

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: P563837

Luminaire Tested: FSR-24-4-LD4-4LO-35-UNV-80-96-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563837
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-LD4-4LO-35-UNV-80-96-EDD
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11554.0 lumens
Efficiency: N/A
Efficacy: 123.4 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

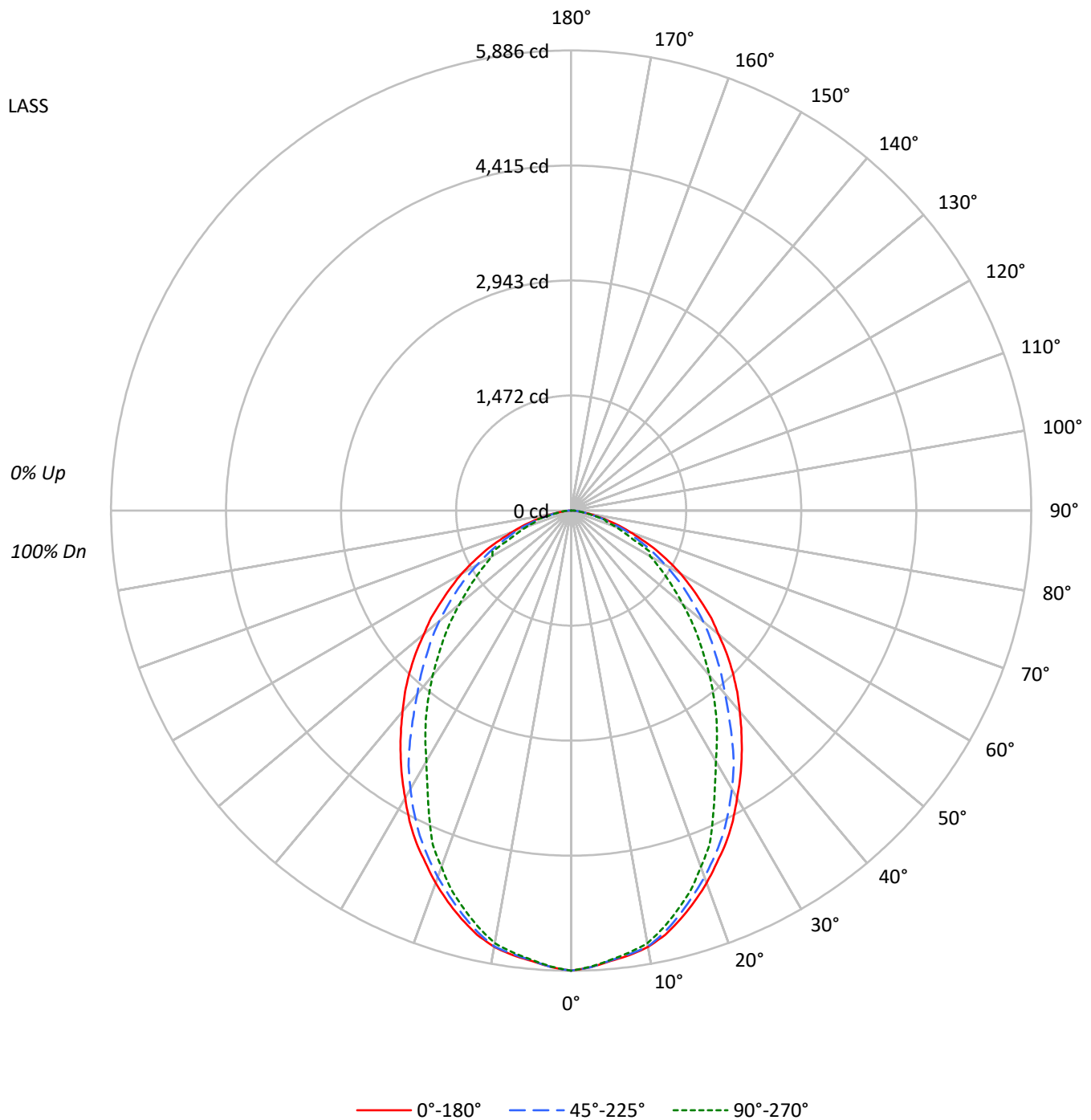
Input Watts (W): 93.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563837

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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° | 7919 | 7919 | 7919 |
| 5° | 7811 | 7802 | 7793 |
| 10° | 7743 | 7734 | 7678 |
| 15° | 7535 | 7459 | 7355 |
| 20° | 7258 | 7141 | 6946 |
| 25° | 6960 | 6808 | 6384 |
| 30° | 6596 | 6385 | 5751 |
| 35° | 6247 | 5901 | 5320 |
| 40° | 5892 | 5378 | 4840 |
| 45° | 5554 | 4971 | 4376 |
| 50° | 5141 | 4614 | 3902 |
| 55° | 4756 | 4182 | 3495 |
| 60° | 4358 | 3735 | 3131 |
| 65° | 3834 | 3271 | 2773 |
| 70° | 3159 | 2864 | 2356 |
| 75° | 2511 | 2193 | 2299 |
| 80° | 1687 | 1581 | 1476 |
| 85° | 1050 | 1260 | 1471 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5554 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 547.9 | 4.7 |
| 10°-20° | 1503.5 | 13.0 |
| 20°-30° | 2081.6 | 18.0 |
| 30°-40° | 2219.5 | 19.2 |
| 40°-50° | 2024.9 | 17.5 |
| 50°-60° | 1586.3 | 13.7 |
| 60°-70° | 1033.9 | 8.9 |
| 70°-80° | 458.1 | 4.0 |
| 80°-90° | 98.3 | 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° | 4133.0 | 35.8 |
| 0°-40° | 6352.5 | 55.0 |
| 0°-60° | 9963.7 | 86.2 |
| 0°-90° | 11554.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 11554.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 5886 | 5886 | 5886 | 5886 | 5886 | |
| 5° | 5783 | 5777 | 5777 | 5770 | 5770 | 549 |
| 15° | 5409 | 5409 | 5355 | 5300 | 5280 | 1521 |
| 25° | 4688 | 4661 | 4586 | 4423 | 4300 | 2152 |
| 35° | 3803 | 3776 | 3592 | 3320 | 3239 | 2378 |
| 45° | 2919 | 2858 | 2613 | 2395 | 2300 | 2248 |
| 55° | 2028 | 1966 | 1783 | 1572 | 1490 | 1819 |
| 65° | 1204 | 1136 | 1027 | 1048 | 871 | 1187 |
| 75° | 483 | 449 | 422 | 401 | 442 | 518 |
| 85° | 68 | 75 | 82 | 88 | 95 | 94 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563837

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 5885.5 | 5885.5 | 5885.5 | 5885.5 | 5885.5 |
| 2.5° | 5844.6 | 5844.6 | 5844.6 | 5837.8 | 5837.8 |
| 5° | 5783.4 | 5776.6 | 5776.6 | 5769.8 | 5769.8 |
| 7.5° | 5735.8 | 5729.0 | 5722.2 | 5715.4 | 5701.7 |
| 10° | 5667.7 | 5667.7 | 5660.9 | 5626.9 | 5620.1 |
| 12.5° | 5558.9 | 5552.1 | 5524.8 | 5477.2 | 5463.6 |
| 15° | 5409.2 | 5409.2 | 5354.7 | 5300.3 | 5279.9 |
| 17.5° | 5245.9 | 5239.1 | 5171.0 | 5116.6 | 5089.4 |
| 20° | 5069.0 | 5055.4 | 4987.3 | 4898.9 | 4851.2 |
| 22.5° | 4871.7 | 4871.7 | 4790.0 | 4674.3 | 4626.7 |
| 25° | 4688.0 | 4660.7 | 4585.9 | 4422.6 | 4300.1 |
| 27.5° | 4477.0 | 4436.2 | 4354.6 | 4123.2 | 3980.3 |
| 30° | 4245.7 | 4225.3 | 4109.6 | 3810.2 | 3701.4 |
| 32.5° | 4028.0 | 3993.9 | 3871.5 | 3558.5 | 3470.0 |
| 35° | 3803.4 | 3776.2 | 3592.5 | 3320.3 | 3238.7 |
| 37.5° | 3578.9 | 3544.9 | 3313.5 | 3095.8 | 2993.8 |
| 40° | 3354.4 | 3313.5 | 3061.8 | 2864.5 | 2755.6 |
| 42.5° | 3143.4 | 3089.0 | 2844.1 | 2633.1 | 2510.7 |
| 45° | 2918.9 | 2857.7 | 2612.7 | 2395.0 | 2299.7 |
| 47.5° | 2694.4 | 2639.9 | 2415.4 | 2190.9 | 2082.0 |
| 50° | 2456.2 | 2408.6 | 2204.5 | 1980.0 | 1864.3 |
| 52.5° | 2258.9 | 2184.1 | 1986.8 | 1762.2 | 1667.0 |
| 55° | 2027.6 | 1966.4 | 1782.6 | 1571.7 | 1490.1 |
| 57.5° | 1816.7 | 1755.4 | 1585.3 | 1388.0 | 1320.0 |
| 60° | 1619.4 | 1530.9 | 1388.0 | 1217.9 | 1163.5 |
| 62.5° | 1401.6 | 1333.6 | 1211.1 | 1068.2 | 1136.3 |
| 65° | 1204.3 | 1136.3 | 1027.4 | 1047.8 | 870.9 |
| 67.5° | 986.6 | 952.6 | 857.3 | 762.0 | 734.8 |
| 70° | 802.9 | 762.0 | 728.0 | 626.0 | 598.8 |
| 72.5° | 639.6 | 598.8 | 551.1 | 496.7 | 476.3 |
| 75° | 483.1 | 449.1 | 421.8 | 401.4 | 442.3 |
| 77.5° | 333.4 | 319.8 | 299.4 | 279.0 | 272.2 |
| 80° | 217.7 | 210.9 | 204.1 | 197.3 | 190.5 |
| 82.5° | 129.3 | 129.3 | 129.3 | 129.3 | 129.3 |
| 85° | 68.0 | 74.8 | 81.6 | 88.5 | 95.3 |
| 87.5° | 40.8 | 40.8 | 47.6 | 54.4 | 61.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)