

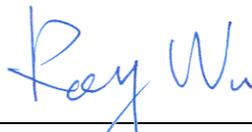
FCC RF Test Report

APPLICANT : HTC Corporation
EQUIPMENT : Smart Phone
MODEL NAME : PG86100
FCC ID : NM8PG86100
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Jan. 20, 2011 and completely tested on Mar. 21, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and 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.



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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 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 11.8 dB at 0.39 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.03 dB at 2390 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

HTC Corporation

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

1.2 Manufacturer

HTC Corporation

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

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Smart Phone
Model Name	PG86100
FCC ID	NM8PG86100
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 Peak Output Power to Antenna	802.11b : 18.57 dBm (0.07 W) 802.11g : 22.78 dBm (0.19 W) 802.11n (BW 20MHz) : 22.42 dBm (0.18 W)
Antenna Type	PIFA Antenna with gain 0 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark:

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

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	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 (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.	System Simulator	Agilent	E6651A	N/A	N/A	Unshielded, 1.8 m
3.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
4.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
5.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Earphone	Cotron	PC40100	N/A	Unshielded, 1.3 m	N/A
7.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Peak Power

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

Channel	Frequency	2.4GHz 802.11b RF Peak Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	18.19	-	-	18.40
CH 06	2437 MHz	18.35	18.46	18.54	18.57
CH 11	2462 MHz	18.03	-	-	18.34

Channel	Frequency	2.4GHz 802.11g RF Peak 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	22.17	-	-	-	-	-	-	-
CH 06	2437 MHz	22.78	22.68	22.48	22.45	22.36	22.48	22.66	22.69
CH 11	2462 MHz	22.61	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Peak Power (dBm)							
		OFDM Data Rate							
		M0	M1	M2	M3	M4	M5	M6	M7
CH 01	2412 MHz	22.25	-	-	-	-	-	-	-
CH 06	2437 MHz	22.42	21.95	22.07	22.20	22.09	21.94	22.22	22.04
CH 11	2462 MHz	22.19	-	-	-	-	-	-	-

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 6Mbps for 802.11g, and M0 for 802.11n (BW 20MHz) for all the test cases due to the highest RF peak output power.
2. The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

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

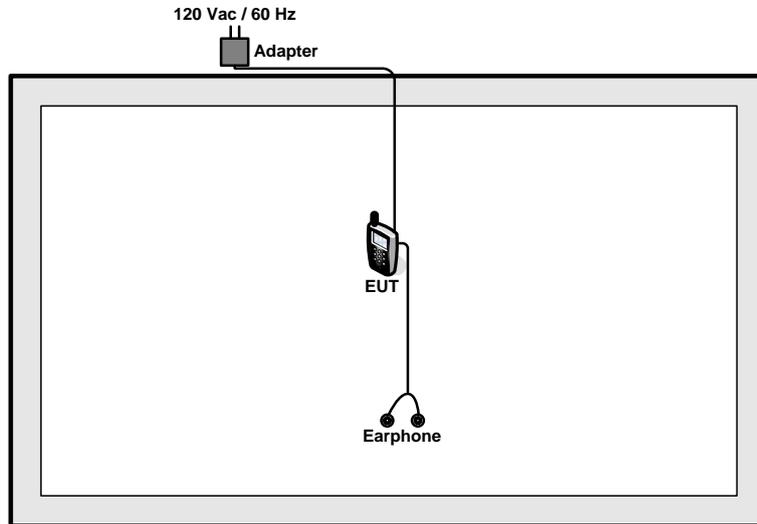
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations.

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

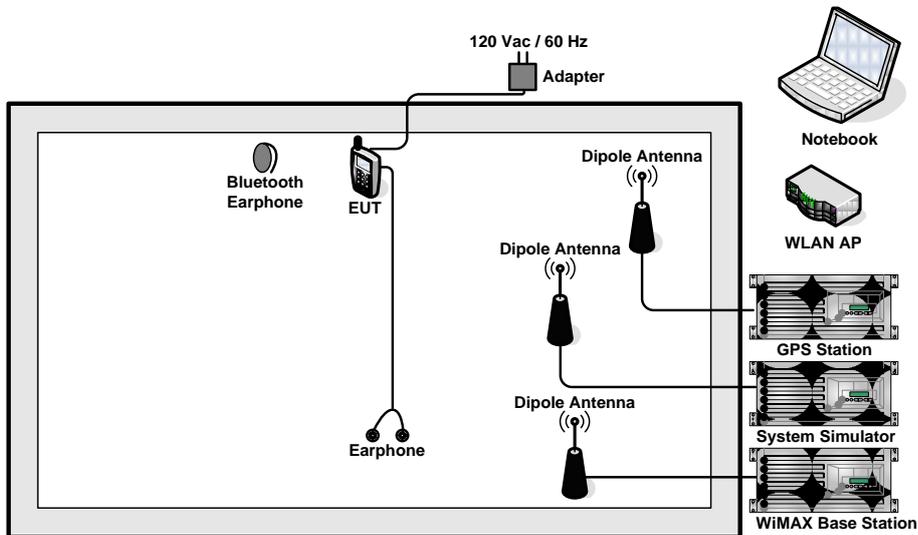
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 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
AC Conducted Emission	Mode 1 :CDMA2000 BC0 Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 1 + WiMAX Idle + Earphone + USB Cable 1 (Charging from Adapter 1) Mode 2 :CDMA2000 BC10 Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 2 + WiMAX Idle + Earphone + USB Cable 2 (Charging from Adapter 2)	
Remark:		
<ol style="list-style-type: none"> The test was performed with Battery 1, USB Cable 1, and Adapter 1 for Radiation test. 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 "Remote 432X controller(P1.63)" 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 Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

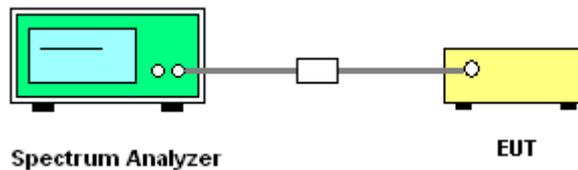
3.1.2 Measuring Instruments

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



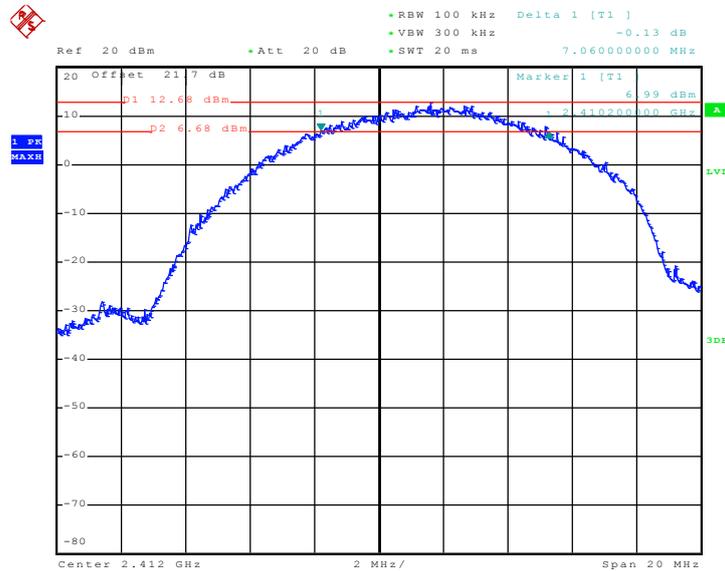


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.06	0.5	Pass
06	2437	7.70	0.5	Pass
11	2462	6.82	0.5	Pass

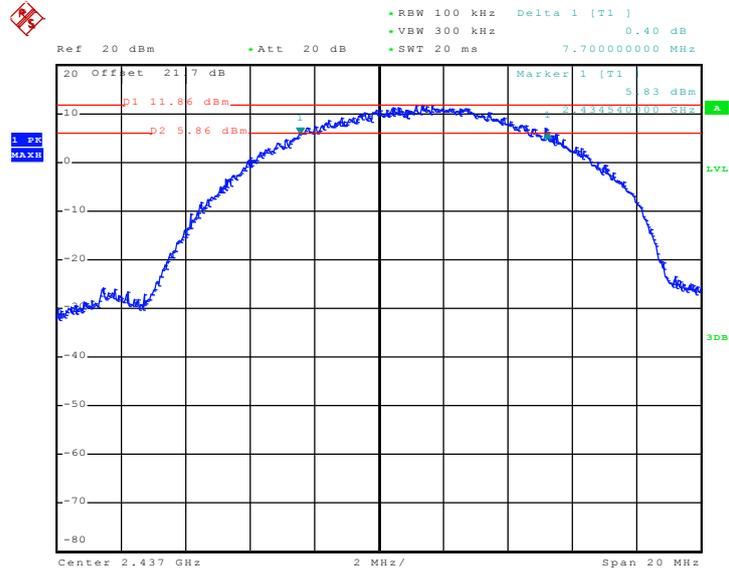
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 30.JAN.2011 15:39:04

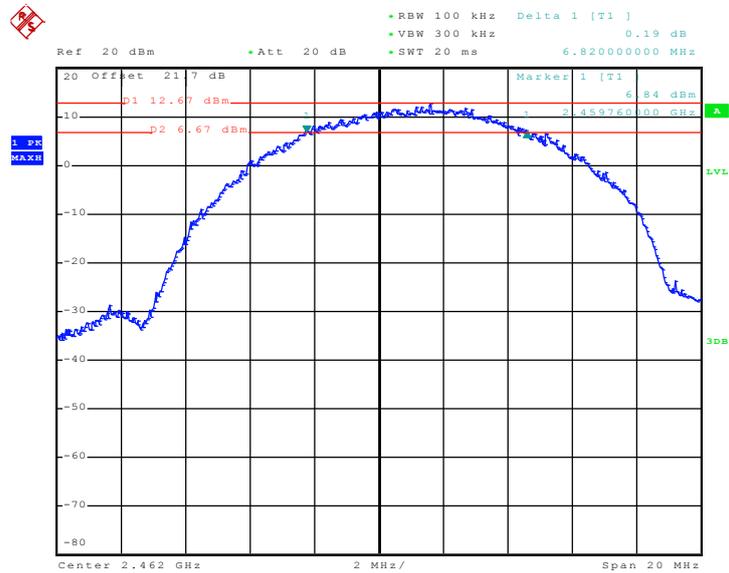


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 30.JAN.2011 15:44:53

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



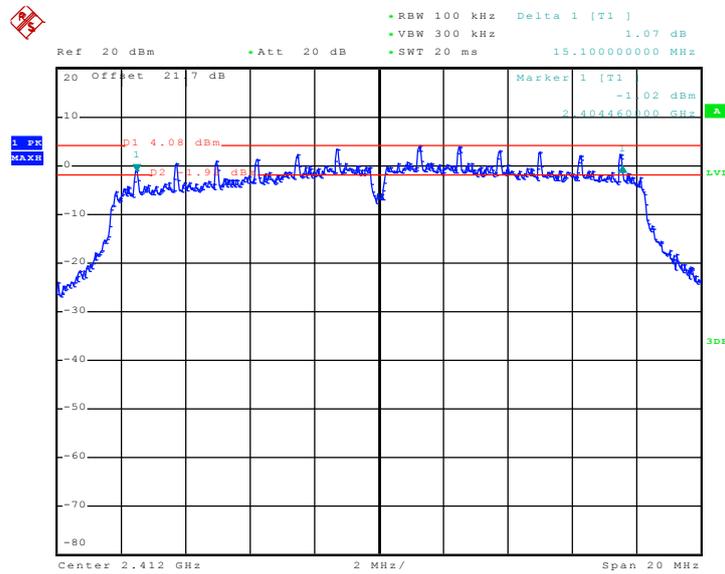
Date: 30.JAN.2011 15:56:37



Test Mode :	Mode 4, 5, 6	Temperature :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.10	0.5	Pass
06	2437	15.16	0.5	Pass
11	2462	15.06	0.5	Pass

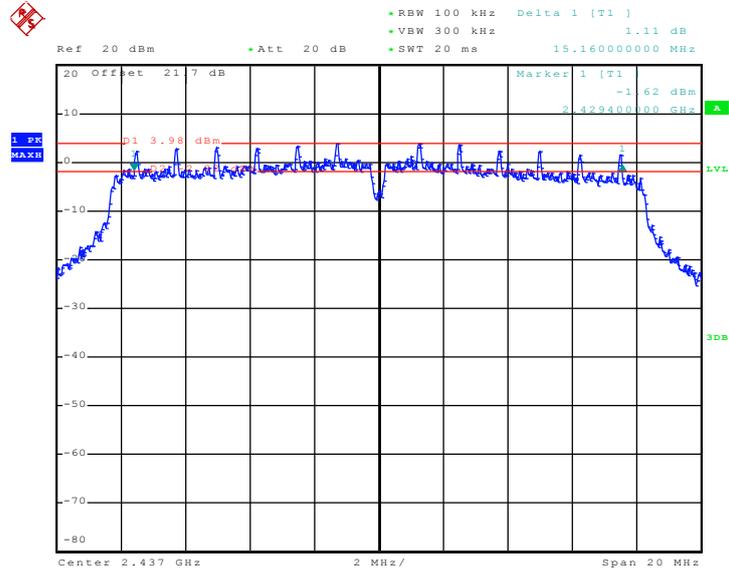
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



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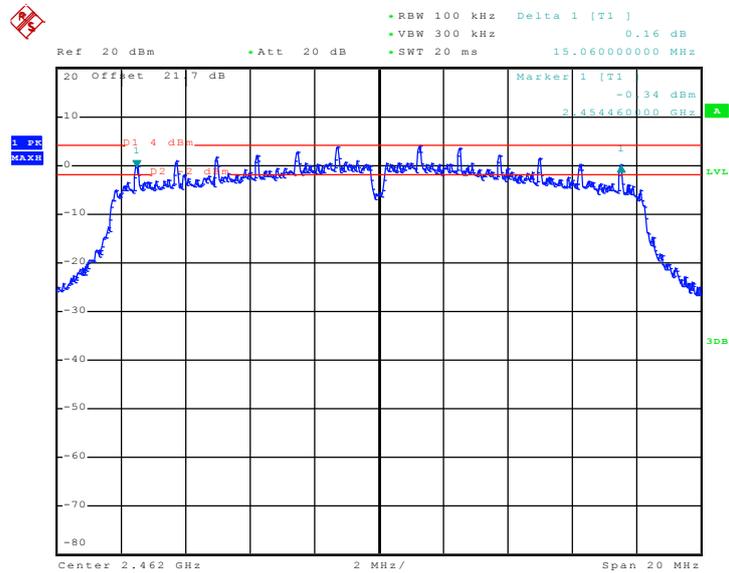


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



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



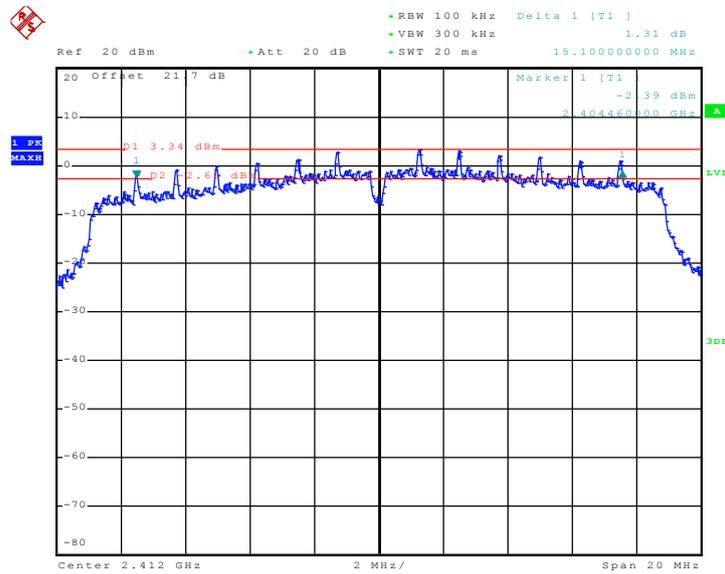
Date: 30.JAN.2011 15:30:00



Test Mode :	Mode 7, 8, 9	Temperature :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

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	15.04	0.5	Pass

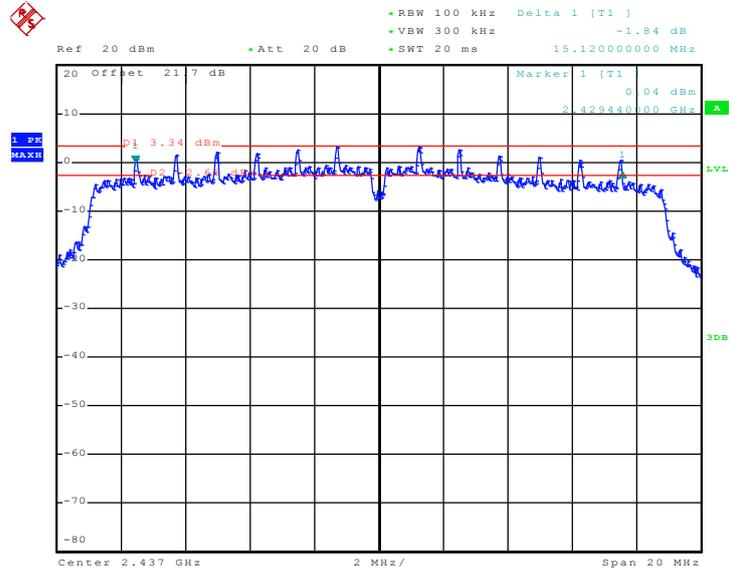
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 30.JAN.2011 15:14:16

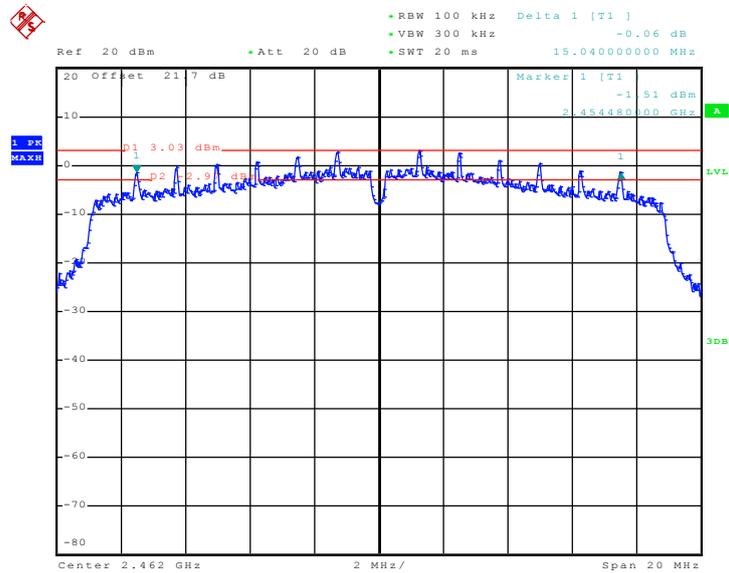


Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 30.JAN.2011 15:10:56

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



Date: 30.JAN.2011 15:17:38

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.

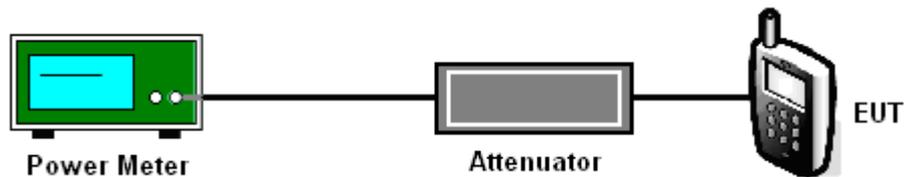
3.2.2 Measuring Instruments

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 :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.40	30	Pass
06	2437	18.57	30	Pass
11	2462	18.34	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.17	30	Pass
06	2437	22.78	30	Pass
11	2462	22.61	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.25	30	Pass
06	2437	22.42	30	Pass
11	2462	22.19	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

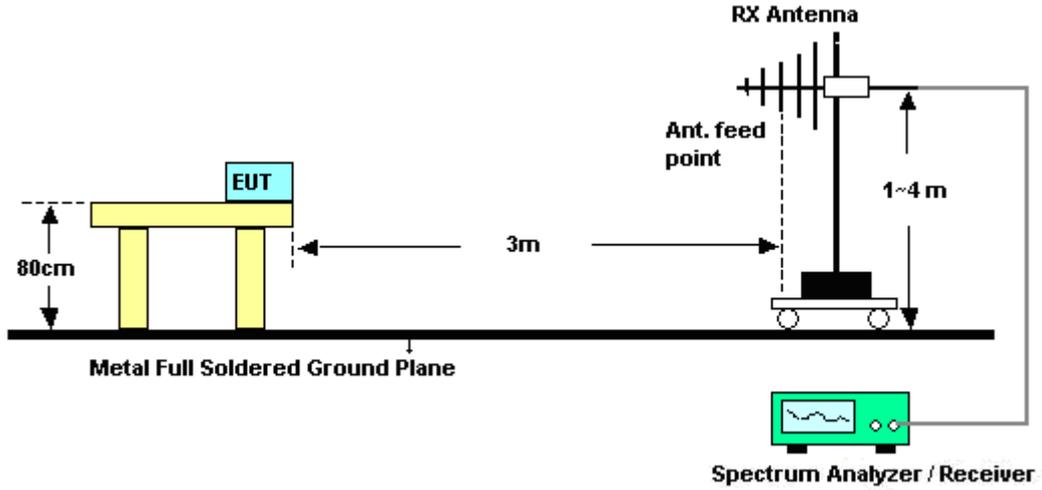
See list of measuring instruments of this test report.

3.3.3 Test Procedures

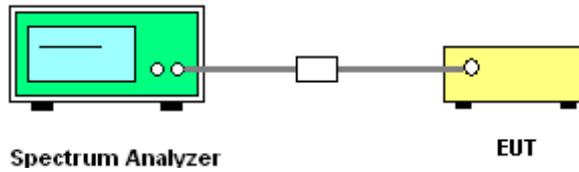
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	57.46	-16.54	74	53.1	32.18	6.03	33.85	109	351	Peak
2390	43.72	-10.28	54	39.36	32.18	6.03	33.85	109	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
2390	56.42	-17.58	74	52.06	32.18	6.03	33.85	119	359	Peak
2390	42.85	-11.15	54	38.49	32.18	6.03	33.85	119	359	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Band :	802.11b	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang

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	56	-18	74	51.44	32.28	6.18	33.9	136	329	Peak
2483.66	42.85	-11.15	54	38.29	32.28	6.18	33.9	136	329	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
2483.85	51.18	-22.82	74	46.62	32.28	6.18	33.9	100	32	Peak
2483.85	38.53	-15.47	54	33.97	32.28	6.18	33.9	100	32	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	70.79	-3.21	74	66.43	32.18	6.03	33.85	143	42	Peak
2389.99	50.88	-3.12	54	46.52	32.18	6.03	33.85	143	42	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	68.45	-5.55	74	64.09	32.18	6.03	33.85	100	62	Peak
2389.99	50.05	-3.95	54	45.69	32.18	6.03	33.85	100	62	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang

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	70.76	-3.24	74	66.2	32.28	6.18	33.9	114	28	Peak
2483.66	49.41	-4.59	54	44.85	32.28	6.18	33.9	114	28	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
2483.85	67.85	-6.15	74	63.29	32.28	6.18	33.9	124	31	Peak
2483.85	46.16	-7.84	54	41.6	32.28	6.18	33.9	124	31	Average



Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	01	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	70.97	-3.03	74	66.61	32.18	6.03	33.85	105	350	Peak
2390	50.84	-3.16	54	46.48	32.18	6.03	33.85	105	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
2390	69.48	-4.52	74	65.12	32.18	6.03	33.85	100	29	Peak
2390	50.52	-3.48	54	46.16	32.18	6.03	33.85	100	29	Average

Test Mode :	Mode 9	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	11	Test Engineer :	Ivan Chiang

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	67.01	-6.99	74	62.45	32.28	6.18	33.9	107	349	Peak
2483.85	45.44	-8.56	54	40.88	32.28	6.18	33.9	107	349	Average

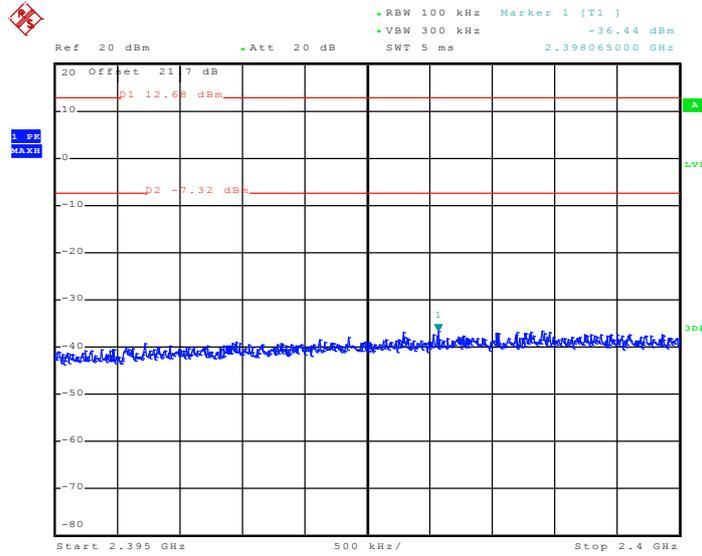
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	62.02	-11.98	74	57.46	32.28	6.18	33.9	100	48	Peak
2483.85	41.7	-12.3	54	37.14	32.28	6.18	33.9	100	48	Average



3.3.6 Test Plots of Conducted Band Edges

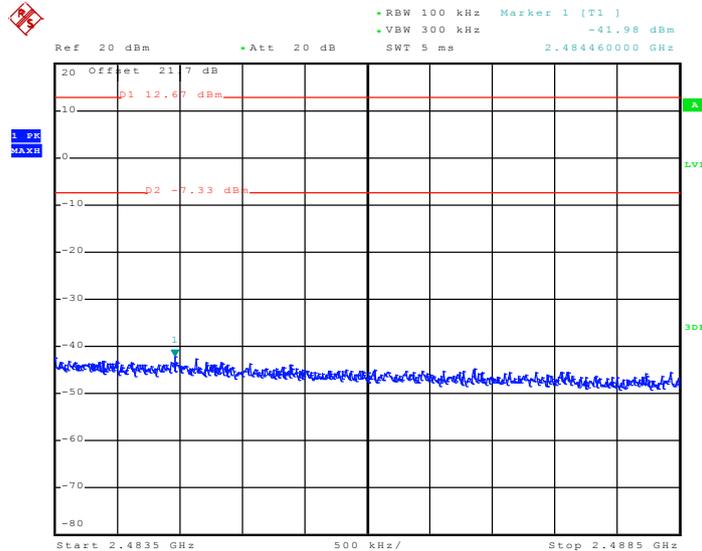
Test Mode :	Mode 1 and 3	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	45~49%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11b Channel 01



Date: 30.JAN.2011 15:40:13

High Band Edge Plot on 802.11b Channel 11

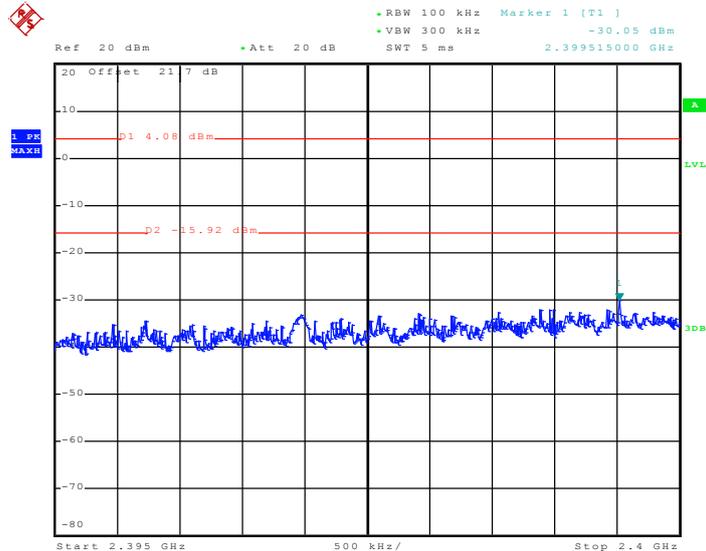


Date: 30.JAN.2011 15:57:24



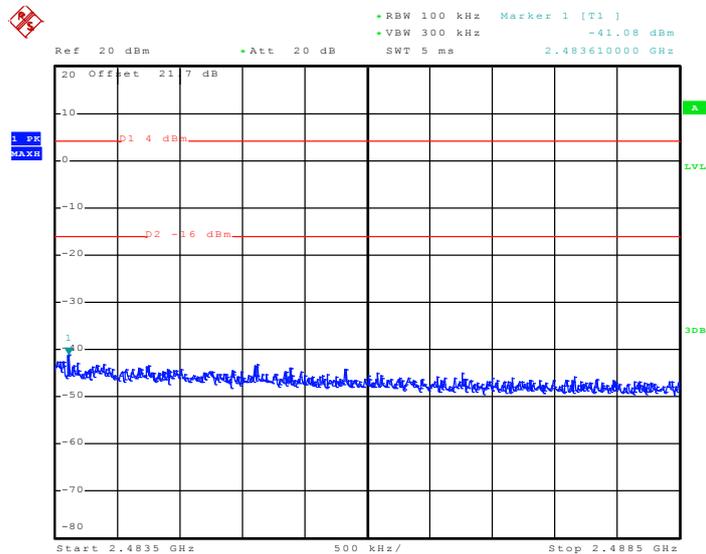
Test Mode :	Mode 4 and 6	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	45~49%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11g Channel 01



Date: 30.JAN.2011 15:26:07

High Band Edge Plot on 802.11g Channel 11

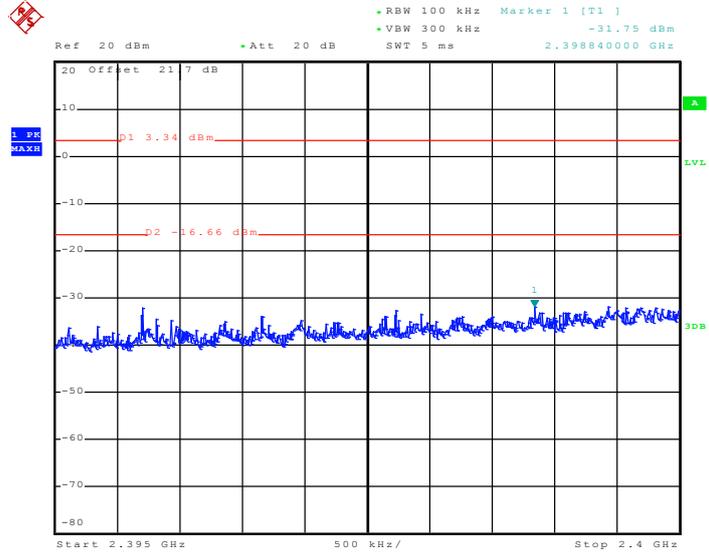


Date: 30.JAN.2011 15:30:47



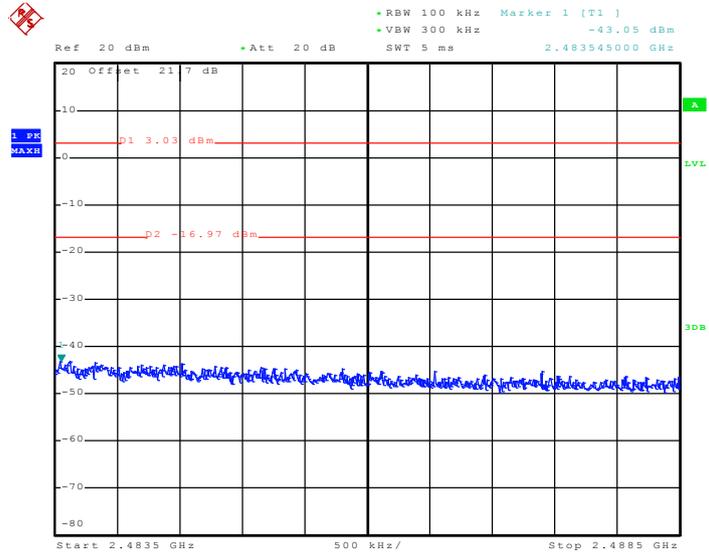
Test Mode :	Mode 7 and 9	Temperature :	23~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~49%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

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



Date: 30.JAN.2011 15:15:25

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



Date: 30.JAN.2011 15:18:25

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.

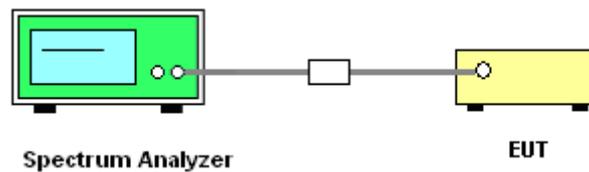
3.4.2 Measuring Instruments

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.

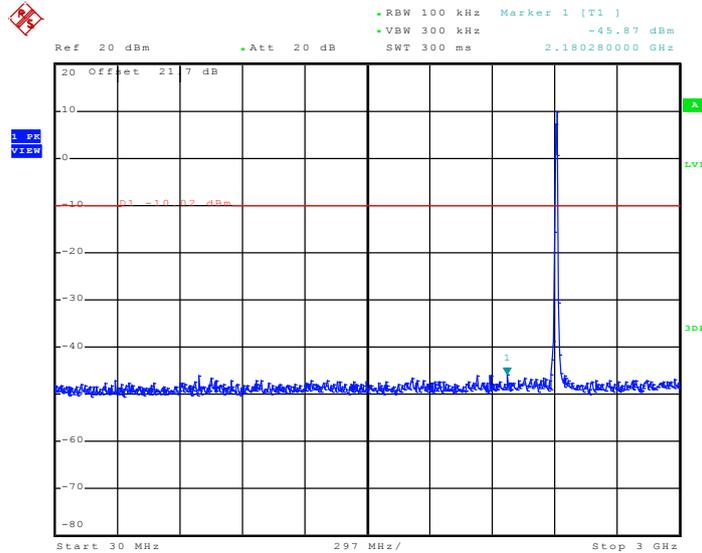
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

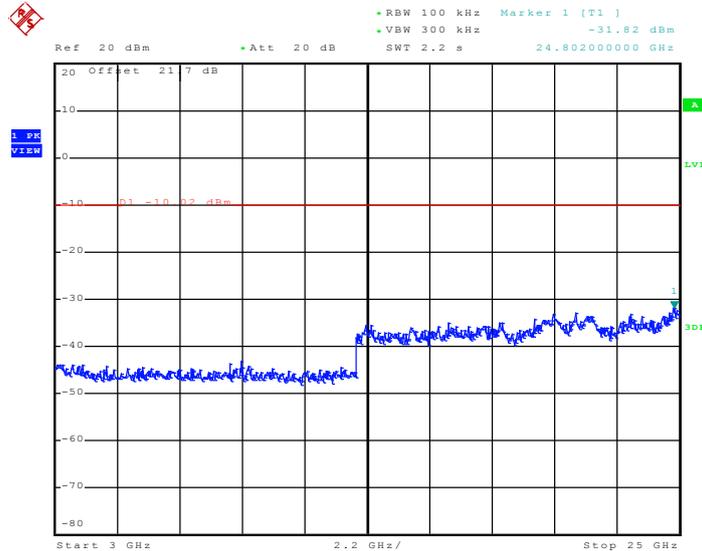
Test Mode :	Mode 1	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	45~49%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:41:00

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

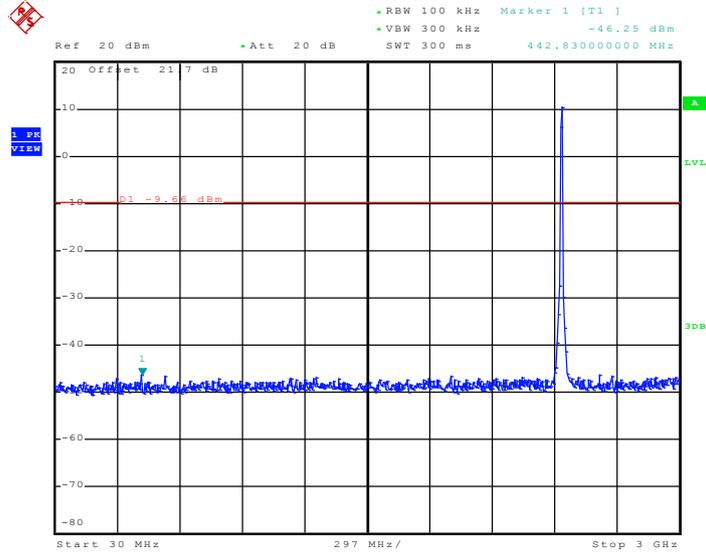


Date: 30.JAN.2011 15:41:17



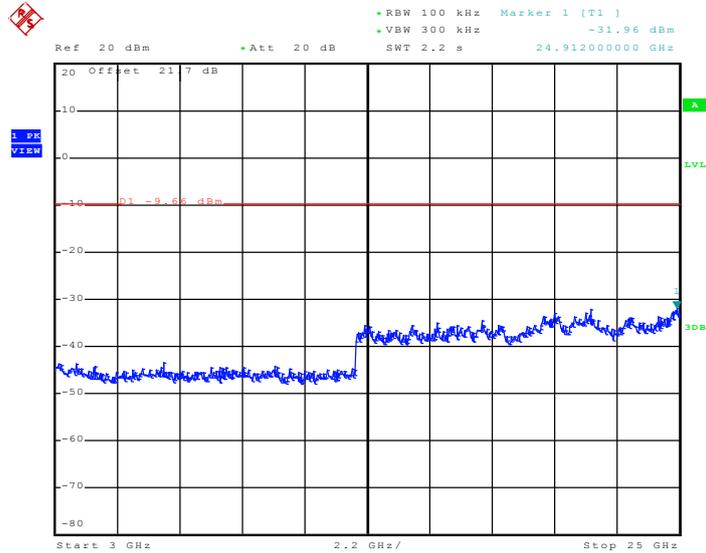
Test Mode :	Mode 2	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	45~49%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:43:23

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

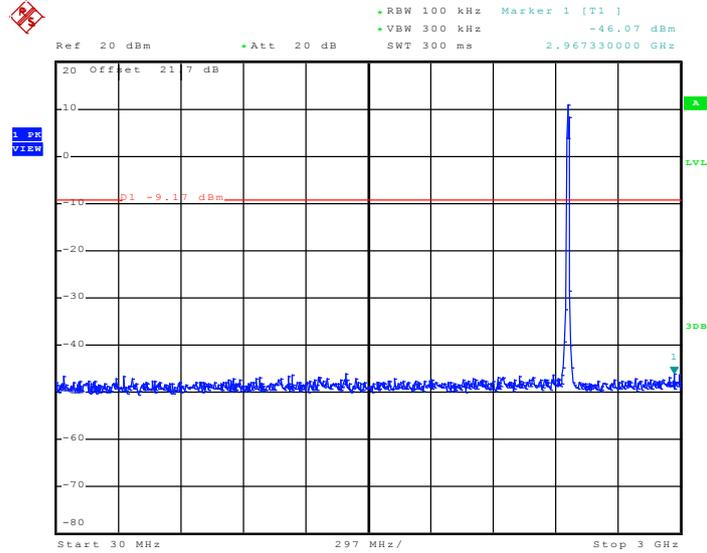


Date: 30.JAN.2011 15:43:40



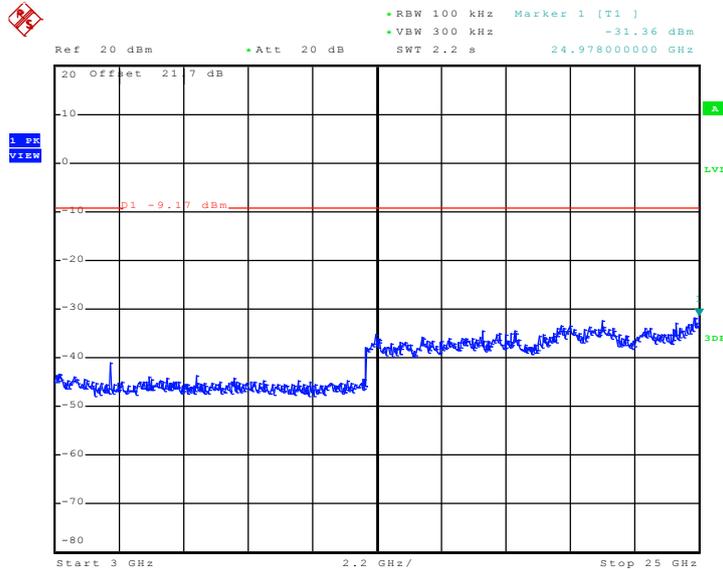
Test Mode :	Mode 3	Temperature :	23~25°C
Test Band :	802.11b	Relative Humidity :	45~49%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:35:48

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

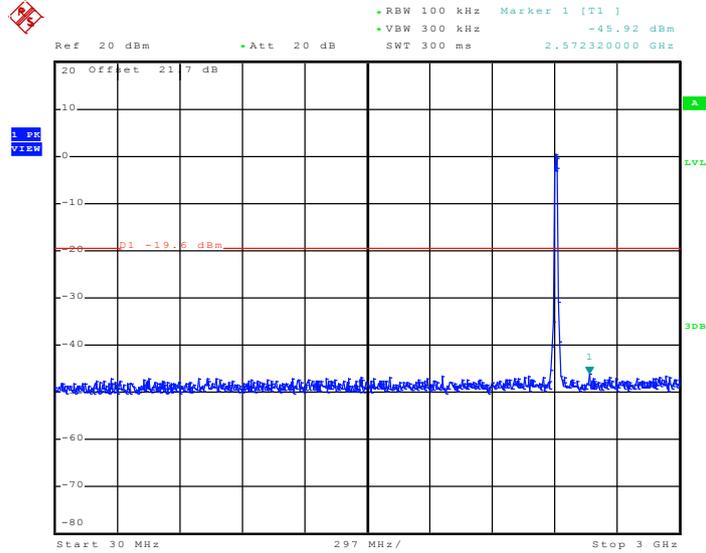


Date: 30.JAN.2011 15:36:05



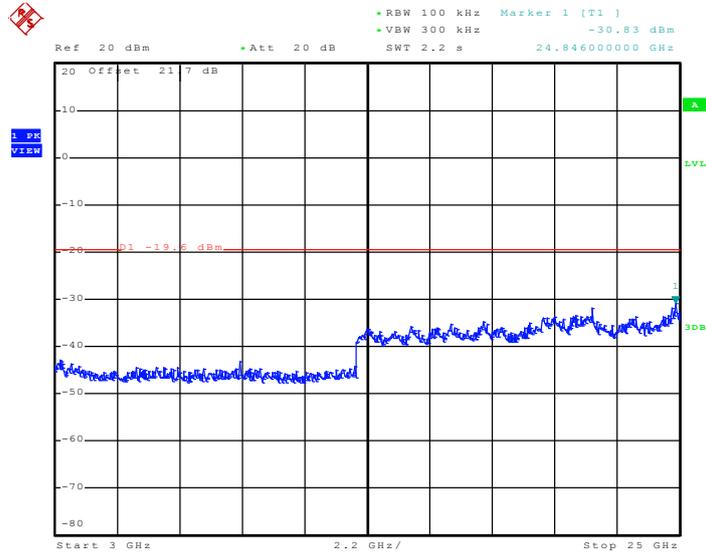
Test Mode :	Mode 4	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	45~49%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:27:30

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

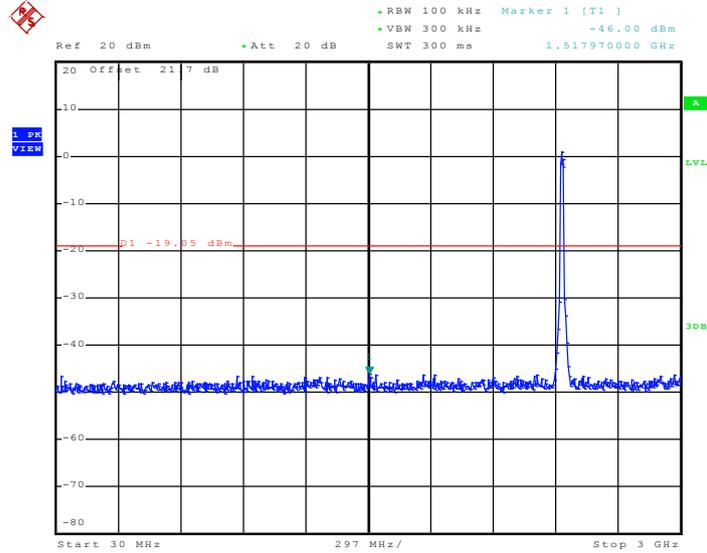


Date: 30.JAN.2011 15:27:47



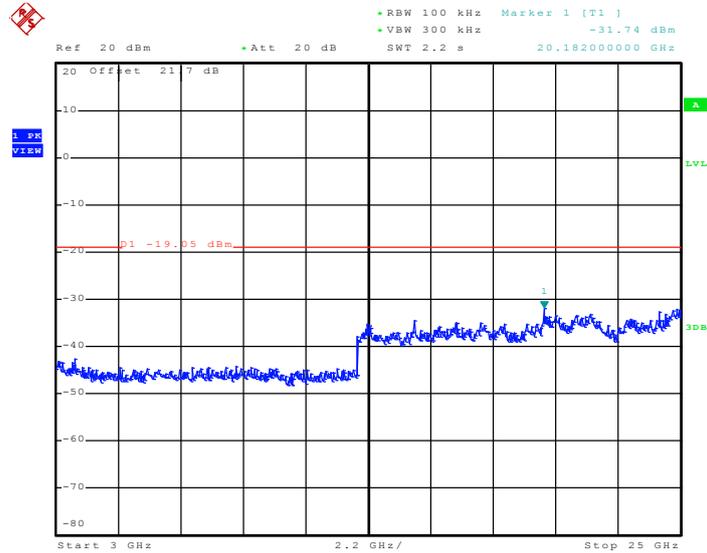
Test Mode :	Mode 5	Temperature :	23~25
Test Band :	802.11g	Relative Humidity :	45~49
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:28:29

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

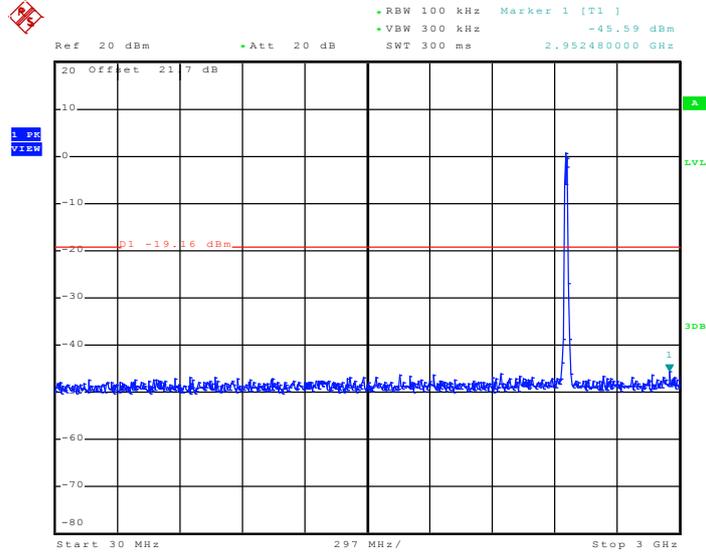


Date: 30.JAN.2011 15:28:46



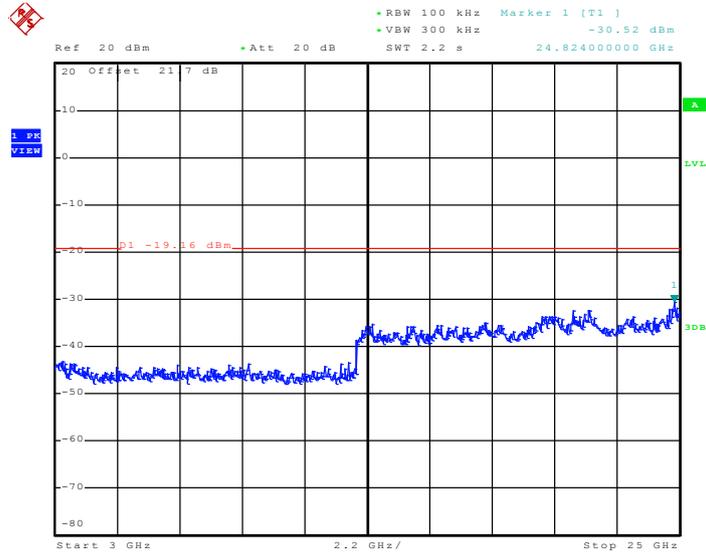
Test Mode :	Mode 6	Temperature :	23~25°C
Test Band :	802.11g	Relative Humidity :	45~49%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:31:34

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

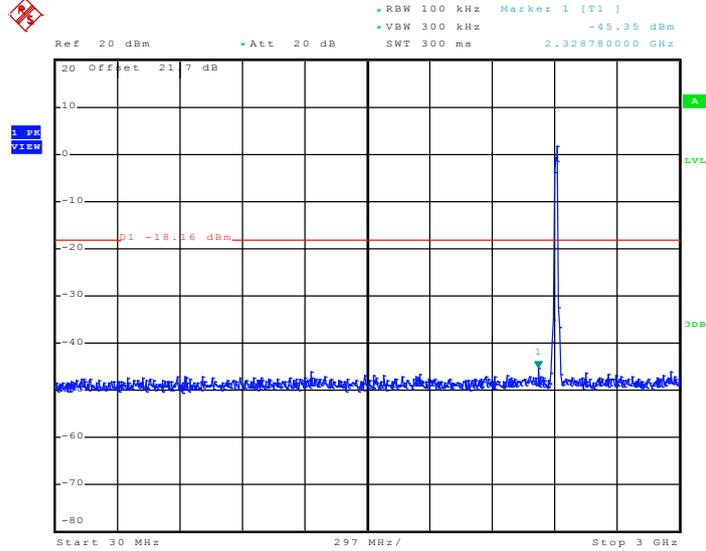


Date: 30.JAN.2011 15:31:51



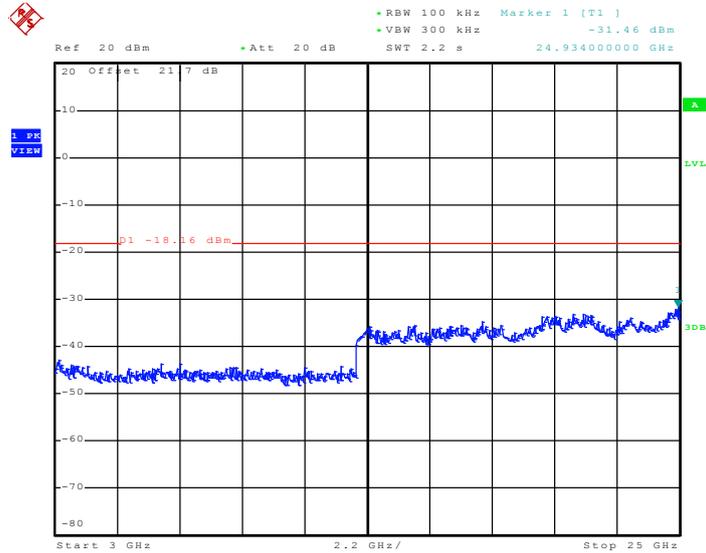
Test Mode :	Mode 7	Temperature :	23~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~49%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:16:11

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

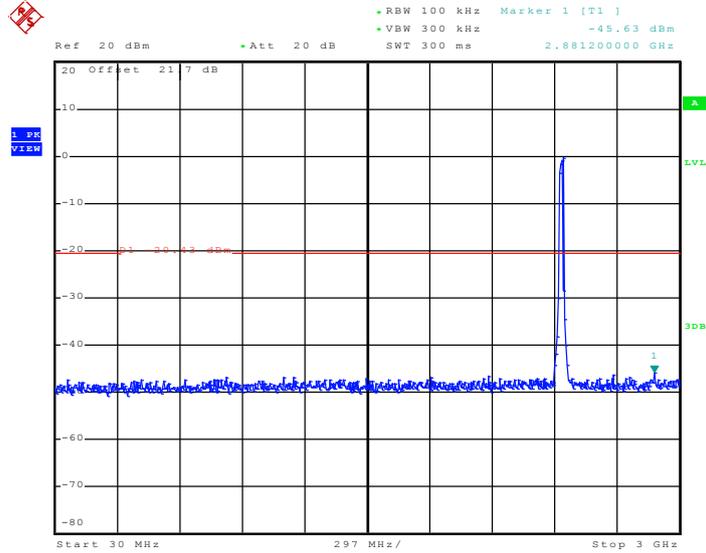


Date: 30.JAN.2011 15:16:28



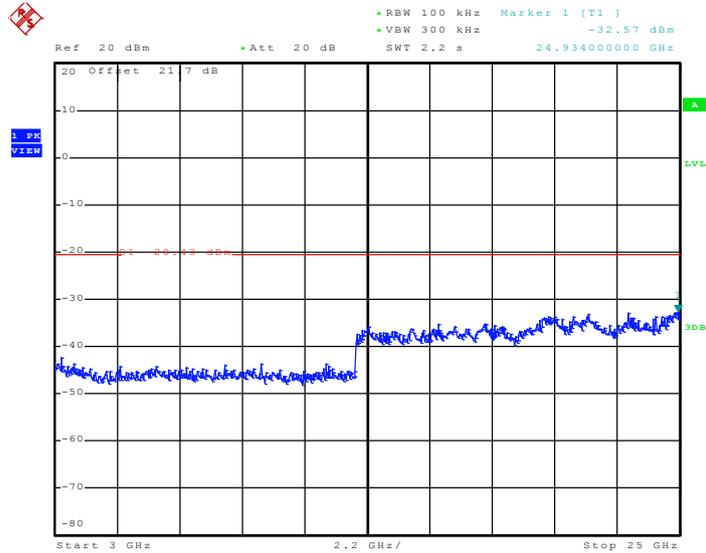
Test Mode :	Mode 8	Temperature :	23~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~49%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:20:42

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

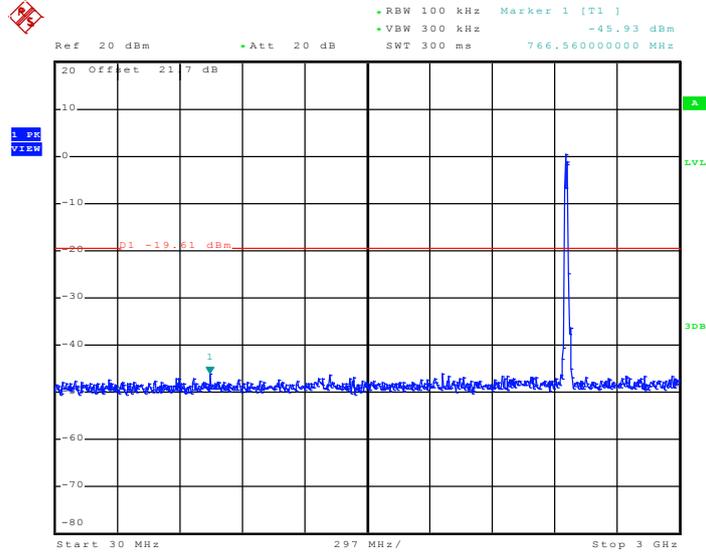


Date: 30.JAN.2011 15:20:59



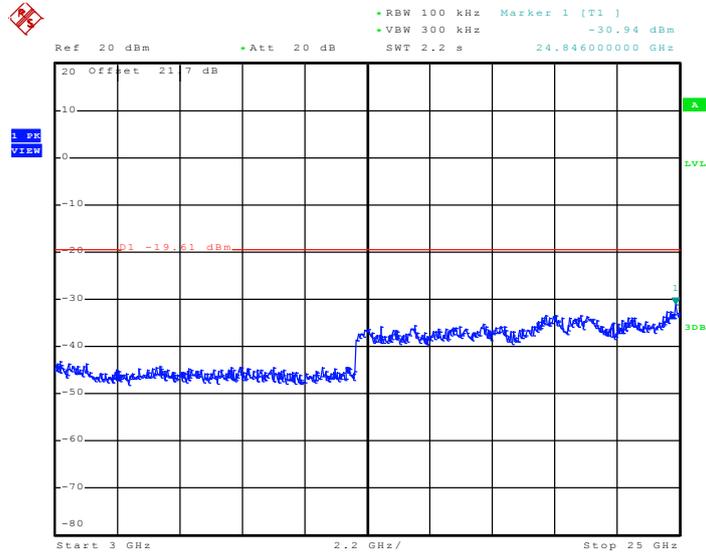
Test Mode :	Mode 9	Temperature :	23~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~49%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.JAN.2011 15:19:11

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 30.JAN.2011 15:19:29

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.

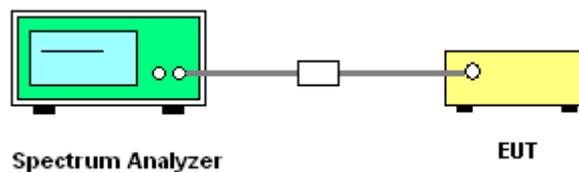
3.5.2 Measuring Instruments

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



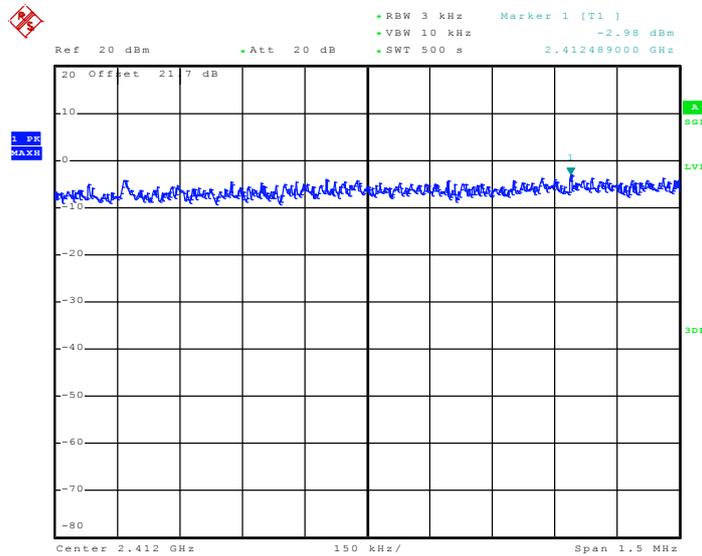


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-2.98	8	Pass
06	2437	-2.84	8	Pass
11	2462	-2.49	8	Pass

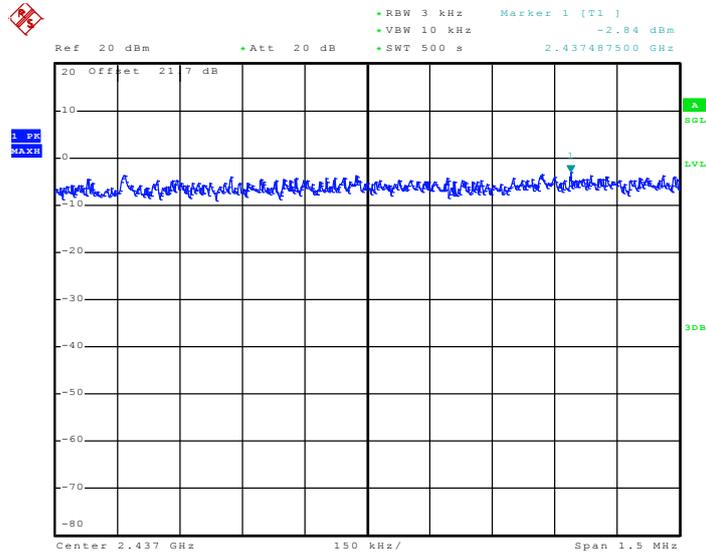
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 30.JAN.2011 16:17:41

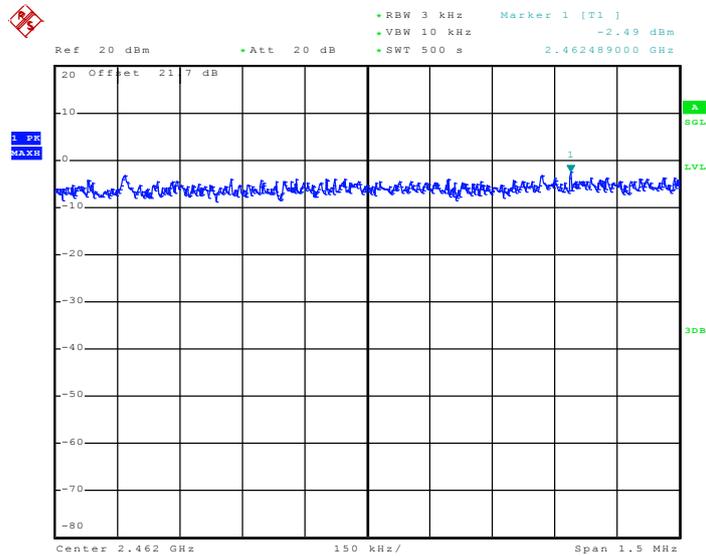


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 30.JAN.2011 15:53:44

Mode 3 : PSD Plot on 802.11b Channel 11



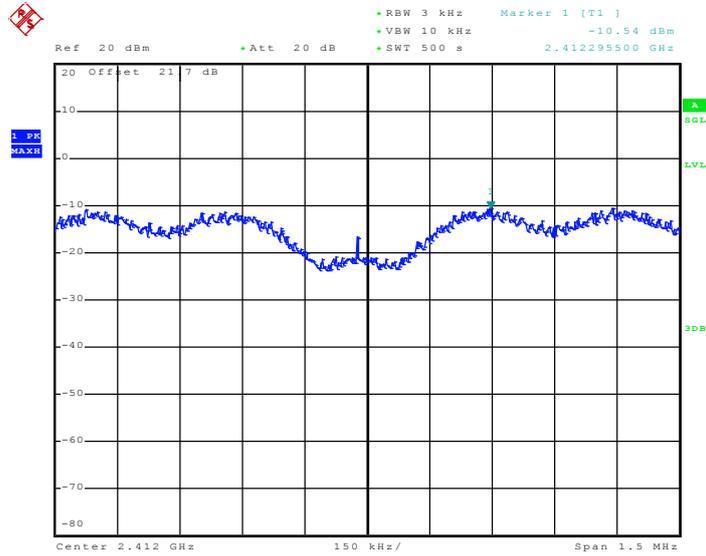
Date: 30.JAN.2011 16:08:19



Test Mode :	Mode 4, 5, 6	Temperature :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.54	8	Pass
06	2437	-10.51	8	Pass
11	2462	-10.05	8	Pass

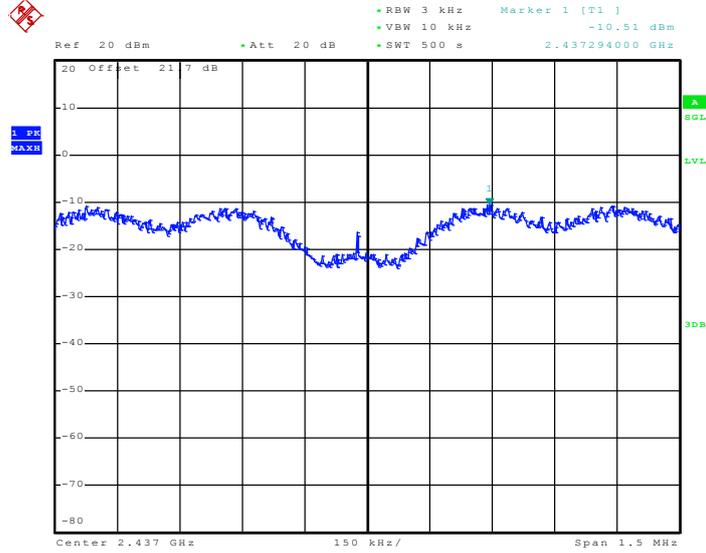
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 30.JAN.2011 16:26:43

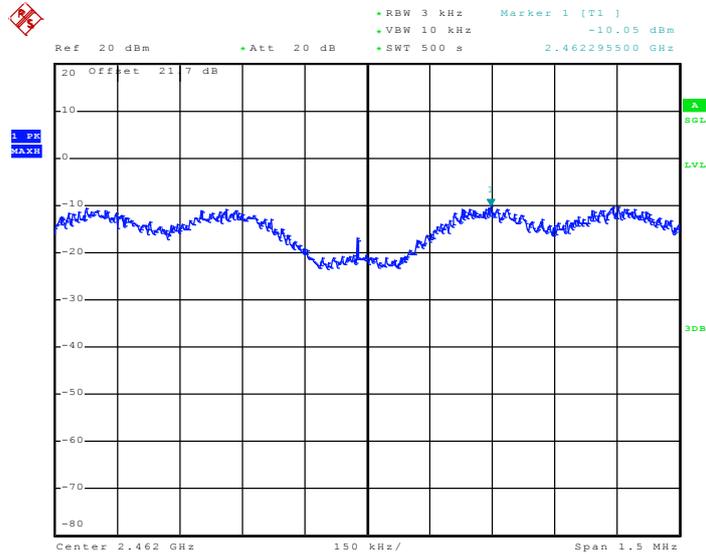


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 30.JAN.2011 16:57:31

Mode 6 : PSD Plot on 802.11g Channel 11



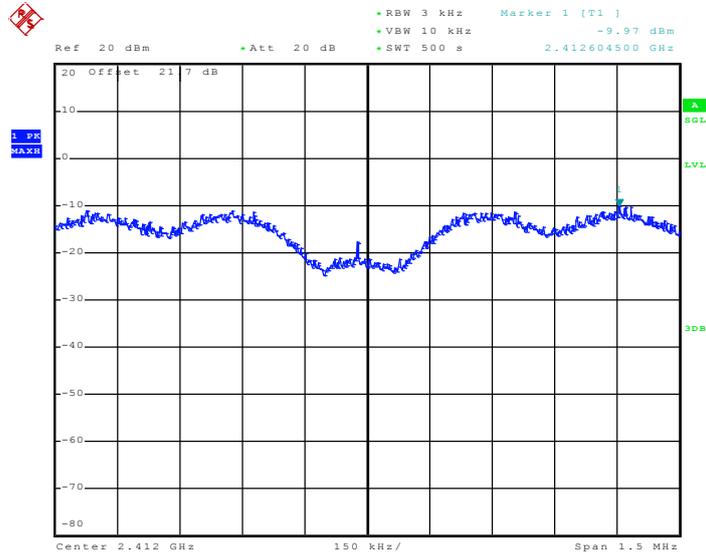
Date: 30.JAN.2011 17:06:21



Test Mode :	Mode 7, 8, 9	Temperature :	23~25°C
Test Engineer :	Hank Yu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.97	8	Pass
06	2437	-10.04	8	Pass
11	2462	-10.31	8	Pass

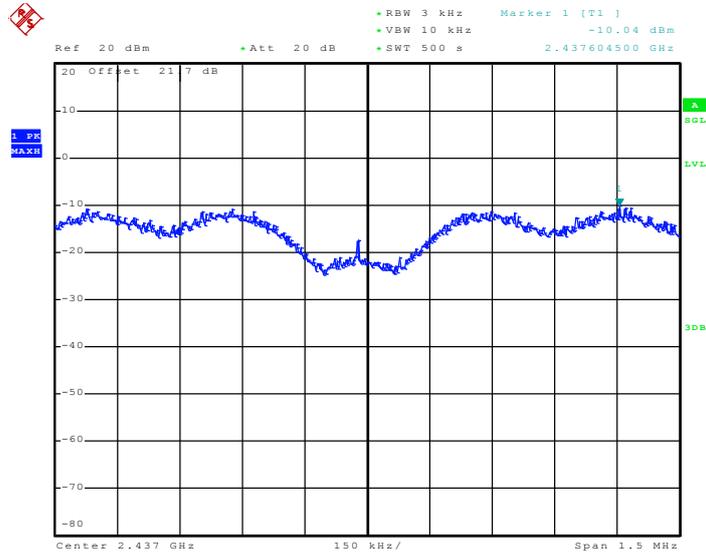
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01



Date: 30.JAN.2011 17:33:59

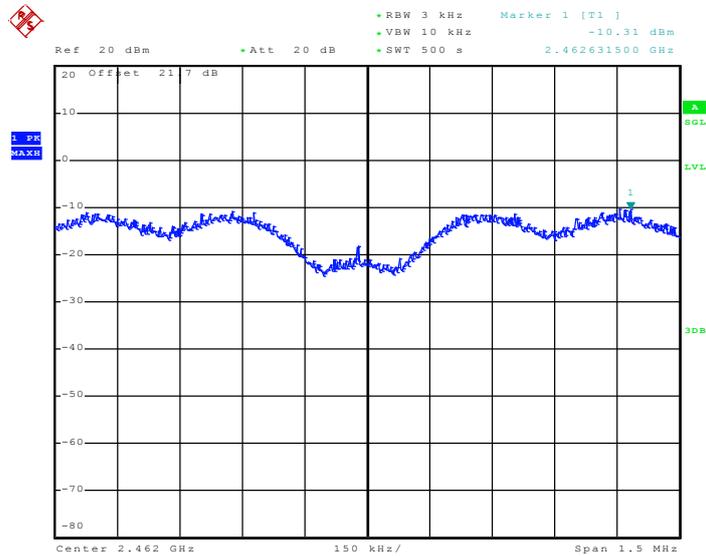


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 30.JAN.2011 17:25:10

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



Date: 30.JAN.2011 17:15:20

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.

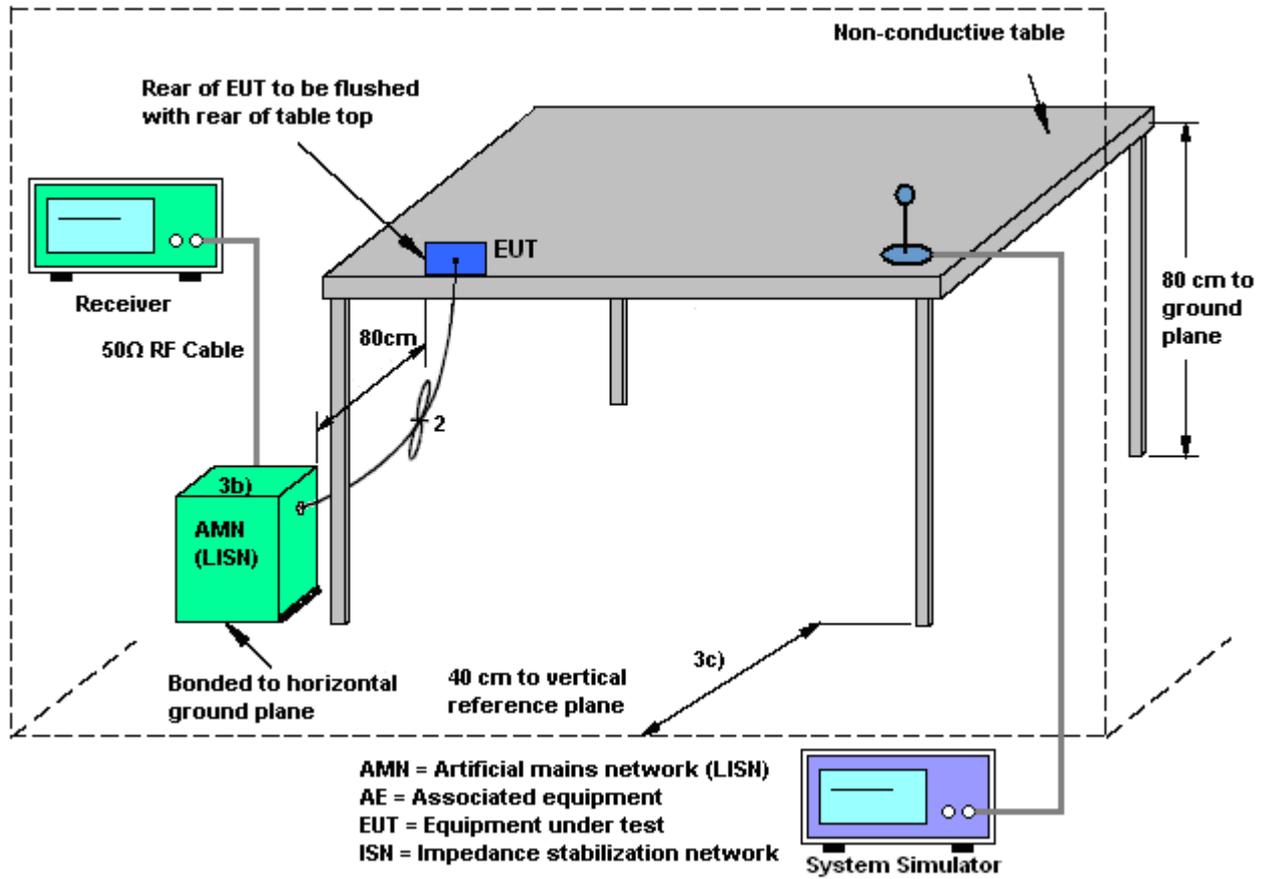
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

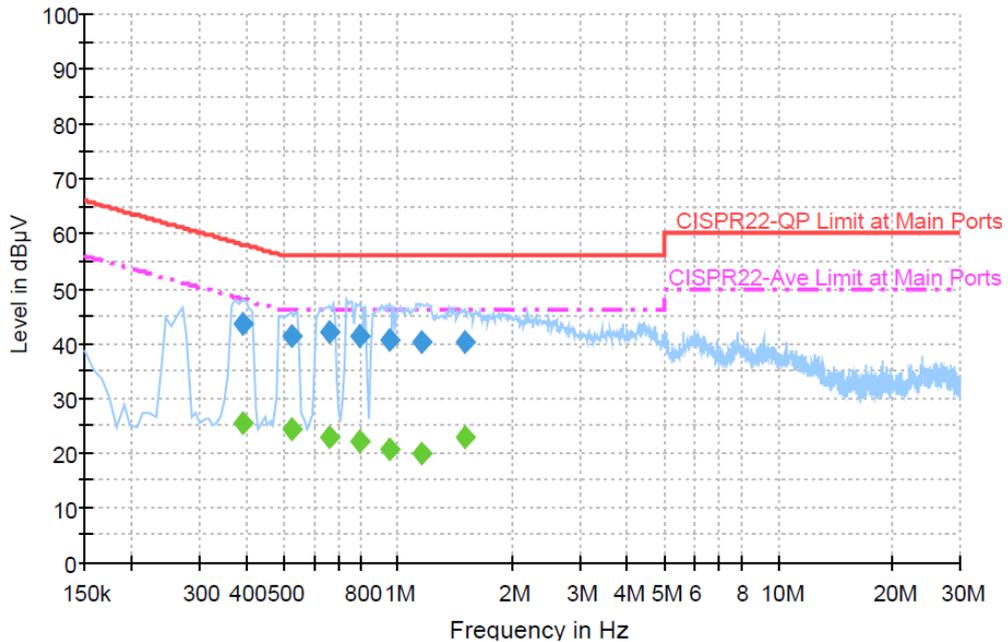
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	CDMA2000 BC10 Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 2 + WiMAX Idle + Earphone + USB Cable 2 (Charging from Adapter 2)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

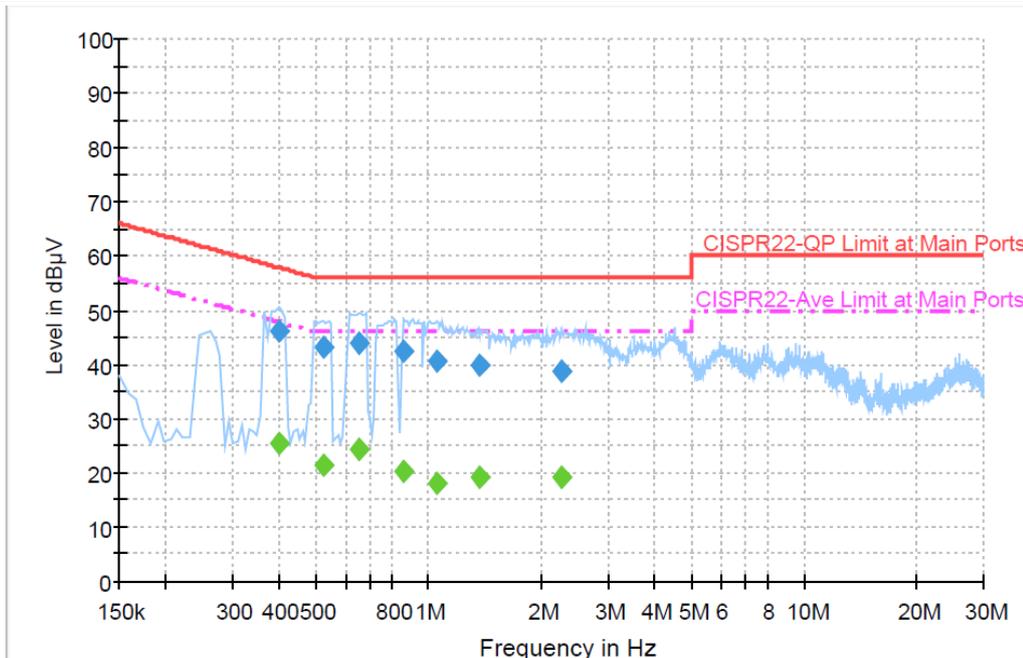
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.390000	43.5	Off	L1	19.4	14.6	58.1
0.526000	41.4	Off	L1	19.3	14.6	56.0
0.662000	42.2	Off	L1	19.4	13.8	56.0
0.790000	41.3	Off	L1	19.4	14.8	56.0
0.950000	40.7	Off	L1	19.4	15.3	56.0
1.158000	40.2	Off	L1	19.4	15.8	56.0
1.494000	40.2	Off	L1	19.4	15.8	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.390000	25.5	Off	L1	19.4	22.6	48.1
0.526000	24.4	Off	L1	19.3	21.6	46.0
0.662000	22.9	Off	L1	19.4	23.1	46.0
0.790000	22.3	Off	L1	19.4	23.7	46.0
0.950000	20.5	Off	L1	19.4	25.5	46.0
1.158000	20.1	Off	L1	19.4	25.9	46.0
1.494000	23.0	Off	L1	19.4	23.0	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 :	CDMA2000 BC10 Idle + Bluetooth Link + WLAN Link + GPS Rx + Battery 2 + WiMAX Idle + Earphone + USB Cable 2 (Charging from Adapter 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)
0.398000	46.1	Off	N	19.4	11.8	57.9
0.526000	43.2	Off	N	19.3	12.8	56.0
0.654000	43.9	Off	N	19.4	12.1	56.0
0.862000	42.3	Off	N	19.5	13.7	56.0
1.054000	40.6	Off	N	19.4	15.4	56.0
1.374000	40.0	Off	N	19.5	16.0	56.0
2.270000	38.8	Off	N	19.5	17.2	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.398000	25.3	Off	N	19.4	22.6	47.9
0.526000	21.4	Off	N	19.3	24.6	46.0
0.654000	24.4	Off	N	19.4	21.6	46.0
0.862000	20.5	Off	N	19.5	25.5	46.0
1.054000	18.1	Off	N	19.4	27.9	46.0
1.374000	19.1	Off	N	19.5	26.9	46.0
2.270000	19.1	Off	N	19.5	26.9	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

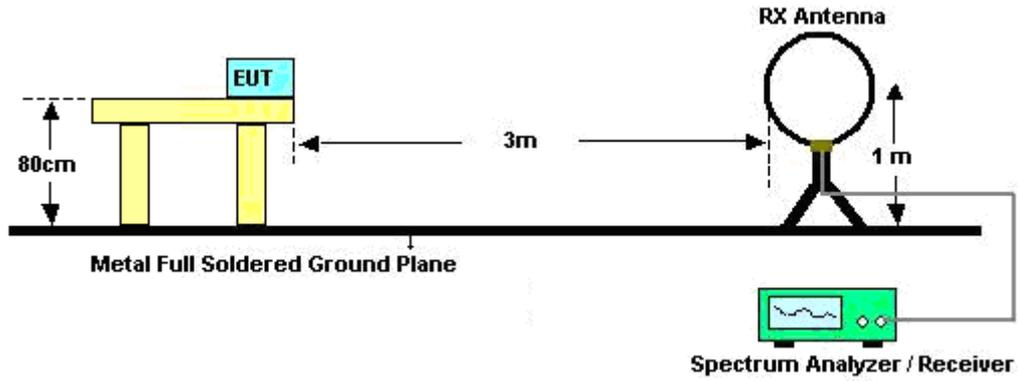
See list of measuring instruments of this test report.

3.7.3 Test Procedures

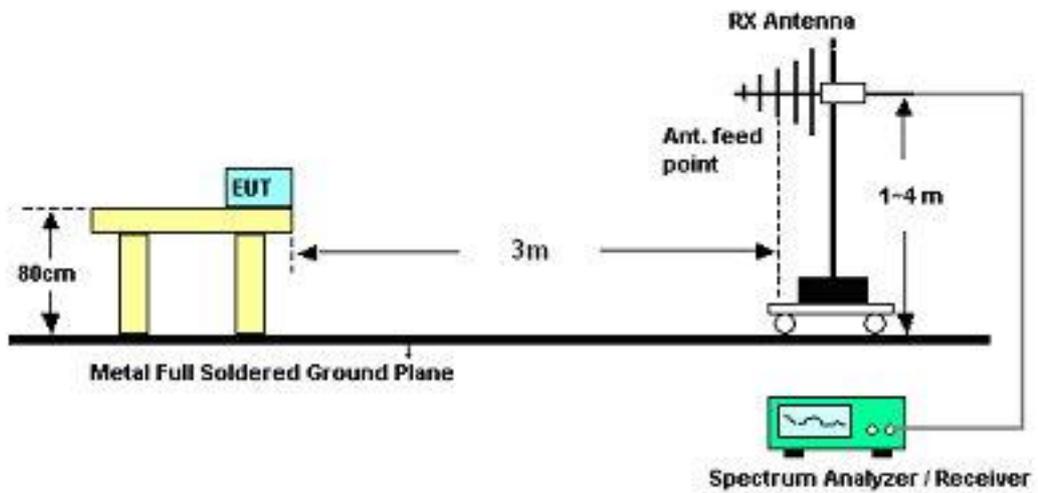
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep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

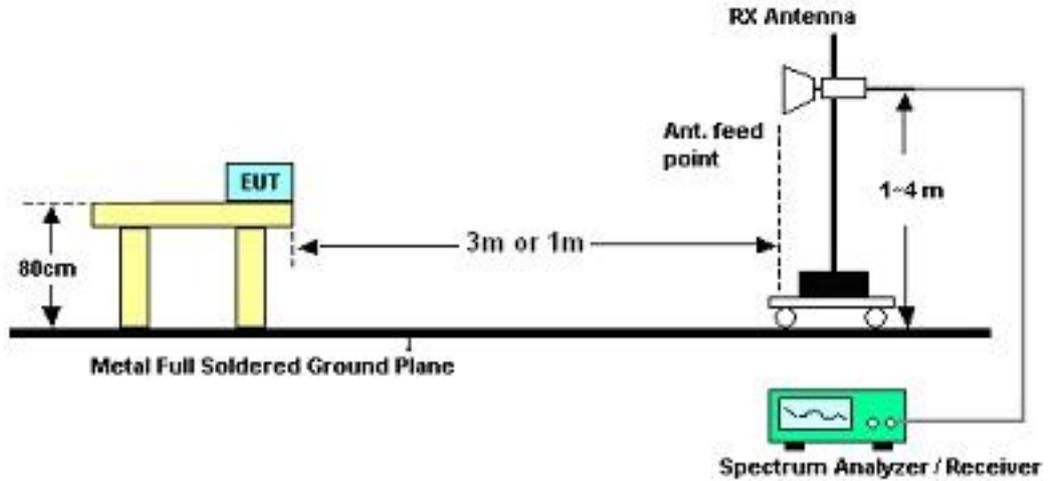
For radiated emissions below 30MHz



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 :	Ivan Chiang	Temperature :	23~24°C	
		Relative Humidity :	49~50%	
Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

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

Distance extrapolation factor = 40 log (specific distance / 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°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
40.53	27.48	-12.52	40	45.86	12.5	0.63	31.51	100	159	Peak
128.01	30.23	-13.27	43.5	49.09	11.57	1.14	31.57	-	-	Peak
242.22	25.11	-20.89	46	42.88	12.12	1.53	31.42	-	-	Peak
304.2	25.58	-20.42	46	41.52	13.61	1.78	31.33	-	-	Peak
377	25.24	-20.76	46	38.52	15.87	2.09	31.24	-	-	Peak
486.2	22.4	-23.6	46	33.07	17.99	2.4	31.06	-	-	Peak
2390	57.46	-16.54	74	53.1	32.18	6.03	33.85	109	351	Peak
2390	43.72	-10.28	54	39.36	32.18	6.03	33.85	109	351	Average
2412	112.21	-	-	107.81	32.2	6.07	33.87	109	351	Peak
2412	99.56	-	-	95.16	32.2	6.07	33.87	109	351	Average
2486	37.16	-16.84	54	32.6	32.28	6.18	33.9	109	351	Average
2486	49.61	-24.39	74	45.05	32.28	6.18	33.9	109	351	Peak
7242	48.36	-25.64	92.21	60.93	35.51	10.03	58.11	100	0	Peak



Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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	29.02	-10.98	40	43.44	16.51	0.53	31.46	100	185	Peak
80.22	24.86	-15.14	40	48.29	7.22	0.88	31.53	-	-	Peak
127.74	24.2	-19.3	43.5	43.06	11.57	1.14	31.57	-	-	Peak
312.6	24.38	-21.62	46	40.06	13.85	1.79	31.32	-	-	Peak
366.5	24.67	-21.33	46	38.32	15.54	2.07	31.26	-	-	Peak
511.4	20.8	-25.2	46	30.99	18.39	2.47	31.05	-	-	Peak
2390	56.42	-17.58	74	52.06	32.18	6.03	33.85	119	359	Peak
2390	42.85	-11.15	54	38.49	32.18	6.03	33.85	119	359	Average
2412	109.37	-	-	104.97	32.2	6.07	33.87	119	359	Peak
2412	97.1	-	-	92.7	32.2	6.07	33.87	119	359	Average
2486	36.52	-17.48	54	31.96	32.28	6.18	33.9	119	359	Average
2486	48.93	-25.07	74	44.37	32.28	6.18	33.9	119	359	Peak
4824	45.17	-28.83	74	61.09	34.07	9.12	59.11	100	0	Peak
7233	50.63	-23.37	89.37	63.2	35.51	10.03	58.11	100	0	Peak



Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
30.54	29.56	-10.44	40	44.21	16.27	0.54	31.46	151	123	Peak
81.3	25.1	-14.9	40	48.37	7.37	0.89	31.53	-	-	Peak
127.74	24.35	-19.15	43.5	43.21	11.57	1.14	31.57	-	-	Peak
301.4	27.08	-18.92	46	43.12	13.52	1.77	31.33	-	-	Peak
363	24.01	-21.99	46	37.79	15.42	2.07	31.27	-	-	Peak
491.8	20.24	-25.76	46	30.8	18.09	2.42	31.07	-	-	Peak
2390	45.91	-28.09	74	41.55	32.18	6.03	33.85	109	322	Peak
2390	33.91	-20.09	54	29.55	32.18	6.03	33.85	109	322	Average
2437	111.26	-	-	106.79	32.24	6.11	33.88	109	322	Peak
2437	98.55	-	-	94.08	32.24	6.11	33.88	109	322	Average
2486	48.03	-25.97	74	43.47	32.28	6.18	33.9	109	322	Peak
2486	35.9	-18.1	54	31.34	32.28	6.18	33.9	109	322	Average
4874	44.45	-29.55	74	60.28	34.08	9.13	59.04	100	0	Peak



Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
30.54	29.17	-10.83	40	43.82	16.27	0.54	31.46	100	211	Peak
80.49	25.31	-14.69	40	48.74	7.22	0.88	31.53	-	-	Peak
126.66	24.52	-18.98	43.5	43.39	11.57	1.13	31.57	-	-	Peak
301.4	27.34	-18.66	46	43.38	13.52	1.77	31.33	-	-	Peak
352.5	22.85	-23.15	46	37.05	15.09	1.99	31.28	-	-	Peak
500.2	21.08	-24.92	46	31.47	18.23	2.45	31.07	-	-	Peak
2390	45.58	-28.42	74	41.22	32.18	6.03	33.85	100	31	Peak
2390	33.84	-20.16	54	29.48	32.18	6.03	33.85	100	31	Average
2437	109.43	-	-	104.96	32.24	6.11	33.88	100	31	Peak
2437	96.71	-	-	92.24	32.24	6.11	33.88	100	31	Average
2486	46.03	-27.97	74	41.47	32.28	6.18	33.9	100	31	Peak
2486	34.09	-19.91	54	29.53	32.28	6.18	33.9	100	31	Average
4874	44.5	-29.5	74	60.33	34.08	9.13	59.04	100	0	Peak



Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
86.7	20.21	-19.79	40	42.73	8.1	0.92	31.54	-	-	Peak
127.74	27.06	-16.44	43.5	45.92	11.57	1.14	31.57	100	57	Peak
236.82	25.13	-20.87	46	43.34	11.71	1.51	31.43	-	-	Peak
304.2	25.82	-20.18	46	41.76	13.61	1.78	31.33	-	-	Peak
372.1	24.45	-21.55	46	37.9	15.72	2.08	31.25	-	-	Peak
470.1	21.84	-24.16	46	32.83	17.73	2.35	31.07	-	-	Peak
2382	49.08	-24.92	74	44.74	32.16	6.03	33.85	136	329	Peak
2382	35.13	-18.87	54	30.79	32.16	6.03	33.85	136	329	Average
2462	109.56	-	-	105.05	32.26	6.14	33.89	136	329	Peak
2462	97.48	-	-	92.97	32.26	6.14	33.89	136	329	Average
2483.66	56	-18	74	51.44	32.28	6.18	33.9	136	329	Peak
2483.66	42.85	-11.15	54	38.29	32.28	6.18	33.9	136	329	Average
4924	46.76	-27.24	74	62.48	34.09	9.15	58.96	100	0	Peak



Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
30.54	29.18	-10.82	40	43.83	16.27	0.54	31.46	111	151	Peak
82.38	23.95	-16.05	40	47.08	7.51	0.89	31.53	-	-	Peak
127.74	23.94	-19.56	43.5	42.8	11.57	1.14	31.57	-	-	Peak
302.1	27.82	-18.18	46	43.82	13.55	1.78	31.33	-	-	Peak
327.3	23.86	-22.14	46	39.03	14.3	1.84	31.31	-	-	Peak
340.6	23.42	-22.58	46	38.11	14.72	1.89	31.3	-	-	Peak
2388	47.82	-26.18	74	43.46	32.18	6.03	33.85	100	32	Peak
2388	34.86	-19.14	54	30.5	32.18	6.03	33.85	100	32	Average
2462	104.51	-	-	100	32.26	6.14	33.89	100	32	Peak
2462	92.44	-	-	87.93	32.26	6.14	33.89	100	32	Average
2483.85	51.18	-22.82	74	46.62	32.28	6.18	33.9	100	32	Peak
2483.85	38.53	-15.47	54	33.97	32.28	6.18	33.9	100	32	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	19.75	-20.25	40	34.62	16.04	0.55	31.46	-	-	Peak
85.62	19.32	-20.68	40	42	7.95	0.91	31.54	-	-	Peak
126.66	26.97	-16.53	43.5	45.84	11.57	1.13	31.57	100	248	Peak
300	25.36	-20.64	46	41.46	13.46	1.77	31.33	-	-	Peak
365.8	25.27	-20.73	46	38.95	15.51	2.07	31.26	-	-	Peak
486.9	21.79	-24.21	46	32.44	18.01	2.4	31.06	-	-	Peak
2389.99	50.88	-3.12	54	46.52	32.18	6.03	33.85	143	42	Average
2389.99	70.79	-3.21	74	66.43	32.18	6.03	33.85	143	42	Peak
2412	108.42	-	-	104.02	32.2	6.07	33.87	143	42	Peak
2412	95.89	-	-	91.49	32.2	6.07	33.87	143	42	Average
2486	38.63	-15.37	54	34.07	32.28	6.18	33.9	143	42	Average
2486	50	-24	74	45.44	32.28	6.18	33.9	143	42	Peak
7233	44.9	-29.1	88.42	57.47	35.51	10.03	58.11	100	0	Peak



Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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	29.24	-10.76	40	43.66	16.51	0.53	31.46	122	221	Peak
83.73	24.87	-15.13	40	47.85	7.66	0.9	31.54	-	-	Peak
128.01	25	-18.5	43.5	43.86	11.57	1.14	31.57	-	-	Peak
301.4	27.81	-18.19	46	43.85	13.52	1.77	31.33	-	-	Peak
374.9	23.23	-22.77	46	36.58	15.81	2.09	31.25	-	-	Peak
615.7	21.7	-24.3	46	29.92	19.94	2.74	30.9	-	-	Peak
2389.99	50.05	-3.95	54	45.69	32.18	6.03	33.85	100	62	Average
2389.99	68.45	-5.55	74	64.09	32.18	6.03	33.85	100	62	Peak
2412	106.29	-	-	101.89	32.2	6.07	33.87	100	62	Peak
2412	93.74	-	-	89.34	32.2	6.07	33.87	100	62	Average
2486	37.51	-16.49	54	32.95	32.28	6.18	33.9	100	62	Average
2486	49.87	-24.13	74	45.31	32.28	6.18	33.9	100	62	Peak



Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
82.38	20.92	-19.08	40	44.05	7.51	0.89	31.53	-	-	Peak
127.74	26.62	-16.88	43.5	45.48	11.57	1.14	31.57	100	211	Peak
237.9	25.54	-20.46	46	43.66	11.78	1.52	31.42	-	-	Peak
302.1	25.6	-20.4	46	41.6	13.55	1.78	31.33	-	-	Peak
369.3	24.61	-21.39	46	38.16	15.63	2.08	31.26	-	-	Peak
484.1	21.59	-24.41	46	32.3	17.96	2.39	31.06	-	-	Peak
2390	47.31	-26.69	74	42.95	32.18	6.03	33.85	114	26	Peak
2390	35.31	-18.69	54	30.95	32.18	6.03	33.85	114	26	Average
2437	109.87	-	-	105.42	32.22	6.11	33.88	114	26	Peak
2437	97.08	-	-	92.61	32.24	6.11	33.88	114	26	Average
2484	49.64	-24.36	74	45.08	32.28	6.18	33.9	114	26	Peak
2484	35.99	-18.01	54	31.43	32.28	6.18	33.9	114	26	Average



Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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	29.18	-10.82	40	43.6	16.51	0.53	31.46	122	221	Peak
83.46	24.87	-15.13	40	47.85	7.66	0.9	31.54	-	-	Peak
128.01	23.97	-19.53	43.5	42.83	11.57	1.14	31.57	-	-	Peak
301.4	27.96	-18.04	46	44	13.52	1.77	31.33	-	-	Peak
374.9	22.97	-23.03	46	36.32	15.81	2.09	31.25	-	-	Peak
617.8	21.15	-24.85	46	29.34	19.97	2.74	30.9	-	-	Peak
2388	45.61	-28.39	74	41.25	32.18	6.03	33.85	127	44	Peak
2388	34	-20	54	29.64	32.18	6.03	33.85	127	44	Average
2437	107.42	-	-	102.97	32.22	6.11	33.88	127	44	Peak
2437	94.3	-	-	89.83	32.24	6.11	33.88	127	44	Average
2484	47.71	-26.29	74	43.15	32.28	6.18	33.9	127	44	Peak
2484	34.57	-19.43	54	30.01	32.28	6.18	33.9	127	44	Average



Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
32.97	19.42	-20.58	40	34.53	15.8	0.56	31.47	-	-	Peak
79.14	20.8	-19.2	40	44.31	7.14	0.88	31.53	-	-	Peak
128.82	26.97	-16.53	43.5	45.83	11.57	1.14	31.57	100	211	Peak
300	25.83	-20.17	46	41.93	13.46	1.77	31.33	-	-	Peak
357.4	25.43	-20.57	46	39.39	15.27	2.04	31.27	-	-	Peak
486.2	21.94	-24.06	46	32.61	17.99	2.4	31.06	-	-	Peak
2388	49.29	-24.71	74	44.93	32.18	6.03	33.85	114	28	Peak
2388	38.55	-15.45	54	34.19	32.18	6.03	33.85	114	28	Average
2462	107.85	-	-	103.34	32.26	6.14	33.89	114	28	Peak
2462	94.93	-	-	90.42	32.26	6.14	33.89	114	28	Average
2483.66	49.41	-4.59	54	44.85	32.28	6.18	33.9	114	28	Average
2483.66	70.76	-3.24	74	66.2	32.28	6.18	33.9	114	28	Peak



Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
31.62	29.05	-10.95	40	43.92	16.04	0.55	31.46	100	321	Peak
79.14	25	-15	40	48.51	7.14	0.88	31.53	-	-	Peak
128.01	24.54	-18.96	43.5	43.4	11.57	1.14	31.57	-	-	Peak
302.1	27.32	-18.68	46	43.32	13.55	1.78	31.33	-	-	Peak
377	23.5	-22.5	46	36.78	15.87	2.09	31.24	-	-	Peak
497.4	20.95	-25.05	46	31.4	18.18	2.44	31.07	-	-	Peak
2388	48.64	-25.36	74	44.28	32.18	6.03	33.85	124	31	Peak
2388	37.25	-16.75	54	32.89	32.18	6.03	33.85	124	31	Average
2462	105.08	-	-	100.57	32.26	6.14	33.89	124	31	Peak
2462	92.52	-	-	88.01	32.26	6.14	33.89	124	31	Average
2483.85	46.16	-7.84	54	41.6	32.28	6.18	33.9	124	31	Average
2483.85	67.85	-6.15	74	63.29	32.28	6.18	33.9	124	31	Peak



Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
34.86	18.95	-21.05	40	34.51	15.33	0.58	31.47	-	-	Peak
127.74	19.51	-23.99	43.5	38.37	11.57	1.14	31.57	-	-	Peak
236.01	22.4	-23.6	46	40.68	11.64	1.51	31.43	-	-	Peak
300	26.13	-19.87	46	42.23	13.46	1.77	31.33	100	225	Peak
358.1	25.6	-20.4	46	39.56	15.27	2.04	31.27	-	-	Peak
398.7	24.09	-21.91	46	36.6	16.53	2.14	31.18	-	-	Peak
2390	70.97	-3.03	74	66.61	32.18	6.03	33.85	105	350	Peak
2390	50.84	-3.16	54	46.48	32.18	6.03	33.85	105	350	Average
2412	105.82	-	-	101.42	32.2	6.07	33.87	105	350	Peak
2412	92.95	-	-	88.55	32.2	6.07	33.87	105	350	Average
2486	36.06	-17.94	54	31.5	32.28	6.18	33.9	105	350	Average
2486	49.48	-24.52	74	44.92	32.28	6.18	33.9	105	350	Peak



Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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	29.49	-10.51	40	43.91	16.51	0.53	31.46	100	211	Peak
80.49	25.41	-14.59	40	48.84	7.22	0.88	31.53	-	-	Peak
127.74	24.77	-18.73	43.5	43.63	11.57	1.14	31.57	-	-	Peak
300	26.89	-19.11	46	42.99	13.46	1.77	31.33	-	-	Peak
355.3	23.63	-22.37	46	37.71	15.18	2.02	31.28	-	-	Peak
528.9	20.11	-25.89	46	29.96	18.66	2.51	31.02	-	-	Peak
2390	69.48	-4.52	74	65.12	32.18	6.03	33.85	100	29	Peak
2390	50.52	-3.48	54	46.16	32.18	6.03	33.85	100	29	Average
2412	104.44	-	-	100.04	32.2	6.07	33.87	100	29	Peak
2412	91.84	-	-	87.44	32.2	6.07	33.87	100	29	Average
2484	33.84	-20.16	54	29.28	32.28	6.18	33.9	100	29	Average
2484	45.53	-28.47	74	40.97	32.28	6.18	33.9	100	29	Peak
7236	47.94	-26.06	84.44	60.51	35.51	10.03	58.11	100	0	Peak



Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
81.3	20.18	-19.82	40	43.45	7.37	0.89	31.53	-	-	Peak
128.01	26.36	-17.14	43.5	45.22	11.57	1.14	31.57	122	154	Peak
243.3	24.72	-21.28	46	42.42	12.19	1.53	31.42	-	-	Peak
304.2	25.44	-20.56	46	41.38	13.61	1.78	31.33	-	-	Peak
371.4	25.32	-20.68	46	38.8	15.69	2.08	31.25	-	-	Peak
481.3	22.12	-23.88	46	32.89	17.91	2.38	31.06	-	-	Peak
2390	45.5	-28.5	74	41.14	32.18	6.03	33.85	109	351	Peak
2390	33.38	-20.62	54	29.02	32.18	6.03	33.85	109	351	Average
2437	105.17	-	-	100.7	32.24	6.11	33.88	109	351	Peak
2437	92.87	-	-	88.4	32.24	6.11	33.88	109	351	Average
2484	46.16	-27.84	74	41.6	32.28	6.18	33.9	109	351	Peak
2484	33.68	-20.32	54	29.12	32.28	6.18	33.9	109	351	Average



Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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	29.34	-10.66	40	43.76	16.51	0.53	31.46	100	55	Peak
80.49	25.25	-14.75	40	48.68	7.22	0.88	31.53	-	-	Peak
127.74	24.98	-18.52	43.5	43.84	11.57	1.14	31.57	-	-	Peak
300	27.3	-18.7	46	43.4	13.46	1.77	31.33	-	-	Peak
383.3	23.6	-22.4	46	36.67	16.05	2.11	31.23	-	-	Peak
500.2	19.98	-26.02	46	30.37	18.23	2.45	31.07	-	-	Peak
2390	46.13	-27.87	74	41.77	32.18	6.03	33.85	100	31	Peak
2390	33.82	-20.18	54	29.46	32.18	6.03	33.85	100	31	Average
2437	103.56	-	-	99.09	32.24	6.11	33.88	100	31	Peak
2437	91.29	-	-	86.82	32.24	6.11	33.88	100	31	Average
2484	44.99	-29.01	74	40.43	32.28	6.18	33.9	100	31	Peak
2484	33.34	-20.66	54	28.78	32.28	6.18	33.9	100	31	Average



Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
82.38	20.35	-19.65	40	43.48	7.51	0.89	31.53	-	-	Peak
127.74	26.48	-17.02	43.5	45.34	11.57	1.14	31.57	100	322	Peak
238.17	25.84	-20.16	46	43.89	11.85	1.52	31.42	-	-	Peak
304.2	25.6	-20.4	46	41.54	13.61	1.78	31.33	-	-	Peak
368.6	24.59	-21.41	46	38.17	15.6	2.08	31.26	-	-	Peak
481.3	22.1	-23.9	46	32.87	17.91	2.38	31.06	-	-	Peak
2388	47.85	-26.15	74	43.49	32.18	6.03	33.85	107	349	Peak
2388	36.58	-17.42	54	32.22	32.18	6.03	33.85	107	349	Average
2462	103.94	-	-	99.43	32.26	6.14	33.89	107	349	Peak
2462	92.13	-	-	87.62	32.26	6.14	33.89	107	349	Average
2483.85	67.01	-6.99	74	62.45	32.28	6.18	33.9	107	349	Peak
2483.85	45.44	-8.56	54	40.88	32.28	6.18	33.9	107	349	Average
4924	44.56	-29.44	74	60.28	34.09	9.15	58.96	100	0	Peak



Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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	29.07	-10.93	40	43.49	16.51	0.53	31.46	111	210	Peak
83.46	24.32	-15.68	40	47.3	7.66	0.9	31.54	-	-	Peak
126.66	24.89	-18.61	43.5	43.76	11.57	1.13	31.57	-	-	Peak
302.1	26.62	-19.38	46	42.62	13.55	1.78	31.33	-	-	Peak
363	23.36	-22.64	46	37.14	15.42	2.07	31.27	-	-	Peak
503.7	20.33	-25.67	46	30.66	18.27	2.46	31.06	-	-	Peak
2388	46.4	-27.6	74	42.04	32.18	6.03	33.85	100	48	Peak
2388	35.03	-18.97	54	30.67	32.18	6.03	33.85	100	48	Average
2462	102.03	-	-	97.52	32.26	6.14	33.89	100	48	Peak
2462	89.68	-	-	85.17	32.26	6.14	33.89	100	48	Average
2483.85	62.02	-11.98	74	57.46	32.28	6.18	33.9	100	48	Peak
2483.85	41.7	-12.3	54	37.14	32.28	6.18	33.9	100	48	Average
4924	43.49	-30.51	74	59.21	34.09	9.15	58.96	100	0	Peak



3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

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

3.8.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Jun. 08, 2009	Jun. 07, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 11, 2010	Jun. 10, 2011	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
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	117997	N/A	May 14, 2009	May 13, 2011	Conduction (CO05-HY)
WiMAX Base Station (System Simulator)	Agilent	E6651A	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZB ECK	BBHA 9170	BBHA917025 1	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2010	Mar. 26, 2011	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
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				