

TEST REPORT

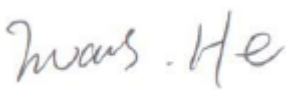
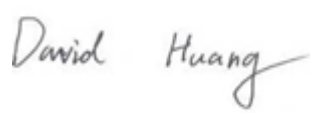
Applicant	Jethro Trading LTD.
Address	505 - 8840 210TH STREET, #231 Langley, Canada V1M2Y2

Manufacturer or Supplier	Ying Tai Electronics Co., Ltd
Address	ROOM 803,CHEVALIER HOUSE 45-51 CHATHAM ROAD SOUTH, TSIM SHA TSUI,KOWLOON,HONG KONG
Product	Jethro 4G Simple Phone
Brand Name	Jethro
Model	SC490
Additional Model & Model Difference	N/A
Date of tests	Jun. 04, 2020~ Aug. 05, 2020

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 Evans He Project Engineer / EMC Department	Approved by David Huang Assistant Manager / EMC Department
	 Date: Aug. 05, 2020

This report is governed by, and incorporates by reference, CPS Conditions of Service as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended 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. Measurement uncertainty is only provided upon request for accredited tests. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; 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.

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	10
3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS	11
3.5 DESCRIPTION OF SUPPORT UNITS	11
4 TEST TYPES AND RESULTS.....	12
4.1. CONDUCTED EMISSION MEASUREMENT	12
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	12
4.1.2 TEST INSTRUMENTS.....	12
4.1.3 TEST PROCEDURES	13
4.1.4 DEVIATION FROM TEST STANDARD	13
4.1.5 TEST SETUP	14
4.1.6 EUT OPERATING CONDITIONS	14
4.1.7 TEST RESULTS	15
4.2. RADIATED EMISSION MEASUREMENT	17
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	17
4.2.2 TEST INSTRUMENTS.....	18
4.2.3 TEST PROCEDURES	19
4.2.4 DEVIATION FROM TEST STANDARD	20
4.2.5 TEST SETUP	20
4.2.6 EUT OPERATING CONDITIONS	21
4.2.7 TEST RESULTS	22
4.3 6DB BANDWIDTH MEASUREMENT	36
4.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT	36
4.3.2 TEST INSTRUMENTS.....	36
4.3.3 TEST PROCEDURE.....	36
4.3.4 DEVIATION FROM TEST STANDARD	36
4.3.5 TEST SETUP	36
4.3.6 EUT OPERATING CONDITIONS	37

4.3.7	TEST RESULTS	38
4.4	CONDUCTED OUTPUT POWER.....	43
4.4.1	LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT	43
4.4.2	TEST SETUP	43
4.4.3	TEST INSTRUMENTS.....	43
4.4.4	TEST PROCEDURES	44
4.4.5	DEVIATION FROM TEST STANDARD	44
4.4.6	EUT OPERATING CONDITIONS	44
4.4.7	TEST RESULTS	45
4.5	POWER SPECTRAL DENSITY MEASUREMENT	47
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	47
4.5.2	TEST SETUP	47
4.5.3	TEST INSTRUMENTS.....	47
4.5.4	TEST PROCEDURE	47
4.5.5	DEVIATION FROM TEST STANDARD	47
4.5.6	EUT OPERATING CONDITION	48
4.5.7	TEST RESULTS	48
4.6	OUT OF BAND EMISSION MEASUREMENT	50
4.6.1	LIMITS OF OUT OF BAND EMISSION MEASUREMENT	50
4.6.2	TEST SETUP	50
4.6.3	TEST INSTRUMENTS.....	50
4.6.4	TEST PROCEDURE	50
4.6.5	DEVIATION FROM TEST STANDARD	51
4.6.6	EUT OPERATING CONDITION	51
4.6.7	TEST RESULTS	52
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	62
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	63



Test Report No.: RF200512S004-3

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF200512S004-3	Original release	Aug. 05, 2020

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	Antenna connector is i-pex not a standard connector.

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	2.16dB
	30MHz ~ 1GMHz	3.74dB
	1GHz ~ 18GHz	4.66dB
	18GHz ~ 40GHz	4.67dB

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	Jethro 4G Simple Phone
BRAND	Jethro
MODEL NO.	SC490
ADDITIONAL NO.	N/A
FCC ID	2AAWJSC490
NOMINAL VOLTAGE	DC 3.7V from Battery or DC 5V from Adapter
MODULATION TECHNOLOGY	DSSS, OFDM
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
OPERATING FREQUENCY	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
PEAK OUTPUT POWER	67.608mW(Maximum)
ANTENNA TYPE	PIFA Antenna, 0.5dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable: Unshielded, detachable, 1.0m

NOTES:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
2. Please refer to the EUT photo document (Reference No.: 200512S004) for detailed product photo.
3. The EUT provides completed transmitters and receivers:

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

4. The EUT were powered by the following adapter:

ADAPTER	
BRAND:	N/A
MODEL:	HJ-0500600E1-US
INPUT:	100-240V~50/60Hz 0.2A
OUTPUT:	5.0V 600mA

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	
A	√	√	√	√	DC 5V from adapter

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
A	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.

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

For the test results, only the worst case was shown in test report.

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 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 HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n HT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	25deg. C, 53%RH	DC 5V from adapter	Aaron Liang
RE≥1G	25deg. C, 53%RH	DC 5V from adapter	Aaron Liang
PLC	25deg. C, 53%RH	DC 5V from adapter	Aaron Liang
APCM	25deg. C, 60%RH	DC 5V from adapter	Aaron Liang

3.3 DUTY CYCLE OF TEST SIGNAL

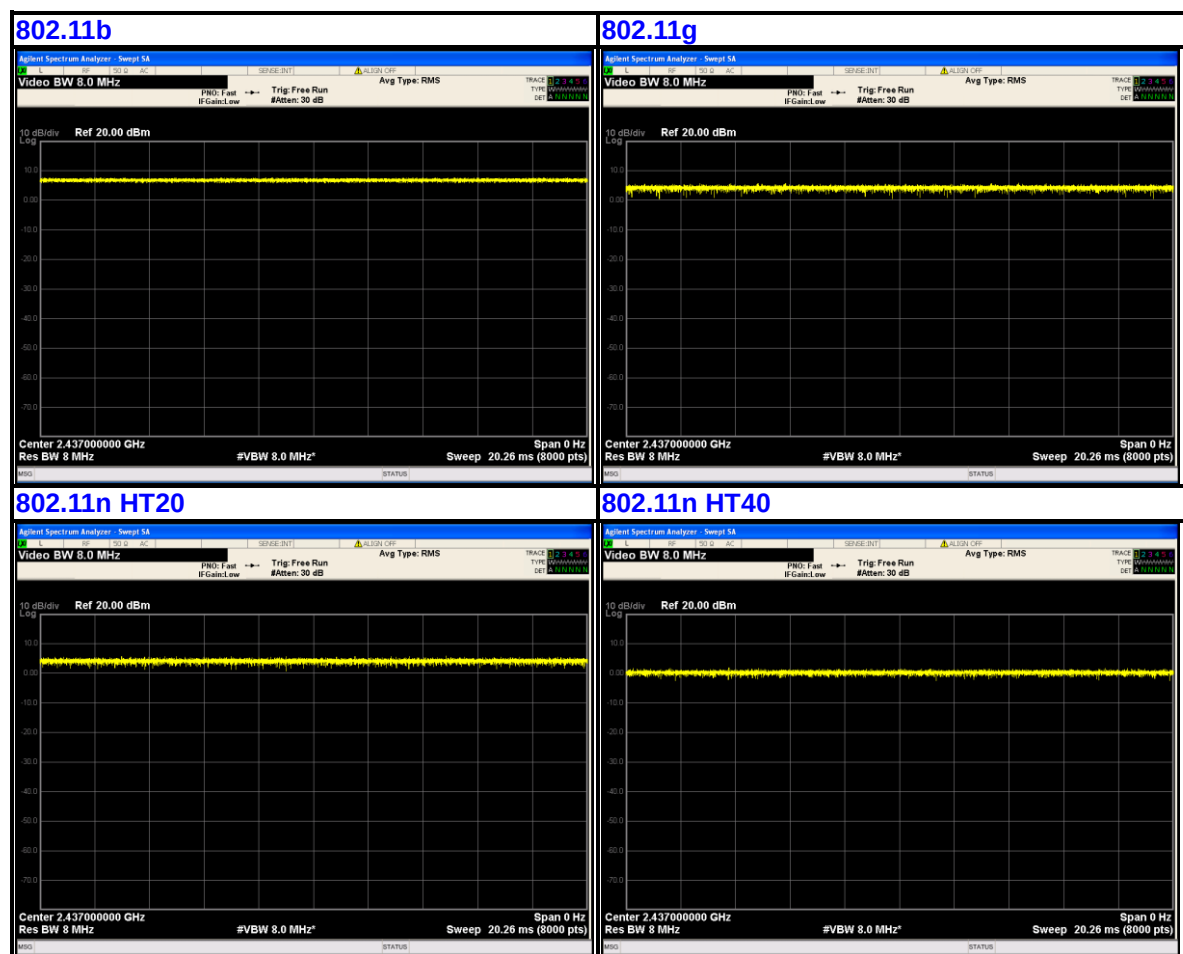
WIFI 2.4GHz

802.11b: Duty cycle = 100%, Duty factor =0

802.11g: Duty cycle = 100%, Duty factor = 0

802.11n (HT20): Duty cycle = 100%, Duty factor =0

802.11n (HT40): Duty cycle = 100%, Duty factor =0



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 15.247 Meas Guidance v05r02

ANSI C63.10-2013

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

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	N/A	N/A	N/A	N/A	N/A

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

4 TEST TYPES AND RESULTS

4.1. CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTES:**
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	ESCS30	8471241027	Mar. 24, 20	Mar. 24, 21
Artificial Mains Network	SCHWARZBECK	8127	8127713	Mar. 24, 20	Mar. 24, 21
ISN	Com-Power	ISN T800	34373	Mar. 24, 20	Mar. 24, 21
Test software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

- NOTES:**
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

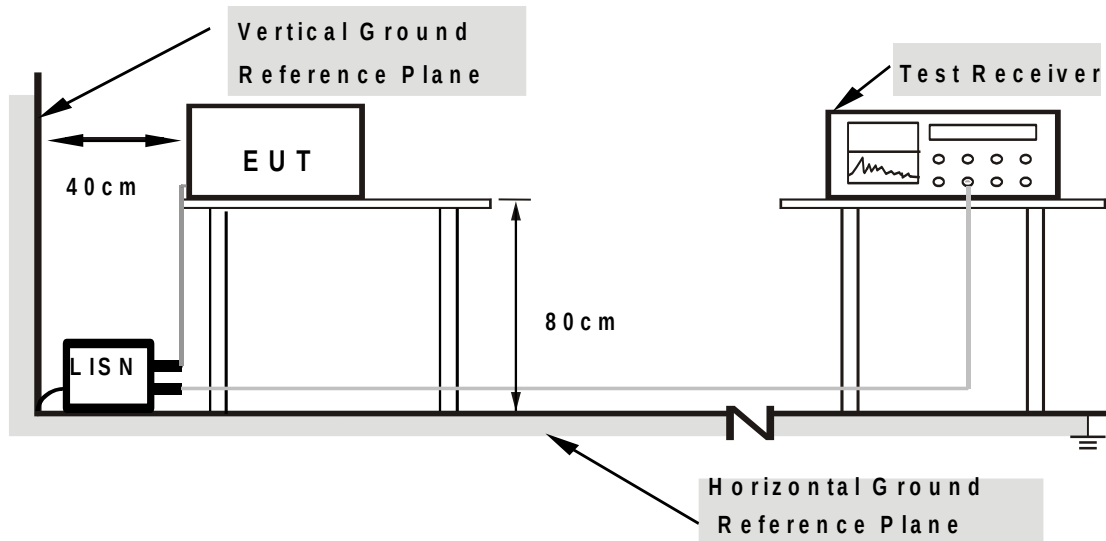
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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) was not recorded.

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

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

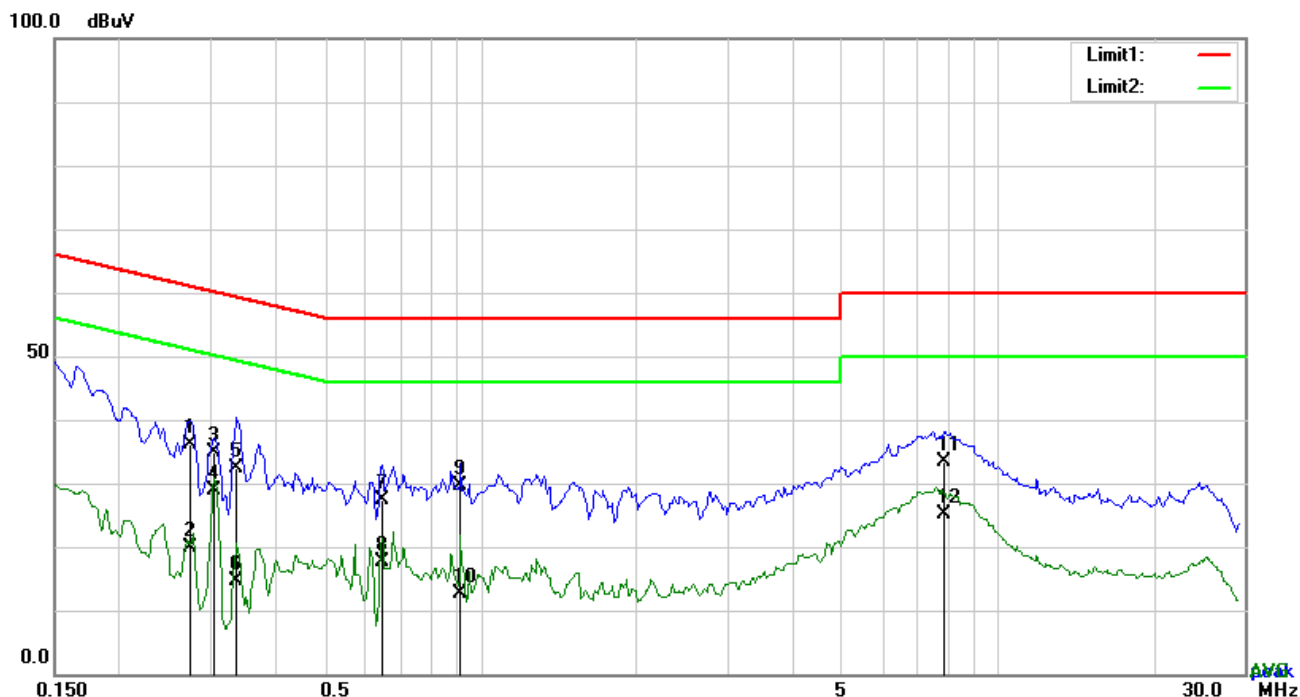
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: WIFI

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

NO.	P/L	FREQUENCY (MHZ)	READING (DBUV)	DETECTOR	CORRECTED (DB)	RESULT (DBUV)	LIMIT (DBUV)	MARGIN (DB)
1	L1	0.2748	26.05	QP	10.11	36.16	60.97	-24.81
2	L1	0.2748	9.72	AVG	10.11	19.83	50.97	-31.14
3	L1	0.3060	24.70	QP	10.11	34.81	60.08	-25.27
4	L1	0.3060	18.85	AVG	10.11	28.96	50.08	-21.12
5	L1	0.3372	22.26	QP	10.11	32.37	59.27	-26.90
6	L1	0.3372	4.54	AVG	10.11	14.65	49.27	-34.62
7	L1	0.6453	17.24	QP	10.11	27.35	56.00	-28.65
8	L1	0.6453	7.47	AVG	10.11	17.58	46.00	-28.42
9	L1	0.9183	19.61	QP	10.12	29.73	56.00	-26.27
10	L1	0.9183	2.48	AVG	10.12	12.60	46.00	-33.40
11	L1	7.8906	23.05	QP	10.23	33.28	60.00	-26.72
12	L1	7.8906	14.93	AVG	10.23	25.16	50.00	-24.84

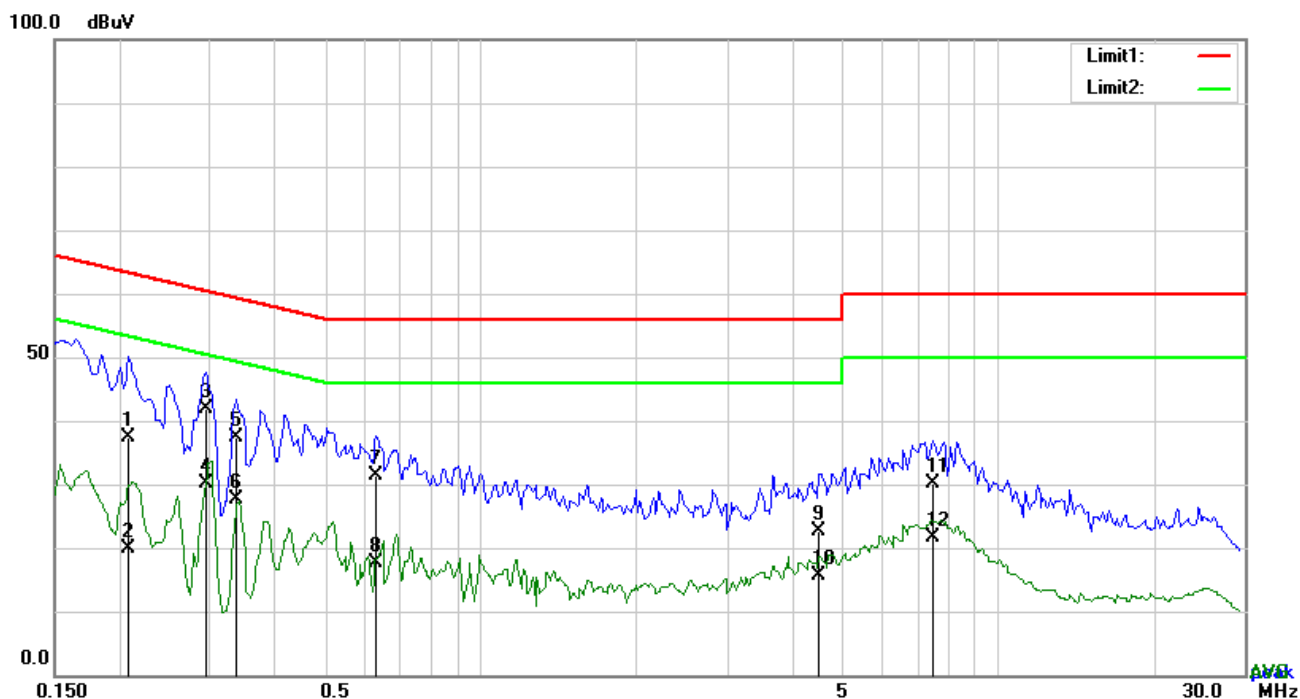
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



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

NO.	P/L	FREQUENCY (MHZ)	READING (DBUV)	DETECTOR	CORRECTED (DB)	RESULT (DBUV)	LIMIT (DBUV)	MARGIN (DB)
1	N	0.2085	27.25	QP	10.13	37.38	63.26	-25.88
2	N	0.2085	9.71	AVG	10.13	19.84	53.26	-33.42
3	N	0.2943	31.75	QP	10.13	41.88	60.40	-18.52
4	N	0.2943	19.97	AVG	10.13	30.10	50.40	-20.30
5	N	0.3372	27.30	QP	10.13	37.43	59.27	-21.84
6	N	0.3372	17.51	AVG	10.13	27.64	49.27	-21.63
7	N	0.6297	21.14	QP	10.13	31.27	56.00	-24.73
8	N	0.6297	7.54	AVG	10.13	17.67	46.00	-28.33
9	N	4.5210	12.53	QP	10.20	22.73	56.00	-33.27
10	N	4.5210	5.43	AVG	10.20	15.63	46.00	-30.37
11	N	7.4889	19.83	QP	10.23	30.06	60.00	-29.94
12	N	7.4889	11.43	AVG	10.23	21.66	50.00	-28.34

- 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

NOTES:

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	ESL6	1300.5001K06 -100262-eQ	Mar. 24,20	Mar. 24,21
Bilog Antenna	Sunol Sciences	JB6	A110712	Apr. 08, 20	Apr. 07, 21
Active Antenna	CMO-POWER	AL-130	121031	Mar. 27, 20	Mar. 26, 21
Signal Amplifier	HP	8447E	443008	Mar. 24,20	Mar. 24,21
Spectrum	Agilent	E4446A	MY46180622	May. 08, 20	May. 07, 21
MXA signal analyzer	Agilent	N9020A	MY49100060	Mar. 24, 20	Mar. 24, 21
Horn Antenna	COM-POWER	HAH-118	71259	Apr. 17, 20	Apr. 17, 21
Horn Antenna	COM-POWER	HAH-118	71283	Mar. 20, 20	Mar. 19, 21
SHF-EHF Horn	Schwarzbeck	BBHA9170	BBHA9170147	Jun. 30, 20	Jun. 29, 21
SHF-EHF Horn	Schwarzbeck	BBHA9170	BBHA9170242	Jun. 30, 20	Jun. 29, 21
AMPLIFIER	EM Electornic Corporation	EM01G26G	60613	Mar. 24, 20	Mar. 24, 21
AMPLIFIER	Emc Instruments Corporation	Emc012645	980077	Jan. 04, 20	Jan. 03,21
3m Semi-anechoic Chamber	SAEMC	9m*6m*6m	N/A	Oct. 18,18	Oct. 17,21
Test Software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

NOTES:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months (except 3m Semi-anechoic Chamber). 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 535293.

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. For below 1GHz was used bilog antenna, and above 1GHz was used horn 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. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- g. 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.

NOTES:

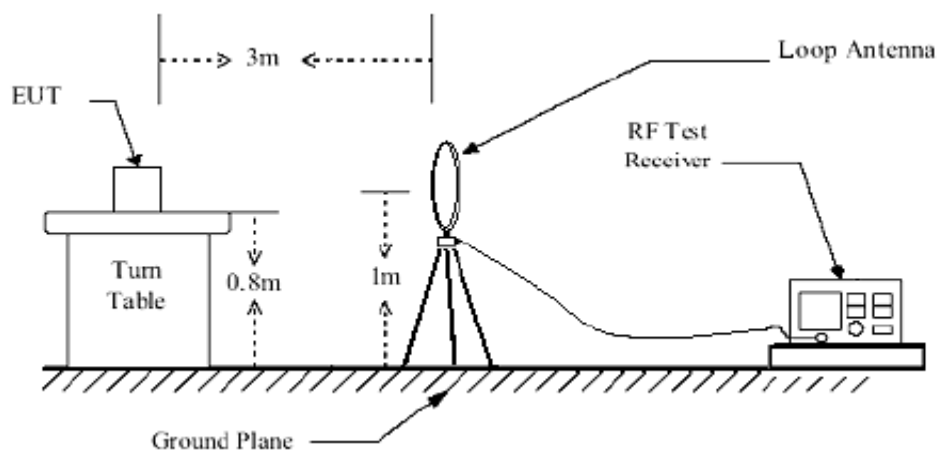
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

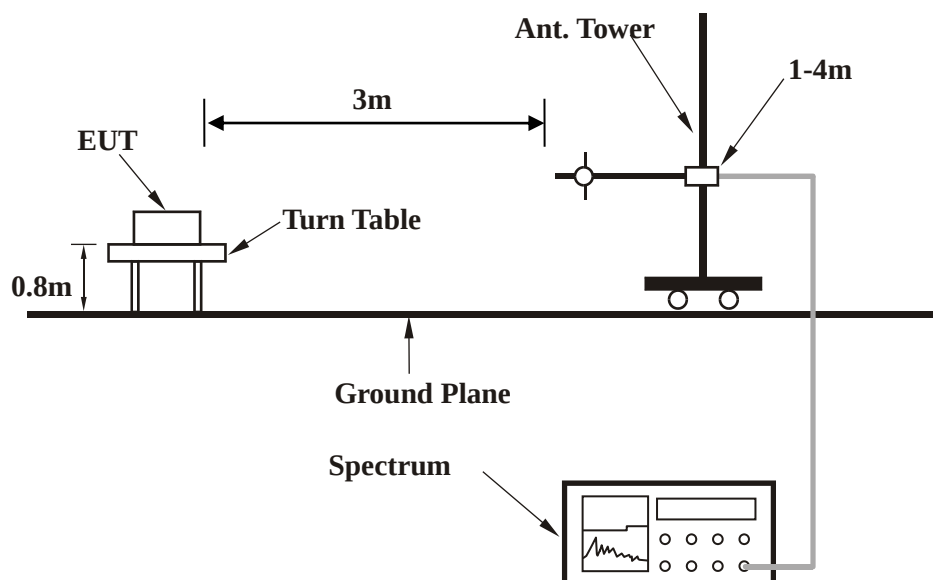
No deviation.

4.2.5 TEST SETUP

Below 30MHz test setup

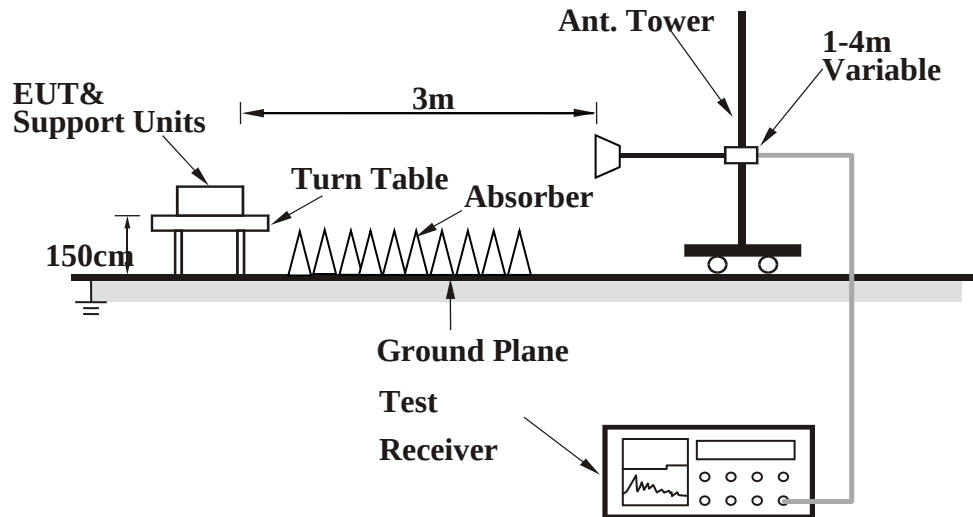


Below 1GHz test setup



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).

4.2.6 EUT OPERATING CONDITIONS

- Placed the EUT on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

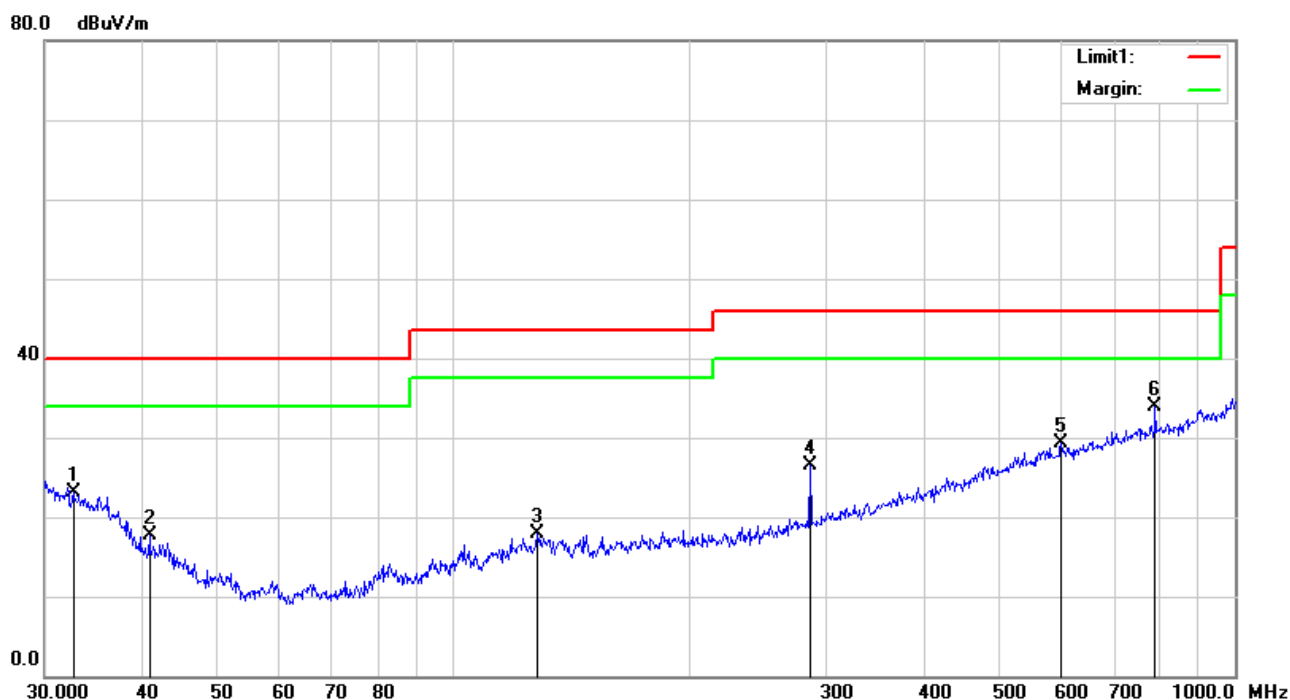
802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 m										
No.	Frequency (MHz)	Reading (dBuV/m)	Ant_F (dB/m)	PA_G (dB)	Cab_L (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)
1	32.6340	26.83	18.41	22.26	0.14	23.12	40.00	-16.88	100	278
2	40.8446	27.59	12.18	22.28	0.19	17.68	40.00	-22.32	100	360
3	128.1130	27.59	11.60	22.38	1.06	17.87	43.50	-25.63	200	156
4	285.9778	33.79	13.36	22.29	1.69	26.55	46.00	-19.45	100	34
5	599.3213	28.36	20.29	21.58	2.31	29.38	46.00	-16.62	100	61
6	790.6188	30.47	22.11	21.17	2.54	33.95	46.00	-12.05	100	0

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) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value.

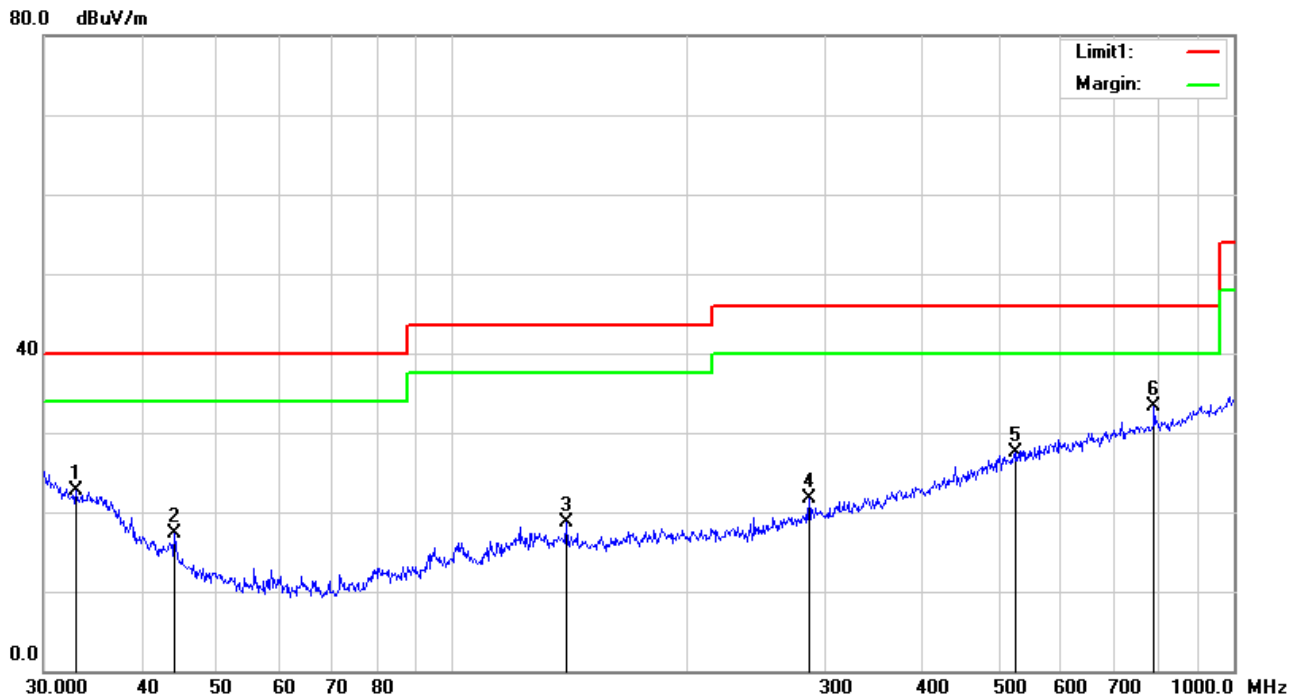


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 m										
No.	Frequency (MHz)	Reading (dBuV/m)	Ant_F (dB/m)	PA_G (dB)	Cab_L (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)
1	32.9791	26.57	18.19	22.26	0.14	22.64	40.00	-17.36	200	346
2	44.1202	29.20	10.15	22.29	0.20	17.26	40.00	-22.74	200	134
3	139.8508	28.66	11.22	22.41	1.21	18.68	43.50	-24.82	300	15
4	285.9778	28.98	13.36	22.29	1.69	21.74	46.00	-24.26	201	0
5	526.3967	27.77	19.21	21.75	2.20	27.43	46.00	-18.57	217	0
6	790.6188	29.76	22.11	21.17	2.54	33.24	46.00	-12.76	300	147

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) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. 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	52.68 PK	74	-19.96	140	169	64.06	-11.38
2	2390	42.79 AV	54	-16.04	140	169	54.17	-11.38
3	*2412	84.95 PK			189	4	96.33	-11.38
4	*2412	77.03 AV			189	4	88.41	-11.38
5	4824	50.62 PK	74	-29.57	360	73	56.69	-6.07
6	4824	33.83 AV	54	-21.36	360	73	39.9	-6.07
7	7236	58.57 PK	74	-25.5	371	204	58.28	0.29
8	7236	40.1 AV	54	-17.47	371	204	39.81	0.29
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	52.87 PK	74	-19.88	173	347	64.25	-11.38
2	2390	42.74 AV	54	-15.34	173	347	54.12	-11.38
3	*2412	93.79 PK			210	108	105.17	-11.38
4	*2412	86.02 AV			210	108	97.4	-11.38
5	4824	50.09 PK	74	-30.41	350	121	56.16	-6.07
6	4824	34.04 AV	54	-22.42	350	121	40.11	-6.07
7	7236	56.41 PK	74	-25.41	355	309	56.12	0.29
8	7236	40.39 AV	54	-17.18	355	309	40.1	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	81.36 PK			243	73	92.74	-11.38
2	*2437	75.41 AV			243	73	86.79	-11.38
3	4874	51.06 PK	74	-28.75	280	36	57.13	-6.07
4	4874	34.07 AV	54	-21.16	280	36	40.14	-6.07
5	7311	58.19 PK	74	-26.46	394	167	57.9	0.29
6	7311	39.91 AV	54	-17.89	394	167	39.62	0.29
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	93.22 PK			134	122	104.6	-11.38
2	*2437	86.27 AV			134	122	97.65	-11.38
3	4874	51.13 PK	74	-29.09	351	0	57.2	-6.07
4	4874	34.04 AV	54	-20.8	351	0	40.11	-6.07
5	7311	57.74 PK	74	-27.21	339	217	57.45	0.29
6	7311	39.9 AV	54	-19.69	339	217	39.61	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	2483.5	53.58 PK	74	-25.75	380	318	64.96	-11.38
2	2483.5	42.61 AV	54	-21.81	380	318	53.99	-11.38
3	*2462	84.19 PK			123	334	95.57	-11.38
4	*2462	77.2 AV			123	334	88.58	-11.38
5	4924	50.87 PK	74	-29.08	198	33	56.94	-6.07
6	4924	34.39 AV	54	-20.98	198	33	40.46	-6.07
7	7386	57.04 PK	74	-25.89	329	124	56.75	0.29
8	7386	39.95 AV	54	-17.86	329	124	39.66	0.29
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	2483.5	53.38 PK	74	-25.85	186	72	64.76	-11.38
2	2483.5	43.7 AV	54	-19.82	186	72	55.08	-11.38
3	*2462	96.72 PK			363	242	108.1	-11.38
4	*2462	89.6 AV			363	242	100.98	-11.38
5	4924	50.97 PK	74	-29.16	193	134	57.04	-6.07
6	4924	34.38 AV	54	-20.79	193	134	40.45	-6.07
7	7386	57.18 PK	74	-25.74	124	270	56.89	0.29
8	7386	39.95 AV	54	-17.48	124	270	39.66	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	50.6 PK	74	-11.77	129	220	61.98	-11.38
2	2390	38.9 AV	54	-10.71	129	220	50.28	-11.38
3	*2412	84.35 PK			369	133	95.73	-11.38
4	*2412	75.92 AV			369	133	87.3	-11.38
5	4824	50.54 PK	74	-27.82	202	272	56.61	-6.07
6	4824	33.85 AV	54	-18.98	202	272	39.92	-6.07
7	7236	57.05 PK	74	-26.78	196	123	56.76	0.29
8	7236	40.16 AV	54	-16.3	196	123	39.87	0.29
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	51.36 PK	74	-16.36	305	134	62.74	-11.38
2	2390	39.25 AV	54	-11.39	305	134	50.63	-11.38
3	*2412	91.39 PK			229	67	102.77	-11.38
4	*2412	87.47 AV			229	67	98.85	-11.38
5	4824	50.43 PK	74	-29.01	328	95	56.5	-6.07
6	4824	33.83 AV	54	-20.04	328	95	39.9	-6.07
7	7236	56.8 PK	74	-28.43	134	299	56.51	0.29
8	7236	40.16 AV	54	-19.25	134	299	39.87	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	80.53 PK			268	39	91.91	-11.38
2	*2437	74.96 AV			268	39	86.34	-11.38
3	4874	51.87 PK	74	-30.02	151	13	57.94	-6.07
4	4874	34.34 AV	54	-20.81	151	13	40.41	-6.07
5	7311	57.9 PK	74	-27.71	142	216	57.61	0.29
6	7311	40.25 AV	54	-17.29	142	216	39.96	0.29
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	90.75 PK			312	89	102.13	-11.38
2	*2437	86.42 AV			312	89	97.8	-11.38
3	4874	51.57 PK	74	-29.42	195	318	57.64	-6.07
4	4874	34.22 AV	54	-20.51	195	318	40.29	-6.07
5	7311	57.8 PK	74	-26.81	286	223	57.51	0.29
6	7311	40.21 AV	54	-18.06	286	223	39.92	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	2483.5	50.22 PK	74	-12.77	148	249	61.6	-11.38
2	2483.5	39.68 AV	54	-9.79	148	249	51.06	-11.38
3	*2462	82.49 PK			191	87	93.87	-11.38
4	*2462	78.19 AV			191	87	89.57	-11.38
5	4924	52.73 PK	74	-29.11	164	270	58.8	-6.07
6	4924	34.5 AV	54	-23.85	164	270	40.57	-6.07
7	7386	56.94 PK	74	-26.05	128	315	56.65	0.29
8	7386	40.2 AV	54	-15.88	128	315	39.91	0.29
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	2483.5	50.26 PK	74	-13.18	400	215	61.64	-11.38
2	2483.5	40.74 AV	54	-11.06	400	215	52.12	-11.38
3	*2462	93.15 PK			266	19	104.53	-11.38
4	*2462	85.72 AV			266	19	97.1	-11.38
5	4924	51.84 PK	74	-28.03	387	344	57.91	-6.07
6	4924	34.47 AV	54	-17.52	387	344	40.54	-6.07
7	7386	57.24 PK	74	-26.74	178	124	56.95	0.29
8	7386	40.16 AV	54	-18.31	178	124	39.87	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	51.78 PK	74	-9.04	139	256	63.16	-11.38
2	2390	39.54 AV	54	-9.05	139	256	50.92	-11.38
3	*2412	82.69 PK			362	228	94.07	-11.38
4	*2412	75.42 AV			362	228	86.8	-11.38
5	4824	50.69 PK	74	-29.78	365	70	56.76	-6.07
6	4824	33.81 AV	54	-19.04	365	70	39.88	-6.07
7	7236	57.11 PK	74	-28.42	281	134	56.82	0.29
8	7236	40.09 AV	54	-18.63	281	134	39.8	0.29
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	50.76 PK	74	-15.41	272	125	62.14	-11.38
2	2390	43.27 AV	54	-15.88	272	125	54.65	-11.38
3	*2412	92.71 PK			227	79	104.09	-11.38
4	*2412	87.36 AV			227	79	98.74	-11.38
5	4824	50.92 PK	74	-28.31	378	37	56.99	-6.07
6	4824	33.83 AV	54	-17.51	378	37	39.9	-6.07
7	7236	56.81 PK	74	-25.78	349	201	56.52	0.29
8	7236	40.09 AV	54	-17.83	349	201	39.8	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	79.84 PK			163	196	91.22	-11.38
2	*2437	73.92 AV			163	196	85.3	-11.38
3	4874	50.76 PK	74	-28.34	295	36	56.83	-6.07
4	4874	34.3 AV	54	-21.31	295	36	40.37	-6.07
5	7311	58.73 PK	74	-25.74	114	112	58.44	0.29
6	7311	40.23 AV	54	-16.06	114	112	39.94	0.29
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	91.24 PK			211	353	102.62	-11.38
2	*2437	87.63 AV			211	353	99.01	-11.38
3	4874	50.76 PK	74	-26.55	220	138	56.83	-6.07
4	4874	34.33 AV	54	-16.84	220	138	40.4	-6.07
5	7311	57.73 PK	74	-26.78	194	125	57.44	0.29
6	7311	40.21 AV	54	-18.59	194	125	39.92	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	2483.5	50.86 PK	74	-12.99	365	133	62.24	-11.38
2	2483.5	39.52 AV	54	-11.52	365	133	50.9	-11.38
3	*2462	82.41 PK			283	341	93.79	-11.38
4	*2462	76.39 AV			283	341	87.77	-11.38
5	4924	52.7 PK	74	-27.36	173	268	58.77	-6.07
6	4924	34.5 AV	54	-19.13	173	268	40.57	-6.07
7	7386	57.14 PK	74	-26.3	105	74	56.85	0.29
8	7386	40.18 AV	54	-18.21	105	74	39.89	0.29
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	2483.5	50.62 PK	74	-15.68	125	68	62	-11.38
2	2483.5	41.98 AV	54	-13.33	125	68	53.36	-11.38
3	*2462	93.54 PK			208	25	104.92	-11.38
4	*2462	86.91 AV			208	25	98.29	-11.38
5	4924	52.05 PK	74	-27.03	366	309	58.12	-6.07
6	4924	34.47 AV	54	-18.03	366	309	40.54	-6.07
7	7386	57.44 PK	74	-26.23	357	258	57.15	0.29
8	7386	40.17 AV	54	-17.03	357	258	39.88	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	55.85 PK	74	-4.94	126	271	67.23	-11.38
2	2390	44.55 AV	54	-4.84	126	271	55.93	-11.38
3	*2422	77.08 PK			336	202	88.46	-11.38
4	*2422	71.38 AV			336	202	82.76	-11.38
5	4844	50.31 PK	74	-29.18	188	38	56.38	-6.07
6	4844	33.92 AV	54	-20.27	188	38	39.99	-6.07
7	7266	57.38 PK	74	-28.7	320	275	57.09	0.29
8	7266	40.02 AV	54	-18.65	320	275	39.73	0.29
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	61.55 PK	74	-10.39	172	190	72.93	-11.38
2	2390	54.08 AV	54	-11.09	172	190	65.46	-11.38
3	*2422	87.99 PK			170	310	99.37	-11.38
4	*2422	83.42 AV			170	310	94.8	-11.38
5	4844	50.55 PK	74	-26.58	394	87	56.62	-6.07
6	4844	33.92 AV	54	-16.57	394	87	39.99	-6.07
7	7266	58.02 PK	74	-25.88	321	107	57.73	0.29
8	7266	40.01 AV	54	-17.55	321	107	39.72	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	78.56 PK			311	113	89.94	-11.38
2	*2437	73.02 AV			311	113	84.4	-11.38
3	4874	51.81 PK	74	-29.23	144	257	57.88	-6.07
4	4874	34.3 AV	54	-19.02	144	257	40.37	-6.07
5	7311	58.05 PK	74	-28.36	199	133	57.76	0.29
6	7311	40.08 AV	54	-18.34	199	133	39.79	0.29
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	89.45 PK			393	4	100.83	-11.38
2	*2437	85.17 AV			393	4	96.55	-11.38
3	4874	51.59 PK	74	-29.62	286	140	57.66	-6.07
4	4874	34.29 AV	54	-19.46	286	140	40.36	-6.07
5	7311	57.45 PK	74	-25.94	154	291	57.16	0.29
6	7311	40.06 AV	54	-15.66	154	291	39.77	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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	2483.5	53.69 PK	74	-6.87	189	247	65.07	-11.38
2	2483.5	43.1 AV	54	-6.05	189	247	54.48	-11.38
3	*2452	82.63 PK			153	317	94.01	-11.38
4	*2452	78.39 AV			153	317	89.77	-11.38
5	4904	51.94 PK	74	-29.15	207	76	58.01	-6.07
6	4904	34.51 AV	54	-19.91	207	76	40.58	-6.07
7	7356	56.72 PK	74	-25.54	107	222	56.43	0.29
8	7356	30.4 AV	54	-15.2	107	222	30.11	0.29
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	2483.5	53.74 PK	74	-12.01	191	61	65.12	-11.38
2	2483.5	40.79 AV	54	-13.21	191	61	52.17	-11.38
3	*2452	94.69 PK			341	59	106.07	-11.38
4	*2452	90.64 AV			341	59	102.02	-11.38
5	4904	51.88 PK	74	-28.7	396	163	57.95	-6.07
6	4904	34.5 AV	54	-18.13	396	163	40.57	-6.07
7	7356	57.2 PK	74	-26.43	297	327	56.91	0.29
8	7356	40.28 AV	54	-17.19	297	327	39.99	0.29

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB).
3. The emission levels of other frequencies were greater than 20dB margin.
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.
Wireless Connectivity Tester	R&S	CMW270	1201.0002K75	Dec. 18, 19	Dec. 17, 20
MXA VEXTOR SIGNAL	Agilent	n5182a	MY50140530	Mar. 24,20	Mar. 24,21
MXA signal analyzer	Agilent	n9020a	MY49100060	Mar. 24,20	Mar. 24,21
RF Control Unit	Tonscend	JS0806-2	188060112	Mar. 24,20	Mar. 24,21
Signal Generation	Agilent	E4421B	US40051152	Dec. 18, 19	Dec. 17, 20
DC Power Supply	Agilent	E3640A	MY40004013	Mar. 30,20	Mar. 30,21
Programmable Temperature & Humidity Chamber	Hongjin	HYC-TH-225 DH	DG-180746	Mar. 24,20	Mar. 24,21
Test System	Tonscend	JS 1120-3	N/A	N/A	N/A
Power Splitter	Weinschel	1580-1	TL177	Mar. 27,20	Mar. 27,21

NOTES: 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.

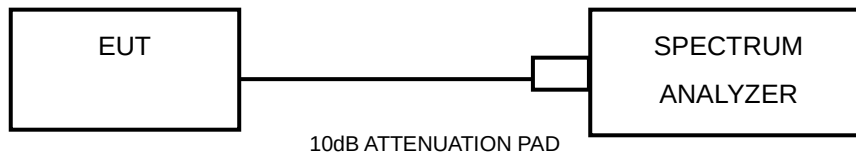
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	7.72	0.5	PASS
6	2437	9.64	0.5	PASS
11	2462	8.64	0.5	PASS

802.11g

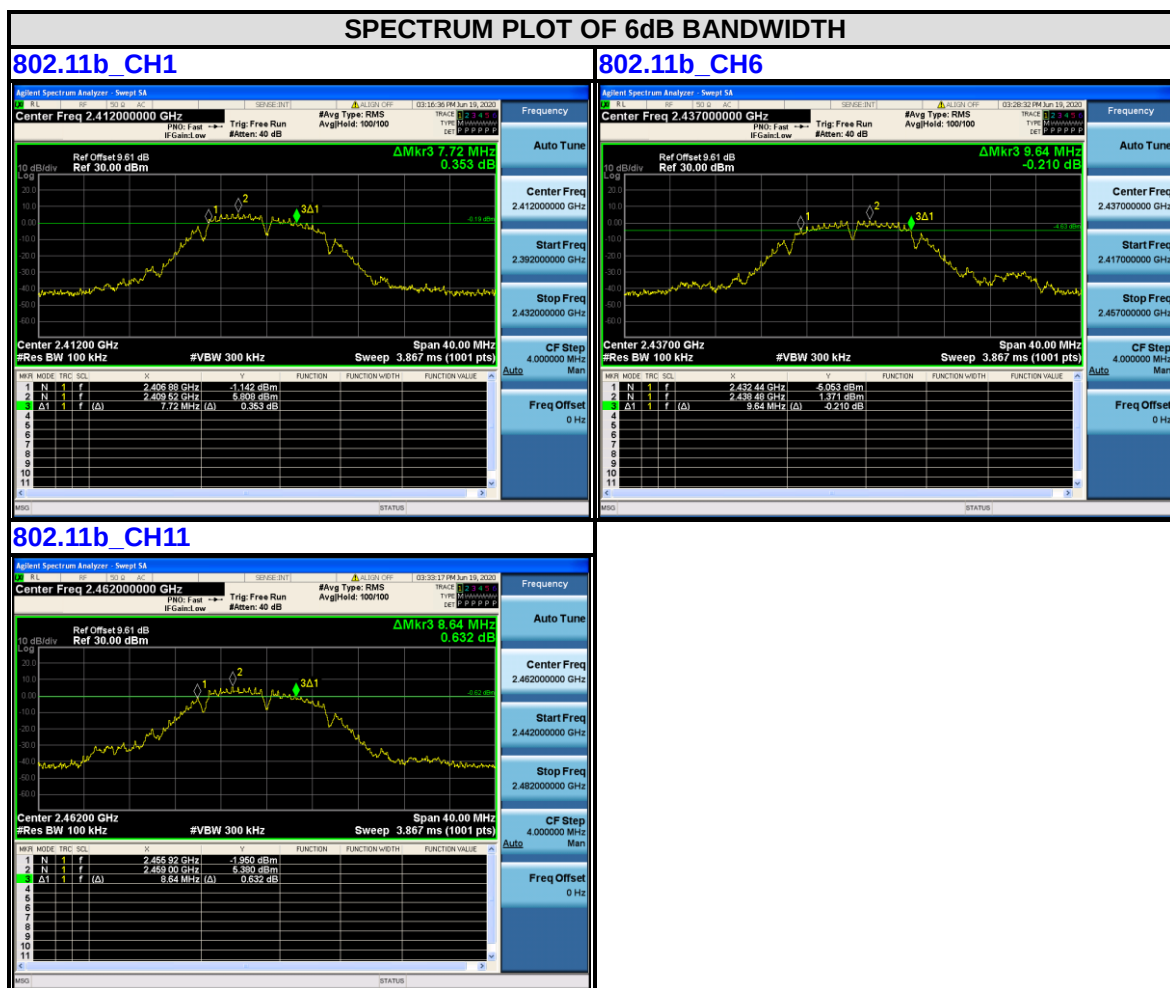
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	11.36	0.5	PASS
6	2437	14.56	0.5	PASS
11	2462	9.56	0.5	PASS

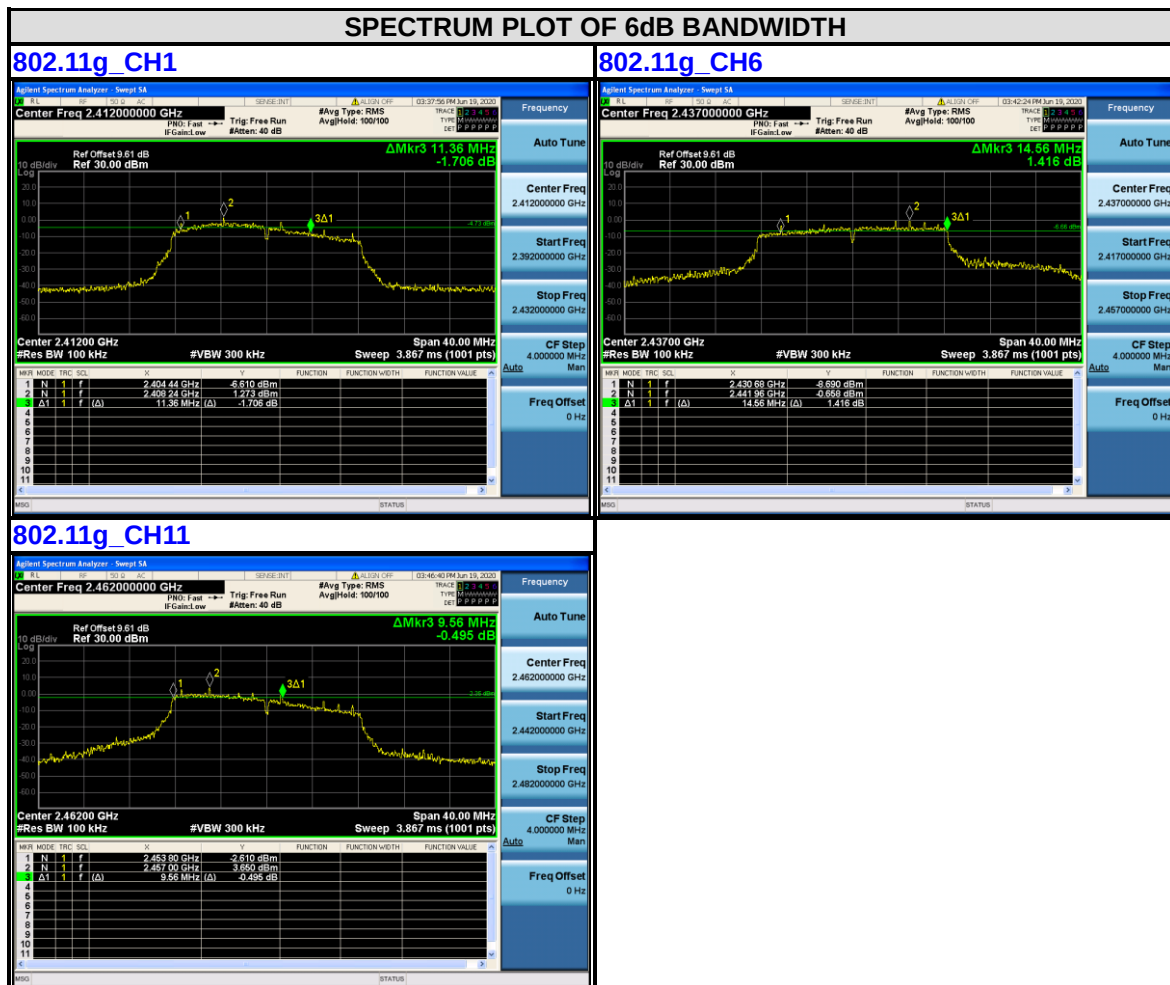
802.11n HT20

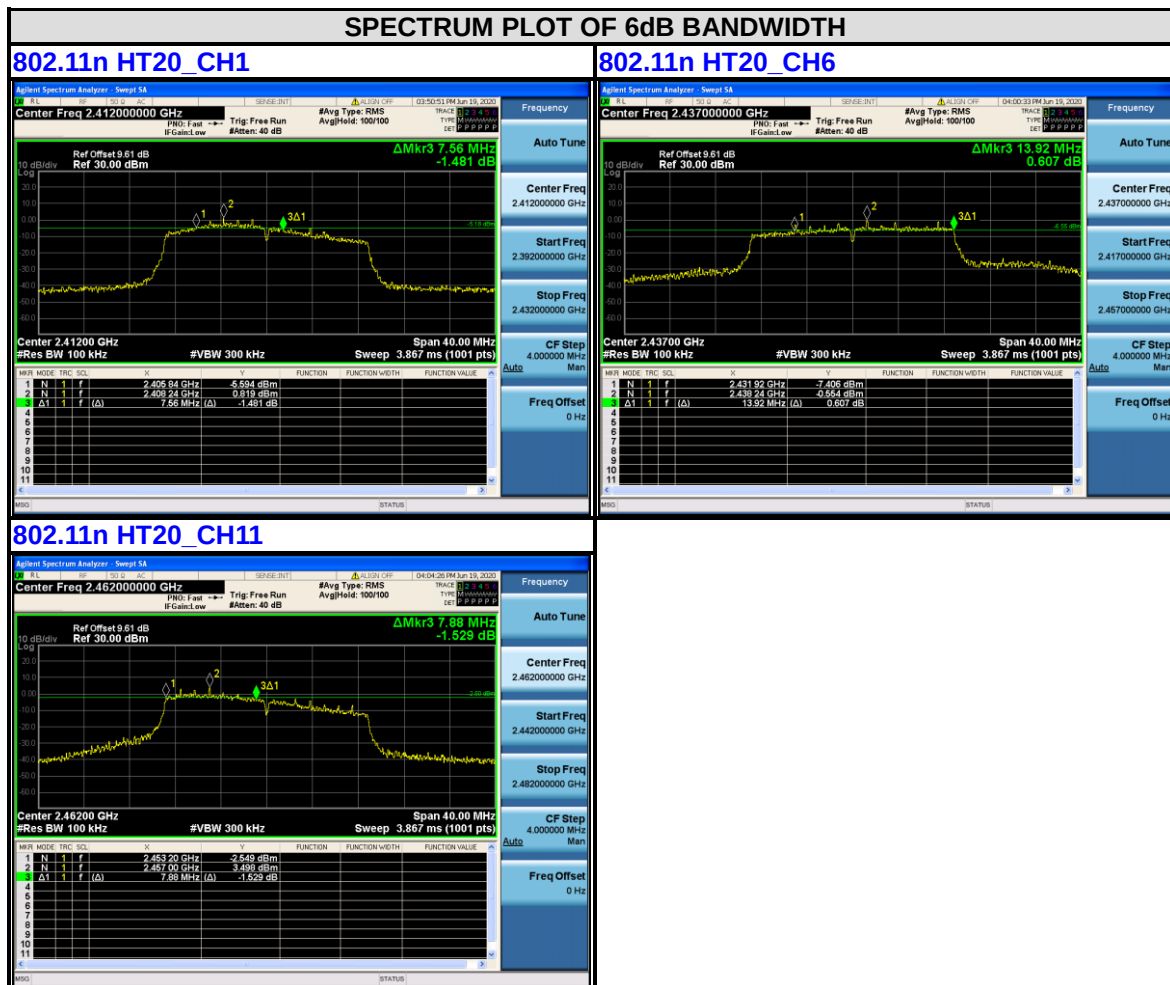
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	7.56	0.5	PASS
6	2437	13.92	0.5	PASS
11	2462	7.88	0.5	PASS

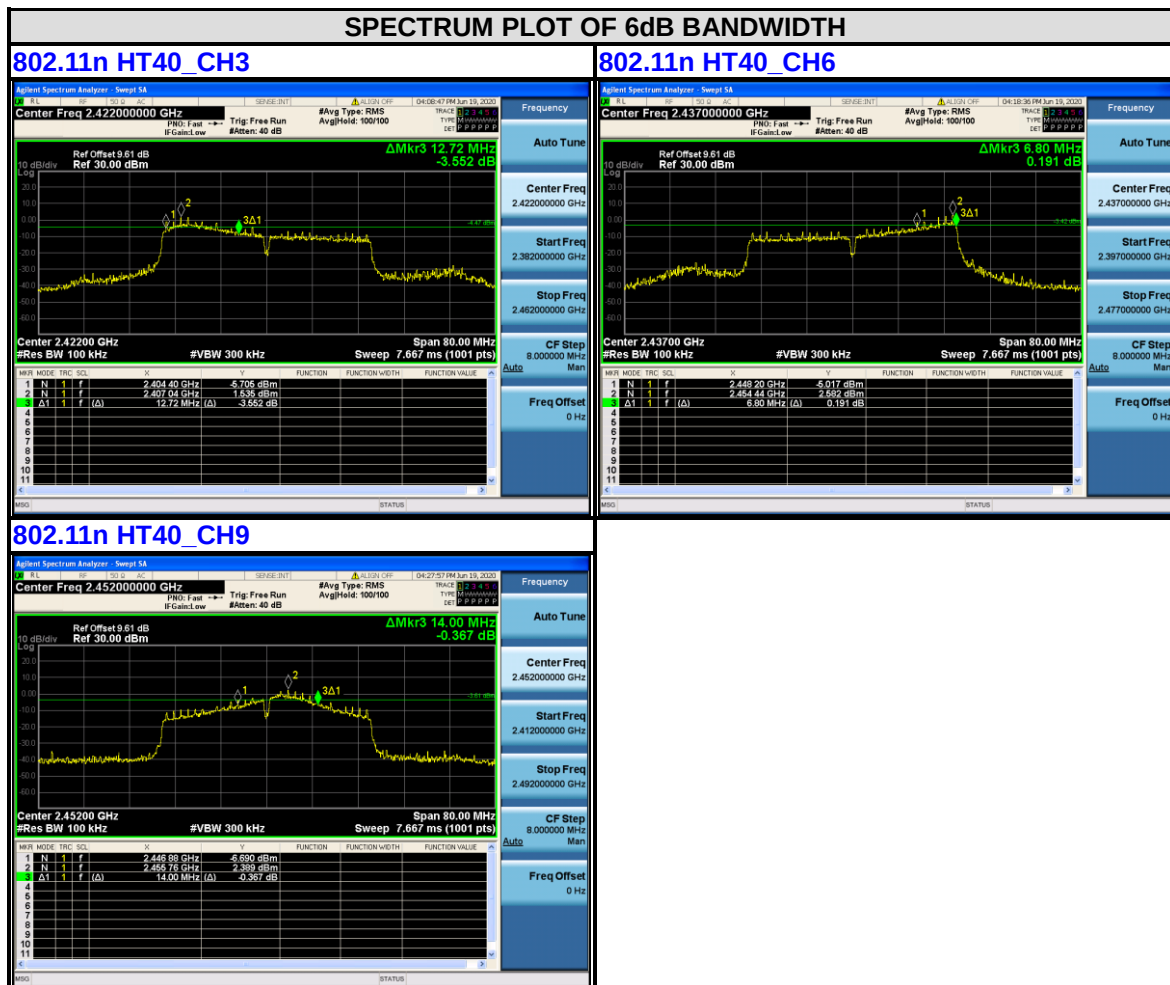
802.11n HT40

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	12.72	0.5	PASS
6	2437	6.8	0.5	PASS
9	2452	14	0.5	PASS







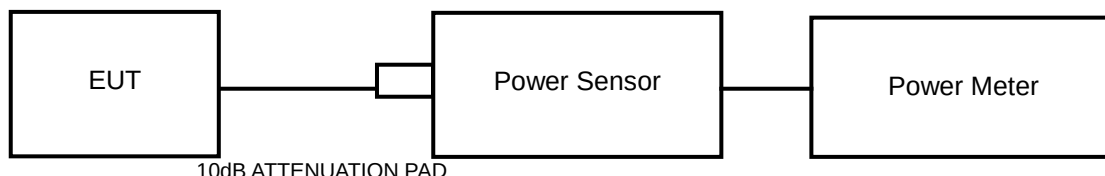


4.4 CONDUCTED OUTPUT POWER

4.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Wireless Connectivity Tester	R&S	CMW270	1201.0002K75	Dec. 18, 19	Dec. 17, 20
MXA VEXTOR SIGNAL	Agilent	n5182a	MY50140530	Mar. 24,20	Mar. 24,21
MXA signal analyzer	Agilent	n9020a	MY49100060	Mar. 24,20	Mar. 24,21
RF Control Unit	Tonscend	JS0806-2	188060112	Mar. 24,20	Mar. 24,21
Signal Generation	Agilent	E4421B	US40051152	Dec. 18, 19	Dec. 17, 20
DC Power Supply	Agilent	E3640A	MY40004013	Mar. 30,20	Mar. 30,21
Programmable Temperature & Humidity Chamber	Hongjin	HYC-TH-225 DH	DG-180746	Mar. 24,20	Mar. 24,21
Test System	Tonscend	JS 1120-3	N/A	N/A	N/A
Power Splitter	Weinschel	1580-1	TL177	Mar. 27,20	Mar. 27,21

NOTES:

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

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

MAXIMUM PEAK OUTPUT POWER

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	16.73	47.098	1	PASS
6	2437	13.35	21.627	1	PASS
11	2462	16.55	45.186	1	PASS

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	17.01	50.234	1	PASS
6	2437	16.39	43.551	1	PASS
11	2462	18.3	67.608	1	PASS

802.11n HT20

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	15.5	35.481	1	PASS
6	2437	16.21	41.783	1	PASS
11	2462	17.71	59.02	1	PASS

02.11n HT40

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	16.7	46.774	1	PASS
6	2437	15.42	34.834	1	PASS
9	2452	18.28	67.298	1	PASS

AVERAGE OUTPUT POWER (FOR REFERENCE)

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

802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	14.73	29.717
6	2437	12.29	16.943
11	2462	14.33	27.102

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	10.24	10.568
6	2437	9.92	9.817
11	2462	12.13	16.331

802.11n HT20

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	10.19	10.447
6	2437	10.25	10.593
11	2462	11.98	15.776

802.11n HT40

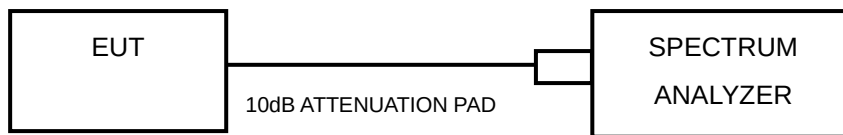
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
3	2422	11.18	13.122
6	2437	11.47	14.028
9	2452	11.70	14.791

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 1.5 times the DTS bandwidth.
- c) Set RBW to: 3KHz
- 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

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-15.25	8.00	PASS
6	2437	-19.52	8.00	PASS
11	2462	-16.50	8.00	PASS

802.11g

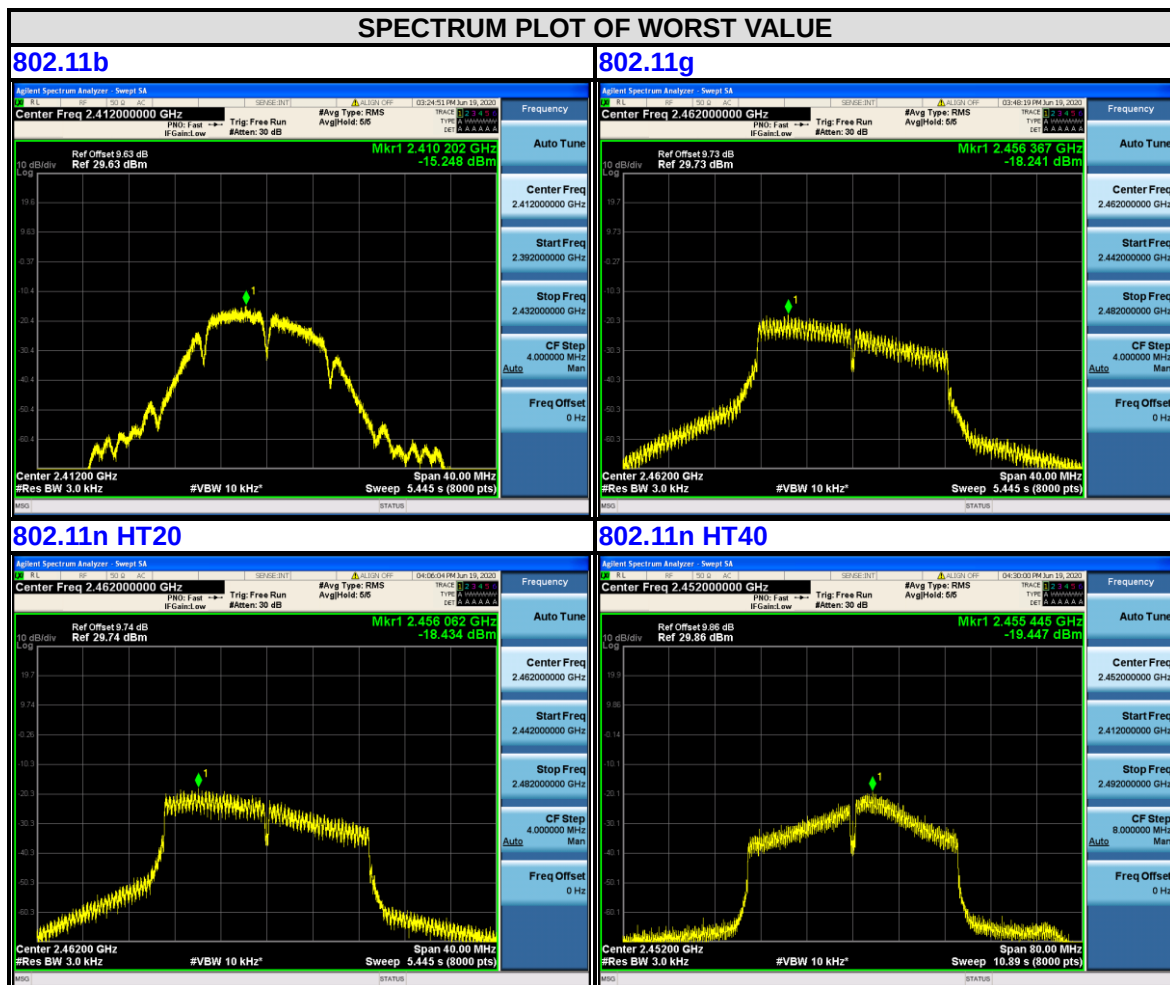
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-20.26	8.00	PASS
6	2437	-22.66	8.00	PASS
11	2462	-18.24	8.00	PASS

802.11n HT20

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-19.92	8.00	PASS
6	2437	-22.60	8.00	PASS
11	2462	-18.43	8.00	PASS

802.11n HT40

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-21.51	8.00	PASS
6	2437	-19.73	8.00	PASS
9	2452	-19.45	8.00	PASS



4.6 OUT OF BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.3.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

Measurement Procedure - Reference Level

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

Measurement Procedure –Unwanted Emission Level

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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

Same as item 4.3.6

4.6.7 TEST RESULTS

802.11b

