

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: P562700

Luminaire Tested: FSR-24-4-LD4-2LO-35-UNV-81-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562700
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-35-UNV-81-96-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4592.0 lumens
Efficiency: N/A
Efficacy: 98.1 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

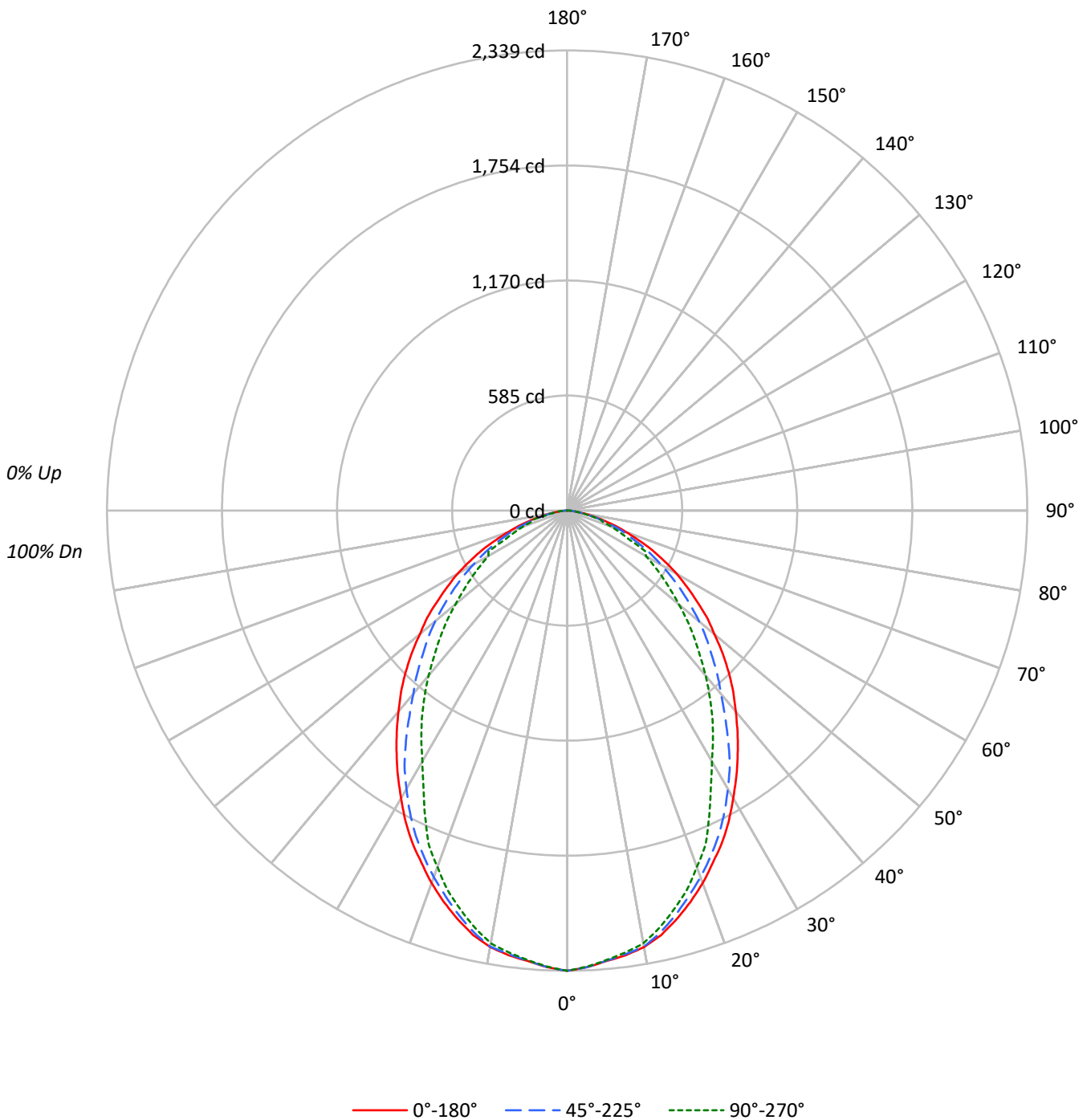
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562700

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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 | | | | | | | | | 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° | 3147 | 3147 | 3147 |
| 5° | 3104 | 3101 | 3097 |
| 10° | 3078 | 3074 | 3052 |
| 15° | 2995 | 2964 | 2923 |
| 20° | 2885 | 2838 | 2761 |
| 25° | 2766 | 2706 | 2537 |
| 30° | 2622 | 2538 | 2286 |
| 35° | 2483 | 2345 | 2114 |
| 40° | 2342 | 2137 | 1924 |
| 45° | 2207 | 1976 | 1739 |
| 50° | 2043 | 1834 | 1551 |
| 55° | 1890 | 1662 | 1389 |
| 60° | 1732 | 1484 | 1244 |
| 65° | 1524 | 1300 | 1102 |
| 70° | 1255 | 1138 | 936 |
| 75° | 998 | 872 | 914 |
| 80° | 670 | 628 | 587 |
| 85° | 417 | 500 | 585 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2207 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 217.7 | 4.7 |
| 10°-20° | 597.6 | 13.0 |
| 20°-30° | 827.3 | 18.0 |
| 30°-40° | 882.1 | 19.2 |
| 40°-50° | 804.8 | 17.5 |
| 50°-60° | 630.5 | 13.7 |
| 60°-70° | 410.9 | 8.9 |
| 70°-80° | 182.1 | 4.0 |
| 80°-90° | 39.1 | 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° | 1642.6 | 35.8 |
| 0°-40° | 2524.7 | 55.0 |
| 0°-60° | 3959.9 | 86.2 |
| 0°-90° | 4592.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4592.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2339 | 2339 | 2339 | 2339 | 2339 | |
| 5° | 2298 | 2296 | 2296 | 2293 | 2293 | 218 |
| 15° | 2150 | 2150 | 2128 | 2106 | 2098 | 604 |
| 25° | 1863 | 1852 | 1823 | 1758 | 1709 | 855 |
| 35° | 1512 | 1501 | 1428 | 1320 | 1287 | 945 |
| 45° | 1160 | 1136 | 1038 | 952 | 914 | 894 |
| 55° | 806 | 782 | 708 | 625 | 592 | 723 |
| 65° | 479 | 452 | 408 | 416 | 346 | 472 |
| 75° | 192 | 178 | 168 | 160 | 176 | 206 |
| 85° | 27 | 30 | 32 | 35 | 38 | 37 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562700

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2339.1 | 2339.1 | 2339.1 | 2339.1 | 2339.1 |
| 2.5° | 2322.9 | 2322.9 | 2322.9 | 2320.2 | 2320.2 |
| 5° | 2298.5 | 2295.8 | 2295.8 | 2293.1 | 2293.1 |
| 7.5° | 2279.6 | 2276.9 | 2274.2 | 2271.5 | 2266.1 |
| 10° | 2252.6 | 2252.6 | 2249.9 | 2236.3 | 2233.6 |
| 12.5° | 2209.3 | 2206.6 | 2195.8 | 2176.9 | 2171.4 |
| 15° | 2149.8 | 2149.8 | 2128.2 | 2106.5 | 2098.4 |
| 17.5° | 2084.9 | 2082.2 | 2055.2 | 2033.5 | 2022.7 |
| 20° | 2014.6 | 2009.2 | 1982.2 | 1947.0 | 1928.1 |
| 22.5° | 1936.2 | 1936.2 | 1903.7 | 1857.8 | 1838.8 |
| 25° | 1863.2 | 1852.4 | 1822.6 | 1757.7 | 1709.0 |
| 27.5° | 1779.3 | 1763.1 | 1730.7 | 1638.7 | 1581.9 |
| 30° | 1687.4 | 1679.3 | 1633.3 | 1514.3 | 1471.1 |
| 32.5° | 1600.9 | 1587.3 | 1538.7 | 1414.3 | 1379.1 |
| 35° | 1511.6 | 1500.8 | 1427.8 | 1319.6 | 1287.2 |
| 37.5° | 1422.4 | 1408.9 | 1316.9 | 1230.4 | 1189.8 |
| 40° | 1333.2 | 1316.9 | 1216.9 | 1138.5 | 1095.2 |
| 42.5° | 1249.3 | 1227.7 | 1130.3 | 1046.5 | 997.8 |
| 45° | 1160.1 | 1135.7 | 1038.4 | 951.9 | 914.0 |
| 47.5° | 1070.8 | 1049.2 | 960.0 | 870.7 | 827.5 |
| 50° | 976.2 | 957.3 | 876.1 | 786.9 | 740.9 |
| 52.5° | 897.8 | 868.0 | 789.6 | 700.4 | 662.5 |
| 55° | 805.8 | 781.5 | 708.5 | 624.7 | 592.2 |
| 57.5° | 722.0 | 697.7 | 630.1 | 551.6 | 524.6 |
| 60° | 643.6 | 608.4 | 551.6 | 484.0 | 462.4 |
| 62.5° | 557.1 | 530.0 | 481.3 | 424.6 | 451.6 |
| 65° | 478.6 | 451.6 | 408.3 | 416.4 | 346.1 |
| 67.5° | 392.1 | 378.6 | 340.7 | 302.9 | 292.0 |
| 70° | 319.1 | 302.9 | 289.3 | 248.8 | 238.0 |
| 72.5° | 254.2 | 238.0 | 219.0 | 197.4 | 189.3 |
| 75° | 192.0 | 178.5 | 167.7 | 159.5 | 175.8 |
| 77.5° | 132.5 | 127.1 | 119.0 | 110.9 | 108.2 |
| 80° | 86.5 | 83.8 | 81.1 | 78.4 | 75.7 |
| 82.5° | 51.4 | 51.4 | 51.4 | 51.4 | 51.4 |
| 85° | 27.0 | 29.7 | 32.4 | 35.2 | 37.9 |
| 87.5° | 16.2 | 16.2 | 18.9 | 21.6 | 24.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)