FCC Report

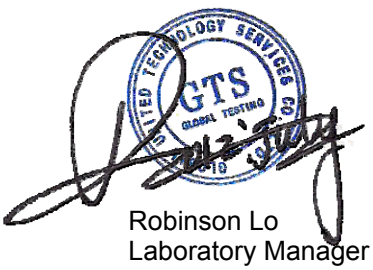
Applicant:	Zylux Acoustic Corporation
Address of Applicant:	3F, 22 Lane 35, Jihu Road, Taipei NeiHu Technolongy Park, Taipei 11492, Taiwan

Equipment Under Test (EUT)

Product Name:	MOODSET (Previously Mood Media Wireless Music System)
Model No.:	MUZ-RGSYS
Trade Mark:	Mood Media
FCC ID:	XN6RGRX
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247:2010
Date of sample receipt:	July 06, 2012
Date of Test:	July 06-July 25, 2012
Date of report issued:	July 25, 2012
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*July 25, 2012*	*Original*

Prepared By:  ***Date:*** *July 25, 2012*

Project Engineer

Check By:  ***Date:*** *July 25, 2012*

Reviewer

3 Contents

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna Requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(1)	Pass
Emission Bandwidth	15.247 (a)(1)	Pass
Carrier Frequencies Separation	15.247 (a)(1)	Pass
Hopping Channel Number	15.247 (a)(1)	Pass
Dwell Time	15.247 (a)(1)	Pass
Pseudorandom Frequency Hopping Sequence	15.247(b)(4)&TCB Exclusion List (7 July 2002)	Pass
Radiated Emission	15.205/15.209	Pass
Band Edge	15.247(d)	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	Zylux Acoustic Corporation
Address of Applicant:	3F, 22 Lane 35, Jihu Road, Taipei NeiHu Technolongy Park, Taipei 11492, Taiwan
Manufacturer/Factory:	ZHAO YANG ELEC.(SHENZHEN) CO., LTD.
Address of Manufacturer/Factory:	Section A, 4th Floor, Building 1 & Building 2, De Yong Jia Industrial Park, Guang Qiao Road, Yu Lv Community, Gong Ming Street, Guang Ming New District, Shenzhen

5.2 General Description of E.U.T.

Product Name:	MOODSET (Previously Mood Media Wireless Music System)
Model No.:	MUZ-RGSYS
Operation Frequency:	2403.330MHz~2479.106MHz
Channel numbers:	38
Modulation type:	FSK
Antenna Type:	Integral
Antenna gain:	2dBi
Power supply:	Model No.: S040EM1600225 Input: 100V-240VAC, 50/60Hz, 1.2A Max Output: 16.0VDC, 2250mA

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2403.330MHz	11	2423.810MHz	21	2444.290MHz	31	2464.770MHz
2	2405.378MHz	12	2425.858MHz	22	2446.338MHz	32	2466.818MHz
3	2407.426MHz	13	2427.906MHz	23	2448.386MHz	33	2468.866MHz
4	2409.474MHz	14	2429.954MHz	24	2450.434MHz	34	2470.914MHz
5	2411.522MHz	15	2432.002MHz	25	2452.482MHz	35	2472.962MHz
6	2413.570MHz	16	2434.050MHz	26	2454.530MHz	36	2475.010MHz
7	2415.618MHz	17	2436.098MHz	27	2456.578MHz	37	2477.058MHz
8	2417.666MHz	18	2438.146MHz	28	2458.626MHz	38	2479.106MHz
9	2419.714MHz	19	2440.194MHz	29	2460.674MHz		
10	2421.762MHz	20	2442.242MHz	30	2462.722MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2403.330MHz
The middle channel	2442.242MHz
The Highest channel	2479.106MHz

5.3 Test mode

Transmitting mode	Keep transmitting mode

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission.

The acceptance letter from the FCC is maintained in out files. Registration 600491, July 20, 2010.

● **Industry Canada (IC)**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China
Tel: 0755-27798480
Fax: 0755-27798960

5.6 Other Information Requested by the Customer

None.

5.7 Description of Support Units

None.

5.8 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 30 2011	Mar. 29 2013
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 03 2012	Jul. 02 2013
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 25 2012	Feb. 24 2013
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 29 2012	June 28 2013
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2011	Mar. 29 2013
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Mar. 31 2012	Mar. 30 2013
9	Coaxial Cable	GTS	N/A	GTS211	Mar. 31 2012	Mar. 30 2013
10	Coaxial cable	GTS	N/A	GTS210	Mar. 31 2012	Mar. 30 2013
11	Coaxial Cable	GTS	N/A	GTS212	Mar. 31 2012	Mar. 30 2013
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 03 2012	Jul. 02 2013
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 03 2012	Jul. 02 2013
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 29 2012	June 28 2013
15	Band filter	Amindeon	82346	GTS219	Mar. 31 2012	Mar. 30 2013

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 08 2011	Sep. 07 2013
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 03 2012	Jul. 02 2013
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 03 2012	Jul. 02 2013
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 03 2012	Jul. 02 2013
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 03 2012	Jul. 02 2013
6	Coaxial Cable	GTS	N/A	GTS227	Jul. 03 2012	Jul. 02 2013
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

6 Test results and Measurement Data

6.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

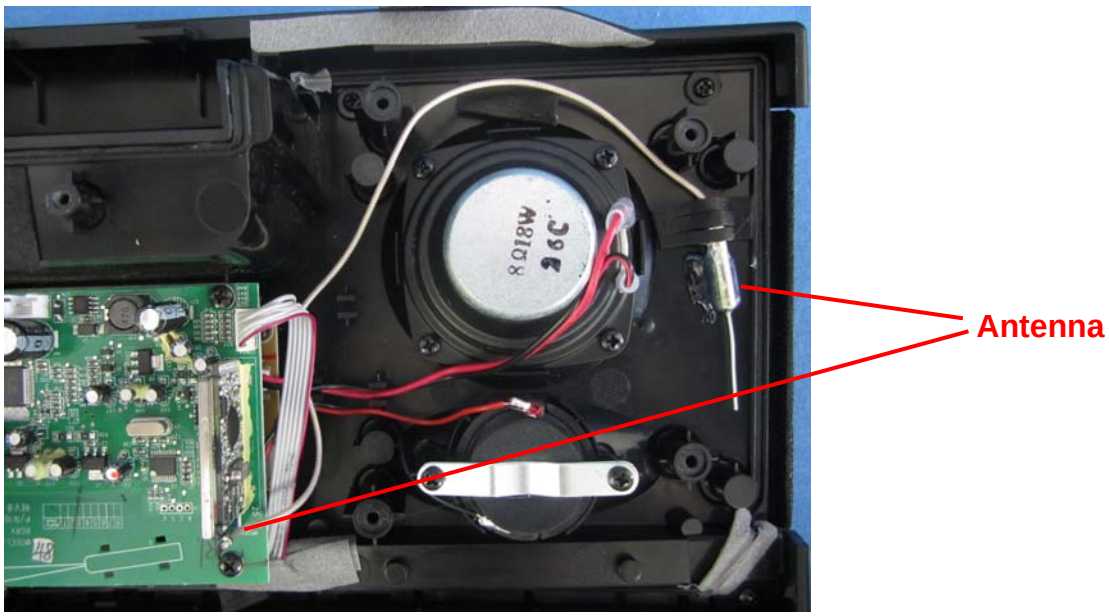
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

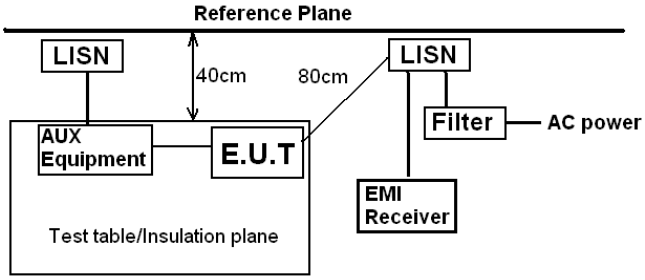
(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The antenna is integral antenna, the best case gain of the antenna is 2dBi

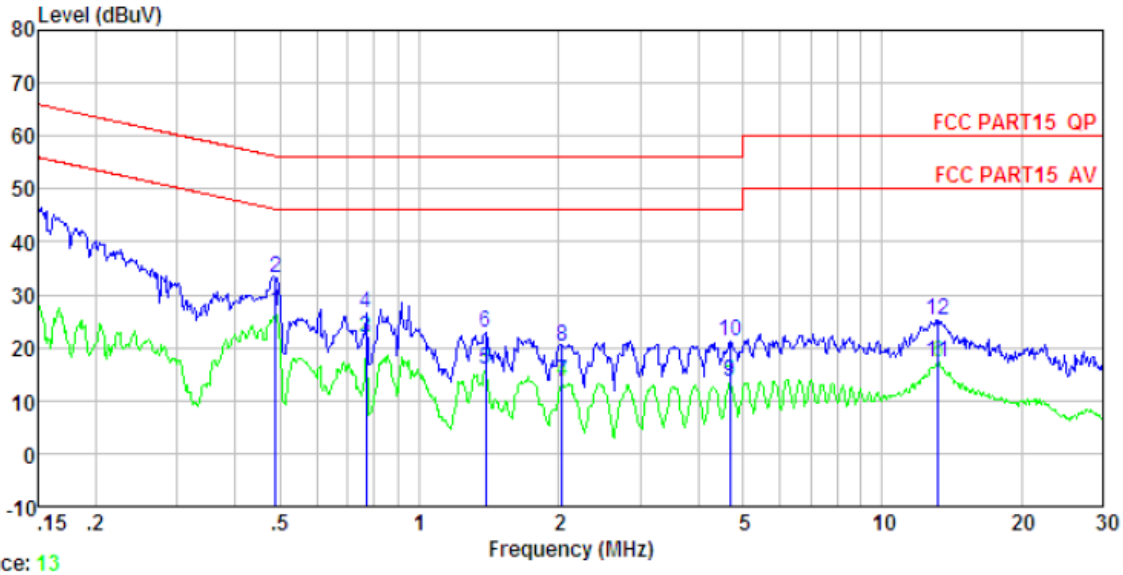


6.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.4:2003
Test Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto
Limit:	Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 * Decreases with the logarithm of the frequency.
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement data:

Line:

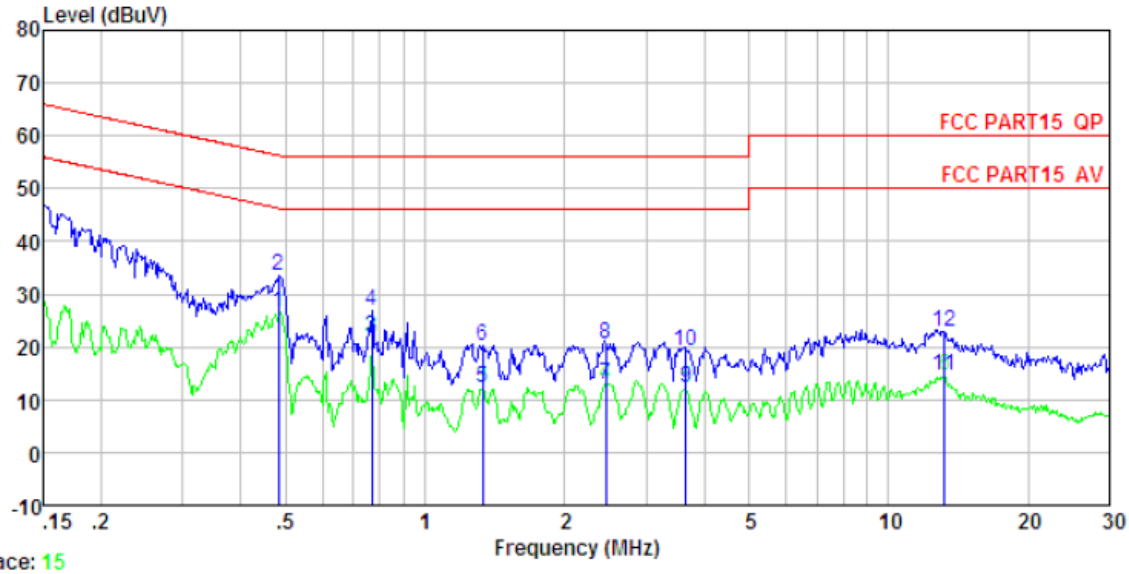


Trace: 13

Condition : FCC PART15 QP LISN(2011) LINE
Job No. : 748RF
Test Mode : Operation mode
Test Engineer: Blue

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.489	26.12	0.56	0.10	26.78	46.19	-19.41	Average
2	0.489	32.47	0.56	0.10	33.13	56.19	-23.06	QP
3	0.767	21.14	0.51	0.10	21.75	46.00	-24.25	Average
4	0.767	25.88	0.51	0.10	26.49	56.00	-29.51	QP
5	1.388	15.22	0.44	0.10	15.76	46.00	-30.24	Average
6	1.388	22.30	0.44	0.10	22.84	56.00	-33.16	QP
7	2.033	13.18	0.40	0.10	13.68	46.00	-32.32	Average
8	2.033	19.84	0.40	0.10	20.34	56.00	-35.66	QP
9	4.696	13.18	0.31	0.10	13.59	46.00	-32.41	Average
10	4.696	20.79	0.31	0.10	21.20	56.00	-34.80	QP
11	13.197	16.89	0.19	0.20	17.28	50.00	-32.72	Average
12	13.197	24.94	0.19	0.20	25.33	60.00	-34.67	QP

Neutral:



Trace: 15

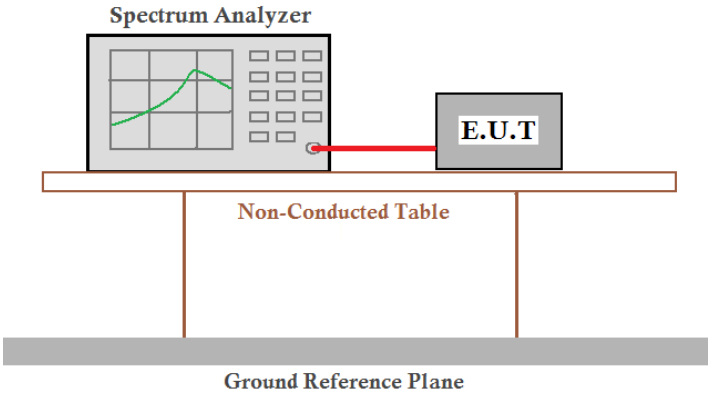
Condition : FCC PART15 QP LISN(2011) NEUTRAL
Job No. : 748RF
Test Mode : Operation mode
Test Engineer: Blue

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.484	25.85	0.56	0.10	26.51	46.27	-19.76	Average
2	0.484	32.89	0.56	0.10	33.55	56.27	-22.72	QP
3	0.767	21.36	0.51	0.10	21.97	46.00	-24.03	Average
4	0.767	26.41	0.51	0.10	27.02	56.00	-28.98	QP
5	1.331	11.72	0.45	0.10	12.27	46.00	-33.73	Average
6	1.331	19.54	0.45	0.10	20.09	56.00	-35.91	QP
7	2.461	12.56	0.38	0.10	13.04	46.00	-32.96	Average
8	2.461	19.92	0.38	0.10	20.40	56.00	-35.60	QP
9	3.661	11.72	0.33	0.10	12.15	46.00	-33.85	Average
10	3.661	18.78	0.33	0.10	19.21	56.00	-36.79	QP
11	13.197	14.24	0.19	0.20	14.63	50.00	-35.37	Average
12	13.197	22.33	0.19	0.20	22.72	60.00	-37.28	QP

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss

6.3 Conducted Peak Output Power

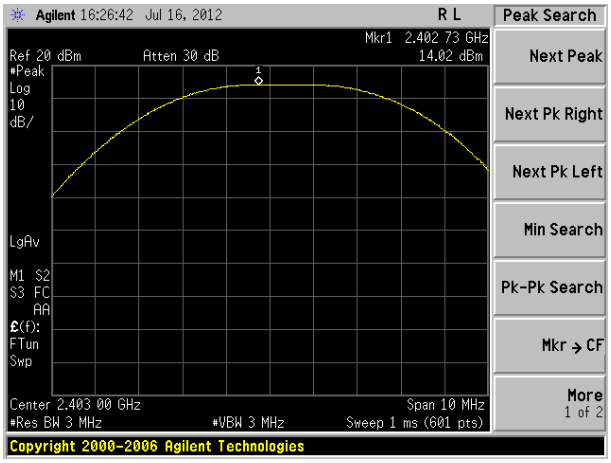
Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.4:2003
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

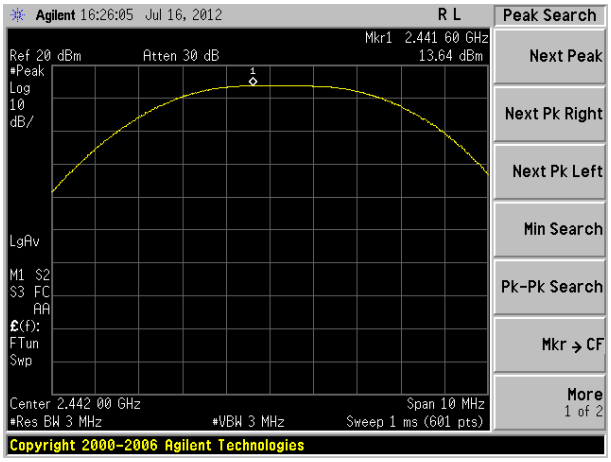
FSK mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	14.02	30.00	Pass
Middle	13.64		
Highest	12.78		

Test plot as follows:

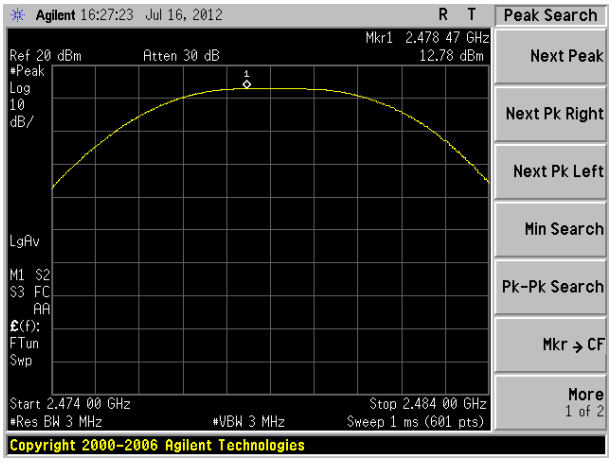
Test mode:	FSK mode



Lowest channel

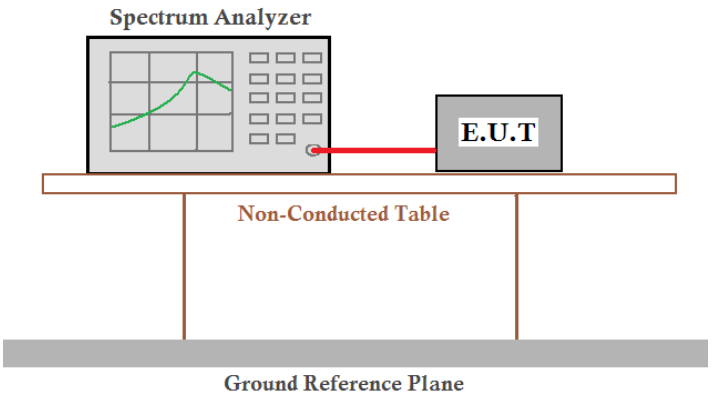


Middle channel



Highest channel

6.4 Emission Bandwidth

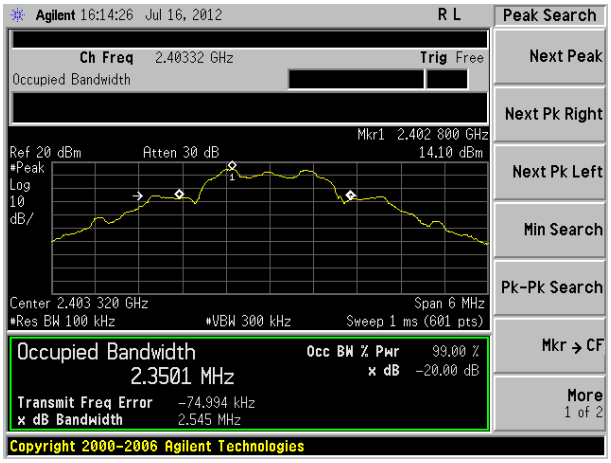
Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.4:2003
Limit:	N/A
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

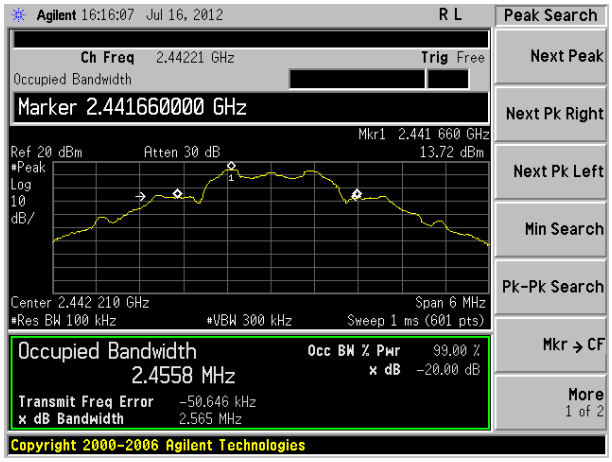
Test channel	Emission Bandwidth (MHz)	Result
Lowest	2.545	Pass
Middle	2.565	
Highest	2.573	

Test plot as follows:

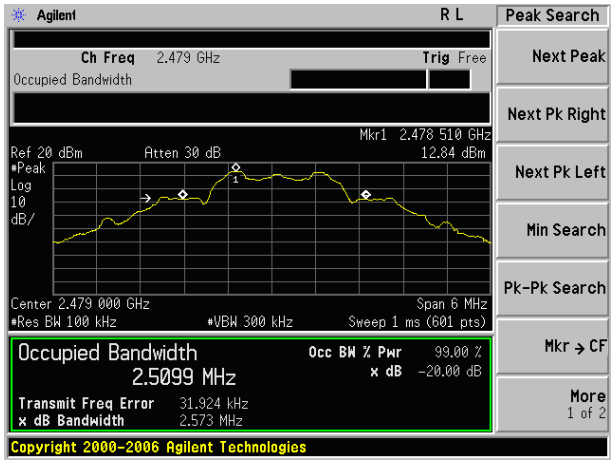
Test mode:	FSK mode



Lowest channel

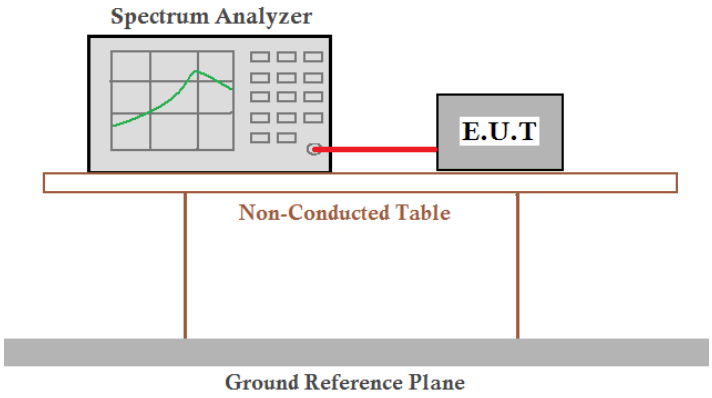


Middle channel



Highest channel

6.5 Carrier Frequencies Separation

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.4:2003
Receiver setup:	RBW=100KHz, VBW=300KHz, detector=Peak
Limit:	0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

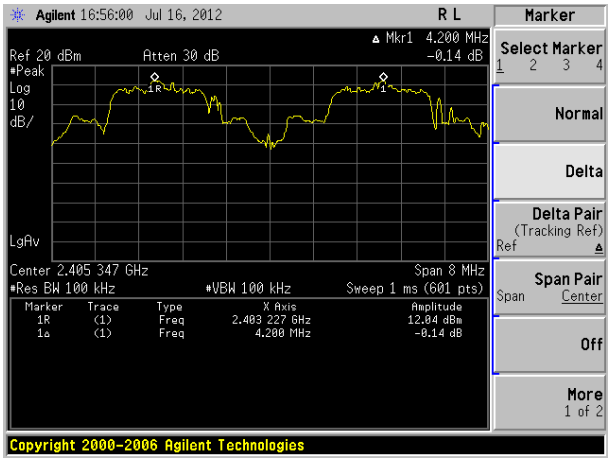
FSK mode			
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Lowest	4200	1715	Pass
Middle	6120	1715	Pass
Highest	4107	1715	Pass

Note: According to section 6.4

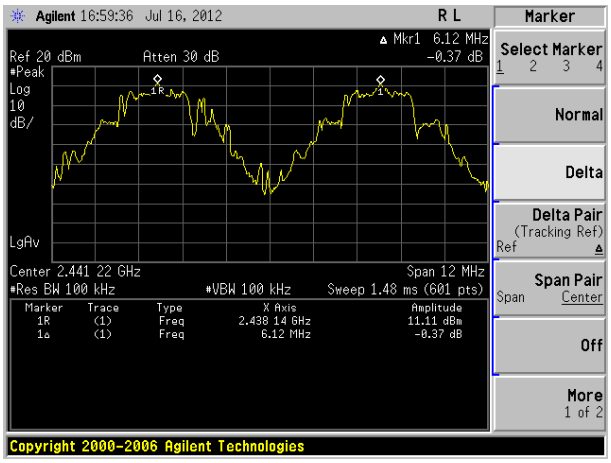
Mode	*20dB bandwidth (kHz) (worse case)*	*Limit (kHz) (Carrier Frequencies Separation)*
FSK	*2573*	*1715*

Test plot as follows:

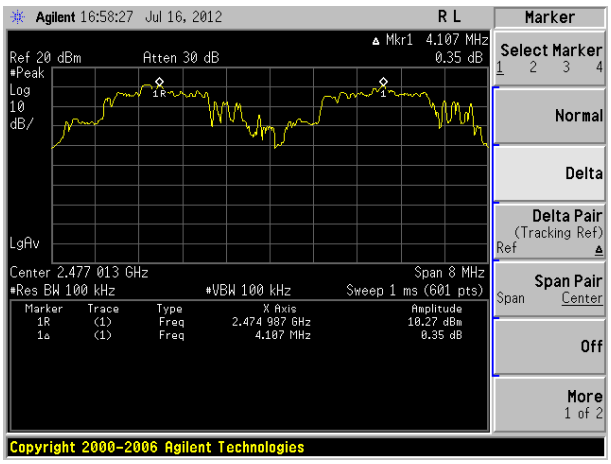
Modulation mode:	FSK



Lowest channel

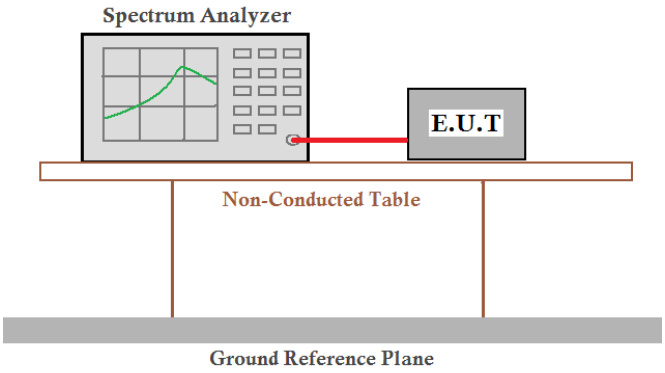


Middle channel



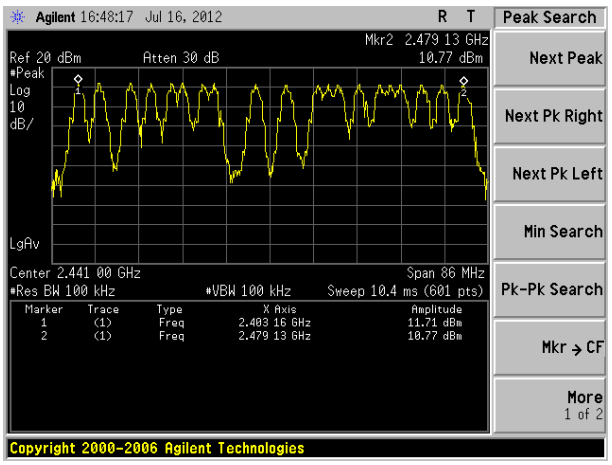
Highest channel

6.6 Hopping Channel Number

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.4:2003
Receiver setup:	RBW=100kHz, VBW=300kHz, Frequency range=2400MHz-2483.5MHz, Detector=Peak
Limit:	15 channels
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data:

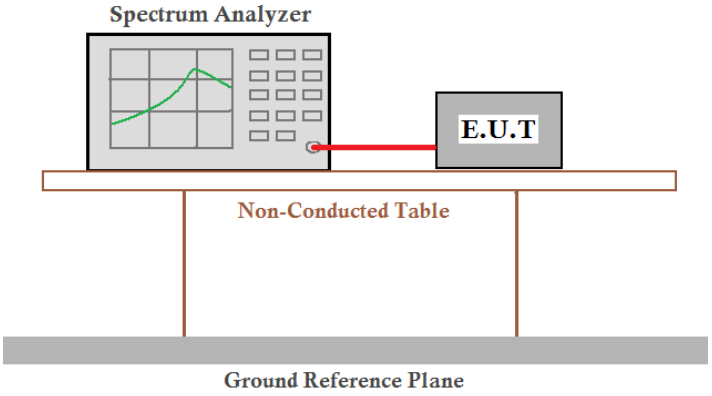
Mode	Hopping channel numbers	Limit	Result
FSK	20	15	Pass



Remark: The RF Module has channel palette of 38 channels starting at 2403.33MHz. From this palette, 20 channels are used by the system at any given moment.

Please refer to operational description for more information

6.7 Dwell Time

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.4:2003
Receiver setup:	RBW=1MHz, VBW=1MHz, Span=0Hz, Detector=Peak
Limit:	0.4 Second
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

Channel	Dwell time (second)	Limit (second)	Result
lowest	0.026696	0.4	Pass
middle	0.026696		
highest	0.026824		

The lowest channel (2403.33MHz), middle channel (2442.242MHz), highest channel (2479.106MHz) as blow

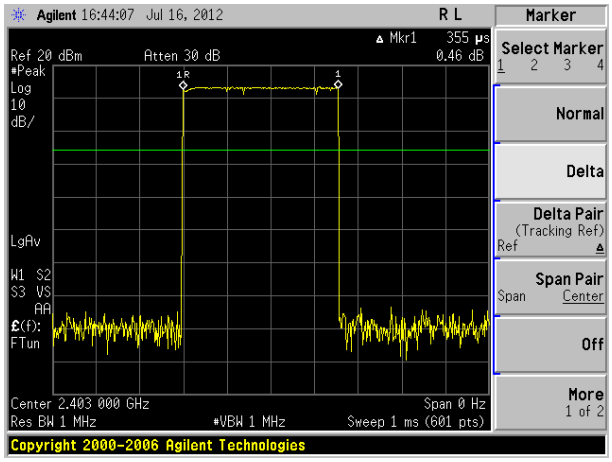
Lowest channel time slot=0.355(ms)*188*0.4=26.696ms

Middle channel time slot=0.355(ms)*188*0.4=26.693ms

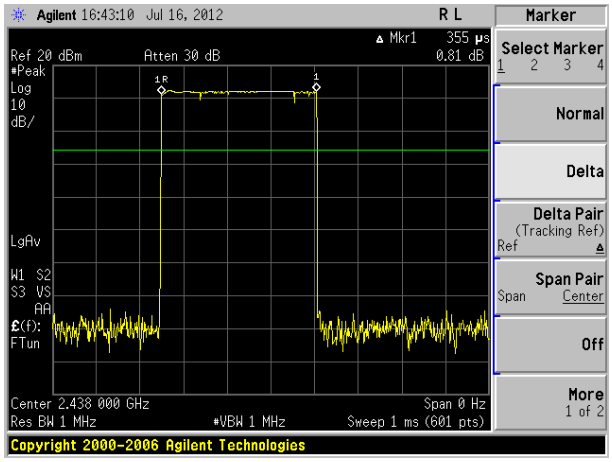
Highest channel time slot=0.3567(ms)*188*0.4=26.824ms

Test plot as follows:

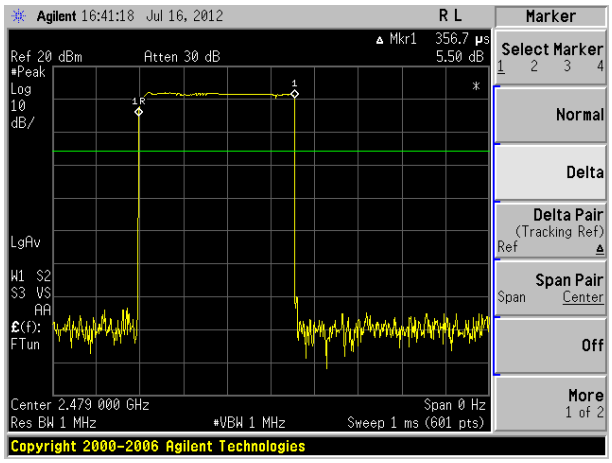
Modulation mode:	FSK



Lowest channel



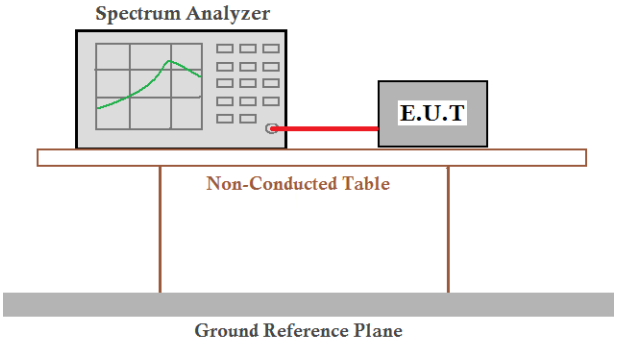
Middle channel



Highest channel

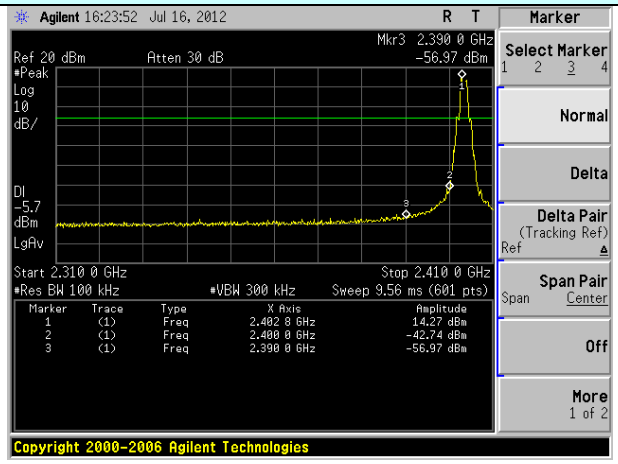
6.8 Band Edge

6.8.1 Conducted Emission Method

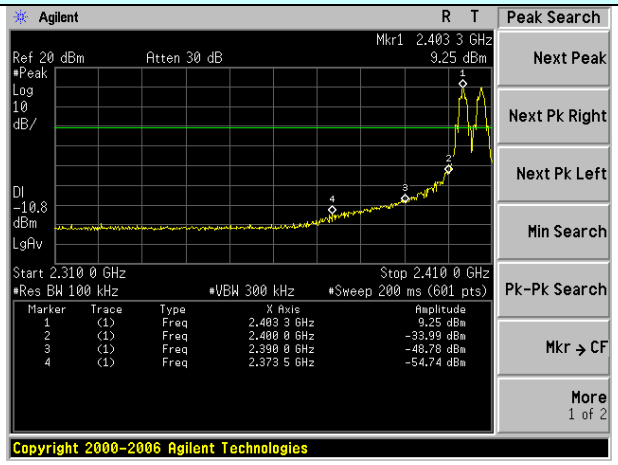
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003
Receiver setup:	RBW=100kHz, VBW=300kHz, Detector=Peak
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Test plot as follows:

Test channel:	Lowest channel

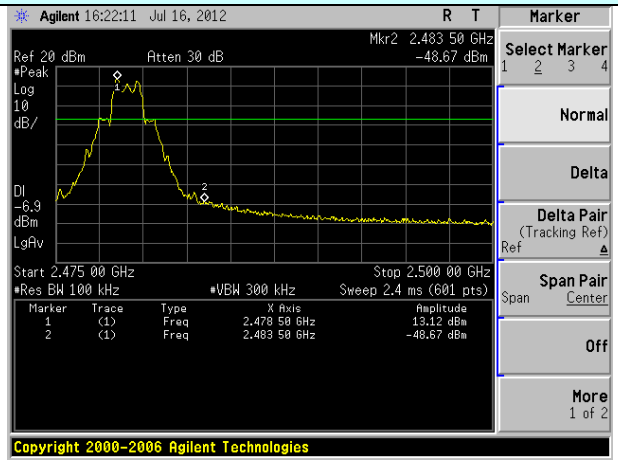


No-hopping mode

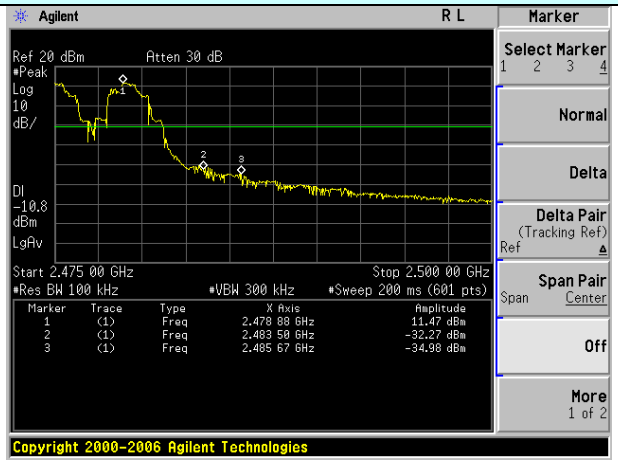


Hopping mode

Test channel:	Highest channel

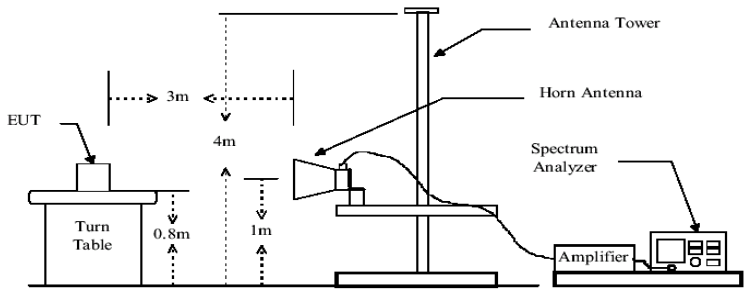


No-hopping mode



Hopping mode

6.8.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.4: 2003
Test Frequency Range:	All restriction band have been tested, and 2.3GHz to 2.5GHz band is the worse case
Test site:	Measurement Distance: 3m
Receiver setup:	Frequency / Detector / RBW / VBW / Remark Above 1GHz / Peak / 1MHz / 3MHz / Peak Value Above 1GHz / AV / 1MHz / 10Hz / Average Value
Limit:	Frequency / Limit (dBuV/m @3m) / Remark Above 1GHz / 54.00 / Average Value Above 1GHz / 74.00 / Peak Value
Test setup:	
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Test channel:	Lowest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	48.07	27.59	5.38	30.18	50.86	74.00	-23.14	Horizontal
2400.00	70.22	27.58	5.39	30.18	73.01	74.00	-0.99	Horizontal
2390.00	46.87	27.59	5.38	30.18	49.66	74.00	-24.34	Vertical
2400.00	68.27	27.58	5.39	30.18	71.06	74.00	-2.94	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390	34.43	27.59	5.38	30.18	37.22	54.00	-16.78	Horizontal
2400	36.28	27.58	5.39	30.18	39.07	54.00	-14.93	Horizontal
2390	32.79	27.59	5.38	30.18	35.58	54.00	-18.42	Vertical
2400	34.13	27.58	5.39	30.18	36.92	54.00	-17.08	Vertical

Test channel:	Highest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	58.37	27.53	5.47	29.93	61.44	74.00	-12.56	Horizontal
2500.00	46.06	27.55	5.49	29.93	49.17	74.00	-24.83	Horizontal
2483.50	52.61	27.53	5.47	29.93	55.68	74.00	-18.32	Vertical
2500.00	46.16	27.55	5.49	29.93	49.27	74.00	-24.73	Vertical

Average value:

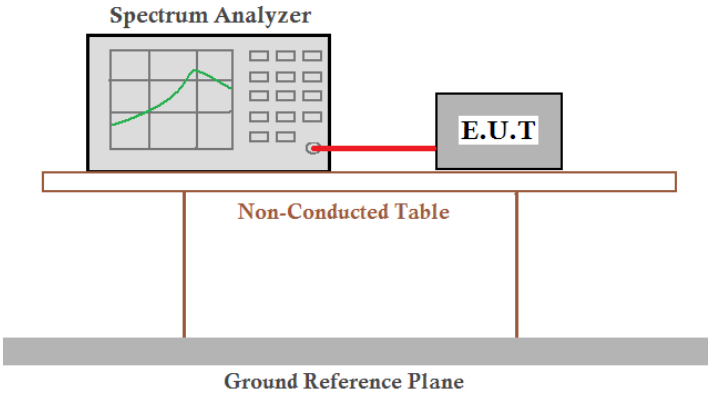
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	50.52	27.53	5.47	29.93	53.59	54.00	-0.41	Horizontal
2500.00	34.35	27.55	5.49	29.93	37.46	54.00	-16.54	Horizontal
2483.50	44.71	27.53	5.47	29.93	47.78	54.00	-6.22	Vertical
2500.00	33.48	27.55	5.49	29.93	36.59	54.00	-17.41	Vertical

Remark:

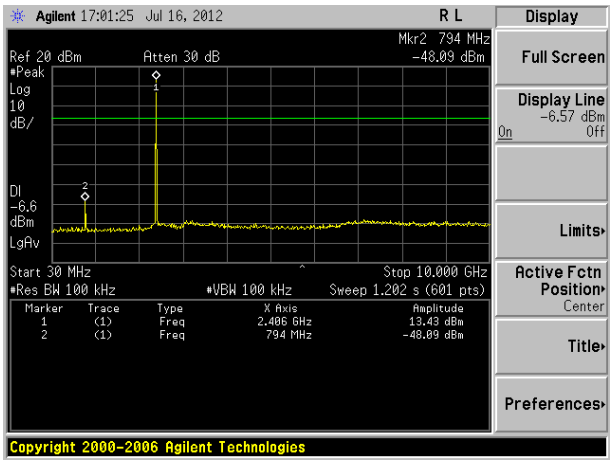
1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

6.9 Spurious Emission

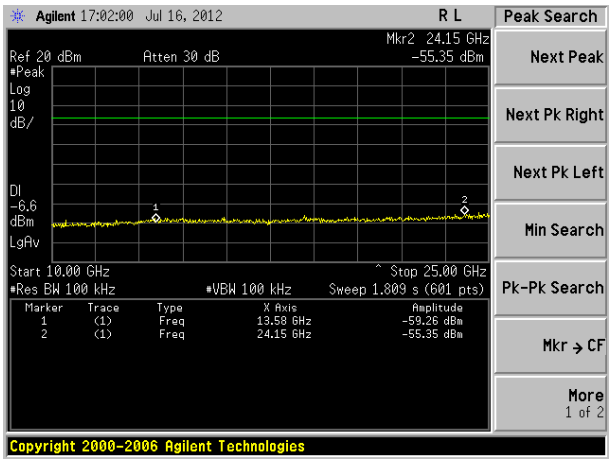
6.9.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Test channel:	Lowest channel

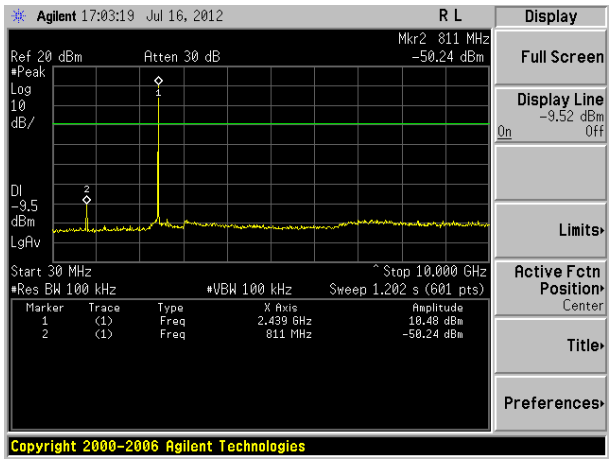


30MHz~10GHz

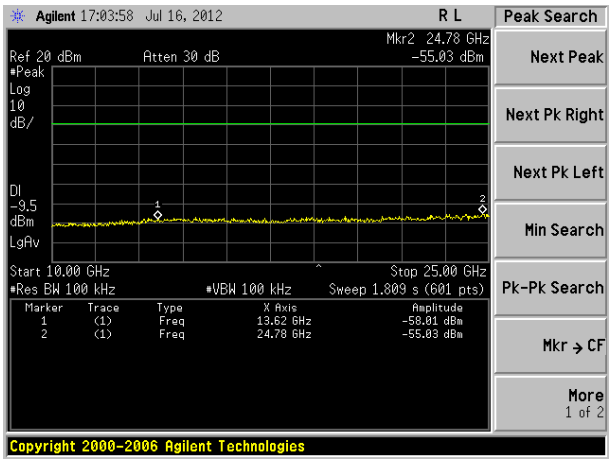


10GHz~25GHz

Test channel:	Middle channel

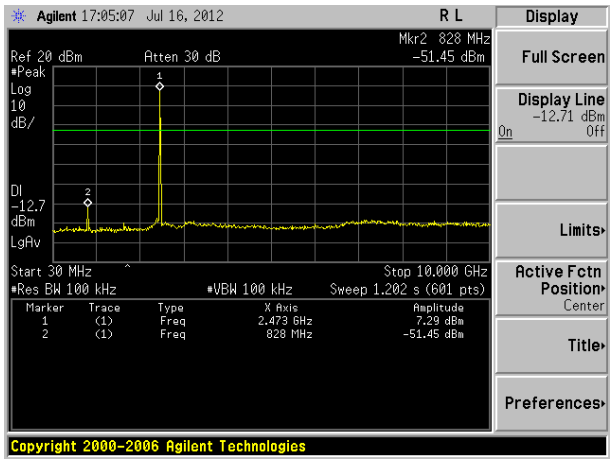


30MHz~10GHz

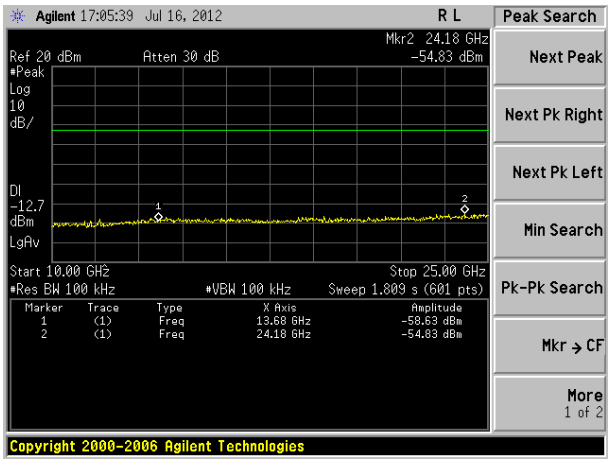


10GHz~25GHz

Test channel:	Highest channel



30MHz~10GHz



10GHz~25GHz

6.9.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.4: 2003
Test Frequency Range:	30MHz to 25GHz
Test site:	Measurement Distance: 3m

Receiver setup:

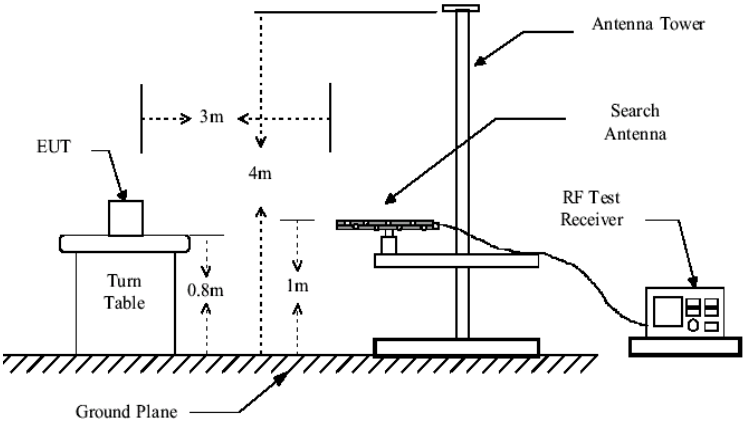
Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	AV	1MHz	10Hz	Average Value

Limit:

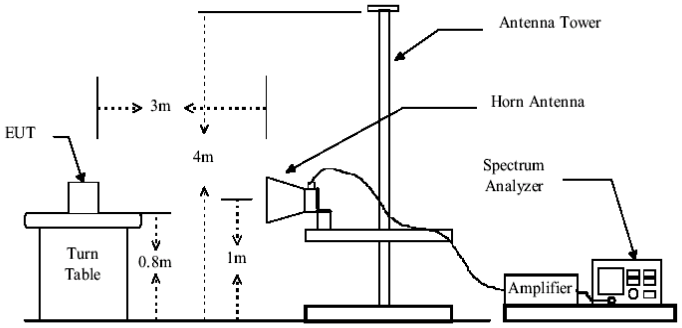
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test setup:

Below 1GHz



Above 1GHz



Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Measurement data:

■ **Below 1GHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
36.64	45.56	16.13	0.63	32.06	30.26	40.00	-9.74	Vertical
53.13	44.98	16.19	0.80	31.95	30.02	40.00	-9.98	Vertical
96.10	39.28	15.99	1.16	31.75	24.68	43.50	-18.82	Vertical
144.84	43.35	11.24	1.53	31.96	24.16	43.50	-19.34	Vertical
195.14	42.11	13.57	1.81	32.13	25.36	43.50	-18.14	Vertical
566.62	39.66	19.90	3.59	31.20	31.95	46.00	-14.05	Vertical
52.39	38.77	16.23	0.79	31.95	23.84	40.00	-16.16	Horizontal
102.72	38.12	15.98	1.22	31.77	23.55	43.50	-19.95	Horizontal
239.15	39.45	15.06	2.06	32.16	24.41	46.00	-21.59	Horizontal
381.25	38.91	16.68	2.77	31.94	26.42	46.00	-19.58	Horizontal
566.62	39.01	19.90	3.59	31.20	31.30	46.00	-14.70	Horizontal
801.79	42.48	23.06	4.46	31.31	38.69	46.00	-7.31	Horizontal

■ **Above 1GHz**

Test channel:	Lowest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4806.00	30.15	31.78	8.60	24.17	46.36	74.00	-27.64	Vertical
7209.00	34.91	36.15	11.65	26.46	56.25	74.00	-17.75	Vertical
9612.00	32.34	38.01	14.14	25.45	59.04	74.00	-14.96	Vertical
12015.00	*					74.00		Vertical
14418.00	*					74.00		Vertical
4806.00	31.19	31.78	8.60	24.17	47.40	74.00	-26.60	Horizontal
7209.00	35.05	36.15	11.65	26.46	56.39	74.00	-17.61	Horizontal
9612.00	31.94	38.01	14.14	25.45	58.64	74.00	-15.36	Horizontal
12015.00	*					74.00		Horizontal
14418.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4806.00	19.98	31.78	8.60	24.17	36.19	54.00	-17.81	Vertical
7209.00	24.98	36.15	11.65	26.46	46.32	54.00	-7.68	Vertical
9612.00	20.91	38.01	14.14	25.45	47.61	54.00	-6.39	Vertical
12015.00	*					54.00		Vertical
14418.00	*					54.00		Vertical
4806.00	20.80	31.78	8.60	24.17	37.01	54.00	-16.99	Horizontal
7209.00	24.68	36.15	11.65	26.46	46.02	54.00	-7.98	Horizontal
9612.00	21.44	38.01	14.14	25.45	48.14	54.00	-5.86	Horizontal
12015.00	*					54.00		Horizontal
14418.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel:	Middle

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	30.89	31.85	8.66	24.10	47.30	74.00	-26.70	Vertical
7323.00	35.12	36.37	11.72	26.78	56.43	74.00	-17.57	Vertical
9764.00	31.68	38.35	14.27	25.35	58.95	74.00	-15.05	Vertical
12205.00	*					74.00		Vertical
14646.00	*					74.00		Vertical
4882.00	31.77	31.85	8.66	24.10	48.18	74.00	-25.82	Horizontal
7323.00	34.52	36.37	11.72	26.78	55.83	74.00	-18.17	Horizontal
9764.00	32.27	38.35	14.27	25.35	59.54	74.00	-14.46	Horizontal
12205.00	*					74.00		Horizontal
14646.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	20.61	31.85	8.66	24.10	37.02	54.00	-16.98	Vertical
7323.00	24.90	36.37	11.72	26.78	46.21	54.00	-7.79	Vertical
9764.00	21.27	38.35	14.27	25.35	48.54	54.00	-5.46	Vertical
12205.00	*					54.00		Vertical
14646.00	*					54.00		Vertical
4882.00	21.53	31.85	8.66	24.10	37.94	54.00	-16.06	Horizontal
7323.00	24.11	36.37	11.72	26.78	45.42	54.00	-8.58	Horizontal
9764.00	21.89	38.35	14.27	25.35	49.16	54.00	-4.84	Horizontal
12205.00	*					54.00		Horizontal
14646.00	*					54.00		Horizontal

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel:	Highest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4958.00	31.19	31.93	8.73	24.03	47.82	74.00	-26.18	Vertical
7437.00	34.11	36.59	11.79	27.03	55.46	74.00	-18.54	Vertical
9916.00	29.88	38.81	14.35	25.27	57.77	74.00	-16.23	Vertical
12395.00	*					74.00		Vertical
14874.00	*					74.00		Vertical
4958.00	31.79	31.93	8.73	24.03	48.42	74.00	-25.58	Horizontal
7437.00	33.42	36.59	11.79	27.03	54.77	74.00	-19.23	Horizontal
9916.00	30.41	38.81	14.35	25.27	58.30	74.00	-15.70	Horizontal
12395.00	*					74.00		Horizontal
14874.00	*					74.00		Horizontal

Average value:

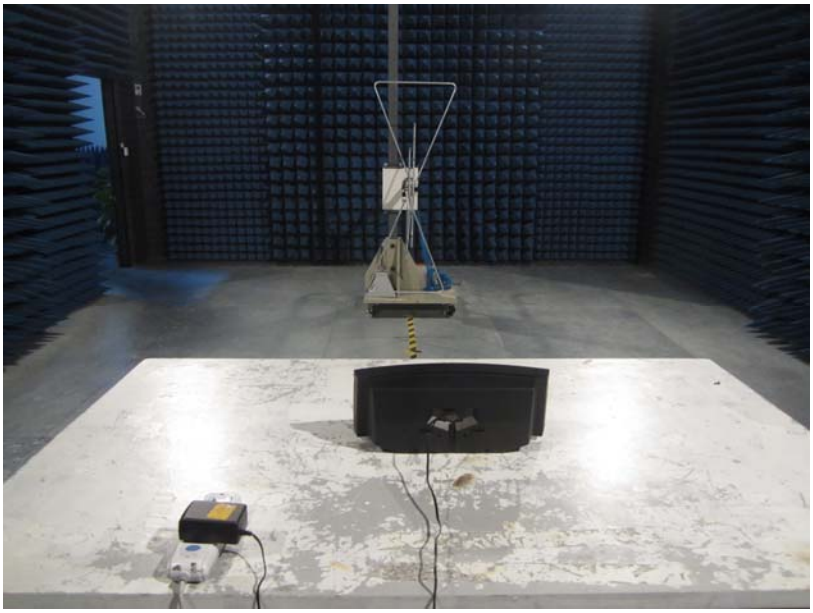
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4958.00	21.06	31.93	8.73	24.03	37.69	54.00	-16.31	Vertical
7437.00	23.85	36.59	11.79	27.03	45.20	54.00	-8.80	Vertical
9916.00	19.59	38.81	14.35	25.27	47.48	54.00	-6.52	Vertical
12395.00	*					54.00		Vertical
14874.00	*					54.00		Vertical
4958.00	21.51	31.93	8.73	24.03	38.14	54.00	-15.86	Horizontal
7437.00	23.34	36.59	11.79	27.03	44.69	54.00	-9.31	Horizontal
9916.00	20.02	38.81	14.35	25.27	47.91	54.00	-6.09	Horizontal
12395.00	*					54.00		Horizontal
14874.00	*					54.00		Horizontal

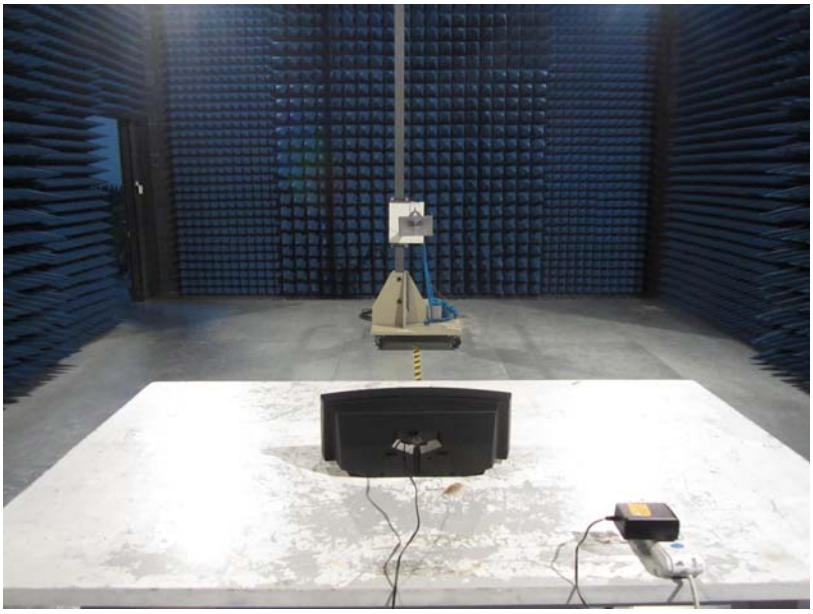
Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

7 Test Setup Photo

Radiated Emission

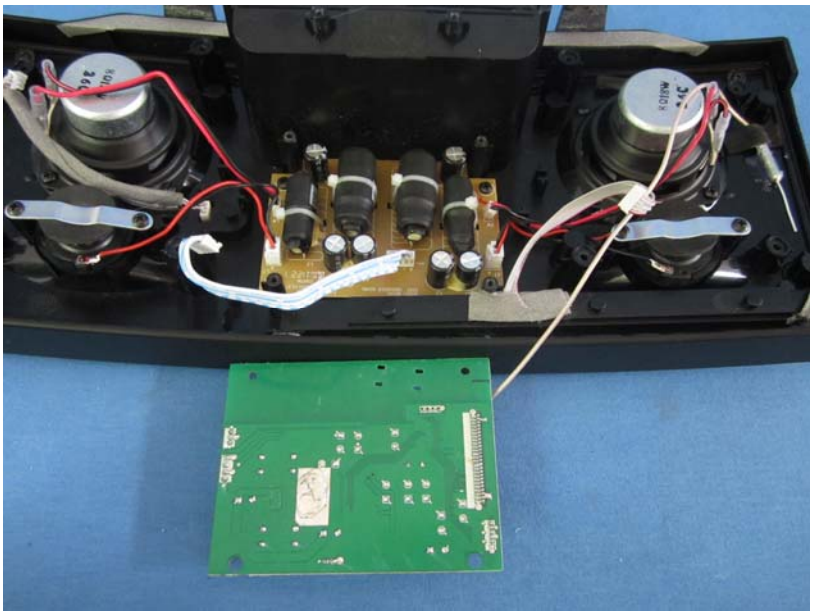


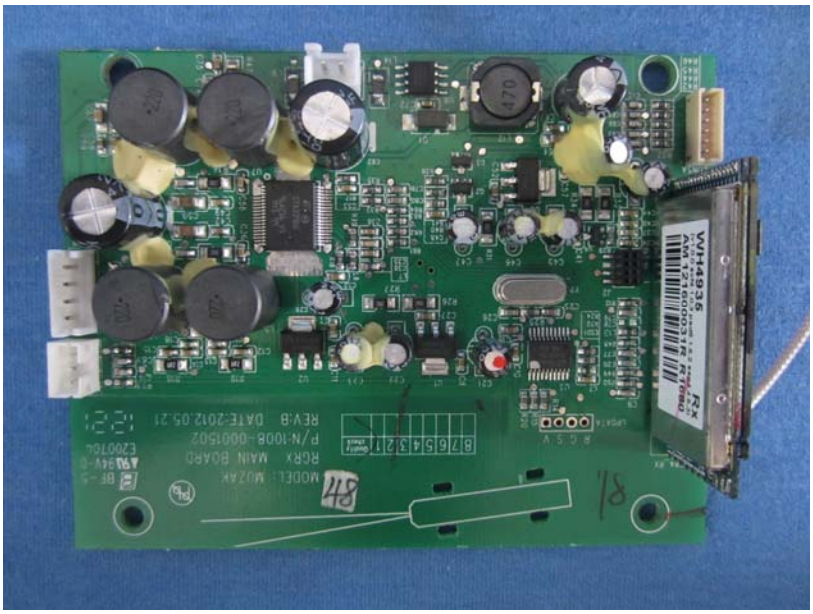


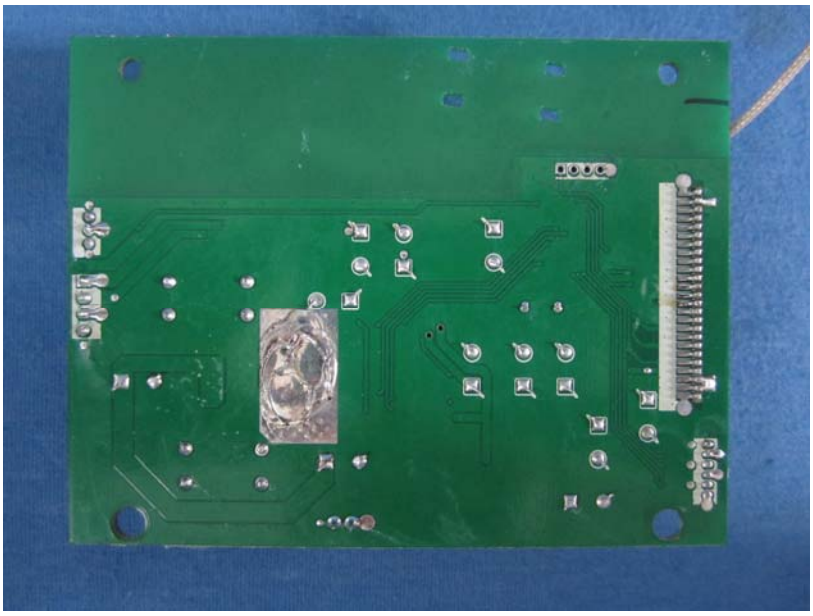
Conducted Emission

8 EUT Constructional Details

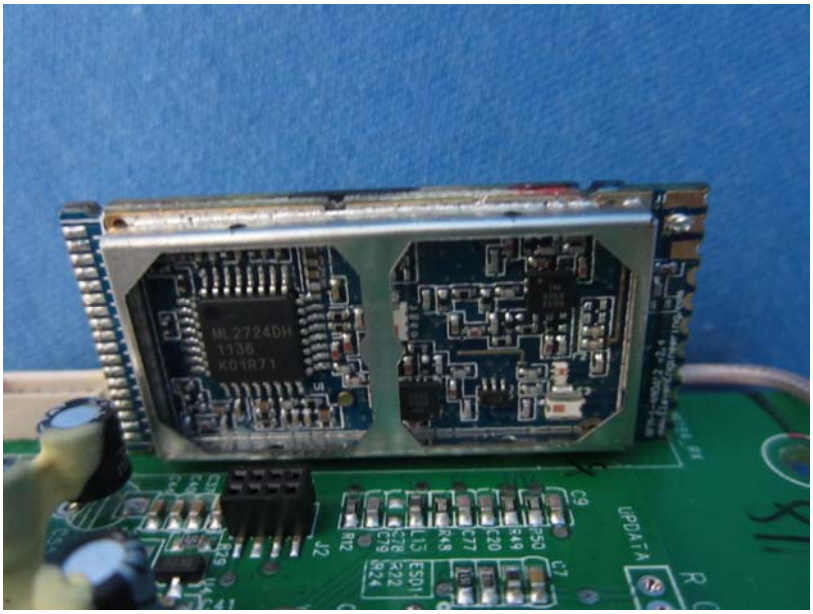

DC IN
18V 2.25A

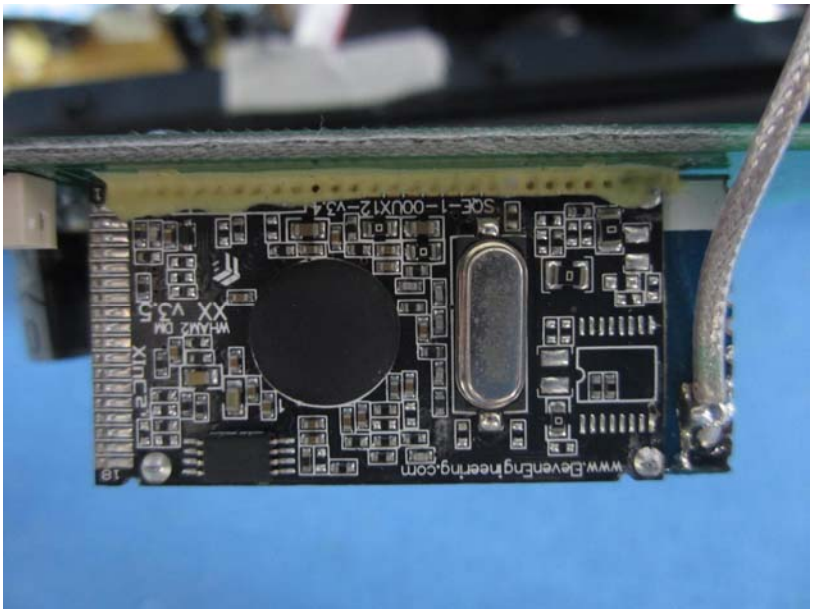


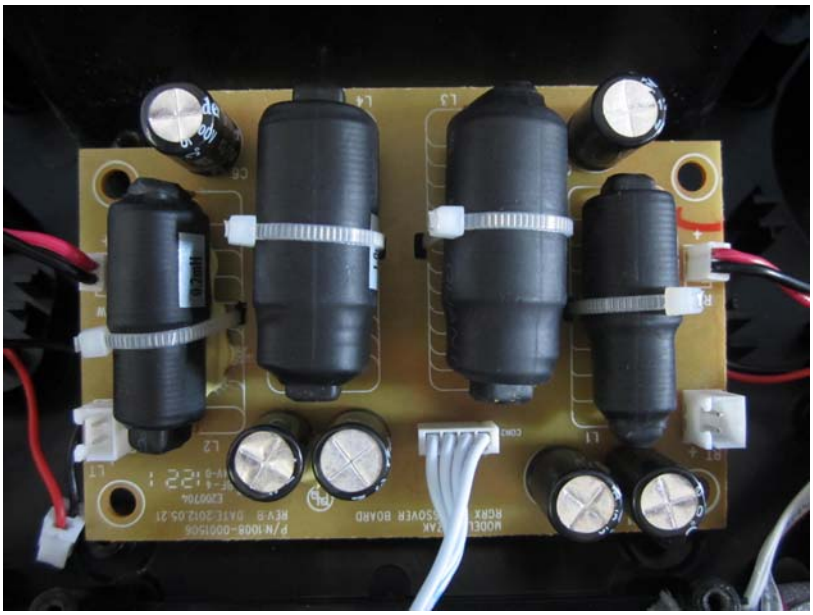


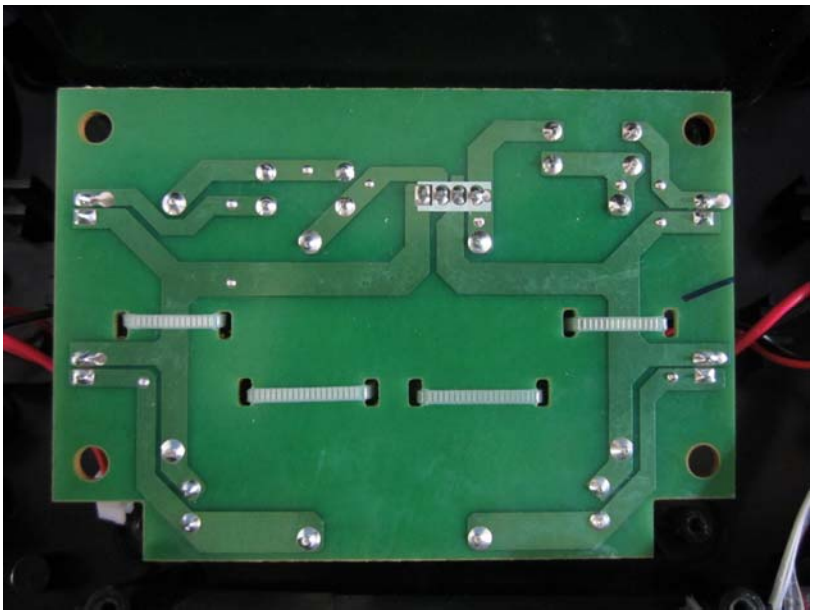



WH4935
Rx
(v1.0.0 scf4.1.0,3 pad5.1.5,2 sap4.4.5,3)
AM 121600031R R1680










SWITCHING
POWER SUPPLY
MODEL:S040EM1600225
INPUT:100-240V~50/60Hz 1.2A Max.
OUTPUT:16.0V ⎓2250mA
LISTED
20HK
E178074
INFORMATION TECHNOLOGY EQUIPMENT
AND OFFICE EQUIPMENT USE ONLY
MADE IN CHINA
1221 L1

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