

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: P560961

Luminaire Tested: FSR-12-4-LD4-1LO-35-UNV-81-84-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560961
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-12-4-LD4-1LO-35-UNV-81-84-EDD
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2356.0 lumens
Efficiency: N/A
Efficacy: 100.7 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

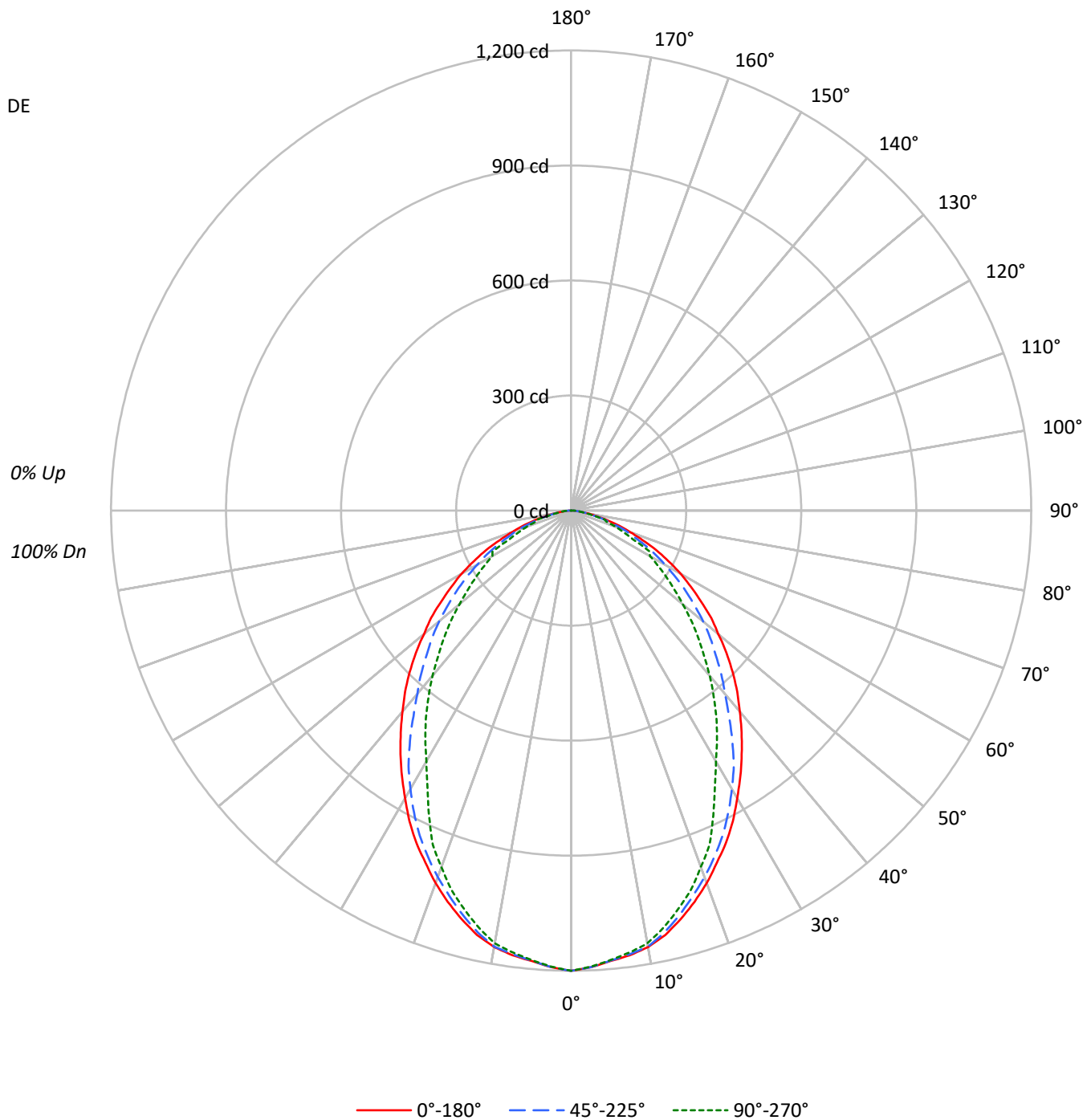
Input Watts (W): 23.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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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 | 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° | 3229 | 3229 | 3229 |
| 5° | 3186 | 3182 | 3178 |
| 10° | 3158 | 3154 | 3131 |
| 15° | 3073 | 3042 | 2999 |
| 20° | 2960 | 2912 | 2833 |
| 25° | 2838 | 2776 | 2603 |
| 30° | 2690 | 2604 | 2345 |
| 35° | 2548 | 2407 | 2169 |
| 40° | 2403 | 2193 | 1974 |
| 45° | 2265 | 2028 | 1784 |
| 50° | 2097 | 1882 | 1592 |
| 55° | 1939 | 1705 | 1425 |
| 60° | 1777 | 1523 | 1277 |
| 65° | 1564 | 1334 | 1131 |
| 70° | 1288 | 1168 | 961 |
| 75° | 1024 | 894 | 938 |
| 80° | 688 | 645 | 601 |
| 85° | 429 | 513 | 599 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2265 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 111.7 | 4.7 |
| 10°-20° | 306.6 | 13.0 |
| 20°-30° | 424.5 | 18.0 |
| 30°-40° | 452.6 | 19.2 |
| 40°-50° | 412.9 | 17.5 |
| 50°-60° | 323.5 | 13.7 |
| 60°-70° | 210.8 | 8.9 |
| 70°-80° | 93.4 | 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° | 842.8 | 35.8 |
| 0°-40° | 1295.4 | 55.0 |
| 0°-60° | 2031.7 | 86.2 |
| 0°-90° | 2356.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2356.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1200 | 1200 | 1200 | 1200 | 1200 | |
| 5° | 1179 | 1178 | 1178 | 1176 | 1176 | 112 |
| 15° | 1103 | 1103 | 1092 | 1081 | 1077 | 310 |
| 25° | 956 | 950 | 935 | 902 | 877 | 439 |
| 35° | 776 | 770 | 733 | 677 | 660 | 485 |
| 45° | 595 | 583 | 533 | 488 | 469 | 458 |
| 55° | 413 | 401 | 364 | 320 | 304 | 371 |
| 65° | 246 | 232 | 210 | 214 | 178 | 242 |
| 75° | 98 | 92 | 86 | 82 | 90 | 106 |
| 85° | 14 | 15 | 17 | 18 | 19 | 19 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560961

CATALOG NUMBER: FSR-12-4-LD4-1LO-35-UNV-81-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1200.1 | 1200.1 | 1200.1 | 1200.1 | 1200.1 |
| 2.5° | 1191.8 | 1191.8 | 1191.8 | 1190.4 | 1190.4 |
| 5° | 1179.3 | 1177.9 | 1177.9 | 1176.5 | 1176.5 |
| 7.5° | 1169.6 | 1168.2 | 1166.8 | 1165.4 | 1162.7 |
| 10° | 1155.7 | 1155.7 | 1154.3 | 1147.4 | 1146.0 |
| 12.5° | 1133.5 | 1132.1 | 1126.6 | 1116.9 | 1114.1 |
| 15° | 1103.0 | 1103.0 | 1091.9 | 1080.8 | 1076.6 |
| 17.5° | 1069.7 | 1068.3 | 1054.4 | 1043.3 | 1037.8 |
| 20° | 1033.6 | 1030.9 | 1017.0 | 998.9 | 989.2 |
| 22.5° | 993.4 | 993.4 | 976.7 | 953.2 | 943.4 |
| 25° | 955.9 | 950.4 | 935.1 | 901.8 | 876.8 |
| 27.5° | 912.9 | 904.6 | 887.9 | 840.8 | 811.6 |
| 30° | 865.7 | 861.6 | 838.0 | 777.0 | 754.8 |
| 32.5° | 821.4 | 814.4 | 789.4 | 725.6 | 707.6 |
| 35° | 775.6 | 770.0 | 732.6 | 677.1 | 660.4 |
| 37.5° | 729.8 | 722.8 | 675.7 | 631.3 | 610.5 |
| 40° | 684.0 | 675.7 | 624.3 | 584.1 | 561.9 |
| 42.5° | 641.0 | 629.9 | 579.9 | 536.9 | 512.0 |
| 45° | 595.2 | 582.7 | 532.8 | 488.4 | 468.9 |
| 47.5° | 549.4 | 538.3 | 492.5 | 446.7 | 424.5 |
| 50° | 500.9 | 491.1 | 449.5 | 403.7 | 380.2 |
| 52.5° | 460.6 | 445.4 | 405.1 | 359.3 | 339.9 |
| 55° | 413.4 | 401.0 | 363.5 | 320.5 | 303.8 |
| 57.5° | 370.4 | 358.0 | 323.3 | 283.0 | 269.2 |
| 60° | 330.2 | 312.2 | 283.0 | 248.3 | 237.2 |
| 62.5° | 285.8 | 271.9 | 247.0 | 217.8 | 231.7 |
| 65° | 245.6 | 231.7 | 209.5 | 213.7 | 177.6 |
| 67.5° | 201.2 | 194.2 | 174.8 | 155.4 | 149.8 |
| 70° | 163.7 | 155.4 | 148.5 | 127.6 | 122.1 |
| 72.5° | 130.4 | 122.1 | 112.4 | 101.3 | 97.1 |
| 75° | 98.5 | 91.6 | 86.0 | 81.9 | 90.2 |
| 77.5° | 68.0 | 65.2 | 61.0 | 56.9 | 55.5 |
| 80° | 44.4 | 43.0 | 41.6 | 40.2 | 38.8 |
| 82.5° | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 |
| 85° | 13.9 | 15.3 | 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)