

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 FEU4C109030 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 FEU4C109030 F4LC-DFSSQ-MW
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

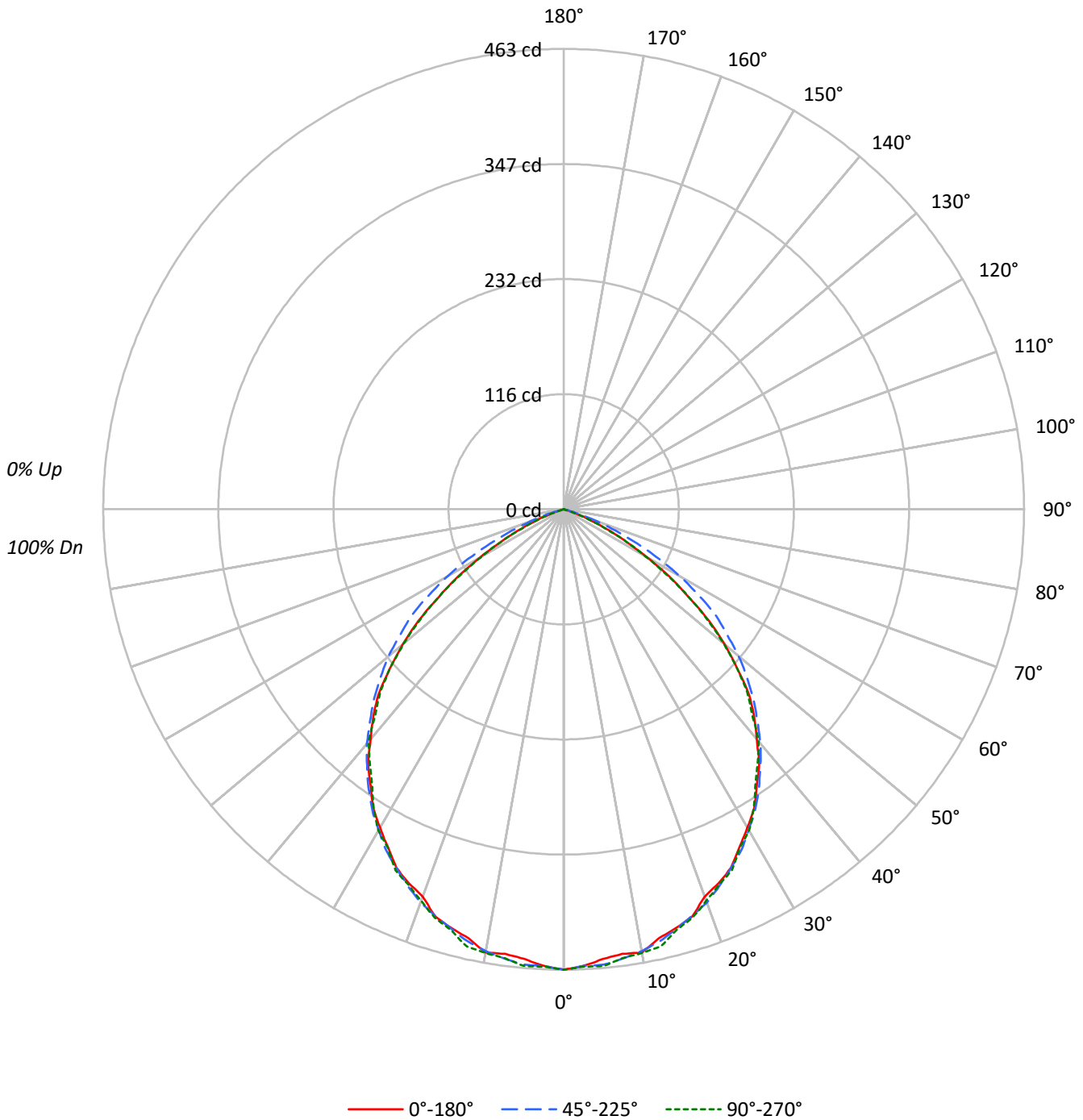
Lumens per Lamp: N/A
 Luminaire Lumens: 989.0 lumens
 Efficiency: N/A
 Efficacy: 100.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C10D010 FEU4C109030 F4LC-DFSSQ-MW

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°	44674	44674	44674
5°	43954	44525	44651
10°	44335	44198	44394
15°	43553	43623	43753
20°	42541	43219	43013
25°	42362	42362	42639
30°	41179	41469	41547
35°	39896	40285	39578
40°	38027	38770	38430
45°	35983	36789	35629
50°	31688	34450	31493
55°	25671	31525	25772
60°	18777	26148	18410
65°	11416	18607	11119
70°	4457	10015	4260
75°	485	2684	485
80°	389	389	389
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.7	4.4
10°-20°	123.7	12.5
20°-30°	183.5	18.6
30°-40°	212.6	21.5
40°-50°	203.8	20.6
50°-60°	149.9	15.2
60°-70°	64.7	6.5
70°-80°	7.0	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°	350.9	35.5
0°-40°	563.5	57.0
0°-60°	917.2	92.7
0°-90°	989.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	989.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	463	463	463	463	463	
5°	454	458	460	460	461	43
15°	436	439	437	437	438	123
25°	398	397	398	398	400	182
35°	339	341	342	341	336	212
45°	264	264	270	266	261	200
55°	153	168	187	168	153	137
65°	50	62	82	62	49	51
75°	1	2	7	1	1	4
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109030 F4LC-DFSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	463.0	463.0	463.0	463.0	463.0	463.0	463.0	463.0	463.0	463.0	463.0
2.5°	459.7	464.9	465.6	462.3	461.0	459.0	463.6	460.4	461.7	460.4	459.7
5°	453.8	459.7	460.4	460.4	459.0	458.4	460.4	459.7	459.0	457.7	459.7
7.5°	451.1	454.4	457.7	453.8	455.7	455.1	459.7	457.7	457.1	457.1	455.7
10°	452.5	451.8	454.4	450.5	451.8	450.5	454.4	454.4	453.1	451.8	451.1
12.5°	441.9	447.2	447.2	446.5	445.2	443.2	447.2	449.8	445.9	445.9	445.2
15°	436.0	437.3	438.0	438.0	437.3	438.6	440.6	438.0	438.6	435.3	436.7
17.5°	429.4	426.8	428.8	427.5	428.1	429.4	432.1	432.1	428.1	427.5	428.8
20°	414.3	422.2	422.9	418.9	419.6	419.6	424.2	420.2	422.9	419.6	420.9
22.5°	407.1	412.3	413.0	407.7	411.0	407.1	411.7	405.8	412.3	407.7	409.7
25°	397.9	397.2	399.2	396.5	397.2	397.2	400.5	397.9	399.8	397.2	397.9
27.5°	382.8	388.0	387.3	384.7	386.0	385.4	392.0	384.7	388.7	385.4	386.7
30°	369.6	374.2	372.9	370.3	370.3	368.3	375.5	373.5	372.9	372.9	372.2
32.5°	356.4	357.1	355.8	356.4	357.1	354.5	360.4	357.7	357.1	357.7	358.4
35°	338.7	338.7	340.0	338.0	340.7	340.7	345.9	342.6	342.0	340.0	342.0
37.5°	322.9	320.9	321.6	321.6	322.9	324.2	326.8	325.5	325.5	323.6	324.9
40°	301.9	300.5	302.5	302.5	304.5	304.5	307.1	305.8	307.8	307.8	307.8
42.5°	283.5	283.5	282.1	284.1	284.8	284.1	288.7	288.0	288.7	287.4	288.0
45°	263.7	263.7	262.4	261.7	265.0	264.4	269.6	267.6	270.3	269.0	269.6
47.5°	236.7	240.0	238.1	240.0	244.0	244.7	247.9	246.6	249.2	247.3	249.9
50°	211.1	211.1	213.1	215.7	219.6	220.3	224.3	226.9	228.2	228.8	229.5
52.5°	184.1	183.5	185.5	188.7	192.0	194.7	198.6	202.6	205.2	209.1	207.1
55°	152.6	153.9	155.9	159.8	165.1	168.3	171.6	176.9	181.5	183.5	187.4
57.5°	125.6	124.3	125.6	130.9	136.8	139.4	144.0	149.3	155.9	159.8	161.1
60°	97.3	98.0	99.3	103.9	108.5	112.5	114.4	123.0	128.9	132.8	135.5
62.5°	71.7	73.0	74.3	78.3	82.9	86.2	89.4	96.7	101.9	105.9	108.5
65°	50.0	50.6	52.6	54.6	59.2	62.5	65.1	71.0	76.3	79.6	81.5
67.5°	30.9	31.6	32.9	35.5	38.8	41.4	44.1	48.0	52.6	55.9	56.6
70°	15.8	16.4	17.1	19.1	21.7	23.0	25.0	28.3	31.6	34.2	35.5
72.5°	5.3	5.3	5.9	7.2	8.6	9.9	10.5	13.8	16.4	17.8	18.4
75°	1.3	1.3	1.3	1.3	1.3	2.0	2.0	3.9	5.3	6.6	7.2
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°	463.0	463.0	463.0	463.0	463.0	463.0	463.0	463.0	463.0	463.0
2.5°	463.0	461.7	461.0	461.7	461.7	461.0	463.0	465.6	468.9	460.4
5°	462.3	461.0	462.3	458.4	460.4	459.0	461.7	461.0	463.6	461.0
7.5°	460.4	457.7	458.4	456.4	459.0	455.7	457.7	461.7	459.0	455.1
10°	453.8	452.5	457.1	450.5	449.2	451.8	457.1	453.1	451.8	453.1
12.5°	447.2	447.2	449.2	443.9	444.5	445.9	448.5	445.9	447.2	450.5
15°	440.0	438.6	441.9	438.0	437.3	436.0	438.6	438.6	440.0	438.0
17.5°	431.4	429.4	429.4	428.1	427.5	430.8	432.1	432.7	433.4	430.8
20°	420.9	420.2	422.2	420.2	420.9	421.6	421.6	420.2	426.1	418.9
22.5°	409.7	411.7	409.0	407.7	409.0	410.4	410.4	411.0	409.7	408.4
25°	398.5	399.8	400.5	396.5	398.5	396.5	401.2	401.8	399.2	400.5
27.5°	388.7	386.7	386.0	383.4	384.7	384.1	384.7	384.7	388.7	383.4
30°	373.5	371.6	372.2	370.3	370.9	370.3	370.9	370.9	373.5	372.9
32.5°	359.1	357.1	357.7	355.8	355.8	356.4	355.1	355.1	357.1	355.8
35°	345.2	340.7	341.3	340.7	341.3	338.7	338.7	338.0	339.3	336.0
37.5°	325.5	323.6	322.9	322.2	322.9	321.6	322.9	320.9	322.9	320.3
40°	307.8	306.4	307.1	303.2	303.2	303.8	302.5	301.9	302.5	305.1
42.5°	290.0	287.4	286.1	284.8	285.4	283.5	282.8	281.5	282.8	280.2
45°	269.0	269.0	268.3	265.0	265.7	265.7	263.1	260.4	261.1	261.1
47.5°	249.9	248.6	247.9	244.7	244.0	243.3	240.7	238.7	238.7	236.7
50°	228.8	227.5	225.6	222.3	221.0	217.0	215.1	212.4	209.8	209.8
52.5°	209.1	204.5	201.9	196.6	194.7	192.7	187.4	185.5	183.5	181.5
55°	185.5	181.5	176.3	170.3	167.7	164.4	159.1	155.2	152.6	153.2
57.5°	162.4	155.9	150.6	142.7	139.4	137.4	132.2	126.9	124.3	124.3
60°	134.2	128.9	122.3	115.1	112.5	109.2	102.6	99.3	97.3	95.4
62.5°	107.2	103.2	97.3	88.1	86.2	82.9	78.3	74.3	72.3	72.3
65°	80.2	76.3	71.0	64.4	61.8	59.2	55.2	51.3	49.3	48.7
67.5°	56.6	51.9	47.4	42.1	40.1	38.8	34.9	32.2	30.9	30.2
70°	34.2	31.6	28.3	24.3	22.4	21.0	18.4	16.4	15.8	15.1
72.5°	17.8	15.8	13.1	10.5	9.2	7.9	6.6	5.3	4.6	4.6
75°	6.6	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)