

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: P590245

Luminaire Tested: FSR-24-2-LD4-2LO-35-UNV-82-84-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590245
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-LD4-2LO-35-UNV-82-84-EDD
Description: 2X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

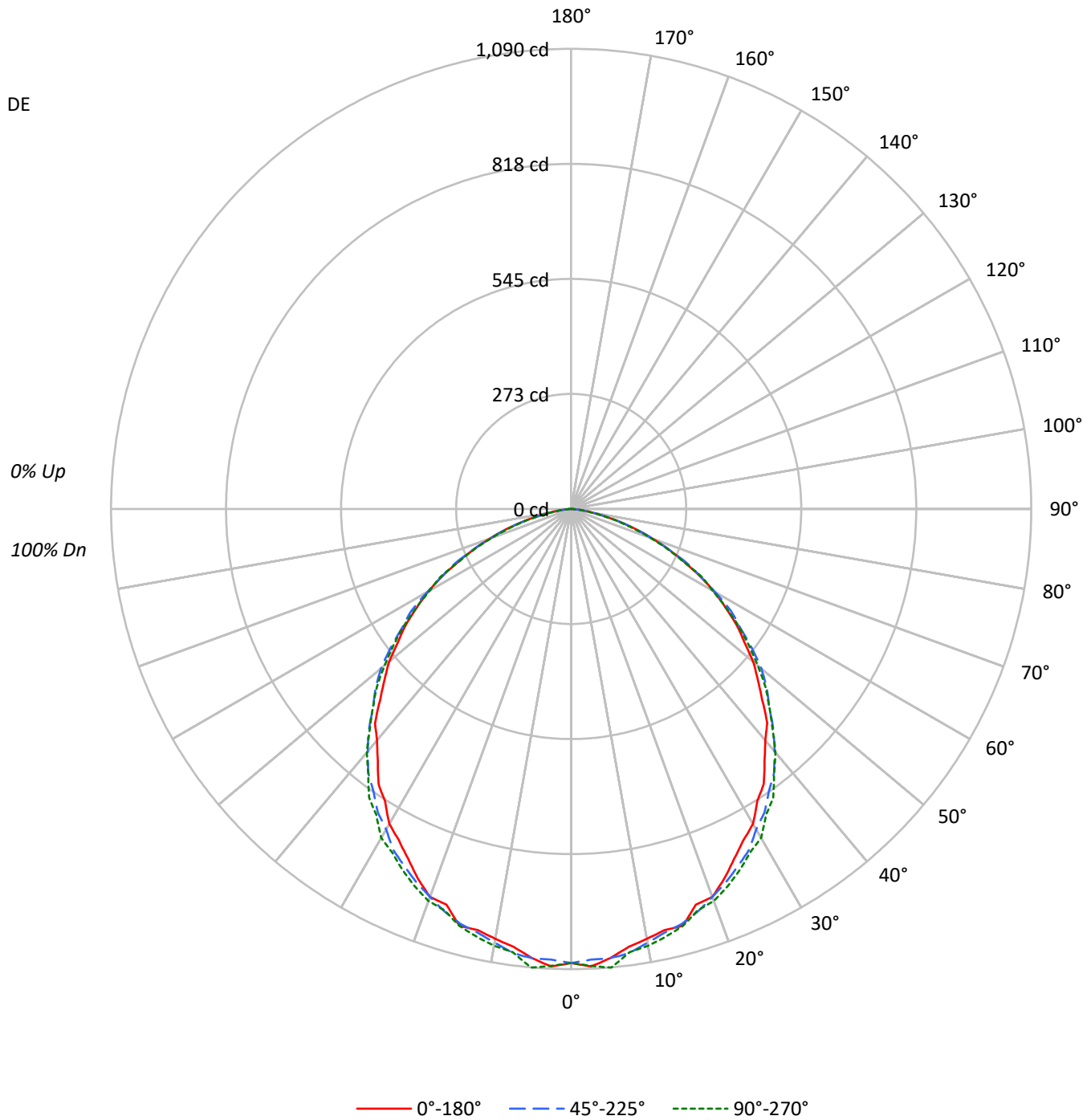
Lumens per Lamp: N/A
Luminaire Lumens: 2710.0 lumens
Efficiency: N/A
Efficacy: 115.8 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 23.4
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





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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2894 | 2894 | 2894 |
| 5° | 2884 | 2885 | 2946 |
| 10° | 2825 | 2850 | 2870 |
| 15° | 2848 | 2832 | 2848 |
| 20° | 2800 | 2800 | 2830 |
| 25° | 2714 | 2773 | 2803 |
| 30° | 2676 | 2724 | 2796 |
| 35° | 2613 | 2682 | 2742 |
| 40° | 2512 | 2633 | 2644 |
| 45° | 2436 | 2522 | 2526 |
| 50° | 2356 | 2462 | 2415 |
| 55° | 2244 | 2288 | 2272 |
| 60° | 2099 | 2120 | 2082 |
| 65° | 1871 | 1919 | 1858 |
| 70° | 1606 | 1611 | 1566 |
| 75° | 1272 | 1268 | 1220 |
| 80° | 852 | 829 | 797 |
| 85° | 463 | 460 | 429 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 2587 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 101.1 | 3.7 |
| 10°-20° | 286.7 | 10.6 |
| 20°-30° | 429.5 | 15.8 |
| 30°-40° | 509.0 | 18.8 |
| 40°-50° | 510.0 | 18.8 |
| 50°-60° | 432.9 | 16.0 |
| 60°-70° | 291.8 | 10.8 |
| 70°-80° | 128.2 | 4.7 |
| 80°-90° | 20.8 | 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° | 817.3 | 30.2 |
| 0°-40° | 1326.3 | 48.9 |
| 0°-60° | 2269.1 | 83.7 |
| 0°-90° | 2710.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2710.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1075 | 1075 | 1075 | 1075 | 1075 | |
| 5° | 1068 | 1065 | 1068 | 1065 | 1090 | 101 |
| 15° | 1022 | 1010 | 1017 | 1022 | 1022 | 285 |
| 25° | 914 | 919 | 934 | 946 | 944 | 423 |
| 35° | 796 | 798 | 816 | 835 | 835 | 494 |
| 45° | 640 | 652 | 663 | 680 | 664 | 495 |
| 55° | 478 | 475 | 488 | 484 | 484 | 426 |
| 65° | 294 | 290 | 301 | 290 | 292 | 292 |
| 75° | 122 | 120 | 122 | 113 | 117 | 131 |
| 85° | 15 | 15 | 15 | 14 | 14 | 22 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590245

CATALOG NUMBER: FSR-24-2-LD4-2LO-35-UNV-82-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1075.3 | 1075.3 | 1075.3 | 1075.3 | 1075.3 |
| 2.5° | 1084.6 | 1076.4 | 1068.7 | 1077.6 | 1083.0 |
| 5° | 1067.6 | 1065.1 | 1068.0 | 1064.8 | 1090.5 |
| 7.5° | 1045.7 | 1055.3 | 1060.8 | 1057.4 | 1058.9 |
| 10° | 1034.0 | 1030.7 | 1043.1 | 1051.7 | 1050.4 |
| 12.5° | 1021.5 | 1026.5 | 1027.2 | 1036.5 | 1037.4 |
| 15° | 1022.2 | 1010.4 | 1016.7 | 1021.9 | 1022.4 |
| 17.5° | 982.5 | 995.3 | 999.6 | 1011.7 | 996.7 |
| 20° | 977.7 | 968.4 | 977.7 | 990.0 | 988.1 |
| 22.5° | 947.8 | 937.4 | 957.4 | 968.4 | 967.7 |
| 25° | 913.9 | 918.9 | 933.9 | 946.1 | 944.2 |
| 27.5° | 884.2 | 890.1 | 911.4 | 928.2 | 917.4 |
| 30° | 861.3 | 858.4 | 876.5 | 891.4 | 899.8 |
| 32.5° | 820.4 | 830.9 | 852.0 | 866.9 | 859.0 |
| 35° | 795.5 | 797.9 | 816.3 | 835.2 | 834.7 |
| 37.5° | 752.1 | 763.0 | 789.0 | 794.3 | 789.4 |
| 40° | 715.0 | 726.0 | 749.4 | 755.1 | 752.8 |
| 42.5° | 687.6 | 689.6 | 709.7 | 716.2 | 705.8 |
| 45° | 640.0 | 652.0 | 662.8 | 679.9 | 663.8 |
| 47.5° | 599.5 | 605.0 | 628.4 | 632.9 | 624.5 |
| 50° | 562.7 | 564.6 | 588.1 | 582.4 | 576.9 |
| 52.5° | 516.5 | 524.6 | 537.8 | 536.7 | 530.2 |
| 55° | 478.4 | 475.2 | 487.7 | 484.4 | 484.2 |
| 57.5° | 432.7 | 438.3 | 448.6 | 443.3 | 434.8 |
| 60° | 390.0 | 390.1 | 393.9 | 387.9 | 386.8 |
| 62.5° | 342.4 | 344.0 | 344.9 | 337.5 | 349.4 |
| 65° | 293.9 | 290.0 | 301.4 | 289.9 | 291.8 |
| 67.5° | 249.3 | 251.3 | 250.2 | 243.0 | 245.7 |
| 70° | 204.1 | 206.6 | 204.8 | 196.6 | 199.1 |
| 72.5° | 162.7 | 159.7 | 161.6 | 151.3 | 156.0 |
| 75° | 122.3 | 119.8 | 122.0 | 113.4 | 117.3 |
| 77.5° | 83.3 | 85.2 | 83.9 | 79.3 | 81.9 |
| 80° | 55.0 | 53.5 | 53.5 | 50.8 | 51.4 |
| 82.5° | 32.1 | 30.5 | 30.1 | 29.3 | 30.5 |
| 85° | 15.0 | 14.6 | 14.9 | 14.4 | 13.9 |
| 87.5° | 5.4 | 5.6 | 5.6 | 5.3 | 5.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)