

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: P560494

Luminaire Tested: FSR-12-2-LD4-2LO-40-UNV-93-97-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560494
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-LD4-2LO-40-UNV-93-97-EDD-90
Description: 1X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1851.0 lumens
Efficiency: N/A
Efficacy: 79.1 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

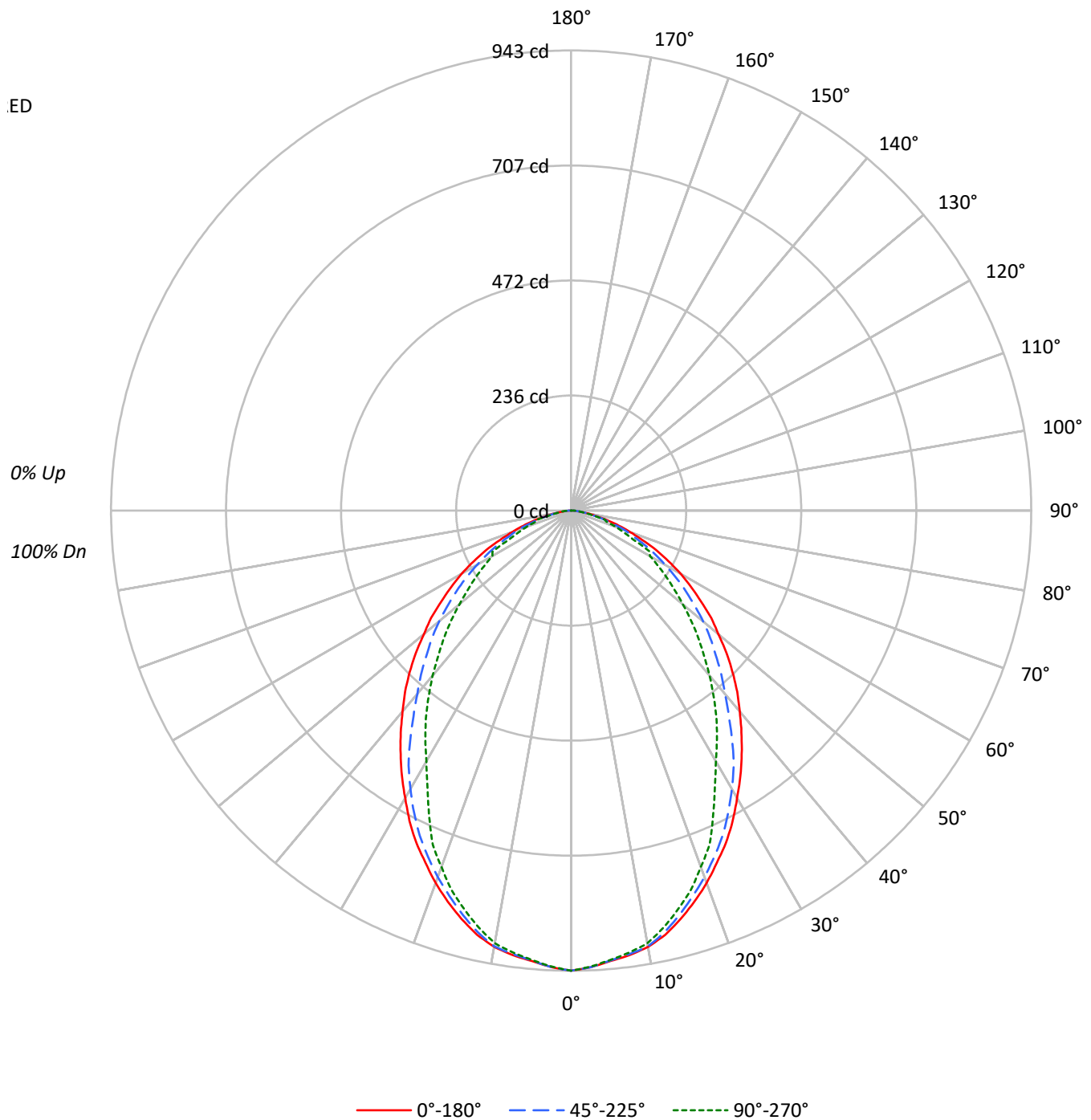
Input Watts (W): 23.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P560494

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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 | 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° | 5075 | 5075 | 5075 |
| 5° | 5005 | 4999 | 4994 |
| 10° | 4962 | 4956 | 4921 |
| 15° | 4829 | 4780 | 4713 |
| 20° | 4651 | 4576 | 4451 |
| 25° | 4460 | 4363 | 4091 |
| 30° | 4227 | 4092 | 3685 |
| 35° | 4003 | 3781 | 3409 |
| 40° | 3776 | 3446 | 3102 |
| 45° | 3559 | 3186 | 2804 |
| 50° | 3295 | 2957 | 2501 |
| 55° | 3048 | 2680 | 2240 |
| 60° | 2792 | 2394 | 2006 |
| 65° | 2457 | 2096 | 1777 |
| 70° | 2024 | 1835 | 1509 |
| 75° | 1609 | 1406 | 1474 |
| 80° | 1082 | 1013 | 945 |
| 85° | 673 | 809 | 945 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3559 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 87.8 | 4.7 |
| 10°-20° | 240.9 | 13.0 |
| 20°-30° | 333.5 | 18.0 |
| 30°-40° | 355.6 | 19.2 |
| 40°-50° | 324.4 | 17.5 |
| 50°-60° | 254.1 | 13.7 |
| 60°-70° | 165.6 | 8.9 |
| 70°-80° | 73.4 | 4.0 |
| 80°-90° | 15.7 | 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° | 662.1 | 35.8 |
| 0°-40° | 1017.7 | 55.0 |
| 0°-60° | 1596.2 | 86.2 |
| 0°-90° | 1851.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1851.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 943 | 943 | 943 | 943 | 943 | |
| 5° | 926 | 925 | 925 | 924 | 924 | 88 |
| 15° | 867 | 867 | 858 | 849 | 846 | 244 |
| 25° | 751 | 747 | 735 | 708 | 689 | 345 |
| 35° | 609 | 605 | 576 | 532 | 519 | 381 |
| 45° | 468 | 458 | 419 | 384 | 368 | 360 |
| 55° | 325 | 315 | 286 | 252 | 239 | 291 |
| 65° | 193 | 182 | 165 | 168 | 140 | 190 |
| 75° | 77 | 72 | 68 | 64 | 71 | 83 |
| 85° | 11 | 12 | 13 | 14 | 15 | 15 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560494

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 942.9 | 942.9 | 942.9 | 942.9 | 942.9 |
| 2.5° | 936.3 | 936.3 | 936.3 | 935.2 | 935.2 |
| 5° | 926.5 | 925.4 | 925.4 | 924.3 | 924.3 |
| 7.5° | 918.9 | 917.8 | 916.7 | 915.6 | 913.4 |
| 10° | 908.0 | 908.0 | 906.9 | 901.5 | 900.4 |
| 12.5° | 890.6 | 889.5 | 885.1 | 877.5 | 875.3 |
| 15° | 866.6 | 866.6 | 857.9 | 849.1 | 845.9 |
| 17.5° | 840.4 | 839.3 | 828.4 | 819.7 | 815.3 |
| 20° | 812.1 | 809.9 | 799.0 | 784.8 | 777.2 |
| 22.5° | 780.5 | 780.5 | 767.4 | 748.8 | 741.2 |
| 25° | 751.0 | 746.7 | 734.7 | 708.5 | 688.9 |
| 27.5° | 717.2 | 710.7 | 697.6 | 660.6 | 637.7 |
| 30° | 680.2 | 676.9 | 658.4 | 610.4 | 593.0 |
| 32.5° | 645.3 | 639.8 | 620.2 | 570.1 | 555.9 |
| 35° | 609.3 | 605.0 | 575.5 | 531.9 | 518.9 |
| 37.5° | 573.4 | 567.9 | 530.8 | 496.0 | 479.6 |
| 40° | 537.4 | 530.8 | 490.5 | 458.9 | 441.5 |
| 42.5° | 503.6 | 494.9 | 455.6 | 421.8 | 402.2 |
| 45° | 467.6 | 457.8 | 418.6 | 383.7 | 368.4 |
| 47.5° | 431.7 | 422.9 | 387.0 | 351.0 | 333.5 |
| 50° | 393.5 | 385.9 | 353.2 | 317.2 | 298.7 |
| 52.5° | 361.9 | 349.9 | 318.3 | 282.3 | 267.1 |
| 55° | 324.8 | 315.0 | 285.6 | 251.8 | 238.7 |
| 57.5° | 291.0 | 281.2 | 254.0 | 222.4 | 211.5 |
| 60° | 259.4 | 245.3 | 222.4 | 195.1 | 186.4 |
| 62.5° | 224.5 | 213.6 | 194.0 | 171.1 | 182.0 |
| 65° | 192.9 | 182.0 | 164.6 | 167.9 | 139.5 |
| 67.5° | 158.1 | 152.6 | 137.3 | 122.1 | 117.7 |
| 70° | 128.6 | 122.1 | 116.6 | 100.3 | 95.9 |
| 72.5° | 102.5 | 95.9 | 88.3 | 79.6 | 76.3 |
| 75° | 77.4 | 71.9 | 67.6 | 64.3 | 70.9 |
| 77.5° | 53.4 | 51.2 | 48.0 | 44.7 | 43.6 |
| 80° | 34.9 | 33.8 | 32.7 | 31.6 | 30.5 |
| 82.5° | 20.7 | 20.7 | 20.7 | 20.7 | 20.7 |
| 85° | 10.9 | 12.0 | 13.1 | 14.2 | 15.3 |
| 87.5° | 6.5 | 6.5 | 7.6 | 8.7 | 9.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)