

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: **FLDSQ4C60D010 FEU4C609040 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: FLDSQ4C60D010 FEU4C609040 F4LC-SQ-LI  
 Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

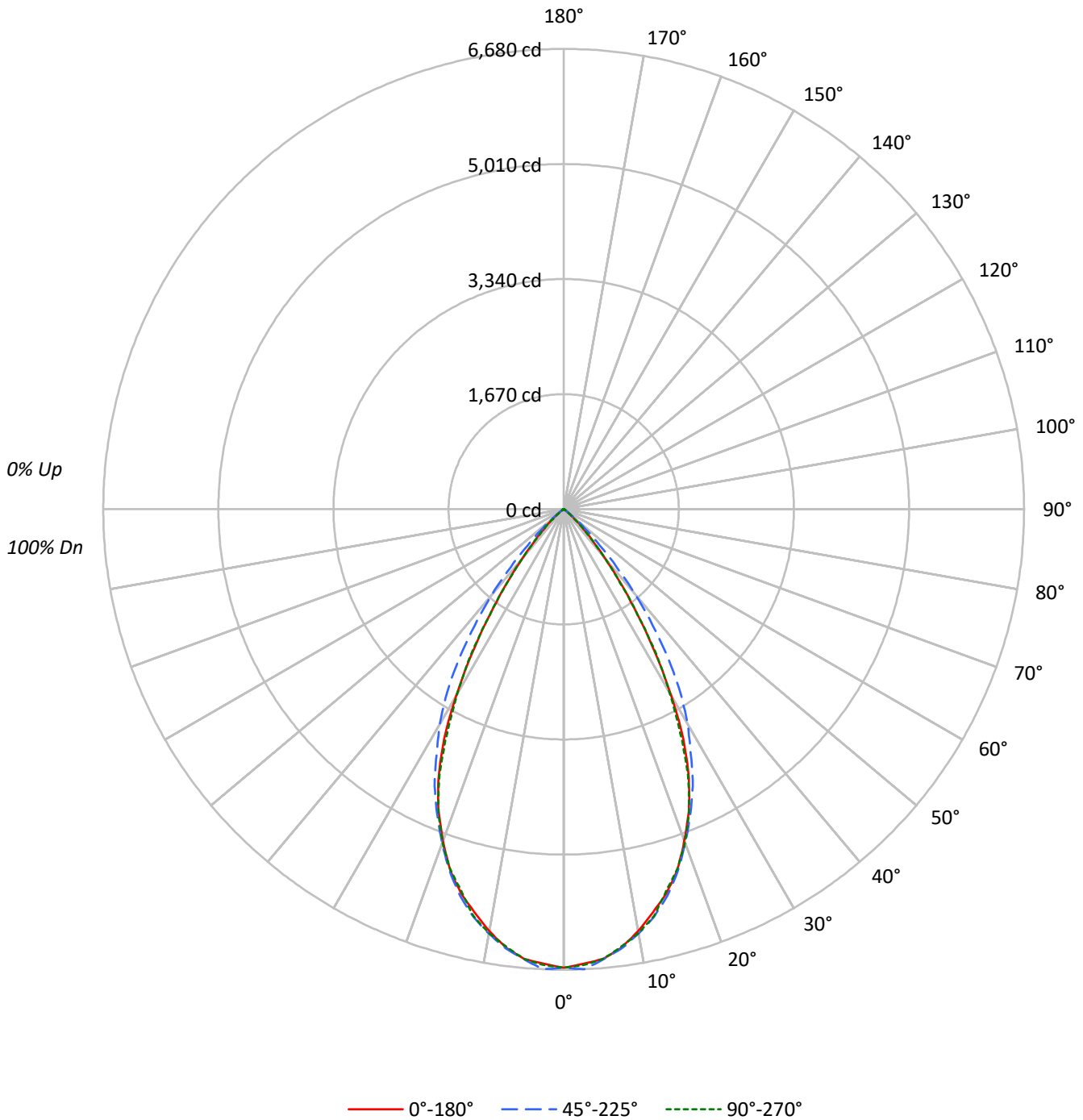
Lumens per Lamp: N/A  
 Luminaire Lumens: 6140.0 lumens  
 Efficiency: N/A  
 Efficacy: 85.3 lumens/watt  
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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

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

	0°	45°	90°
0°	641709	641709	641709
5°	634339	635153	634339
10°	608969	612702	611869
15°	575711	579927	572745
20°	525410	529302	528008
25°	457496	471879	454334
30°	347885	400139	342715
35°	218986	311063	220976
40°	118148	205436	116019
45°	55933	101482	55333
50°	20940	38053	20940
55°	9942	12095	9252
60°	6523	5731	6523
65°	3858	3858	3858
70°	2370	3611	2370
75°	1603	1603	1603
80°	2389	2389	2389
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	616.6	10.0
10°-20°	1616.0	26.3
20°-30°	1974.1	32.2
30°-40°	1380.7	22.5
40°-50°	452.5	7.4
50°-60°	71.9	1.2
60°-70°	19.6	0.3
70°-80°	6.6	0.1
80°-90°	1.8	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°	4206.8	68.5
0°-40°	5587.5	91.0
0°-60°	6111.9	99.5
0°-90°	6140.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6140.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	6651	6651	6651	6651	6651	
5°	6549	6551	6558	6517	6549	614
15°	5763	5787	5806	5767	5734	1608
25°	4297	4363	4432	4352	4268	1930
35°	1859	2195	2641	2161	1876	1186
45°	410	505	744	499	406	344
55°	59	63	72	63	55	58
65°	17	21	17	21	17	19
75°	4	4	4	4	4	6
85°	0	0	0	0	0	2
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°	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6
2.5°	6599.9	6646.4	6633.7	6663.3	6663.3	6629.5	6638.0	6650.6	6667.5	6680.2	6578.7
5°	6549.2	6591.4	6553.3	6595.6	6570.2	6532.3	6595.6	6561.8	6583.0	6557.6	6574.5
7.5°	6414.0	6481.6	6405.6	6456.3	6439.4	6418.1	6443.5	6435.0	6447.8	6426.6	6380.2
10°	6215.4	6270.4	6219.7	6291.4	6257.6	6236.6	6257.6	6278.8	6274.5	6253.5	6278.8
12.5°	5987.3	6050.5	6025.2	6067.4	6029.5	6029.5	6080.2	6067.4	6071.7	6054.8	6084.3
15°	5763.3	5809.8	5771.7	5826.7	5809.8	5763.3	5784.3	5784.3	5818.3	5805.5	5771.7
17.5°	5484.5	5522.4	5480.2	5492.9	5476.0	5467.6	5556.2	5497.1	5530.9	5505.5	5509.8
20°	5116.9	5133.8	5121.0	5154.8	5133.8	5159.1	5150.7	5142.2	5142.2	5154.8	5125.3
22.5°	4744.9	4744.9	4757.7	4766.1	4783.0	4757.7	4808.4	4766.1	4770.3	4799.9	4791.5
25°	4297.2	4284.4	4314.1	4356.3	4373.2	4352.0	4419.6	4385.8	4411.1	4432.3	4385.8
27.5°	3752.1	3752.1	3781.6	3853.5	3866.1	3891.4	3984.4	3984.4	4018.2	3988.7	4022.5
30°	3122.4	3169.0	3206.9	3299.9	3329.5	3384.5	3481.6	3528.1	3604.2	3591.4	3574.5
32.5°	2476.0	2539.5	2543.6	2640.8	2721.0	2814.0	2945.0	3054.8	3109.8	3147.8	3105.5
35°	1859.1	1897.2	1931.0	1998.6	2133.8	2256.3	2374.6	2518.3	2615.5	2640.8	2602.7
37.5°	1360.6	1369.0	1402.8	1466.1	1567.5	1686.0	1829.6	1985.8	2087.4	2125.3	2083.1
40°	938.0	946.4	963.3	1018.3	1102.8	1187.3	1301.5	1462.0	1554.9	1631.0	1576.0
42.5°	629.5	638.0	654.9	697.1	743.7	823.8	912.6	1014.0	1102.8	1136.6	1107.0
45°	409.9	409.9	418.3	448.0	473.3	536.6	600.0	663.3	722.5	743.7	722.5
47.5°	240.9	245.0	253.5	274.7	304.2	329.5	376.1	418.3	435.2	452.1	443.6
50°	139.5	139.5	152.1	164.8	185.9	202.8	219.7	236.6	245.0	253.5	245.0
52.5°	76.0	80.3	84.5	88.8	97.2	114.1	126.7	126.7	131.0	135.2	131.0
55°	59.1	59.1	59.1	59.1	63.4	63.4	63.4	67.6	67.6	71.9	67.6
57.5°	42.2	42.2	42.2	46.6	46.6	46.6	42.2	42.2	42.2	42.2	42.2
60°	33.8	33.8	33.8	33.8	33.8	33.8	33.8	29.7	29.7	29.7	29.7
62.5°	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3
65°	16.9	16.9	21.2	21.2	21.2	21.2	21.2	16.9	16.9	16.9	16.9
67.5°	12.8	12.8	12.8	12.8	16.9	16.9	12.8	12.8	12.8	12.8	12.8
70°	8.4	8.4	8.4	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
72.5°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
75°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
77.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
80°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	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°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
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°	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6	6650.6
2.5°	6650.6	6578.7	6587.1	6625.2	6604.0	6625.2	6621.1	6621.1
5°	6578.7	6557.6	6523.8	6511.1	6536.4	6591.4	6583.0	6549.2
7.5°	6443.5	6388.7	6426.6	6443.5	6422.5	6456.3	6473.2	6401.3
10°	6283.0	6261.9	6253.5	6261.9	6253.5	6287.3	6245.0	6245.0
12.5°	6054.8	6021.1	6021.1	6071.7	6042.1	6016.7	6050.5	6046.4
15°	5826.7	5759.0	5759.0	5775.9	5788.6	5771.7	5775.9	5733.6
17.5°	5488.6	5467.6	5437.9	5484.5	5497.1	5480.2	5492.9	5471.7
20°	5171.7	5171.7	5116.9	5137.9	5154.8	5167.6	5176.0	5142.2
22.5°	4766.1	4774.6	4736.5	4778.7	4791.5	4749.3	4757.7	4749.3
25°	4394.2	4390.1	4360.4	4343.5	4352.0	4335.1	4331.0	4267.5
27.5°	3984.4	3942.1	3878.9	3895.8	3823.9	3764.7	3764.7	3667.5
30°	3540.7	3469.0	3384.5	3299.9	3236.6	3169.0	3130.9	3076.0
32.5°	3021.0	2924.0	2818.3	2704.1	2632.4	2531.0	2476.0	2505.7
35°	2505.7	2361.9	2218.2	2104.3	1994.3	1935.1	1867.5	1876.0
37.5°	2007.0	1804.2	1677.5	1554.9	1462.0	1385.9	1356.3	1347.8
40°	1466.1	1305.6	1178.9	1090.1	1026.8	967.6	933.8	921.1
42.5°	1014.0	900.1	798.5	726.8	684.5	646.4	629.5	625.4
45°	659.2	591.6	524.0	473.3	439.5	414.2	409.9	405.5
47.5°	414.2	380.2	338.0	300.0	270.4	253.5	240.9	240.9
50°	236.6	224.0	202.8	181.7	164.8	156.4	143.6	139.5
52.5°	126.7	126.7	118.3	101.4	88.8	80.3	80.3	76.0
55°	67.6	67.6	63.4	63.4	59.1	59.1	59.1	55.0
57.5°	42.2	42.2	46.6	46.6	42.2	42.2	42.2	42.2
60°	29.7	33.8	33.8	33.8	33.8	33.8	33.8	33.8
62.5°	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3
65°	16.9	21.2	21.2	21.2	21.2	16.9	16.9	16.9
67.5°	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
70°	12.8	12.8	12.8	12.8	12.8	8.4	8.4	8.4
72.5°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
75°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
77.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
80°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
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°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)