

# FCC RF Test Report

APPLICANT : Motorola Mobility, Inc.  
EQUIPMENT : Mobile Phone  
BRAND NAME : MOTOROLA  
MODEL NAME : XT615  
GPPD NUMBER : 3149  
FCC ID : IHDP56MM5  
STANDARD : FCC Part 15 Subpart C §15.247  
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Oct. 05, 2011 and completely tested on Oct. 19, 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.

SPORTON INTERNATIONAL INC.

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FCC ID : IHDP56MM5

Page Number : 1 of 72

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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	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 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 9.70 dB at 4.00 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit -11.39 dB at 47.01 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



# 1 General Description

## 1.1 Applicant

Motorola Mobility, Inc.  
8F., No. 9, Songgao Rd., Taipei 110, Taiwan, R.O.C.

## 1.2 Manufacturer

Chi Mei Communication Systems, Inc.  
No. 4, Mingsheng Street, Tucheng District, New Taipei City, 23678, Taiwan

## 1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Mobile Phone
Brand Name	MOTOROLA
Model Name	XT615
FCC ID	IHDP56MM5
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 : 17.58 dBm (0.0563 W) 802.11g : 22.52 dBm (0.1787 W) 802.11n (BW 20MHz) : 21.57 dBm (0.1435 W)
Antenna Type	PIFA Antenna with gain -1.25 dBi
HW Version	PR2
SW Version	V1.250
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

**Remark:**

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

## 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

### 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 (Certification), 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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	P20G	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

## 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)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	17.49	17.46	17.42	17.48
CH 06	2437 MHz	17.58	17.50	17.38	17.55
CH 11	2462 MHz	17.51	17.50	17.46	17.49

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	22.28	22.18	21.93	21.98	21.51	22.15	22.03	22.01
CH 06	2437 MHz	22.41	22.39	22.17	22.23	22.16	22.11	22.31	22.29
CH 11	2462 MHz	22.52	22.43	22.32	22.35	22.29	22.13	22.32	22.46

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	21.25	21.04	21.10	21.16	21.12	20.98	21.13	20.93
CH 06	2437 MHz	21.42	21.37	21.13	21.17	21.00	20.84	21.05	21.11
CH 11	2462 MHz	21.57	21.44	21.36	21.42	21.25	21.14	21.40	21.24

**Remark:** 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).

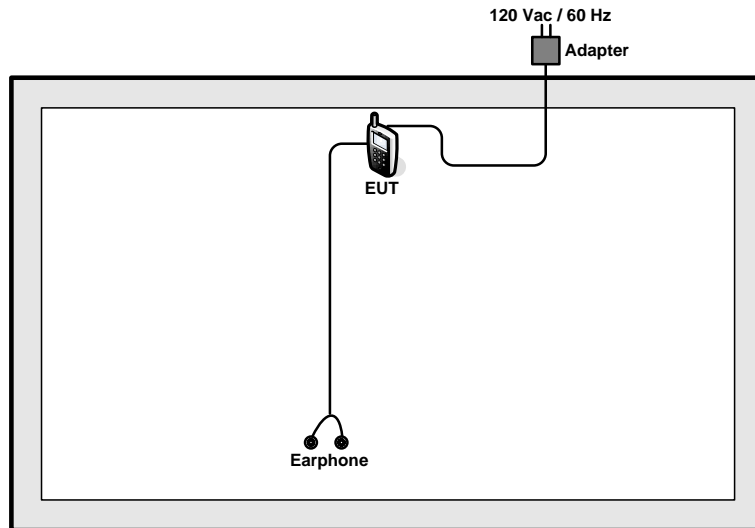
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations.

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

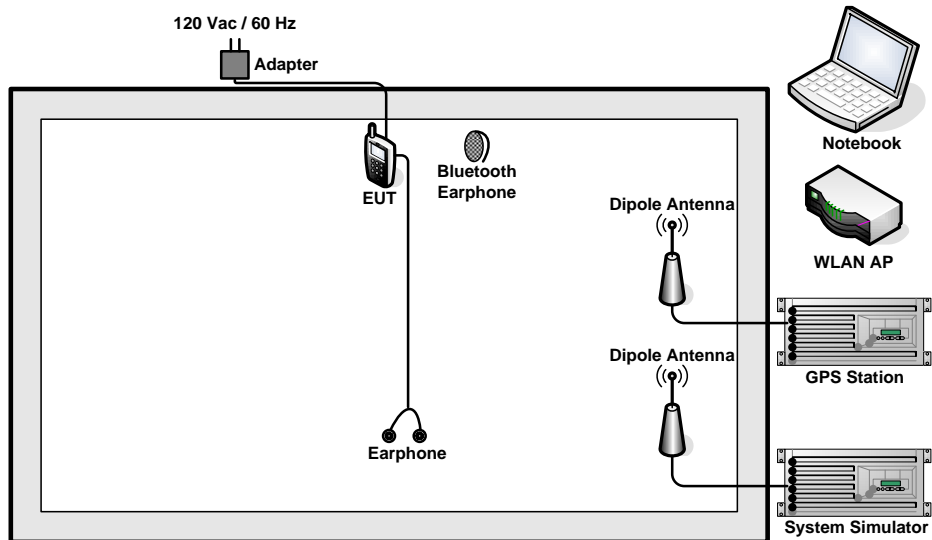
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
<b>Conducted TCs</b>	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (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 + WLAN Link + Bluetooth Link + GPS Rx + Earphone + Adapter	

## 2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



## 2.4 RF Utility

For WLAN function, key in “\* # \* # 373 # \* # \*” on the EUT directly. Then, the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

### 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.

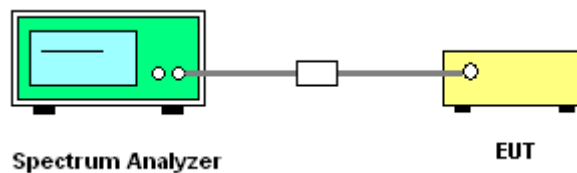
##### 3.1.2 Measuring Instruments

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



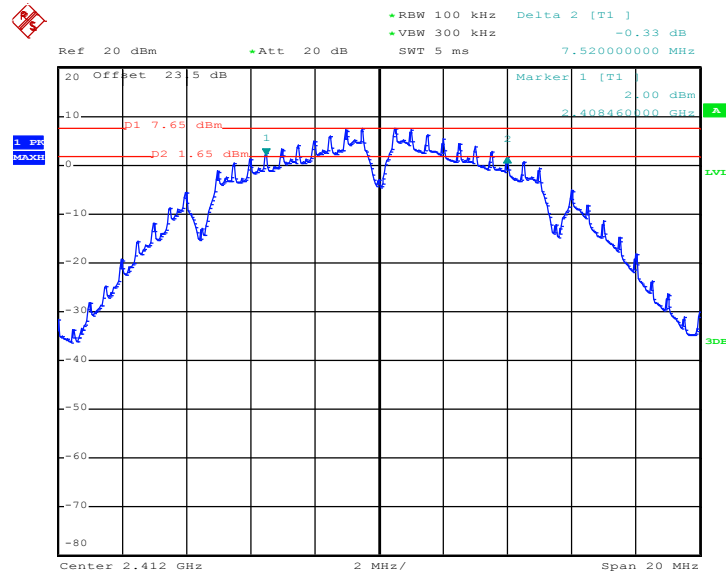


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.52	0.5	Pass
06	2437	7.52	0.5	Pass
11	2462	7.52	0.5	Pass

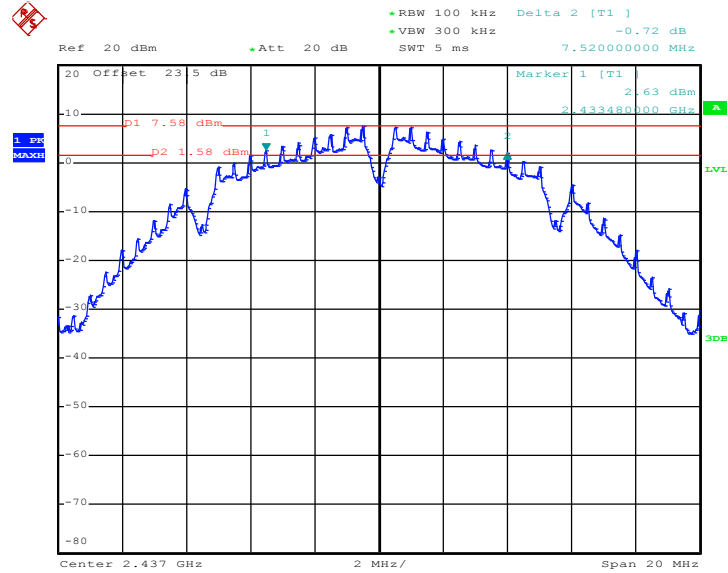
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 12.OCT.2011 17:16:53

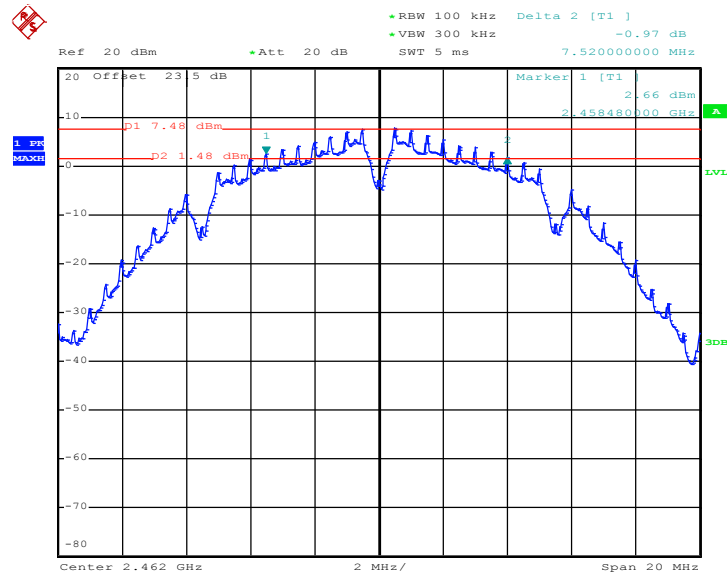


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 12.OCT.2011 18:05:09

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



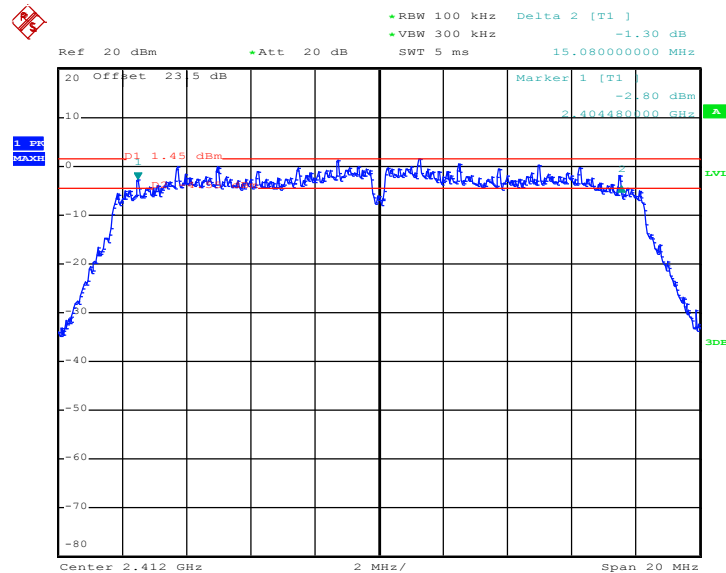
Date: 12.OCT.2011 18:23:41



Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.08	0.5	Pass

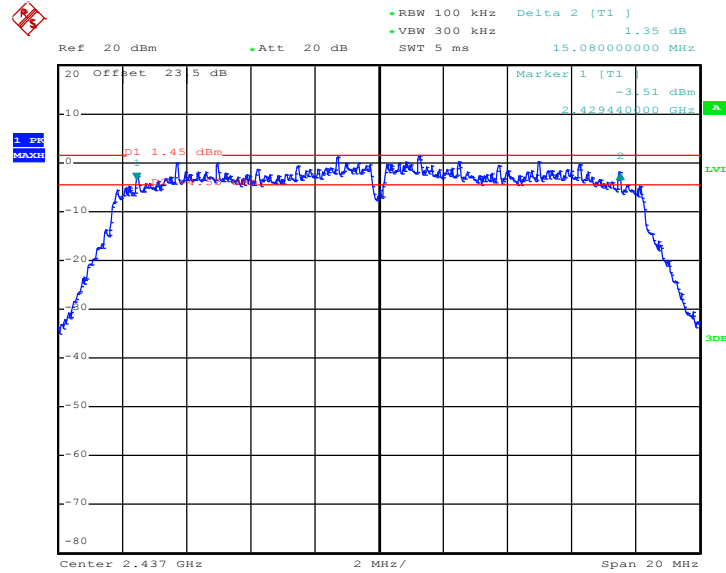
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 14.OCT.2011 17:03:07

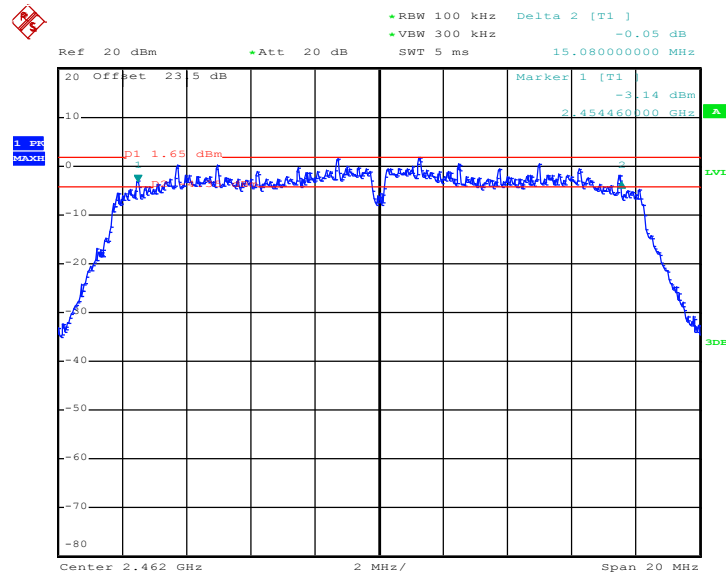


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 14.OCT.2011 17:16:39

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



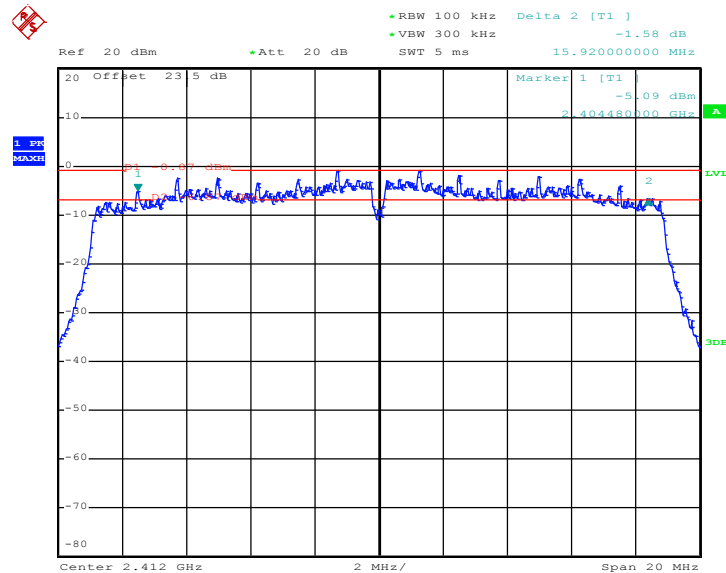
Date: 14.OCT.2011 17:27:39



Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.92	0.5	Pass
06	2437	16.04	0.5	Pass
11	2462	15.92	0.5	Pass

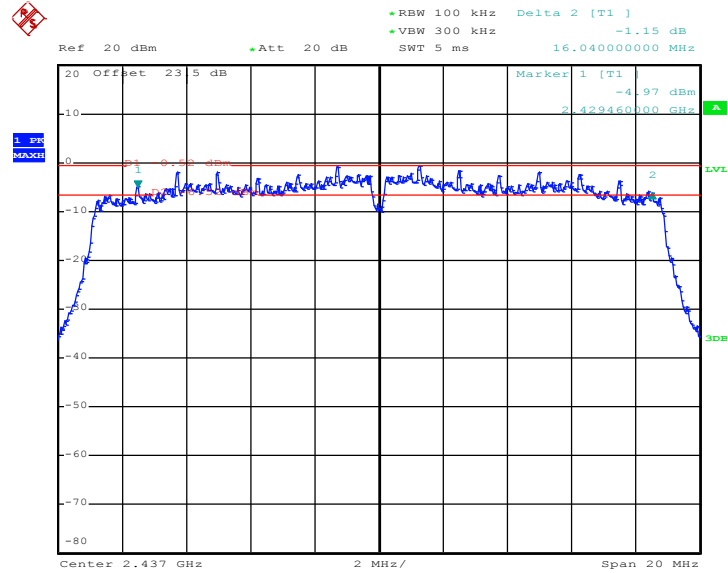
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 14.OCT.2011 17:47:16

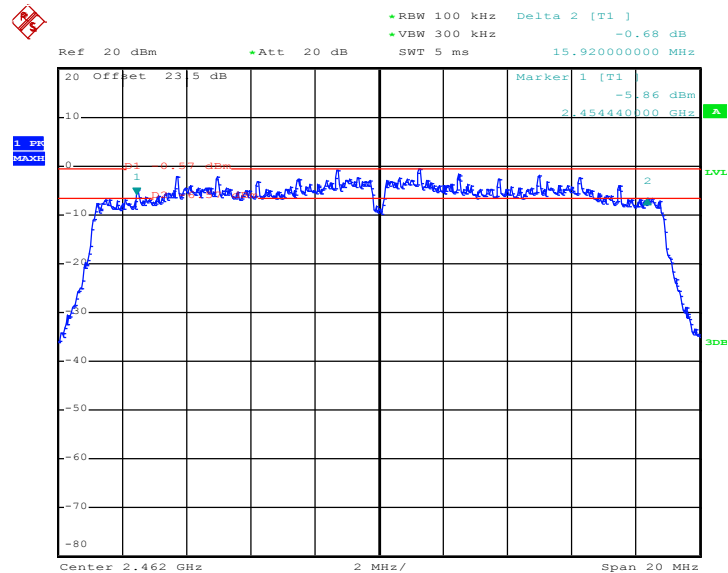


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 14.OCT.2011 17:58:30

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



Date: 14.OCT.2011 18:10:24

## 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.

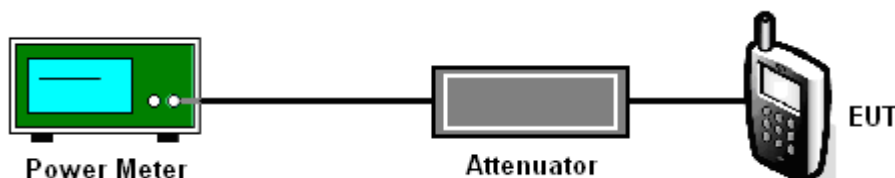
### 3.2.2 Measuring Instruments

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

<b>Test Mode :</b>	Mode 1, 2, 3	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Pinkston Tu	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.49	30	Pass
06	2437	17.58	30	Pass
11	2462	17.51	30	Pass

<b>Test Mode :</b>	Mode 4, 5, 6	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Pinkston Tu	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.28	30	Pass
06	2437	22.41	30	Pass
11	2462	22.52	30	Pass

<b>Test Mode :</b>	Mode 7, 8, 9	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Pinkston Tu	<b>Relative Humidity :</b>	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.25	30	Pass
06	2437	21.42	30	Pass
11	2462	21.57	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**

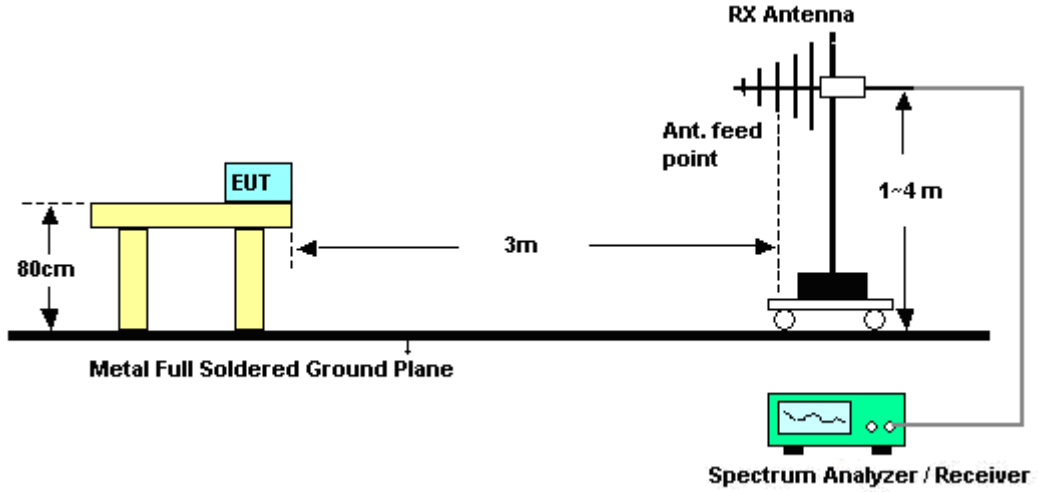
See list of measuring instruments of this test report.

#### **3.3.3 Test Procedures**

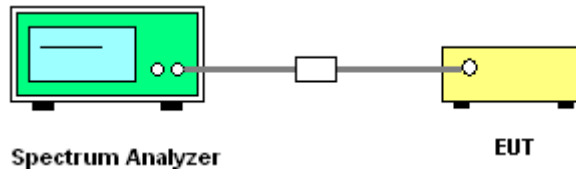
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW)  $\geq$  RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	23~24°C
Test Band :	802.11b	Relative Humidity :	49~51%
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
2385.05	48.1	-25.9	74	43.89	32.03	6.03	33.85	189	350	Peak
2385.05	37.71	-16.29	54	33.5	32.03	6.03	33.85	189	350	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
2332.61	47.26	-26.74	74	43.18	31.96	5.95	33.83	174	134	Peak
2332.61	34.1	-19.9	54	30.02	31.96	5.95	33.83	174	134	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	49~51%
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	48.23	-25.77	74	43.77	32.18	6.18	33.9	100	2	Peak
2483.5	39.5	-14.5	54	35.04	32.18	6.18	33.9	100	2	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	46.74	-27.26	74	42.28	32.18	6.18	33.9	101	91	Peak
2483.5	36.08	-17.92	54	31.62	32.18	6.18	33.9	101	91	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	49~51%
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	52.96	-21.04	74	48.72	32.06	6.03	33.85	129	18	Peak
2389.99	39.02	-14.98	54	34.78	32.06	6.03	33.85	129	18	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386.38	46.45	-27.55	74	42.21	32.06	6.03	33.85	100	81	Peak
2386.38	33.57	-20.43	54	29.33	32.06	6.03	33.85	100	81	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	49~51%
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	53.32	-20.68	74	48.86	32.18	6.18	33.9	185	12	Peak
2483.5	39.73	-14.27	54	35.27	32.18	6.18	33.9	185	12	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	51.8	-22.2	74	47.34	32.18	6.18	33.9	110	190	Peak
2483.5	36.87	-17.13	54	32.41	32.18	6.18	33.9	110	190	Average



Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~51%
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
2389.61	50.92	-23.08	74	46.68	32.06	6.03	33.85	187	21	Peak
2389.61	35.26	-18.74	54	31.02	32.06	6.03	33.85	187	21	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	48.46	-25.54	74	44.22	32.06	6.03	33.85	192	107	Peak
2389.61	34.62	-19.38	54	30.38	32.06	6.03	33.85	192	107	Average

Test Mode :	Mode 9	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~51%
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	52.41	-21.59	74	47.95	32.18	6.18	33.9	100	3	Peak
2483.5	36.87	-17.13	54	32.41	32.18	6.18	33.9	100	3	Average

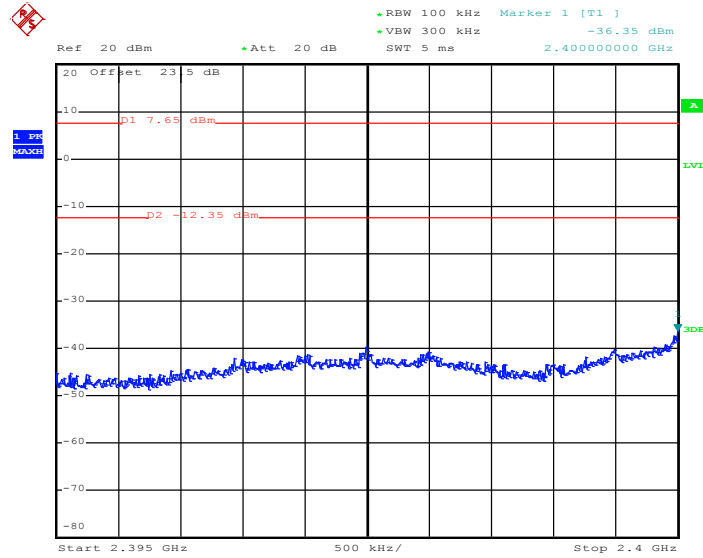
ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	46.73	-27.27	74	42.27	32.18	6.18	33.9	138	134	Peak
2483.5	34	-20	54	29.54	32.18	6.18	33.9	138	134	Average



### 3.3.6 Test Plots of Conducted Band Edges

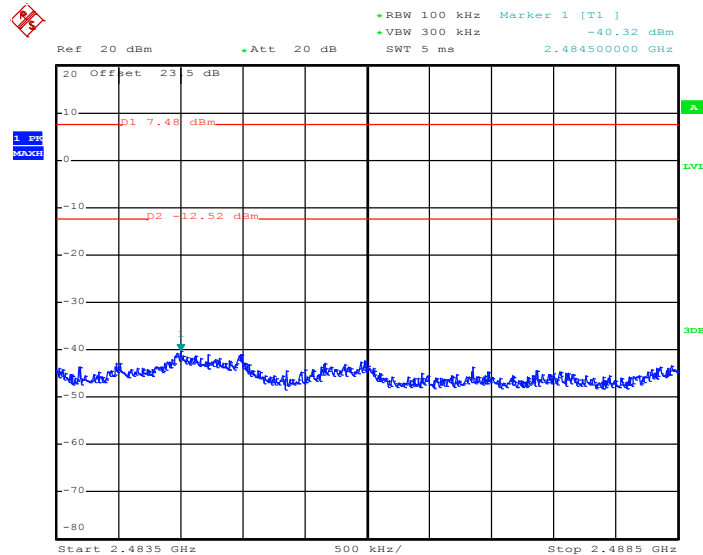
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11b Channel 01



Date: 12.OCT.2011 17:18:01

High Band Edge Plot on 802.11b Channel 11

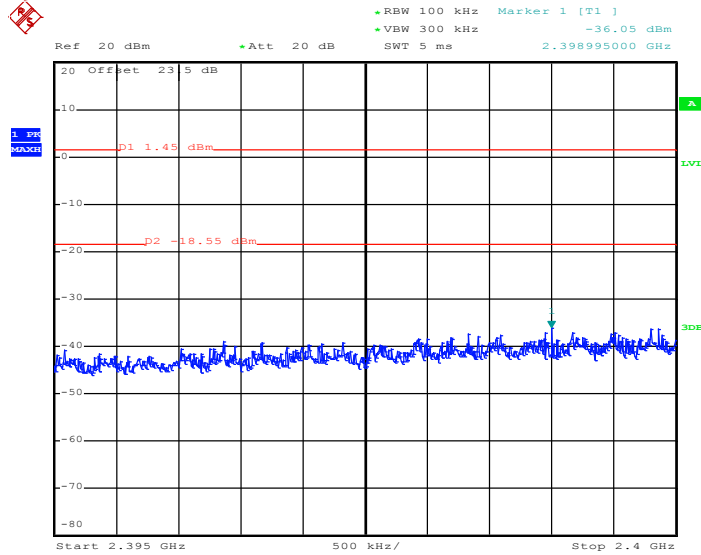


Date: 12.OCT.2011 18:24:30



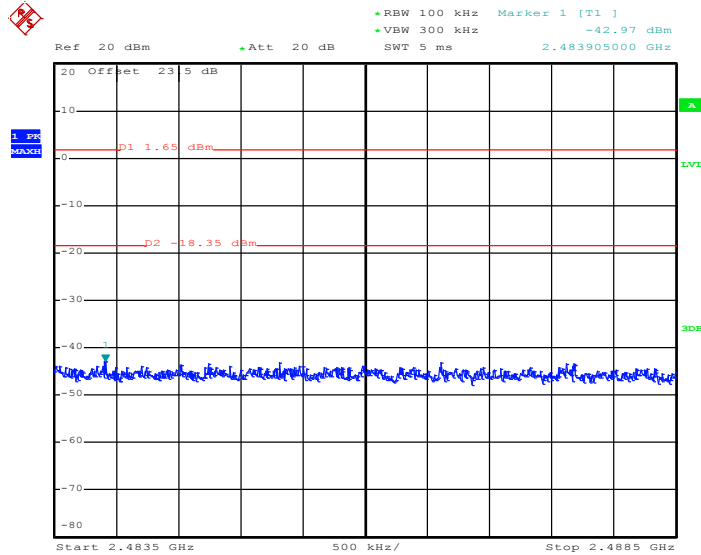
Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11g Channel 01



Date: 14.OCT.2011 17:04:15

High Band Edge Plot on 802.11g Channel 11

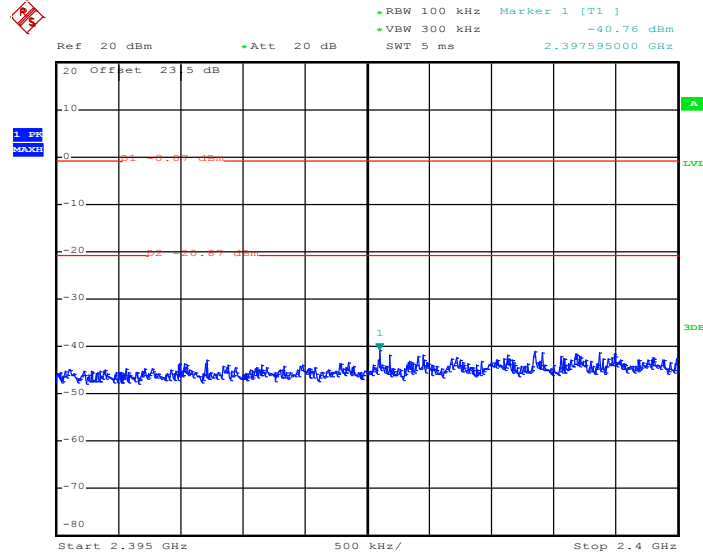


Date: 14.OCT.2011 17:28:25



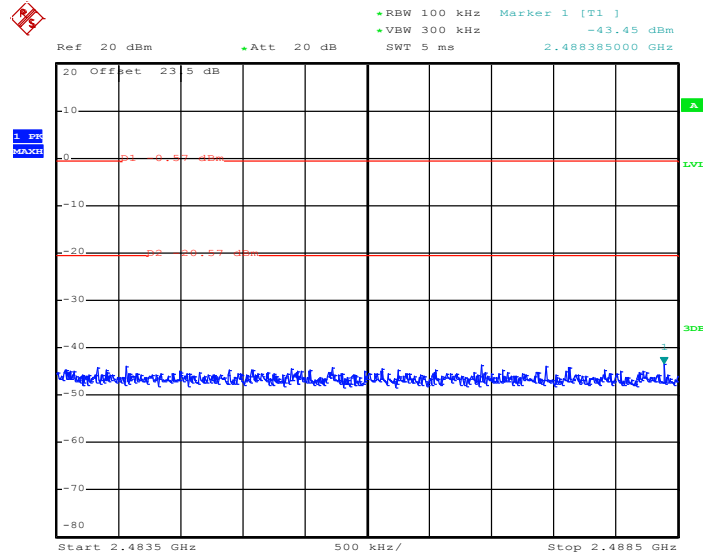
Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

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



Date: 14.OCT.2011 17:48:25

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



Date: 14.OCT.2011 18:11:11

## 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.

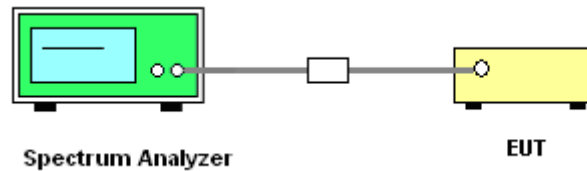
### 3.4.2 Measuring Instruments

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

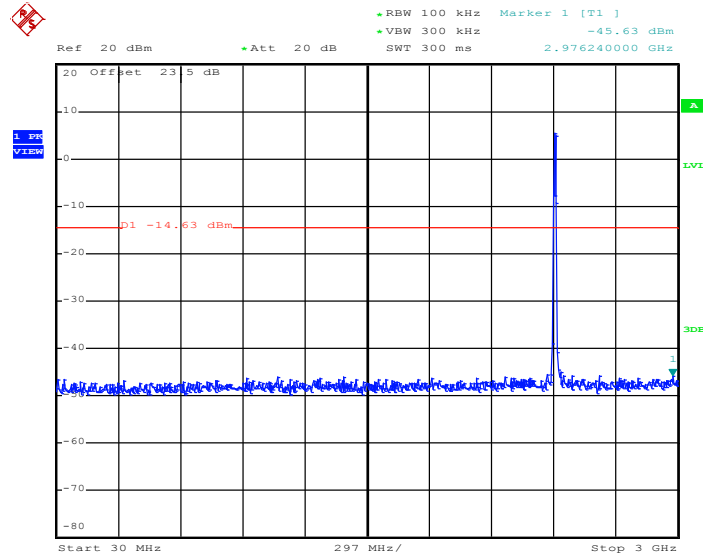




### 3.4.5 Test Plots of Spurious Emission

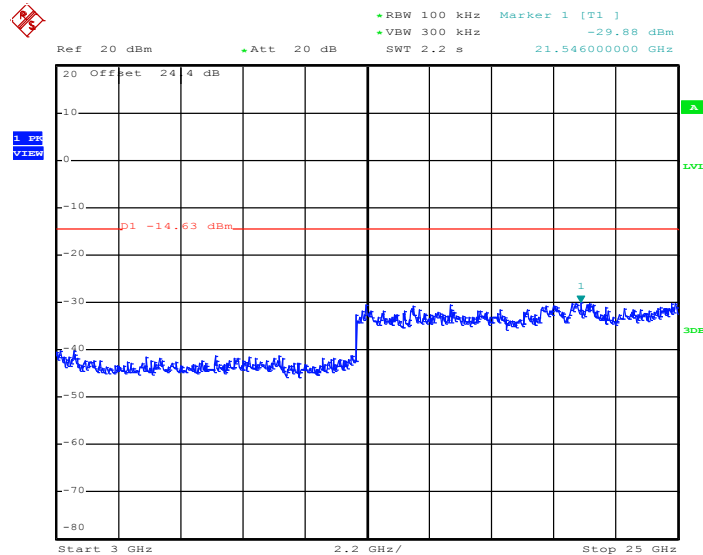
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 12.OCT.2011 17:29:55

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

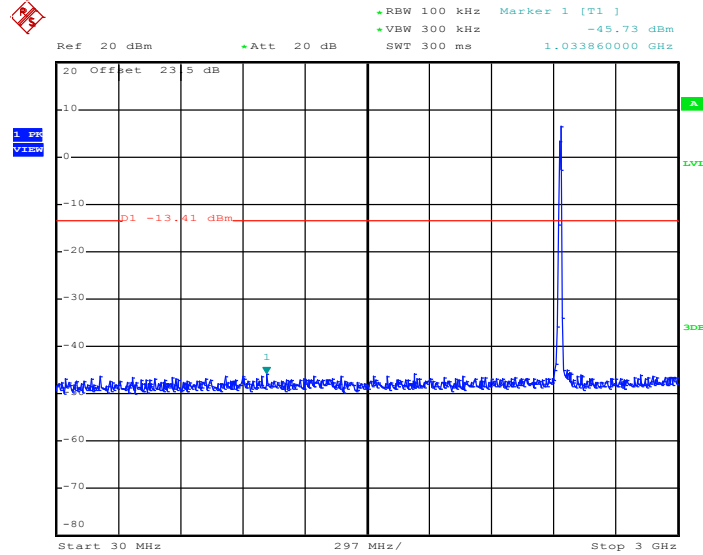


Date: 12.OCT.2011 17:30:12



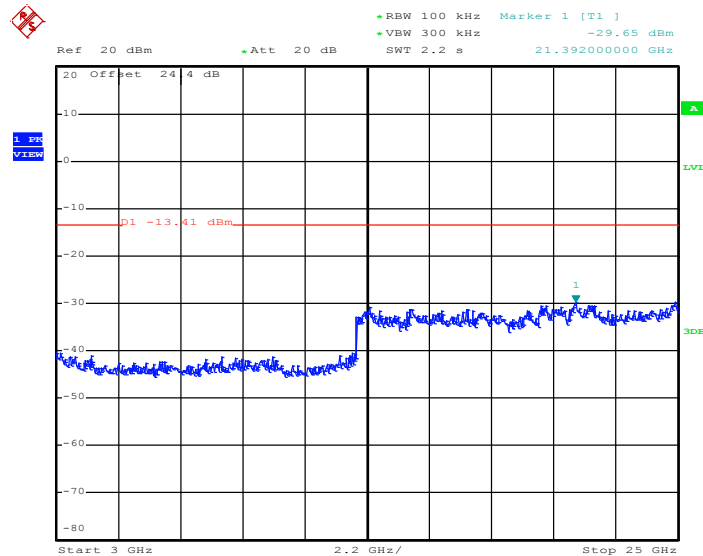
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 12.OCT.2011 18:18:24

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

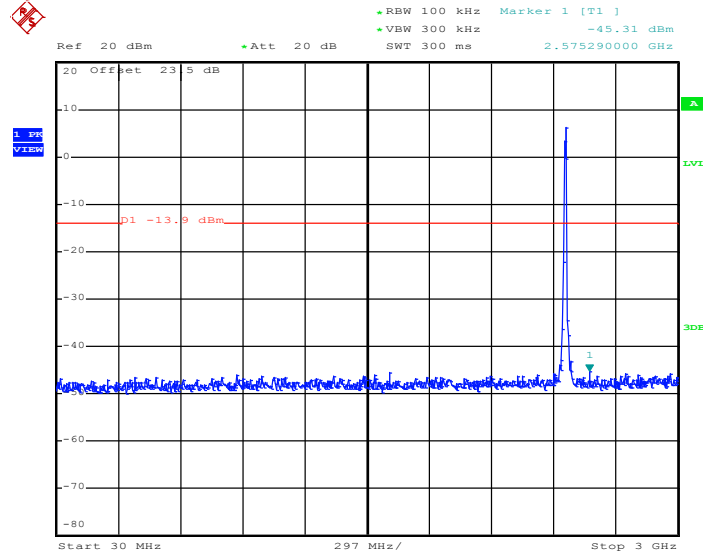


Date: 12.OCT.2011 18:18:42



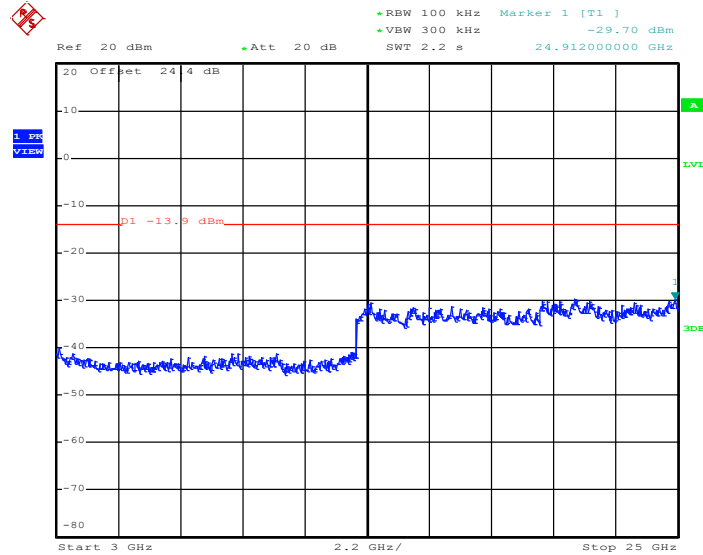
Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 12.OCT.2011 18:42:03

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

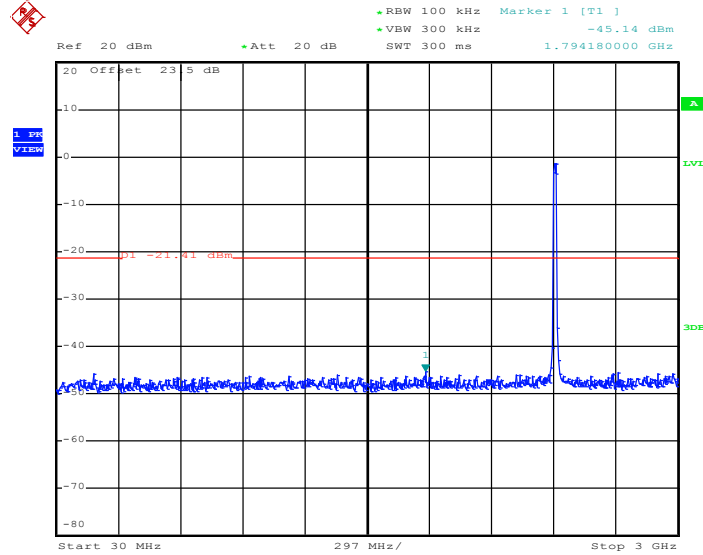


Date: 12.OCT.2011 18:42:21



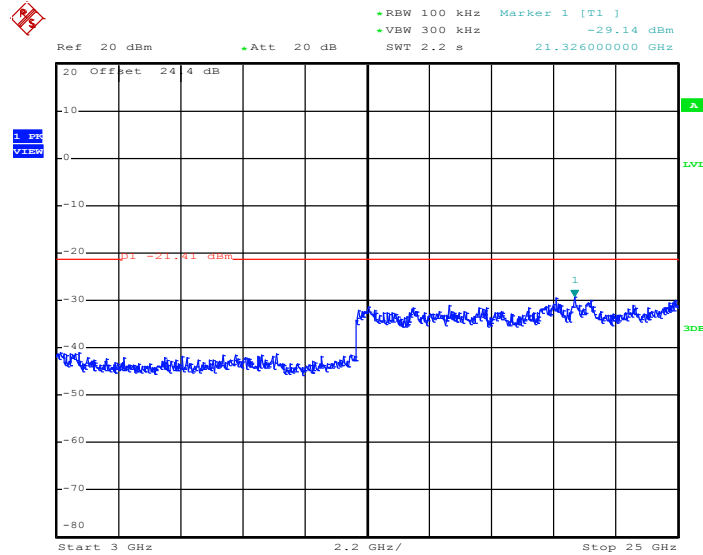
Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 18:25:47

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

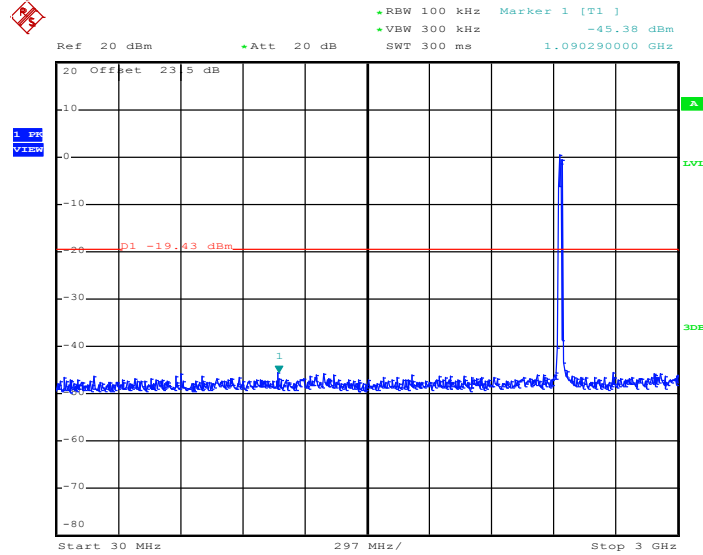


Date: 14.OCT.2011 18:26:03



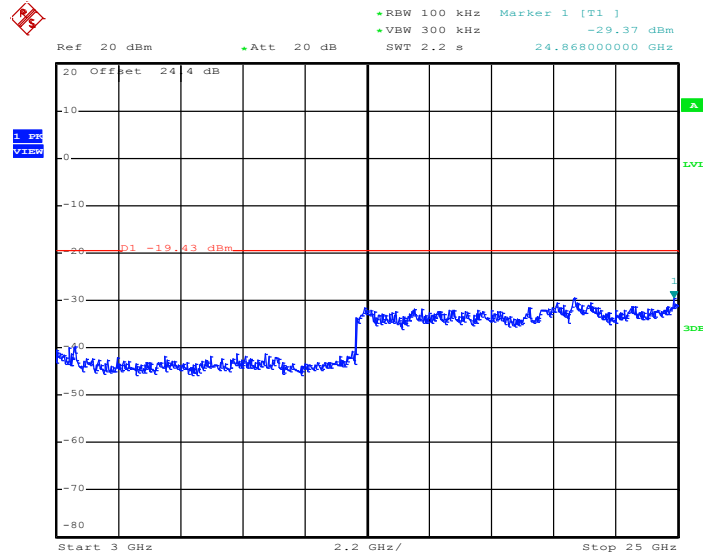
Test Mode :	Mode 5	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 18:27:20

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

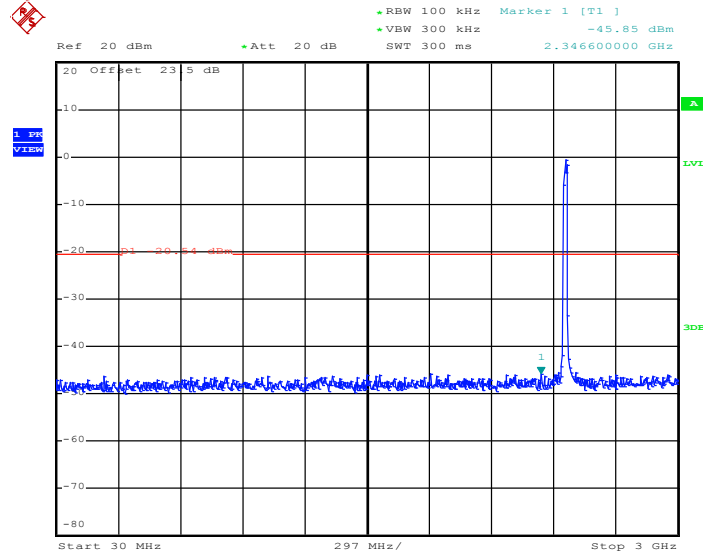


Date: 14.OCT.2011 18:27:37



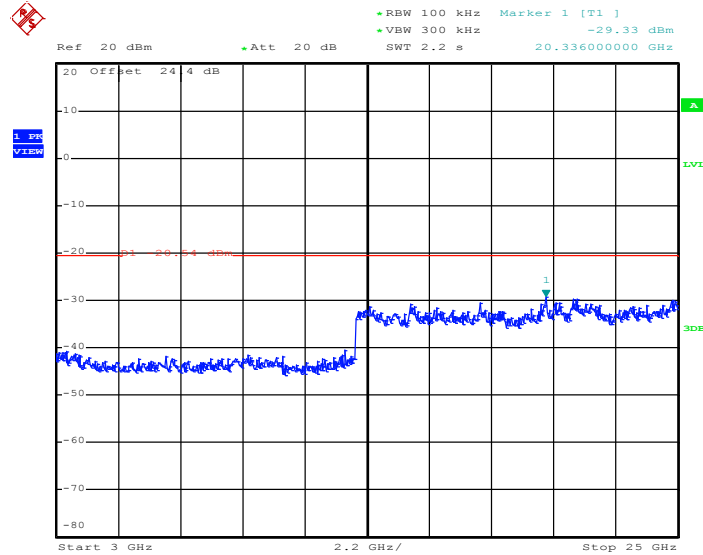
Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 18:28:24

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

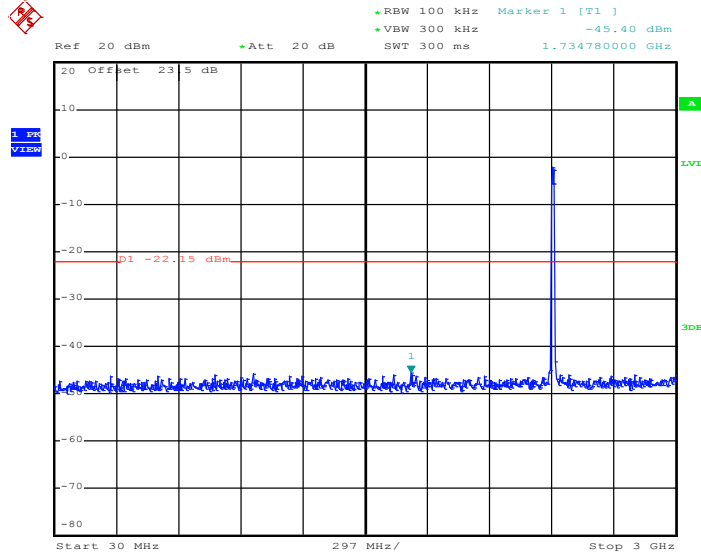


Date: 14.OCT.2011 18:28:41



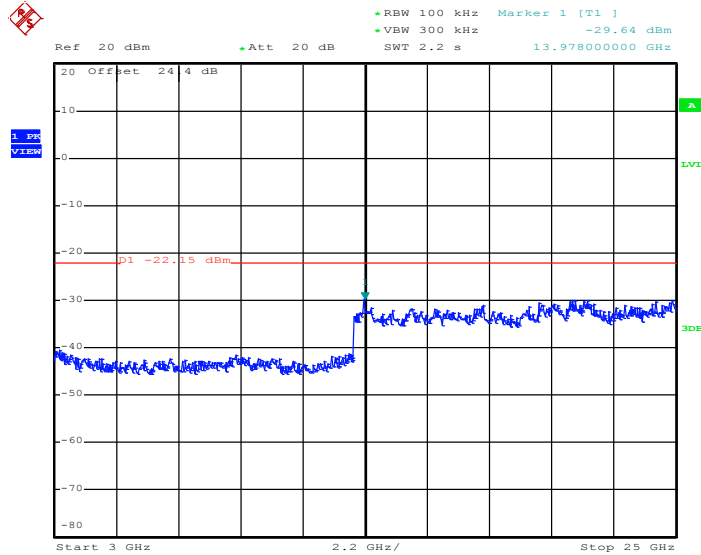
Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 17:56:07

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

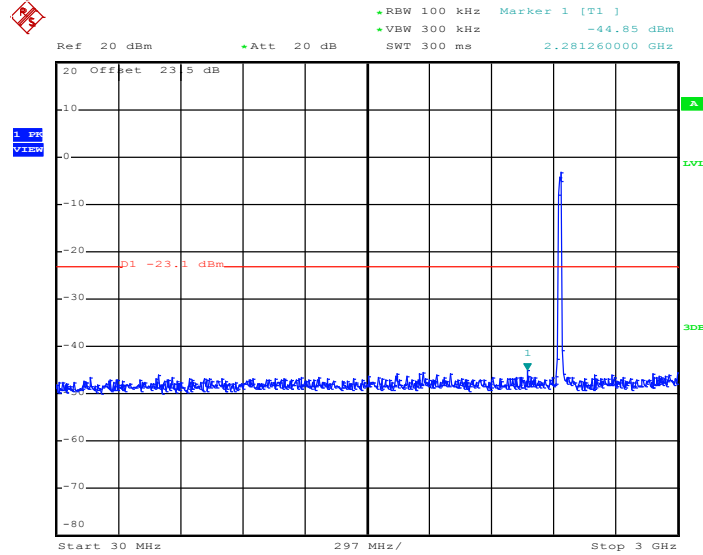


Date: 14.OCT.2011 17:56:24



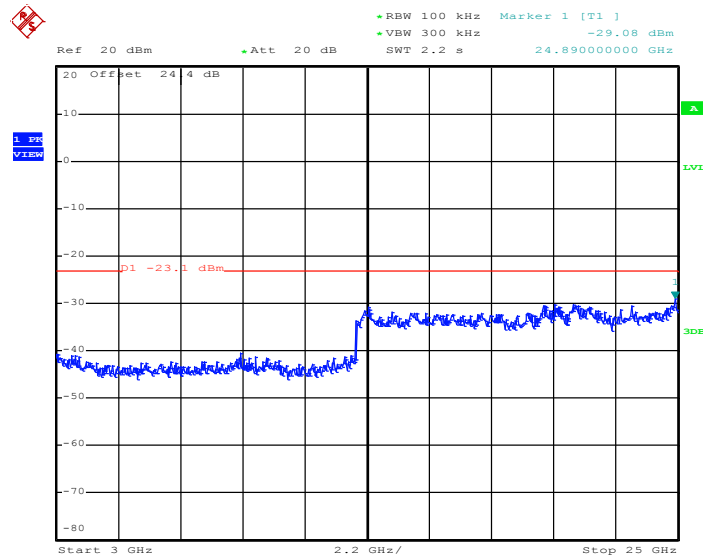
Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 18:07:54

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

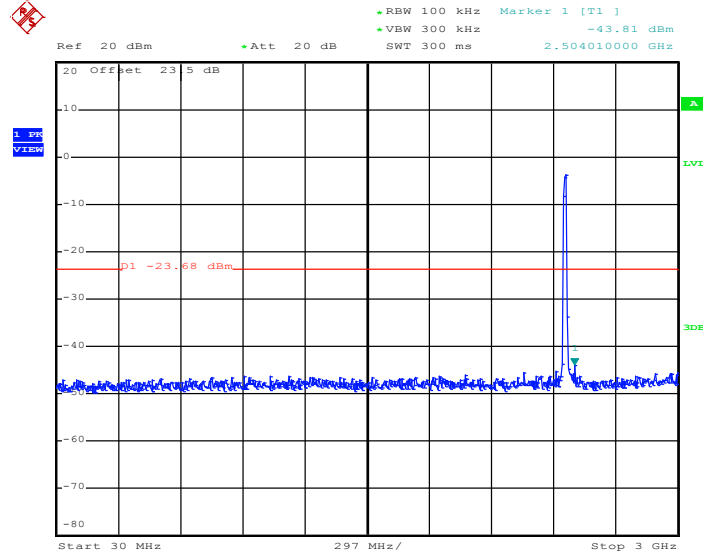


Date: 14.OCT.2011 18:08:11



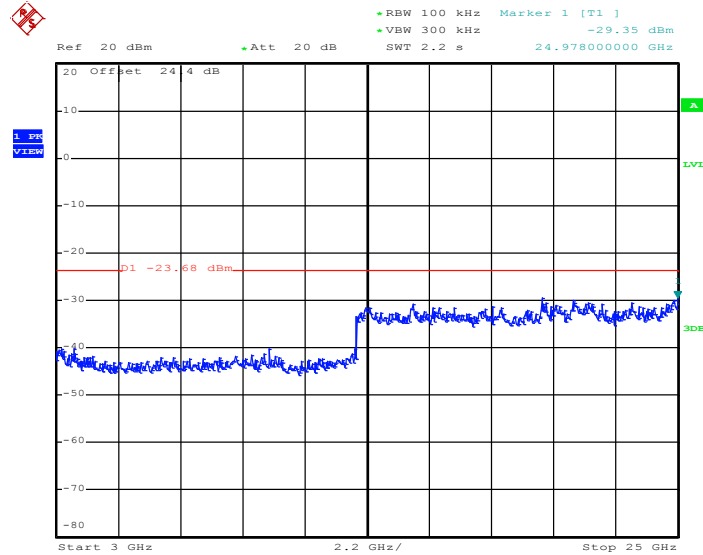
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.OCT.2011 18:22:39

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.OCT.2011 18:22:56

## 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.

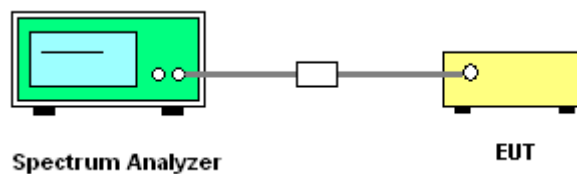
### 3.5.2 Measuring Instruments

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



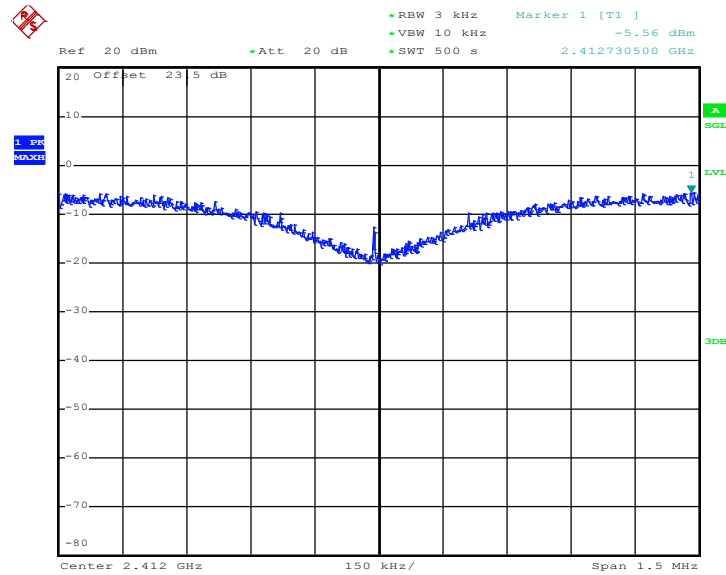


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-5.56	8	Pass
06	2437	-5.21	8	Pass
11	2462	-5.33	8	Pass

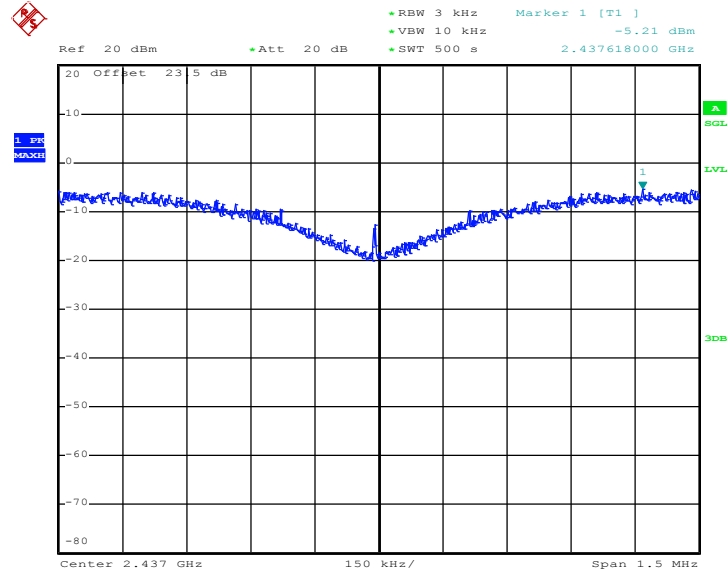
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 12.OCT.2011 17:27:35

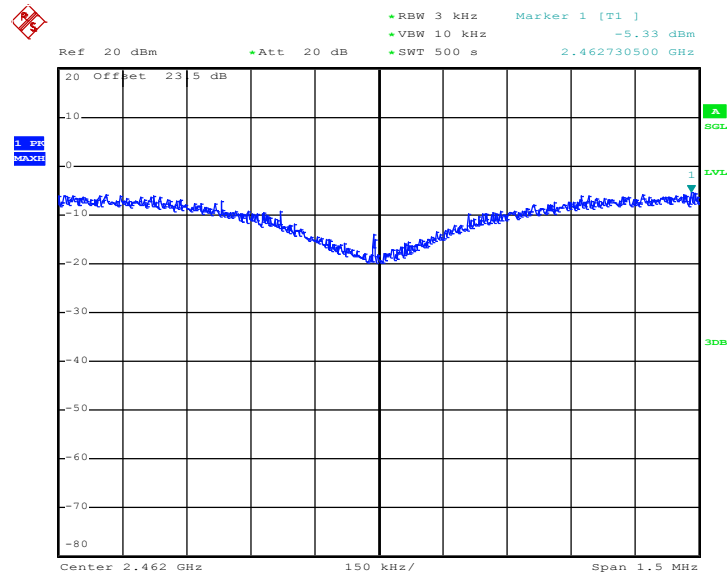


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 12.OCT.2011 18:18:02

Mode 3 : PSD Plot on 802.11b Channel 11



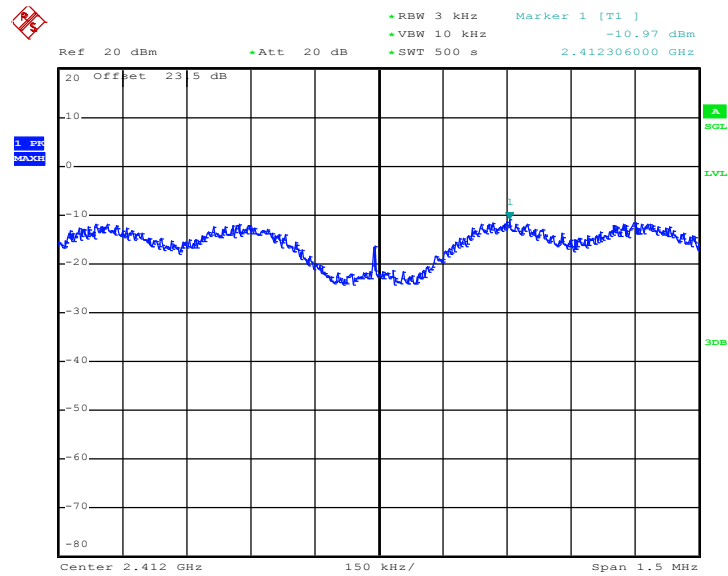
Date: 12.OCT.2011 18:41:41



Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.97	8	Pass
06	2437	-10.89	8	Pass
11	2462	-10.95	8	Pass

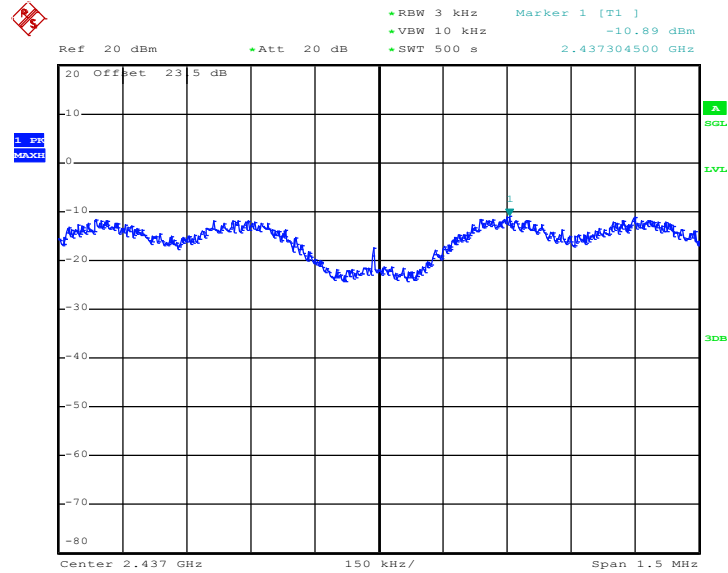
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 14.OCT.2011 17:13:27

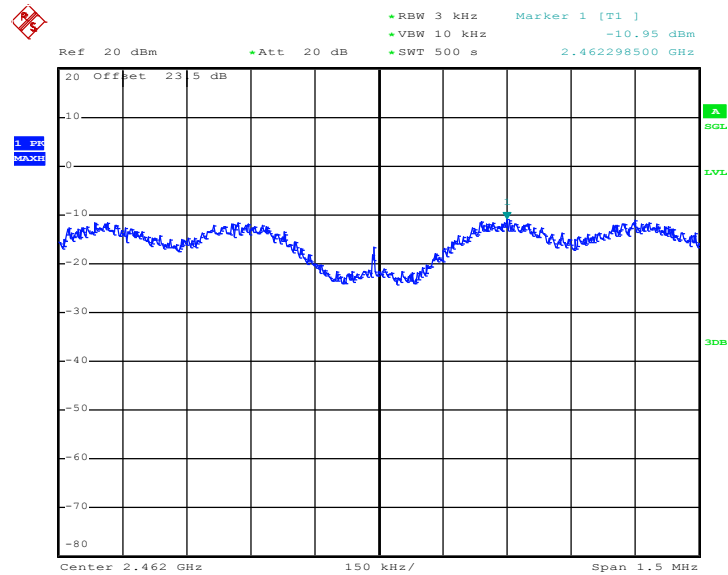


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 14.OCT.2011 17:25:53

Mode 6 : PSD Plot on 802.11g Channel 11



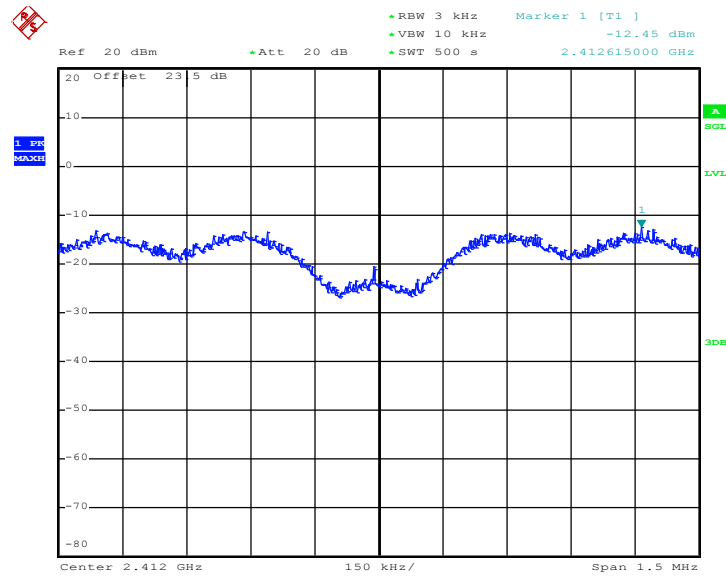
Date: 14.OCT.2011 17:37:29



Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-12.45	8	Pass
06	2437	-12.18	8	Pass
11	2462	-12.11	8	Pass

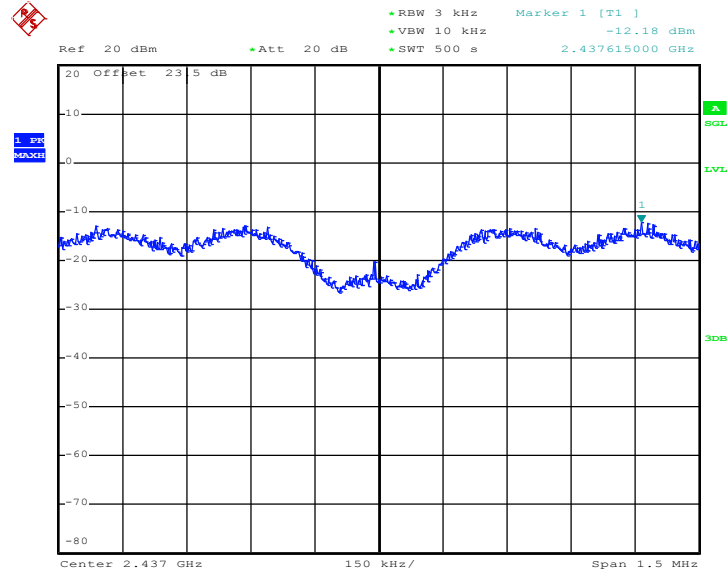
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 14.OCT.2011 17:57:26

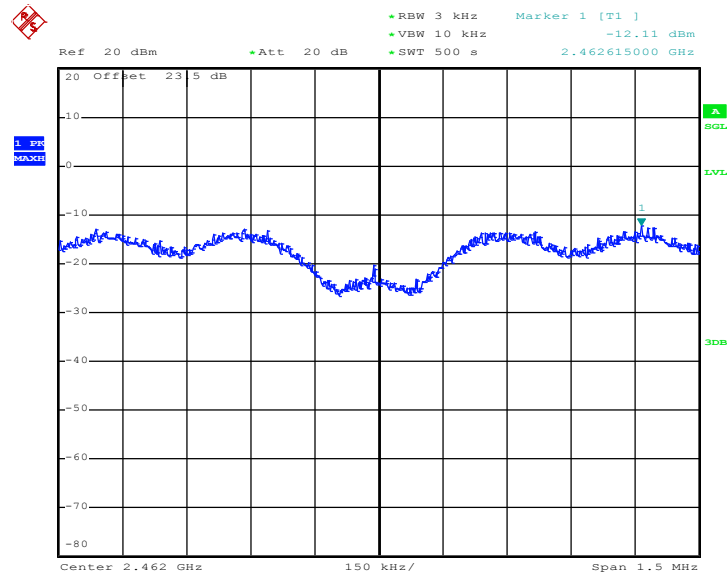


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 14.OCT.2011 18:07:33

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



Date: 14.OCT.2011 18:20:10

## 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.

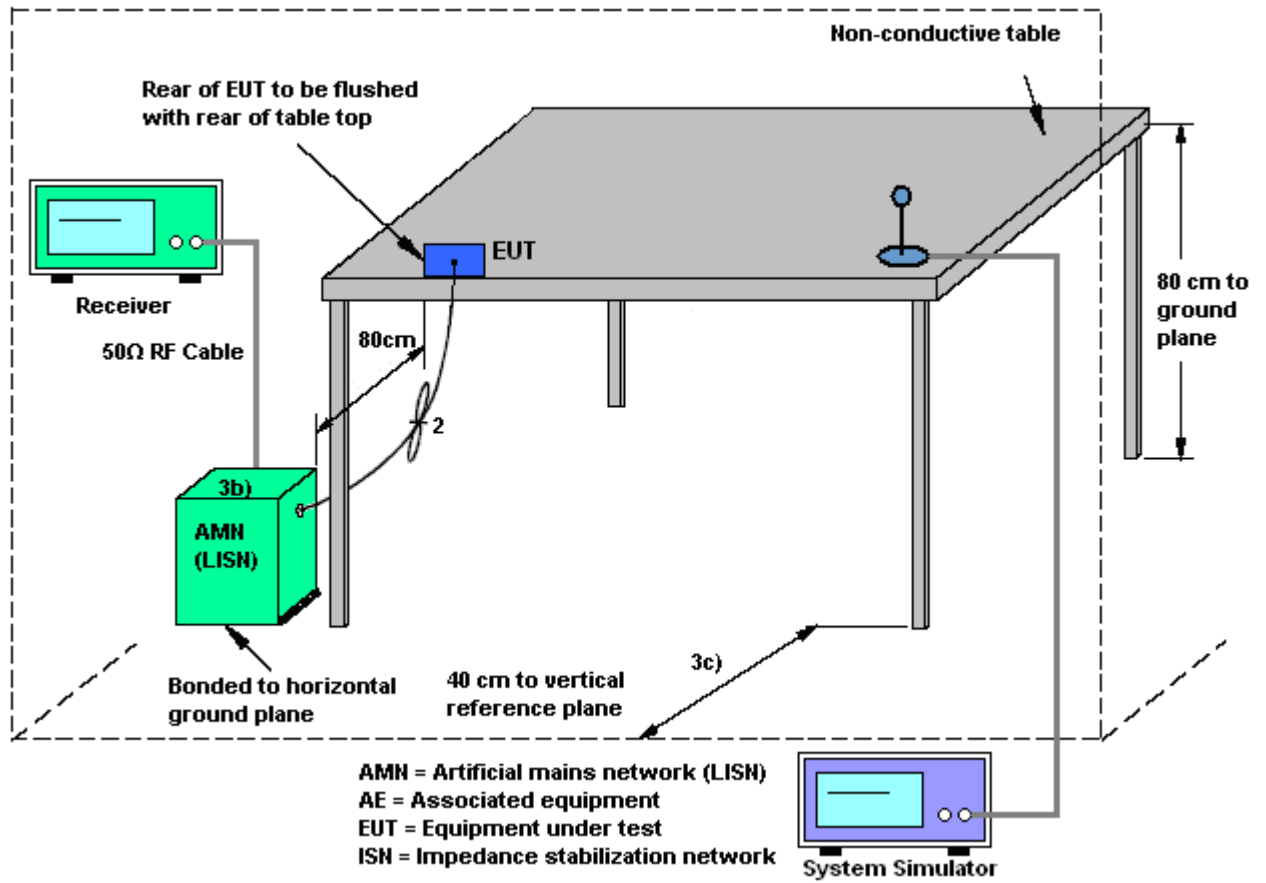
### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.6.3 Test Procedures

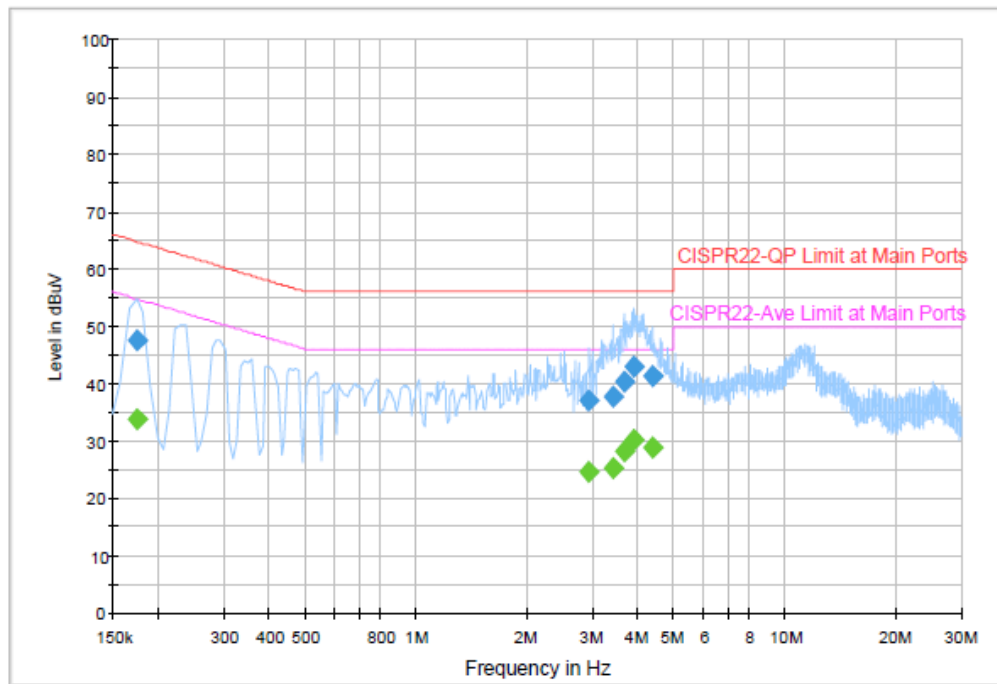
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN Link + Bluetooth Link + GPS Rx + Earphone + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



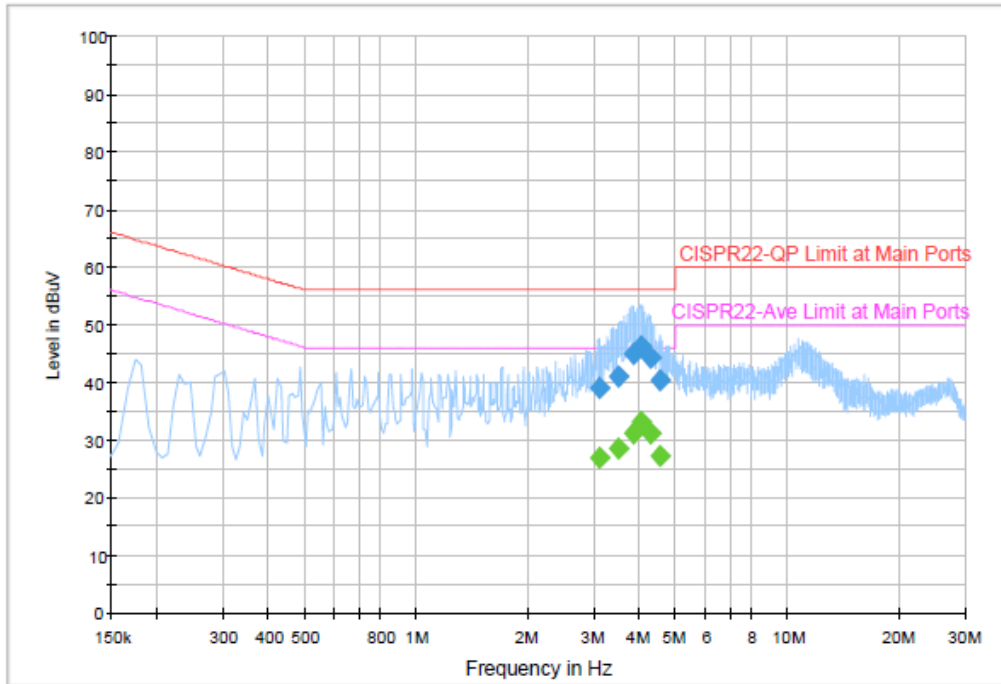
#### Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	47.5	Off	L1	19.4	17.3	64.8
2.942000	37.2	Off	L1	19.4	18.8	56.0
3.422000	37.8	Off	L1	19.5	18.2	56.0
3.662000	40.2	Off	L1	19.5	15.8	56.0
3.902000	42.9	Off	L1	19.5	13.1	56.0
4.366000	41.5	Off	L1	19.5	14.5	56.0

#### Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.174000	33.7	Off	L1	19.4	21.1	54.8
2.942000	24.7	Off	L1	19.4	21.3	46.0
3.422000	25.2	Off	L1	19.5	20.8	46.0
3.662000	28.1	Off	L1	19.5	17.9	46.0
3.902000	30.2	Off	L1	19.5	15.8	46.0
4.366000	29.0	Off	L1	19.5	17.0	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN Link + Bluetooth Link + GPS Rx + Earphone + Adapter		
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)
3.094000	39.0	Off	N	19.5	17.0	56.0
3.510000	41.0	Off	N	19.5	15.0	56.0
3.822000	44.9	Off	N	19.5	11.1	56.0
4.006000	46.3	Off	N	19.5	9.7	56.0
4.262000	44.2	Off	N	19.5	11.8	56.0
4.550000	40.2	Off	N	19.5	15.8	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
3.094000	26.8	Off	N	19.5	19.2	46.0
3.510000	28.6	Off	N	19.5	17.4	46.0
3.822000	31.3	Off	N	19.5	14.7	46.0
4.006000	33.1	Off	N	19.5	12.9	46.0
4.262000	31.0	Off	N	19.5	15.0	46.0
4.550000	27.1	Off	N	19.5	18.9	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

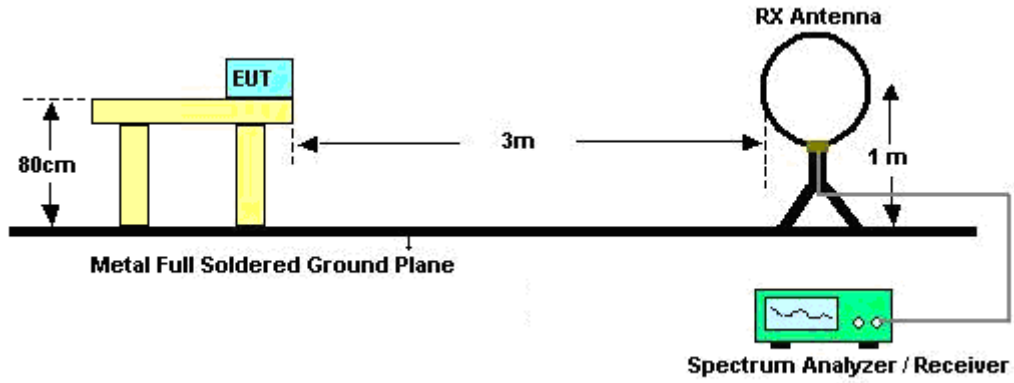
See list of measuring instruments of this test report.

#### 3.7.3 Test Procedures

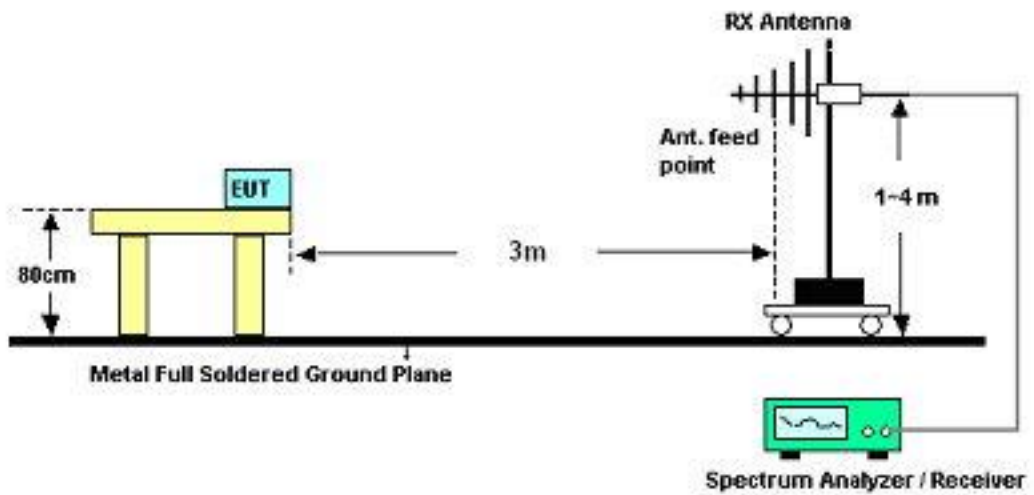
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
  - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz; VBW  $\geq$ 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

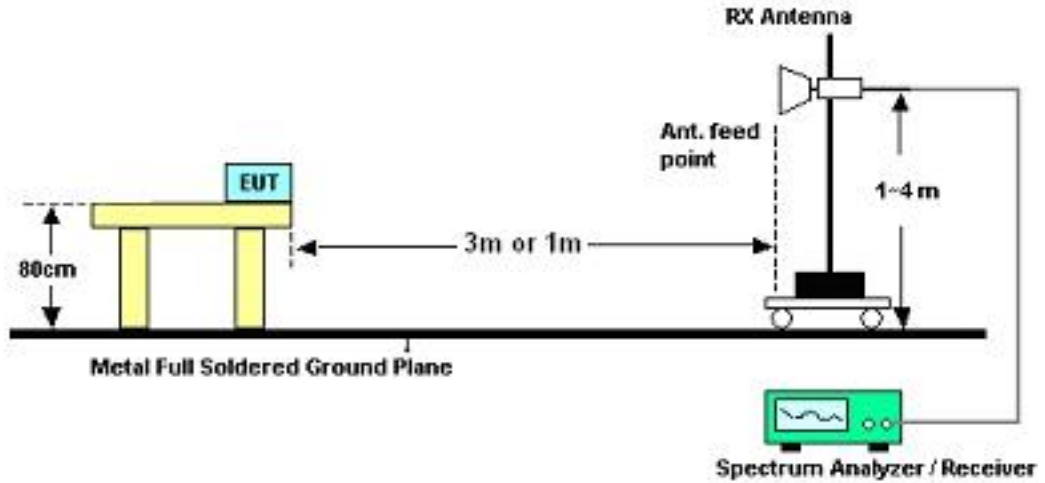
For radiated emissions below 30MHz



For radiated emissions 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 :	23~24°C	
		Relative Humidity :	49~51%	
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 (specific distance / 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)

<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit is 20dBc lower than the level of fundamental frequency.		

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
32.97	18.42	-21.58	40	33.53	15.8	0.56	31.47	132	185	Peak
215.49	18.1	-25.4	43.5	37.98	10.2	1.39	31.47	-	-	Peak
242.49	24.07	-21.93	46	41.84	12.12	1.53	31.42	-	-	Peak
638.1	21.38	-24.62	46	29.27	20.19	2.8	30.88	-	-	Peak
693.4	22.51	-23.49	46	29.6	20.81	2.93	30.83	-	-	Peak
760.6	23.56	-22.44	46	29.34	21.84	3.08	30.7	-	-	Peak
2385.05	48.1	-25.9	74	43.89	32.03	6.03	33.85	189	350	Peak
2385.05	37.71	-16.29	54	33.5	32.03	6.03	33.85	189	350	Average
2412	97.3	-	-	93.02	32.08	6.07	33.87	189	350	Peak
2412	92.61	-	-	88.33	32.08	6.07	33.87	189	350	Average
2492	33.08	-20.92	54	28.6	32.2	6.18	33.9	189	350	Average
2492	44.63	-29.37	74	40.15	32.2	6.18	33.9	189	350	Peak
7236	47.29	-30.01	77.3	59.67	35.7	10.03	58.11	100	0	Peak



<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit is 20dBc lower than the level of fundamental frequency.		

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
42.69	26.39	-13.61	40	45.67	11.59	0.64	31.51	125	114	Peak
101.82	22.45	-21.05	43.5	43.03	9.96	1	31.54	-	-	Peak
226.29	23.12	-22.88	46	42.16	10.95	1.46	31.45	-	-	Peak
411.3	19.95	-26.05	46	32.18	16.75	2.18	31.16	-	-	Peak
568.1	21.06	-24.94	46	30.14	19.28	2.6	30.96	-	-	Peak
730.5	23.18	-22.82	46	29.55	21.37	3.01	30.75	-	-	Peak
2332.61	34.1	-19.9	54	30.02	31.96	5.95	33.83	174	134	Average
2332.61	47.26	-26.74	74	43.18	31.96	5.95	33.83	174	134	Peak
2412	93.07	-	-	88.79	32.08	6.07	33.87	174	134	Peak
2412	89.62	-	-	85.34	32.08	6.07	33.87	174	134	Average
2500	32.86	-21.14	54	28.38	32.2	6.18	33.9	174	134	Average
2500	45.41	-28.59	74	40.93	32.2	6.18	33.9	174	134	Peak
4824	44.09	-29.91	74	59.98	34.1	9.12	59.11	100	0	Peak
7236	48.59	-24.48	73.07	60.97	35.7	10.03	58.11	100	0	Peak



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~51%
<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
32.7	18.32	-21.68	40	33.43	15.8	0.56	31.47	109	80	Peak
107.49	15.65	-27.85	43.5	35.71	10.45	1.04	31.55	-	-	Peak
234.93	21.65	-24.35	46	40.01	11.57	1.5	31.43	-	-	Peak
612.2	21.16	-24.84	46	29.44	19.9	2.73	30.91	-	-	Peak
677.3	21.96	-24.04	46	29.28	20.63	2.89	30.84	-	-	Peak
752.2	23.53	-22.47	46	29.45	21.72	3.06	30.7	-	-	Peak
2342	45.89	-28.11	74	41.79	31.98	5.95	33.83	157	0	Peak
2342	33.66	-20.34	54	29.56	31.98	5.95	33.83	157	0	Average
2437	97.22	-	-	92.86	32.13	6.11	33.88	157	0	Peak
2437	92.54	-	-	88.18	32.13	6.11	33.88	157	0	Average
2484	45.38	-28.62	74	40.92	32.18	6.18	33.9	157	0	Peak
2484	33.27	-20.73	54	28.81	32.18	6.18	33.9	157	0	Average
7311	44.91	-29.09	74	57.28	35.7	10.06	58.13	100	0	Peak



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~51%
<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
47.82	26.32	-13.68	40	47.69	9.48	0.67	31.52	110	143	Peak
99.66	23.24	-20.26	43.5	44	9.79	0.99	31.54	-	-	Peak
253.02	26.22	-19.78	46	43.36	12.72	1.55	31.41	-	-	Peak
561.8	20.7	-25.3	46	29.92	19.17	2.58	30.97	-	-	Peak
710.2	22.09	-23.91	46	28.88	21.04	2.96	30.79	-	-	Peak
750.1	24.02	-21.98	46	29.99	21.67	3.06	30.7	-	-	Peak
2390	45.72	-28.28	74	41.48	32.06	6.03	33.85	102	262	Peak
2390	33.14	-20.86	54	28.9	32.06	6.03	33.85	102	262	Average
2437	92.09	-	-	87.73	32.13	6.11	33.88	102	262	Peak
2437	86.42	-	-	82.06	32.13	6.11	33.88	102	262	Average
2486	32.63	-21.37	54	28.17	32.18	6.18	33.9	102	262	Average
2486	44.77	-29.23	74	40.31	32.18	6.18	33.9	102	262	Peak
7311	46.35	-27.65	74	58.72	35.7	10.06	58.13	100	0	Peak



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~51%
<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
47.01	28.08	-11.92	40	49.45	9.48	0.67	31.52	112	84	Peak
142.86	18.08	-25.42	43.5	36.97	11.46	1.2	31.55	-	-	Peak
231.69	22.14	-23.86	46	40.72	11.37	1.49	31.44	-	-	Peak
542.2	19.64	-26.36	46	29.23	18.87	2.53	30.99	-	-	Peak
626.2	21.91	-24.09	46	29.97	20.06	2.77	30.89	-	-	Peak
729.1	22.1	-23.9	46	28.49	21.35	3.01	30.75	-	-	Peak
2348	46.49	-27.51	74	42.39	31.98	5.95	33.83	100	2	Peak
2348	33.09	-20.91	54	28.99	31.98	5.95	33.83	100	2	Average
2462	96.97	-	-	92.57	32.15	6.14	33.89	100	2	Peak
2462	92.45	-	-	88.05	32.15	6.14	33.89	100	2	Average
2483.5	39.5	-14.5	54	35.04	32.18	6.18	33.9	100	2	Average
2483.5	48.23	-25.77	74	43.77	32.18	6.18	33.9	100	2	Peak
7386	44.27	-29.73	74	56.64	35.7	10.1	58.17	100	0	Peak



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~51%
<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
44.85	27.06	-12.94	40	47.24	10.67	0.65	31.5	132	127	Peak
99.66	22.94	-20.56	43.5	43.7	9.79	0.99	31.54	-	-	Peak
219.54	27.5	-18.5	46	47.08	10.47	1.41	31.46	-	-	Peak
424.6	20.64	-25.36	46	32.57	16.98	2.23	31.14	-	-	Peak
680.1	22.3	-23.7	46	29.58	20.66	2.9	30.84	-	-	Peak
785.8	23.6	-22.4	46	28.93	22.24	3.12	30.69	-	-	Peak
2390	45.14	-28.86	74	40.9	32.06	6.03	33.85	101	91	Peak
2390	33.23	-20.77	54	28.99	32.06	6.03	33.85	101	91	Average
2462	93.18	-	-	88.78	32.15	6.14	33.89	101	91	Peak
2462	88.72	-	-	84.32	32.15	6.14	33.89	101	91	Average
2483.5	36.08	-17.92	54	31.62	32.18	6.18	33.9	101	91	Average
2483.5	46.74	-27.26	74	42.28	32.18	6.18	33.9	101	91	Peak



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~51%
<b>Test Engineer :</b>	David Yang	<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
42.69	21.46	-18.54	40	40.74	11.59	0.64	31.51	113	142	Peak
107.22	15.69	-27.81	43.5	35.75	10.45	1.04	31.55	-	-	Peak
298.65	21.82	-24.18	46	37.95	13.44	1.76	31.33	-	-	Peak
587	20.57	-25.43	46	29.3	19.56	2.65	30.94	-	-	Peak
732.6	23.03	-22.97	46	29.35	21.4	3.02	30.74	-	-	Peak
803.3	23.91	-22.09	46	28.94	22.5	3.15	30.68	-	-	Peak
2389.99	52.96	-21.04	74	48.72	32.06	6.03	33.85	129	18	Peak
2389.99	39.02	-14.98	54	34.78	32.06	6.03	33.85	129	18	Average
2412	97.09	-	-	92.81	32.08	6.07	33.87	129	18	Peak
2412	80	-	-	75.72	32.08	6.07	33.87	129	18	Average
2486	33.14	-20.86	54	28.68	32.18	6.18	33.9	129	18	Average
2486	45.24	-28.76	74	40.78	32.18	6.18	33.9	129	18	Peak



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit is 20dBc lower than the level of fundamental frequency.		

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
42.42	26.35	-13.65	40	45.63	11.59	0.64	31.51	132	115	Peak
96.42	22.98	-20.52	43.5	44.18	9.35	0.98	31.53	-	-	Peak
234.93	25.54	-20.46	46	43.9	11.57	1.5	31.43	-	-	Peak
635.3	21.53	-24.47	46	29.45	20.16	2.8	30.88	-	-	Peak
687.8	22.81	-23.19	46	29.98	20.75	2.91	30.83	-	-	Peak
797	23.87	-22.13	46	28.99	22.42	3.14	30.68	-	-	Peak
2386.38	46.45	-27.55	74	42.21	32.06	6.03	33.85	100	81	Peak
2386.38	33.57	-20.43	54	29.33	32.06	6.03	33.85	100	81	Average
2412	93.95	-	-	89.67	32.08	6.07	33.87	100	81	Peak
2412	76.17	-	-	71.89	32.08	6.07	33.87	100	81	Average
2492	44.77	-29.23	74	40.29	32.2	6.18	33.9	100	81	Peak
2492	32.42	-21.58	54	27.94	32.2	6.18	33.9	100	81	Average
7236	48.62	-25.33	73.95	61	35.7	10.03	58.11	100	0	Peak



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~51%
<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
47.82	27.26	-12.74	40	48.63	9.48	0.67	31.52	108	216	Peak
107.49	15.19	-28.31	43.5	35.25	10.45	1.04	31.55	-	-	Peak
265.98	16.02	-29.98	46	32.87	12.92	1.62	31.39	-	-	Peak
699.7	22.31	-23.69	46	29.31	20.88	2.94	30.82	-	-	Peak
746.6	22.96	-23.04	46	28.99	21.63	3.05	30.71	-	-	Peak
788.6	23.41	-22.59	46	28.68	22.29	3.12	30.68	-	-	Peak
2364	45.2	-28.8	74	41.04	32.01	5.99	33.84	127	11	Peak
2364	33.39	-20.61	54	29.23	32.01	5.99	33.84	127	11	Average
2437	81.13	-	-	76.77	32.13	6.11	33.88	127	11	Average
2437	97.26	-	-	92.9	32.13	6.11	33.88	127	11	Peak
2494	46.21	-27.79	74	41.73	32.2	6.18	33.9	127	11	Peak
2494	34.26	-19.74	54	29.78	32.2	6.18	33.9	127	11	Average
7311	44.43	-29.57	74	56.8	35.7	10.06	58.13	100	0	Peak



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~51%
<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
42.42	27.02	-12.98	40	46.3	11.59	0.64	31.51	120	184	Peak
99.66	22.85	-20.65	43.5	43.61	9.79	0.99	31.54	-	-	Peak
275.97	23	-23	46	39.63	13.09	1.64	31.36	-	-	Peak
629	21	-25	46	29.01	20.1	2.78	30.89	-	-	Peak
688.5	22.45	-23.55	46	29.6	20.76	2.92	30.83	-	-	Peak
733.3	23.17	-22.83	46	29.48	21.41	3.02	30.74	-	-	Peak
2316	45.77	-28.23	74	41.74	31.93	5.92	33.82	112	182	Peak
2316	33.27	-20.73	54	29.24	31.93	5.92	33.82	112	182	Average
2437	77.83	-	-	73.47	32.13	6.11	33.88	112	182	Average
2437	93.38	-	-	89.02	32.13	6.11	33.88	112	182	Peak
2494	45.04	-28.96	74	40.56	32.2	6.18	33.9	112	182	Peak
2494	33.39	-20.61	54	28.91	32.2	6.18	33.9	112	182	Average
7311	43.59	-30.41	74	55.96	35.7	10.06	58.13	100	0	Peak



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~51%
<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
48.9	26.91	-13.09	40	48.68	9.08	0.68	31.53	112	192	Peak
99.66	16.16	-27.34	43.5	36.92	9.79	0.99	31.54	-	-	Peak
234.93	17.68	-28.32	46	36.04	11.57	1.5	31.43	-	-	Peak
640.2	21.62	-24.38	46	29.47	20.22	2.81	30.88	-	-	Peak
718.6	22.16	-23.84	46	28.78	21.18	2.98	30.78	-	-	Peak
775.3	23.41	-22.59	46	28.93	22.07	3.1	30.69	-	-	Peak
2372	45.68	-28.32	74	41.5	32.03	5.99	33.84	185	12	Peak
2372	33.29	-20.71	54	29.11	32.03	5.99	33.84	185	12	Average
2462	97.25	-	-	92.85	32.15	6.14	33.89	185	12	Peak
2462	80.25	-	-	75.85	32.15	6.14	33.89	185	12	Average
2483.5	53.32	-20.68	74	48.86	32.18	6.18	33.9	185	12	Peak
2483.5	39.73	-14.27	54	35.27	32.18	6.18	33.9	185	12	Average
7386	44.68	-29.32	74	57.05	35.7	10.1	58.17	100	0	Peak



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~51%
<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
42.69	27.3	-12.7	40	46.58	11.59	0.64	31.51	135	172	Peak
102.09	22.44	-21.06	43.5	43.02	9.96	1	31.54	-	-	Peak
293.25	29.1	-16.9	46	45.36	13.35	1.71	31.32	-	-	Peak
690.6	22.07	-23.93	46	29.2	20.78	2.92	30.83	-	-	Peak
766.2	23.92	-22.08	46	29.59	21.93	3.09	30.69	-	-	Peak
792.1	24.27	-21.73	46	29.47	22.35	3.13	30.68	-	-	Peak
2340	45.63	-28.37	74	41.53	31.98	5.95	33.83	110	190	Peak
2340	33.28	-20.72	54	29.18	31.98	5.95	33.83	110	190	Average
2462	78.7	-	-	74.3	32.15	6.14	33.89	110	190	Average
2462	94.62	-	-	90.22	32.15	6.14	33.89	110	190	Peak
2483.5	51.8	-22.2	74	47.34	32.18	6.18	33.9	110	190	Peak
2483.5	36.87	-17.13	54	32.41	32.18	6.18	33.9	110	190	Average



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~51%
<b>Test Engineer :</b>	David Yang	<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
48.9	22.49	-17.51	40	44.26	9.08	0.68	31.53	132	119	Peak
107.49	15.83	-27.67	43.5	35.89	10.45	1.04	31.55	-	-	Peak
239.25	19.75	-26.25	46	37.73	11.91	1.53	31.42	-	-	Peak
668.9	21.56	-24.44	46	28.99	20.54	2.88	30.85	-	-	Peak
738.9	23.2	-22.8	46	29.4	21.5	3.03	30.73	-	-	Peak
799.8	24.12	-21.88	46	29.19	22.47	3.14	30.68	-	-	Peak
2389.61	35.26	-18.74	54	31.02	32.06	6.03	33.85	187	21	Average
2389.61	50.92	-23.08	74	46.68	32.06	6.03	33.85	187	21	Peak
2412	94.45	-	-	90.17	32.08	6.07	33.87	187	21	Peak
2412	77.53	-	-	73.25	32.08	6.07	33.87	187	21	Average
2492	32.86	-21.14	54	28.38	32.2	6.18	33.9	187	21	Average
2492	46.64	-27.36	74	42.16	32.2	6.18	33.9	187	21	Peak



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	49~51%
<b>Test Engineer :</b>	David Yang	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit is 20dBc lower than the level of fundamental frequency.		

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
47.82	27.41	-12.59	40	48.78	9.48	0.67	31.52	147	221	Peak
99.93	22.86	-20.64	43.5	43.62	9.79	0.99	31.54	-	-	Peak
292.17	24.13	-21.87	46	40.4	13.34	1.71	31.32	-	-	Peak
612.2	21.51	-24.49	46	29.79	19.9	2.73	30.91	-	-	Peak
706.7	22.51	-23.49	46	29.35	21	2.96	30.8	-	-	Peak
735.4	23.21	-22.79	46	29.48	21.44	3.02	30.73	-	-	Peak
2389.61	34.62	-19.38	54	30.38	32.06	6.03	33.85	192	107	Average
2389.61	48.46	-25.54	74	44.22	32.06	6.03	33.85	192	107	Peak
2412	88.99	-	-	84.71	32.08	6.07	33.87	192	107	Peak
2412	72.45	-	-	68.17	32.08	6.07	33.87	192	107	Average
2484	32.88	-21.12	54	28.42	32.18	6.18	33.9	192	107	Average
2484	45.18	-28.82	74	40.72	32.18	6.18	33.9	192	107	Peak
7236	43.85	-25.14	68.99	56.23	35.7	10.03	58.11	100	0	Peak



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~51%
<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
44.85	20.53	-19.47	40	40.71	10.67	0.65	31.5	142	169	Peak
110.46	15.68	-27.82	43.5	35.48	10.7	1.05	31.55	-	-	Peak
242.22	20.03	-25.97	46	37.8	12.12	1.53	31.42	-	-	Peak
598.2	21.59	-24.41	46	30.09	19.74	2.68	30.92	-	-	Peak
648.6	21.38	-24.62	46	29.1	20.31	2.84	30.87	-	-	Peak
769.7	23.23	-22.77	46	28.84	21.99	3.09	30.69	-	-	Peak
2334	46.76	-27.24	74	42.68	31.96	5.95	33.83	162	159	Peak
2334	33.29	-20.71	54	29.21	31.96	5.95	33.83	162	159	Average
2437	93.9	-	-	89.57	32.1	6.11	33.88	162	159	Peak
2437	76.42	-	-	72.06	32.13	6.11	33.88	162	159	Average
2484	46.11	-27.89	74	41.65	32.18	6.18	33.9	162	159	Peak
2484	33	-21	54	28.54	32.18	6.18	33.9	162	159	Average



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	49~51%
<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
42.42	27.12	-12.88	40	46.4	11.59	0.64	31.51	127	152	Peak
99.66	22.79	-20.71	43.5	43.55	9.79	0.99	31.54	-	-	Peak
214.41	25.77	-17.73	43.5	45.73	10.13	1.38	31.47	-	-	Peak
550.6	20.76	-25.24	46	30.18	19.01	2.55	30.98	-	-	Peak
629.7	22.21	-23.79	46	30.22	20.1	2.78	30.89	-	-	Peak
693.4	22.4	-23.6	46	29.49	20.81	2.93	30.83	-	-	Peak
2366	45.73	-28.27	74	41.57	32.01	5.99	33.84	197	111	Peak
2366	33.08	-20.92	54	28.92	32.01	5.99	33.84	197	111	Average
2437	88.45	-	-	84.09	32.13	6.11	33.88	197	111	Peak
2437	71.28	-	-	66.92	32.13	6.11	33.88	197	111	Average
2486	45.92	-28.08	74	41.46	32.18	6.18	33.9	197	111	Peak
2486	32.87	-21.13	54	28.41	32.18	6.18	33.9	197	111	Average



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~51%
<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
47.01	28.61	-11.39	40	49.98	9.48	0.67	31.52	141	117	Peak
107.49	15.64	-27.86	43.5	35.7	10.45	1.04	31.55	-	-	Peak
242.22	19.75	-26.25	46	37.52	12.12	1.53	31.42	-	-	Peak
649.3	21.7	-24.3	46	29.42	20.31	2.84	30.87	-	-	Peak
693.4	22.48	-23.52	46	29.57	20.81	2.93	30.83	-	-	Peak
727	22.74	-23.26	46	29.17	21.32	3.01	30.76	-	-	Peak
2318	46.29	-27.71	74	42.23	31.96	5.92	33.82	100	3	Peak
2318	33.3	-20.7	54	29.24	31.96	5.92	33.82	100	3	Average
2462	94.89	-	-	90.49	32.15	6.14	33.89	100	3	Peak
2462	78.07	-	-	73.67	32.15	6.14	33.89	100	3	Average
2483.5	36.87	-17.13	54	32.41	32.18	6.18	33.9	100	3	Average
2483.5	52.41	-21.59	74	47.95	32.18	6.18	33.9	100	3	Peak



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	23~24°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	49~51%
<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
42.42	27.89	-12.11	40	47.17	11.59	0.64	31.51	127	203	Peak
105.33	30.26	-13.24	43.5	50.49	10.29	1.03	31.55	-	-	Peak
234.66	27.87	-18.13	46	46.23	11.57	1.5	31.43	-	-	Peak
638.1	21.44	-24.56	46	29.33	20.19	2.8	30.88	-	-	Peak
715.8	22.59	-23.41	46	29.25	21.14	2.98	30.78	-	-	Peak
757.8	23.34	-22.66	46	29.17	21.8	3.07	30.7	-	-	Peak
2318	45.39	-28.61	74	41.33	31.96	5.92	33.82	138	134	Peak
2318	33.22	-20.78	54	29.16	31.96	5.92	33.82	138	134	Average
2462	90.84	-	-	86.44	32.15	6.14	33.89	138	134	Peak
2462	74.21	-	-	69.81	32.15	6.14	33.89	138	134	Average
2483.5	34	-20	54	29.54	32.18	6.18	33.9	138	134	Average
2483.5	46.73	-27.27	74	42.27	32.18	6.18	33.9	138	134	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	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	112403	N/A	Feb. 22, 2011	Feb. 21, 2012	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. 30, 2010	Oct. 29, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Aug. 09, 2012	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. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00 101800-30-10P	159088	1GHz ~ 18GHz	Feb. 21, 2011	Feb. 20, 2012	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>				