



**BUREAU  
VERITAS**

Test Report No.: RF150113N053



Test Lab  
Cert 2951.01

# TEST REPORT

Applicant	Panasonic Corporation of North America
Address	Two Riverfront Plaza, 9th Floor Newark New Jersey United States

Manufacturer or Supplier	Panasonic Corporation
Address	1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8501, Japan
Product	Wearable Camera
Brand Name	Panasonic
Model	HX-A1M
Additional Model & Model Difference	N/A
Date of tests	Jan. 13, 2015 ~ Jan. 22, 2015

The tests have been carried out according to the requirements of the following standard:

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

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

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Project Engineer / EMC Department

Approved by Glyn He  
Supervisor / EMC Department

Date: Jan. 26, 2015

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Test Report No.: RF150113N053

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF150113N053	Original release	Jan. 26, 2015



# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	N/A	Powered from battery
15.247(d) 15.209	Radiated Emission	PASS	Meet the requirement of limit.
15.247(d)	Out of Band Emission Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

# 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	2.66dB
Radiated emissions	9KHz ~ 30MHz	2.74dB
	30MHz ~ 1GMHz	4.10dB
	1GHz ~ 18GHz	4.84dB
	18GHz ~ 40GHz	4.84dB

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



### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Wearable Camera
<b>MODEL NO.</b>	HX-A1M
<b>FCC ID</b>	ACJ-HX-A1M
<b>NOMINAL VOLTAGE</b>	DC 3.7V from battery
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>OPERATING FREQUENCY</b>	2412-2462MHz for 11b/g/n(HT20)
<b>PEAK POWER</b>	18.78dBm (Measured Max.)
<b>ANTENNA TYPE</b>	FPC Antenna; -3.93dBi gain
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB cable: Shielded, Detachable 0.60m with one core

**NOTE:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. This EUT in WIFI mode only powered from battery 3.7V.
3. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.
4. Please refer to the EUT photo document (Reference No.: 150113N053) for detailed product photo.



### 3.2 DESCRIPTION OF TEST MODES

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

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



### 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 Y 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	√	√	-	√	<b>Powered by Battery with WIFI link</b>

Where **RE<1G**: Radiated Emission below 1GHz      **RE≥1G**: Radiated Emission above 1GHz  
**PLC**: Power Line Conducted Emission      **APCM**: Antenna Port Conducted Measurement

#### RADIATED EMISSION TEST (BELOW 1GHz):

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

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



**RADIATED EMISSION TEST (ABOVE 1GHz):**

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	AXIS
A	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0	Y
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	Y
A	802.11n HT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5	Y

**OUT OF BAND EMISSION MEASUREMENT:**

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

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

**ANTENNA PORT CONDUCTED MEASUREMENT:**

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

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



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**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	24deg. C,54%RH	DC 3.7V by Battery	Sen He
RE≥1G	24deg. C,54%RH	DC 3.7V by Battery	Sen He
PLC	N/A	N/A	N/A
APCM	25deg. C, 60%RH	DC 3.7V by Battery	Yuqiang Yin



### 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**

**558074 D01 DTS Meas Guidance v03r01**

**ANSI C63.10-2009**

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

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

### 3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	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 RADIATED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



### 4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Agilent	E4446A	MY46180622	Apr. 29,14	Apr. 28,15
EMI Test Receiver	Rohde&Schwarz	ESVS10	841431/004	May 17,14	May 16,15
Loop antenna (9kHz~30MHz)	Daze	ZN30900A	0708	Dec. 05,14	Dec. 04,15
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 25, 14	Jul. 24, 15
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 30,14	May 29,16
Horn Antenna (15GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Feb. 13,14	Feb. 12,15
Pre-Amplifier (9kHz~1GHz)	SONOMA	310D	186955	Mar. 05,14	Mar. 04,15
Signal Amplifier	Agilent	8447D	2944A10488	Jun. 25,14	Jun. 24,15
Pre-Amplifier (100MHz-26.5GHz)	Agilent	8449B	3008A00409	May 13,14	May 12,15
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 20,14	Nov. 19,15
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m*8 .8m	NSEMC006	May 15, 14	May 14, 15
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 27,14	Oct. 26,15
Test Software	ADT	ADT_Radiated _V7.6.15.9.2	N/A	N/A	N/A

**NOTE:**

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 494399.



#### 4.1.3 TEST PROCEDURES

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

**NOTE:**

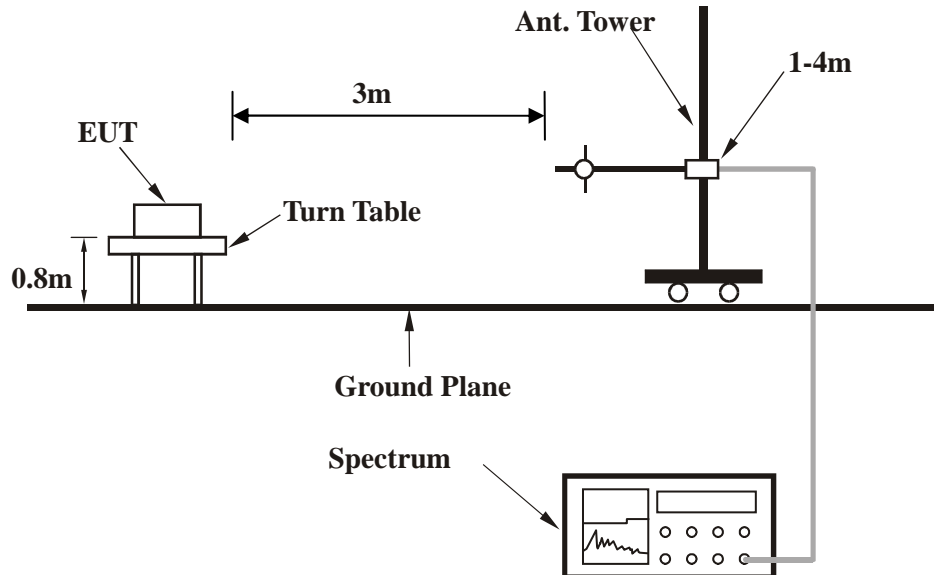
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation.



#### 4.1.5 TEST SETUP



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

#### 4.1.6 EUT OPERATING CONDITIONS

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



**4.1.7 TEST RESULTS**

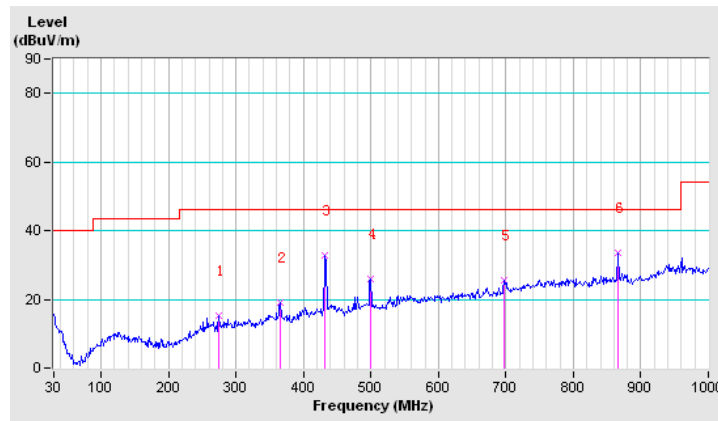
**BELOW 1GHz WORST-CASE DATA: 802.11g- CH1**

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

<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 (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	274.61	15.14	46.00	-30.86	300	0	-0.39	15.53
2	365.99	19.03	46.00	-26.97	150	0	0.59	18.44
<b>3</b>	<b>432.06</b>	<b>32.74</b>	<b>46.00</b>	<b>-13.26</b>	<b>300</b>	<b>0</b>	<b>12.48</b>	<b>20.26</b>
4	499.54	26.03	46.00	-19.97	300	0	3.53	22.50
5	697.75	25.68	46.00	-20.32	150	0	-0.38	26.06
6	866.45	33.68	46.00	-12.32	250	0	4.67	29.01

**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.



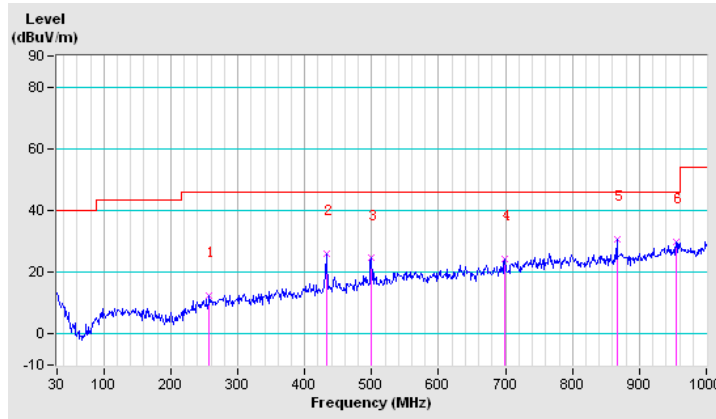


<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 1GHz		

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>								
<b>NO.</b>	<b>FREQ. (MHz)</b>	<b>EMISSION LEVEL (dBuV/m)</b>	<b>LIMIT (dBuV/m)</b>	<b>MARGIN (dB)</b>	<b>ANTENNA HEIGHT (cm)</b>	<b>TABLE ANGLE (Degree)</b>	<b>RAW VALUE (dBuV)</b>	<b>CORRECTION FACTOR (dB/m)</b>
1	257.74	12.57	46.00	-33.43	150	0	-3.46	16.03
2	432.06	26.05	46.00	-19.95	100	0	5.79	20.26
3	499.54	24.54	46.00	-21.46	300	0	2.04	22.50
4	699.16	24.30	46.00	-21.70	300	0	-1.82	26.12
5	866.45	30.66	46.00	-15.34	350	0	1.65	29.01
6	955.01	29.96	46.00	-16.04	150	0	-1.10	31.06

**REMARKS:**

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





ABOVE 1GHZ DATA

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	44.7 PK	74.0	-29.3	1.01 H	360	40.79	3.91
2	2390.00	30.9 AV	54.0	-23.1	1.01 H	360	26.99	3.91
3	#2400.00	47.0 PK	67.1	-20.1	1.01 H	360	43.07	3.93
4	#2400.00	33.3 AV	62.3	-29.0	1.01 H	360	29.37	3.93
5	*2412.00	87.1 PK			1.01 H	360	83.14	3.96
6	*2412.00	82.3 AV			1.01 H	360	78.34	3.96
7	4824.00	49.6 PK	74.0	-24.4	1.00 H	58	39.95	9.65
8	4824.00	33.1 AV	54.0	-20.9	1.00 H	58	23.45	9.65

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	41.7 PK	74.0	-32.3	1.00 V	209	37.79	3.91
2	2390.00	27.8 AV	54.0	-26.2	1.00 V	209	23.89	3.91
3	#2400.00	42.3 PK	57.2	-14.9	1.00 V	209	38.37	3.93
4	#2400.00	34.7 AV	39.1	-4.4	1.00 V	209	30.77	3.93
5	*2412.00	77.2 PK			1.00 V	209	73.24	3.96
6	*2412.00	59.1 AV			1.00 V	209	55.14	3.96
7	4824.00	50.9 PK	74.0	-23.1	1.00 V	75	41.25	9.65
8	4824.00	40.2 AV	54.0	-13.8	1.00 V	75	30.55	9.65

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	81.2 PK			1.05 H	204	77.16	4.04
2	*2437.00	76.3 AV			1.05 H	204	72.26	4.04
3	4874.00	52.2 PK	74.0	-21.8	1.00 H	170	42.48	9.72
4	4874.00	38.1 AV	54.0	-15.9	1.00 H	170	28.38	9.72
5	7311.00	56.8 PK	74.0	-17.2	1.00 H	224	43.65	13.15
6	7311.00	44.2 AV	54.0	-9.8	1.00 H	224	31.05	13.15
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	80.1 PK			1.01 V	302	76.06	4.04
2	*2437.00	75.6 AV			1.01 V	302	71.56	4.04
3	4874.00	51.2 PK	74.0	-22.8	1.00 V	280	41.48	9.72
4	4874.00	37.1 AV	54.0	-16.9	1.00 V	280	27.38	9.72
5	7311.00	57.0 PK	74.0	-17.0	1.00 V	105	43.85	13.15
6	7311.00	43.5 AV	54.0	-10.5	1.00 V	105	30.35	13.15

REMARKS:

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



<b>CHANNEL</b>	TX Channel 11	<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	*2462.00	86.2 PK			1.02 H	71	82.09	4.11
2	*2462.00	79.3 AV			1.02 H	71	75.19	4.11
3	2483.50	43.8 PK	74.0	-30.2	1.02 H	71	39.62	4.18
4	2483.50	30.1 AV	54.0	-23.9	1.02 H	71	25.92	4.18
5	4924.00	51.2 PK	74.0	-22.8	1.00 H	341	41.40	9.80
6	4924.00	36.6 AV	54.0	-17.4	1.00 H	341	26.80	9.80
7	7386.00	51.6 PK	74.0	-22.4	1.00 H	122	38.46	13.14
8	7386.00	36.3 AV	54.0	-17.7	1.00 H	122	23.16	13.14
<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	*2462.00	82.1 PK			1.01 V	349	77.99	4.11
2	*2462.00	76.7 AV			1.01 V	349	72.59	4.11
3	2483.50	43.7 PK	74.0	-30.3	1.01 V	349	39.52	4.18
4	2483.50	30.1 AV	54.0	-23.9	1.01 V	349	25.92	4.18
5	4924.00	50.2 PK	74.0	-23.8	1.00 V	182	40.40	9.80
6	4924.00	37.5 AV	54.0	-16.5	1.00 V	182	27.70	9.80
7	7386.00	50.8 PK	74.0	-23.2	1.00 V	305	37.66	13.14
8	7386.00	36.1 AV	54.0	-17.9	1.00 V	305	22.96	13.14

**REMARKS:**

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



802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	45.2 PK	74.0	-28.8	1.02 H	313	41.29	3.91
2	2390.00	32.1 AV	54.0	-21.9	1.02 H	313	28.19	3.91
3	#2400.00	53.6 PK	65.3	-11.7	1.02 H	313	49.67	3.93
4	#2400.00	34.5 AV	51.7	-17.2	1.02 H	313	30.57	3.93
5	*2412.00	85.3 PK			1.02 H	313	81.34	3.96
6	*2412.00	71.7 AV			1.02 H	313	67.74	3.96
7	4824.00	46.9 PK	74.0	-27.1	1.00 H	220	37.25	9.65
8	4824.00	30.0 AV	54.0	-24.0	1.00 H	220	20.35	9.65

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	46.7 PK	74.0	-27.3	1.01 V	294	42.79	3.91
2	2390.00	31.3 AV	54.0	-22.7	1.01 V	294	27.39	3.91
3	#2400.00	56.6 PK	62.2	-5.6	1.01 V	294	52.67	3.93
4	#2400.00	36.4 AV	50.1	-13.7	1.01 V	294	32.47	3.93
5	*2412.00	82.2 PK			1.01 V	294	78.24	3.96
6	*2412.00	70.1 AV			1.01 V	294	66.14	3.96
7	4824.00	45.8 PK	74.0	-28.2	1.00 V	142	36.15	9.65
8	4824.00	30.2 AV	54.0	-23.8	1.00 V	142	20.55	9.65

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	76.8 PK			1.03 H	211	72.76	4.04
2	*2437.00	64.4 AV			1.03 H	211	60.36	4.04
3	4874.00	45.8 PK	74.0	-28.2	1.00 H	154	36.08	9.72
4	4874.00	32.3 AV	54.0	-21.7	1.00 H	154	22.58	9.72
5	7311.00	49.1 PK	74.0	-24.9	1.00 H	305	35.95	13.15
6	7311.00	36.9 AV	54.0	-17.1	1.00 H	305	23.75	13.15

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	77.8 PK			1.00 V	254	73.76	4.04
2	*2437.00	64.4 AV			1.00 V	254	60.36	4.04
3	4874.00	46.2 PK	74.0	-27.8	1.00 V	167	36.48	9.72
4	4874.00	33.1 AV	54.0	-20.9	1.00 V	167	23.38	9.72
5	7311.00	48.6 PK	74.0	-25.4	1.00 V	290	35.45	13.15
6	7311.00	36.5 AV	54.0	-17.5	1.00 V	290	23.35	13.15

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	80.0 PK			1.06 H	55	75.89	4.11
2	*2462.00	66.5 AV			1.06 H	55	62.39	4.11
3	2483.50	44.5 PK	74.0	-29.5	1.06 H	55	40.32	4.18
4	2483.50	30.0 AV	54.0	-24.0	1.06 H	55	25.82	4.18
5	4824.00	47.2 PK	74.0	-26.8	1.00 H	167	37.55	9.65
6	4824.00	32.2 AV	54.0	-21.8	1.00 H	167	22.55	9.65
7	7386.00	48.2 PK	74.0	-25.8	1.00 H	280	35.06	13.14
8	7386.00	30.4 AV	54.0	-23.6	1.00 H	280	17.26	13.14

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	78.4 PK			1.01 V	97	74.29	4.11
2	*2462.00	64.1 AV			1.01 V	97	59.99	4.11
3	2483.50	42.6 PK	74.0	-31.4	1.01 V	97	38.42	4.18
4	2483.50	28.0 AV	54.0	-26.0	1.01 V	97	23.82	4.18
5	4924.00	47.5 PK	74.0	-26.5	1.00 V	265	37.70	9.80
6	4924.00	32.6 AV	54.0	-21.4	1.00 V	265	22.80	9.80
7	7386.00	48.4 PK	74.0	-25.6	1.00 V	204	35.26	13.14
8	7386.00	30.8 AV	54.0	-23.2	1.00 V	204	17.66	13.14

REMARKS:

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



802.11n (20MHz)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	45.1 PK	74.0	-28.9	1.01 H	216	41.19	3.91
2	2390.00	30.9 AV	54.0	-23.1	1.01 H	216	26.99	3.91
3	#2400.00	47.0 PK	56.2	-9.2	1.01 H	216	43.07	3.93
4	#2400.00	31.6 AV	42.3	-10.7	1.01 H	216	27.67	3.93
5	*2412.00	76.2 PK			1.02 H	216	72.24	3.96
6	*2412.00	62.3 AV			1.02 H	216	58.34	3.96
7	4824.00	48.6 PK	74.0	-25.4	1.00 H	224	38.95	9.65
8	4824.00	33.7 AV	54.0	-20.3	1.00 H	224	24.05	9.65

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	43.6 PK	74.0	-30.4	1.02 V	348	39.69	3.91
2	2390.00	28.9 AV	54.0	-25.1	1.02 V	348	24.99	3.91
3	#2400.00	45.2 PK	53.3	-8.1	1.02 V	348	41.27	3.93
4	#2400.00	30.4 AV	42.0	-11.6	1.02 V	348	26.47	3.93
5	*2412.00	73.3 PK			1.02 V	348	69.34	3.96
6	*2412.00	62.0 AV			1.02 V	348	58.04	3.96
7	4824.00	47.5 PK	74.0	-26.5	1.00 V	301	37.85	9.65
8	4824.00	32.6 AV	54.0	-21.4	1.00 V	301	22.95	9.65

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	75.2 PK			1.24 H	70	71.16	4.04
2	*2437.00	63.1 AV			1.24 H	70	59.06	4.04
3	4874.00	46.5 PK	74.0	-27.5	1.00 H	190	36.78	9.72
4	4874.00	31.7 AV	54.0	-22.3	1.00 H	190	21.98	9.72
5	7311.00	48.6 PK	74.0	-25.4	1.00 H	105	35.45	13.15
6	7311.00	34.6 AV	54.0	-19.4	1.00 H	105	21.45	13.15
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	74.5 PK			1.01 V	27	70.46	4.04
2	*2437.00	62.8 AV			1.01 V	27	58.76	4.04
3	4874.00	47.2 PK	74.0	-26.8	1.00 V	231	37.48	9.72
4	4874.00	32.8 AV	54.0	-21.2	1.00 V	231	23.08	9.72
5	7311.00	50.1 PK	74.0	-23.9	1.00 V	64	36.95	13.15
6	7311.00	35.2 AV	54.0	-18.8	1.00 V	64	22.05	13.15

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	85.2 PK			1.02 H	177	81.09	4.11
2	*2462.00	71.5 AV			1.02 H	177	67.39	4.11
3	2483.50	60.8 PK	74.0	-13.2	1.02 H	177	56.62	4.18
4	2483.50	43.3 AV	54.0	-10.7	1.02 H	177	39.12	4.18
5	4924.00	48.4 PK	74.0	-25.6	1.00 H	332	38.60	9.80
6	4924.00	32.8 AV	54.0	-21.2	1.00 H	332	23.00	9.80
7	7386.00	48.4 PK	74.0	-25.6	1.00 H	250	35.26	13.14
8	7386.00	32.0 AV	54.0	-22.0	1.00 H	250	18.86	13.14
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	84.3 PK			1.00 V	339	80.19	4.11
2	*2462.00	78.3 AV			1.00 V	339	74.19	4.11
3	2483.50	57.2 PK	74.0	-16.8	1.00 V	339	53.02	4.18
4	2483.50	40.3 AV	54.0	-13.7	1.00 V	339	36.12	4.18
5	4924.00	49.0 PK	74.0	-25.0	1.00 V	235	39.20	9.80
6	4924.00	33.4 AV	54.0	-20.6	1.00 V	235	23.60	9.80
7	7386.00	48.6 PK	74.0	-25.4	1.00 V	164	35.46	13.14
8	7386.00	36.7 AV	54.0	-17.3	1.00 V	164	23.56	13.14

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.



## 4.2 6dB BANDWIDTH MEASUREMENT

### 4.2.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

### 4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 09,14	Apr. 08,15
Power Meter	Anritsu	ML2495A	1139001	Feb. 21,14	Feb. 20,15
Power Sensor	Anritsu	MA2411B	1126068	Feb. 21,14	Feb. 20,15
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 27,14	Oct. 26,15
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.04,14	Sep. 03,15
Oscilloscope	Agilent	DSO9254A	MY51260160	Oct. 17, 14	Oct. 16, 15
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 05,14	Nov. 04,15

**NOTE:**

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

### 4.2.3 TEST PROCEDURE

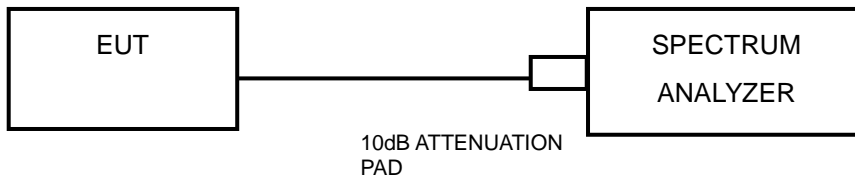
1. Set resolution bandwidth (RBW) = 100KHz
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW, Detector = Peak.
3. Trace mode = max hold.
4. Sweep = auto couple.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and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

### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.



#### 4.2.5 TEST SETUP



#### 4.2.6 EUT OPERATING CONDITIONS

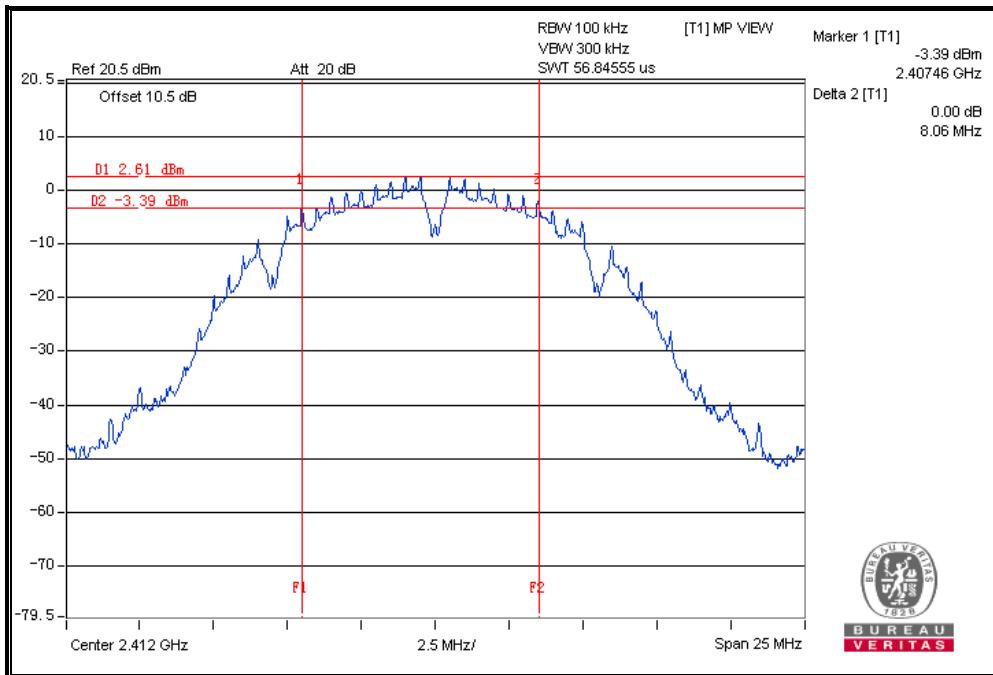
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



### 4.2.7 TEST RESULTS

#### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	8.06	0.5	PASS
6	2437	7.58	0.5	PASS
11	2462	7.12	0.5	PASS



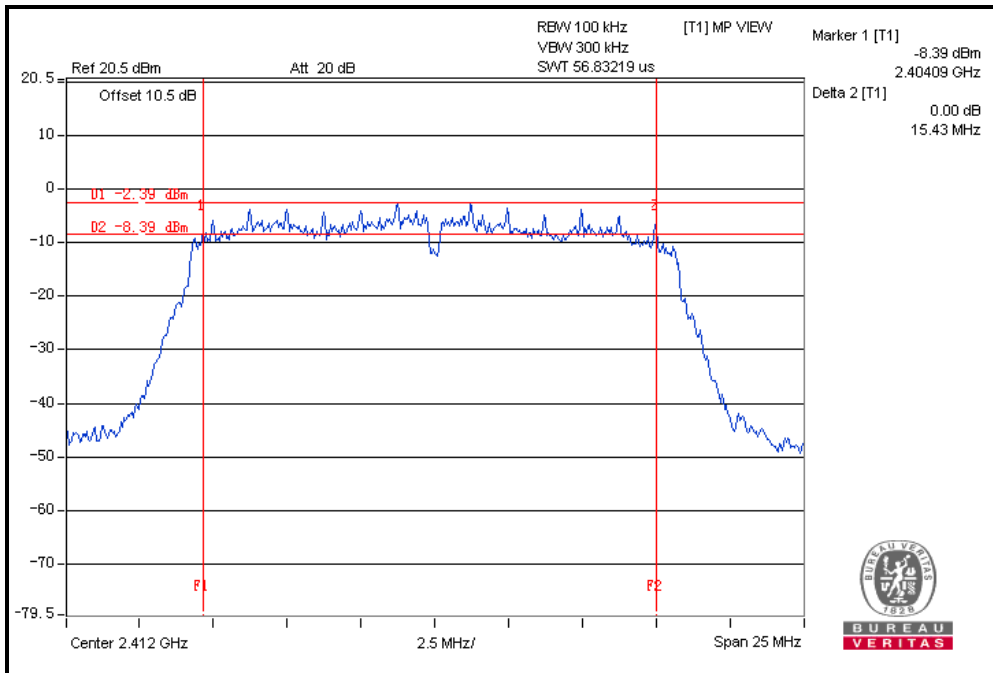


BUREAU VERITAS

Test Report No.: RF150113N053

802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.43	0.5	PASS
6	2437	15.15	0.5	PASS
11	2462	15.17	0.5	PASS



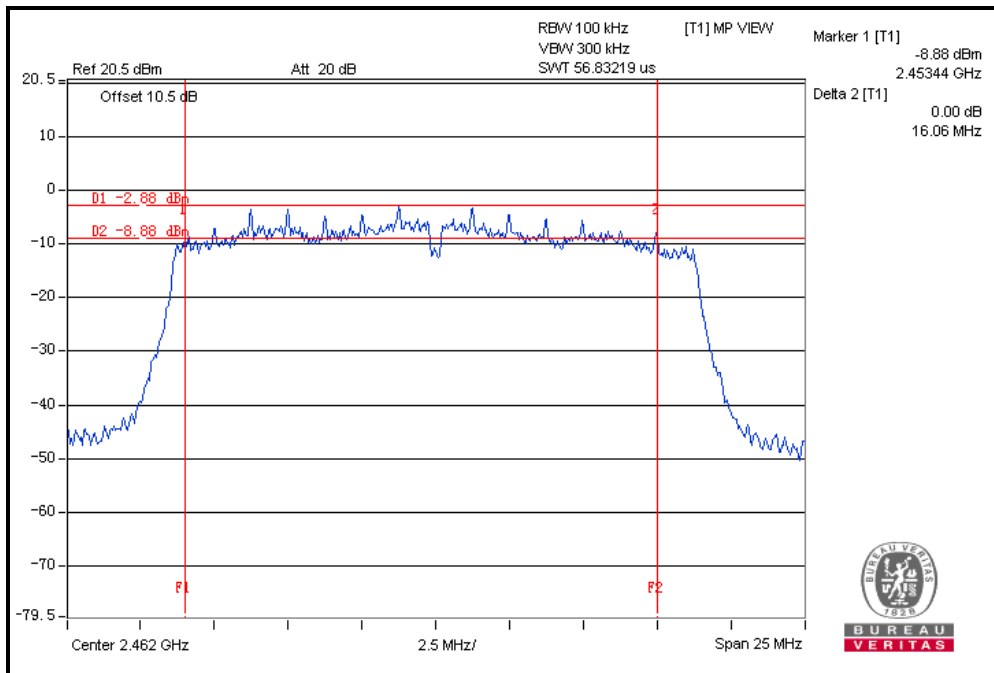


BUREAU VERITAS

Test Report No.: RF150113N053

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.14	0.5	PASS
6	2437	15.13	0.5	PASS
11	2462	16.06	0.5	PASS



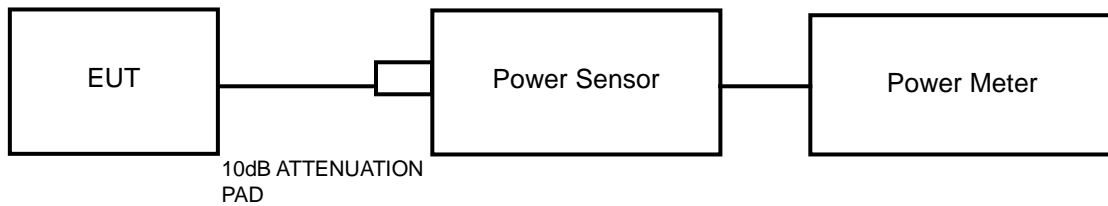


### 4.3 CONDUCTED OUTPUT POWER

#### 4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

#### 4.3.2 TEST SETUP



#### 4.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer (9KHz–40GHz)	Agilent	E4446A	MY46180622	Apr. 29,14	Apr. 28,15
Spectrum Analyzer (10Hz–40GHz)	Rohde&Schwarz	FSV40	101003	Apr. 09,14	Apr. 08,15
Power Meter	Anritsu	ML2495A	1139001	Feb. 21,14	Feb. 20,15
Power Sensor	Anritsu	MA2411B	1126068	Feb. 21,14	Feb. 20,15
Digital Multimeter	FLUKE	15B	A1220010D G	Oct. 27,14	Oct. 26,15

**NOTE:**

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

#### 4.3.4 TEST PROCEDURES

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

#### 4.3.5 DEVIATION FROM TEST STANDARD

No deviation.



### 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

#### 4.3.7.1 MAXIMUM PEAK OUTPUT POWER

##### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	14.87	30.00	PASS
6	2437	15.26	30.00	PASS
11	2462	15.74	30.00	PASS

##### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	17.69	30.00	PASS
6	2437	18.33	30.00	PASS
11	2462	<b>18.78</b>	30.00	PASS

##### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	16.18	30.00	PASS
6	2437	16.55	30.00	PASS
11	2462	16.97	30.00	PASS



#### 4.3.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

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

##### 802.11b

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
1	2412	11.91
6	2437	12.14
11	2462	12.65

##### 802.11g

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
1	2412	9.51
6	2437	9.93
11	2462	10.34

##### 802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)
1	2412	7.74
6	2437	8.14
11	2462	8.69

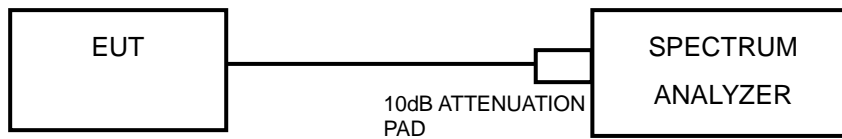


## 4.4 POWER SPECTRAL DENSITY MEASUREMENT

### 4.4.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

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

### 4.4.2 TEST SETUP



### 4.4.3 TEST INSTRUMENTS

Refer to section 4.2.2 to get information of above instrument.

### 4.4.4 TEST PROCEDURE

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

### 4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

### 4.4.6 EUT OPERATING CONDITION

Same as item 4.2.6



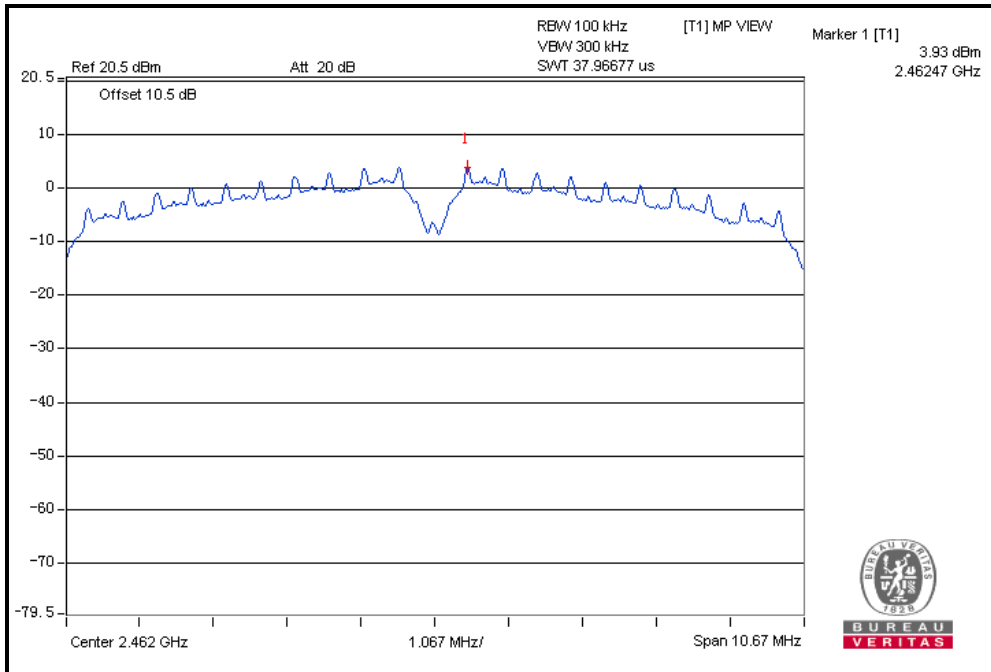
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### 4.4.7 TEST RESULTS

#### 802.11b

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	3.60	8.00	PASS
6	2437	3.61	8.00	PASS
11	2462	3.93	8.00	PASS



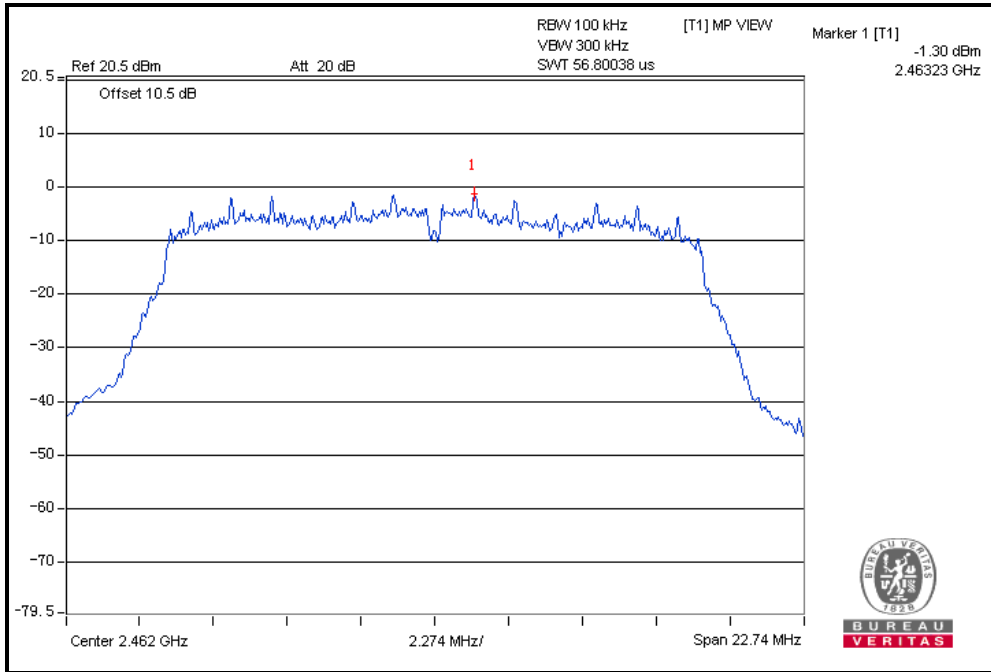


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802.11g

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-2.64	8.00	PASS
6	2437	-1.61	8.00	PASS
11	2462	-1.30	8.00	PASS



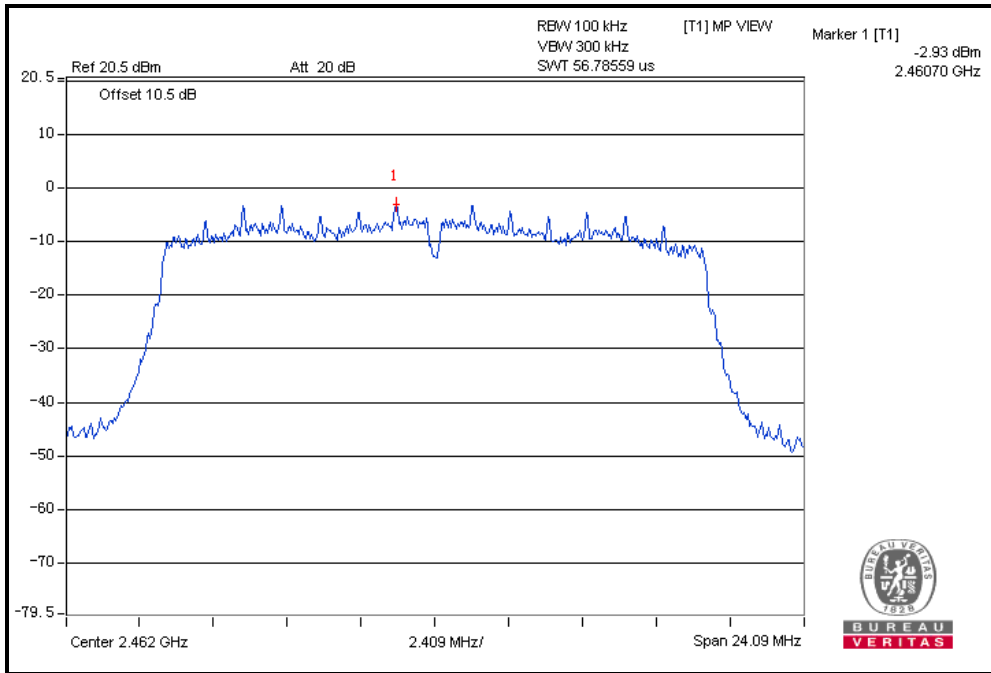


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Test Report No.: RF150113N053

802.11n (20MHz)

Channel	FREQ. (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)	PASS /FAIL
1	2412	-4.03	8.00	PASS
6	2437	-3.54	8.00	PASS
11	2462	-2.93	8.00	PASS



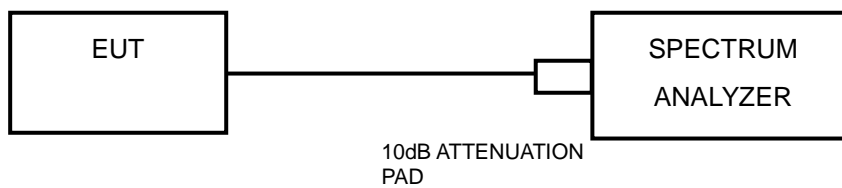


## 4.5 OUT OF BAND EMISSION MEASUREMENT

### 4.5.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 4.5.2 TEST SETUP



### 4.5.3 TEST INSTRUMENTS

Refer to section 4.2.2 to get information of above instrument.

### 4.5.4 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.

#### 4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.5.6 EUT OPERATING CONDITION

Same as item 4.2.6



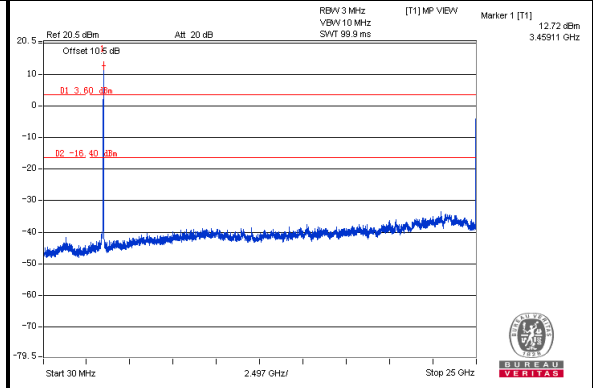
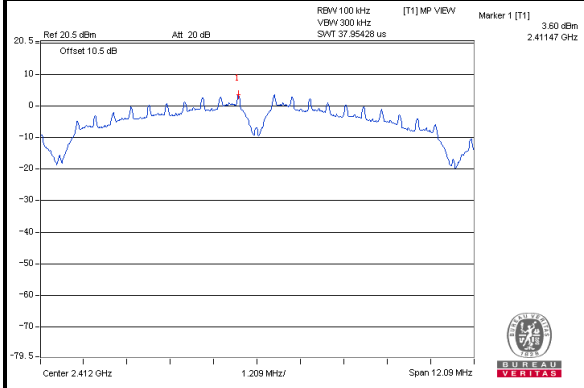
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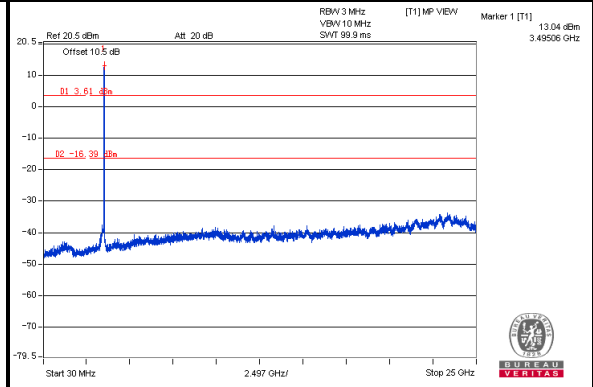
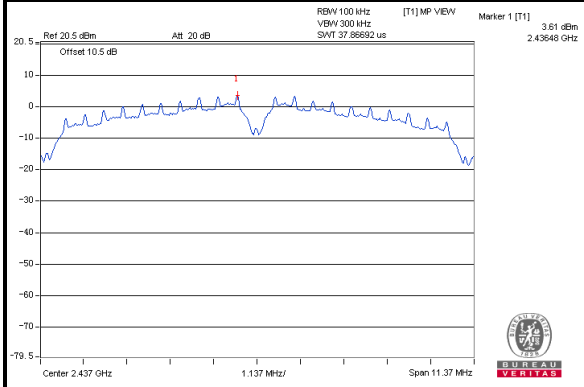
### 4.5.7 TEST RESULTS

#### 802.11b

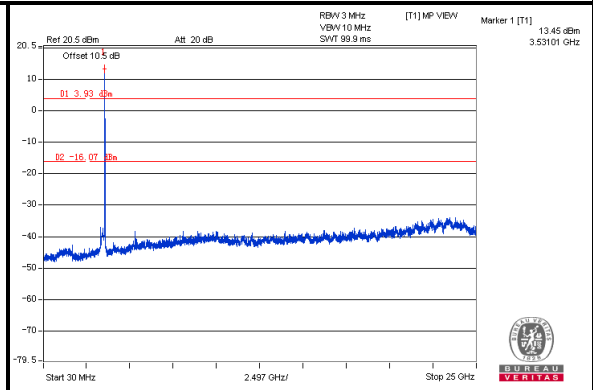
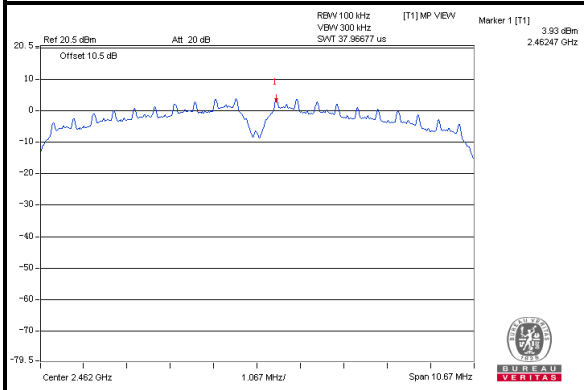
##### CH 1



##### CH 6



##### CH 11



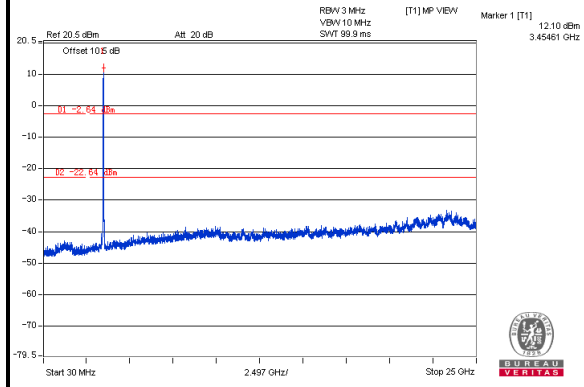
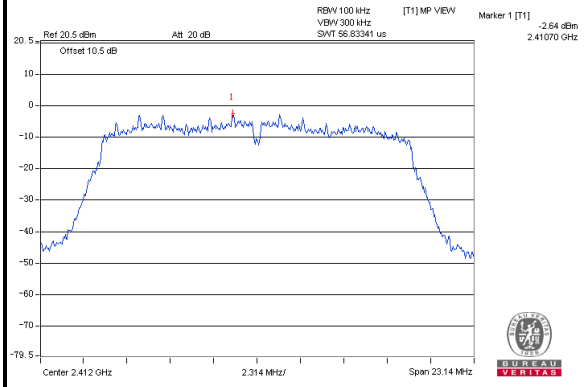


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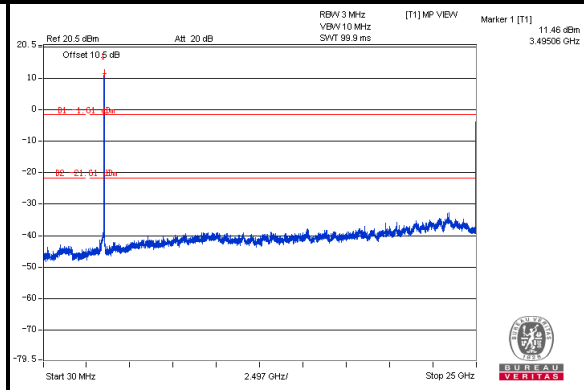
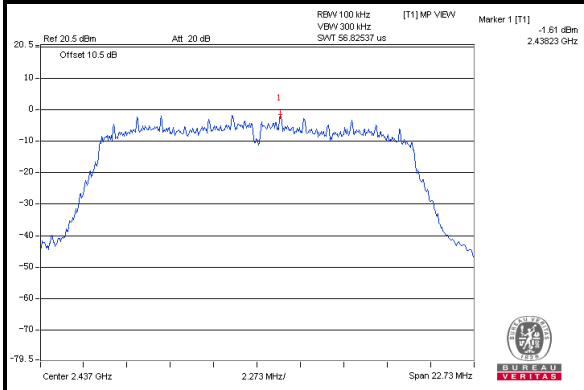
Test Report No.: RF150113N053

802.11g

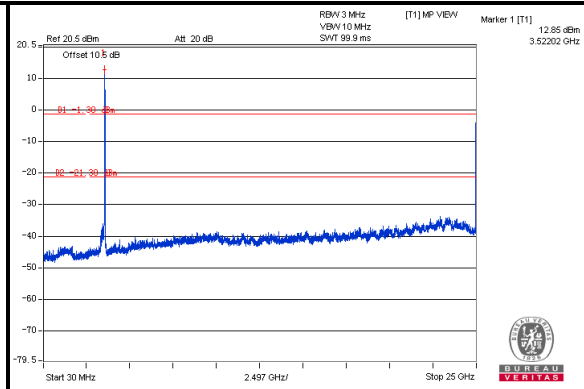
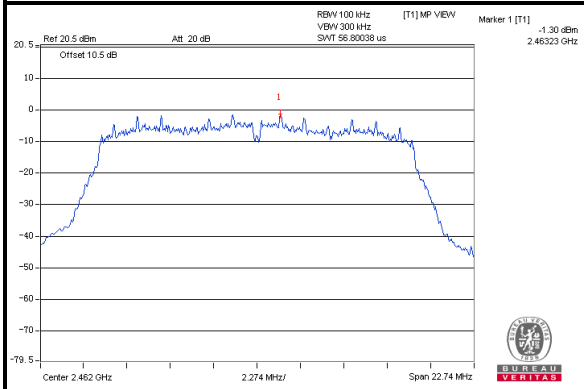
CH 1



CH 6



CH 11



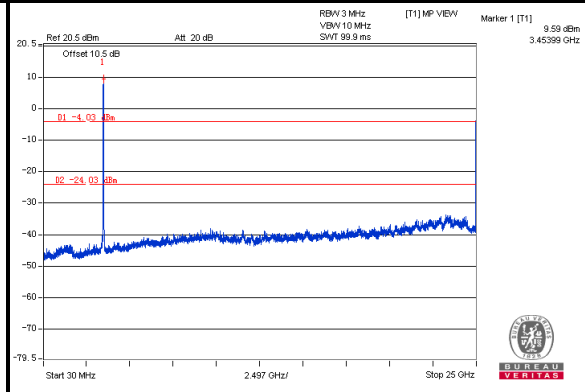
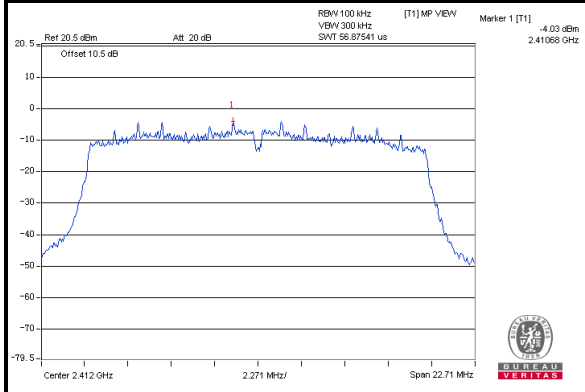


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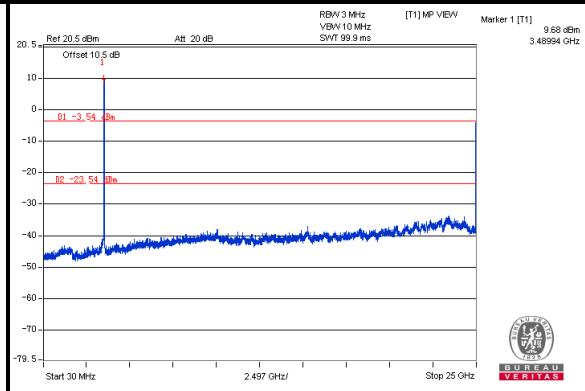
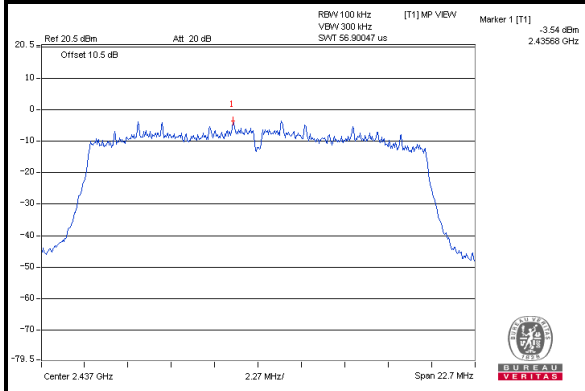
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### 802.11n (20MHz)

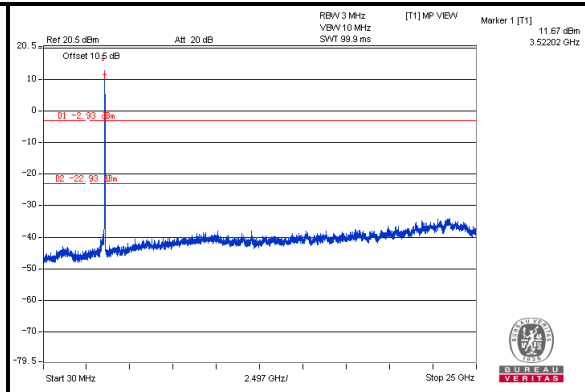
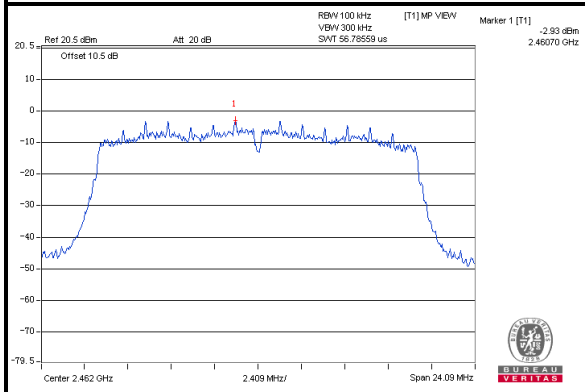
#### CH 1



#### CH 6



#### CH 11



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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---**