

FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Smartphone
MODEL NAME : PG76110
FCC ID : NM8PG76110
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Jan. 25, 2011 and completely tested on Mar. 10, 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:



Roy Wu / Manager



SPORTON INTERNATIONAL INC.

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

TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Manufacturer	5
1.3 Feature of Equipment Under Test	5
1.4 Testing Site	6
1.5 Applied Standards	6
1.6 Ancillary Equipment List	6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	7
2.1 RF Power	7
2.2 Test Mode	8
2.3 Connection Diagram of Test System	9
2.4 RF Utility	9
3 TEST RESULT	10
3.1 6dB and 99% Bandwidth Measurement	10
3.2 Output Power Measurement	23
3.3 Band Edges Measurement	25
3.4 Spurious Emission Measurement	34
3.5 Power Spectral Density Measurement	44
3.6 AC Conducted Emission Measurement	51
3.7 Radiated Emission Measurement	55
3.8 Antenna Requirements	78
4 LIST OF MEASURING EQUIPMENT	79
5 UNCERTAINTY OF EVALUATION	80
APPENDIX A. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR112545B	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	-
3.1	-	Gen 4.4.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 10.4 dB at 0.28 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 4.38 dB at 2483.85 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

HTC Corporation

No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.2 Manufacturer

HTC Corporation

No. 23, Xinghua Rd., Taoyuan 330, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Smartphone
Model Name	PG76110
FCC ID	NM8PG76110
Sample 1	EUT with LCM 1 and Camera 1
Sample 2	EUT with LCM 2 and Camera 2
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 : 20.32 dBm (0.10 W) 802.11g : 22.36 dBm (0.17 W) 802.11n (BW 20MHz) : 22.30 dBm (0.17 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	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

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH06-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 (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

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	19.92	20.19	20.16	20.32
CH 06	2437 MHz	19.75	-	-	20.14
CH 11	2462 MHz	19.91	-	-	20.27

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	21.56	-	-	-	-	-	-	-
CH 06	2437 MHz	21.62	-	-	-	-	-	-	-
CH 11	2462 MHz	22.36	22.25	21.96	21.81	21.85	21.96	21.77	21.91

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	21.68	-	-	-	-	-	-	-
CH 06	2437 MHz	21.74	-	-	-	-	-	-	-
CH 11	2462 MHz	22.30	21.92	21.87	21.81	21.95	21.61	21.71	21.95

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 6Mbps for 802.11g, and MCS0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

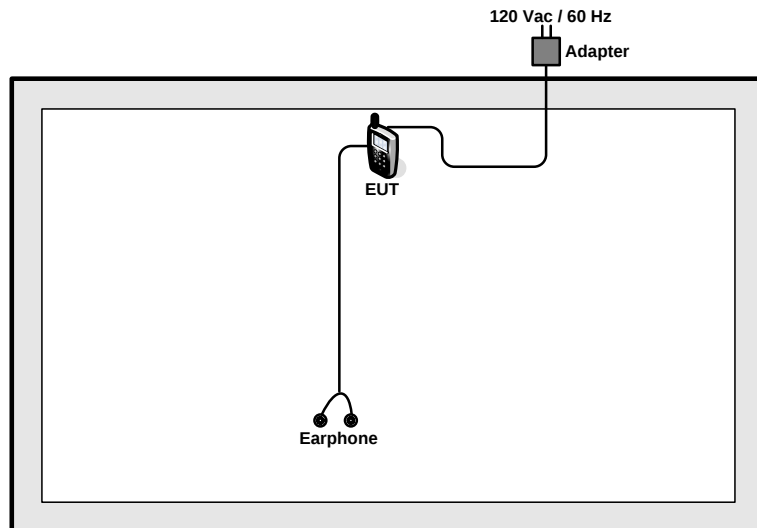
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic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

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

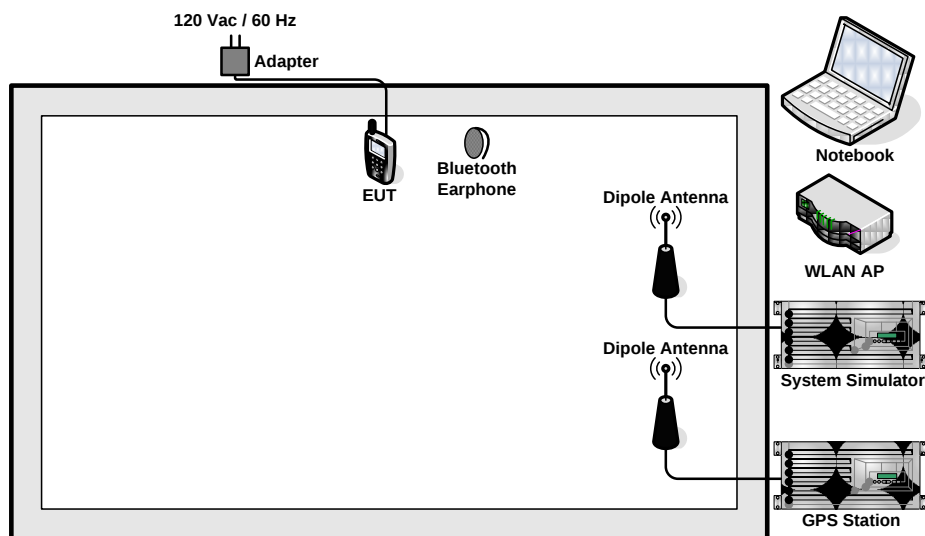
Test Cases	
Test Item	802.11b (Modulation : DSSS) 802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz
Radiated TCs	Mode 1 : 802.11b CH01_2412 MHz + TC for Sample 1 Mode 2 : 802.11b CH06_2437 MHz + TC for Sample 1 Mode 3 : 802.11b CH11_2462 MHz + TC for Sample 1 Mode 4: 802.11g_CH01_2412 MHz + TC for Sample 1 Mode 5: 802.11g_CH06_2437 MHz + TC for Sample 1 Mode 6: 802.11g_CH11_2462 MHz + TC for Sample 1 Mode 7: 802.11n (BW 20M)_CH01_2412 MHz + TC for Sample 1 Mode 8: 802.11n (BW 20M)_CH06_2437 MHz + TC for Sample 1 Mode 9: 802.11n (BW 20M)_CH11_2462 MHz + TC for Sample 1 Mode 10: 802.11g_CH11_2462 MHz + TC for Sample 2
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 1 + USB Cable 1 (Charging from Adapter 1) for Sample 1 Mode 2 : WCDMA Band II Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 2 + USB Cable 2 (Charging from Adapter 2) for Sample 2 Mode 3 : WCDMA Band II Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 2 + USB Cable 2 (Charging from Adapter 3) for Sample 2
Remark: 1. TC stands for Test Configuration, and consists of USB cable 1, battery 1, earphone and adapter 1. 2. The worst case of conducted emission is mode 2; only the test data of it was reported.	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

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

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

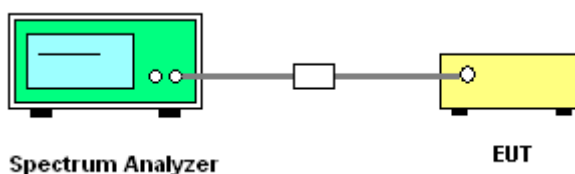
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

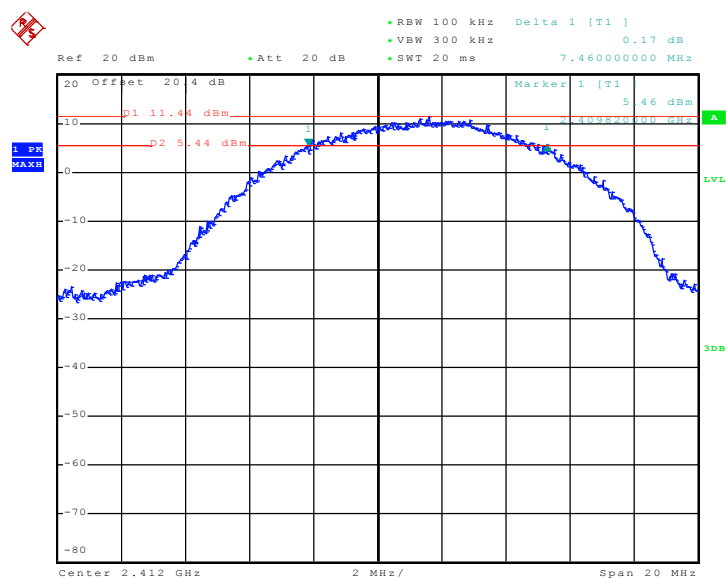


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.46	0.5	Pass
06	2437	7.50	0.5	Pass
11	2462	7.56	0.5	Pass

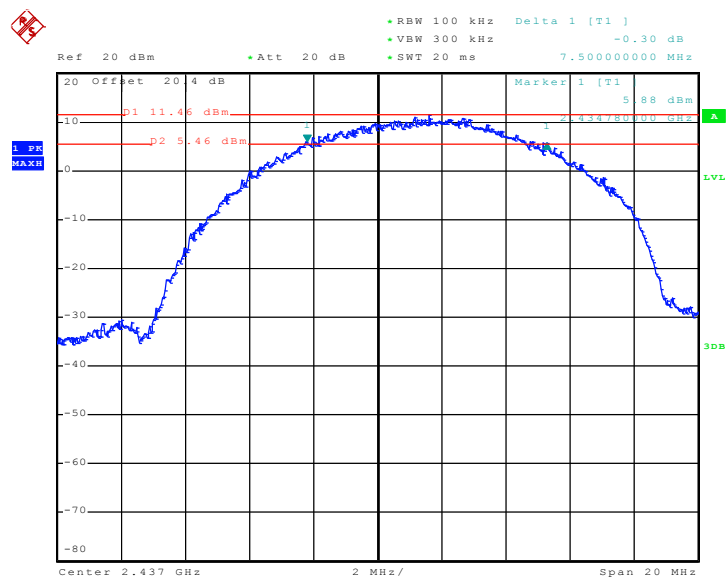
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 28.JAN.2011 01:52:08

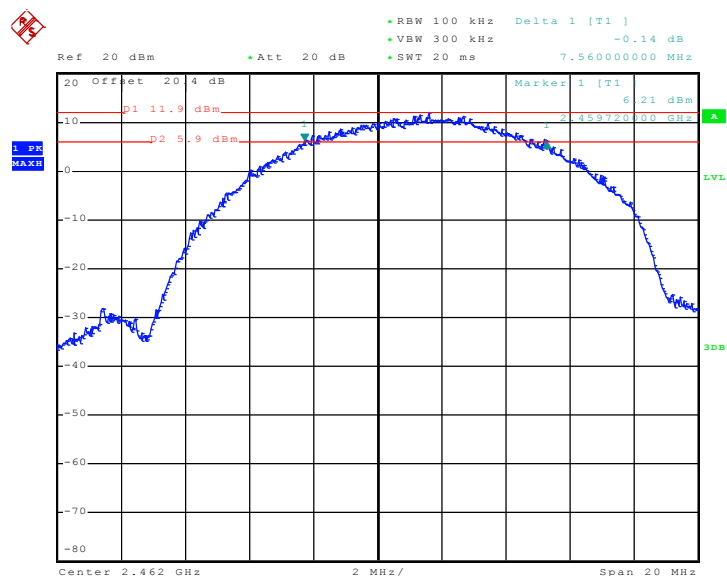


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 28.JAN.2011 02:05:12

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



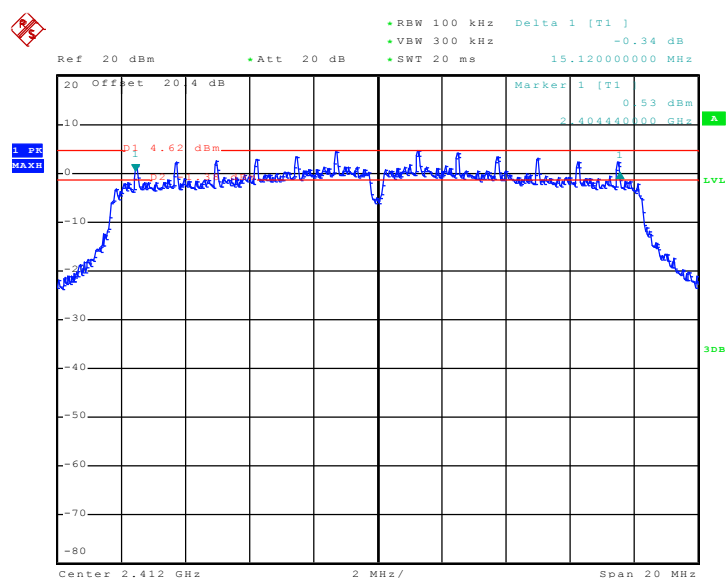
Date: 28.JAN.2011 02:16:41



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

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

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



Date: 28.JAN.2011 09:12:18

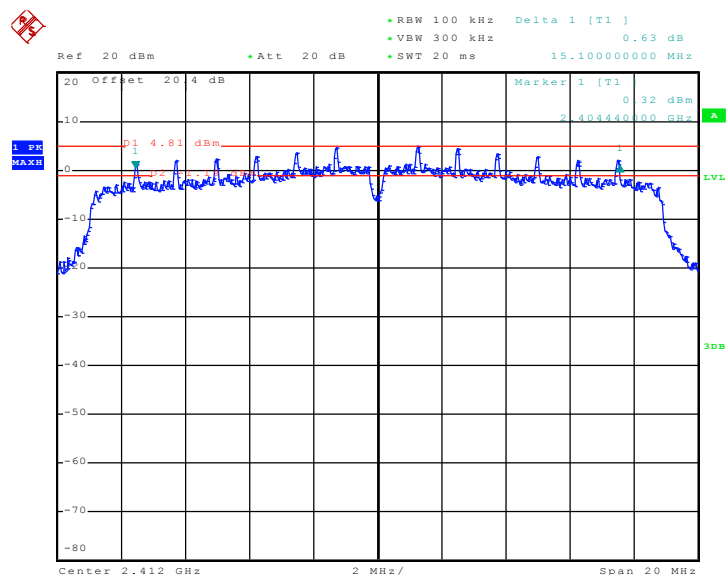


Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



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

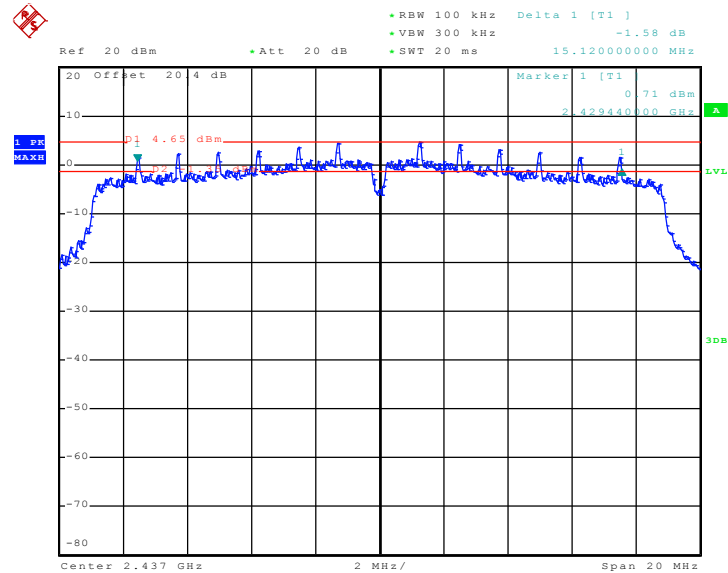
Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.10	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.12	0.5	Pass

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


Date: 28.JAN.2011 09:29:48

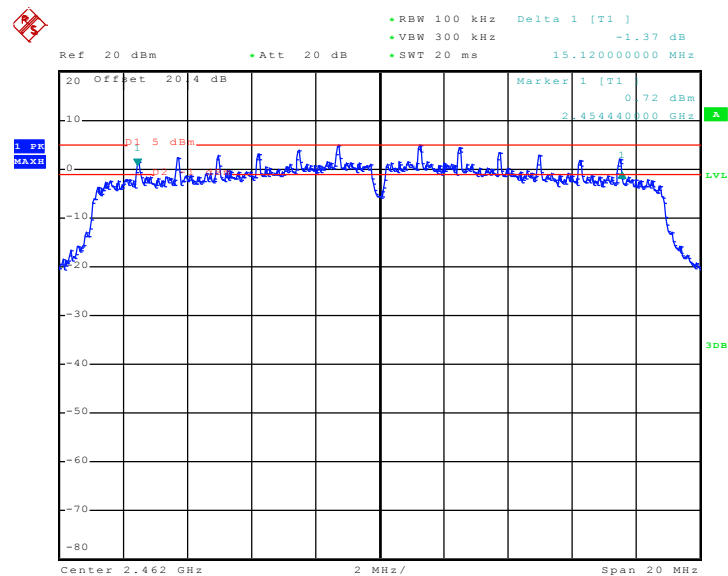


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 28.JAN.2011 09:48:00

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

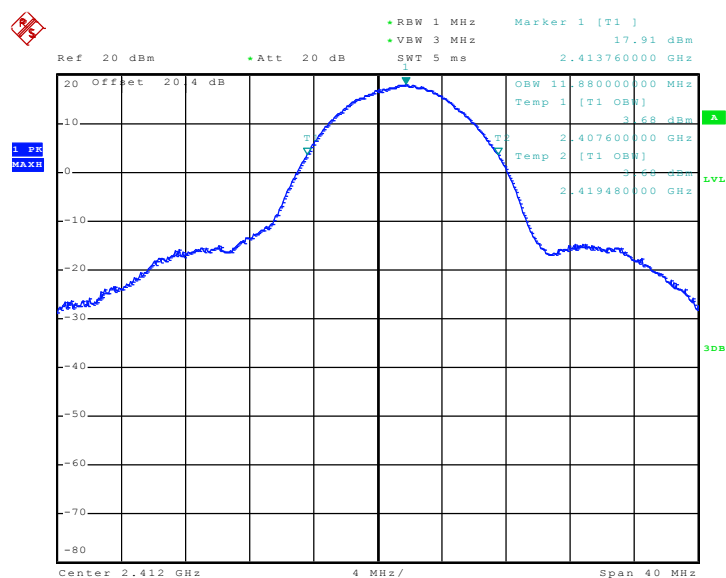


Date: 28.JAN.2011 10:02:31

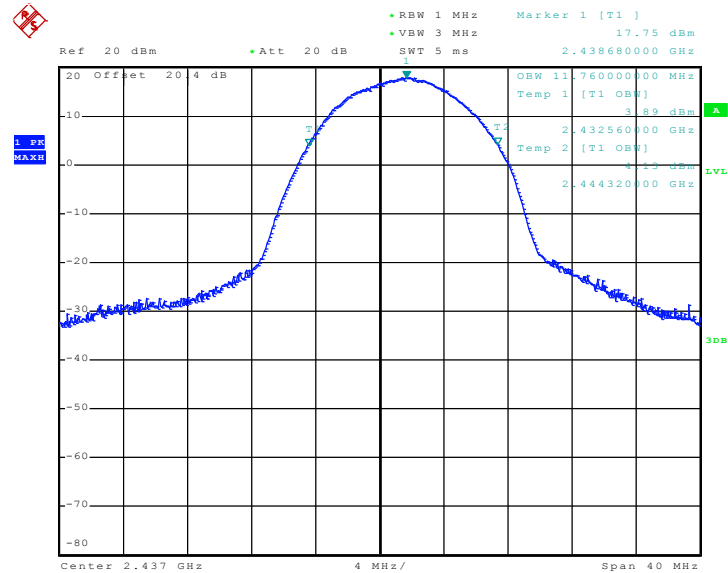
3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

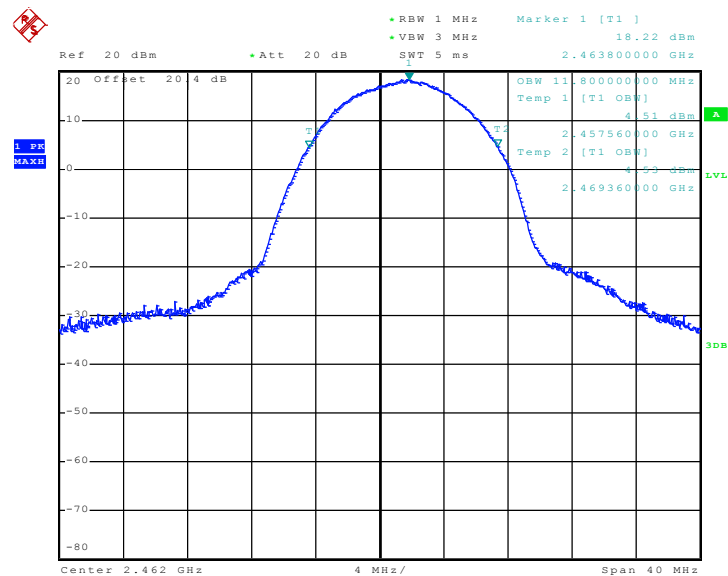
Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	11.88	Pass
06	2437	11.76	Pass
11	2462	11.80	Pass

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


Date: 28.JAN.2011 01:53:46

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


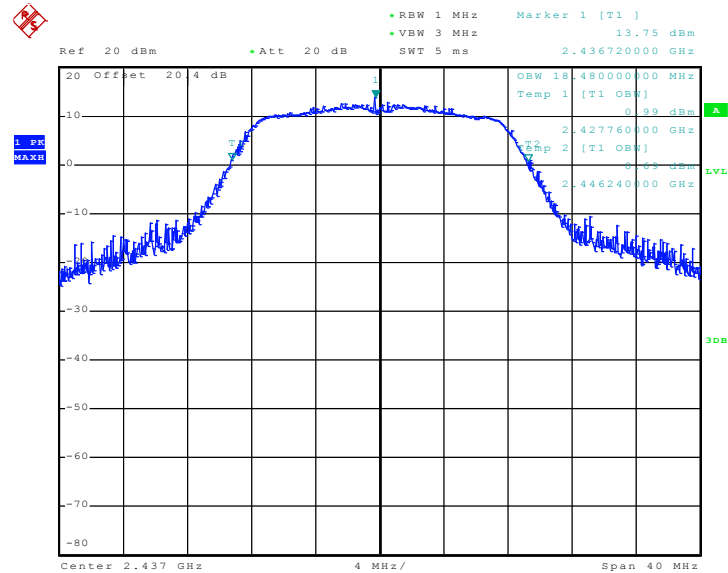
Date: 28.JAN.2011 02:05:44

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


Date: 28.JAN.2011 02:17:56

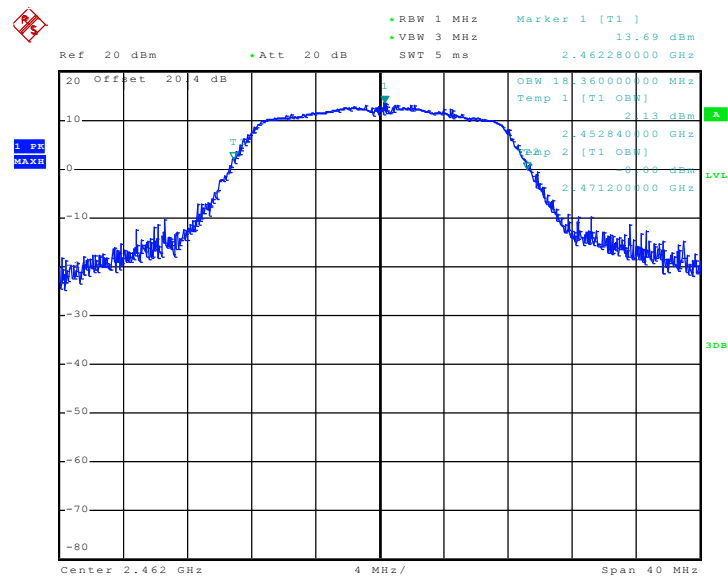


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 28.JAN.2011 02:42:50

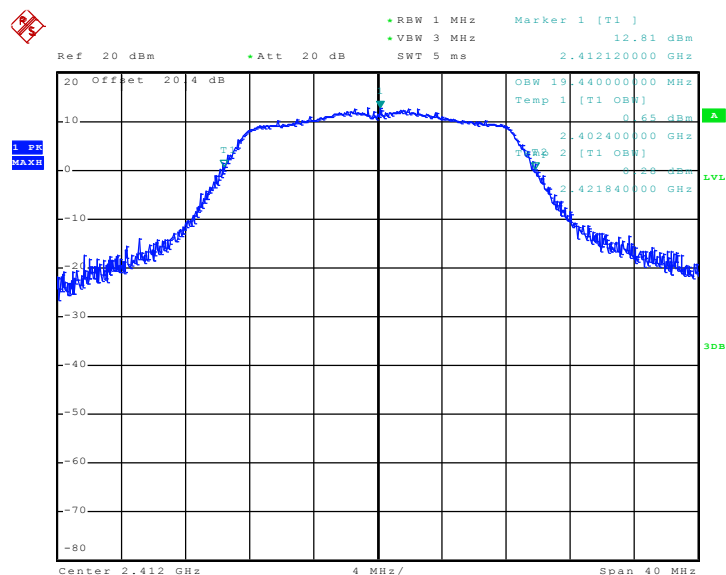
Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



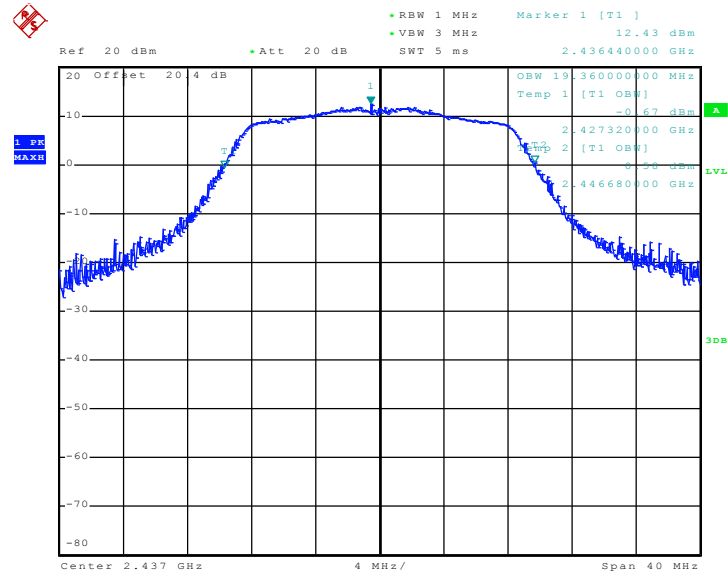
Date: 28.JAN.2011 02:31:45

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

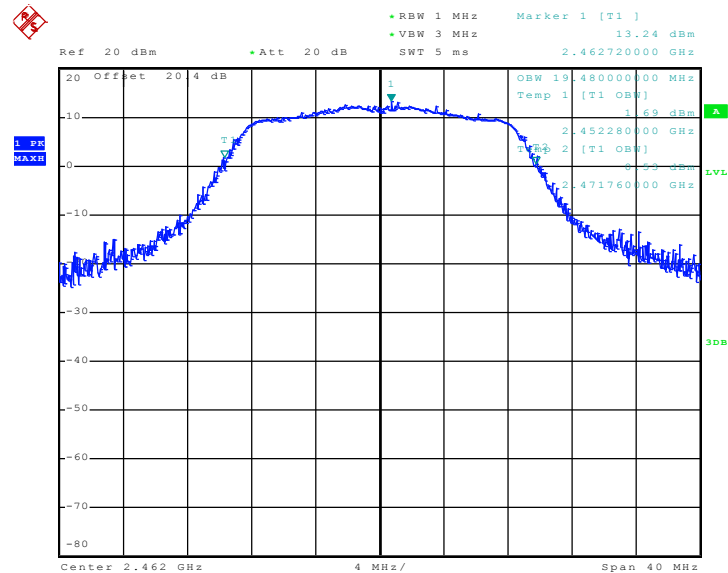
Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.44	Pass
06	2437	19.36	Pass
11	2462	19.48	Pass

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


Date: 28.JAN.2011 09:31:22

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


Date: 28.JAN.2011 09:48:30

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


Date: 28.JAN.2011 10:03:43

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

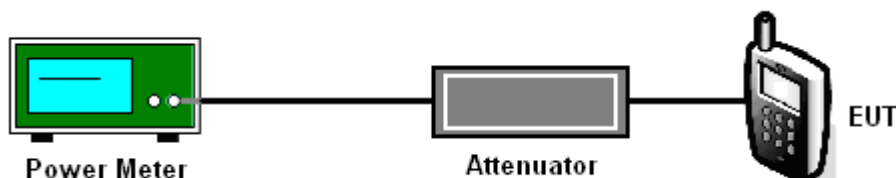
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.32	30	Pass
06	2437	20.14	30	Pass
11	2462	20.27	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.56	30	Pass
06	2437	21.62	30	Pass
11	2462	22.36	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.68	30	Pass
06	2437	21.74	30	Pass
11	2462	22.30	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

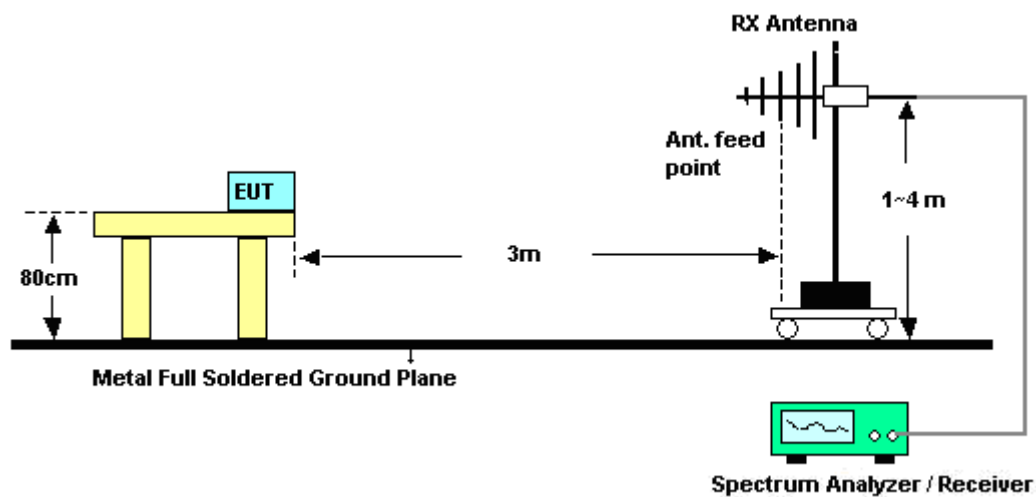
See list of measuring instruments of this test report.

3.3.3 Test Procedures

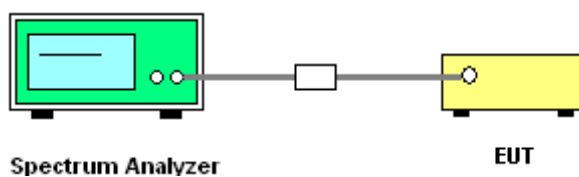
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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℃
Test Band :	802.11b	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Kai 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	58.61	-15.39	74	57.18	31.9	3.92	34.39	130	347	Peak
2389.99	44.98	-9.02	54	43.55	31.9	3.92	34.39	130	347	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	51.27	-22.73	74	49.84	31.9	3.92	34.39	134	16	Peak
2389.99	38.33	-15.67	54	36.9	31.9	3.92	34.39	134	16	Average

Test Mode :	Mode 3	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Kai 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	57.17	-16.83	74	55.51	31.98	4.05	34.37	101	351	Peak
2483.5	44.78	-9.22	54	43.12	31.98	4.05	34.37	101	351	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	54.04	-19.96	74	52.38	31.98	4.05	34.37	107	28	Peak
2483.5	40.71	-13.29	54	39.05	31.98	4.05	34.37	107	28	Average



Test Mode :	Mode 4	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Kai 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	67.93	-6.07	74	66.5	31.9	3.92	34.39	103	357	Peak
2389.99	45.57	-8.43	54	44.14	31.9	3.92	34.39	103	357	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	63.13	-10.87	74	61.7	31.9	3.92	34.39	138	35	Peak
2389.99	40.44	-13.56	54	39.01	31.9	3.92	34.39	138	35	Average

Test Mode :	Mode 6	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Kai 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
2483.85	69.62	-4.38	74	67.96	31.98	4.05	34.37	102	332	Peak
2483.85	47.61	-6.39	54	45.95	31.98	4.05	34.37	102	332	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	66.44	-7.56	74	64.78	31.98	4.05	34.37	161	39	Peak
2483.5	44.15	-9.85	54	42.49	31.98	4.05	34.37	161	39	Average



Test Mode :	Mode 7	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~46%
Test Channel :	01	Test Engineer :	Kai 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	66.39	-7.61	74	64.96	31.9	3.92	34.39	102	335	Peak
2389.99	44.53	-9.47	54	43.1	31.9	3.92	34.39	102	335	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	62.97	-11.03	74	61.54	31.9	3.92	34.39	135	34	Peak
2389.61	40.47	-13.53	54	39.04	31.9	3.92	34.39	135	34	Average

Test Mode :	Mode 9	Temperature :	23~24℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Kai 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
2483.66	68.41	-5.59	74	66.75	31.98	4.05	34.37	102	332	Peak
2483.66	45.3	-8.7	54	43.64	31.98	4.05	34.37	102	332	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	64.74	-9.26	74	63.08	31.98	4.05	34.37	105	23	Peak
2483.66	42.11	-11.89	54	40.45	31.98	4.05	34.37	105	23	Average



Test Mode :	Mode 10	Temperature :	23~24℃
Test Band :	802.11g	Relative Humidity :	45~46%
Test Channel :	11	Test Engineer :	Kai Wang

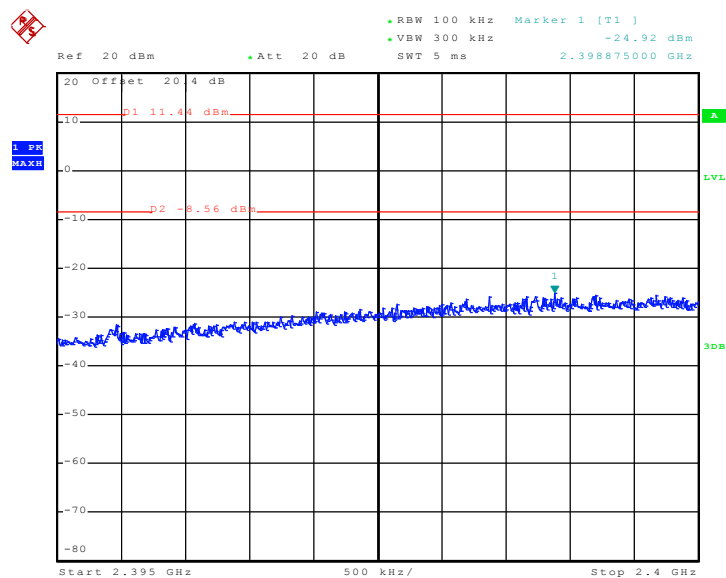
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	68.57	-5.43	74	66.91	31.98	4.05	34.37	102	332	Peak
2483.5	46.5	-7.5	54	44.84	31.98	4.05	34.37	102	332	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	64.9	-9.1	74	63.24	31.98	4.05	34.37	108	22	Peak
2483.5	42.32	-11.68	54	40.66	31.98	4.05	34.37	108	22	Average

3.3.6 Test Plots of Conducted Band Edges

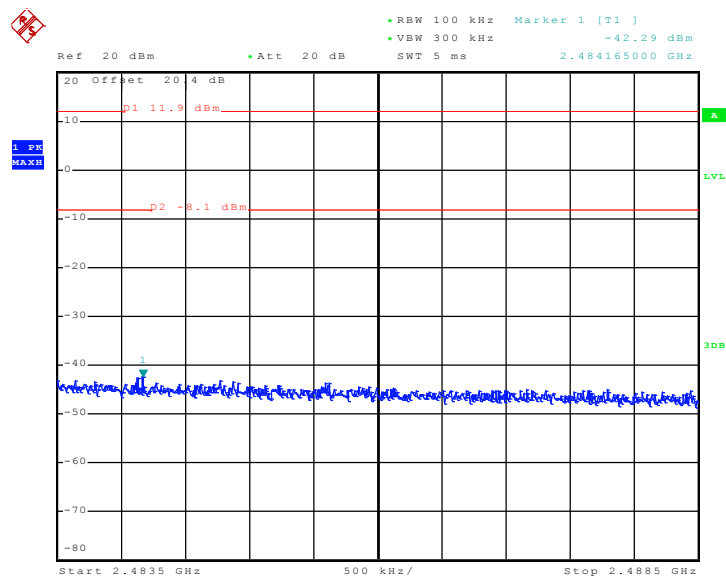
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Cona Huang

Low Band Edge Plot on 802.11b Channel 01



Date: 28.JAN.2011 01:53:19

High Band Edge Plot on 802.11b Channel 11



Date: 28.JAN.2011 02:17:29



Low Band Edge Plot on 802.11g Channel 01



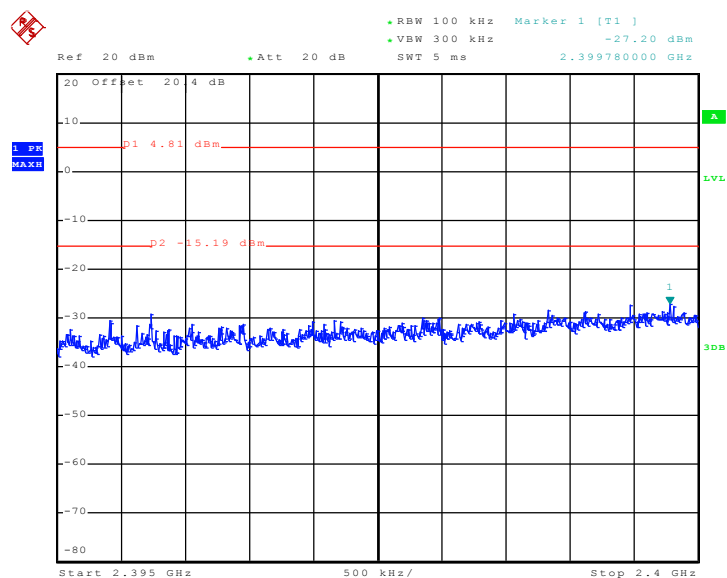
High Band Edge Plot on 802.11g Channel 11





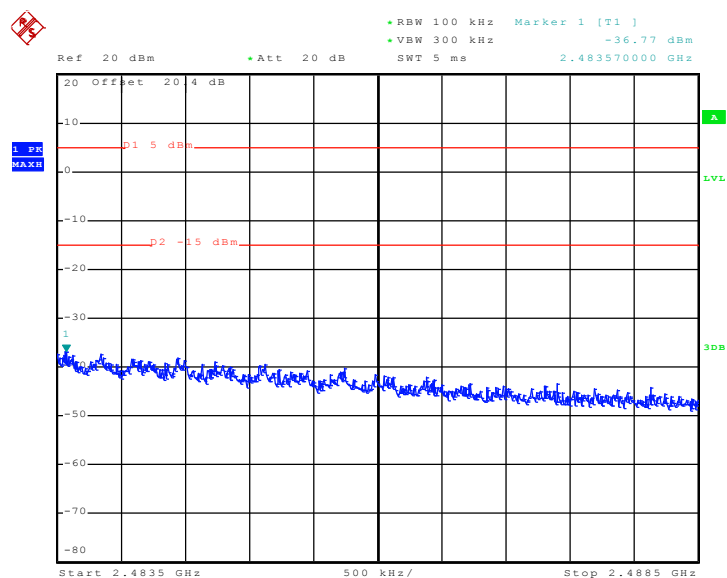
Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Cona Huang

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



Date: 28.JAN.2011 09:30:56

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



Date: 28.JAN.2011 10:03:18

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.

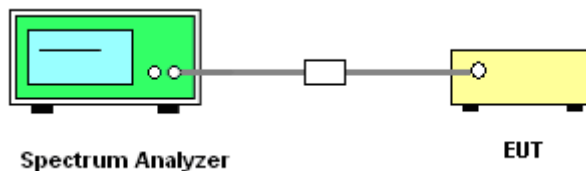
3.4.2 Measuring Instruments

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.

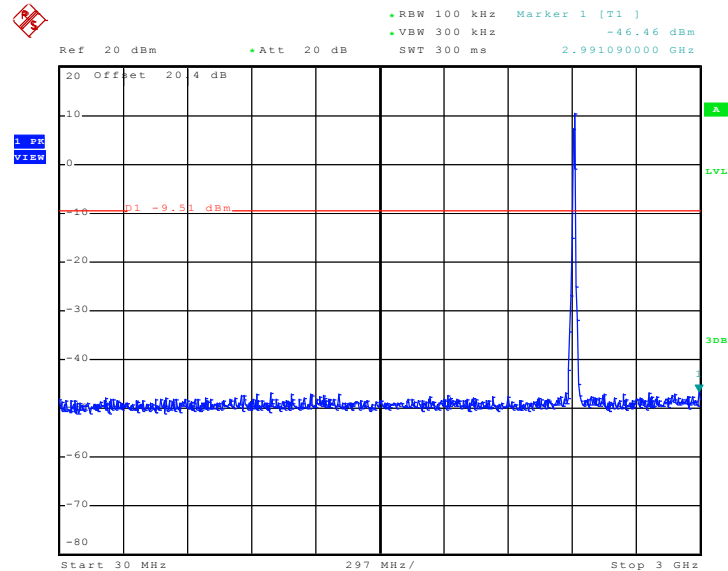
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

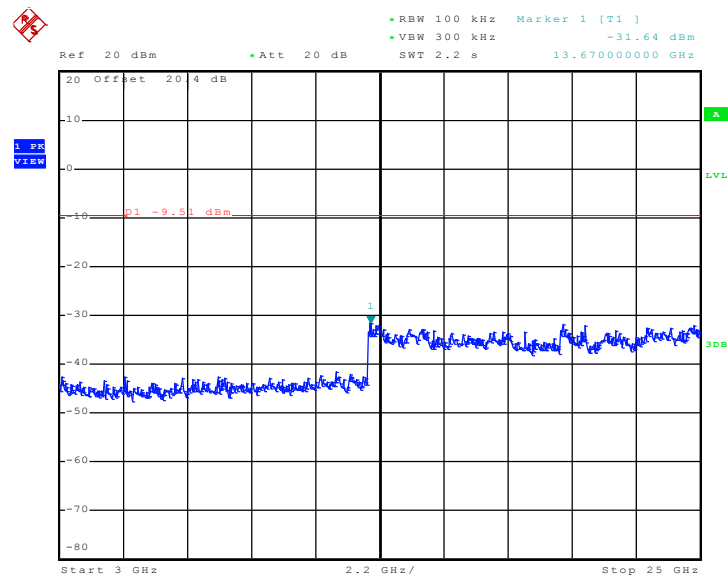
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Cona Huang

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



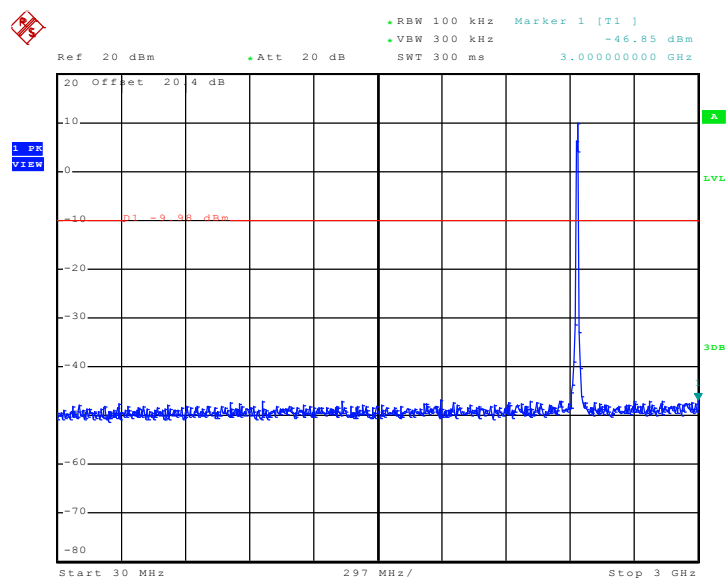
Date: 28.JAN.2011 02:02:44

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

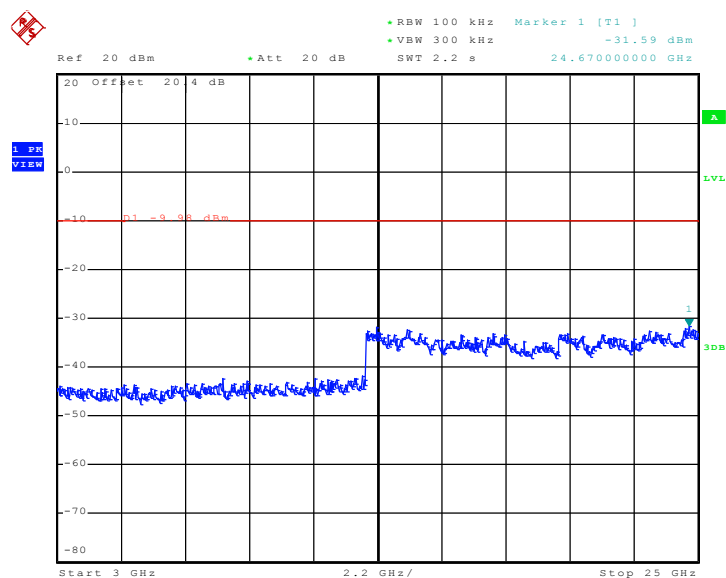


Date: 28.JAN.2011 02:03:02

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

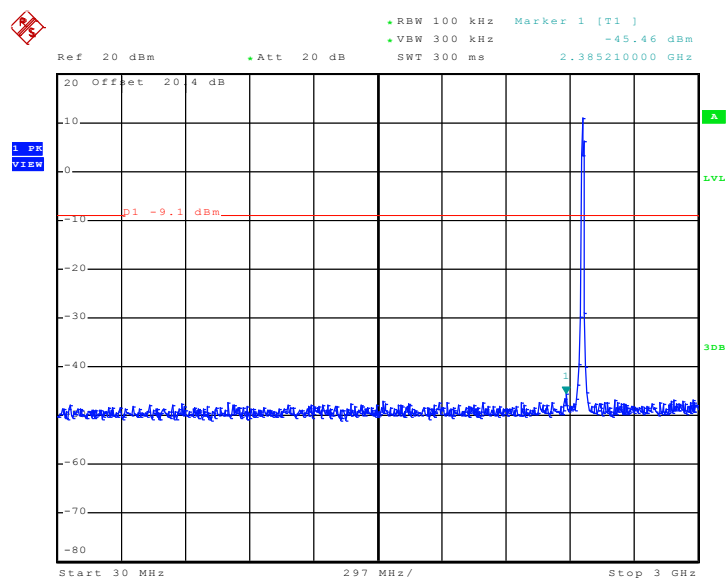
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 28.JAN.2011 02:14:41

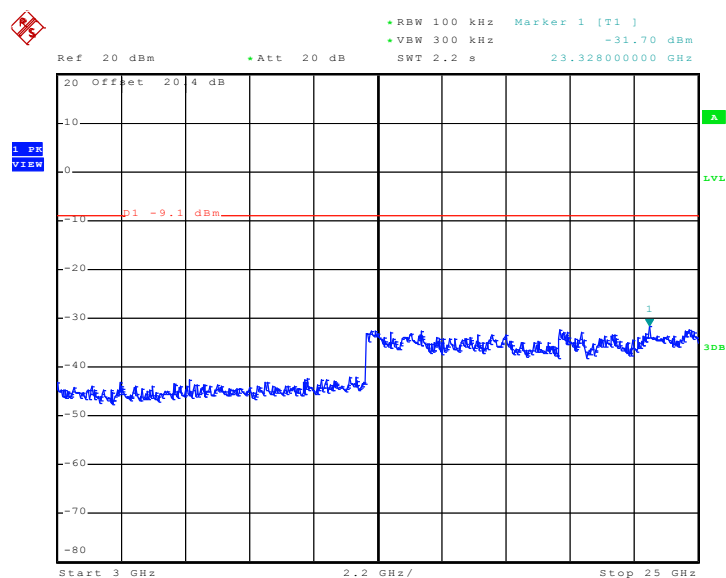
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 28.JAN.2011 02:14:59

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

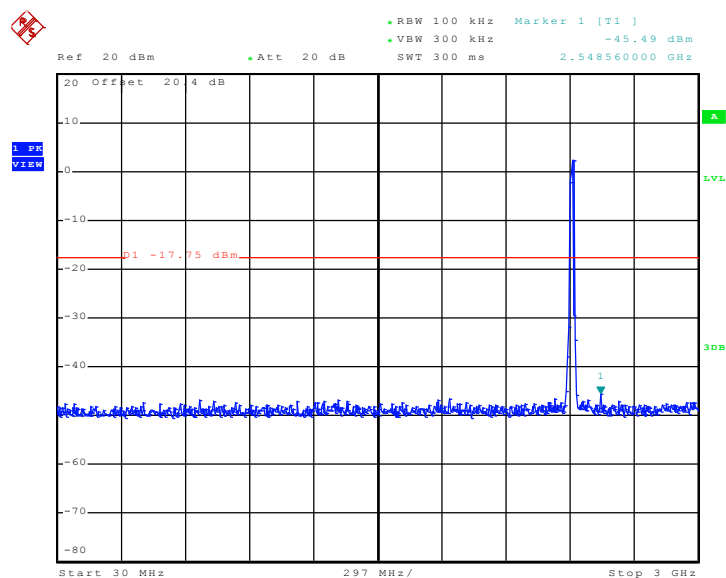
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 28.JAN.2011 02:26:59

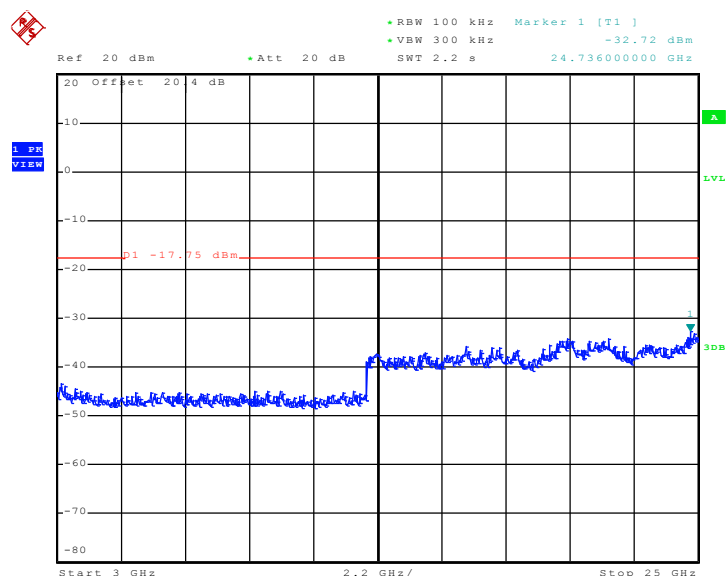
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 28.JAN.2011 02:27:16

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

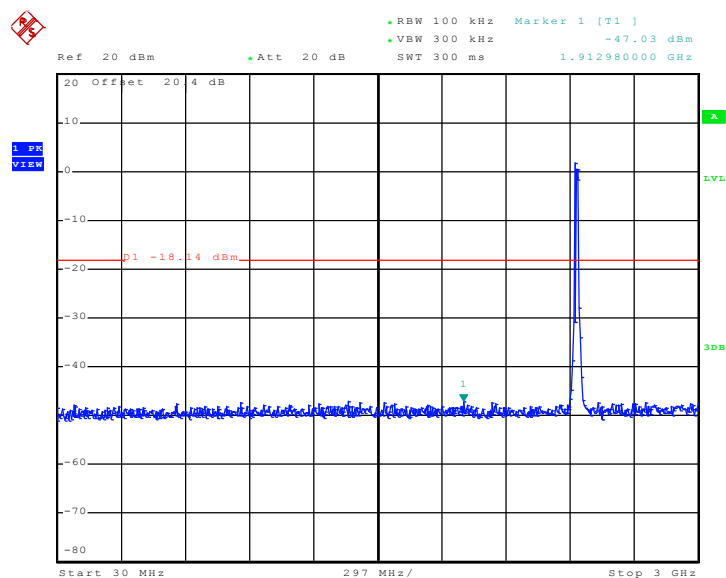
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 28.JAN.2011 09:22:48

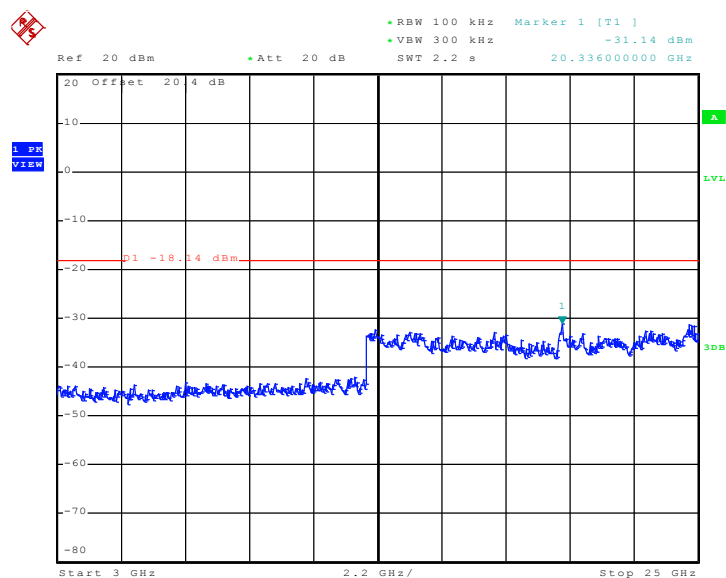
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 28.JAN.2011 09:23:05

Test Mode :	Mode 5	Temperature :	24~26
Test Band :	802.11g	Relative Humidity :	50~53
Test Channel :	06	Test Engineer :	Cona Huang

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 28.JAN.2011 02:56:00

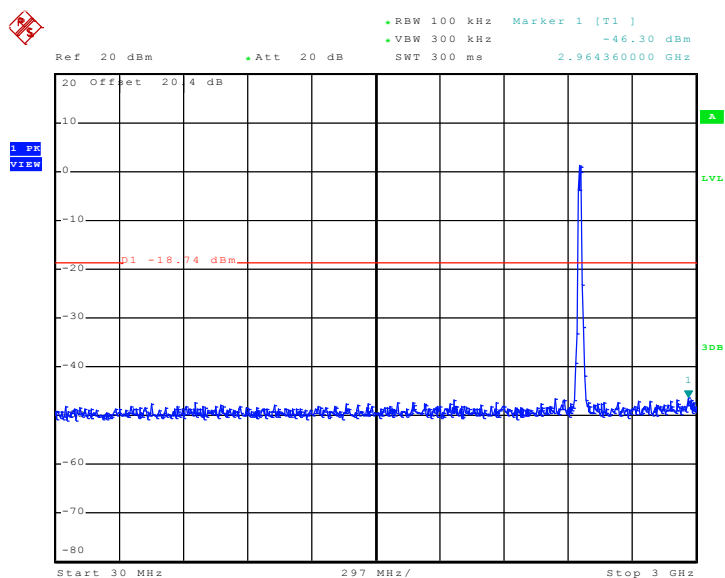
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 28.JAN.2011 02:56:17



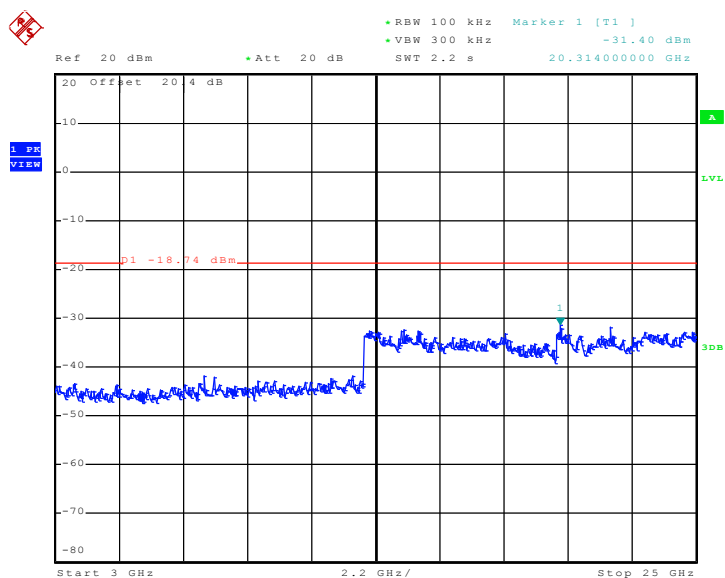
Test Mode :	Mode 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Cona Huang

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 28.JAN.2011 02:40:46

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

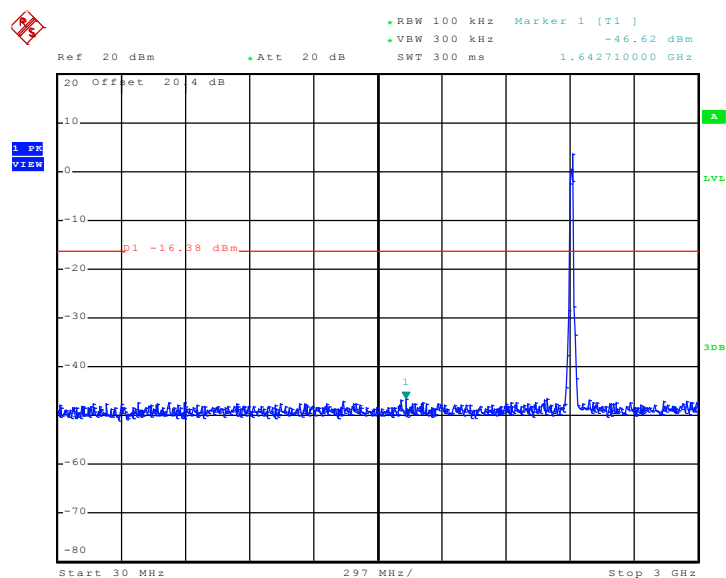


Date: 28.JAN.2011 02:41:04



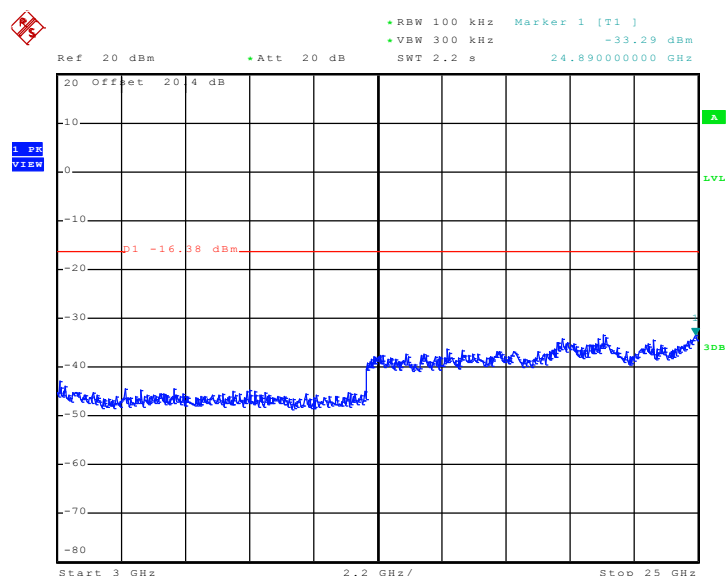
Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Cona Huang

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



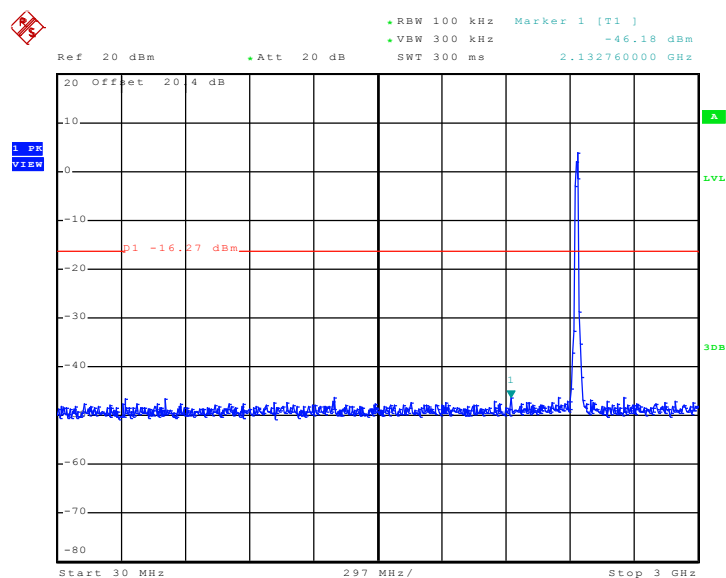
Date: 28.JAN.2011 09:42:19

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

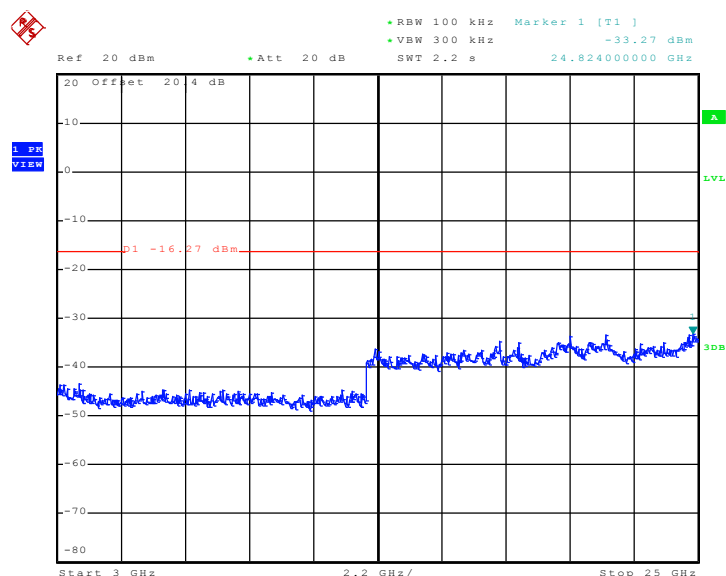


Date: 28.JAN.2011 09:42:36

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

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 28.JAN.2011 13:38:07

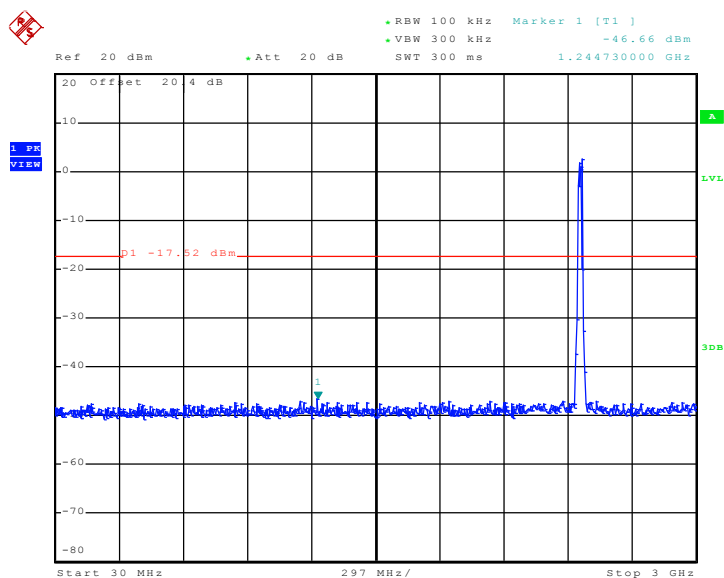
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz


Date: 28.JAN.2011 13:38:24



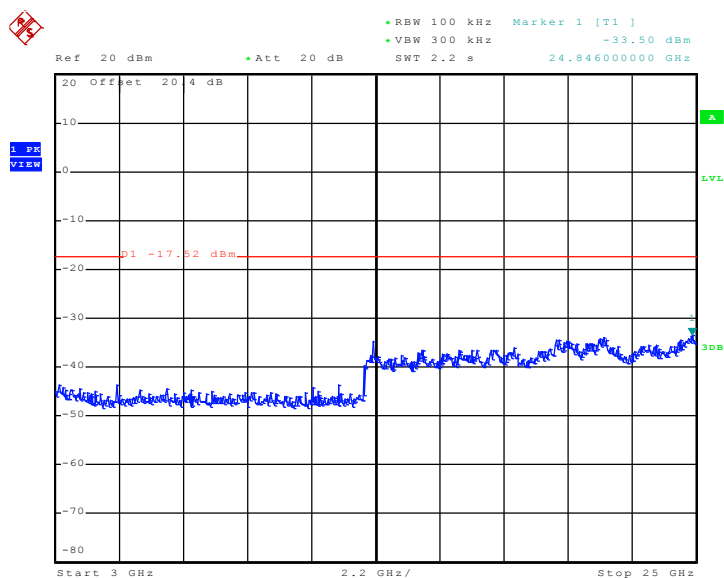
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Cona Huang

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 28.JAN.2011 13:39:34

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 28.JAN.2011 13:39:51

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.

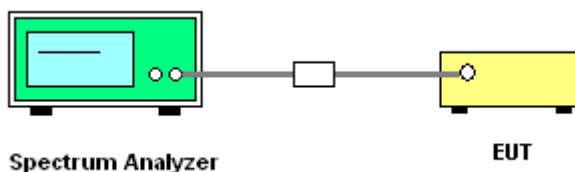
3.5.2 Measuring Instruments

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

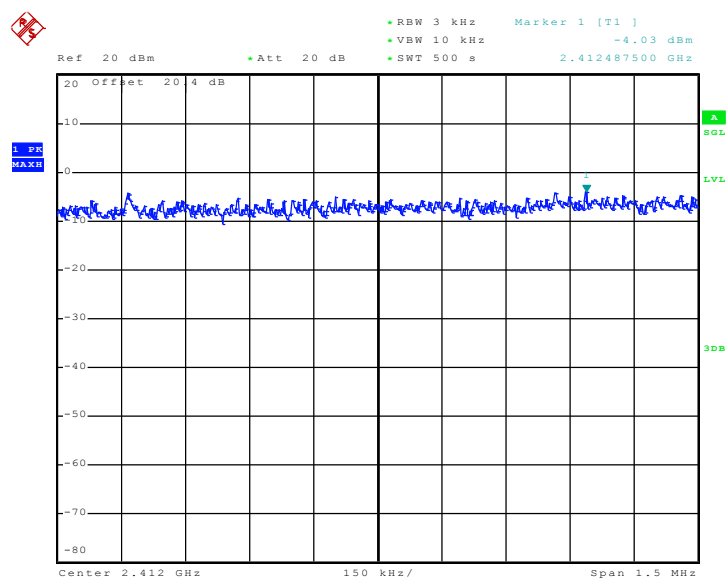


3.5.5 Test Result of Power Spectral Density

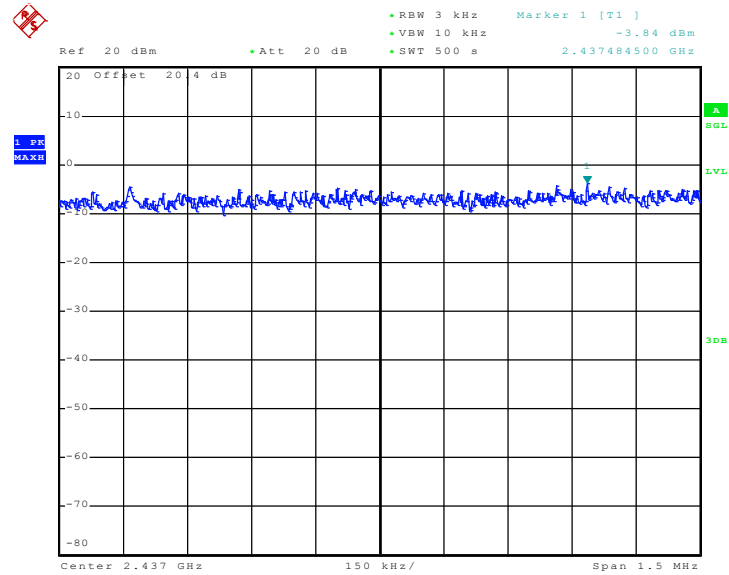
Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-4.03	8	Pass
06	2437	-3.84	8	Pass
11	2462	-3.55	8	Pass

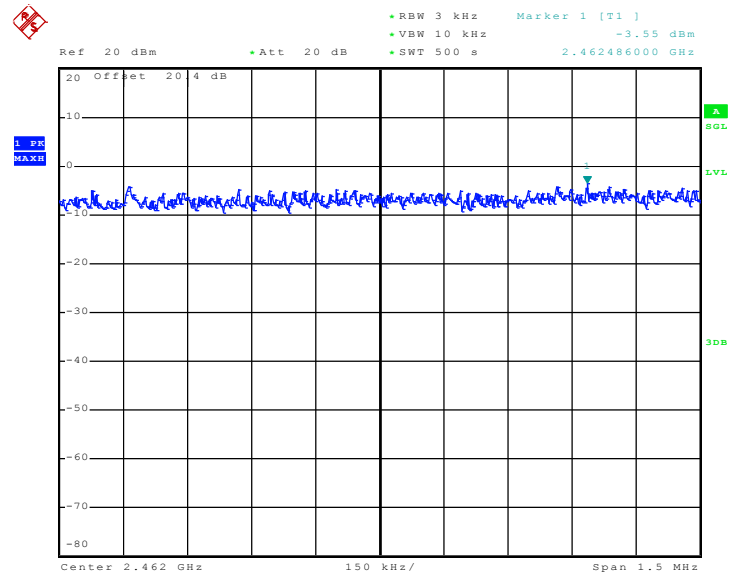
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 28.JAN.2011 02:02:22

Mode 2 : PSD Plot on 802.11b Channel 06


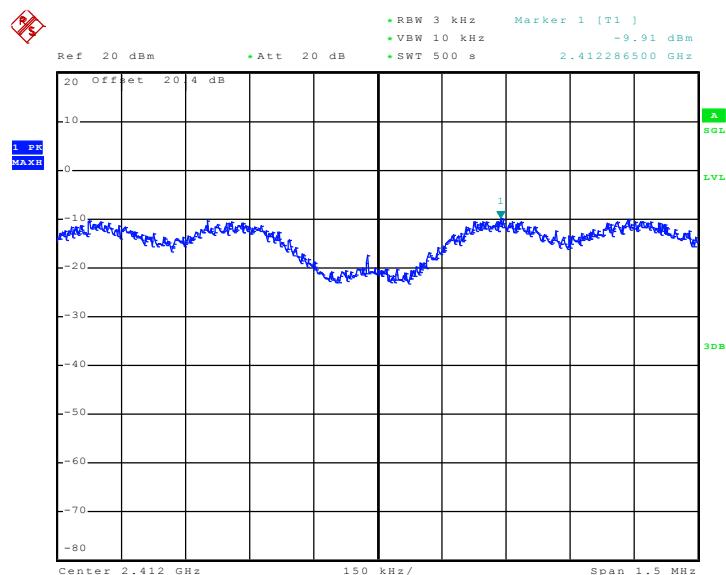
Date: 28.JAN.2011 02:14:19

Mode 3 : PSD Plot on 802.11b Channel 11


Date: 28.JAN.2011 02:26:36

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

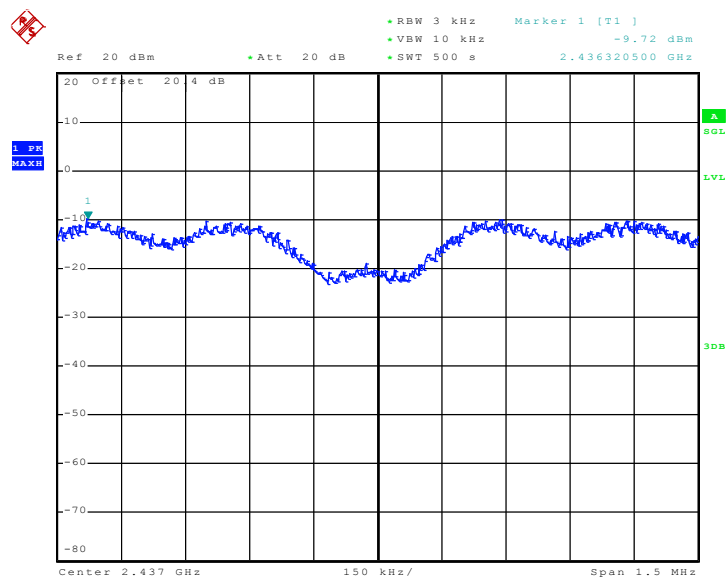
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.91	8	Pass
06	2437	-9.72	8	Pass
11	2462	-9.19	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 28.JAN.2011 09:22:27

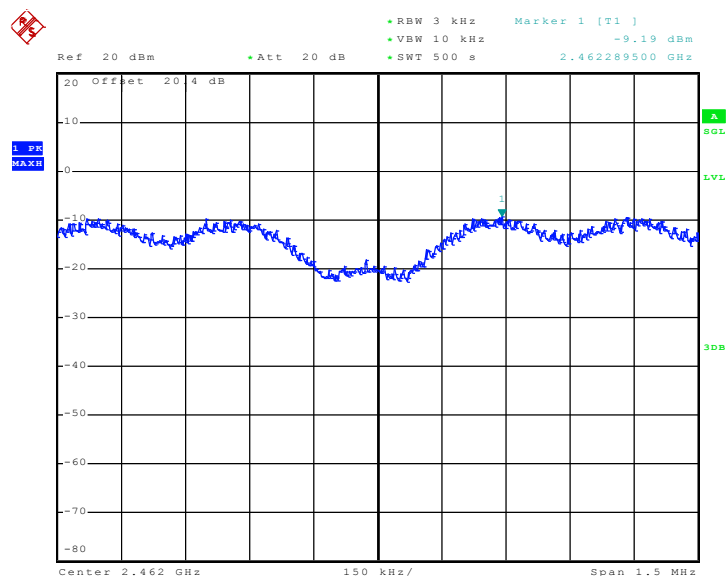


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 28.JAN.2011 02:55:38

Mode 6 : PSD Plot on 802.11g Channel 11



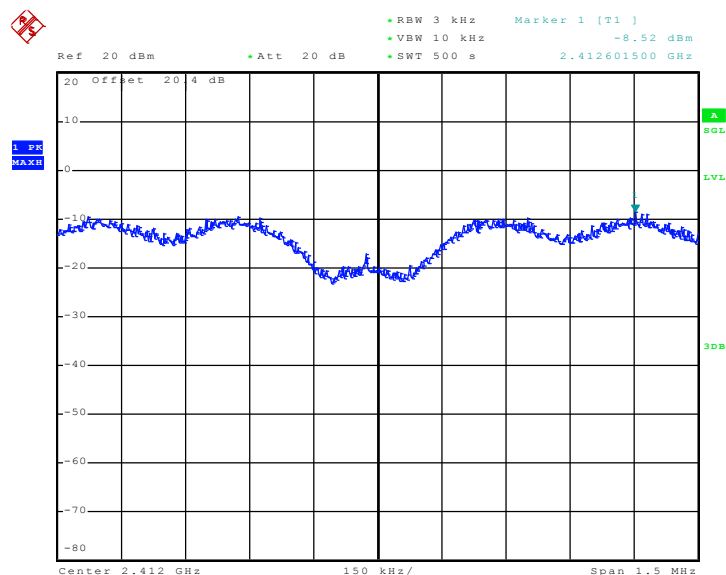
Date: 28.JAN.2011 02:40:24



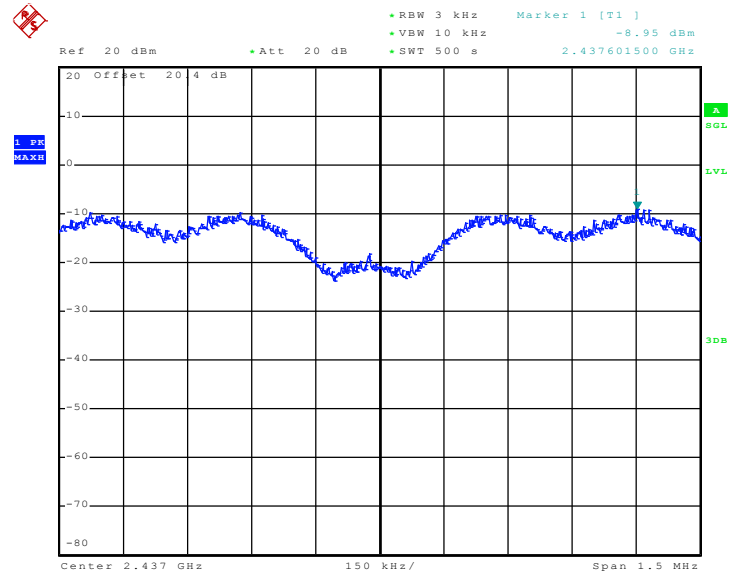
Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Cona Huang	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.52	8	Pass
06	2437	-8.95	8	Pass
11	2462	-8.45	8	Pass

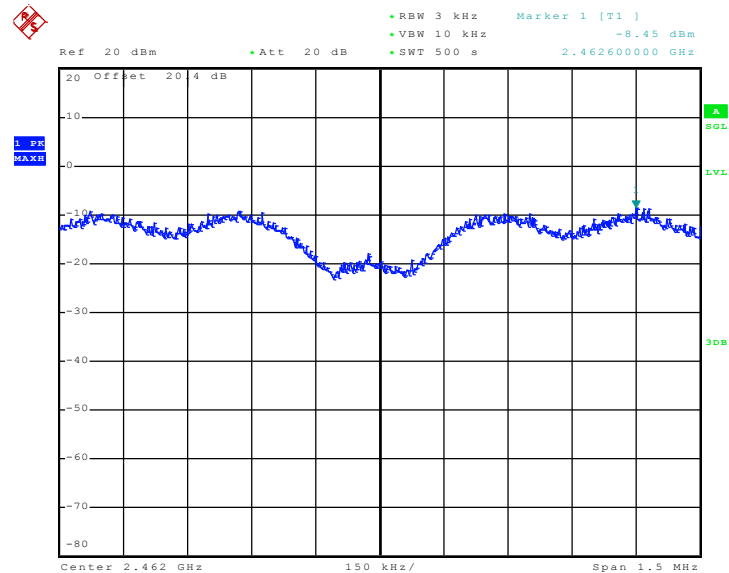
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 28.JAN.2011 09:41:57

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


Date: 28.JAN.2011 09:57:05

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


Date: 28.JAN.2011 10:12:19

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

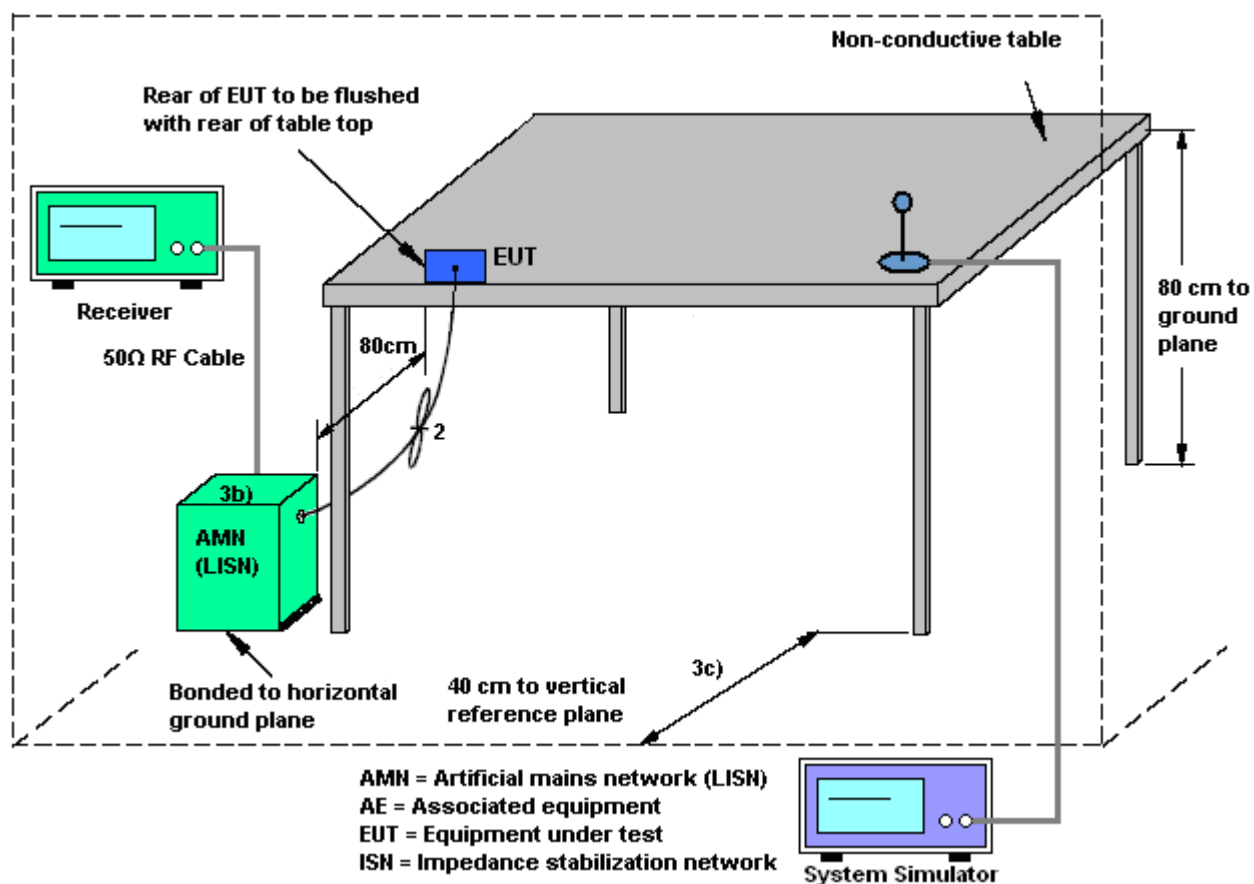
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

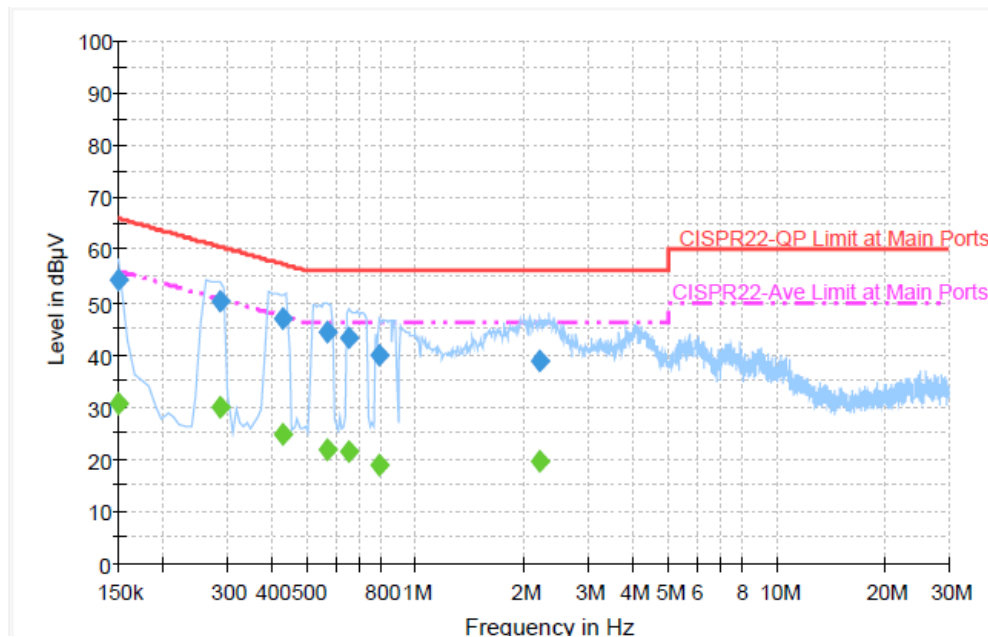
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band II Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 2 + USB Cable 2 (Charging from Adapter 2) for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



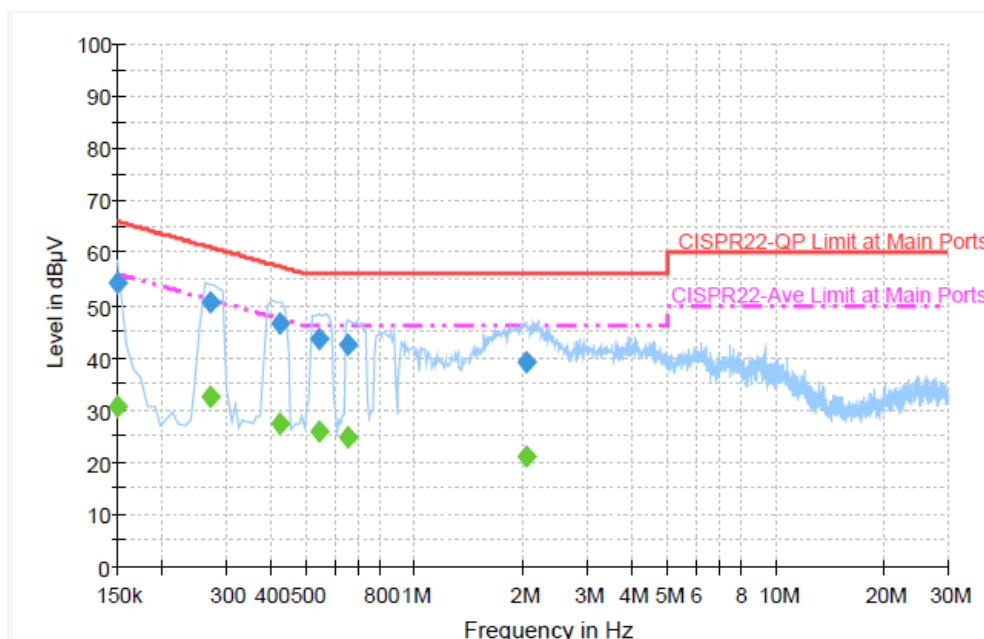
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	54.3	Off	L1	19.4	11.7	66.0
0.286000	50.2	Off	L1	19.3	10.4	60.6
0.430000	46.8	Off	L1	19.4	10.5	57.3
0.566000	44.3	Off	L1	19.3	11.7	56.0
0.654000	43.1	Off	L1	19.4	12.9	56.0
0.790000	40.0	Off	L1	19.4	16.0	56.0
2.214000	38.8	Off	L1	19.5	17.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	30.6	Off	L1	19.4	25.4	56.0
0.286000	29.8	Off	L1	19.3	20.8	50.6
0.430000	24.6	Off	L1	19.4	22.7	47.3
0.566000	21.9	Off	L1	19.3	24.1	46.0
0.654000	21.2	Off	L1	19.4	24.8	46.0
0.790000	18.7	Off	L1	19.4	27.3	46.0
2.214000	19.6	Off	L1	19.5	26.4	46.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band II Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 2 + USB Cable 2 (Charging from Adapter 2) for Sample 2		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	54.3	Off	N	19.4	11.7	66.0
0.270000	50.6	Off	N	19.3	10.5	61.1
0.422000	46.4	Off	N	19.4	11.0	57.4
0.542000	43.4	Off	N	19.3	12.6	56.0
0.654000	42.6	Off	N	19.4	13.4	56.0
2.038000	39.3	Off	N	19.5	16.7	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	30.5	Off	N	19.4	25.5	56.0
0.270000	32.6	Off	N	19.3	18.5	51.1
0.422000	27.2	Off	N	19.4	20.2	47.4
0.542000	25.7	Off	N	19.3	20.3	46.0
0.654000	24.8	Off	N	19.4	21.2	46.0
2.038000	21.1	Off	N	19.5	24.9	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

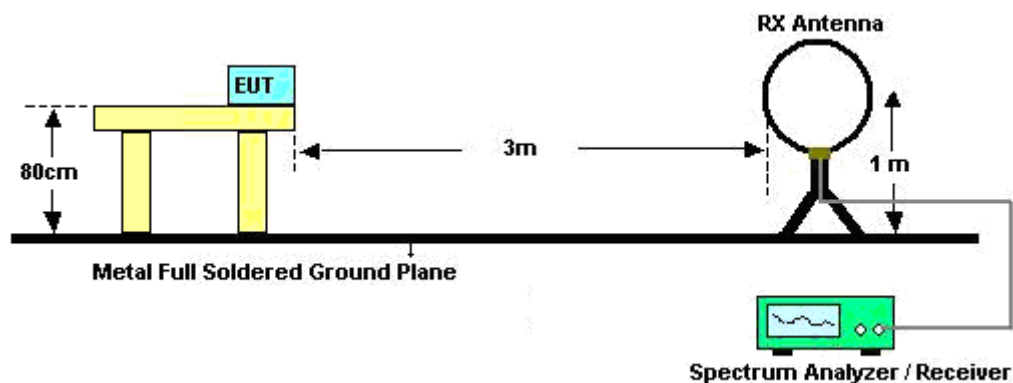
See list of measuring instruments of this test report.

3.7.3 Test Procedures

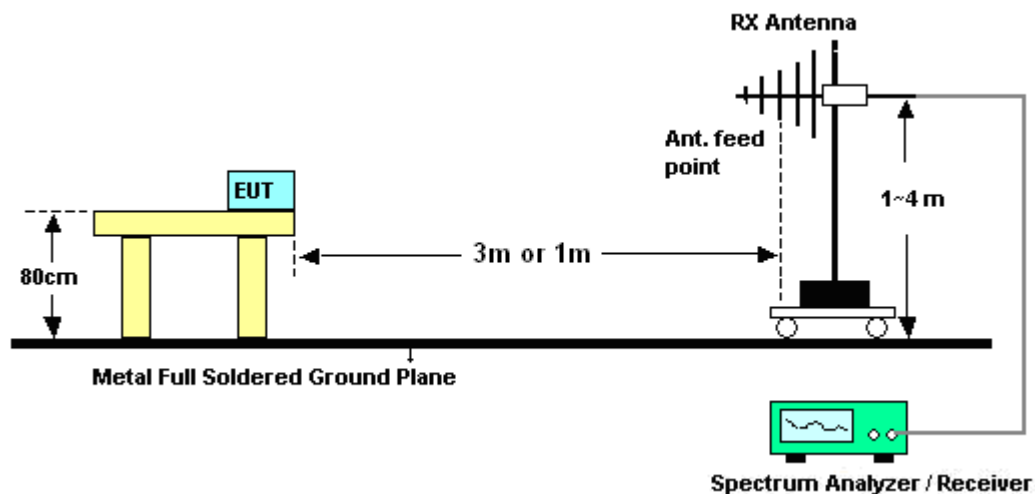
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
- Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.7.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



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

Test Engineer :	Kai Wang	Temperature :	23~24℃	
		Relative Humidity :	45~46%	

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 ~ 10th Harmonic)

Test Mode :	Mode 1	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Kai 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
88.59	26.56	-16.94	43.5	48.36	8.67	1.13	31.6	-	-	Peak
151.23	30.96	-12.54	43.5	50.25	10.64	1.46	31.39	-	-	Peak
229.53	34.65	-11.35	46	53.01	11.33	1.77	31.46	100	58	Peak
320.3	27.53	-18.47	46	42.86	13.93	2.13	31.39	-	-	Peak
425.3	26.32	-19.68	46	38.97	16.3	2.46	31.41	-	-	Peak
635.3	25.53	-20.47	46	34.91	19.25	3.01	31.64	-	-	Peak
2389.99	58.61	-15.39	74	57.18	31.9	3.92	34.39	130	347	Peak
2389.99	44.98	-9.02	54	43.55	31.9	3.92	34.39	130	347	Average
2412	111.63	-	-	110.16	31.91	3.95	34.39	130	347	Peak
2412	99.43	-	-	97.96	31.91	3.95	34.39	130	347	Average
2494	49.4	-24.6	74	47.72	32	4.05	34.37	130	347	Peak
2494	37.59	-16.41	54	35.91	32	4.05	34.37	130	347	Average



Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
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
31.89	29.36	-10.64	40	43.56	16.72	0.73	31.65	100	121	Peak
86.43	28.12	-11.88	40	50.31	8.26	1.12	31.57	-	-	Peak
149.88	29.57	-13.93	43.5	48.79	10.7	1.46	31.38	-	-	Peak
304.9	26.79	-19.21	46	42.59	13.57	2.08	31.45	-	-	Peak
546.4	29.05	-16.95	46	39.34	18.44	2.84	31.57	-	-	Peak
623.4	31.11	-14.89	46	40.57	19.22	2.98	31.66	-	-	Peak
2389.99	51.27	-22.73	74	49.84	31.9	3.92	34.39	134	16	Peak
2389.99	38.33	-15.67	54	36.9	31.9	3.92	34.39	134	16	Average
2412	106.55	-	-	105.08	31.91	3.95	34.39	134	16	Peak
2412	94.49	-	-	93.02	31.91	3.95	34.39	134	16	Average
2484	45.86	-28.14	74	44.2	31.98	4.05	34.37	134	16	Peak
2484	33.77	-20.23	54	32.11	31.98	4.05	34.37	134	16	Average

Test Mode :	Mode 2	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	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
87.24	27.62	-12.38	40	49.63	8.46	1.12	31.59	-	-	Peak
152.04	30.65	-12.85	43.5	50	10.58	1.46	31.39	-	-	Peak
231.69	34.2	-11.8	46	52.42	11.46	1.78	31.46	100	41	Peak
304.9	25.56	-20.44	46	41.36	13.57	2.08	31.45	-	-	Peak
549.9	25.34	-20.66	46	35.58	18.49	2.85	31.58	-	-	Peak
630.4	26.5	-19.5	46	35.91	19.24	3	31.65	-	-	Peak
2358	48.39	-25.61	74	47.04	31.86	3.89	34.4	100	354	Peak
2358	38.08	-15.92	54	36.73	31.86	3.89	34.4	100	354	Average
2437	109.87	-	-	108.31	31.95	3.99	34.38	100	354	Peak
2437	97.59	-	-	96.03	31.95	3.99	34.38	100	354	Average
2484	47.11	-26.89	74	45.45	31.98	4.05	34.37	100	354	Peak
2484	34.41	-19.59	54	32.75	31.98	4.05	34.37	100	354	Average

Test Mode :	Mode 2	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	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
31.08	29.66	-10.34	40	43.29	17.31	0.72	31.66	100	325	Peak
87.78	28.5	-11.5	40	50.3	8.67	1.13	31.6	-	-	Peak
150.69	29.98	-13.52	43.5	49.2	10.7	1.46	31.38	-	-	Peak
311.9	26.74	-19.26	46	42.31	13.75	2.1	31.42	-	-	Peak
551.3	28.67	-17.33	46	38.89	18.51	2.85	31.58	-	-	Peak
624.8	31.51	-14.49	46	40.97	19.22	2.98	31.66	-	-	Peak
2358	47.49	-26.51	74	46.14	31.86	3.89	34.4	193	11	Peak
2358	36.7	-17.3	54	35.35	31.86	3.89	34.4	193	11	Average
2437	106.36	-	-	104.8	31.95	3.99	34.38	193	11	Peak
2437	94.17	-	-	92.61	31.95	3.99	34.38	193	11	Average
2494	45.18	-28.82	74	43.5	32	4.05	34.37	193	11	Peak
2494	32.62	-21.38	54	30.94	32	4.05	34.37	193	11	Average



Test Mode :	Mode 3	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	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
87.78	27.06	-12.94	40	48.86	8.67	1.13	31.6	-	-	Peak
152.04	30.34	-13.16	43.5	49.69	10.58	1.46	31.39	-	-	Peak
233.58	33.72	-12.28	46	51.81	11.58	1.79	31.46	100	132	Peak
302.8	25.04	-20.96	46	40.9	13.53	2.07	31.46	-	-	Peak
624.8	26.61	-19.39	46	36.07	19.22	2.98	31.66	-	-	Peak
896.4	26.46	-19.54	46	32.09	21.6	3.74	30.97	-	-	Peak
2382	54.65	-19.35	74	53.24	31.88	3.92	34.39	101	351	Peak
2382	44.87	-9.13	54	43.46	31.88	3.92	34.39	101	351	Average
2462	111.86	-	-	110.25	31.97	4.02	34.38	101	351	Peak
2462	99.51	-	-	97.9	31.97	4.02	34.38	101	351	Average
2483.5	57.17	-16.83	74	55.51	31.98	4.05	34.37	101	351	Peak
2483.5	44.78	-9.22	54	43.12	31.98	4.05	34.37	101	351	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	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
39.18	29.53	-10.47	40	47.08	13.27	0.8	31.62	100	128	Peak
86.43	28.81	-11.19	40	51	8.26	1.12	31.57	-	-	Peak
150.69	29.12	-14.38	43.5	48.34	10.7	1.46	31.38	-	-	Peak
308.4	27.26	-18.74	46	42.95	13.66	2.09	31.44	-	-	Peak
547.8	28.6	-17.4	46	38.87	18.47	2.84	31.58	-	-	Peak
624.8	31.22	-14.78	46	40.68	19.22	2.98	31.66	-	-	Peak
2382	50.6	-23.4	74	49.19	31.88	3.92	34.39	107	28	Peak
2382	40.98	-13.02	54	39.57	31.88	3.92	34.39	107	28	Average
2462	107.62	-	-	106.01	31.97	4.02	34.38	107	28	Peak
2462	95.39	-	-	93.78	31.97	4.02	34.38	107	28	Average
2483.5	54.04	-19.96	74	52.38	31.98	4.05	34.37	107	28	Peak
2483.5	40.71	-13.29	54	39.05	31.98	4.05	34.37	107	28	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Kai 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
87.24	27.02	-12.98	40	49.03	8.46	1.12	31.59	-	-	Peak
152.04	30.52	-12.98	43.5	49.87	10.58	1.46	31.39	-	-	Peak
230.88	33.76	-12.24	46	52.05	11.39	1.78	31.46	100	75	Peak
385.4	24.91	-21.09	46	38.58	15.43	2.36	31.46	-	-	Peak
621.3	25.14	-20.86	46	34.61	19.22	2.98	31.67	-	-	Peak
810.3	26.21	-19.79	46	33.39	20.85	3.4	31.43	-	-	Peak
2389.99	67.93	-6.07	74	66.5	31.9	3.92	34.39	103	357	Peak
2389.99	45.57	-8.43	54	44.14	31.9	3.92	34.39	103	357	Average
2412	106.34	-	-	104.87	31.91	3.95	34.39	103	357	Peak
2412	93.9	-	-	92.43	31.91	3.95	34.39	103	357	Average
2494	45.75	-28.25	74	44.07	32	4.05	34.37	103	357	Peak
2494	33.04	-20.96	54	31.36	32	4.05	34.37	103	357	Average



Test Mode :	Mode 4	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
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
40.53	28.98	-11.02	40	47.48	12.32	0.81	31.63	100	39	Peak
87.24	28.63	-11.37	40	50.64	8.46	1.12	31.59	-	-	Peak
151.23	29.01	-14.49	43.5	48.3	10.64	1.46	31.39	-	-	Peak
425.3	26.62	-19.38	46	39.27	16.3	2.46	31.41	-	-	Peak
547.8	28.04	-17.96	46	38.31	18.47	2.84	31.58	-	-	Peak
624.8	31.77	-14.23	46	41.23	19.22	2.98	31.66	-	-	Peak
2389.99	63.13	-10.87	74	61.7	31.9	3.92	34.39	138	35	Peak
2389.99	40.44	-13.56	54	39.01	31.9	3.92	34.39	138	35	Average
2412	101.29	-	-	99.82	31.91	3.95	34.39	138	35	Peak
2412	89.1	-	-	87.63	31.91	3.95	34.39	138	35	Average
2494	45.18	-28.82	74	43.5	32	4.05	34.37	138	35	Peak
2494	32.14	-21.86	54	30.46	32	4.05	34.37	138	35	Average



Test Mode :	Mode 5	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	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
87.24	27.39	-12.61	40	49.4	8.46	1.12	31.59	100	125	Peak
152.04	30.34	-13.16	43.5	49.69	10.58	1.46	31.39	-	-	Peak
232.23	33.25	-12.75	46	51.47	11.46	1.78	31.46	-	-	Peak
302.8	24.63	-21.37	46	40.49	13.53	2.07	31.46	-	-	Peak
628.3	26.06	-19.94	46	35.49	19.23	2.99	31.65	-	-	Peak
897.8	26.4	-19.6	46	32	21.61	3.75	30.96	-	-	Peak
2364	48.89	-25.11	74	47.54	31.86	3.89	34.4	104	353	Peak
2364	37.32	-16.68	54	35.97	31.86	3.89	34.4	104	353	Average
2437	104.81	-	-	103.27	31.93	3.99	34.38	104	353	Peak
2437	92.66	-	-	91.1	31.95	3.99	34.38	104	353	Average
2492	44.96	-29.04	74	43.28	32	4.05	34.37	104	353	Peak
2492	32.82	-21.18	54	31.14	32	4.05	34.37	104	353	Average

Test Mode :	Mode 5	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	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
40.53	29.22	-10.78	40	47.72	12.32	0.81	31.63	100	21	Peak
87.24	28.58	-11.42	40	50.59	8.46	1.12	31.59	-	-	Peak
150.69	28.43	-15.07	43.5	47.65	10.7	1.46	31.38	-	-	Peak
304.9	26.82	-19.18	46	42.62	13.57	2.08	31.45	-	-	Peak
542.9	28.57	-17.43	46	38.91	18.4	2.83	31.57	-	-	Peak
624.8	30.16	-15.84	46	39.62	19.22	2.98	31.66	-	-	Peak
2358	47.08	-26.92	74	45.73	31.86	3.89	34.4	139	33	Peak
2358	35.06	-18.94	54	33.71	31.86	3.89	34.4	139	33	Average
2437	100.51	-	-	98.97	31.93	3.99	34.38	139	33	Peak
2437	88.59	-	-	87.03	31.95	3.99	34.38	139	33	Average
2492	45.06	-28.94	74	43.38	32	4.05	34.37	139	33	Peak
2492	32.47	-21.53	54	30.79	32	4.05	34.37	139	33	Average

Test Mode :	Mode 6	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	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
40.53	24.56	-15.44	40	43.06	12.32	0.81	31.63	-	-	Peak
151.23	30.12	-13.38	43.5	49.41	10.64	1.46	31.39	-	-	Peak
230.34	33.74	-12.26	46	52.03	11.39	1.78	31.46	100	82	Peak
300	24.4	-21.6	46	40.35	13.46	2.06	31.47	-	-	Peak
626.9	26.76	-19.24	46	36.2	19.23	2.99	31.66	-	-	Peak
794.9	25.91	-20.09	46	33.35	20.7	3.36	31.5	-	-	Peak
2388	51.88	-22.12	74	50.45	31.9	3.92	34.39	102	332	Peak
2388	40.13	-13.87	54	38.7	31.9	3.92	34.39	102	332	Average
2462	106.61	-	-	105	31.97	4.02	34.38	102	332	Peak
2462	94.2	-	-	92.59	31.97	4.02	34.38	102	332	Average
2483.85	69.62	-4.38	74	67.96	31.98	4.05	34.37	102	332	Peak
2483.85	47.61	-6.39	54	45.95	31.98	4.05	34.37	102	332	Average

Test Mode :	Mode 6	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	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
39.99	28.99	-11.01	40	46.94	12.86	0.81	31.62	100	128	Peak
151.23	28.82	-14.68	43.5	48.11	10.64	1.46	31.39	-	-	Peak
239.79	30.44	-15.56	46	48.12	11.97	1.81	31.46	-	-	Peak
308.4	26.45	-19.55	46	42.14	13.66	2.09	31.44	-	-	Peak
549.9	27.29	-18.71	46	37.53	18.49	2.85	31.58	-	-	Peak
623.4	30.59	-15.41	46	40.05	19.22	2.98	31.66	-	-	Peak
2388	49.03	-24.97	74	47.6	31.9	3.92	34.39	161	39	Peak
2388	37.25	-16.75	54	35.82	31.9	3.92	34.39	161	39	Average
2462	102.17	-	-	100.56	31.97	4.02	34.38	161	39	Peak
2462	90.3	-	-	88.69	31.97	4.02	34.38	161	39	Average
2483.5	66.44	-7.56	74	64.78	31.98	4.05	34.37	161	39	Peak
2483.5	44.15	-9.85	54	42.49	31.98	4.05	34.37	161	39	Average



Test Mode :	Mode 7	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Kai 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
41.88	19.55	-20.45	40	38.59	11.78	0.81	31.63	-	-	Peak
93.18	26.56	-16.94	43.5	47.42	9.56	1.16	31.58	-	-	Peak
147.99	29.4	-14.1	43.5	48.52	10.83	1.46	31.41	100	52	Peak
378.4	21.51	-24.49	46	35.37	15.27	2.33	31.46	-	-	Peak
624.8	25.21	-20.79	46	34.67	19.22	2.98	31.66	-	-	Peak
701.8	23.59	-22.41	46	32.58	19.42	3.27	31.68	-	-	Peak
2389.99	66.39	-7.61	74	64.96	31.9	3.92	34.39	102	335	Peak
2389.99	44.53	-9.47	54	43.1	31.9	3.92	34.39	102	335	Average
2412	106.35	-	-	104.88	31.91	3.95	34.39	102	335	Peak
2412	93.91	-	-	92.44	31.91	3.95	34.39	102	335	Average
2494	46.46	-27.54	74	44.78	32	4.05	34.37	102	335	Peak
2494	34.31	-19.69	54	32.63	32	4.05	34.37	102	335	Average



Test Mode :	Mode 7	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
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
30	29.83	-10.17	40	42.88	17.91	0.72	31.68	100	254	Peak
91.83	29.51	-13.99	43.5	50.56	9.4	1.15	31.6	-	-	Peak
144.48	29.34	-14.16	43.5	48.27	11.08	1.45	31.46	-	-	Peak
350.4	21.6	-24.4	46	36.13	14.62	2.23	31.38	-	-	Peak
624.8	30.75	-15.25	46	40.21	19.22	2.98	31.66	-	-	Peak
701.8	25.67	-20.33	46	34.66	19.42	3.27	31.68	-	-	Peak
2389.61	62.97	-11.03	74	61.54	31.9	3.92	34.39	135	34	Peak
2389.61	40.47	-13.53	54	39.04	31.9	3.92	34.39	135	34	Average
2412	101.38	-	-	99.91	31.91	3.95	34.39	135	34	Peak
2412	89.22	-	-	87.75	31.91	3.95	34.39	135	34	Average
2492	44.7	-29.3	74	43.02	32	4.05	34.37	135	34	Peak
2492	32.68	-21.32	54	31	32	4.05	34.37	135	34	Average



Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	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
41.34	23.8	-16.2	40	42.84	11.78	0.81	31.63	-	-	Peak
93.18	26.83	-16.67	43.5	47.69	9.56	1.16	31.58	-	-	Peak
147.18	28.98	-14.52	43.5	48.06	10.89	1.45	31.42	100	126	Peak
367.9	21.44	-24.56	46	35.56	15.02	2.29	31.43	-	-	Peak
624.8	25.98	-20.02	46	35.44	19.22	2.98	31.66	-	-	Peak
843.9	23.86	-22.14	46	30.42	21.15	3.52	31.23	-	-	Peak
2356	48.65	-25.35	74	47.34	31.86	3.86	34.41	106	331	Peak
2356	36.52	-17.48	54	35.21	31.86	3.86	34.41	106	331	Average
2437	105.29	-	-	103.73	31.95	3.99	34.38	106	331	Peak
2437	93.14	-	-	91.58	31.95	3.99	34.38	106	331	Average
2484	47.76	-26.24	74	46.1	31.98	4.05	34.37	106	331	Peak
2484	33.09	-20.91	54	31.43	31.98	4.05	34.37	106	331	Average



Test Mode :	Mode 8	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	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	32.27	-7.73	40	45.32	17.91	0.72	31.68	100	25	Peak
92.64	30.08	-13.42	43.5	50.94	9.56	1.16	31.58	-	-	Peak
146.64	29.18	-14.32	43.5	48.21	10.95	1.45	31.43	-	-	Peak
348.3	21.32	-24.68	46	35.89	14.58	2.22	31.37	-	-	Peak
623.4	31.56	-14.44	46	41.02	19.22	2.98	31.66	-	-	Peak
913.9	25.65	-20.35	46	31.04	21.69	3.77	30.85	-	-	Peak
2358	46.65	-27.35	74	45.3	31.86	3.89	34.4	162	35	Peak
2358	33.98	-20.02	54	32.63	31.86	3.89	34.4	162	35	Average
2437	100.64	-	-	99.1	31.93	3.99	34.38	162	35	Peak
2437	88.3	-	-	86.74	31.95	3.99	34.38	162	35	Average
2484	45.19	-28.81	74	43.53	31.98	4.05	34.37	162	35	Peak
2484	31.99	-22.01	54	30.33	31.98	4.05	34.37	162	35	Average

Test Mode :	Mode 9	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	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
93.99	26.47	-17.03	43.5	47.16	9.72	1.16	31.57	-	-	Peak
145.83	28.81	-14.69	43.5	47.79	11.02	1.45	31.45	100	153	Peak
227.64	25.08	-20.92	46	43.56	11.2	1.77	31.45	-	-	Peak
372.8	21.78	-24.22	46	35.78	15.13	2.31	31.44	-	-	Peak
623.4	25.61	-20.39	46	35.07	19.22	2.98	31.66	-	-	Peak
927.9	25.97	-20.03	46	31.18	21.76	3.78	30.75	-	-	Peak
2388	50.35	-23.65	74	48.92	31.9	3.92	34.39	102	332	Peak
2388	38.75	-15.25	54	37.32	31.9	3.92	34.39	102	332	Average
2462	106.87	-	-	105.26	31.97	4.02	34.38	102	332	Peak
2462	94.19	-	-	92.58	31.97	4.02	34.38	102	332	Average
2483.66	68.41	-5.59	74	66.75	31.98	4.05	34.37	102	332	Peak
2483.66	45.3	-8.7	54	43.64	31.98	4.05	34.37	102	332	Average

Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	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	32.4	-7.6	40	45.45	17.91	0.72	31.68	100	29	Peak
92.64	29.5	-14	43.5	50.36	9.56	1.16	31.58	-	-	Peak
145.29	28.79	-14.71	43.5	47.77	11.02	1.45	31.45	-	-	Peak
357.4	21.31	-24.69	46	35.65	14.8	2.26	31.4	-	-	Peak
623.4	29.86	-16.14	46	39.32	19.22	2.98	31.66	-	-	Peak
892.9	24.76	-21.24	46	30.44	21.57	3.73	30.98	-	-	Peak
2388	48.2	-25.8	74	46.77	31.9	3.92	34.39	105	23	Peak
2388	36.12	-17.88	54	34.69	31.9	3.92	34.39	105	23	Average
2462	101.13	-	-	99.52	31.97	4.02	34.38	105	23	Peak
2462	88.72	-	-	87.11	31.97	4.02	34.38	105	23	Average
2483.66	64.74	-9.26	74	63.08	31.98	4.05	34.37	105	23	Peak
2483.66	42.11	-11.89	54	40.45	31.98	4.05	34.37	105	23	Average



Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Horizontal
Remark :	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
87.78	23.29	-16.71	40	45.09	8.67	1.13	31.6	-	-	Peak
152.58	29.67	-13.83	43.5	49.02	10.58	1.46	31.39	100	281	Peak
239.79	30.95	-15.05	46	48.63	11.97	1.81	31.46	-	-	Peak
330.8	28.77	-17.23	46	43.8	14.17	2.16	31.36	-	-	Peak
626.9	24.5	-21.5	46	33.94	19.23	2.99	31.66	-	-	Peak
708.8	24.22	-21.78	46	33.1	19.51	3.28	31.67	-	-	Peak
2388	49.12	-24.88	74	47.69	31.9	3.92	34.39	102	332	Peak
2388	37.09	-16.91	54	35.66	31.9	3.92	34.39	102	332	Average
2462	106.04	-	-	104.43	31.97	4.02	34.38	102	332	Peak
2462	93.27	-	-	91.66	31.97	4.02	34.38	102	332	Average
2483.5	68.57	-5.43	74	66.91	31.98	4.05	34.37	102	332	Peak
2483.5	46.5	-7.5	54	44.84	31.98	4.05	34.37	102	332	Average

Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	45~46%
Test Engineer :	Kai Wang	Polarization :	Vertical
Remark :	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	29.63	-10.37	40	42.68	17.91	0.72	31.68	100	58	Peak
39.18	27.79	-12.21	40	45.34	13.27	0.8	31.62	-	-	Peak
86.43	27.19	-12.81	40	49.38	8.26	1.12	31.57	-	-	Peak
309.8	21.76	-24.24	46	37.42	13.68	2.09	31.43	-	-	Peak
623.4	28.41	-17.59	46	37.87	19.22	2.98	31.66	-	-	Peak
875.4	24.8	-21.2	46	30.8	21.42	3.65	31.07	-	-	Peak
2380	47.84	-26.16	74	46.43	31.88	3.92	34.39	108	22	Peak
2380	36.1	-17.9	54	34.69	31.88	3.92	34.39	108	22	Average
2462	101.22	-	-	99.61	31.97	4.02	34.38	108	22	Peak
2462	89.04	-	-	87.43	31.97	4.02	34.38	108	22	Average
2483.5	64.9	-9.1	74	63.24	31.98	4.05	34.37	108	22	Peak
2483.5	42.32	-11.68	54	40.66	31.98	4.05	34.37	108	22	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
System Simulator	R&S	CMU200	117995	N/A	Mar. 19, 2009	Mar. 18, 2011	Conducted (TH02-HY)
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)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 30, 2010	Jul. 29, 2011	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	106656	N/A	May 11, 2010	May 10, 2012	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 25, 2010	Oct. 24, 2011	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000MHz	Apr. 28, 2010	Apr. 27, 2011	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 31, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 02, 2010	Aug. 01, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AH-0801	95119	8GHz~18GHz	Oct. 20, 2010	Oct. 19, 2011	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH06-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
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

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
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		

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
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				