



**BUREAU
VERITAS**

Test Report No.: RF131021N050-1



TEST REPORT


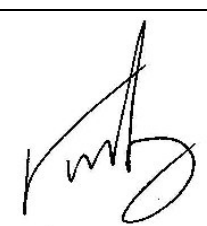
Applicant:	Lenovo Mobile Communication Technology Ltd.
Address:	No.999, Qishan North 2nd Road, Information & Optoelectronics Park, Torch Hi-tech Industry Development Zone, Xiamen, P.R.China

Manufacturer or Supplier	Lenovo PC HK Limited
Address	23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong
Product	Lenovo Mobile Phone
Brand Name	lenovo
Model	Lenovo A680
MID	68000031
Additional Model & Model Difference	N/A
Date of tests	Oct. 21, 2013 ~ Oct. 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 Glyn He Specialist / EMC Department	Approved by Sam Tung Manager / EMC Department
	 Date: Oct. 30, 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



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF131021N050-1	Original release	Oct. 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 -16.3dB at 0.28228MHz
15.205 15.209	Restricted bands of operation & Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.1dB at 2390MHz
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	2.67dB
Radiated emissions	30MHz ~ 1GMHz	4.81dB
	1GHz ~ 18GHz	4.3dB
	18GHz ~ 40GHz	1.94dB

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



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Lenovo Mobile Phone
MODEL NO.	Lenovo A680
MID	68000031
FCC ID	YCNA680
NOMINAL VOLTAGE	DC 5V (adapter or host equipment) DC 3.7V (Li-ion 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); 2422-2452MHz for 11n(HT40)
PEAK POWER	21.58 dBm (Maximum)
ANTENNA TYPE	Dipole Antenna; -3.2dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable: Shielded, Detachable, 1.0m Earphone cable: Shielded, Detachable, 1.5m

NOTE:

1. WLAN, Bluetooth, GPS, GSM, WCDMA technologies are used for the EUT.

2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	lenovo
MODEL:	C-P33
INPUT:	AC 100-240V 50/60Hz, 150mA
OUTPUT:	DC 5V, 700mA
DC LINE:	N/A



3. The EUT provides one transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11n (HT20)	1TX
802.11n (HT40)	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.

7. There are two kind of samples for the model Lenovo A680, two kinds of samples are different in LCD,TP and camera; we consider sample A as the main test sample(full tests for it), and partial test for the sample B. The information on LCD,TP and camera of sample A and sample B is listed below:

For sample A:

LCD	TP	camera
Brand: Bitland	Brand: AVC	Brand: Sunny
Model: BT050TN02	Model: AP050203	Model: P5M27B

For sample B:

LCD	TP	camera
Brand: YASSY	Brand: O-film	Brand: O-film
Model: YT50F152V0	Model: MCF-050-1129-01	Model: L0543F00



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	√	√	√	-	Adapter mode with WIFI function
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	11	CCK	DBPSK	1.0	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	11	CCK	DBPSK	1.0
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



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TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 60%RH	120Vac, 60Hz	Venless Long
RE≥1G	25deg. C, 60%RH	120Vac, 60Hz	Venless Long
PLC	25deg. C, 60%RH	120Vac, 60Hz	Venless Long
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.

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 (dB μ V)	
	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, GRGT/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.

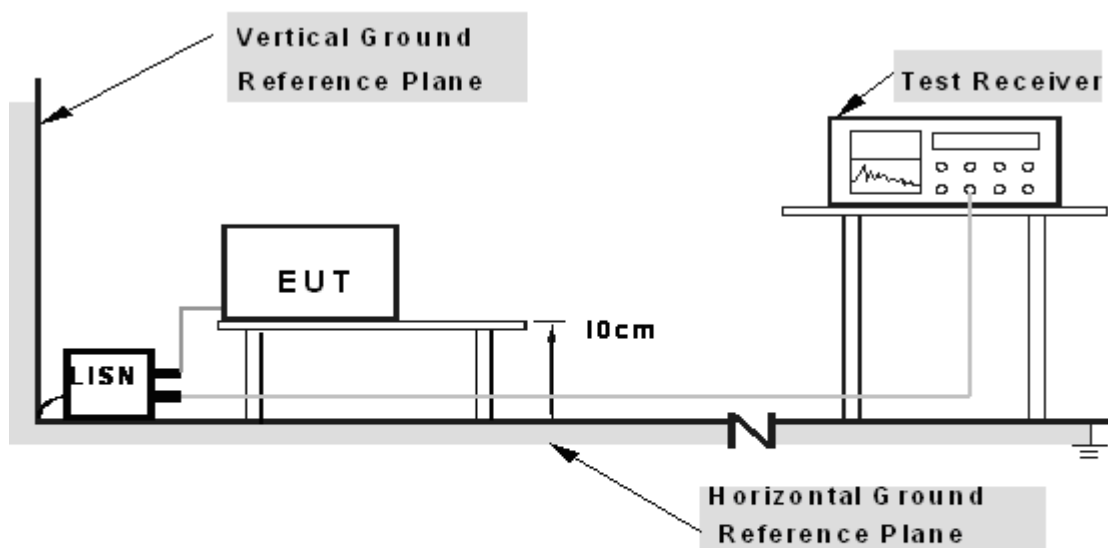
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

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.



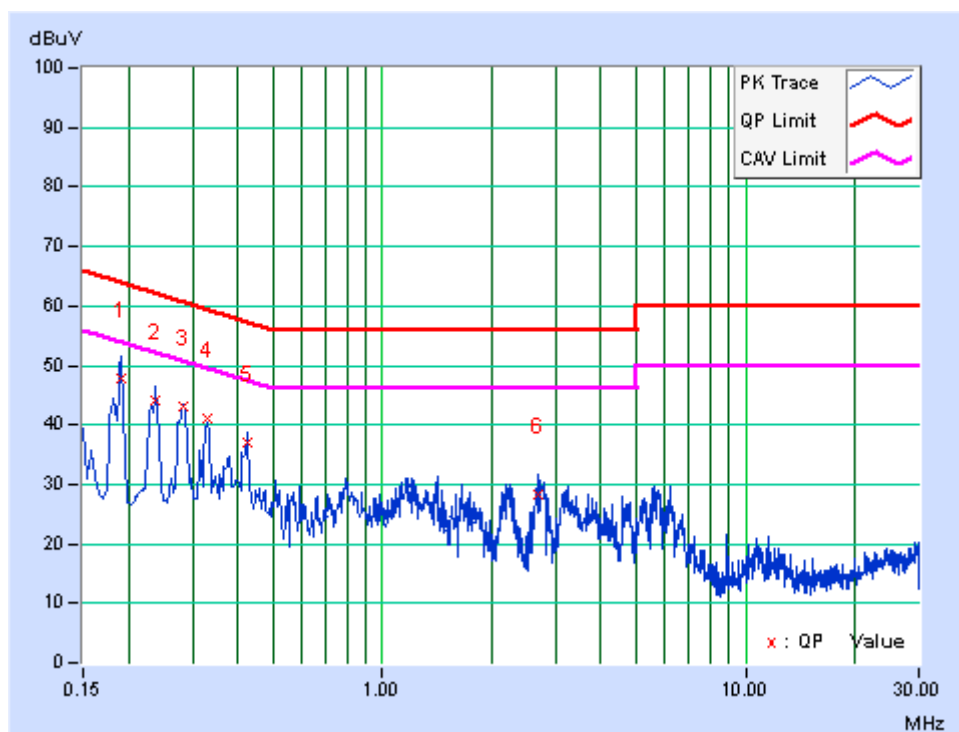
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 802.11g-CH11

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	0.19	10.56	37.18	24.67	47.74	35.23	64.04	54.04	-16.3	-18.81
2	0.238	10.45	33.62	22.74	44.07	33.19	62.17	52.17	-18.1	-18.98
3	0.28228	10.45	32.57	24	43.02	34.45	60.75	50.75	-17.73	-16.3
4	0.32975	10.46	30.56	21.53	41.02	31.99	59.46	49.46	-18.44	-17.47
5	0.42577	10.34	26.61	19.23	36.95	29.57	57.33	47.33	-20.39	-17.77
6	2.694	9.91	18.27	7.11	28.18	17.02	56	46	-27.82	-28.98

- 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.

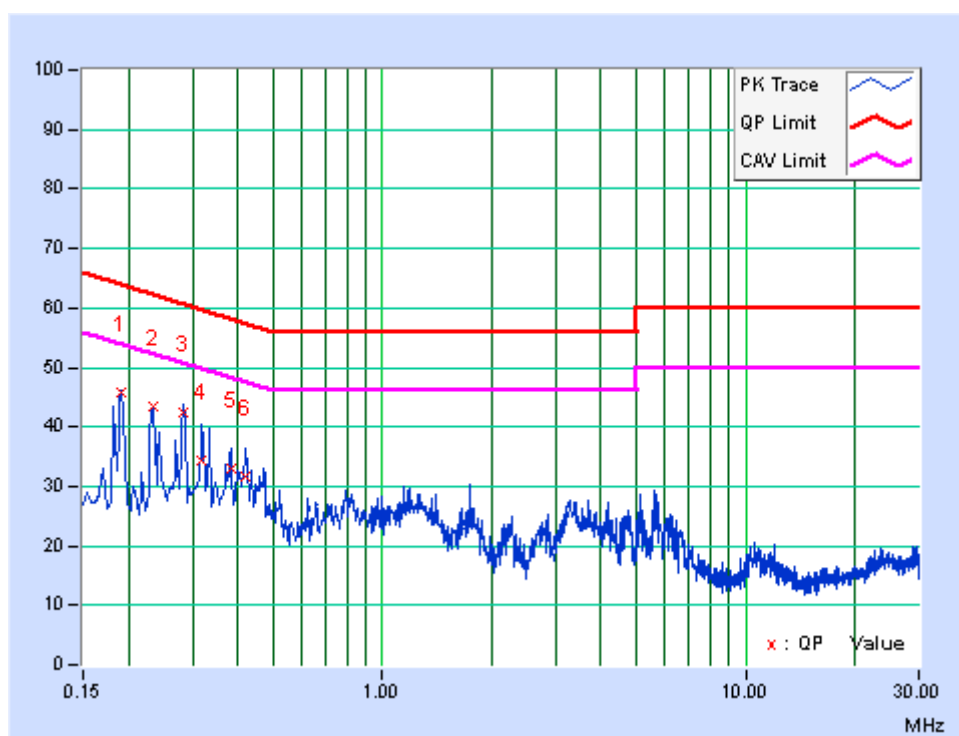




PHASE	Neutral	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19013	10.45	35.27	21.74	45.72	32.19	64.03	54.03	-18.31	-21.84
2	0.234	10.38	33.21	20.71	43.59	31.09	62.31	52.31	-18.71	-21.21
3	0.28228	10.42	31.85	19.52	42.27	29.94	60.75	50.75	-18.47	-20.8
4	0.318	10.48	23.92	11.98	34.4	22.46	59.76	49.76	-25.36	-27.3
5	0.38218	10.46	22.49	12.88	32.95	23.34	58.23	48.23	-25.28	-24.89
6	0.422	10.46	21.34	14.9	31.8	25.36	57.41	47.41	-25.61	-22.05

- 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 02,13	May 01,14
EMI Test Receiver	Rohde&Schwarz	ESVD	847398/003	May 15,13	May 14,14
Bilog Antenna (25MHz-2GHz)	Teseq	CBL 6111D	27089	Jul. 16,13	Jul. 15,14
Horn Antenna (1GHz -18GHz)	EMCO	3117	00062558	Oct.18,13	Oct.17,14
Pre-Amplifier (20MHz-3GHz)	EMCI	EMC 330	980095	Nov. 02,12	Nov.01,13
Pre-Amplifier (100MHz-26.5GHz)	Agilent	8449B	3008A00409	May 31,13	May 30,14
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m*8 .8m	NSEMC006	Mar. 24,13	Mar. 23,14
Digital Multimeter	FLUKE	15B	A1220010DG	Jan. 14,13	Jan. 13,14
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Feb. 18,13	Feb. 18,14
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, GRGT/CHINA and NIM/CHINA.

2. The test was performed in Chamber 10m.
3. The FCC Site Registration No. is 502831.



4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

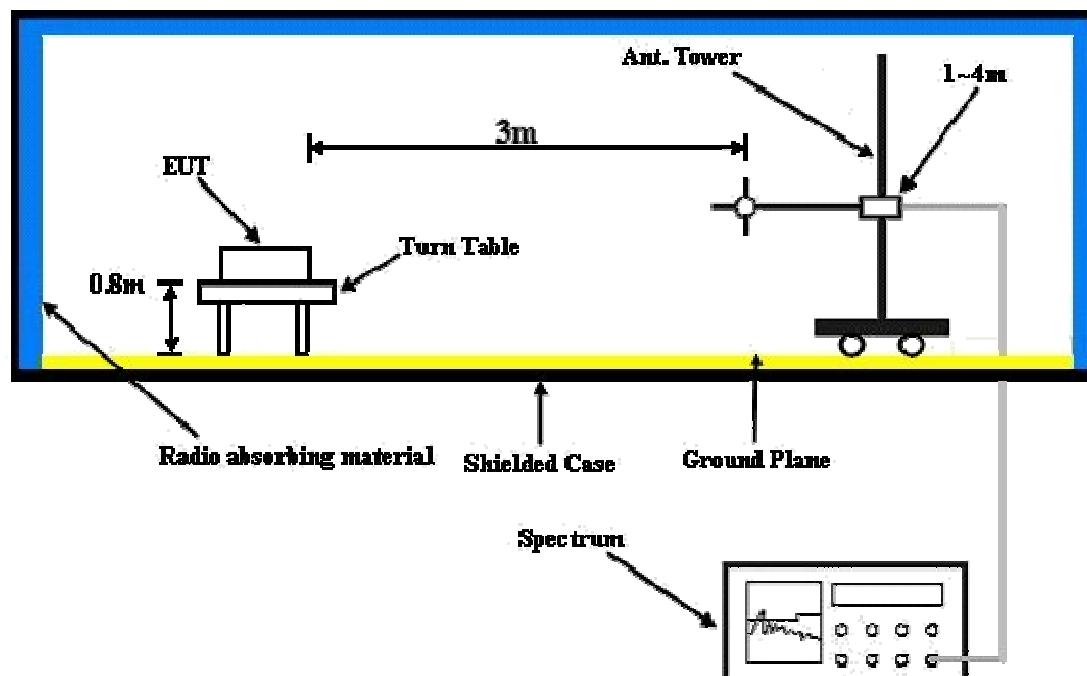
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation



4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

- 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- CH11

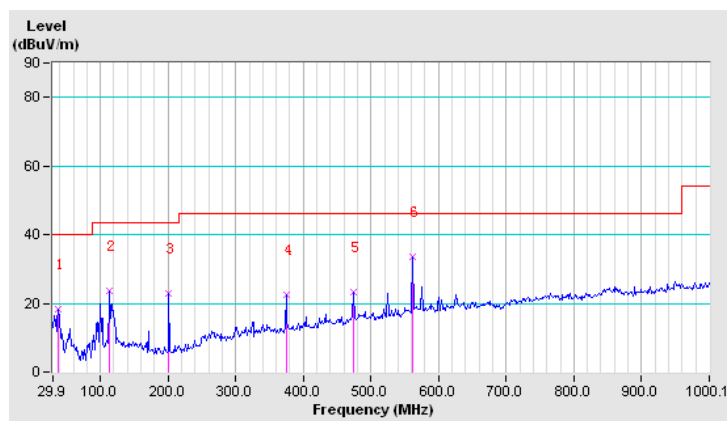
For sample A:

CHANNEL	TX Channel 11	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	37.98	18.3 QP	40.0	-21.7	1.00 H	275	2.70	15.56
2	113.98	23.6 QP	43.5	-19.9	1.00 H	208	11.16	12.46
3	201.30	23.0 QP	43.5	-20.6	1.00 H	259	12.31	10.64
4	374.32	22.4 QP	46.0	-23.6	1.00 H	239	5.01	17.40
5	474.57	23.4 QP	46.0	-22.7	1.00 H	292	3.00	20.35
6	561.89	33.6 QP	46.0	-12.4	1.00 H	186	10.62	22.94

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.



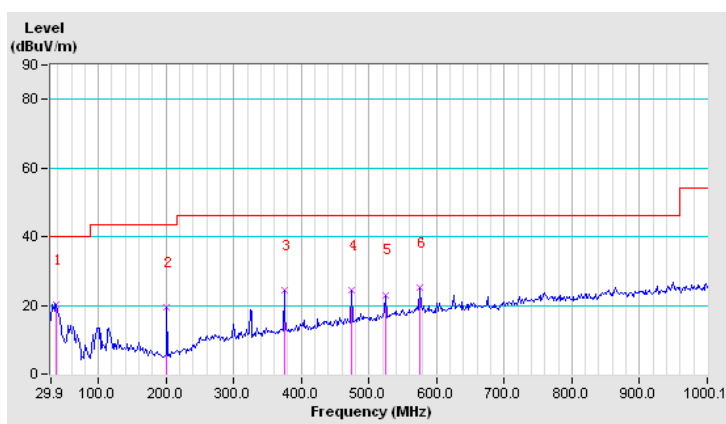


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	37.98	20.3 QP	40.0	-19.7	1.00 V	279	4.77	15.56
2	201.30	19.3 QP	43.5	-24.2	1.00 V	294	8.66	10.64
3	374.32	24.3 QP	46.0	-21.7	1.00 V	308	6.89	17.40
4	474.57	24.4 QP	46.0	-21.6	1.00 V	264	4.01	20.35
5	524.70	23.0 QP	46.0	-23.0	1.00 V	240	1.85	21.18
6	574.83	25.3 QP	46.0	-20.7	1.00 V	322	2.28	23.00

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.





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For sample B:

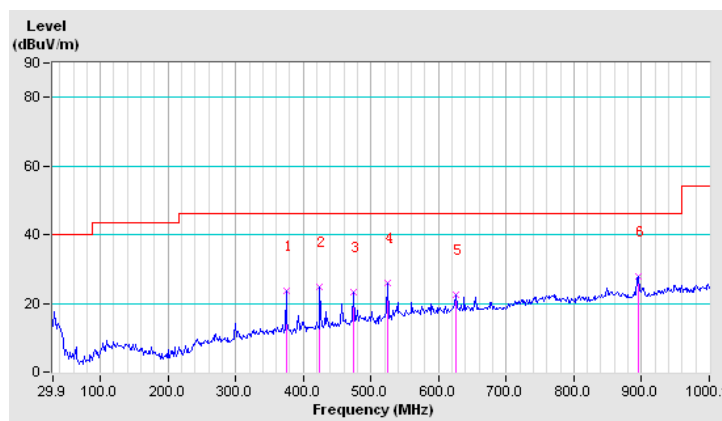
802.11g

CHANNEL	TX Channel 11	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	374.32	23.7 QP	46.0	-22.3	1.00 H	158	6.28	17.40
2	424.45	24.8 QP	46.0	-21.2	1.00 H	83	5.62	19.17
3	474.57	23.1 QP	46.0	-22.9	1.00 H	57	2.74	20.35
4	524.70	26.1 QP	46.0	-19.9	1.00 H	187	4.89	21.18
5	624.96	22.4 QP	46.0	-23.6	1.00 H	22	-1.29	23.71
6	895.00	27.9 QP	46.0	-18.1	1.00 H	101	0.62	27.25

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.



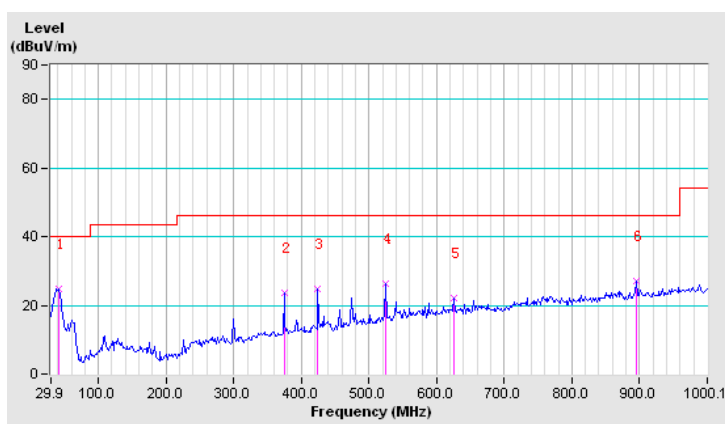


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	41.22	24.8 QP	40.0	-15.2	1.00 V	210	11.09	13.70
2	374.32	23.7 QP	46.0	-22.3	1.00 V	245	6.30	17.40
3	424.45	24.7 QP	46.0	-21.3	1.00 V	192	5.54	19.17
4	524.70	26.3 QP	46.0	-19.7	1.00 V	227	5.16	21.18
5	624.96	22.2 QP	46.0	-23.8	1.00 V	265	-1.50	23.71
6	895.00	27.2 QP	46.0	-18.8	1.00 V	159	-0.09	27.25

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.





For sample A:

ABOVE 1GHz DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	53.6 PK	74.0	-20.4	1.00 H	349	16.35	37.25
2	2390.00	39.1 AV	54.0	-14.9	1.00 H	349	1.85	37.25
3	#2400.00	61.8 PK	83.1	-21.3	1.00 H	349	24.53	37.27
4	#2400.00	55.8 AV	79.2	-23.4	1.00 H	349	18.53	37.27
5	*2412.00	103.1 PK			1.00 H	349	65.81	37.29
6	*2412.00	99.2 AV			1.00 H	349	61.91	37.29
7	4824.00	52.8 PK	74.0	-21.2	1.00 H	343	11.17	41.63
8	4824.00	42.8 AV	54.0	-11.2	1.00 H	343	1.17	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	51.1 PK	74.0	-22.9	1.00 V	24	13.85	37.25
2	2390.00	39.5 AV	54.0	-14.5	1.00 V	24	2.25	37.25
3	#2400.00	62.0 PK	83.9	-21.9	1.00 V	24	24.73	37.27
4	#2400.00	55.1 AV	80.3	-25.2	1.00 V	24	17.83	37.27
5	*2412.00	103.9 PK			1.00 V	24	66.61	37.29
6	*2412.00	100.3 AV			1.00 V	24	63.01	37.29
7	4824.00	50.7 PK	74.0	-23.3	1.00 V	230	9.07	41.63
8	4824.00	37.4 AV	54.0	-16.6	1.00 V	230	-4.23	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.
6. " # ": The radiated frequency is out of the restricted band.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.2 PK			1.00 H	171	65.87	37.33
2	*2437.00	99.2 AV			1.00 H	171	61.87	37.33
3	4874.00	52.6 PK	74.0	-21.4	1.00 H	351	10.91	41.69
4	4874.00	39.9 AV	54.0	-14.1	1.00 H	351	-1.79	41.69
5	7311.00	57.6 PK	74.0	-16.4	1.00 H	247	11.81	45.79
6	7311.00	43.3 AV	54.0	-10.7	1.00 H	247	-2.49	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	103.6 PK			1.00 V	25	66.27	37.33
2	*2437.00	100.2 AV			1.00 V	25	62.87	37.33
3	4874.00	52.2 PK	74.0	-21.8	1.00 V	30	10.51	41.69
4	4874.00	39.3 AV	54.0	-14.7	1.00 V	30	-2.39	41.69
5	7311.00	57.8 PK	74.0	-16.2	1.00 V	352	12.01	45.79
6	7311.00	43.2 AV	54.0	-10.8	1.00 V	352	-2.59	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	103.7 PK			1.00 H	250	66.33	37.37
2	*2462.00	98.2 AV			1.00 H	250	60.83	37.37
3	2483.50	50.5 PK	74.0	-23.5	1.00 H	250	13.09	37.41
4	2483.50	38.9 AV	54.0	-15.1	1.00 H	250	1.49	37.41
5	4924.00	52.3 PK	74.0	-21.7	1.00 H	211	10.54	41.76
6	4924.00	43.5 AV	54.0	-10.5	1.00 H	211	1.74	41.76
7	7386.00	54.5 PK	74.0	-19.5	1.05 H	214	8.69	45.81
8	7386.00	43.2 AV	54.0	-10.8	1.05 H	214	-2.61	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	107.8 PK			1.03 V	173	70.43	37.37
2	*2462.00	104.2 AV			1.03 V	173	66.83	37.37
3	2483.50	53.6 PK	74.0	-20.4	1.03 V	173	16.19	37.41
4	2483.50	43.8 AV	54.0	-10.2	1.03 V	173	6.39	37.41
5	4924.00	51.8 PK	74.0	-22.2	1.00 V	175	10.04	41.76
6	4924.00	37.5 AV	54.0	-16.5	1.00 V	175	-4.26	41.76
7	7386.00	54.6 PK	74.0	-19.4	1.00 V	158	8.79	45.81
8	7386.00	42.8 AV	54.0	-11.2	1.00 V	158	-3.01	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

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	64.1 PK	74.0	-9.9	1.00 H	188	26.85	37.25
2	2390.00	46.8 AV	54.0	-7.2	1.00 H	188	9.55	37.25
3	#2400.00	75.8 PK	82.5	-6.7	1.00 H	188	38.53	37.27
4	#2400.00	58.5 AV	72.3	-13.8	1.00 H	188	21.23	37.27
5	*2412.00	102.5 PK			1.00 H	188	65.21	37.29
6	*2412.00	92.3 AV			1.00 H	188	55.01	37.29
7	4824.00	54.1 PK	74.0	-19.9	1.00 H	150	12.47	41.63
8	4824.00	42.8 AV	54.0	-11.2	1.00 H	150	1.17	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	65.9 PK	74.0	-8.1	1.03 V	173	28.65	37.25
2	2390.00	49.0 AV	54.0	-5.0	1.03 V	173	11.75	37.25
3	#2400.00	79.8 PK	86.6	-6.8	1.03 V	173	42.53	37.27
4	#2400.00	63.5 AV	77.2	-13.7	1.03 V	173	26.23	37.27
5	*2412.00	106.6 PK			1.03 V	173	69.31	37.29
6	*2412.00	97.2 AV			1.03 V	173	59.91	37.29
7	4824.00	53.2 PK	74.0	-20.8	1.00 V	210	11.57	41.63
8	4824.00	41.8 AV	54.0	-12.2	1.00 V	210	0.17	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.
6. " # ": The radiated frequency is out of the restricted band.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.7 PK			1.16 H	173	69.37	37.33
2	*2437.00	96.7 AV			1.16 H	173	59.37	37.33
3	4874.00	59.3 PK	74.0	-14.7	1.00 H	214	17.61	41.69
4	4874.00	48.2 AV	54.0	-5.8	1.00 H	214	6.51	41.69
5	7313.00	53.8 PK	74.0	-20.2	1.00 H	200	8.01	45.79
6	7313.00	41.9 AV	54.0	-12.1	1.00 H	200	-3.89	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	104.2 PK			1.00 V	5	66.87	37.33
2	*2437.00	95.0 AV			1.00 V	5	57.67	37.33
3	4874.00	48.2 PK	74.0	-25.8	1.00 V	122	6.51	41.69
4	4874.00	37.2 AV	54.0	-16.8	1.00 V	122	-4.49	41.69
5	7311.00	54.5 PK	74.0	-19.5	1.00 V	125	8.71	45.79
6	7311.00	42.9 AV	54.0	-11.1	1.00 V	125	-2.89	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	102.6 PK			1.00 H	200	65.23	37.37
2	*2462.00	91.8 AV			1.00 H	200	54.43	37.37
3	2483.50	58.8 PK	74.0	-15.2	1.00 H	200	21.39	37.41
4	2483.50	44.3 AV	54.0	-9.7	1.00 H	200	6.89	37.41
5	4924.00	50.3 PK	74.0	-23.7	1.00 H	236	8.54	41.76
6	4924.00	39.8 AV	54.0	-14.2	1.00 H	236	-1.96	41.76
7	7386.00	53.7 PK	74.0	-20.3	1.00 H	205	7.89	45.81
8	7386.00	42.7 AV	54.0	-11.3	1.00 H	205	-3.11	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	106.0 PK			1.00 V	333	68.63	37.37
2	*2462.00	95.9 AV			1.00 V	333	58.53	37.37
3	2483.50	62.2 PK	74.0	-11.8	1.00 V	333	24.79	37.41
4	2483.50	46.2 AV	54.0	-7.8	1.00 V	333	8.81	37.41
5	4924.00	56.3 PK	74.0	-17.7	1.00 V	302	14.54	41.76
6	4924.00	45.9 AV	54.0	-8.1	1.00 V	302	4.14	41.76
7	7386.00	52.7 PK	74.0	-21.3	1.00 V	318	6.89	45.81
8	7386.00	42.3 AV	54.0	-11.7	1.00 V	318	-3.51	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.



BUREAU VERITAS Test Report No.: RF131021N050-1

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	65.6 PK	74.0	-8.4	1.18 H	205	28.35	37.25
2	2390.00	47.3 AV	54.0	-6.7	1.18 H	205	10.05	37.25
3	#2400.00	73.6 PK	83.2	-9.6	1.18 H	204	36.33	37.27
4	#2400.00	57.0 AV	74.3	-17.3	1.18 H	204	19.73	37.27
5	*2412.00	103.2 PK			1.18 H	204	65.91	37.29
6	*2412.00	94.3 AV			1.18 H	204	57.01	37.29
7	4824.00	54.8 PK	74.0	-19.2	1.00 H	210	13.17	41.63
8	4824.00	43.6 AV	54.0	-10.4	1.00 H	210	1.97	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	66.2 PK	74.0	-7.8	1.00 V	300	28.95	37.25
2	2390.00	44.2 AV	54.0	-9.8	1.00 V	300	6.95	37.25
3	#2400.00	72.2 PK	82.3	-10.1	1.00 V	300	34.93	37.27
4	#2400.00	54.9 AV	71.6	-16.7	1.00 V	300	17.63	37.27
5	*2412.00	102.3 PK			1.00 V	300	65.01	37.29
6	*2412.00	91.6 AV			1.00 V	300	54.31	37.29
7	4824.00	52.6 PK	74.0	-21.4	1.00 V	203	10.97	41.63
8	4824.00	41.8 AV	54.0	-12.2	1.00 V	203	0.17	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.
6. " # ": The radiated frequency is out of the restricted band.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.3 PK			1.00 H	206	63.97	37.33
2	*2437.00	90.2 AV			1.00 H	206	52.87	37.33
3	4874.00	50.3 PK	74.0	-23.7	1.00 H	205	8.61	41.69
4	4874.00	49.3 AV	54.0	-4.7	1.00 H	205	7.61	41.69
5	7311.00	54.8 PK	74.0	-19.2	1.00 H	22	9.01	45.79
6	7311.00	43.6 AV	54.0	-10.4	1.00 H	22	-2.19	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	101.9 PK			1.00 V	325	64.57	37.33
2	*2437.00	90.6 AV			1.00 V	325	53.27	37.33
3	4874.00	51.9 PK	74.0	-22.1	1.00 V	336	10.21	41.69
4	4874.00	40.3 AV	54.0	-13.7	1.00 V	336	-1.39	41.69
5	7311.00	55.9 PK	74.0	-18.1	1.00 V	300	10.11	45.79
6	7311.00	44.8 AV	54.0	-9.2	1.00 V	300	-0.99	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.



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	102.9 PK			1.16 H	177	65.53	37.37
2	*2462.00	93.7 AV			1.16 H	177	56.33	37.37
3	2483.50	58.0 PK	74.0	-16.0	1.16 H	177	20.59	37.41
4	2483.50	42.4 AV	54.0	-11.6	1.16 H	177	4.99	37.41
5	4924.00	54.8 PK	74.0	-19.2	1.00 H	187	13.04	41.76
6	4924.00	43.2 AV	54.0	-10.8	1.00 H	187	1.44	41.76
7	7386.00	55.6 PK	74.0	-18.4	1.00 H	190	9.79	45.81
8	7386.00	44.5 AV	54.0	-9.5	1.00 H	190	-1.31	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	102.5 PK			1.00 V	359	65.13	37.37
2	*2462.00	91.5 AV			1.00 V	359	54.13	37.37
3	2483.50	58.2 PK	74.0	-15.8	1.00 V	359	20.79	37.41
4	2483.50	44.6 AV	54.0	-9.4	1.00 V	359	7.19	37.41
5	4924.00	49.8 PK	74.0	-24.2	1.00 V	301	8.04	41.76
6	4924.00	38.9 AV	54.0	-15.1	1.00 V	301	-2.86	41.76
7	7386.00	56.8 PK	74.0	-17.2	1.00 V	322	10.99	45.81
8	7386.00	45.3 AV	54.0	-8.7	1.00 V	322	-0.51	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.



BUREAU VERITAS Test Report No.: RF131021N050-1

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	64.2 PK	74.0	-9.8	1.00 H	179	26.95	37.25
2	2390.00	48.5 AV	54.0	-5.5	1.00 H	179	11.25	37.25
3	#2400.00	66.7 PK	79.7	-13.0	1.00 H	179	29.43	37.27
4	#2400.00	54.2 AV	68.2	-14.0	1.00 H	179	16.93	37.27
5	*2422.00	99.7 PK			1.00 H	179	62.40	37.30
6	*2422.00	88.2 AV			1.00 H	179	50.90	37.30
7	4844.00	49.2 PK	74.0	-24.8	1.00 H	215	7.54	41.66
8	4844.00	38.3 AV	54.0	-15.7	1.00 H	215	-3.36	41.66
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	2390.00	66.7 PK	74.0	-7.3	1.00 V	20	29.45	37.25
2	2390.00	50.9 AV	54.0	-3.1	1.00 V	20	13.65	37.25
3	#2400.00	68.9 PK	82.2	-13.3	1.00 V	20	31.63	37.27
4	#2400.00	55.4 AV	71.8	-16.4	1.00 V	20	18.13	37.27
5	*2422.00	102.2 PK			1.00 V	20	64.90	37.30
6	*2422.00	91.8 AV			1.00 V	20	54.50	37.30
7	4844.00	52.6 PK	74.0	-21.4	1.00 V	100	10.94	41.66
8	4844.00	41.2 AV	54.0	-12.8	1.00 V	100	-0.46	41.66

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.
6. " # ": The radiated frequency is out of the restricted band.



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	97.2 PK			1.00 H	302	59.87	37.33
2	*2437.00	86.9 AV			1.00 H	302	49.57	37.33
3	4874.00	49.5 PK	74.0	-24.5	1.00 H	288	7.81	41.69
4	4874.00	38.9 AV	54.0	-15.1	1.00 H	288	-2.79	41.69
5	7311.00	55.5 PK	74.0	-18.5	1.00 H	284	9.71	45.79
6	7311.00	46.2 AV	54.0	-7.8	1.00 H	284	0.41	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	98.6 PK			1.00 V	143	61.27	37.33
2	*2437.00	88.1 AV			1.00 V	143	50.77	37.33
3	7311.00	54.3 PK	74.0	-19.7	1.00 V	200	8.51	45.79
4	7311.00	44.6 AV	54.0	-9.4	1.00 V	200	-1.19	45.79
5	7874.00	50.6 PK	78.6	-28.0	1.00 V	214	4.39	46.21
6	7874.00	38.7 AV	68.1	-29.4	1.00 V	214	-7.51	46.21

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	96.3 PK			1.16 H	177	58.94	37.36
2	*2452.00	86.4 AV			1.16 H	177	49.04	37.36
3	2483.50	53.2 PK	74.0	-20.8	1.16 H	177	15.79	37.41
4	2483.50	43.6 AV	54.0	-10.4	1.16 H	177	6.19	37.41
5	4904.00	50.8 PK	74.0	-23.2	1.00 H	200	9.07	41.73
6	4904.00	39.2 AV	54.0	-14.8	1.00 H	200	-2.53	41.73
7	7356.00	56.3 PK	74.0	-17.7	1.00 H	203	10.50	45.80
8	7356.00	45.8 AV	54.0	-8.2	1.00 H	203	0.00	45.80
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	*2452.00	98.6 PK			1.00 V	155	61.24	37.36
2	*2452.00	88.8 AV			1.00 V	155	51.44	37.36
3	2483.50	57.4 PK	74.0	-16.6	1.00 V	155	19.99	37.41
4	2483.50	43.6 AV	54.0	-10.4	1.00 V	155	6.19	37.41
5	4904.00	50.3 PK	74.0	-23.7	1.00 V	125	8.57	41.73
6	4904.00	48.8 AV	54.0	-5.2	1.00 V	125	7.07	41.73
7	7356.00	55.8 PK	74.0	-18.2	1.00 V	145	10.00	45.80
8	7356.00	45.2 AV	54.0	-8.8	1.00 V	145	-0.60	45.80

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.



BELOW 1GHz WORST-CASE DATA:

BT-LE (GFSK)

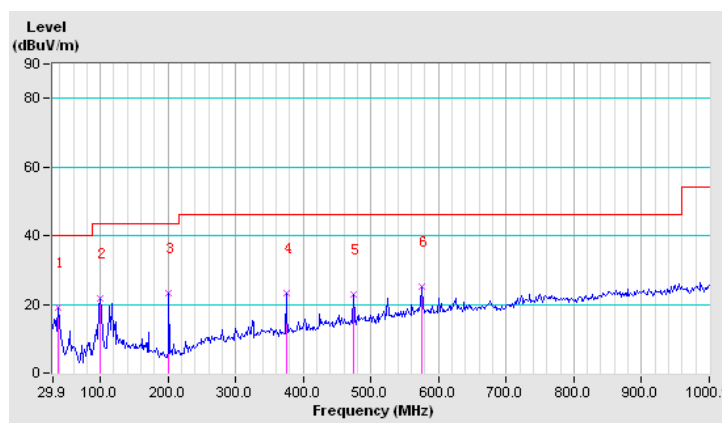
For sample A:

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.98	19.2 QP	40.0	-20.8	1.00 H	241	3.65	15.56
2	99.43	21.7 QP	43.5	-21.8	1.04 H	192	10.48	11.22
3	201.30	23.1 QP	43.5	-20.4	1.00 H	207	12.45	10.64
4	374.32	23.2 QP	46.0	-22.8	1.00 H	271	5.79	17.40
5	474.57	22.9 QP	46.0	-23.1	1.00 H	221	2.51	20.35
6	574.83	25.3 QP	46.0	-20.7	1.00 H	257	2.27	23.00

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.



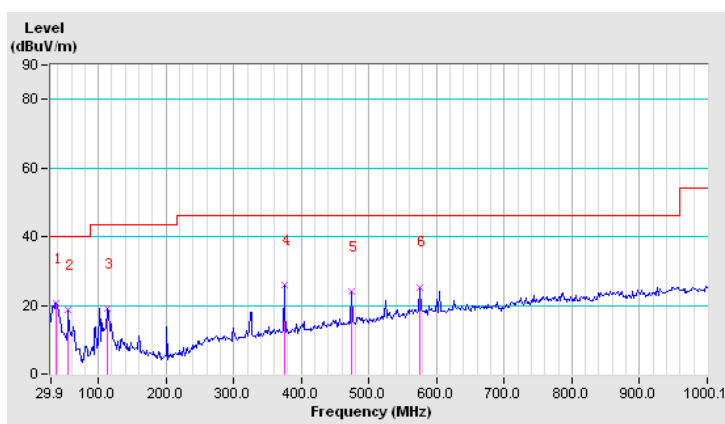


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	37.98	20.7 QP	40.0	-19.3	1.00 V	251	5.17	15.56
2	55.77	18.5 QP	40.0	-21.5	1.00 V	135	9.27	9.25
3	112.37	19.1 QP	43.5	-24.4	1.00 V	167	6.75	12.38
4	374.32	25.9 QP	46.0	-20.1	1.00 V	231	8.50	17.40
5	474.57	23.9 QP	46.0	-22.1	1.00 V	150	3.51	20.35
6	574.83	25.4 QP	46.0	-20.6	1.00 V	204	2.36	23.00

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.





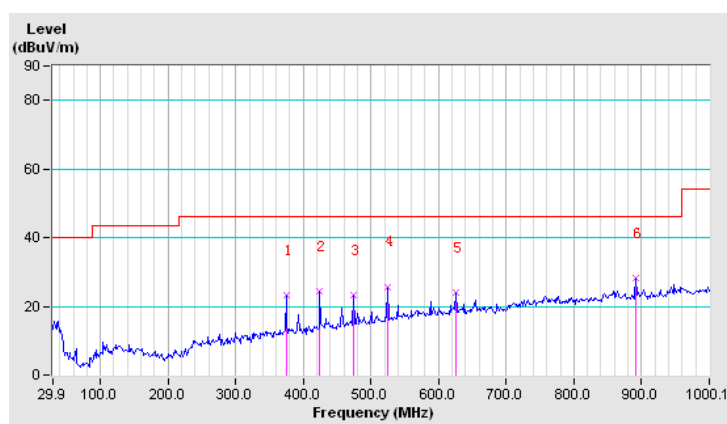
For sample B:

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	374.32	23.4 QP	46.0	-22.7	1.00 H	359	5.95	17.40
2	424.45	24.4 QP	46.0	-21.7	1.00 H	331	5.18	19.17
3	474.57	23.1 QP	46.0	-22.9	1.00 H	0	2.74	20.35
4	524.70	25.7 QP	46.0	-20.3	1.00 H	316	4.56	21.18
5	624.96	24.1 QP	46.0	-21.9	1.00 H	350	0.38	23.71
6	891.76	28.3 QP	46.0	-17.7	1.00 H	299	1.16	27.18

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.



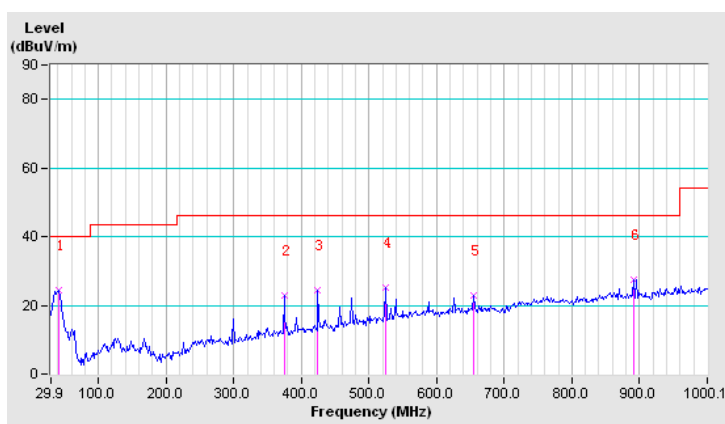


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	41.22	24.2 QP	40.0	-15.8	1.00 V	150	10.53	13.70
2	374.32	22.9 QP	46.0	-23.2	1.00 V	133	5.45	17.40
3	424.45	24.3 QP	46.0	-21.7	1.00 V	167	5.16	19.17
4	524.70	25.2 QP	46.0	-20.8	1.00 V	182	4.06	21.18
5	654.06	23.0 QP	46.0	-23.0	1.00 V	118	-0.95	23.97
6	891.76	27.6 QP	46.0	-18.4	1.00 V	209	0.41	27.18

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.





BUREAU VERITAS Test Report No.: RF131021N050-1

ABOVE 1GHz TEST DATA:

BT-LE (GFSK)

For sample A:

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	45.2 PK	74.0	-28.8	1.21 H	203	7.95	37.25
2	2390.00	43.7 AV	54.0	-10.3	1.21 H	203	6.45	37.25
3	#2400.00	53.3 PK	70.4	-17.1	1.21 H	203	16.03	37.27
4	#2400.00	39.3 AV	47.8	-8.5	1.21 H	203	2.03	37.27
5	*2402.00	90.4 PK			1.21 H	203	53.13	37.27
6	*2402.00	67.8 AV			1.21 H	203	30.53	37.27
7	4804.00	50.7 PK	74.0	-23.3	1.00 H	212	9.09	41.61
8	4804.00	48.8 AV	54.0	-5.2	1.00 H	212	7.19	41.61
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	2390.00	46.3 PK	74.0	-27.7	1.05 V	26	9.05	37.25
2	2390.00	37.6 AV	54.0	-16.4	1.05 V	26	0.35	37.25
3	#2400.00	52.7 PK	69.0	-16.3	1.05 V	26	15.43	37.27
4	#2400.00	38.7 AV	47.5	-8.8	1.05 V	26	1.43	37.27
5	*2402.00	89.0 PK			1.05 V	26	51.73	37.27
6	*2402.00	67.5 AV			1.05 V	26	30.23	37.27
7	4804.00	50.3 PK	74.0	-23.7	1.00 V	122	8.69	41.61
8	4804.00	39.5 AV	54.0	-14.5	1.00 V	122	-2.11	41.61

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.
6. " # ": The radiated frequency is out of the restricted band.



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	87.9 PK			1.00 H	202	50.56	37.34
2	*2440.00	67.1 AV			1.00 H	202	29.76	37.34
3	4880.00	49.3 PK	74.0	-24.7	1.00 H	251	7.60	41.70
4	4880.00	37.6 AV	54.0	-16.4	1.00 H	251	-4.10	41.70
5	7320.00	53.8 PK	74.0	-20.2	1.00 H	231	8.01	45.79
6	7320.00	41.2 AV	54.0	-12.8	1.00 H	231	-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	*2440.00	89.2 PK			1.00 V	350	51.86	37.34
2	*2440.00	36.9 AV			1.00 V	350	-0.44	37.34
3	4880.00	48.8 PK	74.0	-25.2	1.00 V	225	7.10	41.70
4	4880.00	36.8 AV	54.0	-17.2	1.00 V	225	-4.90	41.70
5	7320.00	54.5 PK	74.0	-19.5	1.00 V	211	8.71	45.79
6	7320.00	44.29 AV	54.0	-9.71	1.00 V	211	-1.5	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 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	2483.50	46.2 PK	74.0	-27.8	1.00 H	157	8.79	37.41
2	2483.50	34.9 AV	54.0	-19.1	1.00 H	157	-2.51	37.41
3	2483.50	34.8 AV	54.0	-19.2	1.00 H	157	-2.61	37.41
4	4960.00	48.9 PK	74.0	-25.1	1.00 H	322	7.10	41.80
5	4960.00	37.2 AV	54.0	-16.8	1.00 H	322	-4.60	41.80
6	7440.00	52.7 PK	74.0	-21.3	1.00 H	329	6.88	45.82
7	7440.00	41.5 AV	54.0	-12.5	1.00 H	329	-4.32	45.82
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	89.7 PK			1.00 V	270	52.29	37.41
2	*2480.00	67.1 AV			1.00 V	270	29.69	37.41
3	2483.50	43.3 PK	74.0	-30.7	1.00 V	270	5.89	37.41
4	2483.50	33.9 AV	54.0	-20.1	1.00 V	270	-3.51	37.41
5	4960.00	49.2 PK	74.0	-24.8	1.00 V	239	7.40	41.80
6	4960.00	38.3 AV	54.0	-15.7	1.00 V	239	-3.50	41.80
7	7440.00	53.4 PK	74.0	-20.6	1.00 V	238	7.58	45.82
8	7440.00	41.9 AV	54.0	-12.1	1.00 V	238	-3.92	45.82

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.
5. " * ": Fundamental frequency.



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (9KHz–40GHz)	Agilent	E4446A	MY46180622	Apr. 24,13	Apr. 23,14
Spectrum Analyzer (9KHz-25GHz)	Agilent	E7405A	MY45118807	May 14,13	May 13,14
Power Meter	Anritsu	ML2495A	1139001	Nov. 04,12	Nov. 03,13
Power Sensor	Anritsu	MA2411B	1126068	Nov. 04,12	Nov. 03,13
Digital Multimeter	FLUKE	15B	A1220010D G	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, GRGT/CHINA and NIM/CHINA.

2. The test was performed in Oven room

4.3.3 TEST PROCEDURE

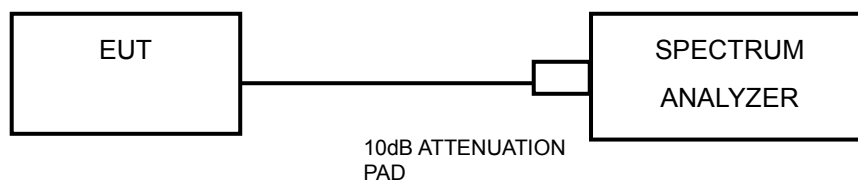
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points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

4.3.4 .DEVIATION FROM TEST STANDARD

No deviation.



4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.13	0.5	PASS
6	2437	9.13	0.5	PASS
11	2462	9.13	0.5	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.36	0.5	PASS
6	2437	16.37	0.5	PASS
11	2462	16.38	0.5	PASS

**802.11n (20MHz)**

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.61	0.5	PASS
6	2437	17.62	0.5	PASS
11	2462	17.62	0.5	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	36.41	0.5	PASS
6	2437	36.41	0.5	PASS
9	2452	36.42	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	0.69	0.5	PASS
39	2480	0.69	0.5	PASS

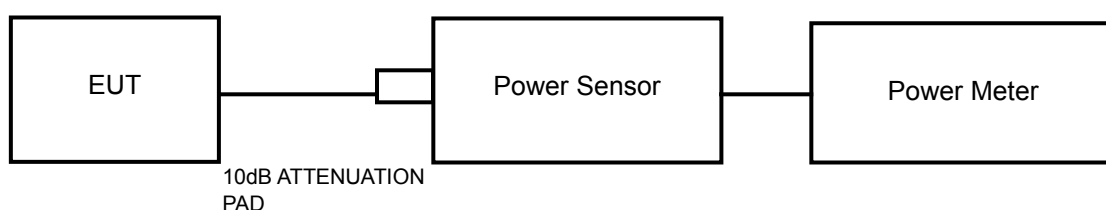


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

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****4.4.7.1 MAXIMUM PEAK OUTPUT POWER****802.11b**

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.09	30	PASS
6	2437	18.05	30	PASS
11	2462	18.44	30	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	21.02	30	PASS
6	2437	21.06	30	PASS
11	2462	21.58	30	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	20.13	30	PASS
6	2437	20.31	30	PASS
11	2462	20.96	30	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
3	2422	20.02	30	PASS
6	2437	20.08	30	PASS
9	2452	20.14	30	PASS



BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
0	2402	-3.63	30	PASS
19	2440	-3.67	30	PASS
39	2480	-2.96	30	PASS

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

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

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	15.34	N/A
6	2437	15.23	N/A
11	2462	15.65	N/A

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	13.15	N/A
6	2437	12.72	N/A
11	2462	13.65	N/A

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	12.03	N/A
6	2437	12.06	N/A
11	2462	12.45	N/A

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
3	2422	11.62	N/A
6	2437	11.75	N/A
9	2452	11.82	N/A



BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
0	2402	-4.61	N/A
19	2440	-4.66	N/A
39	2480	-3.93	N/A

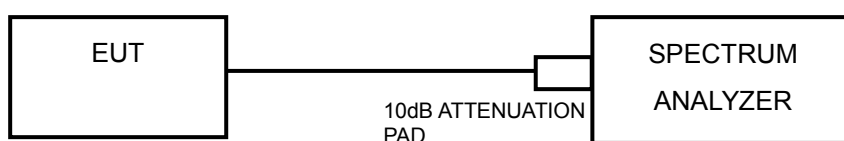


4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

1. Set the 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	-11.78	8	PASS
6	2437	-12.01	8	PASS
11	2462	-11.74	8	PASS

802.11g

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-16.53	8	PASS
6	2437	-17.10	8	PASS
11	2462	-16.99	8	PASS

802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-17.86	8	PASS
6	2437	-18.05	8	PASS
11	2462	-17.47	8	PASS

802.11n (40MHz)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-22.49	8	PASS
6	2437	-22.58	8	PASS
9	2452	-22.26	8	PASS

BT-LE (GFSK)

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-20.66	8	PASS
6	2437	-20.39	8	PASS
9	2452	-19.21	8	PASS

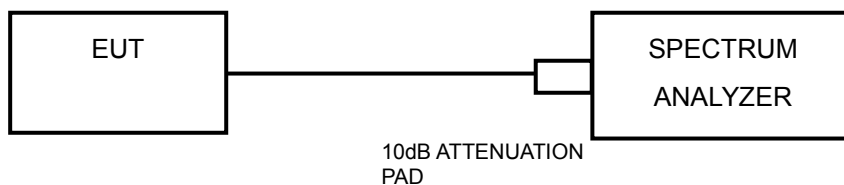


4.6 OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF 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 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

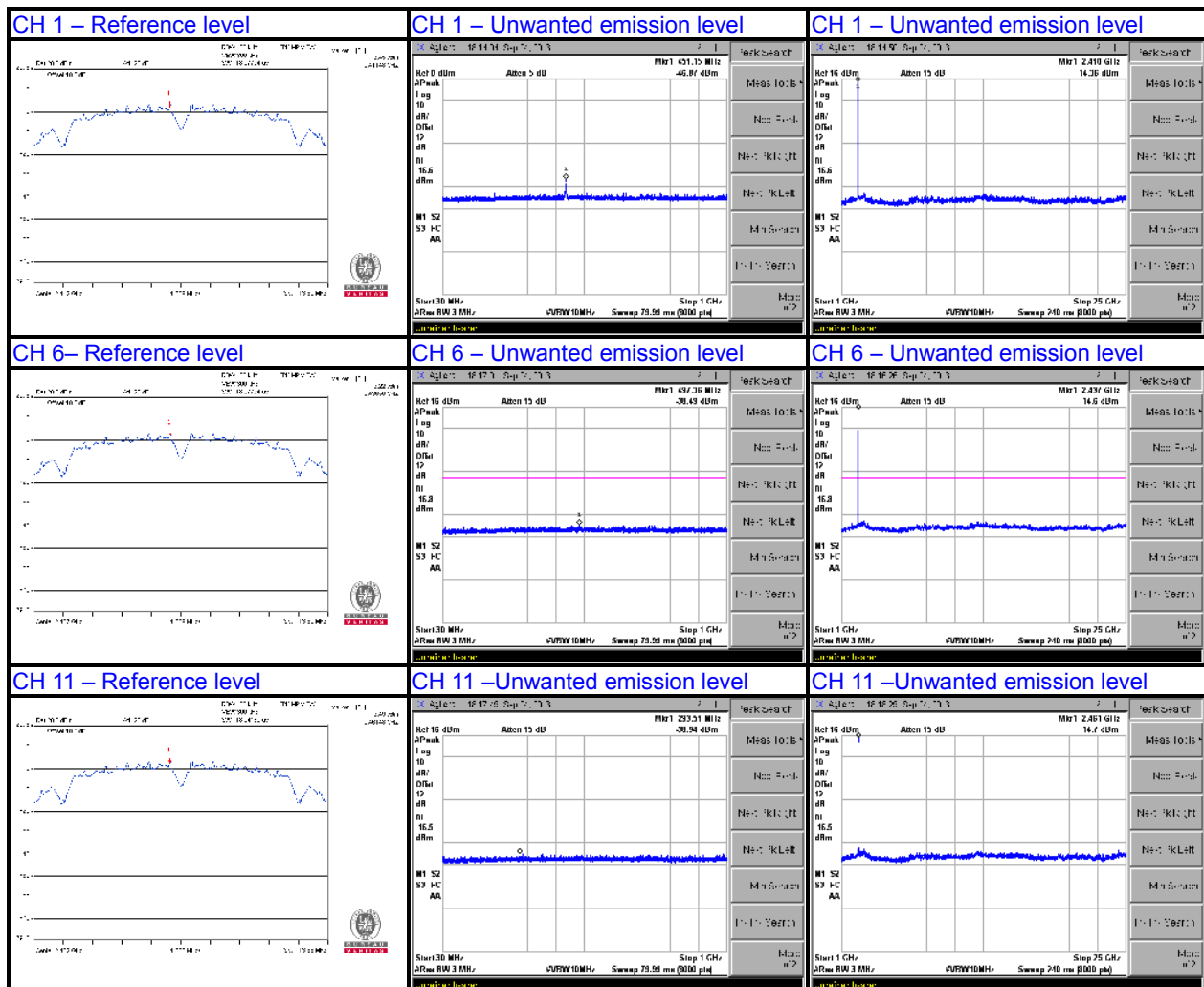


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VERITAS

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4.6.7 TEST RESULTS

802.11b

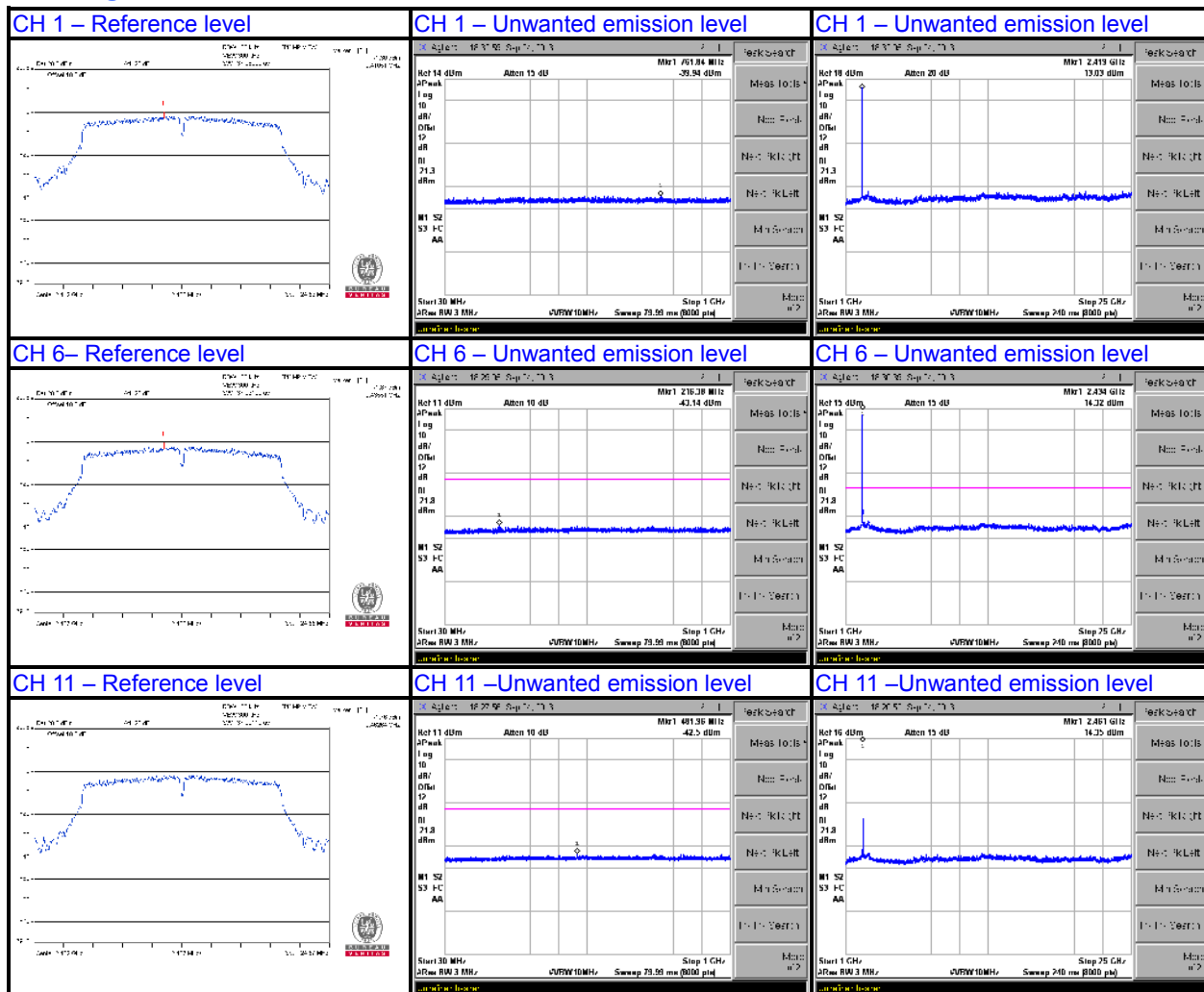




BUREAU
VERITAS

Test Report No.: RF131021N050-1

802.11g

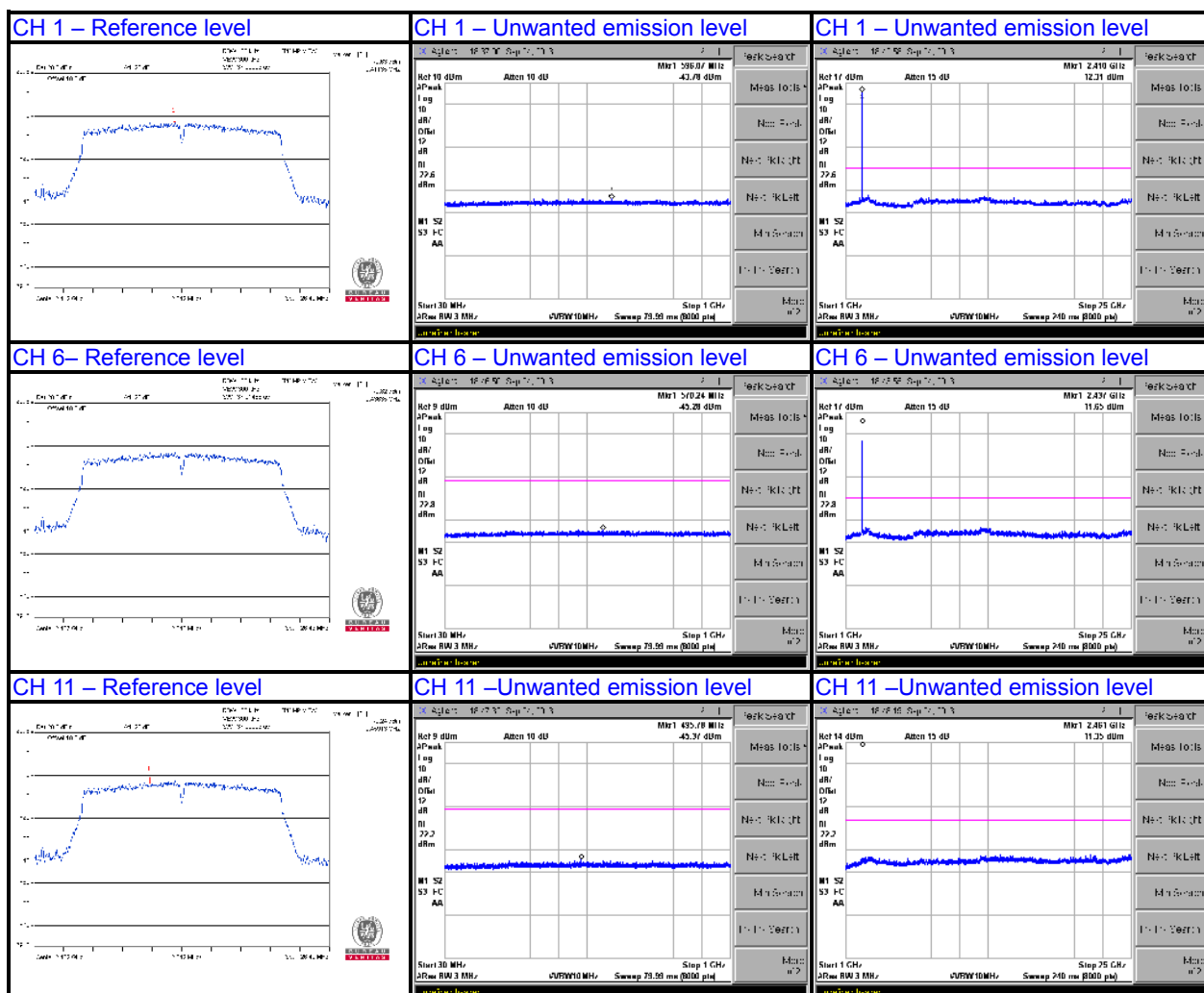




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VERITAS

Test Report No.: RF131021N050-1

802.11n (20MHz)

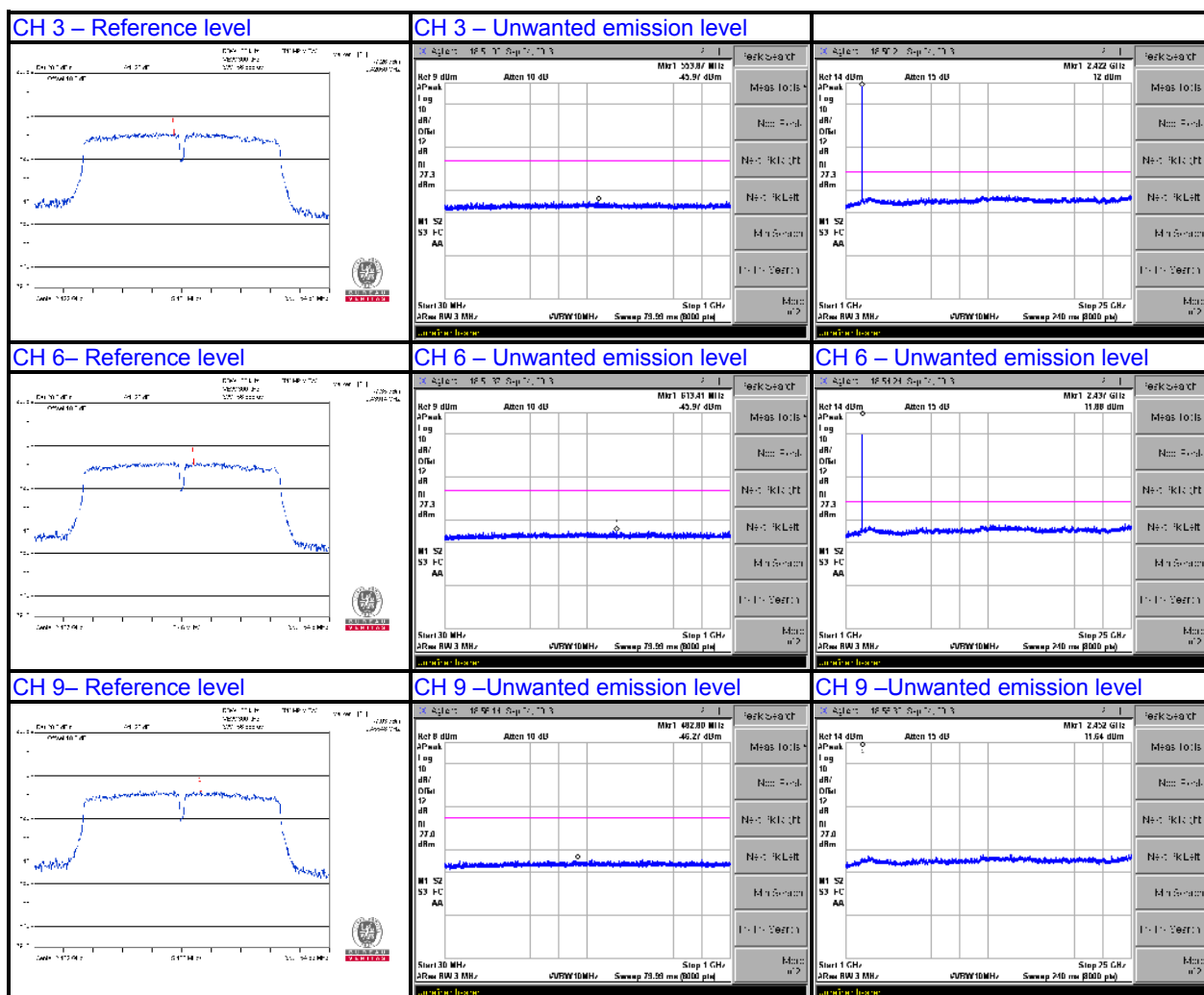




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VERITAS

Test Report No.: RF131021N050-1

802.11n (40MHz)



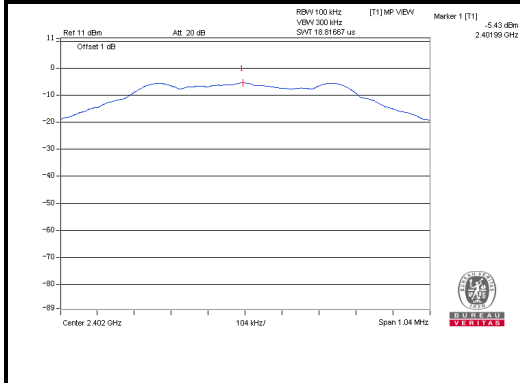


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VERITAS

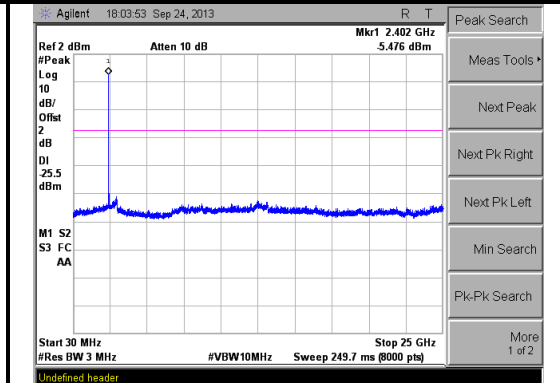
Test Report No.: RF131021N050-1

BT-LE (GFSK)

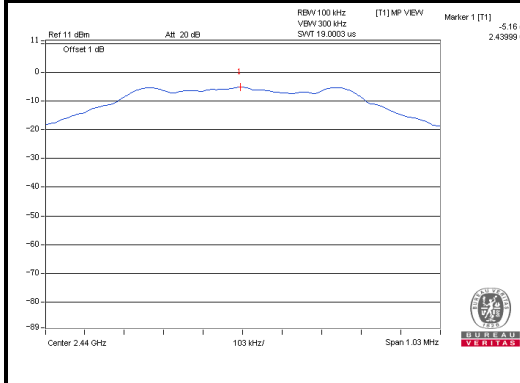
CH 0 – Reference level



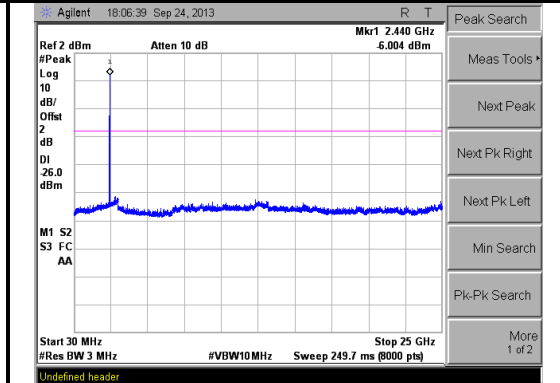
CH 0 – Unwanted emission level



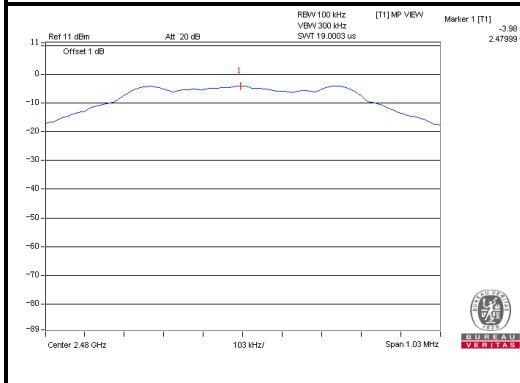
CH 19– Reference level



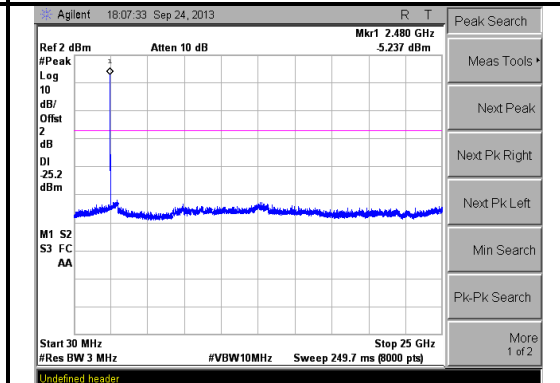
CH 19 – Unwanted emission level



CH 39– Reference level



CH 39 –Unwanted emission level





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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---