

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: **FLDSQ4C80D010 FEU4C809030 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: FLDSQ4C80D010 FEU4C809030 F4LC-SQ-LI
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

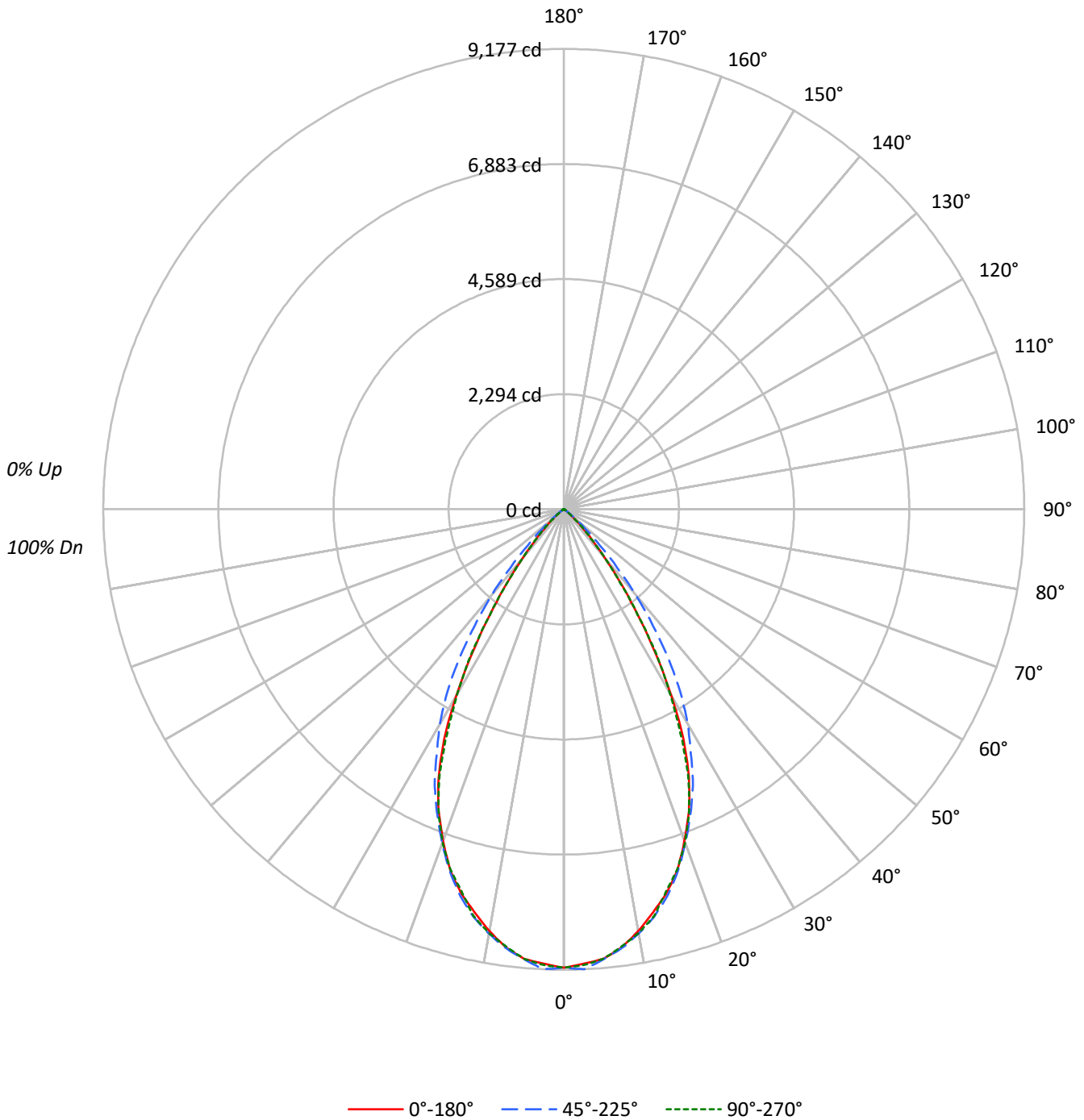
Lumens per Lamp: N/A
 Luminaire Lumens: 8434.9 lumens
 Efficiency: N/A
 Efficacy: 94.2 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 89.5
 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				
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°	881561	881561	881561
5°	871436	872560	871436
10°	836590	841714	840577
15°	790900	796694	786824
20°	721788	727138	725372
25°	628487	648258	624154
30°	477918	549703	470821
35°	300839	427335	303571
40°	162309	282220	159386
45°	76825	139403	76020
50°	28761	52268	28761
55°	13660	16620	12718
60°	8954	7854	8954
65°	5297	5297	5297
70°	3273	4937	3273
75°	2200	2200	2200
80°	3278	3278	3278
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	847.1	10.0
10°-20°	2220.0	26.3
20°-30°	2712.0	32.2
30°-40°	1896.8	22.5
40°-50°	621.6	7.4
50°-60°	98.8	1.2
60°-70°	27.0	0.3
70°-80°	9.0	0.1
80°-90°	2.5	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°	5779.2	68.5
0°-40°	7676.0	91.0
0°-60°	8396.5	99.5
0°-90°	8434.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	8434.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	9136	9136	9136	9136	9136	
5°	8997	9000	9009	8954	8997	844
15°	7918	7949	7976	7923	7877	2209
25°	5903	5993	6089	5979	5863	2652
35°	2554	3016	3628	2969	2577	1630
45°	563	694	1022	685	557	472
55°	81	87	99	87	76	80
65°	23	29	23	29	23	26
75°	6	6	6	6	6	8
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°	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4
2.5°	9066.8	9130.7	9113.2	9153.9	9153.9	9107.5	9119.1	9136.4	9159.6	9177.2	9037.6
5°	8997.1	9055.2	9002.8	9060.9	9026.0	8973.9	9060.9	9014.4	9043.6	9008.7	9032.0
7.5°	8811.4	8904.3	8799.8	8869.5	8846.2	8817.1	8851.9	8840.3	8857.9	8828.7	8765.0
10°	8538.6	8614.1	8544.5	8643.0	8596.6	8567.7	8596.6	8625.7	8619.8	8590.9	8625.7
12.5°	8225.2	8312.1	8277.3	8335.3	8283.2	8283.2	8352.8	8335.3	8341.2	8318.0	8358.5
15°	7917.5	7981.4	7929.1	8004.6	7981.4	7917.5	7946.4	7946.4	7993.0	7975.5	7929.1
17.5°	7534.4	7586.6	7528.5	7546.1	7522.8	7511.2	7633.0	7551.7	7598.2	7563.3	7569.3
20°	7029.4	7052.6	7035.1	7081.5	7052.6	7087.5	7075.9	7064.3	7064.3	7081.5	7041.0
22.5°	6518.5	6518.5	6536.0	6547.6	6570.8	6536.0	6605.7	6547.6	6553.3	6594.1	6582.5
25°	5903.3	5885.8	5926.6	5984.6	6007.8	5978.7	6071.5	6025.1	6059.9	6089.0	6025.1
27.5°	5154.6	5154.6	5195.1	5293.9	5311.2	5346.0	5473.7	5473.7	5520.1	5479.6	5526.0
30°	4289.5	4353.5	4405.6	4533.3	4574.0	4649.6	4782.9	4846.9	4951.3	4933.8	4910.6
32.5°	3401.5	3488.7	3494.3	3627.9	3738.1	3865.8	4045.8	4196.7	4272.2	4324.4	4266.3
35°	2554.0	2606.3	2652.7	2745.6	2931.3	3099.7	3262.2	3459.5	3593.1	3627.9	3575.6
37.5°	1869.2	1880.8	1927.2	2014.1	2153.4	2316.1	2513.5	2728.1	2867.6	2919.7	2861.7
40°	1288.6	1300.2	1323.4	1399.0	1515.0	1631.1	1787.9	2008.4	2136.1	2240.6	2165.0
42.5°	864.8	876.4	899.6	957.7	1021.6	1131.8	1253.8	1393.1	1515.0	1561.5	1520.7
45°	563.0	563.0	574.7	615.4	650.2	737.1	824.3	911.3	992.5	1021.6	992.5
47.5°	330.9	336.6	348.2	377.3	417.8	452.7	516.6	574.7	597.9	621.1	609.5
50°	191.6	191.6	208.9	226.4	255.4	278.6	301.8	325.0	336.6	348.2	336.6
52.5°	104.5	110.4	116.1	122.0	133.6	156.8	174.1	174.1	180.0	185.7	180.0
55°	81.2	81.2	81.2	81.2	87.2	87.2	87.2	92.9	92.9	98.8	92.9
57.5°	58.0	58.0	58.0	64.0	64.0	64.0	58.0	58.0	58.0	58.0	58.0
60°	46.4	46.4	46.4	46.4	46.4	46.4	46.4	40.7	40.7	40.7	40.7
62.5°	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8
65°	23.2	23.2	29.1	29.1	29.1	29.1	29.1	23.2	23.2	23.2	23.2
67.5°	17.5	17.5	17.5	17.5	23.2	23.2	17.5	17.5	17.5	17.5	17.5
70°	11.6	11.6	11.6	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
72.5°	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
75°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
77.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
80°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	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°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
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°	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4	9136.4
2.5°	9136.4	9037.6	9049.3	9101.6	9072.5	9101.6	9095.9	9095.9
5°	9037.6	9008.7	8962.3	8944.8	8979.6	9055.2	9043.6	8997.1
7.5°	8851.9	8776.6	8828.7	8851.9	8823.0	8869.5	8892.7	8793.9
10°	8631.4	8602.5	8590.9	8602.5	8590.9	8637.3	8579.3	8579.3
12.5°	8318.0	8271.6	8271.6	8341.2	8300.5	8265.7	8312.1	8306.4
15°	8004.6	7911.6	7911.6	7934.8	7952.3	7929.1	7934.8	7876.7
17.5°	7540.1	7511.2	7470.5	7534.4	7551.7	7528.5	7546.1	7516.9
20°	7104.8	7104.8	7029.4	7058.3	7081.5	7099.1	7110.7	7064.3
22.5°	6547.6	6559.2	6506.9	6564.9	6582.5	6524.4	6536.0	6524.4
25°	6036.7	6031.0	5990.3	5967.1	5978.7	5955.5	5949.8	5862.6
27.5°	5473.7	5415.6	5328.7	5351.9	5253.1	5171.9	5171.9	5038.3
30°	4864.2	4765.6	4649.6	4533.3	4446.3	4353.5	4301.1	4225.8
32.5°	4150.2	4016.9	3871.7	3714.9	3616.3	3477.1	3401.5	3442.2
35°	3442.2	3244.7	3047.4	2890.8	2739.7	2658.4	2565.6	2577.2
37.5°	2757.2	2478.6	2304.5	2136.1	2008.4	1904.0	1863.2	1851.6
40°	2014.1	1793.6	1619.5	1497.5	1410.6	1329.3	1282.9	1265.4
42.5°	1393.1	1236.5	1097.0	998.4	940.4	888.0	864.8	859.1
45°	905.6	812.7	719.9	650.2	603.8	569.0	563.0	557.1
47.5°	569.0	522.3	464.3	412.2	371.4	348.2	330.9	330.9
50°	325.0	307.7	278.6	249.7	226.4	214.8	197.3	191.6
52.5°	174.1	174.1	162.5	139.3	122.0	110.4	110.4	104.5
55°	92.9	92.9	87.2	87.2	81.2	81.2	81.2	75.6
57.5°	58.0	58.0	64.0	64.0	58.0	58.0	58.0	58.0
60°	40.7	46.4	46.4	46.4	46.4	46.4	46.4	46.4
62.5°	34.8	34.8	34.8	34.8	34.8	34.8	34.8	34.8
65°	23.2	29.1	29.1	29.1	29.1	23.2	23.2	23.2
67.5°	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
70°	17.5	17.5	17.5	17.5	17.5	11.6	11.6	11.6
72.5°	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
75°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
77.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
80°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
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°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)