FCC/IC TEST REPORT

REPORT NO.: SEFI1610009-B

MODEL NO.: LHT-V16S-W1

RECEIVED: Oct. 13, 2016

ISSUED: Oct.19, 2016

APPLICANT: Le Shi Zhi Xin Electronic Technology (Tian jin) Limited

ADDRESS: 201-427 2F B1 District, Anime building,No.126 Anime Middle Road, Eco-city Tianjin, China

MANUFACTURER: Le Shi Zhi Xin Electronic Technology (Tian jin) Limited

ADDRESS: 201-427 2F B1 District, Anime building,No.126 Anime Middle Road, Eco-city Tianjin, China

ISSUED BY: BUREAU VERITAS ADT (Shanghai) Corporation

ADDRESS: 2F, Building C, No.1618, Yishan rd., 201103, Shanghai, China

Release History

Attachment No.	Version	Date	Description
SEFI1610009-B	Rev 01	2016-10-19	Initial release

Table of Contents

1.CERTIFICATION

PRODUCT:	LeEco Subwoofer
MODEL NO.:	LHT-V16S-W1
APPLICANT:	Le Shi Zhi Xin Electronic Technology (Tian jin) Limited
MANUFACTURER:	201-427 2F B1 District, Anime building,No.126 Anime Middle Road, Eco-city Tianjin, China
TESTED:	Oct. 13, 2016~ Oct. 19, 2016
STANDARDS:	FCC Part 15: 2015, Subpart C

PREPARED BY : Bing YE , **DATE:** Oct. 19, 2016

Bing YE

Testing Engineer

TECHNICAL ACCEPTANCE : Joy ZHU , **DATE:** Oct. 19, 2016

Joy ZHU

Testing Manager

APPROVED BY : Zhaoqian YU , **DATE:** Oct. 19, 2016

Zhaoqian YU

Lab Manager

2. Report of Measurements and Examinations

2.1 List of Measurements and Examinations

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2016 Section 15.207 RSS-Gen Issue 4 December 2014 Section 8.8	Yes	No
20dB&99% Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2016 Section 15.215(c) RSS-Gen Issue 4 December 2014 Section 6.6	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2016 Section 15.209 and 15.249 RSS-Gen Issue 4 November 2014 Section 6.13	Yes	No
Band-edge Compliance of RF Conducted Emissions	FCC CFR Title 47 Part 15 Subpart C: 2016 Section 15.215(c)	Yes	No

3. Test Configuration of Equipment under Test

3.1 Feature of Equipment under Test

RF Module	IA2S4_SMMHST
Type of Modulation	GFSK
Frequency Range	2403-2479MHz
Number of Channels	25
Data Rate	32/44.1/48KHz sampling rate
Antenna Type	See antenna requirement

3.2 Carrier Frequency of Channels

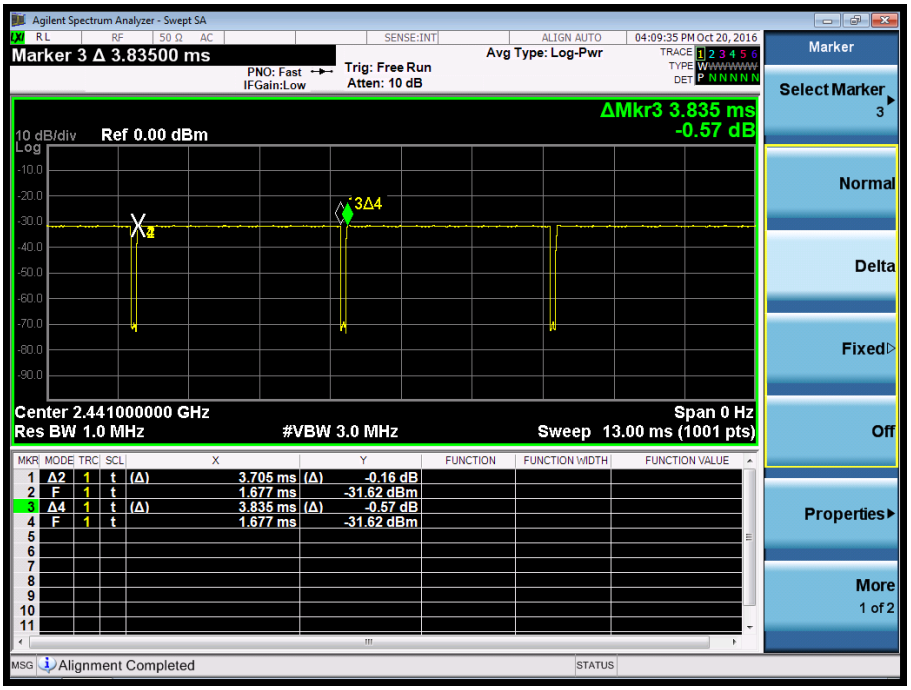
Ch.1	Ch.2	Ch.3	Ch.4	Ch.5	Ch.6	Ch.7	Ch.8
2403	2405	2408	2412	2415	2418	2421	2424
Ch.9	Ch.10	Ch.11	Ch.12	Ch.13	Ch.14	Ch.15	Ch.16
2427	2432	2435	2438	2441	2443	2446	2449
Ch.17	Ch.18	Ch.19	Ch.20	Ch.21	Ch.22	Ch.23	Ch.24
2452	2455	2459	2464	2468	2472	2476	2478
Ch.25							
2479							

3.3 Duty cycle

Test Item	Duty cycle

Frequency (MHz)	Measurement (%)
2441	96.6%

2441



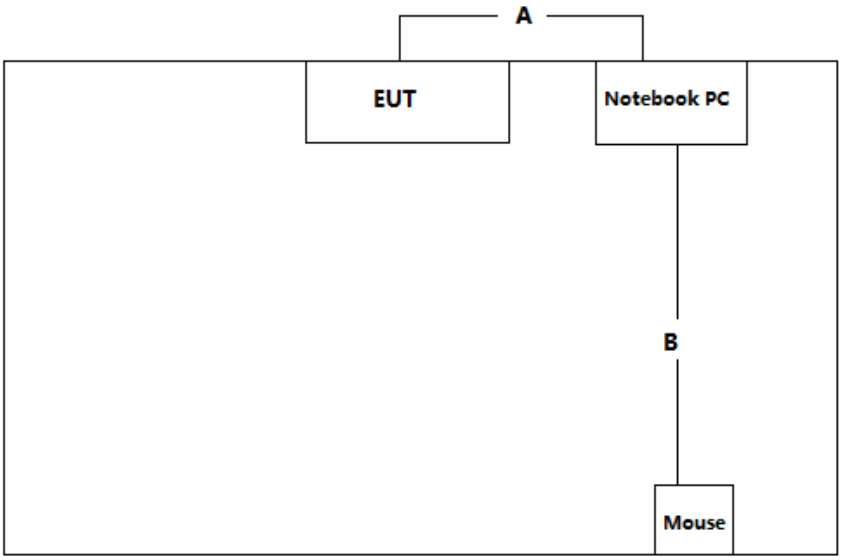
3.4 Test Manner

Test Manner	
1	During testing, the interface cables and equipment positions were varied according to C63.10.
2	Adjust the EUT at the test mode and the test channel. Then test.

3.5 Description of Test System

No	Device	Manufacturer	Model No.	Description
1	Notebook PC	SONY	PCG-71811P	Non-Shielded,1.5m (R33021)
2	Mouse	DELL	G0K02XYK	R41108

3.6 Configuration of Tested System

Connection Diagram


Signal Cable Type		Signal cable Description
A	HDMI Cable	Non-Shielded>0.8 m
B	USB Cable	Non-Shielded>0.8 m

3.7 General Information of Test

Test Site:	Cerpass Technology（SuZhou）Co., LTD
Performand Location :	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
NVLAP LAB Code :	200814-0
FCC Registration Number :	916572, 331395
IC Registration Number :	7290A-1, 7290A-2

3.8 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	±2.71 dB
Radiated Emission	30 MHz ~ 25GHz	Vertical	±4.11 dB
		Horizontal	±4.10 dB
Occupied Bandwidth	---	---	±7500 Hz

4. Antenna Requirements

4.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

4.2 Antenna Construction and Directional Gain

Antenna Typle	Peak Gain
Chip antenna	-2.4dBi for 2400~2500MHz band

5. Test of Conducted Emission

5.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 6.2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

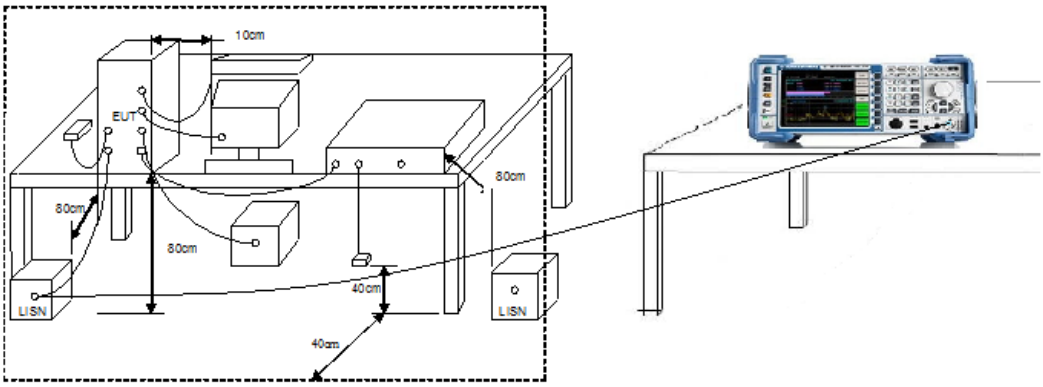
Frequency (MHz)	Quasi Peak (dB μ V)	AVG (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

5.2 Test Procedures

The EUT was setup according to ANSI C63.10, 2013. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

5.3 Typical Test Setup

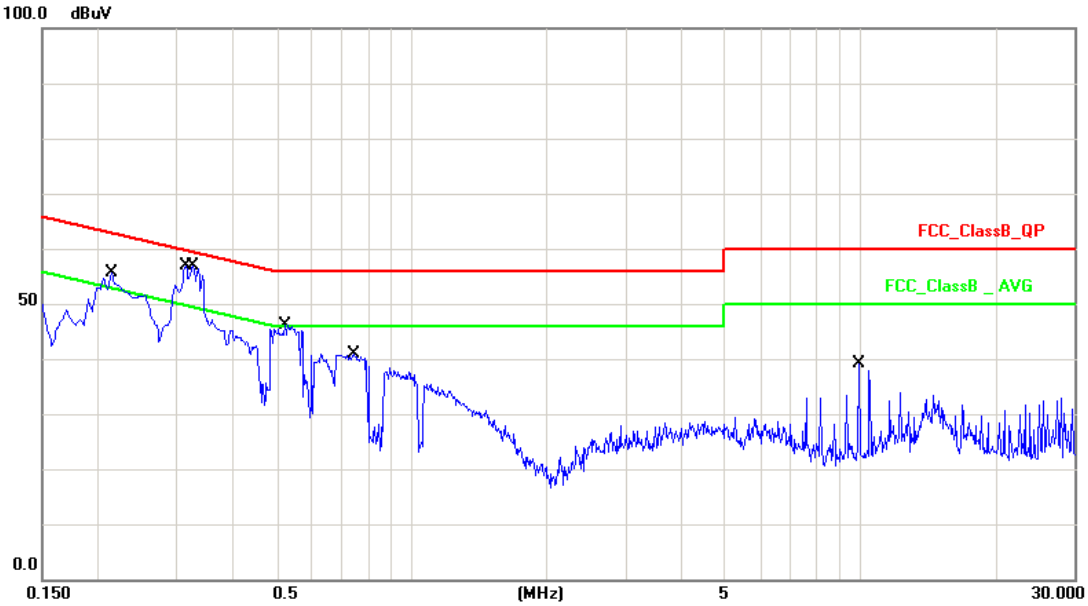


5.4 Measurement Equipment

AC Conducted Emission Measuring Equipment-SR101					
Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EZ-EMC	Fala	Ver CT3A1	N/A	N/A	N/A
EMI Test Receiver	R&S	ESCI	100565	2016.03.26	2017.03.25
Artifical-Mains-Network	R&S	ESH2-Z5	100182	2016.08.31	2017.08.30
Line Impedance Stabilization Network	FCC	FCC-LISN-50-200-2-02	112087	2016.08.31	2017.08.30
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2016.03.29	2017.03.28

5.5 Test Result and Data

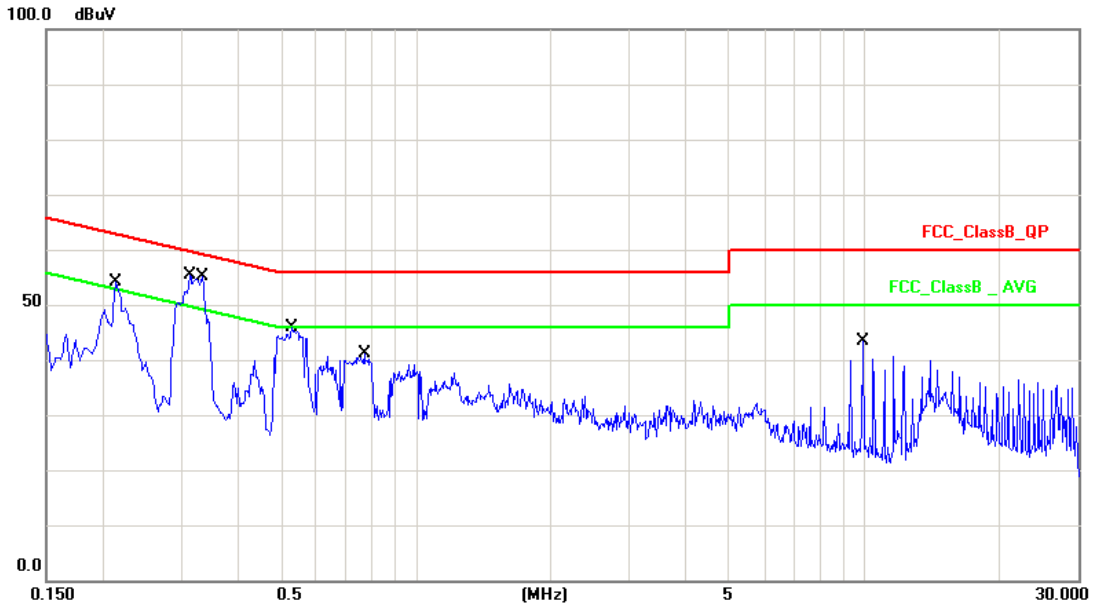
Test Mode :	Mode 1: Normal Operation with Wireless on		
AC Power :	AC 120V/60Hz	Phase :	LINE
Temperature :	22°C	Humidity :	50%
Pressure(mbar) :	1002	Date:	2016/10/22



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2140	10.12	42.06	52.18	63.04	-10.86	QP
2	0.2140	10.12	30.46	40.58	53.04	-12.46	AVG
3	0.3140	10.14	42.19	52.33	59.86	-7.53	QP
4	0.3140	10.14	29.80	39.94	49.86	-9.92	AVG
5	0.3260	10.14	42.10	52.24	59.55	-7.31	QP
6	0.3260	10.14	30.90	41.04	49.55	-8.51	AVG
7	0.5220	10.16	32.97	43.13	56.00	-12.87	QP
8	0.5220	10.16	16.95	27.11	46.00	-18.89	AVG
9	0.7460	10.14	28.32	38.46	56.00	-17.54	QP
10	0.7460	10.14	10.51	20.65	46.00	-25.35	AVG
11	9.9220	10.25	27.41	37.66	60.00	-22.34	QP
12	9.9220	10.25	27.47	37.72	50.00	-12.28	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 1: Normal Operation with Wireless on		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Temperature :	22°C	Humidity :	50%
Pressure(mbar) :	1002	Date:	2016/10/22



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2140	10.13	40.24	50.37	63.04	-12.67	QP
2	0.2140	10.13	23.23	33.36	53.04	-19.68	AVG
3	0.3140	10.14	40.38	50.52	59.86	-9.34	QP
4	0.3140	10.14	26.01	36.15	49.86	-13.71	AVG
5	0.3339	10.14	39.87	50.01	59.35	-9.34	QP
6	0.3339	10.14	27.93	38.07	49.35	-11.28	AVG
7	0.5299	10.15	32.97	43.12	56.00	-12.88	QP
8	0.5299	10.15	15.70	25.85	46.00	-20.15	AVG
9	0.7700	10.16	27.93	38.09	56.00	-17.91	QP
10	0.7700	10.16	11.01	21.17	46.00	-24.83	AVG
11	9.9180	10.26	30.84	41.10	60.00	-18.90	QP
12	9.9180	10.26	30.04	40.30	50.00	-9.70	AVG

Note: Measurement Level = Reading Level + Correct Factor

6. Test of Radiated Emission

6.1 Test Limit

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 20dB 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. If the transmitter measurement is based on the maximum conducted output Average power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

FREQUENCIES(MHz)	FIELD STRENGTH (microvolts/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

Note 1: The lower limit shall apply at the transition frequency.
Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m).

FCC Part 15 Subpart C Paragraph 15.249		
Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902-928(MHz)	50	500
2400-2483.5(MHz)	50	500
5725-5875(MHz)	50	500
24.0-24.25(GHz)	250	2500

FCC Part 15.249 (d), 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 §15.209, whichever is the lesser attenuation.

6.2 Test Procedures

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10, 2013 on radiated measurement.

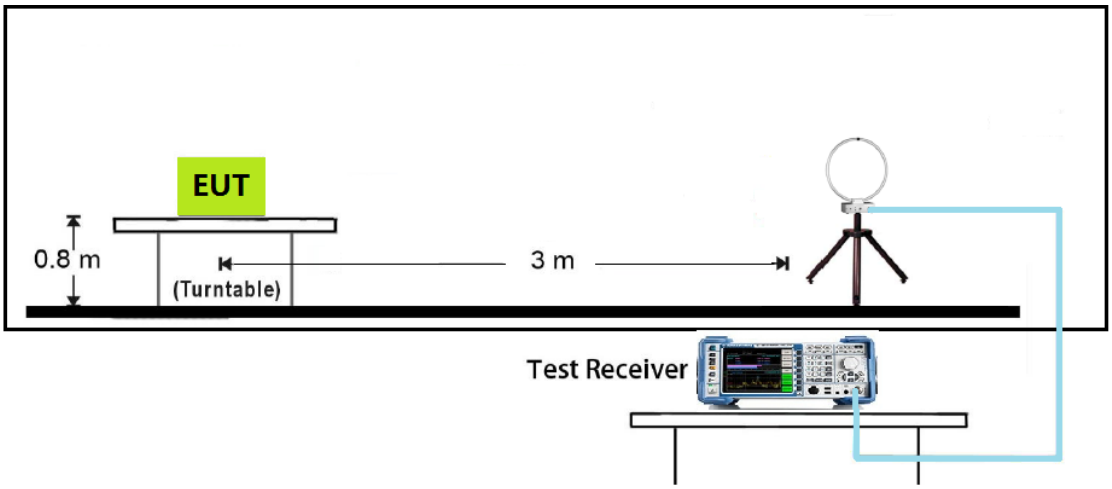
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

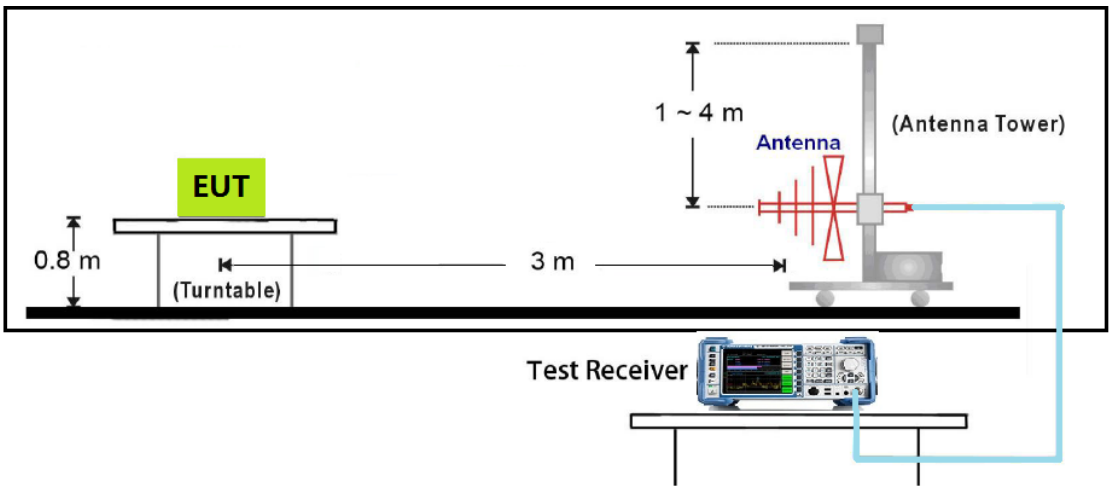
Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 60~10 degrees for H-plane and 90~10 degrees for E-plane.

6.3 Typical Test Setup

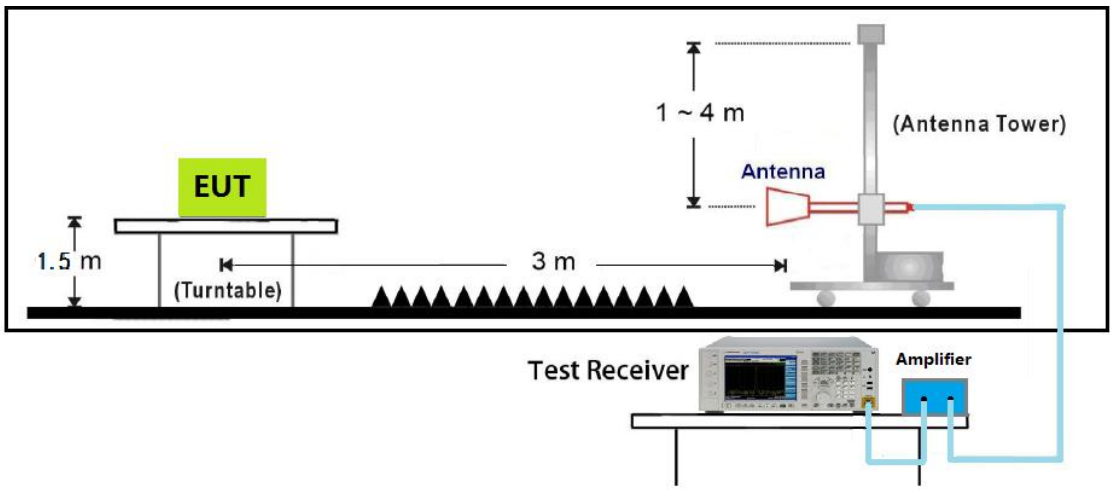
9kHZ~30MHz Test Setup



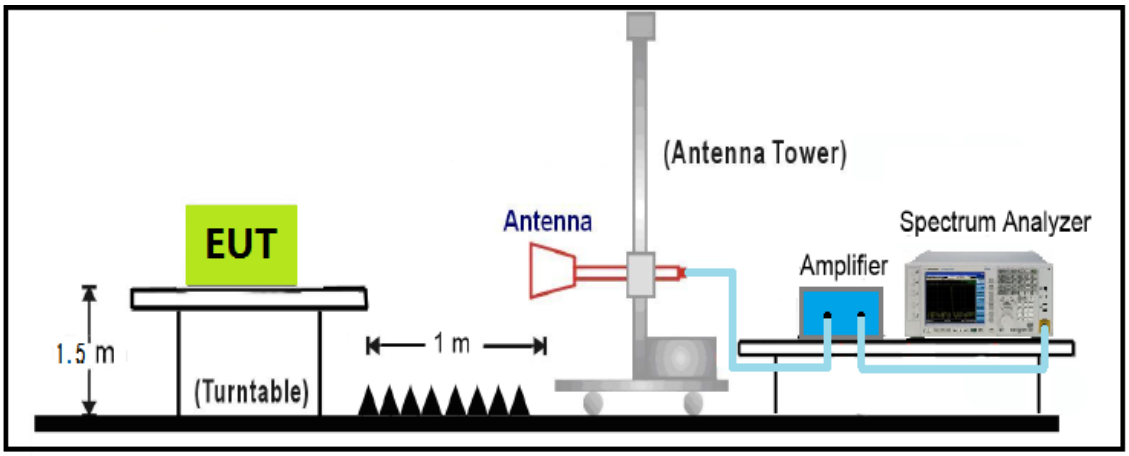
Below 1GHz Test Setup



1GHz~18GHz Test Setup



18GHz~40GHz Test Setup



6.4 Measurement Equipment

Radiated Measuring Equipment-AC102					
Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Loop Antenna	R&S	HFH2-Z2	100150	2016.08.31	2017.08.30
Bilog Antenna	Sunol Science	JB1	A072414-1	2016.04.16	2017.04.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2016.07.16	2017.07.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2016.05.07	2017.05.06
Preamplifier	HP	8447F	3113A05582	2016.03.26	2017.03.25
Preamplifier	EMCI	EMC-051835	980085	2016.09.06	2017.09.05
Preamplifier	COM-POWER	PA-840	711885	2016.03.26	2017.03.25
EMI Test Receiver	R&S	ESCI-3	101183	2016.06.29	2017.06.28
Spectrum Analyzer	N9010A	Agilent	MY53400169	2016.11.11	2017.11.11
Spectrum Analyzer	R&S	FS040	100324	2016.03.26	2017.03.25
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2016.03.31	2017.03.30

6.5 Test Result and Data

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 3MHz, VBW = 3MHz, sweep time = 200ms;

Average detector = Peak detector - 20*Log(1/Duty Cycle)

The maximum duty cycle plot is as the following:

Duty cycle correction factor (DCCF) = 20*Log(1/0.966) = 0.3dB (Duty cycle=96.6%)

Fundamental Radiated Emission

Test Item	:	Fundamental Radiated Emission
Test Site	:	AC102
Test Mode	:	Mode 1: Transmitting

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
2403	H	90.62	-2.19	88.43	114	-25.57	PK
	V	86.42	-2.19	84.23	114	-29.77	PK
2441	H	93.49	-2.05	91.44	114	-22.56	PK
	V	87.50	-2.05	85.45	114	-28.55	PK
2479	H	94.13	-1.91	92.22	114	-21.78	PK
	V	85.84	-1.91	83.93	114	-30.07	PK

Note:

Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Frequency (MHz)	Antenna	Peak Measure (dBuV/m)	Duty Cycle Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
2403	H	88.43	0.30	88.73	94	-5.27	AV
	V	84.23	0.30	84.53	94	-9.47	AV
2441	H	91.44	0.30	91.74	94	-2.26	AV
	V	85.45	0.30	85.75	94	-8.25	AV
2479	H	92.22	0.30	92.52	94	-1.48	AV
	V	83.93	0.30	84.23	94	-9.77	AV

Note:

Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Harmonic Radiated Emission

PK: Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 500ms;

For average, use peak measure level + Duty Cycle Correct Factor.

Test Item	:	Harmonic Radiated Emission
Test Site	:	AC102
Test Mode	:	Mode 1: Transmit at 2403MHz

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
4806	H	46.6	3.3	49.9	74	-24.1	PK
4806	V	46.7	3.3	50.0	74	-24.0	PK
7209	H	38.6	8.2	46.7	74	-27.3	PK
7209	V	37.8	8.2	46.0	74	-28.0	PK

Note:

Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Frequency (MHz)	Antenna	Peak Measure (dBuV/m)	Duty Cycle Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
4806	H	49.9	0.3	50.2	54	-3.8	AV
4806	V	50.0	0.3	50.3	54	-3.7	AV
7209	H	46.7	0.3	47.0	54	-7.0	AV
7209	V	46.0	0.3	46.3	54	-7.7	AV

Note: Average Measure Level = Peak Measure Level + Duty Cycle Correct Factor.

Test Item	:	Harmonic Radiated Emission
Test Site	:	AC102
Test Mode	:	Mode 1: Transmit at 2441MHz

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
4882	H	46.2	3.4	49.6	74	-24.4	PK
4882	V	49.4	3.4	52.8	74	-21.2	PK
7323	H	40.1	8.3	48.4	74	-25.6	PK
7323	V	38.9	8.3	47.1	74	-26.9	PK

Note:

Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Frequency (MHz)	Antenna	Peak Measure (dBuV/m)	Duty Cycle Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
4882	H	49.6	0.3	49.9	54	-4.1	AV
4882	V	52.8	0.3	53.1	54	-0.9	AV
7323	H	48.4	0.3	48.7	54	-5.3	AV
7323	V	47.1	0.3	47.4	54	-6.6	AV

Note: Average Measure Level = Peak Measure Level + Duty Cycle Correct Factor.

Test Item	:	Harmonic Radiated Emission
Test Site	:	AC102
Test Mode	:	Mode 1: Transmit at 2479MHz

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
4958	H	46.4	3.6	50.0	74	-24.0	PK
4958	V	49.6	3.6	53.2	74	-20.8	PK
7437	H	41.8	8.4	50.1	74	-23.9	PK
7437	V	38.7	8.4	47.0	74	-27.0	PK

Note:

Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

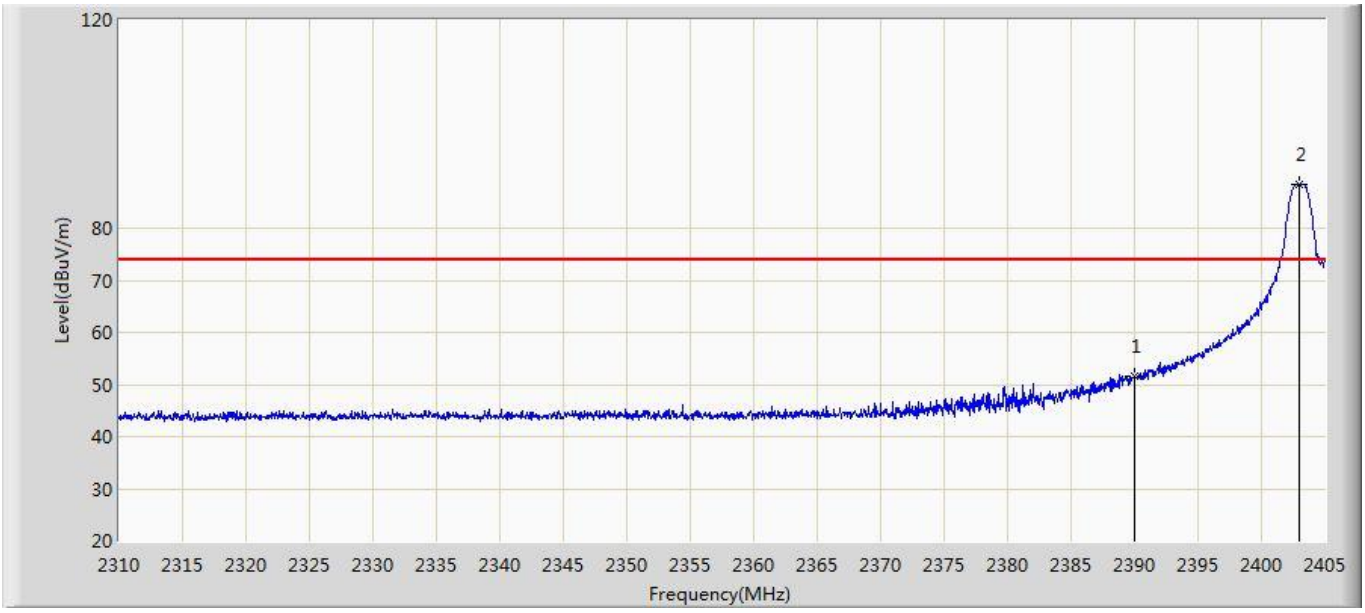
Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Frequency (MHz)	Antenna	Peak Measure (dBuV/m)	Duty Cycle Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Type
4958	H	50.0	0.3	50.3	54	-3.7	AV
4958	V	53.2	0.3	53.5	54	-0.5	AV
7437	H	50.1	0.3	50.4	54	-3.6	AV
7437	V	47.0	0.3	47.3	54	-6.7	AV

Note: Average Measure Level = Peak Measure Level + Duty Cycle Correct Factor.

Restricted Band Result:

Site: AC102	Time: 2016/10/27 - 19:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:	Polarity: Horizontal
EUT: LeEco Subwoofer	Power: AC 120V/60Hz
Note: Mode1: Transmit at 2403MHz	

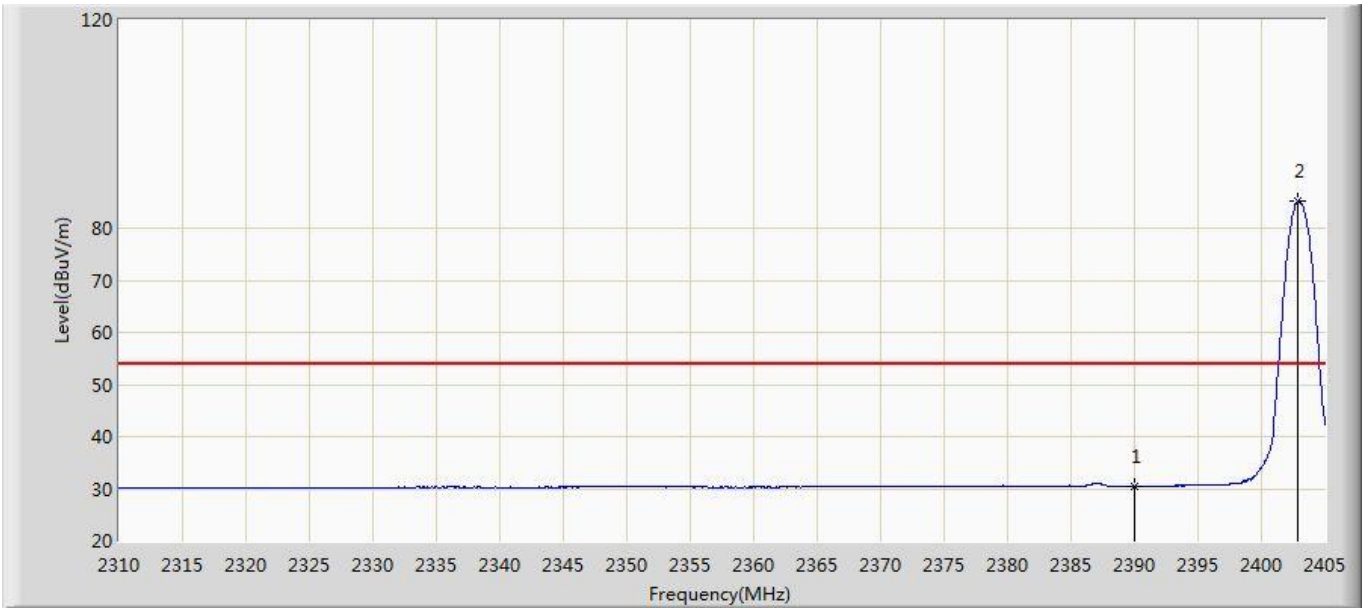


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.519	53.760	-22.481	74.000	-2.241	PK
2	*	2403.005	88.428	90.621	N/A	N/A	-2.193	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/10/27 - 19:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:	Polarity: Horizontal
EUT: LeEco Subwoofer	Power: AC 120V/60Hz
Note: Mode1: Transmit at 2403MHz	

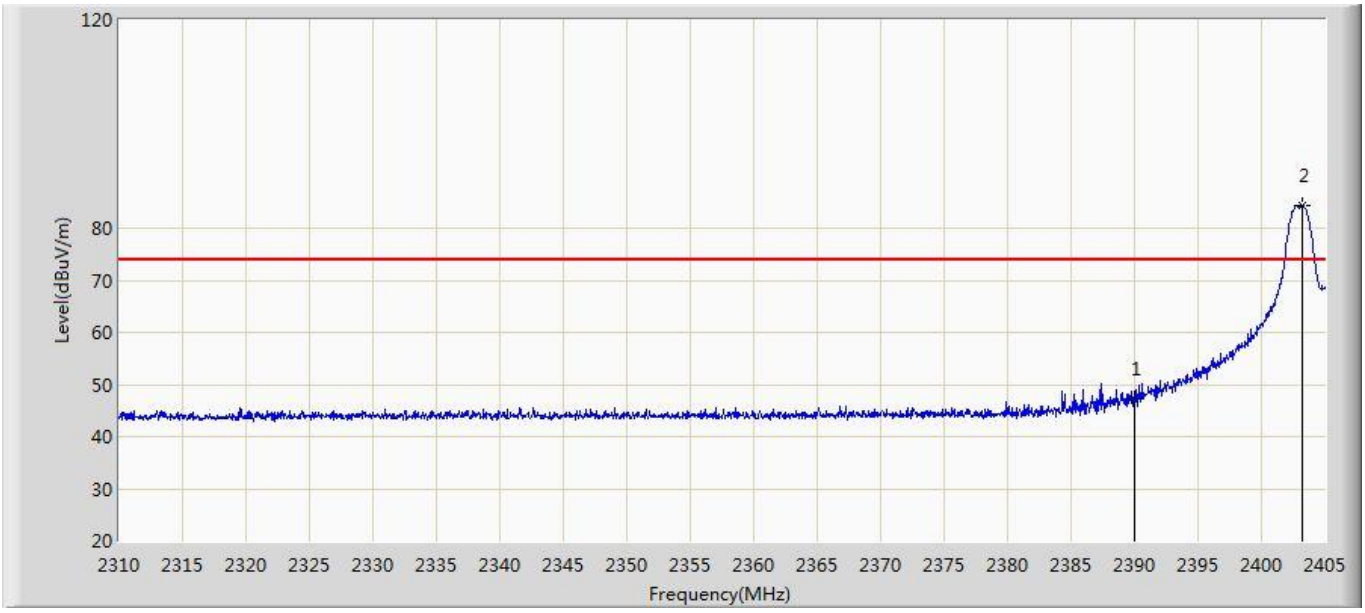


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	30.478	32.719	-23.522	54.000	-2.241	AV
2	*	2402.863	85.172	87.365	N/A	N/A	-2.193	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/10/27 - 19:28
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:	Polarity: Vertical
EUT: LeEco Subwoofer	Power: AC 120V/60Hz
Note: Mode1: Transmit at 2403MHz	

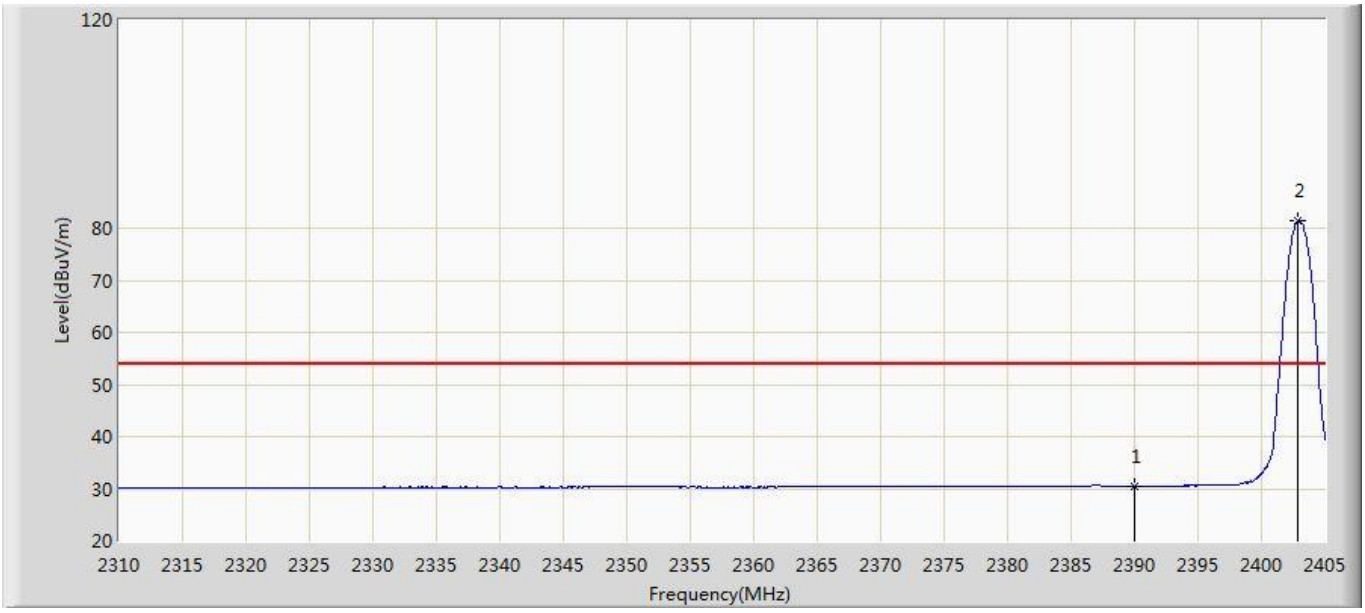


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.122	49.363	-26.878	74.000	-2.241	PK
2	*	2403.195	84.229	86.421	N/A	N/A	-2.192	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/10/27 - 19:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:	Polarity: Vertical
EUT: LeEco Subwoofer	Power: AC 120V/60Hz
Note: Mode1: Transmit at 2403MHz	

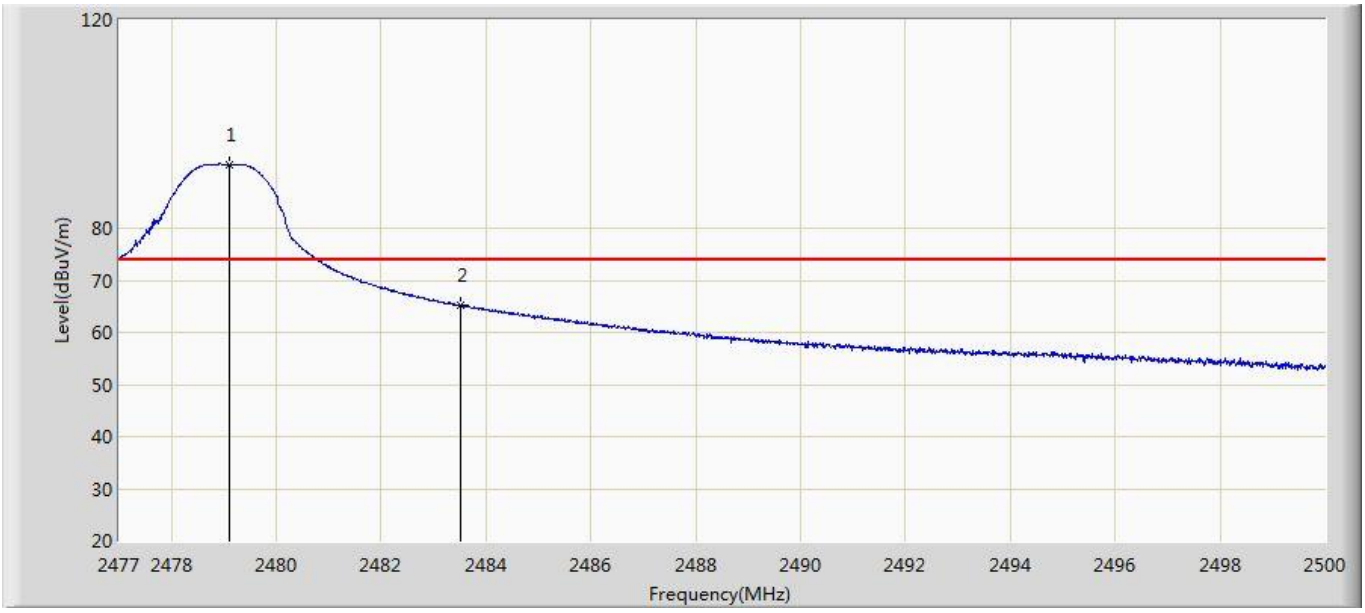


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	30.434	32.675	-23.566	54.000	-2.241	AV
2	*	2402.910	81.474	83.667	N/A	N/A	-2.193	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/10/27 - 19:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:	Polarity: Horizontal
EUT: LeEco Subwoofer	Power: AC 120V/60Hz
Note: Mode1: Transmit at 2479MHz	

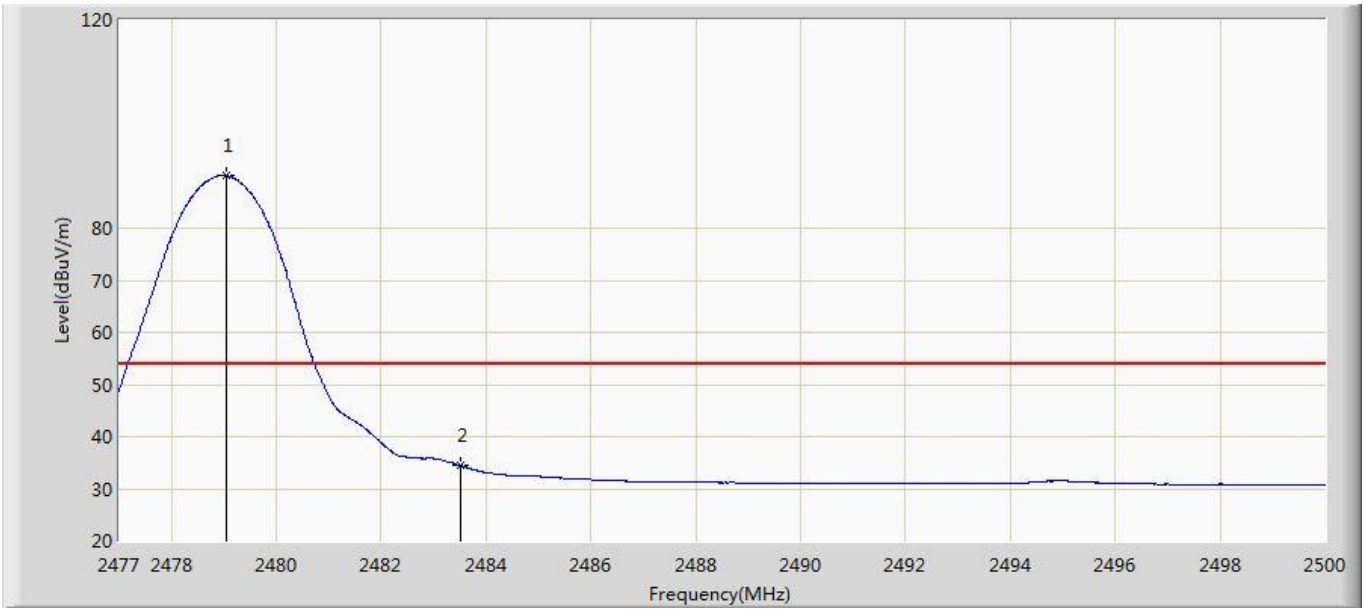


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.116	92.222	94.131	N/A	N/A	-1.909	PK
2		2483.500	65.161	67.053	-8.839	74.000	-1.892	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/10/27 - 19:31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:	Polarity: Horizontal
EUT: LeEco Subwoofer	Power: AC 120V/60Hz
Note: Mode1: Transmit at 2479MHz	

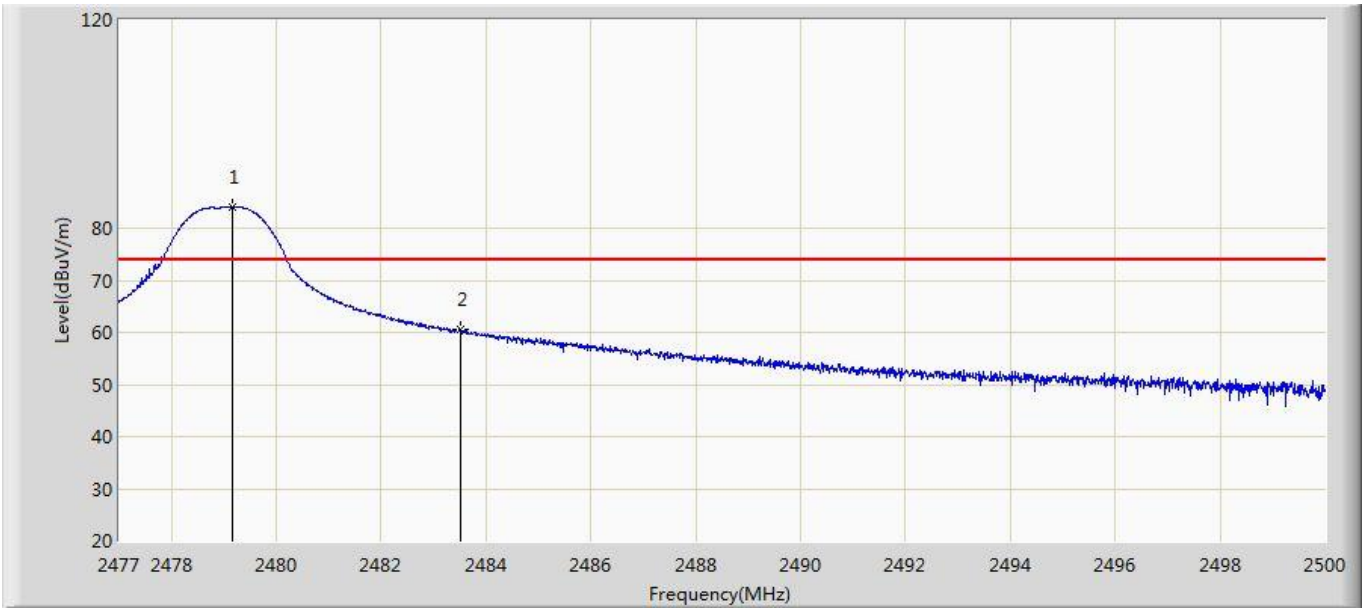


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.035	90.064	91.973	N/A	N/A	-1.909	AV
2		2483.500	34.537	36.429	-19.463	54.000	-1.892	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/10/27 - 19:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:	Polarity: Vertical
EUT: LeEco Subwoofer	Power: AC 120V/60Hz
Note: Mode1: Transmit at 2479MHz	

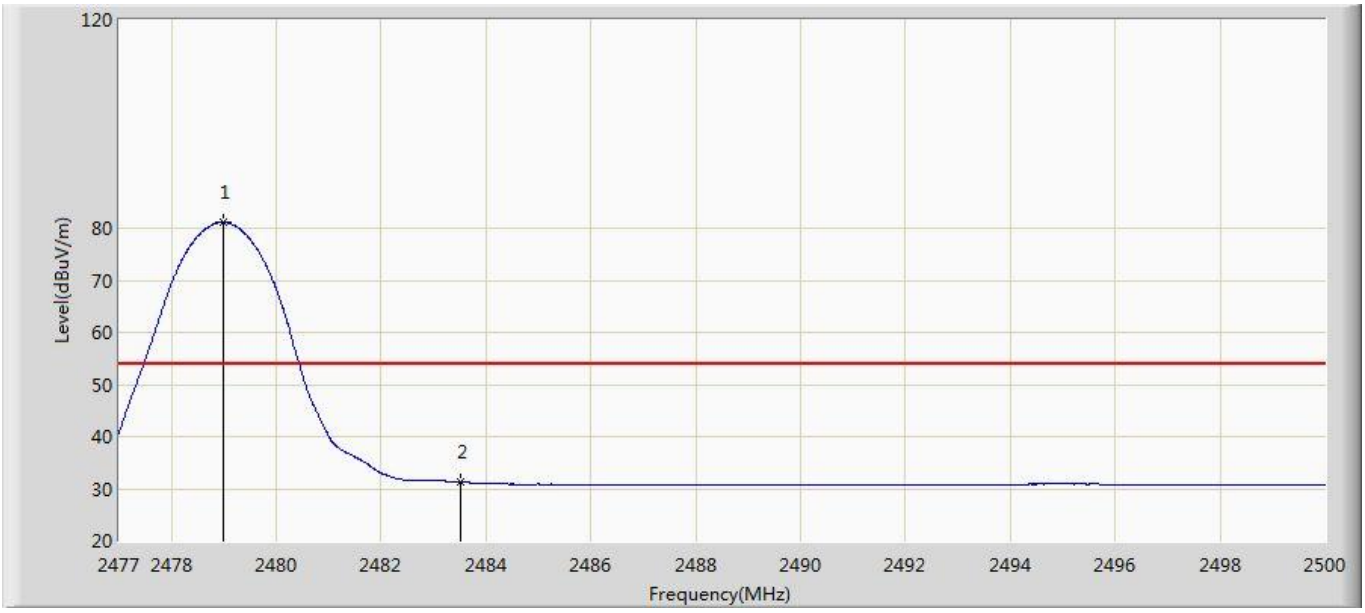


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.150	83.932	85.840	N/A	N/A	-1.908	PK
2		2483.500	60.505	62.397	-13.495	74.000	-1.892	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Site: AC102	Time: 2016/10/27 - 19:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe:	Polarity: Vertical
EUT: LeEco Subwoofer	Power: AC 120V/60Hz
Note: Mode1: Transmit at 2479MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.001	81.099	83.008	N/A	N/A	-1.909	AV
2		2483.500	31.233	33.125	-22.767	54.000	-1.892	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

7. 20dB Bandwidth

7.1 Test Limit

- For frequency hopping systems operating in 2400-2483.5 MHz band, no limitation.
- For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
- For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

7.2 Test Procedures

According to ANSI C63.10, 2013.

Use the following spectrum analyzer settings:

Span = shall be between two times and five times the OBW

RBW ≧ 1% of the 20dB bandwidth

VBW ≧ RBW

Sweep = auto

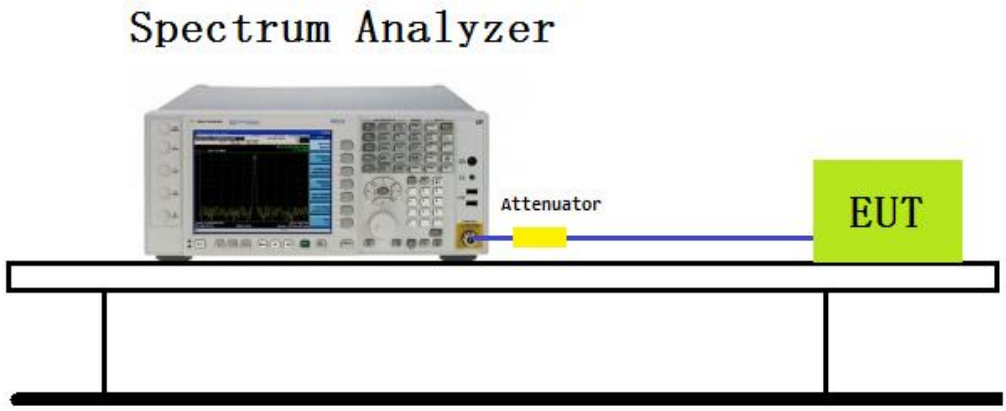
Detector function = peak

Trace = max hold

The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize.

Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation.

7.3 Test Setup Layout



7.4 Measurement Equipment

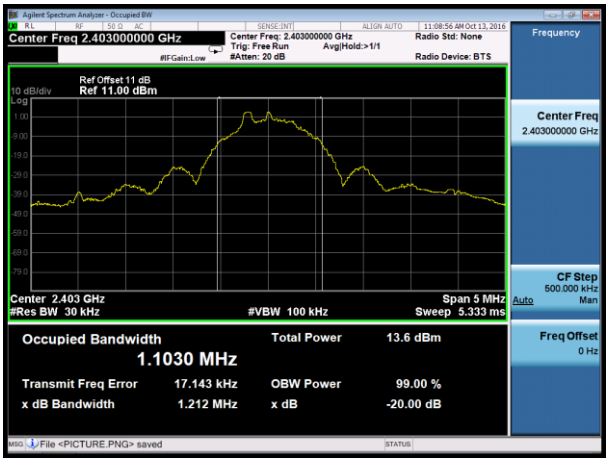
RF Conducted Measuring Equipment-AC104					
Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Peak Power Sensor	Booton	55006	9778	2016.06.08	2017.06.07
Series Power Meter	ANRITSU	ML2495A	1224005	2016.03.27	2017.03.26
Spectrum Analyzer	N9010A	Agilent	MY53400169	2016.11.11	2017.11.11
Spectrum Analyzer	E4407B	Agilent	MY44211883	2016.10.15	2017.10.14
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-003	2016.03.31	2017.03.30

7.5 Test Result and Data

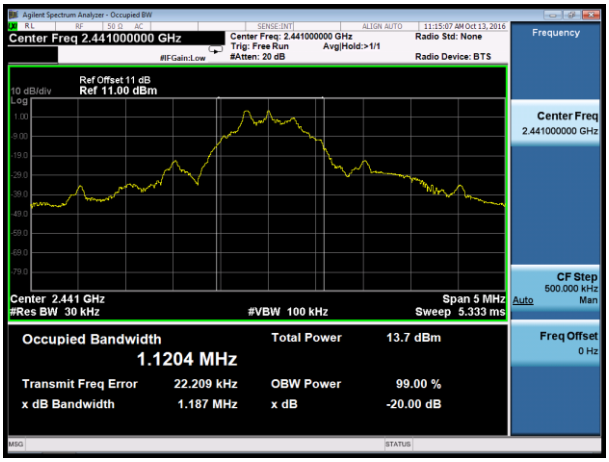
Test Item	20dB Bandwidth
Test Mode	Transmit

Channel No.	Frequency (MHz)	20dB Measurement Level (MHz)	99% Occupied Bandwidth (MHz)	Result
01	2403	1.212	1.030	Pass
13	2441	1.187	1.120	Pass
25	2479	1.243	1.155	Pass

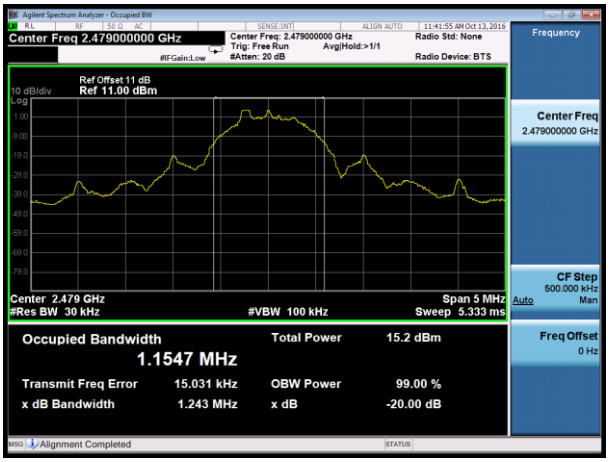
Channel 01 (2403MHz)



Channel 13 (2441MHz)



Channel 25 (2479MHz)



8. Band-Edge Compliance of RF Conducted Emissions

8.1 Test Limit

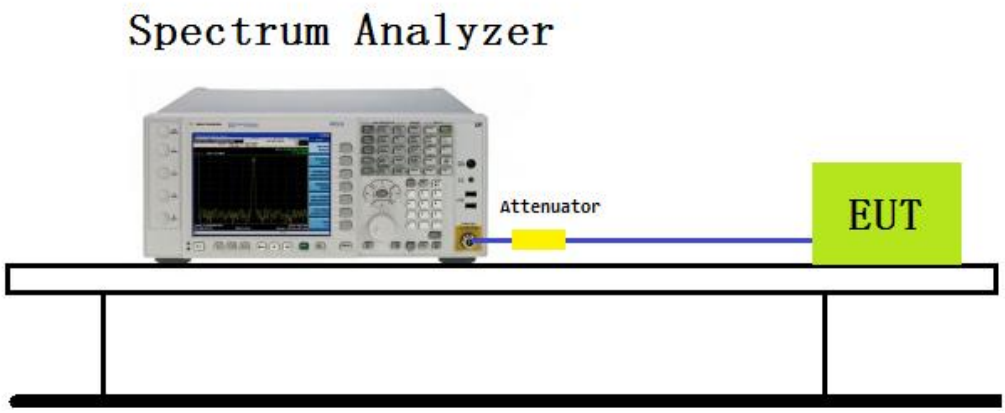
FCC Part 15.215 (c), Intentional radiators operating under the alternative provisions to the general emission limits as contained in 15.217 through 15.257 and in Subpart E of FCC part 15, must be designed to ensure that 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

8.2 Test Procedure

Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation.
RBW ≧ 1% of the span
VBW ≧ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section.
Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

8.3 Test Setup Layout

Conducted



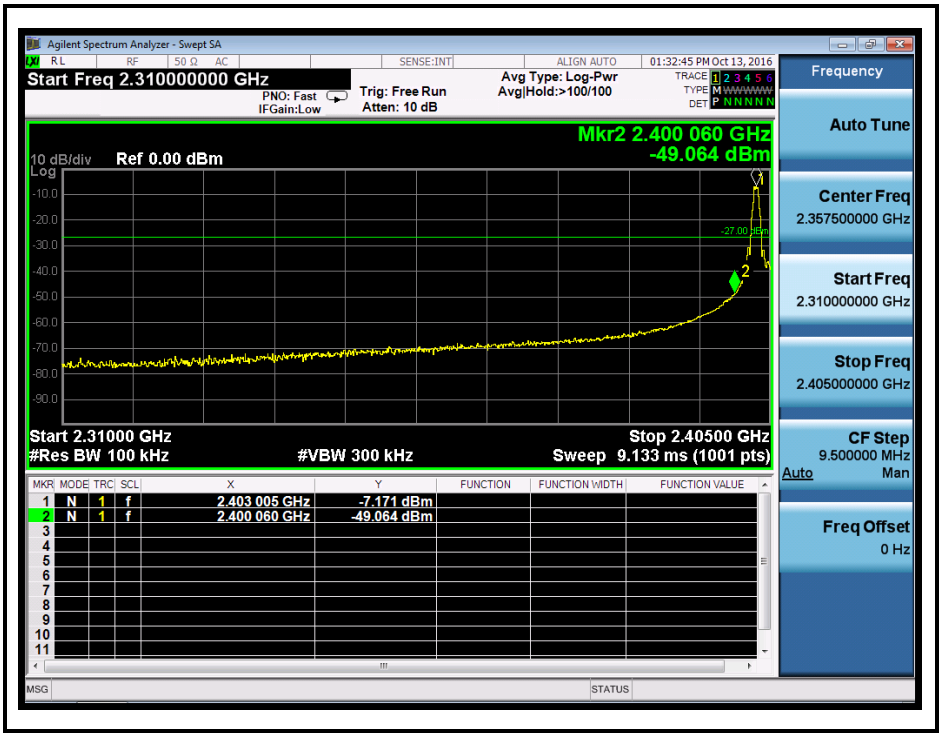
8.4 Measurement Equipment

RF Conducted Measuring Equipment-AC104					
Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Peak Power Sensor	Booton	55006	9778	2016.06.08	2017.06.07
Series Power Meter	ANRITSU	ML2495A	1224005	2016.03.27	2017.03.26
Spectrum Analyzer	N9010A	Agilent	MY53400169	2016.11.11	2017.11.11
Spectrum Analyzer	E4407B	Agilent	MY44211883	2016.10.15	2017.10.14
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-003	2016.03.31	2017.03.30

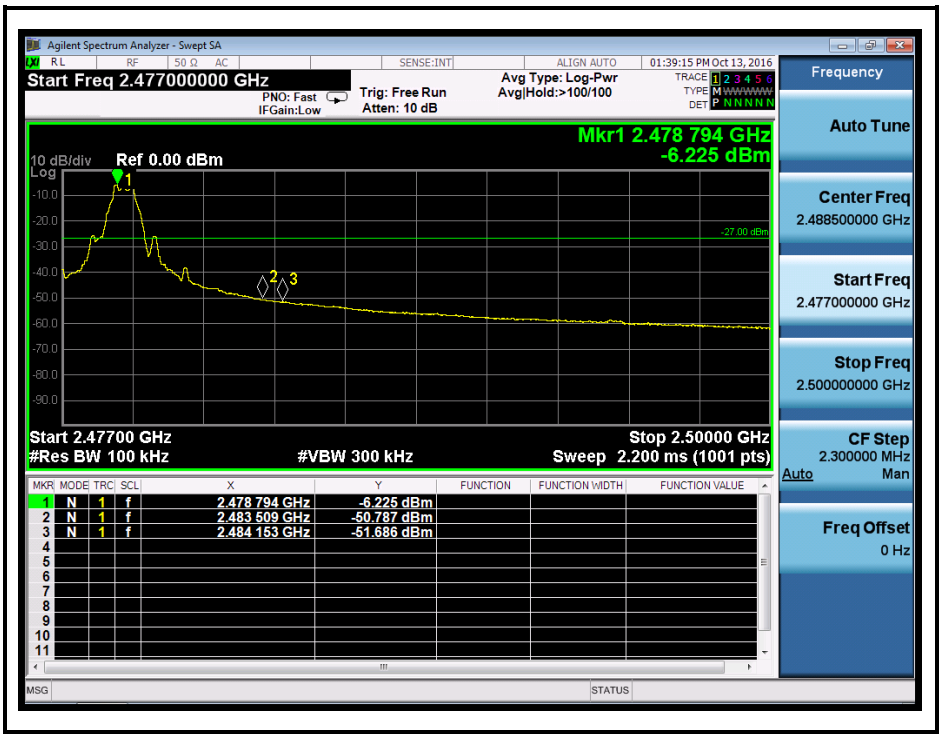
8.5 Test Result and Data

Band Edge (20dBc RF Conducted Measurement)

Mode 1: Transmit by (2403MHz)



Mode 1: Transmit by (2479MHz)



9. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

**: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

9.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following twoconditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

10. Appendix - Information On The Testing Laboratory

We, BUREAU VERITAS ADT (Shanghai) Corporation, were founded in 2004 to provide our best service in EMC, Radio and Vehicle consultation. Our laboratories are accredited by the following accreditation bodies according to ISO/IEC 17025 (2005) .

USA	A2LA
	Certificate No.: 2343.01
China	CNAS
	Certificate No.: L2810

Copies of accreditation certificates could be inquired from our office. If you have any comments, please feel free to contact us at the following:

EMC / RF / Vehicle Lab:
Tel: +86 21 6465 9091
Fax:+86 21 6465 9092
Email: bvadtshmail@cn.bureauveritas.com

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