

TEST REPORT

Applicant	D-Link Corporation
Address	17595 Mt. Herrmann, Fountain Valley, California, United States, 92708

Manufacturer or Supplier	HUNAN FULLRIVER HIGH TECHNOLOGY CO. , LTD
Address	FullRiver Industrial Area Economic Development Zone LiLing City HuNan Province China
Product	AC1200 MU-MIMO Wi-Fi USB Adapter
Brand Name	D-Link
Model	DWA-182
Additional Model & Model Difference	N/A
Date of tests	Jan. 25, 2017 ~ Aug. 26, 2017

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 Harry Li
Project Engineer/ EMC Department

Approved by Glyn He
Supervisor / EMC Department




Date: Oct. 13, 2017

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS.....	5
2 MEASUREMENT UNCERTAINTY	5
3 GENERAL INFORMATION	6
3.1 GENERAL DESCRIPTION OF EUT.....	6
3.2 DESCRIPTION OF TEST MODES.....	7
3.2.1 CONFIGURATION OF SYSTEM UNDER TEST	8
3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	8
3.3 DUTY CYCLE OF TEST SIGNAL	11
3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS.....	13
3.5 DESCRIPTION OF SUPPORT UNITS.....	13
4 TEST TYPES AND RESULTS.....	14
4.1 CONDUCTED EMISSION MEASUREMENT	14
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	14
4.1.2 TEST INSTRUMENTS.....	14
4.1.3 TEST PROCEDURES	15
4.1.4 DEVIATION FROM TEST STANDARD	15
4.1.5 TEST SETUP.....	16
4.1.6 EUT OPERATING CONDITIONS	16
4.1.7 TEST RESULTS	17
4.2 RADIATED EMISSION MEASUREMENT	19
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	19
4.2.2 TEST INSTRUMENTS.....	20
4.2.3 TEST PROCEDURES	21
4.2.4 DEVIATION FROM TEST STANDARD	21
4.2.5 TEST SETUP.....	22
4.2.6 EUT OPERATING CONDITIONS	23
4.2.7 TEST RESULTS	24
4.3 6DB BANDWIDTH MEASUREMENT.....	38
4.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT	38
4.3.2 TEST INSTRUMENTS.....	38
4.3.3 TEST PROCEDURE.....	38
4.3.4 DEVIATION FROM TEST STANDARD	38
4.3.5 TEST SETUP.....	39
4.3.6 EUT OPERATING CONDITIONS	39



4.3.7	TEST RESULTS	40
4.4	CONDUCTED OUTPUT POWER	44
4.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	44
4.4.2	TEST SETUP	44
4.4.3	TEST INSTRUMENTS.....	44
4.4.4	TEST PROCEDURES	45
4.4.5	DEVIATION FROM TEST STANDARD	45
4.4.6	EUT OPERATING CONDITIONS	45
4.4.7	TEST RESULTS	46
4.5	POWER SPECTRAL DENSITY MEASUREMENT	48
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	48
4.5.2	TEST SETUP	48
4.5.3	TEST INSTRUMENTS.....	48
4.5.4	TEST PROCEDURE.....	48
4.5.5	DEVIATION FROM TEST STANDARD	48
4.5.6	EUT OPERATING CONDITION	49
4.5.7	TEST RESULTS	49
4.6	OUT OF BAND EMISSION MEASUREMENT	53
4.6.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT	53
4.6.2	TEST SETUP	53
4.6.3	TEST INSTRUMENTS.....	53
4.6.4	TEST PROCEDURE.....	53
4.6.5	DEVIATION FROM TEST STANDARD	54
4.6.6	EUT OPERATING CONDITION	54
4.6.7	TEST RESULTS	55
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	67
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	68



Test Report No.: RF170104N010-1

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF170104N010-1	Original release	Oct. 13, 2017



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.
15.247(d) 15.209	Radiated Emissions	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

2 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.70dB
Radiated emissions	9KHz ~ 30MHz	2.90dB
	30MHz ~ 1GMHz	3.83dB
	1GHz ~ 18GHz	4.93dB
	18GHz ~ 40GHz	4.80dB

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	AC1200 MU-MIMO Wi-Fi USB Adapter
MODEL NO.	DWA-182
FCC ID	KA2WA182D1
NOMINAL VOLTAGE	DC 5V From USB
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
AVERAGE POWER	17.47dBm (Measured Average Power)
ANTENNA TYPE	PIFA Antenna; 2.89dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB 3.0 cable 1: Shielding, 1.0m, without core. USB 2.0 cable 2: Shielding, 1.0m, without core.

NOTE:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two transmitters and two receivers.

MODULATION MODE	FUNCTION
802.11b	2TX/2RX
802.11g	2TX/2RX
802.11n (HT20)	2TX/2RX
802.11n (HT40)	2TX/2RX

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. Please refer to the EUT photo document (Reference No.: 170104N010) for detailed product photo.



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		



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	
-	√	√	√	√	Powered by USB 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

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	TESTED CONDITION
-	WIFI (2.4G) Link

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11g	1 to 11	1	OFDM	BPSK	6.0	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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0	X
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	X
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	MCS8	X
802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	MCS8	X

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 11	OFDM	BPSK	MCS0
802.11n HT40	3 to 9	3, 9	OFDM	BPSK	MCS0



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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	24deg. C, 55%RH	DC 5V From USB	Eric Fang
RE≥1G	24deg. C, 55%RH	DC 5V From USB	Eric Fang
PLC	20deg. C, 56%RH	DC 5V From USB	Yang
APCM	20deg. C, 55%RH	DC 5V From USB	Harry Li



BUREAU VERITAS

Test Report No.: RF170104N010-1

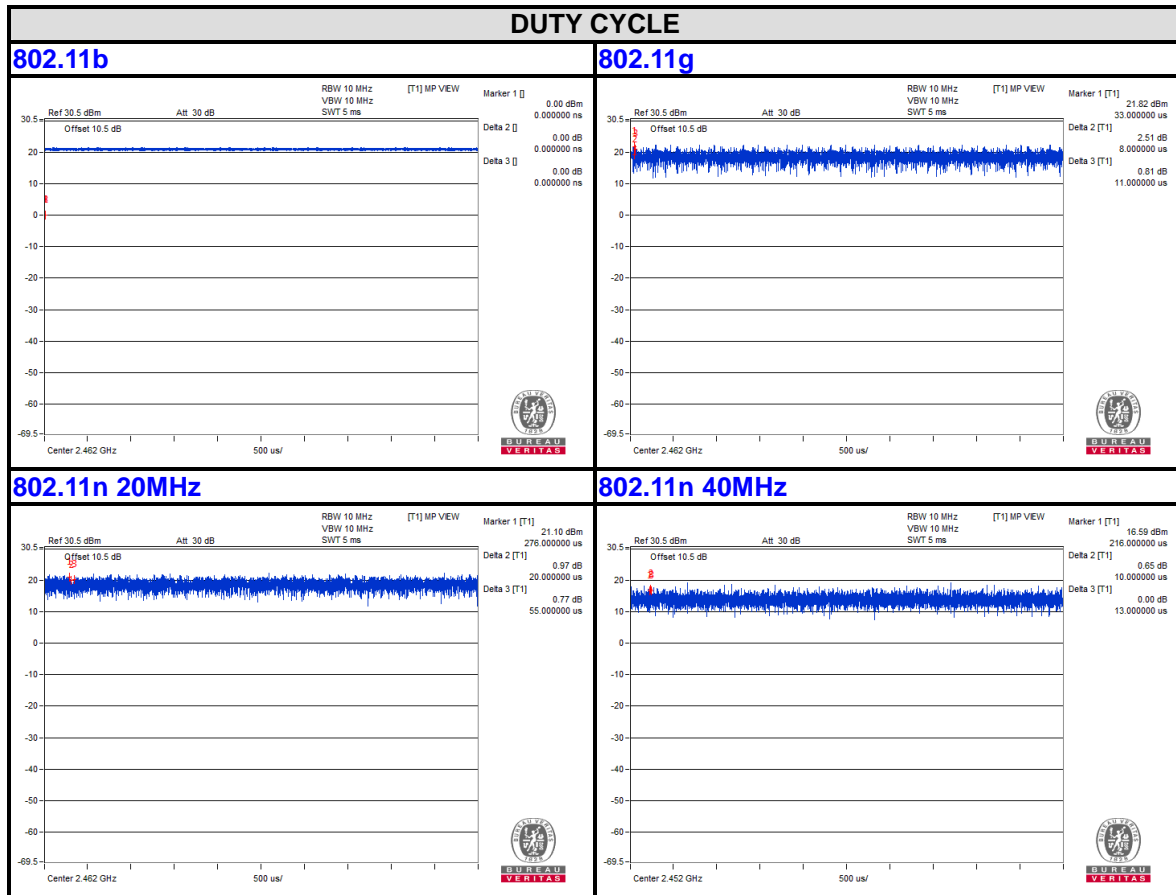
3.3 DUTY CYCLE OF TEST SIGNAL

Chain 0:

Duty cycle of test signal is 100 %

Chain 1:

Duty cycle of test signal is 100 %



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



POWER SETTING VALUE

11b

Operating channel	Frequency (MHz)	Power setting Ant 0	Power setting Ant 1	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	2412	30	28	CCK	DBPSK	1.0
6	2437	30	28	CCK	DBPSK	1.0
11	2462	30	28	CCK	DBPSK	1.0

11g

Operating channel	Frequency (MHz)	Power setting Ant 0	Power setting Ant 1	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	2412	30	28	OFDM	BPSK	6.0
6	2437	30	28	OFDM	BPSK	6.0
11	2462	30	28	OFDM	BPSK	6.0

11n 20MHz

Operating channel	Frequency (MHz)	Power setting Ant 0	Power setting Ant 1	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
1	2412	30	28	OFDM	BPSK	MCS0
6	2437	30	28	OFDM	BPSK	MCS0
11	2462	30	28	OFDM	BPSK	MCS0

11n 40MHz

Operating channel	Frequency (MHz)	Power setting Ant 0	Power setting Ant 1	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
3	2422	27	26	OFDM	BPSK	MCS0
6	2437	27	26	OFDM	BPSK	MCS0
9	2452	27	26	OFDM	BPSK	MCS0



3.4 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

KDB 558074 D01 DTS Meas Guidance v04

ANSI C63.10-2013

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

NOTE: It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B(DoC). The test report has been issued separately.

3.5 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	5P2PM2X	12400120329	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.8m; DC Line: Unshielded, Detachable 1.8m;



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Apr. 05,17	Apr. 04,18
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Mar. 06,17	Mar. 05,18
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Apr. 05,17	Apr. 04,18
Voltage probe	SCHWARZBECK	TK 9421	TK 9421-176	Jan. 04,17	Jan. 03,18
Test software	ADT	ADT_Cond_V7.3.7	N/A	N/A	N/A

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



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) were not recorded.

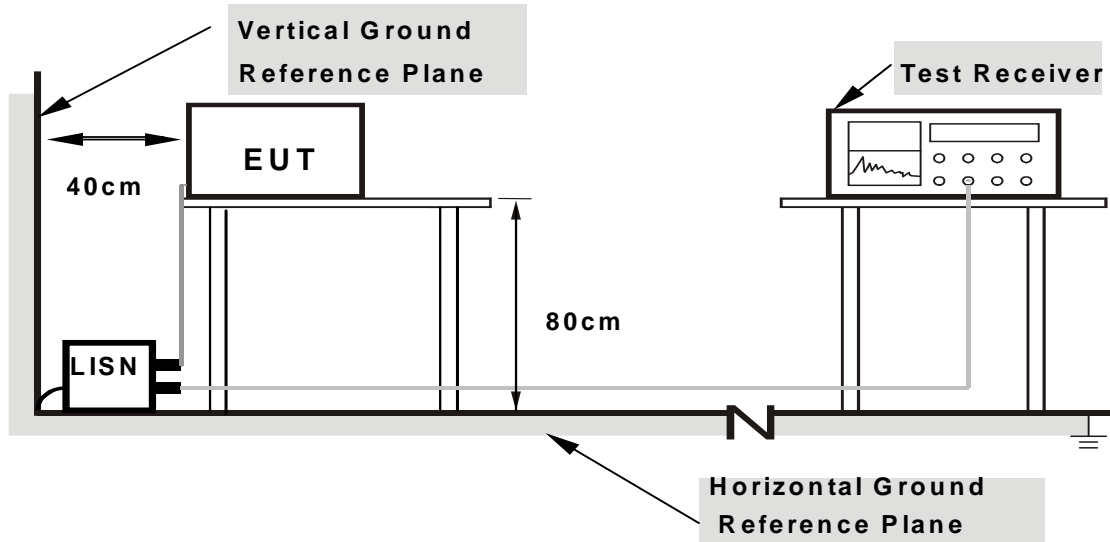
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.



4.1.5 TEST SETUP



- Note:**
- 1.Support units were connected to second LISN.
 - 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

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



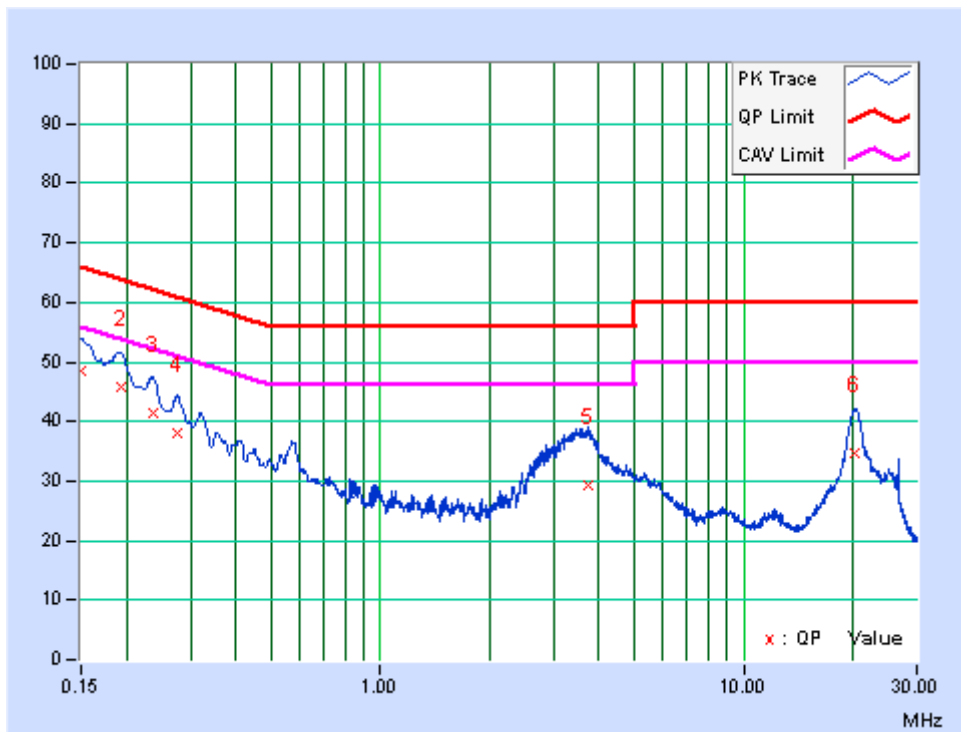
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: WIFI link mode

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	9.83	38.62	20.42	48.45	30.25	66.00	56.00	-17.55	-25.75
2	0.19275	9.84	35.80	17.26	45.64	27.10	63.92	53.92	-18.28	-26.82
3	0.23600	9.88	31.45	15.92	41.33	25.80	62.24	52.24	-20.91	-26.44
4	0.27578	9.76	28.42	20.08	38.18	29.84	60.94	50.94	-22.76	-21.10
5	3.75000	9.91	19.37	15.00	29.28	24.91	56.00	46.00	-26.72	-21.09
6	20.21775	9.97	24.72	12.87	34.69	22.84	60.00	50.00	-25.31	-27.16

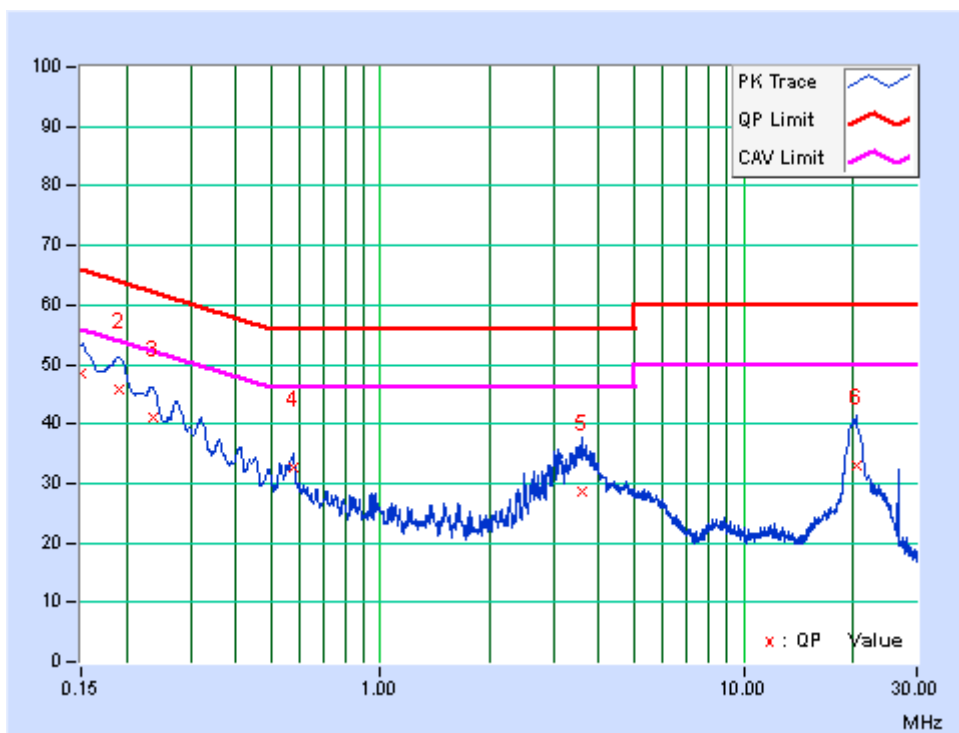
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.66	38.93	20.16	48.59	29.82	66.00	56.00	-17.41	-26.18
2	0.19050	9.69	36.09	19.20	45.78	28.89	64.01	54.01	-18.24	-25.13
3	0.23550	9.74	31.43	16.46	41.17	26.20	62.25	52.25	-21.09	-26.06
4	0.57608	9.83	22.73	19.88	32.56	29.71	56.00	46.00	-23.44	-16.29
5	3.57900	9.92	18.73	12.34	28.65	22.26	56.00	46.00	-27.35	-23.74
6	20.52375	9.70	23.16	12.22	32.86	21.92	60.00	50.00	-27.14	-28.08

- 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.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 11,17	Mar. 10,18
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 14, 17	Jul. 13, 18
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 18,17	May 17,18
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 17	Aug. 07, 18
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 06,17	Mar. 05,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 12,17	Mar. 11,18
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,17	Mar. 03, 18
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Mar. 09,17	Mar. 08,18
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,16	Nov. 03,17
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug. 08,17	Aug. 07,18

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments are 12, 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 749762.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) 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 $\geq 1/T$ (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes, the worst-case test configuration was reported on the file test setup photo.

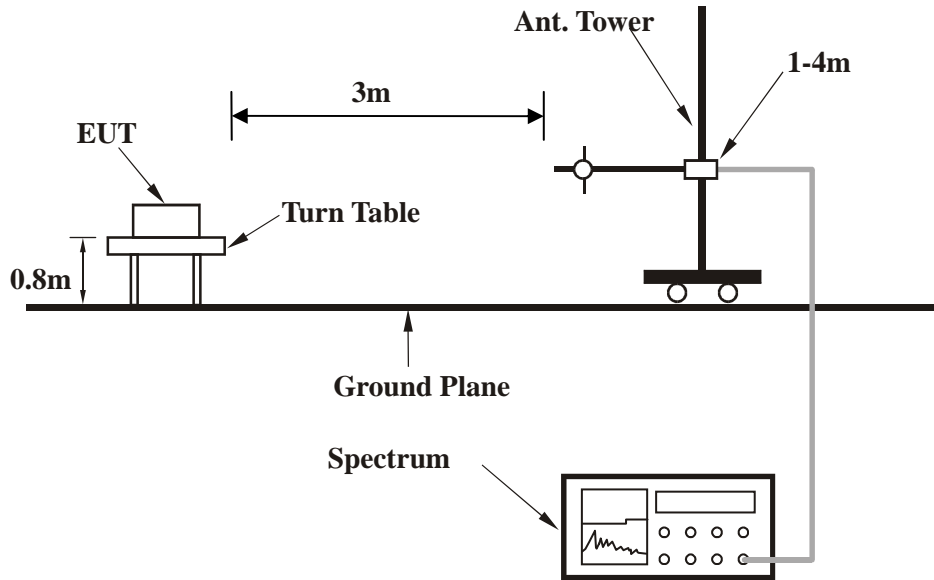
4.2.4 DEVIATION FROM TEST STANDARD

No deviation.



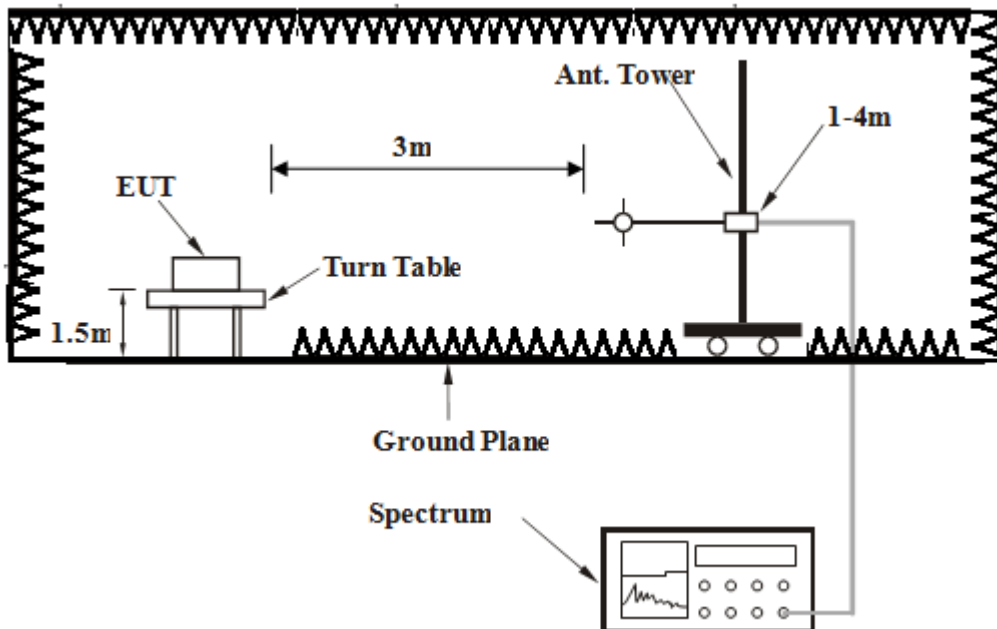
4.2.5 TEST SETUP

Below 1GHz test setup



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

Above 1GHz test setup



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



**BUREAU
VERITAS**

Test Report No.: RF170104N010-1

4.2.6 EUT OPERATING CONDITIONS

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



4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

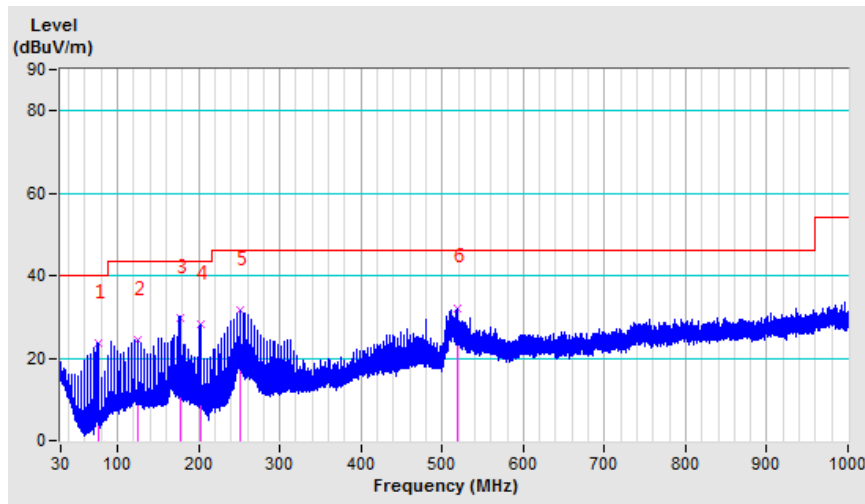
802.11g

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	75.59	23.54 QP	40.00	-16.46	1.00 H	271	46.63	-23.09
2	124.90	24.24 QP	43.50	-19.26	1.00 H	154	40.97	-16.73
3	177.25	29.78 QP	43.50	-13.72	1.00 H	88	48.75	-18.97
4	202.79	28.32 QP	43.50	-15.18	1.00 H	302	47.59	-19.27
5	251.90	31.53 QP	46.00	-14.47	1.00 H	0	45.98	-14.45
6	517.94	32.21 QP	46.00	-13.79	1.00 H	193	38.13	-5.92

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.



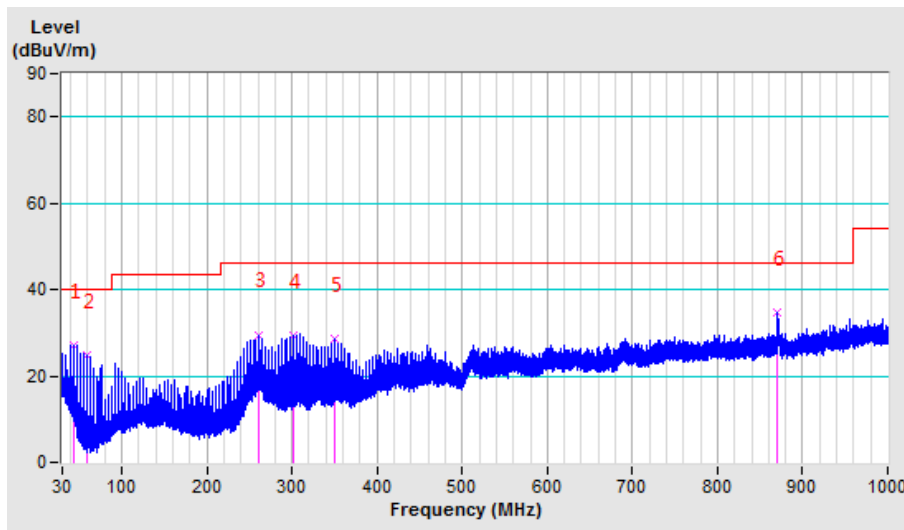


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	43.00	27.10 QP	40.00	-12.90	1.00 V	272	45.18	-18.08
2	59.36	24.86 QP	40.00	-15.14	1.00 V	255	49.51	-24.65
3	260.08	29.55 QP	46.00	-16.45	1.00 V	104	42.07	-12.52
4	301.05	29.20 QP	46.00	-16.80	1.00 V	183	42.24	-13.04
5	350.23	28.59 QP	46.00	-17.41	1.00 V	286	39.39	-10.80
6	870.63	34.58 QP	46.00	-11.42	1.00 V	302	33.11	1.47

REMARKS:

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





ABOVE 1GHz DATA

802.11b

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	41.91 PK	74.00	-32.09	2.66 H	84	38.77	3.14
2	2390.00	30.06 AV	54.00	-23.94	2.66 H	84	26.92	3.14
3	*2412.00	94.78 PK			2.66 H	84	91.61	3.17
4	*2412.00	90.34 AV			2.66 H	84	87.17	3.17
5	4824.00	37.32 PK	74.00	-36.68	1.06 H	323	30.85	6.47
6	4824.00	23.81 AV	54.00	-30.19	1.06 H	323	17.34	6.47
7	#7236.00	42.95 PK	74.00	-31.05	1.56 H	231	30.82	12.13
8	#7236.00	30.17 AV	54.00	-23.83	1.56 H	231	18.04	12.13

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	38.90 PK	74.00	-35.10	2.56 V	317	35.76	3.14
2	2390.00	28.00 AV	54.00	-26.00	2.56 V	317	24.86	3.14
3	*2412.00	85.85 PK			2.56 V	317	82.68	3.17
4	*2412.00	81.41 AV			2.56 V	317	78.24	3.17
5	4824.00	38.11 PK	74.00	-35.89	1.85 V	74	31.64	6.47
6	4824.00	30.79 AV	54.00	-23.21	1.85 V	74	24.32	6.47
7	7326.00	42.92 PK	74.00	-31.08	1.46 V	213	30.69	12.23
8	7326.00	30.18 AV	54.00	-23.82	1.46 V	213	17.95	12.23

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	93.29 PK			1.00 H	201	90.08	3.21
2	*2437.00	87.87 AV			1.00 H	201	84.66	3.21
3	4874.00	47.00 PK	74.00	-27.00	1.25 H	306	40.52	6.48
4	4874.00	41.82 AV	54.00	-12.18	1.25 H	306	35.34	6.48
5	7311.00	44.47 PK	74.00	-29.53	1.26 H	250	32.26	12.21
6	7311.00	30.24 AV	54.00	-23.76	1.26 H	250	18.03	12.21
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	88.49 PK			1.56 V	211	85.28	3.21
2	*2437.00	85.18 AV			1.56 V	211	81.97	3.21
3	4874.00	41.94 PK	74.00	-32.06	1.54 V	201	35.46	6.48
4	4874.00	33.60 AV	54.00	-20.40	1.54 V	201	27.12	6.48
5	7311.00	43.84 PK	74.00	-30.16	1.95 V	246	31.63	12.21
6	7311.00	30.52 AV	54.00	-23.48	1.95 V	246	18.31	12.21

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 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	93.79 PK			2.63 H	201	90.53	3.26
2	*2462.00	89.11 AV			2.63 H	201	85.85	3.26
3	2483.50	40.81 PK	74.00	-33.19	2.63 H	201	37.52	3.29
4	2483.50	29.31 AV	54.00	-24.69	2.63 H	201	26.02	3.29
5	4924.00	48.29 PK	74.00	-25.71	1.53 H	261	41.80	6.49
6	4924.00	44.24 AV	54.00	-9.76	1.53 H	261	37.75	6.49
7	7386.00	44.93 PK	74.00	-29.07	1.00 H	235	32.63	12.30
8	7386.00	36.42 AV	54.00	-17.58	1.00 H	235	24.12	12.30
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	91.70 PK			1.75 V	142	88.44	3.26
2	*2462.00	86.91 AV			1.75 V	142	83.65	3.26
3	2483.50	40.02 PK	74.00	-33.98	1.75 V	142	36.73	3.29
4	2483.50	30.61 AV	54.00	-23.39	1.75 V	142	27.32	3.29
5	4924.00	42.15 PK	74.00	-31.85	1.73 V	120	35.66	6.49
6	4924.00	32.54 AV	54.00	-21.46	1.73 V	120	26.05	6.49
7	7386.00	44.65 PK	74.00	-29.35	1.84 V	234	32.35	12.30
8	7386.00	36.49 AV	54.00	-17.51	1.84 V	234	24.19	12.30

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	47.04 PK	74.00	-26.96	1.65 H	82	43.90	3.14
2	2390.00	31.19 AV	54.00	-22.81	1.65 H	82	28.05	3.14
3	*2412.00	97.03 PK			1.65 H	82	93.86	3.17
4	*2412.00	86.26 AV			1.65 H	82	83.09	3.17
5	4824.00	49.40 PK	74.00	-24.60	1.94 H	306	42.93	6.47
6	4824.00	38.54 AV	54.00	-15.46	1.94 H	306	32.07	6.47
7	#7236.00	46.56 PK	74.00	-27.44	2.35 H	84	34.43	12.13
8	#7236.00	36.40 AV	54.00	-17.60	2.35 H	84	24.27	12.13

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	43.67 PK	74.00	-30.33	1.54 V	302	40.53	3.14
2	2390.00	27.88 AV	54.00	-26.12	1.54 V	302	24.74	3.14
3	*2412.00	87.34 PK			1.54 V	302	84.17	3.17
4	*2412.00	76.98 AV			1.54 V	302	73.81	3.17
5	4824.00	38.45 PK	74.00	-35.55	1.64 V	221	31.98	6.47
6	4824.00	31.56 AV	54.00	-22.44	1.64 V	221	25.09	6.47
7	#7236.00	45.61 PK	74.00	-28.39	1.49 V	194	33.48	12.13
8	#7236.00	36.25 AV	54.00	-17.75	1.49 V	194	24.12	12.13

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	94.54 PK			1.49 H	201	91.33	3.21
2	*2437.00	84.40 AV			1.49 H	201	81.19	3.21
3	4874.00	52.78 PK	74.00	-21.22	1.21 H	203	46.30	6.48
4	4874.00	38.35 AV	54.00	-15.65	1.21 H	203	31.87	6.48
5	7311.00	45.32 PK	74.00	-28.68	1.49 H	302	33.11	12.21
6	7311.00	36.58 AV	54.00	-17.42	1.49 H	302	24.37	12.21
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	91.71 PK			1.64 V	236	88.50	3.21
2	*2437.00	81.37 AV			1.64 V	236	78.16	3.21
3	4874.00	40.12 PK	74.00	-33.88	1.26 V	302	33.64	6.48
4	4874.00	31.20 AV	54.00	-22.80	1.26 V	302	24.72	6.48
5	7311.00	43.37 PK	74.00	-30.63	1.45 V	201	31.16	12.21
6	7311.00	36.43 AV	54.00	-17.57	1.45 V	201	24.22	12.21

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 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	93.09 PK			1.46 H	235	89.83	3.26
2	*2462.00	82.79 AV			1.46 H	235	79.53	3.26
3	2483.50	43.06 PK	74.00	-30.94	1.46 H	235	39.77	3.29
4	2483.50	29.68 AV	54.00	-24.32	1.46 H	235	26.39	3.29
5	4924.00	40.79 PK	74.00	-33.21	1.26 H	231	34.30	6.49
6	4924.00	35.46 AV	54.00	-18.54	1.26 H	231	28.97	6.49
7	7386.00	41.67 PK	74.00	-32.33	1.49 H	201	29.37	12.30
8	7386.00	34.79 AV	54.00	-19.21	1.49 H	201	22.49	12.30

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	90.38 PK			1.14 V	238	87.12	3.26
2	*2462.00	81.14 AV			1.14 V	238	77.88	3.26
3	2483.50	39.55 PK	74.00	-34.45	1.14 V	238	36.26	3.29
4	2483.50	28.90 AV	54.00	-25.10	1.14 V	238	25.61	3.29
5	4924.00	47.52 PK	74.00	-26.48	1.64 V	235	41.03	6.49
6	4924.00	34.33 AV	54.00	-19.67	1.64 V	235	27.84	6.49
7	7386.00	45.03 PK	74.00	-28.97	2.36 V	195	32.73	12.30
8	7386.00	34.53 AV	54.00	-19.47	2.36 V	195	22.23	12.30

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 (HT20)

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	48.44 PK	74.00	-25.56	1.48 H	236	45.30	3.14
2	2390.00	31.37 AV	54.00	-22.63	1.48 H	236	28.23	3.14
3	*2412.00	96.53 PK			1.48 H	236	93.36	3.17
4	*2412.00	85.31 AV			1.48 H	236	82.14	3.17
5	4824.00	55.17 PK	74.00	-18.83	1.12 H	201	48.70	6.47
6	4824.00	38.65 AV	54.00	-15.35	1.12 H	201	32.18	6.47
7	#7236.00	44.88 PK	74.00	-29.12	1.94 H	205	32.75	12.13
8	#7236.00	36.42 AV	54.00	-17.58	1.94 H	205	24.29	12.13

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	38.82 PK	74.00	-35.18	1.14 V	268	35.68	3.14
2	2390.00	30.25 AV	54.00	-23.75	1.14 V	268	27.11	3.14
3	*2412.00	87.05 PK			1.14 V	268	83.88	3.17
4	*2412.00	76.35 AV			1.14 V	268	73.18	3.17
5	4824.00	41.33 PK	74.00	-32.67	1.52 V	302	34.86	6.47
6	4824.00	35.42 AV	54.00	-18.58	1.52 V	302	28.95	6.47
7	#7236.00	44.19 PK	74.00	-29.81	1.84 V	230	32.06	12.13
8	#7236.00	36.40 AV	54.00	-17.60	1.84 V	230	24.27	12.13

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	94.21 PK			1.67 H	326	91.00	3.21
2	*2437.00	83.02 AV			1.67 H	326	79.81	3.21
3	4874.00	40.30 PK	74.00	-33.70	1.42 H	247	33.82	6.48
4	4874.00	33.42 AV	54.00	-20.58	1.42 H	247	26.94	6.48
5	7311.00	42.85 PK	74.00	-31.15	1.24 H	318	30.64	12.21
6	7311.00	36.52 AV	54.00	-17.48	1.24 H	318	24.31	12.21

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	90.31 PK			1.14 V	201	87.10	3.21
2	*2437.00	80.26 AV			1.14 V	201	77.05	3.21
3	4874.00	46.20 PK	74.00	-27.80	2.63 V	84	39.72	6.48
4	4874.00	31.67 AV	54.00	-22.33	2.63 V	84	25.19	6.48
5	7311.00	44.32 PK	74.00	-29.68	1.05 V	239	32.11	12.21
6	7311.00	36.56 AV	54.00	-17.44	1.05 V	239	24.35	12.21

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 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	93.45 PK			2.64 H	305	90.19	3.26
2	*2462.00	82.95 AV			2.64 H	305	79.69	3.26
3	2483.50	43.65 PK	74.00	-30.35	2.64 H	305	40.36	3.29
4	2483.50	29.57 AV	54.00	-24.43	2.64 H	305	26.28	3.29
5	4924.00	50.15 PK	74.00	-23.85	1.18 H	200	43.66	6.49
6	4924.00	35.82 AV	54.00	-18.18	1.18 H	200	29.33	6.49
7	7386.00	44.99 PK	74.00	-29.01	1.62 H	302	32.69	12.30
8	7386.00	36.42 AV	54.00	-17.58	1.62 H	302	24.12	12.30
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	95.87 PK			1.47 V	253	92.61	3.26
2	*2462.00	81.16 AV			1.47 V	253	77.90	3.26
3	2483.50	41.43 PK	74.00	-32.57	1.47 V	253	38.14	3.29
4	2483.50	30.00 AV	54.00	-24.00	1.47 V	253	26.71	3.29
5	4924.00	39.73 PK	74.00	-34.27	2.04 V	248	33.24	6.49
6	4924.00	29.00 AV	54.00	-25.00	2.04 V	248	22.51	6.49
7	7386.00	44.48 PK	74.00	-29.52	1.49 V	201	32.18	12.30
8	7386.00	36.65 AV	54.00	-17.35	1.49 V	201	24.35	12.30

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 (HT40)

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	45.70 PK	74.00	-28.30	2.37 H	285	42.56	3.14
2	2390.00	32.22 AV	54.00	-21.78	2.37 H	285	29.08	3.14
3	*2422.00	92.32 PK			2.37 H	285	89.13	3.19
4	*2422.00	79.00 AV			2.37 H	285	75.81	3.19
5	4844.00	39.64 PK	74.00	-34.36	1.87 H	284	33.17	6.47
6	4844.00	28.65 AV	54.00	-25.35	1.87 H	284	22.18	6.47
7	7266.00	45.30 PK	74.00	-28.70	1.84 H	243	33.15	12.15
8	7266.00	34.51 AV	54.00	-19.49	1.84 H	243	22.36	12.15

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	39.26 PK	74.00	-34.74	2.51 V	301	36.12	3.14
2	2390.00	28.27 AV	54.00	-25.73	2.51 V	301	25.13	3.14
3	*2422.00	88.48 PK			2.51 V	301	85.29	3.19
4	*2422.00	74.90 AV			2.51 V	301	71.71	3.19
5	4844.00	42.56 PK	74.00	-31.44	1.49 V	230	36.09	6.47
6	4844.00	32.06 AV	54.00	-21.94	1.49 V	230	25.59	6.47
7	7266.00	45.05 PK	74.00	-28.95	1.94 V	328	32.90	12.15
8	7266.00	34.46 AV	54.00	-19.54	1.94 V	328	22.31	12.15

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	93.71 PK			2.03 H	87	90.50	3.21
2	*2437.00	80.63 AV			2.03 H	87	77.42	3.21
3	4874.00	51.83 PK	74.00	-22.17	2.65 H	275	45.35	6.48
4	4874.00	34.83 AV	54.00	-19.17	2.65 H	275	28.35	6.48
5	7311.00	42.03 PK	74.00	-31.97	2.73 H	184	29.82	12.21
6	7311.00	34.57 AV	54.00	-19.43	2.73 H	184	22.36	12.21
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	89.14 PK			1.49 V	235	85.93	3.21
2	*2437.00	76.34 AV			1.49 V	235	73.13	3.21
3	4874.00	38.37 PK	74.00	-35.63	2.21 V	257	31.89	6.48
4	4874.00	31.12 AV	54.00	-22.88	2.21 V	257	24.64	6.48
5	7311.00	45.62 PK	74.00	-28.38	1.98 V	324	33.41	12.21
6	7311.00	36.42 AV	54.00	-17.58	1.98 V	324	24.21	12.21

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	93.72 PK			2.07 H	116	90.49	3.23
2	*2452.00	80.29 AV			2.07 H	116	77.06	3.23
3	2483.50	40.93 PK	74.00	-33.07	2.07 H	116	37.64	3.29
4	2483.50	29.36 AV	54.00	-24.64	2.07 H	116	26.07	3.29
5	4904.00	38.77 PK	74.00	-35.23	3.16 H	223	32.28	6.49
6	4904.00	30.85 AV	54.00	-23.15	3.16 H	223	24.36	6.49
7	7356.00	45.06 PK	74.00	-28.94	1.00 H	65	32.80	12.26
8	7356.00	35.58 AV	54.00	-18.42	1.00 H	65	23.32	12.26
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	89.48 PK			2.35 V	198	86.25	3.23
2	*2452.00	76.36 AV			2.35 V	198	73.13	3.23
3	2483.50	41.20 PK	74.00	-32.80	2.35 V	198	37.91	3.29
4	2483.50	31.25 AV	54.00	-22.75	2.35 V	198	27.96	3.29
5	4904.00	42.60 PK	74.00	-31.40	2.16 V	230	36.11	6.49
6	4904.00	32.14 AV	54.00	-21.86	2.16 V	230	25.65	6.49
7	7356.00	43.70 PK	74.00	-30.30	1.48 V	213	31.44	12.26
8	7356.00	34.45 AV	54.00	-19.55	1.48 V	213	22.19	12.26

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.
Power Sensor	Keysight	U2021XA	MY55060016	May 04,16	May 03,17
Power Sensor	Keysight	U2021XA	MY55060018	May 04,16	May 03,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,16	Sep. 04,17
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,16	Nov. 03,17
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
Agile Signal Generator	Agilent	8645A	Agilent	Aug.08, 16	Aug.07, 17
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 05,17	Apr. 04,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.08, 16	Aug.07, 17

NOTE:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.3.3 TEST PROCEDURE

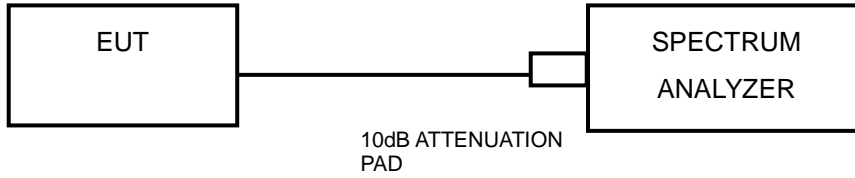
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.



4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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



4.3.7 TEST RESULTS

802.11b

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	9.56	9.55	0.5	PASS
6	2437	9.10	10.04	0.5	PASS
11	2462	9.12	9.58	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.36	16.40	0.5	PASS
6	2437	16.37	16.38	0.5	PASS
11	2462	16.38	16.38	0.5	PASS



802.11n 20MHz

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	17.57	17.56	0.5	PASS
6	2437	17.35	17.12	0.5	PASS
11	2462	17.58	17.35	0.5	PASS

802.11n 40MHz

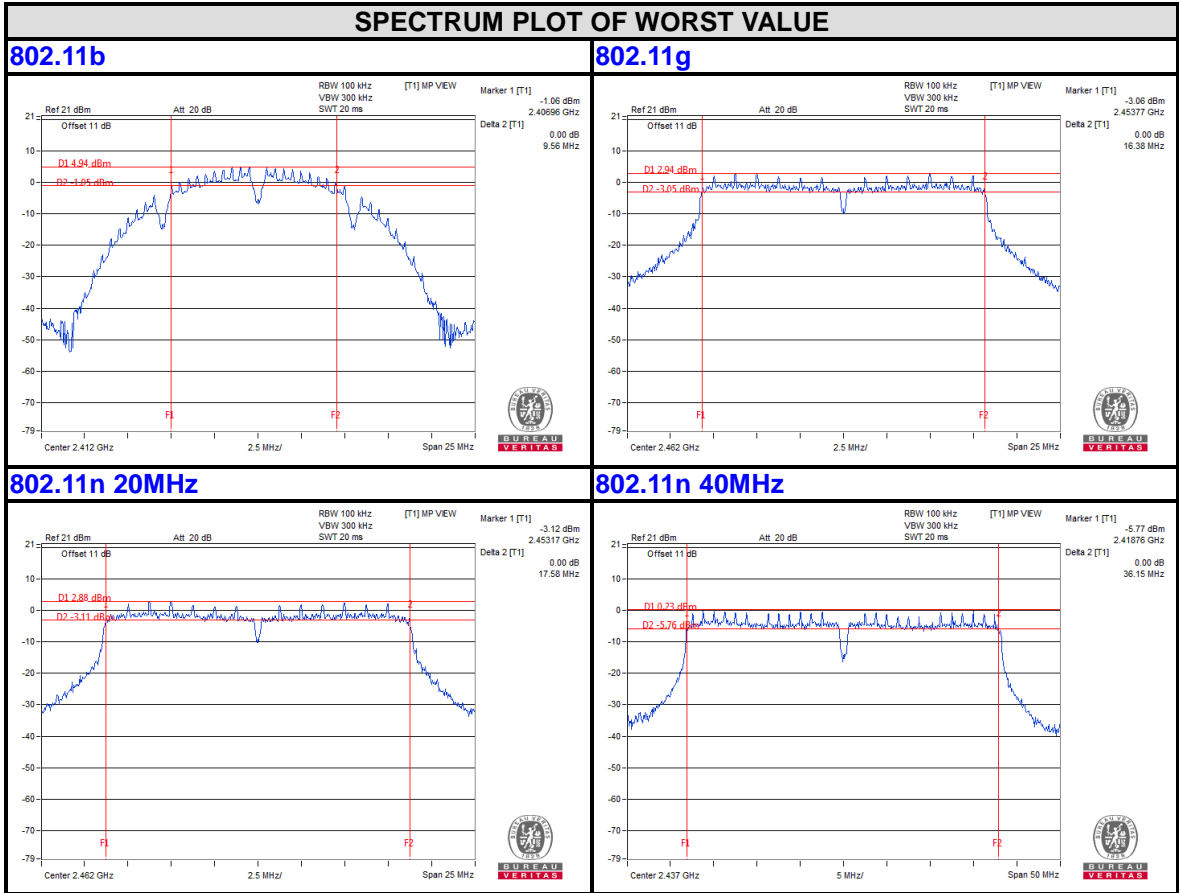
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.91	35.81	0.5	PASS
6	2437	36.15	35.79	0.5	PASS
9	2452	35.81	35.62	0.5	PASS



BUREAU VERITAS

Test Report No.: RF170104N010-1

CHAIN 0



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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

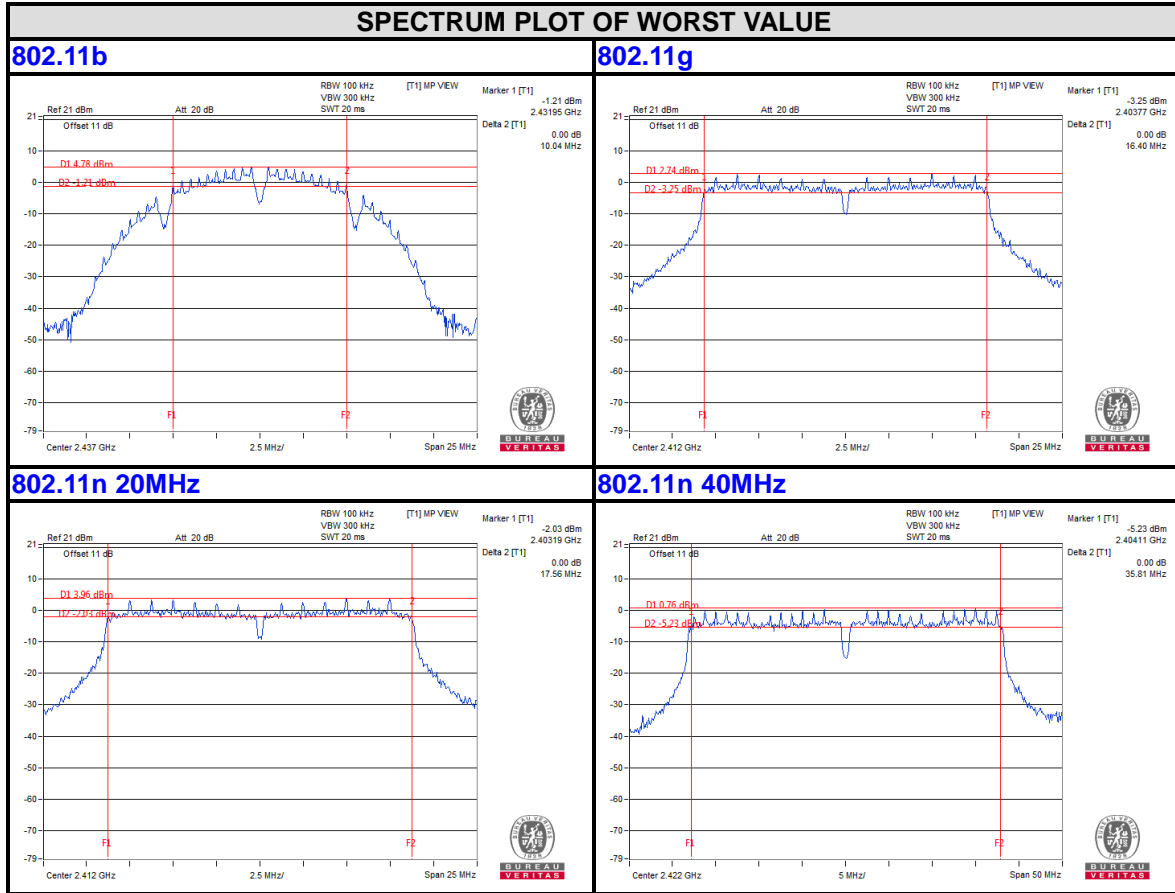
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



BUREAU VERITAS

Test Report No.: RF170104N010-1

CHAIN 1



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

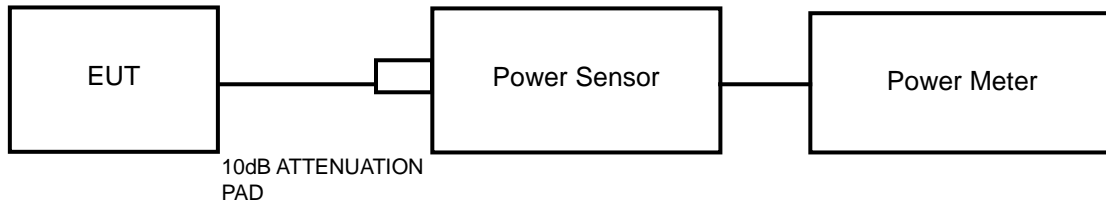


4.4 CONDUCTED OUTPUT POWER

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 Sensor	Keysight	U2021XA	MY55060016	May 04,17	May 03,18
Power Sensor	Keysight	U2021XA	MY55060018	May 04,17	May 03,18
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 13, 16	Oct.12, 17
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.05,16	Sep. 04,17
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 04,16	Nov. 03,17
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Signal Generator	Agilent	N5183A	MY50140980	Nov. 04,16	Nov. 03,17
Agile Signal Generator	Agilent	8645A	Agilent	Aug.08, 18	Aug.07, 18
Spectrum Analyzer	Keysight	N9020A	MY55400499	Apr. 05,17	Apr. 04,18
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec.05, 16	Dec. 04, 17
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug.08, 17	Aug.07, 18

NOTE:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



4.4.4 TEST PROCEDURES

An Average power sensor was used on the output port of the EUT. An Average power meter was used to read the response of the Average power sensor. Record the Average power level.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

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



4.4.7 TEST RESULTS

802.11b

CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	14.17	14.43	26.122	27.733	53.855	17.31	30	PASS
6	2437	14.51	14.31	28.249	26.977	55.226	17.42	30	PASS
11	2462	14.23	14.29	26.485	26.853	53.338	17.27	30	PASS

802.11g

CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	14.09	14.21	25.645	26.363	52.008	17.16	30	PASS
6	2437	14.13	14.29	25.882	26.853	52.735	17.22	30	PASS
11	2462	14.14	14.12	25.942	25.823	51.765	17.14	30	PASS



802.11n 20MHz

CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	14.16	14.01	26.062	25.177	51.239	17.10	30	PASS
6	2437	14.20	14.19	26.303	26.242	52.545	17.21	30	PASS
11	2462	14.17	14.22	26.122	26.424	52.546	17.21	30	PASS

802.11n 40MHz

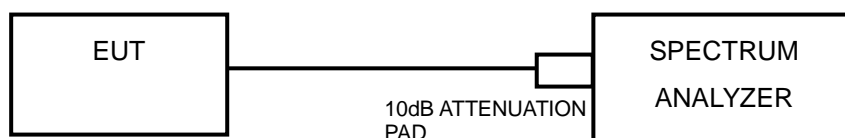
CHAN.	FREQ (MHz)	AVG. POWER (dBm)		AVG. POWER (mW)		TOTAL POWER (mW)	TOTAL POWER (dBm)	AVG. POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
3	2422	13.14	13.05	20.606	20.184	40.79	16.11	30	PASS
6	2437	13.21	13.17	20.941	20.749	41.69	16.20	30	PASS
9	2452	13.04	13.24	20.137	21.086	41.223	16.15	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.5.4 TEST PROCEDURE

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span to at least 1.5 times the OBW.
- c) Set RBW to: 3 kHz.
- d) Set VBW $\geq 3 \times$ RBW.
- e) Detector = peak
- f) Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- g) Sweep time = auto couple.
- h) 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

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	TOTAL PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-8.61	3.01	-5.60	8.00	PASS
	6	2437	-10.24	3.01	-7.23	8.00	PASS
	11	2462	-9.07	3.01	-6.06	8.00	PASS
1	1	2412	-9.11	3.01	-6.10	8.00	PASS
	6	2437	-10.03	3.01	-7.02	8.00	PASS
	11	2462	-8.69	3.01	-5.68	8.00	PASS

Remark: Due ANT gain less than 6dBi [$2.89 + 10\log(N=2)=5.90 < 6$], so limit 8dBm does not need to be changed.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	TOTAL PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-11.77	3.01	-8.76	8.00	PASS
	6	2437	-12.31	3.01	-9.30	8.00	PASS
	11	2462	-10.71	3.01	-7.70	8.00	PASS
1	1	2412	-12.23	3.01	-9.22	8.00	PASS
	6	2437	-11.37	3.01	-8.36	8.00	PASS
	11	2462	-10.72	3.01	-7.71	8.00	PASS

Remark: Due ANT gain less than 6dBi [$2.89 + 10\log(N=2)=5.90 < 6$], so limit 8dBm does not need to be changed.



802.11n 20MHz

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	TOTAL PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	1	2412	-11.22	3.01	-8.21	8.00	PASS
	6	2437	-12.48	3.01	-9.47	8.00	PASS
	11	2462	-12.34	3.01	-9.33	8.00	PASS
1	1	2412	-11.43	3.01	-8.42	8.00	PASS
	6	2437	-9.99	3.01	-6.98	8.00	PASS
	11	2462	-12.25	3.01	-9.24	8.00	PASS

Remark: Due ANT gain less than 6dBi [2.89 +10log(N=2)=5.90<6], so limit 8dBm does not need to be changed.

802.11n 40MHz

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	TOTAL PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	3	2422	-14.25	3.01	-11.24	8.00	PASS
	6	2437	-14.53	3.01	-11.52	8.00	PASS
	9	2452	-14.31	3.01	-11.30	8.00	PASS
1	3	2422	-15.06	3.01	-12.05	8.00	PASS
	6	2437	-14.15	3.01	-11.14	8.00	PASS
	9	2452	-14.23	3.01	-11.22	8.00	PASS

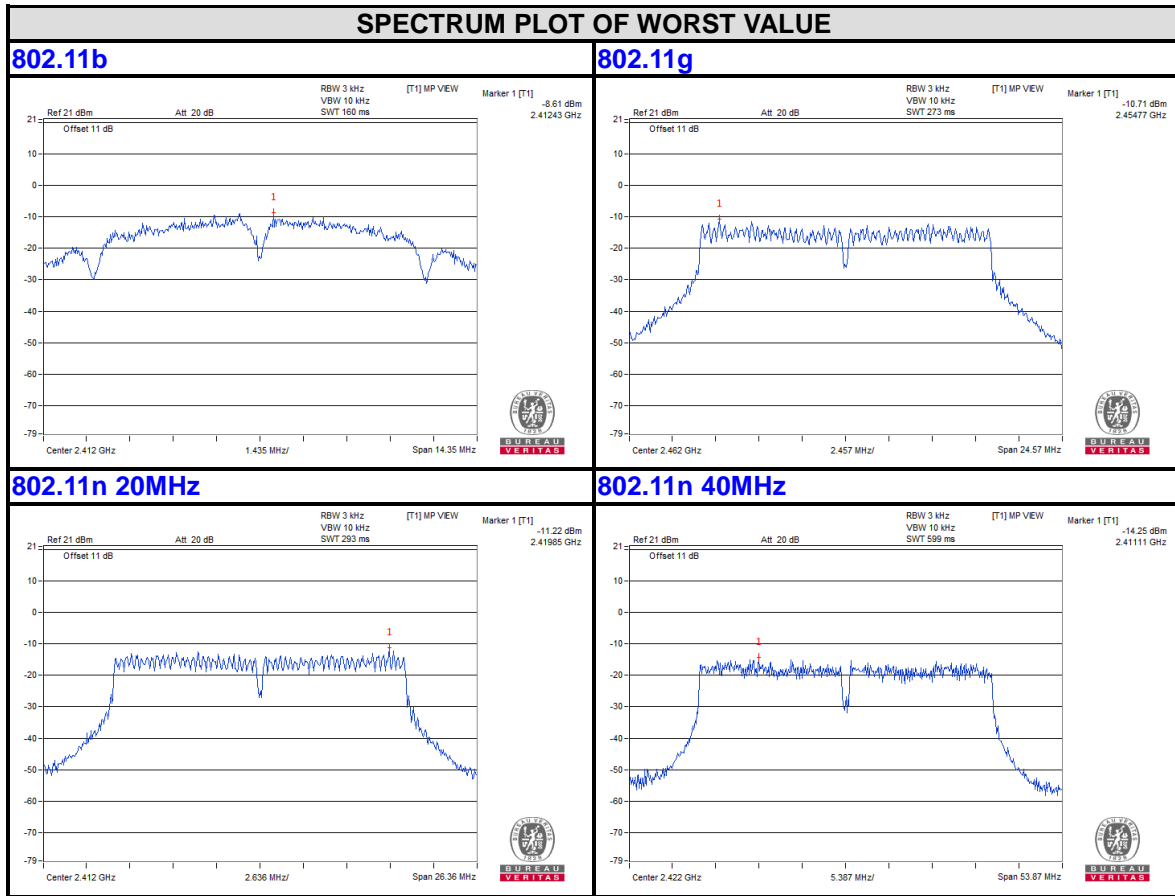
Remark: Due ANT gain less than 6dBi [2.89 +10log(N=2)=5.90<6], so limit 8dBm does not need to be changed.



BUREAU VERITAS

Test Report No.: RF170104N010-1

CHAIN 0



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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

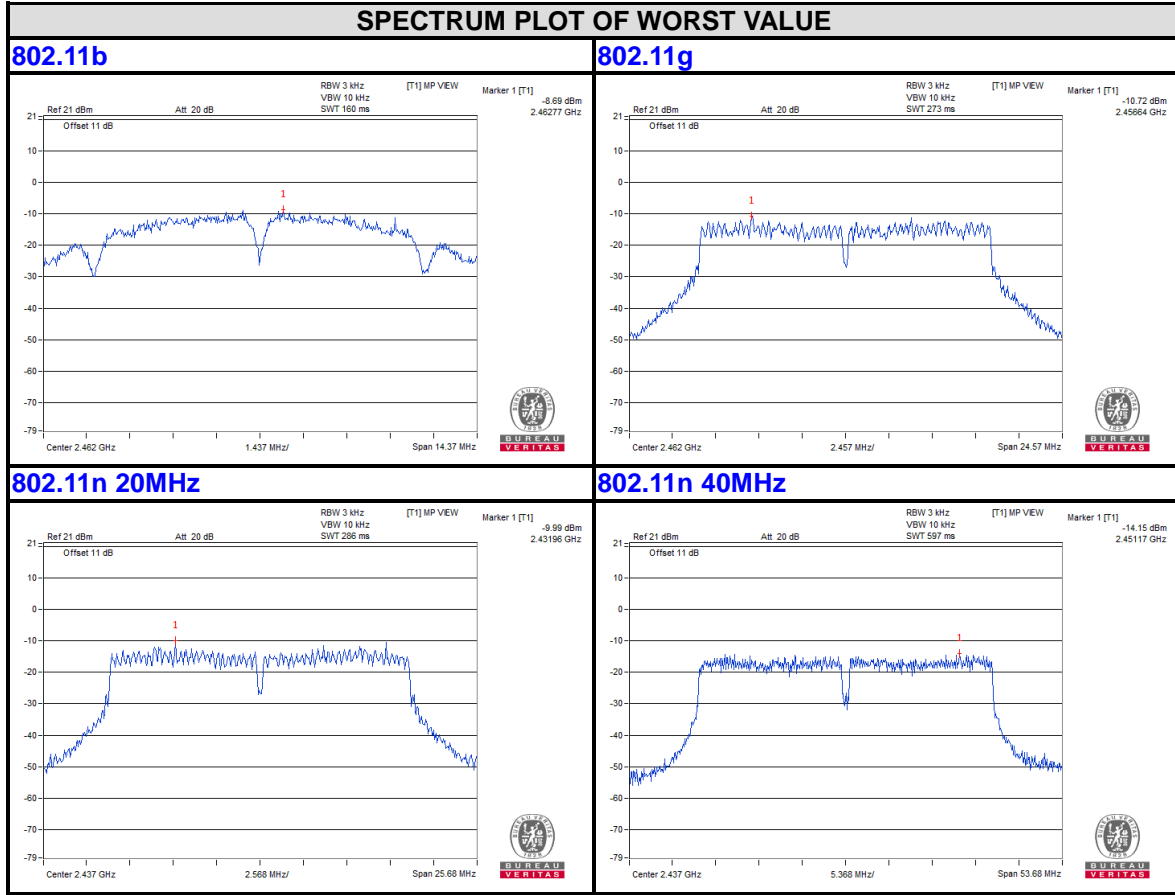
Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com



BUREAU VERITAS

Test Report No.: RF170104N010-1

CHAIN 1



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

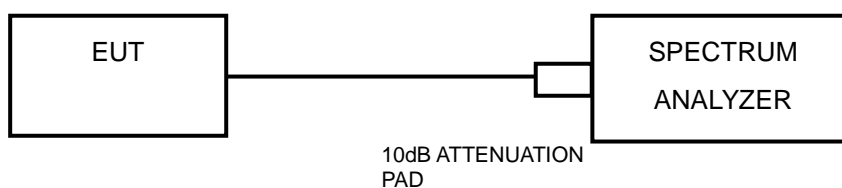


4.6 OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -30dB 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

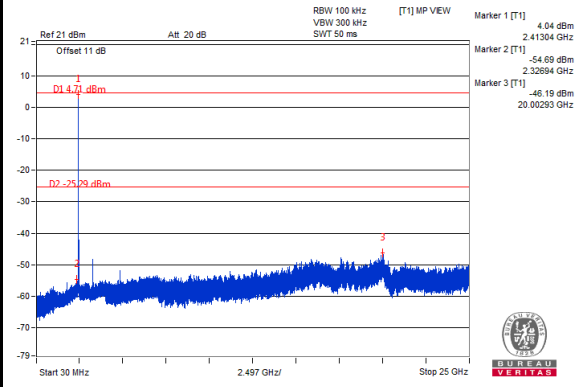
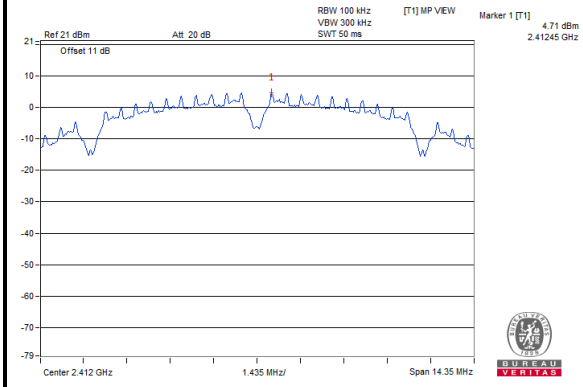
Test Report No.: RF170104N010-1

4.6.7 TEST RESULTS

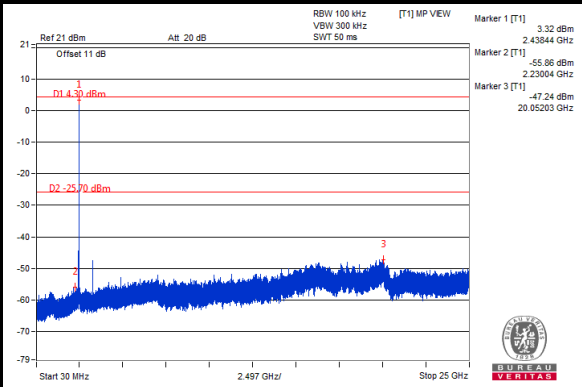
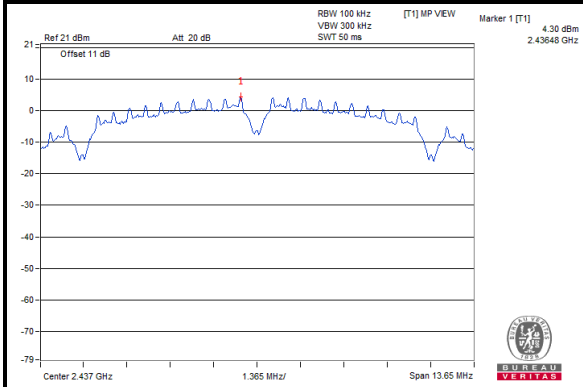
802.11b

CHAIN 0

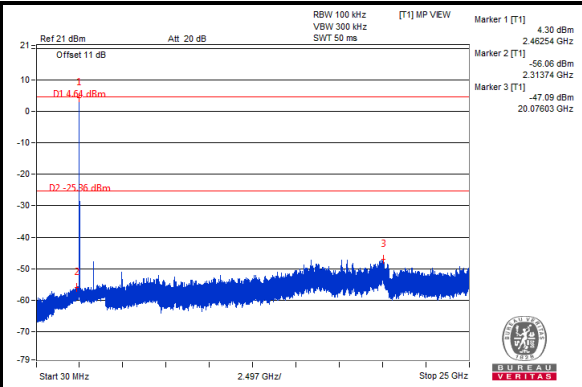
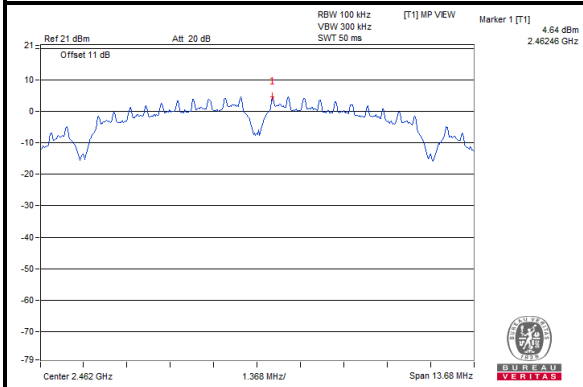
CH 1



CH 6



CH 11



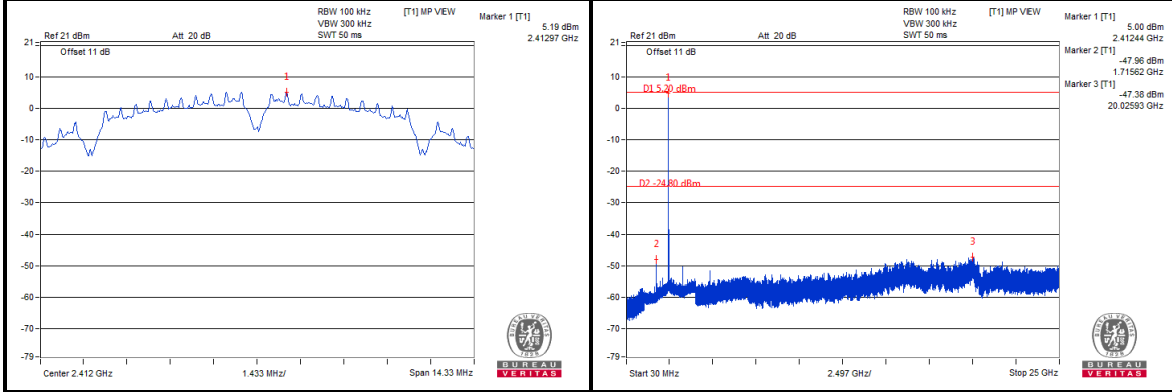


BUREAU VERITAS

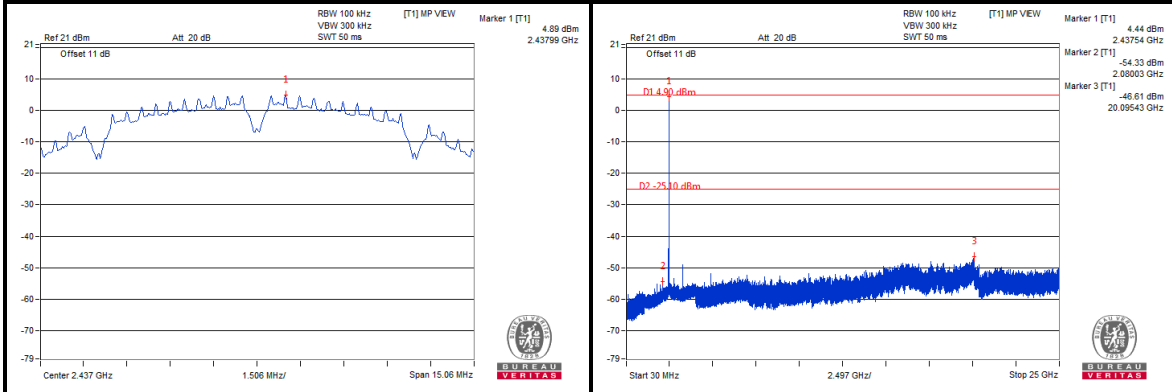
Test Report No.: RF170104N010-1

CHAIN 1

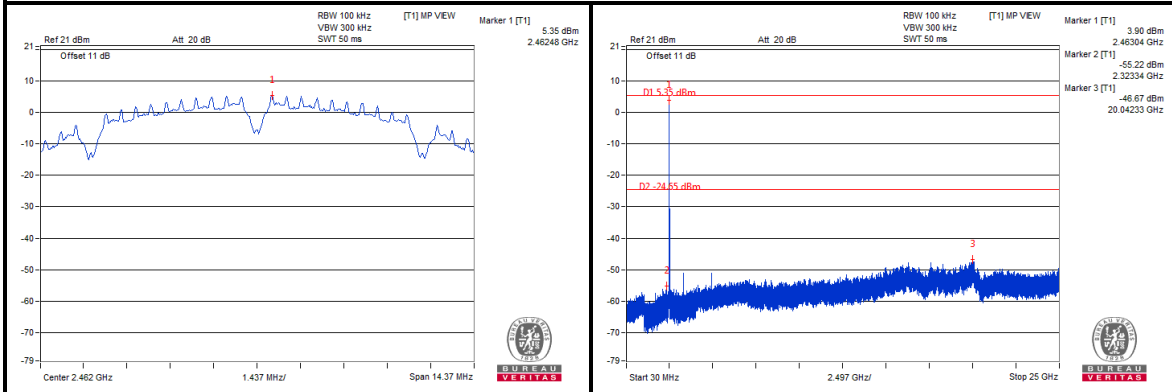
CH 1



CH 6



CH 11



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



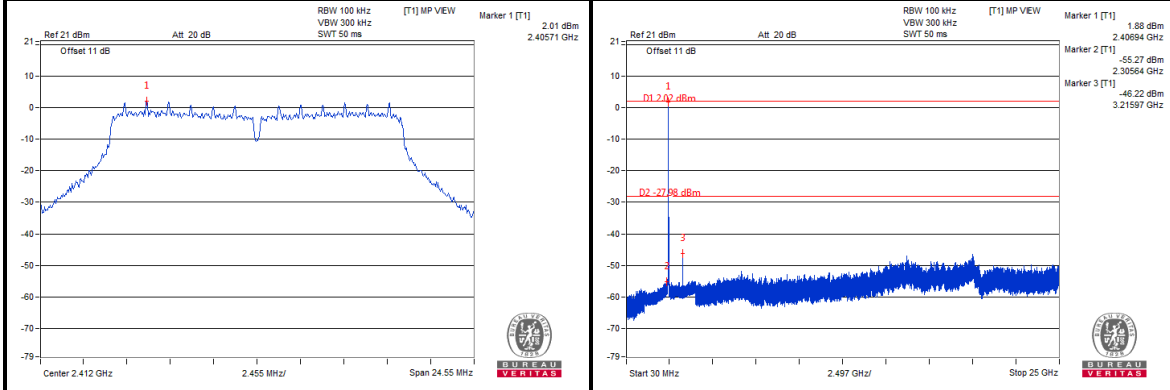
BUREAU VERITAS

Test Report No.: RF170104N010-1

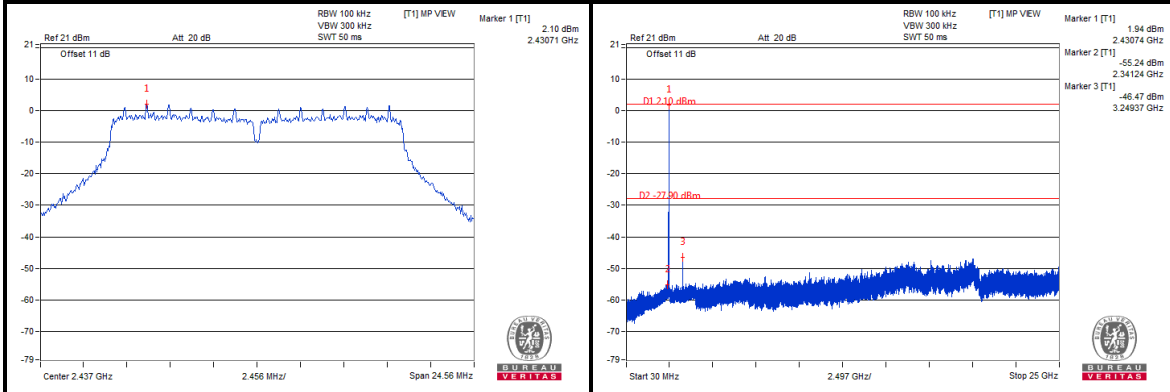
802.11g

CHAIN 0

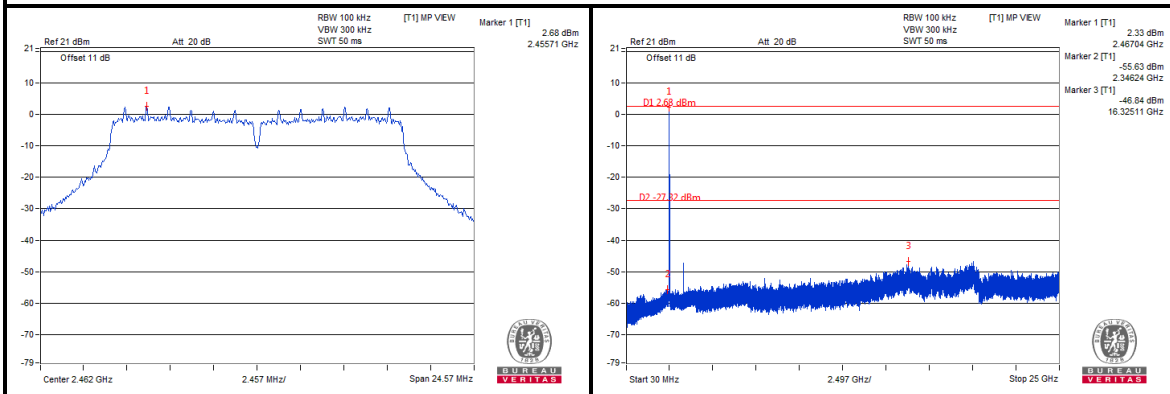
CH 1



CH 6



CH 11



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

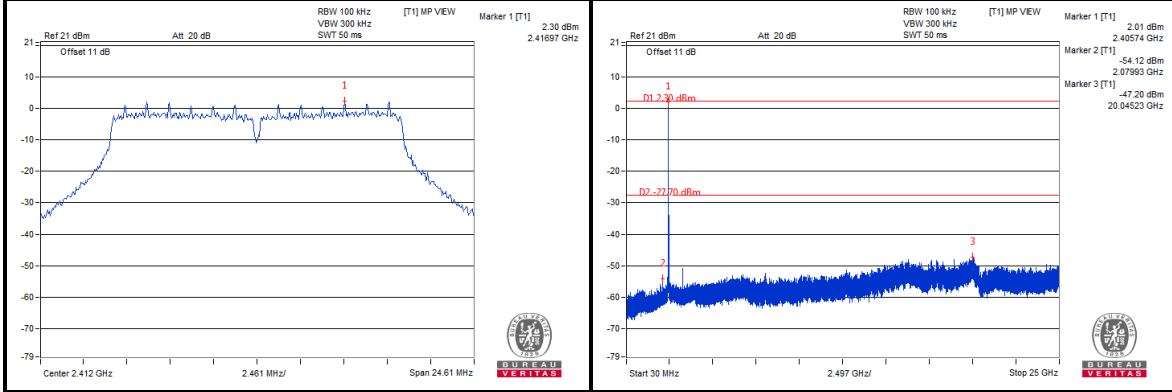


BUREAU VERITAS

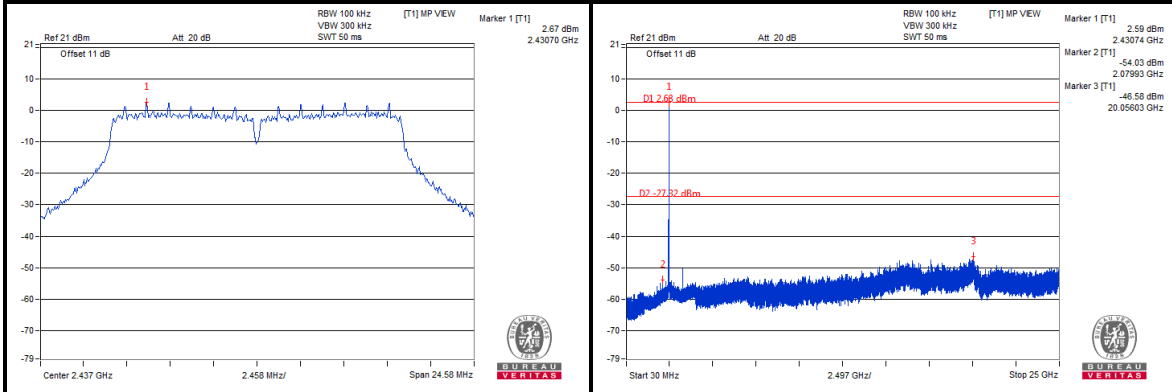
Test Report No.: RF170104N010-1

CHAIN 1

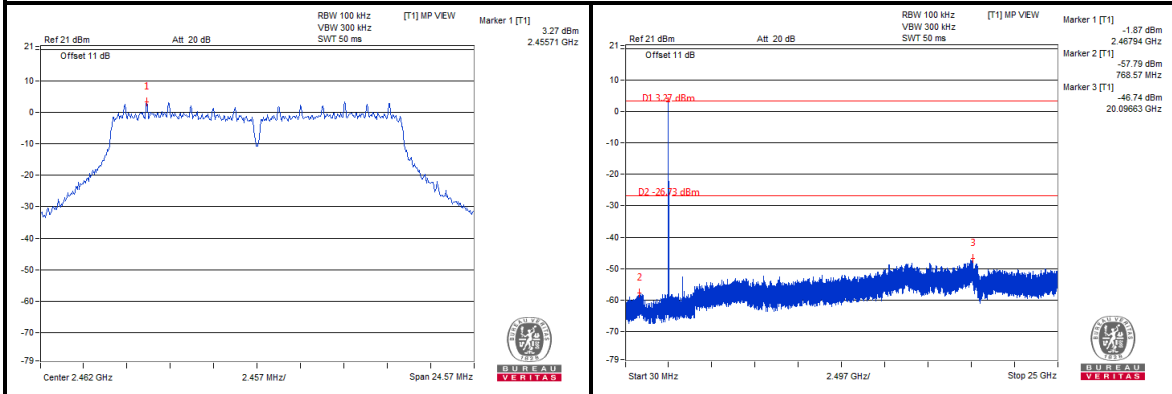
CH 1



CH 6



CH 11



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



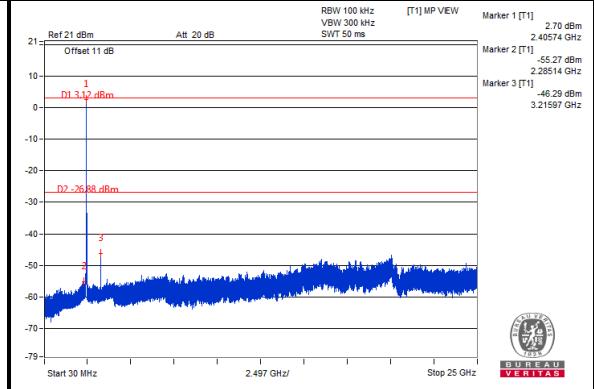
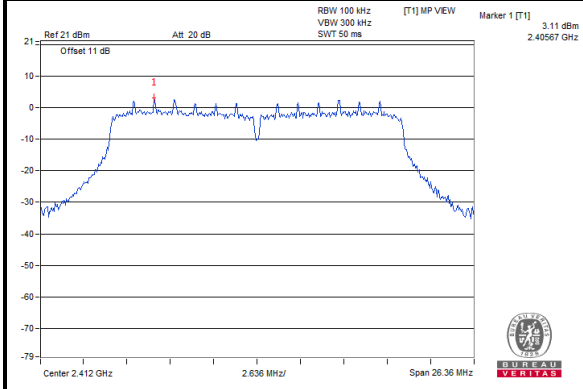
BUREAU VERITAS

Test Report No.: RF170104N010-1

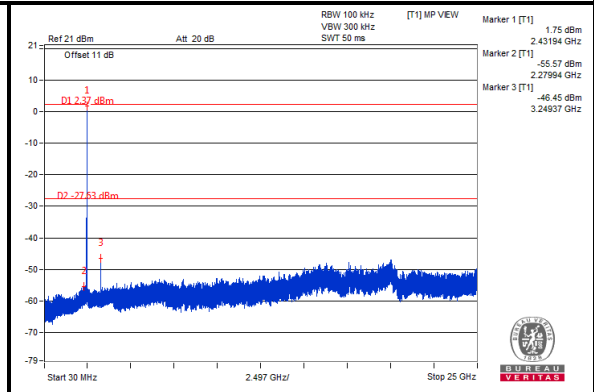
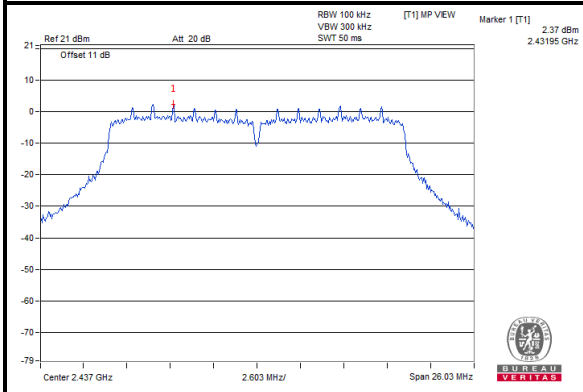
802.11n 20MHz

CHAIN 0

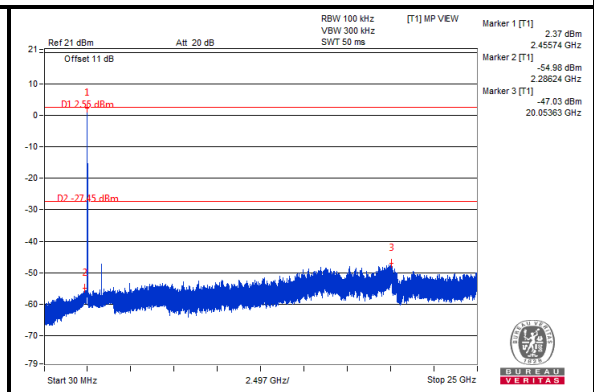
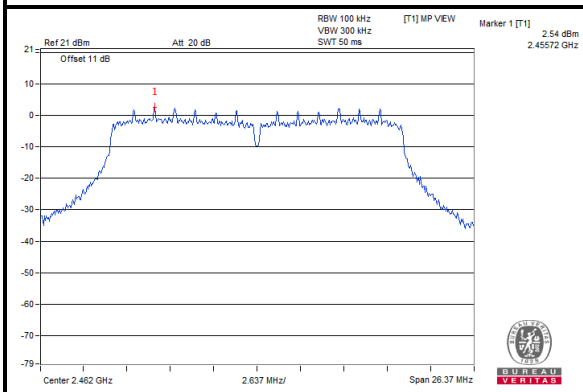
CH 1



CH 6



CH 11



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

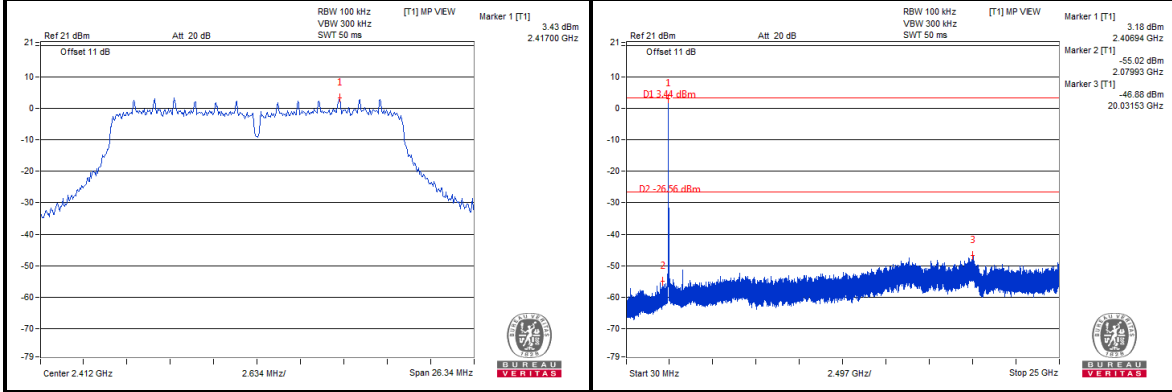


BUREAU VERITAS

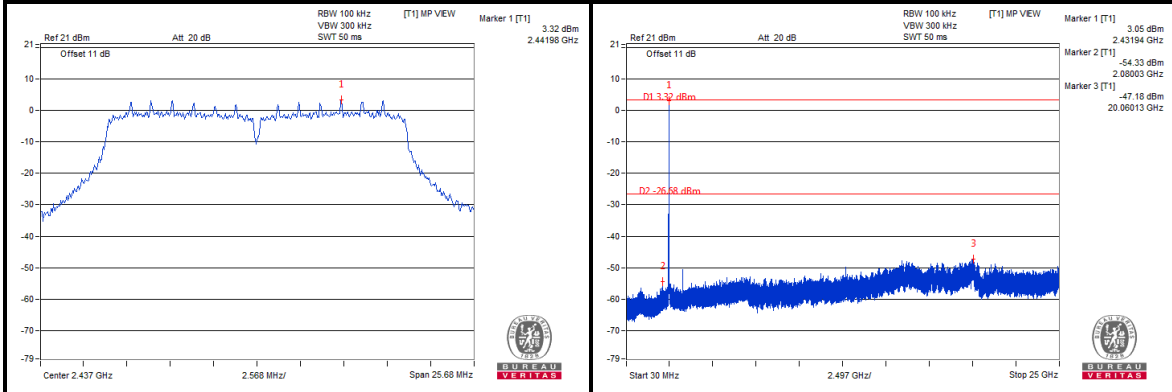
Test Report No.: RF170104N010-1

CHAIN 1

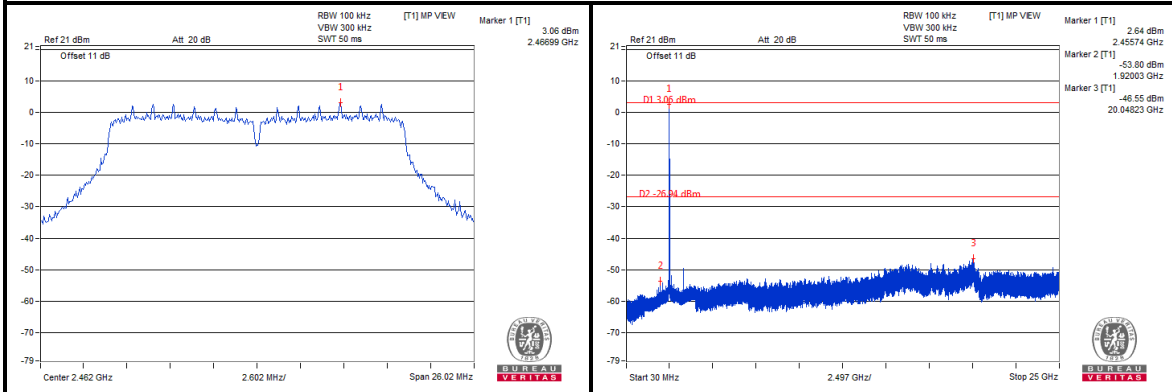
CH 1



CH 6



CH 11



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



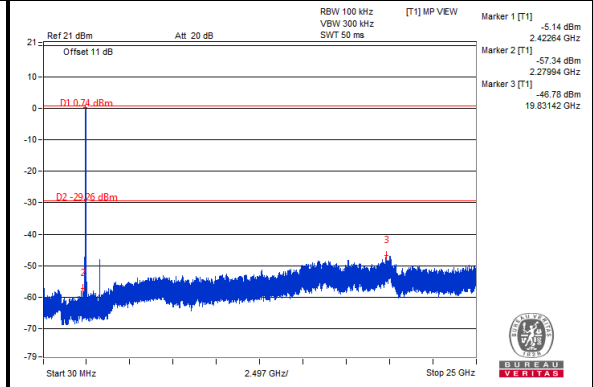
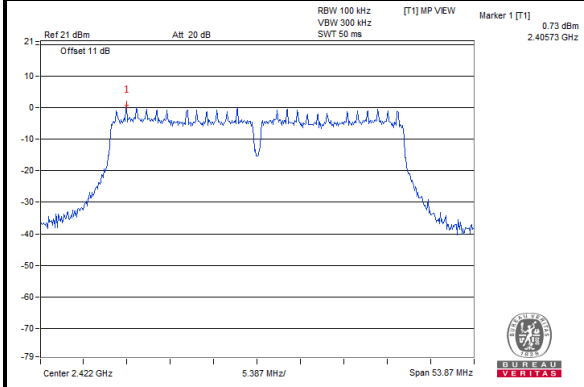
BUREAU VERITAS

Test Report No.: RF170104N010-1

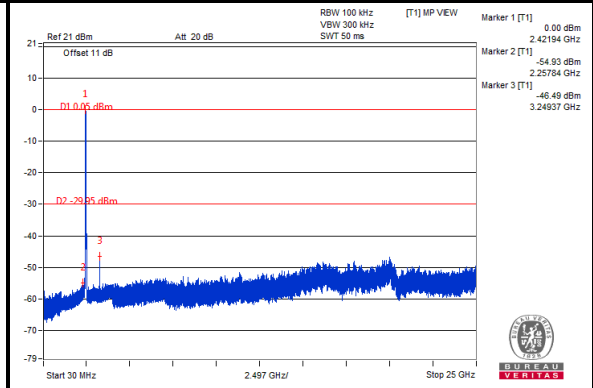
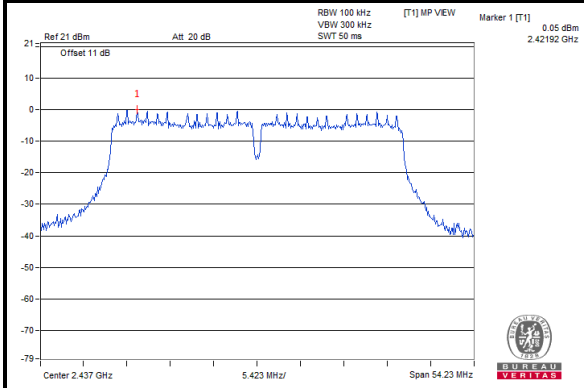
802.11n 40MHz

CHAIN 0

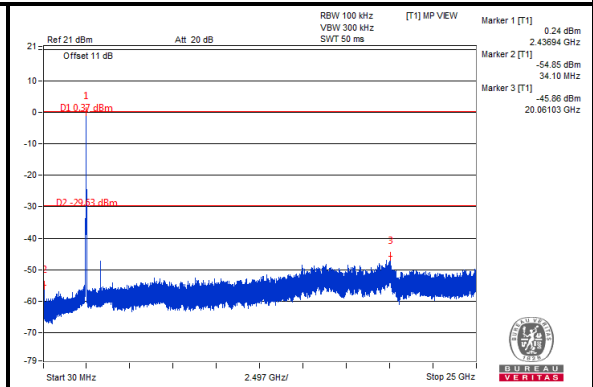
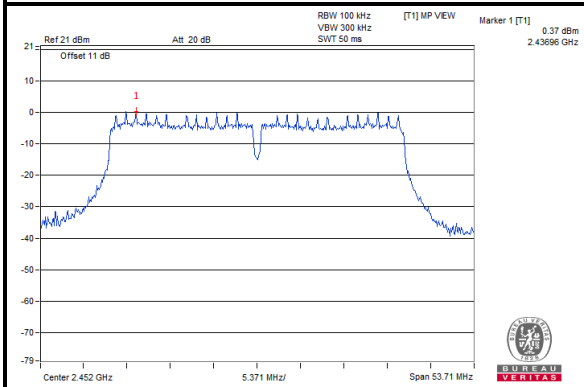
CH 3



CH 6



CH 9



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

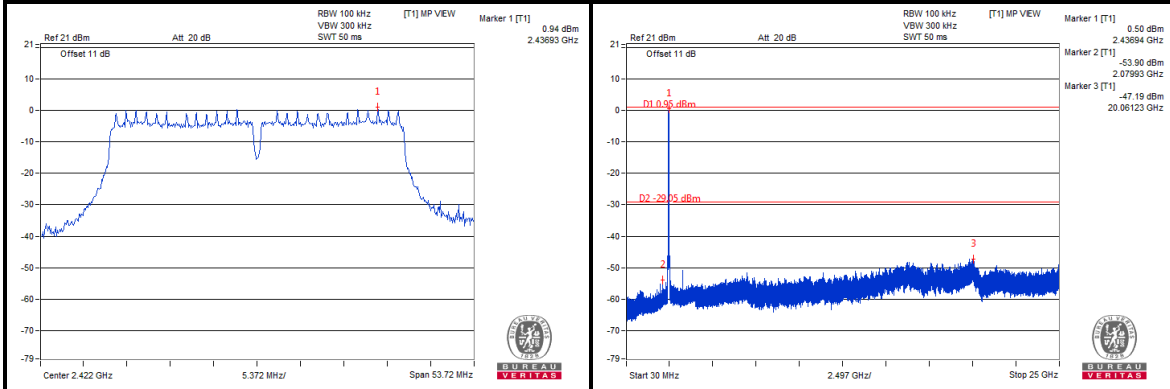


BUREAU VERITAS

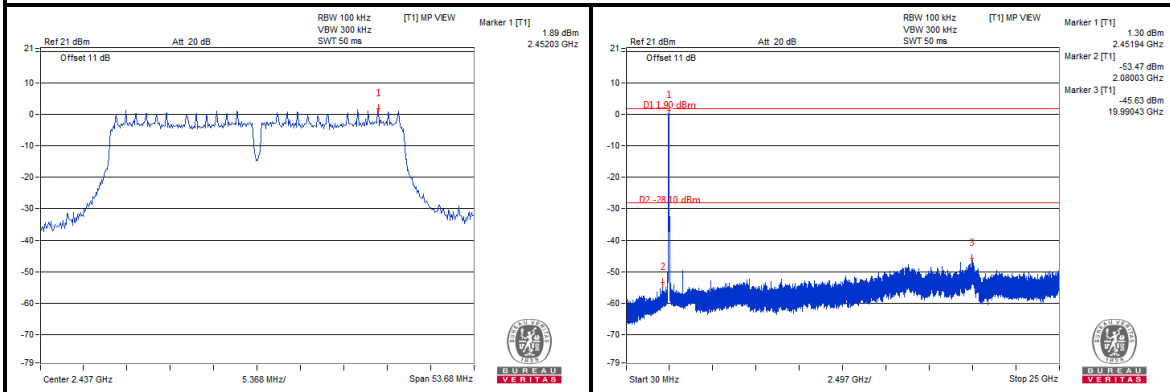
Test Report No.: RF170104N010-1

CHAIN 1

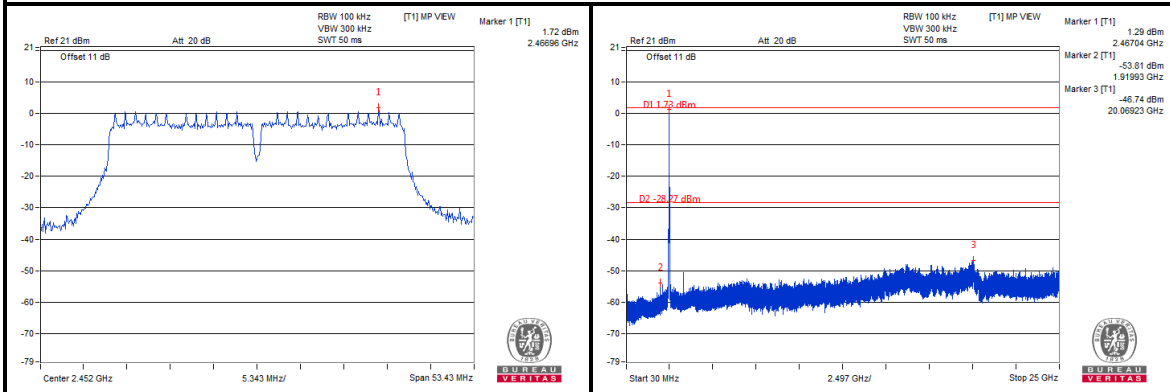
CH 3



CH 6



CH 9



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



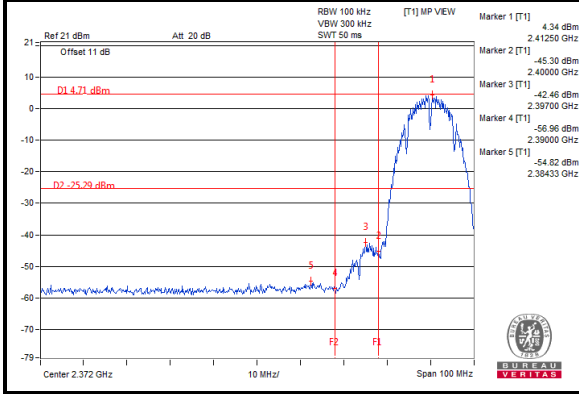
BUREAU VERITAS

Test Report No.: RF170104N010-1

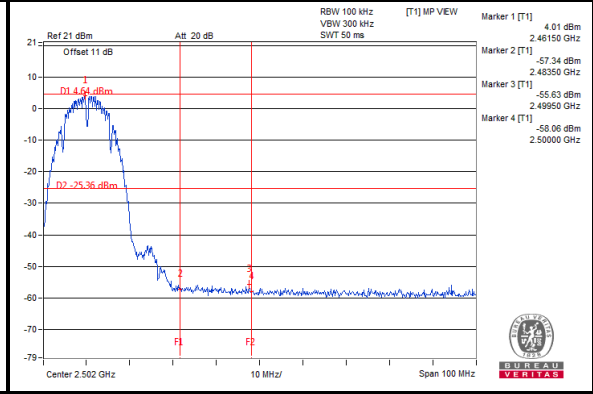
802.11b

CHAIN 0

CH 1 Band edge

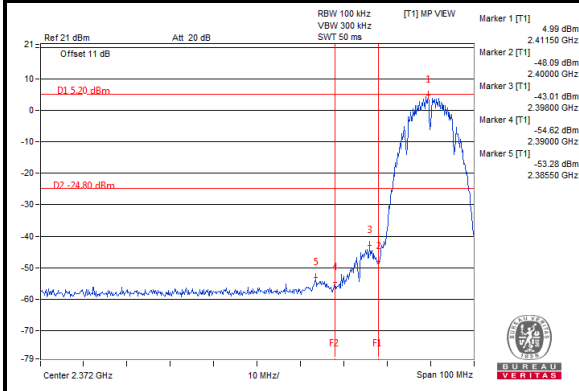


CH 11 Band edge

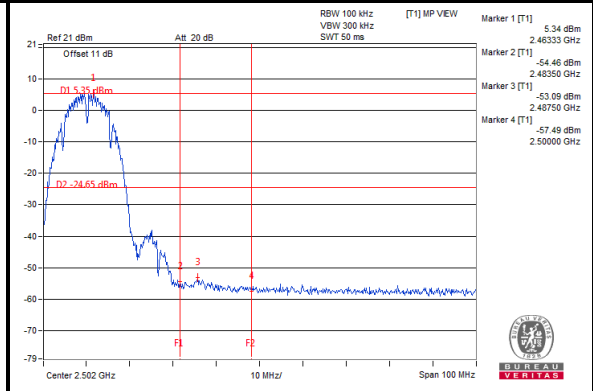


CHAIN 1

CH 1 Band edge



CH 11 Band edge



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



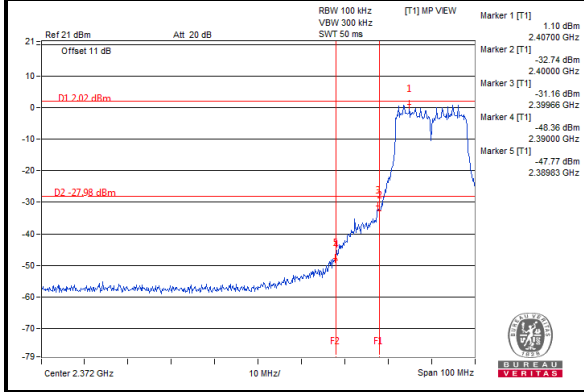
BUREAU VERITAS

Test Report No.: RF170104N010-1

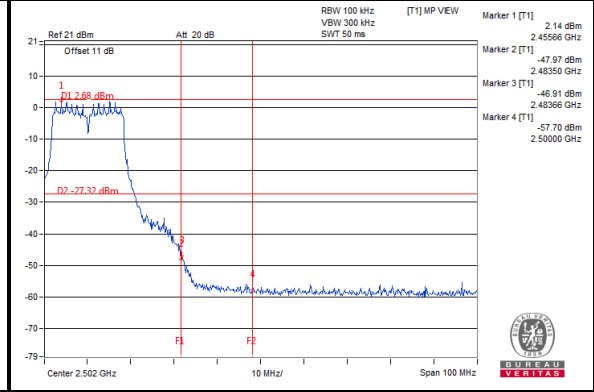
802.11g

CHAIN 0

CH 1 Band edge

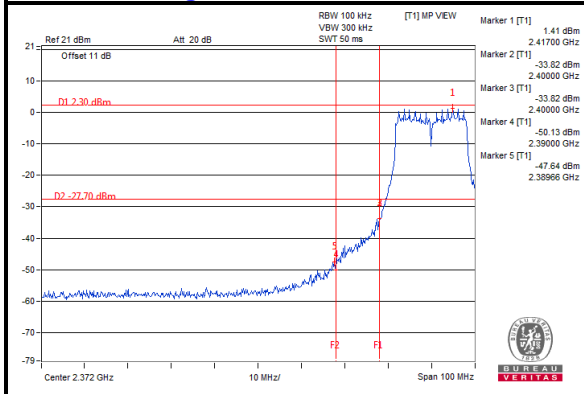


CH 11 Band edge

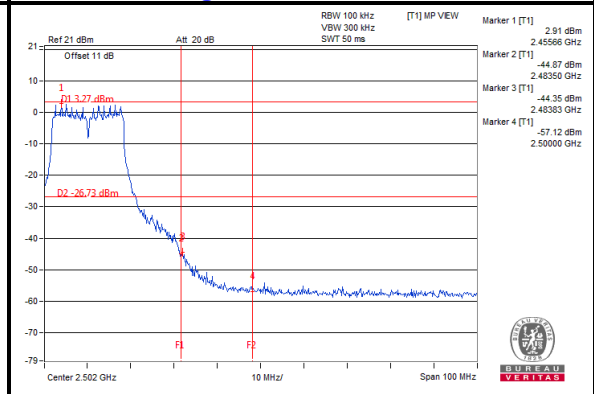


CHAIN 1

CH 1 Band edge



CH 11 Band edge



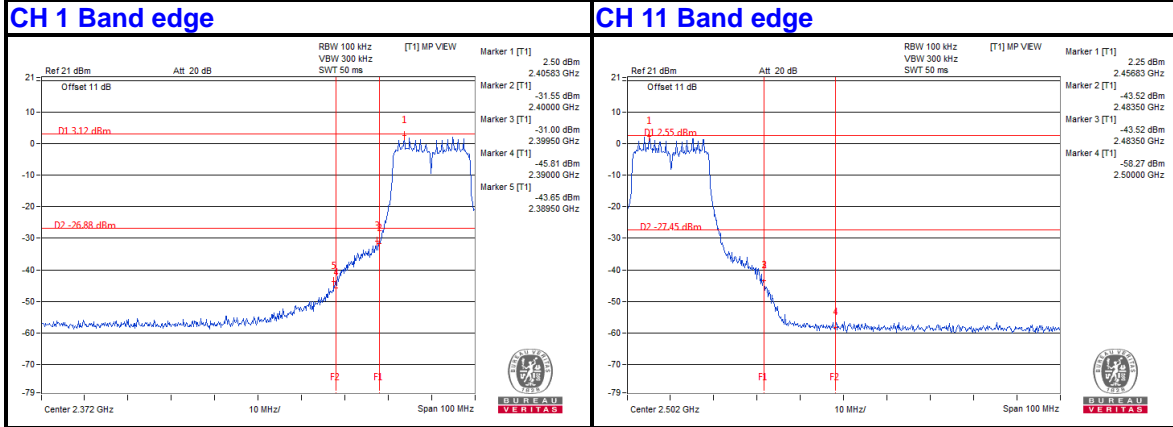


BUREAU VERITAS

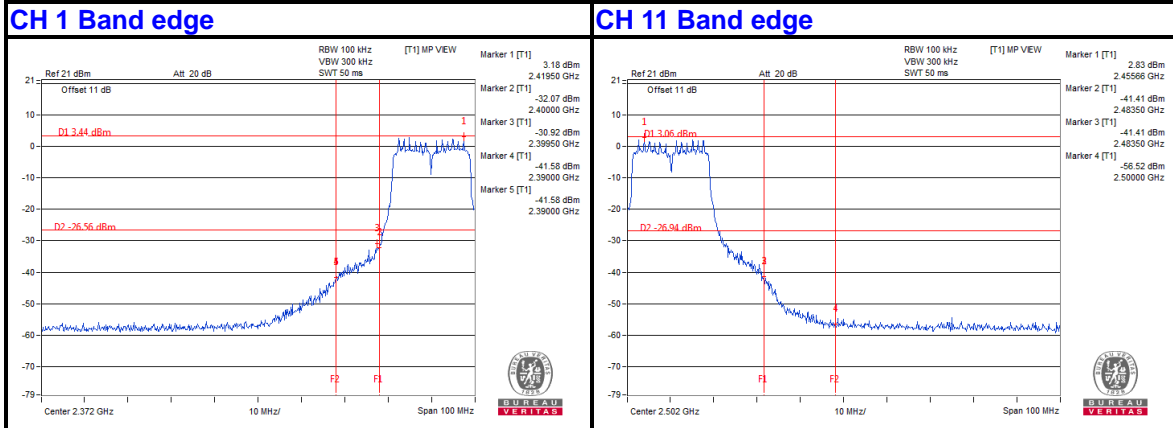
Test Report No.: RF170104N010-1

802.11n 20MHz

CHAIN 0



CHAIN 1





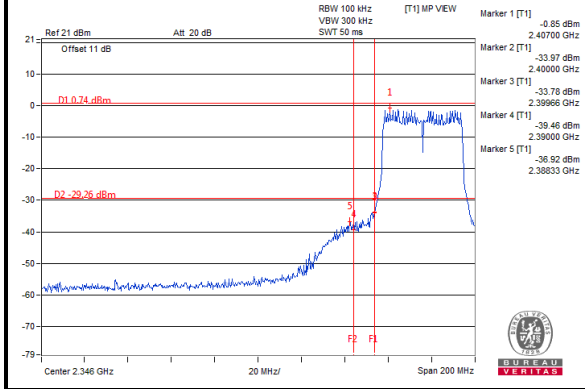
BUREAU VERITAS

Test Report No.: RF170104N010-1

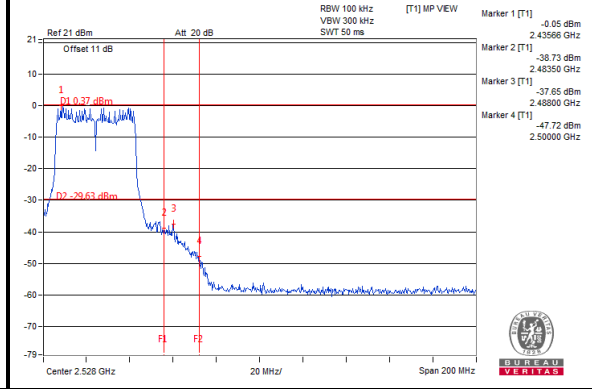
802.11n 40MHz

CHAIN 0

CH 3 Band edge

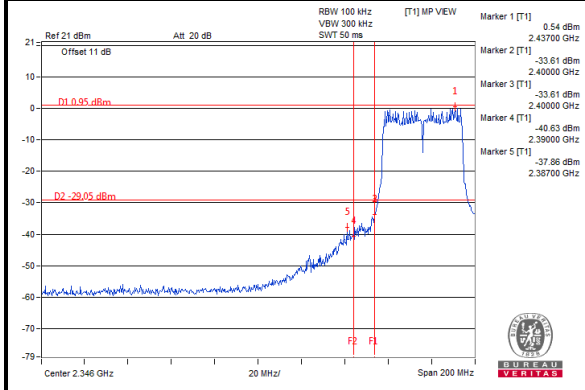


CH 9 Band edge

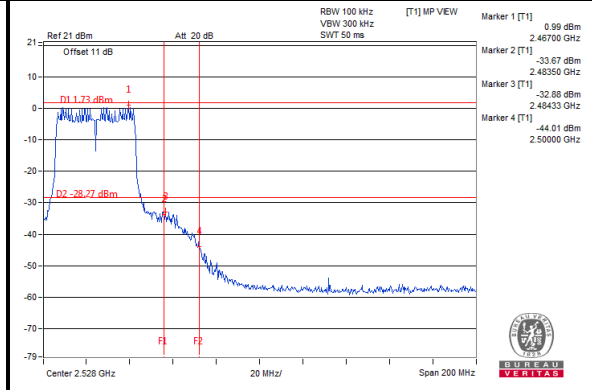


CHAIN 1

CH 3 Band edge



CH 9 Band edge





**BUREAU
VERITAS**

Test Report No.: RF170104N010-1

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



**BUREAU
VERITAS**

Test Report No.: RF170104N010-1

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---