

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: P590902

Luminaire Tested: FSR-24-2-LD4-4STD-35-UNV-80-85-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590902
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-35-UNV-80-85-EDD
Description: 2X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 CLEAR PC ENVIRONM
SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7650.0 lumens
Efficiency: N/A
Efficacy: 114.9 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

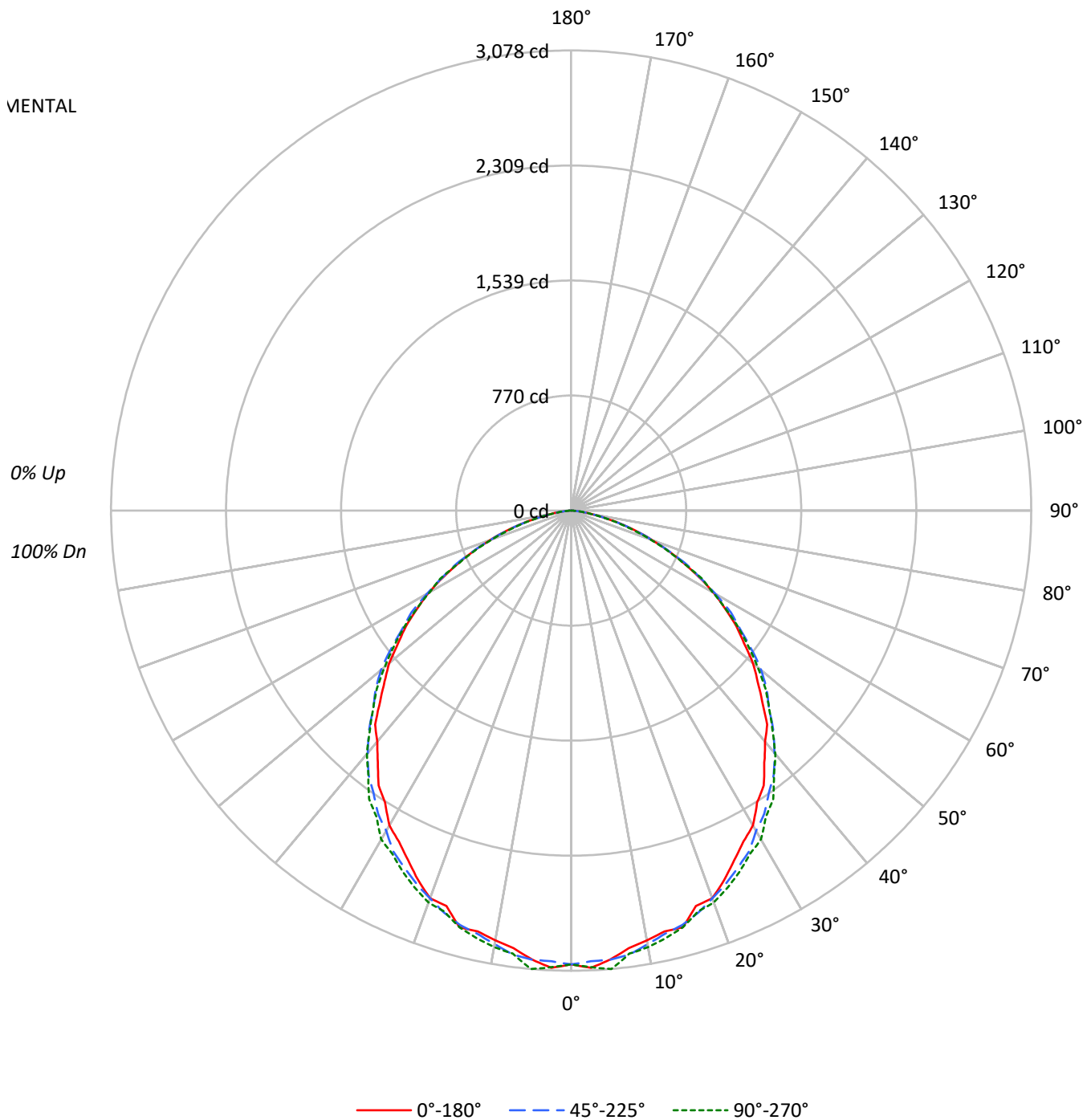
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 8168 | 8168 | 8168 |
| 5° | 8141 | 8144 | 8316 |
| 10° | 7976 | 8046 | 8102 |
| 15° | 8039 | 7995 | 8040 |
| 20° | 7903 | 7903 | 7987 |
| 25° | 7660 | 7828 | 7914 |
| 30° | 7555 | 7688 | 7892 |
| 35° | 7377 | 7570 | 7740 |
| 40° | 7090 | 7431 | 7464 |
| 45° | 6876 | 7120 | 7131 |
| 50° | 6650 | 6950 | 6817 |
| 55° | 6336 | 6459 | 6413 |
| 60° | 5925 | 5984 | 5877 |
| 65° | 5283 | 5417 | 5245 |
| 70° | 4533 | 4548 | 4422 |
| 75° | 3590 | 3582 | 3444 |
| 80° | 2405 | 2338 | 2247 |
| 85° | 1306 | 1294 | 1210 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 7304 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 285.5 | 3.7 |
| 10°-20° | 809.2 | 10.6 |
| 20°-30° | 1212.3 | 15.8 |
| 30°-40° | 1436.9 | 18.8 |
| 40°-50° | 1439.5 | 18.8 |
| 50°-60° | 1221.9 | 16.0 |
| 60°-70° | 823.8 | 10.8 |
| 70°-80° | 362.0 | 4.7 |
| 80°-90° | 58.8 | 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° | 2307.1 | 30.2 |
| 0°-40° | 3743.9 | 48.9 |
| 0°-60° | 6405.4 | 83.7 |
| 0°-90° | 7650.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7650.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3035 | 3035 | 3035 | 3035 | 3035 | |
| 5° | 3014 | 3007 | 3015 | 3006 | 3078 | 284 |
| 15° | 2886 | 2852 | 2870 | 2885 | 2886 | 804 |
| 25° | 2580 | 2594 | 2636 | 2671 | 2665 | 1193 |
| 35° | 2246 | 2252 | 2304 | 2358 | 2356 | 1394 |
| 45° | 1807 | 1840 | 1871 | 1919 | 1874 | 1398 |
| 55° | 1350 | 1342 | 1377 | 1367 | 1367 | 1201 |
| 65° | 830 | 819 | 851 | 818 | 824 | 825 |
| 75° | 345 | 338 | 344 | 320 | 331 | 370 |
| 85° | 42 | 41 | 42 | 41 | 39 | 61 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590902

CATALOG NUMBER: FSR-24-2-LD4-4STD-35-UNV-80-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3035.3 | 3035.3 | 3035.3 | 3035.3 | 3035.3 |
| 2.5° | 3061.6 | 3038.5 | 3016.9 | 3042.0 | 3057.3 |
| 5° | 3013.8 | 3006.7 | 3014.9 | 3005.9 | 3078.4 |
| 7.5° | 2951.9 | 2978.9 | 2994.6 | 2984.8 | 2989.1 |
| 10° | 2918.9 | 2909.5 | 2944.4 | 2968.7 | 2965.2 |
| 12.5° | 2883.7 | 2897.8 | 2899.7 | 2926.0 | 2928.3 |
| 15° | 2885.6 | 2852.3 | 2869.9 | 2884.8 | 2886.0 |
| 17.5° | 2773.5 | 2809.6 | 2821.7 | 2855.8 | 2813.5 |
| 20° | 2759.8 | 2733.6 | 2759.8 | 2794.7 | 2789.2 |
| 22.5° | 2675.6 | 2646.2 | 2702.6 | 2733.6 | 2731.6 |
| 25° | 2579.9 | 2594.0 | 2636.4 | 2670.9 | 2665.4 |
| 27.5° | 2496.1 | 2512.5 | 2572.9 | 2620.3 | 2589.7 |
| 30° | 2431.4 | 2423.2 | 2474.1 | 2516.4 | 2540.0 |
| 32.5° | 2315.8 | 2345.6 | 2405.1 | 2447.1 | 2424.7 |
| 35° | 2245.6 | 2252.3 | 2304.4 | 2357.7 | 2356.2 |
| 37.5° | 2123.0 | 2153.9 | 2227.2 | 2242.1 | 2228.4 |
| 40° | 2018.3 | 2049.3 | 2115.5 | 2131.6 | 2124.9 |
| 42.5° | 1941.1 | 1946.6 | 2003.4 | 2021.9 | 1992.5 |
| 45° | 1806.7 | 1840.4 | 1871.0 | 1919.2 | 1873.7 |
| 47.5° | 1692.3 | 1707.9 | 1773.8 | 1786.7 | 1762.8 |
| 50° | 1588.4 | 1593.9 | 1660.1 | 1644.1 | 1628.4 |
| 52.5° | 1457.9 | 1481.0 | 1518.3 | 1515.1 | 1496.7 |
| 55° | 1350.5 | 1341.5 | 1376.8 | 1367.4 | 1367.0 |
| 57.5° | 1221.6 | 1237.3 | 1266.3 | 1251.4 | 1227.5 |
| 60° | 1100.9 | 1101.3 | 1111.8 | 1095.0 | 1091.9 |
| 62.5° | 966.4 | 971.1 | 973.5 | 952.7 | 986.4 |
| 65° | 829.7 | 818.7 | 850.8 | 818.3 | 823.8 |
| 67.5° | 703.9 | 709.4 | 706.2 | 685.8 | 693.7 |
| 70° | 576.1 | 583.2 | 578.1 | 554.9 | 562.0 |
| 72.5° | 459.3 | 450.7 | 456.2 | 427.2 | 440.5 |
| 75° | 345.3 | 338.2 | 344.5 | 320.2 | 331.2 |
| 77.5° | 235.1 | 240.6 | 236.7 | 223.8 | 231.2 |
| 80° | 155.2 | 150.9 | 150.9 | 143.4 | 145.0 |
| 82.5° | 90.5 | 86.2 | 85.0 | 82.7 | 86.2 |
| 85° | 42.3 | 41.2 | 41.9 | 40.8 | 39.2 |
| 87.5° | 15.3 | 15.7 | 15.7 | 14.9 | 14.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)