

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: P561968

Luminaire Tested: FSR-24-4-LD4-1HI-35-UNV-80-84-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561968
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-35-UNV-80-84-EDD-90
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .125 CLEAR PC ENVIRONM
SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

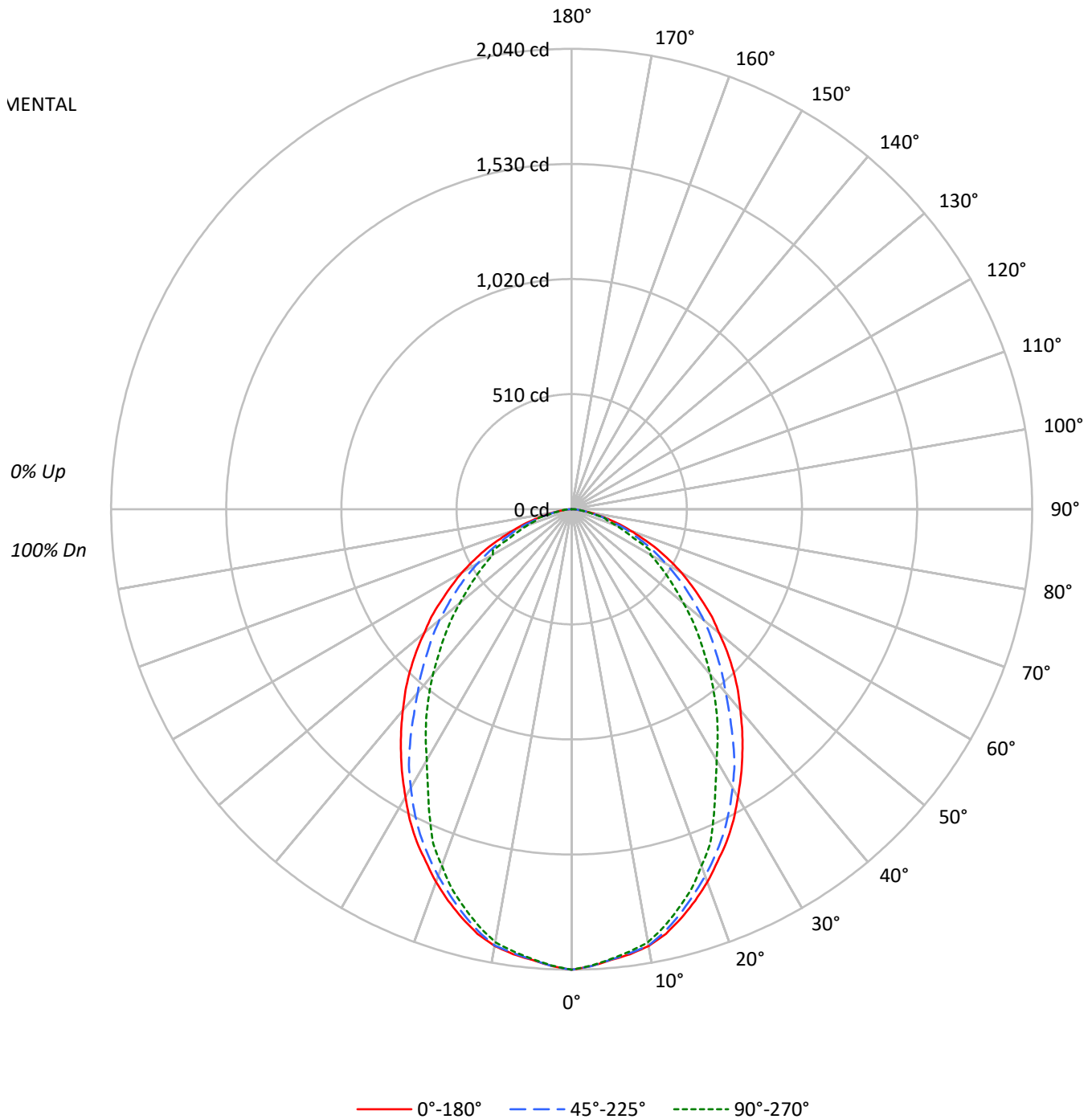
Lumens per Lamp: N/A
Luminaire Lumens: 4005.0 lumens
Efficiency: N/A
Efficacy: 92.7 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 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



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Luminous Intensity Polar Plot





TEST NUMBER: P561968

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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 | 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° | 2745 | 2745 | 2745 |
| 5° | 2708 | 2704 | 2701 |
| 10° | 2684 | 2681 | 2662 |
| 15° | 2612 | 2585 | 2549 |
| 20° | 2516 | 2475 | 2408 |
| 25° | 2412 | 2360 | 2213 |
| 30° | 2286 | 2213 | 1993 |
| 35° | 2166 | 2045 | 1844 |
| 40° | 2042 | 1864 | 1678 |
| 45° | 1925 | 1723 | 1517 |
| 50° | 1782 | 1600 | 1353 |
| 55° | 1649 | 1449 | 1212 |
| 60° | 1510 | 1295 | 1085 |
| 65° | 1329 | 1134 | 961 |
| 70° | 1095 | 993 | 816 |
| 75° | 871 | 760 | 797 |
| 80° | 585 | 549 | 511 |
| 85° | 364 | 437 | 509 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1925 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 189.9 | 4.7 |
| 10°-20° | 521.2 | 13.0 |
| 20°-30° | 721.5 | 18.0 |
| 30°-40° | 769.4 | 19.2 |
| 40°-50° | 701.9 | 17.5 |
| 50°-60° | 549.9 | 13.7 |
| 60°-70° | 358.4 | 8.9 |
| 70°-80° | 158.8 | 4.0 |
| 80°-90° | 34.1 | 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° | 1432.6 | 35.8 |
| 0°-40° | 2202.0 | 55.0 |
| 0°-60° | 3453.7 | 86.2 |
| 0°-90° | 4005.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4005.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2040 | 2040 | 2040 | 2040 | 2040 | |
| 5° | 2005 | 2002 | 2002 | 2000 | 2000 | 190 |
| 15° | 1875 | 1875 | 1856 | 1837 | 1830 | 527 |
| 25° | 1625 | 1616 | 1590 | 1533 | 1491 | 746 |
| 35° | 1318 | 1309 | 1245 | 1151 | 1123 | 824 |
| 45° | 1012 | 991 | 906 | 830 | 797 | 779 |
| 55° | 703 | 682 | 618 | 545 | 516 | 630 |
| 65° | 418 | 394 | 356 | 363 | 302 | 411 |
| 75° | 168 | 156 | 146 | 139 | 153 | 179 |
| 85° | 24 | 26 | 28 | 31 | 33 | 33 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2040.1 | 2040.1 | 2040.1 | 2040.1 | 2040.1 |
| 2.5° | 2025.9 | 2025.9 | 2025.9 | 2023.6 | 2023.6 |
| 5° | 2004.7 | 2002.4 | 2002.4 | 2000.0 | 2000.0 |
| 7.5° | 1988.2 | 1985.8 | 1983.5 | 1981.1 | 1976.4 |
| 10° | 1964.6 | 1964.6 | 1962.3 | 1950.5 | 1948.1 |
| 12.5° | 1926.9 | 1924.5 | 1915.1 | 1898.6 | 1893.9 |
| 15° | 1875.0 | 1875.0 | 1856.1 | 1837.3 | 1830.2 |
| 17.5° | 1818.4 | 1816.0 | 1792.5 | 1773.6 | 1764.2 |
| 20° | 1757.1 | 1752.4 | 1728.8 | 1698.1 | 1681.6 |
| 22.5° | 1688.7 | 1688.7 | 1660.4 | 1620.3 | 1603.8 |
| 25° | 1625.0 | 1615.6 | 1589.6 | 1533.0 | 1490.6 |
| 27.5° | 1551.9 | 1537.7 | 1509.4 | 1429.2 | 1379.7 |
| 30° | 1471.7 | 1464.6 | 1424.5 | 1320.8 | 1283.0 |
| 32.5° | 1396.2 | 1384.4 | 1342.0 | 1233.5 | 1202.8 |
| 35° | 1318.4 | 1309.0 | 1245.3 | 1150.9 | 1122.6 |
| 37.5° | 1240.6 | 1228.8 | 1148.6 | 1073.1 | 1037.7 |
| 40° | 1162.7 | 1148.6 | 1061.3 | 992.9 | 955.2 |
| 42.5° | 1089.6 | 1070.8 | 985.8 | 912.7 | 870.3 |
| 45° | 1011.8 | 990.6 | 905.7 | 830.2 | 797.2 |
| 47.5° | 934.0 | 915.1 | 837.3 | 759.4 | 721.7 |
| 50° | 851.4 | 834.9 | 764.2 | 686.3 | 646.2 |
| 52.5° | 783.0 | 757.1 | 688.7 | 610.8 | 577.8 |
| 55° | 702.8 | 681.6 | 617.9 | 544.8 | 516.5 |
| 57.5° | 629.7 | 608.5 | 549.5 | 481.1 | 457.5 |
| 60° | 561.3 | 530.7 | 481.1 | 422.2 | 403.3 |
| 62.5° | 485.8 | 462.3 | 419.8 | 370.3 | 393.9 |
| 65° | 417.5 | 393.9 | 356.1 | 363.2 | 301.9 |
| 67.5° | 342.0 | 330.2 | 297.2 | 264.2 | 254.7 |
| 70° | 278.3 | 264.2 | 252.4 | 217.0 | 207.5 |
| 72.5° | 221.7 | 207.5 | 191.0 | 172.2 | 165.1 |
| 75° | 167.5 | 155.7 | 146.2 | 139.2 | 153.3 |
| 77.5° | 115.6 | 110.8 | 103.8 | 96.7 | 94.3 |
| 80° | 75.5 | 73.1 | 70.8 | 68.4 | 66.0 |
| 82.5° | 44.8 | 44.8 | 44.8 | 44.8 | 44.8 |
| 85° | 23.6 | 25.9 | 28.3 | 30.7 | 33.0 |
| 87.5° | 14.2 | 14.2 | 16.5 | 18.9 | 21.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)