

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: P560658

Luminaire Tested: FSR-12-2-LD4-2STD-40-UNV-82-85-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560658
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-82-85-EDD-90
Description: 1X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2360.0 lumens
Efficiency: N/A
Efficacy: 70.9 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

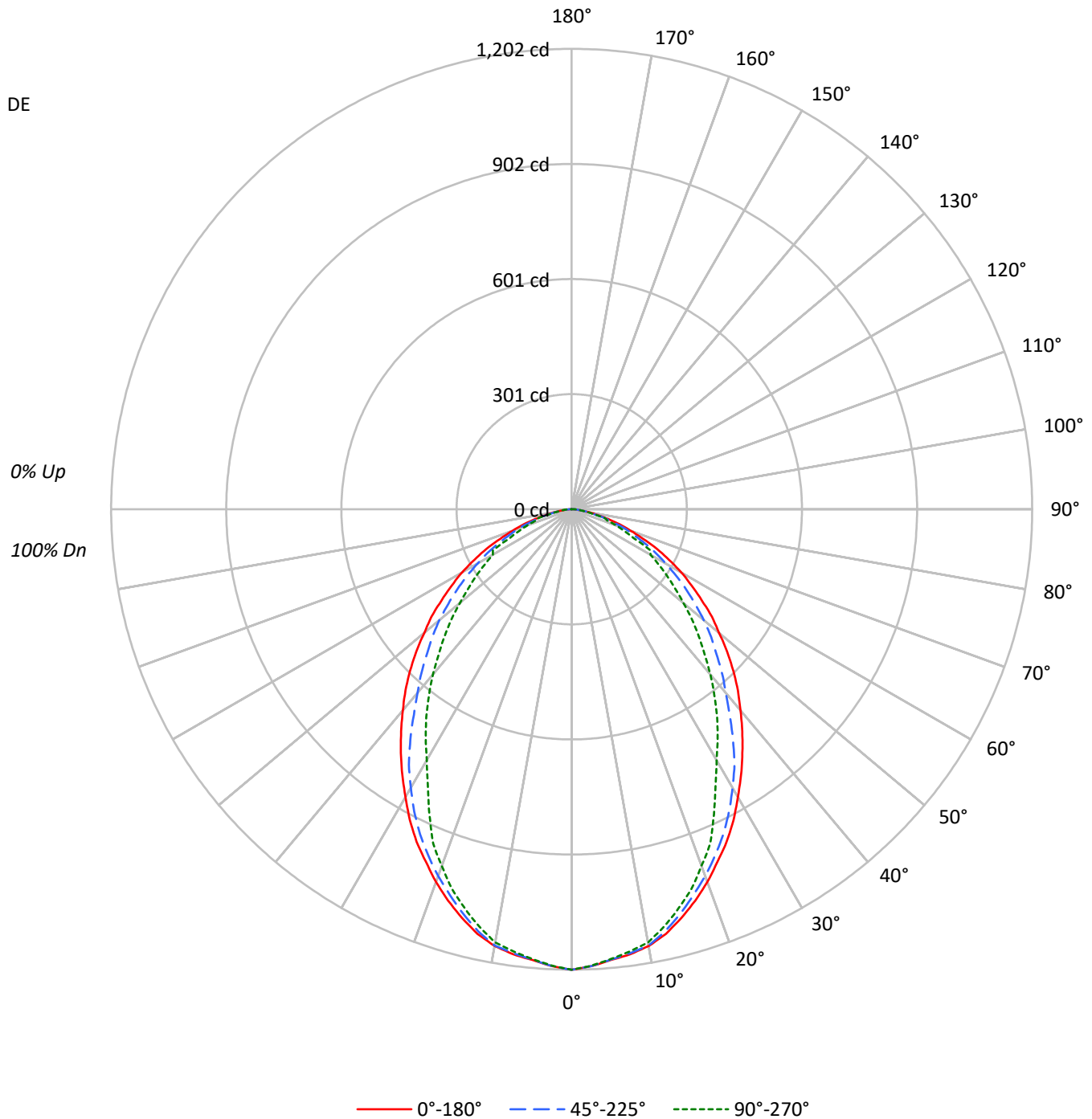
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P560658

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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° | 6470 | 6470 | 6470 |
| 5° | 6382 | 6374 | 6367 |
| 10° | 6327 | 6319 | 6274 |
| 15° | 6156 | 6094 | 6009 |
| 20° | 5930 | 5834 | 5675 |
| 25° | 5687 | 5562 | 5216 |
| 30° | 5389 | 5216 | 4698 |
| 35° | 5104 | 4821 | 4346 |
| 40° | 4814 | 4394 | 3955 |
| 45° | 4538 | 4062 | 3575 |
| 50° | 4201 | 3770 | 3188 |
| 55° | 3887 | 3416 | 2856 |
| 60° | 3561 | 3052 | 2559 |
| 65° | 3133 | 2673 | 2266 |
| 70° | 2581 | 2340 | 1924 |
| 75° | 2052 | 1792 | 1878 |
| 80° | 1379 | 1292 | 1206 |
| 85° | 858 | 1031 | 1204 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4538 cd/sqm

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 111.9 | 4.7 |
| 10°-20° | 307.1 | 13.0 |
| 20°-30° | 425.2 | 18.0 |
| 30°-40° | 453.4 | 19.2 |
| 40°-50° | 413.6 | 17.5 |
| 50°-60° | 324.0 | 13.7 |
| 60°-70° | 211.2 | 8.9 |
| 70°-80° | 93.6 | 4.0 |
| 80°-90° | 20.1 | 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° | 844.2 | 35.8 |
| 0°-40° | 1297.6 | 55.0 |
| 0°-60° | 2035.2 | 86.2 |
| 0°-90° | 2360.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2360.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1202 | 1202 | 1202 | 1202 | 1202 | |
| 5° | 1181 | 1180 | 1180 | 1178 | 1178 | 112 |
| 15° | 1105 | 1105 | 1094 | 1083 | 1078 | 311 |
| 25° | 958 | 952 | 937 | 903 | 878 | 440 |
| 35° | 777 | 771 | 734 | 678 | 662 | 486 |
| 45° | 596 | 584 | 534 | 489 | 470 | 459 |
| 55° | 414 | 402 | 364 | 321 | 304 | 371 |
| 65° | 246 | 232 | 210 | 214 | 178 | 242 |
| 75° | 99 | 92 | 86 | 82 | 90 | 106 |
| 85° | 14 | 15 | 17 | 18 | 20 | 19 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1202.2 | 1202.2 | 1202.2 | 1202.2 | 1202.2 |
| 2.5° | 1193.8 | 1193.8 | 1193.8 | 1192.4 | 1192.4 |
| 5° | 1181.3 | 1179.9 | 1179.9 | 1178.5 | 1178.5 |
| 7.5° | 1171.6 | 1170.2 | 1168.8 | 1167.4 | 1164.6 |
| 10° | 1157.7 | 1157.7 | 1156.3 | 1149.3 | 1148.0 |
| 12.5° | 1135.4 | 1134.1 | 1128.5 | 1118.8 | 1116.0 |
| 15° | 1104.9 | 1104.9 | 1093.8 | 1082.6 | 1078.5 |
| 17.5° | 1071.5 | 1070.1 | 1056.2 | 1045.1 | 1039.5 |
| 20° | 1035.4 | 1032.6 | 1018.7 | 1000.6 | 990.9 |
| 22.5° | 995.1 | 995.1 | 978.4 | 954.8 | 945.0 |
| 25° | 957.6 | 952.0 | 936.7 | 903.4 | 878.3 |
| 27.5° | 914.5 | 906.1 | 889.5 | 842.2 | 813.0 |
| 30° | 867.2 | 863.0 | 839.4 | 778.3 | 756.0 |
| 32.5° | 822.7 | 815.8 | 790.8 | 726.9 | 708.8 |
| 35° | 776.9 | 771.3 | 733.8 | 678.2 | 661.5 |
| 37.5° | 731.0 | 724.1 | 676.8 | 632.3 | 611.5 |
| 40° | 685.2 | 676.8 | 625.4 | 585.1 | 562.9 |
| 42.5° | 642.1 | 631.0 | 580.9 | 537.8 | 512.8 |
| 45° | 596.2 | 583.7 | 533.7 | 489.2 | 469.7 |
| 47.5° | 550.3 | 539.2 | 493.4 | 447.5 | 425.3 |
| 50° | 501.7 | 492.0 | 450.3 | 404.4 | 380.8 |
| 52.5° | 461.4 | 446.1 | 405.8 | 360.0 | 340.5 |
| 55° | 414.2 | 401.6 | 364.1 | 321.0 | 304.4 |
| 57.5° | 371.1 | 358.6 | 323.8 | 283.5 | 269.6 |
| 60° | 330.8 | 312.7 | 283.5 | 248.8 | 237.7 |
| 62.5° | 286.3 | 272.4 | 247.4 | 218.2 | 232.1 |
| 65° | 246.0 | 232.1 | 209.9 | 214.0 | 177.9 |
| 67.5° | 201.5 | 194.6 | 175.1 | 155.7 | 150.1 |
| 70° | 164.0 | 155.7 | 148.7 | 127.9 | 122.3 |
| 72.5° | 130.6 | 122.3 | 112.6 | 101.5 | 97.3 |
| 75° | 98.7 | 91.7 | 86.2 | 82.0 | 90.3 |
| 77.5° | 68.1 | 65.3 | 61.1 | 57.0 | 55.6 |
| 80° | 44.5 | 43.1 | 41.7 | 40.3 | 38.9 |
| 82.5° | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 |
| 85° | 13.9 | 15.3 | 16.7 | 18.1 | 19.5 |
| 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)