

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: P561499

Luminaire Tested: FSR-12-4-LD4-2HI-50-UNV-82-94-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561499
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-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 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7801.0 lumens
Efficiency: N/A
Efficacy: 90.3 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

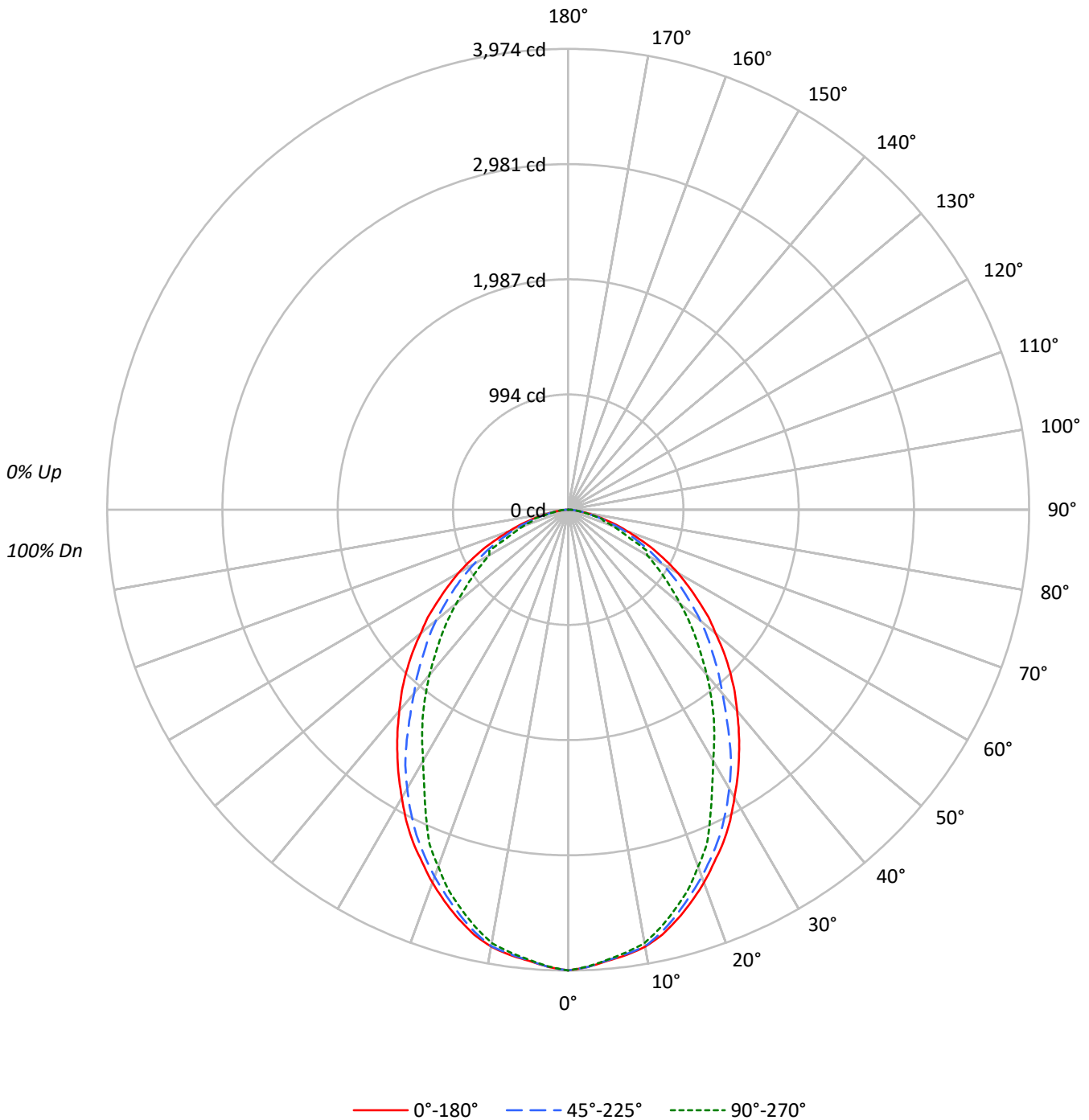
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561499

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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 | 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° | 10693 | 10693 | 10693 |
| 5° | 10548 | 10535 | 10523 |
| 10° | 10456 | 10444 | 10369 |
| 15° | 10175 | 10072 | 9931 |
| 20° | 9801 | 9643 | 9380 |
| 25° | 9398 | 9193 | 8620 |
| 30° | 8907 | 8622 | 7765 |
| 35° | 8436 | 7968 | 7183 |
| 40° | 7956 | 7262 | 6536 |
| 45° | 7500 | 6713 | 5909 |
| 50° | 6943 | 6231 | 5269 |
| 55° | 6423 | 5647 | 4720 |
| 60° | 5884 | 5044 | 4228 |
| 65° | 5177 | 4417 | 3744 |
| 70° | 4265 | 3867 | 3181 |
| 75° | 3392 | 2961 | 3105 |
| 80° | 2278 | 2135 | 1993 |
| 85° | 1417 | 1701 | 1985 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7500 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 369.9 | 4.7 |
| 10°-20° | 1015.2 | 13.0 |
| 20°-30° | 1405.4 | 18.0 |
| 30°-40° | 1498.6 | 19.2 |
| 40°-50° | 1367.1 | 17.5 |
| 50°-60° | 1071.0 | 13.7 |
| 60°-70° | 698.0 | 8.9 |
| 70°-80° | 309.3 | 4.0 |
| 80°-90° | 66.4 | 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° | 2790.5 | 35.8 |
| 0°-40° | 4289.1 | 55.0 |
| 0°-60° | 6727.2 | 86.2 |
| 0°-90° | 7801.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7801.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3974 | 3974 | 3974 | 3974 | 3974 | |
| 5° | 3905 | 3900 | 3900 | 3896 | 3896 | 371 |
| 15° | 3652 | 3652 | 3615 | 3579 | 3565 | 1027 |
| 25° | 3165 | 3147 | 3096 | 2986 | 2903 | 1453 |
| 35° | 2568 | 2550 | 2426 | 2242 | 2187 | 1605 |
| 45° | 1971 | 1929 | 1764 | 1617 | 1553 | 1518 |
| 55° | 1369 | 1328 | 1204 | 1061 | 1006 | 1228 |
| 65° | 813 | 767 | 694 | 708 | 588 | 801 |
| 75° | 326 | 303 | 285 | 271 | 299 | 350 |
| 85° | 46 | 50 | 55 | 60 | 64 | 64 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561499

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3973.7 | 3973.7 | 3973.7 | 3973.7 | 3973.7 |
| 2.5° | 3946.2 | 3946.2 | 3946.2 | 3941.6 | 3941.6 |
| 5° | 3904.8 | 3900.2 | 3900.2 | 3895.6 | 3895.6 |
| 7.5° | 3872.7 | 3868.1 | 3863.5 | 3858.9 | 3849.7 |
| 10° | 3826.7 | 3826.7 | 3822.1 | 3799.2 | 3794.6 |
| 12.5° | 3753.2 | 3748.6 | 3730.2 | 3698.1 | 3688.9 |
| 15° | 3652.2 | 3652.2 | 3615.4 | 3578.6 | 3564.9 |
| 17.5° | 3541.9 | 3537.3 | 3491.4 | 3454.6 | 3436.2 |
| 20° | 3422.5 | 3413.3 | 3367.3 | 3307.6 | 3275.5 |
| 22.5° | 3289.2 | 3289.2 | 3234.1 | 3156.0 | 3123.9 |
| 25° | 3165.2 | 3146.8 | 3096.3 | 2986.0 | 2903.3 |
| 27.5° | 3022.8 | 2995.2 | 2940.1 | 2783.9 | 2687.4 |
| 30° | 2866.6 | 2852.8 | 2774.7 | 2572.6 | 2499.1 |
| 32.5° | 2719.6 | 2696.6 | 2613.9 | 2402.6 | 2342.9 |
| 35° | 2568.0 | 2549.6 | 2425.6 | 2241.8 | 2186.7 |
| 37.5° | 2416.4 | 2393.4 | 2237.2 | 2090.2 | 2021.3 |
| 40° | 2264.8 | 2237.2 | 2067.3 | 1934.0 | 1860.5 |
| 42.5° | 2122.4 | 2085.6 | 1920.3 | 1777.8 | 1695.1 |
| 45° | 1970.8 | 1929.4 | 1764.1 | 1617.1 | 1552.7 |
| 47.5° | 1819.2 | 1782.4 | 1630.8 | 1479.2 | 1405.7 |
| 50° | 1658.4 | 1626.2 | 1488.4 | 1336.8 | 1258.7 |
| 52.5° | 1525.2 | 1474.6 | 1341.4 | 1189.8 | 1125.5 |
| 55° | 1369.0 | 1327.6 | 1203.6 | 1061.2 | 1006.1 |
| 57.5° | 1226.6 | 1185.2 | 1070.4 | 937.2 | 891.2 |
| 60° | 1093.3 | 1033.6 | 937.2 | 822.3 | 785.6 |
| 62.5° | 946.3 | 900.4 | 817.7 | 721.2 | 767.2 |
| 65° | 813.1 | 767.2 | 693.7 | 707.5 | 588.0 |
| 67.5° | 666.1 | 643.1 | 578.8 | 514.5 | 496.1 |
| 70° | 542.1 | 514.5 | 491.5 | 422.6 | 404.3 |
| 72.5° | 431.8 | 404.3 | 372.1 | 335.4 | 321.6 |
| 75° | 326.2 | 303.2 | 284.8 | 271.0 | 298.6 |
| 77.5° | 225.1 | 215.9 | 202.1 | 188.3 | 183.8 |
| 80° | 147.0 | 142.4 | 137.8 | 133.2 | 128.6 |
| 82.5° | 87.3 | 87.3 | 87.3 | 87.3 | 87.3 |
| 85° | 45.9 | 50.5 | 55.1 | 59.7 | 64.3 |
| 87.5° | 27.6 | 27.6 | 32.2 | 36.8 | 41.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)