

## FCC Test Report

**Report No.:** RF151109C20

**FCC ID:** QHQ-20430150

**Test Model:** SimPad PLUS

**Received Date:** Nov. 09, 2015

**Test Date:** Nov. 23, 2015 ~ Dec. 21, 2015

**Issued Date:** Dec. 29, 2015

**Applicant:** LAERDAL MEDICAL AS

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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### Release Control Record

Issue No.	Description	Date Issued
RF151109C20	Original Release	Dec. 29, 2015



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## 1 Certificate of Conformity

**Product:** Tablet

**Brand:** Laerdal Medical AS

**Test Model:** SimPad PLUS

**Sample Status:** Identical Prototype

**Applicant:** LAERDAL MEDICAL AS

**Test Date:** Nov. 23, 2015 ~ Dec. 21, 2015

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**

*Evonne Liu*

**Date:** Dec. 29, 2015

Evonne Liu / Specialist

**Approved by :**

*Stanley Wu*

**Date:** Dec. 29, 2015

Stanley Wu / Assistant Manager



## 2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -3.65 dB at 25.00196 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.09 dB at 2390 MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted 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.

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

<b>Product</b>	Tablet
<b>Brand</b>	Laerdal Medical AS
<b>Test Model</b>	SimPad PLUS
<b>Status of EUT</b>	Identical Prototype
<b>Power Supply Rating</b>	12.0 Vdc (adapter) 3.8 Vdc (Li-ion battery)
<b>Modulation Type</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>Modulation Technology</b>	DSSS, OFDM
<b>Transfer Rate</b>	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7
<b>Operating Frequency</b>	2412 ~ 2462 MHz
<b>Number of Channel</b>	11 for 802.11b, 802.11g, 802.11n (HT20)
<b>Output Power</b>	243.913 mW
<b>Antenna Type</b>	PCB antenna with 3.04 dBi gain
<b>Antenna Connector</b>	N/A
<b>Accessory Device</b>	Refer to Note as below
<b>Data Cable Supplied</b>	N/A

Note:

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

Modulation Mode	TX Function
802.11b	1TX
802.11g	1TX, 2TX
802.11n (HT20)	1TX, 2TX

- The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	FSP	FSP040-RHAN2	I/P: 100-240 Vac, 50-60 Hz, 1.5 A O/P: 12 Vdc, 3.33 A
Battery	SimPad Plus Battery LAERDAL	204-35050	3.8 Vdc, 4200 mAh

- The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3.2 Description of Test Modes

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		



### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	√	√	SISO
B	√	√	-	√	MIMO

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

**NOTE:**

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
2. "-" means no effect.

#### **Radiated Emission Test (Above 1 GHz):**

- 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
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0

#### **Radiated Emission Test (Below 1 GHz):**

- 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	802.11g	1 to 11	01	OFDM	BPSK	6.0
B	802.11n (HT20)	1 to 11	11	OFDM	BPSK	MCS0

#### **Power Line Conducted Emission Test:**

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11g	1 to 11	01	OFDM	BPSK	MCS0



**Bandedge Measurement:**

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 11	OFDM	BPSK	MCS0
B	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 11	OFDM	BPSK	MCS0

**Antenna Port Conducted Measurement:**

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

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
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0

**Test Condition:**

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Gavin Wu
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Gavin Wu
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Toby Tian
APCM	25 deg. C, 65 % RH	3.8 Vdc	Luke Chen

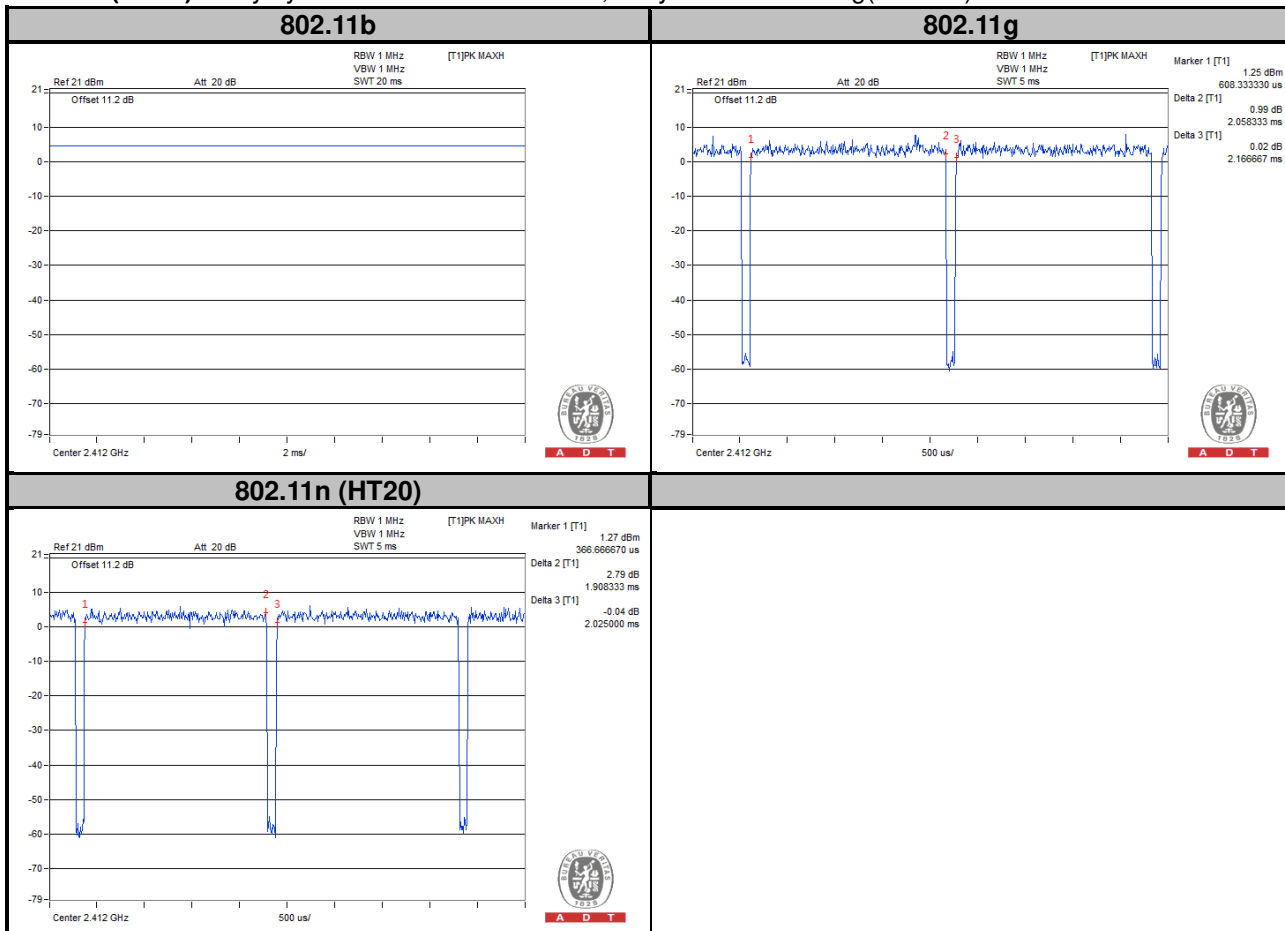
### 3.3 Duty Cycle of Test Signal

#### Mode A (SISO)

**802.11b:** Duty cycle of test signal is 100 %, duty factor is not required.

**802.11g:** Duty cycle =  $2.058/2.166 = 0.950$ , Duty factor =  $10 * \log(1/0.950) = 0.22$

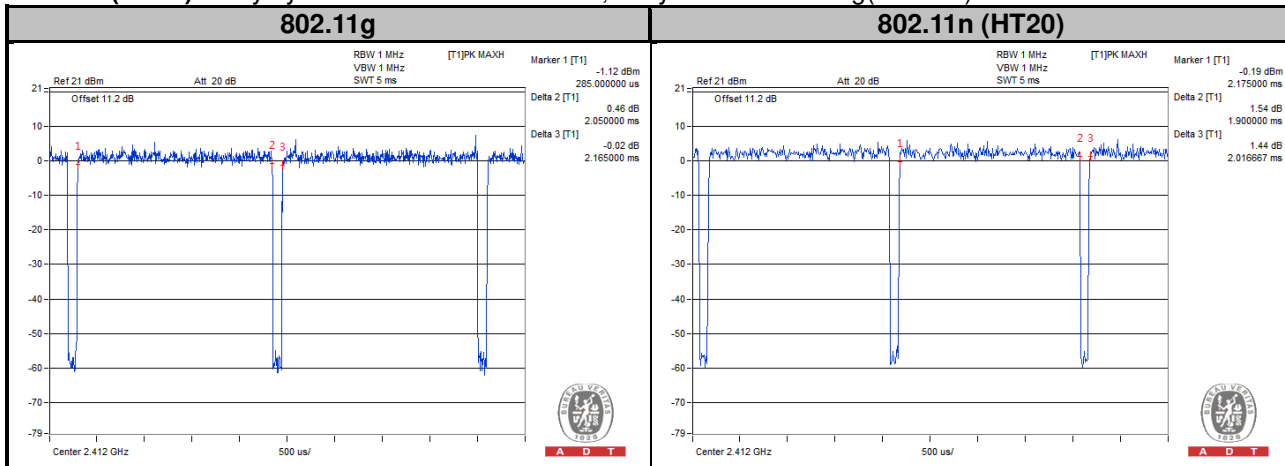
**802.11n (HT20):** Duty cycle =  $1.908/2.025 = 0.942$ , Duty factor =  $10 * \log(1/0.942) = 0.25$



#### Mode B (MIMO)

**802.11g:** Duty cycle =  $2.050/2.165 = 0.946$ , Duty factor =  $10 * \log(1/0.946) = 0.24$

**802.11n (HT20):** Duty cycle =  $1.900/2.016 = 0.942$ , Duty factor =  $10 * \log(1/0.942) = 0.25$



### 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.

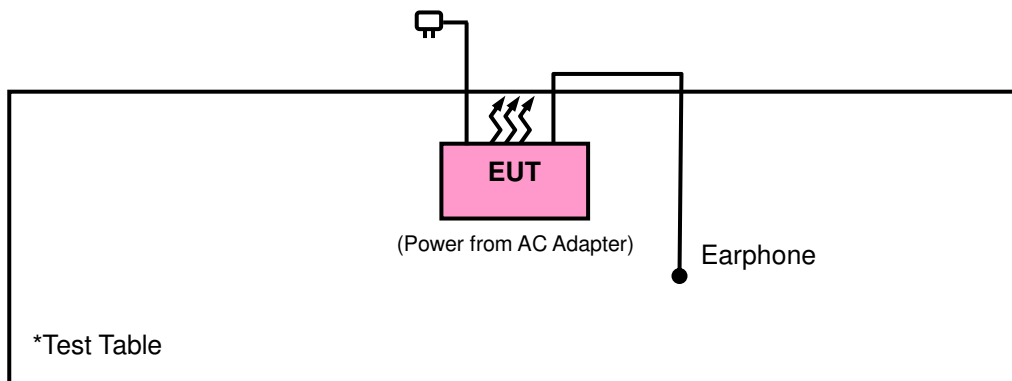
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Earphone	N/A	N/A	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).

#### 3.4.1 Configuration of System under Test



### 3.5 General Description of Applied Standards

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

**FCC Part 15, Subpart C (15.247)**

**558074 D01 DTS Meas Guidance v03r03**

**662911 D01 Multiple Transmitter Output v02r01**

**ANSI C63.10-2013**

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

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

**NOTE:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, 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 20 dB under any condition of modulation.



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## 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Jan. 21, 2015	Jan. 21, 2016
Spectrum Analyzer Agilent	N9010A	MY52220314	Sep. 03, 2015	Sep. 02, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2015	Dec. 16, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 04, 2015	Feb. 04, 2016
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 09, 2015	Feb. 09, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Feb. 04, 2015	Feb. 04, 2016
Loop Antenna	EM-6879	269	Jul. 31, 2015	Jul. 30, 2016
Preamplifier Agilent	8447D	2944A10628	Oct. 15, 2015	Oct. 14, 2016
Preamplifier EMCI	EMC 184045	980116	Jan. 09, 2015	Jan. 08, 2016
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2014	Dec. 26, 2015
Power Meter Anritsu	ML2495A	1232002	Sep. 21, 2015	Sep. 20, 2016
Power Sensor Anritsu	MA2411B	1207325	Sep. 21, 2015	Sep. 20, 2016
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 12, 2015	Oct. 11, 2016
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 12, 2015	Oct. 11, 2016
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 12, 2015	Oct. 11, 2016
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The FCC Site Registration No. is 690701.
5. The IC Site Registration No. is IC7450F-10.

#### 4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. 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 height of antenna 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

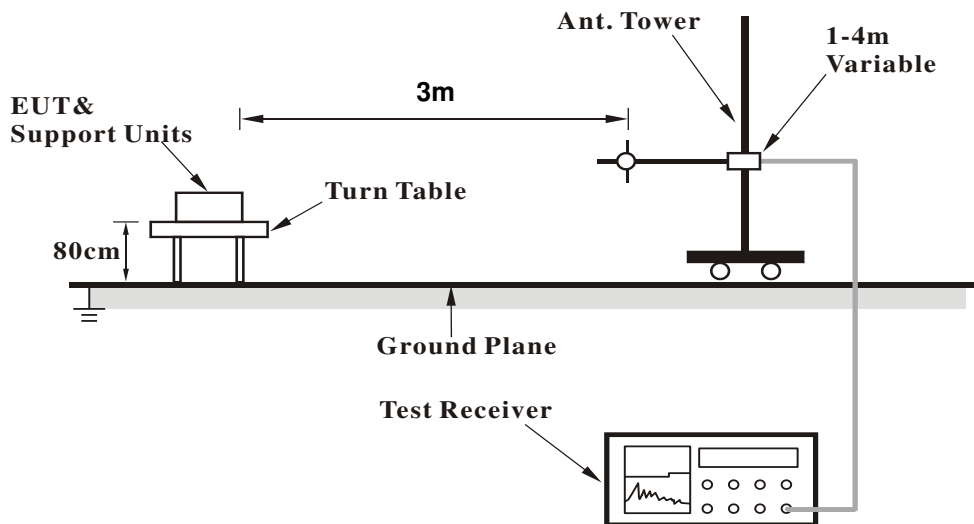
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for RMS Average (Duty cycle < 98 %) for Average detection (AV) at frequency above 1 GHz, then the measurement results was added to a correction factor ( $10 \log(1/\text{duty cycle})$ ).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10 Hz (Duty cycle  $\geq 98 \%$ ) for Average detection (AV) at frequency above 1 GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

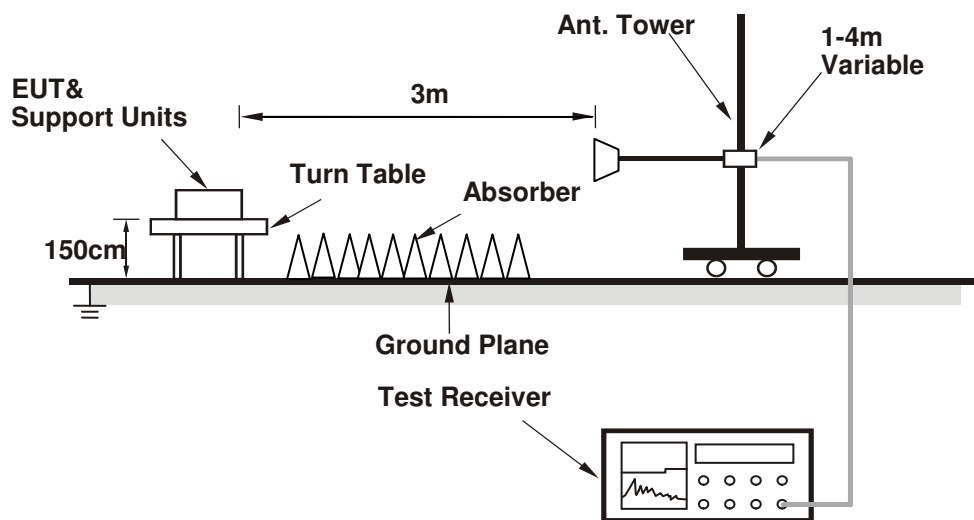
No deviation.

#### 4.1.5 Test Set Up

##### <Frequency Range below 1 GHz>



##### <Frequency Range above 1 GHz>



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

#### 4.1.6 EUT Operating Conditions

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.





## 4.1.7 Test Results

## Mode A (SISO)

## Above 1 GHz Data :

## 802.11b

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

## Antennal Polarity &amp; Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	49.55	56.08	54	-4.45	26.91	4.08	37.52	104	170	Average
2390	59.67	66.2	74	-14.33	26.91	4.08	37.52	104	170	Peak
2412	102.32	108.79			26.96	4.09	37.52	104	170	Average
2412	106.5	112.97			26.96	4.09	37.52	104	170	Peak
2490	37.01	42.97	54	-16.99	27.2	4.16	37.32	104	170	Average
2490	56.5	62.46	74	-17.5	27.2	4.16	37.32	104	170	Peak
4824	52.85	68.15	54	-1.15	30.99	6.79	53.08	204	214	Average
4824	55.35	70.65	74	-18.65	30.99	6.79	53.08	204	214	Peak

## Antennal Polarity &amp; Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2360	38.75	45.38	54	-15.25	26.81	4.05	37.49	111	235	Average
2360	56.35	62.98	74	-17.65	26.81	4.05	37.49	111	235	Peak
2412	91.57	98.04			26.96	4.09	37.52	111	235	Average
2412	95.86	102.33			26.96	4.09	37.52	111	235	Peak
2490	34.69	40.65	54	-19.31	27.2	4.16	37.32	111	235	Average
2490	57.37	63.33	74	-16.63	27.2	4.16	37.32	111	235	Peak
4824	45.34	60.64	54	-8.66	30.99	6.79	53.08	211	291	Average
4824	48.45	63.75	74	-25.55	30.99	6.79	53.08	211	291	Peak

## Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2372	38	44.57	54	-16	26.86	4.07	37.5	118	165	Average
2372	56.13	62.7	74	-17.87	26.86	4.07	37.5	118	165	Peak
2437	101.94	108.22			27.06	4.12	37.46	118	165	Average
2437	106	112.28			27.06	4.12	37.46	118	165	Peak
2494	35.19	41.08	54	-18.81	27.2	4.16	37.25	118	165	Average
2494	56.3	62.19	74	-17.7	27.2	4.16	37.25	118	165	Peak
4874	52.72	67.86	54	-1.28	31.06	6.85	53.05	196	217	Average
4874	54.83	69.97	74	-19.17	31.06	6.85	53.05	196	217	Peak

Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2336	33.89	40.55	54	-20.11	26.77	4.04	37.47	110	242	Average
2336	56.62	63.28	74	-17.38	26.77	4.04	37.47	110	242	Peak
2437	91.69	97.97			27.06	4.12	37.46	110	242	Average
2437	95.91	102.19			27.06	4.12	37.46	110	242	Peak
2490	34.66	40.62	54	-19.34	27.2	4.16	37.32	110	242	Average
2490	56.11	62.07	74	-17.89	27.2	4.16	37.32	110	242	Peak
4874	47.13	62.27	54	-6.87	31.06	6.85	53.05	253	292	Average
4874	49.2	64.34	74	-24.8	31.06	6.85	53.05	253	292	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

**Antennal Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2366	37.72	44.34	54	-16.28	26.81	4.07	37.5	101	169	Average
2366	57	63.62	74	-17	26.81	4.07	37.5	101	169	Peak
2462	102.98	109.14			27.1	4.13	37.39	101	169	Average
2462	107.14	113.3			27.1	4.13	37.39	101	169	Peak
2484	51.26	57.28	54	-2.74	27.15	4.15	37.32	101	169	Average
2484	60.66	66.68	74	-13.34	27.15	4.15	37.32	101	169	Peak
4924	52.64	67.67	54	-1.36	31.12	6.88	53.03	209	214	Average
4924	54.54	69.57	74	-19.46	31.12	6.88	53.03	209	214	Peak

**Antennal Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2384	34.15	40.71	54	-19.85	26.86	4.08	37.5	108	228	Average
2384	56.54	63.1	74	-17.46	26.86	4.08	37.5	108	228	Peak
2462	92.71	98.87			27.1	4.13	37.39	108	228	Average
2462	96.88	103.04			27.1	4.13	37.39	108	228	Peak
2486	41.14	47.16	54	-12.86	27.15	4.15	37.32	108	228	Average
2486	56.73	62.75	74	-17.27	27.15	4.15	37.32	108	228	Peak
4924	46.24	61.27	54	-7.76	31.12	6.88	53.03	105	54	Average
4924	48.1	63.13	74	-25.9	31.12	6.88	53.03	105	54	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.



## 802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

## Antennal Polarity &amp; Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	52.91	59.44	54	-1.09	26.91	4.08	37.52	104	181	Average
2390	68.86	75.39	74	-5.14	26.91	4.08	37.52	104	181	Peak
2412	98.55	105.02			26.96	4.09	37.52	104	181	Average
2412	108.18	114.65			26.96	4.09	37.52	104	181	Peak
2488	39.2	45.16	54	-14.8	27.2	4.16	37.32	104	181	Average
2488	57.22	63.18	74	-16.78	27.2	4.16	37.32	104	181	Peak

## Antennal Polarity &amp; Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	41.42	47.95	54	-12.58	26.91	4.08	37.52	112	244	Average
2390	58.66	65.19	74	-15.34	26.91	4.08	37.52	112	244	Peak
2412	87.97	94.44			26.96	4.09	37.52	112	244	Average
2412	97.88	104.35			26.96	4.09	37.52	112	244	Peak
2486	34.77	40.79	54	-19.23	27.15	4.15	37.32	112	244	Average
2486	57.24	63.26	74	-16.76	27.15	4.15	37.32	112	244	Peak

## Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

#### Antennal Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2386	41.82	48.33	54	-12.18	26.91	4.08	37.5	118	151	Average
2386	60.63	67.14	74	-13.37	26.91	4.08	37.5	118	151	Peak
2437	97.56	103.84			27.06	4.12	37.46	118	151	Average
2437	107.81	114.09			27.06	4.12	37.46	118	151	Peak
2488	41.48	47.44	54	-12.52	27.2	4.16	37.32	118	151	Average
2488	58.48	64.44	74	-15.52	27.2	4.16	37.32	118	151	Peak

#### Antennal Polarity & Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2350	34.62	41.29	54	-19.38	26.77	4.05	37.49	109	243	Average
2350	57.17	63.84	74	-16.83	26.77	4.05	37.49	109	243	Peak
2437	88.21	94.49			27.06	4.12	37.46	109	243	Average
2437	98.1	104.38			27.06	4.12	37.46	109	243	Peak
2498	36.2	42.09	54	-17.8	27.2	4.16	37.25	109	243	Average
2498	58.25	64.14	74	-15.75	27.2	4.16	37.25	109	243	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

**Antennal Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2366	38.85	45.47	54	-15.15	26.81	4.07	37.5	102	163	Average
2366	57.14	63.76	74	-16.86	26.81	4.07	37.5	102	163	Peak
2462	97.65	103.81			27.1	4.13	37.39	102	163	Average
2462	107.33	113.49			27.1	4.13	37.39	102	163	Peak
2484	49.92	55.94	54	-4.08	27.15	4.15	37.32	102	163	Average
2484	72.6	78.62	74	-1.4	27.15	4.15	37.32	102	163	Peak

**Antennal Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2356	34.15	40.78	54	-19.85	26.81	4.05	37.49	111	257	Average
2356	57.42	64.05	74	-16.58	26.81	4.05	37.49	111	257	Peak
2462	85.14	91.3			27.1	4.13	37.39	111	257	Average
2462	95.03	101.19			27.1	4.13	37.39	111	257	Peak
2484	38.77	44.79	54	-15.23	27.15	4.15	37.32	111	257	Average
2484	62.84	68.86	74	-11.16	27.15	4.15	37.32	111	257	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.



## 802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

## Antennal Polarity &amp; Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	50.72	57.25	54	-3.28	26.91	4.08	37.52	105	152	Average
2390	71.42	77.95	74	-2.58	26.91	4.08	37.52	105	152	Peak
2412	98.02	104.49			26.96	4.09	37.52	105	152	Average
2412	108.2	114.67			26.96	4.09	37.52	105	152	Peak
2490	38.55	44.51	54	-15.45	27.2	4.16	37.32	105	152	Average
2490	57.27	63.23	74	-16.73	27.2	4.16	37.32	105	152	Peak

## Antennal Polarity &amp; Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	42.02	48.55	54	-11.98	26.91	4.08	37.52	111	243	Average
2390	60.97	67.5	74	-13.03	26.91	4.08	37.52	111	243	Peak
2412	88.13	94.6			26.96	4.09	37.52	111	243	Average
2412	97.86	104.33			26.96	4.09	37.52	111	243	Peak
2494	35.18	41.07	54	-18.82	27.2	4.16	37.25	111	243	Average
2494	57.93	63.82	74	-16.07	27.2	4.16	37.25	111	243	Peak

## Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

**Antennal Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	40.36	46.89	54	-13.64	26.91	4.08	37.52	103	150	Average
2390	57.58	64.11	74	-16.42	26.91	4.08	37.52	103	150	Peak
2437	96.21	102.49			27.06	4.12	37.46	103	150	Average
2437	106.72	113			27.06	4.12	37.46	103	150	Peak
2486	40.25	46.27	54	-13.75	27.15	4.15	37.32	103	150	Average
2486	57.81	63.83	74	-16.19	27.15	4.15	37.32	103	150	Peak

**Antennal Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2364	34.44	41.05	54	-19.56	26.81	4.07	37.49	110	244	Average
2364	56.89	63.5	74	-17.11	26.81	4.07	37.49	110	244	Peak
2437	86.95	93.23			27.06	4.12	37.46	110	244	Average
2437	96.85	103.13			27.06	4.12	37.46	110	244	Peak
2498	35.56	41.45	54	-18.44	27.2	4.16	37.25	110	244	Average
2498	57.02	62.91	74	-16.98	27.2	4.16	37.25	110	244	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.





EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

#### Antennal Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	38.82	45.35	54	-15.18	26.91	4.08	37.52	102	162	Average
2390	56.47	63	74	-17.53	26.91	4.08	37.52	102	162	Peak
2462	96.67	102.83			27.1	4.13	37.39	102	162	Average
2462	106.34	112.5			27.1	4.13	37.39	102	162	Peak
2486	48.63	54.65	54	-5.37	27.15	4.15	37.32	102	162	Average
2486	69.85	75.87	74	-4.15	27.15	4.15	37.32	102	162	Peak

#### Antennal Polarity & Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2378	35.95	42.52	54	-18.05	26.86	4.07	37.5	107	225	Average
2378	56.51	63.08	74	-17.49	26.86	4.07	37.5	107	225	Peak
2462	87.45	93.61			27.1	4.13	37.39	107	225	Average
2462	96.67	102.83			27.1	4.13	37.39	107	225	Peak
2484	39.16	45.18	54	-14.84	27.15	4.15	37.32	107	225	Average
2484	59.49	65.51	74	-14.51	27.15	4.15	37.32	107	225	Peak

#### Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

**Mode B (MIMO)****802.11g**

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

**Antennal Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2388	45.09	51.6	54	-8.91	26.91	4.08	37.5	102	175	Average
2388	65.45	71.96	74	-8.55	26.91	4.08	37.5	102	175	Peak
2412	94.92	101.39			26.96	4.09	37.52	102	175	Average
2412	104.57	111.04			26.96	4.09	37.52	102	175	Peak
2488	37.12	43.08	54	-16.88	27.2	4.16	37.32	102	175	Average
2488	58.38	64.34	74	-15.62	27.2	4.16	37.32	102	175	Peak

**Antennal Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2374	40.73	47.3	54	-13.27	26.86	4.07	37.5	100	1	Average
2374	58.52	65.09	74	-15.48	26.86	4.07	37.5	100	1	Peak
2412	88.77	95.24			26.96	4.09	37.52	100	1	Average
2412	98.3	104.77			26.96	4.09	37.52	100	1	Peak
2490	35.51	41.47	54	-18.49	27.2	4.16	37.32	100	1	Average
2490	57.68	63.64	74	-16.32	27.2	4.16	37.32	100	1	Peak

## Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2368	38.31	44.93	54	-15.69	26.81	4.07	37.5	100	187	Average
2368	58.66	65.28	74	-15.34	26.81	4.07	37.5	100	187	Peak
2437	95.43	101.71			27.06	4.12	37.46	100	187	Average
2437	105.05	111.33			27.06	4.12	37.46	100	187	Peak
2484	42.07	48.09	54	-11.93	27.15	4.15	37.32	100	187	Average
2484	57.97	63.99	74	-16.03	27.15	4.15	37.32	100	187	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2388	36.46	42.97	54	-17.54	26.91	4.08	37.5	100	3	Average
2388	57.57	64.08	74	-16.43	26.91	4.08	37.5	100	3	Peak
2437	89.29	95.57			27.06	4.12	37.46	100	3	Average
2437	99.08	105.36			27.06	4.12	37.46	100	3	Peak
2488	36.36	42.32	54	-17.64	27.2	4.16	37.32	100	3	Average
2488	57.26	63.22	74	-16.74	27.2	4.16	37.32	100	3	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

#### Antennal Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2358	35.59	42.22	54	-18.41	26.81	4.05	37.49	100	195	Average
2358	56.83	63.46	74	-17.17	26.81	4.05	37.49	100	195	Peak
2462	95.06	101.22			27.1	4.13	37.39	100	195	Average
2462	104.95	111.11			27.1	4.13	37.39	100	195	Peak
2484	49.04	55.06	54	-4.96	27.15	4.15	37.32	100	195	Average
2484	64.06	70.08	74	-9.94	27.15	4.15	37.32	100	195	Peak

#### Antennal Polarity & Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2362	34.26	40.89	54	-19.74	26.81	4.05	37.49	162	327	Average
2362	56.6	63.23	74	-17.4	26.81	4.05	37.49	162	327	Peak
2462	89.08	95.24			27.1	4.13	37.39	162	327	Average
2462	98.59	104.75			27.1	4.13	37.39	162	327	Peak
2490	41.05	47.01	54	-12.95	27.2	4.16	37.32	162	327	Average
2490	58.85	64.81	74	-15.15	27.2	4.16	37.32	162	327	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.



## 802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

## Antennal Polarity &amp; Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2386	46.71	53.22	54	-7.29	26.91	4.08	37.5	103	180	Average
2386	61.55	68.06	74	-12.45	26.91	4.08	37.5	103	180	Peak
2412	94.98	101.45			26.96	4.09	37.52	103	180	Average
2412	104.87	111.34			26.96	4.09	37.52	103	180	Peak
2498	37.49	43.38	54	-16.51	27.2	4.16	37.25	103	180	Average
2498	56.72	62.61	74	-17.28	27.2	4.16	37.25	103	180	Peak

## Antennal Polarity &amp; Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2390	43.06	49.59	54	-10.94	26.91	4.08	37.52	100	359	Average
2390	57.88	64.41	74	-16.12	26.91	4.08	37.52	100	359	Peak
2412	89.43	95.9			26.96	4.09	37.52	100	359	Average
2412	99.07	105.54			26.96	4.09	37.52	100	359	Peak
2500	35.43	41.32	54	-18.57	27.2	4.16	37.25	100	359	Average
2500	57.26	63.15	74	-16.74	27.2	4.16	37.25	100	359	Peak

## Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 6	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

#### Antennal Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2314	38.37	45.14	54	-15.63	26.67	4.03	37.47	102	183	Average
2314	57.12	63.89	74	-16.88	26.67	4.03	37.47	102	183	Peak
2437	94.78	101.06			27.06	4.12	37.46	102	183	Average
2437	104.68	110.96			27.06	4.12	37.46	102	183	Peak
2490	40.35	46.31	54	-13.65	27.2	4.16	37.32	102	183	Average
2490	57.23	63.19	74	-16.77	27.2	4.16	37.32	102	183	Peak

#### Antennal Polarity & Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2388	35.55	42.06	54	-18.45	26.91	4.08	37.5	235	32	Average
2388	57.42	63.93	74	-16.58	26.91	4.08	37.5	235	32	Peak
2437	88.87	95.15			27.06	4.12	37.46	235	32	Average
2437	98.58	104.86			27.06	4.12	37.46	235	32	Peak
2484	36.87	42.89	54	-17.13	27.15	4.15	37.32	235	32	Average
2484	57.21	63.23	74	-16.79	27.15	4.15	37.32	235	32	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.



EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

**Antennal Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2368	35.8	42.42	54	-18.2	26.81	4.07	37.5	100	193	Average
2368	57.2	63.82	74	-16.8	26.81	4.07	37.5	100	193	Peak
2462	95.16	101.32			27.1	4.13	37.39	100	193	Average
2462	104.99	111.15			27.1	4.13	37.39	100	193	Peak
2486	49.69	55.71	54	-4.31	27.15	4.15	37.32	100	193	Average
2486	64.91	70.93	74	-9.09	27.15	4.15	37.32	100	193	Peak

**Antennal Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2370	34.8	41.37	54	-19.2	26.86	4.07	37.5	278	38	Average
2370	56.65	63.22	74	-17.35	26.86	4.07	37.5	278	38	Peak
2462	88.97	95.13			27.1	4.13	37.39	278	38	Average
2462	98.73	104.89			27.1	4.13	37.39	278	38	Peak
2484	41.65	47.67	54	-12.35	27.15	4.15	37.32	278	38	Average
2484	60.03	66.05	74	-13.97	27.15	4.15	37.32	278	38	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.

**9 kHz ~ 30 MHz DATA:**

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

**Mode A (SISO)**
**30 MHz ~ 1 GHz WORST-CASE DATA:**
**802.11g**

EUT Test Condition		Measurement Detail	
Channel	Channel 01	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

**Antennal Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
125.06	33.2	52.6	43.5	-10.3	11.35	1.14	31.89	102	307	Peak
174.53	37.04	56.38	43.5	-6.46	11.28	1.16	31.78	107	161	Peak
375.32	36.21	51.56	46	-9.79	14.75	1.84	31.94	100	236	Peak
500.45	29.15	41.35	46	-16.85	17.33	2.09	31.62	138	145	Peak
649.83	31.02	40.47	46	-14.98	20.21	2.36	32.02	127	190	Peak
725.49	31.79	39.73	46	-14.21	21.18	2.5	31.62	126	248	Peak

**Antennal Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
125.06	37.98	57.38	43.5	-5.52	11.35	1.14	31.89	120	347	Peak
199.75	33.54	54.66	43.5	-9.96	9.36	1.29	31.77	122	308	Peak
375.32	34.08	49.43	46	-11.92	14.75	1.84	31.94	121	12	Peak
500.45	35.72	47.92	46	-10.28	17.33	2.09	31.62	130	89	Peak
600.36	33.21	43.59	46	-12.79	19.61	2.26	32.25	117	31	Peak
675.05	31.05	39.96	46	-14.95	20.51	2.41	31.83	101	8	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor  
Margin value = Emission level – Limit value





**Mode B (MIMO)**  
**802.11n (HT20)**

EUT Test Condition		Measurement Detail	
Channel	Channel 11	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Gavin Wu

**Antennal Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
174.53	36.67	56.01	43.5	-6.83	11.28	1.16	31.78	119	307	Peak
224.97	37.47	57.43	46	-8.53	10.42	1.4	31.78	111	263	Peak
375.32	36.5	51.85	46	-9.5	14.75	1.84	31.94	107	274	Peak
500.45	28.96	41.16	46	-17.04	17.33	2.09	31.62	102	63	Peak
649.83	31.83	41.28	46	-14.17	20.21	2.36	32.02	137	173	Peak
725.49	31.5	39.44	46	-14.5	21.18	2.5	31.62	116	25	Peak

**Antennal Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
125.06	35.75	55.15	43.5	-7.75	11.35	1.14	31.89	137	170	Peak
199.75	33.6	54.72	43.5	-9.9	9.36	1.29	31.77	139	7	Peak
375.32	34.26	49.61	46	-11.74	14.75	1.84	31.94	116	46	Peak
549.92	34.91	46.22	46	-11.09	18.46	2.18	31.95	101	72	Peak
600.36	34.89	45.27	46	-11.11	19.61	2.26	32.25	127	216	Peak
725.49	29.91	37.85	46	-16.09	21.18	2.5	31.62	105	11	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
- Margin value = Emission level – Limit value

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

### 4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 16, 2015	Nov. 15, 2016
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2015	Feb. 25, 2016
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 24, 2015	Jul. 23, 2016
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

#### 4.2.3 Test Procedures

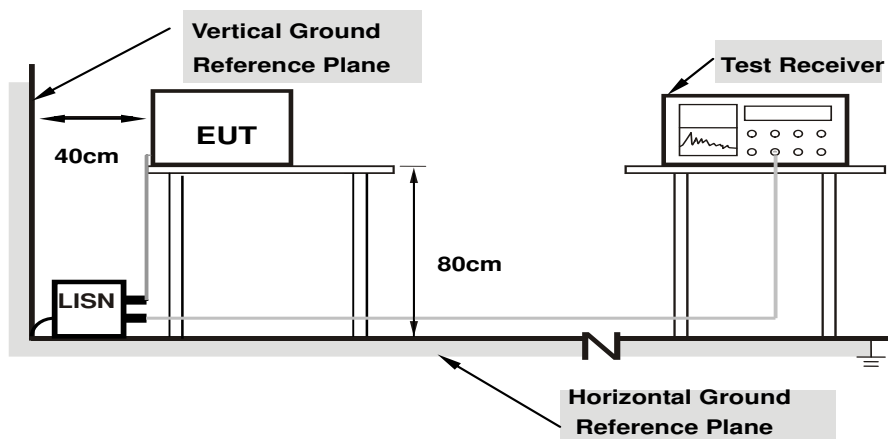
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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

#### 4.2.4 Deviation from Test Standard

No deviation.

#### 4.2.5 Test Setup



**Note: 1.Support units were connected to second LISN.**

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

#### 4.2.6 EUT Operating Conditions

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

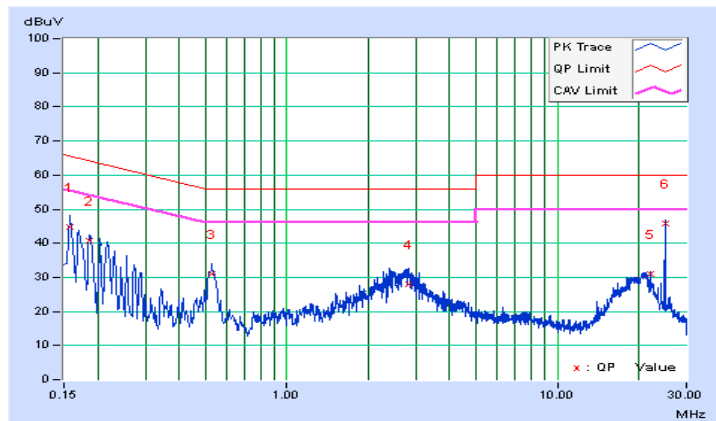
#### 4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2015/11/24

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15782	9.82	35.06	19.31	44.88	29.13	65.58	55.58	-20.69	-26.44
2	0.18557	9.83	30.86	11.34	40.69	21.17	64.23	54.23	-23.54	-33.06
3	0.52927	9.89	21.09	13.01	30.98	22.90	56.00	46.00	-25.02	-23.10
4	2.83226	10.05	17.97	6.64	28.02	16.69	56.00	46.00	-27.98	-29.31
5	22.06946	11.17	19.81	16.21	30.98	27.38	60.00	50.00	-29.02	-22.62
<b>6</b>	<b>25.00196</b>	<b>11.28</b>	<b>34.43</b>	<b>35.07</b>	<b>45.71</b>	<b>46.35</b>	<b>60.00</b>	<b>50.00</b>	<b>-14.29</b>	<b>-3.65</b>

Remarks:

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

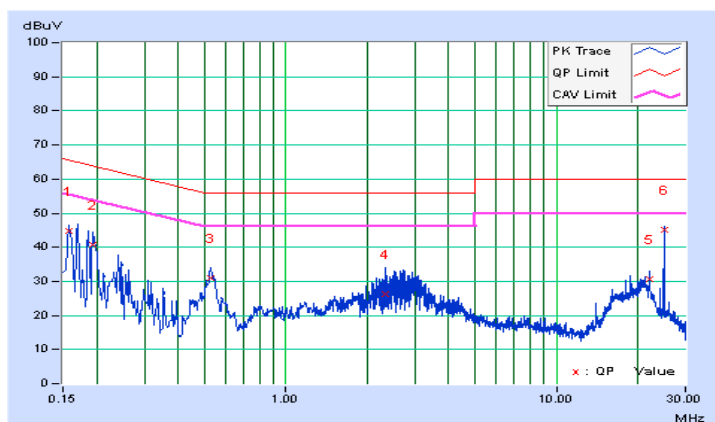


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2015/11/24

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15782	9.82	34.92	19.19	44.74	29.01	65.58	55.58	-20.84	-26.57
2	0.19305	9.83	30.75	12.09	40.58	21.92	63.90	53.90	-23.33	-31.99
3	0.52682	9.89	20.98	12.66	30.87	22.55	56.00	46.00	-25.13	-23.45
4	2.33569	10.01	16.18	4.80	26.19	14.81	56.00	46.00	-29.81	-31.19
5	22.06946	10.97	19.74	16.98	30.71	27.95	60.00	50.00	-29.29	-22.05
6	25.00196	11.04	34.13	34.47	45.17	45.51	60.00	50.00	-14.83	-4.49

**Remarks:**

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

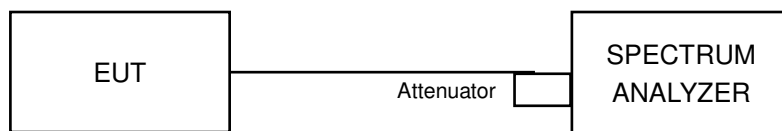


### 4.3 6 dB Bandwidth Measurement

#### 4.3.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

#### 4.3.2 Test Setup



#### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

#### 4.3.4 Test Procedure

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

#### 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 Result

##### 802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	8.09	0.5	Pass
6	2437	8.11	0.5	Pass
11	2462	8.11	0.5	Pass

##### 802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.13	0.5	Pass
6	2437	15.18	0.5	Pass
11	2462	15.14	0.5	Pass

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.47	15.16	0.5	Pass
6	2437	15.36	15.50	0.5	Pass
11	2462	15.37	15.36	0.5	Pass

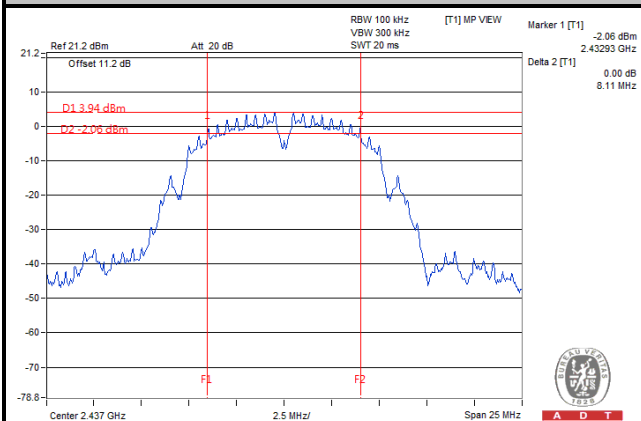
802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.15	0.5	Pass
6	2437	15.17	0.5	Pass
11	2462	15.33	0.5	Pass

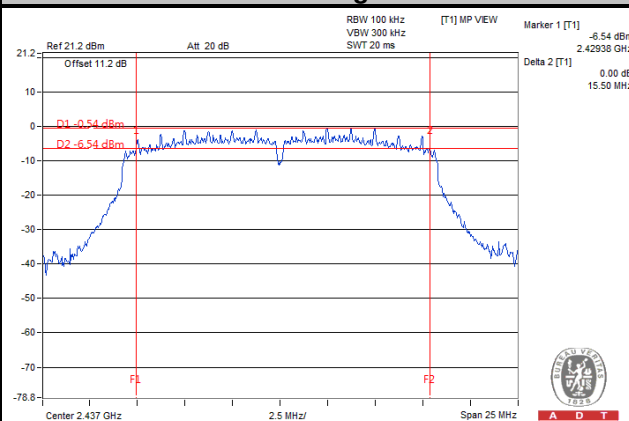
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.15	16.31	0.5	Pass
6	2437	15.17	16.34	0.5	Pass
11	2462	15.17	16.02	0.5	Pass

Spectrum Plot of Worst Value

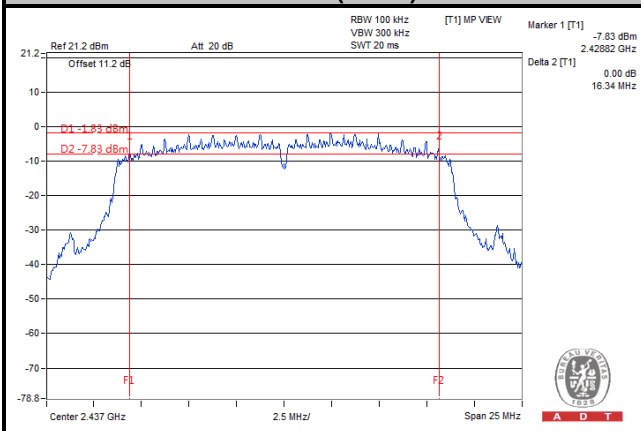
802.11b



802.11g



802.11n (HT20)





#### 4.4 Conducted Output Power Measurement

##### 4.4.1 Limits of Conducted Output Power Measurement

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

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

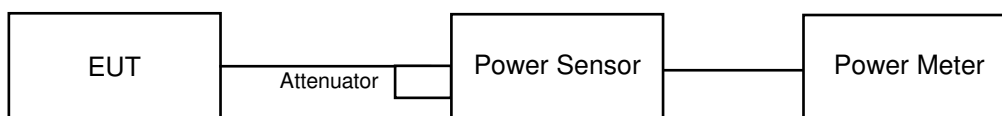
Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;

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

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

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

##### 4.4.2 Test Setup



##### 4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

##### 4.4.4 Test Procedures

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

##### 4.4.5 Deviation from Test Standard

No deviation.

##### 4.4.6 EUT Operating Conditions

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

#### 4.4.7 Test Results

##### 802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	45.19	16.55	30	Pass
6	2437	49.09	16.91	30	Pass
11	2462	70.63	18.49	30	Pass

##### 802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	151.01	21.79	30	Pass
6	2437	180.30	22.56	30	Pass
11	2462	150.31	21.77	30	Pass

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.35	19.72	179.856	22.55	30	Pass
6	2437	21.23	20.46	243.913	23.87	30	Pass
11	2462	20.60	18.57	186.760	22.71	30	Pass



## 802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	137.09	21.37	30	Pass
6	2437	131.52	21.19	30	Pass
11	2462	132.43	21.22	30	Pass

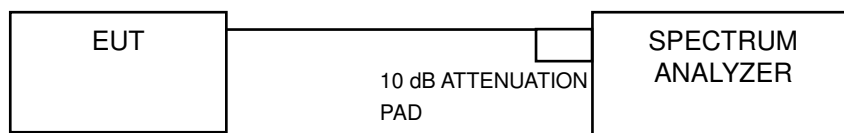
Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.00	19.39	186.896	22.72	30	Pass
6	2437	20.38	18.53	180.429	22.56	30	Pass
11	2462	20.43	18.80	186.266	22.70	30	Pass

## 4.5 Power Spectral Density Measurement

### 4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8 dBm.

### 4.5.2 Test Setup



### 4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.5.4 Test Procedure

- a. Set analyzer center frequency to DTS channel center frequency.
- b. Set the span to 1.5 times the DTS bandwidth.
- c. Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- d. Set the VBW  $\geq 3 \times \text{RBW}$ .
- e. Detector = peak.
- f. Sweep time = auto couple.
- g. Trace mode = max hold.
- h. Allow trace to fully stabilize.
- i. Use the peak marker function to determine the maximum amplitude level within the RBW.

### 4.5.5 Deviation from Test Standard

No deviation.

### 4.5.6 EUT Operating Condition

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

#### 4.5.7 Test Results

##### 802.11b

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-10.60	8	Pass
6	2437	-10.29	8	Pass
11	2462	-9.33	8	Pass

##### 802.11g

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-13.43	8	Pass
6	2437	-11.48	8	Pass
11	2462	-12.89	8	Pass

TX Chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass / Fail
0	1	2412	-15.20	3.01	-12.19	7.95	Pass
	6	2437	-13.74	3.01	-10.73	7.95	Pass
	11	2462	-14.40	3.01	-11.39	7.95	Pass
1	1	2412	-15.46	3.01	-12.45	7.95	Pass
	6	2437	-14.67	3.01	-11.66	7.95	Pass
	11	2462	-15.30	3.01	-12.29	7.95	Pass

**NOTE:** Directional gain = 3.04 dBi + 10log(2) = 6.05 dBi > 6 dBi , so the power density limit shall be reduced to 8-(6.05-6) = 7.95 dBm.

**802.11n (HT20)**

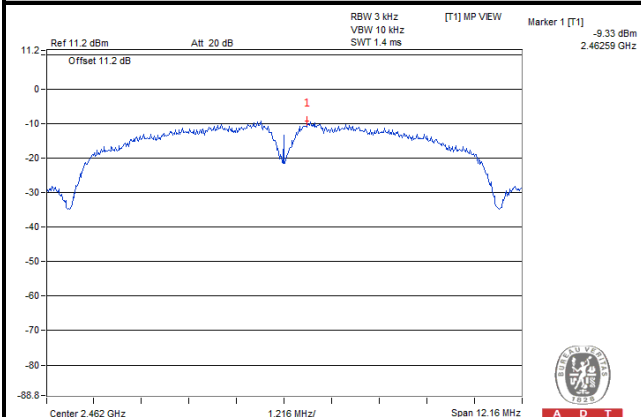
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-13.35	8	Pass
6	2437	-13.53	8	Pass
11	2462	-14.08	8	Pass

TX Chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass / Fail
0	1	2412	-14.70	3.01	-11.69	7.95	Pass
	6	2437	-15.05	3.01	-12.04	7.95	Pass
	11	2462	-13.98	3.01	-10.97	7.95	Pass
1	1	2412	-15.59	3.01	-12.58	7.95	Pass
	6	2437	-15.17	3.01	-12.16	7.95	Pass
	11	2462	-15.01	3.01	-12.00	7.95	Pass

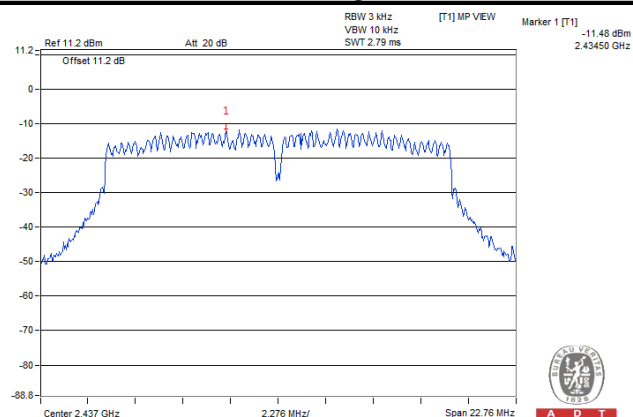
**NOTE:** Directional gain =  $3.04 \text{ dBi} + 10\log(2) = 6.05 \text{ dBi} > 6 \text{ dBi}$  , so the power density limit shall be reduced to  $8 - (6.05 - 6) = 7.95 \text{ dBm}$ .

### Spectrum Plot of Worst Value

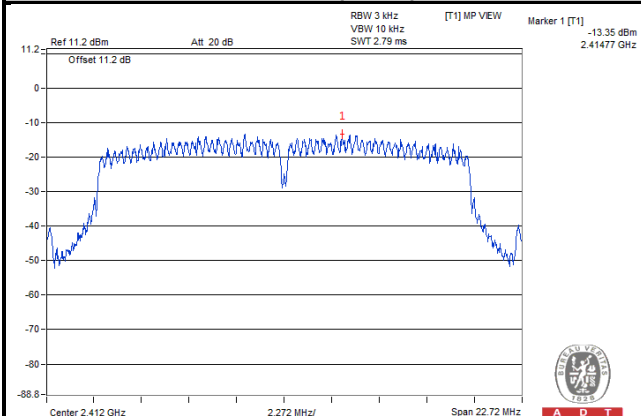
#### 802.11b



#### 802.11g



#### 802.11n (HT20)

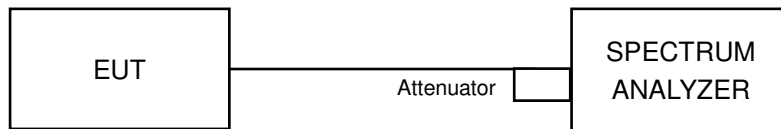


## 4.6 Conducted Out of Band Emission Measurement

### 4.6.1 Limits of Conducted Out of Band Emission Measurement

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

### 4.6.2 Test Setup



### 4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

### 4.6.4 Test Procedure

#### MEASUREMENT PROCEDURE REF

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

#### MEASUREMENT PROCEDURE OOB

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

### 4.6.5 Deviation from Test Standard

No deviation.

### 4.6.6 EUT Operating Condition

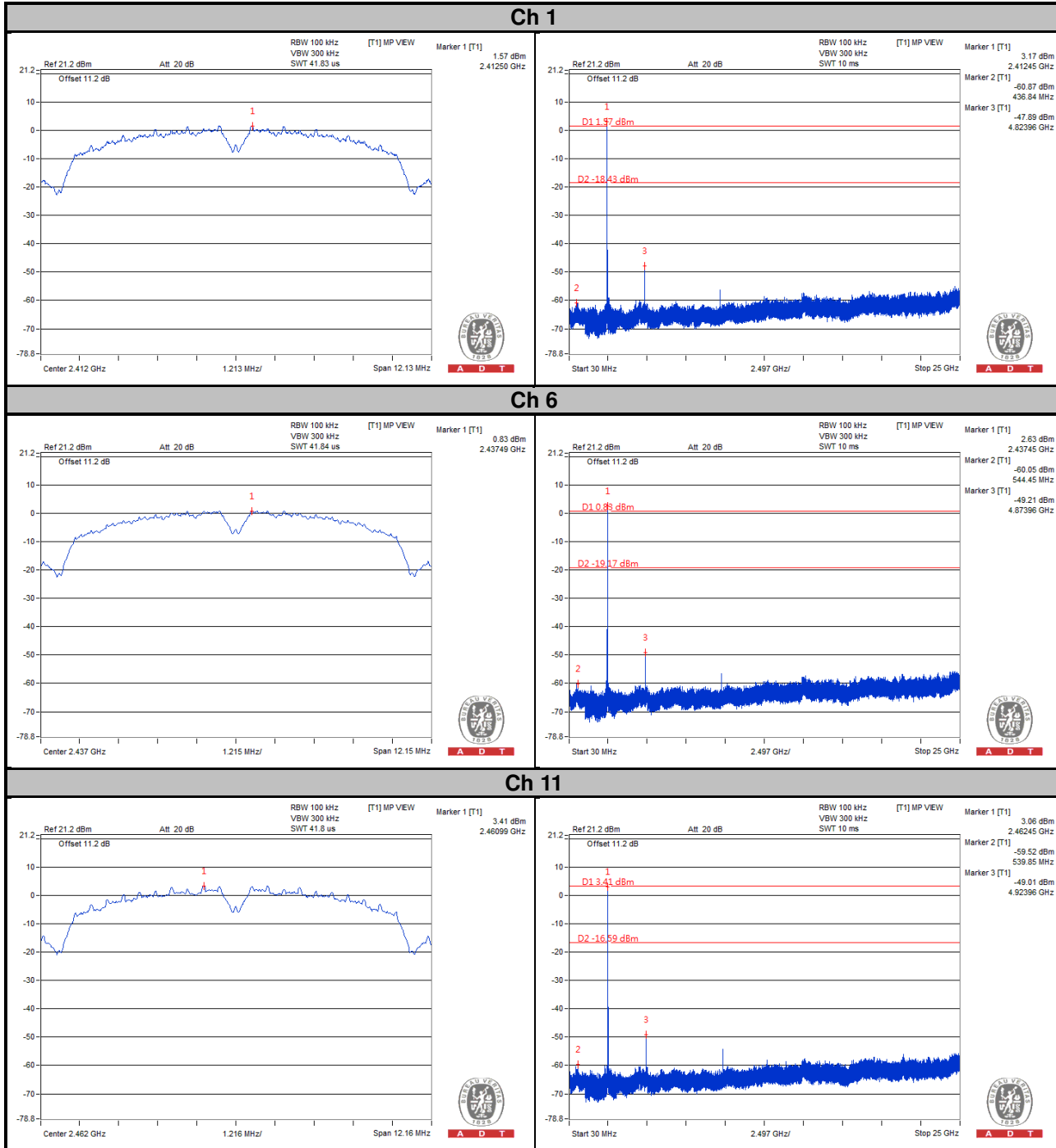
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



### 4.6.7 Test Results

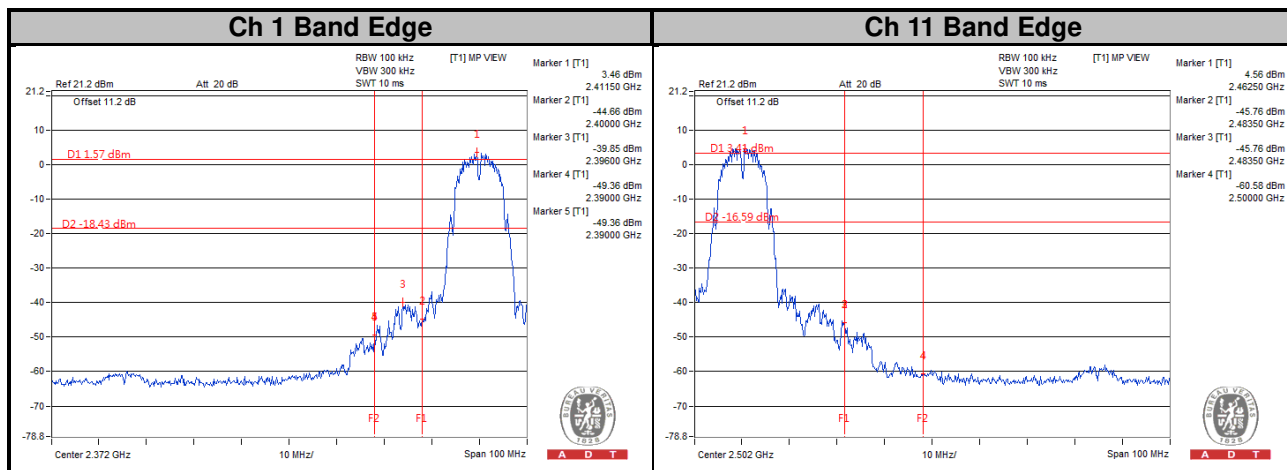
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20 dB offset below D1. It shows compliance with the requirement.

#### 802.11b



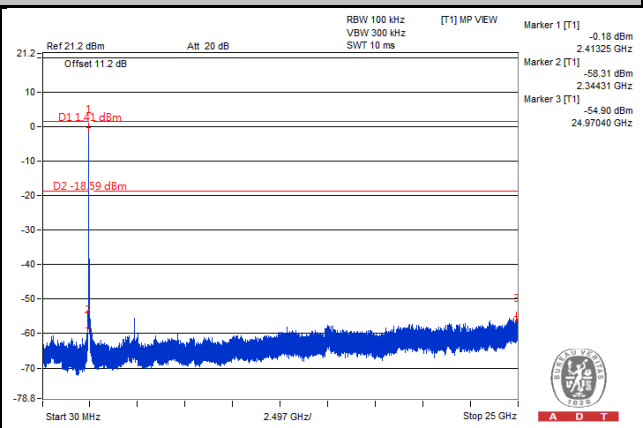
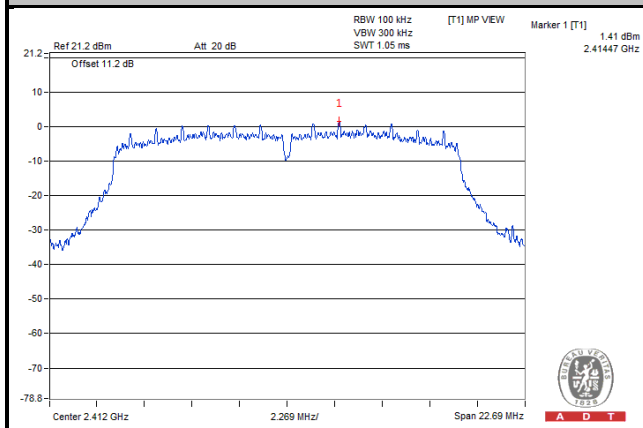


A D T

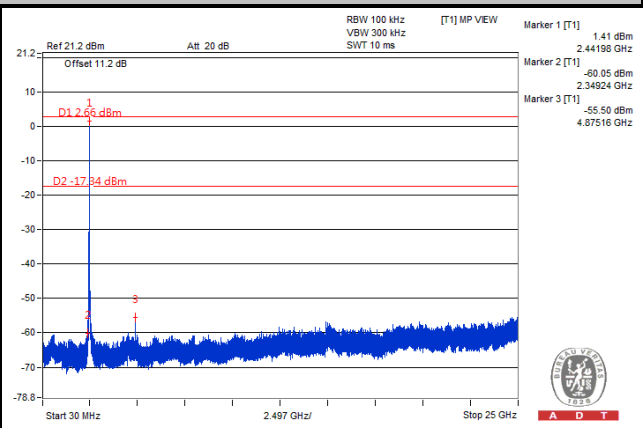
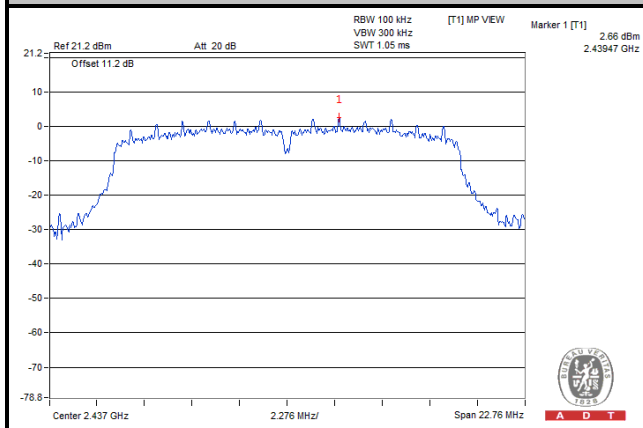


802.11g

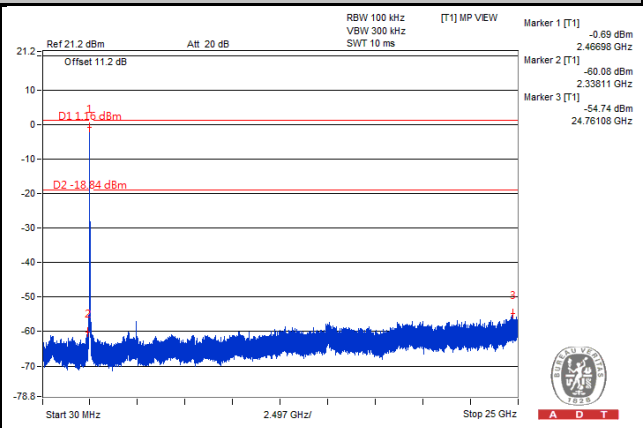
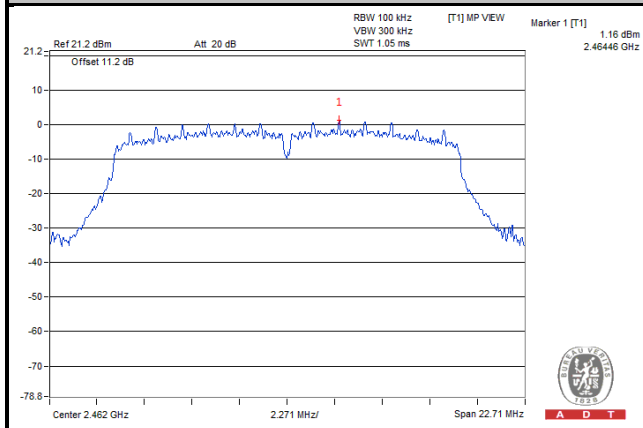
Ch 1



Ch 6

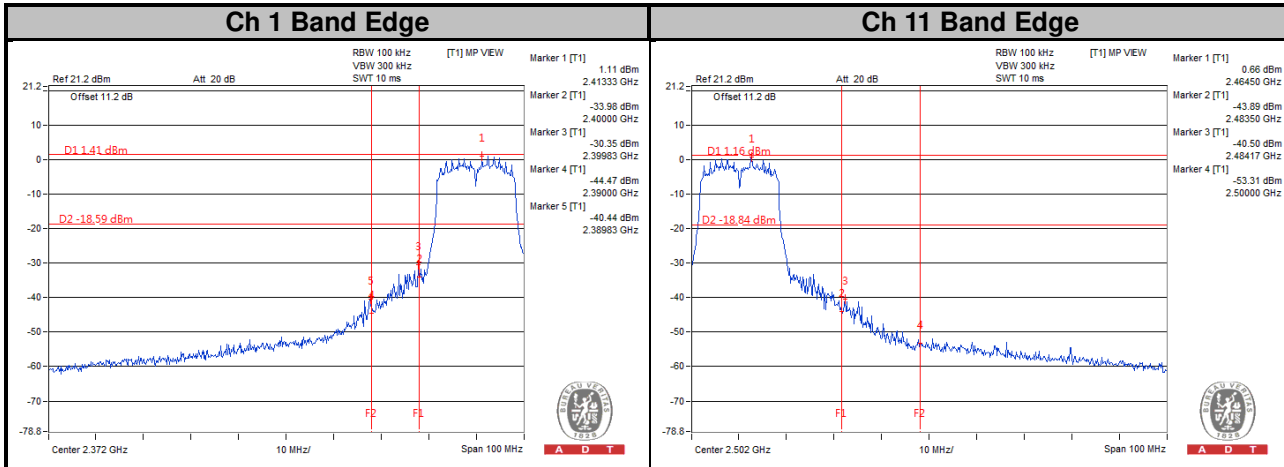


Ch 11



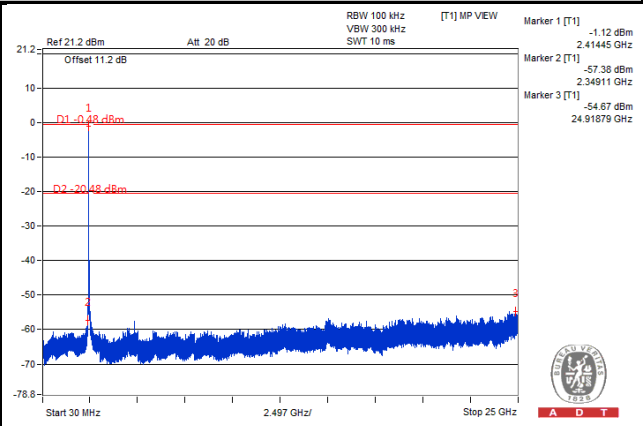
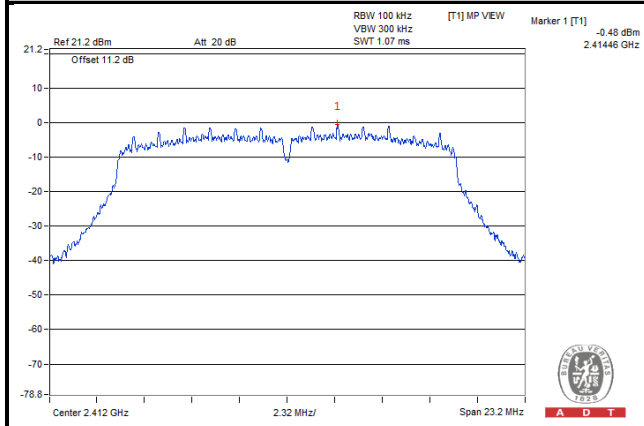


A D T

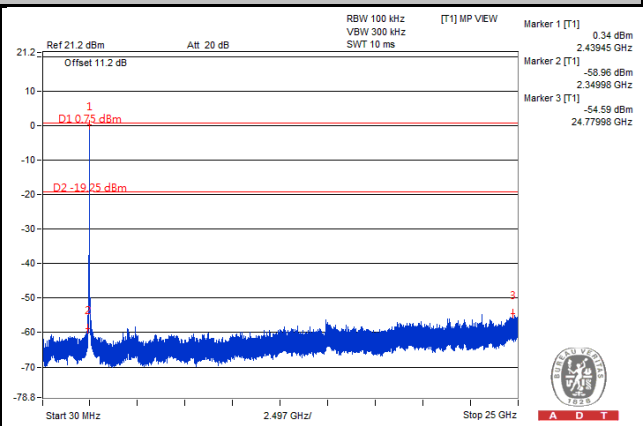
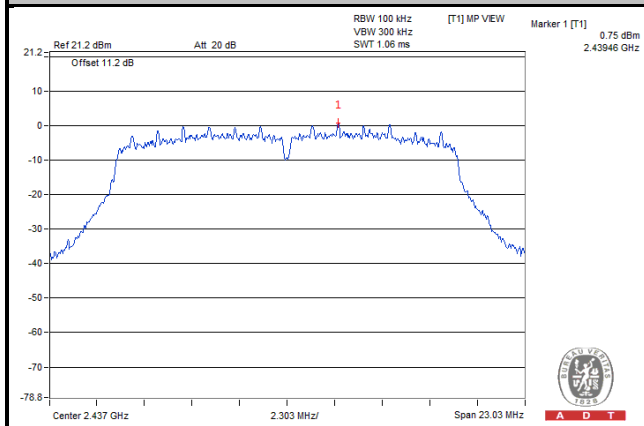


CHAIN 0

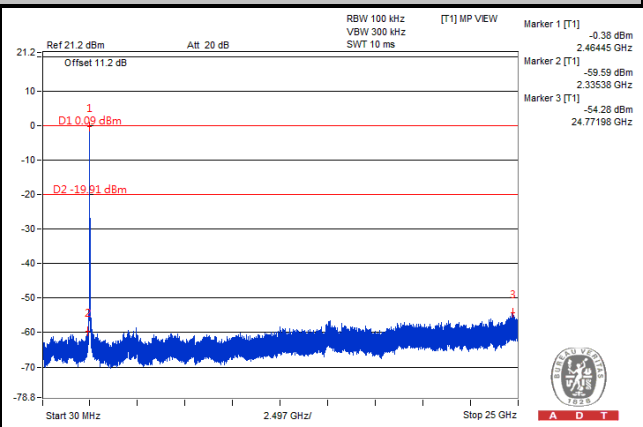
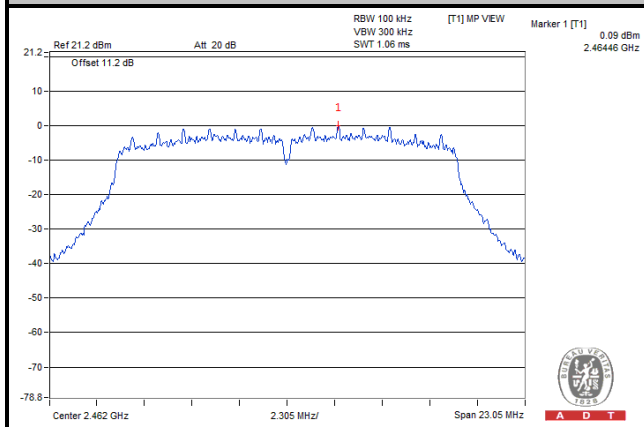
Ch 1



Ch 6

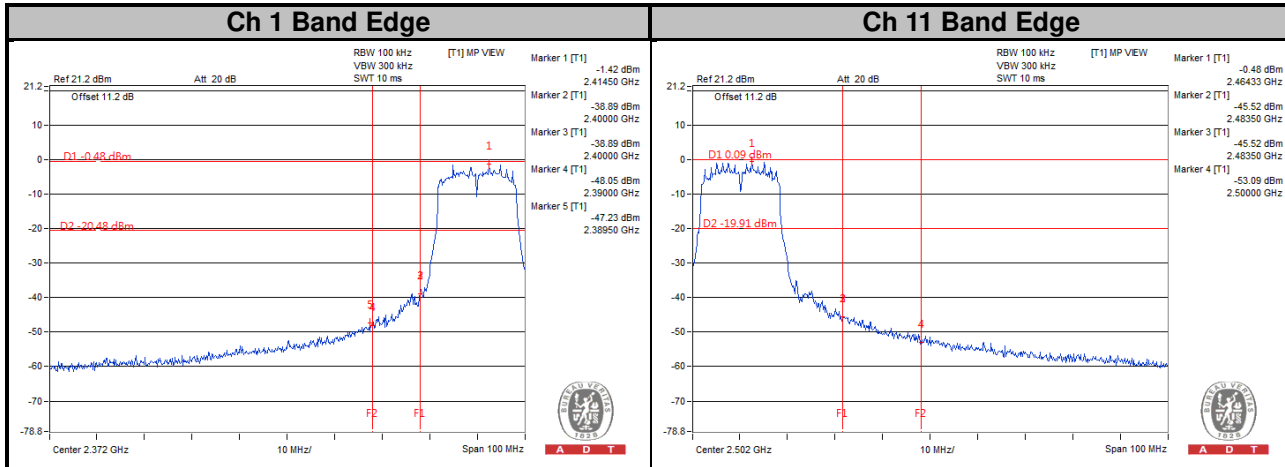


Ch 11



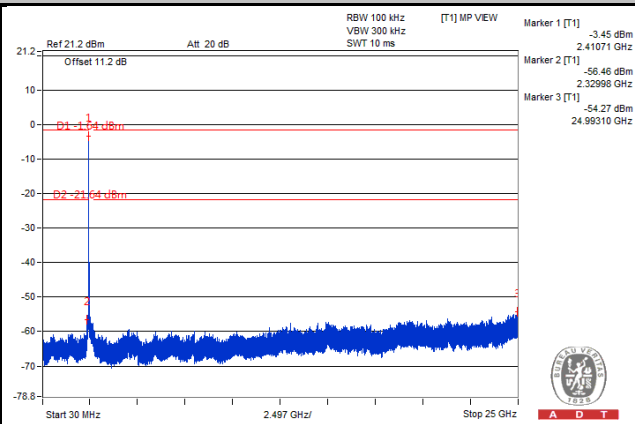
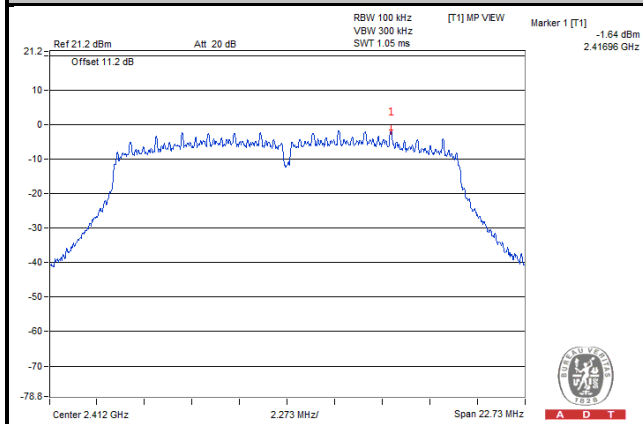


A D T

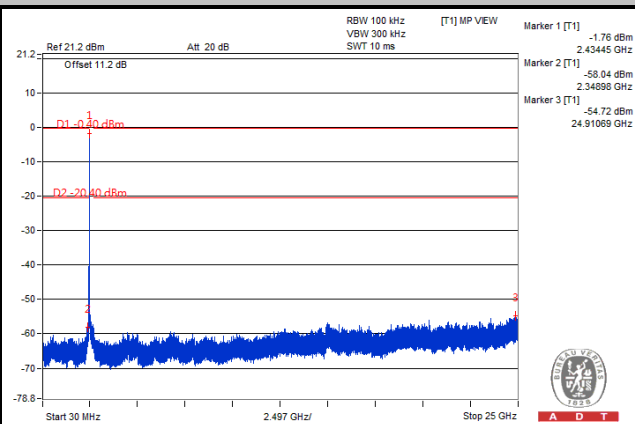
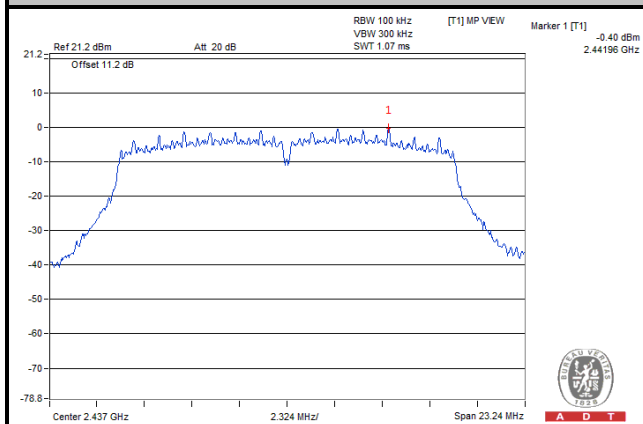


### CHAIN 1

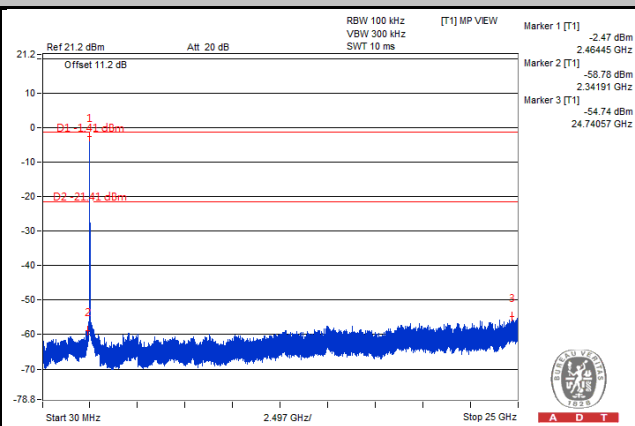
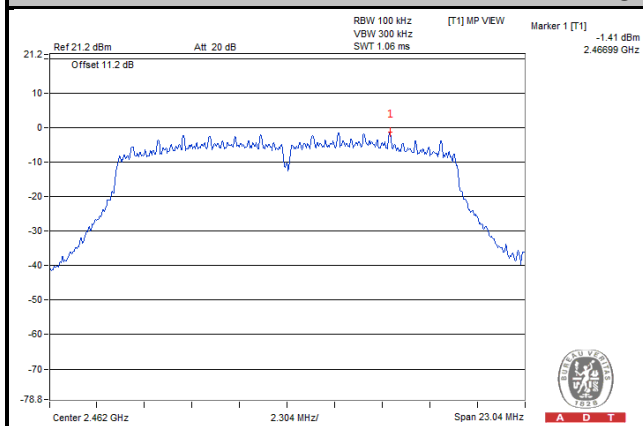
#### Ch 1



#### Ch 6



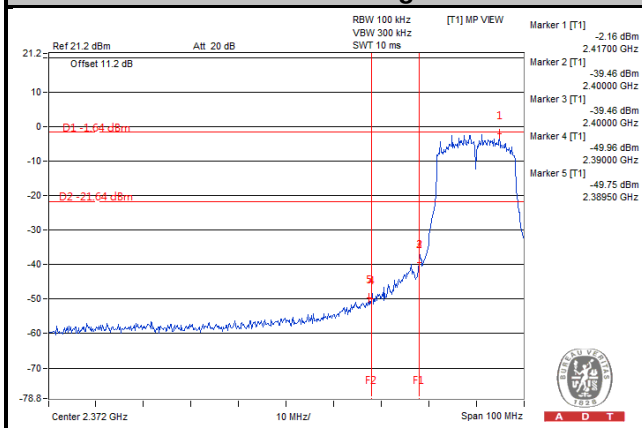
#### Ch 11



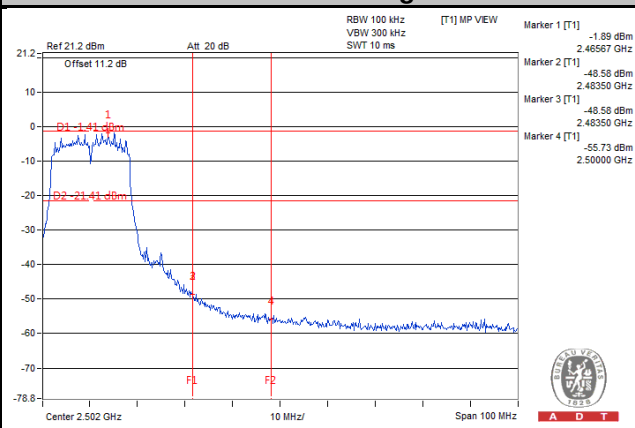


A D T

### Ch 1 Band Edge



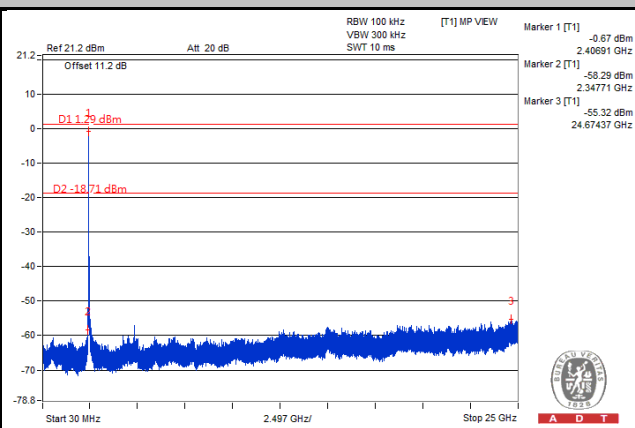
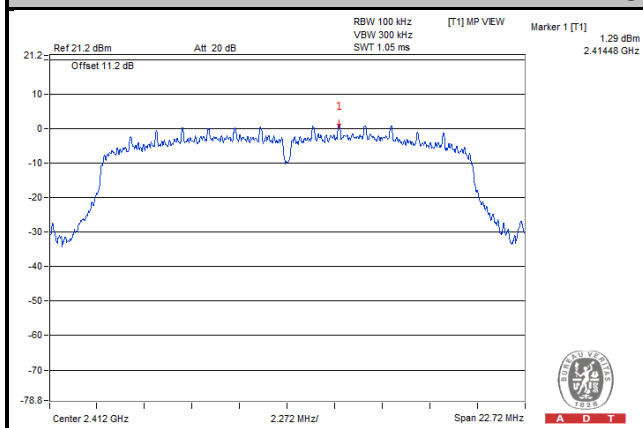
### Ch 11 Band Edge



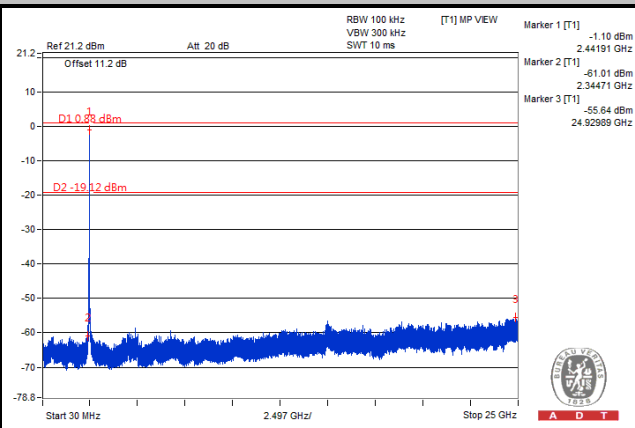
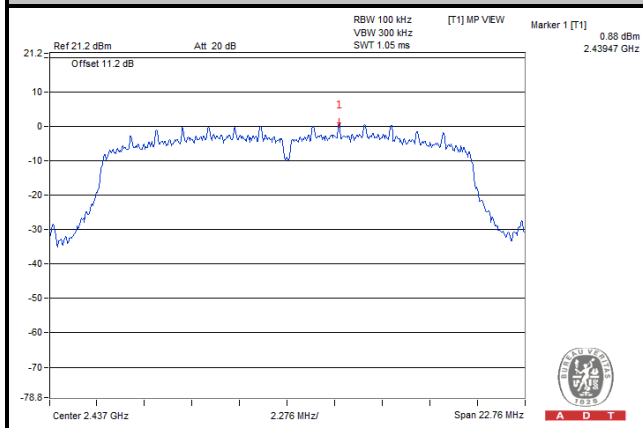


802.11n (HT20)

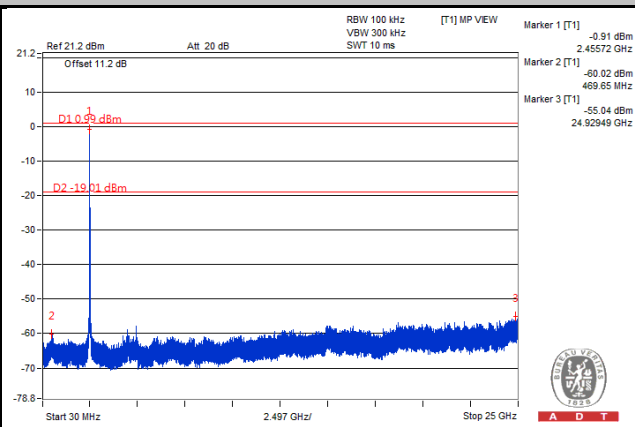
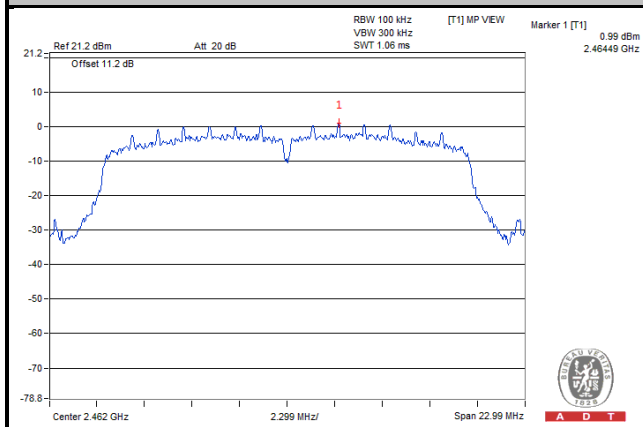
Ch 1



Ch 6

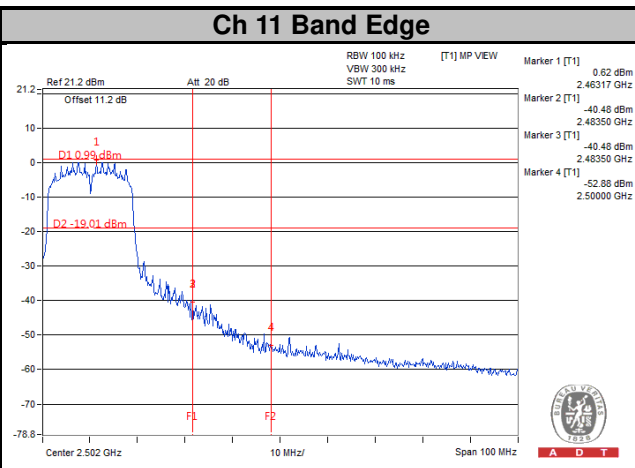
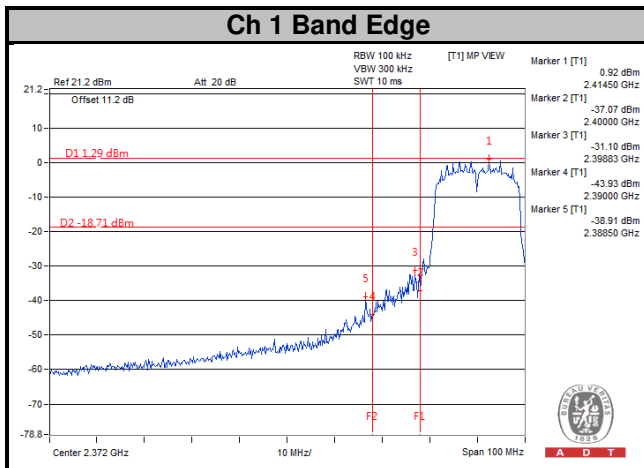


Ch 11



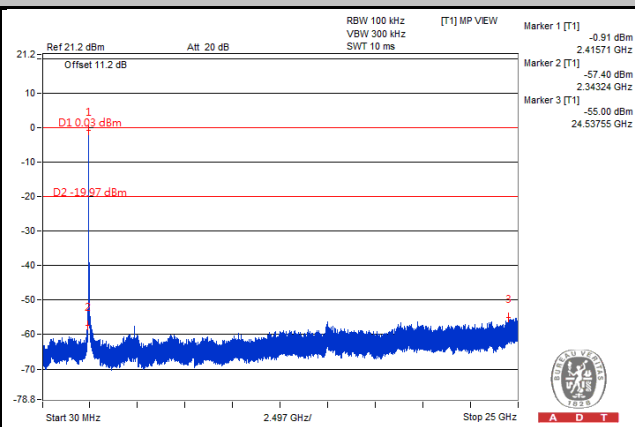
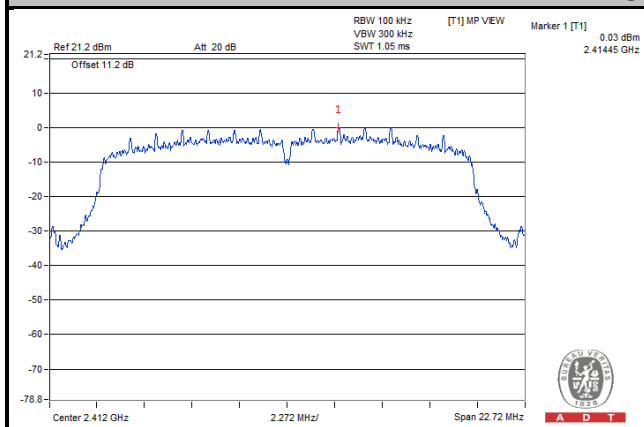


A D T

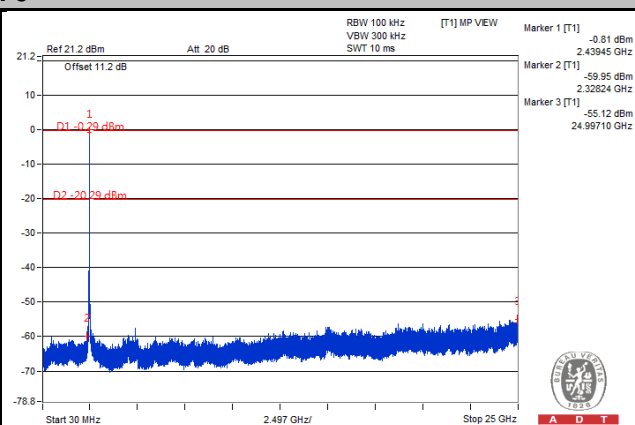
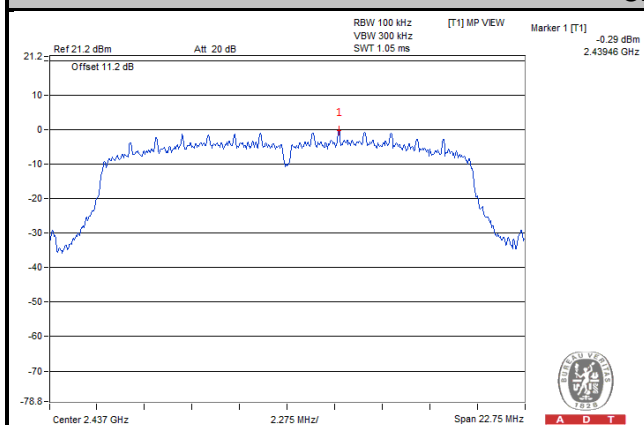


CHAIN 0

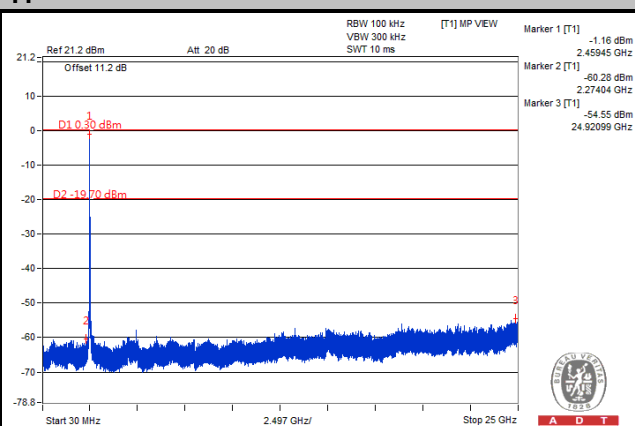
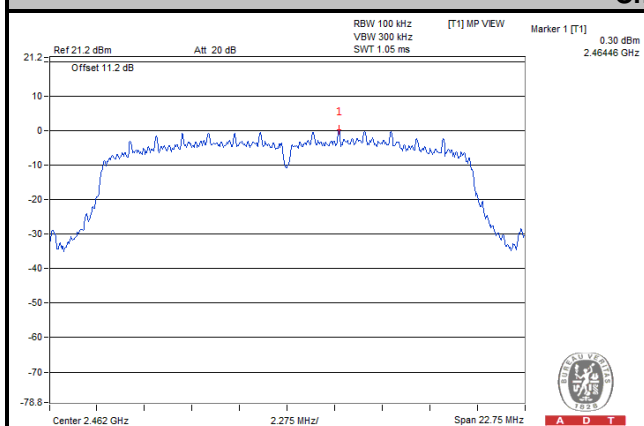
Ch 1



Ch 6

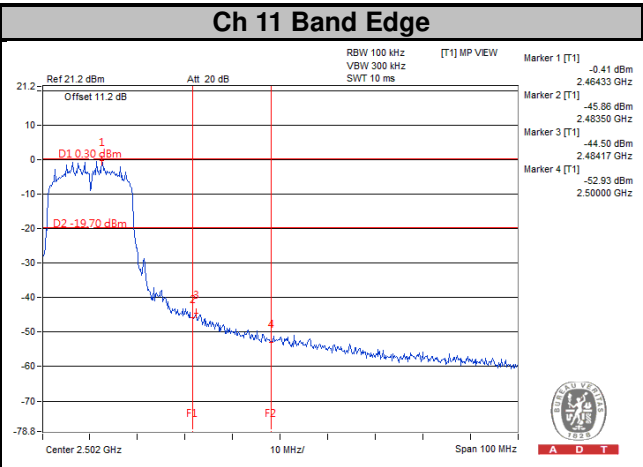
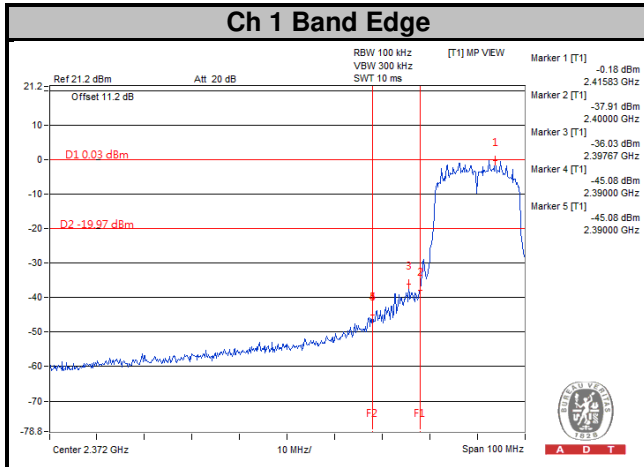


Ch 11



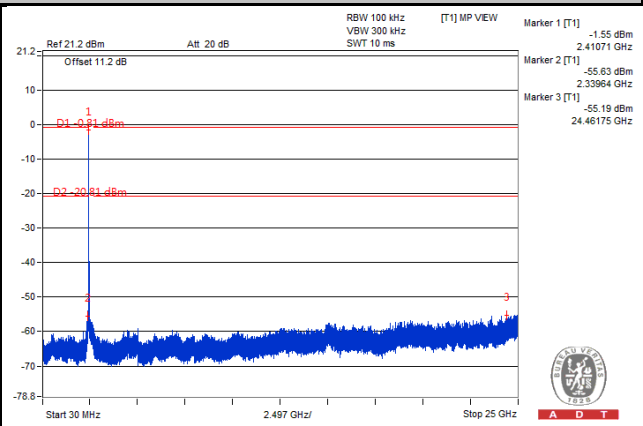
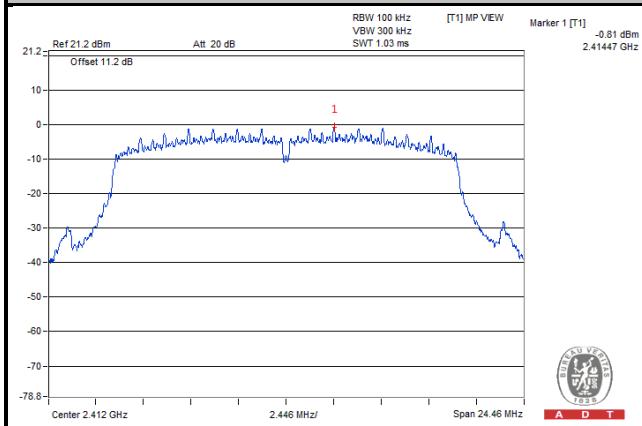


A D T

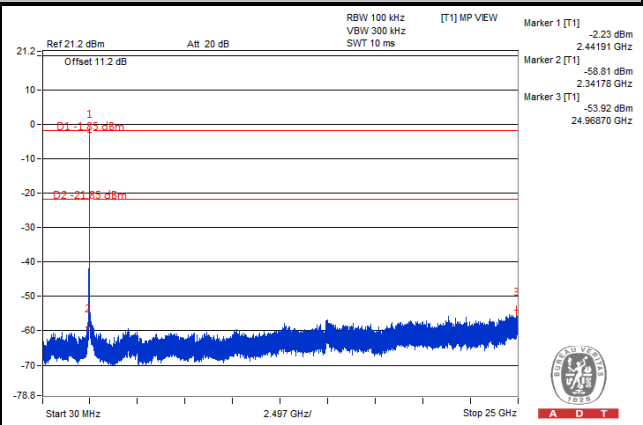
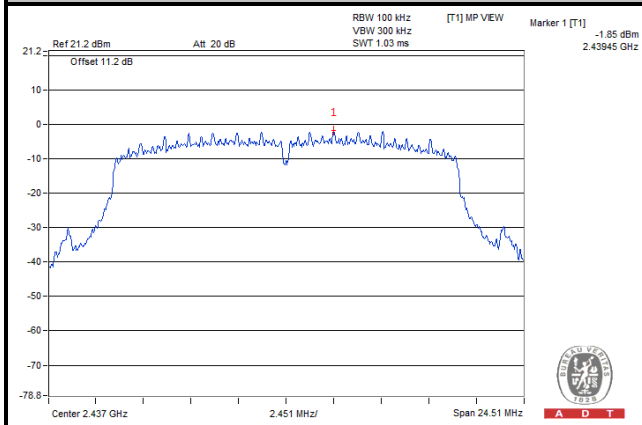


CHAIN 1

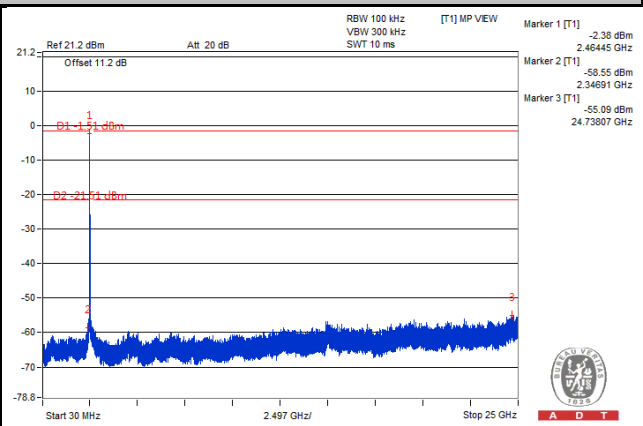
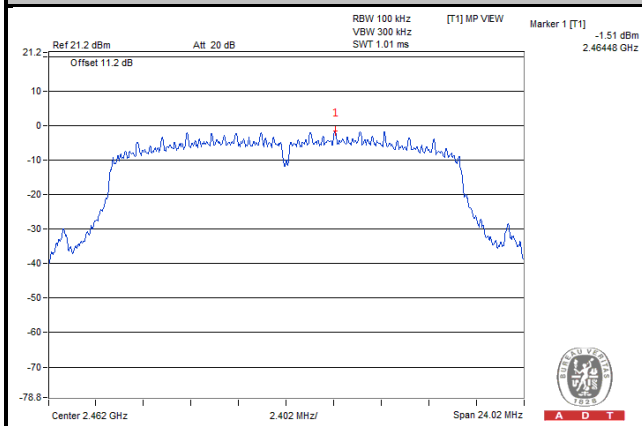
Ch 1



Ch 6

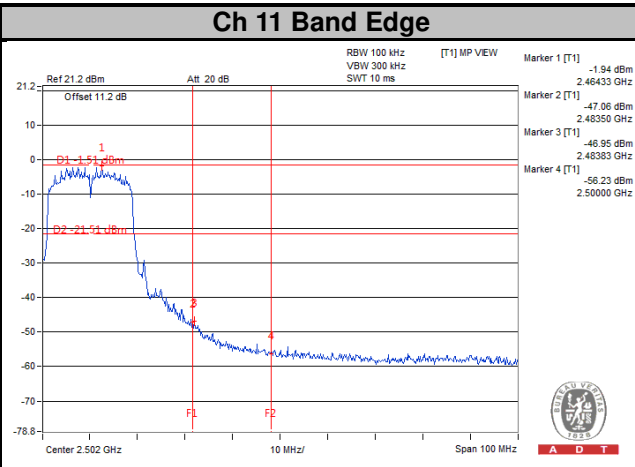
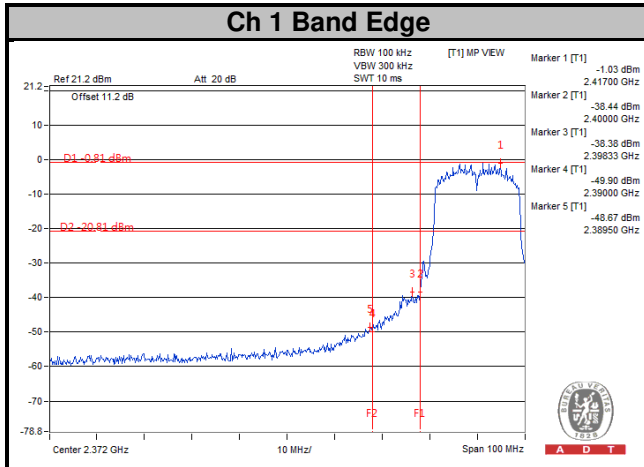


Ch 11





A D T



## 5 Pictures of Test Arrangements

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

## Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Fax: 886-2-26051924

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**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

The address and road map of all our labs can be found in our web site also.

--- END ---