

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: P561869

Luminaire Tested: FSR-12-4-LD4-2STD-50-UNV-81-96-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561869
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-12-4-LD4-2STD-50-UNV-81-96-EDD
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6425.0 lumens
Efficiency: N/A
Efficacy: 96.5 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

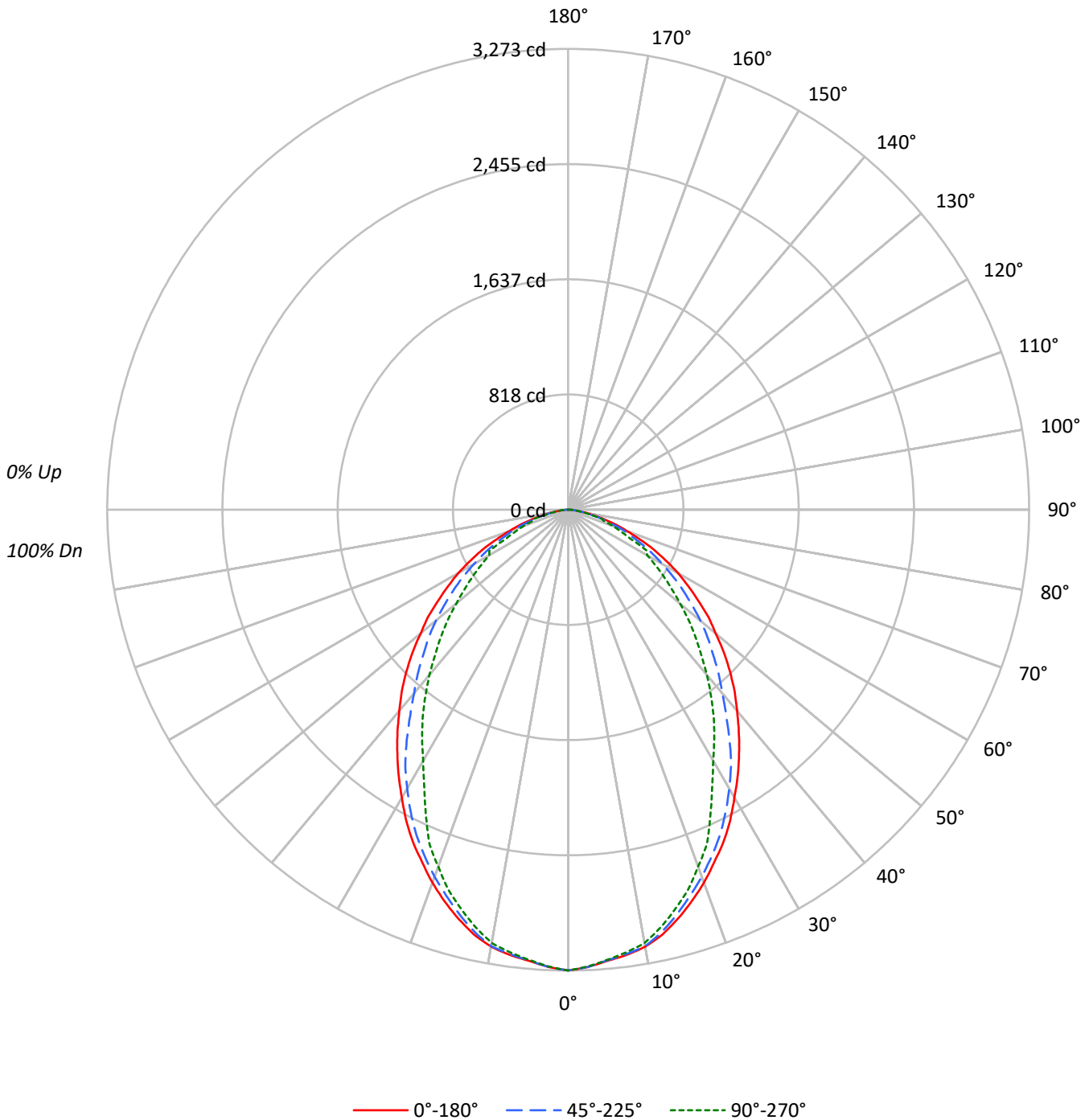
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561869

CATALOG NUMBER: FSR-12-4-LD4-2STD-50-UNV-81-96-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 | 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° | 8807 | 8807 | 8807 |
| 5° | 8688 | 8677 | 8667 |
| 10° | 8612 | 8602 | 8540 |
| 15° | 8380 | 8296 | 8180 |
| 20° | 8072 | 7942 | 7725 |
| 25° | 7740 | 7572 | 7100 |
| 30° | 7336 | 7101 | 6396 |
| 35° | 6948 | 6563 | 5916 |
| 40° | 6552 | 5981 | 5383 |
| 45° | 6177 | 5529 | 4867 |
| 50° | 5718 | 5132 | 4340 |
| 55° | 5290 | 4651 | 3887 |
| 60° | 4846 | 4154 | 3482 |
| 65° | 4264 | 3638 | 3084 |
| 70° | 3513 | 3185 | 2620 |
| 75° | 2793 | 2439 | 2557 |
| 80° | 1877 | 1759 | 1641 |
| 85° | 1167 | 1402 | 1636 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 6177 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 304.7 | 4.7 |
| 10°-20° | 836.1 | 13.0 |
| 20°-30° | 1157.5 | 18.0 |
| 30°-40° | 1234.3 | 19.2 |
| 40°-50° | 1126.0 | 17.5 |
| 50°-60° | 882.1 | 13.7 |
| 60°-70° | 574.9 | 8.9 |
| 70°-80° | 254.7 | 4.0 |
| 80°-90° | 54.7 | 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° | 2298.3 | 35.8 |
| 0°-40° | 3532.5 | 55.0 |
| 0°-60° | 5540.7 | 86.2 |
| 0°-90° | 6425.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6425.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3273 | 3273 | 3273 | 3273 | 3273 | |
| 5° | 3216 | 3212 | 3212 | 3208 | 3208 | 305 |
| 15° | 3008 | 3008 | 2978 | 2947 | 2936 | 846 |
| 25° | 2607 | 2592 | 2550 | 2459 | 2391 | 1197 |
| 35° | 2115 | 2100 | 1998 | 1846 | 1801 | 1322 |
| 45° | 1623 | 1589 | 1453 | 1332 | 1279 | 1250 |
| 55° | 1128 | 1094 | 991 | 874 | 829 | 1011 |
| 65° | 670 | 632 | 571 | 583 | 484 | 660 |
| 75° | 269 | 250 | 235 | 223 | 246 | 288 |
| 85° | 38 | 42 | 45 | 49 | 53 | 52 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3272.8 | 3272.8 | 3272.8 | 3272.8 | 3272.8 |
| 2.5° | 3250.1 | 3250.1 | 3250.1 | 3246.3 | 3246.3 |
| 5° | 3216.1 | 3212.3 | 3212.3 | 3208.5 | 3208.5 |
| 7.5° | 3189.6 | 3185.8 | 3182.0 | 3178.2 | 3170.7 |
| 10° | 3151.7 | 3151.7 | 3148.0 | 3129.0 | 3125.2 |
| 12.5° | 3091.2 | 3087.4 | 3072.3 | 3045.8 | 3038.2 |
| 15° | 3008.0 | 3008.0 | 2977.7 | 2947.4 | 2936.1 |
| 17.5° | 2917.2 | 2913.4 | 2875.5 | 2845.3 | 2830.1 |
| 20° | 2818.8 | 2811.2 | 2773.4 | 2724.2 | 2697.7 |
| 22.5° | 2709.1 | 2709.1 | 2663.7 | 2599.3 | 2572.8 |
| 25° | 2606.9 | 2591.8 | 2550.1 | 2459.3 | 2391.2 |
| 27.5° | 2489.6 | 2466.9 | 2421.5 | 2292.9 | 2213.4 |
| 30° | 2361.0 | 2349.6 | 2285.3 | 2118.8 | 2058.3 |
| 32.5° | 2239.9 | 2221.0 | 2152.9 | 1978.8 | 1929.6 |
| 35° | 2115.0 | 2099.9 | 1997.7 | 1846.4 | 1801.0 |
| 37.5° | 1990.2 | 1971.3 | 1842.6 | 1721.5 | 1664.8 |
| 40° | 1865.3 | 1842.6 | 1702.6 | 1592.9 | 1532.4 |
| 42.5° | 1748.0 | 1717.8 | 1581.5 | 1464.3 | 1396.1 |
| 45° | 1623.2 | 1589.1 | 1452.9 | 1331.8 | 1278.9 |
| 47.5° | 1498.3 | 1468.0 | 1343.2 | 1218.3 | 1157.8 |
| 50° | 1365.9 | 1339.4 | 1225.9 | 1101.0 | 1036.7 |
| 52.5° | 1256.2 | 1214.5 | 1104.8 | 980.0 | 927.0 |
| 55° | 1127.5 | 1093.5 | 991.3 | 874.0 | 828.6 |
| 57.5° | 1010.2 | 976.2 | 881.6 | 771.9 | 734.0 |
| 60° | 900.5 | 851.3 | 771.9 | 677.3 | 647.0 |
| 62.5° | 779.4 | 741.6 | 673.5 | 594.0 | 631.9 |
| 65° | 669.7 | 631.9 | 571.3 | 582.7 | 484.3 |
| 67.5° | 548.6 | 529.7 | 476.7 | 423.8 | 408.6 |
| 70° | 446.5 | 423.8 | 404.8 | 348.1 | 333.0 |
| 72.5° | 355.7 | 333.0 | 306.5 | 276.2 | 264.9 |
| 75° | 268.6 | 249.7 | 234.6 | 223.2 | 245.9 |
| 77.5° | 185.4 | 177.8 | 166.5 | 155.1 | 151.3 |
| 80° | 121.1 | 117.3 | 113.5 | 109.7 | 105.9 |
| 82.5° | 71.9 | 71.9 | 71.9 | 71.9 | 71.9 |
| 85° | 37.8 | 41.6 | 45.4 | 49.2 | 53.0 |
| 87.5° | 22.7 | 22.7 | 26.5 | 30.3 | 34.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)