

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-CSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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

**Summary**

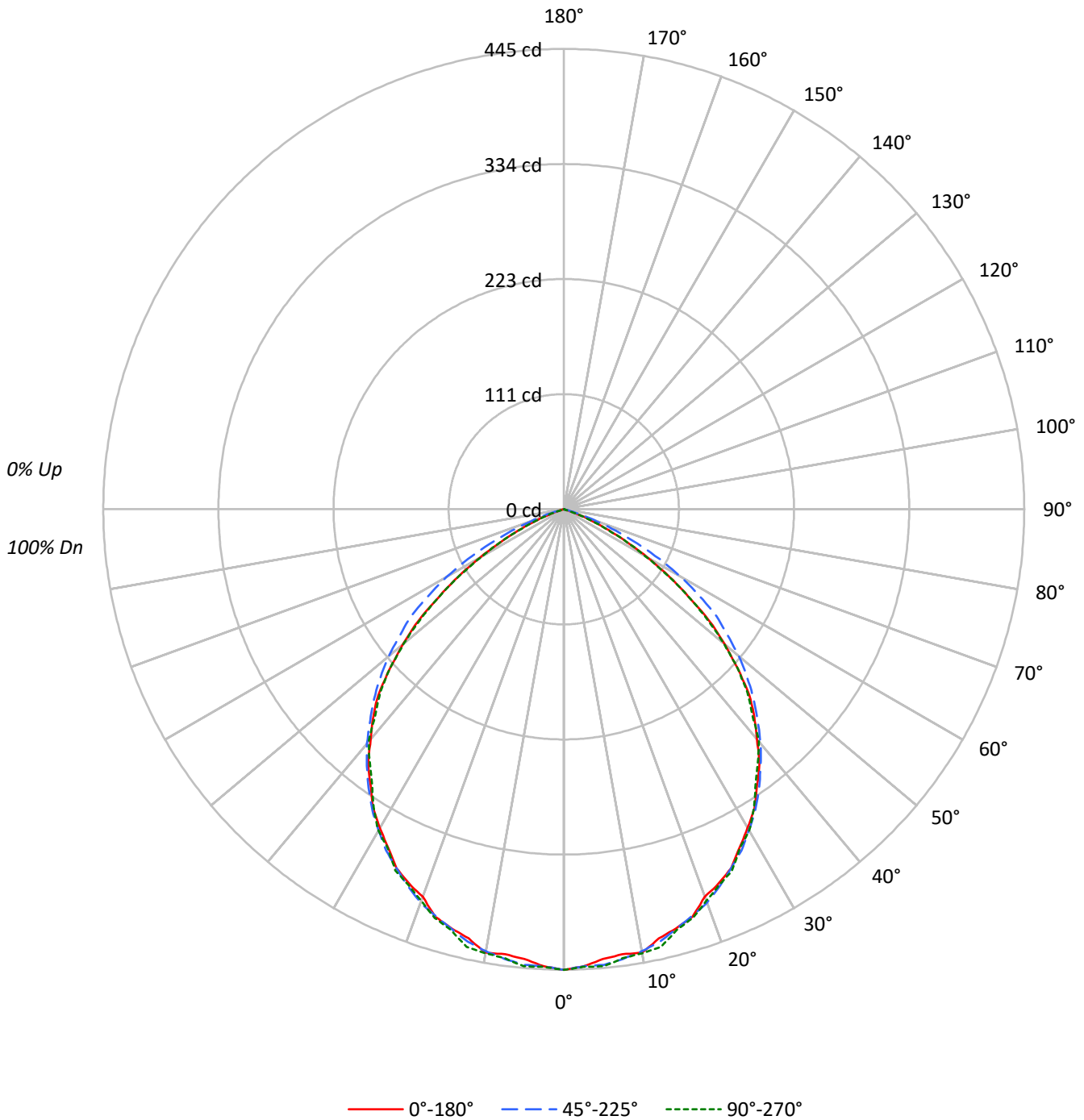
Lumens per Lamp: N/A  
 Luminaire Lumens: 951.0 lumens  
 Efficiency: N/A  
 Efficacy: 97.5 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 9.75  
 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

TEST NUMBER: P#  
CATALOG NUMBER: FLDSQ4C10D010 FEU4C109027 F4LC-CSSQ-MW

### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C10D010 FEU4C109027 F4LC-CSSQ-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	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

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109027 F4LC-CSSQ-MW

**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-CSSQ-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

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C10D010 FEU4C109027 F4LC-CSSQ-MW

**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)