

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: P561411

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

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561411
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-LD4-2HI-40-UNV-81-85-EDD
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

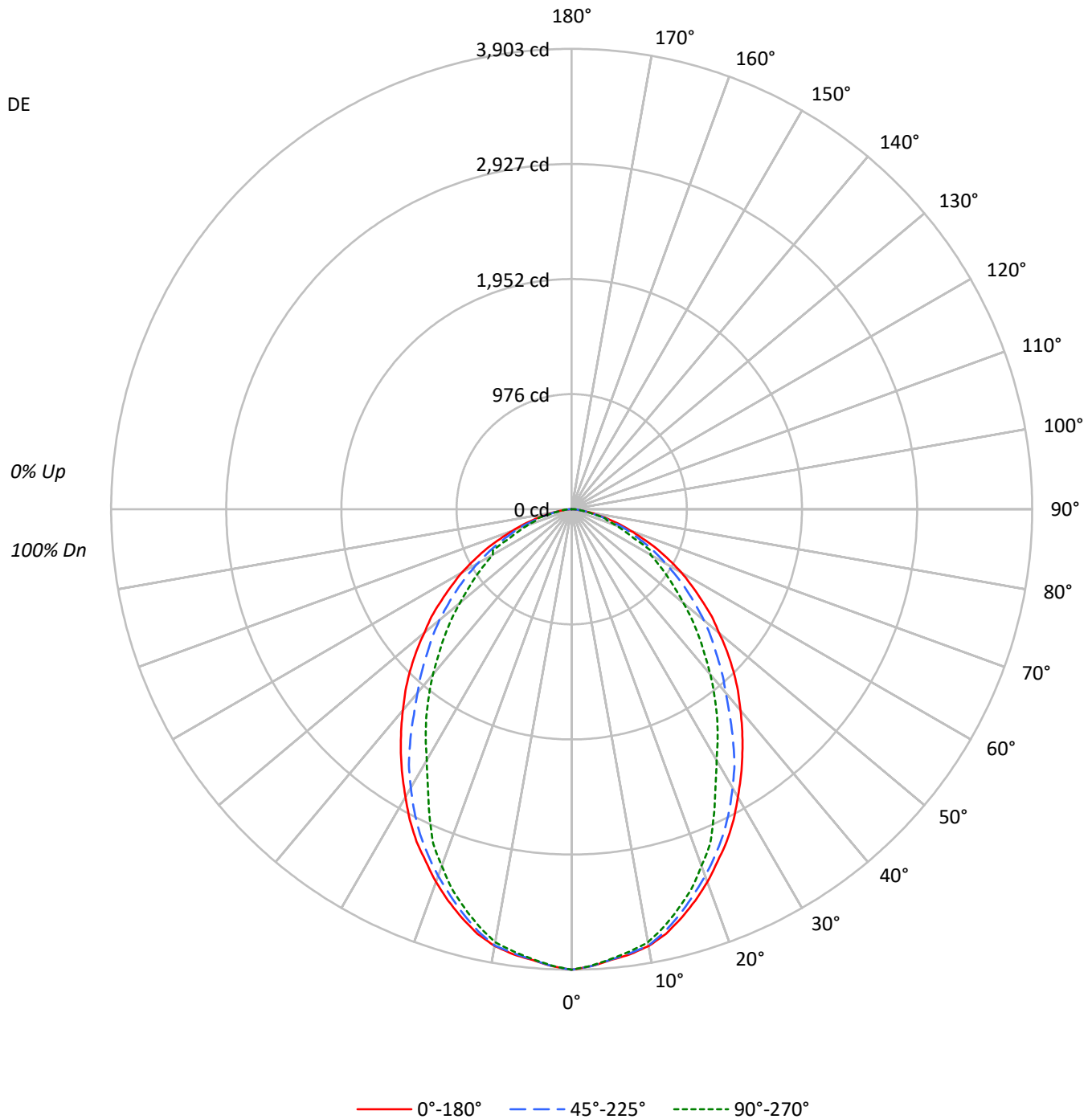
Lumens per Lamp: N/A
Luminaire Lumens: 7663.0 lumens
Efficiency: N/A
Efficacy: 88.7 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 86.4
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: P561411

CATALOG NUMBER: FSR-12-4-LD4-2HI-40-UNV-81-85-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 | 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° | 10504 | 10504 | 10504 |
| 5° | 10361 | 10349 | 10337 |
| 10° | 10271 | 10259 | 10185 |
| 15° | 9994 | 9894 | 9756 |
| 20° | 9627 | 9472 | 9214 |
| 25° | 9232 | 9031 | 8468 |
| 30° | 8750 | 8469 | 7628 |
| 35° | 8287 | 7827 | 7056 |
| 40° | 7815 | 7133 | 6420 |
| 45° | 7367 | 6595 | 5805 |
| 50° | 6820 | 6121 | 5177 |
| 55° | 6309 | 5547 | 4637 |
| 60° | 5780 | 4955 | 4153 |
| 65° | 5086 | 4339 | 3678 |
| 70° | 4190 | 3799 | 3124 |
| 75° | 3331 | 2909 | 3049 |
| 80° | 2238 | 2098 | 1959 |
| 85° | 1392 | 1673 | 1951 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 7367 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 363.4 | 4.7 |
| 10°-20° | 997.2 | 13.0 |
| 20°-30° | 1380.6 | 18.0 |
| 30°-40° | 1472.1 | 19.2 |
| 40°-50° | 1343.0 | 17.5 |
| 50°-60° | 1052.1 | 13.7 |
| 60°-70° | 685.7 | 8.9 |
| 70°-80° | 303.8 | 4.0 |
| 80°-90° | 65.2 | 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° | 2741.1 | 35.8 |
| 0°-40° | 4213.2 | 55.0 |
| 0°-60° | 6608.3 | 86.2 |
| 0°-90° | 7663.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7663.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3903 | 3903 | 3903 | 3903 | 3903 | |
| 5° | 3836 | 3831 | 3831 | 3827 | 3827 | 364 |
| 15° | 3588 | 3588 | 3551 | 3515 | 3502 | 1009 |
| 25° | 3109 | 3091 | 3042 | 2933 | 2852 | 1427 |
| 35° | 2523 | 2504 | 2383 | 2202 | 2148 | 1577 |
| 45° | 1936 | 1895 | 1733 | 1588 | 1525 | 1491 |
| 55° | 1345 | 1304 | 1182 | 1042 | 988 | 1206 |
| 65° | 799 | 754 | 681 | 695 | 578 | 787 |
| 75° | 320 | 298 | 280 | 266 | 293 | 343 |
| 85° | 45 | 50 | 54 | 59 | 63 | 63 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P561411

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

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3903.4 | 3903.4 | 3903.4 | 3903.4 | 3903.4 |
| 2.5° | 3876.4 | 3876.4 | 3876.4 | 3871.8 | 3871.8 |
| 5° | 3835.7 | 3831.2 | 3831.2 | 3826.7 | 3826.7 |
| 7.5° | 3804.2 | 3799.6 | 3795.1 | 3790.6 | 3781.6 |
| 10° | 3759.0 | 3759.0 | 3754.5 | 3731.9 | 3727.4 |
| 12.5° | 3686.8 | 3682.3 | 3664.3 | 3632.7 | 3623.6 |
| 15° | 3587.5 | 3587.5 | 3551.4 | 3515.3 | 3501.8 |
| 17.5° | 3479.2 | 3474.7 | 3429.6 | 3393.5 | 3375.5 |
| 20° | 3361.9 | 3352.9 | 3307.8 | 3249.1 | 3217.5 |
| 22.5° | 3231.0 | 3231.0 | 3176.9 | 3100.2 | 3068.6 |
| 25° | 3109.2 | 3091.2 | 3041.5 | 2933.2 | 2852.0 |
| 27.5° | 2969.3 | 2942.2 | 2888.1 | 2734.7 | 2639.9 |
| 30° | 2815.9 | 2802.3 | 2725.6 | 2527.1 | 2454.9 |
| 32.5° | 2671.5 | 2648.9 | 2567.7 | 2360.1 | 2301.4 |
| 35° | 2522.6 | 2504.5 | 2382.7 | 2202.2 | 2148.0 |
| 37.5° | 2373.6 | 2351.1 | 2197.7 | 2053.2 | 1985.6 |
| 40° | 2224.7 | 2197.7 | 2030.7 | 1899.8 | 1827.6 |
| 42.5° | 2084.8 | 2048.7 | 1886.3 | 1746.4 | 1665.2 |
| 45° | 1935.9 | 1895.3 | 1732.9 | 1588.4 | 1525.3 |
| 47.5° | 1787.0 | 1750.9 | 1602.0 | 1453.1 | 1380.9 |
| 50° | 1629.1 | 1597.5 | 1462.1 | 1313.2 | 1236.5 |
| 52.5° | 1498.2 | 1448.6 | 1317.7 | 1168.8 | 1105.6 |
| 55° | 1344.8 | 1304.2 | 1182.3 | 1042.4 | 988.3 |
| 57.5° | 1204.9 | 1164.3 | 1051.4 | 920.6 | 875.5 |
| 60° | 1074.0 | 1015.3 | 920.6 | 807.8 | 771.7 |
| 62.5° | 929.6 | 884.5 | 803.2 | 708.5 | 753.6 |
| 65° | 798.7 | 753.6 | 681.4 | 694.9 | 577.6 |
| 67.5° | 654.3 | 631.8 | 568.6 | 505.4 | 487.4 |
| 70° | 532.5 | 505.4 | 482.9 | 415.2 | 397.1 |
| 72.5° | 424.2 | 397.1 | 365.5 | 329.4 | 315.9 |
| 75° | 320.4 | 297.8 | 279.8 | 266.2 | 293.3 |
| 77.5° | 221.1 | 212.1 | 198.6 | 185.0 | 180.5 |
| 80° | 144.4 | 139.9 | 135.4 | 130.9 | 126.4 |
| 82.5° | 85.7 | 85.7 | 85.7 | 85.7 | 85.7 |
| 85° | 45.1 | 49.6 | 54.2 | 58.7 | 63.2 |
| 87.5° | 27.1 | 27.1 | 31.6 | 36.1 | 40.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)