

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: P560489

Luminaire Tested: FSR-12-2-LD4-2LO-40-UNV-93-88-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560489
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-93-88-EDD
Description: 1X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1947.0 lumens
Efficiency: N/A
Efficacy: 83.2 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

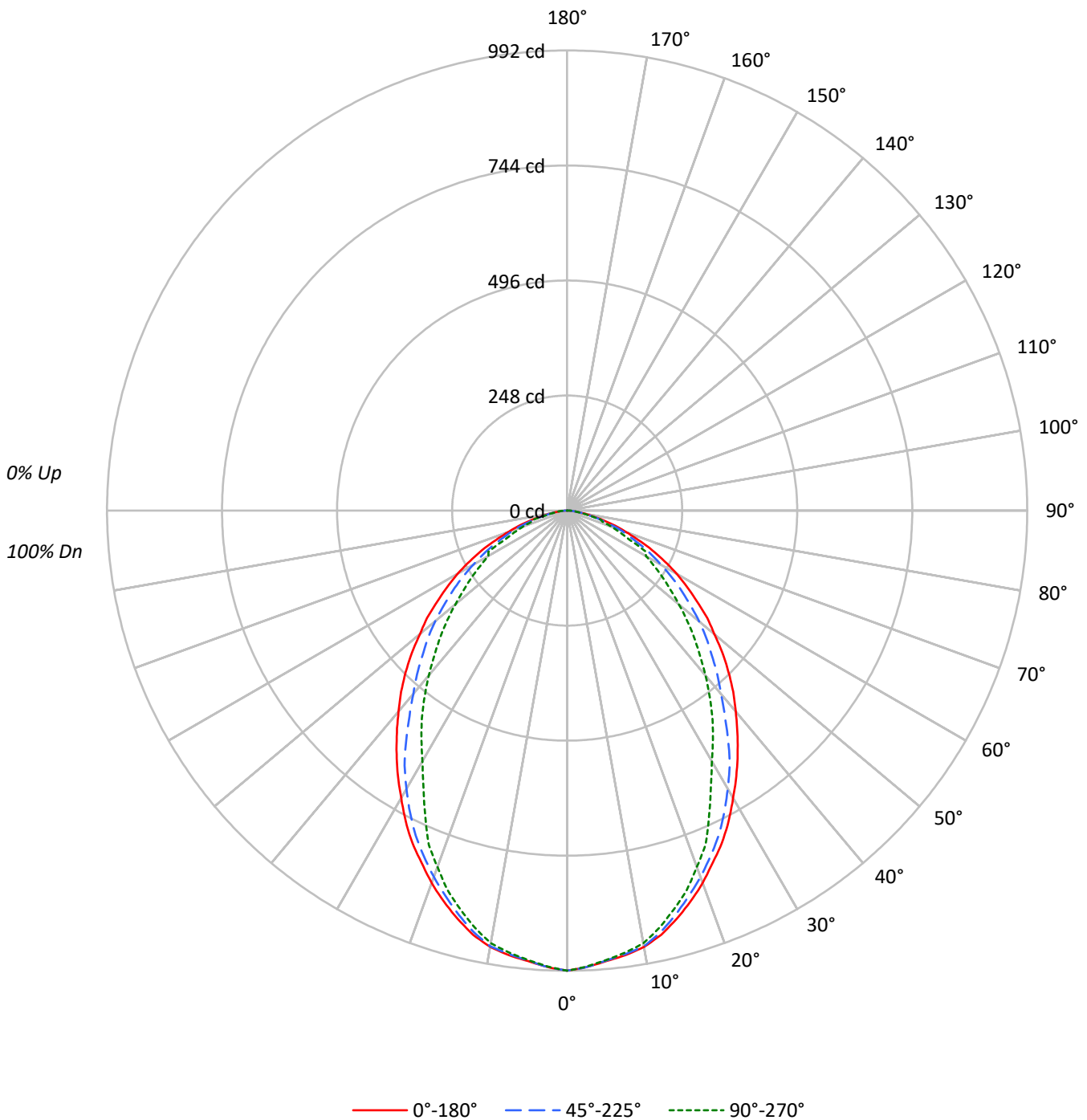
Input Watts (W): 23.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P560489

CATALOG NUMBER: FSR-12-2-LD4-2LO-40-UNV-93-88-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P560489

CATALOG NUMBER: FSR-12-2-LD4-2LO-40-UNV-93-88-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 | 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° | 5338 | 5338 | 5338 |
| 5° | 5265 | 5259 | 5253 |
| 10° | 5220 | 5213 | 5176 |
| 15° | 5079 | 5027 | 4957 |
| 20° | 4892 | 4813 | 4682 |
| 25° | 4691 | 4589 | 4303 |
| 30° | 4447 | 4304 | 3876 |
| 35° | 4211 | 3978 | 3586 |
| 40° | 3972 | 3625 | 3263 |
| 45° | 3744 | 3351 | 2949 |
| 50° | 3466 | 3111 | 2631 |
| 55° | 3206 | 2819 | 2356 |
| 60° | 2937 | 2518 | 2111 |
| 65° | 2584 | 2204 | 1869 |
| 70° | 2129 | 1931 | 1588 |
| 75° | 1693 | 1478 | 1549 |
| 80° | 1137 | 1066 | 995 |
| 85° | 710 | 852 | 994 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3744 cd/sqm



TEST NUMBER: P560489

CATALOG NUMBER: FSR-12-2-LD4-2LO-40-UNV-93-88-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 92.3 | 4.7 |
| 10°-20° | 253.4 | 13.0 |
| 20°-30° | 350.8 | 18.0 |
| 30°-40° | 374.0 | 19.2 |
| 40°-50° | 341.2 | 17.5 |
| 50°-60° | 267.3 | 13.7 |
| 60°-70° | 174.2 | 8.9 |
| 70°-80° | 77.2 | 4.0 |
| 80°-90° | 16.6 | 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° | 696.5 | 35.8 |
| 0°-40° | 1070.5 | 55.0 |
| 0°-60° | 1679.0 | 86.2 |
| 0°-90° | 1947.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1947.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 992 | 992 | 992 | 992 | 992 | |
| 5° | 975 | 973 | 973 | 972 | 972 | 93 |
| 15° | 912 | 912 | 902 | 893 | 890 | 256 |
| 25° | 790 | 785 | 773 | 745 | 725 | 363 |
| 35° | 641 | 636 | 605 | 560 | 546 | 401 |
| 45° | 492 | 482 | 440 | 404 | 388 | 379 |
| 55° | 342 | 331 | 300 | 265 | 251 | 306 |
| 65° | 203 | 192 | 173 | 177 | 147 | 200 |
| 75° | 81 | 76 | 71 | 68 | 74 | 87 |
| 85° | 12 | 13 | 14 | 15 | 16 | 16 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560489

CATALOG NUMBER: FSR-12-2-LD4-2LO-40-UNV-93-88-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 991.8 | 991.8 | 991.8 | 991.8 | 991.8 |
| 2.5° | 984.9 | 984.9 | 984.9 | 983.7 | 983.7 |
| 5° | 974.6 | 973.4 | 973.4 | 972.3 | 972.3 |
| 7.5° | 966.6 | 965.4 | 964.3 | 963.1 | 960.8 |
| 10° | 955.1 | 955.1 | 953.9 | 948.2 | 947.1 |
| 12.5° | 936.7 | 935.6 | 931.0 | 923.0 | 920.7 |
| 15° | 911.5 | 911.5 | 902.3 | 893.2 | 889.7 |
| 17.5° | 884.0 | 882.9 | 871.4 | 862.2 | 857.6 |
| 20° | 854.2 | 851.9 | 840.4 | 825.5 | 817.5 |
| 22.5° | 820.9 | 820.9 | 807.2 | 787.7 | 779.7 |
| 25° | 790.0 | 785.4 | 772.8 | 745.3 | 724.6 |
| 27.5° | 754.4 | 747.6 | 733.8 | 694.8 | 670.7 |
| 30° | 715.5 | 712.0 | 692.5 | 642.1 | 623.7 |
| 32.5° | 678.8 | 673.0 | 652.4 | 599.7 | 584.7 |
| 35° | 640.9 | 636.3 | 605.4 | 559.5 | 545.8 |
| 37.5° | 603.1 | 597.4 | 558.4 | 521.7 | 504.5 |
| 40° | 565.3 | 558.4 | 516.0 | 482.7 | 464.4 |
| 42.5° | 529.7 | 520.5 | 479.3 | 443.7 | 423.1 |
| 45° | 491.9 | 481.6 | 440.3 | 403.6 | 387.5 |
| 47.5° | 454.0 | 444.9 | 407.0 | 369.2 | 350.8 |
| 50° | 413.9 | 405.9 | 371.5 | 333.6 | 314.2 |
| 52.5° | 380.7 | 368.0 | 334.8 | 297.0 | 280.9 |
| 55° | 341.7 | 331.4 | 300.4 | 264.9 | 251.1 |
| 57.5° | 306.1 | 295.8 | 267.1 | 233.9 | 222.4 |
| 60° | 272.9 | 258.0 | 233.9 | 205.2 | 196.1 |
| 62.5° | 236.2 | 224.7 | 204.1 | 180.0 | 191.5 |
| 65° | 202.9 | 191.5 | 173.1 | 176.6 | 146.8 |
| 67.5° | 166.3 | 160.5 | 144.5 | 128.4 | 123.8 |
| 70° | 135.3 | 128.4 | 122.7 | 105.5 | 100.9 |
| 72.5° | 107.8 | 100.9 | 92.9 | 83.7 | 80.3 |
| 75° | 81.4 | 75.7 | 71.1 | 67.6 | 74.5 |
| 77.5° | 56.2 | 53.9 | 50.4 | 47.0 | 45.9 |
| 80° | 36.7 | 35.5 | 34.4 | 33.3 | 32.1 |
| 82.5° | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 |
| 85° | 11.5 | 12.6 | 13.8 | 14.9 | 16.1 |
| 87.5° | 6.9 | 6.9 | 8.0 | 9.2 | 10.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)