

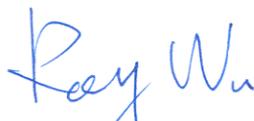
# FCC RF Test Report

APPLICANT : ZTE CORPORATION  
EQUIPMENT : 3G MOBILE HOTSPOT  
BRAND NAME : ZTE  
MODEL NAME : ZTE3200  
FCC ID : Q78-ZTE3200  
STANDARD : FCC Part 15 Subpart C §15.247  
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Jul. 03, 2010 and completely tested on Jul. 23, 2010. We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:



Roy Wu / Manager



**SPORTON INTERNATIONAL (KUNSHAN) INC.**  
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.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(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.5	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 20.69 dB at 0.47 MHz
3.6	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.22 dB at 45.12 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

# 1 General Description

## 1.1 Applicant

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China

## 1.2 Manufacturer

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China

## 1.3 Feature of Equipment Under Test

Product Feature & Specification	
<b>Equipment</b>	3G Mobile HotSpot
<b>Brand Name</b>	ZTE
<b>Model Name</b>	ZTE3200
<b>FCC ID</b>	Q78-ZTE3200
<b>Tx/Rx Frequency Range</b>	2400 MHz ~ 2483.5 MHz
<b>Number of Channels</b>	11
<b>Carrier Frequency of Each Channel</b>	2412+(n-1)*5 MHz; n=1~11
<b>Channel Spacing</b>	5 MHz
<b>Maximum Output Power to Antenna</b>	802.11b : 16.16 dBm (0.04 W) 802.11g : 22.79 dBm (0.19 W)
<b>Antenna Type</b>	PIFA Antenna with gain -3 dBi
<b>HW Version</b>	AC2726V2MD_B
<b>SW Version</b>	Q6085BLR9AD102
<b>Type of Modulation</b>	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM)
<b>EUT Stage</b>	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

<b>Test Site</b>	SPORTON INTERNATIONAL (KUNSHAN) INC.	
<b>Test Site Location</b>	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	
	CO01-KS	03CH01-KS

### 1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 7

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, 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.	Notebook	DELL	P085	QPS-BRCM1030	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

## 2 Test Configuration of Equipment Under Test

### 2.1 RF Power

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

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		At DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	15.13	15.16	15.20	15.30
CH 06	2437 MHz	13.36	13.35	13.32	13.23
CH 11	2462 MHz	16.01	16.06	16.14	<b>16.16</b>

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		At OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	21.53	21.54	21.62	21.53	21.74	21.76	21.78	21.79
CH 06	2437 MHz	19.98	19.87	20.26	20.23	20.33	20.12	19.25	20.43
CH 11	2462 MHz	<b>22.79</b>	22.70	22.46	22.35	22.48	22.41	22.47	22.53

**Remark:**

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

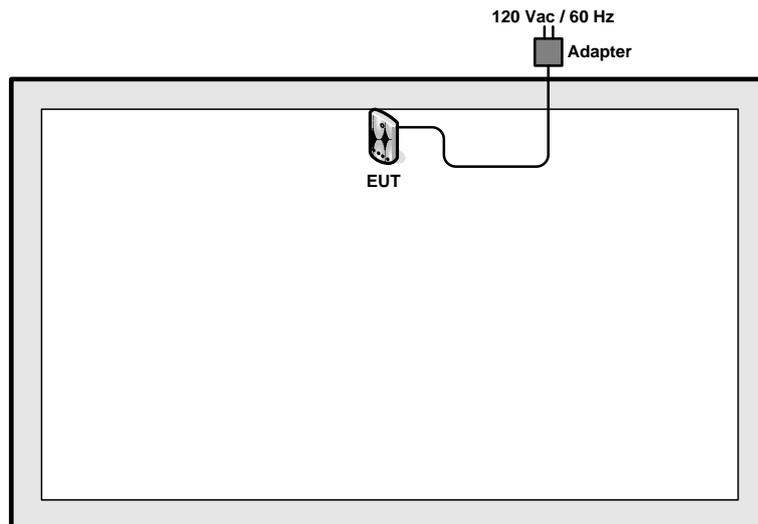
## 2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). Pre-scanned tests were conducted to determine the final configuration from all possible combinations. The following tables are showing the test modes as the worst cases and recorded in this report.

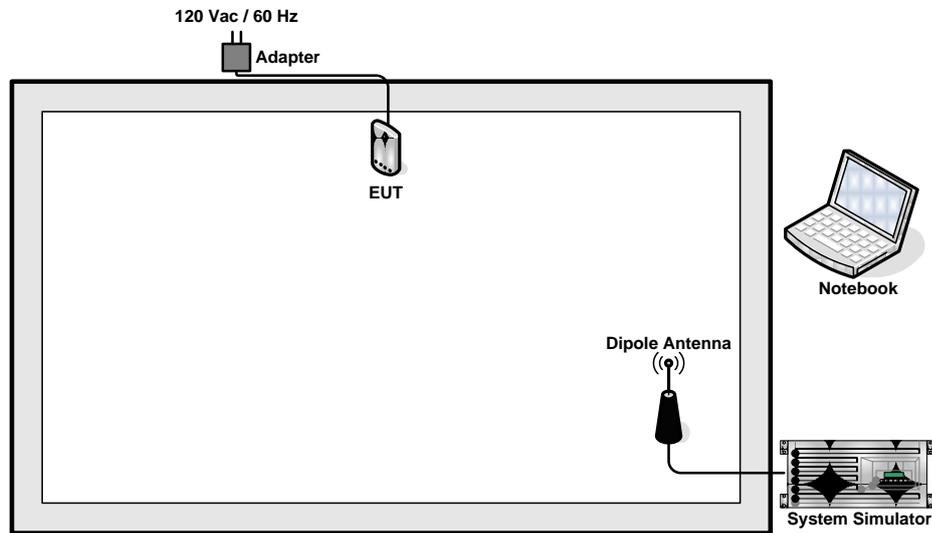
Test Cases		
Test Item	802.11b	802.11g
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4 : 802.11g CH01_2412 MHz Mode 5 : 802.11g CH06_2437 MHz Mode 6 : 802.11g CH11_2462 MHz
Radiated TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 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
AC Conducted Emission	Mode 1 : CDMA2000 BC0 Idle + WLAN Link + Adapter	

## 2.3 Connection Diagram of Test System

<WLAN Tx Mode>



## &lt;EUT with Adapter Mode&gt;



## 2.4 RF Utility

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

### 3 Test Result

#### 3.1 6dB Bandwidth Measurement

##### 3.1.1 Limit of 6dB Bandwidth

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

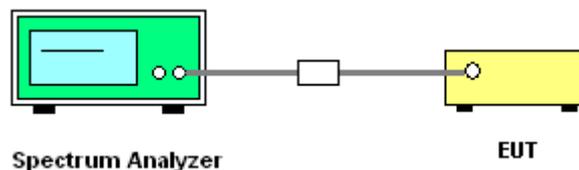
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

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

##### 3.1.4 Test Setup



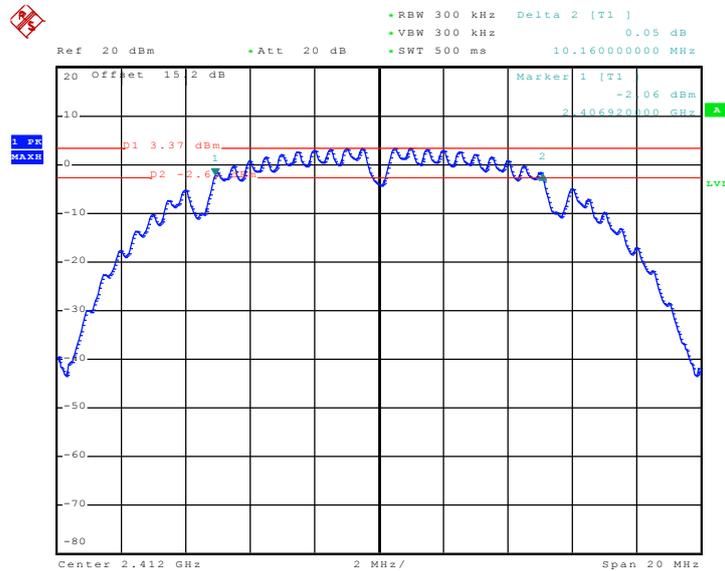


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	22~23°C
Test Engineer :	Sky Liu	Relative Humidity :	56~57%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.16	0.5	Pass
06	2437	10.20	0.5	Pass
11	2462	10.24	0.5	Pass

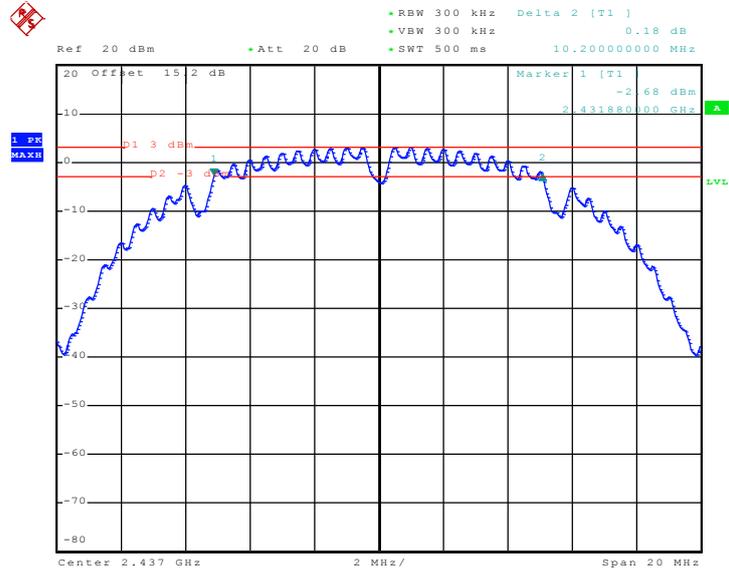
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 14.JUL.2010 06:13:00

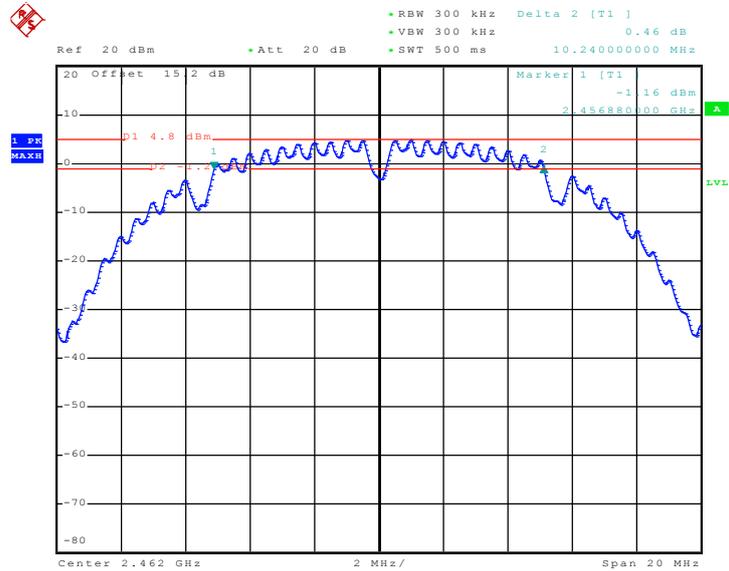


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 14.JUL.2010 06:14:23

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



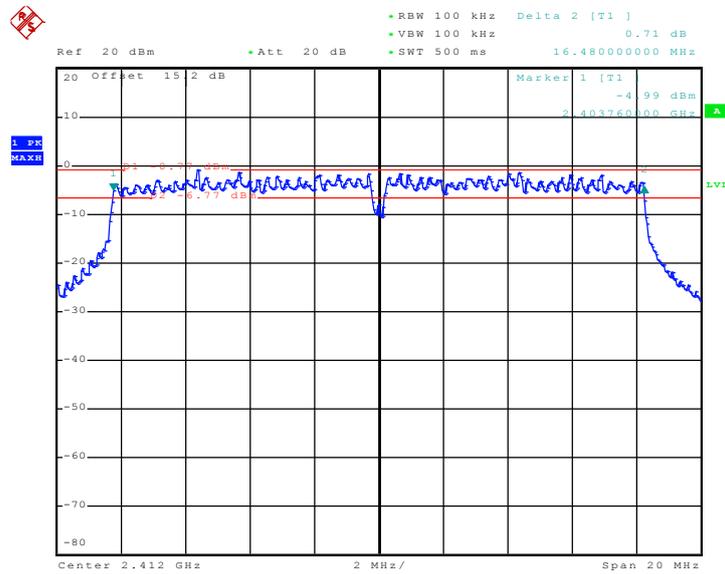
Date: 14.JUL.2010 06:16:05



Test Mode :	Mode 4, 5, 6	Temperature :	22~23°C
Test Engineer :	Sky Liu	Relative Humidity :	56~57%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.48	0.5	Pass
06	2437	16.52	0.5	Pass
11	2462	16.52	0.5	Pass

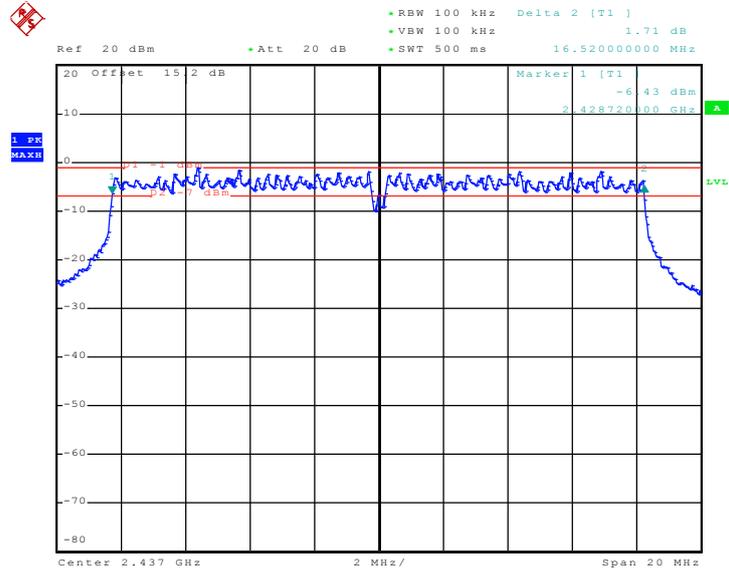
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 14.JUL.2010 07:25:03

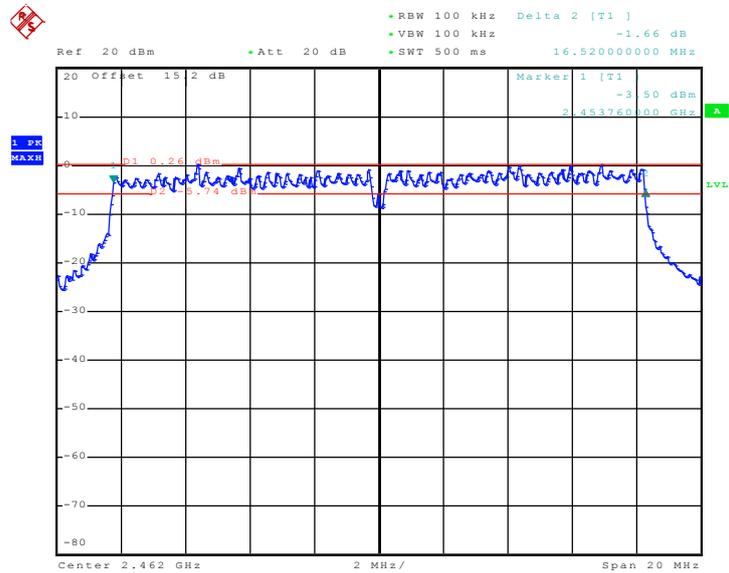


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 14.JUL.2010 07:26:35

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



Date: 14.JUL.2010 07:28:16

## 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.

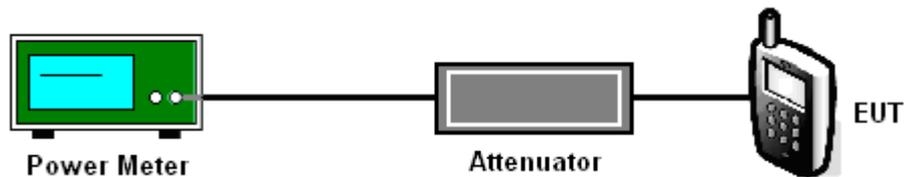
### 3.2.2 Measuring Instruments

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 :	22~23°C
Test Engineer :	Sky Liu	Relative Humidity :	56~57%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	15.30	30	Pass
06	2437	13.23	30	Pass
11	2462	16.16	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	22~23°C
Test Engineer :	Sky Liu	Relative Humidity :	56~57%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.53	30	Pass
06	2437	19.98	30	Pass
11	2462	22.79	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**

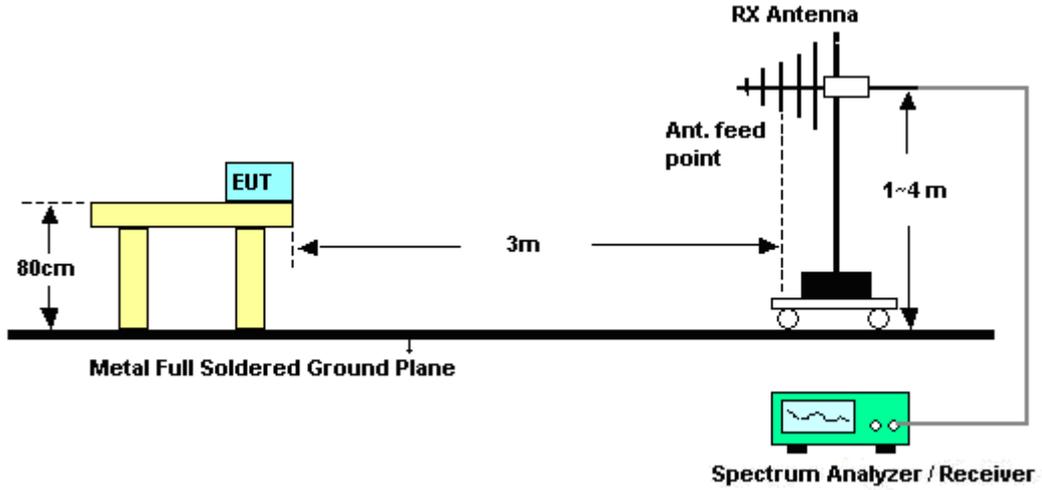
See list of measuring instruments of this test report.

#### **3.3.3 Test Procedures**

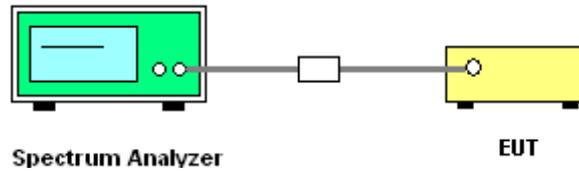
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW)  $\geq$  RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	20~21°C
Test Band :	802.11b	Relative Humidity :	59~60%
Test Channel :	01	Test Engineer :	Haitao Yin

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	49.81	-24.19	74	48.64	32.86	3.15	34.84	133	85	Peak
2389.99	39.02	-14.98	54	37.85	32.86	3.15	34.84	133	85	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
2388.85	49.16	-24.84	74	48.01	32.86	3.13	34.84	100	310	Peak
2388.85	37.98	-16.02	54	36.83	32.86	3.13	34.84	100	310	Average

Test Mode :	Mode 3	Temperature :	20~21°C
Test Band :	802.11b	Relative Humidity :	59~60%
Test Channel :	11	Test Engineer :	Haitao Yin

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
2487.65	50.78	-23.22	74	49.38	33.05	3.2	34.85	110	338	Peak
2487.65	40.51	-13.49	54	39.11	33.05	3.2	34.85	110	338	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
2487.27	49.75	-24.25	74	48.39	33.01	3.2	34.85	100	94	Peak
2487.27	39.66	-14.34	54	38.3	33.01	3.2	34.85	100	94	Average



Test Mode :	Mode 4	Temperature :	20~21°C
Test Band :	802.11g	Relative Humidity :	59~60%
Test Channel :	01	Test Engineer :	Haitao Yin

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
2389.8	61.34	-12.66	74	60.17	32.86	3.15	34.84	100	58	Peak
2389.8	46.89	-7.11	54	45.72	32.86	3.15	34.84	100	58	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	61.06	-12.94	74	59.89	32.86	3.15	34.84	132	303	Peak
2389.99	47.32	-6.68	54	46.15	32.86	3.15	34.84	132	303	Average

Test Mode :	Mode 6	Temperature :	20~21°C
Test Band :	802.11g	Relative Humidity :	59~60%
Test Channel :	11	Test Engineer :	Haitao Yin

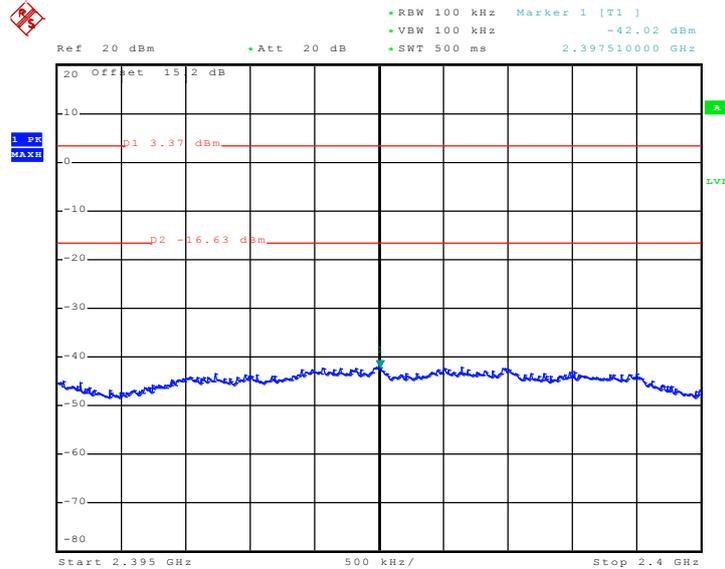
ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.85	55.22	-18.78	74	53.86	33.01	3.2	34.85	100	63	Peak
2483.85	40.38	-13.62	54	39.02	33.01	3.2	34.85	100	63	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.42	54.73	-19.27	74	53.37	33.01	3.2	34.85	100	87	Peak
2484.42	39.41	-14.59	54	38.05	33.01	3.2	34.85	100	87	Average

### 3.3.6 Test Plots of Conducted Band Edges

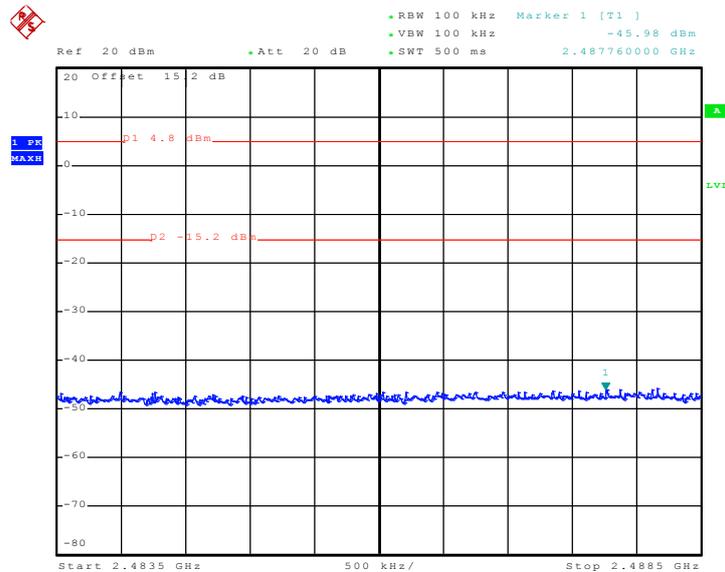
Test Mode :	Mode 1 and 3	Temperature :	22~23°C
Test Band :	802.11b	Relative Humidity :	56~57%
Test Channel :	01 and 11	Test Engineer :	Sky Liu

Low Band Edge Plot on 802.11b Channel 01



Date: 14.JUL.2010 07:22:59

High Band Edge Plot on 802.11b Channel 11

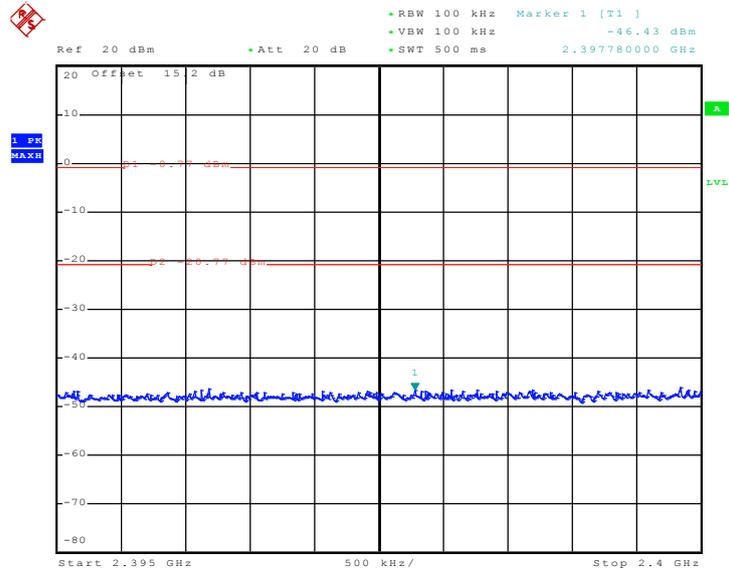


Date: 14.JUL.2010 06:18:29



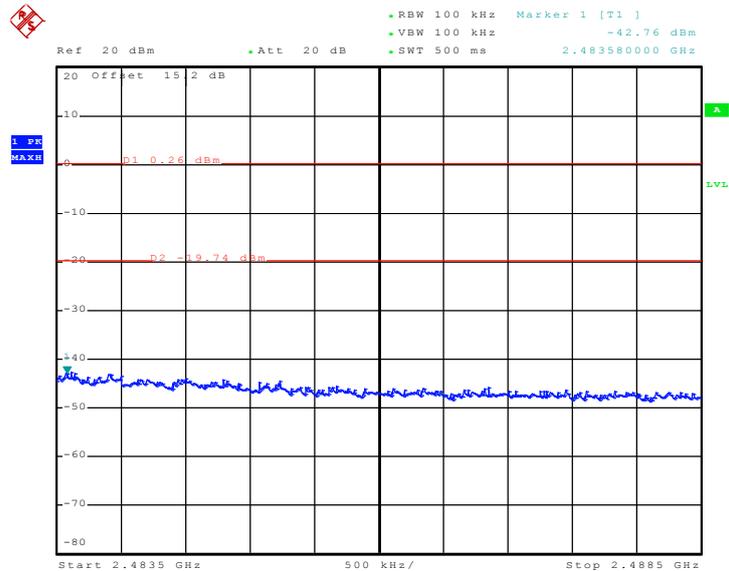
Test Mode :	Mode 4 and 6	Temperature :	22~23°C
Test Band :	802.11g	Relative Humidity :	56~57%
Test Channel :	01 and 11	Test Engineer :	Sky Liu

Low Band Edge Plot on 802.11g Channel 01



Date: 14.JUL.2010 07:33:23

High Band Edge Plot on 802.11g Channel 11



Date: 14.JUL.2010 07:30:03

## 3.4 Power Spectral Density Measurement

### 3.4.1 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.

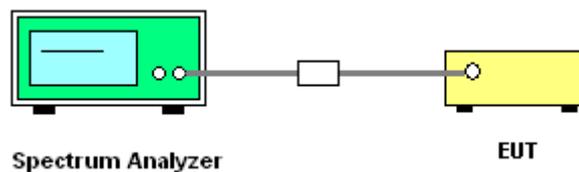
### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.4.3 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.

### 3.4.4 Test Setup



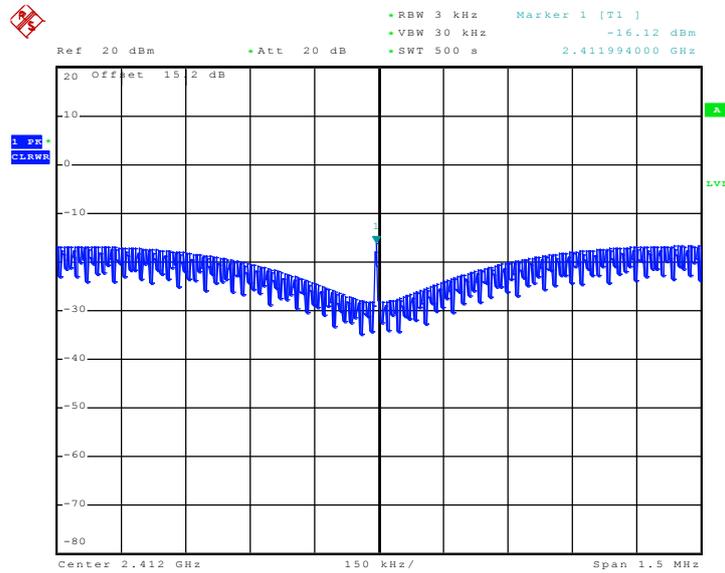


3.4.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	22~23°C
Test Engineer :	Sky Liu	Relative Humidity :	56~57%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-16.12	8	Pass
06	2437	-17.86	8	Pass
11	2462	-15.74	8	Pass

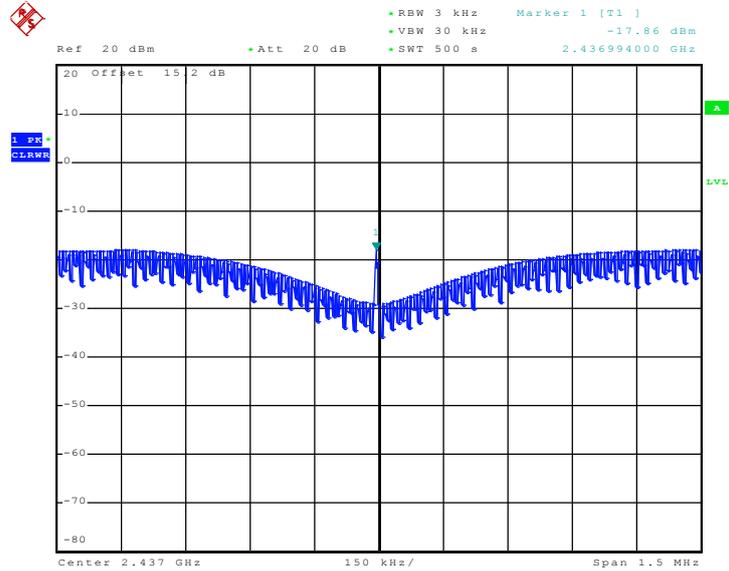
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 14.JUL.2010 08:51:05

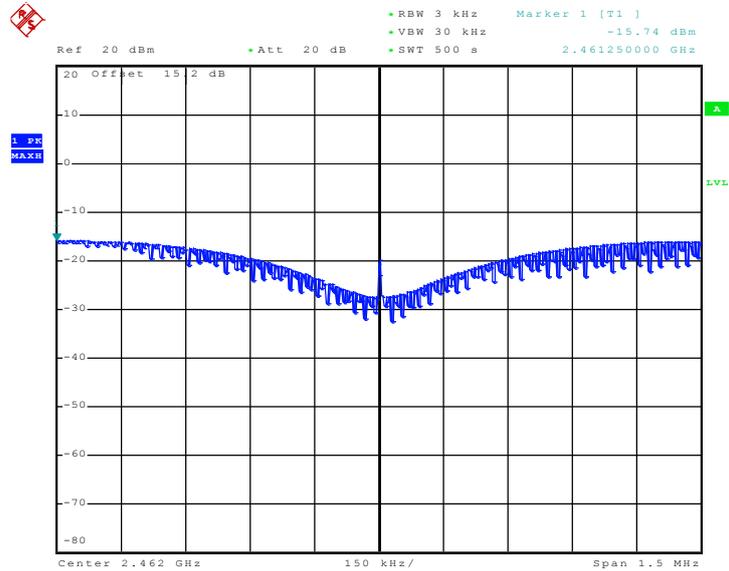


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 14.JUL.2010 09:10:42

Mode 3 : PSD Plot on 802.11b Channel 11



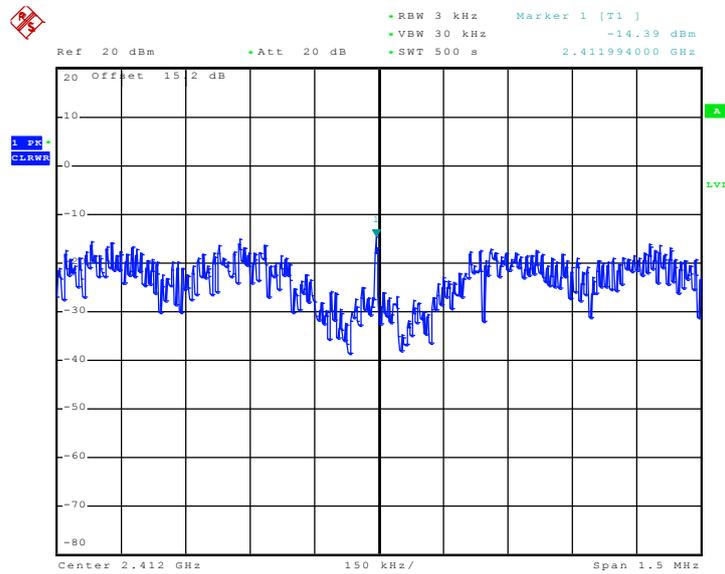
Date: 14.JUL.2010 09:29:28



Test Mode :	Mode 4, 5, 6	Temperature :	22~23°C
Test Engineer :	Sky Liu	Relative Humidity :	56~57%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-14.39	8	Pass
06	2437	-11.56	8	Pass
11	2462	-11.96	8	Pass

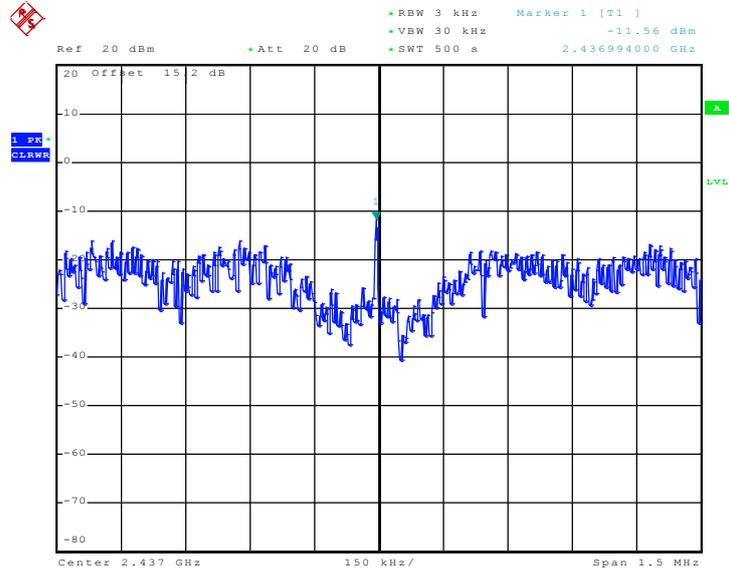
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 14.JUL.2010 07:52:40

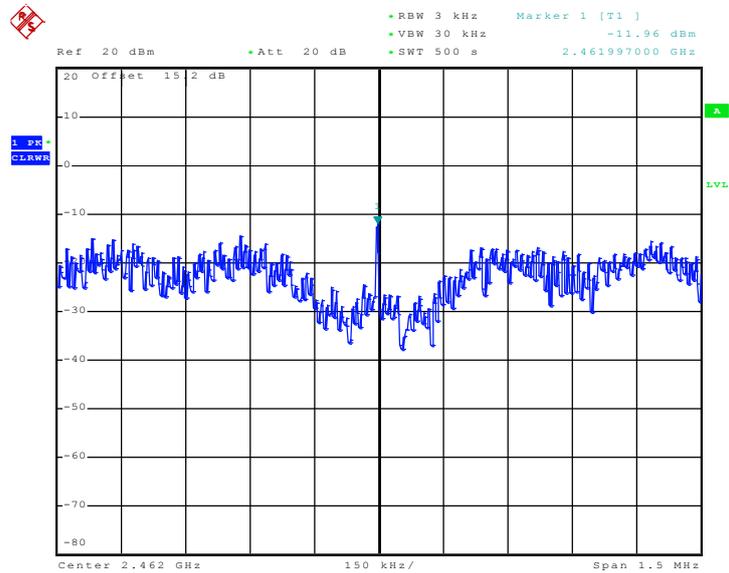


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 14.JUL.2010 08:10:41

Mode 6 : PSD Plot on 802.11g Channel 11



Date: 14.JUL.2010 08:29:28

## 3.5 AC Conducted Emission Measurement

### 3.5.1 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.

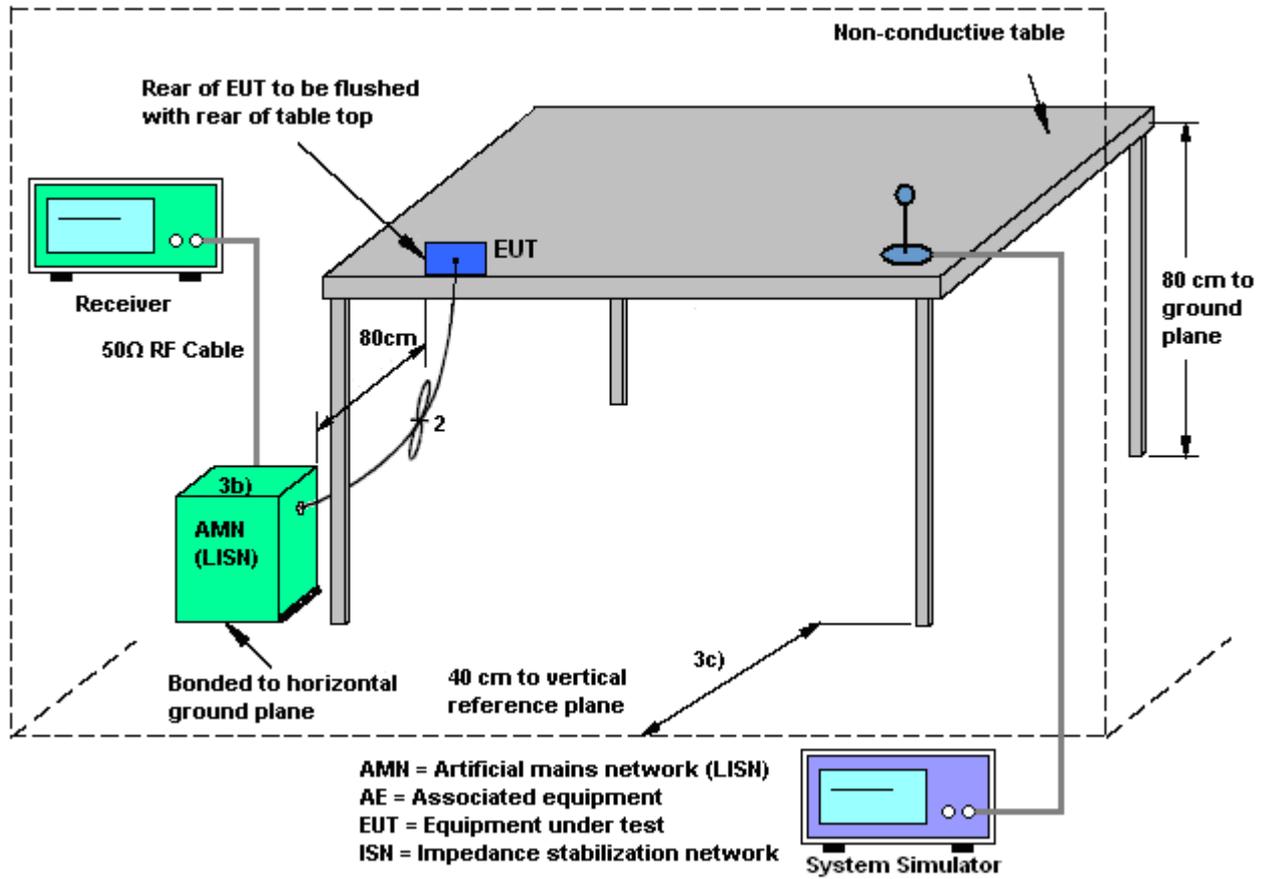
### 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.5.3 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.

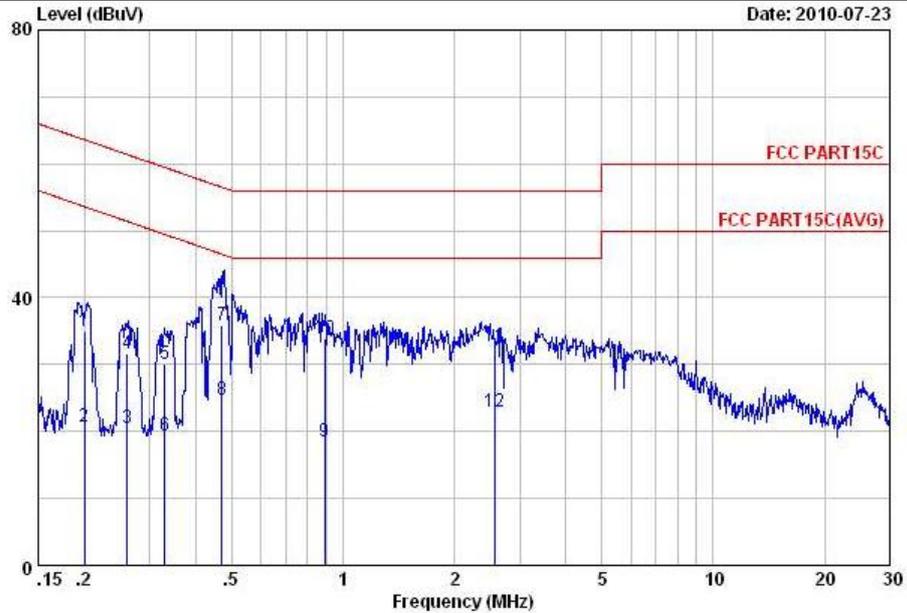
### 3.5.4 Test Setup





3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Terry Wang	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC0 Idle + WLAN Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

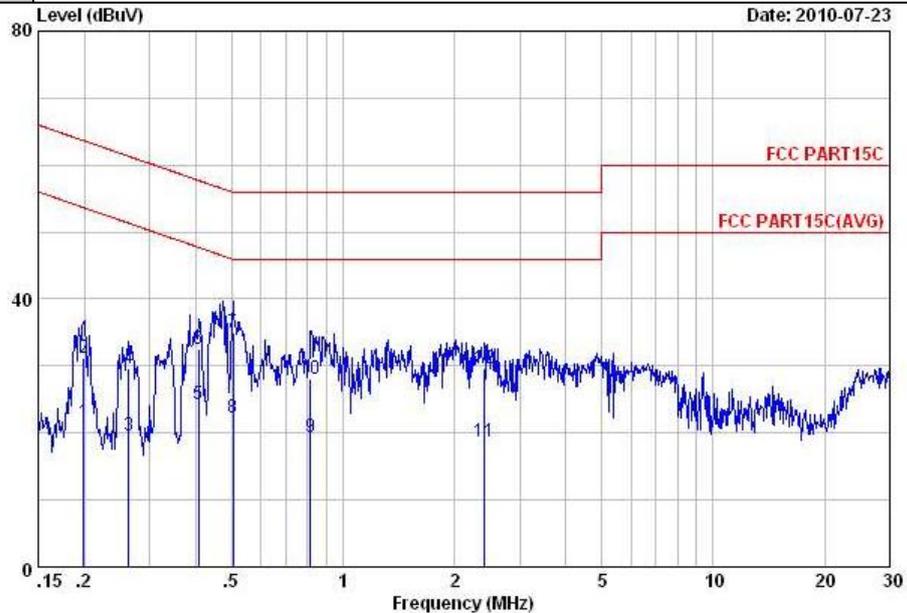


Condition: FCC PART15C LISN-071001 NEUTRAL  
 Project : FR 070101  
 Mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
		dBuV	dB	dBuV	dBuV	dB	dB	
1	0.20	34.88	-28.73	63.61	24.80	-0.07	10.15	QP
2	0.20	20.78	-32.83	53.61	10.70	-0.07	10.15	Average
3	0.26	20.39	-31.01	51.40	10.30	-0.07	10.16	Average
4	0.26	31.59	-29.81	61.40	21.50	-0.07	10.16	QP
5	0.33	30.00	-29.45	59.45	19.90	-0.08	10.18	QP
6	0.33	19.40	-30.05	49.45	9.30	-0.08	10.18	Average
7	0.47	35.82	-20.69	56.51	25.70	-0.08	10.20	QP
8	0.47	24.62	-31.89	56.51	14.50	-0.08	10.20	QP
9	0.89	18.47	-27.53	46.00	8.31	-0.09	10.25	Average
10	0.89	33.87	-22.13	56.00	23.71	-0.09	10.25	QP
11	2.57	32.84	-23.16	56.00	22.59	-0.11	10.36	QP
12	2.57	22.84	-23.16	46.00	12.59	-0.11	10.36	Average



Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Terry Wang	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + WLAN Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Condition: FCC PART15C LISN-071001 LINE  
 Project : FR 070101  
 Mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.20	21.58	-32.07	53.65	11.50	-0.07	10.15	Average
2	0.20	31.28	-32.37	63.65	21.20	-0.07	10.15	QP
3	0.26	19.69	-31.65	51.34	9.60	-0.07	10.16	Average
4	0.26	29.59	-31.75	61.34	19.50	-0.07	10.16	QP
5	0.41	24.31	-23.42	47.73	14.20	-0.08	10.19	Average
6	0.41	32.51	-25.22	57.73	22.40	-0.08	10.19	QP
7	0.50	35.03	-20.97	56.00	24.90	-0.08	10.21	QP
8	0.50	22.23	-23.77	46.00	12.10	-0.08	10.21	Average
9	0.82	19.35	-26.65	46.00	9.19	-0.09	10.25	Average
10	0.82	28.05	-27.95	56.00	17.89	-0.09	10.25	QP
11	2.41	18.64	-27.36	46.00	8.40	-0.11	10.35	Average
12	2.41	29.54	-26.46	56.00	19.30	-0.11	10.35	QP

### 3.6 Radiated Emission Measurement

#### 3.6.1 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

#### 3.6.2 Measuring Instruments

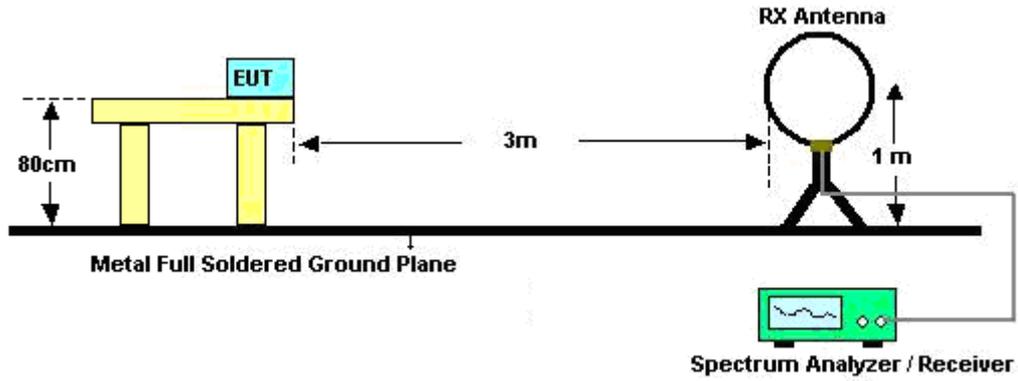
See list of measuring instruments of this test report.

#### 3.6.3 Test Procedures

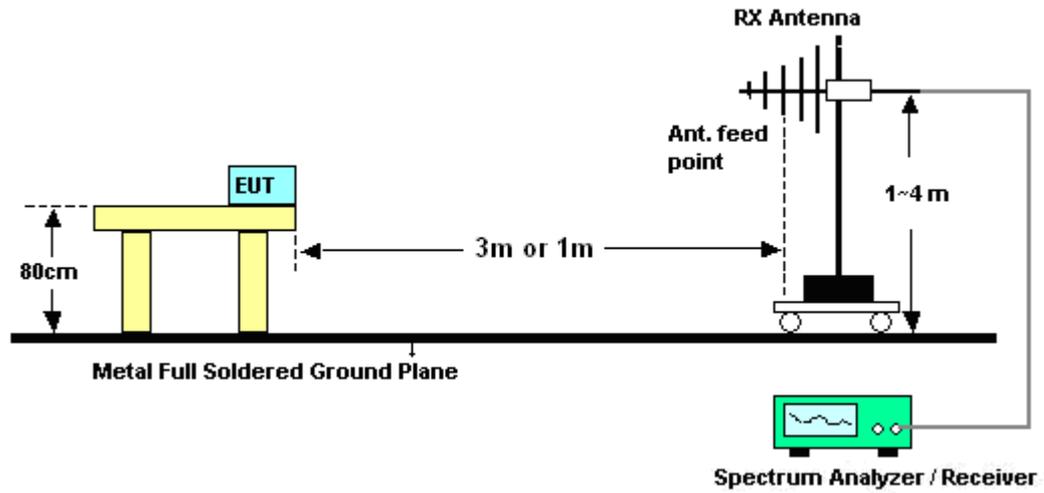
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
  - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep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

### 3.6.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



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

<b>Test Engineer :</b>	Haitao Yin	<b>Temperature :</b>	20~21°C	
		<b>Relative Humidity :</b>	59~60%	
<b>Frequency (MHz)</b>	<b>Level (dBuV)</b>	<b>Over Limit (dB)</b>	<b>Limit Line (dBuV)</b>	<b>Remark</b>
-	-	-	-	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.



3.6.6 Test Result of Radiated Emission (30 MHz ~ 10<sup>th</sup> Harmonic)

Test Mode :	Mode 1	Temperature :	20~21°C
Test Channel :	01	Relative Humidity :	59~60%
Test Engineer :	Haitao Yin	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
46.74	36.74	-3.26	40	56.19	8.88	0.3	28.63	100	230	Peak
69.96	28.03	-11.97	40	50.96	5.3	0.37	28.6	-	-	Peak
120.45	25.51	-17.99	43.5	41.87	11.8	0.46	28.62	-	-	Peak
670.3	19.98	-26.02	46	27.99	19.05	1.12	28.18	-	-	Peak
878.2	22.24	-23.76	46	27.58	20.47	1.28	27.09	-	-	Peak
967.8	23.08	-30.92	54	27.51	20.85	1.34	26.62	-	-	Peak
2389.99	49.81	-24.19	74	48.64	32.86	3.15	34.84	133	85	Peak
2389.99	39.02	-14.98	54	37.85	32.86	3.15	34.84	133	85	Average
2412	97	-	-	95.8	32.89	3.15	34.84	138	85	Peak
2412	98.88	-	-	97.68	32.89	3.15	34.84	138	85	Average
2484.42	49.67	-24.33	74	48.31	33.01	3.2	34.85	133	93	Peak
2484.42	38.85	-15.15	54	37.49	33.01	3.2	34.85	133	93	Average



<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30	20.88	-19.12	40	31.27	18	0.25	28.64	100	150	Peak
134.49	17.29	-26.21	43.5	34.07	11.3	0.55	28.63	-	-	Peak
192	16.28	-27.22	43.5	35.74	8.59	0.65	28.7	-	-	Peak
670.3	21.2	-24.8	46	29.21	19.05	1.12	28.18	-	-	Peak
822.2	22.87	-23.13	46	28.98	20.12	1.24	27.47	-	-	Peak
960.8	23.93	-30.07	54	28.46	20.8	1.33	26.66	-	-	Peak
2388.85	49.16	-24.84	74	48.01	32.86	3.13	34.84	100	310	Peak
2388.85	37.98	-16.02	54	36.83	32.86	3.13	34.84	100	310	Average
2412	97.79	-	-	96.59	32.89	3.15	34.84	100	291	Peak
2412	94.08	-	-	92.88	32.89	3.15	34.84	100	291	Average
2486.51	50.12	-23.88	74	48.76	33.01	3.2	34.85	100	360	Peak
2486.51	41.83	-12.17	54	40.47	33.01	3.2	34.85	100	360	Average
4826	51.57	-22.43	74	45.92	35.17	4.68	34.2	-	-	Peak
4826	46.43	-7.57	54	40.78	35.17	4.68	34.2	100	320	Average



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
47.01	36.52	-3.48	40	56.34	8.5	0.31	28.63	120	30	Peak
70.23	27.84	-12.16	40	50.77	5.3	0.37	28.6	-	-	Peak
120.45	25.93	-17.57	43.5	42.29	11.8	0.46	28.62	-	-	Peak
620.6	19.91	-26.09	46	28.55	18.71	1.07	28.42	-	-	Peak
738.9	22.84	-23.16	46	29.73	19.8	1.17	27.86	-	-	Peak
951.7	22.97	-31.03	54	27.63	20.74	1.32	26.72	-	-	Peak
2388	48.38	-25.62	74	47.23	32.86	3.13	34.84	100	86	Peak
2388	37.87	-16.13	54	36.72	32.86	3.13	34.84	100	86	Average
2437	102.88	-	-	101.6	32.95	3.17	34.84	100	93	Peak
2437	99.98	-	-	98.7	32.95	3.17	34.84	100	93	Average
2492	47.68	-26.32	74	46.27	33.05	3.21	34.85	100	95	Peak
2492	37.97	-16.03	54	36.56	33.05	3.21	34.85	100	95	Average



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30	20.24	-19.76	40	30.63	18	0.25	28.64	100	120	Peak
49.17	17.82	-22.18	40	38.39	7.75	0.31	28.63	-	-	Peak
137.19	16.97	-26.53	43.5	33.99	11.05	0.56	28.63	-	-	Peak
574.4	19.92	-26.08	46	28.85	18.55	1.05	28.53	-	-	Peak
768.3	23.22	-22.78	46	29.91	19.88	1.21	27.78	-	-	Peak
909	23.83	-22.17	46	29.05	20.49	1.29	27	-	-	Peak
2390	47.18	-26.82	74	46.01	32.86	3.15	34.84	147	333	Peak
2390	38.27	-15.73	54	37.1	32.86	3.15	34.84	147	333	Average
2437	101.26	-	-	99.98	32.95	3.17	34.84	143	332	Peak
2437	99.43	-	-	98.15	32.95	3.17	34.84	143	332	Average
2496	49.11	-24.89	74	47.7	33.05	3.21	34.85	100	314	Peak
2496	38.17	-15.83	54	36.76	33.05	3.21	34.85	100	314	Average
3960	51.93	-22.07	74	46.93	34.97	4.26	34.23	-	-	Peak
3960	43.22	-10.78	54	38.22	34.97	4.26	34.23	100	230	Average
4874	51.19	-22.81	74	45.5	35.18	4.71	34.2	-	-	Peak
4874	44.75	-9.25	54	39.06	35.18	4.71	34.2	106	0	Average



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30	21.03	-18.97	40	31.42	18	0.25	28.64	100	110	Peak
137.46	17.19	-26.31	43.5	34.21	11.05	0.56	28.63	-	-	Peak
269.76	18.04	-27.96	46	33.74	12.36	0.75	28.81	-	-	Peak
649.3	19.8	-26.2	46	28.13	18.9	1.1	28.33	-	-	Peak
812.4	21.82	-24.18	46	28.2	19.98	1.23	27.59	-	-	Peak
880.3	22.44	-23.56	46	27.77	20.47	1.28	27.08	-	-	Peak
2389.04	48.77	-25.23	74	47.62	32.86	3.13	34.84	148	334	Peak
2389.04	38.13	-15.87	54	36.98	32.86	3.13	34.84	148	334	Average
2462	100.41	-	-	99.1	32.98	3.18	34.85	172	337	Peak
2462	97.41	-	-	96.1	32.98	3.18	34.85	172	337	Average
2487.65	50.78	-23.22	74	49.38	33.05	3.2	34.85	110	338	Peak
2487.65	40.51	-13.49	54	39.11	33.05	3.2	34.85	110	338	Average
3960	52.56	-21.44	74	47.56	34.97	4.26	34.23	-	-	Peak
3960	37.23	-16.77	54	32.23	34.97	4.26	34.23	100	240	Average



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30	36.52	-3.48	40	46.91	18	0.25	28.64	100	235	Peak
46.74	35.35	-4.65	40	54.8	8.88	0.3	28.63	-	-	Peak
69.96	27.82	-12.18	40	50.75	5.3	0.37	28.6	-	-	Peak
591.9	20.27	-25.73	46	29.12	18.59	1.06	28.5	-	-	Peak
816.6	22.57	-23.43	46	28.84	20.03	1.24	27.54	-	-	Peak
882.4	22.59	-23.41	46	27.92	20.47	1.28	27.08	-	-	Peak
2389.61	47.99	-26.01	74	46.84	32.86	3.13	34.84	132	85	Peak
2389.61	38.43	-15.57	54	37.28	32.86	3.13	34.84	132	85	Average
2462	101.27	-	-	99.96	32.98	3.18	34.85	100	94	Peak
2462	97.41	-	-	96.1	32.98	3.18	34.85	100	94	Average
2487.27	49.75	-24.25	74	48.39	33.01	3.2	34.85	100	94	Peak
2487.27	39.66	-14.34	54	38.3	33.01	3.2	34.85	100	94	Average



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.27	18.47	-21.53	40	28.86	18	0.25	28.64	-	-	Peak
95.07	14.91	-28.59	43.5	33.29	9.8	0.43	28.61	-	-	Peak
204.42	16.22	-27.28	43.5	35.05	9.21	0.67	28.71	-	-	Peak
568.8	20.05	-25.95	46	29.03	18.53	1.04	28.55	-	-	Peak
768.3	25.58	-20.42	46	32.27	19.88	1.21	27.78	-	-	Peak
902	34.71	-11.29	46	40	20.46	1.29	27.04	100	14	Peak
2389.8	61.34	-12.66	74	60.17	32.86	3.15	34.84	100	58	Peak
2389.8	46.89	-7.11	54	45.72	32.86	3.15	34.84	100	58	Average
2412	104.83	-	-	103.63	32.89	3.15	34.84	100	61	Peak
2412	94.49	-	-	93.29	32.89	3.15	34.84	100	61	Average
2483.66	52.35	-21.65	74	50.99	33.01	3.2	34.85	100	63	Peak
2483.66	40.78	-13.22	54	39.42	33.01	3.2	34.85	100	63	Average
3960	52.16	-21.84	74	47.16	34.97	4.26	34.23	-	-	Peak
3960	49.12	-4.88	54	44.12	34.97	4.26	34.23	100	288	Average



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30	32.84	-7.16	40	43.23	18	0.25	28.64	100	144	Peak
48.63	29.87	-10.13	40	50.07	8.12	0.31	28.63	-	-	Peak
94.8	22.91	-20.59	43.5	41.29	9.8	0.43	28.61	-	-	Peak
625.5	20.41	-25.59	46	28.99	18.75	1.07	28.4	-	-	Peak
895	22.21	-23.79	46	27.53	20.45	1.29	27.06	-	-	Peak
963.6	23.11	-30.89	54	27.62	20.81	1.33	26.65	-	-	Peak
2389.99	61.06	-12.94	74	59.89	32.86	3.15	34.84	132	303	Peak
2389.99	47.32	-6.68	54	46.15	32.86	3.15	34.84	132	303	Average
2412	102.97	-	-	101.77	32.89	3.15	34.84	100	88	Peak
2412	92.15	-	-	90.95	32.89	3.15	34.84	100	88	Average
2490.69	52.01	-21.99	74	50.61	33.05	3.2	34.85	100	88	Peak
2490.69	39.25	-14.75	54	37.85	33.05	3.2	34.85	100	88	Average



Test Mode :	Mode 5	Temperature :	20~21°C
Test Channel :	06	Relative Humidity :	59~60%
Test Engineer :	Haitao Yin	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	18.33	-21.67	40	29.42	17.29	0.26	28.64	100	255	Peak
94.53	14.91	-28.59	43.5	33.29	9.8	0.43	28.61	-	-	Peak
256.53	16.51	-29.49	46	32.43	12.1	0.75	28.77	-	-	Peak
706.7	21.93	-24.07	46	29.37	19.36	1.14	27.94	-	-	Peak
768.3	23.61	-22.39	46	30.3	19.88	1.21	27.78	-	-	Peak
896.4	22.77	-23.23	46	28.09	20.45	1.29	27.06	-	-	Peak
2390	47.74	-26.26	74	46.57	32.86	3.15	34.84	-	-	Peak
2390	39.16	-14.84	54	37.99	32.86	3.15	34.84	100	308	Average
2437	100.13	-	-	98.85	32.95	3.17	34.84	-	-	Peak
2437	92.93	-	-	91.65	32.95	3.17	34.84	100	292	Average
2496	50.51	-23.49	74	49.1	33.05	3.21	34.85	-	-	Peak
2496	36.28	-17.72	54	34.87	33.05	3.21	34.85	100	287	Average



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.54	32.11	-7.89	40	43.2	17.29	0.26	28.64	100	266	Peak
49.17	29.97	-10.03	40	50.54	7.75	0.31	28.63	-	-	Peak
94.53	24.53	-18.97	43.5	42.91	9.8	0.43	28.61	-	-	Peak
689.9	19.77	-26.23	46	27.42	19.23	1.13	28.01	-	-	Peak
836.2	20.97	-25.03	46	26.65	20.36	1.25	27.29	-	-	Peak
879.6	22.3	-23.7	46	27.63	20.47	1.28	27.08	-	-	Peak
2390	47.28	-26.72	74	46.11	32.86	3.15	34.84	-	-	Peak
2390	39.44	-14.56	54	38.27	32.86	3.15	34.84	100	93	Average
2437	102.71	-	-	101.43	32.95	3.17	34.84	-	-	Peak
2437	94.76	-	-	93.48	32.95	3.17	34.84	131	93	Average
2498	48.98	-25.02	74	47.57	33.05	3.21	34.85	-	-	Peak
2498	38.56	-15.44	54	37.15	33.05	3.21	34.85	100	98	Average



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30	23.32	-16.68	40	33.71	18	0.25	28.64	100	233	Peak
45.66	20.32	-19.68	40	39.4	9.25	0.3	28.63	-	-	Peak
139.62	23.8	-19.7	43.5	40.96	10.9	0.57	28.63	-	-	Peak
651.4	20.51	-25.49	46	28.83	18.91	1.1	28.33	-	-	Peak
768.3	22.65	-23.35	46	29.34	19.88	1.21	27.78	-	-	Peak
944.7	23.33	-30.67	54	28.06	20.71	1.31	26.75	-	-	Peak
2377.26	48.74	-25.26	74	47.62	32.83	3.13	34.84	100	63	Peak
2377.26	37.04	-16.96	54	35.92	32.83	3.13	34.84	100	63	Average
2412.79	51.75	-22.25	74	50.55	32.89	3.15	34.84	100	60	Peak
2412.79	39.7	-14.3	54	38.5	32.89	3.15	34.84	100	60	Average
2462	101.67	-	-	100.36	32.98	3.18	34.85	100	70	Peak
2462	91.78	-	-	90.47	32.98	3.18	34.85	100	70	Average
2483.85	55.22	-18.78	74	53.86	33.01	3.2	34.85	100	63	Peak
2483.85	40.38	-13.62	54	39.02	33.01	3.2	34.85	100	63	Average
3960	51.86	-22.14	74	46.86	34.97	4.26	34.23	-	-	Peak
3960	47.76	-6.24	54	42.76	34.97	4.26	34.23	100	360	Average



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	20~21°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	59~60%
<b>Test Engineer :</b>	Haitao Yin	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30	32.31	-7.69	40	42.7	18	0.25	28.64	100	319	QP
45.12	36.78	-3.22	40	55.86	9.25	0.3	28.63	-	-	Peak
192	24.27	-19.23	43.5	43.73	8.59	0.65	28.7	-	-	Peak
659.1	20.49	-25.51	46	28.7	18.96	1.11	28.28	-	-	Peak
725.6	22.12	-23.88	46	29.23	19.62	1.16	27.89	-	-	Peak
902.7	31.93	-14.07	46	37.21	20.46	1.29	27.03	-	-	Peak
2379.54	48.31	-25.69	74	47.19	32.83	3.13	34.84	100	319	Peak
2379.54	35.41	-18.59	54	34.29	32.83	3.13	34.84	100	319	Average
2409.56	51.21	-22.79	74	50.01	32.89	3.15	34.84	100	274	Peak
2409.56	40.09	-13.91	54	38.89	32.89	3.15	34.84	100	274	Average
2462	101.1	-	-	99.79	32.98	3.18	34.85	100	81	Peak
2462	90.47	-	-	89.16	32.98	3.18	34.85	100	81	Average
2484.42	54.73	-19.27	74	53.37	33.01	3.2	34.85	100	87	Peak
2484.42	39.41	-14.59	54	38.05	33.01	3.2	34.85	100	87	Average



## **3.7 Antenna Requirements**

### **3.7.1 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.

### **3.7.2 Antenna Connected Construction**

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

### **3.7.3 Antenna Gain**

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

## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 18, 2010	Jan. 17, 2011	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY451015 55	N/A	Aug. 27, 2009	Aug. 26, 2010	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY444211 98	N/A	Aug. 28, 2009	Aug. 27, 2010	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 17, 2009	Nov. 16, 2010	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Jan. 18, 2010	Jan. 17, 2011	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Jan. 18, 2010	Jan. 17, 2011	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	N/A	Nov. 26, 2009	Nov. 25, 2010	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100724	9kHz – 2.75GHz	Mar. 09, 2010	Mar. 08, 2011	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Feb. 02, 2010	Feb. 01, 2011	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A023 70	1GHz~26.5GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
Actice hore antenna	com-power	AHA-118	701023	1G-18GHz	Nov. 18, 2009	Nov. 17, 2010	Radiation (03CH01-KS)
Signal Generator	R&S	SMR40	100455	10MHz~40GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA1702 49	15-40GHz	Oct. 22, 2009	Oct. 21, 2010	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00 1	9 kHz~30 MHz	Jul. 28, 2008	Jul. 28, 2010	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/06 6	Full-Band	Jan. 08, 2009	Jan. 07, 2011	-

## 5 Uncertainty of Evaluation

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

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.13</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.26</b>		

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.27</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.54</b>		

**Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)**

Contribution	Uncertainty of $X_i$		$u(X_i)$	$C_i$	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>2.36</b>				
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>4.72</b>				



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP070306 as below.