

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: **FLDSQ4C70D010 FEU4C709050 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: FLDSQ4C70D010 FEU4C709050 F4LC-SQ-LI
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

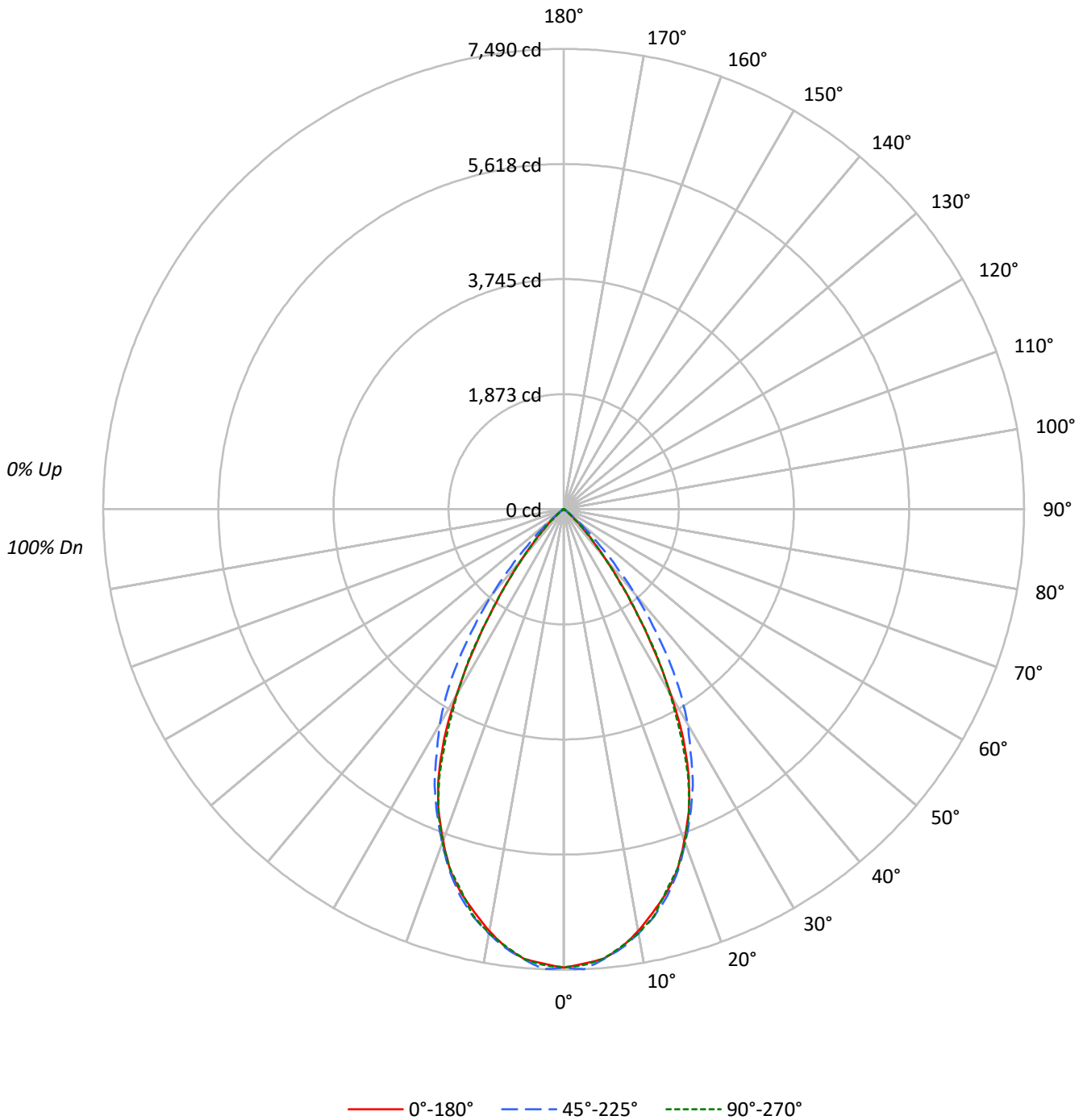
Lumens per Lamp: N/A
 Luminaire Lumens: 6884.0 lumens
 Efficiency: N/A
 Efficacy: 88.3 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 78
 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	
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°	719460	719460	719460
5°	711205	712115	711205
10°	682755	686939	686018
15°	645466	650201	642150
20°	589073	593437	591989
25°	512932	529061	509386
30°	390044	448627	384251
35°	245512	348756	247750
40°	132457	230326	130076
45°	62701	113777	62046
50°	23477	42661	23477
55°	11153	13559	10379
60°	7314	6407	7314
65°	4315	4315	4315
70°	2680	4034	2680
75°	1789	1789	1789
80°	2667	2667	2667
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	691.3	10.0
10°-20°	1811.8	26.3
20°-30°	2213.3	32.2
30°-40°	1548.1	22.5
40°-50°	507.3	7.4
50°-60°	80.7	1.2
60°-70°	22.0	0.3
70°-80°	7.4	0.1
80°-90°	2.0	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°	4716.5	68.5
0°-40°	6264.6	91.0
0°-60°	6852.6	99.5
0°-90°	6884.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6884.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	7456	7456	7456	7456	7456	
5°	7343	7345	7352	7307	7343	689
15°	6462	6488	6509	6466	6428	1802
25°	4818	4891	4969	4879	4785	2164
35°	2084	2461	2961	2423	2103	1330
45°	460	566	834	559	455	385
55°	66	71	81	71	62	66
65°	19	24	19	24	19	21
75°	5	5	5	5	5	7
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°	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4
2.5°	7399.6	7451.8	7437.5	7470.7	7470.7	7432.9	7442.3	7456.4	7475.4	7489.7	7375.8
5°	7342.8	7390.1	7347.4	7394.8	7366.4	7323.8	7394.8	7356.9	7380.7	7352.2	7371.2
7.5°	7191.2	7267.0	7181.7	7238.6	7219.6	7195.9	7224.3	7214.8	7229.1	7205.3	7153.3
10°	6968.5	7030.2	6973.3	7053.8	7015.9	6992.3	7015.9	7039.6	7034.8	7011.2	7039.6
12.5°	6712.7	6783.7	6755.3	6802.6	6760.1	6760.1	6816.9	6802.6	6807.5	6788.5	6821.6
15°	6461.6	6513.8	6471.1	6532.8	6513.8	6461.6	6485.2	6485.2	6523.3	6509.0	6471.1
17.5°	6149.0	6191.6	6144.2	6158.5	6139.6	6130.1	6229.5	6163.2	6201.0	6172.6	6177.5
20°	5736.9	5755.8	5741.5	5779.4	5755.8	5784.2	5774.8	5765.3	5765.3	5779.4	5746.4
22.5°	5319.9	5319.9	5334.2	5343.7	5362.6	5334.2	5391.0	5343.7	5348.3	5381.6	5372.1
25°	4817.9	4803.6	4836.8	4884.2	4903.1	4879.3	4955.1	4917.2	4945.6	4969.4	4917.2
27.5°	4206.8	4206.8	4239.8	4320.4	4334.6	4363.0	4467.2	4467.2	4505.1	4472.0	4509.9
30°	3500.8	3553.0	3595.5	3699.7	3733.0	3794.6	3903.5	3955.7	4040.9	4026.6	4007.7
32.5°	2776.0	2847.2	2851.8	2960.8	3050.7	3154.9	3301.9	3425.0	3486.7	3529.2	3481.8
35°	2084.3	2127.1	2165.0	2240.7	2392.3	2529.7	2662.4	2823.4	2932.4	2960.8	2918.1
37.5°	1525.5	1534.9	1572.8	1643.8	1757.5	1890.3	2051.3	2226.4	2340.3	2382.8	2335.5
40°	1051.6	1061.1	1080.1	1141.7	1236.5	1331.2	1459.2	1639.1	1743.3	1828.6	1766.9
42.5°	705.8	715.3	734.2	781.6	833.8	923.7	1023.2	1136.9	1236.5	1274.3	1241.1
45°	459.5	459.5	469.0	502.2	530.7	601.6	672.7	743.7	810.0	833.8	810.0
47.5°	270.1	274.7	284.2	308.0	341.0	369.4	421.6	469.0	487.9	506.9	497.4
50°	156.4	156.4	170.5	184.8	208.4	227.3	246.3	265.2	274.7	284.2	274.7
52.5°	85.3	90.1	94.7	99.6	109.0	128.0	142.1	142.1	146.9	151.6	146.9
55°	66.3	66.3	66.3	66.3	71.1	71.1	71.1	75.8	75.8	80.6	75.8
57.5°	47.4	47.4	47.4	52.2	52.2	52.2	47.4	47.4	47.4	47.4	47.4
60°	37.9	37.9	37.9	37.9	37.9	37.9	37.9	33.2	33.2	33.2	33.2
62.5°	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
65°	18.9	18.9	23.8	23.8	23.8	23.8	23.8	18.9	18.9	18.9	18.9
67.5°	14.3	14.3	14.3	14.3	18.9	18.9	14.3	14.3	14.3	14.3	14.3
70°	9.5	9.5	9.5	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
72.5°	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
75°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
77.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	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°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
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°	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4	7456.4
2.5°	7456.4	7375.8	7385.3	7428.0	7404.3	7428.0	7423.4	7423.4
5°	7375.8	7352.2	7314.4	7300.1	7328.5	7390.1	7380.7	7342.8
7.5°	7224.3	7162.8	7205.3	7224.3	7200.7	7238.6	7257.5	7176.9
10°	7044.3	7020.7	7011.2	7020.7	7011.2	7049.1	7001.8	7001.8
12.5°	6788.5	6750.6	6750.6	6807.5	6774.2	6745.8	6783.7	6779.1
15°	6532.8	6456.8	6456.8	6475.7	6490.1	6471.1	6475.7	6428.4
17.5°	6153.7	6130.1	6096.8	6149.0	6163.2	6144.2	6158.5	6134.7
20°	5798.4	5798.4	5736.9	5760.5	5779.4	5793.7	5803.2	5765.3
22.5°	5343.7	5353.1	5310.4	5357.8	5372.1	5324.7	5334.2	5324.7
25°	4926.7	4922.1	4888.8	4869.9	4879.3	4860.4	4855.7	4784.6
27.5°	4467.2	4419.8	4348.9	4367.8	4287.2	4220.9	4220.9	4111.9
30°	3969.8	3889.3	3794.6	3699.7	3628.8	3553.0	3510.3	3448.8
32.5°	3387.1	3278.3	3159.8	3031.8	2951.4	2837.7	2776.0	2809.3
35°	2809.3	2648.1	2487.0	2359.2	2235.9	2169.6	2093.8	2103.3
37.5°	2250.2	2022.9	1880.8	1743.3	1639.1	1553.9	1520.6	1511.2
40°	1643.8	1463.8	1321.7	1222.2	1151.2	1084.9	1047.0	1032.7
42.5°	1136.9	1009.1	895.3	814.8	767.5	724.7	705.8	701.2
45°	739.1	663.3	587.5	530.7	492.8	464.3	459.5	454.7
47.5°	464.3	426.3	378.9	336.4	303.1	284.2	270.1	270.1
50°	265.2	251.1	227.3	203.8	184.8	175.3	161.0	156.4
52.5°	142.1	142.1	132.6	113.7	99.6	90.1	90.1	85.3
55°	75.8	75.8	71.1	71.1	66.3	66.3	66.3	61.7
57.5°	47.4	47.4	52.2	52.2	47.4	47.4	47.4	47.4
60°	33.2	37.9	37.9	37.9	37.9	37.9	37.9	37.9
62.5°	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
65°	18.9	23.8	23.8	23.8	23.8	18.9	18.9	18.9
67.5°	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
70°	14.3	14.3	14.3	14.3	14.3	9.5	9.5	9.5
72.5°	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
75°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
77.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
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°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)