

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: P562650

Luminaire Tested: FSR-24-4-LD4-2HI-50-UNV-82-94-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562650
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-24-4-LD4-2HI-50-UNV-82-94-EDD-90
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7974.0 lumens
Efficiency: N/A
Efficacy: 92.3 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

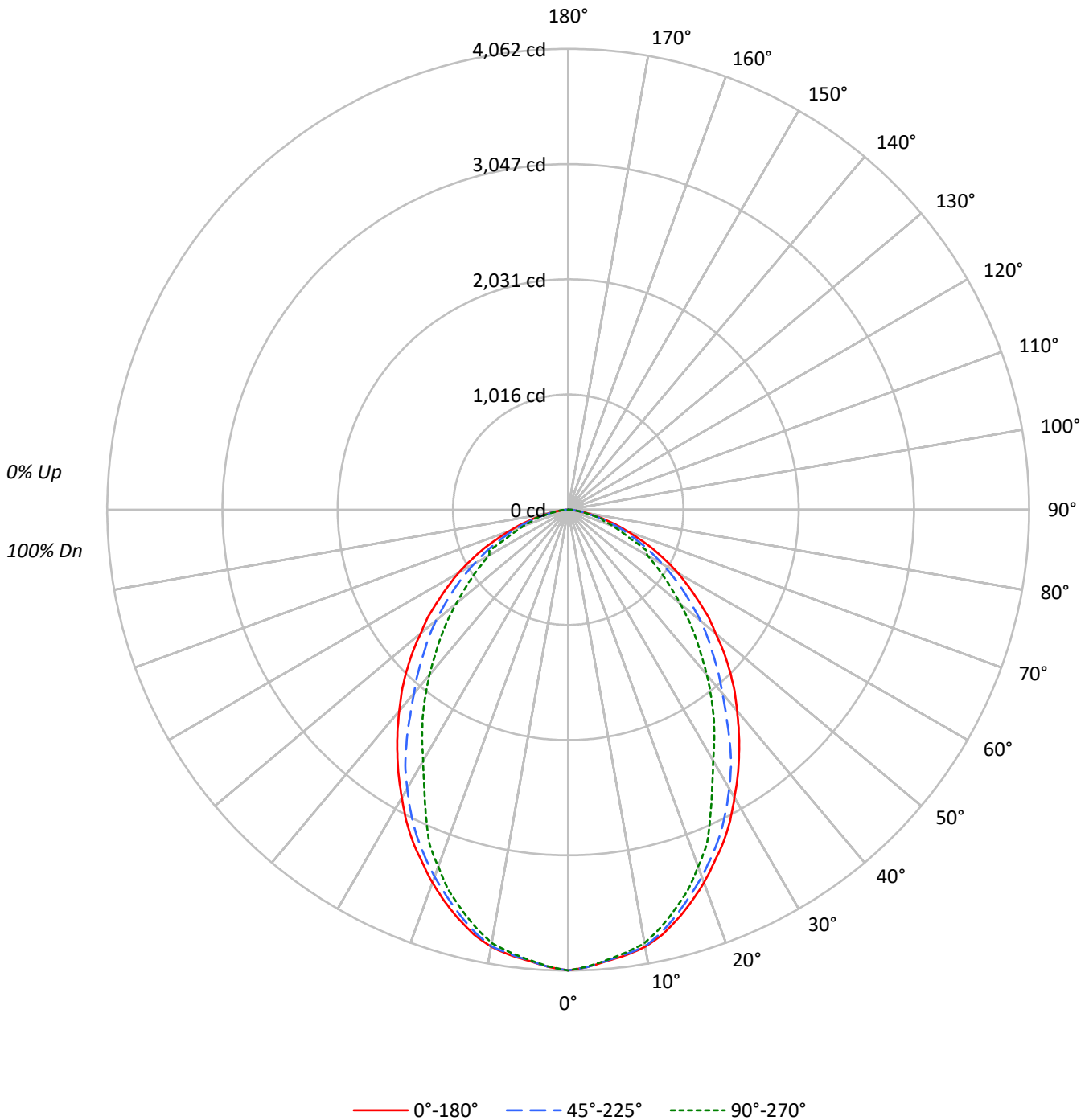
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562650

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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 | 0 | | | | | | | | | | | | | | | | | | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 110 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | 65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | 33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5465 | 5465 | 5465 |
| 5° | 5391 | 5385 | 5378 |
| 10° | 5344 | 5338 | 5299 |
| 15° | 5200 | 5148 | 5076 |
| 20° | 5009 | 4928 | 4794 |
| 25° | 4803 | 4699 | 4406 |
| 30° | 4552 | 4407 | 3969 |
| 35° | 4312 | 4073 | 3671 |
| 40° | 4066 | 3711 | 3340 |
| 45° | 3833 | 3431 | 3020 |
| 50° | 3548 | 3185 | 2693 |
| 55° | 3282 | 2886 | 2412 |
| 60° | 3007 | 2578 | 2161 |
| 65° | 2646 | 2258 | 1914 |
| 70° | 2180 | 1976 | 1626 |
| 75° | 1733 | 1513 | 1587 |
| 80° | 1165 | 1092 | 1019 |
| 85° | 726 | 869 | 1014 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3833 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 378.1 | 4.7 |
| 10°-20° | 1037.7 | 13.0 |
| 20°-30° | 1436.6 | 18.0 |
| 30°-40° | 1531.8 | 19.2 |
| 40°-50° | 1397.5 | 17.5 |
| 50°-60° | 1094.8 | 13.7 |
| 60°-70° | 713.5 | 8.9 |
| 70°-80° | 316.1 | 4.0 |
| 80°-90° | 67.9 | 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° | 2852.4 | 35.8 |
| 0°-40° | 4384.2 | 55.0 |
| 0°-60° | 6876.4 | 86.2 |
| 0°-90° | 7974.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7974.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4062 | 4062 | 4062 | 4062 | 4062 | |
| 5° | 3991 | 3987 | 3987 | 3982 | 3982 | 379 |
| 15° | 3733 | 3733 | 3696 | 3658 | 3644 | 1049 |
| 25° | 3235 | 3217 | 3165 | 3052 | 2968 | 1485 |
| 35° | 2625 | 2606 | 2479 | 2292 | 2235 | 1641 |
| 45° | 2014 | 1972 | 1803 | 1653 | 1587 | 1552 |
| 55° | 1399 | 1357 | 1230 | 1085 | 1028 | 1255 |
| 65° | 831 | 784 | 709 | 723 | 601 | 819 |
| 75° | 333 | 310 | 291 | 277 | 305 | 357 |
| 85° | 47 | 52 | 56 | 61 | 66 | 65 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562650

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4061.8 | 4061.8 | 4061.8 | 4061.8 | 4061.8 |
| 2.5° | 4033.7 | 4033.7 | 4033.7 | 4029.0 | 4029.0 |
| 5° | 3991.4 | 3986.7 | 3986.7 | 3982.0 | 3982.0 |
| 7.5° | 3958.5 | 3953.8 | 3949.2 | 3944.5 | 3935.1 |
| 10° | 3911.6 | 3911.6 | 3906.9 | 3883.4 | 3878.7 |
| 12.5° | 3836.5 | 3831.8 | 3813.0 | 3780.1 | 3770.7 |
| 15° | 3733.1 | 3733.1 | 3695.6 | 3658.0 | 3643.9 |
| 17.5° | 3620.4 | 3615.8 | 3568.8 | 3531.2 | 3512.4 |
| 20° | 3498.4 | 3489.0 | 3442.0 | 3381.0 | 3348.1 |
| 22.5° | 3362.2 | 3362.2 | 3305.8 | 3226.0 | 3193.1 |
| 25° | 3235.4 | 3216.6 | 3165.0 | 3052.3 | 2967.7 |
| 27.5° | 3089.8 | 3061.6 | 3005.3 | 2845.6 | 2747.0 |
| 30° | 2930.2 | 2916.1 | 2836.3 | 2629.6 | 2554.5 |
| 32.5° | 2779.9 | 2756.4 | 2671.9 | 2455.9 | 2394.8 |
| 35° | 2624.9 | 2606.2 | 2479.4 | 2291.5 | 2235.2 |
| 37.5° | 2470.0 | 2446.5 | 2286.8 | 2136.6 | 2066.1 |
| 40° | 2315.0 | 2286.8 | 2113.1 | 1976.9 | 1901.8 |
| 42.5° | 2169.5 | 2131.9 | 1962.8 | 1817.3 | 1732.7 |
| 45° | 2014.5 | 1972.2 | 1803.2 | 1652.9 | 1587.2 |
| 47.5° | 1859.5 | 1822.0 | 1667.0 | 1512.0 | 1436.9 |
| 50° | 1695.2 | 1662.3 | 1521.4 | 1366.5 | 1286.6 |
| 52.5° | 1559.0 | 1507.3 | 1371.2 | 1216.2 | 1150.5 |
| 55° | 1399.3 | 1357.1 | 1230.3 | 1084.7 | 1028.4 |
| 57.5° | 1253.8 | 1211.5 | 1094.1 | 957.9 | 911.0 |
| 60° | 1117.6 | 1056.6 | 957.9 | 840.5 | 803.0 |
| 62.5° | 967.3 | 920.4 | 835.8 | 737.2 | 784.2 |
| 65° | 831.2 | 784.2 | 709.1 | 723.2 | 601.1 |
| 67.5° | 680.9 | 657.4 | 591.7 | 525.9 | 507.1 |
| 70° | 554.1 | 525.9 | 502.4 | 432.0 | 413.2 |
| 72.5° | 441.4 | 413.2 | 380.4 | 342.8 | 328.7 |
| 75° | 333.4 | 309.9 | 291.1 | 277.1 | 305.2 |
| 77.5° | 230.1 | 220.7 | 206.6 | 192.5 | 187.8 |
| 80° | 150.3 | 145.6 | 140.9 | 136.2 | 131.5 |
| 82.5° | 89.2 | 89.2 | 89.2 | 89.2 | 89.2 |
| 85° | 47.0 | 51.7 | 56.3 | 61.0 | 65.7 |
| 87.5° | 28.2 | 28.2 | 32.9 | 37.6 | 42.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)