

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: P561900

Luminaire Tested: FSR-12-4-LD4-2STD-50-UNV-93-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561900
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-93-96-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 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: 5896.0 lumens
Efficiency: N/A
Efficacy: 88.5 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

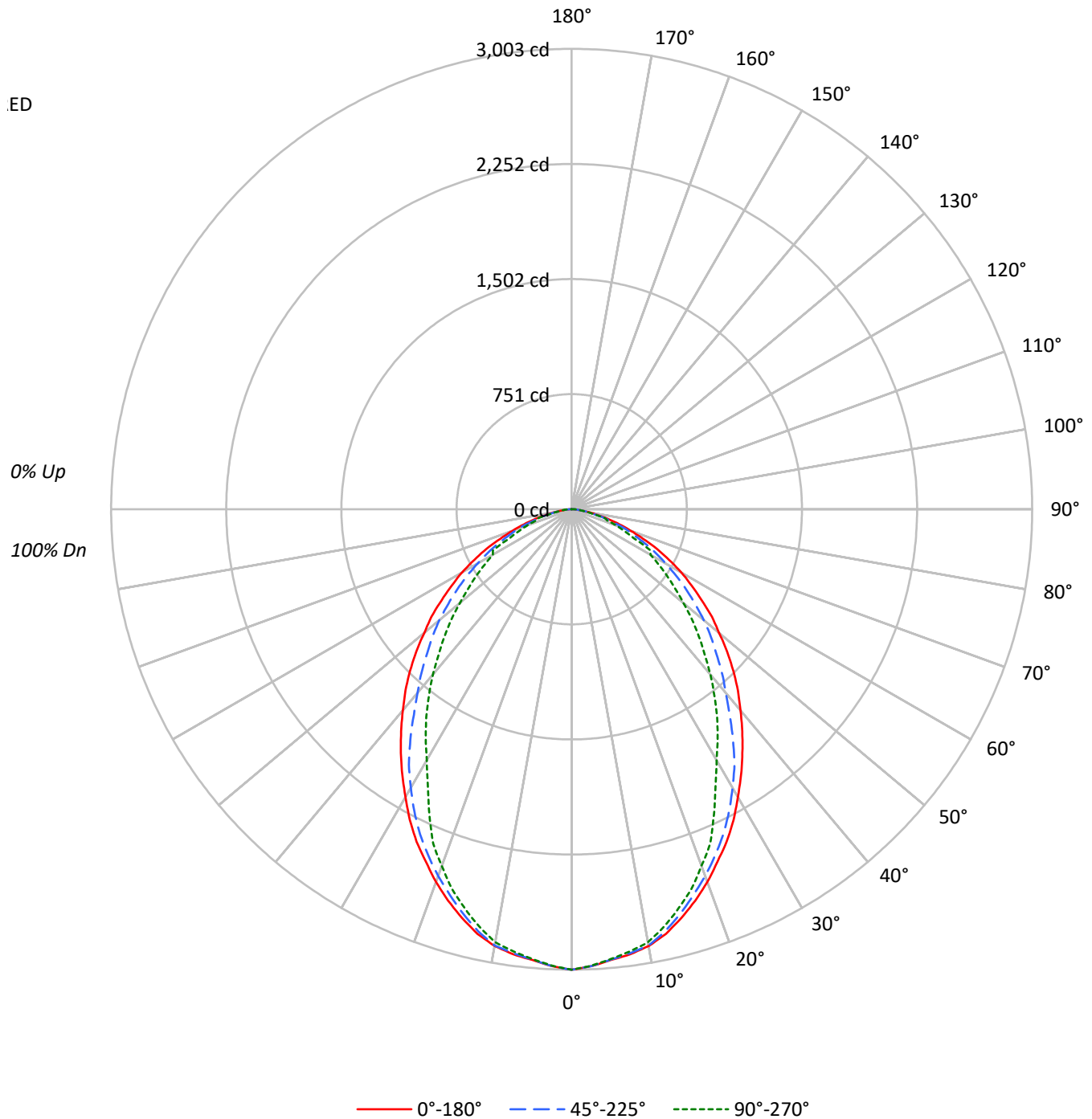
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561900

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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 | 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° | 8082 | 8082 | 8082 |
| 5° | 7972 | 7963 | 7953 |
| 10° | 7903 | 7894 | 7837 |
| 15° | 7690 | 7612 | 7506 |
| 20° | 7407 | 7288 | 7089 |
| 25° | 7103 | 6948 | 6516 |
| 30° | 6732 | 6516 | 5869 |
| 35° | 6376 | 6023 | 5429 |
| 40° | 6013 | 5488 | 4940 |
| 45° | 5668 | 5074 | 4466 |
| 50° | 5247 | 4710 | 3983 |
| 55° | 4854 | 4268 | 3567 |
| 60° | 4448 | 3812 | 3195 |
| 65° | 3913 | 3338 | 2830 |
| 70° | 3223 | 2923 | 2404 |
| 75° | 2563 | 2239 | 2347 |
| 80° | 1722 | 1615 | 1506 |
| 85° | 1071 | 1288 | 1501 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5668 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 279.6 | 4.7 |
| 10°-20° | 767.3 | 13.0 |
| 20°-30° | 1062.2 | 18.0 |
| 30°-40° | 1132.6 | 19.2 |
| 40°-50° | 1033.3 | 17.5 |
| 50°-60° | 809.5 | 13.7 |
| 60°-70° | 527.6 | 8.9 |
| 70°-80° | 233.8 | 4.0 |
| 80°-90° | 50.2 | 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° | 2109.0 | 35.8 |
| 0°-40° | 3241.7 | 55.0 |
| 0°-60° | 5084.5 | 86.2 |
| 0°-90° | 5896.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5896.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3003 | 3003 | 3003 | 3003 | 3003 | |
| 5° | 2951 | 2948 | 2948 | 2944 | 2944 | 280 |
| 15° | 2760 | 2760 | 2732 | 2705 | 2694 | 776 |
| 25° | 2392 | 2378 | 2340 | 2257 | 2194 | 1098 |
| 35° | 1941 | 1927 | 1833 | 1694 | 1653 | 1213 |
| 45° | 1490 | 1458 | 1333 | 1222 | 1174 | 1147 |
| 55° | 1035 | 1003 | 910 | 802 | 760 | 928 |
| 65° | 615 | 580 | 524 | 535 | 444 | 606 |
| 75° | 246 | 229 | 215 | 205 | 226 | 264 |
| 85° | 35 | 38 | 42 | 45 | 49 | 48 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561900

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3003.3 | 3003.3 | 3003.3 | 3003.3 | 3003.3 |
| 2.5° | 2982.5 | 2982.5 | 2982.5 | 2979.0 | 2979.0 |
| 5° | 2951.3 | 2947.8 | 2947.8 | 2944.3 | 2944.3 |
| 7.5° | 2927.0 | 2923.5 | 2920.0 | 2916.5 | 2909.6 |
| 10° | 2892.2 | 2892.2 | 2888.8 | 2871.4 | 2867.9 |
| 12.5° | 2836.7 | 2833.2 | 2819.3 | 2795.0 | 2788.1 |
| 15° | 2760.3 | 2760.3 | 2732.5 | 2704.7 | 2694.3 |
| 17.5° | 2677.0 | 2673.5 | 2638.8 | 2611.0 | 2597.1 |
| 20° | 2586.7 | 2579.8 | 2545.0 | 2499.9 | 2475.6 |
| 22.5° | 2486.0 | 2486.0 | 2444.3 | 2385.3 | 2361.0 |
| 25° | 2392.3 | 2378.4 | 2340.2 | 2256.8 | 2194.4 |
| 27.5° | 2284.6 | 2263.8 | 2222.1 | 2104.1 | 2031.2 |
| 30° | 2166.6 | 2156.2 | 2097.1 | 1944.4 | 1888.8 |
| 32.5° | 2055.5 | 2038.1 | 1975.6 | 1815.9 | 1770.8 |
| 35° | 1940.9 | 1927.0 | 1833.3 | 1694.4 | 1652.7 |
| 37.5° | 1826.3 | 1809.0 | 1690.9 | 1579.8 | 1527.7 |
| 40° | 1711.7 | 1690.9 | 1562.4 | 1461.7 | 1406.2 |
| 42.5° | 1604.1 | 1576.3 | 1451.3 | 1343.7 | 1281.2 |
| 45° | 1489.5 | 1458.3 | 1333.3 | 1222.2 | 1173.6 |
| 47.5° | 1374.9 | 1347.2 | 1232.6 | 1118.0 | 1062.5 |
| 50° | 1253.4 | 1229.1 | 1125.0 | 1010.4 | 951.3 |
| 52.5° | 1152.7 | 1114.5 | 1013.8 | 899.3 | 850.7 |
| 55° | 1034.7 | 1003.4 | 909.7 | 802.0 | 760.4 |
| 57.5° | 927.0 | 895.8 | 809.0 | 708.3 | 673.6 |
| 60° | 826.4 | 781.2 | 708.3 | 621.5 | 593.7 |
| 62.5° | 715.2 | 680.5 | 618.0 | 545.1 | 579.8 |
| 65° | 614.6 | 579.8 | 524.3 | 534.7 | 444.4 |
| 67.5° | 503.5 | 486.1 | 437.5 | 388.9 | 375.0 |
| 70° | 409.7 | 388.9 | 371.5 | 319.4 | 305.5 |
| 72.5° | 326.4 | 305.5 | 281.2 | 253.5 | 243.0 |
| 75° | 246.5 | 229.2 | 215.3 | 204.9 | 225.7 |
| 77.5° | 170.1 | 163.2 | 152.8 | 142.4 | 138.9 |
| 80° | 111.1 | 107.6 | 104.2 | 100.7 | 97.2 |
| 82.5° | 66.0 | 66.0 | 66.0 | 66.0 | 66.0 |
| 85° | 34.7 | 38.2 | 41.7 | 45.1 | 48.6 |
| 87.5° | 20.8 | 20.8 | 24.3 | 27.8 | 31.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)