

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 FEU4C109027 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 FEU4C109027 F4LC-DFSSQ-MW
 Description: 4 INCH 1000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

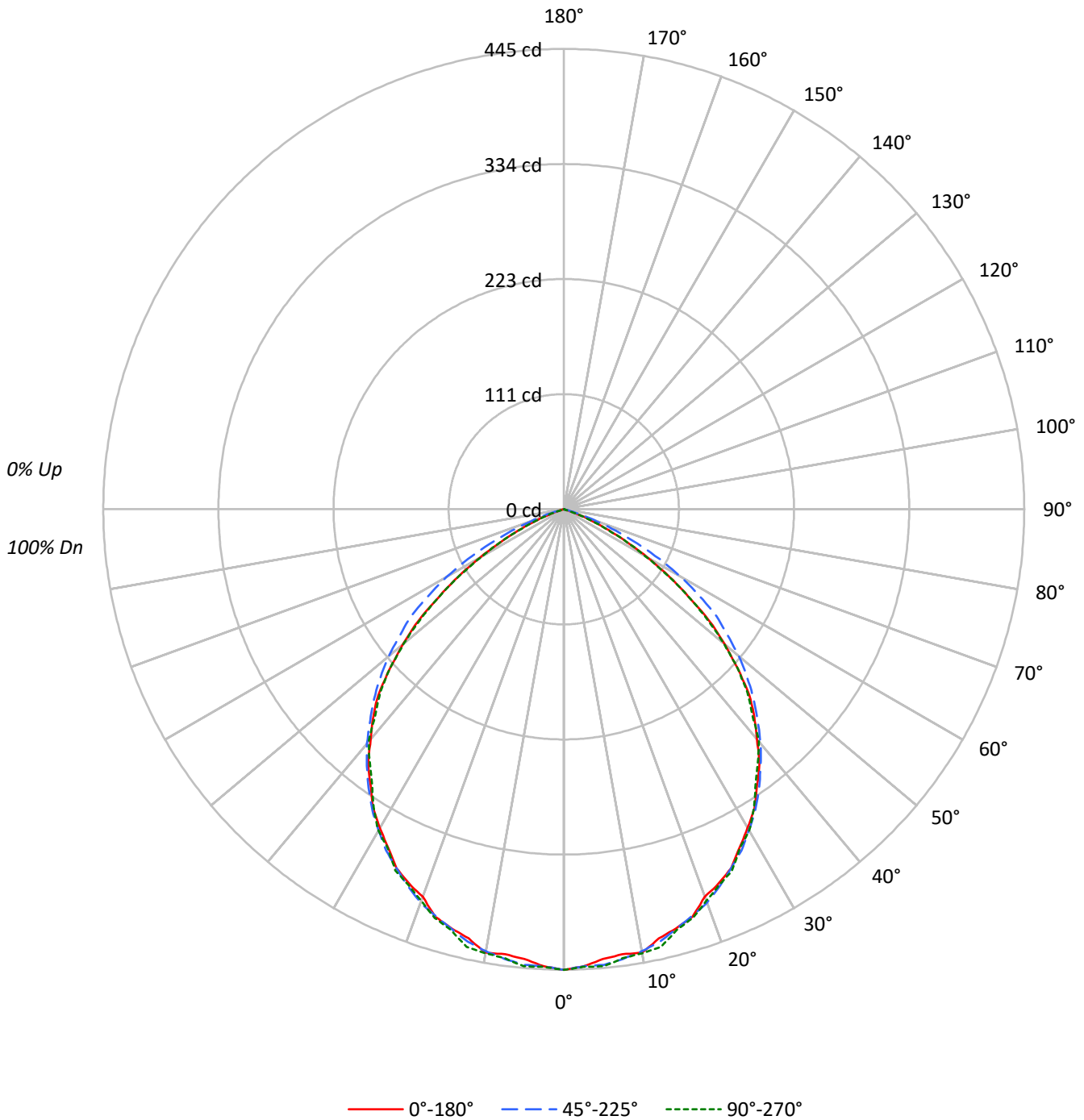
Lumens per Lamp: N/A
 Luminaire Lumens: 951.0 lumens
 Efficiency: N/A
 Efficacy: 97.0 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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	34
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°	42957	42957	42957
5°	42259	42811	42937
10°	42630	42503	42689
15°	41885	41945	42065
20°	40908	41555	41360
25°	40733	40733	40999
30°	39597	39876	39954
35°	38365	38730	38058
40°	36565	37271	36956
45°	34605	35383	34250
50°	30472	33129	30277
55°	24678	30314	24779
60°	18063	25145	17696
65°	10982	17900	10685
70°	4288	9648	4119
75°	485	2610	485
80°	333	333	333
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.0	4.4
10°-20°	118.9	12.5
20°-30°	176.4	18.6
30°-40°	204.4	21.5
40°-50°	196.0	20.6
50°-60°	144.1	15.2
60°-70°	62.2	6.5
70°-80°	6.7	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°	337.4	35.5
0°-40°	541.8	57.0
0°-60°	881.9	92.7
0°-90°	951.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	951.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	445	445	445	445	445	
5°	436	441	442	443	443	42
15°	419	422	420	420	421	118
25°	383	382	383	383	385	175
35°	326	328	329	328	323	204
45°	254	254	259	256	251	193
55°	147	162	180	161	147	132
65°	48	60	78	59	47	49
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 FEU4C109027 F4LC-DFSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	445.2	445.2	445.2	445.2	445.2	445.2	445.2	445.2	445.2	445.2	445.2
2.5°	442.0	447.1	447.7	444.5	443.3	441.4	445.8	442.7	443.9	442.7	442.0
5°	436.3	442.0	442.7	442.7	441.4	440.8	442.7	442.0	441.4	440.1	442.0
7.5°	433.8	437.0	440.1	436.3	438.2	437.6	442.0	440.1	439.5	439.5	438.2
10°	435.1	434.4	437.0	433.2	434.4	433.2	437.0	437.0	435.7	434.4	433.8
12.5°	424.9	430.0	430.0	429.4	428.1	426.2	430.0	432.5	428.7	428.7	428.1
15°	419.3	420.5	421.1	421.1	420.5	421.8	423.7	421.1	421.8	418.6	419.9
17.5°	412.9	410.4	412.3	411.0	411.7	412.9	415.5	415.5	411.7	411.0	412.3
20°	398.4	406.0	406.6	402.8	403.4	403.4	407.9	404.1	406.6	403.4	404.7
22.5°	391.4	396.5	397.1	392.1	395.2	391.4	395.9	390.2	396.5	392.1	394.0
25°	382.6	382.0	383.8	381.3	382.0	382.0	385.1	382.6	384.5	382.0	382.6
27.5°	368.0	373.1	372.5	369.9	371.2	370.6	376.9	369.9	373.7	370.6	371.8
30°	355.4	359.8	358.6	356.0	356.0	354.1	361.1	359.2	358.6	358.6	357.9
32.5°	342.7	343.4	342.1	342.7	343.4	340.9	346.5	344.0	343.4	344.0	344.6
35°	325.7	325.7	326.9	325.0	327.6	327.6	332.6	329.5	328.8	326.9	328.8
37.5°	310.5	308.6	309.2	309.2	310.5	311.8	314.3	313.0	313.0	311.1	312.4
40°	290.3	289.0	290.9	290.9	292.8	292.8	295.3	294.1	295.9	295.9	295.9
42.5°	272.6	272.6	271.3	273.2	273.8	273.2	277.6	277.0	277.6	276.4	277.0
45°	253.6	253.6	252.3	251.7	254.8	254.2	259.3	257.4	259.9	258.6	259.3
47.5°	227.6	230.8	228.9	230.8	234.6	235.3	238.4	237.1	239.7	237.8	240.3
50°	203.0	203.0	204.9	207.4	211.2	211.9	215.6	218.2	219.4	220.1	220.7
52.5°	177.1	176.4	178.3	181.5	184.7	187.2	191.0	194.8	197.3	201.1	199.2
55°	146.7	148.0	149.9	153.7	158.7	161.9	165.0	170.1	174.5	176.4	180.2
57.5°	120.8	119.5	120.8	125.8	131.5	134.1	138.5	143.6	149.9	153.7	154.9
60°	93.6	94.2	95.5	99.9	104.3	108.1	110.0	118.2	123.9	127.7	130.3
62.5°	68.9	70.2	71.5	75.3	79.7	82.8	86.0	93.0	98.0	101.8	104.3
65°	48.1	48.7	50.6	52.5	56.9	60.1	62.6	68.3	73.4	76.5	78.4
67.5°	29.7	30.3	31.6	34.2	37.3	39.8	42.4	46.2	50.6	53.7	54.4
70°	15.2	15.8	16.4	18.3	20.9	22.1	24.0	27.2	30.3	32.9	34.2
72.5°	5.1	5.1	5.7	7.0	8.2	9.5	10.1	13.3	15.8	17.1	17.7
75°	1.3	1.3	1.3	1.3	1.3	1.9	1.9	3.8	5.1	6.3	7.0
77.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.3	1.3
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°	445.2	445.2	445.2	445.2	445.2	445.2	445.2	445.2	445.2	445.2
2.5°	445.2	443.9	443.3	443.9	443.9	443.3	445.2	447.7	450.9	442.7
5°	444.5	443.3	444.5	440.8	442.7	441.4	443.9	443.3	445.8	443.3
7.5°	442.7	440.1	440.8	438.9	441.4	438.2	440.1	443.9	441.4	437.6
10°	436.3	435.1	439.5	433.2	431.9	434.4	439.5	435.7	434.4	435.7
12.5°	430.0	430.0	431.9	426.8	427.5	428.7	431.3	428.7	430.0	433.2
15°	423.1	421.8	424.9	421.1	420.5	419.3	421.8	421.8	423.1	421.1
17.5°	414.8	412.9	412.9	411.7	411.0	414.2	415.5	416.1	416.7	414.2
20°	404.7	404.1	406.0	404.1	404.7	405.4	405.4	404.1	409.8	402.8
22.5°	394.0	395.9	393.3	392.1	393.3	394.6	394.6	395.2	394.0	392.7
25°	383.2	384.5	385.1	381.3	383.2	381.3	385.7	386.4	383.8	385.1
27.5°	373.7	371.8	371.2	368.7	369.9	369.3	369.9	369.9	373.7	368.7
30°	359.2	357.3	357.9	356.0	356.6	356.0	356.6	356.6	359.2	358.6
32.5°	345.3	343.4	344.0	342.1	342.1	342.7	341.5	341.5	343.4	342.1
35°	332.0	327.6	328.2	327.6	328.2	325.7	325.7	325.0	326.3	323.1
37.5°	313.0	311.1	310.5	309.9	310.5	309.2	310.5	308.6	310.5	308.0
40°	295.9	294.7	295.3	291.5	291.5	292.1	290.9	290.3	290.9	293.4
42.5°	278.9	276.4	275.1	273.8	274.4	272.6	271.9	270.7	271.9	269.4
45°	258.6	258.6	258.0	254.8	255.5	255.5	253.0	250.4	251.0	251.0
47.5°	240.3	239.0	238.4	235.3	234.6	234.0	231.4	229.5	229.5	227.6
50°	220.1	218.8	216.9	213.7	212.5	208.7	206.8	204.3	201.7	201.7
52.5°	201.1	196.7	194.1	189.1	187.2	185.3	180.2	178.3	176.4	174.5
55°	178.3	174.5	169.5	163.8	161.3	158.1	153.0	149.2	146.7	147.3
57.5°	156.2	149.9	144.8	137.2	134.1	132.2	127.1	122.0	119.5	119.5
60°	129.0	123.9	117.6	110.7	108.1	105.0	98.6	95.5	93.6	91.7
62.5°	103.1	99.3	93.6	84.7	82.8	79.7	75.3	71.5	69.6	69.6
65°	77.1	73.4	68.3	62.0	59.4	56.9	53.1	49.3	47.4	46.8
67.5°	54.4	50.0	45.5	40.5	38.6	37.3	33.5	31.0	29.7	29.1
70°	32.9	30.3	27.2	23.4	21.5	20.2	17.7	15.8	15.2	14.6
72.5°	17.1	15.2	12.6	10.1	8.8	7.6	6.3	5.1	4.4	4.4
75°	6.3	5.1	3.2	1.9	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	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)