

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: P562344

Luminaire Tested: FSR-24-4-LD4-1STD-35-UNV-93-88-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562344
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-LD4-1STD-35-UNV-93-88-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2763.0 lumens
Efficiency: N/A
Efficacy: 83.0 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

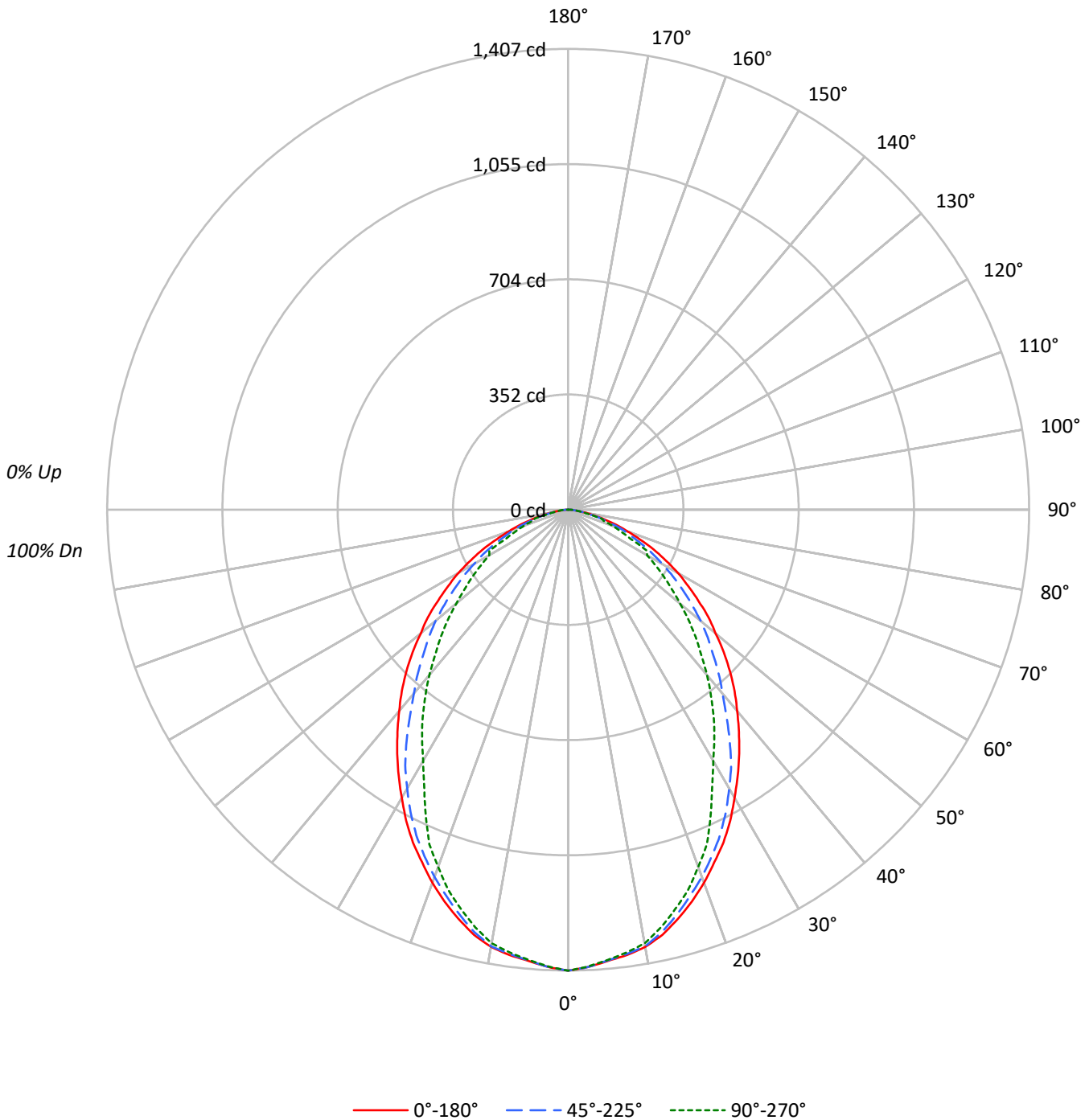
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562344

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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° | 1894 | 1894 | 1894 |
| 5° | 1868 | 1866 | 1864 |
| 10° | 1852 | 1849 | 1836 |
| 15° | 1802 | 1784 | 1759 |
| 20° | 1736 | 1708 | 1661 |
| 25° | 1664 | 1628 | 1527 |
| 30° | 1577 | 1527 | 1375 |
| 35° | 1494 | 1411 | 1272 |
| 40° | 1409 | 1286 | 1157 |
| 45° | 1328 | 1189 | 1047 |
| 50° | 1230 | 1104 | 933 |
| 55° | 1137 | 1000 | 836 |
| 60° | 1042 | 893 | 749 |
| 65° | 917 | 782 | 663 |
| 70° | 755 | 685 | 563 |
| 75° | 600 | 525 | 550 |
| 80° | 404 | 378 | 353 |
| 85° | 252 | 301 | 352 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1328 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 131.0 | 4.7 |
| 10°-20° | 359.6 | 13.0 |
| 20°-30° | 497.8 | 18.0 |
| 30°-40° | 530.8 | 19.2 |
| 40°-50° | 484.2 | 17.5 |
| 50°-60° | 379.3 | 13.7 |
| 60°-70° | 247.2 | 8.9 |
| 70°-80° | 109.5 | 4.0 |
| 80°-90° | 23.5 | 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° | 988.3 | 35.8 |
| 0°-40° | 1519.1 | 55.0 |
| 0°-60° | 2382.7 | 86.2 |
| 0°-90° | 2763.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2763.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1407 | 1407 | 1407 | 1407 | 1407 | |
| 5° | 1383 | 1381 | 1381 | 1380 | 1380 | 131 |
| 15° | 1294 | 1294 | 1280 | 1268 | 1263 | 364 |
| 25° | 1121 | 1115 | 1097 | 1058 | 1028 | 515 |
| 35° | 910 | 903 | 859 | 794 | 774 | 569 |
| 45° | 698 | 683 | 625 | 573 | 550 | 538 |
| 55° | 485 | 470 | 426 | 376 | 356 | 435 |
| 65° | 288 | 272 | 246 | 251 | 208 | 284 |
| 75° | 116 | 107 | 101 | 96 | 106 | 124 |
| 85° | 16 | 18 | 20 | 21 | 23 | 23 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562344

CATALOG NUMBER: FSR-24-4-LD4-1STD-35-UNV-93-88-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1407.4 | 1407.4 | 1407.4 | 1407.4 | 1407.4 |
| 2.5° | 1397.7 | 1397.7 | 1397.7 | 1396.0 | 1396.0 |
| 5° | 1383.0 | 1381.4 | 1381.4 | 1379.8 | 1379.8 |
| 7.5° | 1371.6 | 1370.0 | 1368.4 | 1366.8 | 1363.5 |
| 10° | 1355.4 | 1355.4 | 1353.7 | 1345.6 | 1344.0 |
| 12.5° | 1329.3 | 1327.7 | 1321.2 | 1309.8 | 1306.6 |
| 15° | 1293.5 | 1293.5 | 1280.5 | 1267.5 | 1262.6 |
| 17.5° | 1254.5 | 1252.9 | 1236.6 | 1223.6 | 1217.1 |
| 20° | 1212.2 | 1208.9 | 1192.7 | 1171.5 | 1160.1 |
| 22.5° | 1165.0 | 1165.0 | 1145.5 | 1117.8 | 1106.4 |
| 25° | 1121.1 | 1114.6 | 1096.7 | 1057.6 | 1028.3 |
| 27.5° | 1070.6 | 1060.9 | 1041.3 | 986.0 | 951.8 |
| 30° | 1015.3 | 1010.4 | 982.8 | 911.2 | 885.1 |
| 32.5° | 963.2 | 955.1 | 925.8 | 851.0 | 829.8 |
| 35° | 909.5 | 903.0 | 859.1 | 794.0 | 774.5 |
| 37.5° | 855.9 | 847.7 | 792.4 | 740.3 | 715.9 |
| 40° | 802.2 | 792.4 | 732.2 | 685.0 | 659.0 |
| 42.5° | 751.7 | 738.7 | 680.1 | 629.7 | 600.4 |
| 45° | 698.0 | 683.4 | 624.8 | 572.7 | 550.0 |
| 47.5° | 644.3 | 631.3 | 577.6 | 523.9 | 497.9 |
| 50° | 587.4 | 576.0 | 527.2 | 473.5 | 445.8 |
| 52.5° | 540.2 | 522.3 | 475.1 | 421.4 | 398.6 |
| 55° | 484.9 | 470.2 | 426.3 | 375.9 | 356.3 |
| 57.5° | 434.4 | 419.8 | 379.1 | 331.9 | 315.7 |
| 60° | 387.2 | 366.1 | 331.9 | 291.2 | 278.2 |
| 62.5° | 335.2 | 318.9 | 289.6 | 255.5 | 271.7 |
| 65° | 288.0 | 271.7 | 245.7 | 250.6 | 208.3 |
| 67.5° | 235.9 | 227.8 | 205.0 | 182.2 | 175.7 |
| 70° | 192.0 | 182.2 | 174.1 | 149.7 | 143.2 |
| 72.5° | 152.9 | 143.2 | 131.8 | 118.8 | 113.9 |
| 75° | 115.5 | 107.4 | 100.9 | 96.0 | 105.8 |
| 77.5° | 79.7 | 76.5 | 71.6 | 66.7 | 65.1 |
| 80° | 52.1 | 50.4 | 48.8 | 47.2 | 45.6 |
| 82.5° | 30.9 | 30.9 | 30.9 | 30.9 | 30.9 |
| 85° | 16.3 | 17.9 | 19.5 | 21.2 | 22.8 |
| 87.5° | 9.8 | 9.8 | 11.4 | 13.0 | 14.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)