

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: **FLDSQ4C10D010 FEU4C109040 F4LC-CSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

**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: FLDSQ4C10D010 FEU4C109040 F4LC-CSSQ-MW  
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

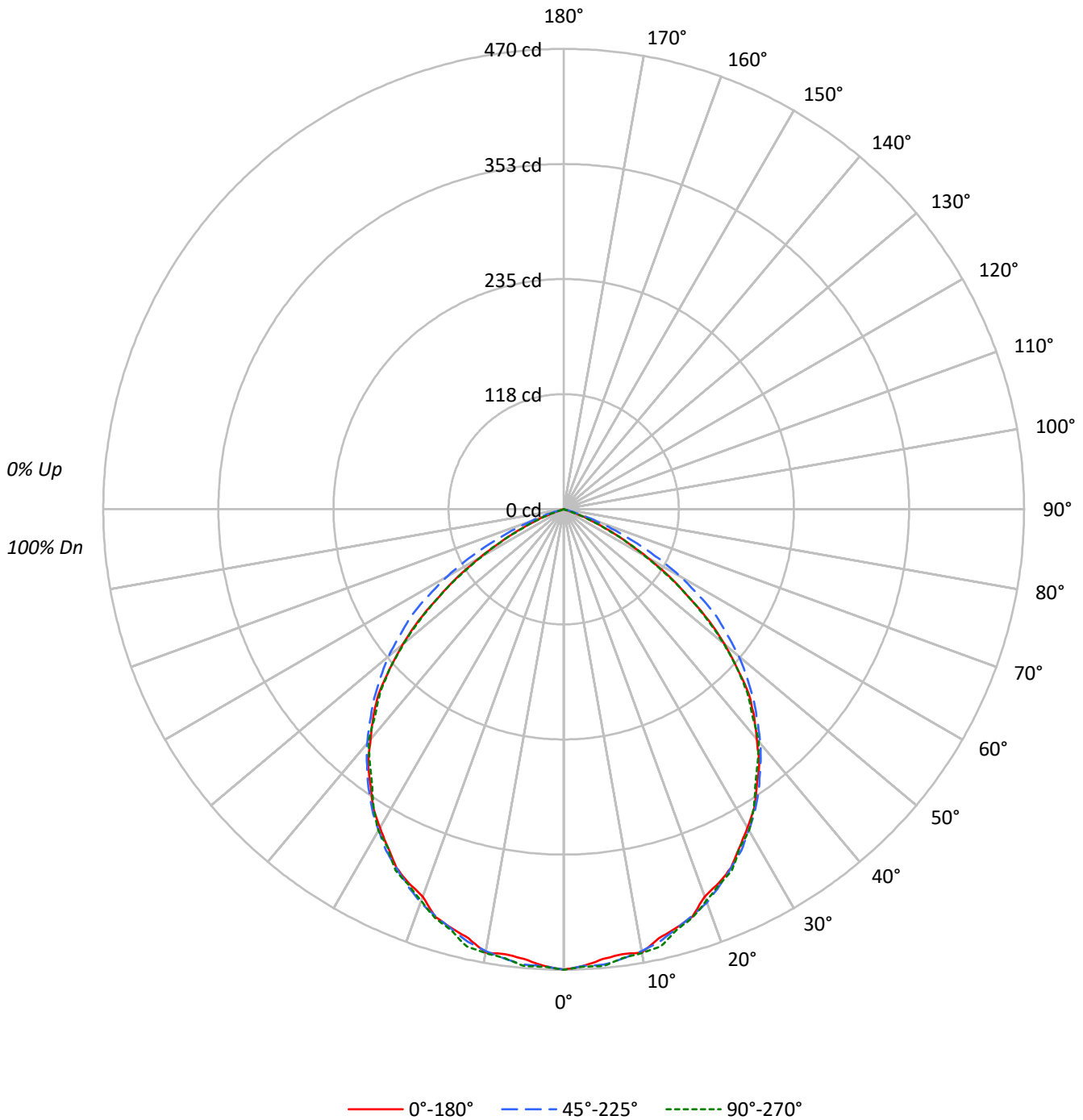
Lumens per Lamp: N/A  
 Luminaire Lumens: 1004.0 lumens  
 Efficiency: N/A  
 Efficacy: 103.0 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 9.75  
 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

TEST NUMBER: P#  
CATALOG NUMBER: FLDSQ4C10D010 FEU4C109040 F4LC-CSSQ-MW

### Luminous Intensity Polar Plot



TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109040 F4LC-CSSQ-MW

**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	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	45350	45350	45350
5°	44622	45203	45329
10°	45001	44874	45070
15°	44212	44282	44412
20°	43188	43876	43670
25°	43001	43001	43288
30°	41803	42104	42171
35°	40497	40897	40179
40°	38593	39349	39022
45°	36529	37348	36161
50°	32169	34976	31973
55°	26058	32013	26176
60°	19066	26534	18680
65°	11575	18904	11279
70°	4514	10184	4345
75°	485	2759	485
80°	389	389	389
85°	0	0	0

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109040 F4LC-CSSQ-MW

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	44.4	4.4
10°-20°	125.5	12.5
20°-30°	186.3	18.6
30°-40°	215.8	21.5
40°-50°	206.9	20.6
50°-60°	152.2	15.2
60°-70°	65.7	6.5
70°-80°	7.1	0.7
80°-90°	0.1	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°	356.2	35.5
0°-40°	572.0	57.0
0°-60°	931.1	92.7
0°-90°	1004.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1004.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	470	470	470	470	470	
5°	461	465	467	467	468	44
15°	443	445	443	444	445	125
25°	404	403	404	405	407	185
35°	344	346	347	346	341	215
45°	268	268	274	270	265	203
55°	155	171	190	170	156	139
65°	51	63	83	63	49	52
75°	1	2	7	1	1	4
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109040 F4LC-CSSQ-MW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
2.5°	466.7	472.0	472.7	469.3	468.0	466.0	470.7	467.3	468.7	467.3	466.7
5°	460.7	466.7	467.3	467.3	466.0	465.3	467.3	466.7	466.0	464.7	466.7
7.5°	458.0	461.3	464.7	460.7	462.6	462.0	466.7	464.7	464.0	464.0	462.6
10°	459.3	458.6	461.3	457.3	458.6	457.3	461.3	461.3	460.0	458.6	458.0
12.5°	448.6	454.0	454.0	453.3	452.0	450.0	454.0	456.7	452.6	452.6	452.0
15°	442.6	444.0	444.6	444.6	444.0	445.3	447.3	444.6	445.3	441.9	443.3
17.5°	436.0	433.3	435.3	433.9	434.6	436.0	438.6	438.6	434.6	433.9	435.3
20°	420.6	428.6	429.3	425.3	425.9	425.9	430.6	426.6	429.3	425.9	427.3
22.5°	413.2	418.6	419.3	413.9	417.2	413.2	417.9	411.9	418.6	413.9	415.9
25°	403.9	403.2	405.2	402.6	403.2	403.2	406.6	403.9	405.9	403.2	403.9
27.5°	388.6	393.9	393.2	390.5	391.9	391.2	397.9	390.5	394.6	391.2	392.6
30°	375.2	379.9	378.5	375.9	375.9	373.9	381.2	379.2	378.5	378.5	377.9
32.5°	361.8	362.5	361.2	361.8	362.5	359.9	365.8	363.2	362.5	363.2	363.9
35°	343.8	343.8	345.1	343.2	345.8	345.8	351.2	347.8	347.2	345.1	347.2
37.5°	327.8	325.8	326.5	326.5	327.8	329.1	331.8	330.5	330.5	328.5	329.8
40°	306.4	305.1	307.1	307.1	309.1	309.1	311.8	310.4	312.4	312.4	312.4
42.5°	287.7	287.7	286.4	288.4	289.1	288.4	293.1	292.4	293.1	291.8	292.4
45°	267.7	267.7	266.4	265.7	269.0	268.4	273.7	271.7	274.4	273.0	273.7
47.5°	240.3	243.7	241.7	243.7	247.7	248.4	251.7	250.4	253.0	251.0	253.7
50°	214.3	214.3	216.3	219.0	223.0	223.7	227.7	230.3	231.7	232.3	233.0
52.5°	186.9	186.3	188.3	191.6	194.9	197.6	201.6	205.6	208.3	212.3	210.3
55°	154.9	156.2	158.2	162.2	167.6	170.9	174.2	179.6	184.3	186.3	190.3
57.5°	127.5	126.2	127.5	132.8	138.9	141.5	146.2	151.6	158.2	162.2	163.6
60°	98.8	99.5	100.8	105.5	110.2	114.2	116.2	124.8	130.9	134.9	137.5
62.5°	72.8	74.1	75.5	79.5	84.1	87.5	90.8	98.1	103.5	107.5	110.2
65°	50.7	51.4	53.4	55.4	60.1	63.4	66.1	72.1	77.4	80.8	82.8
67.5°	31.4	32.0	33.4	36.1	39.4	42.1	44.7	48.7	53.4	56.7	57.4
70°	16.0	16.7	17.4	19.4	22.0	23.4	25.4	28.7	32.0	34.7	36.1
72.5°	5.3	5.3	6.0	7.4	8.7	10.0	10.7	14.0	16.7	18.0	18.7
75°	1.3	1.3	1.3	1.3	1.3	2.0	2.0	4.0	5.3	6.7	7.4
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	1.3
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
82.5°	0.0	0.0	0.0	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	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109040 F4LC-CSSQ-MW

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0	470.0
2.5°	470.0	468.7	468.0	468.7	468.7	468.0	470.0	472.7	476.0	467.3
5°	469.3	468.0	469.3	465.3	467.3	466.0	468.7	468.0	470.7	468.0
7.5°	467.3	464.7	465.3	463.3	466.0	462.6	464.7	468.7	466.0	462.0
10°	460.7	459.3	464.0	457.3	456.0	458.6	464.0	460.0	458.6	460.0
12.5°	454.0	454.0	456.0	450.6	451.3	452.6	455.3	452.6	454.0	457.3
15°	446.6	445.3	448.6	444.6	444.0	442.6	445.3	445.3	446.6	444.6
17.5°	437.9	436.0	436.0	434.6	433.9	437.3	438.6	439.3	440.0	437.3
20°	427.3	426.6	428.6	426.6	427.3	427.9	427.9	426.6	432.6	425.3
22.5°	415.9	417.9	415.3	413.9	415.3	416.6	416.6	417.2	415.9	414.6
25°	404.6	405.9	406.6	402.6	404.6	402.6	407.2	407.9	405.2	406.6
27.5°	394.6	392.6	391.9	389.2	390.5	389.9	390.5	390.5	394.6	389.2
30°	379.2	377.2	377.9	375.9	376.5	375.9	376.5	376.5	379.2	378.5
32.5°	364.5	362.5	363.2	361.2	361.2	361.8	360.5	360.5	362.5	361.2
35°	350.5	345.8	346.5	345.8	346.5	343.8	343.8	343.2	344.5	341.1
37.5°	330.5	328.5	327.8	327.1	327.8	326.5	327.8	325.8	327.8	325.1
40°	312.4	311.1	311.8	307.8	307.8	308.4	307.1	306.4	307.1	309.8
42.5°	294.4	291.8	290.4	289.1	289.7	287.7	287.1	285.7	287.1	284.4
45°	273.0	273.0	272.4	269.0	269.7	269.7	267.0	264.4	265.0	265.0
47.5°	253.7	252.4	251.7	248.4	247.7	247.0	244.3	242.3	242.3	240.3
50°	232.3	231.0	229.0	225.6	224.3	220.3	218.3	215.6	213.0	213.0
52.5°	212.3	207.6	204.9	199.6	197.6	195.6	190.3	188.3	186.3	184.3
55°	188.3	184.3	178.9	172.9	170.2	166.9	161.6	157.5	154.9	155.6
57.5°	164.9	158.2	152.9	144.9	141.5	139.5	134.2	128.8	126.2	126.2
60°	136.2	130.9	124.2	116.8	114.2	110.8	104.1	100.8	98.8	96.8
62.5°	108.8	104.8	98.8	89.5	87.5	84.1	79.5	75.5	73.4	73.4
65°	81.4	77.4	72.1	65.4	62.8	60.1	56.1	52.1	50.1	49.4
67.5°	57.4	52.7	48.1	42.7	40.7	39.4	35.4	32.7	31.4	30.7
70°	34.7	32.0	28.7	24.7	22.7	21.4	18.7	16.7	16.0	15.4
72.5°	18.0	16.0	13.3	10.7	9.3	8.0	6.7	5.3	4.7	4.7
75°	6.7	5.3	3.3	2.0	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
82.5°	0.0	0.0	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	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)