

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 FEU4C089040 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 FEU4C089040 F4LC-CSSQ-MW
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

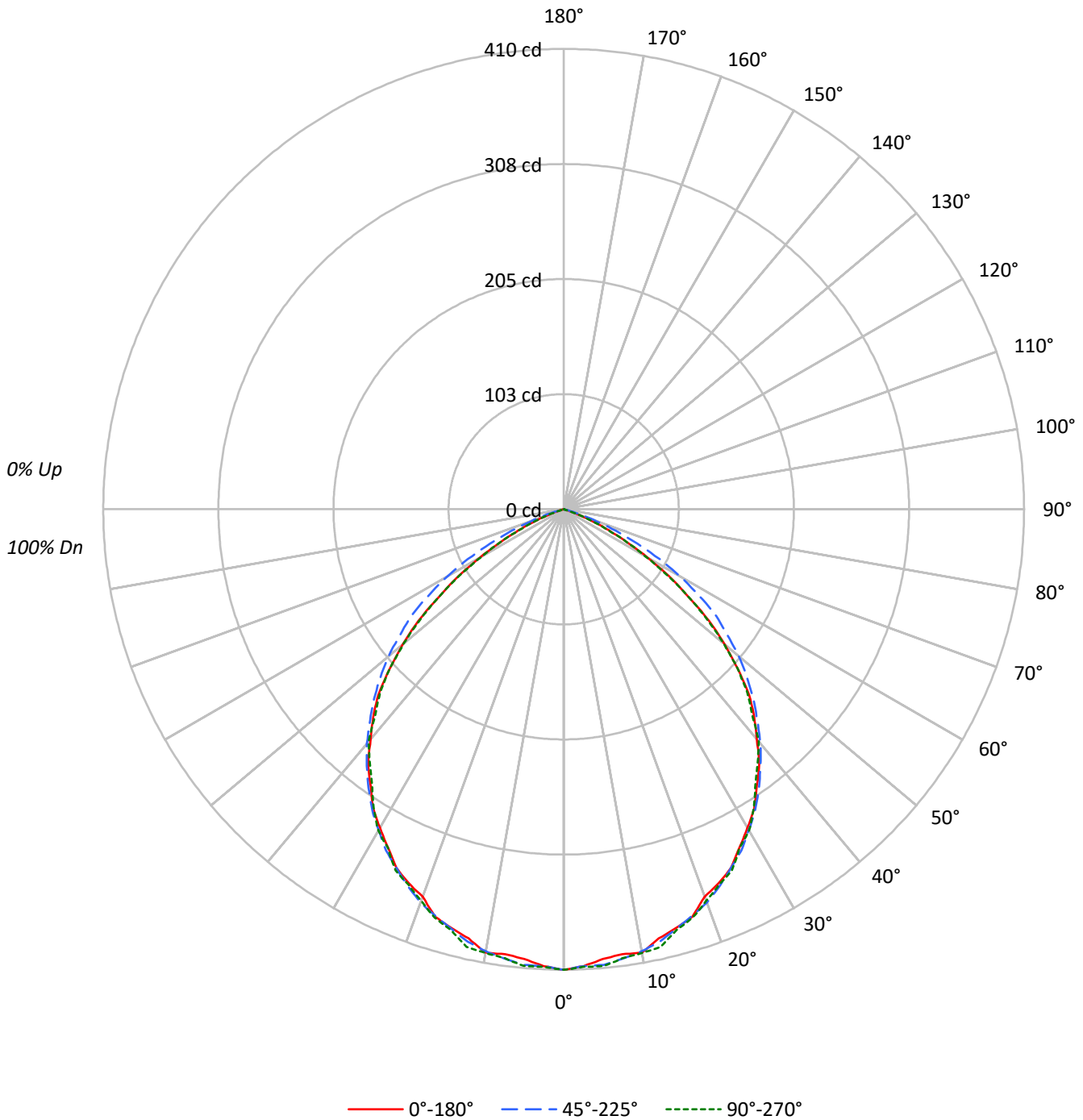
Lumens per Lamp: N/A
 Luminaire Lumens: 876.0 lumens
 Efficiency: N/A
 Efficacy: 88.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	39570	39570	39570
5°	38927	39440	39547
10°	39269	39152	39318
15°	38579	38638	38748
20°	37684	38280	38105
25°	37518	37518	37763
30°	36478	36734	36801
35°	35337	35679	35055
40°	33681	34336	34046
45°	31876	32586	31549
50°	28071	30517	27890
55°	22727	27925	22828
60°	16635	23157	16307
65°	10114	16484	9840
70°	3950	8887	3780
75°	447	2386	447
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.7	4.4
10°-20°	109.5	12.5
20°-30°	162.5	18.6
30°-40°	188.3	21.5
40°-50°	180.6	20.6
50°-60°	132.8	15.2
60°-70°	57.3	6.5
70°-80°	6.2	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°	310.8	35.5
0°-40°	499.1	57.0
0°-60°	812.4	92.7
0°-90°	876.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	876.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	410	410	410	410	410	
5°	402	406	407	408	408	38
15°	386	388	387	387	388	109
25°	352	352	352	353	355	161
35°	300	302	303	302	298	188
45°	234	234	239	235	231	178
55°	135	149	166	148	136	122
65°	44	55	72	55	43	46
75°	1	2	6	1	1	4
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	410.1	410.1	410.1	410.1	410.1	410.1	410.1	410.1	410.1	410.1	410.1
2.5°	407.2	411.8	412.4	409.5	408.3	406.6	410.7	407.8	408.9	407.8	407.2
5°	401.9	407.2	407.8	407.8	406.6	406.0	407.8	407.2	406.6	405.4	407.2
7.5°	399.6	402.5	405.4	401.9	403.7	403.1	407.2	405.4	404.8	404.8	403.7
10°	400.8	400.2	402.5	399.0	400.2	399.0	402.5	402.5	401.3	400.2	399.6
12.5°	391.4	396.1	396.1	395.5	394.3	392.6	396.1	398.4	394.9	394.9	394.3
15°	386.2	387.4	387.9	387.9	387.4	388.5	390.3	387.9	388.5	385.6	386.8
17.5°	380.4	378.0	379.8	378.6	379.2	380.4	382.7	382.7	379.2	378.6	379.8
20°	367.0	374.0	374.6	371.1	371.6	371.6	375.7	372.2	374.6	371.6	372.8
22.5°	360.6	365.2	365.8	361.1	364.0	360.6	364.6	359.4	365.2	361.1	362.9
25°	352.4	351.8	353.6	351.2	351.8	351.8	354.7	352.4	354.2	351.8	352.4
27.5°	339.0	343.7	343.1	340.8	341.9	341.4	347.2	340.8	344.3	341.4	342.5
30°	327.4	331.4	330.3	327.9	327.9	326.2	332.6	330.8	330.3	330.3	329.7
32.5°	315.7	316.3	315.1	315.7	316.3	314.0	319.2	316.9	316.3	316.9	317.5
35°	300.0	300.0	301.1	299.4	301.7	301.7	306.4	303.5	302.9	301.1	302.9
37.5°	286.0	284.3	284.8	284.8	286.0	287.2	289.5	288.3	288.3	286.6	287.8
40°	267.4	266.2	267.9	267.9	269.7	269.7	272.0	270.9	272.6	272.6	272.6
42.5°	251.1	251.1	249.9	251.6	252.2	251.6	255.7	255.1	255.7	254.6	255.1
45°	233.6	233.6	232.4	231.8	234.7	234.2	238.8	237.1	239.4	238.2	238.8
47.5°	209.7	212.6	210.9	212.6	216.1	216.7	219.6	218.4	220.8	219.0	221.4
50°	187.0	187.0	188.7	191.1	194.5	195.1	198.6	201.0	202.1	202.7	203.3
52.5°	163.1	162.5	164.3	167.2	170.1	172.4	175.9	179.4	181.7	185.2	183.5
55°	135.1	136.3	138.1	141.6	146.2	149.1	152.0	156.7	160.8	162.5	166.0
57.5°	111.2	110.1	111.2	115.9	121.2	123.5	127.6	132.2	138.1	141.6	142.7
60°	86.2	86.8	88.0	92.0	96.1	99.6	101.4	108.9	114.2	117.7	120.0
62.5°	63.5	64.7	65.8	69.3	73.4	76.3	79.2	85.6	90.3	93.8	96.1
65°	44.3	44.8	46.6	48.3	52.4	55.3	57.7	62.9	67.6	70.5	72.2
67.5°	27.4	27.9	29.1	31.5	34.4	36.7	39.0	42.5	46.6	49.5	50.1
70°	14.0	14.6	15.1	16.9	19.2	20.4	22.1	25.0	27.9	30.3	31.5
72.5°	4.7	4.7	5.3	6.4	7.6	8.7	9.3	12.2	14.6	15.7	16.3
75°	1.2	1.2	1.2	1.2	1.2	1.8	1.8	3.5	4.7	5.8	6.4
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.2	1.2
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°	410.1	410.1	410.1	410.1	410.1	410.1	410.1	410.1	410.1	410.1
2.5°	410.1	408.9	408.3	408.9	408.9	408.3	410.1	412.4	415.3	407.8
5°	409.5	408.3	409.5	406.0	407.8	406.6	408.9	408.3	410.7	408.3
7.5°	407.8	405.4	406.0	404.3	406.6	403.7	405.4	408.9	406.6	403.1
10°	401.9	400.8	404.8	399.0	397.8	400.2	404.8	401.3	400.2	401.3
12.5°	396.1	396.1	397.8	393.2	393.8	394.9	397.2	394.9	396.1	399.0
15°	389.7	388.5	391.4	387.9	387.4	386.2	388.5	388.5	389.7	387.9
17.5°	382.1	380.4	380.4	379.2	378.6	381.5	382.7	383.3	383.9	381.5
20°	372.8	372.2	374.0	372.2	372.8	373.4	373.4	372.2	377.5	371.1
22.5°	362.9	364.6	362.3	361.1	362.3	363.5	363.5	364.0	362.9	361.7
25°	353.0	354.2	354.7	351.2	353.0	351.2	355.3	355.9	353.6	354.7
27.5°	344.3	342.5	341.9	339.6	340.8	340.2	340.8	340.8	344.3	339.6
30°	330.8	329.1	329.7	327.9	328.5	327.9	328.5	328.5	330.8	330.3
32.5°	318.0	316.3	316.9	315.1	315.1	315.7	314.5	314.5	316.3	315.1
35°	305.8	301.7	302.3	301.7	302.3	300.0	300.0	299.4	300.6	297.6
37.5°	288.3	286.6	286.0	285.4	286.0	284.8	286.0	284.3	286.0	283.7
40°	272.6	271.4	272.0	268.5	268.5	269.1	267.9	267.4	267.9	270.3
42.5°	256.9	254.6	253.4	252.2	252.8	251.1	250.5	249.3	250.5	248.1
45°	238.2	238.2	237.7	234.7	235.3	235.3	233.0	230.7	231.2	231.2
47.5°	221.4	220.2	219.6	216.7	216.1	215.5	213.2	211.4	211.4	209.7
50°	202.7	201.5	199.8	196.9	195.7	192.2	190.5	188.2	185.8	185.8
52.5°	185.2	181.1	178.8	174.2	172.4	170.7	166.0	164.3	162.5	160.8
55°	164.3	160.8	156.1	150.9	148.5	145.6	141.0	137.5	135.1	135.7
57.5°	143.9	138.1	133.4	126.4	123.5	121.7	117.1	112.4	110.1	110.1
60°	118.8	114.2	108.3	101.9	99.6	96.7	90.9	88.0	86.2	84.5
62.5°	94.9	91.5	86.2	78.0	76.3	73.4	69.3	65.8	64.1	64.1
65°	71.1	67.6	62.9	57.1	54.8	52.4	48.9	45.4	43.7	43.1
67.5°	50.1	46.0	41.9	37.3	35.5	34.4	30.9	28.5	27.4	26.8
70°	30.3	27.9	25.0	21.6	19.8	18.6	16.3	14.6	14.0	13.4
72.5°	15.7	14.0	11.6	9.3	8.2	7.0	5.8	4.7	4.1	4.1
75°	5.8	4.7	2.9	1.8	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	1.2	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)