

# EMC TEST REPORT



Report No.: 18071115-FCC-E

Supersede Report No: N/A

Applicant	lotGizmo Corporation	
Product Name	Smart Dimming Light Switch	
Model No.	D6932	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B, ANSI C63.4: 2014	
Test Date	September 29 to October 11, 2018	
Issue Date	October 15, 2018	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification <input checked="" type="checkbox"/>		
Equipment did not comply with the specification <input type="checkbox"/>		
Evans He Test Engineer	David Huang Checked By	
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only		

Issued by:

**SIEMIC (SHENZHEN-CHINA) LABORATORIES**

Zone A, Floor 1, Building 2 Wan Ye Long Technology Park

South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108

Phone: +86 0755 2601 4629801 Email: [China@siemic.com.cn](mailto:China@siemic.com.cn)

## Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

### Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

Test Report	18071115-FCC-E
Page	3 of 24

This page has been left blank intentionally.

## CONTENTS

1. REPORT REVISION HISTORY.....	5
2. CUSTOMER INFORMATION .....	5
3. TEST SITE INFORMATION .....	5
4. EQUIPMENT UNDER TEST (EUT) INFORMATION .....	6
5. TEST SUMMARY .....	7
6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS .....	8
6.1 AC POWER LINE CONDUCTED EMISSIONS.....	8
6.2 RADIATED EMISSIONS.....	14
ANNEX A. TEST INSTRUMENT.....	19
ANNEX B. TEST SETUP AND SUPPORTING EQUIPMENT .....	20
ANNEX C. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PARTLIST .....	23
ANNEX D. DECLARATION OF SIMILARITY.....	24

## 1. Report Revision History

Report No.	Report Version	Description	Issue Date
18071115-FCC-E	NONE	Original	October 15, 2018

## 2. Customer information

Applicant Name	lotGizmo Corporation
Applicant Add	255 Old New Brunswick, Suite N330, Piscataway, New Jersey, United States 08854
Manufacturer	Earda Technologies Co., Ltd
Manufacturer Add	Block A, LianFeng Creative Industry Park, NO.2 JiSheng Road, HuangGe Town, Nansha District, Guangzhou, PRC.

## 3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	535293
IC Test Site No.	4842E-1
Test Software of Radiated Emission	Radiated Emission Program-To Shenzhen v2.0
Test Software of Conducted Emission	EZ-EMC(ver.lcp-03A1)

## 4. Equipment under Test (EUT) Information

Description of EUT:	Smart Dimming Light Switch
Main Model:	D6932
Serial Model:	N/A
Antenna Gain:	3dBi
Antenna Type:	3D antenna
Equipment Category :	JAB
Type of Modulation:	802.11b/g/n: DSSS, OFDM
RF Operating Frequency (ies):	WIFI: 802.11b/g/n(20M): 2412-2462 MHz WIFI: 802.11n(40M): 2422-2452 MHz
Number of Channels:	WIFI :802.11b/g/n(20M): 11CH WIFI :802.11n(40M): 7CH
Input Power:	100-240V AC 50/60Hz
Port:	Please refer to the user' s manual
Trade Name :	Touch Dimmer
FCC ID:	2AHVE-D6932
Date EUT received:	September 28, 2018
Test Date(s):	September 29 to October 11, 2018

## 5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§15.107; ANSI C63.4: 2014	AC Power Line Conducted Emissions	Compliance
§15.109; ANSI C63.4: 2014	Radiated Emissions	Compliance

### Measurement Uncertainty


Parameter	Uncertainty
AC Power Line Conducted Emissions (150kHz~30MHz)	±3.11dB
Radiated Emission(30MHz~1GHz)	±5.12dB
Radiated Emission(1GHz~6GHz)	±5.34dB

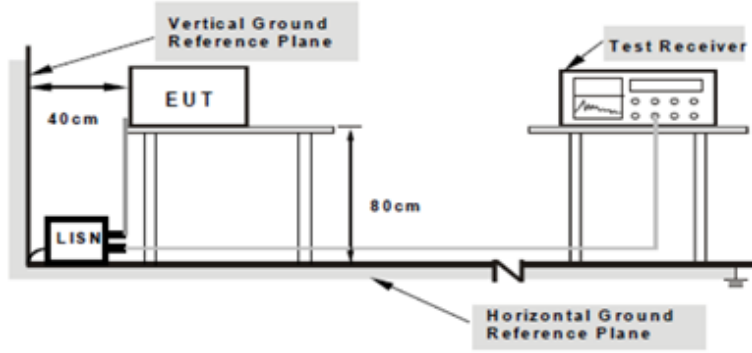
## 6. Measurements, Examination And Derived Results

### 6.1 AC Power Line Conducted Emissions

Temperature	26°C
Relative Humidity	55%
Atmospheric Pressure	1010mbar
Test date :	October 09, 2018
Tested By :	Evans He

#### Requirement(s):

Spec	Item	Requirement	Applicable														
47CFR§15.107	a)	For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu] H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.															
		<table><tr><th rowspan="2">Frequency ranges (MHz)</th><th colspan="2">Limit (dBµV)</th></tr><tr><th>QP</th><th>Average</th></tr><tr><td>0.15 ~ 0.5</td><td>66 – 56</td><td>56 – 46</td></tr><tr><td>0.5 ~ 5</td><td>56</td><td>46</td></tr><tr><td>5 ~ 30</td><td>60</td><td>50</td></tr></table>		Frequency ranges (MHz)	Limit (dBµV)		QP	Average	0.15 ~ 0.5	66 – 56	56 – 46	0.5 ~ 5	56	46	5 ~ 30	60	50
		Frequency ranges (MHz)			Limit (dBµV)												
				QP	Average												
		0.15 ~ 0.5		66 – 56	56 – 46												
		0.5 ~ 5		56	46												
5 ~ 30	60	50															

Test Setup	 <p>Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</p>
------------	---

Procedure	<ol style="list-style-type: none"> <li>The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.</li> <li>The power supply for the EUT was fed through a 50Ω /50mH EUT LISN, connected to filtered mains.</li> </ol>
-----------	--

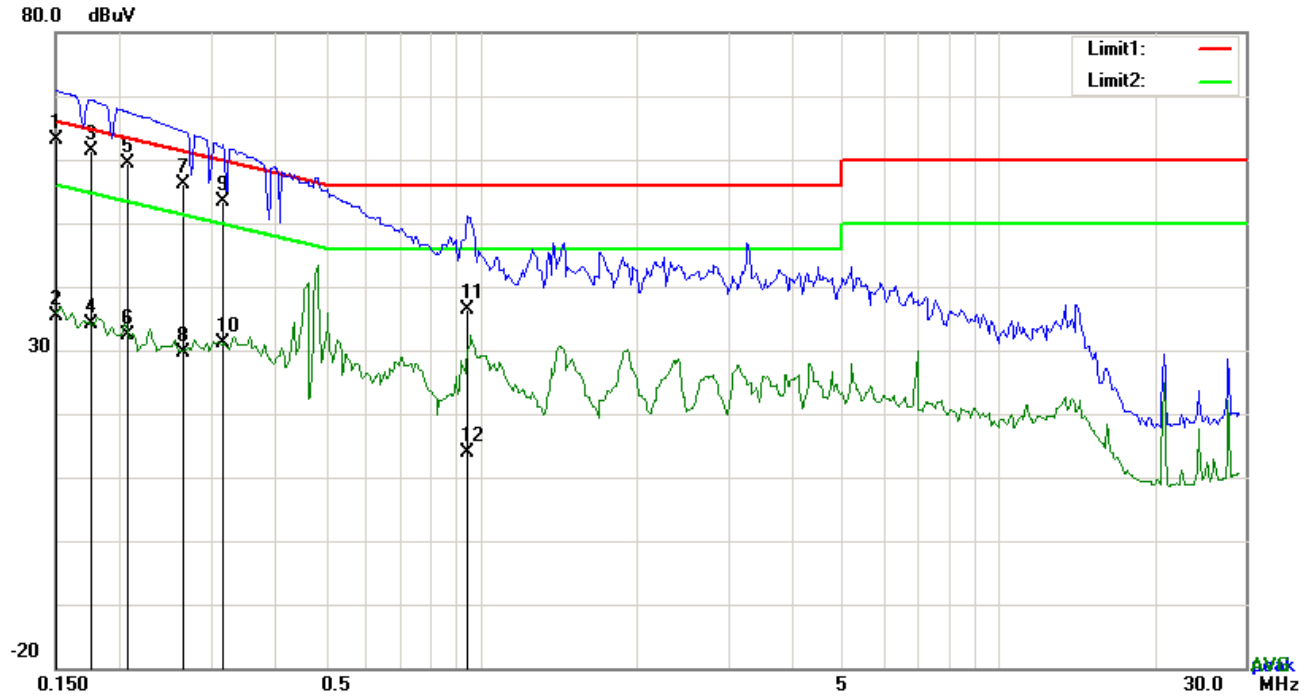


	3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and allowed to warm up to its normal operating condition. 6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver. 7. High peaks, relative to the limit line, The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz. 8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> N/A

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

**Test Mode :** Normal Working Mode

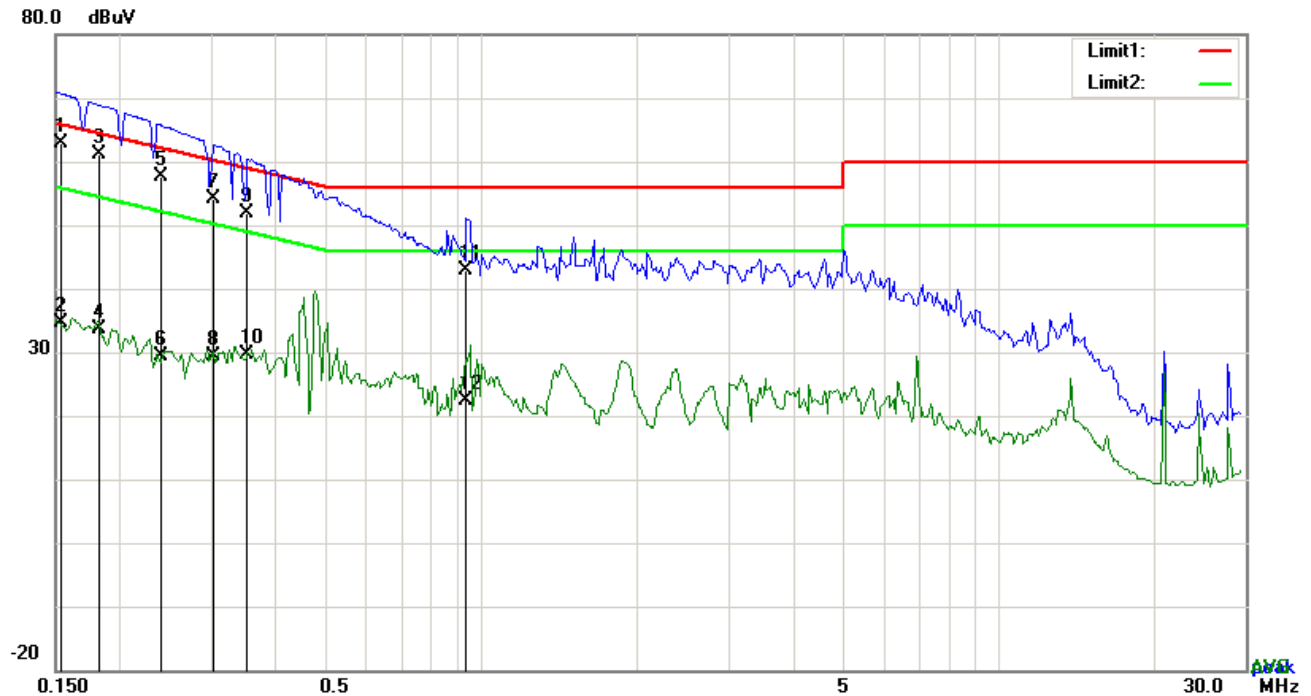


### Test Data

### Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1500	53.00	QP	10.03	63.03	66.00	-2.97
2	L1	0.1500	25.38	AVG	10.03	35.41	56.00	-20.59
3	L1	0.1758	51.41	QP	10.03	61.44	64.68	-3.24
4	L1	0.1758	24.18	AVG	10.03	34.21	54.68	-20.47
5	L1	0.2072	49.46	QP	10.03	59.49	63.32	-3.83
6	L1	0.2072	22.45	AVG	10.03	32.48	53.32	-20.84
7	L1	0.2644	46.09	QP	10.03	56.12	61.29	-5.17
8	L1	0.2644	19.65	AVG	10.03	29.68	51.29	-21.61
9	L1	0.3177	43.40	QP	10.03	53.43	59.77	-6.34
10	L1	0.3177	21.02	AVG	10.03	31.05	49.77	-18.72
11	L1	0.9417	26.41	QP	10.03	36.44	56.00	-19.56
12	L1	0.9417	3.88	AVG	10.03	13.91	46.00	-32.09

**Test Mode:** Normal Working Mode

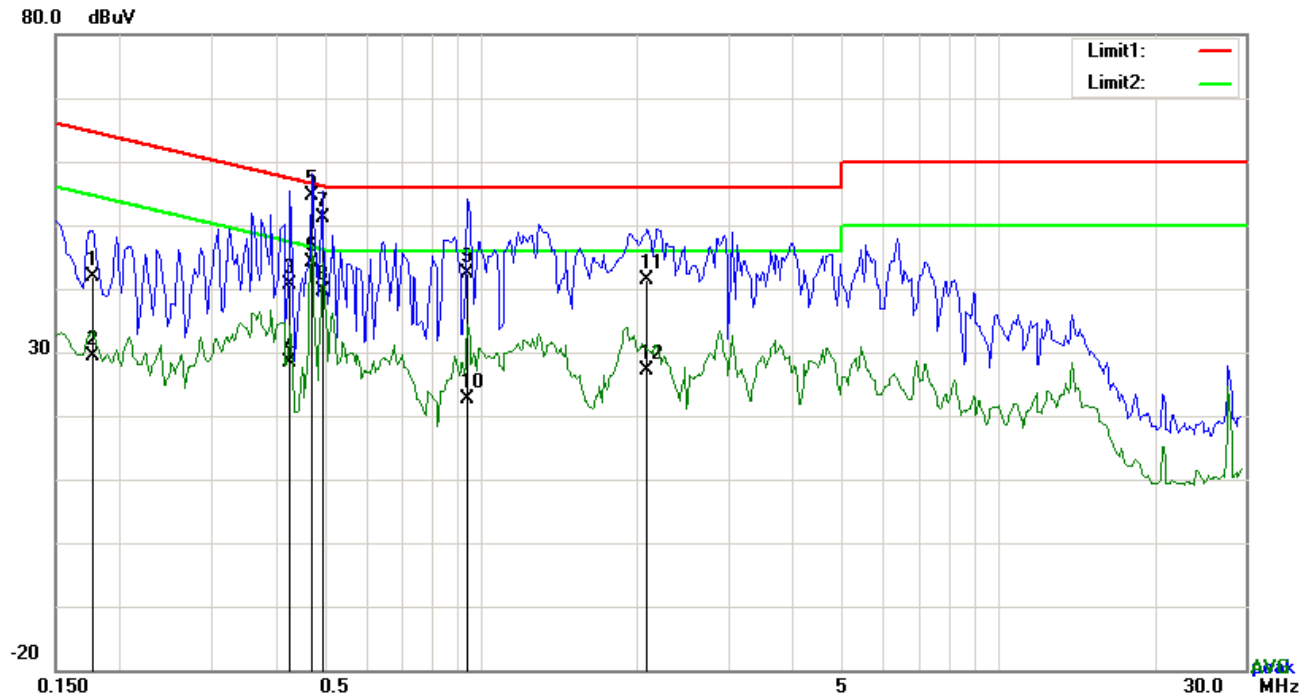


**Test Data**

**Phase Neutral Plot at 120Vac, 60Hz**

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1540	52.85	QP	10.02	62.87	65.78	-2.91
2	N	0.1540	24.61	AVG	10.02	34.63	55.78	-21.15
3	N	0.1825	51.06	QP	10.02	61.08	64.37	-3.29
4	N	0.1825	23.52	AVG	10.02	33.54	54.37	-20.83
5	N	0.2404	47.52	QP	10.02	57.54	62.08	-4.54
6	N	0.2404	19.39	AVG	10.02	29.41	52.08	-22.67
7	N	0.3035	44.12	QP	10.02	54.14	60.15	-6.01
8	N	0.3035	19.34	AVG	10.02	29.36	50.15	-20.79
9	N	0.3528	41.74	QP	10.02	51.76	58.90	-7.14
10	N	0.3528	19.63	AVG	10.02	29.65	48.90	-19.25
11	N	0.9339	32.73	QP	10.03	42.76	56.00	-13.24
12	N	0.9339	12.26	AVG	10.03	22.29	46.00	-23.71

**Test Mode :** Normal Working Mode

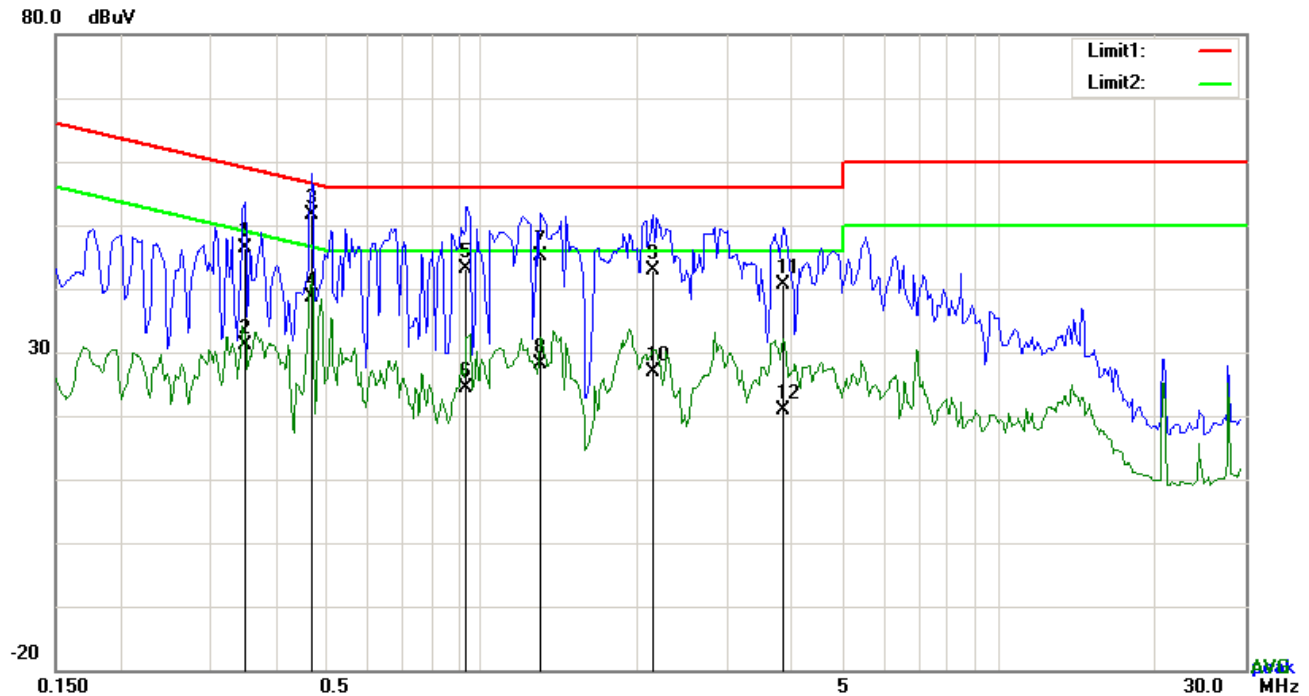


**Test Data**

**Phase Line Plot at 240Vac, 60Hz**

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1773	31.93	QP	10.03	41.96	64.61	-22.65
2	L1	0.1773	19.47	AVG	10.03	29.50	54.61	-25.11
3	L1	0.4269	30.68	QP	10.03	40.71	57.31	-16.60
4	L1	0.4269	18.29	AVG	10.03	28.32	47.31	-18.99
5	L1	0.4698	44.49	QP	10.03	54.52	56.52	-2.00
6	L1	0.4698	33.98	AVG	10.03	44.01	46.52	-2.51
7	L1	0.4932	41.05	QP	10.03	51.08	56.11	-5.03
8	L1	0.4932	29.72	AVG	10.03	39.75	46.11	-6.36
9	L1	0.9417	32.33	QP	10.03	42.36	56.00	-13.64
10	L1	0.9417	12.68	AVG	10.03	22.71	46.00	-23.29
11	L1	2.0961	31.41	QP	10.04	41.45	56.00	-14.55
12	L1	2.0961	17.15	AVG	10.04	27.19	46.00	-18.81

<b>Test Mode :</b>	<b>Normal Working Mode</b>
--------------------	----------------------------



**Test Data**

**Phase Neutral Plot at 240Vac, 60Hz**

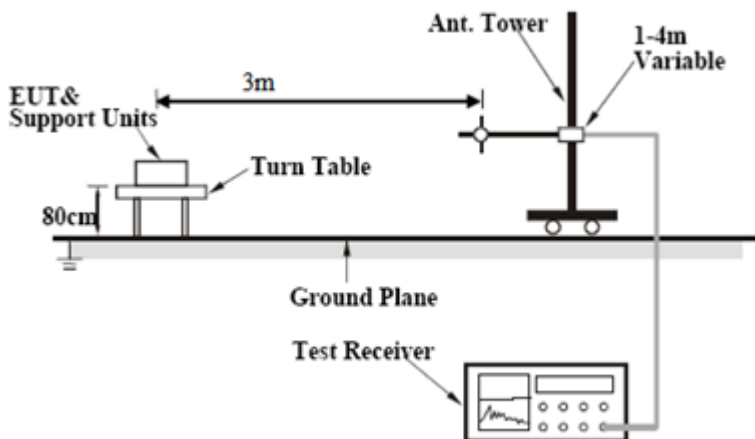
No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.3489	36.35	QP	10.02	46.37	58.99	-12.62
2	N	0.3489	21.07	AVG	10.02	31.09	48.99	-17.90
3	N	0.4698	41.70	QP	10.02	51.72	56.52	-4.80
4	N	0.4698	28.52	AVG	10.02	38.54	46.52	-7.98
5	N	0.9378	32.99	QP	10.03	43.02	56.00	-12.98
6	N	0.9378	14.43	AVG	10.03	24.46	46.00	-21.54
7	N	1.3005	34.99	QP	10.03	45.02	56.00	-10.98
8	N	1.3005	18.02	AVG	10.03	28.05	46.00	-17.95
9	N	2.1468	32.74	QP	10.04	42.78	56.00	-13.22
10	N	2.1468	16.75	AVG	10.04	26.79	46.00	-19.21
11	N	3.8268	30.51	QP	10.06	40.57	56.00	-15.43
12	N	3.8268	10.74	AVG	10.06	20.80	46.00	-25.20

## 6.2 Radiated Emissions

Temperature	26°C
Relative Humidity	55%
Atmospheric Pressure	1010mbar
Test date :	October 09, 2018
Tested By :	Evans He

### Requirement(s):

Spec	Item	Requirement	Applicable	
47CFR§15.109(d)	a)	Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges	<div><input checked="" type="checkbox"/></div>	
		Frequency range (MHz)		Field Strength (µV/m)
		30 – 88		100
		88 – 216		150
		216 - 960		200
		Above 960		500

Test Setup	
------------	--

Procedure	<ol style="list-style-type: none"> <li>The EUT was switched on and allowed to warm up to its normal operating condition.</li> <li>The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: <ol style="list-style-type: none"> <li>Vertical or horizontal polarization (whichever gave the higher emission level</li> </ol> </li> </ol>
-----------	--

	<p>over a full rotation of the EUT) was chosen.</p> <p>b. The EUT was then rotated to the direction that gave the maximum emission.</p> <p>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.</p> <p>3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi Peak detection at frequency below 1GHz.</p> <p>4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak measurement at frequency above 1GHz.</p> <p>The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth with Peak detection for Average Measurement as below at frequency above 1GHz.</p> <p>■ 1 kHz (Duty cycle &lt; 98%) □ 10 Hz (Duty cycle &gt; 98%)</p> <p>5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</p>
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

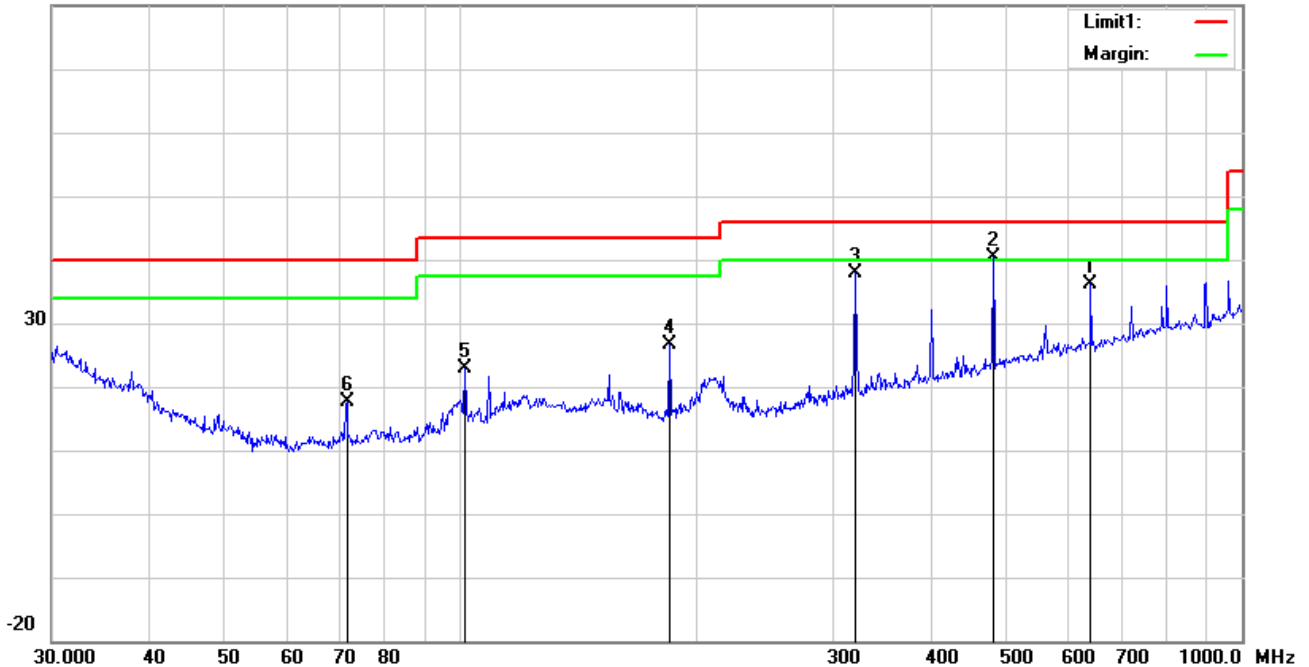
Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

**Test Mode :** Normal Working Mode

**Below 1GHz**

80.0 dBuV/m



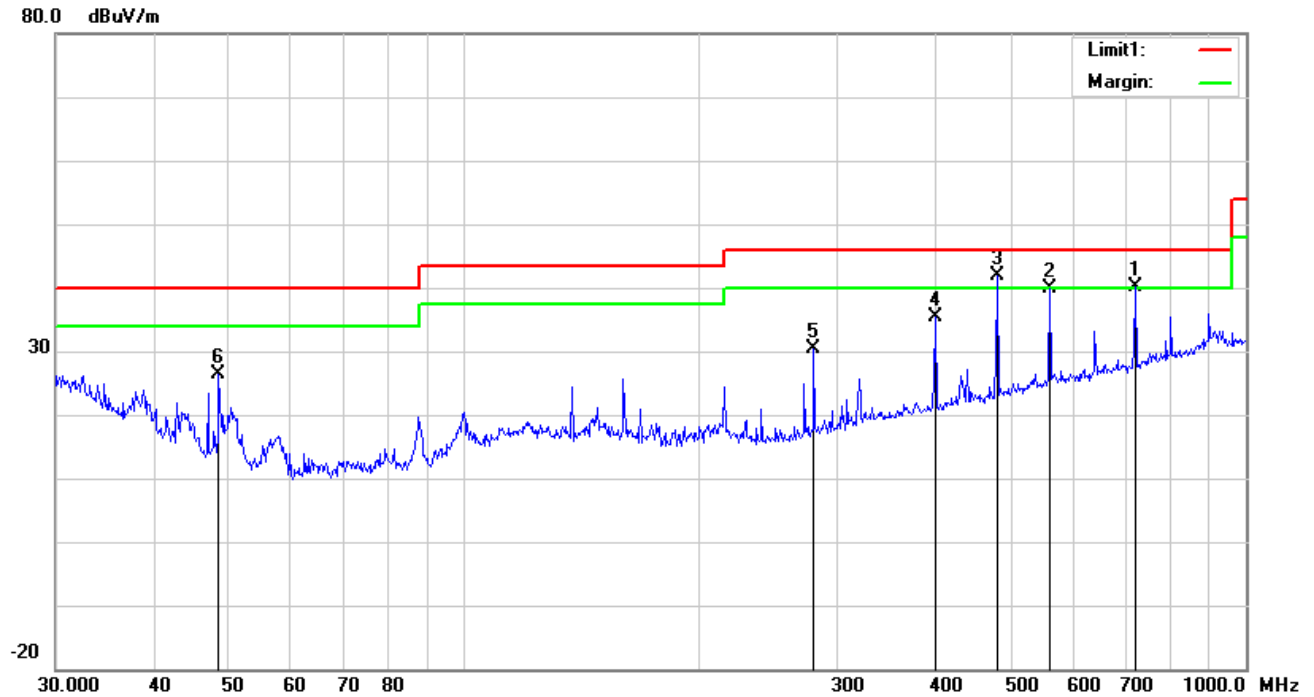
**Test Data**

**Horizontal Polarity Plot @3m**

No.	P/L	Frequency	Reading	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	H	640.6110	35.43	19.55	21.49	2.60	36.09	46.00	-9.91	100	53
2	H	480.5276	42.71	17.31	21.85	2.31	40.48	46.00	-5.52	100	154
3	H	319.9370	44.27	14.02	22.23	1.89	37.95	46.00	-8.05	100	222
4	H	185.1379	36.12	11.28	22.28	1.45	26.57	43.50	-16.93	100	352
5	H	101.2885	33.38	10.63	22.32	1.13	22.82	43.50	-20.68	100	343
6	H	71.5806	31.30	7.77	22.39	0.97	17.65	40.00	-22.35	100	245



## Below 1GHz



## Test Data

### Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	V	721.7259	38.32	20.46	21.31	2.68	40.15	46.00	-5.85	100	285
2	V	560.6928	40.56	18.55	21.67	2.48	39.92	46.00	-6.08	200	22
3	V	480.5276	44.04	17.31	21.85	2.31	41.81	46.00	-4.19	100	277
4	V	400.4319	39.75	15.71	22.01	2.01	35.46	46.00	-10.54	100	325
5	V	280.0238	38.10	12.72	22.29	1.75	30.28	46.00	-15.72	100	194
6	V	48.5016	38.80	9.06	22.35	0.79	26.30	40.00	-13.70	100	132

### *Above 1GHz*

Frequency (MHz)	Read_level (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Level (dBμV/m)	Factors (dB)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
2017.58	67.22	1	100	V	-14.42	48.43	74	-25.57	PK
1261.57	69.97	48	100	V	-19.27	48.16	74	-25.84	PK
2609.37	65.54	160	100	V	-13.83	46.73	74	-27.27	PK
3601.71	64.49	10	100	H	-11.42	46.1	74	-27.9	PK
2803.3	63.13	190	100	H	-13.1	48.48	74	-25.52	PK
4082.53	61.44	343	100	H	-10.37	47.1	74	-26.9	PK

*Note1: The highest frequency of the EUT is 2462MHz, so the testing has been conformed to 5\*2462MHz  
=12,310MHz.*

*Note2: The frequency that above 3GHz is mainly from the environment noise.*

*Note3: The AV measurement performed, more than 20dB below limit so AV test data was not presented.*

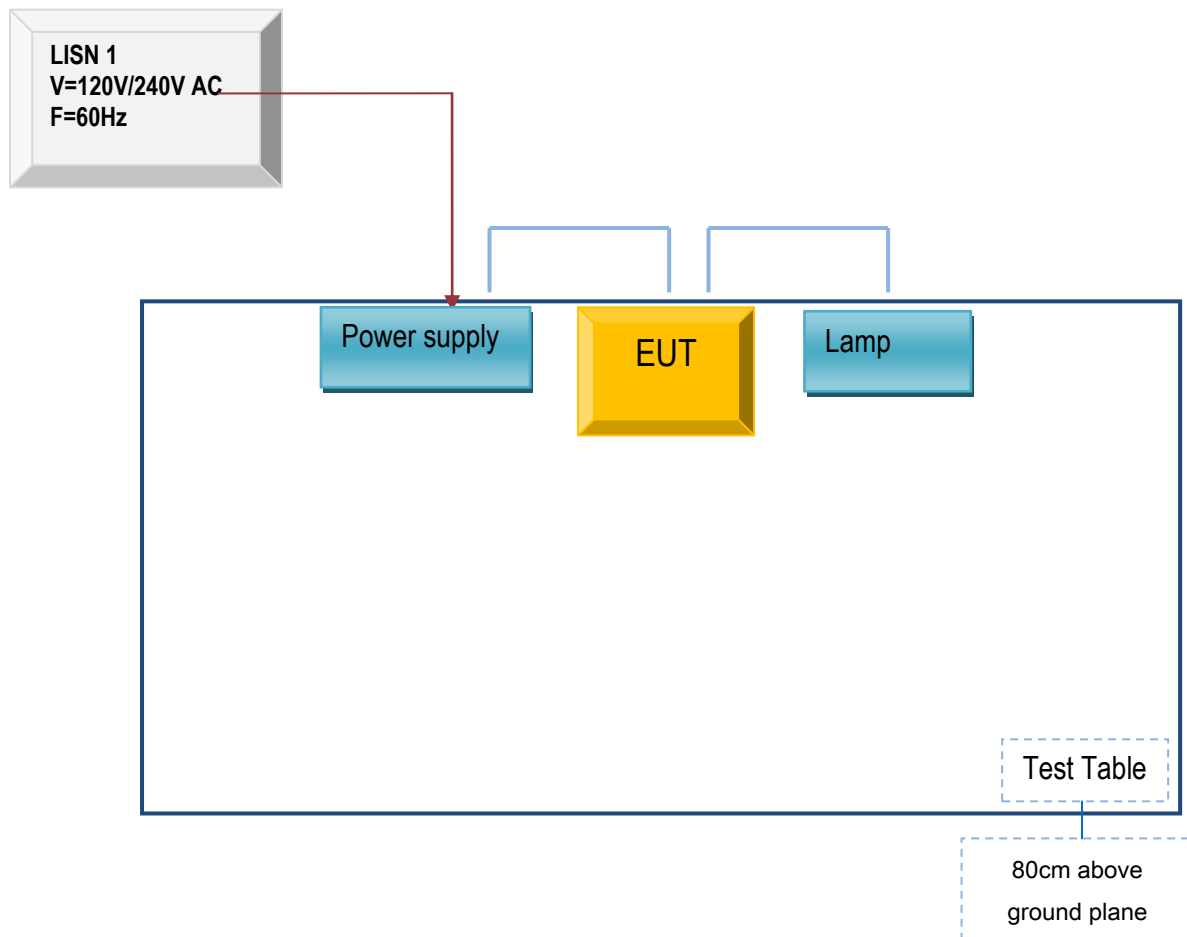
## Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due
<b>AC Line Conducted Emissions</b>				
EMI test receiver	ESCS30	8471241027	01/05/2018	01/04/2019
Artificial Mains Network	8127	8127713	01/05/2018	01/04/2019
ISN	ISN T800	34373	01/05/2018	01/04/2019
<b>Radiated Emissions</b>				
EMI test receiver	ESL6	1300.5001K06-100262-eQ	01/05/2018	01/04/2019
Active Antenna	AL-130	121031	02/08/2018	02/07/2019
3m Semi-anechoic Chamber	9m*6m*6m	N/A	10/18/2018	10/17/2019
Signal Amplifier	8447E	443008	01/25/2018	01/24/2019
MXA signal analyzer	N9020A	MY49100060	01/05/2018	01/04/2019
Horn Antenna	HAH-118	71259	01/26/2018	01/25/2019
Horn Antenna	HAH-118	71283	02/02/2018	02/01/2019
AMPLIFIER	EM01G26G	60613	01/25/2018	01/24/2019
AMPLIFIER	Emc012645	980077	01/05/2018	01/04/2019
Bilog Antenna (30MHz~6GHz)	JB6	A110712	02/08/2018	02/07/2019

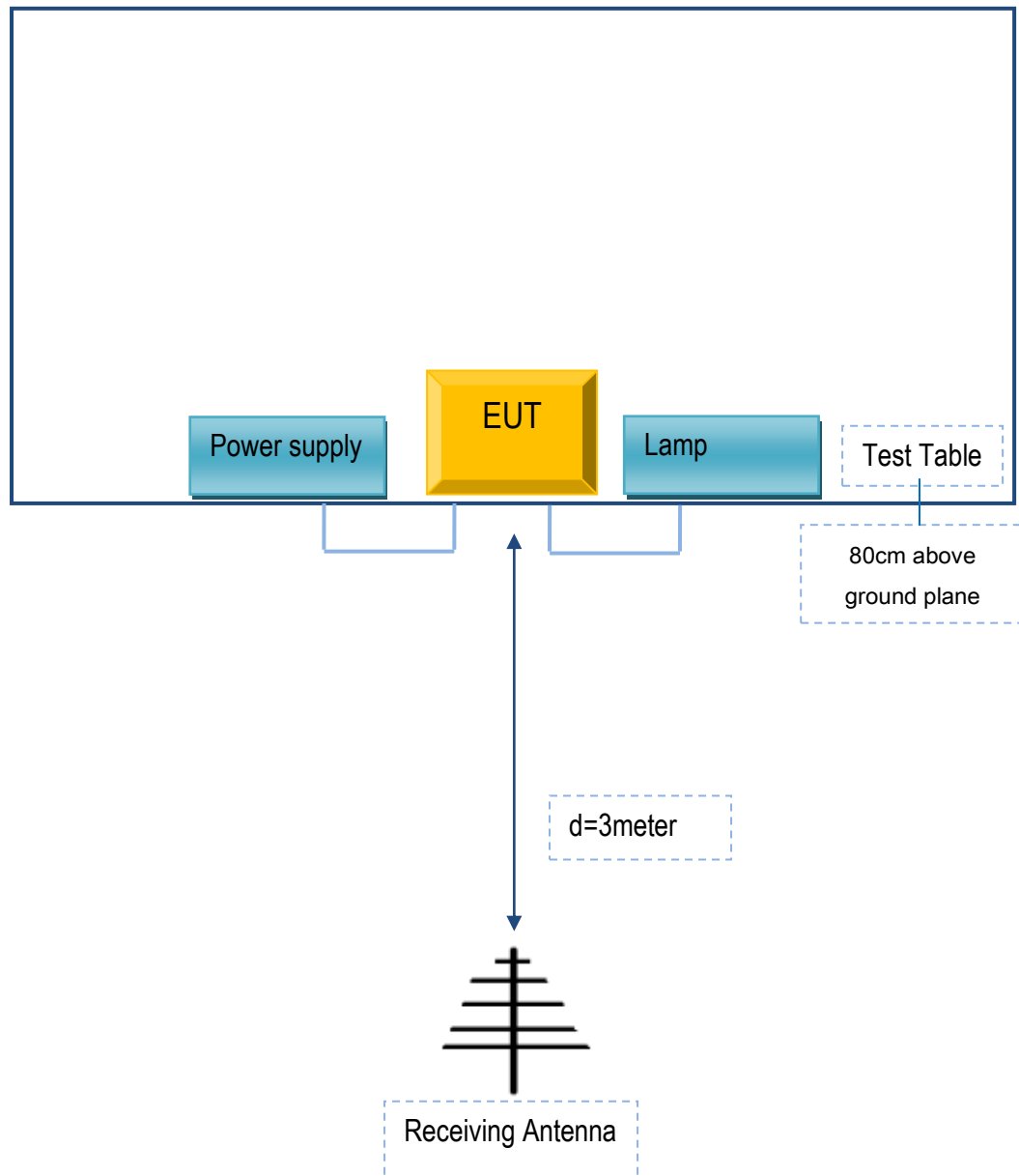
## Annex B. TEST SETUP AND SUPPORTING EQUIPMENT

### Annex B.i. TEST SET UP BLOCK

#### Block Configuration Diagram for AC Line Conducted Emissions



## Block Configuration Diagram for Radiated Emissions



## **Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION**

The following is a description of supporting equipment and details of cables used with the EUT.

### **Supporting Equipment:**

Manufacturer	Equipment Description	Model	Serial No
N/A	Power supply	N/A	N/A
N/A	Lamp	N/A	N/A

### **Supporting Cable:**

Cable type	Shield Type	Ferrite Core	Length	Serial No
Power Cables	Un-shielding	No	0.5m	N/A

## Annex C. User Manual / Block Diagram / Schematics / Partlist

Please see the attachment

## Annex D. DECLARATION OF SIMILARITY

N/A