

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 FEU4C1009027 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: FLDSQ4C100D010 FEU4C1009027 F4LC-SQ-LI
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

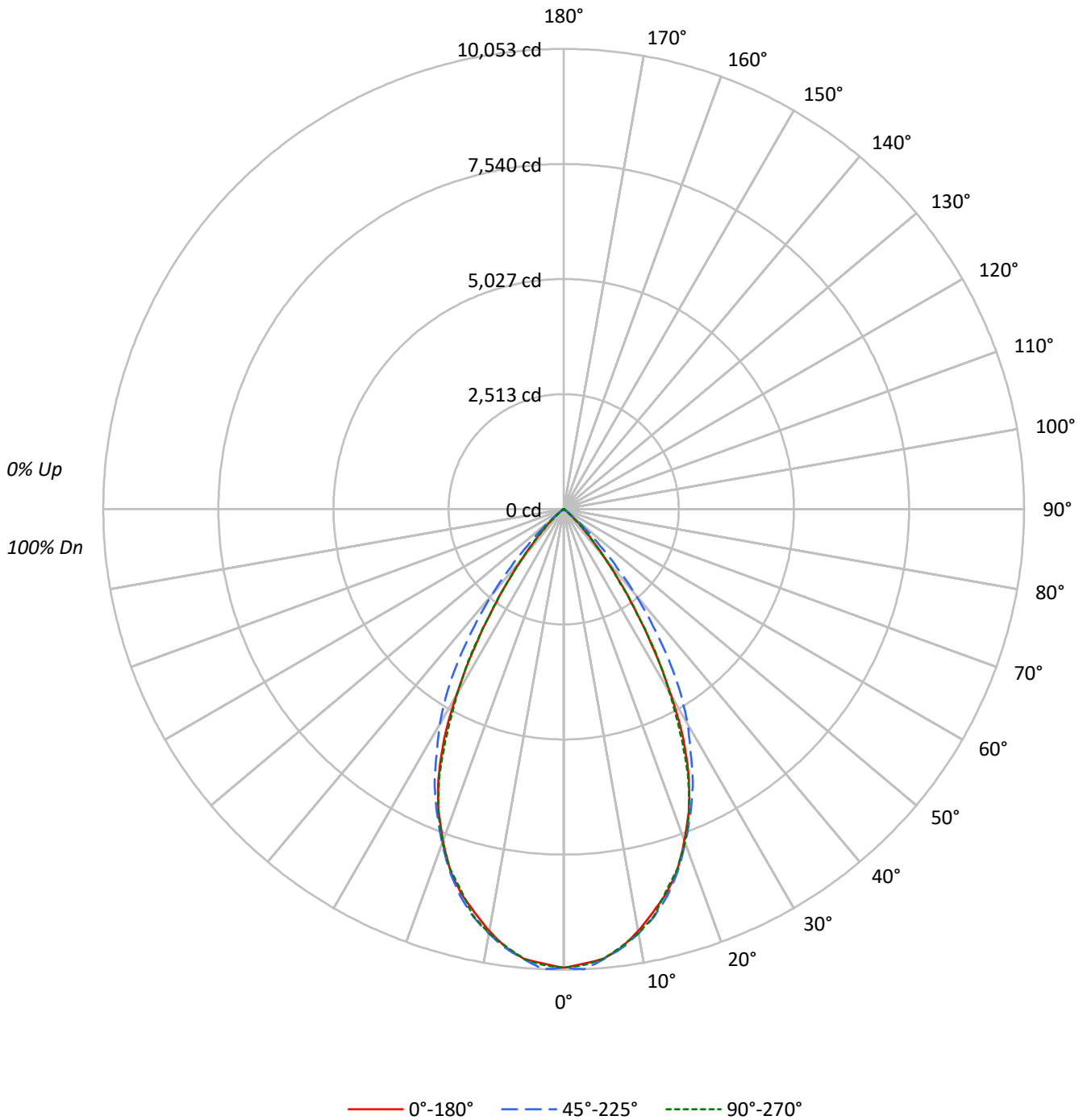
Lumens per Lamp: N/A
 Luminaire Lumens: 9240.0 lumens
 Efficiency: N/A
 Efficacy: 80.8 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

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CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009027 F4LC-SQ-LI

Luminous Intensity Polar Plot



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CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009027 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°	965699	965699	965699
5°	954608	955838	954608
10°	916422	922046	920801
15°	866379	872732	861924
20°	790677	796540	794589
25°	688469	710134	683721
30°	523532	602169	515755
35°	329544	468126	332536
40°	177801	309150	174589
45°	84166	152708	83279
50°	31508	57252	31508
55°	14972	18202	13929
60°	9823	8607	9823
65°	5799	5799	5799
70°	3583	5417	3583
75°	2423	2423	2423
80°	3612	3612	3612
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	927.9	10.0
10°-20°	2431.9	26.3
20°-30°	2970.8	32.2
30°-40°	2077.9	22.5
40°-50°	681.0	7.4
50°-60°	108.3	1.2
60°-70°	29.5	0.3
70°-80°	9.9	0.1
80°-90°	2.8	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°	6330.7	68.5
0°-40°	8408.6	91.0
0°-60°	9197.8	99.5
0°-90°	9240.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9240.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	10008	10008	10008	10008	10008	
5°	9856	9859	9868	9808	9856	924
15°	8673	8708	8737	8679	8628	2419
25°	6467	6565	6670	6549	6422	2905
35°	2798	3303	3974	3252	2823	1785
45°	617	760	1119	750	610	517
55°	89	96	108	96	83	88
65°	25	32	25	32	25	28
75°	6	6	6	6	6	9
85°	0	0	0	0	0	3
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°	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4
2.5°	9932.1	10002.1	9982.9	10027.6	10027.6	9976.7	9989.4	10008.4	10033.8	10053.0	9900.2
5°	9855.8	9919.4	9862.0	9925.6	9887.4	9830.4	9925.6	9874.7	9906.6	9868.5	9893.9
7.5°	9652.4	9754.1	9639.6	9715.9	9690.5	9658.6	9696.7	9684.0	9703.2	9671.3	9601.5
10°	9353.4	9436.2	9359.9	9467.9	9417.0	9385.3	9417.0	9448.9	9442.4	9410.8	9448.9
12.5°	9010.1	9105.4	9067.2	9130.8	9073.7	9073.7	9150.0	9130.8	9137.3	9111.9	9156.2
15°	8673.1	8743.1	8685.8	8768.6	8743.1	8673.1	8704.7	8704.7	8755.8	8736.7	8685.8
17.5°	8253.5	8310.6	8247.0	8266.2	8240.8	8228.1	8361.4	8272.4	8323.3	8285.2	8291.6
20°	7700.3	7725.7	7706.5	7757.4	7725.7	7763.9	7751.1	7738.4	7738.4	7757.4	7713.0
22.5°	7140.6	7140.6	7159.8	7172.5	7197.9	7159.8	7236.1	7172.5	7178.7	7223.4	7210.7
25°	6466.7	6447.5	6492.2	6555.7	6581.2	6549.2	6651.0	6600.1	6638.3	6670.2	6600.1
27.5°	5646.5	5646.5	5690.9	5799.1	5818.0	5856.2	5996.0	5996.0	6046.9	6002.5	6053.4
30°	4698.9	4769.0	4826.1	4965.9	5010.5	5093.3	5239.4	5309.5	5423.9	5404.7	5379.3
32.5°	3726.1	3821.6	3827.8	3974.2	4094.8	4234.7	4431.9	4597.2	4680.0	4737.0	4673.5
35°	2797.7	2855.0	2905.9	3007.6	3211.1	3395.5	3573.5	3789.7	3936.0	3974.2	3916.8
37.5°	2047.5	2060.3	2111.1	2206.4	2358.9	2537.2	2753.3	2988.4	3141.2	3198.3	3134.8
40°	1411.6	1424.3	1449.7	1532.5	1659.6	1786.8	1958.5	2200.1	2340.0	2454.4	2371.6
42.5°	947.4	960.1	985.5	1049.1	1119.1	1239.8	1373.4	1526.0	1659.6	1710.5	1665.9
45°	616.8	616.8	629.5	674.1	712.3	807.5	903.0	998.2	1087.2	1119.1	1087.2
47.5°	362.5	368.7	381.4	413.3	457.7	495.9	565.9	629.5	654.9	680.4	667.6
50°	209.9	209.9	228.9	248.1	279.7	305.1	330.6	356.0	368.7	381.4	368.7
52.5°	114.4	120.9	127.1	133.6	146.3	171.8	190.7	190.7	197.2	203.4	197.2
55°	89.0	89.0	89.0	89.0	95.5	95.5	95.5	101.7	101.7	108.2	101.7
57.5°	63.6	63.6	63.6	70.1	70.1	70.1	63.6	63.6	63.6	63.6	63.6
60°	50.9	50.9	50.9	50.9	50.9	50.9	50.9	44.6	44.6	44.6	44.6
62.5°	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
65°	25.4	25.4	31.9	31.9	31.9	31.9	31.9	25.4	25.4	25.4	25.4
67.5°	19.2	19.2	19.2	19.2	25.4	25.4	19.2	19.2	19.2	19.2	19.2
70°	12.7	12.7	12.7	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
72.5°	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
75°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
77.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
80°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	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°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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°	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4	10008.4
2.5°	10008.4	9900.2	9912.9	9970.2	9938.3	9970.2	9964.0	9964.0
5°	9900.2	9868.5	9817.6	9798.4	9836.6	9919.4	9906.6	9855.8
7.5°	9696.7	9614.2	9671.3	9696.7	9665.1	9715.9	9741.4	9633.2
10°	9455.2	9423.5	9410.8	9423.5	9410.8	9461.6	9398.1	9398.1
12.5°	9111.9	9061.0	9061.0	9137.3	9092.7	9054.5	9105.4	9099.1
15°	8768.6	8666.6	8666.6	8692.0	8711.2	8685.8	8692.0	8628.5
17.5°	8259.7	8228.1	8183.4	8253.5	8272.4	8247.0	8266.2	8234.3
20°	7782.8	7782.8	7700.3	7732.0	7757.4	7776.6	7789.3	7738.4
22.5°	7172.5	7185.2	7127.9	7191.5	7210.7	7147.1	7159.8	7147.1
25°	6612.8	6606.6	6562.0	6536.5	6549.2	6523.8	6517.6	6422.1
27.5°	5996.0	5932.5	5837.2	5862.7	5754.5	5665.5	5665.5	5519.1
30°	5328.4	5220.5	5093.3	4965.9	4870.7	4769.0	4711.6	4629.1
32.5°	4546.3	4400.2	4241.2	4069.4	3961.5	3808.9	3726.1	3770.7
35°	3770.7	3554.3	3338.2	3166.7	3001.1	2912.1	2810.4	2823.1
37.5°	3020.3	2715.2	2524.5	2340.0	2200.1	2085.7	2041.1	2028.3
40°	2206.4	1964.8	1774.1	1640.4	1545.2	1456.2	1405.3	1386.1
42.5°	1526.0	1354.5	1201.7	1093.7	1030.1	972.8	947.4	941.1
45°	992.0	890.3	788.6	712.3	661.4	623.3	616.8	610.3
47.5°	623.3	572.2	508.6	451.5	406.9	381.4	362.5	362.5
50°	356.0	337.1	305.1	273.5	248.1	235.3	216.1	209.9
52.5°	190.7	190.7	178.0	152.6	133.6	120.9	120.9	114.4
55°	101.7	101.7	95.5	95.5	89.0	89.0	89.0	82.8
57.5°	63.6	63.6	70.1	70.1	63.6	63.6	63.6	63.6
60°	44.6	50.9	50.9	50.9	50.9	50.9	50.9	50.9
62.5°	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
65°	25.4	31.9	31.9	31.9	31.9	25.4	25.4	25.4
67.5°	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
70°	19.2	19.2	19.2	19.2	19.2	12.7	12.7	12.7
72.5°	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
75°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
77.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
80°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)