

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 FEU4C109040 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 FEU4C109040 F4LC-CSSQ-MMS
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

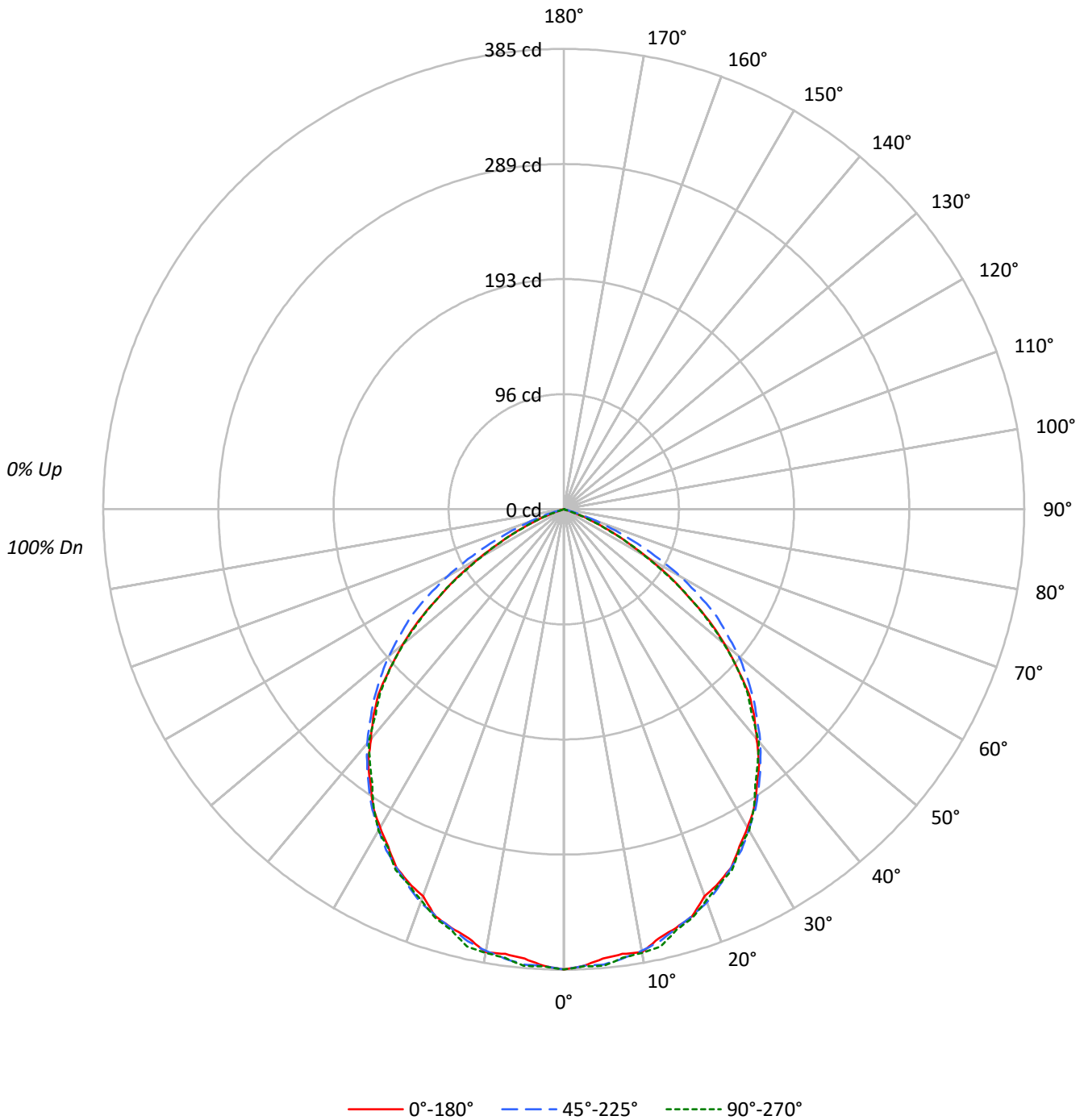
Lumens per Lamp: N/A
 Luminaire Lumens: 822.0 lumens
 Efficiency: N/A
 Efficacy: 84.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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°	37129	37129	37129
5°	36535	37009	37116
10°	36849	36742	36898
15°	36201	36251	36361
20°	35353	35918	35754
25°	35208	35208	35442
30°	34227	34472	34528
35°	33158	33476	32899
40°	31603	32220	31943
45°	29911	30580	29611
50°	26344	28641	26179
55°	21331	26209	21432
60°	15612	21729	15303
65°	9475	15480	9247
70°	3696	8322	3555
75°	410	2237	410
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.3	4.4
10°-20°	102.8	12.5
20°-30°	152.5	18.6
30°-40°	176.7	21.5
40°-50°	169.4	20.6
50°-60°	124.6	15.2
60°-70°	53.8	6.5
70°-80°	5.8	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°	291.6	35.5
0°-40°	468.3	57.0
0°-60°	762.3	92.7
0°-90°	822.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	822.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	385	385	385	385	385	
5°	377	381	382	383	383	36
15°	362	365	363	364	364	102
25°	331	330	331	331	333	151
35°	282	283	284	284	279	176
45°	219	220	224	221	217	167
55°	127	140	156	139	127	114
65°	42	52	68	51	40	43
75°	1	2	6	1	1	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109040 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	384.8	384.8	384.8	384.8	384.8	384.8	384.8	384.8	384.8	384.8	384.8
2.5°	382.1	386.4	387.0	384.2	383.2	381.5	385.3	382.6	383.7	382.6	382.1
5°	377.2	382.1	382.6	382.6	381.5	381.0	382.6	382.1	381.5	380.4	382.1
7.5°	375.0	377.7	380.4	377.2	378.8	378.2	382.1	380.4	379.9	379.9	378.8
10°	376.1	375.5	377.7	374.4	375.5	374.4	377.7	377.7	376.6	375.5	375.0
12.5°	367.3	371.7	371.7	371.1	370.0	368.4	371.7	373.9	370.6	370.6	370.0
15°	362.4	363.5	364.0	364.0	363.5	364.6	366.2	364.0	364.6	361.8	362.9
17.5°	356.9	354.7	356.4	355.3	355.8	356.9	359.1	359.1	355.8	355.3	356.4
20°	344.3	350.9	351.5	348.2	348.7	348.7	352.6	349.3	351.5	348.7	349.8
22.5°	338.3	342.7	343.3	338.9	341.6	338.3	342.2	337.2	342.7	338.9	340.5
25°	330.7	330.1	331.8	329.6	330.1	330.1	332.9	330.7	332.3	330.1	330.7
27.5°	318.1	322.5	321.9	319.8	320.8	320.3	325.8	319.8	323.0	320.3	321.4
30°	307.2	311.0	309.9	307.7	307.7	306.1	312.1	310.5	309.9	309.9	309.4
32.5°	296.2	296.8	295.7	296.2	296.8	294.6	299.5	297.3	296.8	297.3	297.9
35°	281.5	281.5	282.6	280.9	283.1	283.1	287.5	284.8	284.2	282.6	284.2
37.5°	268.4	266.7	267.3	267.3	268.4	269.5	271.6	270.6	270.6	268.9	270.0
40°	250.9	249.8	251.4	251.4	253.1	253.1	255.3	254.2	255.8	255.8	255.8
42.5°	235.6	235.6	234.5	236.1	236.7	236.1	240.0	239.4	240.0	238.9	239.4
45°	219.2	219.2	218.1	217.5	220.3	219.7	224.1	222.5	224.6	223.5	224.1
47.5°	196.8	199.5	197.9	199.5	202.8	203.3	206.1	205.0	207.2	205.5	207.7
50°	175.5	175.5	177.1	179.3	182.6	183.1	186.4	188.6	189.7	190.2	190.8
52.5°	153.1	152.5	154.1	156.9	159.6	161.8	165.1	168.4	170.5	173.8	172.2
55°	126.8	127.9	129.5	132.8	137.2	139.9	142.7	147.0	150.9	152.5	155.8
57.5°	104.4	103.3	104.4	108.8	113.7	115.9	119.7	124.1	129.5	132.8	133.9
60°	80.9	81.4	82.5	86.4	90.2	93.5	95.1	102.2	107.1	110.4	112.6
62.5°	59.6	60.7	61.8	65.1	68.9	71.6	74.3	80.4	84.7	88.0	90.2
65°	41.5	42.1	43.7	45.4	49.2	51.9	54.1	59.0	63.4	66.1	67.8
67.5°	25.7	26.2	27.3	29.5	32.2	34.4	36.6	39.9	43.7	46.5	47.0
70°	13.1	13.7	14.2	15.9	18.0	19.1	20.8	23.5	26.2	28.4	29.5
72.5°	4.4	4.4	4.9	6.0	7.1	8.2	8.7	11.5	13.7	14.8	15.3
75°	1.1	1.1	1.1	1.1	1.1	1.6	1.6	3.3	4.4	5.5	6.0
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°	384.8	384.8	384.8	384.8	384.8	384.8	384.8	384.8	384.8	384.8
2.5°	384.8	383.7	383.2	383.7	383.7	383.2	384.8	387.0	389.7	382.6
5°	384.2	383.2	384.2	381.0	382.6	381.5	383.7	383.2	385.3	383.2
7.5°	382.6	380.4	381.0	379.3	381.5	378.8	380.4	383.7	381.5	378.2
10°	377.2	376.1	379.9	374.4	373.3	375.5	379.9	376.6	375.5	376.6
12.5°	371.7	371.7	373.3	368.9	369.5	370.6	372.8	370.6	371.7	374.4
15°	365.7	364.6	367.3	364.0	363.5	362.4	364.6	364.6	365.7	364.0
17.5°	358.6	356.9	356.9	355.8	355.3	358.0	359.1	359.6	360.2	358.0
20°	349.8	349.3	350.9	349.3	349.8	350.4	350.4	349.3	354.2	348.2
22.5°	340.5	342.2	340.0	338.9	340.0	341.1	341.1	341.6	340.5	339.4
25°	331.2	332.3	332.9	329.6	331.2	329.6	333.4	334.0	331.8	332.9
27.5°	323.0	321.4	320.8	318.7	319.8	319.2	319.8	319.8	323.0	318.7
30°	310.5	308.8	309.4	307.7	308.3	307.7	308.3	308.3	310.5	309.9
32.5°	298.4	296.8	297.3	295.7	295.7	296.2	295.2	295.2	296.8	295.7
35°	286.9	283.1	283.7	283.1	283.7	281.5	281.5	280.9	282.0	279.3
37.5°	270.6	268.9	268.4	267.8	268.4	267.3	268.4	266.7	268.4	266.2
40°	255.8	254.7	255.3	252.0	252.0	252.5	251.4	250.9	251.4	253.6
42.5°	241.1	238.9	237.8	236.7	237.2	235.6	235.0	233.9	235.0	232.8
45°	223.5	223.5	223.0	220.3	220.8	220.8	218.6	216.5	217.0	217.0
47.5°	207.7	206.6	206.1	203.3	202.8	202.2	200.0	198.4	198.4	196.8
50°	190.2	189.1	187.5	184.7	183.6	180.4	178.7	176.6	174.4	174.4
52.5°	173.8	170.0	167.8	163.4	161.8	160.1	155.8	154.1	152.5	150.9
55°	154.1	150.9	146.5	141.6	139.4	136.6	132.3	129.0	126.8	127.4
57.5°	135.0	129.5	125.2	118.6	115.9	114.2	109.9	105.5	103.3	103.3
60°	111.5	107.1	101.7	95.6	93.5	90.7	85.3	82.5	80.9	79.3
62.5°	89.1	85.8	80.9	73.2	71.6	68.9	65.1	61.8	60.1	60.1
65°	66.7	63.4	59.0	53.6	51.4	49.2	45.9	42.6	41.0	40.5
67.5°	47.0	43.2	39.4	35.0	33.3	32.2	29.0	26.8	25.7	25.1
70°	28.4	26.2	23.5	20.2	18.6	17.5	15.3	13.7	13.1	12.6
72.5°	14.8	13.1	10.9	8.7	7.6	6.6	5.5	4.4	3.8	3.8
75°	5.5	4.4	2.7	1.6	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)