

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: P590979

Luminaire Tested: FSR-24-2-LD4-4STD-50-UNV-81-96-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590979
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)
Test Lab: INNOVATION CENTER
Issue Date: 12/8/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FSR-24-2-LD4-4STD-50-UNV-81-96-EDD
Description: 2X2 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: 7549.0 lumens
Efficiency: N/A
Efficacy: 113.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

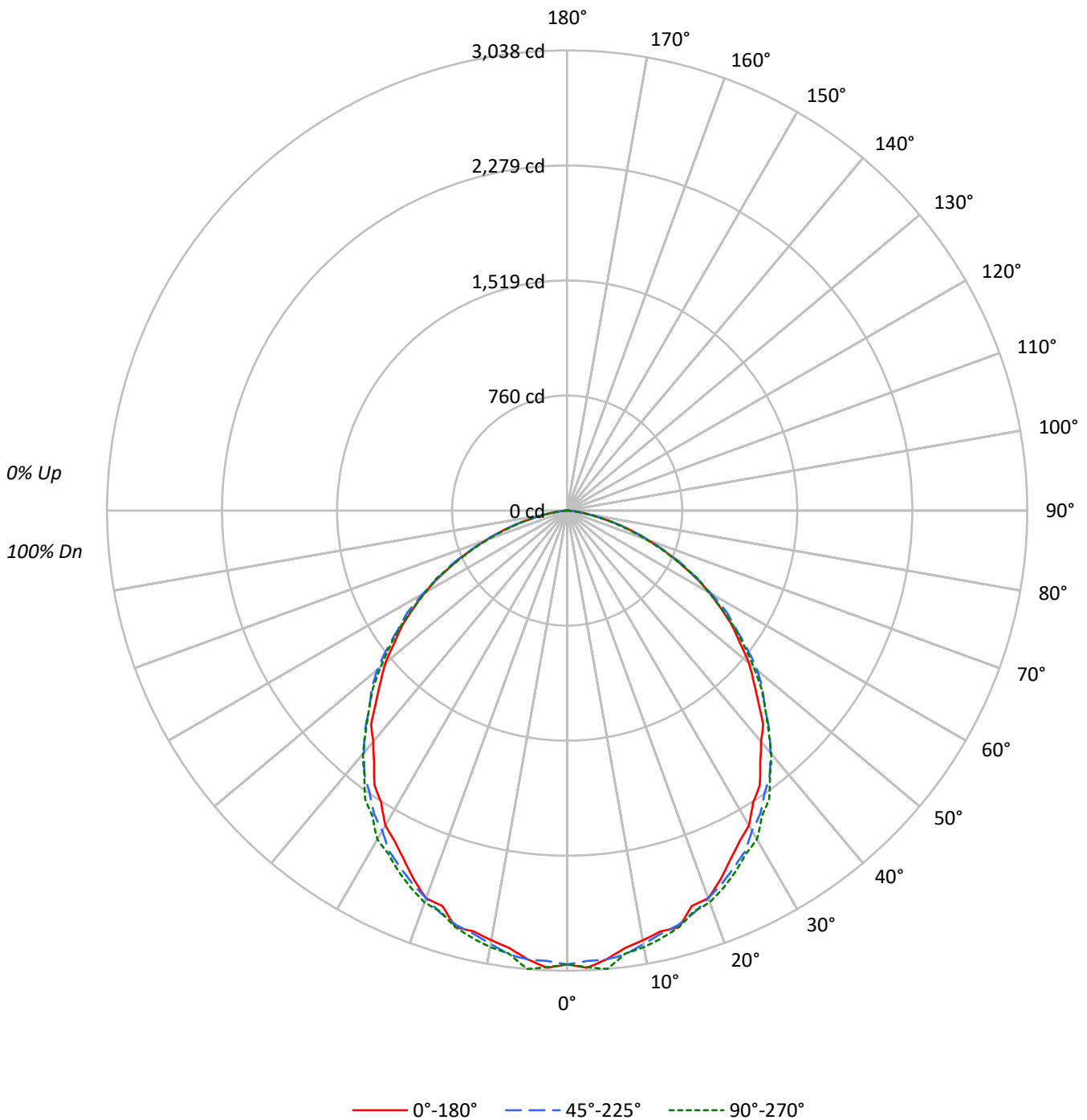
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot



TEST NUMBER: P590979

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|-----|--|--|--|----|--|--|--|--|--|--|--|--|---|
| RF | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | 20 | | | | | | | | | |
| RC | 80 | | | | | | | | | 70 | | | | | | | | | 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 | 0 | | | | | | | | | | | | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | | 100 | | | | | | | | | | | | | |
| 1 | 110 | 105 | 101 | 98 | 107 | 103 | 100 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 90 | 88 | 86 | | | | | | 86 | | | | | | | | | | | | | |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 78 | 75 | 73 | | | | | | 73 | | | | | | | | | | | | | |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | 62 | | | | | | 62 | | | | | | | | | | | | | |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | 53 | | | | | | 53 | | | | | | | | | | | | | |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | 46 | | | | | | 46 | | | | | | | | | | | | | |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | | 41 | | | | | | | | | | | | | |
| 7 | 67 | 53 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 48 | 42 | 38 | 36 | | | | | | 36 | | | | | | | | | | | | | |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 39 | 34 | 32 | | | | | | 32 | | | | | | | | | | | | | |
| 9 | 58 | 45 | 37 | 31 | 57 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 29 | | | | | | 29 | | | | | | | | | | | | | |
| 10 | 54 | 41 | 34 | 29 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 | | | | | | 26 | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 8060 | 8060 | 8060 |
| 5° | 8034 | 8037 | 8206 |
| 10° | 7871 | 7939 | 7995 |
| 15° | 7933 | 7890 | 7934 |
| 20° | 7799 | 7799 | 7882 |
| 25° | 7559 | 7725 | 7810 |
| 30° | 7455 | 7586 | 7788 |
| 35° | 7280 | 7470 | 7638 |
| 40° | 6996 | 7333 | 7366 |
| 45° | 6785 | 7026 | 7037 |
| 50° | 6562 | 6858 | 6727 |
| 55° | 6252 | 6374 | 6328 |
| 60° | 5846 | 5905 | 5799 |
| 65° | 5213 | 5346 | 5176 |
| 70° | 4473 | 4488 | 4364 |
| 75° | 3542 | 3534 | 3398 |
| 80° | 2373 | 2307 | 2218 |
| 85° | 1291 | 1278 | 1195 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 7207 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 281.7 | 3.7 |
| 10°-20° | 798.5 | 10.6 |
| 20°-30° | 1196.3 | 15.8 |
| 30°-40° | 1417.9 | 18.8 |
| 40°-50° | 1420.5 | 18.8 |
| 50°-60° | 1205.8 | 16.0 |
| 60°-70° | 812.9 | 10.8 |
| 70°-80° | 357.2 | 4.7 |
| 80°-90° | 58.1 | 0.8 |
| 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° | 2276.6 | 30.2 |
| 0°-40° | 3694.5 | 48.9 |
| 0°-60° | 6320.8 | 83.7 |
| 0°-90° | 7549.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7549.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2995 | 2995 | 2995 | 2995 | 2995 | |
| 5° | 2974 | 2967 | 2975 | 2966 | 3038 | 280 |
| 15° | 2848 | 2815 | 2832 | 2847 | 2848 | 793 |
| 25° | 2546 | 2560 | 2602 | 2636 | 2630 | 1177 |
| 35° | 2216 | 2223 | 2274 | 2327 | 2325 | 1376 |
| 45° | 1783 | 1816 | 1846 | 1894 | 1849 | 1379 |
| 55° | 1333 | 1324 | 1359 | 1349 | 1349 | 1185 |
| 65° | 819 | 808 | 840 | 808 | 813 | 814 |
| 75° | 341 | 334 | 340 | 316 | 327 | 365 |
| 85° | 42 | 41 | 41 | 40 | 39 | 61 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590979

CATALOG NUMBER: FSR-24-2-LD4-4STD-50-UNV-81-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2995.3 | 2995.3 | 2995.3 | 2995.3 | 2995.3 |
| 2.5° | 3021.2 | 2998.3 | 2977.1 | 3001.8 | 3016.9 |
| 5° | 2974.0 | 2967.0 | 2975.1 | 2966.2 | 3037.8 |
| 7.5° | 2912.9 | 2939.6 | 2955.0 | 2945.4 | 2949.6 |
| 10° | 2880.4 | 2871.1 | 2905.5 | 2929.5 | 2926.0 |
| 12.5° | 2845.6 | 2859.5 | 2861.4 | 2887.4 | 2889.7 |
| 15° | 2847.5 | 2814.6 | 2832.1 | 2846.7 | 2847.9 |
| 17.5° | 2736.9 | 2772.5 | 2784.5 | 2818.1 | 2776.4 |
| 20° | 2723.4 | 2697.5 | 2723.4 | 2757.8 | 2752.4 |
| 22.5° | 2640.2 | 2611.2 | 2666.9 | 2697.5 | 2695.5 |
| 25° | 2545.9 | 2559.8 | 2601.6 | 2635.6 | 2630.2 |
| 27.5° | 2463.1 | 2479.3 | 2538.9 | 2585.7 | 2555.5 |
| 30° | 2399.3 | 2391.2 | 2441.4 | 2483.2 | 2506.4 |
| 32.5° | 2285.2 | 2314.6 | 2373.4 | 2414.8 | 2392.7 |
| 35° | 2216.0 | 2222.6 | 2274.0 | 2326.6 | 2325.0 |
| 37.5° | 2094.9 | 2125.5 | 2197.8 | 2212.5 | 2199.0 |
| 40° | 1991.7 | 2022.2 | 2087.6 | 2103.4 | 2096.9 |
| 42.5° | 1915.5 | 1920.9 | 1977.0 | 1995.2 | 1966.2 |
| 45° | 1782.8 | 1816.1 | 1846.3 | 1893.8 | 1849.0 |
| 47.5° | 1669.9 | 1685.4 | 1750.4 | 1763.1 | 1739.5 |
| 50° | 1567.4 | 1572.8 | 1638.2 | 1622.3 | 1606.9 |
| 52.5° | 1438.6 | 1461.5 | 1498.2 | 1495.1 | 1476.9 |
| 55° | 1332.7 | 1323.8 | 1358.6 | 1349.3 | 1348.9 |
| 57.5° | 1205.4 | 1220.9 | 1249.5 | 1234.8 | 1211.2 |
| 60° | 1086.3 | 1086.7 | 1097.2 | 1080.5 | 1077.4 |
| 62.5° | 953.7 | 958.3 | 960.6 | 940.1 | 973.4 |
| 65° | 818.7 | 807.9 | 839.6 | 807.5 | 812.9 |
| 67.5° | 694.6 | 700.0 | 696.9 | 676.8 | 684.5 |
| 70° | 568.5 | 575.5 | 570.4 | 547.6 | 554.6 |
| 72.5° | 453.3 | 444.7 | 450.2 | 421.5 | 434.7 |
| 75° | 340.7 | 333.8 | 339.9 | 316.0 | 326.8 |
| 77.5° | 232.0 | 237.5 | 233.6 | 220.8 | 228.2 |
| 80° | 153.1 | 148.9 | 148.9 | 141.5 | 143.1 |
| 82.5° | 89.3 | 85.1 | 83.9 | 81.6 | 85.1 |
| 85° | 41.8 | 40.6 | 41.4 | 40.2 | 38.7 |
| 87.5° | 15.1 | 15.5 | 15.5 | 14.7 | 13.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)