

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 FEU4C109035 F4LC-DFSSQ-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 FEU4C109035 F4LC-DFSSQ-MW
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

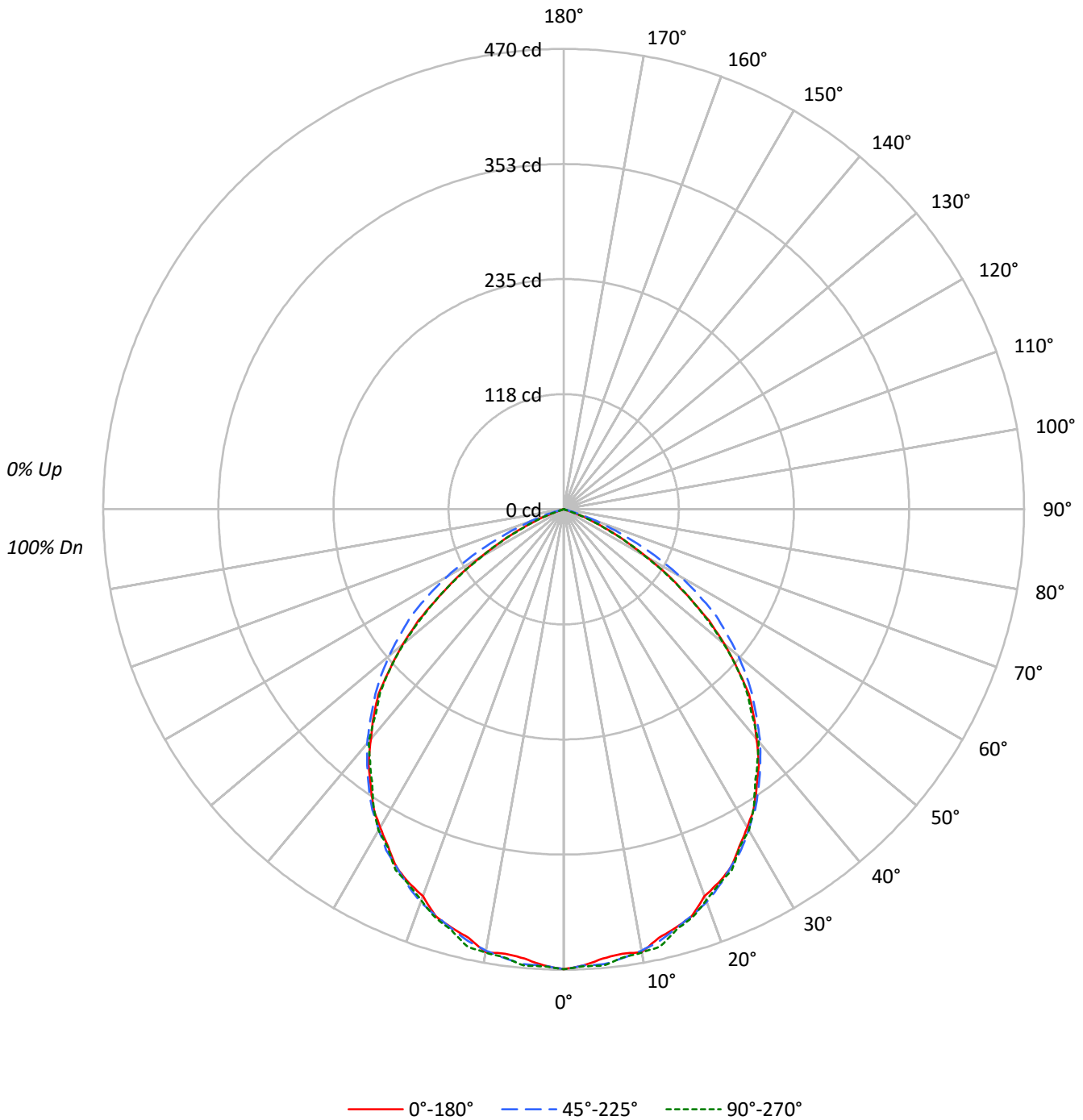
Lumens per Lamp: N/A
 Luminaire Lumens: 1003.0 lumens
 Efficiency: N/A
 Efficacy: 102.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.8
 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°	45302	45302	45302
5°	44574	45155	45281
10°	44962	44825	45021
15°	44173	44232	44372
20°	43147	43824	43629
25°	42958	42958	43246
30°	41759	42059	42137
35°	40461	40850	40143
40°	38556	39311	38984
45°	36488	37307	36134
50°	32139	34946	31943
55°	26024	31979	26142
60°	19047	26515	18661
65°	11575	18881	11279
70°	4514	10156	4316
75°	485	2721	485
80°	389	389	389
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.3	4.4
10°-20°	125.4	12.5
20°-30°	186.1	18.6
30°-40°	215.6	21.5
40°-50°	206.7	20.6
50°-60°	152.0	15.2
60°-70°	65.6	6.5
70°-80°	7.1	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°	355.8	35.5
0°-40°	571.4	57.0
0°-60°	930.2	92.7
0°-90°	1003.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1003.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	470	470	470	470	470	
5°	460	465	466	467	468	44
15°	442	445	443	444	444	125
25°	404	403	404	404	406	185
35°	344	346	347	346	341	215
45°	267	268	273	269	265	203
55°	155	171	190	170	155	139
65°	51	63	83	63	49	52
75°	1	2	7	1	1	4
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°	469.5	469.5	469.5	469.5	469.5	469.5	469.5	469.5	469.5	469.5	469.5
2.5°	466.2	471.5	472.2	468.9	467.5	465.5	470.2	466.9	468.2	466.9	466.2
5°	460.2	466.2	466.9	466.9	465.5	464.9	466.9	466.2	465.5	464.2	466.2
7.5°	457.5	460.9	464.2	460.2	462.2	461.5	466.2	464.2	463.5	463.5	462.2
10°	458.9	458.2	460.9	456.9	458.2	456.9	460.9	460.9	459.5	458.2	457.5
12.5°	448.2	453.5	453.5	452.9	451.5	449.5	453.5	456.2	452.2	452.2	451.5
15°	442.2	443.5	444.2	444.2	443.5	444.9	446.8	444.2	444.9	441.5	442.8
17.5°	435.5	432.9	434.8	433.5	434.2	435.5	438.2	438.2	434.2	433.5	434.8
20°	420.2	428.2	428.9	424.9	425.5	425.5	430.2	426.2	428.9	425.5	426.8
22.5°	412.8	418.2	418.8	413.5	416.8	412.8	417.5	411.5	418.2	413.5	415.5
25°	403.5	402.8	404.8	402.2	402.8	402.8	406.2	403.5	405.5	402.8	403.5
27.5°	388.2	393.5	392.8	390.2	391.5	390.8	397.5	390.2	394.2	390.8	392.2
30°	374.8	379.5	378.2	375.5	375.5	373.5	380.8	378.8	378.2	378.2	377.5
32.5°	361.5	362.2	360.8	361.5	362.2	359.5	365.5	362.8	362.2	362.8	363.5
35°	343.5	343.5	344.8	342.8	345.5	345.5	350.8	347.5	346.8	344.8	346.8
37.5°	327.5	325.5	326.1	326.1	327.5	328.8	331.5	330.1	330.1	328.1	329.5
40°	306.1	304.8	306.8	306.8	308.8	308.8	311.5	310.1	312.1	312.1	312.1
42.5°	287.5	287.5	286.1	288.1	288.8	288.1	292.8	292.1	292.8	291.5	292.1
45°	267.4	267.4	266.1	265.4	268.8	268.1	273.4	271.4	274.1	272.8	273.4
47.5°	240.1	243.4	241.4	243.4	247.4	248.1	251.4	250.1	252.8	250.8	253.4
50°	214.1	214.1	216.1	218.8	222.8	223.4	227.4	230.1	231.4	232.1	232.8
52.5°	186.8	186.1	188.1	191.4	194.8	197.4	201.4	205.4	208.1	212.1	210.1
55°	154.7	156.1	158.1	162.1	167.4	170.7	174.1	179.4	184.1	186.1	190.1
57.5°	127.4	126.0	127.4	132.7	138.7	141.4	146.1	151.4	158.1	162.1	163.4
60°	98.7	99.4	100.7	105.4	110.0	114.0	116.1	124.7	130.7	134.7	137.4
62.5°	72.7	74.0	75.4	79.4	84.0	87.4	90.7	98.0	103.4	107.4	110.0
65°	50.7	51.3	53.4	55.3	60.0	63.3	66.0	72.0	77.4	80.7	82.7
67.5°	31.3	32.0	33.3	36.0	39.3	42.0	44.7	48.7	53.4	56.7	57.4
70°	16.0	16.7	17.3	19.3	22.0	23.3	25.3	28.7	32.0	34.7	36.0
72.5°	5.3	5.3	6.0	7.3	8.7	10.0	10.7	14.0	16.7	18.0	18.7
75°	1.3	1.3	1.3	1.3	1.3	2.0	2.0	4.0	5.3	6.7	7.3
77.5°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.3	1.3
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°	469.5	469.5	469.5	469.5	469.5	469.5	469.5	469.5	469.5	469.5
2.5°	469.5	468.2	467.5	468.2	468.2	467.5	469.5	472.2	475.5	466.9
5°	468.9	467.5	468.9	464.9	466.9	465.5	468.2	467.5	470.2	467.5
7.5°	466.9	464.2	464.9	462.9	465.5	462.2	464.2	468.2	465.5	461.5
10°	460.2	458.9	463.5	456.9	455.5	458.2	463.5	459.5	458.2	459.5
12.5°	453.5	453.5	455.5	450.2	450.8	452.2	454.8	452.2	453.5	456.9
15°	446.2	444.9	448.2	444.2	443.5	442.2	444.9	444.9	446.2	444.2
17.5°	437.5	435.5	435.5	434.2	433.5	436.9	438.2	438.8	439.5	436.9
20°	426.8	426.2	428.2	426.2	426.8	427.5	427.5	426.2	432.2	424.9
22.5°	415.5	417.5	414.8	413.5	414.8	416.2	416.2	416.8	415.5	414.2
25°	404.2	405.5	406.2	402.2	404.2	402.2	406.8	407.5	404.8	406.2
27.5°	394.2	392.2	391.5	388.8	390.2	389.5	390.2	390.2	394.2	388.8
30°	378.8	376.8	377.5	375.5	376.1	375.5	376.1	376.1	378.8	378.2
32.5°	364.1	362.2	362.8	360.8	360.8	361.5	360.1	360.1	362.2	360.8
35°	350.1	345.5	346.1	345.5	346.1	343.5	343.5	342.8	344.1	340.8
37.5°	330.1	328.1	327.5	326.8	327.5	326.1	327.5	325.5	327.5	324.8
40°	312.1	310.8	311.5	307.5	307.5	308.1	306.8	306.1	306.8	309.5
42.5°	294.1	291.5	290.1	288.8	289.4	287.5	286.8	285.4	286.8	284.1
45°	272.8	272.8	272.1	268.8	269.4	269.4	266.8	264.1	264.8	264.8
47.5°	253.4	252.1	251.4	248.1	247.4	246.8	244.1	242.1	242.1	240.1
50°	232.1	230.8	228.8	225.4	224.1	220.1	218.1	215.4	212.8	212.8
52.5°	212.1	207.4	204.7	199.4	197.4	195.4	190.1	188.1	186.1	184.1
55°	188.1	184.1	178.8	172.7	170.1	166.7	161.4	157.4	154.7	155.4
57.5°	164.7	158.1	152.7	144.7	141.4	139.4	134.0	128.7	126.0	126.0
60°	136.1	130.7	124.1	116.7	114.0	110.7	104.0	100.7	98.7	96.7
62.5°	108.7	104.7	98.7	89.4	87.4	84.0	79.4	75.4	73.4	73.4
65°	81.4	77.4	72.0	65.4	62.7	60.0	56.0	52.0	50.0	49.4
67.5°	57.4	52.7	48.0	42.7	40.7	39.3	35.3	32.7	31.3	30.7
70°	34.7	32.0	28.7	24.7	22.7	21.3	18.7	16.7	16.0	15.3
72.5°	18.0	16.0	13.3	10.7	9.3	8.0	6.7	5.3	4.7	4.7
75°	6.7	5.3	3.3	2.0	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	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)