



# TEST REPORT

Applicant	LENOVO(SHANGHAI)ELECTRONICS TECHNOLOGY CO LTD
Address	NO.68 BUILDING 199 FENJU RD WAIGAOQIAO FREE TRADE ZONE 200131 SHANGHAI,CHINA

Manufacturer or Supplier	Lenovo PC HK Limited
Address	23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong
Product	Portable Tablet Computer
Brand Name	Lenovo
Model	Lenovo A3500-FL
Additional Model & Model Difference	N/A
Date of tests	Jan. 02, 2014 ~ Jan. 09, 2014 & Jan. 08, 2014 ~ Jan. 11, 2014

the tests have been carried out according to the requirements of the following standard:

**FCC Part 15, Subpart C, Section 15.247(2012-10)**

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

Tested by Venless long Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
	 Date: Jan. 13, 2014

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification



# TABLE OF CONTENTS

**RELEASE CONTROL RECORD ..... 4**

**1 SUMMARY OF TEST RESULTS..... 5**

**2 MEASUREMENT UNCERTAINTY..... 5**

**3 GENERAL INFORMATION ..... 6**

3.1 GENERAL DESCRIPTION OF EUT ..... 6

3.2 DESCRIPTION OF TEST MODES ..... 8

3.2.1. CONFIGURATION OF SYSTEM UNDER TEST ..... 9

3.2.2. TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL..... 9

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS ..... 12

3.4 DESCRIPTION OF SUPPORT UNITS ..... 12

**4 TEST TYPES AND RESULTS..... 13**

4.1 CONDUCTED EMISSION MEASUREMENT ..... 13

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT ..... 13

4.1.2 TEST INSTRUMENTS..... 13

4.1.3 TEST PROCEDURES ..... 14

4.1.4 DEVIATION FROM TEST STANDARD ..... 14

4.1.5 TEST SETUP..... 15

4.1.6 EUT OPERATING CONDITIONS ..... 15

4.1.7 TEST RESULTS ..... 16

4.2 RADIATED EMISSION MEASUREMENT ..... 20

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT ..... 20

4.2.2 TEST INSTRUMENTS..... 21

4.2.3 TEST PROCEDURES ..... 22

4.2.4 DEVIATION FROM TEST STANDARD ..... 22

4.2.5 TEST SETUP..... 23

4.2.6 EUT OPERATING CONDITIONS ..... 23

4.2.7 TEST RESULTS ..... 24

4.3 6dB BANDWIDTH MEASUREMENT..... 46

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT..... 46

4.3.2 TEST INSTRUMENTS..... 46

4.3.3 TEST PROCEDURE..... 46

4.3.4 DEVIATION FROM TEST STANDARD ..... 46

4.3.5 TEST SETUP..... 47

4.3.6 EUT OPERATING CONDITIONS ..... 47



4.3.7	TEST RESULTS .....	48
4.4	CONDUCTED OUTPUT POWER.....	48
4.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT .....	52
4.4.2	TEST SETUP .....	52
4.4.3	TEST INSTRUMENTS.....	52
4.4.4	TEST PROCEDURES .....	52
4.4.5	DEVIATION FROM TEST STANDARD .....	52
4.4.6	EUT OPERATING CONDITIONS .....	52
4.4.7	TEST RESULTS .....	53
4.4.7.1	MAXIMUM PEAK OUTPUT POWER .....	53
4.4.7.2	AVERAGE OUTPUT POWER (FOR REFERENCE).....	53
4.5	POWER SPECTRAL DENSITY MEASUREMENT .....	55
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT .....	55
4.5.2	TEST SETUP .....	55
4.5.3	TEST INSTRUMENTS.....	55
4.5.4	TEST PROCEDURE.....	55
4.5.5	DEVIATION FROM TEST STANDARD .....	55
4.5.6	EUT OPERATING CONDITION .....	55
4.5.7	TEST RESULTS .....	56
4.6	OUT OF BAND EMISSION MEASUREMENT .....	60
4.6.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT .....	60
4.6.2	TEST SETUP .....	60
4.6.3	TEST INSTRUMENTS.....	60
4.6.4	TEST PROCEDURE.....	60
4.6.5	DEVIATION FROM TEST STANDARD .....	61
4.6.6	EUT OPERATING CONDITION .....	61
4.6.7	TEST RESULTS .....	62
5	<b>PHOTOGRAPHS OF THE TEST CONFIGURATION .....</b>	<b>66</b>
6	<b>APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB .....</b>	<b>67</b>



## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140102N025-1	Original release	Jan. 10 , 2014
RF140102N055-1	Remove the rear camera, change the model name base on A3500F, and RSE were tested base on the previous project.	Jan. 13 , 2014



# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.40dB at 4.57612MHz
15.205 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.1dB at 2483.5MHz
15.247(d)	Out of band Emission Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	WLAN No antenna connector is used

# 2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.67dB
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GMHz	4.81dB
	1GHz ~ 18GHz	4.3dB
	18GHz ~ 40GHz	1.94dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.



### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Portable Tablet Computer
<b>MODEL NO.</b>	Lenovo A3500-FL
<b>FCC ID</b>	O57A3500FL
<b>NOMINAL VOLTAGE</b>	5.0Vdc (adapter or host equipment) 3.8Vdc (Li-ion, polymer)
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM BT-LE(GFSK) for DTS
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM, DTS
<b>OPERATING FREQUENCY</b>	2412-2462MHz for 11b/g/n(HT20) 2402-2480GHz for BT-LE(GFSK)
<b>PEAK POWER</b>	WLAN: 22.12dBm (Maximum) BT-LE: -1.12dBm (Maximum)
<b>ANTENNA TYPE</b>	PIFA antenna: 1.13dBi gain
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB cable: Unshielded, detachable, 1.0m

**NOTE:**

- The EUT was powered by the following adapters:

ADAPTER 1	
BRAND:	Huntkey
MODEL:	C-P56
INPUT:	AC 100-240V, 50/60Hz, 150mA
OUTPUT:	DC 5V, 1000mA
DC LINE:	N/A

ADAPTER 2	
BRAND:	Great Wall
MODEL:	C-P56
INPUT:	AC 100-240V, 50/60Hz, 130mA
OUTPUT:	DC 5V, 1000mA
DC LINE:	N/A



2. The EUT incorporates a SISO function. Physically, the EUT provides one transmitter and receiver.

MODULATION MODE	TX/RX FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (20MHz)	1TX/1RX

- 3. For a more detailed features description, please refer to the manufacturer’s specifications or the user's manual.
- 4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- 5. Sample A and sample B were tested for this project, and the differences between are as below:

	Sample A (the first source)	Sample B (the second source)
LCD	CPT CLAA070WP0B XN	AUO B070EAN01_4_MDL
Flash	SAMSUNG KMK2U000VM-B604(32GB+8Gb) KMK8U000VM-B410(16GB+8Gb) KMK7U000VM-B309(8GB+8Gb)	Hynix H9TP26A8JDACNR(32GB+8Gb) H9TP18A8JDMCPR-KGM(16GB+8Gb) H9TP65A8JDACPR-KGM(8GB+8Gb)
Touch Panel	O-film MCF-070-1099 GFM	AVC AP070204
CCM	O-film L0543F00	Sunny optical P5M27B;5MP 30PIN
Adapter	Huntkey C-P56	Great Wall C-P56

6. This report is issued for removing the rear camera and changing the model name base on A3500F. RSE were tested base on the previous project, and only the worst case( 802.11b & BT-LE ) data were presented in this report.



### 3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n(HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

40 channels are provided for BT-LE(GFSK):

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480





### 3.2.1. CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

### 3.2.2. TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports  
The worst case was found when positioned on Y axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
Sample A Sample B	√	√	√	-	<b>Powered by adapter with BT-LE and wifi link</b>
Sample A	-	-	-	√	Powered by Battery with BT-LE and wifi link

Where **RE<1G**: Radiated Emission below 1GHz      **RE≥1G**: Radiated Emission above 1GHz  
**PLC**: Power Line Conducted Emission      **APCM**: Antenna Port Conducted Measurement

**NOTE**: No need to concern of Conducted Emission due to the EUT is powered by battery.

### RADIATED EMISSION TEST (BELOW 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	CCK	DBPSK	1.0
BT-LE	0 to 39	39	DTS	GFSK	1



**RADIATED EMISSION TEST (ABOVE 1GHz):**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
BT-LE	0 to 39	0,19, 39	DTS	GFSK	1

**POWER LINE CONDUCTED EMISSION TEST:**

The EUT was tested with the following mode

EUT CONFIGURE MODE	TESTED CONDITION
Sample A & B	BT link + WIFI link + earphone + adapter + USB cable

**BANDEDGE MEASUREMENT:**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5
BT-LE	0 to 39	0, 39	DTS	GFSK	1



**ANTENNA PORT CONDUCTED MEASUREMENT:**

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
BT-LE	0 to 39	0, 19, 39	DTS	GFSK	1

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 52%RH	DC 5V By Adapter	Blue Zheng
RE≥1G	23deg. C, 52%RH	DC 5V By Adapter	Blue Zheng
PLC	25deg. C, 51%RH	DC 5V By Adapter	Venless Long
APCM	22deg. C, 52%RH	DC 5V By Adapter	Venless Long



### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart C, Section 15.247(2012-10)**

**558074 D01 DTS Meas Guidance v03r01**

**ANSI C63.10-2009**

Note:

1. All test items have been performed and recorded as per the above standards.
2. The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B( DoC ). The test report has been issued separately.

### 3.4 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.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC source	LONG WEI	PS-6403D	010934269	N/A
2	Notebook	HP	4431s	CNU238944Z	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0m
2	AC Line: Unshielded, Detachable 1.5m



## 4 TEST TYPES AND RESULTS

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

- NOTE:** 1. The lower limit shall apply at the transition frequencies.  
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.  
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

#### 4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU 26	100005	May 14,13	May 13,14
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	May 14,13	May 13,14
Impedance Stabilization Network	TESEQ	ISN T800	27957	May 14,13	May 13,14
Test software	ADT	ADT_Conc _V7.3.7	N/A	N/A	N/A

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA and NIM/CHINA  
 2. The test was performed in Shielding Room 553.



#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

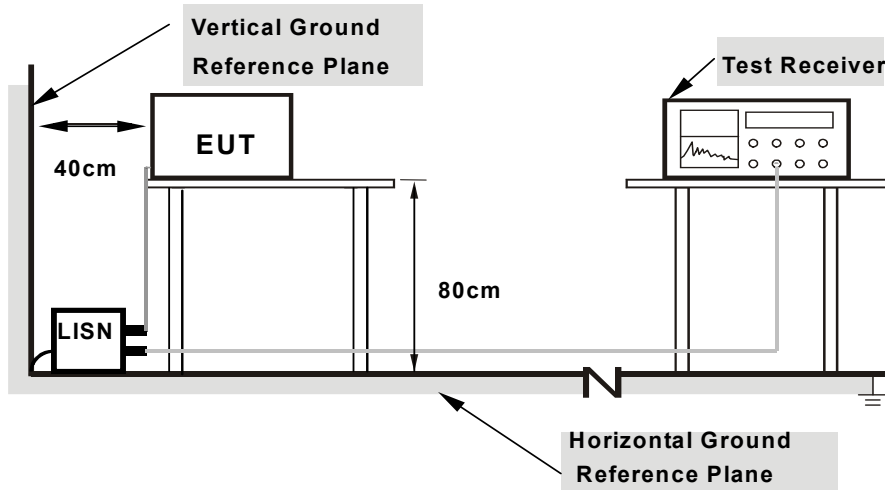
**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation.



#### 4.1.5 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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.6 EUT OPERATING CONDITIONS

- a. Turned on the power and connected of all equipment.
- b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.



**4.1.7 TEST RESULTS**

**CONDUCTED WORST-CASE DATA:**

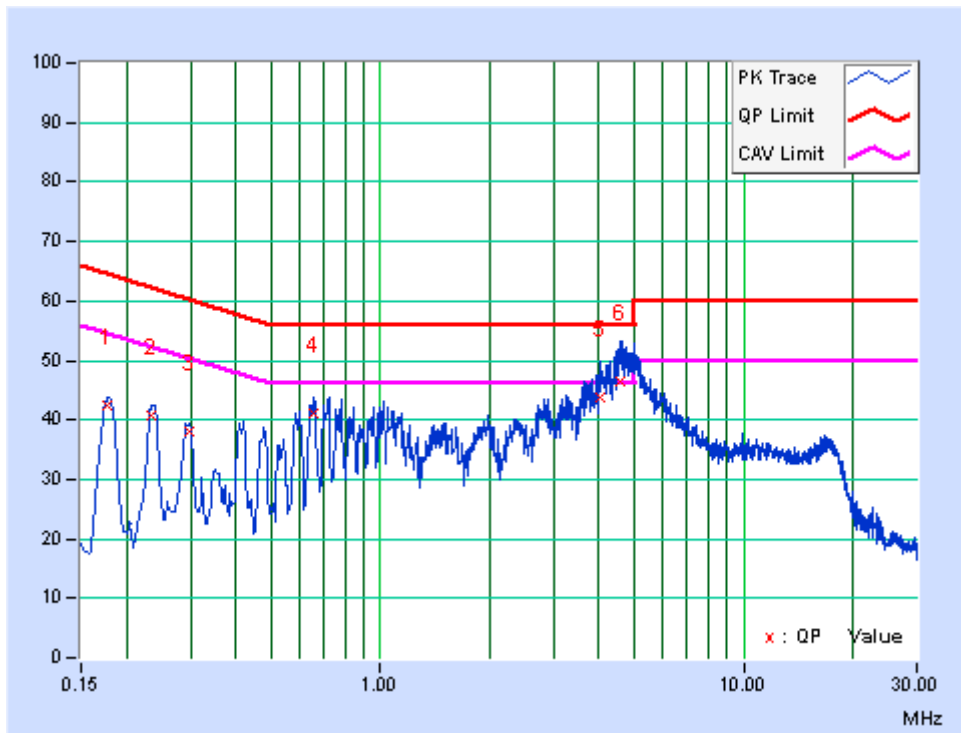
For sample A

802.11g

<b>PHASE</b>	Line	<b>6dB BANDWIDTH</b>	9kHz
--------------	------	----------------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17744	10.59	31.99	23.91	42.58	34.5	64.6	54.6	-22.03	-20.11
2	0.23524	10.46	30.38	22.12	40.84	32.58	62.26	52.26	-21.43	-19.69
3	0.29819	10.46	27.42	19.35	37.88	29.81	60.29	50.29	-22.41	-20.48
4	0.65907	10.19	31.01	22.66	41.2	32.85	56	46	-14.80	-13.15
5	4.02872	9.93	33.98	21.09	43.91	31.02	56	46	-12.09	-14.98
<b>6</b>	<b>4.57612</b>	<b>9.94</b>	<b>36.66</b>	<b>24.31</b>	<b>46.60</b>	<b>34.25</b>	<b>56</b>	<b>46</b>	<b>-9.40</b>	<b>-11.75</b>

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



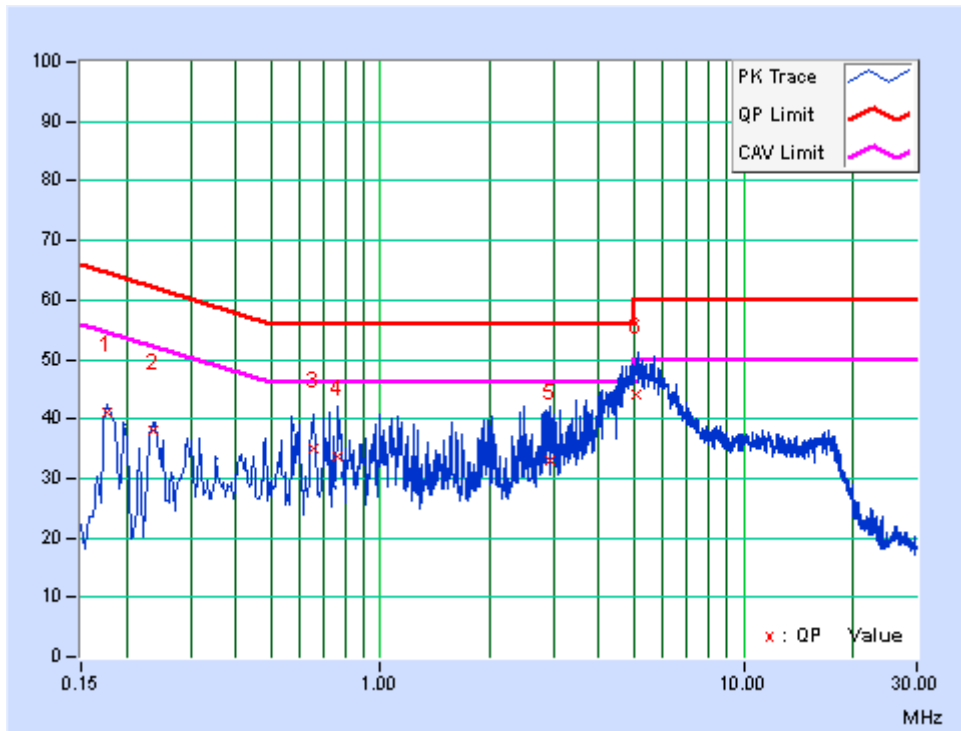




<b>PHASE</b>	Neutral	<b>6dB BANDWIDTH</b>	9kHz
--------------	---------	----------------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17744	10.48	30.68	20.79	41.16	31.27	64.6	54.6	-23.45	-23.34
2	0.23835	10.38	27.59	19.01	37.97	29.39	62.15	52.15	-24.18	-22.76
3	0.65830	10.19	24.85	17.49	35.04	27.68	56	46	-20.96	-18.32
4	0.76386	10.04	23.63	14	33.67	24.04	56	46	-22.33	-21.96
5	2.94956	9.71	23.29	13.47	33	23.18	56	46	-23.00	-22.82
6	5.04923	9.77	34.17	23.86	43.94	33.63	60	50	-16.06	-16.37

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.





**CONDUCTED WORST-CASE DATA:**

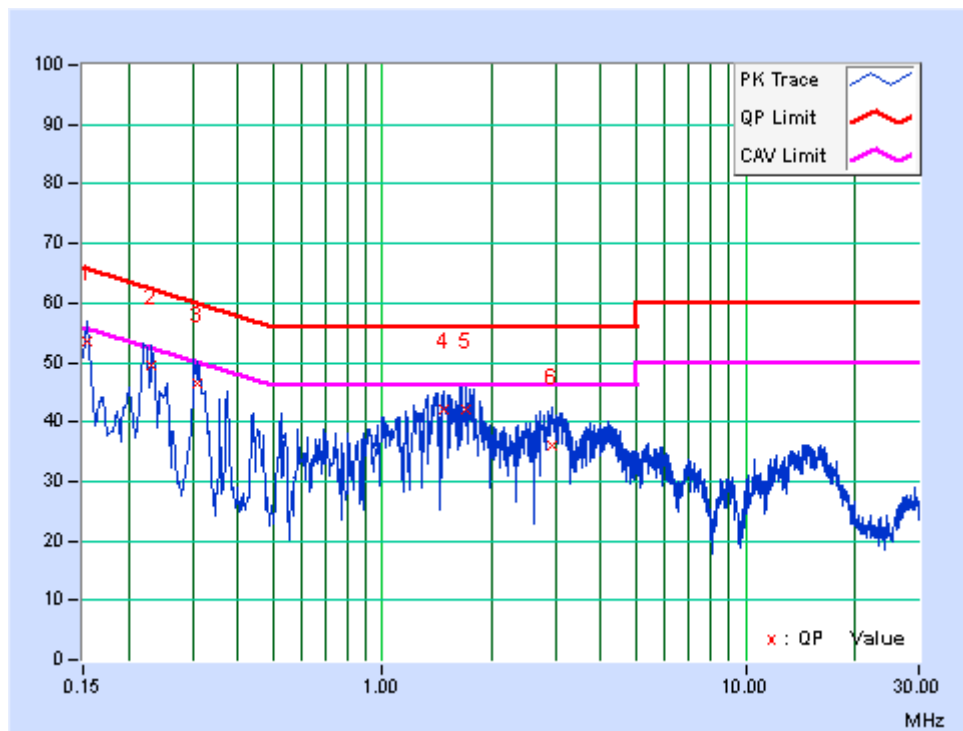
For sample B

802.11g

<b>PHASE</b>	Line	<b>6dB BANDWIDTH</b>	9kHz
--------------	------	----------------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.63	42.95	27.2	53.58	37.83	65.79	55.79	-12.20	-17.95
2	0.23216	10.46	38.92	25.9	49.38	36.36	62.37	52.37	-12.99	-16.01
3	0.31021	10.46	36.06	23.08	46.52	33.54	59.96	49.96	-13.44	-16.42
4	1.47549	9.95	32.09	20.96	42.04	30.91	56	46	-13.96	-15.09
5	1.70620	9.93	32.02	20.41	41.95	30.34	56	46	-14.05	-15.66
6	2.93783	9.92	25.95	10.98	35.87	20.90	56	46	-20.13	-25.10

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.

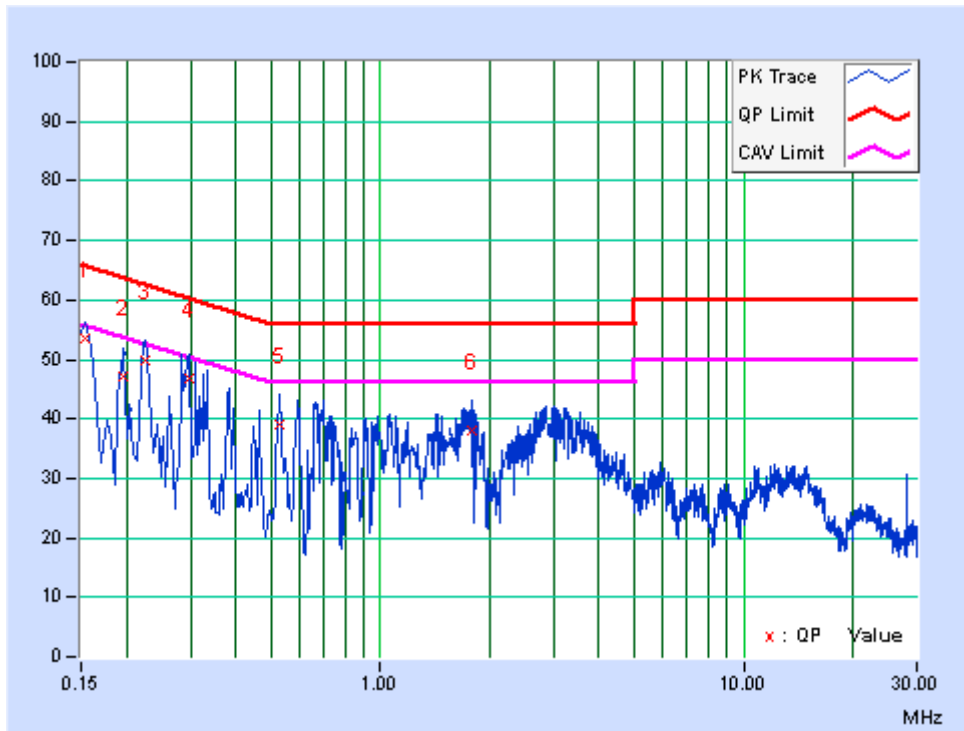




<b>PHASE</b>	Neutral	<b>6dB BANDWIDTH</b>	9kHz
--------------	---------	----------------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.53	43.09	26.1	53.62	36.63	65.79	55.79	-12.16	-19.15
2	0.19613	10.44	36.82	17.4	47.26	27.84	63.77	53.77	-16.51	-25.93
3	0.22434	10.40	39.51	23.57	49.91	33.97	62.66	52.66	-12.75	-18.69
4	0.29740	10.45	36.33	18.23	46.78	28.68	60.32	50.32	-13.53	-21.63
5	0.52927	10.50	28.43	9.85	38.93	20.35	56	46	-17.07	-25.65
6	1.78438	9.72	28.24	15.64	37.96	25.36	56	46	-18.04	-20.64

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.





## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits 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 frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



#### 4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Agilent	E4446A	MY46180622	Apr. 24,13	Apr. 23,14
EMI Test Receiver	Rohde&Schwarz	ESU 26	100005	May 14,13	May 13,14
Bilog Antenna	Teseq	CBL 6111D	27089	Jul. 27, 13	Jul. 26, 14
Horn Antenna (1GHz -18GHz)	EMCO	3117	00062558	Oct.18,12	Oct.17,14
Pre-Amplifier (100MHz-26.5GHz)	Agilent	8449B	3008A00409	May 14,13	May 13,14
Loop antenna (9kHz~30MHz)	Daze	ZN30900A	0708	Nov. 28,13	Nov. 27,14
Pre-Amplifier (9kHz~1GHz)	SONOMA	310D	186955	Mar. 06,13	Mar. 05,14
Power Meter	Anritsu	ML2495A	1139001	Nov. 04,13	Nov. 03,14
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m*8.8m	NSEMC006	Mar. 24,13	Mar. 23,14
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 30, 13	Oct. 29, 14
Spectrum Analyzer (9KHz-25GHz)	Agilent	E7405A	MY45118807	May 14,13	May 13,14
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep. 17,13	Sep. 16,14
Test Software	ADT	ADT_Radiated_V7.6.15	N/A	N/A	N/A

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
  2. The test was performed in Chamber.
  3. The horn antenna are used only for the measurement of emission frequency above 1GHz if tested.
  4. The FCC Site Registration No. is 502831.



### 4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its 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.
- d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

**NOTE:**

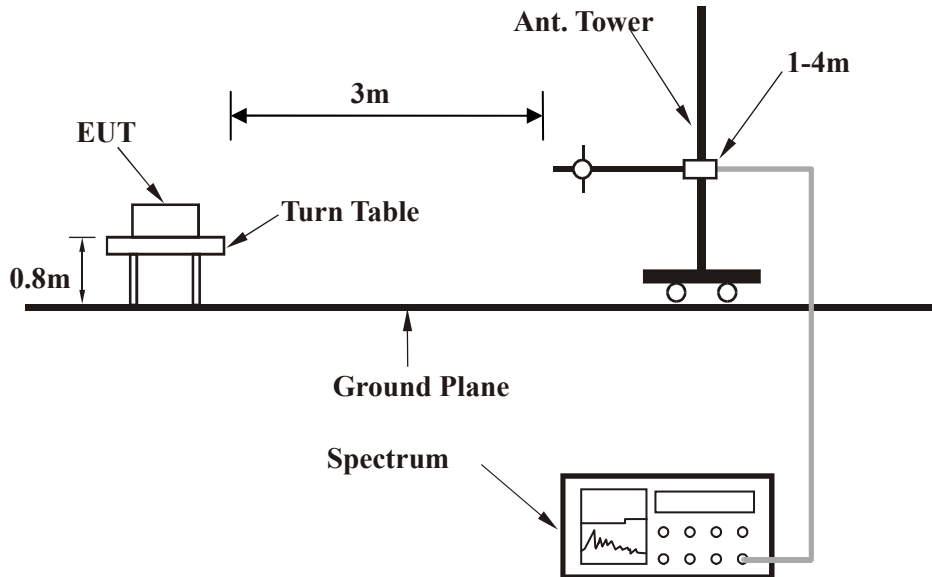
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation



#### 4.2.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.2.6 EUT OPERATING CONDITIONS

- a. Set the EUT under full load condition and placed them on a testing table.
- b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the EUT in full functions.



### 4.2.7 TEST RESULTS

#### BELOW 1GHz WORST-CASE DATA:

For Sample A

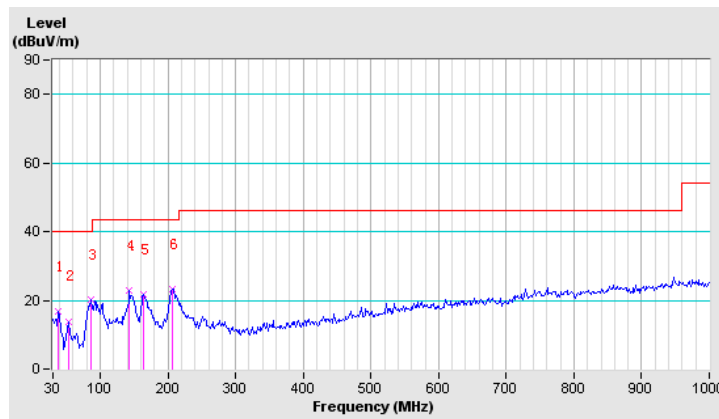
802.11g

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	38.08	16.8 QP	40.0	-23.2	1.00 H	0	1.33	15.50
2	54.25	13.9 QP	40.0	-26.1	1.00 H	0	4.34	9.57
3	86.58	20.2 QP	40.0	-19.8	1.00 H	0	10.82	9.39
4	143.17	22.8 QP	43.5	-20.7	1.00 H	0	9.98	12.79
5	164.18	21.7 QP	43.5	-21.8	1.00 H	0	10.13	11.53
6	206.22	23.4 QP	43.5	-20.1	1.00 H	0	12.61	10.75

#### REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





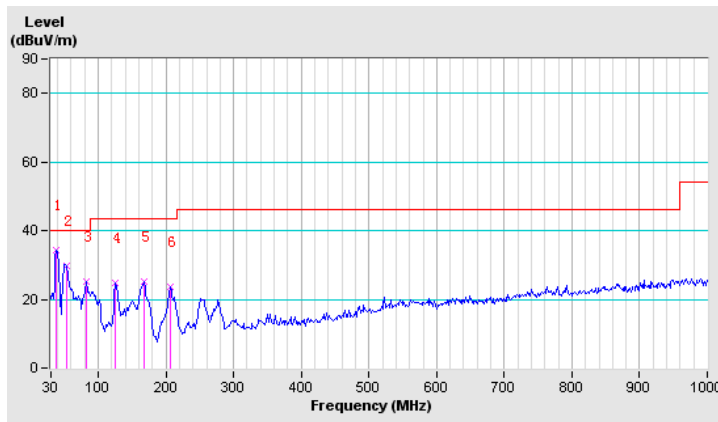


<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	38.08	34.3 QP	40.0	-5.7	1.00 V	0	18.83	15.50
2	54.25	29.7 QP	40.0	-10.3	1.00 V	0	20.15	9.57
3	81.73	25.2 QP	40.0	-14.8	1.00 V	94	16.34	8.89
4	125.38	24.7 QP	43.5	-18.8	1.00 V	121	11.67	13.04
5	167.42	25.1 QP	43.5	-18.4	1.00 V	141	13.72	11.34
6	206.22	23.7 QP	43.5	-19.8	1.10 V	163	12.91	10.75

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





**BELOW 1GHz WORST-CASE DATA:**

**For Sample B**

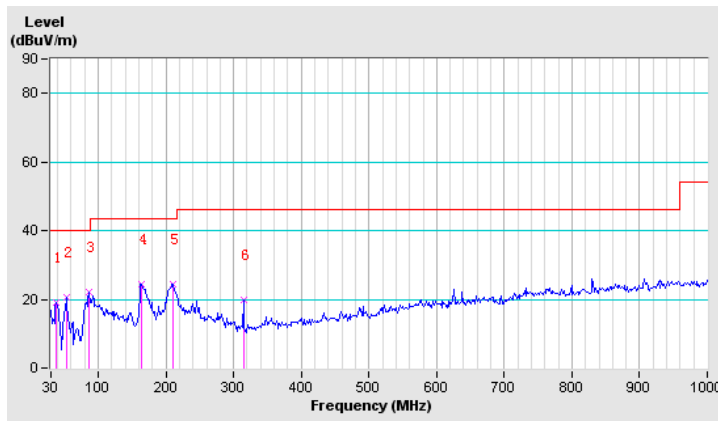
**802.11g**

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	38.08	19.0 QP	40.0	-21.0	1.00 H	226	3.51	15.50
2	52.63	20.6 QP	40.0	-19.4	1.00 H	254	10.64	9.92
3	86.58	22.0 QP	40.0	-18.0	1.00 H	276	12.57	9.39
4	164.18	24.4 QP	43.5	-19.2	1.00 H	200	12.82	11.53
5	211.07	24.5 QP	43.5	-19.0	1.00 H	106	13.57	10.94
6	314.53	19.8 QP	46.0	-26.2	1.00 H	153	4.11	15.67

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



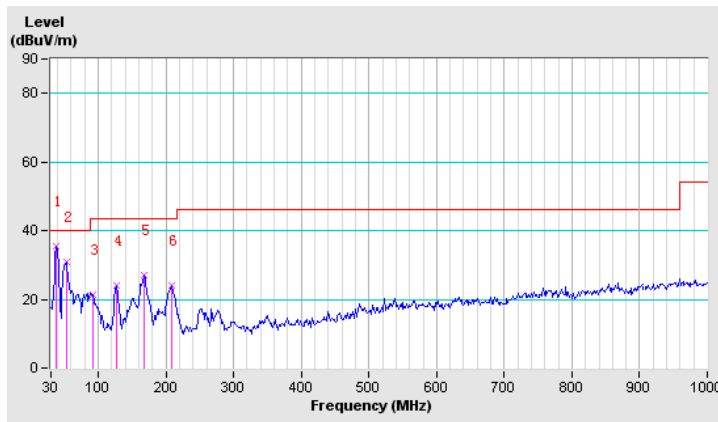


<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	38.08	35.3 QP	40.0	-4.7	1.00 V	54	19.83	15.50
2	52.63	31.0 QP	40.0	-9.0	1.00 V	79	21.04	9.92
3	91.43	21.5 QP	43.5	-22.0	1.00 V	181	11.36	10.10
4	127.00	24.1 QP	43.5	-19.4	1.00 V	102	11.11	13.02
5	167.42	27.0 QP	43.5	-16.5	1.00 V	129	15.63	11.34
6	209.45	24.1 QP	43.5	-19.4	1.00 V	151	13.23	10.87

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





ABOVE 1GHZ DATA

For sample A

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	51.6 PK	74.0	-22.4	1.19 H	328	13.16	38.44
2	2390.00	38.3 AV	54.0	-15.7	1.19 H	328	-0.14	38.44
3	#2400.00	64.9 PK	84.0	-19.1	1.00 H	200	26.44	38.46
4	#2400.00	57.7 AV	80.4	-22.7	1.00 H	200	19.21	38.46
5	*2412.00	104.0 PK			1.19 H	328	65.51	38.49
6	*2412.00	100.4 AV			1.19 H	328	61.91	38.49
7	4824.00	53.6 PK	74.0	-20.4	1.00 H	145	10.11	43.49
8	4824.00	40.1 AV	54.0	-13.9	1.00 H	145	-3.39	43.49

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	51.1 PK	74.0	-22.9	1.00 V	123	12.66	38.44
2	2390.00	37.6 AV	54.0	-16.4	1.00 V	123	-0.84	38.44
3	#2400.00	62.8 PK	81.7	-18.9	1.00 V	123	24.34	38.46
4	#2400.00	55.7 AV	78.2	-22.5	1.00 V	123	17.24	38.46
5	*2412.00	101.7 PK			1.00 V	123	63.21	38.49
6	*2412.00	98.2 AV			1.00 V	123	59.71	38.49
7	4824.00	52.1 PK	74.0	-21.9	1.00 V	210	8.61	43.49
8	4824.00	39.3 AV	54.0	-14.7	1.00 V	210	-4.19	43.49

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.6 PK			1.21 H	196	68.06	38.54
2	*2437.00	102.2 AV			1.21 H	196	63.66	38.54
3	4873.00	52.1 PK	74.0	-21.9	1.21 H	196	8.59	43.54
4	4873.00	42.3 AV	54.0	-11.7	1.21 H	196	-1.24	43.54
5	7311.00	58.1 PK	74.0	-15.9	1.21 H	196	10.00	48.06
6	7311.00	43.3 AV	54.0	-10.7	1.21 H	196	-4.74	48.06
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.9 PK			1.51 V	242	63.37	38.54
2	*2437.00	96.0 AV			1.51 V	242	57.46	38.54
3	4874.00	60.0 PK	74.0	-14.0	1.51 V	242	16.46	43.54
4	4874.00	40.3 AV	54.0	-13.8	1.51 V	242	-3.29	43.54
5	7311.00	61.5 PK	74.0	-12.5	1.51 V	242	13.44	48.06
6	7311.00	43.2 AV	54.0	-10.9	1.51 V	242	-4.91	48.06

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.



<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.2 PK			1.19 H	204	65.61	38.59
2	*2462.00	100.0 AV			1.19 H	204	61.41	38.59
3	2483.50	60.2 PK	74.0	-13.8	1.19 H	204	21.56	38.64
4	2483.50	49.1 AV	54.0	-4.9	1.19 H	204	10.46	38.64
5	4924.00	52.4 PK	74.0	-21.6	1.00 H	150	8.81	43.59
6	4924.00	39.8 AV	54.0	-14.2	1.00 H	150	-3.79	43.59
7	7386.00	54.8 PK	74.0	-19.2	1.00 H	152	6.69	48.11
8	7386.00	41.7 AV	54.0	-12.3	1.00 H	152	-6.41	48.11

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.2 PK			1.51 V	247	64.59	38.59
2	*2462.00	94.6 AV			1.51 V	247	55.99	38.59
3	2483.50	63.5 PK	74.0	-10.5	1.51 V	244	24.84	38.64
4	2483.50	48.4 AV	54.0	-5.6	1.51 V	244	9.76	38.64
5	4924.00	54.6 PK	74.0	-19.4	1.51 V	247	11.02	43.59
6	4924.00	41.8 AV	54.0	-12.2	1.51 V	247	-1.78	43.59
7	7386.30	56.3 PK	74.0	-17.7	1.00 V	145	8.19	48.11
8	7386.30	42.6 AV	54.0	-11.4	1.00 V	145	-5.51	48.11

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.



802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.2 PK	74.0	-4.8	1.46 H	217	30.76	38.44
2	2390.00	50.6 AV	54.0	-3.4	1.46 H	217	12.16	38.44
3	#2400.00	79.3 PK	83.0	-3.7	1.46 H	217	40.84	38.46
4	#2400.00	67.6 AV	75.0	-7.4	1.46 H	217	29.18	38.46
5	*2412.00	103.0 PK			1.46 H	217	64.51	38.49
6	*2412.00	95.0 AV			1.46 H	217	56.51	38.49
7	4834.00	53.2 PK	74.0	-20.8	1.00 H	186	9.70	43.50
8	4834.00	41.5 AV	54.0	-12.5	1.00 H	186	-2.00	43.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.5 PK	74.0	-7.5	1.46 V	226	28.06	38.44
2	2390.00	49.7 AV	54.0	-4.3	1.46 V	226	11.26	38.44
3	#2400.00	77.8 PK	84.9	-7.1	1.46 V	226	39.34	38.46
4	#2400.00	61.2 AV	74.9	-13.7	1.46 V	226	22.74	38.46
5	*2412.00	104.9 PK			1.46 V	226	66.41	38.49
6	*2412.00	94.9 AV			1.46 V	226	56.41	38.49
7	4824.00	52.3 PK	74.0	-21.7	1.00 V	140	8.81	43.49
8	4824.00	39.6 AV	54.0	-14.4	1.00 V	140	-3.89	43.49

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.3 PK			1.25 H	204	67.76	38.54
2	*2437.00	95.5 AV			1.25 H	204	56.96	38.54
3	4874.00	52.6 PK	74.0	-21.4	1.00 H	200	9.06	43.54
4	4874.00	39.6 AV	54.0	-14.4	1.00 H	200	-3.94	43.54
5	7311.00	56.3 PK	74.0	-17.7	1.00 H	200	8.24	48.06
6	7311.00	43.3 AV	54.0	-10.7	1.00 H	200	-4.76	48.06
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.2 PK			1.52 V	219	64.66	38.54
2	*2437.00	92.1 AV			1.52 V	219	53.56	38.54
3	4874.00	52.7 PK	74.0	-21.3	1.52 V	219	9.12	43.54
4	4874.00	41.2 AV	54.0	-12.8	1.52 V	219	-2.34	43.54
5	7311.00	59.5 PK	74.0	-14.5	1.00 V	200	11.44	48.06
6	7311.00	43.5 AV	54.0	-10.5	1.00 V	200	-4.56	48.06

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.





CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.5 PK			1.48 H	212	70.91	38.59
2	*2462.00	98.4 AV			1.48 H	212	59.81	38.59
3	2483.50	70.3 PK	74.0	-3.7	1.48 H	212	31.66	38.64
4	<b>2483.50</b>	<b>50.9 AV</b>	<b>54.0</b>	<b>-3.1</b>	<b>1.48 H</b>	<b>212</b>	<b>12.27</b>	<b>38.64</b>
5	4924.00	55.9 PK	74.0	-18.1	1.50 H	260	12.31	43.59
6	4924.00	44.5 AV	54.0	-9.5	1.50 H	260	0.91	43.59
7	7386.00	56.3 PK	74.0	-17.7	1.00 H	214	8.19	48.11
8	7386.00	43.5 AV	54.0	-10.5	1.00 H	214	-4.61	48.11

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.6 PK			1.51 V	250	65.01	38.59
2	*2462.00	93.9 AV			1.51 V	250	55.31	38.59
3	2483.50	68.3 PK	74.0	-5.7	1.53 V	286	29.66	38.64
4	2483.50	49.1 AV	54.0	-4.9	1.53 V	286	10.44	38.64
5	4924.00	54.0 PK	74.0	-20.0	1.00 V	90	10.37	43.59
6	4924.00	38.0 AV	54.0	-16.0	1.00 V	90	-5.63	43.59
7	7386.00	57.6 PK	74.0	-16.4	1.10 V	200	9.49	48.11
8	7386.00	44.1 AV	54.0	-9.9	1.10 V	200	-4.01	48.11

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.



**802.11n (20MHz)**

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.9 PK	74.0	-3.1	1.00 H	145	32.46	38.44
2	2390.00	48.3 AV	54.0	-5.7	1.00 H	145	9.86	38.44
3	#2400.00	78.6 PK	84.3	-5.7	1.00 H	145	40.14	38.46
4	#2400.00	60.3 AV	75.8	-15.5	1.00 H	145	21.84	38.46
5	*2412.00	104.3 PK			1.00 H	145	65.81	38.49
6	*2412.00	95.8 AV			1.00 H	145	57.31	38.49
7	4824.00	53.6 PK	74.0	-20.4	1.02 H	145	10.11	43.49
8	4824.00	40.1 AV	54.0	-13.9	1.02 H	145	-3.39	43.49
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.5 PK	74.0	-4.5	1.00 V	135	31.06	38.44
2	2390.00	50.3 AV	54.0	-3.7	1.00 V	135	11.86	38.44
3	#2400.00	76.8 PK	83.5	-6.7	1.00 V	135	38.34	38.46
4	#2400.00	59.2 AV	73.1	-13.9	1.00 V	135	20.74	38.46
5	*2412.00	103.5 PK			1.00 V	135	65.01	38.49
6	*2412.00	93.1 AV			1.00 V	135	54.61	38.49
7	4824.00	52.6 PK	74.0	-21.4	1.00 V	144	9.11	43.49
8	4824.00	39.8 AV	54.0	-14.2	1.00 V	144	-3.69	43.49

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.0 PK			1.00 H	215	67.46	38.54
2	*2437.00	96.5 AV			1.00 H	215	57.96	38.54
3	4874.00	52.6 PK	74.0	-21.4	1.00 H	145	9.06	43.54
4	4874.00	41.2 AV	54.0	-12.8	1.00 H	145	-2.34	43.54
5	7326.00	57.5 PK	74.0	-16.5	1.00 H	150	9.43	48.07
6	7326.00	43.8 AV	54.0	-10.2	1.00 H	150	-4.27	48.07

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.2 PK			1.00 V	165	64.66	38.54
2	*2437.00	92.7 AV			1.00 V	165	54.16	38.54
3	4874.00	53.7 PK	74.0	-20.3	1.00 V	175	10.16	43.54
4	4874.00	40.5 AV	54.0	-13.5	1.00 V	175	-3.04	43.54
5	7326.00	56.8 PK	74.0	-17.2	1.00 V	186	8.73	48.07
6	7326.00	42.7 AV	54.0	-11.3	1.00 V	186	-5.37	48.07

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.



<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.0 PK			1.41 H	200	68.41	38.59
2	*2462.00	96.9 AV			1.41 H	200	58.31	38.59
3	2483.50	67.5 PK	74.0	-6.5	1.41 H	200	28.86	38.64
4	2483.50	49.3 AV	54.0	-4.7	1.41 H	200	10.66	38.64
5	4924.00	52.7 PK	74.0	-21.3	1.00 H	189	9.11	43.59
6	4924.00	40.8 AV	54.0	-13.2	1.00 H	189	-2.79	43.59
7	7386.00	57.2 PK	74.0	-16.8	1.02 H	155	9.09	48.11
8	7386.00	43.6 AV	54.0	-10.4	1.02 H	155	-4.51	48.11

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.2 PK			1.01 V	22	63.61	38.59
2	*2462.00	92.6 AV			1.01 V	22	54.01	38.59
3	2483.50	60.8 PK	74.0	-13.2	1.01 V	22	22.16	38.64
4	2483.50	43.2 AV	54.0	-10.8	1.01 V	22	4.56	38.64
5	4924.00	52.4 PK	74.0	-21.6	1.00 V	325	8.81	43.59
6	4924.00	41.2 AV	54.0	-12.8	1.00 V	325	-2.39	43.59
7	7386.00	57.6 PK	74.0	-16.4	1.02 V	111	9.49	48.11
8	7386.00	43.6 AV	54.0	-10.4	1.02 V	111	-4.51	48.11

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.



**ABOVE 1GHz DATA**

For sample B

802.11g

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	99.8 PK			1.00 H	354	61.21	38.59
2	*2462.00	90.6 AV			1.00 H	354	52.01	38.59
3	2483.50	57.6 PK	74.0	-16.4	1.00 H	145	18.96	38.64
4	<b>2483.50</b>	<b>48.2 AV</b>	<b>54.0</b>	<b>-5.8</b>	<b>1.00 H</b>	<b>145</b>	<b>9.56</b>	<b>38.64</b>
5	4924.00	57.6 PK	74.0	-16.4	1.00 H	112	14.01	43.59
6	4924.00	43.8 AV	54.0	-10.2	1.00 H	112	0.21	43.59
7	7386.00	64.2 PK	74.0	-9.8	1.00 H	152	16.09	48.11
8	7386.00	43.2 AV	54.0	-10.8	1.00 H	152	-4.89	48.11
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.2 PK			1.00 V	258	67.61	38.59
2	*2462.00	96.2 AV			1.00 V	258	57.61	38.59
3	2483.50	64.5 PK	74.0	-9.5	1.00 V	152	25.86	38.64
4	2483.50	47.2 AV	54.0	-6.8	1.00 V	152	8.56	38.64
5	4924.00	54.6 PK	74.0	-19.4	1.00 V	166	11.01	43.59
6	4924.00	41.2 AV	54.0	-12.8	1.00 V	166	-2.39	43.59
7	7386.00	56.8 PK	74.0	-17.2	1.00 V	154	8.69	48.11
8	7386.00	43.2 AV	54.0	-10.8	1.00 V	154	-4.91	48.11

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.



For sample A

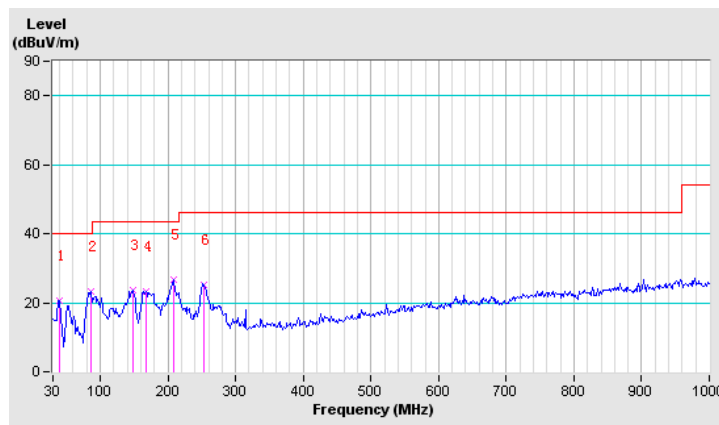
BT-LE (GFSK)

<b>CHANNEL</b>	Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	20.7 QP	40.0	-19.3	1.53 H	344	6.16	14.57
2	86.58	23.1 QP	40.0	-16.9	1.32 H	359	13.75	9.39
3	148.02	23.6 QP	43.5	-19.9	1.12 H	0	11.05	12.57
4	167.42	23.3 QP	43.5	-20.2	1.01 H	358	11.97	11.34
5	207.83	26.6 QP	43.5	-16.9	1.00 H	339	15.82	10.81
6	253.10	25.2 QP	46.0	-20.8	1.00 H	319	10.83	14.40

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



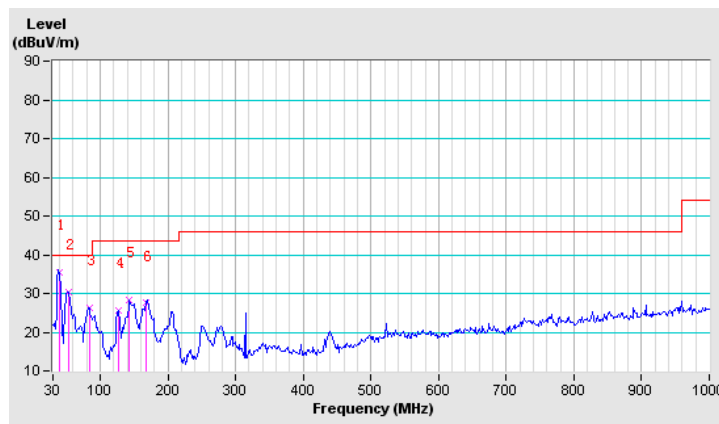


<b>CHANNEL</b>	Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
<b>NO.</b>	<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA HEIGHT (m)</b>	<b>TABLE ANGLE (Degree)</b>	<b>RAW VALUE (dBuV)</b>	<b>CORRECTION FACTOR (dB/m)</b>
1	39.70	35.5 QP	40.0	-4.5	1.00 V	0	20.95	14.57
2	52.63	30.5 QP	40.0	-9.5	1.00 V	0	20.57	9.92
3	83.35	26.4 QP	40.0	-13.6	1.00 V	0	17.35	9.03
4	127.00	25.5 QP	43.5	-18.0	1.00 V	0	12.50	13.02
5	143.17	28.3 QP	43.5	-15.2	1.00 V	0	15.51	12.79
6	167.42	27.5 QP	43.5	-16.0	1.00 V	0	16.13	11.34

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





BELOW 1GHz WORST-CASE DATA:

For sample B

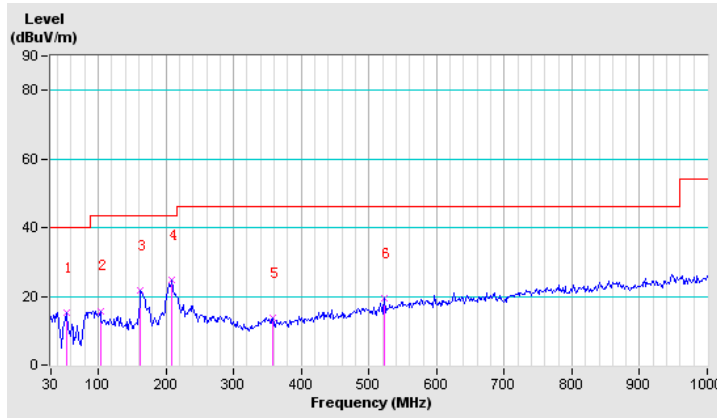
BT-LE (GFSK)

CHANNEL	Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	52.63	15.1 QP	40.0	-24.9	1.00 H	62	5.15	9.92
2	102.75	15.8 QP	43.5	-27.7	1.00 H	132	4.14	11.68
3	162.57	21.6 QP	43.5	-21.9	1.00 H	85	10.00	11.64
4	209.45	24.7 QP	43.5	-18.8	1.00 H	109	13.80	10.87
5	358.18	13.8 QP	46.0	-32.2	1.00 H	161	-3.21	17.01
6	523.08	19.6 QP	46.0	-26.4	1.00 H	186	-1.61	21.17

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





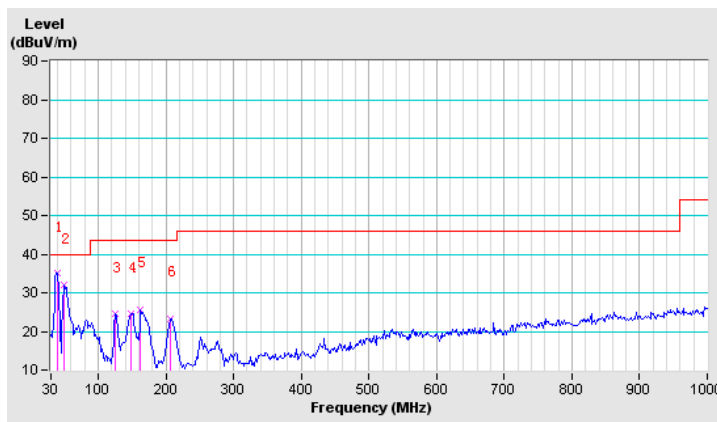


<b>CHANNEL</b>	Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	35.0 QP	40.0	-5.0	1.00 V	109	20.39	14.57
2	49.40	31.9 QP	40.0	-8.1	1.00 V	85	21.26	10.64
3	125.38	24.5 QP	43.5	-19.0	1.00 V	220	11.42	13.04
4	148.02	24.5 QP	43.5	-19.0	1.00 V	198	11.90	12.57
5	162.57	25.6 QP	43.5	-17.9	1.00 V	279	13.93	11.64
6	206.22	23.2 QP	43.5	-20.3	1.00 V	246	12.43	10.75

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





ABOVE 1GHz TEST DATA:

For sample A

BT-LE (GFSK)

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	48.2 PK	74.0	-25.8	1.20 H	208	9.76	38.44
2	2390.00	35.2 AV	54.0	-18.8	1.20 H	208	-3.24	38.44
3	#2400.00	56.3 PK	73.1	-16.8	1.20 H	208	17.84	38.46
4	#2400.00	40.5 AV	49.4	-8.9	1.20 H	208	2.04	38.46
5	*2402.00	93.1 PK			1.20 H	208	54.64	38.46
6	*2402.00	69.4 AV			1.20 H	208	30.94	38.46
7	4804.00	52.3 PK	74.0	-21.7	1.00 H	140	8.83	43.47
8	4804.00	39.2 AV	54.0	-14.8	1.00 H	140	-4.27	43.47

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	47.6 PK	74.0	-26.4	1.00 V	126	9.16	38.44
2	2390.00	34.8 AV	54.0	-19.2	1.00 V	126	-3.64	38.44
3	#2400.00	54.6 PK	67.6	-13.0	1.00 V	126	16.14	38.46
4	#2400.00	38.2 AV	46.1	-7.9	1.00 V	126	-0.26	38.46
5	*2402.00	87.6 PK			1.00 V	126	49.14	38.46
6	*2402.00	66.1 AV			1.00 V	126	27.64	38.46
7	4804.00	51.9 PK	74.0	-22.1	1.00 V	125	8.43	43.47
8	4804.00	38.7 AV	54.0	-15.3	1.00 V	125	-4.77	43.47

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



<b>CHANNEL</b>	TX Channel 19	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	92.8 PK			1.00 H	65	54.26	38.54
2	*2440.00	70.5 AV			1.00 H	65	31.96	38.54
3	4880.00	53.5 PK	74.0	-20.5	1.00 H	182	9.95	43.55
4	4880.00	41.7 AV	54.0	-12.3	1.00 H	182	-1.85	43.55
5	#7244.00	57.4 PK	72.8	-15.4	1.02 H	180	9.39	48.01
6	#7244.00	43.6 AV	50.5	-6.9	1.02 H	180	-4.41	48.01
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	91.8 PK			1.00 V	108	53.26	38.54
2	*2440.00	70.0 AV			1.00 V	108	31.46	38.54
3	4880.00	53.2 PK	74.0	-20.8	1.00 V	148	9.65	43.55
4	4880.00	39.2 AV	54.0	-14.8	1.00 V	148	-4.35	43.55
5	7320.00	55.6 PK	74.0	-18.4	1.00 V	320	7.54	48.06
6	7320.00	42.8 AV	54.0	-11.2	1.00 V	320	-5.26	48.06

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE			Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	92.0 PK			1.00 H	211	53.37	38.63
2	*2480.00	69.4 AV			1.00 H	211	30.77	38.63
3	2483.50	49.0 PK	74.0	-25.0	1.00 H	211	10.36	38.64
4	2483.50	34.5 AV	54.0	-19.5	1.00 H	211	-4.14	38.64
5	4960.00	52.4 PK	74.0	-21.6	1.04 H	122	8.77	43.63
6	4960.00	40.5 AV	54.0	-13.5	1.04 H	122	-3.13	43.63
7	7440.00	56.6 PK	74.0	-17.4	1.00 H	180	8.45	48.15
8	7440.00	43.1 AV	54.0	-10.9	1.00 H	180	-5.05	48.15

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	90.2 PK			1.00 V	206	51.57	38.63
2	*2480.00	68.7 AV			1.00 V	206	30.07	38.63
3	2483.50	48.0 PK	74.0	-26.0	1.00 V	206	9.36	38.64
4	2483.50	34.1 AV	54.0	-19.9	1.00 V	206	-4.54	38.64
5	4960.00	52.2 PK	74.0	-21.8	1.00 V	196	8.57	43.63
6	4960.00	40.1 AV	54.0	-13.9	1.00 V	196	-3.53	43.63
7	7440.00	57.3 PK	74.0	-16.7	1.00 V	185	9.15	48.15
8	7440.00	43.8 AV	54.0	-10.2	1.00 V	185	-4.35	48.15

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.



**ABOVE 1GHz TEST DATA:**

For sample B

BT-LE (GFSK)

<b>CHANNEL</b>	TX Channel 19	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	94.5 PK			1.00 H	158	55.96	38.54
2	*2440.00	71.4 AV			1.00 H	158	32.86	38.54
3	4880.00	54.2 PK	74.0	-19.8	1.00 H	152	10.65	43.55
4	4880.00	41.2 AV	54.0	-12.8	1.00 H	152	-2.35	43.55
5	7320.00	56.3 PK	74.0	-17.7	1.00 H	147	8.24	48.06
6	7320.00	43.5 AV	54.0	-10.5	1.00 H	147	-4.56	48.06
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	90.3 PK			1.00 V	125	51.76	38.54
2	*2440.00	68.2 AV			1.00 V	125	29.66	38.54
3	4880.00	53.6 PK	74.0	-20.4	1.00 V	125	10.05	43.55
4	4880.00	39.7 AV	54.0	-14.3	1.00 V	125	-3.85	43.55
5	7320.00	57.3 PK	74.0	-16.7	1.00 V	186	9.24	48.06
6	7320.00	43.2 AV	54.0	-10.8	1.00 V	186	-4.86	48.06

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.



### 4.3 6dB BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

#### 4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (9KHz-40GHz)	Agilent	E4446A	MY46180622	Apr. 24, 13	Apr. 23, 14
Spectrum Analyzer (9KHz-25GHz)	Agilent	E7405A	MY45118807	May 14, 13	May 13, 14
Power Meter	Anritsu	ML2495A	1139001	Nov. 04, 13	Nov. 03, 14
Digital Multimeter	FLUKE	15B	A1220010D G	Oct. 30, 13	Oct. 29, 14

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA and NIM/CHINA
2. The test was performed in Oven room

#### 4.3.3 TEST PROCEDURE

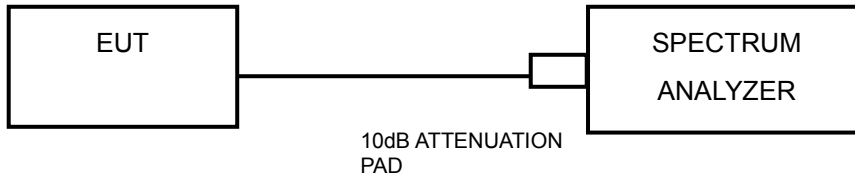
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation.



#### 4.3.5 TEST SETUP



#### 4.3.6 EUT OPERATING CONDITIONS

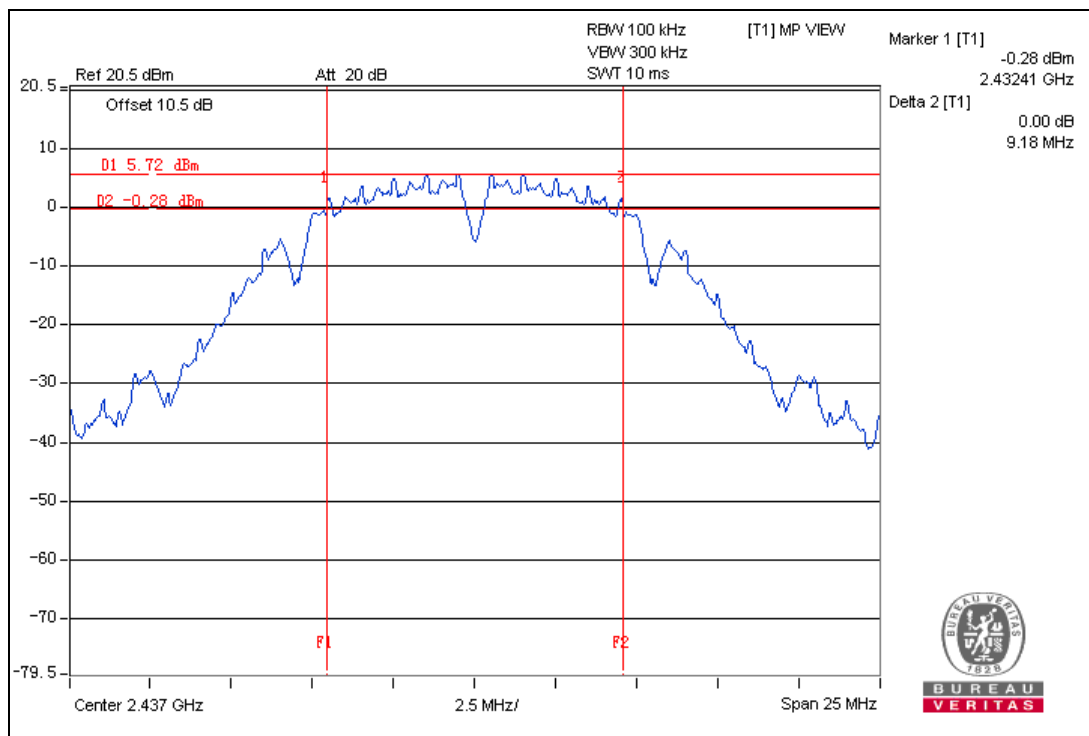
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



### 4.3.7 TEST RESULTS

#### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.17	0.5	PASS
6	2437	9.18	0.5	PASS
11	2462	9.17	0.5	PASS





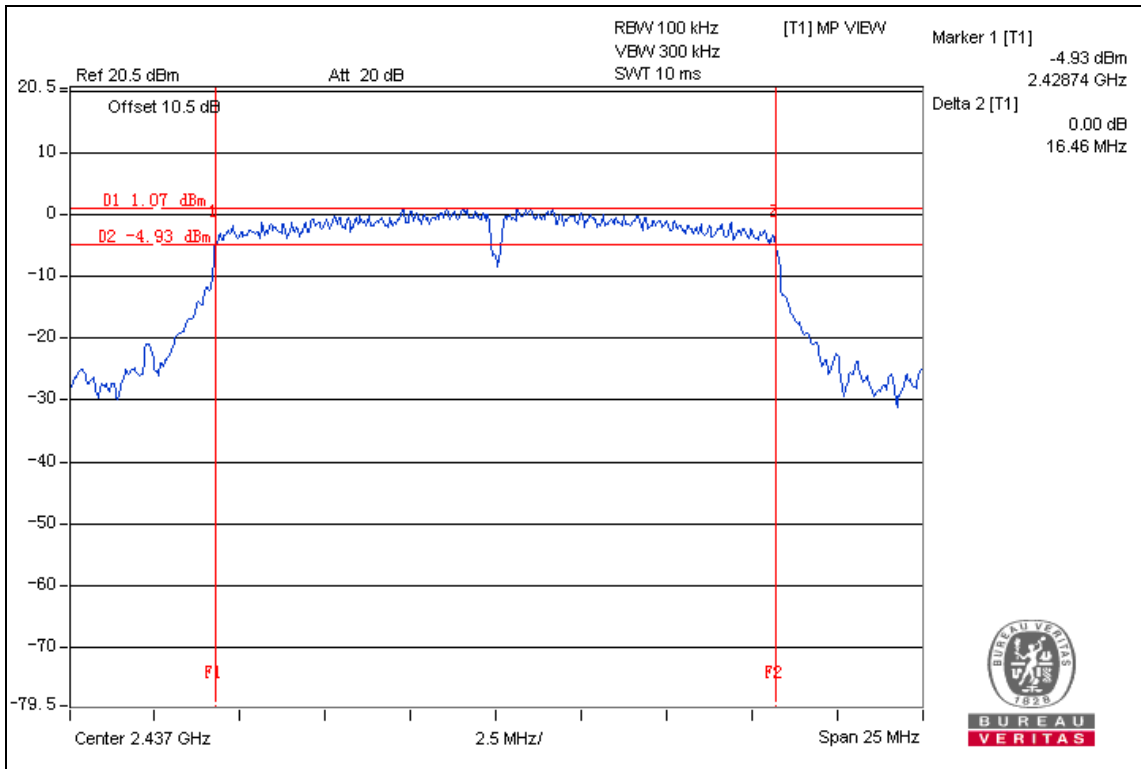


BUREAU VERITAS

Test Report No.: RF140102N055-1

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.41	0.5	PASS
6	2437	16.46	0.5	PASS
11	2462	16.40	0.5	PASS



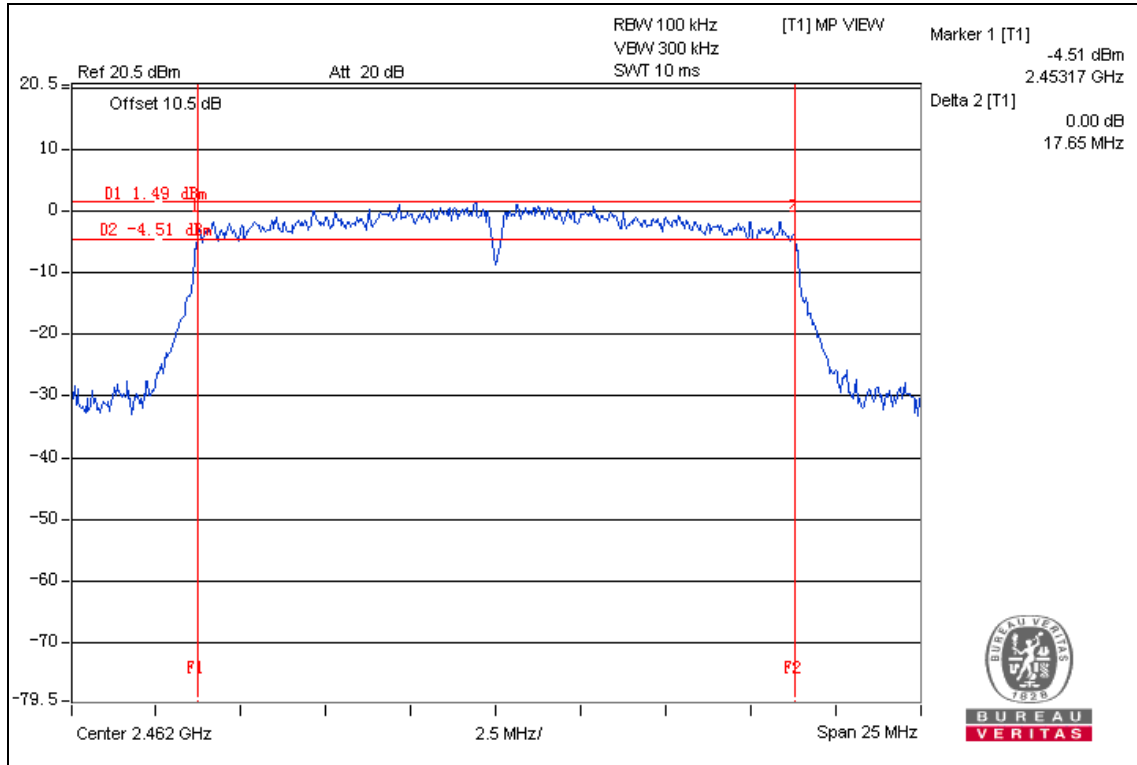


**BUREAU  
VERITAS**

**Test Report No.: RF140102N055-1**

**802.11n (20MHz)**

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.64	0.5	PASS
6	2437	17.65	0.5	PASS
11	2462	17.65	0.5	PASS



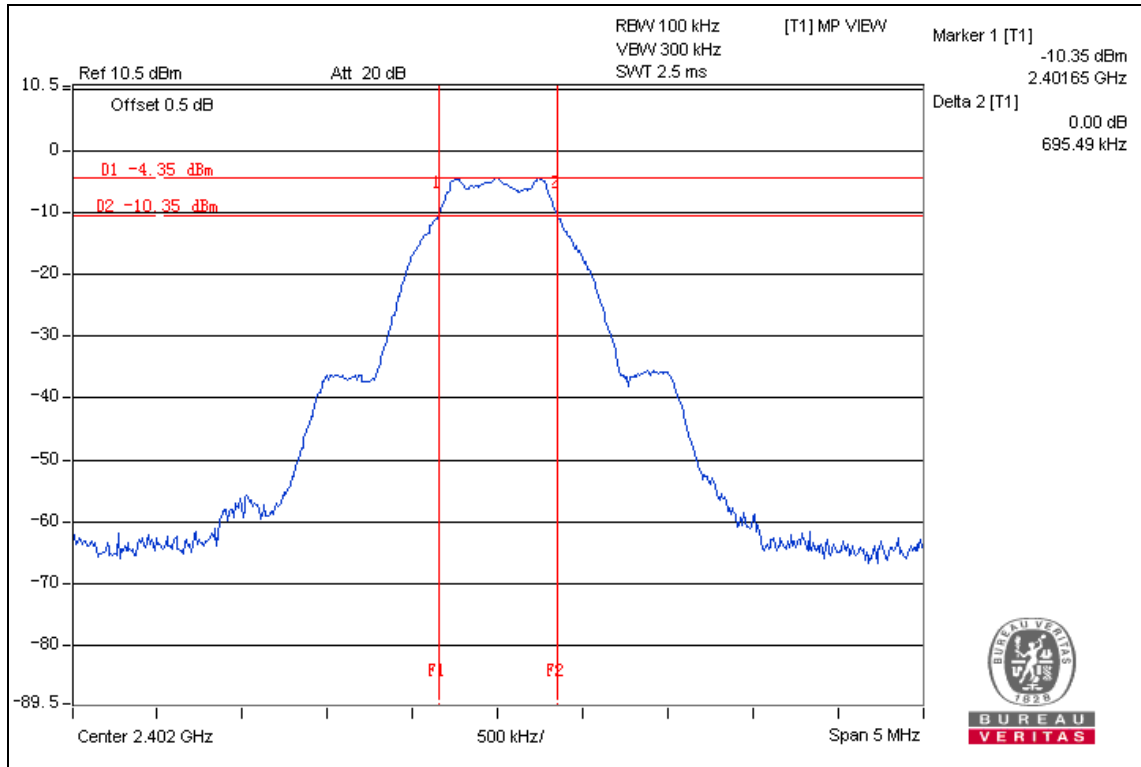


**BUREAU  
VERITAS**

**Test Report No.: RF140102N055-1**

**BT-LE (GFSK)**

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
0	2402	0.70	0.5	PASS
19	2440	0.69	0.5	PASS
39	2480	0.69	0.5	PASS



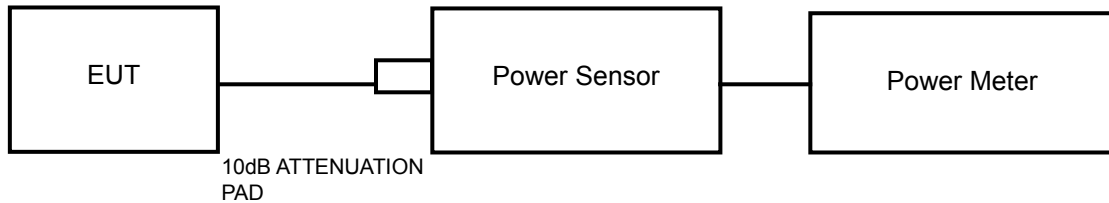


### 4.4 CONDUCTED OUTPUT POWER

#### 4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

#### 4.4.2 TEST SETUP



#### 4.4.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (9KHz-25GHz)	Agilent	E7405A	MY45118807	May 14, 13	May 13, 14
Power Meter	Anritsu	ML2495A	1139001	Nov. 04, 13	Nov. 03, 14
Digital Multimeter	FLUKE	15B	A1220010D G	Oct. 30, 13	Oct. 29, 14

#### 4.4.4 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

#### 4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



#### 4.4.7 TEST RESULTS

##### 4.4.7.1 MAXIMUM PEAK OUTPUT POWER

###### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.64	30	PASS
6	2437	18.81	30	PASS
11	2462	18.80	30	PASS

###### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	21.85	30	PASS
6	2437	<b>22.12</b>	30	PASS
11	2462	21.86	30	PASS

###### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	21.80	30	PASS
6	2437	22.06	30	PASS
11	2462	22.06	30	PASS

###### BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
0	2402	-1.55	30	PASS
19	2440	-1.20	30	PASS
39	2480	-1.12	30	PASS



#### 4.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

##### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	15.28	N/A
6	2437	15.17	N/A
11	2462	15.48	N/A

##### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	13.75	N/A
6	2437	14.12	N/A
11	2462	13.94	N/A

##### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	13.55	N/A
6	2437	13.82	N/A
11	2462	13.90	N/A

##### BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
0	2402	-3.33	N/A
19	2440	-2.98	N/A
39	2480	-2.88	N/A

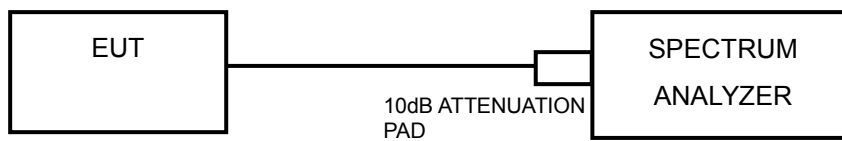


## 4.5 POWER SPECTRAL DENSITY MEASUREMENT

### 4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

### 4.5.2 TEST SETUP



### 4.5.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

### 4.5.4 TEST PROCEDURE

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 100 kHz, VBW  $\geq 3 \times$  RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

### 4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.5.6 EUT OPERATING CONDITION

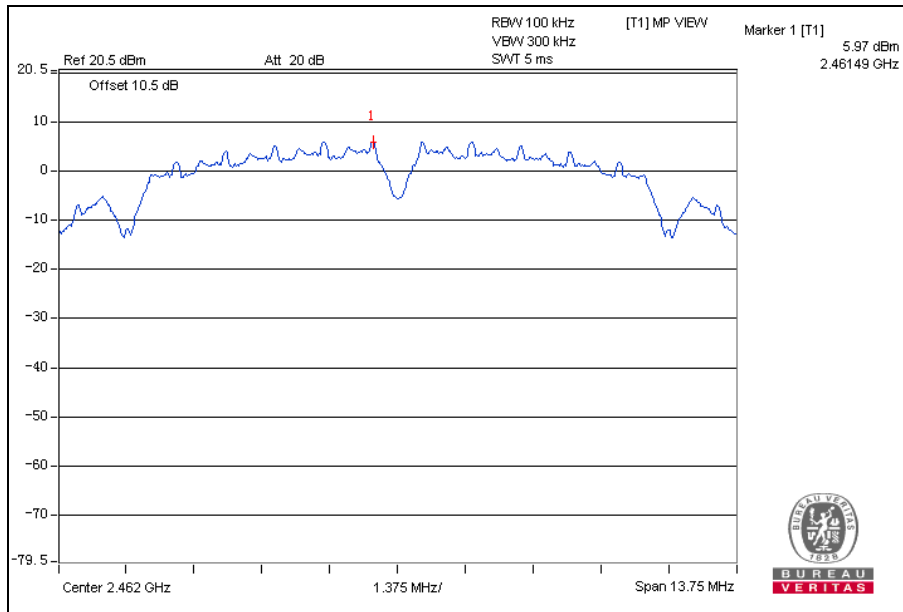
Same as item 4.3.6



### 4.5.7 TEST RESULTS

#### 802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	5.25	8	PASS
6	2437	5.74	8	PASS
11	2462	5.97	8	PASS





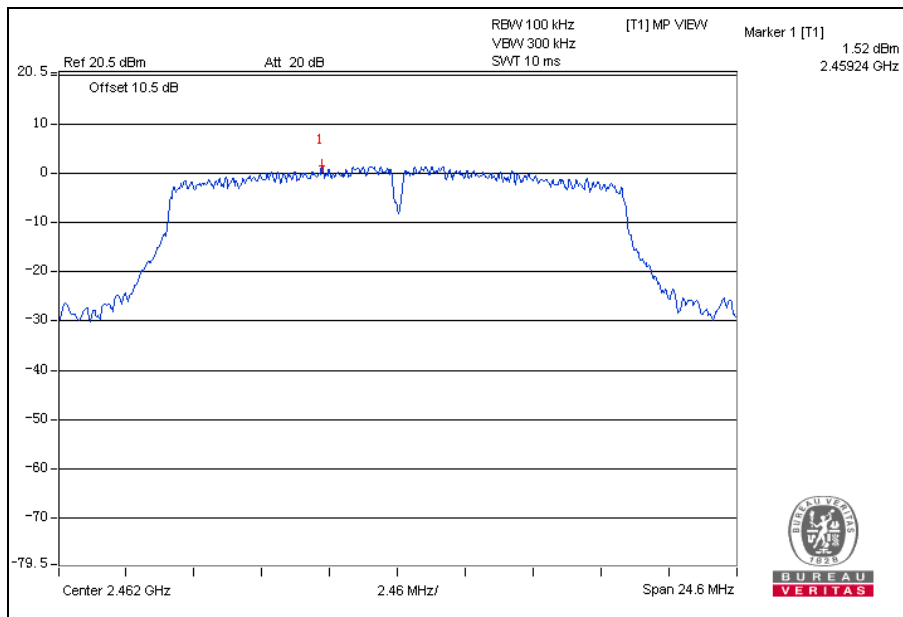


**BUREAU  
VERITAS**

**Test Report No.: RF140102N055-1**

**802.11g**

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	0.64	8	PASS
6	2437	1.07	8	PASS
11	2462	1.52	8	PASS



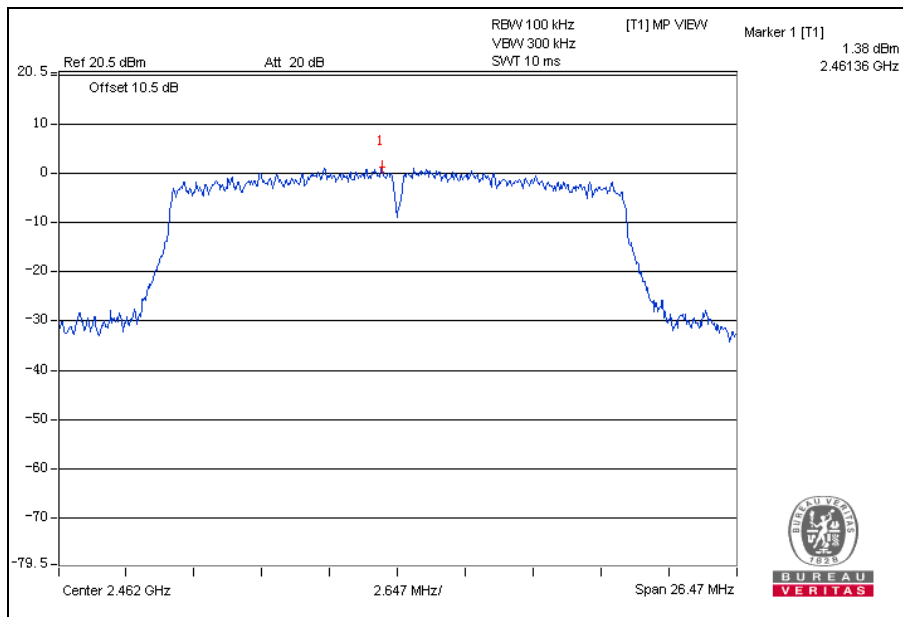


**BUREAU  
VERITAS**

**Test Report No.: RF140102N055-1**

**802.11n (20MHz)**

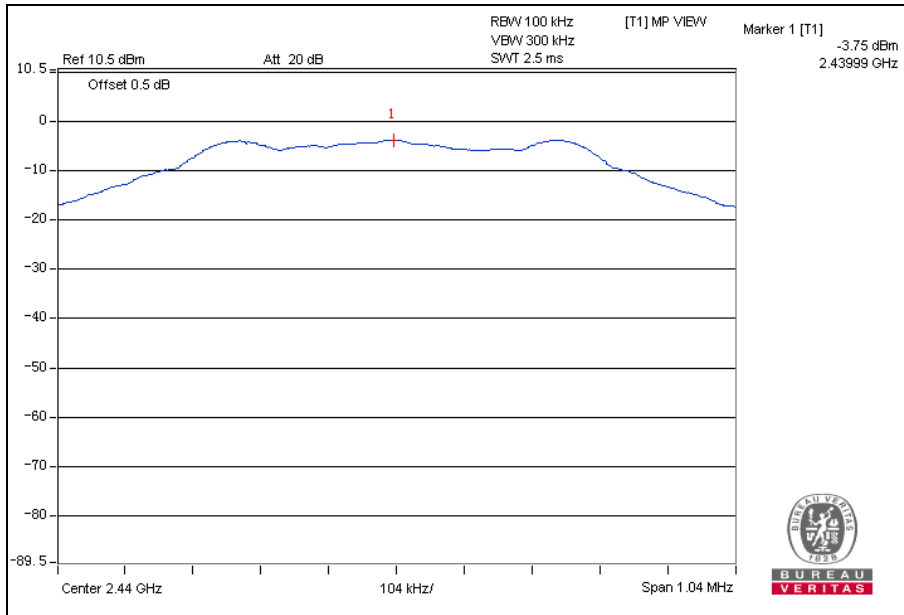
Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	0.94	8	PASS
6	2437	1.27	8	PASS
11	2462	1.38	8	PASS





**BT-LE (GFSK)**

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2402	-4.34	8	PASS
19	2440	-3.75	8	PASS
39	2480	-3.82	8	PASS



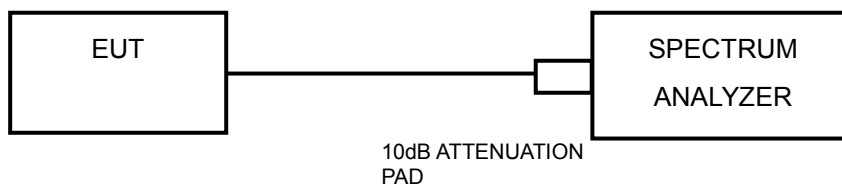


## 4.6 OUT OF BAND EMISSION MEASUREMENT

### 4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 4.6.2 TEST SETUP



### 4.6.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

### 4.6.4 TEST PROCEDURE

#### MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW  $\geq$  300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.



## **MEASUREMENT PROCEDURE OOB**

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

### **4.6.5 DEVIATION FROM TEST STANDARD**

No deviation.

### **4.6.6 EUT OPERATING CONDITION**

Same as item 4.3.6



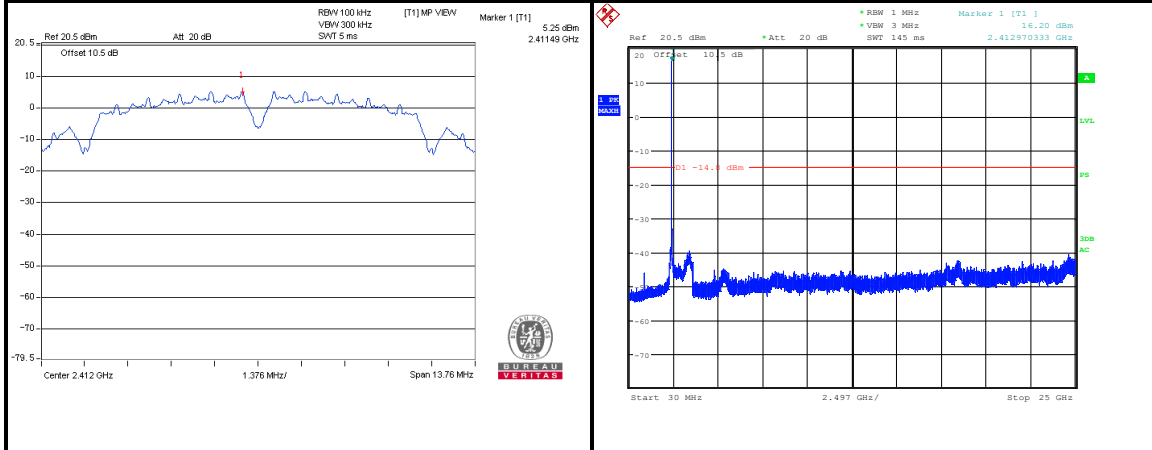
BUREAU VERITAS

Test Report No.: RF140102N055-1

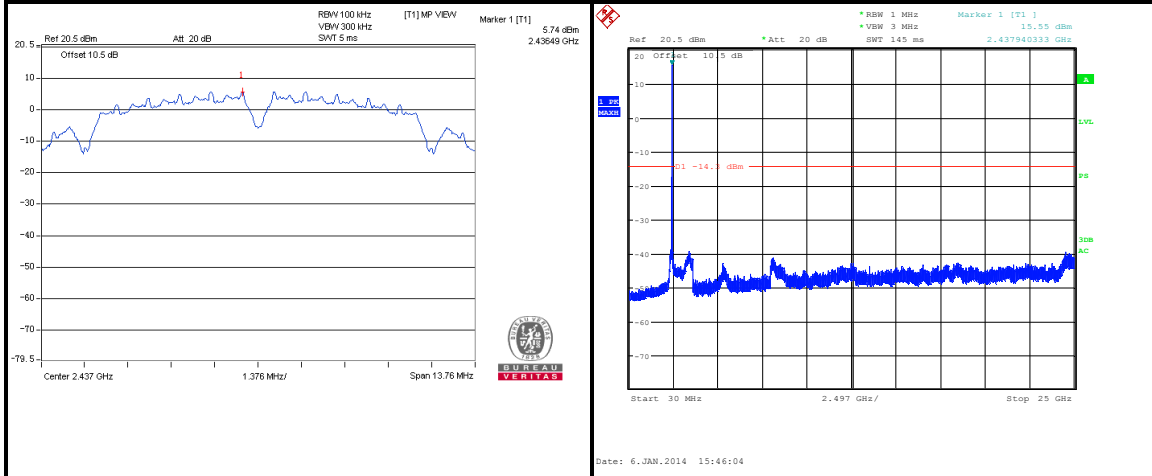
### 4.6.7 TEST RESULTS

#### 802.11b

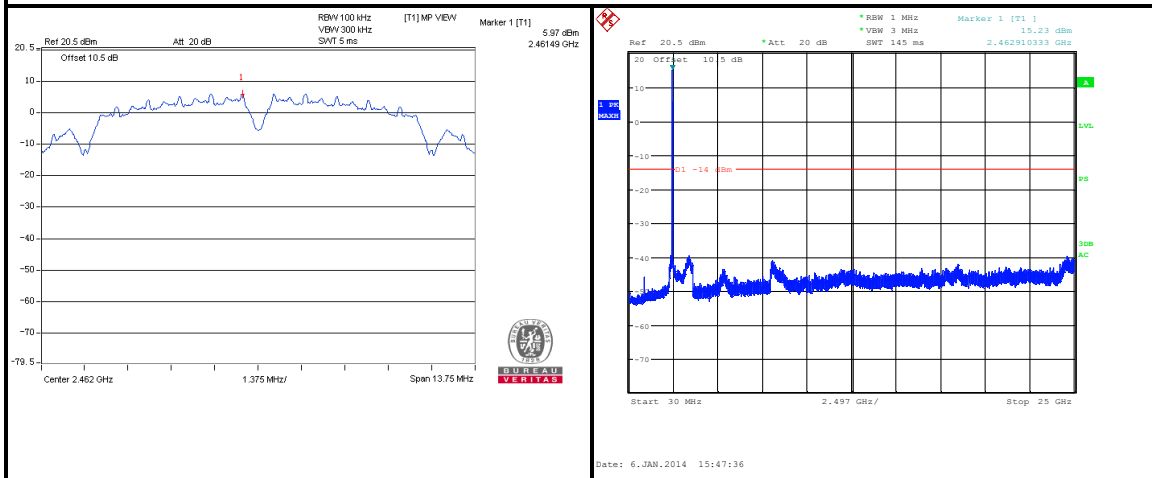
##### CH 1



##### CH 6



##### CH 11



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie  
Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080  
Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)

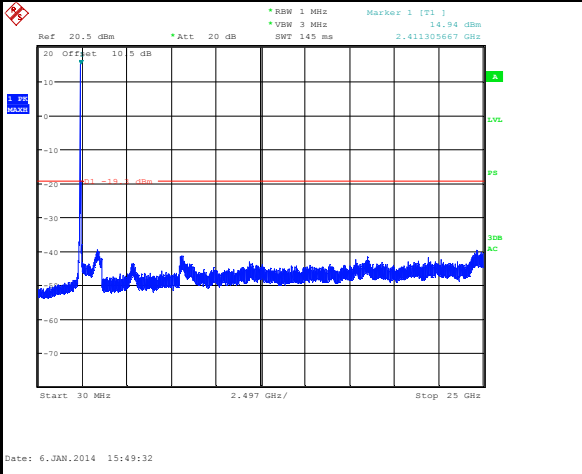
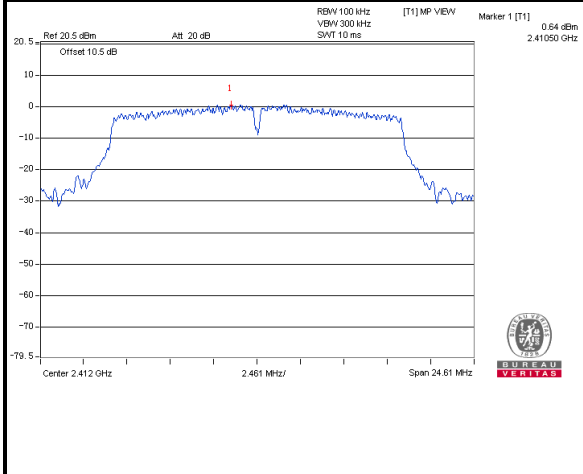


BUREAU VERITAS

Test Report No.: RF140102N055-1

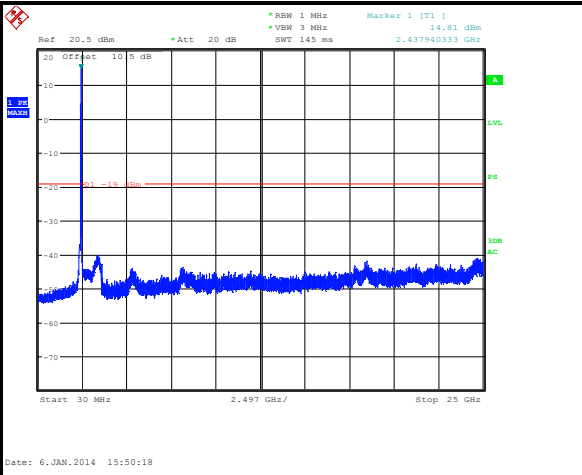
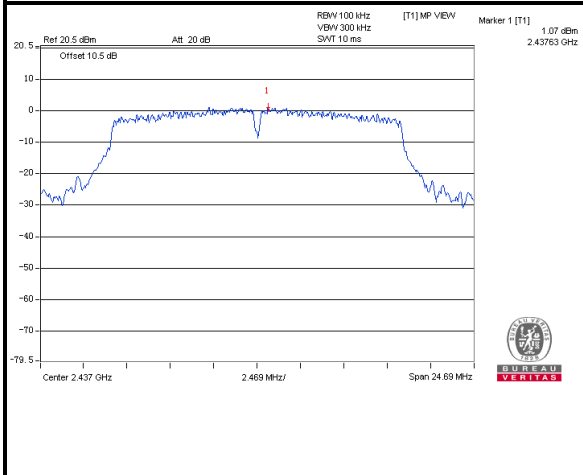
### 802.11g

#### CH 1



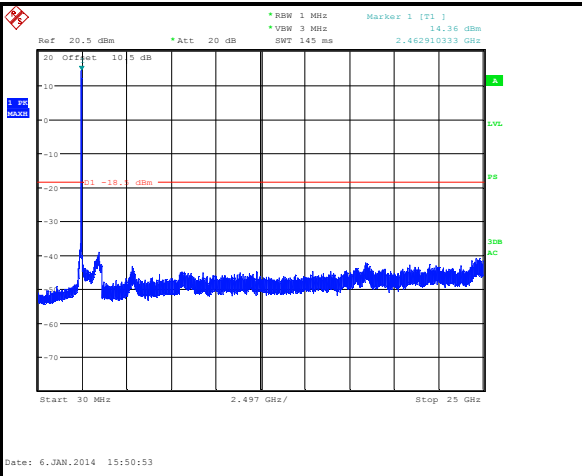
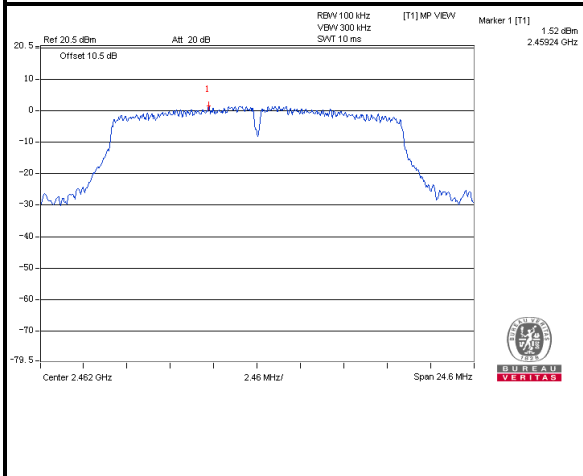
Date: 6 JAN. 2014 15:49:32

#### CH 6



Date: 6 JAN. 2014 15:50:18

#### CH 11



Date: 6 JAN. 2014 15:50:53

Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie  
Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080  
Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)

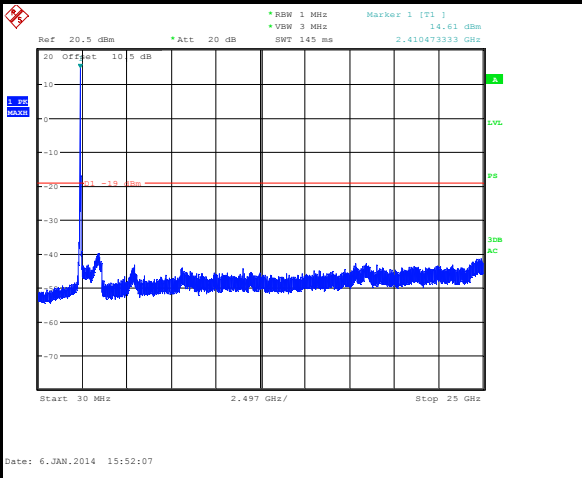
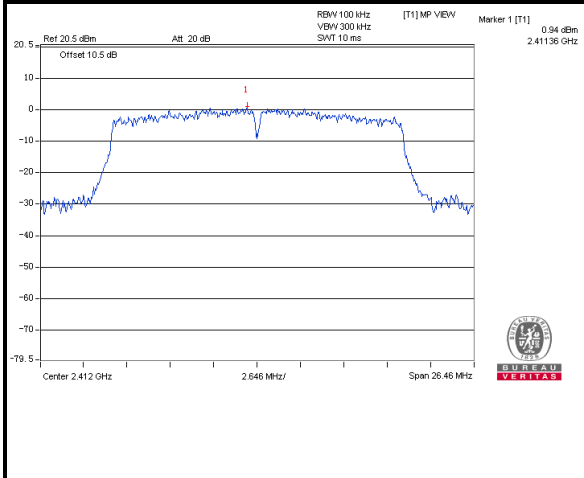


BUREAU VERITAS

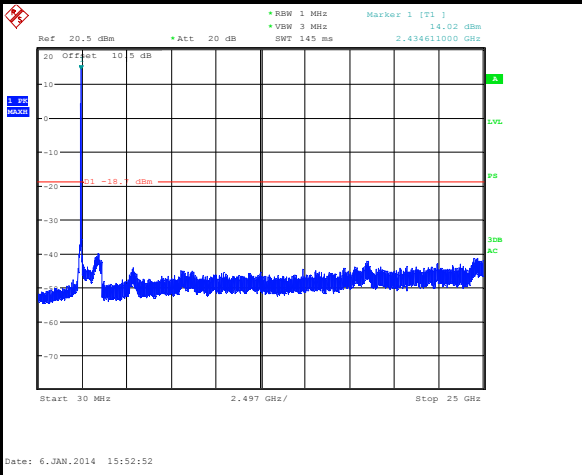
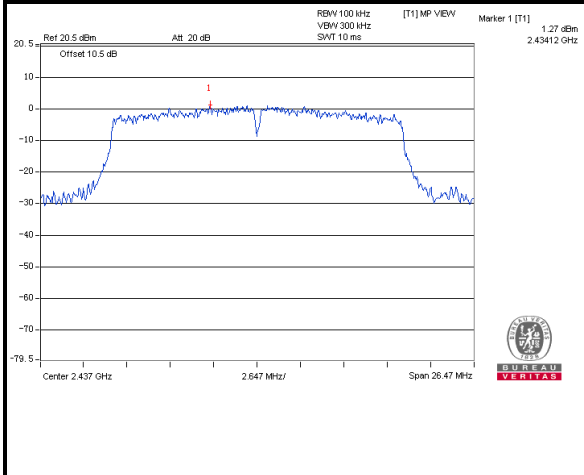
Test Report No.: RF140102N055-1

### 802.11n (20MHz)

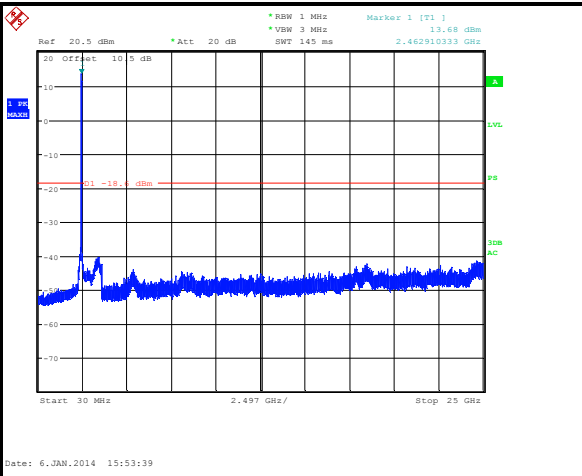
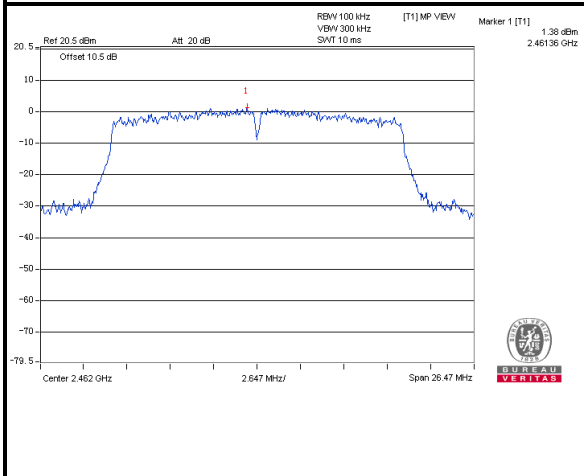
#### CH 1



#### CH 6



#### CH 11





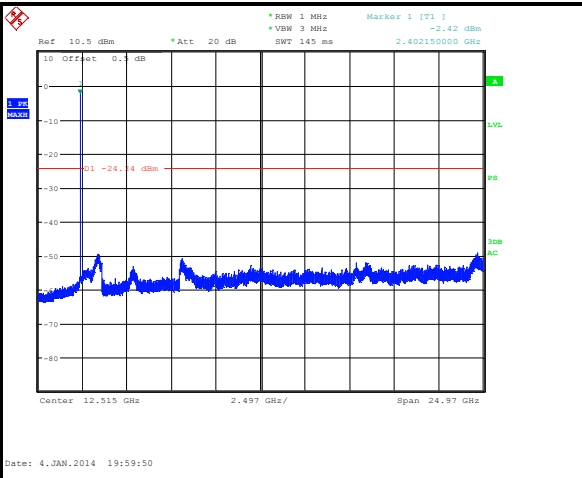
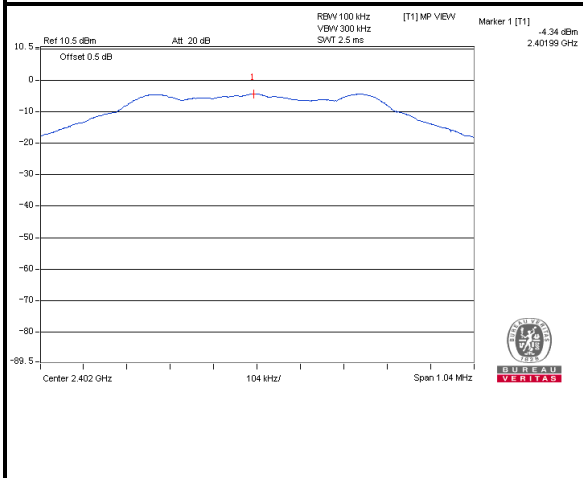


**BUREAU  
VERITAS**

Test Report No.: RF140102N055-1

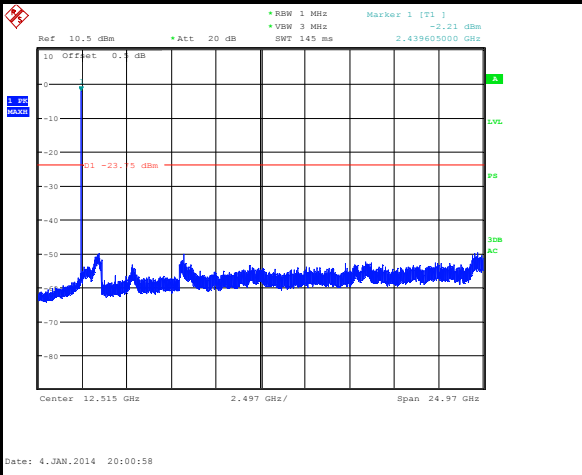
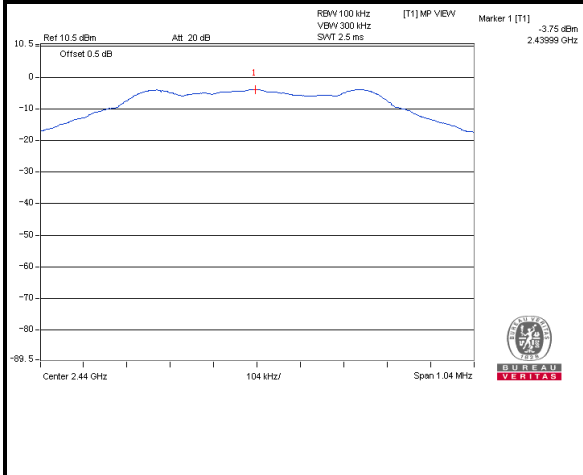
### BT-LE (GFSK)

#### CH 0



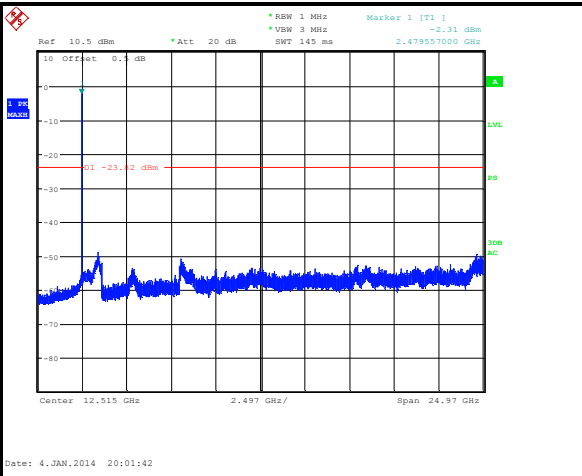
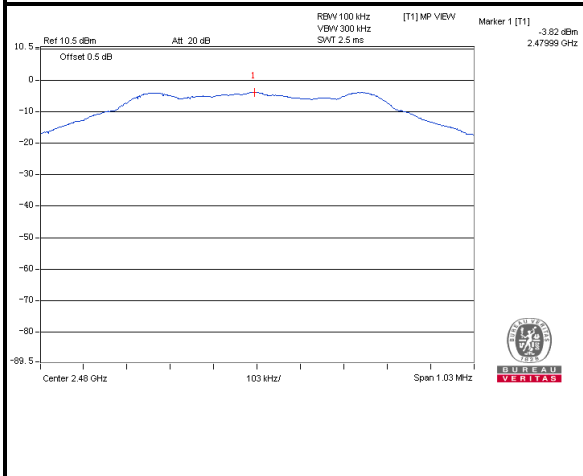
Date: 4.JAN.2014 19:59:50

#### CH 19



Date: 4.JAN.2014 20:00:58

#### CH 39



Date: 4.JAN.2014 20:01:42

Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie  
Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080  
Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



## 6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---