

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: P561403

Luminaire Tested: FSR-12-4-LD4-2HI-40-UNV-80-94-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561403
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-12-4-LD4-2HI-40-UNV-80-94-EDD
Description: 1X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 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: 8248.0 lumens
Efficiency: N/A
Efficacy: 95.5 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

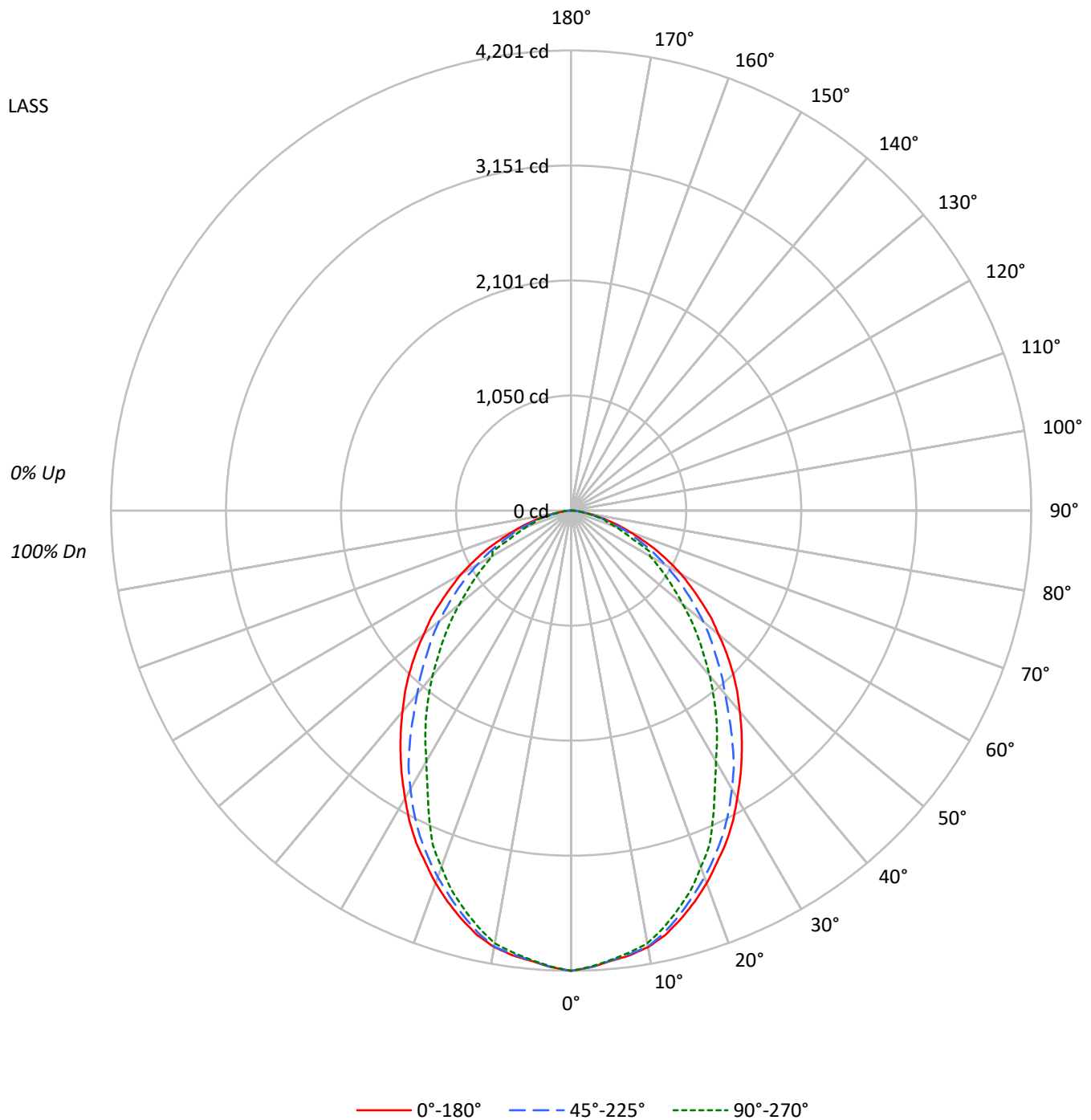
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P561403

CATALOG NUMBER: FSR-12-4-LD4-2HI-40-UNV-80-94-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P561403

CATALOG NUMBER: FSR-12-4-LD4-2HI-40-UNV-80-94-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 | 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 | | | | |
| 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° | 11306 | 11306 | 11306 |
| 5° | 11152 | 11139 | 11126 |
| 10° | 11056 | 11042 | 10963 |
| 15° | 10757 | 10649 | 10500 |
| 20° | 10363 | 10196 | 9917 |
| 25° | 9937 | 9720 | 9114 |
| 30° | 9418 | 9116 | 8210 |
| 35° | 8919 | 8425 | 7595 |
| 40° | 8412 | 7678 | 6910 |
| 45° | 7930 | 7098 | 6248 |
| 50° | 7340 | 6588 | 5572 |
| 55° | 6791 | 5971 | 4990 |
| 60° | 6222 | 5333 | 4470 |
| 65° | 5474 | 4670 | 3959 |
| 70° | 4509 | 4089 | 3363 |
| 75° | 3586 | 3131 | 3282 |
| 80° | 2408 | 2258 | 2108 |
| 85° | 1501 | 1800 | 2100 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7930 cd/sqm



TEST NUMBER: P561403

CATALOG NUMBER: FSR-12-4-LD4-2HI-40-UNV-80-94-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 391.1 | 4.7 |
| 10°-20° | 1073.3 | 13.0 |
| 20°-30° | 1486.0 | 18.0 |
| 30°-40° | 1584.5 | 19.2 |
| 40°-50° | 1445.5 | 17.5 |
| 50°-60° | 1132.4 | 13.7 |
| 60°-70° | 738.1 | 8.9 |
| 70°-80° | 327.0 | 4.0 |
| 80°-90° | 70.2 | 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° | 2950.4 | 35.8 |
| 0°-40° | 4534.8 | 55.0 |
| 0°-60° | 7112.7 | 86.2 |
| 0°-90° | 8248.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 8248.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4201 | 4201 | 4201 | 4201 | 4201 | |
| 5° | 4129 | 4124 | 4124 | 4119 | 4119 | 392 |
| 15° | 3861 | 3861 | 3823 | 3784 | 3769 | 1086 |
| 25° | 3347 | 3327 | 3274 | 3157 | 3070 | 1536 |
| 35° | 2715 | 2696 | 2565 | 2370 | 2312 | 1697 |
| 45° | 2084 | 2040 | 1865 | 1710 | 1642 | 1605 |
| 55° | 1447 | 1404 | 1273 | 1122 | 1064 | 1298 |
| 65° | 860 | 811 | 733 | 748 | 622 | 847 |
| 75° | 345 | 321 | 301 | 287 | 316 | 370 |
| 85° | 49 | 53 | 58 | 63 | 68 | 67 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561403

CATALOG NUMBER: FSR-12-4-LD4-2HI-40-UNV-80-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4201.4 | 4201.4 | 4201.4 | 4201.4 | 4201.4 |
| 2.5° | 4172.3 | 4172.3 | 4172.3 | 4167.4 | 4167.4 |
| 5° | 4128.6 | 4123.7 | 4123.7 | 4118.8 | 4118.8 |
| 7.5° | 4094.6 | 4089.7 | 4084.8 | 4080.0 | 4070.3 |
| 10° | 4046.0 | 4046.0 | 4041.1 | 4016.8 | 4012.0 |
| 12.5° | 3968.3 | 3963.4 | 3944.0 | 3910.0 | 3900.3 |
| 15° | 3861.4 | 3861.4 | 3822.6 | 3783.7 | 3769.1 |
| 17.5° | 3744.9 | 3740.0 | 3691.4 | 3652.6 | 3633.1 |
| 20° | 3618.6 | 3608.9 | 3560.3 | 3497.1 | 3463.1 |
| 22.5° | 3477.7 | 3477.7 | 3419.4 | 3336.9 | 3302.9 |
| 25° | 3346.6 | 3327.1 | 3273.7 | 3157.1 | 3069.7 |
| 27.5° | 3196.0 | 3166.9 | 3108.6 | 2943.4 | 2841.4 |
| 30° | 3030.9 | 3016.3 | 2933.7 | 2720.0 | 2642.3 |
| 32.5° | 2875.4 | 2851.1 | 2763.7 | 2540.3 | 2477.1 |
| 35° | 2715.1 | 2695.7 | 2564.6 | 2370.3 | 2312.0 |
| 37.5° | 2554.9 | 2530.6 | 2365.4 | 2210.0 | 2137.1 |
| 40° | 2394.6 | 2365.4 | 2185.7 | 2044.9 | 1967.1 |
| 42.5° | 2244.0 | 2205.1 | 2030.3 | 1879.7 | 1792.3 |
| 45° | 2083.7 | 2040.0 | 1865.1 | 1709.7 | 1641.7 |
| 47.5° | 1923.4 | 1884.6 | 1724.3 | 1564.0 | 1486.3 |
| 50° | 1753.4 | 1719.4 | 1573.7 | 1413.4 | 1330.9 |
| 52.5° | 1612.6 | 1559.1 | 1418.3 | 1258.0 | 1190.0 |
| 55° | 1447.4 | 1403.7 | 1272.6 | 1122.0 | 1063.7 |
| 57.5° | 1296.9 | 1253.1 | 1131.7 | 990.9 | 942.3 |
| 60° | 1156.0 | 1092.9 | 990.9 | 869.4 | 830.6 |
| 62.5° | 1000.6 | 952.0 | 864.6 | 762.6 | 811.1 |
| 65° | 859.7 | 811.1 | 733.4 | 748.0 | 621.7 |
| 67.5° | 704.3 | 680.0 | 612.0 | 544.0 | 524.6 |
| 70° | 573.1 | 544.0 | 519.7 | 446.9 | 427.4 |
| 72.5° | 456.6 | 427.4 | 393.4 | 354.6 | 340.0 |
| 75° | 344.9 | 320.6 | 301.1 | 286.6 | 315.7 |
| 77.5° | 238.0 | 228.3 | 213.7 | 199.1 | 194.3 |
| 80° | 155.4 | 150.6 | 145.7 | 140.9 | 136.0 |
| 82.5° | 92.3 | 92.3 | 92.3 | 92.3 | 92.3 |
| 85° | 48.6 | 53.4 | 58.3 | 63.1 | 68.0 |
| 87.5° | 29.1 | 29.1 | 34.0 | 38.9 | 43.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)