

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: P561187

Luminaire Tested: FSR-12-4-LD4-1STD-35-UNV-93-85-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561187
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-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: 3262.0 lumens
Efficiency: N/A
Efficacy: 98.0 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

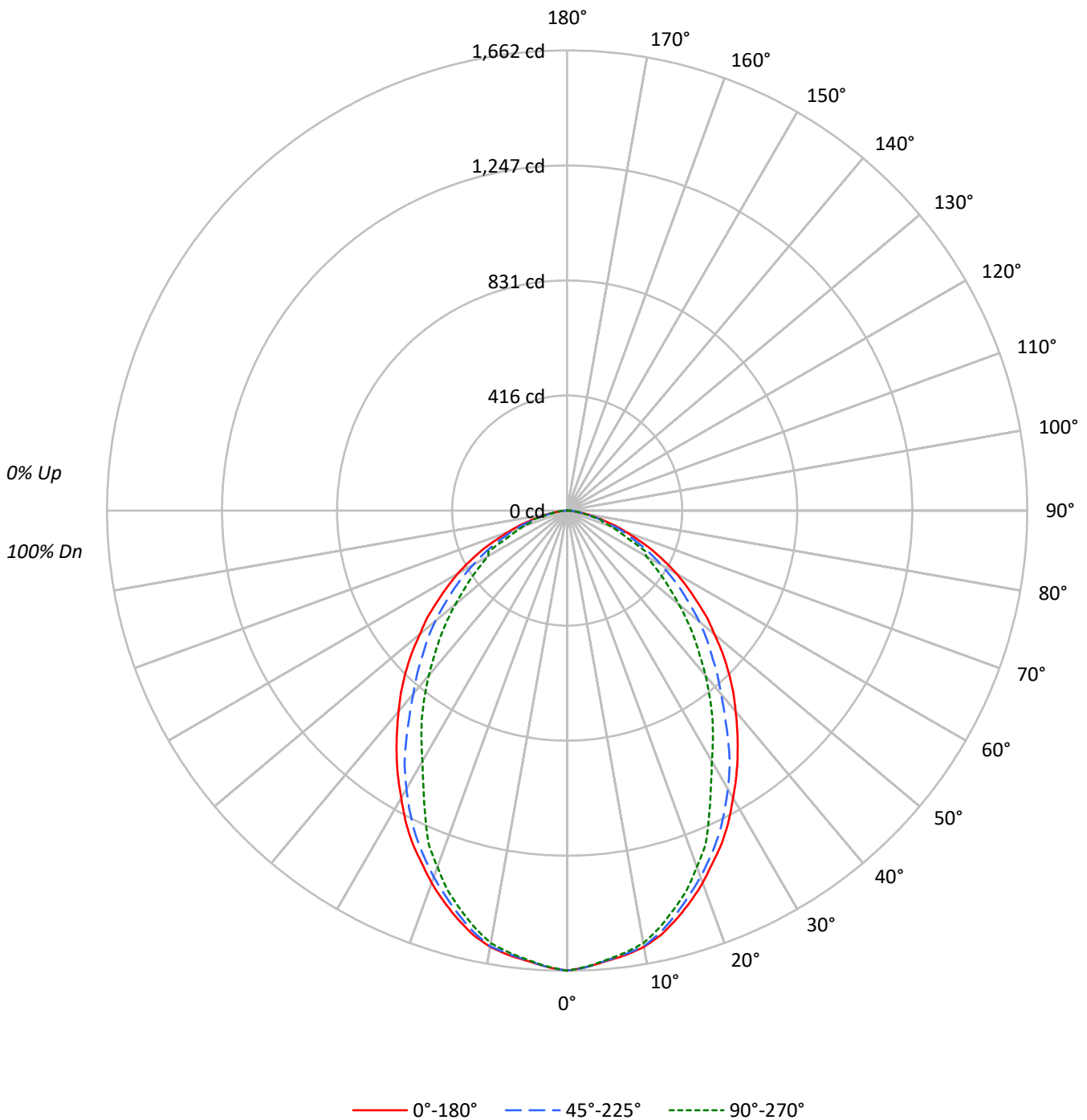
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561187

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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° | 4471 | 4471 | 4471 |
| 5° | 4411 | 4405 | 4400 |
| 10° | 4372 | 4367 | 4336 |
| 15° | 4255 | 4212 | 4153 |
| 20° | 4098 | 4032 | 3922 |
| 25° | 3930 | 3844 | 3605 |
| 30° | 3725 | 3605 | 3247 |
| 35° | 3528 | 3332 | 3004 |
| 40° | 3327 | 3036 | 2733 |
| 45° | 3136 | 2807 | 2471 |
| 50° | 2903 | 2606 | 2203 |
| 55° | 2685 | 2361 | 1974 |
| 60° | 2461 | 2109 | 1768 |
| 65° | 2165 | 1847 | 1566 |
| 70° | 1784 | 1617 | 1330 |
| 75° | 1418 | 1238 | 1299 |
| 80° | 953 | 893 | 834 |
| 85° | 593 | 713 | 831 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3136 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 154.7 | 4.7 |
| 10°-20° | 424.5 | 13.0 |
| 20°-30° | 587.7 | 18.0 |
| 30°-40° | 626.6 | 19.2 |
| 40°-50° | 571.7 | 17.5 |
| 50°-60° | 447.9 | 13.7 |
| 60°-70° | 291.9 | 8.9 |
| 70°-80° | 129.3 | 4.0 |
| 80°-90° | 27.8 | 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° | 1166.8 | 35.8 |
| 0°-40° | 1793.5 | 55.0 |
| 0°-60° | 2813.0 | 86.2 |
| 0°-90° | 3262.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3262.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1662 | 1662 | 1662 | 1662 | 1662 | |
| 5° | 1633 | 1631 | 1631 | 1629 | 1629 | 155 |
| 15° | 1527 | 1527 | 1512 | 1496 | 1491 | 429 |
| 25° | 1324 | 1316 | 1295 | 1249 | 1214 | 608 |
| 35° | 1074 | 1066 | 1014 | 937 | 914 | 671 |
| 45° | 824 | 807 | 738 | 676 | 649 | 635 |
| 55° | 572 | 555 | 503 | 444 | 421 | 513 |
| 65° | 340 | 321 | 290 | 296 | 246 | 335 |
| 75° | 136 | 127 | 119 | 113 | 125 | 146 |
| 85° | 19 | 21 | 23 | 25 | 27 | 27 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P561187

CATALOG NUMBER: FSR-12-4-LD4-1STD-35-UNV-93-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1661.6 | 1661.6 | 1661.6 | 1661.6 | 1661.6 |
| 2.5° | 1650.1 | 1650.1 | 1650.1 | 1648.2 | 1648.2 |
| 5° | 1632.8 | 1630.9 | 1630.9 | 1629.0 | 1629.0 |
| 7.5° | 1619.4 | 1617.4 | 1615.5 | 1613.6 | 1609.8 |
| 10° | 1600.1 | 1600.1 | 1598.2 | 1588.6 | 1586.7 |
| 12.5° | 1569.4 | 1567.5 | 1559.8 | 1546.4 | 1542.5 |
| 15° | 1527.2 | 1527.2 | 1511.8 | 1496.4 | 1490.7 |
| 17.5° | 1481.1 | 1479.1 | 1459.9 | 1444.6 | 1436.9 |
| 20° | 1431.1 | 1427.3 | 1408.1 | 1383.1 | 1369.6 |
| 22.5° | 1375.4 | 1375.4 | 1352.3 | 1319.7 | 1306.2 |
| 25° | 1323.5 | 1315.8 | 1294.7 | 1248.6 | 1214.0 |
| 27.5° | 1264.0 | 1252.5 | 1229.4 | 1164.1 | 1123.8 |
| 30° | 1198.7 | 1192.9 | 1160.3 | 1075.7 | 1045.0 |
| 32.5° | 1137.2 | 1127.6 | 1093.0 | 1004.7 | 979.7 |
| 35° | 1073.8 | 1066.1 | 1014.3 | 937.4 | 914.4 |
| 37.5° | 1010.4 | 1000.8 | 935.5 | 874.0 | 845.2 |
| 40° | 947.0 | 935.5 | 864.4 | 808.7 | 778.0 |
| 42.5° | 887.5 | 872.1 | 803.0 | 743.4 | 708.8 |
| 45° | 824.1 | 806.8 | 737.6 | 676.2 | 649.3 |
| 47.5° | 760.7 | 745.3 | 681.9 | 618.5 | 587.8 |
| 50° | 693.5 | 680.0 | 622.4 | 559.0 | 526.3 |
| 52.5° | 637.8 | 616.6 | 560.9 | 497.5 | 470.6 |
| 55° | 572.4 | 555.2 | 503.3 | 443.7 | 420.7 |
| 57.5° | 512.9 | 495.6 | 447.6 | 391.9 | 372.7 |
| 60° | 457.2 | 432.2 | 391.9 | 343.8 | 328.5 |
| 62.5° | 395.7 | 376.5 | 341.9 | 301.6 | 320.8 |
| 65° | 340.0 | 320.8 | 290.1 | 295.8 | 245.9 |
| 67.5° | 278.5 | 268.9 | 242.0 | 215.1 | 207.5 |
| 70° | 226.7 | 215.1 | 205.5 | 176.7 | 169.0 |
| 72.5° | 180.6 | 169.0 | 155.6 | 140.2 | 134.5 |
| 75° | 136.4 | 126.8 | 119.1 | 113.3 | 124.9 |
| 77.5° | 94.1 | 90.3 | 84.5 | 78.8 | 76.8 |
| 80° | 61.5 | 59.5 | 57.6 | 55.7 | 53.8 |
| 82.5° | 36.5 | 36.5 | 36.5 | 36.5 | 36.5 |
| 85° | 19.2 | 21.1 | 23.1 | 25.0 | 26.9 |
| 87.5° | 11.5 | 11.5 | 13.4 | 15.4 | 17.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)