

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 FEU4C609050 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 FEU4C609050 F4LC-SQ-LI  
 Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

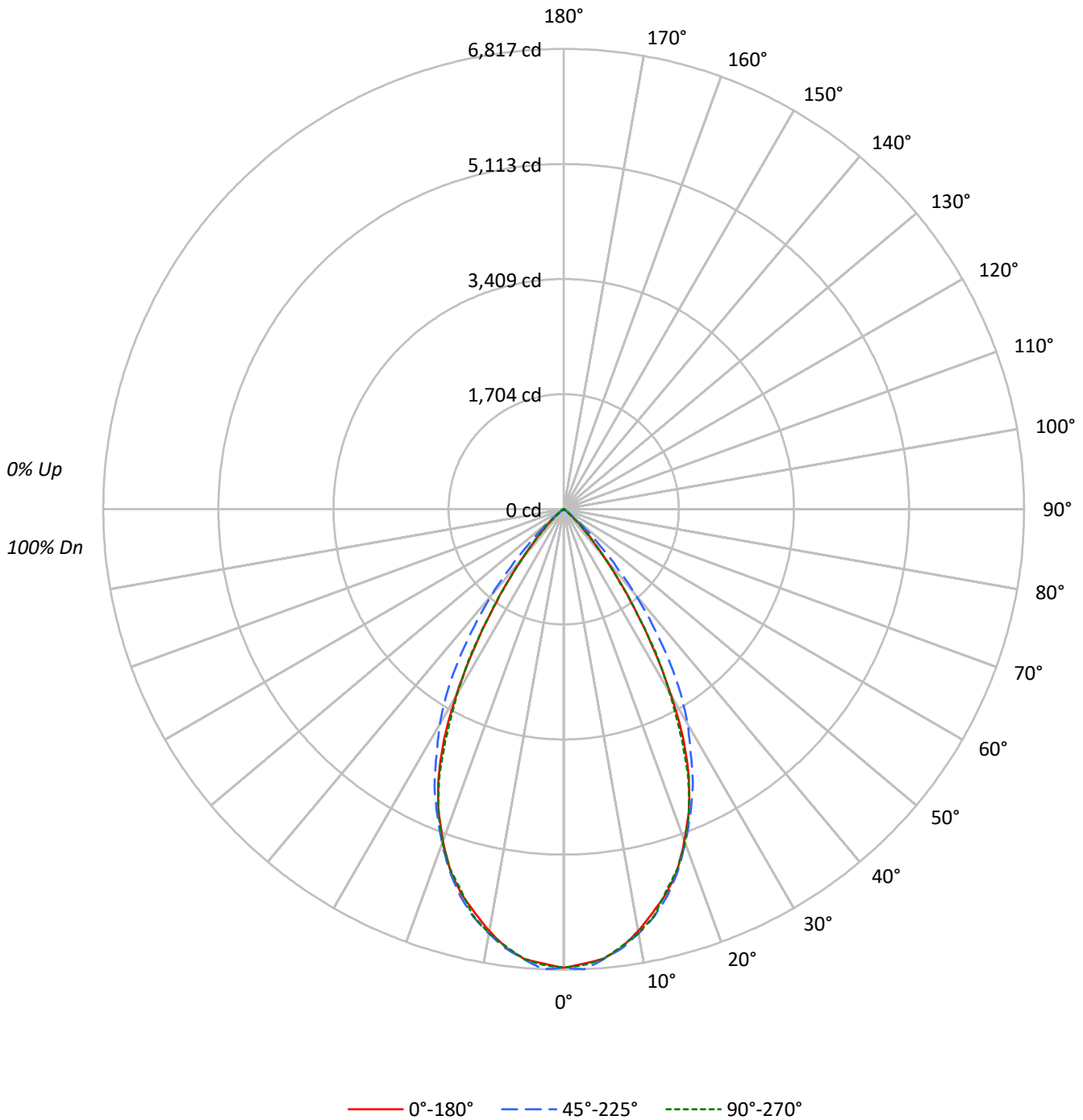
Lumens per Lamp: N/A  
 Luminaire Lumens: 6266.0 lumens  
 Efficiency: N/A  
 Efficacy: 87.0 lumens/watt  
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 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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CATALOG NUMBER: FLDSQ4C60D010 FEU4C609050 F4LC-SQ-LI

**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°	654880	654880	654880
5°	647357	648190	647357
10°	621461	625272	624430
15°	587519	591834	584502
20°	536192	540165	538841
25°	466875	481567	463660
30°	355026	408350	349756
35°	223473	317447	225511
40°	120566	209643	118400
45°	57080	103556	56479
50°	21376	38833	21376
55°	10161	12348	9437
60°	6658	5847	6658
65°	3927	3927	3927
70°	2426	3667	2426
75°	1640	1640	1640
80°	2445	2445	2445
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	629.3	10.0
10°-20°	1649.2	26.3
20°-30°	2014.6	32.2
30°-40°	1409.1	22.5
40°-50°	461.8	7.4
50°-60°	73.4	1.2
60°-70°	20.0	0.3
70°-80°	6.7	0.1
80°-90°	1.9	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°	4293.1	68.5
0°-40°	5702.2	91.0
0°-60°	6237.4	99.5
0°-90°	6266.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6266.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	6787	6787	6787	6787	6787	
5°	6684	6686	6692	6651	6684	627
15°	5882	5905	5925	5886	5851	1641
25°	4385	4452	4523	4441	4355	1970
35°	1897	2240	2695	2206	1914	1211
45°	418	515	759	509	414	351
55°	60	65	73	65	56	60
65°	17	22	17	22	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°	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1
2.5°	6735.3	6782.8	6769.8	6800.1	6800.1	6765.6	6774.2	6787.1	6804.3	6817.3	6713.7
5°	6683.6	6726.7	6687.8	6730.9	6705.1	6666.3	6730.9	6696.4	6718.1	6692.2	6709.5
7.5°	6545.6	6614.6	6537.0	6588.7	6571.5	6549.9	6575.7	6567.1	6580.1	6558.5	6511.1
10°	6342.9	6399.1	6347.3	6420.5	6386.0	6364.6	6386.0	6407.7	6403.3	6381.8	6407.7
12.5°	6110.1	6174.7	6148.8	6192.0	6153.2	6153.2	6205.0	6192.0	6196.3	6179.1	6209.2
15°	5881.5	5929.1	5890.2	5946.3	5929.1	5881.5	5903.0	5903.0	5937.7	5924.7	5890.2
17.5°	5597.0	5635.7	5592.6	5605.6	5588.4	5579.8	5670.2	5609.9	5644.4	5618.5	5622.9
20°	5221.9	5239.1	5226.1	5260.6	5239.1	5265.0	5256.4	5247.7	5247.7	5260.6	5230.5
22.5°	4842.3	4842.3	4855.3	4864.0	4881.2	4855.3	4907.1	4864.0	4868.2	4898.4	4889.8
25°	4385.3	4372.3	4402.6	4445.7	4462.9	4441.3	4510.3	4475.8	4501.7	4523.3	4475.8
27.5°	3829.1	3829.1	3859.2	3932.6	3945.4	3971.3	4066.1	4066.1	4100.6	4070.5	4105.0
30°	3186.5	3234.0	3272.7	3367.6	3397.8	3454.0	3553.0	3600.5	3678.1	3665.1	3647.9
32.5°	2526.8	2591.6	2595.8	2695.0	2776.9	2871.7	3005.4	3117.5	3173.7	3212.4	3169.3
35°	1897.2	1936.1	1970.6	2039.6	2177.5	2302.6	2423.4	2569.9	2669.2	2695.0	2656.2
37.5°	1388.5	1397.1	1431.6	1496.2	1599.7	1720.6	1867.1	2026.6	2130.2	2168.9	2125.8
40°	957.2	965.9	983.1	1039.2	1125.5	1211.7	1328.2	1492.0	1586.8	1664.4	1608.3
42.5°	642.4	651.1	668.3	711.4	758.9	840.8	931.4	1034.8	1125.5	1159.9	1129.7
45°	418.3	418.3	426.9	457.1	483.0	547.6	612.3	676.9	737.3	758.9	737.3
47.5°	245.8	250.0	258.7	280.3	310.4	336.3	383.8	426.9	444.1	461.4	452.8
50°	142.4	142.4	155.2	168.2	189.7	206.9	224.2	241.4	250.0	258.7	250.0
52.5°	77.6	82.0	86.2	90.6	99.2	116.5	129.3	129.3	133.7	138.0	133.7
55°	60.4	60.4	60.4	60.4	64.8	64.8	64.8	69.0	69.0	73.4	69.0
57.5°	43.1	43.1	43.1	47.5	47.5	47.5	43.1	43.1	43.1	43.1	43.1
60°	34.5	34.5	34.5	34.5	34.5	34.5	34.5	30.3	30.3	30.3	30.3
62.5°	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9
65°	17.2	17.2	21.6	21.6	21.6	21.6	21.6	17.2	17.2	17.2	17.2
67.5°	13.0	13.0	13.0	13.0	17.2	17.2	13.0	13.0	13.0	13.0	13.0
70°	8.6	8.6	8.6	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
72.5°	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
75°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
77.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	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°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
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°	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1	6787.1
2.5°	6787.1	6713.7	6722.3	6761.2	6739.5	6761.2	6757.0	6757.0
5°	6713.7	6692.2	6657.7	6644.7	6670.6	6726.7	6718.1	6683.6
7.5°	6575.7	6519.8	6558.5	6575.7	6554.3	6588.7	6606.0	6532.6
10°	6411.9	6390.4	6381.8	6390.4	6381.8	6416.3	6373.2	6373.2
12.5°	6179.1	6144.6	6144.6	6196.3	6166.1	6140.2	6174.7	6170.5
15°	5946.3	5877.2	5877.2	5894.4	5907.4	5890.2	5894.4	5851.3
17.5°	5601.2	5579.8	5549.5	5597.0	5609.9	5592.6	5605.6	5584.0
20°	5277.8	5277.8	5221.9	5243.3	5260.6	5273.6	5282.2	5247.7
22.5°	4864.0	4872.6	4833.7	4876.8	4889.8	4846.7	4855.3	4846.7
25°	4484.4	4480.2	4449.9	4432.7	4441.3	4424.1	4419.8	4355.1
27.5°	4066.1	4023.0	3958.5	3975.7	3902.3	3842.0	3842.0	3742.7
30°	3613.4	3540.2	3454.0	3367.6	3303.0	3234.0	3195.1	3139.2
32.5°	3083.0	2984.0	2876.1	2759.6	2686.4	2583.0	2526.8	2557.1
35°	2557.1	2410.3	2263.8	2147.4	2035.2	1974.8	1905.9	1914.5
37.5°	2048.2	1841.3	1711.9	1586.8	1492.0	1414.4	1384.1	1375.5
40°	1496.2	1332.4	1203.1	1112.4	1047.9	987.5	953.0	940.0
42.5°	1034.8	918.5	814.9	741.7	698.6	659.7	642.4	638.2
45°	672.7	603.7	534.7	483.0	448.5	422.7	418.3	413.9
47.5°	422.7	388.0	344.9	306.2	275.9	258.7	245.8	245.8
50°	241.4	228.6	206.9	185.5	168.2	159.6	146.6	142.4
52.5°	129.3	129.3	120.7	103.5	90.6	82.0	82.0	77.6
55°	69.0	69.0	64.8	64.8	60.4	60.4	60.4	56.1
57.5°	43.1	43.1	47.5	47.5	43.1	43.1	43.1	43.1
60°	30.3	34.5	34.5	34.5	34.5	34.5	34.5	34.5
62.5°	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9
65°	17.2	21.6	21.6	21.6	21.6	17.2	17.2	17.2
67.5°	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
70°	13.0	13.0	13.0	13.0	13.0	8.6	8.6	8.6
72.5°	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
75°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
77.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
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°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)