



Test Report

Product Name : Notebook P.C.

Model No : T13Fg

FCC ID : MSQF9F

Applicant : ASUSTeK COMPUTER INC.

Address : 4FL., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt : Sep. 07, 2006

Issued Date : Sep. 20, 2006

Report No. : 069L065-RF-US-P08V01

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: Sep. 20, 2006

Rport No.: 069L065-RF-US-P08V01



Product Name : Notebook P.C.

Applicant : ASUSTeK COMPUTER INC.

Address : 4FL., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Manufacturer : ASUSTeK COMPUTER INC.

Model No. : T13Fg

FCC ID. : MSQF9F

Rated Voltage : AC 120V/60Hz

Working Voltage : AC 120V/60Hz

Trade Name : ASUS

Applicable Standard : FCC CFR Title 47 Part 15 Subpart E: 2005
ANSI C63.4: 2003

Test Result : Complied



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Documented By : Leven Huang
(Leven Huang)



Tested By : Dino Chen
(Dino Chen)



Approved By : Gene Chang
(Gene Chang)

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Attachment : Test data of verify
Attachment 1: EUT Test Photographs
Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name : Notebook P.C.
 Trade Name : ASUS
 FCC ID. : MSQF9F
 Model No. : T13Fg
 Frequency Range : 2412MHz - 2462MHz, 5150-5250MHz, 5725-5850MHz
 Number of Channels : 11 in 2.4GHz band, 9 in 5GHz band
 Channel Separation : 5MHz in 2.4GHz band, 20MHz in 5GHz band
 Channel Control : Auto
 Data Rate : 802.11b – 1, 2, 5.5, 11Mbps
 802.11a/g – 6, 9, 12, 18, 24, 36, 48, 54Mbps
 Type of Modulation : DSSS/ OFDM
 Antenna type : Connector (Reverse SMA)
 Antenna Gain : Refer to the table “Antenna List”
 Power Adapter : MFR: LITEON, M/N: PA-1650-02
 Input: AC 100-240V, 50-60Hz, 1.6A
 Output: DC 19V, 3.42A
 Cable Out: Non-Shielded, 1.2m,with one ferrite core bonded.
 Power Cord: Non-Shielded, 1.8m

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	TYCO	1909401-R (Main) 1909402-L (Aux)	1.74 dBi for 5 GHz
2	ACON	APP6P-700010 (Main) APP6P-700011(Aux)	-2.52dBi for 5 GHz

Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	5180 MHz	Channel 2:	5200 MHz	Channel 3:	5220 MHz	Channel 4:	5240 MHz

Note:

1. This device is a Notebook P.C. with a built-in 2.4GHz and 5GHz transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

1.2. Operational Description

EUT is a Notebook P.C. with a built-in 2.4GHz and 5GHz transceiver. There are 4 channels in 5180 – 5240MHz. The channels are separated by 20MHz. This device supports the data rates of 1, 2, 5.5, 11Mbps in 802.11b mode and 6, 9, 12, 18, 24, 36, 48, 54Mbps in 802.11a/g mode. The signals are modulated by DSSS in 802.11b mode and OFDM in 802.11a/g mode. The antennas are Connector and use diversity to improve the receiving sensitivity.

This Notebook P.C., complied with IEEE 802.11b, IEEE 802.11g, and IEEE 802.11a, 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 network wires. Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b, IEEE 802.11g, and IEEE 802.11a network.

Test Mode	Mode 1: Transmitter 802.11a-Intel:WM3945ABG
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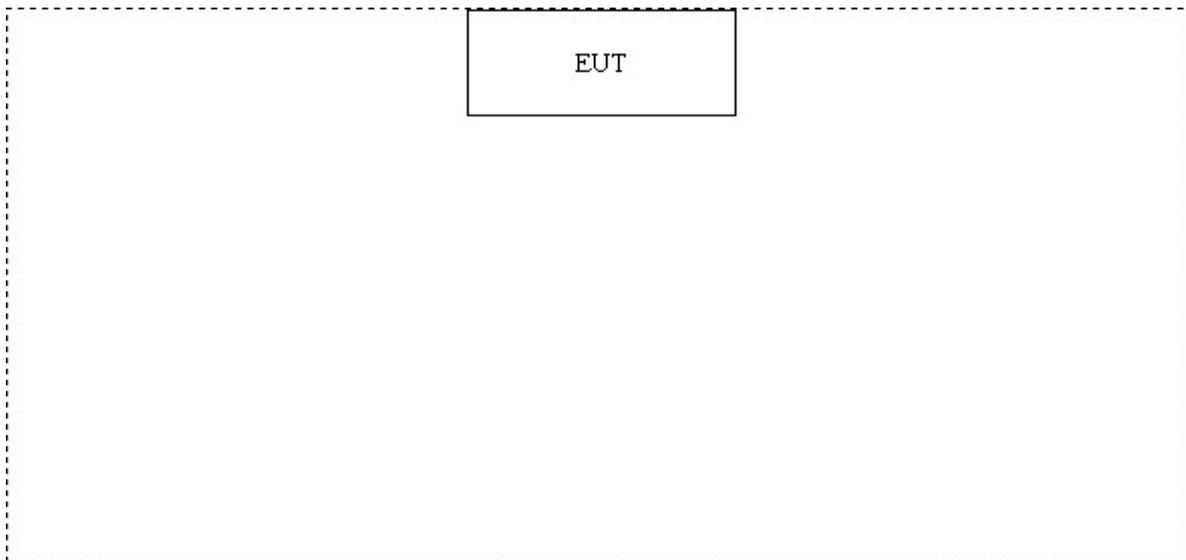
1.3. Tested System Details

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

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

Signal Cable Type	Signal cable Description
N/A	

1.4. Configuration of tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute CRTU.exe on the notebook.
- (3) Configure the test mode, the test channel, and the data rate.
- (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: File on
 Federal Communications Commission
 FCC Engineering Laboratory
 7435 Oakland Mills Road
 Columbia, MD 21046
 Reference 31040/SIT1300F2



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



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2. Conducted Emission

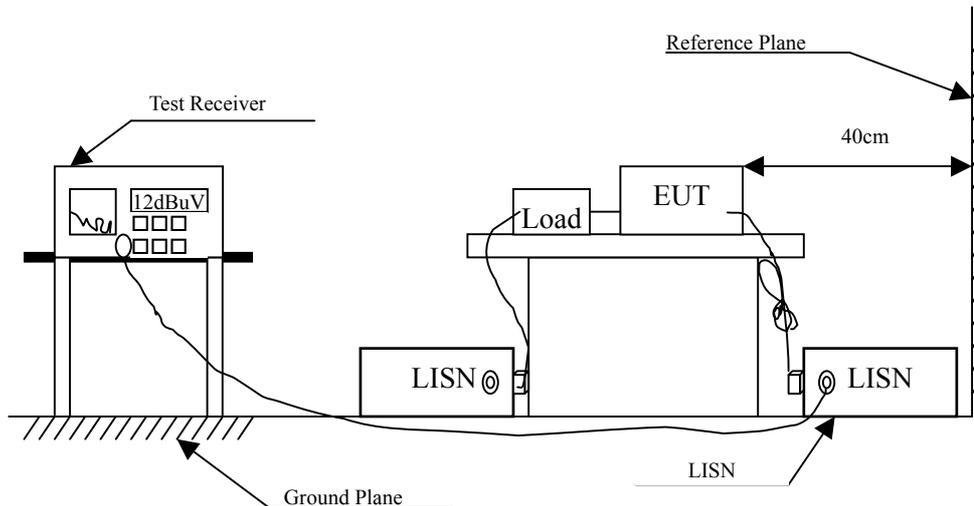
2.1. Test Equipment

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

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2006	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2006	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2006	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2006	
5	No.1 Shielded Room			N/A	

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

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

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

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Notebook P.C.
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.212	0.560	47.490	48.050	-16.179	64.229
0.280	0.300	36.430	36.730	-25.556	62.286
0.760	0.310	39.860	40.170	-15.830	56.000
1.065	0.320	35.970	36.290	-19.710	56.000
1.420	0.330	37.290	37.620	-18.380	56.000
1.702	0.330	37.300	37.630	-18.370	56.000
Average					
0.212	0.560	42.960	43.520	-10.709	54.229
0.280	0.300	32.530	32.830	-19.456	52.286
0.760	0.310	30.100	30.410	-15.590	46.000
1.065	0.320	33.660	33.980	-12.020	46.000
1.420	0.330	35.500	35.830	-10.170	46.000
1.702	0.330	35.330	35.660	-10.340	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 : Notebook P.C.
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.210	0.300	44.770	45.070	-19.216	64.286
0.283	0.300	40.600	40.900	-21.300	62.200
0.783	0.320	39.380	39.700	-16.300	56.000
1.136	0.330	36.640	36.970	-19.030	56.000
1.491	0.330	37.270	37.600	-18.400	56.000
1.843	0.340	34.700	35.040	-20.960	56.000
Average					
0.210	0.300	41.600	41.900	-12.386	54.286
0.283	0.300	36.070	36.370	-15.830	52.200
0.783	0.320	32.150	32.470	-13.530	46.000
1.136	0.330	34.240	34.570	-11.430	46.000
1.491	0.330	35.360	35.690	-10.310	46.000
1.843	0.340	31.300	31.640	-14.360	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 Transmit Power

3.1. Test Equipment

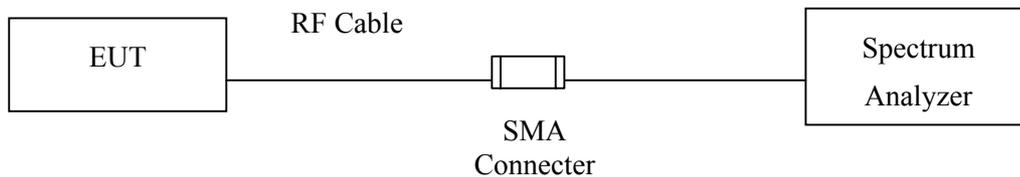
The following test equipments are used during the radiated emission tests:

	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 by “X” are used to measure the final test results.

3.2. Test Setup

Conduction Power Measurement



3.3. Limits

- (1) For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (2) For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (3) For the band 5.725-5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1W or 17 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

3.4. Limits

The maximum peak power shall be less 1 Watt.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Transmit Power

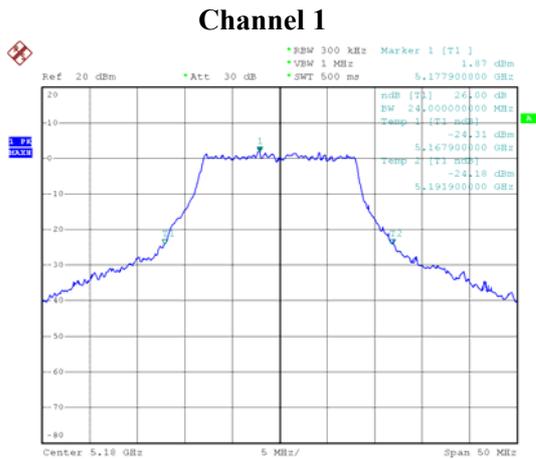
Product : Notebook P.C.
 Test Item : Peak Transmit Power
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5180MHz)

Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26dBc Occupied Bandwidth (MHz)	Measurement Level (dBm)
1	5180	24	16.47

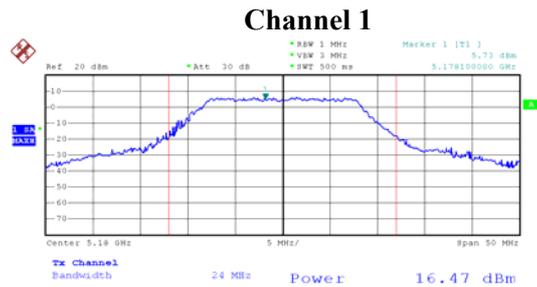
Limits (dBm)	Result
50mW (17dBm) or $4\text{dBm} + 10 \log(B = 24\text{MHz}) = 17.80 \text{ dBm}$	Pass

26dBc Occupied Bandwidth:



PN1
 Date: 4.MAY.2007 14:24:08

Peak Transmit Power:



PN1
 Date: 4.MAY.2007 14:39:23

Product : Notebook P.C.
 Test Item : Peak Transmit Power
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5220MHz)

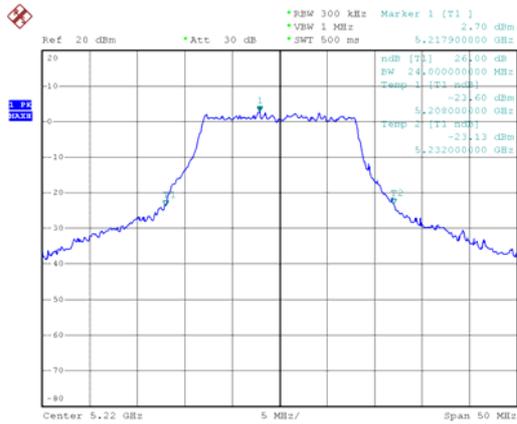
Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26dBc Occupied Bandwidth (MHz)	Measurement Level (dBm)
3	5220	24	16.41

Limits (dBm)	Result
50mW (17dBm) or 4dBm+10 log (B= 24MHz)= 17.80 dBm	Pass

26dBc Occupied Bandwidth:

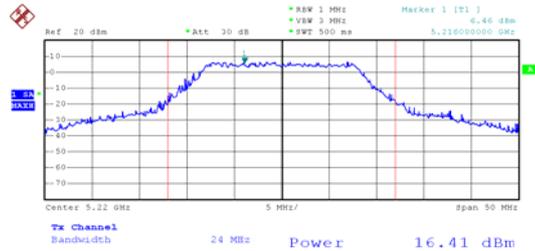
Channel 3



PN1
 Date: 4.MAY.2007 14:25:26

Peak Transmit Power:

Channel 3



PN1
 Date: 4.MAY.2007 14:41:24

Product : Notebook P.C.
 Test Item : Peak Transmit Power
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5240MHz)

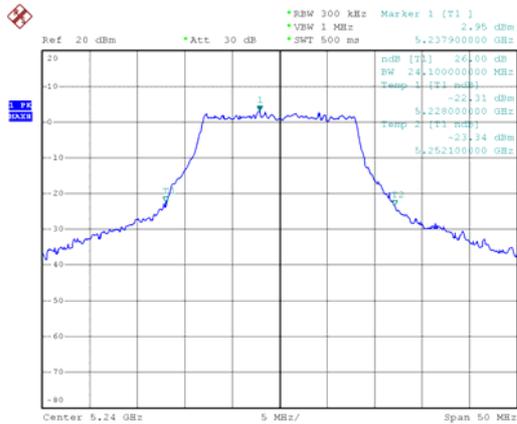
Peak Transmit Power Measurement:

Channel No.	Frequency (MHz)	26dBc Occupied Bandwidth (MHz)	Measurement Level (dBm)
4	5240	24.1	16.67

Limits (dBm)	Result
50mW (17dBm) or 4dBm+10 log (B= 24.1MHz)=17.82dBm	Pass

26dBc Occupied Bandwidth:

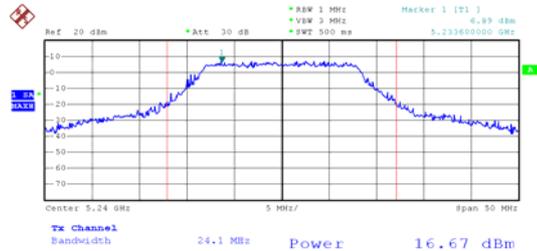
Channel 4



PN1
 Date: 4.MAY.2007 14:26:41

Peak Transmit Power:

Channel 4



PN1
 Date: 4.MAY.2007 14:43:02

4. Peak Power Spectral Density

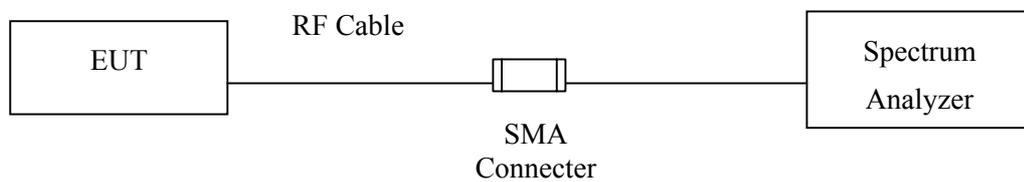
4.1. Test Equipment

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

	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 by “X” are used to measure the final test results.

4.2. Test Setup



4.3. Limits

- (4) For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (5) For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (6) For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4.4. Uncertainty

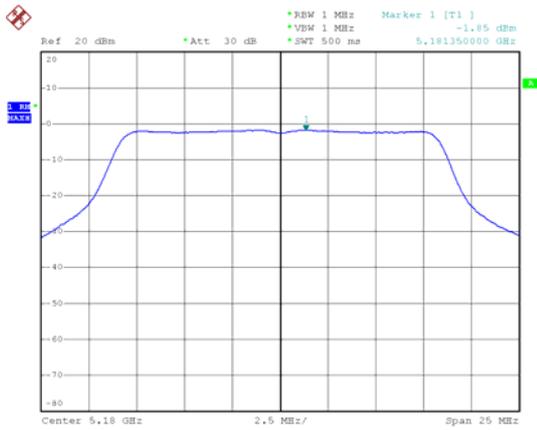
± 1.27 dB

4.5. Test Result of Peak Power Spectral Density

Product : Notebook P.C.
 Test Item : Peak Power Spectral Density
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG

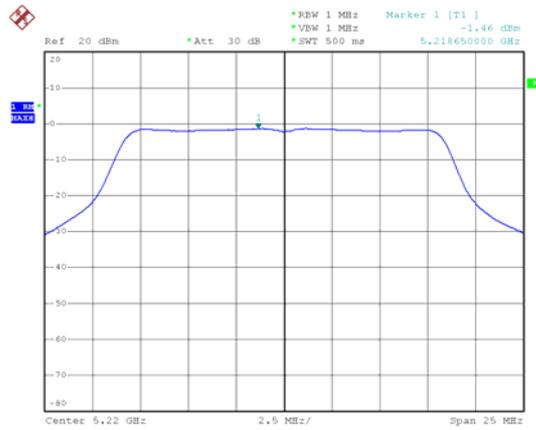
Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
1	5180.00	-1.85	< 4	Pass
3	5220.00	-1.46	< 4	Pass
4	5240.00	-1.17	< 4	Pass

Channel 1:



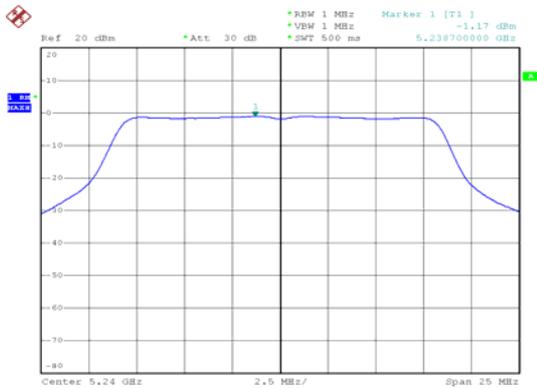
FN1
 Date: 4.MAY.2007 14:50:12

Channel 3:



FN1
 Date: 4.MAY.2007 14:50:53

Channel 4:



FN1
 Date: 4.MAY.2007 14:51:20

5. Peak Excursion

5.1. Test Equipment

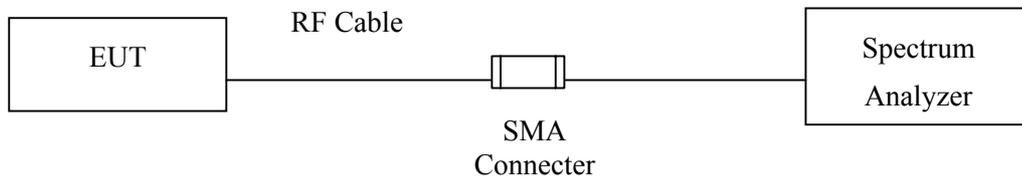
The following test equipments are used during the radiated emission tests:

	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 by “X” are used to measure the final test results.

5.2. Test Setup

Conduction Power Measurement



5.3. Limits

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

5.4. Uncertainty

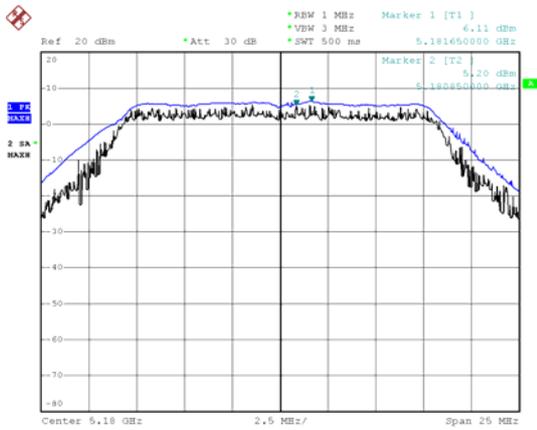
± 1.27 dB

5.5. Test Result of Peak Excursion

Product : Notebook P.C.
 Test Item : Peak Excursion
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG

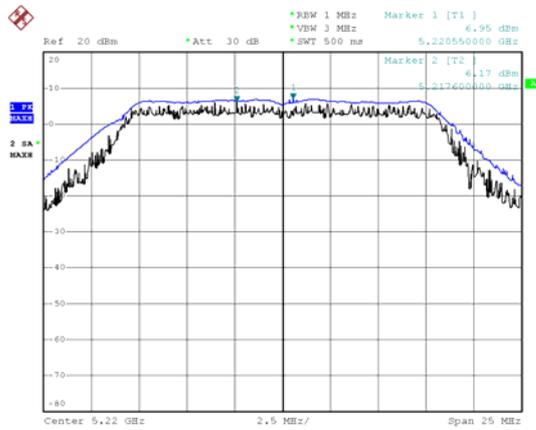
Channel No.	Frequency (MHz)	Measurement Level (dB)	Required Limit (dB)	Result
1	5180.00	0.91	≤ 13	Pass
3	5220.00	0.78	≤ 13	Pass
4	5240.00	0.85	≤ 13	Pass

Channel 1:



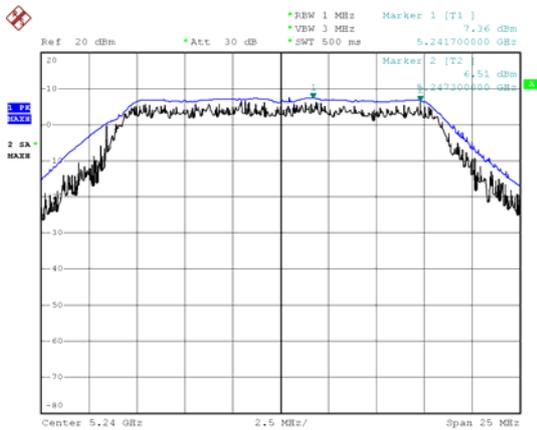
FN1
 Date: 4.MAY.2007 14:55:30

Channel 3:



FN1
 Date: 4.MAY.2007 14:56:19

Channel 4:



FN1
 Date: 4.MAY.2007 14:56:56

6. Undesirable Emission

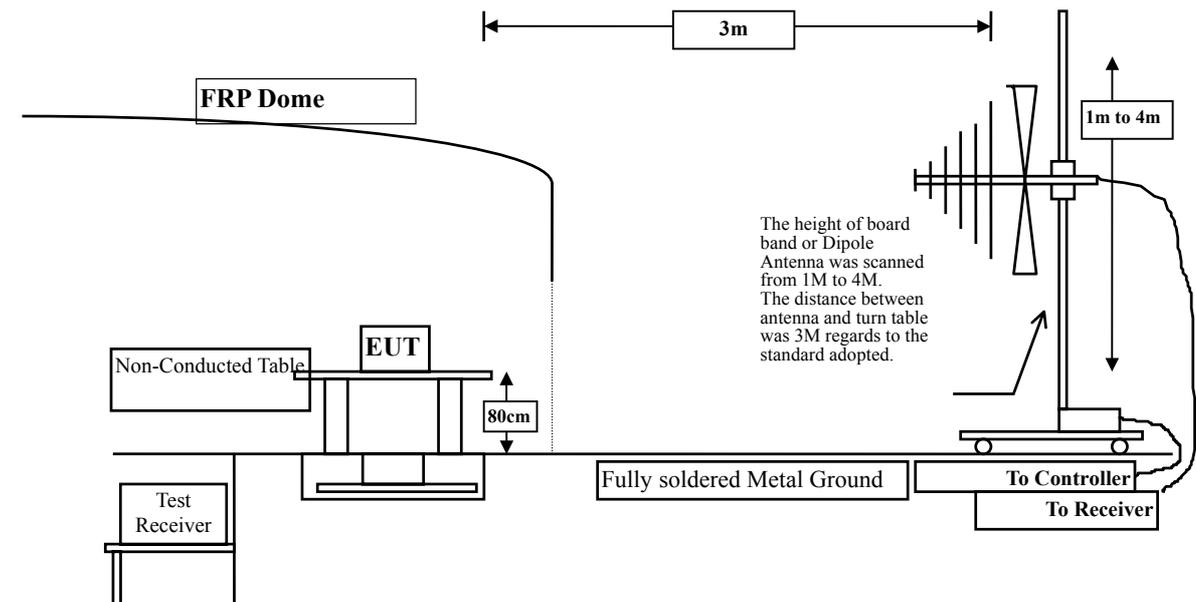
6.1. Test Equipment

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

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	X Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2006
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006
	X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2006
	X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2006
	X Horn Antenna	ETS	3115 / 0005-6160	July, 2006
	X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2006

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

6.2. Test Setup



6.3. Limits

- (1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
- (3) For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
- (4) The field strength of emissions appearing within restricted bands of operation shall not exceed the limits in the Section 15.209.
- (5) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 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.

6.4. 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 C63.4:2001 on radiated measurement.

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

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The frequency range from 30MHz to 10th harmonics is checked.

6.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

6.6. Test Result of Undesirable Emission

Product : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5180MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
10360.000	13.127	41.240	54.367	-19.603	74.000
15540.000	15.491	34.100	49.591	-24.379	74.000
Average Detector					
10360.000	13.127	32.100	45.227	-8.743	54.000
Vertical					
Peak Detector					
10360.000	13.127	42.400	55.527	-18.443	74.000
15540.000	15.491	34.830	50.321	-23.649	74.000
Average Detector					
10360.000	13.127	32.230	45.357	-8.613	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz.
4. Measurement 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 : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
10440.000	13.354	43.100	56.454	-17.516	74.000
15660.000	15.184	34.400	49.584	-24.386	74.000
Average Detector					
10440.000	13.354	32.400	45.754	-8.216	54.000
Vertical					
Peak Detector					
10440.000	13.354	42.600	55.954	-18.016	74.000
15660.000	15.184	34.700	49.884	-24.086	74.000
Average Detector					
10440.000	13.354	33.780	47.134	-6.836	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz.
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz.
4. Measurement 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 : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5240MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
Peak Detector					
10480.000	13.473	42.150	55.623	-18.347	74.000
15720.000	14.910	35.100	50.009	-23.961	74.000
Average Detector					
10480.000	13.473	35.100	48.573	-5.397	54.000
Vertical					
Peak Detector					
10480.000	13.473	44.300	57.773	-16.197	74.000
15720.000	14.910	32.200	47.109	-26.861	74.000
Average Detector					
10480.000	13.473	33.780	47.253	-6.717	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz ◦
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz ◦
4. Measurement 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 : Notebook P.C.
 Test Item : Undesirable Emission
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal					
QP Detector					
355.000	15.230	19.870	35.100	-10.900	46.000
380.000	15.610	18.989	34.600	-11.400	46.000
406.000	17.141	18.159	35.300	-10.700	46.000
545.000	20.053	12.447	32.500	-13.500	46.000
660.000	20.941	9.059	30.000	-16.000	46.000
816.000	21.626	8.875	30.500	-15.500	46.000
Vertical					
QP Detector					
380.000	16.590	19.510	36.100	-9.900	46.000
405.000	18.771	12.329	31.100	-14.900	46.000
540.000	20.151	12.259	32.410	-13.590	46.000
682.100	20.263	9.037	29.300	-16.700	46.000
750.000	23.181	6.019	29.200	-16.800	46.000
811.100	21.703	10.397	32.100	-13.900	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
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.

7. Band Edge

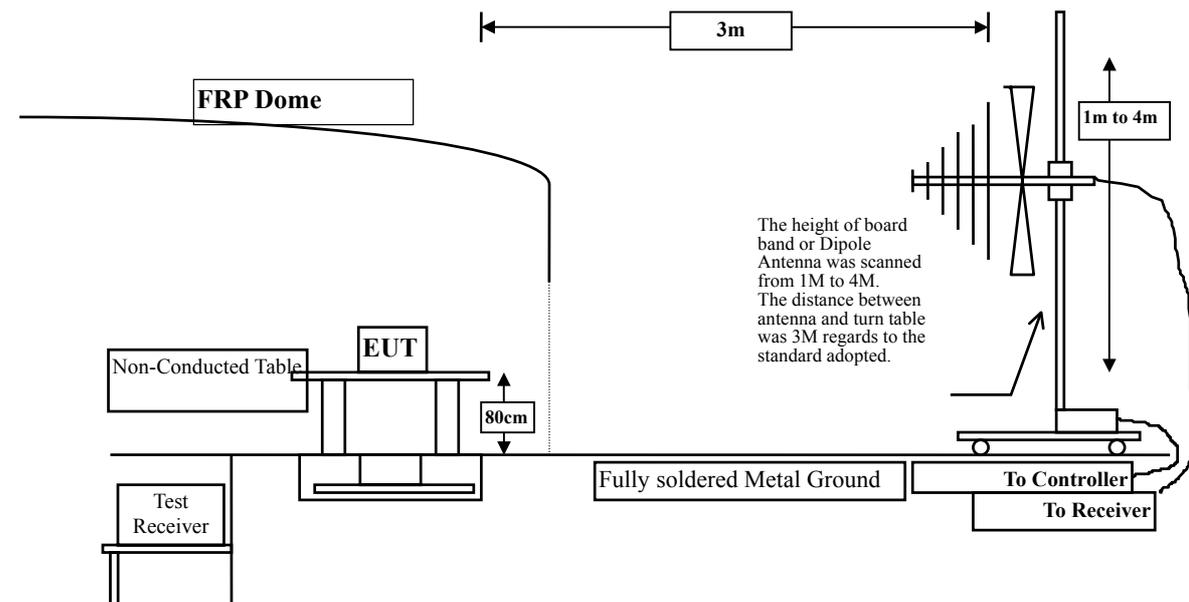
7.1. Test Equipment

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

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	X Test Receiver	R & S	ESI 26 / 838786 / 004	May, 2006
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006
	X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2006
	X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2006
	X Horn Antenna	ETS	3115 / 0005-6160	July, 2006
	X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2006

7.2. Test Setup

RF Radiated Measurement:



7.3. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 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.

7.4. 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 C63.4:1992 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

7.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

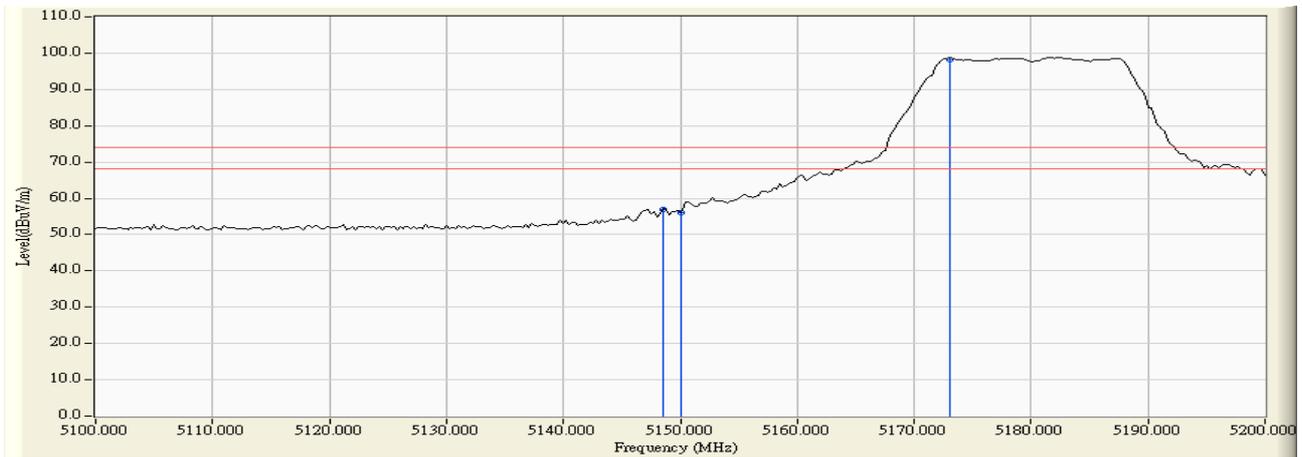
7.6. Test Result of Band Edge

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5180MHz)

RF Radiated Measurement (Horizontal):

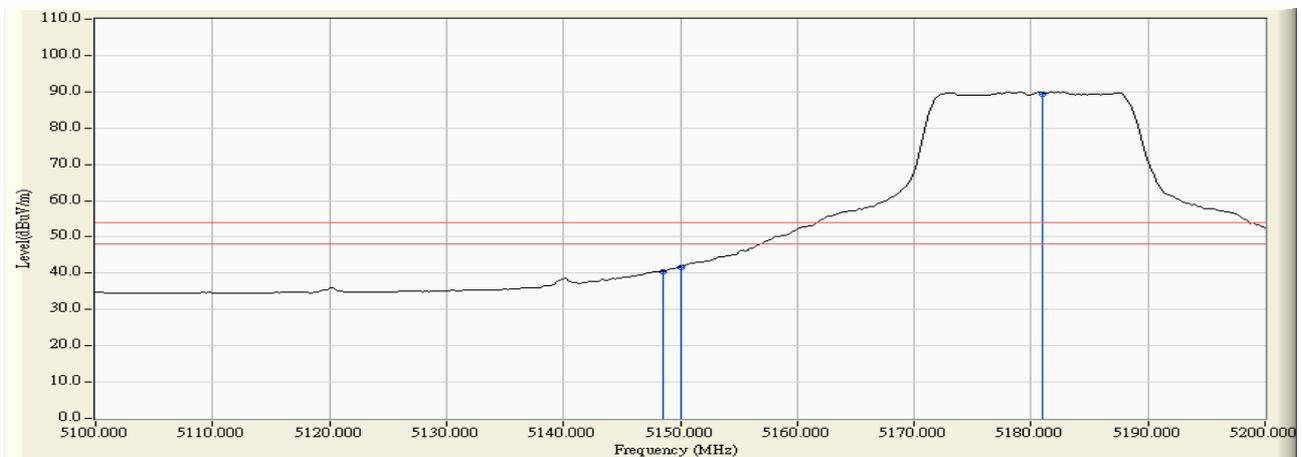
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
1 (Peak)	5150.000	4.305	51.785	56.090	74.00	54.00	Pass
1 (Average)	5150.000	4.305	37.395	41.700	74.00	54.00	Pass

Figure Channel 1: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 1: Horizontal (Average)



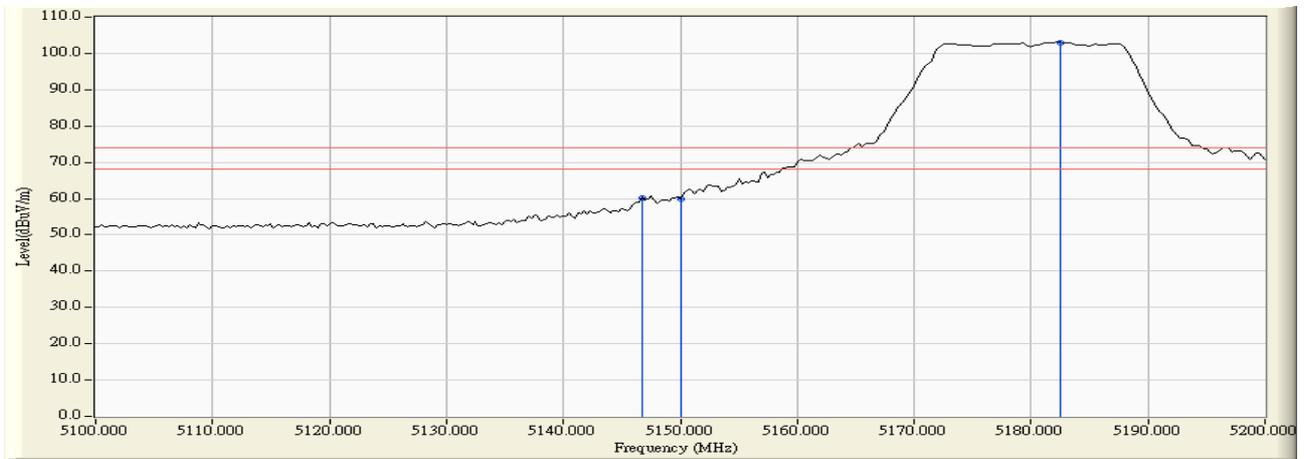
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5180MHz)

RF Radiated Measurement (Vertical):

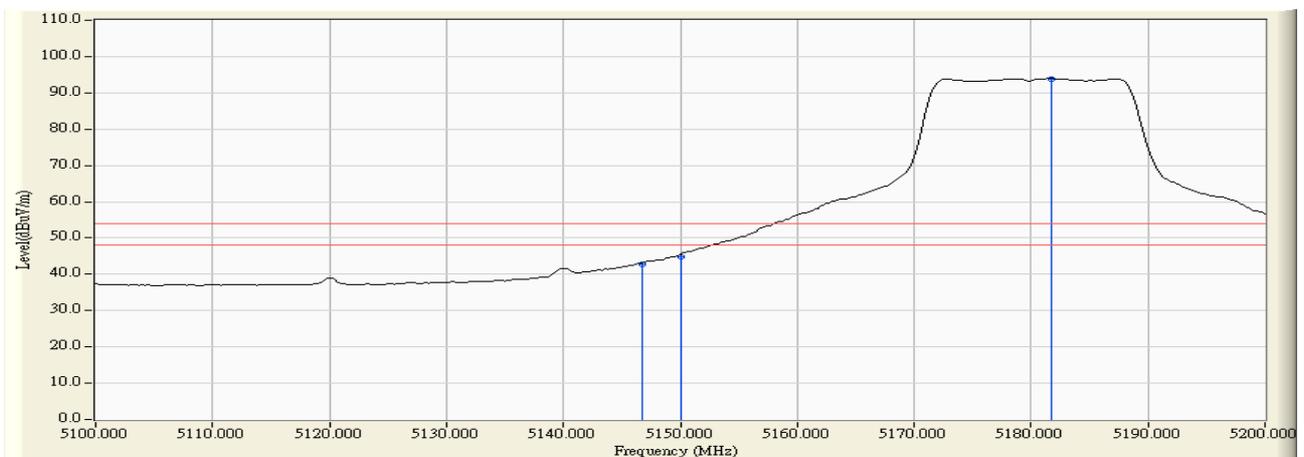
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
1 (Peak)	5150.000	4.305	55.501	59.806	74.00	54.00	Pass
1 (Average)	5150.000	4.305	40.629	44.934	74.00	54.00	Pass

Figure Channel 1: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 1: Vertical (Average)



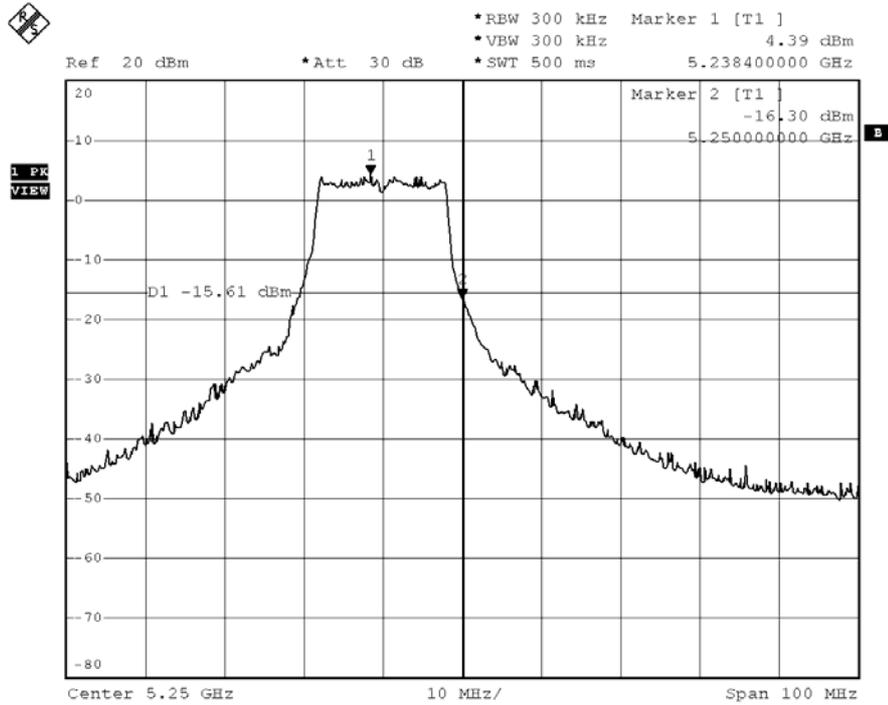
Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5240MHz)

RF Conduction Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
4	< 5250	>20	Pass

Figure Channel 4:



FN1

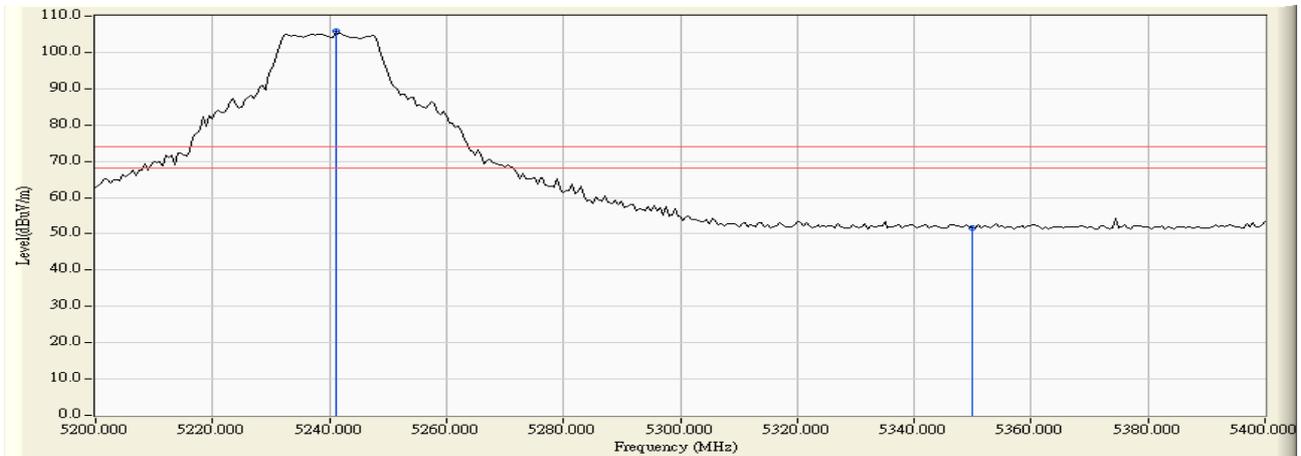
Date: 21.JUN.2007 17:30:50

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5240MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
4 (Peak)	5350.000	4.446	47.255	51.701	74.00	54.00	Pass
4 (Average)	--	--	--	--	74.00	54.00	Pass

Figure Channel 4: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Product : Notebook P.C.
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG (5240MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
4 (Peak)	5350.000	4.446	47.849	52.295	74.00	54.00	Pass
4 (Average)	--	--	--	--	74.00	54.00	Pass

Figure Channel 4: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

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

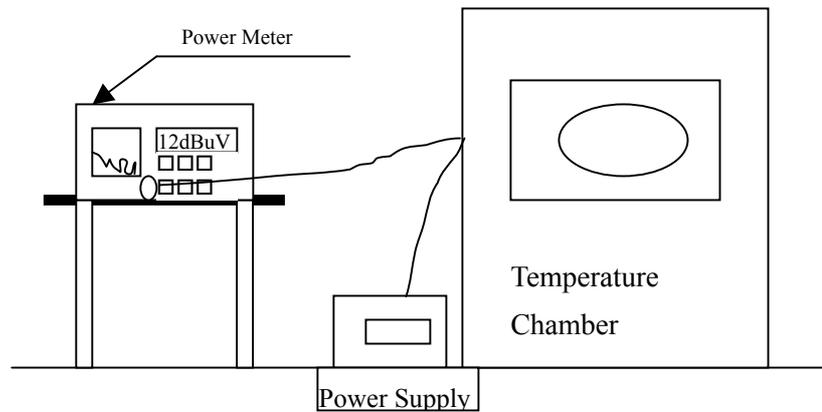
8. Frequency Stability

8.1. Test Equipment

Equipment	Manufacturer	Model No./Serial No.	Last Cal.	Remark
Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2006	
Temperature Chamber	WIT GROUP	TH-1S-B / WIT-02121901	June, 2006	

Note: All equipments are calibrated every one year.

8.2. Test Setup



8.3. Limits

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified

8.4. Uncertainty

± 150 Hz

8.5. Test Result of Frequency Stability

Product : Notebook P.C.
 Test Item : Frequency Stability
 Test Site : Temperature Chamber
 Test Mode : Mode 1: Transmitter 802.11a-Intel:WM3945ABG

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	ΔF (MHz)
Tnom (20) °C	Vnom (110)V	1	5180.00	5179.995	0.01
		3	5220.00	5219.995	0.01
		4	5240.00	5239.995	0.01
Tmax (50) °C	Vmax (126.5)V	1	5180.00	5179.995	0.01
		3	5220.00	5219.995	0.01
		4	5240.00	5239.995	0.01
Tmax (50) °C	Vnim (93.5)V	1	5180.00	5179.995	0.01
		3	5220.00	5219.995	0.01
		4	5240.00	5239.995	0.01
Tnim (0) °C	Vmax (126.5)V	1	5180.00	5179.995	0.01
		3	5220.00	5219.995	0.01
		4	5240.00	5239.995	0.01
Tnim (0) °C	Vnim (93.5)V	1	5180.00	5179.995	0.01
		3	5220.00	5219.995	0.01
		4	5240.00	5239.995	0.01

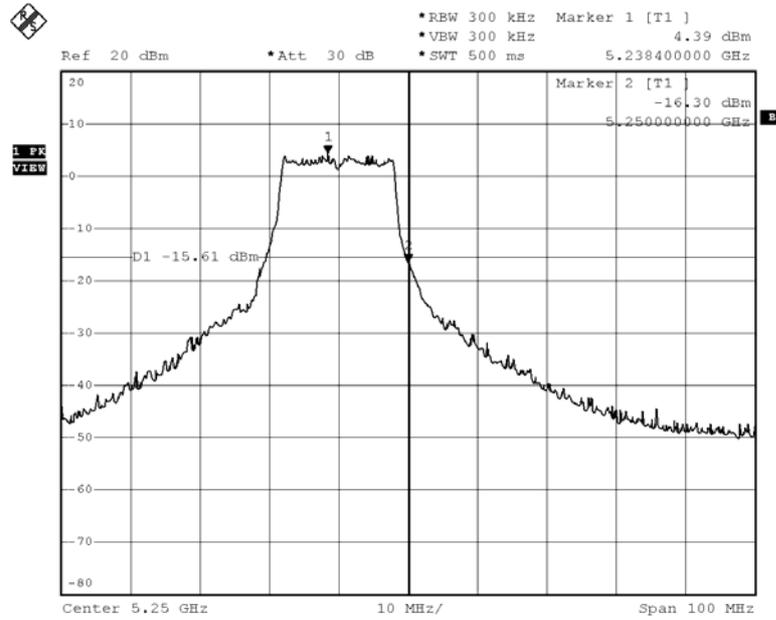
9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment : Test data of verify

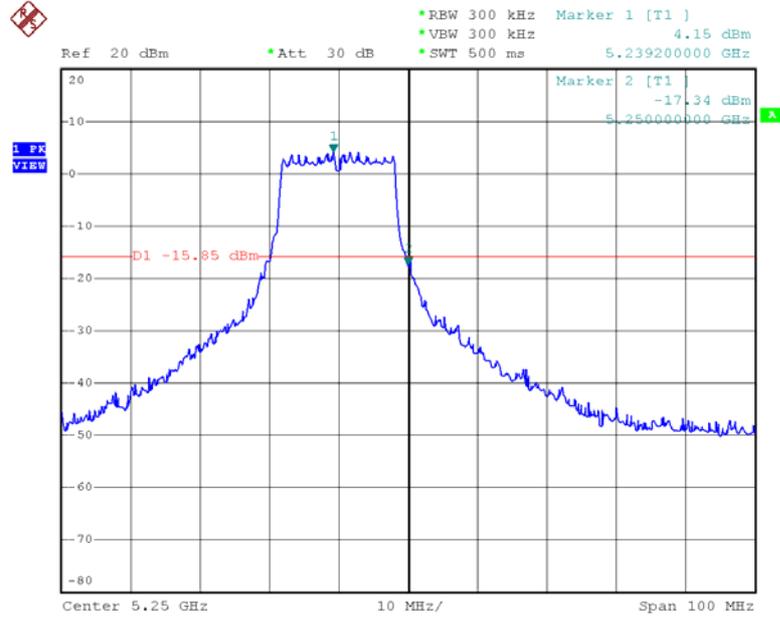
QTK verify all data rates. To append down, middle, high data rates picture. pls see below photo for reference.

Down (6Mbps) Report data



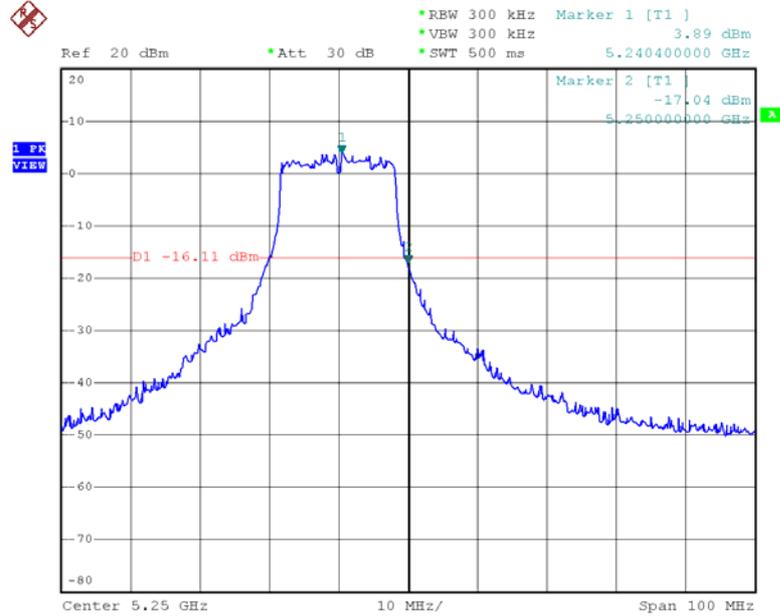
PN1
Date: 21.JUN.2007 17:30:50

Middle (24Mbps)



PN1
Date: 22.JUN.2007 15:31:44

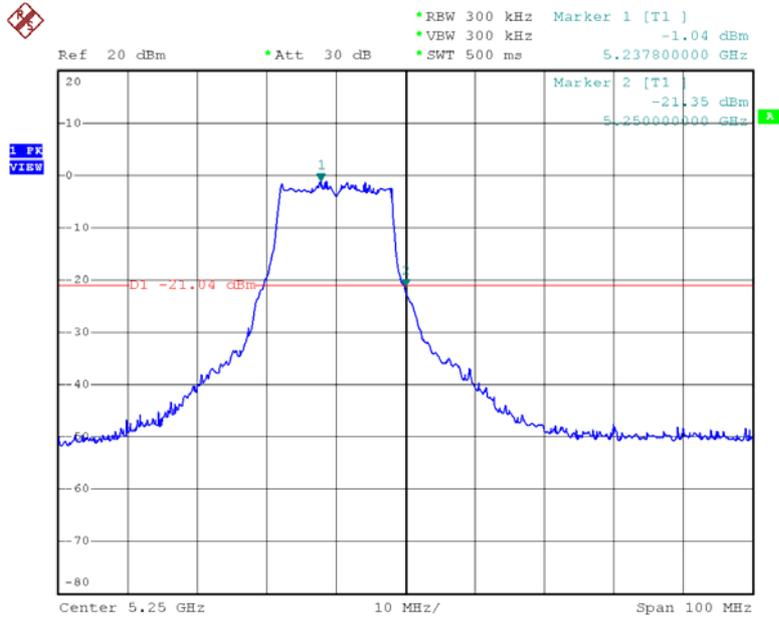
High (54Mbps)



PN1
Date: 22.JUN.2007 15:33:42

We don't change the power, even we change the power to perform test, the result is still the same. Reducing power won't influence test data.

Power down 5dB



PN1
Date: 22.JUN.2007 15:28:14