

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: **FLDSQ4C08D010 FEU4C089030 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: FLDSQ4C08D010 FEU4C089030 F4LC-SQ-LI  
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

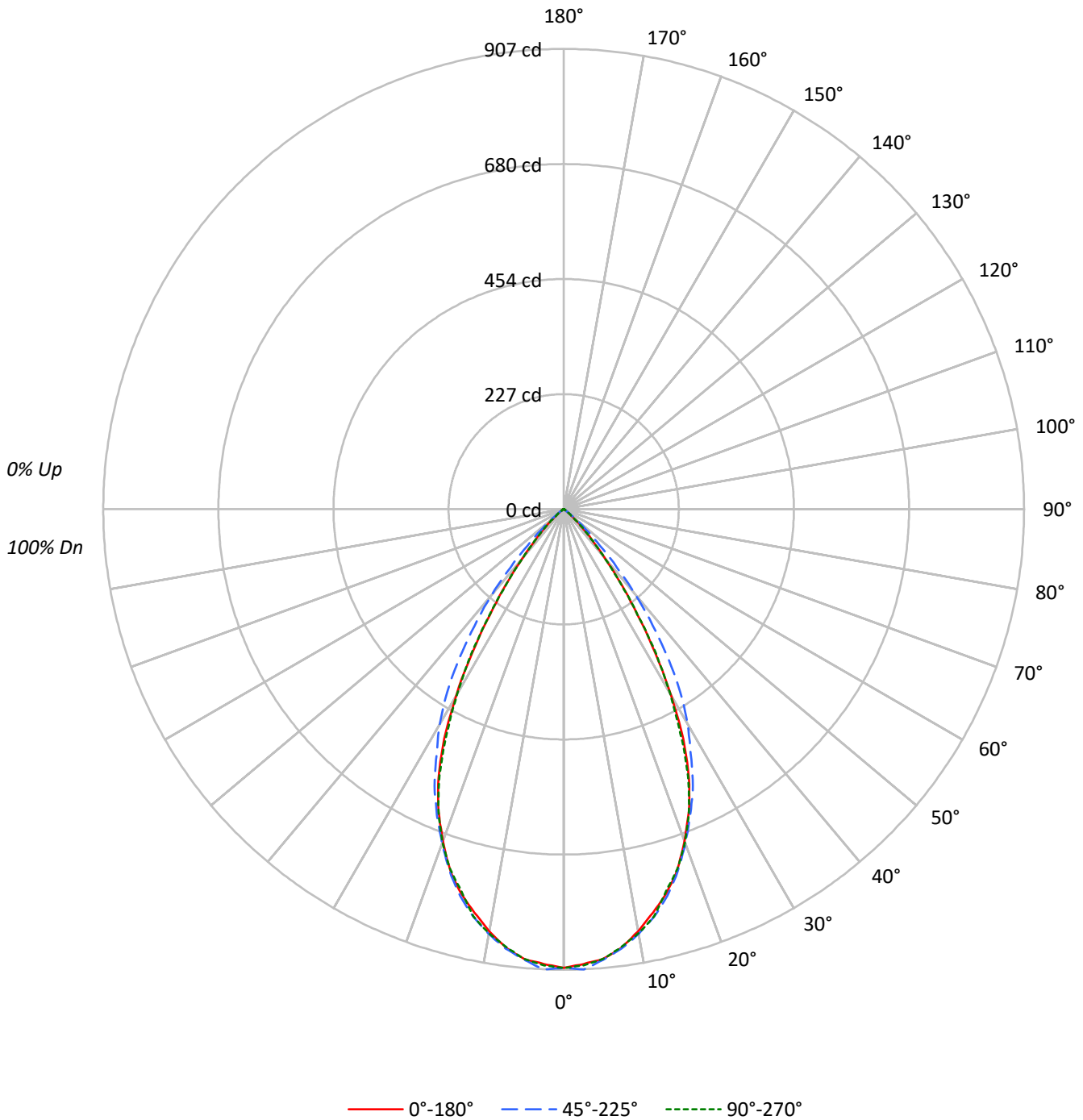
Lumens per Lamp: N/A  
 Luminaire Lumens: 834.0 lumens  
 Efficiency: N/A  
 Efficacy: 84.2 lumens/watt  
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 9.9  
 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°	87168	87168	87168
5°	86164	86271	86164
10°	82713	83222	83114
15°	78196	78775	77796
20°	71364	71897	71723
25°	62143	64091	61717
30°	47251	54349	46550
35°	29742	42252	30013
40°	16047	27900	15757
45°	7601	13782	7519
50°	2837	5164	2837
55°	1346	1649	1262
60°	888	772	888
65°	525	525	525
70°	310	480	310
75°	224	224	224
80°	333	333	333
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	83.8	10.0
10°-20°	219.5	26.3
20°-30°	268.1	32.2
30°-40°	187.5	22.5
40°-50°	61.5	7.4
50°-60°	9.8	1.2
60°-70°	2.6	0.3
70°-80°	0.9	0.1
80°-90°	0.3	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°	571.4	68.5
0°-40°	759.0	91.0
0°-60°	830.2	99.5
0°-90°	834.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	834.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	903	903	903	903	903	
5°	890	890	891	885	890	83
15°	783	786	789	783	779	218
25°	584	593	602	591	580	262
35°	252	298	359	294	255	161
45°	56	69	101	68	55	47
55°	8	9	10	9	8	8
65°	2	3	2	3	2	3
75°	1	1	1	1	1	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089030 F4LC-SQ-LI

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	903.4	903.4	903.4	903.4	903.4	903.4	903.4	903.4	903.4	903.4	903.4
2.5°	896.5	902.8	901.1	905.1	905.1	900.5	901.6	903.4	905.6	907.4	893.6
5°	889.6	895.3	890.1	895.9	892.4	887.3	895.9	891.3	894.2	890.7	893.0
7.5°	871.2	880.4	870.1	877.0	874.7	871.8	875.2	874.1	875.8	872.9	866.6
10°	844.2	851.7	844.8	854.6	850.0	847.1	850.0	852.9	852.3	849.4	852.9
12.5°	813.3	821.8	818.4	824.1	819.0	819.0	825.9	824.1	824.7	822.4	826.4
15°	782.8	789.2	784.0	791.4	789.2	782.8	785.7	785.7	790.3	788.6	784.0
17.5°	745.0	750.1	744.4	746.1	743.8	742.7	754.7	746.7	751.3	747.8	748.4
20°	695.0	697.3	695.6	700.2	697.3	700.8	699.6	698.5	698.5	700.2	696.2
22.5°	644.5	644.5	646.2	647.4	649.7	646.2	653.1	647.4	648.0	652.0	650.8
25°	583.7	582.0	586.0	591.7	594.0	591.1	600.3	595.7	599.2	602.0	595.7
27.5°	509.7	509.7	513.7	523.4	525.1	528.6	541.2	541.2	545.8	541.8	546.4
30°	424.1	430.4	435.6	448.2	452.2	459.7	472.9	479.2	489.6	487.8	485.5
32.5°	336.3	344.9	345.5	358.7	369.6	382.2	400.0	414.9	422.4	427.6	421.8
35°	252.5	257.7	262.3	271.5	289.8	306.5	322.5	342.1	355.3	358.7	353.5
37.5°	184.8	186.0	190.5	199.1	212.9	229.0	248.5	269.7	283.5	288.7	282.9
40°	127.4	128.6	130.9	138.3	149.8	161.3	176.8	198.6	211.2	221.5	214.1
42.5°	85.5	86.7	89.0	94.7	101.0	111.9	124.0	137.7	149.8	154.4	150.4
45°	55.7	55.7	56.8	60.8	64.3	72.9	81.5	90.1	98.1	101.0	98.1
47.5°	32.7	33.3	34.4	37.3	41.3	44.8	51.1	56.8	59.1	61.4	60.3
50°	18.9	18.9	20.7	22.4	25.2	27.5	29.8	32.1	33.3	34.4	33.3
52.5°	10.3	10.9	11.5	12.1	13.2	15.5	17.2	17.2	17.8	18.4	17.8
55°	8.0	8.0	8.0	8.0	8.6	8.6	8.6	9.2	9.2	9.8	9.2
57.5°	5.7	5.7	5.7	6.3	6.3	6.3	5.7	5.7	5.7	5.7	5.7
60°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.0	4.0	4.0	4.0
62.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
65°	2.3	2.3	2.9	2.9	2.9	2.9	2.9	2.3	2.3	2.3	2.3
67.5°	1.7	1.7	1.7	1.7	2.3	2.3	1.7	1.7	1.7	1.7	1.7
70°	1.1	1.1	1.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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°	903.4	903.4	903.4	903.4	903.4	903.4	903.4	903.4
2.5°	903.4	893.6	894.7	899.9	897.0	899.9	899.3	899.3
5°	893.6	890.7	886.1	884.4	887.8	895.3	894.2	889.6
7.5°	875.2	867.8	872.9	875.2	872.4	877.0	879.3	869.5
10°	853.4	850.6	849.4	850.6	849.4	854.0	848.3	848.3
12.5°	822.4	817.8	817.8	824.7	820.7	817.3	821.8	821.3
15°	791.4	782.2	782.2	784.5	786.3	784.0	784.5	778.8
17.5°	745.5	742.7	738.6	745.0	746.7	744.4	746.1	743.2
20°	702.5	702.5	695.0	697.9	700.2	701.9	703.1	698.5
22.5°	647.4	648.5	643.4	649.1	650.8	645.1	646.2	645.1
25°	596.9	596.3	592.3	590.0	591.1	588.8	588.3	579.7
27.5°	541.2	535.5	526.9	529.2	519.4	511.4	511.4	498.2
30°	480.9	471.2	459.7	448.2	439.6	430.4	425.3	417.8
32.5°	410.4	397.2	382.8	367.3	357.6	343.8	336.3	340.3
35°	340.3	320.8	301.3	285.8	270.9	262.8	253.7	254.8
37.5°	272.6	245.1	227.9	211.2	198.6	188.3	184.2	183.1
40°	199.1	177.3	160.1	148.1	139.5	131.4	126.8	125.1
42.5°	137.7	122.3	108.5	98.7	93.0	87.8	85.5	84.9
45°	89.5	80.4	71.2	64.3	59.7	56.3	55.7	55.1
47.5°	56.3	51.6	45.9	40.8	36.7	34.4	32.7	32.7
50°	32.1	30.4	27.5	24.7	22.4	21.2	19.5	18.9
52.5°	17.2	17.2	16.1	13.8	12.1	10.9	10.9	10.3
55°	9.2	9.2	8.6	8.6	8.0	8.0	8.0	7.5
57.5°	5.7	5.7	6.3	6.3	5.7	5.7	5.7	5.7
60°	4.0	4.6	4.6	4.6	4.6	4.6	4.6	4.6
62.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
65°	2.3	2.9	2.9	2.9	2.9	2.3	2.3	2.3
67.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
70°	1.7	1.7	1.7	1.7	1.7	1.1	1.1	1.1
72.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
75°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)