

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: P561738

Luminaire Tested: FSR-12-4-LD4-2STD-35-UNV-81-94-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P561738
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-12-4-LD4-2STD-35-UNV-81-94-EDD-90
Description: 1X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5293.0 lumens
Efficiency: N/A
Efficacy: 79.5 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

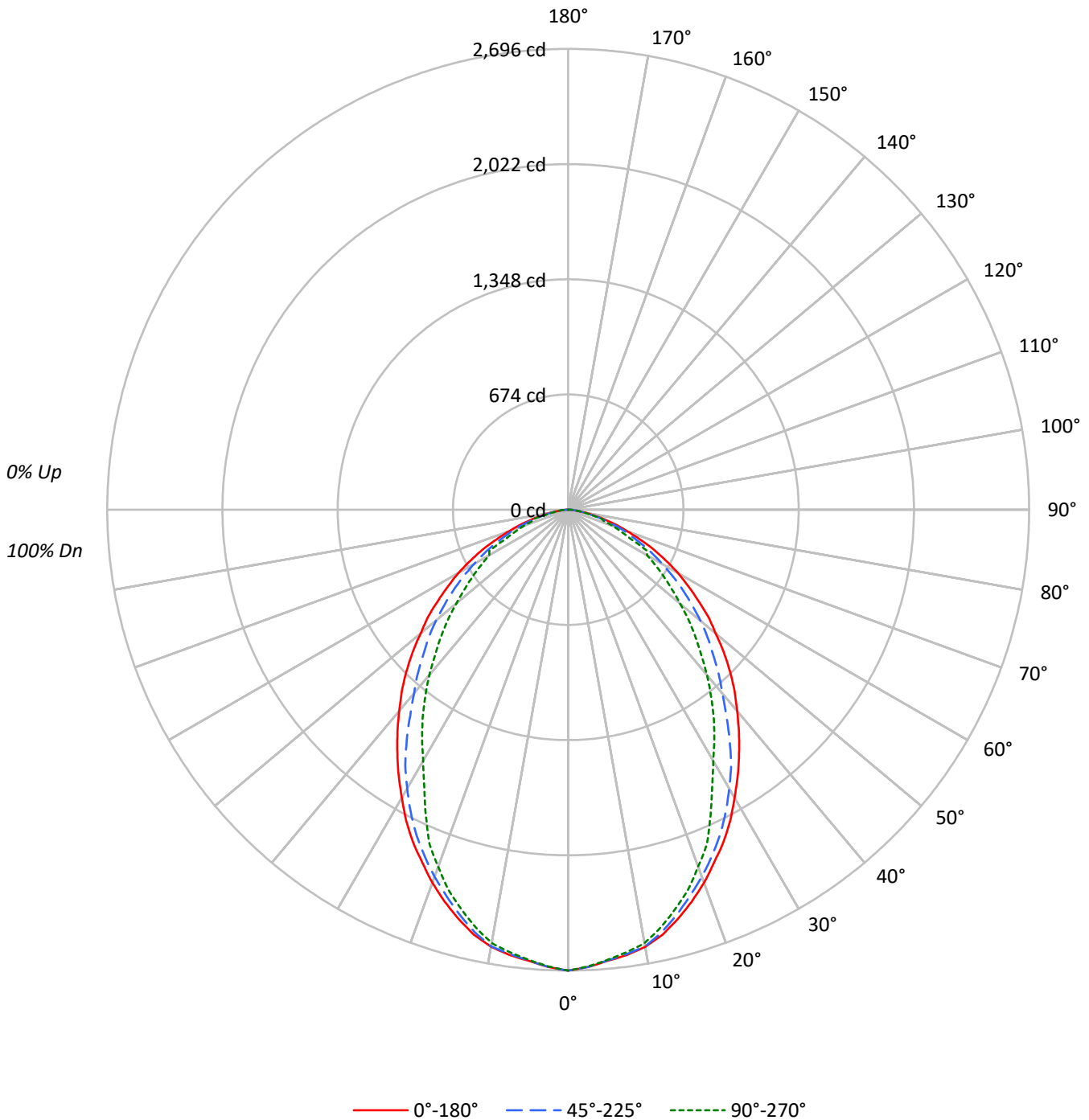
Input Watts (W): 66.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P561738

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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 | 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° | 7255 | 7255 | 7255 |
| 5° | 7157 | 7148 | 7140 |
| 10° | 7095 | 7086 | 7035 |
| 15° | 6903 | 6834 | 6739 |
| 20° | 6650 | 6543 | 6364 |
| 25° | 6377 | 6238 | 5849 |
| 30° | 6044 | 5850 | 5269 |
| 35° | 5724 | 5407 | 4874 |
| 40° | 5398 | 4927 | 4435 |
| 45° | 5089 | 4555 | 4009 |
| 50° | 4711 | 4228 | 3576 |
| 55° | 4358 | 3831 | 3202 |
| 60° | 3992 | 3422 | 2869 |
| 65° | 3513 | 2997 | 2541 |
| 70° | 2894 | 2624 | 2158 |
| 75° | 2301 | 2010 | 2106 |
| 80° | 1545 | 1449 | 1353 |
| 85° | 963 | 1155 | 1346 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5089 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 251.0 | 4.7 |
| 10°-20° | 688.8 | 13.0 |
| 20°-30° | 953.6 | 18.0 |
| 30°-40° | 1016.8 | 19.2 |
| 40°-50° | 927.6 | 17.5 |
| 50°-60° | 726.7 | 13.7 |
| 60°-70° | 473.6 | 8.9 |
| 70°-80° | 209.8 | 4.0 |
| 80°-90° | 45.0 | 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° | 1893.4 | 35.8 |
| 0°-40° | 2910.2 | 55.0 |
| 0°-60° | 4564.5 | 86.2 |
| 0°-90° | 5293.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5293.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2696 | 2696 | 2696 | 2696 | 2696 | |
| 5° | 2649 | 2646 | 2646 | 2643 | 2643 | 251 |
| 15° | 2478 | 2478 | 2453 | 2428 | 2419 | 697 |
| 25° | 2148 | 2135 | 2101 | 2026 | 1970 | 986 |
| 35° | 1742 | 1730 | 1646 | 1521 | 1484 | 1089 |
| 45° | 1337 | 1309 | 1197 | 1097 | 1054 | 1030 |
| 55° | 929 | 901 | 817 | 720 | 683 | 833 |
| 65° | 552 | 520 | 471 | 480 | 399 | 544 |
| 75° | 221 | 206 | 193 | 184 | 203 | 237 |
| 85° | 31 | 34 | 37 | 40 | 44 | 43 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2696.2 | 2696.2 | 2696.2 | 2696.2 | 2696.2 |
| 2.5° | 2677.5 | 2677.5 | 2677.5 | 2674.4 | 2674.4 |
| 5° | 2649.4 | 2646.3 | 2646.3 | 2643.2 | 2643.2 |
| 7.5° | 2627.6 | 2624.5 | 2621.4 | 2618.3 | 2612.0 |
| 10° | 2596.4 | 2596.4 | 2593.3 | 2577.7 | 2574.6 |
| 12.5° | 2546.6 | 2543.5 | 2531.0 | 2509.2 | 2502.9 |
| 15° | 2478.0 | 2478.0 | 2453.1 | 2428.1 | 2418.8 |
| 17.5° | 2403.2 | 2400.1 | 2368.9 | 2344.0 | 2331.5 |
| 20° | 2322.1 | 2315.9 | 2284.7 | 2244.2 | 2222.4 |
| 22.5° | 2231.8 | 2231.8 | 2194.4 | 2141.4 | 2119.5 |
| 25° | 2147.6 | 2135.1 | 2100.8 | 2026.0 | 1969.9 |
| 27.5° | 2051.0 | 2032.3 | 1994.9 | 1888.9 | 1823.4 |
| 30° | 1945.0 | 1935.6 | 1882.7 | 1745.5 | 1695.6 |
| 32.5° | 1845.2 | 1829.7 | 1773.6 | 1630.2 | 1589.7 |
| 35° | 1742.4 | 1729.9 | 1645.8 | 1521.1 | 1483.7 |
| 37.5° | 1639.5 | 1623.9 | 1518.0 | 1418.2 | 1371.5 |
| 40° | 1536.7 | 1518.0 | 1402.6 | 1312.2 | 1262.4 |
| 42.5° | 1440.0 | 1415.1 | 1302.9 | 1206.3 | 1150.2 |
| 45° | 1337.2 | 1309.1 | 1196.9 | 1097.2 | 1053.5 |
| 47.5° | 1234.3 | 1209.4 | 1106.5 | 1003.7 | 953.8 |
| 50° | 1125.2 | 1103.4 | 1009.9 | 907.0 | 854.1 |
| 52.5° | 1034.8 | 1000.5 | 910.2 | 807.3 | 763.7 |
| 55° | 928.9 | 900.8 | 816.6 | 720.0 | 682.6 |
| 57.5° | 832.2 | 804.2 | 726.3 | 635.9 | 604.7 |
| 60° | 741.8 | 701.3 | 635.9 | 557.9 | 533.0 |
| 62.5° | 642.1 | 610.9 | 554.8 | 489.4 | 520.5 |
| 65° | 551.7 | 520.5 | 470.7 | 480.0 | 399.0 |
| 67.5° | 452.0 | 436.4 | 392.7 | 349.1 | 336.6 |
| 70° | 367.8 | 349.1 | 333.5 | 286.8 | 274.3 |
| 72.5° | 293.0 | 274.3 | 252.5 | 227.5 | 218.2 |
| 75° | 221.3 | 205.7 | 193.3 | 183.9 | 202.6 |
| 77.5° | 152.7 | 146.5 | 137.1 | 127.8 | 124.7 |
| 80° | 99.7 | 96.6 | 93.5 | 90.4 | 87.3 |
| 82.5° | 59.2 | 59.2 | 59.2 | 59.2 | 59.2 |
| 85° | 31.2 | 34.3 | 37.4 | 40.5 | 43.6 |
| 87.5° | 18.7 | 18.7 | 21.8 | 24.9 | 28.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)