

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: **FLDSQ4C100D010 FEU4C1009040 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: FLDSQ4C100D010 FEU4C1009040 F4LC-SQ-LI
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

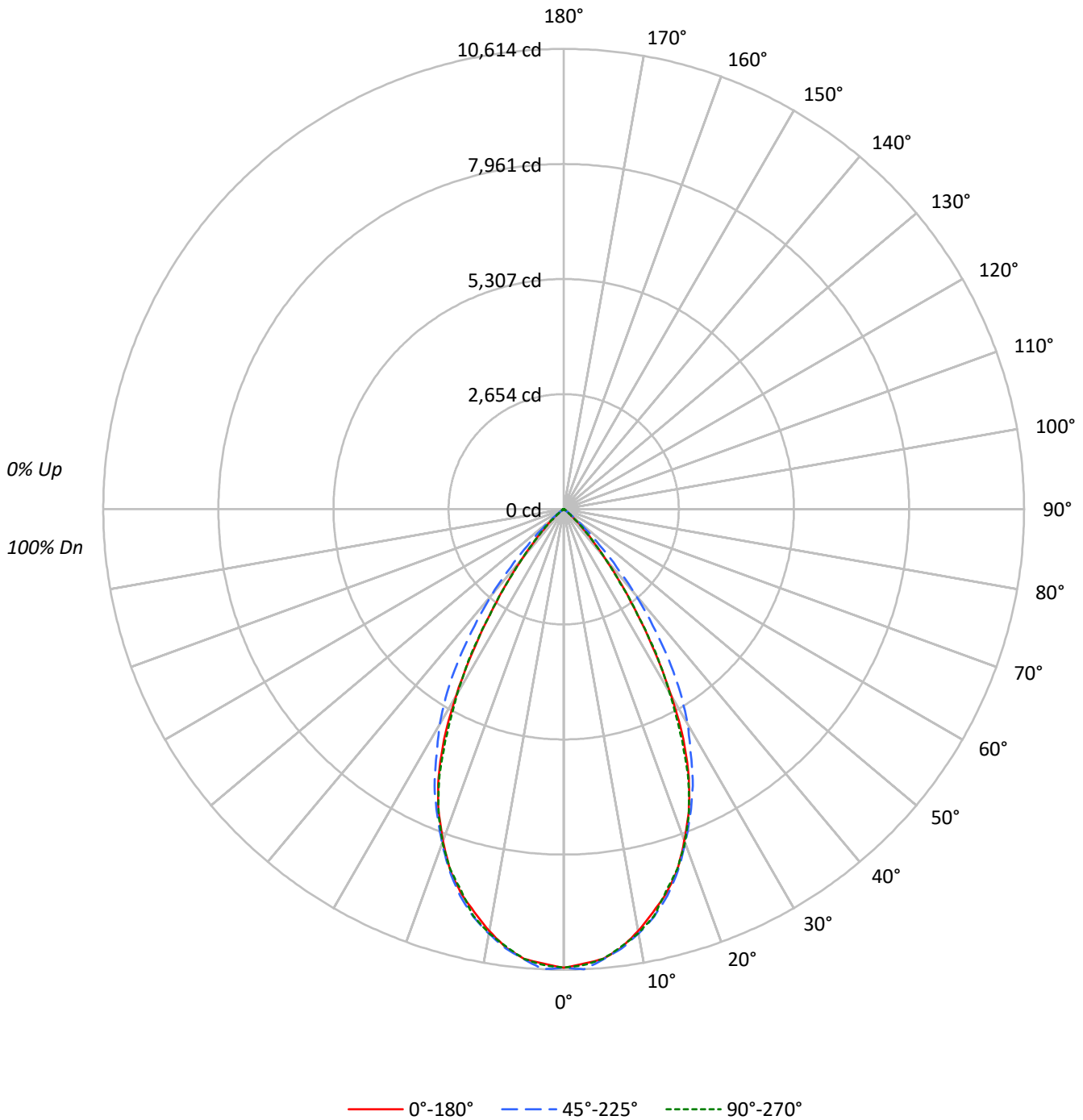
Lumens per Lamp: N/A
 Luminaire Lumens: 9756.0 lumens
 Efficiency: N/A
 Efficacy: 85.3 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 114.4
 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: FLDSQ4C100D010 FEU4C1009040 F4LC-SQ-LI

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009040 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				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°	1019627	1019627	1019627
5°	1007918	1009216	1007918
10°	967605	973533	972220
15°	914757	921460	910052
20°	834830	841022	838968
25°	726924	749792	721899
30°	552767	635794	544556
35°	347943	494264	351112
40°	187727	326418	184339
45°	88860	161236	87932
50°	33264	60449	33264
55°	15813	19211	14703
60°	10363	9089	10363
65°	6119	6119	6119
70°	3780	5727	3780
75°	2535	2535	2535
80°	3778	3778	3778
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009040 F4LC-SQ-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	979.8	10.0
10°-20°	2567.7	26.3
20°-30°	3136.7	32.2
30°-40°	2193.9	22.5
40°-50°	719.0	7.4
50°-60°	114.3	1.2
60°-70°	31.2	0.3
70°-80°	10.4	0.1
80°-90°	2.9	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°	6684.2	68.5
0°-40°	8878.1	91.0
0°-60°	9711.4	99.5
0°-90°	9756.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9756.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	10567	10567	10567	10567	10567	
5°	10406	10409	10420	10356	10406	976
15°	9157	9194	9224	9164	9110	2554
25°	6828	6932	7043	6915	6781	3067
35°	2954	3488	4196	3434	2981	1885
45°	651	802	1182	792	644	546
55°	94	101	114	101	87	93
65°	27	34	27	34	27	30
75°	7	7	7	7	7	10
85°	0	0	0	0	0	3
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009040 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3
2.5°	10486.7	10560.7	10540.4	10587.5	10587.5	10533.8	10547.3	10567.3	10594.1	10614.4	10453.0
5°	10406.2	10473.3	10412.8	10479.9	10439.6	10379.3	10479.9	10426.2	10459.9	10419.6	10446.4
7.5°	10191.4	10298.8	10178.0	10258.5	10231.7	10198.0	10238.2	10224.8	10245.1	10211.4	10137.7
10°	9875.8	9963.2	9882.6	9996.6	9942.9	9909.5	9942.9	9976.6	9969.7	9936.3	9976.6
12.5°	9513.3	9613.9	9573.6	9640.7	9580.4	9580.4	9661.0	9640.7	9647.6	9620.7	9667.6
15°	9157.4	9231.4	9170.8	9258.2	9231.4	9157.4	9190.9	9190.9	9244.8	9224.5	9170.8
17.5°	8714.4	8774.7	8707.6	8727.8	8701.0	8687.6	8828.4	8734.4	8788.1	8747.8	8754.7
20°	8130.3	8157.2	8136.9	8190.6	8157.2	8197.4	8184.0	8170.6	8170.6	8190.6	8143.7
22.5°	7539.4	7539.4	7559.6	7573.1	7599.9	7559.6	7640.2	7573.1	7579.6	7626.8	7613.3
25°	6827.9	6807.6	6854.7	6921.8	6948.7	6915.0	7022.4	6968.7	7009.0	7042.7	6968.7
27.5°	5961.8	5961.8	6008.7	6122.9	6142.9	6183.2	6330.9	6330.9	6384.6	6337.7	6391.4
30°	4961.3	5035.3	5095.6	5243.2	5290.3	5377.7	5532.0	5606.0	5726.8	5706.5	5679.7
32.5°	3934.2	4035.0	4041.6	4196.1	4323.5	4471.2	4679.4	4853.9	4941.3	5001.6	4934.5
35°	2953.9	3014.5	3068.2	3175.6	3390.4	3585.2	3773.1	4001.3	4155.8	4196.1	4135.6
37.5°	2161.9	2175.3	2229.0	2329.6	2490.7	2678.9	2907.1	3155.3	3316.7	3376.9	3309.8
40°	1490.4	1503.8	1530.7	1618.1	1752.3	1886.6	2067.9	2323.0	2470.7	2591.5	2504.1
42.5°	1000.3	1013.7	1040.5	1107.7	1181.6	1309.0	1450.1	1611.2	1752.3	1806.0	1758.9
45°	651.2	651.2	664.6	711.8	752.0	852.6	953.4	1054.0	1147.9	1181.6	1147.9
47.5°	382.7	389.3	402.7	436.4	483.3	523.6	597.5	664.6	691.5	718.3	704.9
50°	221.6	221.6	241.6	261.9	295.3	322.2	349.0	375.9	389.3	402.7	389.3
52.5°	120.8	127.7	134.2	141.1	154.5	181.4	201.4	201.4	208.2	214.8	208.2
55°	94.0	94.0	94.0	94.0	100.8	100.8	100.8	107.4	107.4	114.2	107.4
57.5°	67.1	67.1	67.1	74.0	74.0	74.0	67.1	67.1	67.1	67.1	67.1
60°	53.7	53.7	53.7	53.7	53.7	53.7	53.7	47.1	47.1	47.1	47.1
62.5°	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3
65°	26.8	26.8	33.7	33.7	33.7	33.7	33.7	26.8	26.8	26.8	26.8
67.5°	20.3	20.3	20.3	20.3	26.8	26.8	20.3	20.3	20.3	20.3	20.3
70°	13.4	13.4	13.4	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
72.5°	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
75°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
80°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	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°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
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: FLDSQ4C100D010 FEU4C1009040 F4LC-SQ-LI

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3	10567.3
2.5°	10567.3	10453.0	10466.5	10527.0	10493.3	10527.0	10520.4	10520.4
5°	10453.0	10419.6	10365.9	10345.6	10385.9	10473.3	10459.9	10406.2
7.5°	10238.2	10151.1	10211.4	10238.2	10204.8	10258.5	10285.4	10171.1
10°	9983.2	9949.7	9936.3	9949.7	9936.3	9990.0	9922.9	9922.9
12.5°	9620.7	9567.0	9567.0	9647.6	9600.4	9560.2	9613.9	9607.3
15°	9258.2	9150.6	9150.6	9177.4	9197.7	9170.8	9177.4	9110.3
17.5°	8721.0	8687.6	8640.4	8714.4	8734.4	8707.6	8727.8	8694.1
20°	8217.4	8217.4	8130.3	8163.7	8190.6	8210.9	8224.3	8170.6
22.5°	7573.1	7586.5	7525.9	7593.1	7613.3	7546.2	7559.6	7546.2
25°	6982.1	6975.5	6928.4	6901.6	6915.0	6888.1	6881.6	6780.7
27.5°	6330.9	6263.8	6163.2	6190.1	6075.8	5981.8	5981.8	5827.3
30°	5626.0	5512.0	5377.7	5243.2	5142.7	5035.3	4974.7	4887.6
32.5°	4800.2	4646.0	4478.0	4296.7	4182.7	4021.6	3934.2	3981.3
35°	3981.3	3752.8	3524.6	3343.5	3168.7	3074.8	2967.4	2980.8
37.5°	3189.0	2866.8	2665.4	2470.7	2323.0	2202.2	2155.0	2141.6
40°	2329.6	2074.5	1873.1	1732.0	1631.5	1537.5	1483.8	1463.5
42.5°	1611.2	1430.1	1268.8	1154.8	1087.7	1027.1	1000.3	993.7
45°	1047.4	940.0	832.6	752.0	698.3	658.1	651.2	644.4
47.5°	658.1	604.1	537.0	476.7	429.6	402.7	382.7	382.7
50°	375.9	355.9	322.2	288.8	261.9	248.5	228.2	221.6
52.5°	201.4	201.4	187.9	161.1	141.1	127.7	127.7	120.8
55°	107.4	107.4	100.8	100.8	94.0	94.0	94.0	87.4
57.5°	67.1	67.1	74.0	74.0	67.1	67.1	67.1	67.1
60°	47.1	53.7	53.7	53.7	53.7	53.7	53.7	53.7
62.5°	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3
65°	26.8	33.7	33.7	33.7	33.7	26.8	26.8	26.8
67.5°	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
70°	20.3	20.3	20.3	20.3	20.3	13.4	13.4	13.4
72.5°	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
75°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
80°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
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°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)