

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: P562187

Luminaire Tested: FSR-24-4-LD4-1LO-40-UNV-81-94-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562187
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-24-4-LD4-1LO-40-UNV-81-94-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2802.0 lumens
Efficiency: N/A
Efficacy: 119.7 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

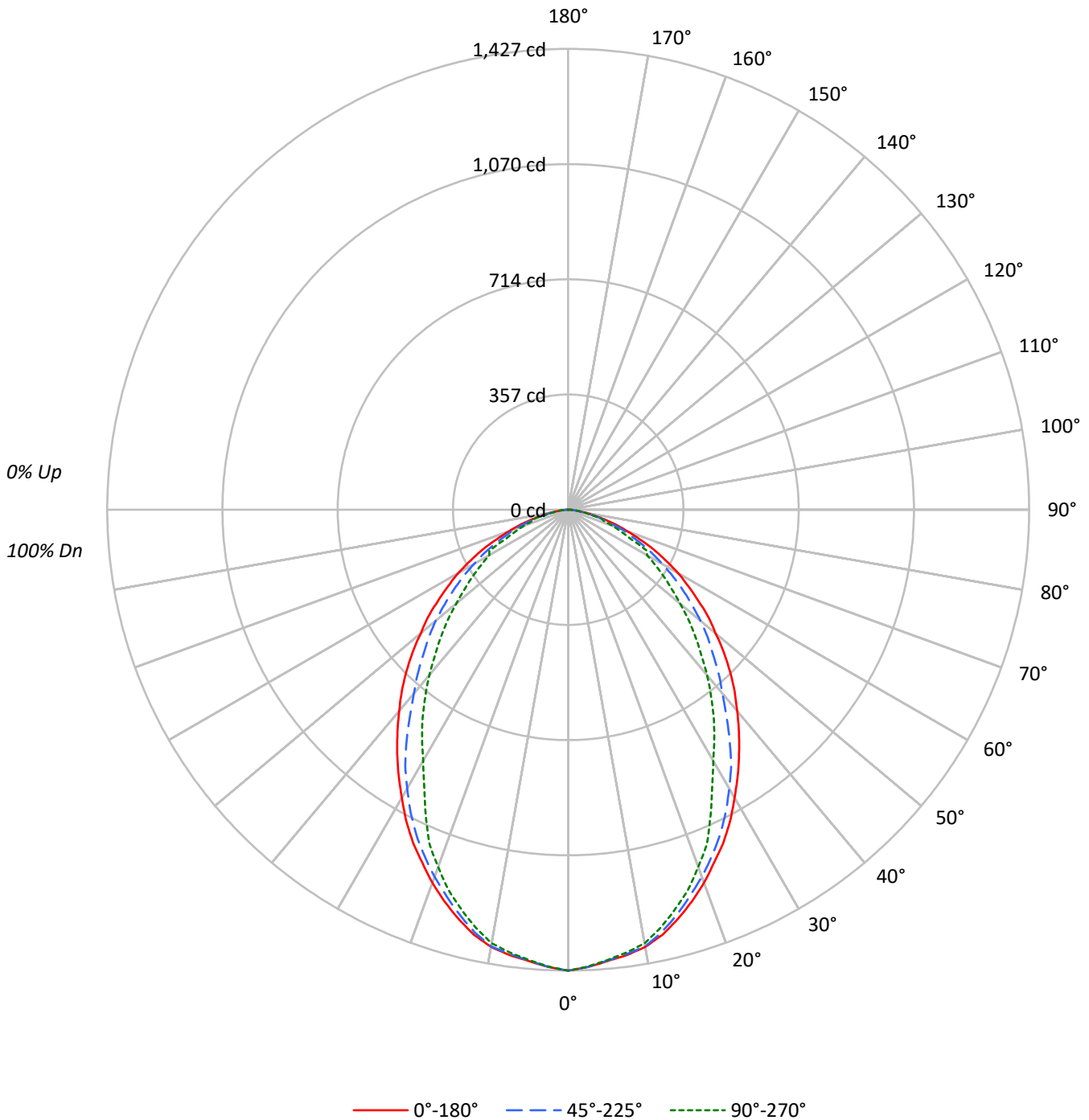
Input Watts (W): 23.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P562187

CATALOG NUMBER: FSR-24-4-LD4-1LO-40-UNV-81-94-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P562187

CATALOG NUMBER: FSR-24-4-LD4-1LO-40-UNV-81-94-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 | 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° | 1920 | 1920 | 1920 |
| 5° | 1894 | 1892 | 1890 |
| 10° | 1878 | 1876 | 1862 |
| 15° | 1827 | 1809 | 1784 |
| 20° | 1760 | 1732 | 1685 |
| 25° | 1688 | 1651 | 1548 |
| 30° | 1600 | 1548 | 1395 |
| 35° | 1515 | 1431 | 1290 |
| 40° | 1429 | 1304 | 1174 |
| 45° | 1347 | 1206 | 1061 |
| 50° | 1247 | 1119 | 946 |
| 55° | 1153 | 1014 | 848 |
| 60° | 1057 | 906 | 759 |
| 65° | 930 | 793 | 672 |
| 70° | 766 | 695 | 571 |
| 75° | 609 | 532 | 558 |
| 80° | 409 | 384 | 358 |
| 85° | 255 | 306 | 357 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1347 cd/sqm

TEST NUMBER: P562187

CATALOG NUMBER: FSR-24-4-LD4-1LO-40-UNV-81-94-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 132.9 | 4.7 |
| 10°-20° | 364.6 | 13.0 |
| 20°-30° | 504.8 | 18.0 |
| 30°-40° | 538.3 | 19.2 |
| 40°-50° | 491.1 | 17.5 |
| 50°-60° | 384.7 | 13.7 |
| 60°-70° | 250.7 | 8.9 |
| 70°-80° | 111.1 | 4.0 |
| 80°-90° | 23.9 | 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° | 1002.3 | 35.8 |
| 0°-40° | 1540.6 | 55.0 |
| 0°-60° | 2416.3 | 86.2 |
| 0°-90° | 2802.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2802.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1427 | 1427 | 1427 | 1427 | 1427 | |
| 5° | 1403 | 1401 | 1401 | 1399 | 1399 | 133 |
| 15° | 1312 | 1312 | 1299 | 1285 | 1280 | 369 |
| 25° | 1137 | 1130 | 1112 | 1072 | 1043 | 522 |
| 35° | 922 | 916 | 871 | 805 | 785 | 577 |
| 45° | 708 | 693 | 634 | 581 | 558 | 545 |
| 55° | 492 | 477 | 432 | 381 | 361 | 441 |
| 65° | 292 | 276 | 249 | 254 | 211 | 288 |
| 75° | 117 | 109 | 102 | 97 | 107 | 126 |
| 85° | 16 | 18 | 20 | 22 | 23 | 23 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562187

CATALOG NUMBER: FSR-24-4-LD4-1LO-40-UNV-81-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1427.3 | 1427.3 | 1427.3 | 1427.3 | 1427.3 |
| 2.5° | 1417.4 | 1417.4 | 1417.4 | 1415.8 | 1415.8 |
| 5° | 1402.6 | 1400.9 | 1400.9 | 1399.3 | 1399.3 |
| 7.5° | 1391.0 | 1389.3 | 1387.7 | 1386.0 | 1382.7 |
| 10° | 1374.5 | 1374.5 | 1372.8 | 1364.6 | 1362.9 |
| 12.5° | 1348.1 | 1346.4 | 1339.8 | 1328.3 | 1325.0 |
| 15° | 1311.8 | 1311.8 | 1298.6 | 1285.4 | 1280.4 |
| 17.5° | 1272.2 | 1270.5 | 1254.0 | 1240.8 | 1234.2 |
| 20° | 1229.3 | 1226.0 | 1209.5 | 1188.0 | 1176.5 |
| 22.5° | 1181.4 | 1181.4 | 1161.6 | 1133.6 | 1122.0 |
| 25° | 1136.9 | 1130.3 | 1112.1 | 1072.5 | 1042.8 |
| 27.5° | 1085.7 | 1075.8 | 1056.0 | 999.9 | 965.3 |
| 30° | 1029.6 | 1024.7 | 996.6 | 924.0 | 897.6 |
| 32.5° | 976.8 | 968.6 | 938.9 | 863.0 | 841.5 |
| 35° | 922.4 | 915.8 | 871.2 | 805.2 | 785.4 |
| 37.5° | 867.9 | 859.7 | 803.6 | 750.8 | 726.0 |
| 40° | 813.5 | 803.6 | 742.5 | 694.7 | 668.3 |
| 42.5° | 762.3 | 749.1 | 689.7 | 638.6 | 608.9 |
| 45° | 707.9 | 693.0 | 633.6 | 580.8 | 557.7 |
| 47.5° | 653.4 | 640.2 | 585.8 | 531.3 | 504.9 |
| 50° | 595.7 | 584.1 | 534.6 | 480.2 | 452.1 |
| 52.5° | 547.8 | 529.7 | 481.8 | 427.4 | 404.3 |
| 55° | 491.7 | 476.9 | 432.3 | 381.2 | 361.4 |
| 57.5° | 440.6 | 425.7 | 384.5 | 336.6 | 320.1 |
| 60° | 392.7 | 371.3 | 336.6 | 295.4 | 282.2 |
| 62.5° | 339.9 | 323.4 | 293.7 | 259.1 | 275.6 |
| 65° | 292.1 | 275.6 | 249.2 | 254.1 | 211.2 |
| 67.5° | 239.3 | 231.0 | 207.9 | 184.8 | 178.2 |
| 70° | 194.7 | 184.8 | 176.6 | 151.8 | 145.2 |
| 72.5° | 155.1 | 145.2 | 133.7 | 120.5 | 115.5 |
| 75° | 117.2 | 108.9 | 102.3 | 97.4 | 107.3 |
| 77.5° | 80.9 | 77.6 | 72.6 | 67.7 | 66.0 |
| 80° | 52.8 | 51.2 | 49.5 | 47.9 | 46.2 |
| 82.5° | 31.4 | 31.4 | 31.4 | 31.4 | 31.4 |
| 85° | 16.5 | 18.2 | 19.8 | 21.5 | 23.1 |
| 87.5° | 9.9 | 9.9 | 11.6 | 13.2 | 14.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)