.2 | 3954.8 |
| 10° | 3931.2 | 3931.2 | 3926.5 | 3902.9 | 3898.2 |
| 12.5° | 3855.7 | 3851.0 | 3832.1 | 3799.1 | 3789.6 |
| 15° | 3751.9 | 3751.9 | 3714.1 | 3676.4 | 3662.2 |
| 17.5° | 3638.6 | 3633.9 | 3586.7 | 3548.9 | 3530.1 |
| 20° | 3515.9 | 3506.5 | 3459.3 | 3397.9 | 3364.9 |
| 22.5° | 3379.0 | 3379.0 | 3322.4 | 3242.2 | 3209.1 |
| 25° | 3251.6 | 3232.7 | 3180.8 | 3067.6 | 2982.6 |
| 27.5° | 3105.3 | 3077.0 | 3020.4 | 2859.9 | 2760.8 |
| 30° | 2944.9 | 2930.7 | 2850.5 | 2642.8 | 2567.3 |
| 32.5° | 2793.8 | 2770.2 | 2685.3 | 2468.2 | 2406.9 |
| 35° | 2638.1 | 2619.2 | 2491.8 | 2303.0 | 2246.4 |
| 37.5° | 2482.4 | 2458.8 | 2298.3 | 2147.3 | 2076.5 |
| 40° | 2326.6 | 2298.3 | 2123.7 | 1986.8 | 1911.3 |
| 42.5° | 2180.3 | 2142.6 | 1972.7 | 1826.4 | 1741.4 |
| 45° | 2024.6 | 1982.1 | 1812.2 | 1661.2 | 1595.1 |
| 47.5° | 1868.9 | 1831.1 | 1675.4 | 1519.6 | 1444.1 |
| 50° | 1703.7 | 1670.6 | 1529.1 | 1373.3 | 1293.1 |
| 52.5° | 1566.8 | 1514.9 | 1378.0 | 1222.3 | 1156.2 |
| 55° | 1406.4 | 1363.9 | 1236.5 | 1090.2 | 1033.5 |
| 57.5° | 1260.1 | 1217.6 | 1099.6 | 962.7 | 915.6 |
| 60° | 1123.2 | 1061.9 | 962.7 | 844.8 | 807.0 |
| 62.5° | 972.2 | 925.0 | 840.0 | 740.9 | 788.1 |
| 65° | 835.3 | 788.1 | 712.6 | 726.8 | 604.1 |
| 67.5° | 684.3 | 660.7 | 594.6 | 528.6 | 509.7 |
| 70° | 556.9 | 528.6 | 505.0 | 434.2 | 415.3 |
| 72.5° | 443.6 | 415.3 | 382.3 | 344.5 | 330.4 |
| 75° | 335.1 | 311.5 | 292.6 | 278.4 | 306.8 |
| 77.5° | 231.2 | 221.8 | 207.7 | 193.5 | 188.8 |
| 80° | 151.0 | 146.3 | 141.6 | 136.9 | 132.1 |
| 82.5° | 89.7 | 89.7 | 89.7 | 89.7 | 89.7 |
| 85° | 47.2 | 51.9 | 56.6 | 61.4 | 66.1 |
| 87.5° | 28.3 | 28.3 | 33.0 | 37.8 | 42.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)