

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: P562912

Luminaire Tested: FSR-24-4-LD4-2STD-35-UNV-93-84-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562912
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-LD4-2STD-35-UNV-93-84-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6544.0 lumens
Efficiency: N/A
Efficacy: 98.3 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

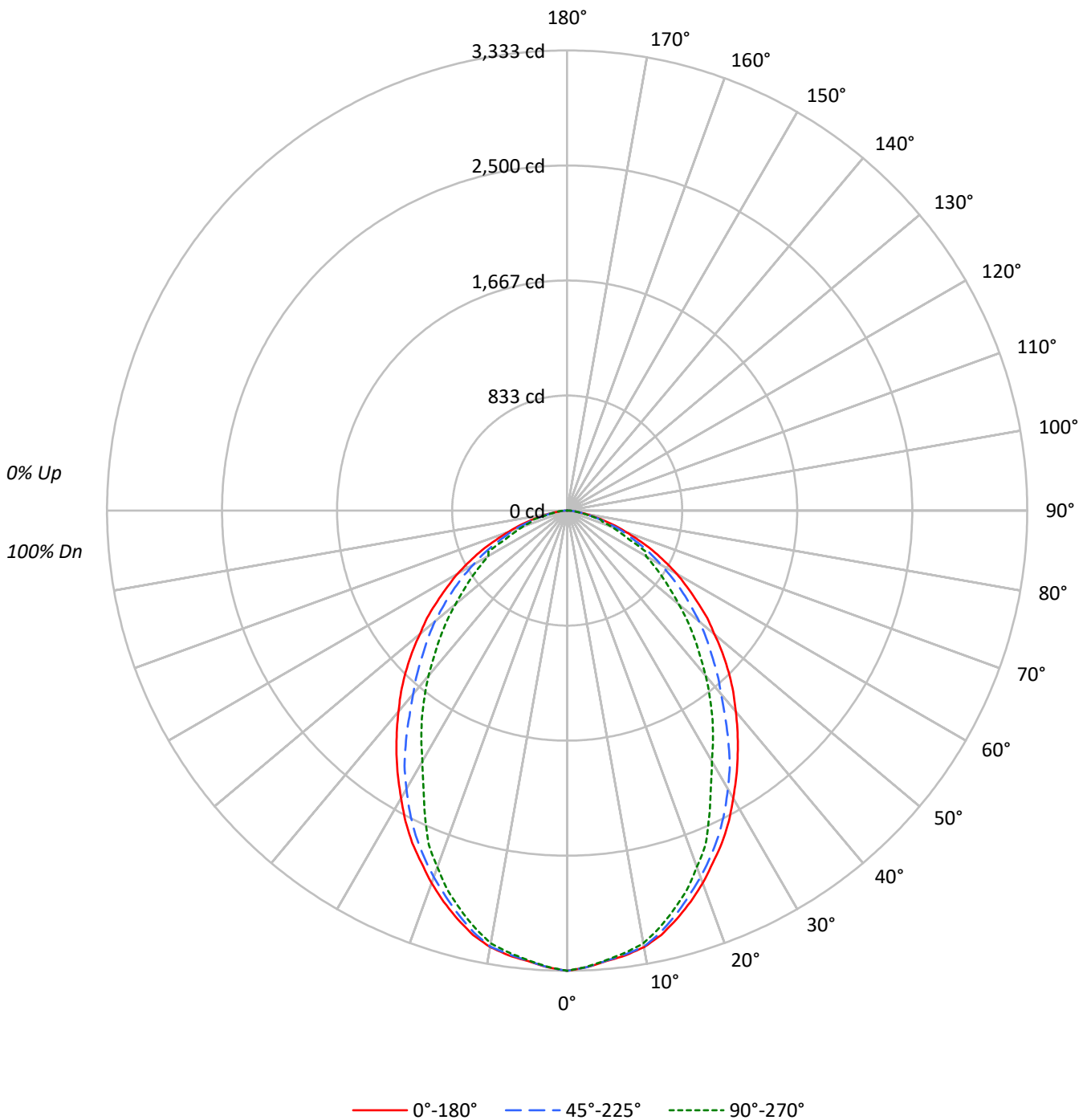
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562912

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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° | 4485 | 4485 | 4485 |
| 5° | 4424 | 4419 | 4414 |
| 10° | 4386 | 4381 | 4349 |
| 15° | 4268 | 4225 | 4165 |
| 20° | 4111 | 4045 | 3934 |
| 25° | 3942 | 3856 | 3616 |
| 30° | 3736 | 3616 | 3257 |
| 35° | 3538 | 3342 | 3013 |
| 40° | 3337 | 3046 | 2741 |
| 45° | 3146 | 2816 | 2478 |
| 50° | 2912 | 2614 | 2210 |
| 55° | 2694 | 2369 | 1980 |
| 60° | 2468 | 2115 | 1773 |
| 65° | 2172 | 1853 | 1571 |
| 70° | 1789 | 1622 | 1334 |
| 75° | 1422 | 1242 | 1302 |
| 80° | 955 | 896 | 836 |
| 85° | 594 | 713 | 834 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3146 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 310.3 | 4.7 |
| 10°-20° | 851.6 | 13.0 |
| 20°-30° | 1179.0 | 18.0 |
| 30°-40° | 1257.1 | 19.2 |
| 40°-50° | 1146.9 | 17.5 |
| 50°-60° | 898.5 | 13.7 |
| 60°-70° | 585.6 | 8.9 |
| 70°-80° | 259.4 | 4.0 |
| 80°-90° | 55.7 | 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° | 2340.8 | 35.8 |
| 0°-40° | 3598.0 | 55.0 |
| 0°-60° | 5643.3 | 86.2 |
| 0°-90° | 6544.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6544.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3333 | 3333 | 3333 | 3333 | 3333 | |
| 5° | 3276 | 3272 | 3272 | 3268 | 3268 | 311 |
| 15° | 3064 | 3064 | 3033 | 3002 | 2990 | 861 |
| 25° | 2655 | 2640 | 2597 | 2505 | 2436 | 1219 |
| 35° | 2154 | 2139 | 2035 | 1881 | 1834 | 1347 |
| 45° | 1653 | 1618 | 1480 | 1356 | 1302 | 1273 |
| 55° | 1148 | 1114 | 1010 | 890 | 844 | 1030 |
| 65° | 682 | 644 | 582 | 594 | 493 | 672 |
| 75° | 274 | 254 | 239 | 227 | 250 | 293 |
| 85° | 38 | 42 | 46 | 50 | 54 | 53 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3333.4 | 3333.4 | 3333.4 | 3333.4 | 3333.4 |
| 2.5° | 3310.3 | 3310.3 | 3310.3 | 3306.5 | 3306.5 |
| 5° | 3275.6 | 3271.8 | 3271.8 | 3267.9 | 3267.9 |
| 7.5° | 3248.6 | 3244.8 | 3240.9 | 3237.1 | 3229.4 |
| 10° | 3210.1 | 3210.1 | 3206.3 | 3187.0 | 3183.1 |
| 12.5° | 3148.4 | 3144.6 | 3129.2 | 3102.2 | 3094.5 |
| 15° | 3063.7 | 3063.7 | 3032.8 | 3002.0 | 2990.4 |
| 17.5° | 2971.2 | 2967.3 | 2928.8 | 2898.0 | 2882.5 |
| 20° | 2871.0 | 2863.3 | 2824.7 | 2774.6 | 2747.7 |
| 22.5° | 2759.2 | 2759.2 | 2713.0 | 2647.5 | 2620.5 |
| 25° | 2655.2 | 2639.8 | 2597.4 | 2504.9 | 2435.5 |
| 27.5° | 2535.7 | 2512.6 | 2466.3 | 2335.3 | 2254.4 |
| 30° | 2404.7 | 2393.1 | 2327.6 | 2158.1 | 2096.4 |
| 32.5° | 2281.4 | 2262.1 | 2192.7 | 2015.5 | 1965.4 |
| 35° | 2154.2 | 2138.8 | 2034.7 | 1880.6 | 1834.3 |
| 37.5° | 2027.0 | 2007.8 | 1876.7 | 1753.4 | 1695.6 |
| 40° | 1899.9 | 1876.7 | 1734.2 | 1622.4 | 1560.7 |
| 42.5° | 1780.4 | 1749.6 | 1610.8 | 1491.4 | 1422.0 |
| 45° | 1653.2 | 1618.5 | 1479.8 | 1356.5 | 1302.5 |
| 47.5° | 1526.1 | 1495.2 | 1368.1 | 1240.9 | 1179.2 |
| 50° | 1391.2 | 1364.2 | 1248.6 | 1121.4 | 1055.9 |
| 52.5° | 1279.4 | 1237.0 | 1125.3 | 998.1 | 944.1 |
| 55° | 1148.4 | 1113.7 | 1009.7 | 890.2 | 844.0 |
| 57.5° | 1028.9 | 994.2 | 897.9 | 786.1 | 747.6 |
| 60° | 917.2 | 867.1 | 786.1 | 689.8 | 659.0 |
| 62.5° | 793.9 | 755.3 | 686.0 | 605.0 | 643.6 |
| 65° | 682.1 | 643.6 | 581.9 | 593.5 | 493.3 |
| 67.5° | 558.8 | 539.5 | 485.6 | 431.6 | 416.2 |
| 70° | 454.7 | 431.6 | 412.3 | 354.5 | 339.1 |
| 72.5° | 362.2 | 339.1 | 312.1 | 281.3 | 269.8 |
| 75° | 273.6 | 254.3 | 238.9 | 227.4 | 250.5 |
| 77.5° | 188.8 | 181.1 | 169.6 | 158.0 | 154.1 |
| 80° | 123.3 | 119.5 | 115.6 | 111.8 | 107.9 |
| 82.5° | 73.2 | 73.2 | 73.2 | 73.2 | 73.2 |
| 85° | 38.5 | 42.4 | 46.2 | 50.1 | 54.0 |
| 87.5° | 23.1 | 23.1 | 27.0 | 30.8 | 34.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)