

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: P563712

Luminaire Tested: FSR-24-4-LD4-4HI-40-UNV-81-84-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563712
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-LD4-4HI-40-UNV-81-84-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15436.0 lumens
Efficiency: N/A
Efficacy: 89.3 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

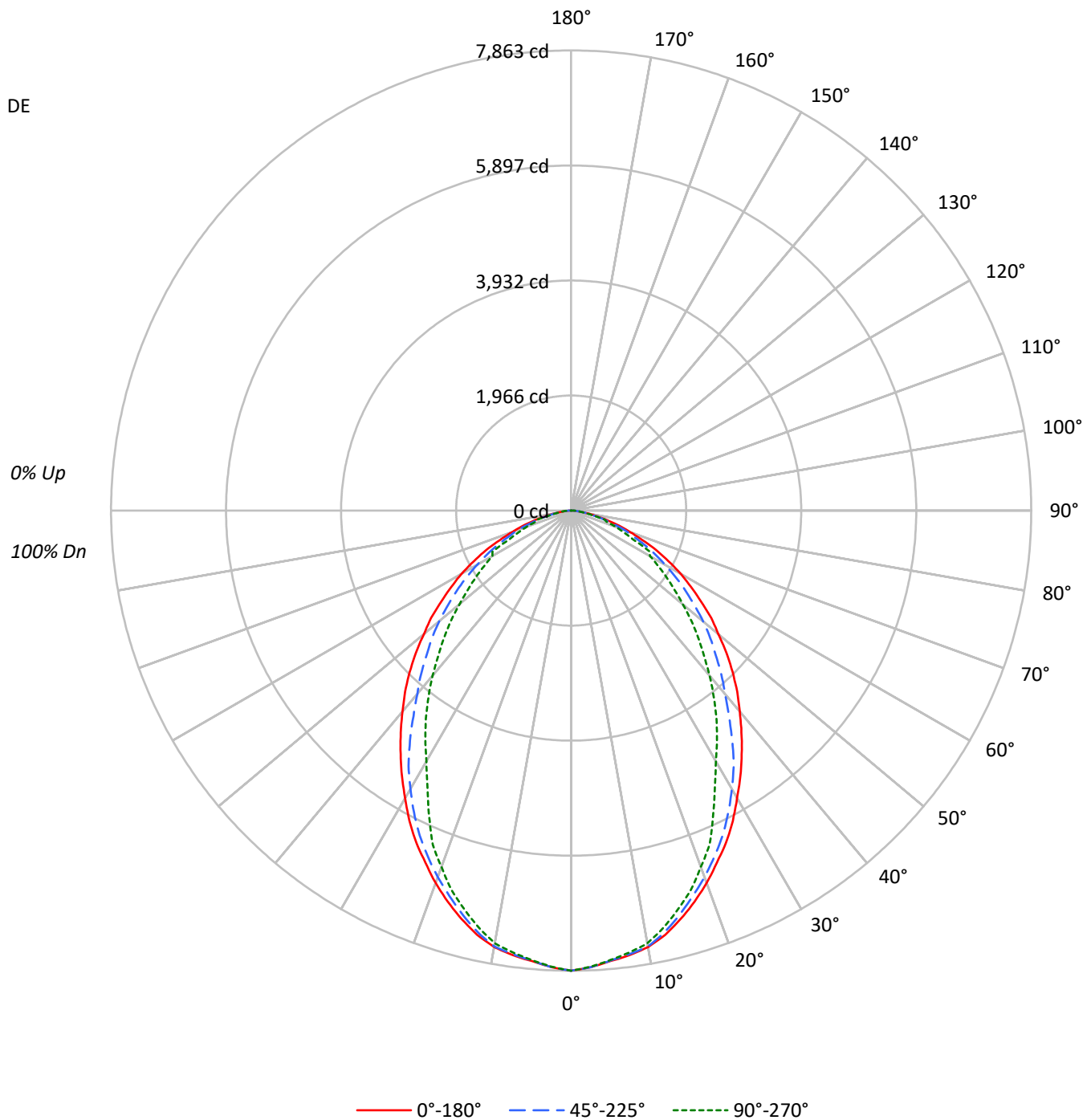
Input Watts (W): 172.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P563712

CATALOG NUMBER: FSR-24-4-LD4-4HI-40-UNV-81-84-EDD-90

Luminous Intensity Polar Plot





TEST NUMBER: P563712

CATALOG NUMBER: FSR-24-4-LD4-4HI-40-UNV-81-84-EDD-90

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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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° | 10579 | 10579 | 10579 |
| 5° | 10436 | 10423 | 10411 |
| 10° | 10345 | 10333 | 10258 |
| 15° | 10066 | 9965 | 9826 |
| 20° | 9697 | 9540 | 9280 |
| 25° | 9298 | 9096 | 8529 |
| 30° | 8813 | 8530 | 7683 |
| 35° | 8346 | 7883 | 7107 |
| 40° | 7871 | 7185 | 6466 |
| 45° | 7420 | 6642 | 5846 |
| 50° | 6869 | 6165 | 5214 |
| 55° | 6354 | 5587 | 4670 |
| 60° | 5822 | 4990 | 4183 |
| 65° | 5122 | 4370 | 3704 |
| 70° | 4220 | 3826 | 3147 |
| 75° | 3355 | 2930 | 3072 |
| 80° | 2254 | 2113 | 1972 |
| 85° | 1403 | 1684 | 1965 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7420 cd/sqm



TEST NUMBER: P563712

CATALOG NUMBER: FSR-24-4-LD4-4HI-40-UNV-81-84-EDD-90

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 731.9 | 4.7 |
| 10°-20° | 2008.7 | 13.0 |
| 20°-30° | 2780.9 | 18.0 |
| 30°-40° | 2965.3 | 19.2 |
| 40°-50° | 2705.2 | 17.5 |
| 50°-60° | 2119.3 | 13.7 |
| 60°-70° | 1381.3 | 8.9 |
| 70°-80° | 612.0 | 4.0 |
| 80°-90° | 131.4 | 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° | 5521.6 | 35.8 |
| 0°-40° | 8486.9 | 55.0 |
| 0°-60° | 13311.4 | 86.2 |
| 0°-90° | 15436.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 15436.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 7863 | 7863 | 7863 | 7863 | 7863 | |
| 5° | 7726 | 7718 | 7718 | 7708 | 7708 | 733 |
| 15° | 7227 | 7227 | 7154 | 7081 | 7054 | 2032 |
| 25° | 6263 | 6227 | 6127 | 5908 | 5745 | 2875 |
| 35° | 5081 | 5045 | 4800 | 4436 | 4327 | 3177 |
| 45° | 3900 | 3818 | 3491 | 3200 | 3072 | 3004 |
| 55° | 2709 | 2627 | 2382 | 2100 | 1991 | 2430 |
| 65° | 1609 | 1518 | 1373 | 1400 | 1164 | 1586 |
| 75° | 645 | 600 | 564 | 536 | 591 | 692 |
| 85° | 91 | 100 | 109 | 118 | 127 | 126 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563712

CATALOG NUMBER: FSR-24-4-LD4-4HI-40-UNV-81-84-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 7862.9 | 7862.9 | 7862.9 | 7862.9 | 7862.9 |
| 2.5° | 7808.4 | 7808.4 | 7808.4 | 7799.3 | 7799.3 |
| 5° | 7726.5 | 7717.5 | 7717.5 | 7708.4 | 7708.4 |
| 7.5° | 7662.9 | 7653.8 | 7644.7 | 7635.6 | 7617.5 |
| 10° | 7572.0 | 7572.0 | 7562.9 | 7517.5 | 7508.4 |
| 12.5° | 7426.6 | 7417.5 | 7381.1 | 7317.5 | 7299.3 |
| 15° | 7226.6 | 7226.6 | 7153.9 | 7081.1 | 7053.9 |
| 17.5° | 7008.4 | 6999.3 | 6908.4 | 6835.7 | 6799.4 |
| 20° | 6772.1 | 6753.9 | 6663.0 | 6544.8 | 6481.2 |
| 22.5° | 6508.5 | 6508.5 | 6399.4 | 6244.9 | 6181.2 |
| 25° | 6263.0 | 6226.7 | 6126.7 | 5908.5 | 5744.9 |
| 27.5° | 5981.3 | 5926.7 | 5817.6 | 5508.6 | 5317.7 |
| 30° | 5672.2 | 5644.9 | 5490.4 | 5090.4 | 4945.0 |
| 32.5° | 5381.3 | 5335.9 | 5172.2 | 4754.1 | 4635.9 |
| 35° | 5081.3 | 5045.0 | 4799.5 | 4435.9 | 4326.9 |
| 37.5° | 4781.4 | 4735.9 | 4426.9 | 4136.0 | 3999.6 |
| 40° | 4481.4 | 4426.9 | 4090.5 | 3826.9 | 3681.5 |
| 42.5° | 4199.6 | 4126.9 | 3799.6 | 3517.8 | 3354.2 |
| 45° | 3899.6 | 3817.8 | 3490.6 | 3199.7 | 3072.4 |
| 47.5° | 3599.7 | 3526.9 | 3227.0 | 2927.0 | 2781.6 |
| 50° | 3281.5 | 3217.9 | 2945.2 | 2645.2 | 2490.7 |
| 52.5° | 3017.9 | 2917.9 | 2654.3 | 2354.3 | 2227.1 |
| 55° | 2708.8 | 2627.0 | 2381.6 | 2099.8 | 1990.7 |
| 57.5° | 2427.0 | 2345.2 | 2118.0 | 1854.4 | 1763.5 |
| 60° | 2163.4 | 2045.3 | 1854.4 | 1627.1 | 1554.4 |
| 62.5° | 1872.6 | 1781.6 | 1618.0 | 1427.1 | 1518.0 |
| 65° | 1608.9 | 1518.0 | 1372.6 | 1399.9 | 1163.5 |
| 67.5° | 1318.1 | 1272.6 | 1145.3 | 1018.1 | 981.7 |
| 70° | 1072.6 | 1018.1 | 972.6 | 836.3 | 799.9 |
| 72.5° | 854.5 | 799.9 | 736.3 | 663.6 | 636.3 |
| 75° | 645.4 | 599.9 | 563.6 | 536.3 | 590.9 |
| 77.5° | 445.4 | 427.2 | 400.0 | 372.7 | 363.6 |
| 80° | 290.9 | 281.8 | 272.7 | 263.6 | 254.5 |
| 82.5° | 172.7 | 172.7 | 172.7 | 172.7 | 172.7 |
| 85° | 90.9 | 100.0 | 109.1 | 118.2 | 127.3 |
| 87.5° | 54.5 | 54.5 | 63.6 | 72.7 | 81.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)