



**BUREAU  
VERITAS**

Test Report No.: RF130401N026-1



Test Lab  
Cert 2951.01

## TEST REPORT



Applicant	Brightstar Corporation
Address:	9725 NW 117th Ave., Miami, Florida, United States

Manufacturer or Supplier	KCMobile Co.,Ltd.
Address:	#502 Ace Techno Tower 8th, 191-7 Guro 3 Dong, Guro-Gu, Seoul, KOREA
Product	Avvio PAD
Brand Name	Avvio
Model	Avvio Pad
Additional Model & Model Difference	N/A
Date of tests	Apr. 01, 2013 ~ Apr. 12, 2013

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

**FCC Part 15, Subpart C (Section 15.247)**

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

Tested by Kent Liu Specialist / EMC Department	Approved by Sam Tung Manager / EMC Department
	
	Date: Apr. 13, 2013

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..... 43**

        4.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT ..... 43

        4.3.2 TEST INSTRUMENTS..... 43

        4.3.3 TEST PROCEDURE..... 43

        4.3.4 DEVIATION FROM TEST STANDARD ..... 43

        4.3.5 TEST SETUP ..... 44

        4.3.6 EUT OPERATING CONDITIONS ..... 44

        4.3.7 TEST RESULTS ..... 44



<b>4.4</b>	<b>CONDUCTED OUTPUT POWER</b>	<b>46</b>
4.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	46
4.4.2	TEST SETUP	46
4.4.3	TEST INSTRUMENTS	46
4.4.4	TEST PROCEDURES	46
4.4.5	DEVIATION FROM TEST STANDARD	46
4.4.6	EUT OPERATING CONDITIONS	46
4.4.7	TEST RESULTS	47
<b>4.5</b>	<b>POWER SPECTRAL DENSITY MEASUREMENT</b>	<b>49</b>
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	49
4.5.2	TEST SETUP	49
4.5.3	TEST INSTRUMENTS	49
4.5.4	TEST PROCEDURE	49
4.5.5	DEVIATION FROM TEST STANDARD	49
4.5.6	EUT OPERATING CONDITION	49
4.5.7	TEST RESULTS	50
<b>4.6</b>	<b>OUT OF BAND EMISSION MEASUREMENT</b>	<b>51</b>
4.6.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT	51
4.6.2	TEST SETUP	51
4.6.3	TEST INSTRUMENTS	51
4.6.4	TEST PROCEDURE	51
4.6.5	DEVIATION FROM TEST STANDARD	52
4.6.6	EUT OPERATING CONDITION	52
4.6.7	TEST RESULTS	53
<b>5</b>	<b>PHOTOGRAPHS OF THE TEST CONFIGURATION</b>	<b>58</b>
<b>6</b>	<b>APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB</b>	<b>59</b>



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Test Report No.: RF130401N026-1

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130401N026-1	Original release	Apr. 12, 2013



# 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 -5.95dB at 0.19825MHz.
15.205 15.209	Restricted bands of operation & Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -5.9dB at 2390MHz-802.11b
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.
15.247(d)	Out of Band Emission Measurement	PASS	Meet the requirement of limit.

# 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	2.94dB
Radiated emissions	30MHz ~ 1GMHz	3.64dB
	1GHz ~ 18GHz	2.2dB
	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>	Avvio PAD
<b>MODEL NO.</b>	Avvio Pad
<b>FCC ID</b>	WVBA1000
<b>NOMINAL VOLTAGE</b>	5.0VDC (adapter or host equipment) ; 3.7VDC (battery)
<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) 2422-2452MHz for 11n(HT40) 2402-2480GHz for BT-LE(GFSK)
<b>PEAK POWER</b>	15.34 dBm (Maximum)
<b>ANTENNA TYPE</b>	PIFA antenna with -2 dBi gain
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB Cable: Unshielded, Detachable,0.8m Earphone Cable: Unshielded, Detachable,1.2m

**NOTE:**

1. WLAN, Bluetooth, GPS, GSM, WCDMA technologies are used for the EUT.
2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	Huoniu
MODEL:	HNB050150U
INPUT:	AC 100-240V, 50/60Hz, 0.35A
OUTPUT:	DC 5V, 1.5A
DC LINE:	N/A



3. The EUT provides one transmitter and one receiver.

<b>MODULATION MODE</b>	<b>TX FUNCTION</b>
<b>802.11b</b>	1TX
<b>802.11g</b>	1TX
<b>802.11n (HT20)</b>	1TX
<b>802.11n (HT40)</b>	1TX

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

5. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

6. Spurious emission of the simultaneous operation (WLAN& BT&WWAN) has been evaluated and no non-compliance was found.



### 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		

7 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

Forty 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 X 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	
A	√	√	√	√	<b>Adapter mode with WIFI function</b>
B	√	-	NOTE	-	Battery mode with WIFI function
C	√	-	√	-	USB Charging mode with WIFI function

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11g	1 to 11	1	OFDM	BPSK	6.0	X
A	BT-LE	0 to 39	39	DTS	GFSK	1.0	X



**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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0	X
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
A	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5	X
A	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5	X
A	BT-LE	0 to 39	0,19,39	DTS	GFSK	1	X

**POWER LINE CONDUCTED EMISSION TEST:**

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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11g	1 to 11	1	OFDM	BPSK	6.0
A	BT-LE	0 to 39	39	DTS	GFSK	1.0



**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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 9	OFDM	BPSK	13.5
A	BT-LE	0 to 39	0,39	DTS	GFSK	1.0

**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.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1,6, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3,6, 9	OFDM	BPSK	13.5
A	BT-LE	0 to 39	0,19,39	DTS	GFSK	1.0

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 60%RH	120Vac, 60Hz	Yuqiang Yin
RE≥1G	25deg. C, 60%RH	120Vac, 60Hz	Yuqiang Yin
PLC	25deg. C, 60%RH	120Vac, 60Hz	Bin Wei
APCM	25deg. C, 60%RH	120Vac, 60Hz	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 (15.247)**
- 558074 D01 DTS Meas Guidance**
- 662911 D01 Multiple Transmitter Output**
- ANSI C63.10-2009**

All test items have been performed and recorded as per the above standards.

**NOTE:** It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B. 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	N/A				

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A



## 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 15,12	May 14,13
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	May 15,12	May 14,13
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	May 15,12	May 14,13
Test software	ADT	ADT_Cond_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.

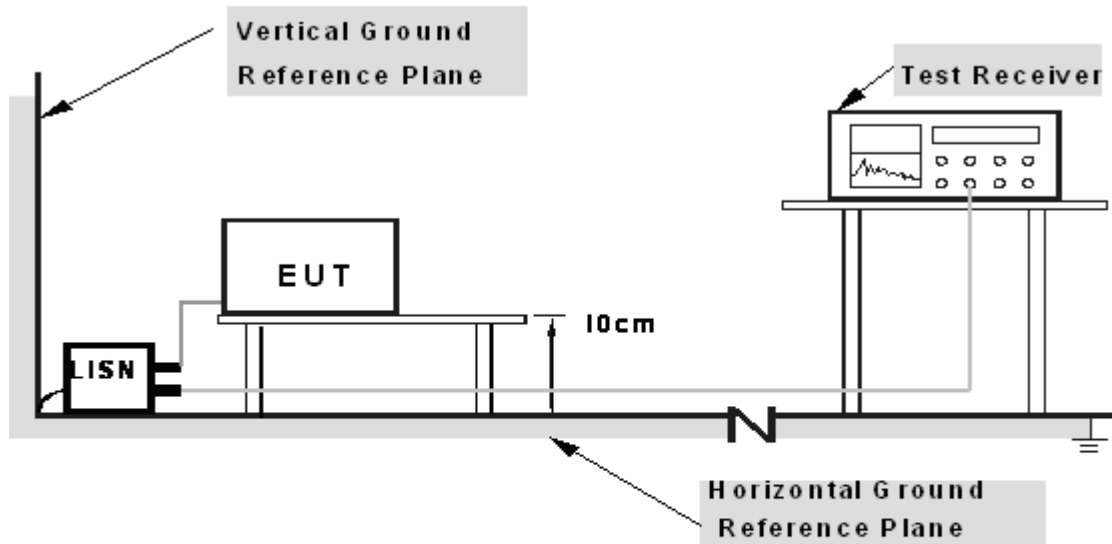
**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

#### 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

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



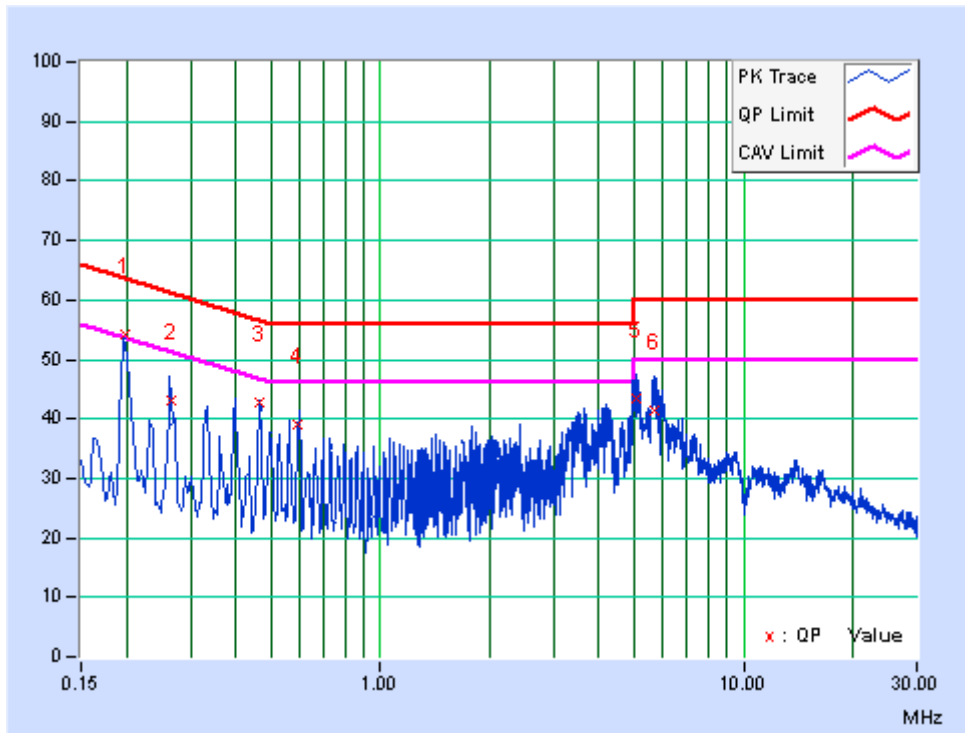
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 802.11g-CH1

PHASE	Line	6dB BANDWIDTH	9kHz
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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	0.19825	10.44	43.76	37.19	54.2	47.63	63.68	53.68	-9.48	-6.05
2	0.26408	10.33	32.81	27.71	43.14	38.04	61.3	51.3	-18.16	-13.26
3	0.46197	10.24	32.49	29.27	42.73	39.51	56.66	46.66	-13.92	-7.14
4	0.59229	10.16	29.01	27.29	39.17	37.45	56	46	-16.83	-8.55
5	5.07662	9.85	33.63	18.33	43.48	28.18	60	50	-16.52	-21.82
6	5.6973	9.86	31.53	18.88	41.39	28.74	60	50	-18.61	-21.26

- 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.



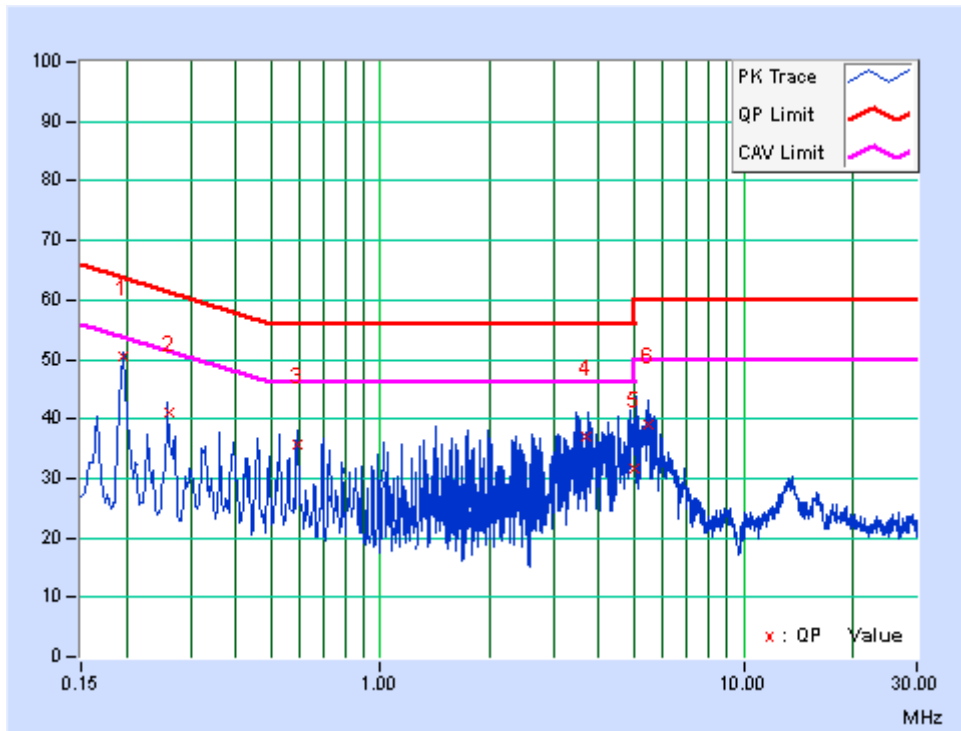




<b>PHASE</b>	Neutral	<b>6dB BANDWIDTH</b>	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19692	10.35	40.32	32.06	50.67	42.41	63.74	53.74	-13.07	-11.33
2	0.26246	10.29	30.64	23.83	40.93	34.12	61.35	51.35	-20.43	-17.24
3	0.59008	10.21	25.62	21.71	35.83	31.92	56	46	-20.17	-14.08
4	3.70417	9.59	27.39	14.41	36.98	24.00	56	46	-19.02	-22
5	5.00000	9.67	21.85	9.56	31.52	19.23	56	46	-24.48	-26.77
6	5.46553	9.72	29.44	18.34	39.16	28.06	60	50	-20.84	-21.94

- 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.



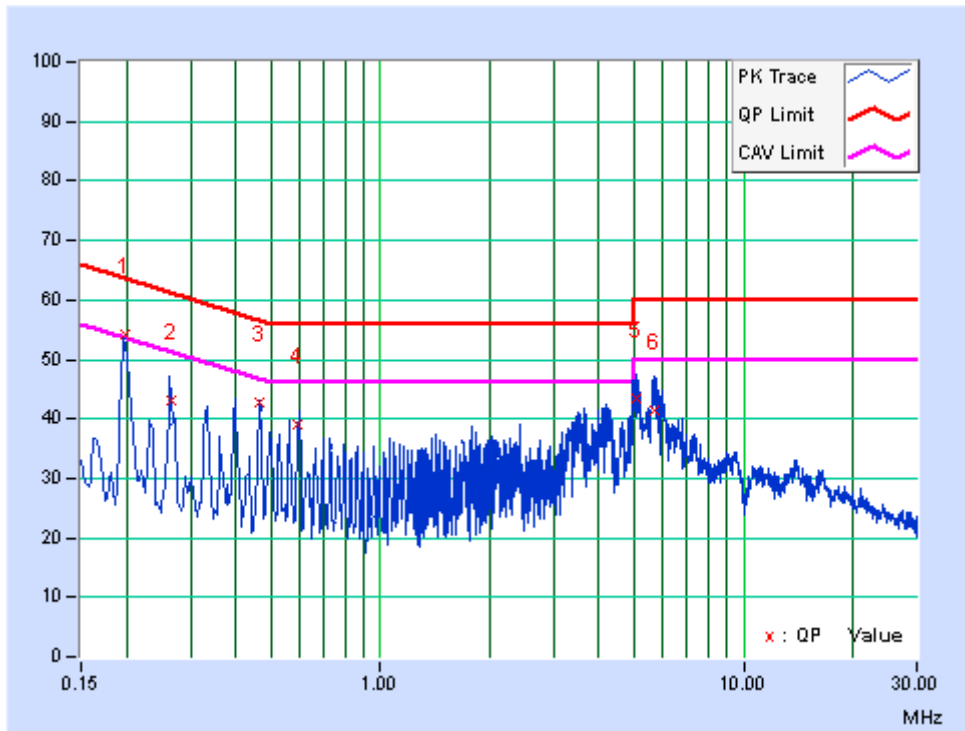


**CONDUCTED WORST-CASE DATA: BT-LE**

<b>PHASE</b>	Line	<b>6dB BANDWIDTH</b>	9kHz
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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	0.19825	10.44	43.79	37.29	54.23	47.73	63.68	53.68	-9.45	-5.95
2	0.26408	10.33	32.85	27.75	43.18	38.08	61.3	51.3	-18.12	-13.22
3	0.46197	10.24	32.49	29.2	42.73	39.44	56.66	46.66	-13.92	-7.21
4	0.59229	10.16	29.01	27.24	39.17	37.4	56	46	-16.83	-8.6
5	5.07662	9.85	33.56	18.33	43.41	28.18	60	50	-16.59	-21.82
6	5.69730	9.86	31.49	18.85	41.35	28.71	60	50	-18.65	-21.29

- 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.

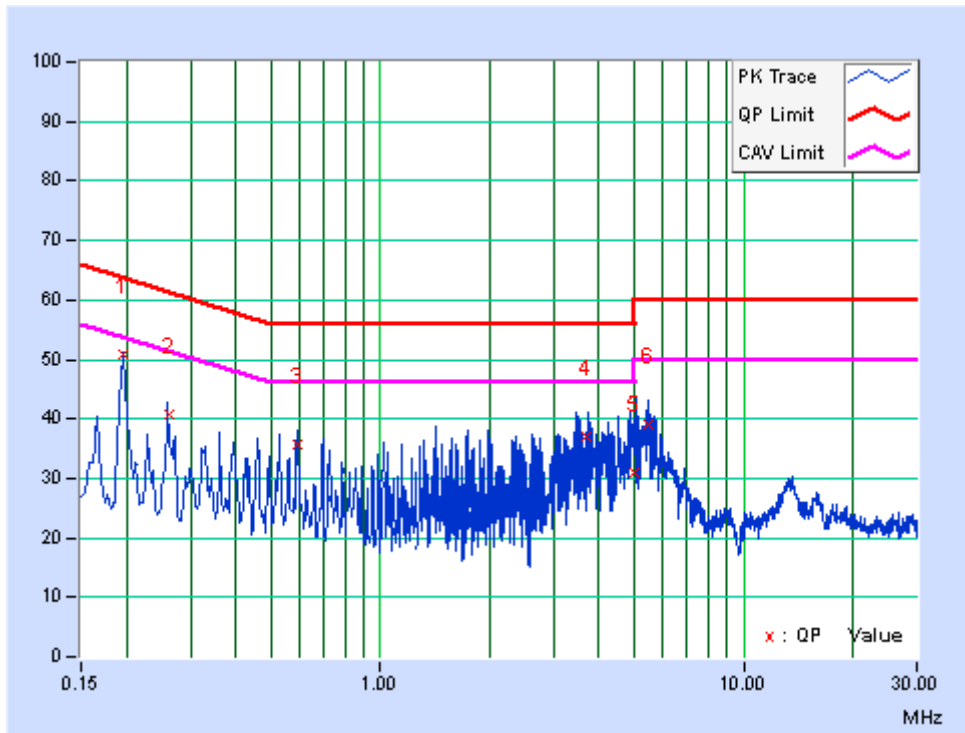




<b>PHASE</b>	Neutral	<b>6dB BANDWIDTH</b>	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19692	10.35	40.42	32.58	50.77	42.93	63.74	53.74	-12.97	-10.81
2	0.26246	10.29	30.54	23.42	40.83	33.71	61.35	51.35	-20.53	-17.65
3	0.59008	10.21	25.35	21.68	35.56	31.89	56	46	-20.44	-14.11
4	3.70417	9.59	27.4	14.5	36.99	24.09	56	46	-19.01	-21.91
5	5.00000	9.67	21.45	9.46	31.12	19.13	56	46	-24.88	-26.87
6	5.46553	9.72	29.45	18.86	39.17	28.58	60	50	-20.83	-21.42

- 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	May 02,12	May 01,13
EMI Test Receiver	Rohde&Schwarz	ESVD	847398/003	May 15,12	May 14,13
Bilog Antenna (25MHz-2GHz)	Teseq	CBL 6111D	27089	Jul. 16,12	Jul. 15,13
Horn Antenna (1GHz -18GHz)	EMCO	3117	00062558	Oct.18,12	Oct.17,13
Pre-Amplifier (20MHz-3GHz)	EMCI	EMC 330	980095	Nov. 02,12	Nov.01,13
Pre-Amplifier (100MHz-26.5GHz)	Agilent	8449B	3008A00409	May 31,12	May 30,13
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m*8 .8m	NSEMC006	Mar. 24,13	Mar. 23,14
Digital Multimeter	FLUKE	15B	A1220010D G	Oct. 31,12	Oct. 30,13
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA91702 42	Jan. 04,11	Jan. 03,14
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,12	Nov. 03,13
Bluetooth Tester	Rohde&Schwarz	CBT32	N/A	N/A	N/A
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 and NIM/CHINA.
  2. The test was performed in Dongguan Chamber 10m.
  3. The horn antenna are used only for the measurement of emission frequency above 1GHz if tested.



### 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:**

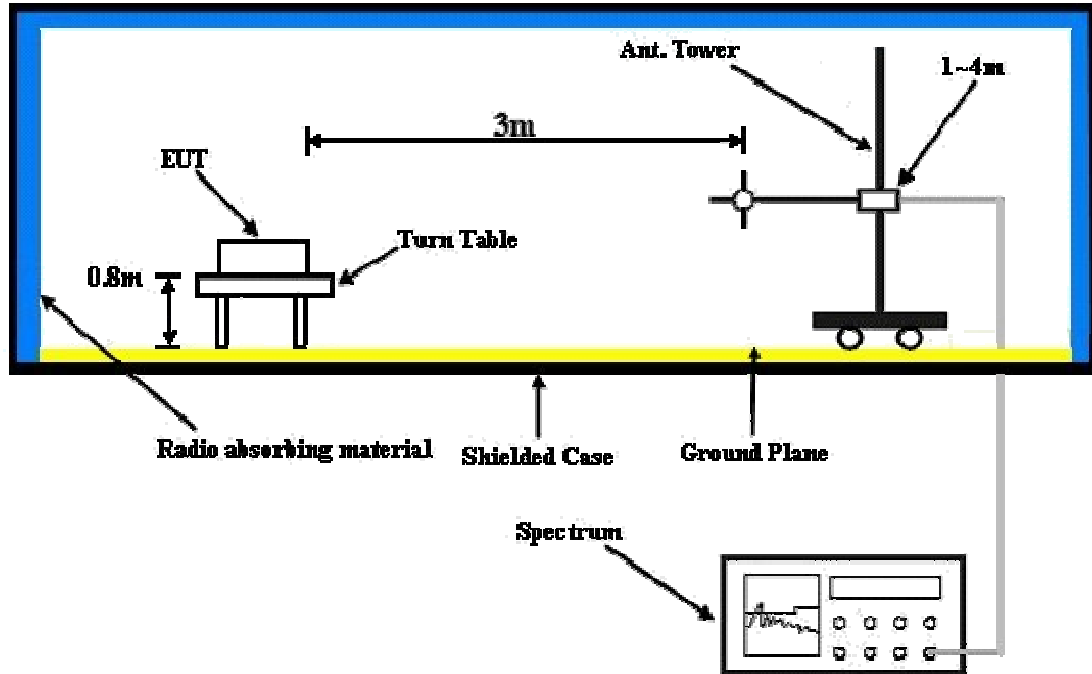
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution 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

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



### 4.2.7 TEST RESULTS

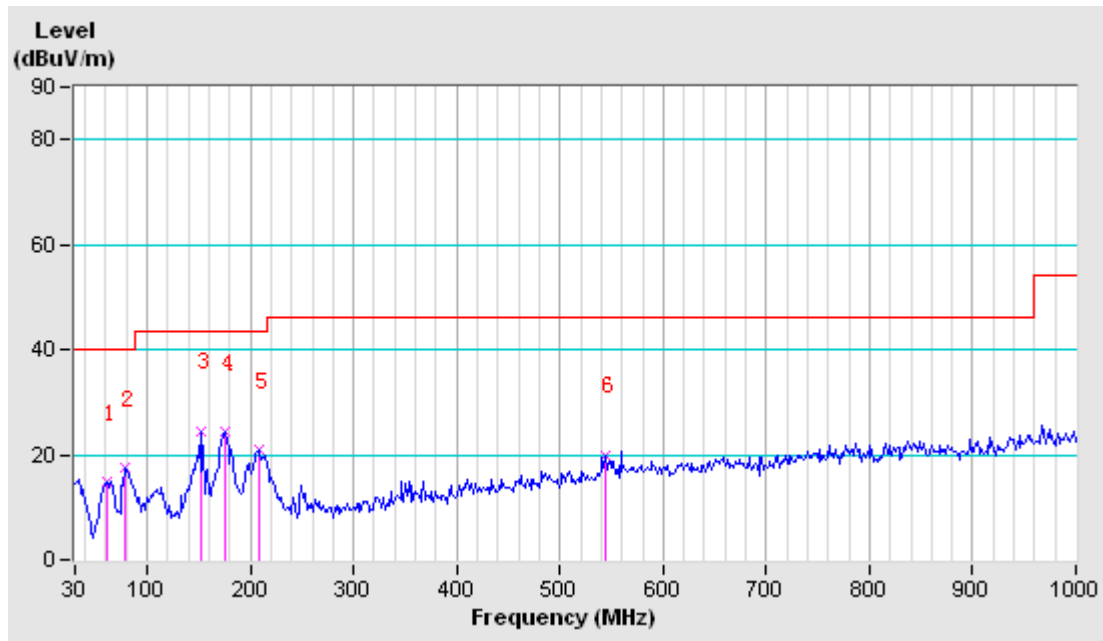
#### BELOW 1GHz WORST-CASE DATA: 802.11g- CH1

<b>CHANNEL</b>	TX Channel 1	<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	60.72	14.7 QP	40.0	-25.3	1.00 H	142	6.69	8.01
2	78.50	17.7 QP	40.0	-22.3	1.59 H	266	9.27	8.41
3	151.25	24.6 QP	43.5	-18.9	1.87 H	297	12.41	12.18
4	175.50	24.4 QP	43.5	-19.1	2.01 H	323	13.72	10.69
5	207.83	21.0 QP	43.5	-22.5	1.24 H	226	10.39	10.59
6	544.10	20.0 QP	46.0	-26.0	1.06 H	205	-1.80	21.82

#### 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.





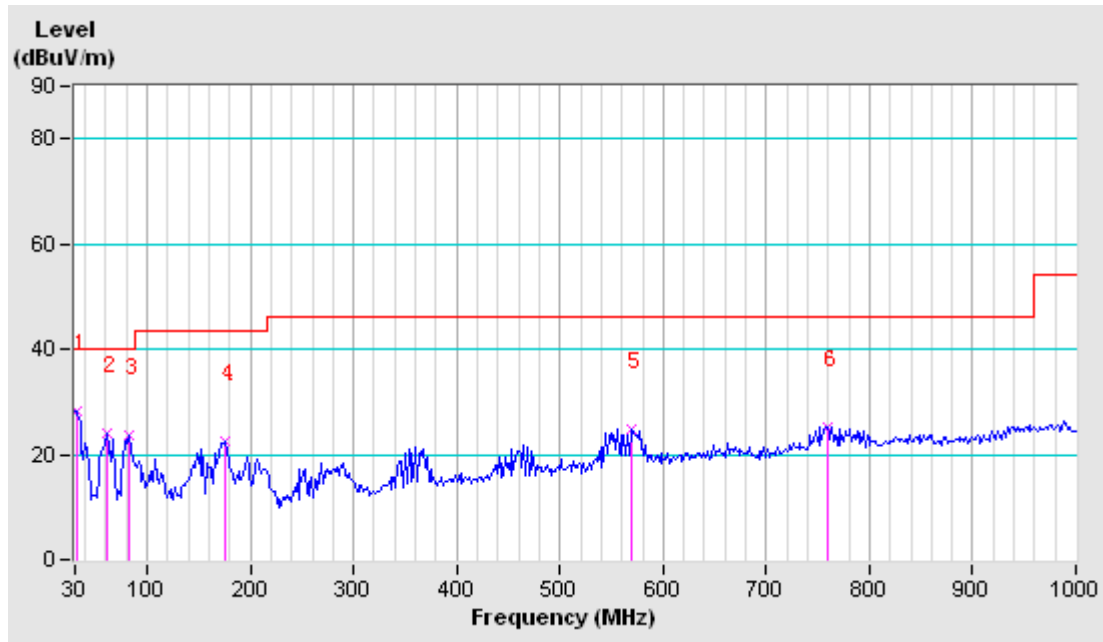


<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

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	31.62	28.3 QP	40.0	-11.7	1.07 V	243	9.31	19.00
2	60.72	24.0 QP	40.0	-16.0	1.14 V	186	15.96	8.01
3	81.73	23.6 QP	40.0	-16.4	1.00 V	214	14.84	8.73
4	175.50	22.5 QP	43.5	-21.0	1.00 V	273	11.85	10.69
5	568.35	24.7 QP	46.0	-21.3	1.25 V	304	2.34	22.40
6	759.12	25.2 QP	46.0	-20.8	1.08 V	127	-0.07	25.31

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

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
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	53.4 PK	74.0	-20.6	1.12 H	38	16.99	36.41
2	2390.00	41.4 AV	54.0	-12.6	1.12 H	38	4.99	36.41
3	*2412.00	102.7 PK			1.12 H	38	66.09	36.61
4	*2412.00	99.9 AV			1.12 H	38	63.29	36.61
5	4824.00	58.1 PK	74.0	-15.9	1.13 H	167	8.85	49.25
6	4824.00	45.3 AV	54.0	-8.7	1.13 H	167	-3.95	49.25

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	59.9 PK	74.0	-14.1	1.20 V	109	23.49	36.41
2	2390.00	48.1 AV	54.0	-5.9	1.20 V	109	11.69	36.41
3	*2412.00	102.9 PK			1.20 V	109	66.29	36.61
4	*2412.00	99.3 AV			1.20 V	109	62.69	36.61
5	4824.00	58.0 PK	74.0	-16.0	1.05 V	210	8.75	49.25
6	4824.00	46.5 AV	54.0	-7.5	1.05 V	210	-2.75	49.25

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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
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	102.5 PK			1.12 H	40	65.67	36.83
2	*2437.00	100.0 AV			1.12 H	40	63.17	36.83
3	4874.00	57.8 PK	74.0	-16.2	1.02 H	170	8.56	49.24
4	4874.00	44.8 AV	54.0	-9.2	1.02 H	170	-4.44	49.24
5	7311.00	56.3 PK	74.0	-17.7	1.05 H	265	9.70	46.60
6	7311.00	42.7 AV	54.0	-11.3	1.05 H	265	-3.90	46.60
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	100.6 PK			1.00 V	132	63.77	36.83
2	*2437.00	98.1 AV			1.00 V	132	61.27	36.83
3	4874.00	58.2 PK	74.0	-15.8	1.09 V	213	8.96	49.24
4	4874.00	46.5 AV	54.0	-7.5	1.09 V	213	-2.74	49.24
5	7311.00	55.6 PK	74.0	-18.4	1.00 V	142	9.00	46.60
6	7311.00	42.1 AV	54.0	-11.9	1.00 V	142	-4.50	46.60

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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
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	100.3 PK			1.09 H	41	63.25	37.05
2	*2462.00	97.8 AV			1.09 H	41	60.75	37.05
3	2483.50	48.9 PK	74.0	-25.1	1.09 H	41	11.66	37.24
4	2483.50	37.5 AV	54.0	-16.5	1.09 H	41	0.26	37.24
5	4924.00	58.6 PK	74.0	-15.4	1.10 H	175	9.38	49.22
6	4924.00	45.2 AV	54.0	-8.8	1.10 H	175	-4.02	49.22
7	7386.00	56.9 PK	74.0	-17.1	1.00 H	270	10.24	46.66
8	7386.00	44.8 AV	54.0	-9.2	1.00 H	270	-1.86	46.66
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	98.4 PK			1.00 V	133	61.35	37.05
2	*2462.00	95.7 AV			1.00 V	133	58.65	37.05
3	2483.50	47.6 PK	74.0	-26.4	1.00 V	133	10.36	37.24
4	2483.50	36.1 AV	54.0	-17.9	1.00 V	133	-1.14	37.24
5	4924.00	59.1 PK	74.0	-14.9	1.10 V	208	9.88	49.22
6	4924.00	45.8 AV	54.0	-8.2	1.10 V	208	-3.42	49.22
7	7386.00	58.3 PK	74.0	-15.7	1.03 V	146	11.64	46.66
8	7386.00	44.5 AV	54.0	-9.5	1.03 V	146	-2.16	46.66

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
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	49.2 PK	74.0	-24.8	1.13 H	42	12.79	36.41
2	2390.00	36.0 AV	54.0	-18.0	1.13 H	42	-0.41	36.41
3	*2412.00	98.5 PK			1.13 H	42	61.89	36.61
4	*2412.00	89.9 AV			1.13 H	42	53.29	36.61
5	4824.00	57.9 PK	74.0	-16.1	1.15 H	164	8.65	49.25
6	4824.00	45.1 AV	54.0	-8.9	1.15 H	164	-4.15	49.25
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	52.0 PK	74.0	-22.0	1.22 V	115	15.59	36.41
2	2390.00	37.2 AV	54.0	-16.8	1.22 V	115	0.79	36.41
3	*2412.00	98.1 PK			1.22 V	115	61.49	36.61
4	*2412.00	89.4 AV			1.22 V	115	52.79	36.61
5	4824.00	57.8 PK	74.0	-16.2	1.30 V	217	8.55	49.25
6	4824.00	44.6 AV	54.0	-9.4	1.30 V	217	-4.65	49.25

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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
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	99.0 PK			1.11 H	40	62.17	36.83
2	*2437.00	90.8 AV			1.11 H	40	53.97	36.83
3	4874.00	59.2 PK	74.0	-14.8	1.05 H	179	9.96	49.24
4	4874.00	46.8 AV	54.0	-7.2	1.05 H	179	-2.44	49.24
5	7311.00	58.6 PK	74.0	-15.4	1.07 H	270	12.00	46.60
6	7311.00	44.6 AV	54.0	-9.4	1.07 H	270	-2.00	46.60
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	99.1 PK			1.19 V	104	62.27	36.83
2	*2437.00	90.6 AV			1.19 V	104	53.77	36.83
3	4874.00	59.4 PK	74.0	-14.6	1.14 V	200	10.16	49.24
4	4874.00	45.8 AV	54.0	-8.2	1.14 V	200	-3.44	49.24
5	7311.00	58.4 PK	74.0	-15.6	1.00 V	150	11.80	46.60
6	7311.00	44.9 AV	54.0	-9.1	1.00 V	150	-1.70	46.60

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.



EUT TEST CONDITION		MEASUREMENT DETAIL	
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	99.5 PK			1.10 H	41	62.45	37.05
2	*2462.00	89.7 AV			1.10 H	41	52.65	37.05
3	2483.50	51.8 PK	74.0	-22.2	1.00 H	41	14.56	37.24
4	2483.50	39.3 AV	54.0	-14.7	1.00 H	41	2.06	37.24
5	4924.00	59.2 PK	74.0	-14.8	1.24 H	176	9.98	49.22
6	4924.00	45.7 AV	54.0	-8.3	1.24 H	176	-3.52	49.22
7	7386.00	58.7 PK	74.0	-15.3	1.00 H	265	12.04	46.66
8	7386.00	45.2 AV	54.0	-8.8	1.00 H	265	-1.46	46.66
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	99.3 PK			1.16 V	106	62.25	37.05
2	*2462.00	89.6 AV			1.16 V	106	52.55	37.05
3	2483.50	52.3 PK	74.0	-21.7	1.16 V	106	15.06	37.24
4	2483.50	39.3 AV	54.0	-14.7	1.16 V	106	2.06	37.24
5	4924.00	58.6 PK	74.0	-15.4	1.16 V	203	9.38	49.22
6	4924.00	44.7 AV	54.0	-9.3	1.16 V	203	-4.52	49.22
7	7386.00	57.9 PK	74.0	-16.1	1.00 V	156	11.24	46.66
8	7386.00	44.4 AV	54.0	-9.6	1.00 V	156	-2.26	46.66

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)

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	53.8 PK	74.0	-20.2	1.13 H	40	17.39	36.41
2	2390.00	37.5 AV	54.0	-16.5	1.13 H	40	1.09	36.41
3	*2412.00	98.5 PK			1.13 H	40	61.89	36.61
4	*2412.00	90.0 AV			1.13 H	40	53.39	36.61
5	4824.00	58.6 PK	74.0	-15.4	1.18 H	180	9.35	49.25
6	4824.00	44.5 AV	54.0	-9.5	1.18 H	180	-4.75	49.25
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	53.7 PK	74.0	-20.3	1.23 V	111	17.29	36.41
2	2390.00	37.6 AV	54.0	-16.4	1.23 V	111	1.19	36.41
3	*2412.00	98.2 PK			1.23 V	111	61.59	36.61
4	*2412.00	89.0 AV			1.23 V	111	52.39	36.61
5	4824.00	59.3 PK	74.0	-14.7	1.12 V	198	10.05	49.25
6	4824.00	46.2 AV	54.0	-7.8	1.12 V	198	-3.05	49.25

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 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	98.7 PK			1.12 H	40	61.87	36.83
2	*2437.00	89.8 AV			1.12 H	40	52.97	36.83
3	4874.00	58.3 PK	74.0	-15.7	1.07 H	169	9.06	49.24
4	4874.00	45.1 AV	54.0	-8.9	1.07 H	169	-4.14	49.24
5	7311.00	57.8 PK	74.0	-16.2	1.03 H	264	11.20	46.60
6	7311.00	44.3 AV	54.0	-9.7	1.03 H	264	-2.30	46.60

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	99.1 PK			1.18 V	105	62.27	36.83
2	*2437.00	90.2 AV			1.18 V	105	53.37	36.83
3	4874.00	58.6 PK	74.0	-15.4	1.23 V	208	9.36	49.24
4	4874.00	45.7 AV	54.0	-8.3	1.23 V	208	-3.54	49.24
5	7311.00	57.4 PK	74.0	-16.6	1.00 V	150	10.80	46.60
6	7311.00	44.1 AV	54.0	-9.9	1.00 V	150	-2.50	46.60

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	98.2 PK			1.10 H	42	61.15	37.05
2	*2462.00	89.2 AV			1.10 H	42	52.15	37.05
3	2483.50	54.9 PK	74.0	-19.1	1.10 H	42	17.66	37.24
4	2483.50	40.8 AV	54.0	-13.2	1.10 H	42	3.56	37.24
5	4924.00	59.8 PK	74.0	-14.2	1.05 H	174	10.58	49.22
6	4924.00	46.2 AV	54.0	-7.8	1.05 H	174	-3.02	49.22
7	7386.00	59.5 PK	74.0	-14.5	1.00 H	259	12.84	46.66
8	7386.00	45.7 AV	54.0	-8.3	1.00 H	259	-0.96	46.66

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	99.7 PK			1.17 V	102	62.65	37.05
2	*2462.00	89.5 AV			1.17 V	102	52.45	37.05
3	2483.50	53.8 PK	74.0	-20.2	1.17 V	102	16.56	37.24
4	2483.50	40.6 AV	54.0	-13.4	1.17 V	102	3.36	37.24
5	4924.00	59.6 PK	74.0	-14.4	4.00 V	203	10.38	49.22
6	4924.00	45.3 AV	54.0	-8.7	4.00 V	203	-3.92	49.22
7	7386.00	57.5 PK	74.0	-16.5	1.21 V	157	10.84	46.66
8	7386.00	44.1 AV	54.0	-9.9	1.21 V	157	-2.56	46.66

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 (40MHz)

CHANNEL	TX Channel 3	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	44.8 PK	74.0	-29.2	1.11 H	40	8.39	36.41
2	2390.00	33.9 AV	54.0	-20.1	1.11 H	40	-2.51	36.41
3	*2422.00	98.7 PK			1.11 H	40	62.00	36.70
4	*2422.00	88.8 AV			1.11 H	40	52.10	36.70
5	4844.00	58.9 PK	74.0	-15.1	1.04 H	168	9.66	49.24
6	4844.00	46.1 AV	54.0	-7.9	1.04 H	168	-3.14	49.24
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	46.4 PK	74.0	-27.6	1.19 V	106	9.99	36.41
2	2390.00	33.8 AV	54.0	-20.2	1.19 V	106	-2.61	36.41
3	*2422.00	97.8 PK			1.19 V	106	61.10	36.70
4	*2422.00	89.0 AV			1.19 V	106	52.30	36.70
5	4844.00	59.4 PK	74.0	-14.6	1.09 V	210	10.16	49.24
6	4844.00	45.9 AV	54.0	-8.1	1.09 V	210	-3.34	49.24

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 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	98.5 PK			1.09 H	46	61.67	36.83
2	*2437.00	88.6 AV			1.09 H	46	51.77	36.83
3	4874.00	58.8 PK	74.0	-15.2	1.15 H	172	9.56	49.24
4	4874.00	45.4 AV	54.0	-8.6	1.15 H	172	-3.84	49.24
5	7311.00	58.7 PK	74.0	-15.3	1.00 H	257	12.10	46.60
6	7311.00	44.9 AV	54.0	-9.1	1.00 H	257	-1.70	46.60
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	99.5 PK			1.18 V	100	62.67	36.83
2	*2437.00	89.6 AV			1.18 V	100	52.77	36.83
3	4874.00	59.3 PK	74.0	-14.7	1.07 V	208	10.06	49.24
4	4874.00	46.3 AV	54.0	-7.7	1.07 V	208	-2.94	49.24
5	7311.00	57.8 PK	74.0	-16.2	1.00 V	146	11.20	46.60
6	7311.00	44.6 AV	54.0	-9.4	1.00 V	146	-2.00	46.60

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 9	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	*2452.00	94.2 PK			1.10 H	41	57.24	36.96
2	*2452.00	85.0 AV			1.10 H	41	48.04	36.96
3	2483.50	52.9 PK	74.0	-21.1	1.10 H	41	15.66	37.24
4	2483.50	39.7 AV	54.0	-14.3	1.10 H	41	2.46	37.24
5	4904.00	59.7 PK	74.0	-14.3	1.18 H	174	10.47	49.23
6	4904.00	46.5 AV	54.0	-7.5	1.18 H	174	-2.73	49.23
7	7356.00	57.8 PK	74.0	-16.2	1.04 H	263	11.17	46.63
8	7356.00	44.5 AV	54.0	-9.5	1.04 H	263	-2.13	46.63

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	*2452.00	92.1 PK			1.16 V	106	55.14	36.96
2	*2452.00	82.6 AV			1.16 V	106	45.64	36.96
3	2483.50	50.2 PK	74.0	-23.8	1.16 V	106	12.96	37.24
4	2483.50	37.9 AV	54.0	-16.1	1.16 V	106	0.66	37.24
5	4904.00	58.7 PK	74.0	-15.3	1.13 V	202	9.47	49.23
6	4904.00	44.6 AV	54.0	-9.4	1.13 V	202	-4.63	49.23
7	7356.00	58.2 PK	74.0	-15.8	1.06 V	152	11.57	46.63
8	7356.00	44.7 AV	54.0	-9.3	1.06 V	152	-1.93	46.63

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.



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

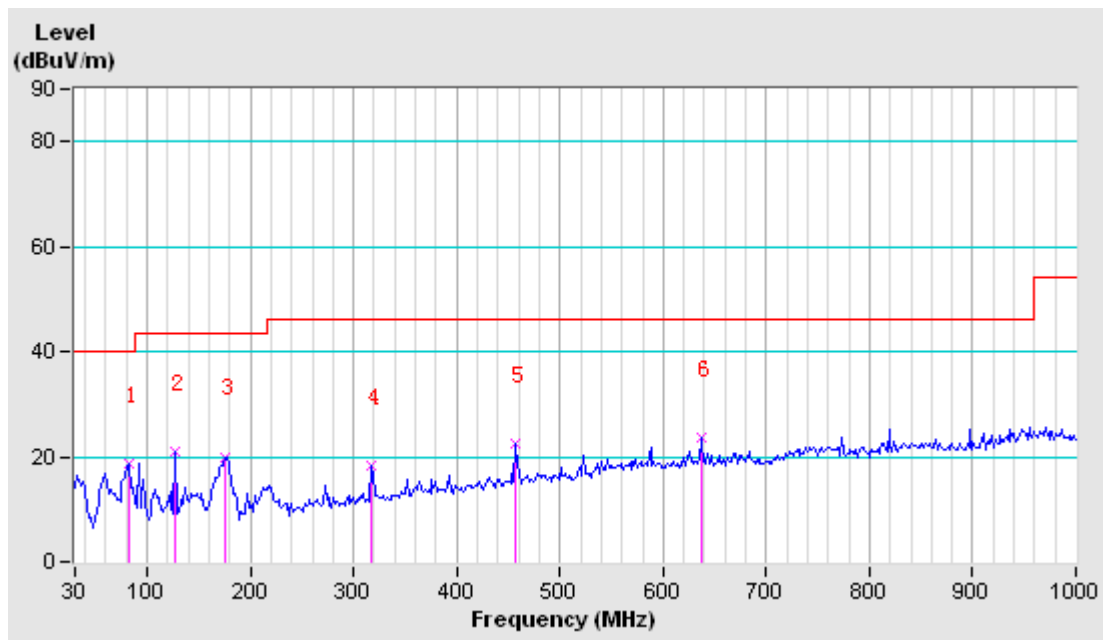
**BT-LE (GFSK)**

<b>CHANNEL</b>	TX 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	81.73	18.6 QP	40.0	-21.4	1.80 H	249	9.91	8.73
2	127.00	20.9 QP	43.5	-22.6	2.23 H	274	8.03	12.84
3	175.50	20.0 QP	43.5	-23.5	2.33 H	273	9.31	10.69
4	317.77	18.3 QP	46.0	-27.7	1.00 H	193	2.89	15.38
5	456.80	22.6 QP	46.0	-23.4	1.34 H	223	3.34	19.27
6	636.25	23.8 QP	46.0	-22.2	1.08 H	208	0.62	23.16

**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.



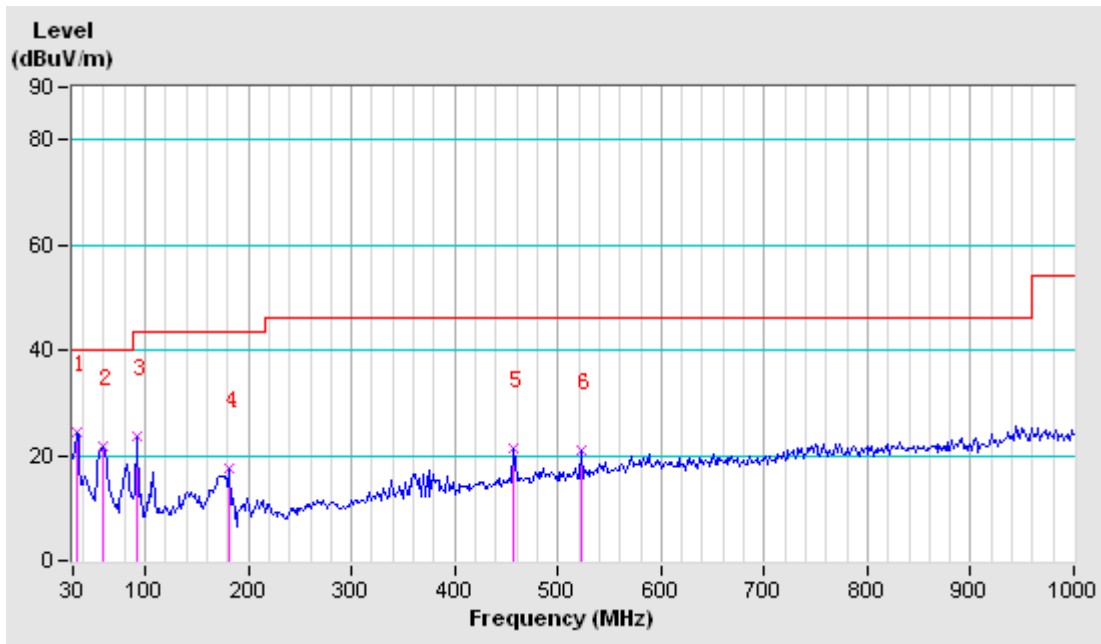


<b>CHANNEL</b>	TX Channel 39	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

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	33.23	24.3 QP	40.0	-15.7	1.14 V	176	6.20	18.08
2	59.10	21.8 QP	40.0	-18.2	1.00 V	201	13.44	8.36
3	91.43	23.5 QP	43.5	-20.0	1.00 V	232	13.58	9.92
4	181.97	17.7 QP	43.5	-25.8	1.49 V	155	7.37	10.32
5	456.80	21.3 QP	46.0	-24.8	1.82 V	137	1.98	19.27
6	523.08	21.1 QP	46.0	-24.9	2.13 V	119	0.53	20.58

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:

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	47.5 PK	74.0	-26.5	1.47 H	327	11.09	36.41
2	2390.00	35.5 AV	54.0	-18.5	1.47 H	327	-0.91	36.41
3	*2402.00	93.6 PK			1.47 H	327	57.08	36.52
4	*2402.00	63.7 AV			1.47 H	327	27.18	36.52
5	4804.00	60.2 PK	74.0	-13.8	1.00 H	245	10.95	49.25
6	4804.00	47.3 AV	54.0	-6.7	1.00 H	245	-1.95	49.25
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	47.4 PK	74.0	-26.6	1.27 V	91	10.99	36.41
2	2390.00	34.5 AV	54.0	-19.5	1.27 V	91	-1.91	36.41
3	*2402.00	91.4 PK			1.27 V	91	54.88	36.52
4	*2402.00	61.9 AV			1.27 V	91	25.38	36.52
5	4804.00	59.7 PK	74.0	-14.3	1.05 V	128	10.45	49.25
6	4804.00	47.2 AV	54.0	-6.8	1.05 V	128	-2.05	49.25

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 19	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	*2440.00	92.8 PK			1.00 H	333	55.94	36.86
2	*2440.00	62.9 AV			1.00 H	333	26.04	36.86
3	4880.00	58.8 PK	74.0	-15.2	1.07 H	238	9.57	49.23
4	4880.00	46.4 AV	54.0	-7.6	1.07 H	238	-2.83	49.23
5	7320.00	57.2 PK	74.0	-16.8	1.00 H	145	10.59	46.61
6	7320.00	42.7 AV	54.0	-11.3	1.00 H	145	-3.91	46.61
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	91.5 PK			1.25 V	92	54.64	36.86
2	*2440.00	61.9 AV			1.25 V	92	25.04	36.86
3	4880.00	59.8 PK	74.0	-14.2	1.10 V	130	10.57	49.23
4	4880.00	46.7 AV	54.0	-7.3	1.10 V	130	-2.53	49.23
5	7320.00	57.6 PK	74.0	-16.4	1.17 V	320	10.99	46.61
6	7320.00	43.9 AV	54.0	-10.1	1.17 V	320	-2.71	46.61

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 39	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	*2480.00	94.3 PK			1.41 H	318	57.09	37.21
2	*2480.00	63.9 AV			1.41 H	318	26.69	37.21
3	2483.50	53.8 PK	74.0	-20.2	1.41 H	318	16.56	37.24
4	2483.50	40.2 AV	54.0	-13.8	1.41 H	318	2.96	37.24
5	4960.00	59.7 PK	74.0	-14.3	1.06 H	248	10.49	49.21
6	4960.00	46.5 AV	54.0	-7.5	1.06 H	248	-2.71	49.21
7	7440.00	56.7 PK	74.0	-17.3	1.02 H	146	10.00	46.70
8	7440.00	44.8 AV	54.0	-9.2	1.02 H	146	-1.90	46.70

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	90.9 PK			1.48 V	87	53.69	37.21
2	*2480.00	61.8 AV			1.48 V	87	24.59	37.21
3	2483.50	50.7 PK	74.0	-23.3	1.48 V	87	13.46	37.24
4	2483.50	39.5 AV	54.0	-14.5	1.48 V	87	2.26	37.24
5	4960.00	58.8 PK	74.0	-15.2	1.20 V	140	9.59	49.21
6	4960.00	46.2 AV	54.0	-7.8	1.20 V	140	-3.01	49.21
7	7440.00	57.4 PK	74.0	-16.6	1.10 V	324	10.70	46.70
8	7440.00	43.6 AV	54.0	-10.4	1.10 V	324	-3.10	46.70

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	May 02,12	May 01,13
Power Meter	Anritsu	ML2495A	1139001	Nov. 04,12	Nov. 03,13
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 31,12	Oct. 30,13

- 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

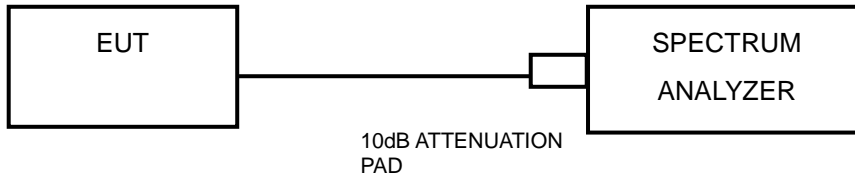
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that 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	9.24	0.5	PASS
6	2437	9.62	0.5	PASS
11	2462	9.66	0.5	PASS

#### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.29	0.5	PASS
6	2437	16.16	0.5	PASS
11	2462	16.30	0.5	PASS



**802.11n (20MHz)**

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.56	0.5	PASS
6	2437	17.59	0.5	PASS
11	2462	17.52	0.5	PASS

**802.11n (40MHz)**

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.79	0.5	PASS
6	2437	35.99	0.5	PASS
9	2452	36.00	0.5	PASS

**BT-LE (GFSK)**

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

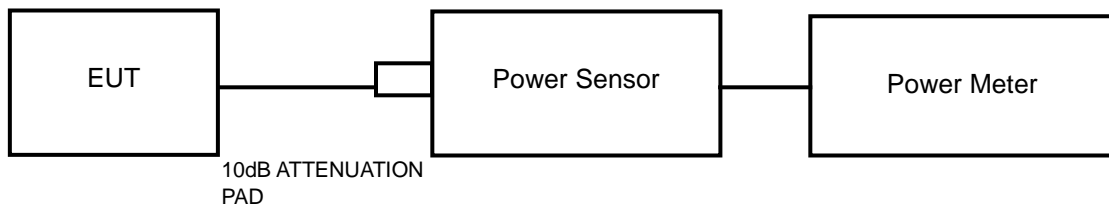


## 4.4 CONDUCTED OUTPUT POWER

### 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

Refer to section 4.3.2 to get information of above instrument.

### 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

Same as item 4.3.6.



#### 4.4.7 TEST RESULTS

##### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	14.17	30	PASS
6	2437	13.62	30	PASS
11	2462	13.44	30	PASS

##### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	15.34	30	PASS
6	2437	14.16	30	PASS
11	2462	14.06	30	PASS

##### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	15.29	30	PASS
6	2437	14.53	30	PASS
11	2462	14.01	30	PASS

##### 802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
3	2422	14.36	30	PASS
6	2437	14.17	30	PASS
9	2452	13.92	30	PASS



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Test Report No.: RF130401N026-1

**BT-LE (GFSK)**

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
0	2402	-4.27	30	PASS
19	2440	-3.91	30	PASS
39	2480	-3.59	30	PASS



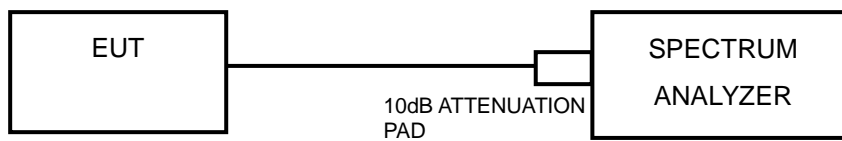


## 4.5 POWER SPECTRAL DENSITY MEASUREMENT

### 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 RBW = 3 kHz, VBW = 10 kHz, Detector = peak.
2. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
3. 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/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-15.51	8	PASS
6	2437	-16.26	8	PASS
11	2462	-16.65	8	PASS

#### 802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-18.22	8	PASS
6	2437	-18.62	8	PASS
11	2462	-19.93	8	PASS

#### 802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-17.51	8	PASS
6	2437	-17.84	8	PASS
11	2462	-19.42	8	PASS

#### 802.11n (40MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-22.51	8	PASS
6	2437	-22.74	8	PASS
9	2452	-23.32	8	PASS

#### BT-LF (GFSK)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2402	-20.36	8	PASS
19	2440	-20.05	8	PASS
39	2480	-19.71	8	PASS

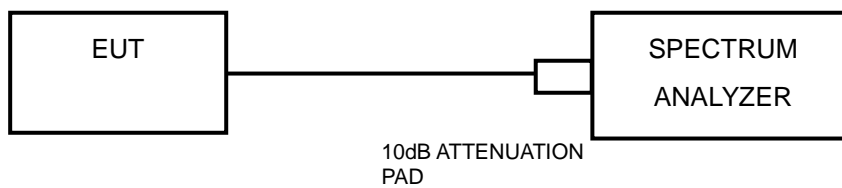


## 4.6 OUT OF BAND EMISSION MEASUREMENT

### 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

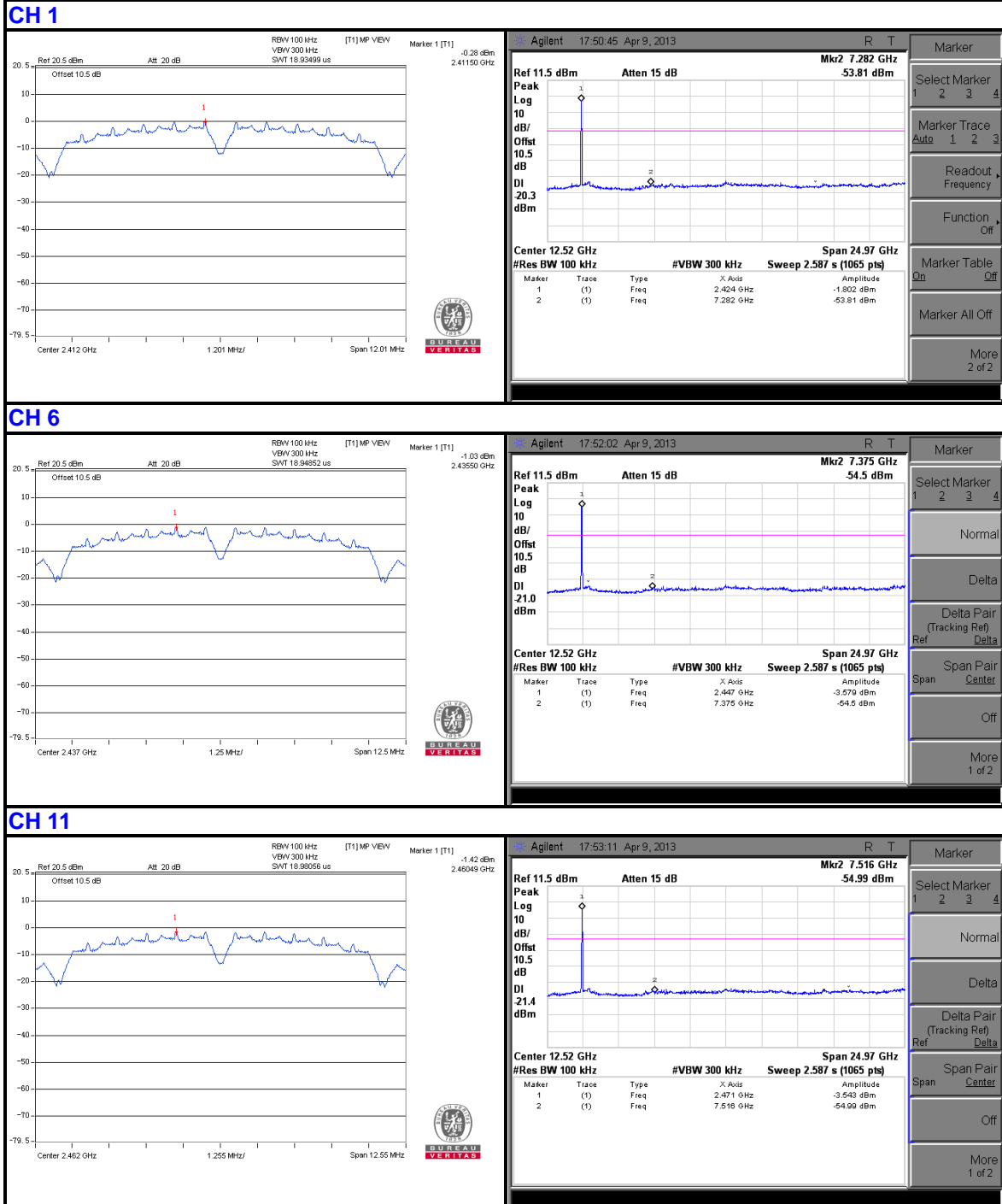


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Test Report No.: RF130401N026-1

### 4.6.7 TEST RESULTS

#### 802.11b



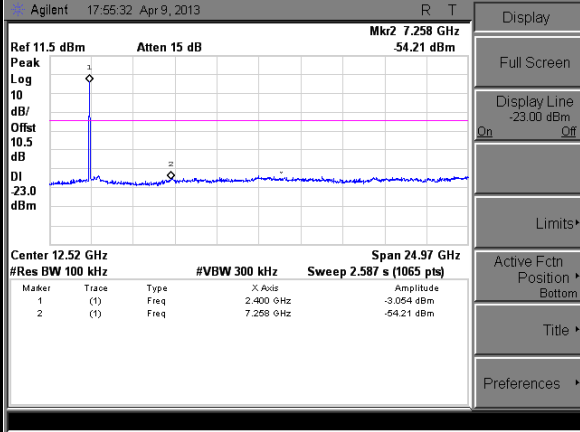
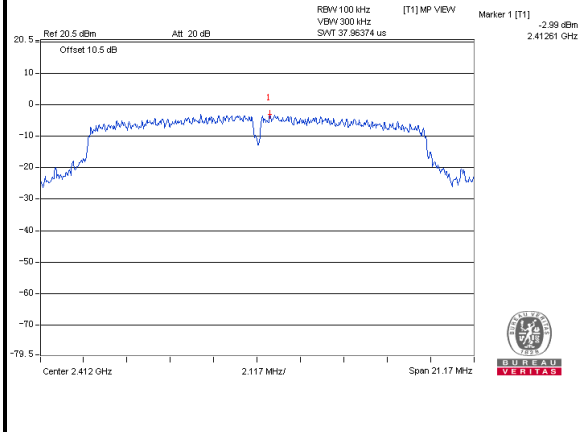


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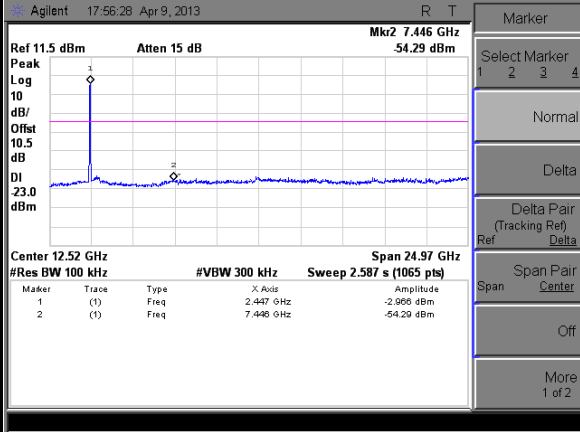
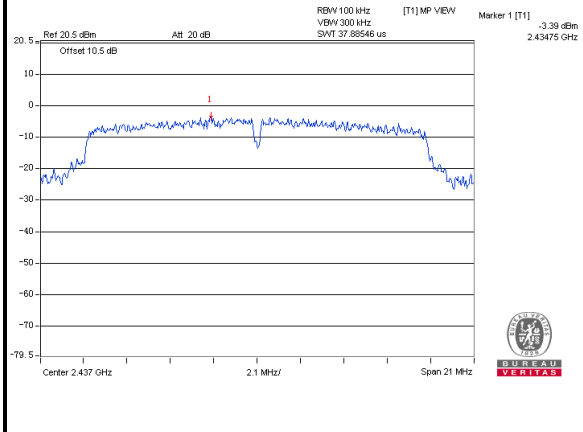
Test Report No.: RF130401N026-1

802.11g

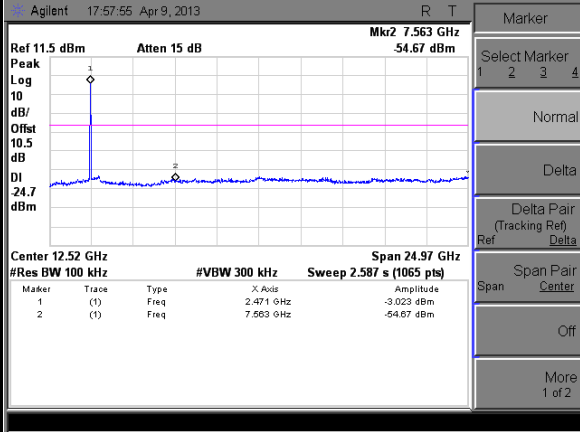
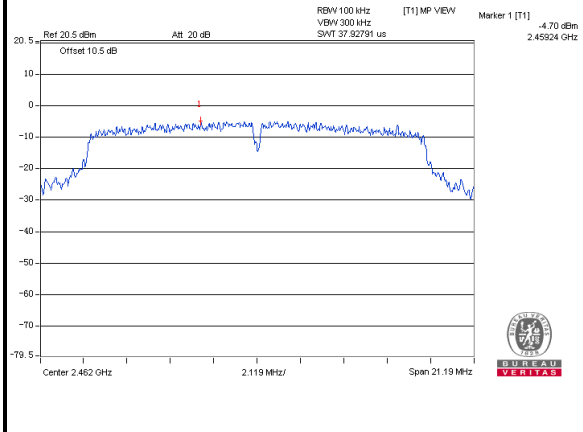
CH 1



CH 6



CH 11



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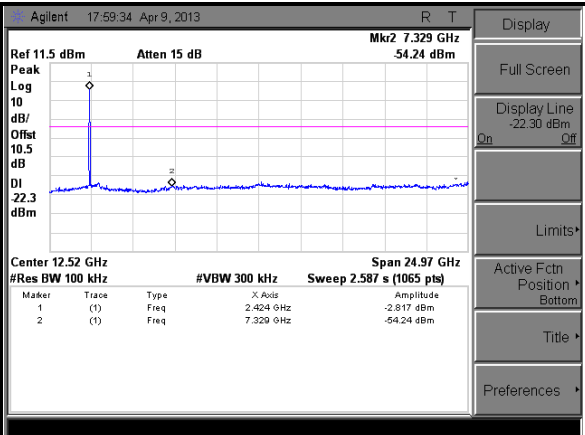
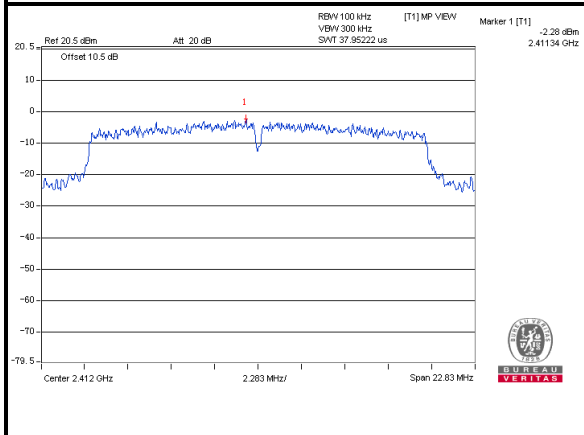


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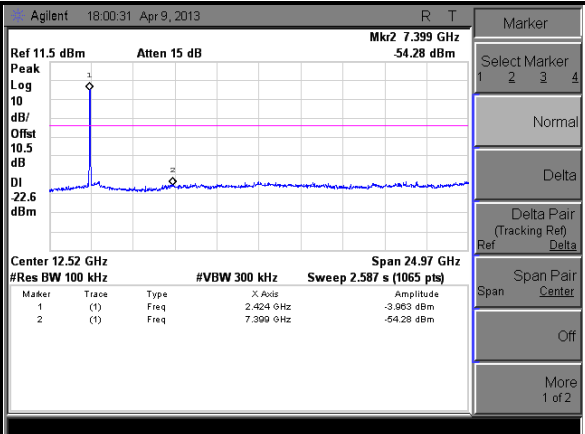
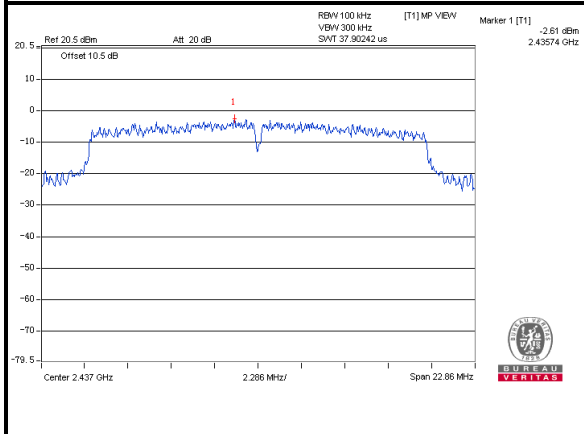
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### 802.11n (20MHz)

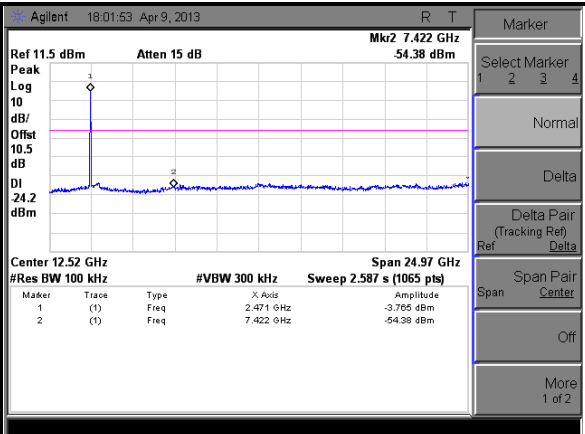
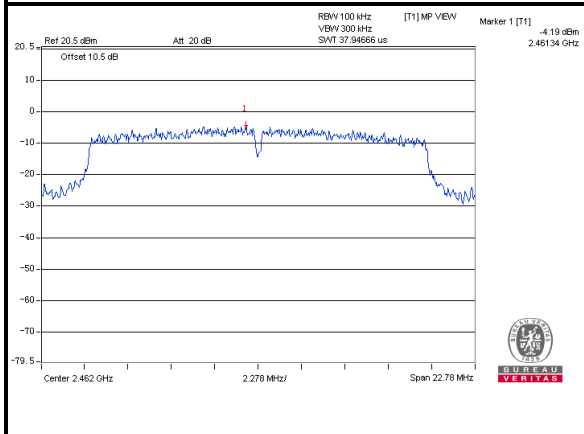
#### CH 1



#### CH 6



#### CH 11



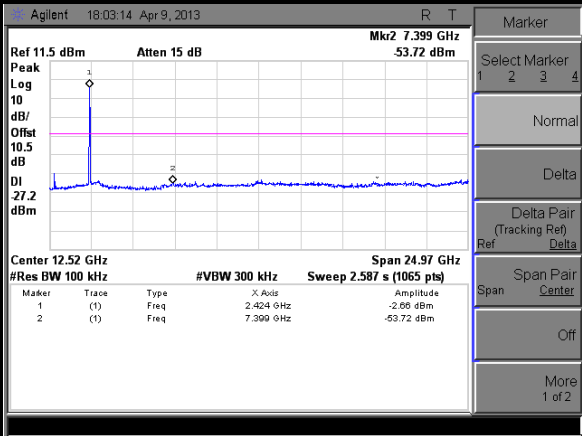
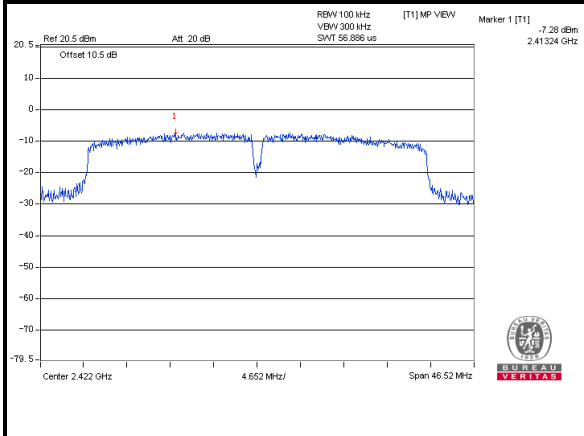


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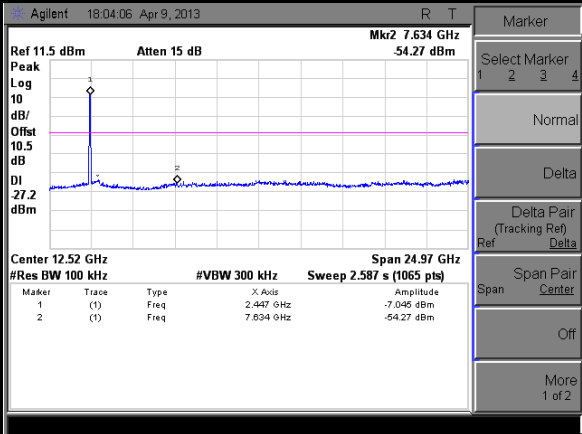
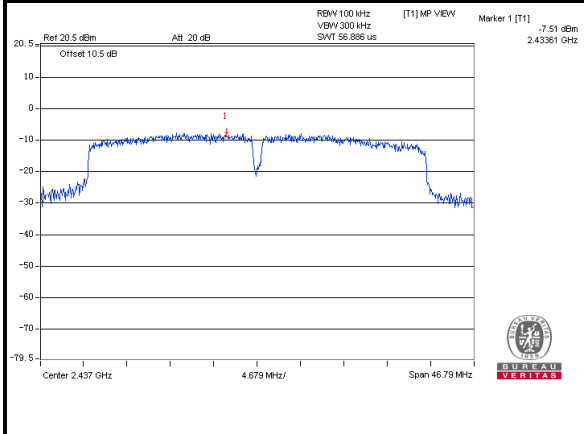
Test Report No.: RF130401N026-1

### 802.11n (40MHz)

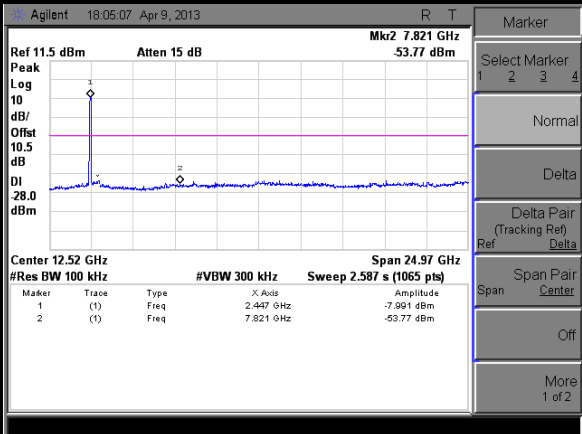
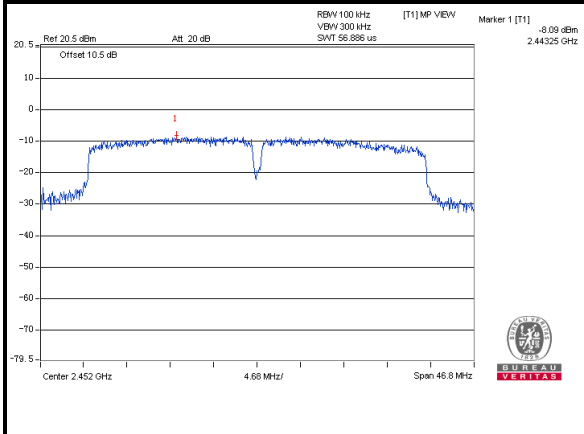
#### CH 3



#### CH 6



#### CH 9





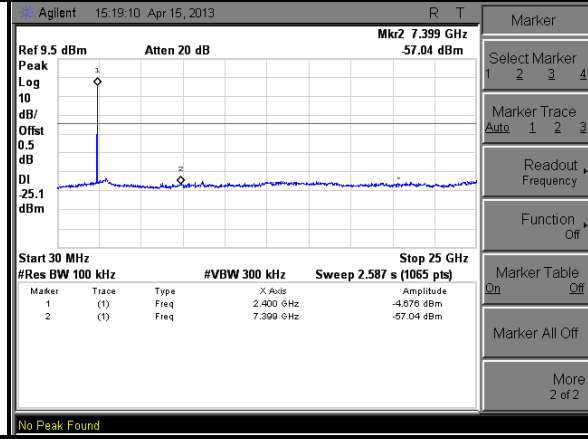
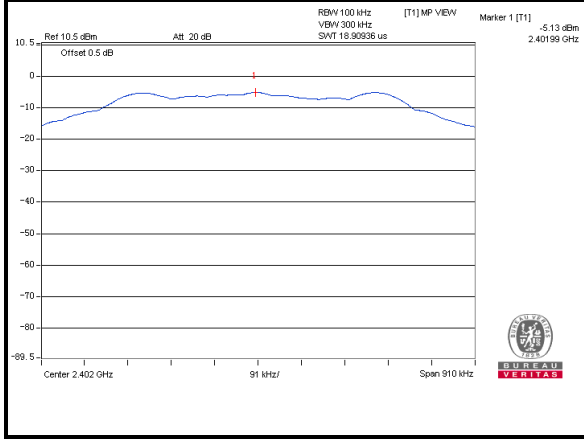


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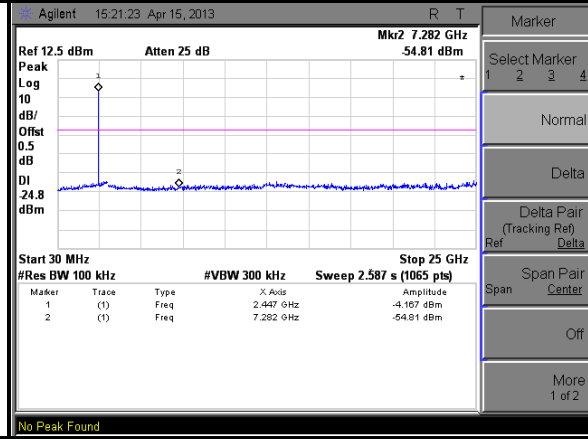
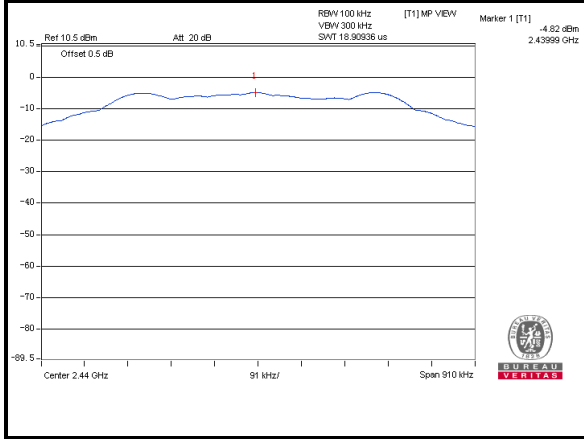
Test Report No.: RF130401N026-1

### BT-LE (GFSK)

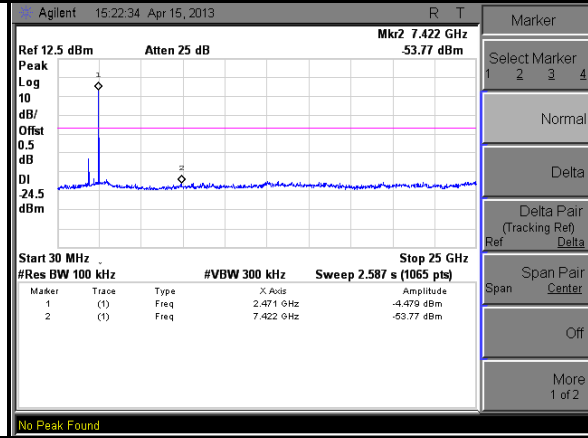
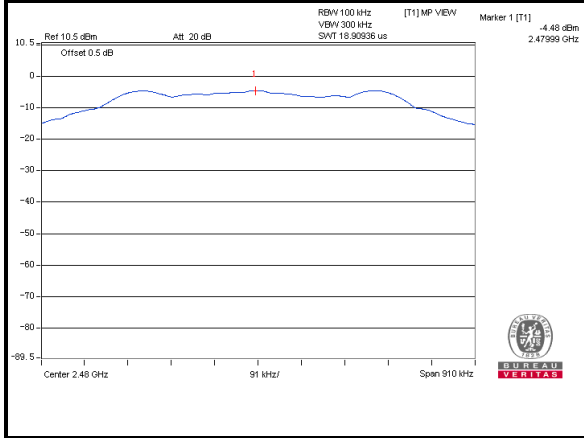
#### CH 0



#### CH 19



#### CH 39





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## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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## **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---**