

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: **FLDSQ4C08D010 FEU4C089035 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: FLDSQ4C08D010 FEU4C089035 F4LC-SQ-LI
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

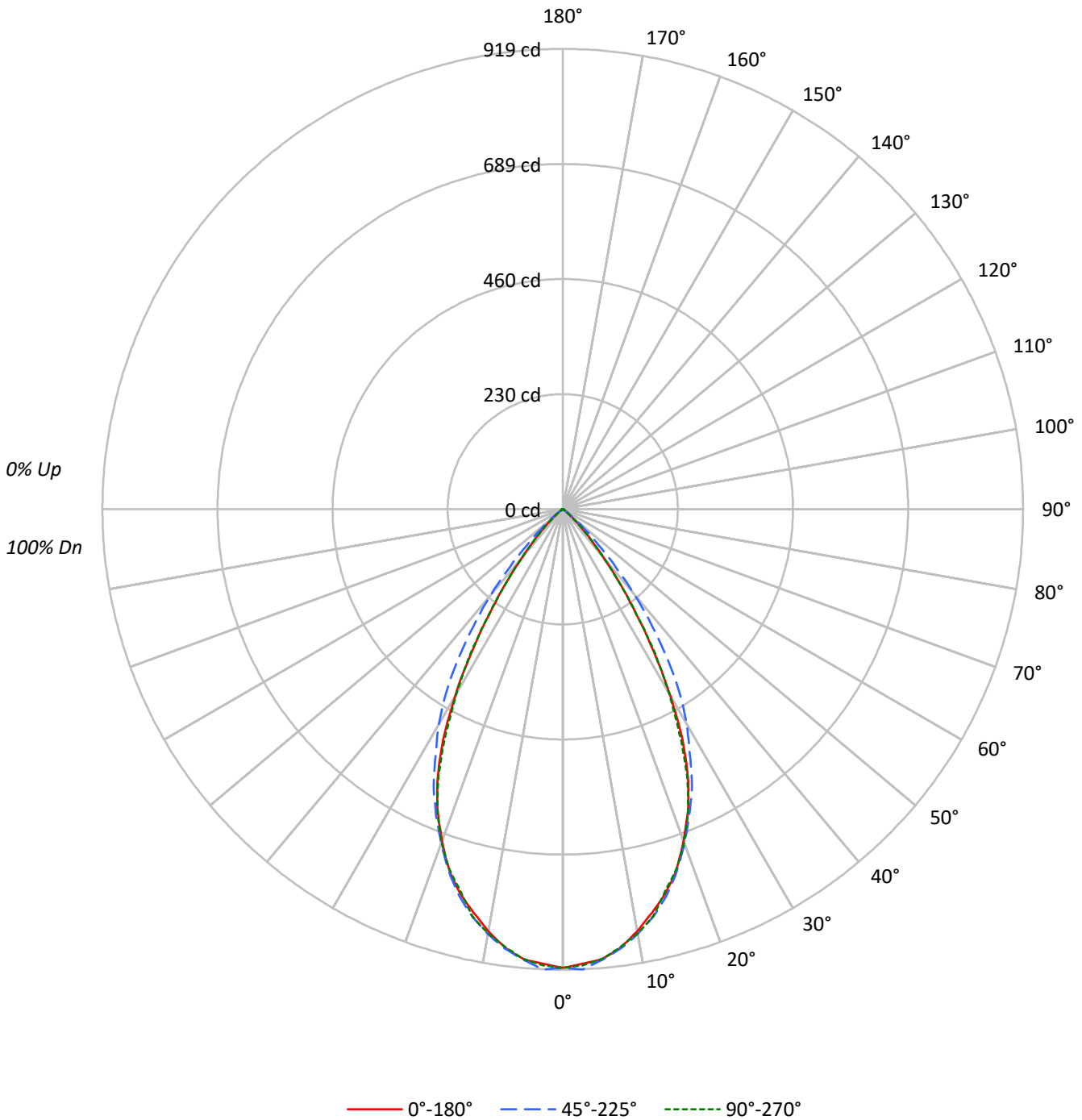
Lumens per Lamp: N/A
 Luminaire Lumens: 845.0 lumens
 Efficiency: N/A
 Efficacy: 85.4 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.9
 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	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°	88316	88316	88316
5°	87298	87414	87298
10°	83810	84319	84212
15°	79235	79814	78825
20°	72308	72842	72668
25°	62963	64943	62526
30°	47875	55073	47162
35°	30143	42805	30414
40°	16261	28277	15971
45°	7696	13959	7614
50°	2882	5239	2882
55°	1363	1665	1278
60°	907	791	907
65°	525	525	525
70°	339	508	339
75°	224	224	224
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	84.9	10.0
10°-20°	222.4	26.3
20°-30°	271.7	32.2
30°-40°	190.0	22.5
40°-50°	62.3	7.4
50°-60°	9.9	1.2
60°-70°	2.7	0.3
70°-80°	0.9	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°	578.9	68.5
0°-40°	769.0	91.0
0°-60°	841.1	99.5
0°-90°	845.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	845.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	915	915	915	915	915	
5°	901	902	902	897	901	85
15°	793	796	799	794	789	221
25°	591	600	610	599	587	266
35°	256	302	363	297	258	163
45°	56	69	102	69	56	47
55°	8	9	10	9	8	8
65°	2	3	2	3	2	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#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	915.3	915.3	915.3	915.3	915.3	915.3	915.3	915.3	915.3	915.3	915.3
2.5°	908.3	914.7	912.9	917.0	917.0	912.4	913.5	915.3	917.6	919.3	905.4
5°	901.3	907.1	901.9	907.7	904.2	899.0	907.7	903.0	906.0	902.5	904.8
7.5°	882.7	892.0	881.5	888.5	886.2	883.3	886.8	885.6	887.4	884.4	878.1
10°	855.4	862.9	856.0	865.8	861.2	858.3	861.2	864.1	863.5	860.6	864.1
12.5°	824.0	832.7	829.2	835.0	829.8	829.8	836.8	835.0	835.6	833.3	837.3
15°	793.2	799.6	794.3	801.9	799.6	793.2	796.1	796.1	800.7	799.0	794.3
17.5°	754.8	760.0	754.2	755.9	753.6	752.5	764.7	756.5	761.2	757.7	758.3
20°	704.2	706.5	704.8	709.4	706.5	710.0	708.8	707.7	707.7	709.4	705.4
22.5°	653.0	653.0	654.8	655.9	658.3	654.8	661.7	655.9	656.5	660.6	659.4
25°	591.4	589.6	593.7	599.5	601.8	598.9	608.2	603.6	607.1	610.0	603.6
27.5°	516.4	516.4	520.4	530.3	532.1	535.5	548.3	548.3	553.0	548.9	553.6
30°	429.7	436.1	441.3	454.1	458.2	465.8	479.1	485.6	496.0	494.3	491.9
32.5°	340.8	349.5	350.1	363.4	374.5	387.3	405.3	420.4	428.0	433.2	427.4
35°	255.9	261.1	265.7	275.0	293.7	310.5	326.8	346.6	360.0	363.4	358.2
37.5°	187.2	188.4	193.1	201.8	215.7	232.0	251.8	273.3	287.3	292.5	286.7
40°	129.1	130.3	132.6	140.1	151.8	163.4	179.1	201.2	214.0	224.5	216.9
42.5°	86.6	87.8	90.1	95.9	102.3	113.4	125.6	139.6	151.8	156.4	152.3
45°	56.4	56.4	57.6	61.6	65.1	73.8	82.6	91.3	99.4	102.3	99.4
47.5°	33.1	33.7	34.9	37.8	41.9	45.3	51.8	57.6	59.9	62.2	61.1
50°	19.2	19.2	20.9	22.7	25.6	27.9	30.2	32.6	33.7	34.9	33.7
52.5°	10.5	11.1	11.6	12.2	13.4	15.7	17.4	17.4	18.0	18.6	18.0
55°	8.1	8.1	8.1	8.1	8.7	8.7	8.7	9.3	9.3	9.9	9.3
57.5°	5.8	5.8	5.8	6.4	6.4	6.4	5.8	5.8	5.8	5.8	5.8
60°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.1	4.1	4.1	4.1
62.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
65°	2.3	2.3	2.9	2.9	2.9	2.9	2.9	2.3	2.3	2.3	2.3
67.5°	1.8	1.8	1.8	1.8	2.3	2.3	1.8	1.8	1.8	1.8	1.8
70°	1.2	1.2	1.2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
72.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
75°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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°	915.3	915.3	915.3	915.3	915.3	915.3	915.3	915.3
2.5°	915.3	905.4	906.5	911.8	908.9	911.8	911.2	911.2
5°	905.4	902.5	897.8	896.1	899.6	907.1	906.0	901.3
7.5°	886.8	879.2	884.4	886.8	883.9	888.5	890.8	881.0
10°	864.7	861.8	860.6	861.8	860.6	865.3	859.5	859.5
12.5°	833.3	828.6	828.6	835.6	831.5	828.0	832.7	832.1
15°	801.9	792.6	792.6	794.9	796.6	794.3	794.9	789.1
17.5°	755.4	752.5	748.4	754.8	756.5	754.2	755.9	753.0
20°	711.7	711.7	704.2	707.1	709.4	711.2	712.3	707.7
22.5°	655.9	657.1	651.8	657.7	659.4	653.6	654.8	653.6
25°	604.7	604.2	600.1	597.8	598.9	596.6	596.0	587.3
27.5°	548.3	542.5	533.8	536.1	526.2	518.1	518.1	504.7
30°	487.3	477.4	465.8	454.1	445.4	436.1	430.9	423.3
32.5°	415.8	402.4	387.9	372.1	362.3	348.3	340.8	344.8
35°	344.8	325.0	305.3	289.6	274.5	266.3	257.0	258.2
37.5°	276.2	248.3	230.9	214.0	201.2	190.7	186.7	185.5
40°	201.8	179.7	162.2	150.0	141.3	133.2	128.5	126.8
42.5°	139.6	123.9	109.9	100.0	94.2	89.0	86.6	86.1
45°	90.7	81.4	72.1	65.1	60.5	57.0	56.4	55.8
47.5°	57.0	52.3	46.5	41.3	37.2	34.9	33.1	33.1
50°	32.6	30.8	27.9	25.0	22.7	21.5	19.8	19.2
52.5°	17.4	17.4	16.3	14.0	12.2	11.1	11.1	10.5
55°	9.3	9.3	8.7	8.7	8.1	8.1	8.1	7.6
57.5°	5.8	5.8	6.4	6.4	5.8	5.8	5.8	5.8
60°	4.1	4.7	4.7	4.7	4.7	4.7	4.7	4.7
62.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
65°	2.3	2.9	2.9	2.9	2.9	2.3	2.3	2.3
67.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
70°	1.8	1.8	1.8	1.8	1.8	1.2	1.2	1.2
72.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
75°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
80°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
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°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)