Test Report

Product Name ： IEEE 802.11b/g MiniCard
Model No. ： MM200-M
FCC ID. ： N89-MM200M

Applicant ： CyberTAN Technology, Inc.
Address ： 99 Park Avenue 3, Science Park Hsinchu 308, Taiwan, R.O.C.

Date of Receipt ： 2008/01/06
Issued Date ： 2008/02/26
Report No. ： 081090R-RFUSP05V01-1
Version ： V1.0

Test Report Certification

Issued Date : 2008/02/26
Report No. : 081090R-RFUSP05V01-1

QuieTek

Product Name	:	IEEE 802.11b/g MiniCard
Applicant	:	CyberTAN Technology, Inc.
Address	:	99 Park Avenue 3, Science Park Hsinchu 308, Taiwan, R.O.C.
Manufacturer	:	Foxconn Technology Group- Ambit Microsystems (Zhongshan)LTD.
Model No.	:	MM200-M
FCC ID.	:	N89-MM200M
Rated Voltage	:	AC 120 V / 60 Hz
EUT Voltage	:	Power by PC
Trade Name	:	CyberTAN
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2006
Test Result	:	Complied

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.

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(Carol Tsai / Engineering Adm. Specialist)

Reviewed By : Lucia Lu
(Lucia Lu / Assistant Engineer)

Approved By : Roy Wang
(Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	IEEE 802.11b/g MiniCard
Trade Name	CyberTAN
Model No.	MM200-M
Frequency Range	2412~2462MHz
Channel Number	11
Type of Modulation (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Type of Modulation (IEEE 802.11g)	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed (IEEE 802.11b)	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data Speed (IEEE 802.11g)	6Mbps,9Mbps,12Mbps,18Mbps,24Mbps,36Mbps,48Mbps,54Mbps
Channel Control	Manual
Antenna Type	Connector (PIFA)
Antenna Gain	2.45dBi

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
001	2412 MHz	002	2417 MHz	003	2422 MHz	004	2427 MHz
005	2432 MHz	006	2437 MHz	007	2442 MHz	008	2447 MHz
009	2452 MHz	010	2457 MHz	011	2462 MHz		

Note:

1. This device is an IEEE 802.11b/g MiniCard, including 2.4GHz WLAN receiving function, and transmitting function.
2. These test results on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for DTS devices.
3. Regards to the frequency band operation; the highest rate that was included the lowest、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 081090R-RFUSP01V02-1 under Declaration of Conformity.

1.3. Test Mode

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	
EMI	Mode 1: Transmit
Final Test Mode	
TX	Mode 1: Transmit

Emission	Mode 1
Conducted Emission	Yes
Peak Power Output	Yes
Radiated Emission	Yes
Band Edge	Yes
Occupied Bandwidth	Yes
Power Density	Yes

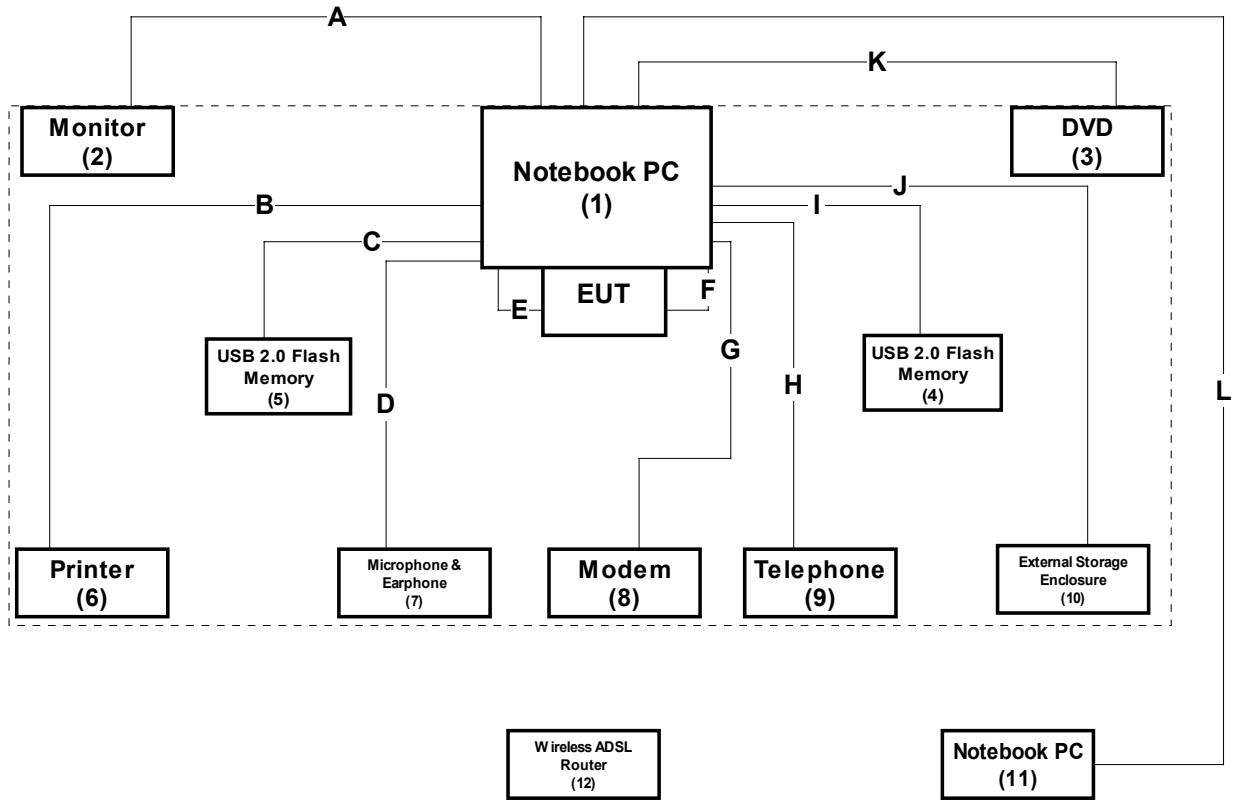
1.4. Tested System Details

The types for all equipments, 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	Notebook PC	HP	NX6320	CNU62D1F4K	DoC	Non-Shielded, 1.8m
2	Monitor	CHI MEI	A170E1-09	3UC120954HA0063	DoC	Non-Shielded, 1.8m
3	DVD	Panasonic	DVD-A120TN	9542160	DoC	Non-Shielded, 1.8m
4	USB 2.0 Flash Memory	Sony	USM2GJX	N/A	DoC	--
5	USB 2.0 Flash Memory	Sony	USM2GJX	N/A	DoC	--
6	Printer	HP	C2642A	TH86M1M34W	DoC	Non-Shielded, 0.7m
7	Microphone & Earphone	TOKTO	SX-MI	N/A	DoC	--
8	Modem	ACEEX	DM-1414	0102027535	DoC	Non-Shielded, 1.6m
9	Telephone	TENTEL	K-302	50721005000219	DoC	--
10	External Storage Enclosure	MACPOWER	Laureate Super 800	N/A	DoC	--
11	Notebook PC	HP	NX6320	CNU62D1F5Y	DoC	Non-Shielded, 1.8m
12	Wireless ADSL Router	D-Link	DSL-2640R	N/A	DoC	Non-Shielded, 1.8m

1.5. Configuration of tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	VGA Cable	Shielded, 1.6m, two ferrite cores bonded.
B	Printer Cable	Shielded, 1.2m
C	USB 2.0 Flash Memory Cable	Shielded, 1.4m
D	Microphone & Earphone Cable	Non-Shielded, 1.2m
E	USB Cable	Shielded, 1.4m
F	USB Cable	Shielded, 1m
G	Modem Cable	Shielded, 1.5m
H	Telephone Cable	Non-Shielded, 1.5m
I	USB 2.0 Flash Memory Cable	Shielded, 1.4m
J	1394 Cable	Shielded, 1.2m
K	S-Video Cable	Shielded, 1.2m
L	LAN Cable	Non-Shielded, 10m

1.6. EUT Exercise Software

1	Setup the EUT and Notebook PC as shown on 1.4
2	Turn on the power of all equipment.
3	Notebook PC reads data from disk.
4	Data will be transmitting through EUT.
5	The transmitting status will be shown on the monitor.
6	Repeat the above procedure (4) to (5)

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output (DSSS)	15 - 35	26
Humidity (%RH)		25 - 75	51
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission (DSSS)	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Band Edge (DSSS)	15 - 35	26
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth (DSSS)	15 - 35	26
Humidity (%RH)		25 - 75	51
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Power Density (DSSS)	15 - 35	26
Humidity (%RH)		25 - 75	51
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

January 24, 2005 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520

Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2010

Testing Laboratory 1313

Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2008

NVLAP Lab Code : 200347-0

Site Name: Quietek Corporation
Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

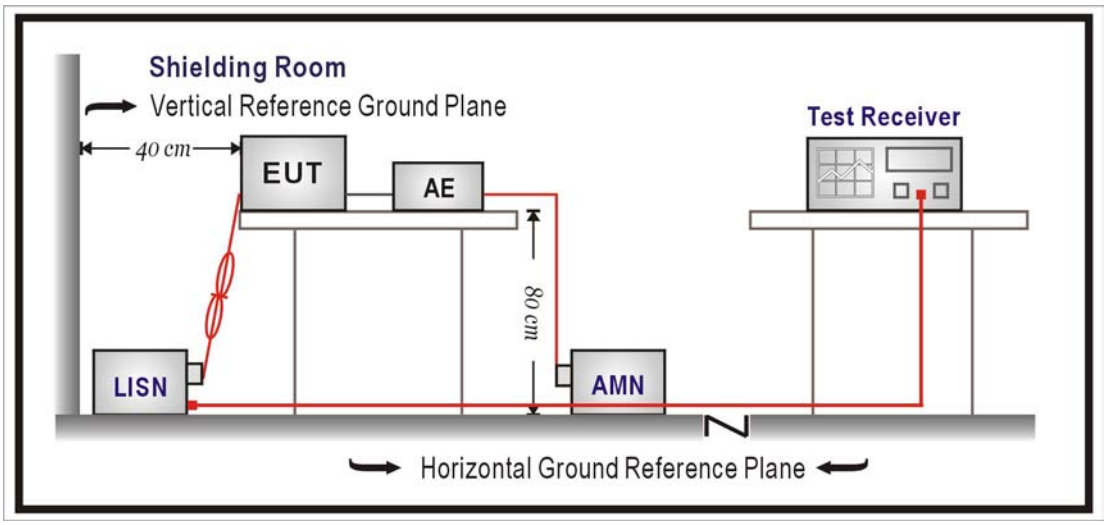
2.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/018	Sep., 2007	
2	Artificial Mains Network	R & S	ENV4200/848411/10	Feb., 2007	Peripherals
3	LISN	R & S	ESH3-Z5/825562/002	Feb., 2007	EUT
4	Pulse Limiter	R & S	ESH3-Z2/357.8810.52	Feb., 2007	
5	No.2 Shielded Room			N/A	

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT was setup and tested according to ANSI C63.4, 2003 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. Test Specification

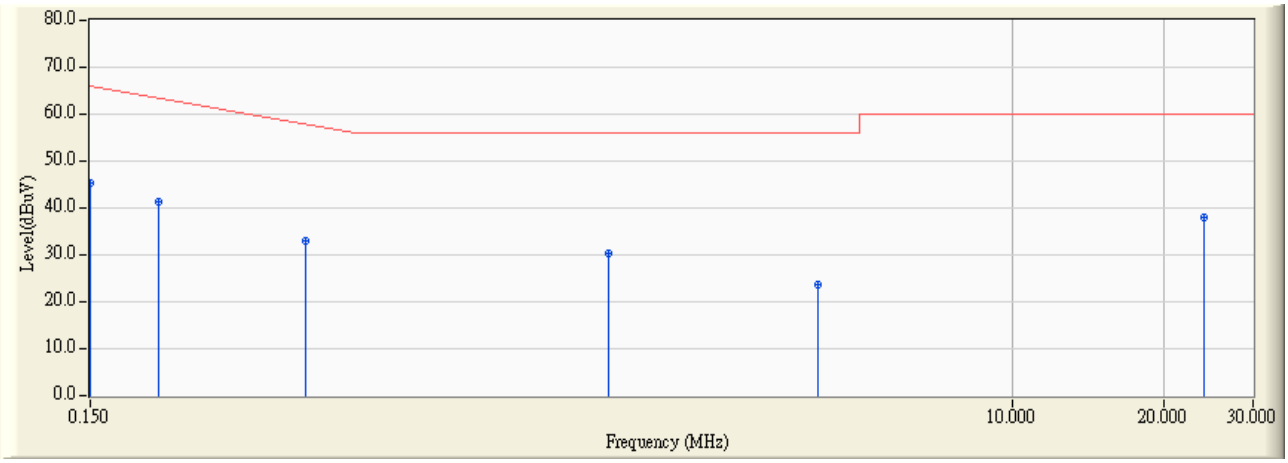
According to FCC Part 15 Subpart C Paragraph 15.207: 2005

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : ShieldingrRoom 2	**Time : 2008/01/05 - 18:05**
Limit : CISPR_B_00M_QP	**Margin : 0**
EUT : IEEE 802.11b/g MiniCard	**Probe : QTK-LISN-SR2 - Line1**
Power : Power by PC	**Note : TX-B**

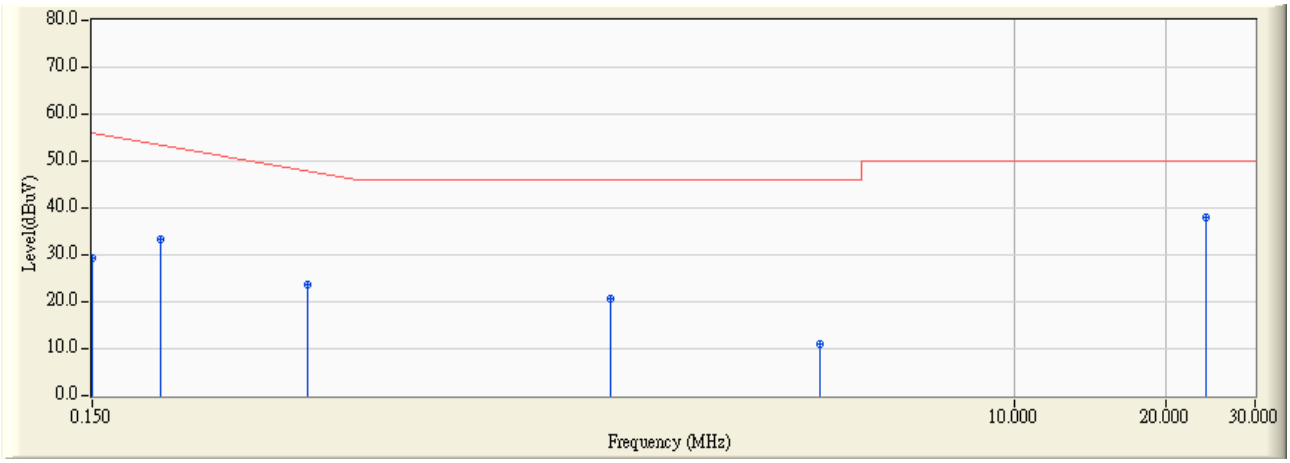


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.150	0.060	45.220	45.280	-20.720	66.000	QUASIPEAK
2		0.205	0.060	41.380	41.440	-22.989	64.429	QUASIPEAK
3		0.400	0.070	32.820	32.890	-25.967	58.857	QUASIPEAK
4		1.595	0.140	30.110	30.250	-25.750	56.000	QUASIPEAK
5		4.138	0.220	23.310	23.530	-32.470	56.000	QUASIPEAK
6		23.999	1.260	36.880	38.140	-21.860	60.000	QUASIPEAK

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.

Site : ShieldingrRoom 2	**Time : 2008/01/05 - 18:05**
Limit : CISPR_B_00M_AV	**Margin : 0**
EUT : IEEE 802.11b/g MiniCard	**Probe : QTK-LISN-SR2 - Line1**
Power : Power by PC	**Note : TX-B**

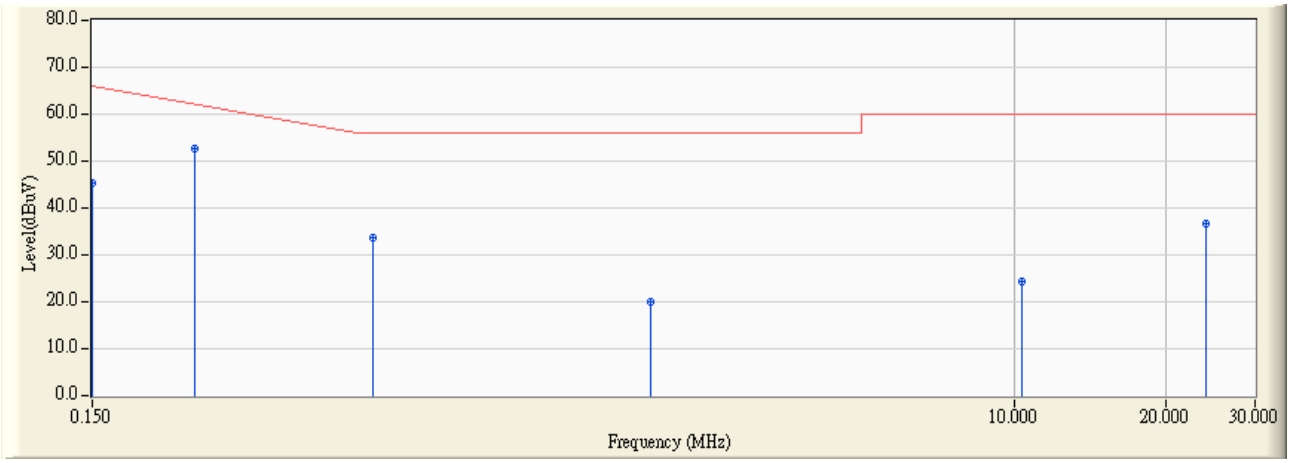


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.150	0.060	29.360	29.420	-26.580	56.000	AVERAGE
2		0.205	0.060	33.420	33.480	-20.949	54.429	AVERAGE
3		0.400	0.070	23.550	23.620	-25.237	48.857	AVERAGE
4		1.595	0.140	20.410	20.550	-25.450	46.000	AVERAGE
5		4.138	0.220	10.920	11.140	-34.860	46.000	AVERAGE
6	*	23.999	1.260	36.870	38.130	-11.870	50.000	AVERAGE

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.

Site : ShieldingrRoom 2	**Time : 2008/01/05 - 18:13**
Limit : CISPR_B_00M_QP	**Margin : 0**
EUT : IEEE 802.11b/g MiniCard	**Probe : QTK-LISN-SR2 - Line2**
Power : Power by PC	**Note : TX-B**

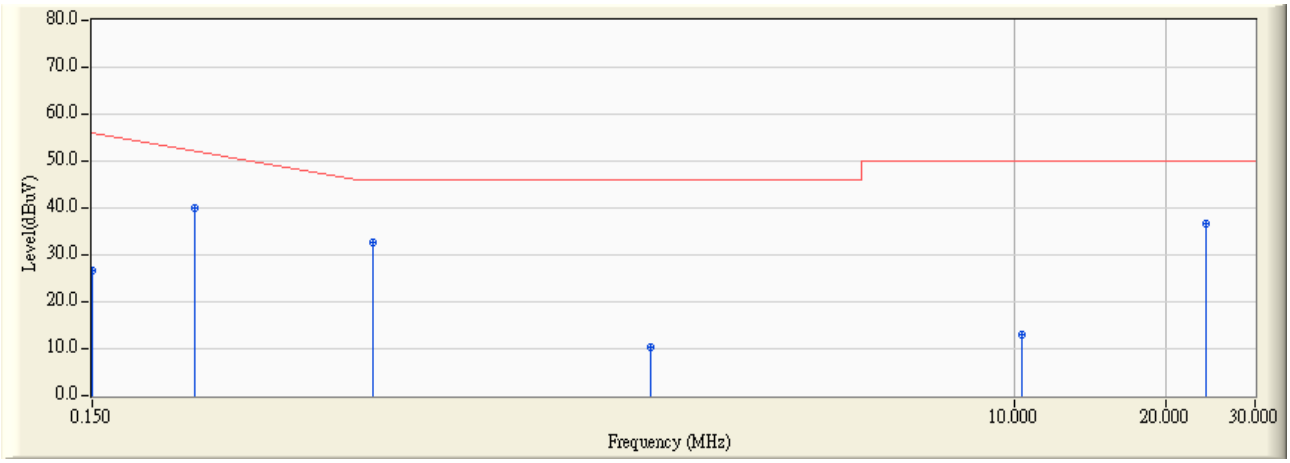


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.150	0.060	45.300	45.360	-20.640	66.000	QUASIPEAK
2	*	0.240	0.060	52.600	52.660	-10.769	63.429	QUASIPEAK
3		0.538	0.070	33.560	33.630	-22.370	56.000	QUASIPEAK
4		1.912	0.080	19.850	19.930	-36.070	56.000	QUASIPEAK
5		10.377	0.447	23.910	24.357	-35.643	60.000	QUASIPEAK
6		23.998	0.960	35.850	36.810	-23.190	60.000	QUASIPEAK

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.

Site : ShieldingrRoom 2	**Time : 2008/01/05 - 18:13**
Limit : CISPR_B_00M_AV	**Margin : 0**
EUT : IEEE 802.11b/g MiniCard	**Probe : QTK-LISN-SR2 - Line2**
Power : Power by PC	**Note : TX-B**

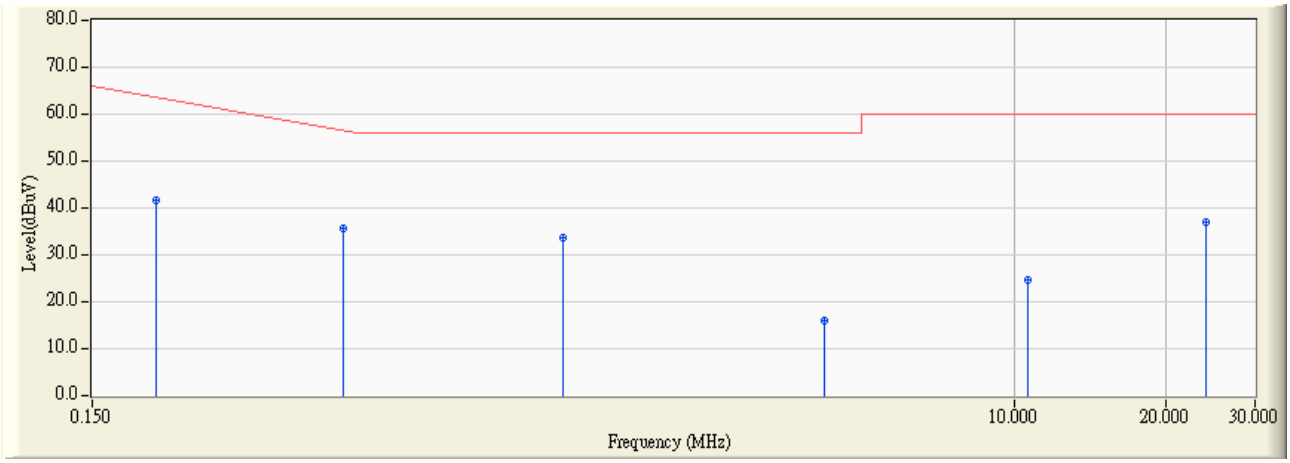


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.150	0.060	26.520	26.580	-29.420	56.000	AVERAGE
2		0.240	0.060	39.970	40.030	-13.399	53.429	AVERAGE
3		0.538	0.070	32.490	32.560	-13.440	46.000	AVERAGE
4		1.912	0.080	10.090	10.170	-35.830	46.000	AVERAGE
5		10.377	0.447	12.590	13.037	-36.963	50.000	AVERAGE
6	*	23.998	0.960	35.840	36.800	-13.200	50.000	AVERAGE

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.

Site : ShieldingrRoom 2	**Time : 2008/01/05 - 18:18**
Limit : CISPR_B_00M_QP	**Margin : 0**
EUT : IEEE 802.11b/g MiniCard	**Probe : QTK-LISN-SR2 - Line1**
Power : Power by PC	**Note : TX-G**

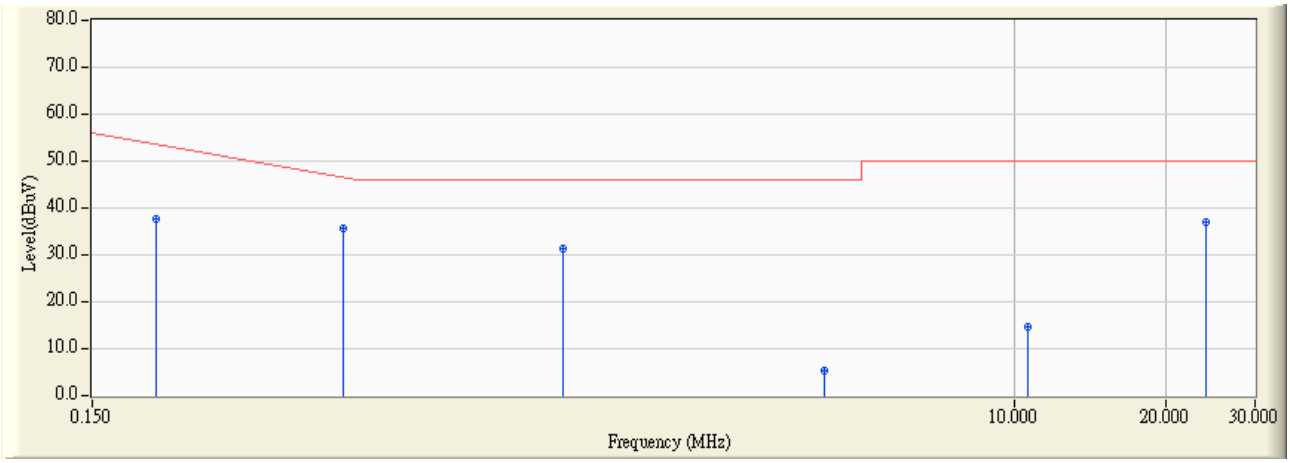


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.201	0.060	41.500	41.560	-22.983	64.543	QUASIPEAK
2	*	0.470	0.070	35.440	35.510	-21.347	56.857	QUASIPEAK
3		1.279	0.100	33.450	33.550	-22.450	56.000	QUASIPEAK
4		4.205	0.230	15.620	15.850	-40.150	56.000	QUASIPEAK
5		10.623	0.570	23.940	24.510	-35.490	60.000	QUASIPEAK
6		23.998	1.260	35.850	37.110	-22.890	60.000	QUASIPEAK

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.

Site : ShieldingrRoom 2	**Time : 2008/01/05 - 18:18**
Limit : CISPR_B_00M_AV	**Margin : 0**
EUT : IEEE 802.11b/g MiniCard	**Probe : QTK-LISN-SR2 - Line1**
Power : Power by PC	**Note : TX-G**

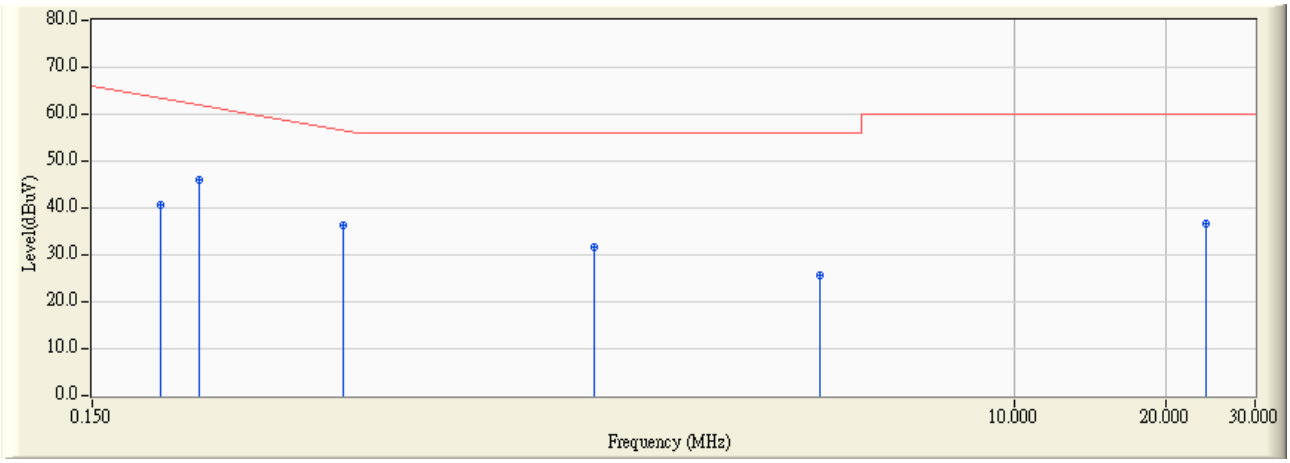


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.201	0.060	37.550	37.610	-16.933	54.543	AVERAGE
2	*	0.470	0.070	35.430	35.500	-11.357	46.857	AVERAGE
3		1.279	0.100	31.110	31.210	-14.790	46.000	AVERAGE
4		4.205	0.230	5.210	5.440	-40.560	46.000	AVERAGE
5		10.623	0.570	14.260	14.830	-35.170	50.000	AVERAGE
6		23.998	1.260	35.840	37.100	-12.900	50.000	AVERAGE

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.

Site : ShieldingrRoom 2	**Time : 2008/01/05 - 18:22**
Limit : CISPR_B_00M_QP	**Margin : 0**
EUT : IEEE 802.11b/g MiniCard	**Probe : QTK-LISN-SR2 - Line2**
Power : Power by PC	**Note : TX-G**

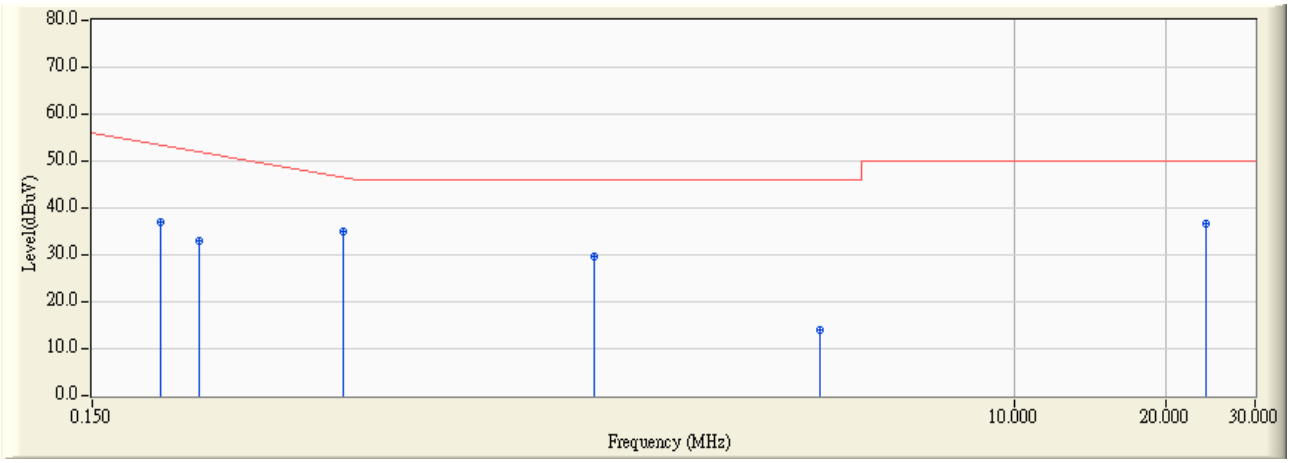


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.205	0.060	40.630	40.690	-23.739	64.429	QUASIPEAK
2	*	0.244	0.060	45.910	45.970	-17.344	63.314	QUASIPEAK
3		0.470	0.070	36.160	36.230	-20.627	56.857	QUASIPEAK
4		1.482	0.072	31.510	31.582	-24.418	56.000	QUASIPEAK
5		4.123	0.220	25.600	25.820	-30.180	56.000	QUASIPEAK
6		24.002	0.960	35.800	36.760	-23.240	60.000	QUASIPEAK

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.

Site : ShieldingrRoom 2	**Time : 2008/01/05 - 18:22**
Limit : CISPR_B_00M_AV	**Margin : 0**
EUT : IEEE 802.11b/g MiniCard	**Probe : QTK-LISN-SR2 - Line2**
Power : Power by PC	**Note : TX-G**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.205	0.060	36.810	36.870	-17.559	54.429	AVERAGE
2		0.244	0.060	33.070	33.130	-20.184	53.314	AVERAGE
3	*	0.470	0.070	34.910	34.980	-11.877	46.857	AVERAGE
4		1.482	0.072	29.630	29.702	-16.298	46.000	AVERAGE
5		4.123	0.220	13.710	13.930	-32.070	46.000	AVERAGE
6		24.002	0.960	35.790	36.750	-13.250	50.000	AVERAGE

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

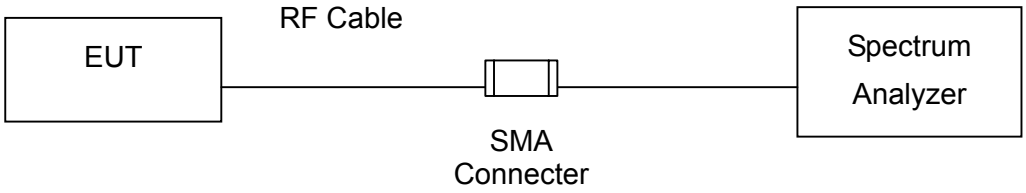
3.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R&S	FSP/ 100005	Oct., 2007
2	No.1 OATS			Sep., 2007

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

3.2. Test Setup



3.3. Test procedures

The EUT was tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

3.4. Limits

The maximum peak power shall be less 1 Watt.

3.5. Test Specification

According to FCC CFR Title 47 Part 15 Subpart C Section 15.247:2006

3.6. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB.

3.7. Test Result

Product	IEEE 802.11b/g MiniCard		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2007/01/05	Test Site	No.1 OATS

IEEE 802.11b				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	17.67	1Watt= 30 dBm	Pass
6	2437	15.09	1Watt= 30 dBm	Pass
11	2462	14.70	1Watt= 30 dBm	Pass

The worst emission of data rate is 1Mbps.

Peak Power Output (dBm)						
Channel No	Frequency (MHz)	Data Rate (Mbps)				Required Limit
		1	2	5.5	11	
1	2412	17.67	17.53	17.48	17.46	1 Watt=30dBm
6	2437	15.09	14.96	14.91	14.87	1 Watt=30dBm
11	2462	14.70	14.66	14.63	14.58	1 Watt=30dBm

Product	IEEE 802.11b/g MiniCard		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11g				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	17.97	1Watt= 30 dBm	Pass
6	2437	17.73	1Watt= 30 dBm	Pass
11	2462	17.47	1Watt= 30 dBm	Pass

The worst emission of data rate is 6Mbps.

Peak Power Output (dBm)										
Channel No	Frequency (MHz)	Data Rate								Required Limit
		6	9	12	18	24	36	48	54	
1	2412	17.97	17.94	17.92	17.88	17.85	17.83	17.80	17.76	1 Watt=30dBm
6	2437	17.73	17.69	17.66	17.63	17.62	17.58	17.55	17.50	1 Watt=30dBm
11	2462	17.47	17.44	17.42	17.39	17.35	17.33	17.29	17.23	1 Watt=30dBm

4. Radiated Emission

4.1. Test Equipment

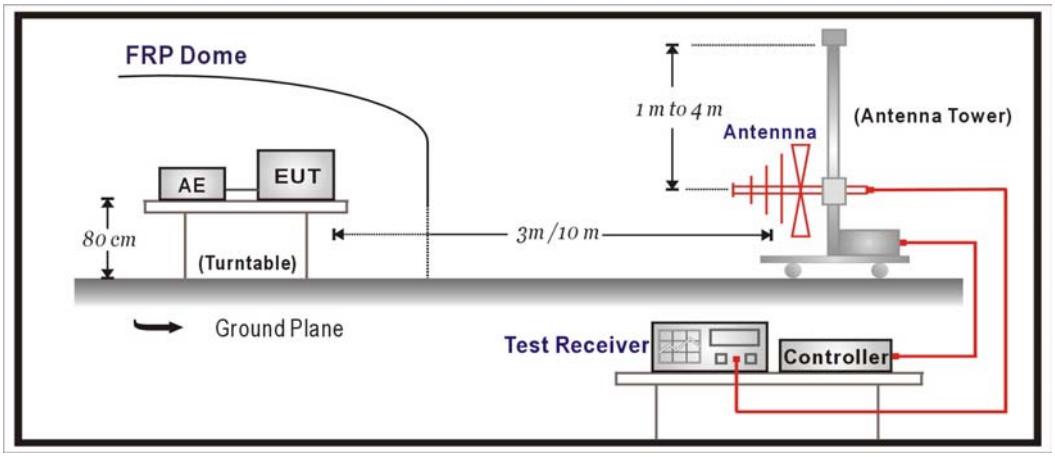
The following test equipments are used during the test:

Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Test Receiver	R & S	ESCS 30 / 825442/017	Jan., 2008
2	X	Spectrum Analyzer	Advantest	R3261C / 81720266	N/A
3	X	Pre-Amplifier	HP	8447D / 2944A09276	N/A
4	X	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2007
5	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2007
6	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2007
7	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Jul., 2007
8	No.1 OATS				Sep., 2007

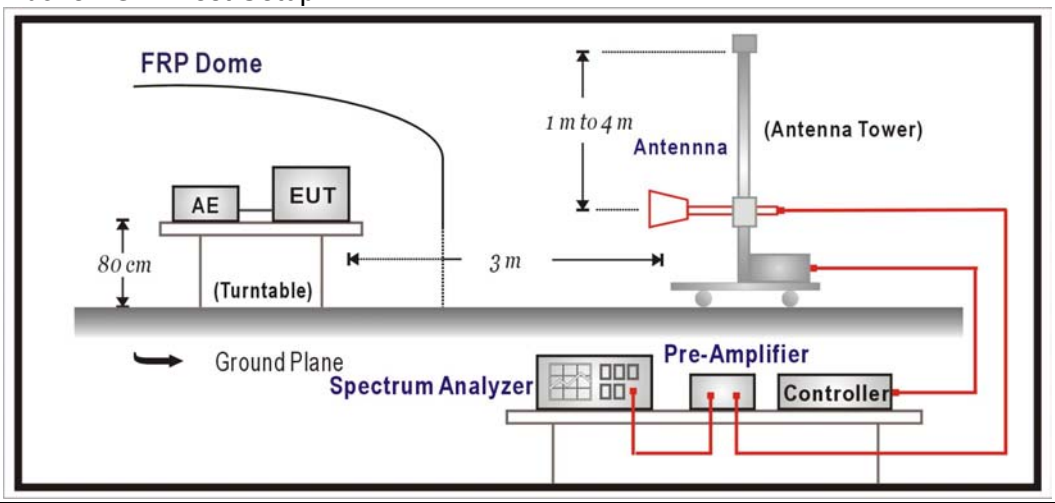
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
2. “N/A” Ca1.Date is used to Pre-test, not final test.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. 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 Limits		
Frequency MHz	dBuV/m	dBuV/m
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 was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
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 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.
On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2005

4.6. Uncertainty

The measurement uncertainty
30MHz～1GHz as ±3.19dB
1GHz～26.5Ghz as ±3.9dB

4.7. Test Result

30MHz-1GHz Spurious

Product	IEEE 802.11b/g MiniCard		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/21	Test Site	No.1 OATS

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)
Horizontal					
31.944	3.144	25.441	28.585	-11.415	40.000
269.098	-7.085	37.779	30.694	-15.306	46.000
434.329	2.385	24.463	26.848	-19.152	46.000
582.064	4.928	27.952	32.880	-13.120	46.000
665.651	1.750	31.041	32.791	-13.209	46.000
871.703	5.455	25.728	31.183	-14.817	46.000
Vertical					
31.944	0.427	26.366	26.793	-13.207	40.000
271.042	-12.170	39.098	26.928	-19.072	46.000
323.527	-4.426	34.129	29.703	-16.297	46.000
582.064	0.932	30.049	30.981	-15.019	46.000
714.248	2.233	30.236	32.469	-13.531	46.000
939.740	9.011	20.459	29.470	-16.530	46.000

Note:

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

Product	IEEE 802.11b/g MiniCard		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/21	Test Site	No.1 OATS

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)
Horizontal					
31.944	3.144	24.544	27.688	-12.312	40.000
271.042	-6.935	40.922	33.987	-12.019	46.000
463.487	3.129	24.558	27.687	-18.313	46.000
576.232	5.112	24.816	29.928	-16.072	46.000
747.295	3.967	29.185	33.152	-12.848	46.000
871.703	5.455	22.404	27.859	-18.141	46.000
Vertical					
105.812	-0.248	23.882	23.634	-19.866	43.500
302.144	-7.445	32.021	24.576	-21.424	46.000
399.339	-0.493	24.866	24.373	-21.627	46.000
566.513	3.209	23.433	26.642	-19.358	46.000
768.677	5.068	26.173	31.241	-14.759	46.000
937.796	8.994	25.115	34.109	-11.891	46.000

Note:

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

Harmonic & Spurious:

Product	IEEE 802.11b/g MiniCard		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/21	Test Site	No.1 OATS

CH01-B

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
Horizontal						
Peak Detector:						
4824.110	3.734	38.650	42.384	-31.616	74.000	54.00
7236.190	8.726	34.230	42.956	-31.044	74.000	54.00
9648.270	12.707	35.820	48.527	-25.473	74.000	54.00
12060.350	15.086	33.880	48.966	-25.034	74.000	54.00
Average Detector:						
--						
Vertical						
Peak Detector:						
4824.150	1.983	39.500	41.483	-32.517	74.000	54.00
7236.110	8.726	38.640	47.366	-26.624	74.000	54.00
9648.160	14.706	32.100	46.806	-27.194	74.000	54.00
12060.280	17.227	35.900	53.127	-20.873	74.000	54.00
Average Detector:						
--						

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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	IEEE 802.11b/g MiniCard		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/21	Test Site	No.1 OATS

CH06-B

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
Horizontal						
Peak Detector:						
4873.910	4.087	41.110	45.197	-28.803	74.000	54.00
7310.900	8.844	39.160	48.004	-25.996	74.000	54.00
9747.740	13.131	37.470	50.601	-23.399	74.000	54.00
12184.890	18.996	31.280	50.276	-23.724	74.000	54.00
Average Detector:						
--						
Vertical						
Peak Detector:						
4873.850	2.432	39.590	42.022	-31.978	74.000	54.00
7310.500	8.844	38.800	47.644	-26.356	74.000	54.00
9747.720	15.131	32.390	47.521	-26.479	74.000	54.00
12184.850	19.387	31.840	51.227	-22.773	74.000	54.00
Average Detector:						
--						

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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	IEEE 802.11b/g MiniCard		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/21	Test Site	No.1 OATS

CH11-B

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
Horizontal						
Peak Detector:						
4924.050	4.382	42.480	46.862	-27.138	74.000	54.00
7386.010	8.943	37.970	46.913	-27.087	74.000	54.00
9848.050	13.836	32.060	45.896	-28.104	74.000	54.00
12310.050	6.441	36.110	42.551	-31.449	74.000	54.00
Average Detector:						
--						
Vertical						
Peak Detector:						
4924.100	2.835	43.210	46.045	-27.955	74.000	54.00
7386.110	8.943	41.560	50.503	-23.497	74.000	54.00
9848.020	15.355	33.790	49.145	-24.855	74.000	54.00
12310.060	17.902	32.450	50.352	-23.648	74.000	54.00
Average Detector:						
--						

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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	IEEE 802.11b/g MiniCard		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/21	Test Site	No.1 OATS

CH1-G

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
Horizontal						
Peak Detector:						
4824.170	3.977	40.054	44.031	-29.969	74.000	54.00
7236.100	11.442	40.924	52.366	-21.634	74.000	54.00
9648.200	16.093	37.214	53.307	-20.693	74.000	54.00
12060.240	17.524	32.999	50.523	-23.477	74.000	54.00
Average Detector:						
--						
Vertical						
Peak Detector:						
4824.110	3.976	36.883	40.859	-33.141	74.000	54.00
7236.060	11.915	36.414	48.329	-25.671	74.000	54.00
9648.090	14.794	38.231	53.025	-20.975	74.000	54.00
12060.180	17.406	32.629	50.035	-23.965	74.000	54.00
Average Detector:						
--						

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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	IEEE 802.11b/g MiniCard		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/21	Test Site	No.1 OATS

CH6-G

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
Horizontal						
Peak Detector:						
4873.990	4.143	35.374	39.517	-34.483	74.000	54.00
7310.800	11.639	35.682	47.321	-26.679	74.000	54.00
9747.760	16.419	37.017	53.436	-20.564	74.000	54.00
12184.850	17.887	35.720	53.607	-20.393	74.000	54.00
Average Detector:						
--						
Vertical						
Peak Detector:						
4873.960	4.143	40.812	44.955	-29.045	74.000	54.00
7310.940	12.259	39.649	51.908	-22.092	74.000	54.00
9747.620	14.921	35.500	50.421	-23.579	74.000	54.00
12184.850	17.519	33.457	50.976	-23.024	74.000	54.00
Average Detector:						
--						

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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	IEEE 802.11b/g MiniCard		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2008/02/21	Test Site	No.1 OATS

CH11-G

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
Horizontal						
Peak Detector:						
4924.030	4.310	39.761	44.071	-29.929	74.000	54.00
7386.040	11.856	36.411	48.267	-23.763	74.000	54.00
9848.080	16.729	37.152	53.881	-20.119	74.000	54.00
12310.100	18.255	33.336	51.591	-22.409	74.000	54.00
Average Detector:						
--						
Vertical						
Peak Detector:						
4924.120	4.310	38.856	43.166	-30.834	74.000	54.00
7386.160	12.626	36.951	49.577	-24.423	74.000	54.00
9848.070	15.034	37.310	52.344	-22.016	74.000	54.00
12310.040	17.636	35.473	53.109	-20.891	74.000	54.00
Average Detector:						
--						

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

5. RF antenna conducted test

5.1. Test Equipment

The following test equipments are used during the test:

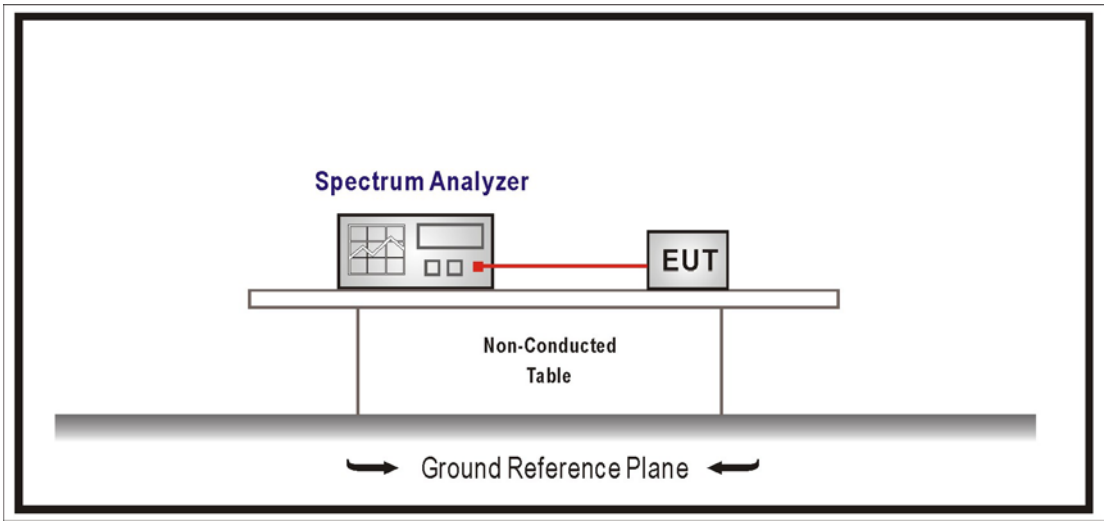
RF Conducted Measurement:				
Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2007
2	No.1 OATS			Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2. Mark “X” test instruments are used to measure the final test results.

5.2. Test Setup

RF Conducted 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 an RF conducted or 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 was tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2005

5.6. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.27dB
Radiated is defined as ± 3.9dB

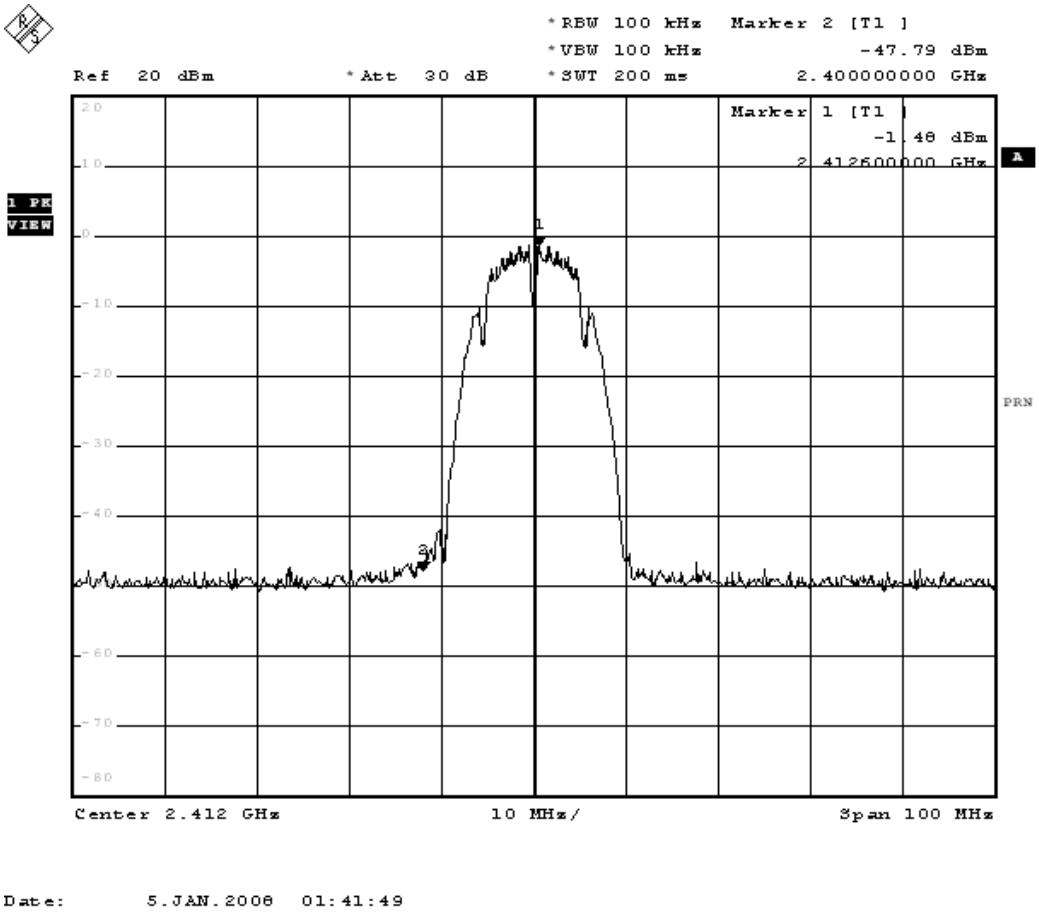
5.7. Test Result

Product	IEEE 802.11b/g MiniCard		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/05	Test Site	No.1 OATS

IEEE 802.11b			
Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
1	2412	>20	Pass

Figure Channel 1:

Channel 1

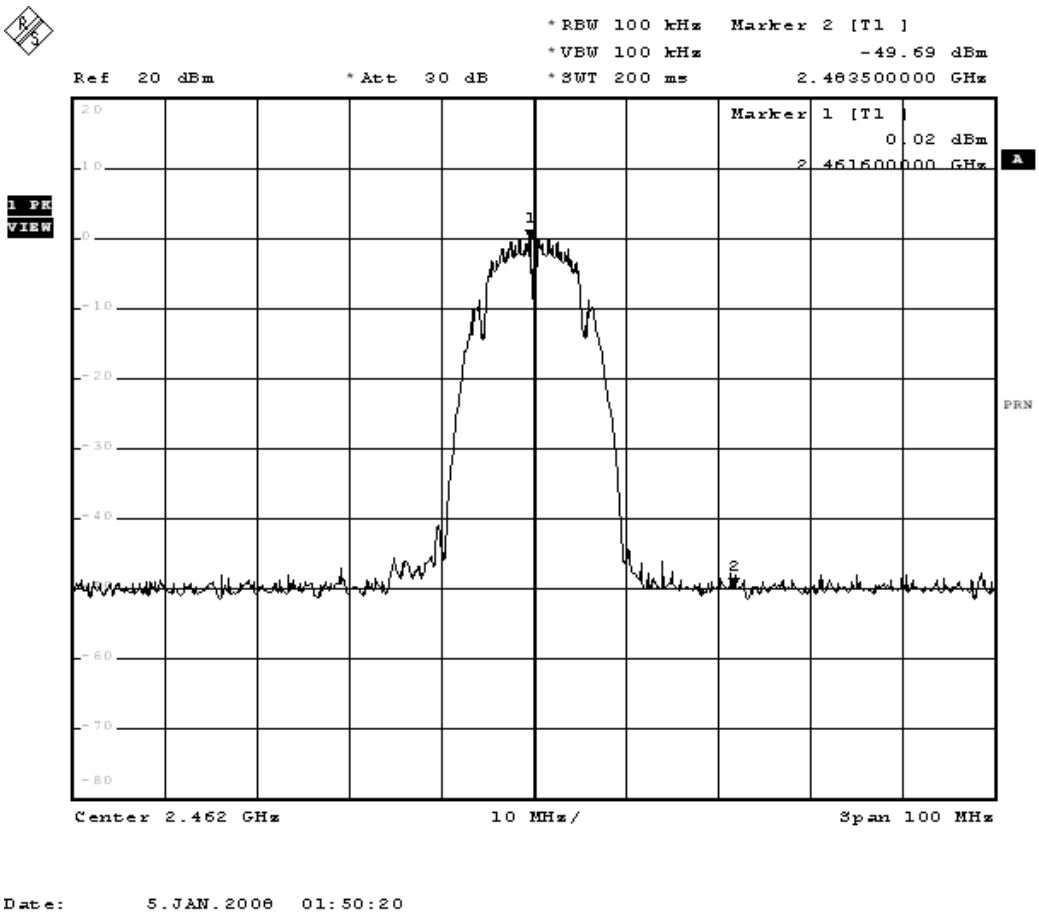


Product	IEEE 802.11b/g MiniCard		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/05	Test Site	No.1 OATS

IEEE 802.11b			
Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
11	2462	>20	Pass

Figure Channel 1:

Channel 11

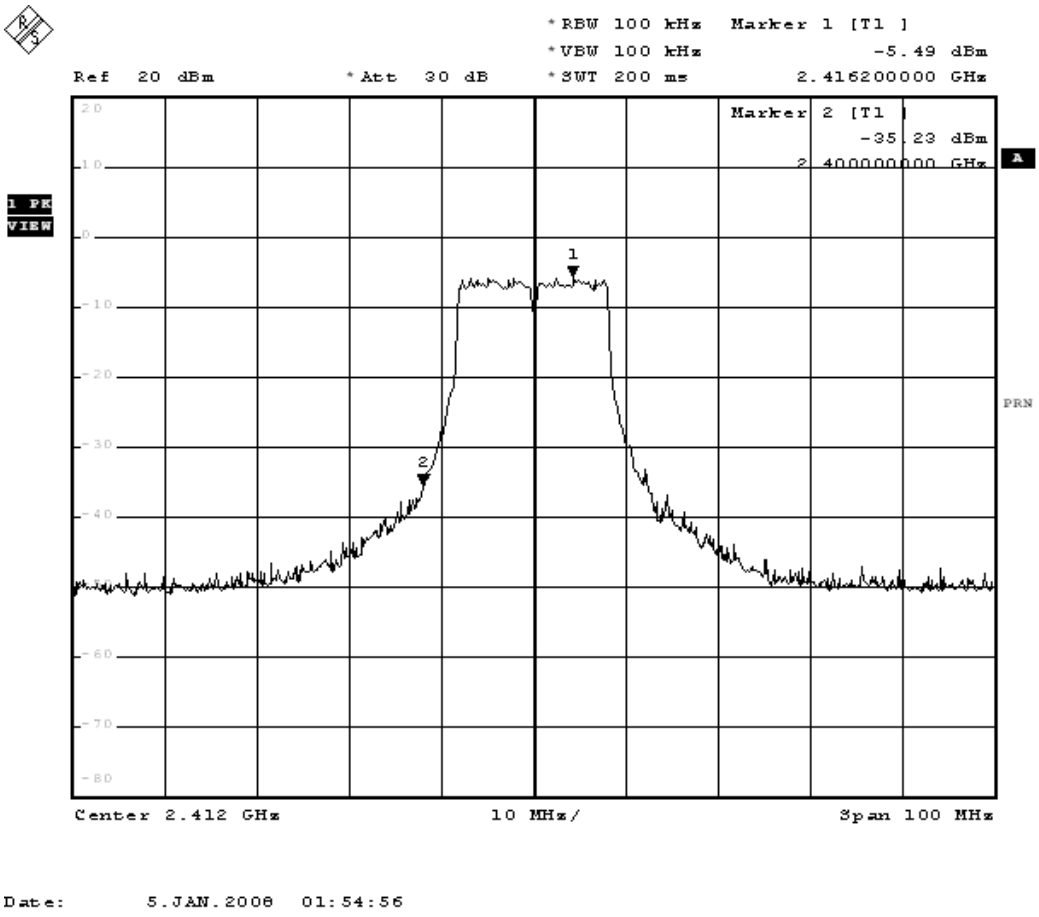


Product	IEEE 802.11b/g MiniCard		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/05	Test Site	No.1 OATS

IEEE 802.11g			
Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
1	2412	>20	Pass

Figure Channel 1:

Channel 1

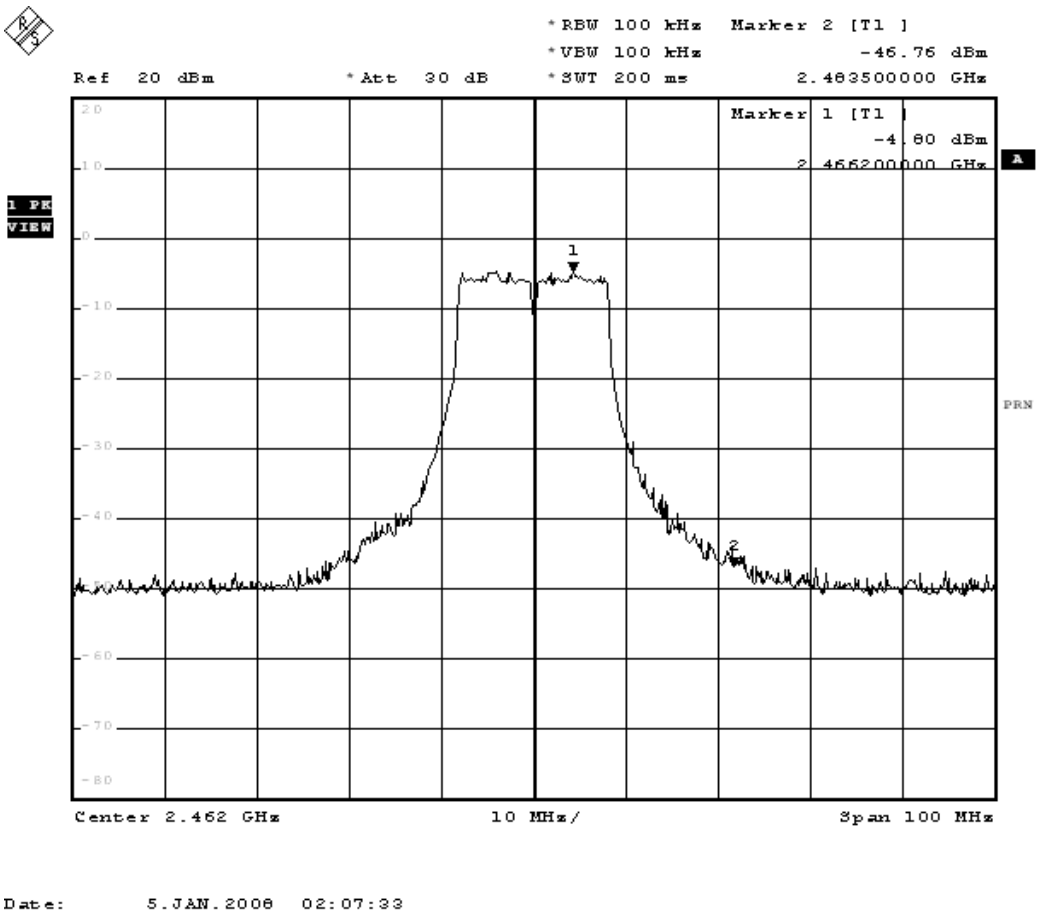


Product	IEEE 802.11b/g MiniCard		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/05	Test Site	No.1 OATS

IEEE 802.11g			
Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
11	2462	>20	Pass

Figure Channel 1:

Channel 11



6. Band Edge

6.1. Test Equipment

The following test equipments are used during the test:

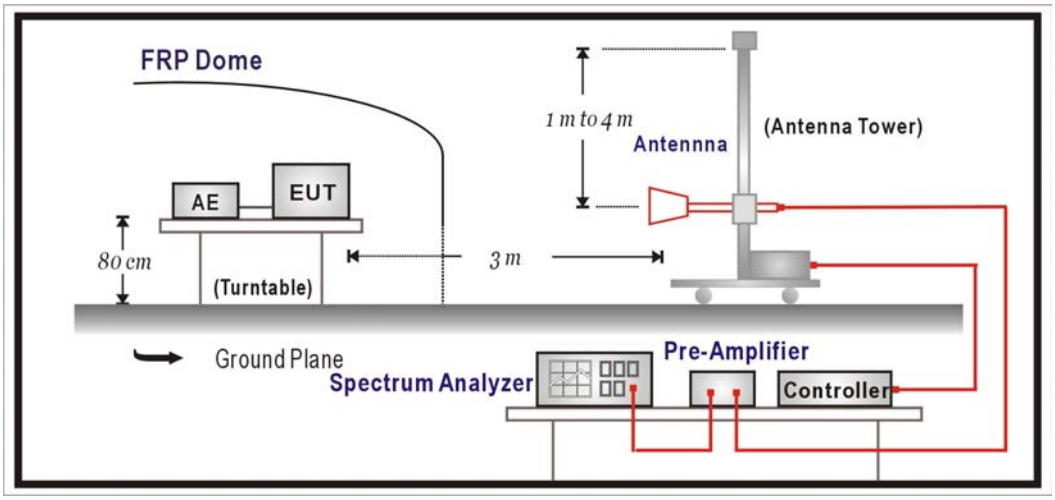
RF Radiated Measurement:					
Item	Equipment		Manufacturer	Model No. / Serial No.	Last Cal.
1	X	Spectrum Analyzer	R & S	FSP40 / 100005	Aug., 2007
2	X	Pre-Amplifier	HP	8449B / 3008A01123	Feb., 2007
3		Loop Antenna	R & S	HFH2-Z2 / 833799/004	Sep., 2007
4		BiconiLog Antenna	Schwarzbeck	VULB 9166 / 1061	Sep., 2007
5		Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2007
6	X	Horn Antenna	Schwarzbeck	BBHA 9120D / BBHA9120D312	Sep., 2007
7	No.1 OATS				Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2. Mark “X” test instruments are used to measure the final test results.

6.2. Test Setup

RF Radiated Measurement:



6.3. 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.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

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.

6.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2005

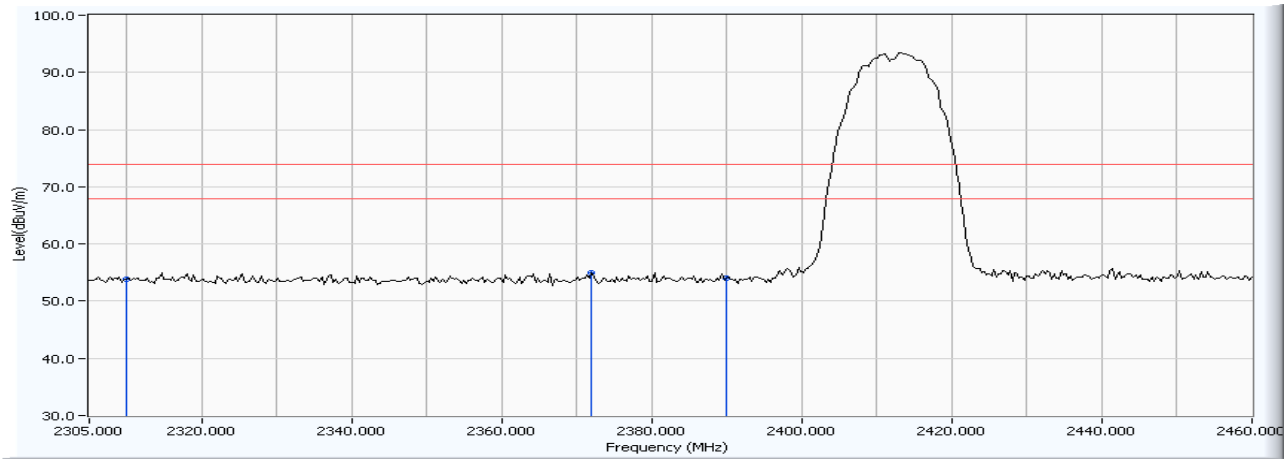
6.6. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.27dB

6.7. Test Result

Radiated is defined as

Site : QuieTek Site1	**Time : 2008/01/04 - 21:16**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - HORIZONTAL**
Power : Power by PC	**Note : WIFI-CH1-B**

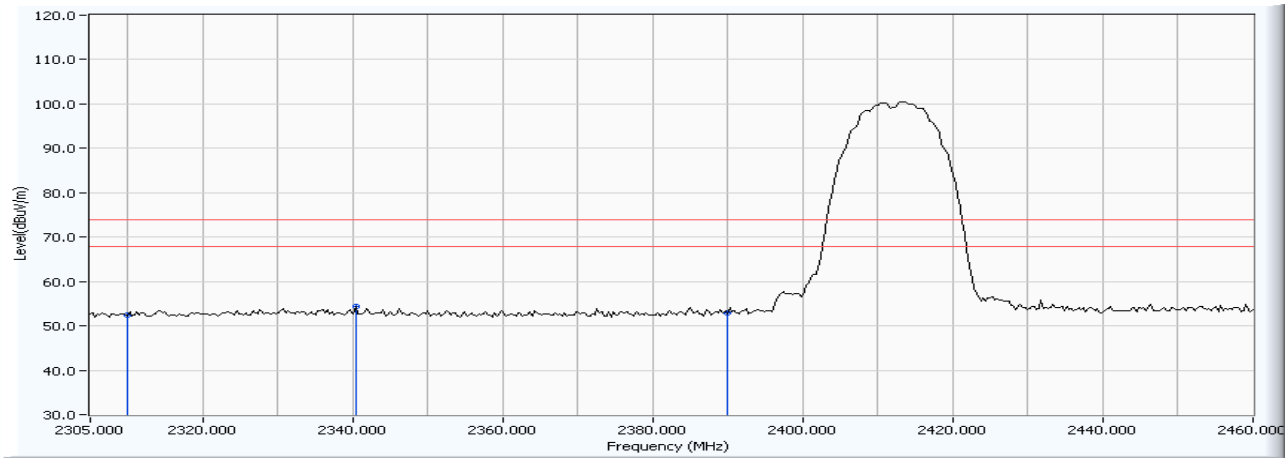


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2310.000	30.412	23.415	53.826	-20.174	74.000	54.00	PEAK
2	*	2371.960	30.511	24.492	55.003	-18.997	74.000	54.00	PEAK
3		2390.000	30.543	23.572	54.115	-19.885	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - VERTICAL**
Power : Power by PC	**Note : WIFI-CH1-B**

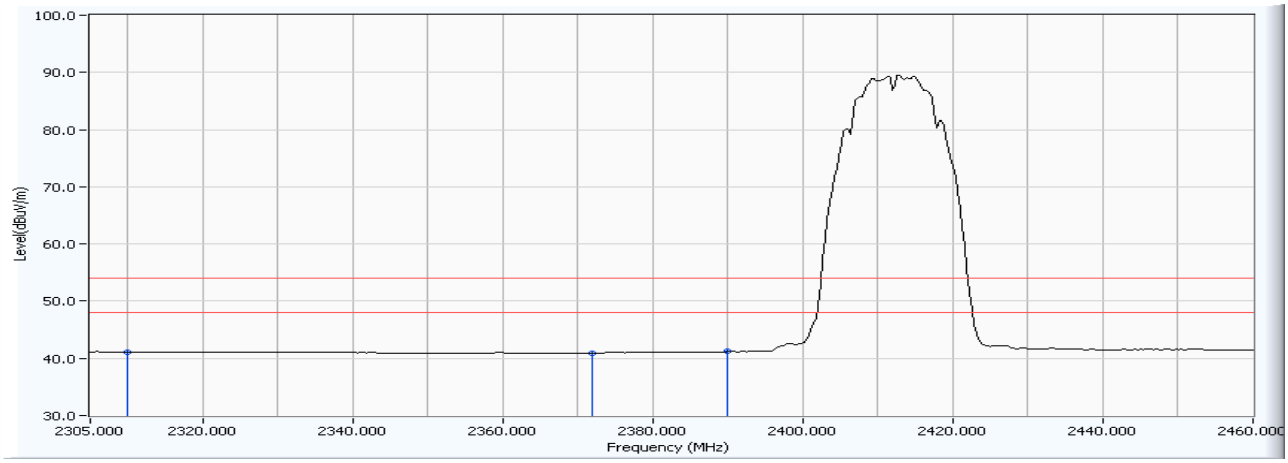


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2310.000	28.433	23.978	52.411	-21.589	74.000	54.00	PEAK
2	*	2340.340	28.539	25.772	54.311	-19.689	74.000	54.00	PEAK
3		2390.000	28.724	24.278	53.002	-20.998	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:17**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - HORIZONTAL**
Power : Power by PC	**Note : WIFI-CH1-B**

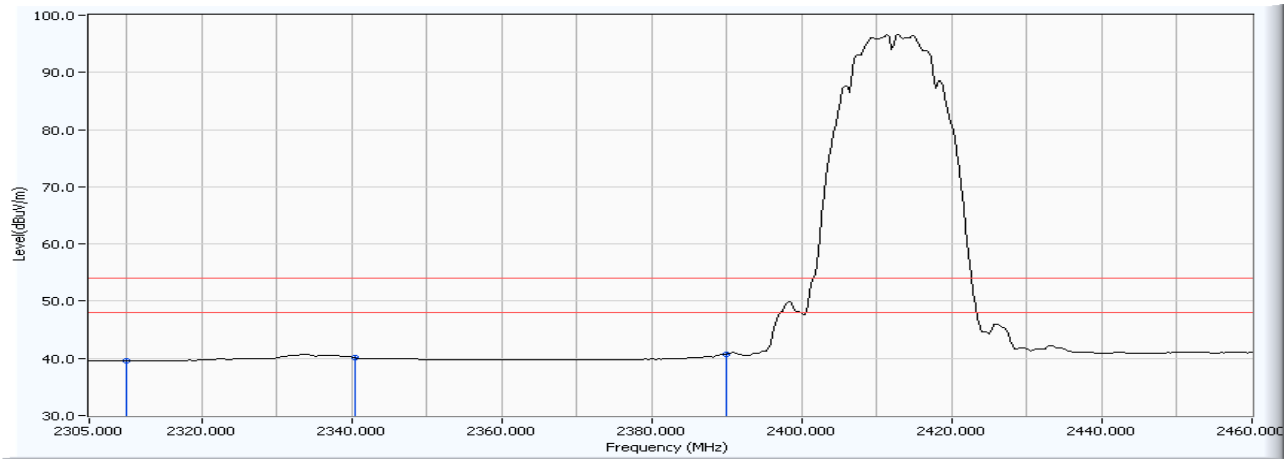


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2310.000	30.412	10.693	41.104	-12.896	74.000	54.00	AVERAGE
2	*	2371.960	30.511	10.464	40.975	-13.025	74.000	54.00	AVERAGE
3		2390.000	30.543	10.625	41.168	-12.832	74.000	54.00	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:33**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - VERTICAL**
Power : Power by PC	**Note : WIFI-CH1-B**

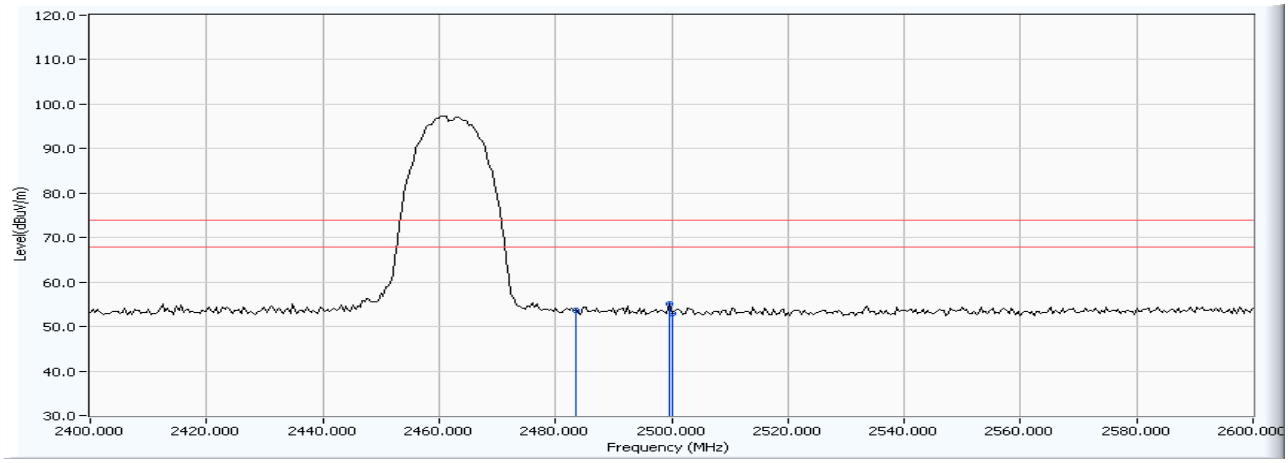


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2310.000	28.433	11.073	39.506	-14.494	74.000	54.00	AVERAGE
2	*	2340.340	28.539	11.595	40.134	-13.866	74.000	54.00	AVERAGE
3		2390.000	28.724	12.057	40.781	-13.219	74.000	54.00	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:45**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - HORIZONTAL**
Power : Power by PC	**Note : WIFI-CH11-B**

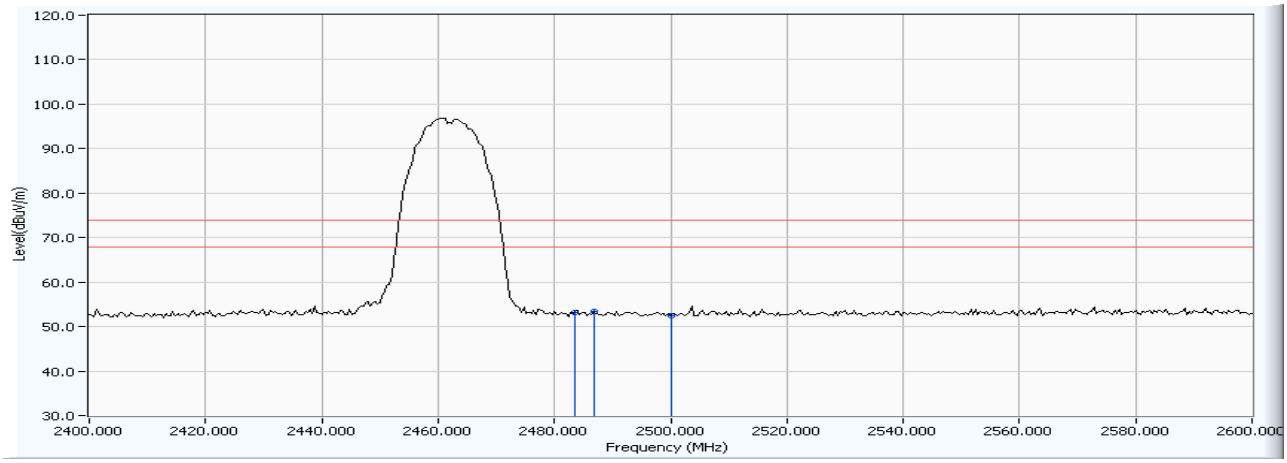


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2483.500	30.696	23.058	53.753	-20.247	74.000	54.00	PEAK
2	*	2499.600	30.720	24.410	55.131	-18.869	74.000	54.00	PEAK
3		2500.000	30.722	22.306	53.028	-20.972	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:55**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - VERTICAL**
Power : Power by PC	**Note : WIFI-CH11-B**

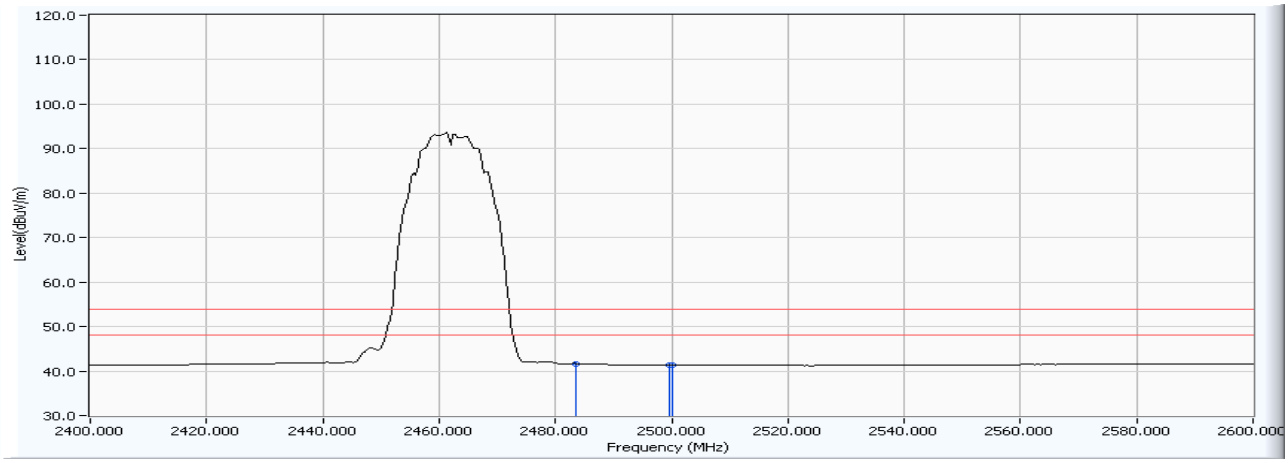


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2483.500	29.064	24.179	53.242	-20.758	74.000	54.00	PEAK
2	*	2486.800	29.073	24.425	53.498	-20.502	74.000	54.00	PEAK
3		2500.000	29.114	23.237	52.351	-21.649	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:46**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - HORIZONTAL**
Power : Power by PC	**Note : WIFI-CH11-B**

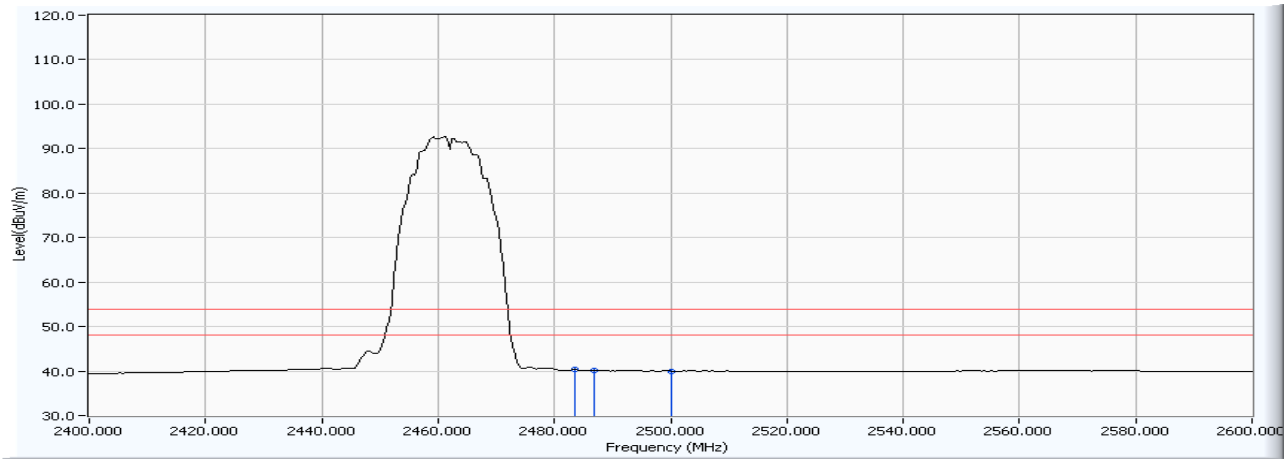


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2483.500	30.696	10.994	41.689	-12.311	74.000	54.00	AVERAGE
2	*	2499.600	30.720	10.605	41.326	-12.674	74.000	54.00	AVERAGE
3		2500.000	30.722	10.604	41.326	-12.674	74.000	54.00	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:57**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - VERTICAL**
Power : Power by PC	**Note : WIFI-CH11-B**

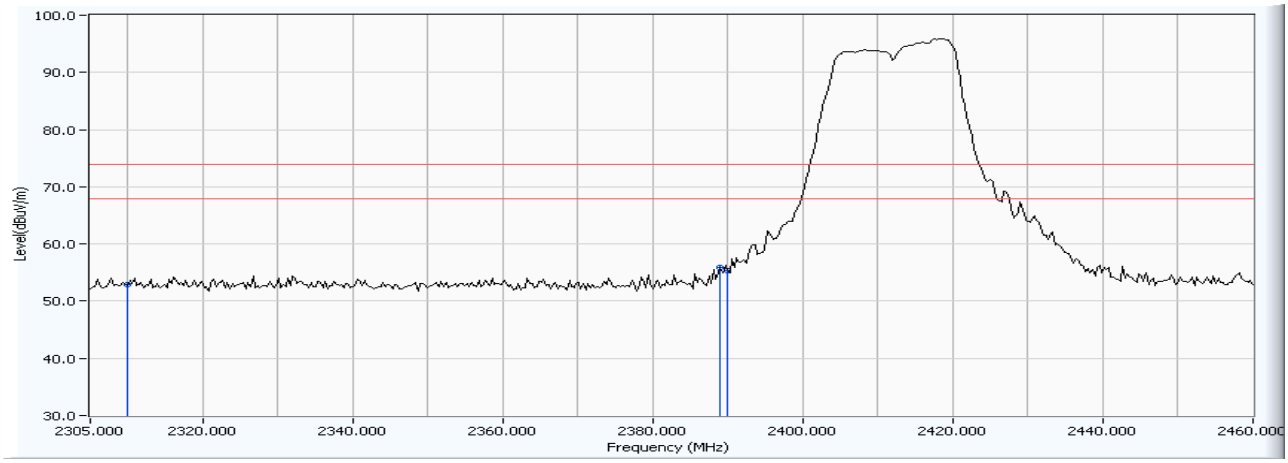


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2483.500	29.064	11.219	40.282	-13.718	74.000	54.00	AVERAGE
2	*	2486.800	29.073	11.001	40.074	-13.926	74.000	54.00	AVERAGE
3		2500.000	29.114	10.887	40.001	-13.999	74.000	54.00	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:19**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - HORIZONTAL**
Power : Power by PC	**Note : WIFI-CH1-G**

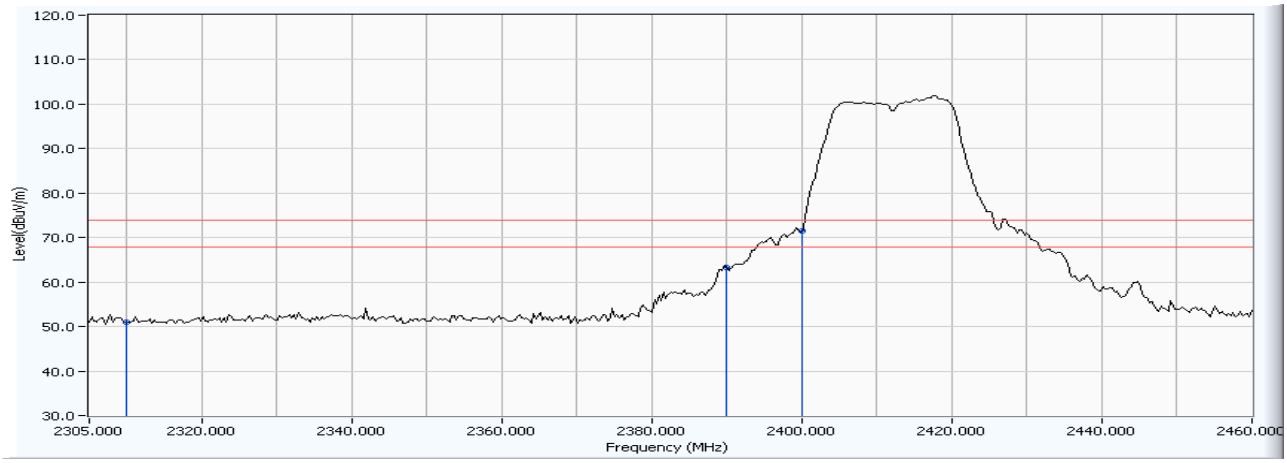


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2310.000	30.412	22.468	52.879	-21.121	74.000	54.00	PEAK
2	*	2389.010	30.541	25.303	55.844	-18.156	74.000	54.00	PEAK
3		2390.000	30.543	24.861	55.404	-18.596	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:36**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - VERTICAL**
Power : Power by PC	**Note : WIFI-CH1-G**

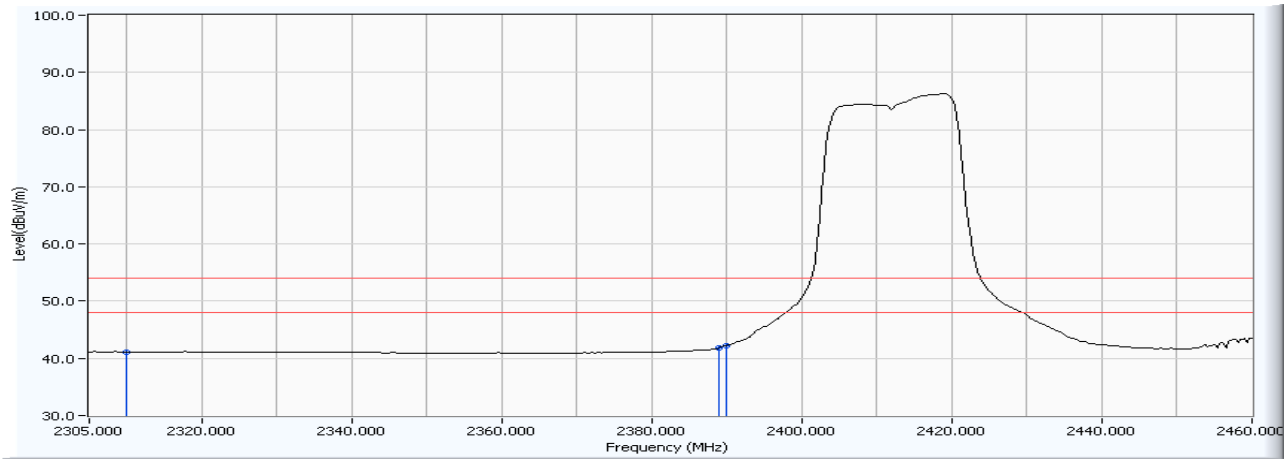


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2310.000	28.433	22.445	50.878	-23.122	74.000	54.00	PEAK
2	*	2390.000	28.724	34.645	63.369	-10.631	74.000	54.00	PEAK
3		2400.000	28.765	42.799	71.564	-2.436	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:22**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - HORIZONTAL**
Power : Power by PC	**Note : WIFI-CH1-G**

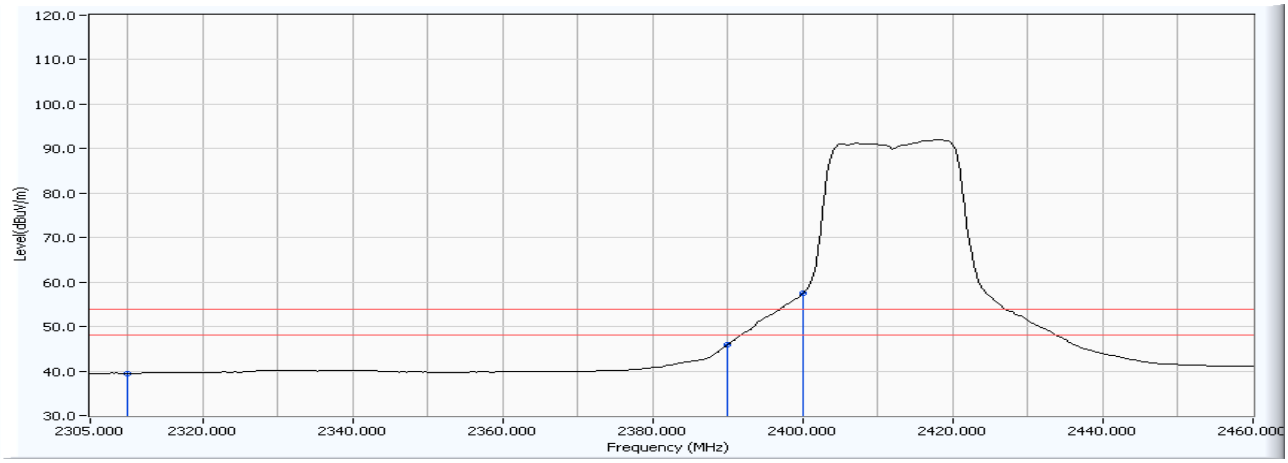


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2310.000	30.412	10.726	41.137	-12.863	74.000	54.00	AVERAGE
2	*	2389.010	30.541	11.286	41.827	-12.173	74.000	54.00	AVERAGE
3		2390.000	30.543	11.681	42.224	-11.776	74.000	54.00	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:38**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - VERTICAL**
Power : Power by PC	**Note : WIFI-CH1-G**

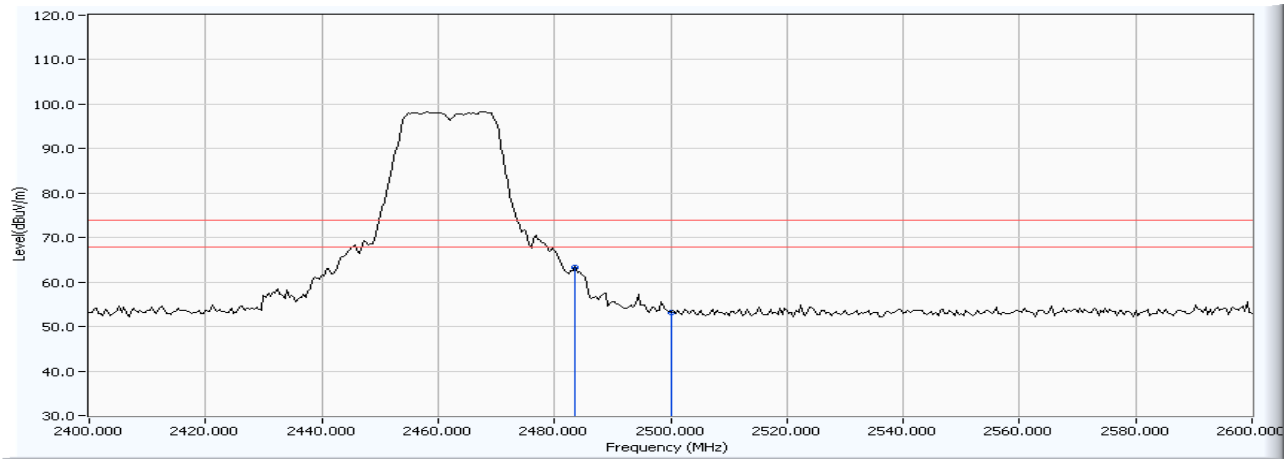


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		2310.000	28.433	11.049	39.482	-14.518	74.000	54.00	AVERAGE
2	*	2390.000	28.724	17.306	46.030	-7.970	74.000	54.00	AVERAGE
3		2400.000	28.765	28.774	57.539	3.539	74.000	54.00	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:50**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - HORIZONTAL**
Power : Power by PC	**Note : WIFI-CH11-G**

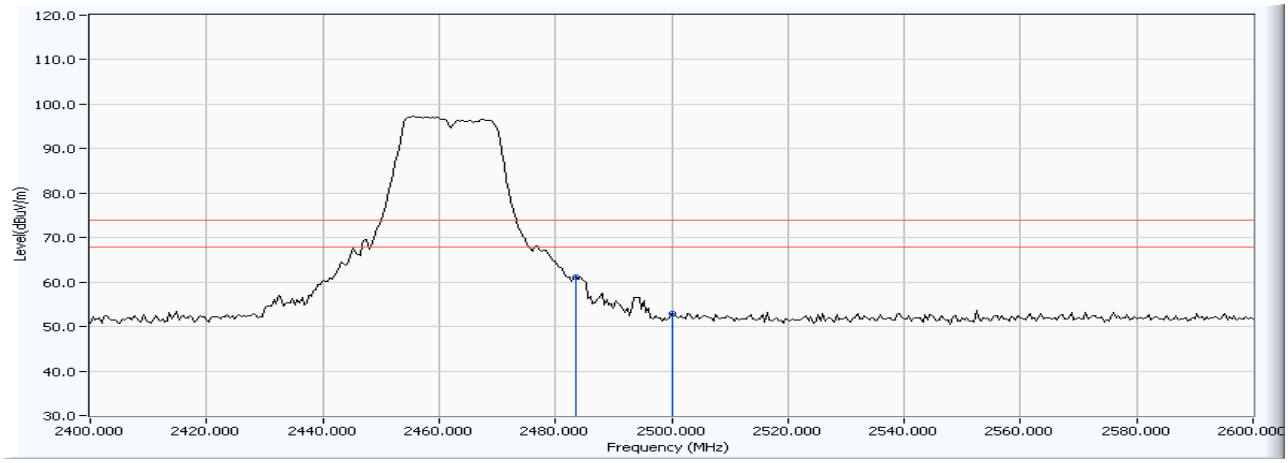


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	*	2483.500	30.696	32.497	63.192	-10.808	74.000	54.00	PEAK
2		2500.000	30.722	22.386	53.108	-20.892	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:59**
Limit : FCC_SpartC_15.247_H_03M_PK	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - VERTICAL**
Power : Power by PC	**Note : WIFI-CH11-G**

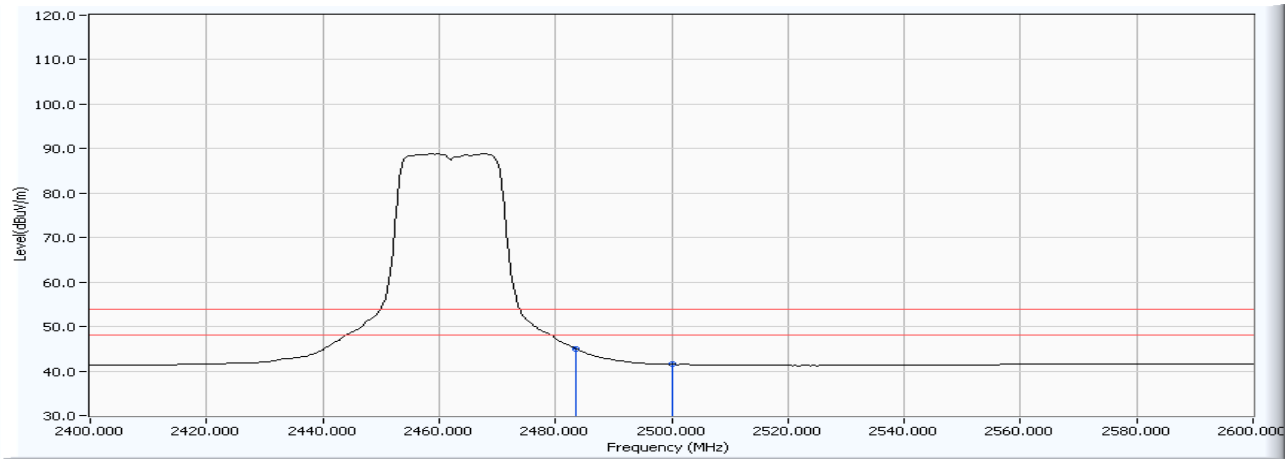


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	*	2483.500	29.064	32.033	61.096	-12.904	74.000	54.00	PEAK
2		2500.000	29.114	23.864	52.978	-21.022	74.000	54.00	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 21:51**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - HORIZONTAL**
Power : Power by PC	**Note : WIFI-CH11-G**

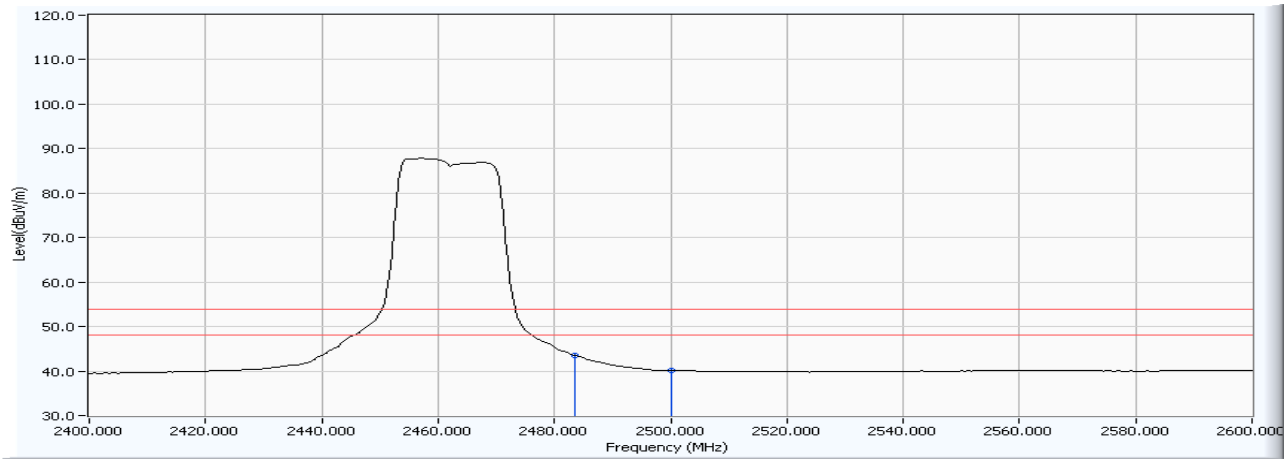


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	*	2483.500	30.696	14.324	45.019	-8.981	74.000	54.00	AVERAGE
2		2500.000	30.722	10.755	41.477	-12.523	74.000	54.00	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

Site : QuieTek Site1	**Time : 2008/01/04 - 22:00**
Limit : FCC_SpartC_15.247_H_03M_AV	**Margin : 6**
EUT : IEEE 802.11b/g MiniCard	**Probe : CB3_FCC_1-18G(2007) - VERTICAL**
Power : Power by PC	**Note : WIFI-CH11-G**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	*	2483.500	29.064	14.499	43.562	-10.438	74.000	54.00	AVERAGE
2		2500.000	29.114	11.000	40.114	-13.886	74.000	54.00	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. 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.

7. Occupied Bandwidth

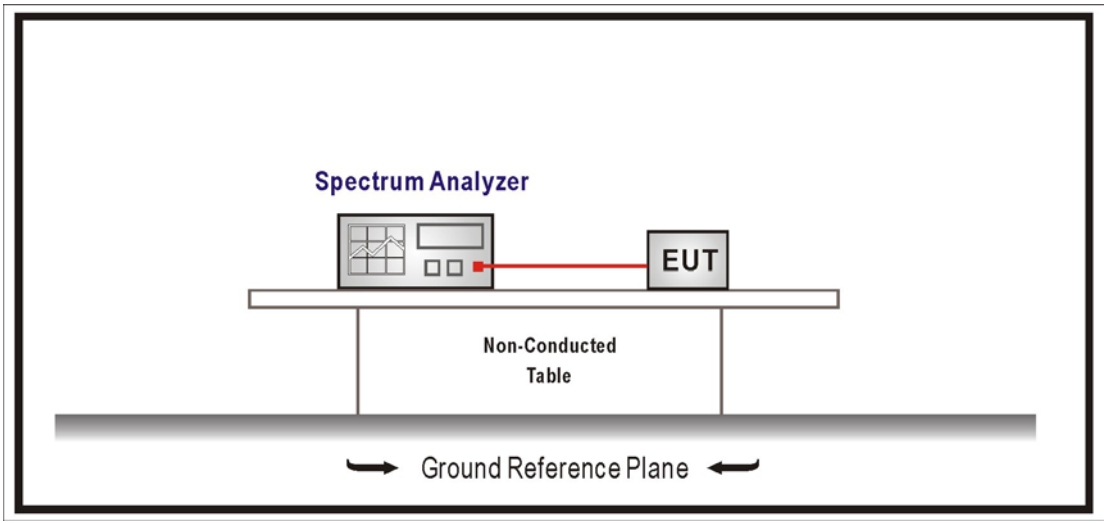
7.1. Test Equipment

The following test equipments are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2007
2	No.1 OATS			Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Test Procedures

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Spectrum analyzer's resolution bandwidth (RBW) = 100 kHz, Span greater than RBW.

7.4. Limits

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

7.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2005

7.6. Uncertainty

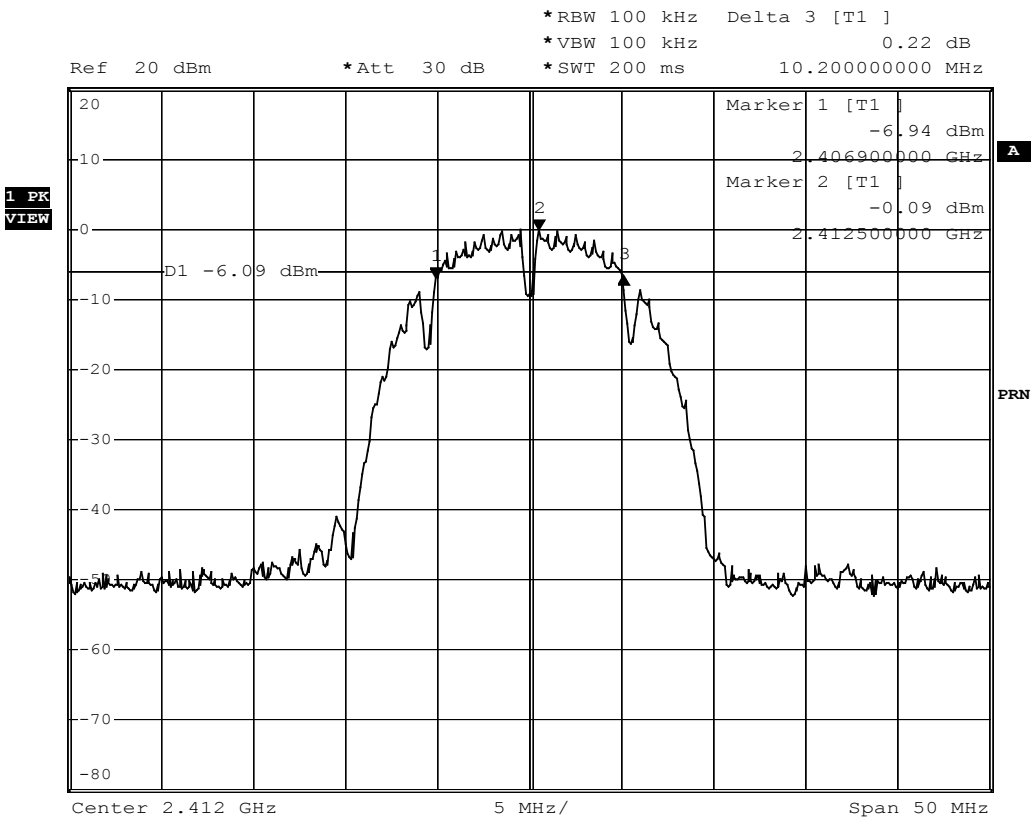
The measurement uncertainty is defined as ±50kHz

7.7. Test Result

Product	IEEE 802.11b/g MiniCard		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11b				
Channel No.	Frequency (MHz)	Measure Value (kHz)	Limit (kHz)	Result
1	2412	10200	>500	Pass

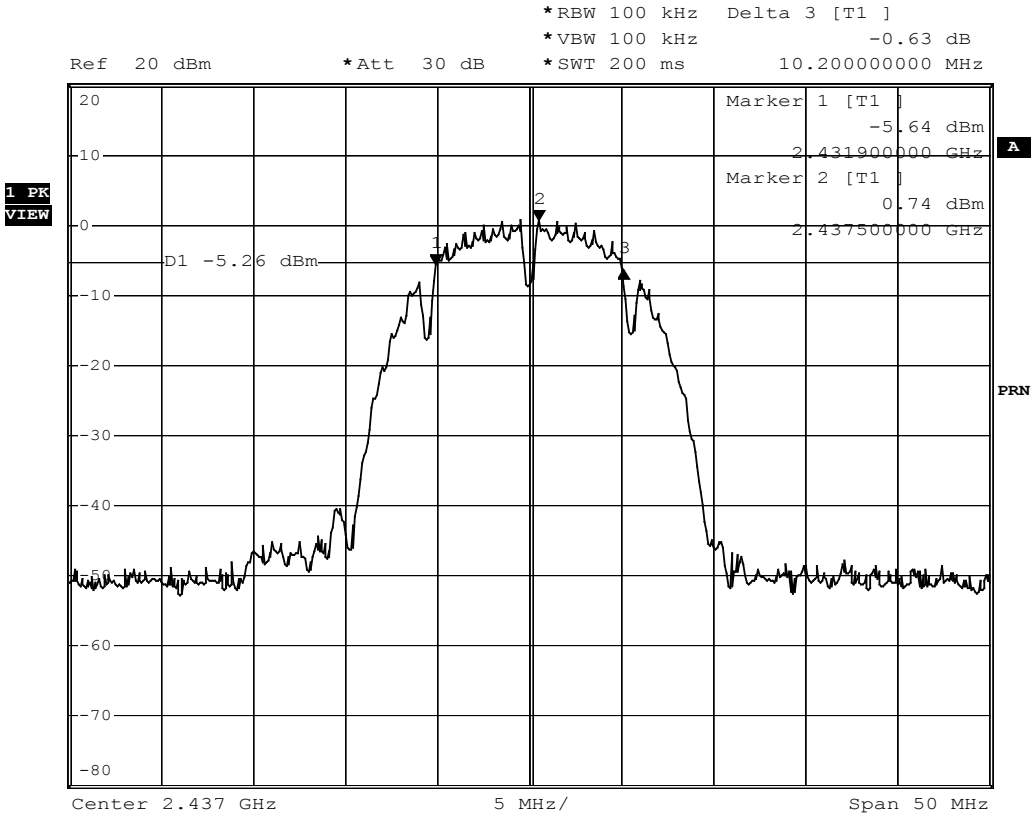
Channel 1



Product	IEEE 802.11b/g MiniCard		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11b				
Channel No.	Frequency (MHz)	Measure Value (kHz)	Limit (kHz)	Result
6	2437	10200	> 500	Pass

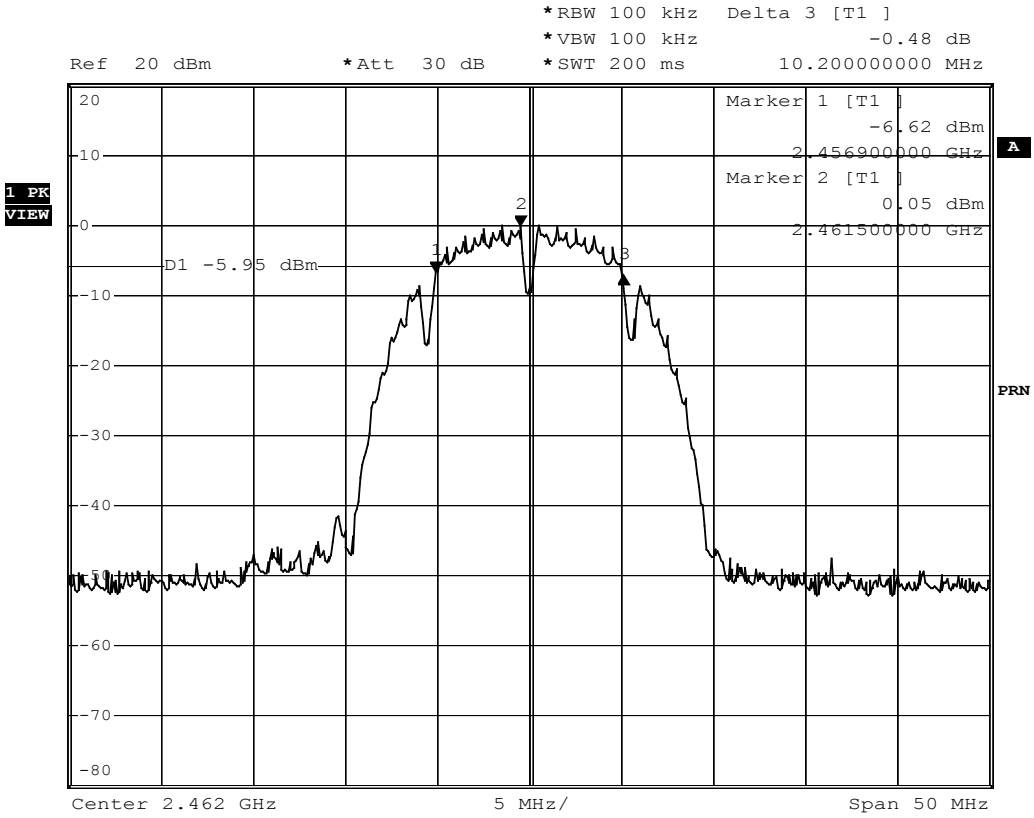
Channel 6



Product	IEEE 802.11b/g MiniCard		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11b				
Channel No.	Frequency (MHz)	Measure Value (kHz)	Limit (kHz)	Result
11	2462	10200	> 500	Pass

Channel 11

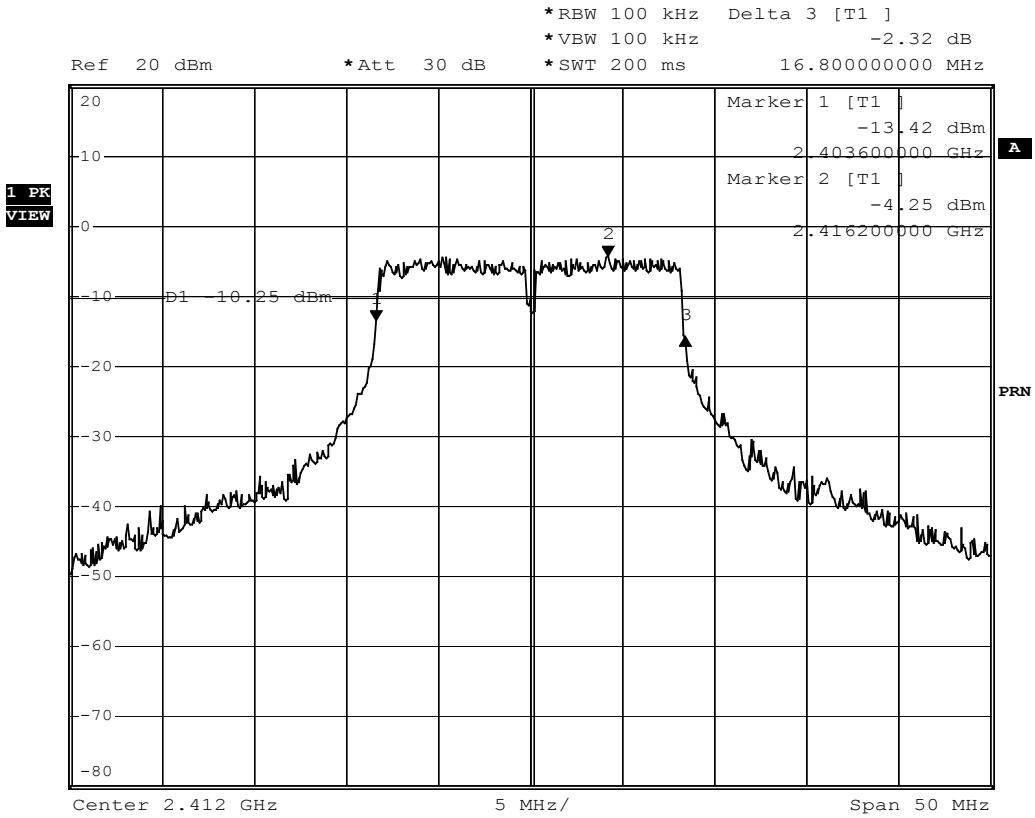


Date: 6.JAN.2008 07:51:31

Product	IEEE 802.11b/g MiniCard		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11g				
Channel No.	Frequency (MHz)	Measure Value (kHz)	Limit (kHz)	Result
1	2412	16800	> 500	Pass

Channel 1

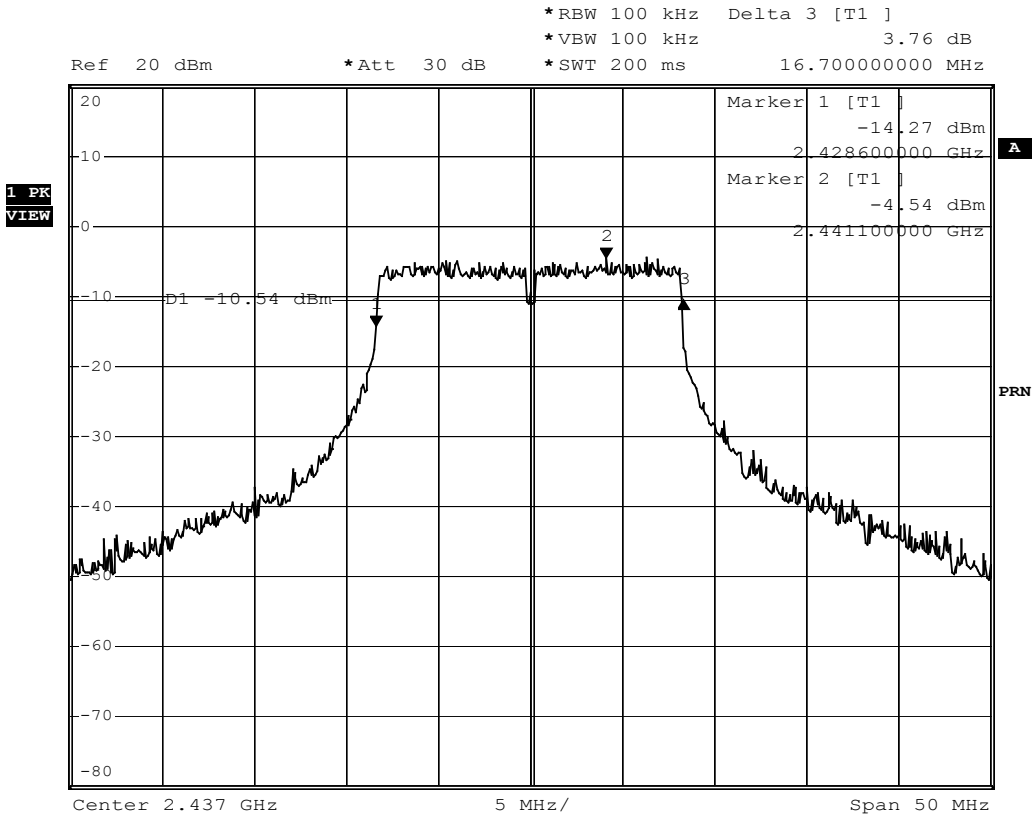


Date: 6.JAN.2008 07:39:00

Product	IEEE 802.11b/g MiniCard		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11g				
Channel No.	Frequency (MHz)	Measure Value (kHz)	Limit (kHz)	Result
6	2437	16700	> 500	Pass

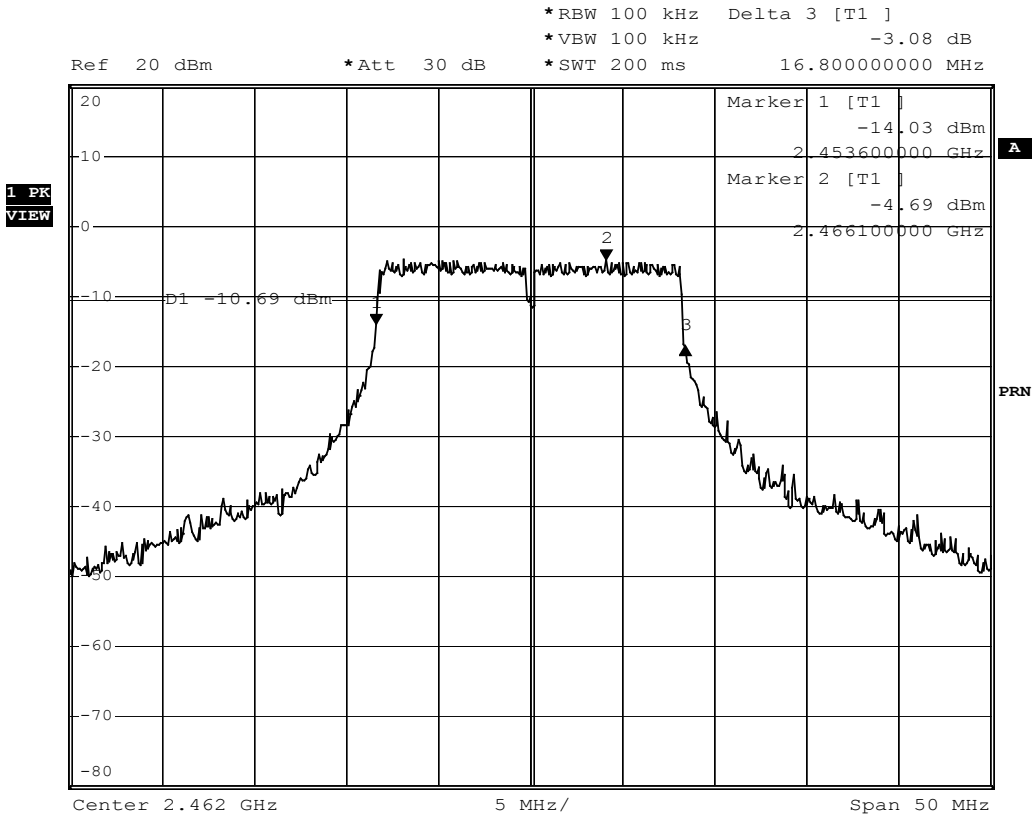
Channel 6



Product	IEEE 802.11b/g MiniCard		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11g				
Channel No.	Frequency (MHz)	Measure Value (kHz)	Limit (kHz)	Result
11	2462	16800	> 500	Pass

Channel 11



Date: 6.JAN.2008 07:53:42

8. Power Density

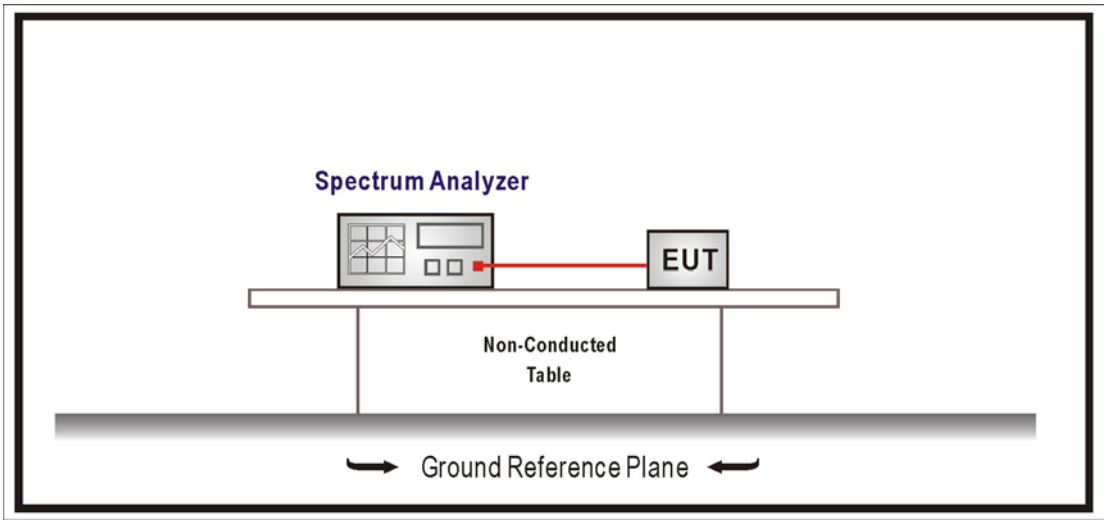
8.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R & S	FSP / 100561	Mar., 2007
2	No.1 OATS			Sep., 2007

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup



8.3. Limits

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

8.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Spectrum analyzer's resolution bandwidth (RBW) = 3 kHz, VBW >RBW

8.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2005

8.6. Uncertainty

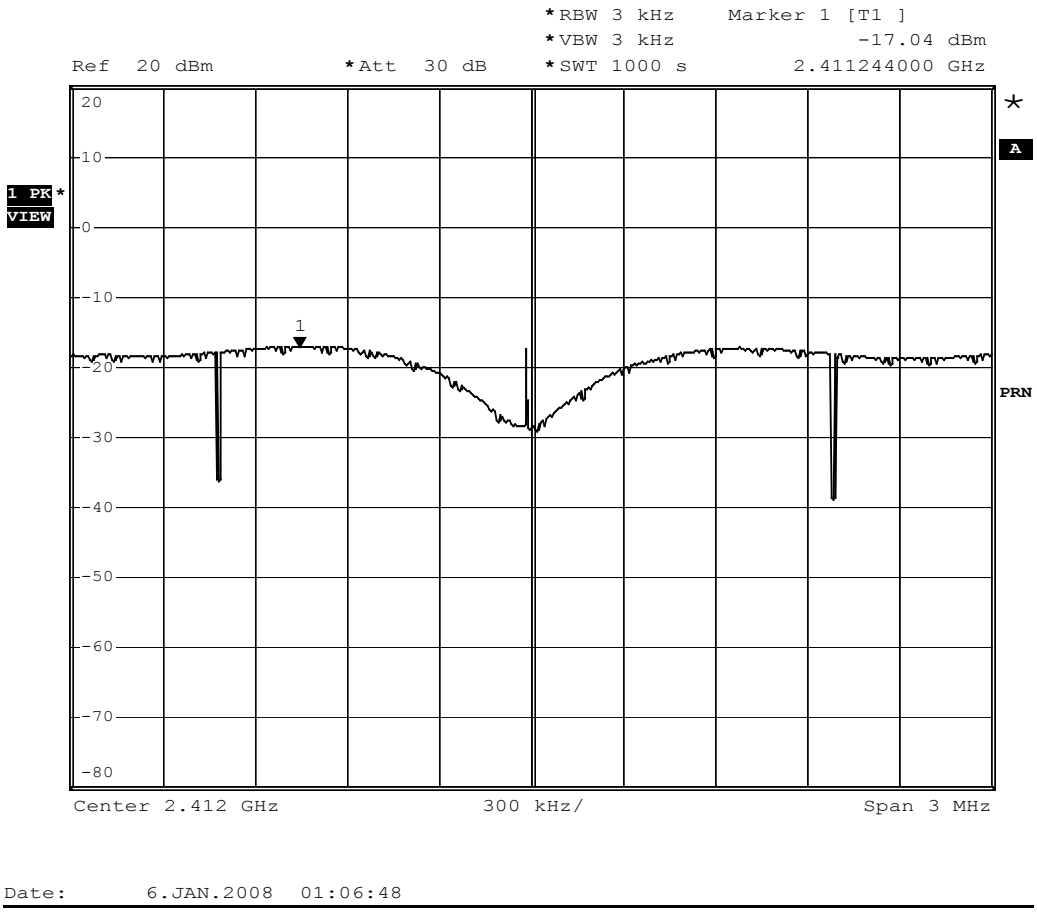
The measurement uncertainty is defined as ±1.27dB.

8.7. Test Result

Product	IEEE 802.11b/g MiniCard		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11b				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-17.04	<8	Pass

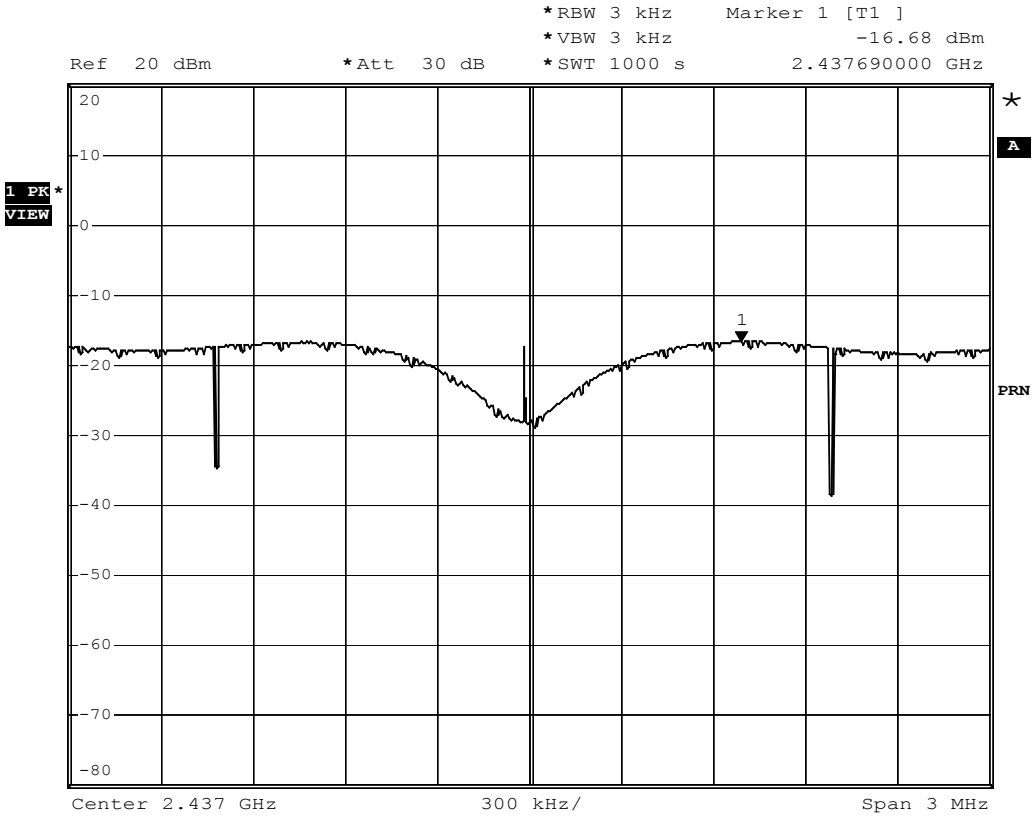
Channel 1



Product	IEEE 802.11b/g MiniCard		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11b				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
6	2437	-16.68	<8	Pass

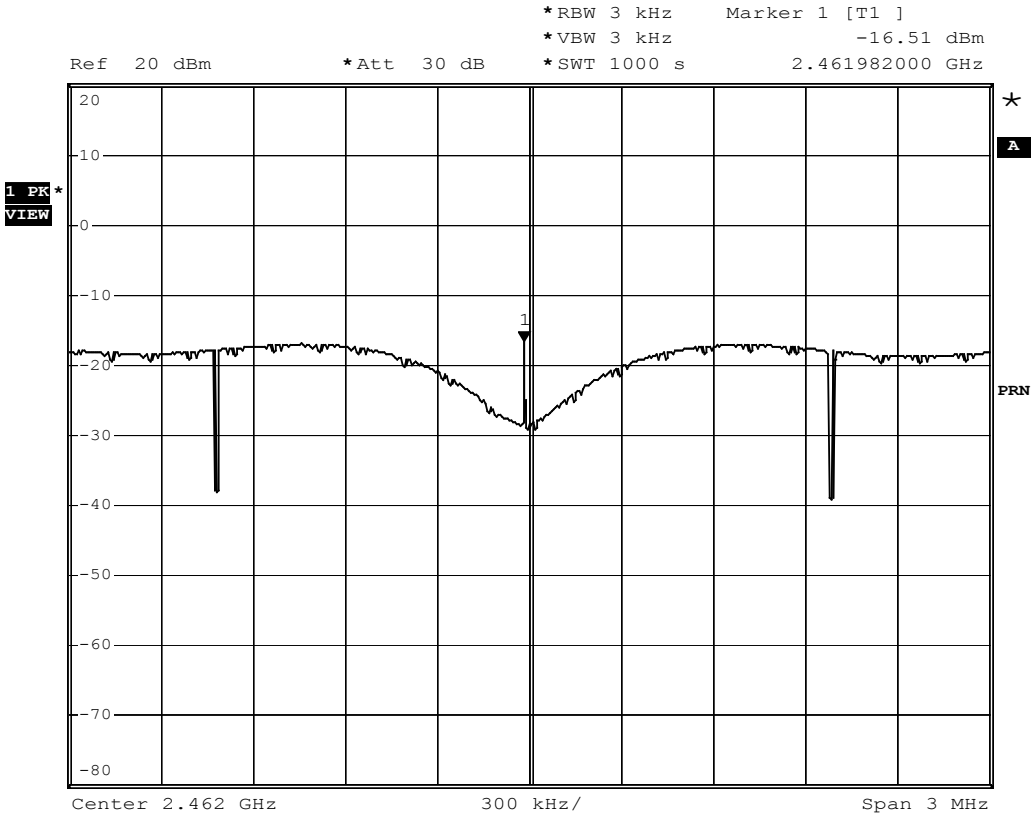
Channel 6



Product	IEEE 802.11b/g MiniCard		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11b				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
11	2462	-16.51	<8	Pass

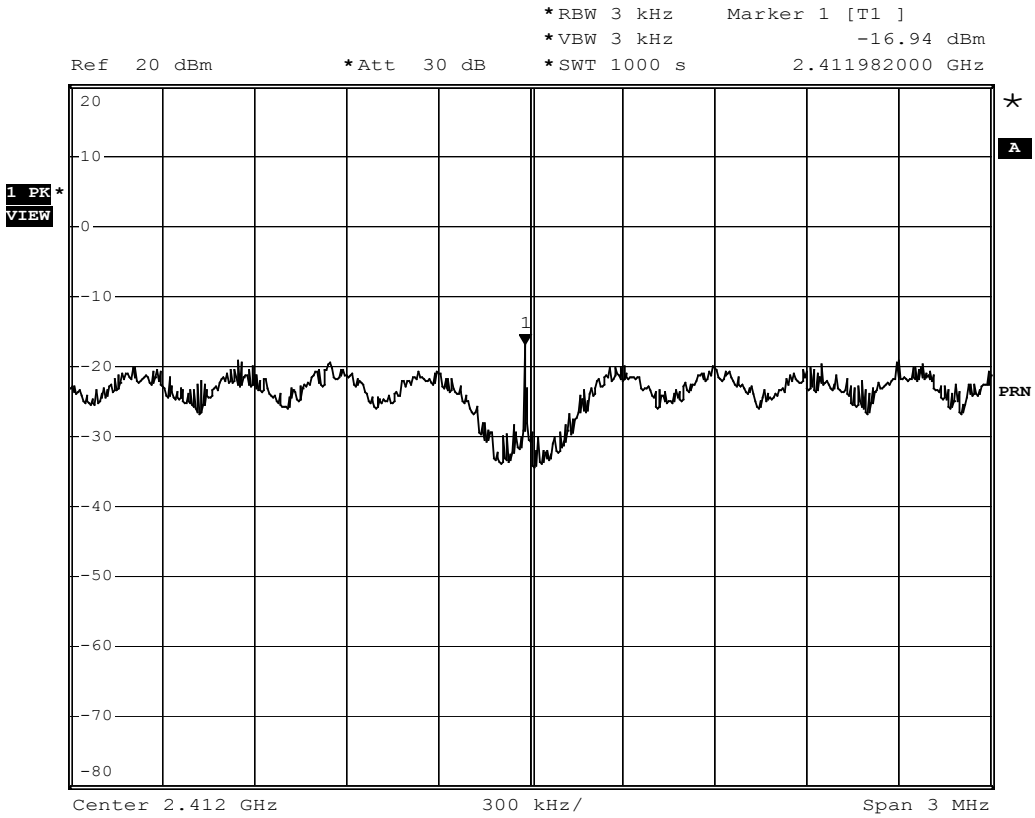
Channel 11



Product	IEEE 802.11b/g MiniCard		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11g				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-16.94	<8	Pass

Channel 1

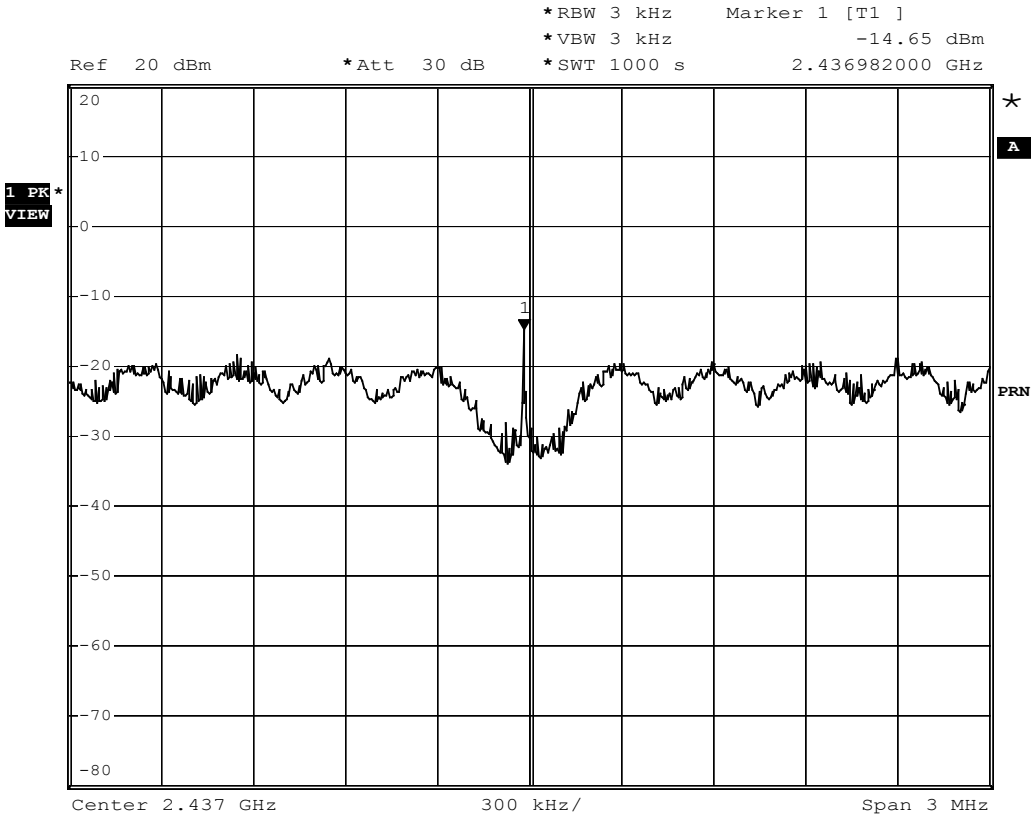


Date: 6.JAN.2008 01:02:40

Product	IEEE 802.11b/g MiniCard		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11g				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
6	2437	-14.65	<8	Pass

Channel 6

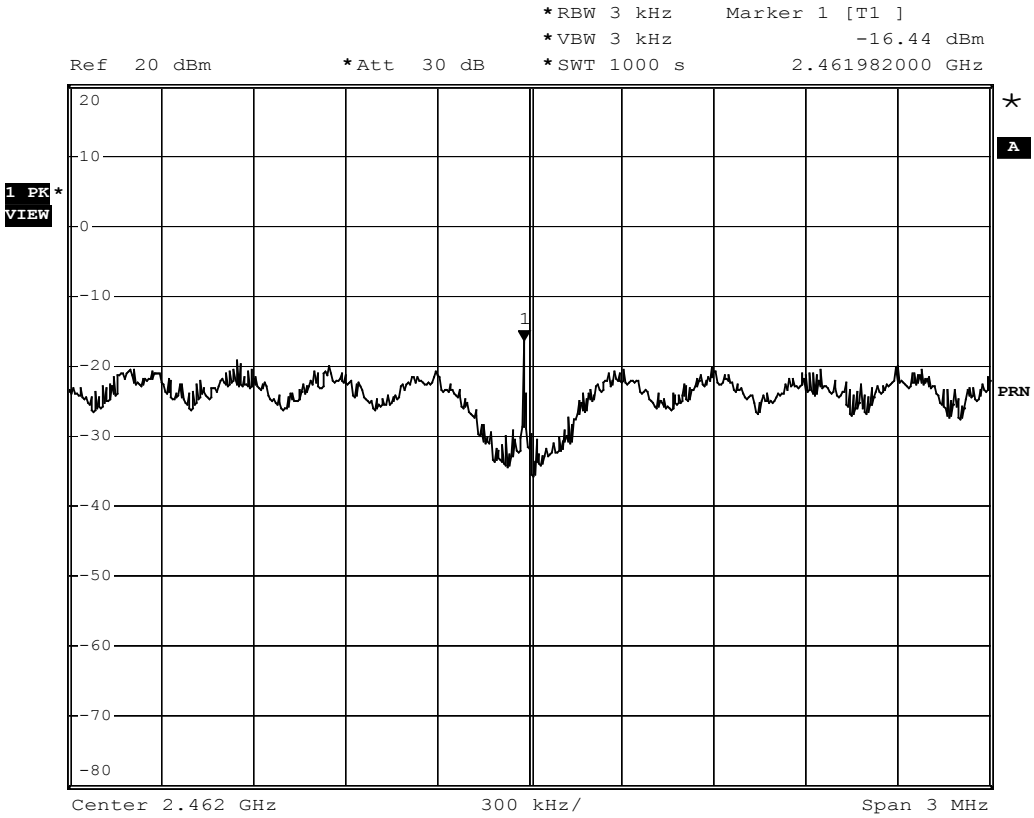


Date: 6.JAN.2008 01:14:52

Product	IEEE 802.11b/g MiniCard		
Test Item	Power Density		
Test Mode	Mode 1: Transmit		
Date of Test	2008/01/06	Test Site	No.1 OATS

IEEE 802.11g				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
11	2462	-16.44	<8	Pass

Channel 11



Date: 6.JAN.2008 01:23:58