

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: P560839

Luminaire Tested: FSR-12-4-LD4-1HI-40-UNV-81-87-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560839
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-LD4-1HI-40-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 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3665.0 lumens
Efficiency: N/A
Efficacy: 84.8 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

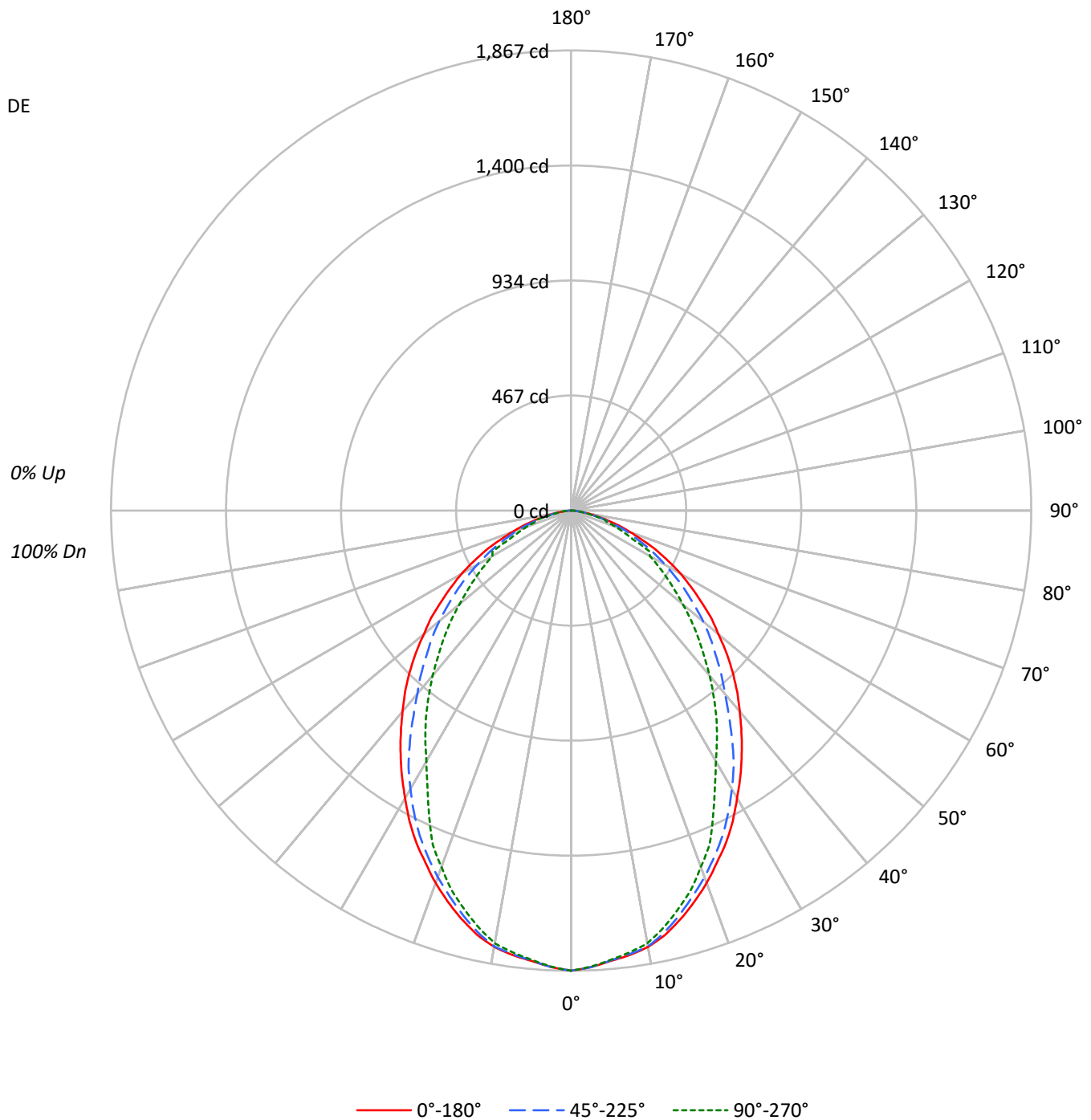
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P560839

CATALOG NUMBER: FSR-12-4-LD4-1HI-40-UNV-81-87-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P560839

CATALOG NUMBER: FSR-12-4-LD4-1HI-40-UNV-81-87-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 | 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° | 5024 | 5024 | 5024 |
| 5° | 4955 | 4950 | 4944 |
| 10° | 4912 | 4907 | 4871 |
| 15° | 4780 | 4732 | 4666 |
| 20° | 4605 | 4530 | 4407 |
| 25° | 4415 | 4319 | 4050 |
| 30° | 4185 | 4051 | 3648 |
| 35° | 3963 | 3744 | 3375 |
| 40° | 3738 | 3412 | 3071 |
| 45° | 3524 | 3154 | 2776 |
| 50° | 3262 | 2928 | 2476 |
| 55° | 3018 | 2653 | 2218 |
| 60° | 2765 | 2370 | 1986 |
| 65° | 2432 | 2075 | 1759 |
| 70° | 2004 | 1817 | 1494 |
| 75° | 1593 | 1391 | 1459 |
| 80° | 1071 | 1003 | 936 |
| 85° | 667 | 800 | 932 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3524 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 173.8 | 4.7 |
| 10°-20° | 476.9 | 13.0 |
| 20°-30° | 660.3 | 18.0 |
| 30°-40° | 704.1 | 19.2 |
| 40°-50° | 642.3 | 17.5 |
| 50°-60° | 503.2 | 13.7 |
| 60°-70° | 328.0 | 8.9 |
| 70°-80° | 145.3 | 4.0 |
| 80°-90° | 31.2 | 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° | 1311.0 | 35.8 |
| 0°-40° | 2015.1 | 55.0 |
| 0°-60° | 3160.6 | 86.2 |
| 0°-90° | 3665.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3665.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1867 | 1867 | 1867 | 1867 | 1867 | |
| 5° | 1834 | 1832 | 1832 | 1830 | 1830 | 174 |
| 15° | 1716 | 1716 | 1699 | 1681 | 1675 | 482 |
| 25° | 1487 | 1478 | 1455 | 1403 | 1364 | 683 |
| 35° | 1206 | 1198 | 1140 | 1053 | 1027 | 754 |
| 45° | 926 | 906 | 829 | 760 | 730 | 713 |
| 55° | 643 | 624 | 566 | 499 | 473 | 577 |
| 65° | 382 | 360 | 326 | 332 | 276 | 376 |
| 75° | 153 | 142 | 134 | 127 | 140 | 164 |
| 85° | 22 | 24 | 26 | 28 | 30 | 30 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P560839

CATALOG NUMBER: FSR-12-4-LD4-1HI-40-UNV-81-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1866.9 | 1866.9 | 1866.9 | 1866.9 | 1866.9 |
| 2.5° | 1854.0 | 1854.0 | 1854.0 | 1851.8 | 1851.8 |
| 5° | 1834.5 | 1832.4 | 1832.4 | 1830.2 | 1830.2 |
| 7.5° | 1819.4 | 1817.3 | 1815.1 | 1812.9 | 1808.6 |
| 10° | 1797.8 | 1797.8 | 1795.7 | 1784.9 | 1782.7 |
| 12.5° | 1763.3 | 1761.1 | 1752.5 | 1737.4 | 1733.1 |
| 15° | 1715.8 | 1715.8 | 1698.6 | 1681.3 | 1674.8 |
| 17.5° | 1664.0 | 1661.9 | 1640.3 | 1623.0 | 1614.4 |
| 20° | 1607.9 | 1603.6 | 1582.0 | 1554.0 | 1538.8 |
| 22.5° | 1545.3 | 1545.3 | 1519.4 | 1482.7 | 1467.6 |
| 25° | 1487.0 | 1478.4 | 1454.7 | 1402.9 | 1364.0 |
| 27.5° | 1420.1 | 1407.2 | 1381.3 | 1307.9 | 1262.6 |
| 30° | 1346.8 | 1340.3 | 1303.6 | 1208.6 | 1174.1 |
| 32.5° | 1277.7 | 1266.9 | 1228.1 | 1128.8 | 1100.7 |
| 35° | 1206.5 | 1197.8 | 1139.6 | 1053.2 | 1027.3 |
| 37.5° | 1135.2 | 1124.5 | 1051.1 | 982.0 | 949.6 |
| 40° | 1064.0 | 1051.1 | 971.2 | 908.6 | 874.1 |
| 42.5° | 997.1 | 979.9 | 902.2 | 835.2 | 796.4 |
| 45° | 925.9 | 906.5 | 828.8 | 759.7 | 729.5 |
| 47.5° | 854.7 | 837.4 | 766.2 | 695.0 | 660.4 |
| 50° | 779.1 | 764.0 | 699.3 | 628.1 | 591.4 |
| 52.5° | 716.5 | 692.8 | 630.2 | 559.0 | 528.8 |
| 55° | 643.2 | 623.7 | 565.5 | 498.6 | 472.7 |
| 57.5° | 576.3 | 556.8 | 502.9 | 440.3 | 418.7 |
| 60° | 513.7 | 485.6 | 440.3 | 386.3 | 369.1 |
| 62.5° | 444.6 | 423.0 | 384.2 | 338.8 | 360.4 |
| 65° | 382.0 | 360.4 | 325.9 | 332.4 | 276.3 |
| 67.5° | 312.9 | 302.2 | 271.9 | 241.7 | 233.1 |
| 70° | 254.7 | 241.7 | 230.9 | 198.6 | 189.9 |
| 72.5° | 202.9 | 189.9 | 174.8 | 157.6 | 151.1 |
| 75° | 153.2 | 142.4 | 133.8 | 127.3 | 140.3 |
| 77.5° | 105.8 | 101.4 | 95.0 | 88.5 | 86.3 |
| 80° | 69.1 | 66.9 | 64.7 | 62.6 | 60.4 |
| 82.5° | 41.0 | 41.0 | 41.0 | 41.0 | 41.0 |
| 85° | 21.6 | 23.7 | 25.9 | 28.1 | 30.2 |
| 87.5° | 12.9 | 12.9 | 15.1 | 17.3 | 19.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)