

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: P563043

Luminaire Tested: FSR-24-4-LD4-2STD-50-UNV-93-85-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563043
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-50-UNV-93-85-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7873.0 lumens
Efficiency: N/A
Efficacy: 118.2 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

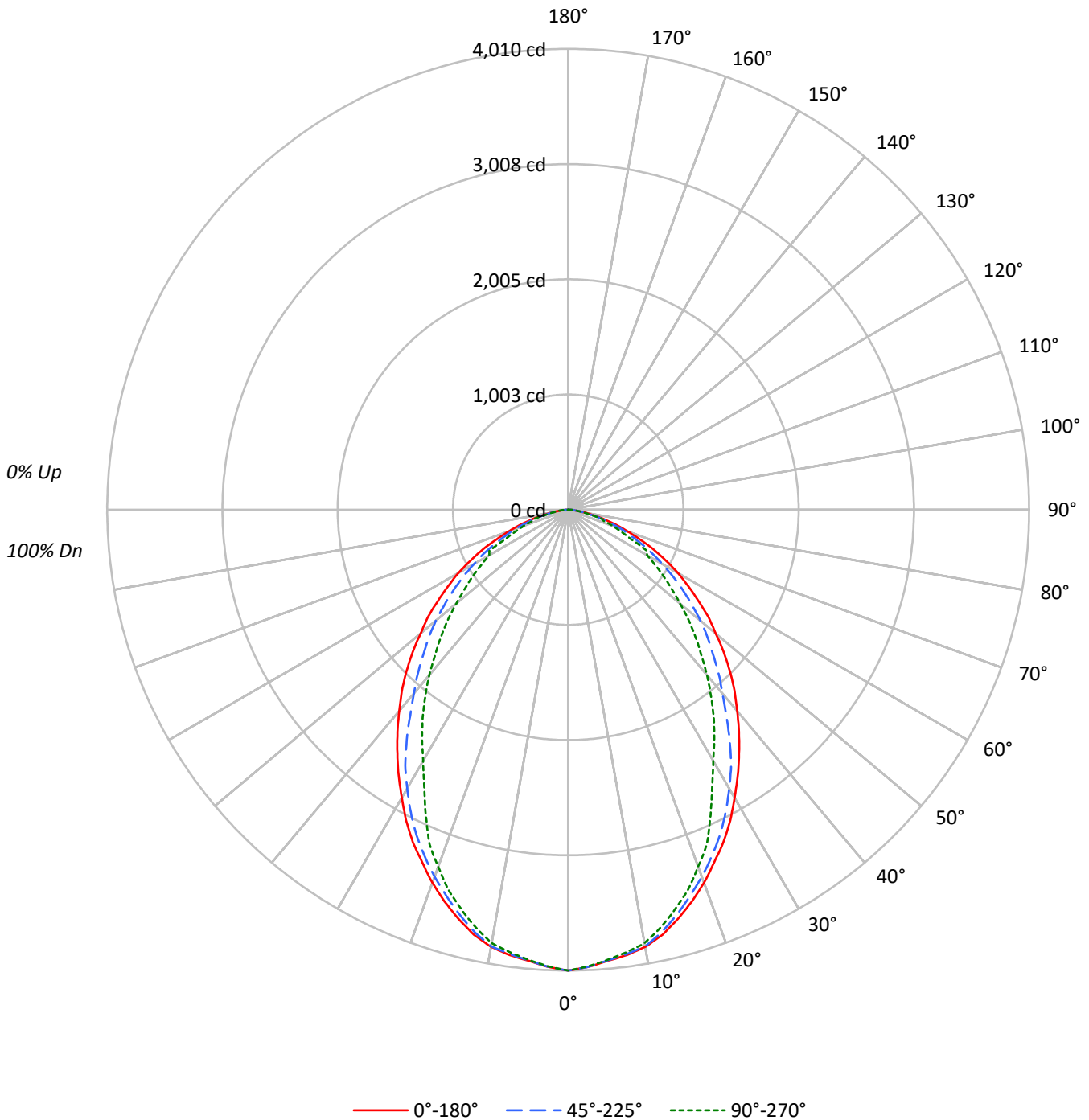
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563043

CATALOG NUMBER: FSR-24-4-LD4-2STD-50-UNV-93-85-EDD

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° | 5396 | 5396 | 5396 |
| 5° | 5323 | 5316 | 5310 |
| 10° | 5276 | 5270 | 5232 |
| 15° | 5134 | 5083 | 5012 |
| 20° | 4946 | 4866 | 4733 |
| 25° | 4742 | 4639 | 4350 |
| 30° | 4495 | 4351 | 3918 |
| 35° | 4257 | 4021 | 3625 |
| 40° | 4015 | 3664 | 3298 |
| 45° | 3785 | 3388 | 2982 |
| 50° | 3503 | 3144 | 2659 |
| 55° | 3241 | 2849 | 2382 |
| 60° | 2969 | 2545 | 2133 |
| 65° | 2613 | 2229 | 1889 |
| 70° | 2152 | 1952 | 1605 |
| 75° | 1711 | 1495 | 1567 |
| 80° | 1150 | 1078 | 1006 |
| 85° | 716 | 858 | 1002 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3785 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 373.3 | 4.7 |
| 10°-20° | 1024.5 | 13.0 |
| 20°-30° | 1418.4 | 18.0 |
| 30°-40° | 1512.4 | 19.2 |
| 40°-50° | 1379.8 | 17.5 |
| 50°-60° | 1080.9 | 13.7 |
| 60°-70° | 704.5 | 8.9 |
| 70°-80° | 312.1 | 4.0 |
| 80°-90° | 67.0 | 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° | 2816.2 | 35.8 |
| 0°-40° | 4328.7 | 55.0 |
| 0°-60° | 6789.4 | 86.2 |
| 0°-90° | 7873.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7873.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4010 | 4010 | 4010 | 4010 | 4010 | |
| 5° | 3941 | 3936 | 3936 | 3932 | 3932 | 374 |
| 15° | 3686 | 3686 | 3649 | 3612 | 3598 | 1036 |
| 25° | 3194 | 3176 | 3125 | 3014 | 2930 | 1467 |
| 35° | 2592 | 2573 | 2448 | 2262 | 2207 | 1620 |
| 45° | 1989 | 1947 | 1780 | 1632 | 1567 | 1532 |
| 55° | 1382 | 1340 | 1215 | 1071 | 1015 | 1239 |
| 65° | 821 | 774 | 700 | 714 | 593 | 809 |
| 75° | 329 | 306 | 288 | 274 | 301 | 353 |
| 85° | 46 | 51 | 56 | 60 | 65 | 64 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563043

CATALOG NUMBER: FSR-24-4-LD4-2STD-50-UNV-93-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4010.4 | 4010.4 | 4010.4 | 4010.4 | 4010.4 |
| 2.5° | 3982.6 | 3982.6 | 3982.6 | 3977.9 | 3977.9 |
| 5° | 3940.9 | 3936.2 | 3936.2 | 3931.6 | 3931.6 |
| 7.5° | 3908.4 | 3903.8 | 3899.1 | 3894.5 | 3885.2 |
| 10° | 3862.0 | 3862.0 | 3857.4 | 3834.2 | 3829.6 |
| 12.5° | 3787.9 | 3783.2 | 3764.7 | 3732.2 | 3723.0 |
| 15° | 3685.9 | 3685.9 | 3648.8 | 3611.7 | 3597.8 |
| 17.5° | 3574.6 | 3570.0 | 3523.6 | 3486.5 | 3468.0 |
| 20° | 3454.0 | 3444.8 | 3398.4 | 3338.1 | 3305.7 |
| 22.5° | 3319.6 | 3319.6 | 3264.0 | 3185.1 | 3152.7 |
| 25° | 3194.4 | 3175.9 | 3124.9 | 3013.6 | 2930.1 |
| 27.5° | 3050.7 | 3022.9 | 2967.2 | 2809.6 | 2712.2 |
| 30° | 2893.1 | 2879.1 | 2800.3 | 2596.3 | 2522.1 |
| 32.5° | 2744.7 | 2721.5 | 2638.1 | 2424.8 | 2364.5 |
| 35° | 2591.7 | 2573.1 | 2448.0 | 2262.5 | 2206.9 |
| 37.5° | 2438.7 | 2415.5 | 2257.9 | 2109.5 | 2040.0 |
| 40° | 2285.7 | 2257.9 | 2086.3 | 1951.9 | 1877.7 |
| 42.5° | 2142.0 | 2104.9 | 1938.0 | 1794.2 | 1710.8 |
| 45° | 1989.0 | 1947.2 | 1780.3 | 1632.0 | 1567.1 |
| 47.5° | 1836.0 | 1798.9 | 1645.9 | 1492.9 | 1418.7 |
| 50° | 1673.7 | 1641.3 | 1502.2 | 1349.2 | 1270.3 |
| 52.5° | 1539.3 | 1488.3 | 1353.8 | 1200.8 | 1135.9 |
| 55° | 1381.6 | 1339.9 | 1214.7 | 1071.0 | 1015.4 |
| 57.5° | 1237.9 | 1196.2 | 1080.3 | 945.8 | 899.4 |
| 60° | 1103.4 | 1043.2 | 945.8 | 829.9 | 792.8 |
| 62.5° | 955.1 | 908.7 | 825.3 | 727.9 | 774.3 |
| 65° | 820.6 | 774.3 | 700.1 | 714.0 | 593.4 |
| 67.5° | 672.3 | 649.1 | 584.2 | 519.3 | 500.7 |
| 70° | 547.1 | 519.3 | 496.1 | 426.5 | 408.0 |
| 72.5° | 435.8 | 408.0 | 375.5 | 338.5 | 324.5 |
| 75° | 329.2 | 306.0 | 287.5 | 273.5 | 301.4 |
| 77.5° | 227.2 | 217.9 | 204.0 | 190.1 | 185.5 |
| 80° | 148.4 | 143.7 | 139.1 | 134.5 | 129.8 |
| 82.5° | 88.1 | 88.1 | 88.1 | 88.1 | 88.1 |
| 85° | 46.4 | 51.0 | 55.6 | 60.3 | 64.9 |
| 87.5° | 27.8 | 27.8 | 32.5 | 37.1 | 41.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)