

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: P563822

Luminaire Tested: FSR-24-4-LD4-4HI-50-UNV-93-97-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563822
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-50-UNV-93-97-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16384.0 lumens
Efficiency: N/A
Efficacy: 94.8 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

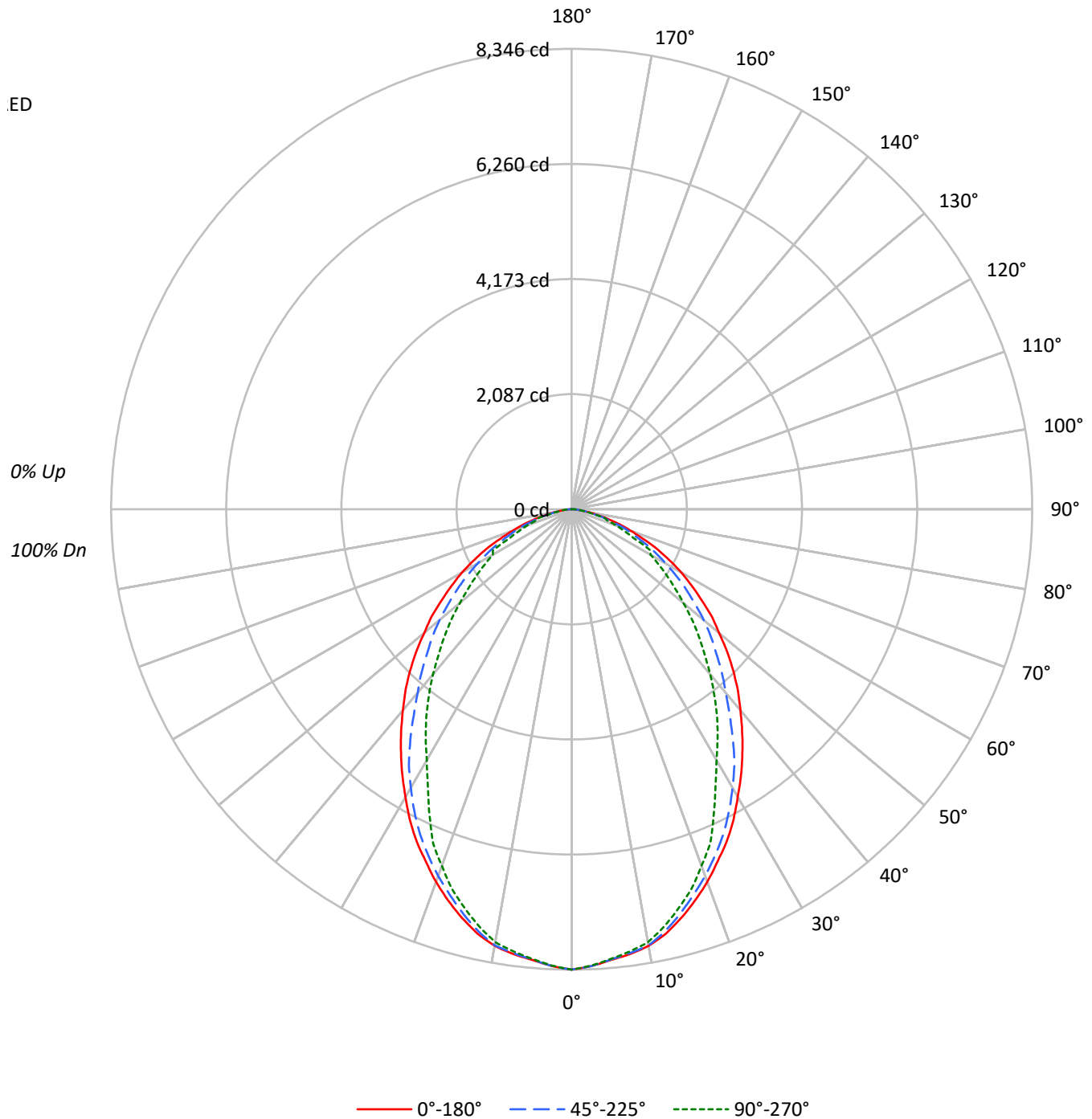
Input Watts (W): 172.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563822

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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 | 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° | 11229 | 11229 | 11229 |
| 5° | 11077 | 11064 | 11051 |
| 10° | 10981 | 10967 | 10888 |
| 15° | 10685 | 10577 | 10429 |
| 20° | 10292 | 10126 | 9850 |
| 25° | 9869 | 9654 | 9053 |
| 30° | 9354 | 9054 | 8155 |
| 35° | 8859 | 8368 | 7544 |
| 40° | 8355 | 7626 | 6863 |
| 45° | 7876 | 7050 | 6205 |
| 50° | 7291 | 6544 | 5534 |
| 55° | 6745 | 5930 | 4957 |
| 60° | 6179 | 5297 | 4440 |
| 65° | 5437 | 4638 | 3932 |
| 70° | 4479 | 4061 | 3340 |
| 75° | 3561 | 3110 | 3260 |
| 80° | 2392 | 2242 | 2094 |
| 85° | 1490 | 1788 | 2086 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7876 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 776.9 | 4.7 |
| 10°-20° | 2132.1 | 13.0 |
| 20°-30° | 2951.7 | 18.0 |
| 30°-40° | 3147.4 | 19.2 |
| 40°-50° | 2871.3 | 17.5 |
| 50°-60° | 2249.5 | 13.7 |
| 60°-70° | 1466.1 | 8.9 |
| 70°-80° | 649.5 | 4.0 |
| 80°-90° | 139.4 | 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° | 5860.7 | 35.8 |
| 0°-40° | 9008.1 | 55.0 |
| 0°-60° | 14128.9 | 86.2 |
| 0°-90° | 16384.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 16384.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 8346 | 8346 | 8346 | 8346 | 8346 | |
| 5° | 8201 | 8191 | 8191 | 8182 | 8182 | 778 |
| 15° | 7670 | 7670 | 7593 | 7516 | 7487 | 2156 |
| 25° | 6648 | 6609 | 6503 | 6271 | 6098 | 3052 |
| 35° | 5393 | 5355 | 5094 | 4708 | 4593 | 3372 |
| 45° | 4139 | 4052 | 3705 | 3396 | 3261 | 3188 |
| 55° | 2875 | 2788 | 2528 | 2229 | 2113 | 2579 |
| 65° | 1708 | 1611 | 1457 | 1486 | 1235 | 1683 |
| 75° | 685 | 637 | 598 | 569 | 627 | 734 |
| 85° | 96 | 106 | 116 | 125 | 135 | 134 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563822

CATALOG NUMBER: FSR-24-4-LD4-4HI-50-UNV-93-97-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 8345.8 | 8345.8 | 8345.8 | 8345.8 | 8345.8 |
| 2.5° | 8287.9 | 8287.9 | 8287.9 | 8278.3 | 8278.3 |
| 5° | 8201.1 | 8191.4 | 8191.4 | 8181.8 | 8181.8 |
| 7.5° | 8133.5 | 8123.9 | 8114.2 | 8104.6 | 8085.3 |
| 10° | 8037.0 | 8037.0 | 8027.4 | 7979.2 | 7969.5 |
| 12.5° | 7882.7 | 7873.0 | 7834.4 | 7766.9 | 7747.6 |
| 15° | 7670.4 | 7670.4 | 7593.2 | 7516.0 | 7487.1 |
| 17.5° | 7438.8 | 7429.2 | 7332.7 | 7255.5 | 7216.9 |
| 20° | 7188.0 | 7168.7 | 7072.2 | 6946.8 | 6879.2 |
| 22.5° | 6908.2 | 6908.2 | 6792.4 | 6628.4 | 6560.9 |
| 25° | 6647.7 | 6609.1 | 6503.0 | 6271.4 | 6097.7 |
| 27.5° | 6348.6 | 6290.7 | 6174.9 | 5846.9 | 5644.3 |
| 30° | 6020.5 | 5991.6 | 5827.6 | 5403.1 | 5248.7 |
| 32.5° | 5711.8 | 5663.6 | 5489.9 | 5046.1 | 4920.6 |
| 35° | 5393.4 | 5354.8 | 5094.3 | 4708.4 | 4592.6 |
| 37.5° | 5075.0 | 5026.8 | 4698.7 | 4390.0 | 4245.3 |
| 40° | 4756.6 | 4698.7 | 4341.7 | 4061.9 | 3907.6 |
| 42.5° | 4457.5 | 4380.3 | 4033.0 | 3733.9 | 3560.2 |
| 45° | 4139.1 | 4052.3 | 3705.0 | 3396.2 | 3261.1 |
| 47.5° | 3820.7 | 3743.5 | 3425.2 | 3106.8 | 2952.4 |
| 50° | 3483.0 | 3415.5 | 3126.1 | 2807.7 | 2643.6 |
| 52.5° | 3203.2 | 3097.1 | 2817.3 | 2498.9 | 2363.8 |
| 55° | 2875.2 | 2788.4 | 2527.9 | 2228.8 | 2113.0 |
| 57.5° | 2576.1 | 2489.3 | 2248.1 | 1968.3 | 1871.8 |
| 60° | 2296.3 | 2170.9 | 1968.3 | 1727.0 | 1649.9 |
| 62.5° | 1987.6 | 1891.1 | 1717.4 | 1514.8 | 1611.3 |
| 65° | 1707.8 | 1611.3 | 1456.9 | 1485.8 | 1235.0 |
| 67.5° | 1399.0 | 1350.8 | 1215.7 | 1080.6 | 1042.0 |
| 70° | 1138.5 | 1080.6 | 1032.4 | 887.6 | 849.1 |
| 72.5° | 906.9 | 849.1 | 781.5 | 704.3 | 675.4 |
| 75° | 685.0 | 636.8 | 598.2 | 569.3 | 627.1 |
| 77.5° | 472.8 | 453.5 | 424.5 | 395.6 | 385.9 |
| 80° | 308.7 | 299.1 | 289.4 | 279.8 | 270.2 |
| 82.5° | 183.3 | 183.3 | 183.3 | 183.3 | 183.3 |
| 85° | 96.5 | 106.1 | 115.8 | 125.4 | 135.1 |
| 87.5° | 57.9 | 57.9 | 67.5 | 77.2 | 86.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)