

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: P561397

Luminaire Tested: FSR-12-4-LD4-2HI-40-UNV-80-86-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561397
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-40-UNV-80-86-EDD
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR PC ENVIRON
SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7975.0 lumens
Efficiency: N/A
Efficacy: 92.3 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

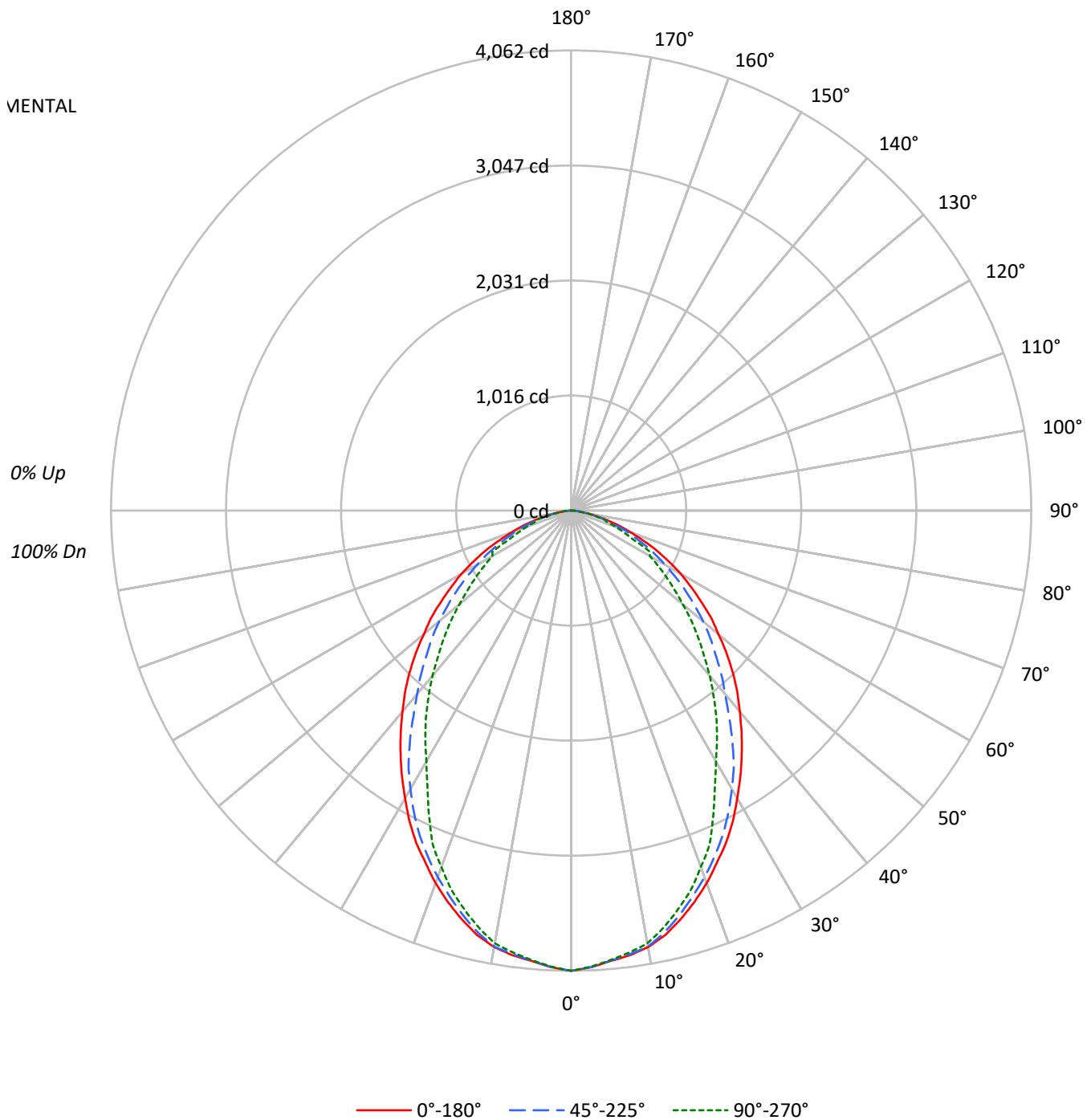
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561397

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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 | 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° | 10932 | 10932 | 10932 |
| 5° | 10783 | 10770 | 10758 |
| 10° | 10690 | 10677 | 10600 |
| 15° | 10401 | 10297 | 10153 |
| 20° | 10019 | 9858 | 9589 |
| 25° | 9608 | 9399 | 8813 |
| 30° | 9106 | 8814 | 7938 |
| 35° | 8624 | 8146 | 7344 |
| 40° | 8133 | 7424 | 6681 |
| 45° | 7667 | 6863 | 6041 |
| 50° | 7098 | 6370 | 5387 |
| 55° | 6566 | 5773 | 4825 |
| 60° | 6015 | 5156 | 4322 |
| 65° | 5293 | 4516 | 3827 |
| 70° | 4360 | 3954 | 3252 |
| 75° | 3466 | 3028 | 3174 |
| 80° | 2329 | 2183 | 2038 |
| 85° | 1451 | 1741 | 2029 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7667 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 378.1 | 4.7 |
| 10°-20° | 1037.8 | 13.0 |
| 20°-30° | 1436.8 | 18.0 |
| 30°-40° | 1532.0 | 19.2 |
| 40°-50° | 1397.6 | 17.5 |
| 50°-60° | 1094.9 | 13.7 |
| 60°-70° | 713.6 | 8.9 |
| 70°-80° | 316.2 | 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° | 2852.7 | 35.8 |
| 0°-40° | 4384.7 | 55.0 |
| 0°-60° | 6877.3 | 86.2 |
| 0°-90° | 7975.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7975.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4062 | 4062 | 4062 | 4062 | 4062 | |
| 5° | 3992 | 3987 | 3987 | 3982 | 3982 | 379 |
| 15° | 3734 | 3734 | 3696 | 3658 | 3644 | 1050 |
| 25° | 3236 | 3217 | 3165 | 3053 | 2968 | 1486 |
| 35° | 2625 | 2606 | 2480 | 2292 | 2236 | 1641 |
| 45° | 2015 | 1972 | 1803 | 1653 | 1587 | 1552 |
| 55° | 1400 | 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: P561397

CATALOG NUMBER: FSR-12-4-LD4-2HI-40-UNV-80-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4062.4 | 4062.4 | 4062.4 | 4062.4 | 4062.4 |
| 2.5° | 4034.2 | 4034.2 | 4034.2 | 4029.5 | 4029.5 |
| 5° | 3991.9 | 3987.2 | 3987.2 | 3982.5 | 3982.5 |
| 7.5° | 3959.0 | 3954.3 | 3949.6 | 3944.9 | 3935.6 |
| 10° | 3912.1 | 3912.1 | 3907.4 | 3883.9 | 3879.2 |
| 12.5° | 3836.9 | 3832.2 | 3813.5 | 3780.6 | 3771.2 |
| 15° | 3733.6 | 3733.6 | 3696.0 | 3658.5 | 3644.4 |
| 17.5° | 3620.9 | 3616.2 | 3569.2 | 3531.7 | 3512.9 |
| 20° | 3498.8 | 3489.4 | 3442.4 | 3381.4 | 3348.5 |
| 22.5° | 3362.6 | 3362.6 | 3306.2 | 3226.4 | 3193.5 |
| 25° | 3235.8 | 3217.0 | 3165.4 | 3052.6 | 2968.1 |
| 27.5° | 3090.2 | 3062.0 | 3005.7 | 2846.0 | 2747.4 |
| 30° | 2930.5 | 2916.4 | 2836.6 | 2630.0 | 2554.8 |
| 32.5° | 2780.2 | 2756.8 | 2672.2 | 2456.2 | 2395.1 |
| 35° | 2625.3 | 2606.5 | 2479.7 | 2291.8 | 2235.5 |
| 37.5° | 2470.3 | 2446.8 | 2287.1 | 2136.8 | 2066.4 |
| 40° | 2315.3 | 2287.1 | 2113.4 | 1977.2 | 1902.0 |
| 42.5° | 2169.7 | 2132.2 | 1963.1 | 1817.5 | 1733.0 |
| 45° | 2014.7 | 1972.5 | 1803.4 | 1653.1 | 1587.4 |
| 47.5° | 1859.8 | 1822.2 | 1667.2 | 1512.2 | 1437.1 |
| 50° | 1695.4 | 1662.5 | 1521.6 | 1366.6 | 1286.8 |
| 52.5° | 1559.2 | 1507.5 | 1371.3 | 1216.4 | 1150.6 |
| 55° | 1399.5 | 1357.3 | 1230.4 | 1084.9 | 1028.5 |
| 57.5° | 1253.9 | 1211.7 | 1094.3 | 958.1 | 911.1 |
| 60° | 1117.7 | 1056.7 | 958.1 | 840.6 | 803.1 |
| 62.5° | 967.5 | 920.5 | 836.0 | 737.3 | 784.3 |
| 65° | 831.3 | 784.3 | 709.2 | 723.2 | 601.1 |
| 67.5° | 681.0 | 657.5 | 591.7 | 526.0 | 507.2 |
| 70° | 554.2 | 526.0 | 502.5 | 432.1 | 413.3 |
| 72.5° | 441.5 | 413.3 | 380.4 | 342.8 | 328.7 |
| 75° | 333.4 | 310.0 | 291.2 | 277.1 | 305.3 |
| 77.5° | 230.1 | 220.7 | 206.6 | 192.6 | 187.9 |
| 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 | 56.4 | 61.1 | 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)