

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: **FLDSQ4C10D010 FEU4C109050 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: FLDSQ4C10D010 FEU4C109050 F4LC-CSSQ-MW
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

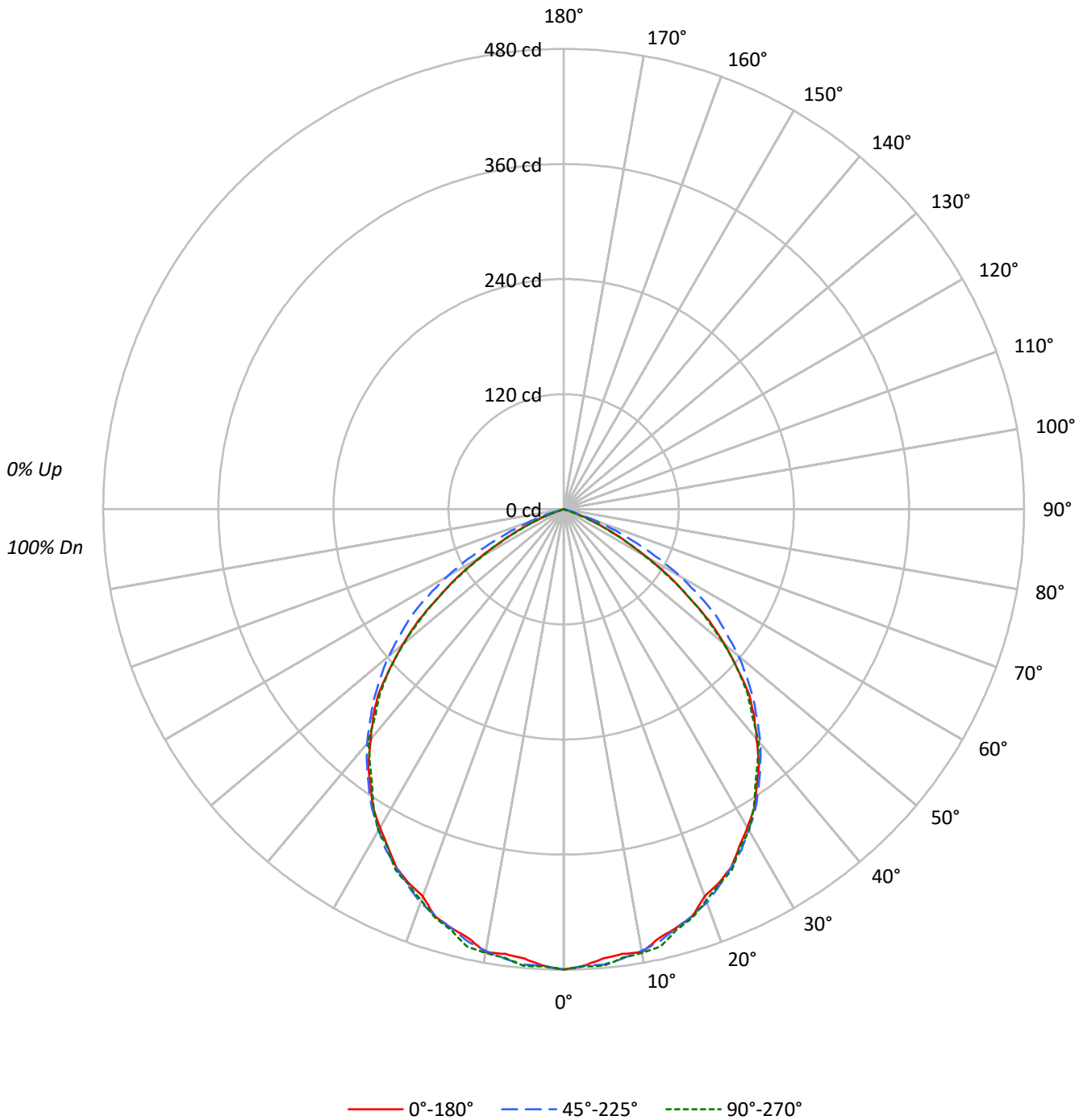
Lumens per Lamp: N/A
 Luminaire Lumens: 1025.0 lumens
 Efficiency: N/A
 Efficacy: 105.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.75
 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°	46295	46295	46295
5°	45552	46143	46278
10°	45942	45814	46010
15°	45141	45211	45341
20°	44091	44790	44584
25°	43895	43895	44193
30°	42672	42984	43062
35°	41345	41745	41027
40°	39399	40180	39828
45°	37293	38126	36925
50°	32844	35711	32634
55°	26596	32669	26714
60°	19471	27094	19066
65°	11827	19292	11507
70°	4627	10382	4429
75°	522	2796	522
80°	389	389	389
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.3	4.4
10°-20°	128.2	12.5
20°-30°	190.2	18.6
30°-40°	220.3	21.5
40°-50°	211.3	20.6
50°-60°	155.3	15.2
60°-70°	67.1	6.5
70°-80°	7.3	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°	363.6	35.5
0°-40°	584.0	57.0
0°-60°	950.6	92.7
0°-90°	1025.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1025.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	480	480	480	480	480	
5°	470	475	476	477	478	45
15°	452	455	453	453	454	127
25°	412	412	412	413	415	189
35°	351	353	354	354	348	219
45°	273	274	279	275	271	208
55°	158	174	194	174	159	142
65°	52	65	84	64	50	53
75°	1	2	8	1	1	4
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8
2.5°	476.4	481.9	482.6	479.1	477.8	475.7	480.5	477.1	478.5	477.1	476.4
5°	470.3	476.4	477.1	477.1	475.7	475.1	477.1	476.4	475.7	474.4	476.4
7.5°	467.6	471.0	474.4	470.3	472.3	471.7	476.4	474.4	473.7	473.7	472.3
10°	468.9	468.2	471.0	466.9	468.2	466.9	471.0	471.0	469.6	468.2	467.6
12.5°	458.0	463.5	463.5	462.8	461.4	459.4	463.5	466.2	462.1	462.1	461.4
15°	451.9	453.2	453.9	453.9	453.2	454.6	456.6	453.9	454.6	451.2	452.6
17.5°	445.1	442.3	444.4	443.0	443.7	445.1	447.8	447.8	443.7	443.0	444.4
20°	429.4	437.6	438.3	434.2	434.8	434.8	439.6	435.5	438.3	434.8	436.2
22.5°	421.9	427.3	428.0	422.6	426.0	421.9	426.7	420.5	427.3	422.6	424.6
25°	412.3	411.7	413.7	411.0	411.7	411.7	415.1	412.3	414.4	411.7	412.3
27.5°	396.7	402.1	401.4	398.7	400.1	399.4	406.2	398.7	402.8	399.4	400.8
30°	383.0	387.8	386.5	383.7	383.7	381.7	389.2	387.1	386.5	386.5	385.8
32.5°	369.4	370.1	368.7	369.4	370.1	367.4	373.5	370.8	370.1	370.8	371.5
35°	351.0	351.0	352.4	350.3	353.1	353.1	358.5	355.1	354.4	352.4	354.4
37.5°	334.6	332.6	333.3	333.3	334.6	336.0	338.7	337.4	337.4	335.3	336.7
40°	312.8	311.5	313.5	313.5	315.6	315.6	318.3	316.9	319.0	319.0	319.0
42.5°	293.8	293.8	292.4	294.4	295.1	294.4	299.2	298.5	299.2	297.9	298.5
45°	273.3	273.3	271.9	271.3	274.7	274.0	279.4	277.4	280.1	278.8	279.4
47.5°	245.4	248.8	246.7	248.8	252.9	253.6	257.0	255.6	258.3	256.3	259.0
50°	218.8	218.8	220.8	223.6	227.6	228.3	232.4	235.1	236.5	237.2	237.9
52.5°	190.8	190.2	192.2	195.6	199.0	201.7	205.8	209.9	212.7	216.7	214.7
55°	158.1	159.5	161.5	165.6	171.1	174.5	177.9	183.3	188.1	190.2	194.2
57.5°	130.2	128.8	130.2	135.6	141.8	144.5	149.3	154.7	161.5	165.6	167.0
60°	100.9	101.6	102.9	107.7	112.5	116.5	118.6	127.4	133.6	137.7	140.4
62.5°	74.3	75.7	77.0	81.1	85.9	89.3	92.7	100.2	105.6	109.7	112.5
65°	51.8	52.5	54.5	56.6	61.3	64.7	67.5	73.6	79.1	82.5	84.5
67.5°	32.0	32.7	34.1	36.8	40.2	42.9	45.7	49.7	54.5	57.9	58.6
70°	16.4	17.0	17.7	19.8	22.5	23.9	25.9	29.3	32.7	35.4	36.8
72.5°	5.5	5.5	6.1	7.5	8.9	10.2	10.9	14.3	17.0	18.4	19.1
75°	1.4	1.4	1.4	1.4	1.4	2.1	2.1	4.1	5.5	6.8	7.5
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.4	1.4
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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°	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8	479.8
2.5°	479.8	478.5	477.8	478.5	478.5	477.8	479.8	482.6	486.0	477.1
5°	479.1	477.8	479.1	475.1	477.1	475.7	478.5	477.8	480.5	477.8
7.5°	477.1	474.4	475.1	473.0	475.7	472.3	474.4	478.5	475.7	471.7
10°	470.3	468.9	473.7	466.9	465.5	468.2	473.7	469.6	468.2	469.6
12.5°	463.5	463.5	465.5	460.1	460.7	462.1	464.8	462.1	463.5	466.9
15°	456.0	454.6	458.0	453.9	453.2	451.9	454.6	454.6	456.0	453.9
17.5°	447.1	445.1	445.1	443.7	443.0	446.4	447.8	448.5	449.2	446.4
20°	436.2	435.5	437.6	435.5	436.2	436.9	436.9	435.5	441.7	434.2
22.5°	424.6	426.7	423.9	422.6	423.9	425.3	425.3	426.0	424.6	423.2
25°	413.0	414.4	415.1	411.0	413.0	411.0	415.8	416.4	413.7	415.1
27.5°	402.8	400.8	400.1	397.4	398.7	398.0	398.7	398.7	402.8	397.4
30°	387.1	385.1	385.8	383.7	384.4	383.7	384.4	384.4	387.1	386.5
32.5°	372.1	370.1	370.8	368.7	368.7	369.4	368.0	368.0	370.1	368.7
35°	357.8	353.1	353.7	353.1	353.7	351.0	351.0	350.3	351.7	348.3
37.5°	337.4	335.3	334.6	334.0	334.6	333.3	334.6	332.6	334.6	331.9
40°	319.0	317.6	318.3	314.2	314.2	314.9	313.5	312.8	313.5	316.2
42.5°	300.6	297.9	296.5	295.1	295.8	293.8	293.1	291.7	293.1	290.3
45°	278.8	278.8	278.1	274.7	275.4	275.4	272.6	269.9	270.6	270.6
47.5°	259.0	257.6	257.0	253.6	252.9	252.2	249.4	247.4	247.4	245.4
50°	237.2	235.8	233.8	230.4	229.0	224.9	222.9	220.2	217.4	217.4
52.5°	216.7	212.0	209.2	203.8	201.7	199.7	194.2	192.2	190.2	188.1
55°	192.2	188.1	182.7	176.5	173.8	170.4	164.9	160.8	158.1	158.8
57.5°	168.4	161.5	156.1	147.9	144.5	142.4	137.0	131.5	128.8	128.8
60°	139.0	133.6	126.8	119.3	116.5	113.2	106.3	102.9	100.9	98.8
62.5°	111.1	107.0	100.9	91.3	89.3	85.9	81.1	77.0	75.0	75.0
65°	83.1	79.1	73.6	66.8	64.1	61.3	57.3	53.2	51.1	50.4
67.5°	58.6	53.8	49.1	43.6	41.6	40.2	36.1	33.4	32.0	31.3
70°	35.4	32.7	29.3	25.2	23.2	21.8	19.1	17.0	16.4	15.7
72.5°	18.4	16.4	13.6	10.9	9.5	8.2	6.8	5.5	4.8	4.8
75°	6.8	5.5	3.4	2.1	1.4	1.4	1.4	1.4	1.4	1.4
77.5°	1.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
80°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
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)