

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: P560920

Luminaire Tested: FSR-12-4-LD4-1HI-50-UNV-82-88-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560920
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-LD4-1HI-50-UNV-82-88-EDD-90
Description: 1X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2859.0 lumens
Efficiency: N/A
Efficacy: 66.2 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

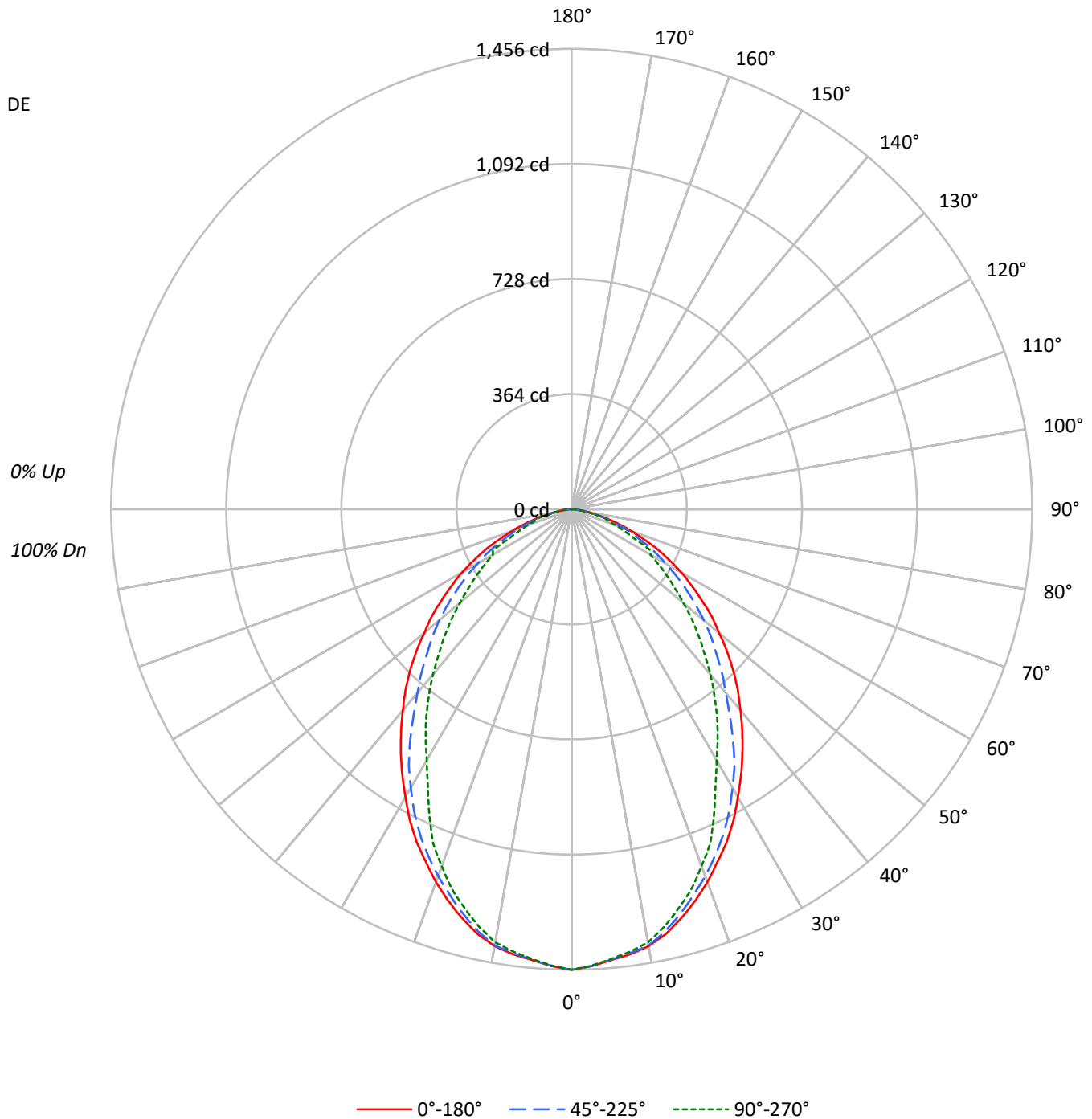
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P560920

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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 | 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° | 3919 | 3919 | 3919 |
| 5° | 3866 | 3861 | 3857 |
| 10° | 3832 | 3828 | 3800 |
| 15° | 3729 | 3691 | 3640 |
| 20° | 3592 | 3534 | 3438 |
| 25° | 3444 | 3369 | 3159 |
| 30° | 3265 | 3160 | 2846 |
| 35° | 3092 | 2920 | 2633 |
| 40° | 2916 | 2661 | 2395 |
| 45° | 2749 | 2460 | 2166 |
| 50° | 2545 | 2284 | 1931 |
| 55° | 2354 | 2069 | 1730 |
| 60° | 2157 | 1849 | 1549 |
| 65° | 1897 | 1619 | 1372 |
| 70° | 1563 | 1417 | 1166 |
| 75° | 1242 | 1085 | 1137 |
| 80° | 835 | 783 | 730 |
| 85° | 519 | 624 | 729 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2749 cd/sqm

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 135.6 | 4.7 |
| 10°-20° | 372.0 | 13.0 |
| 20°-30° | 515.1 | 18.0 |
| 30°-40° | 549.2 | 19.2 |
| 40°-50° | 501.0 | 17.5 |
| 50°-60° | 392.5 | 13.7 |
| 60°-70° | 255.8 | 8.9 |
| 70°-80° | 113.3 | 4.0 |
| 80°-90° | 24.3 | 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° | 1022.7 | 35.8 |
| 0°-40° | 1571.9 | 55.0 |
| 0°-60° | 2465.5 | 86.2 |
| 0°-90° | 2859.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2859.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1456 | 1456 | 1456 | 1456 | 1456 | |
| 5° | 1431 | 1429 | 1429 | 1428 | 1428 | 136 |
| 15° | 1338 | 1338 | 1325 | 1312 | 1306 | 376 |
| 25° | 1160 | 1153 | 1135 | 1094 | 1064 | 533 |
| 35° | 941 | 934 | 889 | 822 | 801 | 588 |
| 45° | 722 | 707 | 646 | 593 | 569 | 556 |
| 55° | 502 | 487 | 441 | 389 | 369 | 450 |
| 65° | 298 | 281 | 254 | 259 | 216 | 294 |
| 75° | 120 | 111 | 104 | 99 | 109 | 128 |
| 85° | 17 | 18 | 20 | 22 | 24 | 23 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560920

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1456.3 | 1456.3 | 1456.3 | 1456.3 | 1456.3 |
| 2.5° | 1446.2 | 1446.2 | 1446.2 | 1444.6 | 1444.6 |
| 5° | 1431.1 | 1429.4 | 1429.4 | 1427.7 | 1427.7 |
| 7.5° | 1419.3 | 1417.6 | 1415.9 | 1414.2 | 1410.9 |
| 10° | 1402.5 | 1402.5 | 1400.8 | 1392.4 | 1390.7 |
| 12.5° | 1375.5 | 1373.8 | 1367.1 | 1355.3 | 1352.0 |
| 15° | 1338.5 | 1338.5 | 1325.0 | 1311.5 | 1306.5 |
| 17.5° | 1298.1 | 1296.4 | 1279.6 | 1266.1 | 1259.4 |
| 20° | 1254.3 | 1250.9 | 1234.1 | 1212.2 | 1200.4 |
| 22.5° | 1205.5 | 1205.5 | 1185.3 | 1156.7 | 1144.9 |
| 25° | 1160.0 | 1153.3 | 1134.8 | 1094.4 | 1064.1 |
| 27.5° | 1107.8 | 1097.7 | 1077.5 | 1020.3 | 984.9 |
| 30° | 1050.6 | 1045.5 | 1016.9 | 942.8 | 915.9 |
| 32.5° | 996.7 | 988.3 | 958.0 | 880.5 | 858.6 |
| 35° | 941.1 | 934.4 | 889.0 | 821.6 | 801.4 |
| 37.5° | 885.6 | 877.2 | 819.9 | 766.0 | 740.8 |
| 40° | 830.0 | 819.9 | 757.6 | 708.8 | 681.9 |
| 42.5° | 777.8 | 764.4 | 703.8 | 651.6 | 621.3 |
| 45° | 722.3 | 707.1 | 646.5 | 592.6 | 569.1 |
| 47.5° | 666.7 | 653.2 | 597.7 | 542.1 | 515.2 |
| 50° | 607.8 | 596.0 | 545.5 | 489.9 | 461.3 |
| 52.5° | 559.0 | 540.4 | 491.6 | 436.1 | 412.5 |
| 55° | 501.7 | 486.6 | 441.1 | 388.9 | 368.7 |
| 57.5° | 449.5 | 434.4 | 392.3 | 343.5 | 326.6 |
| 60° | 400.7 | 378.8 | 343.5 | 301.4 | 287.9 |
| 62.5° | 346.8 | 330.0 | 299.7 | 264.3 | 281.2 |
| 65° | 298.0 | 281.2 | 254.2 | 259.3 | 215.5 |
| 67.5° | 244.1 | 235.7 | 212.1 | 188.6 | 181.8 |
| 70° | 198.7 | 188.6 | 180.1 | 154.9 | 148.2 |
| 72.5° | 158.3 | 148.2 | 136.4 | 122.9 | 117.9 |
| 75° | 119.5 | 111.1 | 104.4 | 99.3 | 109.4 |
| 77.5° | 82.5 | 79.1 | 74.1 | 69.0 | 67.3 |
| 80° | 53.9 | 52.2 | 50.5 | 48.8 | 47.1 |
| 82.5° | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 |
| 85° | 16.8 | 18.5 | 20.2 | 21.9 | 23.6 |
| 87.5° | 10.1 | 10.1 | 11.8 | 13.5 | 15.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)