

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: P563340

Luminaire Tested: FSR-24-4-LD4-3LO-40-UNV-81-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563340
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-LD4-3LO-40-UNV-81-96-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6986.0 lumens
Efficiency: N/A
Efficacy: 99.5 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

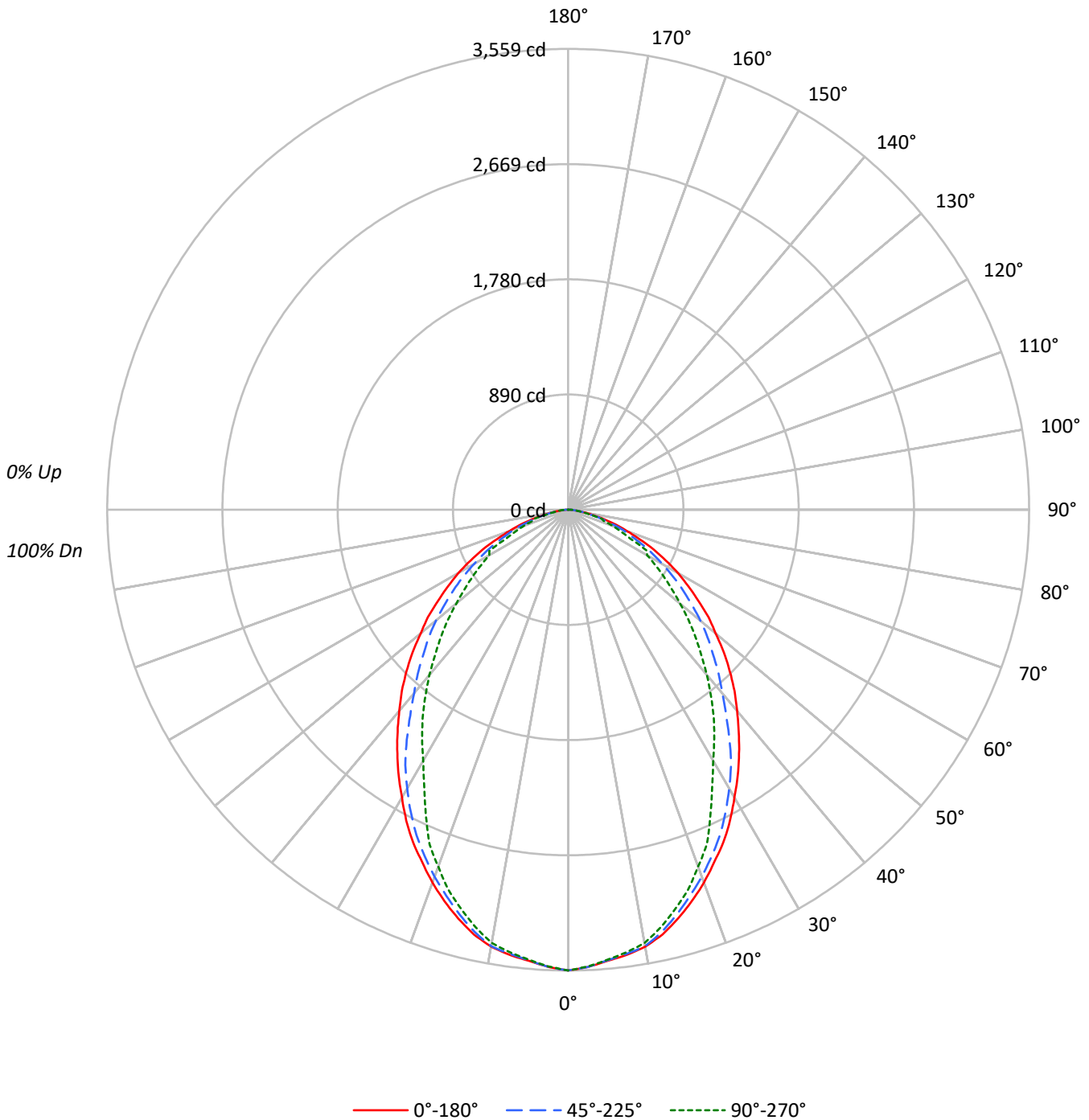
Input Watts (W): 70.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563340

CATALOG NUMBER: FSR-24-4-LD4-3LO-40-UNV-81-96-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 | 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° | 4788 | 4788 | 4788 |
| 5° | 4723 | 4717 | 4712 |
| 10° | 4682 | 4676 | 4643 |
| 15° | 4556 | 4510 | 4447 |
| 20° | 4388 | 4318 | 4200 |
| 25° | 4208 | 4116 | 3860 |
| 30° | 3988 | 3860 | 3477 |
| 35° | 3777 | 3568 | 3216 |
| 40° | 3562 | 3252 | 2927 |
| 45° | 3358 | 3006 | 2646 |
| 50° | 3109 | 2790 | 2359 |
| 55° | 2876 | 2529 | 2114 |
| 60° | 2635 | 2258 | 1893 |
| 65° | 2318 | 1978 | 1677 |
| 70° | 1910 | 1732 | 1424 |
| 75° | 1519 | 1326 | 1390 |
| 80° | 1020 | 956 | 893 |
| 85° | 634 | 763 | 889 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3358 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 331.3 | 4.7 |
| 10°-20° | 909.1 | 13.0 |
| 20°-30° | 1258.6 | 18.0 |
| 30°-40° | 1342.0 | 19.2 |
| 40°-50° | 1224.3 | 17.5 |
| 50°-60° | 959.2 | 13.7 |
| 60°-70° | 625.1 | 8.9 |
| 70°-80° | 277.0 | 4.0 |
| 80°-90° | 59.5 | 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° | 2498.9 | 35.8 |
| 0°-40° | 3841.0 | 55.0 |
| 0°-60° | 6024.4 | 86.2 |
| 0°-90° | 6986.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6986.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3559 | 3559 | 3559 | 3559 | 3559 | |
| 5° | 3497 | 3493 | 3493 | 3489 | 3489 | 332 |
| 15° | 3271 | 3271 | 3238 | 3205 | 3192 | 919 |
| 25° | 2834 | 2818 | 2773 | 2674 | 2600 | 1301 |
| 35° | 2300 | 2283 | 2172 | 2008 | 1958 | 1438 |
| 45° | 1765 | 1728 | 1580 | 1448 | 1390 | 1359 |
| 55° | 1226 | 1189 | 1078 | 950 | 901 | 1100 |
| 65° | 728 | 687 | 621 | 634 | 527 | 718 |
| 75° | 292 | 272 | 255 | 243 | 267 | 313 |
| 85° | 41 | 45 | 49 | 54 | 58 | 57 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563340

CATALOG NUMBER: FSR-24-4-LD4-3LO-40-UNV-81-96-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3558.6 | 3558.6 | 3558.6 | 3558.6 | 3558.6 |
| 2.5° | 3533.9 | 3533.9 | 3533.9 | 3529.8 | 3529.8 |
| 5° | 3496.9 | 3492.8 | 3492.8 | 3488.6 | 3488.6 |
| 7.5° | 3468.1 | 3464.0 | 3459.8 | 3455.7 | 3447.5 |
| 10° | 3426.9 | 3426.9 | 3422.8 | 3402.2 | 3398.1 |
| 12.5° | 3361.1 | 3357.0 | 3340.5 | 3311.7 | 3303.5 |
| 15° | 3270.6 | 3270.6 | 3237.7 | 3204.8 | 3192.4 |
| 17.5° | 3171.9 | 3167.7 | 3126.6 | 3093.7 | 3077.2 |
| 20° | 3064.9 | 3056.7 | 3015.5 | 2962.1 | 2933.3 |
| 22.5° | 2945.6 | 2945.6 | 2896.2 | 2826.3 | 2797.5 |
| 25° | 2834.5 | 2818.1 | 2772.8 | 2674.1 | 2600.0 |
| 27.5° | 2707.0 | 2682.3 | 2632.9 | 2493.1 | 2406.7 |
| 30° | 2567.1 | 2554.8 | 2484.8 | 2303.8 | 2238.0 |
| 32.5° | 2435.5 | 2414.9 | 2340.8 | 2151.6 | 2098.1 |
| 35° | 2299.7 | 2283.2 | 2172.2 | 2007.6 | 1958.2 |
| 37.5° | 2163.9 | 2143.4 | 2003.5 | 1871.9 | 1810.1 |
| 40° | 2028.2 | 2003.5 | 1851.3 | 1732.0 | 1666.2 |
| 42.5° | 1900.6 | 1867.7 | 1719.6 | 1592.1 | 1518.1 |
| 45° | 1764.9 | 1727.9 | 1579.8 | 1448.1 | 1390.5 |
| 47.5° | 1629.1 | 1596.2 | 1460.5 | 1324.7 | 1258.9 |
| 50° | 1485.1 | 1456.3 | 1332.9 | 1197.2 | 1127.2 |
| 52.5° | 1365.8 | 1320.6 | 1201.3 | 1065.5 | 1007.9 |
| 55° | 1226.0 | 1188.9 | 1077.9 | 950.3 | 901.0 |
| 57.5° | 1098.4 | 1061.4 | 958.6 | 839.2 | 798.1 |
| 60° | 979.1 | 925.6 | 839.2 | 736.4 | 703.5 |
| 62.5° | 847.5 | 806.3 | 732.3 | 645.9 | 687.0 |
| 65° | 728.2 | 687.0 | 621.2 | 633.5 | 526.6 |
| 67.5° | 596.5 | 576.0 | 518.4 | 460.8 | 444.3 |
| 70° | 485.4 | 460.8 | 440.2 | 378.5 | 362.0 |
| 72.5° | 386.7 | 362.0 | 333.2 | 300.3 | 288.0 |
| 75° | 292.1 | 271.5 | 255.1 | 242.7 | 267.4 |
| 77.5° | 201.6 | 193.4 | 181.0 | 168.7 | 164.6 |
| 80° | 131.6 | 127.5 | 123.4 | 119.3 | 115.2 |
| 82.5° | 78.2 | 78.2 | 78.2 | 78.2 | 78.2 |
| 85° | 41.1 | 45.3 | 49.4 | 53.5 | 57.6 |
| 87.5° | 24.7 | 24.7 | 28.8 | 32.9 | 37.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)