

# TEST REPORT



Applicant	Zhenyi Technologies Co., Ltd.
Address	7F-H, Hangsheng Technology Building, No.8 Gaoxin South 6th Road, Nanshan District, Shenzhen, China

Manufacturer or Supplier	Zhenyi Technologies Co., Ltd.
Address	7F-H, Hangsheng Technology Building, No.8 Gaoxin South 6th Road, Nanshan District, Shenzhen, China
Product	GarageCam PT Pro
Additional Product	GarageCam PT, GarageCam PT Lite, Smart Garage Camera, DejavuCam PT, 2K indoor Pan & Tilt Camera
Brand Name	Kamia
Model	KGC210
Additional Models & Model Difference	K451G, KGC205, K420G, KGC201, KC145, K401, D2000, see items 3.1
Date of tests	Sep. 24, 2021 ~ Nov. 04, 2021

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 Lucas Chen Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	 Date: Dec. 10, 2021

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Test Report No.: RF2109WDG0299

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2109WDG0299	Original release	Dec. 10, 2021

## 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	3.82dB
	1GHz ~ 18GHz	4.94dB
	18GHz ~ 40GHz	5.07dB

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

<b>PRODUCT</b>	GarageCam PT Pro
<b>ADDITIONAL PRODUCT</b>	GarageCam PT, GarageCam PT Lite, Smart Garage Camera, DejavuCam PT, 2K indoor Pan & Tilt Camera
<b>BRAND</b>	Kamia
<b>MODEL NO.</b>	KGC210
<b>ADDITIONAL NO.</b>	K451G, KGC205, K420G, KGC201, KC145, K401, D2000
<b>FCC ID</b>	2AX4XKGC210
<b>NOMINAL VOLTAGE</b>	DC 5V from Adapter
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>OPERATING FREQUENCY</b>	2412-2462MHz for 11b/g/n(HT20), 2422-2452MHz for 11n(HT40)
<b>PEAK OUTPUT POWER</b>	151.356 mW (Maximum)
<b>ANTENNA TYPE</b>	Integral Antenna, with 3dBi gain
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB Cable: Unshielded, detachable, 3.0m

#### 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.: 2109WDG0299) for detailed product photo.
3. Additional models (see above table) are identical with the test model KGC210 except the appearance and model number for marketing purpose.
4. The product name corresponding to the model, as below:

PRODUCT	MODEL NO.	REMARKS
GarageCam PT Pro	KGC210, K451G	Gray base with magnet
GarageCam PT	KGC205, K420G	Gray base, no magnet
GarageCam PT Lite	KGC201	Gray base, no magnet
Smart Garage Camera	KC145	White base, no magnet
DejavuCam PT	K401	White base, no magnet
2K indoor Pan & Tilt Camera	D2000	White base, no magnet

5. The EUT provides completed transmitters and receivers:

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

6. The EUT was powered by the following adapter:

<b>ADAPTER</b>	
<b>BRAND:</b>	N/A
<b>MODEL:</b>	KA06E-0501000US
<b>INPUT:</b>	AC 100-240V, 50/60Hz 0.25A Max
<b>OUTPUT:</b>	DC 5V, 1000mA

### 3.2 DESCRIPTION OF TEST MODES

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

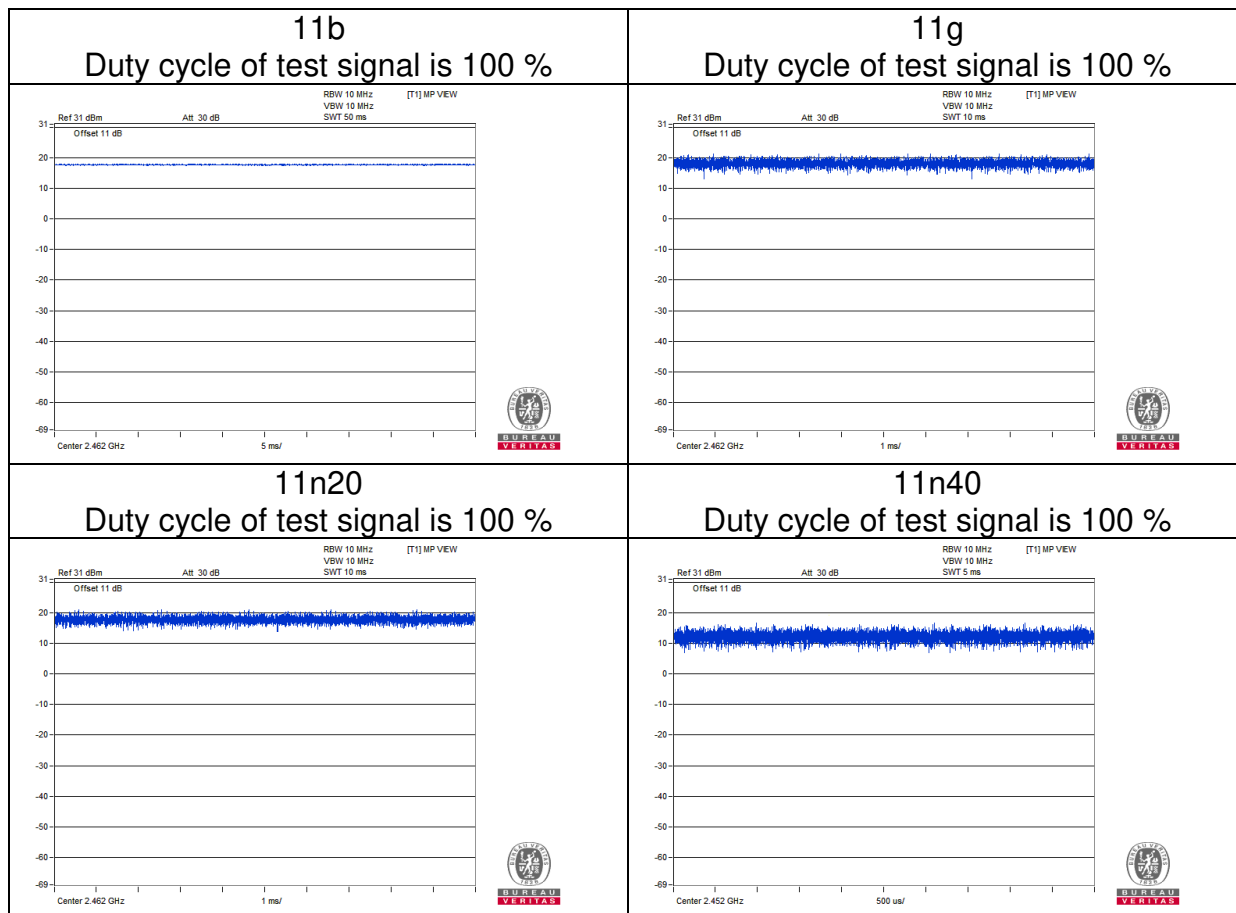
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

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		



### DUTY CYCLE OF SIGNAL



**Note: 802.11b/g/n20/n40:** Duty cycle of test signal >98%, duty cycle factor is not required.

### 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, power supply voltage range 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	
<b>A</b>	√	√	√	√	<b>Powered by adapter with WIFI function</b>

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(POE)	TESTED BY
RE<1G	25deg. C, 58%RH	DC5V from Adapter Input AC 120V/60Hz	Bryant
RE≥1G	25deg. C, 58%RH	DC5V from Adapter Input AC 120V/60Hz	Bryant
PLC	20deg. C, 56%RH	DC5V from Adapter Input AC 120V/60Hz	Mingbai
APCM	25deg. C, 55%RH	DC5V from Adapter Input AC 120V/60Hz	Howard



### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

**FCC Part 15, Subpart C, Section 15.247**

**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.

### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together without other necessary accessories or support units.

## 4 TEST TYPES AND RESULTS

### 4.1. CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	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.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCI	100666	July 04,22
Artificial Mains Network	Rohde&Schwarz	ENV216	102477	July 12,22
Artificial Mains Network	SCHWARZBECK	NSLK 8127	8127713	May 08,22
Voltage Probe	SCHWARZBECK	TK 9421	9421-0332	Aug. 22,22
Test software	ADT	ADT_Cond_V7.3.7	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

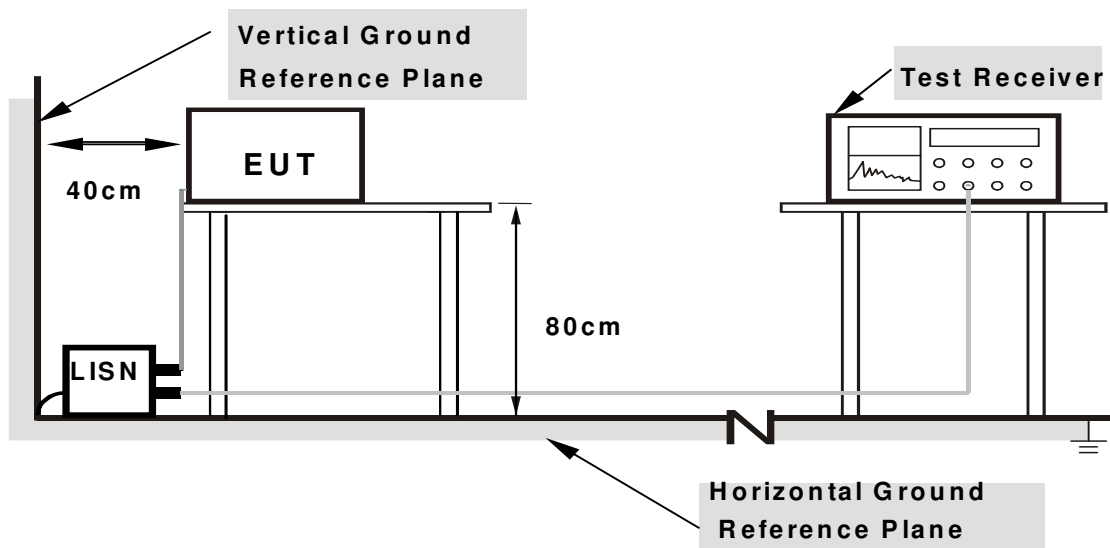
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

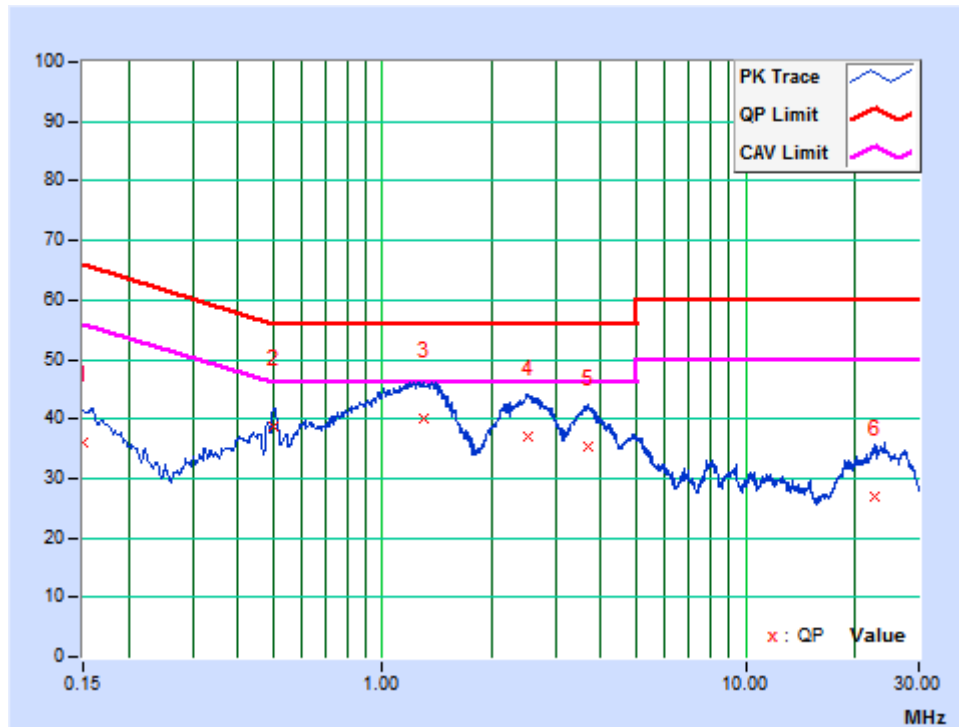
### 4.1.7 TEST RESULTS

**CONDUCTED WORST-CASE DATA: IEEE 802.11B CH 1**

<b>PHASE</b>	Line	<b>6dB BANDWIDTH</b>	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.77	26.27	11.80	36.04	21.57	66.00	56.00	-29.96	-34.43
2	0.50218	9.86	28.79	16.14	38.65	26.00	56.00	46.00	-17.35	-20.00
3	1.29573	9.84	30.15	19.62	39.99	29.46	56.00	46.00	-16.01	-16.54
4	2.51381	9.86	27.33	16.53	37.19	26.39	56.00	46.00	-18.81	-19.61
5	3.67800	9.86	25.59	14.81	35.45	24.67	56.00	46.00	-20.55	-21.33
6	22.82100	10.37	16.59	7.21	26.96	17.58	60.00	50.00	-33.04	-32.42

- 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.

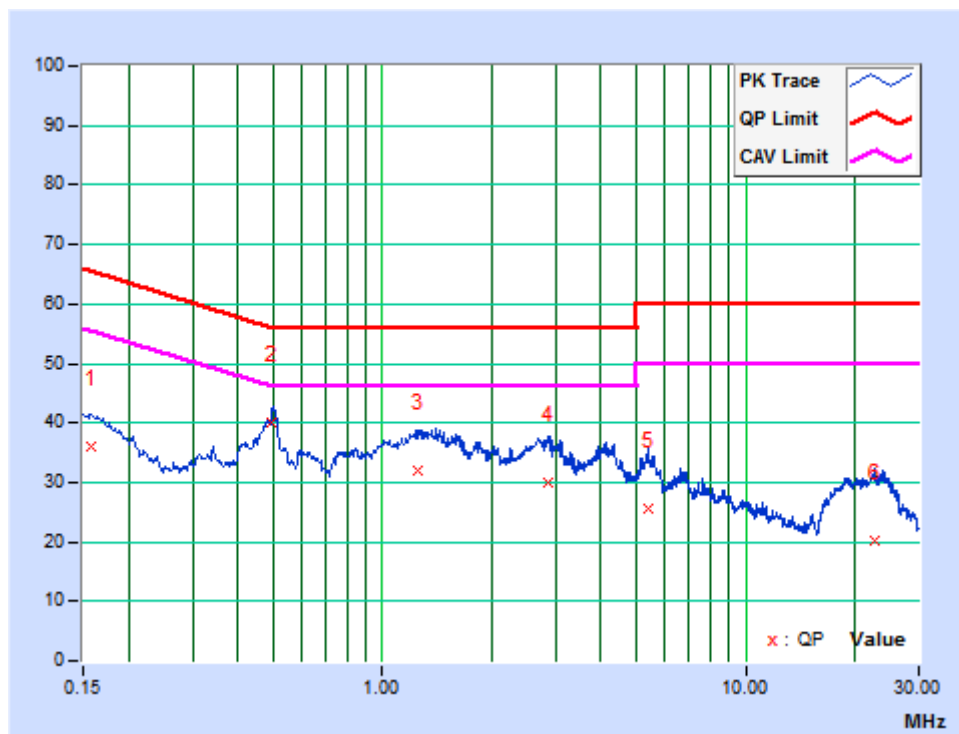




<b>PHASE</b>	Neutral	<b>6dB BANDWIDTH</b>	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15715	9.70	26.34	13.03	36.04	22.73	65.61	55.61	-29.57	-32.88
2	0.49822	9.81	30.29	18.66	40.10	28.47	56.03	46.03	-15.93	-17.56
3	1.24575	9.80	22.23	12.54	32.03	22.34	56.00	46.00	-23.97	-23.66
4	2.87025	9.80	20.25	11.89	30.05	21.69	56.00	46.00	-25.95	-24.31
5	5.37000	9.83	15.67	9.45	25.50	19.28	60.00	50.00	-34.50	-30.72
6	22.58475	10.41	9.78	3.80	20.19	14.21	60.00	50.00	-39.81	-35.79

- 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.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 07,22
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	May 09, 22
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	May 20,22
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Mar. 13,22
Bilog Antenna (20MHz -2GHz)	Teseq	CBL 6111D	30643	May 21,22
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 21,22
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	May 14,22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	May 22,22
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	May 12,22
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Mar. 13,22
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	N/A

**NOTES:**

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 749762.

### 4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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:

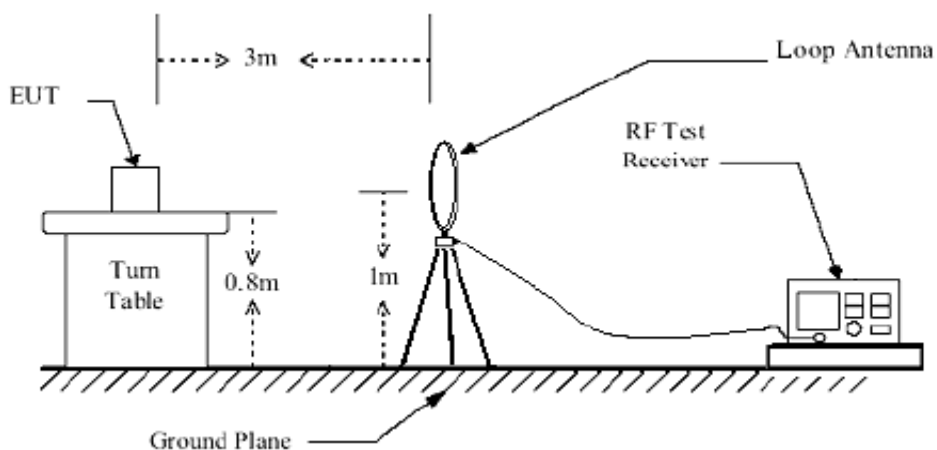
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

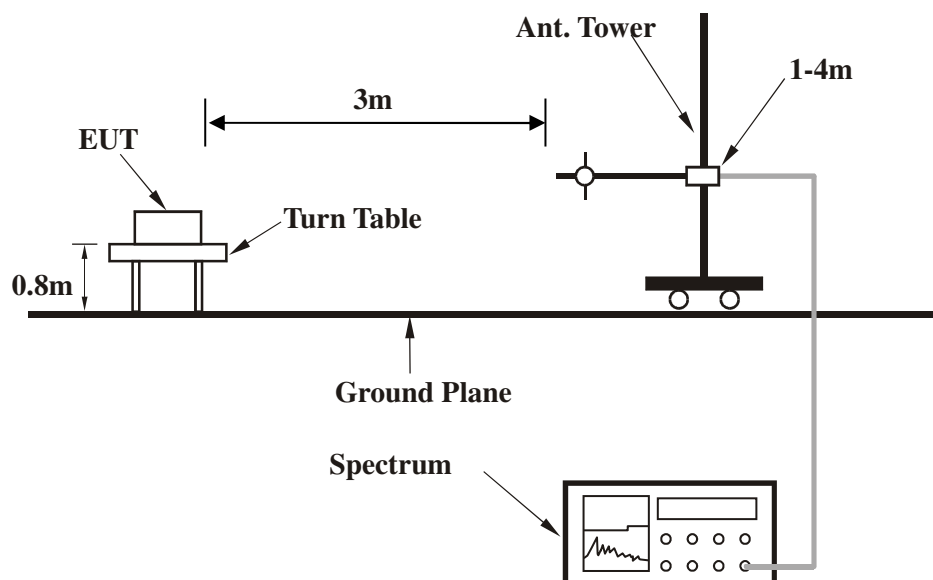
No deviation.

#### 4.2.5 TEST SETUP

##### Below 30MHz test setup

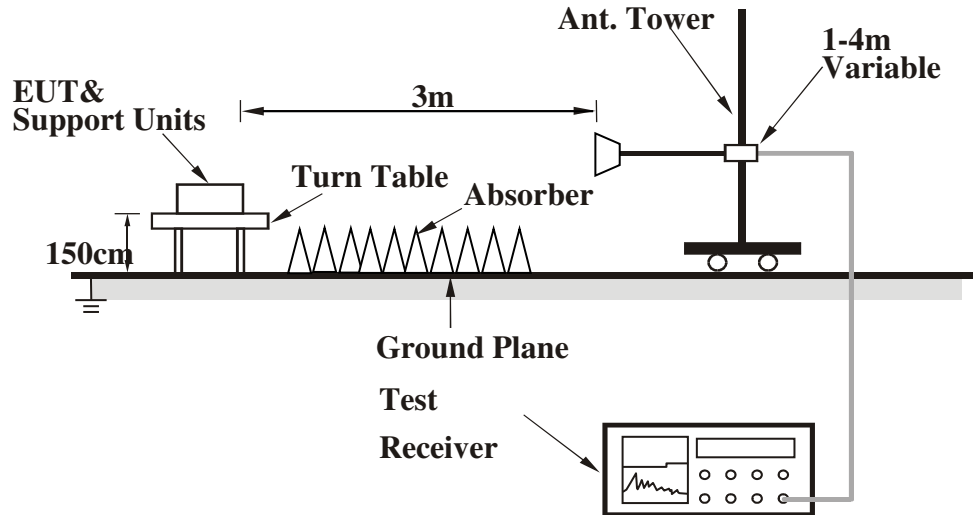


##### Below 1GHz test setup



**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

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

## 4.2.7 TEST RESULTS

### BELOW 1GHz WORST-CASE DATA:

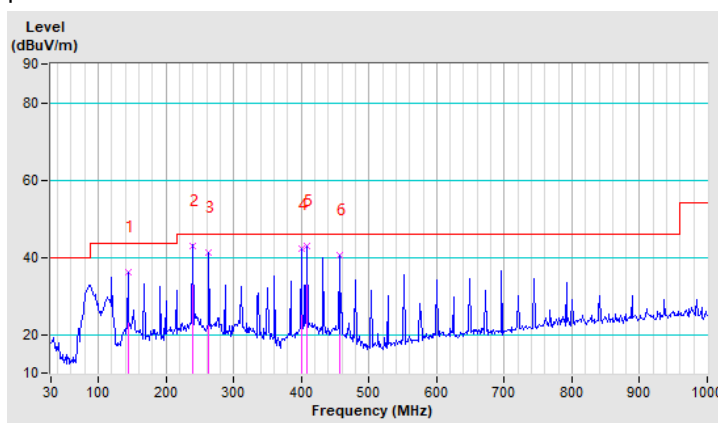
802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	143.87	36.02 QP	43.50	-7.48	1.00 H	24	50.58	-14.56
2	239.46	42.96 QP	46.00	-3.04	1.00 H	57	58.62	-15.66
3	263.36	41.13 QP	46.00	-4.87	1.00 H	124	56.19	-15.06
4	399.72	42.05 QP	46.00	-3.95	1.00 H	276	53.66	-11.61
<b>5</b>	<b>408.16</b>	<b>42.96 QP</b>	<b>46.00</b>	<b>-3.04</b>	<b>1.00 H</b>	<b>98</b>	<b>54.37</b>	<b>-11.41</b>
6	455.96	40.43 QP	46.00	-5.57	1.00 H	37	50.75	-10.32

#### 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 of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

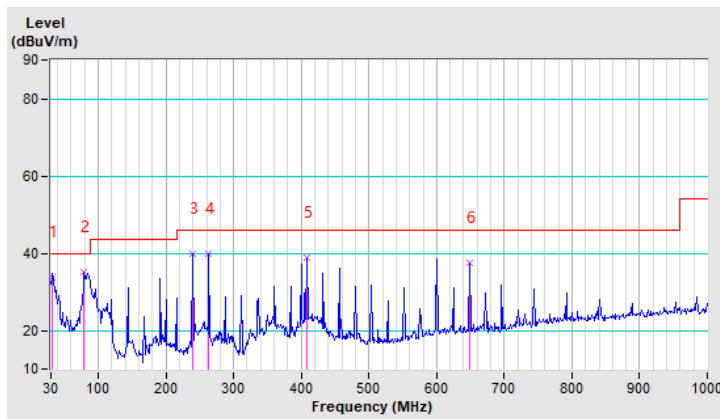


<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.41	33.86 QP	40.00	-6.14	1.00 V	73	49.49	-15.63
2	79.20	35.25 QP	40.00	-4.75	1.00 V	147	54.02	-18.77
3	239.46	39.87 QP	46.00	-6.13	1.00 V	27	55.53	-15.66
4	263.36	39.76 QP	46.00	-6.24	1.00 V	37	54.82	-15.06
5	408.16	38.78 QP	46.00	-7.22	1.00 V	357	50.19	-11.41
6	648.55	37.49 QP	46.00	-8.51	1.00 V	347	43.80	-6.31

**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 of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.





**ABOVE 1GHz DATA**

**802.11b**

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

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.16 PK	74.00	-15.84	1.00 H	35	56.19	1.97
2	2390.00	40.63 AV	54.00	-13.37	1.00 H	35	38.66	1.97
3	*2412.00	103.91 PK			1.00 H	35	101.93	1.98
4	*2412.00	93.49 AV			1.00 H	35	91.51	1.98
5	4824.00	54.55 PK	74.00	-19.45	1.00 H	0	49.59	4.96
6	4824.00	42.06 AV	54.00	-11.94	1.00 H	0	37.10	4.96
7	#7236.00	55.81 PK	74.00	-18.19	1.00 H	0	46.12	9.69
8	#7236.00	43.05 AV	54.00	-10.95	1.00 H	0	33.36	9.69

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.87 PK	74.00	-17.13	1.00 V	183	54.90	1.97
2	2390.00	39.14 AV	54.00	-14.86	1.00 V	183	37.17	1.97
3	*2412.00	103.72 PK			1.00 V	183	101.74	1.98
4	*2412.00	93.31 AV			1.00 V	183	91.33	1.98
5	4824.00	53.62 PK	74.00	-20.38	1.00 V	0	48.66	4.96
6	4824.00	41.59 AV	54.00	-12.41	1.00 V	0	36.63	4.96
7	#7236.00	55.47 PK	74.00	-18.53	1.00 V	0	45.78	9.69
8	#7236.00	42.38 AV	54.00	-11.62	1.00 V	0	32.69	9.69

**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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.44 PK			1.00 H	15	101.45	1.99
2	*2437.00	92.98 AV			1.00 H	15	90.99	1.99
3	4874.00	53.19 PK	74.00	-20.81	1.00 H	0	48.03	5.16
4	4874.00	41.77 AV	54.00	-12.23	1.00 H	0	36.61	5.16
5	7311.00	54.19 PK	74.00	-19.81	1.00 H	0	44.19	10.00
6	7311.00	42.33 AV	54.00	-11.67	1.00 H	0	32.33	10.00
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	*2437.00	103.56 PK			1.00 V	48	101.57	1.99
2	*2437.00	93.31 AV			1.00 V	48	91.32	1.99
3	4874.00	54.58 PK	74.00	-19.42	1.00 V	0	49.42	5.16
4	4874.00	42.93 AV	54.00	-11.07	1.00 V	0	37.77	5.16
5	7311.00	55.01 PK	74.00	-18.99	1.00 V	0	45.01	10.00
6	7311.00	43.56 AV	54.00	-10.44	1.00 V	0	33.56	10.00

**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.

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	108.87 PK			1.00 H	133	106.86	2.01
2	*2462.00	104.74 AV			1.00 H	133	102.73	2.01
3	2483.50	58.11 PK	74.00	-15.89	1.00 H	133	56.08	2.03
4	2483.50	41.57 AV	54.00	-12.43	1.00 H	133	39.54	2.03
5	4924.00	54.27 PK	74.00	-19.73	1.00 H	0	48.92	5.35
6	4924.00	50.52 AV	54.00	-3.48	1.00 H	0	45.17	5.35
7	7386.00	51.43 PK	74.00	-22.57	1.00 H	0	41.13	10.30
8	7386.00	43.29 AV	54.00	-10.71	1.00 H	0	32.99	10.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.43 PK			1.00 V	25	107.42	2.01
2	*2462.00	104.82 AV			1.00 V	25	102.81	2.01
3	2483.50	58.11 PK	74.00	-15.89	1.00 V	25	56.08	2.03
4	2483.50	41.57 AV	54.00	-12.43	1.00 V	25	39.54	2.03
5	4924.00	54.78 PK	74.00	-19.22	1.00 V	0	49.43	5.35
6	<b>4924.00</b>	<b>50.73 AV</b>	<b>54.00</b>	<b>-3.27</b>	<b>1.00 V</b>	<b>0</b>	<b>45.38</b>	<b>5.35</b>
7	7386.00	52.08 PK	74.00	-21.92	1.00 V	0	41.78	10.30
8	7386.00	45.27 AV	54.00	-8.73	1.00 V	0	34.97	10.30

**REMARKS:**

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.94 PK	74.00	-10.06	1.00 H	25	63.40	0.54
2	2390.00	47.18 AV	54.00	-6.82	1.00 H	25	46.64	0.54
3	*2412.00	105.24 PK			1.00 H	25	104.62	0.62
4	*2412.00	94.62 AV			1.00 H	25	94.00	0.62
5	4824.00	59.07 PK	74.00	-14.93	1.00 H	0	53.74	5.33
6	4824.00	43.38 AV	54.00	-10.62	1.00 H	0	38.05	5.33
7	#7236.00	49.69 PK	74.00	-24.31	1.00 H	0	39.97	9.72
8	#7236.00	35.77 AV	54.00	-18.23	1.00 H	0	26.05	9.72

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.54 PK	74.00	-12.46	1.00 V	36	61.00	0.54
2	2390.00	44.39 AV	54.00	-9.61	1.00 V	36	43.85	0.54
3	*2412.00	104.78 PK			1.00 V	36	104.16	0.62
4	*2412.00	93.29 AV			1.00 V	36	92.67	0.62
5	4824.00	57.44 PK	74.00	-16.56	1.00 V	0	52.11	5.33
6	4824.00	40.36 AV	54.00	-13.64	1.00 V	0	35.03	5.33
7	#7236.00	47.53 PK	74.00	-26.47	1.00 V	0	37.81	9.72
8	#7236.00	33.16 AV	54.00	-20.84	1.00 V	0	23.44	9.72

**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.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	104.52 PK			1.00 H	196	103.81	0.71
2	*2437.00	94.77 AV			1.00 H	196	94.06	0.71
3	4874.00	60.73 PK	74.00	-13.27	1.00 H	0	55.35	5.38
4	4874.00	45.26 AV	54.00	-8.74	1.00 H	0	39.88	5.38
5	7311.00	52.34 PK	74.00	-21.66	1.00 H	0	42.57	9.77
6	7311.00	37.50 AV	54.00	-16.50	1.00 H	0	27.73	9.77
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.26 PK			1.00 V	55	102.55	0.71
2	*2437.00	92.58 AV			1.00 V	55	91.87	0.71
3	4874.00	57.93 PK	74.00	-16.07	1.00 V	0	52.55	5.38
4	4874.00	43.26 AV	54.00	-10.74	1.00 V	0	37.88	5.38
5	7311.00	50.30 PK	74.00	-23.70	1.00 V	0	40.53	9.77
6	7311.00	35.28 AV	54.00	-18.72	1.00 V	0	25.51	9.77

**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.

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	104.15 PK			1.00 H	168	103.34	0.81
2	*2462.00	94.31 AV			1.00 H	168	93.50	0.81
3	2483.50	65.64 PK	74.00	-8.36	1.00 H	168	64.75	0.89
4	2483.50	47.86 AV	54.00	-6.14	1.00 H	168	46.97	0.89
5	4924.00	60.33 PK	74.00	-13.67	1.00 H	0	54.88	5.45
6	4924.00	44.52 AV	54.00	-9.48	1.00 H	0	39.07	5.45
7	7386.00	50.37 PK	74.00	-23.63	1.00 H	0	40.55	9.82
8	7386.00	36.84 AV	54.00	-17.16	1.00 H	0	27.02	9.82
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.59 PK			1.00 V	233	101.78	0.81
2	*2462.00	91.77 AV			1.00 V	233	90.96	0.81
3	2483.50	63.19 PK	74.00	-10.81	1.00 V	233	62.30	0.89
4	2483.50	44.58 AV	54.00	-9.42	1.00 V	233	43.69	0.89
5	4924.00	58.49 PK	74.00	-15.51	1.00 V	0	53.04	5.45
6	4924.00	43.01 AV	54.00	-10.99	1.00 V	0	37.56	5.45
7	7386.00	49.29 PK	74.00	-24.71	1.00 V	0	39.47	9.82
8	7386.00	34.16 AV	54.00	-19.84	1.00 V	0	24.34	9.82

**REMARKS:**

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.27 PK	74.00	-15.73	1.00 H	163	57.73	0.54
2	2390.00	42.67 AV	54.00	-11.33	1.00 H	163	42.13	0.54
3	*2412.00	102.77 PK			1.00 H	163	102.15	0.62
4	*2412.00	92.70 AV			1.00 H	163	92.08	0.62
5	4824.00	58.44 PK	74.00	-15.56	1.00 H	0	53.11	5.33
6	4824.00	42.15 AV	54.00	-11.85	1.00 H	0	36.82	5.33
7	#7236.00	47.63 PK	74.00	-26.37	1.00 H	0	37.91	9.72
8	#7236.00	35.24 AV	54.00	-18.76	1.00 H	0	25.52	9.72
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.44 PK	74.00	-17.56	1.00 V	256	55.90	0.54
2	2390.00	41.26 AV	54.00	-12.74	1.00 V	256	40.72	0.54
3	*2412.00	101.19 PK			1.00 V	256	100.57	0.62
4	*2412.00	90.58 AV			1.00 V	256	89.96	0.62
5	4824.00	57.06 PK	74.00	-16.94	1.00 V	0	51.73	5.33
6	4824.00	41.19 AV	54.00	-12.81	1.00 V	0	35.86	5.33
7	#7236.00	46.05 PK	74.00	-27.95	1.00 V	0	36.33	9.72
8	#7236.00	33.97 AV	54.00	-20.03	1.00 V	0	24.25	9.72

**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.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	102.59 PK			1.00 H	28	101.88	0.71
2	*2437.00	92.35 AV			1.00 H	28	91.64	0.71
3	4874.00	58.36 PK	74.00	-15.64	1.00 H	0	52.98	5.38
4	4874.00	43.05 AV	54.00	-10.95	1.00 H	0	37.67	5.38
5	7311.00	47.72 PK	74.00	-26.28	1.00 H	0	37.95	9.77
6	7311.00	36.29 AV	54.00	-17.71	1.00 H	0	26.52	9.77
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.47 PK			1.00 V	139	100.76	0.71
2	*2437.00	90.58 AV			1.00 V	139	89.87	0.71
3	4874.00	56.27 PK	74.00	-17.73	1.00 V	0	50.89	5.38
4	4874.00	42.16 AV	54.00	-11.84	1.00 V	0	36.78	5.38
5	7311.00	46.38 PK	74.00	-27.62	1.00 V	0	36.61	9.77
6	7311.00	35.44 AV	54.00	-18.56	1.00 V	0	25.67	9.77

**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.



<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	104.52 PK			1.00 H	306	103.71	0.81
2	*2462.00	94.02 AV			1.00 H	306	93.21	0.81
3	2483.50	65.46 PK	74.00	-8.54	1.00 H	306	64.57	0.89
4	2483.50	47.12 AV	54.00	-6.88	1.00 H	306	46.23	0.89
5	4924.00	61.28 PK	74.00	-12.72	1.00 H	0	55.83	5.45
6	4924.00	47.82 AV	54.00	-6.18	1.00 H	0	42.37	5.45
7	7386.00	50.57 PK	74.00	-23.43	1.00 H	0	40.75	9.82
8	7386.00	38.64 AV	54.00	-15.36	1.00 H	0	28.82	9.82
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.17 PK			1.00 V	251	102.36	0.81
2	*2462.00	93.76 AV			1.00 V	251	92.95	0.81
3	2483.50	60.27 PK	74.00	-13.73	1.00 V	251	59.38	0.89
4	2483.50	45.11 AV	54.00	-8.89	1.00 V	251	44.22	0.89
5	4924.00	59.37 PK	74.00	-14.63	1.00 V	0	53.92	5.45
6	4924.00	45.44 AV	54.00	-8.56	1.00 V	0	39.99	5.45
7	7386.00	49.06 PK	74.00	-24.94	1.00 V	0	39.24	9.82
8	7386.00	37.29 AV	54.00	-16.71	1.00 V	0	27.47	9.82

**REMARKS:**

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.41 PK	74.00	-15.59	1.00 H	36	57.87	0.54
2	2390.00	44.78 AV	54.00	-9.22	1.00 H	36	44.24	0.54
3	*2422.00	104.52 PK			1.00 H	36	103.87	0.65
4	*2422.00	94.14 AV			1.00 H	36	93.49	0.65
5	4844.00	61.79 PK	74.00	-12.21	1.00 H	0	56.44	5.35
6	4844.00	50.03 AV	54.00	-3.97	1.00 H	0	44.68	5.35
7	7266.00	50.57 PK	74.00	-23.43	1.00 H	0	40.83	9.74
8	7266.00	39.02 AV	54.00	-14.98	1.00 H	0	29.28	9.74
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.38 PK	74.00	-17.62	1.00 V	58	55.84	0.54
2	2390.00	43.06 AV	54.00	-10.94	1.00 V	58	42.52	0.54
3	*2422.00	102.59 PK			1.00 V	58	101.94	0.65
4	*2422.00	92.44 AV			1.00 V	58	91.79	0.65
5	4844.00	59.35 PK	74.00	-14.65	1.00 V	0	54.00	5.35
6	4844.00	48.47 AV	54.00	-5.53	1.00 V	0	43.12	5.35
7	7266.00	49.69 PK	74.00	-24.31	1.00 V	0	39.95	9.74
8	7266.00	38.25 AV	54.00	-15.75	1.00 V	0	28.51	9.74

**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.

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

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>								
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	104.56 PK			1.00 H	169	103.85	0.71
2	*2437.00	94.06 AV			1.00 H	169	93.35	0.71
3	4874.00	60.28 PK	74.00	-13.72	1.00 H	0	54.90	5.38
4	4874.00	49.34 AV	54.00	-4.66	1.00 H	0	43.96	5.38
5	7311.00	55.36 PK	74.00	-18.64	1.00 H	0	45.59	9.77
6	7311.00	44.33 AV	54.00	-9.67	1.00 H	0	34.56	9.77
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
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	102.36 PK			1.00 V	15	101.65	0.71
2	*2437.00	92.57 AV			1.00 V	15	91.86	0.71
3	4874.00	59.63 PK	74.00	-14.37	1.00 V	0	54.25	5.38
4	4874.00	47.75 AV	54.00	-6.25	1.00 V	0	42.37	5.38
5	7311.00	54.26 PK	74.00	-19.74	1.00 V	0	44.49	9.77
6	7311.00	43.29 AV	54.00	-10.71	1.00 V	0	33.52	9.77

**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.

<b>CHANNEL</b>	TX Channel 9	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	104.95 PK			1.00 H	286	104.18	0.77
2	*2452.00	94.35 AV			1.00 H	286	93.58	0.77
3	2483.50	65.70 PK	74.00	-8.30	1.00 H	286	64.81	0.89
4	2483.50	47.49 AV	54.00	-6.51	1.00 H	286	46.60	0.89
5	4904.00	60.64 PK	74.00	-13.36	1.00 H	0	55.22	5.42
6	4904.00	49.80 AV	54.00	-4.20	1.00 H	0	44.38	5.42
7	7356.00	55.71 PK	74.00	-18.29	1.00 H	0	45.90	9.81
8	7356.00	43.27 AV	54.00	-10.73	1.00 H	0	33.46	9.81
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	102.17 PK			1.00 V	263	101.40	0.77
2	*2452.00	92.71 AV			1.00 V	263	91.94	0.77
3	2483.50	63.57 PK	74.00	-10.43	1.00 V	263	62.68	0.89
4	2483.50	46.19 AV	54.00	-7.81	1.00 V	263	45.30	0.89
5	4904.00	59.27 PK	74.00	-14.73	1.00 V	0	53.85	5.42
6	4904.00	47.31 AV	54.00	-6.69	1.00 V	0	41.89	5.42
7	7356.00	54.16 PK	74.00	-19.84	1.00 V	0	44.35	9.81
8	7356.00	42.16 AV	54.00	-11.84	1.00 V	0	32.35	9.81

**REMARKS:**

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

### 4.3 6dB BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

#### 4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	N/A
Power Sensor	Keysight	U2021XA	MY55060018	May 09, 22
Power Meter	Anritsu	ML2495A	1139001	Feb. 24,22
Power Sensor	Anritsu	MA2411B	1531155	Feb. 24,22
Digital Multimeter	FLUKE	15B	A1220010DG	N/A
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Nov. 03,21
Oscilloscope	Agilent	DSO9254A	MY51260160	Aug. 11,22
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Feb. 24,22
Signal Generator	Agilent	N5183A	MY50140980	Mar 23.22
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Sep. 14,22
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	N/A
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A

**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.

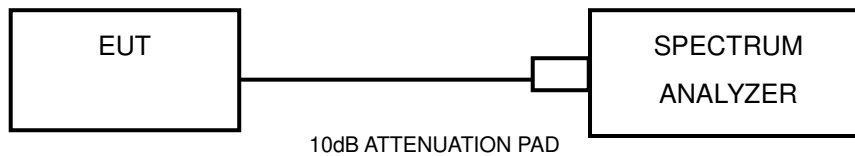
#### 4.3.3 TEST PROCEDURE

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	8.10	0.5	PASS
6	2437	9.11	0.5	PASS
11	2462	9.08	0.5	PASS

##### 802.11g

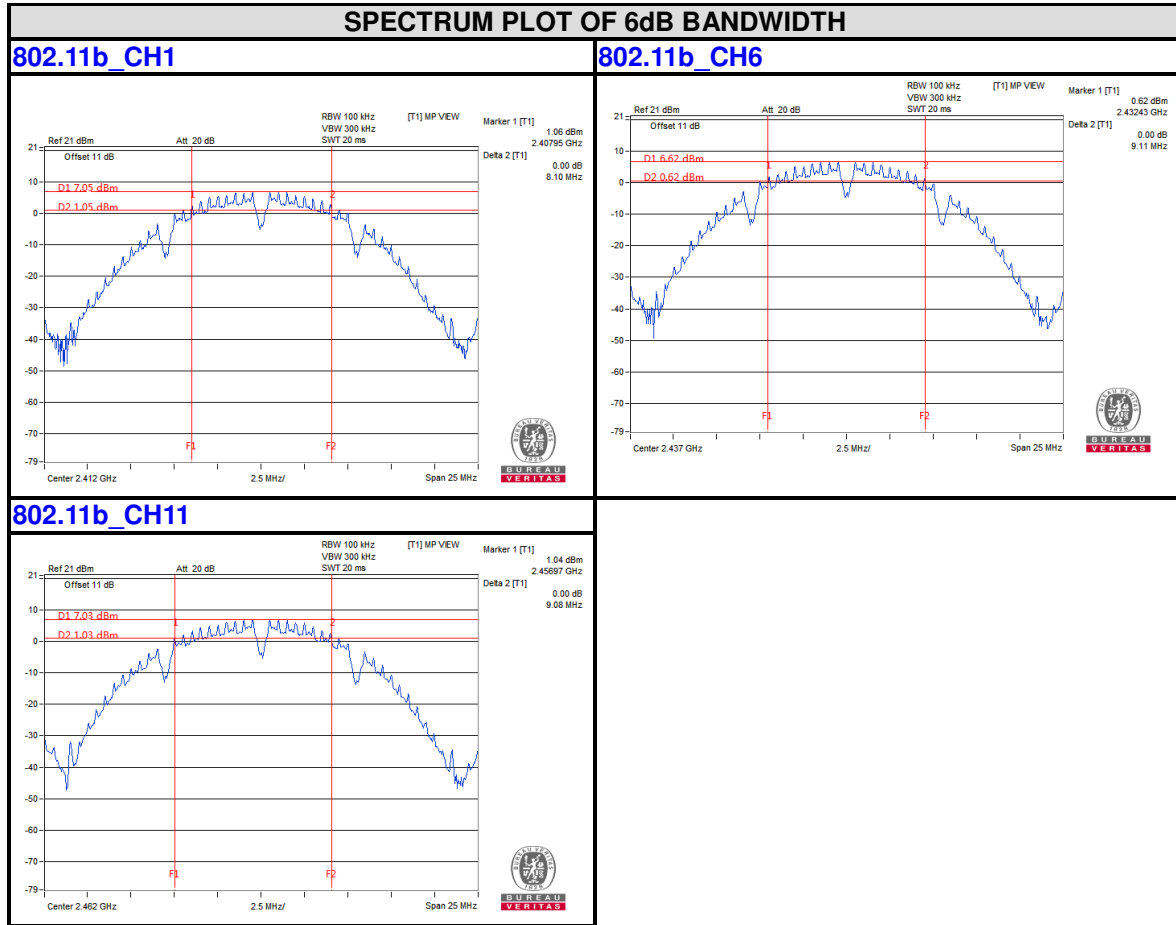
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.43	0.5	PASS
6	2437	16.37	0.5	PASS
11	2462	16.40	0.5	PASS

##### 802.11n HT20

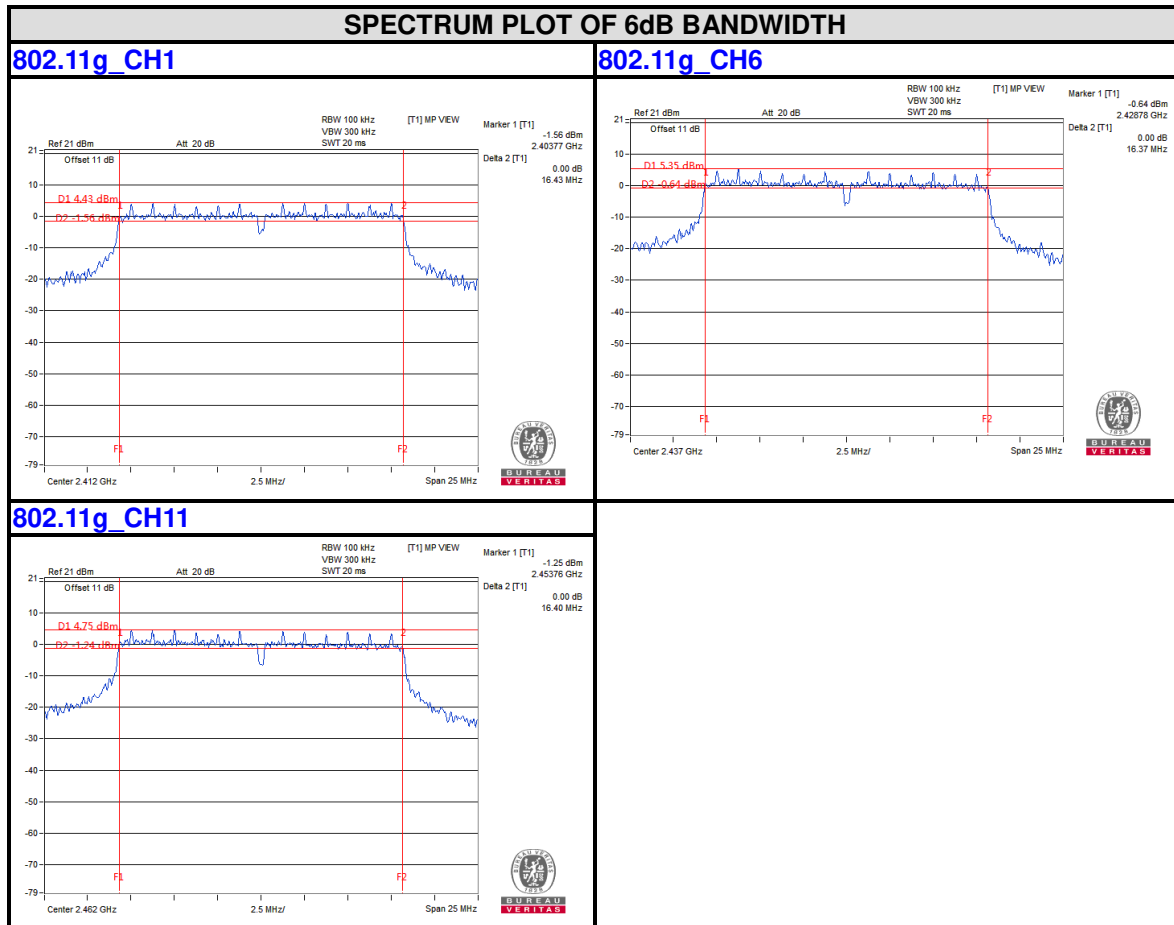
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	17.62	0.5	PASS
6	2437	17.21	0.5	PASS
11	2462	17.32	0.5	PASS

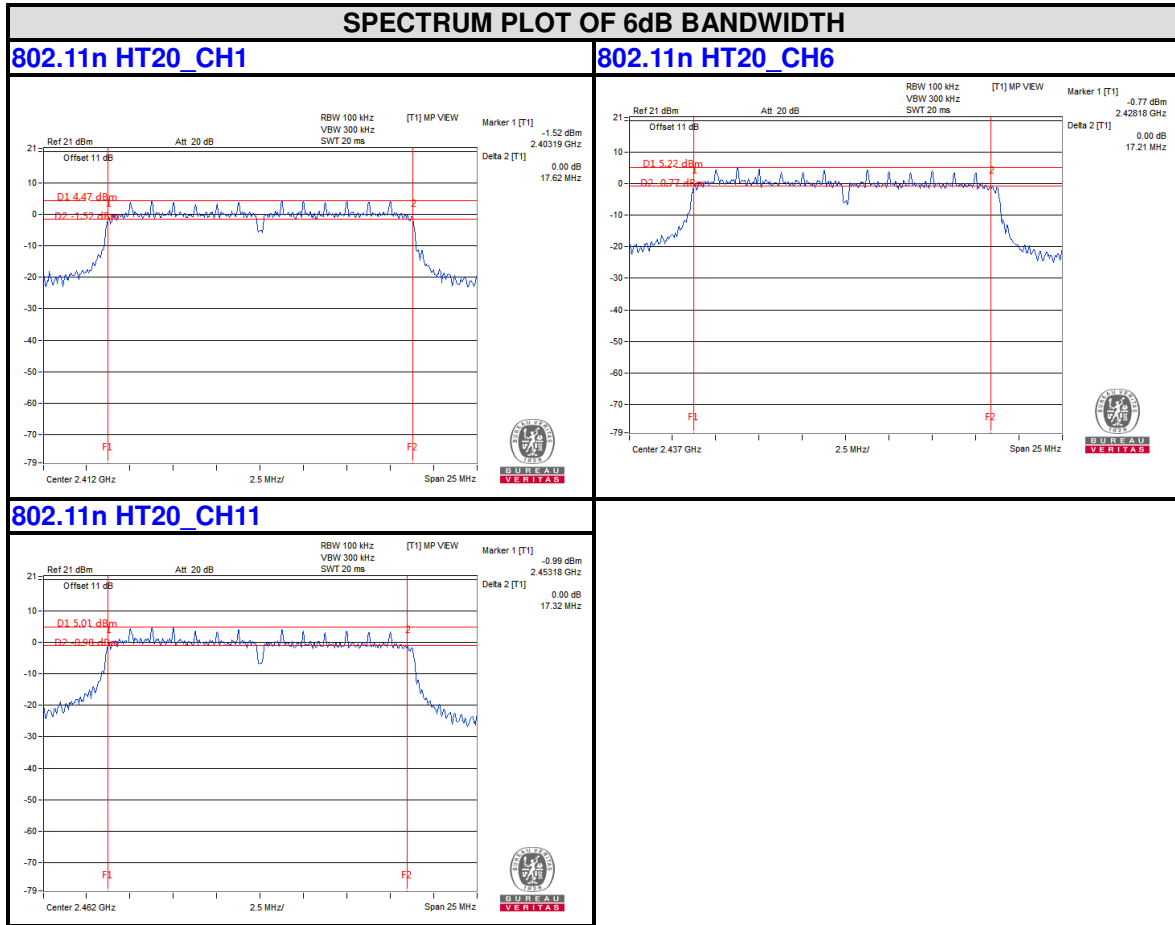
##### 802.11n HT40

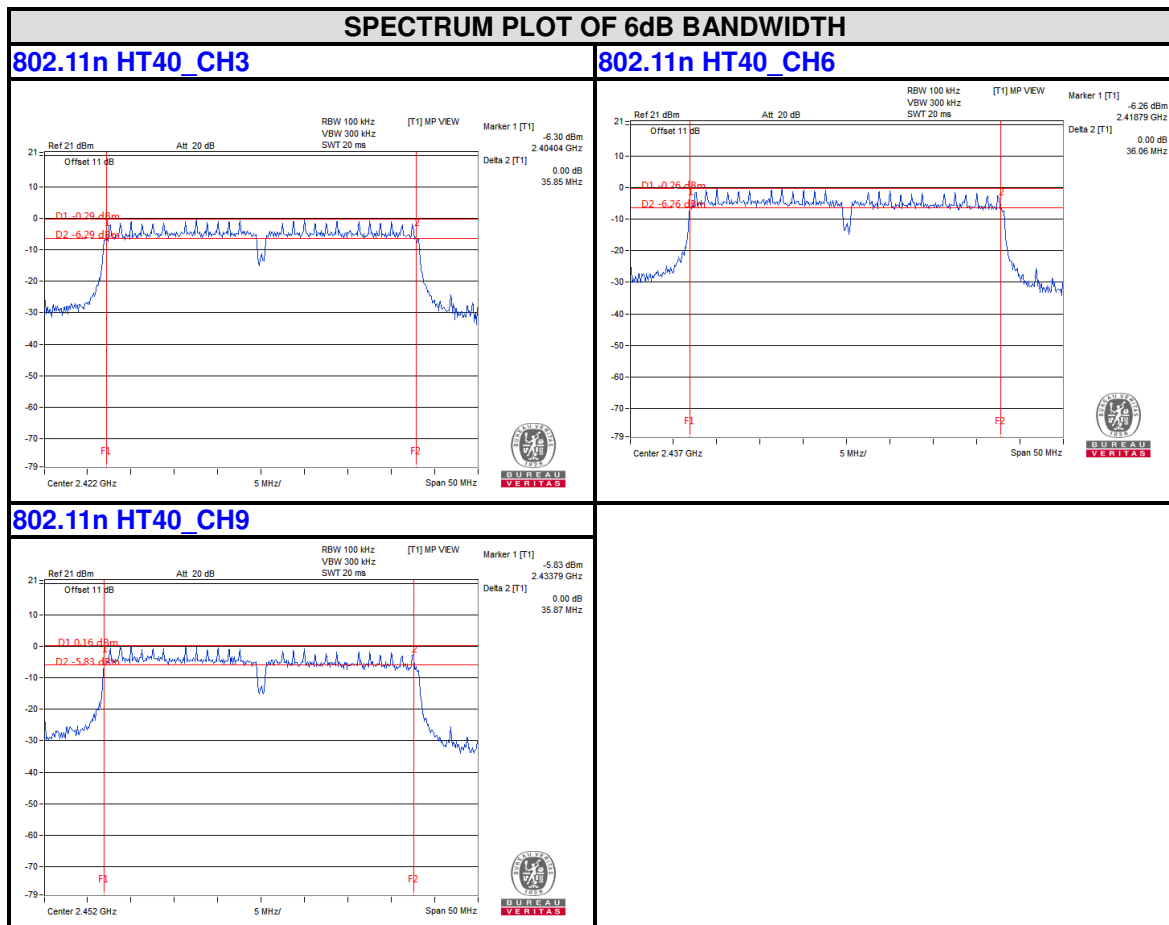
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.85	0.5	PASS
6	2437	36.06	0.5	PASS
9	2452	35.87	0.5	PASS









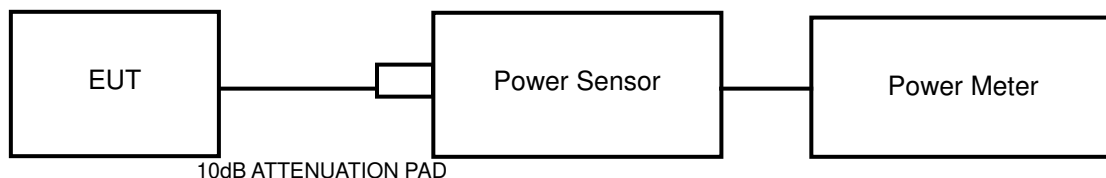


## 4.4 CONDUCTED OUTPUT POWER

### 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.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	N/A
Power Sensor	Keysight	U2021XA	MY55060018	May 09, 22
Power Meter	Anritsu	ML2495A	1139001	Feb. 24,22
Power Sensor	Anritsu	MA2411B	1531155	Feb. 24,22
Digital Multimeter	FLUKE	15B	A1220010DG	N/A
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Nov. 03,21
Oscilloscope	Agilent	DSO9254A	MY51260160	Aug. 11,22
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Feb. 24,22
Signal Generator	Agilent	N5183A	MY50140980	Mar 23,22
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Sep. 14,22
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	N/A
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A

#### 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	17.22	52.723	1	PASS
6	2437	16.64	46.132	1	PASS
11	2462	15.78	37.844	1	PASS

##### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	21.80	151.356	1	PASS
6	2437	20.97	125.026	1	PASS
11	2462	20.26	106.170	1	PASS

##### 802.11n HT20

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
1	2412	21.43	138.995	1	PASS
6	2437	20.79	119.950	1	PASS
11	2462	20.01	100.231	1	PASS

##### 02.11n HT40

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
3	2422	20.77	161.808	1	PASS
6	2437	20.27	154.525	1	PASS
9	2452	19.75	157.036	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	13.90	24.547
6	2437	13.26	21.184
11	2462	12.38	17.298

**802.11g**

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	14.43	27.733
6	2437	14.60	28.840
11	2462	15.43	34.914

**802.11n HT20**

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
1	2412	13.48	22.284
6	2437	12.88	19.409
11	2462	11.92	15.560

**802.11n HT40**

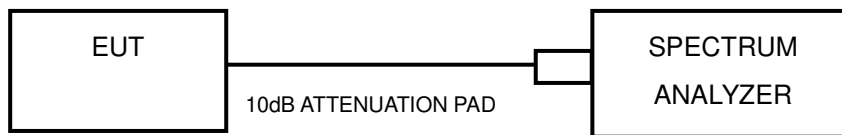
CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)	AVG. POWER (mW)
3	2422	12.93	26.182
6	2437	12.36	24.774
9	2452	11.81	25.586

## 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	-8.55	8.00	PASS
6	2437	-9.81	8.00	PASS
11	2462	-10.63	8.00	PASS

##### 802.11g

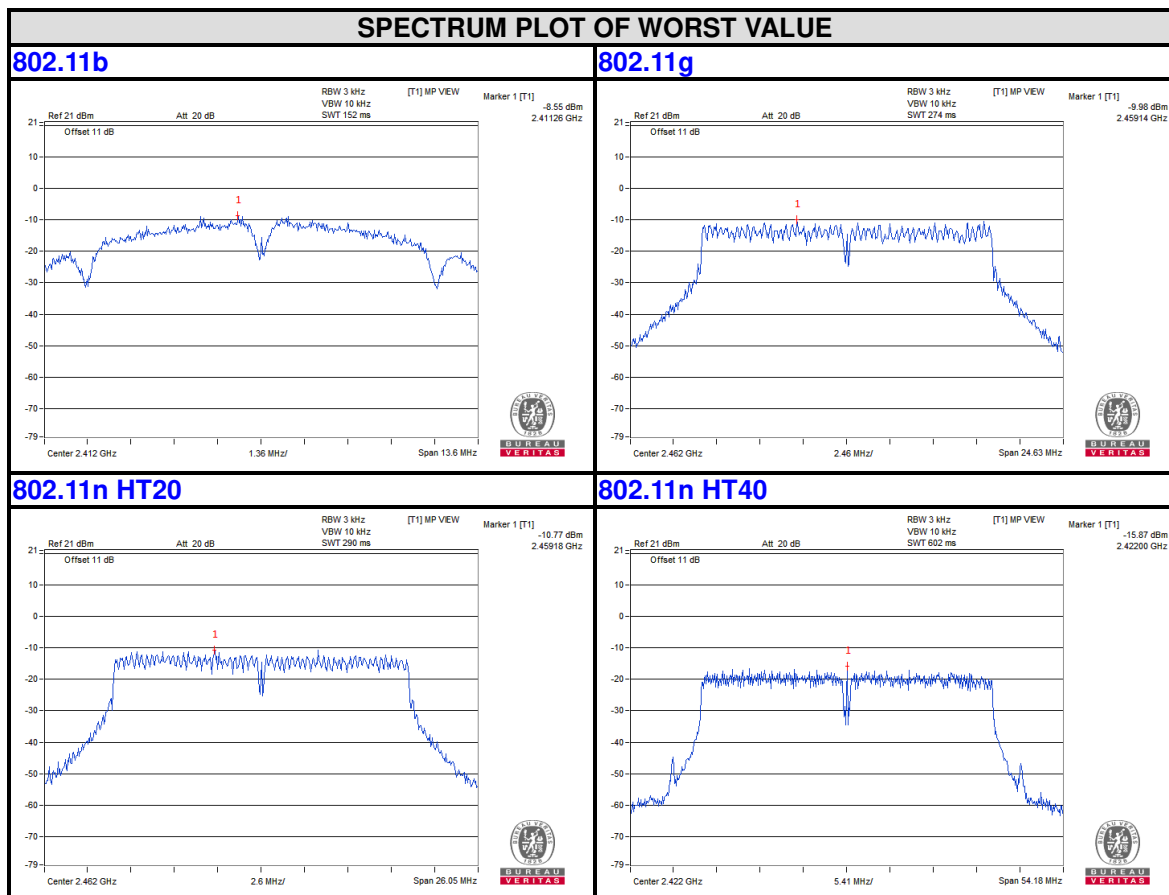
Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-11.17	8.00	PASS
6	2437	-10.89	8.00	PASS
11	2462	-9.98	8.00	PASS

##### 802.11n HT20

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-11.01	8.00	PASS
6	2437	-12.12	8.00	PASS
11	2462	-10.77	8.00	PASS

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Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
3	2422	-15.87	8.00	PASS
6	2437	-15.96	8.00	PASS
9	2452	-15.92	8.00	PASS



## 4.6 OUT OF BAND EMISSION MEASUREMENT

### 4.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below  $-20\text{dB}$  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.

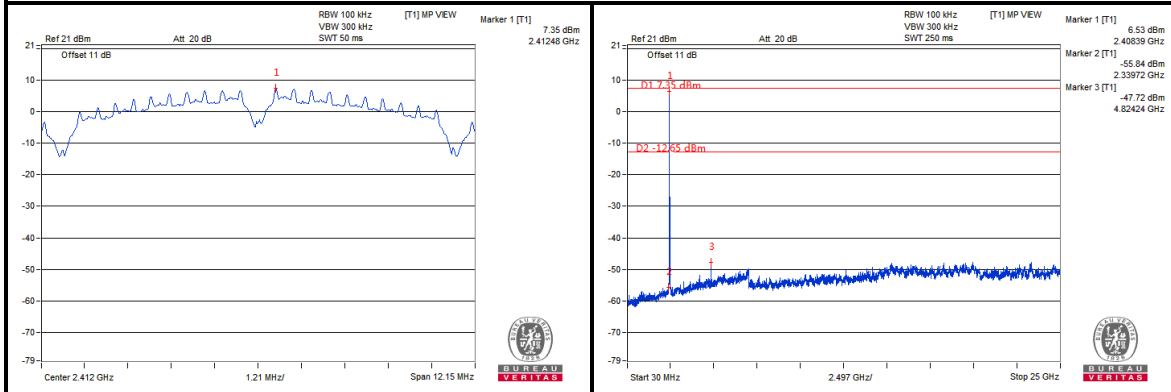
#### **4.6.6 EUT OPERATING CONDITION**

Same as item 4.3.6

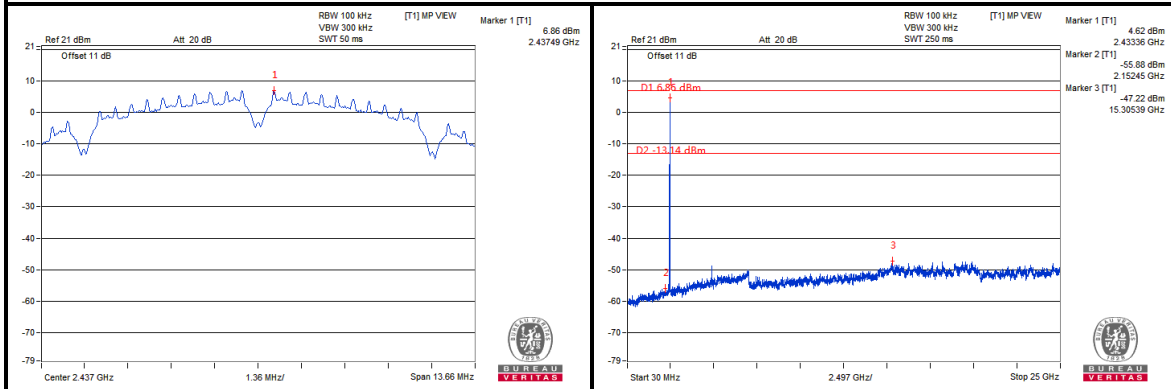
## 4.6.7 TEST RESULTS

### 802.11b

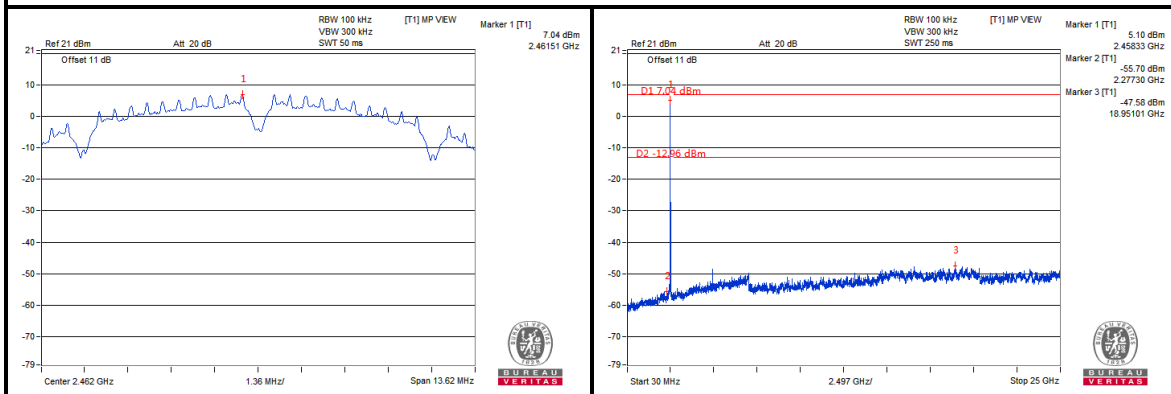
#### CH 1



#### CH 6

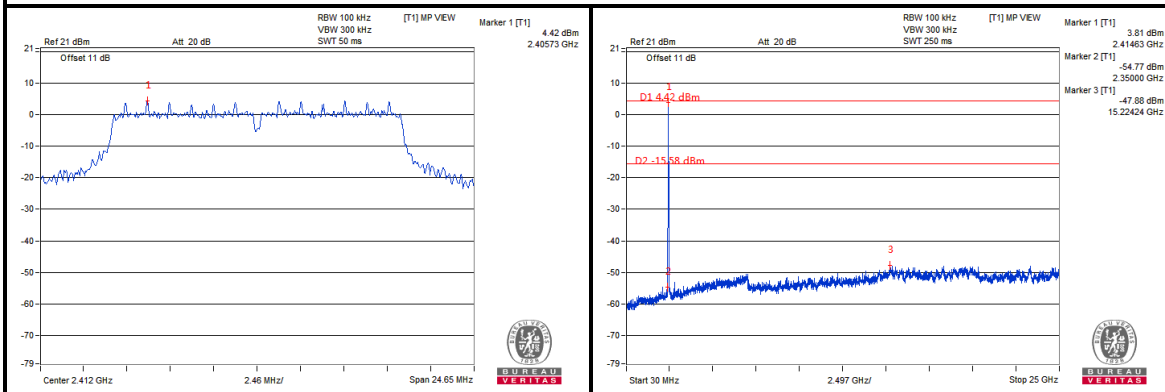


#### CH 11

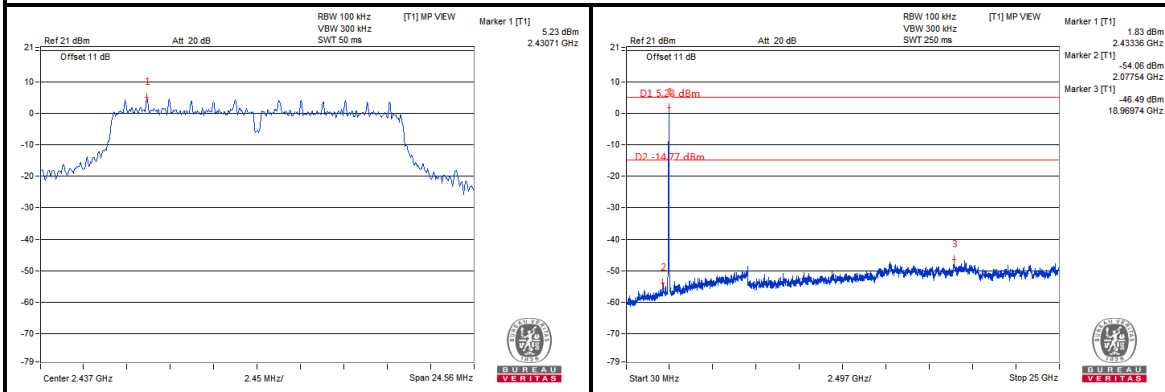


802.11g

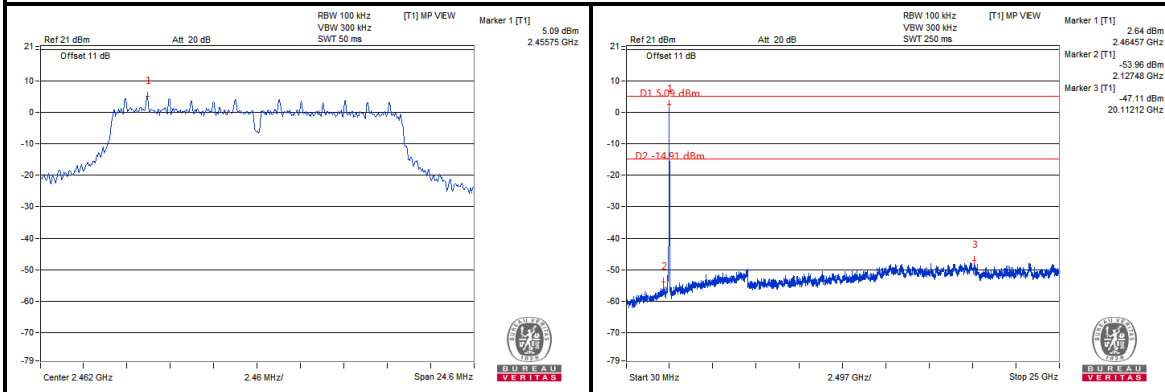
CH 1



CH 6

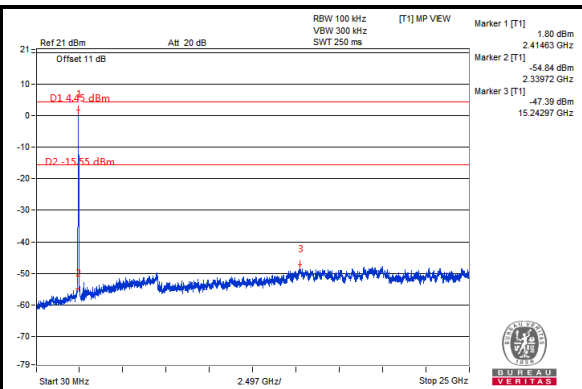
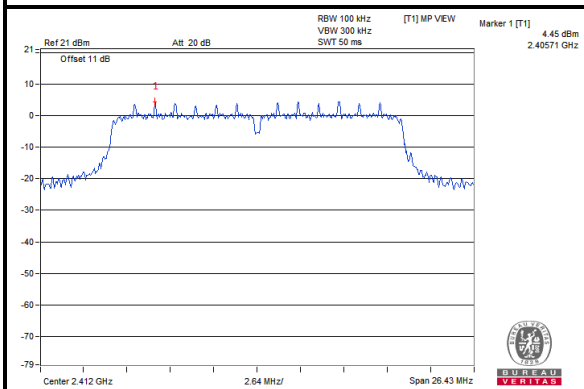


CH 11

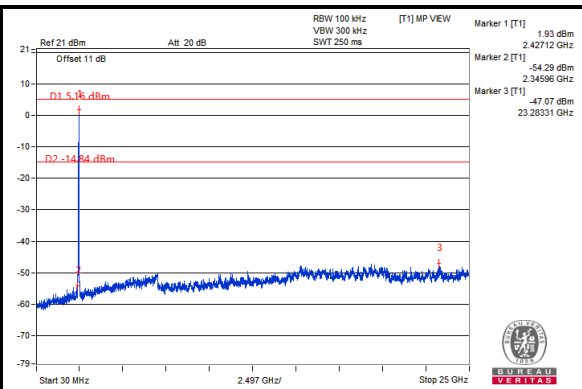
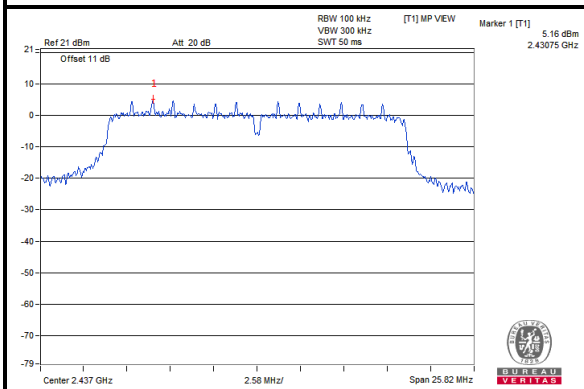


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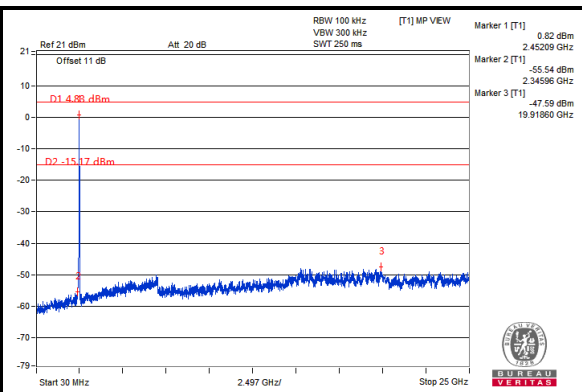
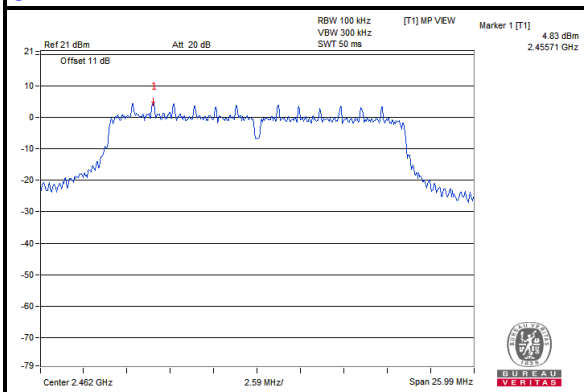
**CH 1**



**CH 6**

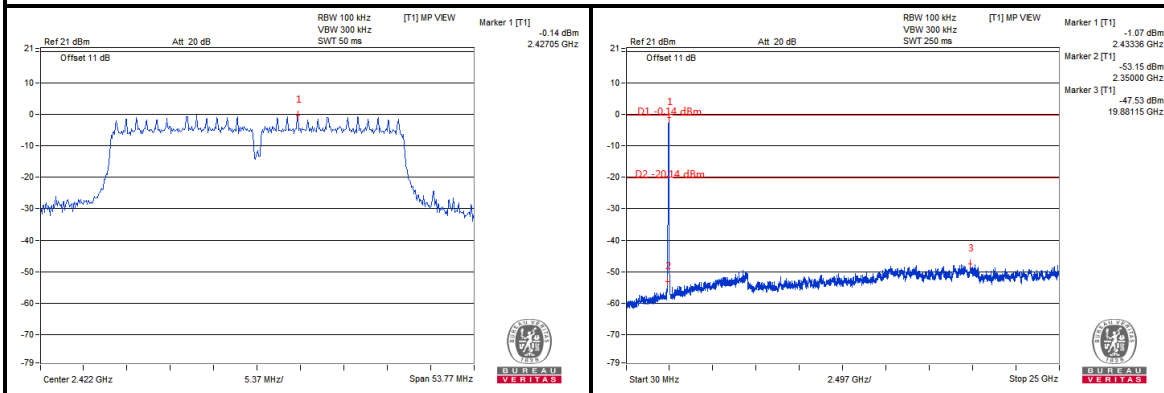


**CH 11**

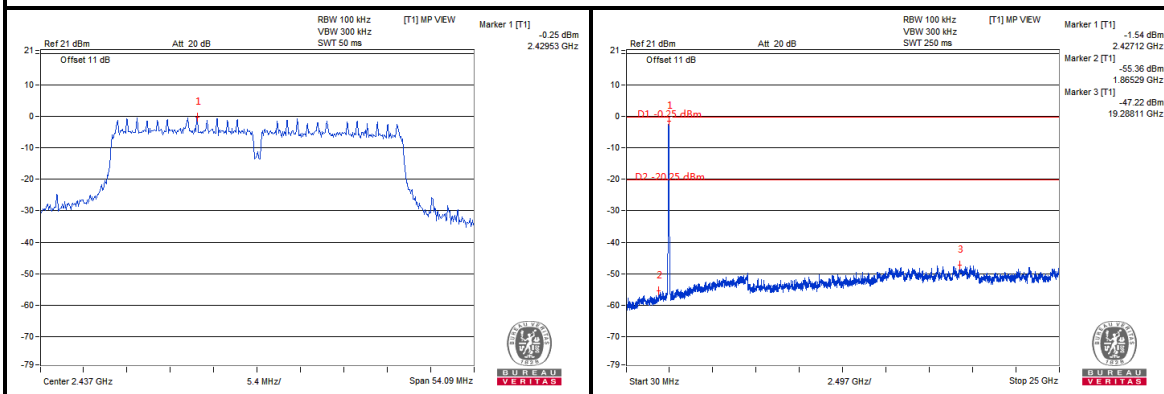


802.11n HT40

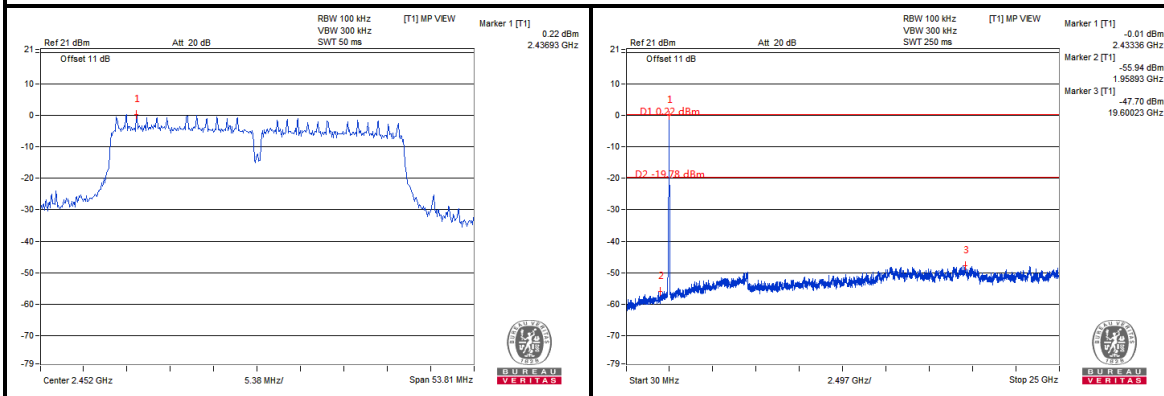
**CH 3**



**CH 6**

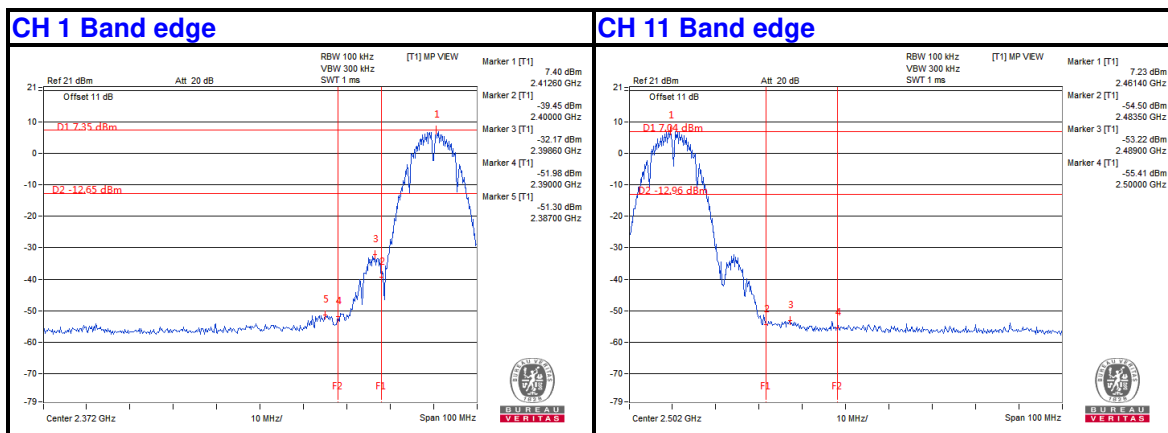


**CH 9**

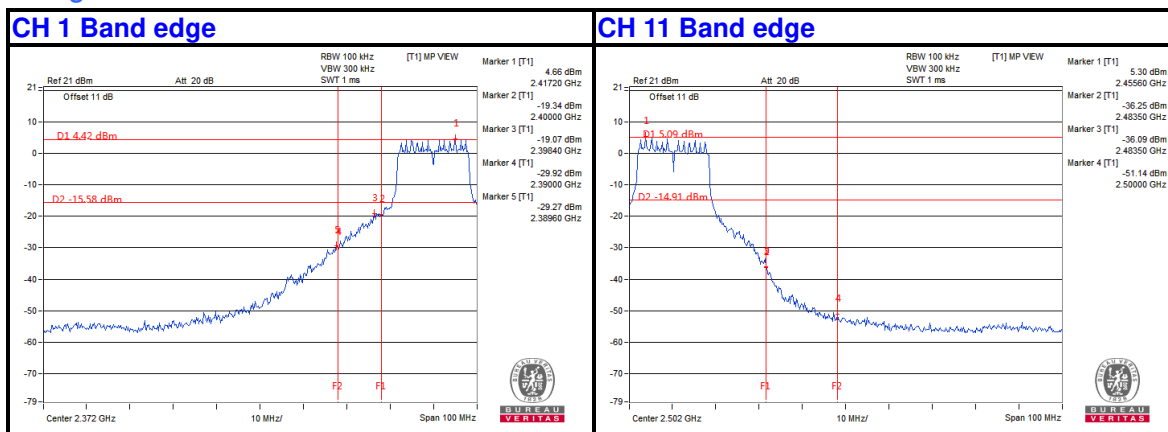




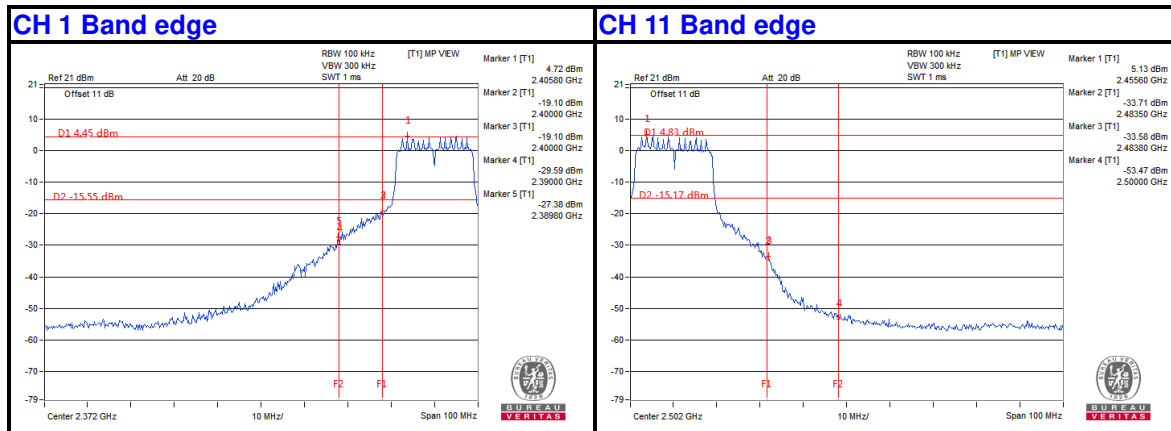
802.11b



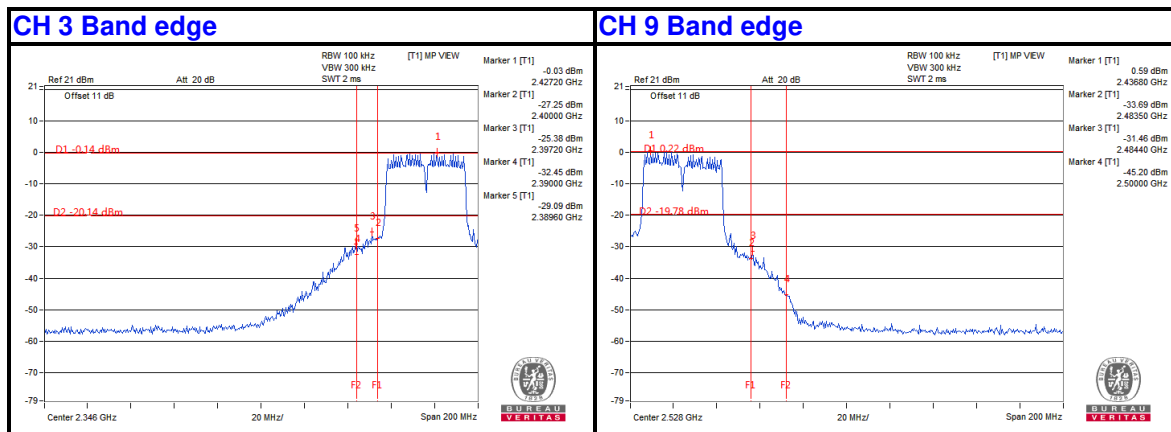
802.11g



802.11n HT20



802.11n HT40





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## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



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## 6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---