



BUREAU
VERITAS

Test Report No.: RF130524N008-3



Test Lab
Cert 2951.01

TEST REPORT



Applicant	Unimax Communications
Address:	18201 McDermott Street W.Suite E Irvine, CA 92614

Manufacturer or Supplier	Unimax Communications
Address:	18201 McDermott Street W.Suite E Irvine, CA 92614
Product	CDMA EVDO Mobile Phone
Brand Name	UMX
Model	U675
Additional Model & Model Difference	N/A
Date of tests	May 24, 2013 ~ May 30, 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: May 27, 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 7

 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST 8

 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL..... 8

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS 11

3.4 DESCRIPTION OF SUPPORT UNITS..... 11

4 TEST TYPES AND RESULTS..... 12

4.1 CONDUCTED EMISSION MEASUREMENT..... 12

 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 12

 4.1.2 TEST INSTRUMENTS..... 12

 4.1.3 TEST PROCEDURES 13

 4.1.4 DEVIATION FROM TEST STANDARD 13

 4.1.5 TEST SETUP 14

 4.1.6 EUT OPERATING CONDITIONS 14

 4.1.7 TEST RESULTS 15

4.2 RADIATED EMISSION MEASUREMENT 19

 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT 19

 4.2.2 TEST INSTRUMENTS..... 20

 4.2.3 TEST PROCEDURES 21

 4.2.4 DEVIATION FROM TEST STANDARD 21

 4.2.5 TEST SETUP 22

 4.2.6 EUT OPERATING CONDITIONS 22

 4.2.7 TEST RESULTS 23

4.3 6dB BANDWIDTH MEASUREMENT 38

 4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT..... 38

 4.3.2 TEST INSTRUMENTS..... 38

 4.3.3 TEST PROCEDURE..... 38

 4.3.4 DEVIATION FROM TEST STANDARD 38

 4.3.5 TEST SETUP 39



4.3.6	EUT OPERATING CONDITIONS	39
4.3.7	TEST RESULTS	40
4.4	CONDUCTED OUTPUT POWER	41
4.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	41
4.4.2	TEST SETUP	41
4.4.3	TEST INSTRUMENTS	41
4.4.4	TEST PROCEDURES	42
4.4.5	DEVIATION FROM TEST STANDARD	42
4.4.6	EUT OPERATING CONDITIONS	42
4.4.7	TEST RESULTS	43
4.5	POWER SPECTRAL DENSITY MEASUREMENT	44
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	44
4.5.2	TEST SETUP	44
4.5.3	TEST INSTRUMENTS	44
4.5.4	TEST PROCEDURE	44
4.5.5	DEVIATION FROM TEST STANDARD	44
4.5.6	EUT OPERATING CONDITION	44
4.5.7	TEST RESULTS	45
4.6	OUT OF BAND EMISSION MEASUREMENT	46
4.6.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT	46
4.6.2	TEST SETUP	46
4.6.3	TEST INSTRUMENTS	46
4.6.4	TEST PROCEDURE	46
4.6.5	DEVIATION FROM TEST STANDARD	47
4.6.6	EUT OPERATING CONDITION	47
4.6.7	TEST RESULTS	48
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	51
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	52



**BUREAU
VERITAS**

Test Report No.: RF130524N008-3

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130524N008-3	Original release	May 30, 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 -2.01dB at 0.50341MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.2dB at 2483.50MHz
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

2 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.94dB
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

PRODUCT	CDMA EVDO Mobile Phone
MODEL NO.	U675
FCC ID	P46-U675
NOMINAL VOLTAGE	5.0VDC (adapter or host equipment) ; 3.7VDC (battery)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20)
PEAK POWER	20.42 dBm (Maximum)
ANTENNA TYPE	PIFA antenna with -1.5 dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB Cable: Shielded, Detachable, 1.0m Earphone Cable: Unshielded, Detachable, 1.2m

NOTE:

1. There are Bluetooth,WIFI,CDMA,1xEVDO technology used for the EUT.
2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	UMX
MODEL:	DSA-5CAA-05 FUS 050100
INPUT:	AC 100-240V, 50/60Hz 0.2A
OUTPUT:	DC 5V, 1000mA
DC LINE:	N/A

3. The EUT incorporates a SISO function without beam forming.details refer to the following table:

MODULATION MODE	TX FUNCTION	RX FUNCTION
802.11b	1TX	1RX
802.11g	1TX	1RX
802.11n (HT20) MCS 0 ~ 7	1TX	1RX

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&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		



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 modes were tested as listed below, and the final worst case mode was marked in boldface and recorded in the report.

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

Where **RE<1G**: Radiated Emission below 1GHz **RE≥1G**: Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement
NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B, C	802.11g	1 to 11	11	OFDM	BPSK	6.0



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)
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

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, C	802.11g	1 to 11	11	OFDM	BPSK	6.0



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

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

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**
- 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(Certification). 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	Notebook	Dell	5P2PM2X	12400120329	N/A

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

NOTE: All power cords of the above support units are non shielded (1.8m).



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU 26	100005	May 14,13	May 13,14
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	May 14,13	May 13,14
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	May 14,13	May 13,14
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.

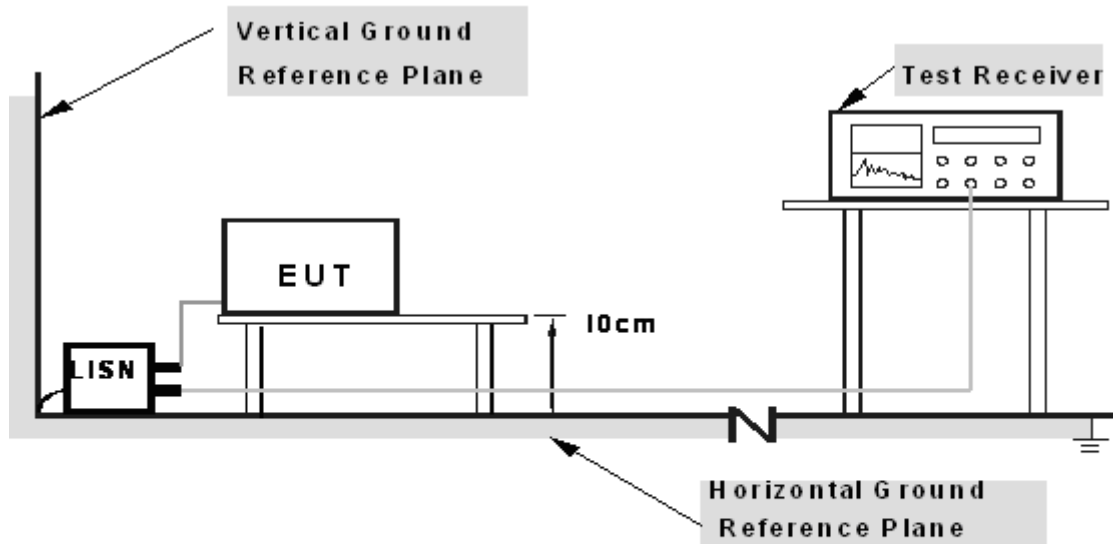
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

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.



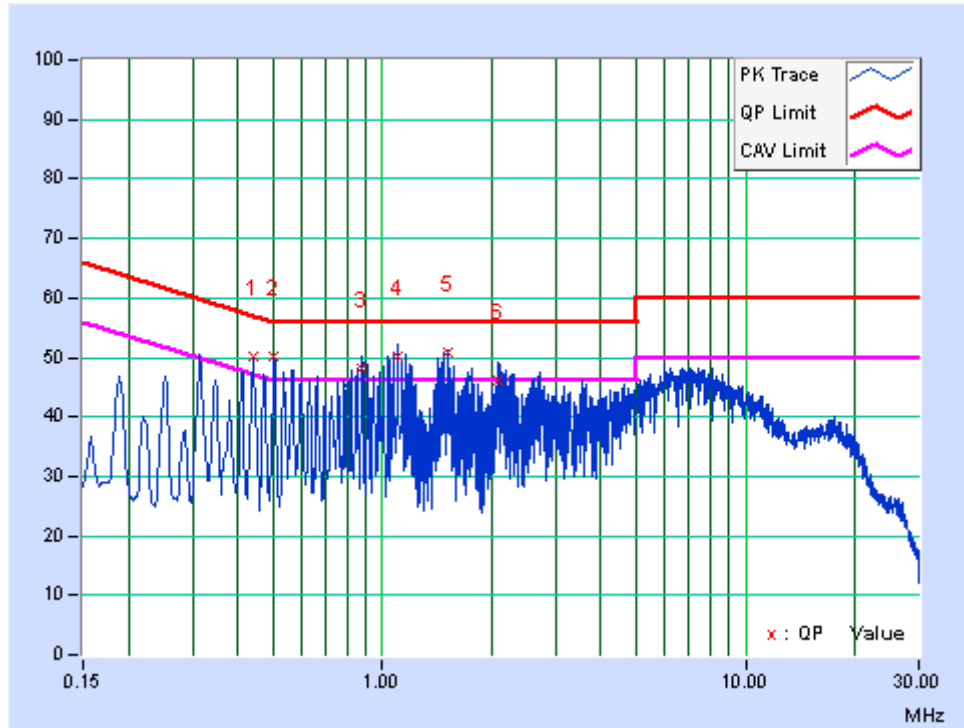
4.1.7 TEST RESULTS

EUT + Adapter + Earphone with WIFI link Data:

PHASE	Line	6dB BANDWIDTH	9kHz
-------	------	---------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.44012	10.24	39.98	34.17	50.22	44.41	57.06	47.06	-6.84	-2.65
2	0.50341	10.26	39.78	33.73	50.04	43.99	56	46	-5.96	-2.01
3	0.88005	9.96	38.22	29.62	48.18	39.58	56	46	-7.82	-6.42
4	1.10188	9.9	40.34	33	50.24	42.9	56	46	-5.76	-3.1
5	1.51026	9.9	41.05	33.3	50.95	43.2	56	46	-5.05	-2.8
6	2.07763	9.9	36.25	27.99	46.15	37.89	56	46	-9.85	-8.11

- 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.

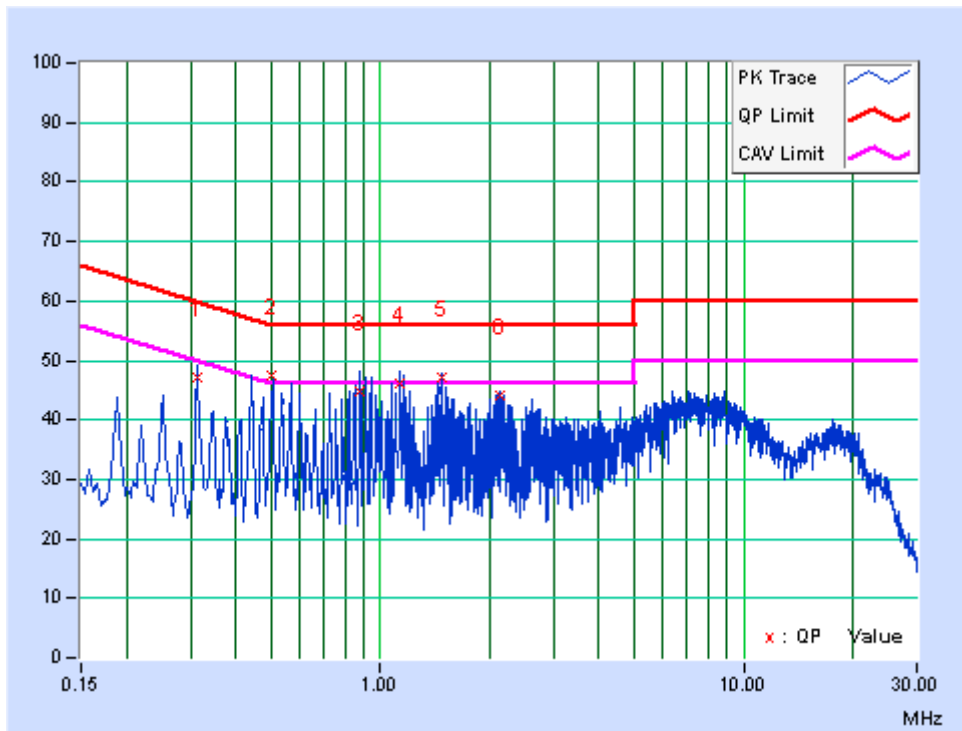




PHASE	Neutral	6dB BANDWIDTH	9kHz
--------------	---------	----------------------	------

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	0.31438	10.37	36.92	29.15	47.29	39.52	59.85	49.85	-12.56	-10.33
2	0.50309	10.46	37.13	28.91	47.59	39.37	56	46	-8.41	-6.63
3	0.88085	9.76	34.93	24.67	44.69	34.43	56	46	-11.31	-11.57
4	1.13187	9.64	36.46	26.49	46.1	36.13	56	46	-9.9	-9.87
5	1.47781	9.58	37.44	27.41	47.02	36.99	56	46	-8.98	-9.01
6	2.13741	9.49	34.47	24.65	43.96	34.14	56	46	-12.04	-11.86

- 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.



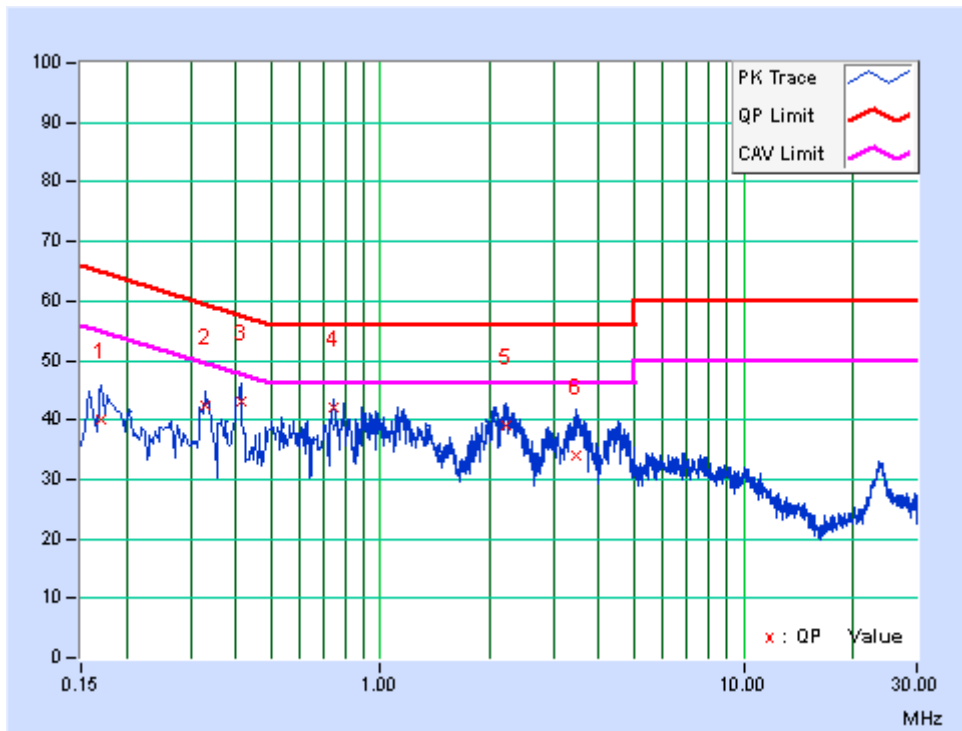


EUT + USB Charger + Earphone with WIFI link Data:

PHASE	Line	6dB BANDWIDTH	9kHz
--------------	------	----------------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16955	10.59	29.35	15.67	39.94	26.26	64.98	54.98	-25.04	-28.72
2	0.32986	10.4	32.15	21.73	42.55	32.13	59.45	49.45	-16.91	-17.33
3	0.41197	10.35	32.78	23.5	43.13	33.85	57.61	47.61	-14.48	-13.76
4	0.74041	10.16	31.92	19.98	42.08	30.14	56	46	-13.92	-15.86
5	2.22621	10.05	29.1	17.91	39.15	27.96	56	46	-16.85	-18.04
6	3.45395	10.04	23.82	12.1	33.86	22.14	56	46	-22.14	-23.86

- 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.

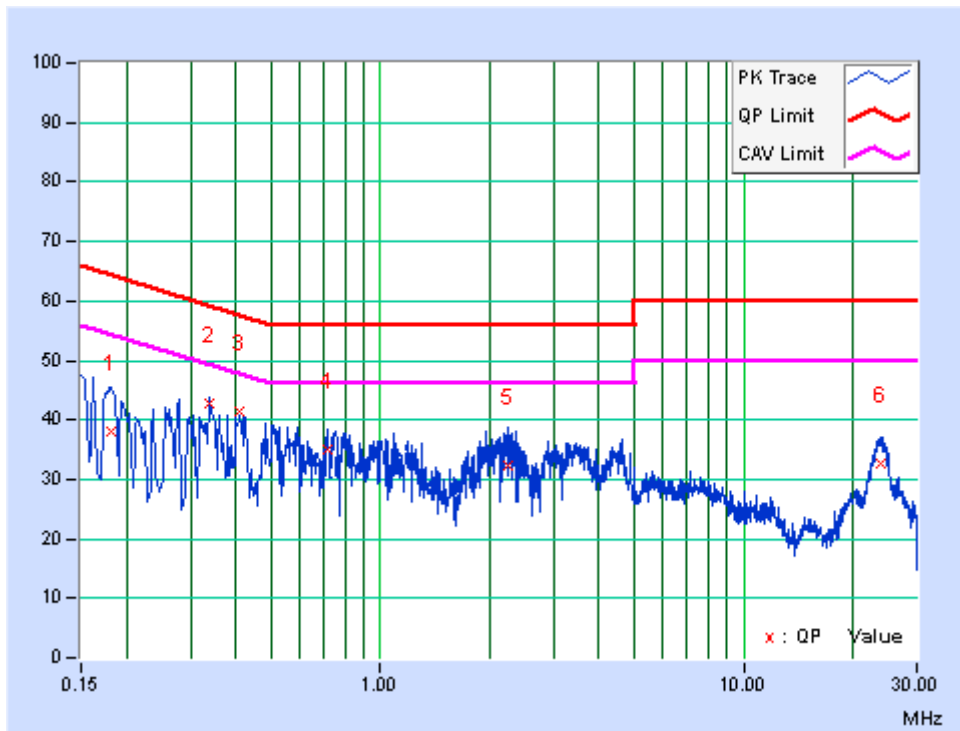




PHASE	Neutral	6dB BANDWIDTH	9kHz
--------------	---------	----------------------	------

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	0.18075	10.51	27.62	15.71	38.13	26.22	64.45	54.45	-26.32	-28.23
2	0.33768	10.41	32.29	20.14	42.7	30.55	59.26	49.26	-16.56	-18.71
3	0.408	10.44	30.9	20.24	41.34	30.68	57.69	47.69	-16.35	-17.01
4	0.71304	9.96	25.16	13.86	35.12	23.82	56	46	-20.88	-22.18
5	2.23403	9.59	22.73	10.86	32.32	20.45	56	46	-23.68	-25.55
6	23.87197	10.45	22.29	8.99	32.74	19.44	60	50	-27.26	-30.56

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





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Agilent	E4446A	MY46180622	Apr. 24,13	Apr. 23,14
EMI Test Receiver	Rohde&Schwarz	ESVD	847398/003	May 14,13	May 13,14
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 14,13	May 13,14
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
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:

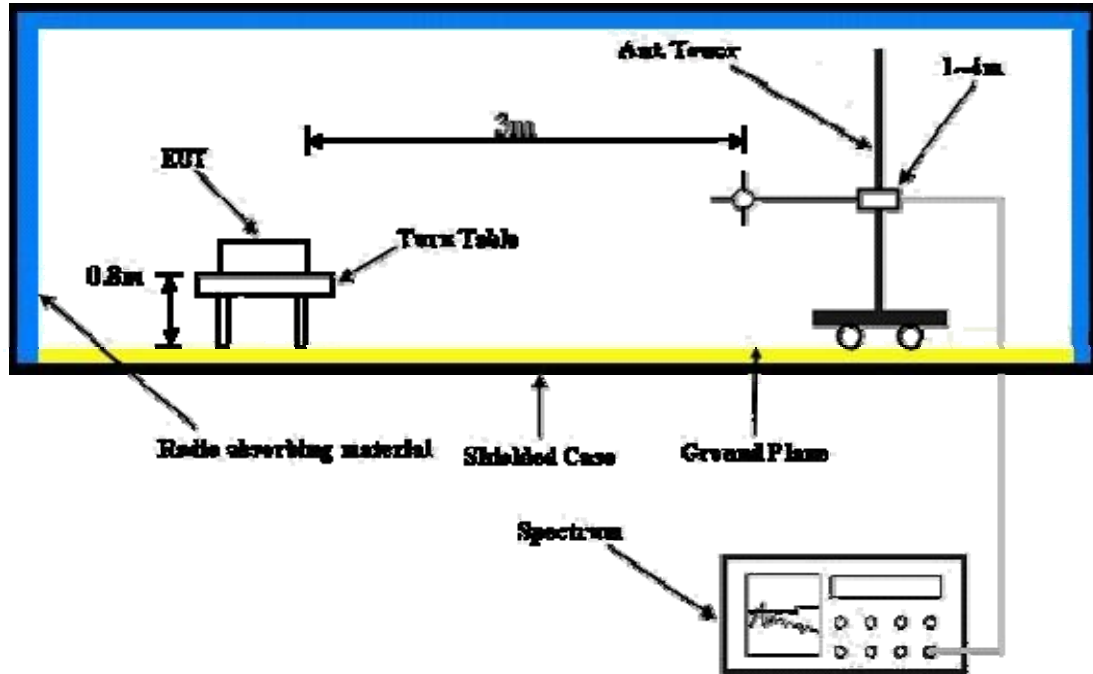
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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



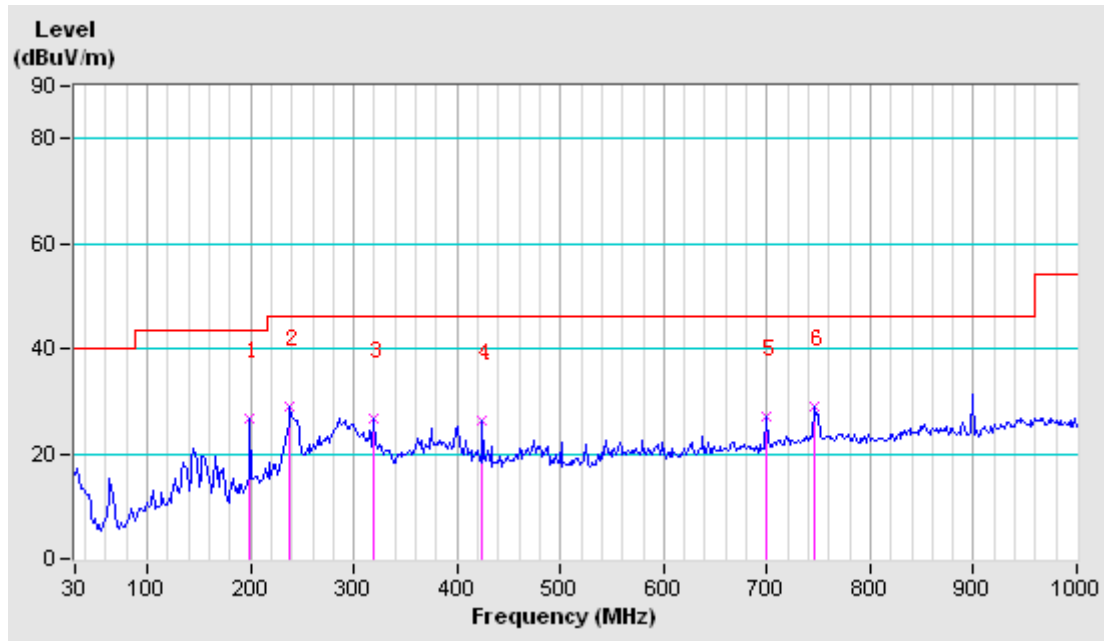
4.2.7 TEST RESULTS

EUT + Adapter + Earphone with Bluetooth link Data : 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak

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	199.75	26.8 QP	43.5	-16.7	1.00 H	126	15.80	11.00
2	238.55	29.1 QP	46.0	-16.9	1.00 H	105	15.95	13.16
3	319.38	26.7 QP	46.0	-19.3	1.00 H	231	10.60	16.09
4	424.47	26.2 QP	46.0	-19.9	1.00 H	173	6.40	19.75
5	699.30	27.1 QP	46.0	-18.9	1.00 H	263	2.64	24.47
6	746.18	28.9 QP	46.0	-17.1	1.00 H	81	2.38	26.51

- REMARKS:**
1. Emission level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
 2. 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.

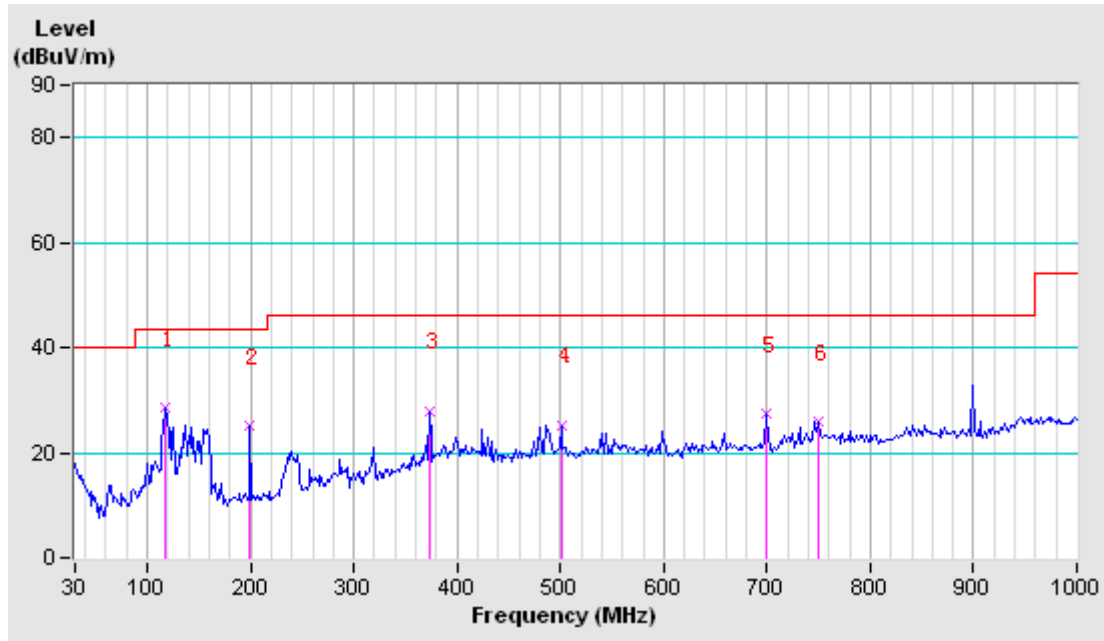




EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak

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	117.30	28.5 QP	43.5	-15.0	1.00 V	81	15.69	12.83
2	199.75	25.2 QP	43.5	-18.3	1.00 V	61	14.24	11.00
3	372.73	28.0 QP	46.0	-18.0	1.00 V	41	10.25	17.75
4	500.45	25.3 QP	46.0	-20.7	1.00 V	98	4.15	21.17
5	699.30	27.4 QP	46.0	-18.6	1.00 V	47	2.97	24.47
6	749.42	25.9 QP	46.0	-20.1	1.00 V	138	-0.56	26.48

- REMARKS:**
1. Emission level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
 2. 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.



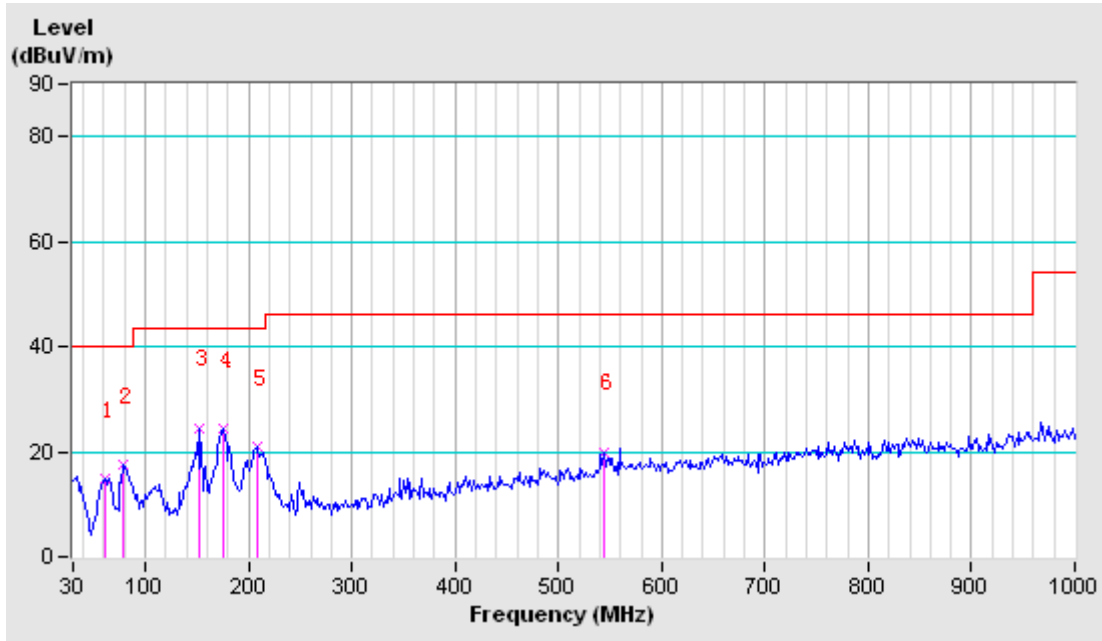


EUT + USB Charger + Earphone with WIFI link Data : 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	DC 5V From USB Charger	DETECTOR FUNCTION	Quasi-Peak

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	-25.3	100	142	6.69	8.01
2	78.5	17.68 QP	40	-22.32	159	266	9.27	8.41
3	151.25	24.59 QP	43.5	-18.91	187	297	12.41	12.18
4	175.5	24.41 QP	43.5	-19.09	201	323	13.72	10.69
5	207.83	20.98 QP	43.5	-22.52	124	226	10.39	10.59
6	544.1	20.02 QP	46	-25.98	106	205	-1.8	21.82

- REMARKS:**
1. Emission level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
 2. 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.

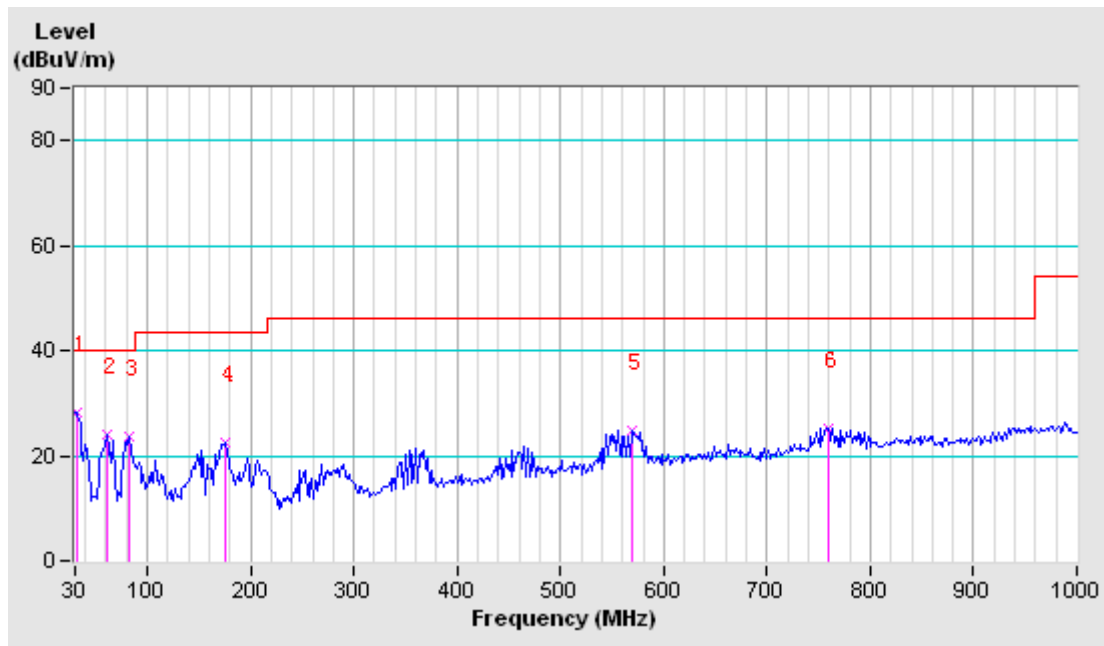




EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	DC 5V From USB Charger	DETECTOR FUNCTION	Quasi-Peak

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	28.31 QP	40	-11.69	107	243	9.31	19
2	60.72	23.97 QP	40	-16.03	114	186	15.96	8.01
3	81.73	23.57 QP	40	-16.43	100	214	14.84	8.73
4	175.5	22.54 QP	43.5	-20.96	100	273	11.85	10.69
5	568.35	24.74 QP	46	-21.26	125	304	2.34	22.4
6	759.12	25.24 QP	46	-20.76	108	127	-0.07	25.31

- REMARKS:**
1. Emission level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
 2. 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.



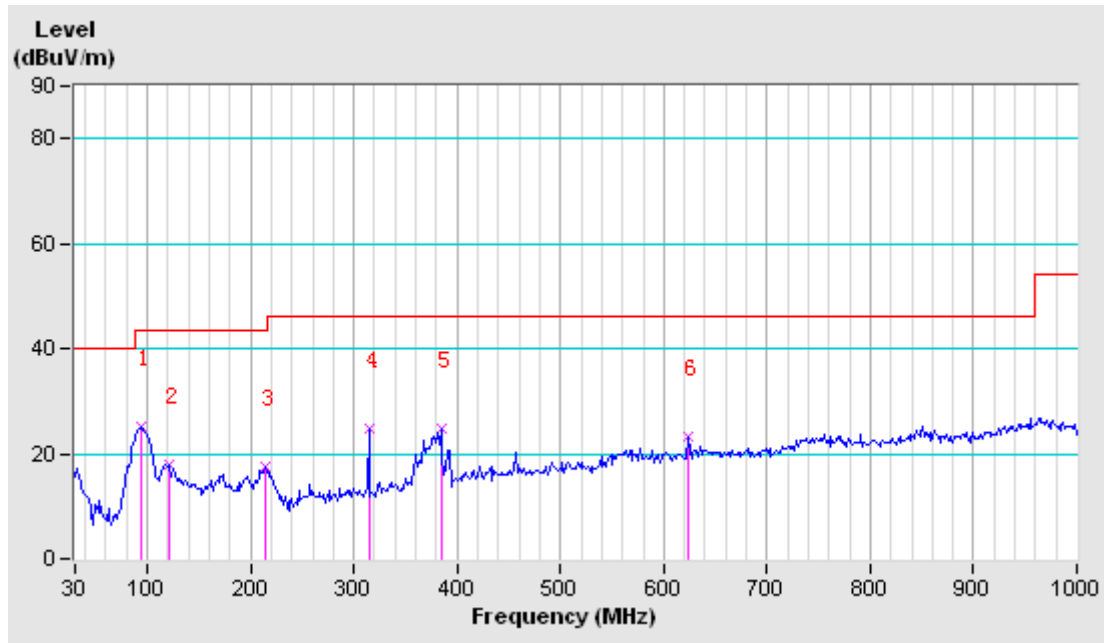


EUT + Battery + Earphone with WIFI link Data : 802.11g

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	DC 3.7V From Battery	DETECTOR FUNCTION	Quasi-Peak

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	94.67	25.02 QP	43.5	-18.48	169	267	13.97	11.05
2	120.53	17.91 QP	43.5	-25.59	122	220	4.56	13.35
3	214.3	17.59 QP	43.5	-25.91	196	293	6.65	10.94
4	314.53	24.70 QP	46	-21.3	153	251	8.75	15.95
5	384.05	24.66 QP	46	-21.34	208	329	6.55	18.11
6	623.32	23.13 QP	46	-22.87	139	237	-0.84	23.97

- REMARKS:**
1. Emission level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
 2. 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.

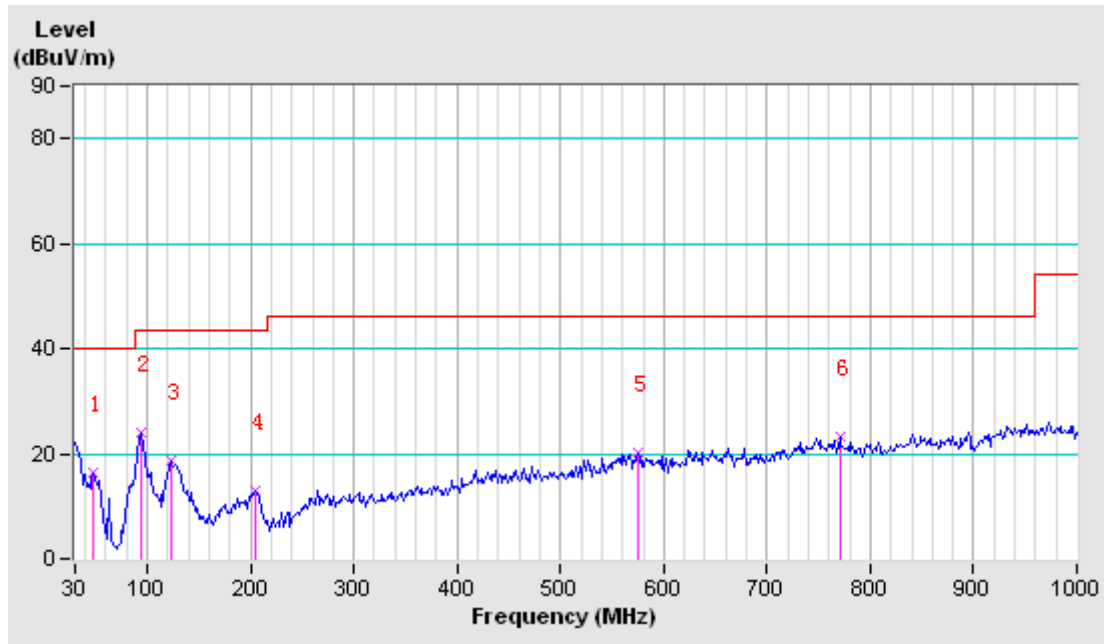




EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	DC 3.7V From Battery	DETECTOR FUNCTION	Quasi-Peak

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	47.78	16.26 QP	40	-23.74	100	159	5.74	10.52
2	93.05	23.97 QP	43.5	-19.53	100	258	13.42	10.55
3	122.15	18.66 QP	43.5	-24.84	100	238	5.18	13.48
4	204.6	12.94 QP	43.5	-30.56	100	217	1.92	11.02
5	574.82	20.31 QP	46	-25.69	100	201	-3.03	23.34
6	770.43	23.27 QP	46	-22.73	100	184	-3.24	26.51

- REMARKS:**
1. Emission level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
 2. 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	52.2 PK	74.0	-21.8	1.45 H	35	14.95	37.25
2	2390.00	40.5 AV	54.0	-13.5	1.45 H	35	3.25	37.25
3	*2412.00	102.6 PK			1.45 H	35	65.31	37.29
4	*2412.00	98.4 AV			1.45 H	35	61.11	37.29
5	4824.00	51.8 PK	74.0	-22.2	1.00 H	158	10.17	41.63
6	4824.00	38.2 AV	54.0	-15.8	1.00 H	158	-3.43	41.63

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	2390.00	48.4 PK	74.0	-25.6	1.29 V	59	11.15	37.25
2	2390.00	37.3 AV	54.0	-16.7	1.29 V	59	0.05	37.25
3	*2412.00	99.9 PK			1.29 V	59	62.61	37.29
4	*2412.00	95.7 AV			1.29 V	59	58.41	37.29
5	4824.00	52.6 PK	74.0	-21.4	1.04 V	211	10.97	41.63
6	4824.00	38.3 AV	54.0	-15.7	1.04 V	211	-3.33	41.63

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.



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	103.1 PK			1.44 H	40	65.77	37.33
2	*2437.00	99.3 AV			1.44 H	40	61.97	37.33
3	4874.00	52.1 PK	74.0	-21.9	1.06 H	160	10.41	41.69
4	4874.00	40.3 AV	54.0	-13.7	1.06 H	160	-1.39	41.69
5	7311.00	52.8 PK	74.0	-21.2	1.10 H	334	7.01	45.79
6	7311.00	41.2 AV	54.0	-12.8	1.10 H	334	-4.59	45.79
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	100.0 PK			1.28 V	59	62.67	37.33
2	*2437.00	96.1 AV			1.28 V	59	58.77	37.33
3	4874.00	52.7 PK	74.0	-21.3	1.00 V	215	11.01	41.69
4	4874.00	40.6 AV	54.0	-13.4	1.00 V	215	-1.09	41.69
5	7311.00	53.4 PK	74.0	-20.6	1.00 V	113	7.61	45.79
6	7311.00	41.8 AV	54.0	-12.2	1.00 V	113	-3.99	45.79

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	102.3 PK			1.37 H	35	64.93	37.37
2	*2462.00	97.7 AV			1.37 H	35	60.33	37.37
3	2483.50	48.3 PK	74.0	-25.7	1.37 H	35	10.89	37.41
4	2483.50	38.9 AV	54.0	-15.1	1.37 H	35	1.49	37.41
5	4924.00	51.9 PK	74.0	-22.1	1.10 H	157	10.14	41.76
6	4924.00	38.9 AV	54.0	-15.1	1.10 H	157	-2.86	41.76
7	7386.00	52.8 PK	74.0	-21.2	1.00 H	330	6.99	45.81
8	7386.00	40.4 AV	54.0	-13.6	1.00 H	330	-5.41	45.81
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	100.0 PK			1.30 V	60	62.63	37.37
2	*2462.00	95.4 AV			1.30 V	60	58.03	37.37
3	2483.50	48.2 PK	74.0	-25.8	1.30 V	60	10.79	37.41
4	2483.50	37.2 AV	54.0	-16.8	1.30 V	60	-0.21	37.41
5	4924.00	51.6 PK	74.0	-22.4	1.07 V	220	9.84	41.76
6	4924.00	39.8 AV	54.0	-14.2	1.07 V	220	-1.96	41.76
7	7386.00	52.4 PK	74.0	-21.6	1.10 V	115	6.59	45.81
8	7386.00	40.1 AV	54.0	-13.9	1.10 V	115	-5.71	45.81

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	62.4 PK	74.0	-11.6	1.45 H	35	25.15	37.25
2	2390.00	45.8 AV	54.0	-8.2	1.45 H	35	8.55	37.25
3	*2412.00	101.7 PK			1.45 H	35	64.41	37.29
4	*2412.00	91.1 AV			1.45 H	35	53.81	37.29
5	4824.00	52.4 PK	74.0	-21.6	1.20 H	156	10.77	41.63
6	4824.00	40.3 AV	54.0	-13.7	1.20 H	156	-1.33	41.63
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	2390.00	59.5 PK	74.0	-14.5	1.30 V	56	22.25	37.25
2	2390.00	43.3 AV	54.0	-10.7	1.30 V	56	6.05	37.25
3	*2412.00	99.8 PK			1.30 V	56	62.51	37.29
4	*2412.00	89.1 AV			1.30 V	56	51.81	37.29
5	4824.00	51.6 PK	74.0	-22.4	1.00 V	213	9.97	41.63
6	4824.00	38.7 AV	54.0	-15.3	1.00 V	213	-2.93	41.63

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.



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	102.0 PK			1.47 H	40	64.67	37.33
2	*2437.00	91.4 AV			1.47 H	40	54.07	37.33
3	4874.00	50.8 PK	74.0	-23.2	1.03 H	162	9.11	41.69
4	4874.00	38.4 AV	54.0	-15.6	1.03 H	162	-3.29	41.69
5	7311.00	51.6 PK	74.0	-22.4	1.00 H	328	5.81	45.79
6	7311.00	39.5 AV	54.0	-14.5	1.00 H	328	-6.29	45.79
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	100.3 PK			1.31 V	62	62.97	37.33
2	*2437.00	89.2 AV			1.31 V	62	51.87	37.33
3	4874.00	51.4 PK	74.0	-22.6	1.02 V	214	9.71	41.69
4	4874.00	38.8 AV	54.0	-15.2	1.02 V	214	-2.89	41.69
5	7311.00	52.3 PK	74.0	-21.7	1.17 V	116	6.51	45.79
6	7311.00	39.4 AV	54.0	-14.6	1.17 V	116	-6.39	45.79

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	102.2 PK			1.40 H	36	64.83	37.37
2	*2462.00	91.2 AV			1.40 H	36	53.83	37.37
3	2483.50	67.3 PK	74.0	-6.7	1.40 H	36	29.89	37.41
4	2483.50	48.9 AV	54.0	-5.1	1.40 H	36	11.49	37.41
5	4924.00	51.3 PK	74.0	-22.7	1.00 H	165	9.54	41.76
6	4924.00	39.2 AV	54.0	-14.8	1.00 H	165	-2.56	41.76
7	7386.00	51.4 PK	74.0	-22.6	1.04 H	328	5.59	45.81
8	7386.00	39.6 AV	54.0	-14.4	1.04 H	328	-6.21	45.81
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	99.8 PK			1.27 V	66	62.43	37.37
2	*2462.00	89.3 AV			1.27 V	66	51.93	37.37
3	2483.50	65.5 PK	74.0	-8.5	1.27 V	66	28.09	37.41
4	2483.50	47.2 AV	54.0	-6.8	1.27 V	66	9.79	37.41
5	4924.00	50.9 PK	74.0	-23.1	1.00 V	220	9.14	41.76
6	4924.00	38.7 AV	54.0	-15.3	1.00 V	220	-3.06	41.76
7	7386.00	52.7 PK	74.0	-21.3	1.24 V	110	6.89	45.81
8	7386.00	40.3 AV	54.0	-13.7	1.24 V	110	-5.51	45.81

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	65.2 PK	74.0	-8.8	N/A H	42	27.95	37.25
2	2390.00	47.8 AV	54.0	-6.2	N/A H	42	10.55	37.25
3	*2412.00	101.5 PK			1.42 H	42	64.21	37.29
4	*2412.00	90.5 AV			1.42 H	42	53.21	37.29
5	4824.00	51.6 PK	74.0	-22.4	1.24 H	164	9.97	41.63
6	4824.00	38.8 AV	54.0	-15.2	1.24 H	164	-2.83	41.63
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	2390.00	63.0 PK	74.0	-11.0	1.28 V	58	25.75	37.25
2	2390.00	46.3 AV	54.0	-7.7	1.28 V	58	9.05	37.25
3	*2412.00	99.8 PK			1.29 V	58	62.51	37.29
4	*2412.00	88.5 AV			1.29 V	58	51.21	37.29
5	4824.00	51.3 PK	74.0	-22.7	1.08 V	221	9.67	41.63
6	4824.00	38.6 AV	54.0	-15.4	1.08 V	221	-3.03	41.63

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.



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	102.8 PK			1.44 H	42	65.47	37.33
2	*2437.00	91.5 AV			1.44 H	42	54.17	37.33
3	4874.00	52.3 PK	74.0	-21.7	1.08 H	155	10.61	41.69
4	4874.00	40.4 AV	54.0	-13.6	1.08 H	155	-1.29	41.69
5	7311.00	53.4 PK	74.0	-20.6	1.00 H	330	7.61	45.79
6	7311.00	41.2 AV	54.0	-12.8	1.00 H	330	-4.59	45.79
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	99.7 PK			1.29 V	56	62.37	37.33
2	*2437.00	88.7 AV			1.29 V	56	51.37	37.33
3	4874.00	51.6 PK	74.0	-22.4	1.00 V	209	9.91	41.69
4	4874.00	39.7 AV	54.0	-14.3	1.00 V	209	-1.99	41.69
5	7311.00	52.9 PK	74.0	-21.1	1.08 V	117	7.11	45.79
6	7311.00	40.1 AV	54.0	-13.9	1.08 V	117	-5.69	45.79

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	101.1 PK			1.43 H	43	63.73	37.37
2	*2462.00	90.6 AV			1.43 H	43	53.23	37.37
3	2483.50	67.3 PK	74.0	-6.7	1.43 H	43	29.89	37.41
4	2483.50	49.8 AV	54.0	-4.2	1.43 H	43	12.39	37.41
5	4924.00	51.2 PK	74.0	-22.8	1.00 H	160	9.44	41.76
6	4924.00	38.9 AV	54.0	-15.1	1.00 H	160	-2.86	41.76
7	7386.00	53.8 PK	74.0	-20.2	1.07 H	336	7.99	45.81
8	7386.00	41.7 AV	54.0	-12.3	1.07 H	336	-4.11	45.81
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	98.5 PK			1.32 V	50	61.13	37.37
2	*2462.00	88.1 AV			1.32 V	50	50.73	37.37
3	2483.50	64.2 PK	74.0	-9.8	1.32 V	50	26.79	37.41
4	2483.50	48.3 AV	54.0	-5.7	1.32 V	50	10.89	37.41
5	4924.00	51.9 PK	74.0	-22.1	1.05 V	213	10.14	41.76
6	4924.00	39.5 AV	54.0	-14.5	1.05 V	213	-2.26	41.76
7	7386.00	53.4 PK	74.0	-20.6	1.14 V	120	7.59	45.81
8	7386.00	41.5 AV	54.0	-12.5	1.14 V	120	-4.31	45.81

REMARKS:

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



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (9KHz-40GHz)	Agilent	E4446A	MY46180622	Apr. 24,13	Apr. 23,14
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

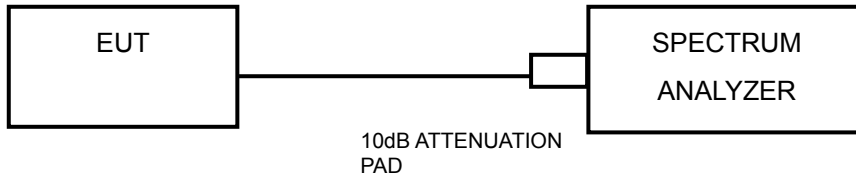
1. Set resolution bandwidth (RBW) = approximately 1% of the emission bandwidth
2. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude 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	7.35	0.5	PASS
6	2437	7.37	0.5	PASS
11	2462	7.59	0.5	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.41	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.42	0.5	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.65	0.5	PASS
6	2437	17.65	0.5	PASS
11	2462	17.67	0.5	PASS

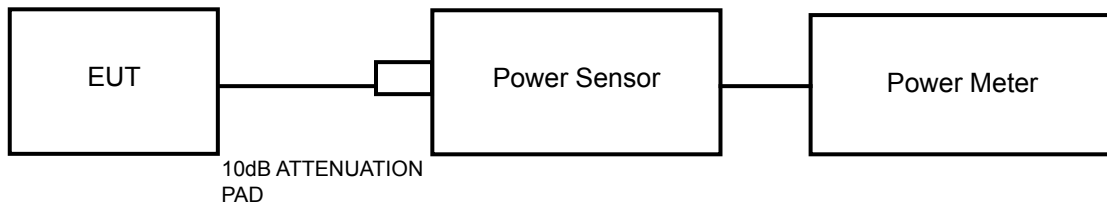


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Meter	Anritsu	ML2495A	1139001	Nov. 04,12	Nov. 03,13
Power Sensor	Anritsu	MA2411B	1126068	Nov. 04,12	Nov. 03,13

- 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



**BUREAU
VERITAS**

Test Report No.: RF130524N008-3

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	13.52	16.13	30	PASS
6	2437	13.88	16.45	30	PASS
11	2462	14.12	16.74	30	PASS

Note: Average power was used power meter sensor, record the power level for reference.

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	12.12	19.64	30	PASS
6	2437	12.14	20.04	30	PASS
11	2462	12.62	20.42	30	PASS

Note: Average power was used power meter sensor, record the power level for reference.

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	12.15	19.95	30	PASS
6	2437	11.87	19.32	30	PASS
11	2462	12.54	19.47	30	PASS

Note: Average power was used power meter sensor, record the power level for reference.

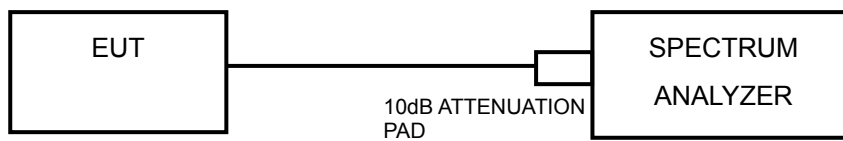


4.5 POWER SPECTRAL DENSITY MEASUREMENT

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	-9.95	8	PASS
6	2437	-10.11	8	PASS
11	2462	-9.50	8	PASS

802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-14.61	8	PASS
6	2437	-14.62	8	PASS
11	2462	-14.22	8	PASS

802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-15.18	8	PASS
6	2437	-14.63	8	PASS
11	2462	-14.26	8	PASS

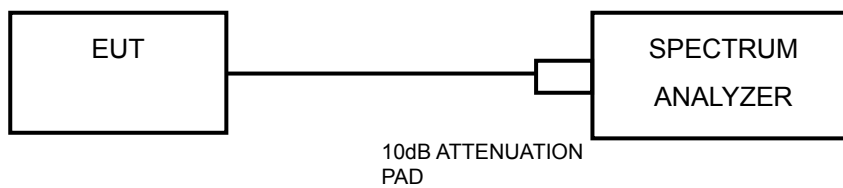


4.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -20dB 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 - Reference Level

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 –Unwanted Emission Level

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as item 4.3.6



BUREAU VERITAS

Test Report No.: RF130524N008-3

4.6.7 TEST RESULTS

802.11b

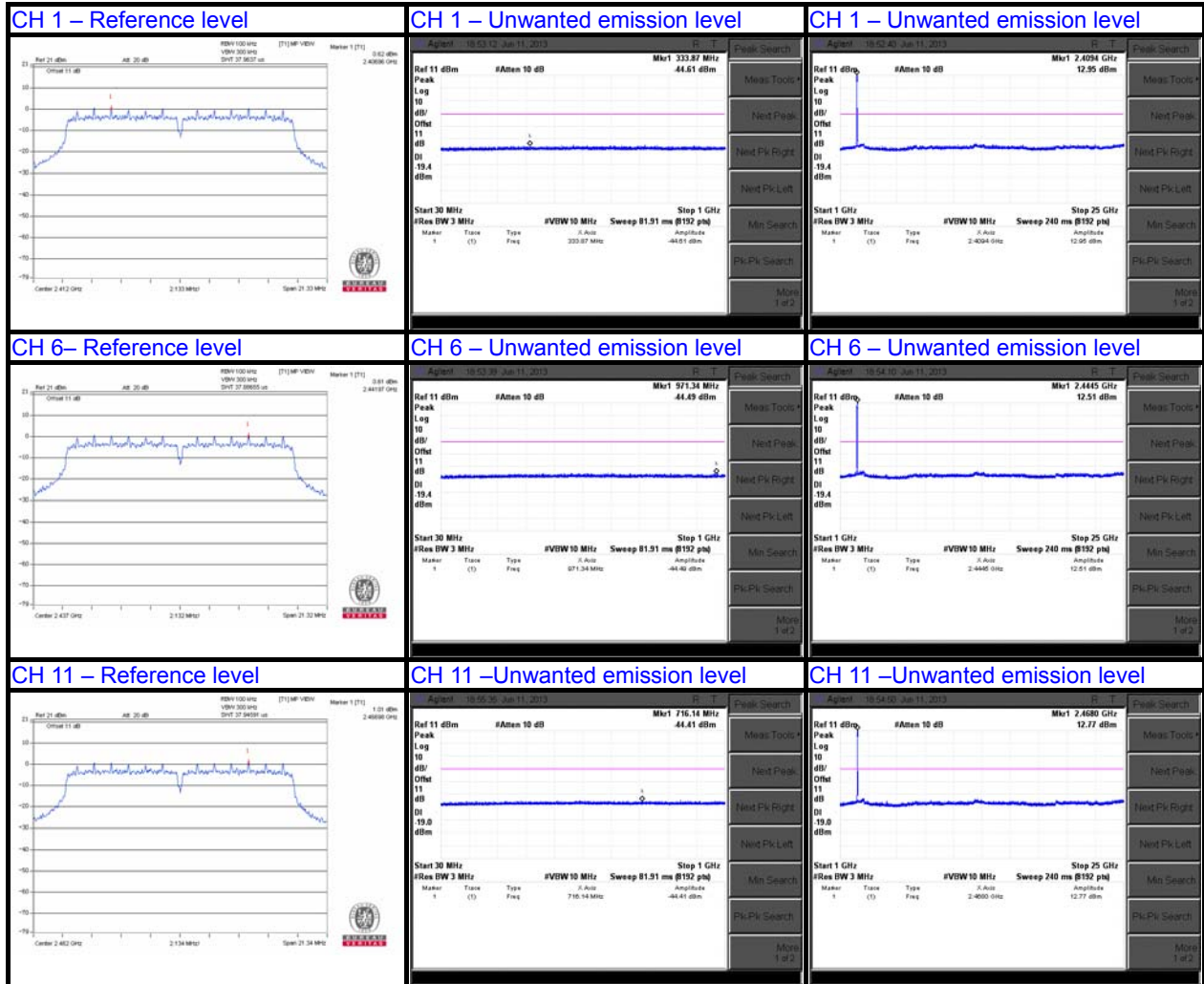




BUREAU VERITAS

Test Report No.: RF130524N008-3

802.11g

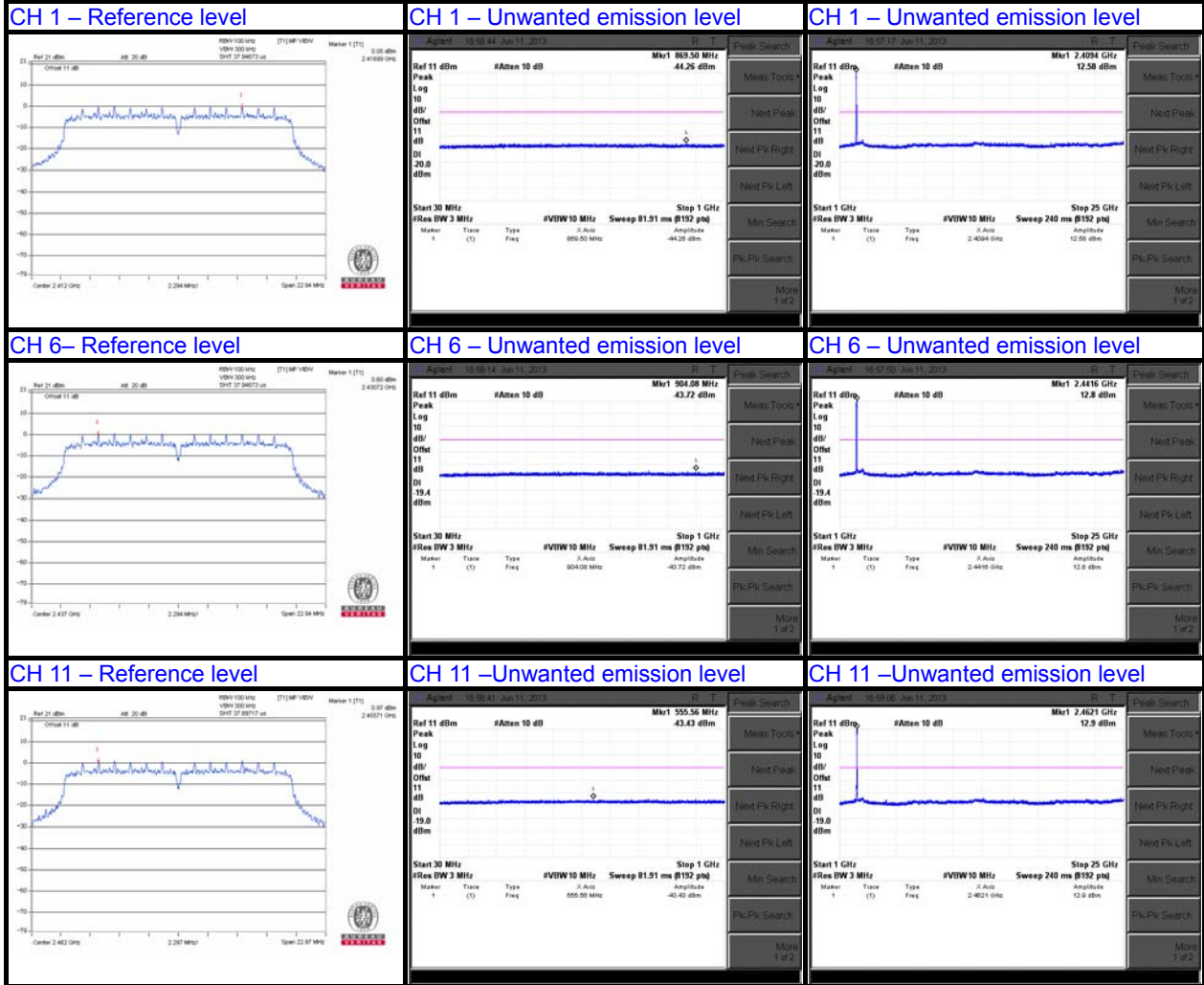




BUREAU VERITAS

Test Report No.: RF130524N008-3

802.11n HT20





**BUREAU
VERITAS**

Test Report No.: RF130524N008-3

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



**BUREAU
VERITAS**

Test Report No.: RF130524N008-3

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---