

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: P563654

Luminaire Tested: FSR-24-4-LD4-4HI-35-UNV-81-87-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563654
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-LD4-4HI-35-UNV-81-87-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14270.0 lumens
Efficiency: N/A
Efficacy: 82.6 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

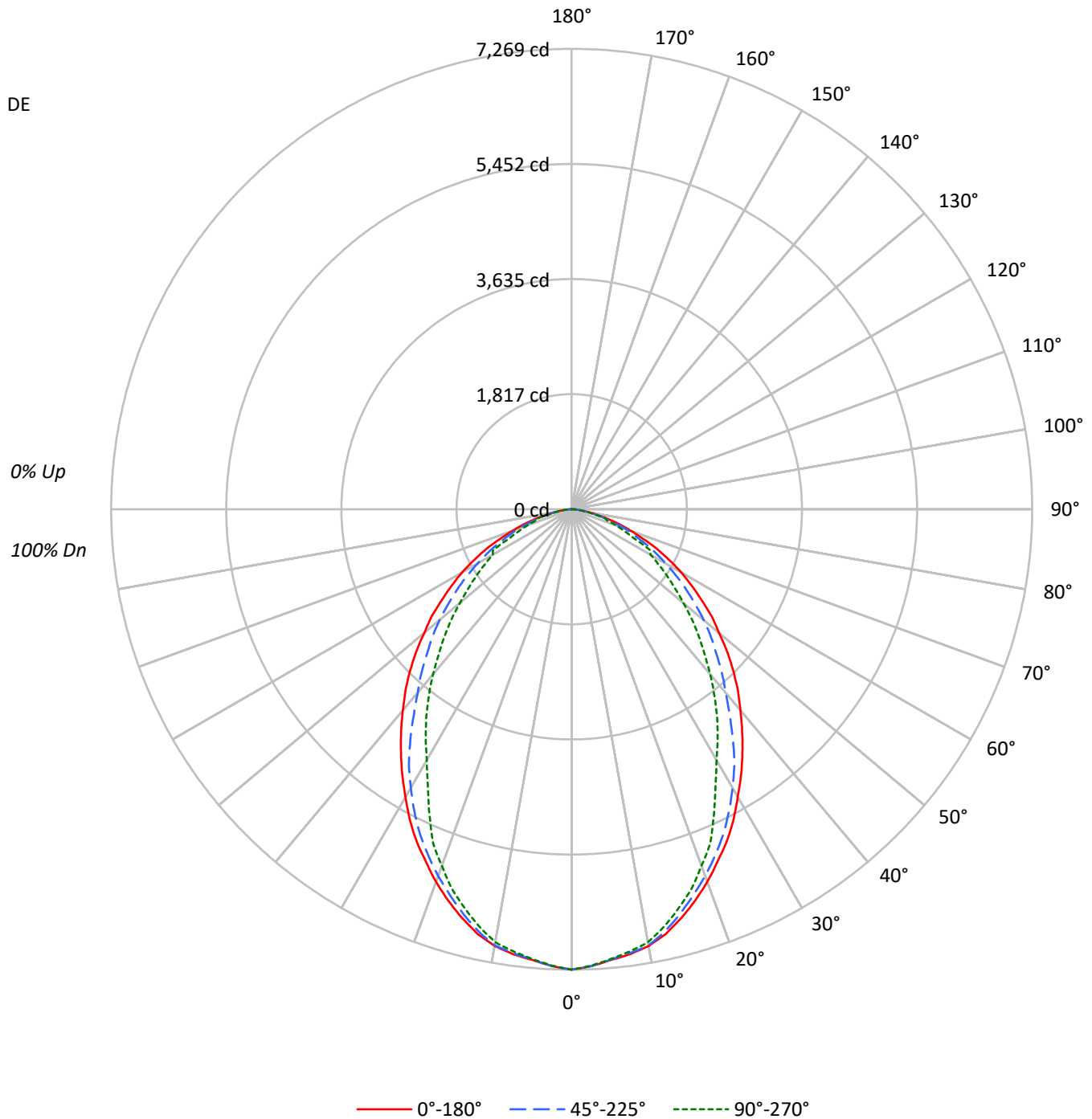
Input Watts (W): 172.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563654

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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° | 9780 | 9780 | 9780 |
| 5° | 9647 | 9636 | 9625 |
| 10° | 9564 | 9552 | 9483 |
| 15° | 9306 | 9212 | 9083 |
| 20° | 8964 | 8820 | 8579 |
| 25° | 8596 | 8409 | 7885 |
| 30° | 8147 | 7886 | 7102 |
| 35° | 7716 | 7288 | 6570 |
| 40° | 7277 | 6642 | 5978 |
| 45° | 6860 | 6140 | 5405 |
| 50° | 6350 | 5699 | 4820 |
| 55° | 5874 | 5165 | 4317 |
| 60° | 5382 | 4613 | 3867 |
| 65° | 4735 | 4040 | 3424 |
| 70° | 3901 | 3537 | 2909 |
| 75° | 3101 | 2708 | 2839 |
| 80° | 2084 | 1953 | 1823 |
| 85° | 1297 | 1556 | 1815 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 6860 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 676.6 | 4.7 |
| 10°-20° | 1857.0 | 13.0 |
| 20°-30° | 2570.9 | 18.0 |
| 30°-40° | 2741.3 | 19.2 |
| 40°-50° | 2500.9 | 17.5 |
| 50°-60° | 1959.2 | 13.7 |
| 60°-70° | 1276.9 | 8.9 |
| 70°-80° | 565.7 | 4.0 |
| 80°-90° | 121.5 | 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° | 5104.5 | 35.8 |
| 0°-40° | 7845.8 | 55.0 |
| 0°-60° | 12305.9 | 86.2 |
| 0°-90° | 14270.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 14270.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 7269 | 7269 | 7269 | 7269 | 7269 | |
| 5° | 7143 | 7134 | 7134 | 7126 | 7126 | 678 |
| 15° | 6681 | 6681 | 6614 | 6546 | 6521 | 1878 |
| 25° | 5790 | 5756 | 5664 | 5462 | 5311 | 2658 |
| 35° | 4698 | 4664 | 4437 | 4101 | 4000 | 2937 |
| 45° | 3605 | 3529 | 3227 | 2958 | 2840 | 2777 |
| 55° | 2504 | 2429 | 2202 | 1941 | 1840 | 2246 |
| 65° | 1487 | 1403 | 1269 | 1294 | 1076 | 1466 |
| 75° | 597 | 555 | 521 | 496 | 546 | 639 |
| 85° | 84 | 92 | 101 | 109 | 118 | 117 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 7268.9 | 7268.9 | 7268.9 | 7268.9 | 7268.9 |
| 2.5° | 7218.5 | 7218.5 | 7218.5 | 7210.1 | 7210.1 |
| 5° | 7142.9 | 7134.5 | 7134.5 | 7126.1 | 7126.1 |
| 7.5° | 7084.1 | 7075.7 | 7067.3 | 7058.9 | 7042.1 |
| 10° | 7000.0 | 7000.0 | 6991.6 | 6949.6 | 6941.2 |
| 12.5° | 6865.6 | 6857.2 | 6823.6 | 6764.7 | 6747.9 |
| 15° | 6680.7 | 6680.7 | 6613.5 | 6546.3 | 6521.0 |
| 17.5° | 6479.0 | 6470.6 | 6386.6 | 6319.4 | 6285.7 |
| 20° | 6260.5 | 6243.7 | 6159.7 | 6050.5 | 5991.6 |
| 22.5° | 6016.8 | 6016.8 | 5916.0 | 5773.1 | 5714.3 |
| 25° | 5789.9 | 5756.3 | 5663.9 | 5462.2 | 5311.0 |
| 27.5° | 5529.4 | 5479.0 | 5378.2 | 5092.5 | 4916.0 |
| 30° | 5243.7 | 5218.5 | 5075.7 | 4705.9 | 4571.5 |
| 32.5° | 4974.8 | 4932.8 | 4781.5 | 4395.0 | 4285.7 |
| 35° | 4697.5 | 4663.9 | 4437.0 | 4100.9 | 4000.0 |
| 37.5° | 4420.2 | 4378.2 | 4092.5 | 3823.6 | 3697.5 |
| 40° | 4142.9 | 4092.5 | 3781.5 | 3537.8 | 3403.4 |
| 42.5° | 3882.4 | 3815.1 | 3512.6 | 3252.1 | 3100.9 |
| 45° | 3605.1 | 3529.4 | 3226.9 | 2958.0 | 2840.4 |
| 47.5° | 3327.7 | 3260.5 | 2983.2 | 2705.9 | 2571.4 |
| 50° | 3033.6 | 2974.8 | 2722.7 | 2445.4 | 2302.5 |
| 52.5° | 2789.9 | 2697.5 | 2453.8 | 2176.5 | 2058.8 |
| 55° | 2504.2 | 2428.6 | 2201.7 | 1941.2 | 1840.3 |
| 57.5° | 2243.7 | 2168.1 | 1958.0 | 1714.3 | 1630.3 |
| 60° | 2000.0 | 1890.8 | 1714.3 | 1504.2 | 1437.0 |
| 62.5° | 1731.1 | 1647.1 | 1495.8 | 1319.3 | 1403.4 |
| 65° | 1487.4 | 1403.4 | 1268.9 | 1294.1 | 1075.6 |
| 67.5° | 1218.5 | 1176.5 | 1058.8 | 941.2 | 907.6 |
| 70° | 991.6 | 941.2 | 899.2 | 773.1 | 739.5 |
| 72.5° | 789.9 | 739.5 | 680.7 | 613.4 | 588.2 |
| 75° | 596.6 | 554.6 | 521.0 | 495.8 | 546.2 |
| 77.5° | 411.8 | 395.0 | 369.7 | 344.5 | 336.1 |
| 80° | 268.9 | 260.5 | 252.1 | 243.7 | 235.3 |
| 82.5° | 159.7 | 159.7 | 159.7 | 159.7 | 159.7 |
| 85° | 84.0 | 92.4 | 100.8 | 109.2 | 117.6 |
| 87.5° | 50.4 | 50.4 | 58.8 | 67.2 | 75.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)