

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: P561543

Luminaire Tested: FSR-12-4-LD4-2LO-35-UNV-81-87-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561543
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-LD4-2LO-35-UNV-81-87-EDD
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4419.0 lumens
Efficiency: N/A
Efficacy: 94.4 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

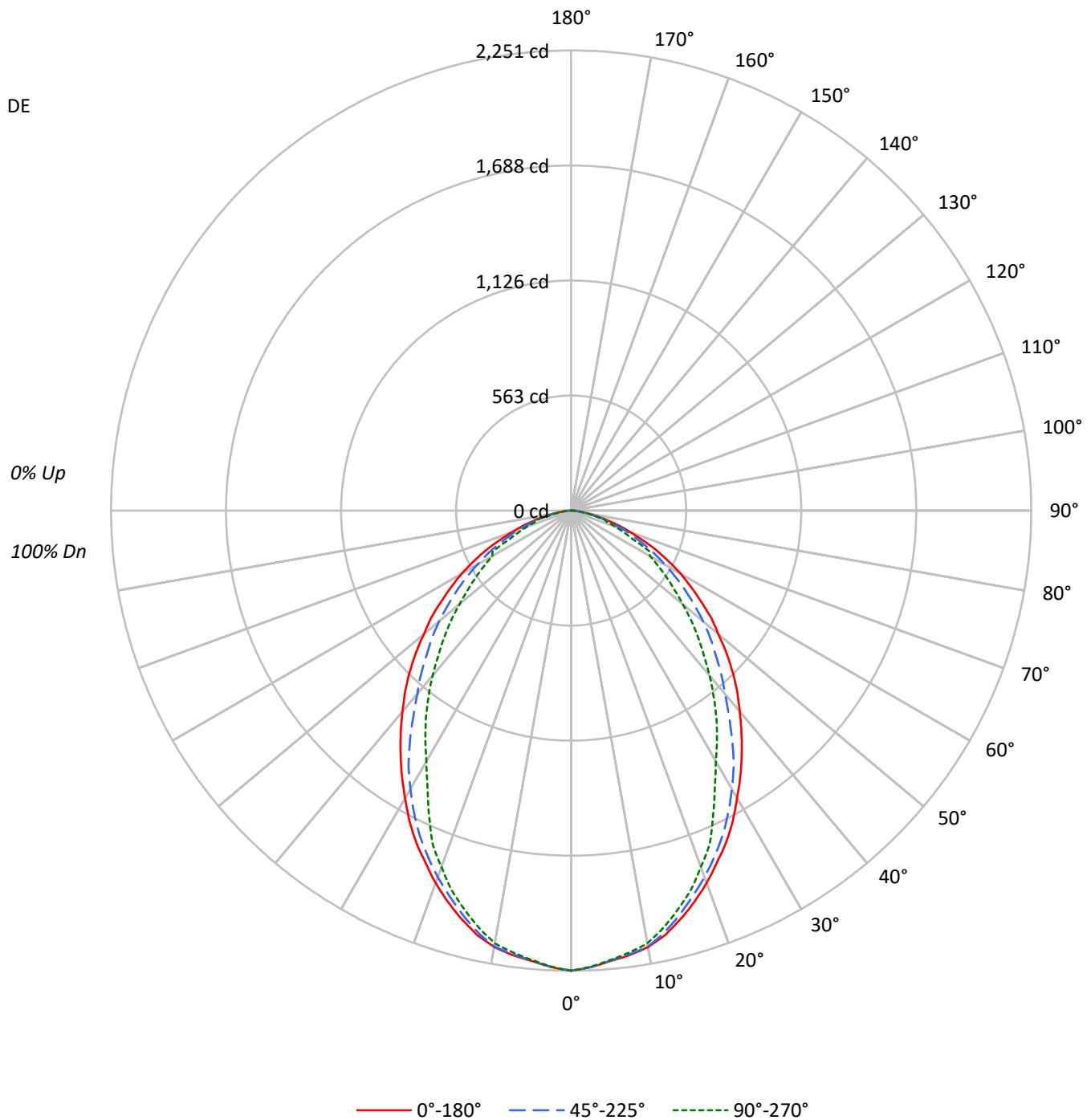
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561543

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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 | 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° | 6057 | 6057 | 6057 |
| 5° | 5975 | 5968 | 5961 |
| 10° | 5923 | 5916 | 5873 |
| 15° | 5763 | 5706 | 5626 |
| 20° | 5552 | 5462 | 5313 |
| 25° | 5324 | 5208 | 4883 |
| 30° | 5046 | 4884 | 4399 |
| 35° | 4779 | 4514 | 4069 |
| 40° | 4507 | 4114 | 3702 |
| 45° | 4249 | 3803 | 3347 |
| 50° | 3933 | 3530 | 2985 |
| 55° | 3638 | 3199 | 2674 |
| 60° | 3333 | 2857 | 2395 |
| 65° | 2933 | 2502 | 2121 |
| 70° | 2416 | 2190 | 1802 |
| 75° | 1921 | 1677 | 1758 |
| 80° | 1291 | 1210 | 1130 |
| 85° | 803 | 963 | 1124 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4249 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 209.5 | 4.7 |
| 10°-20° | 575.1 | 13.0 |
| 20°-30° | 796.1 | 18.0 |
| 30°-40° | 848.9 | 19.2 |
| 40°-50° | 774.4 | 17.5 |
| 50°-60° | 606.7 | 13.7 |
| 60°-70° | 395.4 | 8.9 |
| 70°-80° | 175.2 | 4.0 |
| 80°-90° | 37.6 | 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° | 1580.7 | 35.8 |
| 0°-40° | 2429.6 | 55.0 |
| 0°-60° | 3810.8 | 86.2 |
| 0°-90° | 4419.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4419.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2251 | 2251 | 2251 | 2251 | 2251 | |
| 5° | 2212 | 2209 | 2209 | 2207 | 2207 | 210 |
| 15° | 2069 | 2069 | 2048 | 2027 | 2019 | 582 |
| 25° | 1793 | 1783 | 1754 | 1692 | 1645 | 823 |
| 35° | 1455 | 1444 | 1374 | 1270 | 1239 | 909 |
| 45° | 1116 | 1093 | 999 | 916 | 880 | 860 |
| 55° | 776 | 752 | 682 | 601 | 570 | 696 |
| 65° | 461 | 435 | 393 | 401 | 333 | 454 |
| 75° | 185 | 172 | 161 | 154 | 169 | 198 |
| 85° | 26 | 29 | 31 | 34 | 36 | 36 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561543

CATALOG NUMBER: FSR-12-4-LD4-2LO-35-UNV-81-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2251.0 | 2251.0 | 2251.0 | 2251.0 | 2251.0 |
| 2.5° | 2235.4 | 2235.4 | 2235.4 | 2232.8 | 2232.8 |
| 5° | 2211.9 | 2209.3 | 2209.3 | 2206.7 | 2206.7 |
| 7.5° | 2193.7 | 2191.1 | 2188.5 | 2185.9 | 2180.7 |
| 10° | 2167.7 | 2167.7 | 2165.1 | 2152.1 | 2149.5 |
| 12.5° | 2126.1 | 2123.5 | 2113.1 | 2094.8 | 2089.6 |
| 15° | 2068.8 | 2068.8 | 2048.0 | 2027.2 | 2019.4 |
| 17.5° | 2006.4 | 2003.8 | 1977.7 | 1956.9 | 1946.5 |
| 20° | 1938.7 | 1933.5 | 1907.5 | 1873.6 | 1855.4 |
| 22.5° | 1863.2 | 1863.2 | 1832.0 | 1787.8 | 1769.6 |
| 25° | 1793.0 | 1782.6 | 1753.9 | 1691.5 | 1644.6 |
| 27.5° | 1712.3 | 1696.7 | 1665.5 | 1577.0 | 1522.3 |
| 30° | 1623.8 | 1616.0 | 1571.8 | 1457.3 | 1415.6 |
| 32.5° | 1540.6 | 1527.5 | 1480.7 | 1361.0 | 1327.2 |
| 35° | 1454.7 | 1444.3 | 1374.0 | 1269.9 | 1238.7 |
| 37.5° | 1368.8 | 1355.8 | 1267.3 | 1184.0 | 1145.0 |
| 40° | 1282.9 | 1267.3 | 1171.0 | 1095.6 | 1053.9 |
| 42.5° | 1202.3 | 1181.4 | 1087.8 | 1007.1 | 960.2 |
| 45° | 1116.4 | 1093.0 | 999.3 | 916.0 | 879.6 |
| 47.5° | 1030.5 | 1009.7 | 923.8 | 837.9 | 796.3 |
| 50° | 939.4 | 921.2 | 843.1 | 757.3 | 713.0 |
| 52.5° | 864.0 | 835.3 | 759.9 | 674.0 | 637.6 |
| 55° | 775.5 | 752.1 | 681.8 | 601.1 | 569.9 |
| 57.5° | 694.8 | 671.4 | 606.3 | 530.9 | 504.8 |
| 60° | 619.3 | 585.5 | 530.9 | 465.8 | 445.0 |
| 62.5° | 536.1 | 510.0 | 463.2 | 408.6 | 434.6 |
| 65° | 460.6 | 434.6 | 392.9 | 400.8 | 333.1 |
| 67.5° | 377.3 | 364.3 | 327.9 | 291.5 | 281.0 |
| 70° | 307.1 | 291.5 | 278.4 | 239.4 | 229.0 |
| 72.5° | 244.6 | 229.0 | 210.8 | 190.0 | 182.2 |
| 75° | 184.8 | 171.8 | 161.3 | 153.5 | 169.1 |
| 77.5° | 127.5 | 122.3 | 114.5 | 106.7 | 104.1 |
| 80° | 83.3 | 80.7 | 78.1 | 75.5 | 72.9 |
| 82.5° | 49.4 | 49.4 | 49.4 | 49.4 | 49.4 |
| 85° | 26.0 | 28.6 | 31.2 | 33.8 | 36.4 |
| 87.5° | 15.6 | 15.6 | 18.2 | 20.8 | 23.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)