

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: P562943

Luminaire Tested: FSR-24-4-LD4-2STD-40-UNV-80-97-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562943
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-LD4-2STD-40-UNV-80-97-EDD
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7533.0 lumens
Efficiency: N/A
Efficacy: 113.1 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

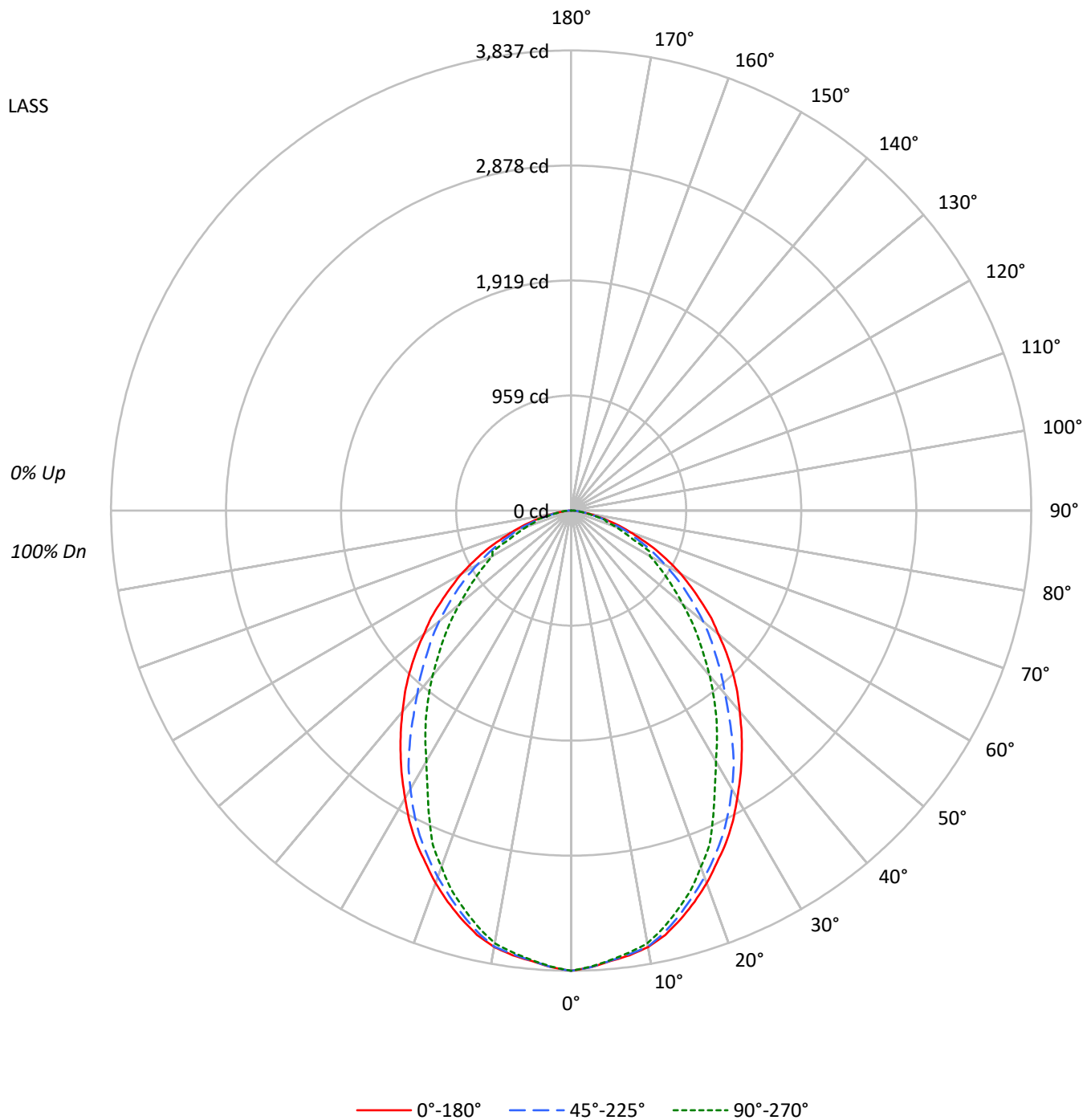
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562943

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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 | 0 | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | | |
| 1 | 110 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 | 87 | 87 | 87 | 87 | 87 | 87 | | |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | | |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | | |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | | |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | | |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | 44 | 44 | 44 | 44 | 44 | 44 | 44 | | |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | | |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | | |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | | |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5163 | 5163 | 5163 |
| 5° | 5093 | 5087 | 5081 |
| 10° | 5049 | 5043 | 5006 |
| 15° | 4913 | 4863 | 4795 |
| 20° | 4732 | 4656 | 4529 |
| 25° | 4538 | 4439 | 4162 |
| 30° | 4301 | 4163 | 3749 |
| 35° | 4073 | 3847 | 3468 |
| 40° | 3841 | 3506 | 3156 |
| 45° | 3621 | 3241 | 2853 |
| 50° | 3352 | 3009 | 2544 |
| 55° | 3101 | 2727 | 2279 |
| 60° | 2841 | 2435 | 2041 |
| 65° | 2500 | 2132 | 1808 |
| 70° | 2059 | 1867 | 1536 |
| 75° | 1638 | 1430 | 1499 |
| 80° | 1100 | 1031 | 962 |
| 85° | 685 | 821 | 959 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3621 cd/sqm

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 357.2 | 4.7 |
| 10°-20° | 980.3 | 13.0 |
| 20°-30° | 1357.1 | 18.0 |
| 30°-40° | 1447.1 | 19.2 |
| 40°-50° | 1320.2 | 17.5 |
| 50°-60° | 1034.3 | 13.7 |
| 60°-70° | 674.1 | 8.9 |
| 70°-80° | 298.6 | 4.0 |
| 80°-90° | 64.1 | 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° | 2694.6 | 35.8 |
| 0°-40° | 4141.7 | 55.0 |
| 0°-60° | 6496.2 | 86.2 |
| 0°-90° | 7533.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7533.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3837 | 3837 | 3837 | 3837 | 3837 | |
| 5° | 3771 | 3766 | 3766 | 3762 | 3762 | 358 |
| 15° | 3527 | 3527 | 3491 | 3456 | 3442 | 991 |
| 25° | 3056 | 3039 | 2990 | 2884 | 2804 | 1403 |
| 35° | 2480 | 2462 | 2342 | 2165 | 2112 | 1550 |
| 45° | 1903 | 1863 | 1704 | 1562 | 1499 | 1466 |
| 55° | 1322 | 1282 | 1162 | 1025 | 972 | 1186 |
| 65° | 785 | 741 | 670 | 683 | 568 | 774 |
| 75° | 315 | 293 | 275 | 262 | 288 | 338 |
| 85° | 44 | 49 | 53 | 58 | 62 | 62 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562943

CATALOG NUMBER: FSR-24-4-LD4-2STD-40-UNV-80-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3837.2 | 3837.2 | 3837.2 | 3837.2 | 3837.2 |
| 2.5° | 3810.6 | 3810.6 | 3810.6 | 3806.2 | 3806.2 |
| 5° | 3770.7 | 3766.2 | 3766.2 | 3761.8 | 3761.8 |
| 7.5° | 3739.6 | 3735.2 | 3730.7 | 3726.3 | 3717.4 |
| 10° | 3695.3 | 3695.3 | 3690.8 | 3668.6 | 3664.2 |
| 12.5° | 3624.3 | 3619.8 | 3602.1 | 3571.0 | 3562.2 |
| 15° | 3526.7 | 3526.7 | 3491.2 | 3455.7 | 3442.4 |
| 17.5° | 3420.2 | 3415.8 | 3371.4 | 3335.9 | 3318.2 |
| 20° | 3304.9 | 3296.0 | 3251.6 | 3194.0 | 3162.9 |
| 22.5° | 3176.2 | 3176.2 | 3123.0 | 3047.6 | 3016.5 |
| 25° | 3056.5 | 3038.7 | 2989.9 | 2883.5 | 2803.6 |
| 27.5° | 2918.9 | 2892.3 | 2839.1 | 2688.3 | 2595.1 |
| 30° | 2768.1 | 2754.8 | 2679.4 | 2484.2 | 2413.2 |
| 32.5° | 2626.2 | 2604.0 | 2524.1 | 2320.1 | 2262.4 |
| 35° | 2479.8 | 2462.0 | 2342.3 | 2164.8 | 2111.6 |
| 37.5° | 2333.4 | 2311.2 | 2160.4 | 2018.4 | 1951.9 |
| 40° | 2187.0 | 2160.4 | 1996.2 | 1867.6 | 1796.6 |
| 42.5° | 2049.5 | 2014.0 | 1854.3 | 1716.8 | 1636.9 |
| 45° | 1903.1 | 1863.2 | 1703.5 | 1561.5 | 1499.4 |
| 47.5° | 1756.7 | 1721.2 | 1574.8 | 1428.4 | 1357.4 |
| 50° | 1601.4 | 1570.4 | 1437.3 | 1290.9 | 1215.5 |
| 52.5° | 1472.8 | 1424.0 | 1295.3 | 1148.9 | 1086.8 |
| 55° | 1322.0 | 1282.0 | 1162.3 | 1024.7 | 971.5 |
| 57.5° | 1184.4 | 1144.5 | 1033.6 | 905.0 | 860.6 |
| 60° | 1055.8 | 998.1 | 905.0 | 794.1 | 758.6 |
| 62.5° | 913.8 | 869.5 | 789.6 | 696.5 | 740.8 |
| 65° | 785.2 | 740.8 | 669.8 | 683.2 | 567.8 |
| 67.5° | 643.2 | 621.1 | 558.9 | 496.8 | 479.1 |
| 70° | 523.5 | 496.8 | 474.7 | 408.1 | 390.4 |
| 72.5° | 417.0 | 390.4 | 359.3 | 323.8 | 310.5 |
| 75° | 315.0 | 292.8 | 275.0 | 261.7 | 288.3 |
| 77.5° | 217.4 | 208.5 | 195.2 | 181.9 | 177.4 |
| 80° | 142.0 | 137.5 | 133.1 | 128.6 | 124.2 |
| 82.5° | 84.3 | 84.3 | 84.3 | 84.3 | 84.3 |
| 85° | 44.4 | 48.8 | 53.2 | 57.7 | 62.1 |
| 87.5° | 26.6 | 26.6 | 31.1 | 35.5 | 39.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)