

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-MMS**

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

Summary

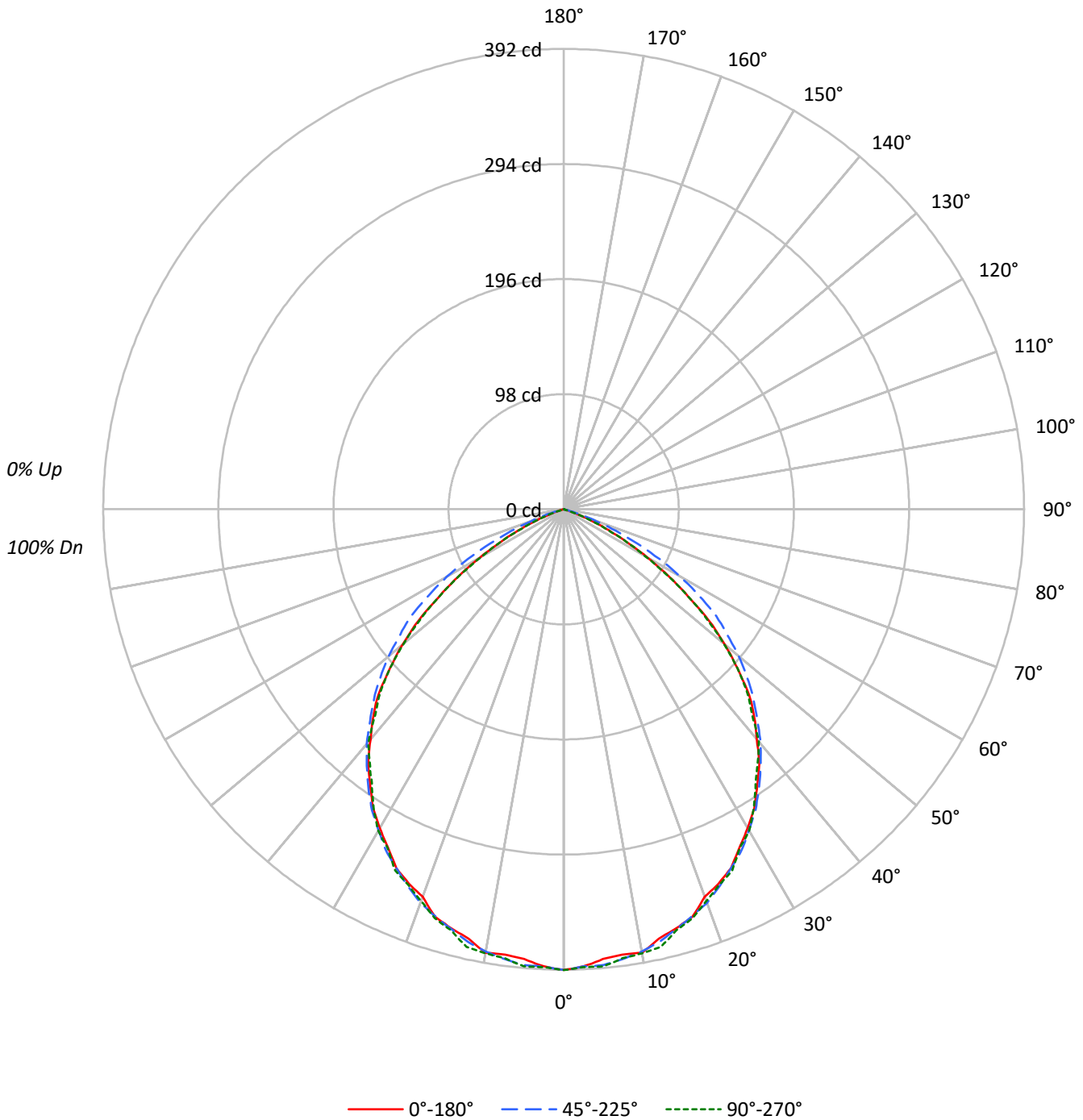
Lumens per Lamp: N/A
 Luminaire Lumens: 838.0 lumens
 Efficiency: N/A
 Efficacy: 86.0 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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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CATALOG NUMBER: FLDSQ4C10D010 FEU4C109050 F4LC-CSSQ-MMS

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°	37853	37853	37853
5°	37242	37726	37833
10°	37565	37457	37614
15°	36900	36960	37070
20°	36051	36616	36452
25°	35889	35889	36123
30°	34895	35141	35196
35°	33806	34136	33535
40°	32220	32850	32560
45°	30484	31180	30184
50°	26855	29196	26690
55°	21751	26714	21835
60°	15921	22154	15593
65°	9680	15776	9406
70°	3780	8492	3611
75°	410	2274	410
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	37.0	4.4
10°-20°	104.8	12.5
20°-30°	155.5	18.6
30°-40°	180.1	21.5
40°-50°	172.7	20.6
50°-60°	127.0	15.2
60°-70°	54.9	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°	297.3	35.5
0°-40°	477.4	57.0
0°-60°	777.2	92.7
0°-90°	838.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	838.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	392	392	392	392	392	
5°	384	388	390	390	391	37
15°	369	372	370	371	371	104
25°	337	337	337	338	339	154
35°	287	289	290	289	285	179
45°	223	224	228	225	221	170
55°	129	143	159	142	130	116
65°	42	53	69	52	41	44
75°	1	2	6	1	1	3
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°	392.3	392.3	392.3	392.3	392.3	392.3	392.3	392.3	392.3	392.3	392.3
2.5°	389.5	394.0	394.5	391.7	390.6	389.0	392.8	390.1	391.2	390.1	389.5
5°	384.5	389.5	390.1	390.1	389.0	388.4	390.1	389.5	389.0	387.8	389.5
7.5°	382.3	385.0	387.8	384.5	386.2	385.6	389.5	387.8	387.3	387.3	386.2
10°	383.4	382.8	385.0	381.7	382.8	381.7	385.0	385.0	383.9	382.8	382.3
12.5°	374.4	378.9	378.9	378.4	377.2	375.6	378.9	381.2	377.8	377.8	377.2
15°	369.4	370.6	371.1	371.1	370.6	371.7	373.3	371.1	371.7	368.9	370.0
17.5°	363.9	361.6	363.3	362.2	362.8	363.9	366.1	366.1	362.8	362.2	363.3
20°	351.1	357.7	358.3	355.0	355.5	355.5	359.4	356.1	358.3	355.5	356.6
22.5°	344.9	349.4	349.9	345.5	348.3	344.9	348.8	343.8	349.4	345.5	347.1
25°	337.1	336.6	338.2	336.0	336.6	336.6	339.3	337.1	338.8	336.6	337.1
27.5°	324.3	328.8	328.2	326.0	327.1	326.5	332.1	326.0	329.3	326.5	327.7
30°	313.2	317.1	315.9	313.7	313.7	312.0	318.2	316.5	315.9	315.9	315.4
32.5°	302.0	302.6	301.5	302.0	302.6	300.4	305.4	303.1	302.6	303.1	303.7
35°	287.0	287.0	288.1	286.4	288.6	288.6	293.1	290.3	289.8	288.1	289.8
37.5°	273.6	271.9	272.5	272.5	273.6	274.7	276.9	275.8	275.8	274.2	275.3
40°	255.8	254.7	256.3	256.3	258.0	258.0	260.2	259.1	260.8	260.8	260.8
42.5°	240.2	240.2	239.1	240.7	241.3	240.7	244.6	244.1	244.6	243.5	244.1
45°	223.4	223.4	222.3	221.8	224.6	224.0	228.5	226.8	229.0	227.9	228.5
47.5°	200.6	203.4	201.7	203.4	206.7	207.3	210.1	209.0	211.2	209.5	211.8
50°	178.9	178.9	180.5	182.8	186.1	186.7	190.0	192.2	193.4	193.9	194.5
52.5°	156.0	155.5	157.1	159.9	162.7	164.9	168.3	171.6	173.9	177.2	175.5
55°	129.3	130.4	132.1	135.4	139.9	142.6	145.4	149.9	153.8	155.5	158.8
57.5°	106.4	105.3	106.4	110.9	115.9	118.1	122.0	126.5	132.1	135.4	136.5
60°	82.5	83.0	84.1	88.1	91.9	95.3	97.0	104.2	109.2	112.6	114.8
62.5°	60.7	61.9	63.0	66.3	70.2	73.0	75.8	81.9	86.4	89.7	91.9
65°	42.4	42.9	44.6	46.2	50.2	52.9	55.2	60.2	64.6	67.4	69.1
67.5°	26.2	26.7	27.9	30.1	32.9	35.1	37.3	40.7	44.6	47.4	47.9
70°	13.4	13.9	14.5	16.2	18.4	19.5	21.2	24.0	26.7	29.0	30.1
72.5°	4.5	4.5	5.0	6.1	7.3	8.4	8.9	11.7	13.9	15.1	15.6
75°	1.1	1.1	1.1	1.1	1.1	1.7	1.7	3.3	4.5	5.6	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°	392.3	392.3	392.3	392.3	392.3	392.3	392.3	392.3	392.3	392.3
2.5°	392.3	391.2	390.6	391.2	391.2	390.6	392.3	394.5	397.3	390.1
5°	391.7	390.6	391.7	388.4	390.1	389.0	391.2	390.6	392.8	390.6
7.5°	390.1	387.8	388.4	386.7	389.0	386.2	387.8	391.2	389.0	385.6
10°	384.5	383.4	387.3	381.7	380.6	382.8	387.3	383.9	382.8	383.9
12.5°	378.9	378.9	380.6	376.1	376.7	377.8	380.0	377.8	378.9	381.7
15°	372.8	371.7	374.4	371.1	370.6	369.4	371.7	371.7	372.8	371.1
17.5°	365.5	363.9	363.9	362.8	362.2	365.0	366.1	366.6	367.2	365.0
20°	356.6	356.1	357.7	356.1	356.6	357.2	357.2	356.1	361.1	355.0
22.5°	347.1	348.8	346.6	345.5	346.6	347.7	347.7	348.3	347.1	346.0
25°	337.7	338.8	339.3	336.0	337.7	336.0	339.9	340.5	338.2	339.3
27.5°	329.3	327.7	327.1	324.9	326.0	325.4	326.0	326.0	329.3	324.9
30°	316.5	314.8	315.4	313.7	314.3	313.7	314.3	314.3	316.5	315.9
32.5°	304.2	302.6	303.1	301.5	301.5	302.0	300.9	300.9	302.6	301.5
35°	292.5	288.6	289.2	288.6	289.2	287.0	287.0	286.4	287.5	284.7
37.5°	275.8	274.2	273.6	273.0	273.6	272.5	273.6	271.9	273.6	271.4
40°	260.8	259.7	260.2	256.9	256.9	257.4	256.3	255.8	256.3	258.5
42.5°	245.7	243.5	242.4	241.3	241.8	240.2	239.6	238.5	239.6	237.4
45°	227.9	227.9	227.4	224.6	225.1	225.1	222.9	220.7	221.2	221.2
47.5°	211.8	210.6	210.1	207.3	206.7	206.2	203.9	202.3	202.3	200.6
50°	193.9	192.8	191.1	188.3	187.2	183.9	182.2	180.0	177.8	177.8
52.5°	177.2	173.3	171.1	166.6	164.9	163.3	158.8	157.1	155.5	153.8
55°	157.1	153.8	149.3	144.3	142.1	139.3	134.8	131.5	129.3	129.8
57.5°	137.6	132.1	127.6	120.9	118.1	116.4	112.0	107.5	105.3	105.3
60°	113.7	109.2	103.6	97.5	95.3	92.5	86.9	84.1	82.5	80.8
62.5°	90.8	87.5	82.5	74.7	73.0	70.2	66.3	63.0	61.3	61.3
65°	68.0	64.6	60.2	54.6	52.4	50.2	46.8	43.5	41.8	41.2
67.5°	47.9	44.0	40.1	35.7	34.0	32.9	29.5	27.3	26.2	25.6
70°	29.0	26.7	24.0	20.6	18.9	17.8	15.6	13.9	13.4	12.8
72.5°	15.1	13.4	11.1	8.9	7.8	6.7	5.6	4.5	3.9	3.9
75°	5.6	4.5	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)