



# FCC RF Test Report

**APPLICANT** : ViewSonic Corporation  
**EQUIPMENT** : Smart Phone  
**BRAND NAME** : ViewSonic  
**MODEL NAME** : VS14032  
**FCC ID** : GSS-VS14032  
**STANDARD** : FCC Part 15 Subpart C §15.247  
**CLASSIFICATION** : (DTS) Digital Transmission System

The product was received on Nov. 28, 2011 and completely tested on Dec. 24, 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 shown 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:

Jones Tsai / 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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### REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR1N2831B	Rev. 01	Initial issue of report	Dec. 28, 2011

## 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	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 18.10 dB at 0.486 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.06 dB at 245.730 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



# 1 General Description

## 1.1 Applicant

**ViewSonic Corporation**  
381 Brea Canyon Road, Walnut, CA 91789, USA

## 1.2 Manufacturer

**ViewSonic Corporation**  
381 Brea Canyon Road, Walnut, CA 91789, USA

## 1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Smart Phone
Brand Name	ViewSonic
Model Name	VS14032
FCC ID	GSS-VS14032
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 15.99 dBm (0.0397 W) 802.11g : 20.60 dBm (0.1148 W) 802.11n (BW 20MHz) : 20.41 dBm (0.1099 W)
Antenna Type	PIFA Antenna with gain -3.30 dBi
Type of Antenna Connector	N/A
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4 Testing Site

<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	722060/4086B-1

## 1.5 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
- ♦ FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 8
- ♦ IC RSS-Gen Issue 3

**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, recorded in a separate test report.

## 1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

## 2 Test Configuration of Equipment Under Test

### 2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

Band	2.4GHz 802.11b RF Power (dBm) (Duty cycle 100%)			2.4GHz 802.11g RF Power (dBm) (Duty cycle 100%)		
	Channel	1	6	11	1	6
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	15.99	15.89	15.87	19.78	20.60	20.39

Band	2.4GHz 802.11n (BW 20MHz) RF Power (dBm) (Duty cycle 100%)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Peak Power	19.77	20.40	20.41

**Remark:**

1. All the test data for each data rate were verified, but only the worst case was reported.
2. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, and MCS0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
3. The EUT is programmed to transmit signals continuously for all testing.

## 2.2 Test Mode

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).

Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

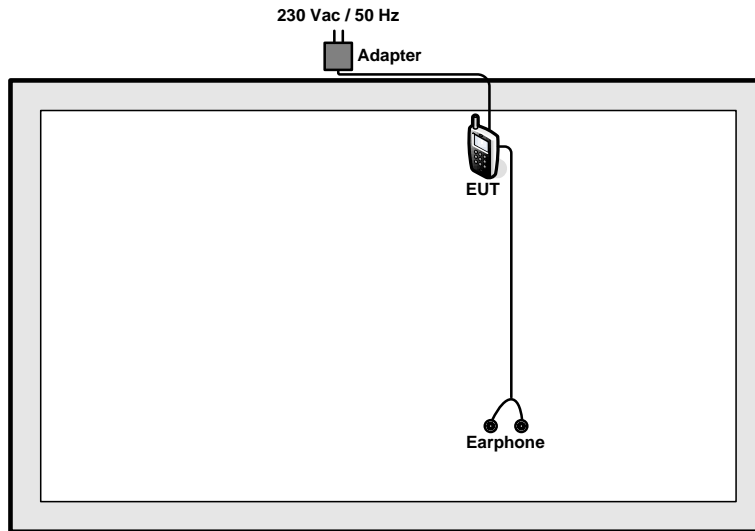
The following tables are showing the test modes as the worst cases (H plane) and recorded in this report.

Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
<b>Conducted TCs</b>	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
<b>Radiated TCs</b>	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
<b>AC Conducted Emission</b>	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link + Earphone + Camera + Battery + USB Cable (Charging from Adapter) + SIM 1 Mode 2 : GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + MPEG4 + Battery + USB Cable (Charging from Adapter) + SIM 2	
<b>Remark:</b> The worst case of conducted emission is mode 2; only the test data of it was reported.		

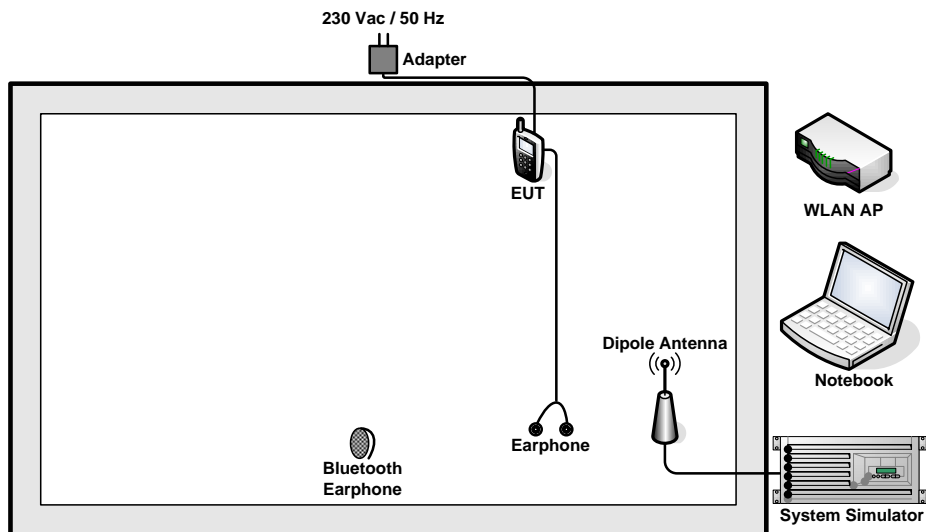


## 2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



## 2.4 RF Utility

Execute “\* # \* # 373 # \* # \*” in the EUT provides functions like channel selection and power level for transmitting and receiving signals continuously.

### 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.

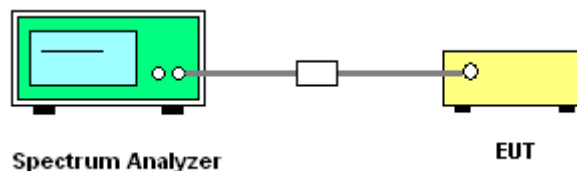
##### 3.1.2 Measuring Instruments

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



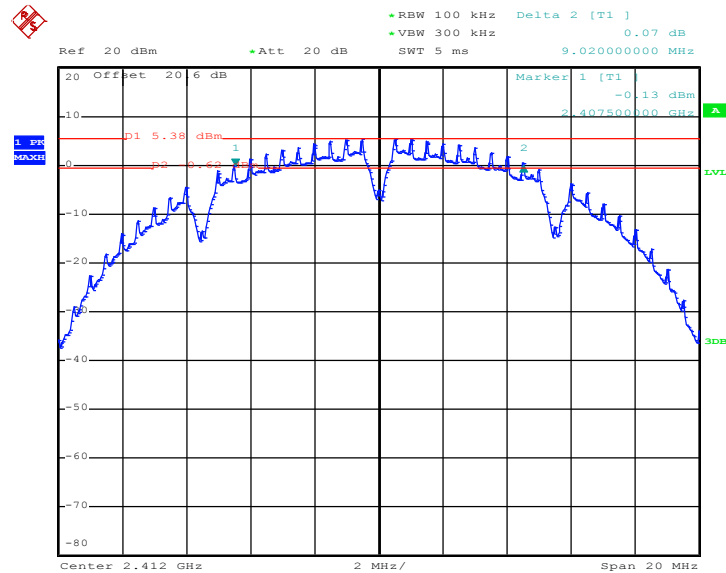


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.02	0.5	Pass
06	2437	9.04	0.5	Pass
11	2462	9.04	0.5	Pass

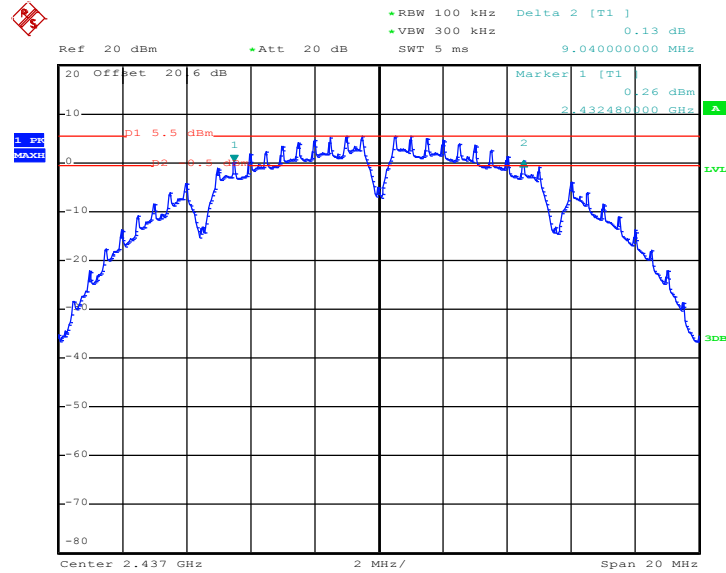
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 14.DEC.2011 18:52:44

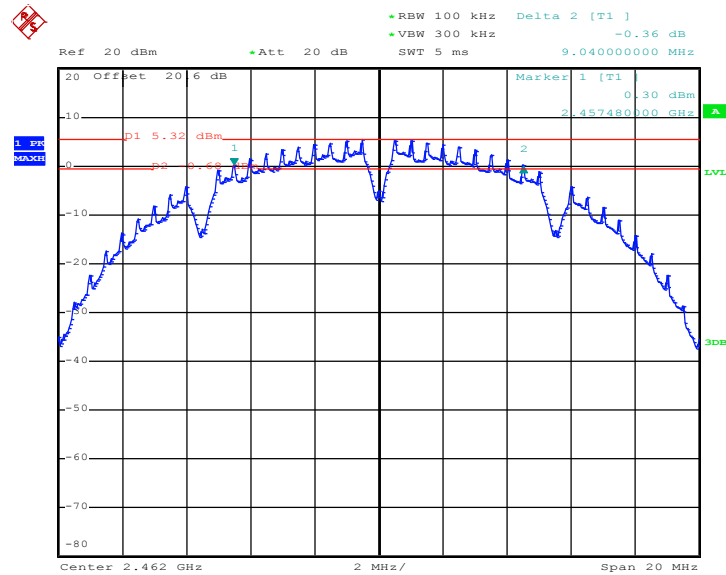


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 14.DEC.2011 18:40:19

Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



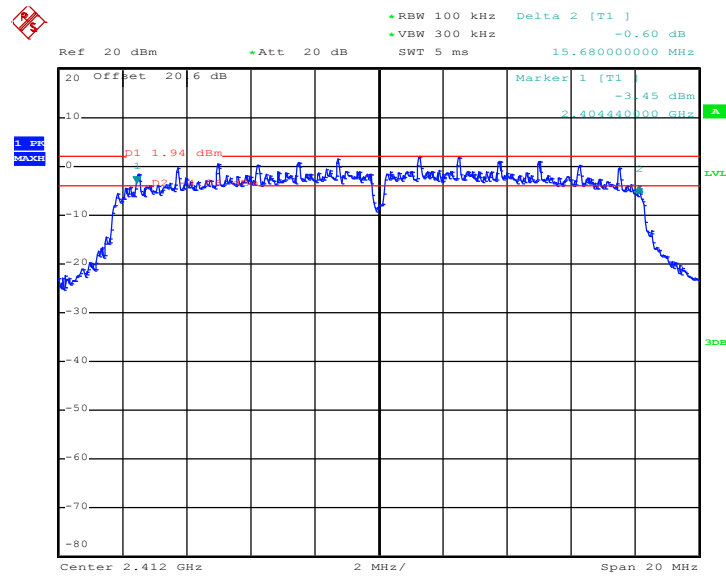
Date: 14.DEC.2011 18:57:07



Test Mode :	Mode 4, 5, 6	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.68	0.5	Pass
06	2437	15.80	0.5	Pass
11	2462	15.44	0.5	Pass

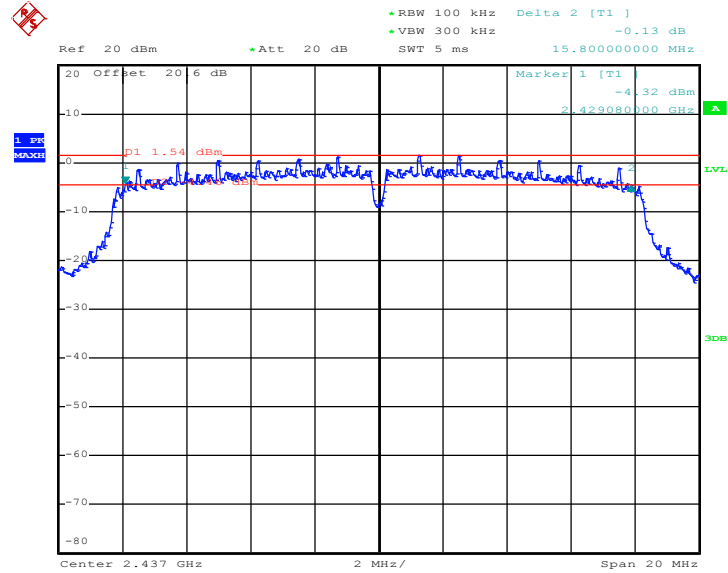
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 14.DEC.2011 21:13:52

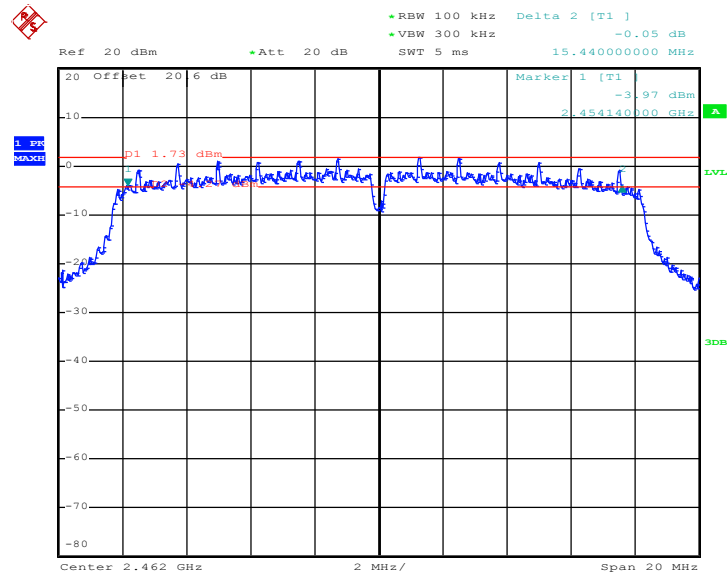


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 14.DEC.2011 19:37:06

Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



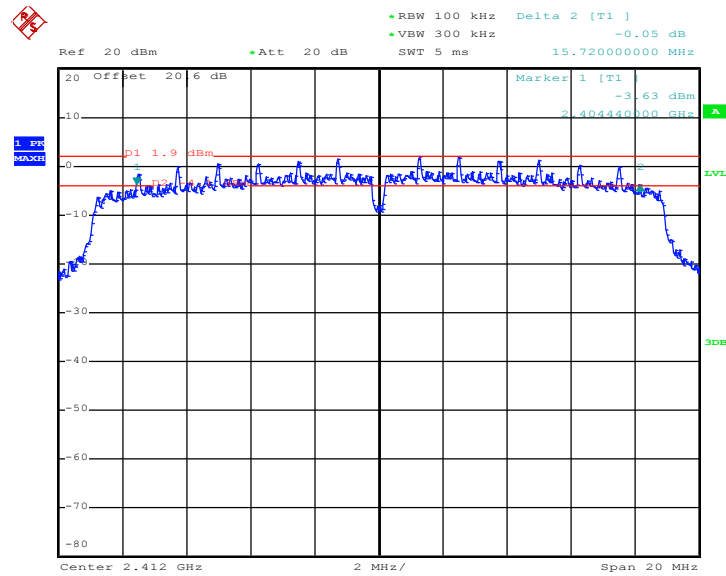
Date: 14.DEC.2011 19:09:50



Test Mode :	Mode 7, 8, 9	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.72	0.5	Pass
06	2437	15.72	0.5	Pass
11	2462	16.16	0.5	Pass

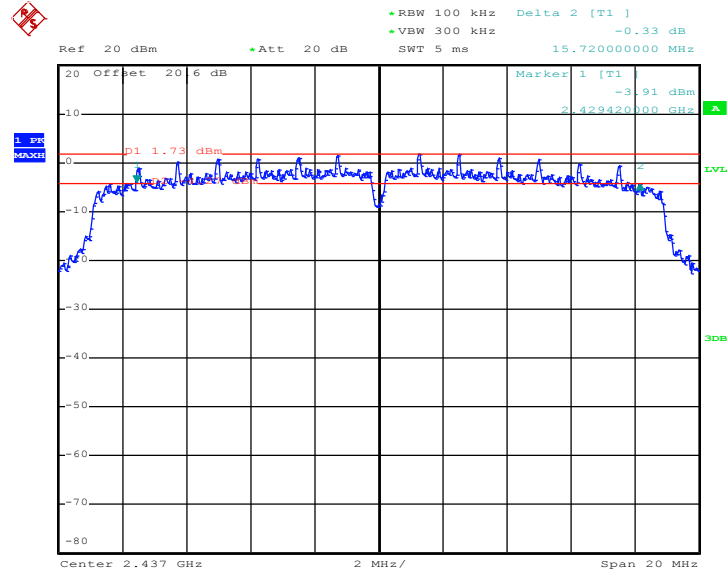
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 18.DEC.2011 17:27:34

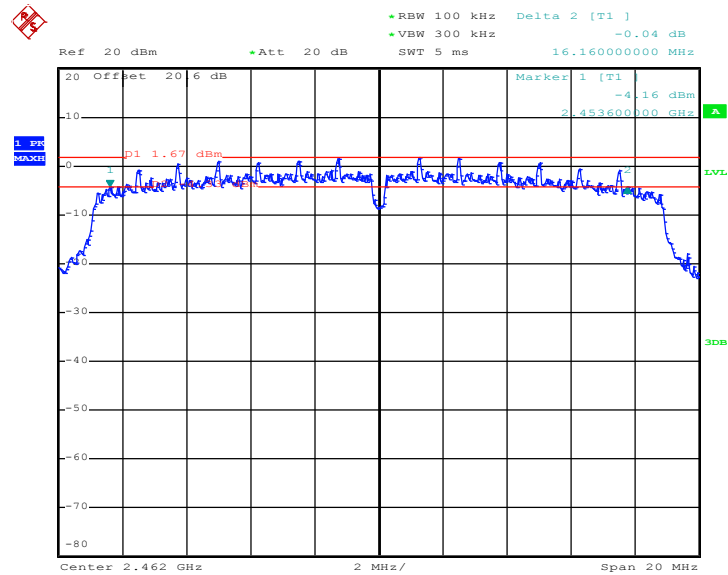


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 14.DEC.2011 21:41:44

Mode 9 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 11



Date: 18.DEC.2011 17:22:11



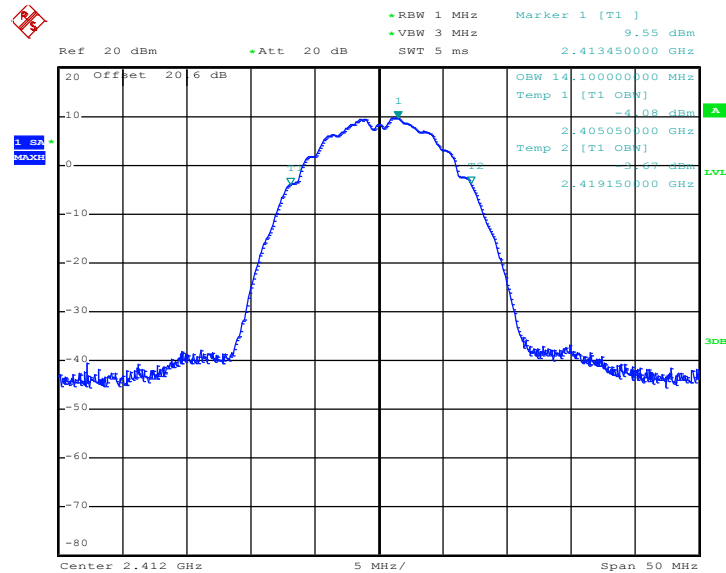


3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.10	Pass
06	2437	14.10	Pass
11	2462	14.10	Pass

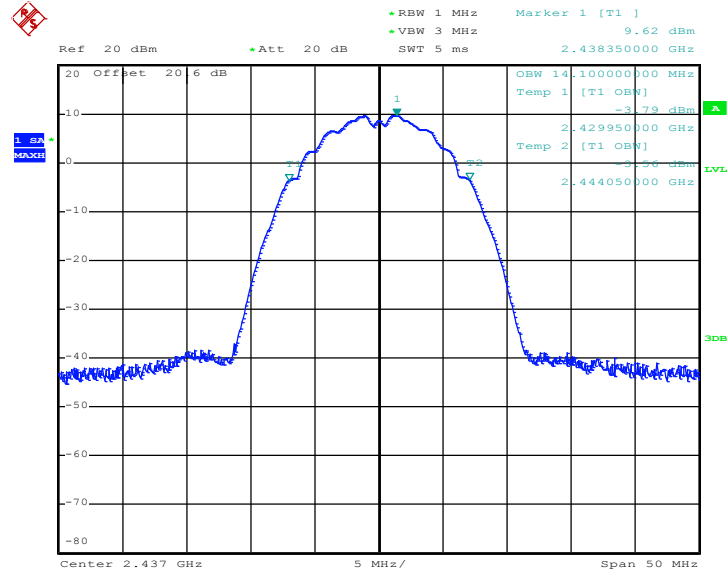
Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 14.DEC.2011 17:46:17

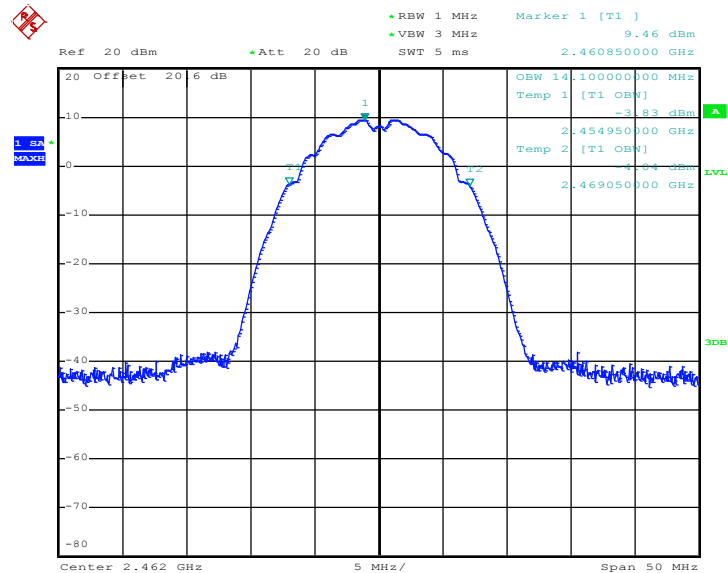


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 14.DEC.2011 18:40:48

Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



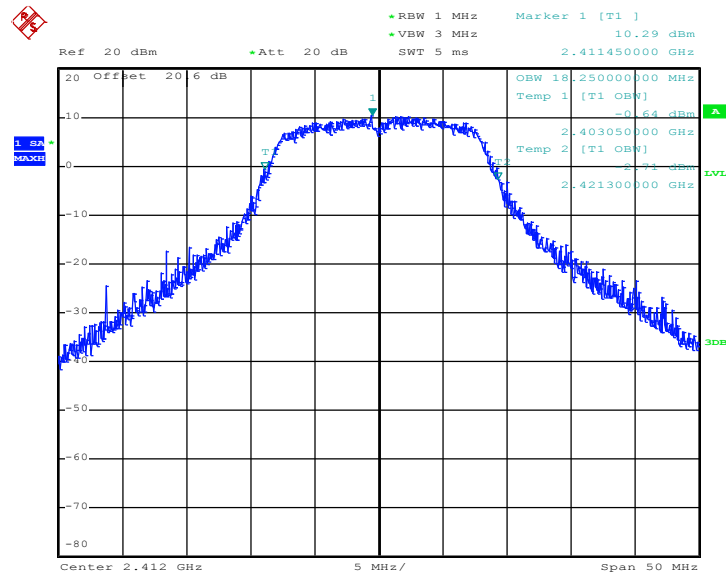
Date: 14.DEC.2011 18:58:19



Test Mode :	Mode 4, 5, 6	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.25	Pass
06	2437	18.20	Pass
11	2462	18.20	Pass

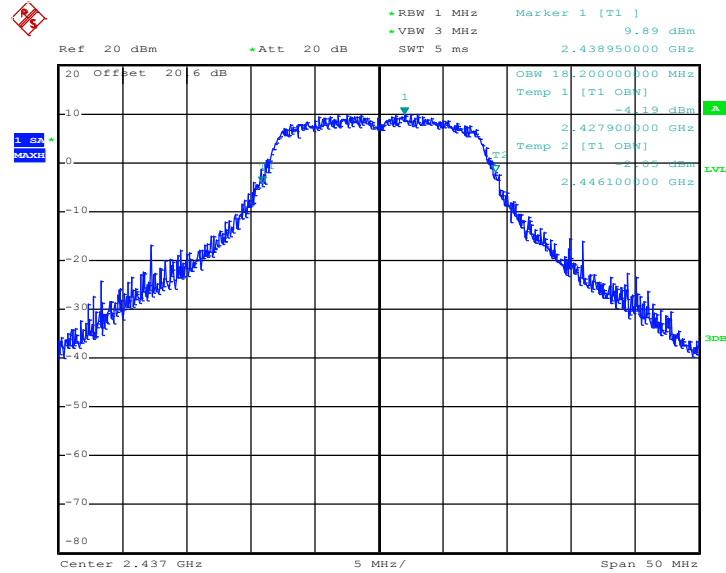
Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 14.DEC.2011 21:15:25

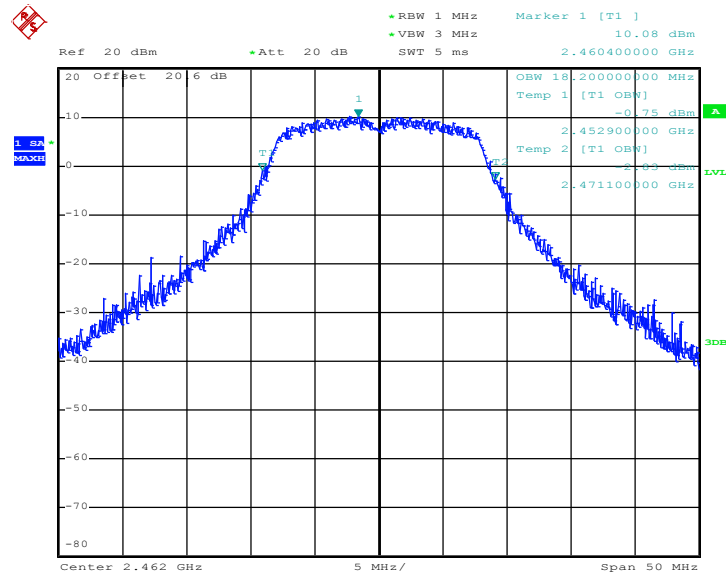


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 14.DEC.2011 19:37:36

Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



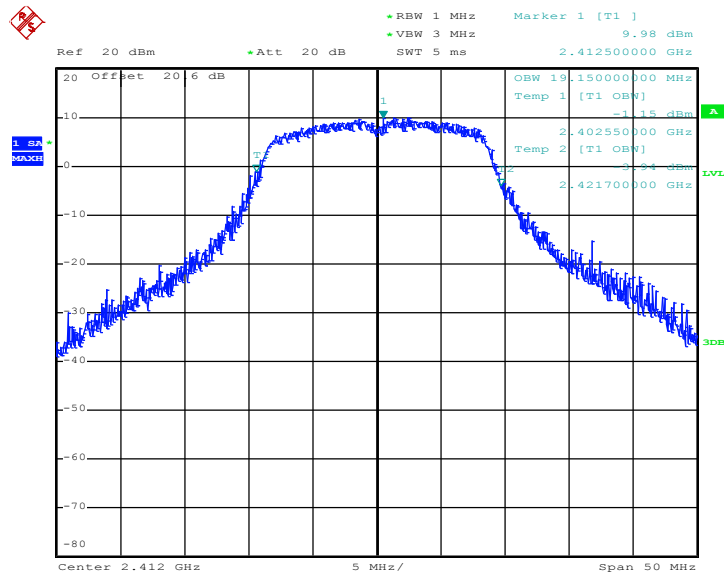
Date: 14.DEC.2011 19:11:01



Test Mode :	Mode 7, 8, 9	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.15	Pass
06	2437	19.20	Pass
11	2462	19.15	Pass

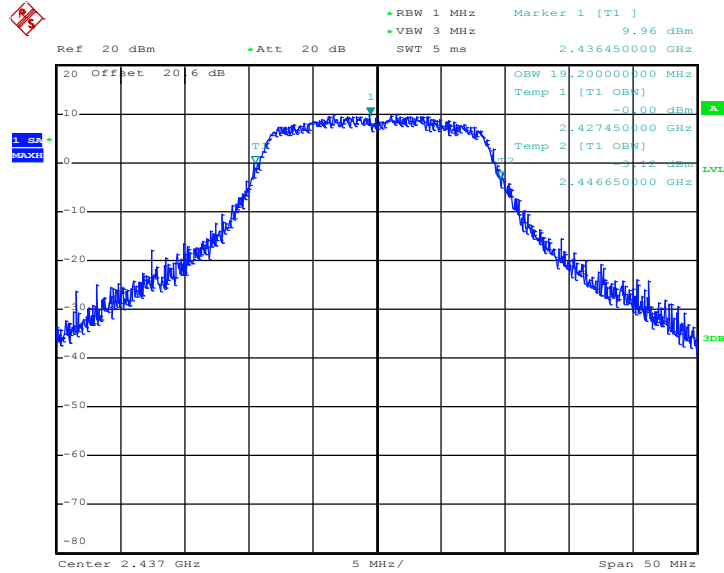
Mode 7 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 14.DEC.2011 21:29:12

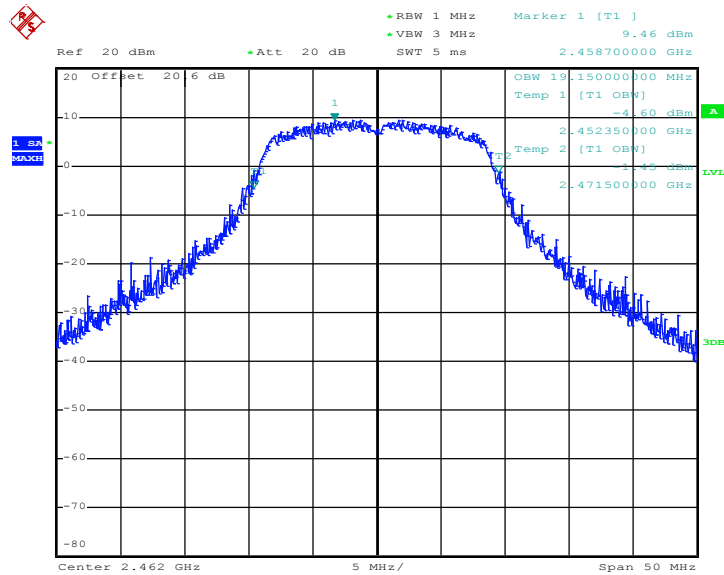


Mode 8 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 14.DEC.2011 21:42:14

Mode 9 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 11



Date: 18.DEC.2011 17:23:24

## 3.2 Output Power Measurement

### 3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, 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 point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

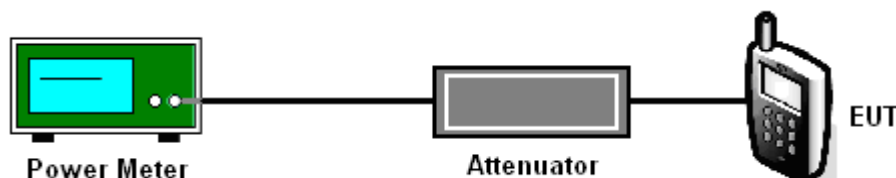
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 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 power meter by a low loss cable.
3. Measure the power by power meter.

### 3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	15.99	30	Pass
06	2437	15.89	30	Pass
11	2462	15.87	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.78	30	Pass
06	2437	20.60	30	Pass
11	2462	20.39	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.77	30	Pass
06	2437	20.40	30	Pass
11	2462	20.41	30	Pass





### **3.3 Band Edges Measurement**

#### **3.3.1 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.

#### **3.3.2 Measuring Instruments**

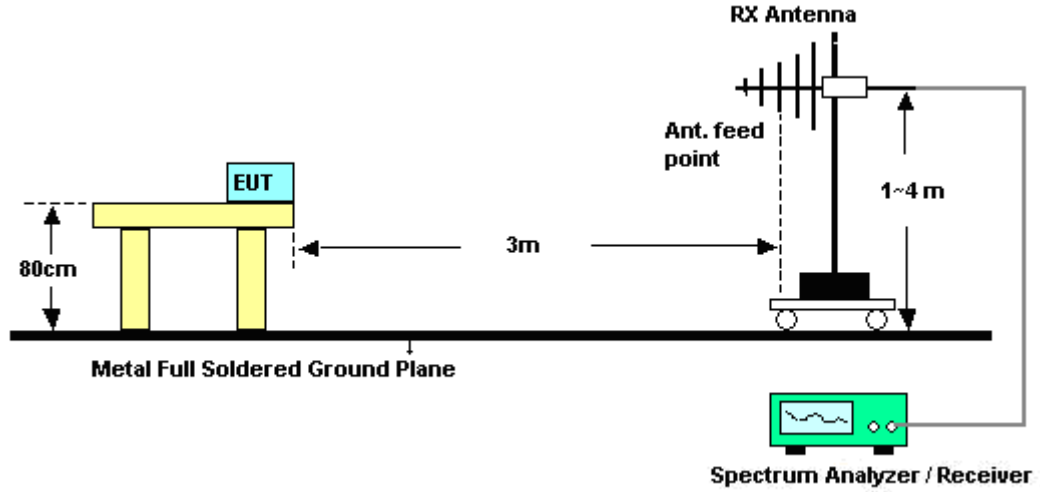
See list of measuring instruments of this test report.

#### **3.3.3 Test Procedures**

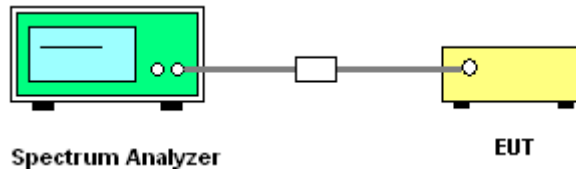
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW)  $\geq$  RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 KHz RBW. Note: If the device complies with the use of power option 2 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 = 10 Hz, Sweep=Auto. 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).

### 3.3.4 Test Setup

#### <Radiated Band Edges>



#### <Conducted Band Edges>





3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	21~23°C
Test Band :	802.11b	Relative Humidity :	48~51%
Test Channel :	01	Test Engineer :	David Yang

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
2387.9	56.15	-17.85	74	52.02	32.06	6.03	33.96	103	352	Peak
2387.9	44.6	-9.4	54	40.47	32.06	6.03	33.96	103	352	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
2384.86	49.88	-24.12	74	45.78	32.03	6.03	33.96	129	278	Peak
2384.86	37.47	-16.53	54	33.37	32.03	6.03	33.96	129	278	Average

Test Mode :	Mode 3	Temperature :	21~23°C
Test Band :	802.11b	Relative Humidity :	48~51%
Test Channel :	11	Test Engineer :	David Yang

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
2484.42	58.2	-15.8	74	53.84	32.18	6.18	34	102	355	Peak
2484.42	47.39	-6.61	54	43.03	32.18	6.18	34	102	355	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	51.83	-22.17	74	47.47	32.18	6.18	34	100	264	Peak
2483.5	39.95	-14.05	54	35.59	32.18	6.18	34	100	264	Average



Test Mode :	Mode 4	Temperature :	21~23°C
Test Band :	802.11g	Relative Humidity :	48~51%
Test Channel :	01	Test Engineer :	David Yang

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
2389.99	70.02	-3.98	74	65.89	32.06	6.03	33.96	108	16	Peak
2389.99	45.45	-8.55	54	41.32	32.06	6.03	33.96	108	16	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
2389.61	61.42	-12.58	74	57.29	32.06	6.03	33.96	129	277	Peak
2389.61	39.48	-14.52	54	35.35	32.06	6.03	33.96	129	277	Average

Test Mode :	Mode 6	Temperature :	21~23°C
Test Band :	802.11g	Relative Humidity :	48~51%
Test Channel :	11	Test Engineer :	David Yang

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	70.91	-3.09	74	66.55	32.18	6.18	34	100	312	Peak
2483.5	46.7	-7.3	54	42.34	32.18	6.18	34	100	312	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	63.98	-10.02	74	59.62	32.18	6.18	34	100	249	Peak
2483.5	40.21	-13.79	54	35.85	32.18	6.18	34	100	249	Average



Test Mode :	Mode 7	Temperature :	21~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~51%
Test Channel :	01	Test Engineer :	David Yang

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
2389.99	69.06	-4.94	74	64.93	32.06	6.03	33.96	103	19	Peak
2389.99	47.16	-6.84	54	43.03	32.06	6.03	33.96	103	19	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
2389.99	63.99	-10.01	74	59.86	32.06	6.03	33.96	128	277	Peak
2389.99	41.37	-12.63	54	37.24	32.06	6.03	33.96	128	277	Average

Test Mode :	Mode 9	Temperature :	21~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~51%
Test Channel :	11	Test Engineer :	David Yang

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	70.83	-3.17	74	66.47	32.18	6.18	34	105	0	Peak
2483.5	47.67	-6.33	54	43.31	32.18	6.18	34	105	0	Average

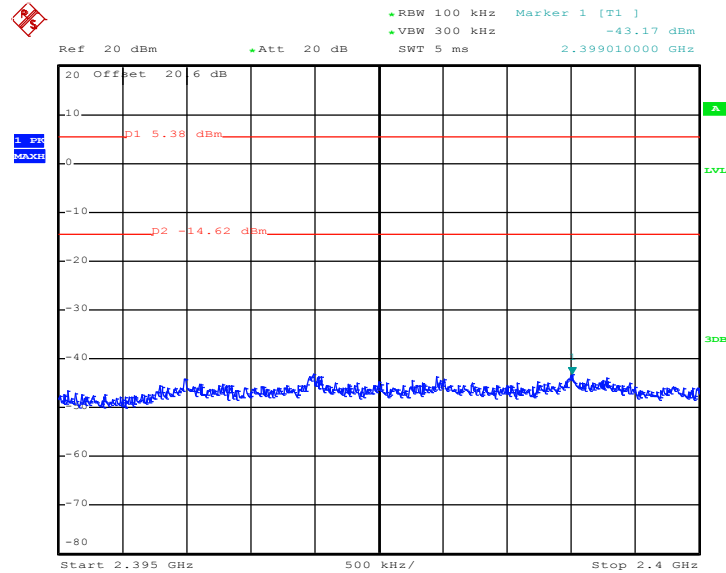
ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.42	65.99	-8.01	74	61.63	32.18	6.18	34	100	282	Peak
2484.42	42.33	-11.67	54	37.97	32.18	6.18	34	100	282	Average



3.3.6 Test Plots of Conducted Band Edges

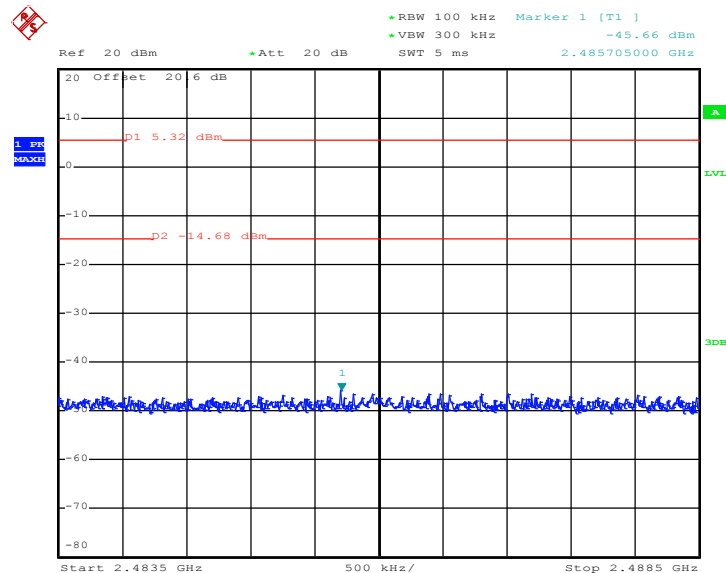
Test Mode :	Mode 1 and 3	Temperature :	21~25°C
Test Band :	802.11b	Relative Humidity :	53~56%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11b Channel 01



Date: 14.DEC.2011 18:53:52

High Band Edge Plot on 802.11b Channel 11

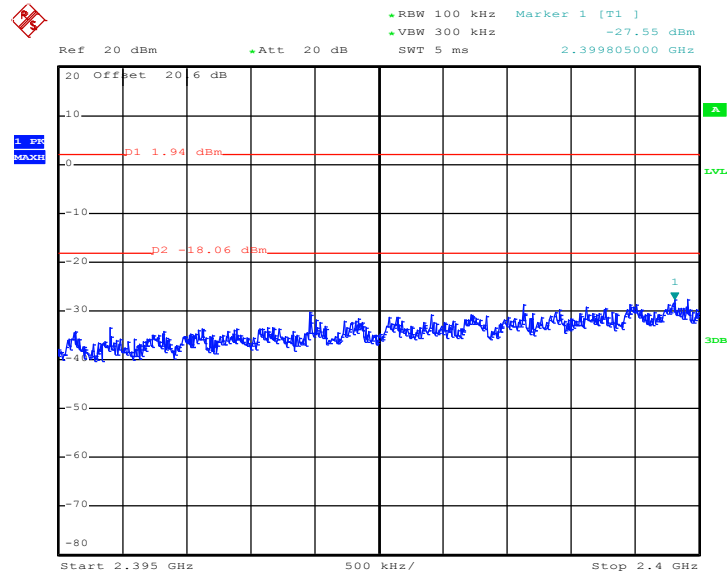


Date: 14.DEC.2011 18:57:53



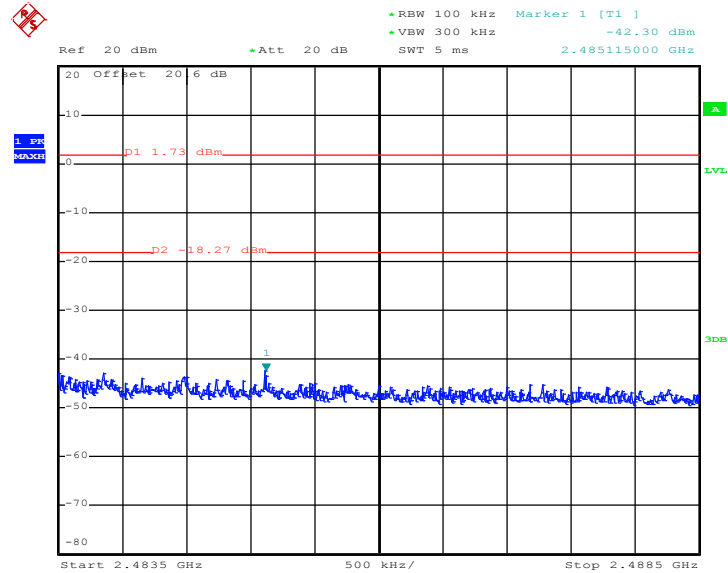
Test Mode :	Mode 4 and 6	Temperature :	21~25°C
Test Band :	802.11g	Relative Humidity :	53~56%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11g Channel 01



Date: 14.DEC.2011 21:15:00

High Band Edge Plot on 802.11g Channel 11

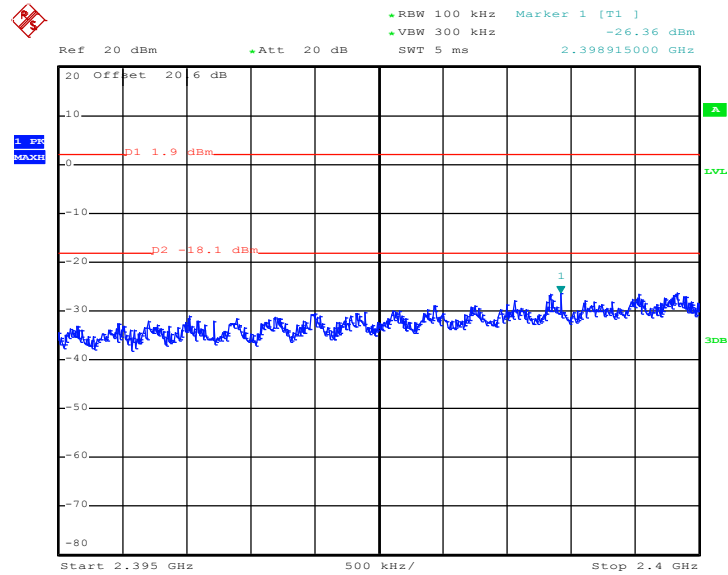


Date: 14.DEC.2011 19:10:36



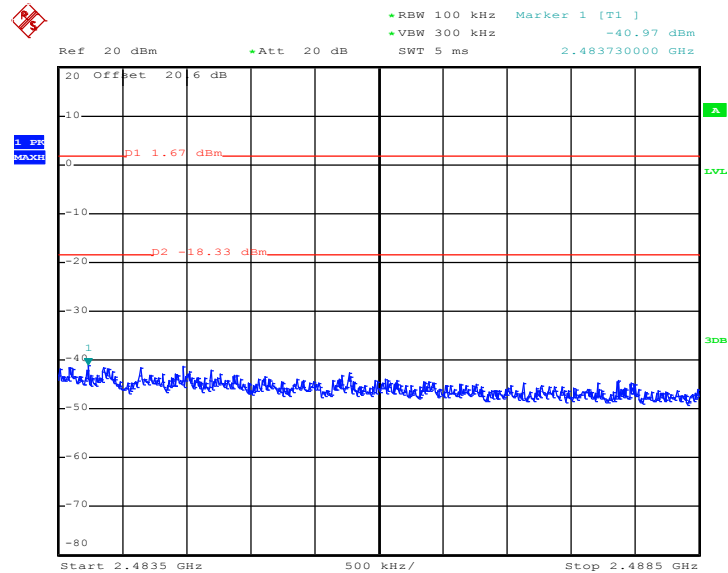
Test Mode :	Mode 7 and 9	Temperature :	21~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	53~56%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11n (BW 20MHz) Channel 01



Date: 18.DEC.2011 17:28:43

High Band Edge Plot on 802.11n (BW 20MHz) Channel 11



Date: 18.DEC.2011 17:22:58



## 3.4 Spurious Emission Measurement

### 3.4.1 Limit of Spurious Emission Measurement

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

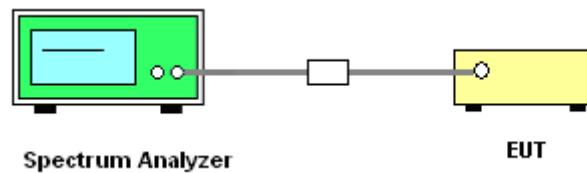
### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 KHz, Video bandwidth (VBW)  $\geq$  RBW, 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.

### 3.4.4 Test Setup

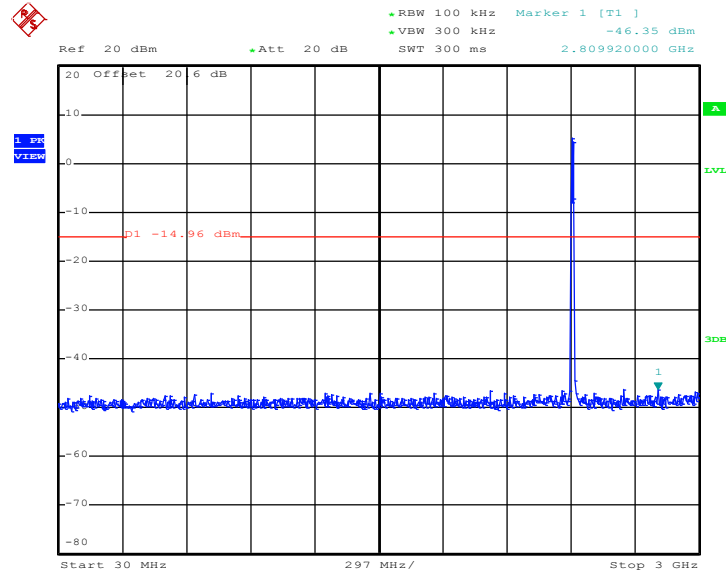




### 3.4.5 Test Plots of Spurious Emission

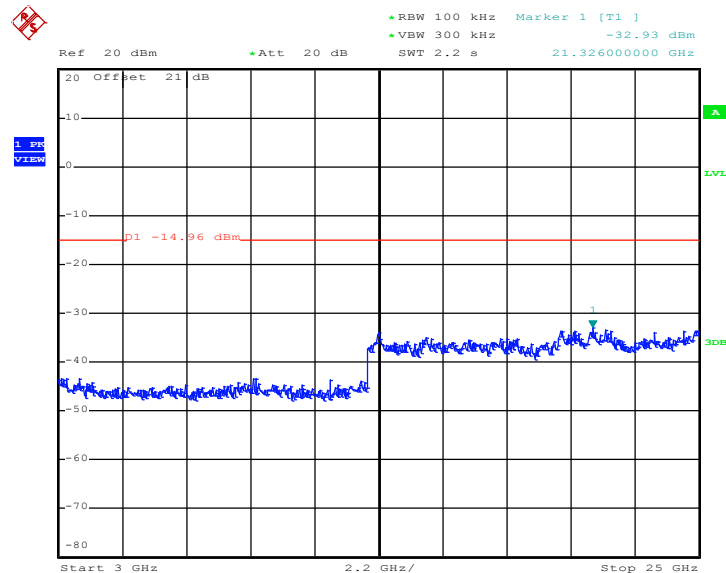
Test Mode :	Mode 1	Temperature :	21~25°C
Test Band :	802.11b	Relative Humidity :	53~56%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 17:43:20

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

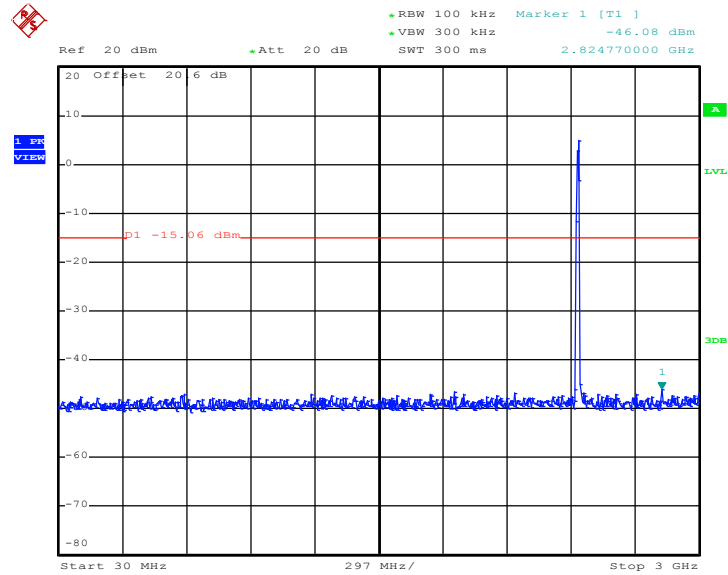


Date: 14.DEC.2011 17:43:36



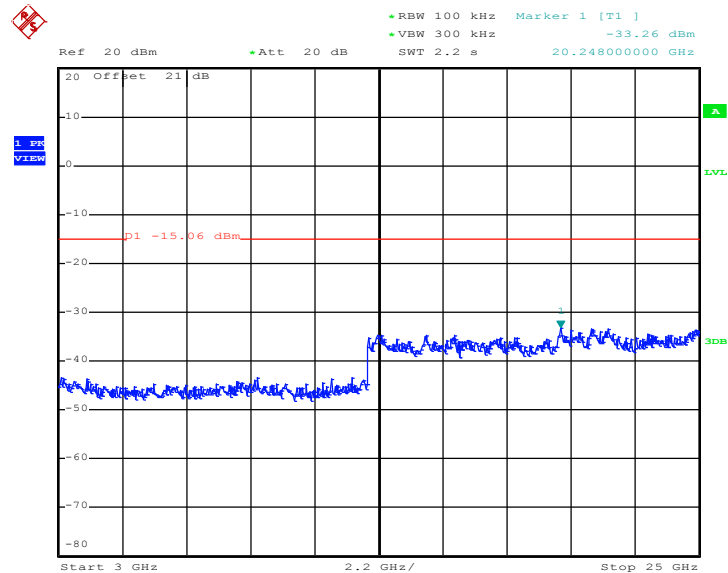
Test Mode :	Mode 2	Temperature :	21~25°C
Test Band :	802.11b	Relative Humidity :	53~56%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 18:50:14

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

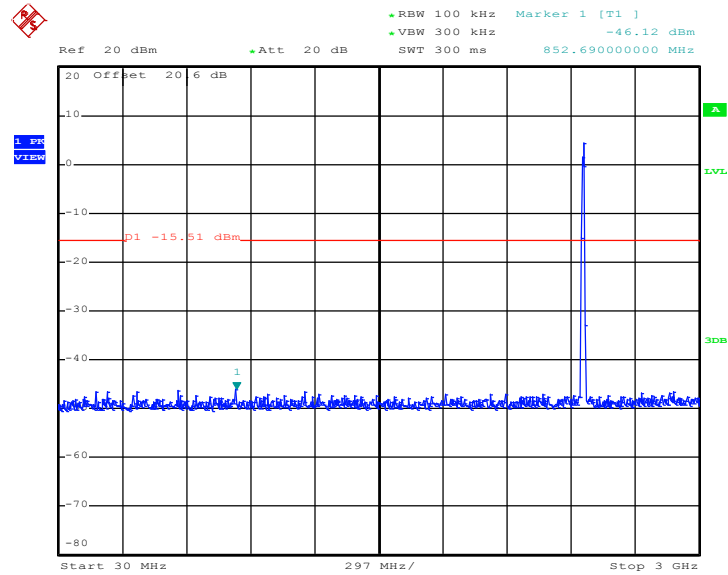


Date: 14 DEC 2011 18:50:31



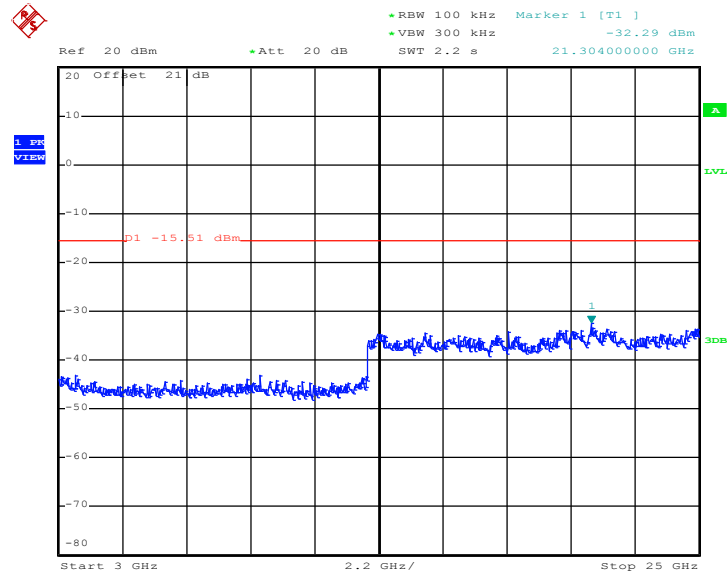
Test Mode :	Mode 3	Temperature :	21~25°C
Test Band :	802.11b	Relative Humidity :	53~56%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 19:07:31

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

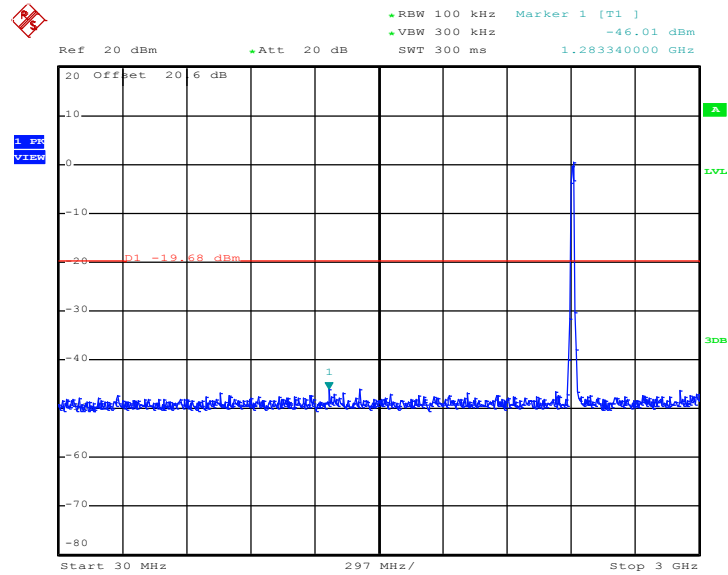


Date: 14.DEC.2011 19:07:48



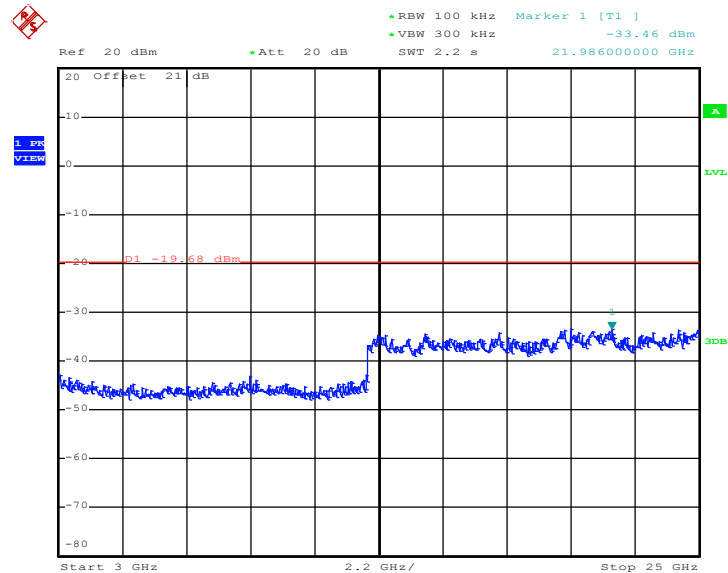
Test Mode :	Mode 4	Temperature :	21~25°C
Test Band :	802.11g	Relative Humidity :	53~56%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 21:24:44

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

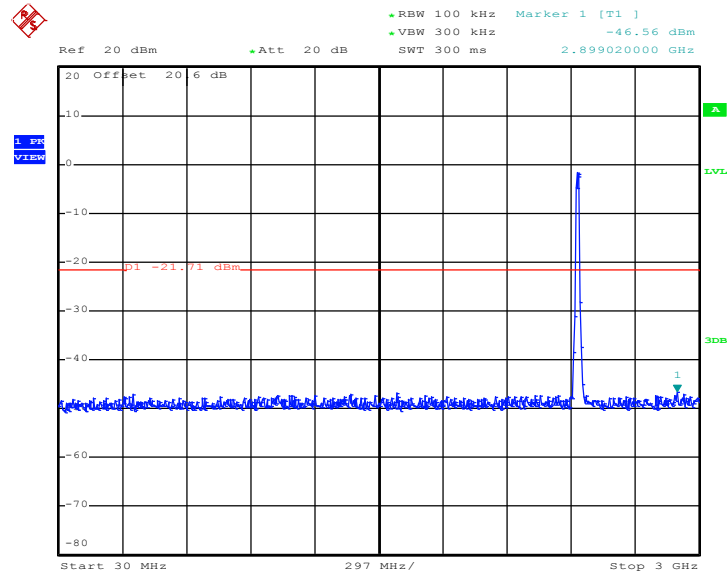


Date: 14 DEC 2011 21:25:01



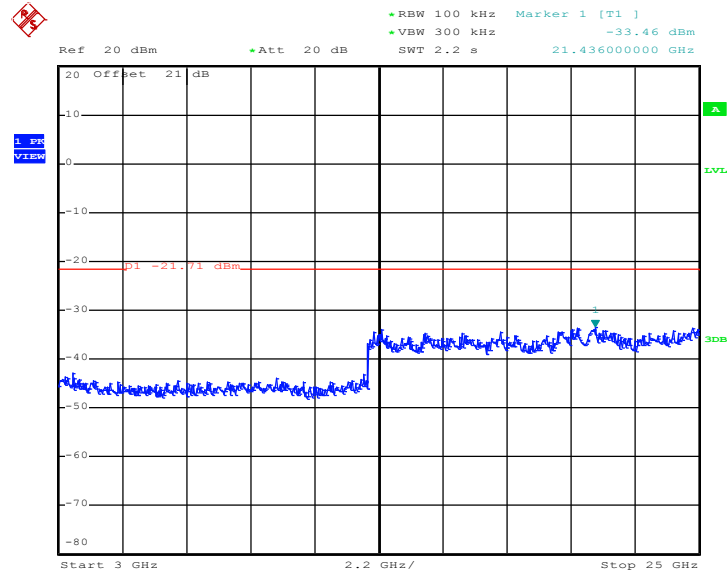
Test Mode :	Mode 5	Temperature :	21~25
Test Band :	802.11g	Relative Humidity :	53~56
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 19:47:34

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

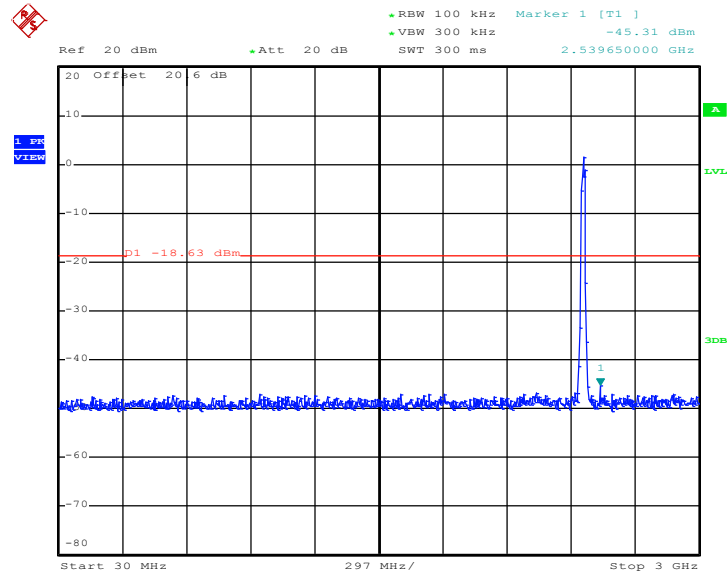


Date: 14.DEC.2011 19:47:51



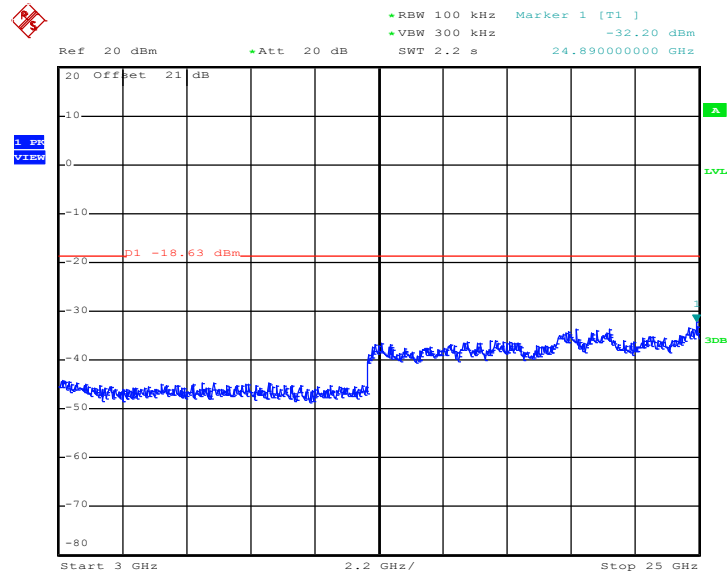
Test Mode :	Mode 6	Temperature :	21~25°C
Test Band :	802.11g	Relative Humidity :	53~56%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.DEC.2011 17:24:56

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

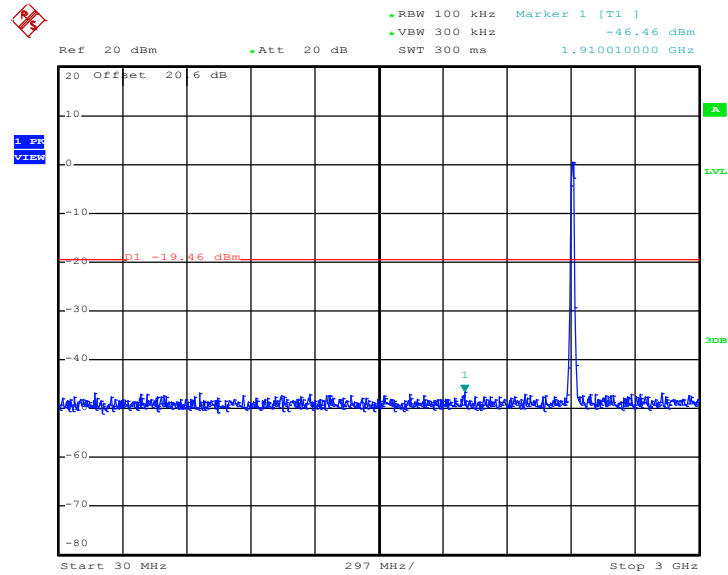


Date: 18.DEC.2011 17:25:14



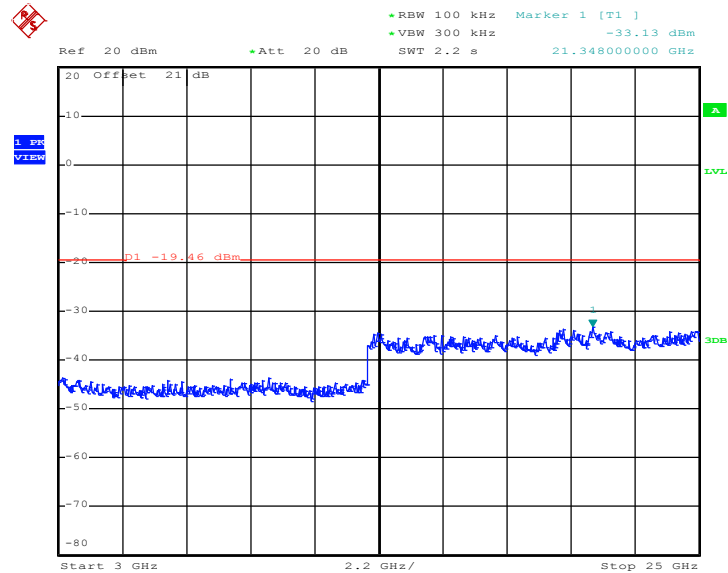
Test Mode :	Mode 7	Temperature :	21~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	53~56%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 09:54:54

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



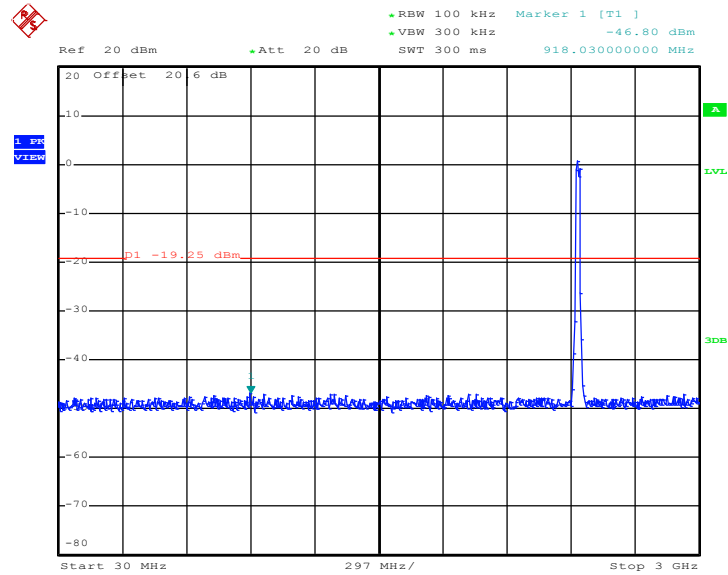
Date: 14.DEC.2011 09:55:11





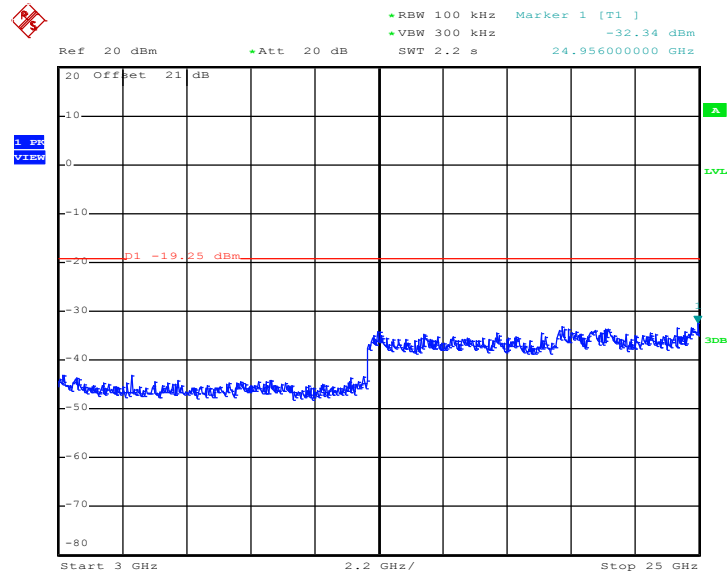
Test Mode :	Mode 8	Temperature :	21~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	53~56%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 21:51:53

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

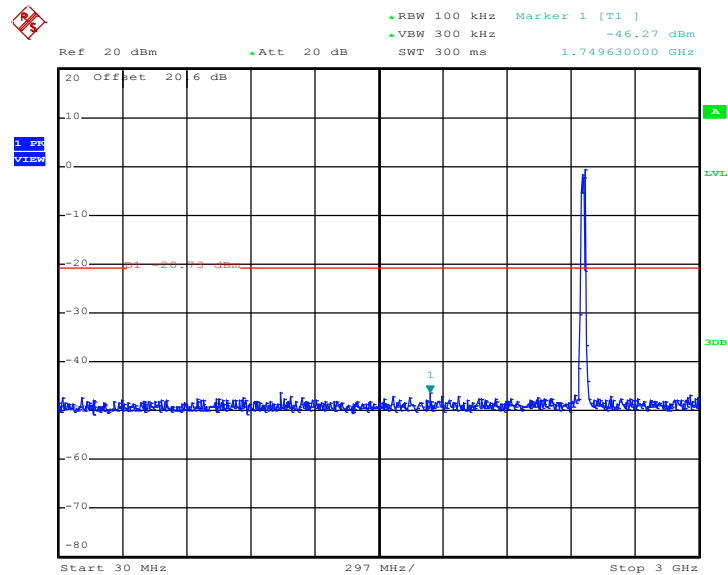


Date: 14.DEC.2011 21:52:10



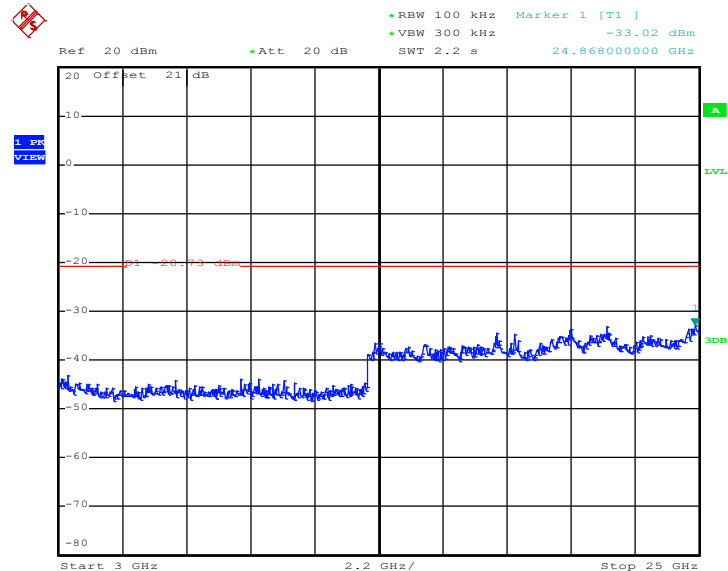
Test Mode :	Mode 9	Temperature :	21~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	53~56%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.DEC.2011 17:23:45

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 18.DEC.2011 17:24:03

## 3.5 Power Spectral Density Measurement

### 3.5.1 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.

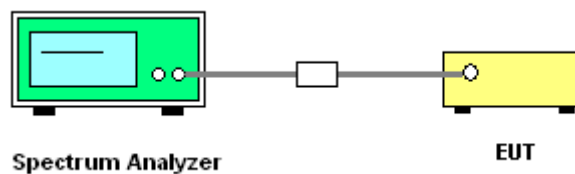
### 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.5.3 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.

### 3.5.4 Test Setup



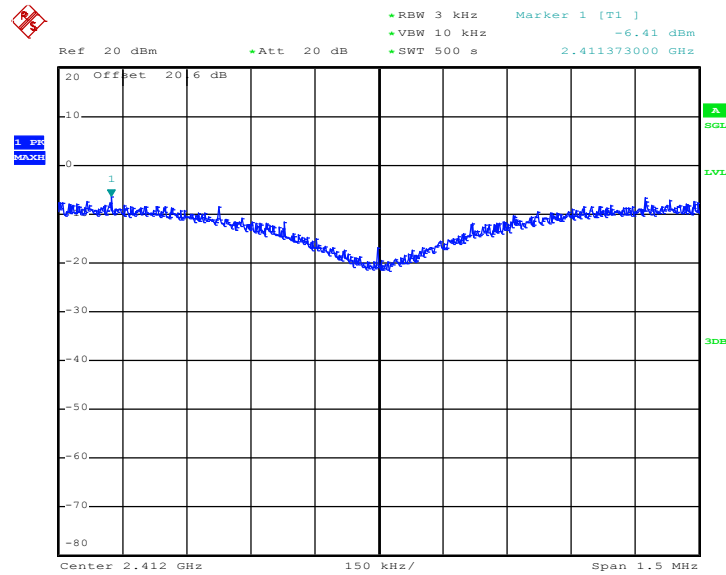


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.41	8	Pass
06	2437	-7.44	8	Pass
11	2462	-7.26	8	Pass

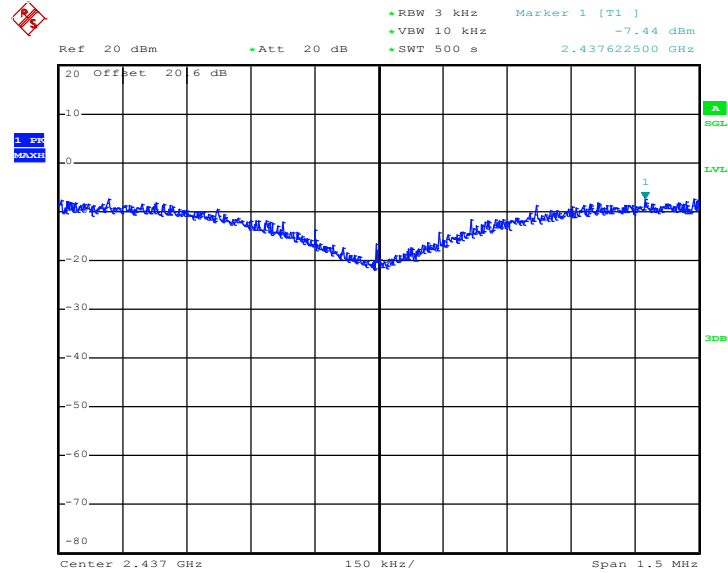
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 14.DEC.2011 18:38:16

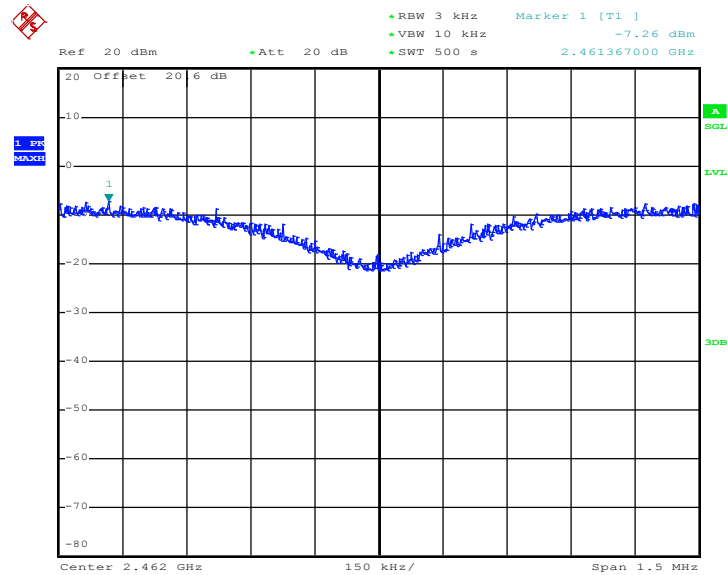


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 14.DEC.2011 18:49:53

Mode 3 : PSD Plot on 802.11b Channel 11



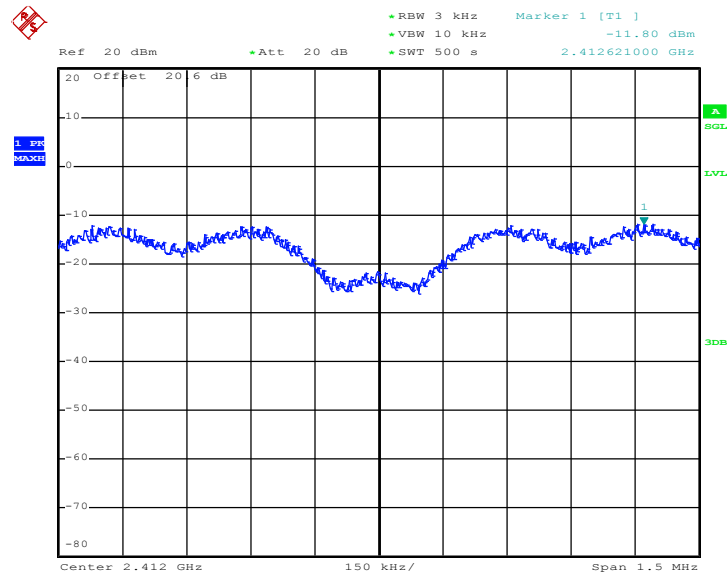
Date: 14.DEC.2011 19:07:10



Test Mode :	Mode 4, 5, 6	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-11.80	8	Pass
06	2437	-12.10	8	Pass
11	2462	-12.04	8	Pass

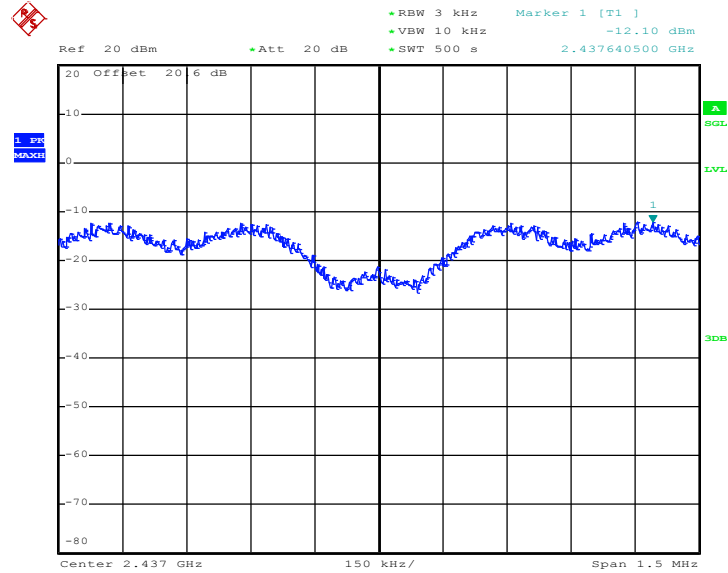
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 14.DEC.2011 21:24:24

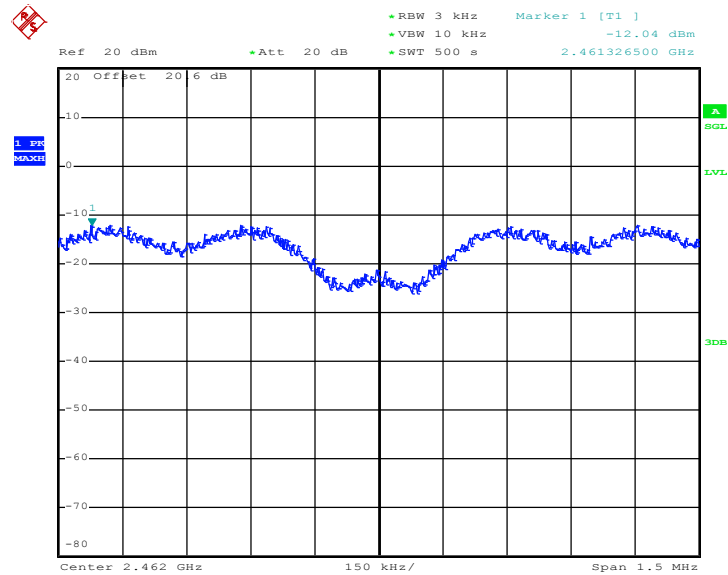


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 14.DEC.2011 19:47:13

Mode 6 : PSD Plot on 802.11g Channel 11



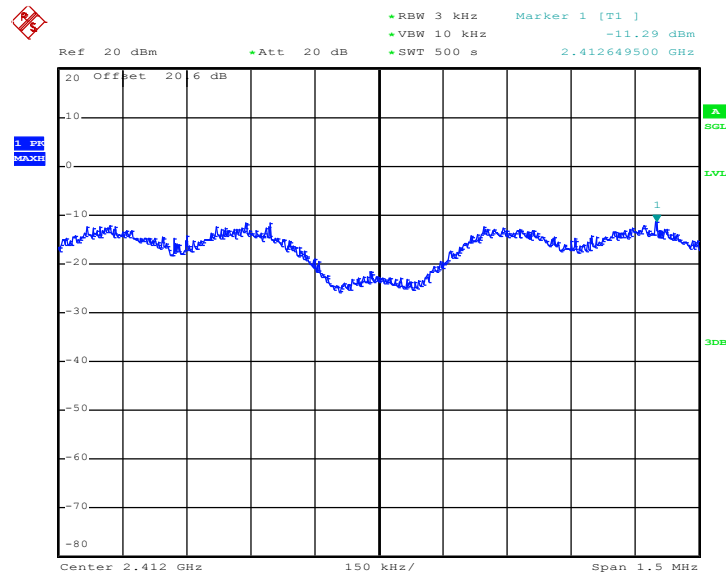
Date: 14.DEC.2011 19:24:29



Test Mode :	Mode 7, 8, 9	Temperature :	21~25°C
Test Engineer :	Hank Yu	Relative Humidity :	53~56%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-11.29	8	Pass
06	2437	-11.06	8	Pass
11	2462	-11.48	8	Pass

Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01

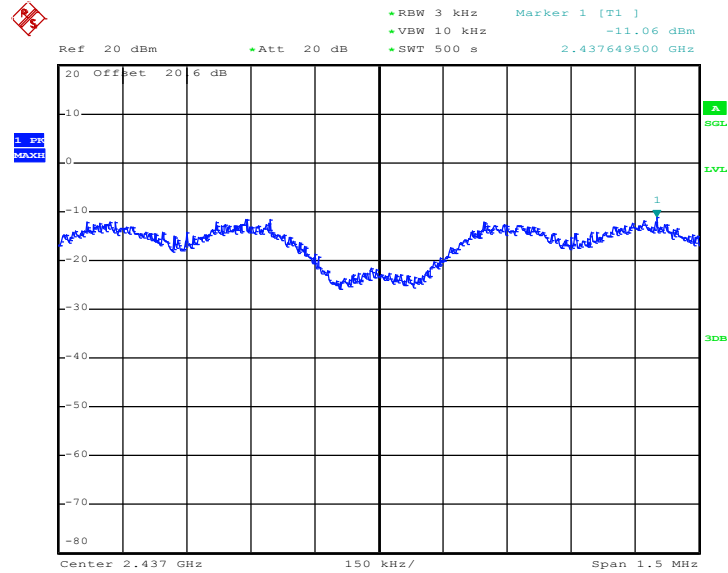


Date: 14.DEC.2011 21:37:49



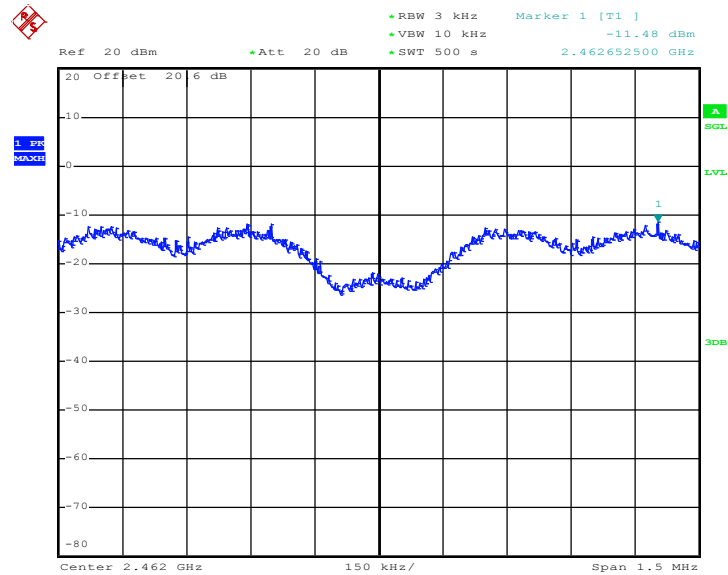


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 14.DEC.2011 21:51:33

Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11



Date: 18.DEC.2011 17:39:48

## 3.6 AC Conducted Emission Measurement

### 3.6.1 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.

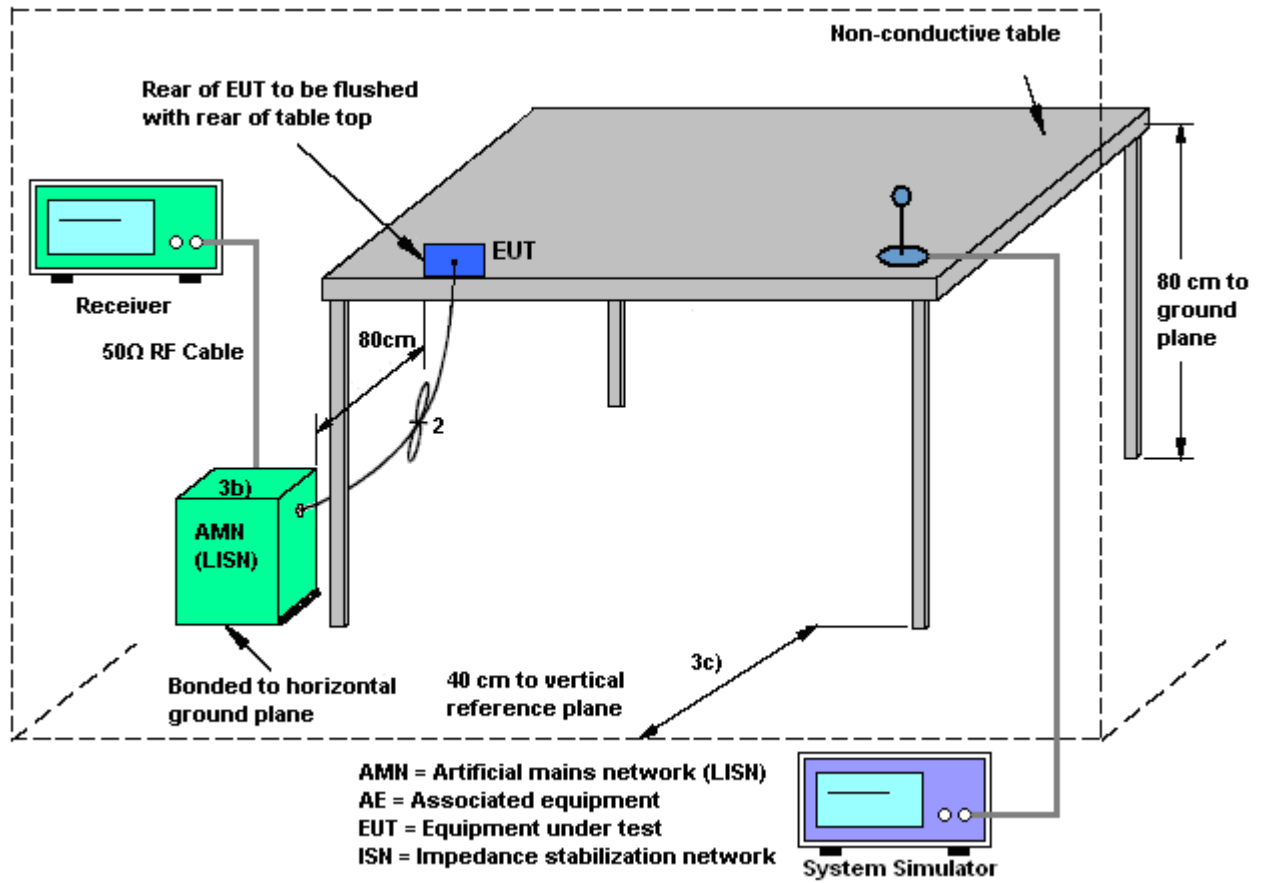
### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.6.3 Test Procedures

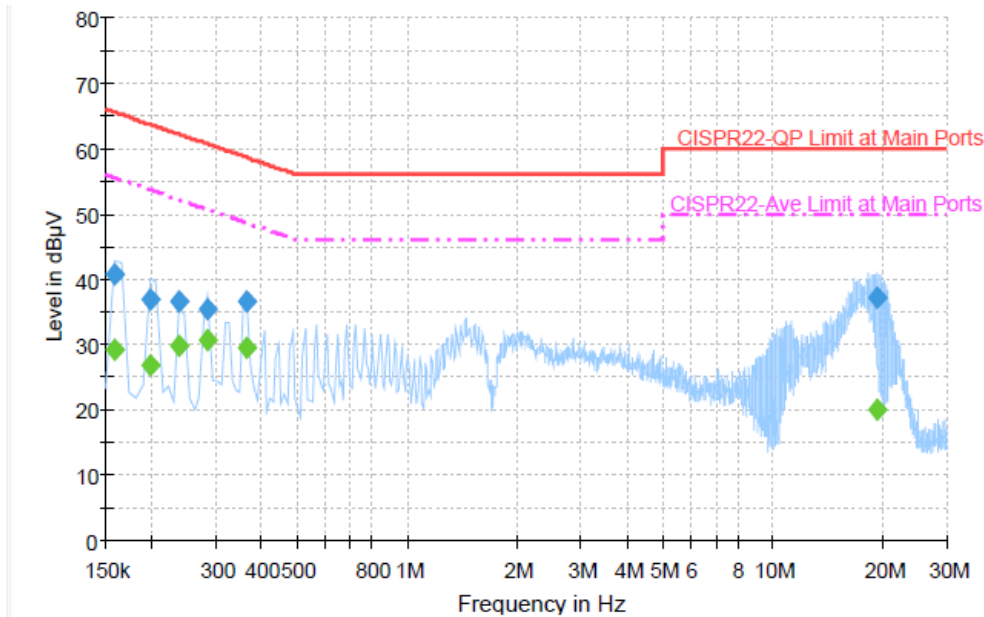
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network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

### 3.6.4 Test Setup



### 3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM1900 Idle + Bluetooth Link + WLAN Link + Earphone + MPEG4 + Battery + USB Cable (Charging from Adapter) + SIM 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



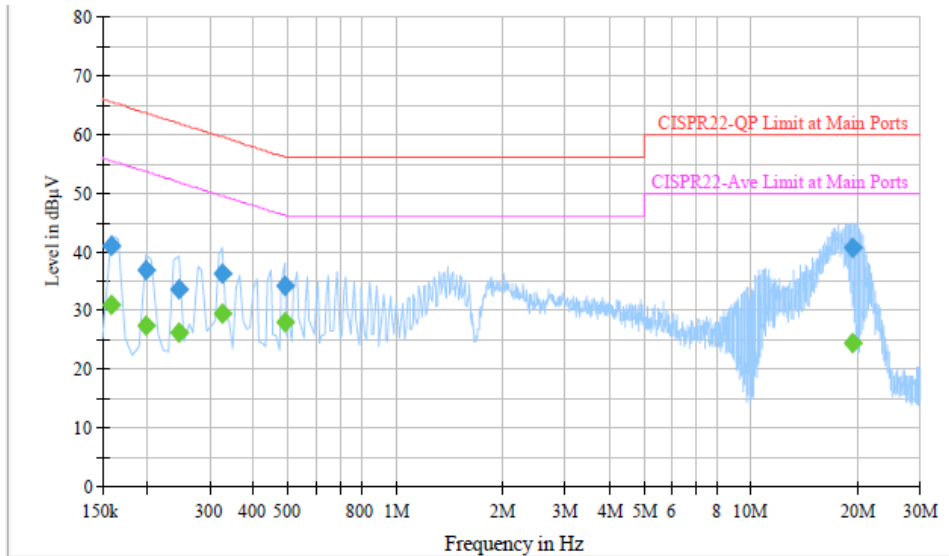
#### Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	40.7	Off	L1	19.4	24.9	65.6
0.198000	37.0	Off	L1	19.4	26.7	63.7
0.238000	36.7	Off	L1	19.4	25.5	62.2
0.286000	35.3	Off	L1	19.4	25.3	60.6
0.366000	36.5	Off	L1	19.4	22.1	58.6
19.398000	37.2	Off	L1	19.7	22.8	60.0

#### Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	29.3	Off	L1	19.4	26.3	55.6
0.198000	26.7	Off	L1	19.4	27.0	53.7
0.238000	29.7	Off	L1	19.4	22.5	52.2
0.286000	30.6	Off	L1	19.4	20.0	50.6
0.366000	29.6	Off	L1	19.4	19.0	48.6
19.398000	19.9	Off	L1	19.7	30.1	50.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Earphone + Camera + Battery + USB Cable (Charging from Adapter) + SIM 1		
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)
0.158000	41.1	Off	N	19.4	24.5	65.6
0.198000	36.9	Off	N	19.4	26.8	63.7
0.246000	33.7	Off	N	19.4	28.2	61.9
0.326000	36.2	Off	N	19.4	23.4	59.6
0.486000	34.3	Off	N	19.4	21.9	56.2
19.350000	40.6	Off	N	19.7	19.4	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	30.9	Off	N	19.4	24.7	55.6
0.198000	27.3	Off	N	19.4	26.4	53.7
0.246000	26.2	Off	N	19.4	25.7	51.9
0.326000	29.6	Off	N	19.4	20.0	49.6
0.486000	28.1	Off	N	19.4	18.1	46.2
19.350000	24.6	Off	N	19.7	25.4	50.0

## 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

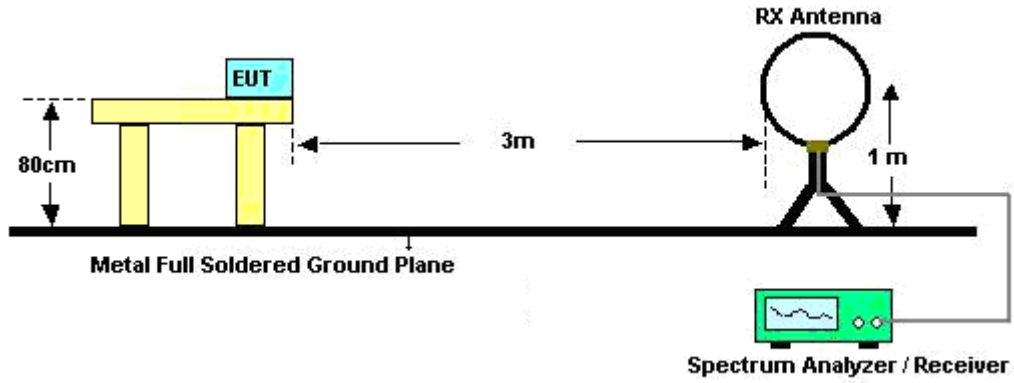
See list of measuring instruments of this test report.

### 3.7.3 Test Procedures

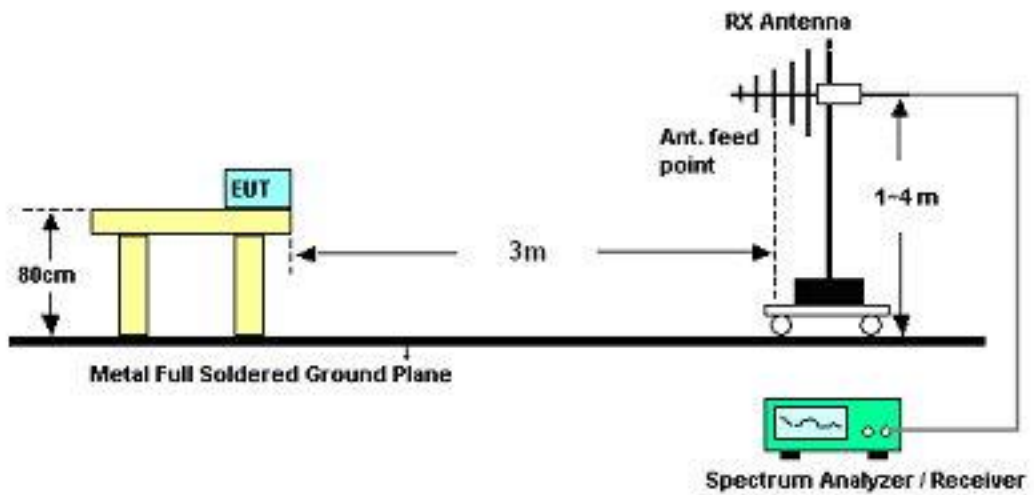
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
  - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for  $f \geq 1$  GHz, 100 KHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold.
  - (2) 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)
3. 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

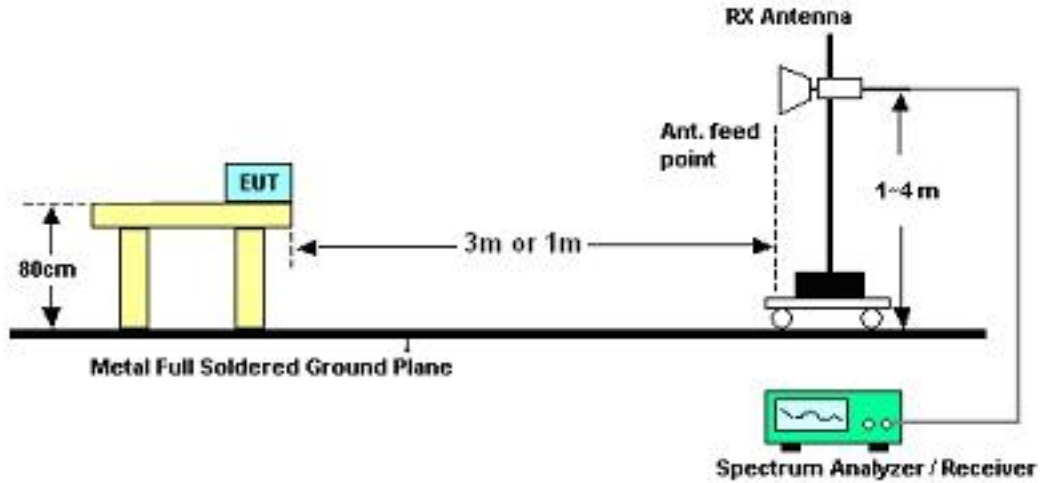
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	David Yang	Temperature :	21~23°C	
		Relative Humidity :	48~51%	
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 (30 MHz ~ 10<sup>th</sup> Harmonic)

Test Mode :	Mode 1	Temperature :	21~23°C
Test Channel :	01	Relative Humidity :	48~51%
Test Engineer :	David Yang	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
122.34	34.04	-9.46	43.5	52.79	11.7	1.11	31.56	-	-	Peak
177.42	39.93	-3.57	43.5	61.22	9	1.24	31.53	152	141	Peak
245.73	38.56	-7.44	46	56.18	12.26	1.53	31.41	-	-	Peak
480.6	35.86	-10.14	46	46.84	17.7	2.38	31.06	-	-	Peak
537.3	36.66	-9.34	46	46.41	18.73	2.52	31	-	-	Peak
575.8	37.15	-8.85	46	46.09	19.39	2.62	30.95	-	-	Peak
2387.9	56.15	-17.85	74	52.02	32.06	6.03	33.96	103	352	Peak
2387.9	44.6	-9.4	54	40.47	32.06	6.03	33.96	103	352	Average
2412	111.02	-	-	106.84	32.08	6.07	33.97	103	352	Peak
2412	107.73	-	-	103.55	32.08	6.07	33.97	103	352	Average
2486	42.06	-11.94	54	37.7	32.18	6.18	34	103	352	Average
2486	52.81	-21.19	74	48.45	32.18	6.18	34	103	352	Peak



<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<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
70.77	34.78	-5.22	40	59.07	6.43	0.84	31.56	109	23	Peak
95.61	26.1	-17.4	43.5	47.33	9.32	0.98	31.53	-	-	Peak
245.73	36.71	-9.29	46	54.33	12.26	1.53	31.41	-	-	Peak
332.2	30.03	-15.97	46	45.29	14.19	1.86	31.31	-	-	Peak
491.8	33.31	-12.69	46	44.04	17.92	2.42	31.07	-	-	Peak
575.8	32.96	-13.04	46	41.9	19.39	2.62	30.95	-	-	Peak
2384.86	49.88	-24.12	74	45.78	32.03	6.03	33.96	129	278	Peak
2384.86	37.47	-16.53	54	33.37	32.03	6.03	33.96	129	278	Average
2412	106.01	-	-	101.83	32.08	6.07	33.97	129	278	Peak
2412	102.28	-	-	98.1	32.08	6.07	33.97	129	278	Average
2500	35.31	-18.69	54	30.93	32.2	6.18	34	129	278	Average
2500	47.58	-26.42	74	43.2	32.2	6.18	34	129	278	Peak



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<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
52.41	35.94	-4.06	40	59.07	7.7	0.71	31.54	-	-	Peak
153.66	39.65	-3.85	43.5	58.99	10.99	1.21	31.54	-	-	Peak
245.73	42.94	-3.06	46	60.56	12.26	1.53	31.41	131	165	Peak
424.6	27.4	-18.6	46	39.79	16.52	2.23	31.14	-	-	Peak
491.8	31.5	-14.5	46	42.23	17.92	2.42	31.07	-	-	Peak
632.5	32.2	-13.8	46	40.24	20.06	2.79	30.89	-	-	Peak
2382	52.18	-21.82	74	48.08	32.03	6.03	33.96	130	351	Peak
2382	41.18	-12.82	54	37.08	32.03	6.03	33.96	130	351	Average
2437	111.65	-	-	107.39	32.13	6.11	33.98	130	351	Peak
2437	107.82	-	-	103.56	32.13	6.11	33.98	130	351	Average
2484	54.25	-19.75	74	49.89	32.18	6.18	34	130	351	Peak
2484	41.74	-12.26	54	37.38	32.18	6.18	34	130	351	Average



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<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
57.54	29.03	-10.97	40	53.13	6.7	0.74	31.54	-	-	Peak
95.61	30	-13.5	43.5	51.23	9.32	0.98	31.53	-	-	Peak
174.45	33.69	-9.81	43.5	54.87	9.1	1.24	31.52	100	312	Peak
302.1	26.39	-19.61	46	42.56	13.38	1.78	31.33	-	-	Peak
575.8	32.58	-13.42	46	41.52	19.39	2.62	30.95	-	-	Peak
671	33.97	-12.03	46	41.57	20.37	2.88	30.85	-	-	Peak
2390	46.58	-27.42	74	42.45	32.06	6.03	33.96	100	263	Peak
2390	35.16	-18.84	54	31.03	32.06	6.03	33.96	100	263	Average
2437	105.54	-	-	101.31	32.1	6.11	33.98	100	263	Peak
2437	101.94	-	-	97.68	32.13	6.11	33.98	100	263	Average
2492	49.61	-24.39	74	45.23	32.2	6.18	34	100	263	Peak
2492	36.84	-17.16	54	32.46	32.2	6.18	34	100	263	Average



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<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
141.78	28.49	-15.01	43.5	47.48	11.36	1.2	31.55	-	-	Peak
198.21	28.37	-15.13	43.5	49.47	9.08	1.31	31.49	-	-	Peak
245.73	39.11	-6.89	46	56.73	12.26	1.53	31.41	133	205	Peak
424.6	28.26	-17.74	46	40.65	16.52	2.23	31.14	-	-	Peak
491.8	33.67	-12.33	46	44.4	17.92	2.42	31.07	-	-	Peak
632.5	32.38	-13.62	46	40.42	20.06	2.79	30.89	-	-	Peak
2390	51.15	-22.85	74	47.02	32.06	6.03	33.96	102	355	Peak
2390	40.41	-13.59	54	36.28	32.06	6.03	33.96	102	355	Average
2462	111.96	-	-	107.66	32.15	6.14	33.99	102	355	Peak
2462	108.06	-	-	103.76	32.15	6.14	33.99	102	355	Average
2484.42	58.2	-15.8	74	53.84	32.18	6.18	34	102	355	Peak
2484.42	47.39	-6.61	54	43.03	32.18	6.18	34	102	355	Average



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<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
57.54	29.08	-10.92	40	53.18	6.7	0.74	31.54	-	-	Peak
199.02	31.01	-12.49	43.5	52.08	9.09	1.32	31.48	-	-	Peak
245.73	38.3	-7.7	46	55.92	12.26	1.53	31.41	100	177	Peak
304.2	29.8	-16.2	46	45.92	13.43	1.78	31.33	-	-	Peak
575.8	32.31	-13.69	46	41.25	19.39	2.62	30.95	-	-	Peak
632.5	34.57	-11.43	46	42.61	20.06	2.79	30.89	-	-	Peak
2382	46.26	-27.74	74	42.16	32.03	6.03	33.96	100	264	Peak
2382	34.36	-19.64	54	30.26	32.03	6.03	33.96	100	264	Average
2462	106.39	-	-	102.09	32.15	6.14	33.99	100	264	Peak
2462	101.95	-	-	97.65	32.15	6.14	33.99	100	264	Average
2483.5	51.83	-22.17	74	47.47	32.18	6.18	34	100	264	Peak
2483.5	39.95	-14.05	54	35.59	32.18	6.18	34	100	264	Average



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2534 MHz and 2580 MHz are not within restricted bands, and there's limit line are 20dB below the highest emission level. For example, 109.58dBuV/m - 20dB = 89.58dBuV/m.		

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
141.78	27.34	-16.16	43.5	46.33	11.36	1.2	31.55	-	-	Peak
198.21	28.09	-15.41	43.5	49.19	9.08	1.31	31.49	-	-	Peak
245.73	37.41	-8.59	46	55.03	12.26	1.53	31.41	132	103	Peak
444.2	28.01	-17.99	46	39.9	16.93	2.29	31.11	-	-	Peak
519.8	31.2	-14.8	46	41.31	18.43	2.49	31.03	-	-	Peak
632.5	32.36	-13.64	46	40.4	20.06	2.79	30.89	-	-	Peak
2389.99	70.02	-3.98	74	65.89	32.06	6.03	33.96	108	16	Peak
2389.99	45.45	-8.55	54	41.32	32.06	6.03	33.96	108	16	Average
2412	109.58	-	-	105.4	32.08	6.07	33.97	108	16	Peak
2412	98.64	-	-	94.46	32.08	6.07	33.97	108	16	Average
2492	37.84	-16.16	54	33.46	32.2	6.18	34	108	16	Average
2492	57.35	-16.65	74	52.97	32.2	6.18	34	108	16	Peak
2534	56.02	-33.56	89.58	51.55	32.23	6.23	33.99	100	0	Peak
2580	57.24	-32.34	89.58	52.66	32.28	6.28	33.98	100	0	Peak



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2534 MHz and 2580 MHz are not within restricted bands.		

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
39.18	35.36	-4.64	40	52.17	14.08	0.61	31.5	100	311	Peak
164.46	35.88	-7.62	43.5	56.14	10.03	1.23	31.52	-	-	Peak
267.33	31.83	-14.17	46	48.74	12.85	1.63	31.39	-	-	Peak
302.1	29.28	-16.72	46	45.45	13.38	1.78	31.33	-	-	Peak
346.9	28.99	-17.01	46	43.75	14.58	1.95	31.29	-	-	Peak
632.5	34.67	-11.33	46	42.71	20.06	2.79	30.89	-	-	Peak
2389.61	61.42	-12.58	74	57.29	32.06	6.03	33.96	129	277	Peak
2389.61	39.48	-14.52	54	35.35	32.06	6.03	33.96	129	277	Average
2412	104.65	-	-	100.47	32.08	6.07	33.97	129	277	Peak
2412	92.98	-	-	88.8	32.08	6.07	33.97	129	277	Average
2494	34.68	-19.32	54	30.3	32.2	6.18	34	129	277	Average
2494	54.68	-19.32	74	50.3	32.2	6.18	34	129	277	Peak
2534	52.54	-32.11	84.65	48.07	32.23	6.23	33.99	100	0	Peak
2580	54.96	-29.69	84.65	50.38	32.28	6.28	33.98	100	0	Peak





<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2510 MHz and 2550 MHz are not within restricted bands.		

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
143.94	39.09	-4.41	43.5	58.11	11.33	1.2	31.55	121	175	Peak
164.73	38.18	-5.32	43.5	58.44	10.03	1.23	31.52	-	-	Peak
245.73	38.24	-7.76	46	55.86	12.26	1.53	31.41	-	-	Peak
424.6	27.43	-18.57	46	39.82	16.52	2.23	31.14	-	-	Peak
491.8	32.47	-13.53	46	43.2	17.92	2.42	31.07	-	-	Peak
632.5	32.67	-13.33	46	40.71	20.06	2.79	30.89	-	-	Peak
2390	49.24	-24.76	74	45.11	32.06	6.03	33.96	131	350	Peak
2390	37.55	-16.45	54	33.42	32.06	6.03	33.96	131	350	Average
2437	108.52	-	-	104.26	32.13	6.11	33.98	131	350	Peak
2437	98.83	-	-	94.57	32.13	6.11	33.98	131	350	Average
2484	50.92	-23.08	74	46.56	32.18	6.18	34	131	350	Peak
2484	37.69	-16.31	54	33.33	32.18	6.18	34	131	350	Average
2510	53.21	-35.31	88.52	48.78	32.22	6.21	34	100	0	Peak
2550	49.8	-38.72	88.52	45.28	32.25	6.26	33.99	100	0	Peak



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2510 MHz, 2558 MHz, and 2598 MHz are not within restricted bands.		

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
57.54	29.05	-10.95	40	53.15	6.7	0.74	31.54	108	115	Peak
95.61	29.63	-13.87	43.5	50.86	9.32	0.98	31.53	-	-	Peak
216.57	31.59	-14.41	46	51.41	10.24	1.4	31.46	-	-	Peak
310.5	26.39	-19.61	46	42.34	13.59	1.79	31.33	-	-	Peak
575.8	32.38	-13.62	46	41.32	19.39	2.62	30.95	-	-	Peak
671	33.66	-12.34	46	41.26	20.37	2.88	30.85	-	-	Peak
2390	45.54	-28.46	74	41.41	32.06	6.03	33.96	101	262	Peak
2390	34.02	-19.98	54	29.89	32.06	6.03	33.96	101	262	Average
2437	103	-	-	98.74	32.13	6.11	33.98	101	262	Peak
2437	92.93	-	-	88.67	32.13	6.11	33.98	101	262	Average
2492	48.11	-25.89	74	43.73	32.2	6.18	34	101	262	Peak
2492	35.28	-18.72	54	30.9	32.2	6.18	34	101	262	Average
2510	52.74	-30.26	83	48.31	32.22	6.21	34	100	0	Peak
2558	51.46	-31.54	83	46.92	32.27	6.26	33.99	100	0	Peak
2598	51.63	-31.37	83	47	32.3	6.31	33.98	100	0	Peak



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2542 MHz, 2580 MHz, and 2628 MHz are not within restricted bands.		

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
136.38	40.25	-3.25	43.5	59.16	11.46	1.19	31.56	124	196	Peak
198.21	28.71	-14.79	43.5	49.81	9.08	1.31	31.49	-	-	Peak
245.73	39.55	-6.45	46	57.17	12.26	1.53	31.41	-	-	Peak
424.6	27.5	-18.5	46	39.89	16.52	2.23	31.14	-	-	Peak
491.8	31.65	-14.35	46	42.38	17.92	2.42	31.07	-	-	Peak
632.5	32.21	-13.79	46	40.25	20.06	2.79	30.89	-	-	Peak
2390	46.56	-27.44	74	42.43	32.06	6.03	33.96	100	312	Peak
2390	34.92	-19.08	54	30.79	32.06	6.03	33.96	100	312	Average
2462	97.69	-	-	93.39	32.15	6.14	33.99	100	312	Average
2462	107.96	-	-	103.66	32.15	6.14	33.99	100	312	Peak
2483.5	46.7	-7.3	54	42.34	32.18	6.18	34	100	312	Average
2483.5	70.91	-3.09	74	66.55	32.18	6.18	34	100	312	Peak
2542	57.52	-30.44	87.96	53.03	32.25	6.23	33.99	100	0	Peak
2580	55.69	-32.27	87.96	51.11	32.28	6.28	33.98	100	0	Peak
2628	53.68	-34.28	87.96	48.99	32.33	6.33	33.97	100	0	Peak



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2548 MHz and 2582 MHz are not within restricted bands.		

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
95.61	30.13	-13.37	43.5	51.36	9.32	0.98	31.53	-	-	Peak
196.05	33.06	-10.44	43.5	54.19	9.06	1.3	31.49	112	47	Peak
245.73	33.08	-12.92	46	50.7	12.26	1.53	31.41	-	-	Peak
491.8	31.74	-14.26	46	42.47	17.92	2.42	31.07	-	-	Peak
632.5	34.44	-11.56	46	42.48	20.06	2.79	30.89	-	-	Peak
708.1	32.84	-13.16	46	39.96	20.72	2.96	30.8	-	-	Peak
2390	45.9	-28.1	74	41.77	32.06	6.03	33.96	100	249	Peak
2390	33.32	-20.68	54	29.19	32.06	6.03	33.96	100	249	Average
2462	101.3	-	-	97	32.15	6.14	33.99	100	249	Peak
2462	90.61	-	-	86.31	32.15	6.14	33.99	100	249	Average
2483.5	63.98	-10.02	74	59.62	32.18	6.18	34	100	249	Peak
2483.5	40.21	-13.79	54	35.85	32.18	6.18	34	100	249	Average
2548	51.5	-29.8	81.3	47.01	32.25	6.23	33.99	100	0	Peak
2582	50.09	-31.21	81.3	45.51	32.28	6.28	33.98	100	0	Peak



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2526 MHz and 2566 MHz are not within restricted bands.		

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
2389.99	69.06	-4.94	74	64.93	32.06	6.03	33.96	103	19	Peak
2389.99	47.16	-6.84	54	43.03	32.06	6.03	33.96	103	19	Average
2412	109.76	-	-	105.58	32.08	6.07	33.97	103	19	Peak
2412	97.38	-	-	93.2	32.08	6.07	33.97	103	19	Average
2492	37.64	-16.36	54	33.26	32.2	6.18	34	103	19	Average
2492	60.23	-13.77	74	55.85	32.2	6.18	34	103	19	Peak
2526	58	-31.76	89.76	53.53	32.23	6.23	33.99	100	0	Peak
2566	58.13	-31.63	89.76	53.59	32.27	6.26	33.99	100	0	Peak

<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2534 MHz and 2580 MHz are not within restricted bands.		

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
2389.99	63.99	-10.01	74	59.86	32.06	6.03	33.96	128	277	Peak
2389.99	41.37	-12.63	54	37.24	32.06	6.03	33.96	128	277	Average
2412	102.56	-	-	98.38	32.08	6.07	33.97	128	277	Peak
2412	92.03	-	-	87.85	32.08	6.07	33.97	128	277	Average
2494	51.93	-22.07	74	47.55	32.2	6.18	34	128	277	Peak
2494	35.87	-18.13	54	31.49	32.2	6.18	34	128	277	Average
2534	51.61	-30.95	82.56	47.14	32.23	6.23	33.99	100	0	Peak
2580	51.91	-30.65	82.56	47.33	32.28	6.28	33.98	100	0	Peak



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2518 MHz, 2550 MHz, and 2604 MHz are not within restricted bands.		

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	51.7	-22.3	74	47.57	32.06	6.03	33.96	128	14	Peak
2390	36.58	-17.42	54	32.45	32.06	6.03	33.96	128	14	Average
2437	108.9	-	-	104.64	32.13	6.11	33.98	128	14	Peak
2437	98.39	-	-	94.13	32.13	6.11	33.98	128	14	Average
2484	52.34	-21.66	74	47.98	32.18	6.18	34	128	14	Peak
2484	37.66	-16.34	54	33.3	32.18	6.18	34	128	14	Average
2518	58.19	-30.71	88.9	53.76	32.22	6.21	34	100	0	Peak
2550	56.32	-32.58	88.9	51.8	32.25	6.26	33.99	100	0	Peak
2604	54.81	-34.09	88.9	50.18	32.3	6.31	33.98	100	0	Peak



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2518 MHz, 2556 MHz, and 2604 MHz are not within restricted bands.		

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	47.09	-26.91	74	42.96	32.06	6.03	33.96	100	281	Peak
2390	34.89	-19.11	54	30.76	32.06	6.03	33.96	100	281	Average
2437	104.21	-	-	99.95	32.13	6.11	33.98	100	281	Peak
2437	94.09	-	-	89.83	32.13	6.11	33.98	100	281	Average
2484	47.95	-26.05	74	43.59	32.18	6.18	34	100	281	Peak
2484	34.51	-19.49	54	30.15	32.18	6.18	34	100	281	Average
2518	53.83	-30.38	84.21	49.4	32.22	6.21	34	100	0	Peak
2556	51.53	-32.68	84.21	46.99	32.27	6.26	33.99	100	0	Peak
2604	49.18	-35.03	84.21	44.55	32.3	6.31	33.98	100	0	Peak



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2540 MHz and 2580 MHz are not within restricted bands.		

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	47.89	-26.11	74	43.76	32.06	6.03	33.96	105	0	Peak
2390	35.71	-18.29	54	31.58	32.06	6.03	33.96	105	0	Average
2462	108.36	-	-	104.06	32.15	6.14	33.99	105	0	Peak
2462	97.95	-	-	93.65	32.15	6.14	33.99	105	0	Average
2483.5	70.83	-3.17	74	66.47	32.18	6.18	34	105	0	Peak
2483.5	47.67	-6.33	54	43.31	32.18	6.18	34	105	0	Average
2540	54.32	-34.04	88.36	49.83	32.25	6.23	33.99	100	0	Peak
2580	52.73	-35.63	88.36	48.15	32.28	6.28	33.98	100	0	Peak

<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	21~23°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	48~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2542 MHz is not within a restricted band.		

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	-27	74	42.87	32.06	6.03	33.96	100	282	Peak
2390	34.69	-19.31	54	30.56	32.06	6.03	33.96	100	282	Average
2462	104.89	-	-	100.59	32.15	6.14	33.99	100	282	Peak
2462	93.76	-	-	89.46	32.15	6.14	33.99	100	282	Average
2484.42	65.99	-8.01	74	61.63	32.18	6.18	34	100	282	Peak
2484.42	42.33	-11.67	54	37.97	32.18	6.18	34	100	282	Average
2542	53.48	-31.41	84.89	48.99	32.25	6.23	33.99	100	0	Peak





## **3.8 Antenna Requirements**

### **3.8.1 Standard Applicable**

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

### **3.8.2 Antenna Connected Construction**

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

### **3.8.3 Antenna Gain**

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Dec. 14, 2011 ~ Dec. 18, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Dec. 14, 2011 ~ Dec. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Dec. 14, 2011 ~ Dec. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Dec. 14, 2011 ~ Dec. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Dec. 14, 2011 ~ Dec. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 27, 2011	Dec. 14, 2011 ~ Dec. 18, 2011	Jul. 26, 2012	Conducted (TH02-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Dec. 14, 2011 ~ Dec. 24, 2011	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Dec. 14, 2011 ~ Dec. 24, 2011	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Dec. 14, 2011 ~ Dec. 24, 2011	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 05, 2011	Dec. 14, 2011 ~ Dec. 24, 2011	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Dec. 14, 2011 ~ Dec. 24, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Dec. 14, 2011 ~ Dec. 24, 2011	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Feb. 21, 2011	Dec. 14, 2011 ~ Dec. 24, 2011	Feb. 20, 2012	Radiation (03CH07-HY)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Nov. 29, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Nov. 29, 2011	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 29, 2011	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Nov. 29, 2011	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	116457	N/A	Jun. 24, 2011	Nov. 29, 2011	Jun. 23, 2012	Conduction (CO05-HY)

## 5 Uncertainty of Evaluation

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

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 (30 MHz ~ 1000 MHz)

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 (1 GHz ~ 40 GHz)**

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 EP1N2831 as below.