

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 FEU4C089027 F4LC-CSSQ-MW**

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 FEU4C089027 F4LC-CSSQ-MW
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

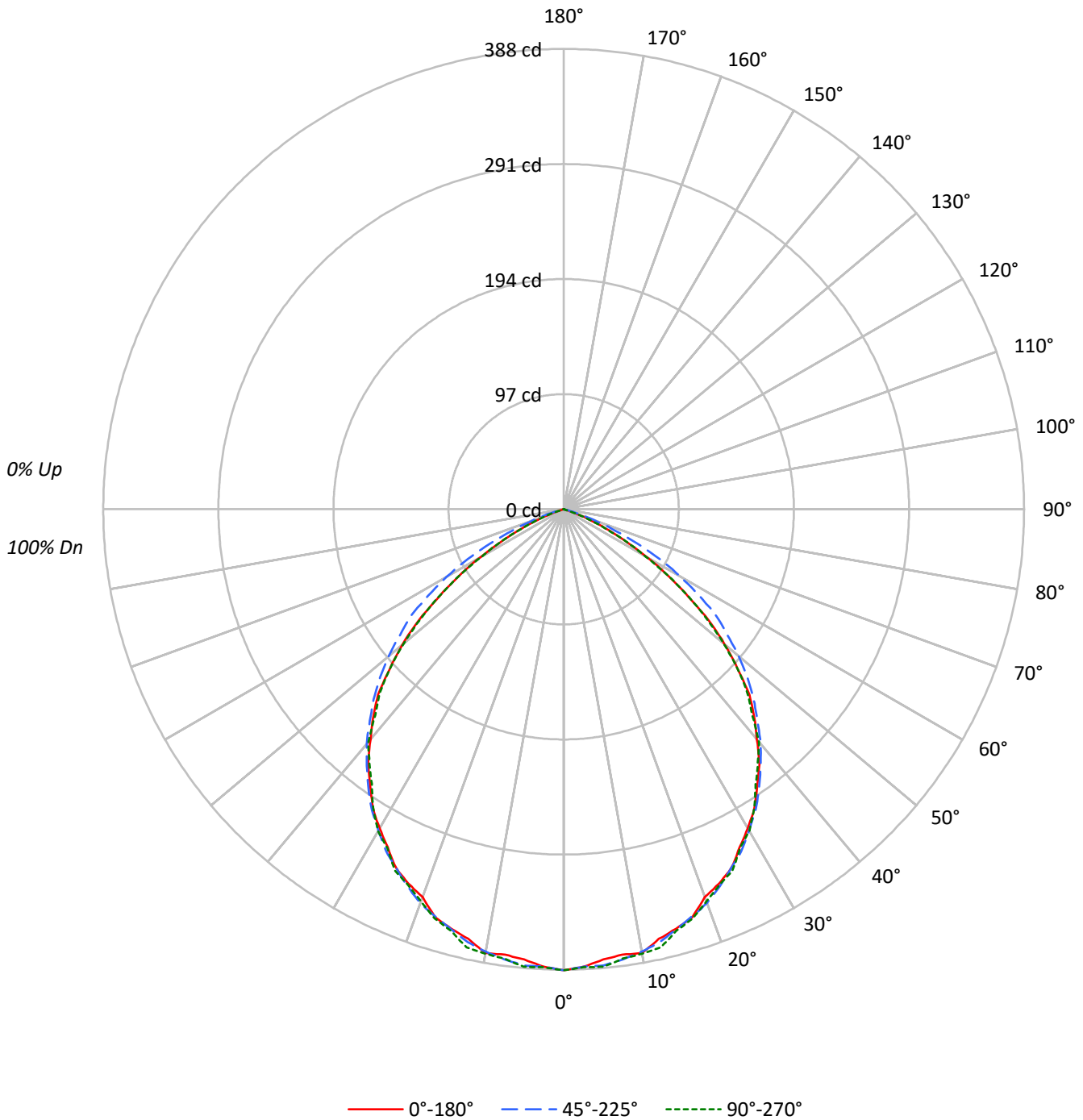
Lumens per Lamp: N/A
 Luminaire Lumens: 830.0 lumens
 Efficiency: N/A
 Efficacy: 84.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.87
 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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CATALOG NUMBER: FLDSQ4C08D010 FEU4C089027 F4LC-CSSQ-MW

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	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	37486	37486	37486
5°	36883	37368	37474
10°	37202	37094	37261
15°	36551	36611	36721
20°	35702	36267	36103
25°	35548	35548	35782
30°	34561	34806	34862
35°	33476	33806	33217
40°	31905	32535	32258
45°	30198	30880	29897
50°	26600	28911	26434
55°	21533	26462	21634
60°	15766	21942	15438
65°	9589	15617	9315
70°	3724	8407	3583
75°	410	2274	410
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.7	4.4
10°-20°	103.8	12.5
20°-30°	154.0	18.6
30°-40°	178.4	21.5
40°-50°	171.1	20.6
50°-60°	125.8	15.2
60°-70°	54.3	6.5
70°-80°	5.9	0.7
80°-90°	0.1	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°	294.4	35.5
0°-40°	472.9	57.0
0°-60°	769.7	92.7
0°-90°	830.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	830.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	388	388	388	388	388	
5°	381	385	386	386	387	36
15°	366	368	366	367	368	103
25°	334	333	334	334	336	153
35°	284	286	287	286	282	178
45°	221	222	226	223	219	168
55°	128	141	157	141	129	115
65°	42	52	68	52	41	43
75°	1	2	6	1	1	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089027 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5
2.5°	385.8	390.2	390.8	388.0	386.9	385.2	389.1	386.3	387.4	386.3	385.8
5°	380.8	385.8	386.3	386.3	385.2	384.7	386.3	385.8	385.2	384.1	385.8
7.5°	378.6	381.4	384.1	380.8	382.5	381.9	385.8	384.1	383.6	383.6	382.5
10°	379.7	379.2	381.4	378.1	379.2	378.1	381.4	381.4	380.3	379.2	378.6
12.5°	370.9	375.3	375.3	374.7	373.6	372.0	375.3	377.5	374.2	374.2	373.6
15°	365.9	367.0	367.6	367.6	367.0	368.1	369.8	367.6	368.1	365.4	366.5
17.5°	360.4	358.2	359.8	358.7	359.3	360.4	362.6	362.6	359.3	358.7	359.8
20°	347.7	354.3	354.9	351.6	352.1	352.1	356.0	352.7	354.9	352.1	353.2
22.5°	341.6	346.0	346.6	342.2	344.9	341.6	345.5	340.5	346.0	342.2	343.8
25°	333.9	333.4	335.0	332.8	333.4	333.4	336.1	333.9	335.6	333.4	333.9
27.5°	321.2	325.6	325.1	322.9	324.0	323.4	328.9	322.9	326.2	323.4	324.5
30°	310.2	314.0	312.9	310.7	310.7	309.1	315.1	313.5	312.9	312.9	312.4
32.5°	299.1	299.7	298.6	299.1	299.7	297.5	302.4	300.2	299.7	300.2	300.8
35°	284.2	284.2	285.3	283.7	285.9	285.9	290.3	287.5	287.0	285.3	287.0
37.5°	271.0	269.3	269.9	269.9	271.0	272.1	274.3	273.2	273.2	271.5	272.6
40°	253.3	252.2	253.9	253.9	255.5	255.5	257.7	256.6	258.3	258.3	258.3
42.5°	237.9	237.9	236.8	238.4	239.0	238.4	242.3	241.7	242.3	241.2	241.7
45°	221.3	221.3	220.2	219.7	222.4	221.9	226.3	224.6	226.8	225.7	226.3
47.5°	198.7	201.4	199.8	201.4	204.8	205.3	208.1	207.0	209.2	207.5	209.7
50°	177.2	177.2	178.8	181.0	184.3	184.9	188.2	190.4	191.5	192.1	192.6
52.5°	154.5	154.0	155.6	158.4	161.2	163.4	166.7	170.0	172.2	175.5	173.8
55°	128.0	129.1	130.8	134.1	138.5	141.3	144.0	148.5	152.3	154.0	157.3
57.5°	105.4	104.3	105.4	109.8	114.8	117.0	120.9	125.3	130.8	134.1	135.2
60°	81.7	82.2	83.3	87.2	91.1	94.4	96.0	103.2	108.2	111.5	113.7
62.5°	60.2	61.3	62.4	65.7	69.5	72.3	75.1	81.1	85.5	88.9	91.1
65°	42.0	42.5	44.2	45.8	49.7	52.4	54.6	59.6	64.0	66.8	68.4
67.5°	25.9	26.5	27.6	29.8	32.6	34.8	37.0	40.3	44.2	46.9	47.5
70°	13.2	13.8	14.3	16.0	18.2	19.3	21.0	23.7	26.5	28.7	29.8
72.5°	4.4	4.4	5.0	6.1	7.2	8.3	8.8	11.6	13.8	14.9	15.4
75°	1.1	1.1	1.1	1.1	1.1	1.7	1.7	3.3	4.4	5.5	6.1
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.1	1.1
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	0.0	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°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5	388.5
2.5°	388.5	387.4	386.9	387.4	387.4	386.9	388.5	390.8	393.5	386.3
5°	388.0	386.9	388.0	384.7	386.3	385.2	387.4	386.9	389.1	386.9
7.5°	386.3	384.1	384.7	383.0	385.2	382.5	384.1	387.4	385.2	381.9
10°	380.8	379.7	383.6	378.1	377.0	379.2	383.6	380.3	379.2	380.3
12.5°	375.3	375.3	377.0	372.5	373.1	374.2	376.4	374.2	375.3	378.1
15°	369.2	368.1	370.9	367.6	367.0	365.9	368.1	368.1	369.2	367.6
17.5°	362.0	360.4	360.4	359.3	358.7	361.5	362.6	363.1	363.7	361.5
20°	353.2	352.7	354.3	352.7	353.2	353.8	353.8	352.7	357.6	351.6
22.5°	343.8	345.5	343.3	342.2	343.3	344.4	344.4	344.9	343.8	342.7
25°	334.5	335.6	336.1	332.8	334.5	332.8	336.7	337.2	335.0	336.1
27.5°	326.2	324.5	324.0	321.8	322.9	322.3	322.9	322.9	326.2	321.8
30°	313.5	311.8	312.4	310.7	311.3	310.7	311.3	311.3	313.5	312.9
32.5°	301.3	299.7	300.2	298.6	298.6	299.1	298.0	298.0	299.7	298.6
35°	289.7	285.9	286.4	285.9	286.4	284.2	284.2	283.7	284.8	282.0
37.5°	273.2	271.5	271.0	270.4	271.0	269.9	271.0	269.3	271.0	268.8
40°	258.3	257.2	257.7	254.4	254.4	255.0	253.9	253.3	253.9	256.1
42.5°	243.4	241.2	240.1	239.0	239.5	237.9	237.3	236.2	237.3	235.1
45°	225.7	225.7	225.2	222.4	223.0	223.0	220.8	218.6	219.1	219.1
47.5°	209.7	208.6	208.1	205.3	204.8	204.2	202.0	200.3	200.3	198.7
50°	192.1	191.0	189.3	186.5	185.4	182.1	180.5	178.3	176.1	176.1
52.5°	175.5	171.6	169.4	165.0	163.4	161.7	157.3	155.6	154.0	152.3
55°	155.6	152.3	147.9	142.9	140.7	138.0	133.6	130.2	128.0	128.6
57.5°	136.3	130.8	126.4	119.8	117.0	115.3	110.9	106.5	104.3	104.3
60°	112.6	108.2	102.7	96.6	94.4	91.6	86.1	83.3	81.7	80.0
62.5°	90.0	86.6	81.7	73.9	72.3	69.5	65.7	62.4	60.7	60.7
65°	67.3	64.0	59.6	54.1	51.9	49.7	46.4	43.1	41.4	40.8
67.5°	47.5	43.6	39.7	35.3	33.7	32.6	29.3	27.0	25.9	25.4
70°	28.7	26.5	23.7	20.4	18.8	17.7	15.4	13.8	13.2	12.7
72.5°	14.9	13.2	11.0	8.8	7.7	6.6	5.5	4.4	3.9	3.9
75°	5.5	4.4	2.8	1.7	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	1.1	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
82.5°	0.0	0.0	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	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)