



BUREAU VERITAS

Test Report No.: RF120831N010



Test Lab  
Cert 2951.01

# TEST REPORT



Applicant	CT Asia
Address:	Unit 01, 15/F, Seaview Centre, 139-141 Hoi bun road, Kwun Tong, Kowloon, Hongkong

Manufacturer or Supplier	Zechin Communications Co., Ltd.	
Address	Unit 804, 8th Floor Desay Tech Building Gaoxin Road South, Nanshan District Shenzhen, China	
Product:	GSM mobile	
Brand Name:	BLU	
Model:	NEO XT	
Date of tests:	Sep. 3 ~ Sep. 10, 2012	

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

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

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

Prepared by Kent Liu Project Engineer / EMC Department	Approved by Sam Tung Manager / EMC Department
	
	Date: Sep. 10, 2012

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**BUREAU  
VERITAS**

Test Report No.: RF120831N010

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Sep. 10, 2012



# 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 -14.66dB at 2.64742MHz.
15.205 15.209	Restricted bands of operation. & Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.4dB at 4924.00MHz.
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 ~ 1000MHz	3.6419dB
	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>	GSM mobile
<b>MODEL NO.</b>	NEO XT
<b>FCC ID</b>	YHLBLUNEOXT
<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
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>OPERATING FREQUENCY</b>	2412MHz~2462MHz
<b>PEAK POWER</b>	22.38 dBm (Maximum)
<b>ANTENNA TYPE</b>	PIFA antenna with 1.6 dBi gain
<b>I/O PORTS</b>	USB Port
<b>DATA CABLE SUPPLIED</b>	USB Cable: Shielded, Detachable, with 1 cores, 0.8m

#### NOTE:

- There are WLAN, Bluetooth, GSM technology used for the EUT. and the functions of EUT listed as below table:

Function	Report No.
WLAN	RF120831N010
Bluetooth	RF120831N010-1
2G & 3G (Part 22)	RF120831N010-2
2G & 3G (Part 24)	RF120831N010-3

- The EUT was powered by the following adapters:

ADAPTER	
BRAND:	BLU
MODEL:	US200507
INPUT:	100 - 240 VAC, 150 MA
OUTPUT:	5 VDC, 500 MA
DC LINE:	0.8 METER, SHIELDED CABLE, WITH 1 CORE

- The EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	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.

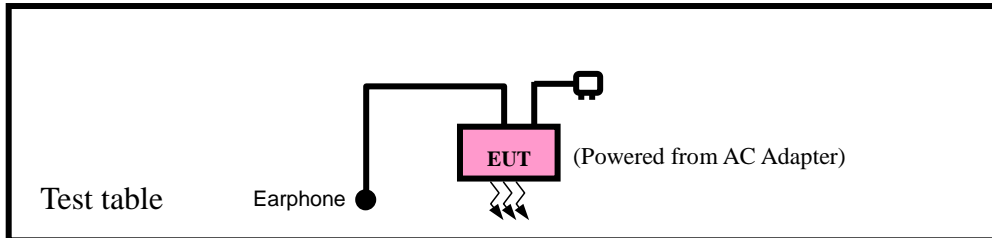
### 3.2 DESCRIPTION OF TEST MODES

Thirteen channels are provided for 802.11b, 802.11g and 802.11n:

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		

#### 3.2.1. CONFIGURATION OF SYSTEM UNDER TEST

##### TEST MODE A



\*Kept in a remote area



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-Z plane for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT + Adapter + Earphone with WIFI function
B	-	√	-	-	EUT + Battery + Earphone with WIFI function
C	-	√	-	-	EUT + USB Charger + Earphone with WIFI function

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

**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	Y-Z
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	Y-Z

**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	802.11b	1 to 11	6	CCK	DBPSK	1.0	Y-Z





**AC POWER 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	6	CCK	DBPSK	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

**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



**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 55%RH	120Vac, 60Hz	Venless Long
RE<1G	25deg. C, 55%RH	120Vac, 60Hz	Venless Long
PLC	25deg. C, 56%RH	120Vac, 60Hz	Venless Long
APCM	25deg. C, 56%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)**

**ANSI C63.4-2003**

**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 (Verification). 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
2	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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
EMI Test Receiver Rohde&Schwarz	ESU26	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	ESH2-Z5	100071	May 15,12	May 14,13
RF Cable FUJIKURA	3D-2W	553 Cable	May 15,12	May 14,13
Test software	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 Dongguan Shielded Room 553.



#### 4.1.3 TEST PROCEDURES

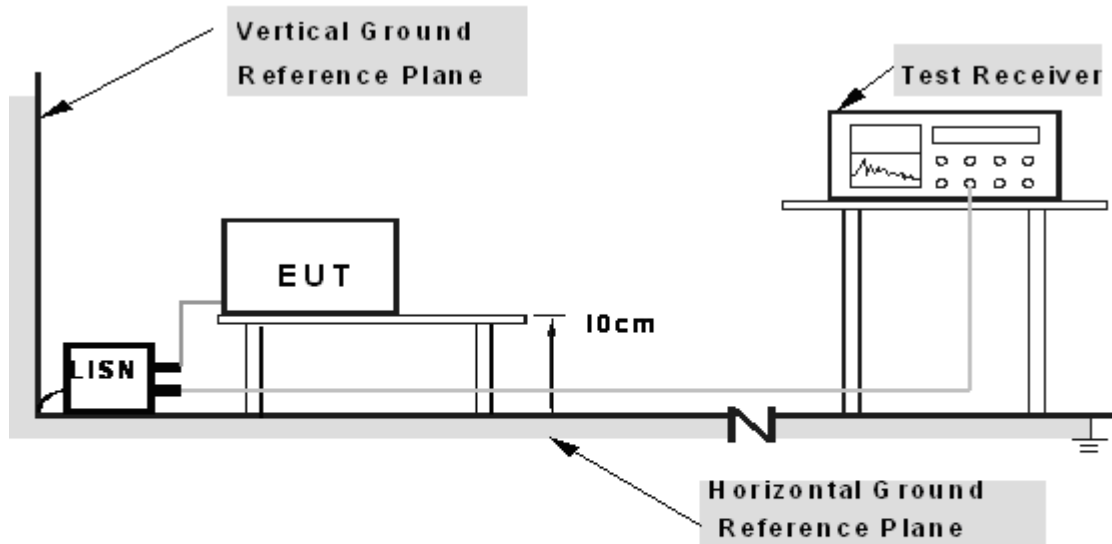
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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.



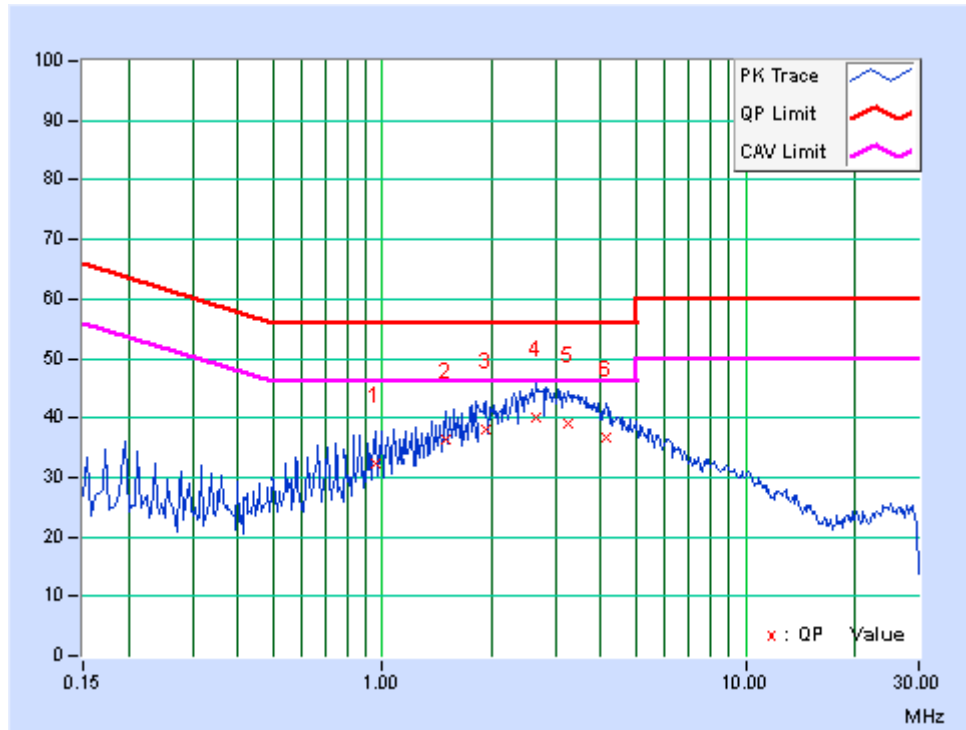
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 802.11b-CH6

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	0.95329	9.83	22.49	14.94	32.32	24.77	56	46	-23.68	-21.23
2	1.49006	9.85	26.51	17.31	36.36	27.16	56	46	-19.64	-18.84
3	1.93971	9.87	28.2	19.09	38.07	28.96	56	46	-17.93	-17.04
4	<b>2.64742</b>	<b>9.9</b>	<b>30.14</b>	<b>21.44</b>	<b>40.04</b>	<b>31.34</b>	<b>56</b>	<b>46</b>	<b>-15.96</b>	<b>-14.66</b>
5	3.24174	9.92	29.25	20.95	39.17	30.87	56	46	-16.83	-15.13
6	4.14495	9.96	26.83	16.63	36.79	26.59	56	46	-19.21	-19.41

- 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.

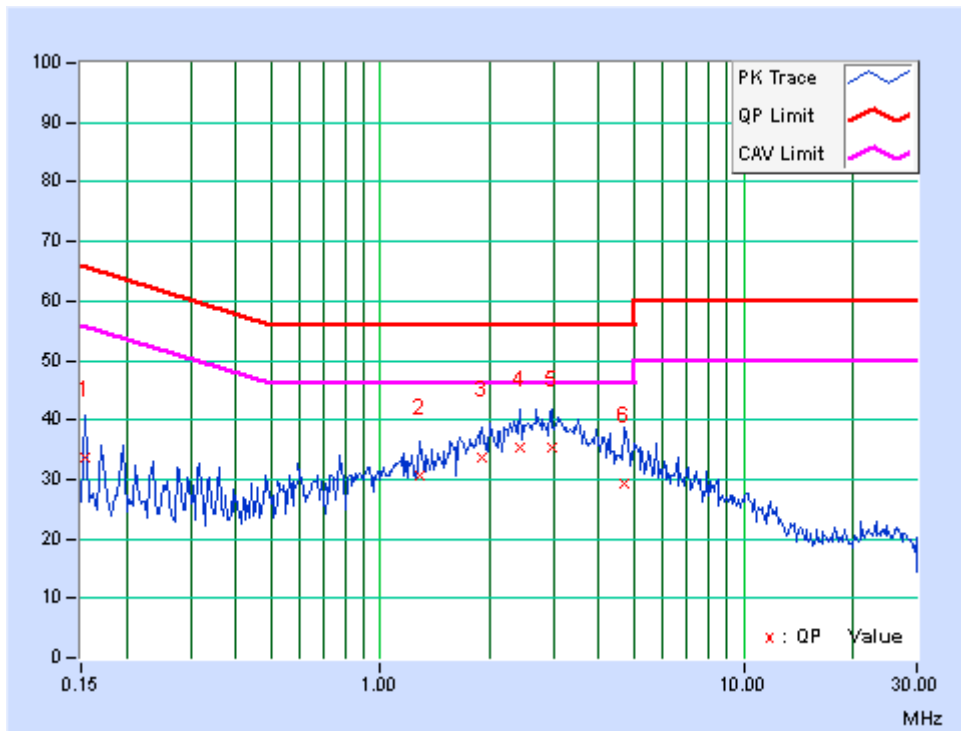




PHASE	Neutral	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.91	23.76	12.5	33.67	22.41	65.79	55.79	-32.12	-33.38
2	1.29065	9.8	20.73	13.24	30.53	23.04	56	46	-25.47	-22.96
3	1.90843	9.85	23.81	15.27	33.66	25.12	56	46	-22.34	-20.88
4	2.42846	9.87	25.51	16.9	35.38	26.77	56	46	-20.62	-19.23
5	2.96804	9.89	25.47	17.71	35.36	27.6	56	46	-20.64	-18.4
6	4.71581	9.94	19.43	11.16	29.37	21.1	56	46	-26.63	-24.9

- 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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer ROHDE & SCHWARZ	E4446A	MY46180622	May 02, 12	May 01, 13
Test Receiver ROHDE & SCHWARZ	ESVD	847398/004	May 15,12	May 14,13
Bilog Antenna TESEQ	CBL 6111D	25758	Nov.07,11	Nov.07,12
Horn Antenna EMCO	3117	00062558	Nov.07,11	Nov.07,12
10m Semi-anechoic Chamber ETS-LINDGREN	21.4m*12.1m*8.8m	NSEMC006	Mar 24,12	Mar 23,13
RF Cable IMRO	IMRO-400	10m Cable 1#10m	May 16,12	May 15,13
RF Cable IMRO	IMRO-400	10m Cable 2#3m	May 16,12	May 15,13
Signal Amplifier EMCI	EMC330	980095	Nov 07,11	Nov 07,12
Signal Amplifier EMCI	EMC 012645	980077	Nov 07,11	Nov 07,12
RF Cable DRAKA	M06/25-RG102	10m Cable 2#	May 16,12	May 15,13
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. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

**NOTE:**

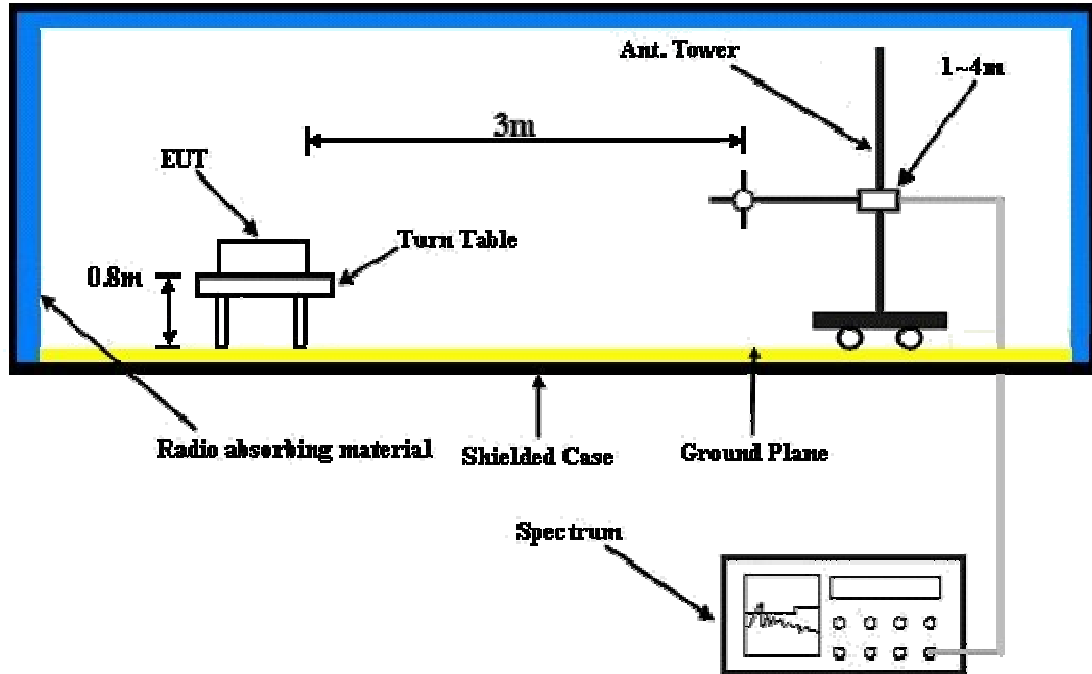
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

- Turned on the power and connected of all equipment.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.



4.2.7 TEST RESULTS

BELOW 1GHZ WORST-CASE DATA: 802.11b- CH6

CHANNEL	TX Channel 1	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	31.62	18.4 QP	40.0	-21.6	2.00 H	0	-0.57	19.01
2	39.70	19.0 QP	40.0	-21.0	2.00 H	0	4.63	14.41
3	86.58	13.5 QP	40.0	-26.5	2.00 H	0	4.28	9.25
4	170.65	15.3 QP	43.5	-28.2	2.00 H	0	4.37	10.97
5	395.37	16.2 QP	46.0	-29.8	2.00 H	0	-1.45	17.67
6	456.80	19.7 QP	46.0	-26.3	2.00 H	358	0.41	19.27
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	31.4 QP	40.0	-8.6	1.00 V	266	12.36	19.01
2	41.32	33.4 QP	40.0	-6.6	1.00 V	285	19.93	13.50
3	267.65	14.7 QP	46.0	-31.3	1.00 V	246	-0.38	15.09
4	456.80	19.0 QP	46.0	-27.0	1.00 V	228	-0.28	19.27
5	526.32	19.1 QP	46.0	-26.9	1.00 V	193	-1.55	20.67
6	616.85	22.0 QP	46.0	-24.0	1.00 V	212	-0.92	22.91

- REMARKS:**
1. Emission level (dBuV/m) = Reading (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	61.2 PK	74.0	-12.8	1.00 H	187	25.89	35.31
2	2390.00	48.9 AV	54.0	-5.1	1.00 H	187	13.59	35.31
3	*2412.00	100.9 PK			1.00 H	187	65.40	35.50
4	*2412.00	98.6 AV			1.00 H	187	63.10	35.50
5	4824.00	46.1 PK	74.0	-27.9	1.01 H	148	-1.70	47.80
6	4824.00	40.3 AV	54.0	-13.7	1.01 H	148	-7.50	47.80
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	60.9 PK	74.0	-13.1	1.00 V	299	25.59	35.31
2	2390.00	48.1 AV	54.0	-5.9	1.00 V	299	12.79	35.31
3	*2412.00	94.7 PK			1.00 V	299	59.20	35.50
4	*2412.00	91.5 AV			1.00 V	299	56.00	35.50
5	4824.00	53.2 PK	74.0	-20.8	1.00 V	295	5.40	47.80
6	4824.00	50.4 AV	54.0	-3.6	1.00 V	295	2.60	47.80

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	100.9 PK			1.05 H	178	65.19	35.71
2	*2437.00	98.5 AV			1.05 H	178	62.79	35.71
3	4874.00	46.0 PK	74.0	-28.0	1.00 H	152	-1.75	47.75
4	4874.00	40.2 AV	54.0	-13.8	1.00 H	152	-7.55	47.75
5	7311.00	45.6 PK	74.0	-28.4	1.00 H	164	0.76	44.84
6	7311.00	33.1 AV	54.0	-20.9	1.00 H	164	-11.74	44.84
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	94.4 PK			1.00 V	310	58.69	35.71
2	*2437.00	91.4 AV			1.00 V	310	55.69	35.71
3	4874.00	53.3 PK	74.0	-20.7	1.00 V	306	5.55	47.75
4	4874.00	50.4 AV	54.0	-3.6	1.00 V	306	2.65	47.75
5	7311.00	46.7 PK	74.0	-27.3	1.00 V	297	1.86	44.84
6	7311.00	36.1 AV	54.0	-17.9	1.00 V	297	-8.74	44.84

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	101.0 PK			1.00 H	195	65.09	35.91
2	*2462.00	99.0 AV			1.00 H	195	63.09	35.91
3	2483.50	60.8 PK	74.0	-13.2	1.00 H	191	24.71	36.09
4	2483.50	48.8 AV	54.0	-5.2	1.00 H	191	12.71	36.09
5	4924.00	46.3 PK	74.0	-27.7	1.00 H	140	-1.40	47.70
6	4924.00	40.3 AV	54.0	-13.7	1.00 H	140	-7.40	47.70
7	7386.00	45.3 PK	74.0	-28.7	1.04 H	158	0.39	44.91
8	7386.00	32.7 AV	54.0	-21.3	1.04 H	158	-12.21	44.91
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	94.7 PK			1.00 V	288	58.79	35.91
2	*2462.00	91.5 AV			1.00 V	288	55.59	35.91
3	2483.50	61.0 PK	74.0	-13.0	1.00 V	304	24.91	36.09
4	2483.50	48.3 AV	54.0	-5.7	1.00 V	304	12.21	36.09
5	4924.00	53.6 PK	74.0	-20.4	1.00 V	292	5.90	47.70
<b>6</b>	<b>4924.00</b>	<b>50.6 AV</b>	<b>54.0</b>	<b>-3.4</b>	<b>1.00 V</b>	<b>292</b>	<b>2.90</b>	<b>47.70</b>
7	7386.00	47.0 PK	74.0	-27.0	1.00 V	302	2.09	44.91
8	7386.00	36.6 AV	54.0	-17.4	1.00 V	302	-8.31	44.91

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	63.8 PK	74.0	-10.2	1.00 H	187	28.49	35.31
2	2390.00	49.6 AV	54.0	-4.4	1.00 H	187	14.29	35.31
3	*2412.00	98.9 PK			1.00 H	187	63.40	35.50
4	*2412.00	89.1 AV			1.00 H	187	53.60	35.50
5	4824.00	45.2 PK	74.0	-28.8	1.21 H	342	-2.60	47.80
6	4824.00	39.6 AV	54.0	-14.4	1.21 H	342	-8.20	47.80

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	62.1 PK	74.0	-11.9	1.00 V	299	26.79	35.31
2	2390.00	49.1 AV	54.0	-4.9	1.00 V	299	13.79	35.31
3	*2412.00	93.3 PK			1.00 V	299	57.80	35.50
4	*2412.00	83.1 AV			1.00 V	299	47.60	35.50
5	4824.00	48.6 PK	74.0	-25.4	1.00 V	234	0.80	47.80
6	4824.00	42.3 AV	54.0	-11.7	1.00 V	234	-5.50	47.80

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			1.00 H	178	63.29	35.71
2	*2437.00	89.4 AV			1.00 H	178	53.69	35.71
3	4874.00	45.2 PK	74.0	-28.8	1.16 H	355	-2.55	47.75
4	4874.00	39.8 AV	54.0	-14.2	1.16 H	355	-7.95	47.75
5	7311.00	45.5 PK	74.0	-28.5	1.06 H	169	0.66	44.84
6	7311.00	32.9 AV	54.0	-21.1	1.06 H	169	-11.94	44.84
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	92.8 PK			1.00 V	305	57.09	35.71
2	*2437.00	82.6 AV			1.00 V	305	46.89	35.71
3	4874.00	49.4 PK	74.0	-24.6	1.00 V	223	1.65	47.75
4	4874.00	42.8 AV	54.0	-11.2	1.00 V	223	-4.95	47.75
5	7311.00	46.8 PK	74.0	-27.2	1.05 V	313	1.96	44.84
6	7311.00	36.5 AV	54.0	-17.5	1.05 V	313	-8.34	44.84

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	99.4 PK			1.00 H	184	63.49	35.91
2	*2462.00	89.4 AV			1.00 H	184	53.49	35.91
3	2483.50	63.4 PK	74.0	-10.6	1.05 H	173	27.31	36.09
4	2483.50	49.3 AV	54.0	-4.7	1.05 H	173	13.21	36.09
5	4924.00	44.4 PK	74.0	-29.6	1.15 H	346	-3.30	47.70
6	4924.00	39.3 AV	54.0	-14.7	1.15 H	346	-8.40	47.70
7	7386.00	46.2 PK	74.0	-27.8	1.11 H	177	1.29	44.91
8	7386.00	33.4 AV	54.0	-20.6	1.11 H	177	-11.51	44.91
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	93.7 PK			1.00 V	298	57.79	35.91
2	*2462.00	83.4 AV			1.00 V	298	47.49	35.91
3	2483.50	62.0 PK	74.0	-12.0	1.03 V	289	25.91	36.09
4	2483.50	49.1 AV	54.0	-4.9	1.03 V	289	13.01	36.09
5	4924.00	49.3 PK	74.0	-24.7	1.00 V	216	1.60	47.70
6	4924.00	42.9 AV	54.0	-11.1	1.00 V	216	-4.80	47.70
7	7386.00	47.3 PK	74.0	-26.7	1.09 V	324	2.39	44.91
8	7386.00	36.8 AV	54.0	-17.2	1.09 V	324	-8.11	44.91

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer Agilent	E7405A	MY45118807	May 15,12	May 14,13

- 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 Dongguan RF Chamber.

#### 4.3.3 TEST PROCEDURE

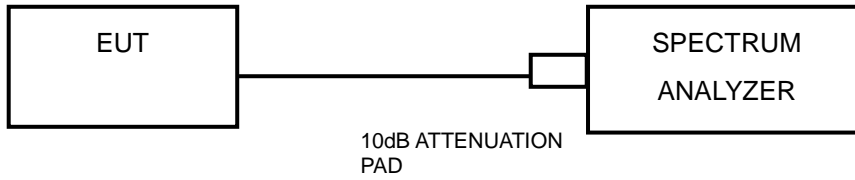
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that 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	10.18	0.5	PASS
6	2437	10.18	0.5	PASS
11	2462	10.17	0.5	PASS

##### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.35	0.5	PASS
6	2437	16.30	0.5	PASS
11	2462	16.34	0.5	PASS

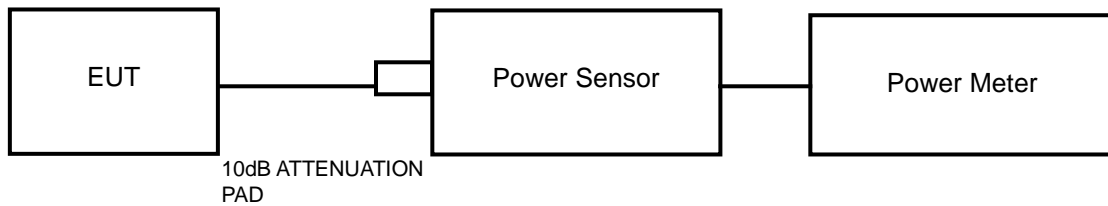


### 4.4 CONDUCTED OUTPUT POWER

#### 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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Power Meter Anritsu	ML2495A	1139001	Nov.07,11	Nov.07,12

#### 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)	AVERAGE POWER (dBm)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	12.44	14.38	30	PASS
6	2437	12.06	13.93	30	PASS
11	2462	11.78	13.58	30	PASS

##### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	11.78	21.24	30	PASS
6	2437	11.93	21.11	30	PASS
11	2462	12.35	22.38	30	PASS

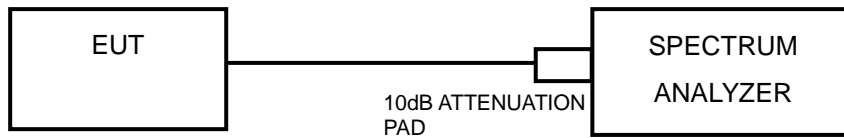


## 4.5 POWER SPECTRAL DENSITY MEASUREMENT

### 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 = 100 kHz, VBW = 300 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 power level in any 100 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(3 \text{ kHz}/100\text{kHz})$

### 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	-8.26	8	PASS
6	2437	-7.97	8	PASS
11	2462	-7.71	8	PASS

##### 802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-18.38	8	PASS
6	2437	-18.07	8	PASS
11	2462	-17.67	8	PASS



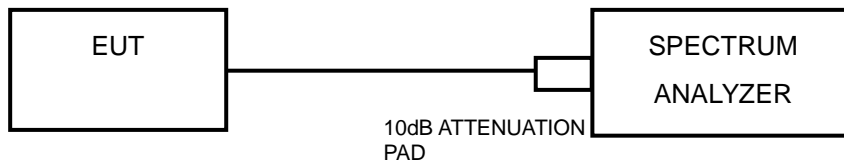


## 4.6 OUT OF BAND EMISSION MEASUREMENT

### 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

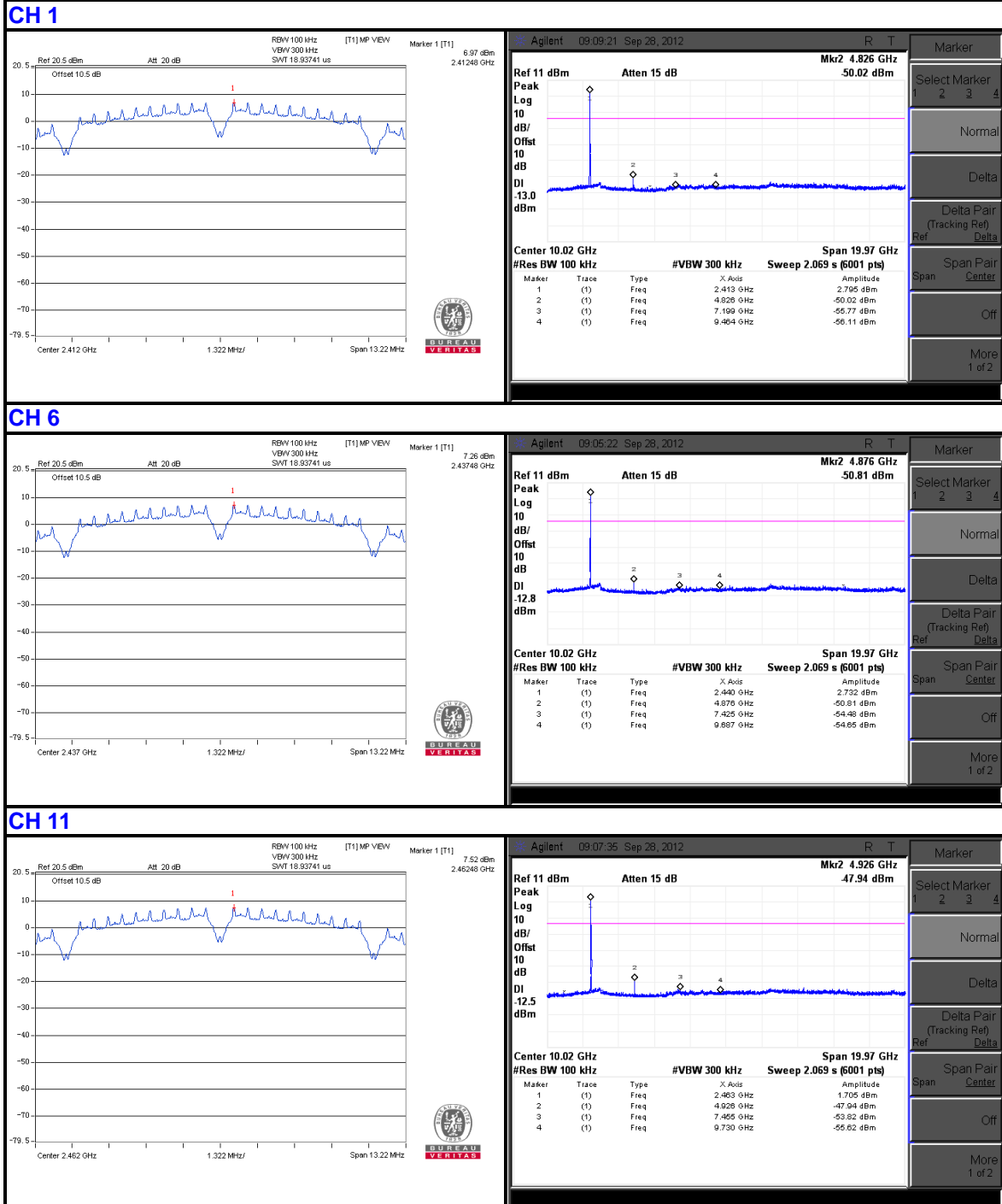


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Test Report No.: RF120831N010

### 4.6.7 TEST RESULTS

#### 802.11b



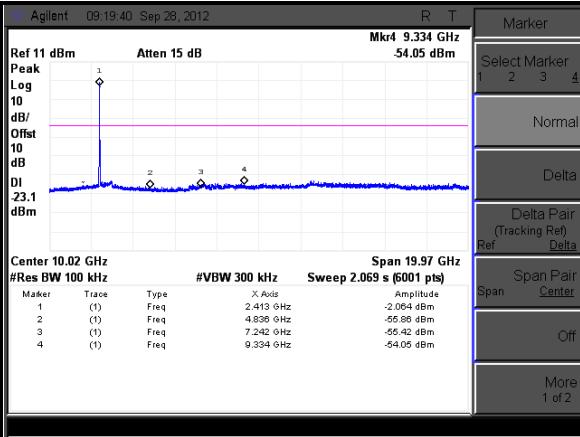
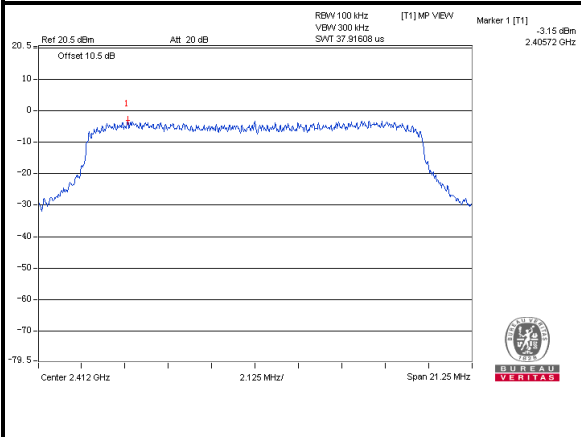


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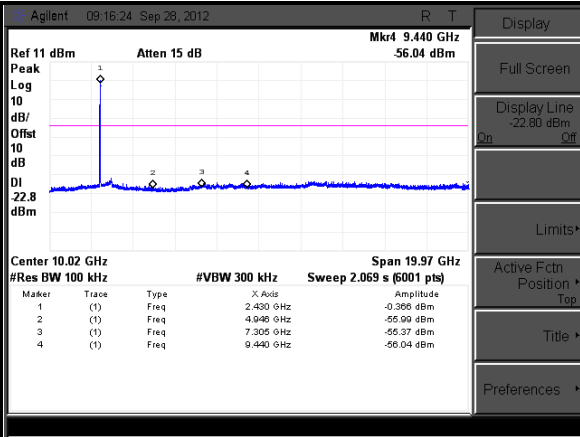
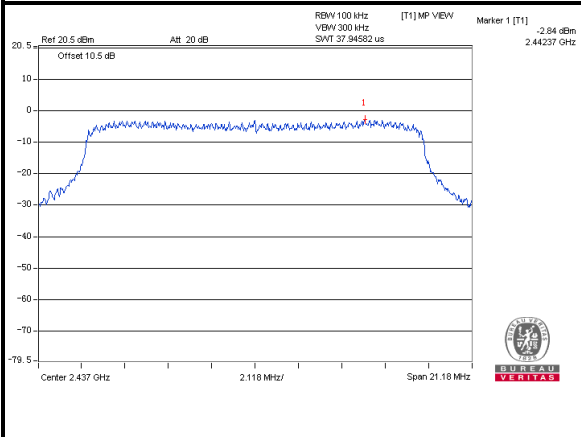
# Test Report No.: RF120831N010

## 802.11g

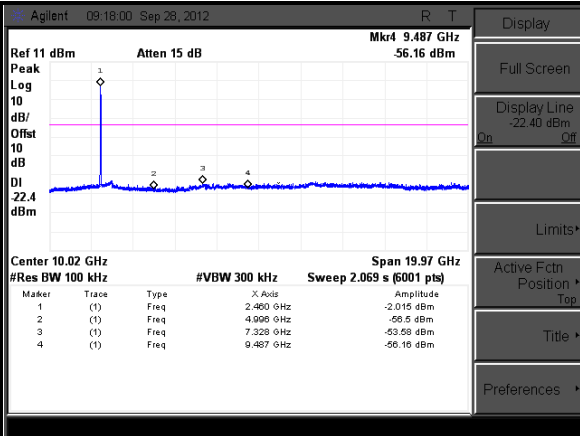
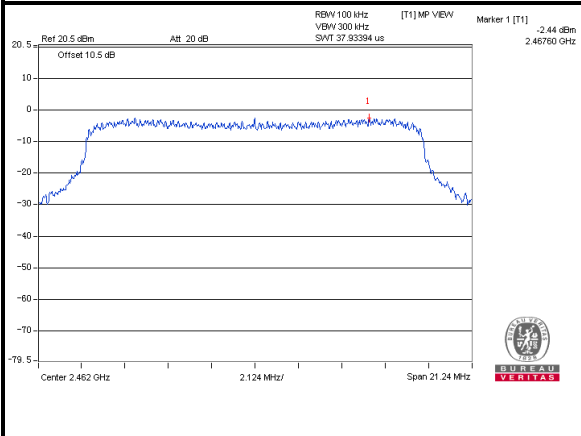
### CH 1



### CH 6



### CH 11





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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---**