

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: P562814

Luminaire Tested: FSR-24-4-LD4-2LO-50-UNV-80-97-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562814
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-LD4-2LO-50-UNV-80-97-EDD-90
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4977.0 lumens
Efficiency: N/A
Efficacy: 106.3 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

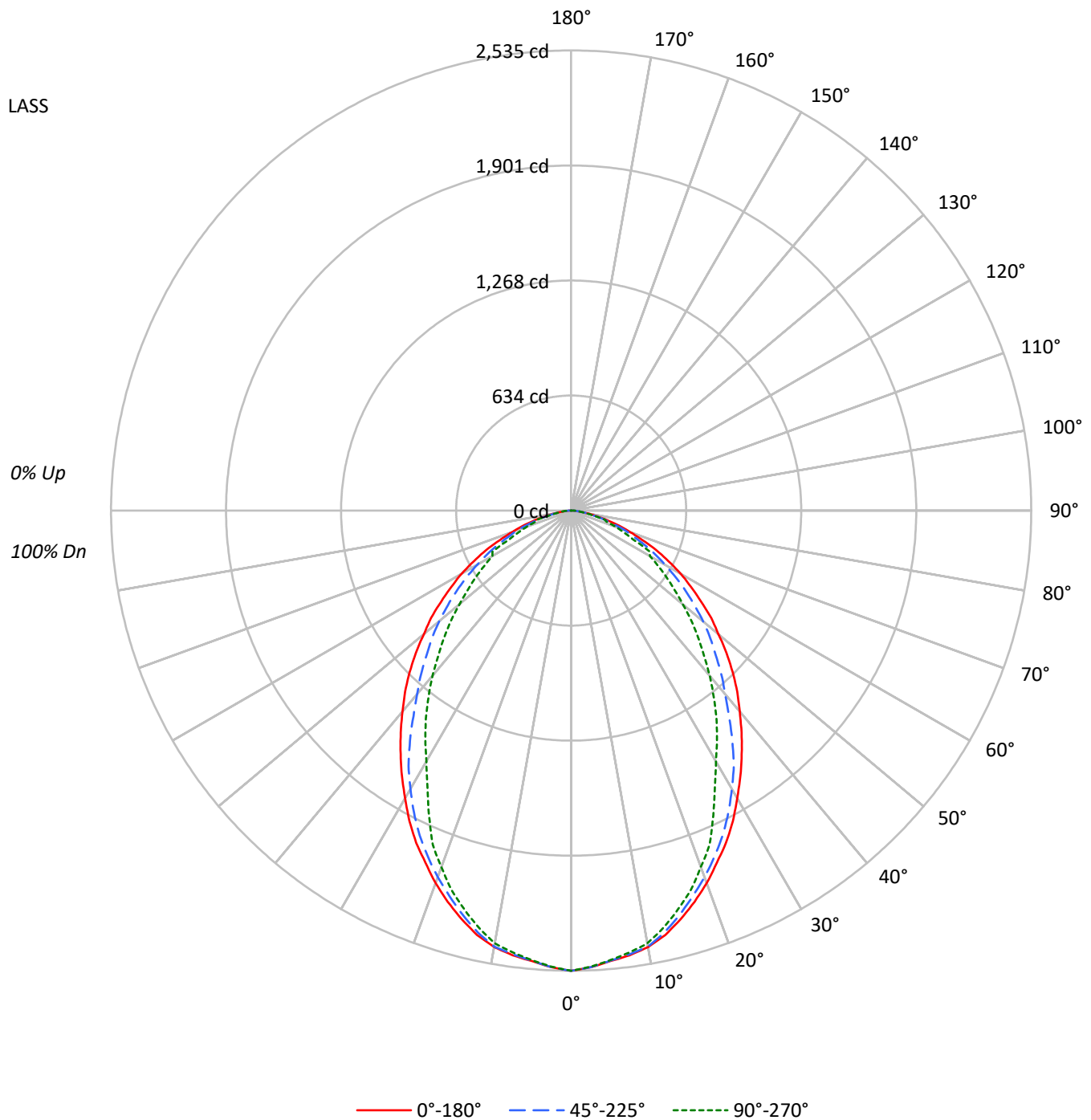
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562814

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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° | 3411 | 3411 | 3411 |
| 5° | 3365 | 3361 | 3357 |
| 10° | 3336 | 3332 | 3308 |
| 15° | 3246 | 3213 | 3168 |
| 20° | 3126 | 3076 | 2992 |
| 25° | 2998 | 2933 | 2750 |
| 30° | 2841 | 2750 | 2477 |
| 35° | 2691 | 2542 | 2292 |
| 40° | 2538 | 2317 | 2085 |
| 45° | 2393 | 2142 | 1885 |
| 50° | 2215 | 1988 | 1681 |
| 55° | 2049 | 1801 | 1506 |
| 60° | 1877 | 1609 | 1349 |
| 65° | 1652 | 1409 | 1195 |
| 70° | 1360 | 1234 | 1015 |
| 75° | 1082 | 945 | 990 |
| 80° | 727 | 681 | 636 |
| 85° | 452 | 543 | 633 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2393 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 236.0 | 4.7 |
| 10°-20° | 647.7 | 13.0 |
| 20°-30° | 896.6 | 18.0 |
| 30°-40° | 956.1 | 19.2 |
| 40°-50° | 872.2 | 17.5 |
| 50°-60° | 683.3 | 13.7 |
| 60°-70° | 445.4 | 8.9 |
| 70°-80° | 197.3 | 4.0 |
| 80°-90° | 42.4 | 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° | 1780.3 | 35.8 |
| 0°-40° | 2736.4 | 55.0 |
| 0°-60° | 4292.0 | 86.2 |
| 0°-90° | 4977.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4977.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2535 | 2535 | 2535 | 2535 | 2535 | |
| 5° | 2491 | 2488 | 2488 | 2485 | 2485 | 236 |
| 15° | 2330 | 2330 | 2307 | 2283 | 2274 | 655 |
| 25° | 2019 | 2008 | 1975 | 1905 | 1852 | 927 |
| 35° | 1638 | 1627 | 1548 | 1430 | 1395 | 1024 |
| 45° | 1257 | 1231 | 1126 | 1032 | 991 | 969 |
| 55° | 873 | 847 | 768 | 677 | 642 | 783 |
| 65° | 519 | 490 | 443 | 451 | 375 | 511 |
| 75° | 208 | 193 | 182 | 173 | 190 | 223 |
| 85° | 29 | 32 | 35 | 38 | 41 | 41 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562814

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2535.2 | 2535.2 | 2535.2 | 2535.2 | 2535.2 |
| 2.5° | 2517.6 | 2517.6 | 2517.6 | 2514.7 | 2514.7 |
| 5° | 2491.3 | 2488.3 | 2488.3 | 2485.4 | 2485.4 |
| 7.5° | 2470.7 | 2467.8 | 2464.9 | 2461.9 | 2456.1 |
| 10° | 2441.4 | 2441.4 | 2438.5 | 2423.8 | 2420.9 |
| 12.5° | 2394.5 | 2391.6 | 2379.9 | 2359.4 | 2353.5 |
| 15° | 2330.1 | 2330.1 | 2306.6 | 2283.2 | 2274.4 |
| 17.5° | 2259.7 | 2256.8 | 2227.5 | 2204.0 | 2192.3 |
| 20° | 2183.5 | 2177.6 | 2148.3 | 2110.2 | 2089.7 |
| 22.5° | 2098.5 | 2098.5 | 2063.3 | 2013.5 | 1993.0 |
| 25° | 2019.4 | 2007.7 | 1975.4 | 1905.1 | 1852.3 |
| 27.5° | 1928.5 | 1910.9 | 1875.8 | 1776.1 | 1714.6 |
| 30° | 1828.9 | 1820.1 | 1770.3 | 1641.3 | 1594.4 |
| 32.5° | 1735.1 | 1720.4 | 1667.7 | 1532.9 | 1494.8 |
| 35° | 1638.4 | 1626.6 | 1547.5 | 1430.3 | 1395.1 |
| 37.5° | 1541.6 | 1527.0 | 1427.3 | 1333.6 | 1289.6 |
| 40° | 1444.9 | 1427.3 | 1318.9 | 1233.9 | 1187.0 |
| 42.5° | 1354.1 | 1330.6 | 1225.1 | 1134.3 | 1081.5 |
| 45° | 1257.4 | 1231.0 | 1125.5 | 1031.7 | 990.6 |
| 47.5° | 1160.6 | 1137.2 | 1040.5 | 943.7 | 896.9 |
| 50° | 1058.1 | 1037.5 | 949.6 | 852.9 | 803.1 |
| 52.5° | 973.1 | 940.8 | 855.8 | 759.1 | 718.1 |
| 55° | 873.4 | 847.0 | 767.9 | 677.0 | 641.9 |
| 57.5° | 782.5 | 756.2 | 682.9 | 597.9 | 568.6 |
| 60° | 697.6 | 659.4 | 597.9 | 524.6 | 501.2 |
| 62.5° | 603.8 | 574.5 | 521.7 | 460.1 | 489.5 |
| 65° | 518.8 | 489.5 | 442.6 | 451.4 | 375.2 |
| 67.5° | 425.0 | 410.3 | 369.3 | 328.3 | 316.5 |
| 70° | 345.8 | 328.3 | 313.6 | 269.6 | 257.9 |
| 72.5° | 275.5 | 257.9 | 237.4 | 214.0 | 205.2 |
| 75° | 208.1 | 193.4 | 181.7 | 172.9 | 190.5 |
| 77.5° | 143.6 | 137.8 | 129.0 | 120.2 | 117.2 |
| 80° | 93.8 | 90.9 | 87.9 | 85.0 | 82.1 |
| 82.5° | 55.7 | 55.7 | 55.7 | 55.7 | 55.7 |
| 85° | 29.3 | 32.2 | 35.2 | 38.1 | 41.0 |
| 87.5° | 17.6 | 17.6 | 20.5 | 23.4 | 26.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)