



## Test Report

Product Name	Wi-Fi Phone
Model No.	FX28, SS28, SS58
FCC ID	Q5S-SS28

Applicant	Fi Win, Inc
Address	8F, NO.10,Prosperity Rd.1, Science Park, HsinChu, Taiwan 300

Date of Receipt	Mar. 30, 2006
Issued Date	Apr. 13, 2006
Report No.	064L030-RF-US-P05V01

The test results relate only to the samples tested.  
The test report shall not be reproduced except in full without the written approval of Quietek Corporation.  
This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government


# Test Report Certification

Issued Date: Apr. 13, 2006

Report No.: 064L030-RF-US-P05V01



Accredited by NIST (NVLAP)  
NVLAP Lab Code: 200533-0

Product Name	Wi-Fi Phone	
Applicant	Fi Win, Inc	
Address	8F, NO.10, Prosperity Rd.1, Science Park, HsinChu, Taiwan 300	
Manufacturer	Fi Win, Inc	
Model No.	FX28, SS28, SS58	
Rated Voltage	AC 120V/60Hz	
Working Voltage	DC 5.5V	
Trade Name	Fi Win	
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2005 CISPR 22 Edition 4.1: 2004 ANSI C63.4: 2003	 NVLAP Lab Code: 200533-0
Test Result	Complied	

Test results relate only to the samples tested.

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Documented By : Rita Huang

( Rita Huang )



0914

Tested By : Tom Hsieh

( Tom Hsieh )

Approved By : Gene Chang

( Gene Chang )



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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Wi-Fi Phone
Trade Name	Fi Win
Model No.	FX28, SS28, SS58
FCC ID	Q5S-SS28
Frequency Range	2412 – 2462MHz
Channel Number	11
Data Speed	IEEE 802.11b – 1, 2, 5.5, 11Mbps
Type of Modulation	DSSS
Antenna Type	Soldered on PCB
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto

#### Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	Omni-Directional	SAA04-050350	2dBi for 2.4 GHz

Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2412 MHz	Channel 5:	2432 MHz	Channel 9:	2452 MHz
Channel 2:	2417 MHz	Channel 6:	2437 MHz	Channel 10:	2457 MHz
Channel 3:	2422 MHz	Channel 7:	2442 MHz	Channel 11:	2462 MHz
Channel 4:	2427 MHz	Channel 8:	2447 MHz		

Note:

- The different of the each model is shown as below:

Model Number	Description
FX28	Color
SS28, SS58	Black and White

- The EUT is a Wi-Fi Phone including a 2.4GHz transceiver.
- Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 11Mbps and 802.11g is 54Mbps)
- These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.

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## 1.2. Operational Description

The EUT is a Wi-Fi Phone with 11 channels. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps. The device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b)

The device adapts direct sequence spread spectrum modulation. The antenna was Connector provides diversity function to improve the receiving function.

This Wi-Fi Phone, compliant with IEEE 802.11b is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz Direct Sequence Spread Spectrum (DSSS) radio transmission, the Wi-Fi Phone Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b

Test Mode	Mode 1: Transmitter 802.11b
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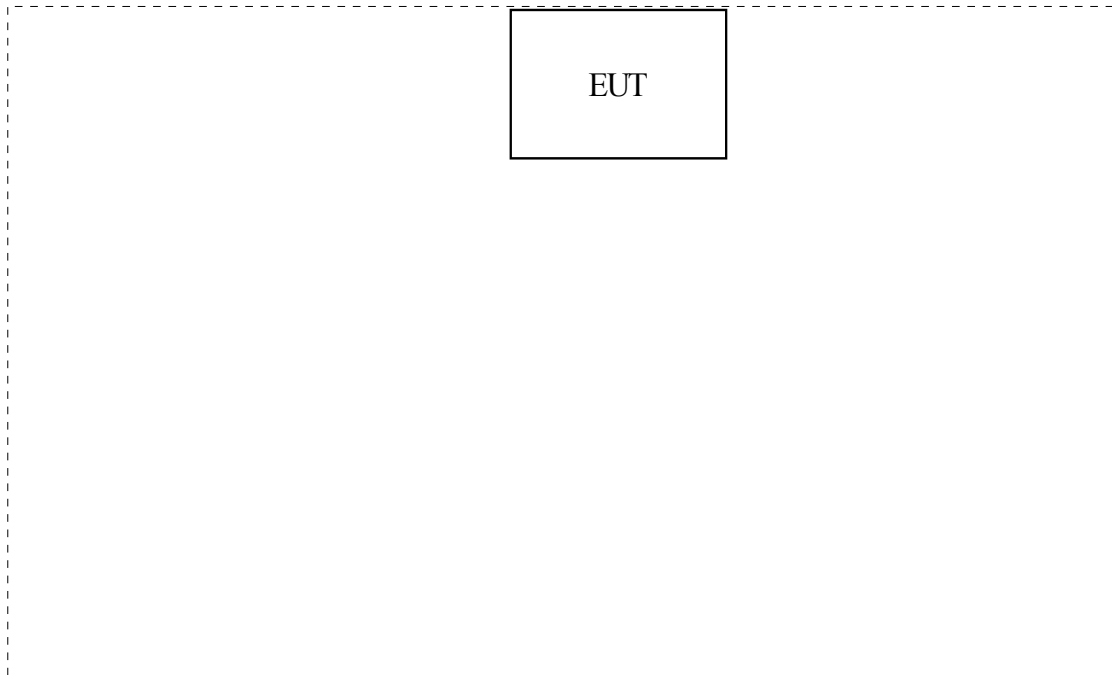
### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1.	N/A	N/A	N/A	N/A	N/A	N/A

	Signal Cable Type	Signal cable Description
A.	N/A	N/A

## 1.4. Configuration of Test System



## 1.5. EUT Exercise Software

- (1) Setup the EUT as shown in section 1.4
- (2) Execute the CRTU program (the continuous transmission program) on the EUT
- (3) Setup the test mode, the test channel, and the data rate.
- (4) Press OK to start the transmission.
- (5) Verify that the EUT works correctly.



**1.6. Test Facility**

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description: June 22, 2001 File on  
 Federal Communications Commission  
 FCC Engineering Laboratory  
 7435 Oakland Mills Road  
 Columbia, MD 21046  
 Reference 31040/SIT1300F2



July 03, 2001 Accreditation on NVLAP  
 NVLAP Lab Code: 200533-0



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## 2. Conducted Emission

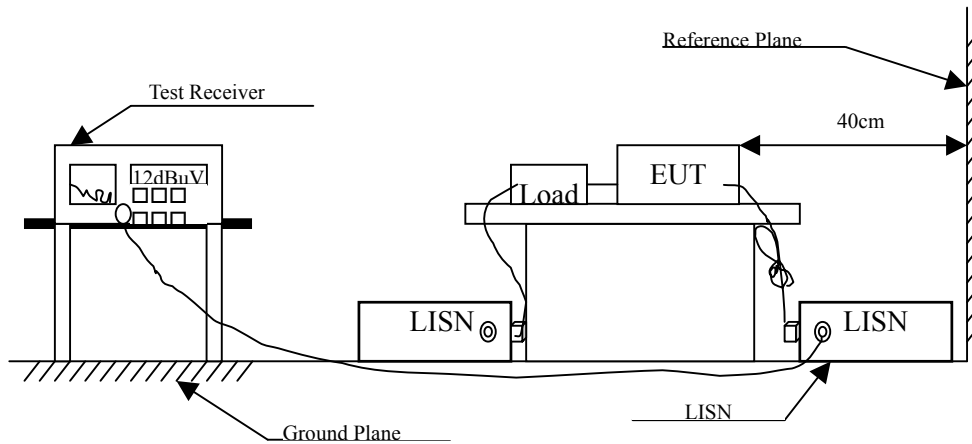
### 2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2005	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2005	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2005	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2005	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

### 2.2. Test Setup



### 2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	uV	dBuV
0.15 - 0.50	66-56 <sup>(註)</sup>	56-46 <sup>(註)</sup>
0.50-5.0	56	46
5.0 - 30	60	50

## 2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

## 2.5. Uncertainty

The measurement uncertainty is defined as  $\pm 2.02$  dB

## 2.6. Test Result of Conducted Emission

Product : Wi-Fi Phone  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>LINE 1</b>					
<b>Quasi-Peak</b>					
0.216	0.536	35.480	36.016	-28.099	64.114
0.435	0.300	41.470	41.770	-16.087	57.857
0.640	0.304	34.570	34.874	-21.126	56.000
0.752	0.310	38.020	38.330	-17.670	56.000
1.275	0.320	35.170	35.490	-20.510	56.000
2.027	0.340	34.340	34.680	-21.320	56.000
<b>Average</b>					
0.216	0.536	27.880	28.416	-25.699	54.114
0.435	0.300	29.440	29.740	-18.117	47.857
0.640	0.304	22.880	23.184	-22.816	46.000
0.752	0.310	28.550	28.860	-17.140	46.000
1.275	0.320	18.120	18.440	-27.560	46.000
2.027	0.340	16.610	16.950	-29.050	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Wi-Fi Phone  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>LINE 2</b>					
<b>Quasi-Peak</b>					
0.255	0.300	36.780	37.080	-25.920	63.000
0.456	0.310	31.640	31.950	-25.307	57.257
0.744	0.319	34.690	35.009	-20.991	56.000
1.004	0.320	30.260	30.580	-25.420	56.000
1.649	0.340	29.390	29.730	-26.270	56.000
2.439	0.360	27.810	28.170	-27.830	56.000
<b>Average</b>					
0.255	0.300	27.260	27.560	-25.440	53.000
0.456	0.310	20.200	20.510	-26.747	47.257
0.744	0.319	23.660	23.979	-22.021	46.000
1.004	0.320	15.260	15.580	-30.420	46.000
1.649	0.340	11.530	11.870	-34.130	46.000
2.439	0.360	10.870	11.230	-34.770	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Peak Power Output

#### 3.1. Test Equipment

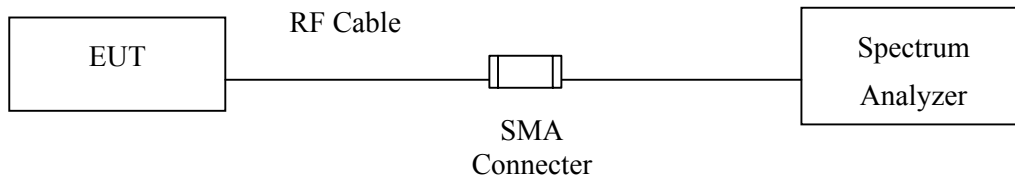
The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2005

- Note:
1. All instruments are calibrated every one year.
  2. The test instruments marked by “X” are used to measure the final test results.

#### 3.2. Test Setup

##### Conduction Power Measurement



#### 3.3. Limits

The maximum peak power shall be less 1 Watt.

#### 3.4. Uncertainty

The measurement uncertainty is defined as  $\pm 1.27$  dB

### 3.5. Test Result of Peak Power Output

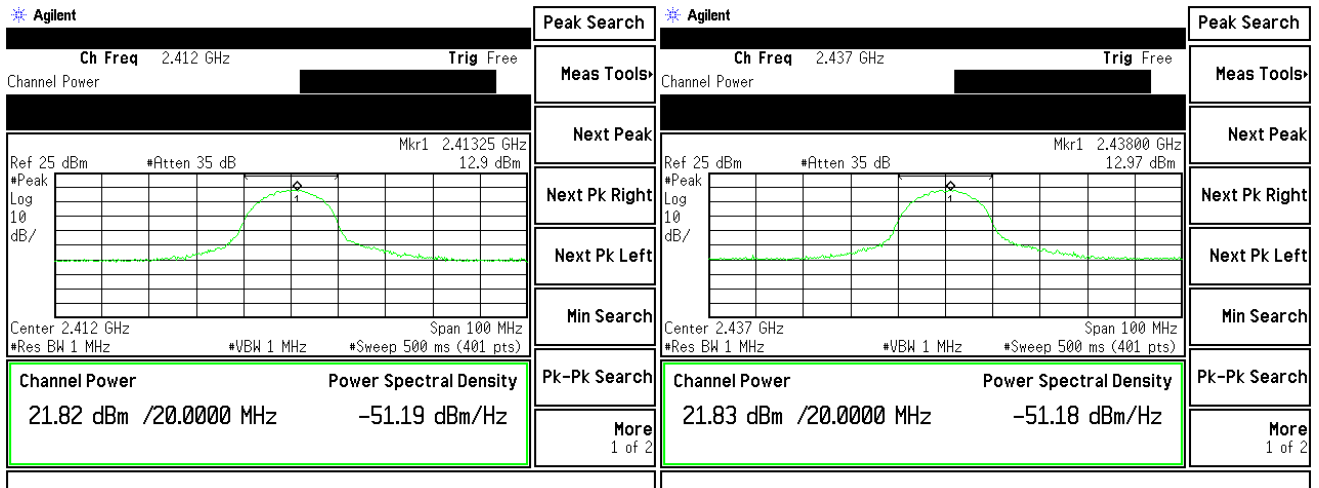
Product : Wi-Fi Phone  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b

#### Data Speed: 11Mbps

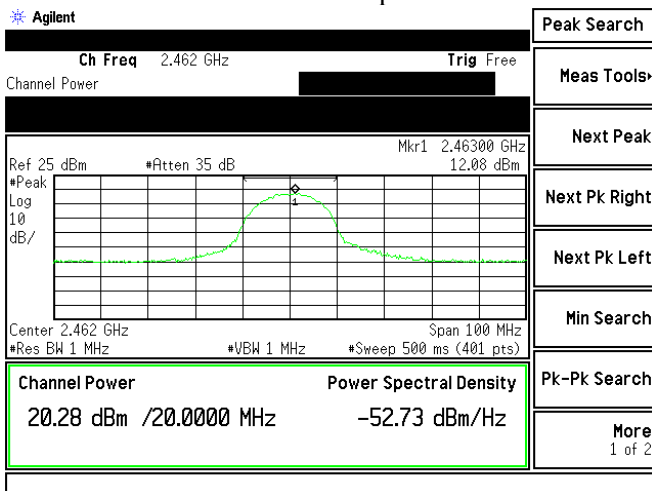
Channel No.	Frequency (MHz)	Measurement	Required Limit	Result
1	2412.00	21.82dBm	1 Watt= 30 dBm	Pass
6	2437.00	21.83dBm	1 Watt= 30 dBm	Pass
11	2462.00	20.28dBm	1 Watt= 30 dBm	Pass

11Mbps-CH01

11Mbps-CH 06



11Mbps-CH11



## 4. Radiated Emission

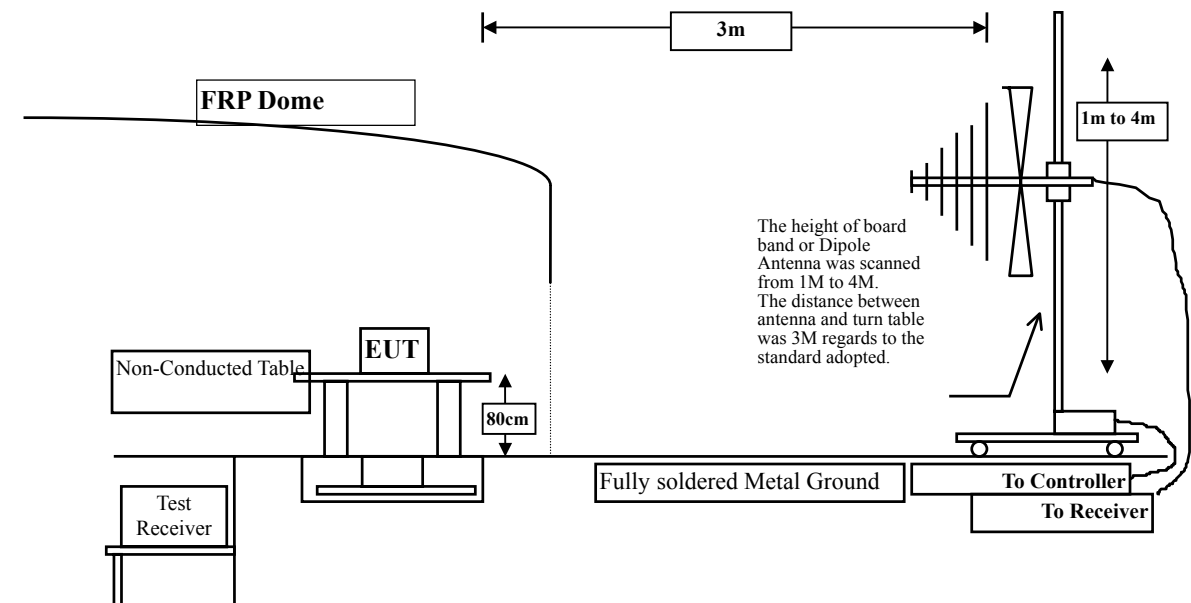
### 4.1. Test Equipment

The following test equipment are used during the radiated emission test:

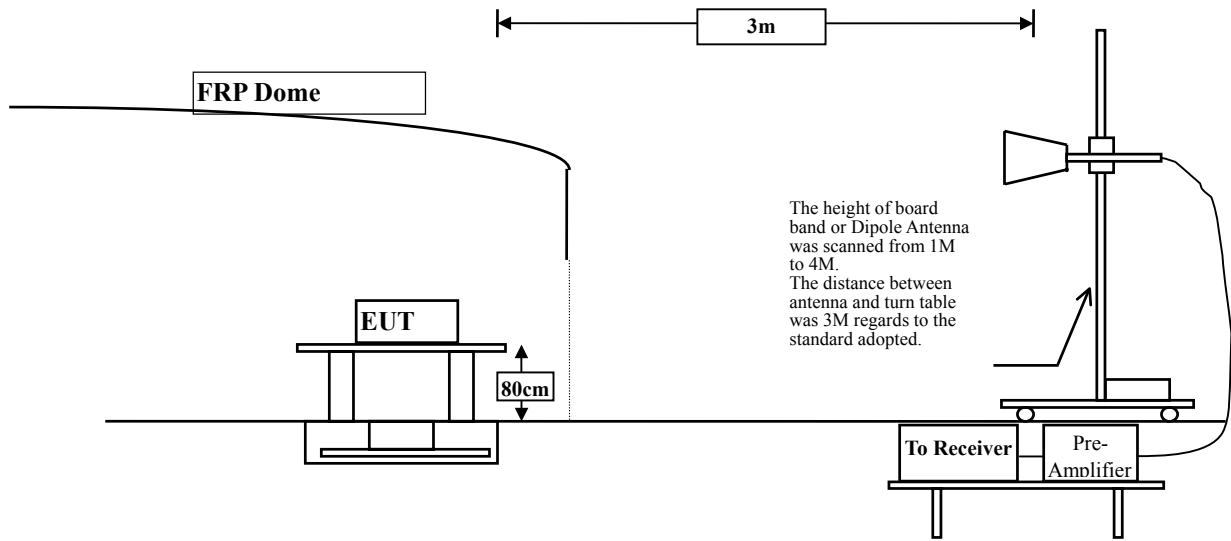
Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 1	Test Receiver	R & S	ESCS 30 / 825442/14	May, 2005
	Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2005
	Pre-Amplifier	HP	8447D/3307A01812	May, 2005
	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
	Horn Antenna	EM	EM6917 / 103325	May, 2005
Site # 2	Test Receiver	R & S	ESCS 30 / 825442/17	May, 2005
	Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2005
	Pre-Amplifier	HP	8447D/3307A01814	May, 2005
	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2005
	Horn Antenna	EM	EM6917 / 103325	May, 2005
Site # 3	X Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2005
	X Spectrum Analyzer	Advantest	R3162 / 100803480	May, 2005
	X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2005
	X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2005
	X Horn Antenna	ETS	3115 / 0005-6160	July, 2005
	X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2005

- Note:
1. All instruments are calibrated every one year.
  2. The test instruments marked by "X" are used to measure the final test results.

### 4.2. Test Setup







### 4.3. Limits

#### ➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
  2. In the Above Table, the tighter limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

#### 4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The additional notch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30 )is 120 kHz, above 1GHz are 1 MHz.

The frequency range from 30MHz to 10th harmonics is checked.

#### 4.5. Uncertainty

The measurement uncertainty is defined as  $\pm 3.8$  dB above 1GHz as  $\pm 3.9$  dB

#### 4.6. Test Result of Radiated Emission

Product : Wi-Fi Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	4.390	39.380	43.770	-30.200	74.00
7236.000	11.801	45.350	57.151	-16.819	74.00
9648.000	15.809	50.730	66.539	-7.431	74.00
12060.000	18.064	39.590	57.653	-16.317	74.00
<b>Average Detector:</b>					
7236.000	11.801	34.560	46.361	-7.609	54.00
9648.000	15.809	34.720	50.529	-3.441	54.00
12060.000	18.064	30.390	48.453	-5.517	54.00
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	4.390	38.190	42.580	-31.390	74.00
7236.000	11.801	37.780	49.581	-24.389	74.00
9648.000	15.809	45.430	61.239	-12.731	74.00
<b>Average Detector:</b>					
9648.000	15.809	34.870	50.679	-3.291	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Wi-Fi Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	4.540	38.910	43.449	-30.521	74.00
7311.000	12.379	42.149	54.528	-19.442	74.00
9748.000	15.106	46.071	61.178	-12.792	74.00
12185.000	18.430	40.021	58.451	-15.519	74.00
<b>Average</b>					
<b>Detector:</b>					
7311.000	12.379	32.257	44.636	-9.334	54.00
9748.000	15.106	37.800	52.907	-1.063	54.00
12185.000	18.430	31.690	50.120	-3.850	54.00
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	4.540	37.882	42.421	-31.549	74.00
7311.000	12.379	37.992	50.371	-23.599	74.00
9748.000	15.106	44.848	59.955	-14.015	74.00
<b>Average</b>					
<b>Detector:</b>					
9748.000	15.106	37.500	52.607	-1.363	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Wi-Fi Phone  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	4.692	40.663	45.355	-28.615	74.00
7386.000	12.711	44.176	56.887	-17.083	74.00
9848.000	14.262	44.258	58.520	-15.450	74.00
12310.000	18.419	39.973	58.392	-15.578	74.00
<b>Average</b>					
<b>Detector:</b>					
7386.000	12.711	33.200	45.911	-8.059	54.00
9848.000	14.262	38.460	52.722	-1.248	54.00
12310.000	18.419	29.230	47.649	-6.321	54.00
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	4.692	37.667	42.359	-31.611	74.00
7386.000	12.711	40.538	53.249	-20.721	74.00
9848.000	14.262	42.712	56.974	-16.996	74.00
12310.000	18.419	37.751	56.170	-17.800	74.00
<b>Average</b>					
<b>Detector:</b>					
7386.000	12.711	30.040	42.751	-11.219	54.00
9848.000	14.262	35.850	50.112	-3.858	54.00
12310.000	18.419	27.820	46.239	-7.731	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz °
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz °
4. Emission Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Wi-Fi Phone  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2412 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
192.500	9.304	18.700	28.004	-15.496	43.500
202.900	9.888	15.470	25.358	-18.142	43.500
233.700	11.142	15.410	26.552	-19.448	46.000
287.050	13.473	13.700	27.173	-18.827	46.000
328.500	14.065	12.200	26.265	-19.735	46.000
481.100	18.781	12.700	31.481	-14.519	46.000
<b>Vertical</b>					
110.100	11.963	11.080	23.043	-20.457	43.500
214.300	10.667	17.430	28.097	-15.403	43.500
233.700	11.442	11.600	23.042	-22.958	46.000
321.100	14.137	18.100	32.237	-13.763	46.000
379.200	16.655	17.185	33.840	-12.160	46.000
393.700	17.609	17.800	35.409	-10.591	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “■” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.

Product : Wi-Fi Phone  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
265.300	14.013	16.100	30.112	-15.888	46.000
295.100	14.012	16.500	30.512	-15.488	46.000
367.000	15.877	10.430	26.306	-19.694	46.000
384.100	15.761	13.300	29.061	-16.939	46.000
451.500	18.315	18.500	36.814	-9.186	46.000
481.100	18.781	12.780	31.561	-14.439	46.000
<b>Vertical</b>					
224.100	10.659	12.900	23.559	-22.441	46.000
270.100	14.022	16.600	30.622	-15.378	46.000
362.200	16.245	19.500	35.745	-10.255	46.000
379.200	16.655	17.100	33.755	-12.245	46.000
384.100	16.837	18.300	35.137	-10.863	46.000
393.600	17.586	17.800	35.386	-10.614	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “■” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.

Product : Wi-Fi Phone  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
202.100	9.862	15.400	25.262	-18.238	43.500
224.100	10.286	15.700	25.985	-20.015	46.000
255.500	13.927	14.960	28.887	-17.113	46.000
296.600	13.979	16.300	30.279	-15.721	46.000
321.100	13.696	14.700	28.396	-17.604	46.000
362.200	15.518	11.300	26.818	-19.182	46.000
<b>Vertical</b>					
122.100	12.091	11.340	23.430	-20.070	43.500
160.600	9.753	18.100	27.853	-15.647	43.500
224.100	10.659	13.900	24.559	-21.441	46.000
270.100	14.022	16.600	30.622	-15.378	46.000
362.200	16.245	19.400	35.645	-10.355	46.000
384.100	16.837	18.130	34.967	-11.033	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. “■” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions were checked with horizontal and vertical positions of the cords to find the worst emissions.



## 5. Band Edge

### 5.1. Test Equipment

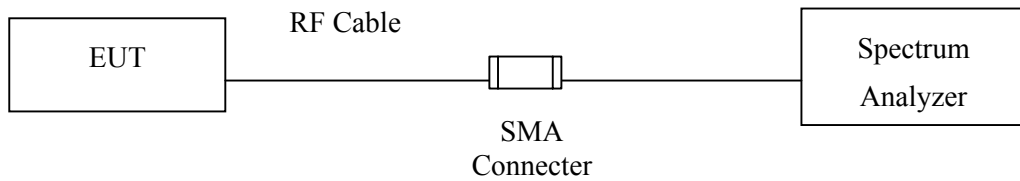
The following test equipments are used during the band edge tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Spectrum Analyzer	HP	E4407B / US39440758	May, 2005
X Test Receiver	R & S	ESCS 30 / 825442/14	May, 2005
X Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2005
X Pre-Amplifier	HP	8447D/3307A01812	May, 2005
X Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
X Horn Antenna	EM	EM6917 / 103325	May, 2005

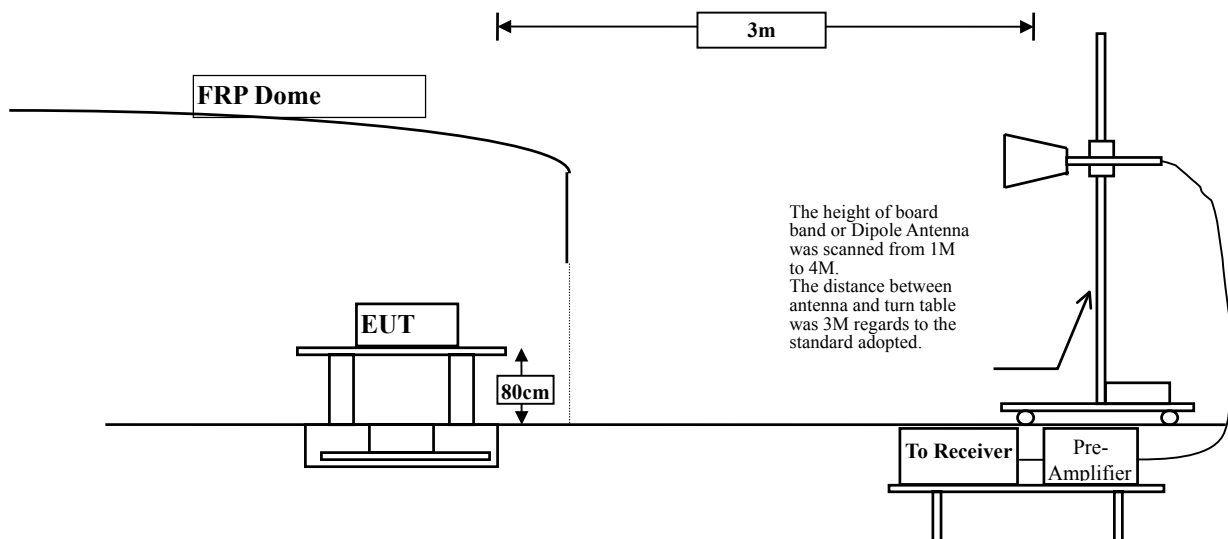
- Note: 1. All instruments are calibrated every one year.  
 2. The test instruments marked by "X" are used to measure the final test results.

### 5.2. Test Setup

#### RF Conducted Measurement:



#### RF Radiated Measurement:



### 5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

### 5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30 )is 120 kHz, above 1GHz are 1 MHz.

### 5.5. Uncertainty

The measurement uncertainty Conducted is defined as  $\pm 1$  MHz and Radiated above 1GHz as  $\pm 3.9$  dB.

**5.6. Test Result of Band Edge**

Product : Wi-Fi Phone  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b

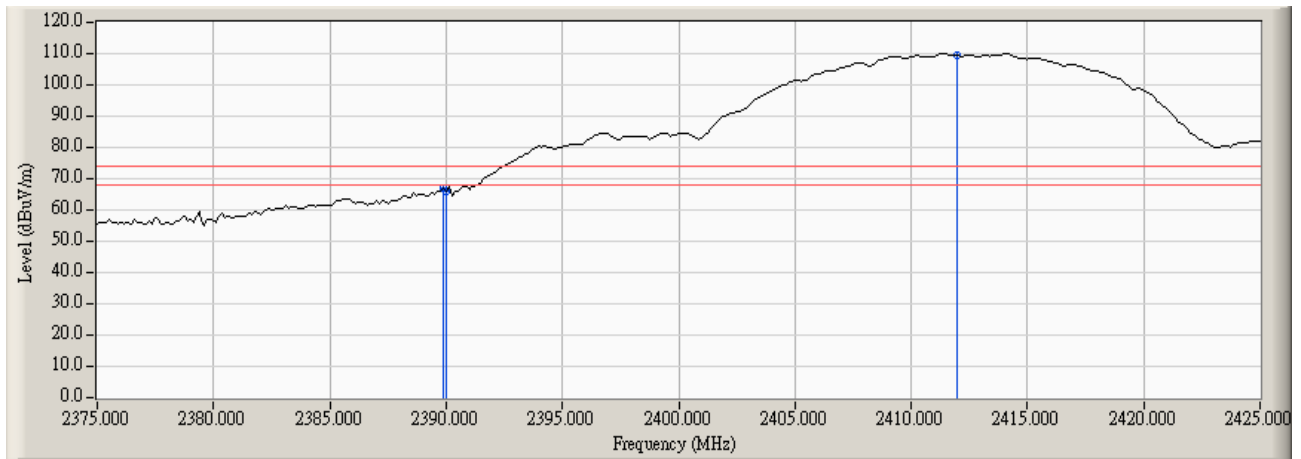
**RF Radiated Measurement:**

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
1 (Horizontal)	<2400	>20	Pass

**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
1 (Peak)	2389.880	68.908	67.160	74.00	54.00	Pass
1 (Average)	2389.880	43.498	41.750	74.00	54.00	Pass

**Figure Channel 1: (Horizontal)**



Product : Wi-Fi Phone  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b

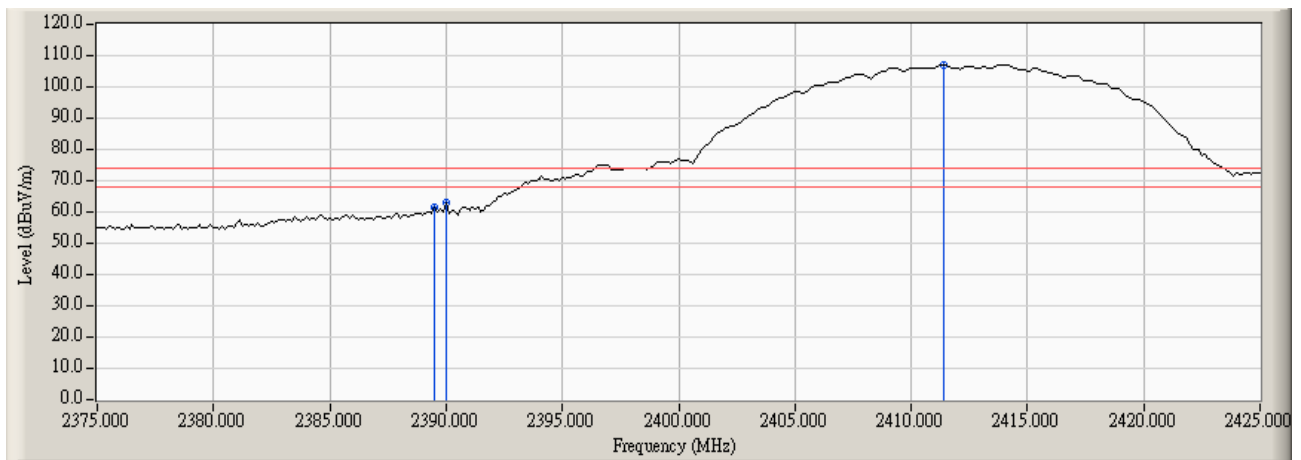
**RF Radiated Measurement:**

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
1 (Vertical)	<2400	>20	Pass

**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
1 (Peak)	2389.500	63.450	61.700	74.00	54.00	Pass
1 (Average)	2389.500	41.600	39.850	74.00	54.00	Pass

**Figure Channel 1: (Vertical)**

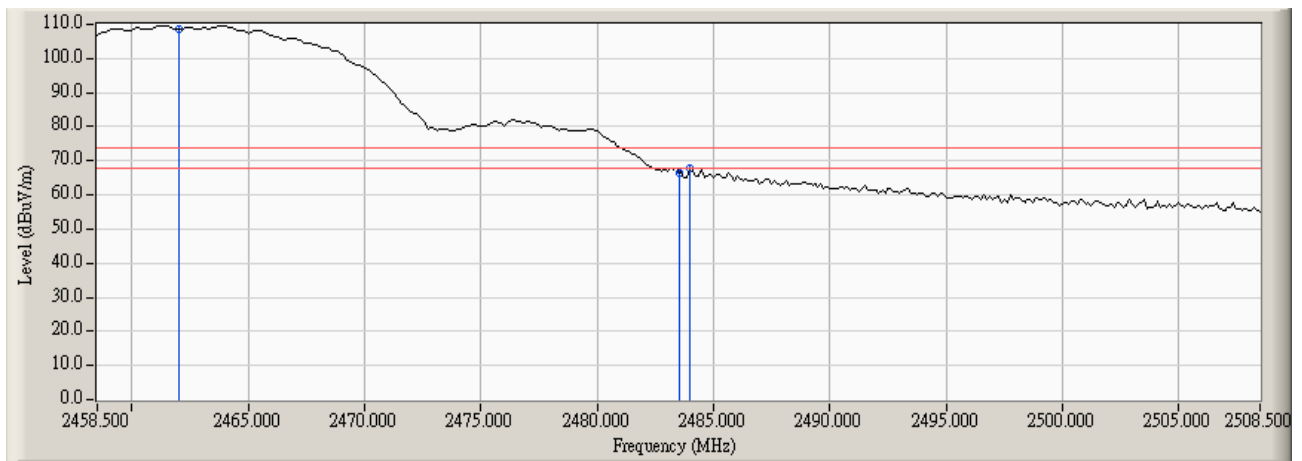


Product : Wi-Fi Phone  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b

**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11(Peak)	2484.000	69.319	67.930	74.00	54.00	Pass
11(Average)	2484.000	41.429	40.040	74.00	54.00	Pass

**Figure Channel 11: (Horizontal)**

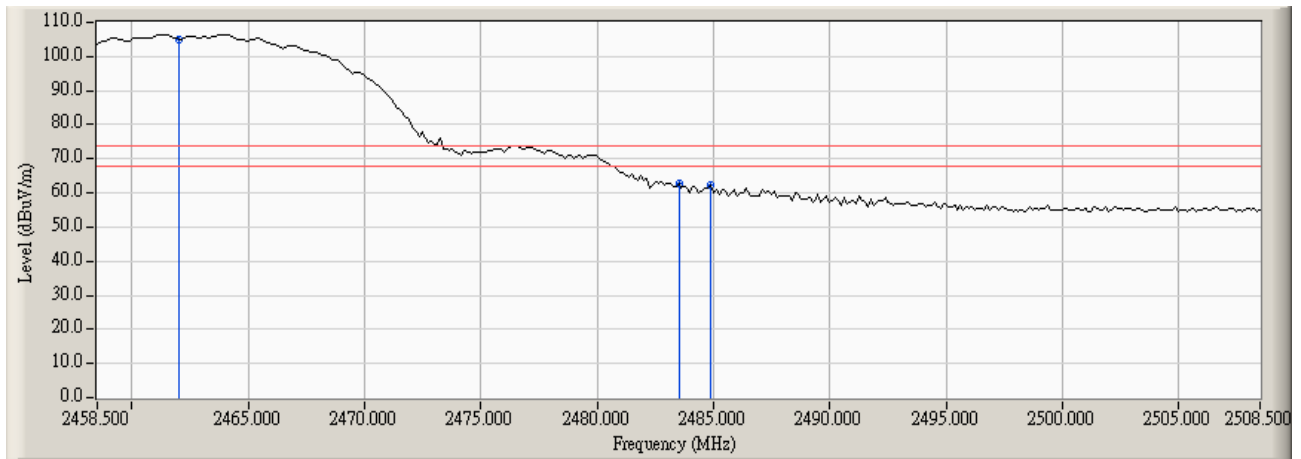


Product : Wi-Fi Phone  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b

**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11(Peak)	2484.880	63.727	62.340	74.00	54.00	Pass
11(Average)	2484.880	39.617	38.230	74.00	54.00	Pass

**Figure Channel 11: (Vertical)**



Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

## 6. Occupied Bandwidth

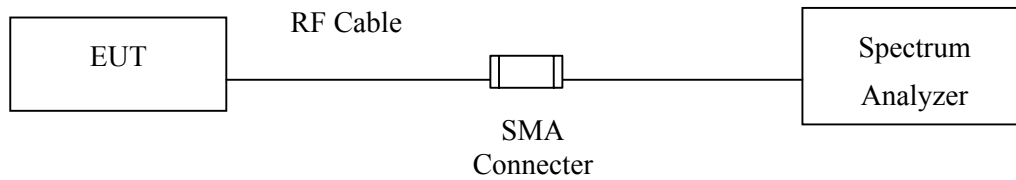
### 6.1. Test Equipment

The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2005

- Note:
1. All instruments are calibrated every one year.
  2. The test instruments marked by “X” are used to measure the final test results.

### 6.2. Test Setup



### 6.3. Limits

The minimum bandwidth shall be at least 500kHz.

### 6.4. Uncertainty

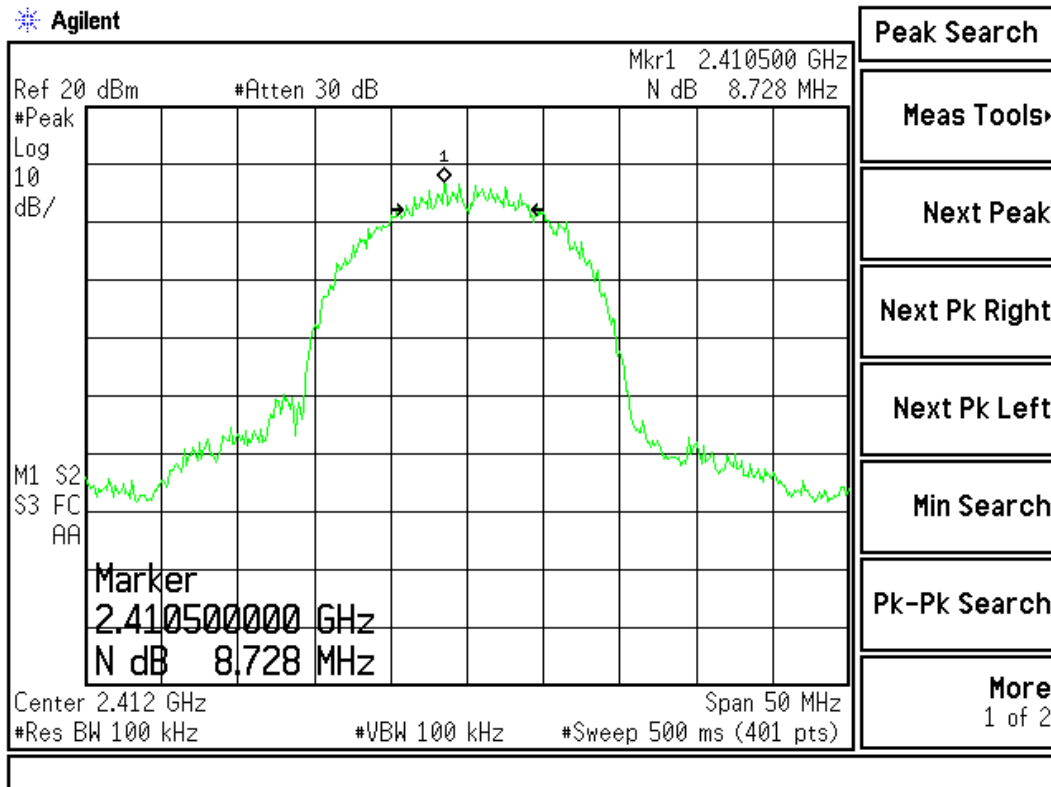
The measurement uncertainty is defined as  $\pm 1.27$  dB

### 6.5. Test Result of Occupied Bandwidth

Product : Wi-Fi Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1 (11Mbps)	2412.00	8728	>500	Pass

**Figure Channel 1: 11Mbps**

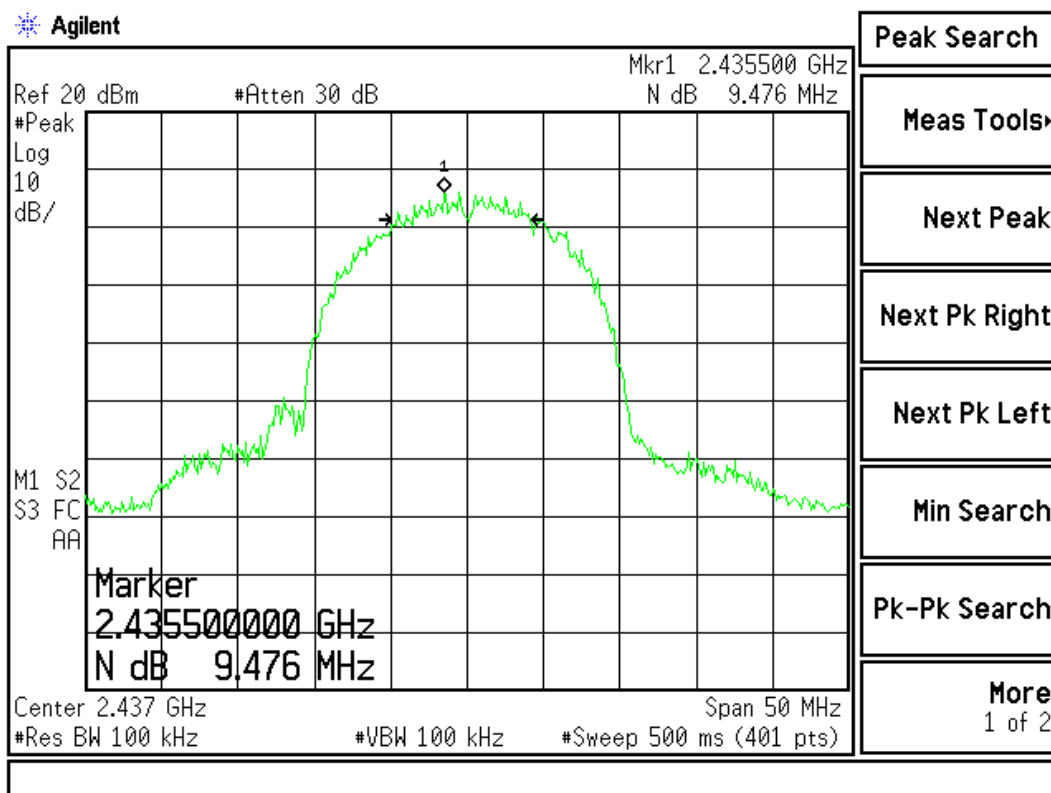




Product : Wi-Fi Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6 (11Mbps)	2437.00	9476	>500	Pass

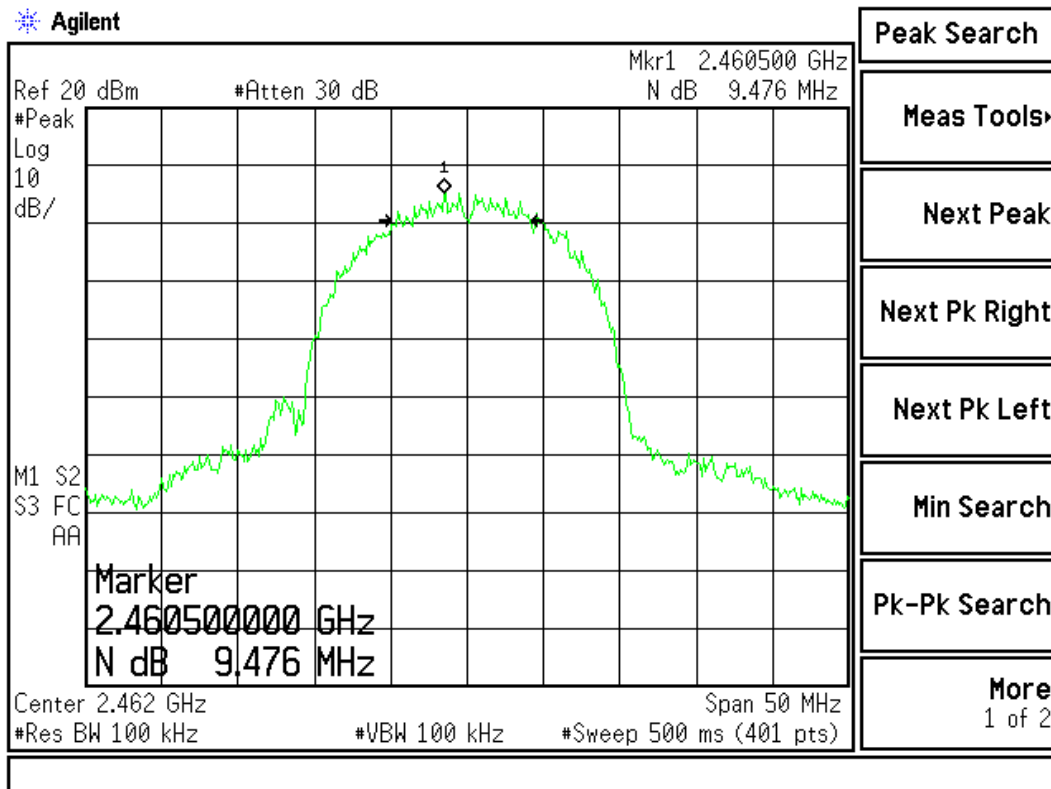
**Figure Channel 6: 11Mbps**



Product : Wi-Fi Phone  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11 (11Mbps)	2462.00	9476	>500	Pass

**Figure Channel 11: 11Mbps**



**7. Power Density**

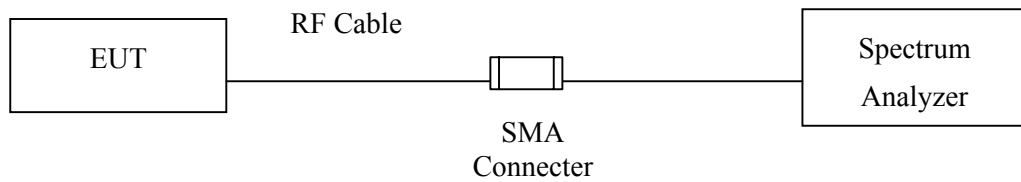
**7.1. Test Equipment**

The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2005

- Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.  
 2. Mark “X” test instruments are used to measure the final test results.

**7.2. Test Setup**



**7.3. Limits**

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

**7.4. Uncertainty**

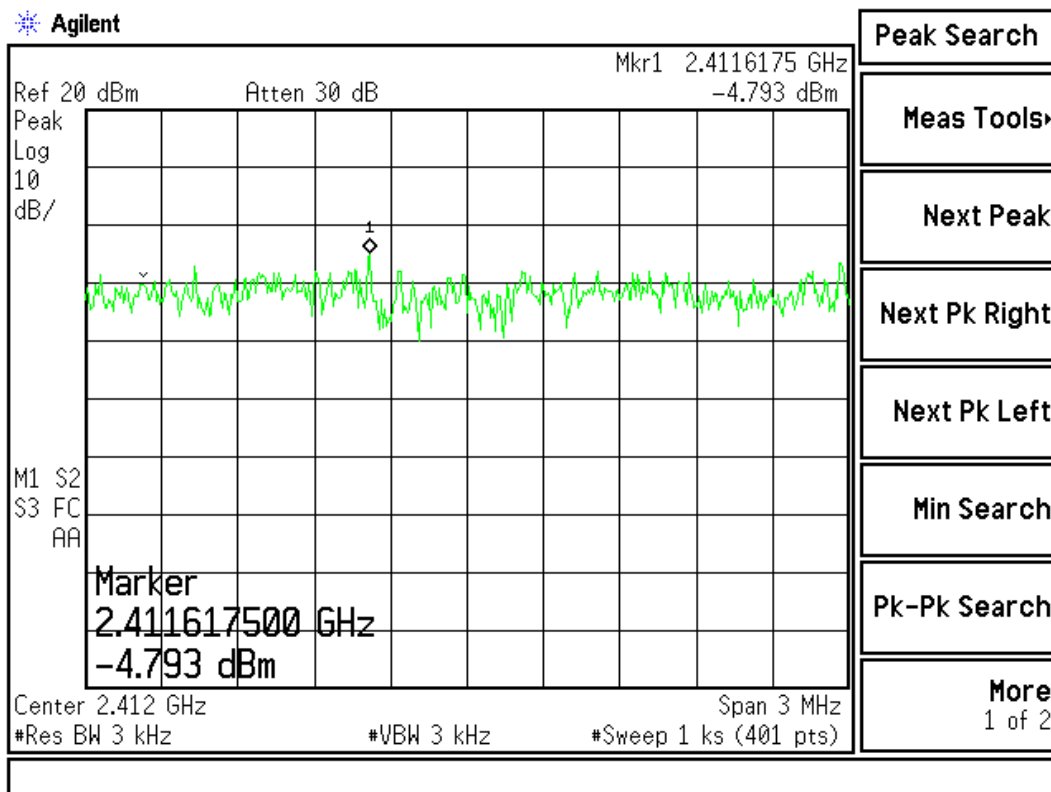
The measurement uncertainty is defined as  $\pm 1.27$  dB

### 7.5. Test Result of Power Density

Product : Wi-Fi Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1 (11Mbps)	2412.00	-4.793	< 8dBm	Pass

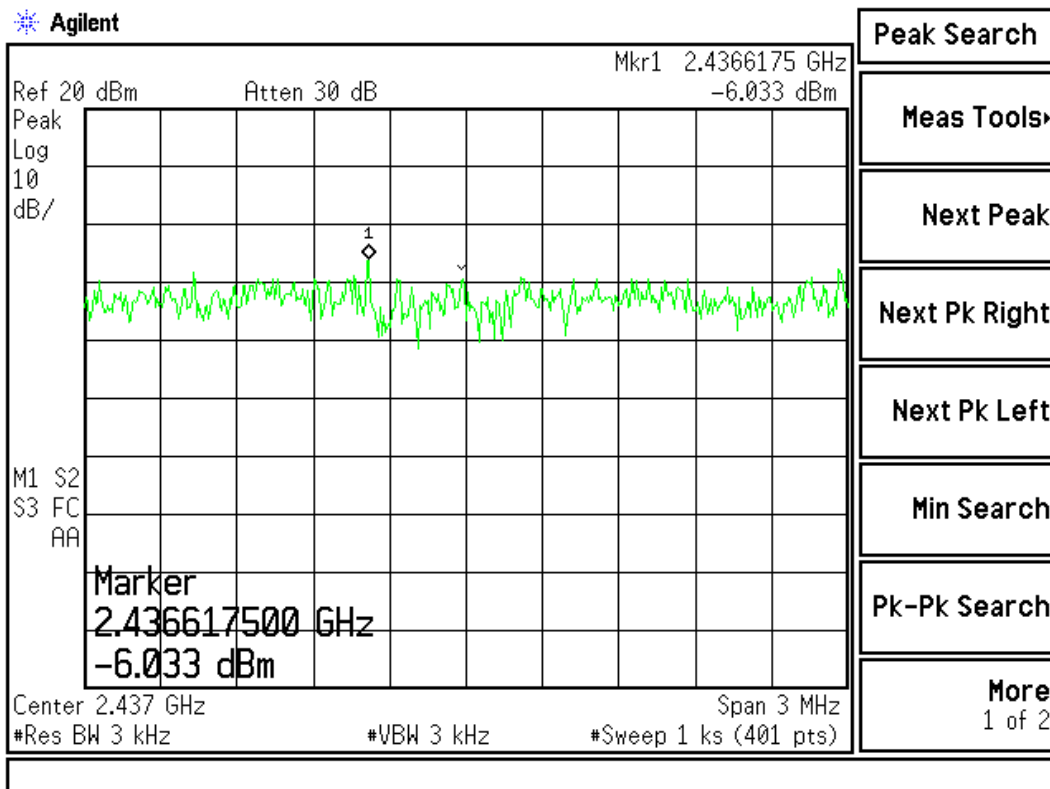
**Figure Channel 1:** 11Mbps



Product : Wi-Fi Phone  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6 (11Mbps)	2437.000	-6.033	< 8dBm	Pass

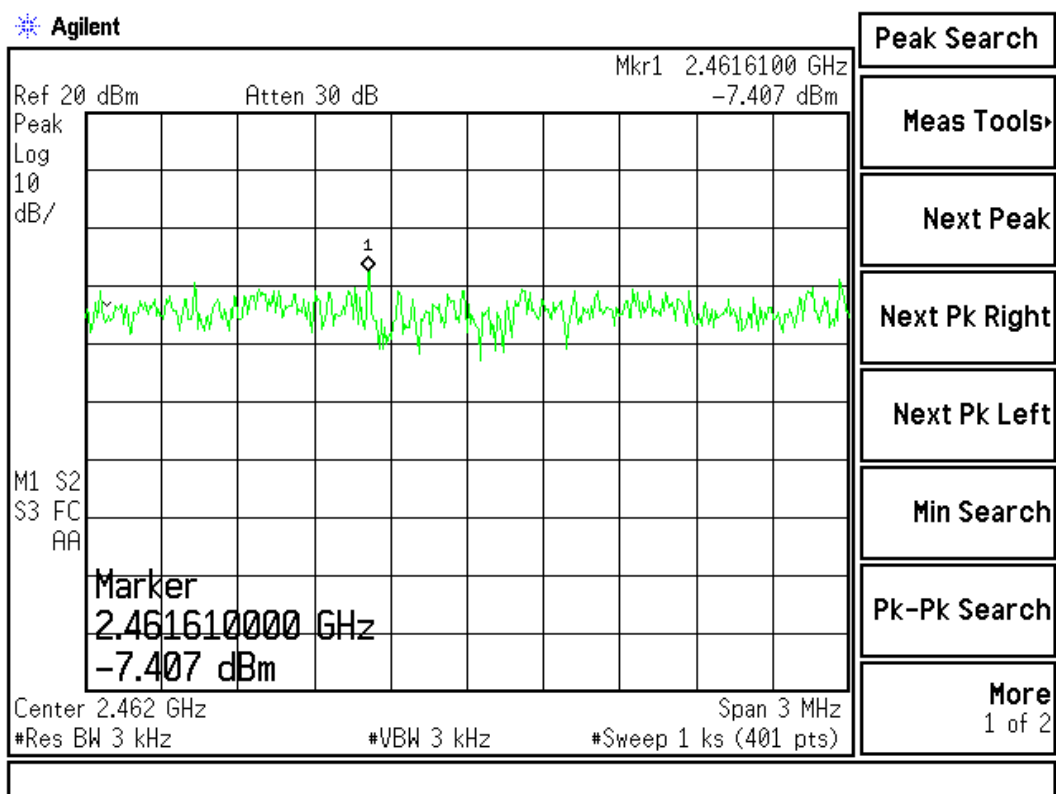
**Figure Channel 6: 11Mbps**



Product : Wi-Fi Phone  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmitter 802.11b (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11 (11Mbps)	2462.00	-7.407	< 8dBm	Pass

**Figure Channel 11: 11Mbps**



## 8. EMI Reduction Method During Compliance Testing

No modification was made during testing.

## Attachment 1: EUT Test Photographs