

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: **FLDSQ4C15D010 FEU4C159050 F4LC-DFSSQ-MW**

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: FLDSQ4C15D010 FEU4C159050 F4LC-DFSSQ-MW  
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

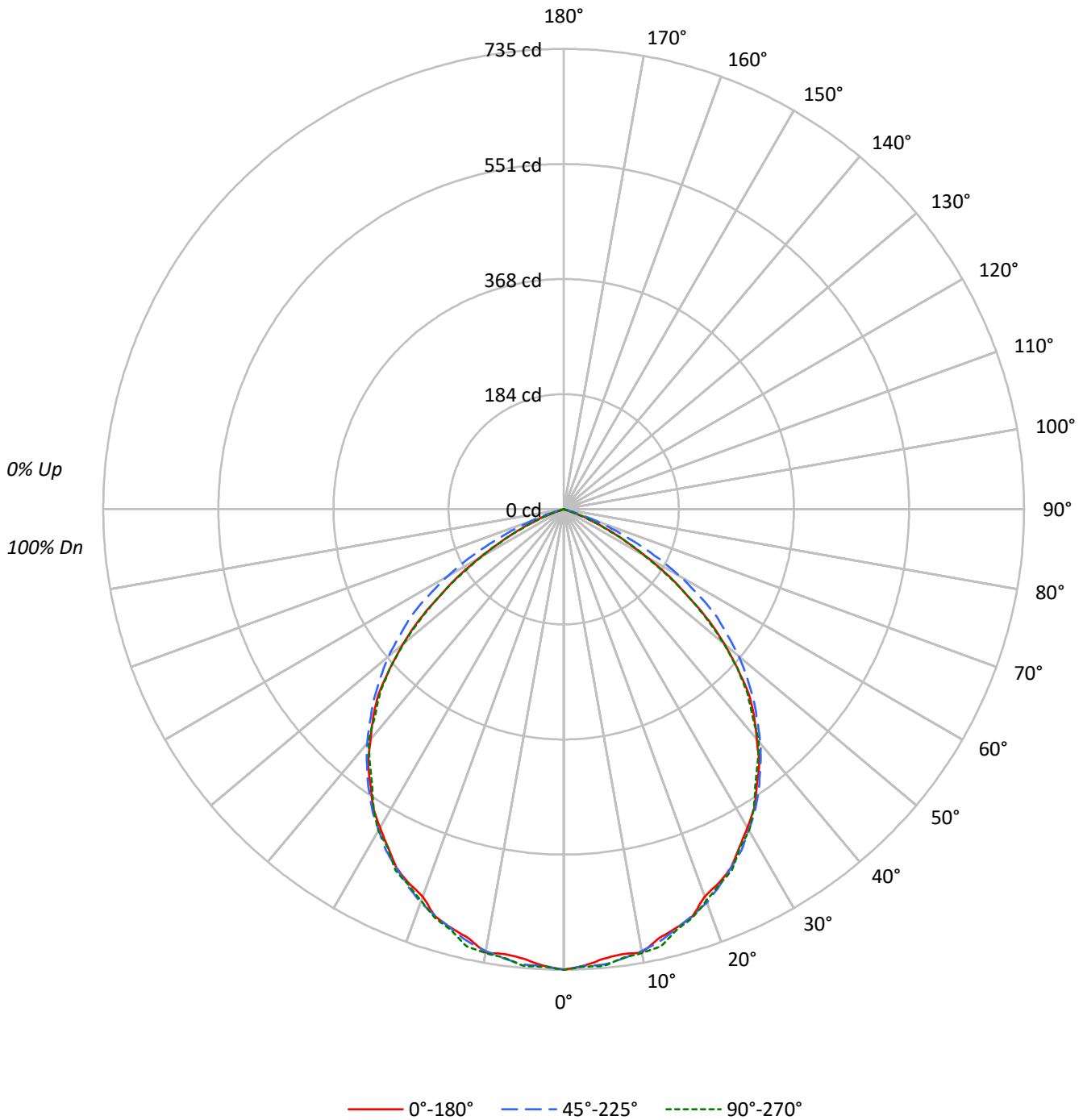
Lumens per Lamp: N/A  
 Luminaire Lumens: 1570.0 lumens  
 Efficiency: N/A  
 Efficacy: 99.4 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 15.8  
 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



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C15D010 FEU4C159050 F4LC-DFSSQ-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°	70919	70919	70919
5°	69776	70677	70880
10°	70377	70171	70475
15°	69146	69246	69455
20°	67534	68601	68283
25°	67242	67242	67690
30°	65368	65836	65947
35°	63325	63949	62842
40°	60359	61543	61014
45°	57120	58403	56547
50°	50302	54700	49987
55°	40744	50046	40929
60°	29815	41510	29217
65°	18128	29544	17649
70°	7053	15911	6771
75°	783	4287	783
80°	611	611	611
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	69.4	4.4
10°-20°	196.3	12.5
20°-30°	291.3	18.6
30°-40°	337.5	21.5
40°-50°	323.6	20.6
50°-60°	237.9	15.2
60°-70°	102.8	6.5
70°-80°	11.1	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°	557.0	35.5
0°-40°	894.5	57.0
0°-60°	1456.0	92.7
0°-90°	1570.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1570.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	735	735	735	735	735	
5°	720	728	730	731	732	69
15°	692	696	693	694	695	195
25°	632	631	632	633	636	289
35°	538	541	543	542	534	336
45°	419	420	428	422	414	318
55°	242	267	298	266	243	218
65°	79	99	129	98	77	82
75°	2	3	12	2	2	6
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#  
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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	735.0	735.0	735.0	735.0	735.0	735.0	735.0	735.0	735.0	735.0	735.0
2.5°	729.7	738.1	739.1	733.9	731.8	728.7	736.0	730.8	732.9	730.8	729.7
5°	720.4	729.7	730.8	730.8	728.7	727.6	730.8	729.7	728.7	726.6	729.7
7.5°	716.2	721.4	726.6	720.4	723.5	722.4	729.7	726.6	725.6	725.6	723.5
10°	718.3	717.2	721.4	715.1	717.2	715.1	721.4	721.4	719.3	717.2	716.2
12.5°	701.5	709.9	709.9	708.9	706.8	703.6	709.9	714.1	707.8	707.8	706.8
15°	692.2	694.2	695.3	695.3	694.2	696.3	699.4	695.3	696.3	691.1	693.2
17.5°	681.7	677.5	680.7	678.6	679.6	681.7	685.9	685.9	679.6	678.6	680.7
20°	657.7	670.2	671.3	665.0	666.0	666.0	673.4	667.1	671.3	666.0	668.1
22.5°	646.2	654.5	655.6	647.3	652.5	646.2	653.5	644.1	654.5	647.3	650.4
25°	631.6	630.6	633.7	629.5	630.6	630.6	635.8	631.6	634.7	630.6	631.6
27.5°	607.6	616.0	614.9	610.7	612.8	611.8	622.2	610.7	617.0	611.8	613.9
30°	586.7	594.0	591.9	587.8	587.8	584.6	596.1	593.0	591.9	591.9	590.9
32.5°	565.8	566.9	564.8	565.8	566.9	562.7	572.1	567.9	566.9	567.9	569.0
35°	537.6	537.6	539.7	536.6	540.8	540.8	549.1	543.9	542.9	539.7	542.9
37.5°	512.6	509.5	510.5	510.5	512.6	514.7	518.8	516.8	516.8	513.6	515.7
40°	479.2	477.1	480.2	480.2	483.4	483.4	487.5	485.4	488.6	488.6	488.6
42.5°	450.0	450.0	447.9	451.0	452.1	451.0	458.3	457.3	458.3	456.2	457.3
45°	418.6	418.6	416.5	415.5	420.7	419.7	428.0	424.9	429.1	427.0	428.0
47.5°	375.8	381.0	377.9	381.0	387.3	388.4	393.6	391.5	395.7	392.5	396.7
50°	335.1	335.1	338.2	342.4	348.7	349.7	356.0	360.2	362.3	363.3	364.4
52.5°	292.3	291.3	294.4	299.6	304.8	309.0	315.3	321.5	325.7	332.0	328.8
55°	242.2	244.3	247.4	253.7	262.0	267.2	272.5	280.8	288.2	291.3	297.5
57.5°	199.4	197.3	199.4	207.7	217.1	221.3	228.6	237.0	247.4	253.7	255.8
60°	154.5	155.6	157.6	165.0	172.3	178.5	181.7	195.2	204.6	210.9	215.1
62.5°	113.8	115.9	118.0	124.2	131.5	136.8	142.0	153.5	161.8	168.1	172.3
65°	79.4	80.4	83.5	86.6	94.0	99.2	103.3	112.7	121.1	126.3	129.4
67.5°	49.1	50.1	52.2	56.4	61.6	65.8	69.9	76.2	83.5	88.7	89.8
70°	25.0	26.1	27.1	30.3	34.5	36.5	39.7	44.9	50.1	54.3	56.4
72.5°	8.3	8.3	9.4	11.5	13.6	15.7	16.7	21.9	26.1	28.2	29.2
75°	2.1	2.1	2.1	2.1	2.1	3.2	3.2	6.3	8.3	10.4	11.5
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.1	2.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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

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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	735.0	735.0	735.0	735.0	735.0	735.0	735.0	735.0	735.0	735.0
2.5°	735.0	732.9	731.8	732.9	732.9	731.8	735.0	739.1	744.3	730.8
5°	733.9	731.8	733.9	727.6	730.8	728.7	732.9	731.8	736.0	731.8
7.5°	730.8	726.6	727.6	724.5	728.7	723.5	726.6	732.9	728.7	722.4
10°	720.4	718.3	725.6	715.1	713.0	717.2	725.6	719.3	717.2	719.3
12.5°	709.9	709.9	713.0	704.7	705.7	707.8	712.0	707.8	709.9	715.1
15°	698.4	696.3	701.5	695.3	694.2	692.2	696.3	696.3	698.4	695.3
17.5°	684.8	681.7	681.7	679.6	678.6	683.8	685.9	686.9	688.0	683.8
20°	668.1	667.1	670.2	667.1	668.1	669.2	669.2	667.1	676.5	665.0
22.5°	650.4	653.5	649.4	647.3	649.4	651.4	651.4	652.5	650.4	648.3
25°	632.7	634.7	635.8	629.5	632.7	629.5	636.8	637.9	633.7	635.8
27.5°	617.0	613.9	612.8	608.6	610.7	609.7	610.7	610.7	617.0	608.6
30°	593.0	589.8	590.9	587.8	588.8	587.8	588.8	588.8	593.0	591.9
32.5°	570.0	566.9	567.9	564.8	564.8	565.8	563.7	563.7	566.9	564.8
35°	548.1	540.8	541.8	540.8	541.8	537.6	537.6	536.6	538.7	533.5
37.5°	516.8	513.6	512.6	511.6	512.6	510.5	512.6	509.5	512.6	508.4
40°	488.6	486.5	487.5	481.3	481.3	482.3	480.2	479.2	480.2	484.4
42.5°	460.4	456.2	454.1	452.1	453.1	450.0	448.9	446.8	448.9	444.7
45°	427.0	427.0	425.9	420.7	421.8	421.8	417.6	413.4	414.4	414.4
47.5°	396.7	394.6	393.6	388.4	387.3	386.3	382.1	379.0	379.0	375.8
50°	363.3	361.2	358.1	352.9	350.8	344.5	341.4	337.2	333.0	333.0
52.5°	332.0	324.7	320.5	312.1	309.0	305.9	297.5	294.4	291.3	288.2
55°	294.4	288.2	279.8	270.4	266.2	261.0	252.6	246.4	242.2	243.3
57.5°	257.9	247.4	239.1	226.6	221.3	218.2	209.8	201.5	197.3	197.3
60°	213.0	204.6	194.2	182.7	178.5	173.3	162.8	157.6	154.5	151.4
62.5°	170.2	163.9	154.5	139.9	136.8	131.5	124.2	118.0	114.8	114.8
65°	127.4	121.1	112.7	102.3	98.1	94.0	87.7	81.4	78.3	77.3
67.5°	89.8	82.5	75.2	66.8	63.7	61.6	55.3	51.2	49.1	48.0
70°	54.3	50.1	44.9	38.6	35.5	33.4	29.2	26.1	25.0	24.0
72.5°	28.2	25.0	20.9	16.7	14.6	12.5	10.4	8.3	7.3	7.3
75°	10.4	8.3	5.2	3.2	2.1	2.1	2.1	2.1	2.1	2.1
77.5°	2.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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)