

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: P562941

Luminaire Tested: FSR-24-4-LD4-2STD-40-UNV-80-96-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562941
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-80-96-EDD
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 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: 7814.0 lumens
Efficiency: N/A
Efficacy: 117.3 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

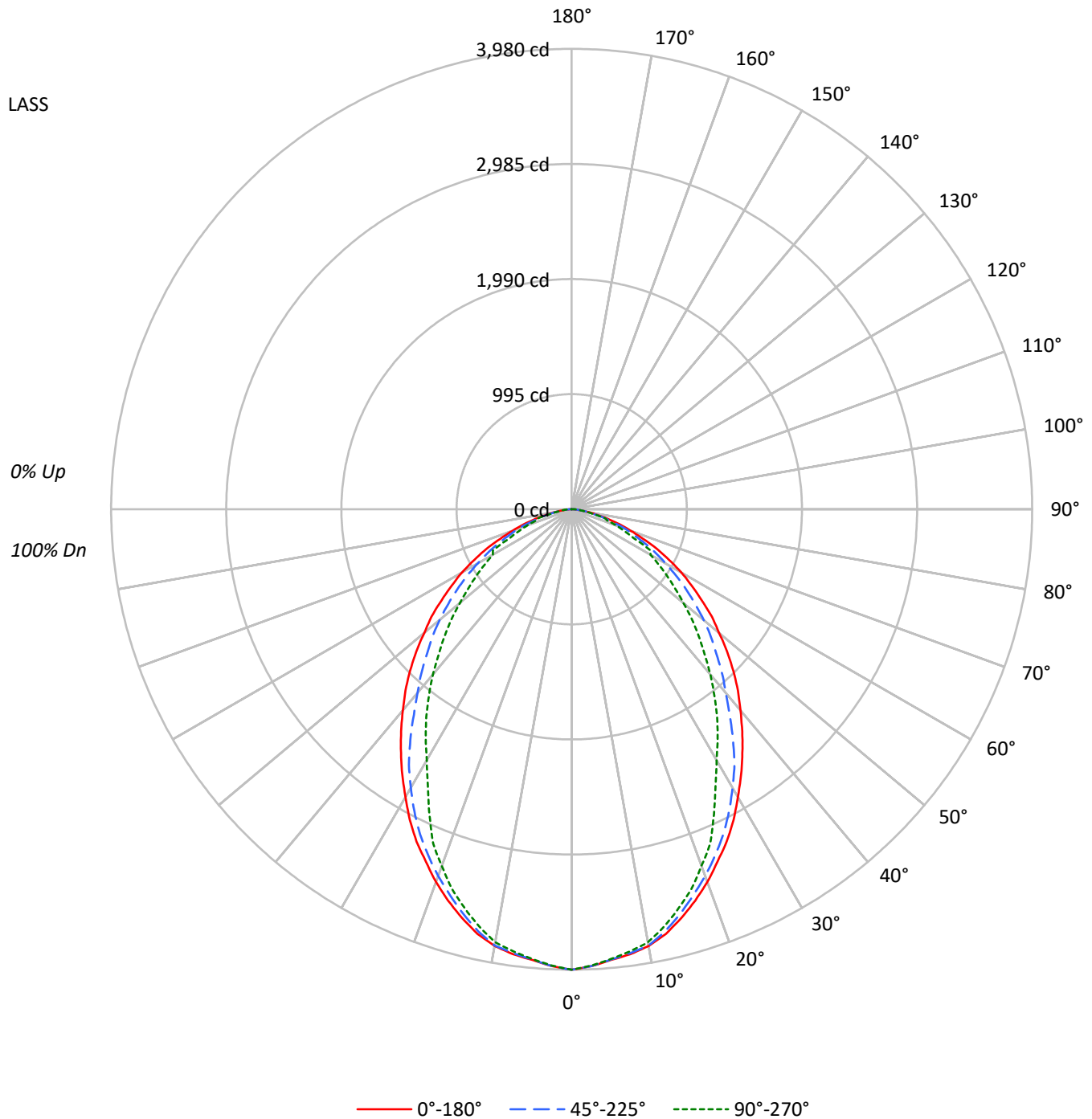
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P562941

CATALOG NUMBER: FSR-24-4-LD4-2STD-40-UNV-80-96-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P562941

CATALOG NUMBER: FSR-24-4-LD4-2STD-40-UNV-80-96-EDD

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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5355 | 5355 | 5355 |
| 5° | 5283 | 5277 | 5270 |
| 10° | 5237 | 5231 | 5193 |
| 15° | 5096 | 5044 | 4974 |
| 20° | 4909 | 4829 | 4698 |
| 25° | 4707 | 4604 | 4317 |
| 30° | 4461 | 4318 | 3889 |
| 35° | 4225 | 3991 | 3598 |
| 40° | 3985 | 3637 | 3273 |
| 45° | 3756 | 3362 | 2959 |
| 50° | 3477 | 3121 | 2639 |
| 55° | 3217 | 2828 | 2364 |
| 60° | 2947 | 2526 | 2118 |
| 65° | 2593 | 2212 | 1875 |
| 70° | 2136 | 1937 | 1593 |
| 75° | 1698 | 1483 | 1555 |
| 80° | 1141 | 1069 | 998 |
| 85° | 710 | 852 | 994 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3756 cd/sqm



TEST NUMBER: P562941

CATALOG NUMBER: FSR-24-4-LD4-2STD-40-UNV-80-96-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 370.5 | 4.7 |
| 10°-20° | 1016.9 | 13.0 |
| 20°-30° | 1407.8 | 18.0 |
| 30°-40° | 1501.1 | 19.2 |
| 40°-50° | 1369.4 | 17.5 |
| 50°-60° | 1072.8 | 13.7 |
| 60°-70° | 699.2 | 8.9 |
| 70°-80° | 309.8 | 4.0 |
| 80°-90° | 66.5 | 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° | 2795.1 | 35.8 |
| 0°-40° | 4296.2 | 55.0 |
| 0°-60° | 6738.5 | 86.2 |
| 0°-90° | 7814.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7814.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3980 | 3980 | 3980 | 3980 | 3980 | |
| 5° | 3911 | 3907 | 3907 | 3902 | 3902 | 371 |
| 15° | 3658 | 3658 | 3621 | 3585 | 3571 | 1028 |
| 25° | 3170 | 3152 | 3101 | 2991 | 2908 | 1456 |
| 35° | 2572 | 2554 | 2430 | 2246 | 2190 | 1608 |
| 45° | 1974 | 1933 | 1767 | 1620 | 1555 | 1521 |
| 55° | 1371 | 1330 | 1206 | 1063 | 1008 | 1230 |
| 65° | 814 | 768 | 695 | 709 | 589 | 803 |
| 75° | 327 | 304 | 285 | 272 | 299 | 350 |
| 85° | 46 | 51 | 55 | 60 | 64 | 64 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562941

CATALOG NUMBER: FSR-24-4-LD4-2STD-40-UNV-80-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3980.3 | 3980.3 | 3980.3 | 3980.3 | 3980.3 |
| 2.5° | 3952.7 | 3952.7 | 3952.7 | 3948.1 | 3948.1 |
| 5° | 3911.3 | 3906.7 | 3906.7 | 3902.1 | 3902.1 |
| 7.5° | 3879.1 | 3874.5 | 3869.9 | 3865.3 | 3856.1 |
| 10° | 3833.1 | 3833.1 | 3828.5 | 3805.5 | 3800.9 |
| 12.5° | 3759.5 | 3754.9 | 3736.5 | 3704.3 | 3695.1 |
| 15° | 3658.2 | 3658.2 | 3621.4 | 3584.6 | 3570.8 |
| 17.5° | 3547.8 | 3543.2 | 3497.2 | 3460.4 | 3442.0 |
| 20° | 3428.2 | 3419.0 | 3372.9 | 3313.1 | 3280.9 |
| 22.5° | 3294.7 | 3294.7 | 3239.5 | 3161.3 | 3129.1 |
| 25° | 3170.5 | 3152.1 | 3101.4 | 2991.0 | 2908.2 |
| 27.5° | 3027.8 | 3000.2 | 2945.0 | 2788.5 | 2691.9 |
| 30° | 2871.4 | 2857.6 | 2779.3 | 2576.9 | 2503.2 |
| 32.5° | 2724.1 | 2701.1 | 2618.3 | 2406.6 | 2346.8 |
| 35° | 2572.3 | 2553.9 | 2429.6 | 2245.6 | 2190.3 |
| 37.5° | 2420.4 | 2397.4 | 2241.0 | 2093.7 | 2024.7 |
| 40° | 2268.6 | 2241.0 | 2070.7 | 1937.3 | 1863.6 |
| 42.5° | 2125.9 | 2089.1 | 1923.5 | 1780.8 | 1698.0 |
| 45° | 1974.1 | 1932.7 | 1767.0 | 1619.7 | 1555.3 |
| 47.5° | 1822.2 | 1785.4 | 1633.6 | 1481.7 | 1408.1 |
| 50° | 1661.2 | 1629.0 | 1490.9 | 1339.1 | 1260.8 |
| 52.5° | 1527.7 | 1477.1 | 1343.7 | 1191.8 | 1127.4 |
| 55° | 1371.3 | 1329.9 | 1205.6 | 1063.0 | 1007.7 |
| 57.5° | 1228.6 | 1187.2 | 1072.2 | 938.7 | 892.7 |
| 60° | 1095.2 | 1035.4 | 938.7 | 823.7 | 786.9 |
| 62.5° | 947.9 | 901.9 | 819.1 | 722.4 | 768.5 |
| 65° | 814.5 | 768.5 | 694.8 | 708.6 | 589.0 |
| 67.5° | 667.2 | 644.2 | 579.8 | 515.4 | 497.0 |
| 70° | 543.0 | 515.4 | 492.4 | 423.3 | 404.9 |
| 72.5° | 432.5 | 404.9 | 372.7 | 335.9 | 322.1 |
| 75° | 326.7 | 303.7 | 285.3 | 271.5 | 299.1 |
| 77.5° | 225.5 | 216.3 | 202.5 | 188.7 | 184.1 |
| 80° | 147.2 | 142.6 | 138.0 | 133.4 | 128.8 |
| 82.5° | 87.4 | 87.4 | 87.4 | 87.4 | 87.4 |
| 85° | 46.0 | 50.6 | 55.2 | 59.8 | 64.4 |
| 87.5° | 27.6 | 27.6 | 32.2 | 36.8 | 41.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)