

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: P562151

Luminaire Tested: FSR-24-4-LD4-1HI-50-UNV-93-87-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562151
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-LD4-1HI-50-UNV-93-87-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4619.0 lumens
Efficiency: N/A
Efficacy: 106.9 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

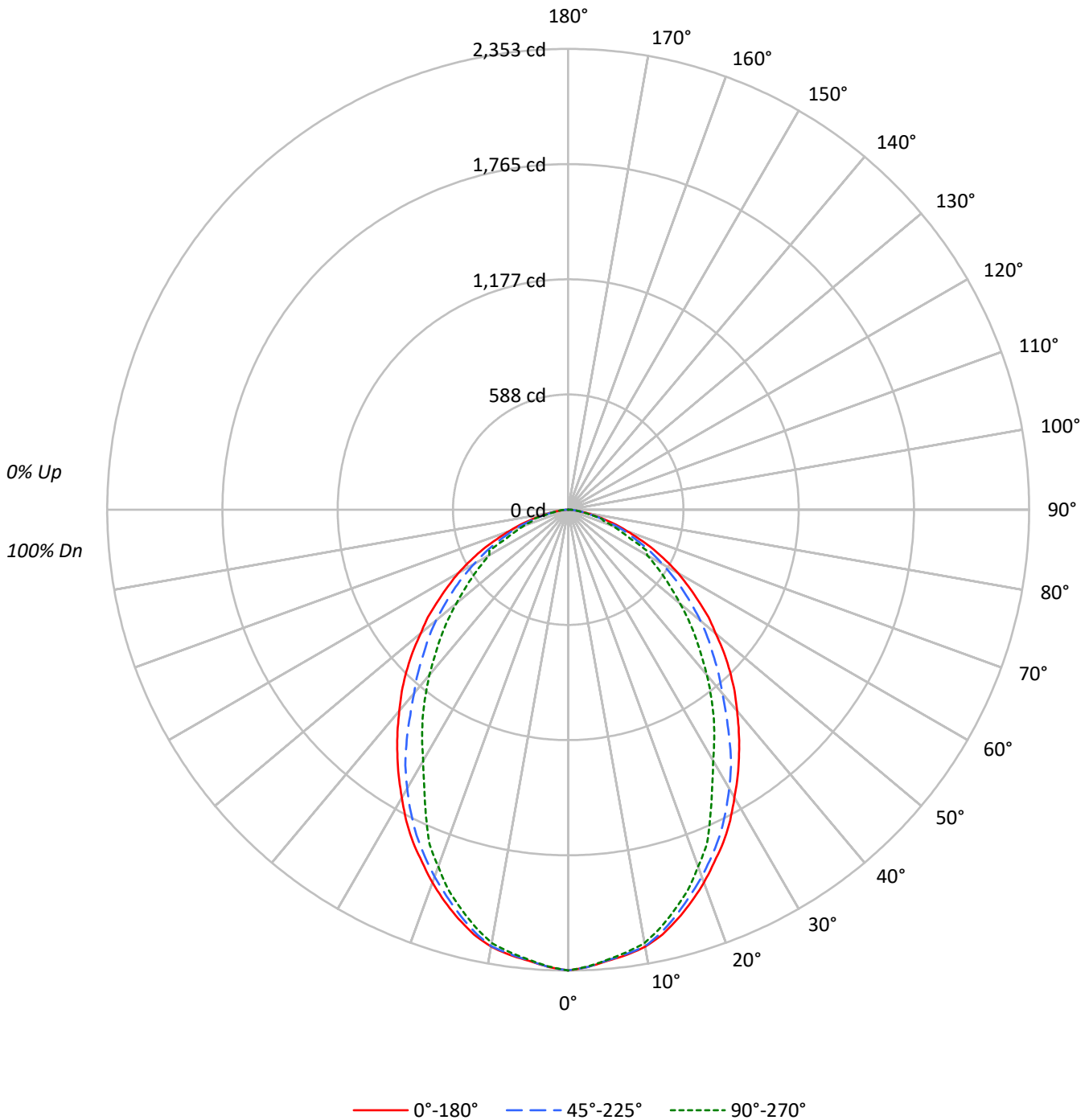
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P562151

CATALOG NUMBER: FSR-24-4-LD4-1HI-50-UNV-93-87-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P562151

CATALOG NUMBER: FSR-24-4-LD4-1HI-50-UNV-93-87-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 | 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° | 3166 | 3166 | 3166 |
| 5° | 3123 | 3119 | 3115 |
| 10° | 3096 | 3092 | 3070 |
| 15° | 3012 | 2982 | 2940 |
| 20° | 2901 | 2855 | 2777 |
| 25° | 2782 | 2722 | 2552 |
| 30° | 2637 | 2552 | 2299 |
| 35° | 2497 | 2359 | 2127 |
| 40° | 2355 | 2150 | 1935 |
| 45° | 2220 | 1987 | 1749 |
| 50° | 2055 | 1845 | 1560 |
| 55° | 1901 | 1672 | 1397 |
| 60° | 1742 | 1493 | 1252 |
| 65° | 1533 | 1308 | 1109 |
| 70° | 1263 | 1145 | 942 |
| 75° | 1004 | 876 | 919 |
| 80° | 674 | 632 | 590 |
| 85° | 420 | 503 | 588 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2220 cd/sqm



TEST NUMBER: P562151

CATALOG NUMBER: FSR-24-4-LD4-1HI-50-UNV-93-87-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 219.0 | 4.7 |
| 10°-20° | 601.1 | 13.0 |
| 20°-30° | 832.2 | 18.0 |
| 30°-40° | 887.3 | 19.2 |
| 40°-50° | 809.5 | 17.5 |
| 50°-60° | 634.2 | 13.7 |
| 60°-70° | 413.3 | 8.9 |
| 70°-80° | 183.1 | 4.0 |
| 80°-90° | 39.3 | 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° | 1652.3 | 35.8 |
| 0°-40° | 2539.6 | 55.0 |
| 0°-60° | 3983.2 | 86.2 |
| 0°-90° | 4619.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4619.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2353 | 2353 | 2353 | 2353 | 2353 | |
| 5° | 2312 | 2309 | 2309 | 2307 | 2307 | 219 |
| 15° | 2162 | 2162 | 2141 | 2119 | 2111 | 608 |
| 25° | 1874 | 1863 | 1833 | 1768 | 1719 | 860 |
| 35° | 1520 | 1510 | 1436 | 1327 | 1295 | 951 |
| 45° | 1167 | 1142 | 1044 | 958 | 919 | 899 |
| 55° | 811 | 786 | 713 | 628 | 596 | 727 |
| 65° | 482 | 454 | 411 | 419 | 348 | 474 |
| 75° | 193 | 180 | 169 | 160 | 177 | 207 |
| 85° | 27 | 30 | 33 | 35 | 38 | 38 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562151

CATALOG NUMBER: FSR-24-4-LD4-1HI-50-UNV-93-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2352.9 | 2352.9 | 2352.9 | 2352.9 | 2352.9 |
| 2.5° | 2336.5 | 2336.5 | 2336.5 | 2333.8 | 2333.8 |
| 5° | 2312.1 | 2309.3 | 2309.3 | 2306.6 | 2306.6 |
| 7.5° | 2293.0 | 2290.3 | 2287.6 | 2284.9 | 2279.4 |
| 10° | 2265.8 | 2265.8 | 2263.1 | 2249.5 | 2246.8 |
| 12.5° | 2222.3 | 2219.6 | 2208.7 | 2189.7 | 2184.2 |
| 15° | 2162.5 | 2162.5 | 2140.7 | 2118.9 | 2110.8 |
| 17.5° | 2097.2 | 2094.5 | 2067.2 | 2045.5 | 2034.6 |
| 20° | 2026.4 | 2021.0 | 1993.8 | 1958.4 | 1939.4 |
| 22.5° | 1947.6 | 1947.6 | 1914.9 | 1868.7 | 1849.6 |
| 25° | 1874.1 | 1863.2 | 1833.3 | 1768.0 | 1719.1 |
| 27.5° | 1789.8 | 1773.5 | 1740.8 | 1648.4 | 1591.2 |
| 30° | 1697.3 | 1689.2 | 1642.9 | 1523.2 | 1479.7 |
| 32.5° | 1610.3 | 1596.7 | 1547.7 | 1422.6 | 1387.2 |
| 35° | 1520.5 | 1509.6 | 1436.2 | 1327.4 | 1294.8 |
| 37.5° | 1430.8 | 1417.2 | 1324.7 | 1237.6 | 1196.8 |
| 40° | 1341.0 | 1324.7 | 1224.0 | 1145.1 | 1101.6 |
| 42.5° | 1256.7 | 1234.9 | 1137.0 | 1052.7 | 1003.7 |
| 45° | 1166.9 | 1142.4 | 1044.5 | 957.5 | 919.4 |
| 47.5° | 1077.1 | 1055.4 | 965.6 | 875.9 | 832.3 |
| 50° | 981.9 | 962.9 | 881.3 | 791.5 | 745.3 |
| 52.5° | 903.1 | 873.1 | 794.3 | 704.5 | 666.4 |
| 55° | 810.6 | 786.1 | 712.7 | 628.3 | 595.7 |
| 57.5° | 726.3 | 701.8 | 633.8 | 554.9 | 527.7 |
| 60° | 647.4 | 612.0 | 554.9 | 486.9 | 465.1 |
| 62.5° | 560.3 | 533.1 | 484.2 | 427.1 | 454.3 |
| 65° | 481.5 | 454.3 | 410.7 | 418.9 | 348.2 |
| 67.5° | 394.4 | 380.8 | 342.7 | 304.6 | 293.8 |
| 70° | 321.0 | 304.6 | 291.0 | 250.2 | 239.4 |
| 72.5° | 255.7 | 239.4 | 220.3 | 198.6 | 190.4 |
| 75° | 193.1 | 179.5 | 168.6 | 160.5 | 176.8 |
| 77.5° | 133.3 | 127.8 | 119.7 | 111.5 | 108.8 |
| 80° | 87.0 | 84.3 | 81.6 | 78.9 | 76.2 |
| 82.5° | 51.7 | 51.7 | 51.7 | 51.7 | 51.7 |
| 85° | 27.2 | 29.9 | 32.6 | 35.4 | 38.1 |
| 87.5° | 16.3 | 16.3 | 19.0 | 21.8 | 24.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)