

FCC PART 15B

TEST REPORT

For

BAREBONES SYSTEMS, LLC.

1215 East Wilmington Avenue-Ste. 140 Salt Lake City, UT 84106

Model: LIV-273- Antique
Multiple Models: LIV-274- Red, LIV-275- Copper

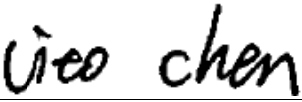
Report Type: Original Report	Product Type: Mini Edison Lantern
Report Number: RDG191031030-00	
Report Date: 2019-11-19	
Reviewed By:	Vito Chen EMC Engineer 
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	Mini Edison Lantern
EUT Model:	LIV-273- Antique
Multiple Models:	LIV-274- Red, LIV-275- Copper
Rated Input Voltage:	DC 5V from adapter, or DC 3V from battery
The Highest Operating Frequency:	<108MHz
External Dimension:	110mm(L)*110mm(W)* 120mm(H)
Serial Number:	191031030
EUT Received Date:	2019.11.11
EUT Received Status:	Good

Note: The series product, models LIV-274- Red, LIV-275- Copper and LIV-273- Antique are electrically identical, we selected LIV-273- Antique for testing, the details of the differences between them were explained in the attached declaration letter.

Objective

This report is prepared on behalf of **BAREBONES SYSTEMS, LLC.** in accordance with Part 2, Part J, and Part 15, Subpart A and B of the Federal Communications Commission's rules..

The objective is to determine the compliance of EUT with:
FCC Part 15B Class B.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB, 200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Temperature	±1℃
Humidity	±5%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “△”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk “★”.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

Test Mode 1: Powered by adapter

Test Mode 2: Powered by battery

Equipment Modifications

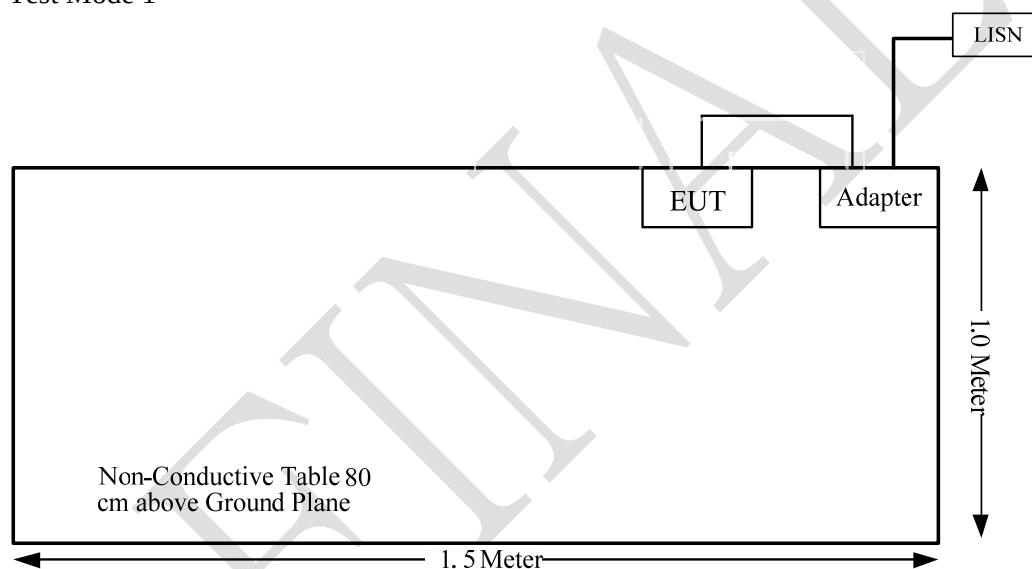
No modification was made to the EUT.

EUT Exercise Software

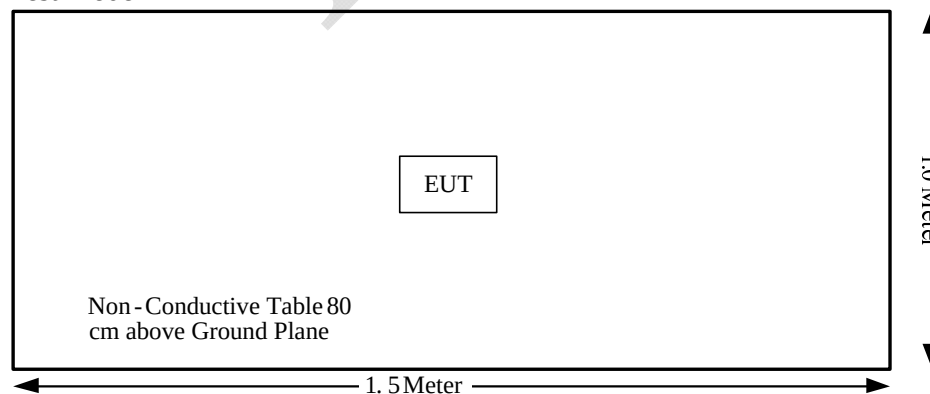
No EUT software was used for testing.

Block Diagram of Test Setup

Test Mode 1



Test Mode 2



Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
N/A	Adapter	P12GUSB050200	N/A

Support Cable List and Details

Cable Description	Shielding Cable	Ferrite Core	Length (m)	From Port	To
USB Cable	No	No	0.8	Adapter	EUT

Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted emission					
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2019-09-05	2020-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2019-09-12	2020-09-12
R&S	EMI Test Receiver	ESCI	101121	2019-05-09	2020-05-09
Radiated emissions below 1GHz					
R&S	EMI Test Receiver	ESCI	100224	2019-09-12	2020-09-12
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-2	2017-08-25	2020-08-25
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-02	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0530-01	2019-09-24	2020-09-24
Sonoma	Amplifier	310N	185914	2019-10-13	2020-10-13

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Environmental Conditions

Temperature:	25.1~25.4°C
Relative Humidity:	45~60%
ATM Pressure:	100.9~101.7kPa
Tester:	Jakson Zhang, Sem Xiang
Test Date:	2019.11.13~2019.11.16

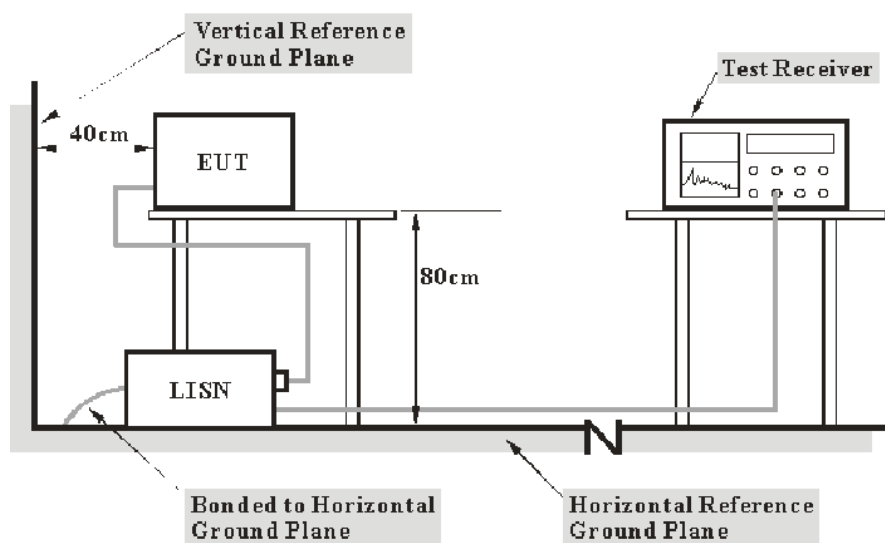
SUMMARY OF TEST RESULTS

SN	Rule and Clause	Description of Test	Test Result
1	FCC §15.107	Conducted emissions	Compliance
2	FCC §15.109	Radiated emissions	Compliance

FINAL

1 - CONDUCTED EMISSIONS

EUT Setup



Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result (QuasiPeak or Average) = Meter Reading + Corr.

Note:

Corr. = Cable loss + Factor of coupling device

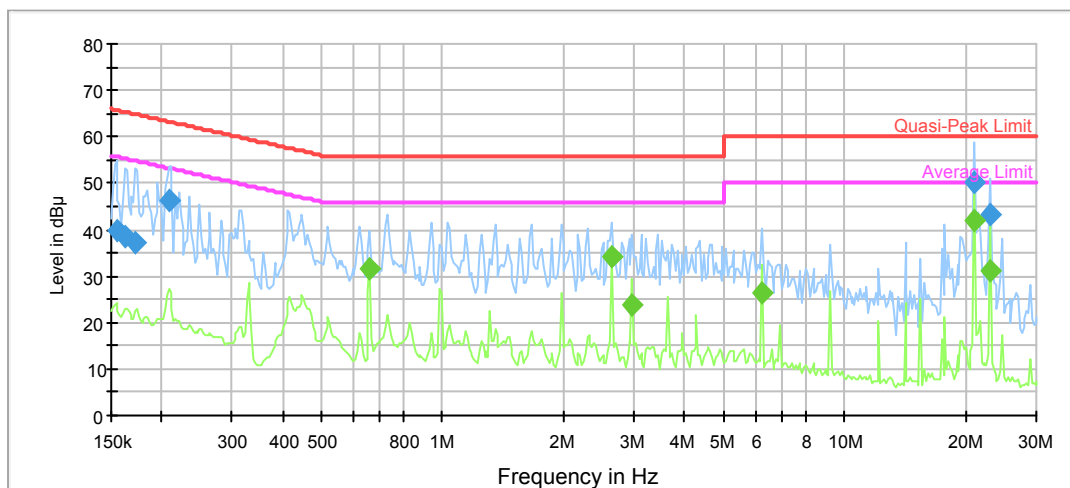
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Limit – Result

Test Data

Please refer to following table and plots:

Model Number: LIV-273- Antique
Port: L
Test Mode: M1
Power Source: AC 120V/60Hz
Note:



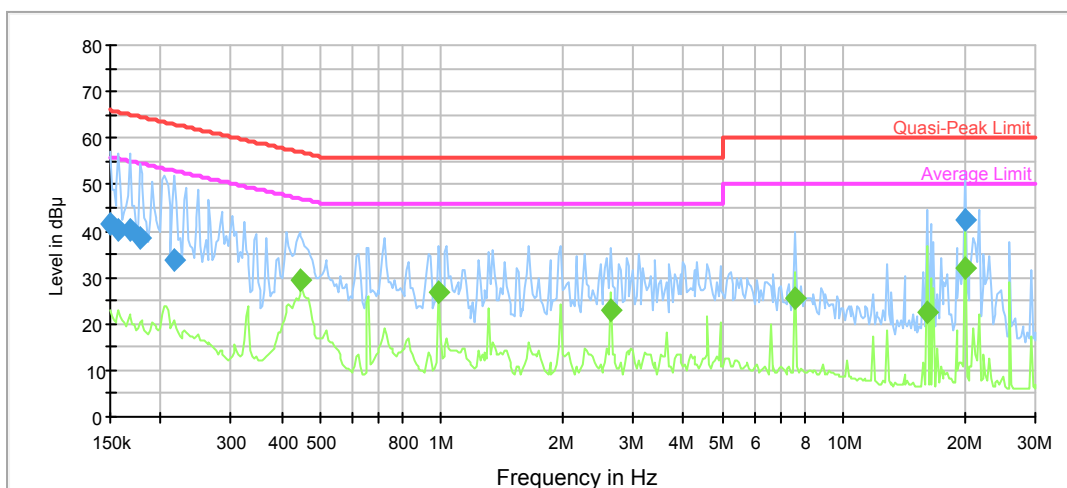
Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.154545	39.9	9.000	L1	11.1	25.9	65.8
0.162429	38.3	9.000	L1	11.0	27.0	65.3
0.172421	37.4	9.000	L1	10.9	27.4	64.8
0.208304	46.4	9.000	L1	10.6	16.9	63.3
21.077268	50.1	9.000	L1	10.1	9.9	60.0
23.051898	43.3	9.000	L1	10.1	16.7	60.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.660657	31.6	9.000	L1	9.8	14.4	46.0
2.634191	34.0	9.000	L1	9.8	12.0	46.0
2.968272	23.8	9.000	L1	9.8	22.2	46.0
6.260467	26.3	9.000	L1	9.8	23.7	50.0
21.077268	42.0	9.000	L1	10.1	8.0	50.0
23.051898	31.3	9.000	L1	10.1	18.7	50.0

Model Number: LIV-273- Antique
 Port: N
 Test Mode: M1
 Power Source: AC 120V/60Hz
 Note:



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	41.6	9.000	N	11.2	24.4	66.0
0.157652	40.3	9.000	N	11.1	25.3	65.6
0.167350	40.3	9.000	N	10.9	24.8	65.1
0.177646	38.6	9.000	N	10.8	26.0	64.6
0.216762	33.9	9.000	N	10.5	29.0	62.9
20.054297	42.3	9.000	N	10.0	17.7	60.0

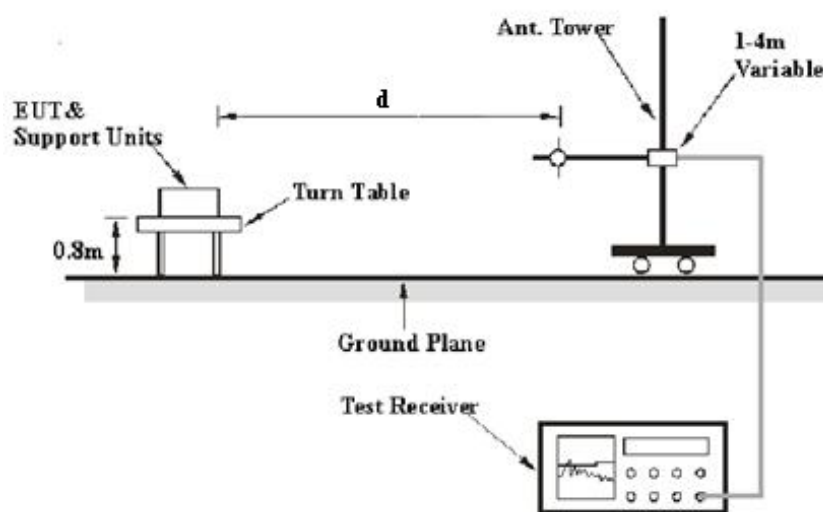
Final Result 2

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.448170	29.4	9.000	N	9.9	17.5	46.9
0.983629	26.9	9.000	N	9.8	19.1	46.0
2.634191	23.1	9.000	N	9.8	22.9	46.0
7.563326	25.7	9.000	N	9.8	24.3	50.0
16.111546	22.6	9.000	N	9.9	27.4	50.0
20.054297	32.0	9.000	N	10.0	18.0	50.0

2 - RADIATED EMISSIONS

EUT Setup

Below 1GHz:



The radiated emission tests were performed at the 3 meters distance, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 1GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP

Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

If the maximized peak measured value complies with under the QP limit more than 6dB, then it is unnecessary to perform an QP measurement.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$\text{Result} = \text{Meter Reading} + \text{Corrected}$$

Note:

$$\text{Corrected} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

or

$$\text{Corrected} = \text{Antenna Factor} + \text{Cable Loss} + \text{Insertion loss of attenuator} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Result}$$

Test Data

Please refer to following table and plots:

Condition: FCC Part 15B Class B
EUT: Mini Edison Lantern
Model: LIV-273- Antique
Test Mode: M1
Note:

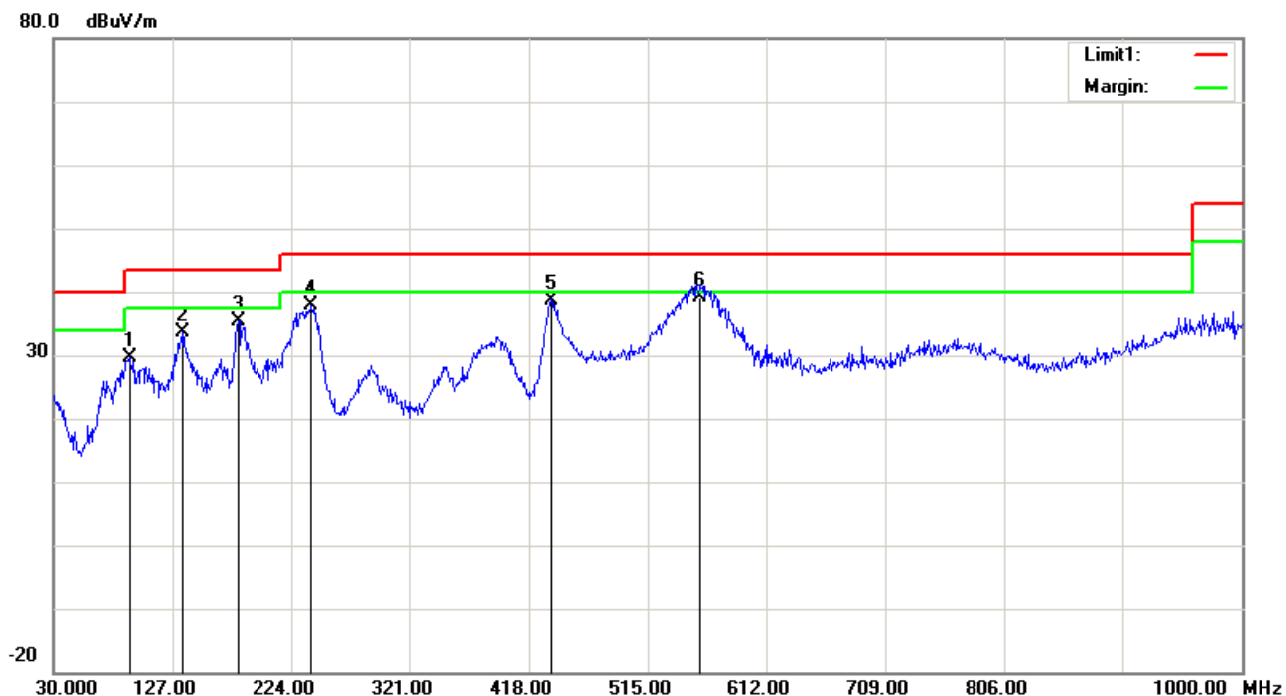
Polarization: Horizontal
Power: DC 5V from adapter
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	136.7000	44.37	peak	-9.41	34.96	43.50	8.54
2	179.3800	41.20	peak	-9.91	31.29	43.50	12.21
3	241.4600	47.51	peak	-10.02	37.49	46.00	8.51
4	387.9300	40.56	peak	-5.65	34.91	46.00	11.09
5	435.4600	39.64	peak	-4.51	35.13	46.00	10.87
6	549.9200	38.12	peak	-1.79	36.33	46.00	9.67

Condition: FCC Part 15B Class B
EUT: Mini Edison Lantern
Model: LIV-273- Antique
Test Mode: M1
Note:

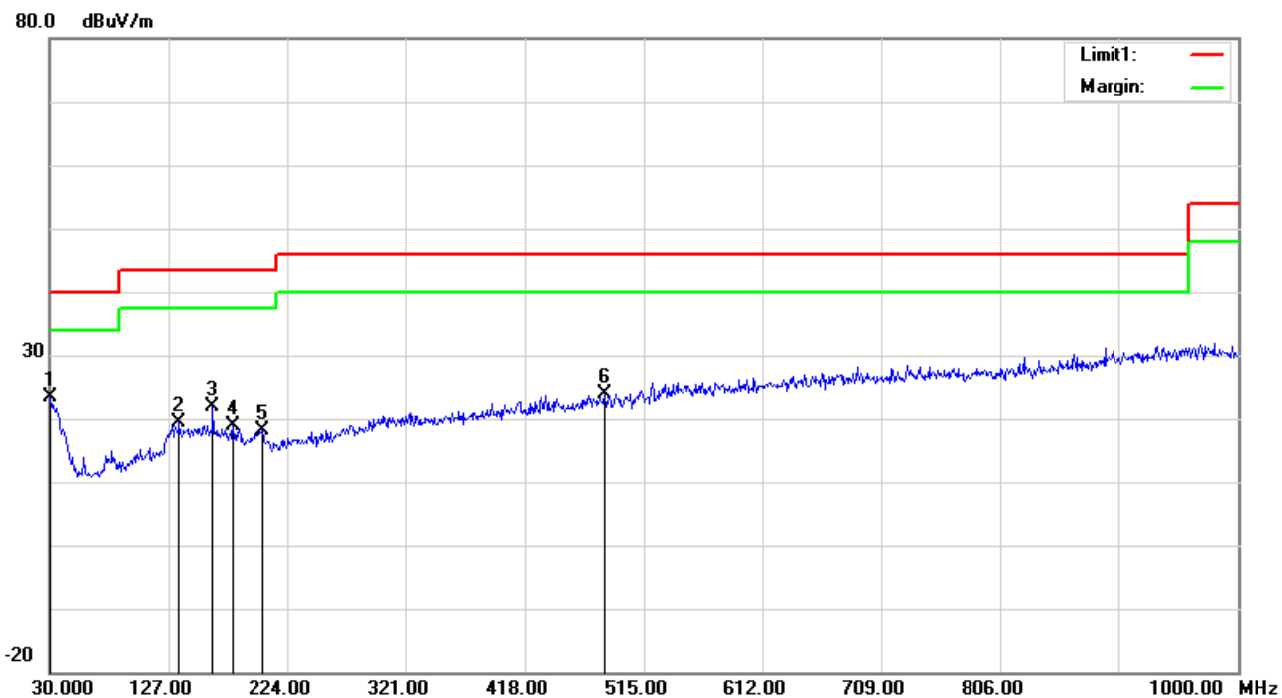
Polarization: Vertical
Power: DC 5V from adapter
Distance: 3m



No.	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	92.0800	44.74	peak	-15.08	29.66	43.50	13.84
2	135.7300	43.17	peak	-9.48	33.69	43.50	9.81
3	180.3500	45.36	peak	-9.94	35.42	43.50	8.08
4	240.4900	47.91	peak	-10.10	37.81	46.00	8.19
5	436.4300	43.27	peak	-4.52	38.75	46.00	7.25
6	558.6500	40.65	QP	-1.56	39.09	46.00	6.91

Condition: FCC Part 15B Class B
EUT: Mini Edison Lantern
Model: LIV-273- Antique
Test Mode: M2
Note:

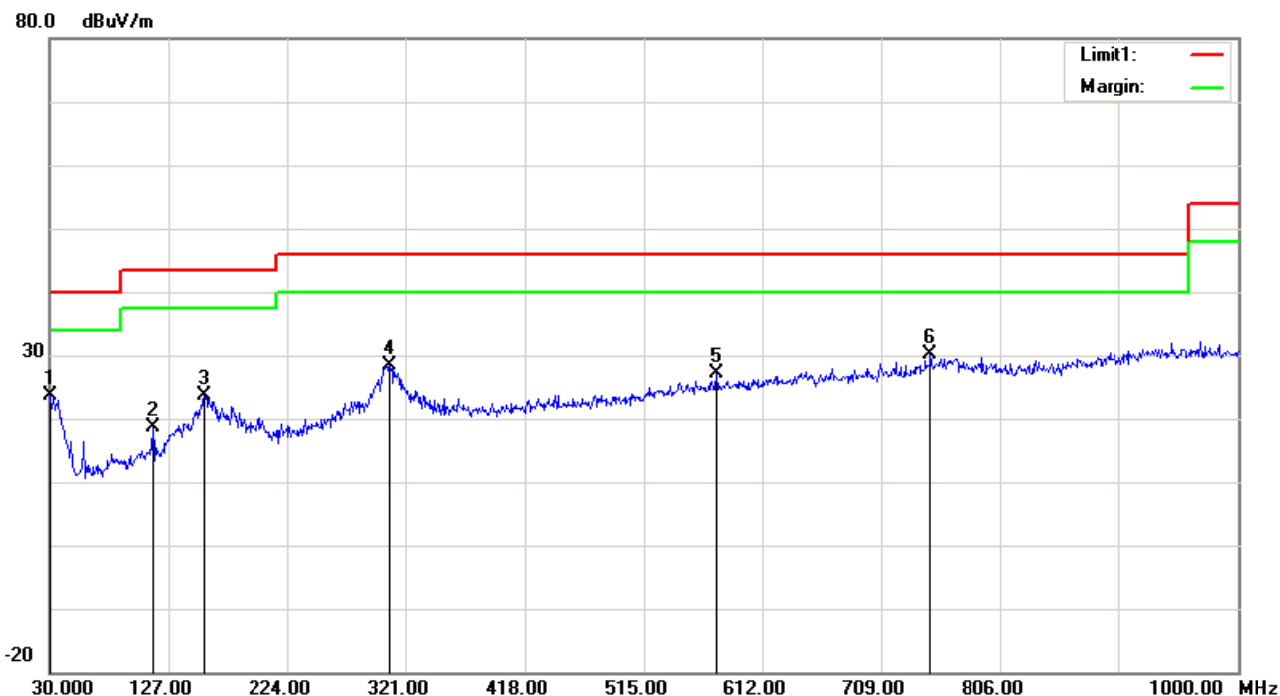
Polarization: Horizontal
Power: DC 3V from battery
Distance: 3m



No.	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	30.9700	28.31	peak	-4.88	23.43	40.00	16.57
2	135.7300	28.84	peak	-9.48	19.36	43.50	24.14
3	162.8900	31.49	peak	-9.53	21.96	43.50	21.54
4	179.3800	28.86	peak	-9.91	18.95	43.50	24.55
5	203.6300	28.19	peak	-10.11	18.08	43.50	25.42
6	482.9900	27.70	peak	-3.77	23.93	46.00	22.07

Condition: FCC Part 15B Class B
EUT: Mini Edison Lantern
Model: LIV-273- Antique
Test Mode: M2
Note:

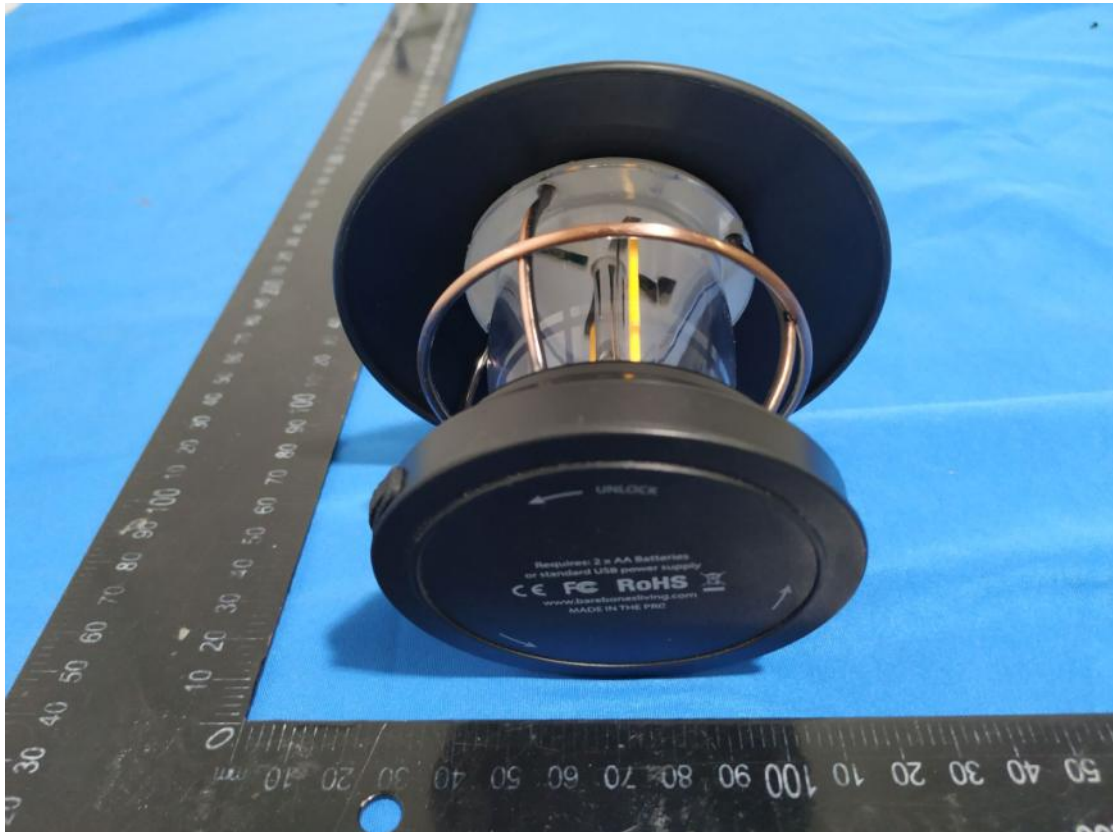
Polarization: Vertical
Power: DC 3V from battery
Distance: 3m



No.	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	30.9700	28.53	peak	-4.88	23.65	40.00	16.35
2	114.3900	31.64	peak	-12.90	18.74	43.50	24.76
3	156.1000	33.05	peak	-9.52	23.53	43.50	19.97
4	307.4200	35.52	peak	-7.15	28.37	46.00	17.63
5	575.1400	28.50	peak	-1.46	27.04	46.00	18.96
6	748.7700	29.50	peak	0.65	30.15	46.00	15.85

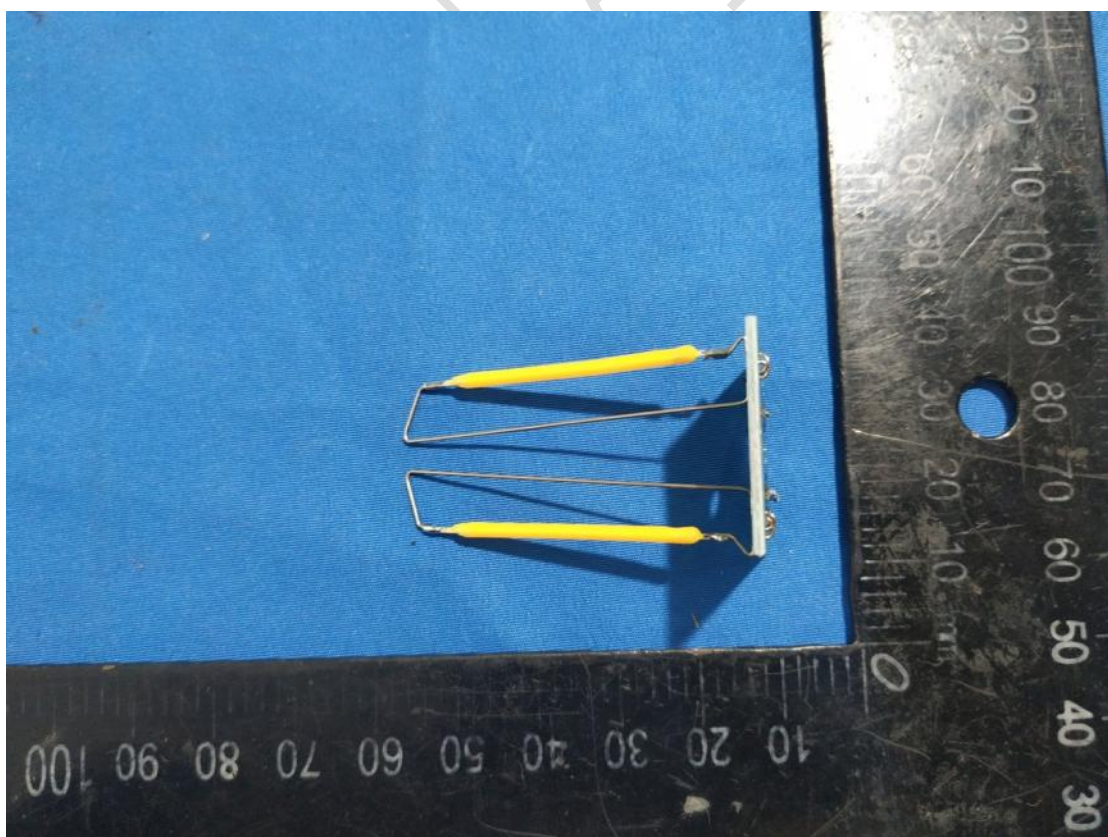
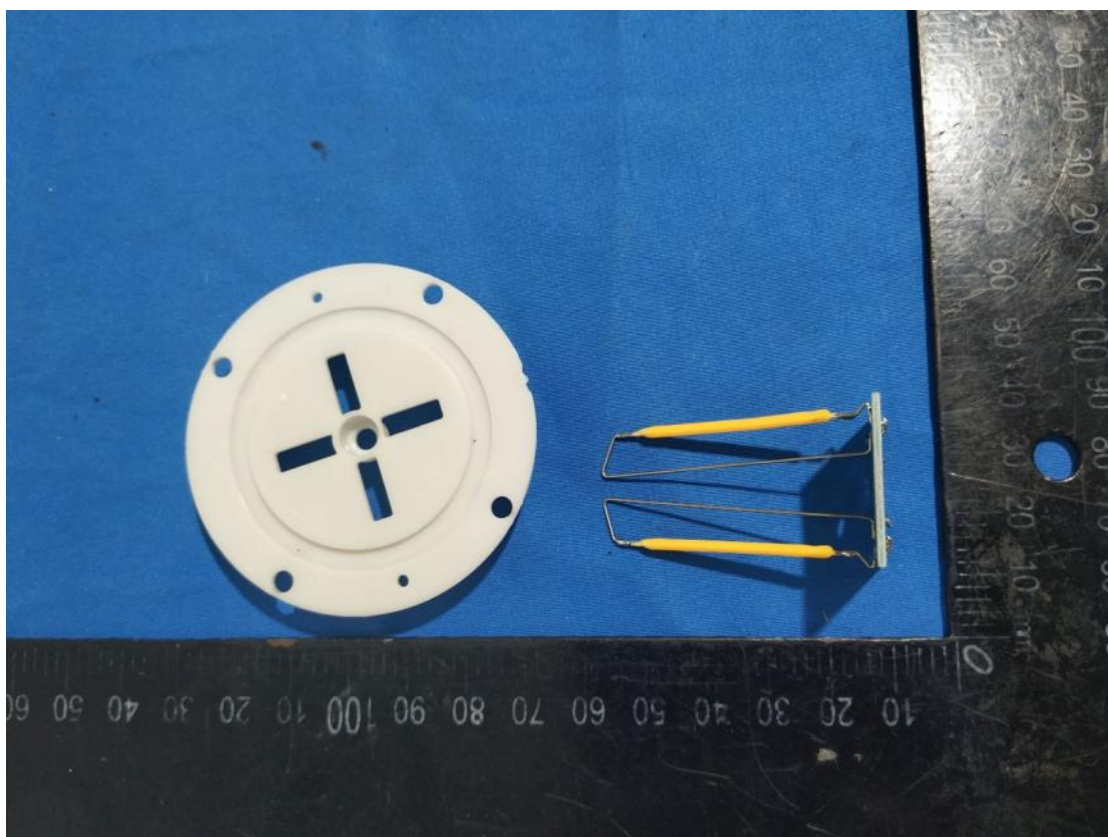
EXHIBIT A – EUT PHOTOGRAPHS

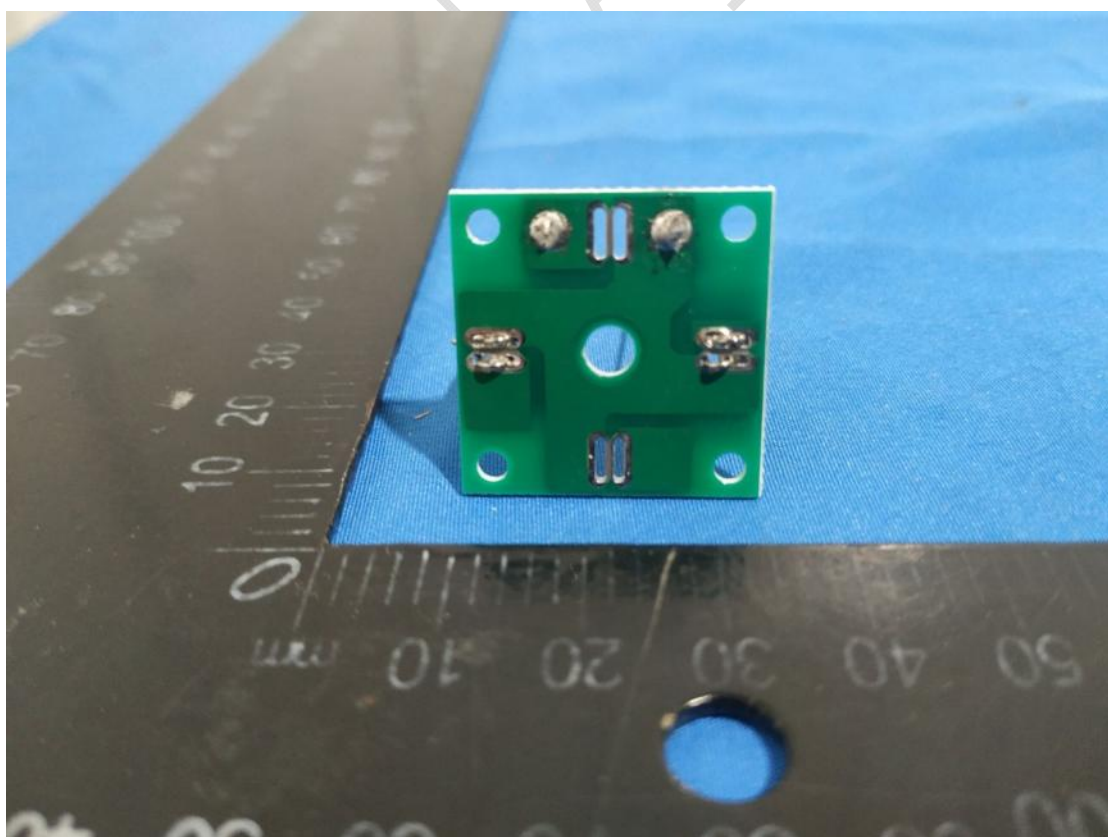
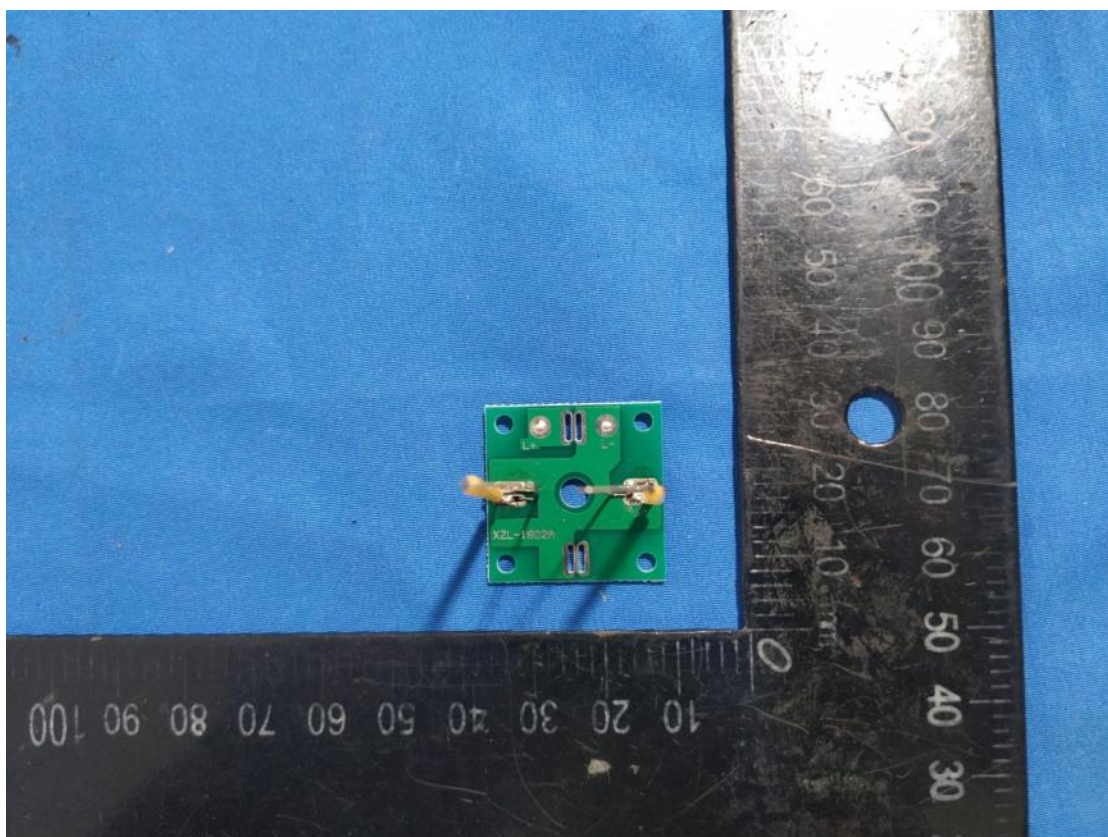


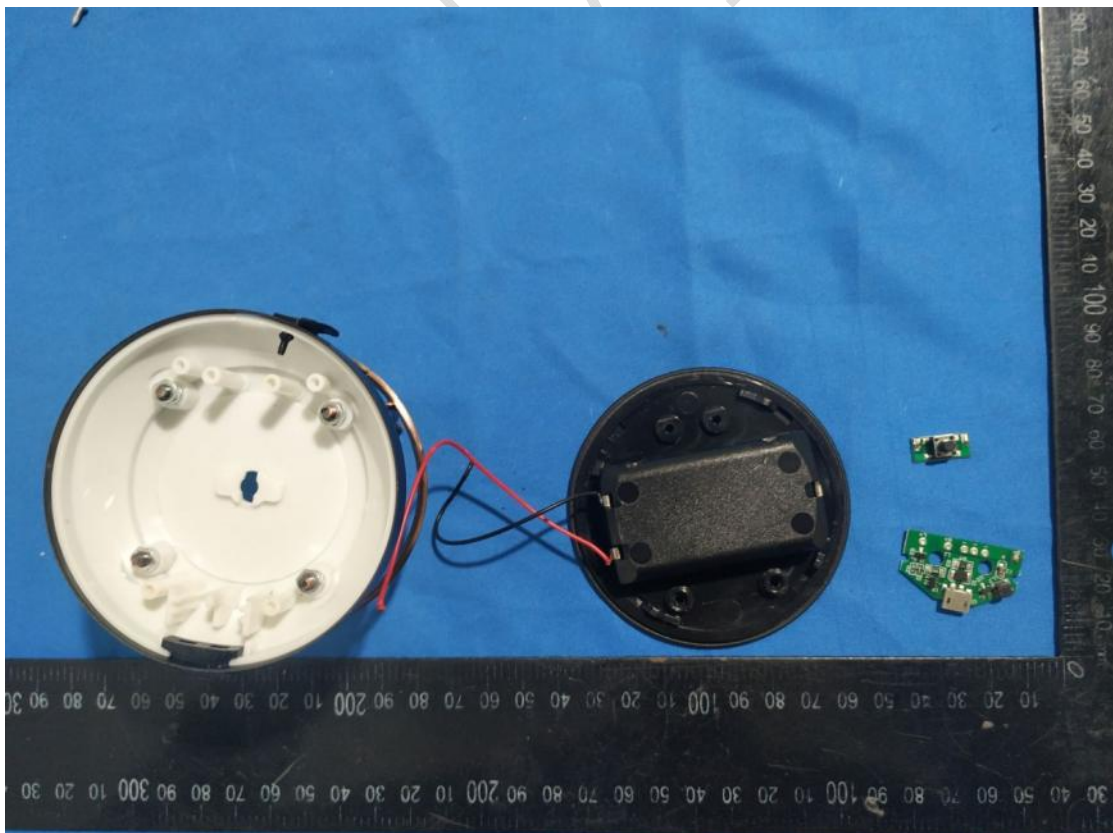
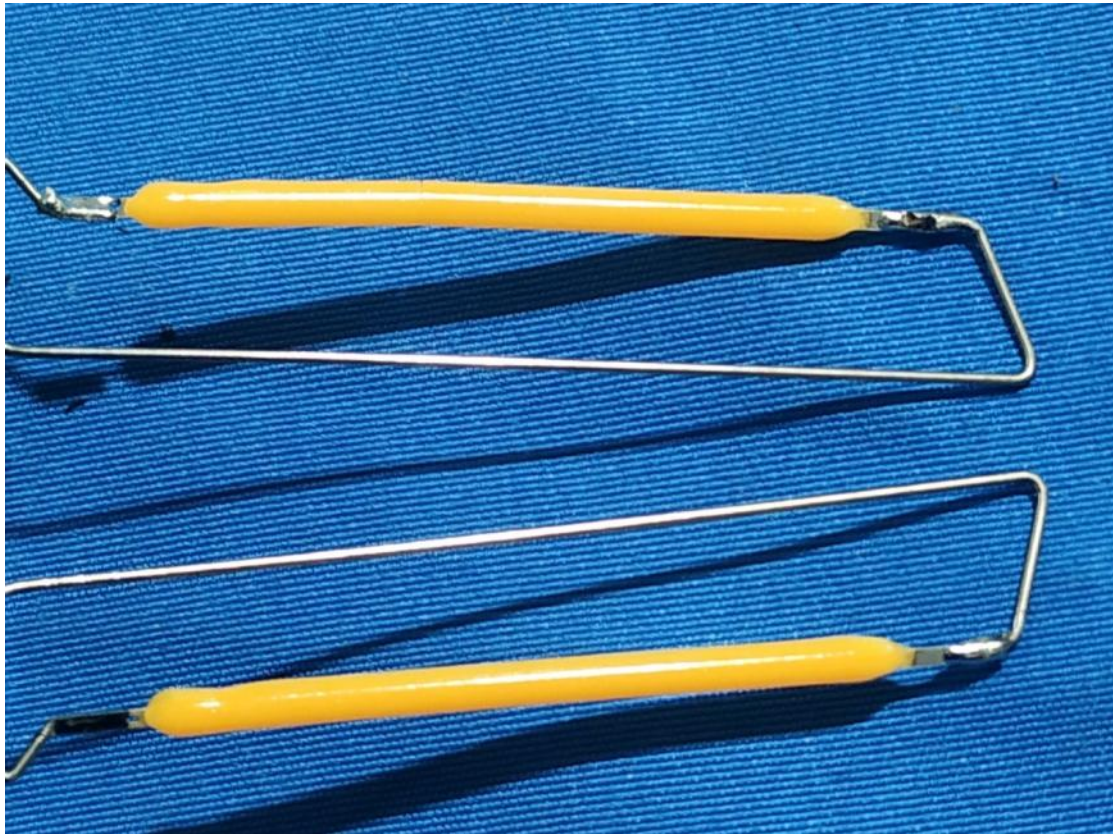


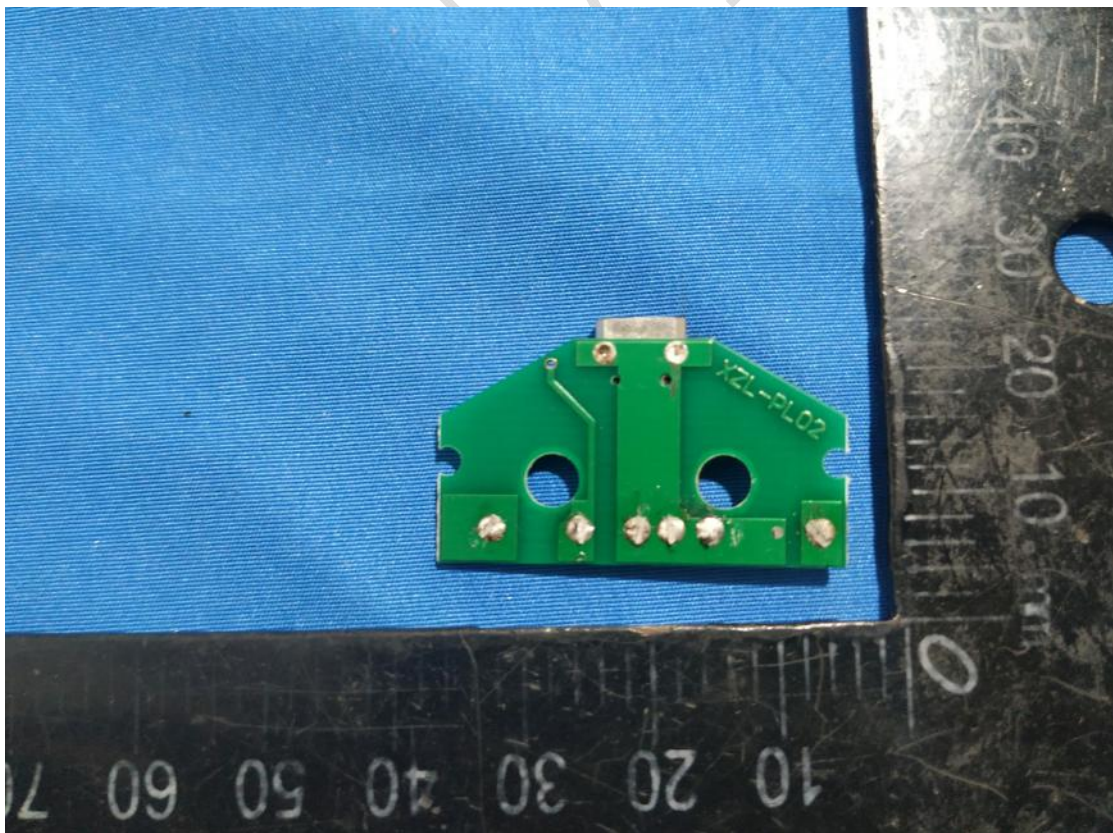
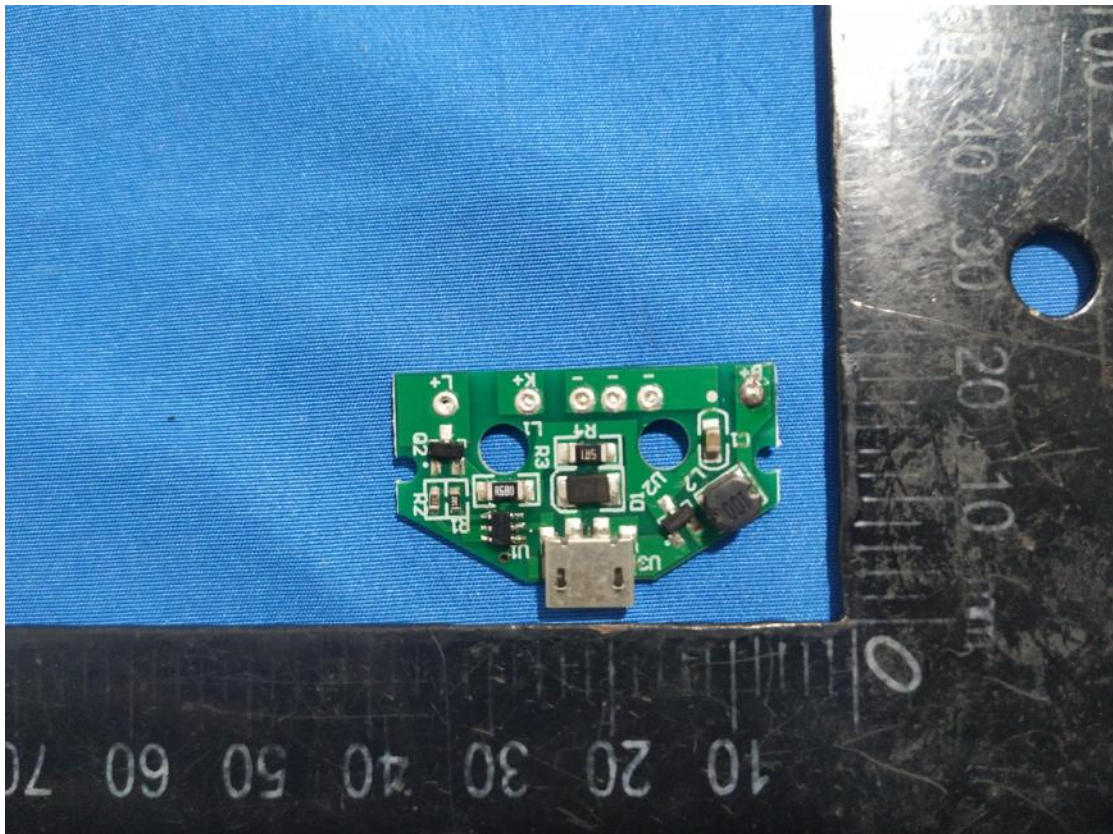












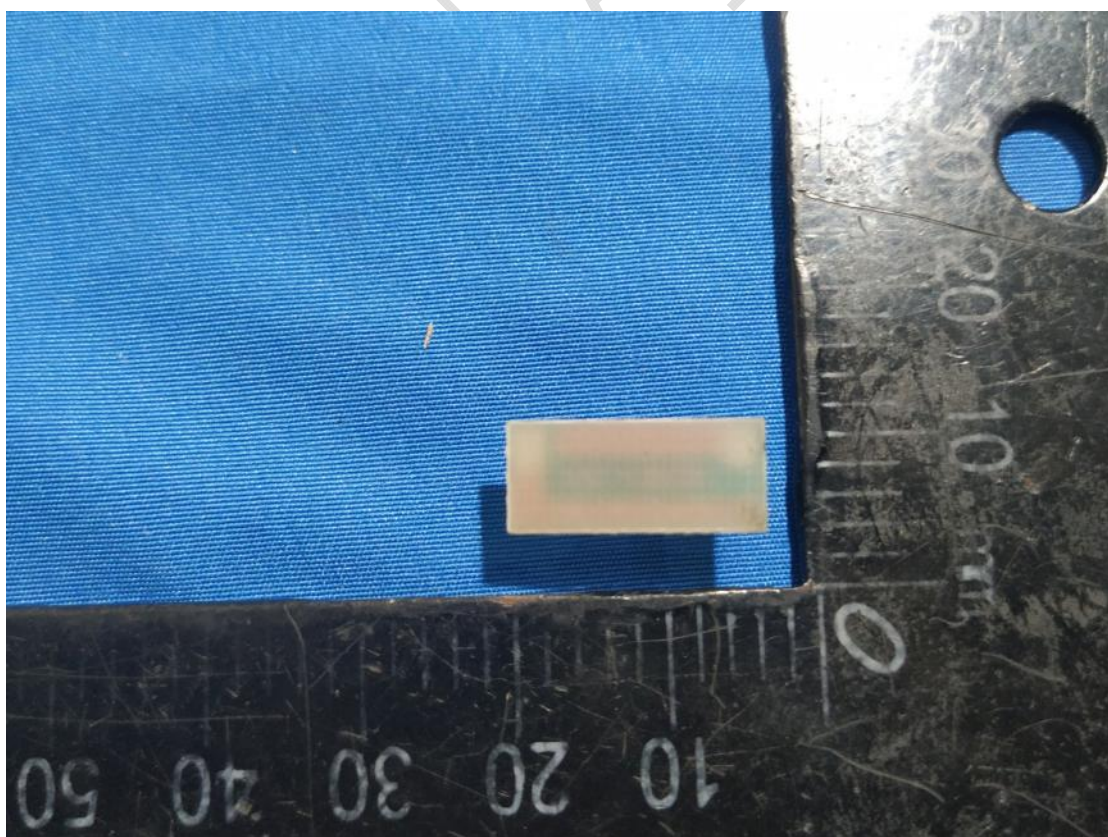
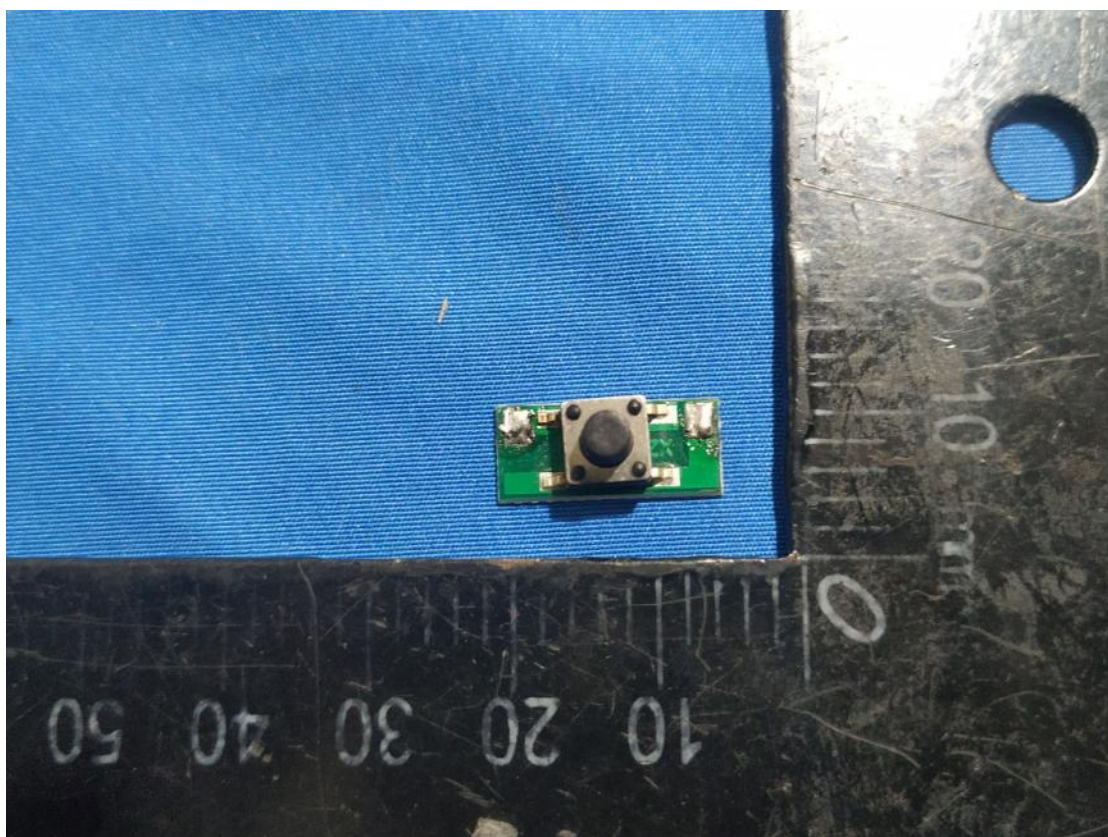


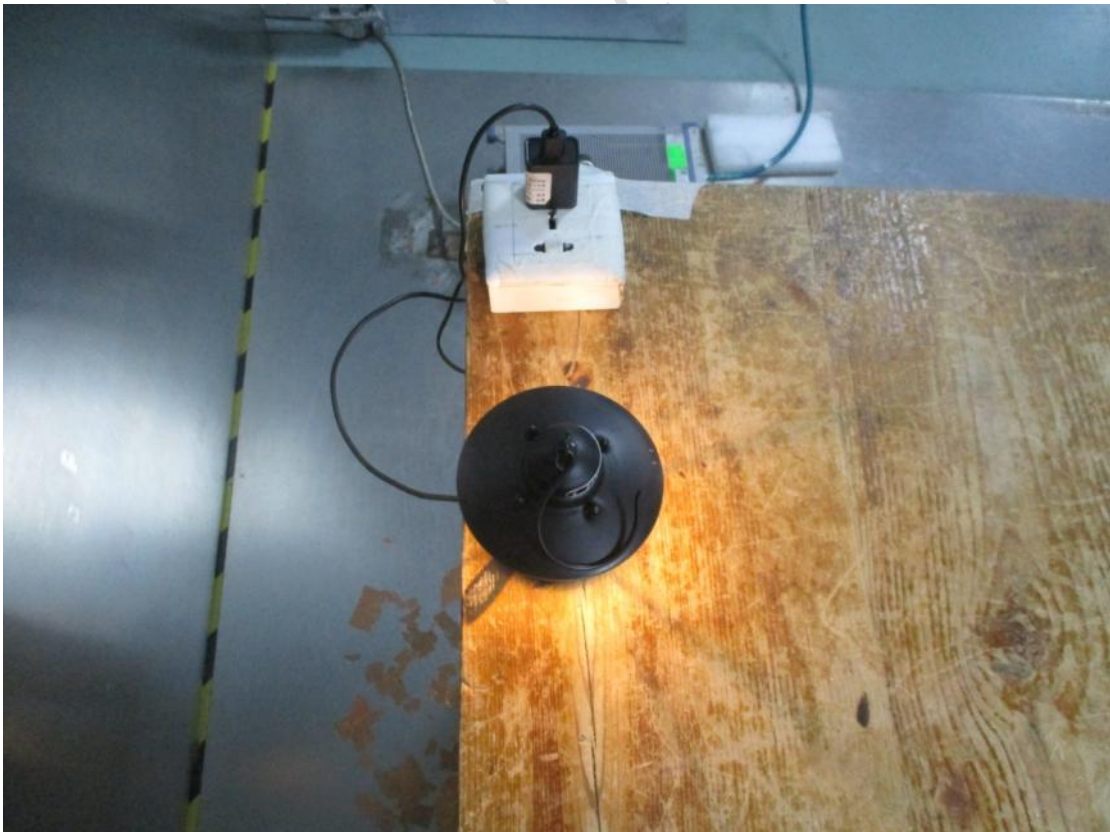
EXHIBIT B – TEST SETUP PHOTOGRAPHS

CE

front M1 View



side M1 View

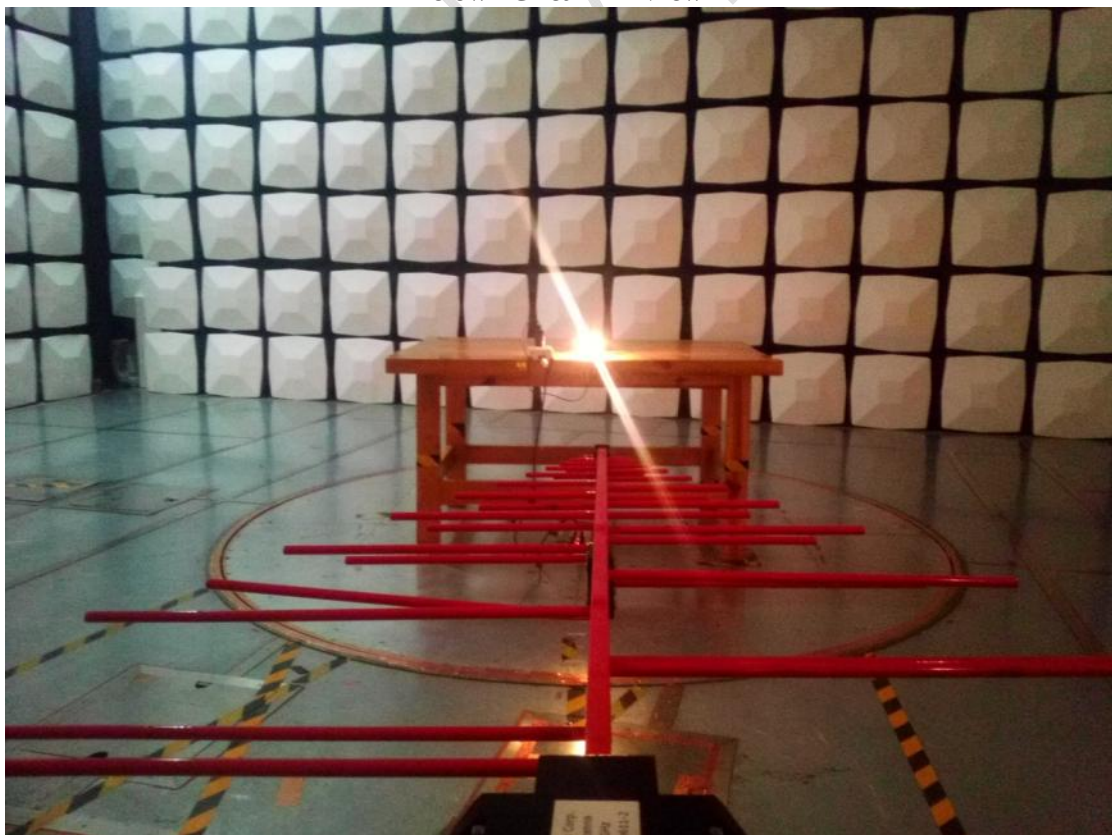


RE

Below 1G front M1 View



Below 1G rear M1 View



Below 1G M2 View



DECLARATION LETTER**Product Similarity Declaration**

To Whom It May Concern,

We, BAREBONES SYSTEMS,LLC. , hereby declare that we have a product named as Mini Edison Lantern (Model number: LIV-273- Antique) was tested by BACL.

Meanwhile, we would like to list a series models (LIV-274- Red, LIV-275- Copper) on reports and certificate.

All of the models are identical structure and packaging, different color, and different model names.

We confirm that all information above is true, and we'll be responsible for all the consequences. Please contact me if you have any question.

Signature: *Beck*

Printed Name:

Title: *QC/QA*

2019.12.5

*****END OF REPORT*****