

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: P562531

Luminaire Tested: FSR-24-4-LD4-2HI-35-UNV-93-85-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562531
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-LD4-2HI-35-UNV-93-85-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9402.0 lumens
Efficiency: N/A
Efficacy: 108.8 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

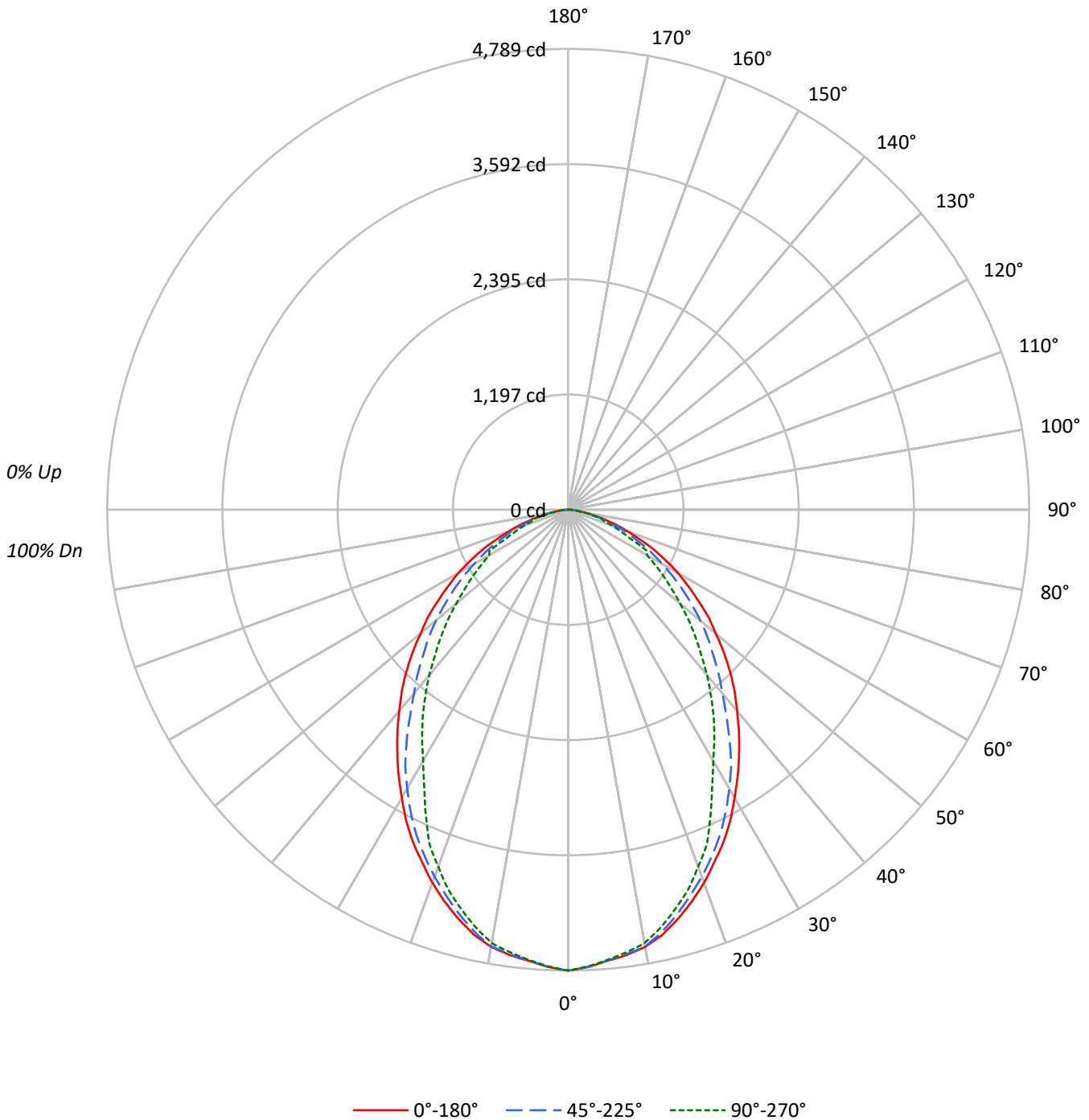
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562531

CATALOG NUMBER: FSR-24-4-LD4-2HI-35-UNV-93-85-EDD

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° | 6444 | 6444 | 6444 |
| 5° | 6356 | 6349 | 6341 |
| 10° | 6301 | 6294 | 6248 |
| 15° | 6131 | 6070 | 5985 |
| 20° | 5906 | 5811 | 5652 |
| 25° | 5663 | 5540 | 5195 |
| 30° | 5368 | 5196 | 4680 |
| 35° | 5084 | 4802 | 4329 |
| 40° | 4794 | 4376 | 3939 |
| 45° | 4520 | 4046 | 3561 |
| 50° | 4184 | 3755 | 3176 |
| 55° | 3870 | 3403 | 2844 |
| 60° | 3546 | 3039 | 2548 |
| 65° | 3120 | 2662 | 2256 |
| 70° | 2570 | 2330 | 1917 |
| 75° | 2044 | 1785 | 1871 |
| 80° | 1373 | 1287 | 1201 |
| 85° | 855 | 1025 | 1196 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4520 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 445.8 | 4.7 |
| 10°-20° | 1223.5 | 13.0 |
| 20°-30° | 1693.9 | 18.0 |
| 30°-40° | 1806.1 | 19.2 |
| 40°-50° | 1647.7 | 17.5 |
| 50°-60° | 1290.9 | 13.7 |
| 60°-70° | 841.3 | 8.9 |
| 70°-80° | 372.7 | 4.0 |
| 80°-90° | 80.0 | 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° | 3363.2 | 35.8 |
| 0°-40° | 5169.3 | 55.0 |
| 0°-60° | 8107.9 | 86.2 |
| 0°-90° | 9402.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 9402.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4789 | 4789 | 4789 | 4789 | 4789 | |
| 5° | 4706 | 4701 | 4701 | 4695 | 4695 | 447 |
| 15° | 4402 | 4402 | 4357 | 4313 | 4296 | 1237 |
| 25° | 3815 | 3793 | 3732 | 3599 | 3499 | 1751 |
| 35° | 3095 | 3073 | 2923 | 2702 | 2636 | 1935 |
| 45° | 2375 | 2325 | 2126 | 1949 | 1871 | 1830 |
| 55° | 1650 | 1600 | 1451 | 1279 | 1212 | 1480 |
| 65° | 980 | 925 | 836 | 853 | 709 | 966 |
| 75° | 393 | 365 | 343 | 327 | 360 | 421 |
| 85° | 55 | 61 | 66 | 72 | 78 | 77 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P562531

CATALOG NUMBER: FSR-24-4-LD4-2HI-35-UNV-93-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4789.3 | 4789.3 | 4789.3 | 4789.3 | 4789.3 |
| 2.5° | 4756.0 | 4756.0 | 4756.0 | 4750.5 | 4750.5 |
| 5° | 4706.2 | 4700.7 | 4700.7 | 4695.1 | 4695.1 |
| 7.5° | 4667.4 | 4661.9 | 4656.4 | 4650.8 | 4639.8 |
| 10° | 4612.1 | 4612.1 | 4606.5 | 4578.9 | 4573.3 |
| 12.5° | 4523.5 | 4518.0 | 4495.8 | 4457.1 | 4446.0 |
| 15° | 4401.7 | 4401.7 | 4357.4 | 4313.1 | 4296.5 |
| 17.5° | 4268.8 | 4263.3 | 4207.9 | 4163.6 | 4141.5 |
| 20° | 4124.8 | 4113.8 | 4058.4 | 3986.4 | 3947.7 |
| 22.5° | 3964.3 | 3964.3 | 3897.8 | 3803.7 | 3765.0 |
| 25° | 3814.8 | 3792.6 | 3731.7 | 3598.9 | 3499.2 |
| 27.5° | 3643.2 | 3609.9 | 3543.5 | 3355.2 | 3239.0 |
| 30° | 3454.9 | 3438.3 | 3344.2 | 3100.6 | 3012.0 |
| 32.5° | 3277.7 | 3250.0 | 3150.4 | 2895.7 | 2823.7 |
| 35° | 3095.0 | 3072.9 | 2923.4 | 2701.9 | 2635.5 |
| 37.5° | 2912.3 | 2884.6 | 2696.4 | 2519.2 | 2436.2 |
| 40° | 2729.6 | 2696.4 | 2491.5 | 2331.0 | 2242.4 |
| 42.5° | 2558.0 | 2513.7 | 2314.3 | 2142.7 | 2043.0 |
| 45° | 2375.2 | 2325.4 | 2126.1 | 1948.9 | 1871.4 |
| 47.5° | 2192.5 | 2148.2 | 1965.5 | 1782.8 | 1694.2 |
| 50° | 1998.8 | 1960.0 | 1793.9 | 1611.2 | 1517.1 |
| 52.5° | 1838.2 | 1777.3 | 1616.7 | 1434.0 | 1356.5 |
| 55° | 1649.9 | 1600.1 | 1450.6 | 1279.0 | 1212.5 |
| 57.5° | 1478.3 | 1428.5 | 1290.1 | 1129.5 | 1074.1 |
| 60° | 1317.7 | 1245.8 | 1129.5 | 991.1 | 946.8 |
| 62.5° | 1140.6 | 1085.2 | 985.5 | 869.3 | 924.6 |
| 65° | 980.0 | 924.6 | 836.0 | 852.7 | 708.7 |
| 67.5° | 802.8 | 775.1 | 697.6 | 620.1 | 598.0 |
| 70° | 653.3 | 620.1 | 592.4 | 509.4 | 487.2 |
| 72.5° | 520.5 | 487.2 | 448.5 | 404.2 | 387.6 |
| 75° | 393.1 | 365.4 | 343.3 | 326.7 | 359.9 |
| 77.5° | 271.3 | 260.2 | 243.6 | 227.0 | 221.5 |
| 80° | 177.2 | 171.6 | 166.1 | 160.6 | 155.0 |
| 82.5° | 105.2 | 105.2 | 105.2 | 105.2 | 105.2 |
| 85° | 55.4 | 60.9 | 66.4 | 72.0 | 77.5 |
| 87.5° | 33.2 | 33.2 | 38.8 | 44.3 | 49.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)