

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: P563820

Luminaire Tested: FSR-24-4-LD4-4HI-50-UNV-93-96-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563820
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-LD4-4HI-50-UNV-93-96-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16993.0 lumens
Efficiency: N/A
Efficacy: 98.3 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

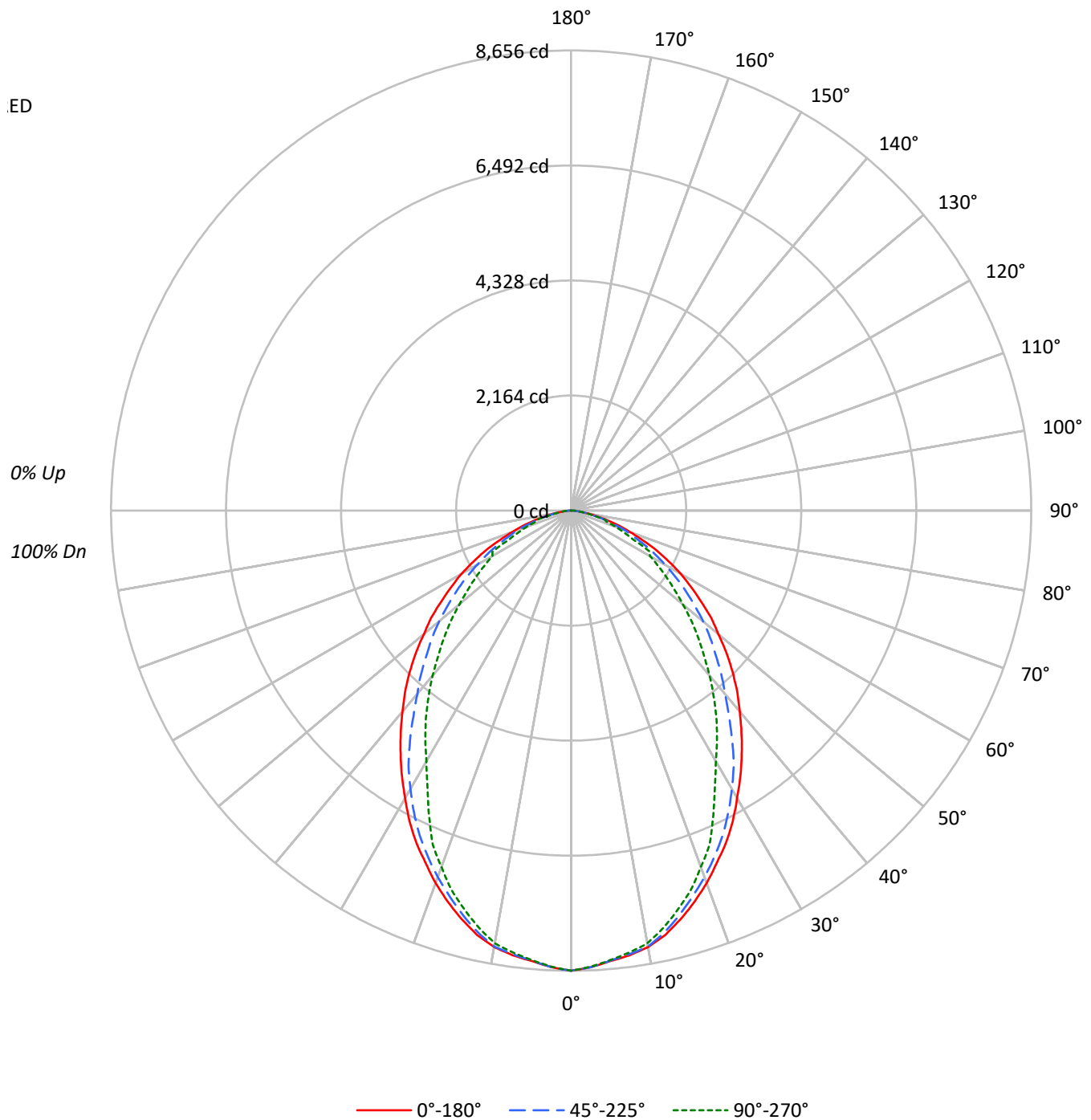
Input Watts (W): 172.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P563820

CATALOG NUMBER: FSR-24-4-LD4-4HI-50-UNV-93-96-EDD-90

Luminous Intensity Polar Plot





TEST NUMBER: P563820

CATALOG NUMBER: FSR-24-4-LD4-4HI-50-UNV-93-96-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 | 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 | | | | |
| 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° | 11647 | 11647 | 11647 |
| 5° | 11488 | 11475 | 11461 |
| 10° | 11389 | 11375 | 11293 |
| 15° | 11082 | 10970 | 10817 |
| 20° | 10675 | 10503 | 10216 |
| 25° | 10236 | 10013 | 9389 |
| 30° | 9701 | 9390 | 8458 |
| 35° | 9188 | 8679 | 7824 |
| 40° | 8665 | 7909 | 7118 |
| 45° | 8169 | 7312 | 6436 |
| 50° | 7562 | 6787 | 5739 |
| 55° | 6995 | 6150 | 5141 |
| 60° | 6409 | 5493 | 4605 |
| 65° | 5639 | 4811 | 4078 |
| 70° | 4645 | 4212 | 3464 |
| 75° | 3694 | 3225 | 3382 |
| 80° | 2481 | 2326 | 2171 |
| 85° | 1545 | 1854 | 2163 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 8169 cd/sqm



TEST NUMBER: P563820

CATALOG NUMBER: FSR-24-4-LD4-4HI-50-UNV-93-96-EDD-90

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 805.8 | 4.7 |
| 10°-20° | 2211.3 | 13.0 |
| 20°-30° | 3061.4 | 18.0 |
| 30°-40° | 3264.4 | 19.2 |
| 40°-50° | 2978.1 | 17.5 |
| 50°-60° | 2333.1 | 13.7 |
| 60°-70° | 1520.6 | 8.9 |
| 70°-80° | 673.7 | 4.0 |
| 80°-90° | 144.6 | 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° | 6078.5 | 35.8 |
| 0°-40° | 9342.9 | 55.0 |
| 0°-60° | 14654.1 | 86.2 |
| 0°-90° | 16993.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 16993.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 8656 | 8656 | 8656 | 8656 | 8656 | |
| 5° | 8506 | 8496 | 8496 | 8486 | 8486 | 807 |
| 15° | 7956 | 7956 | 7876 | 7795 | 7765 | 2237 |
| 25° | 6895 | 6855 | 6745 | 6504 | 6324 | 3165 |
| 35° | 5594 | 5554 | 5284 | 4883 | 4763 | 3497 |
| 45° | 4293 | 4203 | 3843 | 3522 | 3382 | 3307 |
| 55° | 2982 | 2892 | 2622 | 2312 | 2192 | 2675 |
| 65° | 1771 | 1671 | 1511 | 1541 | 1281 | 1746 |
| 75° | 710 | 660 | 620 | 590 | 650 | 761 |
| 85° | 100 | 110 | 120 | 130 | 140 | 139 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563820

CATALOG NUMBER: FSR-24-4-LD4-4HI-50-UNV-93-96-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 8656.0 | 8656.0 | 8656.0 | 8656.0 | 8656.0 |
| 2.5° | 8596.0 | 8596.0 | 8596.0 | 8586.0 | 8586.0 |
| 5° | 8505.9 | 8495.9 | 8495.9 | 8485.9 | 8485.9 |
| 7.5° | 8435.9 | 8425.8 | 8415.8 | 8405.8 | 8385.8 |
| 10° | 8335.8 | 8335.8 | 8325.8 | 8275.7 | 8265.7 |
| 12.5° | 8175.7 | 8165.7 | 8125.6 | 8055.6 | 8035.6 |
| 15° | 7955.5 | 7955.5 | 7875.5 | 7795.4 | 7765.4 |
| 17.5° | 7715.4 | 7705.3 | 7605.3 | 7525.2 | 7485.2 |
| 20° | 7455.2 | 7435.2 | 7335.1 | 7205.0 | 7135.0 |
| 22.5° | 7165.0 | 7165.0 | 7044.9 | 6874.8 | 6804.7 |
| 25° | 6894.8 | 6854.8 | 6744.7 | 6504.5 | 6324.4 |
| 27.5° | 6584.6 | 6524.5 | 6404.4 | 6064.2 | 5854.1 |
| 30° | 6244.3 | 6214.3 | 6044.2 | 5603.9 | 5443.8 |
| 32.5° | 5924.1 | 5874.1 | 5694.0 | 5233.6 | 5103.5 |
| 35° | 5593.9 | 5553.9 | 5283.7 | 4883.4 | 4763.3 |
| 37.5° | 5263.7 | 5213.6 | 4873.4 | 4553.2 | 4403.1 |
| 40° | 4933.4 | 4873.4 | 4503.1 | 4212.9 | 4052.8 |
| 42.5° | 4623.2 | 4543.2 | 4182.9 | 3872.7 | 3692.6 |
| 45° | 4293.0 | 4202.9 | 3842.7 | 3522.4 | 3382.3 |
| 47.5° | 3962.8 | 3882.7 | 3552.5 | 3222.2 | 3062.1 |
| 50° | 3612.5 | 3542.5 | 3242.3 | 2912.0 | 2741.9 |
| 52.5° | 3322.3 | 3212.2 | 2922.0 | 2591.8 | 2451.7 |
| 55° | 2982.1 | 2892.0 | 2621.8 | 2311.6 | 2191.5 |
| 57.5° | 2671.9 | 2581.8 | 2331.6 | 2041.4 | 1941.3 |
| 60° | 2381.7 | 2251.6 | 2041.4 | 1791.2 | 1711.2 |
| 62.5° | 2061.4 | 1961.4 | 1781.2 | 1571.1 | 1671.2 |
| 65° | 1771.2 | 1671.2 | 1511.0 | 1541.1 | 1280.9 |
| 67.5° | 1451.0 | 1401.0 | 1260.9 | 1120.8 | 1080.8 |
| 70° | 1180.8 | 1120.8 | 1070.7 | 920.6 | 880.6 |
| 72.5° | 940.7 | 880.6 | 810.6 | 730.5 | 700.5 |
| 75° | 710.5 | 660.5 | 620.4 | 590.4 | 650.5 |
| 77.5° | 490.3 | 470.3 | 440.3 | 410.3 | 400.3 |
| 80° | 320.2 | 310.2 | 300.2 | 290.2 | 280.2 |
| 82.5° | 190.1 | 190.1 | 190.1 | 190.1 | 190.1 |
| 85° | 100.1 | 110.1 | 120.1 | 130.1 | 140.1 |
| 87.5° | 60.0 | 60.0 | 70.0 | 80.1 | 90.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)