

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: P561308

Luminaire Tested: FSR-12-4-LD4-1STD-50-UNV-82-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561308
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-LD4-1STD-50-UNV-82-96-EDD-90
Description: 1X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2736.0 lumens
Efficiency: N/A
Efficacy: 82.2 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

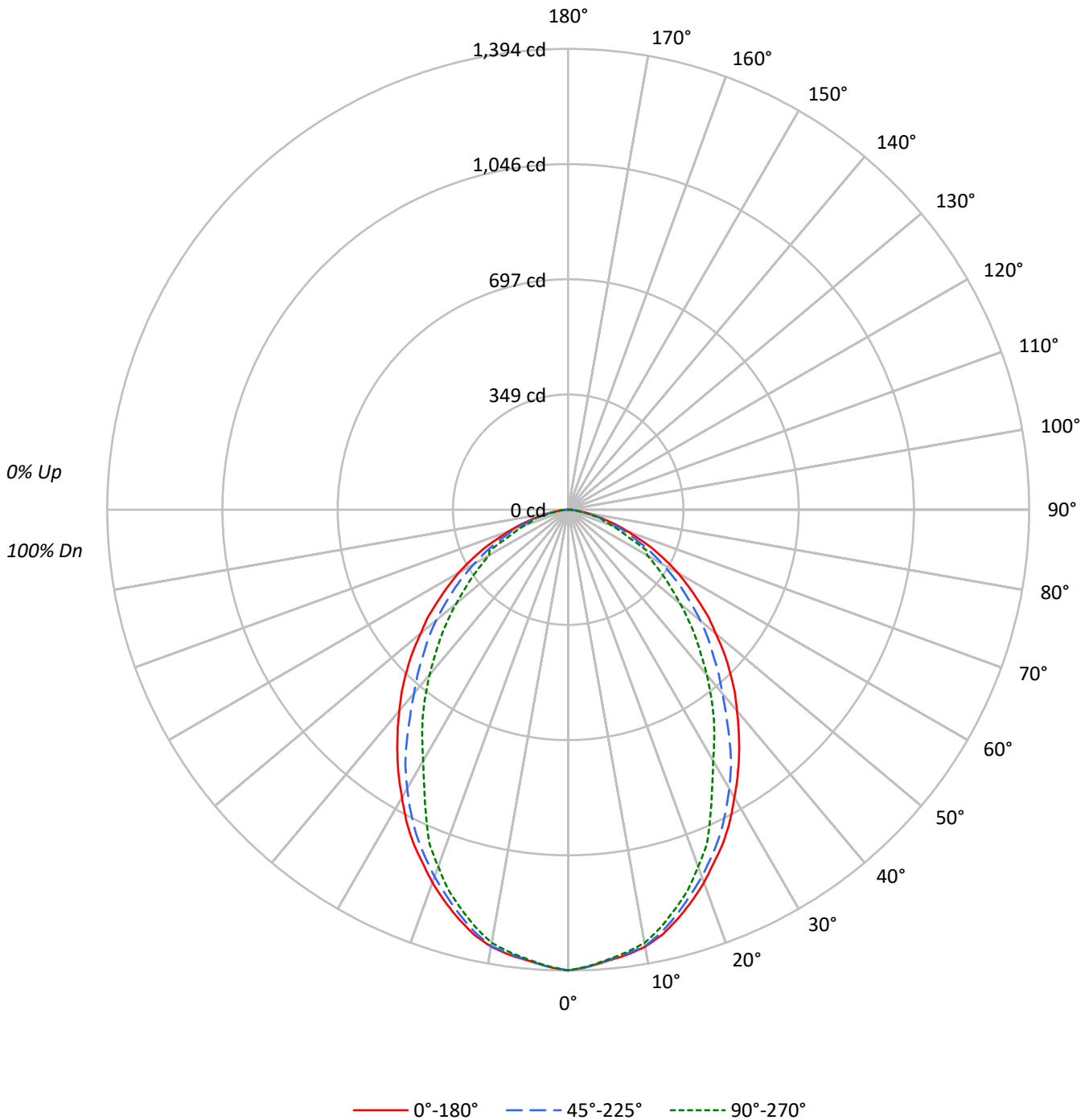
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561308

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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 | | | |
| 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° | 3750 | 3750 | 3750 |
| 5° | 3699 | 3695 | 3691 |
| 10° | 3667 | 3663 | 3636 |
| 15° | 3568 | 3533 | 3483 |
| 20° | 3437 | 3382 | 3290 |
| 25° | 3296 | 3224 | 3024 |
| 30° | 3124 | 3024 | 2724 |
| 35° | 2959 | 2795 | 2519 |
| 40° | 2790 | 2547 | 2292 |
| 45° | 2630 | 2355 | 2073 |
| 50° | 2435 | 2185 | 1848 |
| 55° | 2252 | 1980 | 1656 |
| 60° | 2064 | 1769 | 1483 |
| 65° | 1816 | 1549 | 1313 |
| 70° | 1496 | 1356 | 1116 |
| 75° | 1189 | 1039 | 1089 |
| 80° | 800 | 748 | 699 |
| 85° | 497 | 596 | 698 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2630 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 129.7 | 4.7 |
| 10°-20° | 356.0 | 13.0 |
| 20°-30° | 492.9 | 18.0 |
| 30°-40° | 525.6 | 19.2 |
| 40°-50° | 479.5 | 17.5 |
| 50°-60° | 375.6 | 13.7 |
| 60°-70° | 244.8 | 8.9 |
| 70°-80° | 108.5 | 4.0 |
| 80°-90° | 23.3 | 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° | 978.7 | 35.8 |
| 0°-40° | 1504.3 | 55.0 |
| 0°-60° | 2359.4 | 86.2 |
| 0°-90° | 2736.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2736.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1394 | 1394 | 1394 | 1394 | 1394 | |
| 5° | 1370 | 1368 | 1368 | 1366 | 1366 | 130 |
| 15° | 1281 | 1281 | 1268 | 1255 | 1250 | 360 |
| 25° | 1110 | 1104 | 1086 | 1047 | 1018 | 510 |
| 35° | 901 | 894 | 851 | 786 | 767 | 563 |
| 45° | 691 | 677 | 619 | 567 | 545 | 532 |
| 55° | 480 | 466 | 422 | 372 | 353 | 431 |
| 65° | 285 | 269 | 243 | 248 | 206 | 281 |
| 75° | 114 | 106 | 100 | 95 | 105 | 123 |
| 85° | 16 | 18 | 19 | 21 | 23 | 22 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561308

CATALOG NUMBER: FSR-12-4-LD4-1STD-50-UNV-82-96-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1393.7 | 1393.7 | 1393.7 | 1393.7 | 1393.7 |
| 2.5° | 1384.0 | 1384.0 | 1384.0 | 1382.4 | 1382.4 |
| 5° | 1369.5 | 1367.9 | 1367.9 | 1366.3 | 1366.3 |
| 7.5° | 1358.2 | 1356.6 | 1355.0 | 1353.4 | 1350.2 |
| 10° | 1342.1 | 1342.1 | 1340.5 | 1332.5 | 1330.8 |
| 12.5° | 1316.3 | 1314.7 | 1308.3 | 1297.0 | 1293.8 |
| 15° | 1280.9 | 1280.9 | 1268.0 | 1255.1 | 1250.3 |
| 17.5° | 1242.2 | 1240.6 | 1224.5 | 1211.6 | 1205.2 |
| 20° | 1200.3 | 1197.1 | 1181.0 | 1160.1 | 1148.8 |
| 22.5° | 1153.6 | 1153.6 | 1134.3 | 1106.9 | 1095.6 |
| 25° | 1110.1 | 1103.7 | 1085.9 | 1047.3 | 1018.3 |
| 27.5° | 1060.2 | 1050.5 | 1031.2 | 976.4 | 942.5 |
| 30° | 1005.4 | 1000.6 | 973.2 | 902.3 | 876.5 |
| 32.5° | 953.8 | 945.8 | 916.8 | 842.7 | 821.7 |
| 35° | 900.7 | 894.2 | 850.7 | 786.3 | 766.9 |
| 37.5° | 847.5 | 839.4 | 784.7 | 733.1 | 708.9 |
| 40° | 794.3 | 784.7 | 725.0 | 678.3 | 652.5 |
| 42.5° | 744.4 | 731.5 | 673.5 | 623.5 | 594.5 |
| 45° | 691.2 | 676.7 | 618.7 | 567.1 | 544.6 |
| 47.5° | 638.0 | 625.1 | 572.0 | 518.8 | 493.0 |
| 50° | 581.6 | 570.4 | 522.0 | 468.9 | 441.5 |
| 52.5° | 534.9 | 517.2 | 470.5 | 417.3 | 394.7 |
| 55° | 480.1 | 465.6 | 422.1 | 372.2 | 352.9 |
| 57.5° | 430.2 | 415.7 | 375.4 | 328.7 | 312.6 |
| 60° | 383.5 | 362.5 | 328.7 | 288.4 | 275.5 |
| 62.5° | 331.9 | 315.8 | 286.8 | 253.0 | 269.1 |
| 65° | 285.2 | 269.1 | 243.3 | 248.1 | 206.2 |
| 67.5° | 233.6 | 225.6 | 203.0 | 180.5 | 174.0 |
| 70° | 190.1 | 180.5 | 172.4 | 148.2 | 141.8 |
| 72.5° | 151.5 | 141.8 | 130.5 | 117.6 | 112.8 |
| 75° | 114.4 | 106.3 | 99.9 | 95.1 | 104.7 |
| 77.5° | 78.9 | 75.7 | 70.9 | 66.1 | 64.4 |
| 80° | 51.6 | 49.9 | 48.3 | 46.7 | 45.1 |
| 82.5° | 30.6 | 30.6 | 30.6 | 30.6 | 30.6 |
| 85° | 16.1 | 17.7 | 19.3 | 20.9 | 22.6 |
| 87.5° | 9.7 | 9.7 | 11.3 | 12.9 | 14.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)