

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: P561794

Luminaire Tested: FSR-12-4-LD4-2STD-40-UNV-81-85-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561794
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-LD4-2STD-40-UNV-81-85-EDD-90
Description: 1X4 FSR TROFFER WITH .156 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: 5249.0 lumens
Efficiency: N/A
Efficacy: 78.8 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

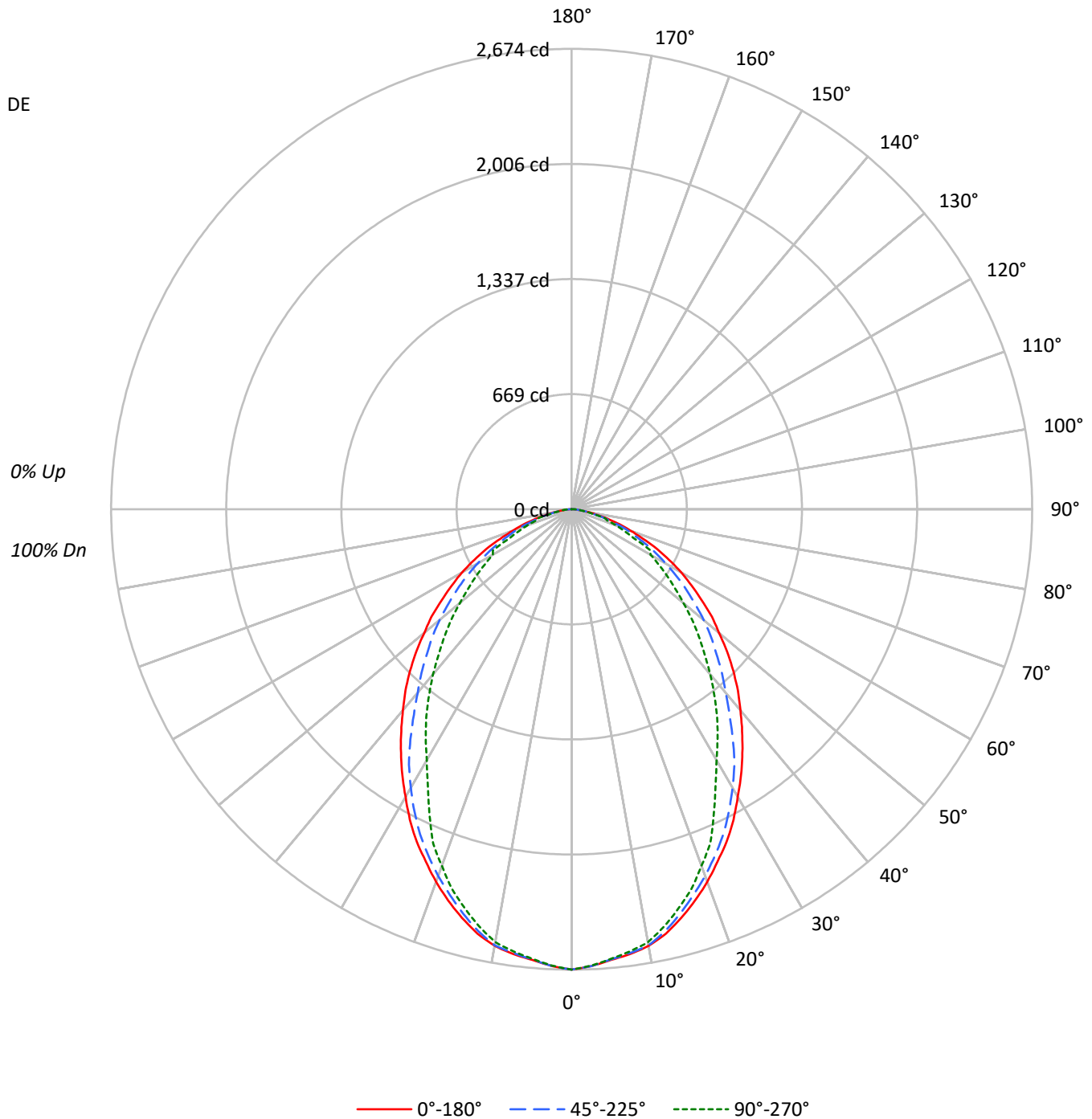
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561794

CATALOG NUMBER: FSR-12-4-LD4-2STD-40-UNV-81-85-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 | 0 | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | | | | | 100 | | | |
| 1 | 110 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 | | | | | 87 | | | |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | 75 | | | | | 75 | | | |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | 65 | | | | | 65 | | | |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | 56 | | | | | 56 | | | |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 50 | | | | | 50 | | | |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | 44 | | | | | 44 | | | |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | 40 | | | | | 40 | | | |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | 36 | | | | | 36 | | | |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | 33 | | | | | 33 | | | |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | 30 | | | | | 30 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 7195 | 7195 | 7195 |
| 5° | 7097 | 7089 | 7081 |
| 10° | 7036 | 7027 | 6977 |
| 15° | 6846 | 6777 | 6683 |
| 20° | 6594 | 6489 | 6311 |
| 25° | 6323 | 6186 | 5801 |
| 30° | 5993 | 5801 | 5225 |
| 35° | 5676 | 5362 | 4833 |
| 40° | 5353 | 4886 | 4398 |
| 45° | 5047 | 4517 | 3976 |
| 50° | 4672 | 4193 | 3546 |
| 55° | 4321 | 3800 | 3176 |
| 60° | 3960 | 3394 | 2845 |
| 65° | 3484 | 2972 | 2520 |
| 70° | 2869 | 2602 | 2140 |
| 75° | 2282 | 1992 | 2089 |
| 80° | 1533 | 1437 | 1340 |
| 85° | 954 | 1145 | 1337 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5047 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 248.9 | 4.7 |
| 10°-20° | 683.1 | 13.0 |
| 20°-30° | 945.7 | 18.0 |
| 30°-40° | 1008.3 | 19.2 |
| 40°-50° | 919.9 | 17.5 |
| 50°-60° | 720.7 | 13.7 |
| 60°-70° | 469.7 | 8.9 |
| 70°-80° | 208.1 | 4.0 |
| 80°-90° | 44.7 | 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° | 1877.6 | 35.8 |
| 0°-40° | 2886.0 | 55.0 |
| 0°-60° | 4526.5 | 86.2 |
| 0°-90° | 5249.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5249.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2674 | 2674 | 2674 | 2674 | 2674 | |
| 5° | 2627 | 2624 | 2624 | 2621 | 2621 | 249 |
| 15° | 2457 | 2457 | 2433 | 2408 | 2399 | 691 |
| 25° | 2130 | 2117 | 2083 | 2009 | 1954 | 978 |
| 35° | 1728 | 1716 | 1632 | 1508 | 1471 | 1080 |
| 45° | 1326 | 1298 | 1187 | 1088 | 1045 | 1021 |
| 55° | 921 | 893 | 810 | 714 | 677 | 826 |
| 65° | 547 | 516 | 467 | 476 | 396 | 539 |
| 75° | 220 | 204 | 192 | 182 | 201 | 235 |
| 85° | 31 | 34 | 37 | 40 | 43 | 43 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561794

CATALOG NUMBER: FSR-12-4-LD4-2STD-40-UNV-81-85-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2673.8 | 2673.8 | 2673.8 | 2673.8 | 2673.8 |
| 2.5° | 2655.2 | 2655.2 | 2655.2 | 2652.1 | 2652.1 |
| 5° | 2627.4 | 2624.3 | 2624.3 | 2621.2 | 2621.2 |
| 7.5° | 2605.8 | 2602.7 | 2599.6 | 2596.5 | 2590.3 |
| 10° | 2574.9 | 2574.9 | 2571.8 | 2556.3 | 2553.2 |
| 12.5° | 2525.4 | 2522.3 | 2509.9 | 2488.3 | 2482.1 |
| 15° | 2457.4 | 2457.4 | 2432.7 | 2407.9 | 2398.7 |
| 17.5° | 2383.2 | 2380.1 | 2349.2 | 2324.5 | 2312.1 |
| 20° | 2302.8 | 2296.7 | 2265.8 | 2225.6 | 2203.9 |
| 22.5° | 2213.2 | 2213.2 | 2176.1 | 2123.6 | 2101.9 |
| 25° | 2129.7 | 2117.4 | 2083.4 | 2009.2 | 1953.6 |
| 27.5° | 2033.9 | 2015.4 | 1978.3 | 1873.2 | 1808.3 |
| 30° | 1928.8 | 1919.6 | 1867.0 | 1731.0 | 1681.5 |
| 32.5° | 1829.9 | 1814.5 | 1758.8 | 1616.6 | 1576.4 |
| 35° | 1727.9 | 1715.5 | 1632.1 | 1508.4 | 1471.3 |
| 37.5° | 1625.9 | 1610.4 | 1505.3 | 1406.4 | 1360.1 |
| 40° | 1523.9 | 1505.3 | 1391.0 | 1301.3 | 1251.9 |
| 42.5° | 1428.1 | 1403.3 | 1292.1 | 1196.2 | 1140.6 |
| 45° | 1326.1 | 1298.2 | 1187.0 | 1088.1 | 1044.8 |
| 47.5° | 1224.1 | 1199.3 | 1097.3 | 995.3 | 945.9 |
| 50° | 1115.9 | 1094.2 | 1001.5 | 899.5 | 847.0 |
| 52.5° | 1026.2 | 992.2 | 902.6 | 800.6 | 757.3 |
| 55° | 921.1 | 893.3 | 809.9 | 714.0 | 676.9 |
| 57.5° | 825.3 | 797.5 | 720.2 | 630.6 | 599.7 |
| 60° | 735.7 | 695.5 | 630.6 | 553.3 | 528.6 |
| 62.5° | 636.8 | 605.8 | 550.2 | 485.3 | 516.2 |
| 65° | 547.1 | 516.2 | 466.8 | 476.0 | 395.7 |
| 67.5° | 448.2 | 432.7 | 389.5 | 346.2 | 333.8 |
| 70° | 364.7 | 346.2 | 330.7 | 284.4 | 272.0 |
| 72.5° | 290.6 | 272.0 | 250.4 | 225.6 | 216.4 |
| 75° | 219.5 | 204.0 | 191.6 | 182.4 | 200.9 |
| 77.5° | 151.5 | 145.3 | 136.0 | 126.7 | 123.6 |
| 80° | 98.9 | 95.8 | 92.7 | 89.6 | 86.5 |
| 82.5° | 58.7 | 58.7 | 58.7 | 58.7 | 58.7 |
| 85° | 30.9 | 34.0 | 37.1 | 40.2 | 43.3 |
| 87.5° | 18.5 | 18.5 | 21.6 | 24.7 | 27.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)