

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: P563109

Luminaire Tested: FSR-24-4-LD4-3HI-35-UNV-93-86-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563109
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-LD4-3HI-35-UNV-93-86-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13943.0 lumens
Efficiency: N/A
Efficacy: 107.6 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

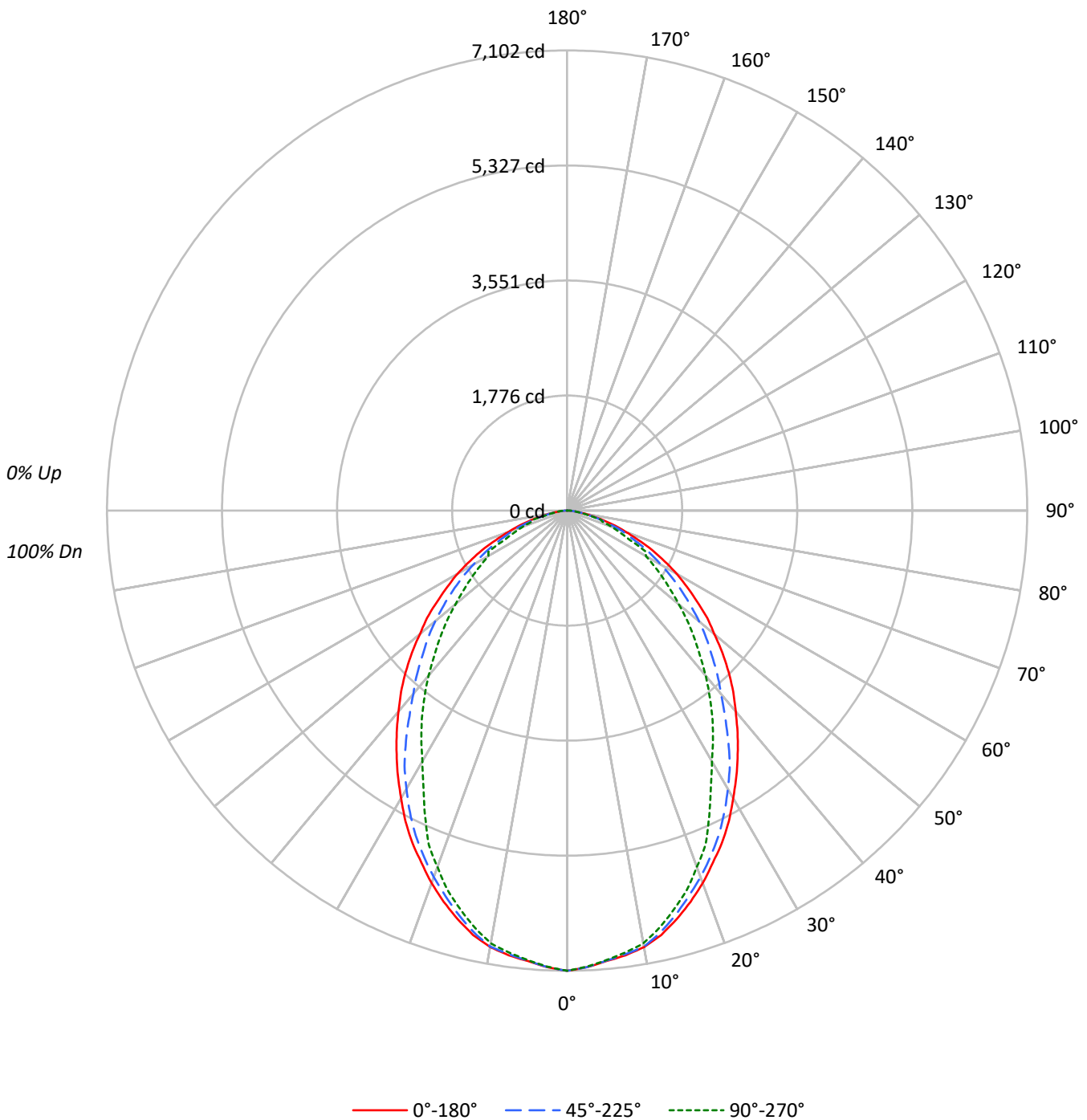
Input Watts (W): 129.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563109

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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° | 9556 | 9556 | 9556 |
| 5° | 9426 | 9415 | 9404 |
| 10° | 9345 | 9333 | 9266 |
| 15° | 9093 | 9001 | 8875 |
| 20° | 8759 | 8618 | 8382 |
| 25° | 8399 | 8216 | 7704 |
| 30° | 7960 | 7705 | 6940 |
| 35° | 7539 | 7121 | 6420 |
| 40° | 7110 | 6490 | 5841 |
| 45° | 6703 | 6000 | 5281 |
| 50° | 6204 | 5569 | 4709 |
| 55° | 5740 | 5046 | 4218 |
| 60° | 5259 | 4507 | 3778 |
| 65° | 4627 | 3947 | 3346 |
| 70° | 3812 | 3456 | 2843 |
| 75° | 3031 | 2647 | 2774 |
| 80° | 2035 | 1908 | 1781 |
| 85° | 1267 | 1521 | 1775 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 6703 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 661.1 | 4.7 |
| 10°-20° | 1814.4 | 13.0 |
| 20°-30° | 2512.0 | 18.0 |
| 30°-40° | 2678.5 | 19.2 |
| 40°-50° | 2443.6 | 17.5 |
| 50°-60° | 1914.3 | 13.7 |
| 60°-70° | 1247.7 | 8.9 |
| 70°-80° | 552.8 | 4.0 |
| 80°-90° | 118.7 | 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° | 4987.5 | 35.8 |
| 0°-40° | 7666.0 | 55.0 |
| 0°-60° | 12023.9 | 86.2 |
| 0°-90° | 13943.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 13943.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 7102 | 7102 | 7102 | 7102 | 7102 | |
| 5° | 6979 | 6971 | 6971 | 6963 | 6963 | 662 |
| 15° | 6528 | 6528 | 6462 | 6396 | 6372 | 1835 |
| 25° | 5657 | 5624 | 5534 | 5337 | 5189 | 2597 |
| 35° | 4590 | 4557 | 4335 | 4007 | 3908 | 2869 |
| 45° | 3522 | 3449 | 3153 | 2890 | 2775 | 2713 |
| 55° | 2447 | 2373 | 2151 | 1897 | 1798 | 2195 |
| 65° | 1453 | 1371 | 1240 | 1264 | 1051 | 1432 |
| 75° | 583 | 542 | 509 | 484 | 534 | 625 |
| 85° | 82 | 90 | 98 | 107 | 115 | 114 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563109

CATALOG NUMBER: FSR-24-4-LD4-3HI-35-UNV-93-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 7102.4 | 7102.4 | 7102.4 | 7102.4 | 7102.4 |
| 2.5° | 7053.1 | 7053.1 | 7053.1 | 7044.9 | 7044.9 |
| 5° | 6979.2 | 6971.0 | 6971.0 | 6962.8 | 6962.8 |
| 7.5° | 6921.7 | 6913.5 | 6905.3 | 6897.1 | 6880.7 |
| 10° | 6839.6 | 6839.6 | 6831.4 | 6790.4 | 6782.2 |
| 12.5° | 6708.3 | 6700.0 | 6667.2 | 6609.7 | 6593.3 |
| 15° | 6527.6 | 6527.6 | 6461.9 | 6396.2 | 6371.6 |
| 17.5° | 6330.6 | 6322.3 | 6240.2 | 6174.6 | 6141.7 |
| 20° | 6117.1 | 6100.7 | 6018.5 | 5911.8 | 5854.3 |
| 22.5° | 5879.0 | 5879.0 | 5780.4 | 5640.8 | 5583.4 |
| 25° | 5657.3 | 5624.4 | 5534.1 | 5337.0 | 5189.3 |
| 27.5° | 5402.7 | 5353.5 | 5254.9 | 4975.8 | 4803.3 |
| 30° | 5123.6 | 5098.9 | 4959.3 | 4598.1 | 4466.7 |
| 32.5° | 4860.8 | 4819.8 | 4672.0 | 4294.3 | 4187.5 |
| 35° | 4589.9 | 4557.0 | 4335.3 | 4006.9 | 3908.4 |
| 37.5° | 4318.9 | 4277.8 | 3998.7 | 3735.9 | 3612.8 |
| 40° | 4047.9 | 3998.7 | 3694.9 | 3456.8 | 3325.4 |
| 42.5° | 3793.4 | 3727.7 | 3432.1 | 3177.6 | 3029.8 |
| 45° | 3522.5 | 3448.6 | 3153.0 | 2890.2 | 2775.3 |
| 47.5° | 3251.5 | 3185.8 | 2914.8 | 2643.9 | 2512.5 |
| 50° | 2964.1 | 2906.6 | 2660.3 | 2389.4 | 2249.8 |
| 52.5° | 2726.0 | 2635.7 | 2397.6 | 2126.6 | 2011.7 |
| 55° | 2446.8 | 2372.9 | 2151.2 | 1896.7 | 1798.2 |
| 57.5° | 2192.3 | 2118.4 | 1913.1 | 1675.0 | 1592.9 |
| 60° | 1954.2 | 1847.4 | 1675.0 | 1469.7 | 1404.1 |
| 62.5° | 1691.4 | 1609.3 | 1461.5 | 1289.1 | 1371.2 |
| 65° | 1453.3 | 1371.2 | 1239.8 | 1264.5 | 1051.0 |
| 67.5° | 1190.6 | 1149.5 | 1034.6 | 919.6 | 886.8 |
| 70° | 968.9 | 919.6 | 878.6 | 755.4 | 722.6 |
| 72.5° | 771.8 | 722.6 | 665.1 | 599.4 | 574.8 |
| 75° | 583.0 | 541.9 | 509.1 | 484.4 | 533.7 |
| 77.5° | 402.3 | 385.9 | 361.3 | 336.6 | 328.4 |
| 80° | 262.7 | 254.5 | 246.3 | 238.1 | 229.9 |
| 82.5° | 156.0 | 156.0 | 156.0 | 156.0 | 156.0 |
| 85° | 82.1 | 90.3 | 98.5 | 106.7 | 115.0 |
| 87.5° | 49.3 | 49.3 | 57.5 | 65.7 | 73.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)