

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: P563836

Luminaire Tested: FSR-24-4-LD4-4LO-35-UNV-80-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563836
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-LD4-4LO-35-UNV-80-96-EDD-90
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9668.0 lumens
Efficiency: N/A
Efficacy: 103.3 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

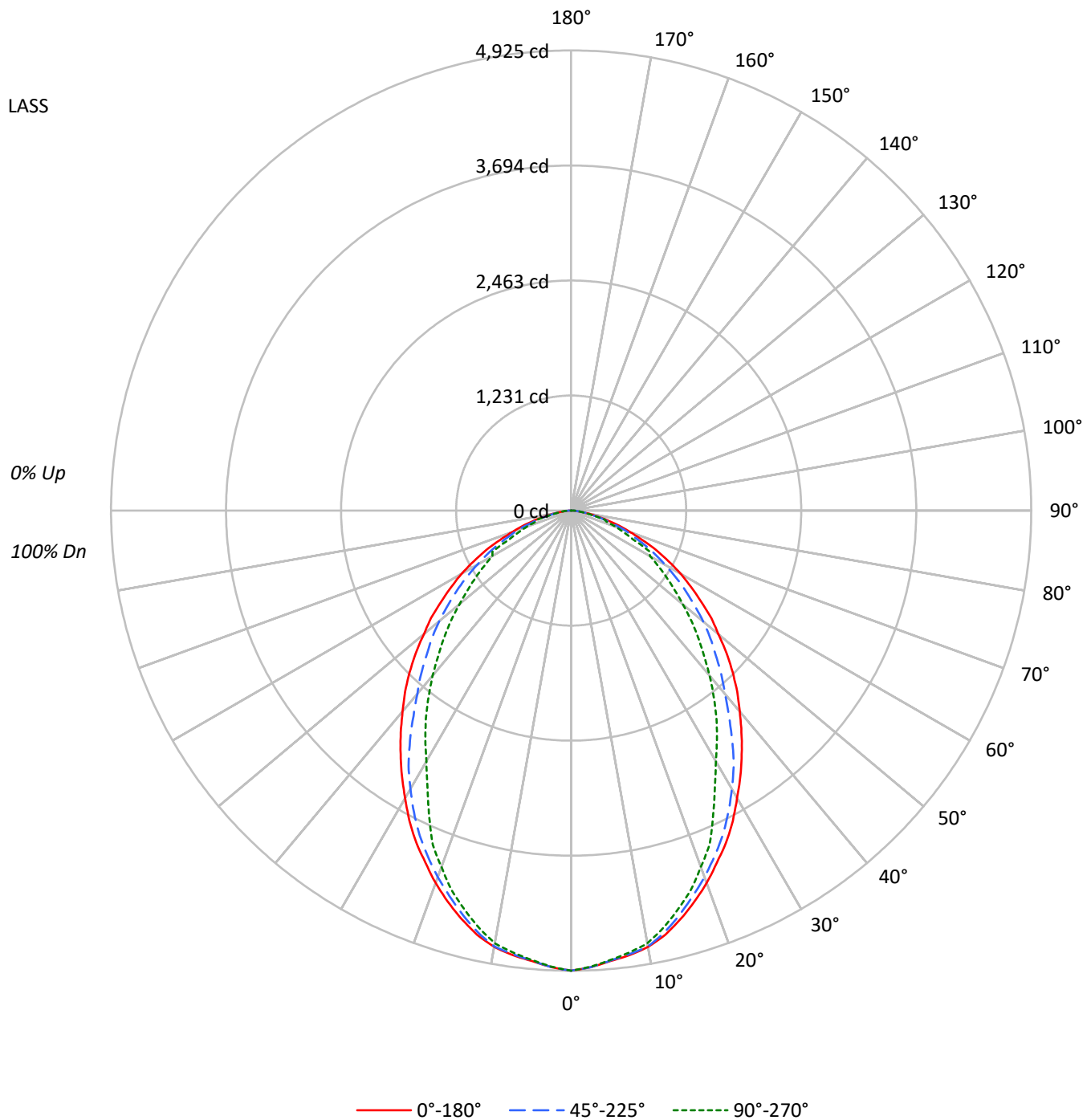
Input Watts (W): 93.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563836

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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° | 6626 | 6626 | 6626 |
| 5° | 6536 | 6529 | 6521 |
| 10° | 6480 | 6472 | 6425 |
| 15° | 6305 | 6241 | 6154 |
| 20° | 6073 | 5975 | 5812 |
| 25° | 5824 | 5697 | 5342 |
| 30° | 5520 | 5343 | 4812 |
| 35° | 5228 | 4938 | 4451 |
| 40° | 4930 | 4500 | 4050 |
| 45° | 4647 | 4160 | 3662 |
| 50° | 4302 | 3861 | 3265 |
| 55° | 3980 | 3499 | 2925 |
| 60° | 3646 | 3125 | 2620 |
| 65° | 3208 | 2737 | 2320 |
| 70° | 2643 | 2397 | 1971 |
| 75° | 2101 | 1835 | 1924 |
| 80° | 1412 | 1323 | 1235 |
| 85° | 878 | 1054 | 1230 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4647 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 458.4 | 4.7 |
| 10°-20° | 1258.1 | 13.0 |
| 20°-30° | 1741.8 | 18.0 |
| 30°-40° | 1857.2 | 19.2 |
| 40°-50° | 1694.3 | 17.5 |
| 50°-60° | 1327.4 | 13.7 |
| 60°-70° | 865.1 | 8.9 |
| 70°-80° | 383.3 | 4.0 |
| 80°-90° | 82.3 | 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° | 3458.3 | 35.8 |
| 0°-40° | 5315.6 | 55.0 |
| 0°-60° | 8337.3 | 86.2 |
| 0°-90° | 9668.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 9668.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4925 | 4925 | 4925 | 4925 | 4925 | |
| 5° | 4839 | 4834 | 4834 | 4828 | 4828 | 459 |
| 15° | 4526 | 4526 | 4481 | 4435 | 4418 | 1272 |
| 25° | 3923 | 3900 | 3837 | 3701 | 3598 | 1801 |
| 35° | 3183 | 3160 | 3006 | 2778 | 2710 | 1990 |
| 45° | 2442 | 2391 | 2186 | 2004 | 1924 | 1881 |
| 55° | 1697 | 1645 | 1492 | 1315 | 1247 | 1522 |
| 65° | 1008 | 951 | 860 | 877 | 729 | 993 |
| 75° | 404 | 376 | 353 | 336 | 370 | 433 |
| 85° | 57 | 63 | 68 | 74 | 80 | 79 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563836

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4924.8 | 4924.8 | 4924.8 | 4924.8 | 4924.8 |
| 2.5° | 4890.6 | 4890.6 | 4890.6 | 4884.9 | 4884.9 |
| 5° | 4839.3 | 4833.7 | 4833.7 | 4828.0 | 4828.0 |
| 7.5° | 4799.5 | 4793.8 | 4788.1 | 4782.4 | 4771.0 |
| 10° | 4742.6 | 4742.6 | 4736.9 | 4708.4 | 4702.7 |
| 12.5° | 4651.5 | 4645.8 | 4623.0 | 4583.1 | 4571.8 |
| 15° | 4526.2 | 4526.2 | 4480.7 | 4435.1 | 4418.0 |
| 17.5° | 4389.6 | 4383.9 | 4326.9 | 4281.4 | 4258.6 |
| 20° | 4241.5 | 4230.2 | 4173.2 | 4099.2 | 4059.4 |
| 22.5° | 4076.4 | 4076.4 | 4008.1 | 3911.3 | 3871.5 |
| 25° | 3922.7 | 3899.9 | 3837.3 | 3700.7 | 3598.2 |
| 27.5° | 3746.2 | 3712.1 | 3643.7 | 3450.2 | 3330.6 |
| 30° | 3552.7 | 3535.6 | 3438.8 | 3188.3 | 3097.2 |
| 32.5° | 3370.5 | 3342.0 | 3239.5 | 2977.6 | 2903.6 |
| 35° | 3182.6 | 3159.8 | 3006.1 | 2778.4 | 2710.0 |
| 37.5° | 2994.7 | 2966.2 | 2772.7 | 2590.5 | 2505.1 |
| 40° | 2806.8 | 2772.7 | 2562.0 | 2396.9 | 2305.8 |
| 42.5° | 2630.3 | 2584.8 | 2379.8 | 2203.3 | 2100.8 |
| 45° | 2442.4 | 2391.2 | 2186.2 | 2004.1 | 1924.4 |
| 47.5° | 2254.6 | 2209.0 | 2021.1 | 1833.3 | 1742.2 |
| 50° | 2055.3 | 2015.4 | 1844.6 | 1656.8 | 1560.0 |
| 52.5° | 1890.2 | 1827.6 | 1662.5 | 1474.6 | 1394.9 |
| 55° | 1696.6 | 1645.4 | 1491.7 | 1315.2 | 1246.8 |
| 57.5° | 1520.1 | 1468.9 | 1326.6 | 1161.4 | 1104.5 |
| 60° | 1355.0 | 1281.0 | 1161.4 | 1019.1 | 973.6 |
| 62.5° | 1172.8 | 1115.9 | 1013.4 | 893.9 | 950.8 |
| 65° | 1007.7 | 950.8 | 859.7 | 876.8 | 728.7 |
| 67.5° | 825.5 | 797.1 | 717.4 | 637.7 | 614.9 |
| 70° | 671.8 | 637.7 | 609.2 | 523.8 | 501.0 |
| 72.5° | 535.2 | 501.0 | 461.2 | 415.6 | 398.5 |
| 75° | 404.2 | 375.8 | 353.0 | 335.9 | 370.1 |
| 77.5° | 279.0 | 267.6 | 250.5 | 233.4 | 227.7 |
| 80° | 182.2 | 176.5 | 170.8 | 165.1 | 159.4 |
| 82.5° | 108.2 | 108.2 | 108.2 | 108.2 | 108.2 |
| 85° | 56.9 | 62.6 | 68.3 | 74.0 | 79.7 |
| 87.5° | 34.2 | 34.2 | 39.9 | 45.5 | 51.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)