

TEST REPORT



Applicant	QBEX Electronics Corporation
Address	1606 NW 84th Ave Miami , FL 33126 .America

Manufacturer or Supplier	SHUOYING INDUSTRIAL (SHENZHEN) CO.,LTD
Address	Shuoying Road, Hebei Industry Area, Dalang, Longhua Town, Baoan, Shenzhen, China.
Product	MID
Brand Name	QBEX
Model	S7916H
Additional Model & Model Difference	N/A
Date of tests	Sep. 12 ~ 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(2012-10)**

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

Tested by Venless Long Project Engineer / EMC Department	Approved by Glyn He Supervisor/ EMC Department
	 Date: 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

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	7
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	7
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS.....	10
3.4 DESCRIPTION OF SUPPORT UNITS.....	10
4 TEST TYPES AND RESULTS.....	11
4.1 CONDUCTED EMISSION MEASUREMENT	11
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	11
4.1.2 TEST INSTRUMENTS.....	11
4.1.3 TEST PROCEDURES	12
4.1.4 DEVIATION FROM TEST STANDARD	12
4.1.5 TEST SETUP	13
4.1.6 EUT OPERATING CONDITIONS	13
4.1.7 TEST RESULTS	14
4.2 RADIATED EMISSION MEASUREMENT	16
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	16
4.2.2 TEST INSTRUMENTS.....	17
4.2.3 TEST PROCEDURES	18
4.2.4 DEVIATION FROM TEST STANDARD	18
4.2.5 TEST SETUP	19
4.2.6 EUT OPERATING CONDITIONS	19
4.2.7 TEST RESULTS	20
4.3 6DB BANDWIDTH MEASUREMENT.....	31
4.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT	31
4.3.2 TEST INSTRUMENTS.....	31
4.3.3 TEST PROCEDURE.....	31



4.3.4	DEVIATION FROM TEST STANDARD	31
4.3.5	TEST SETUP	32
4.3.6	EUT OPERATING CONDITIONS	32
4.3.7	TEST RESULTS	33
4.4	CONDUCTED OUTPUT POWER	36
4.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	36
4.4.2	TEST SETUP	36
4.4.3	TEST INSTRUMENTS	36
4.4.4	TEST PROCEDURES	36
4.4.5	DEVIATION FROM TEST STANDARD	36
4.4.6	EUT OPERATING CONDITIONS	36
4.4.7	TEST RESULTS	37
4.4.7.1	MAXIMUM PEAK OUTPUT POWER	37
4.4.7.2	AVERAGE OUTPUT POWER (FOR REFERENCE)	38
4.5	POWER SPECTRAL DENSITY MEASUREMENT	39
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	39
4.5.2	TEST SETUP	39
4.5.3	TEST INSTRUMENTS	39
4.5.4	TEST PROCEDURE	39
4.5.5	DEVIATION FROM TEST STANDARD	39
4.5.6	EUT OPERATING CONDITION	39
4.5.7	TEST RESULTS	40
4.6	OUT OF BAND EMISSION MEASUREMENT	43
4.6.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT	43
4.6.2	TEST SETUP	43
4.6.3	TEST INSTRUMENTS	43
4.6.4	TEST PROCEDURE	43
4.6.5	DEVIATION FROM TEST STANDARD	44
4.6.6	EUT OPERATING CONDITION	44
4.6.7	TEST RESULTS	45
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	48
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	49



Test Report No.: RF130911N003-3

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130911N003-3	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 -10.96dB at 0.18122MHz
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.0dB at 2483.50MHz
15.247(d)	Out of band Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	WLAN No antenna connector is used

2 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.67dB
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GMHz	4.81dB
	1GHz ~ 18GHz	4.3 dB
	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	MID
MODEL NO.	S7916H
FCC ID	XFM-S7916H1
NOMINAL VOLTAGE	DC3.7V From Battery or DC5V From Adaptor
MODULATION TECHNOLOGY	DSSS, OFDM
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20)
PEAK POWER	15.58dBm (Maximum)
ANTENNA TYPE	Wire antenna with 2.0dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB Line: shielded, detachable 0.8m, with two cores.

NOTE:

1. The EUT provides one transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (HT20)	1TX/1RX

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. The information of the power supply as bellow:

PRODUCT	AC ADAPTER
BRAND	TEKA
MODEL	TEKA012-0502000UK
INPUT	AC 100-240V, 50/60Hz 0.35A MAX.
OUTPUT	DC5V 2A
CABLE	N/A



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 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	√	√	√	-	EUT + Adapter with WIFI link
B	√	-	-	√	EUT + Battery 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



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	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5	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

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	802.11n HT20	1 to 11	1, 6, 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	26deg. C, 56%RH	DC 5V from Adapter	Blue
RE≥1G	26deg. C, 56%RH	DC 5V from Adapter	Blue
PLC	24deg. C, 53%RH	DC 5V from Adapter	Endy
APCM	25deg. C, 58%RH	DC 3.7V from Battery	Venless Long



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

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

558074 D01 DTS Meas Guidance v03r01

ANSI C63.10-2009

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

NOTE: 1. All test items have been performed and recorded as per the above standards.

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

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	E6420	9H12FS1	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line :Unshielded, Detachable,1.0m;DC Line: Unshielded, Undetachable, 2.0m



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_Conc_V7.3.7	N/A	N/A	N/A

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

4.1.3 TEST PROCEDURES

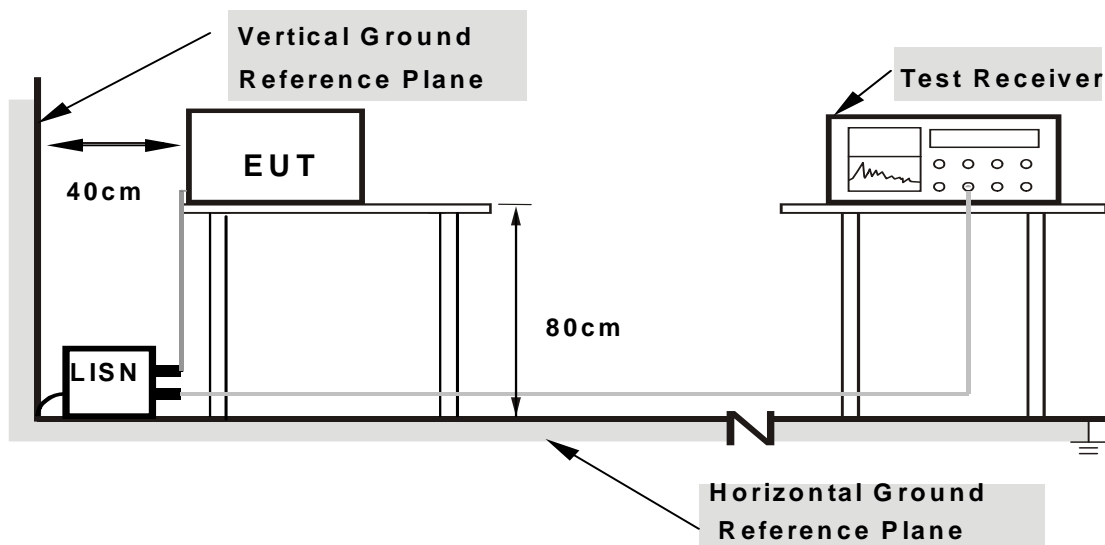
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

- a. Turned on the power and connected all equipment.
- b. EUT was operated according to the type described in manufacturer's specifications or the user's manual.



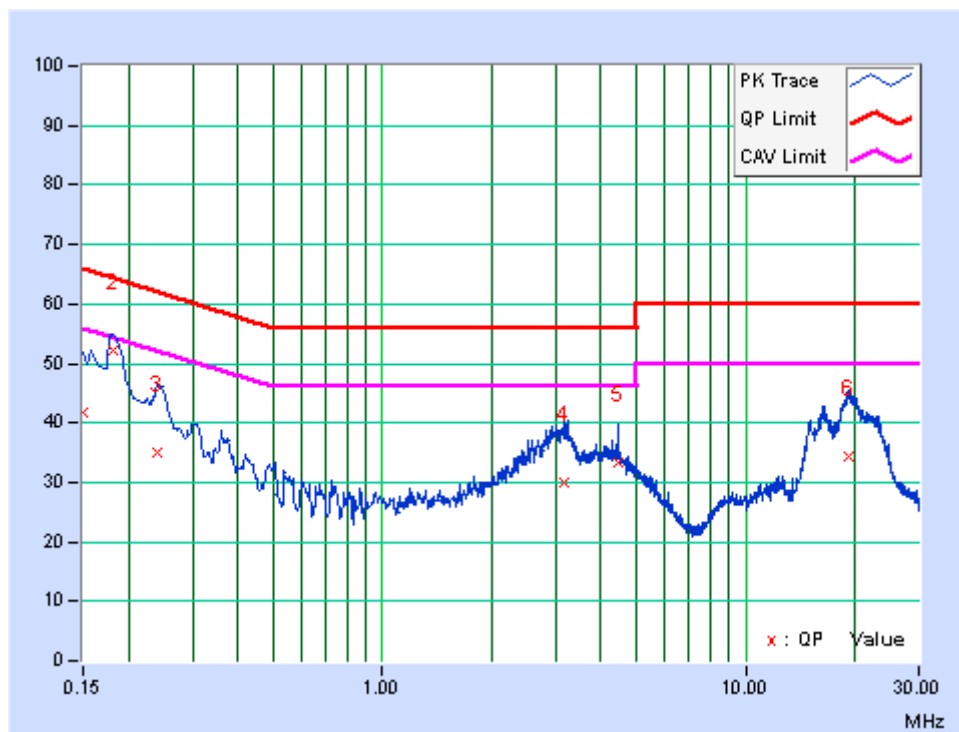
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 802.11g-CH1

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

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	0.15000	10.64	31.02	21.70	41.66	32.34	66.00	56.00	-24.34	-23.66
2	0.18075	10.58	41.49	24.42	52.07	35.00	64.45	54.45	-12.38	-19.45
3	0.23961	10.44	24.48	14.41	34.92	24.85	62.11	52.11	-27.18	-27.25
4	3.18025	9.92	20.08	18.31	30.00	28.23	56.00	46.00	-26.00	-17.77
5	4.45100	9.94	23.31	13.35	33.25	23.29	56.00	46.00	-22.75	-22.71
6	19.17606	10.49	23.80	10.40	34.29	20.89	60.00	50.00	-25.71	-29.11

- 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.





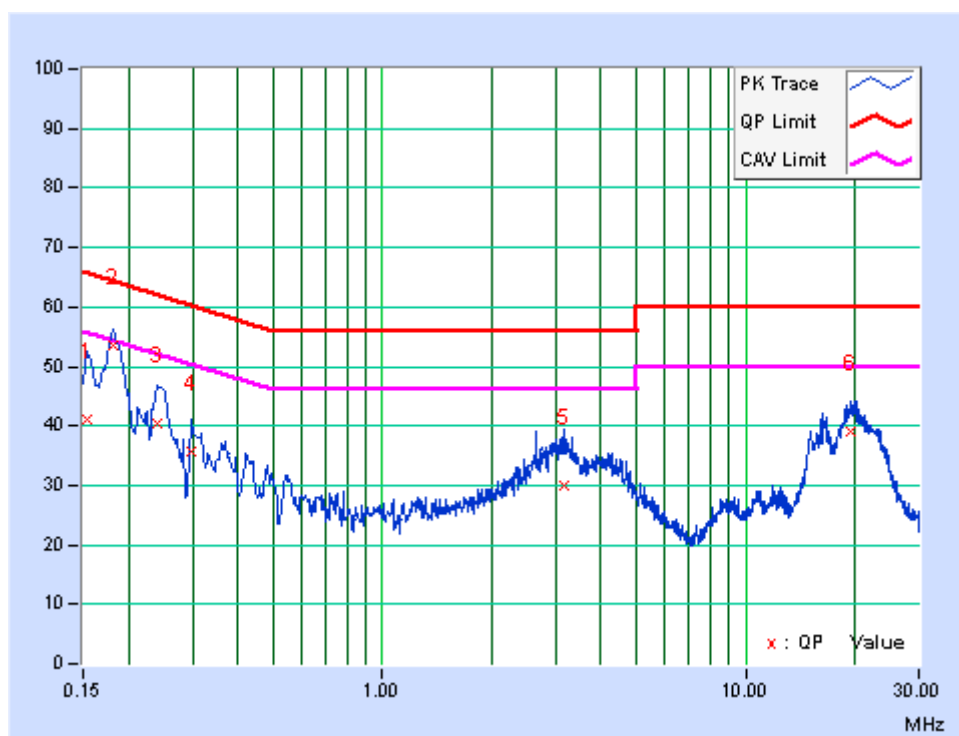
**BUREAU
VERITAS**

Test Report No.: RF130911N003-3

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	0.15391	10.53	30.54	20.12	41.07	30.65	65.79	55.79	-24.71	-25.13
2	0.18122	10.47	43.00	26.92	53.47	37.39	64.43	54.43	-10.96	-17.04
3	0.23961	10.38	30.11	15.31	40.49	25.69	62.11	52.11	-21.62	-26.42
4	0.29858	10.45	25.31	19.75	35.76	30.20	60.28	50.28	-24.52	-20.08
5	3.14897	9.71	20.35	12.03	30.06	21.74	56.00	46.00	-25.94	-24.26
6	19.57488	10.59	28.60	10.40	39.19	20.99	60.00	50.00	-20.81	-29.01

- 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	April 24,13	April 23,14
EMI Test Receiver	Rohde&Schwarz	ESVD	847398/003	May 14,13	May 13,14
Bilog Antenna	Teseq	CBL 6111D	25757	Nov. 22,12	Nov. 21,13
Horn Antenna (1GHz -18GHz)	EMCO	3117	00062558	Oct.18,12	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 14,13	May 13,14
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Jan. 04,11	Jan. 03,14
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,12	Nov. 03,13
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m*8 .8m	NSEMC006	Mar. 24,13	Mar. 23,14
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 31,12	Oct. 30,13
Loop antenna (9kHz~30MHz)	Daze	ZN30900A	0708	Nov. 28,12	Nov. 27,13
Pre-Amplifier (9kHz~1GHz)	SONOMA	310D	186955	Mar. 06,13	Mar. 05,14
Test Software	ADT	ADT_Radiated _V7.6.15	N/A	N/A	N/A

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 2. The test was performed in 10m Chamber.
 3. The horn antenna are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 502831.



4.2.3 TEST PROCEDURES

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

NOTE:

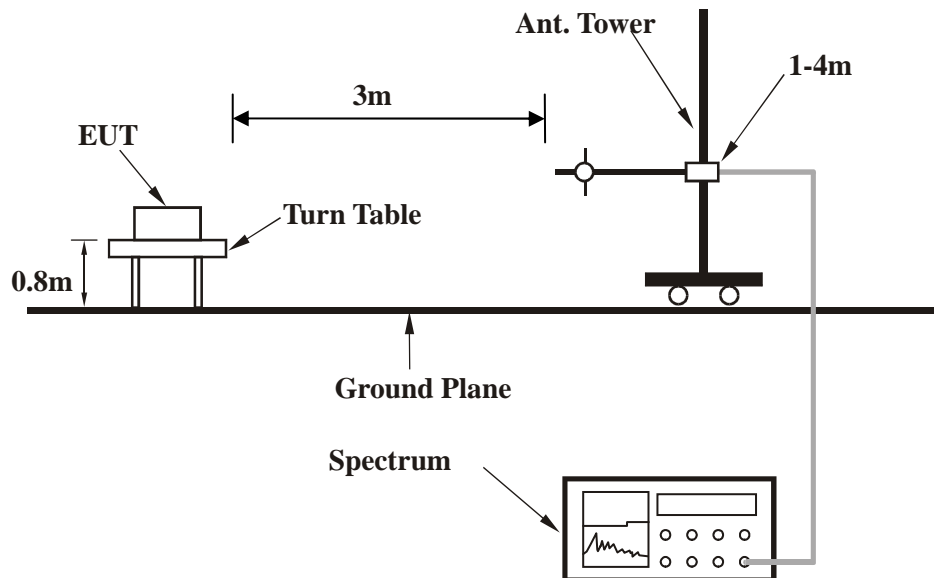
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation



4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

- 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

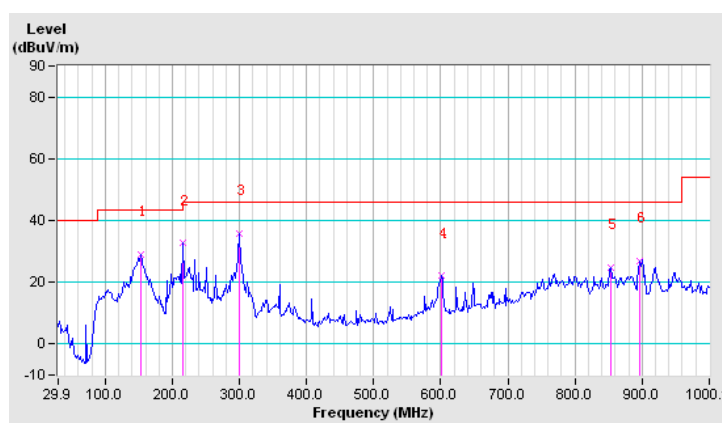
BELOW 1GHz WORST-CASE DATA: 802.11n HT20

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	152.79	28.9 QP	43.5	-14.6	1.00 H	262	16.59	12.27
2	215.85	32.6 QP	43.5	-10.9	1.00 H	296	21.49	11.12
3	299.94	36.0 QP	46.0	-10.0	1.00 H	231	20.59	15.37
4	600.70	22.0 QP	46.0	-24.0	1.00 H	281	-1.25	23.25
5	852.95	25.0 QP	46.0	-21.1	1.00 H	211	-2.21	27.16
6	896.61	26.9 QP	46.0	-19.1	1.00 H	247	-0.39	27.29

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. For the test results, the EUT had been tested from 9KHz ~25GHz. But only the worst case was shown in test report.



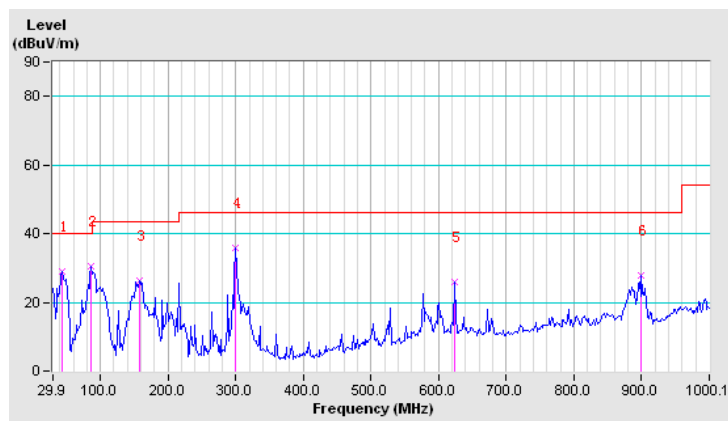


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	42.84	28.9 QP	40.0	-11.1	1.00 V	149	16.13	12.80
2	86.50	30.4 QP	40.0	-9.6	1.00 V	166	21.05	9.38
3	157.64	26.2 QP	43.5	-17.3	1.00 V	188	14.27	11.95
4	299.94	35.7 QP	46.0	-10.3	1.00 V	121	20.32	15.37
5	623.34	25.9 QP	46.0	-20.1	1.00 V	100	2.19	23.68
6	899.85	28.0 QP	46.0	-18.0	1.00 V	85	0.60	27.36

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. For the test results, the EUT had been tested from 9KHz ~25GHz. But only the worst case was shown in test report.





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	50.4 PK	74.0	-23.6	1.00 H	205	13.15	37.25
2	2390.00	37.9 AV	54.0	-16.1	1.00 H	205	0.65	37.25
3	2400.00	58.1 PK	83.1	-25.0	1.00 H	205	20.83	37.27
4	2400.00	47.8 AV	72.7	-24.9	1.00 H	205	10.53	37.27
5	*2412.00	103.1 PK			1.00 H	205	65.81	37.29
6	*2412.00	92.7 AV			1.00 H	205	55.41	37.29
7	4824.00	57.3 PK	74.0	-16.7	1.42 H	338	15.67	41.63
8	4824.00	44.7 AV	54.0	-9.3	1.42 H	338	3.07	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	50.8 PK	74.0	-23.2	1.00 V	326	13.55	37.25
2	2390.00	38.6 AV	54.0	-15.4	1.00 V	326	1.35	37.25
3	2400.00	59.6 PK	84.2	-24.6	1.00 V	326	22.33	37.27
4	2400.00	49.4 AV	73.3	-23.9	1.00 V	326	12.13	37.27
5	*2412.00	104.2 PK			1.00 V	326	66.91	37.29
6	*2412.00	93.3 AV			1.00 V	326	56.01	37.29
7	4824.00	59.1 PK	74.0	-14.9	1.00 V	182	17.47	41.63
8	4824.00	46.4 AV	54.0	-7.6	1.00 V	182	4.77	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	105.2 PK			1.75 H	243	67.87	37.33
2	*2437.00	94.6 AV			1.75 H	243	57.27	37.33
3	4874.00	55.2 PK	74.0	-18.8	1.56 H	233	13.51	41.69
4	4874.00	42.2 AV	54.0	-11.8	1.56 H	233	0.51	41.69
5	7311.00	55.8 PK	74.0	-18.2	1.68 H	208	10.01	45.79
6	7311.00	43.7 AV	54.0	-10.3	1.68 H	208	-2.09	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	103.8 PK			1.00 V	325	66.47	37.33
2	*2437.00	93.1 AV			1.00 V	325	55.77	37.33
3	4874.00	57.7 PK	74.0	-16.3	1.00 V	177	16.01	41.69
4	4874.00	44.4 AV	54.0	-9.6	1.00 V	177	2.71	41.69
5	7311.00	56.8 PK	74.0	-17.2	1.00 V	169	11.01	45.79
6	7311.00	43.5 AV	54.0	-10.5	1.00 V	169	-2.29	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	111.6 PK			1.80 H	240	74.23	37.37
2	*2462.00	100.0 AV			1.80 H	240	62.63	37.37
3	2483.50	64.3 PK	74.0	-9.7	1.80 H	240	26.89	37.41
4	2483.50	50.9 AV	54.0	-3.1	1.80 H	240	13.49	37.41
5	4924.00	54.8 PK	74.0	-19.2	1.80 H	240	13.04	41.76
6	4924.00	42.3 AV	54.0	-11.7	1.80 H	240	0.54	41.76
7	7386.00	57.8 PK	74.0	-16.2	1.80 H	290	11.99	45.81
8	7386.00	44.1 AV	54.0	-9.9	1.80 H	290	-1.71	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	103.1 PK			1.00 V	328	65.73	37.37
2	*2462.00	93.1 AV			1.00 V	328	55.73	37.37
3	2483.50	57.6 PK	74.0	-16.4	1.00 V	328	20.19	37.41
4	2483.50	45.2 AV	54.0	-8.8	1.00 V	328	7.79	37.41
5	4924.00	57.5 PK	74.0	-16.5	1.00 V	180	15.74	41.76
6	4924.00	44.3 AV	54.0	-9.7	1.00 V	180	2.54	41.76
7	7386.00	56.8 PK	74.0	-17.2	1.00 V	273	10.99	45.81
8	7386.00	43.4 AV	54.0	-10.6	1.00 V	273	-2.41	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	68.2 PK	74.0	-5.8	1.00 H	205	30.95	37.25
2	2390.00	45.2 AV	54.0	-8.8	1.00 H	205	7.95	37.25
3	2400.00	76.3 PK	81.2	-4.9	1.00 H	205	39.03	37.27
4	2400.00	50.3 AV	60.9	-10.6	1.00 H	205	13.03	37.27
5	*2412.00	101.2 PK			1.00 H	205	63.91	37.29
6	*2412.00	80.9 AV			1.00 H	205	43.61	37.29
7	4824.00	54.3 PK	74.0	-19.7	1.00 H	321	12.67	41.63
8	4824.00	39.9 AV	54.0	-14.1	1.00 H	321	-1.73	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	70.3 PK	74.0	-3.7	1.00 V	326	33.05	37.25
2	2390.00	45.7 AV	54.0	-8.3	1.00 V	326	8.45	37.25
3	2400.00	77.3 PK	82.3	-5.0	1.00 V	326	40.03	37.27
4	2400.00	51.5 AV	61.7	-10.2	1.00 V	326	14.23	37.27
5	*2412.00	102.3 PK			1.00 V	326	65.01	37.29
6	*2412.00	81.7 AV			1.00 V	326	44.41	37.29
7	4824.00	53.5 PK	74.0	-20.5	1.00 V	178	11.87	41.63
8	4824.00	40.5 AV	54.0	-13.5	1.00 V	178	-1.13	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.



BUREAU
VERITAS

Test Report No.: RF130911N003-3

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	236	63.97	37.33
2	*2437.00	89.6 AV			1.00 H	236	52.27	37.33
3	4874.00	53.8 PK	74.0	-20.2	1.00 H	206	12.11	41.69
4	4874.00	41.6 AV	54.0	-12.4	1.00 H	206	-0.09	41.69
5	7311.00	55.7 PK	74.0	-18.3	1.00 H	262	9.91	45.79
6	7311.00	42.9 AV	54.0	-11.1	1.00 H	262	-2.89	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	101.5 PK			1.00 V	323	64.17	37.33
2	*2437.00	89.9 AV			1.00 V	323	52.57	37.33
3	4874.00	54.2 PK	74.0	-19.8	1.00 V	245	12.51	41.69
4	4874.00	39.8 AV	54.0	-14.2	1.00 V	245	-1.89	41.69
5	7311.00	55.4 PK	74.0	-18.6	1.00 V	168	9.61	45.79
6	7311.00	43.2 AV	54.0	-10.8	1.00 V	168	-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	101.1 PK			1.00 H	205	63.73	37.37
2	*2462.00	79.8 AV			1.00 H	205	42.43	37.37
3	2483.50	70.3 PK	74.0	-3.7	1.00 H	205	32.89	37.41
4	2483.50	46.9 AV	54.0	-7.1	1.00 H	205	9.49	37.41
5	4924.00	53.8 PK	74.0	-20.2	1.00 H	251	12.04	41.76
6	4924.00	40.2 AV	54.0	-13.8	1.00 H	251	-1.56	41.76
7	7386.00	56.4 PK	74.0	-17.6	1.00 H	260	10.59	45.81
8	7386.00	43.6 AV	54.0	-10.4	1.00 H	260	-2.21	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	101.6 PK			1.00 V	328	64.23	37.37
2	*2462.00	79.7 AV			1.00 V	328	42.33	37.37
3	2483.50	71.0 PK	74.0	-3.0	1.00 V	328	33.59	37.41
4	2483.50	47.1 AV	54.0	-6.9	1.00 V	328	9.69	37.41
5	4924.00	54.4 PK	74.0	-19.6	1.00 V	160	12.64	41.76
6	4924.00	39.7 AV	54.0	-14.3	1.00 V	160	-2.06	41.76
7	7386.00	55.7 PK	74.0	-18.3	1.00 V	246	9.89	45.81
8	7386.00	42.9 AV	54.0	-11.1	1.00 V	246	-2.91	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	64.8 PK	74.0	-9.2	1.00 H	208	27.55	37.25
2	2390.00	41.1 AV	54.0	-12.9	1.00 H	208	3.85	37.25
3	2400.00	75.2 PK	81.5	-6.3	1.00 H	208	37.93	37.27
4	2400.00	48.1 AV	59.9	-11.8	1.00 H	208	10.83	37.27
5	*2412.00	101.5 PK			1.00 H	208	64.21	37.29
6	*2412.00	79.9 AV			1.00 H	208	42.61	37.29
7	4824.00	54.7 PK	74.0	-19.3	1.00 H	243	13.07	41.63
8	4824.00	40.5 AV	54.0	-13.5	1.00 H	243	-1.13	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	65.1 PK	74.0	-8.9	1.00 V	327	27.85	37.25
2	2390.00	41.3 AV	54.0	-12.7	1.00 V	327	4.05	37.25
3	2400.00	74.7 PK	81.2	-6.5	1.00 V	327	37.43	37.27
4	2400.00	47.9 AV	59.8	-11.9	1.00 V	327	10.63	37.27
5	*2412.00	101.2 PK			1.00 V	327	63.91	37.29
6	*2412.00	79.8 AV			1.00 V	327	42.51	37.29
7	4824.00	55.3 PK	74.0	-18.7	1.00 V	170	13.67	41.63
8	4824.00	40.9 AV	54.0	-13.1	1.00 V	170	-0.73	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.



**BUREAU
VERITAS**

Test Report No.: RF130911N003-3

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	241	63.97	37.33
2	*2437.00	79.7 AV			1.00 H	241	42.37	37.33
3	4874.00	53.3 PK	74.0	-20.7	1.00 H	262	11.61	41.69
4	4874.00	40.3 AV	54.0	-13.7	1.00 H	262	-1.39	41.69
5	7311.00	54.2 PK	74.0	-19.8	1.00 H	226	8.41	45.79
6	7311.00	42.1 AV	54.0	-11.9	1.00 H	226	-3.69	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	101.6 PK			1.00 V	325	64.27	37.33
2	*2437.00	80.1 AV			1.00 V	325	42.77	37.33
3	4874.00	53.1 PK	74.0	-20.9	1.00 V	296	11.41	41.69
4	4874.00	40.4 AV	54.0	-13.6	1.00 V	296	-1.29	41.69
5	7311.00	55.8 PK	74.0	-18.2	1.00 V	320	10.01	45.79
6	7311.00	42.7 AV	54.0	-11.3	1.00 V	320	-3.09	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	101.6 PK			1.00 H	206	64.23	37.37
2	*2462.00	80.0 AV			1.00 H	206	42.63	37.37
3	2483.50	69.8 PK	74.0	-4.2	1.00 H	206	32.39	37.41
4	2483.50	42.5 AV	54.0	-11.5	1.00 H	206	5.09	37.41
5	4924.00	54.2 PK	74.0	-19.8	1.00 H	258	12.44	41.76
6	4924.00	40.6 AV	54.0	-13.4	1.00 H	258	-1.16	41.76
7	7386.00	55.4 PK	74.0	-18.6	1.00 H	132	9.59	45.81
8	7386.00	42.6 AV	54.0	-11.4	1.00 H	132	-3.21	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	100.9 PK			1.00 V	326	63.53	37.37
2	*2462.00	79.2 AV			1.00 V	326	41.83	37.37
3	2483.50	70.2 PK	74.0	-3.8	1.00 V	326	32.79	37.41
4	2483.50	45.8 AV	54.0	-8.2	1.00 V	326	8.39	37.41
5	4924.00	53.4 PK	74.0	-20.6	1.00 V	266	11.64	41.76
6	4924.00	39.8 AV	54.0	-14.2	1.00 V	266	-1.96	41.76
7	7386.00	56.4 PK	74.0	-17.6	1.00 V	248	10.59	45.81
8	7386.00	42.7 AV	54.0	-11.3	1.00 V	248	-3.11	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
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

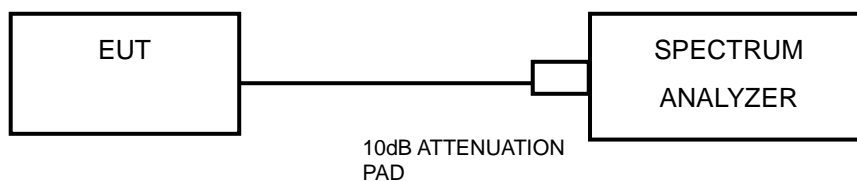
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points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



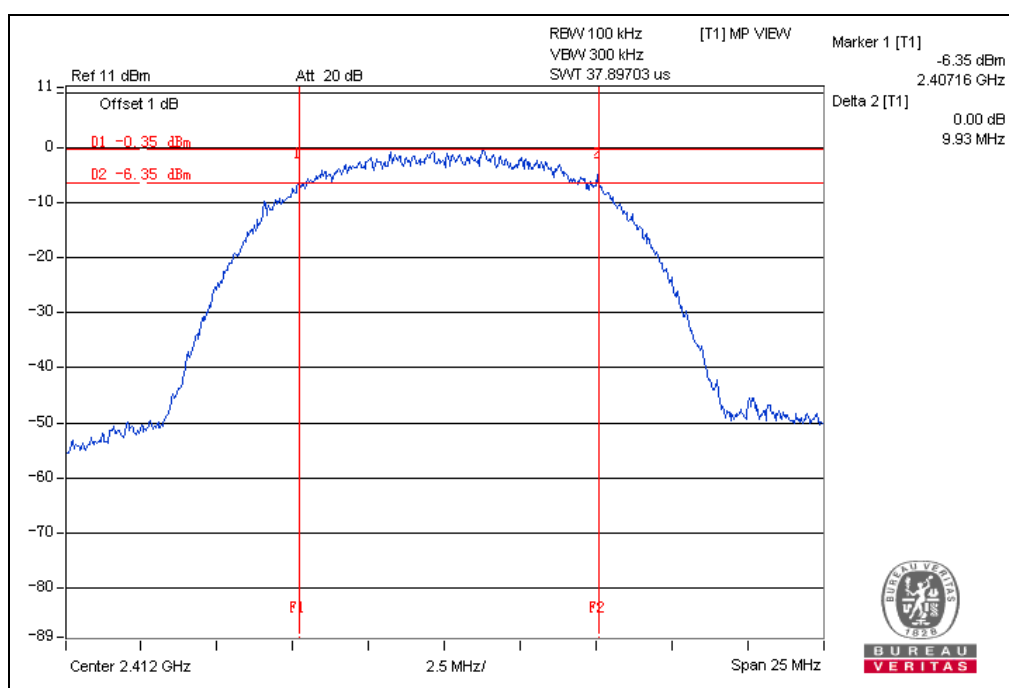
BUREAU
VERITAS

Test Report No.: RF130911N003-3

4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	9.93	0.5	PASS
6	2437	9.06	0.5	PASS
11	2462	9.38	0.5	PASS



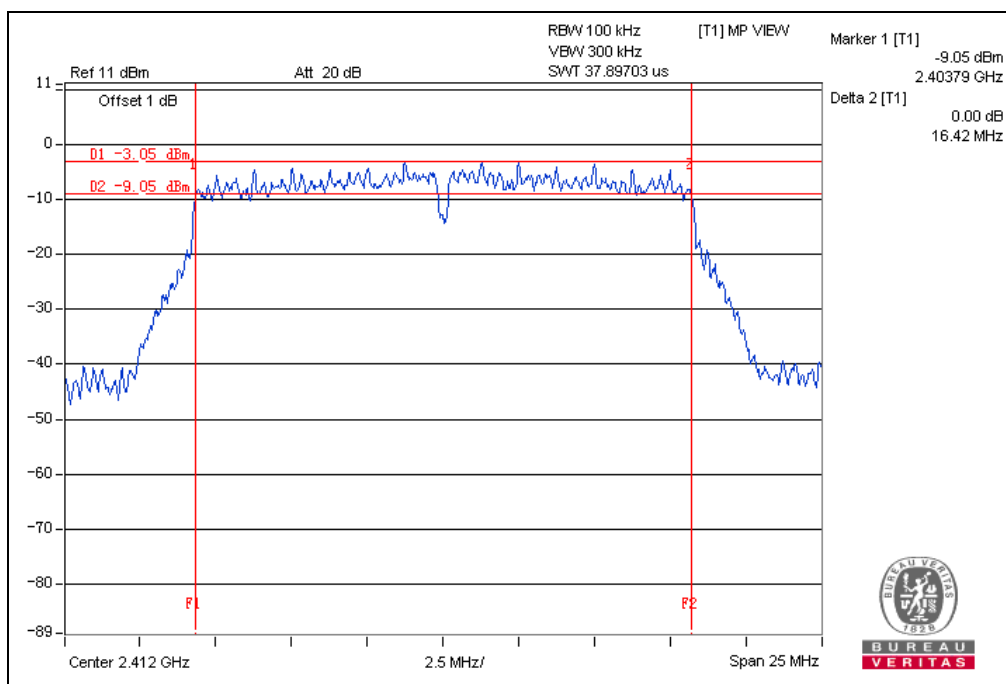


BUREAU
VERITAS

Test Report No.: RF130911N003-3

802.11g

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



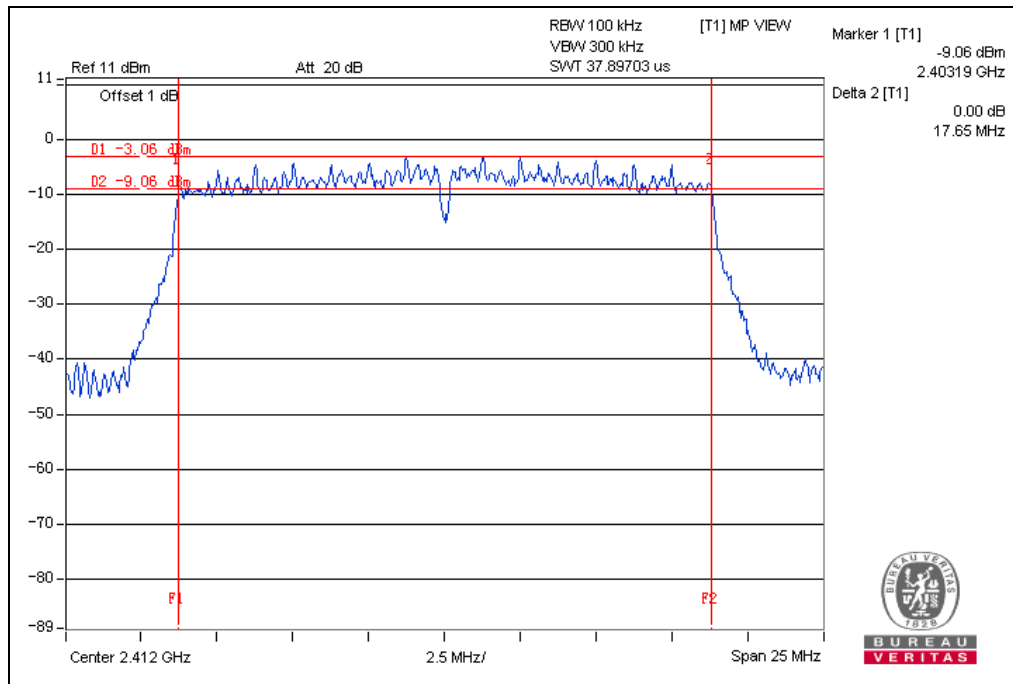


BUREAU
VERITAS

Test Report No.: RF130911N003-3

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.65	0.5	PASS
6	2437	17.63	0.5	PASS
11	2462	17.61	0.5	PASS



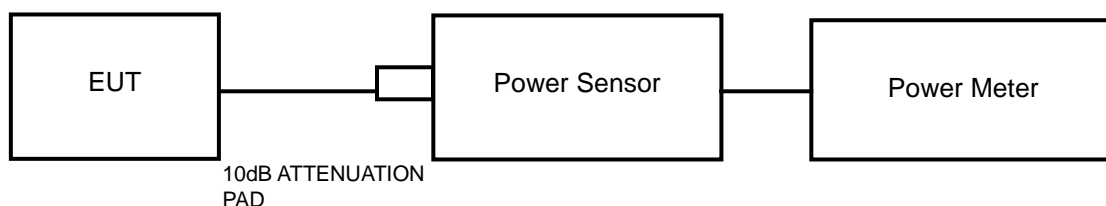


4.4 CONDUCTED OUTPUT POWER

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, GRGT/CHINA and NIM/CHINA.

2. The test was performed in Oven room

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	11.40	30	PASS
6	2437	11.53	30	PASS
11	2462	11.64	30	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	15.36	30	PASS
6	2437	15.44	30	PASS
11	2462	15.52	30	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
1	2412	15.58	30	PASS
6	2437	15.49	30	PASS
11	2462	15.39	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	8.35	N/A
6	2437	8.51	N/A
11	2462	8.68	N/A

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	7.72	N/A
6	2437	7.83	N/A
11	2462	7.95	N/A

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	PASS/FAIL
1	2412	7.54	N/A
6	2437	7.69	N/A
11	2462	7.86	N/A

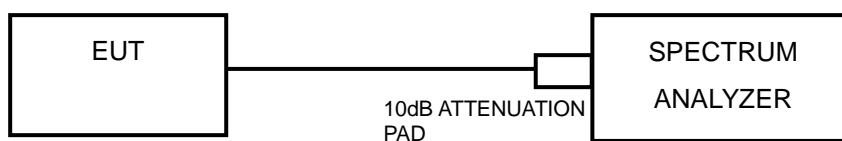


4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

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

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

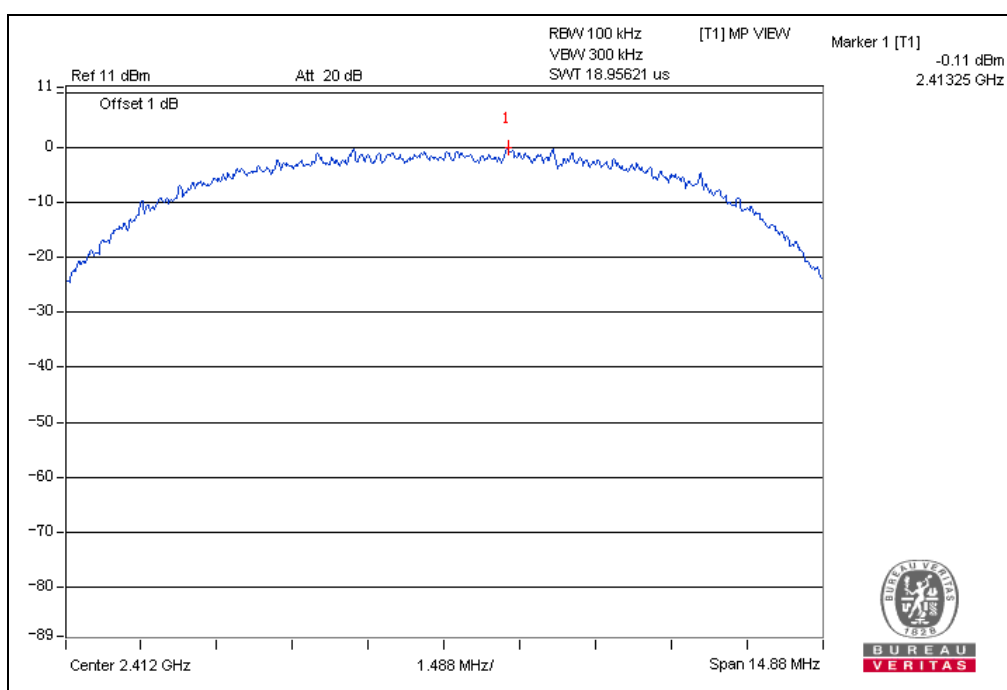
Same as item 4.3.6



4.5.7 TEST RESULTS

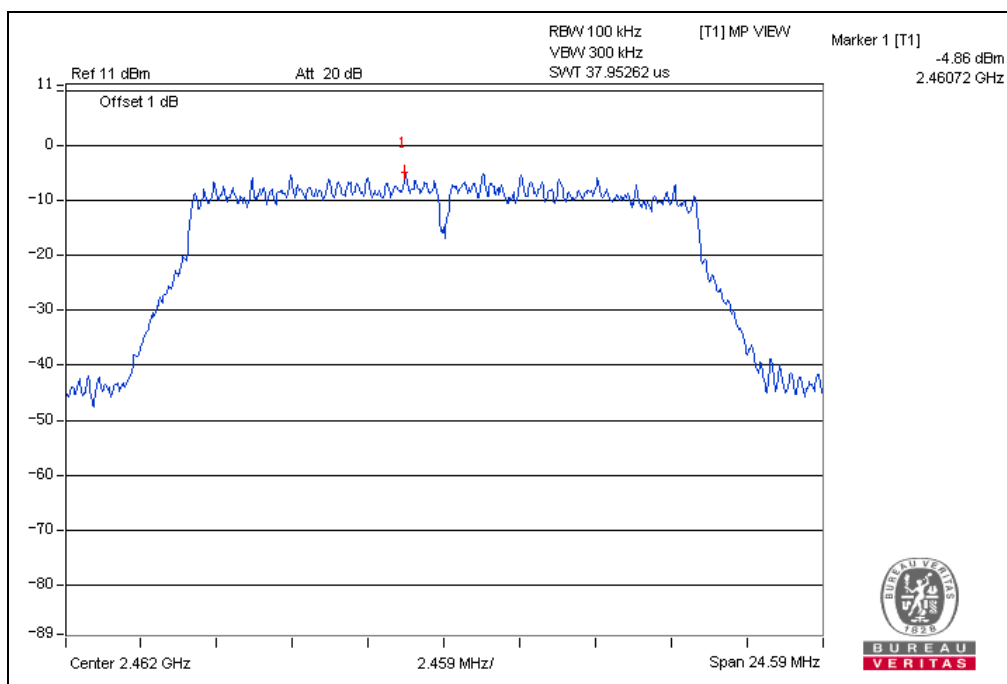
802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-0.11	8	PASS
6	2437	-0.92	8	PASS
11	2462	-1.81	8	PASS



802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-3.11	8	PASS
6	2437	-4.00	8	PASS
11	2462	-4.86	8	PASS



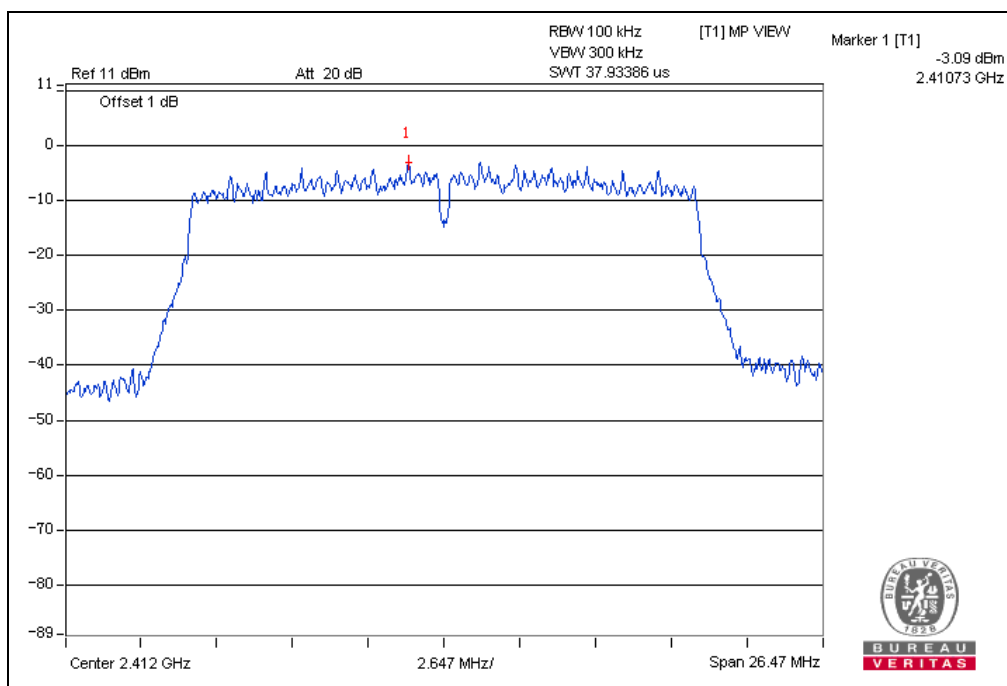


BUREAU
VERITAS

Test Report No.: RF130911N003-3

802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-3.09	8	PASS
6	2437	-3.95	8	PASS
11	2462	-4.78	8	PASS



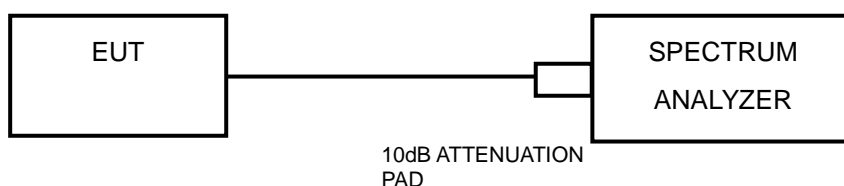


4.6 OUT OF BAND EMISSION MEASUREMENT

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as item 4.3.6

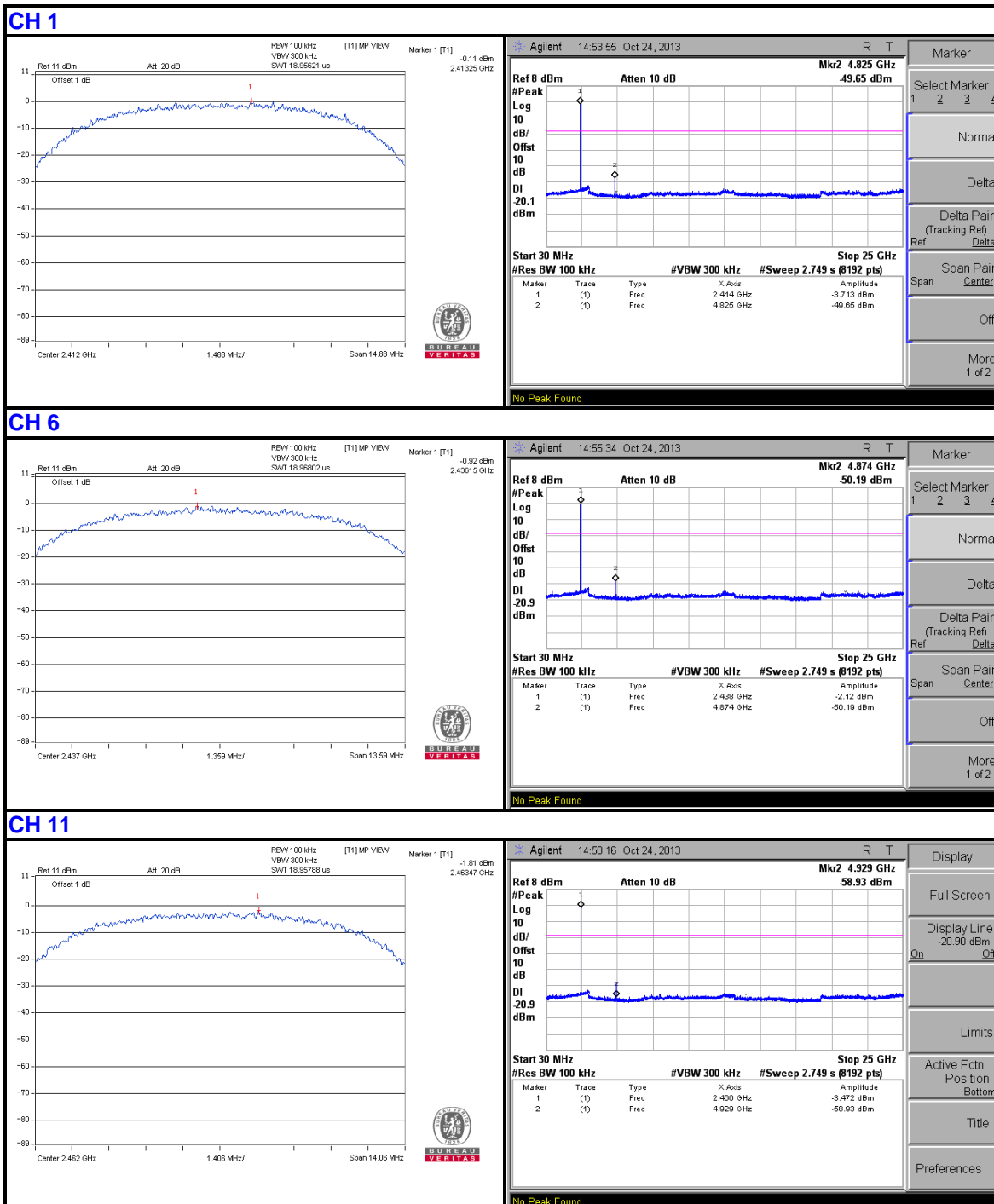


BUREAU
VERITAS

Test Report No.: RF130911N003-3

4.6.7 TEST RESULTS

802.11b



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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

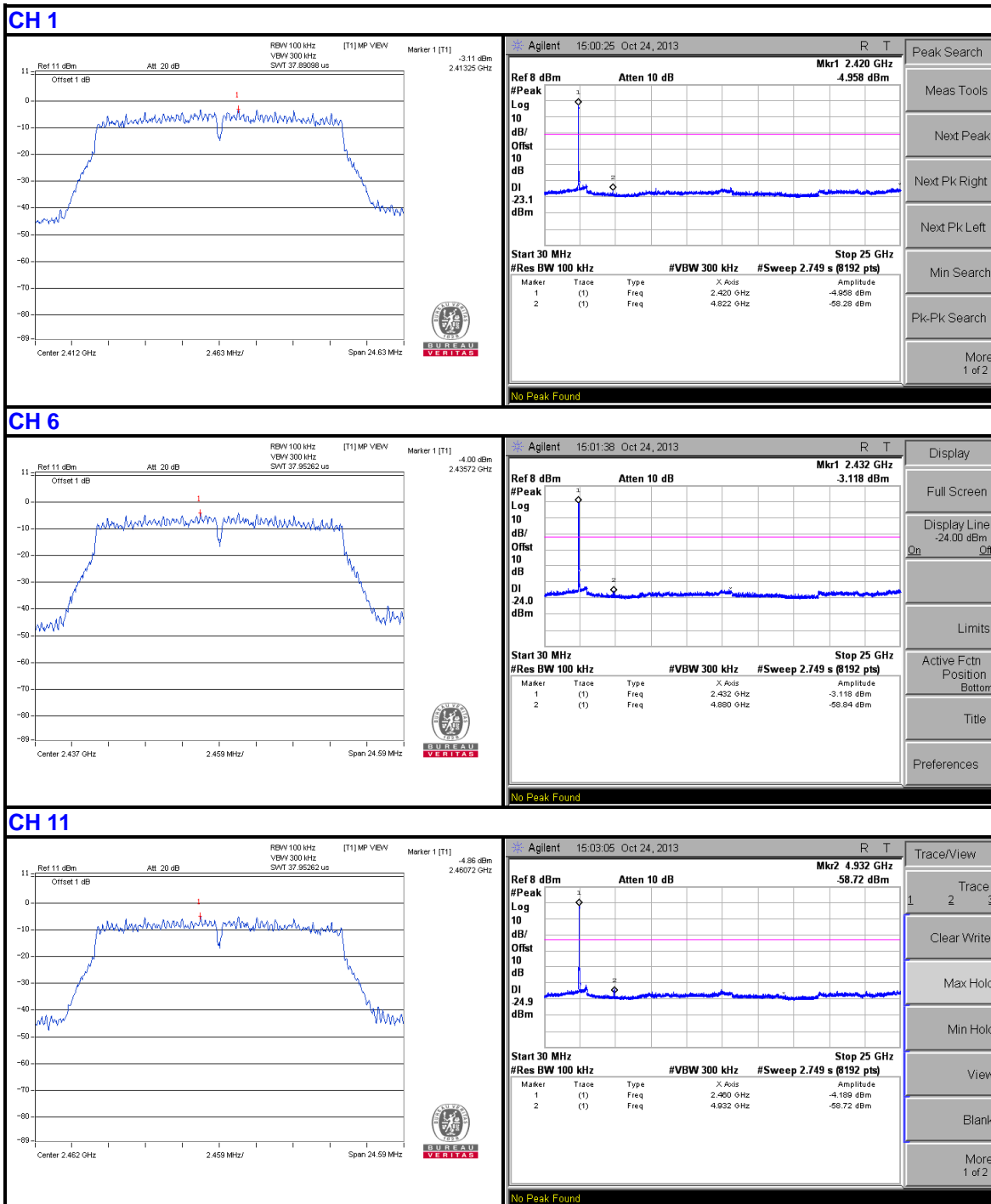
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



BUREAU
VERITAS

Test Report No.: RF130911N003-3

802.11g



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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

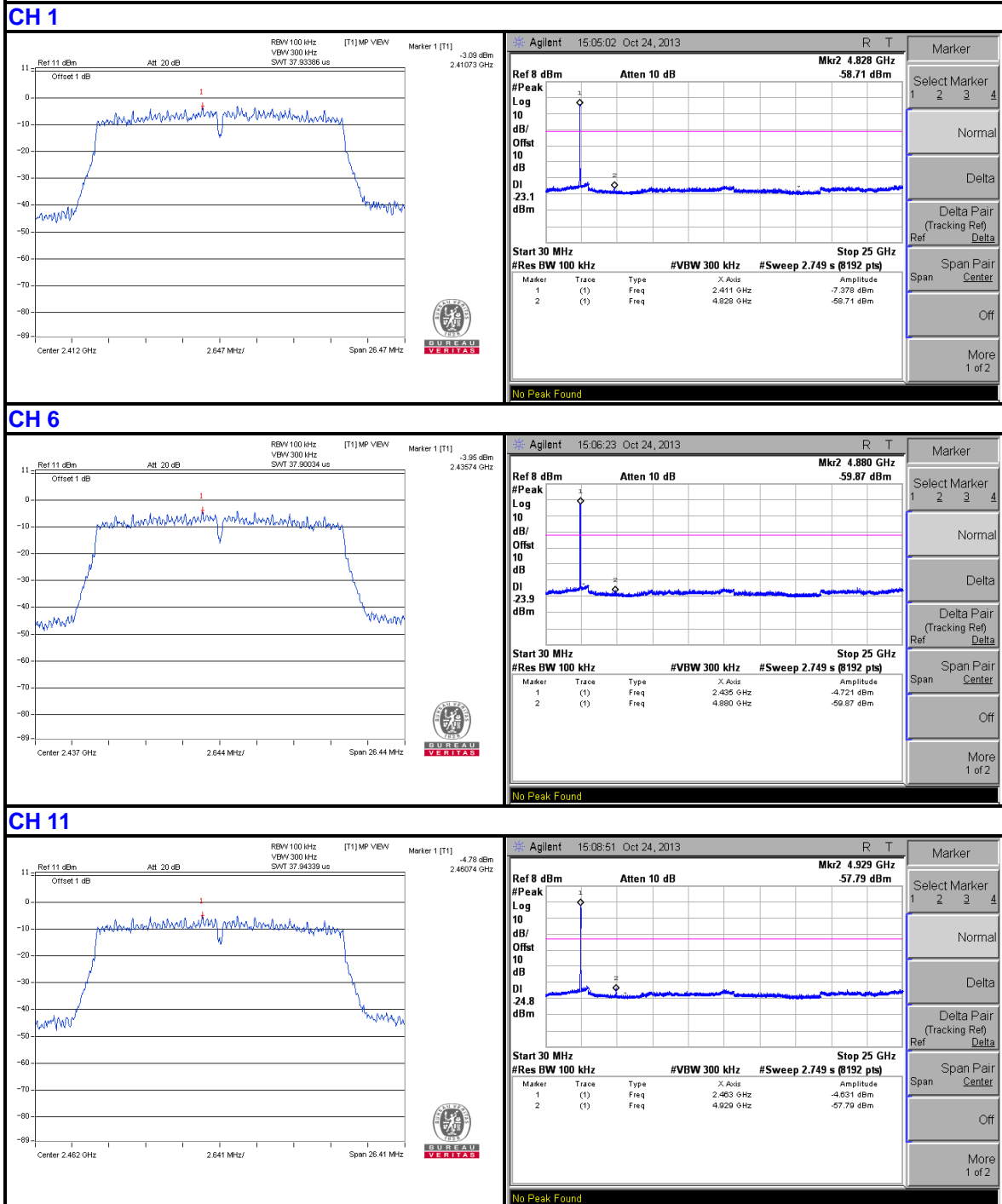
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



BUREAU
VERITAS

Test Report No.: RF130911N003-3

802.11n (20MHz)



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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

Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



Test Report No.: RF130911N003-3

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: RF130911N003-3

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---