

# FCC RF Test Report

**APPLICANT** : HTC Corporation  
**EQUIPMENT** : Windows Phone  
**MODEL NAME** : PC40210  
**FCC ID** : NM8PC40210  
**STANDARD** : FCC Part 15 Subpart C §15.247  
**CLASSIFICATION** : Digital Transmission System (DTS)

The product was received on Sep. 07, 2010 and completely tested on Mar. 08, 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:



Anderson Chiu / Deputy 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
FR0N1023A	Rev. 01	Initial issue of report	Mar. 18, 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	-
3.2	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 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 13.5 dB at 0.198 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 4.68 dB at 2483.5 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

# 1 General Description

## 1.1 Applicant

HTC Corporation

1F., No. 6-3, Baoqiang Rd., Xindian City, Taipei, Taiwan

## 1.2 Manufacturer

HTC Corporation

1F., No. 6-3, Baoqiang Rd., Xindian City, Taipei, Taiwan

## 1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Windows Phone
Model Name	PC40210
FCC ID	NM8PC40210
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 : 20.64 dBm (0.116 W) 802.11g : 22.16 dBm (0.164 W) 802.11n (BW 20MHz) : 21.51 dBm (0.142 W)
Antenna Type	PIFA Antenna with gain 0 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

**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.
4. The EUT supports 802.11n (BW 20 MHz) mode only, not supports 802.11n (BW 40 MHz) mode.

## 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	TW1022/4086B-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 7

### 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.

## 1.6 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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
6.	Earphone	Cotron	HS G400	N/A	N/A	N/A
7.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
8.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	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:

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		At DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	20.35	-	-	-
CH 06	2437 MHz	20.20	-	-	-
-CH 11	2462 MHz	<b>20.64</b>	20.52	20.61	20.55

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		At OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	<b>22.16</b>	21.61	21.17	21.17	21.14	21.10	21.08	21.13
CH 06	2437 MHz	21.80	-	-	-	-	-	-	-
CH 11	2462 MHz	21.85	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		At OFDM Data Rate							
		m0	m1	m2	m3	m4	m5	m6	m7
CH 01	2412 MHz	<b>21.51</b>	21.37	21.40	21.34	21.16	21.13	21.25	21.27
CH 06	2437 MHz	21.14	-	-	-	-	-	-	-
CH 11	2462 MHz	21.37	-	-	-	-	-	-	-

**Remark:**

1. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, and m0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
2. 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 were conducted to determine the final configuration from all possible combinations.

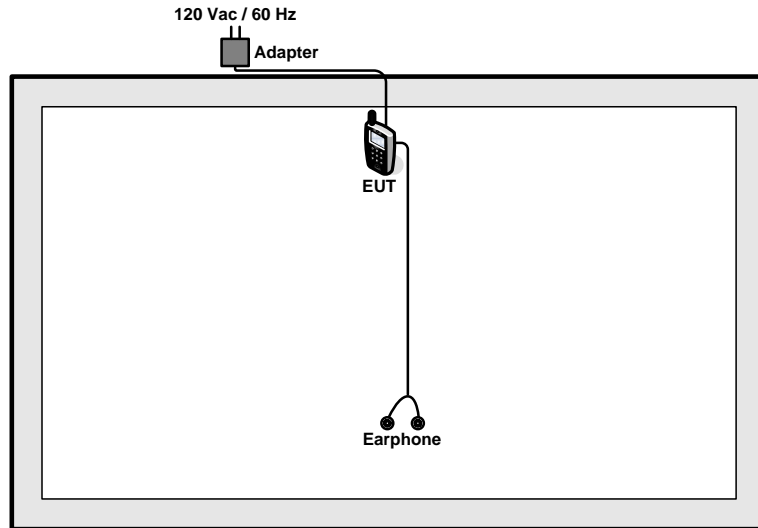
The following tables are showing the test modes as the worst cases and recorded in this report.

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 Idle + WLAN Idle + GPS Rx + Earphone + USB Cable (Charging from Adapter) Mode 2 : GSM1900 Idle + Bluetooth Idle + WLAN Idle + MPEG4 + Earphone + USB Cable (Charging from Adapter) Mode 3 : CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + Camera + Earphone + USB Cable (Charging from Adapter) Mode 4 : CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + USB Cable (Link with Notebook)
<b>Remark:</b>	
<ol style="list-style-type: none"> <li>1. TC stands for Test Configuration, and consists of adapter, battery, USB cable, and earphone.</li> <li>2. For conducted emission, the worst case is mode 4; only the test data of this mode was reported.</li> </ol>	

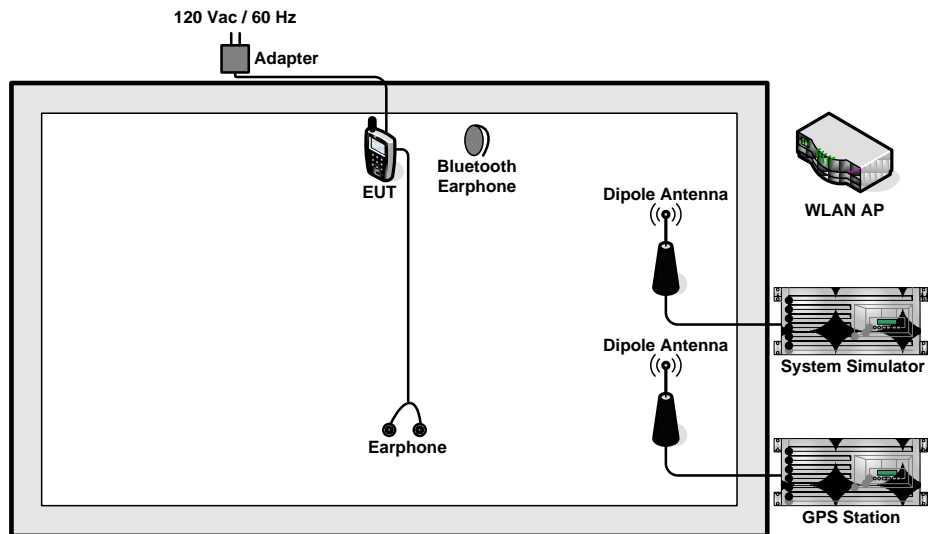


## 2.3 Connection Diagram of Test System

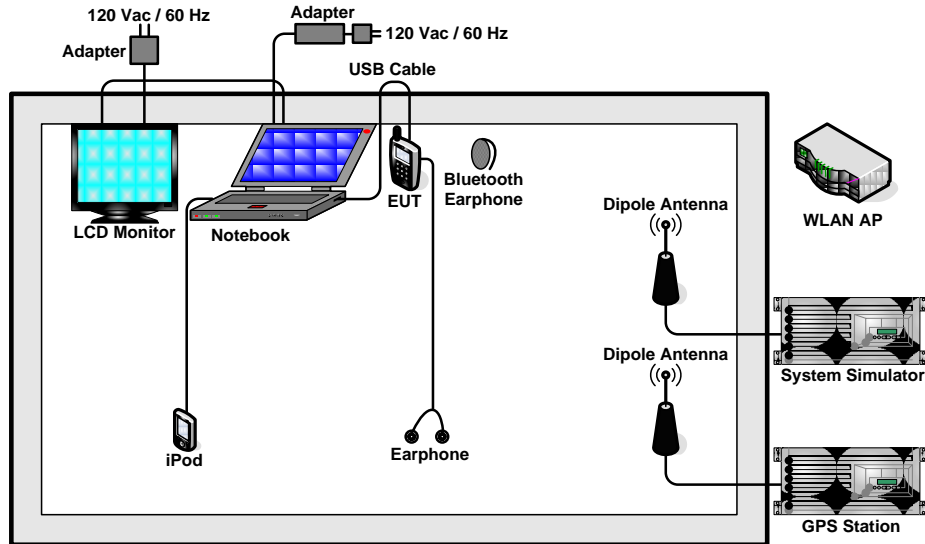
<WLAN Tx Mode>



<EUT with Adapter Mode>



<EUT with USB Cable (Link with Notebook) Mode>



## 2.4 RF Utility

The programmed RF utility “Remote 432X controller” 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 Bandwidth Measurement

##### 3.1.1 Limit of 6dB Bandwidth

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

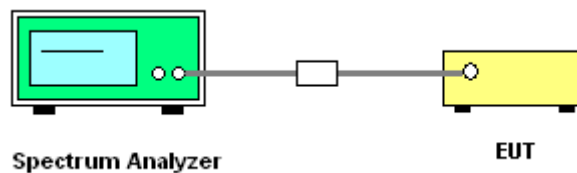
##### 3.1.2 Measuring Instruments

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



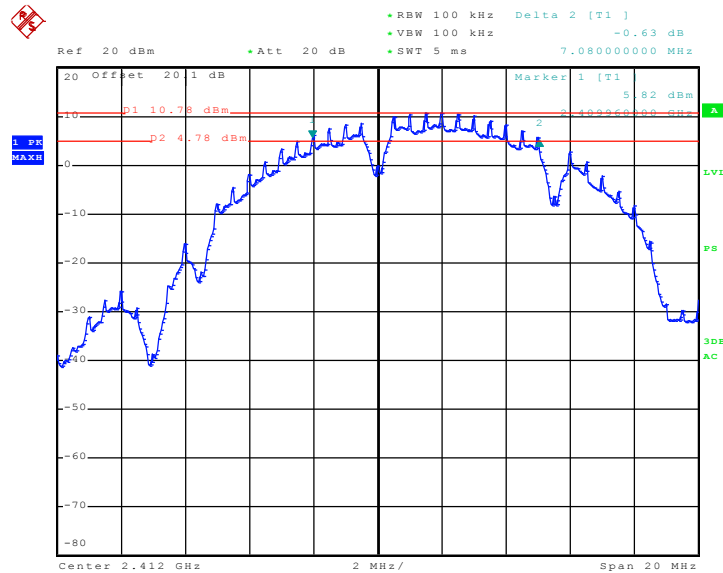


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.08	0.5	Pass
06	2437	7.08	0.5	Pass
11	2462	7.56	0.5	Pass

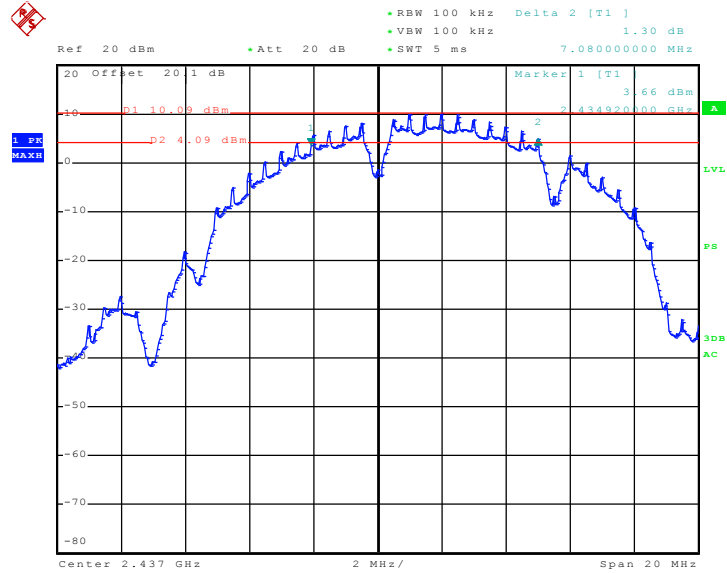
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 28.SEP.2010 18:40:32

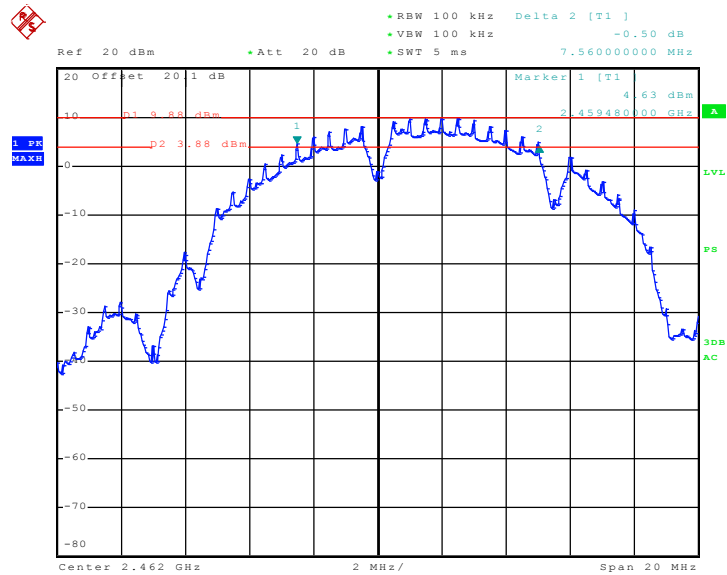


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 28.SEP.2010 18:49:12

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



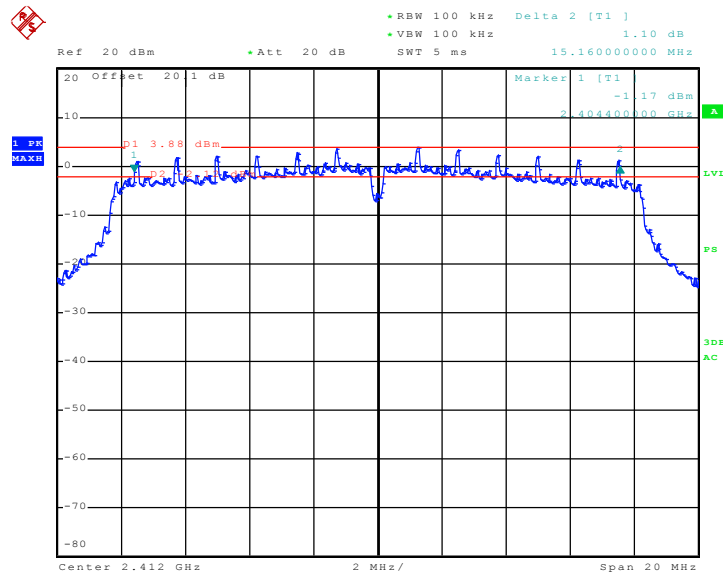
Date: 28.SEP.2010 18:50:46



Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.16	0.5	Pass
06	2437	15.16	0.5	Pass
11	2462	15.16	0.5	Pass

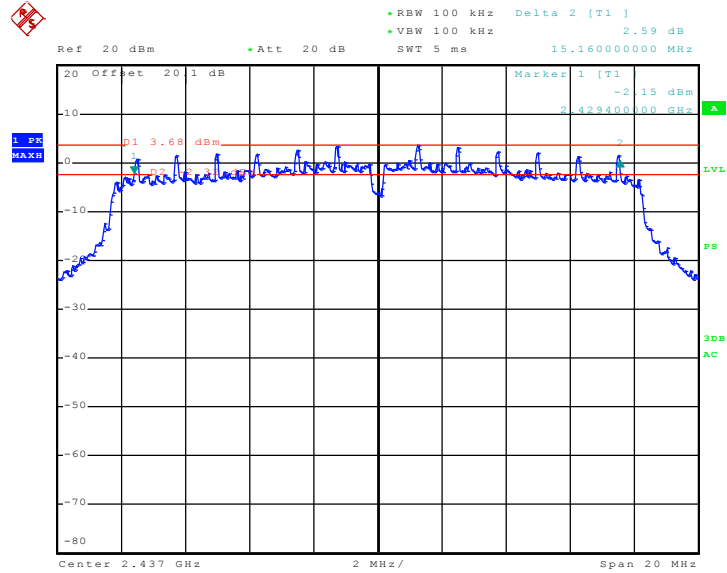
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 28.SEP.2010 21:35:46

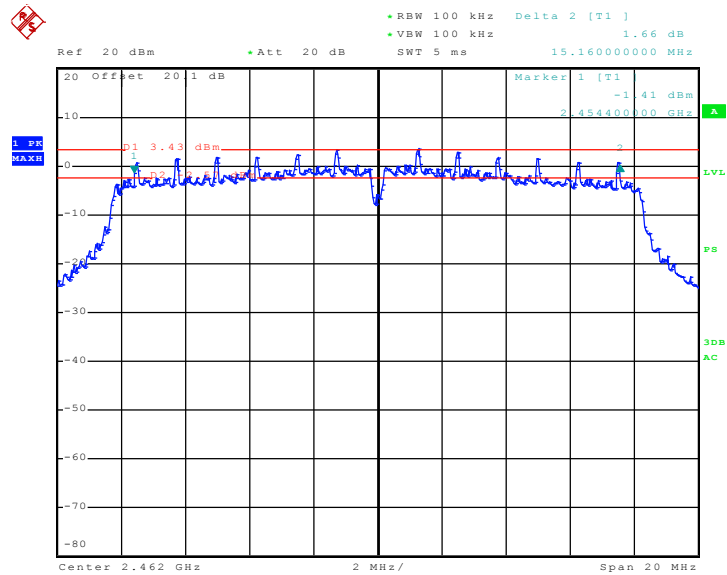


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 28.SEP.2010 21:14:30

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



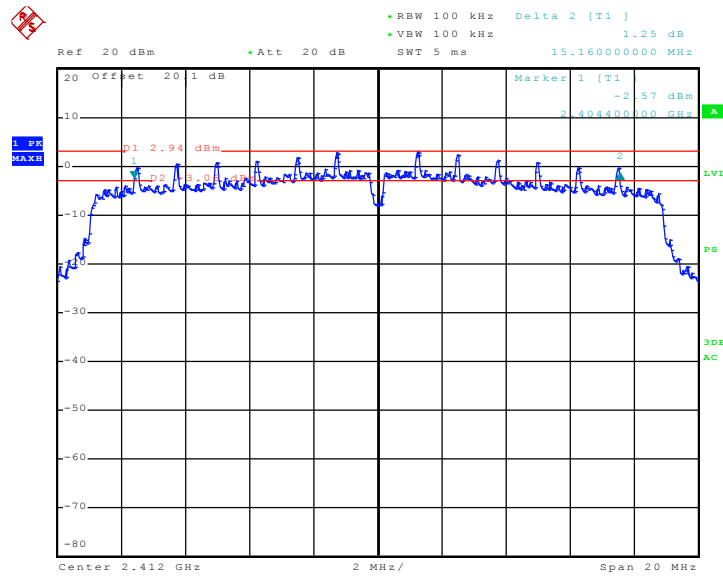
Date: 28.SEP.2010 21:09:52



Test Mode :	Mode 7, 8, 9	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.16	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.16	0.5	Pass

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

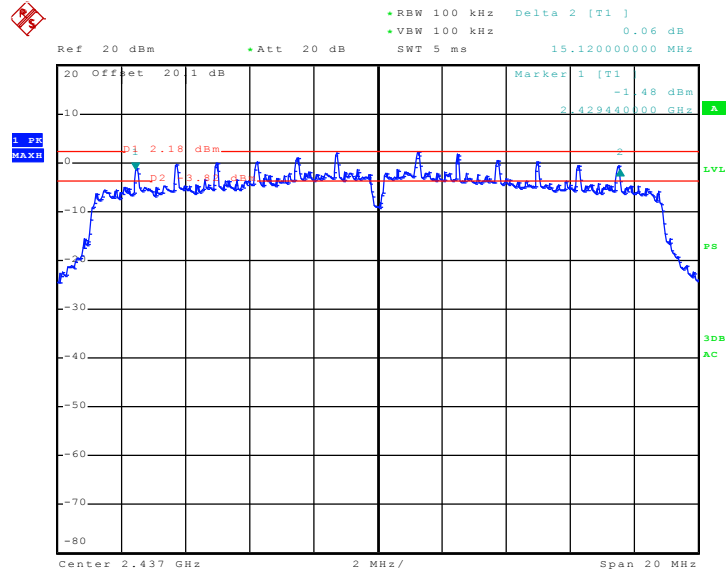


Date: 28.SEP.2010 21:00:51



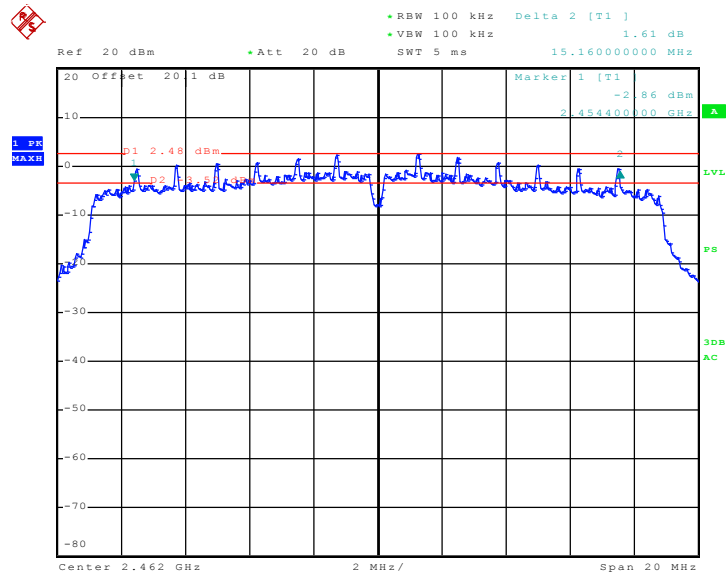


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 28.SEP.2010 20:59:35

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



Date: 28.SEP.2010 21:29:13

## 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.

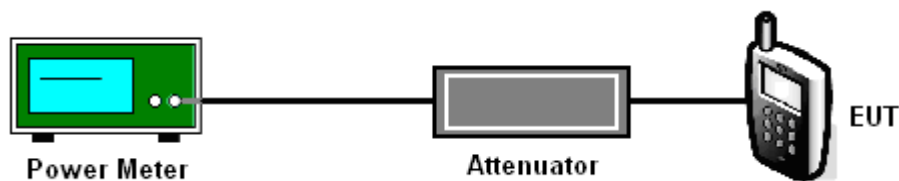
### 3.2.2 Measuring Instruments

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**

<b>Test Mode :</b>	Mode 1, 2, 3	<b>Temperature :</b>	26~28°C
<b>Test Engineer :</b>	Andy Yeh	<b>Relative Humidity :</b>	43~46%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.35	30	Pass
06	2437	20.20	30	Pass
11	2462	20.64	30	Pass

<b>Test Mode :</b>	Mode 4, 5, 6	<b>Temperature :</b>	26~28°C
<b>Test Engineer :</b>	Andy Yeh	<b>Relative Humidity :</b>	43~46%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.16	30	Pass
06	2437	21.80	30	Pass
11	2462	21.85	30	Pass

<b>Test Mode :</b>	Mode 7, 8, 9	<b>Temperature :</b>	26~28°C
<b>Test Engineer :</b>	Andy Yeh	<b>Relative Humidity :</b>	43~46%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.51	30	Pass
06	2437	21.14	30	Pass
11	2462	21.37	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**

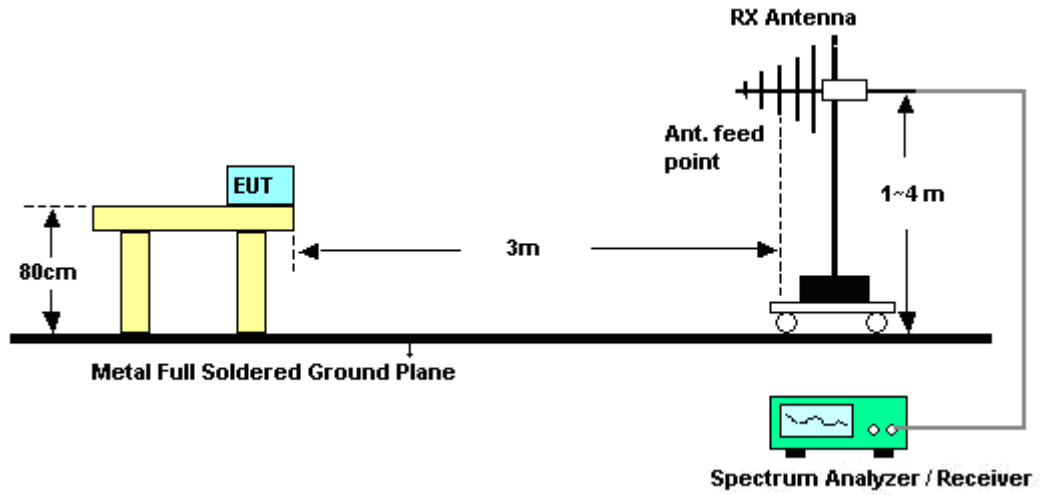
See list of measuring instruments of this test report.

#### **3.3.3 Test Procedures**

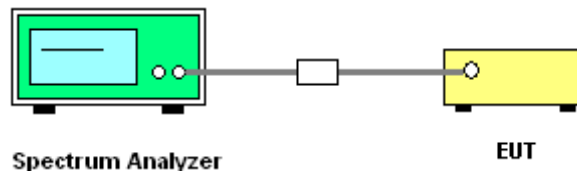
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW)  $\geq$  RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	22~24°C
Test Band :	802.11b	Relative Humidity :	50~51%
Test Channel :	01	Test Engineer :	Jason Wang

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	56.23	-17.77	74	51.55	32.18	6.03	33.53	105	322	Peak
2389.99	44.62	-9.38	54	39.94	32.18	6.03	33.53	105	322	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
2389.42	51.52	-22.48	74	46.84	32.18	6.03	33.53	100	188	Peak
2389.42	39.11	-14.89	54	34.43	32.18	6.03	33.53	100	188	Average

Test Mode :	Mode 3	Temperature :	22~24°C
Test Band :	802.11b	Relative Humidity :	50~51%
Test Channel :	11	Test Engineer :	Jason Wang

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	60.34	-13.66	74	55.44	32.28	6.18	33.56	103	6	Peak
2483.5	49.06	-4.94	54	44.16	32.28	6.18	33.56	103	6	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
2483.66	55.43	-18.57	74	50.53	32.28	6.18	33.56	106	189	Peak
2483.66	43.69	-10.31	54	38.79	32.28	6.18	33.56	106	189	Average



Test Mode :	Mode 4	Temperature :	22~24°C
Test Band :	802.11g	Relative Humidity :	50~51%
Test Channel :	01	Test Engineer :	Jason Wang

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	66.52	-7.48	74	61.84	32.18	6.03	33.53	107	16	Peak
2389.99	47.14	-6.86	54	42.46	32.18	6.03	33.53	107	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
2389.99	62.09	-11.91	74	57.41	32.18	6.03	33.53	175	327	Peak
2389.99	41.74	-12.26	54	37.06	32.18	6.03	33.53	175	327	Average

Test Mode :	Mode 6	Temperature :	22~24°C
Test Band :	802.11g	Relative Humidity :	50~51%
Test Channel :	11	Test Engineer :	Jason Wang

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	69.32	-4.68	74	64.42	32.28	6.18	33.56	100	19	Peak
2483.5	49.14	-4.86	54	44.24	32.28	6.18	33.56	100	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
2483.5	66.58	-7.42	74	61.68	32.28	6.18	33.56	100	217	Peak
2483.5	45.31	-8.69	54	40.41	32.28	6.18	33.56	100	217	Average



Test Mode :	Mode 7	Temperature :	22~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~51%
Test Channel :	01	Test Engineer :	Jason Wang

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	66.23	-7.77	74	61.55	32.18	6.03	33.53	102	340	Peak
2389.99	46.14	-7.86	54	41.46	32.18	6.03	33.53	102	340	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
2389.42	62.51	-11.49	74	57.83	32.18	6.03	33.53	100	188	Peak
2389.42	42.22	-11.78	54	37.54	32.18	6.03	33.53	100	188	Average

Test Mode :	Mode 9	Temperature :	22~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~51%
Test Channel :	11	Test Engineer :	Jason Wang

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	67.32	-6.68	74	62.42	32.28	6.18	33.56	106	327	Peak
2483.5	48.14	-5.86	54	43.24	32.28	6.18	33.56	106	327	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
2483.66	65.63	-8.37	74	60.73	32.28	6.18	33.56	100	216	Peak
2483.66	44.26	-9.74	54	39.36	32.28	6.18	33.56	100	216	Average

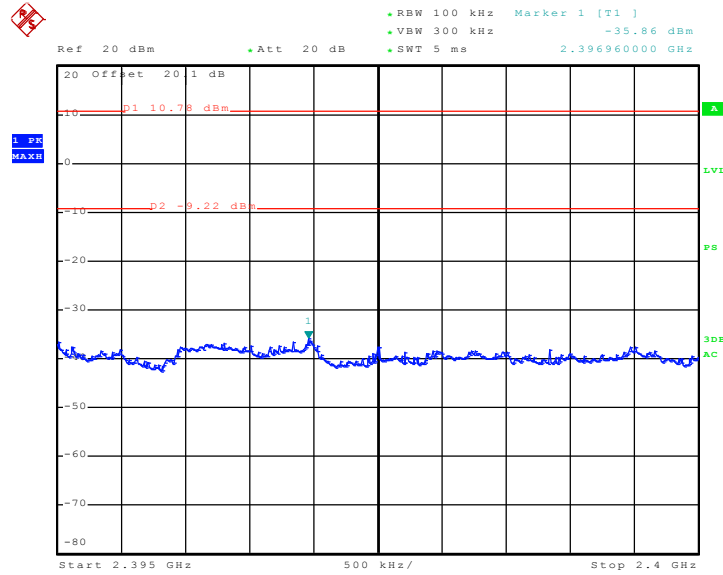




### 3.3.6 Test Plots of Conducted Band Edges

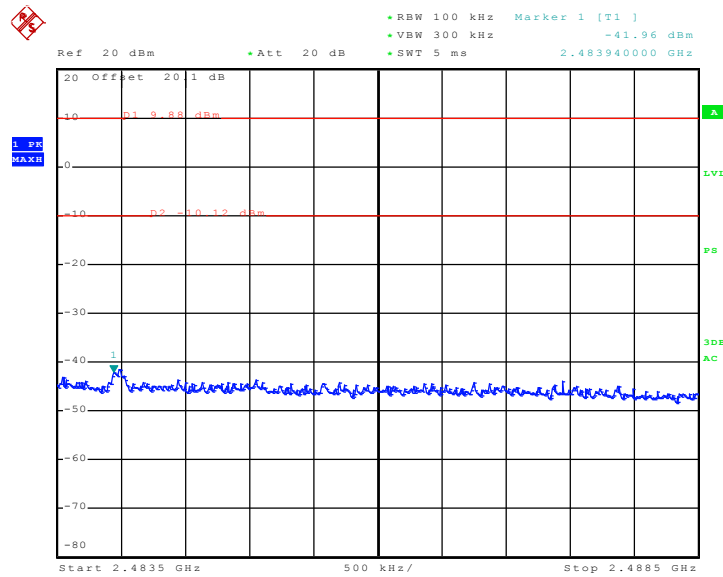
Test Mode :	Mode 1 and 3	Temperature :	26~28°C
Test Band :	802.11b	Relative Humidity :	43~46%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

Low Band Edge Plot on 802.11b Channel 01



Date: 28.SEP.2010 18:42:17

High Band Edge Plot on 802.11b Channel 11

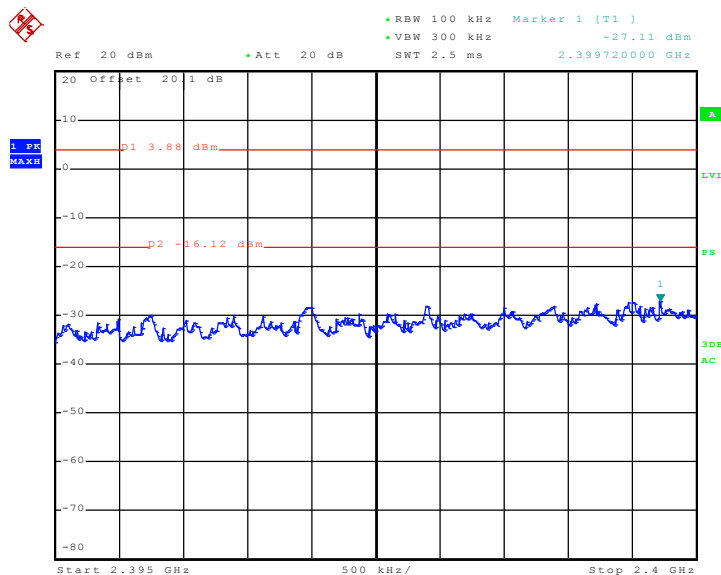


Date: 28.SEP.2010 18:51:45



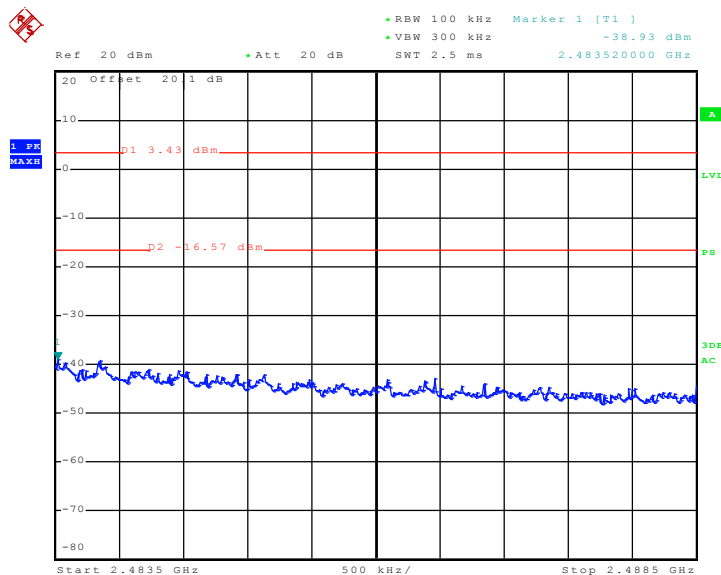
Test Mode :	Mode 4 and 6	Temperature :	26~28°C
Test Band :	802.11g	Relative Humidity :	43~46%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

Low Band Edge Plot on 802.11g Channel 01



Date: 28.SEP.2010 21:36:51

High Band Edge Plot on 802.11g Channel 11

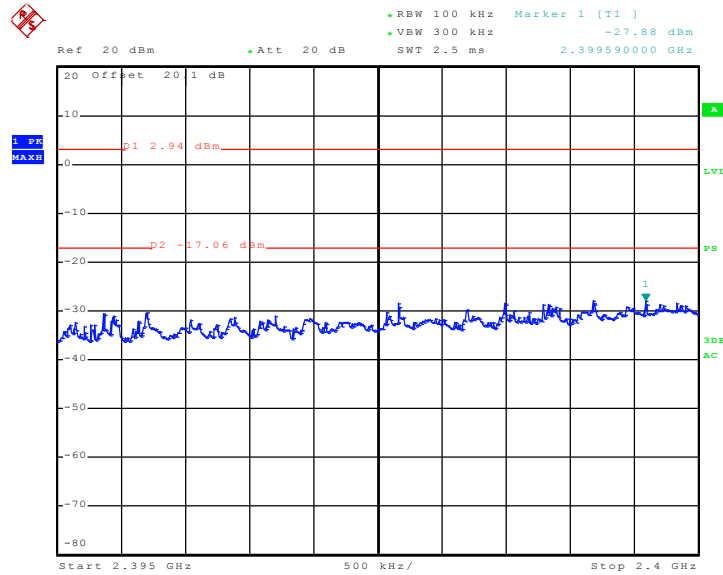


Date: 28.SEP.2010 21:10:44



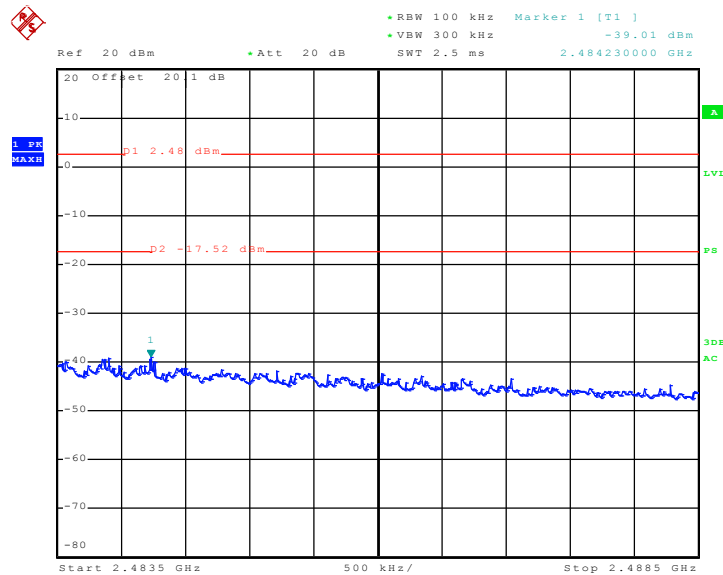
Test Mode :	Mode 7 and 9	Temperature :	26~28°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~46%
Test Channel :	01 and 11	Test Engineer :	Andy Yeh

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



Date: 28.SEP.2010 21:01:46

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



Date: 28.SEP.2010 21:32:09

## 3.4 Spurious Emission Measurement

### 3.4.1 Limit of Spurious Emission Measurement

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

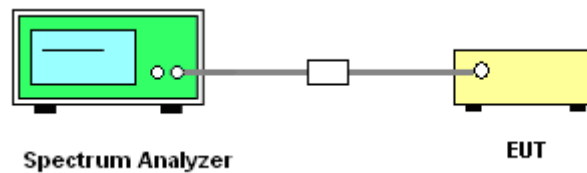
### 3.4.2 Measuring Instruments

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.

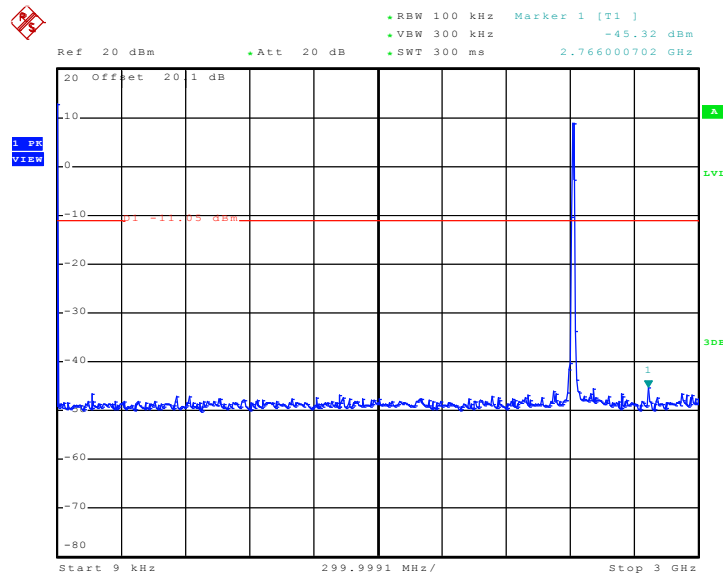
### 3.4.4 Test Setup



### 3.4.5 Test Plots of Spurious Emission

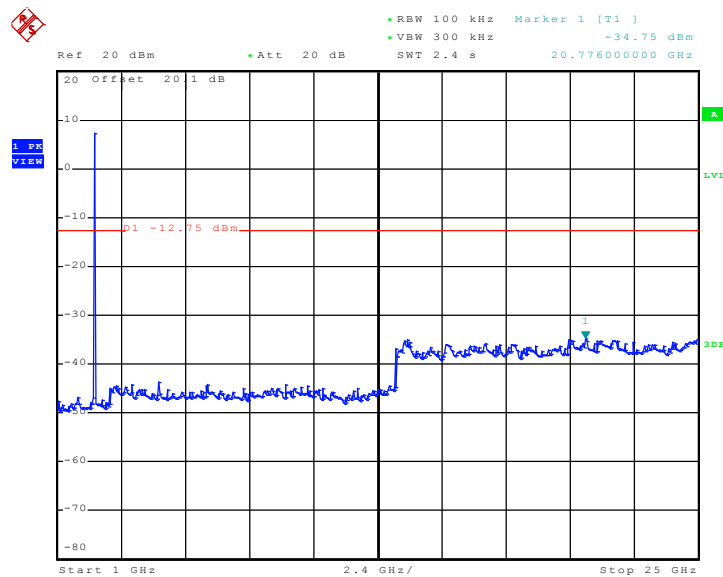
Test Mode :	Mode 1	Temperature :	26~28°C
Test Band :	802.11b	Relative Humidity :	43~46%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:03:35

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

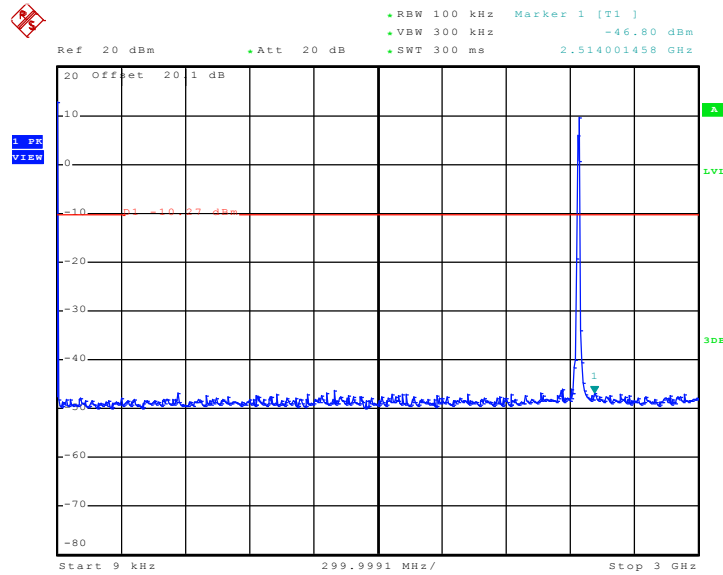


Date: 28.SEP.2010 21:22:33



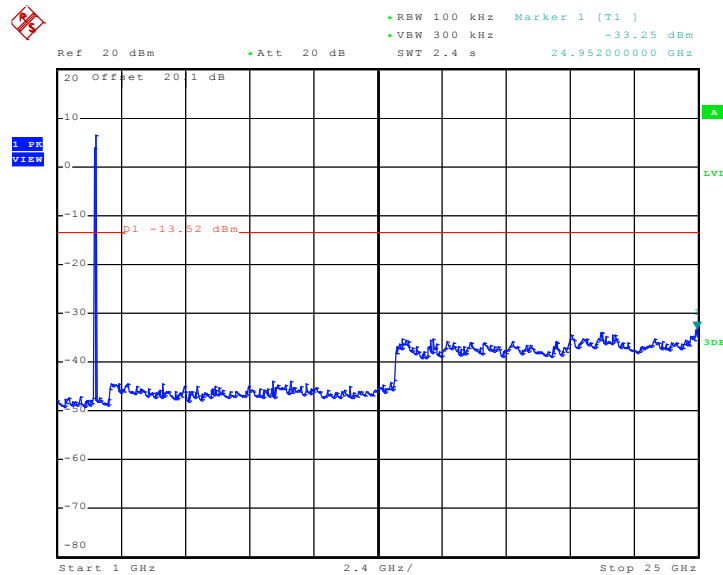
Test Mode :	Mode 2	Temperature :	26~28°C
Test Band :	802.11b	Relative Humidity :	43~46%
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:04:33

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

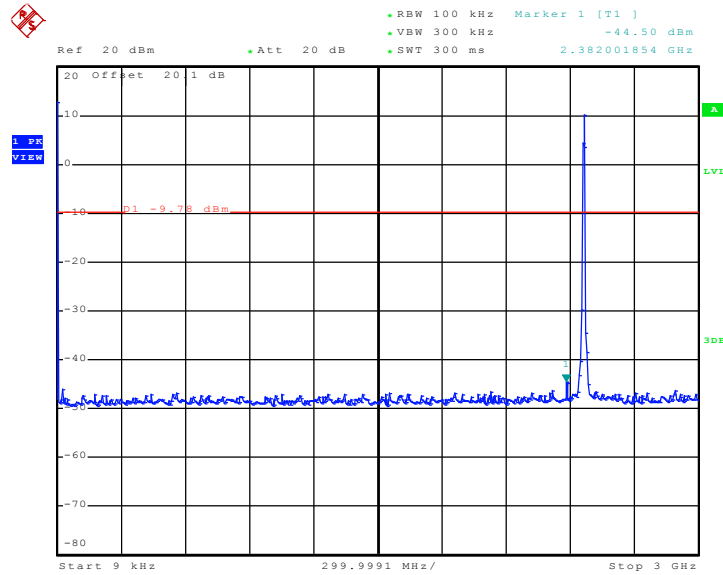


Date: 28.SEP.2010 21:21:32



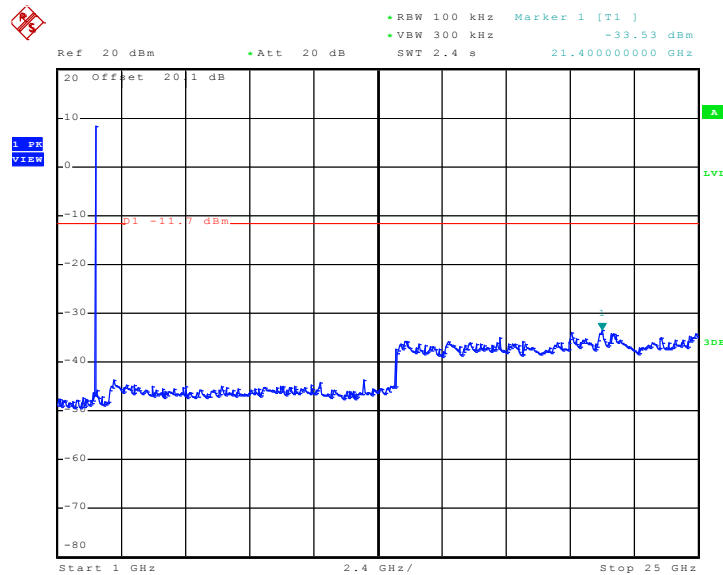
Test Mode :	Mode 3	Temperature :	26~28°C
Test Band :	802.11b	Relative Humidity :	43~46%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:05:58

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

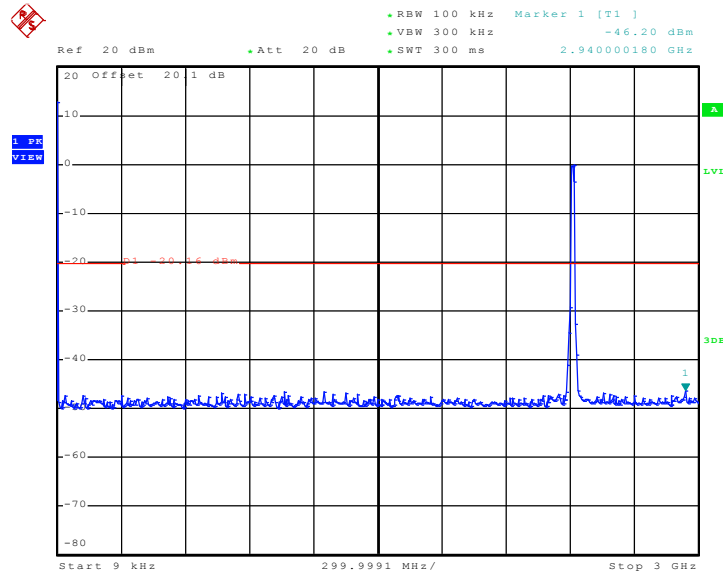


Date: 28.SEP.2010 21:20:39



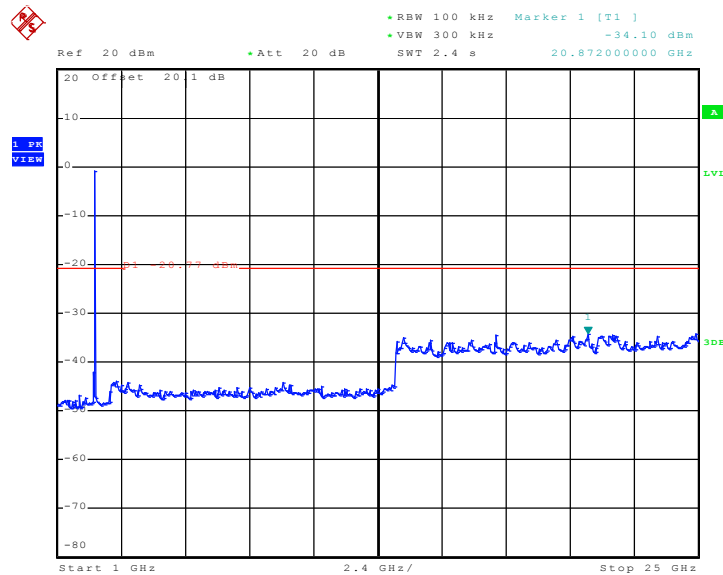
Test Mode :	Mode 4	Temperature :	26~28°C
Test Band :	802.11g	Relative Humidity :	43~46%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:10:15

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



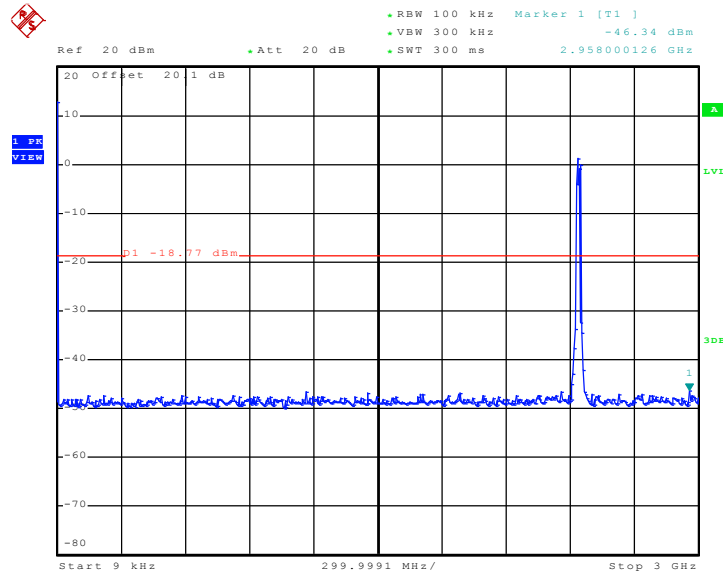
Date: 28.SEP.2010 21:17:33





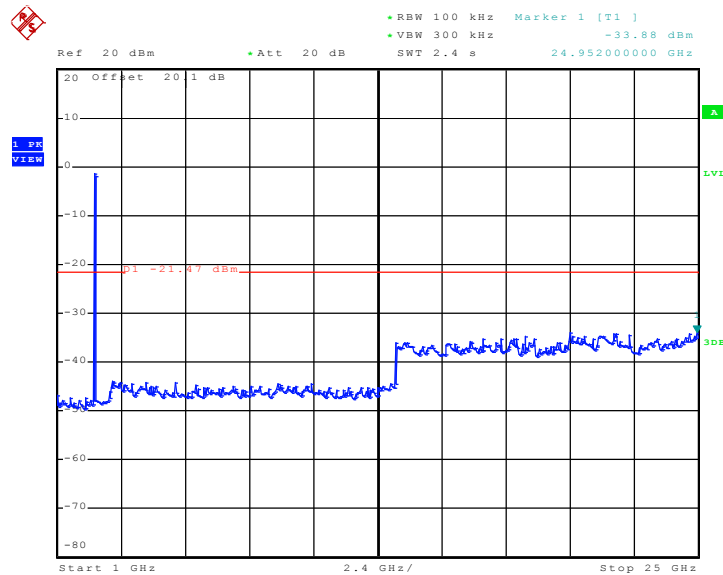
Test Mode :	Mode 5	Temperature :	26~28
Test Band :	802.11g	Relative Humidity :	43~46
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:09:12

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

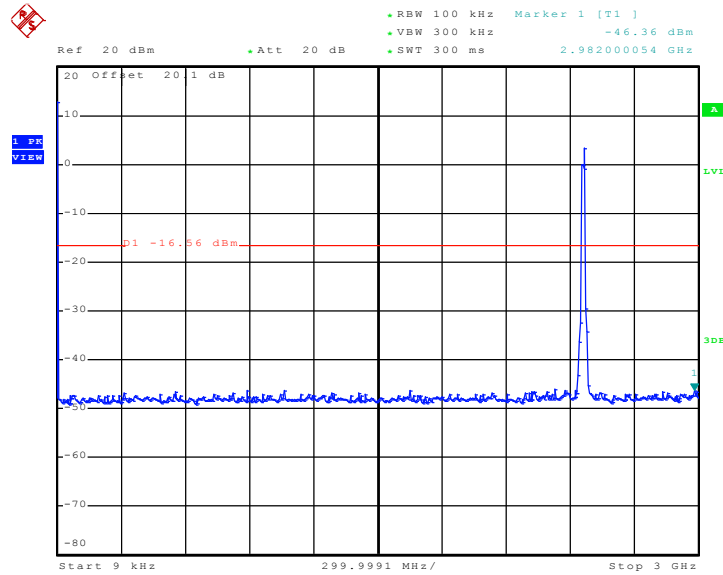


Date: 28.SEP.2010 21:18:26



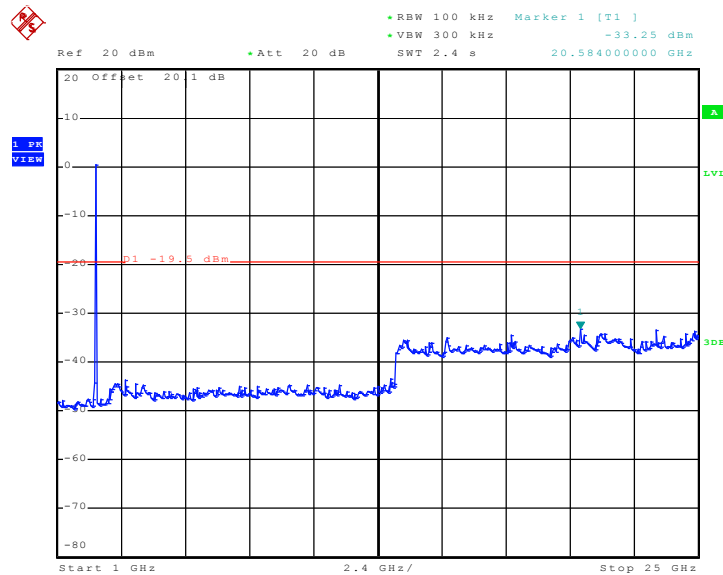
Test Mode :	Mode 6	Temperature :	26~28°C
Test Band :	802.11g	Relative Humidity :	43~46%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:08:06

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

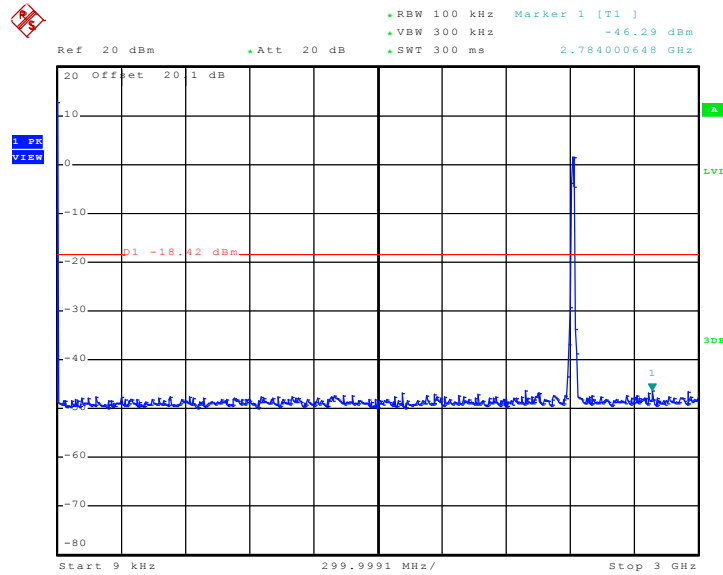


Date: 28.SEP.2010 21:19:30



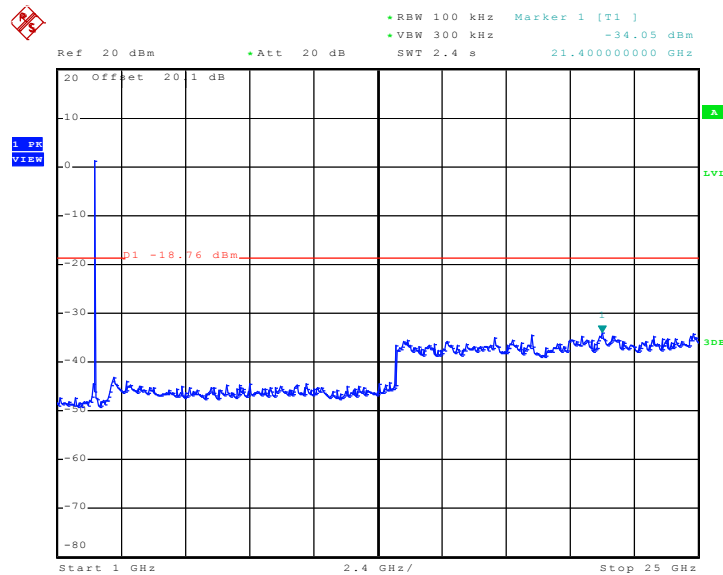
Test Mode :	Mode 7	Temperature :	26~28°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~46%
Test Channel :	01	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:11:15

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

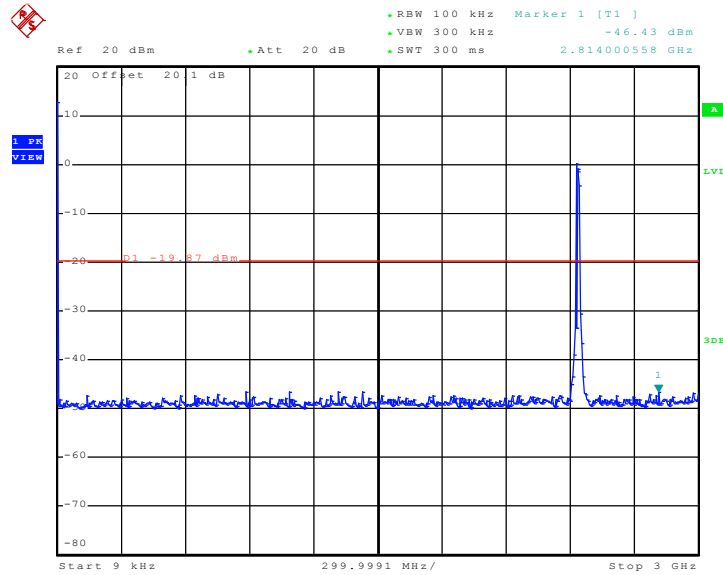


Date: 28.SEP.2010 21:16:20



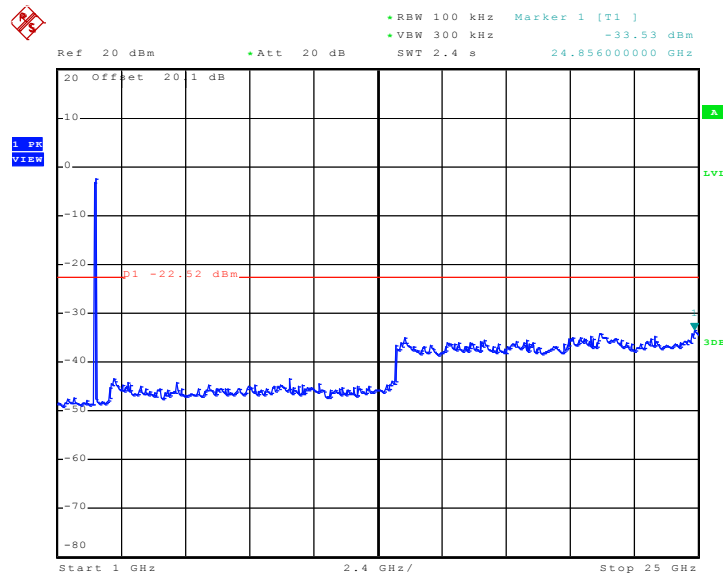
Test Mode :	Mode 8	Temperature :	26~28°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~46%
Test Channel :	06	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:12:09

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

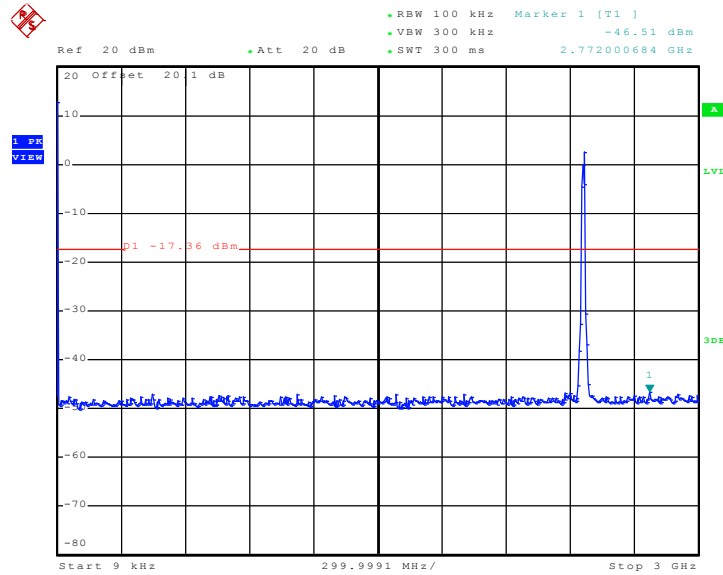


Date: 28.SEP.2010 21:15:27



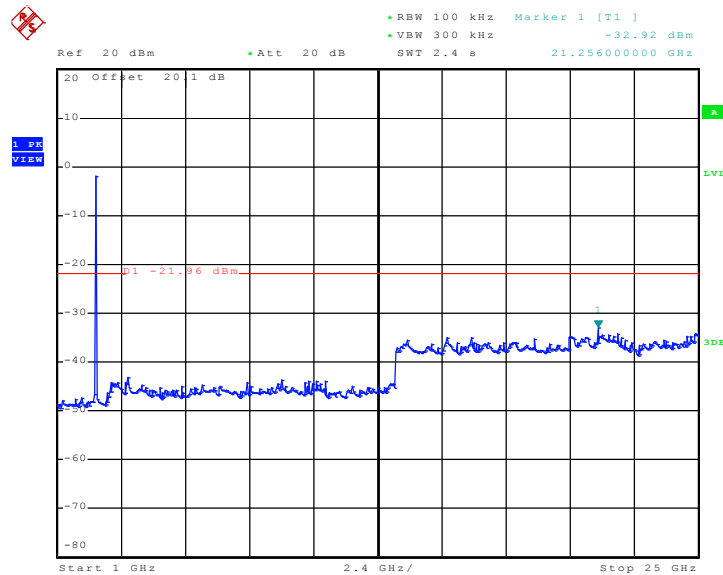
Test Mode :	Mode 9	Temperature :	26~28°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~46%
Test Channel :	11	Test Engineer :	Andy Yeh

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 28.SEP.2010 21:13:11

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 28.SEP.2010 21:14:28

## 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.

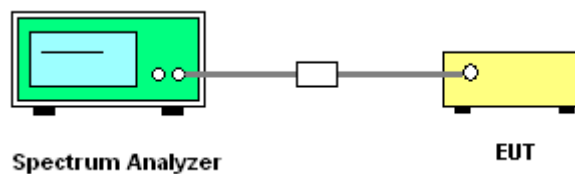
### 3.5.2 Measuring Instruments

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



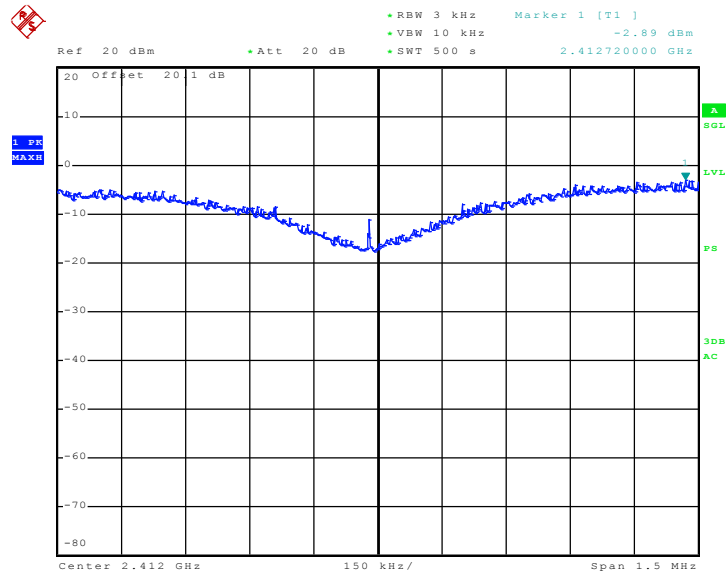


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-2.89	8	Pass
06	2437	-3.54	8	Pass
11	2462	-3.18	8	Pass

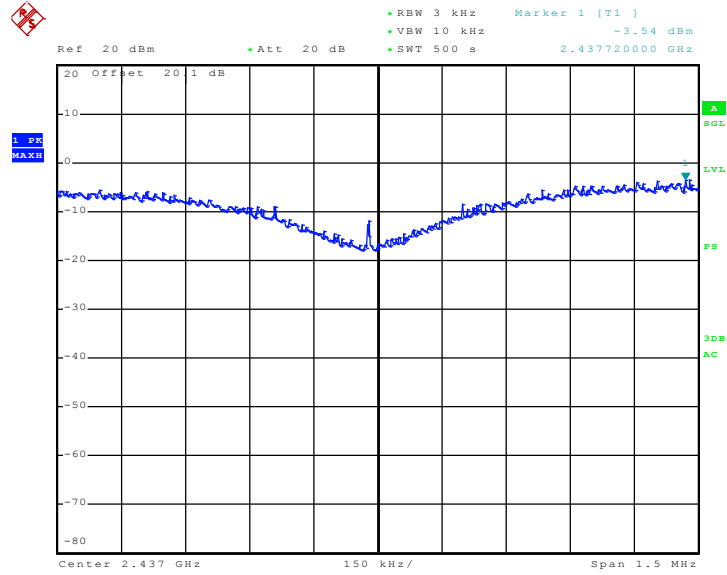
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 28.SEP.2010 19:22:53

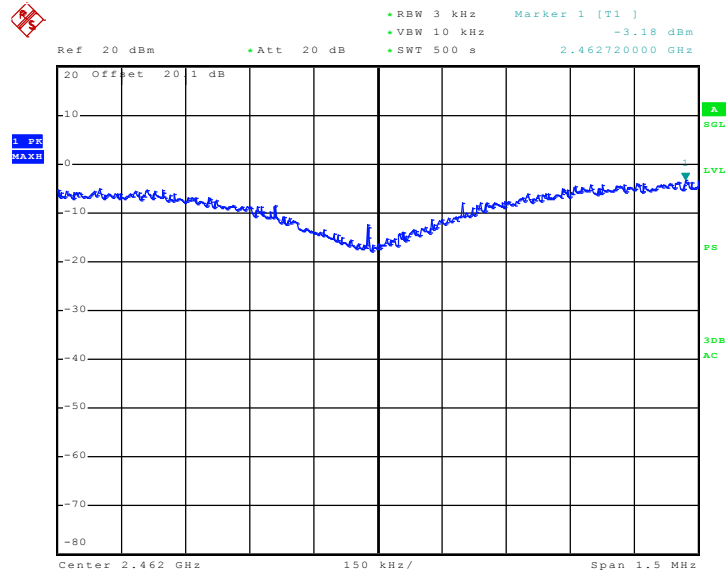


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 28.SEP.2010 19:12:41

Mode 3 : PSD Plot on 802.11b Channel 11



Date: 28.SEP.2010 19:03:48

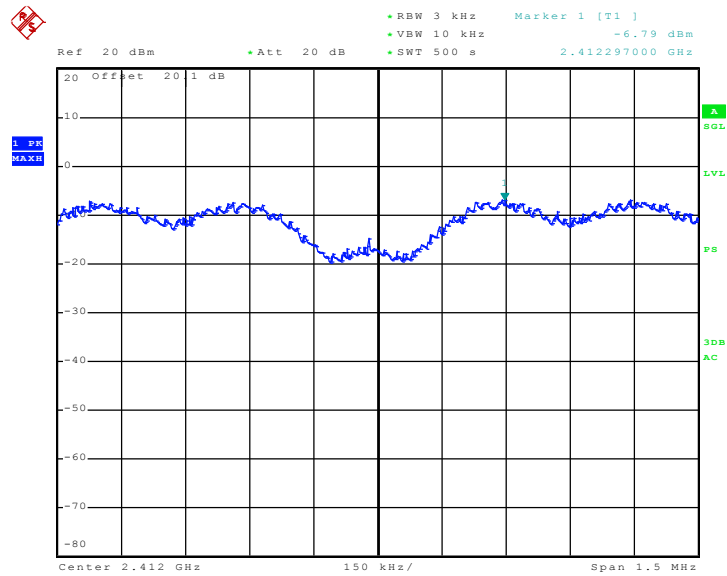




Test Mode :	Mode 4, 5, 6	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-6.79	8	Pass
06	2437	-7.11	8	Pass
11	2462	-7.02	8	Pass

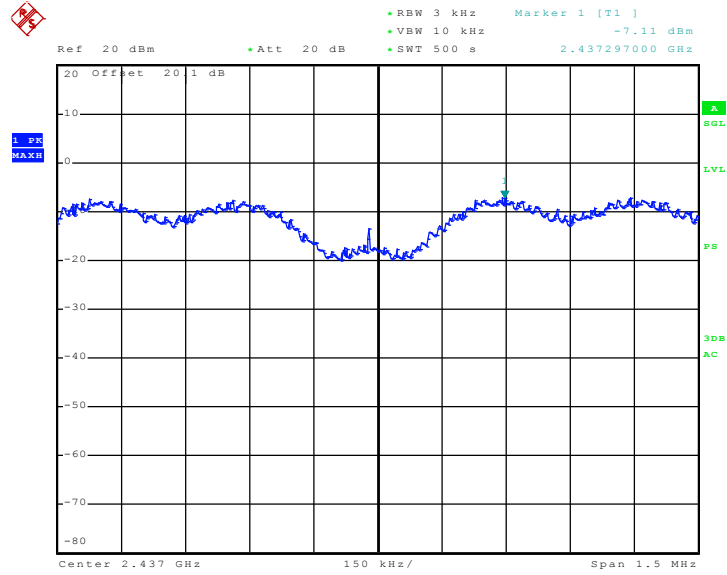
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 28.SEP.2010 19:32:05

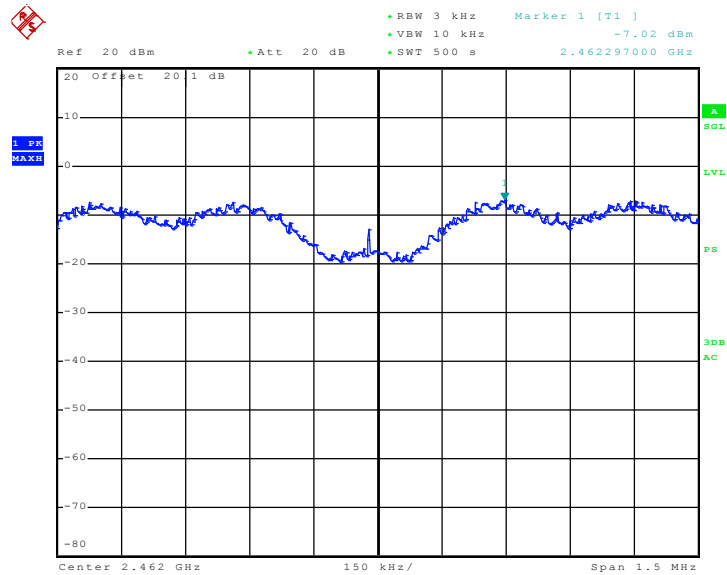


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 28.SEP.2010 19:41:18

Mode 6 : PSD Plot on 802.11g Channel 11



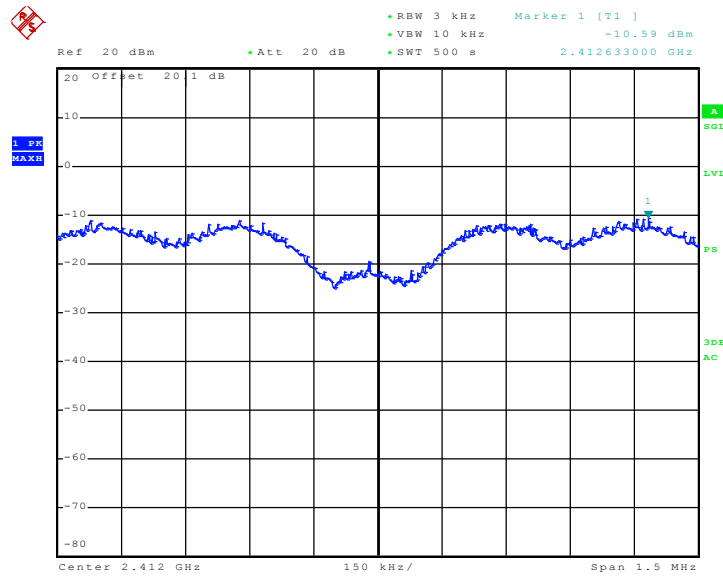
Date: 28.SEP.2010 20:13:22



Test Mode :	Mode 7, 8, 9	Temperature :	26~28°C
Test Engineer :	Andy Yeh	Relative Humidity :	43~46%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.59	8	Pass
06	2437	-11.26	8	Pass
11	2462	-10.90	8	Pass

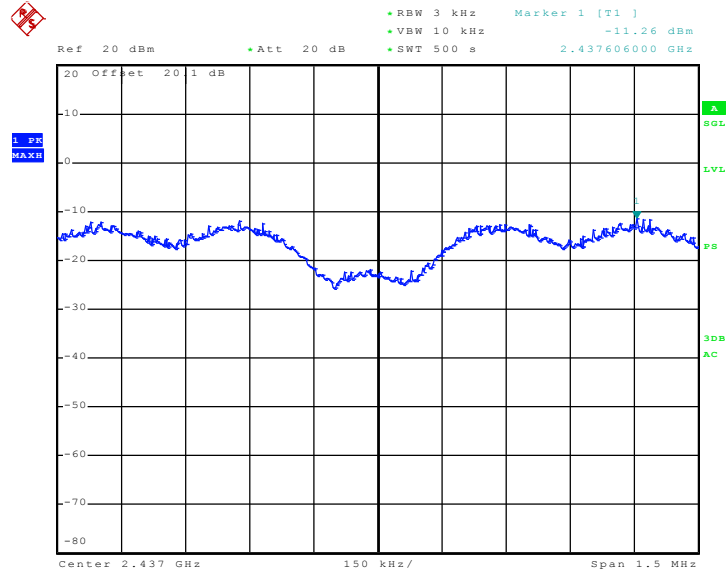
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 28.SEP.2010 20:40:17

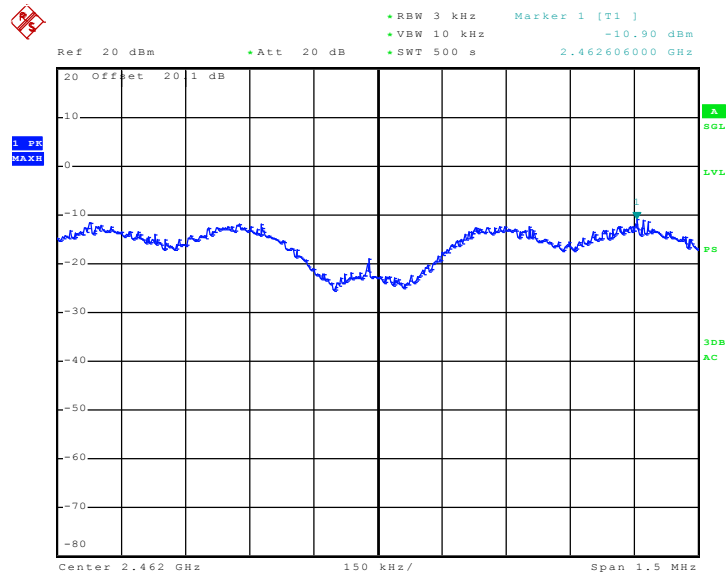


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 28.SEP.2010 20:58:01

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



Date: 28.SEP.2010 20:22:28

## 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

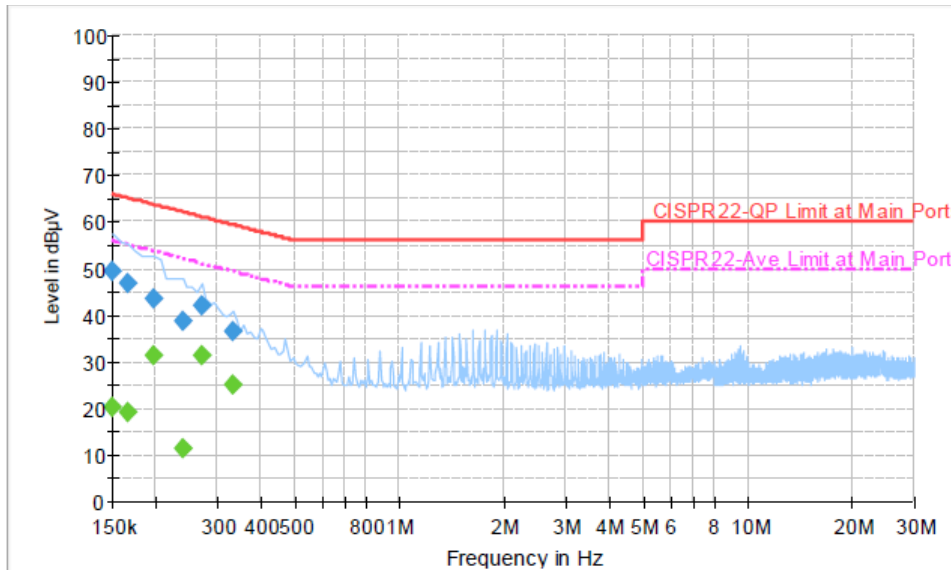
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 4	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + USB Cable (Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



#### Final Result 1

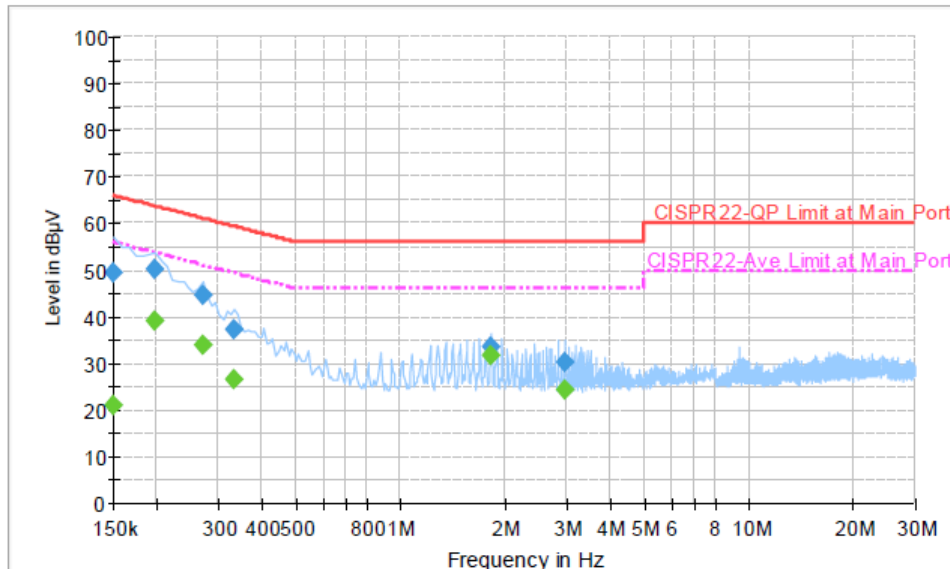
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.5	Off	L1	19.4	16.5	66.0
0.166000	46.8	Off	L1	19.3	18.4	65.2
0.198000	43.6	Off	L1	19.3	20.1	63.7
0.238000	38.6	Off	L1	19.4	23.6	62.2
0.270000	42.2	Off	L1	19.3	18.9	61.1
0.334000	36.4	Off	L1	19.3	23.0	59.4

#### Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	20.2	Off	L1	19.4	35.8	56.0
0.166000	19.3	Off	L1	19.3	35.9	55.2
0.198000	31.5	Off	L1	19.3	22.2	53.7
0.238000	11.5	Off	L1	19.4	40.7	52.2
0.270000	31.3	Off	L1	19.3	19.8	51.1
0.334000	25.0	Off	L1	19.3	24.4	49.4



Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone + USB Cable (Link with Notebook)		
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	49.6	Off	N	19.4	16.4	66.0
0.198000	50.2	Off	N	19.3	13.5	63.7
0.270000	44.6	Off	N	19.3	16.5	61.1
0.334000	37.1	Off	N	19.3	22.3	59.4
1.822000	33.7	Off	N	19.5	22.3	56.0
2.966000	30.4	Off	N	19.5	25.6	56.0

**Final Result 2**

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.0	Off	N	19.4	35.0	56.0
0.198000	39.0	Off	N	19.3	14.7	53.7
0.270000	34.0	Off	N	19.3	17.1	51.1
0.334000	26.6	Off	N	19.3	22.8	49.4
1.822000	31.7	Off	N	19.5	14.3	46.0
2.966000	24.2	Off	N	19.5	21.8	46.0



### 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

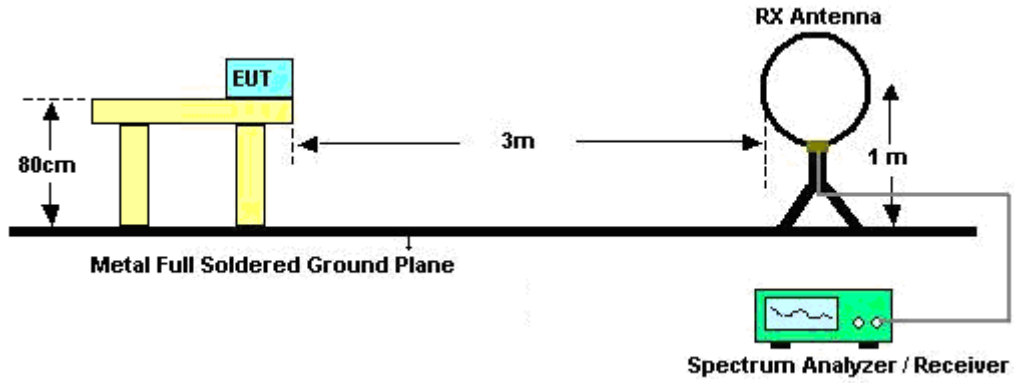
See list of measuring instruments of this test report.

#### 3.7.3 Test Procedures

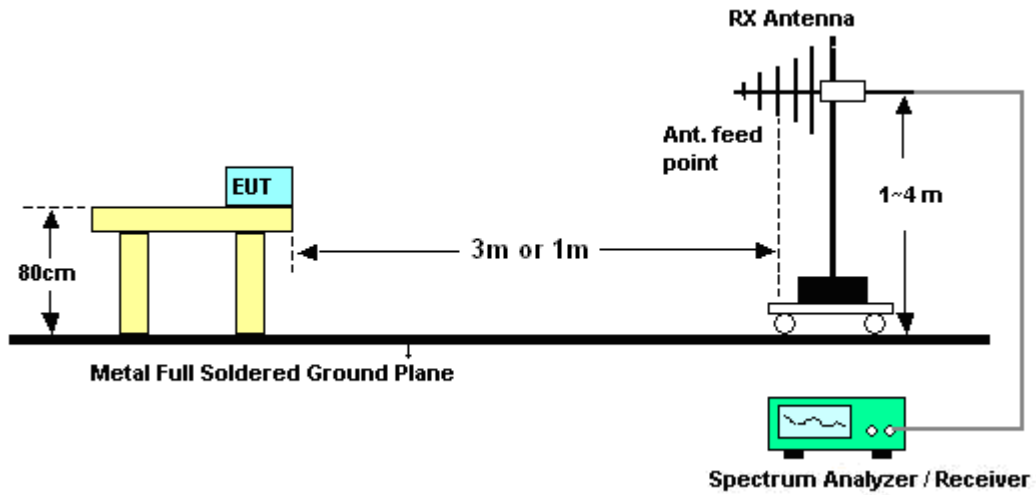
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
  - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz; VBW  $\geq$  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 above 30MHz





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

Test Engineer :	Jason Wang	Temperature :	22~24°C	
		Relative Humidity :	50~51%	
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 :	22~24°C
Test Channel :	01	Relative Humidity :	50~51%
Test Engineer :	Jason Wang	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
31.62	24.55	-15.45	40	37.06	18.4	0.55	31.46	-	-	Peak
40.26	29.66	-10.34	40	47.11	13.43	0.63	31.51	123	215	Peak
78.06	19.93	-20.07	40	43.2	7.39	0.87	31.53	-	-	Peak
601.7	21.07	-24.93	46	29.22	20.08	2.69	30.92	-	-	Peak
792.8	23.82	-22.18	46	29.26	22.11	3.13	30.68	-	-	Peak
968.5	26.09	-27.91	54	28.96	24.22	3.48	30.57	-	-	Peak
2389.99	56.23	-17.77	74	51.55	32.18	6.03	33.53	105	322	Peak
2389.99	44.62	-9.38	54	39.94	32.18	6.03	33.53	105	322	Average
2412	102.84	-	-	98.11	32.2	6.07	33.54	105	322	Average
2412	105.9	-	-	101.17	32.2	6.07	33.54	105	322	Peak
2494	47.92	-26.08	74	43.01	32.3	6.18	33.57	105	322	Peak
2494	37.21	-16.79	54	32.3	32.3	6.18	33.57	105	322	Average



<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
32.43	34.31	-5.69	40	47.38	17.84	0.56	31.47	157	148	Peak
48.9	31.56	-8.44	40	53.45	8.96	0.68	31.53	-	-	Peak
138.81	22.73	-20.77	43.5	41.37	11.71	1.2	31.55	-	-	Peak
674.5	21.1	-24.9	46	28.42	20.64	2.89	30.85	-	-	Peak
832.7	22.82	-23.18	46	27.76	22.54	3.23	30.71	-	-	Peak
988.1	25.01	-28.99	54	27.58	24.51	3.5	30.58	-	-	Peak
2389.42	51.52	-22.48	74	46.84	32.18	6.03	33.53	100	188	Peak
2389.42	39.11	-14.89	54	34.43	32.18	6.03	33.53	100	188	Average
2412	99.67	-	-	94.94	32.2	6.07	33.54	100	188	Average
2412	102.88	-	-	98.15	32.2	6.07	33.54	100	188	Peak
2488	46.89	-27.11	74	41.98	32.3	6.18	33.57	100	188	Peak
2488	34.62	-19.38	54	29.71	32.3	6.18	33.57	100	188	Average



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
52.95	31.28	-8.72	40	54.75	7.36	0.72	31.55	166	252	Peak
112.89	28.07	-15.43	43.5	47.05	11.51	1.06	31.55	-	-	Peak
150.42	25.34	-18.16	43.5	44.49	11.2	1.21	31.56	-	-	Peak
606.6	21.06	-24.94	46	29.15	20.11	2.71	30.91	-	-	Peak
830.6	24.01	-21.99	46	28.99	22.51	3.22	30.71	-	-	Peak
984.6	26.6	-27.4	54	29.23	24.46	3.49	30.58	-	-	Peak
2366	48.82	-25.18	74	44.22	32.13	5.99	33.52	110	336	Peak
2366	39.11	-14.89	54	34.51	32.13	5.99	33.52	110	336	Average
2437	104.02	-	-	99.22	32.24	6.11	33.55	110	336	Average
2437	107.52	-	-	102.72	32.24	6.11	33.55	110	336	Peak
2486	47.65	-26.35	74	42.75	32.28	6.18	33.56	110	336	Peak
2486	35.98	-18.02	54	31.08	32.28	6.18	33.56	110	336	Average



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
34.05	33.01	-6.99	40	46.62	17.29	0.57	31.47	124	101	Peak
54.3	28.67	-11.33	40	52.34	7.16	0.72	31.55	-	-	Peak
203.61	26.15	-17.35	43.5	47.43	8.87	1.33	31.48	-	-	Peak
597.5	21.11	-24.89	46	29.34	20.01	2.68	30.92	-	-	Peak
862.8	24.34	-21.66	46	28.94	22.83	3.29	30.72	-	-	Peak
988.1	26.13	-27.87	54	28.7	24.51	3.5	30.58	-	-	Peak
2362	49.01	-24.99	74	44.41	32.13	5.99	33.52	174	352	Peak
2362	39.56	-14.44	54	34.96	32.13	5.99	33.52	174	352	Average
2437	104.12	-	-	99.32	32.24	6.11	33.55	174	352	Peak
2437	101.06	-	-	96.26	32.24	6.11	33.55	174	352	Average
2494	34.78	-19.22	54	29.87	32.3	6.18	33.57	174	352	Average
2494	46.57	-27.43	74	41.66	32.3	6.18	33.57	174	352	Peak



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
30.81	28.84	-11.16	40	40.81	18.95	0.54	31.46	134	277	Peak
42.69	27.07	-12.93	40	45.75	12.18	0.64	31.5	-	-	Peak
138.81	22.13	-21.37	43.5	40.77	11.71	1.2	31.55	-	-	Peak
604.5	20.77	-25.23	46	28.89	20.1	2.7	30.92	-	-	Peak
712.3	22.97	-23.03	46	29.79	21	2.97	30.79	-	-	Peak
892.2	24.23	-21.77	46	28.49	23.11	3.33	30.7	-	-	Peak
2384	50.26	-23.74	74	45.6	32.16	6.03	33.53	103	6	Peak
2384	41.34	-12.66	54	36.68	32.16	6.03	33.53	103	6	Average
2462	103.61	-	-	98.77	32.26	6.14	33.56	103	6	Average
2462	106.87	-	-	102.03	32.26	6.14	33.56	103	6	Peak
2483.5	60.34	-13.66	74	55.44	32.28	6.18	33.56	103	6	Peak
2483.5	49.06	-4.94	54	44.16	32.28	6.18	33.56	103	6	Average





<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
32.7	32.31	-7.69	40	45.38	17.84	0.56	31.47	156	215	Peak
103.17	26.51	-16.99	43.5	46.43	10.61	1.01	31.54	-	-	Peak
174.45	21.73	-21.77	43.5	42.69	9.32	1.24	31.52	-	-	Peak
666.1	22.43	-23.57	46	29.83	20.58	2.87	30.85	-	-	Peak
816.6	23.75	-22.25	46	28.89	22.38	3.18	30.7	-	-	Peak
963.6	25.6	-28.4	54	28.57	24.13	3.47	30.57	-	-	Peak
2382	49.01	-24.99	74	44.35	32.16	6.03	33.53	106	189	Peak
2382	39.84	-14.16	54	35.18	32.16	6.03	33.53	106	189	Average
2462	98.74	-	-	93.9	32.26	6.14	33.56	106	189	Average
2462	101.68	-	-	96.84	32.26	6.14	33.56	106	189	Peak
2483.66	55.43	-18.57	74	50.53	32.28	6.18	33.56	106	189	Peak
2483.66	43.69	-10.31	54	38.79	32.28	6.18	33.56	106	189	Average
7386	52.21	-21.79	74	63.66	35.38	10.1	56.93	100	331	Peak
7386	46.84	-7.16	54	58.29	35.38	10.1	56.93	100	331	Average



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
52.68	28.12	-11.88	40	51.38	7.57	0.71	31.54	171	15	Peak
115.05	24.29	-19.21	43.5	42.99	11.78	1.08	31.56	-	-	Peak
133.41	23.43	-20.07	43.5	42.08	11.74	1.17	31.56	-	-	Peak
622.7	21.35	-24.65	46	29.25	20.24	2.76	30.9	-	-	Peak
822.2	24.55	-21.45	46	29.62	22.43	3.2	30.7	-	-	Peak
988.8	26.73	-27.27	54	29.3	24.51	3.5	30.58	-	-	Peak
2389.99	66.52	-7.48	74	61.84	32.18	6.03	33.53	107	16	Peak
2389.99	47.14	-6.86	54	42.46	32.18	6.03	33.53	107	16	Average
2412	92.74	-	-	88.01	32.2	6.07	33.54	107	16	Average
2412	103.99	-	-	99.26	32.2	6.07	33.54	107	16	Peak
2500	47.31	-26.69	74	42.4	32.3	6.18	33.57	107	16	Peak
2500	34.98	-19.02	54	30.07	32.3	6.18	33.57	107	16	Average



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
30.81	34.37	-5.63	40	46.34	18.95	0.54	31.46	137	336	Peak
48.63	27.83	-12.17	40	49.72	8.96	0.68	31.53	-	-	Peak
103.17	26.35	-17.15	43.5	46.27	10.61	1.01	31.54	-	-	Peak
705.3	21.52	-24.48	46	28.47	20.91	2.95	30.81	-	-	Peak
897.1	24.45	-21.55	46	28.66	23.15	3.34	30.7	-	-	Peak
984.6	26.65	-27.35	54	29.28	24.46	3.49	30.58	-	-	Peak
2389.99	41.74	-12.26	54	37.06	32.18	6.03	33.53	175	327	Average
2389.99	62.09	-11.91	74	57.41	32.18	6.03	33.53	175	327	Peak
2412	101.16	-	-	96.43	32.2	6.07	33.54	175	327	Peak
2412	89.78	-	-	85.05	32.2	6.07	33.54	175	327	Average
2492	34.1	-19.9	54	29.19	32.3	6.18	33.57	175	327	Average
2492	45.69	-28.31	74	40.78	32.3	6.18	33.57	175	327	Peak



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
30.54	32.68	-7.32	40	44.65	18.95	0.54	31.46	130	231	Peak
81.57	23.36	-16.64	40	46.3	7.7	0.89	31.53	-	-	Peak
126.93	21.93	-21.57	43.5	40.57	11.8	1.13	31.57	-	-	Peak
656.3	21.81	-24.19	46	29.32	20.5	2.85	30.86	-	-	Peak
773.2	23.29	-22.71	46	29.04	21.84	3.1	30.69	-	-	Peak
943.3	25.71	-20.29	46	29.01	23.84	3.45	30.59	-	-	Peak
2358	48.74	-25.26	74	44.14	32.13	5.99	33.52	107	9	Peak
2358	37.05	-16.95	54	32.45	32.13	5.99	33.52	107	9	Average
2437	93.02	-	-	88.22	32.24	6.11	33.55	107	9	Average
2437	104.62	-	-	99.82	32.24	6.11	33.55	107	9	Peak
2488	47.21	-26.79	74	42.3	32.3	6.18	33.57	107	9	Peak
2488	35.02	-18.98	54	30.11	32.3	6.18	33.57	107	9	Average



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
31.35	33.89	-6.11	40	45.86	18.95	0.54	31.46	188	114	Peak
50.52	27.81	-12.19	40	50.67	7.98	0.7	31.54	-	-	Peak
101.82	24.81	-18.69	43.5	44.83	10.52	1	31.54	-	-	Peak
708.8	22.18	-23.82	46	29.06	20.96	2.96	30.8	-	-	Peak
866.3	23.67	-22.33	46	28.25	22.85	3.29	30.72	-	-	Peak
960.1	25.12	-28.88	54	28.13	24.09	3.47	30.57	-	-	Peak
2390	47.94	-26.06	74	43.26	32.18	6.03	33.53	177	314	Peak
2390	34.42	-19.58	54	29.74	32.18	6.03	33.53	177	314	Average
2437	89.51	-	-	84.71	32.24	6.11	33.55	177	314	Average
2437	100.45	-	-	95.65	32.24	6.11	33.55	177	314	Peak
2484	45.81	-28.19	74	40.91	32.28	6.18	33.56	177	314	Peak
2484	33.94	-20.06	54	29.04	32.28	6.18	33.56	177	314	Average



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
30.81	31.42	-8.58	40	43.39	18.95	0.54	31.46	102	335	Peak
81.57	21.64	-18.36	40	44.58	7.7	0.89	31.53	-	-	Peak
128.01	21.12	-22.38	43.5	39.76	11.79	1.14	31.57	-	-	Peak
635.3	21.33	-24.67	46	29.07	20.34	2.8	30.88	-	-	Peak
809.6	23.43	-22.57	46	28.64	22.31	3.17	30.69	-	-	Peak
948.2	25.16	-20.84	46	28.36	23.91	3.46	30.57	-	-	Peak
2379	47.92	-26.08	74	43.3	32.16	5.99	33.53	100	19	Peak
2379	37.01	-16.99	54	32.39	32.16	5.99	33.53	100	19	Average
2462	91.21	-	-	86.37	32.26	6.14	33.56	100	19	Average
2462	103.32	-	-	98.48	32.26	6.14	33.56	100	19	Peak
2483.5	69.32	-4.68	74	64.42	32.28	6.18	33.56	100	19	Peak
2483.5	49.14	-4.86	54	44.24	32.28	6.18	33.56	100	19	Average



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
32.43	33.81	-6.19	40	46.88	17.84	0.56	31.47	130	225	Peak
54.57	29.33	-10.67	40	53	7.16	0.72	31.55	-	-	Peak
107.49	26.6	-16.9	43.5	46.05	11.06	1.04	31.55	-	-	Peak
654.2	21.79	-24.21	46	29.32	20.49	2.85	30.87	-	-	Peak
831.3	23.71	-22.29	46	28.68	22.52	3.22	30.71	-	-	Peak
970.6	25.4	-28.6	54	28.24	24.25	3.48	30.57	-	-	Peak
2380	36.48	-17.52	54	31.82	32.16	6.03	33.53	100	217	Average
2380	49.26	-24.74	74	44.6	32.16	6.03	33.53	100	217	Peak
2462	98.16	-	-	93.32	32.26	6.14	33.56	100	217	Peak
2462	86.94	-	-	82.1	32.26	6.14	33.56	100	217	Average
2483.5	66.58	-7.42	74	61.68	32.28	6.18	33.56	100	217	Peak
2483.5	45.31	-8.69	54	40.41	32.28	6.18	33.56	100	217	Average



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
30.81	34.06	-5.94	40	46.03	18.95	0.54	31.46	106	333	Peak
81.57	24.69	-15.31	40	47.63	7.7	0.89	31.53	-	-	Peak
172.29	20.12	-23.38	43.5	40.94	9.46	1.24	31.52	-	-	Peak
591.2	20.92	-25.08	46	29.28	19.9	2.67	30.93	-	-	Peak
829.9	24.83	-21.17	46	29.81	22.51	3.22	30.71	-	-	Peak
961.5	25.05	-28.95	54	28.05	24.1	3.47	30.57			Peak
2389.99	66.23	-7.77	74	61.55	32.18	6.03	33.53	102	340	Peak
2389.99	46.14	-7.86	54	41.46	32.18	6.03	33.53	102	340	Average
2412	102.98	-	-	98.25	32.2	6.07	33.54	102	340	Peak
2412	91.32	-	-	86.59	32.2	6.07	33.54	102	340	Average
2494	34.01	-19.99	54	29.1	32.3	6.18	33.57	102	340	Average
2494	45.33	-28.67	74	40.42	32.3	6.18	33.57	102	340	Peak





<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
30.54	34.15	-5.85	40	46.12	18.95	0.54	31.46	157	144	Peak
62.94	27.74	-12.26	40	52.38	6.12	0.78	31.54	-	-	Peak
150.42	23.98	-19.52	43.5	43.13	11.2	1.21	31.56	-	-	Peak
703.9	22.65	-23.35	46	29.62	20.89	2.95	30.81	-	-	Peak
843.2	24.12	-21.88	46	28.96	22.63	3.25	30.72	-	-	Peak
967.1	25.46	-28.54	54	28.36	24.19	3.48	30.57	-	-	Peak
2389.42	62.51	-11.49	74	57.83	32.18	6.03	33.53	100	188	Peak
2389.42	42.22	-11.78	54	37.54	32.18	6.03	33.53	100	188	Average
2412	99.83	-	-	95.1	32.2	6.07	33.54	100	188	Peak
2412	88.24	-	-	83.51	32.2	6.07	33.54	100	188	Average
2492	33.68	-20.32	54	28.77	32.3	6.18	33.57	100	188	Average
2492	44.83	-29.17	74	39.92	32.3	6.18	33.57	100	188	Peak



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
31.62	32.83	-7.17	40	45.34	18.4	0.55	31.46	152	222	Peak
80.49	24.31	-15.69	40	47.39	7.57	0.88	31.53	-	-	Peak
128.82	20.02	-23.48	43.5	38.67	11.78	1.14	31.57	-	-	Peak
759.9	22.93	-23.07	46	28.89	21.66	3.08	30.7	-	-	Peak
904.1	25.01	-20.99	46	29.11	23.24	3.35	30.69	-	-	Peak
988.1	26.57	-27.43	54	29.14	24.51	3.5	30.58	-	-	Peak
2390	47.14	-26.86	74	42.46	32.18	6.03	33.53	109	349	Peak
2390	33.89	-20.11	54	29.21	32.18	6.03	33.53	109	349	Average
2437	90.23	-	-	85.43	32.24	6.11	33.55	109	349	Average
2437	101.88	-	-	97.08	32.24	6.11	33.55	109	349	Peak
2486	47.51	-26.49	74	42.61	32.28	6.18	33.56	109	349	Peak
2486	34.94	-19.06	54	30.04	32.28	6.18	33.56	109	349	Average



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
30.81	34.23	-5.77	40	46.2	18.95	0.54	31.46	156	338	Peak
66.45	25.57	-14.43	40	49.91	6.39	0.82	31.55	-	-	Peak
184.98	23.93	-19.57	43.5	45.21	8.98	1.26	31.52	-	-	Peak
686.4	22.57	-23.43	46	29.75	20.74	2.91	30.83	-	-	Peak
902	25.08	-20.92	46	29.22	23.21	3.34	30.69	-	-	Peak
992.3	26.42	-27.58	54	28.93	24.57	3.5	30.58	-	-	Peak
2342	45.54	-28.46	74	41	32.11	5.95	33.52	100	228	Peak
2342	33.29	-20.71	54	28.75	32.11	5.95	33.52	100	228	Average
2437	87.49	-	-	82.69	32.24	6.11	33.55	100	228	Average
2437	98.84	-	-	94.04	32.24	6.11	33.55	100	228	Peak
2484	45.72	-28.28	74	40.82	32.28	6.18	33.56	100	228	Peak
2484	33.62	-20.38	54	28.72	32.28	6.18	33.56	100	228	Average



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
32.16	32.15	-7.85	40	44.66	18.4	0.55	31.46	122	251	Peak
83.46	24.44	-15.56	40	47.12	7.96	0.9	31.54	-	-	Peak
152.31	24.09	-19.41	43.5	43.39	11.04	1.21	31.55	-	-	Peak
666.8	21.88	-24.12	46	29.28	20.58	2.87	30.85	-	-	Peak
855.8	24.83	-21.17	46	29.53	22.75	3.28	30.73	-	-	Peak
937.7	25.18	-20.82	46	28.6	23.75	3.43	30.6	-	-	Peak
2388	48.37	-25.63	74	43.69	32.18	6.03	33.53	106	327	Peak
2388	36.51	-17.49	54	31.83	32.18	6.03	33.53	106	327	Average
2462	90.64	-	-	85.8	32.26	6.14	33.56	106	327	Average
2462	102.39	-	-	97.55	32.26	6.14	33.56	106	327	Peak
2483.5	67.32	-6.68	74	62.42	32.28	6.18	33.56	106	327	Peak
2483.5	48.14	-5.86	54	43.24	32.28	6.18	33.56	106	327	Average



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	22~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	50~51%
<b>Test Engineer :</b>	Jason Wang	<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
30.54	34.93	-5.07	40	46.9	18.95	0.54	31.46	128	111	Peak
40.8	28.99	-11.01	40	46.44	13.43	0.63	31.51	-	-	Peak
185.25	22.67	-20.83	43.5	43.95	8.98	1.26	31.52	-	-	Peak
661.2	21.01	-24.99	46	28.47	20.54	2.86	30.86	-	-	Peak
829.2	23.71	-22.29	46	28.7	22.5	3.22	30.71	-	-	Peak
987.4	26.84	-27.16	54	29.42	24.5	3.5	30.58	-	-	Peak
2382	37.34	-16.66	54	32.68	32.16	6.03	33.53	100	216	Average
2382	48.14	-25.86	74	43.48	32.16	6.03	33.53	100	216	Peak
2462	87.32	-	-	82.48	32.26	6.14	33.56	100	216	Average
2462	99.67	-	-	94.83	32.26	6.14	33.56	100	216	Peak
2483.66	65.63	-8.37	74	60.73	32.28	6.18	33.56	100	216	Peak
2483.66	44.26	-9.74	54	39.36	32.28	6.18	33.56	100	216	Average



## **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	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101329	9kHz~30GHz	Apr. 26, 2010	Apr. 25, 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)
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	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	105934	N/A	Nov. 11, 2008	Nov. 10, 2010	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	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	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	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. 27, 2010	Mar. 26, 2011	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-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>				