

TEST REPORT

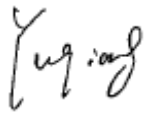
Applicant	ASUSTek COMPUTER INC.
Address	4F,NO. 150,LI-TE RD. PEITOU,TAIPEI 112, TAIWAN

Manufacturer or Supplier	1. Shenzhen Gongjin Electronics Co., Ltd 2. Taicang T&W Electronics Co., Ltd.
Address	1. B116, B118, A211-A213, B201-B213, A311-A313, B411-413, BF08-09 Nanshan Medical Instrument Industry Park,1019# Nanhai Road, Nanshan District, Shenzhen, Guangdong, 518067, P.R.China 2. Jiangnan Road 89,Ludu Town, Taicang, Jiangsu 215412, P.R.China
Product	Wireless N300 Range Extender
Brand Name	ASUS
Model	RP-N12
Additional Model & Model Difference	N/A
Date of tests	Apr. 10, 2014 ~ May 10, 2015

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 Yuqiang Yin Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
	 Date: May 12, 2015

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
1.1 MEASUREMENT UNCERTAINTY	5
2. GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 DESCRIPTION OF TEST MODES	7
2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	7
2.3 DUTY CYCLE OF TEST SIGNAL	10
2.4 DESCRIPTION OF SUPPORT UNITS	12
2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	13
3. TEST TYPES AND RESULTS.....	14
3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT	14
3.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT.....	14
3.1.2 TEST INSTRUMENTS.....	15
3.1.3 TEST PROCEDURES	16
3.1.4 DEVIATION FROM TEST STANDARD	16
3.1.5 TEST SETUP	17
3.1.6 EUT OPERATING CONDITIONS	18
3.1.7 TEST RESULTS	19
3.2 CONDUCTED EMISSION MEASUREMENT	33
3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	33
3.2.2 TEST INSTRUMENTS.....	33
3.2.3 TEST PROCEDURES	34
3.2.4 DEVIATION FROM TEST STANDARD	34
3.2.5 TEST SETUP	34
3.2.6 EUT OPERATING CONDITIONS	34
3.2.7 TEST RESULTS	35
3.3 6dB BANDWIDTH MEASUREMENT.....	37
3.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT	37



3.3.2	TEST SETUP	37
3.3.3	TEST INSTRUMENTS	37
3.3.4	TEST PROCEDURE	37
3.3.5	DEVIATION FROM TEST STANDARD	38
3.3.6	EUT OPERATING CONDITIONS	38
3.3.7	TEST RESULTS	39
3.4	CONDUCTED OUTPUT POWER	42
3.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	42
3.4.2	TEST SETUP	42
3.4.3	TEST INSTRUMENTS	43
3.4.4	TEST PROCEDURES	43
3.4.5	DEVIATION FROM TEST STANDARD	43
3.4.6	EUT OPERATING CONDITIONS	43
3.4.7	TEST RESULTS	44
3.5	POWER SPECTRAL DENSITY MEASUREMENT	45
3.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	45
3.5.2	TEST SETUP	45
3.5.3	TEST INSTRUMENTS	45
3.5.4	TEST PROCEDURE	45
3.5.5	DEVIATION FROM TEST STANDARD	45
3.5.6	EUT OPERATING CONDITION	45
3.5.7	TEST RESULTS	46
3.6	CONDUCTED OUT OF BAND EMISSION MEASUREMENT	49
3.6.1	LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT	49
3.6.2	TEST SETUP	49
3.6.3	TEST INSTRUMENTS	49
3.6.4	TEST PROCEDURE	49
3.6.5	DEVIATION FROM TEST STANDARD	50
3.6.6	EUT OPERATING CONDITION	50
3.6.7	TEST RESULTS	50
4	PHOTOGRAPHS OF THE TEST CONFIGURATION	59
5	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	64



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Test Report No.: RF150410N020

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF150410N020	Original release	May 12, 2015



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	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit.
15.205 & 209	Radiated Emissions	PASS	Meet the requirement of limit.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out Of Band Emission 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

1.1 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	2.66dB
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GMHz	3.55dB
	1GHz ~ 18GHz	4.84dB
	18GHz ~ 40GHz	4.84dB

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



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless N300 Range Extender
MODEL NO.	RP-N12
FCC ID	MSQ-RPN12
POWER SUPPLY	AC 120V 60Hz
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, 256QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(20MHz) 2422-2452MHz for 11n(40MHz)
NUMBER OF CHANNEL	11 for 802.11b/g/n (20MHz) 7 for 802.11n (40MHz)
AVG. OUTPUT POWER	223.394mW
ANTENNA TYPE	Dipole antenna with 2.0dBi gain
DATA CABLE	N/A
I/O PORTS	Refer to user's manual

NOTE:

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

MODULATION MODE	TX FUNCTION
802.11b	2TX
802.11g	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX

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.: 150410N020) for detailed product photo.



2.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	Powered by AC 120V+ WIFI link

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

“-” means no effect.

**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 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	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

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 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	DSSS	DBPSK	1.0

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	802.11b	1 to 11	1	OFDM	BPSK	6.0

**BANDEDGE MEASUREMENT:**

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	13.5

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	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 53%RH	AC 120V 60Hz	Sen He
RE<1G	25deg. C, 53%RH	AC 120V 60Hz	Sen He
PLC	25deg. C, 53%RH	AC 120V 60Hz	Sen He
APCM	20deg. C, 60%RH	AC 120V 60Hz	Yuqiang Yin



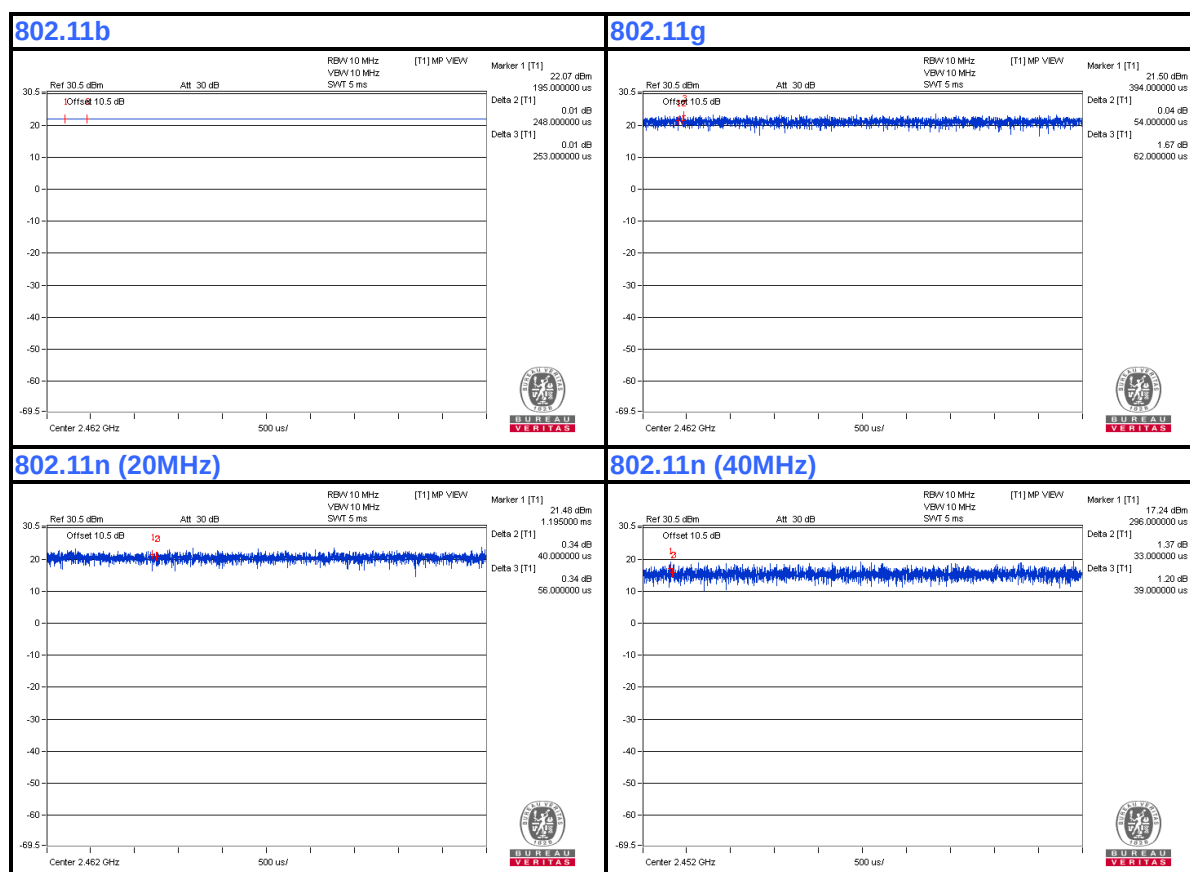
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2.3 DUTY CYCLE OF TEST SIGNAL

Chain 0:

Duty cycle of test signal is 100 %



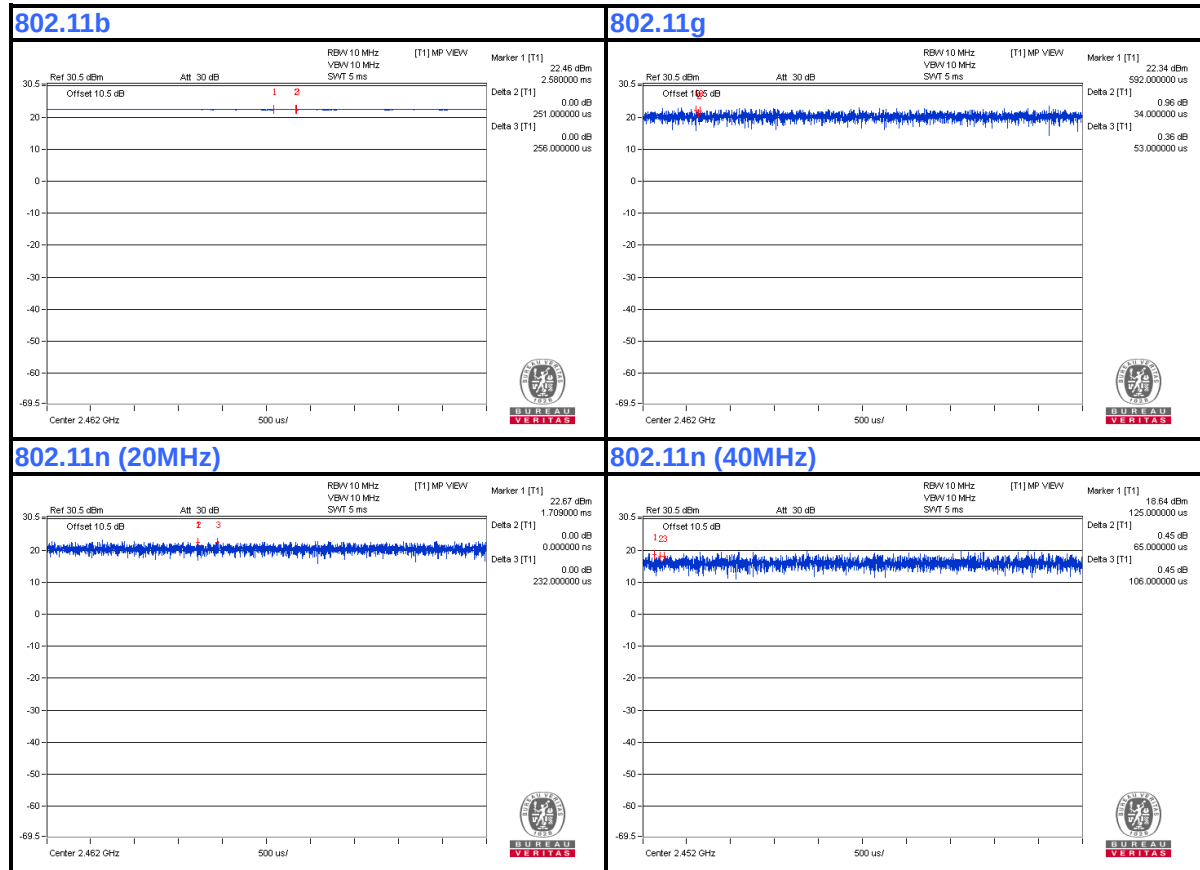


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Chain 1:

Duty cycle of test signal is 100 %





2.4 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	HP	4431s	CNU238944Z	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.5m; DC Line: Unshielded, Detachable 1.5m



2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v03r02

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2009

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

NOTE: 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. TEST TYPES AND RESULTS

3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

3.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE 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. 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.



3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Agilent	E4446A	MY46180622	Apr. 29,15	Apr. 28,16
EMI Test Receiver	Rohde&Schwarz	ESVS10	841431/004	May 17,14	May 16,15
Loop antenna (9kHz~30MHz)	Daze	ZN30900A	0708	Dec. 22,14	Dec. 21,15
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 25, 14	Jul. 24, 15
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 30,14	May 29,16
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Jan. 21,15	Jan. 20,16
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,15	Mar. 03, 16
Signal Amplifier	Agilent	8447D	2944A10488	Jun. 25,14	Jun. 24,15
Pre-Amplifier (100MHz-26.5GHz)	Agilent	8449B	3008A00409	May 13,14	May 12,15
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 20,14	Nov. 19,15
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Apr. 19,14	Apr. 18,16
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 27,14	Oct. 26,15
Test Software	ADT	ADT_Radiated _V7.6.15.9.2	N/A	N/A	N/A

NOTE:

1. The test was performed in 966 Chamber.
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.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 494399.



3.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meters semi-anechoic chamber at frequency above 1GHz. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber at frequency below 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

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

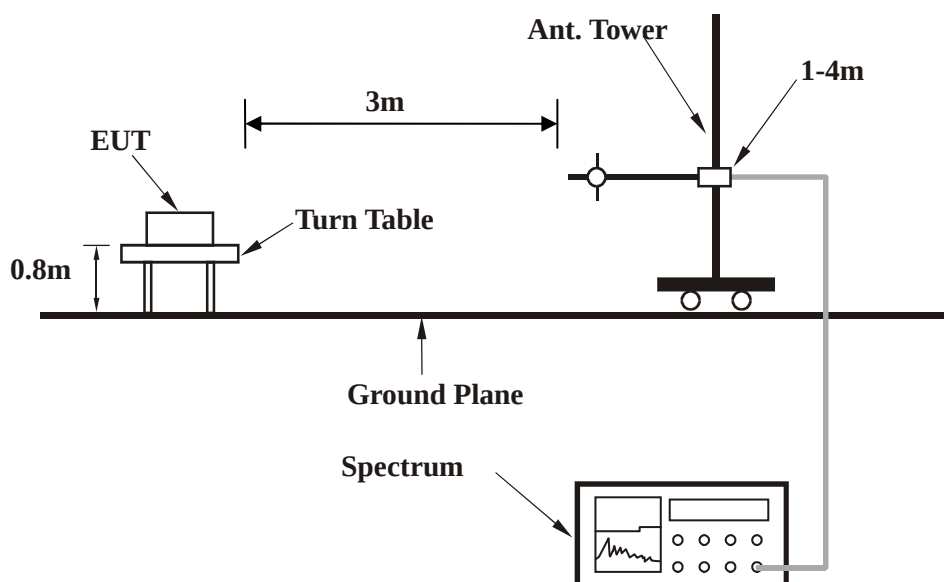
3.1.4 DEVIATION FROM TEST STANDARD

No deviation.

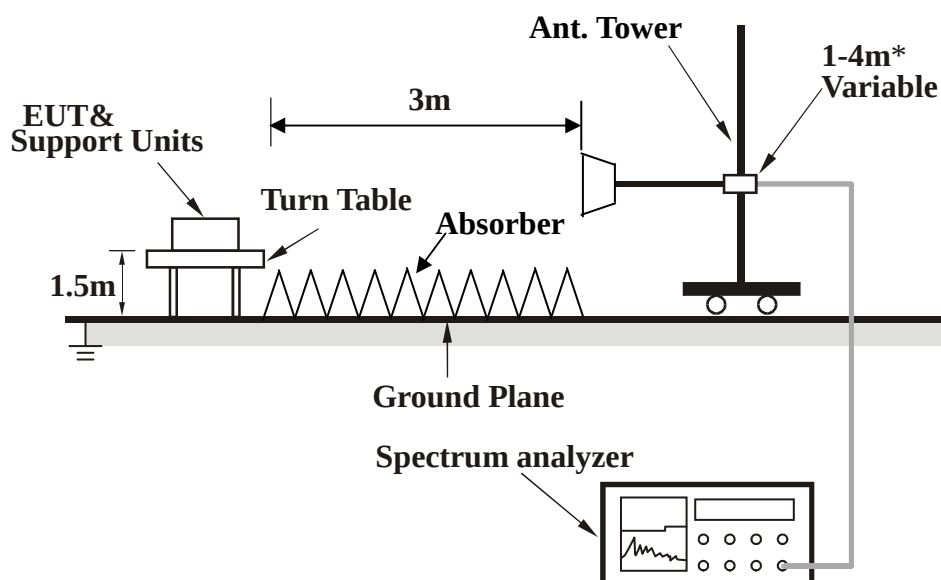


3.1.5 TEST SETUP

Test below 1GHz



Test above 1GHz



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



3.1.6 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared notebooks to act as communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.



3.1.7 TEST RESULTS

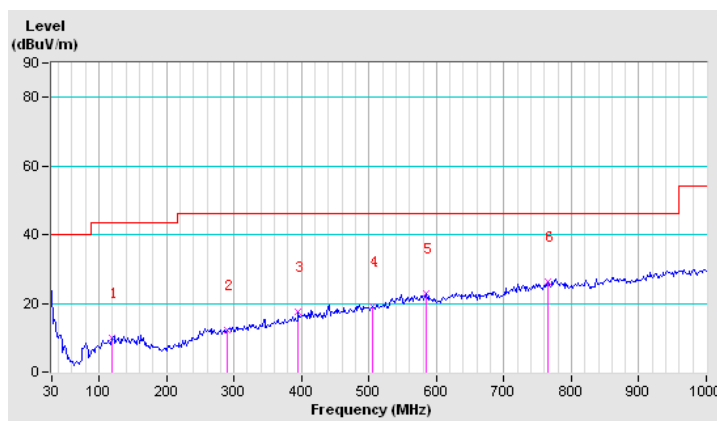
BELOW 1GHz WORST-CASE DATA: 802.11b- CH1

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 (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	118.92	9.97	43.50	-33.53	100	32	28.43	-18.46
2	290.28	12.29	46.00	-33.71	100	160	27.99	-15.70
3	395.37	17.36	46.00	-28.64	100	39	29.18	-11.82
4	505.30	19.03	46.00	-26.97	100	61	27.94	-8.91
5	584.52	22.99	46.00	-23.01	100	133	29.55	-6.56
6	765.58	26.32	46.00	-19.68	100	107	29.48	-3.16

REMARKS:

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





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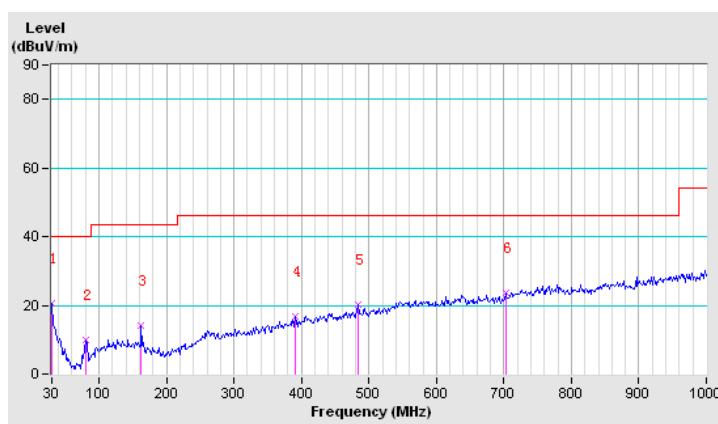
Test Report No.: RF150410N020

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 (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	20.49	40.00	-19.51	100	252	32.76	-12.27
2	80.12	9.84	40.00	-30.16	100	274	33.29	-23.45
3	162.57	13.95	43.50	-29.55	100	230	33.23	-19.28
4	390.52	16.77	46.00	-29.23	100	90	29.15	-12.38
5	484.28	20.23	46.00	-25.77	100	212	29.57	-9.34
6	30.00	23.77	46.00	-22.23	100	185	28.81	-5.04

REMARKS:

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



Bureau Veritas 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



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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	*2412.00	97.8 PK			1.5 H	226	60.60	37.20
2	*2412.00	94.4 AV			1.5 H	226	57.20	37.20
3	1608.00	58.1 PK	74.0	-15.9	1.5 H	0	26.20	31.90
4	1608.00	43.3 AV	54.0	-10.7	1.5 H	0	11.40	31.90
5	2387.40	65.9 PK	74.0	-8.1	1.5 H	360	28.80	37.10
6	2387.40	51.6 AV	54.0	-2.4	1.5 H	360	14.50	37.10
7	4824.00	51.3 PK	74.0	-22.7	1.5 H	306	41.90	9.40
8	4824.00	36.4 AV	54.0	-17.6	1.5 H	306	27.00	9.40
9	#7236.00	55.5 PK	67.8	-12.3	1.5 H	292	43.60	11.90
10	#7236.00	41.6 AV	64.4	-22.8	1.5 H	292	29.70	11.90
11	#9648.00	59.0 PK	67.8	-8.8	1.5 H	168	41.70	17.30
12	#9648.00	45.1 AV	64.4	-19.3	1.5 H	168	27.80	17.30
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	*2412.00	109.6 PK			1.5 V	13	72.40	37.21
2	*2412.00	106.1 AV			1.5 V	13	68.90	37.21
3	1608.00	57.3 PK	74.0	-16.7	1.5 V	15	25.40	31.93
4	1608.00	43.6 AV	54.0	-10.4	1.5 V	15	11.70	31.93
5	2386.80	65.1 PK	74.0	-8.9	1.5 V	0	28.00	37.14
6	2386.80	52.5 AV	54.0	-1.6	1.5 V	0	15.31	37.14
7	4824.00	50.9 PK	74.0	-23.1	1.5 V	145	41.50	9.40
8	4824.00	36.1 AV	54.0	-17.9	1.5 V	145	26.70	9.40
9	#7236.00	55.1 PK	79.6	-24.5	1.5 V	120	43.20	11.90
10	#7236.00	39.0 AV	76.1	-37.1	1.5 V	120	27.10	11.90
11	#9648.00	60.0 PK	79.6	-19.6	1.5 V	100	42.70	17.30
12	#9648.00	43.7 AV	76.1	-32.4	1.5 V	100	26.40	17.30



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Test Report No.: RF150410N020

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.7 PK			1.5 H	226	62.40	37.30
2	*2437.00	96.3 AV			1.5 H	226	59.00	37.30
3	1624.00	57.7 PK	74.0	-16.3	1.5 H	0	25.60	32.10
4	1624.00	43.9 AV	54.0	-10.1	1.5 H	0	11.80	32.10
5	2385.60	65.7 PK	74.0	-8.3	1.5 H	75	28.60	37.10
6	2385.60	51.3 AV	54.0	-2.7	1.5 H	75	14.20	37.10
7	2483.50	65.1 PK	74.0	-8.9	1.5 H	0	27.70	37.40
8	2483.50	50.3 AV	54.0	-3.7	1.5 H	0	12.90	37.40
9	4874.00	49.9 PK	74.0	-24.1	1.5 H	135	40.40	9.50
10	4874.00	35.6 AV	54.0	-18.4	1.5 H	135	26.10	9.50
11	7311.00	54.8 PK	74.0	-19.2	1.5 H	221	42.90	11.90
12	7311.00	41.6 AV	54.0	-12.4	1.5 H	221	29.70	11.90
13	#9748.00	59.5 PK	69.7	-10.2	1.5 H	82	42.40	17.10
14	#9748.00	44.8 AV	66.3	-21.5	1.5 H	82	27.70	17.10
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	110.1 PK			1.6 V	1	72.80	37.30
2	*2437.00	106.6 AV			1.6 V	1	69.30	37.30
3	1624.00	59.2 PK	74.0	-14.8	1.5 V	69	27.10	32.10
4	1624.00	43.9 AV	54.0	-10.1	1.5 V	69	11.80	32.10
5	2388.70	65.5 PK	74.0	-8.5	1.5 V	0	28.40	37.10
6	2388.70	52.2 AV	54.0	-1.8	1.5 V	0	15.10	37.10
7	2483.50	65.0 PK	74.0	-9.0	1.5 V	206	27.60	37.40
8	2483.50	50.5 AV	54.0	-3.5	1.5 V	206	13.10	37.40
9	4874.00	50.4 PK	74.0	-23.6	1.5 V	307	40.90	9.50
10	4874.00	36.0 AV	54.0	-18.0	1.5 V	307	26.50	9.50
11	7311.00	55.2 PK	74.0	-18.8	1.5 V	241	43.30	11.90
12	7311.00	41.4 AV	54.0	-12.6	1.5 V	241	29.50	11.90
13	#9748.00	58.6 PK	80.1	-21.5	1.5 V	115	41.50	17.10
14	#9748.00	44.6 AV	76.6	-32.0	1.5 V	115	27.50	17.10



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	99.2 PK			1.5 H	226	61.80	37.40
2	*2462.00	95.7 AV			1.5 H	226	58.30	37.40
3	#1641.00	58.1 PK	69.2	-11.1	1.5 H	88	25.80	32.30
4	#1641.00	43.7 AV	65.7	-22	1.5 H	88	11.40	32.30
5	2483.50	65.2 PK	74.0	-8.8	1.5 H	192	27.80	37.40
6	2483.50	51.0 AV	54.0	-3.0	1.5 H	192	13.60	37.40
7	4924.00	50.7 PK	74.0	-23.3	1.5 H	261	41.10	9.60
8	4924.00	35.2 AV	54.0	-18.8	1.5 H	261	25.60	9.60
9	7386.00	54.2 PK	74.0	-19.8	1.5 H	210	42.40	11.80
10	7386.00	40.3 AV	54.0	-13.7	1.5 H	210	28.50	11.80
11	#9848.00	58.6 PK	69.2	-33.0	1.5 H	80	41.60	17.00
12	#9848.00	44.1 AV	65.7	-43.2	1.5 H	80	27.10	17.00
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	111.6 PK			1.8 V	7	74.20	37.40
2	*2462.00	107.3 AV			1.8 V	7	69.90	37.40
3	#1641.00	59.2 PK	81.6	-22.4	1.5 V	101	26.90	32.30
4	#1641.00	44.2 AV	77.3	-33.1	1.5 V	101	11.90	32.30
5	2483.50	64.3 PK	74.0	-9.7	1.5 V	264	26.90	37.40
6	2483.50	50.5 AV	54.0	-3.5	1.5 V	264	13.10	37.40
7	4924.00	50.4 PK	74.0	-23.6	1.5 V	102	40.80	9.60
8	4924.00	35.1 AV	54.0	-18.9	1.5 V	102	25.50	9.60
9	7386.00	54.7 PK	74.0	-19.3	1.5 V	174	42.90	11.80
10	7386.00	40.5 AV	54.0	-13.5	1.5 V	174	28.70	11.80
11	#9848.00	58.3 PK	81.6	-23.3	1.5 V	290	41.30	17.00
12	#9848.00	43.9 AV	77.3	-33.4	1.5 V	290	26.90	17.00

REMARKS:

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



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	*2412.00	101.8 PK			1.5 H	229	64.60	37.20
2	*2412.00	92.9 AV			1.5 H	229	55.70	37.20
3	1608.00	58.8 PK	74.0	-15.2	1.5 H	64	26.90	31.90
4	1608.00	43.3 AV	54.0	-10.7	1.5 H	64	11.40	31.90
5	2384.60	64.2 PK	74.0	-9.8	1.5 H	229	27.10	37.10
6	2384.60	50.4 AV	54.0	-3.6	1.5 H	229	13.30	37.10
7	4824.00	50.8 PK	74.0	-23.2	1.5 H	164	41.40	9.40
8	4824.00	36.0 AV	54.0	-18.0	1.5 H	164	26.60	9.40
9	#7236.00	55.2 PK	71.8	-16.6	1.5 H	97	43.30	11.90
10	#7236.00	39.0 AV	62.9	-23.9	1.5 H	97	27.10	11.90
11	#9648.00	59.5 PK	71.8	-12.3	1.5 H	306	42.20	17.30
12	#9648.00	44.0 AV	62.9	-18.9	1.5 H	306	26.70	17.30
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	*2412.00	110.5 PK			1.5 V	14	73.30	37.20
2	*2412.00	99.4 AV			1.5 V	14	62.20	37.20
3	1608.00	58.5 PK	74.0	-15.5	1.5 V	203	26.60	31.90
4	1608.00	43.2 AV	54.0	-10.8	1.5 V	203	11.30	31.90
5	2388.70	66.8 PK	74.0	-7.2	1.5 V	267	29.70	37.10
6	2388.70	52.8 AV	54.0	-1.2	1.5 V	267	15.70	37.10
7	4824.00	51.9 PK	74.0	-22.1	1.5 V	194	42.50	9.40
8	4824.00	35.5 AV	54.0	-18.5	1.5 V	194	26.10	9.40
9	#7236.00	55.4 PK	80.5	-25.1	1.5 V	266	43.50	11.90
10	#7236.00	40.3 AV	69.4	-29.1	1.5 V	266	28.40	11.90
11	#9648.00	59.3 PK	80.5	-21.2	1.5 V	42	42.00	17.30
12	#9648.00	44.3 AV	69.4	-25.1	1.5 V	42	27.00	17.30



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Test Report No.: RF150410N020

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	104.5 PK			1.5 H	225	67.20	37.30
2	*2437.00	92.2 AV			1.5 H	225	54.90	37.30
3	1624.00	59.0 PK	74.0	-15.0	1.5 H	114	26.90	32.10
4	1624.00	43.4 AV	54.0	-10.6	1.5 H	114	11.30	32.10
5	2387.00	64.2 PK	74.0	-9.8	1.5 H	277	27.10	37.10
6	2387.00	50.7 AV	54.0	-3.3	1.5 H	277	13.60	37.10
7	2483.50	64.7 PK	74.0	-9.3	1.5 H	351	27.30	37.40
8	2483.50	49.8 AV	54.0	-4.2	1.5 H	351	12.40	37.40
9	4874.00	50.6 PK	74.0	-23.4	1.5 H	54	41.10	9.50
10	4874.00	35.4 AV	54.0	-18.6	1.5 H	54	25.90	9.50
11	7311.00	55.1 PK	74.0	-18.9	1.5 H	107	43.20	11.90
12	7311.00	41.0 AV	54.0	-13.0	1.5 H	107	29.10	11.90
13	#9748.00	59.4 PK	74.5	-15.1	1.5 H	167	42.30	17.10
14	#9748.00	44.3 AV	62.2	-17.9	1.5 H	167	27.20	17.10
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	111.4 PK			1.8 V	26	74.10	37.30
2	*2437.00	100.1 AV			1.8 V	26	62.80	37.30
3	1624.00	59.0 PK	74.0	-15.0	1.5 V	233	26.90	32.10
4	1624.00	44.2 AV	54.0	-9.8	1.5 V	233	12.10	32.10
5	2384.10	65.2 PK	74.0	-8.8	1.5 V	171	28.10	37.10
6	2384.10	51.5 AV	54.0	-2.5	1.5 V	171	14.40	37.10
7	2483.50	64.6 PK	74.0	-9.4	1.5 V	319	27.20	37.40
8	2483.50	50.2 AV	54.0	-3.8	1.5 V	319	12.80	37.40
9	4874.00	50.4 PK	74.0	-23.6	1.5 V	310	40.90	9.50
10	4874.00	34.9 AV	54.0	-19.1	1.5 V	310	25.40	9.50
11	7311.00	54.5 PK	74.0	-19.5	1.5 V	225	42.60	11.90
12	7311.00	40.7 AV	54.0	-13.3	1.5 V	225	28.80	11.90
13	#9748.00	58.4 PK	81.4	-23.0	1.5 V	102	41.30	17.10
14	#9748.00	44.5 AV	70.1	-25.6	1.5 V	102	27.40	17.10



CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.6 PK			1.5 H	225	66.20	37.40
2	*2462.00	91.9 AV			1.5 H	225	54.50	37.40
3	#1641.00	59.2 PK	73.6	-14.4	1.5 H	167	26.90	32.30
4	#1641.00	43.8 AV	61.9	-18.1	1.5 H	167	11.50	32.30
5	2483.50	65.8 PK	74.0	-8.2	1.5 H	301	28.40	37.40
6	2483.50	50.7 AV	54.0	-3.3	1.5 H	301	13.30	37.40
7	4924.00	50.9 PK	74.0	-23.1	1.5 H	212	41.30	9.60
8	4924.00	35.3 AV	54.0	-18.7	1.5 H	212	25.70	9.60
9	7386.00	54.7 PK	74.0	-19.3	1.5 H	77	42.90	11.80
10	7386.00	40.5 AV	54.0	-13.5	1.5 H	77	28.70	11.80
11	#9848.00	58.0 PK	73.6	-15.6	1.5 H	110	41.00	17.00
12	#9848.00	43.5 AV	61.9	-18.4	1.5 H	110	26.50	17.00
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	111.6 PK			1.9 V	21	74.20	37.40
2	*2462.00	102.8 AV			1.9 V	21	65.40	37.40
3	#1641.00	58.5 PK	81.6	-23.1	1.5 V	225	26.20	32.30
4	#1641.00	43.6 AV	72.8	-29.2	1.5 V	225	11.30	32.30
5	2483.50	72.2 PK	74.0	-1.8	1.5 V	204	34.80	37.40
6	2483.50	52.8 AV	54.0	-1.2	1.5 V	204	15.40	37.40
7	4924.00	50.7 PK	74.0	-23.3	1.5 V	355	41.10	9.60
8	4924.00	35.3 AV	54.0	-18.7	1.5 V	355	25.70	9.60
9	7386.00	54.3 PK	74.0	-19.7	1.5 V	241	42.50	11.80
10	7386.00	40.2 AV	54.0	-13.8	1.5 V	241	28.40	11.80
11	#9848.00	58.6 PK	81.6	-23.0	1.5 V	312	41.60	17.00
12	#9848.00	43.6 AV	72.8	-29.2	1.5 V	312	26.60	17.00

REMARKS:

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



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	*2412.00	103.4 PK			1.5 H	228	66.20	37.20
2	*2412.00	92.9 AV			1.5 H	228	55.70	37.20
3	1608.00	58.8 PK	74.0	-15.2	1.5 H	133	26.90	31.90
4	1608.00	43.5 AV	54.0	-10.5	1.5 H	133	11.60	31.90
5	2390.00	64.7 PK	74.0	-9.3	1.5 H	122	27.60	37.10
6	2390.00	50.6 AV	54.0	-3.4	1.5 H	122	13.50	37.10
7	4824.00	50.3 PK	74.0	-23.7	1.5 H	154	40.90	9.40
8	4824.00	35.3 AV	54.0	-18.7	1.5 H	154	25.90	9.40
9	#7236.00	54.2 PK	73.4	-19.2	1.5 H	197	42.30	11.90
10	#7236.00	40.1 AV	62.9	-22.8	1.5 H	197	28.20	11.90
11	#9648.00	59.1 PK	73.4	-14.3	1.5 H	322	41.80	17.30
12	#9648.00	44.4 AV	62.9	-18.5	1.5 H	322	27.10	17.30
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	*2412.00	111.1 PK			1.5 V	12	73.90	37.20
2	*2412.00	99.6 AV			1.5 V	12	62.40	37.20
3	1608.00	58.5 PK	74.0	-15.5	1.5 V	99	26.60	31.90
4	1608.00	43.4 AV	54.0	-10.6	1.5 V	99	11.50	31.90
5	2390.00	68.7 PK	74.0	-5.3	1.5 V	122	31.60	37.10
6	2390.00	52.7 AV	54.0	-1.3	1.5 V	122	15.60	37.10
7	4824.00	50.5 PK	74.0	-23.5	1.5 V	231	41.10	9.40
8	4824.00	35.7 AV	54.0	-18.3	1.5 V	231	26.30	9.40
9	#7236.00	55.0 PK	81.1	-26.1	1.5 V	112	43.10	11.90
10	#7236.00	40.9 AV	69.6	-28.7	1.5 V	112	29.00	11.90
11	#9648.00	59.1 PK	81.1	-22.0	1.5 V	195	41.80	17.30
12	#9648.00	43.7 AV	69.6	-25.9	1.5 V	195	26.40	17.30



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Test Report No.: RF150410N020

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	101.5 PK			1.5 H	229	64.20	37.30
2	*2437.00	89.6 AV			1.5 H	229	52.30	37.30
3	1624.00	59.0 PK	74.0	-15.0	1.5 H	87	26.90	32.10
4	1624.00	43.6 AV	54.0	-10.4	1.5 H	87	11.50	32.10
5	2386.00	51.0 AV	54.0	-3.0	1.5 H	166	13.90	37.10
6	2386.00	63.5 PK	74.0	-10.5	1.5 H	166	26.40	37.10
7	2483.50	64.3 PK	74.0	-9.7	1.5 H	354	26.90	37.40
8	2483.50	49.9 AV	54.0	-4.1	1.5 H	325	12.50	37.40
9	4874.00	50.4 PK	74.0	-23.6	1.5 H	325	40.90	9.50
10	4874.00	35.2 AV	54.0	-18.8	1.5 H	325	25.70	9.50
11	7311.00	54.1 PK	74.0	-19.9	1.5 H	210	42.20	11.90
12	7311.00	40.4 AV	54.0	-13.6	1.5 H	210	28.50	11.90
13	#9748.00	59.0 PK	71.5	-12.5	1.5 H	301	41.90	17.10
14	#9748.00	44.3 AV	59.6	-15.3	1.5 H	301	27.20	17.10
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	113.6 PK			1.8 V	30	76.30	37.30
2	*2437.00	99.5 AV			1.8 V	30	62.20	37.30
3	1624.00	58.8 PK	74.0	-15.2	1.5 V	274	26.70	32.10
4	1624.00	44.0 AV	54.0	-10.0	1.5 V	274	11.90	32.10
5	2386.00	65.5 PK	74.0	-8.5	1.5 V	102	28.40	37.10
6	2386.00	51.7 AV	54.0	-2.3	1.5 V	102	14.60	37.10
7	2483.50	64.0 PK	74.0	-10.0	1.5 V	325	26.60	37.40
8	2483.50	49.9 AV	54.0	-4.1	1.5 V	325	12.50	37.40
9	4874.00	50.7 PK	74.0	-23.3	1.5 V	237	41.20	9.50
10	4874.00	35.7 AV	54.0	-18.3	1.5 V	237	26.20	9.50
11	7311.00	54.5 PK	74.0	-19.5	1.5 V	55	42.60	11.90
12	7311.00	40.3 AV	54.0	-13.7	1.5 V	55	28.40	11.90
13	#9748.00	58.9 PK	83.6	-24.7	1.5 V	169	41.80	17.10
14	#9748.00	44.0 AV	69.5	-25.5	1.5 V	169	26.90	17.10

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



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	100.9 PK			1.5 H	230	63.50	37.40
2	*2462.00	88.6 AV			1.5 H	230	51.20	37.40
3	#1641.00	59.4 PK	70.9	-11.5	1.5 H	32	27.10	32.30
4	#1641.00	44.2 AV	58.6	-14.4	1.5 H	32	11.90	32.30
5	2483.50	65.2 PK	74.0	-8.8	1.5 H	222	27.80	37.40
6	2483.50	50.5 AV	54.0	-3.5	1.5 H	222	13.10	37.40
7	4924.00	50.7 PK	74.0	-23.3	1.5 H	107	41.10	9.60
8	4924.00	35.4 AV	54.0	-18.6	1.5 H	107	25.80	9.60
9	7386.00	55.4 PK	74.0	-18.6	1.5 H	264	43.60	11.80
10	7386.00	40.7 AV	54.0	-13.3	1.5 H	264	28.90	11.80
11	#9848.00	59.2 PK	70.9	-11.7	1.5 H	290	42.20	17.00
12	#9848.00	44.1 AV	58.6	-14.5	1.5 H	290	27.10	17.00
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	108.6 PK			1.8 V	1	71.20	37.40
2	*2462.00	96.5 AV			1.8 V	1	59.10	37.40
3	#1641.00	59.2 PK	78.6	-19.4	1.5 V	269	26.90	32.30
4	#1641.00	44.1 AV	66.5	-22.4	1.5 V	269	11.80	32.30
5	2483.50	70.5 PK	74.0	-3.5	1.5 V	131	33.10	37.40
6	2483.50	52.6 AV	54.0	-1.4	1.5 V	131	15.20	37.40
7	4924.00	51.2 PK	74.0	-22.8	1.5 V	235	41.60	9.60
8	4924.00	35.6 AV	54.0	-18.4	1.5 V	235	26.00	9.60
9	7386.00	54.2 PK	74.0	-19.8	1.5 V	74	42.40	11.80
10	7386.00	40.0 AV	54.0	-14.0	1.5 V	74	28.20	11.80
11	#9848.00	58.9 PK	78.6	-19.7	1.5 V	336	41.90	17.00
12	#9848.00	44.1 AV	66.5	-22.4	1.5 V	336	27.10	17.00

REMARKS:

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



802.11n (40MHz)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2422.00	94.8 PK			1.5 H	193	57.60	37.20
2	*2422.00	83.8 AV			1.5 H	193	46.60	37.20
3	1614.00	58.9 PK	74.0	-15.1	1.5 H	163	26.90	32.00
4	1614.00	43.7 AV	54.0	-10.3	1.5 H	163	11.70	32.00
5	2388.40	66.0 PK	74.0	-8.0	1.5 H	322	28.90	37.10
6	2388.40	50.5 AV	54.0	-3.5	1.5 H	322	13.40	37.10
7	4844.00	51.6 PK	74.0	-22.4	1.5 H	172	42.10	9.50
8	4844.00	36.3 AV	54.0	-17.7	1.5 H	172	26.80	9.50
9	7266.00	55.8 PK	74.0	-18.2	1.5 H	102	43.90	11.90
10	7266.00	41.2 AV	54.0	-12.8	1.5 H	102	29.30	11.90
11	#9688.00	59.8 PK	64.8	-5.0	1.5 H	267	42.50	17.30
12	#9688.00	44.7 AV	53.8	-9.1	1.5 H	267	27.40	17.30
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	*2422.00	103.3 PK			1.9 V	355	66.10	37.20
2	*2422.00	92.0 AV			1.9 V	355	54.80	37.20
3	1614.00	58.6 PK	74.0	-15.4	1.5 V	97	26.60	32.00
4	1614.00	43.8 AV	54.0	-10.2	1.5 V	97	11.80	32.00
5	2388.00	67.9 PK	74.0	-6.1	1.5 V	125	30.80	37.10
6	2388.00	52.6 AV	54.0	-1.4	1.5 V	125	15.50	37.10
7	4844.00	51.2 PK	74.0	-22.8	1.5 V	134	41.70	9.50
8	4844.00	36.2 AV	54.0	-17.8	1.5 V	134	26.70	9.50
9	7266.00	55.4 PK	74.0	-18.6	1.5 V	201	43.50	11.90
10	7266.00	41.4 AV	54.0	-12.6	1.5 V	201	29.50	11.90
11	#9688.00	59.7 PK	73.3	-13.6	1.5 V	74	42.40	17.30
12	#9688.00	44.8 AV	62.0	-17.2	1.5 V	74	27.50	17.30



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Test Report No.: RF150410N020

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	97.3 PK			1.5 H	198	60.00	37.30
2	*2437.00	85.8 AV			1.5 H	198	48.50	37.30
3	1624.00	61.3 PK	74.0	-12.7	1.5 H	71	29.20	32.10
4	1624.00	44.0 AV	54.0	-10.0	1.5 H	71	11.90	32.10
5	2387.50	65.9 PK	74.0	-8.1	1.5 H	182	28.80	37.10
6	2387.50	50.8 AV	54.0	-3.2	1.5 H	182	13.70	37.10
7	2483.50	65.0 PK	74.0	-9.0	1.5 H	255	27.60	37.40
8	2483.50	50.8 AV	54.0	-3.2	1.5 H	255	13.40	37.40
9	4874.00	50.4 PK	74.0	-23.6	1.5 H	214	40.90	9.50
10	4874.00	36.0 AV	54.0	-18.0	1.5 H	214	26.50	9.50
11	7311.00	55.0 PK	74.0	-19.0	1.5 H	136	43.10	11.90
12	7311.00	40.8 AV	54.0	-13.2	1.5 H	136	28.90	11.90
13	#9748.00	59.3 PK	67.3	-8.0	1.5 H	351	42.20	17.10
14	#9748.00	44.5 AV	55.8	-11.3	1.5 H	351	27.40	17.10
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	105.4 PK			1.8 V	360	68.10	37.30
2	*2437.00	93.9 AV			1.8 V	360	56.60	37.30
3	1624.00	61.0 PK	74.0	-13.0	1.5 V	139	28.90	32.10
4	1624.00	44.1 AV	54.0	-9.9	1.5 V	139	12.00	32.10
5	2388.60	67.5 PK	74.0	-6.5	1.5 V	221	30.40	37.10
6	2388.60	52.8 AV	54.0	-1.2	1.5 V	221	15.70	37.10
7	2483.50	66.0 PK	74.0	-8.0	1.5 V	144	28.60	37.40
8	2483.50	51.4 AV	54.0	-2.6	1.5 V	144	14.00	37.40
9	4874.00	50.9 PK	74.0	-23.1	1.5 V	202	41.40	9.50
10	4874.00	36.6 AV	54.0	-17.4	1.5 V	202	27.10	9.50
11	7311.00	55.0 PK	74.0	-19.0	1.5 V	56	43.10	11.90
12	7311.00	41.1 AV	54.0	-12.9	1.5 V	56	29.20	11.90
13	#9748.00	59.7 PK	75.4	-15.7	1.5 V	333	42.60	17.10
14	#9748.00	44.4 AV	63.9	-19.5	1.5 V	333	27.30	17.10



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	95.7 PK			1.5 H	199	58.40	37.30
2	*2452.00	83.2 AV			1.5 H	199	45.90	37.30
3	#1634.00	58.9 PK	65.7	-6.8	1.5 H	280	26.70	32.20
4	#1634.00	44.1 AV	53.2	-9.1	1.5 H	280	11.90	32.20
5	2483.50	64.4 PK	74.0	-9.6	1.5 H	239	27.00	37.40
6	2483.50	50.3 AV	54.0	-3.7	1.5 H	239	12.90	37.40
7	4904.00	49.7 PK	74.0	-24.3	1.5 H	231	40.10	9.60
8	4904.00	35.7 AV	54.0	-18.3	1.5 H	231	26.10	9.60
9	7356.00	54.6 PK	74.0	-19.4	1.5 H	144	42.70	11.90
10	7356.00	40.6 AV	54.0	-13.4	1.5 H	144	28.70	11.90
11	#9808.00	59.2 PK	65.7	-6.5	1.5 H	266	42.10	17.10
12	#9808.00	44.3 AV	53.2	-8.9	1.5 H	266	27.20	17.10
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	103.8 PK			1.9 V	358	66.50	37.30
2	*2452.00	93.8 AV			1.9 V	358	56.50	37.30
3	#1634.00	58.9 PK	73.8	-14.9	1.5 V	328	26.70	32.20
4	#1634.00	44.0 AV	63.8	-19.8	1.5 V	328	11.80	32.20
5	2483.50	68.0 PK	74.0	-6.0	1.5 V	231	30.60	37.40
6	2483.50	52.7 AV	54.0	-1.3	1.5 V	231	15.30	37.40
7	4904.00	51.2 PK	74.0	-22.8	1.5 V	209	41.60	9.60
8	4904.00	36.1 AV	54.0	-17.9	1.5 V	209	26.50	9.60
9	7356.00	55.1 PK	74.0	-18.9	1.5 V	88	43.20	11.90
10	7356.00	41.0 AV	54.0	-13.0	1.5 V	88	29.10	11.90
11	#9808.00	59.7 PK	73.8	-14.1	1.5 V	112	42.60	17.10
12	#9808.00	45.0 AV	63.8	-18.8	1.5 V	112	27.90	17.10

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.



3.2 CONDUCTED EMISSION MEASUREMENT

3.2.1 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.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCS30	100340	May 17,14	May 16,15
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	May 13,14	May 12,15
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	May 13,14	May 12,15
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.



3.2.3 TEST PROCEDURES

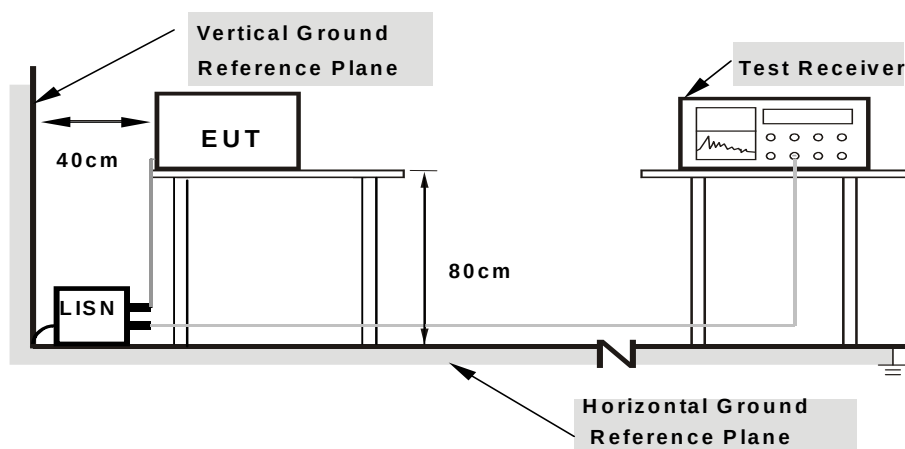
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

3.2.4 DEVIATION FROM TEST STANDARD

No deviation.

3.2.5 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).

3.2.6 EUT OPERATING CONDITIONS

Same as 3.1.6



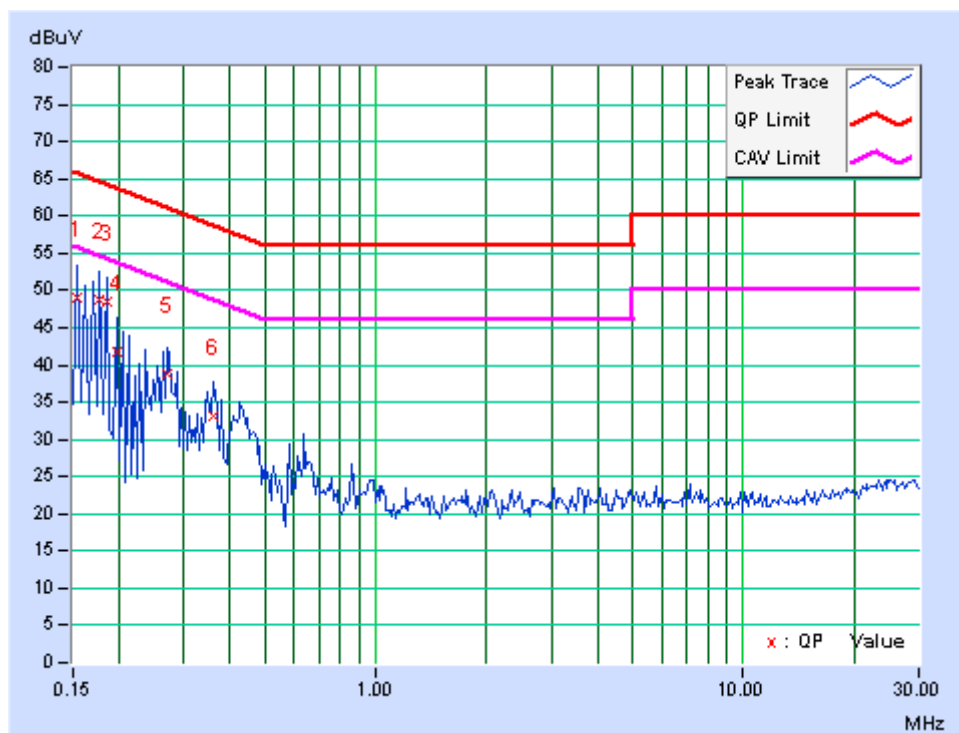
3.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA : 802.11b CH1(Adapter: 2AAJ012F1 NA)

PHASE	Line	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.84	38.19	24.27	49.03	35.11	65.79	55.79	-16.76	-20.68
2	0.17734	10.75	38.03	24.69	48.78	35.44	64.61	54.61	-15.83	-19.17
3	0.18516	10.72	37.74	24.35	48.46	35.07	64.25	54.25	-15.79	-19.18
4	0.19687	10.67	31.17	16.56	41.84	27.23	63.74	53.74	-21.9	-26.51
5	0.27109	10.64	28.22	16.91	38.86	27.55	61.08	51.08	-22.22	-23.53
6	0.36094	10.65	22.58	14.93	33.23	25.58	58.71	48.71	-25.48	-23.13

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





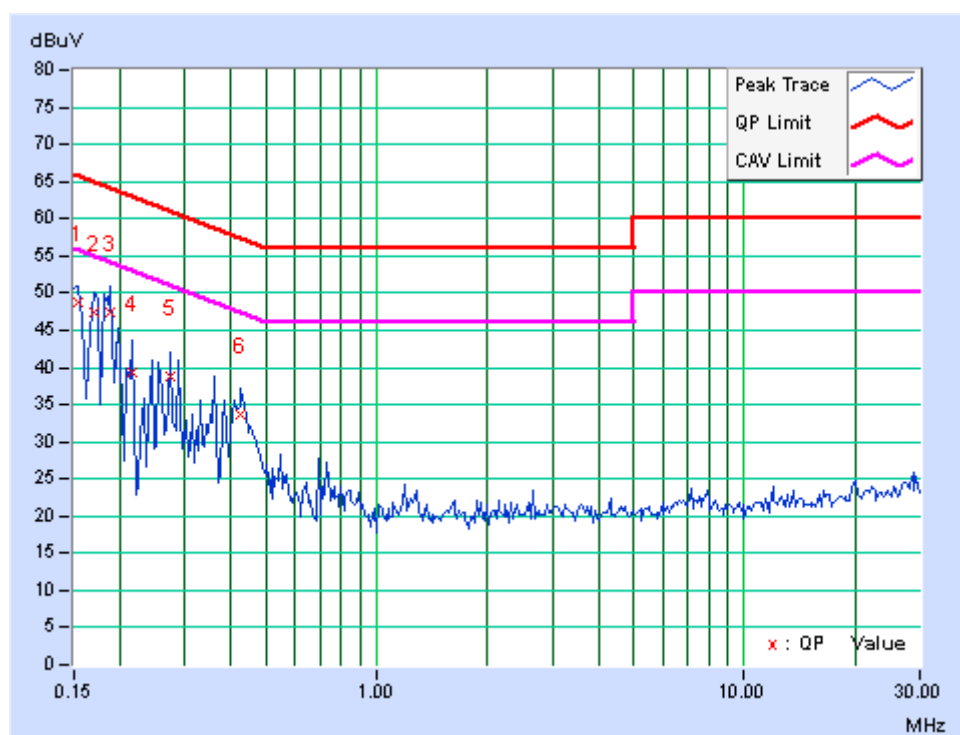
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Test Report No.: RF150410N020

PHASE	Neutral	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.64	38.19	24.49	48.83	35.13	65.79	55.79	-16.95	-20.65
2	0.16953	10.61	36.74	23.23	47.35	33.84	64.98	54.98	-17.63	-21.14
3	0.18906	10.57	36.94	22.77	47.51	33.34	64.08	54.08	-16.57	-20.74
4	0.21641	10.55	28.69	13.47	39.24	24.02	62.96	52.96	-23.72	-28.94
5	0.275	10.56	28.27	17.12	38.83	27.68	60.97	50.97	-22.13	-23.28
6	0.42734	10.63	23	18.04	33.63	28.67	57.3	47.3	-23.68	-18.64

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



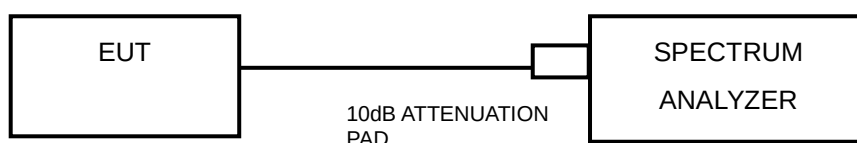


3.3 6dB BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 TEST SETUP



3.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 07,15	Apr. 06,16
Power Meter	Anritsu	ML2495A	1139001	Feb. 20,15	Feb. 19,16
Power Sensor	Anritsu	MA2411B	1126068	Feb. 20,15	Feb. 19,16
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 27,14	Oct. 26,15
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.04,14	Sep. 03,15
Oscilloscope	Agilent	DSO9254A	MY51260160	Oct. 17, 14	Oct. 16, 15
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 05,14	Nov. 04,15

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, GREGT/CHINA and NIM/CHINA.

3.3.4 TEST PROCEDURE

- a. Set resolution bandwidth (RBW) = 100kHz
- b. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- c. Trace mode = max hold.
- d. Sweep = auto couple.
- e. 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



Test Report No.: RF150410N020

3.3.5 DEVIATION FROM TEST STANDARD

No deviation.

3.3.6 EUT OPERATING CONDITIONS

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

**3.3.7 TEST RESULTS****802.11b**

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	9.08	10.04	0.5	PASS
6	2437	10.06	10.02	0.5	PASS
11	2462	10.07	10.08	0.5	PASS

802.11g

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
1	2412	16.39	16.38	0.5	PASS
6	2437	16.39	16.39	0.5	PASS
11	2462	16.35	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	17.60	17.56	0.5	PASS
6	2437	17.61	17.59	0.5	PASS
11	2462	17.35	17.58	0.5	PASS



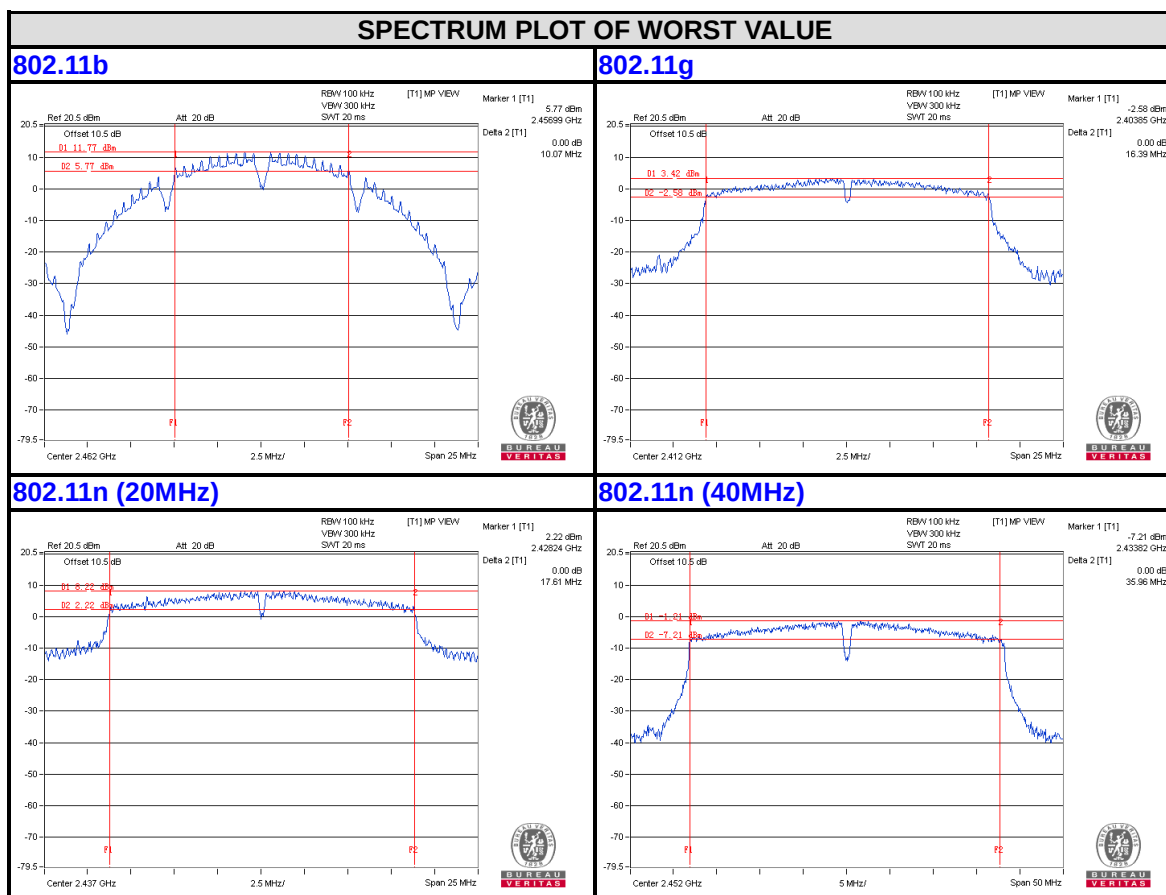
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Test Report No.: RF150410N020

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
3	2422	35.78	34.53	0.5	PASS
6	2437	35.54	34.46	0.5	PASS
9	2452	35.96	35.17	0.5	PASS

CHAIN 0



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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



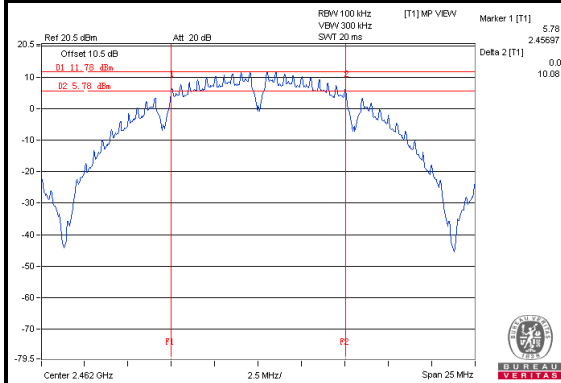
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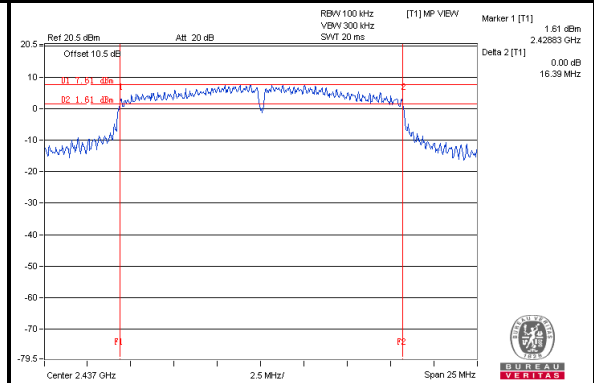
CHAIN 1

SPECTRUM PLOT OF WORST VALUE

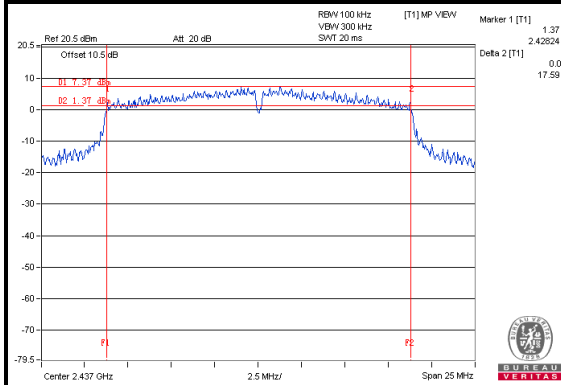
802.11b



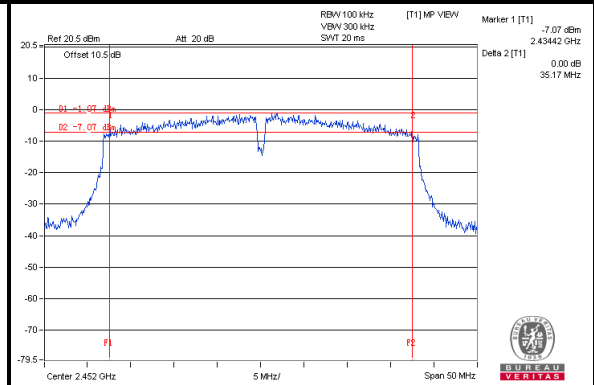
802.11g



802.11n (20MHz)



802.11n (40MHz)



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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



3.4 CONDUCTED OUTPUT POWER

3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

Per KDB 662911 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

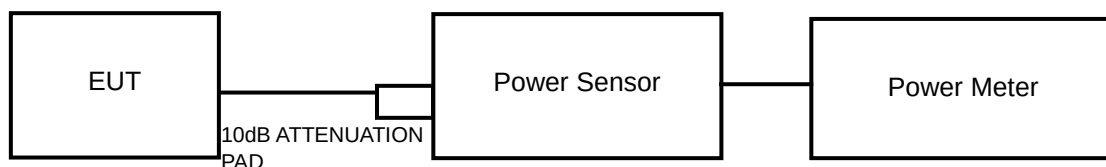
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = $5 \log(NANT/NSS)$ dB or 3 dB, whichever is less for 20-MHz channel widths with $NANT \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(NANT/NSS)$ dB.

3.4.2 TEST SETUP





3.4.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (9KHz–40GHz)	Agilent	E4446A	MY46180622	Apr. 29,15	Apr. 28,16
Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 07,15	Apr. 06,16
Power Meter	Anritsu	ML2495A	1139001	Feb. 20,15	Feb. 19,16
Power Sensor	Anritsu	MA2411B	1126068	Feb. 20,15	Feb. 19,16
Digital Multimeter	FLUKE	15B	A1220010D G	Oct. 27,14	Oct. 26,15

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.

3.4.4 TEST PROCEDURES

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

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

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



3.4.7 TEST RESULTS

FOR AVERAGE POWER

802.11b

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	16.53	16.68	91.537	19.62	30	PASS
6	2437	20.52	20.37	221.613	23.46	30	PASS
11	2462	20.54	20.42	223.394	23.49	30	PASS

802.11g

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	16.37	16.03	83.438	19.21	30	PASS
6	2437	20.48	19.89	209.185	23.21	30	PASS
11	2462	18.20	17.92	128.013	21.07	30	PASS

802.11n (20MHz)

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
1	2412	16.27	15.81	80.471	19.06	30	PASS
6	2437	20.24	19.59	196.673	22.94	30	PASS
11	2462	17.62	17.32	111.761	20.48	30	PASS

802.11n (40MHz)

CHAN.	FREQ. (MHz)	AVG. POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
3	2422	12.78	12.41	36.385	15.61	30	PASS
6	2437	15.59	13.49	58.56	17.68	30	PASS
9	2452	13.34	13.53	44.119	16.45	30	PASS

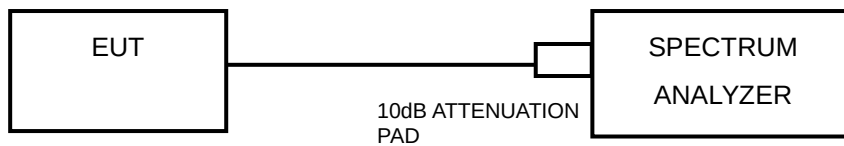


3.5 POWER SPECTRAL DENSITY MEASUREMENT

3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

3.5.2 TEST SETUP



3.5.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.5.4 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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d) Set VBW $\geq 3 \times \text{RBW}$.
- e) Detector = power averaging (RMS) or sample detector (when RMS not available).
- f) Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$.
- g) Sweep time = auto couple.
- h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
- i) Use the peak marker function to determine the maximum amplitude level.

3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

3.5.6 EUT OPERATING CONDITION

Same as Item 3.3.6

**3.5.7 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	-6.39	3.01	-3.38	8	PASS
	6	2437	-3.77	3.01	-0.76	8	PASS
	11	2462	-1.63	3.01	1.38	8	PASS
1	1	2412	-6.91	3.01	-3.90	8	PASS
	6	2437	-2.91	3.01	0.10	8	PASS
	11	2462	-2.81	3.01	0.20	8	PASS

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	-6.92	3.01	-3.91	8	PASS
	6	2437	-3.72	3.01	-0.71	8	PASS
	11	2462	-6.15	3.01	-3.14	8	PASS
1	1	2412	-9.23	3.01	-6.22	8	PASS
	6	2437	-4.04	3.01	-1.03	8	PASS
	11	2462	-7.66	3.01	-4.65	8	PASS

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	-8.63	3.01	-4.16	8	PASS
	6	2437	-3.42	3.01	1.05	8	PASS
	11	2462	-6.83	3.01	-2.36	8	PASS
1	1	2412	-8.08	3.01	-3.61	8	PASS
	6	2437	-4.07	3.01	0.40	8	PASS
	11	2462	-6.73	3.01	-2.26	8	PASS



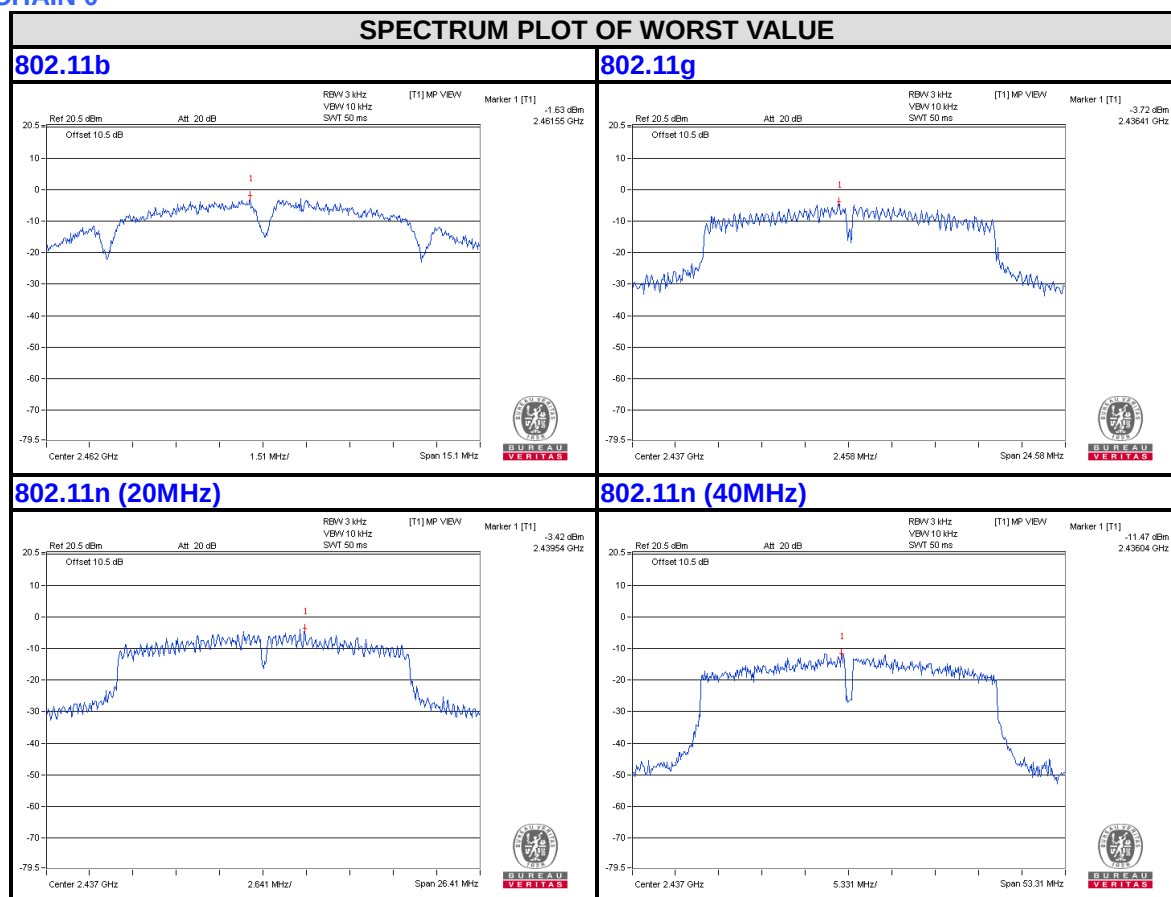
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Test Report No.: RF150410N020

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	-15.85	3.01	-12.11	8	PASS
	6	2437	-11.47	3.01	-7.73	8	PASS
	9	2452	-14.52	3.01	-10.78	8	PASS
1	3	2422	-15.74	3.01	-9.37	8	PASS
	6	2437	-14.47	3.01	-7.19	8	PASS
	9	2452	-14.24	3.01	-7.07	8	PASS

CHAIN 0

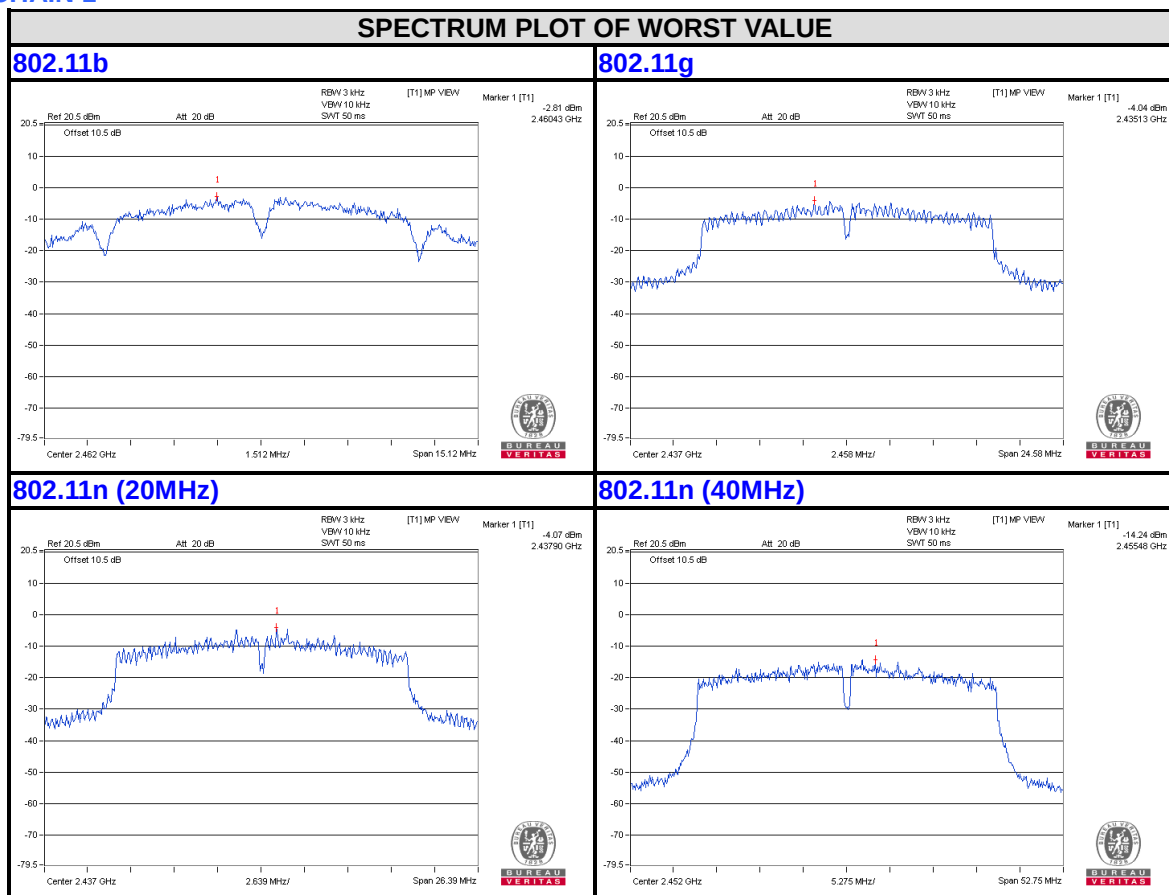




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CHAIN 1



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

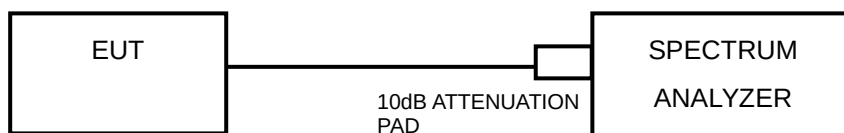


3.6 CONDUCTED OUT OF BAND EMISSION MEASUREMENT

3.6.1 LIMITS OF CONDUCTED OUT OF BAND EMISSION MEASUREMENT

Below -30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

3.6.2 TEST SETUP



3.6.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.



MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

3.6.5 DEVIATION FROM TEST STANDARD

No deviation.

3.6.6 EUT OPERATING CONDITION

Same as Item 3.3.6

3.6.7 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

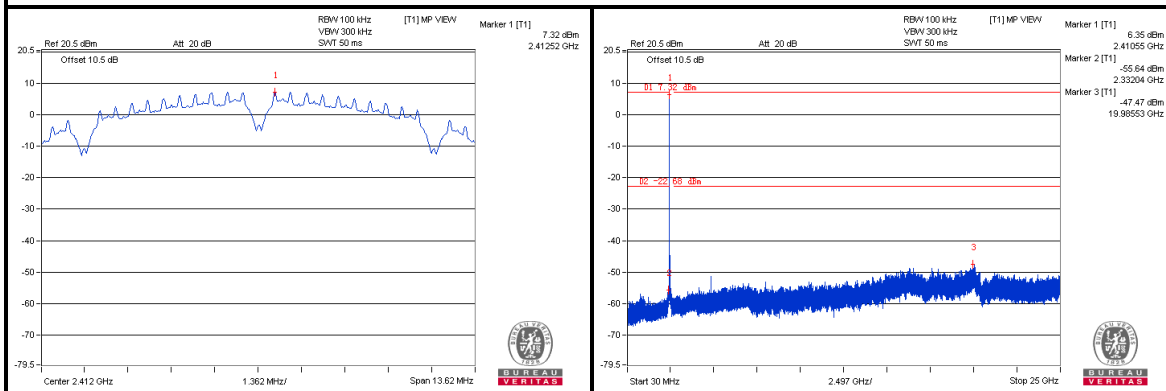


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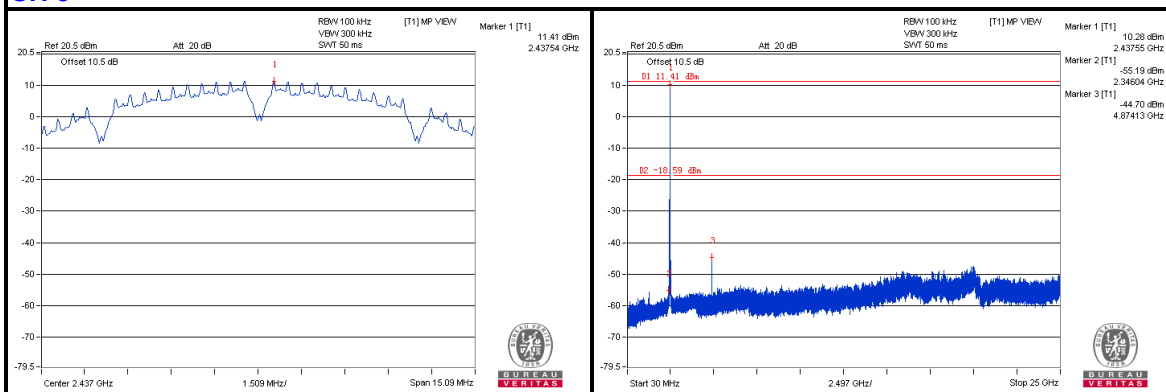
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802.11b
CHAIN 0

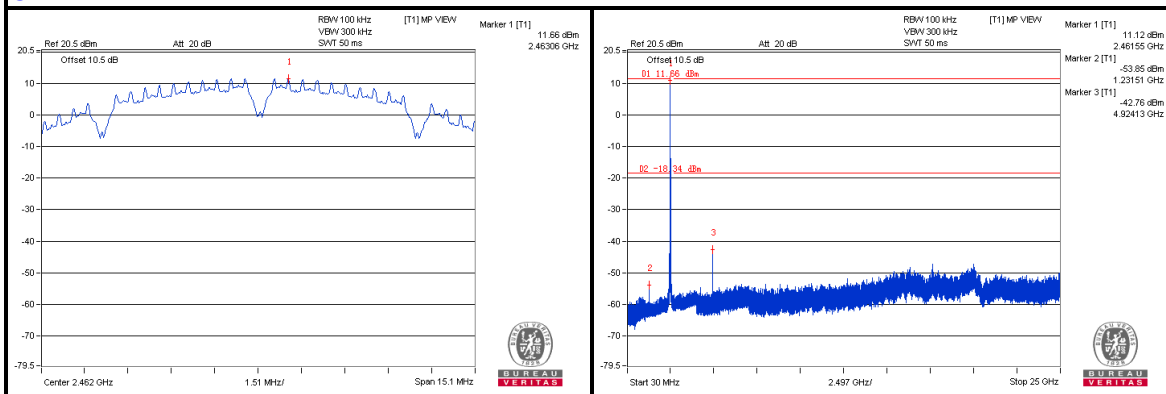
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Dongguan Branch

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

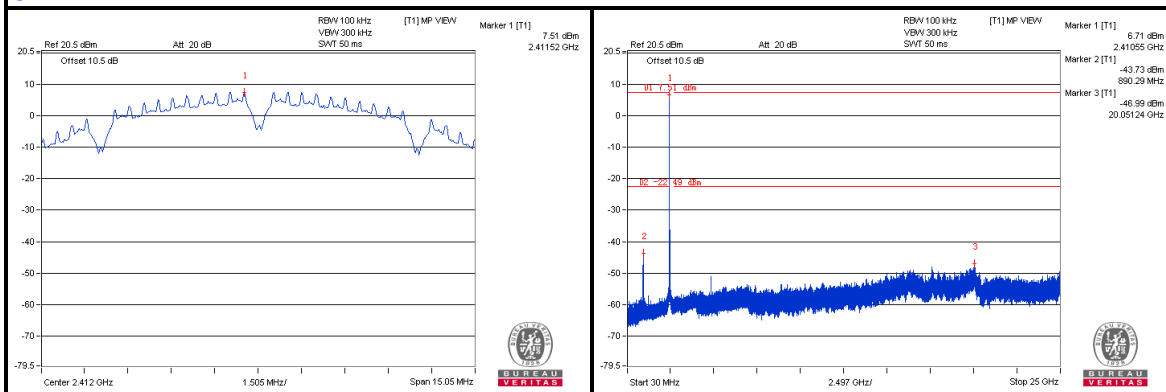


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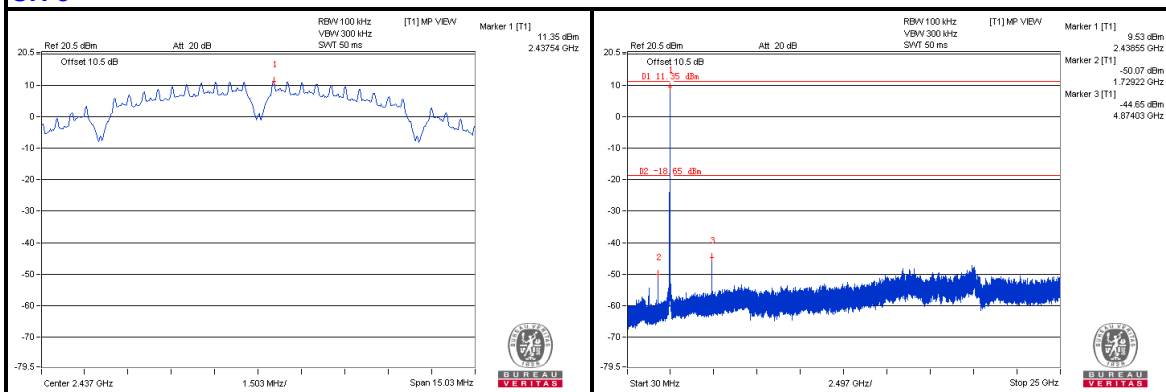
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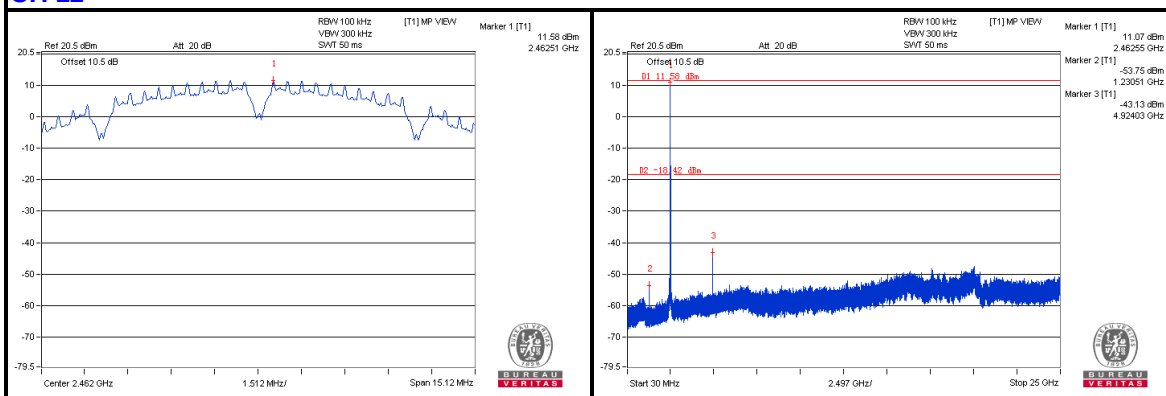
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Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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

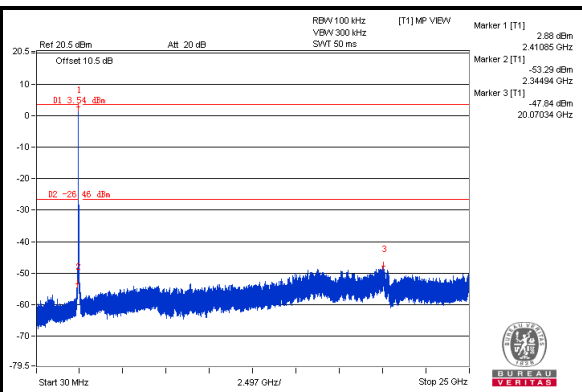
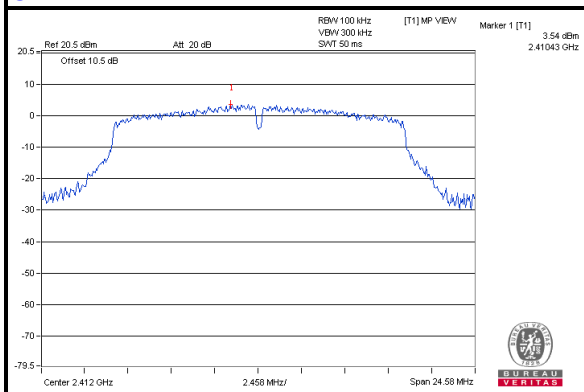


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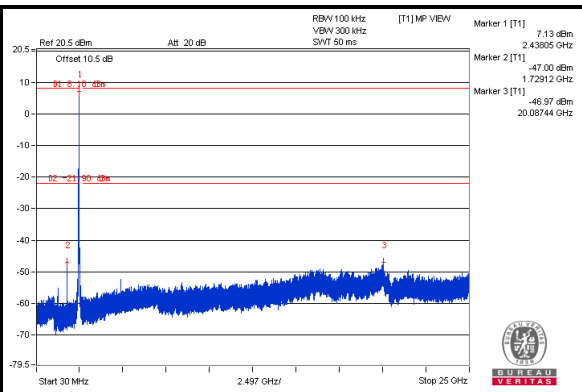
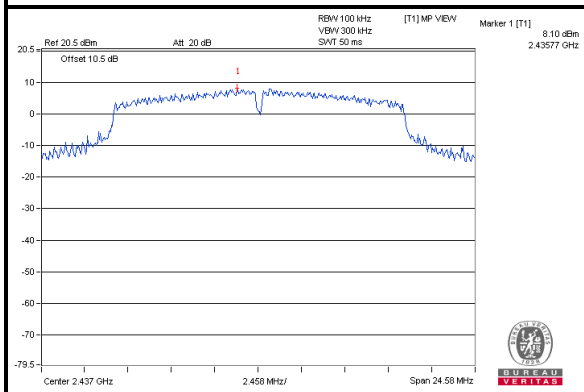
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802.11g
CHAIN 0

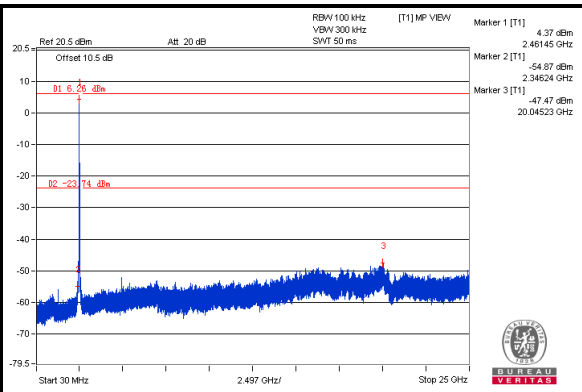
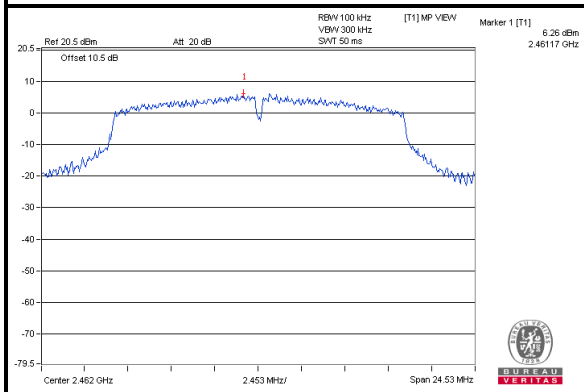
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Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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

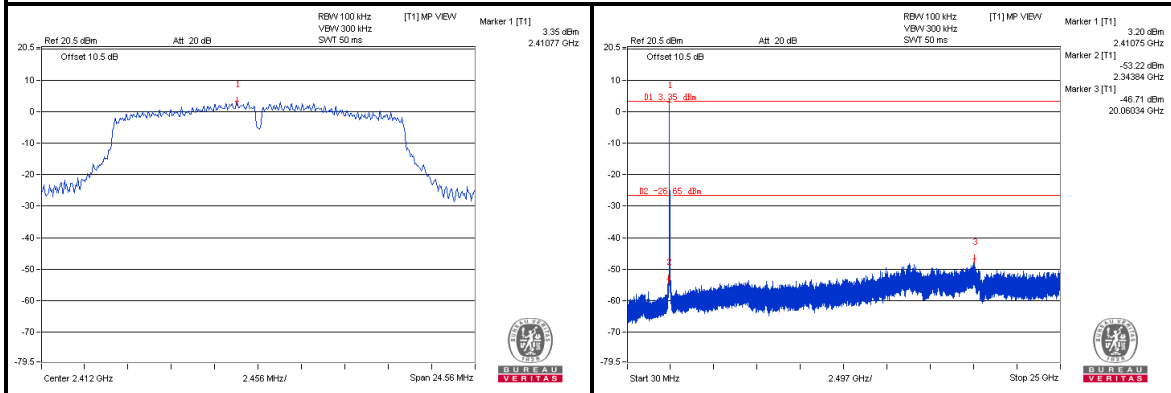


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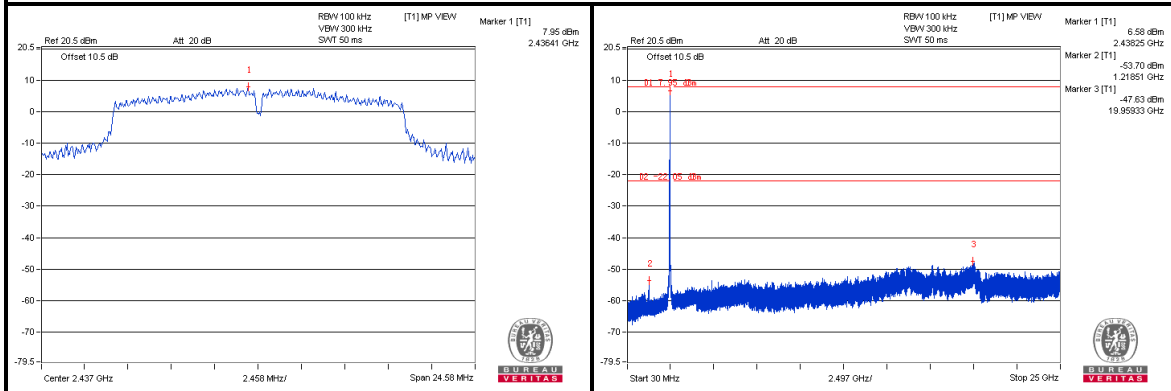
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CHAIN 1

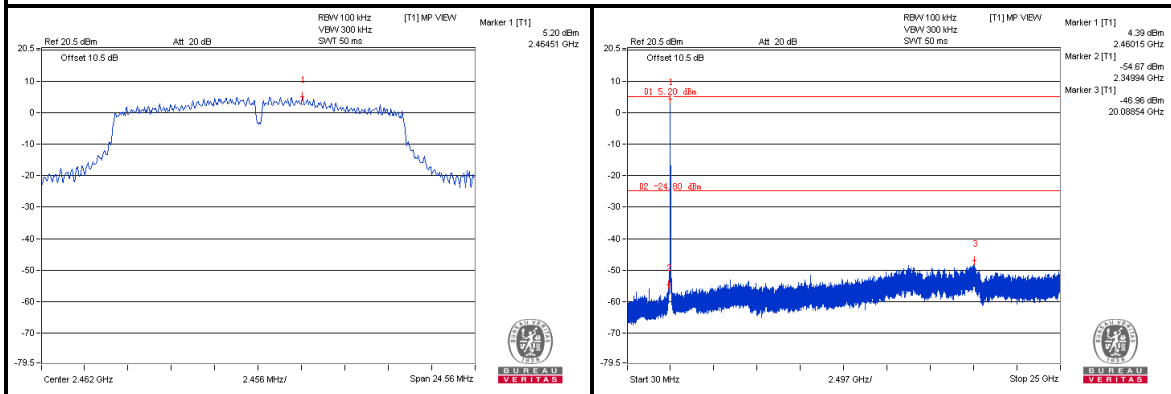
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Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

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



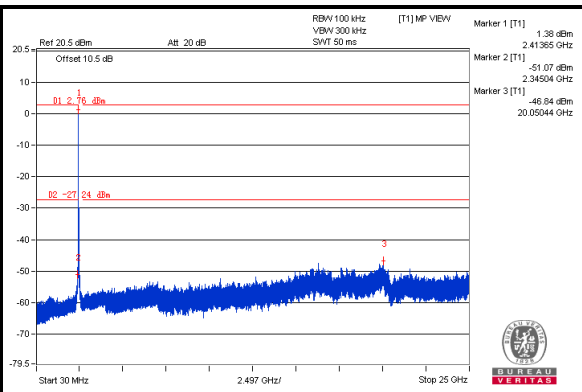
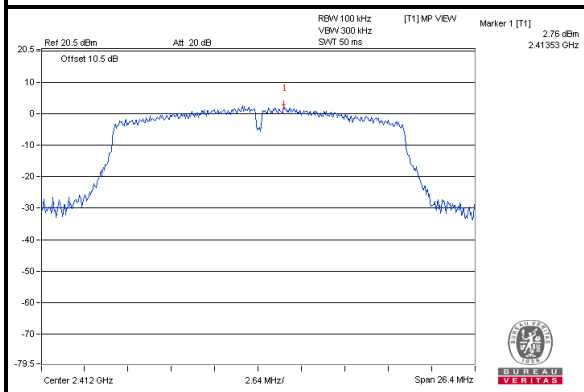
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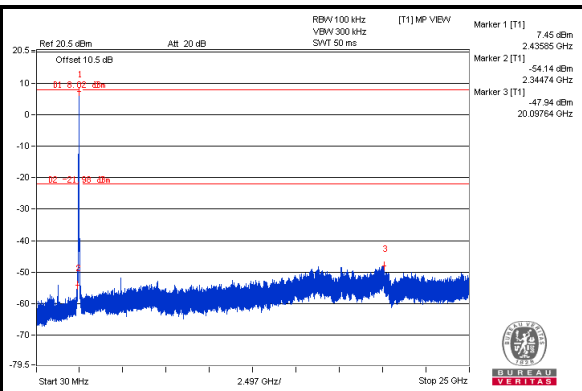
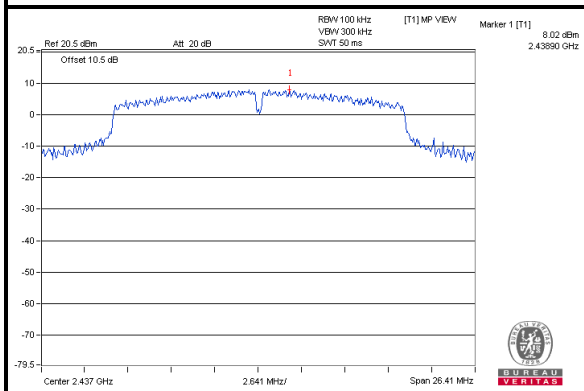
802.11n (20MHz)

CHAIN 0

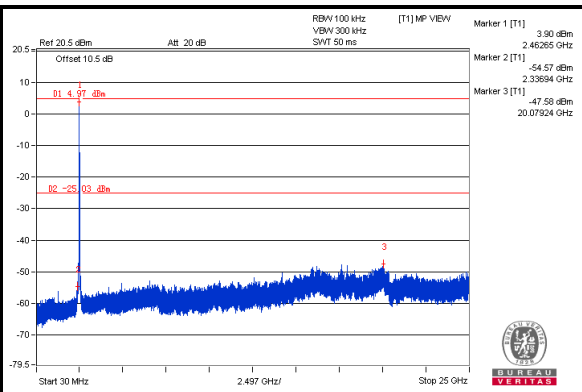
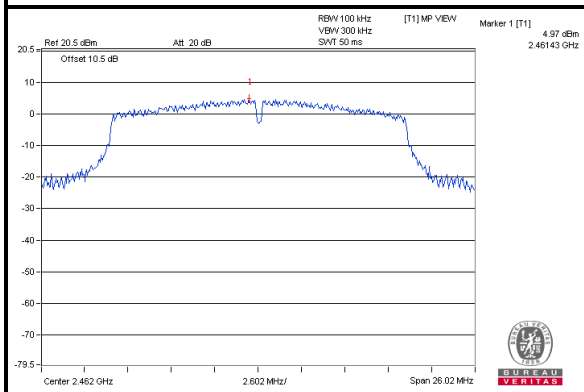
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Dongguan Branch

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

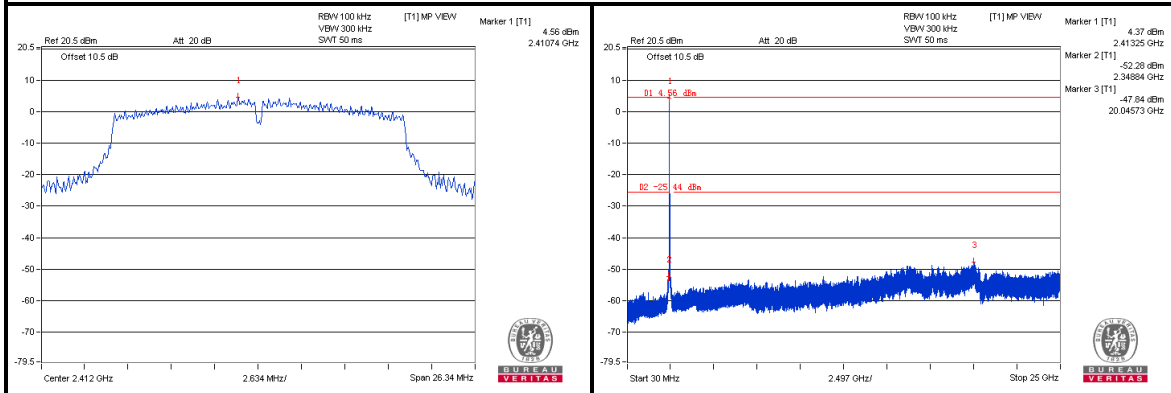


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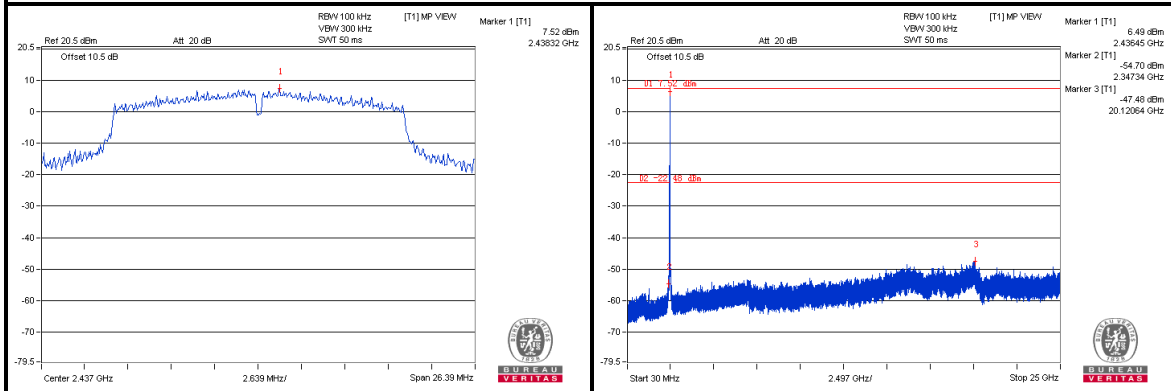
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CHAIN 1

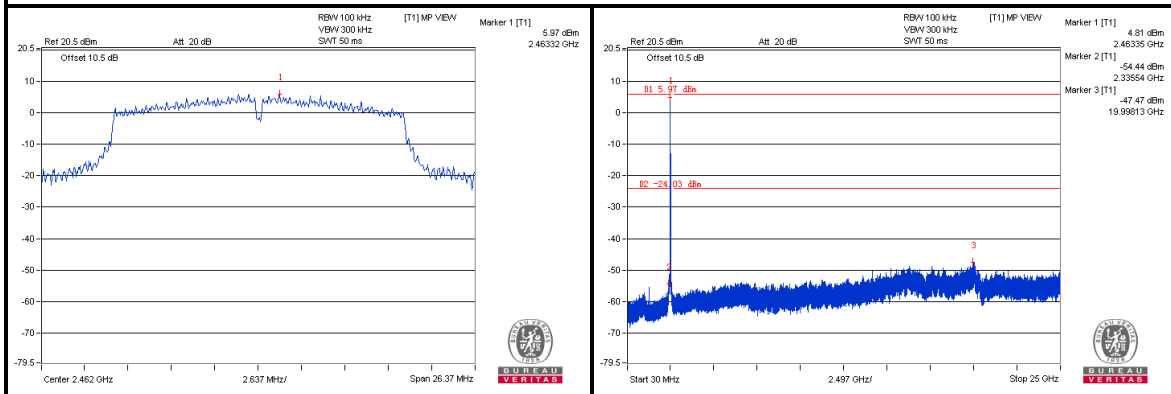
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Dongguan Branch

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



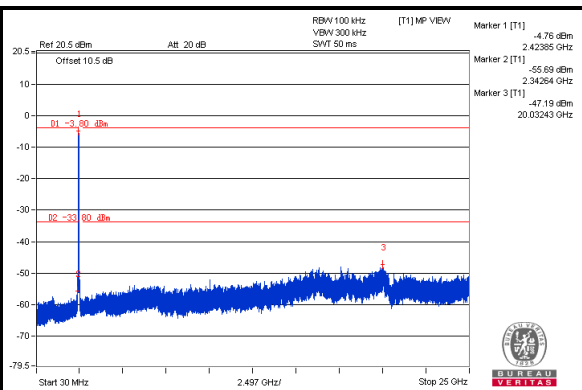
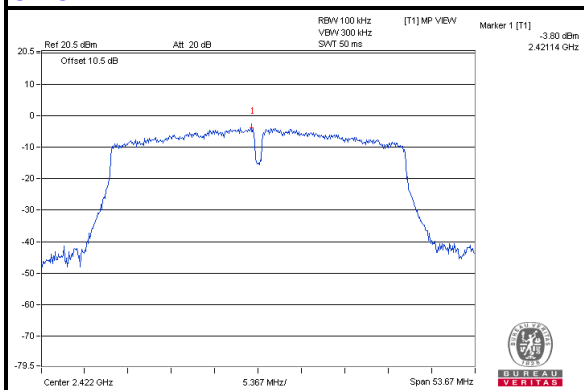
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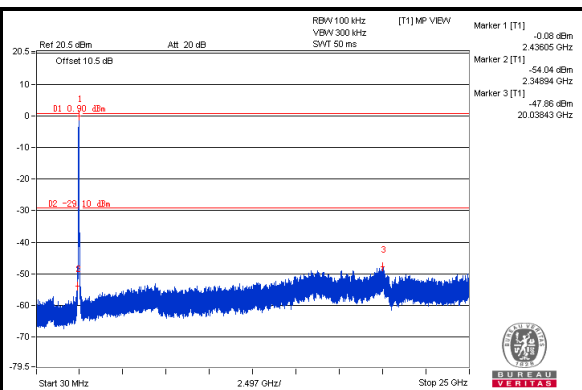
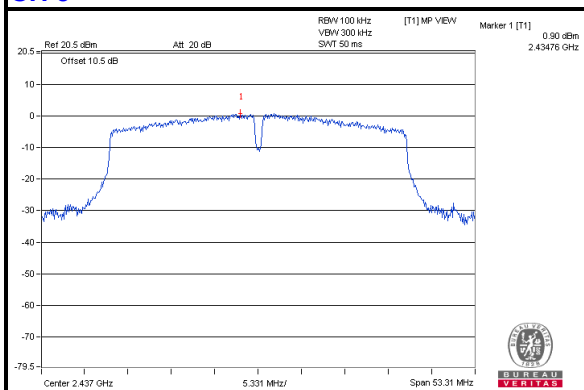
802.11n (40MHz)

CHAIN 0

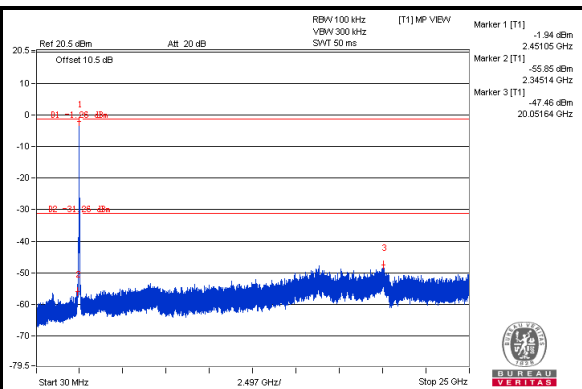
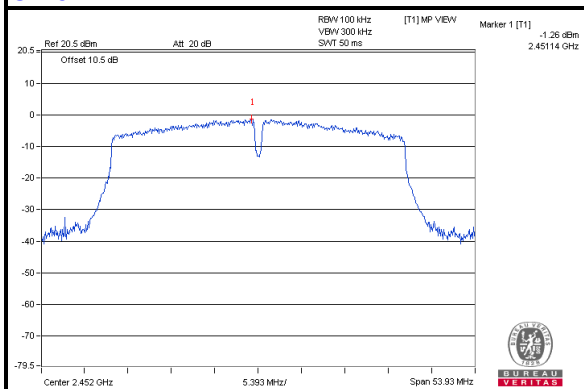
CH 3



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

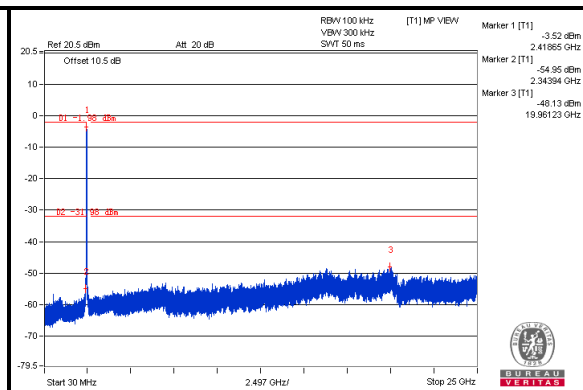
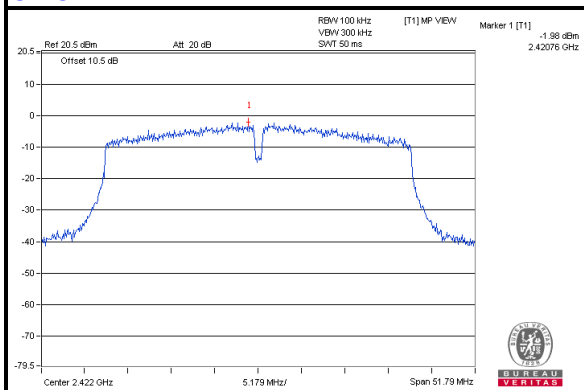


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VERITAS

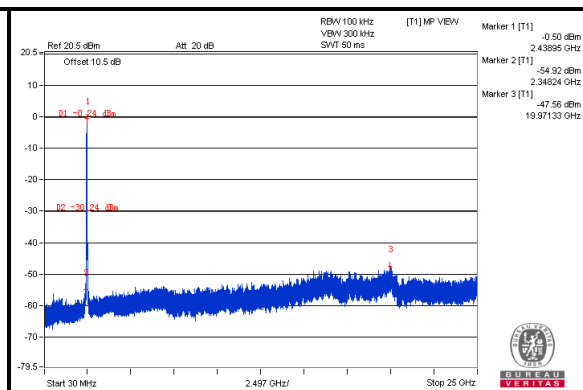
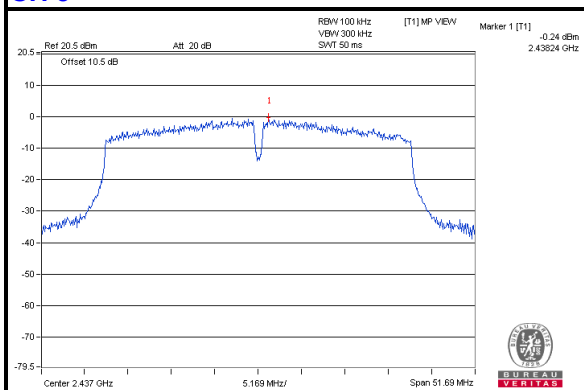
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CHAIN 1

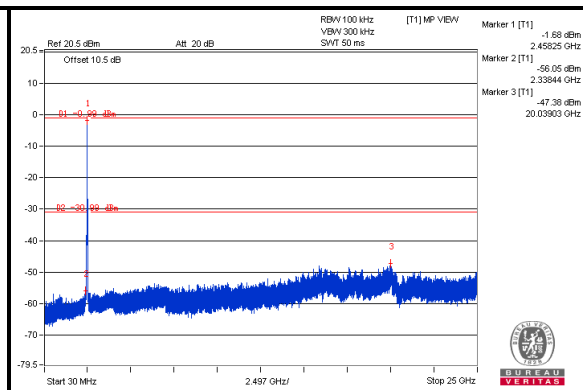
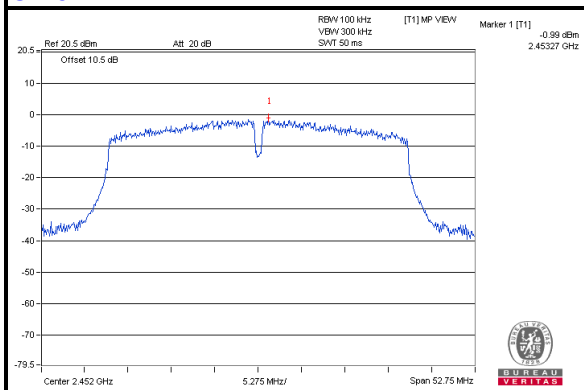
CH 3



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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

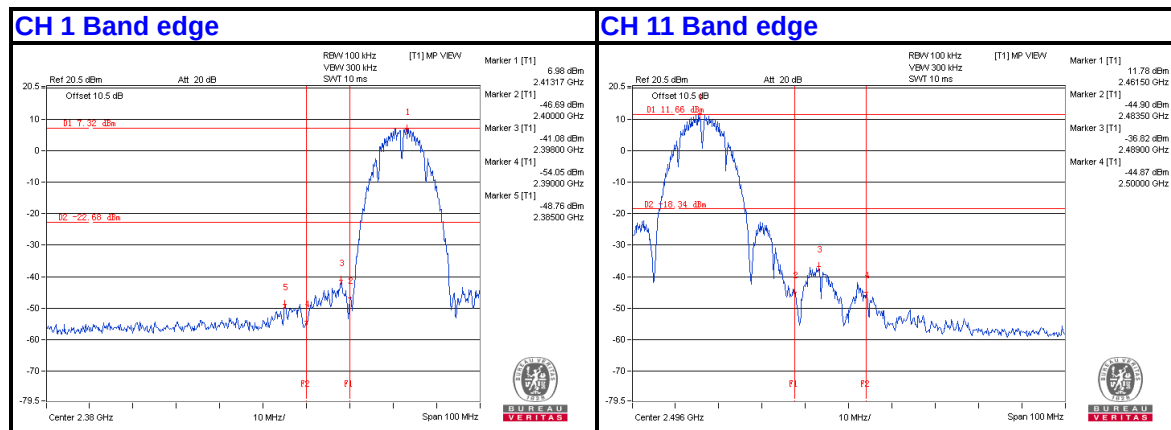


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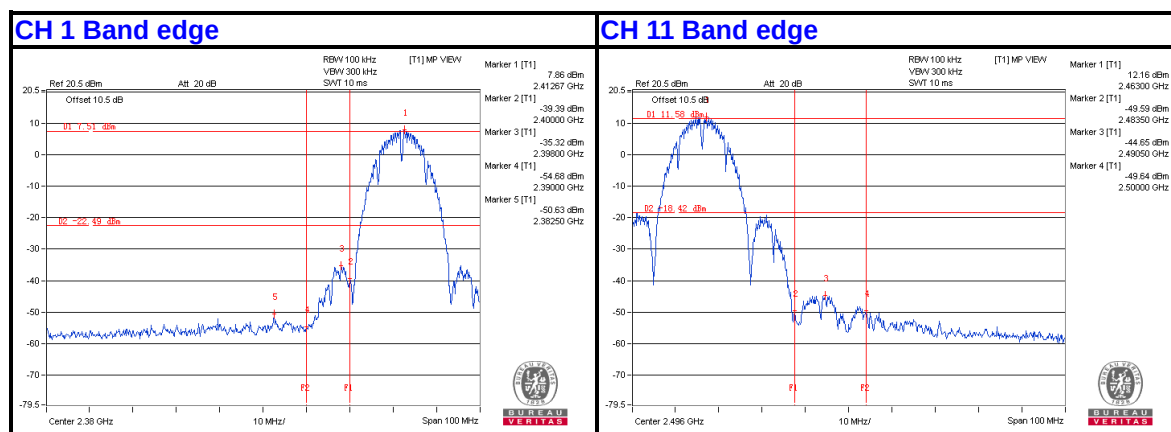
Test Report No.: RF150410N020

802.11b

CHAIN 0



CHAIN 1



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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

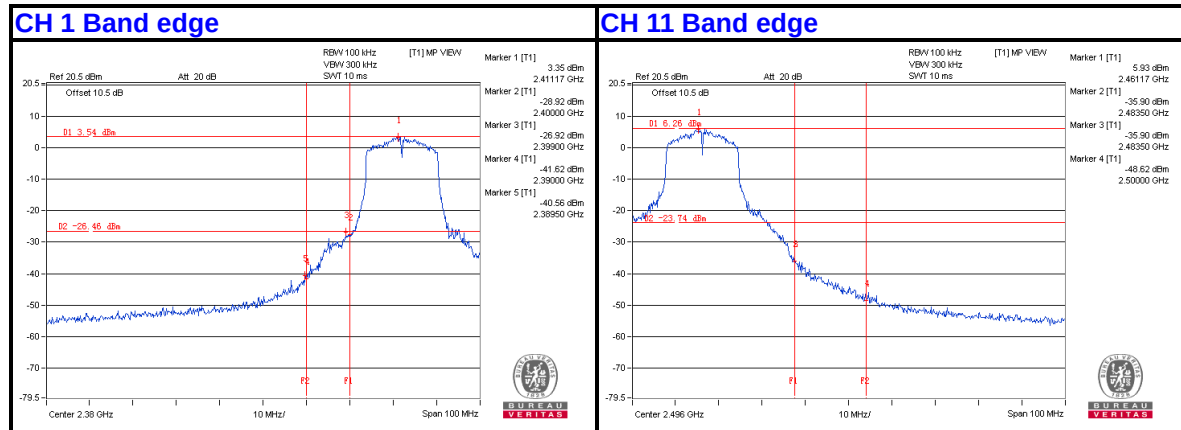


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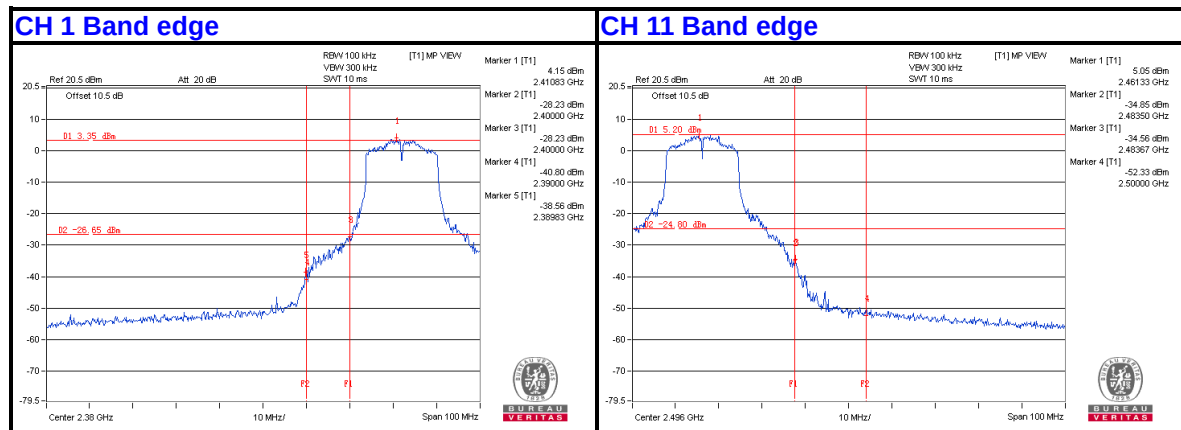
Test Report No.: RF150410N020

802.11g

CHAIN 0



CHAIN 1



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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

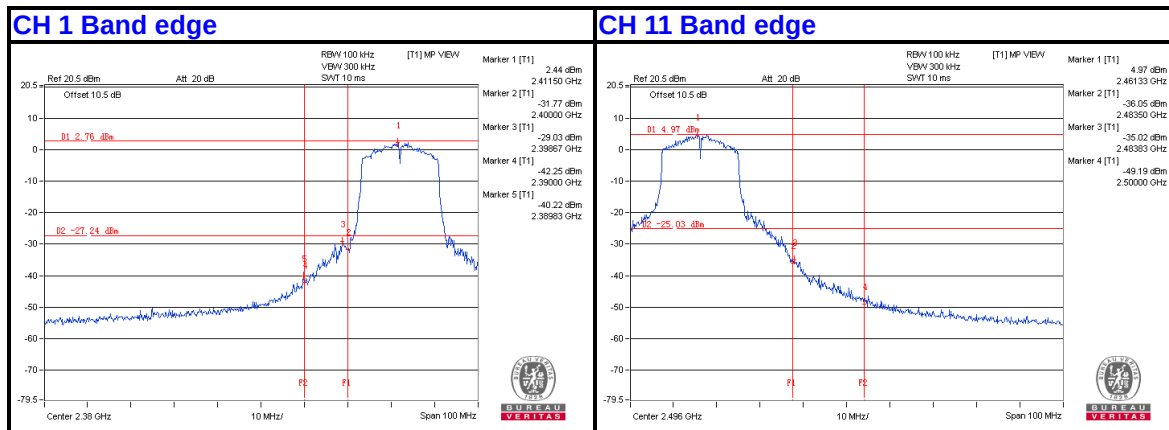


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VERITAS

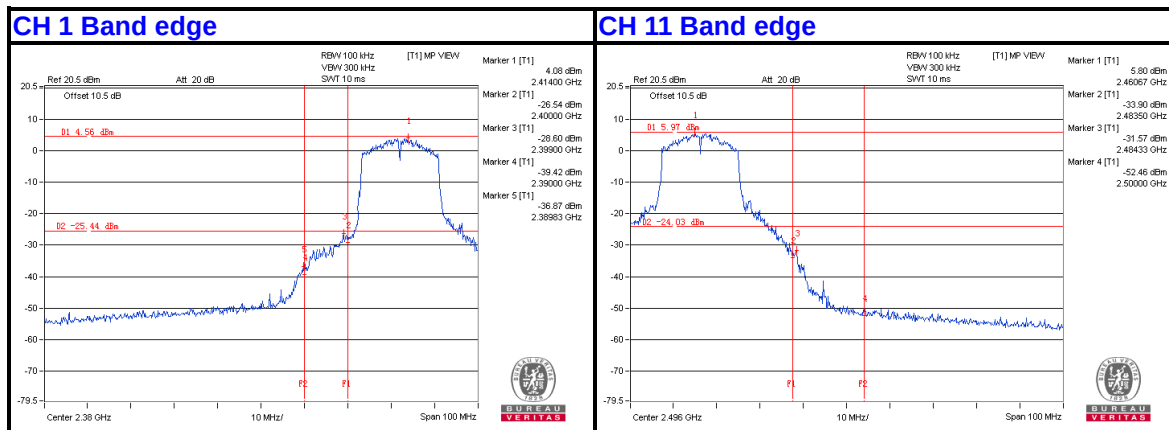
Test Report No.: RF150410N020

802.11n (20MHz)

CHAIN 0



CHAIN 1



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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

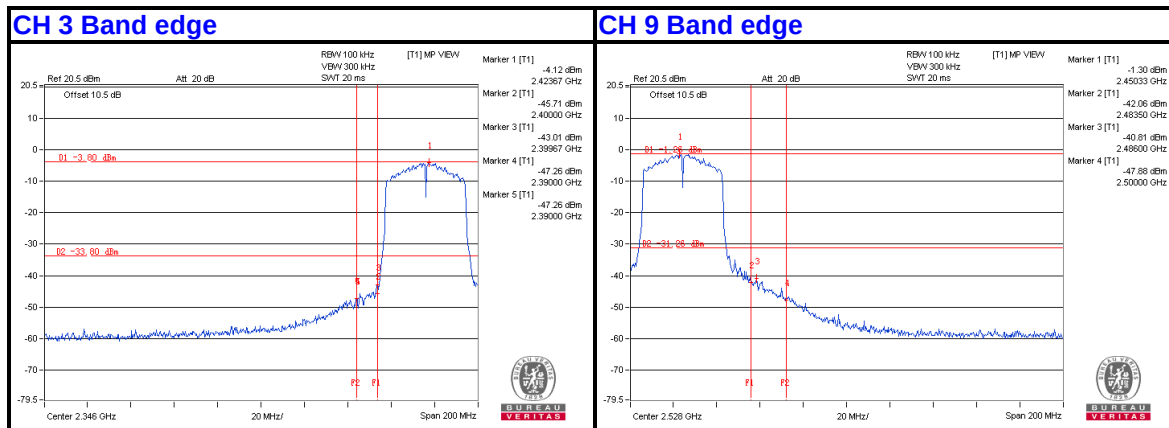


BUREAU
VERITAS

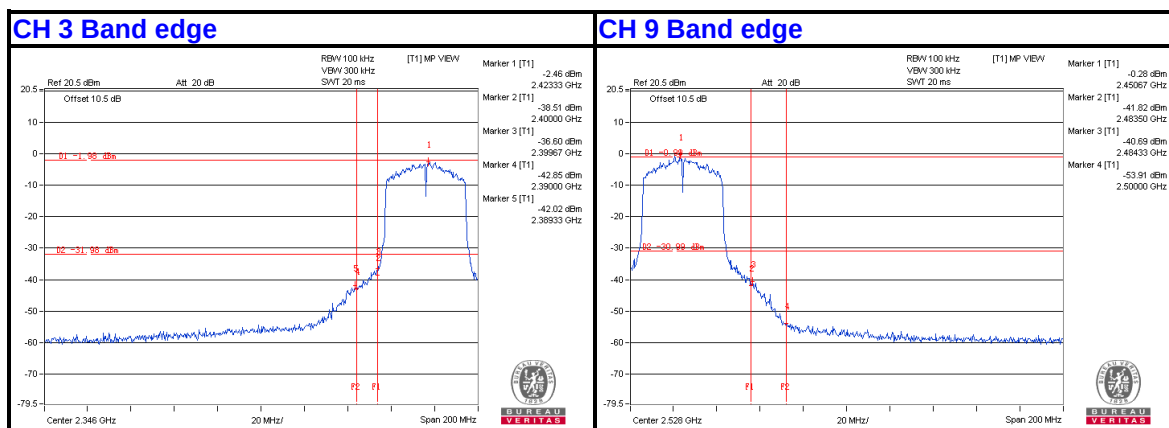
Test Report No.: RF150410N020

802.11n (40MHz)

CHAIN 0



CHAIN 1





Test Report No.: RF150410N020

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: RF150410N020

5 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---