

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: P561379

Luminaire Tested: FSR-12-4-LD4-2HI-35-UNV-93-85-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561379
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-35-UNV-93-85-EDD
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8002.0 lumens
Efficiency: N/A
Efficacy: 92.6 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

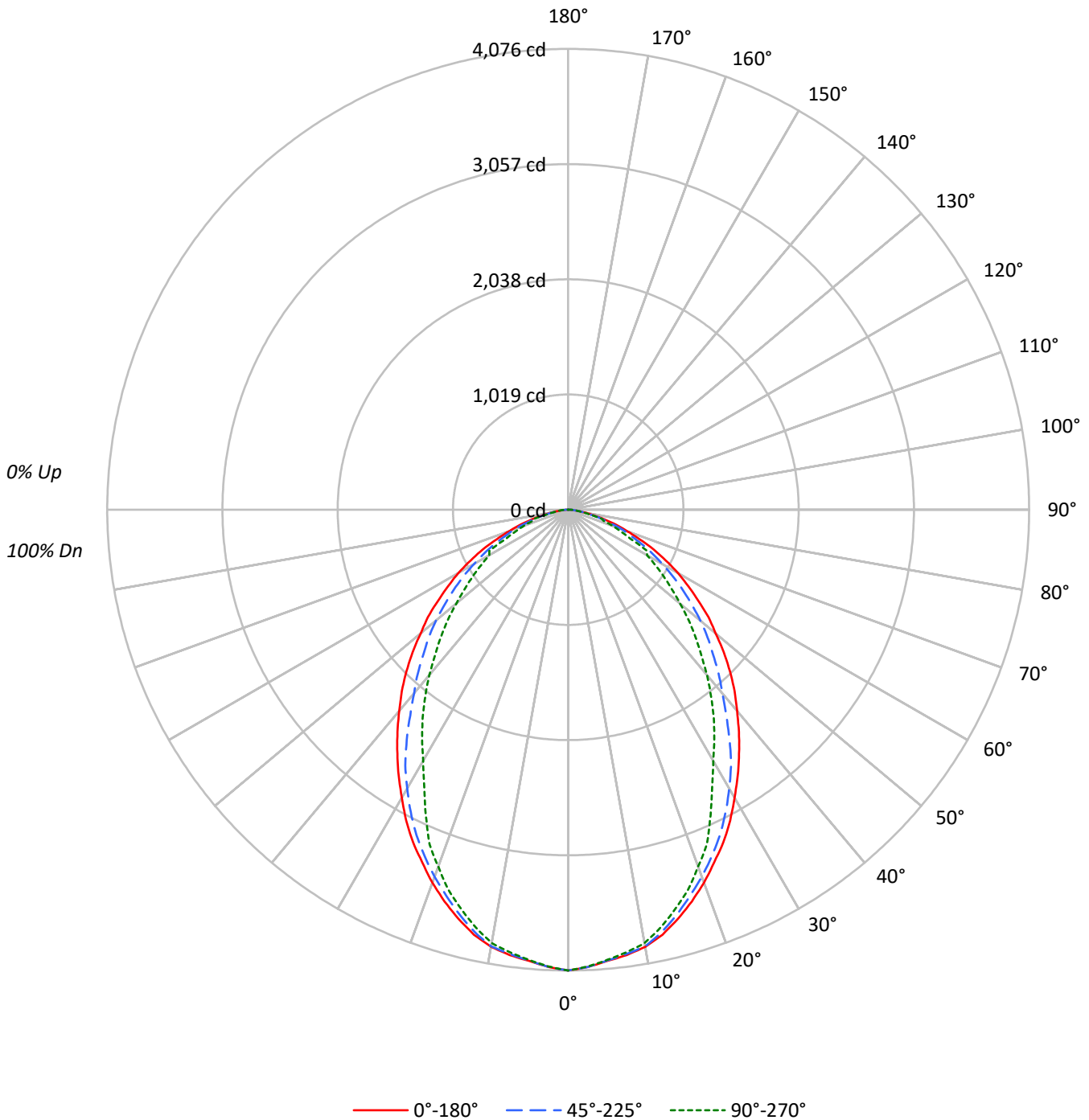
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561379

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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 | 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° | 10969 | 10969 | 10969 |
| 5° | 10820 | 10807 | 10794 |
| 10° | 10726 | 10713 | 10636 |
| 15° | 10437 | 10332 | 10187 |
| 20° | 10053 | 9891 | 9621 |
| 25° | 9640 | 9430 | 8843 |
| 30° | 9137 | 8844 | 7965 |
| 35° | 8654 | 8174 | 7368 |
| 40° | 8161 | 7449 | 6704 |
| 45° | 7693 | 6886 | 6061 |
| 50° | 7122 | 6392 | 5406 |
| 55° | 6588 | 5792 | 4842 |
| 60° | 6036 | 5174 | 4337 |
| 65° | 5311 | 4531 | 3841 |
| 70° | 4375 | 3967 | 3263 |
| 75° | 3479 | 3038 | 3185 |
| 80° | 2337 | 2191 | 2044 |
| 85° | 1454 | 1744 | 2038 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7693 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 379.4 | 4.7 |
| 10°-20° | 1041.3 | 13.0 |
| 20°-30° | 1441.6 | 18.0 |
| 30°-40° | 1537.2 | 19.2 |
| 40°-50° | 1402.4 | 17.5 |
| 50°-60° | 1098.7 | 13.7 |
| 60°-70° | 716.0 | 8.9 |
| 70°-80° | 317.2 | 4.0 |
| 80°-90° | 68.1 | 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° | 2862.4 | 35.8 |
| 0°-40° | 4399.6 | 55.0 |
| 0°-60° | 6900.6 | 86.2 |
| 0°-90° | 8002.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 8002.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4076 | 4076 | 4076 | 4076 | 4076 | |
| 5° | 4005 | 4001 | 4001 | 3996 | 3996 | 380 |
| 15° | 3746 | 3746 | 3709 | 3671 | 3657 | 1053 |
| 25° | 3247 | 3228 | 3176 | 3063 | 2978 | 1491 |
| 35° | 2634 | 2615 | 2488 | 2300 | 2243 | 1647 |
| 45° | 2022 | 1979 | 1810 | 1659 | 1593 | 1557 |
| 55° | 1404 | 1362 | 1235 | 1088 | 1032 | 1260 |
| 65° | 834 | 787 | 712 | 726 | 603 | 822 |
| 75° | 335 | 311 | 292 | 278 | 306 | 359 |
| 85° | 47 | 52 | 56 | 61 | 66 | 65 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561379

CATALOG NUMBER: FSR-12-4-LD4-2HI-35-UNV-93-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4076.1 | 4076.1 | 4076.1 | 4076.1 | 4076.1 |
| 2.5° | 4047.8 | 4047.8 | 4047.8 | 4043.1 | 4043.1 |
| 5° | 4005.4 | 4000.7 | 4000.7 | 3996.0 | 3996.0 |
| 7.5° | 3972.4 | 3967.7 | 3963.0 | 3958.3 | 3948.9 |
| 10° | 3925.3 | 3925.3 | 3920.6 | 3897.0 | 3892.3 |
| 12.5° | 3849.9 | 3845.2 | 3826.4 | 3793.4 | 3784.0 |
| 15° | 3746.3 | 3746.3 | 3708.6 | 3670.9 | 3656.7 |
| 17.5° | 3633.2 | 3628.4 | 3581.3 | 3543.6 | 3524.8 |
| 20° | 3510.6 | 3501.2 | 3454.1 | 3392.8 | 3359.8 |
| 22.5° | 3374.0 | 3374.0 | 3317.4 | 3237.3 | 3204.3 |
| 25° | 3246.8 | 3227.9 | 3176.1 | 3063.0 | 2978.2 |
| 27.5° | 3100.7 | 3072.4 | 3015.9 | 2855.6 | 2756.7 |
| 30° | 2940.5 | 2926.3 | 2846.2 | 2638.9 | 2563.5 |
| 32.5° | 2789.7 | 2766.1 | 2681.3 | 2464.5 | 2403.3 |
| 35° | 2634.2 | 2615.3 | 2488.1 | 2299.6 | 2243.0 |
| 37.5° | 2478.7 | 2455.1 | 2294.9 | 2144.1 | 2073.4 |
| 40° | 2323.1 | 2294.9 | 2120.5 | 1983.9 | 1908.5 |
| 42.5° | 2177.1 | 2139.4 | 1969.7 | 1823.6 | 1738.8 |
| 45° | 2021.6 | 1979.2 | 1809.5 | 1658.7 | 1592.7 |
| 47.5° | 1866.1 | 1828.4 | 1672.9 | 1517.4 | 1442.0 |
| 50° | 1701.1 | 1668.1 | 1526.8 | 1371.3 | 1291.2 |
| 52.5° | 1564.5 | 1512.6 | 1376.0 | 1220.5 | 1154.5 |
| 55° | 1404.3 | 1361.8 | 1234.6 | 1088.5 | 1032.0 |
| 57.5° | 1258.2 | 1215.8 | 1098.0 | 961.3 | 914.2 |
| 60° | 1121.5 | 1060.3 | 961.3 | 843.5 | 805.8 |
| 62.5° | 970.7 | 923.6 | 838.8 | 739.8 | 786.9 |
| 65° | 834.1 | 786.9 | 711.6 | 725.7 | 603.2 |
| 67.5° | 683.3 | 659.7 | 593.7 | 527.8 | 508.9 |
| 70° | 556.0 | 527.8 | 504.2 | 433.5 | 414.7 |
| 72.5° | 443.0 | 414.7 | 381.7 | 344.0 | 329.9 |
| 75° | 334.6 | 311.0 | 292.2 | 278.0 | 306.3 |
| 77.5° | 230.9 | 221.5 | 207.3 | 193.2 | 188.5 |
| 80° | 150.8 | 146.1 | 141.4 | 136.7 | 131.9 |
| 82.5° | 89.5 | 89.5 | 89.5 | 89.5 | 89.5 |
| 85° | 47.1 | 51.8 | 56.5 | 61.3 | 66.0 |
| 87.5° | 28.3 | 28.3 | 33.0 | 37.7 | 42.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)