

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 FEU4C109050 F4LC-SQ-LI**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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 FEU4C109050 F4LC-SQ-LI
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

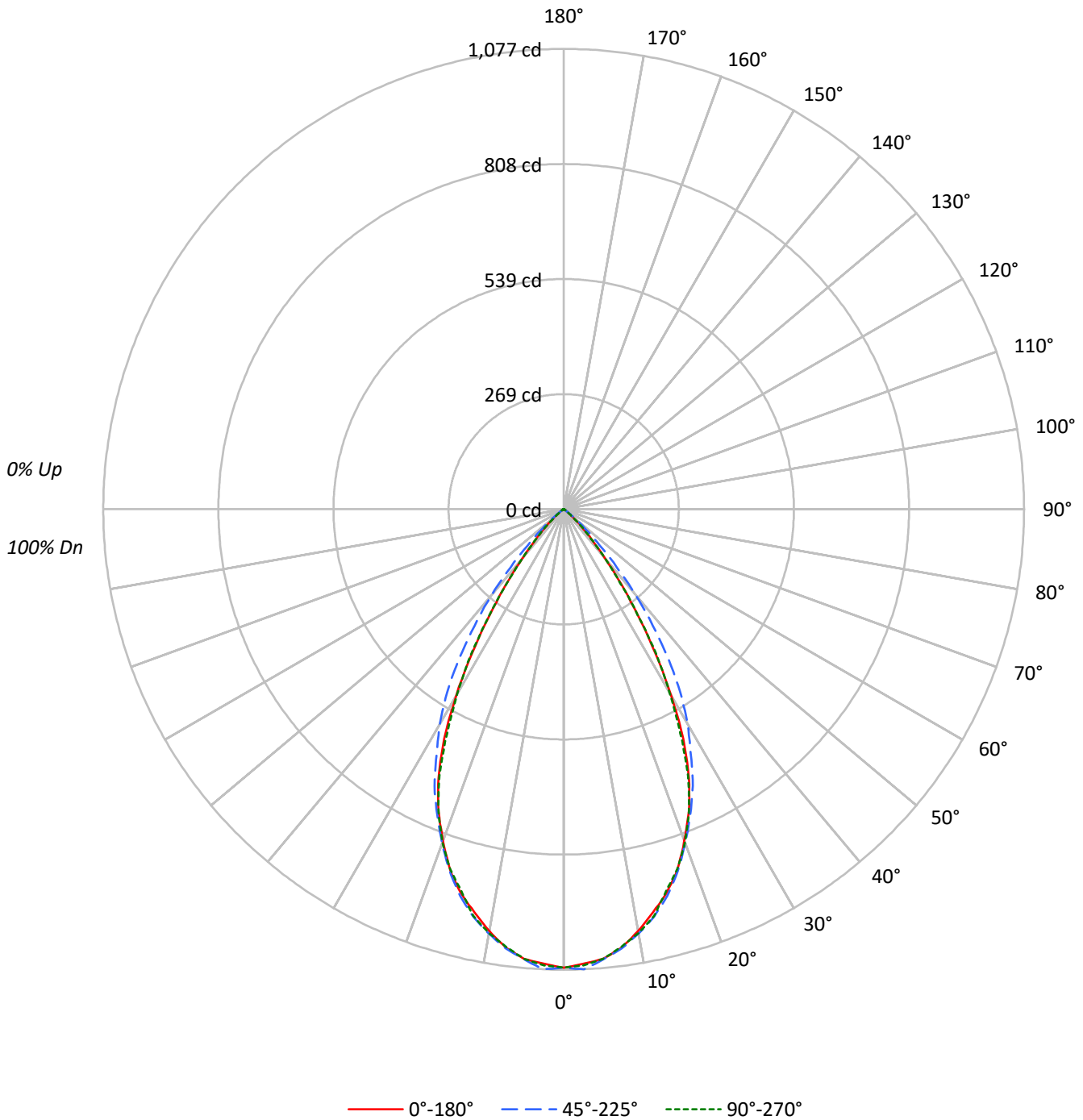
Lumens per Lamp: N/A
 Luminaire Lumens: 990.0 lumens
 Efficiency: N/A
 Efficacy: 101.0 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQ-LI

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 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	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°	103465	103465	103465
5°	102281	102407	102281
10°	98193	98791	98653
15°	92830	93510	92351
20°	84712	85338	85133
25°	73769	76090	73258
30°	56098	64521	55262
35°	35314	50155	35632
40°	19045	33127	18705
45°	9020	16361	8924
50°	3377	6140	3377
55°	1598	1951	1497
60°	1042	926	1042
65°	616	616	616
70°	395	592	395
75°	261	261	261
80°	389	389	389
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQ-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	99.4	10.0
10°-20°	260.6	26.3
20°-30°	318.3	32.2
30°-40°	222.6	22.5
40°-50°	73.0	7.4
50°-60°	11.6	1.2
60°-70°	3.2	0.3
70°-80°	1.1	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°	678.3	68.5
0°-40°	900.9	91.0
0°-60°	985.5	99.5
0°-90°	990.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	990.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1072	1072	1072	1072	1072	
5°	1056	1056	1057	1051	1056	99
15°	929	933	936	930	924	259
25°	693	703	715	702	688	311
35°	300	354	426	348	302	191
45°	66	81	120	80	65	55
55°	10	10	12	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	0



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3
2.5°	1064.2	1071.7	1069.6	1074.4	1074.4	1068.9	1070.3	1072.3	1075.0	1077.1	1060.7
5°	1056.0	1062.8	1056.6	1063.5	1059.4	1053.3	1063.5	1058.0	1061.4	1057.3	1060.1
7.5°	1034.2	1045.1	1032.8	1041.0	1038.3	1034.8	1038.9	1037.6	1039.6	1036.2	1028.7
10°	1002.2	1011.0	1002.8	1014.4	1009.0	1005.6	1009.0	1012.4	1011.7	1008.3	1012.4
12.5°	965.4	975.6	971.5	978.3	972.2	972.2	980.4	978.3	979.0	976.3	981.0
15°	929.3	936.8	930.6	939.5	936.8	929.3	932.7	932.7	938.1	936.1	930.6
17.5°	884.3	890.4	883.6	885.7	882.9	881.6	895.9	886.3	891.8	887.7	888.4
20°	825.0	827.8	825.7	831.1	827.8	831.8	830.5	829.1	829.1	831.1	826.4
22.5°	765.1	765.1	767.1	768.5	771.2	767.1	775.3	768.5	769.2	773.9	772.6
25°	692.9	690.8	695.6	702.4	705.1	701.7	712.6	707.2	711.2	714.7	707.2
27.5°	605.0	605.0	609.7	621.3	623.4	627.4	642.4	642.4	647.9	643.1	648.6
30°	503.5	511.0	517.1	532.1	536.8	545.7	561.4	568.9	581.1	579.1	576.3
32.5°	399.2	409.5	410.1	425.8	438.7	453.7	474.8	492.6	501.4	507.5	500.7
35°	299.8	305.9	311.3	322.2	344.0	363.8	382.9	406.0	421.7	425.8	419.7
37.5°	219.4	220.7	226.2	236.4	252.7	271.8	295.0	320.2	336.6	342.7	335.9
40°	151.2	152.6	155.3	164.2	177.8	191.4	209.8	235.7	250.7	263.0	254.1
42.5°	101.5	102.9	105.6	112.4	119.9	132.8	147.2	163.5	177.8	183.3	178.5
45°	66.1	66.1	67.4	72.2	76.3	86.5	96.7	107.0	116.5	119.9	116.5
47.5°	38.8	39.5	40.9	44.3	49.0	53.1	60.6	67.4	70.2	72.9	71.5
50°	22.5	22.5	24.5	26.6	30.0	32.7	35.4	38.1	39.5	40.9	39.5
52.5°	12.3	13.0	13.6	14.3	15.7	18.4	20.4	20.4	21.1	21.8	21.1
55°	9.5	9.5	9.5	9.5	10.2	10.2	10.2	10.9	10.9	11.6	10.9
57.5°	6.8	6.8	6.8	7.5	7.5	7.5	6.8	6.8	6.8	6.8	6.8
60°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	4.8	4.8	4.8	4.8
62.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
65°	2.7	2.7	3.4	3.4	3.4	3.4	3.4	2.7	2.7	2.7	2.7
67.5°	2.1	2.1	2.1	2.1	2.7	2.7	2.1	2.1	2.1	2.1	2.1
70°	1.4	1.4	1.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-SQ-LI

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3	1072.3
2.5°	1072.3	1060.7	1062.1	1068.2	1064.8	1068.2	1067.6	1067.6
5°	1060.7	1057.3	1051.9	1049.8	1053.9	1062.8	1061.4	1056.0
7.5°	1038.9	1030.1	1036.2	1038.9	1035.5	1041.0	1043.7	1032.1
10°	1013.1	1009.7	1008.3	1009.7	1008.3	1013.7	1006.9	1006.9
12.5°	976.3	970.8	970.8	979.0	974.2	970.1	975.6	974.9
15°	939.5	928.6	928.6	931.3	933.3	930.6	931.3	924.5
17.5°	885.0	881.6	876.8	884.3	886.3	883.6	885.7	882.2
20°	833.9	833.9	825.0	828.4	831.1	833.2	834.6	829.1
22.5°	768.5	769.8	763.7	770.5	772.6	765.8	767.1	765.8
25°	708.5	707.8	703.1	700.3	701.7	699.0	698.3	688.1
27.5°	642.4	635.6	625.4	628.1	616.5	607.0	607.0	591.3
30°	570.9	559.3	545.7	532.1	521.9	511.0	504.8	496.0
32.5°	487.1	471.5	454.4	436.0	424.4	408.1	399.2	404.0
35°	404.0	380.8	357.7	339.3	321.6	312.0	301.1	302.5
37.5°	323.6	290.9	270.5	250.7	235.7	223.5	218.7	217.3
40°	236.4	210.5	190.1	175.8	165.6	156.0	150.6	148.5
42.5°	163.5	145.1	128.7	117.2	110.4	104.2	101.5	100.8
45°	106.3	95.4	84.5	76.3	70.9	66.8	66.1	65.4
47.5°	66.8	61.3	54.5	48.4	43.6	40.9	38.8	38.8
50°	38.1	36.1	32.7	29.3	26.6	25.2	23.2	22.5
52.5°	20.4	20.4	19.1	16.3	14.3	13.0	13.0	12.3
55°	10.9	10.9	10.2	10.2	9.5	9.5	9.5	8.9
57.5°	6.8	6.8	7.5	7.5	6.8	6.8	6.8	6.8
60°	4.8	5.4	5.4	5.4	5.4	5.4	5.4	5.4
62.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
65°	2.7	3.4	3.4	3.4	3.4	2.7	2.7	2.7
67.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
70°	2.1	2.1	2.1	2.1	2.1	1.4	1.4	1.4
72.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)