

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: **FLDSQ4C90D010 FEU4C909050 F4LC-SQ-LI**

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: FLDSQ4C90D010 FEU4C909050 F4LC-SQ-LI
 Description: 4 INCH 9000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

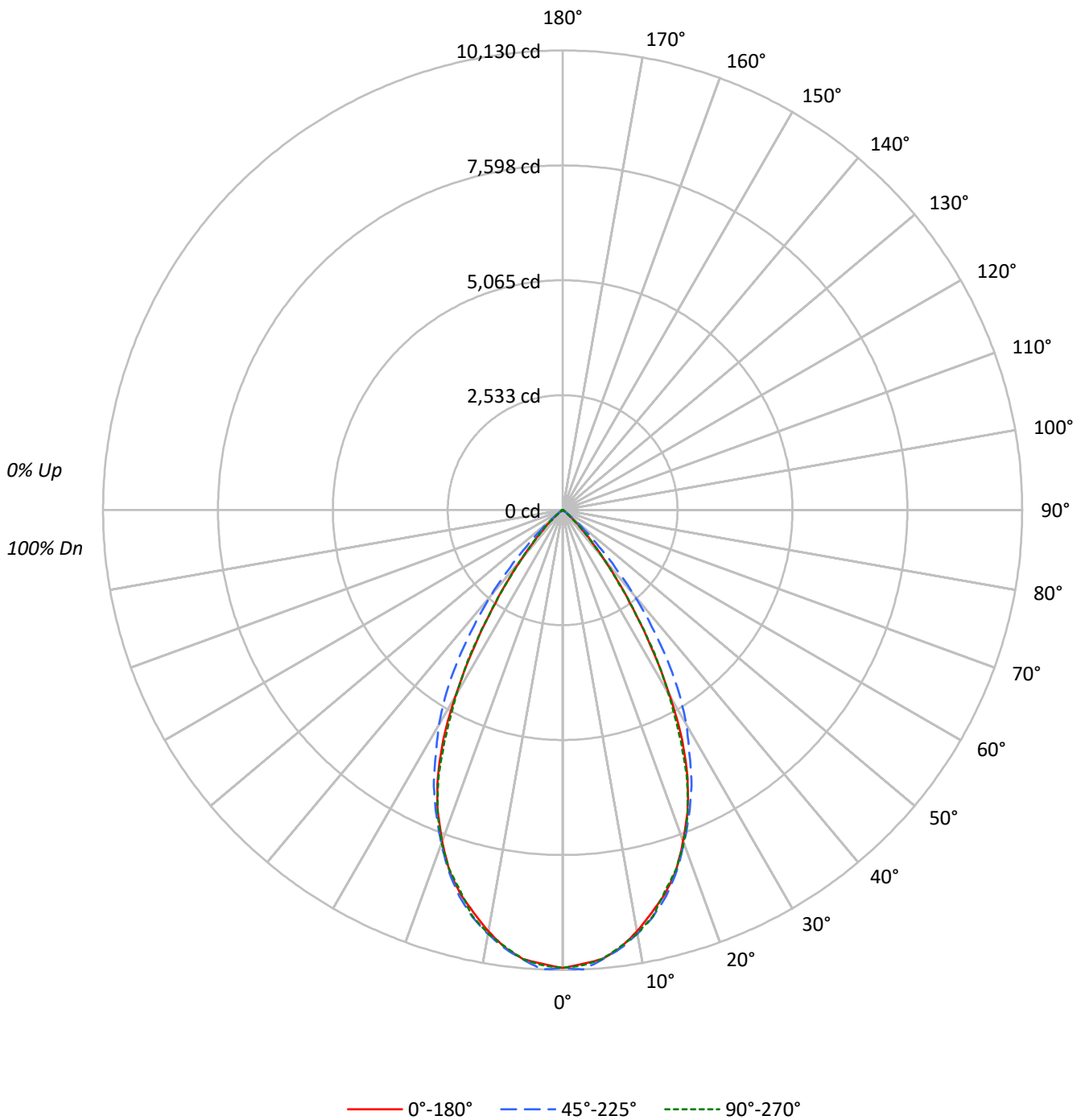
Lumens per Lamp: N/A
 Luminaire Lumens: 9310.9 lumens
 Efficiency: N/A
 Efficacy: 95.9 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 97.1
 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	113	111	108	106	111	108	106	104	104	103	101		101	99	98		97	96	95	93
2	108	103	99	95	105	101	97	94	98	95	92		95	92	90		92	90	88	87
3	102	96	91	87	100	94	90	86	92	88	84		89	86	83		87	84	82	80
4	97	89	84	79	95	88	83	79	86	81	78		84	80	77		82	79	76	75
5	92	83	77	73	90	82	77	73	81	76	72		79	75	71		77	74	71	69
6	87	78	72	68	86	77	71	67	76	71	67		74	70	66		73	69	66	64
7	83	73	67	63	81	73	67	63	71	66	62		70	65	62		69	65	62	60
8	79	69	63	59	77	68	62	58	67	62	58		66	61	58		65	61	58	56
9	75	65	59	55	74	64	59	55	63	58	55		63	58	54		62	57	54	53
10	71	61	55	51	70	61	55	51	60	55	51		59	54	51		58	54	51	50

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	973119	973119	973119
5°	961940	963180	961940
10°	923466	929129	927875
15°	873032	879435	868547
20°	796756	802660	800699
25°	693760	715585	688980
30°	527554	606793	519721
35°	332077	471718	335092
40°	179162	311530	175937
45°	84807	153881	83920
50°	31748	57702	31748
55°	15090	18336	14030
60°	9880	8684	9880
65°	5845	5845	5845
70°	3611	5445	3611
75°	2423	2423	2423
80°	3612	3612	3612
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	935.1	10.0
10°-20°	2450.6	26.3
20°-30°	2993.7	32.2
30°-40°	2093.8	22.5
40°-50°	686.2	7.4
50°-60°	109.1	1.2
60°-70°	29.8	0.3
70°-80°	10.0	0.1
80°-90°	2.8	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°	6379.3	68.5
0°-40°	8473.2	91.0
0°-60°	9268.5	99.5
0°-90°	9310.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9310.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	10085	10085	10085	10085	10085	
5°	9932	9935	9944	9883	9932	932
15°	8740	8775	8804	8746	8695	2438
25°	6516	6616	6721	6600	6472	2927
35°	2819	3329	4005	3277	2845	1799
45°	622	766	1128	756	615	521
55°	90	96	109	96	83	89
65°	26	32	26	32	26	28
75°	6	6	6	6	6	9
85°	0	0	0	0	0	3
90°	0	0	0	0	0	



TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3
2.5°	10008.4	10079.0	10059.6	10104.6	10104.6	10053.4	10066.2	10085.3	10110.9	10130.2	9976.2
5°	9931.5	9995.6	9937.8	10001.9	9963.4	9905.9	10001.9	9950.6	9982.8	9944.3	9970.0
7.5°	9726.5	9829.0	9713.7	9790.6	9765.0	9732.8	9771.2	9758.4	9777.8	9745.6	9675.3
10°	9425.3	9508.7	9431.8	9540.6	9489.4	9457.5	9489.4	9521.5	9515.0	9483.1	9521.5
12.5°	9079.4	9175.3	9136.9	9201.0	9143.4	9143.4	9220.3	9201.0	9207.5	9181.9	9226.6
15°	8739.7	8810.3	8752.5	8835.9	8810.3	8739.7	8771.6	8771.6	8823.1	8803.8	8752.5
17.5°	8316.9	8374.4	8310.4	8329.7	8304.1	8291.3	8425.7	8336.0	8387.3	8348.8	8355.4
20°	7759.5	7785.1	7765.7	7817.0	7785.1	7823.5	7810.7	7797.9	7797.9	7817.0	7772.3
22.5°	7195.5	7195.5	7214.8	7227.6	7253.2	7214.8	7291.7	7227.6	7233.9	7278.9	7266.1
25°	6516.4	6497.1	6542.0	6606.1	6631.7	6599.6	6702.1	6650.8	6689.3	6721.4	6650.8
27.5°	5689.9	5689.9	5734.6	5843.6	5862.7	5901.2	6042.1	6042.1	6093.4	6048.6	6099.9
30°	4735.0	4805.6	4863.1	5004.1	5049.0	5132.4	5279.7	5350.3	5465.6	5446.2	5420.6
32.5°	3754.7	3851.0	3857.2	4004.7	4126.3	4267.2	4466.0	4632.5	4715.9	4773.4	4709.4
35°	2819.2	2877.0	2928.2	3030.7	3235.7	3421.6	3601.0	3818.8	3966.3	4004.7	3946.9
37.5°	2063.3	2076.1	2127.3	2223.3	2377.1	2556.7	2774.5	3011.4	3165.4	3222.9	3158.9
40°	1422.4	1435.2	1460.8	1544.3	1672.4	1800.5	1973.6	2217.0	2358.0	2473.3	2389.9
42.5°	954.6	967.5	993.1	1057.1	1127.7	1249.3	1384.0	1537.7	1672.4	1723.6	1678.7
45°	621.5	621.5	634.3	679.3	717.7	813.7	909.9	1005.9	1095.6	1127.7	1095.6
47.5°	365.3	371.6	384.4	416.5	461.2	499.7	570.3	634.3	660.0	685.6	672.8
50°	211.5	211.5	230.6	250.0	281.9	307.5	333.1	358.7	371.6	384.4	371.6
52.5°	115.3	121.8	128.1	134.7	147.5	173.1	192.2	192.2	198.7	205.0	198.7
55°	89.7	89.7	89.7	89.7	96.2	96.2	96.2	102.5	102.5	109.0	102.5
57.5°	64.1	64.1	64.1	70.6	70.6	70.6	64.1	64.1	64.1	64.1	64.1
60°	51.2	51.2	51.2	51.2	51.2	51.2	51.2	45.0	45.0	45.0	45.0
62.5°	38.4	38.4	38.4	38.4	38.4	38.4	38.4	38.4	38.4	38.4	38.4
65°	25.6	25.6	32.2	32.2	32.2	32.2	32.2	25.6	25.6	25.6	25.6
67.5°	19.3	19.3	19.3	19.3	25.6	25.6	19.3	19.3	19.3	19.3	19.3
70°	12.8	12.8	12.8	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
72.5°	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
75°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
77.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
80°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3	10085.3
2.5°	10085.3	9976.2	9989.0	10046.8	10014.7	10046.8	10040.5	10040.5
5°	9976.2	9944.3	9893.1	9873.7	9912.2	9995.6	9982.8	9931.5
7.5°	9771.2	9688.1	9745.6	9771.2	9739.3	9790.6	9816.2	9707.2
10°	9527.8	9495.9	9483.1	9495.9	9483.1	9534.3	9470.3	9470.3
12.5°	9181.9	9130.6	9130.6	9207.5	9162.5	9124.1	9175.3	9169.1
15°	8835.9	8733.2	8733.2	8758.8	8778.2	8752.5	8758.8	8694.8
17.5°	8323.2	8291.3	8246.3	8316.9	8336.0	8310.4	8329.7	8297.6
20°	7842.6	7842.6	7759.5	7791.4	7817.0	7836.3	7849.1	7797.9
22.5°	7227.6	7240.4	7182.7	7246.7	7266.1	7202.0	7214.8	7202.0
25°	6663.6	6657.4	6612.4	6586.8	6599.6	6573.9	6567.7	6471.5
27.5°	6042.1	5978.1	5882.1	5907.7	5798.7	5709.0	5709.0	5561.5
30°	5369.3	5260.6	5132.4	5004.1	4908.1	4805.6	4747.8	4664.7
32.5°	4581.3	4434.0	4273.8	4100.7	3991.9	3838.2	3754.7	3799.7
35°	3799.7	3581.7	3363.8	3191.0	3024.2	2934.5	2832.0	2844.8
37.5°	3043.5	2736.0	2543.9	2358.0	2217.0	2101.7	2056.7	2043.9
40°	2223.3	1979.9	1787.7	1653.0	1557.1	1467.4	1416.1	1396.8
42.5°	1537.7	1364.9	1210.9	1102.1	1038.0	980.3	954.6	948.4
45°	999.6	897.1	794.6	717.7	666.5	628.1	621.5	615.0
47.5°	628.1	576.6	512.5	455.0	410.0	384.4	365.3	365.3
50°	358.7	339.7	307.5	275.6	250.0	237.2	217.8	211.5
52.5°	192.2	192.2	179.4	153.7	134.7	121.8	121.8	115.3
55°	102.5	102.5	96.2	96.2	89.7	89.7	89.7	83.4
57.5°	64.1	64.1	70.6	70.6	64.1	64.1	64.1	64.1
60°	45.0	51.2	51.2	51.2	51.2	51.2	51.2	51.2
62.5°	38.4	38.4	38.4	38.4	38.4	38.4	38.4	38.4
65°	25.6	32.2	32.2	32.2	32.2	25.6	25.6	25.6
67.5°	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
70°	19.3	19.3	19.3	19.3	19.3	12.8	12.8	12.8
72.5°	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
75°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
77.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
80°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)