

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: **FLDSQ4C50D010 FEU4C509040 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: FLDSQ4C50D010 FEU4C509040 F4LC-SQ-LI
Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS
AND F4LC-SQ TRIM WITH LI FINISH
Light Source: -
Ballast/Driver: -

Summary

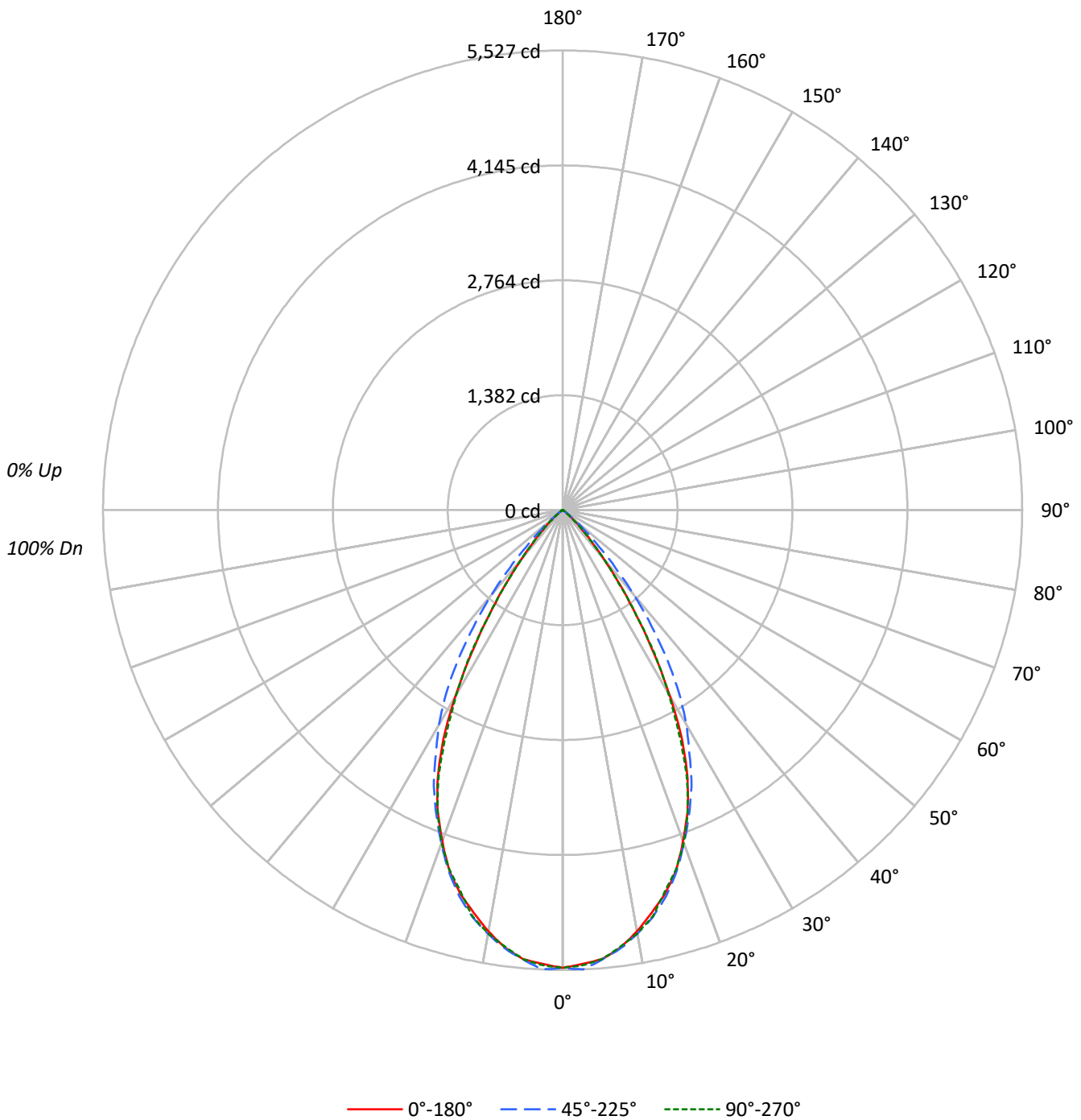
Lumens per Lamp: N/A
Luminaire Lumens: 5080.1 lumens
Efficiency: N/A
Efficacy: 87.0 lumens/watt
Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 58.4
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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CATALOG NUMBER: FLDSQ4C50D010 FEU4C509040 F4LC-SQ-LI

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20			
RC	80				70				50				30				10			
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100
1	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93	93	93
2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88	87	87	87
3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82	80	80	80
4	97	89	84	79	95	88	83	79	86	81	78	84	80	77	82	79	76	75	75	75
5	92	83	77	73	90	82	77	73	81	76	72	79	75	71	77	74	71	69	69	69
6	87	78	72	68	86	77	71	67	76	71	67	74	70	66	73	69	66	64	64	64
7	83	73	67	63	81	73	67	63	71	66	62	70	65	62	69	65	62	60	60	60
8	79	69	63	59	77	68	62	58	67	62	58	66	61	58	65	61	58	56	56	56
9	75	65	59	55	74	64	59	55	63	58	55	63	58	54	62	57	54	53	53	53
10	71	61	55	51	70	61	55	51	60	55	51	59	54	51	58	54	51	50	50	50

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	530920	530920	530920
5°	524822	525500	524822
10°	503839	506925	506239
15°	476318	479814	473871
20°	434701	437926	436858
25°	378510	390413	375902
30°	287832	331061	283553
35°	181175	257362	182824
40°	97755	169967	95992
45°	46272	83961	45781
50°	17323	31478	17323
55°	8226	10009	7654
60°	5403	4728	5403
65°	3196	3196	3196
70°	1975	2990	1975
75°	1342	1342	1342
80°	2000	2000	2000
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	510.2	10.0
10°-20°	1337.0	26.3
20°-30°	1633.3	32.2
30°-40°	1142.4	22.5
40°-50°	374.4	7.4
50°-60°	59.5	1.2
60°-70°	16.3	0.3
70°-80°	5.5	0.1
80°-90°	1.5	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°	3480.5	68.5
0°-40°	4622.9	91.0
0°-60°	5056.8	99.5
0°-90°	5080.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5080.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5502	5502	5502	5502	5502	
5°	5418	5420	5426	5392	5418	508
15°	4768	4788	4803	4772	4744	1330
25°	3555	3609	3667	3601	3531	1597
35°	1538	1816	2185	1788	1552	982
45°	339	418	615	413	336	284
55°	49	52	60	52	46	48
65°	14	18	14	18	14	16
75°	4	4	4	4	4	5
85°	0	0	0	0	0	1
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°	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4
2.5°	5460.5	5499.0	5488.5	5513.0	5513.0	5485.0	5492.0	5502.4	5516.4	5527.0	5442.9
5°	5418.5	5453.5	5422.0	5456.9	5436.0	5404.6	5456.9	5429.0	5446.5	5425.5	5439.5
7.5°	5306.7	5362.6	5299.7	5341.7	5327.7	5310.1	5331.1	5324.1	5334.7	5317.1	5278.7
10°	5142.4	5187.9	5145.9	5205.3	5177.3	5159.9	5177.3	5194.9	5191.3	5173.9	5194.9
12.5°	4953.6	5006.0	4985.0	5020.0	4988.6	4988.6	5030.5	5020.0	5023.5	5009.5	5033.9
15°	4768.3	4806.8	4775.3	4820.8	4806.8	4768.3	4785.7	4785.7	4813.8	4803.3	4775.3
17.5°	4537.6	4569.0	4534.1	4544.6	4530.6	4523.7	4597.0	4548.1	4576.0	4555.0	4558.6
20°	4233.5	4247.5	4236.9	4264.9	4247.5	4268.4	4261.5	4254.5	4254.5	4264.9	4240.5
22.5°	3925.8	3925.8	3936.3	3943.3	3957.3	3936.3	3978.3	3943.3	3946.8	3971.3	3964.3
25°	3555.3	3544.7	3569.3	3604.2	3618.2	3600.7	3656.6	3628.6	3649.6	3667.1	3628.6
27.5°	3104.4	3104.4	3128.8	3188.2	3198.7	3219.6	3296.5	3296.5	3324.5	3300.1	3328.0
30°	2583.4	2621.9	2653.3	2730.2	2754.7	2800.2	2880.5	2919.1	2982.0	2971.4	2957.4
32.5°	2048.6	2101.1	2104.5	2184.9	2251.3	2328.2	2436.6	2527.5	2573.0	2604.4	2569.4
35°	1538.1	1569.7	1597.6	1653.5	1765.4	1866.8	1964.7	2083.5	2164.0	2184.9	2153.4
37.5°	1125.7	1132.7	1160.7	1213.0	1296.9	1394.9	1513.7	1643.0	1727.0	1758.4	1723.4
40°	776.1	783.0	797.0	842.5	912.4	982.3	1076.8	1209.6	1286.5	1349.4	1303.9
42.5°	520.8	527.8	541.8	576.8	615.3	681.6	755.1	839.0	912.4	940.4	915.9
45°	339.1	339.1	346.1	370.6	391.6	444.0	496.4	548.8	597.7	615.3	597.7
47.5°	199.3	202.7	209.7	227.3	251.6	272.6	311.1	346.1	360.1	374.0	367.1
50°	115.4	115.4	125.8	136.4	153.8	167.8	181.7	195.7	202.7	209.7	202.7
52.5°	62.9	66.5	69.9	73.5	80.5	94.4	104.9	104.9	108.4	111.8	108.4
55°	48.9	48.9	48.9	48.9	52.5	52.5	52.5	55.9	55.9	59.5	55.9
57.5°	35.0	35.0	35.0	38.5	38.5	38.5	35.0	35.0	35.0	35.0	35.0
60°	28.0	28.0	28.0	28.0	28.0	28.0	28.0	24.5	24.5	24.5	24.5
62.5°	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
65°	14.0	14.0	17.5	17.5	17.5	17.5	17.5	14.0	14.0	14.0	14.0
67.5°	10.6	10.6	10.6	10.6	14.0	14.0	10.6	10.6	10.6	10.6	10.6
70°	7.0	7.0	7.0	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6
72.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
75°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	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°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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°	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4	5502.4
2.5°	5502.4	5442.9	5449.9	5481.5	5463.9	5481.5	5478.0	5478.0
5°	5442.9	5425.5	5397.6	5387.0	5408.0	5453.5	5446.5	5418.5
7.5°	5331.1	5285.7	5317.1	5331.1	5313.7	5341.7	5355.6	5296.1
10°	5198.3	5180.9	5173.9	5180.9	5173.9	5201.8	5166.9	5166.9
12.5°	5009.5	4981.6	4981.6	5023.5	4999.0	4978.0	5006.0	5002.6
15°	4820.8	4764.8	4764.8	4778.7	4789.3	4775.3	4778.7	4743.8
17.5°	4541.1	4523.7	4499.1	4537.6	4548.1	4534.1	4544.6	4527.1
20°	4278.9	4278.9	4233.5	4250.9	4264.9	4275.4	4282.4	4254.5
22.5°	3943.3	3950.3	3918.8	3953.7	3964.3	3929.3	3936.3	3929.3
25°	3635.6	3632.2	3607.7	3593.7	3600.7	3586.7	3583.3	3530.8
27.5°	3296.5	3261.6	3209.2	3223.2	3163.7	3114.8	3114.8	3034.3
30°	2929.5	2870.1	2800.2	2730.2	2677.8	2621.9	2590.4	2545.0
32.5°	2499.5	2419.2	2331.7	2237.3	2177.9	2094.1	2048.6	2073.1
35°	2073.1	1954.1	1835.3	1741.0	1650.0	1601.0	1545.1	1552.1
37.5°	1660.5	1492.8	1387.9	1286.5	1209.6	1146.7	1122.1	1115.2
40°	1213.0	1080.2	975.3	901.9	849.5	800.6	772.6	762.1
42.5°	839.0	744.7	660.6	601.3	566.3	534.8	520.8	517.4
45°	545.4	489.5	433.5	391.6	363.6	342.7	339.1	335.5
47.5°	342.7	314.6	279.6	248.2	223.7	209.7	199.3	199.3
50°	195.7	185.3	167.8	150.4	136.4	129.4	118.8	115.4
52.5°	104.9	104.9	97.9	83.9	73.5	66.5	66.5	62.9
55°	55.9	55.9	52.5	52.5	48.9	48.9	48.9	45.5
57.5°	35.0	35.0	38.5	38.5	35.0	35.0	35.0	35.0
60°	24.5	28.0	28.0	28.0	28.0	28.0	28.0	28.0
62.5°	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
65°	14.0	17.5	17.5	17.5	17.5	14.0	14.0	14.0
67.5°	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6
70°	10.6	10.6	10.6	10.6	10.6	7.0	7.0	7.0
72.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
75°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)