

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: P560670

Luminaire Tested: FSR-12-2-LD4-2STD-40-UNV-82-97-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560670
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-12-2-LD4-2STD-40-UNV-82-97-EDD-90
Description: 1X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2350.0 lumens
Efficiency: N/A
Efficacy: 70.6 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')
CIE Type: Direct

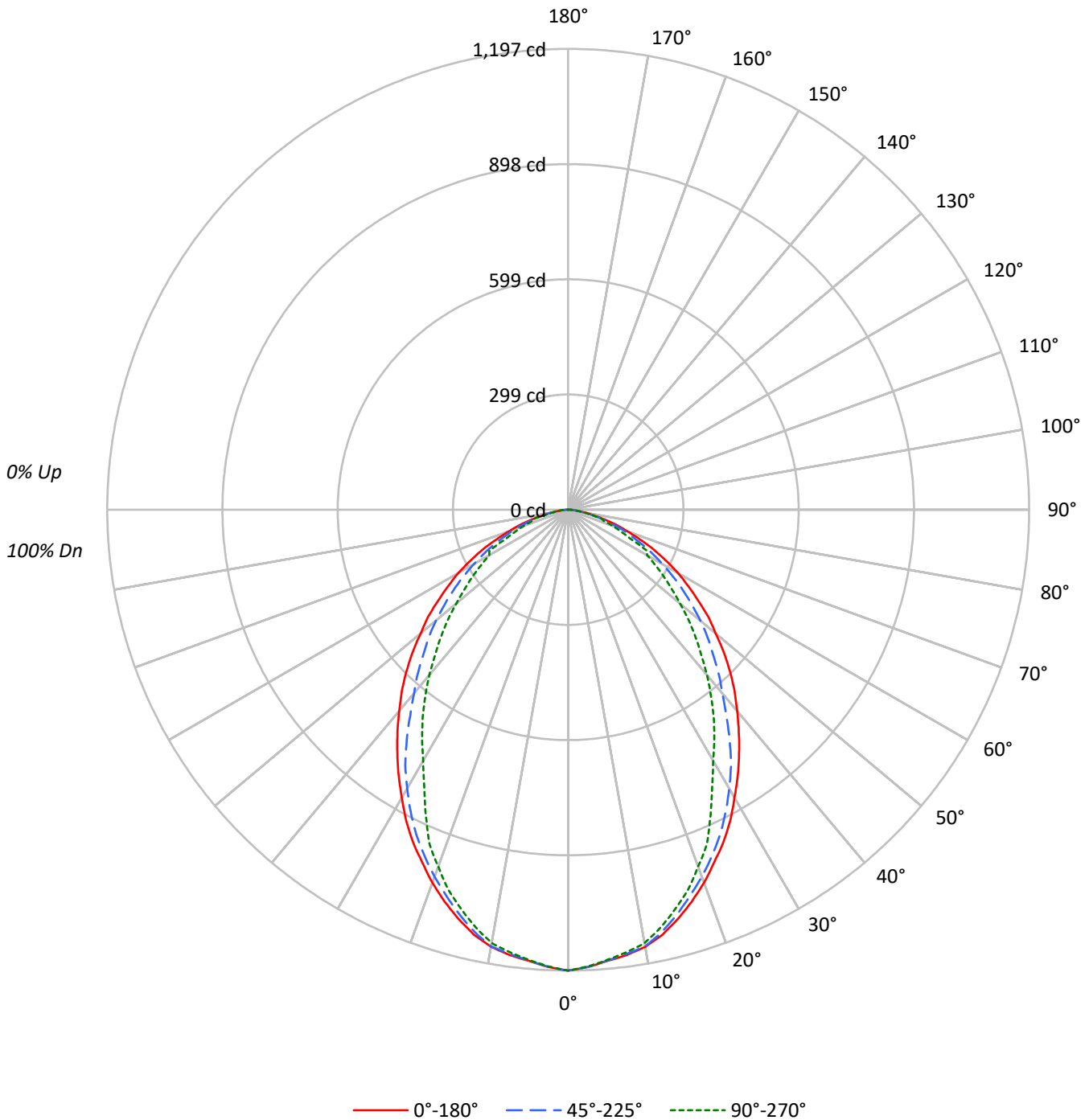
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P560670

CATALOG NUMBER: FSR-12-2-LD4-2STD-40-UNV-82-97-EDD-90

Luminous Intensity Polar Plot





TEST NUMBER: P560670

CATALOG NUMBER: FSR-12-2-LD4-2STD-40-UNV-82-97-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 | 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° | 6443 | 6443 | 6443 |
| 5° | 6355 | 6347 | 6340 |
| 10° | 6300 | 6292 | 6247 |
| 15° | 6130 | 6068 | 5984 |
| 20° | 5905 | 5810 | 5651 |
| 25° | 5662 | 5539 | 5194 |
| 30° | 5366 | 5195 | 4678 |
| 35° | 5083 | 4801 | 4328 |
| 40° | 4794 | 4375 | 3938 |
| 45° | 4519 | 4045 | 3561 |
| 50° | 4183 | 3754 | 3175 |
| 55° | 3870 | 3402 | 2844 |
| 60° | 3546 | 3039 | 2547 |
| 65° | 3119 | 2662 | 2255 |
| 70° | 2570 | 2330 | 1917 |
| 75° | 2044 | 1784 | 1871 |
| 80° | 1373 | 1286 | 1199 |
| 85° | 852 | 1025 | 1198 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4519 cd/sqm



TEST NUMBER: P560670

CATALOG NUMBER: FSR-12-2-LD4-2STD-40-UNV-82-97-EDD-90

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 111.4 | 4.7 |
| 10°-20° | 305.8 | 13.0 |
| 20°-30° | 423.4 | 18.0 |
| 30°-40° | 451.4 | 19.2 |
| 40°-50° | 411.8 | 17.5 |
| 50°-60° | 322.6 | 13.7 |
| 60°-70° | 210.3 | 8.9 |
| 70°-80° | 93.2 | 4.0 |
| 80°-90° | 20.0 | 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° | 840.6 | 35.8 |
| 0°-40° | 1292.1 | 55.0 |
| 0°-60° | 2026.6 | 86.2 |
| 0°-90° | 2350.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2350.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1197 | 1197 | 1197 | 1197 | 1197 | |
| 5° | 1176 | 1175 | 1175 | 1174 | 1174 | 112 |
| 15° | 1100 | 1100 | 1089 | 1078 | 1074 | 309 |
| 25° | 954 | 948 | 933 | 900 | 875 | 438 |
| 35° | 774 | 768 | 731 | 675 | 659 | 484 |
| 45° | 594 | 581 | 531 | 487 | 468 | 457 |
| 55° | 412 | 400 | 363 | 320 | 303 | 370 |
| 65° | 245 | 231 | 209 | 213 | 177 | 241 |
| 75° | 98 | 91 | 86 | 82 | 90 | 105 |
| 85° | 14 | 15 | 17 | 18 | 19 | 19 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560670

CATALOG NUMBER: FSR-12-2-LD4-2STD-40-UNV-82-97-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1197.1 | 1197.1 | 1197.1 | 1197.1 | 1197.1 |
| 2.5° | 1188.8 | 1188.8 | 1188.8 | 1187.4 | 1187.4 |
| 5° | 1176.3 | 1174.9 | 1174.9 | 1173.5 | 1173.5 |
| 7.5° | 1166.6 | 1165.2 | 1163.8 | 1162.5 | 1159.7 |
| 10° | 1152.8 | 1152.8 | 1151.4 | 1144.5 | 1143.1 |
| 12.5° | 1130.6 | 1129.2 | 1123.7 | 1114.0 | 1111.3 |
| 15° | 1100.2 | 1100.2 | 1089.1 | 1078.0 | 1073.9 |
| 17.5° | 1067.0 | 1065.6 | 1051.8 | 1040.7 | 1035.1 |
| 20° | 1031.0 | 1028.2 | 1014.4 | 996.4 | 986.7 |
| 22.5° | 990.9 | 990.9 | 974.3 | 950.7 | 941.0 |
| 25° | 953.5 | 948.0 | 932.7 | 899.5 | 874.6 |
| 27.5° | 910.6 | 902.3 | 885.7 | 838.6 | 809.6 |
| 30° | 863.5 | 859.4 | 835.9 | 775.0 | 752.8 |
| 32.5° | 819.3 | 812.3 | 787.4 | 723.8 | 705.8 |
| 35° | 773.6 | 768.1 | 730.7 | 675.3 | 658.7 |
| 37.5° | 727.9 | 721.0 | 674.0 | 629.7 | 608.9 |
| 40° | 682.3 | 674.0 | 622.7 | 582.6 | 560.5 |
| 42.5° | 639.4 | 628.3 | 578.5 | 535.6 | 510.7 |
| 45° | 593.7 | 581.2 | 531.4 | 487.1 | 467.8 |
| 47.5° | 548.0 | 536.9 | 491.3 | 445.6 | 423.5 |
| 50° | 499.6 | 489.9 | 448.4 | 402.7 | 379.2 |
| 52.5° | 459.4 | 444.2 | 404.1 | 358.4 | 339.1 |
| 55° | 412.4 | 399.9 | 362.6 | 319.7 | 303.1 |
| 57.5° | 369.5 | 357.0 | 322.4 | 282.3 | 268.5 |
| 60° | 329.4 | 311.4 | 282.3 | 247.7 | 236.6 |
| 62.5° | 285.1 | 271.2 | 246.3 | 217.3 | 231.1 |
| 65° | 244.9 | 231.1 | 209.0 | 213.1 | 177.1 |
| 67.5° | 200.7 | 193.7 | 174.4 | 155.0 | 149.5 |
| 70° | 163.3 | 155.0 | 148.1 | 127.3 | 121.8 |
| 72.5° | 130.1 | 121.8 | 112.1 | 101.0 | 96.9 |
| 75° | 98.3 | 91.3 | 85.8 | 81.6 | 90.0 |
| 77.5° | 67.8 | 65.0 | 60.9 | 56.7 | 55.4 |
| 80° | 44.3 | 42.9 | 41.5 | 40.1 | 38.7 |
| 82.5° | 26.3 | 26.3 | 26.3 | 26.3 | 26.3 |
| 85° | 13.8 | 15.2 | 16.6 | 18.0 | 19.4 |
| 87.5° | 8.3 | 8.3 | 9.7 | 11.1 | 12.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)