

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: P589894

Luminaire Tested: FSR-24-2-LD4-1HI-40-UNV-82-85-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P589894
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)
Test Lab: INNOVATION CENTER
Issue Date: 12/8/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FSR-24-2-LD4-1HI-40-UNV-82-85-EDD
Description: 2X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2203.0 lumens
Efficiency: N/A
Efficacy: 102.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

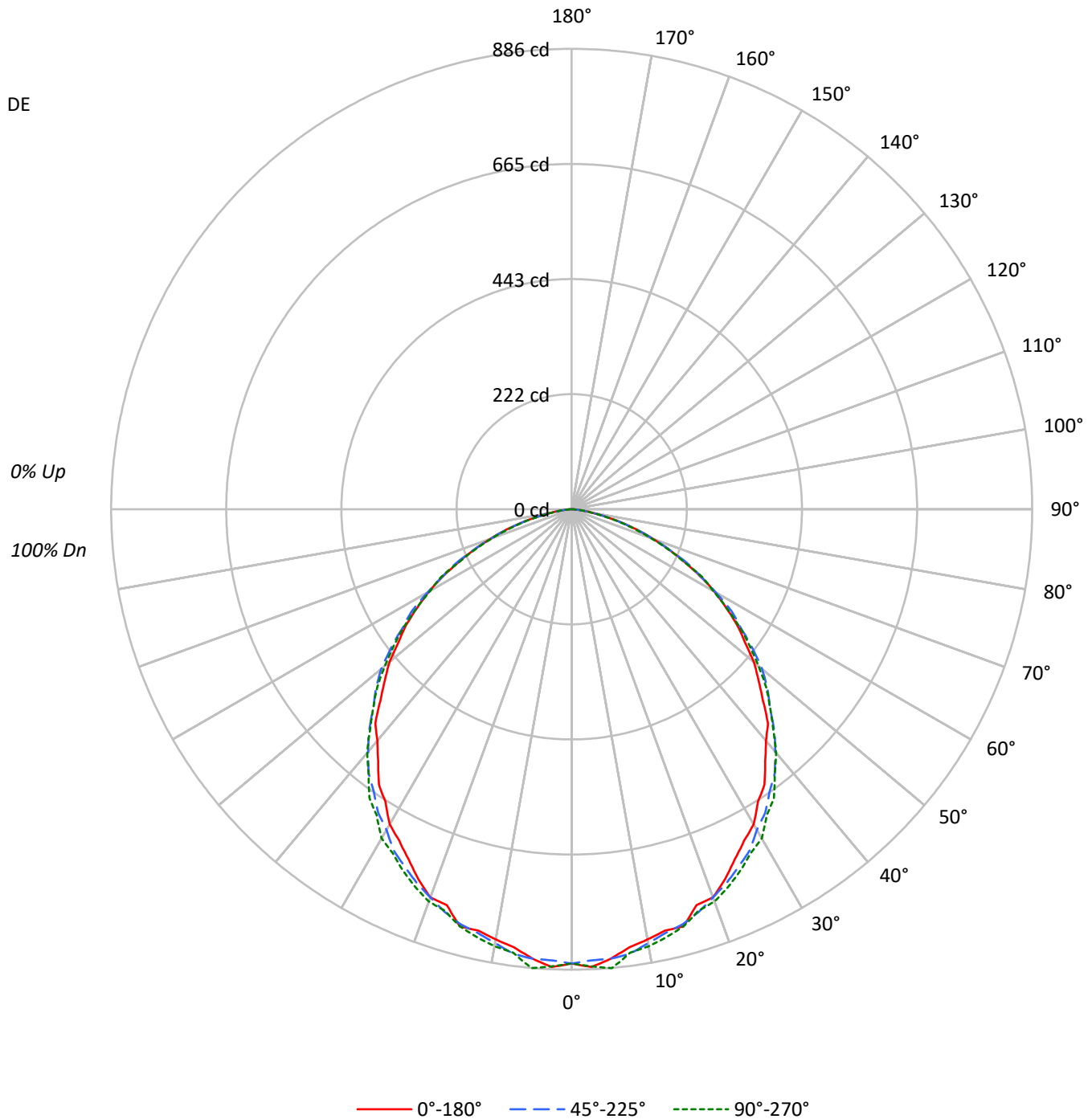
Input Watts (W): 21.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P589894

CATALOG NUMBER: FSR-24-2-LD4-1HI-40-UNV-82-85-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P589894

CATALOG NUMBER: FSR-24-2-LD4-1HI-40-UNV-82-85-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 | 0 | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | 100 | | | |
| 1 | 110 | 105 | 101 | 98 | 107 | 103 | 100 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 90 | 88 | 86 | | | | | 86 | | | |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 78 | 75 | 73 | | | | | 73 | | | |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | 62 | | | | | 62 | | | |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | 53 | | | | | 53 | | | |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | 46 | | | | | 46 | | | |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | 41 | | | |
| 7 | 67 | 53 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 48 | 42 | 38 | 36 | | | | | 36 | | | |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 39 | 34 | 32 | | | | | 32 | | | |
| 9 | 58 | 45 | 37 | 31 | 57 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 29 | | | | | 29 | | | |
| 10 | 54 | 41 | 34 | 29 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 | | | | | 26 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2352 | 2352 | 2352 |
| 5° | 2344 | 2345 | 2395 |
| 10° | 2297 | 2317 | 2333 |
| 15° | 2315 | 2303 | 2315 |
| 20° | 2276 | 2276 | 2300 |
| 25° | 2206 | 2254 | 2279 |
| 30° | 2176 | 2214 | 2273 |
| 35° | 2124 | 2180 | 2229 |
| 40° | 2042 | 2140 | 2149 |
| 45° | 1980 | 2050 | 2054 |
| 50° | 1915 | 2002 | 1963 |
| 55° | 1825 | 1860 | 1847 |
| 60° | 1706 | 1723 | 1692 |
| 65° | 1521 | 1560 | 1510 |
| 70° | 1305 | 1310 | 1273 |
| 75° | 1033 | 1031 | 992 |
| 80° | 693 | 674 | 648 |
| 85° | 377 | 374 | 349 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 2103 cd/sqm



TEST NUMBER: P589894

CATALOG NUMBER: FSR-24-2-LD4-1HI-40-UNV-82-85-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 82.2 | 3.7 |
| 10°-20° | 233.0 | 10.6 |
| 20°-30° | 349.1 | 15.8 |
| 30°-40° | 413.8 | 18.8 |
| 40°-50° | 414.5 | 18.8 |
| 50°-60° | 351.9 | 16.0 |
| 60°-70° | 237.2 | 10.8 |
| 70°-80° | 104.3 | 4.7 |
| 80°-90° | 16.9 | 0.8 |
| 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° | 664.4 | 30.2 |
| 0°-40° | 1078.2 | 48.9 |
| 0°-60° | 1844.6 | 83.7 |
| 0°-90° | 2203.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2203.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 874 | 874 | 874 | 874 | 874 | |
| 5° | 868 | 866 | 868 | 866 | 886 | 82 |
| 15° | 831 | 821 | 826 | 831 | 831 | 232 |
| 25° | 743 | 747 | 759 | 769 | 768 | 343 |
| 35° | 647 | 649 | 664 | 679 | 678 | 402 |
| 45° | 520 | 530 | 539 | 553 | 540 | 402 |
| 55° | 389 | 386 | 396 | 394 | 394 | 346 |
| 65° | 239 | 236 | 245 | 236 | 237 | 238 |
| 75° | 99 | 97 | 99 | 92 | 95 | 107 |
| 85° | 12 | 12 | 12 | 12 | 11 | 18 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589894

CATALOG NUMBER: FSR-24-2-LD4-1HI-40-UNV-82-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 874.1 | 874.1 | 874.1 | 874.1 | 874.1 |
| 2.5° | 881.7 | 875.0 | 868.8 | 876.0 | 880.4 |
| 5° | 867.9 | 865.9 | 868.2 | 865.6 | 886.5 |
| 7.5° | 850.1 | 857.8 | 862.4 | 859.5 | 860.8 |
| 10° | 840.6 | 837.9 | 847.9 | 854.9 | 853.9 |
| 12.5° | 830.4 | 834.5 | 835.0 | 842.6 | 843.3 |
| 15° | 831.0 | 821.4 | 826.5 | 830.8 | 831.1 |
| 17.5° | 798.7 | 809.1 | 812.6 | 822.4 | 810.2 |
| 20° | 794.8 | 787.2 | 794.8 | 804.8 | 803.2 |
| 22.5° | 770.5 | 762.0 | 778.3 | 787.2 | 786.6 |
| 25° | 743.0 | 747.0 | 759.2 | 769.1 | 767.6 |
| 27.5° | 718.8 | 723.5 | 740.9 | 754.6 | 745.8 |
| 30° | 700.2 | 697.8 | 712.5 | 724.7 | 731.4 |
| 32.5° | 666.9 | 675.5 | 692.6 | 704.7 | 698.3 |
| 35° | 646.7 | 648.6 | 663.6 | 679.0 | 678.5 |
| 37.5° | 611.4 | 620.3 | 641.4 | 645.7 | 641.7 |
| 40° | 581.2 | 590.1 | 609.2 | 613.8 | 611.9 |
| 42.5° | 559.0 | 560.6 | 576.9 | 582.2 | 573.8 |
| 45° | 520.3 | 530.0 | 538.8 | 552.7 | 539.6 |
| 47.5° | 487.3 | 491.8 | 510.8 | 514.5 | 507.6 |
| 50° | 457.4 | 459.0 | 478.1 | 473.4 | 468.9 |
| 52.5° | 419.8 | 426.5 | 437.2 | 436.3 | 431.0 |
| 55° | 388.9 | 386.3 | 396.5 | 393.8 | 393.7 |
| 57.5° | 351.8 | 356.3 | 364.6 | 360.4 | 353.5 |
| 60° | 317.0 | 317.1 | 320.2 | 315.3 | 314.4 |
| 62.5° | 278.3 | 279.7 | 280.3 | 274.4 | 284.1 |
| 65° | 238.9 | 235.8 | 245.0 | 235.7 | 237.2 |
| 67.5° | 202.7 | 204.3 | 203.4 | 197.5 | 199.8 |
| 70° | 165.9 | 167.9 | 166.5 | 159.8 | 161.8 |
| 72.5° | 132.3 | 129.8 | 131.4 | 123.0 | 126.9 |
| 75° | 99.4 | 97.4 | 99.2 | 92.2 | 95.4 |
| 77.5° | 67.7 | 69.3 | 68.2 | 64.4 | 66.6 |
| 80° | 44.7 | 43.5 | 43.5 | 41.3 | 41.8 |
| 82.5° | 26.1 | 24.8 | 24.5 | 23.8 | 24.8 |
| 85° | 12.2 | 11.9 | 12.1 | 11.7 | 11.3 |
| 87.5° | 4.4 | 4.5 | 4.5 | 4.3 | 4.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)