

# FCC/IC RF Test Report

**APPLICANT** : Atheros Communications, Inc.  
**EQUIPMENT** : 802.11b/g/n WLAN + Bluetooth Combo module  
**BRAND NAME** : Atheros  
**MODEL NAME** : ARS42-SB  
**FCC ID** : PPD-ARS42SB  
**IC** : 4104A-ARS42  
**STANDARD** : FCC Part 15 Subpart C §15.247  
IC RSS-210 Issue 8  
**CLASSIFICATION** : Digital Transmission System (DTS)

The WiFi + Bluetooth module was tested on extended card inserted to a host laptop PC. The product was received on Feb. 15, 2011 and completely tested on Mar. 21, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shows the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Roy Wu / Manager



## **SPORTON INTERNATIONAL INC.**

**No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.**

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SPORTON INTERNATIONAL INC.

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FCC ID : PPD-ARS42SB

IC : 4104A-ARS42

Page Number : 1 of 103

Report Issued Date : Apr. 07, 2011

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## SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth Measurement	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.4.1	99% Bandwidth Measurement	-	N/A	-
3.2	15.247(e)	A8.2(b)	Power Spectral Density Measurement	$\leq 8\text{dBm}$	Pass	-
3.3	-	-	Average Power Measurement	-	N/A	-
3.4	15.247(b)	A8.4	Peak Power Measurement	$\leq 30\text{dBm}$	Pass	-
3.5	15.247(d)	A8.5	Conducted Spurious Emission Measurement	$< 20\text{ dBc}$	Pass	-
3.6	15.247(d)	A8.5	Band Edges Measurement	$\leq 20\text{dBc}$	Pass	-
3.7	15.247(d)	A8.5	Radiated Emission Measurement	15.209(a) & 15.247(d)	Pass	Under limit 0.52 dB at 2483.5 MHz
3.8	15.207	Gen 7.2.2	AC Conducted Emission Measurement	15.207(a)	Pass	Under limit 17.1 dB at 0.19 MHz



# 1 General Description

## 1.1 Applicant

**Atheros Communications, Inc.**

1700 Technology Drive, San Jose, CA 95110, United States

## 1.2 Manufacturer

**Atheros Communications, Inc.**

1700 Technology Drive, San Jose, CA 95110, United States

## 1.3 Testing Site Facilities

<b>Test Site</b>	SPORTON INTERNATIONAL INC.		
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
<b>Test Site No.</b>	<b>Sporton Site No.</b>		<b>FCC/IC Registration No.</b>
	CO05-HY	03CH07-HY	TW1022/4086B-1

## 1.4 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- RSS-210 Issue 8
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.



### 1.5 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
2.	Notebook	DELL	Larirude E4300	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m



## 2 Equipment Under Test

### 2.1 General Information of EUT

Product Feature & Specification	
Equipment	802.11b/g/n WLAN + Bluetooth Combo module
Brand Name	Atheros
Model Name	ARS42-SB
Sample 1	EUT Support Bluetooth and 802.11b/g/n fuction
Sample 2	EUT Support 802.11b/g/n fuction only
FCC ID	PPD-ARS42SB
IC	4104A-ARS42
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Channel Spacing	5 MHz
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

**Remark:**

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 2.2 Maximum Output Power

### 2.2.1 Average Conducted Power

The device has the maximum average conducted power as below:

Frequency Range (MHz)	Mode	2.4G band RF Power (dBm)
2412 ~ 2462	802.11b	18.16
2412 ~ 2462	802.11g	17.93
2412 ~ 2462	802.11n HT-20	17.89

### 2.2.2 Peak Power

The device has the maximum peak power as below:

Frequency Range (MHz)	Mode	2.4G band RF Power (dBm)
2412 ~ 2462	802.11b	20.41
2412 ~ 2462	802.11g	23.52
2412 ~ 2462	802.11n HT-20	23.62

## 2.3 Antenna Information

Brand / Model Name	Type	Frequency Range (MHz)	Antenna Gain (dBi)
Wistron Neweb Corporation / EBJ	PIFA	2400 ~ 2500	3.62





## 2.4 Worst-case Configuration and Test Mode

The WiFi module was tested as a modular. The module was tested outside of the laptop via an extender.

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

### WORST-CASE CONFIGURATION AND MODE

The worst-case data rates are determined to be as follows for each mode, based on the investigations by measuring the average power, peak power and PPSD across all the data rates, bandwidths, modulations and spatial stream modes.

Thus all tests were made with following data rates:

802.11b mode, 20 MHz Channel Bandwidth, 5.5 Mb/s, CCK Modulation:

802.11g mode, 20 MHz Channel Bandwidth, 9 Mb/s, OFDM Modulation:

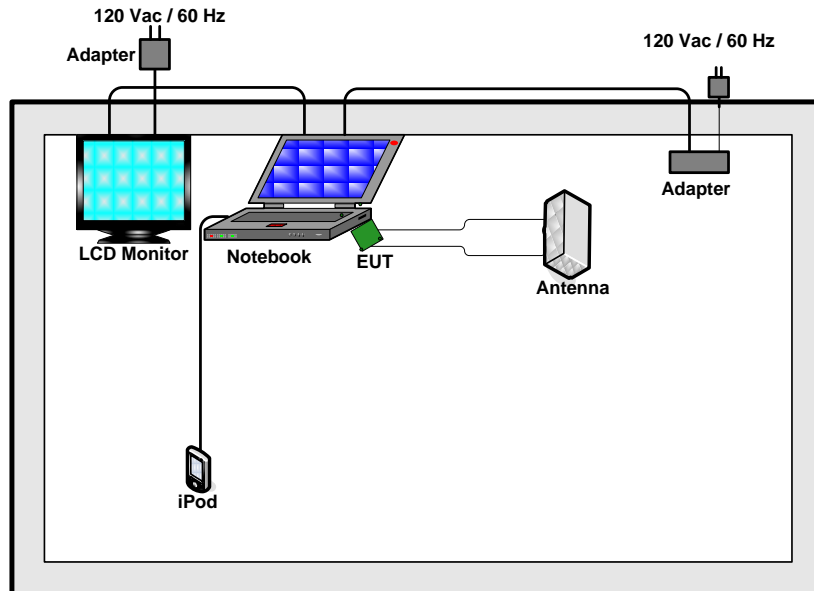
802.11a mode, 20 MHz Channel Bandwidth, 9 Mb/s, OFDM Modulation;

802.11n HT20 mode, 20 MHz Channel Bandwidth, MCS0, 6.5 Mb/s, OFDM Modulation;

802.11n HT40 mode, 40 MHz Channel Bandwidth, MCS0, 13.5 Mb/s, OFDM Modulation;

This device has been evaluated as module of mobile device, as well as portable device. Therefore, for radiated spurious emission, the EUT antenna has been tested in X, Y and Z axis to simulate mobile and portable position. The worst case position is Y-axis, only data from Y-axis was recorded in this report.

## 2.5 Connection Diagram of Test System



## 2.6 Test Software

The programmed RF utility "Art" is installed in notebook to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

### 3 Test Result

#### 3.1 6dB and 99% Bandwidth Measurement

##### 3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

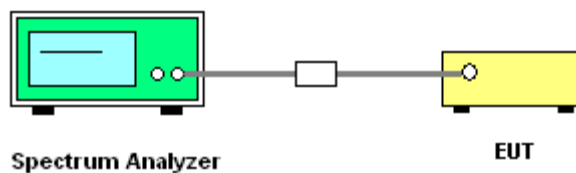
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

##### 3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b L/M/H channel	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.28	0.5	Pass
06	2437	9.88	0.5	Pass
11	2462	10.16	0.5	Pass

Test Mode :	802.11g L/M/H channel	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.32	0.5	Pass
06	2437	16.04	0.5	Pass
11	2462	15.92	0.5	Pass

Test Mode :	802.11n (HT-20) L/M/H channel	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (HT-20) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.56	0.5	Pass
06	2437	16.62	0.5	Pass
11	2462	16.68	0.5	Pass



3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	802.11b L/M/H channel	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.16	Pass
06	2437	14.08	Pass
11	2462	14.52	Pass

Test Mode :	802.11g L/M/H channel	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.32	Pass
06	2437	22.32	Pass
11	2462	19.08	Pass

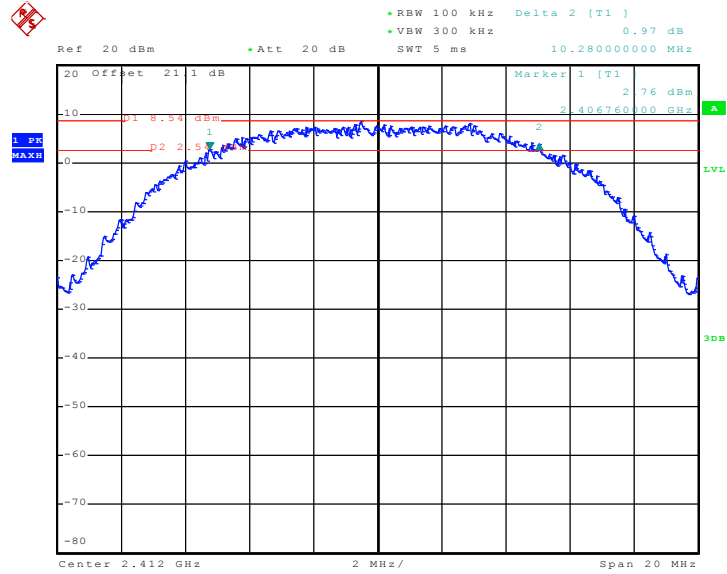
Test Mode :	802.11n (HT-20) L/M/H channel	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (HT-20) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	20.12	Pass
06	2437	22.56	Pass
11	2462	19.76	Pass



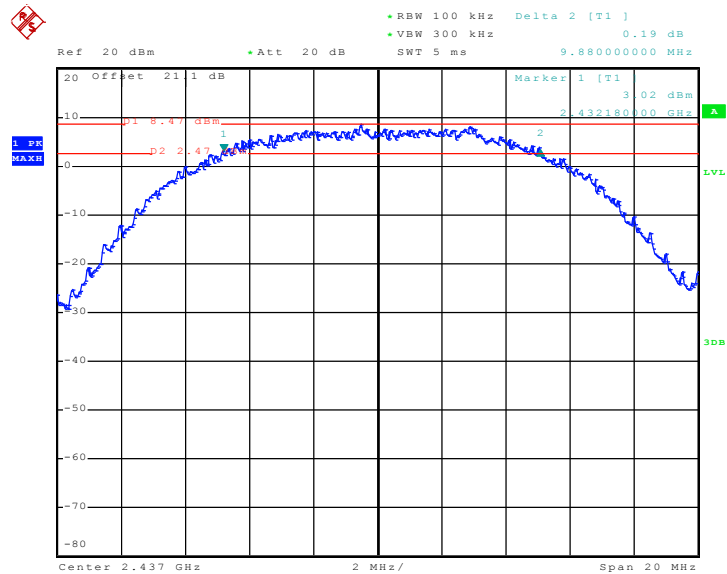
### 3.1.7 Test Result of 6dB Bandwidth Plots

#### 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 10.MAR.2011 15:22:06

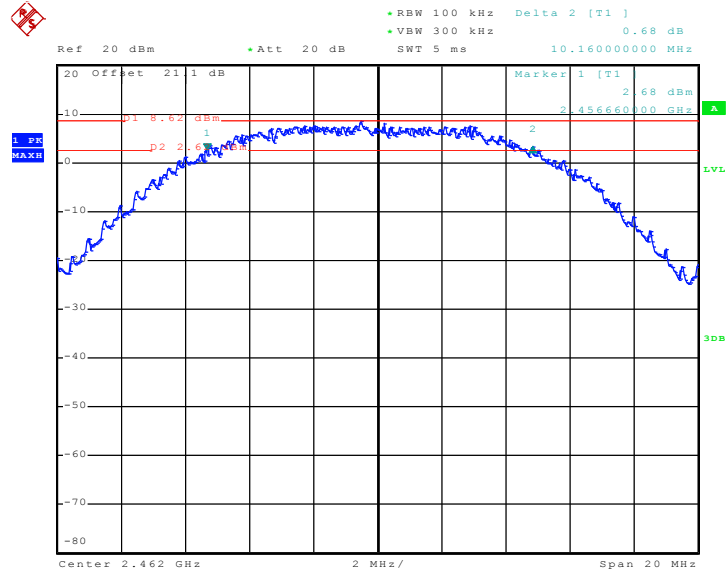
#### 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 10.MAR.2011 15:47:35

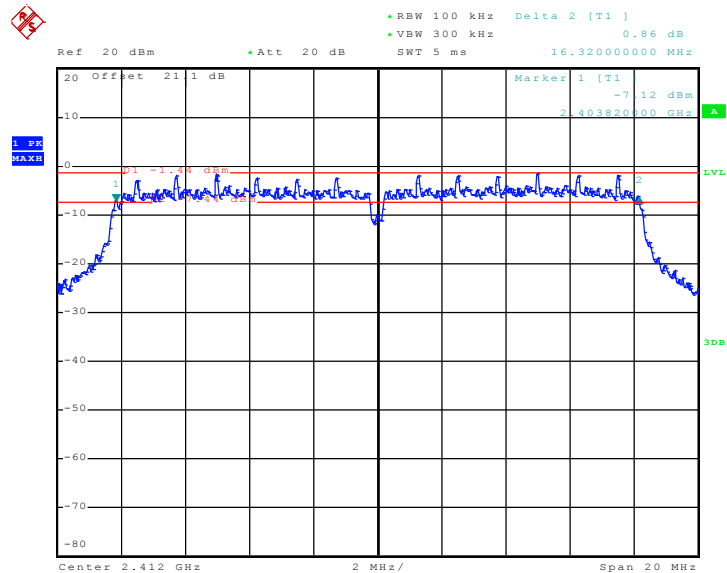


6 dB Bandwidth Plot on 802.11b Channel 11



Date: 10.MAR.2011 16:02:55

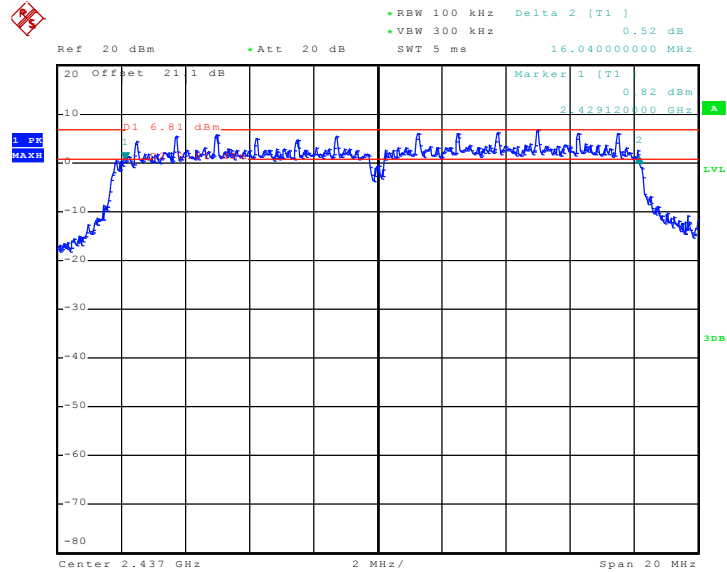
6 dB Bandwidth Plot on 802.11g Channel 01



Date: 10.MAR.2011 17:04:08

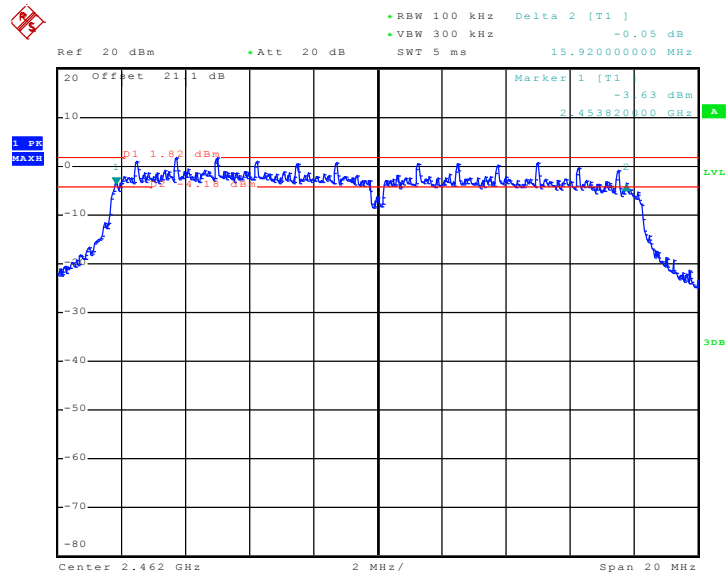


### 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 10.MAR.2011 16:33:16

### 6 dB Bandwidth Plot on 802.11g Channel 11

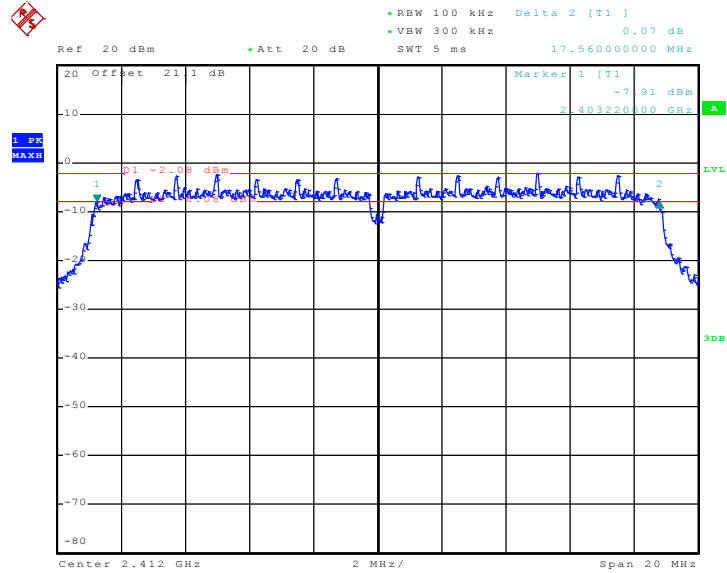


Date: 10.MAR.2011 16:19:55



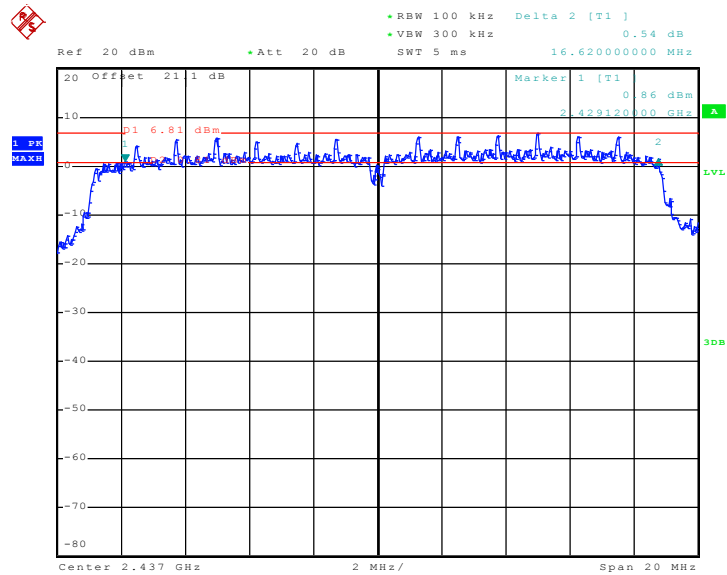


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 01



Date: 10.MAR.2011 17:11:05

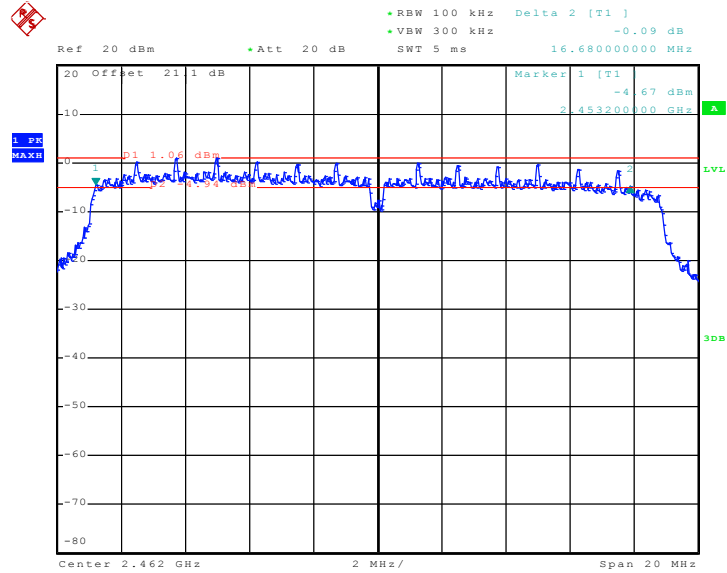
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 06



Date: 10.MAR.2011 17:51:57



6 dB Bandwidth Plot on 802.11n (HT-20) Channel 11

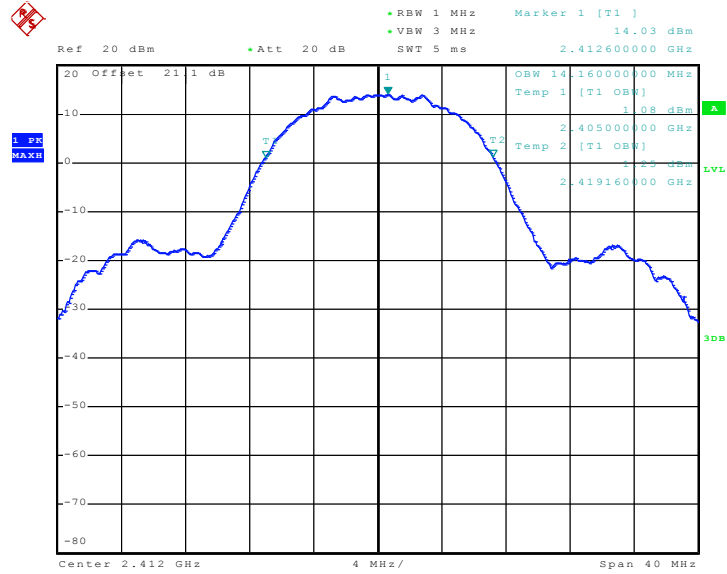


Date: 10.MAR.2011 17:38:34



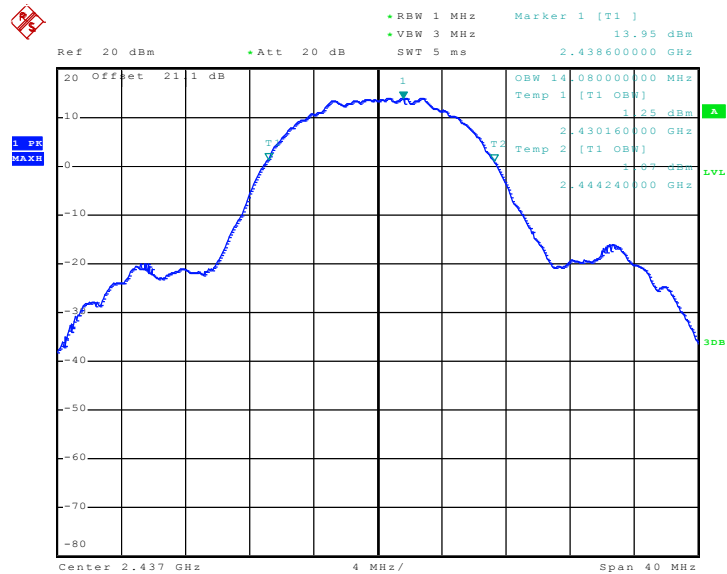
### 3.1.8 Test Result of 99% Bandwidth Plots

#### 99% Bandwidth Plot on 802.11b Channel 01



Date: 10.MAR.2011 15:23:58

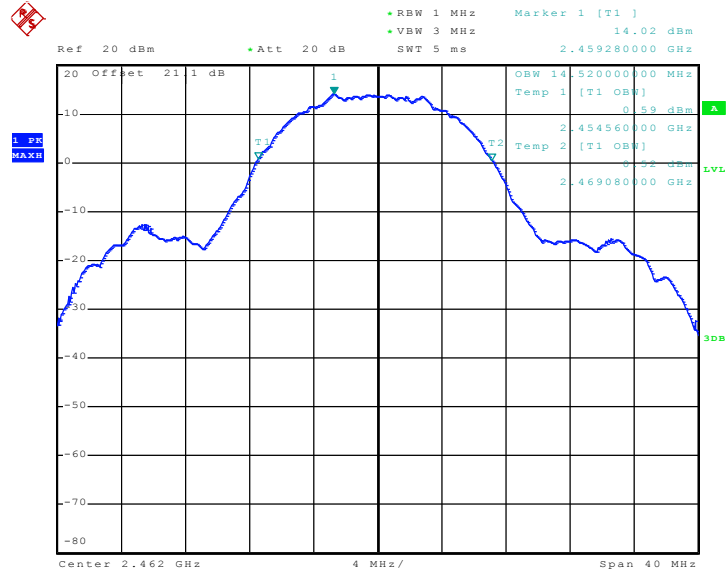
#### 99% Bandwidth Plot on 802.11b Channel 06



Date: 10.MAR.2011 15:48:20

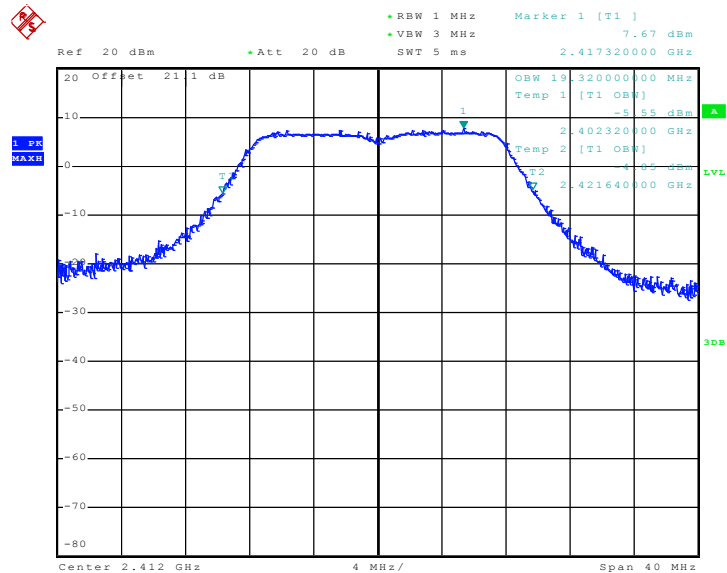


99% Bandwidth Plot on 802.11b Channel 11



Date: 10.MAR.2011 16:04:23

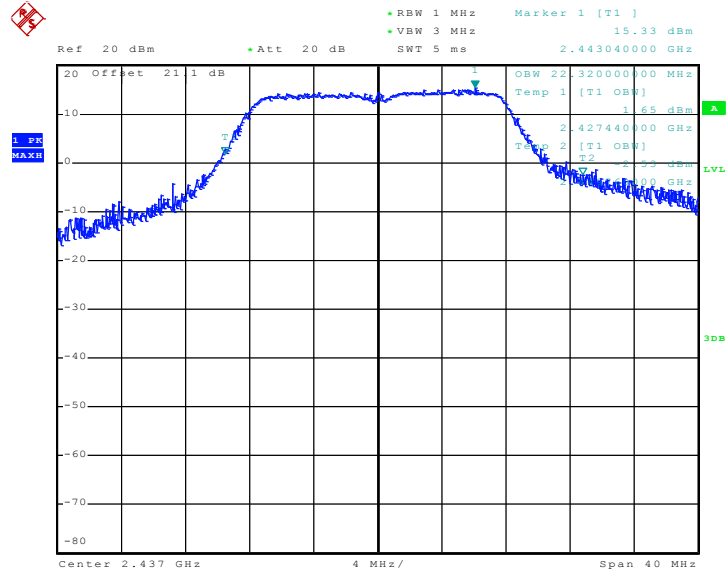
99% Bandwidth Plot on 802.11g Channel 01



Date: 10.MAR.2011 16:49:04

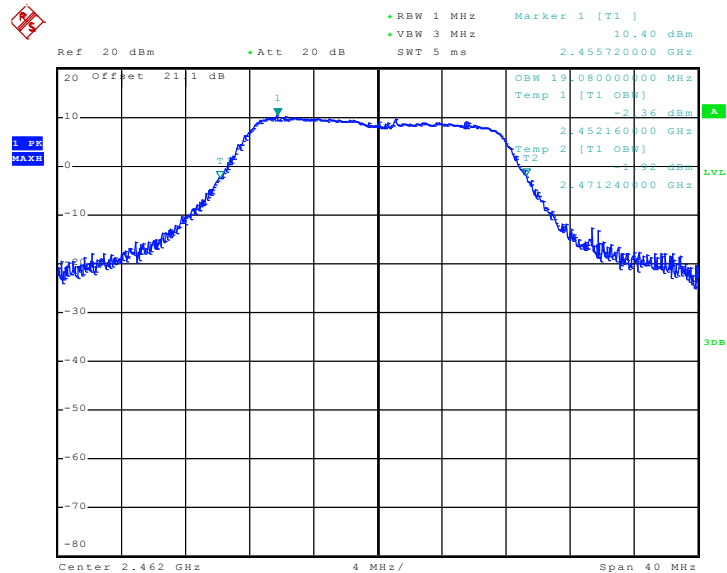


99% Bandwidth Plot on 802.11g Channel 06



Date: 10.MAR.2011 16:34:00

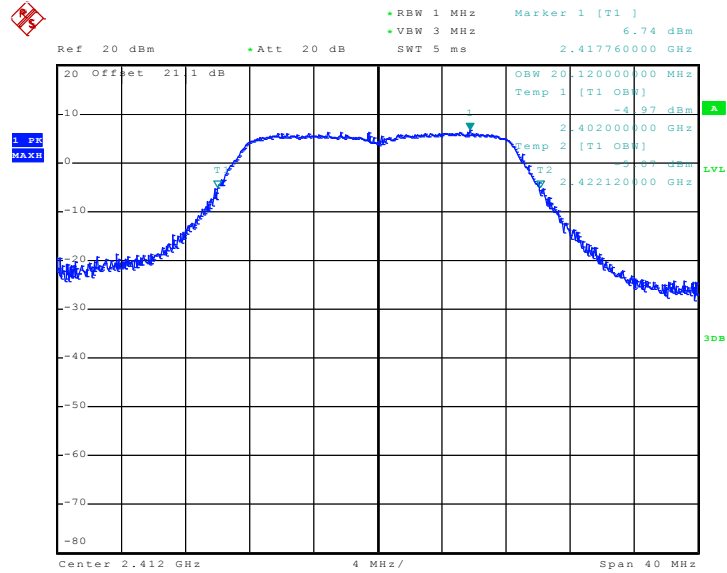
99% Bandwidth Plot on 802.11g Channel 11



Date: 10.MAR.2011 16:21:23

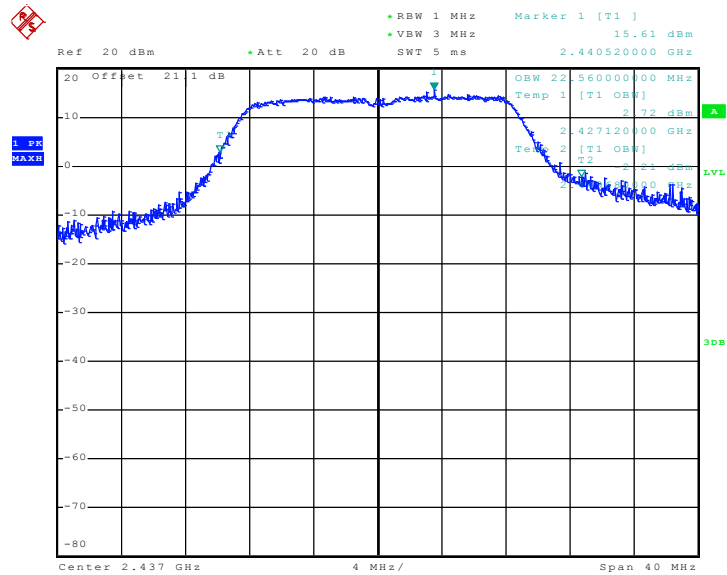


99% Bandwidth Plot on 802.11n (HT-20) Channel 01



Date: 10.MAR.2011 17:12:57

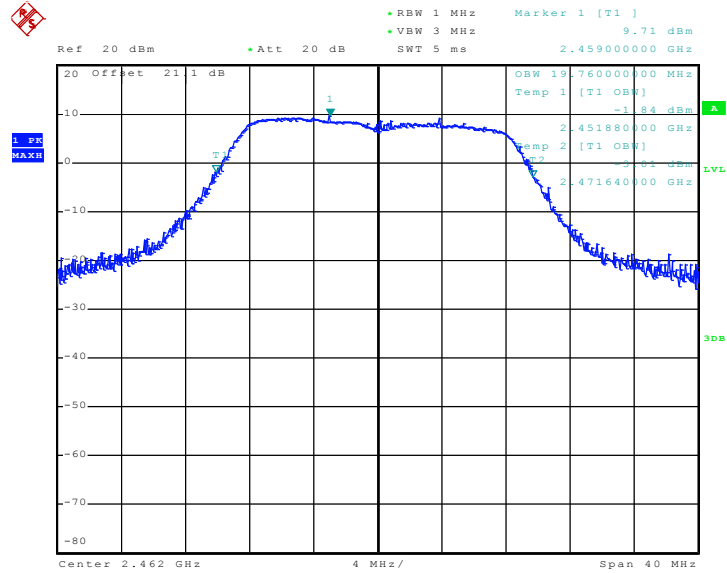
99% Bandwidth Plot on 802.11n (HT-20) Channel 06



Date: 10.MAR.2011 17:52:42



99% Bandwidth Plot on 802.11n (HT-20) Channel 11



Date: 10.MAR.2011 17:40:03

## 3.2 Power Spectral Density Measurement

### 3.2.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

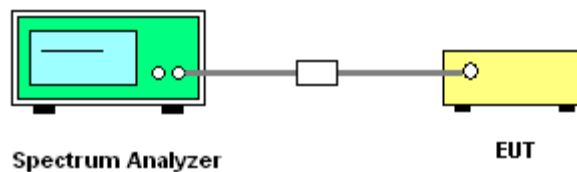
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

### 3.2.4 Test Setup







3.2.5 Test Result of Power Spectral Density

Test Mode :	802.11b L/M/H channel	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.15	8	Pass
06	2437	-6.18	8	Pass
11	2462	-6.07	8	Pass

Test Mode :	802.11g L/M/H channels	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-15.02	8	Pass
06	2437	-6.75	8	Pass
11	2462	-12.11	8	Pass

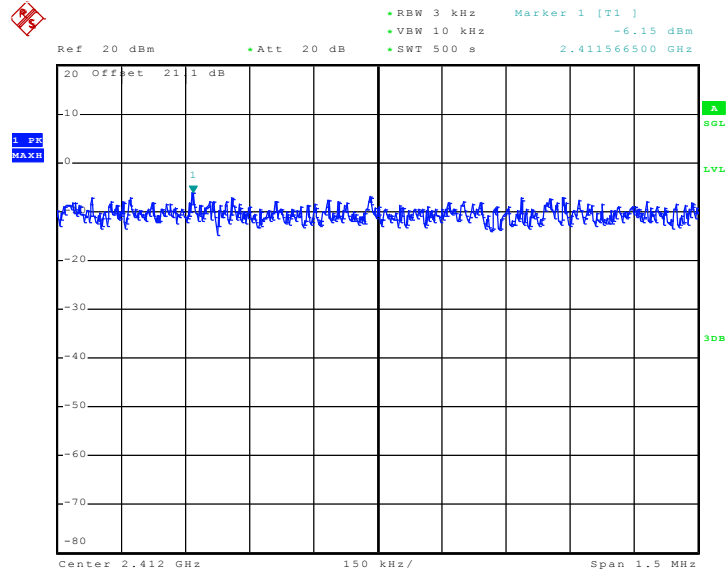
Test Mode :	802.11n (HT-20) L/M/H channel	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (HT-20) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-15.94	8	Pass
06	2437	-4.99	8	Pass
11	2462	-13.32	8	Pass



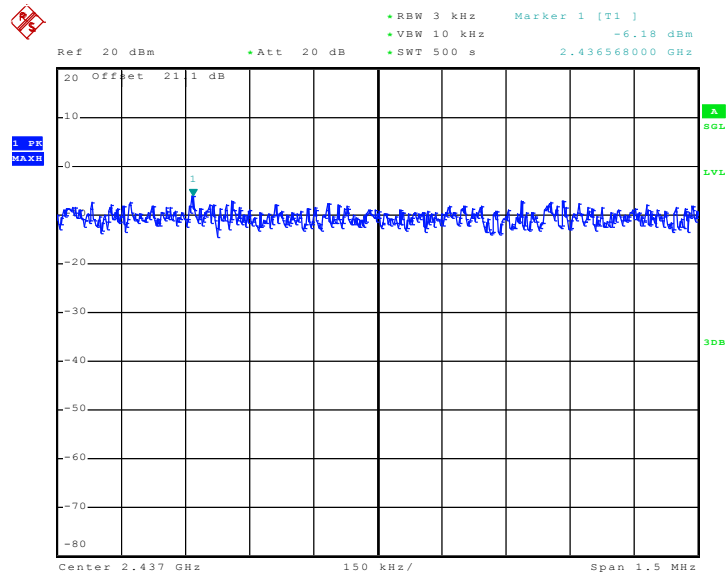
### 3.2.6 Test Result of Power Spectral Density Plots

PSD Plot on 802.11b Channel 01



Date: 10.MAR.2011 15:35:14

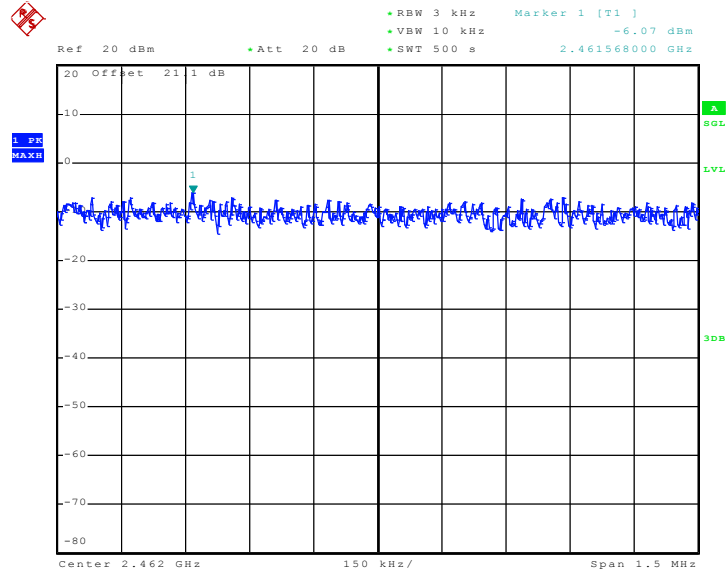
PSD Plot on 802.11b Channel 06



Date: 10.MAR.2011 15:57:06

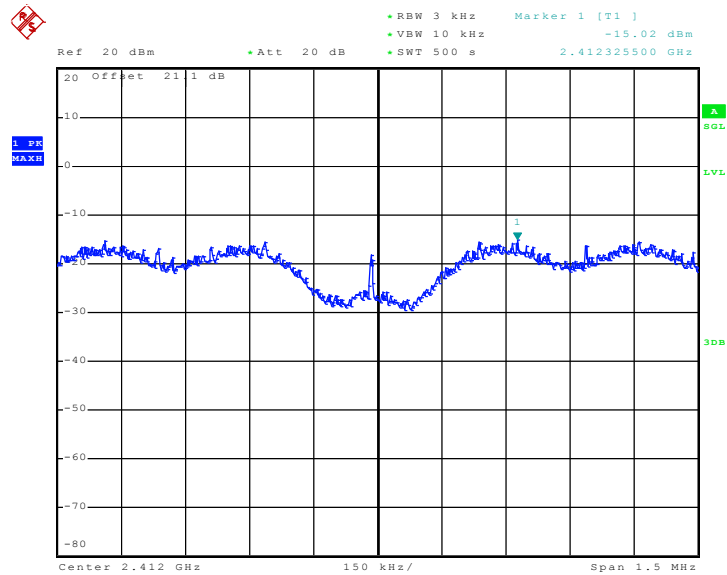


PSD Plot on 802.11b Channel 11



Date: 10.MAR.2011 16:13:29

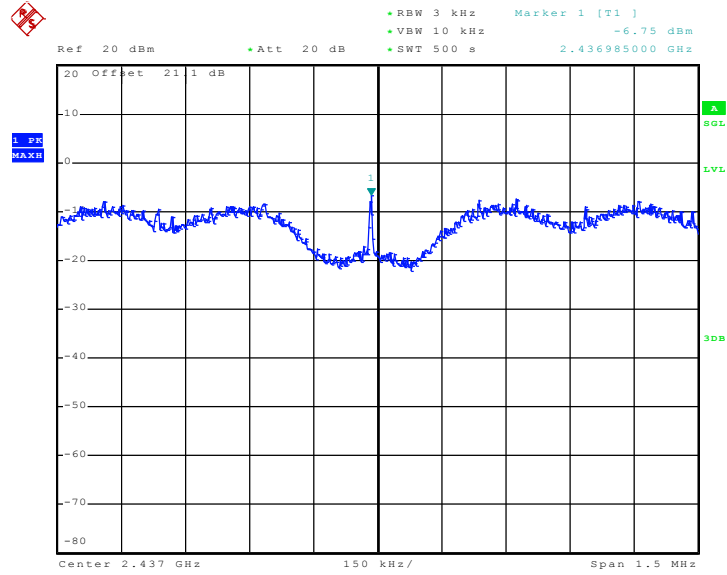
PSD Plot on 802.11g Channel 01



Date: 10.MAR.2011 17:00:03

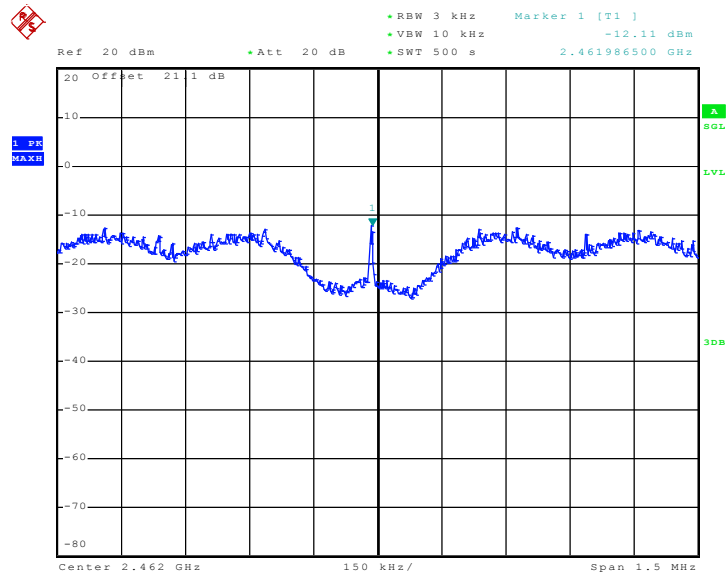


PSD Plot on 802.11g Channel 06



Date: 10.MAR.2011 16:43:18

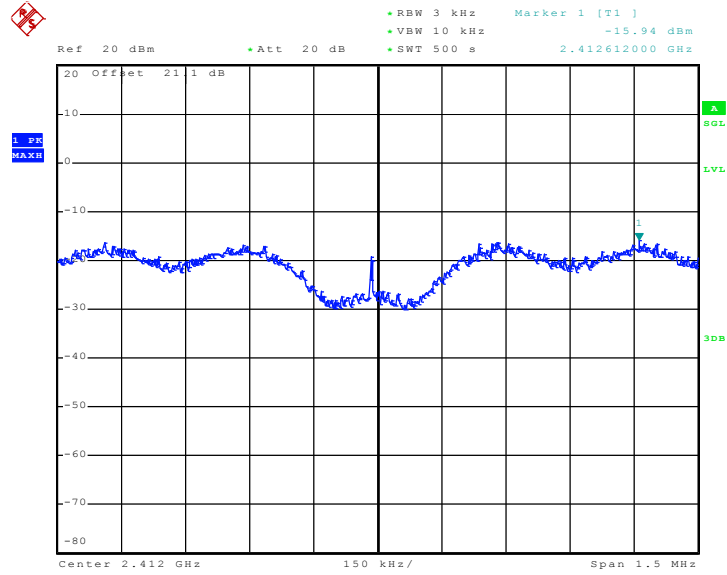
PSD Plot on 802.11g Channel 11



Date: 10.MAR.2011 16:30:19

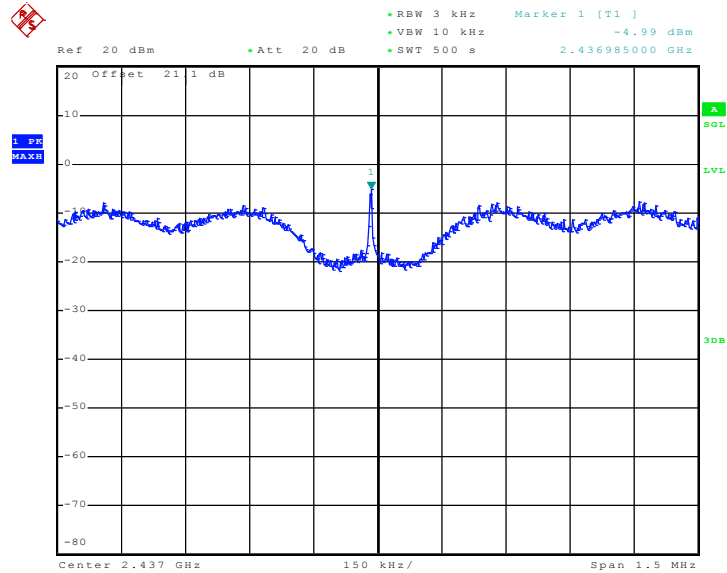


PSD Plot on 802.11n (HT-20) Channel 01



Date: 10.MAR.2011 17:30:29

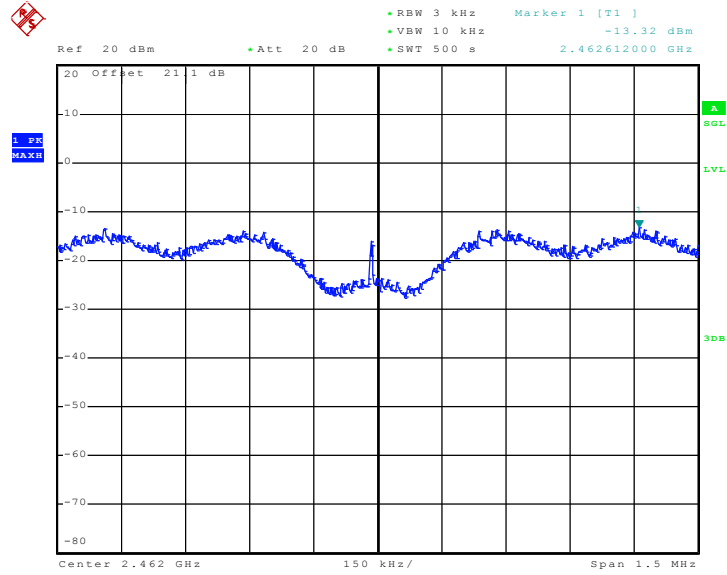
PSD Plot on 802.11n (HT-20) Channel 06



Date: 10.MAR.2011 18:01:55



PSD Plot on 802.11n (HT-20) Channel 11



Date: 10.MAR.2011 17:48:43

### 3.3 Average Power Measurement

#### 3.3.1 Limit of Average Power

None; for reporting purposes only.

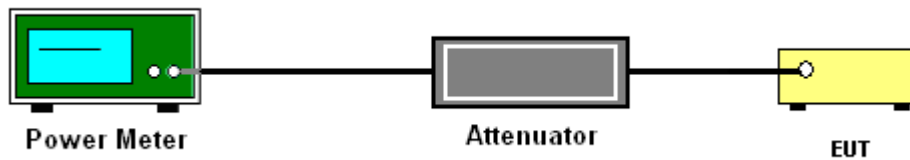
#### 3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

1. The RF output of EUT was connected to the power meter by a low loss cable.
2. Measure the power by power meter.

#### 3.3.4 Test Setup



3.3.5 Test Result of Average Power

<b>Test Mode :</b>	802.11b L/M/H channels	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Cona Huang	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)
01	2412	18.16
06	2437	18.04
11	2462	18.01

<b>Test Mode :</b>	802.11g L/M/H channels	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Cona Huang	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)
01	2412	10.45
06	2437	17.93
11	2462	12.39

<b>Test Mode :</b>	802.11n (HT-20) L/M/H channels	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Cona Huang	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11n (HT-20) Measured Output Power (dBm)
01	2412	9.76
06	2437	17.89
11	2462	11.66



## 3.4 Peak Power Measurement

### 3.4.1 Limit of Peak Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of P-to-M operation, the limit has to be reduced by 1dB for every 1dB that the directional gain of the antenna exceeds 6dBi.

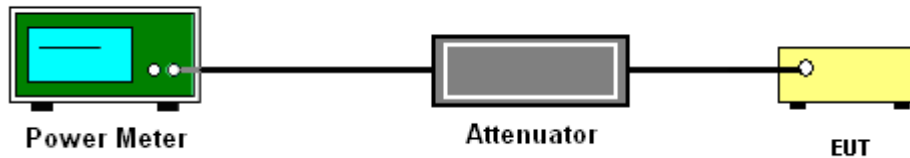
### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.4.3 Test Procedures

3. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
4. The RF output of EUT was connected to the power meter by a low loss cable.
5. Measure the power by power meter.

### 3.4.4 Test Setup





3.4.5 Test Result of Peak Power

<b>Test Mode :</b>	802.11b L/M/H channels	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Cona Huang	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.41	30	Pass
06	2437	20.18	30	Pass
11	2462	20.09	30	Pass

<b>Test Mode :</b>	802.11g L/M/H channels	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Cona Huang	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.16	30	Pass
06	2437	23.52	30	Pass
11	2462	20.62	30	Pass

<b>Test Mode :</b>	802.11n (HT-20) L/M/H channels	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Cona Huang	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11n (HT-20) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.52	30	Pass
06	2437	23.62	30	Pass
11	2462	20.20	30	Pass

## 3.5 Conducted Spurious Emission Measurement

### 3.5.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

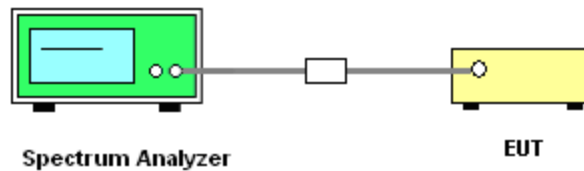
### 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.5.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, VBW = 300kHz, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

### 3.5.4 Test Setup

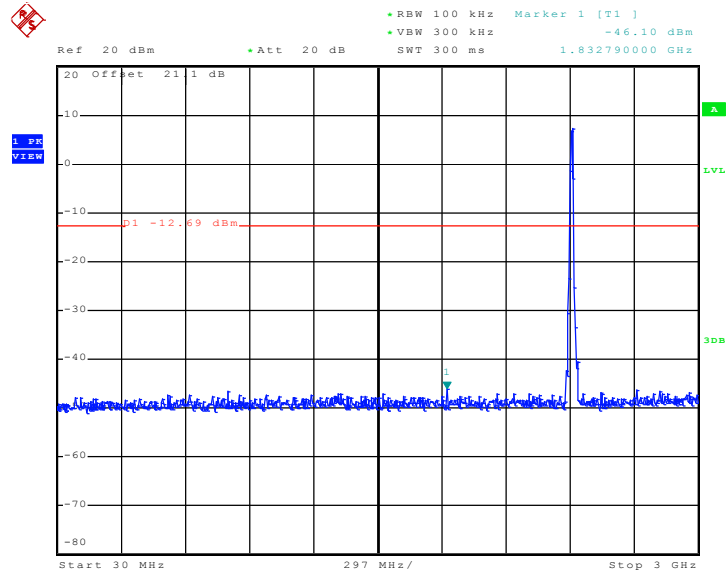




### 3.5.5 Test Result

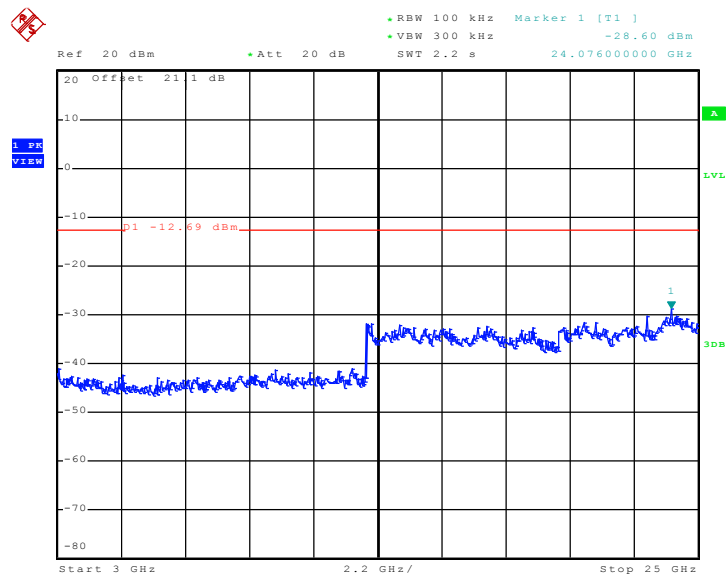
Test Mode :	802.11b L/M/H channels	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Cona Huang

Conducted Spurious Emission Plot on 802.11b Channel 01



Date: 10.MAR.2011 16:00:22

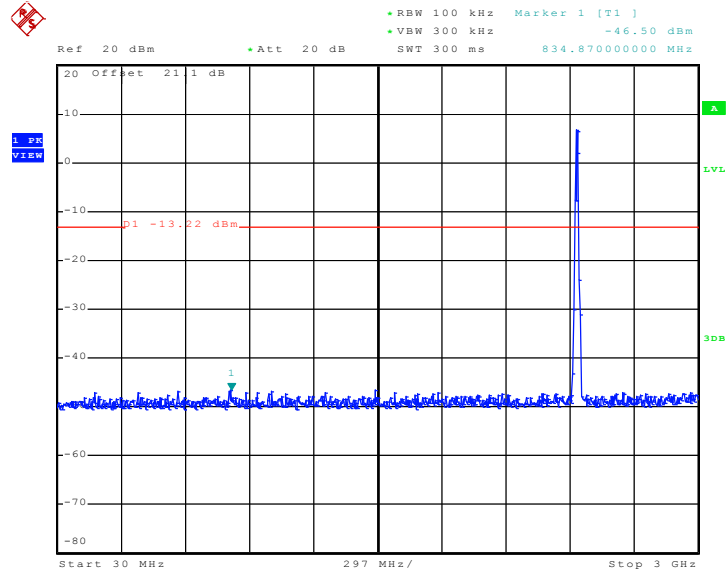
Conducted Spurious Emission Plot on 802.11b Channel 01



Date: 10.MAR.2011 16:00:40

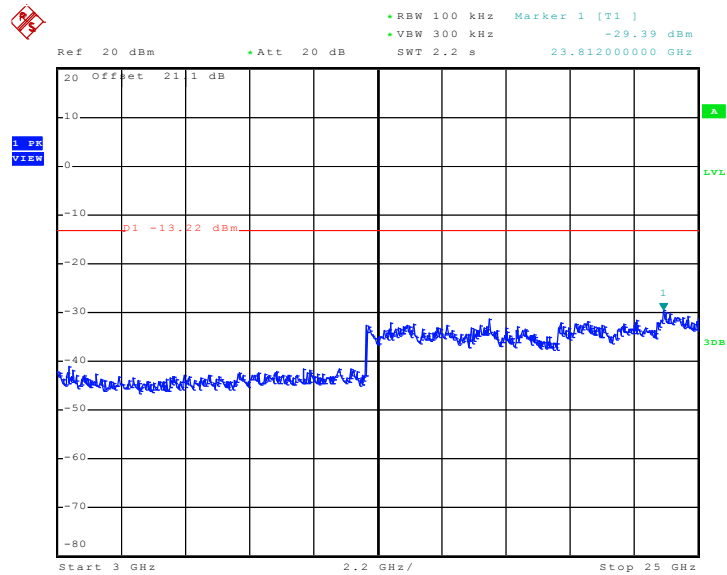


Conducted Spurious Emission Plot on 802.11b Channel 06



Date: 10.MAR.2011 15:59:28

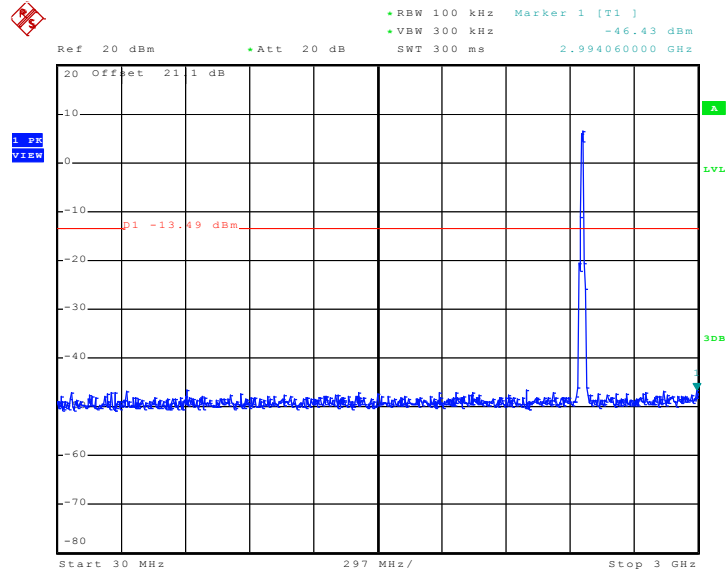
Conducted Spurious Emission Plot on 802.11b Channel 06



Date: 10.MAR.2011 15:59:46

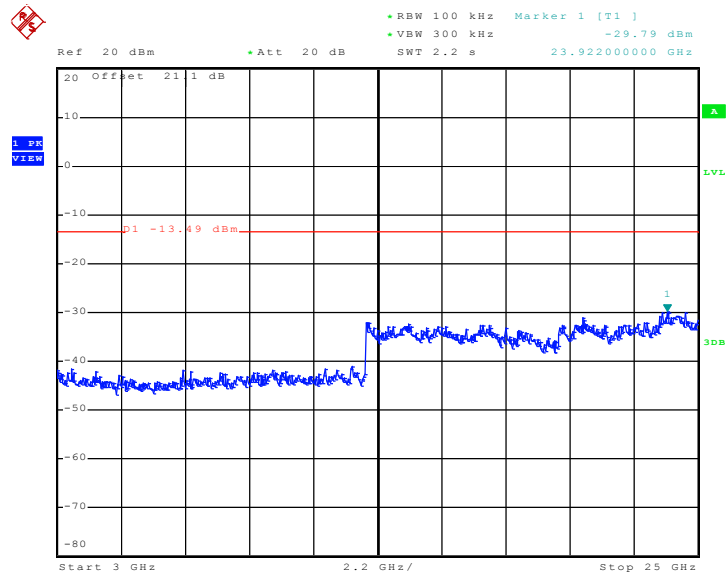


Conducted Spurious Emission Plot on 802.11b Channel 11



Date: 10.MAR.2011 16:14:35

Conducted Spurious Emission Plot on 802.11b Channel 11

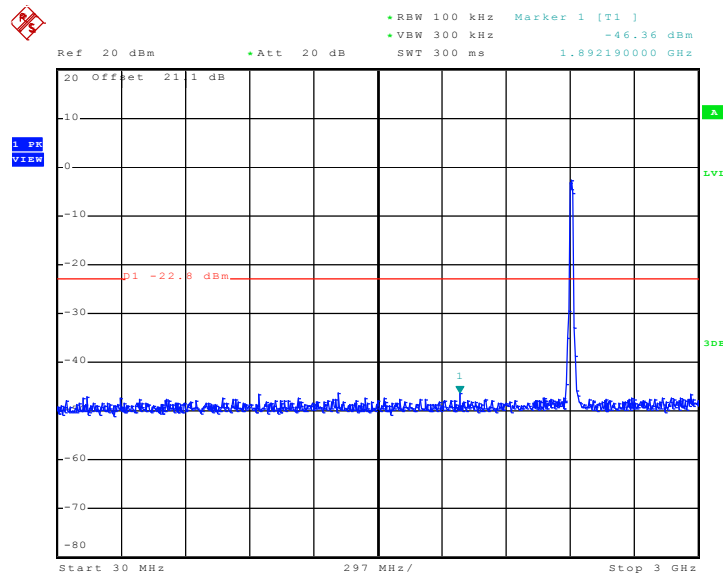


Date: 10.MAR.2011 16:14:53



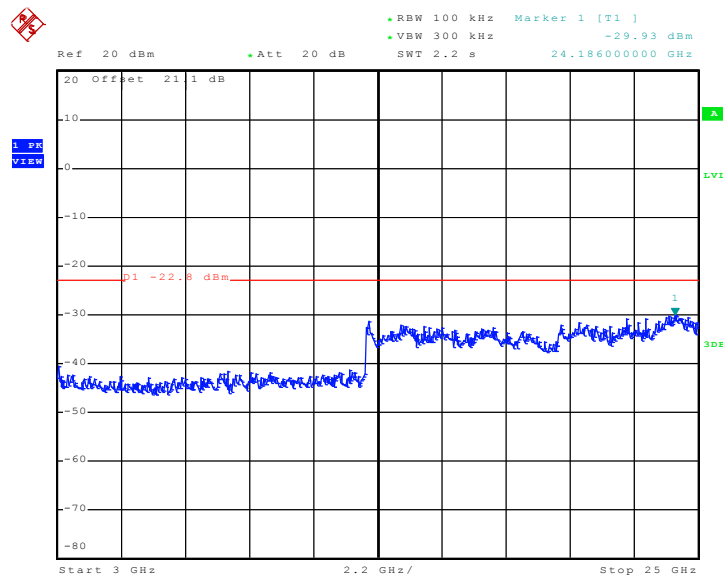
Test Mode :	802.11g L/M/H channels	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Cona Huang

Conducted Spurious Emission Plot on 802.11g Channel 01



Date: 10.MAR.2011 17:00:26

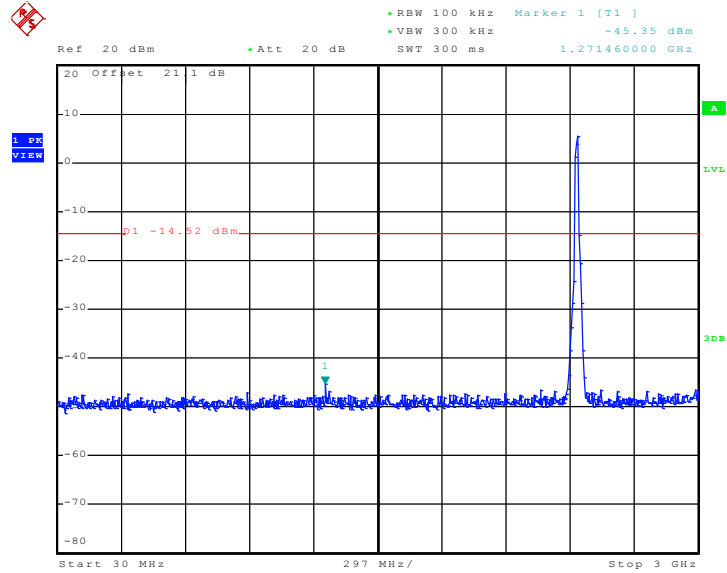
Conducted Spurious Emission Plot on 802.11g Channel 01



Date: 10.MAR.2011 17:00:44

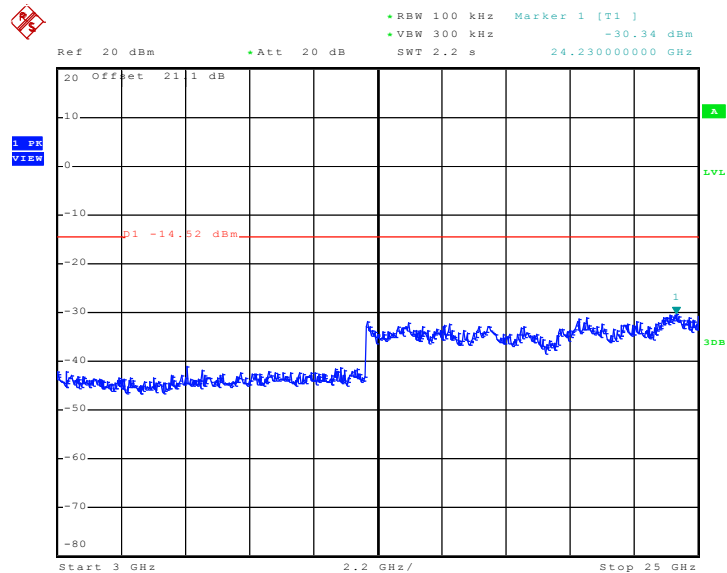


Conducted Spurious Emission Plot on 802.11g Channel 06



Date: 10.MAR.2011 16:43:41

Conducted Spurious Emission Plot on 802.11g Channel 06

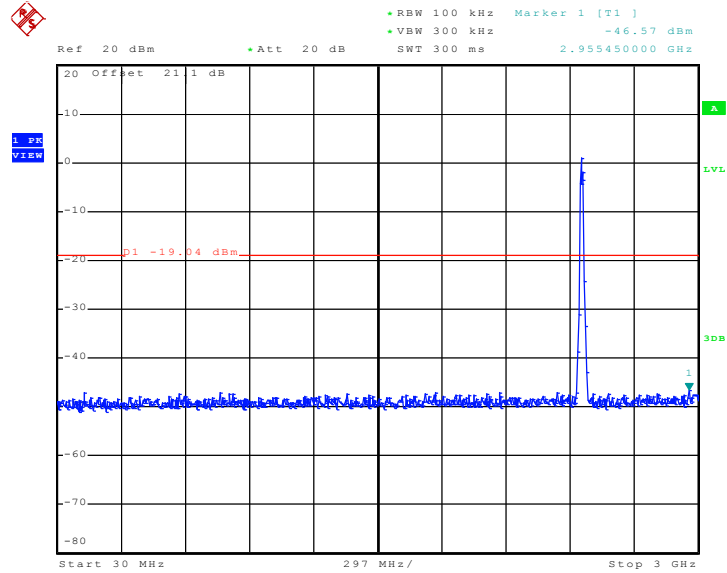


Date: 10.MAR.2011 16:43:59



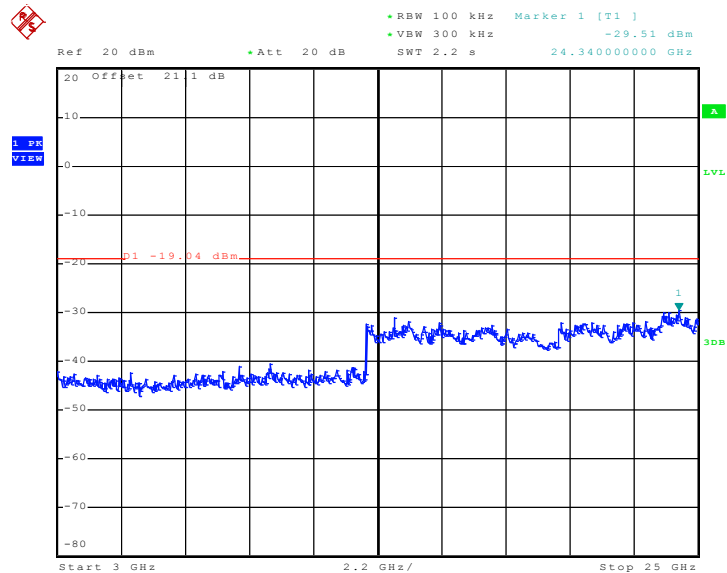


Conducted Spurious Emission Plot on 802.11g Channel 11



Date: 10.MAR.2011 16:30:41

Conducted Spurious Emission Plot on 802.11g Channel 11

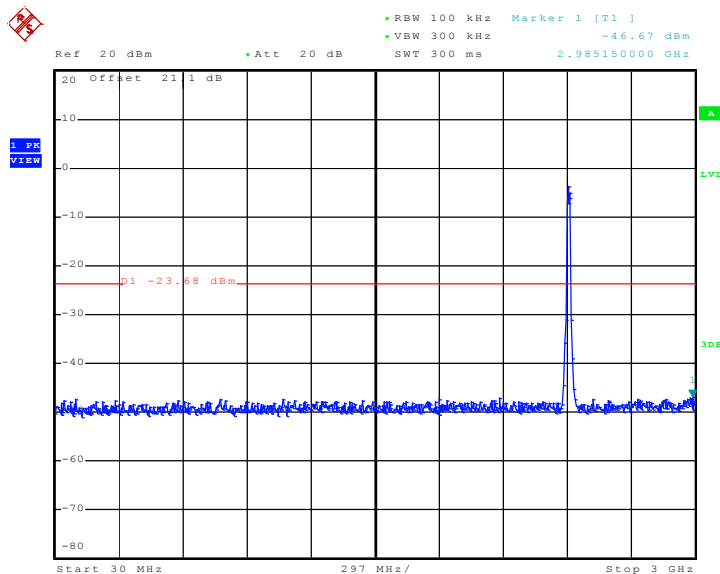


Date: 10.MAR.2011 16:30:59



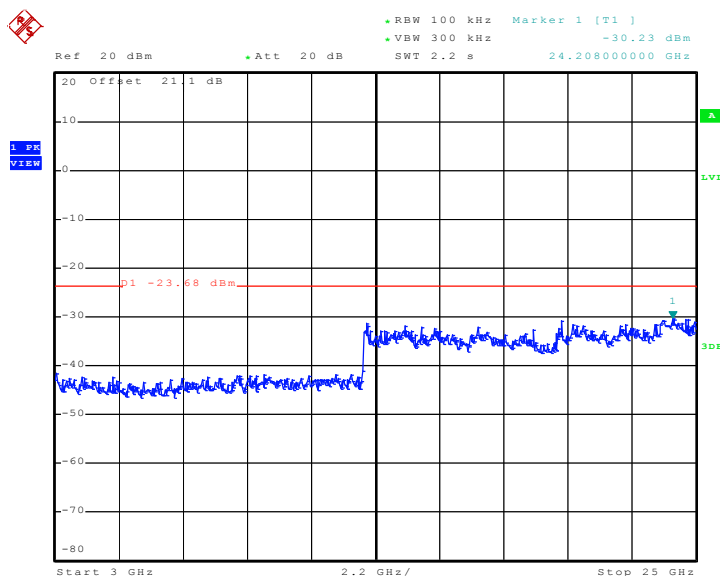
Test Mode :	802.11n (HT-20) L/M/H channel	Temperature :	24~26°C
Test Band :	802.11n (HT-20)	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Cona Huang

Conducted Spurious Emission Plot on 802.11n (HT-20) Channel 01



Date: 10.MAR.2011 17:30:51

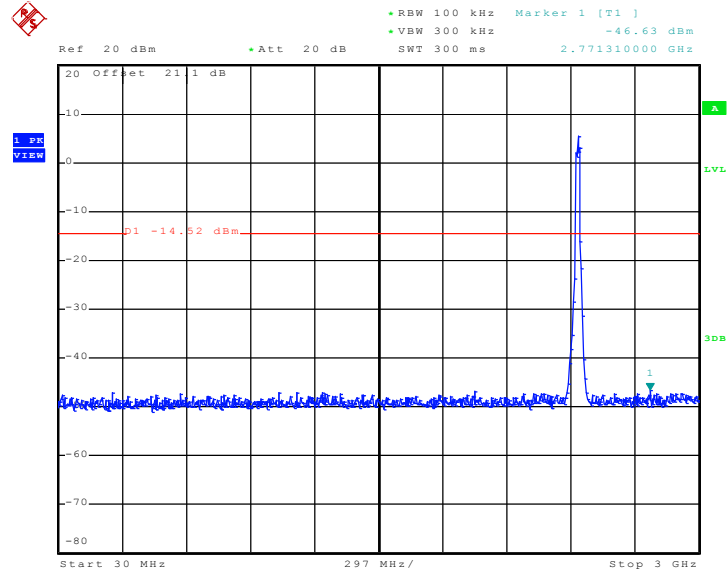
Conducted Spurious Emission Plot on 802.11n (HT-20) Channel 01



Date: 10.MAR.2011 17:31:09

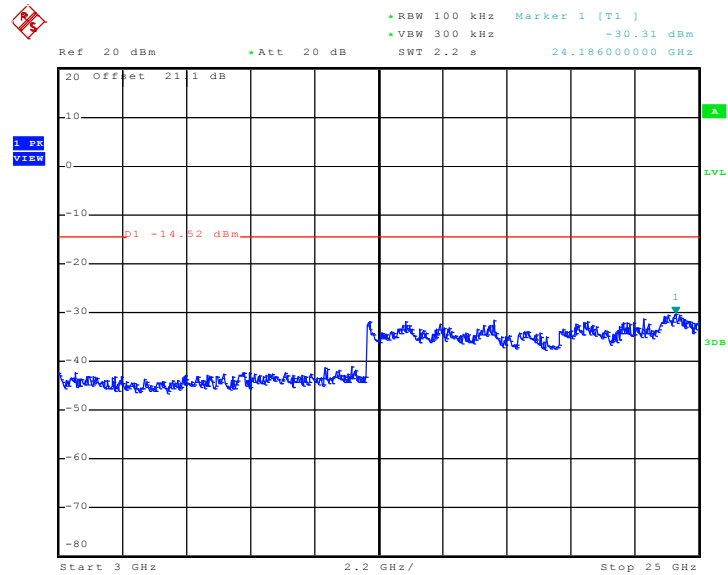


Conducted Spurious Emission Plot on 802.11n (HT-20) Channel 06



Date: 10.MAR.2011 18:02:17

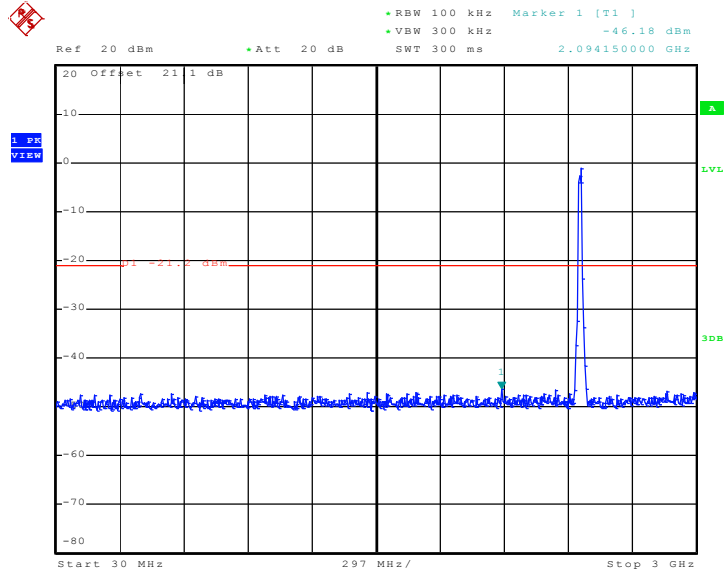
Conducted Spurious Emission Plot on 802.11n (HT-20) Channel 06



Date: 10.MAR.2011 18:02:35

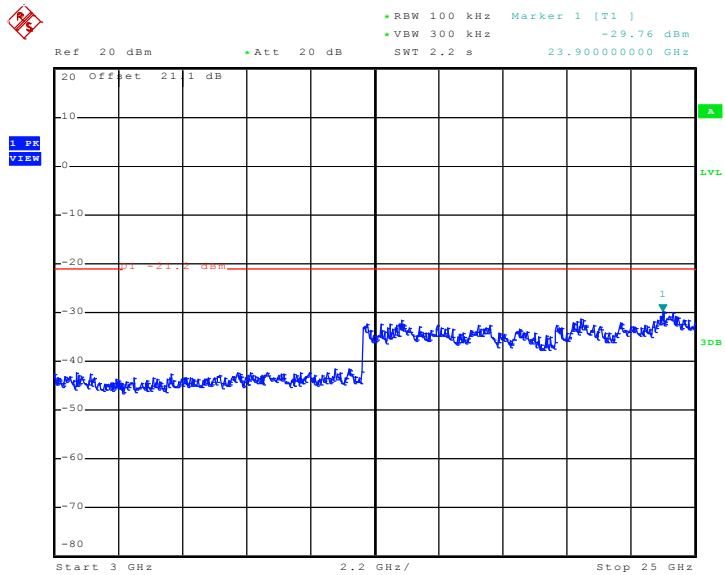


Conducted Spurious Emission Plot on 802.11n (HT-20) Channel 11



Date: 10.MAR.2011 17:49:58

Conducted Spurious Emission Plot on 802.11n (HT-20) Channel 11



Date: 10.MAR.2011 17:50:16



## **3.6 Band Edges Measurement**

### **3.6.1 Limit of Band Edges**

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

### **3.6.2 Measuring Instruments**

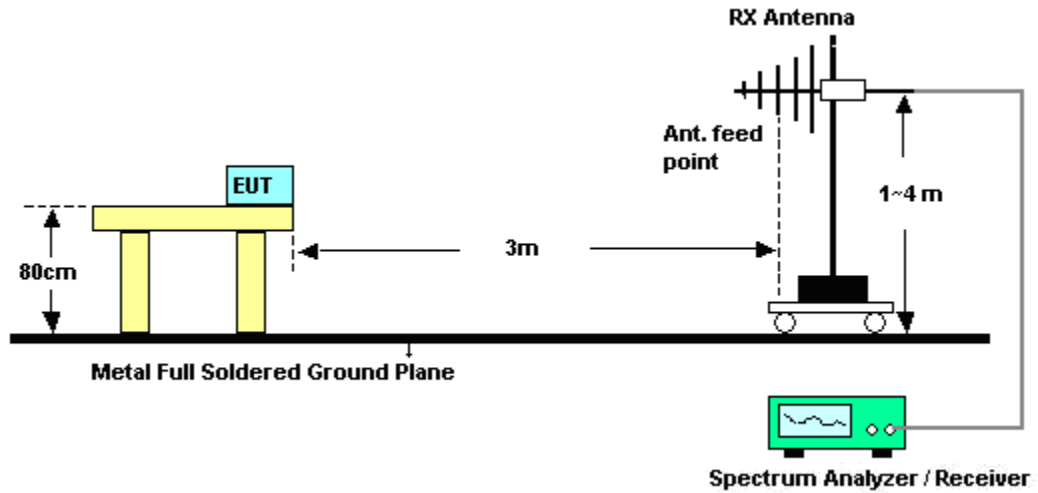
See list of measuring instruments of this test report.

### **3.6.3 Test Procedures**

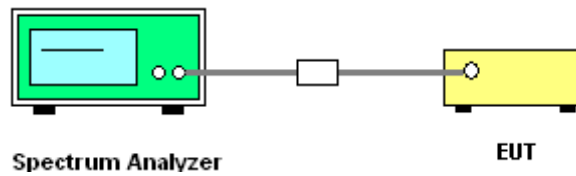
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW)  $\geq$  RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 1MHz, Sweep = Auto for Peak detector, RBW = 1MHz, VBW = 10 Hz, Sweep=Auto for Average detector. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

### 3.6.4 Test Setup

#### <Radiated Band Edges>



#### <Conducted Band Edges>





3.6.5 Test Result of Radiated Band Edges

<Sample 1>

Test Mode :	802.11 b L channel	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	45~50%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386.19	56.23	-17.77	74	54.14	31.7	4.47	34.08	127	212	Peak
2386.19	40.8	-13.2	54	38.71	31.7	4.47	34.08	127	212	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386	65.7	-8.3	74	63.61	31.7	4.47	34.08	126	151	Peak
2386	50.24	-3.76	54	48.15	31.7	4.47	34.08	126	151	Average

Test Mode :	802.11b H channel	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	45~50%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2487.84	56.78	-17.22	74	54.47	31.8	4.59	34.08	100	143	Peak
2487.84	45.09	-8.91	54	42.78	31.8	4.59	34.08	100	143	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	61	-13	74	58.71	31.78	4.59	34.08	101	167	Peak
2483.5	48.99	-5.01	54	46.7	31.78	4.59	34.08	101	167	Average



Test Mode :	802.11g L channel	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	45~50%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	67.48	-6.52	74	65.36	31.7	4.5	34.08	127	212	Peak
2390	46.82	-7.18	54	44.7	31.7	4.5	34.08	127	212	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	72.39	-1.61	74	70.27	31.7	4.5	34.08	103	169	Peak
2390	52.99	-1.01	54	50.87	31.7	4.5	34.08	103	169	Average

Test Mode :	802.11g H channel	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	45~50%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2350	45.26	-28.74	74	43.27	31.64	4.44	34.09	100	143	Peak
2350	32.86	-21.14	54	30.87	31.64	4.44	34.09	100	143	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2384	48.64	-25.36	74	46.57	31.68	4.47	34.08	101	167	Peak
2384	37.54	-16.46	54	35.47	31.68	4.47	34.08	101	167	Average





Test Mode :	802.11n (HT-20) L channel	Temperature :	23~24°C
Test Band :	802.11n (HT-20)	Relative Humidity :	45~50%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	66.45	-7.55	74	64.33	31.7	4.5	34.08	127	212	Peak
2390	46.6	-7.4	54	44.48	31.7	4.5	34.08	127	212	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	72.94	-1.06	74	70.82	31.7	4.5	34.08	103	169	Peak
2390	53.47	-0.53	54	51.35	31.7	4.5	34.08	103	169	Average

Test Mode :	802.11n (HT-20) H channel	Temperature :	23~24°C
Test Band :	802.11n (HT-20)	Relative Humidity :	45~50%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	66.28	-7.72	74	63.99	31.78	4.59	34.08	100	143	Peak
2483.5	45.25	-8.75	54	42.96	31.78	4.59	34.08	100	143	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	72.04	-1.96	74	69.75	31.78	4.59	34.08	101	167	Peak
2483.5	53.48	-0.52	54	51.19	31.78	4.59	34.08	101	167	Average



<Sample 2>

Test Mode :	802.11 b L channel	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	45~50%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	63.79	-10.21	74	61.67	31.7	4.5	34.08	106	267	Peak
2390	47.86	-6.14	54	45.74	31.7	4.5	34.08	106	267	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386.76	67.03	-6.97	74	64.94	31.7	4.47	34.08	100	329	Peak
2386.76	50.65	-3.35	54	48.56	31.7	4.47	34.08	100	329	Average

Test Mode :	802.11b H channel	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	45~50%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.23	51.87	-22.13	74	49.58	31.78	4.59	34.08	126	269	Peak
2484.23	37.92	-16.08	54	35.63	31.78	4.59	34.08	126	269	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2487.65	56.6	-17.4	74	54.29	31.8	4.59	34.08	125	149	Peak
2487.65	41.1	-12.9	54	38.79	31.8	4.59	34.08	125	149	Average



Test Mode :	802.11g L channel	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	45~50%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	70.33	-3.67	74	68.21	31.7	4.5	34.08	106	267	Peak
2390	49.83	-4.17	54	47.71	31.7	4.5	34.08	106	267	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	72.7	-1.3	74	70.58	31.7	4.5	34.08	100	20	Peak
2390	53.27	-0.73	54	51.15	31.7	4.5	34.08	100	20	Average

Test Mode :	802.11g H channel	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	45~50%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	71.26	-2.74	74	68.97	31.78	4.59	34.08	126	269	Peak
2483.5	48.75	-5.25	54	46.46	31.78	4.59	34.08	126	269	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	72.7	-1.3	74	70.41	31.78	4.59	34.08	100	170	Peak
2483.5	53.4	-0.6	54	51.11	31.78	4.59	34.08	100	170	Average



Test Mode :	802.11n (HT-20) L channel	Temperature :	23~24°C
Test Band :	802.11n (HT-20)	Relative Humidity :	45~50%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	69.39	-4.61	74	67.27	31.7	4.5	34.08	106	267	Peak
2390	49.34	-4.66	54	47.22	31.7	4.5	34.08	106	267	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	72.6	-1.4	74	70.48	31.7	4.5	34.08	100	20	Peak
2390	53.25	-0.75	54	51.13	31.7	4.5	34.08	100	20	Average

Test Mode :	802.11n (HT-20) H channel	Temperature :	23~24°C
Test Band :	802.11n (HT-20)	Relative Humidity :	45~50%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	71.65	-2.35	74	69.36	31.78	4.59	34.08	126	269	Peak
2483.5	48.99	-5.01	54	46.7	31.78	4.59	34.08	126	269	Average

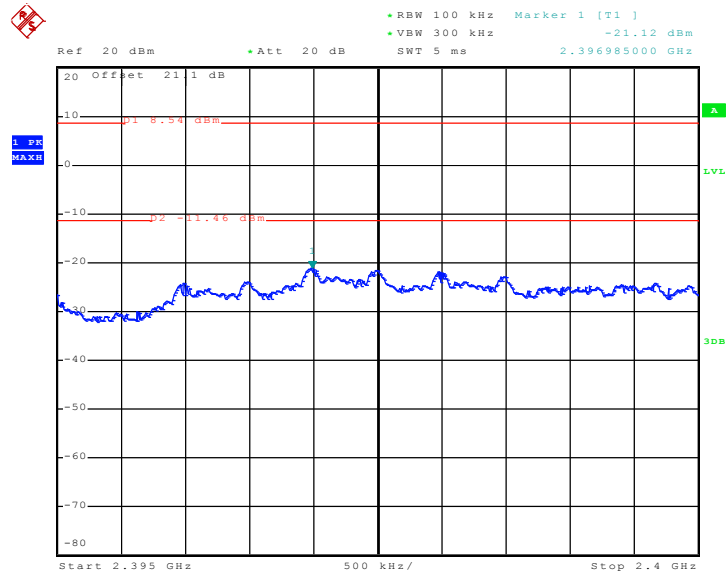
ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	73.27	-0.73	74	70.98	31.78	4.59	34.08	100	170	Peak
2483.5	52.83	-1.17	54	50.54	31.78	4.59	34.08	100	170	Average



### 3.6.6 Test Result of Conducted Band Edges

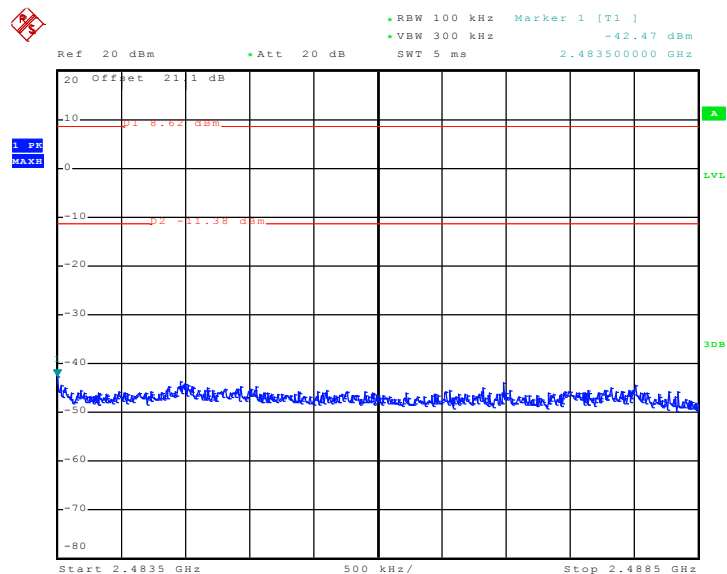
Test Mode :	802.11b L and H channel	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Cona Huang

Low Band Edge Plot on 802.11b Channel 01



Date: 10.MAR.2011 15:23:18

High Band Edge Plot on 802.11b Channel 11

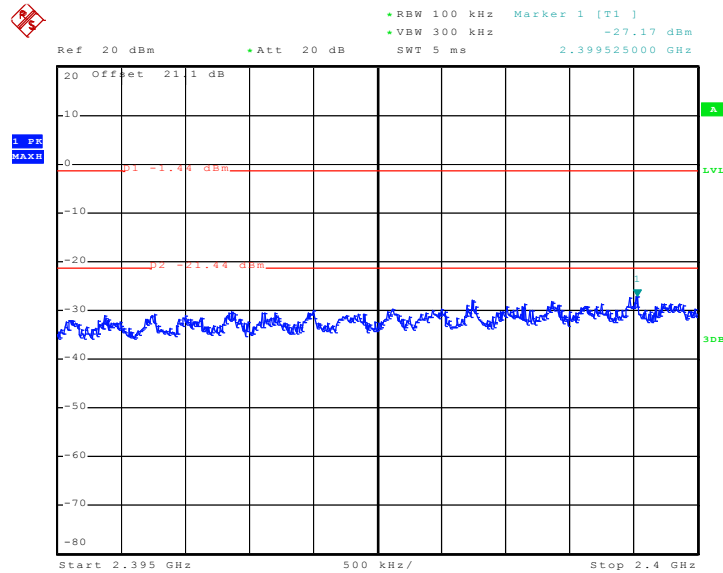


Date: 10.MAR.2011 16:03:44



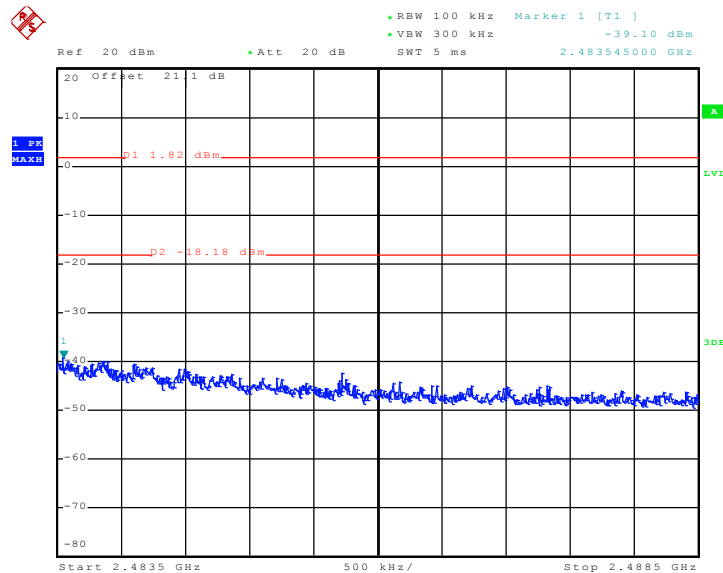
Test Mode :	802.11g L and H channels	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Cona Huang

Low Band Edge Plot on 802.11g Channel 01



Date: 10.MAR.2011 17:05:20

High Band Edge Plot on 802.11g Channel 11

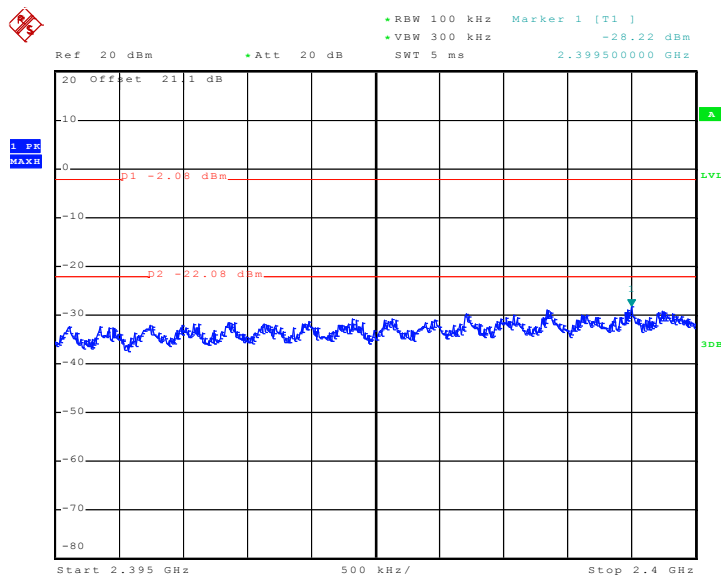


Date: 10.MAR.2011 16:20:43



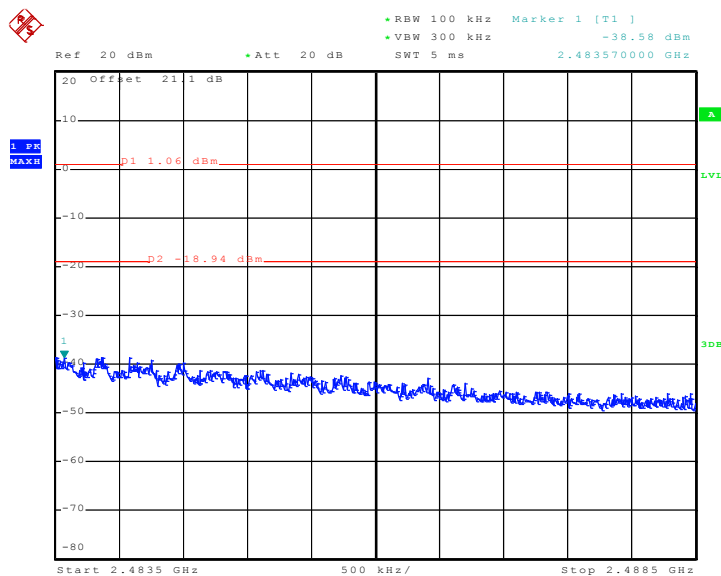
Test Mode :	802.11n (HT-20) L and H channel	Temperature :	24~26°C
Test Band :	802.11n (HT-20)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Cona Huang

Low Band Edge Plot on 802.11n Channel 01



Date: 10.MAR.2011 17:12:17

High Band Edge Plot on 802.11n Channel 11



Date: 10.MAR.2011 17:39:23

### 3.7 Radiated Emission Measurement

#### 3.7.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (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

#### 3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.7.3 Test Procedures

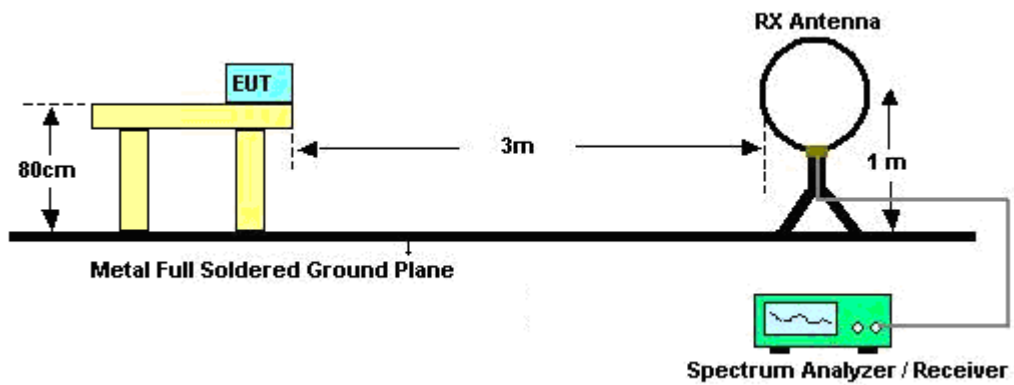
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
  - (1) If  $f < 1$  GHz,  
Span = wide enough to fully capture the emission being measured; RBW = 100 kHz; VBW = 300kHz; Sweep = auto; Detector function = peak; Trace = max hold.
  - (2) If  $f \geq 1$  GHz  
Span = wide enough to fully capture the emission being measured; RBW = 1 MHz, VBW = 1MHz for Peak mode, RBW = 1 MHz, VBW = 10Hz for Average mode; Sweep = auto; Detector function = peak; Trace = max hold.
  - (3) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.  
Distance extrapolation factor =  $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$  (dB)



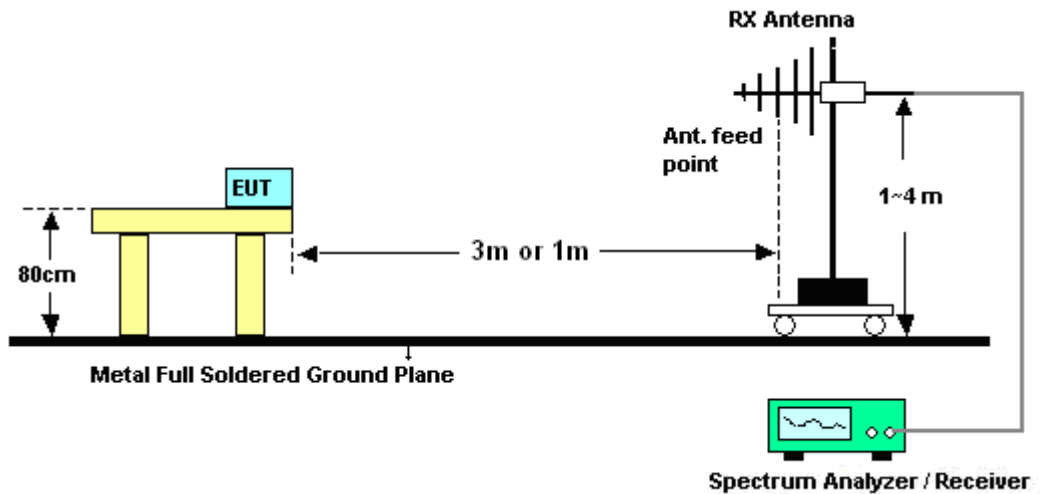
- Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

### 3.7.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz





3.7.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

Test Engineer :	Cona Huang	Temperature :	23~24°C	
		Relative Humidity :	45~50%	
Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $40 \log(\text{specific distance} / \text{test distance})$  (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.



3.7.6 Test Result of Radiated Emission (30MHz ~ 1GHz)

<Sample 1>

<b>Test Mode :</b>	802.11b L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
139.08	40.25	-3.25	43.5	59.97	10.72	1.07	31.51	123	333	Peak
156.09	39.24	-4.26	43.5	59.72	9.88	1.14	31.5	-	-	Peak
160.41	38.93	-4.57	43.5	59.66	9.63	1.14	31.5	-	-	Peak
391.7	42.55	-3.45	46	57.42	14.56	1.77	31.2	-	-	Peak
439.3	42.32	-3.68	46	55.94	15.67	1.87	31.16	-	-	Peak
455.4	38.99	-7.01	46	52.16	16.05	1.92	31.14	-	-	Peak

<b>Test Mode :</b>	802.11b L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
91.02	34.68	-8.82	43.5	56.85	8.53	0.84	31.54	-	-	Peak
141.24	36.89	-6.61	43.5	56.71	10.62	1.07	31.51	-	-	Peak
166.62	33.19	-10.31	43.5	54.4	9.18	1.14	31.53	-	-	Peak
391	39.27	-6.73	46	54.17	14.53	1.77	31.2	-	-	Peak
403.6	42.5	-3.5	46	57.01	14.85	1.82	31.18	100	54	Peak
428.1	41.49	-4.51	46	55.37	15.41	1.87	31.16	-	-	Peak



<Sample 2>

<b>Test Mode :</b>	802.11b L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
40.8	31.18	-8.82	40	49.44	12.68	0.58	31.52	-	-	Peak
174.45	38.98	-4.52	43.5	60.61	8.67	1.23	31.53	-	-	Peak
190.92	37.05	-6.45	43.5	58.97	8.33	1.23	31.48	-	-	Peak
393.1	42.96	-3.04	46	57.76	14.58	1.82	31.2	155	47	Peak
442.1	38.71	-7.29	46	52.2	15.74	1.92	31.15	-	-	Peak
582.8	38.97	-7.03	46	49.26	18.43	2.18	30.9	-	-	Peak

<b>Test Mode :</b>	802.11b L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
40.8	34.09	-5.91	40	52.35	12.68	0.58	31.52	-	-	Peak
83.19	36.28	-3.72	40	59.83	7.16	0.84	31.55	100	57	Peak
101.01	28.89	-14.61	43.5	50.05	9.46	0.95	31.57	-	-	Peak
393.1	32.06	-13.94	46	46.86	14.58	1.82	31.2	-	-	Peak
426.7	35.5	-10.5	46	49.41	15.38	1.87	31.16	-	-	Peak
470.1	39.29	-6.71	46	52.04	16.39	1.98	31.12	-	-	Peak



3.7.7 Test Result of Radiated Emission (1GHz ~ 10<sup>th</sup> Harmonic)

<Sample 1>

Test Mode :	802.11b L channel	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	45~50%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386.19	40.8	-13.2	54	38.71	31.7	4.47	34.08	127	212	Average
2386.19	56.23	-17.77	74	54.14	31.7	4.47	34.08	127	212	Peak
2412	98.89	-	-	96.76	31.71	4.5	34.08	127	212	Average
2412	105.72	-	-	103.59	31.71	4.5	34.08	127	212	Peak
2494	33.52	-20.48	54	31.18	31.8	4.62	34.08	127	212	Average
2494	47.09	-26.91	74	44.75	31.8	4.62	34.08	127	212	Peak
3747	41.14	-12.86	54	62.21	32.61	5.48	59.16	106	321	Average
3747	56.33	-17.67	74	77.4	32.61	5.48	59.16	106	321	Peak
4824	39.11	-14.89	54	57.36	33.77	6.44	58.46	104	136	Average
4824	48.59	-25.41	74	66.84	33.77	6.44	58.46	104	136	Peak



<b>Test Mode :</b>	802.11b L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386	50.24	-3.76	54	48.15	31.7	4.47	34.08	126	151	Average
2386	65.7	-8.3	74	63.61	31.7	4.47	34.08	126	151	Peak
2412	107.83	-	-	105.7	31.71	4.5	34.08	126	151	Average
2412	115	-	-	112.87	31.71	4.5	34.08	126	151	Peak
2492	38.04	-15.96	54	35.7	31.8	4.62	34.08	126	151	Average
2492	48.71	-25.29	74	46.37	31.8	4.62	34.08	126	151	Peak
3747	50	-24	74	71.07	32.61	5.48	59.16	100	0	Peak
4824	37.61	-16.39	54	55.86	33.77	6.44	58.46	140	157	Average
4824	48.61	-25.39	74	66.86	33.77	6.44	58.46	140	157	Peak



<b>Test Mode :</b>	802.11b M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2358	33.21	-20.79	54	31.19	31.66	4.44	34.08	124	212	Average
2358	46.18	-27.82	74	44.16	31.66	4.44	34.08	124	212	Peak
2437	98.41	-	-	96.21	31.75	4.53	34.08	124	212	Average
2437	105.58	-	-	103.38	31.75	4.53	34.08	124	212	Peak
2498	33.24	-20.76	54	30.9	31.8	4.62	34.08	124	212	Average
2498	45.03	-28.97	74	42.69	31.8	4.62	34.08	124	212	Peak
4874	37.42	-16.58	54	55.51	33.78	6.49	58.36	131	164	Average
4874	47.23	-26.77	74	65.32	33.78	6.49	58.36	131	164	Peak



<b>Test Mode :</b>	802.11b M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2368	38.61	-15.39	54	36.56	31.66	4.47	34.08	103	149	Average
2368	49.92	-24.08	74	47.87	31.66	4.47	34.08	103	149	Peak
2437	105.1	-	-	102.9	31.75	4.53	34.08	103	149	Average
2437	111.68	-	-	109.48	31.75	4.53	34.08	103	149	Peak
2492	38.48	-15.52	54	36.14	31.8	4.62	34.08	103	149	Average
2492	50.8	-23.2	74	48.46	31.8	4.62	34.08	103	149	Peak
4874	35.77	-18.23	54	53.86	33.78	6.49	58.36	100	123	Average
4874	44.32	-29.68	74	62.41	33.78	6.49	58.36	100	123	Peak





<b>Test Mode :</b>	802.11b H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	32.79	-21.21	54	30.67	31.7	4.5	34.08	100	143	Average
2390	44.66	-29.34	74	42.54	31.7	4.5	34.08	100	143	Peak
2462	99.86	-	-	97.61	31.77	4.56	34.08	100	143	Average
2462	106.62	-	-	104.37	31.77	4.56	34.08	100	143	Peak
2487.84	45.09	-8.91	54	42.78	31.8	4.59	34.08	100	143	Average
2487.84	56.78	-17.22	74	54.47	31.8	4.59	34.08	100	143	Peak
4924	32.97	-21.03	54	50.9	33.79	6.54	58.26	122	210	Average
4924	44.44	-29.56	74	62.37	33.79	6.54	58.26	122	210	Peak



<b>Test Mode :</b>	802.11b H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2384	37.63	-16.37	54	35.56	31.68	4.47	34.08	101	167	Average
2384	49.38	-24.62	74	47.31	31.68	4.47	34.08	101	167	Peak
2462	107.12	-	-	104.87	31.77	4.56	34.08	101	167	Average
2462	113.74	-	-	111.49	31.77	4.56	34.08	101	167	Peak
2483.5	48.99	-5.01	54	46.7	31.78	4.59	34.08	101	167	Average
2483.5	61	-13	74	58.71	31.78	4.59	34.08	101	167	Peak



<b>Test Mode :</b>	802.11g L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	46.82	-7.18	54	44.7	31.7	4.5	34.08	127	212	Average
2390	67.48	-6.52	74	65.36	31.7	4.5	34.08	127	212	Peak
2412	89.17	35.17	54	87.04	31.71	4.5	34.08	127	212	Average
2412	100.33	-	-	98.2	31.71	4.5	34.08	127	212	Peak
2492	32.83	-	-	30.49	31.8	4.62	34.08	127	212	Average
2492	46.07	-27.93	74	43.73	31.8	4.62	34.08	127	212	Peak
4824	35.34	-18.66	54	53.59	33.77	6.44	58.46	100	157	Average
4824	43.5	-30.5	74	61.75	33.77	6.44	58.46	100	157	Peak



<b>Test Mode :</b>	802.11g L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

<b>Frequency ( MHz )</b>	<b>Level ( dBuV/m )</b>	<b>Over Limit ( dB )</b>	<b>Limit Line ( dBuV/m )</b>	<b>Read Level (dBuV)</b>	<b>Antenna Factor ( dB )</b>	<b>Cable Loss ( dB )</b>	<b>Preamp Factor ( dB )</b>	<b>Ant Pos ( cm )</b>	<b>Table Pos ( deg )</b>	<b>Remark</b>
2390	52.99	-1.01	54	50.87	31.7	4.5	34.08	103	169	Average
2390	72.39	-1.61	74	70.27	31.7	4.5	34.08	103	169	Peak
2412	96.16	-	-	94.03	31.71	4.5	34.08	103	169	Average
2412	106.51	-	-	104.38	31.71	4.5	34.08	103	169	Peak
2496	38.01	-15.99	54	35.67	31.8	4.62	34.08	103	169	Average
2496	48.7	-25.3	74	46.36	31.8	4.62	34.08	103	169	Peak
4824	36.22	-17.78	54	54.47	33.77	6.44	58.46	101	196	Average
4824	44.61	-29.39	74	62.86	33.77	6.44	58.46	101	196	Peak



<b>Test Mode :</b>	802.11g M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	37.64	-16.36	54	35.52	31.7	4.5	34.08	124	212	Average
2390	60.05	-13.95	74	57.93	31.7	4.5	34.08	124	212	Peak
2437	95.14	-	-	92.94	31.75	4.53	34.08	124	212	Average
2437	106.33	-	-	104.13	31.75	4.53	34.08	124	212	Peak
2484	37.5	-16.5	54	35.21	31.78	4.59	34.08	124	212	Average
2484	55.29	-18.71	74	53	31.78	4.59	34.08	124	212	Peak
4874	39.64	-14.36	54	57.73	33.78	6.49	58.36	108	251	Average
4874	47.8	-26.2	74	65.89	33.78	6.49	58.36	108	251	Peak



<b>Test Mode :</b>	802.11g M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	42.25	-11.75	54	40.13	31.7	4.5	34.08	103	149	Average
2390	64.45	-9.55	74	62.33	31.7	4.5	34.08	103	149	Peak
2437	101.13	-	-	98.93	31.75	4.53	34.08	103	149	Average
2437	111.81	-	-	109.61	31.75	4.53	34.08	103	149	Peak
2484	41.18	-12.82	54	38.89	31.78	4.59	34.08	103	149	Average
2484	61.82	-12.18	74	59.53	31.78	4.59	34.08	103	149	Peak
4874	38.34	-15.66	54	56.43	33.78	6.49	58.36	105	294	Average
4874	46.43	-27.57	74	64.52	33.78	6.49	58.36	105	294	Peak



<b>Test Mode :</b>	802.11g H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2350	32.86	-21.14	54	30.87	31.64	4.44	34.09	100	143	Average
2350	45.26	-28.74	74	43.27	31.64	4.44	34.09	100	143	Peak
2462	89.83	-	-	87.58	31.77	4.56	34.08	100	143	Average
2462	101.14	-	-	98.89	31.77	4.56	34.08	100	143	Peak
2483.5	44.22	-9.78	54	41.93	31.78	4.59	34.08	100	143	Average
2483.5	66.93	-7.07	74	64.64	31.78	4.59	34.08	100	143	Peak



<b>Test Mode :</b>	802.11g H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2384	37.54	-16.46	54	35.47	31.68	4.47	34.08	101	167	Average
2384	48.64	-25.36	74	46.57	31.68	4.47	34.08	101	167	Peak
2462	97.87	-	-	95.62	31.77	4.56	34.08	101	167	Average
2462	109.07	-	-	106.82	31.77	4.56	34.08	101	167	Peak
2483.5	53.18	-0.82	54	50.89	31.78	4.59	34.08	101	167	Average
2483.5	72.04	-1.96	74	69.75	31.78	4.59	34.08	101	167	Peak





<b>Test Mode :</b>	802.11n (HT-20) L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	46.6	-7.4	54	44.48	31.7	4.5	34.08	127	212	Average
2390	66.45	-7.55	74	64.33	31.7	4.5	34.08	127	212	Peak
2412	89.19	-	-	87.06	31.71	4.5	34.08	127	212	Average
2412	99.43	-	-	97.3	31.71	4.5	34.08	127	212	Peak
2490	33.03	-20.97	54	30.69	31.8	4.62	34.08	127	212	Average
2490	45.89	-28.11	74	43.55	31.8	4.62	34.08	127	212	Peak
4824	35.84	-18.16	54	54.09	33.77	6.44	58.46	105	58	Average
4824	43.65	-30.35	74	61.9	33.77	6.44	58.46	105	58	Peak



<b>Test Mode :</b>	802.11n (HT-20) L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	53.47	-0.53	54	51.35	31.7	4.5	34.08	103	169	Average
2390	72.94	-1.06	74	70.82	31.7	4.5	34.08	103	169	Peak
2412	95.35	-	-	93.22	31.71	4.5	34.08	103	169	Average
2412	106.35	-	-	104.22	31.71	4.5	34.08	103	169	Peak
2488	37.65	-16.35	54	35.34	31.8	4.59	34.08	103	169	Average
2488	49.23	-24.77	74	46.92	31.8	4.59	34.08	103	169	Peak
4824	34.91	-19.09	54	53.16	33.77	6.44	58.46	100	135	Average
4824	43.03	-30.97	74	61.28	33.77	6.44	58.46	100	135	Peak



<b>Test Mode :</b>	802.11n (HT-20) M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

<b>Frequency ( MHz )</b>	<b>Level ( dBuV/m )</b>	<b>Over Limit ( dB )</b>	<b>Limit Line ( dBuV/m )</b>	<b>Read Level (dBuV)</b>	<b>Antenna Factor ( dB )</b>	<b>Cable Loss ( dB )</b>	<b>Preamp Factor ( dB )</b>	<b>Ant Pos ( cm )</b>	<b>Table Pos ( deg )</b>	<b>Remark</b>
2388	38.8	-15.2	54	36.71	31.7	4.47	34.08	124	212	Average
2388	57.79	-16.21	74	55.7	31.7	4.47	34.08	124	212	Peak
2437	95.18	-	-	92.98	31.75	4.53	34.08	124	212	Average
2437	105.83	-	-	103.63	31.75	4.53	34.08	124	212	Peak
2484	38.45	-15.55	54	36.16	31.78	4.59	34.08	124	212	Average
2484	55.38	-18.62	74	53.09	31.78	4.59	34.08	124	212	Peak
4874	38.88	-15.12	54	56.97	33.78	6.49	58.36	108	89	Average
4874	47.39	-26.61	74	65.48	33.78	6.49	58.36	108	89	Peak



<b>Test Mode :</b>	802.11n (HT-20) M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	43.39	-10.61	54	41.27	31.7	4.5	34.08	103	149	Average
2390	63.28	-10.72	74	61.16	31.7	4.5	34.08	103	149	Peak
2437	101.18	-	-	98.98	31.75	4.53	34.08	103	149	Average
2437	111.59	-	-	109.39	31.75	4.53	34.08	103	149	Peak
2486	41.78	-12.22	54	39.49	31.78	4.59	34.08	103	149	Average
2486	56.75	-17.25	74	54.46	31.78	4.59	34.08	103	149	Peak



<b>Test Mode :</b>	802.11n (HT-20) H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2354	32.49	-21.51	54	30.48	31.66	4.44	34.09	100	143	Average
2354	46.31	-27.69	74	44.3	31.66	4.44	34.09	100	143	Peak
2462	89.27	-	-	87.02	31.77	4.56	34.08	100	143	Average
2462	99.85	-	-	97.6	31.77	4.56	34.08	100	143	Peak
2483.5	45.25	-8.75	54	42.96	31.78	4.59	34.08	100	143	Average
2483.5	66.28	-7.72	74	63.99	31.78	4.59	34.08	100	143	Peak



<b>Test Mode :</b>	802.11n (HT-20) H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2346	37.21	-16.79	54	35.22	31.64	4.44	34.09	101	167	Average
2346	49.16	-24.84	74	47.17	31.64	4.44	34.09	101	167	Peak
2462	97.01	-	-	94.76	31.77	4.56	34.08	101	167	Average
2462	107.43	-	-	105.18	31.77	4.56	34.08	101	167	Peak
2483.5	53.48	-0.52	54	51.19	31.78	4.59	34.08	101	167	Average
2483.5	72.04	-1.96	74	69.75	31.78	4.59	34.08	101	167	Peak
3747	50.53	-23.47	74	71.6	32.61	5.48	59.16	100	0	Peak



<Sample 2>

<b>Test Mode :</b>	802.11b L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	47.86	-6.14	54	45.74	31.7	4.5	34.08	106	267	Average
2390	63.79	-10.21	74	61.67	31.7	4.5	34.08	106	267	Peak
2412	99.77	-	-	97.64	31.71	4.5	34.08	106	267	Average
2412	107.48	-	-	105.35	31.71	4.5	34.08	106	267	Peak
2490	32.73	-21.27	54	30.39	31.8	4.62	34.08	106	267	Average
2490	45.43	-28.57	74	43.09	31.8	4.62	34.08	106	267	Peak
3750	40.37	-13.63	54	61.44	32.61	5.48	59.16	105	249	Average
3750	55.14	-18.86	74	76.21	32.61	5.48	59.16	105	249	Peak
4824	40.19	-13.81	54	58.44	33.77	6.44	58.46	108	167	Average
4824	46.75	-27.25	74	65	33.77	6.44	58.46	108	167	Peak



<b>Test Mode :</b>	802.11b L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386.76	50.65	-3.35	54	48.56	31.7	4.47	34.08	100	329	Average
2386.76	67.03	-6.97	74	64.94	31.7	4.47	34.08	100	329	Peak
2412	105.69	-	-	103.56	31.71	4.5	34.08	100	329	Average
2412	112.38	-	-	110.25	31.71	4.5	34.08	100	329	Peak
2500	37.97	-16.03	54	35.63	31.8	4.62	34.08	100	329	Average
2500	50.27	-23.73	74	47.93	31.8	4.62	34.08	100	329	Peak
3750	49.91	-24.09	74	70.98	32.61	5.48	59.16	100	0	Peak
4824	47.75	-26.25	74	66	33.77	6.44	58.46	100	0	Peak





<b>Test Mode :</b>	802.11b M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2318	33.2	-20.8	54	31.25	31.63	4.41	34.09	100	213	Average
2318	44.66	-29.34	74	42.71	31.63	4.41	34.09	100	213	Peak
2437	100.15	-	-	97.95	31.75	4.53	34.08	100	213	Average
2437	107.44	-	-	105.24	31.75	4.53	34.08	100	213	Peak
2500	32.98	-21.02	54	30.64	31.8	4.62	34.08	100	213	Average
2500	45.78	-28.22	74	43.44	31.8	4.62	34.08	100	213	Peak
3744	39.59	-14.41	54	60.65	32.59	5.48	59.13	104	251	Average
3744	55.05	-18.95	74	76.11	32.59	5.48	59.13	104	251	Peak
4874	38.67	-15.33	54	56.76	33.78	6.49	58.36	100	318	Average
4874	45.73	-28.27	74	63.82	33.78	6.49	58.36	100	318	Peak



<b>Test Mode :</b>	802.11b M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	38.56	-15.44	54	36.44	31.7	4.5	34.08	127	269	Average
2390	50.46	-23.54	74	48.34	31.7	4.5	34.08	127	269	Peak
2437	105.4	-	-	103.2	31.75	4.53	34.08	127	269	Average
2437	112	-	-	109.8	31.75	4.53	34.08	127	269	Peak
2490	38.93	-15.07	54	36.59	31.8	4.62	34.08	127	269	Average
2490	49.86	-24.14	74	47.52	31.8	4.62	34.08	127	269	Peak
3750	50.29	-23.71	74	71.36	32.61	5.48	59.16	100	0	Peak
4874	46.35	-27.65	74	64.44	33.78	6.49	58.36	100	0	Peak



<b>Test Mode :</b>	802.11b H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386	33.36	-20.64	54	31.27	31.7	4.47	34.08	126	269	Average
2386	46.45	-27.55	74	44.36	31.7	4.47	34.08	126	269	Peak
2462	99.5	-	-	97.25	31.77	4.56	34.08	126	269	Average
2462	107.25	-	-	105	31.77	4.56	34.08	126	269	Peak
2484.23	37.92	-16.08	54	35.63	31.78	4.59	34.08	126	269	Average
2484.23	51.87	-22.13	74	49.58	31.78	4.59	34.08	126	269	Peak
3747	39.74	-14.26	54	60.81	32.61	5.48	59.16	103	187	Average
3747	55.91	-18.09	74	76.98	32.61	5.48	59.16	103	187	Peak
4924	39.52	-14.48	54	57.45	33.79	6.54	58.26	100	169	Average
4924	45.97	-28.03	74	63.9	33.79	6.54	58.26	100	169	Peak



<b>Test Mode :</b>	802.11b H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2380	37.8	-16.2	54	35.73	31.68	4.47	34.08	125	149	Average
2380	48.72	-25.28	74	46.65	31.68	4.47	34.08	125	149	Peak
2462	105.8	-	-	103.55	31.77	4.56	34.08	125	149	Average
2462	112.59	-	-	110.34	31.77	4.56	34.08	125	149	Peak
2487.65	41.1	-12.9	54	38.79	31.8	4.59	34.08	125	149	Average
2487.65	56.6	-17.4	74	54.29	31.8	4.59	34.08	125	149	Peak
3750	49.87	-24.13	74	70.94	32.61	5.48	59.16	100	0	Peak
4924	45.27	-28.73	74	63.2	33.79	6.54	58.26	100	0	Peak



<b>Test Mode :</b>	802.11g L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	49.83	-4.17	54	47.71	31.7	4.5	34.08	106	267	Average
2390	70.33	-3.67	74	68.21	31.7	4.5	34.08	106	267	Peak
2412	90.29	-	-	88.16	31.71	4.5	34.08	106	267	Average
2412	101.22	-	-	99.09	31.71	4.5	34.08	106	267	Peak
2498	32.86	-21.14	54	30.52	31.8	4.62	34.08	106	267	Average
2498	45.12	-28.88	74	42.78	31.8	4.62	34.08	106	267	Peak
3747	37.96	-16.04	54	59.03	32.61	5.48	59.16	102	157	Average
3747	54.22	-19.78	74	75.29	32.61	5.48	59.16	102	157	Peak
4824	44.98	-29.02	74	63.23	33.77	6.44	58.46	100	0	Peak



<b>Test Mode :</b>	802.11g L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	53.27	-0.73	54	51.15	31.7	4.5	34.08	100	20	Average
2390	72.7	-1.3	74	70.58	31.7	4.5	34.08	100	20	Peak
2412	95.44	-	-	93.31	31.71	4.5	34.08	100	20	Average
2412	105.98	-	-	103.85	31.71	4.5	34.08	100	20	Peak
2498	37.37	-16.63	54	35.03	31.8	4.62	34.08	100	20	Average
2498	47.8	-26.2	74	45.46	31.8	4.62	34.08	100	20	Peak
3747	50.03	-23.97	74	71.1	32.61	5.48	59.16	100	0	Peak
4824	43.53	-30.47	74	61.78	33.77	6.44	58.46	100	0	Peak



<b>Test Mode :</b>	802.11g M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386	39.1	-14.9	54	37.01	31.7	4.47	34.08	100	213	Average
2386	58.95	-15.05	74	56.86	31.7	4.47	34.08	100	213	Peak
2437	97.07	-	-	94.87	31.75	4.53	34.08	100	213	Average
2437	108.48	-	-	106.28	31.75	4.53	34.08	100	213	Peak
2484	35.8	-18.2	54	33.51	31.78	4.59	34.08	100	213	Average
2484	56.28	-17.72	74	53.99	31.78	4.59	34.08	100	213	Peak
3744	40.29	-13.71	54	61.35	32.59	5.48	59.13	103	96	Average
3744	55.32	-18.68	74	76.38	32.59	5.48	59.13	103	96	Peak
4874	41.96	-12.04	54	60.05	33.78	6.49	58.36	122	315	Average
4874	50.91	-23.09	74	69	33.78	6.49	58.36	122	315	Peak



<b>Test Mode :</b>	802.11g M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2388	43.69	-10.31	54	41.6	31.7	4.47	34.08	127	269	Average
2388	63.24	-10.76	74	61.15	31.7	4.47	34.08	127	269	Peak
2437	101.63	-	-	99.43	31.75	4.53	34.08	127	269	Average
2437	112.9	-	-	110.7	31.75	4.53	34.08	127	269	Peak
2484	43.8	-10.2	54	41.51	31.78	4.59	34.08	127	269	Average
2484	63.12	-10.88	74	60.83	31.78	4.59	34.08	127	269	Peak
3741	49.58	-24.42	74	70.64	32.59	5.48	59.13	100	0	Peak
4875	47.3	-26.7	74	65.39	33.78	6.49	58.36	100	0	Peak





<b>Test Mode :</b>	802.11g H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2384	34.04	-19.96	54	31.97	31.68	4.47	34.08	126	269	Average
2384	45.24	-28.76	74	43.17	31.68	4.47	34.08	126	269	Peak
2462	93.66	-	-	91.41	31.77	4.56	34.08	126	269	Average
2462	104.46	-	-	102.21	31.77	4.56	34.08	126	269	Peak
2483.5	48.75	-5.25	54	46.46	31.78	4.59	34.08	126	269	Average
2483.5	71.26	-2.74	74	68.97	31.78	4.59	34.08	126	269	Peak
3747	40.19	-13.81	54	61.26	32.61	5.48	59.16	103	112	Average
3747	54.37	-19.63	74	75.44	32.61	5.48	59.16	103	112	Peak



<b>Test Mode :</b>	802.11g H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2346	37.62	-16.38	54	35.63	31.64	4.44	34.09	100	170	Average
2346	49.93	-24.07	74	47.94	31.64	4.44	34.09	100	170	Peak
2462	97.16	-	-	94.91	31.77	4.56	34.08	100	170	Average
2462	108.5	-	-	106.25	31.77	4.56	34.08	100	170	Peak
2483.5	53.4	-0.6	54	51.11	31.78	4.59	34.08	100	170	Average
2483.5	72.7	-1.3	74	70.41	31.78	4.59	34.08	100	170	Peak
3747	50.08	-23.92	74	71.15	32.61	5.48	59.16	100	0	Peak



<b>Test Mode :</b>	802.11n (HT-20) L channel at 2.4G band	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	49.34	-4.66	54	47.22	31.7	4.5	34.08	106	267	Average
2390	69.39	-4.61	74	67.27	31.7	4.5	34.08	106	267	Peak
2412	89.01	-	-	86.88	31.71	4.5	34.08	106	267	Average
2412	99.06	-	-	96.93	31.71	4.5	34.08	106	267	Peak
2500	32.81	-21.19	54	30.47	31.8	4.62	34.08	106	267	Average
2500	44.6	-29.4	74	42.26	31.8	4.62	34.08	106	267	Peak
3741	37.59	-16.41	54	58.65	32.59	5.48	59.13	102	59	Average
3741	51.16	-22.84	74	72.22	32.59	5.48	59.13	102	59	Peak



<b>Test Mode :</b>	802.11n (HT-20) L channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	53.25	-0.75	54	51.13	31.7	4.5	34.08	100	20	Average
2390	72.6	-1.4	74	70.48	31.7	4.5	34.08	100	20	Peak
2412	94.39	-	-	92.26	31.71	4.5	34.08	100	20	Average
2412	105.68	-	-	103.55	31.71	4.5	34.08	100	20	Peak
2488	37.45	-16.55	54	35.14	31.8	4.59	34.08	100	20	Average
2488	48.91	-25.09	74	46.6	31.8	4.59	34.08	100	20	Peak
3747	49.54	-24.46	74	70.61	32.61	5.48	59.16	100	0	Peak



<b>Test Mode :</b>	802.11n (HT-20) M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	40.55	-13.45	54	38.43	31.7	4.5	34.08	100	213	Average
2390	63.93	-10.07	74	61.81	31.7	4.5	34.08	100	213	Peak
2437	97.12	-	-	94.92	31.75	4.53	34.08	100	213	Average
2437	108	-	-	105.8	31.75	4.53	34.08	100	213	Peak
2484	36.51	-17.49	54	34.22	31.78	4.59	34.08	100	213	Average
2484	53.49	-20.51	74	51.2	31.78	4.59	34.08	100	213	Peak
3750	39.88	-14.12	54	60.95	32.61	5.48	59.16	105	258	Average
3750	52.58	-21.42	74	73.65	32.61	5.48	59.16	105	258	Peak
4874	38.69	-15.31	54	56.78	33.78	6.49	58.36	125	164	Average
4874	45.99	-28.01	74	64.08	33.78	6.49	58.36	125	164	Peak



<b>Test Mode :</b>	802.11n (HT-20) M channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	45.11	-8.89	54	42.99	31.7	4.5	34.08	127	269	Average
2390	67.48	-6.52	74	65.36	31.7	4.5	34.08	127	269	Peak
2437	101.66	-	-	99.46	31.75	4.53	34.08	127	269	Average
2437	112.66	-	-	110.46	31.75	4.53	34.08	127	269	Peak
2484	45.05	-8.95	54	42.76	31.78	4.59	34.08	127	269	Average
2484	64.44	-9.56	74	62.15	31.78	4.59	34.08	127	269	Peak
3747	48.92	-25.08	74	69.99	32.61	5.48	59.16	100	0	Peak
4874	45.6	-28.4	74	63.69	33.78	6.49	58.36	100	0	Peak



<b>Test Mode :</b>	802.11n (HT-20) H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386	33.15	-20.85	54	31.06	31.7	4.47	34.08	126	269	Average
2386	45.41	-28.59	74	43.32	31.7	4.47	34.08	126	269	Peak
2462	92.89	-	-	90.64	31.77	4.56	34.08	126	269	Average
2462	103.77	-	-	101.52	31.77	4.56	34.08	126	269	Peak
2483.5	48.99	-5.01	54	46.7	31.78	4.59	34.08	126	269	Average
2483.5	71.65	-2.35	74	69.36	31.78	4.59	34.08	126	269	Peak
3747	41.74	-12.26	54	62.81	32.61	5.48	59.16	102	354	Average
3747	55.08	-18.92	74	76.15	32.61	5.48	59.16	102	354	Peak



<b>Test Mode :</b>	802.11n (HT-20) H channel	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	45~50%
<b>Test Engineer :</b>	Cona Huang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2334	37.22	-16.78	54	35.27	31.63	4.41	34.09	100	170	Average
2334	48.99	-25.01	74	47.04	31.63	4.41	34.09	100	170	Peak
2462	95.69	-	-	93.44	31.77	4.56	34.08	100	170	Average
2462	106.54	-	-	104.29	31.77	4.56	34.08	100	170	Peak
2483.5	52.83	-1.17	54	50.54	31.78	4.59	34.08	100	170	Average
2483.5	73.27	-0.73	74	70.98	31.78	4.59	34.08	100	170	Peak
3747	49.67	-24.33	74	70.74	32.61	5.48	59.16	100	0	Peak



## 3.8 AC Conducted Emission Measurement

### 3.8.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

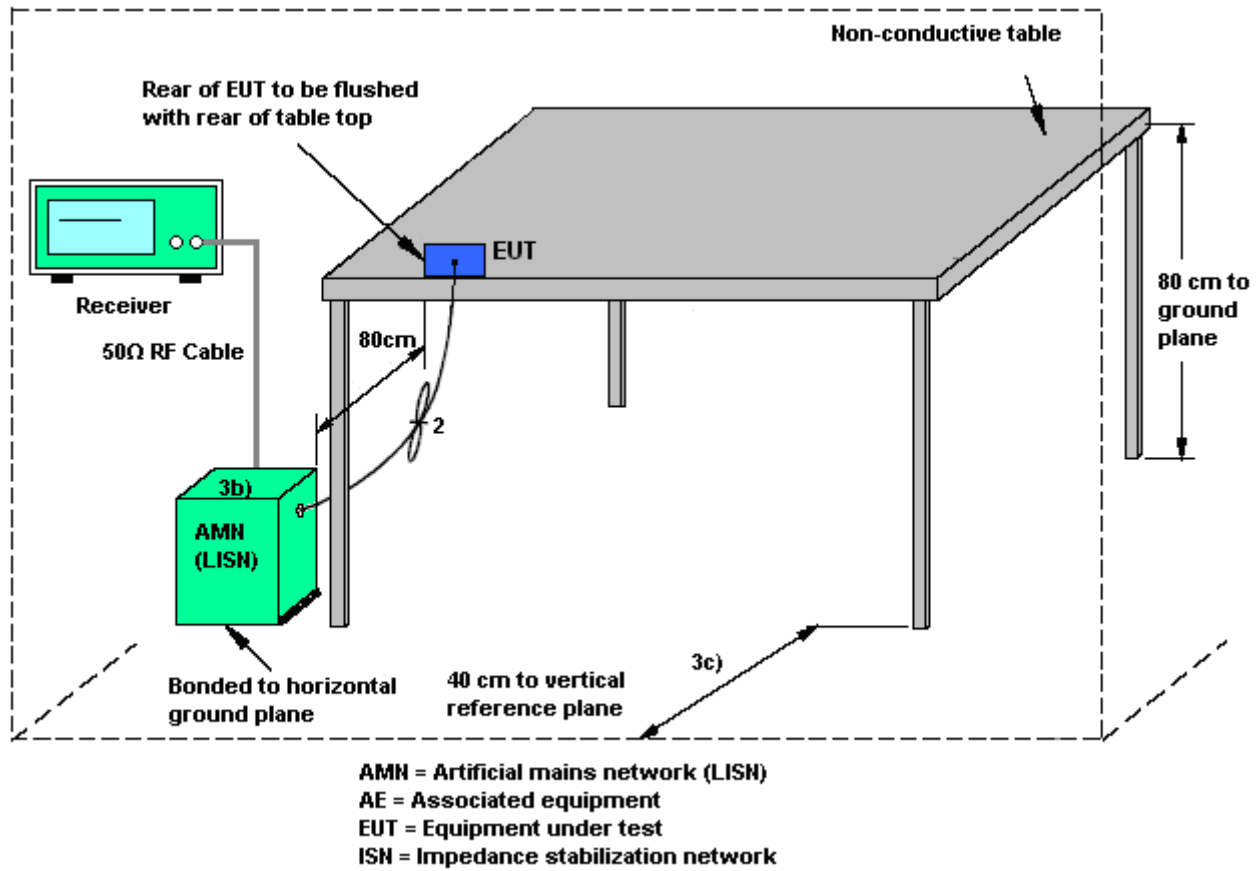
### 3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.8.3 Test Procedures

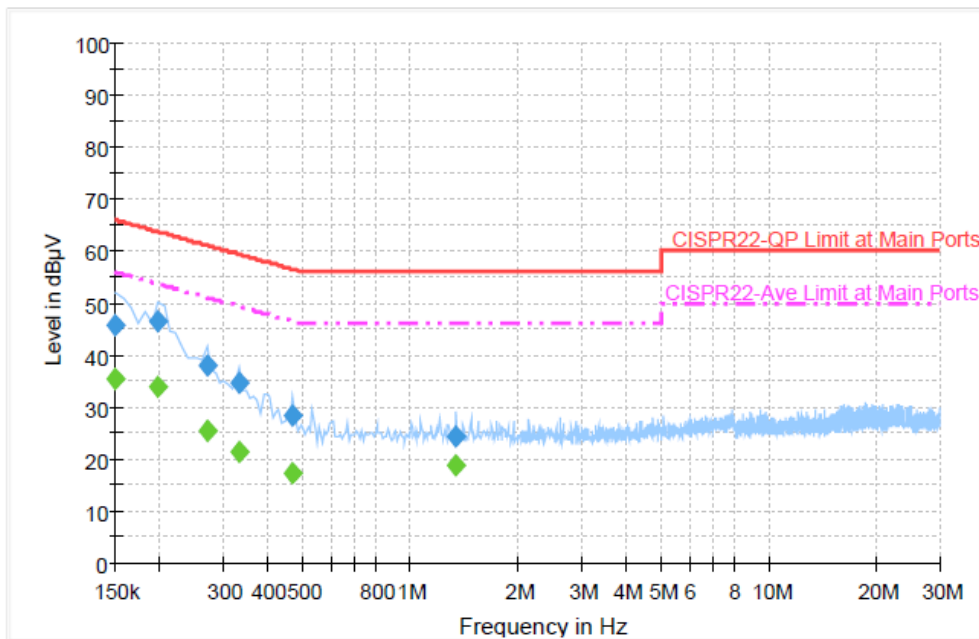
4. The testing follows the guidelines in ANSI C63.4-2003.
5. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
6. Connect EUT to the power mains through a line impedance stabilization network (LISN).
7. All the support units are connecting to the other LISN.
8. The LISN provides 50 ohm coupling impedance for the measuring instrument.
9. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
10. Both sides of AC line were checked for maximum conducted interference.
11. The frequency range from 150 kHz to 30 MHz was searched.
12. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

### 3.8.4 Test Setup



### 3.8.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Cona Huang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Tx + Bluetooth Tx		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



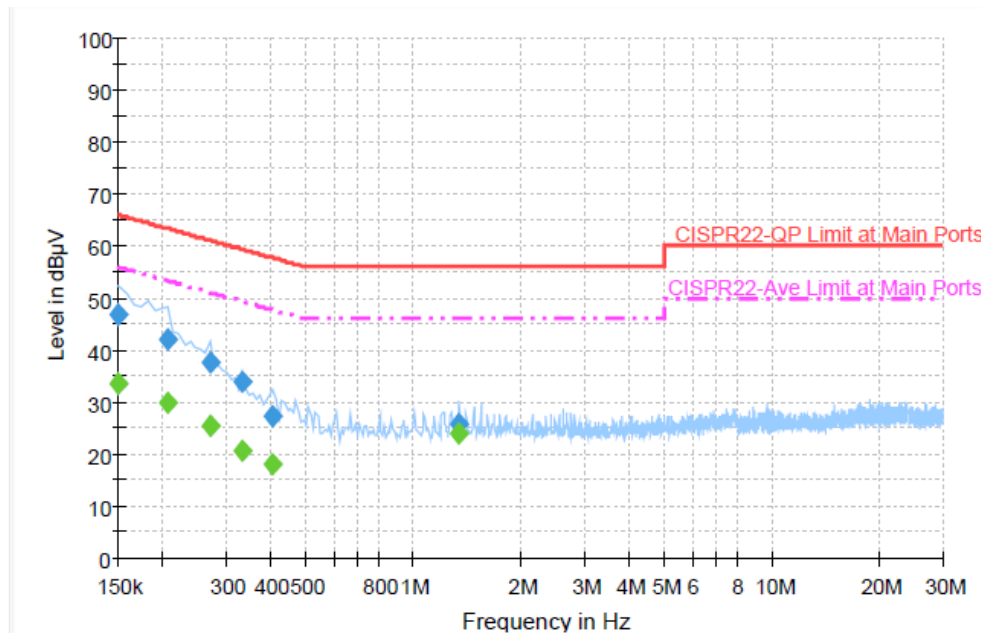
#### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	45.7	Off	L1	19.4	20.3	66.0
0.198000	46.6	Off	L1	19.3	17.1	63.7
0.270000	37.9	Off	L1	19.3	23.2	61.1
0.334000	34.8	Off	L1	19.3	24.6	59.4
0.470000	28.3	Off	L1	19.4	28.2	56.5
1.342000	24.2	Off	L1	19.4	21.8	56.0

#### Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	35.4	Off	L1	19.4	20.6	56.0
0.198000	33.8	Off	L1	19.3	19.9	53.7
0.270000	25.5	Off	L1	19.3	25.6	51.1
0.334000	21.3	Off	L1	19.3	28.1	49.4
0.470000	17.3	Off	L1	19.4	29.2	46.5
1.342000	18.9	Off	L1	19.4	27.1	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Tx + Bluetooth Tx		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	46.8	Off	N	19.4	19.2	66.0
0.206000	42.2	Off	N	19.3	21.2	63.4
0.270000	37.6	Off	N	19.3	23.5	61.1
0.334000	34.0	Off	N	19.3	25.4	59.4
0.406000	27.4	Off	N	19.4	30.3	57.7
1.342000	25.7	Off	N	19.4	30.3	56.0

**Final Result 2**

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	33.6	Off	N	19.4	22.4	56.0
0.206000	30.0	Off	N	19.3	23.4	53.4
0.270000	25.5	Off	N	19.3	25.6	51.1
0.334000	20.6	Off	N	19.3	28.8	49.4
0.406000	18.1	Off	N	19.4	29.6	47.7
1.342000	24.1	Off	N	19.4	21.9	46.0



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Jun. 08, 2009	Jun. 07, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 11, 2010	Jun. 10, 2011	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB412923 44	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US404415 48	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-9307 01	N/A	Jul. 30,2010	Jul. 29, 2011	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T400A	25696	N/A	Jun. 19, 2010	Jun. 18, 2011	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T800	27134	N/A	Jun. 19, 2010	Jun. 18, 2011	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000485	0.1MHz~200MHz	Jun. 17, 2010	Jun. 16, 2011	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000484	0.1MHz~200MHz	Jun. 17, 2010	Jun. 16, 2011	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A023 62	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2010	Mar. 28, 2011	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/00 1	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)

## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.13</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.26</b>		

### Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.27</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.54</b>		



**Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)**

Contribution	Uncertainty of $X_i$		$u(X_i)$	$C_i$	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>2.36</b>				
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>4.72</b>				



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP121516-01 as below.