

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P#

Luminaire Tested: **FLDSQ4C30D010 FEU4C309027 F4LC-SQ-WLI**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P#
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C30D010 FEU4C309027 F4LC-SQ-WLI
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

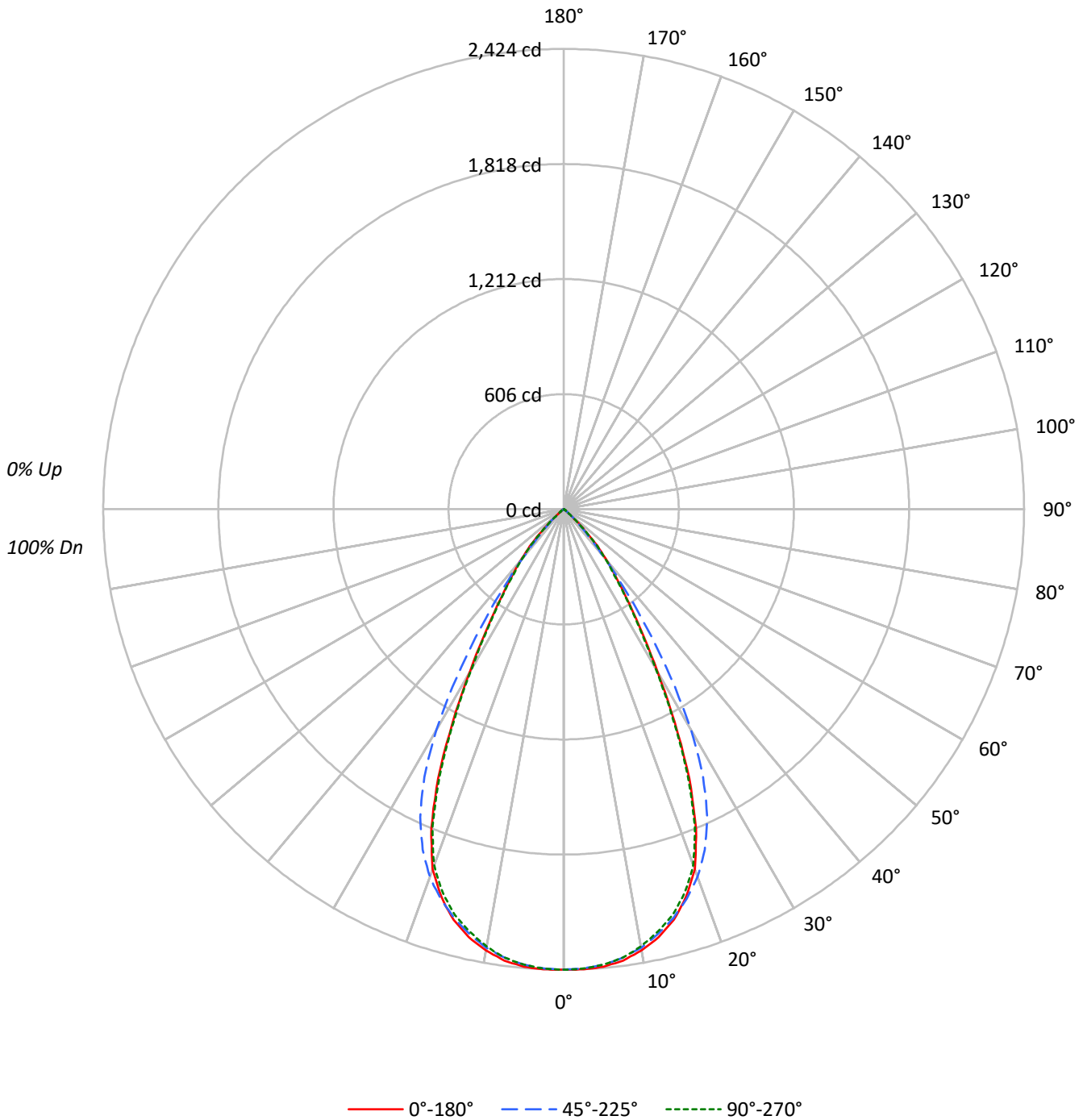
Lumens per Lamp: N/A
 Luminaire Lumens: 2170.0 lumens
 Efficiency: N/A
 Efficacy: 68.7 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.91 / 0.9
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.6
 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: 25 FT

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | GONIO 1 IN0055 | 4/22/2021 | 10/22/2021 |
| Power Meter | XITRON 2801 IN0197 | 12/1/2020 | 12/1/2021 |
| AC Power Source | CHROMA 61505 IN0196 | 12/1/2020 | 12/1/2021 |
| DC Power Supply | AGILENT E3634A IN0198 | 11/30/2020 | 11/30/2021 |
| Room Thermometer | ONSET IN0143 | 12/1/2020 | 12/1/2021 |

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Luminous Intensity Polar Plot



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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 | 114 | 111 | 108 | 106 | 111 | 109 | 106 | 104 | 105 | 103 | 101 | 101 | 100 | 98 | 97 | 96 | 95 | 94 |
| 2 | 108 | 103 | 99 | 96 | 106 | 102 | 98 | 95 | 98 | 95 | 93 | 95 | 93 | 91 | 93 | 91 | 89 | 87 |
| 3 | 103 | 96 | 91 | 88 | 101 | 95 | 90 | 87 | 92 | 89 | 85 | 90 | 87 | 84 | 88 | 85 | 83 | 81 |
| 4 | 98 | 90 | 85 | 80 | 96 | 89 | 84 | 80 | 87 | 82 | 79 | 85 | 81 | 78 | 83 | 80 | 77 | 76 |
| 5 | 93 | 84 | 79 | 74 | 91 | 84 | 78 | 74 | 82 | 77 | 73 | 80 | 76 | 73 | 79 | 75 | 72 | 71 |
| 6 | 88 | 79 | 73 | 69 | 87 | 79 | 73 | 69 | 77 | 72 | 68 | 76 | 71 | 68 | 74 | 71 | 68 | 66 |
| 7 | 84 | 75 | 69 | 65 | 82 | 74 | 68 | 64 | 73 | 68 | 64 | 71 | 67 | 64 | 70 | 66 | 63 | 62 |
| 8 | 80 | 70 | 64 | 60 | 79 | 70 | 64 | 60 | 69 | 64 | 60 | 68 | 63 | 60 | 67 | 63 | 59 | 58 |
| 9 | 76 | 66 | 61 | 57 | 75 | 66 | 60 | 57 | 65 | 60 | 56 | 64 | 60 | 56 | 63 | 59 | 56 | 55 |
| 10 | 72 | 63 | 57 | 53 | 71 | 62 | 57 | 53 | 62 | 57 | 53 | 61 | 56 | 53 | 60 | 56 | 53 | 52 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 233879 | 233879 | 233879 |
| 5° | 234124 | 233049 | 233049 |
| 10° | 231050 | 229688 | 228983 |
| 15° | 223550 | 222501 | 220993 |
| 20° | 207036 | 211554 | 204747 |
| 25° | 166467 | 190304 | 164274 |
| 30° | 109878 | 149208 | 107271 |
| 35° | 68672 | 89592 | 67424 |
| 40° | 44816 | 41528 | 43065 |
| 45° | 21574 | 16566 | 20359 |
| 50° | 5434 | 6605 | 5104 |
| 55° | 2994 | 2708 | 2910 |
| 60° | 2046 | 1718 | 1930 |
| 65° | 1393 | 1279 | 1393 |
| 70° | 1100 | 931 | 1100 |
| 75° | 820 | 820 | 820 |
| 80° | 611 | 945 | 945 |
| 85° | 664 | 1218 | 1218 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 228.0 | 10.5 |
| 10°-20° | 622.5 | 28.7 |
| 20°-30° | 741.9 | 34.2 |
| 30°-40° | 420.1 | 19.4 |
| 40°-50° | 129.9 | 6.0 |
| 50°-60° | 18.0 | 0.8 |
| 60°-70° | 6.2 | 0.3 |
| 70°-80° | 2.5 | 0.1 |
| 80°-90° | 1.0 | 0.0 |
| 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° | 1592.4 | 73.4 |
| 0°-40° | 2012.4 | 92.7 |
| 0°-60° | 2160.4 | 99.6 |
| 0°-90° | 2170.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2170.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2424 | 2424 | 2424 | 2424 | 2424 | |
| 5° | 2417 | 2412 | 2406 | 2404 | 2406 | 229 |
| 15° | 2238 | 2234 | 2227 | 2218 | 2212 | 624 |
| 25° | 1564 | 1655 | 1788 | 1658 | 1543 | 697 |
| 35° | 583 | 636 | 761 | 638 | 572 | 379 |
| 45° | 158 | 184 | 121 | 179 | 149 | 131 |
| 55° | 18 | 18 | 16 | 17 | 17 | 18 |
| 65° | 6 | 6 | 6 | 6 | 6 | 6 |
| 75° | 2 | 2 | 2 | 2 | 2 | 2 |
| 85° | 1 | 1 | 1 | 1 | 1 | 1 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2423.9 | 2423.9 | 2423.9 | 2423.9 | 2423.9 |
| 2.5° | 2424.5 | 2420.6 | 2419.5 | 2418.4 | 2420.6 |
| 5° | 2417.2 | 2411.7 | 2406.1 | 2404.4 | 2406.1 |
| 7.5° | 2396.6 | 2391.1 | 2381.6 | 2379.4 | 2381.1 |
| 10° | 2358.2 | 2353.2 | 2344.3 | 2339.3 | 2337.1 |
| 12.5° | 2307.6 | 2299.2 | 2290.8 | 2285.3 | 2279.7 |
| 15° | 2237.9 | 2234.0 | 2227.4 | 2218.5 | 2212.3 |
| 17.5° | 2141.6 | 2147.2 | 2151.1 | 2133.3 | 2117.1 |
| 20° | 2016.3 | 2036.9 | 2060.3 | 2024.1 | 1994.0 |
| 22.5° | 1820.9 | 1879.9 | 1939.5 | 1871.0 | 1804.2 |
| 25° | 1563.6 | 1654.9 | 1787.5 | 1657.7 | 1543.0 |
| 27.5° | 1263.5 | 1379.3 | 1588.1 | 1379.9 | 1246.8 |
| 30° | 986.2 | 1105.3 | 1339.2 | 1089.7 | 962.8 |
| 32.5° | 757.3 | 846.4 | 1046.3 | 833.0 | 741.2 |
| 35° | 583.0 | 635.9 | 760.6 | 637.6 | 572.4 |
| 37.5° | 453.3 | 480.0 | 511.7 | 470.5 | 439.9 |
| 40° | 355.8 | 356.9 | 329.7 | 351.4 | 341.9 |
| 42.5° | 263.9 | 262.8 | 202.7 | 256.1 | 257.8 |
| 45° | 158.1 | 184.3 | 121.4 | 179.3 | 149.2 |
| 47.5° | 75.2 | 104.1 | 72.9 | 98.6 | 69.6 |
| 50° | 36.2 | 50.1 | 44.0 | 46.8 | 34.0 |
| 52.5° | 24.5 | 25.6 | 25.1 | 24.5 | 23.4 |
| 55° | 17.8 | 17.8 | 16.1 | 17.3 | 17.3 |
| 57.5° | 13.4 | 13.4 | 11.7 | 12.8 | 12.8 |
| 60° | 10.6 | 10.0 | 8.9 | 10.0 | 10.0 |
| 62.5° | 7.8 | 7.8 | 6.7 | 7.8 | 7.8 |
| 65° | 6.1 | 6.1 | 5.6 | 6.1 | 6.1 |
| 67.5° | 5.0 | 5.0 | 3.9 | 5.0 | 4.5 |
| 70° | 3.9 | 3.9 | 3.3 | 3.9 | 3.9 |
| 72.5° | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 75° | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 77.5° | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 80° | 1.1 | 1.1 | 1.7 | 1.7 | 1.7 |
| 82.5° | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| 85° | 0.6 | 1.1 | 1.1 | 1.1 | 1.1 |
| 87.5° | 0.6 | 0.6 | 1.1 | 1.1 | 1.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)