

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: **FLDSQ4C10D010 FEU4C109030 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: FLDSQ4C10D010 FEU4C109030 F4LC-SQ-LI
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

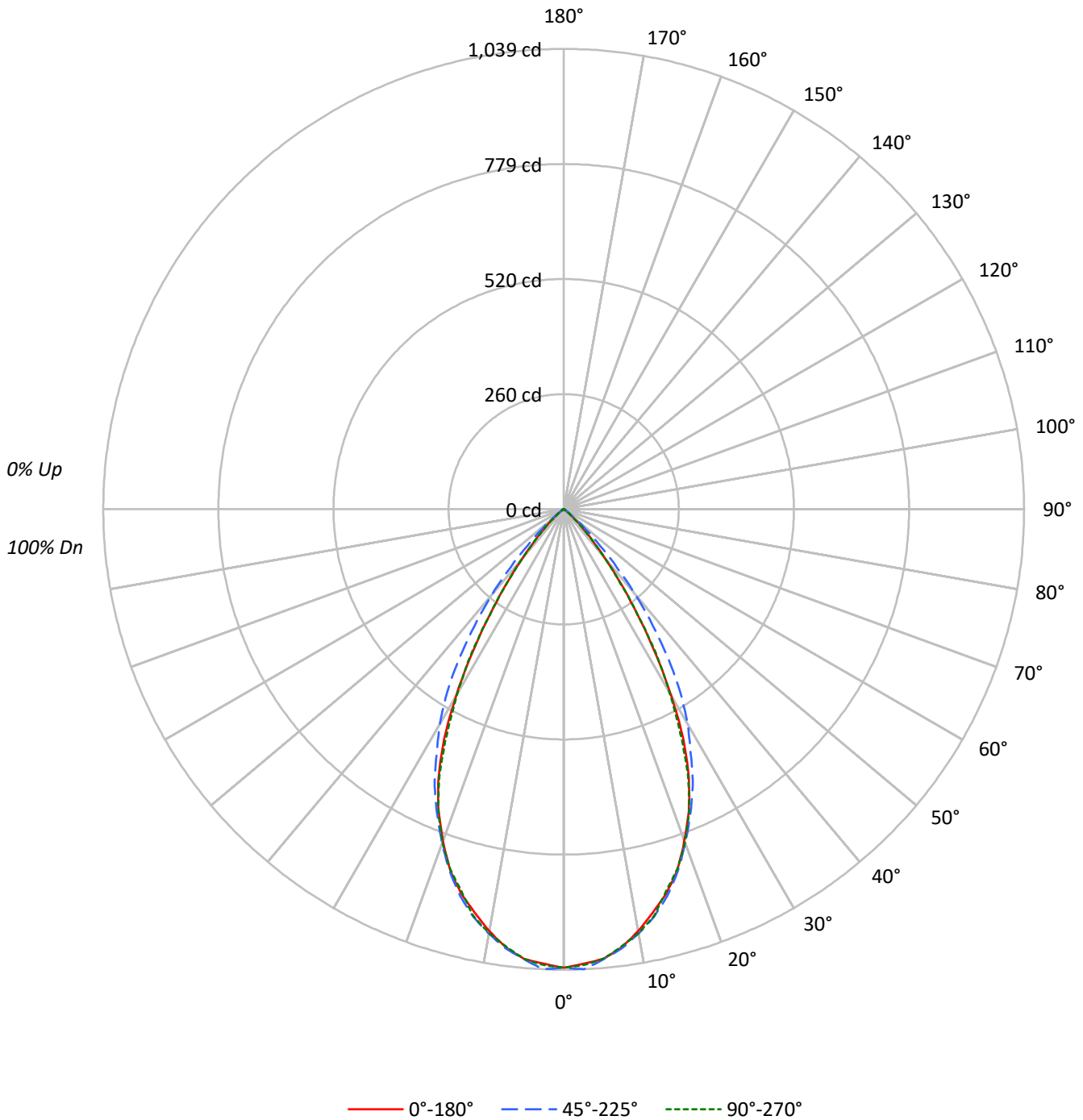
Lumens per Lamp: N/A
 Luminaire Lumens: 955.0 lumens
 Efficiency: N/A
 Efficacy: 97.5 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.8
 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°	99808	99808	99808
5°	98659	98795	98659
10°	94715	95303	95165
15°	89544	90203	89084
20°	81724	82330	82125
25°	71160	73396	70671
30°	54115	62237	53301
35°	34065	48389	34371
40°	18377	31955	18050
45°	8692	15788	8610
50°	3257	5914	3257
55°	1548	1884	1447
60°	1023	888	1023
65°	594	594	594
70°	367	564	367
75°	261	261	261
80°	389	389	389
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	95.9	10.0
10°-20°	251.4	26.3
20°-30°	307.1	32.2
30°-40°	214.8	22.5
40°-50°	70.4	7.4
50°-60°	11.2	1.2
60°-70°	3.0	0.3
70°-80°	1.0	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°	654.3	68.5
0°-40°	869.1	91.0
0°-60°	950.6	99.5
0°-90°	955.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	955.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1034	1034	1034	1034	1034	
5°	1019	1019	1020	1014	1019	96
15°	896	900	903	897	892	250
25°	668	679	689	677	664	300
35°	289	341	411	336	292	185
45°	64	79	116	78	63	53
55°	9	10	11	10	9	9
65°	3	3	3	3	3	3
75°	1	1	1	1	1	1
85°	0	0	0	0	0	0
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°	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4
2.5°	1026.5	1033.8	1031.8	1036.4	1036.4	1031.1	1032.5	1034.4	1037.0	1039.0	1023.2
5°	1018.6	1025.2	1019.3	1025.9	1021.9	1016.0	1025.9	1020.6	1023.9	1020.0	1022.6
7.5°	997.6	1008.1	996.3	1004.2	1001.6	998.3	1002.2	1000.9	1002.9	999.6	992.4
10°	966.7	975.3	967.4	978.6	973.3	970.0	973.3	976.6	975.9	972.7	976.6
12.5°	931.2	941.1	937.1	943.7	937.8	937.8	945.7	943.7	944.4	941.8	946.3
15°	896.4	903.6	897.7	906.3	903.6	896.4	899.7	899.7	905.0	903.0	897.7
17.5°	853.0	858.9	852.4	854.4	851.7	850.4	864.2	855.0	860.3	856.3	857.0
20°	795.9	798.5	796.5	801.8	798.5	802.4	801.1	799.8	799.8	801.8	797.2
22.5°	738.0	738.0	740.0	741.3	743.9	740.0	747.9	741.3	742.0	746.6	745.3
25°	668.4	666.4	671.0	677.6	680.2	676.9	687.4	682.2	686.1	689.4	682.2
27.5°	583.6	583.6	588.2	599.4	601.3	605.3	619.7	619.7	625.0	620.4	625.6
30°	485.7	492.9	498.8	513.3	517.9	526.4	541.5	548.8	560.6	558.6	556.0
32.5°	385.1	395.0	395.6	410.8	423.2	437.7	458.1	475.1	483.7	489.6	483.0
35°	289.2	295.1	300.3	310.9	331.9	350.9	369.3	391.7	406.8	410.8	404.8
37.5°	211.6	212.9	218.2	228.0	243.8	262.2	284.6	308.9	324.7	330.6	324.0
40°	145.9	147.2	149.8	158.4	171.5	184.7	202.4	227.4	241.8	253.7	245.1
42.5°	97.9	99.2	101.9	108.4	115.7	128.1	142.0	157.7	171.5	176.8	172.2
45°	63.7	63.7	65.1	69.7	73.6	83.5	93.3	103.2	112.4	115.7	112.4
47.5°	37.5	38.1	39.4	42.7	47.3	51.3	58.5	65.1	67.7	70.3	69.0
50°	21.7	21.7	23.7	25.6	28.9	31.5	34.2	36.8	38.1	39.4	38.1
52.5°	11.8	12.5	13.1	13.8	15.1	17.8	19.7	19.7	20.4	21.0	20.4
55°	9.2	9.2	9.2	9.2	9.9	9.9	9.9	10.5	10.5	11.2	10.5
57.5°	6.6	6.6	6.6	7.2	7.2	7.2	6.6	6.6	6.6	6.6	6.6
60°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.6	4.6	4.6	4.6
62.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
65°	2.6	2.6	3.3	3.3	3.3	3.3	3.3	2.6	2.6	2.6	2.6
67.5°	2.0	2.0	2.0	2.0	2.6	2.6	2.0	2.0	2.0	2.0	2.0
70°	1.3	1.3	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
75°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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°	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4	1034.4
2.5°	1034.4	1023.2	1024.5	1030.5	1027.2	1030.5	1029.8	1029.8
5°	1023.2	1020.0	1014.7	1012.7	1016.7	1025.2	1023.9	1018.6
7.5°	1002.2	993.7	999.6	1002.2	998.9	1004.2	1006.8	995.6
10°	977.2	974.0	972.7	974.0	972.7	977.9	971.3	971.3
12.5°	941.8	936.5	936.5	944.4	939.8	935.8	941.1	940.4
15°	906.3	895.7	895.7	898.4	900.3	897.7	898.4	891.8
17.5°	853.7	850.4	845.8	853.0	855.0	852.4	854.4	851.1
20°	804.4	804.4	795.9	799.1	801.8	803.7	805.1	799.8
22.5°	741.3	742.6	736.7	743.3	745.3	738.7	740.0	738.7
25°	683.5	682.8	678.2	675.6	676.9	674.3	673.6	663.8
27.5°	619.7	613.2	603.3	605.9	594.8	585.6	585.6	570.4
30°	550.7	539.6	526.4	513.3	503.4	492.9	487.0	478.4
32.5°	469.9	454.8	438.3	420.6	409.4	393.7	385.1	389.7
35°	389.7	367.4	345.0	327.3	310.2	301.0	290.5	291.8
37.5°	312.2	280.6	260.9	241.8	227.4	215.6	211.0	209.6
40°	228.0	203.1	183.4	169.5	159.7	150.5	145.2	143.3
42.5°	157.7	140.0	124.2	113.0	106.5	100.5	97.9	97.3
45°	102.5	92.0	81.5	73.6	68.4	64.4	63.7	63.1
47.5°	64.4	59.1	52.6	46.7	42.1	39.4	37.5	37.5
50°	36.8	34.8	31.5	28.3	25.6	24.3	22.3	21.7
52.5°	19.7	19.7	18.4	15.8	13.8	12.5	12.5	11.8
55°	10.5	10.5	9.9	9.9	9.2	9.2	9.2	8.6
57.5°	6.6	6.6	7.2	7.2	6.6	6.6	6.6	6.6
60°	4.6	5.3	5.3	5.3	5.3	5.3	5.3	5.3
62.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
65°	2.6	3.3	3.3	3.3	3.3	2.6	2.6	2.6
67.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
70°	2.0	2.0	2.0	2.0	2.0	1.3	1.3	1.3
72.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
75°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)