

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT**

OF

Wireless Guitar Controller

Model No.: 0000654

Trade Mark: Activision

FCC ID: XLU0000654

Report No.: KAD150520082E

Issue Date: July 02, 2015

Prepared for

**Activision Publishing, Inc.
3100 Ocean Park Blvd., Santa Monica, CA90405, USA**

Prepared by

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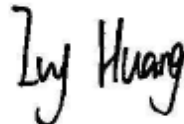
VERIFICATION OF COMPLIANCE


Applicant:	Activision Publishing, Inc. 3100 Ocean Park Blvd., Santa Monica, CA90405, USA
Manufacturer:	Fooway Electronics Plastics Metals Factory Bubugao Road, Jiangbei, Wusha, Changan Town, Dongguan City, Guangdong Province, China
Product Description:	Wireless Guitar Controller
Trade Mark:	Activision
Model Number:	0000654


We hereby certify that:

The above equipment was tested by DONGGUAN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10-2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.249(2014).

Date of Test : May 20, 2015 to July 01, 2015

Prepared by : 
Ivy Huang/Editor

Reviewer : 
Hong Yang/Supervisor

Approved & Authorized Signer : 
Sam Lv/Manager

Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	KAD150520082E

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Appendix I (Photos of EUT) (8 pages)

1. General Information

1.1 Product Description

Characteristics	Description
Product Name	Wireless Guitar Controller
Model number	0000654
Power Supply	DC 2*1.5V Battery
Modulation	GFSK
Operating Frequency Range	2402-2479MHz
Number of Channels	70
Antenna Type	Internal PCB antenna
Antenna Gain	2.89 dBi
Product Hardware version	V02
Product Software version	V1.27

1.2 Test Facility

Site Description

EMC Lab. : Registered on FCC, June 18, 2014
The Certificate Number is 247565

Registered on Industry Canada, February 19, 2014
The Certificate Number is 9444A.

Name of Firm : DONGGUAN EMTEK CO., LTD.

Site Location : No.281, Guantai Road, Nancheng District,
Dongguan, Guangdong, China

2. Test Configuration

EUT

Table 2-1 Equipment Used in Tested System

Item	Equipment	Trade Mark	Model No.	FCC ID	Note
1.	Wireless Guitar Controller	Activision	0000654	XLU0000654	<i>EUT</i>

Note:

- (1) Unless otherwise denoted as EUT in 『Remark』 column , device(s) used in tested system is a support equipment.

3. Summary of Test Results

FCC Rules	Description Of Test	Result
§15.207	AC Power Conducted Emission	N/A
2.1049	20dB Bandwidth	Complies
§15.249/15.205	Band Edge	Complies
§15.249(a)	Field Strength of Fundamental Emissions	Complies
§15.249(a)(d)	Radiated Spurious Emissions	Complies
§15.203	Antenna Requirements	Complies

Note: Due to this EUT is powered by batteries only, AC Power Conducted Emission is not applicable.

4. Description of test modes

The EUT is used as a receiver together with dongles, but it still has the function of transmitting. More detailed feature description, please refer to the operation description or Users Manual.

For Radiated: The EUT's antenna was pre-tested under the following modes:

Test Mode	Description
Mode A	X-Y axis
Mode B	Y-Z axis
Mode C	X-Z axis

From the above modes, the worst case was found in Mode B. Therefore only the test data of the mode was recorded in this report.

Channel List:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
CH0	2402	CH20	2426	CH40	2446	CH60	2466
CH1	2407	CH21	2427	CH41	2447	CH61	2467
CH2	2408	CH22	2428	CH42	2448	CH62	2468
CH3	2409	CH23	2429	CH43	2449	CH63	2469
CH4	2410	CH24	2430	CH44	2450	CH64	2470
CH5	2411	CH25	2431	CH45	2451	CH65	2471
CH6	2412	CH26	2432	CH46	2452	CH66	2472
CH7	2413	CH27	2433	CH47	2453	CH67	2473
CH8	2414	CH28	2434	CH48	2454	CH68	2474
CH9	2415	CH29	2435	CH49	2455	CH69	2479
CH10	2416	CH30	2436	CH50	2456		
CH11	2417	CH31	2437	CH51	2457		
CH12	2418	CH32	2438	CH52	2458		
CH13	2419	CH33	2439	CH53	2459		
CH14	2420	CH34	2440	CH54	2460		
CH15	2421	CH35	2441	CH55	2461		
CH16	2422	CH36	2442	CH56	2462		
CH17	2423	CH37	2443	CH57	2463		
CH18	2424	CH38	2444	CH58	2464		
CH19	2425	CH39	2445	CH59	2465		

The 3 channels of lower, medium and higher were chosen for test.

Channel	Frequency(MHz)
0	2402
34	2440
69	2479

5. TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-5}$
Maximum Peak Output Power Test	$\pm 1.0\text{dB}$
Conducted Emissions Test	$\pm 2.0\text{dB}$
Radiated Emission Test	$\pm 2.0\text{dB}$
Power Density	$\pm 2.0\text{dB}$
Occupied Bandwidth Test	$\pm 1.0\text{dB}$
Band Edge Test	$\pm 3\text{dB}$
All emission, radiated	$\pm 3\text{dB}$
Antenna Port Emission	$\pm 3\text{dB}$
Temperature	$\pm 0.5^{\circ}\text{C}$
Humidity	$\pm 3\%$

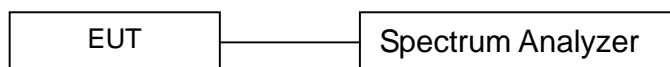
Remark: The coverage Factor ($k=2$), and measurement Uncertainty for a level of Confidence of 95%.

6. 20dB Bandwidth test

6.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

6.2 Test SET-UP (Block Diagram of Configuration)



6.3 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	Characteristics	LAST CAL.	CAL DUE.
Spectrum Analyzer	Rohde & Schwarz	FSV30	1321.3008K	10Hz-30GHz	03/15/2015	03/14/2016
Coaxial Cable	CDS	79254	46107086	10Hz-30GHz	03/15/2015	03/14/2016
Antenna Connector	ARTHUR-YANG	2244-N1TG1	N/A	10Hz-30GHz	03/15/2015	03/14/2016

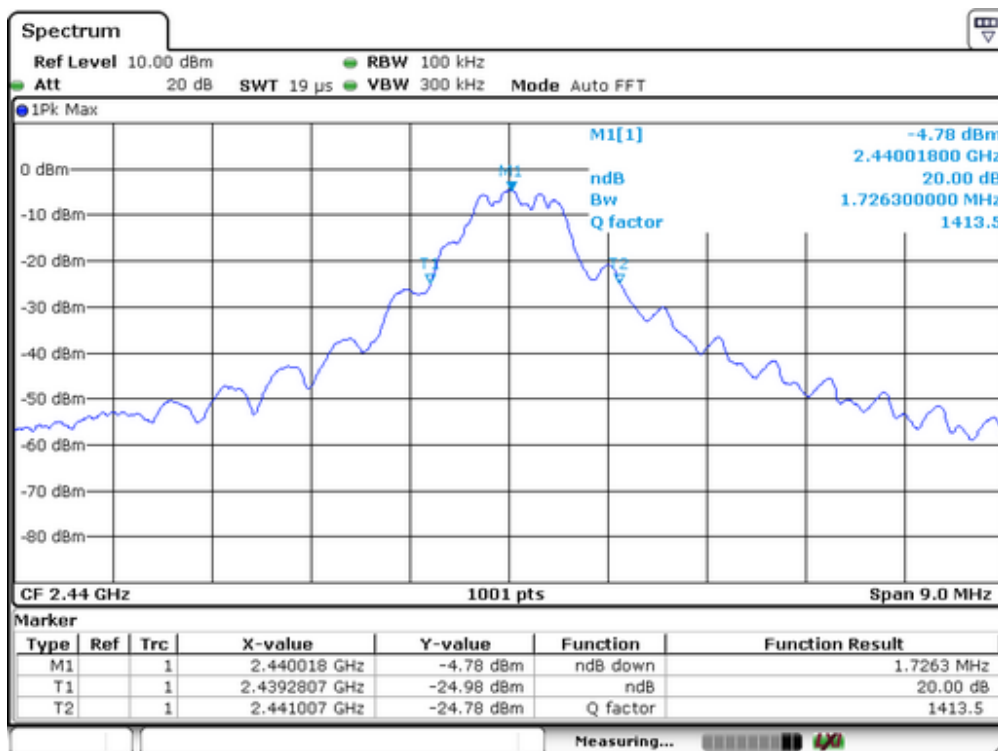
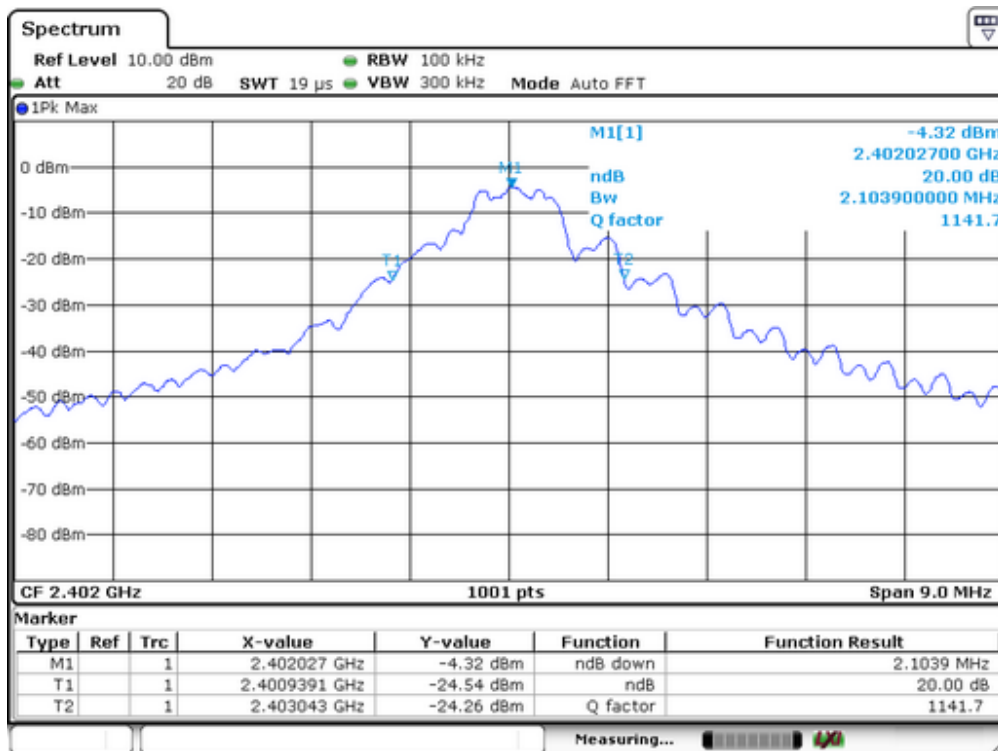
Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.
The cable loss is 0.4dBm, and impedance is 50 Ω for the antenna connector.

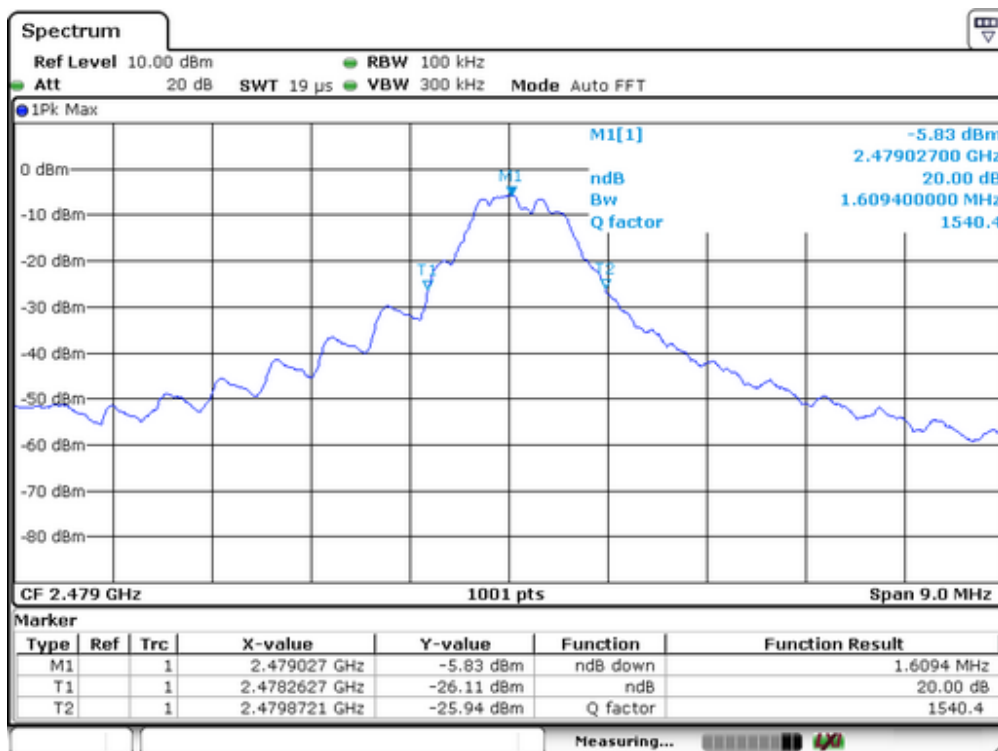
6.4 Measurement Results:

Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	May 30, 2015
Test By:	Andy	Temperature :	24°C
Test Result:	PASS	Humidity :	53 %
Modulation:	GFSK		

Channel number	Channel frequency (MHz)	20dB Down BW(kHz)
0	2402	2104
34	2440	1726
69	2479	1609





7. Band EDGE test

7.1 Measurement Procedure

The EUT was placed on a styrofoam table which is 1.5m above ground plane.

The measurement procedure at the band edges was simplified by performing the measurement in just one plot. Both, the in-band-emission and the unwanted emission were encompassed by the span. After trace stabilization, the maximum peak was determined by a peak detector and the value was marked by an appropriate limit line. The second limit line, which is 20dB below the first, marks the limit for the emissions in the unrestricted band. A maximum-peak-detector marks the highest emission in the unrestricted band next to the band edge.

The measurements were performed at the lower end of the 2.4GHz band. Use the following spectrum analyzer settings:

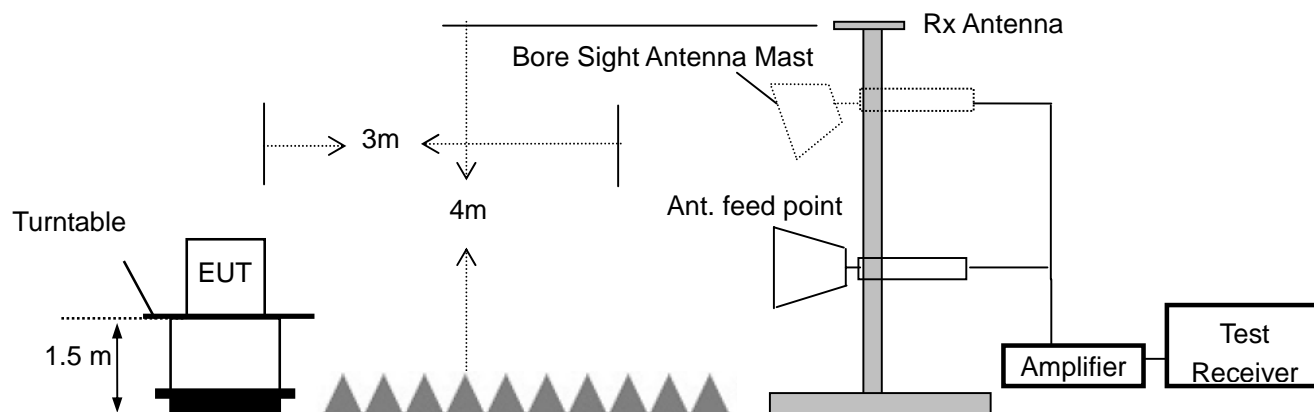
When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz:

EMI Test Receiver	Setting
Attenuation	Auto
RB	1MHz
VB	3MHz
Detector	Peak
Trace	Max hold

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 10Hz:

EMI Test Receiver	Setting
Attenuation	Auto
RB	1MHz
VB	10Hz
Detector	Peak
Trace	Max hold

7.2 Test SET-UP (Block Diagram of Configuration)



7.3 Measurement Equipment Used:

Item	Equipment	Manufacturer	Model No.	Serial No.	Characteristics	Last Cal.	Cal. Interval
1	Signal Analyzer	Rohde & Schwarz	FSV30	103040	9KHz-40GHz	12/29/2014	1 Year
2	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1272	1GHz-18GHz	12/29/2014	1 Year
3	Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	1GHz-26.5GHz	12/29/2014	1 Year
4	Cable	H+S	CBL-26	N/A	1GHz-26.5GHz	12/29/2014	1 Year
5	Cable	H+S	CBL-26	N/A	1GHz-26.5GHz	12/29/2014	1 Year
6	Cable	H+S	CBL-26	N/A	1GHz-26.5GHz	12/29/2014	1 Year

7.4 Measurement Results:

Spectrum Detector: PK Test Date : May 30, 2015
 Test By: Andy Temperature : 25 °C
 Test Result: PASS Humidity : 50 %

Frequency (MHz)	Antenna polarization (H/V)	Emission (dBuV/m)		Band edge Limit (dBuV/m)		Margin (dB)	
		PK	AV	PK	AV	PK	AV
2399.05	H	63.18	45.15	74	54	-10.82	-8.85
2397.86	V	59.37	38.06	74	54	-14.63	-15.94
2483.69	H	64.23	44.07	74	54	-9.77	-9.93
2484.01	V	58.79	39.17	74	54	-15.21	-14.83

8. Radiated Emission Test

8.1 Measurement Procedure

1. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.
6. Test Procedure of measurement (For Above 1GHz):
 - 1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).
 - 2) Change the antenna polarization and repeat 1) with vertical polarization.
 - 3) Make a hardcopy of the spectrum.
 - 4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
 - 5) Change the analyser mode to Clear/ Write and found the cone of emission.
 - 6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.
 - 7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.
 - 8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.

The following table is the setting of spectrum analyzer:

When spectrum scanned from 30MHz to 1GHz setting resolution bandwidth 120KHz and video bandwidth 300KHz:

EMI Test Receiver	Setting
Attenuation	Auto
RB	120KHz
VB	300KHz
Detector	QP
Trace	Max hold

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz:

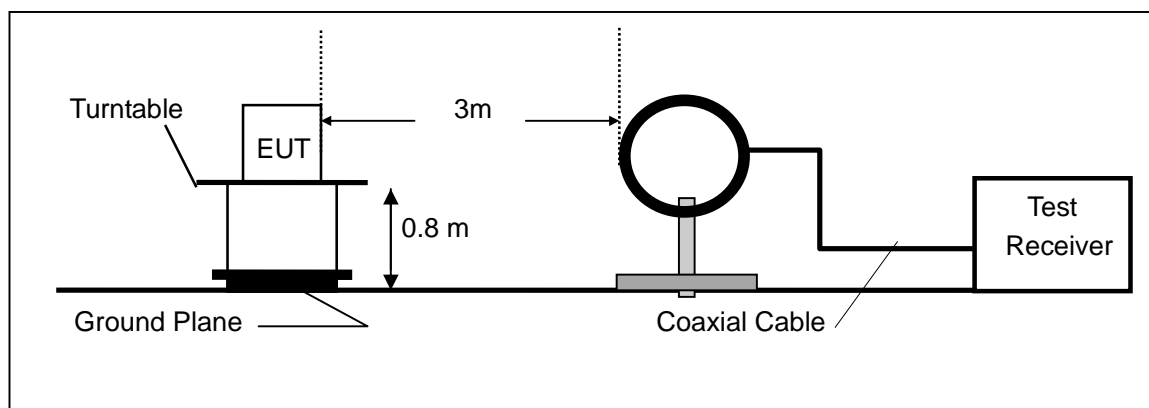
EMI Test Receiver	Setting
Attenuation	Auto
RB	1MHz
VB	3MHz
Detector	Peak
Trace	Max hold

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 10Hz:

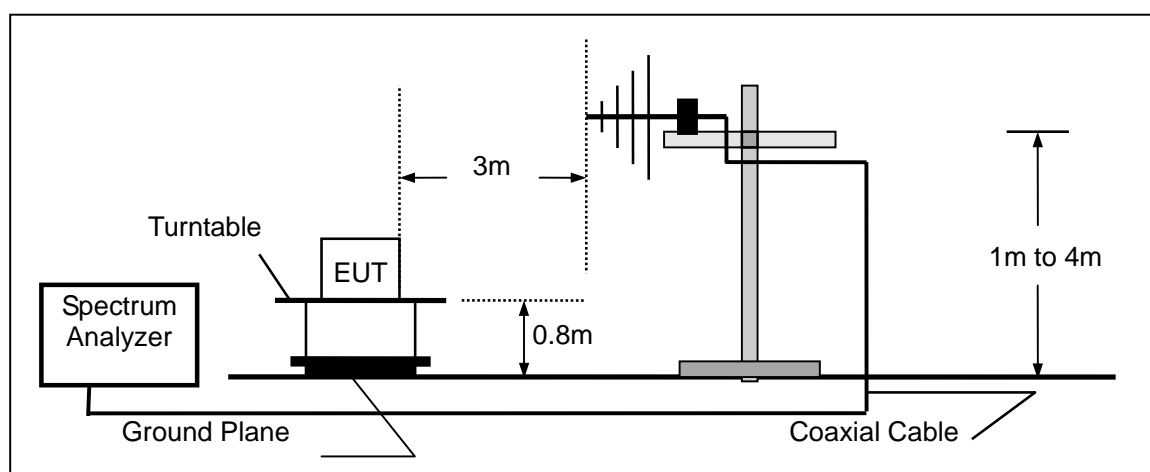
EMI Test Receiver	Setting
Attenuation	Auto
RB	1MHz
VB	10Hz
Detector	Peak
Trace	Max hold

8.2 Test SET-UP (Block Diagram of Configuration)

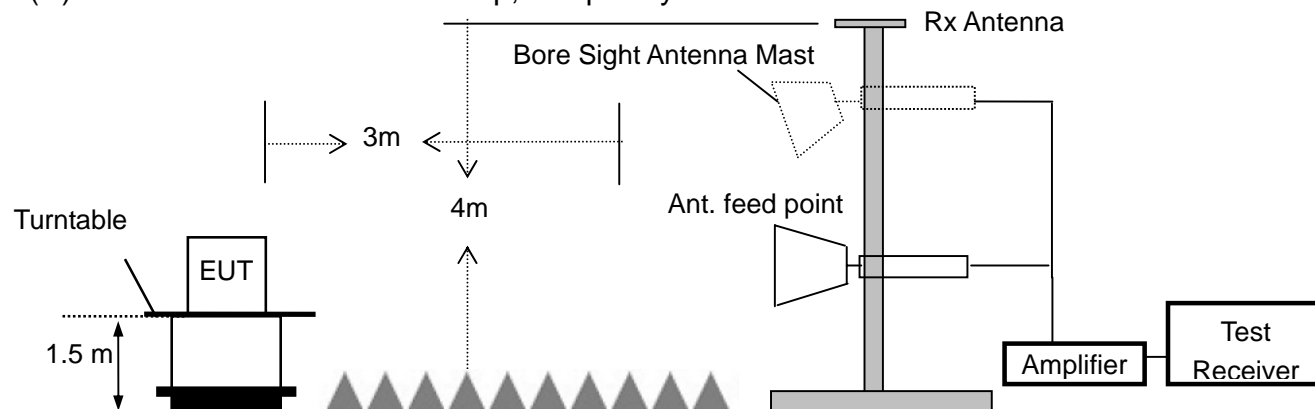
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



8.3 Measurement Equipment Used:

Item	Equipment	Manufacturer	Model No.	Serial No.	Characteristics	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	1166.5950.03	9KHz-3GHz	3/15/2015	1 Year
2.	Loop Antenna	Schwarzbeck	FMZB 1519	012	9 KHz -30MHz	12/29/2014	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	000141	25MHz-2GHz	3/15/2015	1 Year
4.	Power Amplifier	CDS	RSU-M352	818	1MHz-1GHz	3/15/2015	1 Year
5.	Power Amplifier	HP	8447F	OPT H64	1GHz-26.5GHz	3/15/2015	1 Year
6.	Color Monitor	SUNSPO	SP-140A	N/A	--	3/15/2015	1 Year
7.	Single Line Filter	JIANLI	XL-3	N/A	--	3/15/2015	1 Year
8.	Single Phase Power Line Filter	JIANLI	DL-2X100B	N/A	--	3/15/2015	1 Year
9.	3 Phase Power Line Filter	JIANLI	DL-4X100B	N/A	--	3/15/2015	1 Year
10.	DC Power Filter	JIANLI	DL-2X50B	N/A	--	3/15/2015	1 Year
11.	Cable	Schwarzbeck	PLF-100	549489	9KHz-3GHz	3/15/2015	1 Year
12.	Cable	Rosenberger	CIL02	A0783566	9KHz-3GHz	3/15/2015	1 Year
13.	Cable	Rosenberger	RG 233/U	525178	9KHz-3GHz	3/15/2015	1 Year
14.	Signal Analyzer	Rohde & Schwarz	FSV30	103040	9KHz-40GHz	12/29/2014	1 Year
15.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1272	1GHz-18GHz	12/29/2014	1 Year
16.	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	14GHz -26.5GHz	12/29/2014	1 Year
17.	Boresight Antenna Tower	EMEC	AM-BS-4500-D	N/A	N/A	12/29/2014	1 Year
18.	Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	1GHz-26.5GHz	12/29/2014	1 Year
19.	Cable	H+S	CBL-26	N/A	1GHz-26.5GHz	12/29/2014	1 Year
20.	Cable	H+S	CBL-26	N/A	1GHz-26.5GHz	12/29/2014	1 Year
21.	Cable	H+S	CBL-26	N/A	1GHz-26.5GHz	12/29/2014	1 Year

8.4 Limit:

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Remark: 1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency(MHz)	Filed Strength of Fundamental(at 3m)		Filed Strength of Harmonics(at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
902-928	114	94	74.0	54.0
2400-2483.5	114	94	74.0	54.0
5725-5875	114	94	74.0	54.0
24000-24250	128	108	88.0	68.0

8.5 Measurement Result

Below 30MHz:

Operation Mode:	TX	Test Date :	May 30, 2015
Frequency Range:	9KHz~30MHz	Temperature :	28℃
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	Andy

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	--

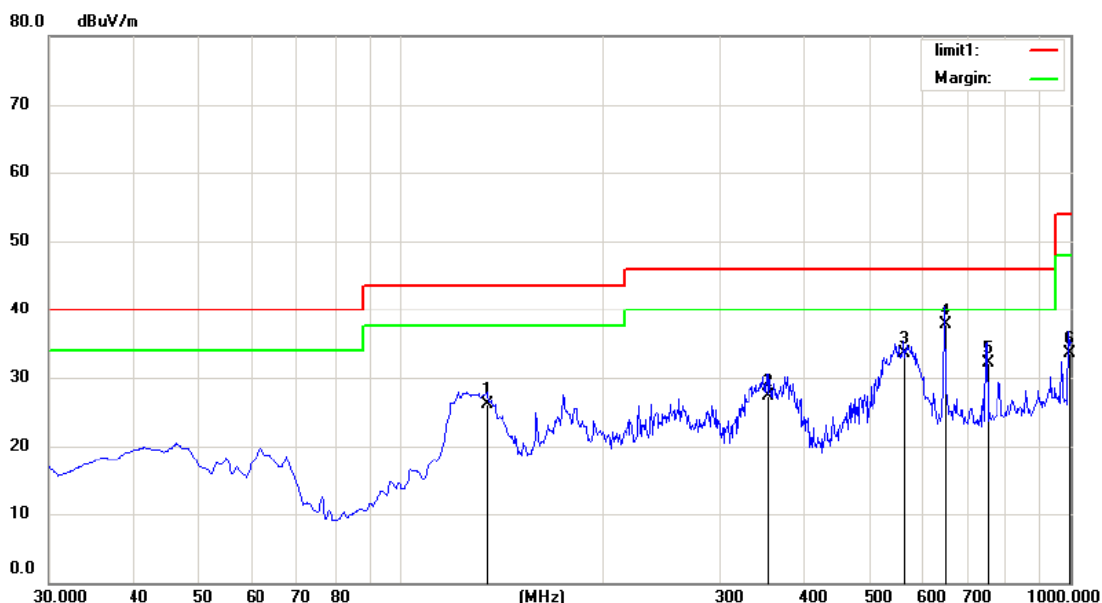
Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Below 1000MHz:

Pass.

All the modulation modes were tested the data of the mode are recorded in the following pages and the others modulation methods do not exceed the limits.

Please refer to the following data.



Site Chamber #1

Polarization: **Horizontal**

Temperature: 24

Limit: (RE)FCC PART 15 class B 3m

Power: Battery2*1.5V

Humidity: 55 %

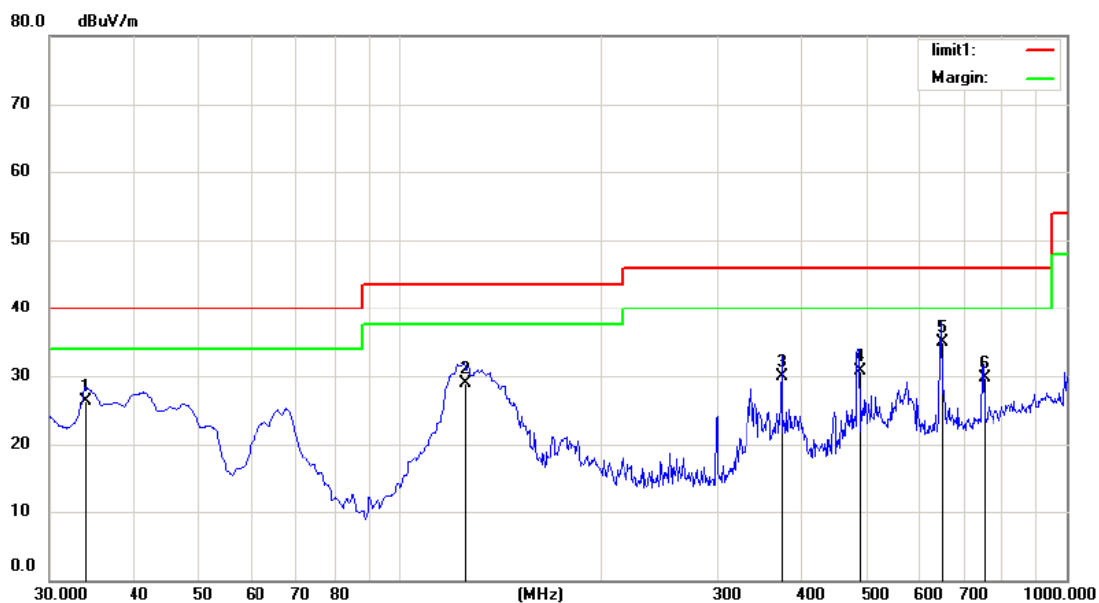
Mode: TX 2402

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		134.7600	42.64	-16.49	26.15	43.50	-17.35	QP		
2		353.0100	40.21	-12.87	27.34	46.00	-18.66	QP		
3		565.4400	42.32	-8.82	33.50	46.00	-12.50	QP		
4	*	649.8300	45.68	-7.93	37.75	46.00	-8.25	QP		
5		750.7100	37.89	-5.75	32.14	46.00	-13.86	QP		
6		996.1200	36.54	-3.12	33.42	54.00	-20.58	QP		

*:Maximum data x:Over limit !:over margin

Operator: Snake



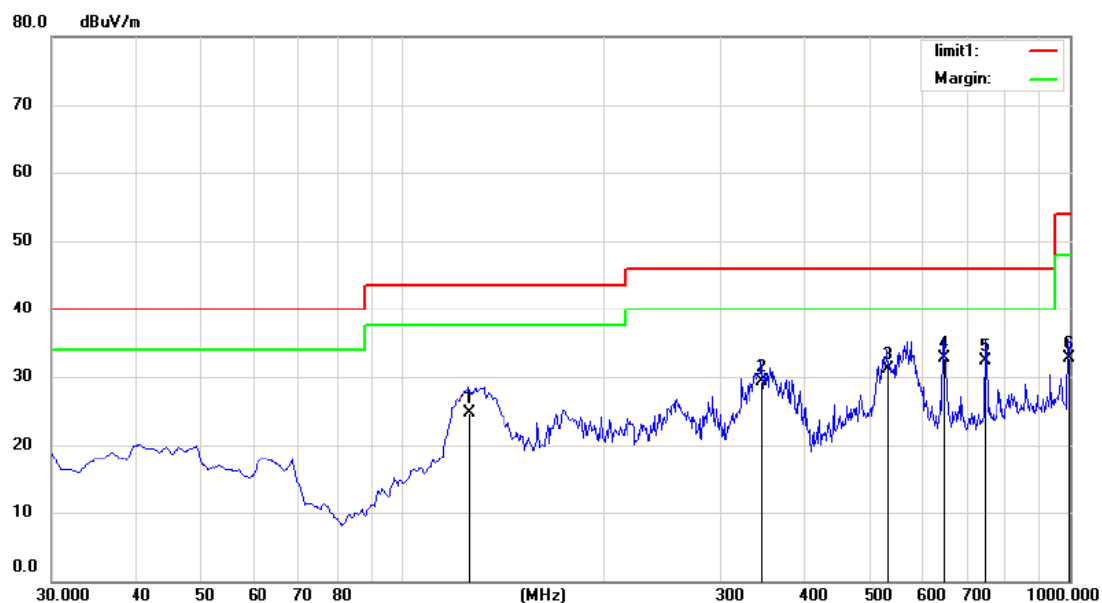
Site: Chamber #1
 Limit: (RE)FCC PART 15 class B 3m
 Mode: TX 2402
 Note:

Polarization: **Vertical**
 Power: Battery2*1.5V
 Temperature: 24
 Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		33.8800	40.65	-14.31	26.34	40.00	-13.66	QP		
2		125.0600	45.34	-16.40	28.94	43.50	-14.56	QP		
3		375.3200	42.13	-12.27	29.86	46.00	-16.14	QP		
4		487.8400	41.27	-10.47	30.80	46.00	-15.20	QP		
5	*	649.8300	42.91	-7.98	34.93	46.00	-11.07	QP		
6		750.7100	35.76	-6.00	29.76	46.00	-16.24	QP		

*:Maximum data x:Over limit !:over margin

Operator: Snake



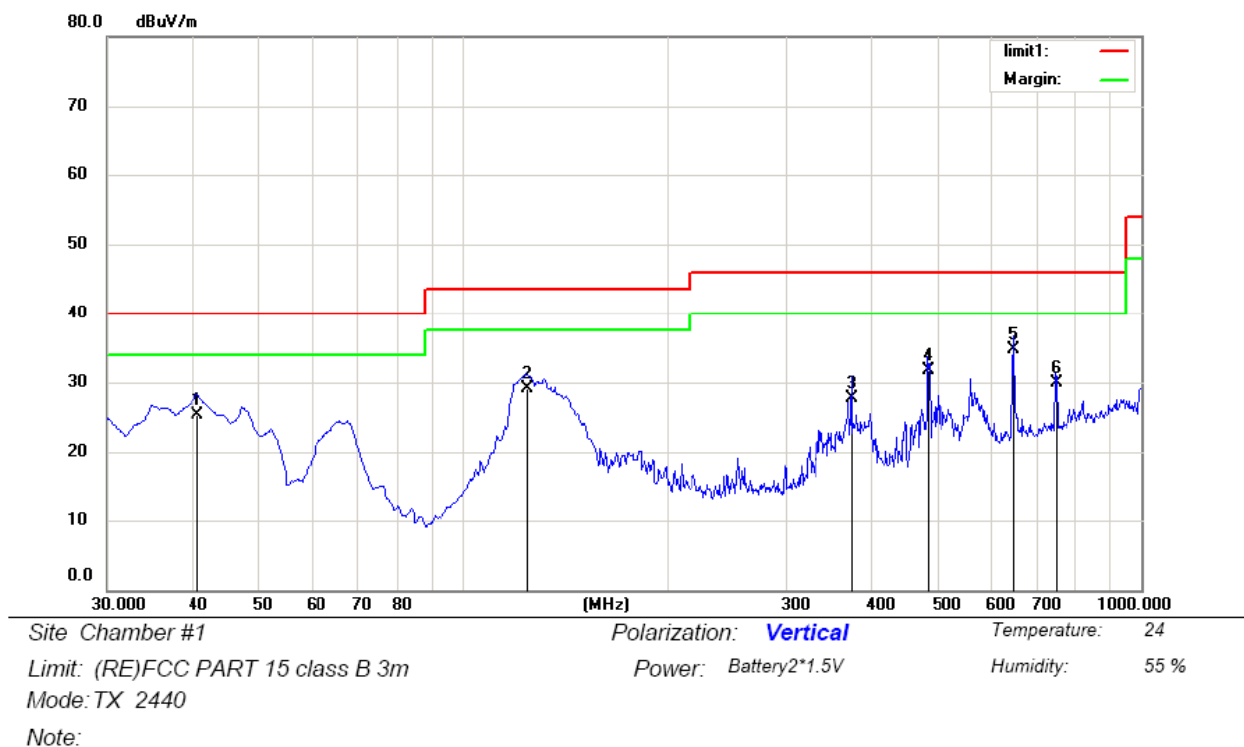
Site Chamber #1
 Limit: (RE)FCC PART 15 class B 3m
 Mode: TX 2440
 Note:

Polarization: **Horizontal**
 Power: Battery2*1.5V
 Temperature: 24
 Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		126.0300	41.09	-16.37	24.72	43.50	-18.78	QP		
2		346.2200	42.34	-13.03	29.31	46.00	-16.69	QP		
3		535.3700	40.53	-9.47	31.06	46.00	-14.94	QP		
4	*	646.9200	40.71	-7.97	32.74	46.00	-13.26	QP		
5		746.8300	38.22	-5.84	32.38	46.00	-13.62	QP		
6		996.1200	35.81	-3.12	32.69	54.00	-21.31	QP		

*:Maximum data x:Over limit !:over margin

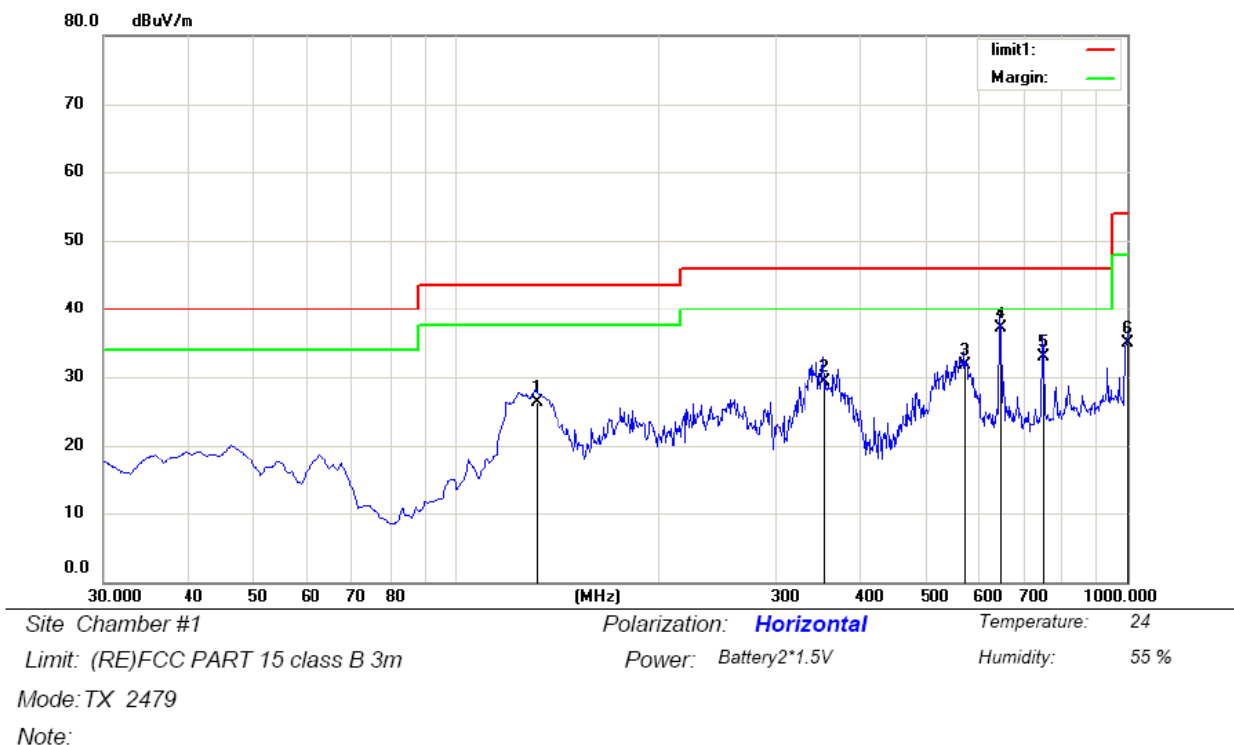
Operator: Snake



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		40.6700	38.90	-13.64	25.26	40.00	-14.74	QP		
2		124.1330	45.63	-16.50	29.13	43.50	-14.37	QP		
3		375.3200	40.01	-12.27	27.74	46.00	-18.26	QP		
4		484.9300	42.12	-10.49	31.63	46.00	-14.37	QP		
5	*	648.8600	42.63	-7.99	34.64	46.00	-11.36	QP		
6		749.7400	35.84	-6.00	29.84	46.00	-16.16	QP		

*:Maximum data x:Over limit !:over margin

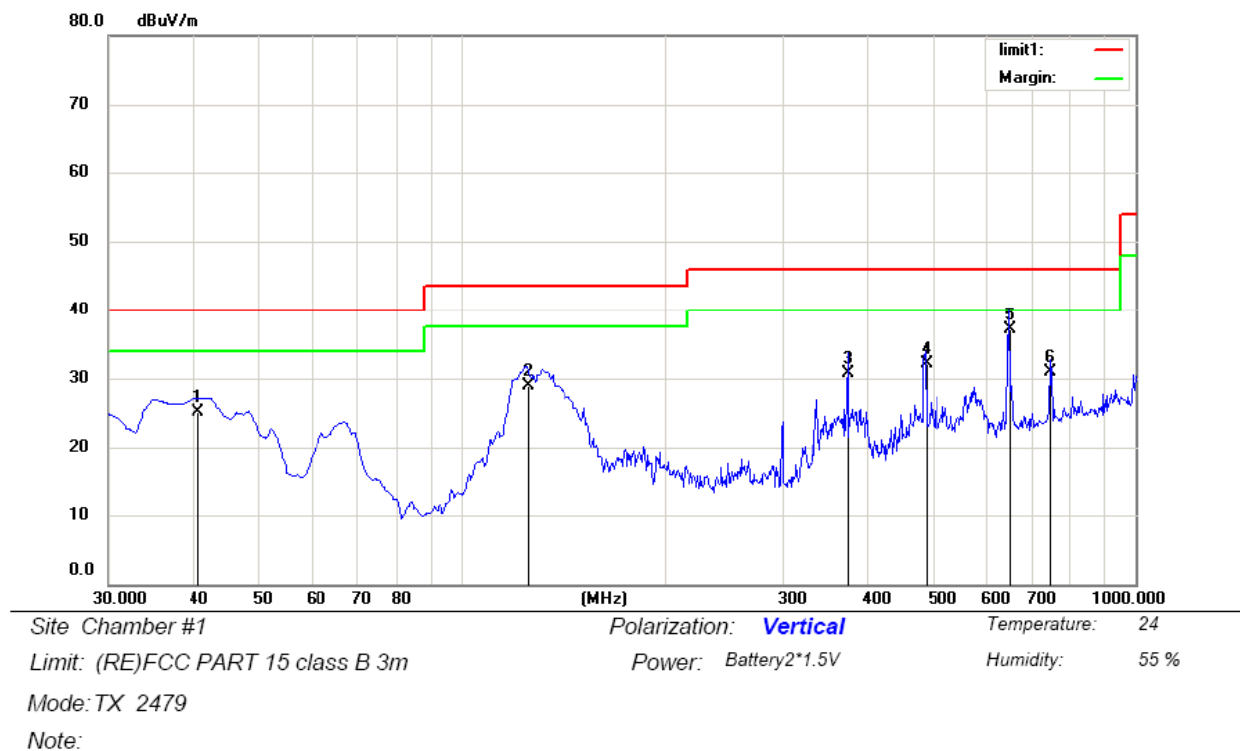
Operator: Snake



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		131.8500	42.67	-16.34	26.33	43.50	-17.17	QP		
2		353.9800	42.21	-12.85	29.36	46.00	-16.64	QP		
3		574.1700	40.37	-8.73	31.64	46.00	-14.36	QP		
4	*	646.9200	44.98	-7.97	37.01	46.00	-8.99	QP		
5		749.7400	38.72	-5.76	32.96	46.00	-13.04	QP		
6		1000.000	38.13	-3.20	34.93	54.00	-19.07	QP		

*:Maximum data x:Over limit !:over margin

Operator: Snake



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		40.7016	38.65	-13.63	25.02	40.00	-14.98	QP		
2		125.0600	45.24	-16.40	28.84	43.50	-14.66	QP		
3		375.3200	43.01	-12.27	30.74	46.00	-15.26	QP		
4		487.8400	42.50	-10.47	32.03	46.00	-13.97	QP		
5	*	649.8300	45.17	-7.98	37.19	46.00	-8.81	QP		
6		746.8300	36.90	-6.00	30.90	46.00	-15.10	QP		

*:Maximum data x:Over limit !:over margin

Operator: Snake

Above 1000MHz~10th Harmonics:

Operation Mode: GFSK (CH0: 2402MHz) Test Date : May 30, 2015

Freq. (MHz)	Ant. Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
2402(F)	V	97.15	77.05	114	94	-16.85	-16.95
4804	V	65.03	44.15	74	54	-8.97	-9.85
7206	V	64.15	43.62	74	54	-9.85	-10.38
9608	V	63.28	42.15	74	54	-10.72	-11.85
12010	V	62.71	41.05	74	54	-11.29	-12.95
14412	V	61.05	40.35	74	54	-12.95	-13.65
16814	V	60.99	39.72	74	54	-13.01	-14.28
2402(F)	H	98.05	79.42	114	94	-15.95	-14.58
4804	H	66.32	45.35	74	54	-7.68	-8.65
7206	H	65.15	44.15	74	54	-8.85	-9.85
9608	H	64.04	43.62	74	54	-9.96	-10.38
12010	H	63.15	42.05	74	54	-10.85	-11.95
14412	H	62.82	41.71	74	54	-11.18	-12.29
16814	H	61.72	40.25	74	54	-12.28	-13.75

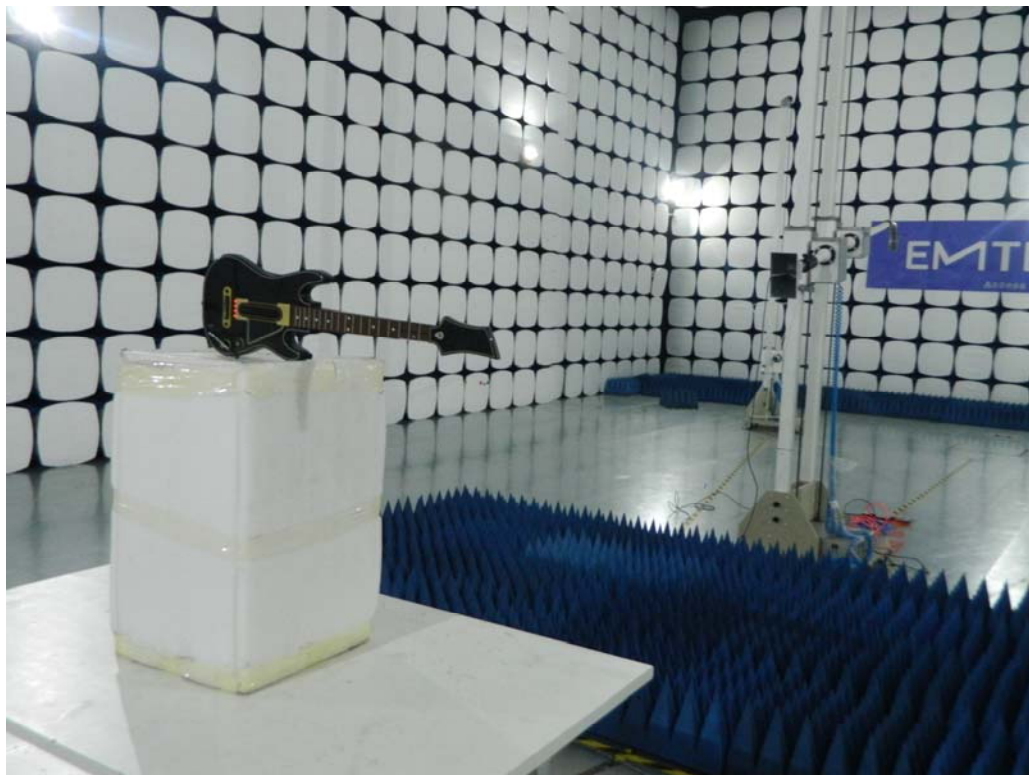
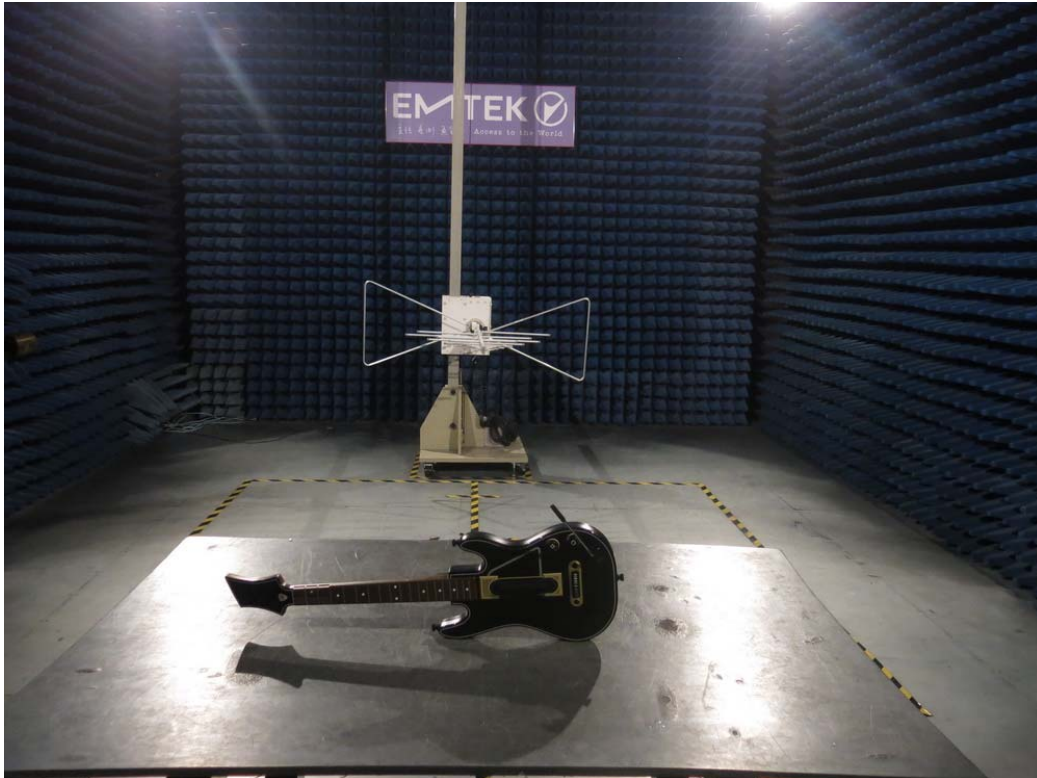
Operation Mode: GFSK (CH34: 2440MHz) Test Date : May 30, 2015

Freq. (MHz)	Ant. Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
2440(F)	V	98.15	79.05	114	94	-15.85	-14.95
4880	V	65.13	44.13	74	54	-8.87	-9.87
7320	V	64.05	43.62	74	54	-9.95	-10.38
9760	V	63.28	42.15	74	54	-10.72	-11.85
12200	V	62.48	41.07	74	54	-11.52	-12.93
14640	V	61.72	40.25	74	54	-12.28	-13.75
17080	V	59.71	39.72	74	54	-14.29	-14.28
2440(F)	H	99.01	80.42	114	94	-14.99	-13.58
4880	H	64.35	45.15	74	54	-9.65	-8.85
7320	H	63.15	44.35	74	54	-10.85	-9.65
9760	H	62.05	43.62	74	54	-11.95	-10.38
12200	H	61.74	42.05	74	54	-12.26	-11.95
14640	H	60.25	41.72	74	54	-13.75	-12.28
17080	H	59.78	40.28	74	54	-14.22	-13.72

Operation Mode: GFSK (CH69: 2479MHz) Test Date : May 30, 2015

Freq. (MHz)	Ant. Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Margin(dB)	
		PK	AV	PK	AV	PK	AV
2479(F)	V	97.05	76.42	114	94	-16.95	-17.58
4958	V	64.15	43.15	74	54	-9.85	-10.85
7437	V	63.05	42.05	74	54	-10.95	-11.95
9916	V	62.74	41.72	74	54	-11.26	-12.28
12395	V	61.25	40.25	74	54	-12.75	-13.75
14874	V	60.71	39.17	74	54	-13.29	-14.83
17353	V	59.35	38	74	54	-14.65	-16
2479(F)	H	98.42	78.04	114	94	-15.58	-15.96
4958	H	65.18	44.15	74	54	-8.82	-9.85
7437	H	64.05	43.62	74	54	-9.95	-10.38
9916	H	63.41	42.07	74	54	-10.59	-11.93
12395	H	62.05	41.92	74	54	-11.95	-12.08
14874	H	61.72	40.25	74	54	-12.28	-13.75
17353	H	60.28	39.75	74	54	-13.72	-14.25

8.5 Radiated Measurement Photos:



9. Antenna requirement

9.1 Limit

Except for special regulations, the Low-power Radio-Frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacture may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

9.2 Result

The EUT's antenna, permanent attached antenna, used a PCB antenna and integrated on PCB, The antenna's gain is 2.89dBi and meets the requirement.

APPENDIX I (Photos of EUT)



