

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 FEU4C089035 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 FEU4C089035 F4LC-CSSQ-MMS  
 Description: 4 INCH 800 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

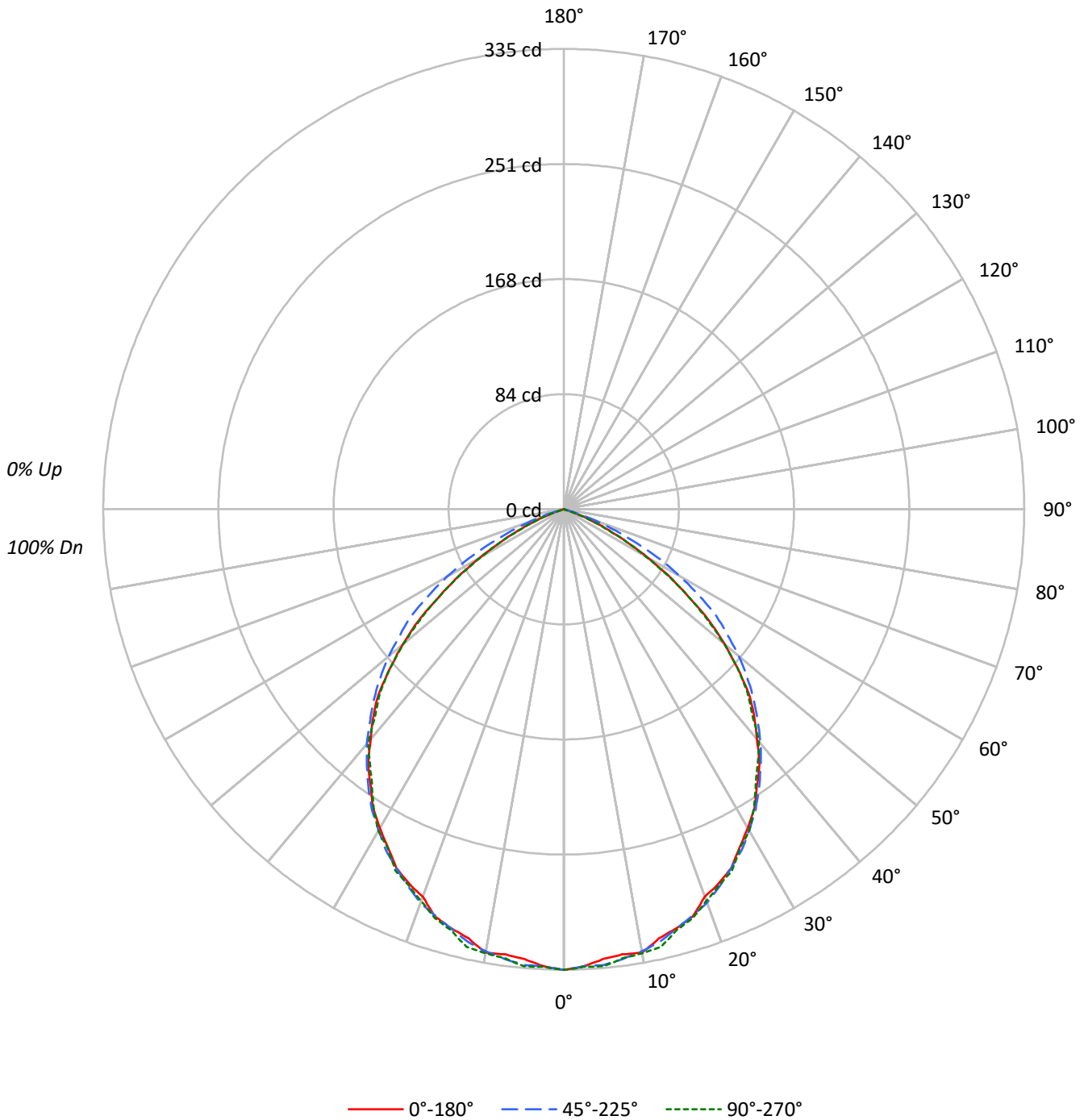
Lumens per Lamp: N/A  
 Luminaire Lumens: 716.0 lumens  
 Efficiency: N/A  
 Efficacy: 72.5 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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°	32343	32343	32343
5°	31818	32234	32321
10°	32097	31999	32137
15°	31536	31576	31676
20°	30794	31287	31143
25°	30662	30662	30864
30°	29815	30027	30082
35°	28882	29165	28659
40°	27522	28063	27824
45°	26049	26636	25790
50°	22937	24948	22802
55°	18589	22828	18656
60°	13605	18931	13315
65°	8265	13470	8037
70°	3216	7250	3103
75°	373	1939	373
80°	278	278	278
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	31.6	4.4
10°-20°	89.5	12.5
20°-30°	132.8	18.6
30°-40°	153.9	21.5
40°-50°	147.6	20.6
50°-60°	108.5	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°	254.0	35.5
0°-40°	407.9	57.0
0°-60°	664.0	92.7
0°-90°	716.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	716.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	335	335	335	335	335	
5°	328	332	333	333	334	31
15°	316	318	316	317	317	89
25°	288	288	288	288	290	132
35°	245	247	248	247	243	153
45°	191	191	195	192	189	145
55°	110	122	136	121	111	99
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#  
 CATALOG NUMBER: FLDSQ4C08D010 FEU4C089035 F4LC-CSSQ-MMS

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	335.2	335.2	335.2	335.2	335.2	335.2	335.2	335.2	335.2	335.2	335.2
2.5°	332.8	336.6	337.1	334.7	333.7	332.3	335.6	333.3	334.2	333.3	332.8
5°	328.5	332.8	333.3	333.3	332.3	331.8	333.3	332.8	332.3	331.4	332.8
7.5°	326.6	329.0	331.4	328.5	329.9	329.5	332.8	331.4	330.9	330.9	329.9
10°	327.6	327.1	329.0	326.1	327.1	326.1	329.0	329.0	328.0	327.1	326.6
12.5°	319.9	323.7	323.7	323.3	322.3	320.9	323.7	325.7	322.8	322.8	322.3
15°	315.7	316.6	317.1	317.1	316.6	317.6	319.0	317.1	317.6	315.2	316.1
17.5°	310.9	309.0	310.4	309.5	309.9	310.9	312.8	312.8	309.9	309.5	310.4
20°	299.9	305.7	306.1	303.3	303.8	303.8	307.1	304.2	306.1	303.8	304.7
22.5°	294.7	298.5	299.0	295.2	297.6	294.7	298.0	293.7	298.5	295.2	296.6
25°	288.0	287.6	289.0	287.1	287.6	287.6	289.9	288.0	289.5	287.6	288.0
27.5°	277.1	280.9	280.4	278.5	279.5	279.0	283.8	278.5	281.4	279.0	280.0
30°	267.6	270.9	270.0	268.0	268.0	266.6	271.9	270.4	270.0	270.0	269.5
32.5°	258.0	258.5	257.6	258.0	258.5	256.6	260.9	259.0	258.5	259.0	259.5
35°	245.2	245.2	246.1	244.7	246.6	246.6	250.4	248.0	247.6	246.1	247.6
37.5°	233.8	232.3	232.8	232.8	233.8	234.7	236.6	235.7	235.7	234.2	235.2
40°	218.5	217.6	219.0	219.0	220.4	220.4	222.3	221.4	222.8	222.8	222.8
42.5°	205.2	205.2	204.3	205.7	206.2	205.7	209.0	208.5	209.0	208.1	208.5
45°	190.9	190.9	190.0	189.5	191.9	191.4	195.2	193.8	195.7	194.7	195.2
47.5°	171.4	173.8	172.3	173.8	176.6	177.1	179.5	178.5	180.4	179.0	180.9
50°	152.8	152.8	154.3	156.2	159.0	159.5	162.4	164.3	165.2	165.7	166.2
52.5°	133.3	132.8	134.3	136.6	139.0	140.9	143.8	146.6	148.5	151.4	150.0
55°	110.5	111.4	112.8	115.7	119.5	121.9	124.3	128.1	131.4	132.8	135.7
57.5°	90.9	90.0	90.9	94.7	99.0	100.9	104.3	108.1	112.8	115.7	116.6
60°	70.5	70.9	71.9	75.2	78.6	81.4	82.8	89.0	93.3	96.2	98.1
62.5°	51.9	52.9	53.8	56.7	60.0	62.4	64.7	70.0	73.8	76.7	78.6
65°	36.2	36.7	38.1	39.5	42.9	45.2	47.1	51.4	55.2	57.6	59.0
67.5°	22.4	22.8	23.8	25.7	28.1	30.0	31.9	34.8	38.1	40.5	40.9
70°	11.4	11.9	12.4	13.8	15.7	16.7	18.1	20.5	22.8	24.7	25.7
72.5°	3.8	3.8	4.3	5.2	6.2	7.1	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	5.2
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°	335.2	335.2	335.2	335.2	335.2	335.2	335.2	335.2	335.2	335.2
2.5°	335.2	334.2	333.7	334.2	334.2	333.7	335.2	337.1	339.5	333.3
5°	334.7	333.7	334.7	331.8	333.3	332.3	334.2	333.7	335.6	333.7
7.5°	333.3	331.4	331.8	330.4	332.3	329.9	331.4	334.2	332.3	329.5
10°	328.5	327.6	330.9	326.1	325.2	327.1	330.9	328.0	327.1	328.0
12.5°	323.7	323.7	325.2	321.4	321.8	322.8	324.7	322.8	323.7	326.1
15°	318.5	317.6	319.9	317.1	316.6	315.7	317.6	317.6	318.5	317.1
17.5°	312.3	310.9	310.9	309.9	309.5	311.9	312.8	313.3	313.8	311.9
20°	304.7	304.2	305.7	304.2	304.7	305.2	305.2	304.2	308.5	303.3
22.5°	296.6	298.0	296.1	295.2	296.1	297.1	297.1	297.6	296.6	295.7
25°	288.5	289.5	289.9	287.1	288.5	287.1	290.4	290.9	289.0	289.9
27.5°	281.4	280.0	279.5	277.6	278.5	278.1	278.5	278.5	281.4	277.6
30°	270.4	269.0	269.5	268.0	268.5	268.0	268.5	268.5	270.4	270.0
32.5°	259.9	258.5	259.0	257.6	257.6	258.0	257.1	257.1	258.5	257.6
35°	249.9	246.6	247.1	246.6	247.1	245.2	245.2	244.7	245.7	243.3
37.5°	235.7	234.2	233.8	233.3	233.8	232.8	233.8	232.3	233.8	231.9
40°	222.8	221.9	222.3	219.5	219.5	220.0	219.0	218.5	219.0	220.9
42.5°	210.0	208.1	207.1	206.2	206.6	205.2	204.7	203.8	204.7	202.8
45°	194.7	194.7	194.3	191.9	192.3	192.3	190.4	188.5	189.0	189.0
47.5°	180.9	180.0	179.5	177.1	176.6	176.2	174.2	172.8	172.8	171.4
50°	165.7	164.7	163.3	160.9	160.0	157.1	155.7	153.8	151.9	151.9
52.5°	151.4	148.1	146.2	142.3	140.9	139.5	135.7	134.3	132.8	131.4
55°	134.3	131.4	127.6	123.3	121.4	119.0	115.2	112.4	110.5	110.9
57.5°	117.6	112.8	109.0	103.3	100.9	99.5	95.7	91.9	90.0	90.0
60°	97.1	93.3	88.6	83.3	81.4	79.0	74.3	71.9	70.5	69.0
62.5°	77.6	74.7	70.5	63.8	62.4	60.0	56.7	53.8	52.4	52.4
65°	58.1	55.2	51.4	46.7	44.8	42.9	40.0	37.1	35.7	35.2
67.5°	40.9	37.6	34.3	30.5	29.0	28.1	25.2	23.3	22.4	21.9
70°	24.7	22.8	20.5	17.6	16.2	15.2	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)