Test Report

Product Name	Ultra Mobile PC (UMPC)
Model No.	R2H
FCC ID	MSQR2H

Applicant	ASUSTeK COMPUTER INC.
Address	4FL., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt	May 15, 2006
Issued Date	June 15, 2006
Report No.	065L103-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: June 15, 2006
Report No.: 065L103-RF-US-P05V01

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

Product Name	Ultra Mobile PC (UMPC)
Applicant	ASUSTeK COMPUTER INC.
Address	4FL., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.
Manufacturer	ASUSTeK COMPUTER INC.
Model No.	R2H
Rated Voltage	AC 120V/60Hz
Working Voltage	DC 3.3V (via USB)
Trade Name	ASUS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2005 ANSI C63.4: 2003 CISPR 22: 2005
Test Result	Complied

NVLAP Lab Code: 200533-0

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Documented By : (Anita Chou)

Tested By : (Tim Sung)

Approved By : (Gene Chang)

CNLA 0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Ultra Mobile PC (UMPC)
Trade Name	ASUS
Model No.	R2H
FCC ID	MSQR2H
Frequency Range	2412 – 2462MHz
Number of Channels	11
Data Rate	IEEE 802.11b – 1, 2, 5.5, 11Mbps IEEE 802.11g – 6, 9, 12, 18, 24, 36 48, 54Mbps
Type of Modulation	DSSS/ OFDM
Antenna type	Chip Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Separation	5MHz
Channel Control	Auto
Power Adapter	Manufacturer: Delta, M/N: ADP-36CH B Cable Out: Non-shielded, 1.8m, with one ferrite core bonded. Power Cord: Non-shielded, 1.8m

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	MAG LAYERS/ SMD Antenna	LTA-5824-2G4H2-A1	2.0 dBi 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:

1. The EUT is a Ultra Mobile PC (UMPC) with a built-in 2.4GHz transceiver.
2. Regarding to the operation frequency band, the lowest, middle, and highest frequency are selected to perform the test.
3. 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)
4. These tests were 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.

1.2. Operational Description

The EUT is a Ultra Mobile PC (UMPC) 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) or eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps. The device of RF carrier is OFDM (IEEE 802.11g).

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

This Ultra Mobile PC (UMPC) , compliant with IEEE 802.11b and IEEE 802.11g, 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 Direst Sequence Spread Spectrum (DSSS) radio transmission, the Ultra Mobile PC (UMPC) Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11g network.

Test Mode	Mode 1: Transmitter 802.11b
	Mode 2: Transmitter 802.11g

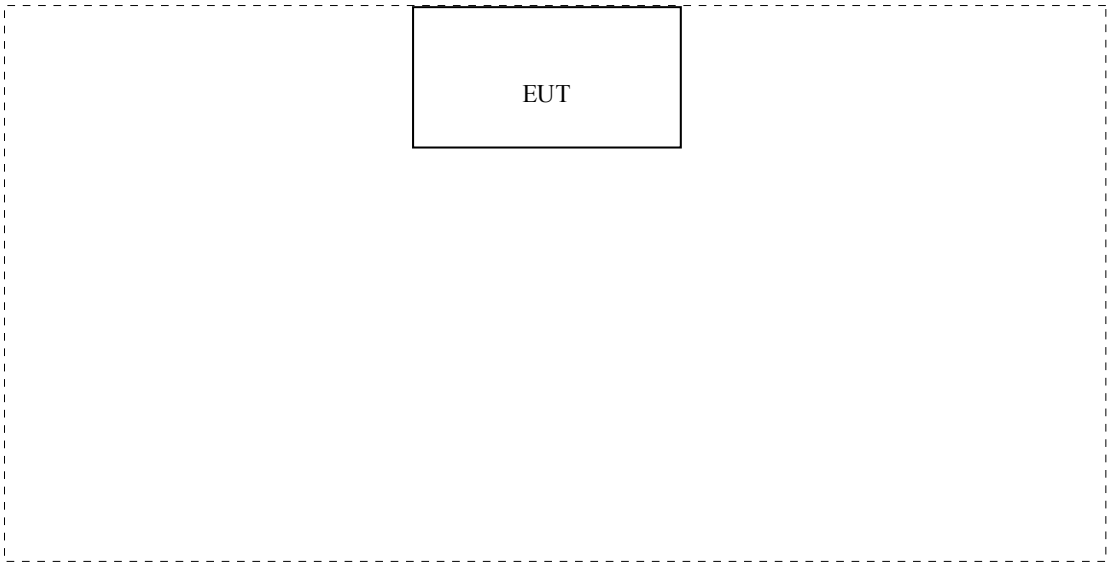
1.3. Tested System Datails

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) Install and execute the ZD121x Evaluation Tool on the Notebook.
(3) Configure the modulation, the test channel, the data rate, and the power level.
(4) Press OK to start the continuous transmission.
(5) Verify that the EUT works properly.

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

0914

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

Site Name: Quietek Corporation

Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

NVLAP Lab Code: 200533-0

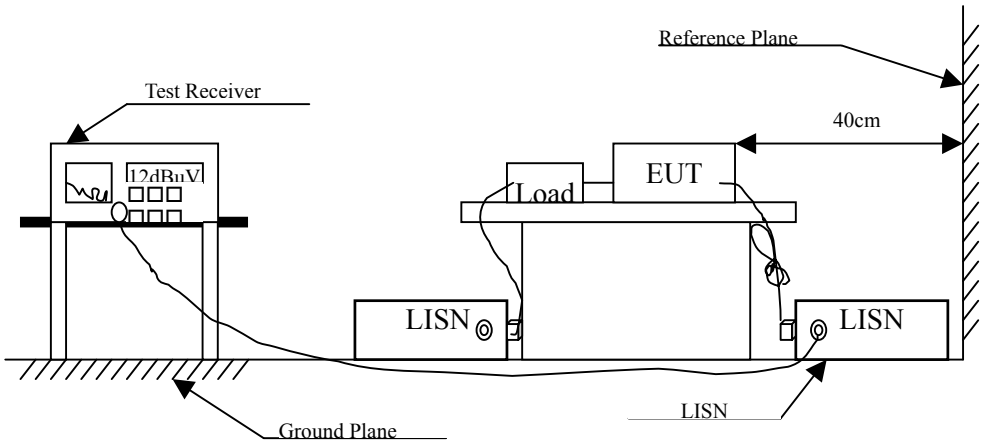
2. Conducted Emission

2.1. Test Equipment

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	EMI Test Receiver	R&S	ESCS 30/100367	Aug, 2005	
2	LISN	R&S	ESH3-Z5/836679/023	July, 2005	EUT
3	LISN	R&S	ESH3-Z5/836679/017	Feb, 2006	Peripherals
4	Pulse Limiter	R&S	ESH3-Z2/357.8810.52	Sep, 2005	
5	No.7 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(註)	56-46(註)
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 invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Ultra Mobile PC (UMPC)
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.197	0.669	44.890	45.559	-19.098	64.657
0.388	0.300	33.150	33.450	-25.750	59.200
0.587	0.300	32.590	32.890	-23.110	56.000
0.783	0.310	29.180	29.490	-26.510	56.000
1.693	0.330	33.050	33.380	-22.620	56.000
2.802	0.368	35.360	35.728	-20.272	56.000
Average					
0.197	0.669	34.150	34.819	-19.838	54.657
0.388	0.300	30.140	30.440	-18.760	49.200
0.587	0.300	31.220	31.520	-14.480	46.000
0.783	0.310	28.010	28.320	-17.680	46.000
1.693	0.330	31.410	31.740	-14.260	46.000
2.802	0.368	31.880	32.248	-13.752	46.000

Note:

1. All reading levels are quasi-peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Product : Ultra Mobile PC (UMPC)
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmitter 802.11b (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.192	0.300	42.240	42.540	-22.260	64.800
0.326	0.300	32.280	32.580	-28.391	60.971
0.650	0.310	31.660	31.970	-24.030	56.000
1.173	0.330	32.270	32.600	-23.400	56.000
1.498	0.332	33.480	33.812	-22.188	56.000
2.607	0.360	35.170	35.530	-20.470	56.000
Average					
0.192	0.300	32.630	32.930	-21.870	54.800
0.326	0.300	28.490	28.790	-22.181	50.971
0.650	0.310	31.060	31.370	-14.630	46.000
1.173	0.330	31.630	31.960	-14.040	46.000
1.498	0.332	32.450	32.782	-13.218	46.000
2.607	0.360	31.450	31.810	-14.190	46.000

Note:

1. All reading levels are quasi-peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Ultra Mobile PC (UMPC)
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmitter 802.11g (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.193	0.697	44.510	45.207	-19.564	64.771
0.324	0.300	33.850	34.150	-26.879	61.029
0.427	0.300	24.930	25.230	-32.856	58.086
1.619	0.330	27.230	27.560	-28.440	56.000
2.541	0.360	27.540	27.900	-28.100	56.000
4.755	0.420	27.770	28.190	-27.810	56.000
Average					
0.193	0.697	31.100	31.797	-22.974	54.771
0.324	0.300	24.960	25.260	-25.769	51.029
0.427	0.300	5.390	5.690	-42.396	48.086
1.619	0.330	13.070	13.400	-32.600	46.000
2.541	0.360	24.560	24.920	-21.080	46.000
4.755	0.420	26.410	26.830	-19.170	46.000

Note:

1. All reading levels are quasi-peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Ultra Mobile PC (UMPC)
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmitter 802.11g (2437MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.193	0.300	43.620	43.920	-20.851	64.771
0.262	0.300	40.350	40.650	-22.150	62.800
0.319	0.300	29.960	30.260	-30.911	61.171
0.912	0.320	32.120	32.440	-23.560	56.000
1.482	0.330	27.950	28.280	-27.720	56.000
2.736	0.370	35.430	35.800	-20.200	56.000
Average					
0.193	0.300	34.260	34.560	-20.211	54.771
0.262	0.300	27.970	28.270	-24.530	52.800
0.319	0.300	19.690	19.990	-31.181	51.171
0.912	0.320	31.260	31.580	-14.420	46.000
1.482	0.330	19.230	19.560	-26.440	46.000
2.736	0.370	31.950	32.320	-13.680	46.000

Note:

1. All reading levels are quasi-peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

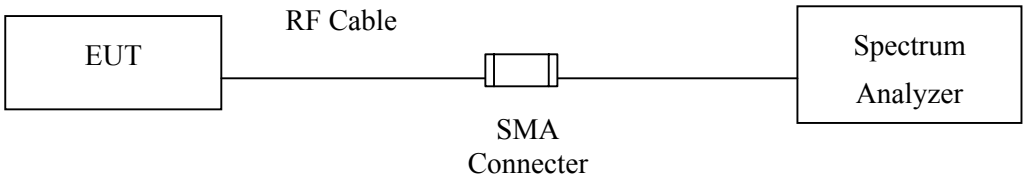
3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006

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



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Uncertainty

± 1.27 dB

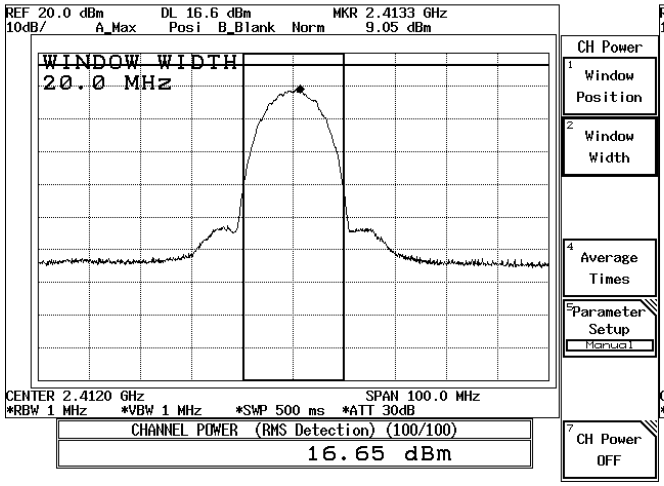
3.5. Test Result of Peak Power Output

Product : Ultra Mobile PC (UMPC)
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b

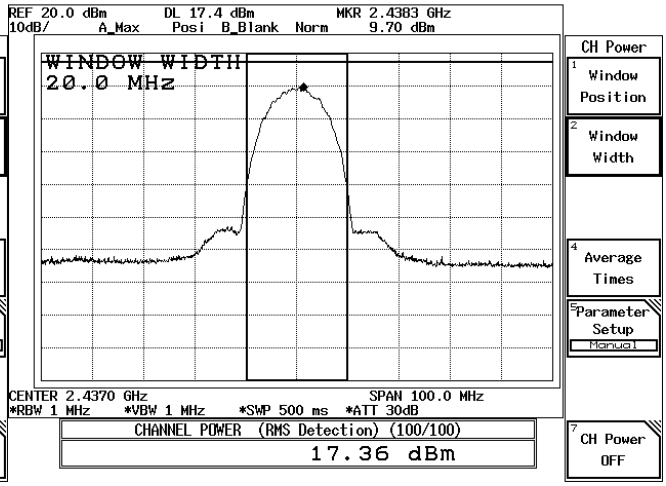
Data Speed: 11Mbps

Channel No.	Frequency (MHz)	Measurement	Required Limit	Result
1	2412.00	16.65dBm	1Watt= 30 dBm	Pass
6	2437.00	17.36dBm	1Watt= 30 dBm	Pass
11	2462.00	17.31dBm	1Watt= 30 dBm	Pass

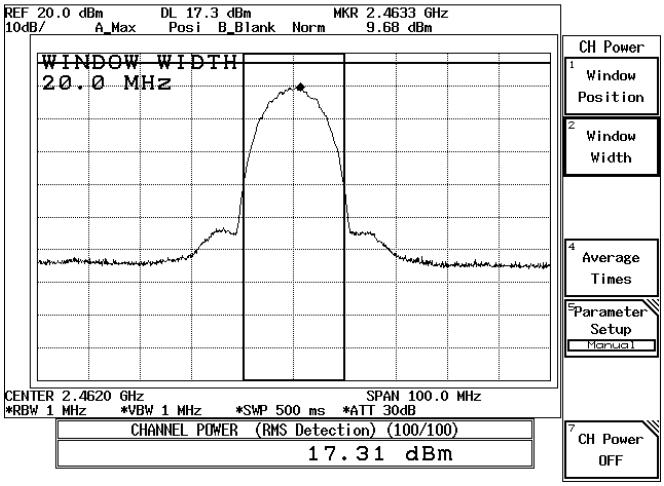
11Mbps-CH01



11Mbps-CH 06



11Mbps-CH11

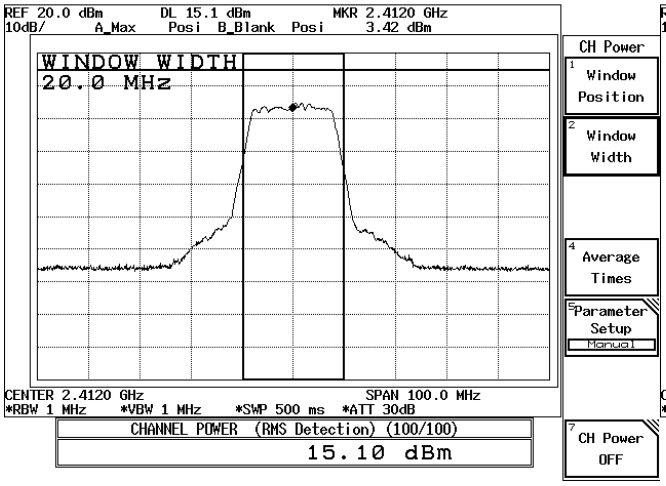


Product : Ultra Mobile PC (UMPC)
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g

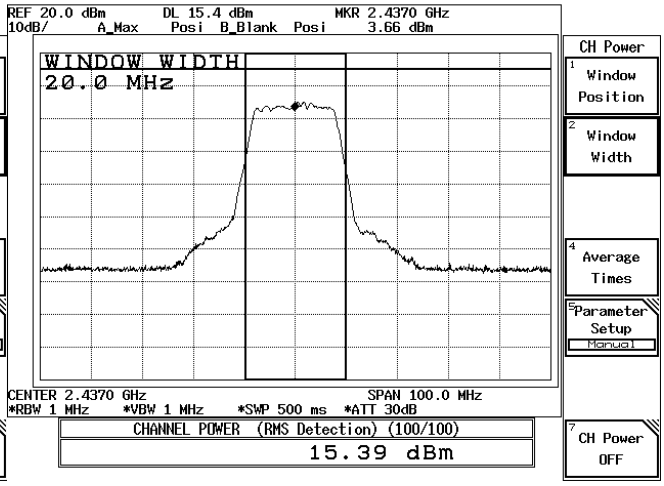
Data Speed: 11Mbps

Channel No.	Frequency (MHz)	Measurement	Required Limit	Result
1	2412.00	15.10dBm	1Watt= 30 dBm	Pass
6	2437.00	15.39dBm	1Watt= 30 dBm	Pass
11	2462.00	15.25dBm	1Watt= 30 dBm	Pass

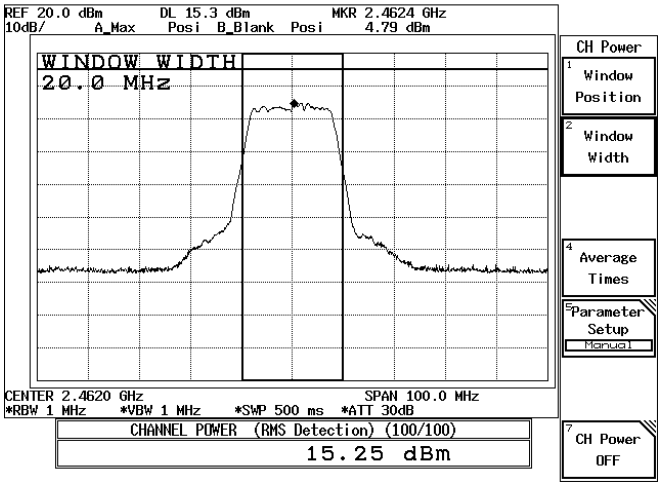
54Mbps-CH01



54Mbps-CH 06



54Mbps-CH11



4. Radiated Emission

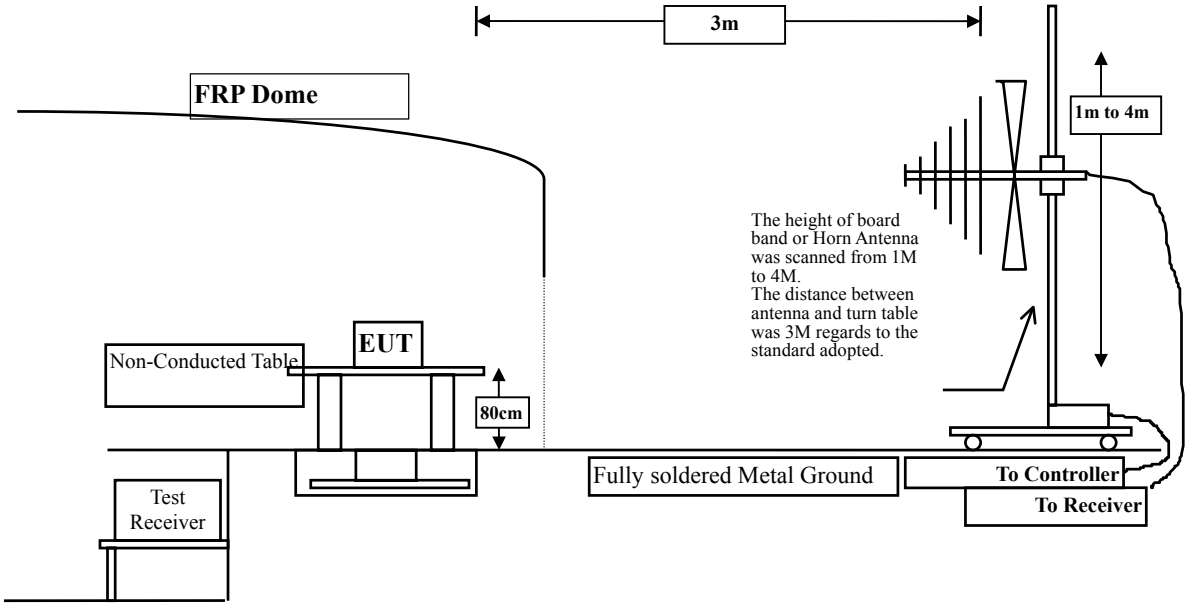
4.1. Test Equipment

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☐Site # 1		Test Receiver	R & S	ESVS 10 / 834468/003	May, 2006
		Spectrum Analyzer	Advantest	R3162/ 00803480	May, 2006
		Pre-Amplifier	Advantest	BB525C/ 3307A01812	May, 2006
		Bilog Antenna	SCHAFFNER	CBL6112B / 2697	Sep., 2005
☐Site # 2		Test Receiver	R & S	ESCS 30 / 836858 / 022	May, 2006
		Spectrum Analyzer	Advantest	R3162 / 100803466	May, 2006
		Pre-Amplifier	Advantest	BB525C/3307A01814	May, 2006
		Bilog Antenna	SCHAFFNER	CBL6112B / 2705	May, 2006
		Horn Antenna	ETS	3115 / 0005-6160	Sep., 2005
		Pre-Amplifier	QTK	QTK-AMP-01/ 0001	May, 2006
☒Site # 3	X	Test Receiver	R & S	ESI 26 / 838786/004	May, 2006
	X	Spectrum Analyzer	Advantest	R3162 / 100803480	May, 2006
	X	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2006
	X	Horn Antenna	Schwarzbeck	9120D / 305, 306	July, 2006
	X	Horn Antenna	Schwarzbeck	BBHA9170 / 208, 209	July, 2006
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2006
	X	Pre-Amplifier	HP	8449B / 3008A01123	July, 2006
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P	May, 2006

Note: 1. All equipments are calibrated every one year.

2. Test equipments marked “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 latch filter below 1GHz was used to measure the level of harmonics radiated emission during field dtrength of harmonics measurement.
The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.
The frequency range from 30MHz to 10th harminics is checked.

4.5. Uncertainty

± 3.9 dB above 1GHz, ± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : Ultra Mobile PC (UMPC)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.623	46.007	49.630	-24.370	74.000
7236.000	9.189	42.091	51.280	-22.720	74.000
9648.000	11.689	41.451	53.140	-20.860	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	3.623	48.687	52.310	-21.690	74.000
7236.000	9.189	43.101	52.290	-21.710	74.000
9648.000	11.689	41.771	53.460	-20.540	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
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 : Ultra Mobile PC (UMPC)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.803	46.508	50.310	-23.690	74.000
7311.000	9.384	43.006	52.390	-21.610	74.000
9748.000	11.672	41.807	53.480	-20.520	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	3.803	49.658	53.460	-20.540	74.000
7311.000	9.384	43.046	52.430	-21.570	74.000
9748.000	11.672	42.217	53.890	-20.110	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
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 : Ultra Mobile PC (UMPC)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	3.985	46.635	50.620	-23.380	74.000
7386.000	9.572	43.368	52.940	-21.060	74.000
9848.000	11.696	42.064	53.760	-20.240	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	3.985	46.255	50.240	-23.760	74.000
7386.000	9.572	42.358	51.930	-22.070	74.000
9848.000	11.696	41.764	53.460	-20.540	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
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 : Ultra Mobile PC (UMPC)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3OATS
Test Mode : Mode 2: Transmitter 802.11g (2412 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.623	43.957	47.580	-26.420	74.000
7236.000	9.189	42.201	51.390	-22.610	74.000
9648.000	11.689	41.851	53.540	-20.460	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4824.000	3.623	43.757	47.380	-26.620	74.000
7236.000	9.189	42.491	51.680	-22.320	74.000
9648.000	11.689	41.791	53.480	-20.520	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
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 : Ultra Mobile PC (UMPC)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.803	43.678	47.480	-26.520	74.000
7311.000	9.384	42.306	51.690	-22.310	74.000
9748.000	11.672	41.997	53.670	-20.330	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4874.000	3.803	45.468	49.270	-24.730	74.000
7311.000	9.384	42.906	52.290	-21.710	74.000
9748.000	11.672	41.997	53.670	-20.330	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
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 : Ultra Mobile PC (UMPC)
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	3.985	45.395	49.380	-24.620	74.000
7386.000	9.572	42.798	52.370	-21.630	74.000
9848.000	11.696	41.944	53.640	-20.360	74.000
Average Detector:					
--					
Vertical					
Peak Detector:					
4924.000	3.985	45.695	49.680	-24.320	74.000
7386.000	9.572	42.798	52.370	-21.630	74.000
9848.000	11.696	41.984	53.680	-20.320	74.000
Average Detector:					
--					

Note:

1. The reading levels below 1GHz and above 1GHz are quasi-peak values and peak/average values, respectively.
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 : Ultra Mobile PC (UMPC)
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
133.026	12.704	19.783	32.488	-11.012	43.500
440.160	17.566	13.506	31.072	-14.928	46.000
519.860	18.594	14.309	32.903	-13.097	46.000
545.130	20.080	10.109	30.189	-15.811	46.000
671.483	20.551	12.108	32.659	-13.341	46.000
840.601	21.987	11.770	33.757	-12.243	46.000
Vertical					
80.541	8.343	24.971	33.314	-6.686	40.000
121.363	11.854	20.830	32.683	-10.817	43.500
265.210	14.418	15.979	30.397	-15.603	46.000
799.780	21.773	9.085	30.858	-15.142	46.000
900.862	23.650	8.378	32.028	-13.972	46.000
966.954	22.938	8.748	31.686	-22.314	54.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product : Ultra Mobile PC (UMPC)
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
144.689	11.838	20.407	32.245	-11.255	43.500
440.160	17.566	13.447	31.013	-14.987	46.000
624.830	20.890	9.405	30.295	-15.705	46.000
696.753	20.896	12.157	33.052	-12.948	46.000
840.601	21.987	12.141	34.128	-11.872	46.000
961.122	22.909	10.181	33.090	-20.910	54.000
Vertical					
111.643	12.105	20.417	32.522	-10.978	43.500
121.363	11.854	20.819	32.672	-10.828	43.500
265.210	14.418	15.060	29.478	-16.522	46.000
512.084	18.762	9.965	28.727	-17.273	46.000
809.499	21.686	9.099	30.785	-15.215	46.000
968.898	22.949	8.711	31.660	-22.340	54.000

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. " " means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

5. Band Edge

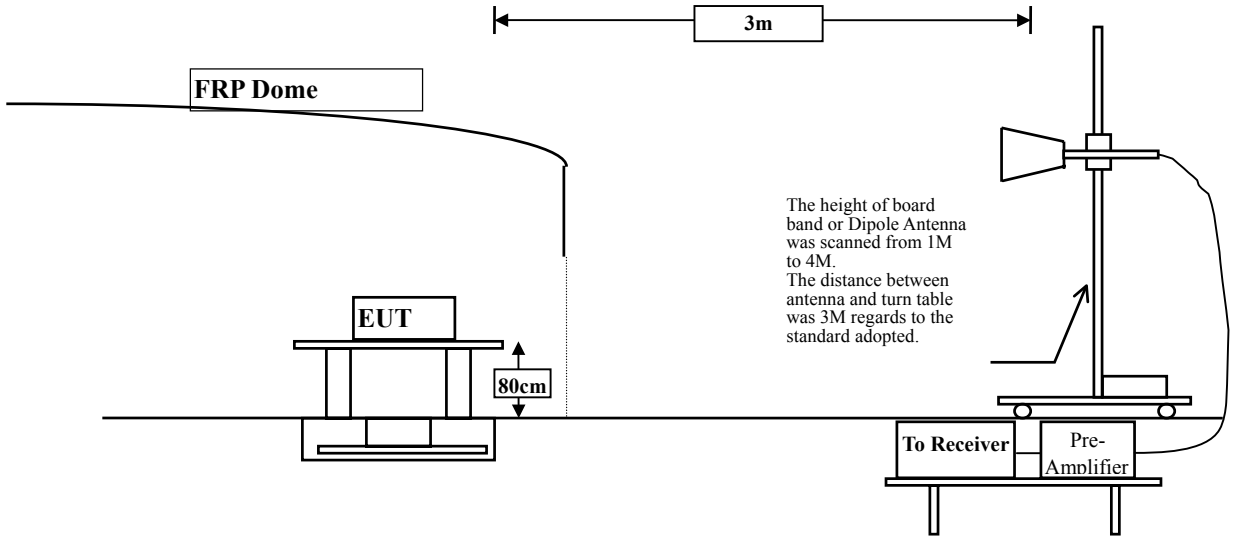
5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Advantest	R3272 / 72421194	May, 2006
X	Test Receiver	R & S	ESCS 30 / 825442/14	May, 2006
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006
X	Pre-Amplifier	HP	8447D/3307A01812	May, 2006
X	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
X	Horn Antenna	EM	EM6917 / 103325	May, 2006

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

5.2. Test Setup

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 is 120 kHz, above 1GHz are 1 MHz.

5.5. Uncertainty

± 3.9 dB above 1GHz, ± 3.8 dB below 1GHz

5.6. Test Result of Band Edge

Product : Ultra Mobile PC (UMPC)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b

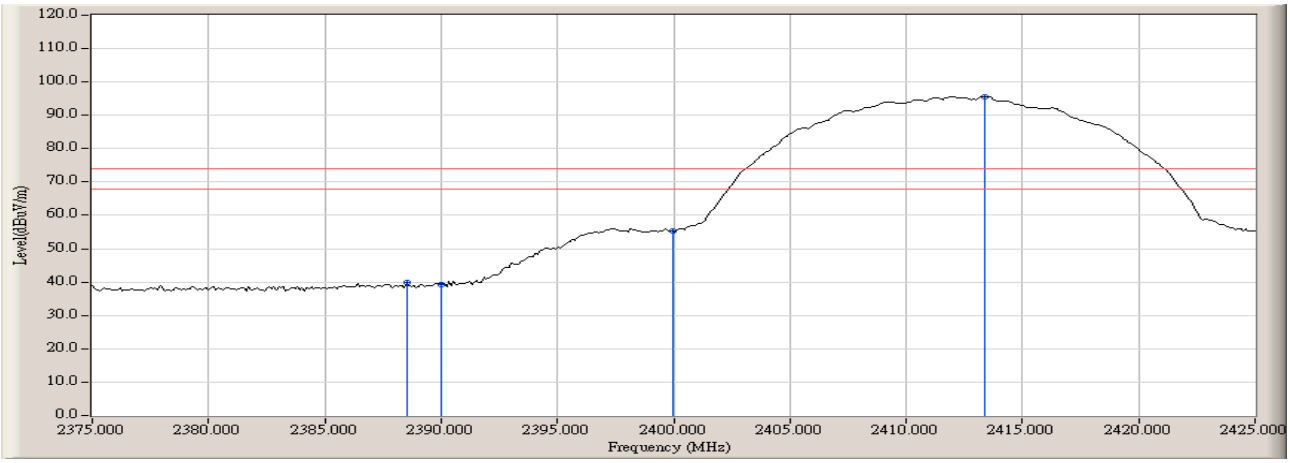
RF Radiated Measurement:

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)	Arerage Limit (dBuV/m)	Result
1 (Peak)	2388.527	42.890	39.998	74.00	54.00	Pass
1 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 1: (Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product : Ultra Mobile PC (UMPC)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b

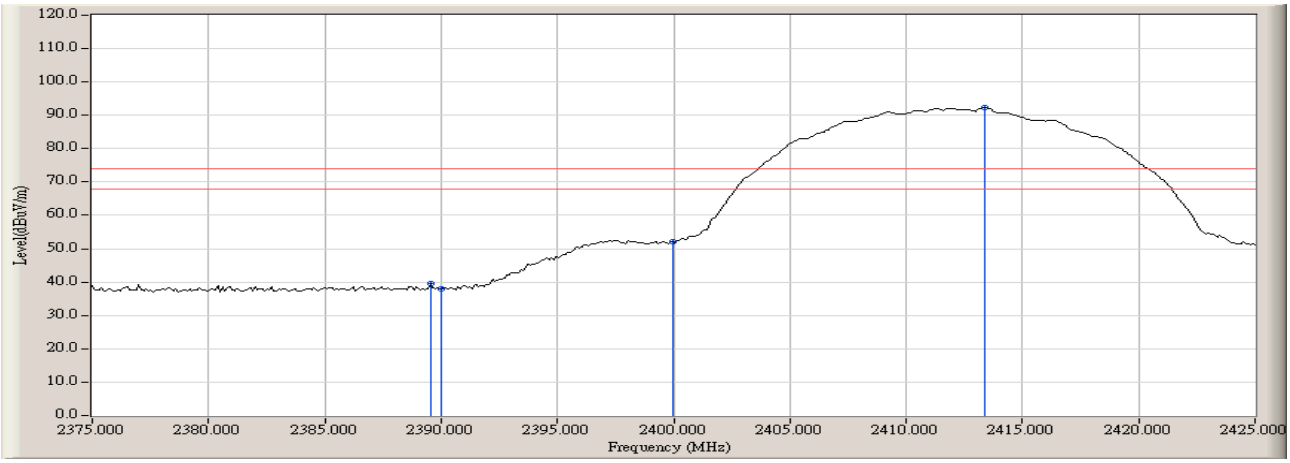
RF Radiated Measurement:

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)	Arerage Limit (dBuV/m)	Result
1 (Peak)	2389.529	42.457	39.569	74.00	54.00	Pass
1 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 1: (Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product : Ultra Mobile PC (UMPC)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b

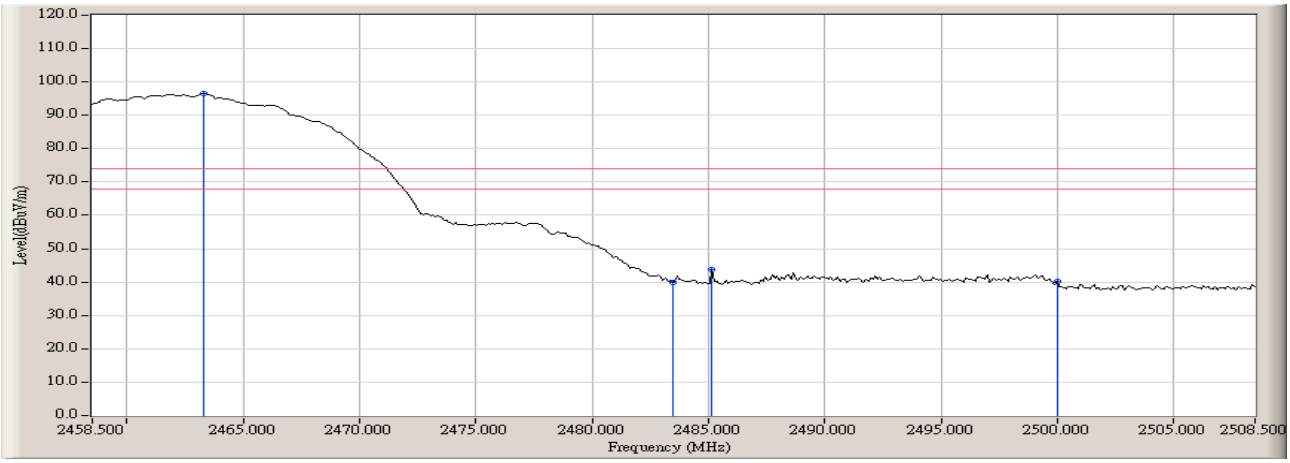
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
11 (Horizontal)	>2483.5	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
11(Peak)	2485.153	46.185	43.750	74.00	54.00	Pass
11(Average)	--	--	--	74.00	54.00	Pass

Figure Channel 11: (Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product : Ultra Mobile PC (UMPC)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmitter 802.11b

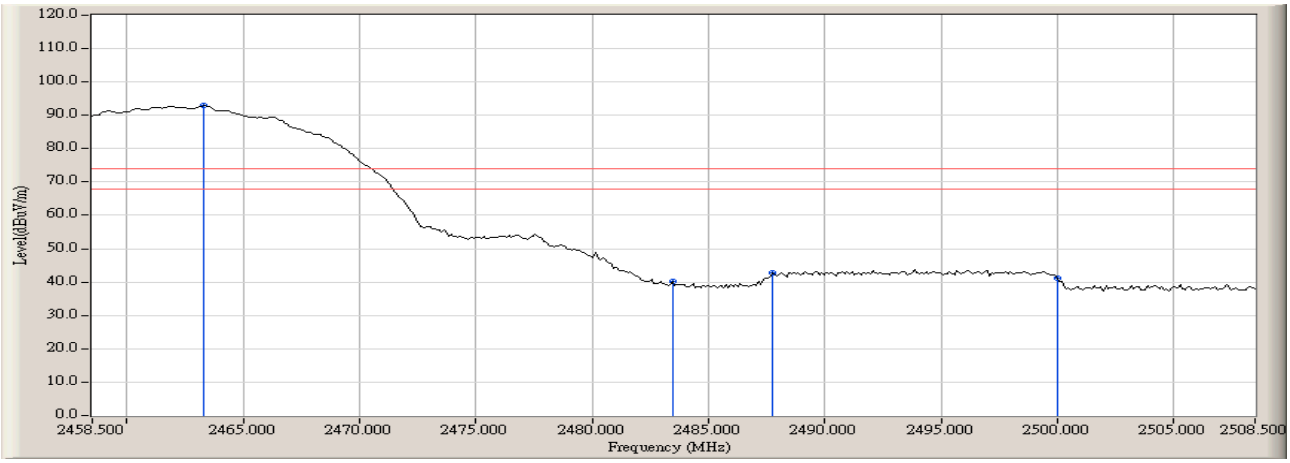
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
11 (Vertical)	>2483.5	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
11(Peak)	2487.759	45.229	42.805	74.00	54.00	Pass
11(Average)	--	--	--	74.00	54.00	Pass

Figure Channel 11: (Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product : Ultra Mobile PC (UMPC)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g

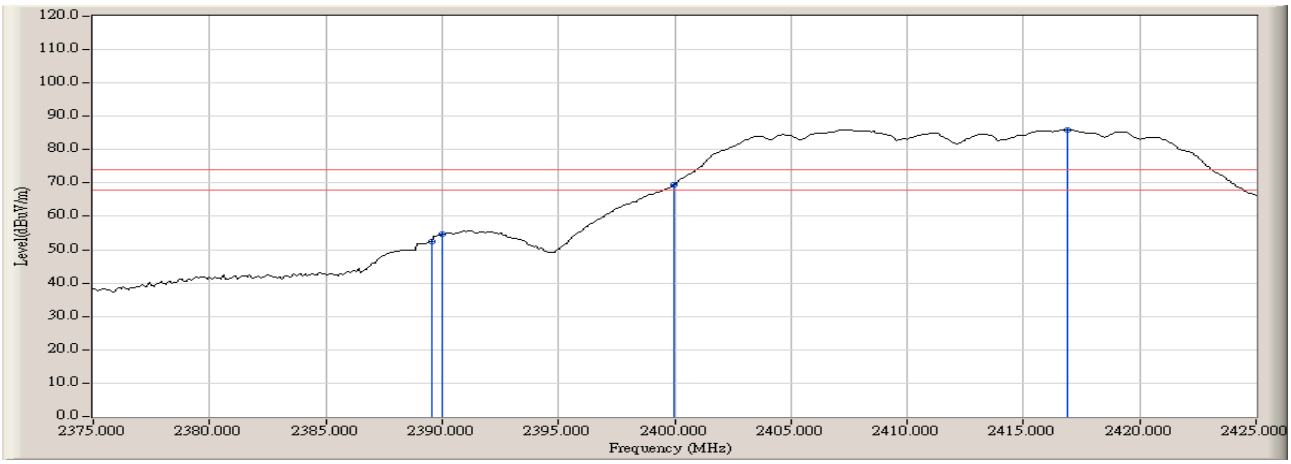
RF Radiated Measurement:

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)	Arerage Limit (dBuV/m)	Result
1 (Peak)	2389.529	55.234	52.346	74.00	54.00	Pass
1 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 1: (Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product : Ultra Mobile PC (UMPC)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g

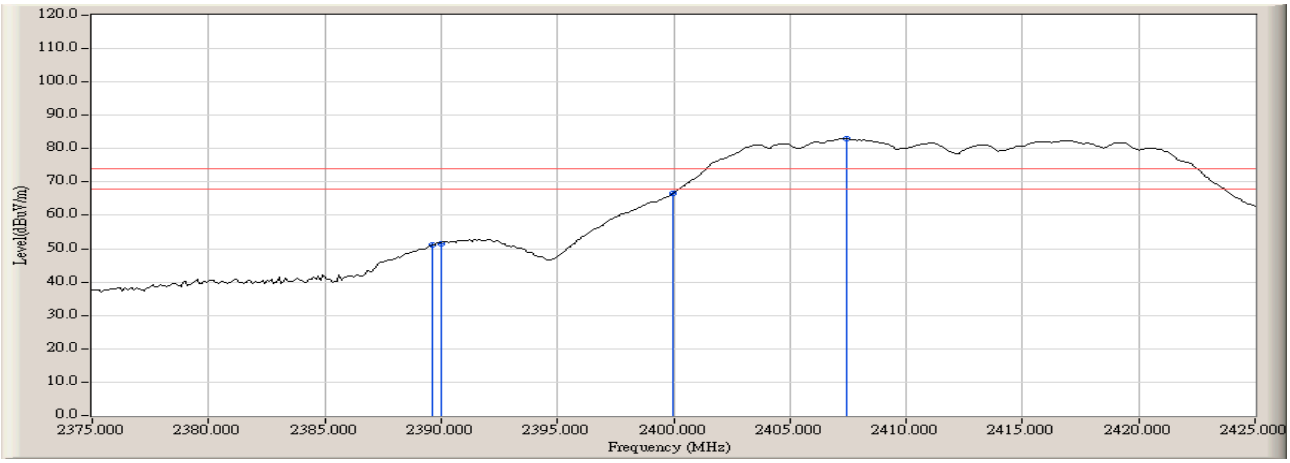
RF Radiated Measurement:

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)	Arerage Limit (dBuV/m)	Result
1 (Peak)	2389.629	53.901	51.014	74.00	54.00	Pass
1 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 1: (Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product : Ultra Mobile PC (UMPC)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g

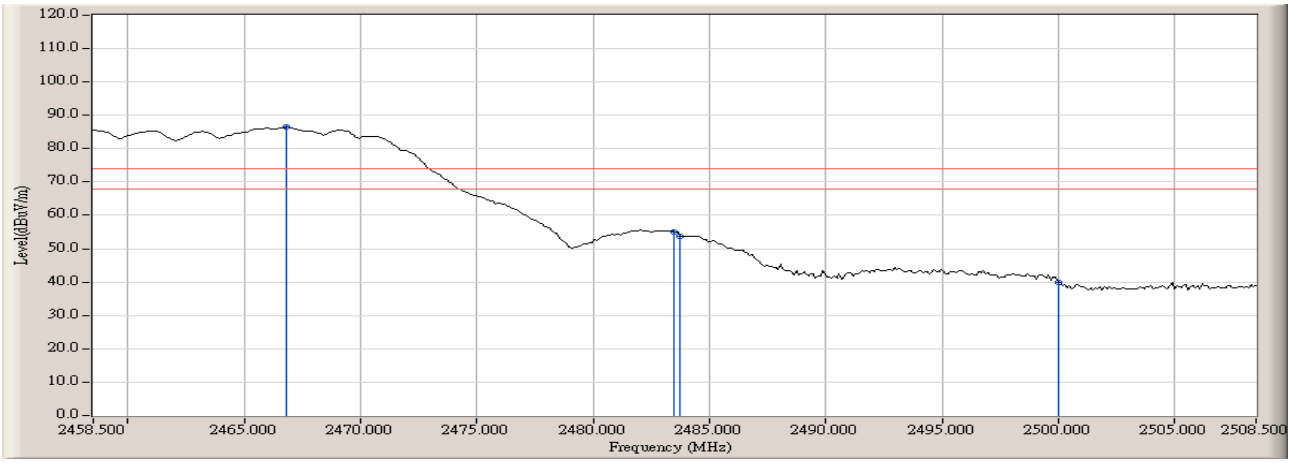
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
11 (Horizontal)	>2483.5	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
11 (Peak)	2483.750	56.268	53.827	74.00	54.00	Pass
11(Average)	--	--	--	74.00	54.00	Pass

Figure Channel 11: (Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product : Ultra Mobile PC (UMPC)
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g

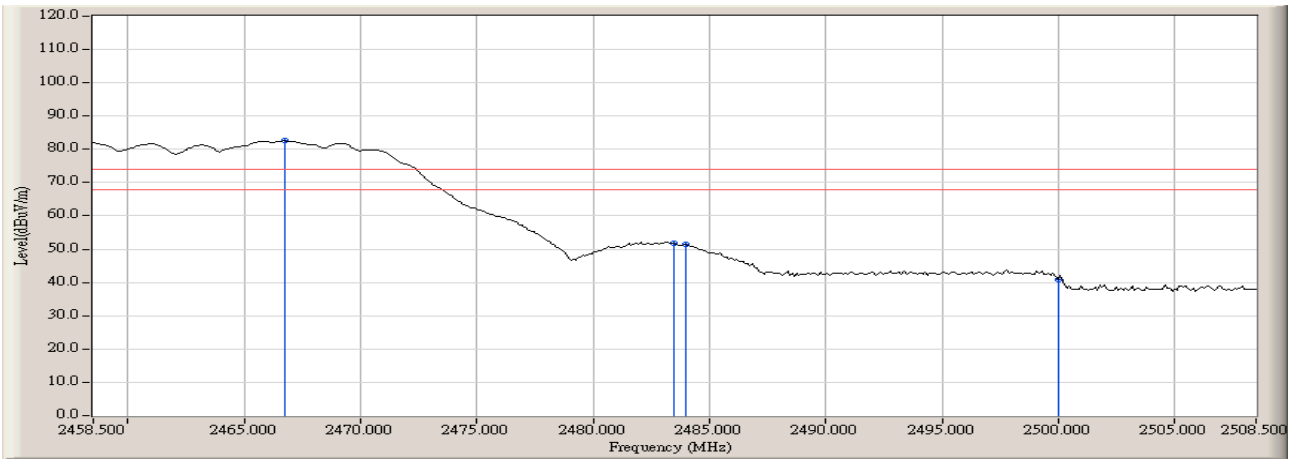
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
11 (Vertical)	>2483.5	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Arerage Limit (dBuV/m)	Result
11 (Peak)	2483.951	53.767	51.327	74.00	54.00	Pass
11(Average)	--	--	--	74.00	54.00	Pass

Figure Channel 11: (Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

6. Occupied Bandwidth

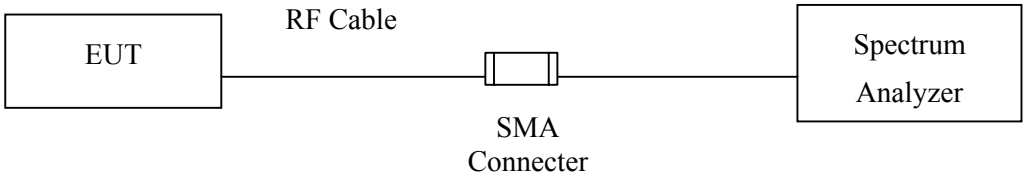
6.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006

Note: 1. All equipments are calibrated every one year.

2. The test instruments Marked "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

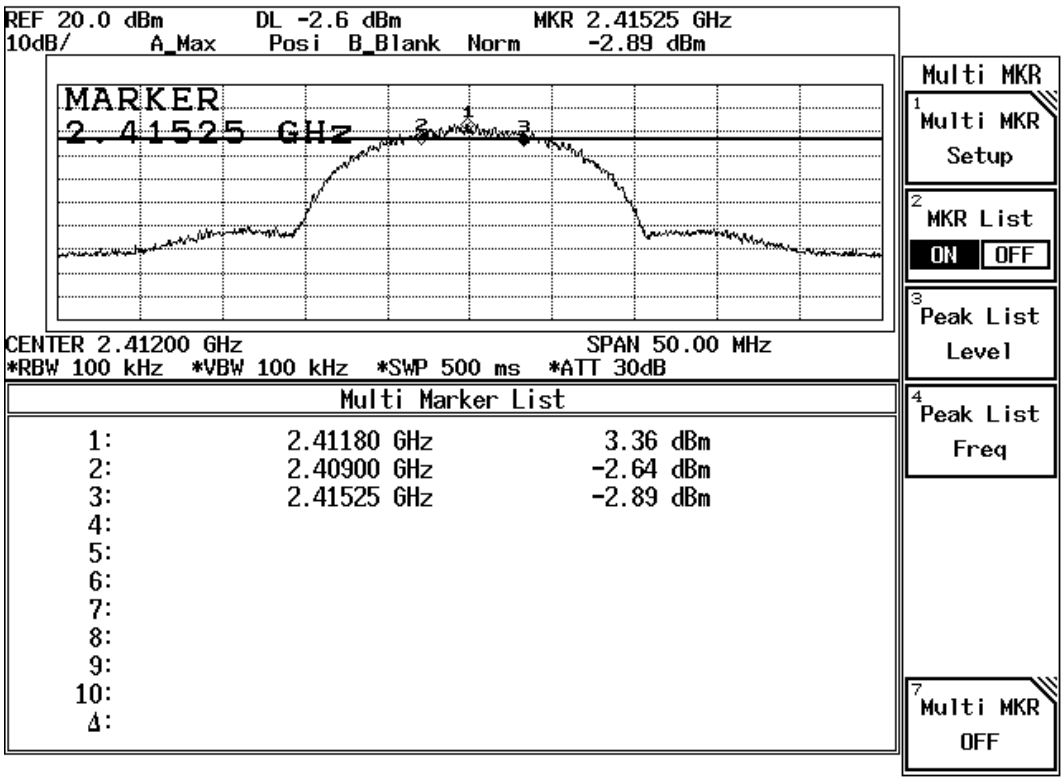
± 150Hz

6.5. Test Result of Occupied Bandwidth

Product : Ultra Mobile PC (UMPC)
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	6250	>500	Pass

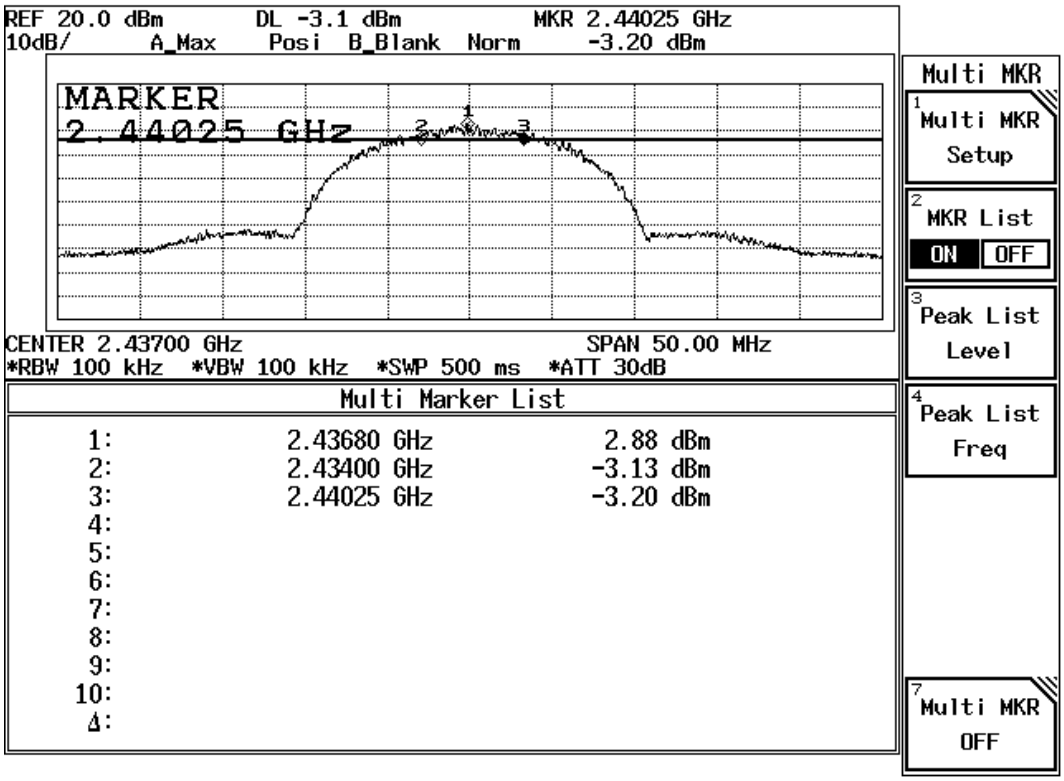
Figure Channel 1:



Product : Ultra Mobile PC (UMPC)
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	6250	>500	Pass

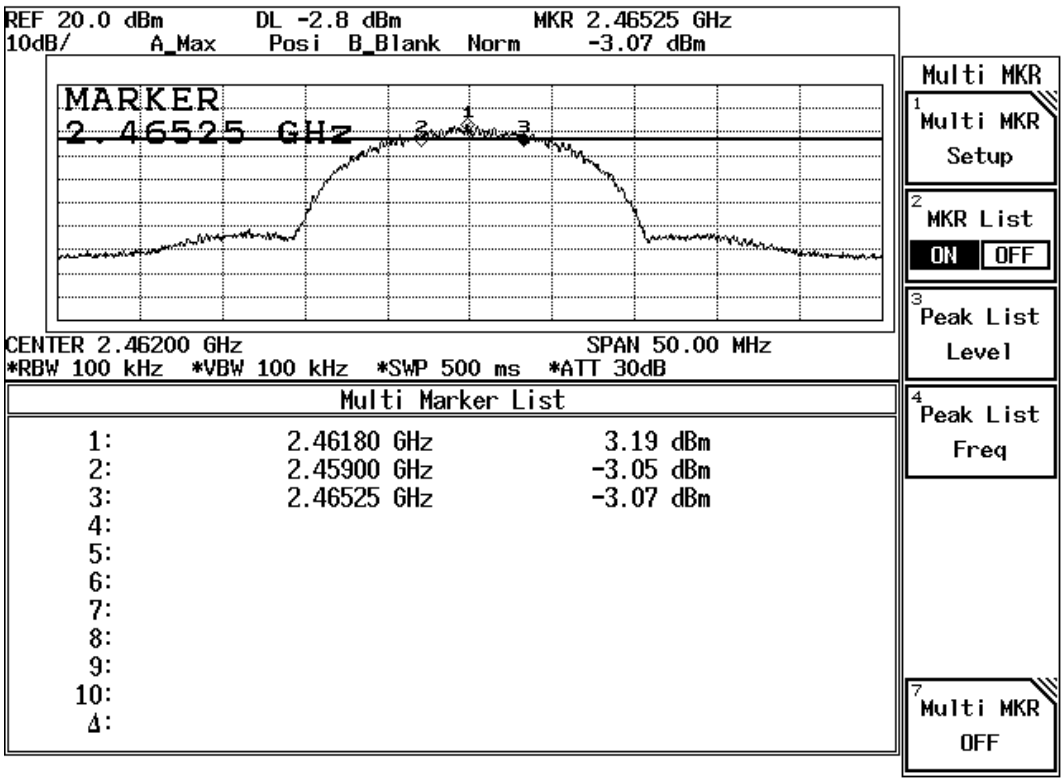
Figure Channel 6:



Product : Ultra Mobile PC (UMPC)
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	6250	>500	Pass

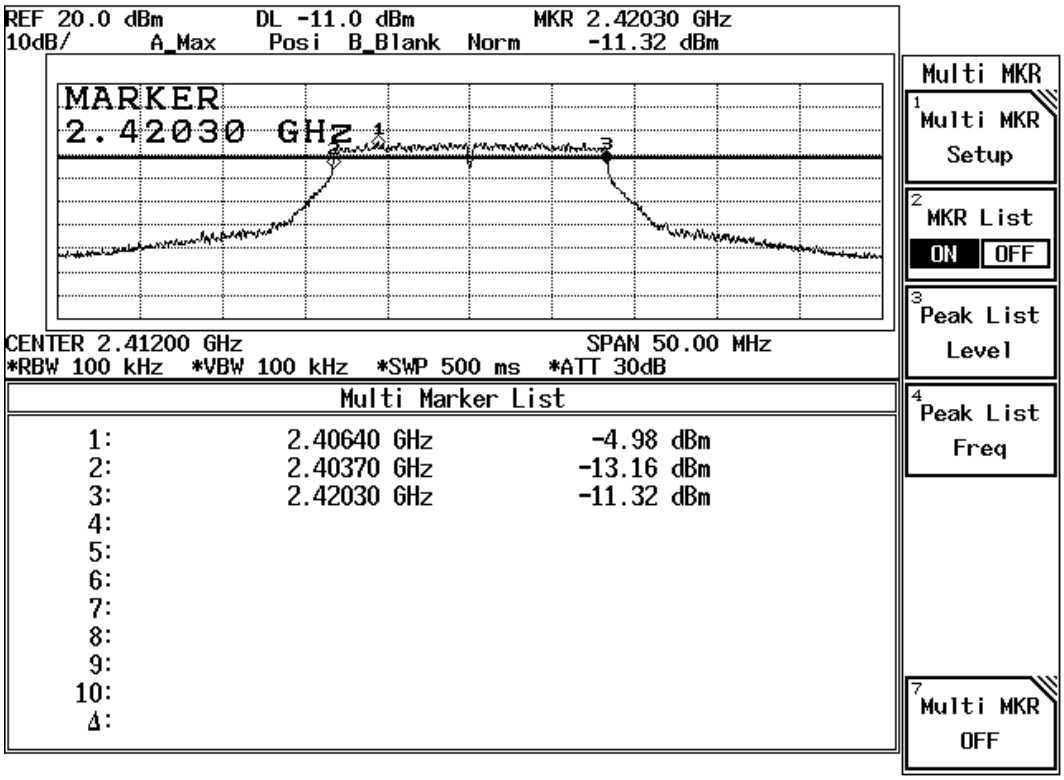
Figure Channel 11:



Product : Ultra Mobile PC (UMPC)
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1 (54Mbps)	2412.00	16600	>500	Pass

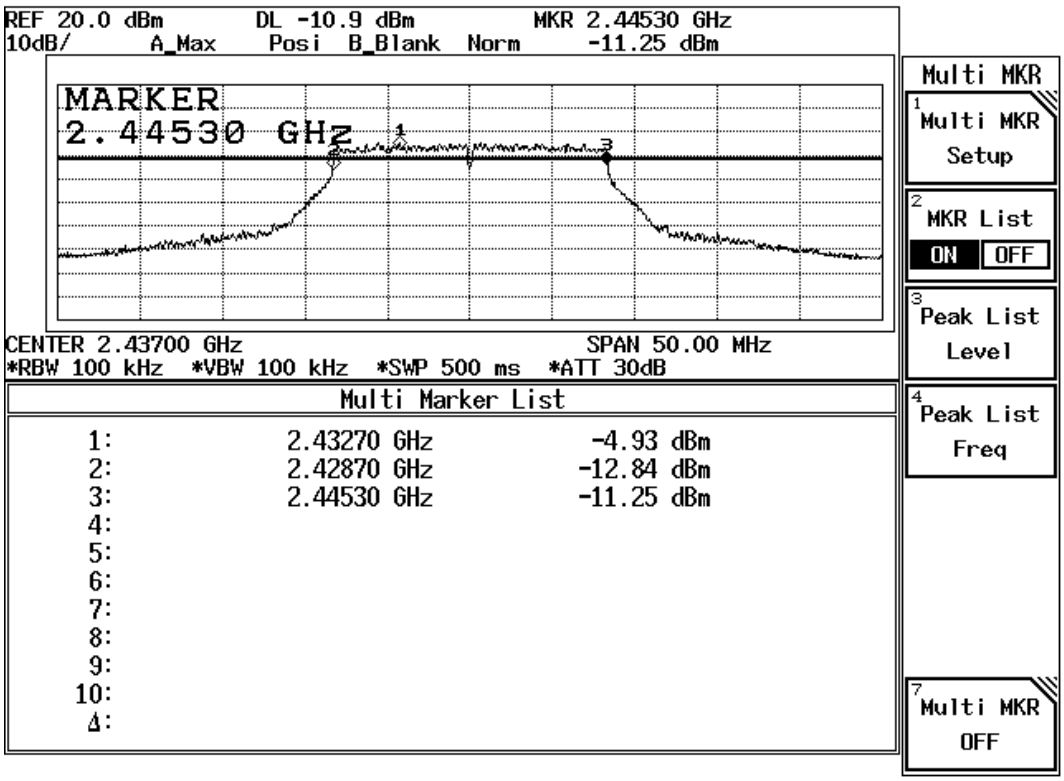
Figure Channel 1:



Product : Ultra Mobile PC (UMPC)
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6 (54Mbps)	2437.00	16600	>500	Pass

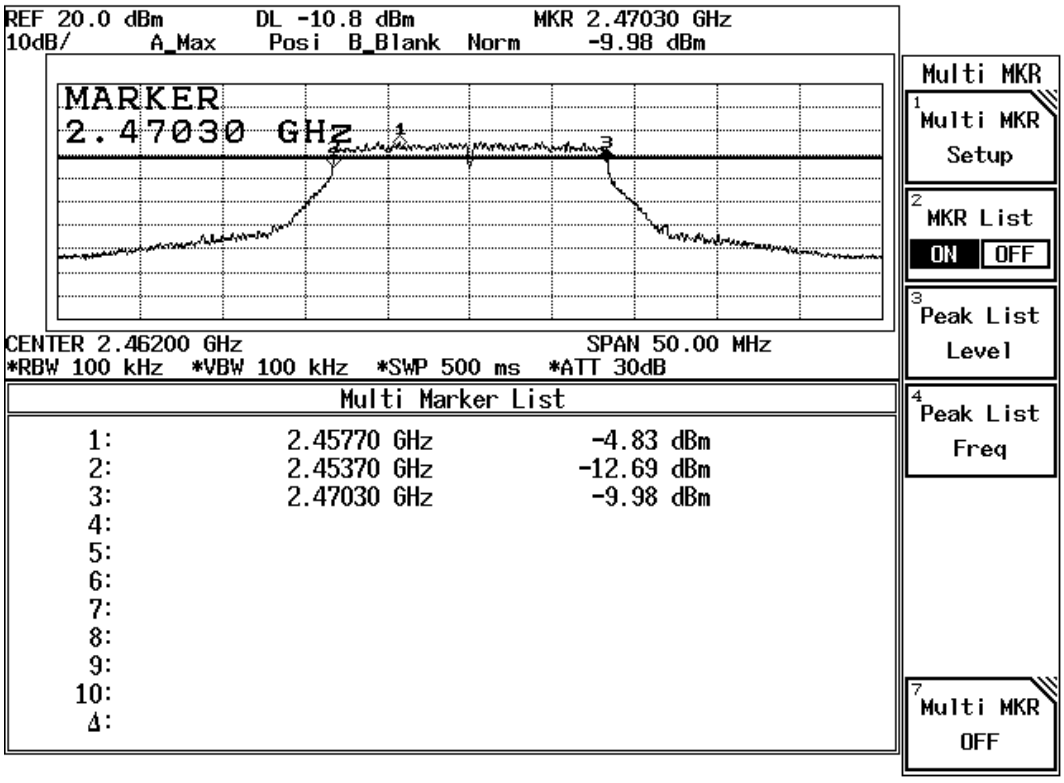
Figure Channel 6:



Product : Ultra Mobile PC (UMPC)
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11 (54Mbps)	2462.00	16600	>500	Pass

Figure Channel 11:



7. Power Density

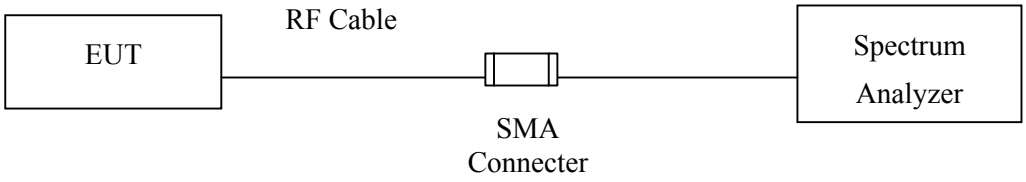
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006

Note: 1. All equipments are calibrated every one year.

2. The test instruments Marked "X" are used to measure the final test results.

7.2. Test Setup



7.3. Limits

The peak power spectral density conducted from the intentional radiator to the antenna shall not be great than 8dBm in any 3kHz band during any time interval of continuous transmission.

7.4. Uncertainty

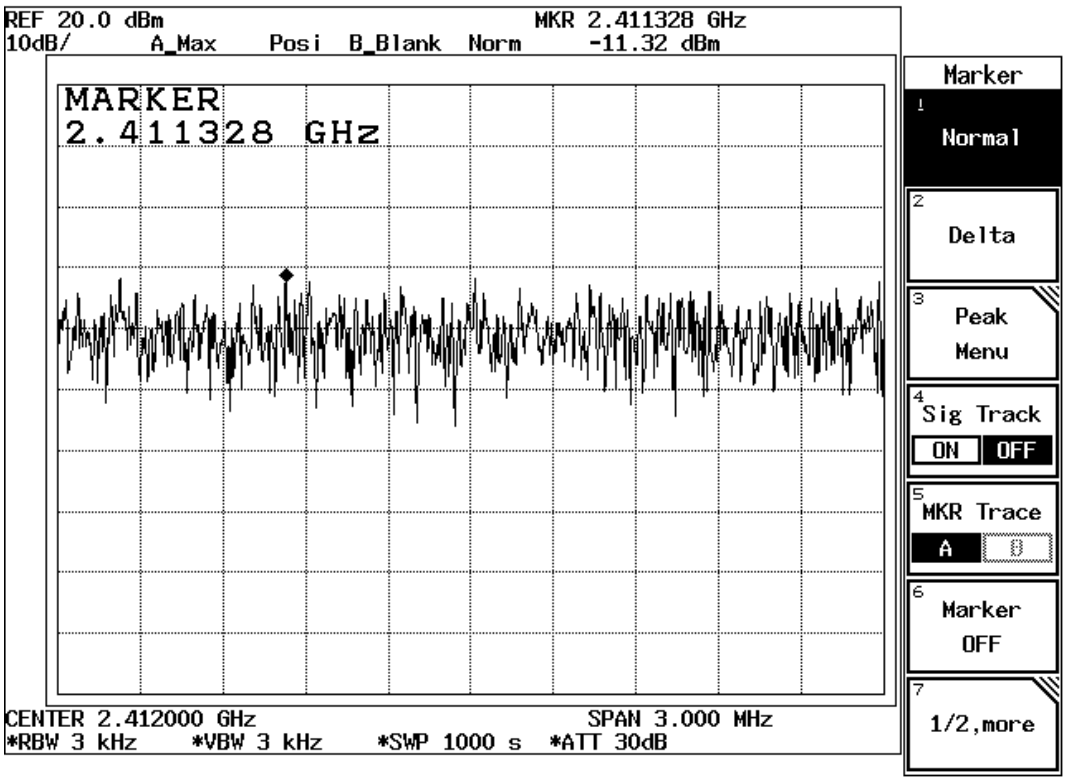
± 1.27 dB

7.5. Test Result of Power Density

Product : Ultra Mobile PC (UMPC)
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	-11.32	< 8dBm	Pass

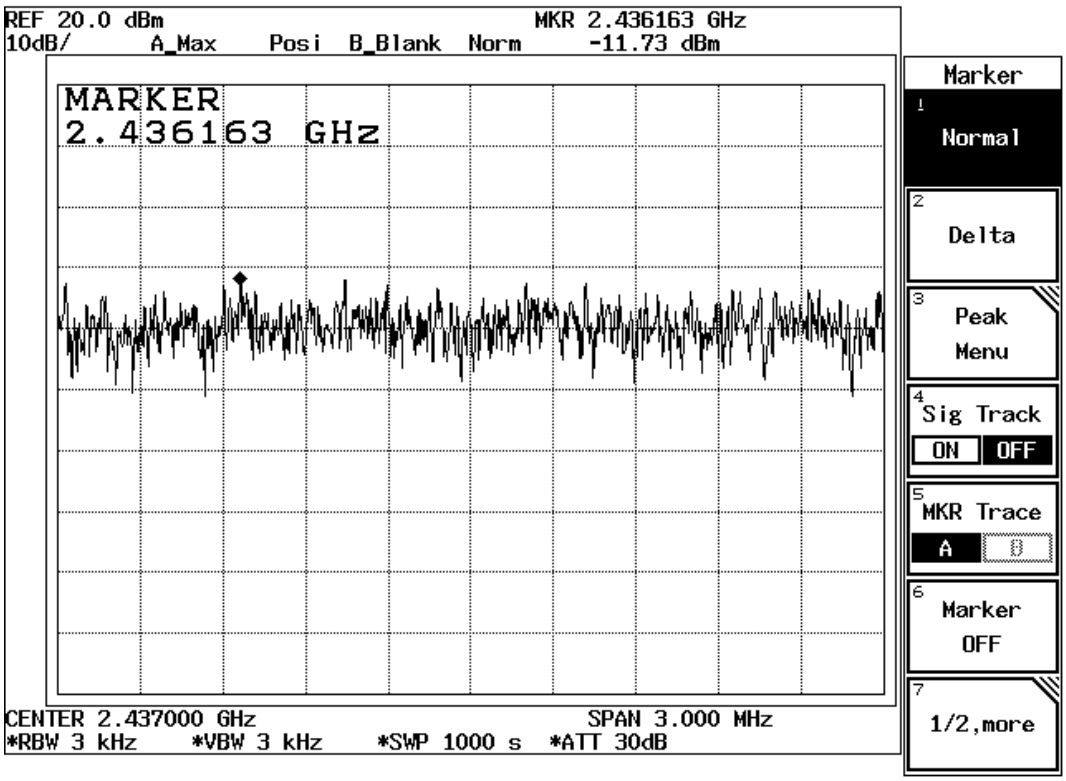
Figure Channel 1:



Product : Ultra Mobile PC (UMPC)
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	-11.73	< 8dBm	Pass

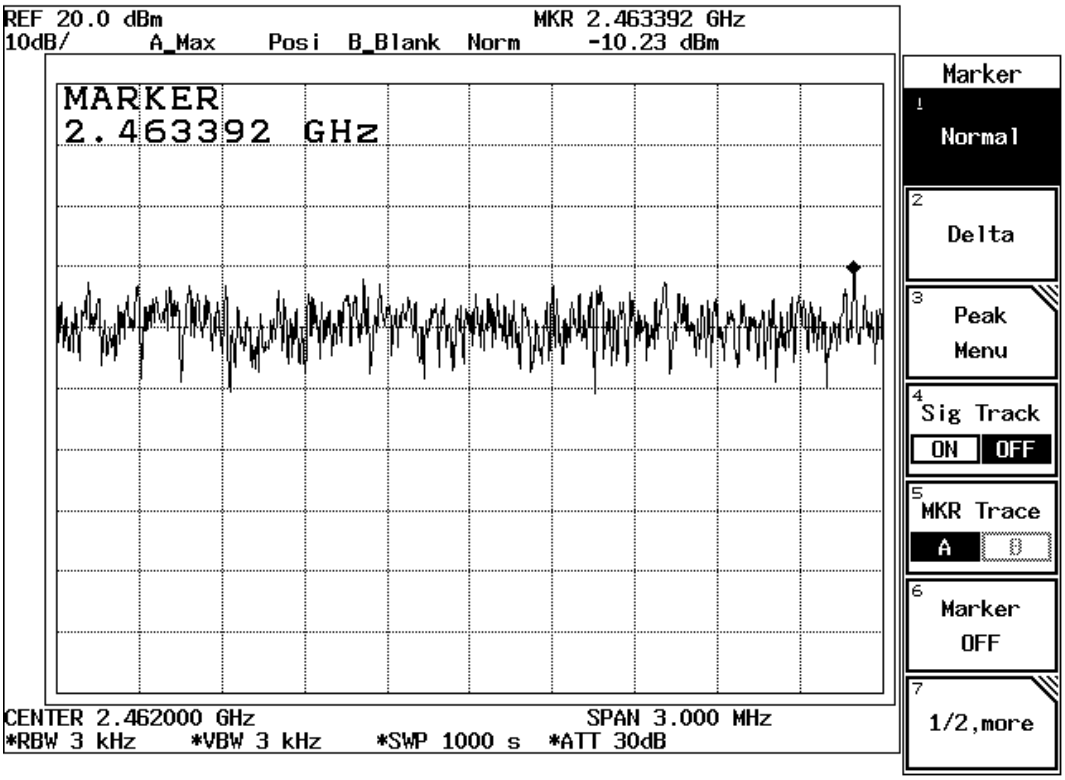
Figure Channel 6:



Product : Ultra Mobile PC (UMPC)
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	-10.23	< 8dBm	Pass

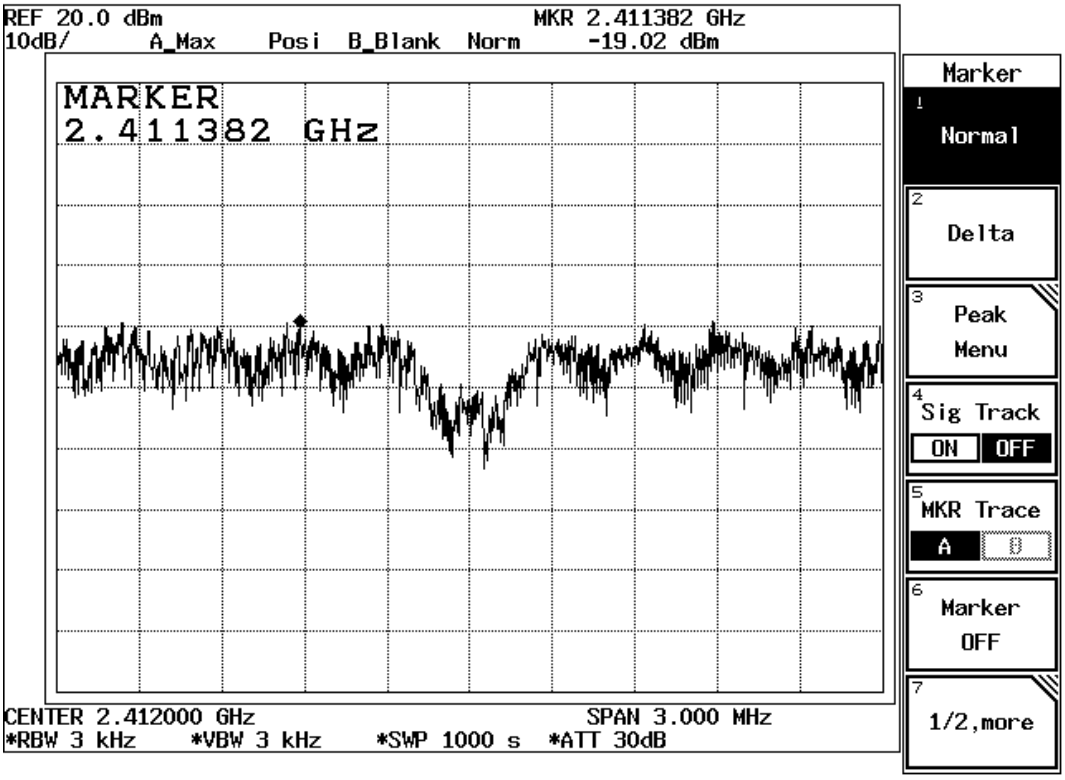
Figure Channel 11:



Product : Ultra Mobile PC (UMPC)
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1 (54Mbps)	2412.00	-19.02	< 8dBm	Pass

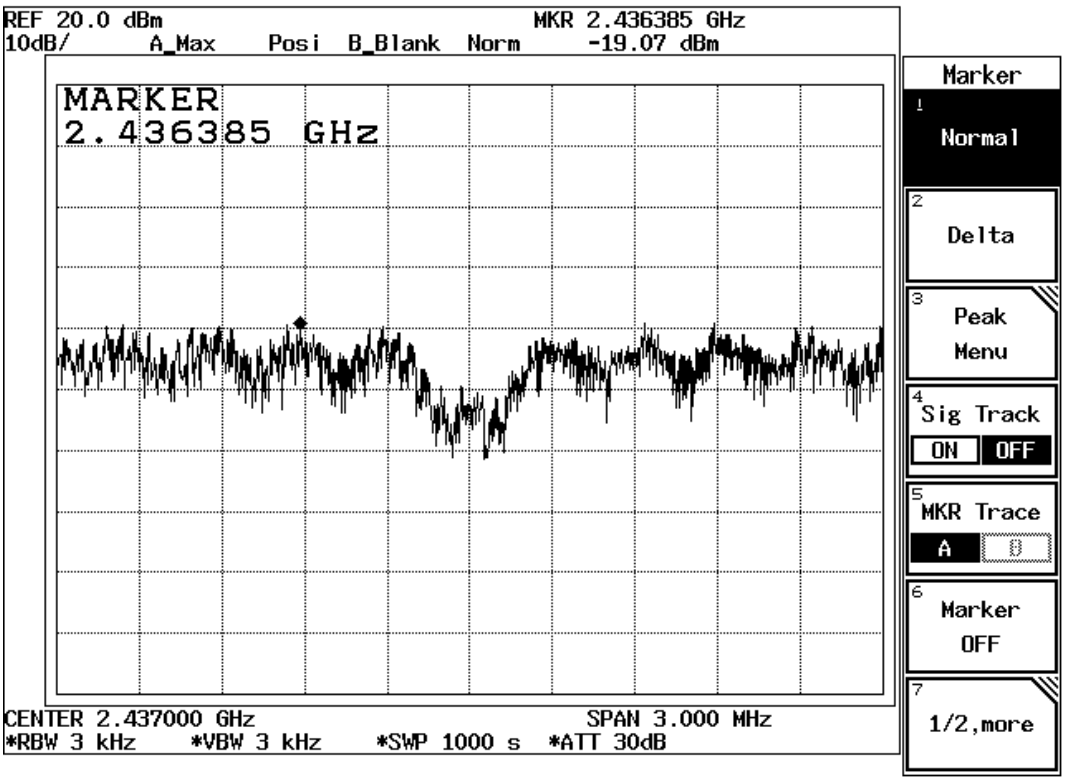
Figure Channel 1:



Product : Ultra Mobile PC (UMPC)
Test Item : Power Density Data
Test Site : No.3OATS
Test Mode : Mode 2: Transmitter 802.11g (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6 (54Mbps)	2437.000	-19.07	< 8dBm	Pass

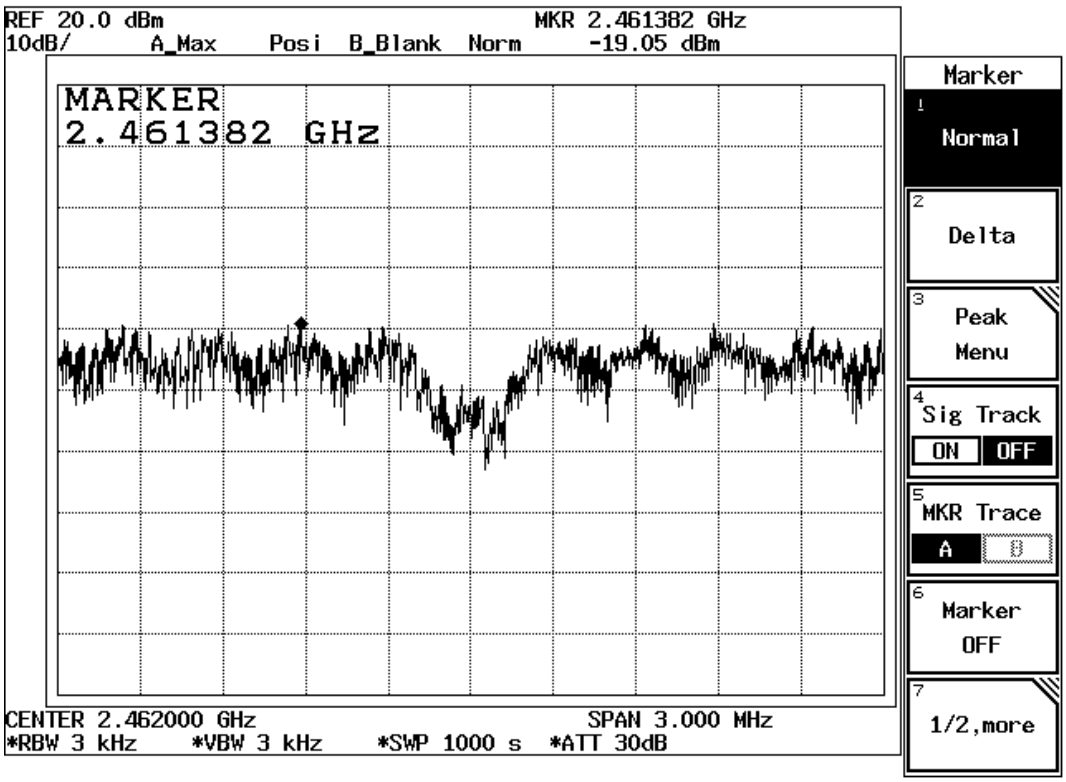
Figure Channel 6:



Product : Ultra Mobile PC (UMPC)
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmitter 802.11g (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11 (54Mbps)	2462.00	-19.05	< 8dBm	Pass

Figure Channel 11:



8. EMI Reduction Method During Compliance Testing

No modification was made during testing.