

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-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: FLDSQ4C08D010 FEU4C089040 F4LC-CSSQ-MMS
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

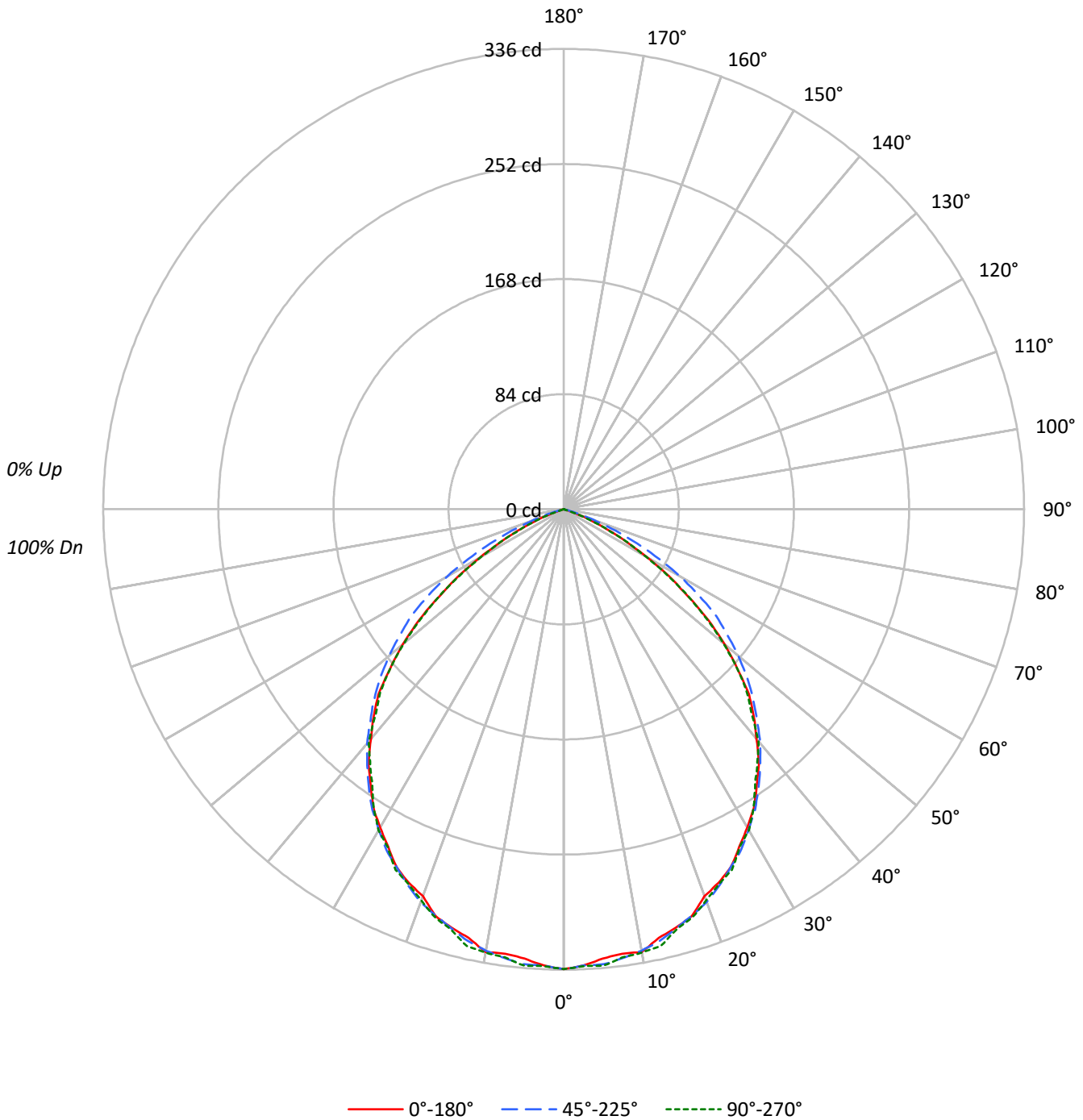
Lumens per Lamp: N/A
 Luminaire Lumens: 717.0 lumens
 Efficiency: N/A
 Efficacy: 72.6 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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°	32382	32382	32382
5°	31866	32283	32370
10°	32137	32048	32186
15°	31576	31626	31716
20°	30845	31328	31184
25°	30704	30704	30906
30°	29848	30060	30116
35°	28918	29200	28694
40°	27559	28101	27862
45°	26090	26677	25831
50°	22982	24978	22832
55°	18605	22862	18690
60°	13624	18950	13335
65°	8265	13493	8059
70°	3216	7279	3103
75°	373	1976	373
80°	278	278	278
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.7	4.4
10°-20°	89.7	12.5
20°-30°	133.0	18.6
30°-40°	154.1	21.5
40°-50°	147.8	20.6
50°-60°	108.7	15.2
60°-70°	46.9	6.5
70°-80°	5.1	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°	254.4	35.5
0°-40°	408.5	57.0
0°-60°	664.9	92.7
0°-90°	717.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	717.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	336	336	336	336	336	
5°	329	332	333	334	334	31
15°	316	318	317	317	318	89
25°	288	288	288	289	290	132
35°	246	247	248	247	244	154
45°	191	192	196	193	189	145
55°	111	122	136	122	111	100
65°	36	45	59	45	35	37
75°	1	1	5	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°	335.6	335.6	335.6	335.6	335.6	335.6	335.6	335.6	335.6	335.6	335.6
2.5°	333.3	337.1	337.6	335.2	334.2	332.8	336.1	333.7	334.7	333.7	333.3
5°	329.0	333.3	333.7	333.7	332.8	332.3	333.7	333.3	332.8	331.8	333.3
7.5°	327.1	329.4	331.8	329.0	330.4	329.9	333.3	331.8	331.4	331.4	330.4
10°	328.0	327.5	329.4	326.6	327.5	326.6	329.4	329.4	328.5	327.5	327.1
12.5°	320.4	324.2	324.2	323.7	322.8	321.3	324.2	326.1	323.2	323.2	322.8
15°	316.1	317.1	317.5	317.5	317.1	318.0	319.4	317.5	318.0	315.6	316.6
17.5°	311.3	309.4	310.8	309.9	310.4	311.3	313.2	313.2	310.4	309.9	310.8
20°	300.4	306.1	306.6	303.7	304.2	304.2	307.5	304.7	306.6	304.2	305.1
22.5°	295.1	298.9	299.4	295.6	298.0	295.1	298.5	294.2	298.9	295.6	297.0
25°	288.4	288.0	289.4	287.5	288.0	288.0	290.3	288.4	289.9	288.0	288.4
27.5°	277.5	281.3	280.8	278.9	279.9	279.4	284.2	278.9	281.8	279.4	280.3
30°	267.9	271.3	270.3	268.4	268.4	267.0	272.2	270.8	270.3	270.3	269.8
32.5°	258.4	258.9	257.9	258.4	258.9	257.0	261.3	259.4	258.9	259.4	259.8
35°	245.5	245.5	246.5	245.1	247.0	247.0	250.8	248.4	247.9	246.5	247.9
37.5°	234.1	232.7	233.1	233.1	234.1	235.0	236.9	236.0	236.0	234.6	235.5
40°	218.8	217.9	219.3	219.3	220.7	220.7	222.7	221.7	223.1	223.1	223.1
42.5°	205.5	205.5	204.5	206.0	206.4	206.0	209.3	208.8	209.3	208.4	208.8
45°	191.2	191.2	190.2	189.8	192.1	191.7	195.5	194.0	195.9	195.0	195.5
47.5°	171.6	174.0	172.6	174.0	176.9	177.4	179.7	178.8	180.7	179.3	181.2
50°	153.1	153.1	154.5	156.4	159.2	159.7	162.6	164.5	165.4	165.9	166.4
52.5°	133.5	133.0	134.5	136.8	139.2	141.1	144.0	146.8	148.8	151.6	150.2
55°	110.6	111.6	113.0	115.9	119.7	122.0	124.4	128.2	131.6	133.0	135.9
57.5°	91.1	90.1	91.1	94.9	99.2	101.1	104.4	108.2	113.0	115.9	116.8
60°	70.6	71.0	72.0	75.3	78.7	81.5	83.0	89.2	93.4	96.3	98.2
62.5°	52.0	52.9	53.9	56.7	60.1	62.5	64.8	70.1	73.9	76.8	78.7
65°	36.2	36.7	38.1	39.6	42.9	45.3	47.2	51.5	55.3	57.7	59.1
67.5°	22.4	22.9	23.8	25.8	28.1	30.0	31.9	34.8	38.1	40.5	41.0
70°	11.4	11.9	12.4	13.8	15.7	16.7	18.1	20.5	22.9	24.8	25.8
72.5°	3.8	3.8	4.3	5.3	6.2	7.2	7.6	10.0	11.9	12.9	13.3
75°	1.0	1.0	1.0	1.0	1.0	1.4	1.4	2.9	3.8	4.8	5.3
77.5°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0
80°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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°	335.6	335.6	335.6	335.6	335.6	335.6	335.6	335.6	335.6	335.6
2.5°	335.6	334.7	334.2	334.7	334.7	334.2	335.6	337.6	339.9	333.7
5°	335.2	334.2	335.2	332.3	333.7	332.8	334.7	334.2	336.1	334.2
7.5°	333.7	331.8	332.3	330.9	332.8	330.4	331.8	334.7	332.8	329.9
10°	329.0	328.0	331.4	326.6	325.6	327.5	331.4	328.5	327.5	328.5
12.5°	324.2	324.2	325.6	321.8	322.3	323.2	325.1	323.2	324.2	326.6
15°	319.0	318.0	320.4	317.5	317.1	316.1	318.0	318.0	319.0	317.5
17.5°	312.8	311.3	311.3	310.4	309.9	312.3	313.2	313.7	314.2	312.3
20°	305.1	304.7	306.1	304.7	305.1	305.6	305.6	304.7	308.9	303.7
22.5°	297.0	298.5	296.6	295.6	296.6	297.5	297.5	298.0	297.0	296.1
25°	288.9	289.9	290.3	287.5	288.9	287.5	290.8	291.3	289.4	290.3
27.5°	281.8	280.3	279.9	278.0	278.9	278.4	278.9	278.9	281.8	278.0
30°	270.8	269.4	269.8	268.4	268.9	268.4	268.9	268.9	270.8	270.3
32.5°	260.3	258.9	259.4	257.9	257.9	258.4	257.5	257.5	258.9	257.9
35°	250.3	247.0	247.4	247.0	247.4	245.5	245.5	245.1	246.0	243.6
37.5°	236.0	234.6	234.1	233.6	234.1	233.1	234.1	232.7	234.1	232.2
40°	223.1	222.2	222.7	219.8	219.8	220.3	219.3	218.8	219.3	221.2
42.5°	210.3	208.4	207.4	206.4	206.9	205.5	205.0	204.1	205.0	203.1
45°	195.0	195.0	194.5	192.1	192.6	192.6	190.7	188.8	189.3	189.3
47.5°	181.2	180.2	179.7	177.4	176.9	176.4	174.5	173.1	173.1	171.6
50°	165.9	165.0	163.5	161.1	160.2	157.3	155.9	154.0	152.1	152.1
52.5°	151.6	148.3	146.4	142.5	141.1	139.7	135.9	134.5	133.0	131.6
55°	134.5	131.6	127.8	123.5	121.6	119.2	115.4	112.5	110.6	111.1
57.5°	117.8	113.0	109.2	103.5	101.1	99.6	95.8	92.0	90.1	90.1
60°	97.3	93.4	88.7	83.4	81.5	79.2	74.4	72.0	70.6	69.1
62.5°	77.7	74.9	70.6	63.9	62.5	60.1	56.7	53.9	52.4	52.4
65°	58.2	55.3	51.5	46.7	44.8	42.9	40.1	37.2	35.8	35.3
67.5°	41.0	37.7	34.3	30.5	29.1	28.1	25.3	23.4	22.4	21.9
70°	24.8	22.9	20.5	17.6	16.2	15.3	13.3	11.9	11.4	11.0
72.5°	12.9	11.4	9.5	7.6	6.7	5.7	4.8	3.8	3.3	3.3
75°	4.8	3.8	2.4	1.4	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
80°	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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)