

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: P562711

Luminaire Tested: FSR-24-4-LD4-2LO-35-UNV-82-87-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562711
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-LD4-2LO-35-UNV-82-87-EDD
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

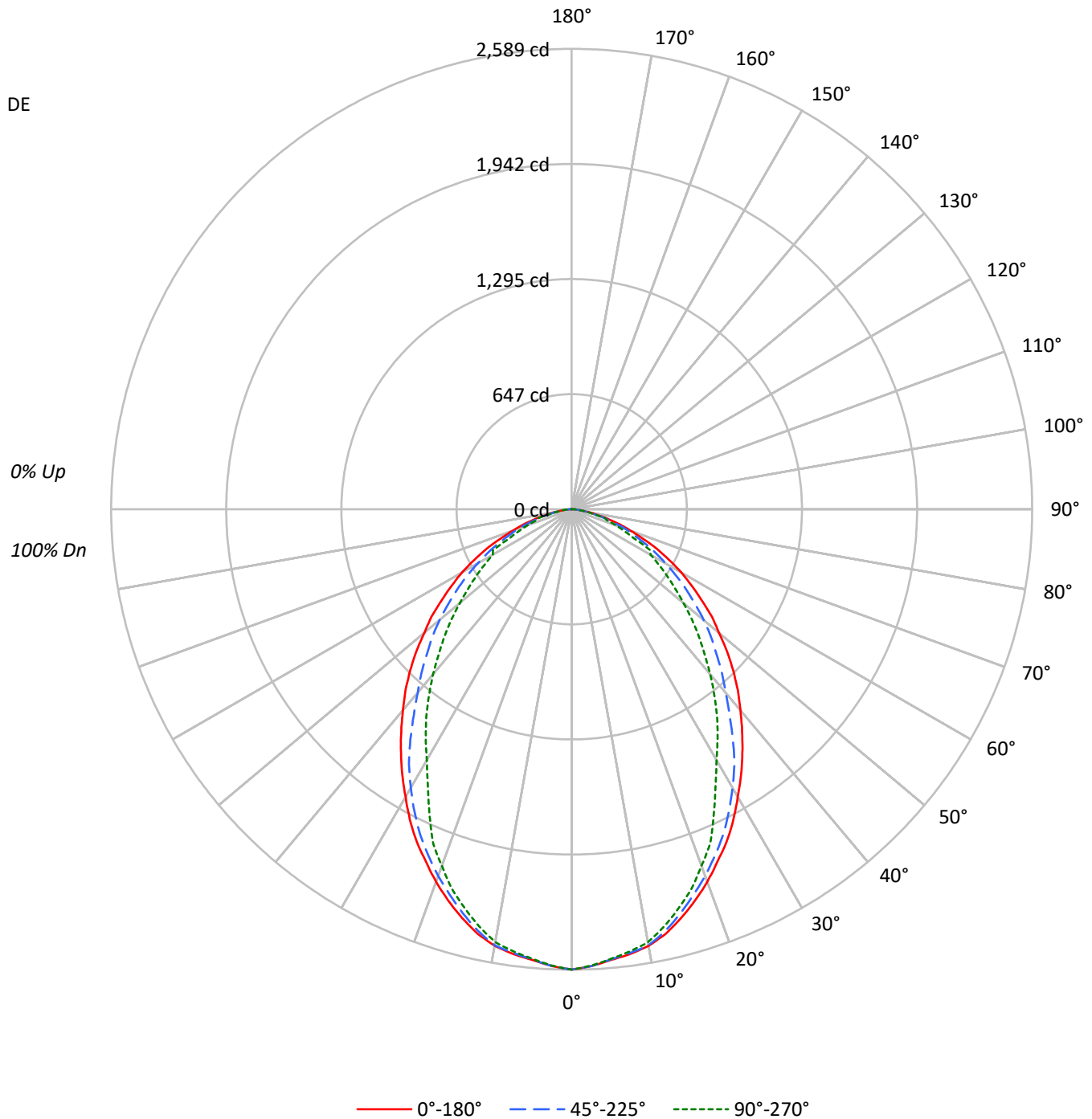
Lumens per Lamp: N/A
Luminaire Lumens: 5082.0 lumens
Efficiency: N/A
Efficacy: 108.6 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 46.8
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



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Luminous Intensity Polar Plot





TEST NUMBER: P562711

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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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 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° | 3483 | 3483 | 3483 |
| 5° | 3436 | 3432 | 3428 |
| 10° | 3406 | 3402 | 3377 |
| 15° | 3314 | 3281 | 3235 |
| 20° | 3192 | 3141 | 3055 |
| 25° | 3061 | 2995 | 2808 |
| 30° | 2901 | 2808 | 2529 |
| 35° | 2748 | 2596 | 2340 |
| 40° | 2591 | 2365 | 2129 |
| 45° | 2443 | 2187 | 1925 |
| 50° | 2262 | 2030 | 1716 |
| 55° | 2092 | 1839 | 1537 |
| 60° | 1917 | 1643 | 1377 |
| 65° | 1686 | 1439 | 1220 |
| 70° | 1389 | 1260 | 1036 |
| 75° | 1105 | 964 | 1011 |
| 80° | 742 | 696 | 649 |
| 85° | 462 | 554 | 647 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2443 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 241.0 | 4.7 |
| 10°-20° | 661.3 | 13.0 |
| 20°-30° | 915.6 | 18.0 |
| 30°-40° | 976.3 | 19.2 |
| 40°-50° | 890.6 | 17.5 |
| 50°-60° | 697.7 | 13.7 |
| 60°-70° | 454.8 | 8.9 |
| 70°-80° | 201.5 | 4.0 |
| 80°-90° | 43.3 | 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° | 1817.9 | 35.8 |
| 0°-40° | 2794.1 | 55.0 |
| 0°-60° | 4382.5 | 86.2 |
| 0°-90° | 5082.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5082.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2589 | 2589 | 2589 | 2589 | 2589 | |
| 5° | 2544 | 2541 | 2541 | 2538 | 2538 | 241 |
| 15° | 2379 | 2379 | 2355 | 2331 | 2322 | 669 |
| 25° | 2062 | 2050 | 2017 | 1945 | 1891 | 947 |
| 35° | 1673 | 1661 | 1580 | 1460 | 1424 | 1046 |
| 45° | 1284 | 1257 | 1149 | 1053 | 1012 | 989 |
| 55° | 892 | 865 | 784 | 691 | 655 | 800 |
| 65° | 530 | 500 | 452 | 461 | 383 | 522 |
| 75° | 212 | 198 | 186 | 177 | 194 | 228 |
| 85° | 30 | 33 | 36 | 39 | 42 | 42 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562711

CATALOG NUMBER: FSR-24-4-LD4-2LO-35-UNV-82-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2588.7 | 2588.7 | 2588.7 | 2588.7 | 2588.7 |
| 2.5° | 2570.7 | 2570.7 | 2570.7 | 2567.8 | 2567.8 |
| 5° | 2543.8 | 2540.8 | 2540.8 | 2537.8 | 2537.8 |
| 7.5° | 2522.9 | 2519.9 | 2516.9 | 2513.9 | 2507.9 |
| 10° | 2492.9 | 2492.9 | 2489.9 | 2475.0 | 2472.0 |
| 12.5° | 2445.1 | 2442.1 | 2430.1 | 2409.1 | 2403.2 |
| 15° | 2379.2 | 2379.2 | 2355.3 | 2331.3 | 2322.4 |
| 17.5° | 2307.4 | 2304.4 | 2274.5 | 2250.5 | 2238.6 |
| 20° | 2229.6 | 2223.6 | 2193.7 | 2154.8 | 2133.8 |
| 22.5° | 2142.8 | 2142.8 | 2106.9 | 2056.0 | 2035.0 |
| 25° | 2062.0 | 2050.0 | 2017.1 | 1945.3 | 1891.4 |
| 27.5° | 1969.2 | 1951.3 | 1915.3 | 1813.6 | 1750.7 |
| 30° | 1867.5 | 1858.5 | 1807.6 | 1675.9 | 1628.0 |
| 32.5° | 1771.7 | 1756.7 | 1702.9 | 1565.2 | 1526.3 |
| 35° | 1672.9 | 1661.0 | 1580.2 | 1460.4 | 1424.5 |
| 37.5° | 1574.2 | 1559.2 | 1457.5 | 1361.7 | 1316.8 |
| 40° | 1475.4 | 1457.5 | 1346.7 | 1259.9 | 1212.1 |
| 42.5° | 1382.6 | 1358.7 | 1251.0 | 1158.2 | 1104.3 |
| 45° | 1283.9 | 1256.9 | 1149.2 | 1053.4 | 1011.5 |
| 47.5° | 1185.1 | 1161.2 | 1062.4 | 963.7 | 915.8 |
| 50° | 1080.4 | 1059.4 | 969.6 | 870.9 | 820.0 |
| 52.5° | 993.6 | 960.7 | 873.9 | 775.1 | 733.2 |
| 55° | 891.8 | 864.9 | 784.1 | 691.3 | 655.4 |
| 57.5° | 799.1 | 772.1 | 697.3 | 610.5 | 580.6 |
| 60° | 712.3 | 673.4 | 610.5 | 535.7 | 511.8 |
| 62.5° | 616.5 | 586.6 | 532.7 | 469.9 | 499.8 |
| 65° | 529.7 | 499.8 | 451.9 | 460.9 | 383.1 |
| 67.5° | 433.9 | 419.0 | 377.1 | 335.2 | 323.2 |
| 70° | 353.1 | 335.2 | 320.2 | 275.3 | 263.4 |
| 72.5° | 281.3 | 263.4 | 242.4 | 218.5 | 209.5 |
| 75° | 212.5 | 197.5 | 185.5 | 176.6 | 194.5 |
| 77.5° | 146.6 | 140.7 | 131.7 | 122.7 | 119.7 |
| 80° | 95.8 | 92.8 | 89.8 | 86.8 | 83.8 |
| 82.5° | 56.9 | 56.9 | 56.9 | 56.9 | 56.9 |
| 85° | 29.9 | 32.9 | 35.9 | 38.9 | 41.9 |
| 87.5° | 18.0 | 18.0 | 20.9 | 23.9 | 26.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)