

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: P561824

Luminaire Tested: FSR-12-4-LD4-2STD-40-UNV-93-84-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561824
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-LD4-2STD-40-UNV-93-84-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5649.0 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

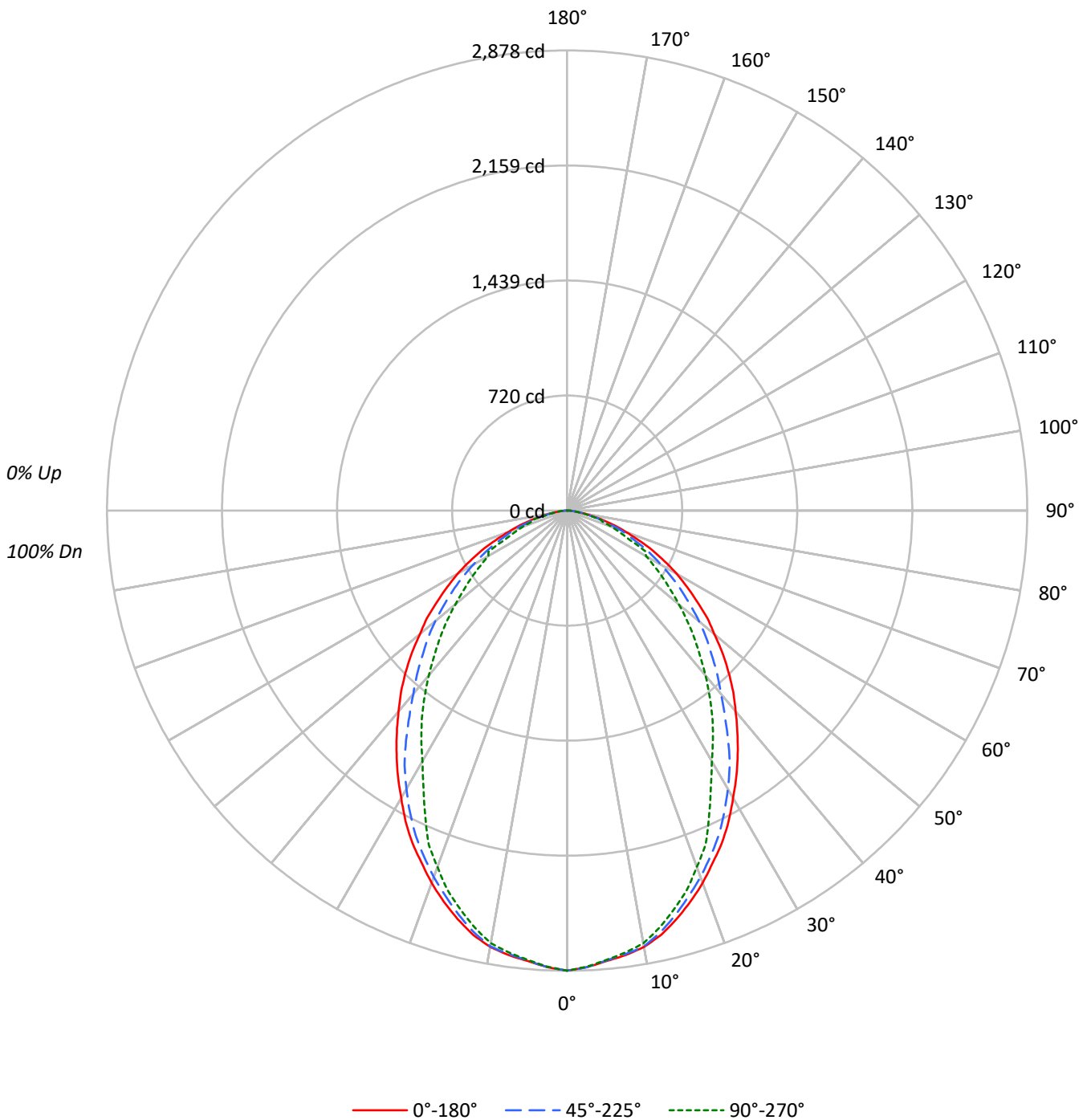
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561824

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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 | 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° | 7743 | 7743 | 7743 |
| 5° | 7638 | 7629 | 7620 |
| 10° | 7572 | 7563 | 7508 |
| 15° | 7368 | 7294 | 7192 |
| 20° | 7097 | 6983 | 6792 |
| 25° | 6805 | 6657 | 6242 |
| 30° | 6450 | 6243 | 5623 |
| 35° | 6109 | 5770 | 5202 |
| 40° | 5761 | 5259 | 4733 |
| 45° | 5431 | 4861 | 4279 |
| 50° | 5027 | 4512 | 3816 |
| 55° | 4651 | 4089 | 3418 |
| 60° | 4261 | 3652 | 3062 |
| 65° | 3749 | 3198 | 2711 |
| 70° | 3088 | 2800 | 2303 |
| 75° | 2456 | 2145 | 2248 |
| 80° | 1650 | 1547 | 1443 |
| 85° | 1028 | 1232 | 1439 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5431 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 267.9 | 4.7 |
| 10°-20° | 735.1 | 13.0 |
| 20°-30° | 1017.7 | 18.0 |
| 30°-40° | 1085.2 | 19.2 |
| 40°-50° | 990.0 | 17.5 |
| 50°-60° | 775.6 | 13.7 |
| 60°-70° | 505.5 | 8.9 |
| 70°-80° | 224.0 | 4.0 |
| 80°-90° | 48.1 | 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° | 2020.7 | 35.8 |
| 0°-40° | 3105.9 | 55.0 |
| 0°-60° | 4871.5 | 86.2 |
| 0°-90° | 5649.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5649.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2878 | 2878 | 2878 | 2878 | 2878 | |
| 5° | 2828 | 2824 | 2824 | 2821 | 2821 | 268 |
| 15° | 2645 | 2645 | 2618 | 2591 | 2582 | 743 |
| 25° | 2292 | 2279 | 2242 | 2162 | 2102 | 1052 |
| 35° | 1860 | 1846 | 1756 | 1623 | 1584 | 1163 |
| 45° | 1427 | 1397 | 1277 | 1171 | 1124 | 1099 |
| 55° | 991 | 961 | 872 | 768 | 728 | 889 |
| 65° | 589 | 556 | 502 | 512 | 426 | 580 |
| 75° | 236 | 220 | 206 | 196 | 216 | 253 |
| 85° | 33 | 37 | 40 | 43 | 47 | 46 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2877.5 | 2877.5 | 2877.5 | 2877.5 | 2877.5 |
| 2.5° | 2857.6 | 2857.6 | 2857.6 | 2854.2 | 2854.2 |
| 5° | 2827.6 | 2824.3 | 2824.3 | 2821.0 | 2821.0 |
| 7.5° | 2804.3 | 2801.0 | 2797.7 | 2794.4 | 2787.7 |
| 10° | 2771.1 | 2771.1 | 2767.7 | 2751.1 | 2747.8 |
| 12.5° | 2717.8 | 2714.5 | 2701.2 | 2677.9 | 2671.3 |
| 15° | 2644.7 | 2644.7 | 2618.0 | 2591.4 | 2581.5 |
| 17.5° | 2564.8 | 2561.5 | 2528.2 | 2501.6 | 2488.3 |
| 20° | 2478.3 | 2471.7 | 2438.4 | 2395.2 | 2371.9 |
| 22.5° | 2381.9 | 2381.9 | 2341.9 | 2285.4 | 2262.1 |
| 25° | 2292.0 | 2278.7 | 2242.1 | 2162.3 | 2102.4 |
| 27.5° | 2188.9 | 2169.0 | 2129.0 | 2015.9 | 1946.1 |
| 30° | 2075.8 | 2065.8 | 2009.3 | 1862.9 | 1809.7 |
| 32.5° | 1969.4 | 1952.7 | 1892.8 | 1739.8 | 1696.6 |
| 35° | 1859.6 | 1846.3 | 1756.5 | 1623.4 | 1583.5 |
| 37.5° | 1749.8 | 1733.2 | 1620.1 | 1513.6 | 1463.7 |
| 40° | 1640.0 | 1620.1 | 1497.0 | 1400.5 | 1347.3 |
| 42.5° | 1536.9 | 1510.3 | 1390.5 | 1287.4 | 1227.5 |
| 45° | 1427.1 | 1397.2 | 1277.4 | 1171.0 | 1124.4 |
| 47.5° | 1317.3 | 1290.7 | 1180.9 | 1071.2 | 1017.9 |
| 50° | 1200.9 | 1177.6 | 1077.8 | 968.0 | 911.5 |
| 52.5° | 1104.4 | 1067.8 | 971.4 | 861.6 | 815.0 |
| 55° | 991.3 | 961.4 | 871.6 | 768.4 | 728.5 |
| 57.5° | 888.2 | 858.3 | 775.1 | 678.6 | 645.4 |
| 60° | 791.7 | 748.5 | 678.6 | 595.5 | 568.9 |
| 62.5° | 685.3 | 652.0 | 592.1 | 522.3 | 555.5 |
| 65° | 588.8 | 555.5 | 502.3 | 512.3 | 425.8 |
| 67.5° | 482.4 | 465.7 | 419.2 | 372.6 | 359.3 |
| 70° | 392.5 | 372.6 | 355.9 | 306.0 | 292.7 |
| 72.5° | 312.7 | 292.7 | 269.5 | 242.8 | 232.9 |
| 75° | 236.2 | 219.6 | 206.3 | 196.3 | 216.2 |
| 77.5° | 163.0 | 156.4 | 146.4 | 136.4 | 133.1 |
| 80° | 106.5 | 103.1 | 99.8 | 96.5 | 93.1 |
| 82.5° | 63.2 | 63.2 | 63.2 | 63.2 | 63.2 |
| 85° | 33.3 | 36.6 | 39.9 | 43.2 | 46.6 |
| 87.5° | 20.0 | 20.0 | 23.3 | 26.6 | 29.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)