

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: P563541

Luminaire Tested: FSR-24-4-LD4-3STD-40-UNV-82-86-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563541
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-24-4-LD4-3STD-40-UNV-82-86-EDD
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10656.0 lumens
Efficiency: N/A
Efficacy: 106.7 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

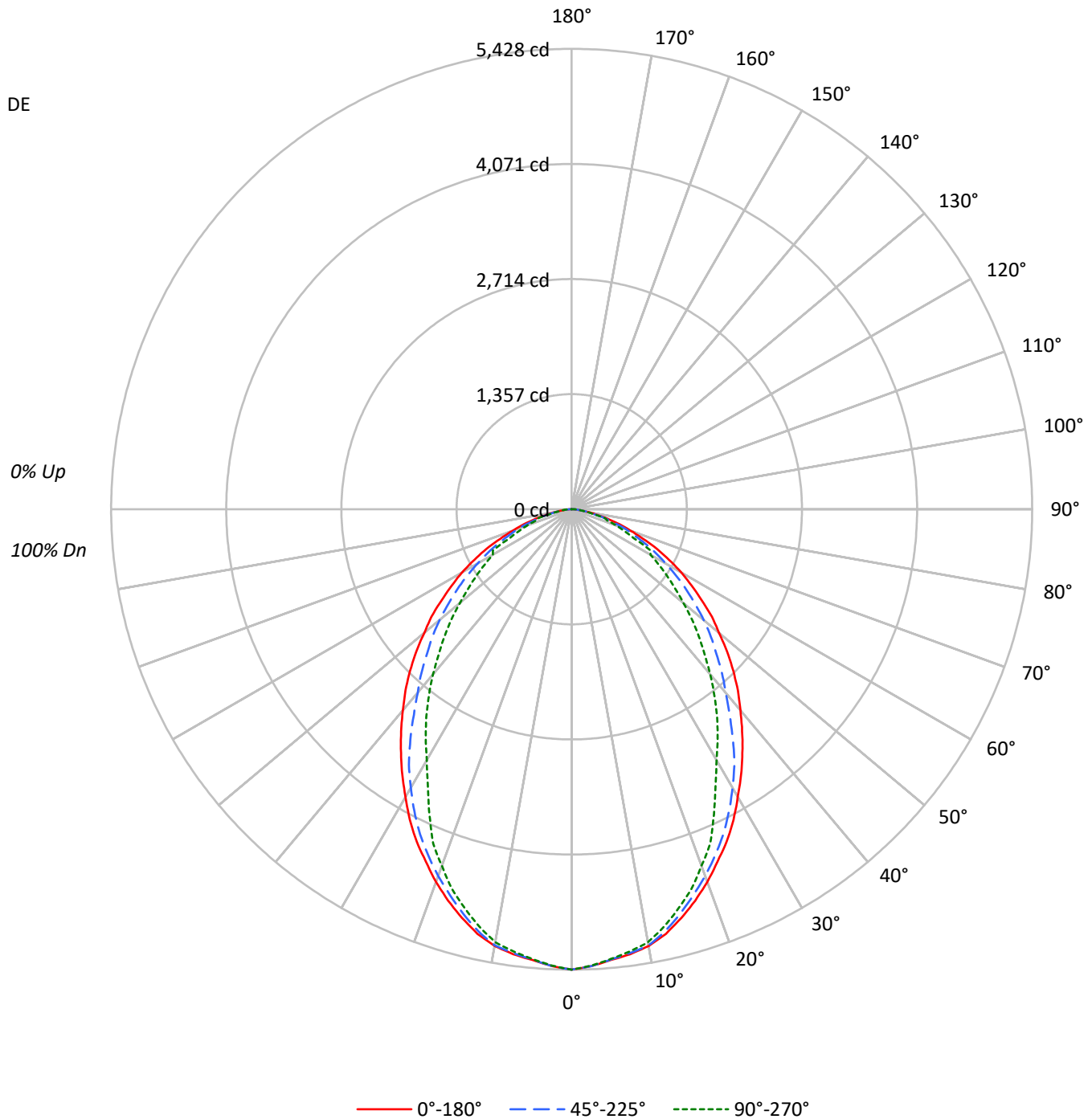
Input Watts (W): 99.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P563541

CATALOG NUMBER: FSR-24-4-LD4-3STD-40-UNV-82-86-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P563541

CATALOG NUMBER: FSR-24-4-LD4-3STD-40-UNV-82-86-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 | 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° | 7303 | 7303 | 7303 |
| 5° | 7204 | 7196 | 7187 |
| 10° | 7142 | 7133 | 7082 |
| 15° | 6949 | 6879 | 6783 |
| 20° | 6694 | 6586 | 6406 |
| 25° | 6419 | 6279 | 5888 |
| 30° | 6084 | 5889 | 5304 |
| 35° | 5762 | 5442 | 4906 |
| 40° | 5434 | 4960 | 4464 |
| 45° | 5122 | 4585 | 4036 |
| 50° | 4742 | 4256 | 3599 |
| 55° | 4387 | 3857 | 3224 |
| 60° | 4019 | 3445 | 2888 |
| 65° | 3536 | 3017 | 2557 |
| 70° | 2913 | 2641 | 2172 |
| 75° | 2316 | 2023 | 2120 |
| 80° | 1556 | 1459 | 1361 |
| 85° | 969 | 1162 | 1357 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5122 cd/sqm



TEST NUMBER: P563541

CATALOG NUMBER: FSR-24-4-LD4-3STD-40-UNV-82-86-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 505.3 | 4.7 |
| 10°-20° | 1386.7 | 13.0 |
| 20°-30° | 1919.8 | 18.0 |
| 30°-40° | 2047.0 | 19.2 |
| 40°-50° | 1867.5 | 17.5 |
| 50°-60° | 1463.0 | 13.7 |
| 60°-70° | 953.5 | 8.9 |
| 70°-80° | 422.5 | 4.0 |
| 80°-90° | 90.7 | 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° | 3811.7 | 35.8 |
| 0°-40° | 5858.8 | 55.0 |
| 0°-60° | 9189.3 | 86.2 |
| 0°-90° | 10656.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 10656.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 5428 | 5428 | 5428 | 5428 | 5428 | |
| 5° | 5334 | 5328 | 5328 | 5321 | 5321 | 506 |
| 15° | 4989 | 4989 | 4939 | 4888 | 4870 | 1402 |
| 25° | 4324 | 4298 | 4230 | 4079 | 3966 | 1985 |
| 35° | 3508 | 3483 | 3313 | 3062 | 2987 | 2193 |
| 45° | 2692 | 2636 | 2410 | 2209 | 2121 | 2074 |
| 55° | 1870 | 1814 | 1644 | 1450 | 1374 | 1677 |
| 65° | 1111 | 1048 | 948 | 966 | 803 | 1095 |
| 75° | 446 | 414 | 389 | 370 | 408 | 478 |
| 85° | 63 | 69 | 75 | 82 | 88 | 87 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563541

CATALOG NUMBER: FSR-24-4-LD4-3STD-40-UNV-82-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 5428.0 | 5428.0 | 5428.0 | 5428.0 | 5428.0 |
| 2.5° | 5390.4 | 5390.4 | 5390.4 | 5384.1 | 5384.1 |
| 5° | 5333.9 | 5327.6 | 5327.6 | 5321.3 | 5321.3 |
| 7.5° | 5290.0 | 5283.7 | 5277.4 | 5271.1 | 5258.6 |
| 10° | 5227.2 | 5227.2 | 5220.9 | 5189.6 | 5183.3 |
| 12.5° | 5126.8 | 5120.5 | 5095.4 | 5051.5 | 5039.0 |
| 15° | 4988.8 | 4988.8 | 4938.6 | 4888.4 | 4869.5 |
| 17.5° | 4838.2 | 4831.9 | 4769.1 | 4718.9 | 4693.8 |
| 20° | 4675.0 | 4662.5 | 4599.7 | 4518.1 | 4474.2 |
| 22.5° | 4493.0 | 4493.0 | 4417.7 | 4311.0 | 4267.1 |
| 25° | 4323.6 | 4298.5 | 4229.5 | 4078.9 | 3965.9 |
| 27.5° | 4129.1 | 4091.4 | 4016.1 | 3802.8 | 3671.0 |
| 30° | 3915.7 | 3896.9 | 3790.2 | 3514.1 | 3413.7 |
| 32.5° | 3714.9 | 3683.5 | 3570.6 | 3281.9 | 3200.3 |
| 35° | 3507.8 | 3482.7 | 3313.3 | 3062.3 | 2987.0 |
| 37.5° | 3300.7 | 3269.4 | 3056.0 | 2855.2 | 2761.1 |
| 40° | 3093.7 | 3056.0 | 2823.8 | 2641.8 | 2541.4 |
| 42.5° | 2899.1 | 2848.9 | 2623.0 | 2428.5 | 2315.5 |
| 45° | 2692.0 | 2635.6 | 2409.7 | 2208.9 | 2121.0 |
| 47.5° | 2485.0 | 2434.8 | 2227.7 | 2020.6 | 1920.2 |
| 50° | 2265.3 | 2221.4 | 2033.2 | 1826.1 | 1719.4 |
| 52.5° | 2083.4 | 2014.3 | 1832.4 | 1625.3 | 1537.4 |
| 55° | 1870.0 | 1813.5 | 1644.1 | 1449.6 | 1374.3 |
| 57.5° | 1675.5 | 1619.0 | 1462.1 | 1280.1 | 1217.4 |
| 60° | 1493.5 | 1411.9 | 1280.1 | 1123.3 | 1073.1 |
| 62.5° | 1292.7 | 1229.9 | 1117.0 | 985.2 | 1048.0 |
| 65° | 1110.7 | 1048.0 | 947.6 | 966.4 | 803.2 |
| 67.5° | 909.9 | 878.5 | 790.7 | 702.8 | 677.7 |
| 70° | 740.5 | 702.8 | 671.4 | 577.3 | 552.2 |
| 72.5° | 589.9 | 552.2 | 508.3 | 458.1 | 439.3 |
| 75° | 445.5 | 414.2 | 389.1 | 370.2 | 407.9 |
| 77.5° | 307.5 | 294.9 | 276.1 | 257.3 | 251.0 |
| 80° | 200.8 | 194.5 | 188.3 | 182.0 | 175.7 |
| 82.5° | 119.2 | 119.2 | 119.2 | 119.2 | 119.2 |
| 85° | 62.8 | 69.0 | 75.3 | 81.6 | 87.9 |
| 87.5° | 37.7 | 37.7 | 43.9 | 50.2 | 56.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)