

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: P563902

Luminaire Tested: FSR-24-4-LD4-4LO-40-UNV-80-97-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563902
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-LD4-4LO-40-UNV-80-97-EDD-90
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9453.0 lumens
Efficiency: N/A
Efficacy: 101.0 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

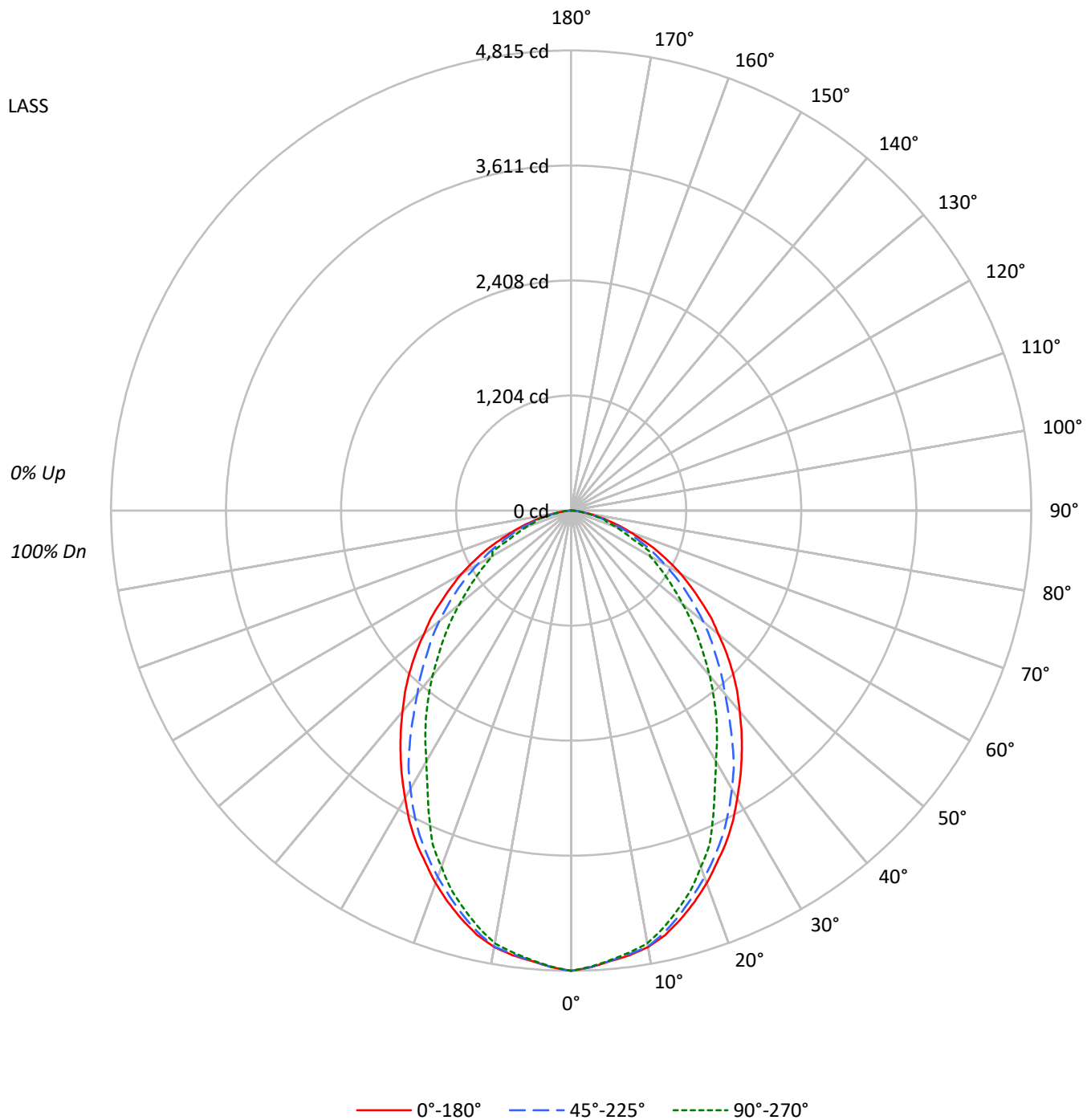
Input Watts (W): 93.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563902

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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° | 6479 | 6479 | 6479 |
| 5° | 6391 | 6383 | 6376 |
| 10° | 6335 | 6328 | 6282 |
| 15° | 6165 | 6103 | 6017 |
| 20° | 5938 | 5842 | 5683 |
| 25° | 5694 | 5570 | 5223 |
| 30° | 5397 | 5224 | 4705 |
| 35° | 5111 | 4828 | 4352 |
| 40° | 4820 | 4400 | 3960 |
| 45° | 4544 | 4067 | 3580 |
| 50° | 4207 | 3775 | 3193 |
| 55° | 3891 | 3421 | 2860 |
| 60° | 3565 | 3056 | 2562 |
| 65° | 3137 | 2676 | 2268 |
| 70° | 2584 | 2343 | 1927 |
| 75° | 2054 | 1794 | 1881 |
| 80° | 1380 | 1294 | 1208 |
| 85° | 860 | 1031 | 1203 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4544 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 448.2 | 4.7 |
| 10°-20° | 1230.1 | 13.0 |
| 20°-30° | 1703.0 | 18.0 |
| 30°-40° | 1815.9 | 19.2 |
| 40°-50° | 1656.7 | 17.5 |
| 50°-60° | 1297.9 | 13.7 |
| 60°-70° | 845.9 | 8.9 |
| 70°-80° | 374.8 | 4.0 |
| 80°-90° | 80.5 | 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° | 3381.4 | 35.8 |
| 0°-40° | 5197.4 | 55.0 |
| 0°-60° | 8151.9 | 86.2 |
| 0°-90° | 9453.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 9453.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4815 | 4815 | 4815 | 4815 | 4815 | |
| 5° | 4732 | 4726 | 4726 | 4721 | 4721 | 449 |
| 15° | 4426 | 4426 | 4381 | 4336 | 4320 | 1244 |
| 25° | 3836 | 3813 | 3752 | 3618 | 3518 | 1761 |
| 35° | 3112 | 3090 | 2939 | 2717 | 2650 | 1945 |
| 45° | 2388 | 2338 | 2138 | 1960 | 1882 | 1840 |
| 55° | 1659 | 1609 | 1458 | 1286 | 1219 | 1488 |
| 65° | 985 | 930 | 841 | 857 | 712 | 971 |
| 75° | 395 | 367 | 345 | 328 | 362 | 424 |
| 85° | 56 | 61 | 67 | 72 | 78 | 77 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563902

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4815.2 | 4815.2 | 4815.2 | 4815.2 | 4815.2 |
| 2.5° | 4781.8 | 4781.8 | 4781.8 | 4776.3 | 4776.3 |
| 5° | 4731.7 | 4726.2 | 4726.2 | 4720.6 | 4720.6 |
| 7.5° | 4692.8 | 4687.2 | 4681.6 | 4676.1 | 4664.9 |
| 10° | 4637.1 | 4637.1 | 4631.5 | 4603.7 | 4598.1 |
| 12.5° | 4548.0 | 4542.5 | 4520.2 | 4481.2 | 4470.1 |
| 15° | 4425.6 | 4425.6 | 4381.0 | 4336.5 | 4319.8 |
| 17.5° | 4292.0 | 4286.4 | 4230.7 | 4186.2 | 4163.9 |
| 20° | 4147.2 | 4136.1 | 4080.4 | 4008.1 | 3969.1 |
| 22.5° | 3985.8 | 3985.8 | 3919.0 | 3824.4 | 3785.4 |
| 25° | 3835.5 | 3813.2 | 3752.0 | 3618.4 | 3518.2 |
| 27.5° | 3662.9 | 3629.5 | 3562.7 | 3373.4 | 3256.5 |
| 30° | 3473.6 | 3456.9 | 3362.3 | 3117.4 | 3028.3 |
| 32.5° | 3295.5 | 3267.7 | 3167.5 | 2911.4 | 2839.0 |
| 35° | 3111.8 | 3089.5 | 2939.2 | 2716.6 | 2649.8 |
| 37.5° | 2928.1 | 2900.3 | 2711.0 | 2532.9 | 2449.4 |
| 40° | 2744.4 | 2711.0 | 2505.0 | 2343.6 | 2254.5 |
| 42.5° | 2571.8 | 2527.3 | 2326.9 | 2154.3 | 2054.1 |
| 45° | 2388.1 | 2338.0 | 2137.6 | 1959.5 | 1881.6 |
| 47.5° | 2204.4 | 2159.9 | 1976.2 | 1792.5 | 1703.4 |
| 50° | 2009.6 | 1970.6 | 1803.6 | 1619.9 | 1525.3 |
| 52.5° | 1848.2 | 1786.9 | 1625.5 | 1441.8 | 1363.9 |
| 55° | 1658.9 | 1608.8 | 1458.5 | 1285.9 | 1219.1 |
| 57.5° | 1486.3 | 1436.2 | 1297.1 | 1135.6 | 1079.9 |
| 60° | 1324.9 | 1252.5 | 1135.6 | 996.4 | 951.9 |
| 62.5° | 1146.7 | 1091.1 | 990.9 | 874.0 | 929.6 |
| 65° | 985.3 | 929.6 | 840.6 | 857.3 | 712.5 |
| 67.5° | 807.2 | 779.3 | 701.4 | 623.5 | 601.2 |
| 70° | 656.9 | 623.5 | 595.6 | 512.1 | 489.9 |
| 72.5° | 523.3 | 489.9 | 450.9 | 406.4 | 389.7 |
| 75° | 395.2 | 367.4 | 345.1 | 328.4 | 361.8 |
| 77.5° | 272.8 | 261.6 | 244.9 | 228.2 | 222.7 |
| 80° | 178.1 | 172.6 | 167.0 | 161.4 | 155.9 |
| 82.5° | 105.8 | 105.8 | 105.8 | 105.8 | 105.8 |
| 85° | 55.7 | 61.2 | 66.8 | 72.4 | 77.9 |
| 87.5° | 33.4 | 33.4 | 39.0 | 44.5 | 50.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)