S T S L A B

FCC TEST REPORT

Report No: STS1612142F01

Issued for

Wuxi DYI Technology Co., Ltd

NO.99 Furong zhongsan Road, Xishan EDZ, Wuxi, Jiangsu, China

Product Name:	Remote controler of Yiiboard
Brand Name:	Yiimix
Model Name:	Y-RE0201
Series Model:	N/A
FCC ID:	2AKOT-RE-YIIBOARD
Test Standard:	FCC Part 15.249

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TEST RESULT CERTIFICATION

Applicant's name :	Wuxi DYI Technology Co., Ltd
Address :	NO.99 Furong zhongsan Road, Xishan EDZ, Wuxi, Jiangsu, China
Manufacture's Name :	Wuxi DYI Technology Co., Ltd
Address :	NO.99 Furong zhongsan Road, Xishan EDZ, Wuxi, Jiangsu, China

Product description

Product name :	Remote controler of Yiiboard
Brand name :	Yiimix
Model and/or type reference :	Y-RE0201
Standards :	FCC Part15.249
Test procedure :	ANSI C63.10-2013

This device described above has been tested by STS, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test :	
Date of performance of tests :	21 Dec. 2016 ~30 Dec. 2016
Date of Issue :	31 Dec. 2016
Test Result :	**Pass**

Testing Engineer : Sean She

(Sean she)

Technical Manager :

(Tony liu)

Authorized Signatory : Bovey Yang

(Bovey Yang)

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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	31 Dec. 2016	STS1612142F01	ALL	Initial Issue

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 15.249 , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	Pass	
15.203	Antenna Requirement	Pass	
15.249	Radiated Spurious Emission	Pass	
	conduction Spurious Emission	N/A	
15.205	Radiated Band Edge Emission	Pass	
	conduction Band Edge Emission	N/A	
15.249	20dB Bandwidth	Pass	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2)All tests are according to ANSI C63.10-2013

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1.1 TEST FACTORY

Shenzhen STS Test Services Co., Ltd.
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FCC Registration No.: 842334; IC Registration No.: 12108A-1

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission (9KHz-150KHz)	±2.88Db
2	Conducted Emission (150KHz-30MHz)	±2.67Db
3	RF power,conducted	±0.70Db
4	Spurious emissions,conducted	±1.19Db
5	All emissions,radiated(<1G) 30MHz-200MHz	±2.83Db
6	All emissions,radiated(<1G) 200MHz-1000MHz	±2.94Db
7	All emissions,radiated(>1G)	±3.03Db
8	Temperature	±0.5°C
9	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Remote controler of Yiiboard</td></tr>
<tr><td>Trade Name</td><td>Yiimix</td></tr>
<tr><td>Model Name</td><td>Y-RE0201</td></tr>
<tr><td>Series Model</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a Remote controler of Yiiboard

<table><tr><td>Operation Frequency:</td><td>2402-2479MHz</td></tr><tr><td>Modulation Type:</td><td>GFSK</td></tr><tr><td>Antenna Designation:</td><td>Dipole antenna</td></tr><tr><td>Antenna Gain(Peak)</td><td>0 dBi</td></tr></table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Channel List</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Battery</td><td>Rated Voltage: 3.7V
Charge Limit: 4.2V
Capacity : 300 mA</td></tr>
</table>

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User’s Manual.

2.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2402	05	2446
02	2413	06	2457
03	2424	07	2468
04	2435	08	2479

3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	Yiimix	Y-RE0201	Dipole antenna	N/A	0	Antenna

The EUT antenna is Dipole antenna. No antenna other than that furnished by the responsible party shall be used with the device.

2.2 DESCRIPTION OF TEST MODES

For conducted test items and radiated spurious emissions
Each of these EUT operation mode(s) or test configuration mode(s) mentioned below was evaluated respectively..

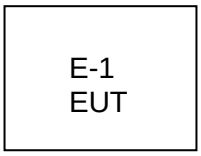
Pretest Mode	Description	Data/Modulation
Mode 1	TX CH01	1 MHz/GFSK
Mode 2	TX CH04	1 MHz/GFSK
Mode 3	TX CH08	1 MHz/GFSK

Note:
(1) All above mode have been measurement, only worst data was reported.

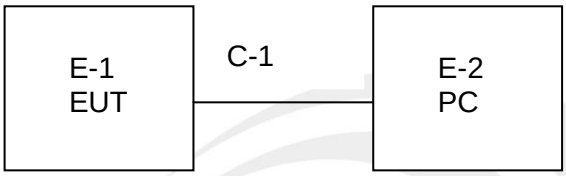
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters

Radiated Spurious Emission Test



Conducted Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-1	Remote controler of Yiiboard	Yiimix	Y-RE0201	N/A	EUT
E-2	PC	Acer	MS2376	N/A	Auxiliary Test Equipment

Item	Shielded Type	Ferrite Core	Length	Note
C-1	USB Cable shielded line	NO	30cm	Mountings

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Spectrum Analyzer	Agilent	E4407B	MY50140340	2016.10.23	2017.10.22
Test Receiver	R&S	ESCI	101427	2016.10.23	2017.10.22
Bilog Antenna	TESEQ	CBL6111D	34678	2014.11.24	2017.11.23
Horn Antenna	Schwarzbeck	BBHA 9120D(1201)	9120D-1343	2015.03.05	2018.03.04
Loop Antenna	EMCO	6502	9003-2485	2016.03.06	2019.03.03
50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2016.06.06	2017.06.05
PreAmplifier	Agilent	8449B	60538	2016.10.23	2017.10.22
USB RF power sensor	DARE	RPR3006W	15I00041SNO03	2016.10.23	2017.10.22
Semi-anechoic chamber	Changling	966	N/A	2016.10.23	2017.10.22

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	102086	2016.10.23	2017.10.22
LISN	R&S	ENV216	101242	2016.10.23	2017.10.22
LISN	EMCO	3810/2NM	000-23625	2016.10.23	2017.10.22
Shielding Room	Changling	854	N/A	2016.10.23	2017.10.22

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 15.249 limit in the table below has to be followed.

FREQUENCY (MHz)	(dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

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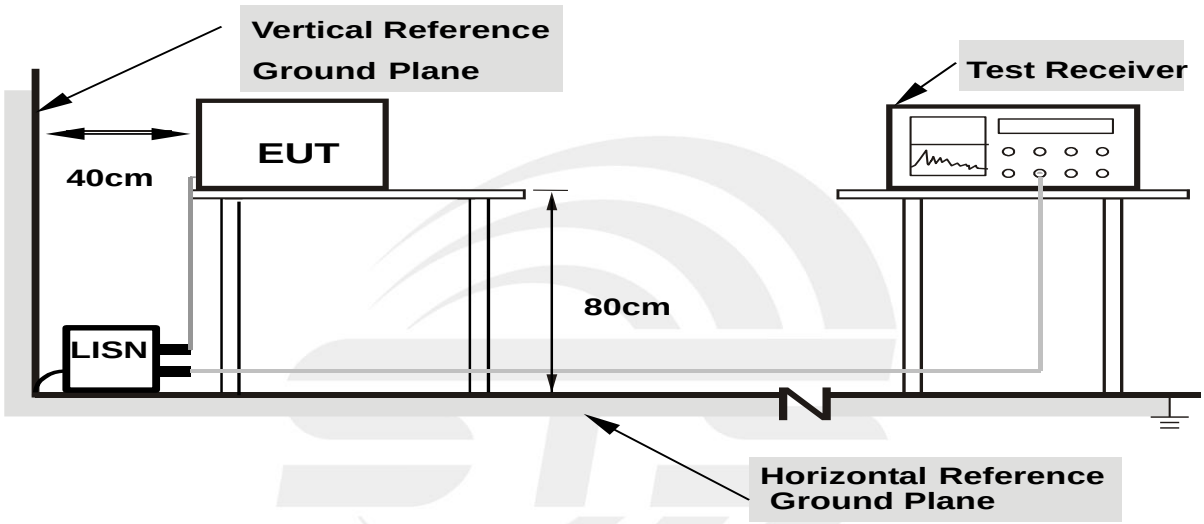
3.1.2 TEST PROCEDURE

a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



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

3.1.4 EUT OPERATING CONDITIONS

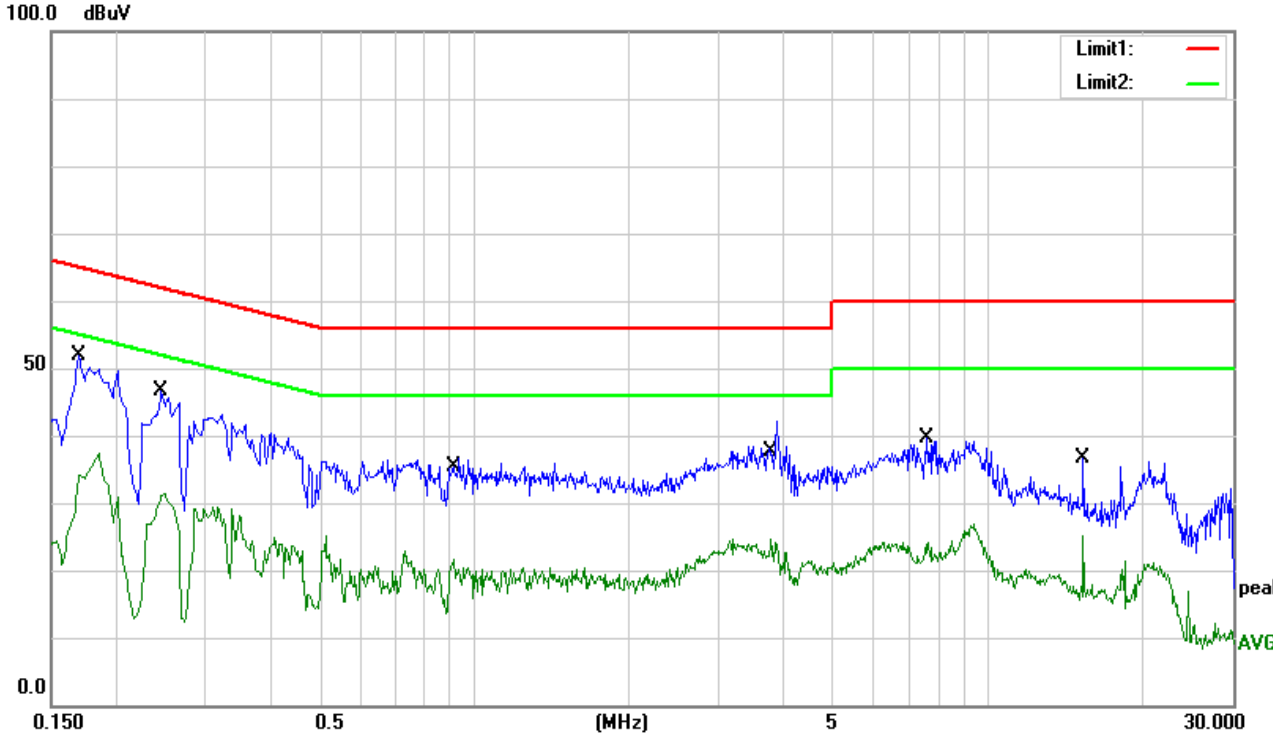
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.5 TEST RESULTS

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	L
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1702	39.62	9.23	48.85	64.95	-16.10	QP
0.1702	22.67	9.23	31.90	54.95	-23.05	AVG
0.2471	31.46	9.18	40.64	61.85	-21.21	QP
0.2471	16.06	9.18	25.24	51.85	-26.61	AVG
0.9250	22.12	9.18	31.30	56.00	-24.70	QP
0.9250	8.78	9.18	17.96	46.00	-28.04	AVG
3.8193	19.93	9.26	29.19	56.00	-26.81	QP
3.8193	9.42	9.26	18.68	46.00	-27.32	AVG
7.6585	19.27	9.33	28.60	60.00	-31.40	QP
7.6585	9.98	9.33	19.31	50.00	-30.69	AVG
15.3878	22.90	9.48	32.38	60.00	-27.62	QP
15.3878	9.92	9.48	19.40	50.00	-30.60	AVG

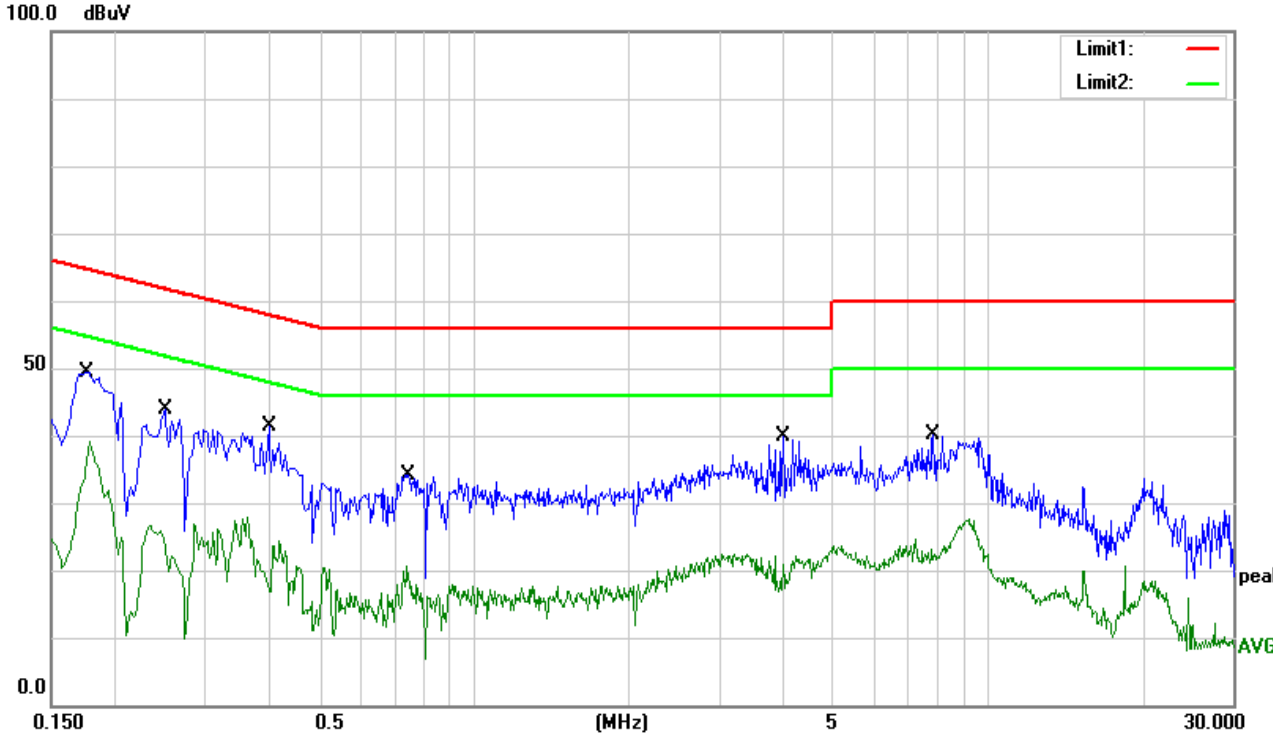
Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	N
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1736	38.23	9.23	47.46	64.79	-17.33	QP
0.1736	22.82	9.23	32.05	54.79	-22.74	AVG
0.2468	30.08	9.18	39.26	61.86	-22.60	QP
0.2468	15.30	9.18	24.48	51.86	-27.38	AVG
0.4011	21.40	9.44	30.84	57.83	-26.99	QP
0.4011	1.21	9.44	10.65	47.83	-37.18	AVG
0.7428	21.78	9.23	31.01	56.00	-24.99	QP
0.7428	8.74	9.23	17.97	46.00	-28.03	AVG
3.9985	18.33	9.26	27.59	56.00	-28.41	QP
3.9985	7.22	9.26	16.48	46.00	-29.52	AVG
7.8460	19.08	9.35	28.43	60.00	-31.57	QP
7.8460	10.15	9.35	19.50	50.00	-30.50	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

Standard FCC 15.249

Frequency of Emission (MHz)	**Field Strength of fundamental (millivolts /meter)**	**Field Strength of Harmonics (microvolts/meter)**
900~928	50	500
2400~2483.5	50	500
5725~5875	50	500
24000~242500	250	2500

Notes:

(1) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Spectrum Parameter	Setting
Detector	Peak/AV
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB (emission in restricted band)	>20BW
VB (emission in restricted band)	=3xRB

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
	90kHz~110kHz / RB 200Hz for QP
	110kHz~490kHz / RB 200Hz for PK & AV
	490kHz~30MHz / RB 9kHz for QP
	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

a. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of arotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Below 1GHz)

b. The measuring distance of 3m shall used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Above 1GHz)

c. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.

d. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

e. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform (Below 1GHz)

f. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak & AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(Above 1GHz)

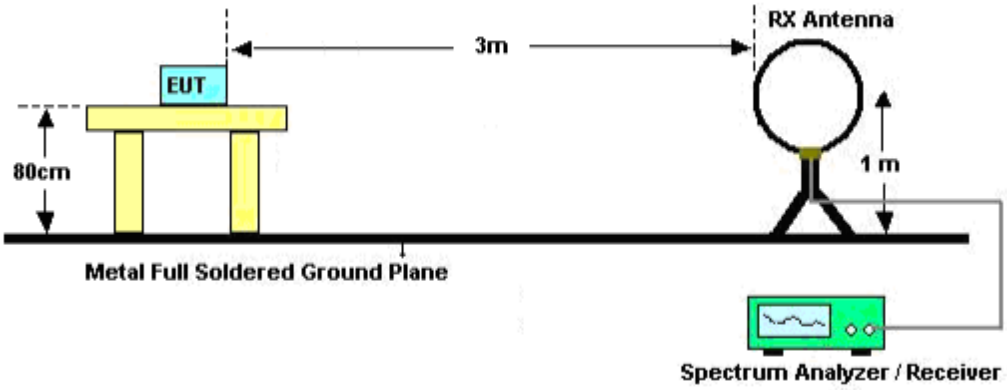
g. For the actual test configuration, please refer to the related Item –EUT Test Photos.
Note: Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

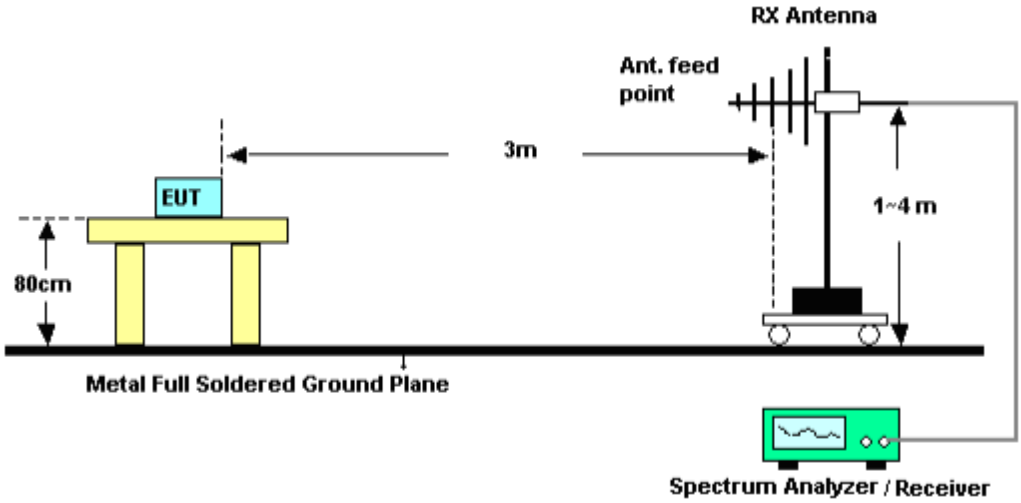
No deviation

3.2.4 TEST SETUP

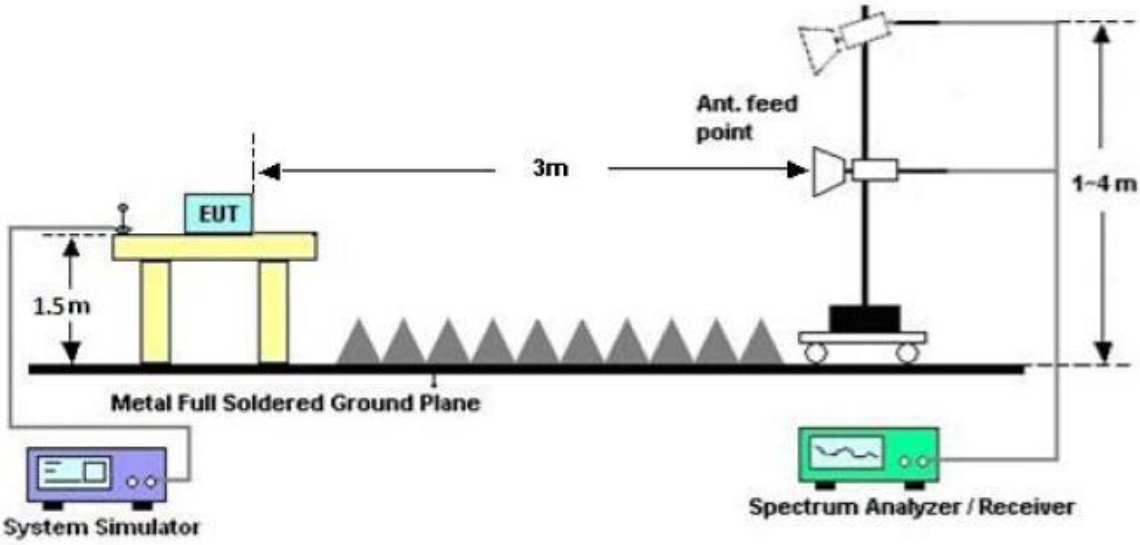
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

Below 30 MHz

Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010 hPa	Polarization :	---
Test Voltage：	DC 3.7V from battery		
Test Mode ：	TX Mode		

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

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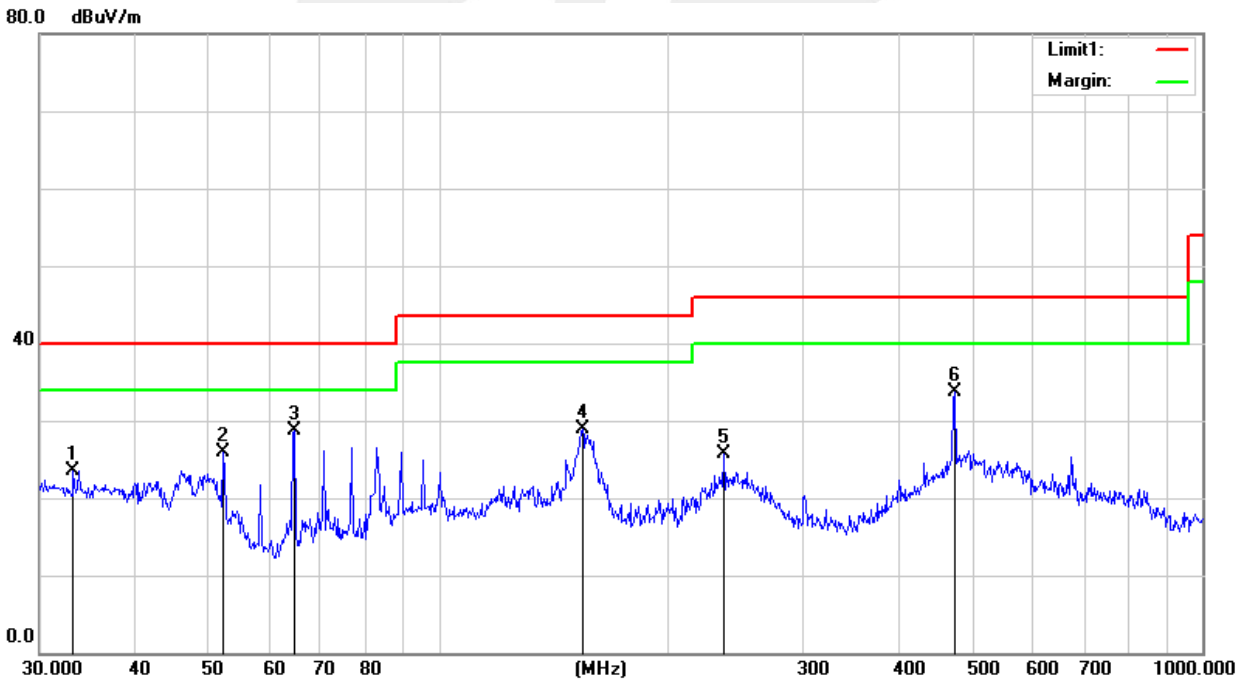
Between 30MHz – 1000 MHz Radiation Spurious

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	Horizontal
Test Voltage:	DC 3.7V from battery	Test Mode:	Mode 1/2/3(Model 1 worst)

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
33.2111	36.28	-12.84	23.44	40.00	-16.56	QP
52.2080	48.02	-22.11	25.91	40.00	-14.09	QP
64.6594	52.94	-24.23	28.71	40.00	-11.29	QP
154.2786	47.05	-18.20	28.85	43.50	-14.65	QP
236.6447	43.60	-17.99	25.61	46.00	-20.39	QP
473.8346	43.30	-9.62	23.68	46.00	-12.32	QP

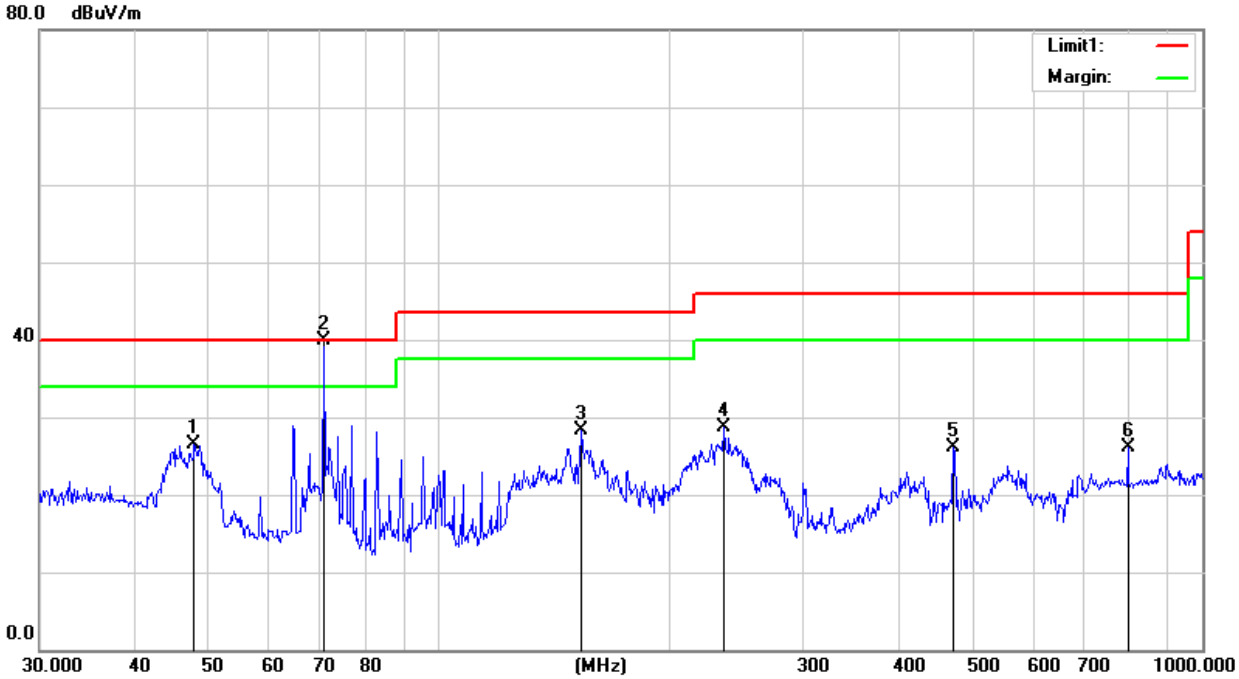
Remark:
1. All readings are Quasi-Peak .
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase:	Vertical
Test Voltage:	DC 3.7V from battery	Test Mode:	Mode 1/2/3(Model 1 worst)

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
47.8260	46.84	-20.36	26.48	40.00	-13.52	QP
70.8315	63.98	-23.99	39.99	40.00	-0.01	QP
153.7384	46.39	-18.17	28.22	43.50	-15.28	QP
236.6447	46.60	-17.99	28.61	46.00	-17.39	QP
472.1760	35.73	-9.69	26.04	46.00	-19.96	QP
798.9796	29.56	-3.45	26.11	46.00	-19.89	QP

Remark:
1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor)–Limit



Fundamental frequency:

PK

Frequency (MHz)	Reading (dBμV/m)	Amplifier	Loss	Antenna Factor	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin(dB)	Polarization
	PEAK	（dB）	（dB）	（dB/m）		PEAK	PEAK	PEAK	
2402	105.340	44.40	6.03	27.60	-10.77	94.57	114	-19.43	Vertical
2402	103.182	44.40	6.03	27.60	-10.77	92.42	114	-21.58	Horizontal
2435	106.430	44.40	6.04	27.63	-10.73	95.70	114	-18.30	Vertical
2435	104.365	44.40	6.04	27.63	-10.73	93.64	114	-20.36	Horizontal
2479	107.183	44.40	6.06	27.66	-10.68	96.51	114	-17.49	Vertical
2479	105.296	44.40	6.06	27.66	-10.68	94.62	114	-19.38	Horizontal

AV

Frequency (MHz)	Reading (dBμV/m)	Amplifier	Loss	Antenna Factor	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin(dB)	Polarization
	AV	（dB）	（dB）	（dB/m）		AV	PEAK	PEAK	
2402	85.647	44.40	6.03	27.60	-10.77	74.88	94	-19.12	Vertical
2402	83.301	44.40	6.03	27.60	-10.77	72.53	94	-21.47	Horizontal
2435	86.412	44.40	6.04	27.63	-10.73	75.69	94	-18.31	Vertical
2435	84.621	44.40	6.04	27.63	-10.73	73.89	94	-20.11	Horizontal
2479	87.294	44.40	6.06	27.66	-10.68	76.62	94	-17.38	Vertical
2479	85.121	44.40	6.06	27.66	-10.68	74.44	94	-19.56	Horizontal

Note: RBW>20BW; VBW=3xRBW

Above 1G Radiation Spurious

Frequency (MHz)	Meter Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
Low Channel (2402 MHz)										
3264.61	48.23	44.70	6.70	28.20	-9.80	38.43	74.00	-35.57	PK	Vertical
3264.61	39.65	44.70	6.70	28.20	-9.80	29.85	54.00	-24.15	AV	Vertical
3264.69	47.89	44.70	6.70	28.20	-9.80	38.09	74.00	-35.91	PK	Horizontal
3264.69	38.73	44.70	6.70	28.20	-9.80	28.93	54.00	-25.07	AV	Horizontal
4804.53	59.21	44.20	9.04	31.60	-3.56	55.65	74.00	-18.35	PK	Vertical
4804.53	38.51	44.20	9.04	31.60	-3.56	34.95	54.00	-19.05	AV	Vertical
4816.57	58.78	44.20	9.04	31.60	-3.56	55.22	74.00	-18.78	PK	Horizontal
4816.57	38.86	44.20	9.04	31.60	-3.56	35.30	54.00	-18.70	AV	Horizontal
5359.80	45.27	44.20	9.86	32.00	-2.34	42.93	74.00	-31.07	PK	Vertical
5359.80	36.98	44.20	9.86	32.00	-2.34	34.64	54.00	-19.36	AV	Vertical
5359.74	45.50	44.20	9.86	32.00	-2.34	43.16	74.00	-30.84	PK	Horizontal
5359.74	37.35	44.20	9.86	32.00	-2.34	35.01	54.00	-18.99	AV	Horizontal
7205.76	50.63	43.50	11.40	35.50	3.40	54.03	74.00	-19.97	PK	Vertical
7205.76	33.50	43.50	11.40	35.50	3.40	36.90	54.00	-17.10	AV	Vertical
7223.84	51.21	43.50	11.40	35.50	3.40	54.61	74.00	-19.39	PK	Horizontal
7223.84	33.64	43.50	11.40	35.50	3.40	37.04	54.00	-16.96	AV	Horizontal
11036.02	40.23	43.60	14.30	39.50	10.20	50.43	74.00	-23.57	PK	Vertical
11036.02	30.82	43.60	14.30	39.50	10.20	41.02	54.00	-12.98	AV	Vertical
11036.11	40.52	43.60	14.30	39.50	10.20	50.72	74.00	-23.28	PK	Horizontal
11036.11	30.99	43.60	14.30	39.50	10.20	41.19	54.00	-12.81	AV	Horizontal
13299.21	40.73	42.60	15.90	38.90	12.20	52.93	74.00	-21.07	PK	Vertical
13299.21	28.54	42.60	15.90	38.90	12.20	40.74	54.00	-13.26	AV	Vertical
13299.34	41.05	42.60	15.90	38.90	12.20	53.25	74.00	-20.75	Pk	Horizontal
13299.34	29.35	42.60	15.90	38.90	12.20	41.55	54.00	-12.45	AV	Horizontal
15999.78	40.85	42.70	18.00	37.10	12.40	53.25	74.00	-20.75	PK	Vertical
15999.78	28.64	42.70	18.00	37.10	12.40	41.04	54.00	-12.96	AV	Vertical
15999.81	40.83	42.70	18.00	37.10	12.40	53.23	74.00	-20.77	PK	Horizontal
15999.81	28.97	42.70	18.00	37.10	12.40	41.37	54.00	-12.63	AV	Horizontal
17997.89	30.81	42.70	19.40	46.50	23.20	54.01	74.00	-19.99	PK	Vertical
17997.89	20.01	42.70	19.40	46.50	23.20	43.21	54.00	-10.79	AV	Vertical
17997.52	30.03	42.70	19.40	46.50	23.20	53.23	74.00	-20.77	PK	Horizontal
17997.52	17.92	42.70	19.40	46.50	23.20	41.12	54.00	-12.88	AV	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
Middle Channel (2435 MHz)										
3264.78	48.33	44.70	6.70	28.20	-9.80	38.53	74.00	-35.47	PK	Vertical
3264.78	39.11	44.70	6.70	28.20	-9.80	29.31	54.00	-24.69	AV	Vertical
3264.76	48.51	44.70	6.70	28.20	-9.80	38.71	74.00	-35.29	PK	Horizontal
3264.76	38.89	44.70	6.70	28.20	-9.80	29.09	54.00	-24.91	AV	Horizontal
4870.47	59.14	44.20	9.04	31.60	-3.56	55.58	74.00	-18.42	PK	Vertical
4870.47	38.15	44.20	9.04	31.60	-3.56	34.59	54.00	-19.41	AV	Vertical
4880.50	58.21	44.20	9.04	31.60	-3.56	54.65	74.00	-19.35	PK	Horizontal
4880.50	38.49	44.20	9.04	31.60	-3.56	34.93	54.00	-19.07	AV	Horizontal
5359.61	45.91	44.20	9.86	32.00	-2.34	43.57	74.00	-30.43	PK	Vertical
5359.61	37.94	44.20	9.86	32.00	-2.34	35.60	54.00	-18.40	AV	Vertical
5359.82	45.24	44.20	9.86	32.00	-2.34	42.90	74.00	-31.10	PK	Horizontal
5359.82	37.79	44.20	9.86	32.00	-2.34	35.45	54.00	-18.55	AV	Horizontal
7304.79	51.52	43.50	11.40	35.50	3.40	54.92	74.00	-19.08	PK	Vertical
7304.79	33.17	43.50	11.40	35.50	3.40	36.57	54.00	-17.43	AV	Vertical
7320.85	50.53	43.50	11.40	35.50	3.40	53.93	74.00	-20.07	PK	Horizontal
7320.85	33.88	43.50	11.40	35.50	3.40	37.28	54.00	-16.72	AV	Horizontal
9759.80	40.33	43.60	14.30	39.50	10.20	50.53	74.00	-23.47	PK	Vertical
9759.80	29.98	43.60	14.30	39.50	10.20	40.18	54.00	-13.82	AV	Vertical
9760.00	39.96	43.60	14.30	39.50	10.20	50.16	74.00	-23.84	PK	Horizontal
9760.00	29.97	43.60	14.30	39.50	10.20	40.17	54.00	-13.83	AV	Horizontal
13299.41	40.51	42.60	15.90	38.90	12.20	52.71	74.00	-21.29	PK	Vertical
13299.41	28.54	42.60	15.90	38.90	12.20	40.74	54.00	-13.26	AV	Vertical
13299.41	40.77	42.60	15.90	38.90	12.20	52.97	74.00	-21.03	Pk	Horizontal
13299.41	29.15	42.60	15.90	38.90	12.20	41.35	54.00	-12.65	AV	Horizontal
15999.67	39.87	42.70	18.00	37.10	12.40	52.27	74.00	-21.73	PK	Vertical
15999.67	28.64	42.70	18.00	37.10	12.40	41.04	54.00	-12.96	AV	Vertical
15999.66	40.88	42.70	18.00	37.10	12.40	53.28	74.00	-20.72	PK	Horizontal
15999.66	29.05	42.70	18.00	37.10	12.40	41.45	54.00	-12.55	AV	Horizontal
17997.91	30.09	42.70	19.40	46.50	23.20	53.29	74.00	-20.71	PK	Vertical
17997.91	19.64	42.70	19.40	46.50	23.20	42.84	54.00	-11.16	AV	Vertical
17997.79	30.18	42.70	19.40	46.50	23.20	53.38	74.00	-20.62	PK	Horizontal
17997.79	18.11	42.70	19.40	46.50	23.20	41.31	54.00	-12.69	AV	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
High Channel (2479 MHz)										
3264.84	48.03	44.70	6.70	28.20	-9.80	38.23	74.00	-35.77	PK	Vertical
3264.84	39.16	44.70	6.70	28.20	-9.80	29.36	54.00	-24.64	AV	Vertical
3264.83	49.03	44.70	6.70	28.20	-9.80	39.23	74.00	-34.77	PK	Horizontal
3264.83	38.69	44.70	6.70	28.20	-9.80	28.89	54.00	-25.11	AV	Horizontal
4958.41	59.30	44.20	9.04	31.60	-3.56	55.74	74.00	-18.26	PK	Vertical
4958.41	38.47	44.20	9.04	31.60	-3.56	34.91	54.00	-19.09	AV	Vertical
4948.44	58.18	44.20	9.04	31.60	-3.56	54.62	74.00	-19.38	PK	Horizontal
4948.44	38.40	44.20	9.04	31.60	-3.56	34.84	54.00	-19.16	AV	Horizontal
5359.76	45.09	44.20	9.86	32.00	-2.34	42.75	74.00	-31.25	PK	Vertical
5359.76	37.09	44.20	9.86	32.00	-2.34	34.75	54.00	-19.25	AV	Vertical
5359.85	46.50	44.20	9.86	32.00	-2.34	44.16	74.00	-29.84	PK	Horizontal
5359.85	38.52	44.20	9.86	32.00	-2.34	36.18	54.00	-17.82	AV	Horizontal
7436.77	51.13	43.50	11.40	35.50	3.40	54.53	74.00	-19.47	PK	Vertical
7436.77	33.35	43.50	11.40	35.50	3.40	36.75	54.00	-17.25	AV	Vertical
7421.70	51.78	43.50	11.40	35.50	3.40	55.18	74.00	-18.82	PK	Horizontal
7421.70	33.98	43.50	11.40	35.50	3.40	37.38	54.00	-16.62	AV	Horizontal
9895.87	40.53	43.60	14.30	39.50	10.20	50.73	74.00	-23.27	PK	Vertical
9895.87	30.29	43.60	14.30	39.50	10.20	40.49	54.00	-13.51	AV	Vertical
9896.19	40.63	43.60	14.30	39.50	10.20	50.83	74.00	-23.17	PK	Horizontal
9896.19	30.33	43.60	14.30	39.50	10.20	40.53	54.00	-13.47	AV	Horizontal
13299.31	40.16	42.70	18.00	37.10	12.40	52.56	74.00	-21.44	PK	Vertical
13299.31	28.54	42.70	18.00	37.10	12.40	40.94	54.00	-13.06	AV	Vertical
13299.41	40.98	42.70	18.00	37.10	12.40	53.38	74.00	-20.62	PK	Horizontal
13299.41	29.62	42.70	18.00	37.10	12.40	42.02	54.00	-11.98	AV	Horizontal
17997.92	31.03	42.70	19.40	46.50	23.20	54.23	74.00	-19.77	PK	Vertical
17997.92	18.90	42.70	19.40	46.50	23.20	42.10	54.00	-11.90	AV	Vertical
17997.61	30.00	42.70	19.40	46.50	23.20	53.20	74.00	-20.80	PK	Horizontal
17997.61	18.60	42.70	19.40	46.50	23.20	41.80	54.00	-12.20	AV	Horizontal

(Radiation Band edge)

Frequency (MHz)	Meter Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
Low CH										
2400.00	68.56	43.80	4.91	25.90	-12.99	55.57	74	-18.43	PK	Vertical
2400.00	53.46	43.80	4.91	25.90	-12.99	40.47	54	-13.53	AV	Vertical
2400.00	68.71	43.80	4.91	25.90	-12.99	55.72	74	-18.28	PK	Horizontal
2400.00	53.01	43.80	4.91	25.90	-12.99	40.02	54	-13.98	AV	Horizontal
2483.50	69.57	43.80	5.12	25.90	-12.78	56.79	74	-17.21	PK	Vertical
2483.50	52.64	43.80	5.12	25.90	-12.78	39.86	54	-14.14	AV	Vertical
2483.50	70.45	43.80	5.12	25.90	-12.78	57.67	74	-16.33	PK	Horizontal
2483.50	52.12	43.80	5.12	25.90	-12.78	39.34	54	-14.66	AV	Horizontal
High CH										
2400.00	67.19	43.80	4.91	25.90	-12.99	54.20	74	-19.80	PK	Vertical
2400.00	53.18	43.80	4.91	25.90	-12.99	40.19	54	-13.81	AV	Vertical
2400.00	68.48	43.80	4.91	25.90	-12.99	55.49	74	-18.51	PK	Horizontal
2400.00	53.14	43.80	4.91	25.90	-12.99	40.15	54	-13.85	AV	Horizontal
2483.50	70.29	43.80	5.12	25.90	-12.78	57.51	74	-16.49	PK	Vertical
2483.50	53.18	43.80	5.12	25.90	-12.78	40.40	54	-13.60	AV	Vertical
2483.50	69.99	43.80	5.12	25.90	-12.78	57.21	74	-16.79	PK	Horizontal
2483.50	52.46	43.80	5.12	25.90	-12.78	39.68	54	-14.32	AV	Horizontal

Low measurement frequencies is range from 2310 to 2400 MHz, high measurement frequencies is range from 2483.5 to 2500 MHz.

Only show the worst point data of the emissions in the frequency 2310-2400 MHz and 2483.5-2500 MHz.

4. CONDUCTED SPURIOUS & BAND EDGE EMISSION

4.1 REQUIREMENT

According to FCC section 15.249, in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 50dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

4.2 TEST PROCEDURE

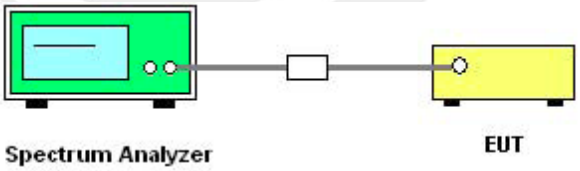
Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

.

For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 2310 – 2404 MHz Upper Band Edge: 2478 – 2500 MHz
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

4.3 TEST SETUP



The EUT which is powered by the Battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50 Ohm; the path loss as the factor is calibrated to correct the reading. Make the measurement with the spectrum analyzer's resolution bandwidth(RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

4.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

4.5 TEST RESULTS

Temperature：	25 ℃	Relative Humidity：	50%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V from battery
Test Mode ：	N/A		

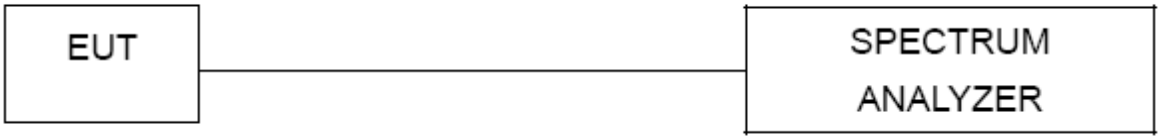
Note: denotes test is not applicable in this test report.

5. BANDWIDTH TEST

5.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 30KHz, VBW≧RBW, Sweep time = Auto.

5.2 TEST SETUP



5.3 EUT OPERATION CONDITIONS

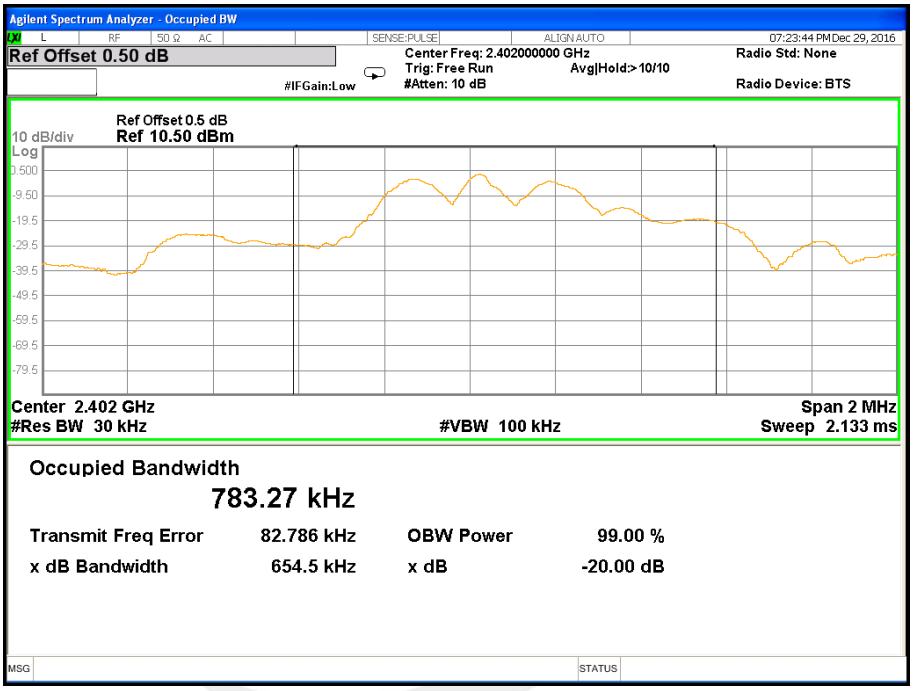
TX mode.

5.4 TEST RESULTS

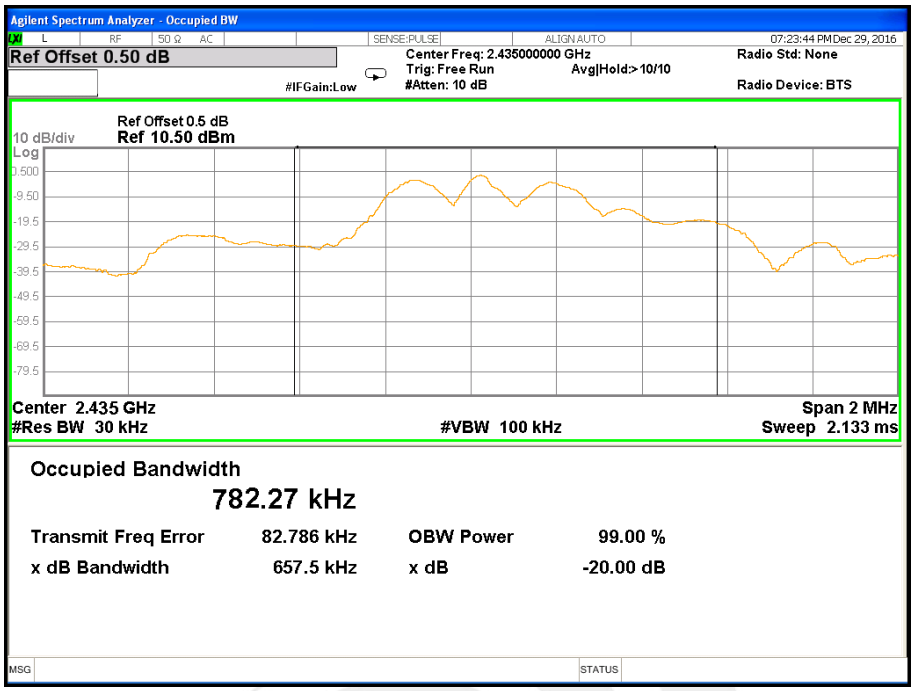
Temperature：	25 ℃	Relative Humidity：	50%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V from battery

Test Channel	Frequency (MHz)	20 dBc Bandwidth (MHz)	99% Bandwidth (MHz)
CH01	2402	0.655	0.783
CH04	2435	0.658	0.782
CH08	2479	0.689	0.648

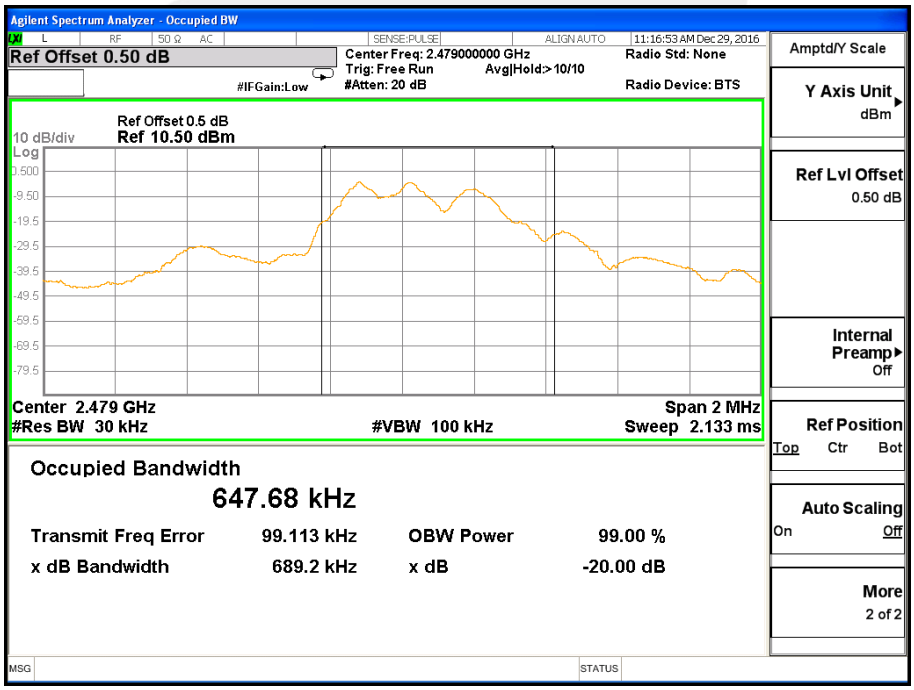
The Lowest Channel:2402MHz



The Middle Channel:2435MHz



The High Channel: 2479MHz



6. ANTENNA REQUIREMENT

6.1 STANDARD REQUIREMENT

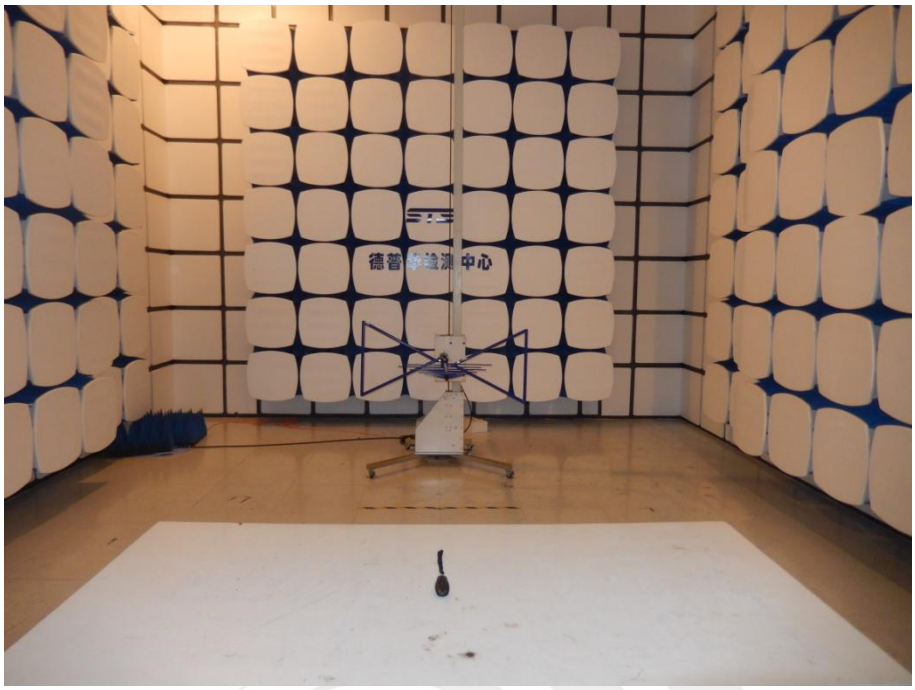
According to the FCC Part 15 Paragraph 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

6.2 EUT ANTENNA

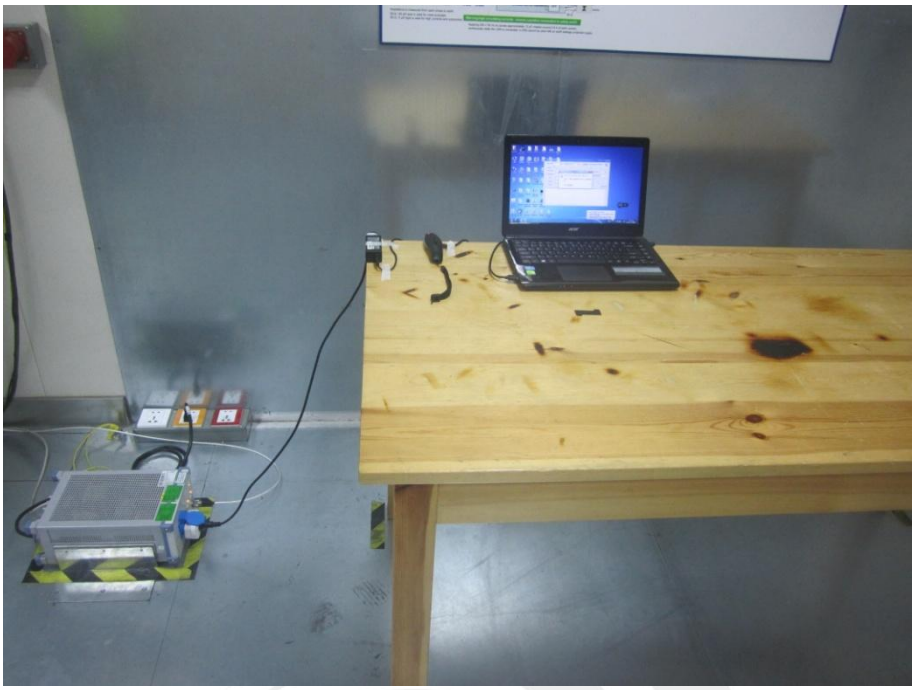
The EUT antenna is Internal Dipole antenna Antenna.It conforms to the standard requirements.

APPENDIX- PHOTOS OF TEST SETUP

Radiated Measurement Photos



Conducted Measurement Photos



※ ※ ※ ※ ※END OF THE REPORT※ ※ ※ ※ ※